# Allied Maxcut
# Catalogus 2012

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New products 2012

# Allied Maxcut
Engineering Co. Limited

## Making a difference

# **Holemaking** Catalogue 2012

www.alliedmaxcut.com

**Allied Maxcut (AMEC®) is the European Headquarters of Allied Machine & Engineering Corporation USA, a global leader in innovative high performance metal cutting technologies and solutions.**

Our focus on tool innovation, performance improvement and productivity gains for our customers, enables us to deliver outstanding results in a diverse range of manufacturing, production and process engineering industries.

As a result, AMEC® high performance tooling is helping countless businesses across the world to produce better products with greater accuracy, increased speed and higher quality.

Precision, performance and productivity are core features of AMEC® tooling and our commitment to innovation in all aspects of hole making technology means we continually set new industry standards in production efficiency, tool life and manufacturing cost improvements.

This product catalogue provides detailed information on every product in our range in a comprehensive, easy to use and informative single source reference guide. However, we recognise that every company's needs are unique, which is why our customer services and technical support team are always available to provide help and advice, should you need it.

Whatever your need, AMEC® delivers high performance tooling at the cutting edge.

## Making a difference

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# Contents

# Demanding markets – outstanding solutions

**Global demand, international trade and advanced technologies continually drive manufacturing industry to increased levels of sophistication, performance and productivity. AMEC® tooling is present in virtually every market sector, helping a diverse range of companies produce high quality products, faster and more cost effectively than ever before**

Our hole cutting products, expertise and innovative technologies are relied upon by countless businesses in almost every manufacturing and production environment across the globe to help them maintain the high levels of performance, tool life and productivity demanded by the diverse markets they supply.

From the precision demands of aerospace and defence through the heavy duty needs of civil and construction engineering to the high volume continuous production requirements of the automotive industry and all points in between, AMEC® is not only meeting expectations, but exceeding them.

## Aerospace

- Airframes
- Fuselage
- Control surfaces
- Avionics systems
- Wings
- Engine components

## Agricultural

- Harvesters
- Tractors
- Hydraulic systems
- Ploughs
- Furrow presses
- Speed Harra's

## Defence

- Vehicle manufacture
- Protection systems
- Armour
- Ammunition

## Power generation

- Marine diesel engines
- Diesel generator sets
- Gas and steam turbines
- Heat exchangers and support systems

## Pneumatics

- Air compression technologies
- Airline systems
- Pneumatic tooling
- Actuators
- Valves

## Rail

- Locomotive manufacture
- Passenger carriages
- Goods rolling stock
- Power systems and braking


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# Demanding markets – outstanding solutions

Whatever the industry or market sector, AMEC® advanced hole cutting technology is already being used to provide the 'cutting edge' in performance, productivity and precision in a range of manufacturing and production operations.

The scope of sectors and markets we serve is immense, but to help provide an indication of where our products are used, we've listed just some of the areas where AMEC® tooling is making a difference.

## Construction

- Piling machinery
- Excavators and Backhoe loaders
- Structural steel drilling
- Cranes and earth moving equipment
- Mining & quarrying

## Sustainable energy

- Wind turbine blades
- Main frame and hub
- Wave generation systems
- Structural support columns
- Gear housings
- Slewing rings

## Die and Mould

- Stamping dies
- Plastic moulds
- Forging dies
- Die casting dies

## Petrochemical

- Distributed valves
- Process valves
- Flow control systems

## OEM

- Machinery
- Tooling packages
- Special tooling

## Automotive

- Commercial vehicles
- Engine manufacture
- Braking systems
- Steering systems
- Cooling systems
- Alloy wheel manufacture
- Hydraulic manifolds

# The Cutting Edge

AMEC's advanced hole making technology gives you the ***cutting edge***.

## GEN2 T-A® & T-A® Original

- Drilling range 9.50 - 114.00mm
- Multiple geometries and substrates
- Range of insert coatings for all materials
- Replaceable inserts, eliminates the need for re-sharpening
- Dedicated structural steel and deep hole drilling (BT-A Drill) holders

## GEN3SYS®XT & GEN3SYS®

- Drilling range 11.00 - 35.00mm
- Geometries and substrates for Steel, Stainless Steel and Cast Iron
- AM300™ and AM200® coatings increases tool life above competitors premium coatings
- High penetration drilling system penetrates up to 20% faster than other competitor products
- Unique design provides increased hole quality and surface finish

## Core & Revolution

- Drilling range 38.10 - 142.75mm
- Drills from solid, no pilot required
- Revolutionary design allows adjustability up to 5.1mm on diameter
- AM300™ and AM200® coatings increases tool life above competitors premium coatings
- Drill depths up to 4.5 x diameter
- Reduced tool inventory needed for a wide range of diameters


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## ASC 320™

- Drilling range 3.00 - 20.00mm
- Through coolant design
- Available in 3.5, 6, and 9 x drill depth to diameter ratio
- High productivity in difficult materials
- Ideal for use on Stainless Steel, Inconel, Hastelloy and Titanium

## AccuPort 432®

- Tube Dash No. -4 to -32
- Single operation hydraulic port cutting system
- No pre-drilling required
- Available in all common hydraulic port standards
- Replaceable inserts eliminate regrinding and resetting

## Thread Milling

- A comprehensive range of solid carbide and indexable threadmills
- AM210® coating increases tool life up to 50% over competitors coatings
- CNC programming software to create CNC G code programmes online through Allied Maxcut's web site: www.alliedmaxcut.com

## Special tooling

- Custom designed for specific applications and requirements
- Complete control over all elements of the cutting tool design
- Eliminates expensive additional cutting operations
- Reduces cost per hole

# AMEC® Services and support

**AMEC's success, is not just about the quality of our products and the high performance results they deliver; but also the level of technical support and expertise we provide on a constant basis to all our customers through a range of dedicated services**

## Technical

Our technical department is staffed by AMEC® experts who have years of experience in helping customers meet demanding applications challenges with high performance AMEC® tooling. They are also able to provide technical support on a wide range of industry sectors via our technical helpline, which can help customers save time and money when a solution is needed quickly.

We also have an excellent and unique reference library of technical case studies and cutting data, which is compiled from information and experience gained from our global applications base. The chances are that if you have an application issue or problem we've probably already solved it, somewhere in the world.
Our technical department can be contacted on:
**Tel: +44 (0)1384 400 900 - option 4**
**Fax: +44 (0)1384 408 372**
**E-mail: engineering@alliedmaxcut.com**

## External Support

In addition, our field based sales and applications engineers provide a constant 'on-the-ground' support network, helping solve manufacturing problems on site and provide the most effective solutions. The constant drive to improve productivity, reduce manufacturing costs and seek new higher performance systems means that our engineers are always conversant with the latest manufacturing technology to help customers achieve their objectives.
To arrange a visit by one of our engineers, contact our customer service department on:
**Tel: +44 (0)1384 400 900 - option 4**

## Training

AMEC® hold regular technical education seminar (TES) programmes at our dedicated training and education facility in the UK, enabling customers to experience advanced AMEC® hole making solutions and gain more detailed knowledge on their applications. The seminars cover technical data, cutting technology and tool application and benefits of all AMEC® products as well as extensive and detailed on-machine training to demonstrate the tools in action. Details on all our technical education seminar programmes can be obtained from www.alliedmaxcut.com or by calling our technical department.

## Online services

AMEC's website hosts a number of key features one being our online ordering service which simplifies and speeds up the ordering process and can also be used for checking inventory and prices.
Alongside this service, our fast response Insta-Quote™ provides quotations and drawings for special purpose tooling online in a matter of minutes.

All our case studies, product brochures, industry sector information and a wealth of other data is also available through our website which is constantly updated with the latest details to ensure up to date information is always available for download. **www.alliedmaxcut.com**

## Customer Services

The most important parts of our business are our customers. This is why our customer care processes and support operations are vital and integral parts of our commitment to customers.

Sometimes, all that's needed is a helpful voice at the end of a telephone to check an order, answer a query or just point you in the right direction and our fully trained team are all available to help. No matter what your requirement, we'll have someone who can deal with your question quickly and efficiently.
Our dedicated customer service department can be contacted on:
**Tel: +44 (0)1384 400 900 - option 3**
**Fax: +44 (0)1384 400 105**
**E-mail: enquiries@alliedmaxcut.com**


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# T-A® & GEN2 T-A® Structural Steel BT-A Drill

**AMEC's T-A® and GEN2 T-A® drill insert systems set the standard for replaceable insert technology, delivering consistent performance and reduced cost per hole, increased productivity and outstanding tool life.**

**CONTENTS**



## Features and Benefits

- Drilling range 9.50 - 114.00mm
- Multiple geometries and substrates
- Range of insert coatings for all materials
- Replaceable inserts, eliminates the need for re-sharpening
- High strength tool holders provide extended tool life

# T-A® System & Benefits

## Increased productivity with high accuracy

At AMEC® we have taken our extensive and in-depth knowledge of drilling and production to create the most comprehensive and versatile T-A® product range to date. The T-A® system offers three outstanding product ranges to meet the diverse manufacturing needs in production drilling, structural engineering and deep hole drilling. Whatever your application AMEC's T-A® product range can deliver the ideal solution for your application.

High performance, outstanding tool life and excellent productivity are just some of the key benefits that are delivered by the T-A® drills. Add this to the fact that the T-A® system is also one of the most widely used drilling solutions and you get some idea why it is the preferred choice for countless manufacturing businesses, worldwide.

### T-A®

T-A's extensive range of tool holders is manufactured in high strength steel with through coolant as standard. The T-A® replaceable insert technology allows significant reductions in inventory by offering a larger diameter range per holder.

Available in Y-8 Series

**Features and Benefits**

- Large diameter range of 9.50 to 114.00mm
- Large choice of tool holders up to 32 x diameter in straight and helical fluted options
- Easy to change inserts reduce machine down time and cost
- Extensive range of inserts grades and geometries

### T-A® Structural steel

The versatile T-A® Structural steel system has a range of dedicated inserts and tool holders, which are designed to provide a highly effective solution for the most demanding of applications.

Available in 0-3 Series

**Features and Benefits**

- Dedicated body diameters to increase rigidity
- Easily adapted to all major structural steel machines
- Side and rear coolant for easy adaptation
- A dedicated range of inserts grades and geometries for all bolt hole applications

### BT-A Drill

This innovative drill holder introduces T-A® replaceable insert technology to the BT-A deep hole drilling market. This allows for a significant reduction in BT-A head inventory requirements by offering interchangeable inserts and the ability to use alternative geometries in the same head design, while significantly increasing penetration rates.

Available in 0-3 Series

**Features and Benefits**

- Maximum flexibility with a diameter range from 12.95 to 47.80mm
- Maximum drill depth 2.6 metres (as standard)
- Balanced cutting forces provide significantly increased penetration rates over brazed heads
- Laser clad bearing area, provides improved hole straightness
- Compatible with standard BTA-STS tubes


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## How to identify T-A® Holders

**Holder Length**
10 – Stub
20 – Short
30 – Intermediate
40 – Standard
50 – Extended
60 – Long Length
70 – XL
90 – 3XL

**Shank Size or Morse Taper Number**

| | |
|---|---|
| 2 Morse Taper with RCA and Imperial Tapping | 002M |
| 3 Morse Taper with RCA and Imperial Tapping | 003M |
| 4 Morse Taper with RCA and Imperial Tapping | 004M |
| 5 Morse Taper with RCA and Imperial Tapping | 005M |
| 16mm Flanged Shank with Flat | 16FM |
| 20mm Flanged Shank with Flat | 20FM |
| 25mm Flanged Shank with Flat | 25FM |
| 32mm Flanged Shank with Flat | 32FM |
| 40mm Flanged Shank with Flat | 40FM |
| 50mm Flanged Shank with Flat | 50FM |

**Holder Designation**

| 2 | 20 | 00 | S | - | 20FM |
|---|---|---|---|---|---|

**Series**

| | | | |
|---|---|---|---|
| Y0 | Y Series | 20 | 2 Series |
| Z0 | Z Series | 25 | 2.5 Series |
| 00 | 0 Series | 30 | 3 Series |
| 05 | 0.5 Series | 40 | 4 Series |
| 10 | 1 Series | 50 | 5/6 Series |
| 15 | 1.5 Series | 70 | 7/8 Series |

**Flute Style**
H - Helical
S - Straight

**Example:**
Holder Short 0 Series Straight Fluted with 20mm diameter Flange.

## How to identify T-A® Drill Inserts

**Insert Designation**
Standard - 1
Gen2 - 4

**Grade Number**

| | |
|---|---|
| CPM-M4 | 3 |
| Super Cobalt | 5 |
| Premium Cobalt | 8 |
| P40 | C5 |
| K35 | C1 |
| K20 | C2 |
| K10 | C3 |
| N2 Carbide | N2 |

| Diameter | | Range | |
|---|---|---|---|
| Y | 9.50 | - | 11.00 |
| Z | 11.11 | - | 12.70 |
| 0 | 13.00 | - | 17.50 |
| 1 | 17.86 | - | 24.00 |
| 2 | 24.61 | - | 35.00 |
| 3 | 35.72 | - | 47.63 |
| 4 | 48.00 | - | 65.09 |
| 5 | 63.50 | - | 76.20 |
| 6 | 76.99 | - | 88.90 |
| 7 | 89.69 | - | 101.60 |
| 8 | 102.00 | - | 114.00 |

**Geometry**

| | | |
|---|---|---|
| CI | - | Cast Iron |
| HI | - | High Impact |
| FB | - | Flat Bottom |
| FN | - | Flat Bottom No Chipbreakers |
| CP | - | Cam Point |
| SK | - | SK2 |
| CR | - | Corner Radius |
| HR | - | High Rake |
| BR | - | Brass |
| NP | - | Notch Point |
| SP | - | Spot Chamfer |
| SS | - | Structural Steel |
| TW | - | Thin Wall |
| NC | - | No Chipbreakers |
| WC | - | Without Corner Clips |
| HE | - | High Elasticity |
| | - | Standard |

| 4 | 3 | 4 | T | - | 58 |
|---|---|---|---|---|---|

**Coating**

| | | |
|---|---|---|
| T | - | TiN |
| N | - | TiCN |
| A | - | TiAlN |
| D | - | Diamond |
| H | - | AM200™ |

**Insert Diameter**
Stated as Metric or Imperial in multiples of 1/32" (Special diameters available)

**Example:**
4 Series, Gen2, 58mm diameter, TiN coated CPM-M4 insert.

## T-A® Series standard diameter range

| | |
|---|---|
| **Y** = 9.5 to 11.07mm | **4** = 46.99 to 65.28mm |
| **Z** = 11.10 to 12.95mm | **5** = 62.38 to 24.38mm |
| **0** = 12.98 to 17.65mm | **6** = 76.23 to 89.08mm |
| **1** = 17.53 to 24.38mm | **7** = 87.76 to 101.60mm |
| **2** = 24.41 to 35.05mm | **8** = 101.63 to 114.48mm |
| **3** = 34.37 to 47.80mm | |

**Please note:** When ordering T-A® inserts ensure that the series ordered matches the T-A® tool holder

**Example:**

| | | |
|---|---|---|
| Tool holder | - 21030S-40FM | ✔ |
| Insert | - 453H-36 | |
| Tool holder | - 21030S-40FM | ✗ |
| Insert | - 452H-35 | |

# Insert Grades and Coatings

## Substrates

### HSS CPM-M4

First choice for general purpose use, particularly suited for low rigidity difficult machining applications and deep hole drilling. Recommended for drilling most steels, cast irons and aluminium alloys up to 275 BHN 96kg.

### HSS Super Cobalt

Particularly suited for good to rigid machining applications, primarily used for drilling exotic and high alloy materials, or general use when the M/min surface speed needs to be increased. For use in material hardness up to 350 BHN 121kg.

### HSS Premium Cobalt

Particularly suited for rigid machining applications primarily used for drilling exotic and high alloy materials, or general use when the M/min surface speed needs to be increased.
For use in material hardness up to 400 BHN 139kg.

### P40 Carbide

Excellent choice for drilling, free machining steel, low/medium carbon steels, alloy steels, high strength steels, tool steels and hardened steels.

### K10 Carbide

AMEC's K10 insert is specifically designed for drilling grey/white cast irons. The special geometry offers substantial increase in penetration rates and provides exceptional edge strength and tool life.

### K20 Carbide

Excellent choice for drilling high temperature alloys, titanium alloys, cast aluminium, wrought aluminium, SG/Nodular cast iron, grey/white iron, aluminium bronze, brass, copper, and certain stainless steels refer to technical section.

### K35 Carbide

Excellent choice for drilling, free machining steel, low/medium carbon steels, alloy steels, high strength steels, tool steels and hardened steels.

### N2 Carbide

AMEC's N2 carbide is used in conjunction with CVD diamond coating. This improves the inserts hardness, durability and performance extending tool life between 30 to 50 times over uncoated carbide.

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

## Insert Coatings

### AM200®

- First choice for increased heat resistance over TiN, TiCN and TiAlN with improved wear capabilities.
- Allows for improved tool life and higher penetration rates
- Over 20% increased tool life over TiAlN coating
- Colour Copper / Bronze

### TiCN

- Excellent choice for wear resistance over low surface speeds
- High hardness/wear resistance
- Maximum working temperature 400°C
- Hardness HV 3500
- Colour Blue/Grey

### TiN

- General purpose coating
- Improved tool life over a non coated insert
- Excellent choice for Aluminium
- Colour Gold/Yellow

### TiAlN

- Excellent choice for wear resistance over high surface speeds
- Excellent oxidation resistance
- Maximum working temperature 800°C
- Hardness HV 3000
- Colour Violet/Grey


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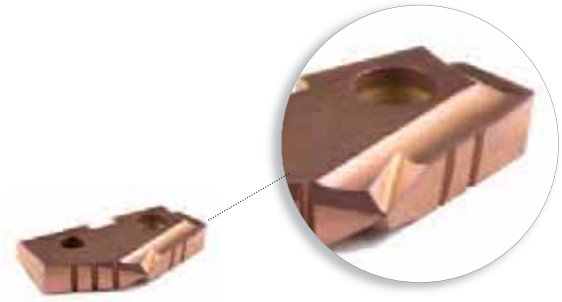
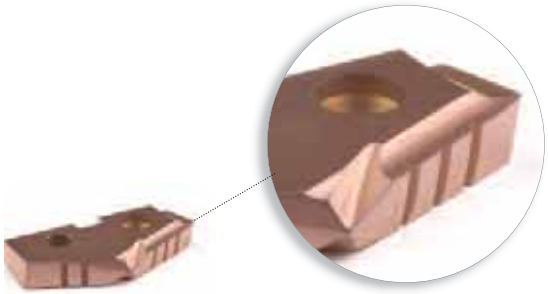


## GEN2 T-A® Geometries

**GEN2 T-A® standard geometry offers substantial increases in penetration rates and tool life. As well as improved centring, smoother break-out on through holes, increased drill stability, improved chip formation, and lower drill forces.**

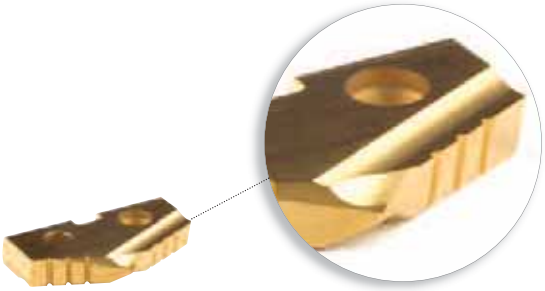
**Particularly suited for good to rigid machining applications, primarily used for drilling exotic and high alloy materials, or general use when the M/min surface speed needs to be increased**

**Point angle:** **132° Y - 4 Series**
**144° 5 - 8 Series**



**High Elasticity - HE**

- Excellent chip formation in materials with very high elasticity/ductility, extremely poor chip forming characteristics.
- Effective in lower powered machines
- Material example: Low carbon steel (not suitable for stainless steel)
- Available as a non-stock standard, Y - 4 series inclusive
- Delivery 3 weeks - as a non-stock standard



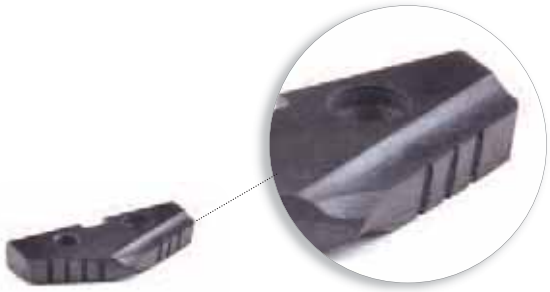
## T-A® Original Geometries

**T-A® original standard geometry offers excellent penetration rates and tool life. Smooth break-out on through holes, drill stability and excellent chip formation characteristics. Particularly suited for low to high rigidity machining applications.**

**Point angle:** **132° Y - 4 Series**
**144° 5 - 8 Series**

**High Impact - HI**

- For materials with hardness over 200 BHN (700 N/mm²)
- Enhances chip formation in materials with high elasticity/ductility and poor chip forming characteristics.
- SK corner clip for improved tool life
- Target materials, structural/cast and forged steels (not suitable for stainless steel)
- Available as a non-stock standard, Y - 2 series inclusive
- Delivery 3 weeks - as a non-stock standard



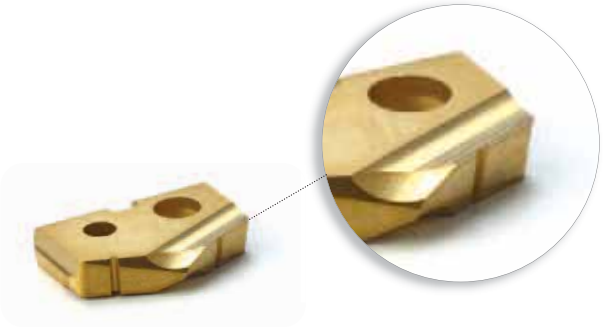
**High Rake - HR**

- For materials with hardness below 200 BHN (700 N/mm²)
- Improves chip formation in materials with very high elasticity/ductility, extremely poor chip forming characteristics, and low material hardness.
- SK corner clip for improved tool life
- Target materials: Soft steels, steel castings and forgings (not suitable for stainless steel)
- Available as a non-stock standard, Y - 2 series inclusive
- Delivery 3 weeks - as a non-stock standard

## T-A Original Geometries

**Cam Point - CP**

- Helical cam ground point
- Improved drill stability and centring characteristics
- Reduction of bell mouthing when using longer holders
- Improved hole finish when using longer holders
- Target materials: Steels, cast/forged steels, cast iron
- Available in all grades and coatings
- Delivery 3 weeks - as a non stock standard



**Corner Radius - CR**

- Improved exit burrs
- Excellent surface finishes in most applications
- Good heat dispersion, giving longer tool life in some applications
- Can be used in conjunction with other geometries, i.e. Flat Bottom.
- Available in all grades and coatings, Y - 2 series inclusive
- Delivery 3 weeks - as a non stock standard

**Special Corner Preparation - SK**

- Ideal for machining cast iron materials
- Larger than standard corner clip
- Improved heat resistance
- Standard feature on CI, HI, HR geometries
- Available in all grades and coatings, Y - 2 series inclusive
- Delivery 3 weeks - as a non stock standard

**Brass - BR**

- Improved tool life due to our specialized geometry & edge preparation
- Reduced self feed tendency
- Available in all grades and coatings, Y - 2 series inclusive
- Delivery 3 weeks - as a non stock standard



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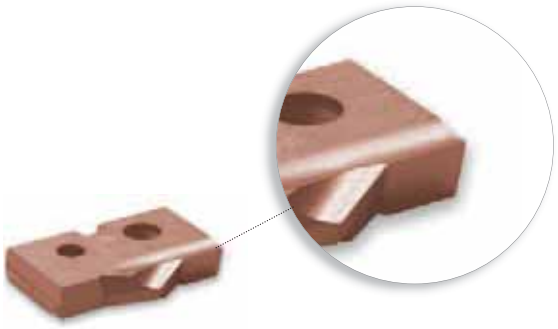
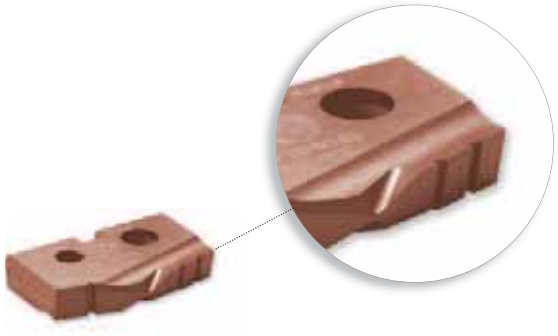
## T-A Original Geometries



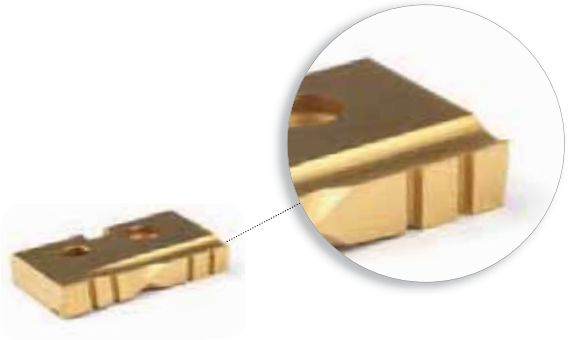
**Thin Wall - TW**

- Designed for thin wall material up to 6mm thick
- Excellent hole tolerance and hole quality
- Geometry allows for increased speeds and feeds which in turn increases productivity
- HSS Super Cobalt provides extraordinary toughness and wear resistance
- Available in AM200® and TiAlN coating which provides excellent heat resistance and improved tool life
- Available as stock standard



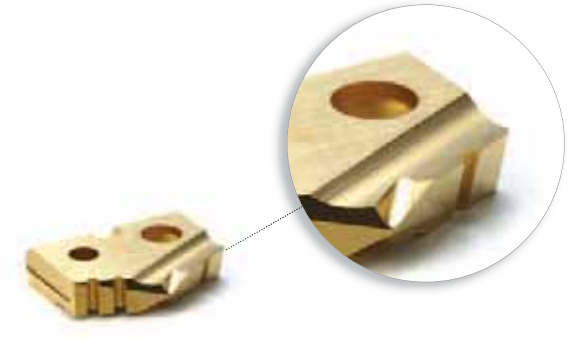
**Structural Steel - SS**

- 150° point angle for structural materials above 6mm thick
- Notch point design reduces exit burrs
- Available in AM200® and TiAlN coating which improves performance in oil mist applications
- Available as stock standard



**Flat Bottom - FB**

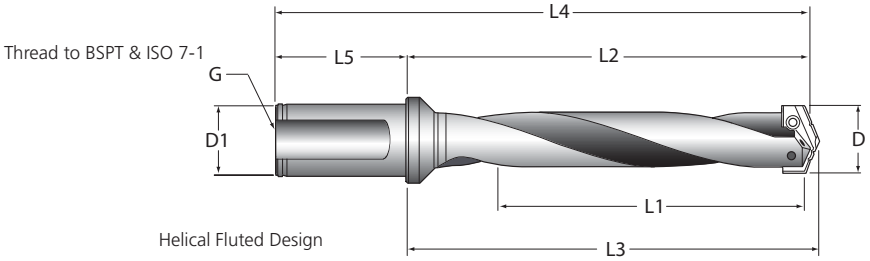
- First choice for flattening or squaring bottom of pre-existing holes with high rigidity
- When used with a stub or short length tool holder the insert may be used to counterbore holes larger than the pilot diameter (in some materials)
- Available in HSS Super Cobalt with TiN coating as stock standard
- Available in K20 Carbide with TiN coating as a non stock standard - delivery 3 weeks
- Other coatings available upon request



**Aluminium - AN**

- First choice for machining aluminium
- Enhanced geometry improves chip formation and improves hole quality
- TiN coating improves heat resistance and extends tool life
- Delivery 3 weeks - as a non stock standard
- Delivery upon request

# Y Series T-A® Holders

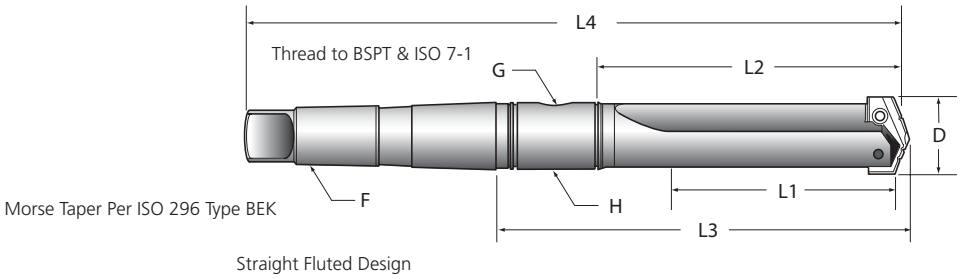



## Flanged Straight Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | L5 | D1 | G | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range D (mm) | Max Drill Depth (mm) | Body Length (mm) | New Tool Ref Length (mm) | Overall Length (mm) | Shank Length (mm) | Shank Diameter (mm) | Pipe Tap | |
| 210Y0S-16FM | Stub | Straight | 9.50-11.00 | 19 | 47.6 | 50.0 | 95.6 | 48 | 16.0 | 1/16" | 1/8" |
| 220Y0S-20FM | Short | Straight | 9.50-11.00 | 32 | 61.1 | 63.5 | 111.1 | 50 | 20.0 | 1/8" | N/A |
| 240Y0H-20FM | Standard | Helical | 9.50-11.00 | 60 | 89.7 | 92.1 | 139.7 | 50 | 20.0 | 1/8" | N/A |
| 250Y0H-20FM | Extended | Helical | 9.50-11.00 | 111 | 140.5 | 142.9 | 190.5 | 50 | 20.0 | 1/8" | N/A |
| 270Y0S-20FM | XL | Straight | 9.50-11.00 | 222 | 251.7 | 254.1 | 301.7 | 50 | 20.0 | 1/8" | N/A |
| 290Y0S-20FM | 3XL | Straight | 9.50-11.00 | 290 | 319.9 | 322.3 | 369.9 | 50 | 20.0 | 1/8" | N/A |

*Note: Stub Length includes additional side coolant port.




## Taper Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | F | H | G |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range (mm) | Max Drill Depth (mm) | Flute Length (mm) | New Tool Length (mm) | Overall Length (mm) | MT | RCA | Pipe Tap |
| 220Y0S-002M | Short | Straight | 9.50-11.00 | 32 | 51.5 | 88 | 160.3 | 2 | 2SRM | 1/16" |
| 240Y0H-002M | Standard | Helical | 9.50-11.00 | 60 | 80.2 | 116.7 | 188.9 | 2 | 2SRM | 1/16" |
| 250Y0H-002M | Extended | Helical | 9.50-11.00 | 111 | 130.9 | 167.4 | 239.7 | 2 | 2SRM | 1/16" |

**For Holder Accessories please see pages 141 - 146.**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## Y Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 45YH-9.5 | ● | 45YT-9.5 | ◆ | 45YA-9.5 | ◆ | 45YN-9.5 | ◆ |
| 3/8" | 9.53 | .3750" | 45YH-0012 | ○ | 45YT-0012 | ◆ | 45YA-0012 | ◆ | 45YN-0012 | ◆ |
| | 9.80 | .3860" | 45YH-.386 | ○ | 45YT-.386 | ◆ | 45YA-.386 | ◆ | 45YN-.386 | ◆ |
| 25/64" | 9.92 | .3906" | 45YH-.390 | ○ | 45YT-.390 | ◆ | 45YA-.390 | ◆ | 45YN-.390 | ◆ |
| | 10.00 | .3937" | 45YH-10 | ● | 45YT-10 | ◆ | 45YA-10 | ◆ | 45YN-10 | ◆ |
| | 10.20 | .4016" | 45YH-10.2 | ● | 45YT-10.2 | ◆ | 45YA-10.2 | ◆ | 45YN-10.2 | ◆ |
| 13/32" | 10.32 | .4063" | 45YH-0013 | ○ | 45YT-0013 | ◆ | 45YA-0013 | ◆ | 45YN-0013 | ◆ |
| | 10.50 | .4134" | 45YH-10.5 | ● | 45YT-10.5 | ◆ | 45YA-10.5 | ◆ | 45YN-10.5 | ◆ |
| 27/64" | 10.72 | .4219" | 45YH-.421 | ○ | 45YT-.421 | ◆ | 45YA-.421 | ◆ | 45YN-.421 | ◆ |
| | 10.80 | .4252" | 45YH-10.8 | ● | 45YT-10.8 | ◆ | 45YA-10.8 | ◆ | 45YN-10.8 | ◆ |
| | 11.00 | .4331" | 45YH-11 | ● | 45YT-11 | ◆ | 45YA-11 | ◆ | 45YN-11 | ◆ |

*Supplied in 2 piece packages.*

## Y Series Standard T-A Original HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 15YH-9.5 | ◆ | 15YT-9.5 | ● | 15YA-9.5 | ● | 15YN-9.5 | ● |
| 3/8" | 9.53 | .3750" | 15YH-0012 | ◆ | 15YT-0012 | ○ | 15YA-0012 | ○ | 15YN-0012 | ○ |
| | 9.80 | .3860" | 15YH-.386 | ◆ | 15YT-.386 | ○ | 15YA-.386 | ○ | 15YN-.386 | ○ |
| 25/64" | 9.92 | .3906" | 15YH-.390 | ◆ | 15YT-.390 | ○ | 15YA-.390 | ○ | 15YN-.390 | ○ |
| | 10.00 | .3937" | 15YH-10 | ◆ | 15YT-10 | ● | 15YA-10 | ● | 15YN-10 | ● |
| | 10.20 | .4016" | 15YH-10.2 | ◆ | 15YT-10.2 | ● | 15YA-10.2 | ● | 15YN-10.2 | ● |
| 13/32" | 10.32 | .4063" | 15YH-0013 | ◆ | 15YT-0013 | ○ | 15YA-0013 | ○ | 15YN-0013 | ○ |
| | 10.50 | .4134" | 15YH-10.5 | ◆ | 15YT-10.5 | ● | 15YA-10.5 | ● | 15YN-10.5 | ● |
| 27/64" | 10.72 | .4219" | 15YH-.421 | ◆ | 15YT-.421 | ○ | 15YA-.421 | ○ | 15YN-.421 | ○ |
| | 10.80 | .4252" | 15YH-10.8 | ◆ | 15YT-10.8 | ● | 15YA-10.8 | ● | 15YN-10.8 | ● |
| | 11.00 | .4331" | 15YH-11 | ◆ | 15YT-11 | ● | 15YA-11 | ● | 15YN-11 | ● |

*Supplied in 2 piece packages.*

## Y Series Standard T-A Original HSS Premium Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 18YH-9.5 | ◆ | 18YT-9.5 | ● | 18YA-9.5 | ● | 18YN-9.5 | ● |
| 3/8" | 9.53 | .3750" | 18YH-0012 | ◆ | 18YT-0012 | ○ | 18YA-0012 | ○ | 18YN-0012 | ○ |
| | 9.80 | .3860" | 18YH-.386 | ◆ | 18YT-.386 | ○ | 18YA-.386 | ○ | 18YN-.386 | ○ |
| 25/64" | 9.92 | .3906" | 18YH-.390 | ◆ | 18YT-.390 | ○ | 18YA-.390 | ○ | 18YN-.390 | ○ |
| | 10.00 | .3937" | 18YH-10 | ◆ | 18YT-10 | ● | 18YA-10 | ● | 18YN-10 | ● |
| | 10.20 | .4016" | 18YH-10.2 | ◆ | 18YT-10.2 | ● | 18YA-10.2 | ● | 18YN-10.2 | ● |
| 13/32" | 10.32 | .4063" | 18YH-0013 | ◆ | 18YT-0013 | ○ | 18YA-0013 | ○ | 18YN-0013 | ○ |
| | 10.50 | .4134" | 18YH-10.5 | ◆ | 18YT-10.5 | ● | 18YA-10.5 | ● | 18YN-10.5 | ● |
| 27/64" | 10.72 | .4219" | 18YH-.421 | ◆ | 18YT-.421 | ○ | 18YA-.421 | ○ | 18YN-.421 | ○ |
| | 10.80 | .4252" | 18YH-10.8 | ◆ | 18YT-10.8 | ● | 18YA-10.8 | ● | 18YN-10.8 | ● |
| | 11.00 | .4331" | 18YH-11 | ◆ | 18YT-11 | ● | 18YA-11 | ● | 18YN-11 | ● |

*Supplied in 2 piece packages.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# Y Series T-A® Drill Inserts

Diameter Range 9.50 to 11.07mm

## Y Series GEN2 T-A C2 K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 4C2YH-9.5 | ● | 4C2YT-9.5 | ◆ | 4C2YA-9.5 | ◆ | 4C2YN-9.5 | ◆ |
| 3/8" | 9.53 | .3750" | 4C2YH-0012 | ○ | 4C2YT-0012 | ◆ | 4C2YA-0012 | ◆ | 4C2YN-0012 | ◆ |
| | 9.80 | .3860" | 4C2YH-.386 | ○ | 4C2YT-.386 | ◆ | 4C2YA-.386 | ◆ | 4C2YN-.386 | ◆ |
| 25/64" | 9.92 | .3906" | 4C2YH-.390 | ○ | 4C2YT-.390 | ◆ | 4C2YA-.390 | ◆ | 4C2YN-.390 | ◆ |
| | 10.00 | .3937" | 4C2YH-10 | ● | 4C2YT-10 | ◆ | 4C2YA-10 | ◆ | 4C2YN-10 | ◆ |
| | 10.20 | .4016" | 4C2YH-10.2 | ● | 4C2YT-10.2 | ◆ | 4C2YA-10.2 | ◆ | 4C2YN-10.2 | ◆ |
| 13/32" | 10.32 | .4063" | 4C2YH-0013 | ○ | 4C2YT-0013 | ◆ | 4C2YA-0013 | ◆ | 4C2YN-0013 | ◆ |
| | 10.50 | .4134" | 4C2YH-10.5 | ● | 4C2YT-10.5 | ◆ | 4C2YA-10.5 | ◆ | 4C2YN-10.5 | ◆ |
| 27/64" | 10.72 | .4219" | 4C2YH-.421 | ○ | 4C2YT-.421 | ◆ | 4C2YA-.421 | ◆ | 4C2YN-.421 | ◆ |
| | 10.80 | .4252" | 4C2YH-10.8 | ● | 4C2YT-10.8 | ◆ | 4C2YA-10.8 | ◆ | 4C2YN-10.8 | ◆ |
| | 11.00 | .4331" | 4C2YH-11 | ● | 4C2YT-11 | ◆ | 4C2YA-11 | ◆ | 4C2YN-11 | ◆ |

*Supplied in 2 piece packages.*

## Y Series Standard T-A Original K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 1C2YH-9.5 | ◆ | 1C2YT-9.5 | ● | 1C2YA-9.5 | ● | 1C2YN-9.5 | ◆ |
| 3/8" | 9.53 | .3750" | 1C2YH-0012 | ◆ | 1C2YT-0012 | ○ | 1C2YA-0012 | ○ | 1C2YN-0012 | ◆ |
| | 9.80 | .3860" | 1C2YH-.386 | ◆ | 1C2YT-.386 | ○ | 1C2YA-.386 | ○ | 1C2YN-.386 | ◆ |
| 25/64" | 9.92 | .3906" | 1C2YH-.390 | ◆ | 1C2YT-.390 | ○ | 1C2YA-.390 | ○ | 1C2YN-.390 | ◆ |
| | 10.00 | .3937" | 1C2YH-10 | ◆ | 1C2YT-10 | ● | 1C2YA-10 | ● | 1C2YN-10 | ◆ |
| | 10.20 | .4016" | 1C2YH-10.2 | ◆ | 1C2YT-10.2 | ● | 1C2YA-10.2 | ● | 1C2YN-10.2 | ◆ |
| 13/32" | 10.32 | .4063" | 1C2YH-0013 | ◆ | 1C2YT-0013 | ○ | 1C2YA-0013 | ○ | 1C2YN-0013 | ◆ |
| | 10.50 | .4134" | 1C2YH-10.5 | ◆ | 1C2YT-10.5 | ● | 1C2YA-10.5 | ● | 1C2YN-10.5 | ◆ |
| 27/64" | 10.72 | .4219" | 1C2YH-.421 | ◆ | 1C2YT-.421 | ○ | 1C2YA-.421 | ○ | 1C2YN-.421 | ◆ |
| | 10.80 | .4252" | 1C2YH-10.8 | ◆ | 1C2YT-10.8 | ● | 1C2YA-10.8 | ● | 1C2YN-10.8 | ◆ |
| | 11.00 | .4331" | 1C2YH-11 | ◆ | 1C2YT-11 | ● | 1C2YA-11 | ● | 1C2YN-11 | ◆ |

*Supplied in 2 piece packages.*

## Y Series GEN2 T-A C1 K35 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 4C1YH-9.5 | ● | 4C1YT-9.5 | ◆ | 4C1YA-9.5 | ◆ | 4C1YN-9.5 | ◆ |
| 3/8" | 9.53 | .3750" | 4C1YH-0012 | ○ | 4C1YT-0012 | ◆ | 4C1YA-0012 | ◆ | 4C1YN-0012 | ◆ |
| | 9.80 | .3860" | 4C1YH-.386 | ○ | 4C1YT-.386 | ◆ | 4C1YA-.386 | ◆ | 4C1YN-.386 | ◆ |
| 25/64" | 9.92 | .3906" | 4C1YH-.390 | ○ | 4C1YT-.390 | ◆ | 4C1YA-.390 | ◆ | 4C1YN-.390 | ◆ |
| | 10.00 | .3937" | 4C1YH-10 | ● | 4C1YT-10 | ◆ | 4C1YA-10 | ◆ | 4C1YN-10 | ◆ |
| | 10.20 | .4016" | 4C1YH-10.2 | ● | 4C1YT-10.2 | ◆ | 4C1YA-10.2 | ◆ | 4C1YN-10.2 | ◆ |
| 13/32" | 10.32 | .4063" | 4C1YH-0013 | ○ | 4C1YT-0013 | ◆ | 4C1YA-0013 | ◆ | 4C1YN-0013 | ◆ |
| | 10.50 | .4134" | 4C1YH-10.5 | ● | 4C1YT-10.5 | ◆ | 4C1YA-10.5 | ◆ | 4C1YN-10.5 | ◆ |
| 27/64" | 10.72 | .4219" | 4C1YH-.421 | ○ | 4C1YT-.421 | ◆ | 4C1YA-.421 | ◆ | 4C1YN-.421 | ◆ |
| | 10.80 | .4252" | 4C1YH-10.8 | ● | 4C1YT-10.8 | ◆ | 4C1YA-10.8 | ◆ | 4C1YN-10.8 | ◆ |
| | 11.00 | .4331" | 4C1YH-11 | ● | 4C1YT-11 | ◆ | 4C1YA-11 | ◆ | 4C1YN-11 | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


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## Y Series Standard T-A Original P40 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 1C5YH-9.5 | ◆ | 1C5YT-9.5 | ● | 1C5YA-9.5 | ● | 1C5YN-9.5 | ◆ |
| 3/8" | 9.53 | .3750" | 1C5YH-0012 | ◆ | 1C5YT-0012 | ○ | 1C5YA-0012 | ○ | 1C5YN-0012 | ◆ |
| | 9.80 | .3860" | 1C5YH-.386 | ◆ | 1C5YT-.386 | ○ | 1C5YA-.386 | ○ | 1C5YN-.386 | ◆ |
| 25/64" | 9.92 | .3906" | 1C5YH-.390 | ◆ | 1C5YT-.390 | ○ | 1C5YA-.390 | ○ | 1C5YN-.390 | ◆ |
| | 10.00 | .3937" | 1C5YH-10 | ◆ | 1C5YT-10 | ● | 1C5YA-10 | ● | 1C5YN-10 | ◆ |
| | 10.20 | .4016" | 1C5YH-10.2 | ◆ | 1C5YT-10.2 | ● | 1C5YA-10.2 | ● | 1C5YN-10.2 | ◆ |
| 13/32" | 10.32 | .4063" | 1C5YH-0013 | ◆ | 1C5YT-0013 | ○ | 1C5YA-0013 | ○ | 1C5YN-0013 | ◆ |
| | 10.50 | .4134" | 1C5YH-10.5 | ◆ | 1C5YT-10.5 | ● | 1C5YA-10.5 | ● | 1C5YN-10.5 | ◆ |
| 27/64" | 10.72 | .4219" | 1C5YH-.421 | ◆ | 1C5YT-.421 | ○ | 1C5YA-.421 | ○ | 1C5YN-.421 | ◆ |
| | 10.80 | .4252" | 1C5YH-10.8 | ◆ | 1C5YT-10.8 | ● | 1C5YA-10.8 | ● | 1C5YN-10.8 | ◆ |
| | 11.00 | .4331" | 1C5YH-11 | ◆ | 1C5YT-11 | ● | 1C5YA-11 | ● | 1C5YN-11 | ◆ |

*Supplied in 2 piece packages.*

## Y Series Standard T-A Original K10 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 1C3YH-9.5-CI | ◆ | 1C3YT-9.5-CI | ◆ | 1C3YA-9.5-CI | ● | 1C3YN-9.5-CI | ◆ |
| 3/8" | 9.53 | .3750" | 1C3YH-0012-CI | ◆ | 1C3YT-0012-CI | ◆ | 1C3YA-0012-CI | ○ | 1C3YN-0012-CI | ◆ |
| | 9.80 | .3860" | 1C3YH-.386-CI | ◆ | 1C3YT-.386-CI | ◆ | 1C3YA-.386-CI | ○ | 1C3YN-.386-CI | ◆ |
| 25/64" | 9.92 | .3906" | 1C3YH-.390-CI | ◆ | 1C3YT-.390-CI | ◆ | 1C3YA-.390-CI | ○ | 1C3YN-.390-CI | ◆ |
| | 10.00 | .3937" | 1C3YH-10-CI | ◆ | 1C3YT-10-CI | ◆ | 1C3YA-10-CI | ● | 1C3YN-10-CI | ◆ |
| | 10.20 | .4016" | 1C3YH-10.2-CI | ◆ | 1C3YT-10.2-CI | ◆ | 1C3YA-10.2-CI | ● | 1C3YN-10.2-CI | ◆ |
| 13/32" | 10.32 | .4063" | 1C3YH-0013-CI | ◆ | 1C3YT-0013-CI | ◆ | 1C3YA-0013-CI | ○ | 1C3YN-0013-CI | ◆ |
| | 10.50 | .4134" | 1C3YH-10.5-CI | ◆ | 1C3YT-10.5-CI | ◆ | 1C3YA-10.5-CI | ● | 1C3YN-10.5-CI | ◆ |
| 27/64" | 10.72 | .4219" | 1C3YH-.421-CI | ◆ | 1C3YT-.421-CI | ◆ | 1C3YA-.421-CI | ○ | 1C3YN-.421-CI | ◆ |
| | 10.80 | .4252" | 1C3YH-10.8-CI | ◆ | 1C3YT-10.8-CI | ◆ | 1C3YA-10.8-CI | ● | 1C3YN-10.8-CI | ◆ |
| | 11.00 | .4331" | 1C3YH-11-CI | ◆ | 1C3YT-11-CI | ◆ | 1C3YA-11-CI | ● | 1C3YN-11-CI | ◆ |

*Supplied in 2 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# Y Series T-A® Drill Inserts

Diameter Range 9.50 to 11.07mm

## Y Series Standard T-A Original HSS Super Cobalt - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 15YH-9.5-FB | ◆ | 15YT-9.5-FB | ○ | 15YA-9.5-FB | ◆ | 15YN-9.5-FB | ◆ |
| 3/8" | 9.53 | .3750" | 15YH-0012-FB | ◆ | 15YT-0012-FB | ○ | 15YA-0012-FB | ◆ | 15YN-0012-FB | ◆ |
| | 9.80 | .3860" | 15YH-.386-FB | ◆ | 15YT-.386-FB | ○ | 15YA-.386-FB | ◆ | 15YN-.386-FB | ◆ |
| 25/64" | 9.92 | .3906" | 15YH-.390-FB | ◆ | 15YT-.390-FB | ○ | 15YA-.390-FB | ◆ | 15YN-.390-FB | ◆ |
| | 10.00 | .3937" | 15YH-10-FB | ◆ | 15YT-10-FB | ○ | 15YA-10-FB | ◆ | 15YN-10-FB | ◆ |
| | 10.20 | .4016" | 15YH-10.2-FB | ◆ | 15YT-10.2-FB | ○ | 15YA-10.2-FB | ◆ | 15YN-10.2-FB | ◆ |
| 13/32" | 10.32 | .4063" | 15YH-0013-FB | ◆ | 15YT-0013-FB | ○ | 15YA-0013-FB | ◆ | 15YN-0013-FB | ◆ |
| | 10.50 | .4134" | 15YH-10.5-FB | ◆ | 15YT-10.5-FB | ○ | 15YA-10.5-FB | ◆ | 15YN-10.5-FB | ◆ |
| 27/64" | 10.72 | .4219" | 15YH-.421-FB | ◆ | 15YT-.421-FB | ○ | 15YA-.421-FB | ◆ | 15YN-.421-FB | ◆ |
| | 10.80 | .4252" | 15YH-10.8-FB | ◆ | 15YT-10.8-FB | ○ | 15YA-10.8-FB | ◆ | 15YN-10.8-FB | ◆ |
| | 11.00 | .4331" | 15YH-11-FB | ◆ | 15YT-11-FB | ○ | 15YA-11-FB | ◆ | 15YN-11-FB | ◆ |

*Supplied in 2 piece packages.*

## Y Series Standard T-A Original K20 Carbide - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 1C2YH-9.5-FB | ◆ | 1C2YT-9.5-FB | ◆ | 1C2YA-9.5-FB | ◆ | 1C2YN-9.5-FB | ◆ |
| 3/8" | 9.53 | .3750" | 1C2YH-0012-FB | ◆ | 1C2YT-0012-FB | ◆ | 1C2YA-0012-FB | ◆ | 1C2YN-0012-FB | ◆ |
| | 9.80 | .3860" | 1C2YH-.386-FB | ◆ | 1C2YT-.386-FB | ◆ | 1C2YA-.386-FB | ◆ | 1C2YN-.386-FB | ◆ |
| 25/64" | 9.92 | .3906" | 1C2YH-.390-FB | ◆ | 1C2YT-.390-FB | ◆ | 1C2YA-.390-FB | ◆ | 1C2YN-.390-FB | ◆ |
| | 10.00 | .3937" | 1C2YH-10-FB | ◆ | 1C2YT-10-FB | ◆ | 1C2YA-10-FB | ◆ | 1C2YN-10-FB | ◆ |
| | 10.20 | .4016" | 1C2YH-10.2-FB | ◆ | 1C2YT-10.2-FB | ◆ | 1C2YA-10.2-FB | ◆ | 1C2YN-10.2-FB | ◆ |
| 13/32" | 10.32 | .4063" | 1C2YH-0013-FB | ◆ | 1C2YT-0013-FB | ◆ | 1C2YA-0013-FB | ◆ | 1C2YN-0013-FB | ◆ |
| | 10.50 | .4134" | 1C2YH-10.5-FB | ◆ | 1C2YT-10.5-FB | ◆ | 1C2YA-10.5-FB | ◆ | 1C2YN-10.5-FB | ◆ |
| 27/64" | 10.72 | .4219" | 1C2YH-.421-FB | ◆ | 1C2YT-.421-FB | ◆ | 1C2YA-.421-FB | ◆ | 1C2YN-.421-FB | ◆ |
| | 10.80 | .4252" | 1C2YH-10.8-FB | ◆ | 1C2YT-10.8-FB | ◆ | 1C2YA-10.8-FB | ◆ | 1C2YN-10.8-FB | ◆ |
| | 11.00 | .4331" | 1C2YH-11-FB | ◆ | 1C2YT-11-FB | ◆ | 1C2YA-11-FB | ◆ | 1C2YN-11-FB | ◆ |

*Supplied in 2 piece packages.*

## Y Series Standard T-A Original HSS Super Cobalt - 90° Spot and Chamfer

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 9.50 | .3740" | 15YH-9.5-SP | ◆ | 15YT-9.5-SP | ◆ | 15YA-9.5-SP | ◆ | 15YN-9.5-SP | ◆ |
| 3/8" | 9.53 | .3750" | 15YH-0012-SP | ◆ | 15YT-0012-SP | ◆ | 15YA-0012-SP | ◆ | 15YN-0012-SP | ◆ |
| | 9.80 | .3860" | 15YH-.386-SP | ◆ | 15YT-.386-SP | ◆ | 15YA-.386-SP | ◆ | 15YN-.386-SP | ◆ |
| 25/64" | 9.92 | .3906" | 15YH-.390-SP | ◆ | 15YT-.390-SP | ◆ | 15YA-.390-SP | ◆ | 15YN-.390-SP | ◆ |
| | 10.00 | .3937" | 15YH-10-SP | ◆ | 15YT-10-SP | ◆ | 15YA-10-SP | ◆ | 15YN-10-SP | ◆ |
| | 10.20 | .4016" | 15YH-10.2-SP | ◆ | 15YT-10.2-SP | ◆ | 15YA-10.2-SP | ◆ | 15YN-10.2-SP | ◆ |
| 13/32" | 10.32 | .4063" | 15YH-0013-SP | ◆ | 15YT-0013-SP | ◆ | 15YA-0013-SP | ◆ | 15YN-0013-SP | ◆ |
| | 10.50 | .4134" | 15YH-10.5-SP | ◆ | 15YT-10.5-SP | ◆ | 15YA-10.5-SP | ◆ | 15YN-10.5-SP | ◆ |
| 27/64" | 10.72 | .4219" | 15YH-.421-SP | ◆ | 15YT-.421-SP | ◆ | 15YA-.421-SP | ◆ | 15YN-.421-SP | ◆ |
| | 10.80 | .4252" | 15YH-10.8-SP | ◆ | 15YT-10.8-SP | ◆ | 15YA-10.8-SP | ◆ | 15YN-10.8-SP | ◆ |
| | 11.00 | .4331" | 15YH-11-SP | ◆ | 15YT-11-SP | ● | 15YA-11-SP | ◆ | 15YN-11-SP | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**





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## Y Series Standard T-A Original N2 Carbide - CVD Diamond Coated

| Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | CVD Diamond Coated | Stk. |
| | 9.50 | .3740" | 1N2YD -9.5 | ◆ |
| 3/8" | 9.53 | .3750" | 1N2YD -0012 | ◆ |
| | 9.80 | .3860" | 1N2YD -.386 | ◆ |
| 25/64" | 9.92 | .3906" | 1N2YD -.390 | ◆ |
| | 10.00 | .3937" | 1N2YD -10 | ◆ |
| | 10.20 | .4016" | 1N2YD -10.2 | ◆ |
| 13/32" | 10.32 | .4063" | 1N2YD -0013 | ◆ |
| | 10.50 | .4134" | 1N2YD -10.5 | ◆ |
| 27/64" | 10.72 | .4219" | 1N2YD -.421 | ◆ |
| | 10.80 | .4252" | 1N2YD -10.8 | ◆ |
| | 11.00 | .4331" | 1N2YD -11 | ◆ |

*Supplied in 1 piece packages.*

## Y Series GEN2 T-A HSS Super Cobalt HE Geometry Drill Inserts

| Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| | 9.50 | .3740" | 45YH-9.5-HE | ◆ |
| 3/8" | 9.53 | .3750" | 45YH-0012-HE | ◆ |
| | 9.80 | .3860" | 45YH-.386-HE | ◆ |
| 25/64" | 9.92 | .3906" | 45YH-.390-HE | ◆ |
| | 10.00 | .3937" | 45YH-10-HE | ◆ |
| | 10.20 | .4016" | 45YH-10.2-HE | ◆ |
| 13/32" | 10.32 | .4063" | 45YH-0013-HE | ◆ |
| | 10.50 | .4134" | 45YH-10.5-HE | ◆ |
| 27/64" | 10.72 | .4219" | 45YH-.421-HE | ◆ |
| | 10.80 | .4252" | 45YH-10.8-HE | ◆ |
| | 11.00 | .4331" | 45YH-11-HE | ◆ |

*Supplied in 2 piece packages.*

## Y Series GEN2 T-A K35 Carbide HE Geometry Drill Inserts

| Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| | 9.50 | .3740" | 4C1YH-9.5-HE | ◆ |
| 3/8" | 9.53 | .3750" | 4C1YH-0012-HE | ◆ |
| | 9.80 | .3860" | 4C1YH-.386-HE | ◆ |
| 25/64" | 9.92 | .3906" | 4C1YH-.390-HE | ◆ |
| | 10.00 | .3937" | 4C1YH-10-HE | ◆ |
| | 10.20 | .4016" | 4C1YH-10.2-HE | ◆ |
| 13/32" | 10.32 | .4063" | 4C1YH-0013-HE | ◆ |
| | 10.50 | .4134" | 4C1YH-10.5-HE | ◆ |
| 27/64" | 10.72 | .4219" | 4C1YH-.421-HE | ◆ |
| | 10.80 | .4252" | 4C1YH-10.8-HE | ◆ |
| | 11.00 | .4331" | 4C1YH-11-HE | ◆ |

*Supplied in 2 piece packages.*

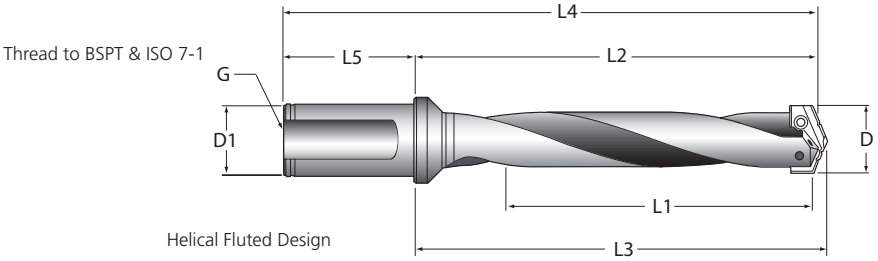
| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# Z Series T-A® Holders

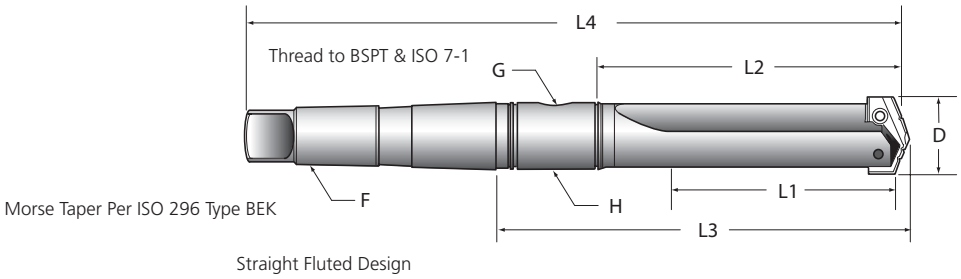



## Flanged Straight Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | L5 | D1 | G | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range D (mm) | Max Drill Depth (mm) | Body Length (mm) | New Tool Ref Length (mm) | Overall Length (mm) | Shank Length (mm) | Shank Diameter (mm) | Pipe Tap | |
| 210Z0S-16FM | Stub | Straight | 11.50-12.80 | 19.1 | 45.6 | 48.0 | 93.6 | 48 | 16.0 | 1/16" | 1/8" |
| 220Z0S-20FM | Short | Straight | 11.50-12.80 | 32 | 61.1 | 63.5 | 111.1 | 50 | 20.0 | 1/8" | N/A |
| 240Z0H-20FM | Standard | Helical | 11.50-12.80 | 60 | 89.7 | 92.1 | 139.7 | 50 | 20.0 | 1/8" | N/A |
| 250Z0H-20FM | Extended | Helical | 11.50-12.80 | 111 | 140.5 | 142.9 | 190.5 | 50 | 20.0 | 1/8" | N/A |
| 270Z0S-20FM | XL | Straight | 11.50-12.80 | 222.3 | 251.7 | 254.1 | 301.7 | 50 | 20.0 | 1/8" | N/A |
| 290Z0S-20FM | 3XL | Straight | 11.50-12.80 | 290.5 | 319.9 | 322.3 | 369.9 | 50 | 20.0 | 1/8" | N/A |

*Note: Stub Length includes additional side coolant port.




## Taper Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | F | H | G |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range (mm) | Max Drill Depth (mm) | Flute Length (mm) | New Tool Length (mm) | Overall Length (mm) | MT | RCA | Pipe Tap |
| 220Z0S-002M | Short | Straight | 11.50-12.80 | 32 | 51.5 | 88 | 160.3 | 2 | 2SRM | 1/16" |
| 240Z0H-002M | Standard | Helical | 11.50-12.80 | 60 | 80.2 | 116.7 | 188.9 | 2 | 2SRM | 1/16" |
| 250Z0H-002M | Extended | Helical | 11.50-12.80 | 111 | 130.9 | 167.4 | 239.7 | 2 | 2SRM | 1/16" |

**For Holder Accessories please see pages 141 - 146.**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## Z Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 45ZH-0014 | ○ | 45ZT-0014 | ◆ | 45ZA-0014 | ◆ | 45ZN-0014 | ◆ |
| | 11.50 | .4528" | 45ZH-11.5 | ● | 45ZT-11.5 | ◆ | 45ZA-11.5 | ◆ | 45ZN-11.5 | ◆ |
| 29/64" | 11.51 | .4531" | 45ZH-.453 | ○ | 45ZT-.453 | ◆ | 45ZA-.453 | ◆ | 45ZN-.453 | ◆ |
| 15/32" | 11.91 | .4688" | 45ZH-0015 | ○ | 45ZT-0015 | ◆ | 45ZA-0015 | ◆ | 45ZN-0015 | ◆ |
| | 12.00 | .4724" | 45ZH-12 | ● | 45ZT-12 | ◆ | 45ZA-12 | ◆ | 45ZN-12 | ◆ |
| 31/64" | 12.30 | .4844" | 45ZH-.484 | ○ | 45ZT-.484 | ◆ | 45ZA-.484 | ◆ | 45ZN-.484 | ◆ |
| | 12.50 | .4921" | 45ZH-12.5 | ● | 45ZT-12.5 | ◆ | 45ZA-12.5 | ◆ | 45ZN-12.5 | ◆ |
| 1/2" | 12.70 | .5000" | 45ZH-0016 | ○ | 45ZT-0016 | ◆ | 45ZA-0016 | ◆ | 45ZN-0016 | ◆ |
| | 12.80 | .5039" | 45ZH-12.8 | ○ | 45ZT-12.8 | ◆ | 45ZA-12.8 | ◆ | 45ZN-12.8 | ◆ |

*Supplied in 2 piece packages.*

## Z Series Standard T-A Original HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 15ZH-0014 | ◆ | 15ZT-0014 | ○ | 15ZA-0014 | ○ | 15ZN-0014 | ○ |
| | 11.50 | .4528" | 15ZH-11.5 | ◆ | 15ZT-11.5 | ● | 15ZA-11.5 | ● | 15ZN-11.5 | ● |
| 29/64" | 11.51 | .4531" | 15ZH-.453 | ◆ | 15ZT-.453 | ○ | 15ZA-.453 | ○ | 15ZN-.453 | ○ |
| 15/32" | 11.91 | .4688" | 15ZH-0015 | ◆ | 15ZT-0015 | ○ | 15ZA-0015 | ○ | 15ZN-0015 | ○ |
| | 12.00 | .4724" | 15ZH-12 | ◆ | 15ZT-12 | ● | 15ZA-12 | ● | 15ZN-12 | ● |
| 31/64" | 12.30 | .4844" | 15ZH-.484 | ◆ | 15ZT-.484 | ○ | 15ZA-.484 | ○ | 15ZN-.484 | ○ |
| | 12.50 | .4921" | 15ZH-12.5 | ◆ | 15ZT-12.5 | ● | 15ZA-12.5 | ● | 15ZN-12.5 | ● |
| 1/2" | 12.70 | .5000" | 15ZH-0016 | ◆ | 15ZT-0016 | ○ | 15ZA-0016 | ○ | 15ZN-0016 | ○ |
| | 12.80 | .5039" | 15ZH-12.8 | ◆ | 15ZT-12.8 | ○ | 15ZA-12.8 | ● | 15ZN-12.8 | ○ |

*Supplied in 2 piece packages.*

## Z Series Standard T-A Original HSS Premium Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 18ZH-0014 | ◆ | 18ZT-0014 | ○ | 18ZA-0014 | ○ | 18ZN-0014 | ○ |
| | 11.50 | .4528" | 18ZH-11.5 | ◆ | 18ZT-11.5 | ● | 18ZA-11.5 | ● | 18ZN-11.5 | ● |
| 29/64" | 11.51 | .4531" | 18ZH-.453 | ◆ | 18ZT-.453 | ○ | 18ZA-.453 | ○ | 18ZN-.453 | ○ |
| 15/32" | 11.91 | .4688" | 18ZH-0015 | ◆ | 18ZT-0015 | ○ | 18ZA-0015 | ○ | 18ZN-0015 | ○ |
| | 12.00 | .4724" | 18ZH-12 | ◆ | 18ZT-12 | ● | 18ZA-12 | ● | 18ZN-12 | ● |
| 31/64" | 12.30 | .4844" | 18ZH-.484 | ◆ | 18ZT-.484 | ○ | 18ZA-.484 | ○ | 18ZN-.484 | ○ |
| | 12.50 | .4921" | 18ZH-12.5 | ◆ | 18ZT-12.5 | ● | 18ZA-12.5 | ● | 18ZN-12.5 | ● |
| 1/2" | 12.70 | .5000" | 18ZH-0016 | ◆ | 18ZT-0016 | ○ | 18ZA-0016 | ○ | 18ZN-0016 | ○ |
| | 12.80 | .5039" | 18ZH-12.8 | ◆ | 18ZT-12.8 | ● | 18ZA-12.8 | ● | 18ZN-12.8 | ● |

*Supplied in 2 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# Z Series T-A® Drill Inserts

Diameter Range 11.10 to 12.95mm

## Z Series GEN2 T-A K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 4C2ZH-0014 | ○ | 4C2ZT-0014 | ◆ | 4C2ZA-0014 | ◆ | 4C2ZN-0014 | ◆ |
| | 11.50 | .4528" | 4C2ZH-11.5 | ● | 4C2ZT-11.5 | ◆ | 4C2ZA-11.5 | ◆ | 4C2ZN-11.5 | ◆ |
| 29/64" | 11.51 | .4531" | 4C2ZH-.453 | ○ | 4C2ZT-.453 | ◆ | 4C2ZA-.453 | ◆ | 4C2ZN-.453 | ◆ |
| 15/32" | 11.91 | .4688" | 4C2ZH-0015 | ○ | 4C2ZT-0015 | ◆ | 4C2ZA-0015 | ◆ | 4C2ZN-0015 | ◆ |
| | 12.00 | .4724" | 4C2ZH-12 | ● | 4C2ZT-12 | ◆ | 4C2ZA-12 | ◆ | 4C2ZN-12 | ◆ |
| 31/64" | 12.30 | .4844" | 4C2ZH-.484 | ○ | 4C2ZT-.484 | ◆ | 4C2ZA-.484 | ◆ | 4C2ZN-.484 | ◆ |
| | 12.50 | .4921" | 4C2ZH-12.5 | ● | 4C2ZT-12.5 | ◆ | 4C2ZA-12.5 | ◆ | 4C2ZN-12.5 | ◆ |
| 1/2" | 12.70 | .5000" | 4C2ZH-0016 | ○ | 4C2ZT-0016 | ◆ | 4C2ZA-0016 | ◆ | 4C2ZN-0016 | ◆ |
| | 12.80 | .5039" | 4C2ZH-12.8 | ◆ | 4C2ZT-12.8 | ◆ | 4C2ZA-12.8 | ◆ | 4C2ZN-12.8 | ◆ |

*Supplied in 2 piece packages.*

## Z Series Standard T-A Original K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 1C2ZH-0014 | ◆ | 1C2ZT-0014 | ○ | 1C2ZA-0014 | ○ | 1C2ZN-0014 | ◆ |
| | 11.50 | .4528" | 1C2ZH-11.5 | ◆ | 1C2ZT-11.5 | ● | 1C2ZA-11.5 | ● | 1C2ZN-11.5 | ◆ |
| 29/64" | 11.51 | .4531" | 1C2ZH-.453 | ◆ | 1C2ZT-.453 | ○ | 1C2ZA-.453 | ○ | 1C2ZN-.453 | ◆ |
| 15/32" | 11.91 | .4688" | 1C2ZH-0015 | ◆ | 1C2ZT-0015 | ○ | 1C2ZA-0015 | ○ | 1C2ZN-0015 | ◆ |
| | 12.00 | .4724" | 1C2ZH-12 | ◆ | 1C2ZT-12 | ● | 1C2ZA-12 | ● | 1C2ZN-12 | ◆ |
| 31/64" | 12.30 | .4844" | 1C2ZH-.484 | ◆ | 1C2ZT-.484 | ○ | 1C2ZA-.484 | ○ | 1C2ZN-.484 | ◆ |
| | 12.50 | .4921" | 1C2ZH-12.5 | ◆ | 1C2ZT-12.5 | ● | 1C2ZA-12.5 | ● | 1C2ZN-12.5 | ◆ |
| 1/2" | 12.70 | .5000" | 1C2ZH-0016 | ◆ | 1C2ZT-0016 | ○ | 1C2ZA-0016 | ○ | 1C2ZN-0016 | ◆ |
| | 12.80 | .5039" | 1C2ZH-12.8 | ◆ | 1C2ZT-12.8 | ○ | 1C2ZA-12.8 | ● | 1C2ZN-12.8 | ◆ |

*Supplied in 2 piece packages.*

## Z Series GEN2 T-A K35 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 4C1ZH-0014 | ○ | 4C1ZT-0014 | ◆ | 4C1ZA-0014 | ◆ | 4C1ZN-0014 | ◆ |
| | 11.50 | .4528" | 4C1ZH-11.5 | ● | 4C1ZT-11.5 | ◆ | 4C1ZA-11.5 | ◆ | 4C1ZN-11.5 | ◆ |
| 29/64" | 11.51 | .4531" | 4C1ZH-.453 | ◆ | 4C1ZT-.453 | ◆ | 4C1ZA-.453 | ◆ | 4C1ZN-.453 | ◆ |
| 15/32" | 11.91 | .4688" | 4C1ZH-0015 | ◆ | 4C1ZT-0015 | ◆ | 4C1ZA-0015 | ◆ | 4C1ZN-0015 | ◆ |
| | 12.00 | .4724" | 4C1ZH-12 | ● | 4C1ZT-12 | ◆ | 4C1ZA-12 | ◆ | 4C1ZN-12 | ◆ |
| 31/64" | 12.30 | .4844" | 4C1ZH-.484 | ○ | 4C1ZT-.484 | ◆ | 4C1ZA-.484 | ◆ | 4C1ZN-.484 | ◆ |
| | 12.50 | .4921" | 4C1ZH-12.5 | ● | 4C1ZT-12.5 | ◆ | 4C1ZA-12.5 | ◆ | 4C1ZN-12.5 | ◆ |
| 1/2" | 12.70 | .5000" | 4C1ZH-0016 | ○ | 4C1ZT-0016 | ◆ | 4C1ZA-0016 | ◆ | 4C1ZN-0016 | ◆ |
| | 12.80 | .5039" | 4C1ZH-12.8 | ◆ | 4C1ZT-12.8 | ◆ | 4C1ZA-12.8 | ◆ | 4C1ZN-12.8 | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**





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## Z Series Standard T-A Original P40 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 1C5ZH-0014 | ◆ | 1C5ZT-0014 | ○ | 1C5ZA-0014 | ○ | 1C5ZN-0014 | ◆ |
| | 11.50 | .4528" | 1C5ZH-11.5 | ◆ | 1C5ZT-11.5 | ● | 1C5ZA-11.5 | ● | 1C5ZN-11.5 | ◆ |
| 29/64" | 11.51 | .4531" | 1C5ZH-.453 | ◆ | 1C5ZT-.453 | ○ | 1C5ZA-.453 | ○ | 1C5ZN-.453 | ◆ |
| 15/32" | 11.91 | .4688" | 1C5ZH-0015 | ◆ | 1C5ZT-0015 | ○ | 1C5ZA-0015 | ○ | 1C5ZN-0015 | ◆ |
| | 12.00 | .4724" | 1C5ZH-12 | ◆ | 1C5ZT-12 | ● | 1C5ZA-12 | ● | 1C5ZN-12 | ◆ |
| 31/64" | 12.30 | .4844" | 1C5ZH-.484 | ◆ | 1C5ZT-.484 | ○ | 1C5ZA-.484 | ○ | 1C5ZN-.484 | ◆ |
| | 12.50 | .4921" | 1C5ZH-12.5 | ◆ | 1C5ZT-12.5 | ● | 1C5ZA-12.5 | ● | 1C5ZN-12.5 | ◆ |
| 1/2" | 12.70 | .5000" | 1C5ZH-0016 | ◆ | 1C5ZT-0016 | ○ | 1C5ZA-0016 | ○ | 1C5ZN-0016 | ◆ |

*Supplied in 2 piece packages.*

## Z Series Standard T-A Original K10 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 1C3ZH-0014-CI | ◆ | 1C3ZT-0014-CI | ◆ | 1C3ZA-0014-CI | ○ | 1C3ZN-0014-CI | ◆ |
| | 11.50 | .4528" | 1C3ZH-11.5-CI | ◆ | 1C3ZT-11.5-CI | ◆ | 1C3ZA-11.5-CI | ● | 1C3ZN-11.5-CI | ◆ |
| 29/64" | 11.51 | .4531" | 1C3ZH-.453-CI | ◆ | 1C3ZT-.453-CI | ◆ | 1C3ZA-.453-CI | ○ | 1C3ZN-.453-CI | ◆ |
| 15/32" | 11.91 | .4688" | 1C3ZH-0015-CI | ◆ | 1C3ZT-0015-CI | ◆ | 1C3ZA-0015-CI | ○ | 1C3ZN-0015-CI | ◆ |
| | 12.00 | .4724" | 1C3ZH-12-CI | ◆ | 1C3ZT-12-CI | ◆ | 1C3ZA-12-CI | ● | 1C3ZN-12-CI | ◆ |
| 31/64" | 12.30 | .4844" | 1C3ZH-.484-CI | ◆ | 1C3ZT-.484-CI | ◆ | 1C3ZA-.484-CI | ○ | 1C3ZN.484-CI | ◆ |
| | 12.50 | .4921" | 1C3ZH-12.5-CI | ◆ | 1C3ZT-12.5-CI | ◆ | 1C3ZA-12.5-CI | ● | 1C3ZN-12.5-CI | ◆ |
| 1/2" | 12.70 | .5000" | 1C3ZH-0016-CI | ◆ | 1C3ZT-0016-CI | ◆ | 1C3ZA-0016-CI | ○ | 1C3ZN-0016-CI | ◆ |

*Supplied in 2 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# Z Series T-A® Drill Inserts

Diameter Range 11.10 to 12.95mm

## Z Series Standard T-A Original HSS Super Cobalt - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 15ZH-0014-FB | ◆ | 15ZT-0014-FB | ○ | 15ZA-0014-FB | ◆ | 15ZN-0014-FB | ◆ |
| | 11.50 | .4528" | 15ZH-11.5-FB | ◆ | 15ZT-11.5-FB | ○ | 15ZA-11.5-FB | ◆ | 15ZN-11.5-FB | ◆ |
| 29/64" | 11.51 | .4531" | 15ZH-.453-FB | ◆ | 15ZT-.453-FB | ○ | 15ZA-.453-FB | ◆ | 15ZN-.453-FB | ◆ |
| 15/32" | 11.91 | .4688" | 15ZH-0015-FB | ◆ | 15ZT-0015-FB | ○ | 15ZA-0015-FB | ◆ | 15ZN-0015-FB | ◆ |
| | 12.00 | .4724" | 15ZH-12-FB | ◆ | 15ZT-12-FB | ○ | 15ZA-12-FB | ◆ | 15ZN-12-FB | ◆ |
| 31/64" | 12.30 | .4844" | 15ZH-.484-FB | ◆ | 15ZT-.484-FB | ○ | 15ZA-.484-FB | ◆ | 15ZN-.484-FB | ◆ |
| | 12.50 | .4921" | 15ZH-12.5-FB | ◆ | 15ZT-12.5-FB | ○ | 15ZA-12.5-FB | ◆ | 15ZN-12.5-FB | ◆ |
| 1/2" | 12.70 | .5000" | 15ZH-0016-FB | ◆ | 15ZT-0016-FB | ○ | 15ZA-0016-FB | ◆ | 15ZN-0016-FB | ◆ |

*Supplied in 2 piece packages.*

## Z Series Standard T-A Original K20 Carbide - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 1C2ZH-0014-FB | ◆ | 1C2ZT-0014-FB | ◆ | 1C2ZA-0014-FB | ◆ | 1C2ZN-0014-FB | ◆ |
| | 11.50 | .4528" | 1C2ZH-11.5-FB | ◆ | 1C2ZT-11.5-FB | ◆ | 1C2ZA-11.5-FB | ◆ | 1C2ZN-11.5-FB | ◆ |
| 29/64" | 11.51 | .4531" | 1C2ZH-.453-FB | ◆ | 1C2ZT-.453-FB | ◆ | 1C2ZA-.453-FB | ◆ | 1C2ZN-.453-FB | ◆ |
| 15/32" | 11.91 | .4688" | 1C2ZH-0015-FB | ◆ | 1C2ZT-0015-FB | ◆ | 1C2ZA-0015-FB | ◆ | 1C2ZN-0015-FB | ◆ |
| | 12.00 | .4724" | 1C2ZH-12-FB | ◆ | 1C2ZT-12-FB | ◆ | 1C2ZA-12-FB | ◆ | 1C2ZN-12-FB | ◆ |
| 31/64" | 12.30 | .4844" | 1C2ZH-.484-FB | ◆ | 1C2ZT-.484-FB | ◆ | 1C2ZA-.484-FB | ◆ | 1C2ZN-.484-FB | ◆ |
| | 12.50 | .4921" | 1C2ZH-12.5-FB | ◆ | 1C2ZT-12.5-FB | ◆ | 1C2ZA-12.5-FB | ◆ | 1C2ZN-12.5-FB | ◆ |
| 1/2" | 12.70 | .5000" | 1C2ZH-0016-FB | ◆ | 1C2ZT-0016-FB | ◆ | 1C2ZA-0016-FB | ◆ | 1C2ZN-0016-FB | ◆ |

*Supplied in 2 piece packages.*

## Z Series Standard T-A Original HSS Super Cobalt - 90° Spot and Chamfer

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 7/16" | 11.11 | .4375" | 15ZH-0014-SP | ◆ | 15ZT-0014-SP | ◆ | 15ZA-0014-SP | ◆ | 15ZN-0014-SP | ◆ |
| | 11.50 | .4528" | 15ZH-11.5-SP | ◆ | 15ZT-11.5-SP | ◆ | 15ZA-11.5-SP | ◆ | 15ZN-11.5-SP | ◆ |
| 29/64" | 11.51 | .4531" | 15ZH-.453-SP | ◆ | 15ZT-.453-SP | ◆ | 15ZA-.453-SP | ◆ | 15ZN-.453-SP | ◆ |
| 15/32" | 11.91 | .4688" | 15ZH-0015-SP | ◆ | 15ZT-0015-SP | ◆ | 15ZA-0015-SP | ◆ | 15ZN-0015-SP | ◆ |
| | 12.00 | .4724" | 15ZH-12-SP | ◆ | 15ZT-12-SP | ◆ | 15ZA-12-SP | ◆ | 15ZN-12-SP | ◆ |
| 31/64" | 12.30 | .4844" | 15ZH-.484-SP | ◆ | 15ZT-.484-SP | ◆ | 15ZA-.484-SP | ◆ | 15ZN-.484-SP | ◆ |
| | 12.50 | .4921" | 15ZH-12.5-SP | ◆ | 15ZT-12.5-SP | ◆ | 15ZA-12.5-SP | ◆ | 15ZN-12.5-SP | ◆ |
| 1/2" | 12.70 | .5000" | 15ZH-0016-SP | ◆ | 15ZT-0016-SP | ● | 15ZA-0016-SP | ◆ | 15ZN-0016-SP | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


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## Z Series Standard T-A Original N2 Carbide - CVD Diamond Coated

| Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | CVD Diamond Coated | Stk. |
| 7/16" | 11.11 | .4375" | 1N2ZD-.0014 | ◆ |
| | 11.50 | .4528" | 1N2ZD-11.5 | ◆ |
| 29/64" | 11.51 | .4531" | 1N2ZD-.453 | ◆ |
| 15/32" | 11.91 | .4688" | 1N2ZD-0015 | ◆ |
| | 12.00 | .4724" | 1N2ZD-12 | ◆ |
| 31/64" | 12.30 | .4844" | 1N2ZD-.484 | ◆ |
| | 12.50 | .4921" | 1N2ZD-12.5 | ◆ |
| 1/2" | 12.70 | .5000" | 1N2ZD-0016 | ◆ |

*Supplied in 1 piece packages.*

## Z Series GEN2 T-A HSS Super Cobalt HE Geometry Drill Inserts

| Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| 7/16" | 11.11 | .4375" | 45ZH-0014-HE | ◆ |
| | 11.50 | .4528" | 45ZH-11.5-HE | ◆ |
| 29/64" | 11.51 | .4531" | 45ZH-.453-HE | ◆ |
| 15/32" | 11.91 | .4688" | 45ZH-0015-HE | ◆ |
| | 12.00 | .4724" | 45ZH-12-HE | ◆ |
| 31/64" | 12.30 | .4844" | 45ZH-.484-HE | ◆ |
| | 12.50 | .4921" | 45ZH-12.5-HE | ◆ |
| 1/2" | 12.70 | .5000" | 45ZH-0016-HE | ◆ |
| | 12.80 | .5039" | 45ZH-12.8-HE | ◆ |

*Supplied in 2 piece packages.*

## Z Series GEN2 T-A K35 Carbide HE Geometry Drill Inserts

| Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| 7/16" | 11.11 | .4375" | 4C1ZH-0014-HE | ◆ |
| | 11.50 | .4528" | 4C1ZH-11.5-HE | ◆ |
| 29/64" | 11.51 | .4531" | 4C1ZH-.453-HE | ◆ |
| 15/32" | 11.91 | .4688" | 4C1ZH-0015-HE | ◆ |
| | 12.00 | .4724" | 4C1ZH-12-HE | ◆ |
| 31/64" | 12.30 | .4844" | 4C1ZH-.484-HE | ◆ |
| | 12.50 | .4921" | 4C1ZH-12.5-HE | ◆ |
| 1/2" | 12.70 | .5000" | 4C1ZH-0016-HE | ◆ |
| | 12.80 | .5039" | 4C1ZH-12.8-HE | ◆ |

*Supplied in 2 piece packages.*

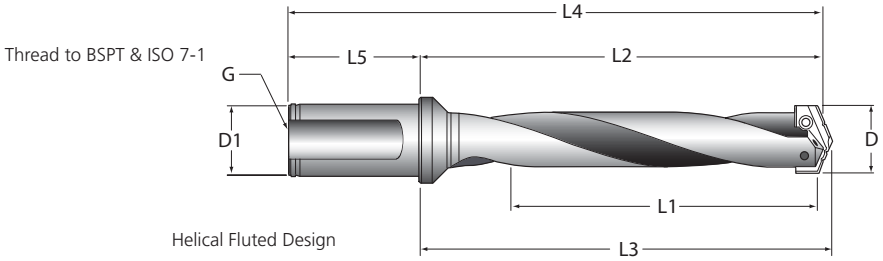
| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# O Series T-A® Drill Holders

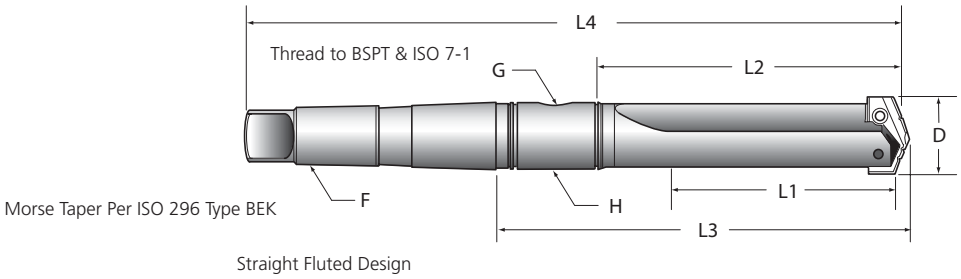



## Flanged Straight Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | L5 | D1 | G | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range D (mm) | Max Drill Depth (mm) | Body Length (mm) | New Tool Ref Length (mm) | Overall Length (mm) | Shank Length (mm) | Shank Diameter (mm) | Pipe Tap | |
| 21000S-20FM | Stub | Straight | 13.00-17.50 | 22 | 47.6 | 50.4 | 97.6 | 50 | 20.0 | ⅛" | ⅛" |
| 21005S-20FM | Stub | Straight | 15.50-17.50 | 22 | 47.6 | 50.4 | 97.6 | 50 | 20.0 | ⅛" | N/A |
| 22000S-20FM | Short | Straight | 13.00-17.50 | 35 | 63.5 | 66.3 | 113.5 | 50 | 20.0 | ⅛" | N/A |
| 22005S-20FM | Short | Straight | 15.50-17.50 | 35 | 63.5 | 66.3 | 113.5 | 50 | 20.0 | ⅛" | N/A |
| 24000S-20FM | Standard | Straight | 13.00-17.50 | 64 | 92.1 | 94.9 | 142.1 | 50 | 20.0 | ⅛" | N/A |
| 24000H-20FM | Standard | Helical | 13.00-17.50 | 64 | 92.1 | 94.9 | 142.1 | 50 | 20.0 | ⅛" | N/A |
| 24005H-20FM | Standard | Helical | 15.50-17.50 | 64 | 92.1 | 94.9 | 142.1 | 50 | 20.0 | ⅛" | N/A |
| 25000H-20FM | Extended | Helical | 13.00-17.50 | 114 | 142.9 | 145.7 | 192.9 | 50 | 20.0 | ⅛" | N/A |
| 25005H-20FM | Extended | Helical | 15.50-17.50 | 114 | 142.9 | 145.7 | 192.9 | 50 | 20.0 | ⅛" | N/A |
| 26000H-20FM | Long | Helical | 13.00-17.50 | 177 | 206.4 | 209.1 | 256.4 | 50 | 20.0 | ⅛" | N/A |
| 26005H-20FM | Long | Helical | 15.50-17.50 | 177 | 206.4 | 209.1 | 256.4 | 50 | 20.0 | ⅛" | N/A |
| 27000S-20FM | XL | Straight | 13.00-17.50 | 295 | 323.9 | 326.7 | 373.9 | 50 | 20.0 | ⅛" | N/A |
| 29000S-20FM | 3XL | Straight | 13.00-17.50 | 387 | 416.0 | 418.8 | 466.0 | 50 | 20.0 | ⅛" | N/A |

*Note: Stub Length includes additional side coolant port.




## Taper Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | F | H | G |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range (mm) | Max Drill Depth (mm) | Flute Length (mm) | New Tool Length (mm) | Overall Length (mm) | MT | RCA | Pipe Tap |
| 22000S-002M | Short | Straight | 13.00-17.50 | 35 | 55.5 | 92.4 | 164.3 | 2 | 2SRM | 1/16" |
| 22005S-002M | Short | Straight | 15.50-17.50 | 35 | 55.5 | 92.4 | 164.3 | 2 | 2SRM | 1/16" |
| 24000H-002M | Standard | Helical | 13.00-17.50 | 64 | 84.1 | 121 | 192.9 | 2 | 2SRM | 1/16" |
| 24005H-002M | Standard | Helical | 15.50-17.50 | 64 | 84.1 | 121 | 192.9 | 2 | 2SRM | 1/16" |
| 25000H-002M | Extended | Helical | 13.00-17.50 | 114 | 135 | 171.8 | 243.7 | 2 | 2SRM | 1/16" |
| 25005H-002M | Extended | Helical | 15.50-17.50 | 114 | 135 | 171.8 | 243.7 | 2 | 2SRM | 1/16" |
| 26000H-002M | Long | Helical | 13.00-17.50 | 177 | 198.5 | 235.3 | 307.2 | 2 | 2SRM | 1/16" |
| 26005H-002M | Long | Helical | 15.50-17.50 | 177 | 198.5 | 235.3 | 307.2 | 2 | 2SRM | 1/16" |

**For Holder Accessories please see pages 141 - 146.**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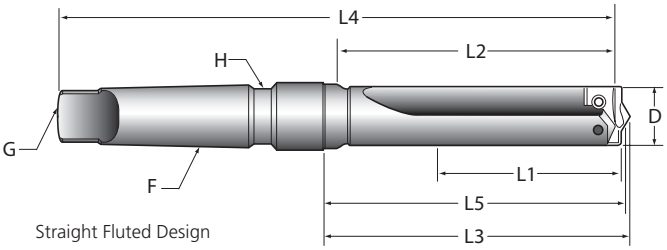
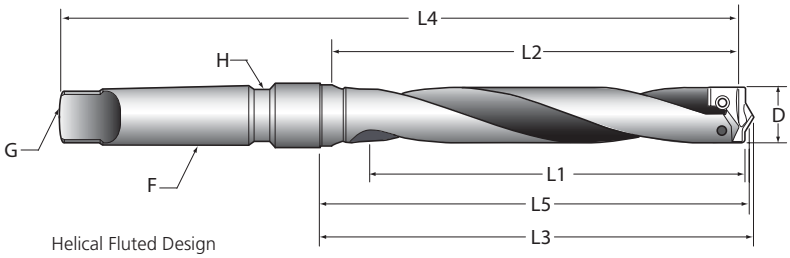


Straight Fluted Design

## Short Length – Taper Shank Holders – Straight Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 22000S-003IS036 | 14 | 35 | 56 | 64.7 | 63.1 | 154 | 3 | TTC | TSC | ● |
| 22005S-003IS040 | 16 | 35 | 56 | 64.7 | 63.1 | 154 | 3 | TTC | TSC | ● |
| 22005S-003IS044 | 17.46 | 35 | 56 | 64.7 | 63.1 | 154 | 3 | TTC | TSC | ○ |

*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.



Helical Fluted Design

## Standard Length – Taper Shank Holders – Helical Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 24000H-003IS036 | 14 | 64 | 84 | 93.3 | 91.7 | 183 | 3 | TTC | TSC | ● |
| 24005H-003IS040 | 16 | 64 | 84 | 93.3 | 91.7 | 183 | 3 | TTC | TSC | ● |
| 24005H-003IS044 | 17.46 | 64 | 84 | 93.3 | 91.7 | 183 | 3 | TTC | TSC | ○ |

*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.

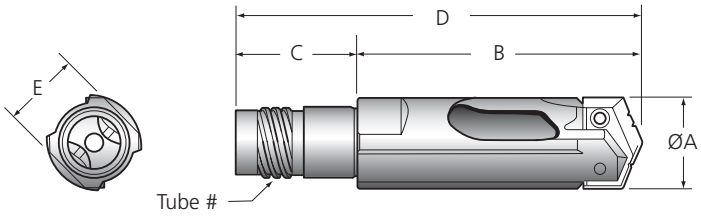
## Extended Length – Taper Shank Holders – Helical Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 25000H-003IS036 | 14 | 165 | 240 | 248.8 | 243.7 | 338 | 3 | TTC | TSC | ● |
| 25005H-003IS044 | 17.46 | 165 | 240 | 248.8 | 243.7 | 332 | 3 | TTC | TSC | ● |

*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.

**For Holder Accessories please see pages 141 - 146.**

# 0 Series BT-A Drill and Tubes

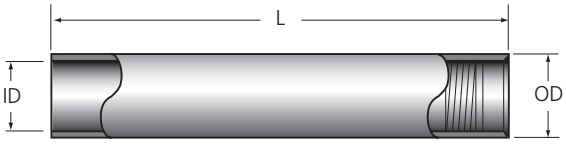



## Metric Heads

| T-A® Series | Head Item Number | Tube Size | A Diameter Range (mm) | B Reference Length (mm) | C Shank Length (mm) | D Overall Length (mm) | E Wrench Flat (mm) | Stk. |
|---|---|---|---|---|---|---|---|---|
| 0 | BTA0-794-xx.xx | 794 | 12.95-13.61 | 43.4 | 23 | 66.4 | 11 | ◆ |
| | BTA0-795-xx.xx | 795 | 13.62-14.63 | 44.6 | 23 | 67.6 | 12 | ◆ |
| | BTA0-796-xx.xx | 796 | 14.64-15.62 | 45.9 | 24 | 69.9 | 13 | ◆ |
| | BTA0-797-xx.xx | 797 | 15.63-16.71 | 45.9 | 24 | 69.9 | 14 | ◆ |
| | BTA0-798-xx.xx | 798 | 16.72-17.68 | 45.3 | 24 | 69.3 | 15 | ◆ |

## Imperial Heads

| T-A® Series | Head Item Number | Tube Size | A Diameter Range (inch) | B Reference Length (inch) | C Shank Length (inch) | D Overall Length (inch) | E Wrench Flat (mm) | Stk. |
|---|---|---|---|---|---|---|---|---|
| 0 | BTA0-794-x.xxxx | 794 | 0.5100-0.5359 | 1-45/64 | 29/32 | 2-39/64 | 11 | ◆ |
| | BTA0-795-x.xxxx | 795 | 0.5360-0.5759 | 1-3/4 | 29/32 | 2-21/32 | 12 | ◆ |
| | BTA0-796-x.xxxx | 796 | 0.5760-0.6149 | 1-13/16 | 61/64 | 2-3/4 | 13 | ◆ |
| | BTA0-797-x.xxxx | 797 | 0.6150-0.6579 | 1-13/16 | 61/64 | 2-3/4 | 14 | ◆ |
| | BTA0-798-x.xxxx | 798 | 0.6580-0.6959 | 1-25/32 | 61/64 | 2-47/64 | 15 | ◆ |




## Metric Tubes

| Tube Size | Tube Item Number | Metric | | | | |
|---|---|---|---|---|---|---|
| | | Diameter Range (mm) | Tube OD (mm) | Tube ID (mm) | Length (mm) | Stk. |
| 794 | BTAT794-63 | 12.78-13.59 | 11.0 | 7.0 | 1600 | ○ |
| | BTAT794-102 | | | | 2591 | ○ |
| 795 | BTAT795-63 | 13.60-14.61 | 12.0 | 8.0 | 1600 | ○ |
| | BTAT795-102 | | | | 2591 | ○ |
| 796 | BTAT796-63 | 14.62-15.60 | 13.0 | 8.5 | 1600 | ○ |
| | BTAT796-102 | | | | 2591 | ○ |
| 797 | BTAT797-63 | 15.61-16.69 | 14.0 | 9.0 | 1600 | ○ |
| | BTAT797-102 | | | | 2591 | ○ |
| 798 | BTAT798-63 | 16.70-17.68 | 15.0 | 10.0 | 1600 | ○ |
| | BTAT798-102 | | | | 2591 | ○ |

## Imperial Tubes

| Tube Size | Tube Item Number | Imperial | | | | |
|---|---|---|---|---|---|---|
| | | Diameter Range (inch) | Tube OD (inch) | Tube ID (inch) | Length (inch) | Stk. |
| 794 | BTAT794-63 | 0.503-0.535 | 0.433 | 0.276 | 63 | ○ |
| | BTAT794-102 | | | | 102 | ○ |
| 795 | BTAT795-63 | 0.536-0.575 | 0.472 | 0.315 | 63 | ○ |
| | BTAT795-102 | | | | 102 | ○ |
| 796 | BTAT796-63 | 0.576-0.614 | 0.512 | 0.335 | 63 | ○ |
| | BTAT796-102 | | | | 102 | ○ |
| 797 | BTAT797-63 | 0.615-0.657 | 0.551 | 0.354 | 63 | ○ |
| | BTAT797-102 | | | | 102 | ○ |
| 798 | BTAT798-63 | 0.658-0.696 | 0.591 | 0.394 | 63 | ○ |
| | BTAT798-102 | | | | 102 | ○ |

## 0 Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 450H-13 | ● | 450T-13 | ◆ | 450A-13 | ◆ | 450N-13 | ◆ |
| 33/64" | 13.10 | .5156" | 450H-.515 | ○ | 450T-.515 | ◆ | 450A-.515 | ◆ | 450N-.515 | ◆ |
| 17/32" | 13.49 | .5313" | 450H-0017 | ○ | 450T-0017 | ◆ | 450A-0017 | ◆ | 450N-0017 | ◆ |
| | 13.50 | .5315" | 450H-13.5 | ● | 450T-13.5 | ◆ | 450A-13.5 | ◆ | 450N-13.5 | ◆ |
| 35/64" | 13.89 | .5469" | 450H-.546 | ○ | 450T-.546 | ◆ | 450A-.546 | ◆ | 450N-.546 | ◆ |
| | 14.00 | .5512" | 450H-14 | ● | 450T-14 | ◆ | 450A-14 | ◆ | 450N-14 | ◆ |
| 9/16" | 14.29 | .5625" | 450H-0018 | ○ | 450T-0018 | ◆ | 450A-0018 | ◆ | 450N-0018 | ◆ |
| | 14.50 | .5709" | 450H-14.5 | ● | 450T-14.5 | ◆ | 450A-14.5 | ◆ | 450N-14.5 | ◆ |
| 37/64" | 14.68 | .5781" | 450H-.578 | ○ | 450T-.578 | ◆ | 450A-.578 | ◆ | 450N-.578 | ◆ |
| | 14.80 | .5827" | 450H-14.8 | ○ | 450T-14.8 | ◆ | 450A-14.8 | ◆ | 450N-14.8 | ◆ |
| | 15.00 | .5906" | 450H-15 | ● | 450T-15 | ◆ | 450A-15 | ◆ | 450N-15 | ◆ |
| 19/32" | 15.08 | .5938" | 450H-0019 | ○ | 450T-0019 | ◆ | 450A-0019 | ◆ | 450N-0019 | ◆ |
| 39/64" | 15.48 | .6094" | 450H-.609 | ○ | 450T-.609 | ◆ | 450A-.609 | ◆ | 450N-.609 | ◆ |
| | 15.50 | .6102" | 450H-15.5 | ● | 450T-15.5 | ◆ | 450A-15.5 | ◆ | 450N-15.5 | ◆ |
| 5/8" | 15.88 | .6250" | 450H-0020 | ○ | 450T-0020 | ◆ | 450A-0020 | ◆ | 450N-0020 | ◆ |
| | 16.00 | .6299" | 450H-16 | ● | 450T-16 | ◆ | 450A-16 | ◆ | 450N-16 | ◆ |
| 41/64" | 16.27 | .6406" | 450H-.640 | ○ | 450T-.640 | ◆ | 450A-.640 | ◆ | 450N-.640 | ◆ |
| | 16.50 | .6496" | 450H-16.5 | ● | 450T-16.5 | ◆ | 450A-16.5 | ◆ | 450N-16.5 | ◆ |
| 21/32" | 16.67 | .6563" | 450H-0021 | ○ | 450T-0021 | ◆ | 450A-0021 | ◆ | 450N-0021 | ◆ |
| | 16.80 | .6614" | 450H-16.8 | ○ | 450T-16.8 | ◆ | 450A-16.8 | ◆ | 450N-16.8 | ◆ |
| | 17.00 | .6693" | 450H-17 | ● | 450T-17 | ◆ | 450A-17 | ◆ | 450N-17 | ◆ |
| 43/64" | 17.07 | .6719" | 450H-.671 | ○ | 450T-.671 | ◆ | 450A-.671 | ◆ | 450N-.671 | ◆ |
| 11/16" | 17.46 | .6875" | 450H-0022 | ○ | 450T-0022 | ◆ | 450A-0022 | ◆ | 450N-0022 | ◆ |
| | 17.50 | .6890" | 450H-17.5 | ● | 450T-17.5 | ◆ | 450A-17.5 | ◆ | 450N-17.5 | ◆ |

*Supplied in 2 piece packages.*

## 0 Series Standard T-A Original HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 150H-13 | ◆ | 150T-13 | ● | 150A-13 | ● | 150N-13 | ● |
| 33/64" | 13.10 | .5156" | 150H-.515 | ◆ | 150T-.515 | ○ | 150A-.515 | ○ | 150N-.515 | ○ |
| 17/32" | 13.49 | .5313" | 150H-0017 | ◆ | 150T-0017 | ○ | 150A-0017 | ○ | 150N-0017 | ○ |
| | 13.50 | .5315" | 150H-13.5 | ◆ | 150T-13.5 | ● | 150A-13.5 | ● | 150N-13.5 | ● |
| 35/64" | 13.89 | .5469" | 150H-.546 | ◆ | 150T-.546 | ○ | 150A-.546 | ○ | 150N-.546 | ○ |
| | 14.00 | .5512" | 150H-14 | ◆ | 150T-14 | ● | 150A-14 | ● | 150N-14 | ● |
| 9/16" | 14.29 | .5625" | 150H-0018 | ◆ | 150T-0018 | ○ | 150A-0018 | ○ | 150N-0018 | ○ |
| | 14.50 | .5709" | 150H-14.5 | ◆ | 150T-14.5 | ● | 150A-14.5 | ● | 150N-14.5 | ● |
| 37/64" | 14.68 | .5781" | 150H-.578 | ◆ | 150T-.578 | ○ | 150A-.578 | ○ | 150N-.578 | ○ |
| | 14.80 | .5827" | 150H-14.8 | ◆ | 150T-14.8 | ○ | 150A-14.8 | ● | 150N-14.8 | ○ |
| | 15.00 | .5906" | 150H-15 | ◆ | 150T-15 | ● | 150A-15 | ● | 150N-15 | ● |
| 19/32" | 15.08 | .5938" | 150H-0019 | ◆ | 150T-0019 | ○ | 150A-0019 | ○ | 150N-0019 | ○ |
| 39/64" | 15.48 | .6094" | 150H-.609 | ◆ | 150T-.609 | ○ | 150A-.609 | ○ | 150N-.609 | ○ |
| | 15.50 | .6102" | 150H-15.5 | ◆ | 150T-15.5 | ● | 150A-15.5 | ● | 150N-15.5 | ● |
| 5/8" | 15.88 | .6250" | 150H-0020 | ◆ | 150T-0020 | ○ | 150A-0020 | ○ | 150N-0020 | ○ |
| | 16.00 | .6299" | 150H-16 | ◆ | 150T-16 | ● | 150A-16 | ● | 150N-16 | ● |
| 41/64" | 16.27 | .6406" | 150H-.640 | ◆ | 150T-.640 | ○ | 150A-.640 | ○ | 150N-.640 | ○ |
| | 16.50 | .6496" | 150H-16.5 | ◆ | 150T-16.5 | ● | 150A-16.5 | ● | 150N-16.5 | ● |
| 21/32" | 16.67 | .6563" | 150H-0021 | ◆ | 150T-0021 | ○ | 150A-0021 | ○ | 150N-0021 | ○ |
| | 16.80 | .6614" | 150H-16.8 | ◆ | 150T-16.8 | ○ | 150A-16.8 | ● | 150N-16.8 | ○ |

*Supplied in 2 piece packages.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 0 Series T-A® Drill Inserts

Diameter Range 12.98 to 17.65mm

## 0 Series Standard T-A Original HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 17.00 | .6693" | 150H-17 | ◆ | 150T-17 | ● | 150A-17 | ● | 150N-17 | ● |
| 43/64" | 17.07 | .6719" | 150H-.671 | ◆ | 150T-.671 | ○ | 150A-.671 | ○ | 150N-.671 | ○ |
| 11/16" | 17.46 | .6875" | 150H-0022 | ◆ | 150T-0022 | ○ | 150A-0022 | ○ | 150N-0022 | ○ |
| | 17.50 | .6890" | 150H-17.5 | ◆ | 150T-17.5 | ● | 150A-17.5 | ● | 150N-17.5 | ● |

*Supplied in 2 piece packages.*

## 0 Series Standard T-A Original HSS Premium Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 180H-13 | ◆ | 180T-13 | ● | 180A-13 | ● | 180N-13 | ● |
| 33/64" | 13.10 | .5156" | 180H-.515 | ◆ | 180T-.515 | ○ | 180A-.515 | ○ | 180N-.515 | ○ |
| 17/32" | 13.49 | .5313" | 180H-0017 | ◆ | 180T-0017 | ○ | 180A-0017 | ○ | 180N-0017 | ○ |
| | 13.50 | .5315" | 180H-13.5 | ◆ | 180T-13.5 | ● | 180A-13.5 | ● | 180N-13.5 | ● |
| 35/64" | 13.89 | .5469" | 180H-.546 | ◆ | 180T-.546 | ○ | 180A-.546 | ○ | 180N-.546 | ○ |
| | 14.00 | .5512" | 180H-14 | ◆ | 180T-14 | ● | 180A-14 | ● | 180N-14 | ● |
| 9/16" | 14.29 | .5625" | 180H-0018 | ◆ | 180T-0018 | ○ | 180A-0018 | ○ | 180N-0018 | ○ |
| | 14.50 | .5709" | 180H-14.5 | ◆ | 180T-14.5 | ● | 180A-14.5 | ● | 180N-14.5 | ● |
| 37/64" | 14.68 | .5781" | 180H-.578 | ◆ | 180T-.578 | ○ | 180A-.578 | ○ | 180N-.578 | ○ |
| | 14.80 | .5827" | 180H-14.8 | ◆ | 180T-14.8 | ● | 180A-14.8 | ● | 180N-14.8 | ● |
| | 15.00 | .5906" | 180H-15 | ◆ | 180T-15 | ● | 180A-15 | ● | 180N-15 | ● |
| 19/32" | 15.08 | .5938" | 180H-0019 | ◆ | 180T-0019 | ○ | 180A-0019 | ○ | 180N-0019 | ○ |
| 39/64" | 15.48 | .6094" | 180H-.609 | ◆ | 180T-.609 | ○ | 180A-.609 | ○ | 180N-.609 | ○ |
| | 15.50 | .6102" | 180H-15.5 | ◆ | 180T-15.5 | ● | 180A-15.5 | ● | 180N-15.5 | ● |
| 5/8" | 15.88 | .6250" | 180H-0020 | ◆ | 180T-0020 | ○ | 180A-0020 | ○ | 180N-0020 | ○ |
| | 16.00 | .6299" | 180H-16 | ◆ | 180T-16 | ● | 180A-16 | ● | 180N-16 | ● |
| 41/64" | 16.27 | .6406" | 180H-.640 | ◆ | 180T-.640 | ○ | 180A-.640 | ○ | 180N-.640 | ○ |
| | 16.50 | .6496" | 180H-16.5 | ◆ | 180T-16.5 | ● | 180A-16.5 | ● | 180N-16.5 | ● |
| 21/32" | 16.67 | .6563" | 180H-0021 | ◆ | 180T-0021 | ○ | 180A-0021 | ○ | 180N-0021 | ○ |
| | 17.00 | .6693" | 180H-17 | ◆ | 180T-17 | ● | 180A-17 | ● | 180N-17 | ● |
| 43/64" | 17.07 | .6719" | 180H-.671 | ◆ | 180T-.671 | ○ | 180A-.671 | ○ | 180N-.671 | ○ |
| 11/16" | 17.46 | .6875" | 180H-0022 | ◆ | 180T-0022 | ○ | 180A-0022 | ○ | 180N-0022 | ○ |
| | 17.50 | .6890" | 180H-17.5 | ◆ | 180T-17.5 | ● | 180A-17.5 | ● | 180N-17.5 | ● |

*Supplied in 2 piece packages.*

## 0 Series GEN2 T-A K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 4C20H-13 | ● | 4C20T-13 | ◆ | 4C20A-13 | ◆ | 4C20N-13 | ◆ |
| 33/64" | 13.10 | .5156" | 4C20H-.515 | ○ | 4C20T-.515 | ◆ | 4C20A-.515 | ◆ | 4C20N-.515 | ◆ |
| 17/32" | 13.49 | .5313" | 4C20H-0017 | ○ | 4C20T-0017 | ◆ | 4C20A-0017 | ◆ | 4C20N-0017 | ◆ |
| | 13.50 | .5315" | 4C20H-13.5 | ● | 4C20T-13.5 | ◆ | 4C20A-13.5 | ◆ | 4C20N-13.5 | ◆ |
| 35/64" | 13.89 | .5469" | 4C20H-.546 | ○ | 4C20T-.546 | ◆ | 4C20A-.546 | ◆ | 4C20N-.546 | ◆ |
| | 14.00 | .5512" | 4C20H-14 | ● | 4C20T-14 | ◆ | 4C20A-14 | ◆ | 4C20N-14 | ◆ |
| 9/16" | 14.29 | .5625" | 4C20H-0018 | ○ | 4C20T-0018 | ◆ | 4C20A-0018 | ◆ | 4C20N-0018 | ◆ |
| | 14.50 | .5709" | 4C20H-14.5 | ● | 4C20T-14.5 | ◆ | 4C20A-14.5 | ◆ | 4C20N-14.5 | ◆ |
| 37/64" | 14.68 | .5781" | 4C20H-.578 | ○ | 4C20T-.578 | ◆ | 4C20A-.578 | ◆ | 4C20N-.578 | ◆ |
| | 14.80 | .5827" | 4C20H-14.8 | ◆ | 4C20T-14.8 | ◆ | 4C20A-14.8 | ◆ | 4C20N-14.8 | ◆ |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## 0 Series GEN2 T-A® K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 15.00 | .5906" | 4C20H-15 | ● | 4C20T-15 | ◆ | 4C20A-15 | ◆ | 4C20N-15 | ◆ |
| 19/32" | 15.08 | .5938" | 4C20H-0019 | ○ | 4C20T-0019 | ◆ | 4C20A-0019 | ◆ | 4C20N-0019 | ◆ |
| 39/64" | 15.48 | .6094" | 4C20H-.609 | ○ | 4C20T-.609 | ◆ | 4C20A-.609 | ◆ | 4C20N-.609 | ◆ |
| | 15.50 | .6102" | 4C20H-15.5 | ● | 4C20T-15.5 | ◆ | 4C20A-15.5 | ◆ | 4C20N-15.5 | ◆ |
| | 15.70 | .6181" | 4C20H-.618 | ○ | 4C20T-.618 | ◆ | 4C20A-.618 | ◆ | 4C20N-.618 | ◆ |
| 5/8" | 15.88 | .6250" | 4C20H-0020 | ○ | 4C20T-0020 | ◆ | 4C20A-0020 | ◆ | 4C20N-0020 | ◆ |
| | 16.00 | .6299" | 4C20H-16 | ● | 4C20T-16 | ◆ | 4C20A-16 | ◆ | 4C20N-16 | ◆ |
| 41/64" | 16.27 | .6406" | 4C20H-.640 | ○ | 4C20T-.640 | ◆ | 4C20A-.640 | ◆ | 4C20N-.640 | ◆ |
| | 16.50 | .6496" | 4C20H-16.5 | ● | 4C20T-16.5 | ◆ | 4C20A-16.5 | ◆ | 4C20N-16.5 | ◆ |
| 21/32" | 16.67 | .6563" | 4C20H-0021 | ○ | 4C20T-0021 | ◆ | 4C20A-0021 | ◆ | 4C20N-0021 | ◆ |
| | 16.80 | .6614" | 4C20H-16.8 | ◆ | 4C20T-16.8 | ◆ | 4C20A-16.8 | ◆ | 4C20N-16.8 | ◆ |
| | 17.00 | .6693" | 4C20H-17 | ● | 4C20T-17 | ◆ | 4C20A-17 | ◆ | 4C20N-17 | ◆ |
| 43/64" | 17.07 | .6719" | 4C20H-.671 | ○ | 4C20T-.671 | ◆ | 4C20A-.671 | ◆ | 4C20N-.671 | ◆ |
| 11/16" | 17.46 | .6875" | 4C20H-0022 | ○ | 4C20T-0022 | ◆ | 4C20A-0022 | ◆ | 4C20N-0022 | ◆ |
| | 17.50 | .6890" | 4C20H-17.5 | ● | 4C20T-17.5 | ◆ | 4C20A-17.5 | ◆ | 4C20N-17.5 | ◆ |

*Supplied in 2 piece packages.*

## 0 Series Standard T-A® Original K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 1C20H-13 | ◆ | 1C20T-13 | ● | 1C20A-13 | ● | 1C20N-13 | ◆ |
| 33/64" | 13.10 | .5156" | 1C20H-.515 | ◆ | 1C20T-.515 | ○ | 1C20A-.515 | ○ | 1C20N-.515 | ◆ |
| 17/32" | 13.49 | .5313" | 1C20H-0017 | ◆ | 1C20T-0017 | ○ | 1C20A-0017 | ○ | 1C20N-0017 | ◆ |
| | 13.50 | .5315" | 1C20H-13.5 | ◆ | 1C20T-13.5 | ● | 1C20A-13.5 | ● | 1C20N-13.5 | ◆ |
| 35/64" | 13.89 | .5469" | 1C20H-.546 | ◆ | 1C20T-.546 | ○ | 1C20A-.546 | ○ | 1C20N-.546 | ◆ |
| | 14.00 | .5512" | 1C20H-14 | ◆ | 1C20T-14 | ● | 1C20A-14 | ● | 1C20N-14 | ◆ |
| 9/16" | 14.29 | .5625" | 1C20H-0018 | ◆ | 1C20T-0018 | ○ | 1C20A-0018 | ○ | 1C20N-0018 | ◆ |
| | 14.50 | .5709" | 1C20H-14.5 | ◆ | 1C20T-14.5 | ● | 1C20A-14.5 | ● | 1C20N-14.5 | ◆ |
| 37/64" | 14.68 | .5781" | 1C20H-.578 | ◆ | 1C20T-.578 | ○ | 1C20A-.578 | ○ | 1C20N-.578 | ◆ |
| | 14.80 | .5827" | 1C20H-14.8 | ◆ | 1C20T-14.8 | ○ | 1C20A-14.8 | ● | 1C20N-14.8 | ◆ |
| | 15.00 | .5906" | 1C20H-15 | ◆ | 1C20T-15 | ● | 1C20A-15 | ● | 1C20N-15 | ◆ |
| 19/32" | 15.08 | .5938" | 1C20H-0019 | ◆ | 1C20T-0019 | ○ | 1C20A-0019 | ○ | 1C20N-0019 | ◆ |
| 39/64" | 15.48 | .6094" | 1C20H-.609 | ◆ | 1C20T-.609 | ○ | 1C20A-.609 | ○ | 1C20N-.609 | ◆ |
| | 15.50 | .6102" | 1C20H-15.5 | ◆ | 1C20T-15.5 | ● | 1C20A-15.5 | ● | 1C20N-15.5 | ◆ |
| | 15.70 | .6181" | 1C20H-.618 | ◆ | 1C20T-.618 | ○ | 1C20A-.618 | ○ | 1C20N-.618 | ◆ |
| 5/8" | 15.88 | .6250" | 1C20H-0020 | ◆ | 1C20T-0020 | ○ | 1C20A-0020 | ○ | 1C20N-0020 | ◆ |
| | 16.00 | .6299" | 1C20H-16 | ◆ | 1C20T-16 | ● | 1C20A-16 | ● | 1C20N-16 | ◆ |
| 41/64" | 16.27 | .6406" | 1C20H-.640 | ◆ | 1C20T-.640 | ○ | 1C20A-.640 | ○ | 1C20N-.640 | ◆ |
| | 16.50 | .6496" | 1C20H-16.5 | ◆ | 1C20T-16.5 | ● | 1C20A-16.5 | ● | 1C20N-16.5 | ◆ |
| 21/32" | 16.67 | .6563" | 1C20H-0021 | ◆ | 1C20T-0021 | ○ | 1C20A-0021 | ○ | 1C20N-0021 | ◆ |
| | 16.80 | .6614" | 1C20H-16.8 | ◆ | 1C20T-16.8 | ○ | 1C20A-16.8 | ● | 1C20N-16.8 | ◆ |
| | 17.00 | .6693" | 1C20H-17 | ◆ | 1C20T-17 | ● | 1C20A-17 | ● | 1C20N-17 | ◆ |
| 43/64" | 17.07 | .6719" | 1C20H-.671 | ◆ | 1C20T-.671 | ○ | 1C20A-.671 | ○ | 1C20N-.671 | ◆ |
| 11/16" | 17.46 | .6875" | 1C20H-0022 | ◆ | 1C20T-0022 | ○ | 1C20A-0022 | ○ | 1C20N-0022 | ◆ |
| | 17.50 | .6890" | 1C20H-17.5 | ◆ | 1C20T-17.5 | ● | 1C20A-17.5 | ● | 1C20N-17.5 | ◆ |

*Supplied in 2 piece packages.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 0 Series T-A® Drill Inserts

Diameter Range 12.98 to 17.65mm

## 0 Series GEN2 T-A K35 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 4C10H-13 | ● | 4C10T-13 | ◆ | 4C10A-13 | ◆ | 4C10N-13 | ◆ |
| 33/64" | 13.10 | .5156" | 4C10H-.515 | ○ | 4C10T-.515 | ◆ | 4C10A-.515 | ◆ | 4C10N-.515 | ◆ |
| 17/32" | 13.49 | .5313" | 4C10H-0017 | ○ | 4C10T-0017 | ◆ | 4C10A-0017 | ◆ | 4C10N-0017 | ◆ |
| | 13.50 | .5315" | 4C10H-13.5 | ● | 4C10T-13.5 | ◆ | 4C10A-13.5 | ◆ | 4C10N-13.5 | ◆ |
| 35/64" | 13.89 | .5469" | 4C10H-.546 | ○ | 4C10T-.546 | ◆ | 4C10A-.546 | ◆ | 4C10N-.546 | ◆ |
| | 14.00 | .5512" | 4C10H-14 | ● | 4C10T-14 | ◆ | 4C10A-14 | ◆ | 4C10N-14 | ◆ |
| 9/16" | 14.29 | .5625" | 4C10H-0018 | ○ | 4C10T-0018 | ◆ | 4C10A-0018 | ◆ | 4C10N-0018 | ◆ |
| | 14.50 | .5709" | 4C10H-14.5 | ● | 4C10T-14.5 | ◆ | 4C10A-14.5 | ◆ | 4C10N-14.5 | ◆ |
| 37/64" | 14.68 | .5781" | 4C10H-.578 | ◆ | 4C10T-.578 | ◆ | 4C10A-.578 | ◆ | 4C10N-.578 | ◆ |
| | 14.80 | .5827" | 4C10H-14.8 | ◆ | 4C10T-14.8 | ◆ | 4C10A-14.8 | ◆ | 4C10N-14.8 | ◆ |
| | 15.00 | .5906" | 4C10H-15 | ● | 4C10T-15 | ◆ | 4C10A-15 | ◆ | 4C10N-15 | ◆ |
| 19/32" | 15.08 | .5938" | 4C10H-0019 | ○ | 4C10T-0019 | ◆ | 4C10A-0019 | ◆ | 4C10N-0019 | ◆ |
| 39/64" | 15.48 | .6094" | 4C10H-.609 | ○ | 4C10T-.609 | ◆ | 4C10A-.609 | ◆ | 4C10N-.609 | ◆ |
| | 15.50 | .6102" | 4C10H-15.5 | ● | 4C10T-15.5 | ◆ | 4C10A-15.5 | ◆ | 4C10N-15.5 | ◆ |
| | 15.70 | .6181" | 4C10H-.618 | ◆ | 4C10T-.618 | ◆ | 4C10A-.618 | ◆ | 4C10N-.618 | ◆ |
| 5/8" | 15.88 | .6250" | 4C10H-0020 | ○ | 4C10T-0020 | ◆ | 4C10A-0020 | ◆ | 4C10N-0020 | ◆ |
| | 16.00 | .6299" | 4C10H-16 | ● | 4C10T-16 | ◆ | 4C10A-16 | ◆ | 4C10N-16 | ◆ |
| 41/64" | 16.27 | .6406" | 4C10H-.640 | ○ | 4C10T-.640 | ◆ | 4C10A-.640 | ◆ | 4C10N-.640 | ◆ |
| | 16.50 | .6496" | 4C10H-16.5 | ● | 4C10T-16.5 | ◆ | 4C10A-16.5 | ◆ | 4C10N-16.5 | ◆ |
| 21/32" | 16.67 | .6563" | 4C10H-0021 | ○ | 4C10T-0021 | ◆ | 4C10A-0021 | ◆ | 4C10N-0021 | ◆ |
| | 16.80 | .6614" | 4C10H-16.8 | ◆ | 4C10T-16.8 | ◆ | 4C10A-16.8 | ◆ | 4C10N-16.8 | ◆ |
| | 17.00 | .6693" | 4C10H-17 | ● | 4C10T-17 | ◆ | 4C10A-17 | ◆ | 4C10N-17 | ◆ |
| 43/64" | 17.07 | .6719" | 4C10H-.671 | ◆ | 4C10T-.671 | ◆ | 4C10A-.671 | ◆ | 4C10N-.671 | ◆ |
| 11/16" | 17.46 | .6875" | 4C10H-0022 | ○ | 4C10T-0022 | ◆ | 4C10A-0022 | ◆ | 4C10N-0022 | ◆ |
| | 17.50 | .6890" | 4C10H-17.5 | ● | 4C10T-17.5 | ◆ | 4C10A-17.5 | ◆ | 4C10N-17.5 | ◆ |

*Supplied in 2 piece packages.*

## 0 Series Standard T-A Original K10 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 1C30H-13-CI | ◆ | 1C30T-13-CI | ◆ | 1C30A-13-CI | ● | 1C30N-13-CI | ◆ |
| 33/64" | 13.10 | .5156" | 1C30H-.515-CI | ◆ | 1C30T-.515-CI | ◆ | 1C301A-.515-CI | ○ | 1C30N-.515-CI | ◆ |
| 17/32" | 13.49 | .5313" | 1C30H-0017-CI | ◆ | 1C30T-0017-CI | ◆ | 1C30A-0017-CI | ○ | 1C30N-0017-CI | ◆ |
| | 13.50 | .5315" | 1C30H-13.5-CI | ◆ | 1C30T-13.5-CI | ◆ | 1C30A-13.5-CI | ● | 1C30N-13.5-CI | ◆ |
| 35/64" | 13.89 | .5469" | 1C30H-.546-CI | ◆ | 1C30T-.546-CI | ◆ | 1C30A-.546-CI | ○ | 1C30N-.546-CI | ◆ |
| | 14.00 | .5512" | 1C30H-14-CI | ◆ | 1C30T-14-CI | ◆ | 1C30A-14-CI | ● | 1C30N-14-CI | ◆ |
| 9/16" | 14.29 | .5625" | 1C30H-0018-CI | ◆ | 1C30T-0018-CI | ◆ | 1C30A-0018-CI | ○ | 1C30N-0018-CI | ◆ |
| | 14.50 | .5709" | 1C30H-14.5-CI | ◆ | 1C30T-14.5-CI | ◆ | 1C30A-14.5-CI | ● | 1C30N-14.5-CI | ◆ |
| 37/64" | 14.68 | .5781" | 1C30H-.578-CI | ◆ | 1C30T-.578-CI | ◆ | 1C30A-.578-CI | ○ | 1C30N-.578-CI | ◆ |
| | 14.80 | .5827" | 1C30H-14.8-CI | ◆ | 1C30T-14.8-CI | ◆ | 1C30A-14.8-CI | ◆ | 1C30N-14.8-CI | ◆ |
| | 15.00 | .5906" | 1C30H-15-CI | ◆ | 1C30T-15-CI | ◆ | 1C30A-15-CI | ● | 1C30N-15-CI | ◆ |
| 19/32" | 15.08 | .5938" | 1C30H-0019-CI | ◆ | 1C30T-0019-CI | ◆ | 1C30A-0019-CI | ○ | 1C30N-0019-CI | ◆ |
| 39/64" | 15.48 | .6094" | 1C30H-.609-CI | ◆ | 1C30T-.609-CI | ◆ | 1C30A-.609-CI | ○ | 1C30N-.609-CI | ◆ |
| | 15.50 | .6102" | 1C30H-15.5-CI | ◆ | 1C30T-15.5-CI | ◆ | 1C30A-15.5-CI | ● | 1C30N-15.5-CI | ◆ |
| | 15.70 | .6181" | 1C30H-.618-CI | ◆ | 1C30T-.618-CI | ◆ | 1C30A-.618-CI | ◆ | 1C30N-.618-CI | ◆ |
| 5/8" | 15.88 | .6250" | 1C30H-0020-CI | ◆ | 1C30T-0020-CI | ◆ | 1C30A-0020-CI | ○ | 1C30N-0020-CI | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


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## 0 Series Standard T-A Original K10 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 16.00 | .6299" | 1C30H-16-CI | ◆ | 1C30T-16-CI | ◆ | 1C30A-16-CI | ● | 1C30N-16-CI | ◆ |
| 41/64" | 16.27 | .6406" | 1C30H-.640-CI | ◆ | 1C30T-.640-CI | ◆ | 1C30A-.640-CI | ○ | 1C30N-.640-CI | ◆ |
| | 16.50 | .6496" | 1C30H-16.5-CI | ◆ | 1C30T-16.5-CI | ◆ | 1C30A-16.5-CI | ● | 1C30N-16.5-CI | ◆ |
| 21/32" | 16.67 | .6563" | 1C30H-0021-C | ◆ | 1C30T-0021-CI | ◆ | 1030A-0021-CI | ○ | 1C30N-0021-CI | ◆ |
| | 17.00 | .6693" | 1C30H-17-CI | ◆ | 1C30T-17-CI | ◆ | 1C30A-17-CI | ● | 1C30N-17-CI | ◆ |
| 43/64" | 17.07 | .6719" | 1C30H-.671-CI | ◆ | 1C30T-.671-CI | ◆ | 1C30A-.671-CI | ○ | 1C30N-.671-CI | ◆ |
| 11/16" | 17.46 | .6875" | 1C30H-0022-CI | ◆ | 1C30T-0022-CI | ◆ | 1C30A-0022-CI | ○ | 1C30N-0022-CI | ◆ |
| | 17.50 | .6890" | 1C30H-17.5-CI | ◆ | 1C30T-17.5-CI | ◆ | 1C30A-17.5-CI | ● | 1C30N-17.5-CI | ◆ |

*Supplied in 2 piece packages.*

## 0 Series Standard T-A Original P40 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 1C50H-13 | ◆ | 1C50T-13 | ● | 1C50A-13 | ● | 1C50N-13 | ◆ |
| 33/64" | 13.10 | .5156" | 1C50H-.515 | ◆ | 1C50T-.515 | ○ | 1C50A-.515 | ○ | 1C50N-.515 | ◆ |
| 17/32" | 13.49 | .5313" | 1C50H-0017 | ◆ | 1C50T-0017 | ○ | 1C50A-0017 | ○ | 1C50N-0017 | ◆ |
| | 13.50 | .5315" | 1C50H-13.5 | ◆ | 1C50T-13.5 | ● | 1C50A-13.5 | ● | 1C50N-13.5 | ◆ |
| 35/64" | 13.89 | .5469" | 1C50H-.546 | ◆ | 1C50T-.546 | ○ | 1C50A-.546 | ○ | 1C50N-.546 | ◆ |
| | 14.00 | .5512" | 1C50H-14 | ◆ | 1C50T-14 | ● | 1C50A-14 | ● | 1C50N-14 | ◆ |
| 9/16" | 14.29 | .5625" | 1C50H-0018 | ◆ | 1C50T-0018 | ○ | 1C50A-0018 | ○ | 1C50N-0018 | ◆ |
| | 14.50 | .5709" | 1C50H-14.5 | ◆ | 1C50T-14.5 | ● | 1C50A-14.5 | ● | 1C50N-14.5 | ◆ |
| 37/64" | 14.68 | .5781" | 1C50H-.578 | ◆ | 1C50T-.578 | ○ | 1C50A-.578 | ○ | 1C50N-.578 | ◆ |
| | 14.80 | .5827" | 1C50H-14.8 | ◆ | 1C50T-14.8 | ● | 1C50A-14.8 | ● | 1C50N-14.8 | ◆ |
| | 15.00 | .5906" | 1C50H-15 | ◆ | 1C50T-15 | ● | 1C50A-15 | ● | 1C50N-15 | ◆ |
| 19/32" | 15.08 | .5938" | 1C50H-0019 | ◆ | 1C50T-0019 | ○ | 1C50A-0019 | ○ | 1C50N-0019 | ◆ |
| 39/64" | 15.48 | .6094" | 1C50H-.609 | ◆ | 1C50T-.609 | ○ | 1C50A-.609 | ○ | 1C50N-.609 | ◆ |
| | 15.50 | .6102" | 1C50H-15.5 | ◆ | 1C50T-15.5 | ● | 1C50A-15.5 | ● | 1C50N-15.5 | ◆ |
| | 15.70 | .6181" | 1C50H-.618 | ◆ | 1C50T-.618 | ○ | 1C50A-.618 | ○ | 1C50N-.618 | ◆ |
| 5/8" | 15.88 | .6250" | 1C50H-0020 | ◆ | 1C50T-0020 | ○ | 1C50A-0020 | ○ | 1C50N-0020 | ◆ |
| | 16.00 | .6299" | 1C50H-16 | ◆ | 1C50T-16 | ● | 1C50A-16 | ● | 1C50N-16 | ◆ |
| 41/64" | 16.27 | .6406" | 1C50H-.640 | ◆ | 1C50T-.640 | ○ | 1C50A-.640 | ○ | 1C50N-.640 | ◆ |
| | 16.50 | .6496" | 1C50H-16.5 | ◆ | 1C50T-16.5 | ● | 1C50A-16.5 | ● | 1C50N-16.5 | ◆ |
| 21/32" | 16.67 | .6563" | 1C50H-0021 | ◆ | 1C50T-0021 | ○ | 1C50A-0021 | ○ | 1C50N-0021 | ◆ |
| | 17.00 | .6693" | 1C50H-17 | ◆ | 1C50T-17 | ● | 1C50A-17 | ● | 1C50N-17 | ◆ |
| 43/64" | 17.07 | .6719" | 1C50H-.671 | ◆ | 1C50T-.671 | ○ | 1C50A-.671 | ○ | 1C50N-.671 | ◆ |
| 11/16" | 17.46 | .6875" | 1C50H-0022 | ◆ | 1C50T-0022 | ○ | 1C50A-0022 | ○ | 1C50N-0022 | ◆ |
| | 17.50 | .6890" | 1C50H-17.5 | ◆ | 1C50T-17.5 | ● | 1C50A-17.5 | ● | 1C50N-17.5 | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

# 0 Series T-A® Drill Inserts

Diameter Range 12.98 to 17.65mm

## 0 Series Standard T-A Original HSS Super Cobalt - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 150H-13-FB | ◆ | 150T-13-FB | ○ | 150A-13-FB | ◆ | 150N-13-FB | ◆ |
| 33/64" | 13.10 | .5156" | 150H-.515-FB | ◆ | 150T-.515-FB | ○ | 150A-.515-FB | ◆ | 150N-.515-FB | ◆ |
| 17/32" | 13.49 | .5313" | 150H-0017-FB | ◆ | 150T-0017-FB | ○ | 150A-0017-FB | ◆ | 150N-0017-FB | ◆ |
| | 13.50 | .5315" | 150H-13.5-FB | ◆ | 150T-13.5-FB | ○ | 150A-13.5-FB | ◆ | 150N-13.5-FB | ◆ |
| | 14.00 | .5512" | 150H-14-FB | ◆ | 150T-14-FB | ○ | 150A-14-FB | ◆ | 150N-14-FB | ◆ |
| 9/16" | 14.29 | .5625" | 150H-0018-FB | ◆ | 150T-0018-FB | ○ | 150A-0018-FB | ◆ | 150N-0018-FB | ◆ |
| | 14.50 | .5709" | 150H-14.5-FB | ◆ | 150T-14.5-FB | ○ | 150A-14.5-FB | ◆ | 150N-14.5-FB | ◆ |
| 37/64" | 14.68 | .5781" | 150H-.578-FB | ◆ | 150T-.578-FB | ○ | 150A-.578-FB | ◆ | 150N-.578-FB | ◆ |
| | 14.80 | .5827" | 150H-14.8-FB | ◆ | 150T-14.8-FB | ○ | 150A-14.8-FB | ◆ | 150N-14.8-FB | ◆ |
| | 15.00 | .5906" | 150H-15-FB | ◆ | 150T-15-FB | ○ | 150A-15-FB | ◆ | 150N-15-FB | ◆ |
| 19/32" | 15.08 | .5938" | 150H-0019-FB | ◆ | 150T-0019-FB | ○ | 150A-0019-FB | ◆ | 150N-0019-FB | ◆ |
| | 15.50 | .6102" | 150H-15.5-FB | ◆ | 150T-15.5-FB | ○ | 150A-15.5-FB | ◆ | 150N-15.5-FB | ◆ |
| 5/8" | 15.88 | .6250" | 150H-0020-FB | ◆ | 150T-0020-FB | ○ | 150A-0020-FB | ◆ | 150N-0020-FB | ◆ |
| | 16.00 | .6299" | 150H-16-FB | ◆ | 150T-16-FB | ○ | 150A-16-FB | ◆ | 150N-16-FB | ◆ |
| | 16.50 | .6496" | 150H-16.5-FB | ◆ | 150T-16.5-FB | ○ | 150A-16.5-FB | ◆ | 150N-16.5-FB | ◆ |
| 21/32" | 16.67 | .6563" | 150H-0021-FB | ◆ | 150T-0021-FB | ○ | 150A-0021-FB | ◆ | 150N-0021-FB | ◆ |
| | 17.00 | .6693" | 150H-17-FB | ◆ | 150T-17-FB | ○ | 150A-17-FB | ◆ | 150N-17-FB | ◆ |
| 11/16" | 17.46 | .6875" | 150H-0022-FB | ◆ | 150T-0022-FB | ○ | 150A-0022-FB | ◆ | 150N-0022-FB | ◆ |
| | 17.50 | .6890" | 150H-17.5-FB | ◆ | 150T-17.5-FB | ○ | 150A-17.5-FB | ◆ | 150N-17.5-FB | ◆ |

*Supplied in 2 piece packages.*

## 0 Series Standard T-A Original K20 Carbide - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 1C20H-13-FB | ◆ | 1C20T-13-FB | ◆ | 1C20A-13-FB | ◆ | 1C20N-13-FB | ◆ |
| 33/64" | 13.10 | .5156" | 1C20H-.515-FB | ◆ | 1C20T-.515-FB | ◆ | 1C20A-.515-FB | ◆ | 1C20N-.515-FB | ◆ |
| 17/32" | 13.49 | .5313" | 1C20H-0017-FB | ◆ | 1C20T-0017-FB | ◆ | 1C20A-0017-FB | ◆ | 1C20N-0017-FB | ◆ |
| | 13.50 | .5315" | 1C20H-13.5-FB | ◆ | 1C20T-13.5-FB | ◆ | 1C20A-13.5-FB | ◆ | 1C20N-13.5-FB | ◆ |
| | 14.00 | .5512" | 1C20H-14-FB | ◆ | 1C20T-14-FB | ◆ | 1C20A-14-FB | ◆ | 1C20N-14-FB | ◆ |
| 9/16" | 14.29 | .5625" | 1C20H-0018-FB | ◆ | 1C20T-0018-FB | ◆ | 1C20A-0018-FB | ◆ | 1C20N-0018-FB | ◆ |
| | 14.50 | .5709" | 1C20H-14.5-FB | ◆ | 1C20T-14.5-FB | ◆ | 1C20A-14.5-FB | ◆ | 1C20N-14.5-FB | ◆ |
| 37/64" | 14.68 | .5781" | 1C20H-.578-FB | ◆ | 1C20T-.578-FB | ◆ | 1C20A-.578-FB | ◆ | 1C20N-.578-FB | ◆ |
| | 14.80 | .5827" | 1C20H-14.8-FB | ◆ | 1C20T-14.8-FB | ◆ | 1C20A-14.8-FB | ◆ | 1C20N-14.8-FB | ◆ |
| | 15.00 | .5906" | 1C20H-15-FB | ◆ | 1C20T-15-FB | ◆ | 1C20A-15-FB | ◆ | 1C20N-15-FB | ◆ |
| 19/32" | 15.08 | .5938" | 1C20H-0019-FB | ◆ | 1C20T-0019-FB | ◆ | 1C20A-0019-FB | ◆ | 1C20N-0019-FB | ◆ |
| | 15.50 | .6102" | 1C20H-15.5-FB | ◆ | 1C20T-15.5-FB | ◆ | 1C20A-15.5-FB | ◆ | 1C20N-15.5-FB | ◆ |
| 5/8" | 15.88 | .6250" | 1C20H-0020-FB | ◆ | 1C20T-0020-FB | ◆ | 1C20A-0020-FB | ◆ | 1C20N-0020-FB | ◆ |
| | 16.00 | .6299" | 1C20H-16-FB | ◆ | 1C20T-16-FB | ◆ | 1C20A-16-FB | ◆ | 1C20N-16-FB | ◆ |
| | 16.50 | .6496" | 1C20H-16.5-FB | ◆ | 1C20T-16.5-FB | ◆ | 1C20A-16.5-FB | ◆ | 1C20N-16.5-FB | ◆ |
| 21/32" | 16.67 | .6563" | 1C20H-0021-FB | ◆ | 1C20T-0021-FB | ◆ | 1C20A-0021-FB | ◆ | 1C20N-0021-FB | ◆ |
| | 17.00 | .6693" | 1C20H-17-FB | ◆ | 1C20T-17-FB | ◆ | 1C20A-17-FB | ◆ | 1C20N-17-FB | ◆ |
| 11/16" | 17.46 | .6875" | 1C20H-0022-FB | ◆ | 1C20T-0022-FB | ◆ | 1C20A-0022-FB | ◆ | 1C20N-0022-FB | ◆ |
| | 17.50 | .6890" | 1C20H-17.5-FB | ◆ | 1C20T-17.5-FB | ◆ | 1C20A-17.5-FB | ◆ | 1C20N-17.5-FB | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


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## 0 Series Standard T-A Original HSS Super Cobalt - 90° Spot and Chamfer

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 13.00 | .5118" | 150H-13-SP | ◆ | 150T-13-SP | ◆ | 150A-13-SP | ◆ | 150N-13-SP | ◆ |
| 33/64" | 13.10 | .5156" | 150H-.515-SP | ◆ | 150T-.515-SP | ◆ | 150A-.515-SP | ◆ | 150N-.515-SP | ◆ |
| 17/32" | 13.49 | .5313" | 150H-0017-SP | ◆ | 150T-0017-SP | ◆ | 150A-0017-SP | ◆ | 150N-0017-SP | ◆ |
| | 13.50 | .5315" | 150H-13.5-SP | ◆ | 150T-13.5-SP | ◆ | 150A-13.5-SP | ◆ | 150N-13.5-SP | ◆ |
| 35/64" | 13.89 | .5469" | 150H-.546-SP | ◆ | 150T-.546-SP | ◆ | 150A-.546-SP | ◆ | 150N-.546-SP | ◆ |
| | 14.00 | .5512" | 150H-14-SP | ◆ | 150T-14-SP | ◆ | 150A-14-SP | ◆ | 150N-14-SP | ◆ |
| 9/16" | 14.29 | .5625" | 150H-0018-SP | ◆ | 150T-0018-SP | ◆ | 150A-0018-SP | ◆ | 150N-0018-SP | ◆ |
| | 14.50 | .5709" | 150H-14.5-SP | ◆ | 150T-14.5-SP | ◆ | 150A-14.5-SP | ◆ | 150N-14.5-SP | ◆ |
| 37/64" | 14.68 | .5781" | 150H-.578-SP | ◆ | 150T-.578-SP | ◆ | 150A-.578-SP | ◆ | 150N-.578-SP | ◆ |
| | 14.80 | .5827" | 150H-14.8-SP | ◆ | 150T-14.8-SP | ◆ | 150A-14.8-SP | ◆ | 150N-14.8-SP | ◆ |
| | 15.00 | .5906" | 150H-15-SP | ◆ | 150T-15-SP | ◆ | 150A-15-SP | ◆ | 150N-15-SP | ◆ |
| 19/32" | 15.08 | .5938" | 150H-0019-SP | ◆ | 150T-0019-SP | ◆ | 150A-0019-SP | ◆ | 150N-0019-SP | ◆ |
| 39/64" | 15.48 | .6094" | 150H-.609-SP | ◆ | 150T-.609-SP | ◆ | 150A-.609-SP | ◆ | 150N-.609-SP | ◆ |
| | 15.50 | .6102" | 150H-15.5-SP | ◆ | 150T-15.5-SP | ◆ | 150A-15.5-SP | ◆ | 150N-15.5-SP | ◆ |
| 5/8" | 15.88 | 6250" | 150H-0020-SP | ◆ | 150T-0020-SP | ◆ | 150A-0020-SP | ◆ | 150N-0020-SP | ◆ |
| | 16.00 | .6299" | 150H-16-SP | ◆ | 150T-16-SP | ◆ | 150A-16-SP | ◆ | 150N-16-SP | ◆ |
| 41/64" | 16.27 | .6406" | 150H-.640-SP | ◆ | 150T-.640-SP | ◆ | 150A-.640-SP | ◆ | 150N-.640-SP | ◆ |
| | 16.50 | .6496" | 150H-16.5-SP | ◆ | 150T-16.5-SP | ◆ | 150A-16.5-SP | ◆ | 150N-16.5-SP | ◆ |
| 21/32" | 16.67 | .6563" | 150H-0021-SP | ◆ | 150T-0021-SP | ◆ | 150A-0021-SP | ◆ | 150N-0021-SP | ◆ |
| | 17.00 | .6693" | 150H-17-SP | ◆ | 150T-17-SP | ◆ | 150A-17-SP | ◆ | 150N-17-SP | ◆ |
| 43/64" | 17.07 | .6719" | 150H-.671-SP | ◆ | 150T-.671-SP | ◆ | 150A-.671-SP | ◆ | 150N-.671-SP | ◆ |
| 11/16" | 17.46 | .6875" | 150H-0022-SP | ◆ | 150T-0022-SP | ◆ | 150A-0022-SP | ◆ | 150N-0022-SP | ◆ |
| | 17.50 | .6890" | 150H-17.5-SP | ◆ | 150T-17.5-SP | ● | 150A-17.5-SP | ◆ | 150N-17.5-SP | ◆ |

*Supplied in 2 piece packages.*

## 0 Series Standard T-A Original N2 Carbide - CVD Diamond Coated

| Ø Inch | Ø mm | Ø Decimal | CVD Diamond Coated | Stk. |
|---|---|---|---|---|
| | 13.00 | .5118" | 1N20D-13 | ◆ |
| 33/64" | 13.10 | .5156" | 1N20D-.515 | ◆ |
| 17/32" | 13.49 | .5313" | 1N20D-0017 | ◆ |
| | 13.50 | .5315" | 1N20D-13.5 | ◆ |
| 35/64" | 13.89 | .5469" | 1N20D-.546 | ◆ |
| | 14.00 | .5512" | 1N20D-14 | ◆ |
| 9/16" | 14.29 | .5625" | 1N20D-0018 | ◆ |
| | 14.50 | .5709" | 1N20D-14.5 | ◆ |
| 37/64" | 14.68 | .5781" | 1N20D-.578 | ◆ |
| | 14.80 | .5827" | 1N20D-14.8 | ◆ |
| | 15.00 | .5906" | 1N20D-15 | ◆ |
| 19/32" | 15.08 | .5938" | 1N20D-0019 | ◆ |
| 39/64" | 15.48 | .6094" | 1N20D-.609 | ◆ |
| | 15.50 | .6102" | 1N20D-15.5 | ◆ |
| 5/8" | 15.88 | .6250" | 1N20D-0020 | ◆ |
| | 16.00 | .6299" | 1N20D-16 | ◆ |
| 41/64" | 16.27 | .6406" | 1N20D-.640 | ◆ |
| | 16.50 | .6496" | 1N20D-16.5 | ◆ |
| 21/32" | 16.67 | .6563" | 1N20D-0021 | ◆ |
| | 17.00 | .6693" | 1N20D-17 | ◆ |
| 43/64" | 17.07 | .6719" | 1N20D-.671 | ◆ |
| 11/16" | 17.46 | .6875" | 1N20D-0022 | ◆ |
| | 17.50 | .6890" | 1N20D-17.5 | ◆ |

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

# 0 Series T-A® Drill Inserts

Diameter Range 12.98 to 17.65mm

## 0 Series GEN2 T-A HSS Super Cobalt HE Geometry Drill Inserts

| Diameter | | | Item Number, Coating and Availability | | Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| | 13.00 | .5118″ | 450H-13-HE | ◆ | 39/64″ | 15.48 | .6094″ | 450H-.609-HE | ◆ |
| 33/64″ | 13.10 | .5156″ | 450H-.515-HE | ◆ | | 15.50 | .6102″ | 450H-15.5-HE | ◆ |
| 17/32″ | 13.49 | .5313″ | 450H-0017-HE | ◆ | 5/8″ | 15.88 | .6250″ | 450H-0020-HE | ◆ |
| | 13.50 | .5315″ | 450H-13.5-HE | ◆ | | 16.00 | .6299″ | 450H-16-HE | ◆ |
| 35/64″ | 13.89 | .5469″ | 450H-.546-HE | ◆ | 41/64″ | 16.27 | .6406″ | 450H-.640-HE | ◆ |
| | 14.00 | .5512″ | 450H-14-HE | ◆ | | 16.50 | .6496″ | 450H-16.5-HE | ◆ |
| 9/16″ | 14.29 | .5625″ | 450H-0018-HE | ◆ | 21/32″ | 16.67 | .6563″ | 450H-0021-HE | ◆ |
| | 14.50 | .5709″ | 450H-14.5-HE | ◆ | | 16.80 | .6614″ | 450H-16.8-HE | ◆ |
| 37/64″ | 14.68 | .5781″ | 450H-.578-HE | ◆ | | 17.00 | .6693″ | 450H-17-HE | ◆ |
| | 14.80 | .5827″ | 450H-14.8-HE | ◆ | 43/64″ | 17.07 | .6719″ | 450H-.671-HE | ◆ |
| | 15.00 | .5906″ | 450H-15-HE | ◆ | 11/16″ | 17.46 | .6875″ | 450H-0022-HE | ◆ |
| 19/32″ | 15.08 | .5938″ | 450H-0019-HE | ◆ | | 17.50 | .6890″ | 450H-17.5-HE | ◆ |

## 0 Series GEN2 T-A K35 Carbide HE Geometry Drill Inserts

| Diameter | | | Item Number, Coating and Availability | | Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| | 13.00 | .5118″ | 4C10H-13-HE | ◆ | 39/64″ | 15.48 | .6094″ | 4C10H-.609-HE | ◆ |
| 33/64″ | 13.10 | .5156″ | 4C10H-.515-HE | ◆ | | 15.50 | .6102″ | 4C10H-15.5-HE | ◆ |
| 17/32″ | 13.49 | .5313″ | 4C10H-0017-HE | ◆ | 5/8″ | 15.88 | .6250″ | 4C10H-0020-HE | ◆ |
| | 13.50 | .5315″ | 4C10H-13.5-HE | ◆ | | 16.00 | .6299″ | 4C10H-16-HE | ◆ |
| 35/64″ | 13.89 | .5469″ | 4C10H-.546-HE | ◆ | 41/64″ | 16.27 | .6406″ | 4C10H-.640-HE | ◆ |
| | 14.00 | .5512″ | 4C10H-14-HE | ◆ | | 16.50 | .6496″ | 4C10H-16.5-HE | ◆ |
| 9/16″ | 14.29 | .5625″ | 4C10H-0018-HE | ◆ | 21/32″ | 16.67 | .6563″ | 4C10H-0021-HE | ◆ |
| | 14.50 | .5709″ | 4C10H-14.5-HE | ◆ | | 16.80 | .6614″ | 4C10H-16.8-HE | ◆ |
| 37/64″ | 14.68 | .5781″ | 4C10H-.578-HE | ◆ | | 17.00 | .6693″ | 4C10H-17-HE | ◆ |
| | 14.80 | .5827″ | 4C10H-14.8-HE | ◆ | 43/64″ | 17.07 | .6719″ | 4C10H-.671-HE | ◆ |
| | 15.00 | .5906″ | 4C10H-15-HE | ◆ | 11/16″ | 17.46 | .6875″ | 4C10H-0022-HE | ◆ |
| 19/32″ | 15.08 | .5938″ | 4C10H-0019-HE | ◆ | | 17.50 | .6890″ | 4C10H-17.5-HE | ◆ |

## 0 Series T-A Original Structural Steel Inserts

| Diameter | | Item Number, Coating and Availability | | | | Item Number, Coating and Availability | | | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Thin Wall T-A® Super Cobalt TiAlN | Stk. | Thin Wall T-A® Super Cobalt AM200® | Stk. | 150° T-A® Super Cobalt TiAlN | Stk. | 150° T-A® Super Cobalt AM200® | Stk. |
| - | 14.00 | 150A-14-TW | ● | 150H-14-TW | ● | 150A-14-SS | ● | 150H-14-SS | ● |
| 9/16″ | 14.29 | 150A-0018-TW | ○ | 150H-0018-TW | ○ | 150A-0018-SS | ○ | 150H-0018-SS | ○ |
| 5/8″ | 15.88 | 150A-0020-TW | ○ | 150H-0020-TW | ○ | 150A-0020-SS | ○ | 150H-0020-SS | ○ |
| - | 16.00 | 150A-16-TW | ● | 150H-16-TW | ● | 150A-16-SS | ● | 150H-16-SS | ● |
| 11/16″ | 17.46 | 150A-0022-TW | ○ | 150H-0022-TW | ○ | 150A-022-SS | ○ | 150H-022-SS | ○ |

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.


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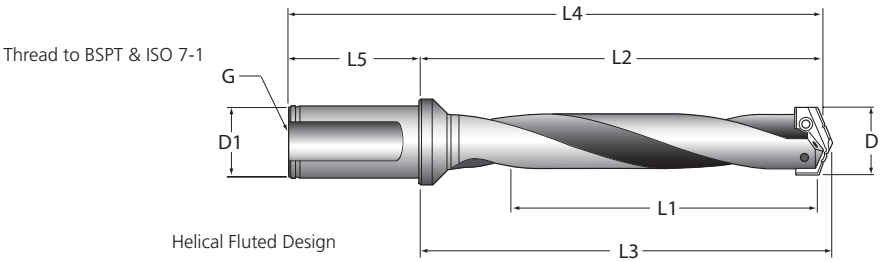
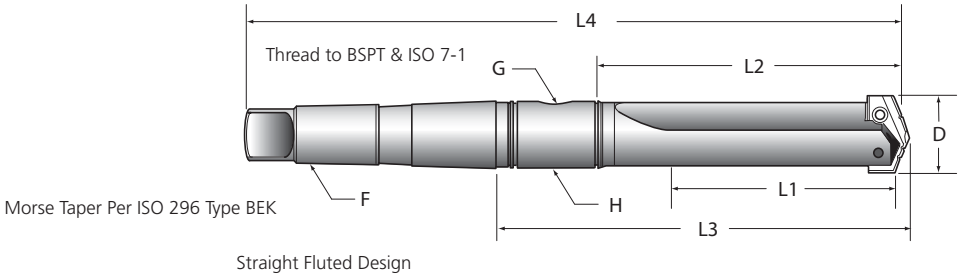



## Flanged Straight Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | L5 | D1 | G | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range D (mm) | Max Drill Depth (mm) | Body Length (mm) | New Tool Ref Length (mm) | Overall Length (mm) | Shank Length (mm) | Shank Diameter (mm) | Pipe Tap | |
| 21010S-25FM | Stub | Straight | 18.00-24.00 | 47 | 75.8 | 79.4 | 131.8 | 56 | 25.0 | ⅛" | ⅛" |
| 21015S-25FM | Stub | Straight | 22.00-24.00 | 57 | 88.5 | 92.1 | 144.5 | 56 | 25.0 | ⅛" | ⅛" |
| 22010S-25FM | Short | Straight | 18.00-24.00 | 67 | 107.2 | 110.7 | 163.2 | 56 | 25.0 | ⅛" | N/A |
| 22015S-25FM | Short | Straight | 22.00-24.00 | 67 | 107.2 | 110.7 | 163.2 | 56 | 25.0 | ⅛" | N/A |
| 23010S-25FM | Intermediate | Straight | 18.00-24.00 | 118 | 154.8 | 158.4 | 210.8 | 56 | 25.0 | ⅛" | N/A |
| 23015S-25FM | Intermediate | Straight | 22.00-24.00 | 118 | 154.8 | 158.4 | 210.8 | 56 | 25.0 | ⅛" | N/A |
| 24010S-25FM | Standard | Straight | 18.00-24.00 | 168 | 205.6 | 209.2 | 261.6 | 56 | 25.0 | ⅛" | N/A |
| 24015S-25FM | Standard | Straight | 22.00-24.00 | 168 | 205.6 | 209.2 | 261.6 | 56 | 25.0 | ⅛" | N/A |
| 23010H-25FM | Intermediate | Helical | 18.00-24.00 | 118 | 154.8 | 158.4 | 210.8 | 56 | 25.0 | ⅛" | N/A |
| 23015H-25FM | Intermediate | Helical | 22.00-24.00 | 118 | 154.8 | 158.4 | 210.8 | 56 | 25.0 | ⅛" | N/A |
| 24010H-25FM | Standard | Helical | 18.00-24.00 | 168 | 205.6 | 209.2 | 261.6 | 56 | 25.0 | ⅛" | N/A |
| 24015H-25FM | Standard | Helical | 22.00-24.00 | 168 | 205.6 | 209.2 | 261.6 | 56 | 25.0 | ⅛" | N/A |
| 25010H-25FM | Extended | Helical | 18.00-24.00 | 270 | 307.2 | 310.8 | 363.2 | 56 | 25.0 | ⅛" | N/A |
| 25015H-25FM | Extended | Helical | 22.00-24.00 | 270 | 307.2 | 310.8 | 363.2 | 56 | 25.0 | ⅛" | N/A |
| 27010S-25FM | XL | Straight | 18.00-24.00 | 457 | 494.5 | 498.1 | 550.5 | 56 | 25.0 | ⅛" | N/A |
| 29010S-25FM | 3XL | Straight | 18.00-24.00 | 565 | 602.5 | 606.1 | 658.5 | 56 | 25.0 | ⅛" | N/A |

*Note: Stub Length includes additional side coolant port.



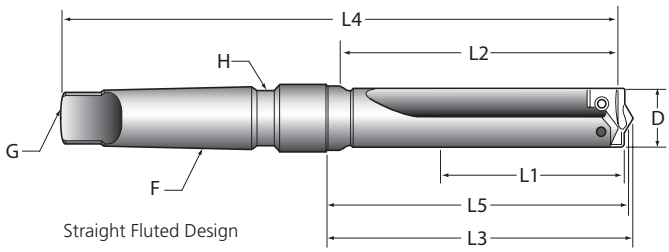

## Taper Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | F | H | G |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range (mm) | Max Drill Depth (mm) | Flute Length (mm) | New Tool Length (mm) | Overall Length (mm) | MT | RCA | Pipe Tap |
| 22010S-003M | Short | Straight | 18.00-24.00 | 70 | 98.4 | 142.5 | 232.5 | 3 | 3SRM | ⅛" |
| 22015S-003M | Short | Straight | 22.00-24.00 | 70 | 98.4 | 142.5 | 232.5 | 3 | 3SRM | ⅛" |
| 23010H-003M | Intermediate | Helical | 18.00-24.00 | 121 | 149.2 | 193.3 | 283.3 | 3 | 3SRM | ⅛" |
| 23015H-003M | Intermediate | Helical | 22.00-24.00 | 121 | 149.2 | 193.3 | 283.3 | 3 | 3SRM | ⅛" |
| 24010H-003M | Standard | Helical | 18.00-24.00 | 172 | 200 | 244.1 | 334.2 | 3 | 3SRM | ⅛" |
| 24015H-003M | Standard | Helical | 22.00-24.00 | 172 | 200 | 244.1 | 334.2 | 3 | 3SRM | ⅛" |
| 25010H-003M | Extended | Helical | 18.00-24.00 | 273 | 301.6 | 345.7 | 435.8 | 3 | 3SRM | ⅛" |
| 25015H-003M | Extended | Helical | 22.00-24.00 | 273 | 301.6 | 345.7 | 435.8 | 3 | 3SRM | ⅛" |

**For Holder Accessories please see pages 141 - 146.**

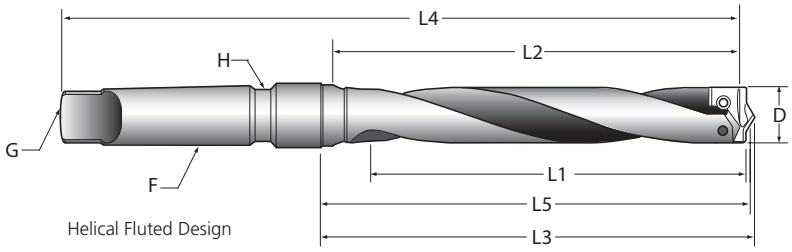
# 1 Series T-A® Structural Steel Holders



Straight Fluted Design

## Short Length – Taper Shank Holders – Straight Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 22010S-003IS045 | 18 | 70 | 89 | 108.4 | 16.8 | 197 | 3 | TTC | TSC | ○ |
| 22010S-004IS045 | 18 | 70 | 98 | 109.9 | 108.3 | 222 | 4 | TTC | TSC | ● |
| 22015S-003IS056 | 22 | 70 | 98 | 108.4 | 106.8 | 197 | 3 | TTC | TSC | ○ |
| 22015S-004IS056 | 22 | 70 | 98 | 109.9 | 108.3 | 222 | 4 | TTC | TSC | ● |
| 22015S-003IS060 | 24 | 70 | 98 | 108.4 | 106.8 | 197 | 3 | TTC | TSC | ○ |
| 22015S-003IS060 | 24 | 70 | 98 | 108.4 | 106.8 | 197 | 3 | TTC | TSC | ● |



Helical Fluted Design

## Standard Length – Taper Shank Holders – Helical Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 24010H-003IS045 | 18 | 121 | 149 | 159.2 | 159.6 | 248 | 3 | TTC | TSC | ○ |
| 24010H-004IS045 | 18 | 121 | 149 | 160.8 | 159.2 | 273 | 4 | TTC | TSC | ● |
| 24015H-003IS056 | 22 | 121 | 149 | 159.2 | 157.6 | 248 | 3 | TTC | TSC | ○ |
| 24015H-004IS056 | 22 | 121 | 149 | 160.8 | 159.2 | 273 | 4 | TTC | TSC | ● |
| 24015H-003IS060 | 24 | 121 | 149 | 159.2 | 157.6 | 248 | 3 | TTC | TSC | ○ |
| 24015H-004IS060 | 24 | 121 | 149 | 163.8 | 159.2 | 273 | 4 | TTC | TSC | ● |

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**For Holder Accessories please see pages 141 - 146.**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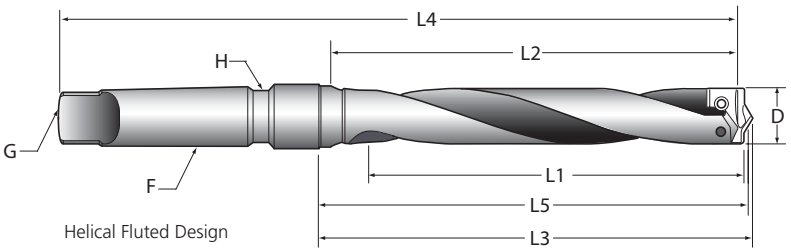
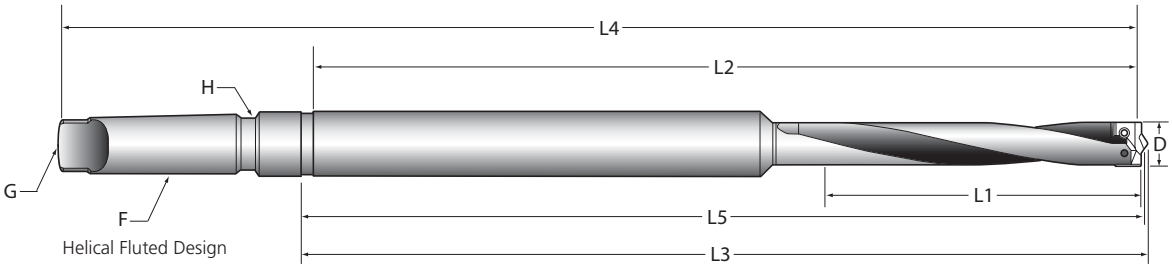



## Extended Length – Taper Shank Holders – Helical Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 25010H-003IS045 | 18 | 165 | 237 | 247.3 | 241.3 | 336 | 3 | TTC | TSC | ○ |
| 25010H-003IS052 | 22 | 165 | 237 | 247.3 | 241.3 | 336 | 3 | TTC | TSC | ○ |
| 25010H-004IS052 | 22 | 165 | 236 | 247.3 | 245.7 | 360 | 4 | TTC | TSC | ● |
| 25015H-003IS060 | 24 | 165 | 237 | 247.3 | 240.5 | 360 | 3 | TTC | TSC | ○ |
| 25015H-004IS060 | 24 | 165 | 236 | 247.3 | 245.7 | 360 | 4 | TTC | TSC | ● |

*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.




## Long Length – Taper Shank Holders – Helical Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 26010H-004IS052 | 22 | 165 | 401 | 412.4 | 410.8 | 525 | 4 | TTC | TSC | ● |
| 26015H-004IS060 | 24 | 165 | 401 | 413.1 | 411.6 | 525 | 4 | TTC | TSC | ● |

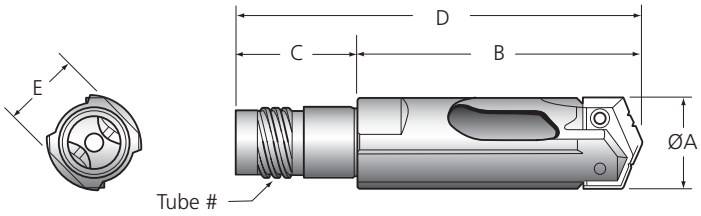
*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**For Holder Accessories please see pages 141 - 146.**

# 1 Series BT-A Drill and Tubes

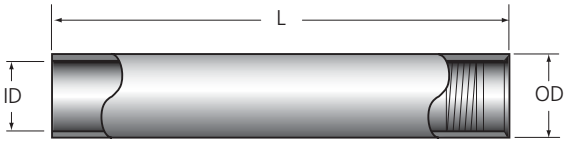



## Metric Heads

| T-A® Series | Head Item Number | Tube Size | A Diameter Range (mm) | B Reference Length (mm) | C Shank Length (mm) | D Overall Length (mm) | E Wrench Flat (mm) | Stk. |
|---|---|---|---|---|---|---|---|---|
| 1 | BTA1-799-xx.xx | 799 | 17.69-18.92 | 58.2 | 25 | 83.2 | 16 | ◆ |
| | BTA1-800-xx.xx | 800 | 18.93-20.01 | 58.8 | 28 | 86.8 | 17 | ◆ |
| | BTA1-801-xx.xx | 801 | 20.02-21.81 | 59.4 | 30.5 | 89.9 | 18 | ◆ |
| | BTA1-802-xx.xx | 802 | 21.82-24.10 | 60.7 | 33 | 93.7 | 19 | ◆ |
| | BTA1-803-xx.xx | 803 | 24.11-24.38 | 63.9 | 33 | 96.9 | 21 | ◆ |

## Imperial Heads

| T-A® Series | Head Item Number | Tube Size | A Diameter Range (inch) | B Reference Length (inch) | C Shank Length (inch) | D Overall Length (inch) | E Wrench Flat (mm) | Stk. |
|---|---|---|---|---|---|---|---|---|
| 1 | BTA1-799-x.xxxx | 799 | 0.6960-0.7449 | 2-15/64 | 63/64 | 3-9/32 | 16 | ◆ |
| | BTA1-800-x.xxxx | 800 | 0.7450-0.7879 | 2-5/16 | 1-7/64 | 3-27/64 | 17 | ◆ |
| | BTA1-801-x.xxxx | 801 | 0.7880-0.8589 | 2-11/32 | 1-13/64 | 3-35/64 | 18 | ◆ |
| | BTA1-802-x.xxxx | 802 | 0.8590-0.9489 | 2-25/64 | 1-19/64 | 3-11/16 | 19 | ◆ |
| | BTA1-803-x.xxxx | 803 | 0.9490-0.9600 | 2-33/64 | 1-19/64 | 3-13/16 | 21 | ◆ |




## Metric Tubes

| Tube Size | Tube Item Number | Metric | | | | |
|---|---|---|---|---|---|---|
| | | Diameter Range (mm) | Tube OD (mm) | Tube ID (mm) | Length (mm) | Stk. |
| 799 | BTAT799-63 | 17.69-18.90 | 16.0 | 10.5 | 1600 | ○ |
| | BTAT799-102 | | | | 2591 | ○ |
| 800 | BTAT800-63 | 18.91-20.00 | 17.0 | 11.5 | 1600 | ○ |
| | BTAT800-102 | | | | 2591 | ○ |
| 801 | BTAT801-63 | 20.01-21.79 | 18.0 | 12.0 | 1600 | ○ |
| | BTAT801-102 | | | | 2591 | ○ |
| 802 | BTAT802-63 | 21.80-24.08 | 20.0 | 13.0 | 1600 | ○ |
| | BTAT802-102 | | | | 2591 | ○ |
| 803 | BTAT803-63 | 24.09-26.39 | 22.0 | 14.0 | 1600 | ○ |
| | BTAT803-102 | | | | 2591 | ○ |

## Imperial Tubes

| Tube Size | Tube Item Number | Imperial | | | | |
|---|---|---|---|---|---|---|
| | | Diameter Range (inch) | Tube OD (inch) | Tube ID (inch) | Length (inch) | Stk. |
| 799 | BTAT799-63 | 0.697-0.744 | 0.630 | 0.413 | 63 | ○ |
| | BTAT799-102 | | | | 102 | ○ |
| 800 | BTAT800-63 | 0.745-0.787 | 0.669 | 0.453 | 63 | ○ |
| | BTAT800-102 | | | | 102 | ○ |
| 801 | BTAT801-63 | 0.788-0.858 | 0.709 | 0.472 | 63 | ○ |
| | BTAT801-102 | | | | 102 | ○ |
| 802 | BTAT802-63 | 0.859-0.948 | 0.787 | 0.512 | 63 | ○ |
| | BTAT802-102 | | | | 102 | ○ |
| 803 | BTAT803-63 | 0.949-1.039 | 0.866 | 0.551 | 63 | ○ |
| | BTAT803-102 | | | | 102 | ○ |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## 1 Series GEN2 T-A HSS Super Cobalt

Diameter Range 17.53 to 24.38mm

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 451H-.703 | ○ | 451T-.703 | ◆ | 451A-.703 | ◆ | 451N-.703 | ◆ |
| | 18.00 | .7087" | 451H-18 | ● | 451T-18 | ◆ | 451A-18 | ◆ | 451N-18 | ◆ |
| 23/32" | 18.26 | .7188" | 451H-0023 | ○ | 451T-0023 | ◆ | 451A-0023 | ◆ | 451N-0023 | ◆ |
| | 18.50 | .7283" | 451H-18.5 | ● | 451T-18.5 | ◆ | 451A-18.5 | ◆ | 451N-18.5 | ◆ |
| 47/64" | 18.65 | .7344" | 451H-.734 | ○ | 451T-.734 | ◆ | 451A-.734 | ◆ | 451N-.734 | ◆ |
| | 19.00 | .7480" | 451H-19 | ● | 451T-19 | ◆ | 451A-19 | ◆ | 451N-19 | ◆ |
| 3/4" | 19.05 | .7500" | 451H-0024 | ○ | 451T-0024 | ◆ | 451A-0024 | ◆ | 451N-0024 | ◆ |
| 49/64" | 19.45 | .7656" | 451H-.765 | ○ | 451T-.765 | ◆ | 451A-.765 | ◆ | 451N-.765 | ◆ |
| | 19.50 | .7677" | 451H-19.5 | ● | 451T-19.5 | ◆ | 451A-19.5 | ◆ | 451N-19.5 | ◆ |
| 25/32" | 19.84 | .7813" | 451H-0025 | ○ | 451T-0025 | ◆ | 451A-0025 | ◆ | 451N-0025 | ◆ |
| | 20.00 | .7874" | 451H-20 | ● | 451T-20 | ◆ | 451A-20 | ◆ | 451N-20 | ◆ |
| 51/64" | 20.24 | .7969" | 451H-.796 | ○ | 451T-.796 | ◆ | 451A-.796 | ◆ | 451N-.796 | ◆ |
| | 20.50 | .8071" | 451H-20.5 | ● | 451T-20.5 | ◆ | 451A-20.5 | ◆ | 451N-20.5 | ◆ |
| 13/16" | 20.64 | .8125" | 451H-0026 | ○ | 451T-0026 | ◆ | 451A-0026 | ◆ | 451N-0026 | ◆ |
| | 21.00 | .8268" | 451H-21 | ● | 451T-21 | ◆ | 451A-21 | ◆ | 451N-21 | ◆ |
| 27/32" | 21.43 | .8438" | 451H-0027 | ○ | 451T-0027 | ◆ | 451A-0027 | ◆ | 451N-0027 | ◆ |
| | 21.50 | .8465" | 451H-21.5 | ● | 451T-21.5 | ◆ | 451A-21.5 | ◆ | 451N-21.5 | ◆ |
| 55/64" | 21.83 | .8594" | 451H-.859 | ○ | 451T-.859 | ◆ | 451A-.859 | ◆ | 451N-.859 | ◆ |
| | 22.00 | .8661" | 451H-22 | ● | 451T-22 | ◆ | 451A-22 | ◆ | 451N-22 | ◆ |
| 7/8" | 22.23 | .8750" | 451H-0028 | ○ | 451T-0028 | ◆ | 451A-0028 | ◆ | 451N-0028 | ◆ |
| | 22.50 | .8858" | 451H-22.5 | ● | 451T-22.5 | ◆ | 451A-22.5 | ◆ | 451N-22.5 | ◆ |
| 57/64" | 22.62 | .8906" | 451H-.890 | ○ | 451T-.890 | ◆ | 451A-.890 | ◆ | 451N-.890 | ◆ |
| | 23.00 | .9055" | 451H-23 | ● | 451T-23 | ◆ | 451A-23 | ◆ | 451N-23 | ◆ |
| 29/32" | 23.02 | .9063" | 451H-0029 | ○ | 451T-0029 | ◆ | 451A-0029 | ◆ | 451N-0029 | ◆ |
| 59/64" | 23.42 | .9219" | 451H-.921 | ○ | 451T-.921 | ◆ | 451A-.921 | ◆ | 451N-.921 | ◆ |
| | 23.50 | .9252" | 451H-23.5 | ● | 451T-23.5 | ◆ | 451A-23.5 | ◆ | 451N-23.5 | ◆ |
| | 23.70 | .9391" | 451H-23.7 | ● | 451T-23.7 | ◆ | 451A-23.7 | ◆ | 451N-23.7 | ◆ |
| 15/16" | 23.81 | .9375" | 451H-0030 | ○ | 451T-.0030 | ◆ | 451A-.0030 | ◆ | 451N-.0030 | ◆ |
| | 24.00 | .9449" | 451H-24 | ● | 451T-24 | ◆ | 451A-24 | ◆ | 451N-24 | ◆ |

*Supplied in 2 piece packages.*

## 1 Series Standard T-A Original HSS (CPM-M4)

Diameter Range 17.53 to 24.38mm

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 131H-.703 | ◆ | 131T-.703 | ○ | 131A-.703 | ○ | 131N-.703 | ○ |
| | 18.00 | .7087" | 131H-18 | ◆ | 131T-18 | ● | 131A-18 | ● | 131N-18 | ● |
| 23/32" | 18.26 | .7188" | 131H-0023 | ◆ | 131T-0023 | ○ | 131A-0023 | ○ | 131N-0023 | ○ |
| | 18.50 | .7283" | 131H-18.5 | ◆ | 131T-18.5 | ● | 131A-18.5 | ● | 131N-18.5 | ● |
| 47/64" | 18.65 | .7344" | 131H-.734 | ◆ | 131T-.734 | ○ | 131A-.734 | ○ | 131N-.734 | ○ |
| | 19.00 | .7480" | 131H-19 | ◆ | 131T-19 | ● | 131A-19 | ● | 131N-19 | ● |
| 3/4" | 19.05 | .7500" | 131H-0024 | ◆ | 131T-0024 | ○ | 131A-0024 | ○ | 131N-0024 | ○ |
| 49/64" | 19.45 | .7656" | 131H-.765 | ◆ | 131T-.765 | ○ | 131A-.765 | ○ | 131N-.765 | ○ |
| | 19.50 | .7677" | 131H-19.5 | ◆ | 131T-19.5 | ● | 131A-19.5 | ● | 131N-19.5 | ● |
| 25/32" | 19.84 | .7813" | 131H-0025 | ◆ | 131T-0025 | ○ | 131A-0025 | ○ | 131N-0025 | ○ |
| | 20.00 | .7874" | 131H-20 | ◆ | 131T-20 | ● | 131A-20 | ● | 131N-20 | ● |
| 51/64" | 20.24 | .7969" | 131H-.796 | ◆ | 131T-.796 | ○ | 131A-.796 | ○ | 131N-.796 | ○ |

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

# 1 Series T-A® Drill Inserts

Diameter Range 17.53 to 24.38mm

## 1 Series Standard T-A Original HSS (CPM-M4)

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 20.50 | .8071" | 131H-20.5 | ◆ | 131T-20.5 | ● | 131A-20.5 | ● | 131N-20.5 | ● |
| 13/16" | 20.64 | .8125" | 131H-0026 | ◆ | 131T-0026 | ○ | 131A-0026 | ○ | 131N-0026 | ○ |
| | 21.00 | .8268" | 131H-21 | ◆ | 131T-21 | ● | 131A-21 | ● | 131N-21 | ● |
| 27/32" | 21.43 | .8438" | 131H-0027 | ◆ | 131T-0027 | ○ | 131A-0027 | ○ | 131N-0027 | ○ |
| | 21.50 | .8465" | 131H-21.5 | ◆ | 131T-21.5 | ○ | 131A-21.5 | ● | 131N-21.5 | ○ |
| 55/64" | 21.83 | .8594" | 131H-.859 | ◆ | 131T-.859 | ○ | 131A-.859 | ○ | 131N-.859 | ○ |
| | 22.00 | .8661" | 131H-22 | ◆ | 131T-22 | ● | 131A-22 | ● | 131N-22 | ● |
| 7/8" | 22.23 | .8750" | 131H-0028 | ◆ | 131T-0028 | ○ | 131A-0028 | ○ | 131N-0028 | ○ |
| | 22.50 | .8858" | 131H-22.5 | ◆ | 131T-22.5 | ○ | 131A-22.5 | ● | 131N-22.5 | ○ |
| 57/64" | 22.62 | .8906" | 131H-.890 | ◆ | 131T-.890 | ○ | 131A-.890 | ○ | 131N-.890 | ○ |
| | 23.00 | .9055" | 131H-23 | ◆ | 131T-23 | ● | 131A-23 | ● | 131N-23 | ● |
| 29/32" | 23.02 | .9063" | 131H-0029 | ◆ | 131T-0029 | ○ | 131A-0029 | ○ | 131N-0029 | ○ |
| 59/64" | 23.42 | .9219" | 131H-.921 | ◆ | 131T-.921 | ○ | 131A-.921 | ○ | 131N-.921 | ○ |
| | 23.50 | .9252" | 131H-23.5 | ◆ | 131T-23.5 | ○ | 131A-23.5 | ● | 131N-23.5 | ○ |
| | 23.70 | .9391" | 131H-23.7 | ◆ | 131T-23.7 | ○ | 131A-23.7 | ● | 131N-23.7 | ○ |
| 15/16" | 23.81 | .9375" | 131H-0030 | ◆ | 131T-.0030 | ○ | 131A-.0030 | ○ | 131N-.0030 | ○ |
| | 24.00 | .9449" | 131H-24 | ◆ | 131T-24 | ● | 131A-24 | ● | 131N-24 | ● |

*Supplied in 2 piece packages.*

## 1 Series Standard T-A Original T-A® Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 151H-.703 | ◆ | 151T-.703 | ○ | 151A-.703 | ○ | 151N-.703 | ○ |
| | 18.00 | .7087" | 151H-18 | ◆ | 151T-18 | ● | 151A-18 | ● | 151N-18 | ● |
| 23/32" | 18.26 | .7188" | 151H-0023 | ◆ | 151T-0023 | ○ | 151A-0023 | ○ | 151N-0023 | ○ |
| | 18.50 | .7283" | 151H-18.5 | ◆ | 151T-18.5 | ● | 151A-18.5 | ● | 151N-18.5 | ● |
| 47/64" | 18.65 | .7344" | 151H-.734 | ◆ | 151T-.734 | ○ | 151A-.734 | ○ | 151N-.734 | ○ |
| | 19.00 | .7480" | 151H-19 | ◆ | 151T-19 | ● | 151A-19 | ● | 151N-19 | ● |
| 3/4" | 19.05 | .7500" | 151H-0024 | ◆ | 151T-0024 | ○ | 151A-0024 | ○ | 151N-0024 | ○ |
| 49/64" | 19.45 | .7656" | 151H-.765 | ◆ | 151T-.765 | ○ | 151A-.765 | ○ | 151N-.765 | ○ |
| | 19.50 | .7677" | 151H-19.5 | ◆ | 151T-19.5 | ● | 151A-19.5 | ● | 151N-19.5 | ● |
| 25/32" | 19.84 | .7813" | 151H-0025 | ◆ | 151T-0025 | ○ | 151A-0025 | ○ | 151N-0025 | ○ |
| | 20.00 | .7874" | 151H-20 | ◆ | 151T-20 | ● | 151A-20 | ● | 151N-20 | ● |
| 51/64" | 20.24 | .7969" | 151H-.796 | ◆ | 151T-.796 | ○ | 151A-.796 | ○ | 151N-.796 | ○ |
| | 20.50 | .8071" | 151H-20.5 | ◆ | 151T-20.5 | ● | 151A-20.5 | ● | 151N-20.5 | ● |
| 13/16" | 20.64 | .8125" | 151H-0026 | ◆ | 151T-0026 | ○ | 151A-0026 | ○ | 151N-0026 | ○ |
| | 21.00 | .8268" | 151H-21 | ◆ | 151T-21 | ● | 151A-21 | ● | 151N-21 | ● |
| 27/32" | 21.43 | .8438" | 151H-0027 | ◆ | 151T-0027 | ○ | 151A-0027 | ○ | 151N-0027 | ○ |
| | 21.50 | .8465" | 151H-21.5 | ◆ | 151T-21.5 | ○ | 151A-21.5 | ● | 151N-21.5 | ○ |
| 55/64" | 21.83 | .8594" | 151H-.859 | ◆ | 151T-.859 | ○ | 151A-.859 | ○ | 151N-.859 | ○ |
| | 22.00 | .8661" | 151H-22 | ◆ | 151T-22 | ● | 151A-22 | ● | 151N-22 | ● |
| 7/8" | 22.23 | .8750" | 151H-0028 | ◆ | 151T-0028 | ○ | 151A-0028 | ○ | 151N-0028 | ○ |
| | 22.50 | .8858" | 151H-22.5 | ◆ | 151T-22.5 | ○ | 151A-22.5 | ● | 151N-22.5 | ○ |
| 57/64" | 22.62 | .8906" | 151H-.890 | ◆ | 151T-.890 | ○ | 151A-.890 | ○ | 151N-.890 | ○ |
| | 23.00 | .9055" | 151H-23 | ◆ | 151T-23 | ● | 151A-23 | ● | 151N-23 | ● |
| 29/32" | 23.02 | .9063" | 151H-0029 | ◆ | 151T-0029 | ○ | 151A-0029 | ○ | 151N-0029 | ○ |
| 59/64" | 23.42 | .9219" | 151H-.921 | ◆ | 151T-.921 | ○ | 151A-.921 | ○ | 151N-.921 | ○ |
| | 23.50 | .9252" | 151H-23.5 | ◆ | 151T-23.5 | ○ | 151A-23.5 | ● | 151N-23.5 | ○ |
| | 23.70 | .9391" | 151H-23.7 | ◆ | 151T-23.7 | ○ | 151A-23.7 | ● | 151N-23.7 | ○ |
| 15/16" | 23.81 | .9375" | 151H-0030 | ◆ | 151T-.0030 | ○ | 151A-.0030 | ○ | 151N-.0030 | ○ |
| | 24.00 | .9449" | 151H-24 | ◆ | 151T-24 | ● | 151A-24 | ● | 151N-24 | ● |

*Supplied in 2 piece packages.*


+44 (0)1384 400 900 +44 (0)1384 400 105 enquiries@alliedmaxcut.com www.alliedmaxcut.com

## 1 Series Standard T-A Original HSS Premium Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 181H-.703 | ◆ | 181T-.703 | ○ | 181A-.703 | ○ | 181N-.703 | ○ |
| | 18.00 | .7087" | 181H-18 | ◆ | 181T-18 | ● | 181A-18 | ● | 181N-18 | ● |
| 23/32" | 18.26 | .7188" | 181H-0023 | ◆ | 181T-0023 | ○ | 181A-0023 | ○ | 181N-0023 | ○ |
| | 18.50 | .7283" | 181H-18.5 | ◆ | 181T-18.5 | ● | 181A-18.5 | ● | 181N-18.5 | ● |
| 47/64" | 18.65 | .7344" | 181H-.734 | ◆ | 181T-.734 | ○ | 181A-.734 | ○ | 181N-.734 | ○ |
| | 19.00 | .7480" | 181H-19 | ◆ | 181T-19 | ● | 181A-19 | ● | 181N-19 | ● |
| 3/4" | 19.05 | .7500" | 181H-0024 | ◆ | 181T-0024 | ○ | 181A-0024 | ○ | 181N-0024 | ○ |
| 49/64" | 19.45 | .7656" | 181H-.765 | ◆ | 181T-.765 | ○ | 181A-.765 | ○ | 181N-.765 | ○ |
| | 19.50 | .7677" | 181H-19.5 | ◆ | 181T-19.5 | ● | 181A-19.5 | ● | 181N-19.5 | ● |
| 25/32" | 19.84 | .7813" | 181H-0025 | ◆ | 181T-0025 | ○ | 181A-0025 | ○ | 181N-0025 | ○ |
| | 20.00 | .7874" | 181H-20 | ◆ | 181T-20 | ● | 181A-20 | ● | 181N-20 | ● |
| 51/64" | 20.24 | .7969" | 181H-.796 | ◆ | 181T-.796 | ○ | 181A-.796 | ○ | 181N-.796 | ○ |
| | 20.50 | .8071" | 181H-20.5 | ◆ | 181T-20.5 | ● | 181A-20.5 | ● | 181N-20.5 | ● |
| 13/16" | 20.64 | .8125" | 181H-0026 | ◆ | 181T-0026 | ○ | 181A-0026 | ○ | 181N-0026 | ○ |
| | 21.00 | .8268" | 181H-21 | ◆ | 181T-21 | ● | 181A-21 | ● | 181N-21 | ● |
| 27/32" | 21.43 | .8438" | 181H-0027 | ◆ | 181T-0027 | ○ | 181A-0027 | ○ | 181N-0027 | ○ |
| | 21.50 | .8465" | 181H-21.5 | ◆ | 181T-21.5 | ○ | 181A-21.5 | ● | 181N-21.5 | ○ |
| 55/64" | 21.83 | .8594" | 181H-.859 | ◆ | 181T-.859 | ○ | 181A-.859 | ○ | 181N-.859 | ○ |
| | 22.00 | .8661" | 181H-22 | ◆ | 181T-22 | ● | 181A-22 | ● | 181N-22 | ● |
| 7/8" | 22.23 | .8750" | 181H-0028 | ◆ | 181T-0028 | ○ | 181A-0028 | ○ | 181N-0028 | ○ |
| | 22.50 | .8858" | 181H-22.5 | ◆ | 181T-22.5 | ○ | 181A-22.5 | ● | 181N-22.5 | ○ |
| 57/64" | 22.62 | .8906" | 181H-.890 | ◆ | 181T-.890 | ○ | 181A-.890 | ○ | 181N-.890 | ○ |
| | 23.00 | .9055" | 181H-23 | ◆ | 181T-23 | ● | 181A-23 | ● | 181N-23 | ● |
| 29/32" | 23.02 | .9063" | 181H-0029 | ◆ | 181T-0029 | ○ | 181A-0029 | ○ | 181N-0029 | ○ |
| 59/64" | 23.42 | .9219" | 181H-.921 | ◆ | 181T-.921 | ○ | 181A-.921 | ○ | 181N-.921 | ○ |
| | 23.50 | .9252" | 181H-23.5 | ◆ | 181T-23.5 | ○ | 181A-23.5 | ● | 181N-23.5 | ○ |
| | 23.70 | .9391" | 181H-23.7 | ◆ | 181T-23.7 | ○ | 181A-23.7 | ● | 181N-23.7 | ○ |
| 15/16" | 23.81 | .9375" | 181H-0030 | ◆ | 181T-0030 | ○ | 181A-0030 | ○ | 181N-0030 | ○ |
| | 24.00 | .9449" | 181H-24 | ◆ | 181T-24 | ● | 181A-24 | ● | 181N-24 | ● |

*Supplied in 2 piece packages.*

## 1 Series GEN2 T-A K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 4C21H-.703 | ○ | 4C21T-.703 | ◆ | 4C21A-.703 | ◆ | 4C21N-.703 | ◆ |
| | 18.00 | .7087" | 4C21H-18 | ● | 4C21T-18 | ◆ | 4C21A-18 | ◆ | 4C21N-18 | ◆ |
| 23/32" | 18.26 | .7188" | 4C21H-0023 | ○ | 4C21T-0023 | ◆ | 4C21A-0023 | ◆ | 4C21N-0023 | ◆ |
| | 18.50 | .7283" | 4C21H-18.5 | ● | 4C21T-18.5 | ◆ | 4C21A-18.5 | ◆ | 4C21N-18.5 | ◆ |
| 47/64" | 18.65 | .7344" | 4C21H-.734 | ○ | 4C21T-.734 | ◆ | 4C21A-.734 | ◆ | 4C21N-.734 | ◆ |
| | 19.00 | .7480" | 4C21H-19 | ● | 4C21T-19 | ◆ | 4C21A-19 | ◆ | 4C21N-19 | ◆ |
| 3/4" | 19.05 | .7500" | 4C21H-0024 | ○ | 4C21T-0024 | ◆ | 4C21A-0024 | ◆ | 4C21N-0024 | ◆ |
| 49/64" | 19.45 | .7656" | 4C21H-.765 | ○ | 4C21T-.765 | ◆ | 4C21A-.765 | ◆ | 4C21N-.765 | ◆ |
| | 19.50 | .7677" | 4C21H-19.5 | ● | 4C21T-19.5 | ◆ | 4C21A-19.5 | ◆ | 4C21N-19.5 | ◆ |
| 25/32" | 19.84 | .7813" | 4C21H-0025 | ○ | 4C21T-0025 | ◆ | 4C21A-0025 | ◆ | 4C21N-0025 | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

# 1 Series T-A® Drill Inserts

Diameter Range 17.53 to 24.38mm

## 1 Series GEN2 T-A K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 20.00 | .7874" | 4C21H-20 | ● | 4C21T-20 | ◆ | 4C21A-20 | ◆ | 4C21N-20 | ◆ |
| 51/64" | 20.24 | .7969" | 4C21H-.796 | ○ | 4C21T-.796 | ◆ | 4C21A-.796 | ◆ | 4C21N-.796 | ◆ |
| | 20.50 | .8071" | 4C21H-20.5 | ● | 4C21T-20.5 | ◆ | 4C21A-20.5 | ◆ | 4C21N-20.5 | ◆ |
| 13/16" | 20.64 | .8125" | 4C21H-0026 | ○ | 4C21T-0026 | ◆ | 4C21A-0026 | ◆ | 4C21N-0026 | ◆ |
| | 21.00 | .8268" | 4C21H-21 | ● | 4C21T-21 | ◆ | 4C21A-21 | ◆ | 4C21N-21 | ◆ |
| 27/32" | 21.43 | .8438" | 4C21H-0027 | ○ | 4C21T-0027 | ◆ | 4C21A-0027 | ◆ | 4C21N-0027 | ◆ |
| | 21.50 | .8465" | 4C21H-21.5 | ● | 4C21T-21.5 | ◆ | 4C21A-21.5 | ◆ | 4C21N-21.5 | ◆ |
| 55/64" | 21.83 | .8594" | 4C21H-.859 | ○ | 4C21T-.859 | ◆ | 4C21A-.859 | ◆ | 4C21N-.859 | ◆ |
| | 22.00 | .8661" | 4C21H-22 | ● | 4C21T-22 | ◆ | 4C21A-22 | ◆ | 4C21N-22 | ◆ |
| 7/8" | 22.23 | .8750" | 4C21H-0028 | ○ | 4C21T-0028 | ◆ | 4C21A-0028 | ◆ | 4C21N-0028 | ◆ |
| | 22.50 | .8858" | 4C21H-22.5 | ● | 4C21T-22.5 | ◆ | 4C21A-22.5 | ◆ | 4C21N-22.5 | ◆ |
| 57/64" | 22.62 | .8906" | 4C21H-.890 | ○ | 4C21T-.890 | ◆ | 4C21A-.890 | ◆ | 4C21N-.890 | ◆ |
| | 23.00 | .9055" | 4C21H-23 | ● | 4C21T-23 | ◆ | 4C21A-23 | ◆ | 4C21N-23 | ◆ |
| 29/32" | 23.02 | .9063" | 4C21H-0029 | ○ | 4C21T-0029 | ◆ | 4C21A-0029 | ◆ | 4C21N-0029 | ◆ |
| 59/64" | 23.42 | .9219" | 4C21H-.921 | ○ | 4C21T-.921 | ◆ | 4C21A-.921 | ◆ | 4C21N-.921 | ◆ |
| | 23.50 | .9252" | 4C21H-23.5 | ● | 4C21T-23.5 | ◆ | 4C21A-23.5 | ◆ | 4C21N-23.5 | ◆ |
| | 23.70 | .9391" | 4C21H-23.7 | ● | 4C21T-23.7 | ◆ | 4C21A-23.7 | ◆ | 4C21N-23.7 | ◆ |
| 15/16" | 23.81 | .9375" | 4C21H-0030 | ○ | 4C21T-0030 | ◆ | 4C21A-0030 | ◆ | 4C21N-0030 | ◆ |
| | 24.00 | .9449" | 4C21H-24 | ● | 4C21T-24 | ◆ | 4C21A-24 | ◆ | 4C21N-24 | ◆ |

## 1 Series Standard T-A Original K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 1C21H-.703 | ◆ | 1C21T-.703 | ○ | 1C21A-.703 | ○ | 1C21N-.703 | ◆ |
| | 18.00 | .7087" | 1C21H-18 | ◆ | 1C21T-18 | ● | 1C21A-18 | ● | 1C21N-18 | ◆ |
| 23/32" | 18.26 | .7188" | 1C21H-0023 | ◆ | 1C21T-0023 | ○ | 1C21A-0023 | ○ | 1C21N-0023 | ◆ |
| | 18.50 | .7283" | 1C21H-18.5 | ◆ | 1C21T-18.5 | ● | 1C21A-18.5 | ● | 1C21N-18.5 | ◆ |
| 47/64" | 18.65 | .7344" | 1C21H-.734 | ◆ | 1C21T-.734 | ○ | 1C21A-.734 | ○ | 1C21N-.734 | ◆ |
| | 19.00 | .7480" | 1C21H-19 | ◆ | 1C21T-19 | ● | 1C21A-19 | ● | 1C21N-19 | ◆ |
| 3/4" | 19.05 | .7500" | 1C21H-0024 | ◆ | 1C21T-0024 | ○ | 1C21A-0024 | ○ | 1C21N-0024 | ◆ |
| 49/64" | 19.45 | .7656" | 1C21H-.765 | ◆ | 1C21T-.765 | ○ | 1C21A-.765 | ○ | 1C21N-.765 | ◆ |
| | 19.50 | .7677" | 1C21H-19.5 | ◆ | 1C21T-19.5 | ● | 1C21A-19.5 | ● | 1C21N-19.5 | ◆ |
| 25/32" | 19.84 | .7813" | 1C21H-0025 | ◆ | 1C21T-0025 | ○ | 1C21A-0025 | ○ | 1C21N-0025 | ◆ |
| | 20.00 | .7874" | 1C21H-20 | ◆ | 1C21T-20 | ● | 1C21A-20 | ● | 1C21N-20 | ◆ |
| 51/64" | 20.24 | .7969" | 1C21H-.796 | ◆ | 1C21T-.796 | ○ | 1C21A-.796 | ○ | 1C21N-.796 | ◆ |
| | 20.50 | .8071" | 1C21H-20.5 | ◆ | 1C21T-20.5 | ● | 1C21A-20.5 | ● | 1C21N-20.5 | ◆ |
| 13/16" | 20.64 | .8125" | 1C21H-0026 | ◆ | 1C21T-0026 | ○ | 1C21A-0026 | ○ | 1C21N-0026 | ◆ |
| | 21.00 | .8268" | 1C21H-21 | ◆ | 1C21T-21 | ● | 1C21A-21 | ● | 1C21N-21 | ◆ |
| 27/32" | 21.43 | .8348" | 1C21H-0027 | ◆ | 1C21T-0027 | ○ | 1C21A-0027 | ○ | 1C21N-0027 | ◆ |
| | 21.50 | .8465" | 1C21H-21.5 | ◆ | 1C21T-21.5 | ○ | 1C21A-21.5 | ● | 1C21N-21.5 | ◆ |
| 55/64" | 21.83 | .8594" | 1C21H-.859 | ◆ | 1C21T-.859 | ○ | 1C21A-.859 | ○ | 1C21N-.859 | ◆ |
| | 22.00 | .8661" | 1C21H-22 | ◆ | 1C21T-22 | ● | 1C21A-22 | ● | 1C21N-22 | ◆ |
| 7/8" | 22.23 | .8750" | 1C21H-0028 | ◆ | 1C21T-0028 | ○ | 1C21A-0028 | ○ | 1C21N-0028 | ◆ |
| | 22.50 | .8858" | 1C21H-22.5 | ◆ | 1C21T-22.5 | ○ | 1C21A-22.5 | ● | 1C21N-22.5 | ◆ |
| 57/64" | 22.62 | .8906" | 1C21H-.890 | ◆ | 1C21T-.890 | ○ | 1C21A-.890 | ○ | 1C21N-.890 | ◆ |
| | 23.00 | .9055" | 1C21H-23 | ◆ | 1C21T-23 | ● | 1C21A-23 | ● | 1C21N-23 | ◆ |
| 29/32" | 23.02 | .9063" | 1C21H-0029 | ◆ | 1C21T-0029 | ○ | 1C21A-0029 | ○ | 1C21N-0029 | ◆ |
| 59/64" | 23.42 | .9219" | 1C21H-.921 | ◆ | 1C21T-.921 | ○ | 1C21A-.921 | ○ | 1C21N-.921 | ◆ |
| | 23.50 | .9252" | 1C21H-23.5 | ◆ | 1C21T-23.5 | ○ | 1C21A-23.5 | ● | 1C21N-23.5 | ◆ |
| | 23.70 | .9331" | 1C21H-23.7 | ◆ | 1C21T-23.7 | ○ | 1C21A-23.7 | ● | 1C21N-23.7 | ◆ |
| 15/16" | 23.81 | .9375" | 1C21H-0030 | ◆ | 1C21T-0030 | ○ | 1C21A-0030 | ○ | 1C21N-0030 | ◆ |
| | 24.00 | .9449" | 1C21H-24 | ◆ | 1C21T-24 | ● | 1C21A-24 | ● | 1C21N-24 | ◆ |

*Supplied in 2 piece packages.*





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## 1 Series GEN2 T-A® K35 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 4C11H-.703 | ○ | 4C11T-.703 | ◆ | 4C11A-.703 | ◆ | 4C11N-.703 | ◆ |
| | 18.00 | .7087" | 4C11H-18 | ● | 4C11T-18 | ◆ | 4C11A-18 | ◆ | 4C11N-18 | ◆ |
| 23/32" | 18.26 | .7188" | 4C11H-0023 | ○ | 4C11T-0023 | ◆ | 4C11A-0023 | ◆ | 4C11N-0023 | ◆ |
| | 18.50 | .7283" | 4C11H-18.5 | ● | 4C11T-18.5 | ◆ | 4C11A-18.5 | ◆ | 4C11N-18.5 | ◆ |
| 47/64" | 18.65 | .7344" | 4C11H-.734 | ◆ | 4C11T-.734 | ◆ | 4C11A-.734 | ◆ | 4C11N-.734 | ◆ |
| | 19.00 | .7480" | 4C11H-19 | ● | 4C11T-19 | ◆ | 4C11A-19 | ◆ | 4C11N-19 | ◆ |
| 3/4" | 19.05 | .7500" | 4C11H-0024 | ○ | 4C11T-0024 | ◆ | 4C11A-0024 | ◆ | 4C11N-0024 | ◆ |
| 49/64" | 19.45 | .7656" | 4C11H-.765 | ○ | 4C11T-.765 | ◆ | 4C11A-.765 | ◆ | 4C11N-.765 | ◆ |
| | 19.50 | .7677" | 4C11H-19.5 | ● | 4C11T-19.5 | ◆ | 4C11A-19.5 | ◆ | 4C11N-19.5 | ◆ |
| 25/32" | 19.84 | .7813" | 4C11H-0025 | ○ | 4C11T-0025 | ◆ | 4C11A-0025 | ◆ | 4C11N-0025 | ◆ |
| | 20.00 | .7874" | 4C11H-20 | ● | 4C11T-20 | ◆ | 4C11A-20 | ◆ | 4C11N-20 | ◆ |
| 51/64" | 20.24 | .7969" | 4C11H-.796 | ◆ | 4C11T-.796 | ◆ | 4C11A-.796 | ◆ | 4C11N-.796 | ◆ |
| | 20.50 | .8071" | 4C11H-20.5 | ● | 4C11T-20.5 | ◆ | 4C11A-20.5 | ◆ | 4C11N-20.5 | ◆ |
| 13/16" | 20.64 | .8125" | 4C11H-0026 | ○ | 4C11T-0026 | ◆ | 4C11A-0026 | ◆ | 4C11N-0026 | ◆ |
| | 21.00 | .8268" | 4C11H-21 | ● | 4C11T-21 | ◆ | 4C11A-21 | ◆ | 4C11N-21 | ◆ |
| 27/32" | 21.43 | .8348" | 4C11H-0027 | ○ | 4C11T-0027 | ◆ | 4C11A-0027 | ◆ | 4C11N-0027 | ◆ |
| | 21.50 | .8465" | 4C11H-21.5 | ● | 4C11T-21.5 | ◆ | 4C11A-21.5 | ◆ | 4C11N-21.5 | ◆ |
| 55/64" | 21.83 | .8594" | 4C11H-.859 | ◆ | 4C11T-.859 | ◆ | 4C11A-.859 | ◆ | 4C11N-.859 | ◆ |
| | 22.00 | .8661" | 4C11H-22 | ● | 4C11T-22 | ◆ | 4C11A-22 | ◆ | 4C11N-22 | ◆ |
| 7/8" | 22.23 | .8750" | 4C11H-0028 | ○ | 4C11T-0028 | ◆ | 4C11A-0028 | ◆ | 4C11N-0028 | ◆ |
| | 22.50 | .8858" | 4C11H-22.5 | ● | 4C11T-22.5 | ◆ | 4C11A-22.5 | ◆ | 4C11N-22.5 | ◆ |
| 57/64" | 22.62 | .8906" | 4C11H-.890 | ○ | 4C11T-.890 | ◆ | 4C11A-.890 | ◆ | 4C11N-.890 | ◆ |
| | 23.00 | .9055" | 4C11H-23 | ● | 4C11T-23 | ◆ | 4C11A-23 | ◆ | 4C11N-23 | ◆ |
| 29/32" | 23.02 | .9063" | 4C11H-0029 | ○ | 4C11T-0029 | ◆ | 4C11A-0029 | ◆ | 4C11N-0029 | ◆ |
| 59/64" | 23.42 | .9219" | 4C11H-.921 | ○ | 4C11T-.921 | ◆ | 4C11A-.921 | ◆ | 4C11N-.921 | ◆ |
| | 23.50 | .9252" | 4C11H-23.5 | ● | 4C11T-23.5 | ◆ | 4C11A-23.5 | ◆ | 4C11N-23.5 | ◆ |
| | 23.70 | .9331" | 4C11H-23.7 | ○ | 4C11T-23.7 | ◆ | 4C11A-23.7 | ◆ | 4C11N-23.7 | ◆ |
| 15/16" | 23.81 | .9375" | 4C11H-0030 | ○ | 4C11T-0030 | ◆ | 4C11A-0030 | ◆ | 4C11N-0030 | ◆ |
| | 24.00 | .9449" | 4C11H-24 | ● | 4C11T-24 | ◆ | 4C11A-24 | ◆ | 4C11N-24 | ◆ |

*Supplied in 2 piece packages.*

## 1 Series Standard T-A® Original K10 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 1C31H-.703-CI | ◆ | 1C31T-.703-CI | ◆ | 1C31A-.703-CI | ○ | 1C31N-.703-CI | ◆ |
| | 18.00 | .7087" | 1C31H-18-CI | ◆ | 1C31T-18-CI | ◆ | 1C31A-18-CI | ● | 1C31N-18-CI | ◆ |
| 23/32" | 18.26 | .7188" | 1C31H-0023-CI | ◆ | 1C31T-0023-CI | ◆ | 1C31A-0023-CI | ○ | 1C31N-0023-CI | ◆ |
| | 18.50 | .7283" | 1C31H-18.5-CI | ◆ | 1C31T-18.5-CI | ◆ | 1C31A-18.5-CI | ● | 1C31N-18.5-CI | ◆ |
| 47/64" | 18.65 | .7344" | 1C31H-.734-CI | ◆ | 1C31T-.734-CI | ◆ | 1C31A-.734-CI | ○ | 1C31N-.734-CI | ◆ |
| | 19.00 | .7480" | 1C31H-19-CI | ◆ | 1C31T-19-CI | ◆ | 1C31A-19-CI | ● | 1C31N-19-CI | ◆ |
| 3/4" | 19.05 | .7500" | 1C31H-0024-CI | ◆ | 1C31T-0024-CI | ◆ | 1C31A-0024-CI | ○ | 1C31N-0024-CI | ◆ |
| 49/64" | 19.45 | .7656" | 1C31H-.765-CI | ◆ | 1C31T-.765-CI | ◆ | 1C31A-.765-CI | ○ | 1C31N-.765-CI | ◆ |
| | 19.50 | .7677" | 1C31H-19.5-CI | ◆ | 1C31T-19.5-CI | ◆ | 1C31A-19.5-CI | ● | 1C31N-19.5-CI | ◆ |
| 25/32" | 19.84 | .7813" | 1C31H-0025-CI | ◆ | 1C31T-0025-CI | ◆ | 1C31A-0025-CI | ○ | 1C31N-0025-CI | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

# 1 Series T-A® Drill Inserts

Diameter Range 17.53 to 24.38mm

## 1 Series Standard T-A® Original K10 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 20.00 | .7874" | 1C31H-20-CI | ◆ | 1C31T-20-CI | ◆ | 1C31A-20-CI | ● | 1C31N-20-CI | ◆ |
| 51/64" | 20.24 | .7969" | 1C31H-.796-CI | ◆ | 1C31T-.796-CI | ◆ | 1C31A-.796-CI | ○ | 1C31N-.796-CI | ◆ |
| | 20.50 | .8071" | 1C31H-20.5-CI | ◆ | 1C31T-20.5-CI | ◆ | 1C31A-20.5-CI | ● | 1C31N-20.5-CI | ◆ |
| 13/16" | 20.64 | .8125" | 1C31H-0026-CI | ◆ | 1C31T-0026-CI | ◆ | 1C31A-0026-CI | ○ | 1C31N-0026-CI | ◆ |
| | 21.00 | .8268" | 1C31H-21-CI | ◆ | 1C31T-21-CI | ◆ | 1C31A-21-CI | ● | 1C31N-21-CI | ◆ |
| 27/32" | 21.43 | .8438" | 1C31H-0027-CI | ◆ | 1C31T-0027-CI | ◆ | 1C31A-0027-CI | ○ | 1C31N-0027-CI | ◆ |
| 55/64" | 21.83 | .8594" | 1C31H-.859-CI | ◆ | 1C31T-.859-CI | ◆ | 1C31A-.859-CI | ○ | 1C31N-.859-CI | ◆ |
| | 22.00 | .8661" | 1C31H-22-CI | ◆ | 1C31T-22-CI | ◆ | 1C31A-22-CI | ● | 1C31N-22-CI | ◆ |
| 7/8" | 22.23 | .8750" | 1C31H-0028-CI | ◆ | 1C31T-0028-CI | ◆ | 1C31A-0028-CI | ○ | 1C31N-0028-CI | ◆ |
| 57/64" | 22.62 | .8906" | 1C31H-.890-CI | ◆ | 1C31T-.890-CI | ◆ | 1C31A-.890-CI | ○ | 1C31N-.890-CI | ◆ |
| | 23.00 | .9055" | 1C31H-23-CI | ◆ | 1C31T-23-CI | ◆ | 1C31A-23-CI | ● | 1C31N-23-CI | ◆ |
| 29/32" | 23.02 | .9063" | 1C31H-0029-CI | ◆ | 1C31T-0029-CI | ◆ | 1C31A-0029-CI | ○ | 1C31N-0029-CI | ◆ |
| 59/64" | 23.42 | .9219" | 1C31H-.921-CI | ◆ | 1C31T-.921-CI | ◆ | 1C31A-.921-CI | ○ | 1C31N-.921-CI | ◆ |
| 15/16" | 23.81 | .9375" | 1C31H-0030-CI | ◆ | 1C31T-0030-CI | ◆ | 1C31A-0030-CI | ○ | 1C31N-0030-CI | ◆ |
| | 24.00 | .9449" | 1C31H-24-CI | ◆ | 1C31T-24-CI | ◆ | 1C31A-24-CI | ● | 1C31N-24-CI | ◆ |

*Supplied in 2 piece packages.*

## 1 Series Standard T-A® Original P40 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 1C51H-.703 | ◆ | 1C51T-.703 | ○ | 1C51A-.703 | ○ | 1C51N-.703 | ◆ |
| | 18.00 | .7087" | 1C51H-18 | ◆ | 1C51T-18 | ● | 1C51A-18 | ● | 1C51N-18 | ◆ |
| 23/32" | 18.26 | .7188" | 1C51H-0023 | ◆ | 1C51T-0023 | ○ | 1C51A-0023 | ○ | 1C51N-0023 | ◆ |
| | 18.50 | .7283" | 1C51H-18.5 | ◆ | 1C51T-18.5 | ● | 1C51A-18.5 | ● | 1C51N-18.5 | ◆ |
| 47/64" | 18.65 | .7344" | 1C51H-.734 | ◆ | 1C51T-.734 | ○ | 1C51A-.734 | ○ | 1C51N-.734 | ◆ |
| | 19.00 | .7480" | 1C51H-19 | ◆ | 1C51T-19 | ● | 1C51A-19 | ● | 1C51N-19 | ◆ |
| 3/4" | 19.05 | .7500" | 1C51H-0024 | ◆ | 1C51T-0024 | ○ | 1C51A-0024 | ○ | 1C51N-0024 | ◆ |
| 49/64" | 19.45 | .7656" | 1C51H-.765 | ◆ | 1C51T-.765 | ○ | 1C51A-.765 | ○ | 1C51N-.765 | ◆ |
| | 19.50 | .7677" | 1C51H-19.5 | ◆ | 1C51T-19.5 | ● | 1C51A-19.5 | ● | 1C51N-19.5 | ◆ |
| 25/32" | 19.84 | .7813" | 1C51H-0025 | ◆ | 1C51T-0025 | ○ | 1C51A-0025 | ○ | 1C51N-0025 | ◆ |
| | 20.00 | .7874" | 1C51H-20 | ◆ | 1C51T-20 | ● | 1C51A-20 | ● | 1C51N-20 | ◆ |
| 51/64" | 20.24 | .7969" | 1C51H-.796 | ◆ | 1C51T-.796 | ○ | 1C51A-.796 | ○ | 1C51N-.796 | ◆ |
| | 20.50 | .8071" | 1C51H-20.5 | ◆ | 1C51T-20.5 | ● | 1C51A-20.5 | ● | 1C51N-20.5 | ◆ |
| 13/16" | 20.64 | .8125" | 1C51H-0026 | ◆ | 1C51T-0026 | ○ | 1C51A-0026 | ○ | 1C51N-0026 | ◆ |
| | 21.00 | .8268" | 1C51H-21 | ◆ | 1C51T-21 | ● | 1C51A-21 | ● | 1C51N-21 | ◆ |
| 27/32" | 21.43 | .8438" | 1C51H-0027 | ◆ | 1C51T-0027 | ○ | 1C51A-0027 | ○ | 1C51N-0027 | ◆ |
| 55/64" | 21.83 | .8594" | 1C51H-.859 | ◆ | 1C51T-.859 | ○ | 1C51A-.859 | ○ | 1C51N-.859 | ◆ |
| | 22.00 | .8661" | 1C51H-22 | ◆ | 1C51T-22 | ● | 1C51A-22 | ● | 1C51N-22 | ◆ |
| 7/8" | 22.23 | .8750" | 1C51H-0028 | ◆ | 1C51T-0028 | ○ | 1C51A-0028 | ○ | 1C51N-0028 | ◆ |
| 57/64" | 22.62 | .8906" | 1C51H-.890 | ◆ | 1C51T-.890 | ○ | 1C51A-.890 | ○ | 1C51N-.890 | ◆ |
| | 23.00 | .9055" | 1C51H-23 | ◆ | 1C51T-23 | ● | 1C51A-23 | ● | 1C51N-23 | ◆ |
| 29/32" | 23.02 | .9063" | 1C51H-0029 | ◆ | 1C51T-0029 | ○ | 1C51A-0029 | ○ | 1C51N-0029 | ◆ |
| 59/64" | 23.42 | .9219" | 1C51H-.921 | ◆ | 1C51T-.921 | ○ | 1C51A-.921 | ○ | 1C51N-.921 | ◆ |
| 15/16" | 23.81 | .9375" | 1C51H-0030 | ◆ | 1C51T-0030 | ○ | 1C51A-0030 | ○ | 1C51N-0030 | ◆ |
| | 24.00 | .9449" | 1C51H-24 | ◆ | 1C51T-24 | ● | 1C51A-24 | ● | 1C51N-24 | ◆ |

*Supplied in 2 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


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## 1 Series Standard T-A Original HSS Super Cobalt - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 151H-.703-FB | ◆ | 151T-.703-FB | ○ | 151A-.703-FB | ◆ | 151N-.703-FB | ◆ |
| | 18.00 | .7087" | 151H-18-FB | ◆ | 151T-18-FB | ○ | 151A-18-FB | ◆ | 151N-18-FB | ◆ |
| 23/32" | 18.26 | .7188" | 151H-0023-FB | ◆ | 151T-0023-FB | ○ | 151A-0023-FB | ◆ | 151N-0023-FB | ◆ |
| | 18.50 | .7283" | 151H-18.5-FB | ◆ | 151T-18.5-FB | ○ | 151A-18.5-FB | ◆ | 151N-18.5-FB | ◆ |
| 47/64" | 18.65 | .7344" | 151H-.734-FB | ◆ | 151T-.734-FB | ○ | 151A-.734-FB | ◆ | 151N-.734-FB | ◆ |
| | 19.00 | .7480" | 151H-19-FB | ◆ | 151T-19-FB | ○ | 151A-19-FB | ◆ | 151N-19-FB | ◆ |
| 3/4" | 19.05 | .7500" | 151H-0024-FB | ◆ | 151T-0024-FB | ○ | 151A-0024-FB | ◆ | 151N-0024-FB | ◆ |
| 49/64" | 19.45 | .7656" | 151H-.765-FB | ◆ | 151T-.765-FB | ○ | 151A-.765-FB | ◆ | 151N-.765-FB | ◆ |
| | 19.50 | .7677" | 151H-19.5-FB | ◆ | 151T-19.5-FB | ○ | 151A-19.5-FB | ◆ | 151N-19.5-FB | ◆ |
| 25/32" | 19.84 | .7813" | 151H-0025-FB | ◆ | 151T-0025-FB | ○ | 151A-0025-FB | ◆ | 151N-0025-FB | ◆ |
| | 20.00 | .7874" | 151H-20-FB | ◆ | 151T-20-FB | ○ | 151A-20-FB | ◆ | 151N-20-FB | ◆ |
| | 20.50 | .8071" | 151H-20.5-FB | ◆ | 151T-20.5-FB | ○ | 151A-20.5-FB | ◆ | 151N-20.5-FB | ◆ |
| 13/16" | 20.64 | .8125" | 151H-0026-FB | ◆ | 151T-0026-FB | ○ | 151A-0026-FB | ◆ | 151N-0026-FB | ◆ |
| | 21.00 | .8268" | 151H-21-FB | ◆ | 151T-21-FB | ○ | 151A-21-FB | ◆ | 151N-21-FB | ◆ |
| 27/32" | 21.43 | .8438" | 151H-0027-FB | ◆ | 151T-0027-FB | ○ | 151A-0027-FB | ◆ | 151N-0027-FB | ◆ |
| | 22.00 | .8661" | 151H-22-FB | ◆ | 151T-22-FB | ○ | 151A-22-FB | ◆ | 151N-22-FB | ◆ |
| 7/8" | 22.23 | .8750" | 151H-0028-FB | ◆ | 151T-0028-FB | ○ | 151A-0028-FB | ◆ | 151N-0028-FB | ◆ |
| | 23.00 | .9055" | 151H-23-FB | ◆ | 151T-23-FB | ○ | 151A-23-FB | ◆ | 151N-23-FB | ◆ |
| 29/32" | 23.02 | .9063" | 151H-0029-FB | ◆ | 151T-0029-FB | ○ | 151A-0029-FB | ◆ | 151N-0029-FB | ◆ |
| 59/64" | 23.42 | .9219" | 151H-.921-FB | ◆ | 151T-.921-FB | ○ | 151A-.921-FB | ◆ | 151N-.921-FB | ◆ |
| 15/16" | 23.81 | .9375" | 151H-0030-FB | ◆ | 151T-0030-FB | ○ | 151A-0030-FB | ◆ | 151N-0030-FB | ◆ |
| | 24.00 | .9449" | 151H-24-FB | ◆ | 151T-24-FB | ○ | 151A-24-FB | ◆ | 151N-24-FB | ◆ |

*Supplied in 2 piece packages.*

## 1 Series Standard T-A Original K20 Carbide - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 1C21H-.703-FB | ◆ | 1C21T-.703-FB | ◆ | 1C21A-.703-FB | ◆ | 1C21N-.703-FB | ◆ |
| | 18.00 | .7087" | 1C21H-18-FB | ◆ | 1C21T-18-FB | ◆ | 1C21A-18-FB | ◆ | 1C21N-18-FB | ◆ |
| 23/32" | 18.26 | .7188" | 1C21H-0023-FB | ◆ | 1C21T-0023-FB | ◆ | 1C21A-0023-FB | ◆ | 1C21N-0023-FB | ◆ |
| | 18.50 | .7283" | 1C21H-18.5-FB | ◆ | 1C21T-18.5-FB | ◆ | 1C21A-18.5-FB | ◆ | 1C21N-18.5-FB | ◆ |
| 47/64" | 18.65 | .7344" | 1C21H-.734-FB | ◆ | 1C21T-.734-FB | ◆ | 1C21A-.734-FB | ◆ | 1C21N-.734-FB | ◆ |
| | 19.00 | .7480" | 1C21H-19-FB | ◆ | 1C21T-19-FB | ◆ | 1C21A-19-FB | ◆ | 1C21N-19-FB | ◆ |
| 3/4" | 19.05 | .7500" | 1C21H-0024-FB | ◆ | 1C21T-0024-FB | ◆ | 1C21A-0024-FB | ◆ | 1C21N-0024-FB | ◆ |
| 49/64" | 19.45 | .7656" | 1C21H-.765-FB | ◆ | 1C21T-.765-FB | ◆ | 1C21A-.765-FB | ◆ | 1C21N-.765-FB | ◆ |
| | 19.50 | .7677" | 1C21H-19.5-FB | ◆ | 1C21T-19.5-FB | ◆ | 1C21A-19.5-FB | ◆ | 1C21N-19.5-FB | ◆ |
| 25/32" | 19.84 | .7813" | 1C21H-0025-FB | ◆ | 1C21T-0025-FB | ◆ | 1C21A-0025-FB | ◆ | 1C21N-0025-FB | ◆ |
| | 20.00 | .7874" | 1C21H-20-FB | ◆ | 1C21T-20-FB | ◆ | 1C21A-20-FB | ◆ | 1C21N-20-FB | ◆ |
| | 20.50 | .8071" | 1C21H-20.5-FB | ◆ | 1C21T-20.5-FB | ◆ | 1C21A-20.5-FB | ◆ | 1C21N-20.5-FB | ◆ |
| 13/16" | 20.64 | .8125" | 1C21H-0026-FB | ◆ | 1C21T-0026-FB | ◆ | 1C21A-0026-FB | ◆ | 1C21N-0026-FB | ◆ |
| | 21.00 | .8268" | 1C21H-21-FB | ◆ | 1C21T-21-FB | ◆ | 1C21A-21-FB | ◆ | 1C21N-21-FB | ◆ |
| 27/32" | 21.43 | .8438" | 1C21H-0027-FB | ◆ | 1C21T-0027-FB | ◆ | 1C21A-0027-FB | ◆ | 1C21N-0027-FB | ◆ |
| | 22.00 | .8661" | 1C21H-22-FB | ◆ | 1C21T-22-FB | ◆ | 1C21A-22-FB | ◆ | 1C21N-22-FB | ◆ |
| 7/8" | 22.23 | .8750" | 1C21H-0028-FB | ◆ | 1C21T-0028-FB | ◆ | 1C21A-0028-FB | ◆ | 1C21N-0028-FB | ◆ |
| | 23.00 | .9055" | 1C21H-23-FB | ◆ | 1C21T-23-FB | ◆ | 1C21A-23-FB | ◆ | 1C21N-23-FB | ◆ |
| 29/32" | 23.02 | .9063" | 1C21H-0029-FB | ◆ | 1C21T-0029-FB | ◆ | 1C21A-0029-FB | ◆ | 1C21N-0029-FB | ◆ |
| 59/64" | 23.42 | .9219" | 1C21H-.921-FB | ◆ | 1C21T-.921-FB | ◆ | 1C21A-.921-FB | ◆ | 1C21N-.921-FB | ◆ |
| 15/16" | 23.81 | .9375" | 1C21H-0030-FB | ◆ | 1C21T-0030-FB | ◆ | 1C21A-0030-FB | ◆ | 1C21N-0030-FB | ◆ |
| | 24.00 | .9449" | 1C21H-24-FB | ◆ | 1C21T-24-FB | ◆ | 1C21A-24-FB | ◆ | 1C21N-24-FB | ◆ |

*Supplied in 2 piece packages.*

# 1 Series T-A® Drill Inserts

Diameter Range 17.53 to 24.38mm

## 1 Series Standard T-A® Original HSS Super Cobalt - 90° Spot and Chamfer

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 45/64" | 17.86 | .7031" | 151H-.703-SP | ◆ | 151T-.703-SP | ◆ | 151A-.703-SP | ◆ | 151N-.703-SP | ◆ |
| | 18.00 | .7087" | 151H-18-SP | ◆ | 151T-18-SP | ◆ | 151A-18-SP | ◆ | 151N-18-SP | ◆ |
| 23/32" | 18.26 | .7188" | 151H-0023-SP | ◆ | 151T-0023-SP | ◆ | 151A-0023-SP | ◆ | 151N-0023-SP | ◆ |
| | 18.50 | .7283" | 151H-18.5-SP | ◆ | 151T-18.5-SP | ◆ | 151A-18.5-SP | ◆ | 151N-18.5-SP | ◆ |
| 47/64" | 18.65 | .7344" | 151H-.734-SP | ◆ | 151T-.734-SP | ◆ | 151A-.734-SP | ◆ | 151N-.734-SP | ◆ |
| | 19.00 | .7480" | 151H-19-SP | ◆ | 151T-19-SP | ◆ | 151A-19-SP | ◆ | 151N-19-SP | ◆ |
| 3/4" | 19.05 | .7500" | 151H-0024-SP | ◆ | 151T-0024-SP | ◆ | 151A-0024-SP | ◆ | 151N-0024-SP | ◆ |
| 49/64" | 19.45 | .7656" | 151H-.765-SP | ◆ | 151T-.765-SP | ◆ | 151A-.765-SP | ◆ | 151N-.765-SP | ◆ |
| | 19.50 | .7677" | 151H-19.5-SP | ◆ | 151T-19.5-SP | ◆ | 151A-19.5-SP | ◆ | 151N-19.5-SP | ◆ |
| 25/32" | 19.84 | .7813" | 151H-0025-SP | ◆ | 151T-0025-SP | ◆ | 151A-0025-SP | ◆ | 151N-0025-SP | ◆ |
| | 20.00 | .7874" | 151H-20-SP | ◆ | 151T-20-SP | ◆ | 151A-20-SP | ◆ | 151N-20-SP | ◆ |
| 51/64" | 20.24 | .7969" | 151H-.796-SP | ◆ | 151T-.796-SP | ◆ | 151A-.796-SP | ◆ | 151N-.796-SP | ◆ |
| | 20.50 | .8071" | 151H-20.5-SP | ◆ | 151T-20.5-SP | ◆ | 151A-20.5-SP | ◆ | 151N-20.5-SP | ◆ |
| 13/16" | 20.64 | .8125" | 151H-0026-SP | ◆ | 151T-0026-SP | ◆ | 151A-0026-SP | ◆ | 151N-0026-SP | ◆ |
| | 21.00 | .8268" | 151H-21-SP | ◆ | 151T-21-SP | ◆ | 151A-21-SP | ◆ | 151N-21-SP | ◆ |
| 27/32" | 21.43 | .8438" | 151H-0027-SP | ◆ | 151T-0027-SP | ◆ | 151A-0027-SP | ◆ | 151N-0027-SP | ◆ |
| 55/64" | 21.83 | .8594" | 151H-.859-SP | ◆ | 151T-.859-SP | ◆ | 151A-.859-SP | ◆ | 151N-.859-SP | ◆ |
| | 22.00 | .8661" | 151H-22-SP | ◆ | 151T-22-SP | ◆ | 151A-22-SP | ◆ | 151N-22-SP | ◆ |
| 7/8" | 22.23 | .8750" | 151H-0028-SP | ◆ | 151T-0028-SP | ◆ | 151A-0028-SP | ◆ | 151N-0028-SP | ◆ |
| 57/64" | 22.62 | .8906" | 151H-.890-SP | ◆ | 151T-.890-SP | ◆ | 151A-.890-SP | ◆ | 151N-.890-SP | ◆ |
| | 23.00 | .9055" | 151H-23-SP | ◆ | 151T-23-SP | ◆ | 151A-23-SP | ◆ | 151N-23-SP | ◆ |
| 29/32" | 23.02 | .9063" | 151H-0029-SP | ◆ | 151T-0029-SP | ◆ | 151A-0029-SP | ◆ | 151N-0029-SP | ◆ |
| 59/64" | 23.42 | .9219" | 151H-.921-SP | ◆ | 151T-.921-SP | ◆ | 151A-.921-SP | ◆ | 151N-.921-SP | ◆ |
| 15/16" | 23.81 | .9375" | 151H-0030-SP | ◆ | 151T-0030-SP | ◆ | 151A-0030-SP | ◆ | 151N-0030-SP | ◆ |
| | 24.00 | .9449" | 151H-24-SP | ◆ | 151T-24-SP | ● | 151A-24-SP | ◆ | 151N-24-SP | ◆ |

*Supplied in 2 piece packages.*

## 1 Series Standard T-A® Original N2 Carbide - CVD Diamond Coated

| Ø Inch | Ø mm | Ø Decimal | CVD Diamond Coated | Stk. |
|---|---|---|---|---|
| 45/64" | 17.86 | .7031" | 1N21D-.703 | ◆ |
| | 18.00 | .7087" | 1N21D-18 | ◆ |
| 23/32" | 18.26 | .7188" | 1N21D-0023 | ◆ |
| | 18.50 | .7283" | 1N21D-18.5 | ◆ |
| 47/64" | 18.65 | .7344" | 1N21D-.734 | ◆ |
| | 19.00 | .7480" | 1N21D-19 | ◆ |
| 3/4" | 19.05 | .7500" | 1N21D-0024 | ◆ |
| 49/64" | 19.45 | .7656" | 1N21D-.765 | ◆ |
| | 19.50 | .7677" | 1N21D-19.5 | ◆ |
| 25/32" | 19.84 | .7813" | 1N21D-0025 | ◆ |
| | 20.00 | .7874" | 1N21D-20 | ◆ |
| 51/64" | 20.24 | .7969" | 1N21D-.796 | ◆ |
| | 20.50 | .8071" | 1N21D-20.5 | ◆ |
| 13/16" | 20.64 | .8125" | 1N21D-0026 | ◆ |
| | 21.00 | .8268" | 1N21D-21 | ◆ |
| 27/32" | 21.43 | .8438" | 1N21D-0027 | ◆ |
| 55/64" | 21.83 | .8594" | 1N21D-.859 | ◆ |
| | 22.00 | .8661" | 1N21D-22 | ◆ |
| 7/8" | 22.23 | .8750" | 1N21D-0028 | ◆ |
| 57/64" | 22.62 | .8906" | 1N21D-.890 | ◆ |
| | 23.00 | .9055" | 1N21D-23 | ◆ |
| 29/32" | 23.02 | .9063" | 1N21D-0029 | ◆ |
| 59/64" | 23.42 | .9219" | 1N21D-.921 | ◆ |
| 15/16" | 23.81 | .9375" | 1N21D-.0030 | ◆ |
| | 24.00 | .9449" | 1N21D-24 | ◆ |

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


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## 1 Series GEN2 T-A HSS Super Cobalt HE Geometry Drill Inserts

| Diameter | | | Item Number, Coating and Availability | | Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| 45/64″ | 17.86 | .7031″ | 451H-.703-HE | ◆ | 27/32″ | 21.43 | .8438″ | 451H-0027-HE | ◆ |
| | 18.00 | .7087″ | 451H-18-HE | ◆ | | 21.50 | .8465″ | 451H-21.5-HE | ◆ |
| 23/32″ | 18.26 | .7188″ | 451H-0023-HE | ◆ | 55/64″ | 21.83 | .8594″ | 451H-.859-HE | ◆ |
| | 18.50 | .7283″ | 451H-18.5-HE | ◆ | | 22.00 | .8661″ | 451H-22-HE | ◆ |
| 47/64″ | 18.65 | .7344″ | 451H-.734-HE | ◆ | 7/8″ | 22.23 | .8750″ | 451H-0028-HE | ◆ |
| | 19.00 | .7480″ | 451H-19-HE | ◆ | | 22.50 | .8858″ | 451H-22.5-HE | ◆ |
| 3/4″ | 19.05 | .7500″ | 451H-0024-HE | ◆ | 57/64″ | 22.62 | .8906″ | 451H-.890-HE | ◆ |
| 49/64″ | 19.45 | .7656″ | 451H-.765-HE | ◆ | | 23.00 | .9055″ | 451H-23-HE | ◆ |
| | 19.50 | .7677″ | 451H-19.5-HE | ◆ | 29/32″ | 23.02 | .9063″ | 451H-0029-HE | ◆ |
| 25/32″ | 19.84 | .7813″ | 451H-0025-HE | ◆ | 59/64″ | 23.42 | .9219″ | 451H-.921-HE | ◆ |
| | 20.00 | .7874″ | 451H-20-HE | ◆ | | 23.50 | .9252″ | 451H-23.5-HE | ◆ |
| 51/64″ | 20.24 | .7969″ | 451H-.796-HE | ◆ | | 23.70 | .9391″ | 451H-23.7-HE | ◆ |
| | 20.50 | .8071″ | 451H-20.5-HE | ◆ | 15/16″ | 23.81 | .9375″ | 451H-0030-HE | ◆ |
| 13/16″ | 20.64 | .8125″ | 451H-0026-HE | ◆ | | 24.00 | .9449″ | 451H-24-HE | ◆ |
| | 21.00 | .8268″ | 451H-21-HE | ◆ | 27/32″ | 21.43 | .8438″ | 451H-0027-HE | ◆ |

*Supplied in 2 piece packages.*

## 1 Series GEN2 T-A K35 Carbide HE Geometry Drill Inserts

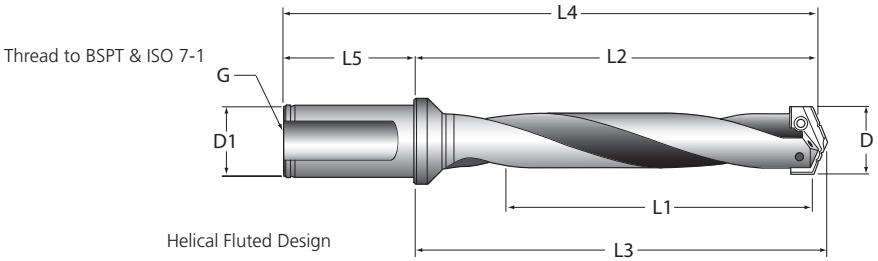
| Diameter | | | Item Number, Coating and Availability | | Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| 55/64″ | 17.86 | .7031″ | 4C11H-.703-HE | ◆ | 27/32″ | 21.43 | .8438″ | 4C11H-0027-HE | ◆ |
| | 18.00 | .7087″ | 4C11H-18-HE | ◆ | | 21.50 | .8465″ | 4C11H-21.5-HE | ◆ |
| 23/32″ | 18.26 | .7188″ | 4C11H-0023-HE | ◆ | 55/64″ | 21.83 | .8594″ | 4C11H-.859-HE | ◆ |
| | 18.50 | .7283″ | 4C11H-18.5-HE | ◆ | | 22.00 | .8661″ | 4C11H-22-HE | ◆ |
| 47/64″ | 18.65 | .7344″ | 4C11H-.734-HE | ◆ | 7/8″ | 22.23 | .8750″ | 4C11H-0028-HE | ◆ |
| | 19.00 | .7480″ | 4C11H-19-HE | ◆ | | 22.50 | .8858″ | 4C11H-22.5-HE | ◆ |
| 3/4″ | 19.05 | .7500″ | 4C11H-0024-HE | ◆ | 57/64″ | 22.62 | .8906″ | 4C11H-.890-HE | ◆ |
| 49/64″ | 19.45 | .7656″ | 4C11H-.765-HE | ◆ | | 23.00 | .9055″ | 4C11H-23-HE | ◆ |
| | 19.50 | .7677″ | 4C11H-19.5-HE | ◆ | 29/32″ | 23.02 | .9063″ | 4C11H-0029-HE | ◆ |
| 25/32″ | 19.84 | .7813″ | 4C11H-0025-HE | ◆ | 59/64″ | 23.42 | .9219″ | 4C11H-.921-HE | ◆ |
| | 20.00 | .7874″ | 4C11H-20-HE | ◆ | | 23.50 | .9252″ | 4C11H-23.5-HE | ◆ |
| 51/64″ | 20.24 | .7969″ | 4C11H-.796-HE | ◆ | | 23.70 | .9391″ | 4C11H-23.7-HE | ◆ |
| | 20.50 | .8071″ | 4C11H-20.5-HE | ◆ | 15/16″ | 23.81 | .9375″ | 4C11H-0030-HE | ◆ |
| 13/16″ | 20.64 | .8125″ | 4C11H-0026-HE | ◆ | | 24.00 | .9449″ | 4C11H-24-HE | ◆ |
| | 21.00 | .8268″ | 4C11H-21-HE | ◆ | | | | | |

*Supplied in 2 piece packages.*

## 1 Series T-A Original Structural Steel Inserts

| Diameter | | Item Number, Coating and Availability | | | | Item Number, Coating and Availability | | | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Thin Wall T-A® Super Cobalt TiAlN | Stk. | Thin Wall T-A® Super Cobalt AM200® | Stk. | 150° T-A® Super Cobalt TiAlN | Stk. | 150° T-A® Super Cobalt AM200® | Stk. |
| - | 18.00 | 151A-18-TW | ● | 151H-18-TW | ● | 151A-18-SS | ● | 151H-18-SS | ● |
| 13/16″ | 20.64 | 151A-0026-TW | ○ | 151H-0026-TW | ○ | 151A-0026-SS | ○ | 151H-0026-SS | ○ |
| - | 22.00 | 151A-22-TW | ● | 151H-22-TW | ● | 151A-22-SS | ● | 151H-22-SS | ● |
| 7/8″ | 22.23 | 151A-0028-TW | ○ | 151H-0028-TW | ○ | 151A-0028-SS | ○ | 151H-0028-SS | ○ |
| 15/16″ | 23.81 | 151A-0030-TW | ○ | 151H-0030-TW | ○ | 151A-0030-SS | ○ | 151H-0030-SS | ○ |
| - | 24.00 | 151A-24-TW | ● | 151H-24-TW | ● | 151A-24-SS | ● | 151H-24-SS | ● |

# 2 Series T-A® Holders

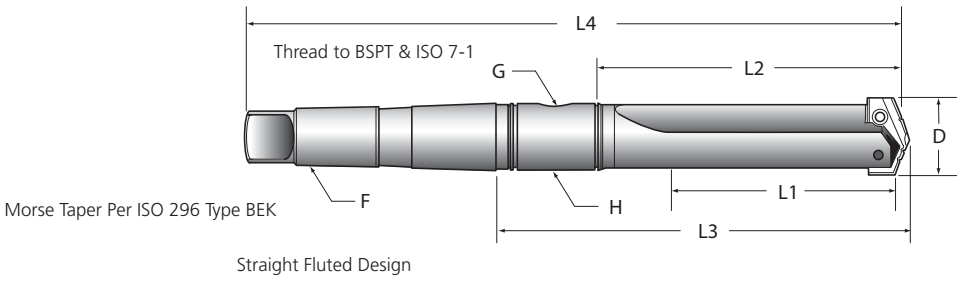



## Flanged Straight Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | L5 | D1 | G | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range D (mm) | Max Drill Depth (mm) | Body Length (mm) | New Tool Ref Length (mm) | Overall Length (mm) | Shank Length (mm) | Shank Diameter (mm) | Pipe Tap | |
| 21020S-32FM | Stub | Straight | 24.50-35.00 | 57 | 88.5 | 92.1 | 148.5 | 60 | 32.0 | ¼" | ⅛" |
| 21025S-32FM | Stub | Straight | 30.00-35.00 | 92 | 123.4 | 127.0 | 183.4 | 60 | 32.0 | ¼" | ⅛" |
| 22020S-32FM | Short | Straight | 24.50-35.00 | 86 | 128.6 | 132.2 | 188.6 | 60 | 32.0 | ¼" | N/A |
| 22025S-32FM | Short | Straight | 30.00-35.00 | 86 | 128.6 | 132.2 | 188.6 | 60 | 32.0 | ¼" | N/A |
| 23020S-32FM | Intermediate | Straight | 24.50-35.00 | 137 | 179.4 | 183 | 239.4 | 60 | 32.0 | ¼" | N/A |
| 24020S-32FM | Standard | Straight | 24.50-35.00 | 187 | 230.2 | 233.8 | 290.2 | 60 | 32.0 | ¼" | N/A |
| 23020H-32FM | Intermediate | Helical | 24.50-35.00 | 137 | 179.4 | 183 | 239.4 | 60 | 32.0 | ¼" | N/A |
| 23025H-32FM | Intermediate | Helical | 30.00-35.00 | 137 | 179.4 | 183 | 239.4 | 60 | 32.0 | ¼" | N/A |
| 24020H-32FM | Standard | Helical | 24.50-35.00 | 187 | 230.2 | 233.8 | 290.2 | 60 | 32.0 | ¼" | N/A |
| 24025H-32FM | Standard | Helical | 30.00-35.00 | 187 | 230.2 | 233.8 | 290.2 | 60 | 32.0 | ¼" | N/A |
| 25020H-32FM | Extended | Helical | 24.50-35.00 | 289 | 331.8 | 335.4 | 391.8 | 60 | 32.0 | ¼" | N/A |
| 25025H-32FM | Extended | Helical | 30.00-35.00 | 289 | 331.8 | 335.4 | 391.8 | 60 | 32.0 | ¼" | N/A |
| 27020S-32FM | XL | Straight | 24.50-35.00 | 511 | 554.1 | 557.7 | 614.1 | 60 | 32.0 | ¼" | N/A |
| 29020S-32FM | 3XL | Straight | 24.50-35.00 | 692 | 735.1 | 738.7 | 795.1 | 60 | 32.0 | ¼" | N/A |

*Note: Stub Length includes additional side coolant port.




## Taper Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | F | H | G |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range (mm) | Max Drill Depth (mm) | Flute Length (mm) | New Tool Length (mm) | Overall Length (mm) | MT | RCA | Pipe Tap |
| 22020S-004M | Short | Straight | 24.50-35.00 | 86 | 114.3 | 160.4 | 273.8 | 4 | 3SRM | ⅛" |
| 22025S-004M | Short | Straight | 30.00-35.00 | 86 | 114.3 | 167.6 | 281 | 4 | 4SRM | ¼" |
| 23020H-004M | Intermediate | Helical | 24.50-35.00 | 137 | 165.1 | 211.2 | 324.6 | 4 | 3SRM | ⅛" |
| 23025H-004M | Intermediate | Helical | 30.00-35.00 | 137 | 165.1 | 218.4 | 331.8 | 4 | 4SRM | ¼" |
| 24020H-004M | Standard | Helical | 24.50-35.00 | 188 | 215.9 | 262 | 375.4 | 4 | 3SRM | ⅛" |
| 24025H-004M | Standard | Helical | 30.00-35.00 | 188 | 215.9 | 269.2 | 382.6 | 4 | 4SRM | ¼" |
| 25020H-004M | Extended | Helical | 24.50-35.00 | 289 | 317.5 | 363.6 | 477 | 4 | 3SRM | ⅛" |
| 25025H-004M | Extended | Helical | 30.00-35.00 | 289 | 317.5 | 370.8 | 484.2 | 4 | 4SRM | ¼" |

**For Holder Accessories please see pages 141 - 146.**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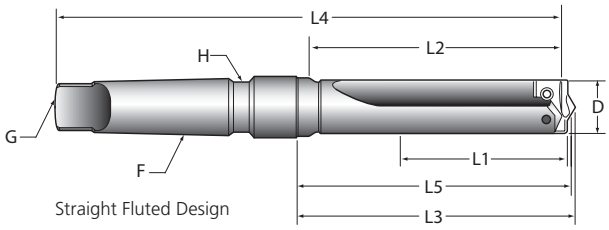
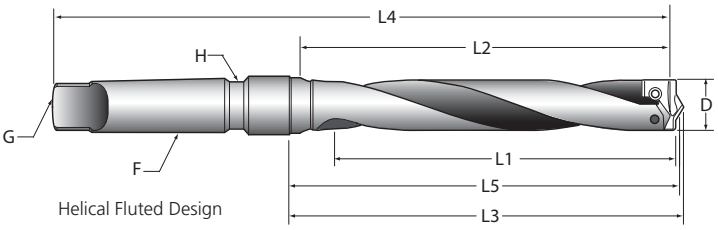


Straight Fluted Design



Helical Fluted Design

## Short Length – Taper Shank Holders – Straight Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 22020S-004IS100 | 26 | 86 | 114 | 126.6 | 124.2 | 238 | 4 | TTC | TSC | ● |
| 22025S-004IS112 | 31-33 | 86 | 114 | 126.6 | 124.2 | 238 | 4 | TTC | TSC | ● |

*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.

## Standard Length – Taper Shank Holders – Helical Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 24020H-004IS100 | 26 | 137 | 165 | 177.4 | 175.0 | 289 | 4 | TTC | TSC | ● |
| 24025S-004IS112 | 31 | 137 | 165 | 177.4 | 175.0 | 289 | 4 | TTC | TSC | ● |

*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.

## Extended Length – Taper Shank Holders – Helical Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 25020H-003IS100 | 26 | 165 | 234 | 247.7 | 240.1 | 336 | 3 | TTC | TSC | ○ |
| 25020H-004IS100 | 26 | 165 | 234 | 247.7 | 246.0 | 360 | 4 | TTC | TSC | ● |

*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.

## Long Length – Taper Shank Holders – Helical Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 26020H-004IS100 | 26 | 165 | 406 | 418.3 | 416.3 | 530 | 4 | TTC | TSC | ● |

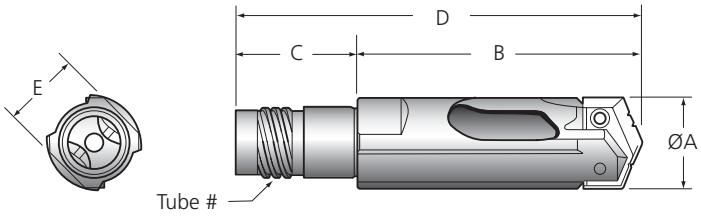
*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**For Holder Accessories please see pages 141 - 146.**

# 2 Series BT-A Drill and Tubes

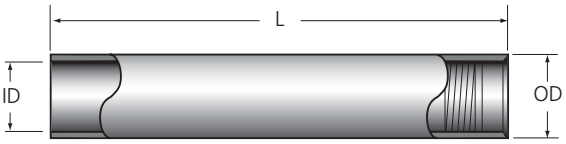



## Metric Heads

| T-A® Series | Head Item Number | Tube Size | A Diameter Range (mm) | B Reference Length (mm) | C Shank Length (mm) | D Overall Length (mm) | E Wrench Flat (mm) | Stk. |
|---|---|---|---|---|---|---|---|---|
| 2 | BTA2-803-xx.xx | 803 | 24.39-26.41 | 78.5 | 33 | 111.5 | 21 | ◆ |
| | BTA2-804-xx.xx | 804 | 26.40-28.70 | 75.9 | 28 | 103.9 | 22 | ◆ |
| | BTA2-805-xx.xx | 805 | 28.71-31.01 | 75.4 | 36 | 111.4 | 25 | ◆ |
| | BTA2-806-xx.xx | 806 | 31.02-33.32 | 77.9 | 36 | 113.8 | 27 | ◆ |
| | BTA2-807-xx.xx | 807 | 33.33-35.05 | 77.9 | 36 | 113.8 | 30 | ◆ |

## Imperial Heads

| T-A® Series | Head Item Number | Tube Size | A Diameter Range (inch) | B Reference Length (inch) | C Shank Length (inch) | D Overall Length (inch) | E Wrench Flat (mm) | Stk. |
|---|---|---|---|---|---|---|---|---|
| 2 | BTA2-803-x.xxxx | 803 | 0.9601-1.0399 | 3-3/32 | 1-19/64 | 4-25/64 | 21 | ◆ |
| | BTA2-804-x.xxxx | 804 | 1.0400-1.1299 | 3 | 1-7/64 | 4-3/32 | 22 | ◆ |
| | BTA2-805-x.xxxx | 805 | 1.1300-1.2209 | 2-31/32 | 1-27/64 | 4-25/64 | 25 | ◆ |
| | BTA2-806-x.xxxx | 806 | 1.2210-1.3119 | 3-1/16 | 1-27/64 | 4-31/64 | 27 | ◆ |
| | BTA2-807-x.xxxx | 807 | 1.3120-1.3800 | 3-1/16 | 1-27/64 | 4-31/64 | 30 | ◆ |




## Metric Tubes

| Tube Size | Tube Item Number | Metric | | | | |
|---|---|---|---|---|---|---|
| | | Diameter Range (mm) | Tube OD (mm) | Tube ID (mm) | Length (mm) | Stk. |
| 803 | BTAT803-63 | 24.09-26.39 | 22.0 | 14.0 | 1600 | ○ |
| | BTAT803-102 | | | | 2591 | ○ |
| 804 | BTAT804-63 | 26.40-28.68 | 24.0 | 15.5 | 1600 | ○ |
| | BTAT804-102 | | | | 2591 | ○ |
| 805 | BTAT805-63 | 28.69-30.99 | 26.0 | 17.0 | 1600 | ○ |
| | BTAT805-102 | | | | 2591 | ○ |
| 806 | BTAT806-102 | 31.00-33.30 | 28.0 | 18.5 | 2591 | ○ |
| 807 | BTAT807-102 | 33.31-36.20 | 30.0 | 20.0 | 2591 | ○ |

## Imperial Tubes

| Tube Size | Tube Item Number | Imperial | | | | |
|---|---|---|---|---|---|---|
| | | Diameter Range (inch) | Tube OD (inch) | Tube ID (inch) | Length (inch) | Stk. |
| 803 | BTAT803-63 | 0.949-1.039 | 0.866 | 0.551 | 63 | ○ |
| | BTAT803-102 | | | | 102 | ○ |
| 804 | BTAT804-63 | 1.040-1.129 | 0.945 | 0.610 | 63 | ○ |
| | BTAT804-102 | | | | 102 | ○ |
| 805 | BTAT805-63 | 1.130-1.220 | 1.024 | 0.669 | 63 | ○ |
| | BTAT805-102 | | | | 102 | ○ |
| 806 | BTAT806-102 | 1.221-1.311 | 1.102 | 0.728 | 102 | ○ |
| 807 | BTAT807-102 | 1.312-1.425 | 1.181 | 0.787 | 102 | ○ |

## 2 Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 452H-24.5 | ○ | 452T-24.5 | ◆ | 452A-24.5 | ◆ | 452N-24.5 | ◆ |
| 31/32" | 24.61 | .9688" | 452H-0031 | ○ | 452T-0031 | ◆ | 452A-0031 | ◆ | 452N-0031 | ◆ |
| 63/64" | 25.00 | .9843" | 452H-25 | ● | 452T-25 | ◆ | 452A-25 | ◆ | 452N-25 | ◆ |
| 1" | 25.40 | 1.0000" | 452H-0100 | ○ | 452T-0100 | ◆ | 452A-0100 | ◆ | 452N-0100 | ◆ |
| | 25.50 | 1.0004" | 452H-25.5 | ● | 452T-25.5 | ◆ | 452A-25.5 | ◆ | 452N-25.5 | ◆ |
| 1 1/64" | 25.80 | 1.015" | 452H-1.015 | ○ | 452T-1.015 | ◆ | 452A-1.015 | ◆ | 452N-1.015 | ◆ |
| | 26.00 | 1.0236" | 452H-26 | ● | 452T-26 | ◆ | 452A-26 | ◆ | 452N-26 | ◆ |
| 1 1/32" | 26.19 | 1.0313" | 452H-0101 | ○ | 452T-0101 | ◆ | 452A-0101 | ◆ | 452N-0101 | ◆ |
| | 26.50 | 1.0433" | 452H-26.5 | ● | 452T-26.5 | ◆ | 452A-26.5 | ◆ | 452N-26.5 | ◆ |
| 1 3/64" | 26.59 | 1.0469" | 452H-1.046 | ○ | 452T-1.046 | ◆ | 452A-1.046 | ◆ | 452N-1.046 | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 452H-0102 | ○ | 452T-0102 | ◆ | 452A-0102 | ◆ | 452N-0102 | ◆ |
| | 27.00 | 1.0630" | 452H-27 | ● | 452T-27 | ◆ | 452A-27 | ◆ | 452N-27 | ◆ |
| | 27.50 | 1.0827" | 452H-27.5 | ● | 452T-27.5 | ◆ | 452A-27.5 | ◆ | 452N-27.5 | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 452H-0103 | ○ | 452T-0103 | ◆ | 452A-0103 | ◆ | 452N-0103 | ◆ |
| | 28.00 | 1.1024" | 452H-28 | ● | 452T-28 | ◆ | 452A-28 | ◆ | 452N-28 | ◆ |
| 1 7/64" | 28.18 | 1.1094" | 452H-1.109 | ○ | 452T-1.109 | ◆ | 452A-1.109 | ◆ | 452N-1.109 | ◆ |
| | 28.50 | 1.1220" | 452H-28.5 | ● | 452T-28.5 | ◆ | 452A-28.5 | ◆ | 452N-28.5 | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 452H-0104 | ○ | 452T-0104 | ◆ | 452A-0104 | ◆ | 452N-0104 | ◆ |
| | 29.00 | 1.1417" | 452H-29 | ● | 452T-29 | ◆ | 452A-29 | ◆ | 452N-29 | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 452H-0105 | ○ | 452T-0105 | ◆ | 452A-0105 | ◆ | 452N-0105 | ◆ |
| | 29.50 | 1.1614" | 452H-29.5 | ● | 452T-29.5 | ◆ | 452A-29.5 | ◆ | 452N-29.5 | ◆ |
| | 30.00 | 1.1811" | 452H-30 | ● | 452T-30 | ◆ | 452A-30 | ◆ | 452N-30 | ◆ |
| 1 3/16" | 30.16 | 1.1875" | 452H-0106 | ○ | 452T-0106 | ◆ | 452A-0106 | ◆ | 452N-0106 | ◆ |
| | 30.50 | 1.2007" | 452H-30.5 | ● | 452T-30.5 | ◆ | 452A-30.5 | ◆ | 452N-30.5 | ◆ |
| 1 7/32" | 30.96 | 1.2188" | 452H-0107 | ○ | 452T-0107 | ◆ | 452A-0107 | ◆ | 452N-0107 | ◆ |
| | 31.00 | 1.2205" | 452H-31 | ● | 452T-31 | ◆ | 452A-31 | ◆ | 452N-31 | ◆ |
| | 31.50 | 1.2402" | 452H-31.5 | ● | 452T-31.5 | ◆ | 452A-31.5 | ◆ | 452N-31.5 | ◆ |
| 1 1/4" | 31.75 | 1.2500" | 452H-0108 | ○ | 452T-0108 | ◆ | 452A-0108 | ◆ | 452N-0108 | ◆ |
| | 32.00 | 1.2598" | 452H-32 | ● | 452T-32 | ◆ | 452A-32 | ◆ | 452N-32 | ◆ |
| | 32.50 | 1.2795" | 452H-32.5 | ● | 452T-32.5 | ◆ | 452A-32.5 | ◆ | 452N-32.5 | ◆ |
| 1 9/32" | 32.54 | 1.2813" | 452H-0109 | ○ | 452T-0109 | ◆ | 452A-0109 | ◆ | 452N-0109 | ◆ |
| | 33.00 | 1.2992" | 452H-33 | ● | 452T-33 | ◆ | 452A-33 | ◆ | 452N-33 | ◆ |
| 1 5/16" | 33.34 | 1.3125" | 452H-0110 | ○ | 452T-0110 | ◆ | 452A-0110 | ◆ | 452N-0110 | ◆ |
| | 33.50 | 1.3189" | 452H-33.5 | ● | 452T-33.5 | ◆ | 452A-33.5 | ◆ | 452N-33.5 | ◆ |
| | 34.00 | 1.3386" | 452H-34 | ● | 452T-34 | ◆ | 452A-34 | ◆ | 452N-34 | ◆ |
| 1 11/32" | 34.13 | 1.3438" | 452H-0111 | ○ | 452T-0111 | ◆ | 452A-0111 | ◆ | 452N-0111 | ◆ |
| | 34.50 | 1.3583" | 452H-34.5 | ● | 452T-34.5 | ◆ | 452A-34.5 | ◆ | 452N-34.5 | ◆ |
| 1 3/8" | 34.93 | 1.3750" | 452H-0112 | ○ | 452T-0112 | ◆ | 452A-0112 | ◆ | 452N-0112 | ◆ |
| | 35.00 | 1.3780" | 452H-35 | ● | 452T-35 | ◆ | 452A-35 | ◆ | 452N-35 | ◆ |

*Supplied in 2 piece packages.*

## 2 Series Standard T-A Original HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 132H-24.5 | ◆ | 132T-24.5 | ● | 132A-24.5 | ● | 132N-24.5 | ● |
| 31/32" | 24.61 | .9688" | 132H-0031 | ◆ | 132T-0031 | ○ | 132A-0031 | ○ | 132N-0031 | ○ |
| 63/64" | 25.00 | .9843" | 132H-25 | ◆ | 132T-25 | ● | 132A-25 | ● | 132N-25 | ● |
| 1" | 25.40 | 1.0000" | 132H-0100 | ◆ | 132T-0100 | ○ | 132A-0100 | ○ | 132N-0100 | ○ |
| | 25.50 | 1.0004" | 132H-25.5 | ◆ | 132T-25.5 | ● | 132A-25.5 | ● | 132N-25.5 | ● |
| 1 1/64" | 25.80 | 1.015" | 132H-1.015 | ◆ | 132T-1.015 | ○ | 132A-1.015 | ○ | 132N-1.015 | ○ |

*Supplied in 2 piece packages.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 2 Series T-A® Drill Inserts

Diameter Range 24.41 to 35.05mm

## 2 Series Standard T-A Original HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 26.00 | 1.0236" | 132H-26 | ◆ | 132T-26 | ● | 132A-26 | ● | 132N-26 | ● |
| 1 1/32" | 26.19 | 1.0313" | 132H-0101 | ◆ | 132T-0101 | ○ | 132A-0101 | ○ | 132N-0101 | ○ |
| | 26.50 | 1.0433" | 132H-26.5 | ◆ | 132T-26.5 | ● | 132A-26.5 | ● | 132N-26.5 | ● |
| 1 3/64" | 26.59 | 1.0469" | 132H-1.046 | ◆ | 132T-1.046 | ○ | 132A-1.046 | ○ | 132N-1.046 | ○ |
| 1 1/16" | 26.99 | 1.0625" | 132H-0102 | ◆ | 132T-0102 | ○ | 132A-0102 | ○ | 132N-0102 | ○ |
| | 27.00 | 1.0630" | 132H-27 | ◆ | 132T-27 | ● | 132A-27 | ● | 132N-27 | ● |
| | 27.50 | 1.0827" | 132H-27.5 | ◆ | 132T-27.5 | ● | 132A-27.5 | ● | 132N-27.5 | ● |
| 1 3/32" | 27.78 | 1.0938" | 132H-0103 | ◆ | 132T-0103 | ○ | 132A-0103 | ○ | 132N-0103 | ○ |
| | 28.00 | 1.1024" | 132H-28 | ◆ | 132T-28 | ● | 132A-28 | ● | 132N-28 | ● |
| 1 7/64" | 28.18 | 1.1094" | 132H-1.109 | ◆ | 132T-1.109 | ○ | 132A-1.109 | ○ | 132N-1.109 | ○ |
| | 28.50 | 1.1220" | 132H-28.5 | ◆ | 132T-28.5 | ● | 132A-28.5 | ● | 132N-28.5 | ● |
| 1 1/8" | 28.58 | 1.1250" | 132H-0104 | ◆ | 132T-0104 | ○ | 132A-0104 | ○ | 132N-0104 | ○ |
| | 29.00 | 1.1417" | 132H-29 | ◆ | 132T-29 | ● | 132A-29 | ● | 132N-29 | ● |
| 1 5/32" | 29.37 | 1.1563" | 132H-0105 | ◆ | 132T-0105 | ○ | 132A-0105 | ○ | 132N-0105 | ○ |
| | 29.50 | 1.1614" | 132H-29.5 | ◆ | 132T-29.5 | ● | 132A-29.5 | ● | 132N-29.5 | ● |
| | 30.00 | 1.1811" | 132H-30 | ◆ | 132T-30 | ● | 132A-30 | ● | 132N-30 | ● |
| 1 3/16" | 30.16 | 1.1875" | 132H-0106 | ◆ | 132T-0106 | ○ | 132A-0106 | ○ | 132N-0106 | ○ |
| | 30.50 | 1.2007" | 132H-30.5 | ◆ | 132T-30.5 | ● | 132A-30.5 | ● | 132N-30.5 | ● |
| 1 7/32" | 30.96 | 1.2188" | 132H-0107 | ◆ | 132T-0107 | ○ | 132A-0107 | ○ | 132N-0107 | ○ |
| | 31.00 | 1.2205" | 132H-31 | ◆ | 132T-31 | ● | 132A-31 | ● | 132N-31 | ● |
| | 31.50 | 1.2402" | 132H-31.5 | ◆ | 132T-31.5 | ● | 132A-31.5 | ● | 132N-31.5 | ● |
| 1 1/4" | 31.75 | 1.2500" | 132H-0108 | ◆ | 132T-0108 | ○ | 132A-0108 | ○ | 132N-0108 | ○ |
| | 32.00 | 1.2598" | 132H-32 | ◆ | 132T-32 | ● | 132A-32 | ● | 132N-32 | ● |
| | 32.50 | 1.2795" | 132H-32.5 | ◆ | 132T-32.5 | ● | 132A-32.5 | ● | 132N-32.5 | ● |
| 1 9/32" | 32.54 | 1.2813" | 132H-0109 | ◆ | 132T-0109 | ○ | 132A-0109 | ○ | 132N-0109 | ○ |
| | 33.00 | 1.2992" | 132H-33 | ◆ | 132T-33 | ● | 132A-33 | ● | 132N-33 | ● |
| 1 5/16" | 33.34 | 1.3125" | 132H-0110 | ◆ | 132T-0110 | ○ | 132A-0110 | ○ | 132N-0110 | ○ |
| | 33.50 | 1.3189" | 132H-33.5 | ◆ | 132T-33.5 | ● | 132A-33.5 | ● | 132N-33.5 | ● |
| | 34.00 | 1.3386" | 132H-34 | ◆ | 132T-34 | ● | 132A-34 | ● | 132N-34 | ● |
| 1 11/32" | 34.13 | 1.3438" | 132H-0111 | ◆ | 132T-0111 | ○ | 132A-0111 | ○ | 132N-0111 | ○ |
| | 34.50 | 1.3583" | 132H-34.5 | ◆ | 132T-34.5 | ● | 132A-34.5 | ● | 132N-34.5 | ● |
| 1 3/8" | 34.93 | 1.3750" | 132H-0112 | ◆ | 132T-0112 | ○ | 132A-0112 | ○ | 132N-0112 | ○ |
| | 35.00 | 1.3780" | 132H-35 | ◆ | 132T-35 | ● | 132A-35 | ● | 132N-35 | ● |

*Supplied in 2 piece packages.*

## 2 Series Standard T-A Original Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 152H-24.5 | ◆ | 152T-24.5 | ○ | 152A-24.5 | ● | 152N-24.5 | ○ |
| 31/32" | 24.61 | .9688" | 152H-0031 | ◆ | 152T-0031 | ○ | 152A-0031 | ○ | 152N-0031 | ○ |
| 63/64" | 25.00 | .9843" | 152H-25 | ◆ | 152T-25 | ● | 152A-25 | ● | 152N-25 | ● |
| 1" | 25.40 | 1.0000" | 152H-0100 | ◆ | 152T-0100 | ○ | 152A-0100 | ○ | 152N-0100 | ○ |
| | 25.50 | 1.004" | 152H-25.5 | ◆ | 152T-25.5 | ○ | 152A-25.5 | ● | 152N-25.5 | ○ |
| 1 1/64" | 25.80 | 1.015" | 152H-1.015 | ◆ | 152T-1.015 | ○ | 152A-1.015 | ○ | 152N-1.015 | ○ |
| | 26.00 | 1.0236" | 152H-26 | ◆ | 152T-26 | ● | 152A-26 | ● | 152N-26 | ● |
| 1 1/32" | 26.19 | 1.0313" | 152H-0101 | ◆ | 152T-0101 | ○ | 152A-0101 | ○ | 152N-0101 | ○ |
| | 26.50 | 1.0433" | 152H-26.5 | ◆ | 152T-26.5 | ○ | 152A-26.5 | ● | 152N-26.5 | ○ |
| 1 3/64" | 26.59 | 1.0469" | 152H-1.046 | ◆ | 152T-1.046 | ○ | 152A-1.046 | ○ | 152N-1.046 | ○ |
| 1 1/16" | 26.99 | 1.0625" | 152H-0102 | ◆ | 152T-0102 | ○ | 152A-0102 | ○ | 152N-0102 | ○ |
| | 27.00 | 1.0630" | 152H-27 | ◆ | 152T-27 | ● | 152A-27 | ● | 152N-27 | ● |
| | 27.50 | 1.0827" | 152H-27.5 | ◆ | 152T-27.5 | ○ | 152A-27.5 | ● | 152N-27.5 | ○ |
| 1 3/32" | 27.78 | 1.0938" | 152H-0103 | ◆ | 152T-0103 | ○ | 152A-0103 | ○ | 152N-0103 | ○ |
| | 28.00 | 1.1024" | 152H-28 | ◆ | 152T-28 | ● | 152A-28 | ● | 152N-28 | ● |
| 1 7/64" | 28.18 | 1.1094" | 152H-1.109 | ◆ | 152T-1.109 | ○ | 152A-1.109 | ○ | 152N-1.109 | ○ |
| | 28.50 | 1.1220" | 152H-28.5 | ◆ | 152T-28.5 | ○ | 152A-28.5 | ● | 152N-28.5 | ○ |





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## 2 Series Standard T-A Original Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1⅛" | 28.58 | 1.1250" | 152H-0104 | ◆ | 152T-0104 | ○ | 152A-0104 | ○ | 152N-0104 | ○ |
| | 29.00 | 1.1417" | 152H-29 | ◆ | 152T-29 | ● | 152A-29 | ● | 152N-29 | ● |
| 1 5/32" | 29.37 | 1.1563" | 152H-0105 | ◆ | 152T-0105 | ○ | 152A-0105 | ○ | 152N-0105 | ○ |
| | 29.50 | 1.1614" | 152H-29.5 | ◆ | 152T-29.5 | ○ | 152A-29.5 | ● | 152N-29.5 | ○ |
| | 30.00 | 1.1811" | 152H-30 | ◆ | 152T-30 | ● | 152A-30 | ● | 152N-30 | ● |
| 1 3/16" | 30.16 | 1.1875" | 152H-0106 | ◆ | 152T-0106 | ○ | 152A-0106 | ○ | 152N-0106 | ○ |
| | 30.50 | 1.2007" | 152H-30.5 | ◆ | 152T-30.5 | ○ | 152A-30.5 | ● | 152N-30.5 | ○ |
| 1 7/32" | 30.96 | 1.2188" | 152H-0107 | ◆ | 152T-0107 | ○ | 152A-0107 | ○ | 152N-0107 | ○ |
| | 31.00 | 1.2205" | 152H-31 | ◆ | 152T-31 | ● | 152A-31 | ● | 152N-31 | ● |
| | 31.50 | 1.2402" | 152H-31.5 | ◆ | 152T-31.5 | ○ | 152A-31.5 | ● | 152N-31.5 | ○ |
| 1¼" | 31.75 | 1.2500" | 152H-0108 | ◆ | 152T-0108 | ○ | 152A-0108 | ○ | 152N-0108 | ○ |
| | 32.00 | 1.2598" | 152H-32 | ◆ | 152T-32 | ● | 152A-32 | ● | 152N-32 | ● |
| | 32.50 | 1.2795" | 152H-32.5 | ◆ | 152T-32.5 | ○ | 152A-32.5 | ● | 152N-32.5 | ○ |
| 1 9/32" | 32.54 | 1.2813" | 152H-0109 | ◆ | 152T-0109 | ○ | 152A-0109 | ○ | 152N-0109 | ○ |
| | 33.00 | 1.2992" | 152H-33 | ◆ | 152T-33 | ● | 152A-33 | ● | 152N-33 | ● |
| 1 5/16" | 33.34 | 1.3125" | 152H-0110 | ◆ | 152T-0110 | ○ | 152A-0110 | ○ | 152N-0110 | ○ |
| | 33.50 | 1.3189" | 152H-33.5 | ◆ | 152T-33.5 | ○ | 152A-33.5 | ● | 152N-33.5 | ○ |
| | 34.00 | 1.3386" | 152H-34 | ◆ | 152T-34 | ● | 152A-34 | ● | 152N-34 | ● |
| 1 11/32" | 34.13 | 1.3438" | 152H-0111 | ◆ | 152T-0111 | ○ | 152A-0111 | ○ | 152N-0111 | ○ |
| | 34.50 | 1.3583" | 152H-34.5 | ◆ | 152T-34.5 | ○ | 152A-34.5 | ● | 152N-34.5 | ○ |
| 1⅜" | 34.93 | 1.3750" | 152H-0112 | ◆ | 152T-0112 | ○ | 152A-0112 | ○ | 152N-0112 | ○ |
| | 35.00 | 1.3780" | 152H-35 | ◆ | 152T-35 | ● | 152A-35 | ● | 152N-35 | ● |

*Supplied in 2 piece packages.*

## 2 Series Standard T-A Original HSS Premium Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 182H-24.5 | ◆ | 182T-24.5 | ● | 182A-24.5 | ● | 182N-24.5 | ● |
| 31/32" | 24.61 | .9688" | 182H-0031 | ◆ | 182T-0031 | ○ | 182A-0031 | ○ | 182N-0031 | ○ |
| 63/64" | 25.00 | .9843" | 182H-25 | ◆ | 182T-25 | ● | 182A-25 | ● | 182N-25 | ● |
| 1" | 25.40 | 1.0000" | 182H-0100 | ◆ | 182T-0100 | ○ | 182A-0100 | ○ | 182N-0100 | ○ |
| | 25.50 | 1.0004" | 182H-25.5 | ◆ | 182T-25.5 | ○ | 182A-25.5 | ● | 182N-25.5 | ○ |
| 1 1/64" | 25.80 | 1.015" | 182H-1.015 | ◆ | 182T-1.015 | ○ | 182A-1.015 | ○ | 182N-1.015 | ○ |
| | 26.00 | 1.0236" | 182H-26 | ◆ | 182T-26 | ● | 182A-26 | ● | 182N-26 | ● |
| 1 1/32" | 26.19 | 1.0313" | 182H-0101 | ◆ | 182T-0101 | ○ | 182A-0101 | ○ | 182N-0101 | ○ |
| | 26.50 | 1.0433" | 182H-26.5 | ◆ | 182T-26.5 | ○ | 182A-26.5 | ● | 182N-26.5 | ○ |
| 1 3/64" | 26.59 | 1.0469" | 182H-1.046 | ◆ | 182T-1.046 | ○ | 182A-1.046 | ○ | 182N-1.046 | ○ |
| 1 1/16" | 26.99 | 1.0625" | 182H-0102 | ◆ | 182T-0102 | ○ | 182A-0102 | ○ | 182N-0102 | ○ |
| | 27.00 | 1.0630" | 182H-27 | ◆ | 182T-27 | ● | 182A-27 | ● | 182N-27 | ● |
| | 27.50 | 1.0827" | 182H-27.5 | ◆ | 182T-27.5 | ○ | 182A-27.5 | ● | 182N-27.5 | ○ |
| 1 3/32" | 27.78 | 1.0938" | 182H-0103 | ◆ | 182T-0103 | ○ | 182A-0103 | ○ | 182N-0103 | ○ |
| | 28.00 | 1.1024" | 182H-28 | ◆ | 182T-28 | ● | 182A-28 | ● | 182N-28 | ● |
| 1 7/64" | 28.18 | 1.1094" | 182H-1.109 | ◆ | 182T-1.109 | ○ | 182A-1.109 | ○ | 182N-1.109 | ○ |
| | 28.50 | 1.1220" | 182H-28.5 | ◆ | 182T-28.5 | ○ | 182A-28.5 | ● | 182N-28.5 | ○ |
| 1⅛" | 28.58 | 1.1250" | 182H-0104 | ◆ | 182T-0104 | ○ | 182A-0104 | ○ | 182N-0104 | ○ |
| | 29.00 | 1.1417" | 182H-29 | ◆ | 182T-29 | ● | 182A-29 | ● | 182N-29 | ● |
| 1 5/32" | 29.37 | 1.1563" | 182H-0105 | ◆ | 182T-0105 | ○ | 182A-0105 | ○ | 182N-0105 | ○ |
| | 29.50 | 1.1614" | 182H-29.5 | ◆ | 182T-29.5 | ○ | 182A-29.5 | ● | 182N-29.5 | ○ |

*Supplied in 2 piece packages.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 2 Series T-A® Drill Inserts

Diameter Range 24.41 to 35.05mm

## 2 Series Standard T-A Original HSS Premium Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 30.00 | 1.1811" | 182H-30 | ◆ | 182T-30 | ● | 182A-30 | ● | 182N-30 | ● |
| 1 3/16" | 30.16 | 1.1875" | 182H-0106 | ◆ | 182T-0106 | ○ | 182A-0106 | ○ | 182N-0106 | ○ |
| | 30.50 | 1.2007" | 182H-30.5 | ◆ | 182T-30.5 | ○ | 182A-30.5 | ● | 182N-30.5 | ○ |
| 1 7/32" | 30.96 | 1.2188" | 182H-0107 | ◆ | 182T-0107 | ○ | 182A-0107 | ○ | 182N-0107 | ○ |
| | 31.50 | 1.2402" | 182H-31.5 | ◆ | 182T-31.5 | ○ | 182A-31.5 | ● | 182N-31.5 | ○ |
| | 31.00 | 1.2205" | 182H-31 | ◆ | 182T-31 | ● | 182A-31 | ● | 182N-31 | ● |
| 1 1/4" | 31.75 | 1.2500" | 182H-0108 | ◆ | 182T-0108 | ○ | 182A-0108 | ○ | 182N-0108 | ○ |
| | 32.00 | 1.2598" | 182H-32 | ◆ | 182T-32 | ● | 182A-32 | ● | 182N-32 | ● |
| | 32.50 | 1.2795" | 182H-32.5 | ◆ | 182T-32.5 | ○ | 182A-32.5 | ● | 182N-32.5 | ○ |
| 1 9/32" | 32.54 | 1.2813" | 182H-0109 | ◆ | 182T-0109 | ○ | 182A-0109 | ○ | 182N-0109 | ○ |
| | 33.00 | 1.2992" | 182H-33 | ◆ | 182T-33 | ● | 182A-33 | ● | 182N-33 | ● |
| 1 5/16" | 33.34 | 1.3125" | 182H-0110 | ◆ | 182T-0110 | ○ | 182A-0110 | ○ | 182N-0110 | ○ |
| | 33.50 | 1.3189" | 182H-33.5 | ◆ | 182T-33.5 | ○ | 182A-33.5 | ● | 182N-33.5 | ○ |
| | 34.00 | 1.3386" | 182H-34 | ◆ | 182T-34 | ● | 182A-34 | ● | 182N-34 | ● |
| 1 11/32" | 34.13 | 1.3438" | 182H-0111 | ◆ | 182T-0111 | ○ | 182A-0111 | ○ | 182N-0111 | ○ |
| | 34.50 | 1.3583" | 182H-34.5 | ◆ | 182T-34.5 | ○ | 182A-34.5 | ● | 182N-34.5 | ○ |
| 1 3/8" | 34.93 | 1.3750" | 182H-0112 | ◆ | 182T-0112 | ○ | 182A-0112 | ○ | 182N-0112 | ○ |
| | 35.00 | 1.3780" | 182H-35 | ◆ | 182T-35 | ● | 182A-35 | ● | 182N-35 | ● |

*Supplied in 2 piece packages.*

## 2 Series GEN2 T-A K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 4C22H-24.5 | ● | 4C22T-24.5 | ◆ | 4C22A-24.5 | ◆ | 4C22N-24.5 | ◆ |
| 31/32" | 24.61 | .9688" | 4C22H-0031 | ○ | 4C22T-0031 | ◆ | 4C22A-0031 | ◆ | 4C22N-0031 | ◆ |
| 63/64" | 25.00 | .9843" | 4C22H-25 | ● | 4C22T-25 | ◆ | 4C22A-25 | ◆ | 4C22N-25 | ◆ |
| 1" | 25.40 | 1.0000" | 4C22H-0100 | ○ | 4C22T-0100 | ◆ | 4C22A-0100 | ◆ | 4C22N-0100 | ◆ |
| | 25.50 | 1.004" | 4C22H-25.5 | ● | 4C22T-25.5 | ◆ | 4C22A-25.5 | ◆ | 4C22N-25.5 | ◆ |
| | 26.00 | 1.0236" | 4C22H-26 | ● | 4C22T-26 | ◆ | 4C22A-26 | ◆ | 4C22N-26 | ◆ |
| 1 1/32" | 26.19 | 1.0313" | 4C22H-0101 | ○ | 4C22T-0101 | ◆ | 4C22A-0101 | ◆ | 4C22N-0101 | ◆ |
| | 26.50 | 1.0433" | 4C22H-26.5 | ● | 4C22T-26.5 | ◆ | 4C22A-26.5 | ◆ | 4C22N-26.5 | ◆ |
| 1 3/64" | 26.59 | 1.0469 | 4C22H-1.046 | ○ | 4C22T-1.046 | ◆ | 4C22A-1.046 | ◆ | 4C22N-1.046 | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 4C22H-0102 | ○ | 4C22T-0102 | ◆ | 4C22A-0102 | ◆ | 4C22N-0102 | ◆ |
| | 27.00 | 1.0630" | 4C22H-27 | ○ | 4C22T-27 | ◆ | 4C22A-27 | ◆ | 4C22N-27 | ◆ |
| | 27.50 | 1.0827" | 4C22H-27.5 | ● | 4C22T-27.5 | ◆ | 4C22A-27.5 | ◆ | 4C22N-27.5 | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 4C22H-0103 | ○ | 4C22T-0103 | ◆ | 4C22A-0103 | ◆ | 4C22N-0103 | ◆ |
| | 28.00 | 1.1024" | 4C22H-28 | ● | 4C22T-28 | ◆ | 4C22A-28 | ◆ | 4C22N-28 | ◆ |
| 1 7/64" | 28.18 | 1.1094" | 4C22H-1.109 | ○ | 4C22T-1.109 | ◆ | 4C22A-1.109 | ◆ | 4C22N-1.109 | ◆ |
| | 28.50 | 1.1220" | 4C22H-28.5 | ● | 4C22T-28.5 | ◆ | 4C22A-28.5 | ◆ | 4C22N-28.5 | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 4C22H-0104 | ○ | 4C22T-0104 | ◆ | 4C22A-0104 | ◆ | 4C22N-0104 | ◆ |
| | 29.00 | 1.1417" | 4C22H-29 | ● | 4C22T-29 | ◆ | 4C22A-29 | ◆ | 4C22N-29 | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 4C22H-0105 | ◆ | 4C22T-0105 | ◆ | 4C22A-0105 | ◆ | 4C22N-0105 | ◆ |
| | 29.50 | 1.1614" | 4C22H-29.5 | ● | 4C22T-29.5 | ◆ | 4C22A-29.5 | ◆ | 4C22N-29.5 | ◆ |
| | 30.00 | 1.1811" | 4C22H-30 | ● | 4C22T-30 | ◆ | 4C22A-30 | ◆ | 4C22N-30 | ◆ |
| 1 3/16" | 30.16 | 1.1875" | 4C22H-0106 | ◆ | 4C22T-0106 | ◆ | 4C22A-0106 | ◆ | 4C22N-0106 | ◆ |
| | 30.50 | 1.2007" | 4C22H-30.5 | ● | 4C22T-30.5 | ◆ | 4C22A-30.5 | ◆ | 4C22N-30.5 | ◆ |
| 1 7/32" | 30.96 | 1.2188" | 4C22H-0107 | ○ | 4C22T-0107 | ◆ | 4C22A-0107 | ◆ | 4C22N-0107 | ◆ |
| | 31.00 | 1.2205" | 4C22H-31 | ● | 4C22T-31 | ◆ | 4C22A-31 | ◆ | 4C22N-31 | ◆ |
| | 31.50 | 1.2402" | 4C22H-31.5 | ● | 4C22T-31.5 | ◆ | 4C22A-31.5 | ◆ | 4C22N-31.5 | ◆ |
| 1 1/4" | 31.75 | 1.2500" | 4C22H-0108 | ◆ | 4C22T-0108 | ◆ | 4C22A-0108 | ◆ | 4C22N-0108 | ◆ |

*Supplied in 2 piece packages.*





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## 2 Series GEN2 T-A® K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 32.00 | 1.2598" | 4C22H-32 | ● | 4C22T-32 | ◆ | 4C22A-32 | ◆ | 4C22N-32 | ◆ |
| | 32.50 | 1.2795" | 4C22H-32.5 | ● | 4C22T-32.5 | ◆ | 4C22A-32.5 | ◆ | 4C22N-32.5 | ◆ |
| 1 9/32" | 32.54 | 1.2813" | 4C22H-0109 | ○ | 4C22T-0109 | ◆ | 4C22A-0109 | ◆ | 4C22N-0109 | ◆ |
| | 33.00 | 1.2992" | 4C22H-33 | ● | 4C22T-33 | ◆ | 4C22A-33 | ◆ | 4C22N-33 | ◆ |
| 1 5/16" | 33.34 | 1.3125" | 4C22H-0110 | ○ | 4C22T-0110 | ◆ | 4C22A-0110 | ◆ | 4C22N-0110 | ◆ |
| | 33.50 | 1.3189" | 4C22H-33.5 | ● | 4C22T-33.5 | ◆ | 4C22A-33.5 | ◆ | 4C22N-33.5 | ◆ |
| | 34.00 | 1.3386" | 4C22H-34 | ● | 4C22T-34 | ◆ | 4C22A-34 | ◆ | 4C22N-34 | ◆ |
| 1 11/32" | 34.13 | 1.3438" | 4C22H-0111 | ○ | 4C22T-0111 | ◆ | 4C22A-0111 | ◆ | 4C22N-0111 | ◆ |
| | 34.50 | 1.3583" | 4C22H-34.5 | ● | 4C22T-34.5 | ◆ | 4C22A-34.5 | ◆ | 4C22N-34.5 | ◆ |
| 1 3/8" | 34.93 | 1.3750" | 4C22H-0112 | ○ | 4C22T-0112 | ◆ | 4C22A-0112 | ◆ | 4C22N-0112 | ◆ |
| | 35.00 | 1.3780" | 4C22H-35 | ● | 4C22T-35 | ◆ | 4C22A-35 | ◆ | 4C22N-35 | ◆ |

*Supplied in 2 piece packages.*

## 2 Series GEN2 T-A® K35 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 4C12H-24.5 | ● | 4C12T-24.5 | ◆ | 4C12A-24.5 | ◆ | 4C12N-24.5 | ◆ |
| 31/32" | 24.61 | .9688" | 4C12H-0031 | ○ | 4C12T-0031 | ◆ | 4C12A-0031 | ◆ | 4C12N-0031 | ◆ |
| 63/64" | 25.00 | .9843" | 4C12H-25 | ● | 4C12T-25 | ◆ | 4C12A-25 | ◆ | 4C12N-25 | ◆ |
| 1" | 25.40 | 1.0000" | 4C12H-0100 | ○ | 4C12T-0100 | ◆ | 4C12A-0100 | ◆ | 4C12N-0100 | ◆ |
| | 25.50 | 1.0004" | 4C12H-25.5 | ● | 4C12T-25.5 | ◆ | 4C12A-25.5 | ◆ | 4C12N-25.5 | ◆ |
| | 26.00 | 1.0236" | 4C12H-26 | ● | 4C12T-26 | ◆ | 4C12A-26 | ◆ | 4C12N-26 | ◆ |
| 1 1/32" | 26.19 | 1.0313" | 4C12H-0101 | ○ | 4C12T-0101 | ◆ | 4C12A-0101 | ◆ | 4C12N-0101 | ◆ |
| | 26.50 | 1.0433" | 4C12H-26.5 | ● | 4C12T-26.5 | ◆ | 4C12A-26.5 | ◆ | 4C12N-26.5 | ◆ |
| 1 3/64" | 26.59 | 1.0469" | 4C12H-1.046 | ○ | 4C12T-1.046 | ◆ | 4C12A-1.046 | ◆ | 4C12N-1.046 | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 4C12H-0102 | ○ | 4C12T-0102 | ◆ | 4C12A-0102 | ◆ | 4C12N-0102 | ◆ |
| | 27.00 | 1.0630" | 4C12H-27 | ● | 4C12T-27 | ◆ | 4C12A-27 | ◆ | 4C12N-27 | ◆ |
| | 27.50 | 1.0827" | 4C12H-27.5 | ● | 4C12T-27.5 | ◆ | 4C12A-27.5 | ◆ | 4C12N-27.5 | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 4C12H-0103 | ○ | 4C12T-0103 | ◆ | 4C12A-0103 | ◆ | 4C12N-0103 | ◆ |
| | 28.00 | 1.1024" | 4C12H-28 | ● | 4C12T-28 | ◆ | 4C12A-28 | ◆ | 4C12N-28 | ◆ |
| 1 7/64" | 28.18 | 1.1094" | 4C12H-1.109 | ○ | 4C12T-1.109 | ◆ | 4C12A-1.109 | ◆ | 4C12N-1.109 | ◆ |
| | 28.50 | 1.1220" | 4C12H-28.5 | ● | 4C12T-28.5 | ◆ | 4C12A-28.5 | ◆ | 4C12N-28.5 | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 4C12H-0104 | ○ | 4C12T-0104 | ◆ | 4C12A-0104 | ◆ | 4C12N-0104 | ◆ |
| | 29.00 | 1.1417" | 4C12H-29 | ● | 4C12T-29 | ◆ | 4C12A-29 | ◆ | 4C12N-29 | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 4C12H-0105 | ○ | 4C12T-0105 | ◆ | 4C12A-0105 | ◆ | 4C12N-0105 | ◆ |
| | 29.50 | 1.1614" | 4C12H-29.5 | ● | 4C12T-29.5 | ◆ | 4C12A-29.5 | ◆ | 4C12N-29.5 | ◆ |
| | 30.00 | 1.1811" | 4C12H-30 | ● | 4C12T-30 | ◆ | 4C12A-30 | ◆ | 4C12N-30 | ◆ |
| 1 3/16" | 30.16 | 1.1875" | 4C12H-0106 | ○ | 4C12T-0106 | ◆ | 4C12A-0106 | ◆ | 4C12N-0106 | ◆ |
| | 30.50 | 1.2007" | 4C12H-30.5 | ● | 4C12T-30.5 | ◆ | 4C12A-30.5 | ◆ | 4C12N-30.5 | ◆ |
| 1 7/32" | 30.96 | 1.2188" | 4C12H-0107 | ○ | 4C12T-0107 | ◆ | 4C12A-0107 | ◆ | 4C12N-0107 | ◆ |
| | 31.00 | 1.2205" | 4C12H-31 | ● | 4C12T-31 | ◆ | 4C12A-31 | ◆ | 4C12N-31 | ◆ |
| | 31.50 | 1.2402" | 4C12H-31.5 | ● | 4C12T-31.5 | ◆ | 4C12A-31.5 | ◆ | 4C12N-31.5 | ◆ |
| 1 1/4" | 31.75 | 1.2500" | 4C12H-0108 | ○ | 4C12T-0108 | ◆ | 4C12A-0108 | ◆ | 4C12N-0108 | ◆ |
| | 32.00 | 1.2598" | 4C12H-32 | ● | 4C12T-32 | ◆ | 4C12A-32 | ◆ | 4C12N-32 | ◆ |
| | 32.50 | 1.2795" | 4C12H-32.5 | ● | 4C12T-32.5 | ◆ | 4C12A-32.5 | ◆ | 4C12N-32.5 | ◆ |
| 1 9/32" | 32.54 | 1.2813" | 4C12H-0109 | ○ | 4C12T-0109 | ◆ | 4C12A-0109 | ◆ | 4C12N-0109 | ◆ |
| | 33.00 | 1.2992" | 4C12H-33 | ● | 4C12T-33 | ◆ | 4C12A-33 | ◆ | 4C12N-33 | ◆ |

*Supplied in 2 piece packages.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 2 Series T-A® Drill Inserts

Diameter Range 24.41 to 35.05mm

## 2 Series Standard GEN2 T-A K35 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 5/16" | 33.34 | 1.3125" | 4C12H-0110 | ○ | 4C12T-0110 | ◆ | 4C12A-0110 | ◆ | 4C12N-0110 | ◆ |
| | 33.50 | 1.3189" | 4C12H-33.5 | ● | 4C12T-33.5 | ◆ | 4C12A-33.5 | ◆ | 4C12N-33.5 | ◆ |
| | 34.00 | 1.3386" | 4C12H-34 | ● | 4C12T-34 | ◆ | 4C12A-34 | ◆ | 4C12N-34 | ◆ |
| 1 11/32" | 34.13 | 1.3438" | 4C12H-0111 | ○ | 4C12T-0111 | ◆ | 4C12A-0111 | ◆ | 4C12N-0111 | ◆ |
| | 34.50 | 1.3583" | 4C12H-34.5 | ● | 4C12T-34.5 | ◆ | 4C12A-34.5 | ◆ | 4C12N-34.5 | ◆ |
| 1 3/8" | 34.93 | 1.3750" | 4C12H-0112 | ○ | 4C12T-0112 | ◆ | 4C12A-0112 | ◆ | 4C12N-0112 | ◆ |
| | 35.00 | 1.3780" | 4C12H-35 | ● | 4C12T-35 | ◆ | 4C12A-35 | ◆ | 4C12N-35 | ◆ |

*Supplied in 2 piece packages.*

## 2 Series Standard T-A Original K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 1C22H-24.5 | ◆ | 1C22T-24.5 | ○ | 1C22A-24.5 | ● | 1C22N-24.5 | ◆ |
| 31/32" | 24.61 | .9688" | 1C22H-0031 | ◆ | 1C22T-0031 | ○ | 1C22A-0031 | ○ | 1C22N-0031 | ◆ |
| 63/64" | 25.00 | .9843" | 1C22H-25 | ◆ | 1C22T-25 | ● | 1C22A-25 | ● | 1C22N-25 | ◆ |
| 1" | 25.40 | 1.0000" | 1C22H-0100 | ◆ | 1C22T-0100 | ○ | 1C22A-0100 | ○ | 1C22N-0100 | ◆ |
| | 25.50 | 1.004" | 1C22H-25.5 | ◆ | 1C22T-25.5 | ○ | 1C22A-25.5 | ● | 1C22N-25.5 | ◆ |
| | 26.00 | 1.0236" | 1C22H-26 | ◆ | 1C22T-26 | ● | 1C22A-26 | ● | 1C22N-26 | ◆ |
| 1 1/32" | 26.19 | 1.0313" | 1C22H-0101 | ◆ | 1C22T-0101 | ○ | 1C22A-0101 | ○ | 1C22N-0101 | ◆ |
| | 26.50 | 1.0433" | 1C22H-26.5 | ◆ | 1C22T-26.5 | ○ | 1C22A-26.5 | ● | 1C22N-26.5 | ◆ |
| 1 3/64" | 26.59 | 1.0469" | 1C22H-1.046 | ◆ | 1C22T-1.046 | ○ | 1C22A-1.046 | ○ | 1C22N-1.046 | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 1C22H-0102 | ◆ | 1C22T-0102 | ○ | 1C22A-0102 | ○ | 1C22N-0102 | ◆ |
| | 27.00 | 1.0630" | 1C22H-27 | ◆ | 1C22T-27 | ● | 1C22A-27 | ● | 1C22N-27 | ◆ |
| | 27.50 | 1.0827" | 1C22H-27.5 | ◆ | 1C22T-27.5 | ○ | 1C22A-27.5 | ● | 1C22N-27.5 | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 1C22H-0103 | ◆ | 1C22T-0103 | ○ | 1C22A-0103 | ○ | 1C22N-0103 | ◆ |
| | 28.00 | 1.1024" | 1C22H-28 | ◆ | 1C22T-28 | ● | 1C22A-28 | ● | 1C22N-28 | ◆ |
| 1 7/64" | 28.18 | 1.1094" | 1C22H-1.109 | ◆ | 1C22T-1.109 | ○ | 1C22A-1.109 | ○ | 1C22N-1.109 | ◆ |
| | 28.50 | 1.1220" | 1C22H-28.5 | ◆ | 1C22T-28.5 | ○ | 1C22A-28.5 | ● | 1C22N-28.5 | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 1C22H-0104 | ◆ | 1C22T-0104 | ○ | 1C22A-0104 | ○ | 1C22N-0104 | ◆ |
| | 29.00 | 1.1417" | 1C22H-29 | ◆ | 1C22T-29 | ● | 1C22A-29 | ● | 1C22N-29 | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 1C22H-0105 | ◆ | 1C22T-0105 | ○ | 1C22A-0105 | ○ | 1C22N-0105 | ◆ |
| | 29.50 | 1.1614" | 1C22H-29.5 | ◆ | 1C22T-29.5 | ○ | 1C22A-29.5 | ● | 1C22N-29.5 | ◆ |
| | 30.00 | 1.1811" | 1C22H-30 | ◆ | 1C22T-30 | ● | 1C22A-30 | ● | 1C22N-30 | ◆ |
| 1 3/16" | 30.16 | 1.1875" | 1C22H-0106 | ◆ | 1C22T-0106 | ○ | 1C22A-0106 | ○ | 1C22N-0106 | ◆ |
| | 30.50 | 1.2007" | 1C22H-30.5 | ◆ | 1C22T-30.5 | ○ | 1C22A-30.5 | ● | 1C22N-30.5 | ◆ |
| 1 7/32" | 30.96 | 1.2188" | 1C22H-0107 | ◆ | 1C22T-0107 | ○ | 1C22A-0107 | ○ | 1C22N-0107 | ◆ |
| | 31.00 | 1.2205" | 1C22H-31 | ◆ | 1C22T-31 | ● | 1C22A-31 | ● | 1C22N-31 | ◆ |
| | 31.50 | 1.2402" | 1C22H-31.5 | ◆ | 1C22T-31.5 | ○ | 1C22A-31.5 | ● | 1C22N-31.5 | ◆ |
| 1 1/4" | 31.75 | 1.2500" | 1C22H-0108 | ◆ | 1C22T-0108 | ○ | 1C22A-0108 | ○ | 1C22N-0108 | ◆ |
| | 32.00 | 1.2598" | 1C22H-32 | ◆ | 1C22T-32 | ● | 1C22A-32 | ● | 1C22N-32 | ◆ |
| | 32.50 | 1.2795" | 1C22H-32.5 | ◆ | 1C22T-32.5 | ○ | 1C22A-32.5 | ● | 1C22N-32.5 | ◆ |
| 1 9/32" | 32.54 | 1.2813" | 1C22H-0109 | ◆ | 1C22T-0109 | ○ | 1C22A-0109 | ○ | 1C22N-0109 | ◆ |
| | 33.00 | 1.2992" | 1C22H-33 | ◆ | 1C22T-33 | ● | 1C22A-33 | ● | 1C22N-33 | ◆ |
| 1 5/16" | 33.34 | 1.3125" | 1C22H-0110 | ◆ | 1C22T-0110 | ○ | 1C22A-0110 | ○ | 1C22N-0110 | ◆ |
| | 33.50 | 1.3189" | 1C22H-33.5 | ◆ | 1C22T-33.5 | ○ | 1C22A-33.5 | ● | 1C22N-33.5 | ◆ |
| | 34.00 | 1.3386" | 1C22H-34 | ◆ | 1C22T-34 | ● | 1C22A-34 | ● | 1C22N-34 | ◆ |
| 1 11/32" | 34.13 | 1.3438" | 1C22H-0111 | ◆ | 1C22T-0111 | ○ | 1C22A-0111 | ○ | 1C22N-0111 | ◆ |
| | 34.50 | 1.3583" | 1C22H-34.5 | ◆ | 1C22T-34.5 | ○ | 1C22A-34.5 | ● | 1C22N-34.5 | ◆ |
| 1 3/8" | 34.93 | 1.3750" | 1C22H-0112 | ◆ | 1C22T-0112 | ○ | 1C22A-0112 | ○ | 1C22N-0112 | ◆ |
| | 35.00 | 1.3780" | 1C22H-35 | ◆ | 1C22T-35 | ● | 1C22A-35 | ● | 1C22N-35 | ◆ |

*Supplied in 2 piece packages.*





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## 2 Series Standard T-A Original K10 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 1C32H-24.5-CI | ◆ | 1C32T-24.5-CI | ◆ | 1C32A-24.5-CI | ● | 1C32N-24.5-CI | ◆ |
| 31/32" | 24.61 | .9688" | 1C32H-0031-CI | ◆ | 1C32T-0031-CI | ◆ | 1C32A-0031-CI | ○ | 1C32N-0031-CI | ◆ |
| 63/64" | 25.00 | .9843" | 1C32H-25-CI | ◆ | 1C32T-25-CI | ◆ | 1C32A-25-CI | ● | 1C32N-25-CI | ◆ |
| 1" | 25.40 | 1.0000" | 1C32H-0100-CI | ◆ | 1C32T-0100-CI | ◆ | 1C32A-0100-CI | ○ | 1C32N-0100-CI | ◆ |
| | 25.50 | 1.0004" | 1C32H-25.5-CI | ◆ | 1C32T-25.5-CI | ◆ | 1C32A-25.5-CI | ● | 1C32N-25.5-CI | ◆ |
| | 26.00 | 1.0236" | 1C32H-26-CI | ◆ | 1C32T-26-CI | ◆ | 1C32A-26-CI | ● | 1C32N-26-CI | ◆ |
| 1 1/32" | 26.19 | 1.0313" | 1C32H-0101-CI | ◆ | 1C32T-0101-CI | ◆ | 1C32A-0101-CI | ○ | 1C32N-0101-CI | ◆ |
| | 26.50 | 1.0433" | 1C32H-26.5-CI | ◆ | 1C32T-26.5-CI | ◆ | 1C32A-26.5-CI | ● | 1C32N-26.5-CI | ◆ |
| 1 3/64" | 26.59 | 1.0469" | 1C32H-1.046-CI | ◆ | 1C32T-1.046-CI | ◆ | 1C32A-1.046-CI | ○ | 1C32N-1.046-CI | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 1C32H-0102-CI | ◆ | 1C32T-0102-CI | ◆ | 1C32A-0102-CI | ○ | 1C32N-0102-CI | ◆ |
| | 27.00 | 1.0630" | 1C32H-27-CI | ◆ | 1C32T-27-CI | ◆ | 1C32A-27-CI | ● | 1C32N-27-CI | ◆ |
| | 27.50 | 1.0827" | 1C32H-27.5-CI | ◆ | 1C32T-27.5-CI | ◆ | 1C32A-27.5-CI | ● | 1C32N-27.5-CI | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 1C32H-0103-CI | ◆ | 1C32T-0103-CI | ◆ | 1C32A-0103-CI | ○ | 1C32N-0103-CI | ◆ |
| | 28.00 | 1.1024" | 1C32H-28-CI | ◆ | 1C32T-28-CI | ◆ | 1C32A-28-CI | ● | 1C32N-28-CI | ◆ |
| 1 7/64" | 28.18 | 1.1094" | 1C32H-1.109-CI | ◆ | 1C32T-1.109-CI | ◆ | 1C32A-1.109-CI | ○ | 1C32N-1.109-CI | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 1C32H-0104-CI | ◆ | 1C32T-0104-CI | ◆ | 1C32A-0104-CI | ○ | 1C32N-0104-CI | ◆ |
| | 28.50 | 1.1220" | 1C32H-28.5-CI | ◆ | 1C32T-28.5-CI | ◆ | 1C32A-28.5-CI | ● | 1C32N-28.5-CI | ◆ |
| | 29.00 | 1.1417" | 1C32H-29-CI | ◆ | 1C32T-29-CI | ◆ | 1C32A-29-CI | ● | 1C32N-29-CI | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 1C32H-0105-CI | ◆ | 1C32T-0105-CI | ◆ | 1C32A-0105-CI | ○ | 1C32N-0105-CI | ◆ |
| | 29.50 | 1.1614" | 1C32H-29.5-CI | ◆ | 1C32T-29.5-CI | ◆ | 1C32A-29.5-CI | ● | 1C32N-29.5-CI | ◆ |
| | 30.00 | 1.1811" | 1C32H-30-CI | ◆ | 1C32T-30-CI | ◆ | 1C32A-30-CI | ● | 1C32N-30-CI | ◆ |
| 1 3/16" | 30.16 | 1.1875" | 1C32H-0106-CI | ◆ | 1C32T-0106-CI | ◆ | 1C32A-0106-CI | ○ | 1C32N-0106-CI | ◆ |
| | 30.50 | 1.2007" | 1C32H-30.5-CI | ◆ | 1C32T-30.5-CI | ◆ | 1C32A-30.5-CI | ● | 1C32N-30.5-CI | ◆ |
| 1 7/32" | 30.96 | 1.2188" | 1C32H-0107-CI | ◆ | 1C32T-0107-CI | ◆ | 1C32A-0107-CI | ○ | 1C32N-0107-CI | ◆ |
| | 31.00 | 1.2205" | 1C32H-31-CI | ◆ | 1C32T-31-CI | ◆ | 1C32A-31-CI | ● | 1C32N-31-CI | ◆ |
| | 31.50 | 1.2402" | 1C32H-31.5-CI | ◆ | 1C32T-31.5-CI | ◆ | 1C32A-31.5-CI | ● | 1C32N-31.5-CI | ◆ |
| 1 1/4" | 31.75 | 1.2500" | 1C32H-0108-CI | ◆ | 1C32T-0108-CI | ◆ | 1C32A-0108-CI | ○ | 1C32N-0108-CI | ◆ |
| | 32.00 | 1.2598" | 1C32H-32-CI | ◆ | 1C32T-32-CI | ◆ | 1C32A-32-CI | ● | 1C32N-32-CI | ◆ |
| | 32.50 | 1.2795" | 1C32H-32.5-CI | ◆ | 1C32T-32.5-CI | ◆ | 1C32A-32.5-CI | ● | 1C32N-32.5-CI | ◆ |
| 1 9/32" | 32.54 | 1.2813" | 1C32H-0109-CI | ◆ | 1C32T-0109-CI | ◆ | 1C32A-0109-CI | ○ | 1C32N-0109-CI | ◆ |
| | 33.00 | 1.2992" | 1C32H-33-CI | ◆ | 1C32T-33-CI | ◆ | 1C32A-33-CI | ● | 1C32N-33-CI | ◆ |
| 1 5/16" | 33.34 | 1.3125" | 1C32H-0110-CI | ◆ | 1C32T-0110-CI | ◆ | 1C32A-0110-CI | ○ | 1C32N-0110-CI | ◆ |
| | 33.50 | 1.3189" | 1C32H-33.5-CI | ◆ | 1C32T-33.5-CI | ◆ | 1C32A-33.5-CI | ● | 1C32N-33.5-CI | ◆ |
| | 34.00 | 1.3386" | 1C32H-34-CI | ◆ | 1C32T-34-CI | ◆ | 1C32A-34-CI | ● | 1C32N-34-CI | ◆ |
| 1 11/32" | 34.13 | 1.3438" | 1C32H-0111-CI | ◆ | 1C32T-0111-CI | ◆ | 1C32A-0111-CI | ○ | 1C32N-0111-CI | ◆ |
| | 34.50 | 1.3583" | 1C32H-34.5-CI | ◆ | 1C32T-34.5-CI | ◆ | 1C32A-34.5-CI | ● | 1C32N-34.5-CI | ◆ |
| 1 3/8" | 34.93 | 1.3750" | 1C32H-0112-CI | ◆ | 1C32T-0112-CI | ◆ | 1C32A-0112-CI | ○ | 1C32N-0112-CI | ◆ |
| | 35.00 | 1.3780" | 1C32H-35-CI | ◆ | 1C32T-35-CI | ◆ | 1C32A-35-CI | ● | 1C32N-35-CI | ◆ |

*Supplied in 2 piece packages.*

## 2 Series Standard T-A Original P40 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 1C52H-24.5 | ◆ | 1C52T-24.5 | ● | 1C52A-24.5 | ● | 1C52N-24.5 | ◆ |
| 31/32" | 24.61 | .9688" | 1C52H-0031 | ◆ | 1C52T-0031 | ○ | 1C52A-0031 | ○ | 1C52N-0031 | ◆ |
| 63/64" | 25.00 | .9843" | 1C52H-25 | ◆ | 1C52T-25 | ● | 1C52A-25 | ● | 1C52N-25 | ◆ |
| 1" | 25.40 | 1.0000" | 1C52H-0100 | ◆ | 1C52T-0100 | ○ | 1C52A-0100 | ○ | 1C52N-0100 | ◆ |
| | 25.50 | 1.0004" | 1C52H-25.5 | ◆ | 1C52T-25.5 | ● | 1C52A-25.5 | ● | 1C52N-25.5 | ◆ |
| | 26.00 | 1.0236" | 1C52H-26 | ◆ | 1C52T-26 | ● | 1C52A-26 | ● | 1C52N-26 | ◆ |

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 2 Series T-A® Drill Inserts

Diameter Range 24.41 to 35.05mm

## 2 Series Standard T-A Original P40 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 1/32" | 26.19 | 1.0313" | 1C52H-0101 | ◆ | 1C52T-0101 | ○ | 1C52A-0101 | ○ | 1C52N-0101 | ◆ |
| | 26.50 | 1.0433" | 1C52H-26.5 | ◆ | 1C52T-26.5 | ● | 1C52A-26.5 | ● | 1C52N-26.5 | ◆ |
| 1 3/64" | 26.59 | 1.0469" | 1C52H-1.046 | ◆ | 1C52T-1.046 | ○ | 1C52A-1.046 | ○ | 1C52N-1.046 | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 1C52H-0102 | ◆ | 1C52T-0102 | ○ | 1C52A-0102 | ○ | 1C52N-0102 | ◆ |
| | 27.00 | 1.0630" | 1C52H-27 | ◆ | 1C52T-27 | ● | 1C52A-27 | ● | 1C52N-27 | ◆ |
| | 27.50 | 1.0827" | 1C52H-27.5 | ◆ | 1C52T-27.5 | ● | 1C52A-27.5 | ● | 1C52N-27.5 | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 1C52H-0103 | ◆ | 1C52T-0103 | ○ | 1C52A-0103 | ○ | 1C52N-0103 | ◆ |
| | 28.00 | 1.1024" | 1C52H-28 | ◆ | 1C52T-28 | ● | 1C52A-28 | ● | 1C52N-28 | ◆ |
| 1 7/64" | 28.18 | 1.1094" | 1C52H-1.109 | ◆ | 1C52T-1.109 | ○ | 1C52A-1.109 | ○ | 1C52N-1.109 | ◆ |
| | 28.50 | 1.1220" | 1C52H-28.5 | ◆ | 1C52T-28.5 | ● | 1C52A-28.5 | ● | 1C52N-28.5 | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 1C52H-0104 | ◆ | 1C52T-0104 | ○ | 1C52A-0104 | ○ | 1C52N-0104 | ◆ |
| | 29.00 | 1.1417" | 1C52H-29 | ◆ | 1C52T-29 | ● | 1C52A-29 | ● | 1C52N-29 | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 1C52H-0105 | ◆ | 1C52T-0105 | ○ | 1C52A-0105 | ○ | 1C52N-0105 | ◆ |
| | 29.50 | 1.1614" | 1C52H-29.5 | ◆ | 1C52T-29.5 | ● | 1C52A-29.5 | ● | 1C52N-29.5 | ◆ |
| | 30.00 | 1.1811" | 1C52H-30 | ◆ | 1C52T-30 | ● | 1C52A-30 | ● | 1C52N-30 | ◆ |
| 1 3/16" | 30.16 | 1.1875" | 1C52H-0106 | ◆ | 1C52T-0106 | ○ | 1C52A-0106 | ○ | 1C52N-0106 | ◆ |
| | 30.50 | 1.2007" | 1C52H-30.5 | ◆ | 1C52T-30.5 | ● | 1C52A-30.5 | ● | 1C52N-30.5 | ◆ |
| 1 7/32" | 30.96 | 1.2188" | 1C52H-0107 | ◆ | 1C52T-0107 | ○ | 1C52A-0107 | ○ | 1C52N-0107 | ◆ |
| | 31.00 | 1.2205" | 1C52H-31 | ◆ | 1C52T-31 | ● | 1C52A-31 | ● | 1C52N-31 | ◆ |
| | 31.50 | 1.2402" | 1C52H-31.5 | ◆ | 1C52T-31.5 | ● | 1C52A-31.5 | ● | 1C52N-31.5 | ◆ |
| 1 1/4" | 31.75 | 1.2500" | 1C52H-0108 | ◆ | 1C52T-0108 | ○ | 1C52A-0108 | ○ | 1C52N-0108 | ◆ |
| | 32.00 | 1.2598" | 1C52H-32 | ◆ | 1C52T-32 | ● | 1C52A-32 | ● | 1C52N-32 | ◆ |
| | 32.50 | 1.2795" | 1C52H-32.5 | ◆ | 1C52T-32.5 | ● | 1C52A-32.5 | ● | 1C52N-32.5 | ◆ |
| 1 9/32" | 32.54 | 1.2813" | 1C52H-0109 | ◆ | 1C52T-0109 | ○ | 1C52A-0109 | ○ | 1C52N-0109 | ◆ |
| | 33.00 | 1.2992" | 1C52H-33 | ◆ | 1C52T-33 | ● | 1C52A-33 | ● | 1C52N-33 | ◆ |
| 1 5/16" | 33.34 | 1.3125" | 1C52H-0110 | ◆ | 1C52T-0110 | ○ | 1C52A-0110 | ○ | 1C52N-0110 | ◆ |
| | 33.50 | 1.3189" | 1C52H-33.5 | ◆ | 1C52T-33.5 | ● | 1C52A-33.5 | ● | 1C52N-33.5 | ◆ |
| | 34.00 | 1.3386" | 1C52H-34 | ◆ | 1C52T-34 | ● | 1C52A-34 | ● | 1C52N-34 | ◆ |
| 1 11/32" | 34.13 | 1.3438" | 1C52H-0111 | ◆ | 1C52T-0111 | ○ | 1C52A-0111 | ○ | 1C52N-0111 | ◆ |
| | 34.50 | 1.3583" | 1C52H-34.5 | ◆ | 1C52T-34.5 | ● | 1C52A-34.5 | ● | 1C52N-34.5 | ◆ |
| 1 3/8" | 34.93 | 1.3750" | 1C52H-0112 | ◆ | 1C52T-0112 | ○ | 1C52A-0112 | ○ | 1C52N-0112 | ◆ |
| | 35.00 | 1.3780" | 1C52H-35 | ◆ | 1C52T-35 | ● | 1C52A-35 | ● | 1C52N-35 | ◆ |

*Supplied in 2 piece packages.*

## 2 Series Standard T-A Original HSS Super Cobalt - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 152H-24.5-FB | ◆ | 152T-24.5-FB | ○ | 152A-24.5-FB | ◆ | 152N-24.5-FB | ◆ |
| 31/32" | 24.61 | .9688" | 152H-0031-FB | ◆ | 152T-0031-FB | ○ | 152A-0031-FB | ◆ | 152N-0031-FB | ◆ |
| 63/64" | 25.00 | .9843" | 152H-25-FB | ◆ | 152T-25-FB | ○ | 152A-25-FB | ◆ | 152N-25-FB | ◆ |
| 1" | 25.40 | 1.0000" | 152H-0100-FB | ◆ | 152T-0100-FB | ○ | 152A-0100-FB | ◆ | 152N-0100-FB | ◆ |
| | 25.50 | 1.0004" | 152H-25.5-FB | ◆ | 152T-25.5-FB | ○ | 152A-25.5-FB | ◆ | 152N-25.5-FB | ◆ |
| 1 1/64" | 25.80 | 1.0156" | 152H-1.015-FB | ◆ | 152T-1.015-FB | ○ | 152A-1.015-FB | ◆ | 152N-1.015-FB | ◆ |
| | 26.00 | 1.0236" | 152H-26-FB | ◆ | 152T-26-FB | ○ | 152A-26-FB | ◆ | 152N-26-FB | ◆ |
| 1 1/32" | 26.19 | 1.0313" | 152H-0101-FB | ◆ | 152T-0101-FB | ○ | 152A-0101-FB | ◆ | 152N-0101-FB | ◆ |
| | 26.50 | 1.0433" | 152H-26.5-FB | ◆ | 152T-26.5-FB | ○ | 152A-26.5-FB | ◆ | 152N-26.5-FB | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 152H-0102-FB | ◆ | 152T-0102-FB | ○ | 152A-0102-FB | ◆ | 152N-0102-FB | ◆ |
| | 27.00 | 1.0630" | 152H-27-FB | ◆ | 152T-27-FB | ○ | 152A-27-FB | ◆ | 152N-27-FB | ◆ |
| | 27.50 | 1.0827" | 152H-27.5-FB | ◆ | 152T-27.5-FB | ○ | 152A-27.5-FB | ◆ | 152N-27.5-FB | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 152H-0103-FB | ◆ | 152T-0103-FB | ○ | 152A-0103-FB | ◆ | 152N-0103-FB | ◆ |
| | 28.00 | 1.1024" | 152H-28-FB | ◆ | 152T-28-FB | ○ | 152A-28-FB | ◆ | 152N-28-FB | ◆ |
| | 28.50 | 1.1220" | 152H-28.5-FB | ◆ | 152T-28.5-FB | ○ | 152A-28.5-FB | ◆ | 152N-28.5-FB | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 152H-0104-FB | ◆ | 152T-0104-FB | ○ | 152A-0104-FB | ◆ | 152N-0104-FB | ◆ |
| | 29.00 | 1.1417" | 152H-29-FB | ◆ | 152T-29-FB | ○ | 152A-29-FB | ◆ | 152N-29-FB | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 152H-0105-FB | ◆ | 152T-0105-FB | ○ | 152A-0105-FB | ◆ | 152N-0105-FB | ◆ |
| | 29.50 | 1.1614" | 152H-29.5-FB | ◆ | 152T-29.5-FB | ○ | 152A-29.5-FB | ◆ | 152N-29.5-FB | ◆ |

*Supplied in 2 piece packages.*





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## 2 Series Standard T-A Original HSS Super Cobalt - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 30.00 | 1.1811" | 152H-30-FB | ◆ | 152T-30-FB | ○ | 152A-30-FB | ◆ | 152N-30-FB | ◆ |
| 1 3/16" | 30.16 | 1.1875" | 152H-0106-FB | ◆ | 152T-0106-FB | ○ | 152A-0106-FB | ◆ | 152N-0106-FB | ◆ |
| | 30.50 | 1.2007" | 152H-30.5-FB | ◆ | 152T-30.5-FB | ○ | 152A-30.5-FB | ◆ | 152N-30.5-FB | ◆ |
| 1 7/32" | 30.96 | 1.2188" | 152H-0107-FB | ◆ | 152T-0107-FB | ○ | 152A-0107-FB | ◆ | 152N-0107-FB | ◆ |
| | 31.00 | 1.2205" | 152H-31-FB | ◆ | 152T-31-FB | ○ | 152A-31-FB | ◆ | 152N-31-FB | ◆ |
| | 31.50 | 1.2402" | 152H-31.5-FB | ◆ | 152T-31.5-FB | ○ | 152A-31.5-FB | ◆ | 152N-31.5-FB | ◆ |
| 1 1/4" | 31.75 | 1.2500" | 152H-0108-FB | ◆ | 152T-0108-FB | ○ | 152A-0108-FB | ◆ | 152N-0108-FB | ◆ |
| | 32.00 | 1.2598" | 152H-32-FB | ◆ | 152T-32-FB | ○ | 152A-32-FB | ◆ | 152N-32-FB | ◆ |
| | 32.50 | 1.2795" | 152H-32.5-FB | ◆ | 152T-32.5-FB | ○ | 152A-32.5-FB | ◆ | 152N-32.5-FB | ◆ |
| 1 9/32" | 32.54 | 1.2813" | 152H-0109-FB | ◆ | 152T-0109-FB | ○ | 152A-0109-FB | ◆ | 152N-0109-FB | ◆ |
| | 33.00 | 1.2992" | 152H-33-FB | ◆ | 152T-33-FB | ○ | 152A-33-FB | ◆ | 152N-33-FB | ◆ |
| 1 5/16" | 33.34 | 1.3125" | 152H-0110-FB | ◆ | 152T-0110-FB | ○ | 152A-0110-FB | ◆ | 152N-0110-FB | ◆ |
| | 33.50 | 1.3189" | 152H-33.5-FB | ◆ | 152T-33.5-FB | ○ | 152A-33.5-FB | ◆ | 152N-33.5-FB | ◆ |
| | 34.00 | 1.3386" | 152H-34-FB | ◆ | 152T-34-FB | ○ | 152A-34-FB | ◆ | 152N-34-FB | ◆ |
| 1 11/32" | 34.13 | 1.3438" | 152H-0111-FB | ◆ | 152T-0111-FB | ○ | 152A-0111-FB | ◆ | 152N-0111-FB | ◆ |
| | 34.50 | 1.3583" | 152H-34.5-FB | ◆ | 152T-34.5-FB | ○ | 152A-34.5-FB | ◆ | 152N-34.5-FB | ◆ |
| 1 3/8" | 34.93 | 1.3750" | 152H-0112-FB | ◆ | 152T-0112-FB | ○ | 152A-0112-FB | ◆ | 152N-0112-FB | ◆ |
| | 35.00 | 1.3780" | 152H-35-FB | ◆ | 152T-35-FB | ○ | 152A-35-FB | ◆ | 152N-35-FB | ◆ |

*Supplied in 2 piece packages.*

## 2 Series Standard T-A Original K20 Carbide - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 1C22H-24.5-FB | ◆ | 1C22T-24.5-FB | ◆ | 1C22A-24.5-FB | ◆ | 1C22N-24.5-FB | ◆ |
| 31/32" | 24.61 | .9688" | 1C22H-0031-FB | ◆ | 1C22T-0031-FB | ◆ | 1C22A-0031-FB | ◆ | 1C22N-0031-FB | ◆ |
| 63/64" | 25.00 | .9843" | 1C22H-25-FB | ◆ | 1C22T-25-FB | ◆ | 1C22A-25-FB | ◆ | 1C22N-25-FB | ◆ |
| 1" | 25.40 | 1.0000" | 1C22H-0100-FB | ◆ | 1C22T-0100-FB | ◆ | 1C22A-0100-FB | ◆ | 1C22N-0100-FB | ◆ |
| | 25.50 | 1.0004" | 1C22H-25.5-FB | ◆ | 1C22T-25.5-FB | ◆ | 1C22A-25.5-FB | ◆ | 1C22N-25.5-FB | ◆ |
| 1 1/64" | 25.80 | 1.0156" | 1C22H-1.015-FB | ◆ | 1C22T-1.015-FB | ◆ | 1C22A-1.015-FB | ◆ | 1C22N-1.015-FB | ◆ |
| | 26.00 | 1.0236" | 1C22H-26-FB | ◆ | 1C22T-26-FB | ◆ | 1C22A-26-FB | ◆ | 1C22N-26-FB | ◆ |
| 1 1/32" | 26.19 | 1.0313" | 1C22H-0101-FB | ◆ | 1C22T-0101-FB | ◆ | 1C22A-0101-FB | ◆ | 1C22N-0101-FB | ◆ |
| | 26.50 | 1.0433" | 1C22H-26.5-FB | ◆ | 1C22T-26.5-FB | ◆ | 1C22A-26.5-FB | ◆ | 1C22N-26.5-FB | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 1C22H-0102-FB | ◆ | 1C22T-0102-FB | ◆ | 1C22A-0102-FB | ◆ | 1C22N-0102-FB | ◆ |
| | 27.00 | 1.0630" | 1C22H-27-FB | ◆ | 1C22T-27-FB | ◆ | 1C22A-27-FB | ◆ | 1C22N-27-FB | ◆ |
| | 27.50 | 1.0827" | 1C22H-27.5-FB | ◆ | 1C22T-27.5-FB | ◆ | 1C22A-27.5-FB | ◆ | 1C22N-27.5-FB | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 1C22H-0103-FB | ◆ | 1C22T-0103-FB | ◆ | 1C22A-0103-FB | ◆ | 1C22N-0103-FB | ◆ |
| | 28.00 | 1.1024" | 1C22H-28-FB | ◆ | 1C22T-28-FB | ◆ | 1C22A-28-FB | ◆ | 1C22N-28-FB | ◆ |
| | 28.50 | 1.1220" | 1C22H-28.5-FB | ◆ | 1C22T-28.5-FB | ◆ | 1C22A-28.5-FB | ◆ | 1C22N-28.5-FB | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 1C22H-0104-FB | ◆ | 1C22T-0104-FB | ◆ | 1C22A-0104-FB | ◆ | 1C22N-0104-FB | ◆ |
| | 29.00 | 1.1417" | 1C22H-29-FB | ◆ | 1C22T-29-FB | ◆ | 1C22A-29-FB | ◆ | 1C22N-29-FB | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 1C22H-0105-FB | ◆ | 1C22T-0105-FB | ◆ | 1C22A-0105-FB | ◆ | 1C22N-0105-FB | ◆ |
| | 29.50 | 1.1614" | 1C22H-29.5-FB | ◆ | 1C22T-29.5-FB | ◆ | 1C22A-29.5-FB | ◆ | 1C22N-29.5-FB | ◆ |
| | 30.00 | 1.1811" | 1C22H-30-FB | ◆ | 1C22T-30-FB | ◆ | 1C22A-30-FB | ◆ | 1C22N-30-FB | ◆ |
| 1 3/16" | 30.16 | 1.1875" | 1C22H-0106-FB | ◆ | 1C22T-0106-FB | ◆ | 1C22A-0106-FB | ◆ | 1C22N-0106-FB | ◆ |
| | 30.50 | 1.2007" | 1C22H-30.5-FB | ◆ | 1C22T-30.5-FB | ◆ | 1C22A-30.5-FB | ◆ | 1C22N-30.5-FB | ◆ |
| 1 7/32" | 30.96 | 1.2188" | 1C22H-0107-FB | ◆ | 1C22T-0107-FB | ◆ | 1C22A-0107-FB | ◆ | 1C22N-0107-FB | ◆ |
| | 31.00 | 1.2205" | 1C22H-31-FB | ◆ | 1C22T-31-FB | ◆ | 1C22A-31-FB | ◆ | 1C22N-31-FB | ◆ |
| | 31.50 | 1.2402" | 1C22H-31.5-FB | ◆ | 1C22T-31.5-FB | ◆ | 1C22A-31.5-FB | ◆ | 1C22N-31.5-FB | ◆ |
| 1 1/4" | 31.75 | 1.2500" | 1C22H-0108-FB | ◆ | 1C22T-0108-FB | ◆ | 1C22A-0108-FB | ◆ | 1C22N-0108-FB | ◆ |
| | 32.00 | 1.2598" | 1C22H-32-FB | ◆ | 1C22T-32-FB | ◆ | 1C22A-32-FB | ◆ | 1C22N-32-FB | ◆ |
| | 32.50 | 1.2795" | 1C22H-32.5-FB | ◆ | 1C22T-32.5-FB | ◆ | 1C22A-32.5-FB | ◆ | 1C22N-32.5-FB | ◆ |

*Supplied in 2 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 2 Series T-A® Drill Inserts

Diameter Range 24.41 to 35.05mm

## 2 Series Standard T-A Original K20 Carbide - Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 9/32" | 32.54 | 1.2813" | 1C22H-0109-FB | ◆ | 1C22T-0109-FB | ◆ | 1C22A-0109-FB | ◆ | 1C22N-0109-FB | ◆ |
| | 33.00 | 1.2992" | 1C22H-33-FB | ◆ | 1C22T-33-FB | ◆ | 1C22A-33-FB | ◆ | 1C22N-33-FB | ◆ |
| 1 5/16" | 33.34 | 1.3125" | 1C22H-0110-FB | ◆ | 1C22T-0110-FB | ◆ | 1C22A-0110-FB | ◆ | 1C22N-0110-FB | ◆ |
| | 33.50 | 1.3189" | 1C22H-33.5-FB | ◆ | 1C22T-33.5-FB | ◆ | 1C22A-33.5-FB | ◆ | 1C22N-33.5-FB | ◆ |
| | 34.00 | 1.3386" | 1C22H-34-FB | ◆ | 1C22T-34-FB | ◆ | 1C22A-34-FB | ◆ | 1C22N-34-FB | ◆ |
| 1 11/32" | 34.13 | 1.3438" | 1C22H-0111-FB | ◆ | 1C22T-0111-FB | ◆ | 1C22A-0111-FB | ◆ | 1C22N-0111-FB | ◆ |
| | 34.50 | 1.3583" | 1C22H-34.5-FB | ◆ | 1C22T-34.5-FB | ◆ | 1C22A-34.5-FB | ◆ | 1C22N-34.5-FB | ◆ |
| 1 3/8" | 34.93 | 1.3750" | 1C22H-0112-FB | ◆ | 1C22T-0112-FB | ◆ | 1C22A-0112-FB | ◆ | 1C22N-0112-FB | ◆ |
| | 35.00 | 1.3780" | 1C22H-35-FB | ◆ | 1C22T-35-FB | ◆ | 1C22A-35-FB | ◆ | 1C22N-35-FB | ◆ |

*Supplied in 2 piece packages.*

## 2 Series Standard T-A Original HSS Super Cobalt - 90° Spot and Chamfer

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 24.50 | .9646" | 152H-24.5-SP | ◆ | 152T-24.5-SP | ◆ | 152A-24.5-SP | ◆ | 152N-24.5-SP | ◆ |
| 31/32" | 24,61 | .9688" | 152H-0031-SP | ◆ | 152T-0031-SP | ◆ | 152A-0031-SP | ◆ | 152N-0031-SP | ◆ |
| 63/64" | 25,00 | .9843" | 152H-25-SP | ◆ | 152T-25-SP | ◆ | 152A-25-SP | ◆ | 152N-25-SP | ◆ |
| 1" | 25,40 | 1.0000" | 152H-0100-SP | ◆ | 152T-0100-SP | ◆ | 152A-0100-SP | ◆ | 152N-0100-SP | ◆ |
| | 25.50 | 1.0004" | 152H-25.5-SP | ◆ | 152T-25.5-SP | ◆ | 152A-25.5-SP | ◆ | 152N-25.5-SP | ◆ |
| 1 1/64" | 25,80 | 1.0156" | 152H-1.015-SP | ◆ | 152T-1.015-SP | ◆ | 152A-1.015-SP | ◆ | 152N-1.015-SP | ◆ |
| | 26,00 | 1.0236" | 152H-26-SP | ◆ | 152T-26-SP | ◆ | 152A-26-SP | ◆ | 152N-26-SP | ◆ |
| 1 1/32" | 26,19 | 1.0313" | 152H-0101-SP | ◆ | 152T-0101-SP | ◆ | 152A-0101-SP | ◆ | 152N-0101-SP | ◆ |
| | 26.50 | 1.0433" | 152H-26.5-SP | ◆ | 152T-26.5-SP | ◆ | 152A-26.5-SP | ◆ | 152N-26.5-SP | ◆ |
| 1 3/64" | 26,59 | 1.0469" | 152H-1.046-SP | ◆ | 152T-1.046-SP | ◆ | 152A-1.046-SP | ◆ | 152N-1.046-SP | ◆ |
| 1 1/16" | 26,99 | 1.0625" | 152H-0102-SP | ◆ | 152T-0102-SP | ◆ | 152A-0102-SP | ◆ | 152N-0102-SP | ◆ |
| | 27,00 | 1.0630" | 152H-27-SP | ◆ | 152T-27-SP | ◆ | 152A-27-SP | ◆ | 152N-27-SP | ◆ |
| | 27.50 | 1.0827" | 152H-27.5-SP | ◆ | 152T-27.5-SP | ◆ | 152A-27.5-SP | ◆ | 152N-27.5-SP | ◆ |
| 1 3/32" | 27,78 | 1.0938" | 152H-0103-SP | ◆ | 152T-0103-SP | ◆ | 152A-0103-SP | ◆ | 152N-0103-SP | ◆ |
| | 28,00 | 1.1024" | 152H-28-SP | ◆ | 152T-28-SP | ◆ | 152A-28-SP | ◆ | 152N-28-SP | ◆ |
| | 28.50 | 1.1220" | 152H-28.5-SP | ◆ | 152T-28.5-SP | ◆ | 152A-28.5-SP | ◆ | 152N-28.5-SP | ◆ |
| 1 7/64" | 28,18 | 1.1094" | 152H-1.109-SP | ◆ | 152T-1.109-SP | ◆ | 152A-1.109-SP | ◆ | 152N-1.109-SP | ◆ |
| 1 1/8" | 28,58 | 1.1250" | 152H-0104-SP | ◆ | 152T-0104-SP | ◆ | 152A-0104-SP | ◆ | 152N-0104-SP | ◆ |
| | 29,00 | 1.1417" | 152H-29-SP | ◆ | 152T-29-SP | ◆ | 152A-29-SP | ◆ | 152N-29-SP | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 152H-0105-SP | ◆ | 152T-0105-SP | ◆ | 152A-0105-SP | ◆ | 152N-0105-SP | ◆ |
| | 29.50 | 1.1614" | 152H-29.5-SP | ◆ | 152T-29.5-SP | ◆ | 152A-29.5-SP | ◆ | 152N-29.5-SP | ◆ |
| | 30.00 | 1.1811" | 152H-30-SP | ◆ | 152T-30-SP | ◆ | 152A-30-SP | ◆ | 152N-30-SP | ◆ |
| 1 3/16" | 30.16 | 1.1875" | 152H-0106-SP | ◆ | 152T-0106-SP | ◆ | 152A-0106-SP | ◆ | 152N-0106-SP | ◆ |
| | 30.50 | 1.2007" | 152H-30.5-SP | ◆ | 152T-30.5-SP | ◆ | 152A-30.5-SP | ◆ | 152N-30.5-SP | ◆ |
| 1 7/32" | 30.96 | 1.2188" | 152H-0107-SP | ◆ | 152T-0107-SP | ◆ | 152A-0107-SP | ◆ | 152N-0107-SP | ◆ |
| | 31.00 | 1.2205" | 152H-31-SP | ◆ | 152T-31-SP | ◆ | 152A-31-SP | ◆ | 152N-31-SP | ◆ |
| | 31.50 | 1.2402" | 152H-31.5-SP | ◆ | 152T-31.5-SP | ◆ | 152A-31.5-SP | ◆ | 152N-31.5-SP | ◆ |
| 1 1/4" | 31.75 | 1.2500" | 152H-0108-SP | ◆ | 152T-0108-SP | ◆ | 152A-0108-SP | ◆ | 152N-0108-SP | ◆ |
| | 32.00 | 1.2598" | 152H-32-SP | ◆ | 152T-32-SP | ◆ | 152A-32-SP | ◆ | 152N-32-SP | ◆ |
| | 32.50 | 1.2795" | 152H-32.5-SP | ◆ | 152T-32.5-SP | ◆ | 152A-32.5-SP | ◆ | 152N-32.5-SP | ◆ |
| 1 9/32" | 32.54 | 1.2813" | 152H-0109-SP | ◆ | 152T-0109-SP | ◆ | 152A-0109-SP | ◆ | 152N-0109-SP | ◆ |
| | 33.00 | 1.2992" | 152H-33-SP | ◆ | 152T-33-SP | ◆ | 152A-33-SP | ◆ | 152N-33-SP | ◆ |
| 1 5/16" | 33.34 | 1.3125" | 152H-0110-SP | ◆ | 152T-0110-SP | ◆ | 152A-0110-SP | ◆ | 152N-0110-SP | ◆ |
| | 33.50 | 1.3189" | 152H-33.5-SP | ◆ | 152T-33.5-SP | ◆ | 152A-33.5-SP | ◆ | 152N-33.5-SP | ◆ |
| | 34.00 | 1.3386" | 152H-34-SP | ◆ | 152T-34-SP | ◆ | 152A-34-SP | ◆ | 152N-34-SP | ◆ |
| 1 11/32" | 34.13 | 1.3438" | 152H-0111-SP | ◆ | 152T-0111-SP | ◆ | 152A-0111-SP | ◆ | 152N-0111-SP | ◆ |
| | 34.50 | 1.3583" | 152H-34.5-SP | ◆ | 152T-34.5-SP | ◆ | 152A-34.5-SP | ◆ | 152N-34.5-SP | ◆ |
| 1 3/8" | 34.93 | 1.3750" | 152H-0112-SP | ◆ | 152T-0112-SP | ◆ | 152A-0112-SP | ◆ | 152N-0112-SP | ◆ |
| | 35.00 | 1.3780" | 152H-35-SP | ◆ | 152T-35-SP | ● | 152A-35-SP | ◆ | 152N-35-SP | ◆ |

*Supplied in 2 piece packages.*





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## 2 Series Standard T-A Original N2 Carbide - CVD Diamond Coated

| Diameter | | | Item Number, Coating and Availability | | Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | CVD Diamond Coated | Stk. | Ø Inch | Ø mm | Ø Decimal | CVD Diamond Coated | Stk. |
| | 24.50 | .9646" | 1N22D-24.5 | ◆ | | 29.50 | 1.1614" | 1N22D-29.5 | ◆ |
| 31/32" | 24.61 | .9688" | 1N22D-0031 | ◆ | | 30.00 | 1.1811" | 1N22D-30 | ◆ |
| 63/64" | 25.00 | .9843" | 1N22D-25 | ◆ | 1 3/16" | 30.16 | 1.1875" | 1N22D-0106 | ◆ |
| 1" | 25.40 | 1.0000" | 1N22D-0100 | ◆ | | 30.50 | 1.2007" | 1N22D-30.5 | ◆ |
| | 25.50 | 1.0004" | 1N22D-25.5 | ◆ | 1 7/32" | 30.96 | 1.2188" | 1N22D-0107 | ◆ |
| 1 1/64" | 25.80 | 1.0157" | 1N22D-1.015 | ◆ | | 31.00 | 1.2205" | 1N22D-31 | ◆ |
| | 26.00 | 1.0236" | 1N22D-26 | ◆ | | 31.50 | 1.2402" | 1N22D-31.5 | ◆ |
| 1 1/32" | 26.19 | 1.0313" | 1N22D-0101 | ◆ | 1 1/4" | 31.75 | 1.2500" | 1N22D-0108 | ◆ |
| | 26.50 | 1.0433" | 1N22D-26.5 | ◆ | | 32.00 | 1.2598" | 1N22D-32 | ◆ |
| 1 3/64" | 26.59 | 1.0469" | 1N22D-1.046 | ◆ | | 32.50 | 1.2795" | 1N22D-32.5 | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 1N22D-0102 | ◆ | 1 9/32" | 32.54 | 1.2813" | 1N22D-0109 | ◆ |
| | 27.00 | 1.0630" | 1N22D-27 | ◆ | | 33.00 | 1.2992" | 1N22D-33 | ◆ |
| | 27.50 | 1.0827" | 1N22D-27.5 | ◆ | 1 5/16" | 33.34 | 1.3125" | 1N22D-0110 | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 1N22D-0103 | ◆ | | 33.50 | 1.3189" | 1N22D-33.5 | ◆ |
| | 28.00 | 1.1024" | 1N22D-28 | ◆ | | 34.00 | 1.3386" | 1N22D-34 | ◆ |
| 1 7/64" | 28.18 | 1.1094" | 1N22D-1.109 | ◆ | 1 11/32" | 34.13 | 1.3438" | 1N22D-0111 | ◆ |
| | 28.50 | 1.1220" | 1N22D-28.5 | ◆ | | 34.50 | 1.3583" | 1N22D-34.5 | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 1N22D-0104 | ◆ | 1 3/8" | 34.93 | 1.3750" | 1N22D-0112 | ◆ |
| | 29.00 | 1.1417" | 1N22D-29 | ◆ | | 35.00 | 1.3780" | 1N22D-35 | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 1N22D-0105 | ◆ | | | | | |

*Supplied in 1 piece packages.*

## 2 Series GEN2 T-A HSS Super Cobalt HE Geometry Drill Inserts

| Diameter | | | Item Number, Coating and Availability | | Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| | 24.50 | .9646" | 452H-24.5-HE | ◆ | | 29.50 | 1.1614" | 452H-29.5-HE | ◆ |
| 31/32" | 24.61 | .9688" | 452H-0031-HE | ◆ | | 30.00 | 1.1811" | 452H-30-HE | ◆ |
| 63/64" | 25.00 | .9843" | 452H-25-HE | ◆ | 1 3/16" | 30.16 | 1.1875" | 452H-0106-HE | ◆ |
| 1" | 25.40 | 1.0000" | 452H-0100-HE | ◆ | | 30.50 | 1.2007" | 452H-30.5-HE | ◆ |
| | 25.50 | 1.0004" | 452H-25.5-HE | ◆ | 1 7/32" | 30.96 | 1.2188" | 452H-0107-HE | ◆ |
| 1 1/64" | 25.80 | 1.0157" | 452H-1.015-HE | ◆ | | 31.00 | 1.2205" | 452H-31-HE | ◆ |
| | 26.00 | 1.0236" | 452H-26-HE | ◆ | | 31.50 | 1.2402" | 452H-31.5-HE | ◆ |
| 1 1/32" | 26.19 | 1.0313" | 452H-0101-HE | ◆ | 1 1/4" | 31.75 | 1.2500" | 452H-0108-HE | ◆ |
| | 26.50 | 1.0433" | 452H-26.5-HE | ◆ | | 32.00 | 1.2598" | 452H-32-HE | ◆ |
| 1 3/64" | 26.59 | 1.0469" | 452H-1.046-HE | ◆ | | 32.50 | 1.2795" | 452H-32.5-HE | ◆ |
| 1 1/16" | 26.99 | 1.0625" | 452H-0102-HE | ◆ | 1 9/32" | 32.54 | 1.2813" | 452H-0109-HE | ◆ |
| | 27.00 | 1.0630" | 452H-27-HE | ◆ | | 33.00 | 1.2992" | 452H-33-HE | ◆ |
| | 27.50 | 1.0827" | 452H-27.5-HE | ◆ | 1 5/16" | 33.34 | 1.3125" | 452H-0110-HE | ◆ |
| 1 3/32" | 27.78 | 1.0938" | 452H-0103-HE | ◆ | | 33.50 | 1.3189" | 452H-33.5-HE | ◆ |
| | 28.00 | 1.1024" | 452H-28-HE | ◆ | | 34.00 | 1.3386" | 452H-34-HE | ◆ |
| 1 7/64" | 28.18 | 1.1094" | 452H-1.109-HE | ◆ | 1 11/32" | 34.13 | 1.3438" | 452H-0111-HE | ◆ |
| | 28.50 | 1.1220" | 452H-28.5-HE | ◆ | | 34.50 | 1.3583" | 452H-34.5-HE | ◆ |
| 1 1/8" | 28.58 | 1.1250" | 452H-0104-HE | ◆ | 1 3/8" | 34.93 | 1.3750" | 452H-0112-HE | ◆ |
| | 29.00 | 1.1417" | 452H-29-HE | ◆ | | 35.00 | 1.3780" | 452H-35-HE | ◆ |
| 1 5/32" | 29.37 | 1.1563" | 452H-0105-HE | ◆ | | | | | |

*Supplied in 2 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 2 Series T-A® Drill Inserts

Diameter Range 24.41 to 35.05mm

## 2 Series GEN2 T-A K35 Carbide HE Geometry Drill Inserts

| Diameter | | | Item Number, Coating and Availability | | Diameter | | | Item Number, Coating and Availability | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. |
| | 24.50 | .9646″ | 4C12H-24.5-HE | ◆ | | 29.50 | 1.1614″ | 4C12H-29.5-HE | ◆ |
| 31/32″ | 24.61 | .9688″ | 4C12H-0031-HE | ◆ | | 30.00 | 1.1811″ | 4C12H-30-HE | ◆ |
| 63/64″ | 25.00 | .9843″ | 4C12H-25-HE | ◆ | 1 3/16″ | 30.16 | 1.1875″ | 4C12H-0106-HE | ◆ |
| 1″ | 25.40 | 1.0000″ | 4C12H-0100-HE | ◆ | | 30.50 | 1.2007″ | 4C12H-30.5-HE | ◆ |
| | 25.50 | 1.0004″ | 4C12H-25.5-HE | ◆ | 1 7/32″ | 30.96 | 1.2188″ | 4C12H-0107-HE | ◆ |
| 1 1/64″ | 25.80 | 1.0157″ | 4C12H-1.015-HE | ◆ | | 31.00 | 1.2205″ | 4C12H-31-HE | ◆ |
| | 26.00 | 1.0236″ | 4C12H-26-HE | ◆ | | 31.50 | 1.2402″ | 4C12H-31.5-HE | ◆ |
| 1 1/32″ | 26.19 | 1.0313″ | 4C12H-0101-HE | ◆ | 1 1/4″ | 31.75 | 1.2500″ | 4C12H-0108-HE | ◆ |
| | 26.50 | 1.0433″ | 4C12H-26.5-HE | ◆ | | 32.00 | 1.2598″ | 4C12H-32-HE | ◆ |
| 1 3/64″ | 26.59 | 1.0469″ | 4C12H-1.046-HE | ◆ | | 32.50 | 1.2795″ | 4C12H-32.5-HE | ◆ |
| 1 1/16″ | 26.99 | 1.0625″ | 4C12H-0102-HE | ◆ | 1 9/32″ | 32.54 | 1.2813″ | 4C12H-0109-HE | ◆ |
| | 27.00 | 1.0630″ | 4C12H-27-HE | ◆ | | 33.00 | 1.2992″ | 4C12H-33-HE | ◆ |
| | 27.50 | 1.0827″ | 4C12H-27.5-HE | ◆ | 1 5/16″ | 33.34 | 1.3125″ | 4C12H-0110-HE | ◆ |
| 1 3/32″ | 27.78 | 1.0938″ | 4C12H-0103-HE | ◆ | | 33.50 | 1.3189″ | 4C12H-33.5-HE | ◆ |
| | 28.00 | 1.1024″ | 4C12H-28-HE | ◆ | | 34.00 | 1.3386″ | 4C12H-34-HE | ◆ |
| 1 7/64″ | 28.18 | 1.1094″ | 4C12H-1.109-HE | ◆ | 1 11/32″ | 34.13 | 1.3438″ | 4C12H-0111-HE | ◆ |
| | 28.50 | 1.1220″ | 4C12H-28.5-HE | ◆ | | 34.50 | 1.3583″ | 4C12H-34.5-HE | ◆ |
| 1 1/8″ | 28.58 | 1.1250″ | 4C12H-0104-HE | ◆ | 1 3/8″ | 34.93 | 1.3750″ | 4C12H-0112-HE | ◆ |
| | 29.00 | 1.1417″ | 4C12H-29-HE | ◆ | | 35.00 | 1.3780″ | 4C12H-35-HE | ◆ |
| 1 5/32″ | 29.37 | 1.1563″ | 4C12H-0105-HE | ◆ | | | | | |

*Supplied in 2 piece packages.*

## 2 Series T-A® Original Structural Steel Inserts

| Diameter | | Item Number, Coating and Availability | | | | Item Number, Coating and Availability | | | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Thin Wall T-A® Super Cobalt TiAlN | Stk. | Thin Wall T-A® Super Cobalt AM200® | Stk. | 150° T-A® Super Cobalt TiAlN | Stk. | 150° T-A® Super Cobalt AM200® | Stk. |
| 1″ | 25.40 | 152A-0100-TW | ○ | 152H-0100-TW | ○ | 152A-0100-SS | ○ | 152H-0100-SS | ○ |
| - | 26.00 | 152A-26-TW | ● | 152H-26-TW | ● | 152A-26-SS | ● | 152H-26-SS | ● |
| 1 1/16″ | 26.99 | 152A-0102-TW | ○ | 152H-0102-TW | ○ | 152A-0102-SS | ○ | 152H-0102-SS | ○ |
| - | 27.00 | 152A-27-TW | ● | 152H-27-TW | ● | 152A-27-SS | ● | 152H-27-SS | ● |
| 1 1/8″ | 28.58 | 152A-0104-TW | ○ | 152H-0104-TW | ○ | 152A-0104-SS | ○ | 152H-0104-SS | ○ |
| 1 3/16″ | 30.16 | 152A-0106-TW | ○ | 152H-0106-TW | ○ | 152A-0106-SS | ○ | 152H-0106-SS | ○ |
| - | 31.00 | 152A-31-TW | ● | 152H-31-TW | ● | 152A-31-SS | ● | 152H-31-SS | ● |
| 1 1/4″ | 31.75 | 152A-0108-TW | ○ | 152H-0108-TW | ○ | 152A-0108-SS | ○ | 152H-0108-SS | ○ |
| - | 33.00 | 152A-33-TW | ● | 152H-33-TW | ● | 152A-33-SS | ● | 152H-33-SS | ● |
| 1 5/16″ | 33.34 | 152A-0110-TW | ○ | 152H-0110-TW | ○ | 152A-0110-SS | ○ | 152H-0110-SS | ○ |
| 1 3/8″ | 34.93 | 152A-0112-TW | ○ | 152H-0112-TW | ○ | 152A-0112-SS | ○ | 152H-0112-SS | ○ |

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**





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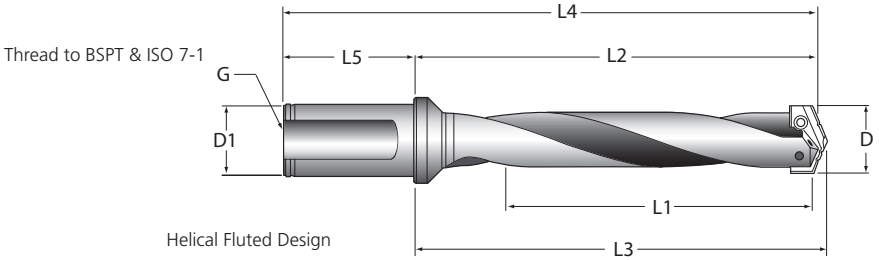
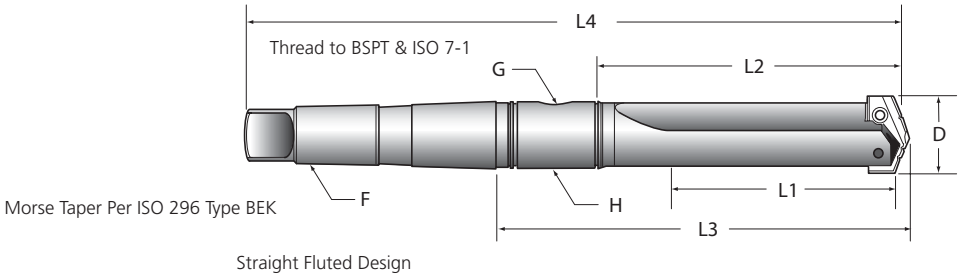



## Flanged Straight Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | L5 | D1 | G | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range D (mm) | Max Drill Depth (mm) | Body Length (mm) | New Tool Ref Length (mm) | Overall Length (mm) | Shank Length (mm) | Shank Diameter (mm) | Pipe Tap | |
| 21030S-40FM | Stub | Straight | 36.00-47.00 | 76.2 | 125.0 | 129.8 | 195.0 | 70.0 | 40.0 | ¼" | ¼" |
| 22030S-40FM | Short | Straight | 36.00-47.00 | 121 | 173 | 177.8 | 243.0 | 70.0 | 40.0 | ¼" | N/A |
| 23030H-40FM | Intermediate | Helical | 36.00-47.00 | 165 | 217.5 | 222.3 | 287.5 | 70.0 | 40.0 | ¼" | N/A |
| 24030H-40FM | Standard | Helical | 36.00-47.00 | 210 | 261.9 | 266.7 | 331.9 | 70.0 | 40.0 | ¼" | N/A |
| 25030S-40FM | Extended | Straight | 36.00-47.00 | 349.3 | 401.6 | 406.4 | 471.6 | 70.0 | 40.0 | ¼" | N/A |
| 27030S-40FM | XL | Straight | 36.00-47.00 | 558.8 | 611.1 | 615.9 | 681.1 | 70.0 | 40.0 | ¼" | N/A |
| 29030S-40FM | 3XL | Straight | 36.00-47.00 | 787.4 | 839.7 | 844.5 | 909.7 | 70.0 | 40.0 | ¼" | N/A |

*Note: Stub Length includes additional side coolant port.



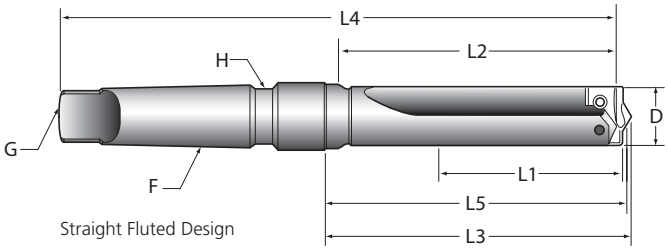

## Taper Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | F | H | G |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range (mm) | Max Drill Depth (mm) | Flute Length (mm) | New Tool Length (mm) | Overall Length (mm) | MT | RCA | Pipe Tap |
| 22030S-004M | Short | Straight | 36.00-47.00 | 121 | 152.4 | 206.4 | 319.1 | 4 | 4SRM | ¼" |
| 23030H-004M | Intermediate | Helical | 36.00-47.00 | 165 | 196.9 | 250.9 | 363.6 | 4 | 4SRM | ¼" |
| 24030H-004M | Standard | Helical | 36.00-47.00 | 210 | 241.3 | 295.3 | 408 | 4 | 4SRM | ¼" |
| 25030S-004M | Extended | Straight | 36.00-47.00 | 349 | 381 | 435 | 547.7 | 4 | 4SRM | ¼" |
| 27030S-004I | XL | Straight | 36.00-47.00 | 558.8 | 590.6 | 644.6 | 757.2 | 4 | 4SRM | ¼" |
| 29030S-004I | 3XL | Straight | 36.00-47.00 | 787.4 | 819.2 | 873.2 | 985.8 | 4 | 4SRM | ¼" |

**For Holder Accessories please see pages 141 - 146.**

# 3 Series T-A® Structural Steel Holders

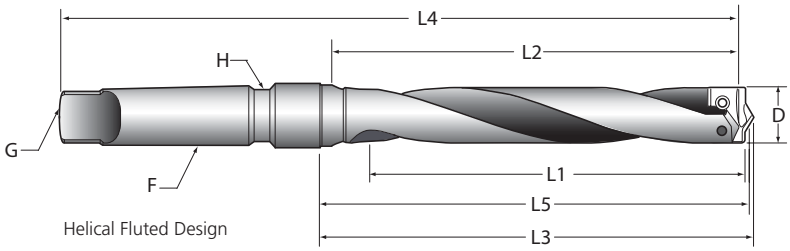


Straight Fluted Design

## Short Length – Taper Shank Holders – Straight Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 22030S-004IS126 | 39 | 121 | 152 | 165.1 | 163.5 | 276 | 4 | TTC | TSC | ● |

*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.



Helical Fluted Design

## Standard Length – Taper Shank Holders – Helical Flute

| Part Number | D | L1 | L2 | L3 | L5* | L4 | F | G | H | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. Drill Dia. mm | Max. Drill Depth. mm | Flute Length mm | Ref Length mm | Ref Length mm | Overall Length mm | MT | Coolant Inlet: Through Tang Coolant | Coolant Inlet: Through Shank Coolant | |
| 24030H-004IS126 | 35 | 165 | 197 | 209.6 | 207.9 | 321 | 4 | TTC | TSC | ● |

*Note: Dimension if using a Structural Steel Holder with GEN2 & Structural Steel T-A® Drill Insert Geometry.

**For Holder Accessories please see pages 141 - 146.**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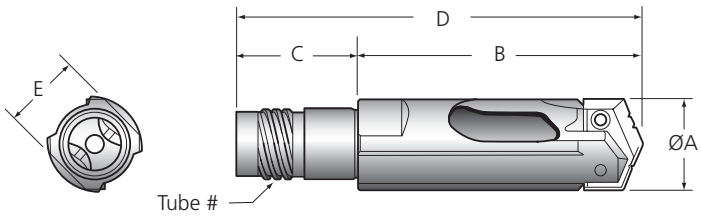
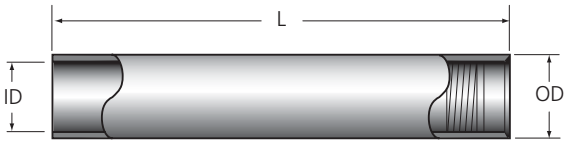



## Metric Heads

| T-A® Series | Head Item Number | Tube Size | A Diameter Range (mm) | B Reference Length (mm) | C Shank Length (mm) | D Overall Length (mm) | E Wrench Flat (mm) | Stk. |
|---|---|---|---|---|---|---|---|---|
| 3 | BTA3-807-xx.xx | 807 | 35.06-36.22 | 96.8 | 36 | 132.8 | 30 | ◆ |
| | BTA3-808-xx.xx | 808 | 36.23-39.62 | 100 | 44.5 | 144.4 | 32 | ◆ |
| | BTA3-809-xx.xx | 809 | 39.63-43.00 | 103.1 | 43 | 146.2 | 36 | ◆ |
| | BTA3-810-xx.xx | 810 | 43.01-47.01 | 101.9 | 43 | 144.9 | 41 | ◆ |
| | BTA3-811-xx.xx | 811 | 47.02-47.80 | 103.2 | 43 | 146.2 | 41 | ◆ |

## Imperial Heads

| T-A® Series | Head Item Number | Tube Size | A Diameter Range (inch) | B Reference Length (inch) | C Shank Length (inch) | D Overall Length (inch) | E Wrench Flat (mm) | Stk. |
|---|---|---|---|---|---|---|---|---|
| 3 | BTA3-807-x.xxxx | 807 | 1.3801-1.4259 | 3-13/16 | 1-27/64 | 5-15/64 | 30 | ◆ |
| | BTA3-808-x.xxxx | 808 | 1.4260-1.5599 | 3-15/16 | 1-3/4 | 5-11/16 | 32 | ◆ |
| | BTA3-809-x.xxxx | 809 | 1.5600-1.6929 | 4-1/16 | 1-11/16 | 5-3/4 | 36 | ◆ |
| | BTA3-810-x.xxxx | 810 | 1.6930-1.8509 | 4-1/64 | 1-11/16 | 5-45/64 | 41 | ◆ |
| | BTA3-811-x.xxxx | 811 | 1.8510-1.8820 | 4-1/16 | 1-11/16 | 5-3/4 | 41 | ◆ |




## Metric Tubes

| Tube Size | Tube Item Number | Metric | | | | |
|---|---|---|---|---|---|---|
| | | Diameter Range (mm) | Tube OD (mm) | Tube ID (mm) | Length (mm) | Stk. |
| 807 | BTAT807-102 | 33.31-36.20 | 30.0 | 20.0 | 2591 | ○ |
| 808 | BTAT808-102 | 36.21-39.60 | 33.0 | 23.0 | 2591 | ○ |
| 809 | BTAT809-102 | 39.61-42.98 | 36.0 | 25.0 | 2591 | ○ |
| 810 | BTAT810-102 | 42.99-46.99 | 39.0 | 28.0 | 2591 | ○ |
| 811 | BTAT811-102 | 47.00-47.80 | 43.0 | 31.0 | 2591 | ○ |

## Imperial Tubes

| Tube Size | Tube Item Number | Imperial | | | | |
|---|---|---|---|---|---|---|
| | | Diameter Range (inch) | Tube OD (inch) | Tube ID (inch) | Length (inch) | Stk. |
| 807 | BTAT807-102 | 1.312-1.425 | 1.181 | 0.787 | 102 | ○ |
| 808 | BTAT808-102 | 1.426-1.559 | 1.299 | 0.906 | 102 | ○ |
| 809 | BTAT809-102 | 1.560-1.692 | 1.417 | 0.984 | 102 | ○ |
| 810 | BTAT810-102 | 1.693-1.850 | 1.535 | 1.102 | 102 | ○ |
| 811 | BTAT811-102 | 1.851-1.882 | 1.693 | 1.220 | 102 | ○ |

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 3 Series T-A® Drill Inserts

Diameter Range 34.37 to 47.80mm

## 3 Series GEN2 T-A HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 13/32" | 35.72 | 1.4063" | 433H-0113 | ◆ | 433T-0113 | ○ | 433A-0113 | ◆ | 433N-0113 | ◆ |
| | 36.00 | 1.4173" | 433H-36 | ◆ | 433T-36 | ● | 433A-36 | ◆ | 433N-36 | ◆ |
| 1 7/16" | 36.51 | 1.4375" | 433H-0114 | ◆ | 433T-0114 | ○ | 433A-0114 | ◆ | 433N-0114 | ◆ |
| | 37.00 | 1.4567" | 433H-37 | ◆ | 433T-37 | ● | 433A-37 | ◆ | 433N-37 | ◆ |
| 1 15/32" | 37.31 | 1.4688" | 433H-0115 | ◆ | 433T-0115 | ○ | 433A-0115 | ◆ | 433N-0115 | ◆ |
| | 38.00 | 1.4961" | 433H-38 | ◆ | 433T-38 | ● | 433A-38 | ◆ | 433N-38 | ◆ |
| 1 1/2" | 38.10 | 1.5000" | 433H-0116 | ◆ | 433T-0116 | ○ | 433A-0116 | ◆ | 433N-0116 | ◆ |
| 1 17/32" | 38.89 | 1.5313" | 433H-0117 | ◆ | 433T-0117 | ○ | 433A-0117 | ◆ | 433N-0117 | ◆ |
| | 39.00 | 1.5354" | 433H-39 | ◆ | 433T-39 | ● | 433A-39 | ◆ | 433N-39 | ◆ |
| 1 9/16" | 39.69 | 1.5625" | 433H-0118 | ◆ | 433T-0118 | ○ | 433A-0118 | ◆ | 433N-0118 | ◆ |
| | 40.00 | 1.5748" | 433H-40 | ◆ | 433T-40 | ● | 433A-40 | ◆ | 433N-40 | ◆ |
| 1 19/32" | 40.48 | 1.5938" | 433H-0119 | ◆ | 433T-0119 | ○ | 433A-0119 | ◆ | 433N-0119 | ◆ |
| | 41.00 | 1.6142" | 433H-41 | ◆ | 433T-41 | ● | 433A-41 | ◆ | 433N-41 | ◆ |
| 1 5/8" | 41.28 | 1.6250" | 433H-0120 | ◆ | 433T-0120 | ○ | 433A-0120 | ◆ | 433N-0120 | ◆ |
| | 42.00 | 1.6535" | 433H-42 | ◆ | 433T-42 | ● | 433A-42 | ◆ | 433N-42 | ◆ |
| 1 21/32" | 42.07 | 1.6563" | 433H-0121 | ◆ | 433T-0121 | ○ | 433A-0121 | ◆ | 433N-0121 | ◆ |
| 1 11/16" | 42.86 | 1.6875" | 433H-0122 | ◆ | 433T-0122 | ○ | 433A-0122 | ◆ | 433N-0122 | ◆ |
| | 43.00 | 1.6929" | 433H-43 | ◆ | 433T-43 | ● | 433A-43 | ◆ | 433N-43 | ◆ |
| 1 23/32" | 43.66 | 1.7188" | 433H-0123 | ◆ | 433T-0123 | ○ | 433A-0123 | ◆ | 433N-0123 | ◆ |
| | 44.00 | 1.7323" | 433H-44 | ◆ | 433T-44 | ● | 433A-44 | ◆ | 433N-44 | ◆ |
| 1 3/4" | 44.45 | 1.7500" | 433H-0124 | ◆ | 433T-0124 | ○ | 433A-0124 | ◆ | 433N-0124 | ◆ |
| | 45.00 | 1.7717" | 433H-45 | ◆ | 433T-45 | ● | 433A-45 | ◆ | 433N-45 | ◆ |
| 1 25/32" | 45.24 | 1.7813" | 433H-0125 | ◆ | 433T-0125 | ○ | 433A-0125 | ◆ | 433N-0125 | ◆ |
| | 46.00 | 1.8110" | 433H-46 | ◆ | 433T-46 | ● | 433A-46 | ◆ | 433N-46 | ◆ |
| 1 13/16" | 46.04 | 1.8125" | 433H-0126 | ◆ | 433T-0126 | ○ | 433A-0126 | ◆ | 433N-0126 | ◆ |
| 1 27/32" | 46.83 | 1.8438" | 433H-0127 | ◆ | 433T-0127 | ○ | 433A-0127 | ◆ | 433N-0127 | ◆ |
| | 47.00 | 1.8504" | 433H-47 | ◆ | 433T-47 | ● | 433A-47 | ◆ | 433N-47 | ◆ |
| 1 7/8" | 47.63 | 1.8750" | 433H-0128 | ◆ | 433T-0128 | ○ | 433A-0128 | ◆ | 433N-0128 | ◆ |

*Supplied in 1 piece packages.*

## 3 Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 35.72 | 1.4063" | 453H-0113 | ○ | 453T-0113 | ○ | 453A-0113 | ◆ | 453N-0113 | ◆ |
| | 36.00 | 1.4173" | 453H-36 | ● | 453T-36 | ● | 453A-36 | ◆ | 453N-36 | ◆ |
| 1 7/16" | 36.51 | 1.4375" | 453H-0114 | ○ | 453T-0114 | ○ | 453A-0114 | ◆ | 453N-0114 | ◆ |
| | 37.00 | 1.4567" | 453H-37 | ● | 453T-37 | ● | 453A-37 | ◆ | 453N-37 | ◆ |
| 1 15/32" | 37.31 | 1.4688" | 453H-0115 | ○ | 453T-0115 | ○ | 453A-0115 | ◆ | 453N-0115 | ◆ |
| | 38.00 | 1.4961" | 453H-38 | ● | 453T-38 | ● | 453A-38 | ◆ | 453N-38 | ◆ |
| 1 1/2" | 38.10 | 1.5000" | 453H-0116 | ○ | 453T-0116 | ○ | 453A-0116 | ◆ | 453N-0116 | ◆ |
| 1 17/32" | 38.89 | 1.5313" | 453H-0117 | ○ | 453T-0117 | ○ | 453A-0117 | ◆ | 453N-0117 | ◆ |
| | 39.00 | 1.5354" | 453H-39 | ● | 453T-39 | ● | 453A-39 | ◆ | 453N-39 | ◆ |
| 1 9/16" | 39.69 | 1.5625" | 453H-0118 | ○ | 453T-0118 | ○ | 453A-0118 | ◆ | 453N-0118 | ◆ |
| | 40.00 | 1.5748" | 453H-40 | ● | 453T-40 | ● | 453A-40 | ◆ | 453N-40 | ◆ |
| 1 19/32" | 40.48 | 1.5938" | 453H-0119 | ○ | 453T-0119 | ○ | 453A-0119 | ◆ | 453N-0119 | ◆ |
| | 41.00 | 1.6142" | 453H-41 | ● | 453T-41 | ● | 453A-41 | ◆ | 453N-41 | ◆ |
| 1 5/8" | 41.28 | 1.6250" | 453H-0120 | ○ | 453T-0120 | ○ | 453A-0120 | ◆ | 453N-0120 | ◆ |
| | 42.00 | 1.6535" | 453H-42 | ● | 453T-42 | ● | 453A-42 | ◆ | 453N-42 | ◆ |
| 1 21/32" | 42.07 | 1.6563" | 453H-0121 | ○ | 453T-0121 | ○ | 453A-0121 | ◆ | 453N-0121 | ◆ |

*Supplied in 1 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**





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## 3 Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 11/16" | 42.86 | 1.6875" | 453H-0122 | ○ | 453T-0122 | ○ | 453A-0122 | ◆ | 453N-0122 | ◆ |
| | 43.00 | 1.6929" | 453H-43 | ● | 453T-43 | ● | 453A-43 | ◆ | 453N43 | ◆ |
| 1 23/32" | 43.66 | 1.7188" | 453H-0123 | ○ | 453T-0123 | ○ | 453A-0123 | ◆ | 453N-0123 | ◆ |
| | 44.00 | 1.7323" | 453H-44 | ● | 453T-44 | ● | 453A-44 | ◆ | 453N-44 | ◆ |
| 1 3/4" | 44.45 | 1.7500" | 453H-0124 | ○ | 453T-0124 | ○ | 453A-0124 | ◆ | 453N-0124 | ◆ |
| | 45.00 | 1.7717" | 453H-45 | ● | 453T-45 | ● | 453A-45 | ◆ | 453N-45 | ◆ |
| 1 25/32" | 45.24 | 1.7813" | 453H-0125 | ○ | 453T-0125 | ○ | 453A-0125 | ◆ | 453N-0125 | ◆ |
| | 46.00 | 1.8110" | 453H-46 | ● | 453T-46 | ● | 453A-46 | ◆ | 453N-46 | ◆ |
| 1 13/16" | 46.04 | 1.8125" | 453H-0126 | ○ | 453T-0126 | ○ | 453A-0126 | ◆ | 453N-0126 | ◆ |
| 1 27/32" | 46.83 | 1.8438" | 453H-0127 | ○ | 453T-0127 | ○ | 453A-0127 | ◆ | 453N-0127 | ◆ |
| | 47.00 | 1.8504" | 453H-47 | ● | 453T-47 | ● | 453A-47 | ◆ | 453N-47 | ◆ |
| 1 7/8" | 47.63 | 1.8750" | 453H-0128 | ○ | 453T-0128 | ○ | 453A-0128 | ◆ | 453N-0128 | ◆ |

*Supplied in 1 piece packages.*

## 3 Series GEN2 T-A HSS Premium Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 35.72 | 1.4063" | 483H-0113 | ◆ | 483T-0113 | ◆ | 483A-0113 | ◆ | 483N-0113 | ◆ |
| | 36.00 | 1.4173" | 483H-36 | ◆ | 483T-36 | ◆ | 483A-36 | ◆ | 483N-36 | ◆ |
| 1 7/16" | 36.51 | 1.4375" | 483H-0114 | ◆ | 483T-0114 | ◆ | 483A-0114 | ◆ | 483N-0114 | ◆ |
| | 37.00 | 1.4567" | 483H-37 | ◆ | 483T-37 | ◆ | 483A-37 | ◆ | 483N-37 | ◆ |
| 1 15/32" | 37.31 | 1.4688" | 483H-0115 | ◆ | 483T-0115 | ◆ | 483A-0115 | ◆ | 483N-0115 | ◆ |
| | 38.00 | 1.4961" | 483H-38 | ◆ | 483T-38 | ◆ | 483A-38 | ◆ | 483N-38 | ◆ |
| 1 1/2" | 38.10 | 1.5000" | 483H-0116 | ◆ | 483T-0116 | ◆ | 483A-0116 | ◆ | 483N-0116 | ◆ |
| 1 17/32" | 38.89 | 1.5313" | 483H-0117 | ◆ | 483T-0117 | ◆ | 483A-0117 | ◆ | 483N-0117 | ◆ |
| | 39.00 | 1.5354" | 483H-39 | ◆ | 483T-39 | ◆ | 483A-39 | ◆ | 483N-39 | ◆ |
| 1 9/16" | 39.69 | 1.5625" | 483H-0118 | ◆ | 483T-0118 | ◆ | 483A-0118 | ◆ | 483N-0118 | ◆ |
| | 40.00 | 1.5748" | 483H-40 | ◆ | 483T-40 | ◆ | 483A-40 | ◆ | 483N-40 | ◆ |
| 1 19/32" | 40.48 | 1.5938" | 483H-0119 | ◆ | 483T-0119 | ◆ | 483A-0119 | ◆ | 483N-0119 | ◆ |
| | 41.00 | 1.6142" | 483H-41 | ◆ | 483T-41 | ◆ | 483A -41 | ◆ | 483N-41 | ◆ |
| 1 5/8" | 41.28 | 1.6250" | 483H-0120 | ◆ | 483T-0120 | ◆ | 483A-0120 | ◆ | 483N-0120 | ◆ |
| | 42.00 | 1.6535" | 483H-42 | ◆ | 483T-42 | ◆ | 483A-42 | ◆ | 483N-42 | ◆ |
| 1 21/32" | 42.07 | 1.6563" | 483H-0121 | ◆ | 483T-0121 | ◆ | 483A-0121 | ◆ | 483N-0121 | ◆ |
| 1 11/16" | 42.86 | 1.6875" | 483H-0122 | ◆ | 483T-0122 | ◆ | 483A-0122 | ◆ | 483N-0122 | ◆ |
| | 43.00 | 1.6929" | 483H-43 | ◆ | 483T-43 | ◆ | 483A-43 | ◆ | 483N-43 | ◆ |
| 1 23/32" | 43.66 | 1.7188" | 483H-0123 | ◆ | 483T-0123 | ◆ | 483A-0123 | ◆ | 483N-0123 | ◆ |
| | 44.00 | 1.7323" | 483H-44 | ◆ | 483T-44 | ◆ | 483A-44 | ◆ | 483N-44 | ◆ |
| 1 3/4" | 44.45 | 1.7500" | 483H-0124 | ◆ | 483T-0124 | ◆ | 483A-0124 | ◆ | 483N-0124 | ◆ |
| | 45.00 | 1.7717" | 483H-45 | ◆ | 483T-45 | ◆ | 483A-45 | ◆ | 483N-45 | ◆ |
| 1 25/32" | 45.24 | 1.7813" | 483H-0125 | ◆ | 483T-0125 | ◆ | 483A-0125 | ◆ | 483N-0125 | ◆ |
| | 46.00 | 1.8110" | 483H-46 | ◆ | 483T-46 | ◆ | 483A-46 | ◆ | 483N-46 | ◆ |
| 1 13/16" | 46.04 | 1.8125" | 483H-0126 | ◆ | 483T-0126 | ◆ | 483A-0126 | ◆ | 483N-0126 | ◆ |
| 1 27/32" | 46.83 | 1.8438" | 483H-0127 | ◆ | 483T-0127 | ◆ | 483A-0127 | ◆ | 483N-0127 | ◆ |
| | 47.00 | 1.8504" | 483H-47 | ◆ | 483T-47 | ◆ | 483A-47 | ◆ | 483N-47 | ◆ |
| 1 7/8" | 47.63 | 1.8750" | 483H-0128 | ◆ | 483T-0128 | ◆ | 483A-0128 | ◆ | 483N-0128 | ◆ |

*Supplied in 1 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 3 Series T-A® Drill Inserts

Diameter Range 34.37 to 47.80mm

## 3 Series Standard T-A Original HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 13/32" | 35.72 | 1.4063" | 133H-0113 | ◆ | 133T-0113 | ◆ | 133A-0113 | ◆ | 133N-0113 | ◆ |
| | 36.00 | 1.4173" | 133H-36 | ◆ | 133T-36 | ◆ | 133A-36 | ◆ | 133N-36 | ◆ |
| 1 7/16" | 36.51 | 1.4375" | 133H-0114 | ◆ | 133T-0114 | ◆ | 133A-0114 | ◆ | 133N-0114 | ◆ |
| | 37.00 | 1.4567" | 133H-37 | ◆ | 133T-37 | ◆ | 133A-37 | ◆ | 133N-37 | ◆ |
| 1 15/32" | 37.31 | 1.4688" | 133H-0115 | ◆ | 133T-0115 | ◆ | 133A-0115 | ◆ | 133N-0115 | ◆ |
| | 38.00 | 1.4961" | 133H-38 | ◆ | 133T-38 | ◆ | 133A-38 | ◆ | 133N-38 | ◆ |
| 1 1/2" | 38.10 | 1.5000" | 133H-0116 | ◆ | 133T-0116 | ◆ | 133A-0116 | ◆ | 133N-0116 | ◆ |
| 1 17/32" | 38.89 | 1.5313" | 133H-0117 | ◆ | 133T-0117 | ◆ | 133A-0117 | ◆ | 133N-0117 | ◆ |
| | 39.00 | 1.5354" | 133H-39 | ◆ | 133T-39 | ◆ | 133A-39 | ◆ | 133N-39 | ◆ |
| 1 9/16" | 39.69 | 1.5625" | 133H-0118 | ◆ | 133T-0118 | ◆ | 133A-0118 | ◆ | 133N-0118 | ◆ |
| | 40.00 | 1.5748" | 133H-40 | ◆ | 133T-40 | ◆ | 133A-40 | ◆ | 133N-40 | ◆ |
| 1 19/32" | 40.48 | 1.5938" | 133H-0119 | ◆ | 133T-0119 | ◆ | 133A-0119 | ◆ | 133N-0119 | ◆ |
| | 41.00 | 1.6142" | 133H-41 | ◆ | 133T-41 | ◆ | 133A-41 | ◆ | 133N-41 | ◆ |
| 1 5/8" | 41.28 | 1.6250" | 133H-0120 | ◆ | 133T-0120 | ◆ | 133A-0120 | ◆ | 133N-0120 | ◆ |
| | 42.00 | 1.6535" | 133H-42 | ◆ | 133T-42 | ◆ | 133A-42 | ◆ | 133N-42 | ◆ |
| 1 21/32" | 42.07 | 1.6563" | 133H-0121 | ◆ | 133T-0121 | ◆ | 133A-0121 | ◆ | 133N-0121 | ◆ |
| 1 11/16" | 42.86 | 1.6875" | 133H-0122 | ◆ | 133T-0122 | ◆ | 133A-0122 | ◆ | 133N-0122 | ◆ |
| | 43.00 | 1.6929" | 133H-43 | ◆ | 133T-43 | ◆ | 133A-43 | ◆ | 133N-43 | ◆ |
| 1 23/32" | 43.66 | 1.7188" | 133H-0123 | ◆ | 133T-0123 | ◆ | 133A-0123 | ◆ | 133N-0123 | ◆ |
| | 44.00 | 1.7323" | 133H-44 | ◆ | 133T-44 | ◆ | 133A-44 | ◆ | 133N-44 | ◆ |
| 1 3/4" | 44.45 | 1.7500" | 133H-0124 | ◆ | 133T-0124 | ◆ | 133A-0124 | ◆ | 133N-0124 | ◆ |
| | 45.00 | 1.7717" | 133H-45 | ◆ | 133T-45 | ◆ | 133A-45 | ◆ | 133N-45 | ◆ |
| 1 25/32" | 45.24 | 1.7813" | 133H-0125 | ◆ | 133T-0125 | ◆ | 133A-0125 | ◆ | 133N-0125 | ◆ |
| | 46.00 | 1.8110" | 133H-46 | ◆ | 133T-46 | ◆ | 133A-46 | ◆ | 133N-46 | ◆ |
| 1 13/16" | 46.04 | 1.8125" | 133H-0126 | ◆ | 133T-0126 | ◆ | 133A-0126 | ◆ | 133N-0126 | ◆ |
| 1 27/32" | 46.83 | 1.8438" | 133H-0127 | ◆ | 133T-0127 | ◆ | 133A-0127 | ◆ | 133N-0127 | ◆ |
| | 47.00 | 1.8504" | 133H-47 | ◆ | 133T-47 | ◆ | 133A-47 | ◆ | 133N-47 | ◆ |
| 1 7/8" | 47.63 | 1.8750" | 133H-0128 | ◆ | 133T-0128 | ◆ | 133A-0128 | ◆ | 133N-0128 | ◆ |

*Supplied in 1 piece packages.*

## 3 Series Standard T-A Original HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 13/32" | 35.72 | 1.4063" | 153H-0113 | ◆ | 153T-0113 | ◆ | 153A-0113 | ◆ | 153N-0113 | ◆ |
| | 36.00 | 1.4173" | 153H-36 | ○ | 153T-36 | ◆ | 153A-36 | ◆ | 153N-36 | ◆ |
| 1 7/16" | 36.51 | 1.4375" | 153H-0114 | ◆ | 153T-0114 | ◆ | 153A-0114 | ◆ | 153N-0114 | ◆ |
| | 37.00 | 1.4567" | 153H-37 | ○ | 153T-37 | ◆ | 153A-37 | ◆ | 153N-37 | ◆ |
| 1 15/32" | 37.31 | 1.4688" | 153H-0115 | ◆ | 153T-0115 | ◆ | 153A-0115 | ◆ | 153N-0115 | ◆ |
| | 38.00 | 1.4961" | 153H-38 | ○ | 153T-38 | ◆ | 153A-38 | ◆ | 153N-38 | ◆ |
| 1 1/2" | 38.10 | 1.5000" | 153H-0116 | ◆ | 153T-0116 | ◆ | 153A-0116 | ◆ | 153N-0116 | ◆ |
| 1 17/32" | 38.89 | 1.5313" | 153H-0117 | ◆ | 153T-0117 | ◆ | 153A-0117 | ◆ | 153N-0117 | ◆ |
| | 39.00 | 1.5354" | 153H-39 | ○ | 153T-39 | ◆ | 153A-39 | ◆ | 153N-39 | ◆ |
| 1 9/16" | 39.69 | 1.5625" | 153H-0118 | ◆ | 153T-0118 | ◆ | 153A-0118 | ◆ | 153N-0118 | ◆ |
| | 40.00 | 1.5748" | 153H-40 | ○ | 153T-40 | ◆ | 153A-40 | ◆ | 153N-40 | ◆ |
| 1 19/32" | 40.48 | 1.5938" | 153H-0119 | ◆ | 153T-0119 | ◆ | 153A-0119 | ◆ | 153N-0119 | ◆ |
| | 41.00 | 1.6142" | 153H-41 | ○ | 153T-41 | ◆ | 153A-41 | ◆ | 153N-41 | ◆ |
| 1 5/8" | 41.28 | 1.6250" | 153H-0120 | ◆ | 153T-0120 | ◆ | 153A-0120 | ◆ | 153N-0120 | ◆ |
| | 42.00 | 1.6535" | 153H-42 | ○ | 153T-42 | ◆ | 153A-42 | ◆ | 153N-42 | ◆ |
| 1 21/32" | 42.07 | 1.6563" | 153H-0121 | ◆ | 153T-0121 | ◆ | 153A-0121 | ◆ | 153N-0121 | ◆ |

*Supplied in 1 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


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## 3 Series Standard T-A Original HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 11/16" | 42.86 | 1.6875" | 153H-0122 | ◆ | 153T-0122 | ◆ | 153A-0122 | ◆ | 153N-0122 | ◆ |
| | 43.00 | 1.6929" | 153H-43 | ○ | 153T-43 | ◆ | 153A-43 | ◆ | 153N-43 | ◆ |
| 1 23/32" | 43.66 | 1.7188" | 153H-0123 | ◆ | 153T-0123 | ◆ | 153A-0123 | ◆ | 153N-0123 | ◆ |
| | 44.00 | 1.7323" | 153H-44 | ○ | 153T-44 | ◆ | 153A-44 | ◆ | 153N-44 | ◆ |
| 1 3/4" | 44.45 | 1.7500" | 153H-0124 | ◆ | 153T-0124 | ◆ | 153A-0124 | ◆ | 153N-0124 | ◆ |
| | 45.00 | 1.7717" | 153H-45 | ○ | 153T-45 | ◆ | 153A-45 | ◆ | 153N-45 | ◆ |
| 1 25/32" | 45.24 | 1.7813" | 153H-0125 | ◆ | 153T-0125 | ◆ | 153A-0125 | ◆ | 153N-0125 | ◆ |
| | 46.00 | 1.8110" | 153H-46 | ○ | 153T-46 | ◆ | 153A-46 | ◆ | 153N-46 | ◆ |
| 1 13/16" | 46.04 | 1.8125" | 153H-0126 | ◆ | 153T-0126 | ◆ | 153A-0126 | ◆ | 153N-0126 | ◆ |
| 1 27/32" | 46.83 | 1.8438" | 153H-0127 | ◆ | 153T-0127 | ◆ | 153A-0127 | ◆ | 153N-0127 | ◆ |
| | 47.00 | 1.8504" | 153H-47 | ○ | 153T-47 | ◆ | 153A-47 | ◆ | 153N-47 | ◆ |
| 1 7/8" | 47.63 | 1.8750" | 153H-0128 | ◆ | 153T-0128 | ◆ | 153A-0128 | ◆ | 153N-0128 | ◆ |

*Supplied in 1 piece packages.*

## 3 Series Standard T-A Original K20 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 13/32" | 35.72 | 1.4063" | 1C23H-0113 | ◆ | 1C23T-0113 | ○ | 1C23A-0113 | ○ | 1C23N-0113 | ◆ |
| | 36.00 | 1.4173" | 1C23H-36 | ◆ | 1C23T-36 | ○ | 1C23A-36 | ● | 1C23N-36 | ◆ |
| 1 7/16" | 36.51 | 1.4375" | 1C23H-0114 | ◆ | 1C23T-0114 | ○ | 1C23A-0114 | ○ | 1C23N-0114 | ◆ |
| | 37.00 | 1.4567" | 1C23H-37 | ◆ | 1C23T-37 | ○ | 1C23A-37 | ● | 1C23N-37 | ◆ |
| 1 15/32" | 37.31 | 1.4688" | 1C23H-0115 | ◆ | 1C23T-0115 | ○ | 1C23A-0115 | ○ | 1C23N-0115 | ◆ |
| | 38.00 | 1.4961" | 1C23H-38 | ◆ | 1C23T-38 | ○ | 1C23A-38 | ● | 1C23N-38 | ◆ |
| 1 1/2" | 38.10 | 1.5000" | 1C23H-0116 | ◆ | 1C23T-0116 | ○ | 1C23A-0116 | ○ | 1C23N-0116 | ◆ |
| 1 17/32" | 38.89 | 1.5313" | 1C23H-0117 | ◆ | 1C23T-0117 | ○ | 1C23A-0117 | ○ | 1C23N-0117 | ◆ |
| | 39.00 | 1.5354" | 1C23H-39 | ◆ | 1C23T-39 | ○ | 1C23A-39 | ● | 1C23N-39 | ◆ |
| 1 9/16" | 39.69 | 1.5625" | 1C23H-0118 | ◆ | 1C23T-0118 | ○ | 1C23A-0118 | ○ | 1C23N-0118 | ◆ |
| | 40.00 | 1.5748" | 1C23H-40 | ◆ | 1C23T-40 | ○ | 1C23A-40 | ● | 1C23N-40 | ◆ |
| 1 19/32" | 40.48 | 1.5938" | 1C23H-0119 | ◆ | 1C23T-0119 | ○ | 1C23A-0119 | ○ | 1C23N-0119 | ◆ |
| | 41.00 | 1.6142" | 1C23H-41 | ◆ | 1C23T-41 | ○ | 1C23A-41 | ● | 1C23N-41 | ◆ |
| 1 5/8" | 41.28 | 1.6250" | 1C23H-0120 | ◆ | 1C23T-0120 | ○ | 1C23A-0120 | ○ | 1C23N-0120 | ◆ |
| | 42.00 | 1.6535" | 1C23H-42 | ◆ | 1C23T-42 | ○ | 1C23A-42 | ● | 1C23N-42 | ◆ |
| 1 21/32" | 42.07 | 1.6563" | 1C23H-0121 | ◆ | 1C23T-0121 | ○ | 1C23A-0121 | ○ | 1C23N-0121 | ◆ |
| 1 11/16" | 42.86 | 1.6875" | 1C23H-0122 | ◆ | 1C23T-0122 | ○ | 1C23A-0122 | ○ | 1C23N-0122 | ◆ |
| | 43.00 | 1.6929" | 1C23H-43 | ◆ | 1C23T-43 | ○ | 1C23A-43 | ● | 1C23N-43 | ◆ |
| 1 23/32" | 43.66 | 1.7188" | 1C23H-0123 | ◆ | 1C23T-0123 | ○ | 1C23A-0123 | ○ | 1C23N-0123 | ◆ |
| | 44.00 | 1.7323" | 1C23H-44 | ◆ | 1C23T-44 | ○ | 1C23A-44 | ● | 1C23N-44 | ◆ |
| 1 3/4" | 44.45 | 1.7500" | 1C23H-0124 | ◆ | 1C23T-0124 | ○ | 1C23A-0124 | ○ | 1C23N-0124 | ◆ |
| | 45.00 | 1.7717" | 1C23H-45 | ◆ | 1C23T-45 | ○ | 1C23A-45 | ● | 1C23N-45 | ◆ |
| 1 25/32" | 45.24 | 1.7813" | 1C23H-0125 | ◆ | 1C23T-0125 | ○ | 1C23A-0125 | ○ | 1C23N-0125 | ◆ |
| | 46.00 | 1.8110" | 1C23H-46 | ◆ | 1C23T-46 | ○ | 1C23A-46 | ● | 1C23N-46 | ◆ |
| 1 13/16" | 46.04 | 1.8125" | 1C23H-0126 | ◆ | 1C23T-0126 | ○ | 1C23A-0126 | ○ | 1C23N-0126 | ◆ |
| 1 27/32" | 46.83 | 1.8438" | 1C23H-0127 | ◆ | 1C23T-0127 | ○ | 1C23A-0127 | ○ | 1C23N-0127 | ◆ |
| | 47.00 | 1.8504" | 1C23H-47 | ◆ | 1C23T-47 | ○ | 1C23A-47 | ● | 1C23N-47 | ◆ |
| 1 7/8" | 47.63 | 1.8750" | 1C23H-0128 | ◆ | 1C23T-0128 | ○ | 1C23A-0128 | ○ | 1C23N-0128 | ◆ |

*Supplied in 1 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 3 Series T-A® Drill Inserts

Diameter Range 34.37 to 47.80mm

## 3 Series Standard T-A® Original P40 Carbide

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 13/32" | 35.72 | 1.4063" | 1C53H-0113 | ◆ | 1C53T-0113 | ○ | 1C53A-0113 | ○ | 1C53N-0113 | ◆ |
| | 36.00 | 1.4173" | 1C53H-36 | ◆ | 1C53T-36 | ○ | 1C53A-36 | ○ | 1C53N-36 | ◆ |
| 1 7/16" | 36.51 | 1.4375" | 1C53H-0114 | ◆ | 1C53T-0114 | ○ | 1C53A-0114 | ○ | 1C53N-0114 | ◆ |
| | 37.00 | 1.4567" | 1C53H-37 | ◆ | 1C53T-37 | ○ | 1C53A-37 | ○ | 1C53N-37 | ◆ |
| 1 15/32" | 37.31 | 1.4688" | 1C53H-0115 | ◆ | 1C53T-0115 | ○ | 1C53A-0115 | ○ | 1C53N-0115 | ◆ |
| | 38.00 | 1.4961" | 1C53H-38 | ◆ | 1C53T-38 | ○ | 1C53A-38 | ○ | 1C53N-38 | ◆ |
| 1 1/2" | 38.10 | 1.5000" | 1C53H-0116 | ◆ | 1C53T-0116 | ○ | 1C53A-0116 | ○ | 1C53N-0116 | ◆ |
| 1 17/32" | 38.89 | 1.5313" | 1C53H-0117 | ◆ | 1C53T-0117 | ○ | 1C53A-0117 | ○ | 1C53N-0117 | ◆ |
| | 39.00 | 1.5354" | 1C53H-39 | ◆ | 1C53T-39 | ○ | 1C53A-39 | ○ | 1C53N-39 | ◆ |
| 1 9/16" | 39.69 | 1.5625" | 1C53H-0118 | ◆ | 1C53T-0118 | ○ | 1C53A-0118 | ○ | 1C53N-0118 | ◆ |
| | 40.00 | 1.5748" | 1C53H-40 | ◆ | 1C53T-40 | ○ | 1C53A-40 | ○ | 1C53N-40 | ◆ |
| 1 19/32" | 40.48 | 1.5938" | 1C53H-0119 | ◆ | 1C53T-0119 | ○ | 1C53A-0119 | ○ | 1C53N-0119 | ◆ |
| | 41.00 | 1.6142" | 1C53H-41 | ◆ | 1C53T-41 | ○ | 1C53A-41 | ○ | 1C53N-41 | ◆ |
| 1 5/8" | 41.28 | 1.6250" | 1C53H-0120 | ◆ | 1C53T-0120 | ○ | 1C53A-0120 | ○ | 1C53N-0120 | ◆ |
| | 42.00 | 1.6535" | 1C53H-42 | ◆ | 1C53T-42 | ○ | 1C53A-42 | ○ | 1C53N-42 | ◆ |
| 1 21/32" | 42.07 | 1.6563" | 1C53H-0121 | ◆ | 1C53T-0121 | ○ | 1C53A-0121 | ○ | 1C53N-0121 | ◆ |
| 1 11/16" | 42.86 | 1.6875" | 1C53H-0122 | ◆ | 1C53T-0122 | ○ | 1C53A-0122 | ○ | 1C53N-0122 | ◆ |
| | 43.00 | 1.6929" | 1C53H-43 | ◆ | 1C53T-43 | ○ | 1C53A-43 | ○ | 1C53N-43 | ◆ |
| 1 23/32" | 43.66 | 1.7188" | 1C53H-0123 | ◆ | 1C53T-0123 | ○ | 1C53A-0123 | ○ | 1C53N-0123 | ◆ |
| | 44.00 | 1.7323" | 1C53H-44 | ◆ | 1C53T-44 | ○ | 1C53A-44 | ○ | 1C53N-44 | ◆ |
| 1 3/4" | 44.45 | 1.7500" | 1C53H-0124 | ◆ | 1C53T-0124 | ○ | 1C53A-0124 | ○ | 1C53N-0124 | ◆ |
| | 45.00 | 1.7717" | 1C53H-45 | ◆ | 1C53T-45 | ○ | 1C53A-45 | ○ | 1C53N-45 | ◆ |
| 1 25/32" | 45.24 | 1.7813" | 1C53H-0125 | ◆ | 1C53T-0125 | ○ | 1C53A-0125 | ○ | 1C53N-0125 | ◆ |
| | 46.00 | 1.8110" | 1C53H-46 | ◆ | 1C53T-46 | ○ | 1C53A-46 | ○ | 1C53N-46 | ◆ |
| 1 13/16" | 46.04 | 1.8125" | 1C53H-0126 | ◆ | 1C53T-0126 | ○ | 1C53A-0126 | ○ | 1C53N-0126 | ◆ |
| 1 27/32" | 46.83 | 1.8438" | 1C53H-0127 | ◆ | 1C53T-0127 | ○ | 1C53A-0127 | ○ | 1C53N-0127 | ◆ |
| | 47.00 | 1.8504" | 1C53H-47 | ◆ | 1C53T-47 | ○ | 1C53A-47 | ○ | 1C53N-47 | ◆ |
| 1 7/8" | 47.63 | 1.8750" | 1C53H-0128 | ◆ | 1C53T-0128 | ○ | 1C53A-0128 | ○ | 1C53N-0128 | ◆ |

*Supplied in 1 piece packages.*

## 3 Series Standard T-A® Original HSS Super Cobalt - 90° Spot and Chamfer

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 13/32" | 35.72 | 1.4063" | 153H-0113-SP | ◆ | 153T-0113-SP | ◆ | 153A-0113-SP | ◆ | 153N-0113-SP | ◆ |
| | 36.00 | 1.4173" | 153H-36-SP | ◆ | 153T-36-SP | ◆ | 153A-36-SP | ◆ | 153N-36-SP | ◆ |
| 1 7/16" | 36.51 | 1.4375" | 153H-0114-SP | ◆ | 153T-0114-SP | ◆ | 153A-0114-SP | ◆ | 153N-0114-SP | ◆ |
| | 37.00 | 1.4567" | 153H-37-SP | ◆ | 153T-37-SP | ◆ | 153A-37-SP | ◆ | 153N-37-SP | ◆ |
| 1 15/32" | 37.31 | 1.4688" | 153H-0115-SP | ◆ | 153T-0115-SP | ◆ | 153A-0115-SP | ◆ | 153N-0115-SP | ◆ |
| | 38.00 | 1.4961" | 153H-38-SP | ◆ | 153T-38-SP | ◆ | 153A-38-SP | ◆ | 153N-38-SP | ◆ |
| 1 1/2" | 38.10 | 1.5000" | 153H-0116-SP | ◆ | 153T-0116-SP | ◆ | 153A-0116-SP | ◆ | 153N-0116-SP | ◆ |
| 1 17/32" | 38.89 | 1.5313" | 153H-0117-SP | ◆ | 153T-0117-SP | ◆ | 153A-0117-SP | ◆ | 153N-0117-SP | ◆ |
| | 39.00 | 1.5354" | 153H-39-SP | ◆ | 153T-39-SP | ◆ | 153A-39-SP | ◆ | 153N-39-SP | ◆ |
| 1 9/16" | 39.69 | 1.5625" | 153H-0118-SP | ◆ | 153T-0118-SP | ◆ | 153A-0118-SP | ◆ | 153N-0118-SP | ◆ |
| | 40.00 | 1.5748" | 153H-40-SP | ◆ | 153T-40-SP | ◆ | 153A-40-SP | ◆ | 153N-40-SP | ◆ |
| 1 19/32" | 40.48 | 1.5938" | 153H-0119-SP | ◆ | 153T-0119-SP | ◆ | 153A-0119-SP | ◆ | 153N-0119-SP | ◆ |
| | 41.00 | 1.6142" | 153H-41-SP | ◆ | 153T-41-SP | ◆ | 153A-41-SP | ◆ | 153N-41-SP | ◆ |
| 1 5/8" | 41.28 | 1.6250" | 153H-0120-SP | ◆ | 153T-0120-SP | ◆ | 153A-0120-SP | ◆ | 153N-0120-SP | ◆ |

*Supplied in 1 piece packages.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.


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## 3 Series Standard T-A Original HSS Super Cobalt - 90° Spot and Chamfer

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 42.00 | 1.6535" | 153H-42-SP | ◆ | 153T-42-SP | ◆ | 153A-42-SP | ◆ | 153N-42-SP | ◆ |
| 1 21/32" | 42.07 | 1.6563" | 153H-0121-SP | ◆ | 153T-0121-SP | ◆ | 153A-0121-SP | ◆ | 153N-0121-SP | ◆ |
| 1 11/16" | 42.86 | 1.6875" | 153H-0122-SP | ◆ | 153T-0122-SP | ◆ | 153A-0122-SP | ◆ | 153N-0122-SP | ◆ |
| | 43.00 | 1.6929" | 153H-43-SP | ◆ | 153T-43-SP | ◆ | 153A-43-SP | ◆ | 153N-43-SP | ◆ |
| 1 23/32" | 43.66 | 1.7188" | 153H-0123-SP | ◆ | 153T-0123-SP | ◆ | 153A-0123-SP | ◆ | 153N-0123-SP | ◆ |
| | 44.00 | 1.7323" | 153H-44-SP | ◆ | 153T-44-SP | ◆ | 153A-44-SP | ◆ | 153N-44-SP | ◆ |
| 1 3/4" | 44.45 | 1.7500" | 153H-0124-SP | ◆ | 153T-0124-SP | ◆ | 153A-0124-SP | ◆ | 153N-0124-SP | ◆ |
| | 45.00 | 1.7717" | 153H-45-SP | ◆ | 153T-45-SP | ◆ | 153A-45-SP | ◆ | 153N-45-SP | ◆ |
| 1 25/32" | 45.24 | 1.7813" | 153H-0125-SP | ◆ | 153T-0125-SP | ◆ | 153A-0125-SP | ◆ | 153N-0125-SP | ◆ |
| | 46.00 | 1.8110" | 153H-46-SP | ◆ | 153T-46-SP | ◆ | 153A-46-SP | ◆ | 153N-46-SP | ◆ |
| 1 13/16" | 46.04 | 1.8125" | 153H-0126-SP | ◆ | 153T-0126-SP | ◆ | 153A-0126-SP | ◆ | 153N-0126-SP | ◆ |
| 1 27/32" | 46.83 | 1.8438" | 153H-0127-SP | ◆ | 153T-0127-SP | ◆ | 153A-0127-SP | ◆ | 153N-0127-SP | ◆ |
| | 47.00 | 1.8504" | 153H-47-SP | ◆ | 153T-47-SP | ◆ | 153A-47-SP | ◆ | 153N-47-SP | ◆ |
| 1 7/8" | 47.63 | 1.8750" | 153H-0128-SP | ◆ | 153T-0128-SP | ● | 153A-0128-SP | ○ | 153N-0128-SP | ○ |

*Supplied in 1 piece packages.*

## 3 Series Standard T-A Original HSS Super Cobalt – Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 1 13/32" | 35.72 | 1.4063" | 153H-0113-FB | ◆ | 153T-0113-FB | ○ | 153A-0113-FB | ◆ | 153N-0113-FB | ◆ |
| | 36.00 | 1.4173" | 153H-36-FB | ◆ | 153T-36-FB | ● | 153A-36-FB | ◆ | 153N-36-FB | ◆ |
| 1 7/16" | 36.51 | 1.4375" | 153H-0114-FB | ◆ | 153T-0114-FB | ○ | 153A-0114-FB | ◆ | 153N-0114-FB | ◆ |
| | 37.00 | 1.4567" | 153H-37-FB | ◆ | 153T-37-FB | ○ | 153A-37-FB | ◆ | 153N-37-FB | ◆ |
| 1 15/32" | 37.31 | 1.4688" | 153H-0115-FB | ◆ | 153T-0115-FB | ○ | 153A-0115-FB | ◆ | 153N-0115-FB | ◆ |
| | 38.00 | 1.4961" | 153H-38-FB | ◆ | 153T-38-FB | ● | 153A-38-FB | ◆ | 153N-38-FB | ◆ |
| 1 1/2" | 38.10 | 1.5000" | 153H-0116-FB | ◆ | 153T-0116-FB | ○ | 153A-0116-FB | ◆ | 153N-0116-FB | ◆ |
| 1 17/32" | 38.89 | 1.5313" | 153H-0117-FB | ◆ | 153T-0117-FB | ○ | 153A-0117-FB | ◆ | 153N-0117-FB | ◆ |
| | 39.00 | 1.5354" | 153H-39-FB | ◆ | 153T-39-FB | ● | 153A-39-FB | ◆ | 153N-39-FB | ◆ |
| 1 9/16" | 39.69 | 1.5625" | 153H-0118-FB | ◆ | 153T-0118-FB | ○ | 153A-0118-FB | ◆ | 153N-0118-FB | ◆ |
| | 40.00 | 1.5748" | 153H-40-FB | ◆ | 153T-40-FB | ● | 153A-40-FB | ◆ | 153N-40-FB | ◆ |
| 1 19/32" | 40.48 | 1.5938" | 153H-0119-FB | ◆ | 153T-0119-FB | ○ | 153A-0119-FB | ◆ | 153N-0119-FB | ◆ |
| | 41.00 | 1.6412" | 153H-41-FB | ◆ | 153T-41-FB | ● | 153A-41-FB | ◆ | 153N-41-FB | ◆ |
| 1 5/8" | 41.28 | 1.6250" | 153H-0120-FB | ◆ | 153T-0120-FB | ○ | 153A-0120-FB | ◆ | 153N-0120-FB | ◆ |
| | 42.00 | 1.6535" | 153H-42-FB | ◆ | 153T-42-FB | ● | 153A-42-FB | ◆ | 153N-42-FB | ◆ |
| 1 21/32" | 42.07 | 1.6563" | 153H-0121-FB | ◆ | 153T-0121-FB | ○ | 153A-0121-FB | ◆ | 153N-0121-FB | ◆ |
| 1 11/16" | 42.86 | 1.6875" | 153H-0122-FB | ◆ | 153T-0122-FB | ○ | 153A-0122-FB | ◆ | 153N-0122-FB | ◆ |
| | 43.00 | 1.6929" | 153H-43-FB | ◆ | 153T-43-FB | ● | 153A-43-FB | ◆ | 153N-43-FB | ◆ |
| 1 23/32" | 43.66 | 1.7188" | 153H-0123-FB | ◆ | 153T-0123-FB | ○ | 153A-0123-FB | ◆ | 153N-0123-FB | ◆ |
| | 44.00 | 1.7323" | 153H-44-FB | ◆ | 153T-44-FB | ● | 153A-44-FB | ◆ | 153N-44-FB | ◆ |
| 1 3/4" | 44.45 | 1.7500" | 153H-0124-FB | ◆ | 153T-0124-FB | ○ | 153A-0124-FB | ◆ | 153N-0124-FB | ◆ |
| | 45.00 | 1.7717" | 153H-45-FB | ◆ | 153T-45-FB | ● | 153A-45-FB | ◆ | 153N-45-FB | ◆ |
| 1 25/32" | 45.24 | 1.7813" | 153H-0125-FB | ◆ | 153T-0125-FB | ○ | 153A-0125-FB | ◆ | 153N-0125-FB | ◆ |
| | 46.00 | 1.8110" | 153H-46-FB | ◆ | 153T-46-FB | ● | 153A-46-FB | ◆ | 153N-46-FB | ◆ |
| 1 13/16" | 46.04 | 1.8125" | 153H-0126-FB | ◆ | 153T-0126-FB | ○ | 153A-0126-FB | ◆ | 153N-0126-FB | ◆ |
| 1 27/32" | 46.83 | 1.8438" | 153H-0127-FB | ◆ | 153T-0127-FB | ○ | 153A-0127-FB | ◆ | 153N-0127-FB | ◆ |
| | 47.00 | 1.8504" | 153H-47-FB | ◆ | 153T-47-FB | ● | 153A-47-FB | ◆ | 153N-47-FB | ◆ |
| 1 7/8" | 47.63 | 1.8750" | 153H-0128-FB | ◆ | 153T-0128-FB | ○ | 153A-0128-FB | ◆ | 153N-0128-FB | ◆ |

*Supplied in 1 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 3 Series T-A® Drill Inserts

Diameter Range 34.37 to 47.80mm

## 3 Series T-A® Original Structural Steel Inserts

| Diameter | | Item Number, Coating and Availability | | | | Item Number, Coating and Availability | | | |
|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Thin Wall T-A® Super Cobalt TiAlN | Stk. | Thin Wall T-A® Super Cobalt AM200® | Stk. | 150° T-A® Super Cobalt TiAlN | Stk. | 150° T-A® Super Cobalt AM200® | Stk. |
| 1 7/16" | 36.51 | 153A-0114-TW | ○ | 153H-0114-TW | ○ | 153A-0114-SS | ○ | 153H-0114-SS | ○ |
| 1 ½" | 38.10 | 153A-0116-TW | ○ | 153H-0116-TW | ○ | 153A-0116-SS | ○ | 153H-0116-SS | ○ |
| - | 39.00 | 153A-39-TW | ● | 153H-39-TW | ● | 153A-39-SS | ● | 153H-39-SS | ● |
| 1 9/16" | 39.69 | 153A-0118-TW | ○ | 153H-0118-TW | ○ | 153A-0118-SS | ○ | 153H-0118-SS | ○ |

*Supplied in 1 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**





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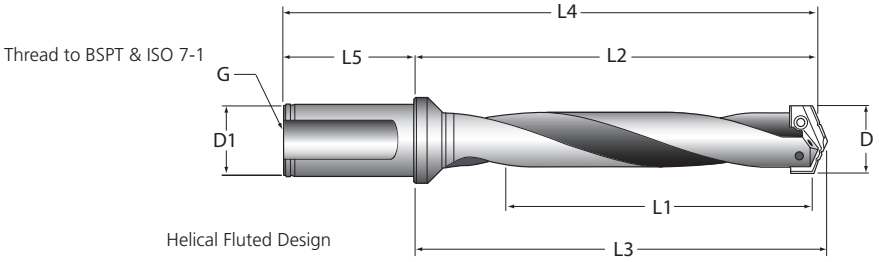
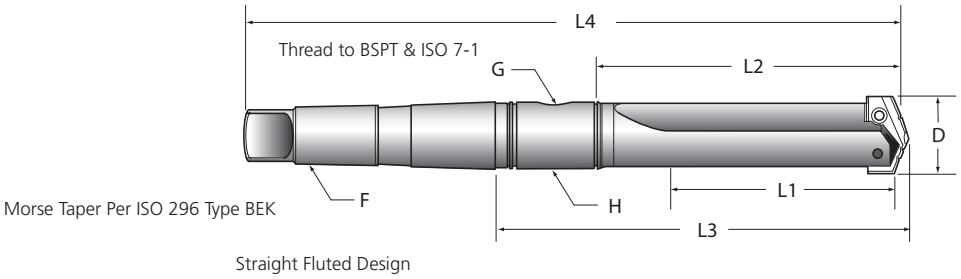



## Flanged Straight Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | L5 | D1 | G | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range D (mm) | Max Drill Depth (mm) | Body Length (mm) | New Tool Ref Length (mm) | Overall Length (mm) | Shank Length (mm) | Shank Diameter (mm) | Pipe Tap | |
| 22040S-40FM | Short | Straight | 48.00-65.00 | 130 | 179.4 | 184.2 | 249.4 | 70.0 | 40.0 | ¼" | N/A |
| 24040H-40FM | Standard | Helical | 48.00-65.00 | 232 | 281.0 | 285.8 | 351.0 | 70.0 | 40.0 | ¼" | N/A |
| 25040S-40FM | Extended | Straight | 48.00-65.00 | 422 | 471.5 | 476.3 | 541.5 | 70.0 | 40.0 | ¼" | N/A |
| 27040S-40FM | XL | Straight | 48.00-65.00 | 625 | 674.7 | 679.5 | 744.7 | 70.0 | 40.0 | ¼" | N/A |
| 29040S-40FM | 3XL | Straight | 48.00-65.00 | 879 | 928.7 | 933.5 | 998.7 | 70.0 | 40.0 | ¼" | N/A |




## Taper Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | F | H | G |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range (mm) | Max Drill Depth (mm) | Flute Length (mm) | New Tool Length (mm) | Overall Length (mm) | MT | RCA | Pipe Tap |
| 22040S-005M | Short | Straight | 48.00-65.00 | 130 | 165.1 | 219.1 | 363.5 | 5 | 5SRM | ¼" |
| 24040H-005M | Standard | Helical | 48.00-65.00 | 232 | 266.7 | 320.7 | 465.1 | 5 | 5SRM | ¼" |
| 25040S-005M | Extended | Straight | 48.00-65.00 | 422 | 457.0 | 511.2 | 655.6 | 5 | 5SRM | ¼" |
| 27040S-005I | XL | Straight | 48.00-65.00 | 625 | 660.4 | 714.4 | 858.8 | 5 | 5SRM | ¼" |
| 29040S-005I | 3XL | Straight | 48.00-65.00 | 879 | 914.4 | 968.4 | 1112.8 | 5 | 5SRM | ¼" |

**For Holder Accessories please see pages 141 - 146.**

# 4 Series T-A® Drill Inserts

Diameter Range 46.99 to 65.28mm

## 4 Series GEN2 T-A HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 48.00 | 1.8898" | 434H-48 | ◆ | 434T-48 | ● | 434A-48 | ◆ | 434N-48 | ◆ |
| 1 29/32" | 48.42 | 1.9063" | 434H-0129 | ◆ | 434T-0129 | ○ | 434A-0129 | ◆ | 434N-0129 | ◆ |
| | 49.00 | 1.9291" | 434H-49 | ◆ | 434T-49 | ● | 434A-49 | ◆ | 434N-49 | ◆ |
| 1 15/16" | 49.21 | 1.9375" | 434H-0130 | ◆ | 434T-0130 | ○ | 434A-0130 | ◆ | 434N-0130 | ◆ |
| | 50.00 | 1.9685" | 434H-50 | ◆ | 434T-50 | ● | 434A-50 | ◆ | 434N-50 | ◆ |
| 1 31/32" | 50.01 | 1.9688" | 434H-0131 | ◆ | 434T-0131 | ○ | 434A-0131 | ◆ | 434N-0131 | ◆ |
| 2" | 50.80 | 2.000" | 434H-0200 | ◆ | 434T-0200 | ○ | 434A-0200 | ◆ | 434N-0200 | ◆ |
| | 51.00 | 2.0079" | 434H-51 | ◆ | 434T-51 | ● | 434A-51 | ◆ | 434N-51 | ◆ |
| 2 1/32" | 51.59 | 2.0313" | 434H-0201 | ◆ | 434T-0201 | ○ | 434A-0201 | ◆ | 434N-0201 | ◆ |
| 2 3/64" | 52.00 | 2.0472" | 434H-52 | ◆ | 434T-52 | ● | 434A-52 | ◆ | 434N-52 | ◆ |
| 2 1/16" | 52.39 | 2.0625" | 434H-0202 | ◆ | 434T-0202 | ○ | 434A-0202 | ◆ | 434N-0202 | ◆ |
| | 53.00 | 2.0866" | 434H-53 | ◆ | 434T-53 | ● | 434A-53 | ◆ | 434N-53 | ◆ |
| 2 3/32" | 53.18 | 2.0938" | 434H-0203 | ◆ | 434T-0203 | ○ | 434A-0203 | ◆ | 434N-0203 | ◆ |
| 2 1/8" | 53.98 | 2.1250" | 434H-0204 | ◆ | 434T-0204 | ○ | 434A-0204 | ◆ | 434N-0204 | ◆ |
| | 54.00 | 2.1260" | 434H-54 | ◆ | 434T-54 | ● | 434A-54 | ◆ | 434N-54 | ◆ |
| 2 5/32" | 54.79 | 2.1563" | 434H-0205 | ◆ | 434T-0205 | ○ | 434A-0205 | ◆ | 434N-0205 | ◆ |
| | 55.00 | 2.1654" | 434H-55 | ◆ | 434T-55 | ● | 434A-55 | ◆ | 434N-55 | ◆ |
| 2 3/16" | 55.56 | 2.1875" | 434H-0206 | ◆ | 434T-0206 | ○ | 434A-0206 | ◆ | 434N-0206 | ◆ |
| | 56.00 | 2.2047" | 434H-56 | ◆ | 434T-56 | ● | 434A-56 | ◆ | 434N-56 | ◆ |
| 2 7/32" | 56.36 | 2.2188" | 434H-0207 | ◆ | 434T-0207 | ○ | 434A-0207 | ◆ | 434N-0207 | ◆ |
| | 57.00 | 2.2441" | 434H-57 | ◆ | 434T-57 | ● | 434A-57 | ◆ | 434N-57 | ◆ |
| 2 1/4" | 57.15 | 2.2500" | 434H-0208 | ◆ | 434T-0208 | ○ | 434A-0208 | ◆ | 434N-0208 | ◆ |
| 2 9/32" | 57.94 | 2.2813" | 434H-0209 | ◆ | 434T-0209 | ○ | 434A-0209 | ◆ | 434N-0209 | ◆ |
| | 58.00 | 2.2835" | 434H-58 | ◆ | 434T-58 | ● | 434A-58 | ◆ | 434N-58 | ◆ |
| 2 5/16" | 58.74 | 2.3125" | 434H-0210 | ◆ | 434T-0210 | ○ | 434A-0210 | ◆ | 434N-0210 | ◆ |
| | 59.00 | 2.3228" | 434H-59 | ◆ | 434T-59 | ● | 434A-59 | ◆ | 434N-59 | ◆ |
| 2 11/32" | 59.53 | 2.3438" | 434H-0211 | ◆ | 434T-0211 | ○ | 434A-0211 | ◆ | 434N-0211 | ◆ |
| | 60.00 | 2.3622" | 434H-60 | ◆ | 434T-60 | ● | 434A-60 | ◆ | 434N-60 | ◆ |
| 2 3/8" | 60.33 | 2.3750" | 434H-0212 | ◆ | 434T-0212 | ○ | 434A-0212 | ◆ | 434N-0212 | ◆ |
| | 61.00 | 2.4016" | 434H-61 | ◆ | 434T-61 | ● | 434A-61 | ◆ | 434N-61 | ◆ |
| 2 13/32" | 61.12 | 2.4063" | 434H-0213 | ◆ | 434T-0213 | ○ | 434A-0213 | ◆ | 434N-0213 | ◆ |
| | 61.50 | 2.4212" | 434H-61.5 | ◆ | 434T-61.5 | ◆ | 434A-61.5 | ◆ | 434N-61.5 | ◆ |
| 2 7/16" | 61.91 | 2.4375" | 434H-0214 | ◆ | 434T-0214 | ○ | 434A-0214 | ◆ | 434N-0214 | ◆ |
| | 62.00 | 2.4409" | 434H-62 | ◆ | 434T-62 | ● | 434A-62 | ◆ | 434N-62 | ◆ |
| 2 15/32" | 62.71 | 2.4688" | 434H-0215 | ◆ | 434T-0215 | ○ | 434A-0215 | ◆ | 434N-0215 | ◆ |
| | 63.00 | 2.4803" | 434H-63 | ◆ | 434T-63 | ● | 434A-63 | ◆ | 434N-63 | ◆ |
| 2 1/2" | 63.50 | 2.5000" | 434H-0216 | ◆ | 434T-0216 | ○ | 434A-0216 | ◆ | 434N-0216 | ◆ |
| | 64.00 | 2.5197" | 434H-64 | ◆ | 434T-64 | ● | 434A-64 | ◆ | 434N-64 | ◆ |
| 2 17/32" | 64.29 | 2.5313" | 434H-0217 | ◆ | 434T-0217 | ○ | 434A-0217 | ◆ | 434N-0217 | ◆ |
| | 65.00 | 2.5591" | 434H-65 | ◆ | 434T-65 | ● | 434A-65 | ◆ | 434N-65 | ◆ |
| 2 9/16" | 65.09 | 2.5625" | 434H-0218 | ◆ | 434T-0218 | ○ | 434A-0218 | ◆ | 434N-0218 | ◆ |

*Supplied in 1 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**





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## 4 Series GEN2 T-A® HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 48.00 | 1.8898" | 454H-48 | ● | 454T-48 | ● | 454A-48 | ◆ | 454N-48 | ◆ |
| 1 29/32" | 48.42 | 1.9063" | 454H-0129 | ○ | 454T-0129 | ○ | 454A-0129 | ◆ | 454N-0129 | ◆ |
| | 49.00 | 1.9291" | 454H-49 | ● | 454T-49 | ● | 454A-49 | ◆ | 454N-49 | ◆ |
| 1 15/16" | 49.21 | 1.9375" | 454H-0130 | ○ | 454T-0130 | ○ | 454A-0130 | ◆ | 454N-0130 | ◆ |
| | 50.00 | 1.9685" | 454H-50 | ● | 454T-50 | ● | 454A-50 | ◆ | 454N-50 | ◆ |
| 1 31/32" | 50.01 | 1.9688" | 454H-0131 | ○ | 454T-0131 | ○ | 454A-0131 | ◆ | 454N-0131 | ◆ |
| 2" | 50.80 | 2.0000" | 454H-0200 | ○ | 454T-0200 | ○ | 454A-0200 | ◆ | 454N-0200 | ◆ |
| | 51.00 | 2.0079" | 454H-51 | ● | 454T-51 | ● | 454A-51 | ◆ | 454N-51 | ◆ |
| 2 1/32" | 51.59 | 2.0313" | 454H-0201 | ○ | 454T-0201 | ○ | 454A-0201 | ◆ | 454N-0201 | ◆ |
| 2 3/64" | 52.00 | 2.0472" | 454H-52 | ● | 454T-52 | ● | 454A-52 | ◆ | 454N-52 | ◆ |
| 2 1/16" | 52.39 | 2.0625" | 454H-0202 | ○ | 454T-0202 | ○ | 454A-0202 | ◆ | 454N-0202 | ◆ |
| | 53.00 | 2.0866" | 454H-53 | ● | 454T-53 | ● | 454A-53 | ◆ | 454N-53 | ◆ |
| 2 3/32" | 53.18 | 2.0938" | 454H-0203 | ○ | 454T-0203 | ○ | 454A-0203 | ◆ | 454N-0203 | ◆ |
| 2 1/8" | 53.98 | 2.1250" | 454H-0204 | ○ | 454T-0204 | ○ | 454A-0204 | ◆ | 454N-0204 | ◆ |
| | 54.00 | 2.1260" | 454H-54 | ● | 454T-54 | ● | 454A-54 | ◆ | 454N-54 | ◆ |
| 2 5/32" | 54.79 | 2.1563" | 454H-0205 | ○ | 454T-0205 | ○ | 454A-0205 | ◆ | 454N-0205 | ◆ |
| | 55.00 | 2.1654" | 454H-55 | ● | 454T-55 | ● | 454A-55 | ◆ | 454N-55 | ◆ |
| 2 3/16" | 55.56 | 2.1875" | 454H-0206 | ○ | 454T-0206 | ○ | 454A-0206 | ◆ | 454N-0206 | ◆ |
| | 56.00 | 2.2047" | 454H-56 | ● | 454T-56 | ● | 454A-56 | ◆ | 454N-56 | ◆ |
| 2 7/32" | 56.36 | 2.2188" | 454H-0207 | ○ | 454T-0207 | ○ | 454A-0207 | ◆ | 454N-0207 | ◆ |
| | 57.00 | 2.2441" | 454H-57 | ● | 454T-57 | ● | 454A-57 | ◆ | 454N-57 | ◆ |
| 2 1/4" | 57.15 | 2.2500" | 454H-0208 | ○ | 454T-0208 | ○ | 454A-0208 | ◆ | 454N-0208 | ◆ |
| 2 9/32" | 57.94 | 2.2813" | 454H-0209 | ○ | 454T-0209 | ○ | 454A-0209 | ◆ | 454N-0209 | ◆ |
| | 58.00 | 2.2835" | 454H-58 | ● | 454T-58 | ● | 454A-58 | ◆ | 454N-58 | ◆ |
| 2 5/16" | 58.74 | 2.3125" | 454H-0210 | ○ | 454T-0210 | ○ | 454A-0210 | ◆ | 454N-0210 | ◆ |
| | 59.00 | 2.3228" | 454H-59 | ● | 454T-59 | ● | 454A-59 | ◆ | 454N-59 | ◆ |
| 2 11/32" | 59.53 | 2.3438" | 454H-0211 | ○ | 454T-0211 | ○ | 454A-0211 | ◆ | 454N-0211 | ◆ |
| | 60.00 | 2.3622" | 454H-60 | ● | 454T-60 | ● | 454A-60 | ◆ | 454N-60 | ◆ |
| 2 3/8" | 60.33 | 2.3750" | 454H-0212 | ○ | 454T-0212 | ○ | 454A-0212 | ◆ | 454N-0212 | ◆ |
| | 61.00 | 2.4016" | 454H-61 | ● | 454T-61 | ● | 454A-61 | ◆ | 454N-61 | ◆ |
| 2 13/32" | 61.12 | 2.4063" | 454H-0213 | ○ | 454T-0213 | ○ | 454A-0213 | ◆ | 454N-0213 | ◆ |
| | 61.50 | 2.4212" | 454H-61.5 | ○ | 454T-61.5 | ○ | 454A-61.5 | ◆ | 454N-61.5 | ◆ |
| 2 7/16" | 61.91 | 2.4375" | 454H-0214 | ○ | 454T-0214 | ○ | 454A-0214 | ◆ | 454N-0214 | ◆ |
| | 62.00 | 2.4409" | 454H-62 | ● | 454T-62 | ● | 454A-62 | ◆ | 454N-62 | ◆ |
| 2 15/32" | 62.71 | 2.4688" | 454H-0215 | ○ | 454T-0215 | ○ | 454A-0215 | ◆ | 454N-0215 | ◆ |
| | 63.00 | 2.4803" | 454H-63 | ● | 454T-63 | ● | 454A-63 | ◆ | 454N-63 | ◆ |
| 2 1/2" | 63.50 | 2.5000" | 454H-0216 | ○ | 454T-0216 | ○ | 454A-0216 | ◆ | 454N-0216 | ◆ |
| | 64.00 | 2.5197" | 454H-64 | ● | 454T-64 | ● | 454A-64 | ◆ | 454N-64 | ◆ |
| 2 17/32" | 64.29 | 2.5313" | 454H-0217 | ○ | 454T-0217 | ○ | 454A-0217 | ◆ | 454N-0217 | ◆ |
| | 65.00 | 2.5591" | 454H-65 | ● | 454T-65 | ● | 454A-65 | ◆ | 454N-65 | ◆ |
| 2 9/16" | 65.09 | 2.5625" | 454H-0218 | ○ | 454T-0218 | ○ | 454A-0218 | ◆ | 454N-0218 | ◆ |

*Supplied in 1 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 4 Series T-A® Drill Inserts

Diameter Range 46.99 to 65.28mm

## 4 Series Standard T-A Original HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 48.00 | 1.8898" | 134H-48 | ◆ | 134T-48 | ◆ | 134A-48 | ◆ | 134N-48 | ◆ |
| 1 29/32" | 48.42 | 1.9063" | 134H-0129 | ◆ | 134T-0129 | ◆ | 134A-0129 | ◆ | 134N-0129 | ◆ |
| | 49.00 | 1.9291" | 134H-49 | ◆ | 134T-49 | ◆ | 134A-49 | ◆ | 134N-49 | ◆ |
| 1 15/16" | 49.21 | 1.9375" | 134H-0130 | ◆ | 134T-0130 | ◆ | 134A-0130 | ◆ | 134N-0130 | ◆ |
| | 50.00 | 1.9685" | 134H-50 | ◆ | 134T-50 | ◆ | 134A-50 | ◆ | 134N-50 | ◆ |
| 1 31/32" | 50.01 | 1.9688" | 134H-0131 | ◆ | 134T-0131 | ◆ | 134A-0131 | ◆ | 134N-0131 | ◆ |
| 2" | 50.80 | 2.000" | 134H-0200 | ◆ | 134T-0200 | ◆ | 134A-0200 | ◆ | 134N-0200 | ◆ |
| | 51.00 | 2.0079" | 134H-51 | ◆ | 134T-51 | ◆ | 134A-51 | ◆ | 134N-51 | ◆ |
| 2 1/32" | 51.59 | 2.0313" | 134H-0201 | ◆ | 134T-0201 | ◆ | 134A-0201 | ◆ | 134N-0201 | ◆ |
| 2 3/64" | 52.00 | 2.0472" | 134H-52 | ◆ | 134T-52 | ◆ | 134A-52 | ◆ | 134N-52 | ◆ |
| 2 1/16" | 52.39 | 2.0625" | 134H-0202 | ◆ | 134T-0202 | ◆ | 134A-0202 | ◆ | 134N-0202 | ◆ |
| | 53.00 | 2.0866" | 134H-53 | ◆ | 134T-53 | ◆ | 134A-53 | ◆ | 134N-53 | ◆ |
| 2 3/32" | 53.18 | 2.0938" | 134H-0203 | ◆ | 134T-0203 | ◆ | 134A-0203 | ◆ | 134N-0203 | ◆ |
| 2 1/8" | 53.98 | 2.1250" | 134H-0204 | ◆ | 134T-0204 | ◆ | 134A-0204 | ◆ | 134N-0204 | ◆ |
| | 54.00 | 2.1260" | 134H-54 | ◆ | 134T-54 | ◆ | 134A-54 | ◆ | 134N-54 | ◆ |
| 2 5/32" | 54.79 | 2.1563" | 134H-0205 | ◆ | 134T-0205 | ◆ | 134A-0205 | ◆ | 134N-0205 | ◆ |
| | 55.00 | 2.1654" | 134H-55 | ◆ | 134T-55 | ◆ | 134A-55 | ◆ | 134N-55 | ◆ |
| 2 3/16" | 55.56 | 2.1875" | 134H-0206 | ◆ | 134T-0206 | ◆ | 134A-0206 | ◆ | 134N-0206 | ◆ |
| | 56.00 | 2.2047" | 134H-56 | ◆ | 134T-56 | ◆ | 134A-56 | ◆ | 134N-56 | ◆ |
| 2 7/32" | 56.36 | 2.2188" | 134H-0207 | ◆ | 134T-0207 | ◆ | 134A-0207 | ◆ | 134N-0207 | ◆ |
| | 57.00 | 2.2441" | 134H-57 | ◆ | 134T-57 | ◆ | 134A-57 | ◆ | 134N-57 | ◆ |
| 2 1/4" | 57.15 | 2.2500" | 134H-0208 | ◆ | 134T-0208 | ◆ | 134A-0208 | ◆ | 134N-0208 | ◆ |
| 2 9/32" | 57.94 | 2.2813" | 134H-0209 | ◆ | 134T-0209 | ◆ | 134A-0209 | ◆ | 134N-0209 | ◆ |
| | 58.00 | 2.2835" | 134H-58 | ◆ | 134T-58 | ◆ | 134A-58 | ◆ | 134N-58 | ◆ |
| 2 5/16" | 58.74 | 2.3125" | 134H-0210 | ◆ | 134T-0210 | ◆ | 134A-0210 | ◆ | 134N-0210 | ◆ |
| | 59.00 | 2.3228" | 134H-59 | ◆ | 134T-59 | ◆ | 134A-59 | ◆ | 134N-59 | ◆ |
| 2 11/32" | 59.53 | 2.3438" | 134H-0211 | ◆ | 134T-0211 | ◆ | 134A-0211 | ◆ | 134N-0211 | ◆ |
| | 60.00 | 2.3622" | 134H-60 | ◆ | 134T-60 | ◆ | 134A-60 | ◆ | 134N-60 | ◆ |
| 2 3/8" | 60.33 | 2.3750" | 134H-0212 | ◆ | 134T-0212 | ◆ | 134A-0212 | ◆ | 134N-0212 | ◆ |
| | 61.00 | 2.4016" | 134H-61 | ◆ | 134T-61 | ◆ | 134A-61 | ◆ | 134N-61 | ◆ |
| 2 13/32" | 61.12 | 2.4063" | 134H-0213 | ◆ | 134T-0213 | ◆ | 134A-0213 | ◆ | 134N-0213 | ◆ |
| 2 7/16" | 61.91 | 2.4375" | 134H-0214 | ◆ | 134T-0214 | ◆ | 134A-0214 | ◆ | 134N-0214 | ◆ |
| | 62.00 | 2.4409" | 134H-62 | ◆ | 134T-62 | ◆ | 134A-62 | ◆ | 134N-62 | ◆ |
| 2 15/32" | 62.71 | 2.4688" | 134H-0215 | ◆ | 134T-0215 | ◆ | 134A-0215 | ◆ | 134N-0215 | ◆ |
| | 63.00 | 2.4803" | 134H-63 | ◆ | 134T-63 | ◆ | 134A-63 | ◆ | 134N-63 | ◆ |
| 2 1/2" | 63.50 | 2.5000" | 134H-0216 | ◆ | 134T-0216 | ◆ | 134A-0216 | ◆ | 134N-0216 | ◆ |
| | 64.00 | 2.5197" | 134H-64 | ◆ | 134T-64 | ◆ | 134A-64 | ◆ | 134N-64 | ◆ |
| 2 17/32" | 64.29 | 2.5313" | 134H-0217 | ◆ | 134T-0217 | ◆ | 134A-0217 | ◆ | 134N-0217 | ◆ |
| | 65.00 | 2.5591" | 134H-65 | ◆ | 134T-65 | ◆ | 134A-65 | ◆ | 134N-65 | ◆ |
| 2 9/16" | 65.09 | 2.5625" | 134H-0218 | ◆ | 134T-0218 | ◆ | 134A-0218 | ◆ | 134N-0218 | ◆ |

*Supplied in 1 piece packages.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**





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## 4 Series Standard T-A Original HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 48.00 | 1.8898" | 154H-48 | ○ | 154T-48 | ◆ | 154A-48 | ◆ | 154N-48 | ◆ |
| 1 29/32" | 48.42 | 1.9063" | 154H-0129 | ◆ | 154T-0129 | ◆ | 154A-0129 | ◆ | 154N-0129 | ◆ |
| | 49.00 | 1.9291" | 154H-49 | ○ | 154T-49 | ◆ | 154A-49 | ◆ | 154N-49 | ◆ |
| 1 15/16" | 49.21 | 1.9375" | 154H-0130 | ◆ | 154T-0130 | ◆ | 154A-0130 | ◆ | 154N-0130 | ◆ |
| | 50.00 | 1.9685" | 154H-50 | ○ | 154T-50 | ◆ | 154A-50 | ◆ | 154N-50 | ◆ |
| 1 31/32" | 50.01 | 1.9688" | 154H-0131 | ◆ | 154T-0131 | ◆ | 154A-0131 | ◆ | 154N-0131 | ◆ |
| 2" | 50.80 | 2.0000" | 154H-0200 | ◆ | 154T-0200 | ◆ | 154A-0200 | ◆ | 154N-0200 | ◆ |
| | 51.00 | 2.0079" | 154H-51 | ○ | 154T-51 | ◆ | 154A-51 | ◆ | 154N-51 | ◆ |
| 2 1/32" | 51.59 | 2.0313" | 154H-0201 | ◆ | 154T-0201 | ◆ | 154A-0201 | ◆ | 154N-0201 | ◆ |
| 2 3/64" | 52.00 | 2.0472" | 154H-52 | ○ | 154T-52 | ◆ | 154A-52 | ◆ | 154N-52 | ◆ |
| 2 1/16" | 52.39 | 2.0625" | 154H-0202 | ◆ | 154T-0202 | ◆ | 154A-0202 | ◆ | 154N-0202 | ◆ |
| | 53.00 | 2.0866" | 154H-53 | ○ | 154T-53 | ◆ | 154A-53 | ◆ | 154N-53 | ◆ |
| 2 3/32" | 53.18 | 2.0938" | 154H-0203 | ◆ | 154T-0203 | ◆ | 154A-0203 | ◆ | 154N-0203 | ◆ |
| 2 1/8" | 53.98 | 2.1250" | 154H-0204 | ◆ | 154T-0204 | ◆ | 154A-0204 | ◆ | 154N-0204 | ◆ |
| | 54.00 | 2.1260" | 154H-54 | ○ | 154T-54 | ◆ | 154A-54 | ◆ | 154N-54 | ◆ |
| 2 5/32" | 54.79 | 2.1563" | 154H-0205 | ◆ | 154T-0205 | ◆ | 154A-0205 | ◆ | 154N-0205 | ◆ |
| | 55.00 | 2.1654" | 154H-55 | ○ | 154T-55 | ◆ | 154A-55 | ◆ | 154N-55 | ◆ |
| 2 3/16" | 55.56 | 2.1875" | 154H-0206 | ◆ | 154T-0206 | ◆ | 154A-0206 | ◆ | 154N-0206 | ◆ |
| | 56.00 | 2.2047" | 154H-56 | ○ | 154T-56 | ◆ | 154A-56 | ◆ | 154N-56 | ◆ |
| 2 7/32" | 56.36 | 2.2188" | 154H-0207 | ◆ | 154T-0207 | ◆ | 154A-0207 | ◆ | 154N-0207 | ◆ |
| | 57.00 | 2.2441" | 154H-57 | ○ | 154T-57 | ◆ | 154A-57 | ◆ | 154N-57 | ◆ |
| 2 1/4" | 57.15 | 2.2500" | 154H-0208 | ◆ | 154T-0208 | ◆ | 154A-0208 | ◆ | 154N-0208 | ◆ |
| 2 9/32" | 57.94 | 2.2813" | 154H-0209 | ◆ | 154T-0209 | ◆ | 154A-0209 | ◆ | 154N-0209 | ◆ |
| | 58.00 | 2.2835" | 154H-58 | ○ | 154T-58 | ◆ | 154A-58 | ◆ | 154N-58 | ◆ |
| 2 5/16" | 58.74 | 2.3125" | 154H-0210 | ◆ | 154T-0210 | ◆ | 154A-0210 | ◆ | 154N-0210 | ◆ |
| | 59.00 | 2.3228" | 154H-59 | ○ | 154T-59 | ◆ | 154A-59 | ◆ | 154N-59 | ◆ |
| 2 11/32" | 59.53 | 2.3438" | 154H-0211 | ◆ | 154T-0211 | ◆ | 154A-0211 | ◆ | 154N-0211 | ◆ |
| | 60.00 | 2.3622" | 154H-60 | ○ | 154T-60 | ◆ | 154A-60 | ◆ | 154N-60 | ◆ |
| 2 3/8" | 60.33 | 2.3750" | 154H-0212 | ◆ | 154T-0212 | ◆ | 154A-0212 | ◆ | 154N-0212 | ◆ |
| | 61.00 | 2.4016" | 154H-61 | ○ | 154T-61 | ◆ | 154A-61 | ◆ | 154N-61 | ◆ |
| 2 13/32" | 61.12 | 2.4063" | 154H-0213 | ◆ | 154T-0213 | ◆ | 154A-0213 | ◆ | 154N-0213 | ◆ |
| 2 7/16" | 61.91 | 2.4375" | 154H-0214 | ◆ | 154T-0214 | ◆ | 154A-0214 | ◆ | 154N-0214 | ◆ |
| | 62.00 | 2.4409" | 154H-62 | ○ | 154T-62 | ◆ | 154A-62 | ◆ | 154N-62 | ◆ |
| 2 15/32" | 62.71 | 2.4688" | 154H-0215 | ◆ | 154T-0215 | ◆ | 154A-0215 | ◆ | 154N-0215 | ◆ |
| | 63.00 | 2.4803" | 154H-63 | ○ | 154T-63 | ◆ | 154A-63 | ◆ | 154N-63 | ◆ |
| 2 1/2" | 63.50 | 2.5000" | 154H-0216 | ◆ | 154T-0216 | ◆ | 154A-0216 | ◆ | 154N-0216 | ◆ |
| | 64.00 | 2.5197" | 154H-64 | ○ | 154T-64 | ◆ | 154A-64 | ◆ | 154N-64 | ◆ |
| 2 17/32" | 64.29 | 2.5313" | 154H-0217 | ◆ | 154T-0217 | ◆ | 154A-0217 | ◆ | 154N-0217 | ◆ |
| | 65.00 | 2.5591" | 154H-65 | ○ | 154T-65 | ◆ | 154A-65 | ◆ | 154N-65 | ◆ |
| 2 9/16" | 65.09 | 2.5625" | 154H-0218 | ◆ | 154T-0218 | ◆ | 154A-0218 | ◆ | 154N-0218 | ◆ |

*Supplied in 1 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 4 Series T-A® Drill Inserts

Diameter Range 46.99 to 65.28mm

## 4 Series Standard T-A Original HSS Super Cobalt – Flat Bottom

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| | 48.00 | 1.8898″ | 154H-48-FB | ◆ | 154T-48-FB | ● | 154A-48-FB | ◆ | 154N-48-FB | ◆ |
| 1 29/32" | 48.42 | 1.9063″ | 154H-0129-FB | ◆ | 154T-0129-FB | ○ | 154A-0129-FB | ◆ | 154N-0129-FB | ◆ |
| | 49.00 | 1.9291″ | 154H-49-FB | ◆ | 154T-49-FB | ● | 154A-49-FB | ◆ | 154N-49-FB | ◆ |
| 1 15/16" | 49.21 | 1.9375″ | 154H-0130-FB | ◆ | 154T-0130-FB | ○ | 154A-0130-FB | ◆ | 154N-0130-FB | ◆ |
| | 50.00 | 1.9685″ | 154H-50-FB | ◆ | 154T-50-FB | ● | 154A-50-FB | ◆ | 154N-50-FB | ◆ |
| 1 31/32" | 50.01 | 1.9688″ | 154H-0131-FB | ◆ | 154T-0131-FB | ○ | 154A-0131-FB | ◆ | 154N-0131-FB | ◆ |
| 2″ | 50.80 | 2.0000″ | 154H-0200-FB | ◆ | 154T-0200-FB | ○ | 154A-0200-FB | ◆ | 154N-0200-FB | ◆ |
| | 51.00 | 2.0079″ | 154H-51-FB | ◆ | 154T-51-FB | ● | 154A-51-FB | ◆ | 154N-51-FB | ◆ |
| 2 1/32" | 51.59 | 2.0313″ | 154H-0201-FB | ◆ | 154T-0201-FB | ○ | 154A-0201-FB | ◆ | 154N-0201-FB | ◆ |
| 2 3/64" | 52.00 | 2.0472″ | 154H-52-FB | ◆ | 154T-52-FB | ● | 154A-52-FB | ◆ | 154N-52-FB | ◆ |
| 2 1/16" | 52.39 | 2.0625″ | 154H-0202-FB | ◆ | 154T-0202-FB | ○ | 154A-0202-FB | ◆ | 154N-0202-FB | ◆ |
| | 53.00 | 2.0866″ | 154H-53-FB | ◆ | 154T-53-FB | ● | 154A-53-FB | ◆ | 154N-53-FB | ◆ |
| 2 3/32" | 53.18 | 2.0938″ | 154H-0203-FB | ◆ | 154T-0203-FB | ○ | 154A-0203-FB | ◆ | 154N-0203-FB | ◆ |
| 2 1/8" | 53.98 | 2.1250″ | 154H-0204-FB | ◆ | 154T-0204-FB | ○ | 154A-0204-FB | ◆ | 154N-0204-FB | ◆ |
| | 54.00 | 2.1260″ | 154H-54-FB | ◆ | 154T-54-FB | ● | 154A-54-FB | ◆ | 154N-54-FB | ◆ |
| 2 5/32" | 54.79 | 2.1563″ | 154H-0205-FB | ◆ | 154T-0205-FB | ○ | 154A-0205-FB | ◆ | 154N-0205-FB | ◆ |
| | 55.00 | 2.1654″ | 154H-55-FB | ◆ | 154T-55-FB | ● | 154A-55-FB | ◆ | 154N-55-FB | ◆ |
| 2 3/16" | 55.56 | 2.1875″ | 154H-0206-FB | ◆ | 154T-0206-FB | ○ | 154A-0206-FB | ◆ | 154N-0206-FB | ◆ |
| | 56.00 | 2.2047″ | 154H-56-FB | ◆ | 154T-56-FB | ● | 154A-56-FB | ◆ | 154N-56-FB | ◆ |
| 2 7/32" | 56.36 | 2.2188″ | 154H-0207-FB | ◆ | 154T-0207-FB | ○ | 154A-0207-FB | ◆ | 154N-0207-FB | ◆ |
| | 57.00 | 2.2441″ | 154H-57-FB | ◆ | 154T-57-FB | ● | 154A-57-FB | ◆ | 154N-57-FB | ◆ |
| 2 1/4" | 57.15 | 2.2500″ | 154H-0208-FB | ◆ | 154T-0208-FB | ○ | 154A-0208-FB | ◆ | 154N-0208-FB | ◆ |
| 2 9/32" | 57.94 | 2.2813″ | 154H-0209-FB | ◆ | 154T-0209-FB | ○ | 154A-0209-FB | ◆ | 154N-0209-FB | ◆ |
| | 58.00 | 2.2835″ | 154H-58-FB | ◆ | 154T-58-FB | ● | 154A-58-FB | ◆ | 154N-58-FB | ◆ |
| 2 5/16" | 58.74 | 2.3125″ | 154H-0210-FB | ◆ | 154T-0210-FB | ○ | 154A-0210-FB | ◆ | 154N-0210-FB | ◆ |
| | 59.00 | 2.3228″ | 154H-59-FB | ◆ | 154T-59-FB | ● | 154A-59-FB | ◆ | 154N-59-FB | ◆ |
| 2 11/32" | 59.53 | 2.3438″ | 15H-0211-FB | ◆ | 15T-0211-FB | ○ | 15A-0211-FB | ◆ | 15N-0211-FB | ◆ |
| | 60.00 | 2.3622″ | 154H-60-FB | ◆ | 154T-60-FB | ● | 154A-60-FB | ◆ | 154N-60-FB | ◆ |
| 2 3/8" | 60.33 | 2.3750″ | 154H-0212-FB | ◆ | 154T-0212-FB | ○ | 154A-0212-FB | ◆ | 154N-0212-FB | ◆ |
| | 61.00 | 2.4016″ | 154H-61-FB | ◆ | 154T-61-FB | ● | 154A-61-FB | ◆ | 154N-61-FB | ◆ |
| 2 13/32" | 61.12 | 2.4063″ | 154H-0213-FB | ◆ | 154T-0213-FB | ○ | 154A-0213-FB | ◆ | 154N-0213-FB | ◆ |
| 2 7/16" | 61.91 | 2.4375″ | 154H-0214-FB | ◆ | 154T-0214-FB | ○ | 154A-0214-FB | ◆ | 154N-0214-FB | ◆ |
| | 62.00 | 2.4409″ | 154H-62-FB | ◆ | 154T-62-FB | ● | 154A-62-FB | ◆ | 154N-62-FB | ◆ |
| 2 15/32" | 62.71 | 2.4688″ | 154H-0215-FB | ◆ | 154T-0215-FB | ○ | 154A-0215-FB | ◆ | 154N-0215-FB | ◆ |
| | 63.00 | 2.4803″ | 154H-63-FB | ◆ | 154T-63-FB | ● | 154A-63-FB | ◆ | 154N-63-FB | ◆ |
| 2 1/2" | 63.50 | 2.5000″ | 154H-0216-FB | ◆ | 154T-0216-FB | ○ | 154A-0216-FB | ◆ | 154N-0216-FB | ◆ |
| | 64.00 | 2.5197″ | 154H-64-FB | ◆ | 154T-64-FB | ● | 154A-64-FB | ◆ | 154N-64-FB | ◆ |
| 2 17/32" | 64.29 | 2.5313″ | 154H-0217-FB | ◆ | 154T-0217-FB | ○ | 154A-0217-FB | ◆ | 154N-0217-FB | ◆ |
| | 65.00 | 2.5591″ | 154H-65-FB | ◆ | 154T-65-FB | ● | 154A-65-FB | ◆ | 154N-65-FB | ◆ |
| 2 9/16" | 65.09 | 2.5625″ | 154H-0218-FB | ◆ | 154T-0218-FB | ○ | 154A-0218-FB | ◆ | 154N-0218-FB | ◆ |

*Supplied in 1 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**





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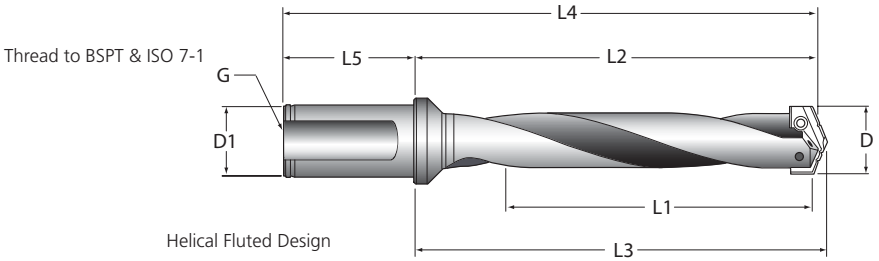



## 5/6 Series Flanged Straight Shank

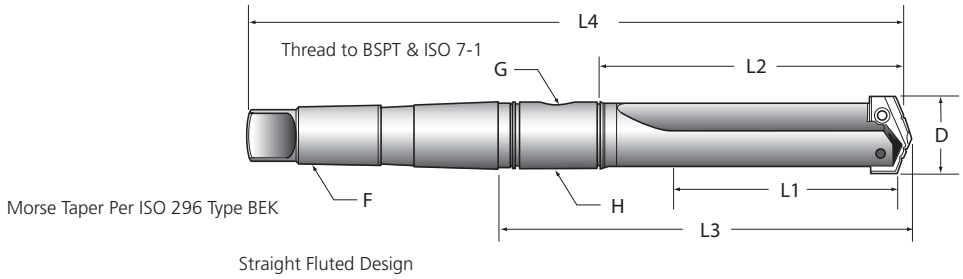
*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | L5 | D1 | G | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range D (mm) | Max Drill Depth (mm) | Body Length (mm) | New Tool Ref Length (mm) | Overall Length (mm) | Shank Length (mm) | Shank Diameter (mm) | Pipe Tap | |
| 22050S-50FM | Short | Straight | 64.00-88.00 | 172 | 215.9 | 222.3 | 302.3 | 80.0 | 50.0 | ½" | N/A |
| 24050H-50FM | Standard | Helical | 64.00-88.00 | 273 | 317.5 | 323.9 | 403.9 | 80.0 | 50.0 | ½" | N/A |
| 25050S-50FM | Extended | Straight | 64.00-88.00 | 464 | 508.0 | 514.4 | 594.4 | 80.0 | 50.0 | ½" | N/A |

## 7/8 Series Flanged Straight Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | L5 | D1 | G | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range D (mm) | Max Drill Depth (mm) | Body Length (mm) | New Tool Ref Length (mm) | Overall Length (mm) | Shank Length (mm) | Shank Diameter (mm) | Pipe Tap | |
| 22070S-50FM | Short | Straight | 90.00-114.00 | 172 | 225.4 | 231.8 | 311.8 | 80.0 | 50.0 | ½" | N/A |
| 24070H-50FM | Standard | Helical | 90.00-114.00 | 273 | 327.0 | 333.4 | 413.4 | 80.0 | 50.0 | ½" | N/A |
| 25070S-50FM | Extended | Straight | 90.00-114.00 | 556 | 606.9 | 616.0 | 696.0 | 80.0 | 50.0 | ½" | N/A |




## 5/6 Series Taper Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | F | H | G |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range (mm) | Max Drill Depth (mm) | Flute Length (mm) | New Tool Length (mm) | Overall Length (mm) | MT | RCA | Pipe Tap |
| 22050S-005M | Short | Straight | 64.00-88.00 | 172 | 215.9 | 287.3 | 430.2 | 5 | 6SRM | ½" |
| 24050H-005M | Standard | Helical | 64.00-88.00 | 273 | 317.5 | 388.9 | 531.8 | 5 | 6SRM | ½" |
| 25050S-005M | Extended | Straight | 64.00-88.00 | 464 | 508 | 579.4 | 722.3 | 5 | 6SRM | ½" |
| 27050S-005I | XL | Straight | 64.00-88.00 | 660 | 704.8 | 776.2 | 919.1 | 5 | 6SRM | ½" |
| 29050S-005I | 3XL | Straight | 64.00-88.00 | 889 | 933.4 | 1004.8 | 1147.7 | 5 | 6SRM | ½" |

## 7/8 Series Taper Shank

*Available Ex-Stock*

| Holder Reference Number | Holder Type | Flute Type | D | L1 | L2 | L3 | L4 | F | H | G |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Drill Range (mm) | Max Drill Depth (mm) | Flute Length (mm) | New Tool Length (mm) | Overall Length (mm) | MT | RCA | Pipe Tap |
| 22070S-005M | Short | Straight | 90.00-114.00 | 172 | 225.4 | 296.8 | 439.7 | 5 | 6SRM | ½" |
| 24070H-005M | Standard | Helical | 90.00-114.00 | 273 | 327 | 398.5 | 541.3 | 5 | 6SRM | ½" |
| 25070S-005M | Extended | Straight | 90.00-114.00 | 556 | 610 | 681 | 823.9 | 5 | 6SRM | ½" |
| 27070S-005I | XL | Straight | 90.00-114.00 | 685 | 739.7 | 811.2 | 954.0 | 5 | 6SRM | ½" |
| 29070S-005I | 3XL | Straight | 90.00-114.00 | 939 | 993.7 | 1065.2 | 1208.0 | 5 | 6SRM | ½" |

**For Holder Accessories please see pages 141 - 146.**

# 5 Series T-A® Drill Inserts

Diameter Range 62.38 to 76.20mm

## 5 Series GEN2 T-A HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 2½" | 63.50 | 2.5000" | 435H-0216 | ◆ | 435T-0216 | ○ | 435A-0216 | ◆ | 435N-0216 | ◆ |
| | 64.00 | 2.5197" | 435H-64 | ◆ | 435T-64 | ● | 435A-64 | ◆ | 435N-64 | ◆ |
| 2 17/32" | 64.29 | 2.5313" | 435H-0217 | ◆ | 435T-0217 | ○ | 435A-0217 | ◆ | 435N-0217 | ◆ |
| 2 9/16" | 65.09 | 2.5625" | 435H-0218 | ◆ | 435T-0218 | ○ | 435A-0218 | ◆ | 435N-0218 | ◆ |
| 2 19/32" | 65.88 | 2.5938" | 435H-0219 | ◆ | 435T-0219 | ○ | 435A-0219 | ◆ | 435N-0219 | ◆ |
| | 66.00 | 2.5984" | 435H-66 | ◆ | 435T-66 | ● | 435A-66 | ◆ | 435N-66 | ◆ |
| 2⅝" | 66.68 | 2.6250" | 435H-0220 | ◆ | 435T-0220 | ○ | 435A-0220 | ◆ | 435N-0220 | ◆ |
| 2 21/32" | 67.47 | 2.6563" | 435H-0221 | ◆ | 435T-0221 | ○ | 435A-0221 | ◆ | 435N-0221 | ◆ |
| | 68.00 | 2.6772" | 435H-68 | ◆ | 435T-68 | ● | 435A-68 | ◆ | 435N-68 | ◆ |
| 2 11/16" | 68.26 | 2.6875" | 435H-0222 | ◆ | 435T-0222 | ○ | 435A-0222 | ◆ | 435N-0222 | ◆ |
| 2 23/32" | 69.05 | 2.7188" | 435H-0223 | ◆ | 435T-0223 | ○ | 435A-0223 | ◆ | 435N-0223 | ◆ |
| 2¾" | 69.85 | 2.7500" | 435H-0224 | ◆ | 435T-0224 | ○ | 435A-0224 | ◆ | 435N-0224 | ◆ |
| | 70.00 | 2.7559" | 435H-70 | ◆ | 435T-70 | ● | 435A-70 | ◆ | 435N-70 | ◆ |
| 2 25/32" | 70.64 | 2.7813" | 435H-0225 | ◆ | 435T-0225 | ○ | 435A-0225 | ◆ | 435N-0225 | ◆ |
| 2 13/16" | 71.44 | 2.8125" | 435H-0226 | ◆ | 435T-0226 | ○ | 435A-0226 | ◆ | 435N-0226 | ◆ |
| | 72.00 | 2.8346" | 435H-72 | ◆ | 435T-72 | ● | 435A-72 | ◆ | 435N-72 | ◆ |
| 2 27/32" | 72.23 | 2.8438" | 435H-0227 | ◆ | 435T-0227 | ○ | 435A-0227 | ◆ | 435N-0227 | ◆ |
| 2⅞" | 73.03 | 2.8750" | 435H-0228 | ◆ | 435T-0228 | ○ | 435A-0228 | ◆ | 435N-0228 | ◆ |
| 2 29/32" | 73.82 | 2.9063" | 435H-0229 | ◆ | 435T-0229 | ○ | 435A-0229 | ◆ | 435N-0229 | ◆ |
| | 74.00 | 2.9134" | 435H-74 | ◆ | 435T-74 | ● | 435A-74 | ◆ | 435N-74 | ◆ |
| 2 15/16" | 74.61 | 2.9375" | 435H-0230 | ◆ | 435T-0230 | ○ | 435A-0230 | ◆ | 435N-0230 | ◆ |
| 2 31/32" | 75.41 | 2.9688" | 435H-0231 | ◆ | 435T-0231 | ○ | 435A-0231 | ◆ | 435N-0231 | ◆ |
| | 76.00 | 2.9921" | 435H-76 | ◆ | 435T-76 | ● | 435A-76 | ◆ | 435N-76 | ◆ |
| 3" | 76.20 | 3.0000" | 435H-0300 | ◆ | 435T-0300 | ○ | 435A-0300 | ◆ | 435N-0300 | ◆ |

*Supplied in 1 piece packages.*

## 5 Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 2½" | 63.50 | 2.5000" | 455H-0216 | ○ | 455T-0216 | ◆ | 455A-0216 | ◆ | 455N-0216 | ◆ |
| | 64.00 | 2.5197" | 455H-64 | ● | 455T-64 | ◆ | 455A-64 | ◆ | 455N-64 | ◆ |
| 2 17/32" | 64.29 | 2.5313" | 455H-0217 | ○ | 455T-0217 | ◆ | 455A-0217 | ◆ | 455N-0217 | ◆ |
| 2 9/16" | 65.09 | 2.5625" | 455H-0218 | ○ | 455T-0218 | ◆ | 455A-0218 | ◆ | 455N-0218 | ◆ |
| 2 19/32" | 65.88 | 2.5938" | 455H-0219 | ○ | 455T-0219 | ◆ | 455A-0219 | ◆ | 455N-0219 | ◆ |
| | 66.00 | 2.5984" | 455H-66 | ● | 455T-66 | ◆ | 455A-66 | ◆ | 455N-66 | ◆ |
| 2⅝" | 66.68 | 2.6250" | 455H-0220 | ○ | 455T-0220 | ◆ | 455A-0220 | ◆ | 455N-0220 | ◆ |
| 2 21/32" | 67.47 | 2.6563" | 455H-0221 | ○ | 455T-0221 | ◆ | 455A-0221 | ◆ | 455N-0221 | ◆ |
| | 68.00 | 2.6772" | 455H-68 | ● | 455T-68 | ◆ | 455A-68 | ◆ | 455N-68 | ◆ |
| 2 11/16" | 68.26 | 2.6875" | 455H-0222 | ○ | 455T-0222 | ◆ | 455A-0222 | ◆ | 455N-0222 | ◆ |
| 2 23/32" | 69.05 | 2.7188" | 455H-0223 | ○ | 455T-0223 | ◆ | 455A-0223 | ◆ | 455N-0223 | ◆ |
| 2¾" | 69.85 | 2.7500" | 455H-0224 | ○ | 455T-0224 | ◆ | 455A-0224 | ◆ | 455N-0224 | ◆ |
| | 70.00 | 2.7559" | 455H-70 | ● | 455T-70 | ◆ | 455A-70 | ◆ | 455N-70 | ◆ |
| 2 25/32" | 70.64 | 2.7813" | 455H-0225 | ○ | 455T-0225 | ◆ | 455A-0225 | ◆ | 455N-0225 | ◆ |
| 2 13/16" | 71.44 | 2.8125" | 455H-0226 | ○ | 455T-0226 | ◆ | 455A-0226 | ◆ | 455N-0226 | ◆ |
| | 72.00 | 2.8346" | 455H-72 | ● | 455T-72 | ◆ | 455A-72 | ◆ | 455N-72 | ◆ |
| 2 27/32" | 72.23 | 2.8438" | 455H-0227 | ○ | 455T-0227 | ◆ | 455A-0227 | ◆ | 455N-0227 | ◆ |
| 2⅞" | 73.03 | 2.8750" | 455H-0228 | ○ | 455T-0228 | ◆ | 455A-0228 | ◆ | 455N-0228 | ◆ |
| 2 29/32" | 73.82 | 2.9063" | 455H-0229 | ○ | 455T-0229 | ◆ | 455A-0229 | ◆ | 455N-0229 | ◆ |
| | 74.00 | 2.9134" | 455H-74 | ● | 455T-74 | ◆ | 455A-74 | ◆ | 455N-74 | ◆ |
| 2 15/16" | 74.61 | 2.9375" | 455H-0230 | ○ | 455T-0230 | ◆ | 455A-0230 | ◆ | 455N-0230 | ◆ |
| 2 31/32" | 75.41 | 2.9688" | 455H-0231 | ○ | 455T-0231 | ◆ | 455A-0231 | ◆ | 455N-0231 | ◆ |
| | 76.00 | 2.9921" | 455H-76 | ● | 455T-76 | ◆ | 455A-76 | ◆ | 455N-76 | ◆ |
| 3" | 76.20 | 3.0000" | 455H-0300 | ○ | 455T-0300 | ◆ | 455A-0300 | ◆ | 455N-0300 | ◆ |

*Supplied in 1 piece packages.*





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## 5 Series Standard T-A Original HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 2½" | 63.50 | 2.5000" | 135H-0216 | ◆ | 135T-0216 | ◆ | 135A-0216 | ◆ | 135N-0216 | ◆ |
| | 64.00 | 2.5197" | 135H-64 | ○ | 135T-64 | ◆ | 135A-64 | ◆ | 135N-64 | ◆ |
| 2 17/32" | 64.29 | 2.5313" | 135H-0217 | ◆ | 135T-0217 | ◆ | 135A-0217 | ◆ | 135N-0217 | ◆ |
| 2 9/16" | 65.09 | 2.5625" | 135H-0218 | ◆ | 135T-0218 | ◆ | 135A-0218 | ◆ | 135N-0218 | ◆ |
| 2 19/32" | 65.88 | 2.5938" | 135H-0219 | ◆ | 135T-0219 | ◆ | 135A-0219 | ◆ | 135N-0219 | ◆ |
| | 66.00 | 2.5984" | 135H-66 | ○ | 135T-66 | ◆ | 135A-66 | ◆ | 135N-66 | ◆ |
| 2⅝" | 66.68 | 2.6250" | 135H-0220 | ◆ | 135T-0220 | ◆ | 135A-0220 | ◆ | 135N-0220 | ◆ |
| 2 21/32" | 67.47 | 2.6563" | 135H-0221 | ◆ | 135T-0221 | ◆ | 135A-0221 | ◆ | 135N-0221 | ◆ |
| | 68.00 | 2.6772" | 135H-68 | ○ | 135T-68 | ◆ | 135A-68 | ◆ | 135N-68 | ◆ |
| 2 11/16" | 68.26 | 2.6875" | 135H-0222 | ◆ | 135T-0222 | ◆ | 135A-0222 | ◆ | 135N-0222 | ◆ |
| 2 23/32" | 69.05 | 2.7188" | 135H-0223 | ◆ | 135T-0223 | ◆ | 135A-0223 | ◆ | 135N-0223 | ◆ |
| 2¾" | 69.85 | 2.7500" | 135H-0224 | ◆ | 135T-0224 | ◆ | 135A-0224 | ◆ | 135N-0224 | ◆ |
| | 70.00 | 2.7559" | 135H-70 | ○ | 135T-70 | ◆ | 135A-70 | ◆ | 135N-70 | ◆ |
| 2 25/32" | 70.64 | 2.7813" | 135H-0225 | ◆ | 135T-0225 | ◆ | 135A-0225 | ◆ | 135N-0225 | ◆ |
| 2 13/16" | 71.44 | 2.8125" | 135H-0226 | ◆ | 135T-0226 | ◆ | 135A-0226 | ◆ | 135N-0226 | ◆ |
| | 72.00 | 2.8346" | 135H-72 | ○ | 135T-72 | ◆ | 135A-72 | ◆ | 135N-72 | ◆ |
| 2 27/32" | 72.23 | 2.8438" | 135H-0227 | ◆ | 135T-0227 | ◆ | 135A-0227 | ◆ | 135N-0227 | ◆ |
| 2⅞" | 73.03 | 2.8750" | 135H-0228 | ◆ | 135T-0228 | ◆ | 135A-0228 | ◆ | 135N-0228 | ◆ |
| 2 29/32" | 73.82 | 2.9063" | 135H-0229 | ◆ | 135T-0229 | ◆ | 135A-0229 | ◆ | 135N-0229 | ◆ |
| | 74.00 | 2.9134" | 135H-74 | ○ | 135T-74 | ◆ | 135A-74 | ◆ | 135N-74 | ◆ |
| 2 15/16" | 74.61 | 2.9375" | 135H-0230 | ◆ | 135T-0230 | ◆ | 135A-0230 | ◆ | 135N-0230 | ◆ |
| 2 31/32" | 75.41 | 2.9688" | 135H-0231 | ◆ | 135T-0231 | ◆ | 135A-0231 | ◆ | 135N-0231 | ◆ |
| | 76.00 | 2.9921" | 135H-76 | ○ | 135T-76 | ◆ | 135A-76 | ◆ | 135N-76 | ◆ |
| 3" | 76.20 | 3.0000" | 135H-0300 | ◆ | 135T-0300 | ◆ | 135A-0300 | ◆ | 135N-0300 | ◆ |

*Supplied in 1 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 6 Series T-A® Drill Inserts

Diameter Range 76.23 to 89.08mm

## 6 Series GEN2 T-A HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 3 1/32" | 76.99 | 3.0313" | 436H-0301 | ◆ | 436T-0301 | ○ | 436A-0301 | ◆ | 436N-0301 | ◆ |
| 3 1/16" | 77.79 | 3.0625" | 436H-0302 | ◆ | 436T-0302 | ○ | 436A-0302 | ◆ | 436N-0302 | ◆ |
| | 78.00 | 3.0709" | 436H-78 | ◆ | 436T-78 | ● | 436A-78 | ◆ | 436N-78 | ◆ |
| 3 3/32" | 78.58 | 3.0938" | 436H-0303 | ◆ | 436T-0303 | ○ | 436A-0303 | ◆ | 436N-0303 | ◆ |
| 3 1/8" | 79.38 | 3.1250" | 436H-0304 | ◆ | 436T-0304 | ○ | 436A-0304 | ◆ | 436N-0304 | ◆ |
| | 80.00 | 3.1496" | 436H-80 | ◆ | 436T-80 | ● | 436A-80 | ◆ | 436N-80 | ◆ |
| 3 5/32" | 80.17 | 3.1563" | 436H-0305 | ◆ | 436T-0305 | ○ | 436A-0305 | ◆ | 436N-0305 | ◆ |
| 3 3/16" | 80.96 | 3.1875" | 436H-0306 | ◆ | 436T-0306 | ○ | 436A-0306 | ◆ | 436N-0306 | ◆ |
| 3 7/32" | 81.76 | 3.2188" | 436H-0307 | ◆ | 436T-0307 | ○ | 436A-0307 | ◆ | 436N-0307 | ◆ |
| | 82.00 | 3.2283" | 436H-82 | ◆ | 436T-82 | ● | 436A-82 | ◆ | 436N-82 | ◆ |
| 3 1/4" | 82.55 | 3.2500" | 436H-0308 | ◆ | 436T-0308 | ○ | 436A-0308 | ◆ | 436N-0308 | ◆ |
| 3 9/32" | 83.34 | 3.2813" | 436H-0309 | ◆ | 436T-0309 | ○ | 436A-0309 | ◆ | 436N-0309 | ◆ |
| | 84.00 | 3.3071" | 436H-84 | ◆ | 436T-84 | ● | 436A-84 | ◆ | 436N-84 | ◆ |
| 3 5/16" | 84.14 | 3.3125" | 436H-0310 | ◆ | 436T-0310 | ○ | 436A-0310 | ◆ | 436N-0310 | ◆ |
| 3 11/32" | 84.93 | 3.3438" | 436H-0311 | ◆ | 436T-0311 | ○ | 436A-0311 | ◆ | 436N-0311 | ◆ |
| 3 3/8" | 85.73 | 3.3750" | 436H-0312 | ◆ | 436T-0312 | ○ | 436A-0312 | ◆ | 436N-0312 | ◆ |
| | 86.00 | 3.3858" | 436H-86 | ◆ | 436T-86 | ● | 436A-86 | ◆ | 436N-86 | ◆ |
| 3 13/32" | 86.52 | 3.4063" | 436H-0313 | ◆ | 436T-0313 | ○ | 436A-0313 | ◆ | 436N-0313 | ◆ |
| 3 7/16" | 87.31 | 3.4375" | 436H-0314 | ◆ | 436T-0314 | ○ | 436A-0314 | ◆ | 436N-0314 | ◆ |
| | 88.00 | 3.4646" | 436H-88 | ◆ | 436T-88 | ● | 436A-88 | ◆ | 436N-88 | ◆ |
| 3 15/32" | 88.11 | 3.4688" | 436H-0315 | ◆ | 436T-0315 | ○ | 436A-0315 | ◆ | 436N-0315 | ◆ |
| 3 1/2" | 88.90 | 3.5000" | 436H-0316 | ◆ | 436T-0316 | ○ | 436A-0316 | ◆ | 436N-0316 | ◆ |

*Supplied in 1 piece packages.*

## 6 Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 3 1/32" | 76.99 | 3.0313" | 456H-0301 | ○ | 456T-0301 | ◆ | 456A-0301 | ◆ | 456N-0301 | ◆ |
| 3 1/16" | 77.79 | 3.0625" | 456H-0302 | ○ | 456T-0302 | ◆ | 456A-0302 | ◆ | 456N-0302 | ◆ |
| | 78.00 | 3.0709" | 456H-78 | ● | 456T-78 | ◆ | 456A-78 | ◆ | 456N-78 | ◆ |
| 3 3/32" | 78.58 | 3.0938" | 456H-0303 | ○ | 456T-0303 | ◆ | 456A-0303 | ◆ | 456N-0303 | ◆ |
| 3 1/8" | 79.38 | 3.1250" | 456H-0304 | ○ | 456T-0304 | ◆ | 456A-0304 | ◆ | 456N-0304 | ◆ |
| | 80.00 | 3.1496" | 456H-80 | ● | 456T-80 | ◆ | 456A-80 | ◆ | 456N-80 | ◆ |
| 3 5/32" | 80.17 | 3.1563" | 456H-0305 | ○ | 456T-0305 | ◆ | 456A-0305 | ◆ | 456N-0305 | ◆ |
| 3 3/16" | 80.96 | 3.1875" | 456H-0306 | ○ | 456T-0306 | ◆ | 456A-0306 | ◆ | 456N-0306 | ◆ |
| 3 7/32" | 81.76 | 3.2188" | 456H-0307 | ○ | 456T-0307 | ◆ | 456A-0307 | ◆ | 456N-0307 | ◆ |
| | 82.00 | 3.2283" | 456H-82 | ● | 456T-82 | ◆ | 456A-82 | ◆ | 456N-82 | ◆ |
| 3 1/4" | 82.55 | 3.2500" | 456H-0308 | ○ | 456T-0308 | ◆ | 456A-0308 | ◆ | 456N-0308 | ◆ |
| 3 9/32" | 83.34 | 3.2813" | 456H-0309 | ○ | 456T-0309 | ◆ | 456A-0309 | ◆ | 456N-0309 | ◆ |
| | 84.00 | 3.3071" | 456H-84 | ● | 456T-84 | ◆ | 456A-84 | ◆ | 456N-84 | ◆ |
| 3 5/16" | 84.14 | 3.3125" | 456H-0310 | ○ | 456T-0310 | ◆ | 456A-0310 | ◆ | 456N-0310 | ◆ |
| 3 11/32" | 84.93 | 3.3438" | 456H-0311 | ○ | 456T-0311 | ◆ | 456A-0311 | ◆ | 456N-0311 | ◆ |
| 3 3/8" | 85.73 | 3.3750" | 456H-0312 | ○ | 456T-0312 | ◆ | 456A-0312 | ◆ | 456N-0312 | ◆ |
| | 86.00 | 3.3858" | 456H-86 | ● | 456T-86 | ◆ | 456A-86 | ◆ | 456N-86 | ◆ |
| 3 13/32" | 86.52 | 3.4063" | 456H-0313 | ○ | 456T-0313 | ◆ | 456A-0313 | ◆ | 456N-0313 | ◆ |
| 3 7/16" | 87.31 | 3.4375" | 456H-0314 | ○ | 456T-0314 | ◆ | 456A-0314 | ◆ | 456N-0314 | ◆ |
| | 88.00 | 3.4646" | 456H-88 | ● | 456T-88 | ◆ | 456A-88 | ◆ | 456N-88 | ◆ |
| 3 15/32" | 88.11 | 3.4688" | 456H-0315 | ○ | 456T-0315 | ◆ | 456A-0315 | ◆ | 456N-0315 | ◆ |
| 3 1/2" | 88.90 | 3.5000" | 456H-0316 | ○ | 456T-0316 | ◆ | 456A-0316 | ◆ | 456N-0316 | ◆ |

*Supplied in 1 piece packages.*





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## 6 Series Standard T-A Original HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 3 1/32" | 76.99 | 3.0313" | 136H-0301 | ◆ | 136T-0301 | ◆ | 136A-0301 | ◆ | 136N-0301 | ◆ |
| 3 1/16" | 77.79 | 3.0625" | 136H-0302 | ◆ | 136T-0302 | ◆ | 136A-0302 | ◆ | 136N-0302 | ◆ |
| | 78.00 | 3.0709" | 136H-78 | ○ | 136T-78 | ◆ | 136A-78 | ◆ | 136N-78 | ◆ |
| 3 3/32" | 78.58 | 3.0938" | 136H-0303 | ◆ | 136T-0303 | ◆ | 136A-0303 | ◆ | 136N-0303 | ◆ |
| 3 1/8" | 79.38 | 3.1250" | 136H-0304 | ◆ | 136T-0304 | ◆ | 136A-0304 | ◆ | 136N-0304 | ◆ |
| | 80.00 | 3.1496" | 136H-80 | ○ | 136T-80 | ◆ | 136A-80 | ◆ | 136N-80 | ◆ |
| 3 5/32" | 80.17 | 3.1563" | 136H-0305 | ◆ | 136T-0305 | ◆ | 136A-0305 | ◆ | 136N-0305 | ◆ |
| 3 3/16" | 80.96 | 3.1875" | 136H-0306 | ◆ | 136T-0306 | ◆ | 136A-0306 | ◆ | 136N-0306 | ◆ |
| 3 7/32" | 81.76 | 3.2188" | 136H-0307 | ◆ | 136T-0307 | ◆ | 136A-0307 | ◆ | 136N-0307 | ◆ |
| | 82.00 | 3.2283" | 136H-82 | ○ | 136T-82 | ◆ | 136A-82 | ◆ | 136N-82 | ◆ |
| 3 1/4" | 82.55 | 3.2500" | 136H-0308 | ◆ | 136T-0308 | ◆ | 136A-0308 | ◆ | 136N-0308 | ◆ |
| 3 9/32" | 83.34 | 3.2813" | 136H-0309 | ◆ | 136T-0309 | ◆ | 136A-0309 | ◆ | 136N-0309 | ◆ |
| | 84.00 | 3.3071" | 136H-84 | ○ | 136T-84 | ◆ | 136A-84 | ◆ | 136N-84 | ◆ |
| 3 5/16" | 84.14 | 3.3125" | 136H-0310 | ◆ | 136T-0310 | ◆ | 136A-0310 | ◆ | 136N-0310 | ◆ |
| 3 11/32" | 84.93 | 3.3438" | 136H-0311 | ◆ | 136T-0311 | ◆ | 136A-0311 | ◆ | 136N-0311 | ◆ |
| 3 3/8" | 85.73 | 3.3750" | 136H-0312 | ◆ | 136T-0312 | ◆ | 136A-0312 | ◆ | 136N-0312 | ◆ |
| | 86.00 | 3.3858" | 136H-86 | ○ | 136T-86 | ◆ | 136A-86 | ◆ | 136N-86 | ◆ |
| 3 13/32" | 86.52 | 3.4063" | 136H-0313 | ◆ | 136T-0313 | ◆ | 136A-0313 | ◆ | 136N-0313 | ◆ |
| 3 7/16" | 87.31 | 3.4375" | 136H-0314 | ◆ | 136T-0314 | ◆ | 136A-0314 | ◆ | 136N-0314 | ◆ |
| | 88.00 | 3.4646" | 136H-88 | ○ | 136T-88 | ◆ | 136A-88 | ◆ | 136N-88 | ◆ |
| 3 15/32" | 88.11 | 3.4688" | 136H-0315 | ◆ | 136T-0315 | ◆ | 136A-0315 | ◆ | 136N-0315 | ◆ |
| 3 1/2" | 88.90 | 3.5000" | 136H-0316 | ◆ | 136T-0316 | ◆ | 136A-0316 | ◆ | 136N-0316 | ◆ |

*Supplied in 1 piece packages.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 7 Series T-A® Drill Inserts

Diameter Range 87.76 to 101.60mm

## 7 Series GEN2 T-A HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 3 17/32" | 89.96 | 3.5313" | 437H-0317 | ◆ | 437T-0317 | ○ | 437A-0317 | ◆ | 437N-0317 | ◆ |
| | 90.00 | 3.5433" | 437H-90 | ◆ | 437T-90 | ● | 437A-90 | ◆ | 437N-90 | ◆ |
| 3 9/16" | 90.49 | 3.5625" | 437H-0318 | ◆ | 437T-0318 | ○ | 437A-0318 | ◆ | 437N-0318 | ◆ |
| 3 19/32" | 91.28 | 3.5938" | 437H-0319 | ◆ | 437T-0319 | ○ | 437A-0319 | ◆ | 437N-0319 | ◆ |
| | 92.00 | 3.6221" | 437H-92 | ◆ | 437T-92 | ● | 437A-92 | ◆ | 437N-92 | ◆ |
| 3 5/8" | 92.08 | 3.6250" | 437H-0320 | ◆ | 437T-0320 | ○ | 437A-0320 | ◆ | 437N-0320 | ◆ |
| 3 21/32" | 92.87 | 3.6563" | 437H-0321 | ◆ | 437T-0321 | ○ | 437A-0321 | ◆ | 437N-0321 | ◆ |
| 3 11/16" | 93.66 | 3.6875" | 437H-0322 | ◆ | 437T-0322 | ○ | 437A-0322 | ◆ | 437N-0322 | ◆ |
| | 94.00 | 3.7008" | 437H-94 | ◆ | 437T-94 | ● | 437A-94 | ◆ | 437N-94 | ◆ |
| 3 23/32" | 94.46 | 3.7188" | 437H-0323 | ◆ | 437T-0323 | ○ | 437A-0323 | ◆ | 437N-0323 | ◆ |
| 3 3/4" | 95.25 | 3.7500" | 437H-0324 | ◆ | 437T-0324 | ○ | 437A-0324 | ◆ | 437N-0324 | ◆ |
| | 96.00 | 3.7795" | 437H-96 | ◆ | 437T-96 | ● | 437A-96 | ◆ | 437N-96 | ◆ |
| 3 25/32" | 96.04 | 3.7813" | 437H-0325 | ◆ | 437T-0325 | ○ | 437A-0325 | ◆ | 437N-0325 | ◆ |
| 3 13/16" | 96.84 | 3.8125" | 437H-0326 | ◆ | 437T-0326 | ○ | 437A-0326 | ◆ | 437N-0326 | ◆ |
| 3 27/32" | 97.63 | 3.8438" | 437H-0327 | ◆ | 437T-0327 | ○ | 437A-0327 | ◆ | 437N-0327 | ◆ |
| | 98.00 | 3.8583" | 437H-98 | ◆ | 437T-98 | ● | 437A-98 | ◆ | 437N-98 | ◆ |
| 3 7/8" | 98.43 | 3.8750" | 437H-0328 | ◆ | 437T-0328 | ○ | 437A-0328 | ◆ | 437N-0328 | ◆ |
| 3 29/32" | 99.22 | 3.9063" | 437H-0329 | ◆ | 437T-0329 | ○ | 437A-0329 | ◆ | 437N-0329 | ◆ |
| | 100.00 | 3.9370" | 437H-100 | ◆ | 437T-100 | ● | 437A-100 | ◆ | 437N-100 | ◆ |
| 3 15/16" | 100.01 | 3.9375" | 437H-0330 | ◆ | 437T-0330 | ○ | 437A-0330 | ◆ | 437N-0330 | ◆ |
| 3 31/32" | 100.81 | 3.9688" | 437H-0331 | ◆ | 437T-0331 | ○ | 437A-0331 | ◆ | 437N-0331 | ◆ |
| 4" | 101.60 | 4.0000" | 437H-0400 | ◆ | 437T-0400 | ○ | 437A-0400 | ◆ | 437N-0400 | ◆ |

*Supplied in 1 piece packages.*

## 7 Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 3 17/32" | 89.96 | 3.5313" | 457H-0317 | ○ | 457T-0317 | ◆ | 457A-0317 | ◆ | 457N-0317 | ◆ |
| | 90.00 | 3.5433" | 457H-90 | ● | 457T-90 | ◆ | 457A-90 | ◆ | 457N-90 | ◆ |
| 3 9/16" | 90.49 | 3.5625" | 457H-0318 | ○ | 457T-0318 | ◆ | 457A-0318 | ◆ | 457N-0318 | ◆ |
| 3 19/32" | 91.28 | 3.5938" | 457H-0319 | ○ | 457T-0319 | ◆ | 457A-0319 | ◆ | 457N-0319 | ◆ |
| | 92.00 | 3.6221" | 457H-92 | ● | 457T-92 | ◆ | 457A-92 | ◆ | 457N-92 | ◆ |
| 3 5/8" | 92.08 | 3.6250" | 457H-0320 | ○ | 457T-0320 | ◆ | 457A-0320 | ◆ | 457N-0320 | ◆ |
| 3 21/32" | 92.87 | 3.6563" | 457H-0321 | ○ | 457T-0321 | ◆ | 457A-0321 | ◆ | 457N-0321 | ◆ |
| 3 11/16" | 93.66 | 3.6875" | 457H-0322 | ○ | 457T-0322 | ◆ | 457A-0322 | ◆ | 457N-0322 | ◆ |
| | 94.00 | 3.7008" | 457H-94 | ● | 457T-94 | ◆ | 457A-94 | ◆ | 457N-94 | ◆ |
| 3 23/32" | 94.46 | 3.7188" | 457H-0323 | ○ | 457T-0323 | ◆ | 457A-0323 | ◆ | 457N-0323 | ◆ |
| 3 3/4" | 95.25 | 3.7500" | 457H-0324 | ○ | 457T-0324 | ◆ | 457A-0324 | ◆ | 457N-0324 | ◆ |
| | 96.00 | 3.7795" | 457H-96 | ● | 457T-96 | ◆ | 457A-96 | ◆ | 457N-96 | ◆ |
| 3 25/32" | 96.04 | 3.7813" | 457H-0325 | ○ | 457T-0325 | ◆ | 457A-0325 | ◆ | 457N-0325 | ◆ |
| 3 13/16" | 96.84 | 3.8125" | 457H-0326 | ○ | 457T-0326 | ◆ | 457A-0326 | ◆ | 457N-0326 | ◆ |
| 3 27/32" | 97.63 | 3.8438" | 457H-0327 | ○ | 457T-0327 | ◆ | 457A-0327 | ◆ | 457N-0327 | ◆ |
| | 98.00 | 3.8583" | 457H-98 | ● | 457T-98 | ◆ | 457A-98 | ◆ | 457N-98 | ◆ |
| 3 7/8" | 98.43 | 3.8750" | 457H-0328 | ○ | 457T-0328 | ◆ | 457A-0328 | ◆ | 457N-0328 | ◆ |
| 3 29/32" | 99.22 | 3.9063" | 457H-0329 | ○ | 457T-0329 | ◆ | 457A-0329 | ◆ | 457N-0329 | ◆ |
| | 100.00 | 3.9370" | 457H-100 | ● | 457T-100 | ◆ | 457A-100 | ◆ | 457N-100 | ◆ |
| 3 15/16" | 100.01 | 3.9375" | 457H-0330 | ○ | 457T-0330 | ◆ | 457A-0330 | ◆ | 457N-0330 | ◆ |
| 3 31/32" | 100.81 | 3.9688" | 457H-0331 | ○ | 457T-0331 | ◆ | 457A-0331 | ◆ | 457N-0331 | ◆ |
| 4" | 101.60 | 4.0000" | 457H-0400 | ○ | 457T-0400 | ◆ | 457A-0400 | ◆ | 457N-0400 | ◆ |

*Supplied in 1 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


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# 7 and 8 Series T-A® Drill Inserts

Diameter Range 87.76 to 101.60mm (7 Series) and 101.63 to 114.48 (8 Series)

## 7 Series Standard T-A Original HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 3 17/32" | 89.96 | 3.5313" | 137H-0317 | ◆ | 137T-0317 | ◆ | 137A-0317 | ◆ | 137N-0317 | ◆ |
| | 90.00 | 3.5433" | 137H-90 | ○ | 137T-90 | ◆ | 137A-90 | ◆ | 137N-90 | ◆ |
| 3 9/16" | 90.49 | 3.5625" | 137H-0318 | ◆ | 137T-0318 | ◆ | 137A-0318 | ◆ | 137N-0318 | ◆ |
| 3 19/32" | 91.28 | 3.5938" | 137H-0319 | ◆ | 137T-0319 | ◆ | 137A-0319 | ◆ | 137N-0319 | ◆ |
| | 92.00 | 3.6221" | 137H-92 | ○ | 137T-92 | ◆ | 137A-92 | ◆ | 137N-92 | ◆ |
| 3 5/8" | 92.08 | 3.6250" | 137H-0320 | ◆ | 137T-0320 | ◆ | 137A-0320 | ◆ | 137N-0320 | ◆ |
| 3 21/32" | 92.87 | 3.6563" | 137H-0321 | ◆ | 137T-0321 | ◆ | 137A-0321 | ◆ | 137N-0321 | ◆ |
| 3 11/16" | 93.66 | 3.6875" | 137H-0322 | ◆ | 137T-0322 | ◆ | 137A-0322 | ◆ | 137N-0322 | ◆ |
| | 94.00 | 3.7008" | 137H-94 | ○ | 137T-94 | ◆ | 137A-94 | ◆ | 137N-94 | ◆ |
| 3 23/32" | 94.46 | 3.7188" | 137H-0323 | ◆ | 137T-0323 | ◆ | 137A-0323 | ◆ | 137N-0323 | ◆ |
| 3 3/4" | 95.25 | 3.7500" | 137H-0324 | ◆ | 137T-0324 | ◆ | 137A-0324 | ◆ | 137N-0324 | ◆ |
| | 96.00 | 3.7795" | 137H-96 | ○ | 137T-96 | ◆ | 137A-96 | ◆ | 137N-96 | ◆ |
| 3 25/32" | 96.04 | 3.7813" | 137H-0325 | ◆ | 137T-0325 | ◆ | 137A-0325 | ◆ | 137N-0325 | ◆ |
| 3 13/16" | 96.84 | 3.8125" | 137H-0326 | ◆ | 137T-0326 | ◆ | 137A-0326 | ◆ | 137N-0326 | ◆ |
| 3 27/32" | 97.63 | 3.8438" | 137H-0327 | ◆ | 137T-0327 | ◆ | 137A-0327 | ◆ | 137N-0327 | ◆ |
| | 98.00 | 3.8583" | 137H-98 | ○ | 137T-98 | ◆ | 137A-98 | ◆ | 137N-98 | ◆ |
| 3 7/8" | 98.43 | 3.8750" | 137H-0328 | ◆ | 137T-0328 | ◆ | 137A-0328 | ◆ | 137N-0328 | ◆ |
| 3 29/32" | 99.22 | 3.9063" | 137H-0329 | ◆ | 137T-0329 | ◆ | 137A-0329 | ◆ | 137N-0329 | ◆ |
| | 100.00 | 3.9370" | 137H-100 | ○ | 137T-100 | ◆ | 137A-100 | ◆ | 137N-100 | ◆ |
| 3 15/16" | 100.01 | 3.9375" | 137H-0330 | ◆ | 137T-0330 | ◆ | 137A-0330 | ◆ | 137N-0330 | ◆ |
| 3 31/32" | 100.81 | 3.9688" | 137H-0331 | ◆ | 137T-0331 | ◆ | 137A-0331 | ◆ | 137N-0331 | ◆ |
| 4" | 101.60 | 4.0000" | 137H-0400 | ◆ | 137T-0400 | ◆ | 137A-0400 | ◆ | 137N-0400 | ◆ |

*Supplied in 1 piece packages.*

## 8 Series GEN2 T-A HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 4 1/64" | 102.00 | 4.0157" | 438H-102 | ◆ | 438T-102 | ● | 438A-102 | ◆ | 438N-102 | ◆ |
| 4 1/16" | 103.19 | 4.0625" | 438H-0402 | ◆ | 438T-0402 | ○ | 438A-0402 | ◆ | 438N-0402 | ◆ |
| 4 3/32" | 104.00 | 4.0945" | 438H-104 | ◆ | 438T-104 | ● | 438A-104 | ◆ | 438N-104 | ◆ |
| 4 1/8" | 104.75 | 4.1250" | 438H-0404 | ◆ | 438T-0404 | ○ | 438A-0404 | ◆ | 438N-0404 | ◆ |
| | 106.00 | 4.1732" | 438H-106 | ◆ | 438T-106 | ● | 438A-106 | ◆ | 438N-106 | ◆ |
| 4 3/16" | 106.36 | 4.1875" | 438H-0406 | ◆ | 438T-0406 | ○ | 438A-0406 | ◆ | 438N-0406 | ◆ |
| 4 1/4" | 107.95 | 4.2500" | 438H-0408 | ◆ | 438T-0408 | ○ | 438A-0408 | ◆ | 438N-0408 | ◆ |
| | 108.00 | 4.2520" | 438H-108 | ◆ | 438T-108 | ● | 438A-108 | ◆ | 438N-108 | ◆ |
| 4 5/16" | 109.54 | 4.3125" | 438H-0410 | ◆ | 438T-0410 | ○ | 438A-0410 | ◆ | 438N-0410 | ◆ |
| | 110.00 | 4.3307" | 438H-110 | ◆ | 438T-110 | ● | 438A-110 | ◆ | 438N-110 | ◆ |
| 4 3/8" | 111.13 | 4.3750" | 438H-0412 | ◆ | 438T-0412 | ○ | 438A-0412 | ◆ | 438N-0412 | ◆ |
| | 112.00 | 4.4094" | 438H-112 | ◆ | 438T-112 | ● | 438A-112 | ◆ | 438N-112 | ◆ |
| 4 7/16" | 112.71 | 4.4375" | 438H-0414 | ◆ | 438T-0414 | ○ | 438A-0414 | ◆ | 438N-0414 | ◆ |
| | 114.00 | 4.4882" | 438H-114 | ◆ | 438T-114 | ● | 438A-114 | ◆ | 438N-114 | ◆ |
| 4 1/2" | 114.30 | 4.5000" | 438H-0416 | ◆ | 438T-0416 | ○ | 438A-0416 | ◆ | 438N-0416 | ◆ |

*Supplied in 1 piece packages.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 90.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# 8 Series T-A® Drill Inserts

Diameter Range101.63 to 114.48

## 8 Series GEN2 T-A HSS Super Cobalt

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 4 1/64" | 102.00 | 4.0157" | 458H-102 | ● | 458T-102 | ◆ | 458A-102 | ◆ | 458N-102 | ◆ |
| 4 1/16" | 103.19 | 4.0625" | 458H-0402 | ○ | 458T-0402 | ◆ | 458A-0402 | ◆ | 458N-0402 | ◆ |
| 4 3/32" | 104.00 | 4.0945" | 458H-104 | ● | 458T-104 | ◆ | 458A-104 | ◆ | 458N-104 | ◆ |
| 4 1/8" | 104.75 | 4.1250" | 458H-0404 | ○ | 458T-0404 | ◆ | 458A-0404 | ◆ | 458N-0404 | ◆ |
| | 106.00 | 4.1732" | 458H-106 | ● | 458T-106 | ◆ | 458A-106 | ◆ | 458N-106 | ◆ |
| 4 3/16" | 106.36 | 4.1875" | 458H-0406 | ○ | 458T-0406 | ◆ | 458A-0406 | ◆ | 458N-0406 | ◆ |
| 4 1/4" | 107.95 | 4.2500" | 458H-0408 | ○ | 458T-0408 | ◆ | 458A-0408 | ◆ | 458N-0408 | ◆ |
| | 108.00 | 4.2520" | 458H-108 | ● | 458T-108 | ◆ | 458A-108 | ◆ | 458N-108 | ◆ |
| 4 5/16" | 109.54 | 4.3125" | 458H-0410 | ○ | 458T-0410 | ◆ | 458A-0410 | ◆ | 458N-0410 | ◆ |
| | 110.00 | 4.3307" | 458H-110 | ● | 458T-110 | ◆ | 458A-110 | ◆ | 458N-110 | ◆ |
| 4 3/8" | 111.13 | 4.3750" | 458H-0412 | ○ | 458T-0412 | ◆ | 458A-0412 | ◆ | 458N-0412 | ◆ |
| | 112.00 | 4.4094" | 458H-112 | ● | 458T-112 | ◆ | 458A-112 | ◆ | 458N-112 | ◆ |
| 4 7/16" | 112.71 | 4.4375" | 458H-0414 | ○ | 458T-0414 | ◆ | 458A-0414 | ◆ | 458N-0414 | ◆ |
| | 114.00 | 4.4882" | 458H-114 | ● | 458T-114 | ◆ | 458A-114 | ◆ | 458N-114 | ◆ |
| 4 1/2" | 114.30 | 4.5000" | 458H-0416 | ○ | 458T-0416 | ◆ | 458A-0416 | ◆ | 458N-0416 | ◆ |

*Supplied in 1 piece packages.*

## 8 Series Standard T-A Original HSS CPM-M4

| Diameter | | | Item Number, Coating and Availability | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ø Inch | Ø mm | Ø Decimal | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
| 4 1/64" | 102.00 | 4.0157" | 138H-102 | ○ | 138T-102 | ◆ | 138A-102 | ◆ | 138N-102 | ◆ |
| 4 1/16" | 103.19 | 4.0625" | 138H-0402 | ◆ | 138T-0402 | ◆ | 138A-0402 | ◆ | 138N-0402 | ◆ |
| 4 3/32" | 104.00 | 4.0945" | 138H-104 | ○ | 138T-104 | ◆ | 138A-104 | ◆ | 138N-104 | ◆ |
| 4 1/8" | 104.75 | 4.1250" | 138H-0404 | ◆ | 138T-0404 | ◆ | 138A-0404 | ◆ | 138N-0404 | ◆ |
| | 106.00 | 4.1732" | 138H-106 | ○ | 138T-106 | ◆ | 138A-106 | ◆ | 138N-106 | ◆ |
| 4 3/16" | 106.36 | 4.1875" | 138H-0406 | ◆ | 138T-0406 | ◆ | 138A-0406 | ◆ | 138N-0406 | ◆ |
| 4 1/4" | 107.95 | 4.2500" | 138H-0408 | ◆ | 138T-0408 | ◆ | 138A-0408 | ◆ | 138N-0408 | ◆ |
| | 108.00 | 4.2520" | 138H-108 | ○ | 138T-108 | ◆ | 138A-108 | ◆ | 138N-108 | ◆ |
| 4 5/16" | 109.54 | 4.3125" | 138H-0410 | ◆ | 138T-0410 | ◆ | 138A-0410 | ◆ | 138N-0410 | ◆ |
| | 110.00 | 4.3307" | 138H-110 | ○ | 138T-110 | ◆ | 138A-110 | ◆ | 138N-110 | ◆ |
| 4 3/8" | 111.13 | 4.3750" | 138H-0412 | ◆ | 138T-0412 | ◆ | 138A-0412 | ◆ | 138N-0412 | ◆ |
| | 112.00 | 4.4094" | 138H-112 | ○ | 138T-112 | ◆ | 138A-112 | ◆ | 138N-112 | ◆ |
| 4 7/16" | 112.71 | 4.4375" | 138H-0414 | ◆ | 138T-0414 | ◆ | 138A-0414 | ◆ | 138N-0414 | ◆ |
| | 114.00 | 4.4882" | 138H-114 | ○ | 138T-114 | ◆ | 138A-114 | ◆ | 138N-114 | ◆ |
| 4 1/2" | 114.30 | 4.5000" | 138H-0416 | ◆ | 138T-0416 | ◆ | 138A-0416 | ◆ | 138N-0416 | ◆ |

*Supplied in 1 piece packages.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


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## T-A® Insert System Guidelines for Use

- Select the shortest holder possible for the application
- Use our catalogue from page 92 'Recommended Cutting Data' for guidance in selecting correct insert grade, speed and feed information.
  These cutting parameters are starting conditions only and make no allowance for machine or component rigidity.
  For more detailed application guidelines, use our 'Electronic Product Selector' (available as a free download from website - www.alliedmaxcut.com) to obtain:
  - Recommended grade of insert.
  - Recommended cutting speed.
  - Recommended cutting feed.
  - Minimum coolant requirements.
  - Machine power / thrust requirements

- Ensure the T-A® holder is held securely and is within 0.02/0.07mm of centreline
- The T-A® insert should be installed in the slot of the holder using the Torx Screws provided which should be tightened to the values listed on page 90 'Holder Accessories'. The holder slot should be clean and free from dirt or debris.

- Check the insert outer diameter is a minimum 0.3mm larger than the holder body diameter.
- When setting up new applications, check coolant flows adequately through the tool before commencing machining.

**It is best practice to:**

- Drill a short hole 1 x diameter deep initially.
- The chips produced should be short in length, self coloured, not straw or blue.
- Measure the hole produced to check that it is to the desired tolerance.
- If all is correct, continue to machine the remainder of the hole.
- Ensure the drilling process is quiet and smooth with no chip packing.
- If chip packing is occurring, stop the drill and refer to the 'Problems and Solutions' guide on catalogue page106.

## Extended length holders

**It is best practice to:**

- Establish a pilot hole using the same diameter T-A® Drill Insert in a short holder to a depth of 2 - 3 diameters deep.
- Enter the pilot hole with the XL or 3XL Holder and Drill Insert with the spindle stationery or at low RPM (10 - 20).
- Increase speed and feed to recommended data in table, ensuring chips are short and are being evacuated by coolant throughout the length of the hole. If chip control is not obtained, please contact AMEC for assistance.
- At the end of the drilling cycle do not remove the holder from the hole whilst at full RPM, stop spindle or reduce to low RPM (10 - 20).

**Note: Carbide inserts should not be used in Extended or longer length holders.**

**XL and 3XL Holders**

For cutting data and coolant recommendations please refer to 'Recommended Cutting Data' - HSS inserts - Pages 90 -92 and 'Coolant Recommendations' - Page 98 then follow the instructions at the foot of the pages for the relevant multiplying factors.

**Note: Never start or continue rotation of an XL or 3XL tool holder without proper engagement within a work piece or fixture. Failure to due so could result in tool failure and/or bodily injury.**

## Geometries

**Spot and Chamfer Inserts – SP**
Use cutting data as per standard T-A® HSS Drill Inserts, in stub or short length holders.
Speed should be calculated for the required spot or chamfer diameter.

**Flat Bottom Insert – FB**
For cutting data refer to catalogue page 93 and 96 'Recommended Cutting Data - Flat Bottom Drill Inserts'.
Please contact Allied Maxcut's Engineering department for advice when attempting to drill from solid.

## Tool Assembly

1. Place the T-A® Drill Insert into the precision ground locating pocket on the T-A® Holder. The holder pocket and locating pad on the drill insert assure optimum fit and repeatability.

2. Place a generous amount of Never Seize (provided in the packaging) onto the supplied TORX Plus Screws.

3. Tighten the TORX Plus Screws utilising the predetermined TORX Plus Drivers and TORX Plus Screw admissible tightening Torque outlined in the catalogue per T-A® Series.

## GEN2 T-A Recommended Cutting Data – HSS Drill Inserts Y-2 Series

| Material | Hardness | | | Speed AM200® M/min | Feed mm/rev | | | |
|---|---|---|---|---|---|---|---|---|
| | BHN | kg | N/mm² | | 9.5-12.95 | 12.98-17.53 | 17.53-24.38 | 24.41-35 |
| Free Machining Steel | 100-150 | 38-50 | 370-500 | 99 | 0.20 | 0.30 | 0.41 | 0.48 |
| | 150-200 | 50-70 | 500-700 | 91 | 0.18 | 0.28 | 0.38 | 0.43 |
| | 200-250 | 70-88 | 700-870 | 85 | 0.15 | 0.25 | 0.36 | 0.41 |
| Low Carbon Steel | 85-125 | 30-46 | 300-450 | 88 | 0.20 | 0.25 | 0.36 | 0.46 |
| | 125-175 | 46-62 | 450-600 | 83 | 0.18 | 0.25 | 0.36 | 0.43 |
| | 175-225 | 62-77 | 600-775 | 79 | 0.15 | 0.23 | 0.33 | 0.41 |
| | 225-275 | 77-96 | 775-940 | 73 | 0.13 | 0.23 | 0.33 | 0.41 |
| Medium Carbon Steel | 125-175 | 46-62 | 450-600 | 83 | 0.18 | 0.25 | 0.36 | 0.43 |
| | 175-225 | 62-77 | 600-775 | 79 | 0.15 | 0.23 | 0.33 | 0.41 |
| | 225-275 | 77-96 | 775-940 | 73 | 0.15 | 0.23 | 0.33 | 0.41 |
| | 275-325 | 96-111 | 940-1090 | 68 | 0.13 | 0.20 | 0.30 | 0.38 |
| Alloy Steel | 125-175 | 46-62 | 450-600 | 73 | 0.18 | 0.25 | 0.36 | 0.41 |
| | 175-225 | 62-77 | 600-775 | 68 | 0.15 | 0.23 | 0.33 | 0.41 |
| | 225-275 | 77-96 | 775-940 | 64 | 0.15 | 0.23 | 0.33 | 0.43 |
| | 275-325 | 96-111 | 940-1090 | 59 | 0.13 | 0.20 | 0.30 | 0.38 |
| | 325-375 | 111-129 | 1090-1265 | 54 | 0.10 | 0.18 | 0.28 | 0.36 |
| High Strength Steel | 225-300 | 77-104 | 600-1020 | 38 | 0.15 | 0.23 | 0.28 | 0.33 |
| | 300-350 | 104-121 | 1020-1180 | 30 | 0.13 | 0.20 | 0.25 | 0.30 |
| | 350-400 | 121-139 | 1180-1365 | 24 | 0.10 | 0.18 | 0.23 | 0.28 |
| Structural Steel | 100-150 | 38-50 | 370-500 | 71 | 0.20 | 0.28 | 0.38 | 0.43 |
| | 150-250 | 50-88 | 500-850 | 57 | 0.15 | 0.25 | 0.33 | 0.38 |
| | 250-350 | 88-121 | 850-1180 | 48 | 0.13 | 0.23 | 0.30 | 0.33 |
| Tool Steel | 150-200 | 50-70 | 500-700 | 38 | 0.10 | 0.18 | 0.25 | 0.30 |
| | 200-250 | 70-88 | 700-870 | 32 | 0.10 | 0.18 | 0.25 | 0.30 |
| High Temp Alloy | 140-220 | 49-77 | 480-755 | 13 | 0.10 | 0.18 | 0.23 | 0.28 |
| | 223-310 | 77-101 | 755-990 | 12 | 0.10 | 0.15 | 0.20 | 0.25 |
| Titanium Alloy | 140-220 | 49-77 | 480-755 | 16 | 0.10 | 0.18 | 0.21 | 0.27 |
| | 220-310 | 77-101 | 755-990 | 15 | 0.08 | 0.15 | 0.18 | 0.23 |
| Aerospace Alloy S82 | 185-275 | 65-96 | 640-940 | 35 | 0.15 | 0.20 | 0.23 | 0.28 |
| | 275-350 | 96-121 | 940-1180 | 31 | 0.13 | 0.18 | 0.20 | 0.25 |
| Stainless Steel 400 Series 416, 420, (303) | 185-275 | 65-96 | 640-940 | 35 | 0.15 | 0.20 | 0.23 | 0.28 |
| | 275-350 | 96-121 | 940-1180 | 31 | 0.13 | 0.18 | 0.20 | 0.25 |
| Stainless Steel 300 Series 304, 316, 17-4PH | 135-185 | 49-65 | 480-640 | 35 | 0.08 | 0.18 | 0.20 | 0.28 |
| | 185-275 | 65-96 | 640-940 | 31 | 0.08 | 0.15 | 0.18 | 0.25 |
| Super Duplex Duplex St/Stl | 135-185 | 49-65 | 480-640 | 26 | 0.08 | 0.18 | 0.20 | 0.28 |
| | 185-275 | 65-96 | 640-940 | 22 | 0.08 | 0.15 | 0.18 | 0.25 |
| Hardox | 400 | 139 | 1365 | 21 | 0.08 | 0.15 | 0.20 | 0.23 |
| | 500 | 160 | 1600 | 14 | 0.05 | 0.12 | 0.18 | 0.20 |
| | 600 | 210 | 2000 | N/A | N/A | N/A | N/A | N/A |
| Hardened Steel | 300-400 | 104-139 | 1020-1365 | 29 | 0.10 | 0.15 | 0.23 | 0.27 |
| | 400-500 | 139+ | 1365+ | 14 | 0.06 | 0.12 | 0.18 | 0.24 |
| SG/Nodular/ Grey/White Cast Iron | 120-150 | 44-50 | 430-500 | 84 | 0.20 | 0.30 | 0.41 | 0.51 |
| | 150-200 | 50-70 | 500-700 | 79 | 0.18 | 0.28 | 0.38 | 0.48 |
| | 200-220 | 70-77 | 700-755 | 68 | 0.15 | 0.23 | 0.33 | 0.43 |
| | 220-260 | 77-90 | 755-890 | 57 | 0.13 | 0.20 | 0.28 | 0.36 |
| | 260-320 | 90-104 | 890-1020 | 47 | 0.13 | 0.18 | 0.25 | 0.28 |
| Cast Aluminium | 30 | 10 | 100 | (TICN) 229 | 0.23 | 0.38 | 0.46 | 0.58 |
| | 180 | 62 | 600 | (TICN) 122 | 0.20 | 0.33 | 0.40 | 0.50 |
| Wrought Aluminium | 30 | 10 | 100 | 280 | 0.12 | 0.33 | 0.40 | 0.50 |
| | 180 | 62 | 600 | 200 | 0.12 | 0.18 | 0.30 | 0.35 |
| Aluminium Bronze | 100-200 | 38-68 | 370-670 | 82 | 0.15 | 0.24 | 0.30 | 0.38 |
| | 200-250 | 68-87 | 670-855 | 65 | 0.12 | 0.18 | 0.23 | 0.28 |
| Brass | 100 | 38 | 370 | 144 | 0.18 | 0.27 | 0.33 | 0.45 |
| Copper | 60 | 21 | 200 | 58 | 0.07 | 0.10 | 0.18 | 0.26 |

### Speed & Feed Multiplier for XL & 3XL tool length

When using the XL and 3XL holders, drilling parameters must be reduced *(see table on opposite page).*

**Example** – Using XL holder
**Material** - Free machining steel (200BHN)
**Diameter & Hole Depth** – 17.5mm x 280mm
**Insert** – Original T-A 150N-17.5 TiCN coated
**Holder** – 27000S-20FM

**Calculation**

Speed M/min = 85
X 0.80 (taken from speed & Feed Multiplier)
= 68

Feed (mm/rev) = 0.25
X 0.90 (taken from speed & Feed Multiplier)
= 0.23



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## GEN2 T-A® Recommended Cutting Data – HSS Drill Inserts 3-8 Series

| Material | Hardness | | | Tool Steel Grade | Speed M/min | | Feed (mm/rev) | | |
|---|---|---|---|---|---|---|---|---|---|
| | BHN | kg | N/mm² | | TiN | AM200® | 35 - 47.8 | 47.85 - 65 | 66 - 114.48 |
| Free Machining Steel | 100-150 | 38-50 | 370-500 | HSS/SC | 61 | 99 | 0.51 | 0.58 | 0.71 |
| | 150-200 | 50-70 | 500-700 | HSS/SC | 55 | 91 | 0.51 | 0.58 | 0.71 |
| | 200-250 | 70-88 | 700-870 | HSS/SC | 49 | 85 | 0.51 | 0.58 | 0.71 |
| Low Carbon Steel | 85-125 | 30-46 | 300-450 | HSS/SC | 52 | 88 | 0.48 | 0.58 | 0.69 |
| | 125-175 | 46-62 | 450-600 | HSS/SC | 49 | 83 | 0.48 | 0.58 | 0.69 |
| | 175-225 | 62-77 | 600-775 | HSS/SC | 46 | 79 | 0.46 | 0.53 | 0.61 |
| | 225-275 | 77-96 | 775-940 | HSS/SC | 43 | 73 | 0.46 | 0.53 | 0.61 |
| Medium Carbon Steel | 125-175 | 46-62 | 450-600 | HSS/SC | 49 | 83 | 0.48 | 0.58 | 0.69 |
| | 175-225 | 62-77 | 600-775 | HSS/SC | 46 | 79 | 0.46 | 0.53 | 0.61 |
| | 225-275 | 77-96 | 775-940 | HSS/SC | 43 | 73 | 0.46 | 0.53 | 0.61 |
| | 275-325 | 96-111 | 940-1090 | SC, PC | 40 | 68 | 0.41 | 0.48 | 0.56 |
| Alloy Steel | 125-175 | 46-62 | 450-600 | HSS/SC | 46 | 73 | 0.43 | 0.48 | 0.56 |
| | 175-225 | 62-77 | 600-775 | HSS/SC | 43 | 68 | 0.43 | 0.48 | 0.56 |
| | 225-275 | 77-96 | 775-940 | HSS/SC | 40 | 64 | 0.43 | 0.48 | 0.56 |
| | 275-325 | 96-111 | 940-1090 | SC, PC | 37 | 59 | 0.38 | 0.43 | 0.51 |
| | 325-375 | 111-129 | 1090-1265 | SC, PC | 34 | 54 | 0.38 | 0.43 | 0.51 |
| High Strength Steel | 225-300 | 77-104 | 600-1020 | SC, PC | 24 | 38 | 0.36 | 0.43 | 0.51 |
| | 300-350 | 104-121 | 1020-1180 | SC, PC | 18 | 30 | 0.36 | 0.43 | 0.51 |
| | 350-400 | 121-139 | 1180-1365 | PC | 15 | 24 | 0.30 | 0.41 | 0.46 |
| Structural Steel | 100-150 | 38-50 | 370-500 | HSS/SC | 43 | 71 | 0.46 | 0.53 | 0.66 |
| | 150-250 | 50-88 | 500-850 | HSS/SC | 37 | 57 | 0.41 | 0.48 | 0.61 |
| | 250-350 | 88-121 | 850-1180 | SC, PC | 30 | 49 | 0.36 | 0.43 | 0.51 |
| Tool Steel | 150-200 | 50-70 | 500-700 | SC | 24 | 38 | 0.30 | 0.38 | 0.43 |
| | 200-250 | 70-88 | 700-870 | SC, PC | 18 | 32 | 0.30 | 0.38 | 0.43 |
| High Temp Alloy | 140-220 | 49-77 | 480-755 | SC, PC | 9 | 13 | 0.30 | 0.38 | 0.38 |
| | 223-310 | 77-101 | 755-990 | PC | 8 | 12 | 0.25 | 0.30 | 0.30 |
| Titanium Alloy | 140-220 | 49-77 | 480-755 | SC, PC | 11 | 16 | 0.30 | 0.38 | 0.38 |
| | 220-310 | 77-101 | 755-990 | PC | 10 | 15 | 0.25 | 0.30 | 0.30 |
| Aerospace Alloy S82 | 185-275 | 65-96 | 640-940 | SC, PC | 23 | 35 | 0.30 | 0.36 | 0.46 |
| | 275-350 | 96-121 | 940-1180 | SC, PC | 18 | 31 | 0.36 | 0.41 | 0.51 |
| Stainless Steel 400 Series 416, 420, (303) | 185-275 | 65-96 | 640-940 | SC, PC | 23 | 35 | 0.30 | 0.36 | 0.46 |
| | 275-350 | 96-121 | 940-1180 | SC, PC | 18 | 31 | 0.36 | 0.41 | 0.51 |
| Stainless Steel 300 Series 304, 316, 17-4PH | 135-185 | 49-65 | 480-640 | SC, PC | 23 | 35 | 0.30 | 0.36 | 0.46 |
| | 185-275 | 65-96 | 640-940 | SC, PC | 18 | 31 | 0.36 | 0.41 | 0.51 |
| Super Duplex Duplex St/Stl | 135-185 | 49-65 | 480-640 | SC, PC | 18 | 26 | 0.36 | 0.41 | 0.51 |
| | 185-275 | 65-96 | 640-940 | SC, PC | 15 | 22 | 0.30 | 0.36 | 0.46 |
| Hardox | 400 | 139 | 1365 | SC, PC | 14 | 21 | 0.30 | 0.41 | 0.46 |
| | 500 | 160 | 1600 | PC | 10 | 14 | 0.25 | 0.30 | 0.40 |
| | 600 | 210 | 2000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Hardened Steel | 300-400 | 104-139 | 1020-1365 | PC | 15 | 29 | 0.30 | 0.41 | 0.46 |
| | 400-500 | 139+ | 1365+ | PC | 10 | 14 | 0.25 | 0.30 | 0.40 |
| SG/Nodular/ Grey/White Cast Iron | 120-150 | 44-50 | 430-500 | HSS | 52 | 84 | 0.61 | 0.69 | 0.76 |
| | 150-200 | 50-70 | 500-700 | HSS | 46 | 79 | 0.56 | 0.64 | 0.71 |
| | 200-220 | 70-77 | 700-755 | HSS | 40 | 68 | 0.46 | 0.53 | 0.61 |
| | 220-260 | 77-90 | 755-890 | SC, PC | 34 | 57 | 0.36 | 0.43 | 0.51 |
| | 260-320 | 90-104 | 890-1020 | SC, PC | 27 | 47 | 0.28 | 0.36 | 0.41 |
| Cast Aluminium | 30 | 10 | 100 | HSS | 183 | TiCN 229 | 0.56 | 0.64 | 0.64 |
| | 180 | 62 | 600 | HSS | 91 | TiCN 129 | 0.56 | 0.64 | 0.64 |
| Wrought Aluminium | 30 | 10 | 100 | HSS | 183 | 200 | 0.56 | 0.64 | 0.64 |
| | 180 | 62 | 600 | HSS | 91 | 150 | 0.56 | 0.64 | 0.64 |
| Aluminium Bronze | 100-200 | 38-68 | 370-670 | SC | 52 | 82 | 0.43 | 0.48 | 0.53 |
| | 200-250 | 68-87 | 670-855 | SC | 40 | 65 | 0.36 | 0.40 | 0.46 |
| Brass | 100 | 38 | 370 | HSS | 91 | 144 | 0.47 | 0.53 | 0.58 |
| Copper | 60 | 21 | 200 | SC | 40 | 58 | 0.23 | 0.27 | 0.31 |

**Formulas:** **mm/min = rev/min • mm/rev** **M/min = rev/min • 0.003 • DIA** **rev/min = M/min • 318.47/DIA**

**SPEED AND FEED MULTIPLIER** For various tool lengths

**WARNING** See operating guidelines p89.

| | Holder Length | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Stub | Short | Intermediate | Standard | Extended ⚠ | Long ⚠ | XL ⚠ | 3XL ⚠ |
| SPEED | see above chart | | | | 0.90 | 0.85 | 0.80 | 0.75 |
| FEED | see above chart | | | | | 0.95 | 0.90 | 0.90 |

# Technical Section - T-A®

## Recommended Cutting Data – HSS Drill Inserts Y-8 Series

| Material Category | Hardness | | | Tool Steel Grade * | Speed M/min | | | Feed (mm/rev) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BHN | kg | N/mm² | | TiN | TiCN | TiAlN | 9.5-12.95 | 12.98-17.53 | 17.53-24.38 | 24.41-35 | 35-47.8 | 47.85-65 | 66-114.48 |
| Free Machining Steel | 100-150 | 38-50 | 370-500 | HSS | 61 | 80 | 86 | 0.18 | 0.25 | 0.33 | 0.41 | 0.51 | 0.58 | 0.71 |
| | 150-200 | 50-70 | 500-700 | HSS | 55 | 72 | 80 | 0.18 | 0.25 | 0.33 | 0.41 | 0.51 | 0.58 | 0.71 |
| | 200-250 | 70-88 | 700-870 | HSS | 49 | 64 | 73 | 0.15 | 0.25 | 0.33 | 0.41 | 0.51 | 0.58 | 0.71 |
| Low Carbon Steel | 85-125 | 30-46 | 300-450 | HSS | 52 | 67 | 76 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | 0.58 | 0.69 |
| | 125-175 | 46-62 | 450-600 | HSS | 49 | 64 | 73 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | 0.58 | 0.69 |
| | 175-225 | 62-77 | 600-775 | HSS | 46 | 60 | 69 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 | 0.61 |
| | 225-275 | 77-96 | 775-940 | HSS | 43 | 55 | 64 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 | 0.61 |
| Medium Carbon Steel | 125-175 | 46-62 | 450-600 | HSS | 49 | 64 | 73 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | 0.58 | 0.69 |
| | 175-225 | 62-77 | 600-775 | HSS | 46 | 60 | 69 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 | 0.61 |
| | 225-275 | 77-96 | 775-940 | HSS | 43 | 55 | 64 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 | 0.61 |
| | 275-325 | 96-111 | 940-1090 | SC, PC | 40 | 52 | 60 | 0.10 | 0.18 | 0.23 | 0.30 | 0.41 | 0.48 | 0.56 |
| Alloy Steel | 125-175 | 46-62 | 450-600 | HSS | 46 | 60 | 64 | 0.15 | 0.20 | 0.25 | 0.36 | 0.43 | 0.48 | 0.56 |
| | 175-225 | 62-77 | 600-775 | HSS | 43 | 55 | 60 | 0.13 | 0.20 | 0.25 | 0.36 | 0.43 | 0.48 | 0.56 |
| | 225-275 | 77-96 | 775-940 | HSS | 40 | 52 | 55 | 0.13 | 0.18 | 0.25 | 0.36 | 0.43 | 0.48 | 0.56 |
| | 275-325 | 96-111 | 940-1090 | SC, PC | 37 | 47 | 52 | 0.10 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 | 0.51 |
| | 325-375 | 111-129 | 1090-1265 | SC, PC | 34 | 44 | 47 | 0.08 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 | 0.51 |
| High Strength Steel | 225-300 | 77-104 | 600-1020 | SC, PC | 24 | 31 | 34 | 0.13 | 0.18 | 0.23 | 0.25 | 0.36 | 0.43 | 0.51 |
| | 300-350 | 104-121 | 1020-1180 | SC, PC | 18 | 24 | 26 | 0.10 | 0.18 | 0.23 | 0.25 | 0.36 | 0.43 | 0.51 |
| | 350-400 | 121-139 | 1180-1365 | PC | 15 | 20 | 21 | 0.08 | 0.15 | 0.20 | 0.23 | 0.30 | 0.41 | 0.46 |
| Structural Steel | 100-150 | 38-50 | 370-500 | HSS | 43 | 55 | 61 | 0.15 | 0.25 | 0.30 | 0.36 | 0.46 | 0.53 | 0.66 |
| | 150-250 | 50-88 | 500-850 | HSS | 37 | 47 | 52 | 0.13 | 0.23 | 0.25 | 0.30 | 0.41 | 0.48 | 0.61 |
| | 250-350 | 88-121 | 850-1180 | SC, PC | 30 | 40 | 43 | 0.10 | 0.20 | 0.23 | 0.25 | 0.36 | 0.43 | 0.51 |
| Tool Steel | 150-200 | 50-70 | 500-700 | SC | 24 | 32 | 34 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.38 | 0.43 |
| | 200-250 | 70-88 | 700-870 | SC, PC | 18 | 26 | 28 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.38 | 0.43 |
| High Temp Alloy | 140-220 | 49-77 | 480-755 | SC, PC | 9 | 11 | 12 | 0.08 | 0.18 | 0.20 | 0.25 | 0.30 | 0.38 | 0.38 |
| | 223-310 | 77-101 | 755-990 | PC | 8 | 9 | 11 | 0.08 | 0.15 | 0.18 | 0.20 | 0.25 | 0.30 | 0.30 |
| Titanium Alloy | 140-220 | 49-77 | 480-755 | SC, PC | 11 | 14 | 15 | 0.08 | 0.18 | 0.20 | 0.25 | 0.30 | 0.38 | 0.38 |
| | 220-310 | 77-101 | 755-990 | PC | 10 | 11 | 14 | 0.08 | 0.15 | 0.18 | 0.20 | 0.25 | 0.30 | 0.30 |
| Aerospace Alloy S82 | 185-275 | 65-96 | 640-940 | SC, PC | 23 | 29 | 32 | 0.15 | 0.20 | 0.23 | 0.28 | 0.36 | 0.41 | 0.51 |
| | 275-350 | 96-121 | 940-1180 | SC, PC | 18 | 24 | 28 | 0.13 | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 | 0.46 |
| Stainless Steel 400 Series 416, 420, (303) | 185-275 | 65-96 | 640-940 | SC, PC | 23 | 29 | 32 | 0.15 | 0.20 | 0.23 | 0.28 | 0.36 | 0.41 | 0.51 |
| | 275-350 | 96-121 | 940-1180 | SC, PC | 18 | 24 | 28 | 0.13 | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 | 0.46 |
| Stainless Steel 300 Series 304, 316, 17-4PH | 135-185 | 49-65 | 480-640 | SC, PC | 23 | 29 | 32 | 0.08 | 0.18 | 0.20 | 0.28 | 0.36 | 0.41 | 0.51 |
| | 185-275 | 65-96 | 640-940 | SC, PC | 18 | 24 | 28 | 0.08 | 0.15 | 0.18 | 0.25 | 0.30 | 0.36 | 0.46 |
| Super Duplex Duplex St.Stl | 135-185 | 49-65 | 480-640 | SC, PC | 18 | 22 | 24 | 0.08 | 0.18 | 0.20 | 0.28 | 0.36 | 0.41 | 0.51 |
| | 185-275 | 65-96 | 640-940 | SC, PC | 15 | 18 | 20 | 0.08 | 0.15 | 0.18 | 0.25 | 0.30 | 0.36 | 0.46 |
| Hardox | 400 | 139 | 1365 | SC, PC | 14 | 17 | 21 | 0.08 | 0.15 | 0.20 | 0.23 | 0.30 | 0.41 | 0.46 |
| | 500 | 160 | 1600 | PC | 10 | 12 | 14 | 0.05 | 0.12 | 0.18 | 0.20 | 0.25 | 0.30 | 0.40 |
| | 600 | 210 | 2000 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Hardened Steel | 300-400 | 104-139 | 1020-1365 | PC | 15 | 21 | 29 | 0.08 | 0.15 | 0.20 | 0.23 | 0.30 | 0.41 | 0.46 |
| | 400-500 | 139+ | 1365+ | PC | 10 | 12 | 14 | 0.05 | 0.12 | 0.18 | 0.20 | 0.25 | 0.30 | 0.40 |
| SG/Nodular/ Grey/White Cast Iron | 120-150 | 44-50 | 430-500 | HSS | 52 | 67 | 76 | 0.18 | 0.30 | 0.41 | 0.51 | 0.61 | 0.69 | 0.76 |
| | 150-200 | 50-70 | 500-700 | HSS | 46 | 60 | 69 | 0.15 | 0.28 | 0.36 | 0.46 | 0.56 | 0.64 | 0.71 |
| | 200-220 | 70-77 | 700-755 | HSS | 40 | 52 | 60 | 0.15 | 0.23 | 0.30 | 0.41 | 0.46 | 0.53 | 0.61 |
| | 220-260 | 77-90 | 755-890 | SC, PC | 34 | 44 | 50 | 0.13 | 0.18 | 0.23 | 0.30 | 0.36 | 0.43 | 0.51 |
| | 260-320 | 90-104 | 890-1020 | SC, PC | 27 | 37 | 41 | 0.1 | 0.15 | 0.18 | 0.23 | 0.28 | 0.36 | 0.41 |
| Cast Aluminium | 30 | 10 | 100 | HSS | 183 | 229 | 260 | 0.2 | 0.33 | 0.41 | 0.50 | 0.56 | 0.64 | 0.64 |
| | 180 | 62 | 600 | HSS | 91 | 122 | 138 | 0.2 | 0.33 | 0.41 | 0.46 | 0.56 | 0.64 | 0.64 |
| Wrought Aluminium | 30 | 10 | 100 | HSS | 183 | 229 | 260 | 0.1 | 0.15 | 0.25 | 0.30 | 0.56 | 0.64 | 0.64 |
| | 180 | 62 | 600 | HSS | 91 | 122 | 138 | 0.2 | 0.33 | 0.41 | 0.46 | 0.56 | 0.64 | 0.64 |
| Aluminium Bronze | 100-200 | 38-68 | 370-670 | SC | 52 | 67 | 76 | 0.15 | 0.28 | 0.36 | 0.46 | 0.56 | 0.66 | 0.71 |
| | 200-250 | 68-87 | 670-855 | SC | 40 | 52 | 59 | 0.13 | 0.18 | 0.23 | 0.30 | 0.36 | 0.43 | 0.51 |
| Brass | 100 | 38 | 370 | HSS | 91 | 122 | 137 | 0.18 | 0.30 | 0.41 | 0.51 | 0.61 | 0.71 | 0.76 |
| Copper | 60 | 21 | 200 | SC | 40 | 45 | 50 | 0.05 | 0.08 | 0.15 | 0.20 | 0.25 | 0.35 | 0.40 |

**Formulas:** **mm/min = rev/min • mm/rev** **M/min = rev/min • 0.003 • DIA** **rev/min = M/min • 318.47/DIA**

**SPEED AND FEED MULTIPLIER** For various tool lengths

**WARNING** See operating guidelines p89.

| | Holder Length | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Stub | Short | Intermediate | Standard | Extended ⚠ | Long ⚠ | XL ⚠ | 3XL ⚠ |
| SPEED | see above chart | | | | 0.90 | 0.85 | 0.80 | 0.75 |
| FEED | see above chart | | | | | 0.95 | 0.90 | 0.90 |



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## Recommended Cutting Data - HSS Flat Bottom Drill Inserts Y-4 Series

| Material Category | Hardness | | | Speed M/min | | | Feed (mm/rev) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BHN | kg | N/mm² | TiN | TiCN | TiAlN | 9.5 – 12.95mm | 12.98 – 17.53mm | 17.53 – 24.38mm | 24.41 – 35mm | 34.37 – 47.80mm | 47.85 – 65mm |
| Free Machining Steel | 100-150 | 38-50 | 370-500 | 52 | 70 | 76 | 0.15 | 0.23 | 0.28 | 0.35 | 0.41 | 0.46 |
| | 150-200 | 50-70 | 500-700 | 47 | 62 | 70 | 0.15 | 0.23 | 0.28 | 0.35 | 0.41 | 0.46 |
| | 200-250 | 70-88 | 700-870 | 43 | 56 | 64 | 0.13 | 0.23 | 0.28 | 0.35 | 0.38 | 0.43 |
| Low Carbon Steel | 85-125 | 30-46 | 300-450 | 46 | 59 | 67 | 0.13 | 0.20 | 0.25 | 0.33 | 0.38 | 0.43 |
| | 125-175 | 46-62 | 450-600 | 43 | 56 | 64 | 0.13 | 0.20 | 0.25 | 0.33 | 0.38 | 0.41 |
| | 175-225 | 62-77 | 600-775 | 40 | 53 | 59 | 0.10 | 0.18 | 0.23 | 0.30 | 0.36 | 0.41 |
| | 225-275 | 77-96 | 775-940 | 37 | 47 | 56 | 0.10 | 0.18 | 0.23 | 0.30 | 0.36 | 0.38 |
| Medium Carbon Steel | 125-175 | 46-62 | 450-600 | 43 | 56 | 64 | 0.13 | 0.20 | 0.25 | 0.33 | 0.38 | 0.46 |
| | 175-225 | 62-77 | 600-775 | 40 | 53 | 59 | 0.10 | 0.18 | 0.23 | 0.30 | 0.36 | 0.43 |
| | 225-275 | 77-96 | 775-940 | 37 | 47 | 56 | 0.10 | 0.18 | 0.23 | 0.30 | 0.36 | 0.43 |
| | 275-325 | 96-111 | 940-1090 | 34 | 46 | 53 | 0.10 | 0.15 | 0.20 | 0.25 | 0.33 | 0.38 |
| Alloy Steel | 125-175 | 46-62 | 450-600 | 40 | 53 | 56 | 0.13 | 0.18 | 0.23 | 0.30 | 0.33 | 0.41 |
| | 175-225 | 62-77 | 600-775 | 37 | 47 | 53 | 0.10 | 0.18 | 0.23 | 0.30 | 0.33 | 0.41 |
| | 225-275 | 77-96 | 775-940 | 34 | 44 | 47 | 0.10 | 0.15 | 0.23 | 0.30 | 0.33 | 0.41 |
| | 275-325 | 96-111 | 940-1090 | 32 | 41 | 44 | 0.10 | 0.13 | 0.20 | 0.25 | 0.30 | 0.38 |
| | 325-375 | 111-129 | 1090-1265 | 29 | 38 | 41 | 0.08 | 0.13 | 0.20 | 0.25 | 0.30 | 0.36 |
| High Strength Steel | 225-300 | 77-104 | 600-1020 | 21 | 26 | 29 | 0.10 | 0.15 | 0.20 | 0.23 | 0.25 | 0.30 |
| | 300-350 | 104-121 | 1020-1180 | 15 | 21 | 23 | 0.08 | 0.15 | 0.20 | 0.23 | 0.25 | 0.30 |
| | 350-400 | 121-139 | 1180-1365 | 13 | 18 | 20 | 0.08 | 0.13 | 0.18 | 0.20 | 0.23 | 0.28 |
| Structural Steel | 100-150 | 38-50 | 370-500 | 36 | 47 | 52 | 0.13 | 0.23 | 0.25 | 0.30 | 0.38 | 0.43 |
| | 150-250 | 50-88 | 500-850 | 32 | 41 | 44 | 0.10 | 0.20 | 0.23 | 0.25 | 0.33 | 0.41 |
| | 250-350 | 88-121 | 850-1180 | 26 | 34 | 37 | 0.10 | 0.18 | 0.20 | 0.23 | 0.30 | 0.38 |
| Tool Steel | 150-200 | 50-70 | 500-700 | 21 | 27 | 29 | 0.10 | 0.13 | 0.18 | 0.23 | 0.25 | 0.30 |
| | 200-250 | 70-88 | 700-870 | 15 | 23 | 24 | 0.10 | 0.13 | 0.18 | 0.23 | 0.23 | 0.28 |
| High Temp Alloy | 140-220 | 49-77 | 480-755 | 7 | 9 | 10 | 0.08 | 0.15 | 0.18 | 0.23 | 0.25 | 0.30 |
| | 223-310 | 77-101 | 755-990 | 6 | 7 | 9 | 0.08 | 0.13 | 0.15 | 0.18 | 0.20 | 0.25 |
| Titanium Alloy | 140-220 | 49-77 | 480-755 | 10 | 12 | 14 | 0.08 | 0.15 | 0.18 | 0.23 | 0.25 | 0.30 |
| | 220-310 | 77-101 | 755-990 | 8 | 11 | 12 | 0.08 | 0.13 | 0.15 | 0.18 | 0.20 | 0.25 |
| Aerospace Alloy S82 | 185-275 | 65-96 | 640-940 | 20 | 26 | 27 | 0.13 | 0.18 | 0.20 | 0.25 | 0.30 | 0.38 |
| | 275-350 | 96-121 | 940-1180 | 15 | 21 | 24 | 0.10 | 0.15 | 0.18 | 0.23 | 0.25 | 0.30 |
| Stainless Steel 400 Series 416, 420, (303) | 185-275 | 65-96 | 640-940 | 20 | 26 | 27 | 0.13 | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 |
| | 275-350 | 96-121 | 940-1180 | 15 | 21 | 24 | 0.10 | 0.15 | 0.18 | 0.23 | 0.25 | 0.28 |
| Stainless Steel 300 Series 304, 316, 17-4PH | 135-185 | 49-65 | 480-640 | 20 | 26 | 27 | 0.13 | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 |
| | 185-275 | 65-96 | 640-940 | 15 | 21 | 24 | 0.10 | 0.15 | 0.18 | 0.23 | 0.25 | 0.28 |
| Super Duplex Duplex St/Stl | 135-185 | 49-65 | 480-640 | 20 | 26 | 27 | 0.13 | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 |
| | 185-275 | 65-96 | 640-940 | 15 | 21 | 24 | 0.10 | 0.15 | 0.18 | 0.23 | 0.25 | 0.28 |
| Hardox | 400 | 139 | 1365 | | | | | | | | | |
| | 500 | 160 | 1600 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | 600 | 210 | 2000 | | | | | | | | | |
| Hardened Steel | 300-400 | 104-139 | 1020-1365 | 13 | 18 | 20 | 0.08 | 0.13 | 0.18 | 0.20 | 0.27 | 0.38 |
| | 400-500 | 139+ | 1365+ | 8 | 10 | 12 | 0.06 | 0.10 | 0.15 | 0.18 | 0.23 | 0.28 |
| SG/Nodular/ Grey/White Cast Iron | 120-150 | 44-50 | 430-500 | 46 | 59 | 67 | 0.15 | 0.25 | 0.36 | 0.43 | 0.48 | 0.51 |
| | 150-200 | 50-70 | 500-700 | 40 | 53 | 59 | 0.13 | 0.23 | 0.30 | 0.41 | 0.46 | 0.48 |
| | 200-220 | 70-77 | 700-755 | 34 | 46 | 53 | 0.13 | 0.20 | 0.25 | 0.36 | 0.41 | 0.43 |
| | 220-260 | 77-90 | 755-890 | 29 | 38 | 46 | 0.10 | 0.15 | 0.20 | 0.25 | 0.33 | 0.33 |
| | 260-320 | 90-104 | 890-1020 | 24 | 32 | 37 | 0.10 | 0.13 | 0.15 | 0.20 | 0.25 | 0.25 |
| Cast Aluminium | 30 | 10 | 100 | 160 | 198 | 228 | 0.18 | 0.28 | 0.36 | 0.43 | 0.46 | 0.48 |
| | 180 | 62 | 600 | 79 | 107 | 122 | 0.18 | 0.28 | 0.36 | 0.41 | 0.43 | 0.48 |
| Wrought Aluminium | 30 | 10 | 100 | 160 | 198 | 228 | 0.18 | 0.28 | 0.36 | 0.43 | 0.46 | 0.48 |
| | 180 | 62 | 600 | 79 | 107 | 122 | 0.18 | 0.28 | 0.36 | 0.41 | 0.43 | 0.48 |
| Aluminium Bronze | 100-200 | 38-68 | 370-670 | 40 | 53 | 59 | 0.13 | 0.23 | 0.30 | 0.41 | 0.51 | 0.61 |
| | 200-250 | 68-87 | 670-855 | 29 | 38 | 46 | 0.10 | 0.15 | 0.20 | 0.25 | 0.31 | 0.38 |
| Brass | 100 | 38 | 370 | 46 | 59 | 67 | 0.15 | 0.25 | 0.36 | 0.43 | 0.53 | 0.63 |
| Copper | 60 | 21 | 200 | 35 | 40 | 45 | 0.05 | 0.08 | 0.15 | 0.20 | 0.25 | 0.35 |

**Formulas:** **mm/min = rev/min • mm/rev** **M/min = rev/min • 0.003 • DIA** **rev/min = M/min • 318.47/DIA**

**SPEED AND FEED MULTIPLIER** For various tool lengths

**WARNING** See operating guidelines p89.

| | Holder Length | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Stub | Short | Intermediate | Standard | Extended ⚠ | Long ⚠ | XL ⚠ | 3XL ⚠ |
| SPEED | see above chart | | | | 0.90 | 0.85 | 0.80 | 0.75 |
| FEED | see above chart | | | | | 0.95 | 0.90 | 0.90 |

## GEN2 T-A® Recommended Cutting Data – Carbide Drill Inserts Y-2 Series

| Material | Hardness | | | Grade | AM200® Speed M/min | Feed (mm/rev) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | BHN | kg | N/mm² | | | 9.5-12.95 | 12.98-17.53 | 17.53-24.38 | 24.41-35 |
| Free Machining Steel | 100-150 | 38-50 | 370-500 | C1/K35 | 146 | 0.20 | 0.30 | 0.41 | 0.48 |
| | 150-200 | 50-70 | 500-700 | C1/K35 | 126 | 0.18 | 0.28 | 0.38 | 0.43 |
| | 200-250 | 70-88 | 700-870 | C1/K35 | 119 | 0.15 | 0.25 | 0.36 | 0.41 |
| Low Carbon Steel | 85-125 | 30-46 | 300-450 | C1/K35 | 137 | 0.20 | 0.25 | 0.36 | 0.46 |
| | 125-175 | 46-62 | 450-600 | C1/K35 | 119 | 0.18 | 0.25 | 0.36 | 0.43 |
| | 175-225 | 62-77 | 600-775 | C1/K35 | 108 | 0.15 | 0.23 | 0.33 | 0.41 |
| | 225-275 | 77-96 | 775-940 | C1/K35 | 95 | 0.13 | 0.23 | 0.33 | 0.41 |
| Medium Carbon Steel | 125-175 | 46-62 | 450-600 | C1/K35 | 119 | 0.18 | 0.25 | 0.36 | 0.43 |
| | 175-225 | 62-77 | 600-775 | C1/K35 | 108 | 0.15 | 0.23 | 0.33 | 0.41 |
| | 225-275 | 77-96 | 775-940 | C1/K35 | 95 | 0.15 | 0.23 | 0.33 | 0.41 |
| | 275-325 | 96-111 | 940-1090 | C1/K35 | 80 | 0.13 | 0.20 | 0.30 | 0.38 |
| Alloy Steel | 125-175 | 46-62 | 450-600 | C1/K35 | 115 | 0.18 | 0.25 | 0.36 | 0.43 |
| | 175-225 | 62-77 | 600-775 | C1/K35 | 105 | 0.15 | 0.23 | 0.33 | 0.43 |
| | 225-275 | 77-96 | 775-940 | C1/K35 | 95 | 0.15 | 0.23 | 0.33 | 0.41 |
| | 275-325 | 96-111 | 940-1090 | C1/K35 | 87 | 0.13 | 0.20 | 0.30 | 0.38 |
| | 325-375 | 111-129 | 1090-1265 | C1/K35 | 78 | 0.10 | 0.18 | 0.28 | 0.36 |
| High Strength Steel | 225-300 | 77-104 | 600-1020 | C1/K35 | 70 | 0.15 | 0.23 | 0.28 | 0.33 |
| | 300-350 | 104-121 | 1020-1180 | C1/K35 | 63 | 0.13 | 0.20 | 0.25 | 0.30 |
| | 350-400 | 121-139 | 1180-1365 | C1/K35 | 56 | 0.10 | 0.18 | 0.23 | 0.28 |
| Structural Steel | 100-150 | 38-50 | 370-500 | C1/K35 | 108 | 0.20 | 0.28 | 0.38 | 0.43 |
| | 150-250 | 50-88 | 500-850 | C1/K35 | 87 | 0.15 | 0.25 | 0.33 | 0.38 |
| | 250-350 | 88-121 | 850-1180 | C1/K35 | 80 | 0.13 | 0.23 | 0.30 | 0.33 |
| Tool Steel | 150-200 | 50-70 | 500-700 | C1/K35 | 78 | 0.10 | 0.18 | 0.25 | 0.30 |
| | 200-250 | 70-88 | 700-870 | C1/K35 | 59 | 0.10 | 0.18 | 0.25 | 0.30 |
| High Temp Alloy | 140-220 | 49-77 | 480-755 | C2/K20 | 37 | 0.10 | 0.18 | 0.23 | 0.28 |
| | 223-310 | 77-101 | 755-990 | C2/K20 | 29 | 0.10 | 0.15 | 0.20 | 0.25 |
| Titanium Alloy | 140-220 | 49-77 | 480-755 | C2/K20 | 42 | 0.10 | 0.18 | 0.21 | 0.27 |
| | 220-310 | 77-101 | 755-990 | C2/K20 | 33 | 0.08 | 0.15 | 0.18 | 0.23 |
| Aerospace Alloy S82 | 185-275 | 65-96 | 640-940 | C2/K20 | 73 | 0.12 | 0.16 | 0.18 | 0.22 |
| | 275-350 | 96-121 | 940-1180 | C2/K20 | 56 | 0.10 | 0.14 | 0.16 | 0.19 |
| Stainless Steel 400 Series 416, 420, (303) | 185-275 | 65-96 | 640-940 | C2/K20 | 73 | 0.18 | 0.23 | 0.30 | 0.36 |
| | 275-350 | 96-121 | 940-1180 | C2/K20 | 56 | 0.15 | 0.20 | 0.28 | 0.30 |
| Stainless Steel 300 Series 304, 316, 17-4PH | 135-185 | 49-65 | 480-640 | C2/K20 | 73 | 0.14 | 0.18 | 0.24 | 0.29 |
| | 185-275 | 65-96 | 640-940 | C2/K20 | 56 | 0.12 | 0.16 | 0.22 | 0.24 |
| Super Duplex Duplex St/Stl | 135-185 | 49-65 | 480-640 | C2/K20 | 38 | 0.12 | 0.17 | 0.22 | 0.26 |
| | 185-275 | 65-96 | 640-940 | C2/K20 | 30 | 0.10 | 0.15 | 0.18 | 0.22 |
| Hardox | 400 | 139 | 1365 | C2/K20 | 45 | 0.07 | 0.12 | 0.20 | 0.25 |
| | 500 | 160 | 1600 | C2/K20 | 37 | 0.05 | 0.10 | 0.15 | 0.20 |
| | 600 | 210 | 2000 | C2/K20 | 30 | 0.04 | 0.08 | 0.12 | 0.16 |
| Hardened Steel | 300-400 | 104-139 | 1020-1365 | C1/K35 | 47 | 0.10 | 0.15 | 0.23 | 0.27 |
| | 400-500 | 139+ | 1365+ | C1/K35 | 37 | 0.06 | 0.12 | 0.18 | 0.24 |
| SG/Nodular/ Grey/White Cast Iron | 120-150 | 44-50 | 430-500 | C2/K20 | 152 | 0.20 | 0.30 | 0.38 | 0.48 |
| | 150-200 | 50-70 | 500-700 | C2/K20 | 146 | 0.18 | 0.28 | 0.33 | 0.43 |
| | 200-220 | 70-77 | 700-755 | C2/K20 | 131 | 0.15 | 0.23 | 0.30 | 0.38 |
| | 220-260 | 77-90 | 755-890 | C2/K20 | 113 | 0.13 | 0.20 | 0.28 | 0.33 |
| | 260-320 | 90-104 | 890-1020 | C2/K20 | 102 | 0.13 | 0.18 | 0.25 | 0.28 |
| Cast Aluminium | 30 | 10 | 100 | C2/K20 | 300 | 0.23 | 0.38 | 0.46 | 0.58 |
| | 180 | 62 | 600 | TiCN | 225 | 0.20 | 0.33 | 0.40 | 0.50 |
| Wrought Aluminium | 30 | 10 | 100 | C2/K20 | 426 | 0.12 | 0.33 | 0.40 | 0.50 |
| | 180 | 62 | 600 | C2/K20 | 300 | 0.12 | 0.18 | 0.30 | 0.35 |
| Aluminium Bronze | 100-200 | 38-68 | 370-670 | C2/K20 | 110 | 0.15 | 0.24 | 0.30 | 0.38 |
| | 200-250 | 68-87 | 670-855 | C2/K20 | 90 | 0.12 | 0.18 | 0.23 | 0.28 |
| Brass | 100 | 38 | 370 | C2/K20 | 200 | 0.18 | 0.27 | 0.33 | 0.45 |
| Copper | 60 | 21 | 200 | C2/K20 | 130 | 0.07 | 0.10 | 0.18 | 0.26 |

**Formulas:** mm/min = rev/min • mm/rev  M/min = rev/min • 0.003 • DIA  rev/min = M/min • 318.47/DIA

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |





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## T-A® Original Recommended Cutting Data – Carbide Drill Inserts Y-3 Series

| Material Category | Hardness | | | Carbide Grade | Speed M/min | | | Feed (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BHN | kg | N/mm² | | TiN | TiCN | TiAlN | 9.5 – 12.95mm | 12.98 – 17.53mm | 17.53 – 24.38mm | 24.41 – 35mm | 34.37 – 47.80mm |
| Free Machining Steel | 100-150 | 38-50 | 370-500 | C5 P40 | 96 | 115 | 128 | 0.20 | 0.30 | 0.38 | 0.45 | 0.53 |
| | 150-200 | 50-70 | 500-700 | C5 P40 | 85 | 100 | 110 | 0.18 | 0.28 | 0.35 | 0.40 | 0.48 |
| | 200-250 | 70-88 | 700-870 | C5 P40 | 79 | 90 | 104 | 0.15 | 0.25 | 0.33 | 0.38 | 0.43 |
| Low Carbon Steel | 85-125 | 30-46 | 300-450 | C5 P40 | 91 | 110 | 119 | 0.20 | 0.25 | 0.33 | 0.43 | 0.48 |
| | 125-175 | 46-62 | 450-600 | C5 P40 | 79 | 90 | 104 | 0.18 | 0.25 | 0.33 | 0.40 | 0.45 |
| | 175-225 | 62-77 | 600-775 | C5 P40 | 73 | 82 | 95 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 225-275 | 77-96 | 775-940 | C5 P40 | 64 | 75 | 83 | 0.13 | 0.23 | 0.30 | 0.38 | 0.43 |
| Medium Carbon Steel | 125-175 | 46-62 | 450-600 | C5 P40 | 79 | 90 | 104 | 0.18 | 0.25 | 0.33 | 0.40 | 0.45 |
| | 175-225 | 62-77 | 600-775 | C5 P40 | 73 | 84 | 95 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 225-275 | 77-96 | 775-940 | C5 P40 | 67 | 72 | 83 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 275-325 | 96-111 | 940-1090 | C5 P40 | 55 | 62 | 70 | 0.13 | 0.20 | 0.28 | 0.35 | 0.40 |
| Alloy Steel | 125-175 | 46-62 | 450-600 | C5 P40 | 76 | 87 | 99 | 0.18 | 0.25 | 0.33 | 0.40 | 0.45 |
| | 175-225 | 62-77 | 600-775 | C5 P40 | 70 | 80 | 92 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 225-275 | 77-96 | 775-940 | C5 P40 | 64 | 72 | 83 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 275-325 | 96-111 | 940-1090 | C5 P40 | 61 | 68 | 76 | 0.13 | 0.20 | 0.28 | 0.35 | 0.40 |
| | 325-375 | 111-129 | 1090-1265 | C5 P40 | 52 | 60 | 67 | 0.10 | 0.18 | 0.25 | 0.33 | 0.38 |
| High Strength Steel | 225-300 | 77-104 | 600-1020 | C5 P40 | 49 | 55 | 61 | 0.15 | 0.23 | 0.25 | 0.30 | 0.38 |
| | 300-350 | 104-121 | 1020-1180 | C5 P40 | 43 | 49 | 55 | 0.13 | 0.20 | 0.23 | 0.28 | 0.35 |
| | 350-400 | 121-139 | 1180-1365 | C5 P40 | 37 | 43 | 49 | 0.10 | 0.18 | 0.20 | 0.25 | 0.30 |
| Structural Steel | 100-150 | 38-50 | 370-500 | C5 P40 | 73 | 84 | 95 | 0.20 | 0.28 | 0.35 | 0.40 | 0.45 |
| | 150-250 | 50-88 | 500-850 | C5 P40 | 61 | 68 | 76 | 0.15 | 0.25 | 0.30 | 0.35 | 0.40 |
| | 250-350 | 88-121 | 850-1180 | C5 P40 | 55 | 62 | 70 | 0.13 | 0.23 | 0.28 | 0.30 | 0.35 |
| Tool Steel | 150-200 | 50-70 | 500-700 | C5 P40 | 49 | 58 | 67 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 |
| | 200-250 | 70-88 | 700-870 | C5 P40 | 37 | 45 | 52 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 |
| High Temp Alloy | 140-220 | 49-77 | 480-755 | C2/K20 | 24 | 28 | 32 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 |
| | 223-310 | 77-101 | 755-990 | C2/K20 | 18 | 22 | 26 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 |
| Titanium Alloy | 140-220 | 49-77 | 480-755 | C2/K20 | 30 | 32 | 38 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 |
| | 220-310 | 77-101 | 755-990 | C2/K20 | 24 | 28 | 33 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 |
| Aerospace Alloy S82 | 185-275 | 65-96 | 640-940 | C2/K20 | 49 | 57 | 64 | 0.17 | 0.22 | 0.29 | 0.35 | 0.40 |
| | 275-350 | 96-121 | 940-1180 | C2/K20 | 37 | 43 | 49 | 0.14 | 0.19 | 0.27 | 0.30 | 0.35 |
| Stainless Steel 400 Series 416, 420, (303) | 185-275 | 65-96 | 640-940 | C2/K20 | 49 | 57 | 64 | 0.17 | 0.22 | 0.29 | 0.35 | 0.40 |
| | 275-350 | 96-121 | 940-1180 | C2/K20 | 37 | 43 | 49 | 0.14 | 0.19 | 0.27 | 0.30 | 0.35 |
| Stainless Steel 300 Series 304, 316, 17-4PH | 135-185 | 49-65 | 480-640 | C2/K20 | 49 | 57 | 64 | 0.13 | 0.17 | 0.22 | 0.26 | 0.30 |
| | 185-275 | 65-96 | 640-940 | C2/K20 | 37 | 43 | 49 | 0.11 | 0.14 | 0.20 | 0.22 | 0.25 |
| Super Duplex Duplex St.Stl | 135-185 | 49-65 | 480-640 | C2/K20 | 25 | 29 | 33 | 0.11 | 0.15 | 0.19 | 0.23 | 0.27 |
| | 185-275 | 65-96 | 640-940 | C2/K20 | 19 | 22 | 25 | 0.09 | 0.13 | 0.18 | 0.20 | 0.23 |
| Hardox | 400 | 139 | 1365 | C2/K20 | 23 | 30 | 35 | 0.07 | 0.12 | 0.20 | 0.25 | 0.30 |
| | 500 | 160 | 1600 | C2/K20 | 15 | 21 | 26 | 0.05 | 0.10 | 0.15 | 0.20 | 0.25 |
| | 600 | 210 | 2000 | C2/K20 | 11 | 16 | 22 | 0.04 | 0.08 | 0.12 | 0.16 | 0.20 |
| Hardened Steel | 300-400 | 104-139 | 1020-1365 | C5 P40 | 34 | 39 | 43 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 |
| | 400-500 | 139+ | 1365+ | C5 P40 | 20 | 23 | 25 | 0.08 | 0.15 | 0.20 | 0.23 | 0.28 |
| SG/Nodular/ Grey/White Cast Iron | 120-150 | 44-50 | 430-500 | C2/K20 | 98 | 127 | 141 | 0.20 | 0.30 | 0.38 | 0.48 | 0.58 |
| | 150-200 | 50-70 | 500-700 | C2/K20 | 82 | 102 | 122 | 0.18 | 0.28 | 0.33 | 0.43 | 0.53 |
| | 200-220 | 70-77 | 700-755 | C2/K20 | 73 | 93 | 110 | 0.15 | 0.23 | 0.30 | 0.38 | 0.45 |
| | 220-260 | 77-90 | 755-890 | C2/K20 | 64 | 79 | 95 | 0.13 | 0.20 | 0.28 | 0.33 | 0.38 |
| | 260-320 | 90-104 | 890-1020 | C2/K20 | 55 | 69 | 83 | 0.13 | 0.18 | 0.25 | 0.28 | 0.33 |
| Cast Aluminium | 30 | 10 | 100 | C2/K20 | 366 | 410 | 460 | 0.25 | 0.38 | 0.45 | 0.50 | 0.55 |
| | 180 | 62 | 600 | C2/K20 | 244 | 275 | 306 | 0.23 | 0.33 | 0.40 | 0.45 | 0.50 |
| Wrought Aluminium | 30 | 10 | 100 | C2/K20 | 366 | 410 | 460 | 0.10 | 0.15 | 0.25 | 0.30 | 0.36 |
| | 180 | 62 | 600 | C2/K20 | 244 | 275 | 306 | 0.20 | 0.28 | 0.36 | 0.45 | 0.50 |
| Aluminium Bronze | 100-200 | 38-68 | 370-670 | C2/K20 | 85 | 100 | 110 | 0.13 | 0.20 | 0.25 | 0.36 | 0.42 |
| | 200-250 | 68-87 | 670-855 | C2/K20 | 64 | 79 | 94 | 0.10 | 0.15 | 0.18 | 0.25 | 0.33 |
| Brass | 100 | 38 | 370 | C2/K20 | 130 | 160 | 184 | 0.15 | 0.23 | 0.28 | 0.38 | 0.45 |
| Copper | 60 | 21 | 200 | C2/K20 | 80 | 100 | 120 | 0.05 | 0.08 | 0.10 | 0.15 | 0.25 |

**Formulas:** mm/min = rev/min • mm/rev  M/min = rev/min • 0.003 • DIA  rev/min = M/min • 318.47/DIA

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

# Technical Section - T-A®

## T-A® Original Recommended Cutting Data – Carbide Flat Bottom Inserts Y-2 series

| Material Category | Hardness | | | Carbide Grade | Speed M/min | | | | Feed (mm/rev) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BHN | kg | N/mm² | | TiN | TiCN | TiAlN | AM200™ | 9.5 – 12.95mm | 12.98 – 17.53mm | 17.53 – 24.38mm | 24.41 – 35mm |
| Free Machining Steel | 100-150 | 38-50 | 370-500 | C2 | 82 | 98 | 110 | 126 | 0.17 | 0.26 | 0.32 | 0.39 |
| | 150-200 | 50-70 | 500-700 | C2 | 73 | 85 | 94 | 110 | 0.15 | 0.24 | 0.30 | 0.35 |
| | 200-250 | 70-88 | 700-870 | C2 | 67 | 76 | 88 | 102 | 0.13 | 0.22 | 0.28 | 0.32 |
| Low Carbon Steel | 85-125 | 30-46 | 300-450 | C2 | 79 | 94 | 102 | 117 | 0.17 | 0.22 | 0.28 | 0.37 |
| | 125-175 | 46-62 | 450-600 | C2 | 67 | 76 | 88 | 102 | 0.15 | 0.22 | 0.28 | 0.35 |
| | 175-225 | 62-77 | 600-775 | C2 | 61 | 70 | 81 | 93 | 0.13 | 0.19 | 0.26 | 0.32 |
| | 225-275 | 77-96 | 775-940 | C2 | 55 | 64 | 70 | 81 | 0.11 | 0.19 | 0.26 | 0.32 |
| Medium Carbon Steel | 125-175 | 46-62 | 450-600 | C2 | 67 | 76 | 88 | 102 | 0.15 | 0.22 | 0.28 | 0.35 |
| | 175-225 | 62-77 | 600-775 | C2 | 61 | 72 | 81 | 93 | 0.13 | 0.19 | 0.26 | 0.32 |
| | 225-275 | 77-96 | 775-940 | C2 | 55 | 61 | 70 | 81 | 0.13 | 0.19 | 0.26 | 0.32 |
| | 275-325 | 96-111 | 940-1090 | C2 | 46 | 53 | 61 | 70 | 0.11 | 0.17 | 0.24 | 0.30 |
| Alloy Steel | 125-175 | 46-62 | 450-600 | C2 | 64 | 75 | 85 | 99 | 0.15 | 0.22 | 0.28 | 0.35 |
| | 175-225 | 62-77 | 600-775 | C2 | 59 | 67 | 79 | 91 | 0.13 | 0.19 | 0.26 | 0.32 |
| | 225-275 | 77-96 | 775-940 | C2 | 55 | 61 | 70 | 81 | 0.13 | 0.19 | 0.26 | 0.32 |
| | 275-325 | 96-111 | 940-1090 | C2 | 52 | 58 | 66 | 76 | 0.11 | 0.17 | 0.24 | 0.30 |
| | 325-375 | 111-129 | 1090-1265 | C2 | 44 | 50 | 58 | 67 | 0.09 | 0.15 | 0.22 | 0.28 |
| High Strength Steel | 225-300 | 77-104 | 600-1020 | C2 | 41 | 47 | 52 | 59 | 0.13 | 0.19 | 0.22 | 0.26 |
| | 300-350 | 104-121 | 1020-1180 | C2 | 37 | 41 | 47 | 55 | 0.11 | 0.17 | 0.19 | 0.24 |
| | 350-400 | 121-139 | 1180-1365 | C2 | 30 | 37 | 41 | 47 | 0.09 | 0.15 | 0.17 | 0.22 |
| Structural Steel | 100-150 | 38-50 | 370-500 | C2 | 62 | 72 | 81 | 93 | 0.17 | 0.24 | 0.30 | 035 |
| | 150-250 | 50-88 | 500-850 | C2 | 52 | 58 | 66 | 76 | 0.13 | 0.22 | 0.28 | 030 |
| | 250-350 | 88-121 | 850-1180 | C2 | 47 | 53 | 61 | 70 | 0.11 | 0.19 | 0.25 | 0.26 |
| Tool Steel | 150-200 | 50-70 | 500-700 | C2 | 41 | 49 | 58 | 67 | 0.09 | 0.15 | 0.19 | 0.24 |
| | 200-250 | 70-88 | 700-870 | C2 | 30 | 37 | 44 | 50 | 0.09 | 0.15 | 0.19 | 0.24 |
| High Temp Alloy | 140-220 | 49-77 | 480-755 | C2 | 21 | 23 | 27 | 32 | 0.09 | 0.15 | 0.19 | 0.24 |
| | 223-310 | 77-101 | 755-990 | C2 | 15 | 18 | 21 | 24 | 0.09 | 0.13 | 0.17 | 0.22 |
| Titanium Alloy | 140-220 | 49-77 | 480-755 | C2 | 26 | 28 | 33 | 40 | 0.08 | 0.14 | 0.17 | 0.20 |
| | 220-310 | 77-101 | 755-990 | C2 | 21 | 25 | 29 | 30 | 0.08 | 0.12 | 0.15 | 0.18 |
| Aerospace Alloy S82 | 185-275 | 65-96 | 640-940 | C2 | 43 | 50 | 37 | 40 | 0.15 | 0.17 | 0.25 | 0.30 |
| | 275-350 | 96-121 | 940-1180 | C2 | 33 | 38 | 28 | 32 | 0.13 | 0.15 | 0.23 | 0.25 |
| Stainless Steel 400 Series 416, 420, (303) | 185-275 | 65-96 | 640-940 | C2 | 43 | 50 | 56 | 64 | 0.15 | 0.20 | 0.25 | 0.30 |
| | 275-350 | 96-121 | 940-1180 | C2 | 33 | 38 | 43 | 49 | 0.13 | 0.18 | 0.23 | 0.25 |
| Stainless Steel 300 Series 304, 316, 17-4PH | 135-185 | 49-65 | 480-640 | C2 | 28 | 33 | 37 | 40 | 0.13 | 0.17 | 0.21 | 0.25 |
| | 185-275 | 65-96 | 640-940 | C2 | 21 | 25 | 28 | 32 | 0.11 | 0.15 | 0.19 | 0.21 |
| Super Duplex Duplex St/Stl | 135-185 | 49-65 | 480-640 | C2 | 22 | 26 | 29 | 33 | 0.10 | 0.14 | 0.17 | 0.20 |
| | 185-275 | 65-96 | 640-940 | C2 | 17 | 19 | 22 | 26 | 0.08 | 0.12 | 0.15 | 0.17 |
| Hardox | 400 | 139 | 1365 | C2 | 20 | 26 | 31 | 39 | 0.06 | 0.10 | 0.16 | 0.20 |
| | 500 | 160 | 1600 | C2 | 13 | 18 | 23 | 31 | 0.04 | 0.08 | 0.12 | 0.16 |
| | 600 | 210 | 2000 | C2 | 10 | 14 | 19 | 25 | 0.03 | 0.06 | 0.10 | 0.13 |
| Hardened Steel | 300-400 | 104-139 | 1020-1365 | C2 | 30 | 34 | 38 | 41 | 0.08 | 0.14 | 0.18 | 0.22 |
| | 400-500 | 139+ | 1365+ | C2 | 18 | 20 | 22 | 33 | 0.06 | 0.12 | 0.16 | 0.18 |
| SG/Nodular/ Grey/White Cast Iron | 120-150 | 44-50 | 430-500 | C2 | 82 | 108 | 120 | 137 | 0.17 | 0.26 | 0.32 | 0.41 |
| | 150-200 | 50-70 | 500-700 | C2 | 70 | 87 | 104 | 119 | 0.15 | 0.24 | 0.28 | 0.38 |
| | 200-220 | 70-77 | 700-755 | C2 | 61 | 79 | 94 | 108 | 0.13 | 0.19 | 0.26 | 0.32 |
| | 220-260 | 77-90 | 755-890 | C2 | 55 | 67 | 81 | 93 | 0.11 | 0.17 | 0.24 | 0.28 |
| | 260-320 | 90-104 | 890-1020 | C2 | 47 | 58 | 70 | 81 | 0.11 | 0.15 | 0.22 | 0.24 |
| Cast Aluminium | 30 | 10 | 100 | C2 | 160 | 198 | 228 | N/A | 0.22 | 0.32 | 0.41 | 0.43 |
| | 180 | 62 | 600 | C2 | 79 | 107 | 122 | N/A | 0.19 | 0.28 | 0.35 | 0.39 |
| Wrought Aluminium | 30 | 10 | 100 | C2 | 292 | 328 | 368 | 390 | 0.12 | 0.18 | 0.23 | 0.25 |
| | 180 | 62 | 600 | C2 | 195 | 220 | 245 | 260 | 0.10 | 0.16 | 0.20 | 0.22 |
| Aluminium Bronze | 100-200 | 38-68 | 370-670 | C2 | 73 | 85 | 95 | 105 | 0.10 | 0.16 | 0.20 | 0.29 |
| | 200-250 | 68-87 | 670-855 | C2 | 55 | 68 | 81 | 87 | 0.08 | 0.12 | 0.14 | 0.20 |
| Brass | 100 | 38 | 370 | C2 | 112 | 138 | 160 | 185 | 0.12 | 0.18 | 0.22 | 0.30 |
| Copper | 60 | 21 | 200 | C2 | 68 | 85 | 105 | 117 | 0.04 | 0.06 | 0.08 | 0.12 |

**Formulas:** mm/min = rev/min • mm/rev  M/min = rev/min • 0.003 • DIA  rev/min = M/min • 318.47/DIA

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |


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## Thin Wall (TW) & 150° Structural Steel (SS) Recommended Cutting Data

| Substrate | Material Hardness (BHN) | Speed(M/min) Mist Coolant TiAlN | Speed(M/min) Mist Coolant AM200® | FEED (mm/rev) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 14mm – 16mm | 18mm – 24mm | 25mm – 35mm | 36mm – 47mm |
| HSS Super Cobalt | 100 - 150 | 34 | 40 | 0.25 | 0.30 | 0.38 | 0.45 |
| | 150 – 250 | 31 | 35 | 0.23 | 0.28 | 0.35 | 0.40 |
| | 250 – 350 | 28 | 32 | 0.20 | 0.25 | 0.28 | 0.38 |

## HSS Super Cobalt Drill Inserts Recommended Cutting Data

| Substrate | Material Hardness (BHN) | Speed(M/min) Mist Coolant AM200® | FEED (mm/rev) | | | |
|---|---|---|---|---|---|---|
| | | | 14mm – 16mm | 18mm – 24mm | 25mm – 35mm | 36mm – 47mm |
| HSS Super Cobalt | 100 - 150 | 40 | 0.25 | 0.30 | 0.38 | 0.45 |
| | 150 – 250 | 35 | 0.23 | 0.28 | 0.35 | 0.40 |
| | 250 – 350 | 32 | 0.20 | 0.25 | 0.28 | 0.38 |

## Carbide Drill Inserts Recommended Cutting Data

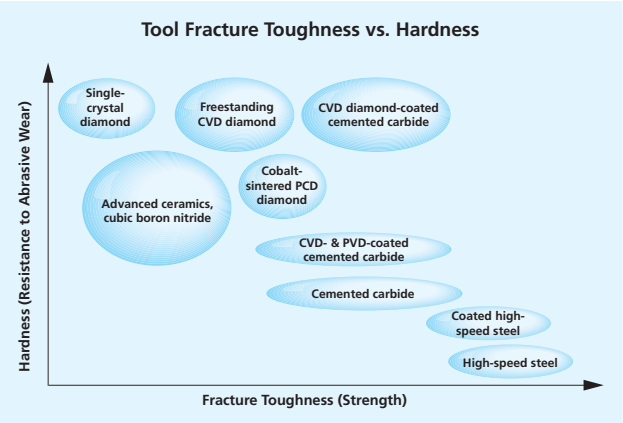
| Substrate | Material Hardness (BHN) | Speed(M/min) Mist Coolant AM200® | FEED (mm/rev) | | | |
|---|---|---|---|---|---|---|
| | | | 14mm – 16mm | 18mm – 24mm | 25mm – 35mm | 36mm – 47mm |
| K35 Carbide | 100 - 150 | 75 | 0.25 | 0.30 | 0.38 | 0.45 |
| | 150 – 250 | 61 | 0.23 | 0.28 | 0.35 | 0.40 |
| | 250 – 350 | 57 | 0.20 | 0.25 | 0.28 | 0.38 |

• 0.95 multiplier for feed rate on Long Length Holder

*IMPORTANT NOTE: - The speeds and feeds listed above are considered a general guideline for all Structural Steel applications. In the case of extreme ductile steels a further reduction in speed of 20% should be applied. Factory technical assistance is also available for your specific applications through our Application Engineering Team*

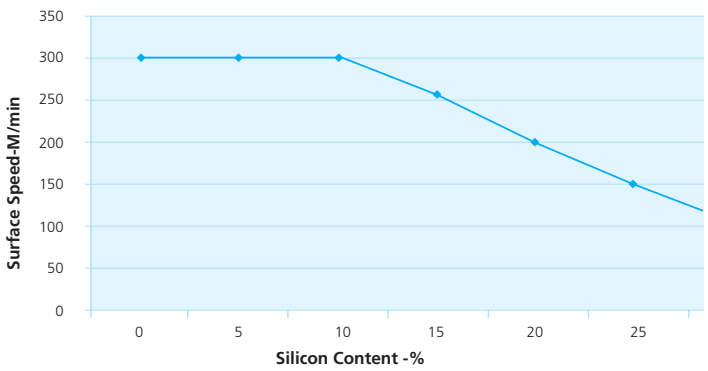
## Diamond Film Coated Inserts

Allied's Diamond film inserts combine the best features of a tough carbide substrate with a hard, durable, Crystalline Diamond CVD coating.




The hardness values of tooling materials are indexed in relation to their toughness.

**CVD Diamond Film Surface Speed Guide - Aluminium/Silicon alloys**




**Customer Benefits**

- High penetration rates
- Increased toughness compared to PCD
- 30-50 times increase in tool life over un-coated carbide tools in non-ferrous / non-metallic materials.

**Target Materials**

Polymer Matrix Composites (PMC) -
Kevlar, Plastics, Carbon Fibre, Fibreglass, Graphite and Resin materials.

Metal Matrix Composites (MMC) -
Aluminium Alloys, Brass, Bronze, Copper and its alloys, Lead Alloys, Magnesium Alloys and Precious metals.

Ceramic Matrix Composites (CMC) -
Soft Carbide & Ceramics in the green or pre-sintered state.

**Materials not suitable for Diamond Film inserts.**

Beryllium, Chrome, hard CMC's, Cobalt based materials, Iron base materials, Molybdenum, Nickel base materials, Titanium alloys, hard Tungsten alloys.

**Starting Point for Diamond Film Drilling Parameters**

| Material Group: | Speed M/min | Feed mm/rev | Vacuum | Coolant |
|---|---|---|---|---|
| PMC's (polymer matrix composites) | 75 - 600 | 0.025 - 0.38 | Yes | Air |
| MMC's (metal matrix composites) | 30 - 300 | 0.076 - 0.5 | No | Water sol. |
| CMC's (ceramic matrix composites) | 15 - 75 | 0.025 - 0.25 | Yes | Air |

## Coolant Recommendations for all T-A® inserts

| Material Category | Hardness | | | Coolant Pressure Bar | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Coolant Flow Rate - L/Min | | | | | | | | | | | |
| | | | | HSS Inserts (AM 200™, TiN, TiCN, TiAlN Coated) Diameter Range | | | | | | | Carbide Inserts (AM 200™, TiN, TiCN, TiAlN) | | | | |
| | BHN | kg | N/mm² | 9.5 - 12.95 | 12.98 - 17.53 | 17.54 - 24.38 | 24.39 - 35.0 | 35.1 - 47.8 | 47.85 - 65.0 | 66.0 - 114.48 | 9.5 - 12.95 | 12.98 - 17.53 | 17.53 - 24.38 | 24.41 - 35 | 34.37- 47.8 |
| Free Machining Steel | 100-250 | 38-88 | 370-870 | 12.8 | 8.3 | 9.6 | 7.9 | 6.9 | 3.5 | 6.2 | 20 | 16.5 | 16.5 | 15.2 | 12 |
| | | | | 9.6 | 11.4 | 19.7 | 30.3 | 53.0 | 125.0 | 167.0 | 12.2 | 16.3 | 25.2 | 41.5 | 71.9 |
| Low Carbon | 85-275 | 30-96 | 300-940 | 11.8 | 6.2 | 6.6 | 5.5 | 5.2 | 2.8 | 4.5 | 17.5 | 11 | 11 | 11.8 | 9.0 |
| | | | | 9.5 | 9.8 | 15.9 | 26.5 | 45.4 | 114.0 | 144.0 | 11.4 | 13.3 | 20.6 | 36.5 | 62 |
| Medium Carbon | 125-325 | 46-111 | 450-1090 | 11.4 | 5.9 | 6.2 | 5.2 | 4.8 | 2.8 | 4.5 | 17.2 | 9.7 | 10.4 | 10.4 | 7.5 |
| | | | | 9.1 | 9.8 | 15.5 | 22.7 | 45.4 | 114.0 | 144.0 | 11.3 | 12.5 | 20 | 33.8 | 57 |
| Alloy Steel | 125-375 | 46-129 | 450-1265 | 11.4 | 5.2 | 5.5 | 4.8 | 4.2 | 2.4 | 3.5 | 16.5 | 9.3 | 9.7 | 7.9 | 7.2 |
| | | | | 9.1 | 9.1 | 14.8 | 22.7 | 41.6 | 106.0 | 125.0 | 11.1 | 12.3 | 19.3 | 30 | 55.8 |
| High Strength Steel | 225-400 | 77-139 | 600-1365 | 10.7 | 4.2 | 3.5 | 2.0 | 2.0 | 1.7 | 2.0 | 14.5 | 5.2 | 4.1 | 3.1 | 2.7 |
| | | | | 9.1 | 8.3 | 11.7 | 19.0 | 30.0 | 87.0 | 98.0 | 10.4 | 9.1 | 12.6 | 18.8 | 33.6 |
| Structural Steel | 100-350 | 38-121 | 370-1180 | 11.4 | 5.9 | 5.5 | 3.8 | 3.5 | 2.0 | 3.5 | 15.8 | 9.0 | 7.9 | 6.9 | 5.2 |
| | | | | 9.1 | 9.8 | 14.8 | 23.0 | 38.0 | 98.0 | 125.0 | 10.8 | 12 | 17.5 | 27.8 | 47.1 |
| Tool Steel | 150-250 | 50-88 | 500-870 | 10.7 | 4.2 | 3.5 | 2.0 | 2.0 | 1.7 | 2.0 | 14.5 | 5.2 | 4.8 | 3.4 | 3.1 |
| | | | | 9.1 | 8.3 | 11.7 | 19.0 | 30.0 | 87.0 | 98.0 | 10.4 | 9.1 | 13.6 | 19.7 | 36.5 |
| High Temp Alloy | 140-310 | 49-101 | 480-990 | 10.7 | 4.5 | 3.8 | 2.4 | 2.0 | 2.0 | 3.1 | 16.5 | 11.4 | 12.4 | 11 | 9.0 |
| | | | | 9.1 | 8.7 | 12.1 | 18.9 | 30.0 | 98.0 | 125.0 | 11.1 | 13.5 | 21.9 | 35.4 | 62 |
| Titanium Alloy | 140-310 | 49-101 | 480-990 | 10.7 | 4.5 | 3.8 | 2.4 | 2.0 | 2.0 | 3.1 | 16.5 | 11.4 | 12.4 | 11 | 9.0 |
| | | | | 9.1 | 8.7 | 12.1 | 18.9 | 30.0 | 98.0 | 125.0 | 11.1 | 13.5 | 21.9 | 35.4 | 62 |
| Austenitic Stainless Steel | 135-275 | 49-96 | 480-940 | 11.8 | 5.9 | 5.2 | 3.8 | 3.5 | 2.0 | 3.1 | 22.7 | 16.5 | 17.9 | 17.2 | 13.1 |
| | | | | 9.5 | 9.8 | 14.0 | 23.0 | 38.0 | 98.0 | 117.0 | 13 | 16.3 | 26.3 | 44.2 | 75 |
| 400 Series/ 17-4PH (303) Stainless Steel | 185-350 | 65-121 | 640-1180 | 11.8 | 5.9 | 5.2 | 3.8 | 3.5 | 2.0 | 3.1 | 22.7 | 16.5 | 17.9 | 17.2 | 13.1 |
| | | | | 9.5 | 9.8 | 14.0 | 23.0 | 38.0 | 98.0 | 117.0 | 13 | 16.3 | 26.3 | 44.2 | 75 |
| Super Duplex Duplex St/Stl | 135-275 | 49-96 | 480-940 | 11.8 | 5.9 | 5.2 | 3.8 | 3.5 | 2.0 | 3.1 | 22.7 | 16.5 | 17.9 | 17.2 | 13.1 |
| | | | | 9.5 | 9.8 | 14.0 | 23.0 | 38.0 | 98.0 | 117.0 | 13 | 16.3 | 26.3 | 44.2 | 75 |
| Hardened Steel | 300-500 | 104-139 | 1020-1365 | 10.7 | 4.2 | 3.5 | 2.0 | 2.0 | 1.7 | 2.0 | 14.5 | 5.2 | 4.8 | 3.4 | 3.1 |
| | | | | 9.1 | 8.3 | 11.7 | 19.0 | 30.0 | 87.0 | 98.0 | 10.4 | 9.1 | 13.6 | 19.7 | 36.5 |
| SG/Nodular Cast Iron Grey/White Iron | 120-320 | 44-104 | 430-1020 | 11.0 | 4.5 | 4.2 | 2.8 | 2.4 | 2.0 | 2.4 | 15.5 | 7.2 | 6.2 | 6.2 | 5.5 |
| | | | | 9.1 | 8.7 | 12.5 | 19.0 | 34.0 | 98.0 | 106.0 | 10.7 | 10.8 | 15.4 | 26.5 | 48.7 |
| Cast Aluminium | 30-180 | 62 | 600 | 14.5 | 12.4 | 15.8 | 11.0 | 8.6 | 3.5 | 5.5 | 24.1 | 22 | 21.7 | 19.6 | 13.8 |
| | | | | 10.0 | 14.0 | 23.0 | 34.0 | 61.0 | 125.0 | 159.0 | 13.4 | 18.8 | 29 | 47.2 | 77 |
| Wrought Aluminum | 30-180 | 62 | 600 | 14.5 | 12.4 | 15.8 | 11.0 | 8.6 | 3.5 | 5.5 | 24.1 | 22 | 21.7 | 19.6 | 13.8 |
| | | | | 10.0 | 14.0 | 23.0 | 34.0 | 61.0 | 125.0 | 159.0 | 13.4 | 18.8 | 29 | 47.2 | 77 |
| Aluminium Bronze | 100-250 | 38-87 | 370-855 | 12.8 | 8.3 | 9.7 | 8.0 | 6.9 | 3.5 | 6.2 | 20 | 16.5 | 16.5 | 15.2 | 12 |
| | | | | 9.6 | 11.4 | 19.7 | 30.3 | 53.0 | 125.0 | 167.0 | 12.2 | 16.3 | 25.2 | 41.5 | 71.9 |
| Brass | 100 | 38 | 370 | 11.0 | 4.5 | 4.2 | 2.8 | 2.4 | 2.0 | 2.4 | 24.1 | 22 | 21.7 | 19.6 | 13.8 |
| | | | | 9.1 | 8.7 | 12.5 | 19.0 | 34.0 | 98.0 | 106.0 | 13.4 | 18.8 | 29 | 47.2 | 77 |
| Copper | 60 | - | - | 12.8 | 8.3 | 9.7 | 8.0 | 6.9 | 3.5 | 6.2 | 20 | 16.5 | 16.5 | 15.2 | 12 |
| | | | | 9.6 | 11.4 | 19.7 | 30.3 | 53.0 | 125.0 | 167.0 | 12.2 | 16.3 | 25.2 | 41.5 | 71.9 |

### COOLANT MULTIPLIER

| Holder Length | | | | | | | |
|---|---|---|---|---|---|---|---|
| Stub | Short | Intermediate | Standard | Extended | Long | XL | 3XL |
| see above chart | | | | 1.3 | 1.5 | 2 | 3 |

### COOLANT RECOMMENDATION:

**Example** To drill 25mm diameter hole in alloy steel with a hardness value 125-325 BHN

**Standard holder** = 4.8 Bar, 22.7 L/Min
**XL holder** = 4.8 x 2 = 9.6 Bar, 22.7 x 2 = 45.4 L/Min
**3XL holder** = 4.8 x 3 = 14.4 Bar, 22.7 x 3 = 68.1 L/Min



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## Material Cross Reference

| Material Class | German | DIN | French | UK | Swedish | Spanish | USA |
|---|---|---|---|---|---|---|---|
| Free Machining Steel | 1.0718 | 96MnPB28 | S250Pb | | 1914 | F.2112 – 11SMnPb28 | 12L13 |
| | 1.0721 | 10S20 | 10F1 | 210M15 | | F.2121 – 10 S 20 | 1108 |
| | 1.0722 | 10SPb20 | 10PbF2 | | | F.2122 – 10 SPb 20 | 11L08 |
| | 1.0723 | 15S20 | | 210A15 | 1922 | F.210F | |
| | 1.0736 | 9SMn36 | S300 | 240M07 EN 1B | | F.2113-12 SMn 35 | 1215 |
| | 1.0737 | 9MnPb36 | S300Pb | | 1926 | F.2114 – 12 SMnPb 35 | 12L14 |
| Low Carbon Steel | 1.0301 | C10 | AF34C10/XC10 | 045M10 | | | 1010 |
| | 1.0401 | C15 | AF37C12/XC18 | 080M15;040A15 | 1350 | F.111 | 1015 |
| | 1.0402 | C22 | AF42C20/XC25 | 050A20/055M15-EN2C | 1450 | F.112 | 1020 |
| | 1.0406 | C25 | AF50C30 | 070M26 | | F.221 | 1025 |
| | 1.0711 | 9S20 | | 220M07 | | | 1212 |
| | 1.0715 | 9SMn28 | S250 | 230M07 | 1912 | F.2111-11SMn28 | 1213 |
| | 1.1121 | Ck10 | XC10 | 040A10 | 1265 | F.1510 – C 10 k | 1010 |
| | 1.1133 | 20Mn5 | 20M5 | 120M19 | | F.1515 – 20Mn 6 | 1022/1518 |
| | 1.1141 | Ck15 | XC15/C15E | 080M15 EN32C | 1370 | F.1511 – C 16 k | 1015 |
| | 1.1151 | Ck22 | XC25/C22E | 050A20 | | F.1120 – C 25 k | 10201023 |
| | 1.1158 | Ck25 | XC25/C25E | 070M26 | | F.1120 – C 25 k | 1025 |
| | 1.5622 | 14Ni6 | 15N6/15Ni6 | | | F.2641 – 15 Ni 6 | A350-LF5 |
| | 1.5752 | 14NiCr14 | 12NC15 | 655M13/A12 EN 36A | | | 3310/9314 |
| | 1.7015 | 15Cr3 | 12C3 | 523M15 | | | 5015 |
| Medium Carbon Steel | 1.0501 | C35 | AF55C35/XC38 | 060A35 | 1550 | F.113 | 1035 |
| | 1.0503 | C45 | AF65C45/C45 | 080M46 | 1650 | F.114 | 1045 |
| | 1.0511 | C40 | AF60C40/C40 | | | F.114.A | 1040 |
| | 1.0535 | C55 | C55 | 070M55 | 1655 | | 1055 |
| | 1.0601 | C60 | AF70C55/C60 | 080A62-EN 43D | | F.115 | 1060 |
| | 1.0726 | 35S20 | 35MF6 | 212M36 EN 8M | 1957 | F.210G | 1140 |
| | 1.0727 | 45S20 | 45MF4 | 212M44 | 1973 | | 1146 |
| | 1.0903 | 51Si7 | 51S7 | 250A53 EN 45 | 2090 | F.1450 – 50 Si 7 | 9255 |
| | 1.0904 | 55Si7 | 55S7 | 250A53 | 2085 | F.1440 – 56 Si 7 | 9255 |
| | 1.0909 | 60Si7 | 60S7 | 250A58 | | F.1441 – 60 Si 7 | 9260 |
| | 1.0961 | 60SiCr7 | 60SC7 | 250A61 | | F.1442 – 60 SiCR 8 | 9262 |
| | 1.1165 | 30Mn5 | 35M5/30Mn5 | 120M36/150M28 | | F.1203 – 36 Mn5 | 1330 |
| | 1.1166 | 34Mn5 | 35M5/34Mn5 | | | F.8211 – 30 Mn5 | 1536 |
| | 1.1167 | 36Mn5 | 40M5/36Mn5 | 150M36 EN 15 | 2120 | F.1203 – 36 Mn5 | 1335 |
| | 1.117 | 28Mn6 | 20M5/28Mn6 | 150M 28 EN 14A | | | 1330 |
| | 1.118 | Cm35 | XC32/C35R | 080M36 | 1572 | F.1135 – C 35 K-1 | 1035 |
| | 1.1186 | Ck40 | XC42H1/C40E | 060A40/080A40 | | | 1040 |
| | 1.1191 | Ck45 | XC42H1/C45/XC45 | 080M46/060A47 | 1672 | F.1140 – C 45 k | 1045 |
| | 1.1201 | Cm45 | XC42H1/C45R | 080M46 | 1660 | F.1145 – C 45 k | 1045 |
| | 1.1203 | Ck55 | XC55H1/C55E | 060A57/070M55 | | F.1150 – C 55 k | 1055 |
| | 1.1206 | Ck50 | XC48H1/C50E | 080M50 | | | 1050 |
| | 1.1213 | Cf53 | XC48H1TS | 060A52 | 1674 | | 1050 |
| | 1.1221 | Ck60 | XC60/C60E/2C60 | 060A62 | 1665/1678 | F.511/F.512 | 1060 |
| | 1.1231 | Ck67 | XC68 | 060A67 | 1770 | | 1070 |
| | 1.7003 | 38Cr2 | 38C2/38Cr5 | | | 38 Cr 3 | |
| Alloy Steel | 1.1248/1269 | Ck75 | XC75/C75E/XC90 | 060A78 | 1774/1778 | F.513/514/515 | 1080/1078/1086 |
| | 1.1274 | Ck101 | XC100 | 060A96 | 1870 | | 1095 |
| | 1.233 | 35CrMo4/47CrMo4 | 34CD4/35CrMo4/42CD4 | 708A37/708M40 | 2234/2244 | | 4135/4142 |
| | 1.571/.5711 | 36NiCr6/40NiCr6 | 35NC6 | 640A35/640M40 EN111A | | | 3135/3140 |
| | 1.5736 | 36NiCr10 | 30NC11 | | | | 3435 |
| | 1.6523/43 | 21NiCrMo2 | 20NCD2 | 805M20/805A20 EN 362 | 2506 | F.1522 – 20 NiCrMo 2 | 8620/8720 |
| | 1.6546 | 40NiCrMo22 | 40NCD2 | 311-Type 7 | | F.1204 – 40 NiCrMo2 | 8740 |
| | 1.6587 | 17CrNiMo8 | 18NCD6 | 820A16 | | F.1560 – 14 NiCrMo13 | |
| | 1.6657 | 14NiCrMo134 | 16NCD13 | 832M13 | | F.1569 – 14 NiCrMo 131 | |
| | 1.7006 | 46Cr2 | 42C2/46Cr2 | | | | 5045/5046 |
| | 1.703 | 28Cr4 | | 530A30 | | | 5130 |
| | 1.7033 | 34Cr4 | 32C4/34Cr4 | 530A32 EN18B | | F.8221 – 35 Cr 4/F.224 | 5132 |
| | 1.7034 | 37Cr4 | 38C4/37Cr4 | 530A36 | | F.1201 – 38 Cr 4 | 5135 |
| | 1.7035 | 41Cr4 | 42C4/41Cr4 | 530M40/530A40 EN 18 | | F.1202 – 42 Cr4 | 5140 |
| | 1.7045 | 42Cr4 | 42C4TS | 530A40 | 2245 | F.1202 – 42 Cr 4 | 5140 |
| | 1.7131 | 16MnCr5 | 16MC5 | 527M17 | 2511 | F.1515 – 16 MnCr 5 | 5115 |
| | 1.7147 | 20MnCr5 | 20MC5 | | | F.150.D | 5120 |
| | 1.7176 | 55Cr3 | 55C3 | 527A60 EN 48 | 2253 | F.1431 – 55 Cr3 | 5155 |
| | 1.7218 | 25CrMo4 | 25CD4/25CrMo4 | 1717CDS110 | 2225 | F.8330 – AM 25 CrMo4 | 4130 |
| | 1.722 | 34CrMo4 | 35CD4/34CrMo4 | 708A37 EN 19B | 2234 | F.8231 – AM 34 CrMo4 | 4135/4137 |
| | 1.7225 | 42CrMo4 | 42CD4/42CrMo4 | 708M40 EN 19A | 2244 | F.8232 – 42 CrMo4 | 4140/4142 |
| | 1.7228 | 50CrMo4 | 50CrMo4 | 708A47 | | | 4150 |
| | 1.8159 | 50CrV4 | 50CV4/51CrV4 | 735A50 EN 47 | 2230 | F.1430 – 51 CrV4 | 6150 |
| High Strength Alloy Steel | 1.8507 | 34CrAlMo5 | 30CAD6.12 | 905M31 | | F.1741 – 34 CrAlMo5 | A355CI.D |
| | 1.8509 | 41CrAlMo7 | 40CAD6.12 | 905M39 EN 41B | 2940 | F.1740 – 41 CrAlMo7 | A355CI.A |
| | 1.5755 | 31NiCr14 | 18NC13 | 653M31 | | F.123 | |
| | 1.6511 | 36CrNIMo4 | 40NCD3/36CrNiMo4 | 816M40 EN 110 | | F.1280 – 35 NiCrMo4 | 9840 |
| | 1.6562 | 40NiCrMo73 | | 817M40 | | | 4340 |
| | 1.658 | 30CrNiMo8 | 30CND8/30CrNiMo8 | 823M30 | | | |
| | 1.6582 | 34CrNiMo8 | 35NCD6/34CrNiMo6 | 817M40 EN 24 | 2541 | F.1272 – 40 NiCrMo 7 | 4340 |
| | 1.6746 | 32NiCrMo145 | 35NCD14 | 830M31 | | F.1262 – 32 NiCrMo 12 | |
| | 1.6747 | 30NiCrMo166 | 35NCD16 | 835M30 | | F.1260 – 32 NiCrMo 16 | |
| | 1.8515 | 31CrMoV139 | 30CD12 | 722M24 EN 40B | 2240 | F.1712 – 31 CrMo 12 | |
| | 1.8523 | 39CrMoV139 | | 897M39 EN 40C | | | |

## Material Cross Reference

| Material Class | German | DIN | French | UK | Swedish | Spanish | USA |
|---|---|---|---|---|---|---|---|
| Structural Steel | 1.0038 | RSt37-2 | E24-2NE/S235JRG2 | 4360-40C | 1312 | | A570 (36) |
| | 1.0044 | St44-2 | E28-2/S275JR | 4360-43B | 1412 | A 430B | A570 (40) |
| | 1.005 | St50-2 | A50-2/E295 | 4360-50B | 2172 | | A570 (50) |
| | 1.006/.007 | St60-2/St70-2 | A60-2/E335-A70-2/E360 | 4360-55E | | | |
| | 1.0116 | St37-3 | E24-3;-4/S235J2G3 | 4360-40C/D-1449-37C | 1313 | A360 C;D | A284/A573/A611 |
| | 1.033 | St12 | DC01 | 1449 – 2/3/4CR | | AP 00 | A366/1012/A619 |
| | 1.0333 | St13 | | 1449 2CR; 3CR | | AP 02 | 1008 |
| | 1.0338 | St14 | DC04 | 1449 1CR; 2CR | | AP 04 | A620 |
| | 1.0345 | H I | A37CP;AP/P235GH | 1501Gr.161-360/400 | 1330 | A 37 RC I;RA II | A516Gr.65;-55 |
| | 1.0347 | RRSt13 | DC03 | 3CR | | | A619 |
| | 1.0425 | H II | A42CP;AP/P265GH | 161-400; | 1430 | A42 RC 1 | |
| | 1.0473 | 19Mn6 | A52CP;AP/P335GH | | 2101/2102 | A 47 RB II | A537 |
| | 1.0481 | 17Mn4 | A48CP;AP/P295GH | | | A 47 RC1; RA II | A516 (70) |
| | 1.0562 | StE355 | E355R/FP/S355N | | 2132 | AE 355 KG;DD | A633 (C ) |
| | 1.057 | St52-3 | E36-3;E36-4/S355J2G3 | 4360-50B;50C;50D | 2132 | A 510 C;D | |
| | 1.5415 | 15Mo3 | 15D3/15Mo3 | 1501-240 | 2912 | F.2601 – 16 Mo 3 | A204 (A) |
| | 1.5423 | 16Mo5 | | 1503-245-420 | | F.2602 – 16 Mo 5 | 4520 |
| | 1.5637 | 10Ni14 | 12N14/12Ni14 | 1501-503-690 | | F.152 | A350-LF3 |
| | 1.5713 | 13NiCr6 | 10NC6 | | | | 3115 |
| | 1.5732 | 14NiCr10 | 14NC11 | | | F.1540 – 15 NiCr 11 | 3415 |
| | 1.7335 | 13CrMo44 | 15CD3.05 | 620Gr.27;31 | 2216 | F.2631 – 14 CrMo 4 5 | A182-F11;F12 |
| | 1.7337 | 16CrMo44 | 15CD4.5 | 620Gr.27 | 2216 | | A387 (12) |
| | 1.738 | 10CrMo910 | 12CD9.10/10CrMo9-10 | 622Gr.31;45 | 2218 | TU.H | A182F22 |
| | 1.7715 | 14MoV63 | | 660/440 | | F.2621 – 13 MoCrV6 | |
| | 1.8902 | StE420 | E420RIFP/S420N | 4360-55E | | AE 420 KG | A633Gr.E |
| | 1.8905 | StE460 | E460RIFP/S460N | | | AE 460 KG | A633Gr.E |
| High Temperature Alloys | 1.4864 | X12NiCrSi3616 | ZI2NCS37.18 | NA17 | | F.3313-X 12 CrNi 36-16 | 330 |
| | 1.4865 | G-X40NiCrSi3818 | | 330C40 | | | |
| | 1.4876 | X10NiCrAlTi3320 | Z8NC3221 | NA15(H) | | F.3545-X 9NiCr 33-21 | B163 |
| | 2.436 | NiCu30Fe | NU30 | 3072-76/NA13 | | | 4544/SB127/164 |
| | 2.4375 | NiCu30Al | | 3072-76/NA18/3146 | | | 4676 |
| | 2.4602 | NiCr17Mo17FeW | NC 17 DWY | | | | 5388 C |
| | 2.463 | NiCr20Ti | NC 20 T | HR5/203-4/703-B | MH-05 | | |
| | 2.4631 | NiCr20TiAl | NC 20 TA | HR 401HR601/736B | MH-07 | | |
| | 2.4634 | NiCo20Cr15MoAlTi | NCKD 20 ATV | HR 3/5007 | MH-14 | | |
| | 2.4636 | NiCo15Cr15MoAlTi | NCKD 20 AT | | | | 687 |
| | 2.465 | NiCr20Co19MoTi | NCK 20 D | HR 10 | | | |
| | 2.4662 | NiCr15MoTi | Z8 NCDT 42 | | MH-16 | | 5660C |
| | 2.4665 | NiCr22Fe18Mo | Nc 22 FeD | HR 6/204 | MH-03 | | 5536E |
| | 2.4668 | NiCr19Fe19NbMo | NC 19 FeNb | HR 8 | MH-06 | | |
| | 2.4669 | NiCr16FeTi | NC 15 Fe TNb | HR 505 | | | 5542G |
| | 2.467 | G-NiCr13Al6MoNb | NC 13 AD | HC 203 | MH-31 | | 5391A |
| | 2.4674 | NiCo15Cr10MoAlTi | NK 15 CAT | HC 204 | | | |
| | 2.4676 | NiCo10W10Cr9AlTi | | | | | |
| | 2.4816 | NiCr15Fe | NC 15 Fe | 3072-76 | | | 5540 |
| | 2.4856 | NiCr22Mo9Nb | NC 22 FeDNB | | | | 5581 |
| | 2.4858 | NiCr21Mo | NC 21 FeDU | 3072-76 | | | |
| | 2.4973 | NiCr19Co11MoTi | NC 19 KDT | | | | |
| | 2.4983 | NiCr18Co18MoAlTi | NCK 19 DAT | | | | 684 |
| | | NiFe33Cr17Mo | NW 11 AC | HR 207/5047 | | | |
| Titanium Alloys | 3.7024/25 | Ti99,8 | T-35 | TA.1 | | Ti-PO1 | |
| | 3.7124 | TiCu2 | T-U2 | TA.21-24/52-55/58 | | Ti-P11 | |
| | 3.7154 | TiAl6Zr5Mo0,5sio,2 | T-A6ZD | TA.43/44 | | Ti-P67 | |
| | 3.7184 | TiAl4Mo4Sn2Si0,5 | T-A4DE | TA.45-51/57 | | Ti-P68 | |
| | 3.7034/35 | Ti99,7 | T-40 | TA-2/34/5 | | Ti-PO2 | 4941/42/51/4902 |
| | 3.7064/65 | Ti99,5 | T-60 | TA-6/7/8/9 | | Ti-PO4 | 4901/21 |
| | 3.7164/65 | TiAl6V4 | T-A6V | TA.10-13/28/56 | | Ti-P63 | 491128/35/54/65/67 |
| | | | T-50 | DTD5023/5283 | | | 4900 |
| Stainless Steels | 1.4 | X6Cr13 | Z6013/Z6Cr13 | 403S17 | 2301 | F.3110-X6 Cr 13 | 403 |
| | 1.4001 | X7Cr14 | Z3014 | 403S17 | 2301 | F.8401-AM-X12 Cr 13 | 410S |
| | 1.4002 | X6CrAl13 | Z6CA13/Z6CrAl13 | 405S17 | 2302 | F.3111-X6 CrAl13 | 405 |
| | 1.4005 | X12CrS13 | Z12CF13/Z12CrS13 | 416S21 | 2380 | F.3411-X12 CrS 13 | 416 |
| | 1.4006 | X10Cr13 | Z12C13/Z12Cr13 | 410S21 ENEN56A | 2302 | F.3401-X12 Cr 13 | 410/CA-15 |
| | 1.4016 | X6Cr17 | Z8C17/Z6Cr17 | 430S1 EN 60 | 2320 | F.3113-X8 Cr17 | 430 |
| | 1.4021 | X20Cr13 | Z20C13/Z20Cr13 | 420S37 | 2303 | F.3402-X20 Cr 13 | 420 |
| | 1.4028 | X30Cr13 | Z20C13/Z20Cr13 | 420S45 | 2304 | F.3403-X30 Cr 13 | |
| | 1.4031 | X38Cr13 | Z40C14/Z40Cr14 | | 2304 | F.3404-X40 Cr 13 | |
| | 1.4034 | X46Cr13 | Z40C14/Z40Cr14 | 420S45 EN 56D | | F.3405-X46 Cr 13 | |
| | 1.4057 | X20CrNi172 | Z15CN16.02 | 431S29 EN 57 | 2321 | F.3427-X15 CrNi16 | 431 |
| | 1.4104 | X12CrMoS17 | Z10CF17 | | 2383 | F.3117-X10 CrS17 | 430F |
| | 1.4113 | X6CrMo17 | Z8CD17.01 | 434S17 | 2325 | | 434 |
| | 1.4125 | X105CrMo17 | Z100CD17 | | | | 440C |
| | 1.4301 | X5CrNi1810 | Z6CN18.09 | 304S15 EN 58E | 2332 | F.3451-X5 CrNi18-10 | 304/304H |
| | 1.4303 | X5CrNi1812 | Z8CN18.12 | 305S19 | | F.3513-X8CrNi.18-12 | 308;305 |
| | 1.4305 | X10CrNiS189 | Z10CNF18.09 | 303S21 EN 58M | 2346 | F.3508-X10CrNiS18-09 | 303 |
| | 1.4306 | G-X2CrNi189/1911 | Z2CN18.10/Z3CN19.10m | 304S12/S11/C12 | 2333/52 | F.3503-X 2CrNi19-10 | 304L |



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## Material Cross Reference

| Material Class | German | DIN | French | UK | Swedish | Spanish | USA |
|---|---|---|---|---|---|---|---|
| Stainless Steels | 1.4308 | G-X6CrNi189 | Z6CN18.10M | 304C15 | 2333 | | CF-8 |
| | 1.431 | X12CrNi177 | Z12CN17.07 | 301S21 | | F.3517-X12CrNi17 07 | 301 |
| | 1.4311 | X2CrNiN1810 | Z2CN18.10Az | 304S62 | 2371 | | 304LN |
| | 1.4312 | G-X10CrNi188 | Z10CN18.9M | 302C25 | | | |
| | 1.4313 | G-X5CrNi134 | Z4CND13.4M | 425C11 | 2385 | | CA6-NM |
| | 1.4401 | X5CrNiMo17122 | Z6CND17.11 | 316S16/S31 EN 58J | 2347 | F.3543-X5CrNiMo17-12/03 | 316/316L |
| | 1.4404 | X2CrNiMo17132 | Z2CND18.13 | 316S11/S12 | 2348 | F.3533-X 2CrNiMo17 12-03 | 316L |
| | 1.4406 | 2CrNiMoN17122 | Z2CND17.12Az | 316S61 | | | 316LN |
| | 1.4408 | G-X6CrNiMo1810 | | 316C16 | 2343 | F.8414-AM-X7 CrNiMo20 10 | CF-8M |
| | 1.4429 | X2CrNiMo17133 | Z2CND17.13Az | 316S62 | 2375 | | 316LN |
| | 1.4435 | X2CrNiMo18143 | Z2CND17.13 | 316S11/S12 | 2353 | F.3533-Z 2 CrNiMo 17-12-03 | 316L |
| | 1.4436 | X5CrNiMo17133 | Z6CND17.12 | 316S16 | 2343 | F.3534-X 6 CrNiMo 17-12-03 | 316 |
| | 1.4438 | X2CrNiMo18164 | Z2CND19.15 | 317S12 | 2367 | | 317L |
| | 1.4449 | X5CrNiMo1713 | | 317S16 | | | 317 |
| | 1.4452 | G-X5CrNiNb189 | Z6NNb18.10M | 347C17 | | | |
| | 1.446 | X8CrNiMo275 | | | 2324 | F.3309-X 8CrNiMo27-05 | 329 |
| | 1.451 | X6CrTi17 | Z8CT17 | | | F.3114-X8CrTi17 | XM8/430Ti |
| | 1.4512 | X5CrTi12 | Z6CT12 | 409S19 | | | 409 |
| | 1.4541 | X6CrNiTi1810 | Z6CNT18.10 | 321S12/S31 EN 58B | 2337 | F.3553-X 7 CrNiTi 18-11 | 321 |
| | 1.4542 | X5CrNiCuNb1714 | Z6CNU17.04 | | | | 630 |
| | 1.4546 | X5CrNiNb1810 | | 347S17/S18 | | | 348 |
| | 1.455 | X6CrNiNb1810 | Z6CNNb18.10 | 347S17/S31 EN 58F | 2338 | F.3552-X 7 CrNiNb 18-11 | 347 |
| | 1.4571 | X6CrNiMoTi17122 | Z6CNDT17.12 | 320S31/S17 EN58J | 2350 | F.3552-X 6 CrNiMoTi17-12-03 | 316Ti |
| | 1.4573 | X10CrNiMoTi1812 | | 320S33 | | | 316Ti |
| | 1.458 | X6CrNiMoNb17122 | Z6CNDNb17.12/19.13 | 318S17 | | | 316Cb |
| | 1.4718 | X45CrSi93 | Z45CS9 | 401S45 EN52 | | F.3220-X 4 ScrSi 09-03 | HNV3 |
| | 1.4724 | X10CrAl13 | Z10C13 | 403S17 | | F.13152-X 10 CrAl13 | |
| | 1.4731 | X40CrSiMo102 | Z40CSD10 | | | F.3221-X 40 CrSiMo 10-02 | |
| | 1.4742 | X10CrAl18 | Z10CAS18 | 430S15 | | F.3153-X 10 CrAl 18 | 430 |
| | 1.4747 | X80CrNiSi20 | Z80CSN20.02 | 443S65 EN 59 | | F.3222-X 80CrSiNi20-02 | HNV6 |
| | 1.4762 | X10CrAl24 | Z10CAS24 | | | F.3154-X 10 CrAl24 | 446 |
| | 1.4828 | X15CrNiS2012 | Z15CNS20.12 | 309S24 | | | 309 |
| | 1.4833 | X7CrNi2314 | Z15CN24.13 | 309S24 | | | 309S |
| | 1.4837 | G-X40CrNiSi2520 | | 309C30 | | | |
| | 1.4841 | X15CrNiSi2520 | Z15CNS25.20 | | | F.3310-X15 CrNiSi 25-20 | 314/310 |
| | 1.4845 | X12CrNi2521 | Z12CN25.20 | 310S24 | 2361 | F.331 | 310S |
| | 1.4848 | G-X40CrNiSi2520 | | 310C40 | | F.8452-AM-X 40 CrNi 25 20 | HK |
| | 1.4871 | X53CrMnNiN219 | Z5CMN21.09 | 349S54 | | F.3217-X 53 CrMnIn 21-09 | EV8 |
| | 1.4873 | X45CrNiW189 | Z35CNWS14.14 | 331S40 | | F.3211-X45 CrNiSiW 28-09 | |
| | 1.4878 | X12CrNiTi189 | T6CNT18.12(B) | 321S20 | 2337 | F.3523-X 6CrNiTi 18 11 | 321 |
| | 1.5662 | X8Ni9 | Z8N9 | 1501-509;510 | | F.2645 – X 8 Ni 09 | A353 |
| | 1.568 | 12Ni19 | Z18N5 | | | | 2515 |
| Tool Steels | 0.962 | G-X260NiCr42 | | Grade2A | | | A532IBNiCr-LC |
| | 0.9625 | G-X330NiCr42 | | Grade2B | | | A532IANiCr-HC |
| | 0.963 | G-X300CrNiSi952 | | Grade2C;D;E | | | A532IDNi-HiCr |
| | 0.964 | G-X300CrMoNi152 | | Grade3A;B | | | |
| | 0.9645 | G-X260CrMoNi202 | | Grade3C | | | A532IID20%CrMo-LC |
| | 0.965 | G-X260Cr27 | | Grade3D | | | A532IIIA25%Cr |
| | 0.9655 | G-X300CrMo271 | | Grade3E | | | A532IIIA25%Cr |
| | 1.1525 | C80W1 | Y190;Y180 | | | | W108 |
| | 1.1545 | C105W1 | Y1105 | | 1880 | | W110 |
| | 1.1645 | C105W2 | | | | F.5117 C102 | |
| | 1.1663 | C125W | Y2120 | | | F.5123 C120 | W112 |
| | 1.1673 | C135W | Y2140 | | | | |
| | 1.175/.1625 | C75W/C80W1 | | BW1A/BW1B | | F.1507 C80 | W1 |
| | 1.2067 | 100Cr6 | Y100C6 | BL3 | | F.5230 100 Cr6 | L3 |
| | 1.208 | X210Cr12 | Z200C12 | BD3 | | F.5212 X210 Cr12 | D3 |
| | 1.221 | 115CrV3 | | | | | L2 |
| | 1.2343 | X38CrMoV51 | Z38CDV5 | BH11 | | F.5317 X37 CrMoV5 | H11 |
| | 1.2344 | X40CrMoV51 | Z40CDV5 | BH13 | 2242 | F.5318 X40 CrMoV5 | H13 |
| | 1.2363 | X100CrMoV51 | Z100CDV5 | BA2 | 2260 | F.5227 X100 CrMoV5 | A2 |
| | 1.2365 | X32CrMoV33 | 32DCV28 | BH10 | | F.5313 CrMoV 12 | H10 |
| | 1.2379 | X155CrVMo121 | Z160CDV12 | BD2 | | | D2 |
| | 1.2419 | 105WCr6 | 105WC13 | | | F.5233 105 WCr5 | |
| | 1.2436 | X210CrW12 | | | 2312 | F.5213 X210 CrW12 | |
| | 1.251 | 100MnCrW4 | | BO1 | 2140 | F.5220 95 MnCrW5 | O1 |
| | 1.2542 | 45WCrV7 | | BS1 | 2710 | F.5241 45 WCrSi 8 | S1 |
| | 1.255 | 60WCrV7 | 55WC20 | | | | |
| | 1.2567 | X30WCrV53 | Z32WCV5 | | | | |
| | 1.2581 | X30WCrV93 | Z30WCV9 | BH21 | | F.5323 X30 WCrV9 | H21 |
| | 1.2601 | X165CrMoV12 | | | 2310 | F.5211 X160 CrMoV12 | |
| | 1.2606 | X37CrMoW51 | Z35CWDV5 | BH12 | | | H12 |
| | 1.2713 | 55NiCrMoV6 | 55NCDV7 | | | F.528 | L6 |
| | 1.2833 | 100V1 | Y1105V | BW2 | | | W210 |
| | 1.2842 | 90MnCrV8 | 90MV8 | BO2 | | | 2 |
| | 1.3202 | S12-1-4-5 | | BT15 | | F.5563 12-1-5-5 | T15 |

## Material Cross Reference

| Material Class | German | DIN | French | UK | Swedish | Spanish | USA |
|---|---|---|---|---|---|---|---|
| Tool Steels | 1.3207 | S10-4-3-10 | Z130WKCDV10-10-04-03 | | | F.553 10-4-3-10 | |
| | 1.3243 | S6-5-2-5 | Z85WDKCV06-05-05-04-02 | | 2723 | F.5613 6-5-2-5 | |
| | 1.3246 | S7-4-2-5 | Z110WKCDV07-05-04-04-02 | | | F.5613 6–5-2-5 | M41 |
| | 1.3247 | S2-10-1-8 | Z110DKCWV09-08-04-02-01 | BT42 | | F.5615 7-4-2-5 | M42 |
| | 1.3249 | S2-9-2-8 | | BM34 | | F.5611 2-9-2-8 | M33/M34 |
| | 1.3255 | S18-1-2-5 | Z80WKCV18-05-04-01 | BT4 | | F.5530 18-1-1-5 | T4 |
| | 1.3265 | S18-1-2-10 | | BT5 | | F.5540 18-0-2-10 | T5 |
| | 1.3342 | SC6-5-2 | Z90WDCV06-05-04-03 | | | | M3 |
| | 1.3343 | S6-5-2 | Z85WDCV06-05-04-02 | BM2 | 2722 | F.5603 6-5-2 | M2 |
| | 1.3344 | S6-5-3 | Z130WDCV06-05-04-04 | | | F.5605 6-5-3 | M3Class2 |
| | 1.3346 | S2-9-1 | Z85DCWV08-04-02-01 | BM1 | | | H41/M1 |
| | 1.3348 | S2-9-2 | Z100DCWV09-04-02-02 | | 2782 | F.5607 2-9-2 | M7 |
| | 1.3355 | S18-0-1 | Z80WCV18-04-01 | BT1 | | F.5520 18-0-1 | T1 |
| | 1.3401 | X120Mn12 | Z120M12/Z120Mn12 | | | F.82551-AM-X 120 Mn 12 | A128(A) |
| | 1.3505 | 100Cr6 | 100C6 | 534A99 | 2258 | F.1310 – 100 Cr 6 | 52100 |
| Hardened Steel | | | | | | | |
| | | | | HARDOX 400/500/600 | | | |
| | | | | | | | |
| Cast Aluminium | 3.2151 | G-AlSi6Cu4 | A-S5U | LM4-LM22 | 4230 | L-2660 | 319,2 |
| | 3.2161 | G-AlSi8Cu3 | A-S9U3 | LM24 | 4252 | L-2630 | 380,1 |
| | 3.2341 | G-AlSi5Mg | A-S4G | DTD716B | | | |
| | 3.2371 | G-AlSi7Mg | A-S7GO,3 | 2L99/LM25 | 4244 | | A356.2 |
| | 3.2373 | G-AlSi9Mg | A7-S10G | | 4253 | | |
| | 3.2381 | G-AlSi10Mg | A-S10G | LM9 | 4253 | L-2560 | A360 |
| | 3.2583 | G-AlSi12Cu | A-S12U | LM20 | 4260 | L-2530 | 413,1 |
| | 3.3561 | G-AlMg5 | A-G6 | LM5 | | | 514,1 |
| | 3.3581 | G-AlSi12 | A-S13 | LM6 | 4261 | L-2520 | A413 |
| | 3.3591 | G-AlMg10 | A-G10-Y4 | LM10 | | L-2310 | 520 |
| | | AlSi17Cu4 | | | | | 390 |
| | | AlSi18-25CuNiMg | | LM28/LM29 | | | 393 |
| Wrought Aluminium | 3.0205 | Al99 | A4 | 1C | 144010 | L-3001 | 1200 |
| | 3.0255 | Al99,5 | A5 | 1B | 144007 | L-3051 | 1050A |
| | 3.0257 | E-Al | A5/L | 1E | 144008 | L-3052 | 1350A |
| | 3.0275 | Al99,7 | A7 | | 144005 | L-3071 | 1070A |
| | 3.0285 | Al99,8 | A8 | 1A | 144004 | L-3081 | 1080A |
| | 3.0385 | Al99,98R | A99 | 1 | | | 1199 |
| | 3.0505 | AlMn0,5Mg0,5 | | N31 | | | 3105 |
| | 3.0525 | AlMn1Mg0,5 | A-M1G0,5 | | | | 3005 |
| | 3.0526 | AlMnMg1 | A-M1G | N4 | | L-3820 | 3004 |
| | 3.0915 | AlFeSi | A-FeS | | | | 8011A |
| | 3.1255 | AlCuSiMn | A-U4SG | H15 | 144338 | L-3130 | 2014 |
| | 3.1305 | AlCu2,5Mg0,5 | A-U2G | 3L86/HR13 | | L-3180 | 2117 |
| | 3.1325 | AlCuMg1 | A-U4G | H14 | | L-3120 | 2017A |
| | 3.1355 | AlCuMg2 | A-U4G1 | 2L98 | | L-3140 | 2024 |
| | 3.1645 | AlCuMgPb | A-U4Pb | | 144335 | L-3121 | 2003 |
| | 3.1655 | AlCuBiPb | A-U5PbBi | FC1 | 144355 | L-3182 | 2011 |
| | 3.2305 | E-AlMgSi | | 91E | | L-3431 | 6101B |
| | 3.2307 | Al99,85MGs1 | A85-GS | BTR6 | | | 6463 |
| | 3.2315 | Al-Si1 Mg | A-SGMO,7 | H30 | 144212 | L-3451 | 6181 |
| | 3.3206 | AlMGSi0,5 | | H9 | 144103 | L-3441 | 6060 |
| | 3.3207 | E-AlMgSi0,5 | A-GS/L | BTRE6 | 144102 | | 6101C |
| | 3.3315 | AlMg1 | A-GO,6 | N41 | 144106 | L-3350 | 5005A |
| | 3.3316 | AlMg1,5 | A-G1,5 | 3L44 | | L-3380 | 5050B |
| | 3.3345 | AlMg4,5 | | | | | 5082 |
| | 3.3523 | AlMg2,5 | A-G2,5C | N5Mg3,5 | 144120 | L-3360 | 5052 |
| | 3.3525 | AlMg2Mn0,3 | A-G2M | N4 | | | 5251 |
| | 3.3535 | AlMg3 | A-G3M | | 144133 | L-3390 | 5754 |
| | 3.3537 | AlMg2,7Mn | A-G2,5MC | N51 | | | 5454 |
| | 3.3547 | AlMg4,5Mn | 5083 | N8 | 144140 | L-3321 | 5083 |
| | 3.3555 | AlMg5 | | N6 | 144146 | L-3320 | 5056A |
| | 3.4335 | AlZn4,5Mg1 | A-Z5G | H17 | 144425 | L-3741 | 7020 |
| | 3.4345 | AlZnMgCu0,5 | A-Z5Gu0,6 | | | | 7022 |
| | 3.4365 | AlZnMgCu1,5 | A-Z5GU | 2L95 | | L-3710 | 7075 |
| SG/Nodular Cast Iron | 0.704 | GGG-40 | FGS-400-12 | 420/12 | 0717-02 | | 60-40-18 |
| | 0.7043 | GGG-40.3 | FGS370-17 | 370/17 | 0717-15 | | |
| | 0.705 | GGG-50 | FGS500-7 | 500/7 | 0727-02 | | 65-45-12 |
| | 0.706 | GGG-60 | FGS 600-3 | 600/3 | 0732-03 | | 80-55-06 |
| | 0.707 | GGG-70 | FGS 700-2 | 700/2 | 0737-01 | | 100-70-03 |
| | 0.708 | GGG-80 | FGS 800-2 | 800/2 | | | 120-90-02 |
| | 0.8035 | GTW-35-04 | MB 35-7 | W 340/3 | | | |
| | 0.804 | GTW-40-05 | MB 40-10 | W 410/4 | | | |
| | 0.8045 | GTW-45-07 | | | | | |
| | 0.8135 | GTS-35-10 | MN 35-10 | B 340/12 | SIS 08 15-00 | | 32510 |
| | 0.8145 | GTS-45-06 | MP 50-5 | P 440/7 | SIS 08 54-00 | | |
| | 0.8155 | GTS-55-04 | MP 60-3 | P 540/5 | SIS 08 56-00 | | |
| | 0.8165 | GTS-65-02 | | | SIS 08 62-03 | | |
| | 0.817 | GTS 70-02 | MP 70-2 | P 690/2 | SIS 08 62-03 | | 70 003 |



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## Material Cross Reference

| Material Class | German | DIN | French | UK | Swedish | Spanish | USA |
|---|---|---|---|---|---|---|---|
| Grey/White Cast Iron | 0.6025 | GG25 | Ft25D/FGL250 | Grade 260 | 0125-00 | FG 25 | A48-40B |
| | 0.601 | GG10 | Ft10D/FGL100 | | 0110-00 | FG 10 | A48-20B |
| | 0.6015 | GG15 | Ft15D/FGL150 | Grade 150 | 0115-00 | FG 15 | A48-25B |
| | 0.602 | GG20 | Ft20D-FGL200 | Grade 220 | 0120-00 | FG20 | A48-30B |
| | 0.603 | GG30 | Ft30D/FGL300 | Grade 300 | 0130-00 | FG 30 | A48-45B |
| | 0.6035 | GG35 | Ft35D/FGL350 | Grade 350 | 0135-00 | FG35 | A48-50B |
| | 0.604 | GG40 | Ft40D/FGL400 | Grade 400 | 0140-00 | | A48-60B |
| Bronze Aluminium-Bronze Tin Bronze | 2.0918 | CuAl5As | CuAl6 | | | | C 60 800 |
| | 2.092 | CuAl8 | CuAl8 | | | | C 61 000 |
| | 2.0932 | CuAl8Fe3 | CuAl7Fe2 | CA 106 | | | C 61 400 |
| | 2.0936 | CuAl10Fe3Mn2 | CuAl9Fe3Mn2 | CA 105 | | | C 62 300 |
| | 2.094 | CuA/10Fe | CuAl9Fe3 | AB 1 | | | C 95 200 |
| | 2.094 | G-FeA/BzF50 | CuAl9Fe3 | AB 1 | | | B 505 |
| | 2.096 | CuAl9Mn2 | CuAl9Mn2 | | | | |
| | 2.0966 | CuA/10Ni5Fe4 | CuAl9Ni5Fe3Mn | CA 104 | | | C 63 200 |
| | 2.097 | G-NiABzF50 | CuAl9Ni5Fe | AB 2 | | | C 95 800 |
| | 2.0978 | CuAl11NiFe5 | CuAl11Ni5Fe5 | | | | |
| | 2.1188 | G-CuPb20Sn | CuPb20Sn5 | LB5 | | | C 94100 |
| Brass | 2.022/2.032 | CuZn5 | CuZn5 | CZ 125/101 | | | C 21000/34500 |
| | 2.034 | G-CuZn37Pb | CuZn40-Y30 | PCB 3 | | | C 85700 |
| | 2.036/2.041 | CuZn40/44Pb2 | CuZn40/44Pb2 | CZ 109/CZ130 | | | C 28000/38500 |
| | 2.046 | CuZn20Al2 | CuZn22Al2 | CZ 110 | | | C 68700 |
| | 2.047 | CuZn28Sn1 | | CZ 111 | | | C 44300 |
| | 2.053 | CuZn38Sn1 | | CZ 112 | | | C 46400 |
| | 2.055 | CuZn40Al2 | | CZ 114 | | | C 67400 |
| | 2.0591 | G-CuZn38Al | | PCB1, DCB 3 | | | C 86400 |
| | 2.0592 | G-CuZn35Al1 | CuZn40-Y30 | HTB 1 | | | C 86400 |
| | 2.0596 | G-CuZn34Al2 | | | | | C 86200 |
| | 2.0598 | G-CuZn25Al5 | | HTB 3 | | | C 86300 |
| | 2.105 | G-CuSn10Zn | | G1 | | | C 90500 |
| | 2.1052 | G-CuSn12 | CuSn12 | Pb2 | | | C 90800 |
| | 2.106 | G-CuSn12Ni | | CT2 | | | C 91700 |
| | 2.1086 | G-CuSn10 | | CT1 | | | C 90250 |
| | 2.109 | G-CuSn7ZnPb | CuSn7Pb6Zn4 | | | | C 93200 |
| | 2.1093 | G-CuSn6ZnNi | | LG4 | | | C 92410 |
| | 2.1096 | G-CuSn5ZnPb/RG5 | CuPb5Sn5Zn5 | LG2 | | | C 83600 |
| | 2.1176 | G-CuPb10Sn | CuPb10Sn10 | LB2 | | | C 93700 |
| | 2.1182 | G-CuPb15Sn | | LB1 | | | C 93800 |
| | 2.1293 | CuCrZr | | CC 102 | | | C 18100 |
| Copper Copper/ Nickel Alloys | 2.0815 | G-CuNi10 | | | | | C 96200 |
| | 2.083 | CuNi25 | CiNi25 | CN 105 | | | C 71300 |
| | 2.0835 | G-CuNi30 | | CN 2 | | | C 96400 |
| | 2.0842 | CuNi44Mn1 | CuNi44 | | | | C 72150 |
| | 2.0872 | CuNi10Fe1Mn | CuNi10Fe1Mn | CN 102 | | | C 70600 |
| | 2.0882 | CuNi30Mn1Fe | CuNi30Mn1Fe | CN 107 | | | C 71500 |
| | 2.1245 | CuBe1,7 | CuBe1,7 | CB 101 | | | C 17000 |
| | 2.1247 | CuBe2 | CuBe1,9 | | | | C 17200 |
| | 2.1285 | CuCo2Be | | C112 | | | C 17500 |
| | 2.131 | CuFe2P | | | | | C 19400 |
| | | CuNi9Sn2 | | | | | C 72500 |
| | | CuNi30Fe2Mn2 | CuNi30Fe2Mn2 | CN 108 | | | C 71640 |
| | 2.004 | OF-Cu | Cu-c1/C2 | Cu-OF C 103/110 | | | OF |
| | 2.006 | E-Cu57 | Cu-a1/A2 | Cu-ETP-2 C 101 | | | C 11000 |
| | 2.0065 | E-Cu58 | Cu-a1 | Cu-ETP-2 C 101 | | | C 11000 |
| | 2.007 | Se-Cu | | | | | C 10300 |
| | 2.0076 | SW-Cu | Cu-b2 | | | | C 1200 |
| | 2.009 | SF-Cu | Cu-b1 | Cu-DHP C 106 | | | C 12200 |
| | 2.1191 | Cu-Ag 0,1P | | | | | C 10700 |
| | 2.1203 | Cu-AG 0,1 | | CuAg-4 | | | C 11600 |

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

## Problems and Solutions

| Problem \ Cause | Use of Standard & Extended Holders | Starting on an inclined surface | Worn or mis-aligned spindle | Use of low rigidity spindle | Poor work piece support |
|---|---|---|---|---|---|
| Accelerated corner wear | | | 2,6,7 | | |
| Spiral or large diameter at hole start | 1,2,3,4,27 | | 2,6,7,27 | 2,4,8,27 | 10,26,27 |
| Insert Chipping | | | | 2,4,8,9 | 8,9,10,26 |
| Blue Chips | | | | | |
| Built Up Edge (BUE) | | | | | |
| Chatter | 1,2,3,4,27 | 1,3,4,5 | 2,6,7 | 2,4,8 | 8,10,26 |
| Chip Packing | | | | | |
| Chipping of point | 1,2,3,4,27 | 1,3,4,5 | 2,6,7 | 2,4,8,9 | |
| Damaged or broken tools | | 1,3,4,5 | 2,6,7 | 2,4,8,9 | 8,9,10 |
| Excessive margin wear | | 1,3,4,5 | 2,6,7 | | 8,9,10 |
| High flank wear | | | | | |
| Hole lead off | 1,2,3,4,27 | 1,3,4,5 | 2,6,7,27 | 2,4,8 | |
| Hole out of position | 1,2,3,4,27 | | | 2,4,8 | |
| Hole out of round | | 1,3,4,5 | | | 8,10,26,27 |
| Notching of insert | | | | | |
| Oversize hole | | | 2,6,7,27 | | |
| Poor hole finish | | | 2,6,7 | | 8,10 |
| Poor tool life | | | | | |
| Power Fluctuation of load metre | | | | | |
| Retraction spiral | 1,2,3,4,27 | 1,3,4,5 | 2,6,7 | 2,4,8 | 8,9,10,27 |
| Step burnt on insert | | | | | |

### Solutions

1. Use a short holder to drill a pilot hole 1 x D deep.
2. Spot hole with stub tool of same or greater included angle as T-A insert.
3. Decrease feed minimum 50% until full diameter established.
4. Use special holder with wear pads or chrome bearing area to work with drill bushing.
5. Spot face to provide flat entry surface.
6. Align spindle or turret or tailstock.
7. Repair spindle.
8. Reduce penetration rate to fall within physical limits of machine set up, but do not fall below feed threshold required to form a chip or speed threshold to cut material.
9. Use tougher grade tool steel with high wear resistant coating (i.e. if using Premium Cobalt (PC) use Super Cobalt. If using Super Cobalt use CPM-M4
10. Provide additional support for the workpeice.
11. Run coolant through holder when drilling greater than 1xD
12. Increase coolant volume and pressure through the holder
13. Reduce penetration rate to fall within coolant limitations, but do not fall below feed threshold required to form a chip or speed threshold to cut material
14. Add peck cycle to clear chips, do not remove insert from hole during peck



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| External coolant-Low pressure/volume | Interrupted Cuts | Drilling hardened materials | Poor material micro-structure | Poor chip control | Spot drilled holes | High wear resistant tool grades |
|---|---|---|---|---|---|---|
| 11,12,13,19 | | 12,18,19,20 | | | 2,23 | |
| | | | | | | |
| | 2,15,16,17,4,9 | | 9,20,21,22,23 | | 2,23 | 9,26 |
| 11,12,13 | | 12,18,19,20 | | | | |
| 11,12,13 | | 12,13,18,19,20 | 9,20,21,23 | | | |
| | 2,4,15,16,17 | | | | 2,23 | |
| 11,12,13,14 | | | | 12,14,19,24,25 | | |
| | 2,9,15,16,17 | | | | | |
| 9,11,12,13,14 | 2,4,15,16,17 | 12,18,19,20 | 9,20,21,23 | 12,19,24,25 | | 9,26 |
| | 2,15,16,17 | | | 12,19,24,25 | | |
| 11,12,13,19,20 | | 12,18,19,20 | 9,20,21,23 | | | |
| | 2,4,15,16,17,27 | | 9,20,21,23 | 12,19,24,25 | 2,23,27 | |
| | 2,4,15,16,17,27 | | | | | |
| | 2,4,15,16,17 | | | | | |
| | | | 9,20,21,23 | | 2,23 | |
| 11,12,13,14 | 2,15,16,17 | | | 12,19,24,25,27 | | |
| 11,12,13,14 | 2,15,16,17 | | | 12,19,24,25 | | |
| 11,12,13,14,19,20 | 2,15,16,17 | 12,18,19,20 | 9,20,21,23 | 12,14,19,24,25 | 2,23 | |
| 11,12,13,14 | | | | 12,19,24,25 | | |
| | | | | | | |
| 11,12,13,18,20 | | 12,18,19,20 | | | | |

15. Pre-mill or spot face entry or exit to remove interruption.
16. Decrease feed up to 50% through entry or exit interruption using Nyloc screws to retain insert.
17. Use short holders in low impact entry cuts.
18. Reduce speed if a step or burn diameter is worn on insert. Calculate the speed at worn diameter, reduce this velocity by 10% and apply to original tool diameter.
19. Improve quality and condition of coolant (water soluble preferred at 7-8% dilution with EP additive).
20. Use more heat and wear resistant tool grade. If using CPM-M4 use Super Cobalt. If using Super Cobalt, use Premium Cobalt. If using Premium Cobalt, use Carbide (if micro structure problems present). Use most wear resistant coating.-TiCN/TiAlN/AM200™.
21. Anneal or normalise parts if all cutting tools exhibiting poor tool life.
22. For hard spots, use tougher grade tool steel with high wear resistant coating (i.e If using Premium Cobalt (PC) use Super Cobalt. If using Super Cobalt, use CPM-M4).
23. Reduce feed, but not below threshold of good chip formation.
24. Increase feed to recommended levels.
25. Contact AMEC or use one of chip enhancement geometries page at front of catalogue.
26. Increase rigidity of set up.
27. Use AMEC's Notch Point Geometry.

## Tap Drill Information

| METRIC – m – Profile Screw Thread | | | | | | |
|---|---|---|---|---|---|---|
| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | ** Probable % Thread |
| 12 x 1.75 | 10.2mm | .4016″ | 79% | 0.075mm | 10.28mm | 76% |
| | 13/32″ | .4063″ | 74% | 0.075mm | 10.40mm | 71% |
| 12 x 1.25 | 27/64″ | .4219″ | 79% | 0.075mm | 10.79mm | 74% |
| | 10.8mm | .4252″ | 74% | 0.075mm | 10.88mm | 69% |
| 14 x 2.0 | 15/32″ | .4688″ | 81% | 0.075mm | 11.98mm | 78% |
| | 12.0mm | .4724″ | 77% | 0.075mm | 12.08mm | 74% |
| 14 x 1.5 | 12.5mm | .4921″ | 77% | 0.075mm | 12.58mm | 73% |
| 16 x 2.0 | 14.0mm | .5512″ | 77% | 0.075mm | 14.08mm | 74% |
| 16 x 1.5 | 14.5mm | .5709″ | 77% | 0.075mm | 14.58mm | 73% |
| | 37/64″ | .5781″ | 68% | 0.075mm | 14.76mm | 64% |
| 18 x 2.5 | 15.5mm | .6102″ | 77% | 0.075mm | 15.58mm | 75% |
| 18 x 1.5 | 16.5mm | .6496″ | 77% | 0.075mm | 16.58mm | 73% |
| | 21/32″ | .6563″ | 68% | 0.075mm | 16.75mm | 64% |
| 20 x 2.5 | 11/16″ | .6875″ | 78% | 0.075mm | 17.54mm | 76% |
| | 17.5mm | .6890″ | 77% | 0.075mm | 17.58mm | 74% |
| 20 x 1.5 | 18.5mm | .7283″ | 77% | 0.075mm | 18.58mm | 73% |
| | 47/64″ | .7344″ | 69% | 0.075mm | 18.66mm | 65% |
| 22 x 2.5 | 49/64″ | 7656″ | 79% | 0.075mm | 19.52mm | 76% |
| | 19.5mm | .7677″ | 77% | 0.075mm | 19.58mm | 75% |
| 22 x 1.5 | 20.5mm | .8071″ | 77% | 0.075mm | 20.58mm | 73% |
| | 13/16″ | .8125″ | 70% | 0.075mm | 20.71mm | 66% |
| 24 x 3 | 13/16″ | .8125″ | 86% | 0.075mm | 20.71mm | 84% |
| | 21.0mm | .8268″ | 76% | 0.075mm | 21.08mm | 75% |
| 24 x 2 | 22.0mm | .8661″ | 77% | 0.075mm | 22.08mm | 74% |
| | 7/8″ | .8750″ | 68% | 0.075mm | 22.30mm | 65% |
| 27 x 3 | 24.0mm | .9449″ | 77% | 0.075mm | 24.08mm | 75% |

* Based on nominal tap drill diameter.

** Based on 0.075mm probable mean oversize

**To Calculate % of full thread for a given hole Ø:**

$$\% \text{ Thread} = \frac{76.93}{\text{Pitch (mm)*}} \times (\text{Basic major Ø mm} - \text{Drill hole size mm})$$

| Taper Pipe Thread (BSP & ISO 7-1) | | | | | | |
|---|---|---|---|---|---|---|
| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Probable Mean Oversize | Probable Hole Size | **Probable % Thread |
| 1/4″ - 19 | 7/16″ | .4325″ | N/A | 0.075mm | 11.19mm | N/A |
| 3/8″ – 19 | 37/64″ | .5781″ | N/A | 0.075mm | 14.76mm | N/A |
| 1/2″ - 14 | 23/32″ | .7188″ | N/A | 0.075mm | 18.33mm | N/A |
| 3/4″ - 14 | 15/16″ | .9375″ | N/A | 0.075mm | 23.89mm | N/A |

The above tap drill information represents probable thread percentages for the standard tap drills stocked at AMEC®. Special blade diameters may be required in order to meet a user specific percentage of thread requirements.

The 0.075mm probable mean oversize hole condition is based on optimum cutting conditions. Probable % of full thread may vary based on less ideal cutting conditions.



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# GEN3SYS®XT & GEN3SYS®

**The GEN3SYS®XT and GEN3SYS® high penetration drilling systems continue to set new benchmarks for what can be achieved with replaceable insert drilling technology. The comprehensive range includes innovative new coatings and cutting geometries that deliver outstanding performance, productivity and tool life on a range of materials.**

## Features and Benefits

- Drilling range 11.00 - 35.00mm
- Selection of grades, geometries and coatings to support a wide range of applications
- Robust tool holder designed with through coolant for improved tool life, hole finish and chip removal
- High penetration rates increase productivity
- Helical margin design enables maximum durability and insert stability
- Specials available upon request

**CONTENTS**

# GEN3SYS® XT & GEN3SYS® How to order information

## High Penetration Drilling

GEN3SYS® XT and GEN3SYS® high penetration drilling systems have been designed to provide high speed production machining beyond the capabilities of the T-A® system. The standard product offering covers a diameter range from 11.00mm to 35.00mm with drill hole depths of up to 7 x diameter. The programme has various grades, geometries and coatings available to suit the most demanding of applications.

Conceived from the outset as the 'ultimate' high performance drilling solution, the GEN3SYS® XT and GEN3SYS® range is incredibly versatile. Incorporating both helical and straight fluted tool holder options across the range, as well as through coolant for maximum material removal, the GEN3SYS® XT and GEN3SYS® inserts not only give outstanding performance from day one, but can also be re-ground for extended life and economy.

## How to identify GEN3SYS® XT and GEN3SYS® Holders

| 6 | 03 | 12 | H | - | 20FM |
|---|---|---|---|---|---|
| Holder | Diameter | Series | Flute | | Shank Style |

**Diameter**
- Stub
- 3 x Diameter
- 5 x Diameter
- 7 x Diameter

**Series**

| | |
|---|---|
| 11 | 18 |
| 12 | 20 |
| 13 | 22 |
| 14 | 24 |
| 15 | 26 |
| 16 | 29 |
| 17 | 32 |

**Flute**
- H - Helical
- S - Straight

**Shank Style**
- FM - Flanged Metric with Flat
- CM - Cylindrical Metric
- WN - Whistle Notch

## How to identify GEN3SYS® XT and GEN3SYS® Drill Inserts

| 7 | C1 | 12 | P | - | 12 | - | |
|---|---|---|---|---|---|---|---|
| Insert | Material | Series | Coating | | Diameter | | Geometries |

**Insert**
- 7 - GEN3SYS XT
- 5 - GEN3SYS

**Material**
- C1 / K35
- C2 / K20

**Series**

| | |
|---|---|
| 11 | 18 |
| 12 | 20 |
| 13 | 22 |
| 14 | 24 |
| 15 | 26 |
| 16 | 29 |
| 17 | 32 |

**Coating**
- P - AM300™
- H - AM200®
- A - TiAlN
- N - TiCN
- T - TiN

**Geometries**
- Blank - Standard
- CI - Cast Iron
- LR - LR
- AS - Austenitic Stainless Steel

**NOTE:** AM300 coating available for GEN3SYS XT only
AS geometry available for GEN3SYS XT only

## Insert Coatings

### AM300™

- Increased heat resistance over AM200®
- Provides superior tool life at high penetration rates
- Up to a 20% increase in tool life over AM200®
- Available as standard on GEN3SYS® XT
- Colour Light Bronze

### AM200®

- Improved heat resistance over Tin, TiCN and TiAlN with improved wear capabilities
- Allows for improved tool life and higher penetration rates
- Over 20% increased tool life over TiAlN coating
- Available as standard on GEN3SYS®
- Colour Copper / Bronze
- TiN, TiCN and TiALN coatings available upon request


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## Substrates

### K20 Carbide (C2)

Excellent choice for drilling titanium alloys, cast aluminium and wrought aluminium together with SG/Nodular cast iron, grey/white iron, aluminium bronze, brass, copper, stainless steels and high temperature alloys.

### K35 Carbide (C1)

Ideal for drilling, free machining steel, low/medium carbon steels, alloys steels, high strength steels, tool steels, hardened steels and certain stainless steels.

## GEN3SYS® XT Insert Geometries

### Steel

**Standard**

- XT geometry - first choice for steels, alloys and hardened materials
- Optimum chip formation in elastic materials, with improved penetration rates
- AM300™ coating provides exceptional wear resistance and up to 20% increase in tool life over AM200®
- Available in K35 & K20 substrates

### Steel

**LR**

- Enhanced LR-XT geometry supports applications with poor stability and rigidity
- First choice for machining structural, cast and forged steel in materials over 850N/mm² (250BHN)
- AM300™ coating provides exceptional wear resistance and up to 20% increase in tool life over AM200®
- Available in K35 & K20 substrates

### Cast Iron

**CI**

- Enhanced CI-XT geometry provides high wear resistance in drilling of cast iron materials
- Improved penetration rates, chip formation and hole quality
- AM300™ coating provides exceptional wear resistance and up to 20% increase in tool life over AM200®
- Stronger corner radius
- Tough K20 substrate

### Stainless Steel

**AS**

- Enhanced AS-XT geometry improves chip control in Austentic stainless steel
- Stronger point geometry improves penetration rates
- First choice for austenitic stainless steels
- AM300™ coating provides exceptional wear resistance and up to 20% increase in tool life over AM200®
- Tough K20 substrate

## GEN3SYS® Insert Geometries

### Steel

**Standard**

- Suitable for steels, alloys and hardened materials
- Optimum chip formation in elastic materials, without compromising performance
- High wear resistance and extended tool life with AM200® coating
- Available in K35 & K20 substrates

### Steel

**LR**

- Suitable for applications with poor stability and rigidity
- Suitable for machining structural, cast and forged steel in materials over 850N/mm² (250BHN)
- High wear resistance and extended tool life with AM200® coating
- Available in K35 & K20 substrates

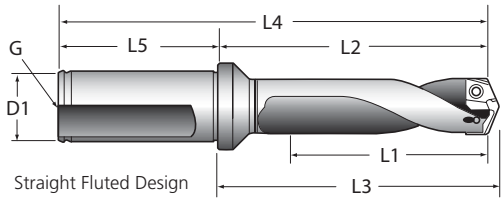
### Cast Iron

**CI**

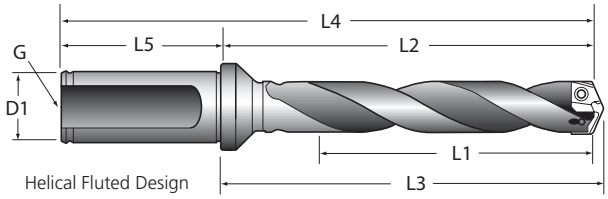
- Suitable for drilling cast iron materials
- Enhanced geometry improves chip formation and hole quality
- High wear resistance and extended tool life with AM200® coating
- Enhanced corner radius reduces material break down on exit
- Tough K20 substrate

# 11 Series Drill Inserts and Holders

Diameter Range 11.00mm to 11.99mm



Straight Fluted Design

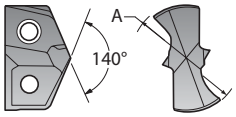


Helical Fluted Design

## Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60311S-16FM | 3xD | Straight | 36.0 | 62.6 | 64.7 | 110.6 | 48.0 | 16 | Yes | 1/16" |
| 60511S-16FM | 5xD | Straight | 60.0 | 86.6 | 88.6 | 134.6 | 48.0 | 16 | Yes | 1/16" |
| 60711S-16FM | 7xD | Straight | 84.0 | 110.6 | 112.6 | 158.6 | 48.0 | 16 | Yes | 1/16" |
| 60111H-16FM | Stub | Helical | 16.0 | 42.6 | 44.7 | 90.6 | 48.0 | 16 | Yes | 1/16" |
| 60311H-16FM | 3xD | Helical | 36.0 | 62.6 | 64.7 | 110.6 | 48.0 | 16 | Yes | 1/16" |
| 60311H-16CM | 3xD | Helical | 36.0 | 62.6 | 64.7 | 110.6 | 48.0 | 16 | No | 1/16" |
| 60511H-16FM | 5xD | Helical | 60.0 | 86.6 | 88.6 | 134.6 | 48.0 | 16 | Yes | 1/16" |
| 60511H-16CM | 5xD | Helical | 60.0 | 86.6 | 88.6 | 134.6 | 48.0 | 16 | No | 1/16" |
| 60711H-16FM | 7xD | Helical | 84.0 | 110.6 | 112.6 | 158.6 | 48.0 | 16 | Yes | 1/16" |
| 60711H-16CM | 7xD | Helical | 84.0 | 110.6 | 112.6 | 158.6 | 48.0 | 16 | No | 1/16" |

FM - Flanged Metric with Flat
CM - Cylindrical Metric




## Drill Inserts

| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. |
|---|---|---|---|---|---|
| K35 (C1) | 0.4331 | 11.00 | | 7C111P-11 | ● |
| | 0.4375 | 11.11 | 7/16" | 7C111P-0014 | ○ |
| | 0.4528 | 11.50 | | 7C111P-11.5 | ● |
| | 0.4531 | 11.51 | 29/64" | 7C111P-.453 | ○ |
| | 0.4688 | 11.91 | 15/32" | 7C111P-0015 | ○ |
| LR Geometry K35 (C1) | 0.4331 | 11.00 | | 7C111P-11LR | ◆ |
| | 0.4375 | 11.11 | 7/16" | 7C111P-0014LR | ◆ |
| | 0.4528 | 11.50 | | 7C111P-11.5LR | ◆ |
| | 0.4531 | 11.51 | 29/64" | 7C111P-.453LR | ◆ |
| | 0.4688 | 11.91 | 15/32" | 7C111P-0015LR | ◆ |
| K20 (C2) | 0.4331 | 11.00 | | 7C211P-11 | ● |
| | 0.4375 | 11.11 | 7/16" | 7C211P-0014 | ○ |
| | 0.4528 | 11.50 | | 7C211P-11.5 | ● |
| | 0.4531 | 11.51 | 29/64" | 7C211P-.453 | ○ |
| | 0.4688 | 11.91 | 15/32" | 7C211P-0015 | ○ |
| Cast Iron Geometry K20 (C2) | 0.4331 | 11.00 | | 7C211P-11CI | ● |
| | 0.4375 | 11.11 | 7/16" | 7C211P-0014CI | ○ |
| | 0.4528 | 11.50 | | 7C211P-11.5CI | ● |
| | 0.4531 | 11.51 | 29/64" | 7C211P-.453CI | ○ |
| | 0.4688 | 11.91 | 15/32" | 7C211P-0015CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.4331 | 11.00 | | 7C211P-11AS | ● |
| | 0.4375 | 11.11 | 7/16" | 7C211P-0014AS | ○ |
| | 0.4528 | 11.50 | | 7C211P-11.5AS | ● |
| | 0.4531 | 11.51 | 29/64" | 7C211P-.453AS | ○ |
| | 0.4688 | 11.91 | 15/32" | 7C211P-0015AS | ○ |
| LR Geometry K20 (C2) | 0.4331 | 11.00 | | 7C211P-11LR | ◆ |
| | 0.4375 | 11.11 | 7/16" | 7C211P-0014LR | ◆ |
| | 0.4528 | 11.50 | | 7C211P-11.5LR | ◆ |
| | 0.4531 | 11.51 | 29/64" | 7C211P-.453LR | ◆ |
| | 0.4688 | 11.91 | 15/32" | 7C211P-0015LR | ◆ |

*Supplied in 1 piece packaging.*

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**





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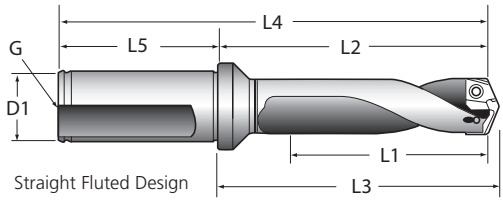
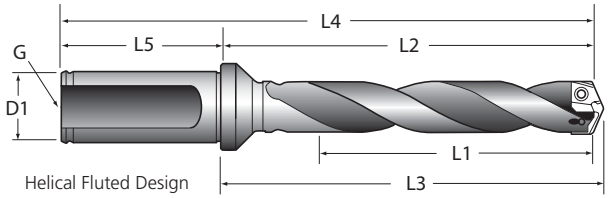
# 12 Series Drill Inserts and Holders

Diameter Range 12.00mm to 12.99mm




Straight Fluted Design

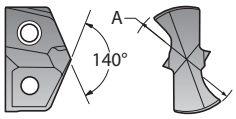



Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60312S-20FM | 3xD | Straight | 39.0 | 66.6 | 68.6 | 116.6 | 50.0 | 20 | Yes | ⅛″ |
| 60512S-20FM | 5xD | Straight | 65.0 | 92.6 | 94.8 | 142.6 | 50.0 | 20 | Yes | ⅛″ |
| 60712S-20FM | 7xD | Straight | 91.0 | 118.5 | 120.8 | 168.5 | 50.0 | 20 | Yes | ⅛″ |
| 60112H-20FM | Stub | Helical | 16.0 | 43.2 | 45.4 | 93.2 | 50.0 | 20 | Yes | ⅛″ |
| 60312H-20FM | 3xD | Helical | 39.0 | 66.6 | 68.8 | 116.6 | 50.0 | 20 | Yes | ⅛″ |
| 60312H-20CM | 3xD | Helical | 39.0 | 66.6 | 68.8 | 116.6 | 50.0 | 20 | No | ⅛″ |
| 60512H-20FM | 5xD | Helical | 65.0 | 92.6 | 94.8 | 142.6 | 50.0 | 20 | Yes | ⅛″ |
| 60512H-20CM | 5xD | Helical | 65.0 | 92.6 | 94.8 | 142.6 | 50.0 | 20 | No | ⅛″ |
| 60712H-20FM | 7xD | Helical | 91.0 | 118.5 | 120.8 | 168.5 | 50.0 | 20 | Yes | ⅛″ |
| 60712H-20CM | 7xD | Helical | 91.0 | 118.5 | 120.8 | 168.5 | 50.0 | 20 | No | ⅛″ |

FM - Flanged Metric with Flat
CM - Cylindrical Metric




## GEN3SYS XT and GEN3SYS Drill Inserts

| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.4724 | 12.00 | | 7C112P-12 | ● | 5C112H-12 | ● |
| | 0.4844 | 12.30 | 31/64″ | 7C112P-.484 | ○ | 5C112H-.484 | ○ |
| | 0.4921 | 12.50 | | 7C112P-12.5 | ● | 5C112H-12.5 | ● |
| | 0.5000 | 12.70 | ½″ | 7C112P-0016 | ○ | 5C112H-0016 | ○ |
| LR Geometry K35 (C1) | 0.4724 | 12.00 | | 7C112P-12LR | ◆ | 5C112H-12-LR | ◆ |
| | 0.4844 | 12.30 | 31/64″ | 7C112P-.484LR | ◆ | 5C112H-.484-LR | ◆ |
| | 0.4921 | 12.50 | | 7C112P-12.5LR | ◆ | 5C112H-12.5-LR | ◆ |
| | 0.5000 | 12.70 | ½″ | 7C112P-0016LR | ◆ | 5C112H-0016-LR | ◆ |
| K20 (C2) | 0.4724 | 12.00 | | 7C212P-12 | ● | 5C212H-12 | ● |
| | 0.4844 | 12.30 | 31/64″ | 7C212P-.484 | ○ | 5C212H-.484 | ○ |
| | 0.4921 | 12.50 | | 7C212P-12.5 | ● | 5C212H-12.5 | ● |
| | 0.5000 | 12.70 | ½″ | 7C212P-0016 | ○ | 5C212H-0016 | ○ |
| Cast Iron Geometry K20 (C2) | 0.4724 | 12.00 | | 7C212P-12CI | ● | 5C212H-12-CI | ● |
| | 0.4844 | 12.30 | 31/64″ | 7C212P-.484CI | ○ | 5C212H-.484-CI | ○ |
| | 0.4921 | 12.50 | | 7C212P-12.5CI | ● | 5C212H-12.5-CI | ● |
| | 0.5000 | 12.70 | ½″ | 7C212P-0016CI | ○ | 5C212H-0016-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.4724 | 12.00 | | 7C212P-12AS | ● | - | - |
| | 0.4844 | 12.30 | 31/64″ | 7C212P-.484AS | ○ | - | - |
| | 0.4921 | 12.50 | | 7C212P-12.5AS | ● | - | - |
| | 0.5000 | 12.70 | ½″ | 7C212P-0016AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.4724 | 12.00 | | 7C212P-12LR | ◆ | 5C212H-12-LR | ◆ |
| | 0.4844 | 12.30 | 31/64″ | 7C212P-.484LR | ◆ | 5C212H-.484-LR | ◆ |
| | 0.4921 | 12.50 | | 7C212P-12.5LR | ◆ | 5C212H-12.5-LR | ◆ |
| | 0.5000 | 12.70 | ½″ | 7C212P-0016LR | ◆ | 5C212H-0016-LR | ◆ |

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 138.

*Supplied in 1 piece packaging.*

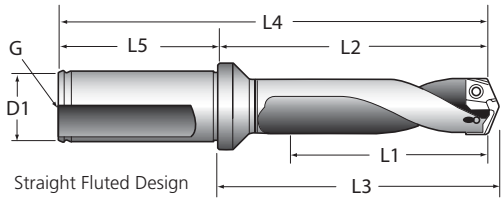
**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

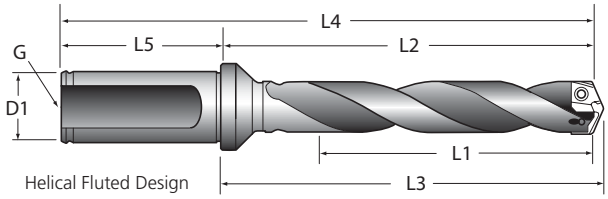
**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**

# 13 Series Drill Inserts and Holders

Diameter Range 13.00mm to 13.99mm



Straight Fluted Design

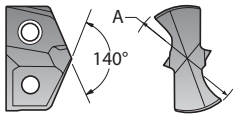


Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60313S-20FM | 3xD | Straight | 42.0 | 69.2 | 71.5 | 119.2 | 50.0 | 20 | Yes | ⅛" |
| 60513S-20FM | 5xD | Straight | 70.0 | 97.3 | 99.5 | 147.3 | 50.0 | 20 | Yes | ⅛" |
| 60713S-20FM | 7xD | Straight | 98.0 | 125.3 | 127.5 | 175.3 | 50.0 | 20 | Yes | ⅛" |
| 60113H-20FM | Stub | Helical | 16.0 | 43.0 | 45.2 | 93.0 | 50.0 | 20 | Yes | ⅛" |
| 60313H-20FM | 3xD | Helical | 42.0 | 69.2 | 71.5 | 119.2 | 50.0 | 20 | Yes | ⅛" |
| 60313H-20CM | 3xD | Helical | 42.0 | 69.2 | 71.5 | 119.2 | 50.0 | 20 | No | ⅛" |
| 60513H-20FM | 5xD | Helical | 70.0 | 97.3 | 99.5 | 147.3 | 50.0 | 20 | Yes | ⅛" |
| 60513H-20CM | 5xD | Helical | 70.0 | 97.3 | 99.5 | 147.3 | 50.0 | 20 | No | ⅛" |
| 60713H-20FM | 7xD | Helical | 98.0 | 125.3 | 127.5 | 175.3 | 50.0 | 20 | Yes | ⅛" |
| 60713H-20CM | 7xD | Helical | 98.0 | 125.3 | 127.5 | 175.3 | 50.0 | 20 | No | ⅛" |

FM - Flanged Metric with Flat
CM - Cylindrical Metric




## GEN3SYS XT and GEN3SYS Drill Inserts

| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.5118 | 13.00 | | 7C113P-13 | ● | 5C113H-13 | ● |
| | 0.5156 | 13.08 | 33/64" | 7C113P-.515 | ○ | 5C113H-.515 | ○ |
| | 0.5312 | 13.49 | 17/32" | 7C113P-0017 | ○ | 5C113H-0017 | ○ |
| | 0.5315 | 13.50 | | 7C113P-13.5 | ● | 5C113H-13.5 | ● |
| | 0.5469 | 13.89 | 35/64" | 7C113P-.546 | ○ | 5C113H-.546 | ○ |
| LR Geometry K35 (C1) | 0.5118 | 13.00 | | 7C113P-13LR | ◆ | 5C113H-13-LR | ◆ |
| | 0.5156 | 13.08 | 33/64" | 7C113P-.515LR | ◆ | 5C113H-.515-LR | ◆ |
| | 0.5312 | 13.49 | 17/32" | 7C113P-0017LR | ◆ | 5C113H-0017-LR | ◆ |
| | 0.5315 | 13.50 | | 7C113P-13.5LR | ◆ | 5C113H-13.5-LR | ◆ |
| | 0.5469 | 13.89 | 35/64" | 7C113P-.546LR | ◆ | 5C113H-.546-LR | ◆ |
| K20 (C2) | 0.5118 | 13.00 | | 7C213P-13 | ● | 5C213H-13 | ● |
| | 0.5156 | 13.08 | 33/64" | 7C213P-.515 | ○ | 5C213H-.515 | ○ |
| | 0.5312 | 13.49 | 17/32" | 7C213P-0017 | ○ | 5C213H-0017 | ○ |
| | 0.5315 | 13.50 | | 7C213P-13.5 | ● | 5C213H-13.5 | ● |
| | 0.5469 | 13.89 | 35/64" | 7C213P-.546 | ○ | 5C213H-.546 | ○ |
| Cast Iron Geometry K20 (C2) | 0.5118 | 13.00 | | 7C213P-13CI | ● | 5C213H-13-CI | ● |
| | 0.5156 | 13.08 | 33/64" | 7C213P-.515CI | ○ | 5C213H-.515-CI | ○ |
| | 0.5312 | 13.49 | 17/32" | 7C213P-0017CI | ○ | 5C213H-0017-CI | ○ |
| | 0.5315 | 13.50 | | 7C213P-13.5CI | ● | 5C213H-13.5-CI | ● |
| | 0.5469 | 13.89 | 35/64" | 7C213P-.546CI | ○ | 5C213H-.546-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.5118 | 13.00 | | 7C213P-13AS | ● | - | - |
| | 0.5156 | 13.08 | 33/64" | 7C213P-.515AS | ○ | - | - |
| | 0.5312 | 13.49 | 17/32" | 7C213P-0017AS | ○ | - | - |
| | 0.5315 | 13.50 | | 7C213P-13.5AS | ● | - | - |
| | 0.5469 | 13.89 | 35/64" | 7C213P-.546AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.5118 | 13.00 | | 7C213P-13LR | ◆ | 5C213H-13-LR | ◆ |
| | 0.5156 | 13.08 | 33/64" | 7C213P-.515LR | ◆ | 5C213H-.515-LR | ◆ |
| | 0.5312 | 13.49 | 17/32" | 7C213P-0017LR | ◆ | 5C213H-0017-LR | ◆ |
| | 0.5315 | 13.50 | | 7C213P-13.5LR | ◆ | 5C213H-13.5-LR | ◆ |
| | 0.5469 | 13.89 | 35/64" | 7C213P-.546LR | ◆ | 5C213H-.546-LR | ◆ |

*Supplied in 1 piece packaging.*

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**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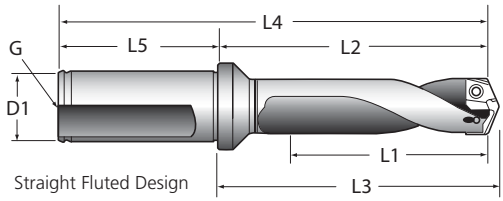
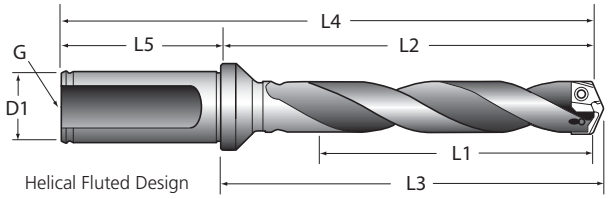
# 14 Series Drill Inserts and Holders

Diameter Range 14.00mm to 14.99mm



Straight Fluted Design

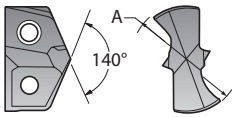


Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60314S-20FM | 3xD | Straight | 45.0 | 72.4 | 75.0 | 122.4 | 50.0 | 20 | Yes | ⅛" |
| 60514S-20FM | 5xD | Straight | 75.0 | 102.4 | 104.9 | 152.4 | 50.0 | 20 | Yes | ⅛" |
| 60714S-20FM | 7xD | Straight | 105.0 | 132.4 | 134.9 | 182.4 | 50.0 | 20 | Yes | ⅛" |
| 60114H-20FM | Stub | Helical | 17.5 | 44.6 | 47.2 | 94.6 | 50.0 | 20 | Yes | ⅛" |
| 60314H-20FM | 3xD | Helical | 45.0 | 72.4 | 75.0 | 122.4 | 50.0 | 20 | Yes | ⅛" |
| 60314H-20CM | 3xD | Helical | 45.0 | 72.4 | 75.0 | 122.4 | 50.0 | 20 | No | ⅛" |
| 60514H-20FM | 5xD | Helical | 75.0 | 102.4 | 104.9 | 152.4 | 50.0 | 20 | Yes | ⅛" |
| 60514H-20CM | 5xD | Helical | 75.0 | 102.4 | 104.9 | 152.4 | 50.0 | 20 | No | ⅛" |
| 60714H-20FM | 7xD | Helical | 105.0 | 132.4 | 134.9 | 182.4 | 50.0 | 20 | Yes | ⅛" |
| 60714H-20CM | 7xD | Helical | 105.0 | 132.4 | 134.9 | 182.4 | 50.0 | 20 | No | ⅛" |
| 60514S-20WN | 5xD | Straight | 75.0 | 102.3 | 104.9 | 152.3 | 50.0 | 20 | Yes | ⅛" |
| 60714S-20WN | 7xD | Straight | 105.0 | 132.4 | 134.9 | 182.4 | 50.0 | 20 | Yes | ⅛" |

FM - Flanged Metric with Flat
CM - Cylindrical Metric
WN - Whistle Notch




## GEN3SYS XT and GEN3SYS Drill Inserts

| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.5512 | 14.00 | | 7C114P-14 | ● | 5C114H-14 | ● |
| | 0.5625 | 14.29 | 9/16" | 7C114P-0018 | ○ | 5C114H-0018 | ○ |
| | 0.5709 | 14.50 | | 7C114P-14.5 | ● | 5C114H-14.5 | ● |
| | 0.5781 | 14.68 | 37/64" | 7C114P-.578 | ○ | 5C114H-.578 | ○ |
| LR Geometry K35 (C1) | 0.5512 | 14.00 | | 7C114P-14LR | ◆ | 5C114H-14-LR | ◆ |
| | 0.5625 | 14.29 | 9/16" | 7C114P-0018LR | ◆ | 5C114H-0018-LR | ◆ |
| | 0.5709 | 14.50 | | 7C114P-14.5LR | ◆ | 5C114H-14.5-LR | ◆ |
| | 0.5781 | 14.68 | 37/64" | 7C114P-.578LR | ◆ | 5C114H-.578-LR | ◆ |
| K20 (C2) | 0.5512 | 14.00 | | 7C214P-14 | ● | 5C214H-14 | ● |
| | 0.5625 | 14.29 | 9/16" | 7C214P-0018 | ○ | 5C214H-0018 | ○ |
| | 0.5709 | 14.50 | | 7C214P-14.5 | ● | 5C214H-14.5 | ● |
| | 0.5781 | 14.68 | 37/64" | 7C214P-.578 | ○ | 5C214H-.578 | ○ |
| Cast Iron Geometry K20 (C2) | 0.5512 | 14.00 | | 7C214P-14CI | ● | 5C214H-14-CI | ● |
| | 0.5625 | 14.29 | 9/16" | 7C214P-0018CI | ○ | 5C214H-0018-CI | ○ |
| | 0.5709 | 14.50 | | 7C214P-14.5CI | ● | 5C214H-14.5-CI | ● |
| | 0.5781 | 14.68 | 37/64" | 7C214P-.578CI | ○ | 5C214H-.578-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.5512 | 14.00 | | 7C214P-14AS | ● | - | - |
| | 0.5625 | 14.29 | 9/16" | 7C214P-0018AS | ○ | - | - |
| | 0.5709 | 14.50 | | 7C214P-14.5AS | ● | - | - |
| | 0.5781 | 14.68 | 37/64" | 7C214P-.578AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.5512 | 14.00 | | 7C214P-14LR | ◆ | 5C214H-14-LR | ◆ |
| | 0.5625 | 14.29 | 9/16" | 7C214P-0018LR | ◆ | 5C214H-0018-LR | ◆ |
| | 0.5709 | 14.50 | | 7C214P-14.5LR | ◆ | 5C214H-14.5-LR | ◆ |
| | 0.5781 | 14.68 | 37/64" | 7C214P-.578LR | ◆ | 5C214H-.578-LR | ◆ |

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 138.

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

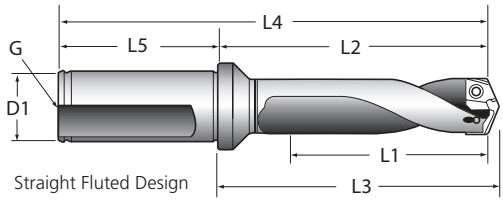
*Supplied in 1 piece packaging.*

**Any non-standard size available.**

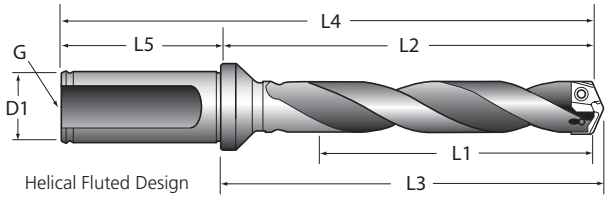
**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**

# 15 Series Drill Inserts and Holders

Diameter Range 15.00mm to 15.99mm



Straight Fluted Design



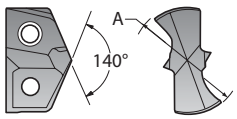
Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60315S-20FM | 3xD | Straight | 48.0 | 75.1 | 77.6 | 125.1 | 50.0 | 20 | Yes | ⅛″ |
| 60515S-20FM | 5xD | Straight | 80.0 | 107.0 | 109.6 | 157.0 | 50.0 | 20 | Yes | ⅛″ |
| 60715S-20FM | 7xD | Straight | 112.0 | 139.0 | 141.6 | 189.0 | 50.0 | 20 | Yes | ⅛″ |
| 60115H-20FM | Stub | Helical | 17.5 | 44.3 | 46.8 | 94.3 | 50.0 | 20 | Yes | ⅛″ |
| 60315H-20FM | 3xD | Helical | 48.0 | 75.1 | 77.6 | 125.1 | 50.0 | 20 | Yes | ⅛″ |
| 60315H-20CM | 3xD | Helical | 48.0 | 75.1 | 77.6 | 125.1 | 50.0 | 20 | No | ⅛″ |
| 60515H-20FM | 5xD | Helical | 80.0 | 107.0 | 109.6 | 157.0 | 50.0 | 20 | Yes | ⅛″ |
| 60515H-20CM | 5xD | Helical | 80.0 | 107.0 | 109.6 | 157.0 | 50.0 | 20 | No | ⅛″ |
| 60715H-20FM | 7xD | Helical | 112.0 | 139.0 | 141.6 | 189.0 | 50.0 | 20 | Yes | ⅛″ |
| 60715H-20CM | 7xD | Helical | 112.0 | 139.0 | 141.6 | 189.0 | 50.0 | 20 | No | ⅛″ |

FM - Flanged Metric with Flat
CM - Cylindrical Metric

## GEN3SYS XT and GEN3SYS Drill Inserts


| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.5906 | 15.00 | | 7C115P-15 | ● | 5C115H-15 | ● |
| | 0.5938 | 15.08 | 19/32″ | 7C115P-0019 | ○ | 5C115H-0019 | ○ |
| | 0.6094 | 15.48 | 49/64″ | 7C115P-.609 | ○ | 5C115H-.609 | ○ |
| | 0.6102 | 15.50 | | 7C115P-15.5 | ● | 5C115H-15.5 | ● |
| | 0.6181 | 15.70 | | 7C115P-.618 | ○ | 5C115H-.618 | ○ |
| | 0.6250 | 15.88 | 5/8″ | 7C115P-0020 | ○ | 5C115H-0020 | ○ |
| LR Geometry K35 (C1) | 0.5906 | 15.00 | | 7C115P-15LR | ◆ | 5C115H-15-LR | ◆ |
| | 0.5938 | 15.08 | 19/32″ | 7C115P-0019LR | ◆ | 5C115H-0019-LR | ◆ |
| | 0.6094 | 15.48 | 49/64″ | 7C115P-.609LR | ◆ | 5C115H-.609-LR | ◆ |
| | 0.6102 | 15.50 | | 7C115P-15.5LR | ◆ | 5C115H-15.5-LR | ◆ |
| | 0.6181 | 15.70 | | 7C115P-.618LR | ◆ | 5C115H-.618-LR | ◆ |
| | 0.6250 | 15.88 | 5/8″ | 7C115P-0020LR | ◆ | 5C115H-0020-LR | ◆ |
| K20 (C2) | 0.5906 | 15.00 | | 7C215P-15 | ● | 5C215H-15 | ● |
| | 0.5938 | 15.08 | 19/32″ | 7C215P-0019 | ○ | 5C215H-0019 | ○ |
| | 0.6094 | 15.48 | 49/64″ | 7C215P-.609 | ○ | 5C215H-.609 | ○ |
| | 0.6102 | 15.50 | | 7C215P-15.5 | ● | 5C215H-15.5 | ● |
| | 0.6181 | 15.70 | | 7C215P-.618 | ○ | 5C215H-.618 | ○ |
| | 0.6250 | 15.88 | 5/8″ | 7C215P-0020 | ○ | 5C215H-0020 | ○ |

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

*Supplied in 1 piece packaging.*

**Any non-standard size available.**

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**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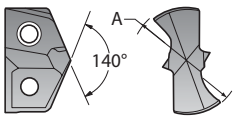
## GEN3SYS®XT and GEN3SYS® Drill Inserts




| Material | A (Diameter) | | | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| | Decimal Equivalent | (mm) | (inch) | | | | |
| Cast Iron Geometry K20 (C2) | 0.5906 | 15.00 | | 7C215P-15CI | ● | 5C215H-15-CI | ● |
| | 0.5938 | 15.08 | 19/32" | 7C215P-0019CI | ○ | 5C215H-0019-CI | ○ |
| | 0.6094 | 15.48 | 49/64" | 7C215P-.609CI | ○ | 5C215H-.609-CI | ○ |
| | 0.6102 | 15.50 | | 7C215P-15.5CI | ● | 5C215H-15.5-CI | ● |
| | 0.6181 | 15.70 | | 7C215P-.618CI | ○ | 5C215H-.618-CI | ○ |
| | 0.6250 | 15.88 | 5/8" | 7C215P-0020CI | ○ | 5C215H-0020-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.5906 | 15.00 | | 7C215P-15AS | ● | - | - |
| | 0.5938 | 15.08 | 19/32" | 7C215P-0019AS | ○ | - | - |
| | 0.6094 | 15.48 | 49/64" | 7C215P-.609AS | ○ | - | - |
| | 0.6102 | 15.50 | | 7C215P-15.5AS | ● | - | - |
| | 0.6181 | 15.70 | | 7C215P-.618AS | ○ | - | - |
| | 0.6250 | 15.88 | 5/8" | 7C215P-0020AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.5906 | 15.00 | | 7C215P-15LR | ◆ | 5C215H-15-LR | ◆ |
| | 0.5938 | 15.08 | 19/32" | 7C215P-0019LR | ◆ | 5C215H-0019-LR | ◆ |
| | 0.6094 | 15.48 | 49/64" | 7C215P-.609LR | ◆ | 5C215H-.609-LR | ◆ |
| | 0.6102 | 15.50 | | 7C215P-15.5LR | ◆ | 5C215H-15.5-LR | ◆ |
| | 0.6181 | 15.70 | | 7C215P-.618LR | ◆ | 5C215H-.618-LR | ◆ |
| | 0.6250 | 15.88 | 5/8" | 7C215P-0020LR | ◆ | 5C215H-0020-LR | ◆ |

*Supplied in 1 piece packaging.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | |

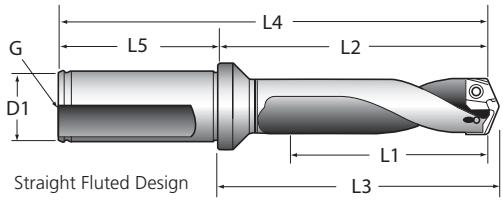
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 138.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

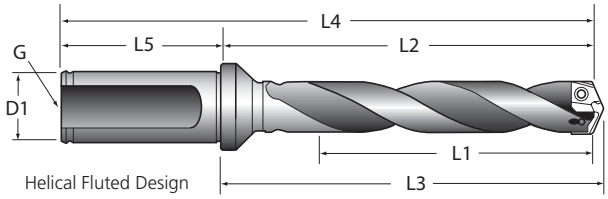
**Any non-standard size available.**

# 16 Series Drill Inserts and Holders

Diameter Range 16.00mm to 16.99mm



Straight Fluted Design



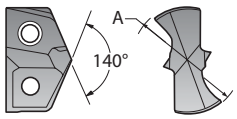
Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60316S-20FM | 3xD | Straight | 51.0 | 81.3 | 84.2 | 131.3 | 50.0 | 20 | Yes | ⅛" |
| 60516S-20FM | 5xD | Straight | 85.0 | 115.3 | 118.2 | 165.3 | 50.0 | 20 | Yes | ⅛" |
| 60716S-20FM | 7xD | Straight | 119.0 | 149.3 | 152.2 | 199.3 | 50.0 | 20 | Yes | ⅛" |
| 60116H-20FM | Stub | Helical | 21.0 | 50.8 | 53.7 | 100.8 | 50.0 | 20 | Yes | ⅛" |
| 60316H-20FM | 3xD | Helical | 51.0 | 81.3 | 84.2 | 131.3 | 50.0 | 20 | Yes | ⅛" |
| 60316H-20CM | 3xD | Helical | 51.0 | 81.3 | 84.2 | 131.3 | 50.0 | 20 | No | ⅛" |
| 60516H-20FM | 5xD | Helical | 85.0 | 115.3 | 118.2 | 165.3 | 50.0 | 20 | Yes | ⅛" |
| 60516H-20CM | 5xD | Helical | 85.0 | 115.3 | 118.2 | 165.3 | 50.0 | 20 | No | ⅛" |
| 60716H-20FM | 7xD | Helical | 119.0 | 149.3 | 152.2 | 199.3 | 50.0 | 20 | Yes | ⅛" |
| 60716H-20CM | 7xD | Helical | 119.0 | 149.3 | 152.2 | 199.3 | 50.0 | 20 | No | ⅛" |
| 60516S-20WN | 5xD | Straight | 85.0 | 115.3 | 118.2 | 165.3 | 50.0 | 20 | Yes | ⅛" |
| 60716S-20WN | 7xD | Straight | 119.0 | 149.3 | 152.2 | 199.3 | 50.0 | 20 | Yes | ⅛" |

FM - Flanged Metric with Flat
CM - Cylindrical Metric
WN - Whistle Notch

## GEN3SYS XT and GEN3SYS Drill Inserts


| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.6299 | 16.00 | | 7C116P-16 | ● | 5C116H-16 | ● |
| | 0.6331 | 16.08 | | 7C116P-16.08 | ○ | 5C116H-16.08 | ○ |
| | 0.6406 | 16.27 | 41/64" | 7C116P-.640 | ○ | 5C116H-.640 | ○ |
| | 0.6496 | 16.50 | | 7C116P-16.5 | ● | 5C116H-16.5 | ● |
| | 0.6563 | 16.67 | 21/32" | 7C116P-0021 | ○ | 5C116H-0021 | ○ |
| LR Geometry K35 (C1) | 0.6299 | 16.00 | | 7C116P-16LR | ◆ | 5C116H-16-LR | ◆ |
| | 0.6331 | 16.08 | | 7C116P-16.08LR | ◆ | 5C116H-16.08-LR | ◆ |
| | 0.6406 | 16.27 | 41/64" | 7C116P-.640LR | ◆ | 5C116H-.640-LR | ◆ |
| | 0.6496 | 16.50 | | 7C116P-16.5LR | ◆ | 5C116H-16.5-LR | ◆ |
| | 0.6563 | 16.67 | 21/32" | 7C116P-0021LR | ◆ | 5C116H-0021-LR | ◆ |
| K20 (C2) | 0.6299 | 16.00 | | 7C216P-16 | ● | 5C216H-16 | ● |
| | 0.6331 | 16.08 | | 7C216P-16.08 | ○ | 5C216H-16.08 | ○ |
| | 0.6406 | 16.27 | 41/64" | 7C216P-.640 | ○ | 5C216H-.640 | ○ |
| | 0.6496 | 16.50 | | 7C216P-16.5 | ● | 5C216H-16.5 | ● |
| | 0.6563 | 16.67 | 21/32" | 7C216P-0021 | ○ | 5C216H-0021 | ○ |

*Supplied in 1 piece packaging.*

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**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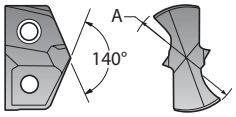
## GEN3SYS XT and GEN3SYS Drill Inserts




| Material | A (Diameter) | | | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| | Decimal Equivalent | (mm) | (inch) | | | | |
| Cast Iron Geometry K20 (C2) | 0.6299 | 16.00 | | 7C216P-16CI | ● | 5C216H-16-CI | ● |
| | 0.6331 | 16.08 | | 7C216P-16.08CI | ○ | 5C216H-16.08-CI | ○ |
| | 0.6406 | 16.27 | 41/64" | 7C216P-.640CI | ○ | 5C216H-.640-CI | ○ |
| | 0.6496 | 16.50 | | 7C216P-16.5CI | ● | 5C216H-16.5-CI | ● |
| | 0.6563 | 16.67 | 21/32" | 7C216P-0021CI | ○ | 5C216H-0021-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.6299 | 16.00 | | 7C216P-16AS | ● | - | - |
| | 0.6331 | 16.08 | | 7C216P-16.08AS | ○ | - | - |
| | 0.6406 | 16.27 | 41/64" | 7C216P-.640AS | ○ | - | - |
| | 0.6496 | 16.50 | | 7C216P-16.5AS | ● | - | - |
| | 0.6563 | 16.67 | 21/32" | 7C216P-0021AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.6299 | 16.00 | | 7C216P-16LR | ◆ | 5C216H-16-LR | ◆ |
| | 0.6331 | 16.08 | | 7C216P-16.08LR | ◆ | 5C216H-16.08-LR | ◆ |
| | 0.6406 | 16.27 | 41/64" | 7C216P-.640LR | ◆ | 5C216H-.640-LR | ◆ |
| | 0.6496 | 16.50 | | 7C216P-16.5LR | ◆ | 5C216H-16.5-LR | ◆ |
| | 0.6563 | 16.67 | 21/32" | 7C216P-0021LR | ◆ | 5C216H-0021-LR | ◆ |

*Supplied in 1 piece packaging.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | |

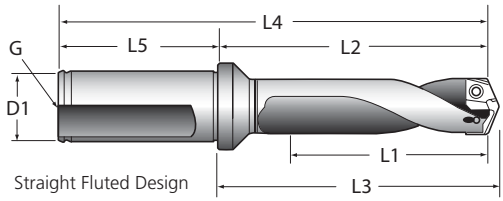
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 138.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

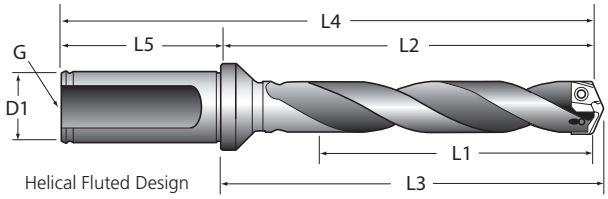
**Any non-standard size available.**

# 17 Series Drill Inserts and Holders

Diameter Range 17.00mm to 17.99mm



Straight Fluted Design



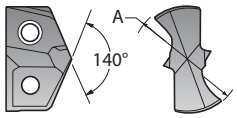
Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60317S-20FM | 3xD | Straight | 54.0 | 84.1 | 87.0 | 134.1 | 50.0 | 20 | Yes | ⅛" |
| 60517S-20FM | 5xD | Straight | 90.0 | 120.0 | 122.9 | 170.0 | 50.0 | 20 | Yes | ⅛" |
| 60717S-20FM | 7xD | Straight | 126.0 | 156.0 | 158.9 | 206.0 | 50.0 | 20 | Yes | ⅛" |
| 60117H-20FM | Stub | Helical | 21.0 | 55.5 | 53.4 | 105.5 | 50.0 | 20 | Yes | ⅛" |
| 60317H-20FM | 3xD | Helical | 54.0 | 84.1 | 87.0 | 134.1 | 50.0 | 20 | Yes | ⅛" |
| 60317H-20CM | 3xD | Helical | 54.0 | 84.1 | 87.0 | 134.1 | 50.0 | 20 | No | ⅛" |
| 60517H-20FM | 5xD | Helical | 90.0 | 120.0 | 122.9 | 170.0 | 50.0 | 20 | Yes | ⅛" |
| 60517H-20CM | 5xD | Helical | 90.0 | 120.0 | 122.9 | 170.0 | 50.0 | 20 | No | ⅛" |
| 60717H-20FM | 7xD | Helical | 126.0 | 156.0 | 158.9 | 206.0 | 50.0 | 20 | Yes | ⅛" |
| 60717H-20CM | 7xD | Helical | 126.0 | 156.0 | 158.9 | 206.0 | 50.0 | 20 | No | ⅛" |

FM - Flanged Metric with Flat
CM - Cylindrical Metric

## GEN3SYS XT and GEN3SYS Drill Inserts


| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.6693 | 17.00 | | 7C117P-17 | ● | 5C117H-17 | ● |
| | 0.6719 | 17.07 | 43/64" | 7C117P-.671 | ○ | 5C117H-.671 | ○ |
| | 0.6875 | 17.46 | 11/16" | 7C117P-0022 | ○ | 5C117H-0022 | ○ |
| | 0.6890 | 17.50 | | 7C117P-17.5 | ● | 5C117H-17.5 | ● |
| | 0.7030 | 17.86 | 45/64" | 7C117P-.703 | ○ | 5C117H-.703 | ○ |
| LR Geometry K35 (C1) | 0.6693 | 17.00 | | 7C117P-17LR | ◆ | 5C117H-17-LR | ◆ |
| | 0.6719 | 17.07 | 43/64" | 7C117P-.671LR | ◆ | 5C117H-.671-LR | ◆ |
| | 0.6875 | 17.46 | 11/16" | 7C117P-0022LR | ◆ | 5C117H-0022-LR | ◆ |
| | 0.6890 | 17.50 | | 7C117P-17.5LR | ◆ | 5C117H-17.5-LR | ◆ |
| | 0.7030 | 17.86 | 45/64" | 7C117P-.703LR | ◆ | 5C117H-.703-LR | ◆ |
| K20 (C2) | 0.6693 | 17.00 | | 7C217P-17 | ● | 5C217H-17 | ● |
| | 0.6719 | 17.07 | 43/64" | 7C217P-.671 | ○ | 5C217H-.671 | ○ |
| | 0.6875 | 17.46 | 11/16" | 7C217P-0022 | ○ | 5C217H-0022 | ○ |
| | 0.6890 | 17.50 | | 7C217P-17.5 | ● | 5C217H-17.5 | ● |
| | 0.7030 | 17.86 | 45/64" | 7C217P-.703 | ○ | 5C217H-.703 | ○ |

*Supplied in 1 piece packaging.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 138.

**Drill & Chamfer Holders available, see page 134.** **Holder Adaptors available, see page 142-145.**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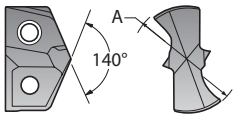
## GEN3SYS XT and GEN3SYS Drill Inserts




| Material | A (Diameter) | | | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| | Decimal Equivalent | (mm) | (inch) | | | | |
| Cast Iron Geometry K20 (C2) | 0.6693 | 17.00 | | 7C217P-17CI | ● | 5C217H-17-CI | ● |
| | 0.6719 | 17.07 | 43/64" | 7C217P-.671CI | ○ | 5C217H-.671-CI | ○ |
| | 0.6875 | 17.46 | 11/16" | 7C217P-0022CI | ○ | 5C217H-0022-CI | ○ |
| | 0.6890 | 17.50 | | 7C217P-17.5CI | ● | 5C217H-17.5-CI | ● |
| | 0.7030 | 17.86 | 45/64" | 7C217P-.703CI | ○ | 5C217H-.703-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.6693 | 17.00 | | 7C217P-17AS | ● | - | - |
| | 0.6719 | 17.07 | 43/64" | 7C217P-.671AS | ○ | - | - |
| | 0.6875 | 17.46 | 11/16" | 7C217P-0022AS | ○ | - | - |
| | 0.6890 | 17.50 | | 7C217P-17.5AS | ● | - | - |
| | 0.7030 | 17.86 | 45/64" | 7C217P-.703AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.6693 | 17.00 | | 7C217P-17LR | ◆ | 5C217H-17-LR | ◆ |
| | 0.6719 | 17.07 | 43/64" | 7C217P-.671LR | ◆ | 5C217H-.671-LR | ◆ |
| | 0.6875 | 17.46 | 11/16" | 7C217P-0022LR | ◆ | 5C217H-0022-LR | ◆ |
| | 0.6890 | 17.50 | | 7C217P-17.5LR | ◆ | 5C217H-17.5-LR | ◆ |
| | 0.7030 | 17.86 | 45/64" | 7C217P-.703LR | ◆ | 5C217H-.703-LR | ◆ |

*Supplied in 1 piece packaging.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | |

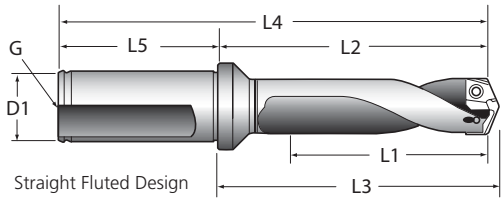
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 138.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

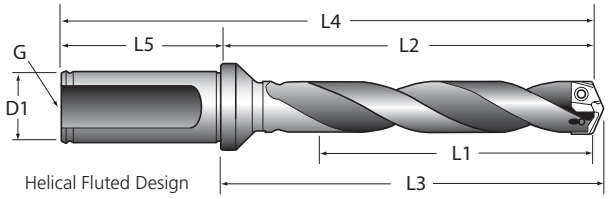
**Any non-standard size available.**

# 18 Series Drill Inserts and Holders

Diameter Range 18.00mm to 19.99mm



Straight Fluted Design

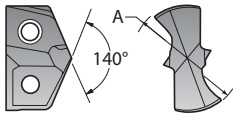


Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60318S-25FM | 3xD | Straight | 60.0 | 94.0 | 96.8 | 150.0 | 56.0 | 25 | Yes | ⅛″ |
| 60518S-25FM | 5xD | Straight | 100.0 | 134.0 | 136.8 | 190.0 | 56.0 | 25 | Yes | ⅛″ |
| 60718S-25FM | 7xD | Straight | 140.0 | 174.0 | 176.8 | 230.0 | 56.0 | 25 | Yes | ⅛″ |
| 60118H-25FM | Stub | Helical | 22.0 | 56.0 | 58.8 | 112.0 | 56.0 | 25 | Yes | ⅛″ |
| 60318H-25FM | 3xD | Helical | 60.0 | 94.0 | 96.8 | 150.0 | 56.0 | 25 | Yes | ⅛″ |
| 60318H-25CM | 3xD | Helical | 60.0 | 94.0 | 96.8 | 150.0 | 56.0 | 25 | No | ⅛″ |
| 60518H-25FM | 5xD | Helical | 100.0 | 134.0 | 136.8 | 190.0 | 56.0 | 25 | Yes | ⅛″ |
| 60518H-25CM | 5xD | Helical | 100.0 | 134.0 | 136.8 | 190.0 | 56.0 | 25 | No | ⅛″ |
| 60718H-25FM | 7xD | Helical | 140.0 | 174.0 | 176.8 | 230.0 | 56.0 | 25 | Yes | ⅛″ |
| 60718H-25CM | 7xD | Helical | 140.0 | 174.0 | 176.8 | 230.0 | 56.0 | 25 | No | ⅛″ |
| 60518S-25WN | 5xD | Straight | 100.0 | 134.0 | 136.8 | 190.0 | 56.0 | 25 | Yes | ⅛″ |
| 60718S-25WN | 7xD | Straight | 140.0 | 174.0 | 176.8 | 230.0 | 56.0 | 25 | Yes | ⅛″ |

FM - Flanged Metric with Flat
CM - Cylindrical Metric
WN - Whistle Notch




## GEN3SYS XT and GEN3SYS Drill Inserts

| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.7087 | 18.00 | | 7C118P-18 | ● | 5C118H-18 | ● |
| | 0.7188 | 18.26 | 22/32″ | 7C118P-0023 | ○ | 5C118H-0023 | ○ |
| | 0.7283 | 18.50 | | 7C118P-18.5 | ● | 5C118H-18.5 | ● |
| | 0.7344 | 18.65 | 47/64″ | 7C118P-.734 | ○ | 5C118H-.734 | ○ |
| | 0.7480 | 19.00 | | 7C118P-19 | ● | 5C118H-19 | ● |
| | 0.7500 | 19.05 | ¾″ | 7C118P-0024 | ○ | 5C118H-0024 | ○ |
| | 0.7580 | 19.25 | | 7C118P-.758 | ● | 5C118H-.758 | ● |
| | 0.7656 | 19.45 | 49/64″ | 7C118P-.765 | ○ | 5C118H-.765 | ○ |
| | 0.7677 | 19.50 | | 7C118P-19.5 | ● | 5C118H-19.5 | ● |
| | 0.7813 | 19.85 | 25/32″ | 7C118P-0025 | ○ | 5C118H-0025 | ○ |
| LR Geometry K35 (C1) | 0.7087 | 18.00 | | 7C118P-18LR | ◆ | 5C118H-18-LR | ◆ |
| | 0.7188 | 18.26 | 22/32″ | 7C118P-0023LR | ◆ | 5C118H-0023-LR | ◆ |
| | 0.7283 | 18.50 | | 7C118P-18.5LR | ◆ | 5C118H-18.5-LR | ◆ |
| | 0.7344 | 18.65 | 47/64″ | 7C118P-.734LR | ◆ | 5C118H-.734-LR | ◆ |
| | 0.7480 | 19.00 | | 7C118P-19LR | ◆ | 5C118H-19-LR | ◆ |
| | 0.7500 | 19.05 | ¾″ | 7C118P-0024LR | ◆ | 5C118H-0024-LR | ◆ |
| | 0.7580 | 19.25 | | 7C118P-.758LR | ◆ | 5C118H-.758-LR | ◆ |
| | 0.7656 | 19.45 | 49/64″ | 7C118P-.765LR | ◆ | 5C118H-.765-LR | ◆ |
| | 0.7677 | 19.50 | | 7C118P-19.5LR | ◆ | 5C118H-19.5-LR | ◆ |
| | 0.7813 | 19.85 | 25/32″ | 7C118P-0025LR | ◆ | 5C118H-0025-LR | ◆ |

*Supplied in 1 piece packaging.*

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**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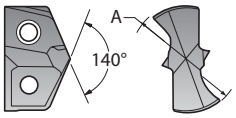
## GEN3SYS XT and GEN3SYS Drill Inserts




| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K20 (C2) | 0.7087 | 18.00 | | 7C218P-18 | ● | 5C218H-18 | ● |
| | 0.7188 | 18.26 | 22/32" | 7C218P-0023 | ○ | 5C218H-0023 | ○ |
| | 0.7283 | 18.50 | | 7C218P-18.5 | ● | 5C218H-18.5 | ● |
| | 0.7344 | 18.65 | 47/64" | 7C218P-.734 | ○ | 5C218H-.734 | ○ |
| | 0.7480 | 19.00 | | 7C218P-19 | ● | 5C218H-19 | ● |
| | 0.7500 | 19.05 | 3/4" | 7C218P-0024 | ○ | 5C218H-0024 | ○ |
| | 0.7580 | 19.25 | | 7C218P-.758 | ● | 5C218H-.758 | ● |
| | 0.7656 | 19.45 | 49/64" | 7C218P-.765 | ○ | 5C218H-.765 | ○ |
| | 0.7677 | 19.50 | | 7C218P-19.5 | ● | 5C218H-19.5 | ● |
| | 0.7813 | 19.85 | 25/32" | 7C218P-0025 | ○ | 5C218H-0025 | ○ |
| Cast Iron Geometry K20 (C2) | 0.7087 | 18.00 | | 7C218P-18CI | ● | 5C218H-18-CI | ● |
| | 0.7188 | 18.26 | 22/32" | 7C218P-0023CI | ○ | 5C218H-0023-CI | ○ |
| | 0.7283 | 18.50 | | 7C218P-18.5CI | ● | 5C218H-18.5-CI | ● |
| | 0.7344 | 18.65 | 47/64" | 7C218P-.734CI | ○ | 5C218H-.734-CI | ○ |
| | 0.7480 | 19.00 | | 7C218P-19CI | ● | 5C218H-19-CI | ● |
| | 0.7500 | 19.05 | 3/4" | 7C218P-0024CI | ○ | 5C218H-0024-CI | ○ |
| | 0.7580 | 19.25 | | 7C218P-.758CI | ● | 5C218H-.758-CI | ● |
| | 0.7656 | 19.45 | 49/64" | 7C218P-.765CI | ○ | 5C218H-.765-CI | ○ |
| | 0.7677 | 19.50 | | 7C218P-19.5CI | ● | 5C218H-19.5-CI | ● |
| | 0.7813 | 19.85 | 25/32" | 7C218P-0025CI | ○ | 5C218H-0025-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.7087 | 18.00 | | 7C218P-18AS | ● | - | - |
| | 0.7188 | 18.26 | 22/32" | 7C218P-0023AS | ○ | - | - |
| | 0.7283 | 18.50 | | 7C218P-18.5AS | ● | - | - |
| | 0.7344 | 18.65 | 47/64" | 7C218P-.734AS | ○ | - | - |
| | 0.7480 | 19.00 | | 7C218P-19AS | ● | - | - |
| | 0.7500 | 19.05 | 3/4" | 7C218P-0024AS | ○ | - | - |
| | 0.7580 | 19.25 | | 7C218P-.758AS | ● | - | - |
| | 0.7656 | 19.45 | 49/64" | 7C218P-.765AS | ○ | - | - |
| | 0.7677 | 19.50 | | 7C218P-19.5AS | ● | - | - |
| | 0.7813 | 19.85 | 25/32" | 7C218P-0025AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.7087 | 18.00 | | 7C218P-18LR | ◆ | 5C218H-18-LR | ◆ |
| | 0.7188 | 18.26 | 22/32" | 7C218P-0023LR | ◆ | 5C218H-0023-LR | ◆ |
| | 0.7283 | 18.50 | | 7C218P-18.5LR | ◆ | 5C218H-18.5-LR | ◆ |
| | 0.7344 | 18.65 | 47/64" | 7C218P-.734LR | ◆ | 5C218H-.734-LR | ◆ |
| | 0.7480 | 19.00 | | 7C218P-19LR | ◆ | 5C218H-19-LR | ◆ |
| | 0.7500 | 19.05 | 3/4" | 7C218P-0024LR | ◆ | 5C218H-0024-LR | ◆ |
| | 0.7580 | 19.25 | | 7C218P-.758LR | ◆ | 5C218H-.758-LR | ◆ |
| | 0.7656 | 19.45 | 49/64" | 7C218P-.765LR | ◆ | 5C218H-.765-LR | ◆ |
| | 0.7677 | 19.50 | | 7C218P-19.5LR | ◆ | 5C218H-19.5-LR | ◆ |
| | 0.7813 | 19.85 | 25/32" | 7C218P-0025LR | ◆ | 5C218H-0025-LR | ◆ |

*Supplied in 1 piece packaging.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | |

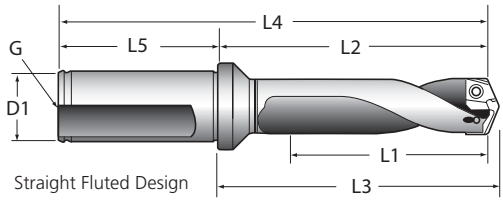
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 139.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

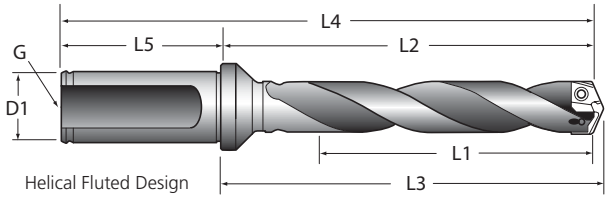
**Any non-standard size available.**

# 20 Series Drill Inserts and Holders

Diameter Range 20.00mm to 21.99mm



Straight Fluted Design



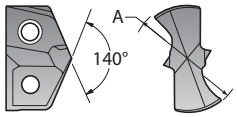
Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60320S-25FM | 3xD | Straight | 66.0 | 100.1 | 102.9 | 156.1 | 56.0 | 25 | Yes | ⅛" |
| 60520S-25FM | 5xD | Straight | 110.0 | 144.1 | 146.9 | 200.1 | 56.0 | 25 | Yes | ⅛" |
| 60720S-25FM | 7xD | Straight | 154.0 | 188.1 | 190.9 | 244.1 | 56.0 | 25 | Yes | ⅛" |
| 60120H-25FM | Stub | Helical | 24.0 | 57.6 | 60.4 | 113.6 | 56.0 | 25 | Yes | ⅛" |
| 60320H-25FM | 3xD | Helical | 66.0 | 100.1 | 102.9 | 156.1 | 56.0 | 25 | Yes | ⅛" |
| 60320H-25CM | 3xD | Helical | 66.0 | 100.1 | 102.9 | 156.1 | 56.0 | 25 | No | ⅛" |
| 60520H-25FM | 5xD | Helical | 110.0 | 144.1 | 146.9 | 200.1 | 56.0 | 25 | Yes | ⅛" |
| 60520H-25CM | 5xD | Helical | 110.0 | 144.1 | 146.9 | 200.1 | 56.0 | 25 | No | ⅛" |
| 60720H-25FM | 7xD | Helical | 154.0 | 188.1 | 190.9 | 244.1 | 56.0 | 25 | Yes | ⅛" |
| 60720H-25CM | 7xD | Helical | 154.0 | 188.1 | 190.9 | 244.1 | 56.0 | 25 | No | ⅛" |

FM - Flanged Metric with Flat
CM - Cylindrical Metric

## GEN3SYS XT and GEN3SYS Drill Inserts


| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.7874 | 20.00 | | 7C120P-20 | ● | 5C120H-20 | ● |
| | 0.7969 | 20.24 | 51/64" | 7C120P-.796 | ○ | 5C120H-.796 | ○ |
| | 0.8071 | 20.50 | | 7C120P-20.5 | ● | 5C120H-20.5 | ● |
| | 0.8125 | 20.64 | 13/16" | 7C120P-0026 | ○ | 5C120H-0026 | ○ |
| | 0.8268 | 21.00 | | 7C120P-21 | ● | 5C120H-21 | ● |
| | 0.8438 | 21.43 | 27/32" | 7C120P-0027 | ○ | 5C120H-0027 | ○ |
| | 0.8594 | 21.83 | 55/64" | 7C120P-.859 | ○ | 5C120H-.859 | ○ |
| LR Geometry K35 (C1) | 0.7874 | 20.00 | | 7C120P-20LR | ◆ | 5C120H-20-LR | ◆ |
| | 0.7969 | 20.24 | 51/64" | 7C120P-.796LR | ◆ | 5C120H-.796-LR | ◆ |
| | 0.8071 | 20.50 | | 7C120P-20.5LR | ◆ | 5C120H-20.5-LR | ◆ |
| | 0.8125 | 20.64 | 13/16" | 7C120P-0026LR | ◆ | 5C120H-0026-LR | ◆ |
| | 0.8268 | 21.00 | | 7C120P-21LR | ◆ | 5C120H-21-LR | ◆ |
| | 0.8438 | 21.43 | 27/32" | 7C120P-0027LR | ◆ | 5C120H-0027-LR | ◆ |
| | 0.8594 | 21.83 | 55/64" | 7C120P-.859LR | ◆ | 5C120H-.859-LR | ◆ |

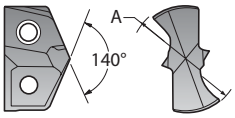
*Supplied in 1 piece packaging.*

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**

## GEN3SYS®XT and GEN3SYS® Drill Inserts




| Material | A (Diameter) | | | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| | Decimal Equivalent | (mm) | (inch) | | | | |
| K20 (C2) | 0.7874 | 20.00 | | 7C220P-20 | ● | 5C220H-20 | ● |
| | 0.7969 | 20.24 | 51/64" | 7C220P-.796 | ○ | 5C220H-.796 | ○ |
| | 0.8071 | 20.50 | | 7C220P-20.5 | ● | 5C220H-20.5 | ● |
| | 0.8125 | 20.64 | 13/16" | 7C220P-0026 | ○ | 5C220H-0026 | ○ |
| | 0.8268 | 21.00 | | 7C220P-21 | ● | 5C220H-21 | ● |
| | 0.8438 | 21.43 | 27/32" | 7C220P-0027 | ○ | 5C220H-0027 | ○ |
| | 0.8594 | 21.83 | 55/64" | 7C220P-.859 | ○ | 5C220H-.859 | ○ |
| Cast Iron Geometry K20 (C2) | 0.7874 | 20.00 | | 7C220P-20CI | ● | 5C220H-20-CI | ● |
| | 0.7969 | 20.24 | 51/64" | 7C220P-.796CI | ○ | 5C220H-.796-CI | ○ |
| | 0.8071 | 20.50 | | 7C220P-20.5CI | ● | 5C220H-20.5-CI | ● |
| | 0.8125 | 20.64 | 13/16" | 7C220P-0026CI | ○ | 5C220H-0026-CI | ○ |
| | 0.8268 | 21.00 | | 7C220P-21CI | ● | 5C220H-21-CI | ● |
| | 0.8438 | 21.43 | 27/32" | 7C220P-0027CI | ○ | 5C220H-0027-CI | ○ |
| | 0.8594 | 21.83 | 55/64" | 7C220P-.859CI | ○ | 5C220H-.859-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.7874 | 20.00 | | 7C220P-20AS | ● | - | - |
| | 0.7969 | 20.24 | 51/64" | 7C220P-.796AS | ○ | - | - |
| | 0.8071 | 20.50 | | 7C220P-20.5AS | ● | - | - |
| | 0.8125 | 20.64 | 13/16" | 7C220P-0026AS | ○ | - | - |
| | 0.8268 | 21.00 | | 7C220P-21AS | ● | - | - |
| | 0.8438 | 21.43 | 27/32" | 7C220P-0027AS | ○ | - | - |
| | 0.8594 | 21.83 | 55/64" | 7C220P-.859AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.7874 | 20.00 | | 7C220P-20LR | ◆ | 5C220H-20-LR | ◆ |
| | 0.7969 | 20.24 | 51/64" | 7C220P-.796LR | ◆ | 5C220H-.796-LR | ◆ |
| | 0.8071 | 20.50 | | 7C220P-20.5LR | ◆ | 5C220H-20.5-LR | ◆ |
| | 0.8125 | 20.64 | 13/16" | 7C220P-0026LR | ◆ | 5C220H-0026-LR | ◆ |
| | 0.8268 | 21.00 | | 7C220P-21LR | ◆ | 5C220H-21-LR | ◆ |
| | 0.8438 | 21.43 | 27/32" | 7C220P-0027LR | ◆ | 5C220H-0027-LR | ◆ |
| | 0.8594 | 21.83 | 55/64" | 7C220P-.859LR | ◆ | 5C220H-.859-LR | ◆ |

*Supplied in 1 piece packaging.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

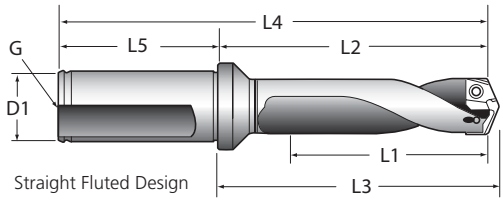
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 139.

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

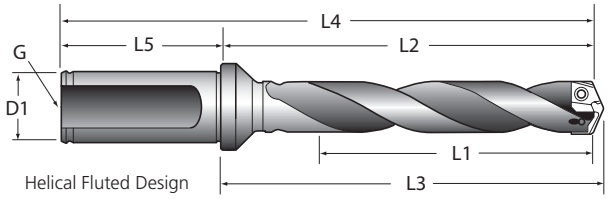
**Any non-standard size available.**

# 22 Series Drill Inserts and Holders

Diameter Range 22.00mm to 23.99mm



Straight Fluted Design



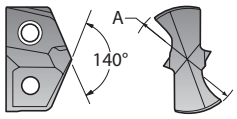
Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60322S-25FM | 3xD | Straight | 72.0 | 105.3 | 108.3 | 161.3 | 56.0 | 25 | Yes | ⅛" |
| 60522S-25FM | 5xD | Straight | 120.0 | 153.3 | 156.2 | 209.3 | 56.0 | 25 | Yes | ⅛" |
| 60722S-25FM | 7xD | Straight | 168.0 | 201.3 | 204.2 | 257.3 | 56.0 | 25 | Yes | ⅛" |
| 60122H-25FM | Stub | Helical | 27.0 | 60.1 | 63.0 | 116.1 | 56.0 | 25 | Yes | ⅛" |
| 60322H-25FM | 3xD | Helical | 72.0 | 105.3 | 108.3 | 161.3 | 56.0 | 25 | Yes | ⅛" |
| 60322H-25CM | 3xD | Helical | 72.0 | 105.3 | 108.3 | 161.3 | 56.0 | 25 | No | ⅛" |
| 60522H-25FM | 5xD | Helical | 120.0 | 153.3 | 156.2 | 209.3 | 56.0 | 25 | Yes | ⅛" |
| 60522H-25CM | 5xD | Helical | 120.0 | 153.3 | 156.2 | 209.3 | 56.0 | 25 | No | ⅛" |
| 60722H-25FM | 7xD | Helical | 168.0 | 201.3 | 204.2 | 257.3 | 56.0 | 25 | Yes | ⅛" |
| 60722H-25CM | 7xD | Helical | 168.0 | 201.3 | 204.2 | 257.3 | 56.0 | 25 | No | ⅛" |
| 60522S-25WN | 5xD | Straight | 119.0 | 153.3 | 156.2 | 209.3 | 56.0 | 25 | Yes | ⅛" |
| 60722S-25WN | 7xD | Straight | 168.0 | 201.3 | 204.2 | 257.3 | 56.0 | 25 | Yes | ⅛" |

FM - Flanged Metric with Flat
CM - Cylindrical Metric
WN - Whistle Notch

## GEN3SYS XT and GEN3SYS Drill Inserts




| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.8661 | 22.00 | | 7C122P-22 | ● | 5C122H-22 | ● |
| | 0.8750 | 22.23 | 7/8" | 7C122P-0028 | ○ | 5C122H-0028 | ○ |
| | 0.8906 | 22.62 | 57/64" | 7C122P-.890 | ○ | 5C122H-.890 | ○ |
| | 0.9055 | 23.00 | | 7C122P-23 | ● | 5C122H-23 | ● |
| | 0.9063 | 23.02 | 29/32" | 7C122P-0029 | ○ | 5C122H-0029 | ○ |
| | 0.9219 | 23.42 | 59/64" | 7C122P-.921 | ○ | 5C122H-.921 | ○ |
| | 0.9375 | 23.81 | 15/16" | 7C122P-0030 | ○ | 5C122H-0030 | ○ |
| LR Geometry K35 (C1) | 0.8661 | 22.00 | | 7C122P-22LR | ◆ | 5C122H-22-LR | ◆ |
| | 0.8750 | 22.23 | 7/8" | 7C122P-0028LR | ◆ | 5C122H-0028-LR | ◆ |
| | 0.8906 | 22.62 | 57/64" | 7C122P-.890LR | ◆ | 5C122H-.890-LR | ◆ |
| | 0.9055 | 23.00 | | 7C122P-23LR | ◆ | 5C122H-23-LR | ◆ |
| | 0.9063 | 23.02 | 29/32" | 7C122P-0029LR | ◆ | 5C122H-0029-LR | ◆ |
| | 0.9219 | 23.42 | 59/64" | 7C122P-.921LR | ◆ | 5C122H-.921-LR | ◆ |
| | 0.9375 | 23.81 | 15/16" | 7C122P-0030LR | ◆ | 5C122H-0030-LR | ◆ |

*Supplied in 1 piece packaging.*

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**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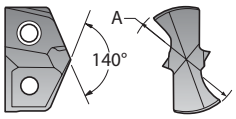
## GEN3SYS®XT and GEN3SYS® Drill Inserts




| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K20 (C2) | 0.8661 | 22.00 | | 7C222P-22 | ● | 5C222H-22 | ● |
| | 0.8750 | 22.23 | 7/8" | 7C222P-0028 | ○ | 5C222H-0028 | ○ |
| | 0.8906 | 22.62 | 57/64" | 7C222P-.890 | ○ | 5C222H-.890 | ○ |
| | 0.9055 | 23.00 | | 7C222P-23 | ● | 5C222H-23 | ● |
| | 0.9063 | 23.02 | 29/32" | 7C222P-0029 | ○ | 5C222H-0029 | ○ |
| | 0.9219 | 23.42 | 59/64" | 7C222P-.921 | ○ | 5C222H-.921 | ○ |
| | 0.9375 | 23.81 | 15/16" | 7C222P-0030 | ○ | 5C222H-0030 | ○ |
| Cast Iron Geometry K20 (C2) | 0.8661 | 22.00 | | 7C222P-22CI | ● | 5C222H-22-CI | ● |
| | 0.8750 | 22.23 | 7/8" | 7C222P-0028CI | ○ | 5C222H-0028-CI | ○ |
| | 0.8906 | 22.62 | 57/64" | 7C222P-.890CI | ○ | 5C222H-.890-CI | ○ |
| | 0.9055 | 23.00 | | 7C222P-23CI | ● | 5C222H-23-CI | ● |
| | 0.9063 | 23.02 | 29/32" | 7C222P-0029CI | ○ | 5C222H-0029-CI | ○ |
| | 0.9219 | 23.42 | 59/64" | 7C222P-.921CI | ○ | 5C222H-.921-CI | ○ |
| | 0.9375 | 23.81 | 15/16" | 7C222P-0030CI | ○ | 5C222H-0030-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.8661 | 22.00 | | 7C222P-22AS | ● | - | - |
| | 0.8750 | 22.23 | 7/8" | 7C222P-0028AS | ○ | - | - |
| | 0.8906 | 22.62 | 57/64" | 7C222P-.890AS | ○ | - | - |
| | 0.9055 | 23.00 | | 7C222P-23AS | ● | - | - |
| | 0.9063 | 23.02 | 29/32" | 7C222P-0029AS | ○ | - | - |
| | 0.9219 | 23.42 | 59/64" | 7C222P-.921AS | ○ | - | - |
| | 0.9375 | 23.81 | 15/16" | 7C222P-0030AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.8661 | 22.00 | | 7C222P-22LR | ◆ | 5C222H-22-LR | ◆ |
| | 0.8750 | 22.23 | 7/8" | 7C222P-0028LR | ◆ | 5C222H-0028-LR | ◆ |
| | 0.8906 | 22.62 | 57/64" | 7C222P-.890LR | ◆ | 5C222H-.890-LR | ◆ |
| | 0.9055 | 23.00 | | 7C222P-23LR | ◆ | 5C222H-23-LR | ◆ |
| | 0.9063 | 23.02 | 29/32" | 7C222P-0029LR | ◆ | 5C222H-0029-LR | ◆ |
| | 0.9219 | 23.42 | 59/64" | 7C222P-.921LR | ◆ | 5C222H-.921-LR | ◆ |
| | 0.9375 | 23.81 | 15/16" | 7C222P-0030LR | ◆ | 5C222H-0030-LR | ◆ |

*Supplied in 1 piece packaging.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

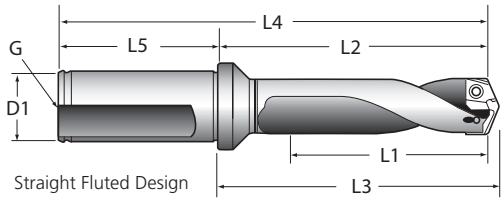
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 139.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

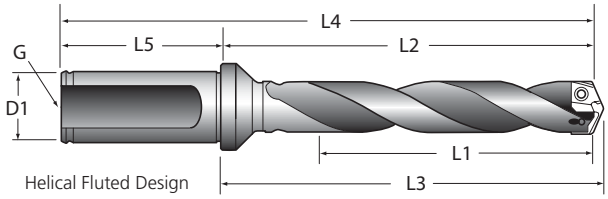
**Any non-standard size available.**

# 24 Series Drill Inserts and Holders

Diameter Range 24.00mm to 25.99mm



Straight Fluted Design



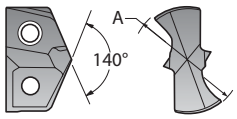
Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60324S-25FM | 3xD | Straight | 78.0 | 113.8 | 116.8 | 169.8 | 56.0 | 25 | Yes | ⅛″ |
| 60524S-25FM | 5xD | Straight | 130.0 | 165.8 | 168.7 | 221.8 | 56.0 | 25 | Yes | ⅛″ |
| 60724S-25FM | 7xD | Straight | 182.0 | 217.8 | 220.7 | 273.8 | 56.0 | 25 | Yes | ⅛″ |
| 60124H-25FM | Stub | Helical | 28.5 | 64.2 | 67.1 | 120.2 | 56.0 | 25 | Yes | ⅛″ |
| 60324H-25FM | 3xD | Helical | 78.0 | 113.8 | 116.8 | 169.8 | 56.0 | 25 | Yes | ⅛″ |
| 60324H-25CM | 3xD | Helical | 78.0 | 113.8 | 116.8 | 169.8 | 56.0 | 25 | No | ⅛″ |
| 60524H-25FM | 5xD | Helical | 130.0 | 165.8 | 168.7 | 221.8 | 56.0 | 25 | Yes | ⅛″ |
| 60524H-25CM | 5xD | Helical | 130.0 | 165.8 | 168.7 | 221.8 | 56.0 | 25 | No | ⅛″ |
| 60724H-25FM | 7xD | Helical | 182.0 | 217.8 | 220.7 | 273.8 | 56.0 | 25 | Yes | ⅛″ |
| 60724H-25CM | 7xD | Helical | 182.0 | 217.8 | 220.7 | 273.8 | 56.0 | 25 | No | ⅛″ |
| 60524S-25WN | 5xD | Straight | 130.0 | 165.8 | 168.7 | 221.8 | 56.0 | 25 | Yes | ⅛″ |
| 60724S-25WN | 7xD | Straight | 182.0 | 217.8 | 220.7 | 273.8 | 56.0 | 25 | Yes | ⅛″ |

FM - Flanged Metric with Flat
CM - Cylindrical Metric
WN - Whistle Notch

## GEN3SYS XT and GEN3SYS Drill Inserts


| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 0.9449 | 24.00 | | 7C124P-24 | ● | 5C124H-24 | ● |
| | 0.9688 | 24.61 | 31/32″ | 7C124P-0031 | ○ | 5C124H-0031 | ○ |
| | 0.9843 | 25.00 | 63/64″ | 7C124P-25 | ● | 5C124H-25 | ● |
| | 1.0000 | 25.40 | 1 ″ | 7C124P-0100 | ○ | 5C124H-0100 | ○ |
| | 1.0081 | 25.60 | | 7C124P-1.008 | ● | 5C124H-1.008 | ● |
| | 1.0157 | 25.80 | 1 1/64″ | 7C124P-1.015 | ○ | 5C124H-1.015 | ○ |
| LR Geometry K35 (C1) | 0.9449 | 24.00 | | 7C124P-24LR | ◆ | 5C124H-24-LR | ◆ |
| | 0.9688 | 24.61 | 31/32″ | 7C124P-0031LR | ◆ | 5C124H-0031-LR | ◆ |
| | 0.9843 | 25.00 | 63/64″ | 7C124P-25LR | ◆ | 5C124H-25-LR | ◆ |
| | 1.0000 | 25.40 | 1 ″ | 7C124P-0100LR | ◆ | 5C124H-0100-LR | ◆ |
| | 1.0081 | 25.60 | | 7C124P-1.008LR | ◆ | 5C124H-1.008-LR | ◆ |
| | 1.0157 | 25.80 | 1 1/64″ | 7C124P-1.015LR | ◆ | 5C124H-1.015-LR | ◆ |

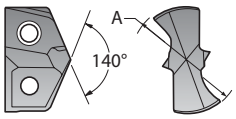
*Supplied in 1 piece packaging.*

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**Drill & Chamfer Holders available, see page 134.** **Holder Adaptors available, see page 142-145.**

## GEN3SYS XT and GEN3SYS Drill Inserts




| Material | A (Diameter) | | | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| | Decimal Equivalent | (mm) | (inch) | | | | |
| K20 (C2) | 0.9449 | 24.00 | | 7C224P-24 | ● | 5C224H-24 | ● |
| | 0.9688 | 24.61 | 31/32" | 7C224P-0031 | ○ | 5C224H-0031 | ○ |
| | 0.9843 | 25.00 | 63/64" | 7C224P-25 | ● | 5C224H-25 | ● |
| | 1.0000 | 25.40 | 1" | 7C224P-0100 | ○ | 5C224H-0100 | ○ |
| | 1.0081 | 25.60 | | 7C224P-1.008 | ○ | 5C224H-1.008 | ○ |
| | 1.0157 | 25.80 | 1 1/64" | 7C224P-1.015 | ○ | 5C224H-1.015 | ○ |
| Cast Iron Geometry K20 (C2) | 0.9449 | 24.00 | | 7C224P-24CI | ● | 5C224H-24-CI | ● |
| | 0.9688 | 24.61 | 31/32" | 7C224P-0031CI | ○ | 5C224H-0031-CI | ○ |
| | 0.9843 | 25.00 | 63/64" | 7C224P-25CI | ● | 5C224H-25-CI | ● |
| | 1.0000 | 25.40 | 1" | 7C224P-0100CI | ○ | 5C224H-0100-CI | ○ |
| | 1.0081 | 25.60 | | 7C224P-1.008CI | ● | 5C224H-1.008-CI | ● |
| | 1.0157 | 25.80 | 1 1/64" | 7C224P-1.015CI | ○ | 5C224H-1.015-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 0.9449 | 24.00 | | 7C224P-24AS | ● | - | - |
| | 0.9688 | 24.61 | 31/32" | 7C224P-0031AS | ○ | - | - |
| | 0.9843 | 25.00 | 63/64" | 7C224P-25AS | ● | - | - |
| | 1.0000 | 25.40 | 1" | 7C224P-0100AS | ○ | - | - |
| | 1.0081 | 25.60 | | 7C224P-1.008AS | ○ | - | - |
| | 1.0157 | 25.80 | 1 1/64" | 7C224P-1.015AS | ○ | - | - |
| LR Geometry K20 (C2) | 0.9449 | 24.00 | | 7C224P-24LR | ◆ | 5C224H-24-LR | ◆ |
| | 0.9688 | 24.61 | 31/32" | 7C224P-0031LR | ◆ | 5C224H-0031-LR | ◆ |
| | 0.9843 | 25.00 | 63/64" | 7C224P-25LR | ◆ | 5C224H-25-LR | ◆ |
| | 1.0000 | 25.40 | 1" | 7C224P-0100LR | ◆ | 5C224H-0100-LR | ◆ |
| | 1.0081 | 25.60 | | 7C224P-1.008LR | ◆ | 5C224H-1.008-LR | ◆ |
| | 1.0157 | 25.80 | 1 1/64" | 7C224P-1.015LR | ◆ | 5C224H-1.015-LR | ◆ |

*Supplied in 1 piece packaging.*

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

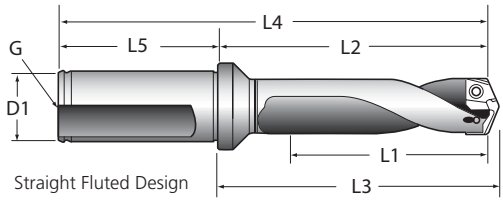
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 139.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

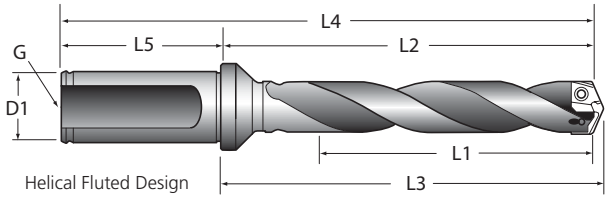
**Any non-standard size available.**

# 26 Series Drill Inserts and Holders

Diameter Range 26.00mm to 28.99mm



Straight Fluted Design



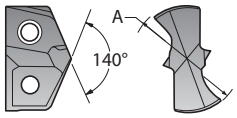
Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60326S-32FM | 3xD | Straight | 87.0 | 128.1 | 130.9 | 188.1 | 60.0 | 32 | Yes | ¼″ |
| 60526S-32FM | 5xD | Straight | 145.0 | 186.0 | 188.8 | 246.0 | 60.0 | 32 | Yes | ¼″ |
| 60726S-32FM | 7xD | Straight | 203.0 | 244.0 | 246.8 | 304.0 | 60.0 | 32 | Yes | ¼″ |
| 60126H-32FM | Stub | Helical | 32.0 | 72.9 | 75.7 | 132.9 | 60.0 | 32 | Yes | ¼″ |
| 60326H-32FM | 3xD | Helical | 87.0 | 128.1 | 130.9 | 188.1 | 60.0 | 32 | Yes | ¼″ |
| 60326H-32CM | 3xD | Helical | 87.0 | 128.1 | 130.9 | 188.1 | 60.0 | 32 | No | ¼″ |
| 60526H-32FM | 5xD | Helical | 145.0 | 186.0 | 188.8 | 246.0 | 60.0 | 32 | Yes | ¼″ |
| 60526H-32CM | 5xD | Helical | 145.0 | 186.0 | 188.8 | 246.0 | 60.0 | 32 | No | ¼″ |
| 60726H-32FM | 7xD | Helical | 203.0 | 244.0 | 246.8 | 304.0 | 60.0 | 32 | Yes | ¼″ |
| 60726H-32CM | 7xD | Helical | 203.0 | 244.0 | 246.8 | 304.0 | 60.0 | 32 | No | ¼″ |
| 60526S-32WN | 5xD | Straight | 145.0 | 186.0 | 188.8 | 246.0 | 60.0 | 32 | Yes | ¼″ |
| 60726S-32WN | 7xD | Straight | 203.0 | 244.0 | 246.8 | 304.0 | 60.0 | 32 | Yes | ¼″ |

FM - Flanged Metric with Flat
CM - Cylindrical Metric
WN - Whistle Notch

## GEN3SYS XT and GEN3SYS Drill Inserts


| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 1.0236 | 26.00 | | 7C126P-26 | ● | 5C126H-26 | ● |
| | 1.0313 | 26.19 | 1 1/32″ | 7C126P-0101 | ○ | 5C126H-0101 | ○ |
| | 1.0469 | 26.59 | 1 3/64″ | 7C126P-1.046 | ○ | 5C126H-1.046 | ○ |
| | 1.0625 | 26.99 | 1 1/16″ | 7C126P-0102 | ○ | 5C126H-0102 | ○ |
| | 1.0630 | 27.00 | | 7C126P-27 | ● | 5C126H-27 | ● |
| | 1.0938 | 27.78 | 1 3/32″ | 7C126P-0103 | ○ | 5C126H-0103 | ○ |
| | 1.1024 | 28.00 | | 7C126P-28 | ● | 5C126H-28 | ● |
| | 1.1094 | 28.18 | 1 7/64″ | 7C126P-1.109 | ○ | 5C126H-1.109 | ○ |
| | 1.1250 | 28.58 | 1 1/8″ | 7C126P-0104 | ○ | 5C126H-0104 | ○ |
| LR Geometry K35 (C1) | 1.0236 | 26.00 | | 7C126P-26LR | ◆ | 5C126H-26-LR | ◆ |
| | 1.0313 | 26.19 | 1 1/32″ | 7C126P-0101LR | ◆ | 5C126H-0101-LR | ◆ |
| | 1.0469 | 26.59 | 1 3/64″ | 7C126P-1.046LR | ◆ | 5C126H-1.046-LR | ◆ |
| | 1.0625 | 26.99 | 1 1/16″ | 7C126P-0102LR | ◆ | 5C126H-0102-LR | ◆ |
| | 1.0630 | 27.00 | | 7C126P-27LR | ◆ | 5C126H-27-LR | ◆ |
| | 1.0938 | 27.78 | 1 3/32″ | 7C126P-0103LR | ◆ | 5C126H-0103-LR | ◆ |
| | 1.1024 | 28.00 | | 7C126P-28LR | ◆ | 5C126H-28-LR | ◆ |
| | 1.1094 | 28.18 | 1 7/64″ | 7C126P-1.109LR | ◆ | 5C126H-1.109-LR | ◆ |
| | 1.1250 | 28.58 | 1 1/8″ | 7C126P-0104LR | ◆ | 5C126H-0104-LR | ◆ |

*Supplied in 1 piece packaging.*

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**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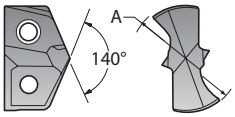
## GEN3SYS®XT and GEN3SYS® Drill Inserts




| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K20 (C2) | 1.0236 | 26.00 | | 7C226P-26 | ● | 5C226H-26 | ● |
| | 1.0313 | 26.19 | 1 1/32" | 7C226P-0101 | ○ | 5C226H-0101 | ○ |
| | 1.0469 | 26.59 | 1 3/64" | 7C226P-1.046 | ○ | 5C226H-1.046 | ○ |
| | 1.0625 | 26.99 | 1 1/16" | 7C226P-0102 | ○ | 5C226H-0102 | ○ |
| | 1.0630 | 27.00 | | 7C226P-27 | ● | 5C226H-27 | ● |
| | 1.0938 | 27.78 | 1 3/32" | 7C226P-0103 | ○ | 5C226H-0103 | ○ |
| | 1.1024 | 28.00 | | 7C226P-28 | ● | 5C226H-28 | ● |
| | 1.1094 | 28.18 | 1 7/64" | 7C226P-1.109 | ○ | 5C226H-1.109 | ○ |
| | 1.1250 | 28.58 | 1 1/8" | 7C226P-0104 | ○ | 5C226H-0104 | ○ |
| Cast Iron Geometry K20 (C2) | 1.0236 | 26.00 | | 7C226P-26CI | ● | 5C226H-26-CI | ● |
| | 1.0313 | 26.19 | 1 1/32" | 7C226P-0101CI | ○ | 5C226H-0101-CI | ○ |
| | 1.0469 | 26.59 | 1 3/64" | 7C226P-1.046CI | ○ | 5C226H-1.046-CI | ○ |
| | 1.0625 | 26.99 | 1 1/16" | 7C226P-0102CI | ○ | 5C226H-0102-CI | ○ |
| | 1.0630 | 27.00 | | 7C226P-27CI | ● | 5C226H-27-CI | ● |
| | 1.0938 | 27.78 | 1 3/32" | 7C226P-0103CI | ○ | 5C226H-0103-CI | ○ |
| | 1.1024 | 28.00 | | 7C226P-28CI | ● | 5C226H-28-CI | ● |
| | 1.1094 | 28.18 | 1 7/64" | 7C226P-1.109CI | ○ | 5C226H-1.109-CI | ○ |
| | 1.1250 | 28.58 | 1 1/8" | 7C226P-0104CI | ○ | 5C226H-0104-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 1.0236 | 26.00 | | 7C226P-26AS | ● | - | - |
| | 1.0313 | 26.19 | 1 1/32" | 7C226P-0101AS | ○ | - | - |
| | 1.0469 | 26.59 | 1 3/64" | 7C226P-1.046AS | ○ | - | - |
| | 1.0625 | 26.99 | 1 1/16" | 7C226P-0102AS | ○ | - | - |
| | 1.0630 | 27.00 | | 7C226P-27AS | ● | - | - |
| | 1.0938 | 27.78 | 1 3/32" | 7C226P-0103AS | ○ | - | - |
| | 1.1024 | 28.00 | | 7C226P-28AS | ● | - | - |
| | 1.1094 | 28.18 | 1 7/64" | 7C226P-1.109AS | ○ | - | - |
| | 1.1250 | 28.58 | 1 1/8" | 7C226P-0104AS | ○ | - | - |
| LR Geometry K20 (C2) | 1.0236 | 26.00 | | 7C226P-26LR | ◆ | 5C226H-26-LR | ◆ |
| | 1.0313 | 26.19 | 1 1/32" | 7C226P-0101LR | ◆ | 5C226H-0101-LR | ◆ |
| | 1.0469 | 26.59 | 1 3/64" | 7C226P-1.046LR | ◆ | 5C226H-1.046-LR | ◆ |
| | 1.0625 | 26.99 | 1 1/16" | 7C226P-0102LR | ◆ | 5C226H-0102-LR | ◆ |
| | 1.0630 | 27.00 | | 7C226P-27LR | ◆ | 5C226H-27-LR | ◆ |
| | 1.0938 | 27.78 | 1 3/32" | 7C226P-0103LR | ◆ | 5C226H-0103-LR | ◆ |
| | 1.1024 | 28.00 | | 7C226P-28LR | ◆ | 5C226H-28-LR | ◆ |
| | 1.1094 | 28.18 | 1 7/64" | 7C226P-1.109LR | ◆ | 5C226H-1.109-LR | ◆ |
| | 1.1250 | 28.58 | 1 1/8" | 7C226P-0104LR | ◆ | 5C226H-0104-LR | ◆ |

*Supplied in 1 piece packaging.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

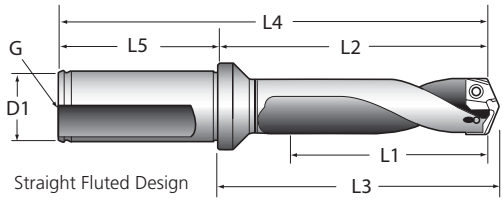
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 139.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

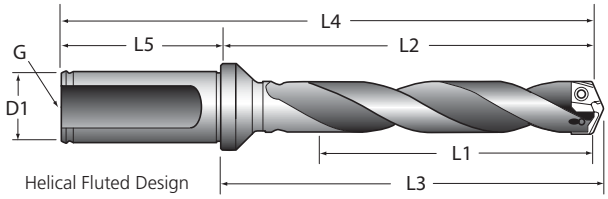
**Any non-standard size available.**

# 29 Series Drill Inserts and Holders

Diameter Range 29.00mm to 31.99mm



Straight Fluted Design



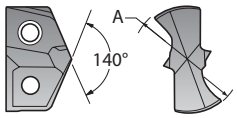
Helical Fluted Design

## GEN3SYS XT and GEN3SYS Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60329S-32FM | 3xD | Straight | 96.0 | 136.2 | 139.1 | 196.2 | 60.0 | 32 | Yes | ¼" |
| 60529S-32FM | 5xD | Straight | 160.0 | 200.1 | 203.1 | 260.1 | 60.0 | 32 | Yes | ¼" |
| 60729S-32FM | 7xD | Straight | 224.0 | 264.1 | 267.1 | 324.1 | 60.0 | 32 | Yes | ¼" |
| 60129H-32FM | Stub | Helical | 35.0 | 75.2 | 78.2 | 135.2 | 60.0 | 32 | Yes | ¼" |
| 60329H-32FM | 3xD | Helical | 96.0 | 136.2 | 139.1 | 196.2 | 60.0 | 32 | Yes | ¼" |
| 60329H-32CM | 3xD | Helical | 96.0 | 136.2 | 139.1 | 196.2 | 60.0 | 32 | No | ¼" |
| 60529H-32FM | 5xD | Helical | 160.0 | 200.1 | 203.1 | 260.1 | 60.0 | 32 | Yes | ¼" |
| 60529H-32CM | 5xD | Helical | 160.0 | 200.1 | 203.1 | 260.1 | 60.0 | 32 | No | ¼" |
| 60729H-32FM | 7xD | Helical | 224.0 | 264.1 | 267.1 | 324.1 | 60.0 | 32 | Yes | ¼" |
| 60729H-32CM | 7xD | Helical | 224.0 | 264.1 | 267.1 | 324.1 | 60.0 | 32 | No | ¼" |
| 60529S-32WN | 5xD | Straight | 160.0 | 200.1 | 203.1 | 260.1 | 60.0 | 32 | Yes | ¼" |
| 60729S-32WN | 7xD | Straight | 224.0 | 264.1 | 267.1 | 324.1 | 60.0 | 32 | Yes | ¼" |

FM - Flanged Metric with Flat
CM - Cylindrical Metric
WN - Whistle Notch

## GEN3SYS XT and GEN3SYS Drill Inserts




| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K35 (C1) | 1.1417 | 29.00 | | 7C129P-29 | ● | 5C129H-29 | ● |
| | 1.1563 | 29.37 | 15/32" | 7C129P-0105 | ○ | 5C129H-0105 | ○ |
| | 1.1811 | 30.00 | | 7C129P-30 | ● | 5C129H-30 | ● |
| | 1.1875 | 30.16 | 13/16" | 7C129P-0106 | ○ | 5C129H-0106 | ○ |
| | 1.2007 | 30.50 | | 7C129P-30.5 | ● | 5C129H-30.5 | ● |
| | 1.2188 | 30.96 | 17/32" | 7C129P-0107 | ○ | 5C129H-0107 | ○ |
| | 1.2205 | 31.00 | | 7C129P-31 | ● | 5C129H-31 | ● |
| | 1.2500 | 31.75 | 1¼" | 7C129P-0108 | ○ | 5C129H-0108 | ○ |
| LR Geometry K35 (C1) | 1.1417 | 29.00 | | 7C129P-29LR | ◆ | 5C129H-29-LR | ◆ |
| | 1.1563 | 29.37 | 15/32" | 7C129P-0105LR | ◆ | 5C129H-0105-LR | ◆ |
| | 1.1811 | 30.00 | | 7C129P-30LR | ◆ | 5C129H-30-LR | ◆ |
| | 1.1875 | 30.16 | 13/16" | 7C129P-0106LR | ◆ | 5C129H-0106-LR | ◆ |
| | 1.2007 | 30.50 | | 7C129P-30.5LR | ◆ | 5C129H-30.5-LR | ◆ |
| | 1.2188 | 30.96 | 17/32" | 7C129P-0107LR | ◆ | 5C129H-0107-LR | ◆ |
| | 1.2205 | 31.00 | | 7C129P-31LR | ◆ | 5C129H-31-LR | ◆ |
| | 1.2500 | 31.75 | 1 ¼" | 7C129P-0108LR | ◆ | 5C129H-0108-LR | ◆ |

*Supplied in 1 piece packaging.*

**Stk. - Stock Availability.**
● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**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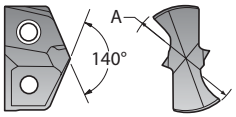
## GEN3SYS XT and GEN3SYS Drill Inserts




| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. | GEN3SYS® Item Number | Stk. |
|---|---|---|---|---|---|---|---|
| K20 (C2) | 1.1417 | 29.00 | | 7C229P-29 | ● | 5C229H-29 | ● |
| | 1.1563 | 29.37 | 15/32" | 7C229P-0105 | ○ | 5C229H-0105 | ○ |
| | 1.1811 | 30.00 | | 7C229P-30 | ● | 5C229H-30 | ● |
| | 1.1875 | 30.16 | 13/16" | 7C229P-0106 | ○ | 5C229H-0106 | ○ |
| | 1.2007 | 30.50 | | 7C229P-30.5 | ● | 5C229H-30.5 | ● |
| | 1.2188 | 30.96 | 17/32" | 7C229P-0107 | ○ | 5C229H-0107 | ○ |
| | 1.2205 | 31.00 | | 7C229P-31 | ● | 5C229H-31 | ● |
| | 1.2500 | 31.75 | 1¼" | 7C229P-0108 | ○ | 5C229H-0108 | ○ |
| Cast Iron Geometry K20 (C2) | 1.1417 | 29.00 | | 7C229P-29CI | ● | 5C229H-29-CI | ● |
| | 1.1563 | 29.37 | 15/32" | 7C229P-0105CI | ○ | 5C229H-0105-CI | ○ |
| | 1.1811 | 30.00 | | 7C229P-30CI | ● | 5C229H-30-CI | ● |
| | 1.1875 | 30.16 | 13/16" | 7C229P-0106CI | ○ | 5C229H-0106-CI | ○ |
| | 1.2007 | 30.50 | | 7C229P-30.5CI | ● | 5C229H-30.5-CI | ● |
| | 1.2188 | 30.96 | 17/32" | 7C229P-0107CI | ○ | 5C229H-0107-CI | ○ |
| | 1.2205 | 31.00 | | 7C229P-31CI | ● | 5C229H-31-CI | ● |
| | 1.2500 | 31.75 | 1 ¼" | 7C229P-0108CI | ○ | 5C229H-0108-CI | ○ |
| Stainless Steel Geometry K20 (C2) | 1.1417 | 29.00 | | 7C229P-29AS | ● | - | - |
| | 1.1563 | 29.37 | 15/32" | 7C229P-0105AS | ○ | - | - |
| | 1.1811 | 30.00 | | 7C229P-30AS | ● | - | - |
| | 1.1875 | 30.16 | 13/16" | 7C229P-0106AS | ○ | - | - |
| | 1.2007 | 30.50 | | 7C229P-30.5AS | ● | - | - |
| | 1.2188 | 30.96 | 17/32" | 7C229P-0107AS | ○ | - | - |
| | 1.2205 | 31.00 | | 7C229P-31AS | ● | - | - |
| | 1.2500 | 31.75 | 1 ¼" | 7C229P-0108AS | ○ | - | - |
| LR Geometry K20 (C2) | 1.1417 | 29.00 | | 7C229P-29LR | ◆ | 5C229H-29-LR | ◆ |
| | 1.1563 | 29.37 | 15/32" | 7C229P-0105LR | ◆ | 5C229H-0105-LR | ◆ |
| | 1.1811 | 30.00 | | 7C229P-30LR | ◆ | 5C229H-30-LR | ◆ |
| | 1.1875 | 30.16 | 13/16" | 7C229P-0106LR | ◆ | 5C229H-0106-LR | ◆ |
| | 1.2007 | 30.50 | | 7C229P-30.5LR | ◆ | 5C229H-30.5-LR | ◆ |
| | 1.2188 | 30.96 | 17/32" | 7C229P-0107LR | ◆ | 5C229H-0107-LR | ◆ |
| | 1.2205 | 31.00 | | 7C229P-31LR | ◆ | 5C229H-31-LR | ◆ |
| | 1.2500 | 31.75 | 1 ¼" | 7C229P-0108LR | ◆ | 5C229H-0108-LR | ◆ |

*Supplied in 1 piece packaging.*

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

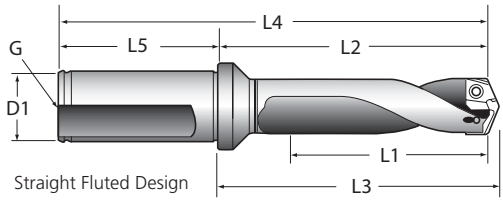
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 139.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

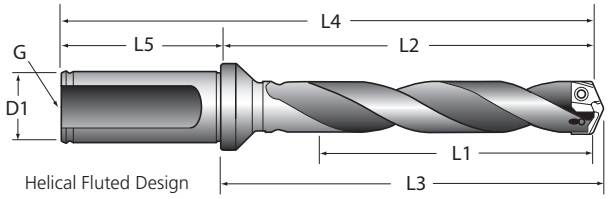
**Any non-standard size available.**

# 32 Series Drill Inserts and Holders

Diameter Range 32.00mm to 35.00mm



Straight Fluted Design

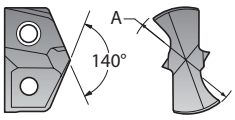


Helical Fluted Design

## GEN3SYS XT Holders

| Holder Reference Number | Holder Type | Flute Type | L1 Max Drill Depth (mm) | L2 Body Length (mm) | L3 New Tool Ref Length (mm) | L4 Overall Length (mm) | L5 Shank Length (mm) | D1 Shank Diameter (mm) | Flat | G Pipe Tap |
|---|---|---|---|---|---|---|---|---|---|---|
| 60332S-40FM | 3xD | Straight | 105.0 | 157.7 | 161.3 | 227.7 | 70.0 | 40 | Yes | ¼" |
| 60532S-40FM | 5xD | Straight | 175.0 | 227.7 | 231.3 | 297.7 | 70.0 | 40 | Yes | ¼" |
| 60732S-40FM | 7xD | Straight | 244.9 | 297.7 | 301.3 | 367.7 | 70.0 | 40 | Yes | ¼" |
| 60132H-40FM | Stub | Helical | 38.0 | 90.7 | 94.2 | 160.7 | 70.0 | 40 | Yes | ¼" |
| 60332H-40FM | 3xD | Helical | 105.0 | 157.7 | 161.3 | 227.7 | 70.0 | 40 | Yes | ¼" |
| 60332H-40CM | 3xD | Helical | 105.0 | 157.7 | 161.3 | 227.7 | 70.0 | 40 | No | ¼" |
| 60532H-40FM | 5xD | Helical | 175.0 | 227.7 | 231.3 | 297.7 | 70.0 | 40 | Yes | ¼" |
| 60532H-40CM | 5xD | Helical | 175.0 | 227.7 | 231.3 | 297.7 | 70.0 | 40 | No | ¼" |
| 60732H-40FM | 7xD | Helical | 244.9 | 297.7 | 301.3 | 367.7 | 70.0 | 40 | Yes | ¼" |
| 60732H-40CM | 7xD | Helical | 244.9 | 297.7 | 301.3 | 367.7 | 70.0 | 40 | No | ¼" |

FM - Flanged Metric with Flat
CM - Cylindrical Metric




## GEN3SYS XT Drill Inserts

| Material | A (Diameter) Decimal Equivalent | (mm) | (inch) | GEN3SYS®XT Item Number | Stk. |
|---|---|---|---|---|---|
| K35 (C1) | 1.2598 | 32.00 | | 7C132P-32 | ● |
| | 1.2658 | 32.15 | 1 17/64" | 7C132P-3215 | ◆ |
| | 1.2795 | 32.50 | | 7C132P-32.5 | ◆ |
| | 1.2813 | 32.55 | 1 9/32" | 7C132P-0109 | ◆ |
| | 1.2992 | 33.00 | | 7C132P-33 | ● |
| | 1.3125 | 33.34 | 1 5/16" | 7C132P-0110 | ◆ |
| | 1.3189 | 33.50 | | 7C132P-33.5 | ◆ |
| | 1.3386 | 34.00 | | 7C132P-34 | ● |
| | 1.3438 | 34.13 | 1 11/32" | 7C132P-0111 | ◆ |
| | 1.3583 | 34.50 | | 7C132P-34.5 | ◆ |
| | 1.3750 | 34.93 | 1 3/8" | 7C132P-0112 | ◆ |
| | 1.3779 | 35.00 | | 7C132P-35 | ● |

*Supplied in 1 piece packaging.*

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 139.

**Drill & Chamfer Holders available, see page 134. Holder Adaptors available, see page 142-145.**





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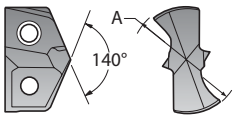



# 32 Series Drill Inserts

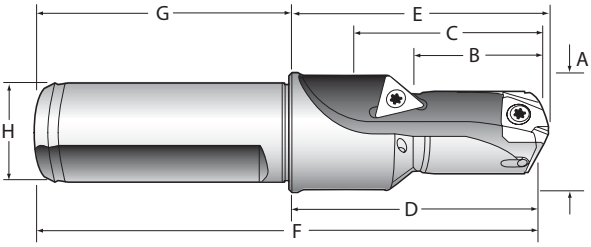
Diameter Range 32.00mm to 35.00mm

## GEN3SYS XT Drill Inserts

| Material | A (Diameter) | | | GEN3SYS®XT Item Number | Stk. |
|---|---|---|---|---|---|
| | Decimal Equivalent | (mm) | (inch) | | |
| LR Geometry K35 (C1) | 1.2598 | 32.00 | | 7C132P-32LR | ◆ |
| | 1.2658 | 32.15 | 1 17/64" | 7C132P-32.15LR | ◆ |
| | 1.2795 | 32.50 | | 7C132P-32.5LR | ◆ |
| | 1.2813 | 32.55 | 1 9/32" | 7C132P-0109LR | ◆ |
| | 1.2992 | 33.00 | | 7C132P-33LR | ◆ |
| | 1.3125 | 33.34 | 1 5/16" | 7C132P-0110LR | ◆ |
| | 1.3189 | 33.50 | | 7C132P-33.5LR | ◆ |
| | 1.3386 | 34.00 | | 7C132P-34LR | ◆ |
| | 1.3438 | 34.13 | 1 11/32" | 7C132P-0111LR | ◆ |
| | 1.3583 | 34.50 | | 7C132P-34.5LR | ◆ |
| | 1.3750 | 34.93 | 1 3/8" | 7C132P-0112LR | ◆ |
| | 1.3779 | 35.00 | | 7C132P-35LR | ◆ |
| K20 (C2) | 1.2598 | 32.00 | | 7C232P-32 | ● |
| | 1.2658 | 32.15 | 1 17/64" | 7C232P-32.15 | ◆ |
| | 1.2795 | 32.50 | | 7C232P-32.5 | ◆ |
| | 1.2813 | 32.55 | 1 9/32" | 7C232P-0109 | ◆ |
| | 1.2992 | 33.00 | | 7C232P-33 | ● |
| | 1.3125 | 33.34 | 1 5/16" | 7C232P-0110 | ◆ |
| | 1.3189 | 33.50 | | 7C232P-33.5 | ◆ |
| | 1.3386 | 34.00 | | 7C232P-34 | ● |
| | 1.3438 | 34.13 | 1 11/32" | 7C232P-0111 | ◆ |
| | 1.3583 | 34.50 | | 7C232P-34.5 | ◆ |
| | 1.3750 | 34.93 | 1 3/8" | 7C232P-0112 | ◆ |
| | 1.3779 | 35.00 | | 7C232P-35 | ● |
| Cast Iron Geometry K20 (C2) | 1.2598 | 32.00 | | 7C232P-32CI | ● |
| | 1.2658 | 32.15 | 1 17/64" | 7C232P-32.15CI | ◆ |
| | 1.2795 | 32.50 | | 7C232P-32.5CI | ◆ |
| | 1.2813 | 32.55 | 1 9/32" | 7C232P-0109CI | ◆ |
| | 1.2992 | 33.00 | | 7C232P-33CI | ● |
| | 1.3125 | 33.34 | 1 5/16" | 7C232P-0110CI | ◆ |
| | 1.3189 | 33.50 | | 7C232P-33.5CI | ◆ |
| | 1.3386 | 34.00 | | 7C232P-34CI | ● |
| | 1.3438 | 34.13 | 1 11/32" | 7C232P-0111CI | ◆ |
| | 1.3583 | 34.50 | | 7C232P-34.5CI | ◆ |
| | 1.3750 | 34.93 | 1 3/8" | 7C232P-0112CI | ◆ |
| | 1.3779 | 35.00 | | 7C232P-35CI | ● |
| Stainless Steel Geometry K20 (C2) | 1.2598 | 32.00 | | 7C232P-32AS | ● |
| | 1.2658 | 32.15 | 1 17/64" | 7C232P-32.15AS | ◆ |
| | 1.2795 | 32.50 | | 7C232P-32.5AS | ◆ |
| | 1.2813 | 32.55 | 1 9/32" | 7C232P-0109AS | ◆ |
| | 1.2992 | 33.00 | | 7C232P-33AS | ● |
| | 1.3125 | 33.34 | 1 5/16" | 7C232P-0110AS | ◆ |
| | 1.3189 | 33.50 | | 7C232P-33.5AS | ◆ |
| | 1.3386 | 34.00 | | 7C232P-34AS | ● |
| | 1.3438 | 34.13 | 1 11/32" | 7C232P-0111AS | ◆ |
| | 1.3583 | 34.50 | | 7C232P-34.5AS | ◆ |
| | 1.3750 | 34.93 | 1 3/8" | 7C232P-0112AS | ◆ |
| | 1.3779 | 35.00 | | 7C232P-35AS | ● |
| LR Geometry K20 (C2) | 1.2598 | 32.00 | | 7C232P-32LR | ◆ |
| | 1.2658 | 32.15 | 1 17/64" | 7C232P-32.15LR | ◆ |
| | 1.2795 | 32.50 | | 7C232P-32.5LR | ◆ |
| | 1.2813 | 32.55 | 1 9/32" | 7C232P-0109LR | ◆ |
| | 1.2992 | 33.00 | | 7C232P-33LR | ◆ |
| | 1.3125 | 33.34 | 1 5/16" | 7C232P-0110LR | ◆ |
| | 1.3189 | 33.50 | | 7C232P-33.5LR | ◆ |
| | 1.3386 | 34.00 | | 7C232P-34LR | ◆ |
| | 1.3438 | 34.13 | 1 11/32" | 7C232P-0111LR | ◆ |
| | 1.3583 | 34.50 | | 7C232P-34.5LR | ◆ |
| | 1.3750 | 34.93 | 1 3/8" | 7C232P-0112LR | ◆ |
| | 1.3779 | 35.00 | | 7C232P-35LR | ◆ |

*Supplied in 1 piece packaging.*

# GEN3SYS® Drill & Chamfer Holders




## Drill & Chamfer Holders

| Series | Item Number | A | B* | C | D | E | F | G | H | Chamfer Insert** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Step Diameter (mm) | Step Length (mm) | Drill Depth (mm) | Body Length (mm) | Tool Ref Length (mm) | Ref OAL (mm) | Shank Length (mm) | Shank Diameter (mm) | |
| 11 | 60111C45-16FM | 24,1 | 16.5 | 23.8 | 42.3 | 44.3 | 90.3 | 48 | 16 | TCMT-110204 |
| 12 | 60112C45-20FM | 24.8 | 18.0 | 35.2 | 43.2 | 45.4 | 93.2 | 50 | 20 | TCMT-110204 |
| 13 | 60113C45-20FM | 25.8 | 19.5 | 25.4 | 43.0 | 45.2 | 93.0 | 50 | 20 | TCMT-110204 |
| 14 | 60114C45-20FM | 26.7 | 21.0 | 26.8 | 44.6 | 47.2 | 94.6 | 50 | 20 | TCMT-110204 |
| 15 | 60115C45-20FM | 27.0 | 22.5 | 26.9 | 44.3 | 46.8 | 94.3 | 50 | 20 | TCMT-110204 |
| 16 | 60116C45-20FM | 27.0 | 24.0 | 33.1 | 50.8 | 53.7 | 100.8 | 50 | 20 | TCMT-110204 |
| 17 | 60117C45-20FM | 25.4 | 25.5 | 33.3 | 50.5 | 53.4 | 100.5 | 50 | 20 | TCMT-110204 |
| 18 | 60118C45-25FM | 25.1 | 27.0 | 35.2 | 56.0 | 58.8 | 111.9 | 56 | 25 | TCMT-110204 |
| 20 | 60120C45-25FM | 27.2 | 30.0 | 37.1 | 57.6 | 60.4 | 113.6 | 56 | 25 | TCMT-110204 |
| 22 | 60122C45-25FM | 29.0 | 33.0 | 40.5 | 60.0 | 63.0 | 116.1 | 56 | 25 | TCMT-110204 |
| 24 | 60124C45-25FM | 31.0 | 36.0 | 45.5 | 64.2 | 67.1 | 120.1 | 56 | 25 | TCMT-110204 |
| 26 | 60126C45-32FM | 34.0 | 39.0 | 52.1 | 72.9 | 75.7 | 133.0 | 60 | 32 | TCMT-110204 |
| 29 | 60129C45-32FM | 37.1 | 43.5 | 55.9 | 75.2 | 78.2 | 135.2 | 60 | 32 | TCMT-16T304 |
| 32 | 60132C45-40FM | 40.1 | 48.0 | 62.4 | 90.7 | 94.2 | 160.7 | 70 | 40 | TCMT-16T304 |

***B - Step Length (mm)***
*Based on minium diameter GEN3SYS insert per range.*

***Chamfer Inserts are sold separately and supplied in 10 piece packaging.*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## Tool Assembly

**1.** Place the GEN3SYS® Drill Insert into the precision ground locating pocket on the GEN3SYS® Holder.

**2.** The drill insert should not be turned rotated or twisted for locking purposes. The holder pocket and locating pad on the drill insert assure optimum fit and repeatability.

**3.** Place a generous amount of Never Seize (provided in the packaging) onto the supplied TORX Plus Screws. Tighten the TORX Plus Screws utilising the predetermined TORX Plus Drivers and TORX Plus Screw admissible tightening Torque outlined in the catalogue per GEN3SYS® Series.

## THRUST & HORSEPOWER

### FORMULAS

**1. RPM** $= \frac{(318.47) \bullet (M/min)}{DIA}$

where:
RPM = revolutions per minute (rev/min)
M/min = surface metre per minute (M/min)
DIA = diameter of drill (mm)

**2. Thrust** = 154 • (mm/rev) • DIA • Km

where:
Thrust = axial thrust in newtons (N)
mm/rev = feed rate (mm/rev)
DIA = diameter of drill (mm)
Km = specific cutting energy (kPa)

**3. Tool Power** $= \frac{(mm/rev) \bullet (RPM) \bullet (Km) \bullet (DIA^2)}{218604,8}$

where:
Tool Power = tool power in kilowatts (kW)
Mm/rev = feedrate (mm/rev)
RPM = revolutions per minute (rev/min)
Km = specific cutting energy (kpa)
DIA = diameter of drill (mm)

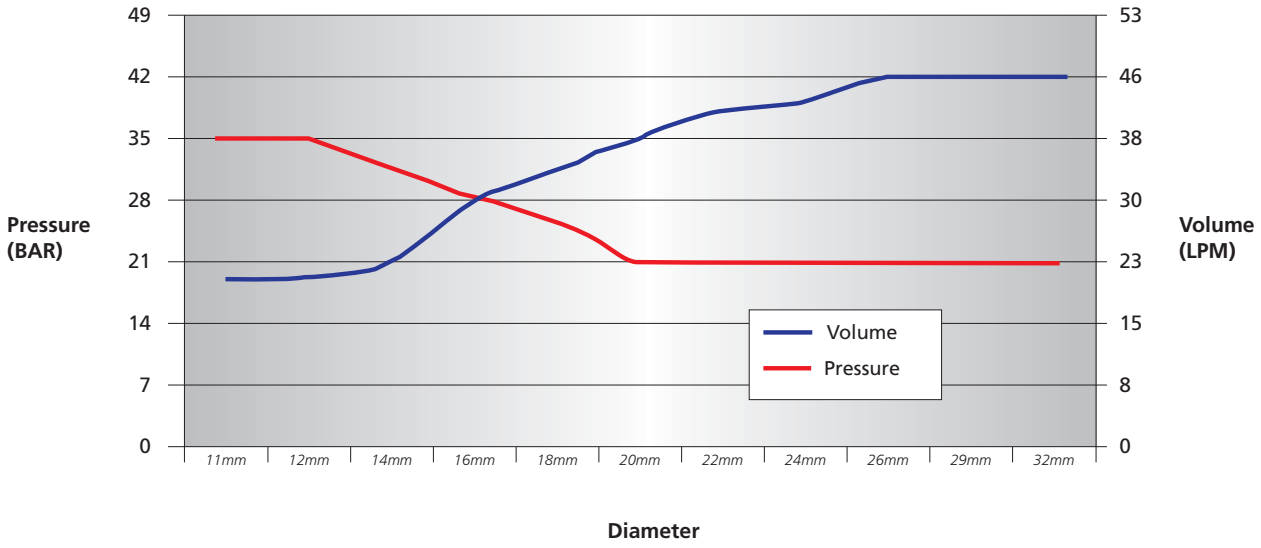
**Note:**
The table and equations are found in the Machinery's Handbook. Permission to simplify and print the equations is granted by the editor of the Machinery's Handbook.

**MATERIAL CONSTANTS**

| Type of Material | Hardness | Km (kPa) |
|---|---|---|
| Plain Carbon and Alloy Steel | 85 - 200 BHN<br>200 - 275 BHN<br>275 - 375 BHN<br>375 - 425 BHN | 5.45<br>6.48<br>6.89<br>7.93 |
| High Temperature Alloys | | 9.93 |
| Titanium Alloy | | 4.96 |
| Stainless Steel | 135 - 275 BHN<br>30 - 45 RC | 6.48<br>7.45 |
| Cast Iron | 100 - 200 BHN<br>200 - 300 BHN | 3.45<br>7.45 |
| Copper Alloy | 20 - 80 RB<br>80 - 100 RB | 2.96<br>4.96 |
| Aluminium Alloy | | 1.52 |
| Magnesium Alloy | | 1.10 |

## Drill Inserts Coolant Recommendations

Inch and Metric




| Diameter | Metric | | Inch | |
|---|---|---|---|---|
| | BAR | LPM | PSI | GPM |
| 11mm | 35 | 19 | 500 | 5 |
| 12mm | 35 | 19 | 500 | 5 |
| 14mm | 31 | 23 | 450 | 6 |
| 16mm | 28 | 30 | 410 | 8 |
| 18mm | 25 | 34 | 360 | 9 |
| 20mm | 21 | 38 | 300 | 10 |
| 22mm | 21 | 42 | 300 | 11 |
| 24mm | 21 | 42 | 300 | 11 |
| 26mm | 21 | 46 | 300 | 12 |
| 29mm | 21 | 46 | 300 | 12 |
| 32mm | 21 | 46 | 300 | 12 |

The coolant pressure and flow rate recommendation above, represents a good approximation to obtain optimum tool life and chip evacuation at AMEC® recommended speeds and feeds for 3x & 5x diameter holder lengths. Please multiply the above by 1.5 when using the 7x diameter holder. For a more specific approximation of coolant requirements, consult the AMEC® Application Engineering Department.



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| TAP DRILL INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Metric Profile Screw Thread | | | | | | |
| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Prob Mean Oversize | Prob Hole Size | ** Prob % Thread |
| 12 x 1,75 | 10.2mm | .4016" | 79% | 0.075mm | 10.28mm | 76% |
| | 13.32 | .4063" | 74% | 0.075mm | 10.40mm | 71% |
| 12 x 1,25 | 27/64" | .4219" | 79% | 0.075mm | 10.79mm | 74% |
| | 10.8mm | .4252" | 74% | 0.075mm | 10.88mm | 69% |
| 14 x 2,0 | 15/32" | ..4688" | 81% | 0.075mm | 11.98mm | 78% |
| | 12.0mm | .4724" | 77% | 0.075mm | 12.08mm | 74% |
| 14 x 1,5 | 12.5mm | .4921" | 77% | 0.075mm | 12.58mm | 73% |
| 16 x 2,0 | 14.0mm | .5512" | 77% | 0.075mm | 14.08mm | 74% |
| 16 x 1,5 | 14.5mm | .5709" | 77% | 0.075mm | 14.58mm | 73% |
| | 37/64" | .5781" | 68% | 0.075mm | 14.76mm | 64% |
| 18 x 2,5 | 15.5mm | .6102" | 77% | 0.075mm | 15.58mm | 75% |
| 18 x 1,5 | 16.5mm | .6496" | 77% | 0.075mm | 16.58mm | 73% |
| | 21/32" | .6563" | 68% | 0.075mm | 16.75mm | 64% |
| 20 x 2,5 | 11/16" | .6875" | 78% | 0.075mm | 17.54mm | 76% |
| | 17.5mm | .6890" | 77% | 0.075mm | 17.58mm | 74% |
| 20 x 1,5 | 18.5mm | .7283" | 77% | 0.075mm | 18.58mm | 73% |
| | 47/64" | .7344" | 69% | 0.075mm | 18.66mm | 65% |
| 22 x 2,5 | 49/64" | .7656" | 79% | 0.075mm | 19.52mm | 76% |
| | 19.5mm | .7677" | 77% | 0.075mm | 19.58mm | 75% |
| 22 x 1,5 | 20.5mm | .8071" | 77% | 0.075mm | 20.58mm | 73% |
| | 13/16" | .8125" | 70% | 0.075mm | 20.71mm | 66% |
| 24 x 3 | 13/16" | .8125" | 86% | 0.075mm | 20.71mm | 84% |
| | 21.0mm | .8268" | 76% | 0.075mm | 21.08mm | 75% |
| 24 x 2 | 22.0mm | .8661" | 77% | 0.075mm | 22.08mm | 74% |
| | 7/8" | .8750" | 68% | 0.075mm | 22.30mm | 65% |
| 27 x 3 | 24.0mm | .9449" | 77% | 0.075mm | 24.08mm | 75% |

*Based on nominal tap drill diameter. **Based on 0.075mm probable mean oversize.

To calculate percent of full thread for a given hole diameter:

$$\% \text{ Thread} = \frac{76{,}93}{\text{Pitch mm}} \left( \text{Basic Major Diameter (mm)} - \text{drill Hole Size (mm)} \right)$$

| Taper Pipe Thread (BSP & ISO 7-1) | | | | | | |
|---|---|---|---|---|---|---|
| Metric Profile Screw Thread | | | | | | |
| Tap Size | Tap Drill Size | Decimal Equivalent | * Theo % Thread | Prob Mean Oversize | Prob Hole Size | ** Prob % Thread |
| 1/4" - 19 | 7/16" | .4325" | N/A | 0.075mm | 11.19mm | N/A |
| 3/8" - 19 | 37/64" | .5781" | N/A | 0.075mm | 14.76mm | N/A |
| 1/2" - 14 | 23/32" | .7188" | N/A | 0.075mm | 18.33mm | N/A |
| 3/4" - 14 | 15/16" | .9375" | N/A | 0.075mm | 23.89mm | N/A |

The above tap drill information represents probable thread percentages for the standard tap drills stocked at AMEC®. Special insert diameters may be required in order to meet a user specific percentage of thread requirements. The 0.075mm probable mean oversize hole condition is based on optimum cutting conditions. Probable % of full thread may vary based on less ideal cutting conditions.

## Structural Steel Recommended Cutting Data - Series 12 - 32

| Substrate | Material Hardness (BHN) | Speed (M/min) Mist Coolant AM300® | Speed (M/min) Mist Coolant AM200® | FEED (mm/rev) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 20 | 22 | 24 | 26 | 29 | 32 |
| K35 Carbide | 100 - 150 | 87 | 75 | 0.28 | 0.28 | 0.30 | 0.30 | 0.30 | 0.30 | 0.36 | 0.36 | 0.36 | 0.36 | 0.45 | 0.45 | 0.47 |
| | 150 - 250 | 70 | 61 | 0.24 | 0.24 | 0.27 | 0.27 | 0.27 | 0.28 | 0.33 | 0.33 | 0.33 | 0.33 | 0.42 | 0.42 | 0.43 |
| | 250 - 350 | 65 | 57 | 0.20 | 0.20 | 0.24 | 0.24 | 0.24 | 0.28 | 0.30 | 0.30 | 0.30 | 0.30 | 0.33 | 0.33 | 0.40 |

• 0.80 multiplier for feed rate on 7 x Diameter holder

*IMPORTANT NOTE: - The speeds and feeds listed above are considered a general guideline for all applications. In the case of extreme ductile steels a further reduction in speed of 20% should be applied. Factory technical assistance is also available for your specific applications through our Application Engineering Team.*

**mm/min = (RPM) • (mm/rev)** **M/min = RPM • 0.003 • Dia** **RPM = M/min • (318.47/Dia)**

# Technical Section - GEN3SYS®XT & GEN3SYS®

## Recommended Cutting Data - Series 11 - 17

| Material Category | Hardness | | | Grade | GEN3SYS XT AM300™ M/min | GEN3SYS AM200® M/min | Feed (mm/rev) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BHN | kg | N/mm² | | | | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | | | | | | | 11.00 to 11.99 | 12.00 to 12.99 | 13.00 to 13.99 | 14.00 to 14.99 | 15.00 to 15.99 | 16.00 to 16.99 | 17.00 to 17.99 |
| **Free Machining Steel** 118,1215, 12L14,etc | 100-150 | 38-50 | 370-500 | K35 | 168 | 146 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 |
| | 150-200 | 50-70 | 500-700 | K35 | 145 | 127 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 |
| | 200-250 | 70-88 | 700-870 | K35 | 130 | 119 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 |
| **Low Carbon Steel** 1010, 1020, 1025, 1522, 1144, etc | 85-125 | 30-46 | 300-450 | K35 | 158 | 137 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 |
| | 125-175 | 46-62 | 450-600 | K35 | 137 | 119 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 |
| | 175-225 | 62-77 | 600-775 | K35 | 125 | 108 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 |
| | 225-275 | 77-96 | 775-940 | K35 | 107 | 95 | 0.18 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 |
| **Medium Carbon Steel** 1030, 1040, 1050, 1527, 1140, 1151, etc | 125-175 | 46-62 | 450-600 | K35 | 137 | 119 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 |
| | 175-225 | 62-77 | 600-775 | K35 | 125 | 108 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 |
| | 225-275 | 77-96 | 775-940 | K35 | 107 | 95 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 |
| | 275-325 | 96-111 | 940-1090 | K35 | 91 | 81 | 0.18 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 |
| **Alloy Steel** 4140, 5140, 8640, etc | 125-175 | 46-62 | 450-600 | K35 | 126 | 114 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 |
| | 175-225 | 62-77 | 600-775 | K35 | 116 | 105 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 |
| | 225-275 | 77-96 | 775-940 | K35 | 104 | 95 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 |
| | 275-325 | 96-111 | 940-1090 | K35 | 94 | 87 | 0.15 | 0.18 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 |
| | 325-375 | 111-129 | 1090-1265 | K35 | 85 | 78 | 0.15 | 0.15 | 0.18 | 0.20 | 0.23 | 0.25 | 0.28 |
| **High Strength Steel** 4340, 4330V, 300M, etc | 225-300 | 77-104 | 600-1020 | K35 | 76 | 70 | 0.20 | 0.23 | 0.25 | 0.28 | 0.28 | 0.30 | 0.33 |
| | 300-350 | 104-121 | 1020-1180 | K35 | 69 | 63 | 0.15 | 0.18 | 0.20 | 0.23 | 0.25 | 0.28 | 0.28 |
| | 350-400 | 121-139 | 1180-1365 | K35 | 61 | 56 | 0.13 | 0.15 | 0.18 | 0.20 | 0.23 | 0.25 | 0.25 |
| **Structural Steel** A36, A285, A516, etc | 100-150 | 38-50 | 370-500 | K35 | 125 | 108 | 0.25 | 0.28 | 0.30 | 0.33 | 0.33 | 0.38 | 0.38 |
| | 150-250 | 50-88 | 500-850 | K35 | 101 | 87 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 |
| | 250-350 | 88-121 | 850-1180 | K35 | 93 | 81 | 0.18 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 |
| **Tool Steel** H-13, H-21, A-4, 0-2, S-3 | 150-200 | 50-70 | 500-700 | K35 | 81 | 78 | 0.15 | 0.18 | 0.18 | 0.20 | 0.20 | 0.23 | 0.23 |
| | 200-250 | 70-88 | 700-870 | K35 | 62 | 59 | 0.13 | 0.15 | 0.15 | 0.18 | 0.18 | 0.20 | 0.20 |
| **High Temp Alloy** | 140-220 | 49-77 | 480-755 | K20 | 40 | 37 | 0.15 | 0.18 | 0.18 | 0.20 | 0.20 | 0.23 | 0.23 |
| | 223-310 | 77-101 | 755-990 | K20 | 30 | 29 | 0.13 | 0.15 | 0.15 | 0.18 | 0.18 | 0.20 | 0.20 |
| **Titanium Alloy** | 140-220 | 49-77 | 480-755 | K20 | 43 | 42 | 0.13 | 0.15 | 0.17 | 0.20 | 0.20 | 0.22 | 0.22 |
| | 220-310 | 77-101 | 755-990 | K20 | 34 | 33 | 0.10 | 0.12 | 0.15 | 0.17 | 0.17 | 0.20 | 0.20 |
| **Aerospace Alloy** S82 | 185-275 | 65-96 | 640-940 | K20 | 50 | 45 | 0.10 | 0.10 | 0.12 | 0.14 | 0.15 | 0.16 | 0.18 |
| | 275-350 | 96-121 | 940-1180 | K20 | 41 | 37 | 0.09 | 0.09 | 0.10 | 0.12 | 0.14 | 0.15 | 0.16 |
| **Stainless Steel 400 Series** 416, 420 | 185-275 | 65-96 | 640-940 | K20 | 73 | 73 | 0.15 | 0.18 | 0.18 | 0.20 | 0.20 | 0.23 | 0.25 |
| | 275-350 | 96-121 | 940-1180 | K20 | 56 | 56 | 0.13 | 0.15 | 0.15 | 0.18 | 0.18 | 0.20 | 0.23 |
| **Stainless Steel 300 Series** 304, 316, 17-4PH | 135-185 | 49-65 | 480-640 | K20 | 67 | 64 | 0.10 | 0.13 | 0.13 | 0.15 | 0.15 | 0.18 | 0.18 |
| | 185-275 | 65-96 | 640-940 | K20 | 49 | 47 | 0.08 | 0.10 | 0.10 | 0.13 | 0.13 | 0.15 | 0.15 |
| **Super Duplex Duplex St.Stl** | 135-185 | 49-65 | 480-640 | K20 | 38 | 38 | 0.07 | 0.07 | 0.09 | 0.10 | 0.11 | 0.12 | 0.13 |
| | 185-275 | 65-96 | 640-940 | K20 | 30 | 30 | 0.06 | 0.06 | 0.08 | 0.09 | 0.10 | 0.11 | 0.12 |
| **Hardox** | 400 | 139 | 1365 | K35 | 49 | 45 | 0.13 | 0.13 | 0.15 | 0.17 | 0.19 | 0.21 | 0.23 |
| | 500 | 160 | 1600 | K35 | 40 | 37 | 0.11 | 0.11 | 0.13 | 0.15 | 0.17 | 0.19 | 0.21 |
| | 600 | 210 | 2000 | K20 | 27 | 25 | 0.10 | 0.10 | 0.11 | 0.13 | 0.15 | 0.17 | 0.19 |
| **Hardened Steel** | 300-400 | 104-139 | 1020-1365 | K35 | 51 | 47 | 0.13 | 0.13 | 0.15 | 0.17 | 0.19 | 0.21 | 0.22 |
| | 400-500 | 139+ | 1365+ | K35 | 40 | 37 | 0.11 | 0.11 | 0.13 | 0.15 | 0.17 | 0.19 | 0.20 |
| **SG/Nodular Cast Iron** | 120-150 | 44-50 | 430-500 | K20 | 168 | 146 | 0.27 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.46 |
| | 150-200 | 50-70 | 500-700 | K20 | 159 | 138 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.43 |
| | 200-220 | 70-77 | 700-755 | K20 | 141 | 123 | 0.22 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.41 |
| | 220-260 | 77-90 | 755-890 | K20 | 124 | 108 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.38 |
| | 260-320 | 90-104 | 890-1020 | K20 | 112 | 97 | 0.20 | 0.21 | 0.23 | 0.25 | 0.28 | 0.30 | 0.36 |
| **Grey/White Iron** | 120-150 | 44-50 | 430-500 | K20 | 175 | 152 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 | 0.48 |
| | 150-200 | 50-70 | 500-700 | K20 | 168 | 146 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.46 |
| | 200-220 | 70-77 | 700-755 | K20 | 151 | 131 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.43 |
| | 220-260 | 77-90 | 755-890 | K20 | 130 | 113 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.41 |
| | 260-320 | 90-104 | 890-1020 | K20 | 116 | 102 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 |
| **Cast Aluminium** | 30 | 10 | 100 | K20 | 351 | 300 | 0.30 | 0.33 | 0.35 | 0.38 | 0.40 | 0.43 | 0.45 |
| | 180 | 62 | 600 | TiCN | 262 | 225 | 0.28 | 0.30 | 0.33 | 0.35 | 0.38 | 0.40 | 0.43 |
| **Wrought Aluminium** | 30 | 10 | 100 | K20 | 488 | 425 | 0.33 | 0.38 | 0.40 | 0.43 | 0.45 | 0.48 | 0.50 |
| | 180 | 62 | 600 | K20 | 351 | 300 | 0.30 | 0.35 | 0.38 | 0.40 | 0.43 | 0.45 | 0.48 |
| **Aluminium Bronze** | 100-200 | 38-68 | 370-670 | K20 | 126 | 110 | 0.26 | 0.28 | 0.30 | 0.32 | 0.34 | 0.36 | 0.38 |
| | 200-250 | 68-87 | 670-855 | K20 | 103 | 90 | 0.22 | 0.24 | 0.26 | 0.28 | 0.30 | 0.32 | 0.34 |
| **Brass** | 100 | 38 | 370 | K20 | 230 | 200 | 0.27 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 |
| **Copper** | 60 | 21 | 200 | K20 | 149 | 130 | 0.07 | 0.08 | 0.09 | 0.11 | 0.13 | 0.15 | 0.16 |

**.80 Multiplier for 7 x Diameter**

**Formulas:** mm/min = rev/min • mm/rev  M/min = rev/min • 0.003 • DIA  rev/min = M/min • 318.47/DIA


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## Recommended Cutting Data - Series 18 - 32

| Material Category | Hardness BHN | Hardness kg | Hardness N/mm² | Grade | GEN3SYS XT AM300™ M/min | GEN3SYS AM200® M/min | Feed (mm/rev) 18 (18.00 to 19.99) | 20 (20.00 to 21.99) | 22 (22.00 to 23.99) | 24 (24.00 to 25.99) | 26 (26.00 to 28.99) | 29 (29.00 to 31.99) | 32 (32.00 to 35.00) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Free Machining Steel** 118,1215, 12L14,etc | 100-150 | 38-50 | 370-500 | K35 | 168 | 146 | 0.48 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 |
| | 150-200 | 50-70 | 500-700 | K35 | 145 | 127 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| | 200-250 | 70-88 | 700-870 | K35 | 130 | 119 | 0.41 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| **Low Carbon Steel** 1010, 1020, 1025, 1522, 1144, etc | 85-125 | 30-46 | 300-450 | K35 | 158 | 137 | 0.48 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 |
| | 125-175 | 46-62 | 450-600 | K35 | 137 | 119 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| | 175-225 | 62-77 | 600-775 | K35 | 125 | 108 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| | 225-275 | 77-96 | 775-940 | K35 | 107 | 95 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 |
| **Medium Carbon Steel** 1030, 1040, 1050, 1527, 1140, 1151, etc | 125-175 | 46-62 | 450-600 | K35 | 137 | 119 | 0.46 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| | 175-225 | 62-77 | 600-775 | K35 | 125 | 108 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| | 225-275 | 77-96 | 775-940 | K35 | 107 | 95 | 0.41 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| | 275-325 | 96-111 | 940-1090 | K35 | 91 | 81 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 |
| **Alloy Steel** 4140, 5140, 8640, etc | 125-175 | 46-62 | 450-600 | K35 | 126 | 114 | 0.46 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| | 175-225 | 62-77 | 600-775 | K35 | 116 | 105 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| | 225-275 | 77-96 | 775-940 | K35 | 104 | 95 | 0.41 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| | 275-325 | 96-111 | 940-1090 | K35 | 94 | 87 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 | 0.51 |
| | 325-375 | 111-129 | 1090-1265 | K35 | 85 | 78 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 |
| **High Strength Steel** 4340, 4330V, 300M, etc | 225-300 | 77-104 | 600-1020 | K35 | 76 | 70 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 | 0.48 | 0.51 |
| | 300-350 | 104-121 | 1020-1180 | K35 | 69 | 63 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 | 0.46 |
| | 350-400 | 121-139 | 1180-1365 | K35 | 61 | 56 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 |
| **Structural Steel** A36, A285, A516, etc | 100-150 | 38-50 | 370-500 | K35 | 125 | 108 | 0.43 | 0.48 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| | 150-250 | 50-88 | 500-850 | K35 | 101 | 87 | 0.38 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| | 250-350 | 88-121 | 850-1180 | K35 | 93 | 81 | 0.36 | 0.38 | 0.43 | 0.48 | 0.51 | 0.53 | 0.56 |
| **Tool Steel** H-13, H-21, A-4, 0-2, S-3 | 150-200 | 50-70 | 500-700 | K35 | 81 | 78 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 |
| | 200-250 | 70-88 | 700-870 | K35 | 62 | 59 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 |
| **High Temp Alloy** | 140-220 | 49-77 | 480-755 | K20 | 40 | 37 | 0.25 | 0.28 | 0.28 | 0.30 | 0.30 | 0.33 | 0.36 |
| | 223-310 | 77-101 | 755-990 | K20 | 30 | 29 | 0.23 | 0.25 | 0.25 | 0.28 | 0.28 | 0.30 | 0.33 |
| **Titanium Alloy** | 140-220 | 49-77 | 480-755 | K20 | 43 | 42 | 0.25 | 0.28 | 0.28 | 0.30 | 0.30 | 0.33 | 0.33 |
| | 220-310 | 77-101 | 755-990 | K20 | 34 | 33 | 0.22 | 0.25 | 0.25 | 0.28 | 0.28 | 0.30 | 0.30 |
| **Aerospace Alloy** S82 | 185-275 | 65-96 | 640-940 | K20 | 50 | 45 | 0.18 | 0.20 | 0.22 | 0.24 | 0.26 | 0.28 | 0.31 |
| | 275-350 | 96-121 | 940-1180 | K20 | 41 | 37 | 0.16 | 0.18 | 0.20 | 0.22 | 0.24 | 0.26 | 0.29 |
| **Stainless Steel 400 Series** 416, 420 | 185-275 | 65-96 | 640-940 | K20 | 73 | 73 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 | 0.43 |
| | 275-350 | 96-121 | 940-1180 | K20 | 56 | 56 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.38 | 0.41 |
| **Stainless Steel 300 Series** 304, 316, 17-4PH | 135-185 | 49-65 | 480-640 | K20 | 67 | 64 | 0.20 | 0.20 | 0.23 | 0.23 | 0.25 | 0.25 | 0.28 |
| | 185-275 | 65-96 | 640-940 | K20 | 49 | 47 | 0.18 | 0.18 | 0.20 | 0.20 | 0.23 | 0.23 | 0.25 |
| **Super Duplex Duplex St.Stl** | 135-185 | 49-65 | 480-640 | K20 | 38 | 38 | 0.15 | 0.16 | 0.18 | 0.20 | 0.20 | 0.22 | 0.25 |
| | 185-275 | 65-96 | 640-940 | K20 | 30 | 30 | 0.14 | 0.15 | 0.16 | 0.18 | 0.18 | 0.20 | 0.22 |
| **Hardox** | 400 | 139 | 1365 | K35 | 49 | 45 | 0.25 | 0.27 | 0.27 | 0.29 | 0.29 | 0.31 | 0.31 |
| | 500 | 160 | 1600 | K35 | 40 | 37 | 0.23 | 0.25 | 0.25 | 0.27 | 0.27 | 0.29 | 0.29 |
| | 600 | 210 | 2000 | K20 | 27 | 25 | 0.21 | 0.23 | 0.23 | 0.25 | 0.25 | 0.27 | 0.27 |
| **Hardened Steel** | 300-400 | 104-139 | 1020-1365 | K35 | 51 | 47 | 0.23 | 0.25 | 0.25 | 0.27 | 0.27 | 0.29 | 0.29 |
| | 400-500 | 139+ | 1365+ | K35 | 40 | 37 | 0.21 | 0.23 | 0.23 | 0.25 | 0.25 | 0.27 | 0.27 |
| **SG/Nodular Cast Iron** | 120-150 | 44-50 | 430-500 | K20 | 168 | 146 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 |
| | 150-200 | 50-70 | 500-700 | K20 | 159 | 138 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.63 |
| | 200-220 | 70-77 | 700-755 | K20 | 141 | 123 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.60 |
| | 220-260 | 77-90 | 755-890 | K20 | 124 | 108 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| | 260-320 | 90-104 | 890-1020 | K20 | 112 | 97 | 0.38 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 | 0.55 |
| **Grey/White Iron** | 120-150 | 44-50 | 430-500 | K20 | 175 | 152 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 | 0.69 |
| | 150-200 | 50-70 | 500-700 | K20 | 168 | 146 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 | 0.66 |
| | 200-220 | 70-77 | 700-755 | K20 | 151 | 131 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| | 220-260 | 77-90 | 755-890 | K20 | 130 | 113 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.61 |
| | 260-320 | 90-104 | 890-1020 | K20 | 116 | 102 | 0.43 | 0.46 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 |
| **Cast Aluminium** | 30 | 10 | 100 | K20 | 351 | 300 | 0.48 | 0.50 | 0.53 | 0.56 | 0.58 | 0.61 | 0.64 |
| | 180 | 62 | 600 | TiCN | 262 | 225 | 0.45 | 0.48 | 0.51 | 0.53 | 0.56 | 0.58 | 0.58 |
| **Wrought Aluminium** | 30 | 10 | 100 | K20 | 488 | 425 | 0.55 | 0.58 | 0.61 | 0.66 | 0.68 | 0.74 | 0.76 |
| | 180 | 62 | 600 | K20 | 351 | 300 | 0.50 | 0.55 | 0.58 | 0.63 | 0.66 | 0.71 | 0.74 |
| **Aluminium Bronze** | 100-200 | 38-68 | 370-670 | K20 | 126 | 110 | 0.40 | 0.42 | 0.44 | 0.46 | 0.48 | 0.48 | 0.50 |
| | 200-250 | 68-87 | 670-855 | K20 | 103 | 90 | 0.36 | 0.38 | 0.42 | 0.48 | 0.46 | 0.46 | 0.48 |
| **Brass** | 100 | 38 | 370 | K20 | 230 | 200 | 0.48 | 0.53 | 0.56 | 0.60 | 0.63 | 0.66 | 0.66 |
| **Copper** | 60 | 21 | 200 | K20 | 149 | 130 | 0.18 | 0.20 | 0.20 | 0.22 | 0.25 | 0.25 | 0.28 |

**Speed and Feed Recommendation Example:** If recommended speed and feed is 61M/min and 0.20 mm/rev for a 3 x diameter or 5 x diameter holder, then the speed and feeds using a 7 x diameter holder in the same application would be 48.8M/min and 0.16mm/rev.

**Example:** **61 M/min • 0.80 = 48.8 M/min** **0.20 mm/rev • 0.80 = 0.16mm/rev**

# Troubleshooting Guide



| Potential Problem / Setup Condition | 1 Accelerated corner wear | 2 Barber pole | 3 Bell mouth hole | 4 Blade chipping | 5 Blue chips | 6 Build Up Edge (BUE) | 7 Chatter | 8 Chip packing | 9 Chipping of point | 10 Damaged or broken tools | 11 Excessive margin wear | 12 High flank wear | 13 Hole lead off | 14 Hole out of position | 15 Hole out of round | 16 Notching of blade | 17 Oversize hole | 18 Poor hole finish | 19 Poor tool life | 20 Power spikes - Load meter | 21 Retract spiral | 22 Step burned | Action required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Worn is mis-aligned spindle (lathe, screw machine, chucker) | 1 | | 3 | | | | 7 | | 9 | 10 | 11 | | 13 | | | | 17 | 18 | | | 21 | | • Align spindle and turret or tailstock.<br>• Repair spindle.<br>• Spot hole with stub tool of same or greater included angle as GEN3SYS® Drill Insert. |
| Use of low rigidity machine tools | | 2 | 3 | 4 | | | 7 | | 9 | 10 | | | 13 | 14 | | | | | | | 21 | | • Spot hole with stub tool of same or greater included angle as GEN3SYS® Drill Insert.<br>• Reduce penetration rate to fall within the physical limits of the machine or setup (Caution: do not reduce feed below threshold of good chip formation).<br>• Use special holder with wear pads or chrome bearing area to work with drill bushing. |
| Poor work piece support | | 2 | | 4 | | | 7 | | | 10 | 11 | | | | 15 | | | 18 | | | 21 | | • Provide additional support for the work piece.<br>• Reduce penetration rate to fall within the physical limits of the machine or setup (Caution: do not reduce feed below threshold of good chip control). |
| Flood coolant, low coolant pressure or low coolant volume | 1 | | | | 5 | 6 | | 8 | | 10 | | 12 | | | | | 17 | 18 | 19 | 20 | | 22 | • Run coolant through tool holder when drilling greater than one times diameter.<br>• Increase coolant pressure and volume through the tool holder.<br>• Reduce penetration rate to fall within the coolant limitations (Caution: do not reduce feed below threshold of good chip formation<br>• Add a peck cycle to help clear chips. |
| Interrupted cuts. Entry or exit surfaces that are not perpendicular to the spindle. (draft angles, parting lines, curved or stepped surfaces, cross holes and cast or forged surfaces) | | | | 4 | | | 7 | | 9 | 10 | 11 | | 13 | 14 | 15 | | 17 | 18 | 19 | | | | • Pre-mill (spot face) entry or exit surface to remove interruption.<br>• Spot hole with stub tool of same or greater included angle as GEN3SYS® Drill Insert.<br>• Decrease feed as much as 50% through entry or exit interruption.<br>• Use short holders in low impact entry cuts. |
| Material harder than expected or running tools beyond recommended speed | 1 | | | | 5 | 6 | | | | 10 | | 12 | | | | | | | 19 | | | 22 | • Reduce speed. If a step is worn in the blade, calculate SFM at the worn diameter. Reduce this value by 10% and apply this new value to the original tool diameter.<br>• Increase coolant pressure and volume.<br>• Improve coolant condition by use of quality products and regular maintenance. |
| Poor chip control | | | | 4 | | 6 | | | | 10 | | 12 | 13 | | | 16 | | | 19 | | | | • Compare performance of other tools for similar wear problems, which may indicate poor micro-structure. Anneal or normalize parts to improve micro-structure for machining.<br>• To improve tool life in materials with poor micro-structure try carbide grades.<br>• Reduce feeds. (Caution: Do not reduce feed below threshold of good chip formation). |
| Poor material micro-structure of foreign particles: (forgings and castings that have not been normalized or annealed, poorly prepared steel, flame cut parts and sand casting). | | | | | | | | 8 | | 10 | 11 | | 13 | | | | 17 | 18 | 19 | 20 | | | • Increase feed to recommended levels. Contact Allied Application Engineering for technical recommendations.<br>• Increase coolant pressure and volume.<br>• Improve coolant condition by use of quality products and regular maintenance. |
| Spot drilled holes with included angle less than that matching GEN3SYS® or cored holes | 1 | | | 4 | | | 7 | | | | | | 13 | | | 16 | | | 19 | | | | • Spot hole with short tool of same or greater included angle as GEN3SYS® Drill Insert.<br>• Reduce feed. (Caution: Do not reduce feed below threshold of good chip formation.) If possible, drill from solid. |


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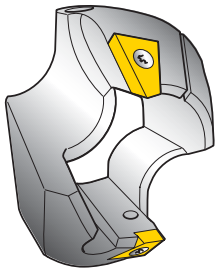
## T-A® Accessories

### T-ACR45™ Chamfer Ring

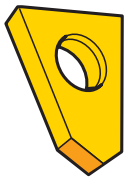


NOTE:
IC inserts
sold separately

| Item Number | Fits Series | Minimum Drill Ø | Maximum Drill Ø | Maximum Chamfer Ø | A Chamfer Ring Ø | B Chamfer Ring Length | Stk. |
|---|---|---|---|---|---|---|---|
| T-ACR-45-0 | 0 | 13.00 | 17.50 | 20.68 | 30.48 | 17.17 | • |
| T-ACR-45-1 | 1 | 17.53 | 21.69 | 26.59 | 34.93 | 20.24 | • |
| T-ACR45-1.5 | 1.5 | 21.70 | 24.38 | 28.58 | 39.69 | 22.62 | • |
| T-ACR45-2 | 2 | 24.41 | 35.05 | 39.83 | 45.64 | 25.40 | • |

T-ACR 45™ Chamfer Rings are designed for use with stub, short, intermediate and standard straight fluted T-A® Drilling System holders only in Series 0 to 2

### Chamfer Ring Insert & Accessories



| Item Number | Insert Screw | Torx Plus Driver |
|---|---|---|
| T-ACRI-45-B-C5A | 72556-IP8-10 | 8IP-8 |

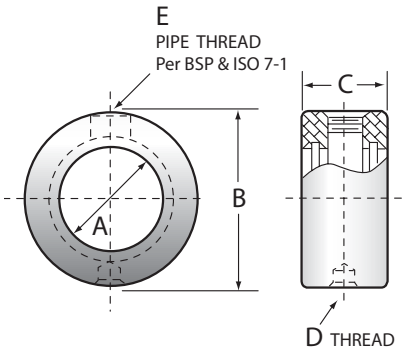
NOTE: Inserts sold in packs of two

| Fits Series | Clamping Screw | Torx Plus Driver |
|---|---|---|
| 0 | 7375-IP9-10 | 8IP-9 |
| 1 & 1.5 | 7495-IP15-10 | 8IP-15 |
| 2 | 7514-IP20-10 | 8IP-20 |

NOTE: Screws sold in packs of ten

## T-A® and GEN3SYS® Accessories

### Rotary Coolant Adapters (RCA)



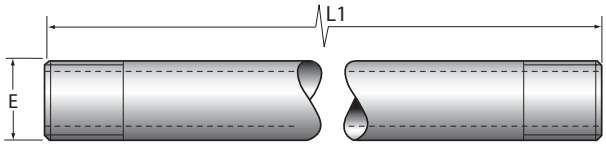

| Item Number | (A) I.D. | (B) O.D. | (C) Length | (D) Thread Driving Rod | (E) Pipe Tap |
|---|---|---|---|---|---|
| 2T-2SRM | 19.05 | 44.45 | 22.23 | M8 | 1/8" |
| 2T-3SRM | 25.40 | 53.97 | 28.57 | M8 | 1/8" |
| 2T-4SRM | 31.75 | 63.50 | 34.92 | M10 | 1/4" |
| 2T-5SRM | 44.45 | 76.20 | 34.92 | M10 | 1/4" |
| 2T-6SRM | 57.15 | 95.27 | 44.45 | M12 | 1/2" |

Items included: (1) Inducer Ring, (2) O-Rings, (2) Snap Rings and (2) Thrust Washers.

*For RCA repair kit see page 143.*

***Note: Always use a steady bar when using a RCA adaptor***

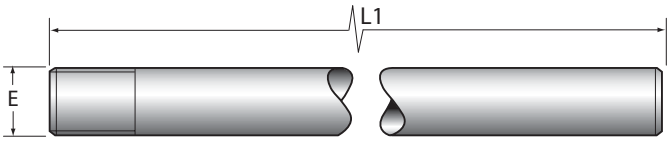
### Coolant Pipe Extension/Steady Bar




***Note: Always use a steady bar when using a RCA adaptor***

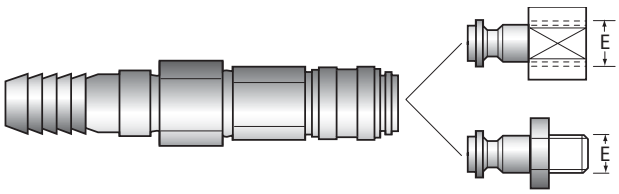
| Item Number | Nominal Pipe Thread E | L1 mm |
|---|---|---|
| 302T-2SRM | 1/8" | 150 |
| 302T-3SRM | 1/8" | 150 |
| 302T-4SRM | 1/4" | 200 |
| 302T-5SRM | 1/4" | 200 |
| 302T-6SRM | 1/2" | 200 |

### Solid Steady Bar




| Item Number | Thread Size E | L1 mm |
|---|---|---|
| 312T-2SRM | M8 | 250 |
| 312T-3SRM | M8 | 250 |
| 312T-4SRM | M10 | 250 |
| 312T-5SRM | M10 | 250 |
| 312T-6SRM | M12 | 250 |

### Fast Action Coupling




| Item Number | Nominal Pipe Thread E | Hose Ø |
|---|---|---|
| 322T-2SRM | 1/8" | 9mm |
| 322T-3SRM | 1/8" | 9mm |
| 322T-4SRM | 1/4" | 9mm |
| 322T-5SRM | 1/4" | 12mm |
| 322T-6SRM | 1/2" | 12mm |



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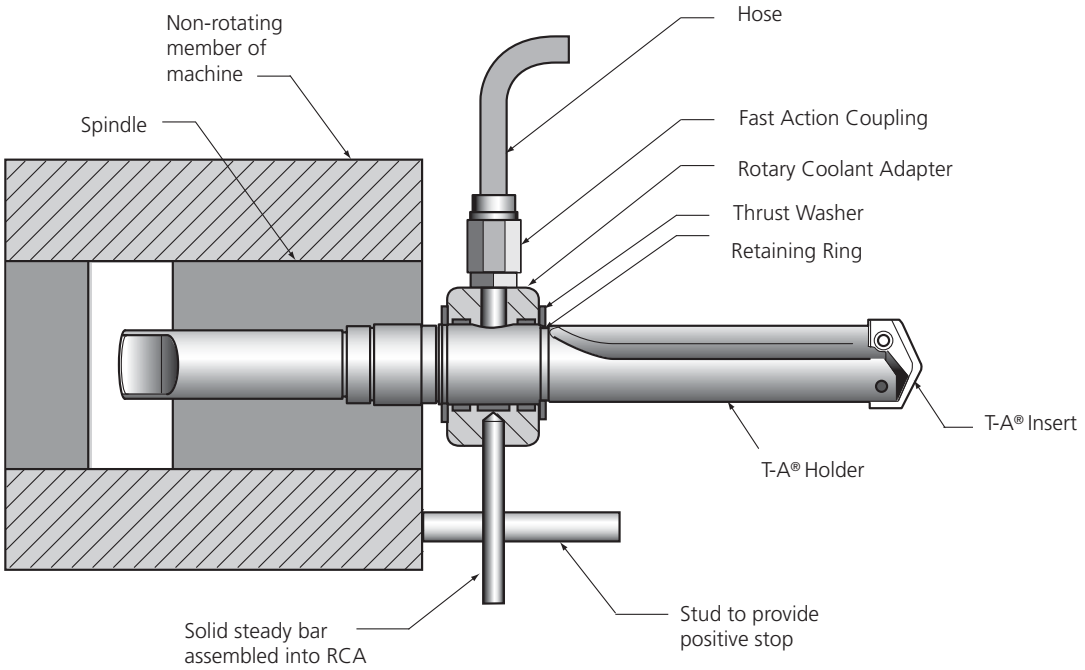
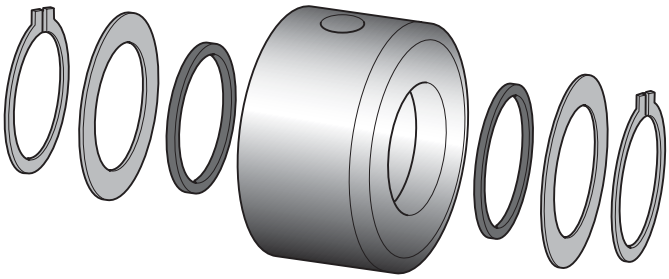
## RCA Assembly




## RCA Assembly & Repair Kit



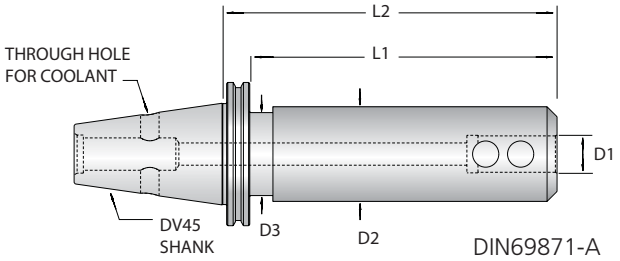
| | | Catalogue Number |
|---|---|---|
| **Item Number** | **Drill Range** | **RCA Repair Kit** |
| 2T-2SRM | 9.50 - 11.07mm | 2T1-2SR |
| 2T-2SRM | 11.10 - 12.95mm | 2T1-2SR |
| 2T-2SRM | 12.98 - 17.65mm | 2T1-2SR |
| 2T-3SRM | 17.53 - 24.38mm | 2T1-3SR |
| 2T-3SRM | 24.41 - 35.05mm | 2T1-3SR |
| 2T-4SRM | 30.00 - 35.05mm | 2T1-4SR |
| 2T-4SRM | 34.37 - 47.80mm | 2T1-4SR |
| 2T-5SRM | 46.99 - 65.28mm | 2T1-5SR |
| 2T-6SRM | 62.38 - 89.08mm | 2T1-6SR |
| 2T-6SRM | 87.76 - 114.48mm | 2T1-6SR |

RCA Repair Kit includes: (2) O-Rings, (2) Snap Rings and (2) Thrust Washers

## T-A® and GEN3SYS®/XT Adaptors

### DV45 Adaptor

Includes Lateral Side Coolant Hole

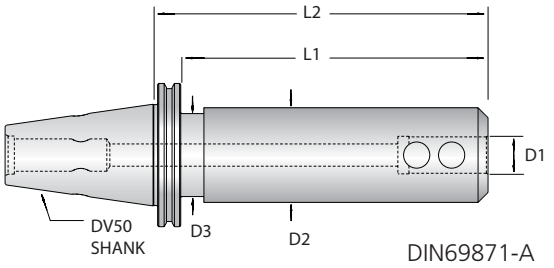



| Item Number | Outer Taper | D1 Inner Ø mm | D2 Ø | D3 Ø | L1 | L2 | Qty of Clamping Screws | Stk. |
|---|---|---|---|---|---|---|---|---|
| AMDV45-EM20-120 | DV45 | 20 | 52 | 57 | 101 | 120 | 1 | ● |
| AMDV45-EM25-120 | DV45 | 25 | 65 | 57 | 101 | 120 | 2 | ● |
| AMDV45-EM32-120 | DV45 | 32 | 78 | 57 | 101 | 120 | 2 | ● |
| AMDV45-EM20-230 | DV45 | 20 | 52 | 57 | 211 | 230 | 1 | ● |
| AMDV45-EM25-230 | DV45 | 25 | 65 | 57 | 211 | 230 | 2 | ● |
| AMDV45-EM32-230 | DV45 | 32 | 78 | 57 | 211 | 230 | 2 | ● |

## T-A® Adaptor

### DV50 Adaptor

Excludes Lateral Side Coolant Hole




| Item Number | Outer Taper | D1 Inner Ø mm | D2 Ø | D3 Ø | L1 | L2 | Qty of Clamping Screws | Stk. |
|---|---|---|---|---|---|---|---|---|
| AMDV50-EM-120 | DV50 | 50 | 100 | 69.85 | 100 | 120 | 2 | ● |



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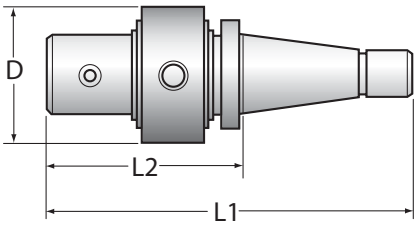
## T-A® & GEN3SYS® Adaptors

### DIN 2080 ISO Taper Shank Coolant Fed Holders




| Item Number | Outer Taper | Inner Ø mm | L1 mm | L2 mm | D Ø mm |
|---|---|---|---|---|---|
| 4020-5SRM | QC40 | 20 | 188.00 | 94.00 | 72.20 |
| 4025-5SRM | QC40 | 25 | 199.00 | 106.00 | 72.20 |
| 5020-5SRM | DT50 | 20 | 227.00 | 100.00 | 72.20 |
| 5025-5SRM | DT50 | 25 | 239.00 | 112.00 | 72.20 |
| 5032-6SRM | ST50 | 32 | 254.00 | 127.00 | 95.27 |

**Max coolant Pressure:** 40 Bar. **Max RPM:** 3000. **Suitable for Holders:** Y, Z, 0, 0.5, 1, 1.5, 2.0, 2.5 series

***Note: DIN 69871-A and BT50 tapers available upon request***

## T-A® Replacement TORX Plus Screws and Driver information

| Holder Series | Drill Range | Catalogue Number | | | Maximum Torque (N/cm) |
|---|---|---|---|---|---|
| | | TORX Plus® Hand Drivers | TORX Plus® Screws* | Nylon Locking TORX Screws* | |
| Y | 9.5mm - 11.07mm | 8IP-7 | 724-IP7-10 | 724N-IP7-10 | 84 |
| Z | 11.1mm - 12.95mm | 8IP-7 | 7247-IP7-10 | 7247N-IP7-10 | 84 |
| 0 | 12.98mm - 17.65mm | 8IP-8 | 72556-IP8-10 | 72556N-IP8-10 | 175 |
| 0.5 | 15.5mm - 17.65mm | 8IP-8 | 72567-IP8-10 | 72567N-IP8-10 | 175 |
| 1 | 17.53mm - 24.38mm | 8IP-9 | 7375-IP9-10 | 7375N-IP9-10 | 305 |
| 1.5 | 22.0mm - 24.38mm | 8IP-9 | 739-IP9-10 | 739N-IP9-10 | 305 |
| 2, 2.5 | 24.41mm - 35.05mm | 8IP-15 | 7495-IP15-10 | 7495N-IP15-10 | 690 |
| 3, 4 | 34.37mm - 65.28mm | 8IP-20 | 7514-IP20-10 | 7514N-IP20-10 | 1370 |
| 5-8 | 62.38mm - 114.48mm | 8IP-25 | 7619-IP25-10 | N/A | 1750 |

**Supplied in 10 piece packages.*

## GEN3SYS® Replacement TORX Plus Screws and Driver information

| Holder Series | Drill Range | Catalogue Number | | | | | TORX Plus Screw Recommended Tightening Torque (N/cm) |
|---|---|---|---|---|---|---|---|
| | | TORX Plus Hand Driver | Preset Torque TORX Plus Hand Driver | Replacement TORX Plus Tips | TORX Plus Screws* | Nylon Locking TORX Plus Screws* | |
| 11 | 11.00mm - 11.99mm | 8IP-6 | 8IP-6TL | 8IP-6B | 71843-IP6-10 | - | 50 |
| 12 | 12.00mm - 12.99mm | 8IP-7 | 8IP-7TL | 8IP-7B | 7247-IP7-10 | 7247N-IP7-10 | 84 |
| 13 | 13.00mm - 13.99mm | 8IP-7 | 8IP-7TL | 8IP-7B | 7247-IP7-10 | 7247N-IP7-10 | 84 |
| 14 | 14.00mm - 14.99mm | 8IP-7 | 8IP-7TL | 8IP-7B | 7247-IP7-10 | 7247N-IP7-10 | 84 |
| 15 | 15.00mm - 15.99mm | 8IP-7 | 8IP-7TL | 8IP-7B | 7247-IP7-10 | 7247N-IP7-10 | 84 |
| 16 | 16.00mm - 16.99mm | 8IP-8 | 8IP-8TL | 8IP-8B | 72556-IP8-10 | 72556N-IP8-10 | 175 |
| 17 | 17.00mm - 17.99mm | 8IP-8 | 8IP-8TL | 8IP-8B | 72567-IP8-10 | 72567N-IP8-10 | 175 |
| 18 | 18.00mm - 19.99mm | 8IP-9 | 8IP-9TL | 8IP-9B | 7375-IP9-10 | 7375N-IP9-10 | 305 |
| 20 | 20.00mm - 21.99mm | 8IP-9 | 8IP-9TL | 8IP-9B | 7375-IP9-10 | 7375N-IP9-10 | 305 |
| 22 | 22.00mm - 23.99mm | 8IP-9 | 8IP-9TL | 8IP-9B | 7375-IP9-10 | 7375N-IP9-10 | 305 |
| 24 | 24.00mm - 25.99mm | 8IP-9 | 8IP-9TL | 8IP-9B | 739-IP9-10 | 739N-IP9-10 | 305 |
| 26 | 26.00mm - 28.99mm | 8IP-15 | 8IP-15TL | 8IP-15B | 7495-IP15-10 | 7495N-IP15-10 | 690 |
| 29 | 29.00mm - 31.99mm | 8IP-15 | 8IP-15TL | 8IP-15B | 7495-IP15-10 | 7495N-IP15-10 | 690 |
| 32 | 32.00mm - 35.00mm | 8IP-15 | 8IP-15TL | 8IP-15B | 7495-IP15-10 | 7495N-IP15-10 | 690 |

Tightening torques are calculated with a friction coefficient of μ = 0.14 and develops 90% of ultimate yield strength

**Supplied in 10 piece packages.*



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# Revolution Drill™ & Core Drill™

**The AMEC® range of adjustable indexable carbide drills provide the ultimate in versatility with its revolutionary designed adjustable cartridge system and large diameter range from 38.10 to 142.75mm.**

## Features and Benefits

- Revolutionary design allows adjustability up to 5.1mm on diameter
- Drills depths up to 4.5 times diameter
- Less tool inventory needed for a wide range of diameters
- Removable cartridges for easy replacement
- Insert design allows for excellent chip control and aggressive penetration rates

**CONTENTS**

## Innovative high performance drilling systems

AMEC's market leading range of adjustable indexable carbide drills provide the ultimate in versatility. Their revolutionary design allows the diameter to be pre-set to cut any hole diameter from 38.10mm to 142.75mm.

The product range incorporates two exceptionally rigid and high performance drilling systems, each of which has been designed to complement the other. The Revolution Drilling system uses "over-centre" cutting to drill from solid without the need for a pilot hole, while the Core Drill is designed to increase the diameter of existing holes.

RevolutionDrill™

### Features and Benefits

- Drills from Solid, no pilot required
- Revolutionary design allows adjustability up to 5.1mm on diameter
- Drill Depths up to 4.5 times diameter
- Replaceable insert cartridges protect your investment
- Stack plate cartridge available
- Insert design allows for excellent chip control and aggressive penetration rates
- Less tool inventory needed for range of diameters
- The proprietary AM300™ and AM200® coating increases tool life above competitors premium coatings.



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Available in a range of shank styles and capable of drilling to depths up to 4.5 x diameter, the AMEC indexable Revolution and Core range is a powerful and versatile drilling solution that can deliver high productivity and a low cost per hole in a diversity of applications.

For additional information on Revolution and Core range, please visit www.alliedmaxcut.com or contact our technical department for support and assistance on +44 (0)1384 400900, email engineering@alliedmaxcut.com

CoreDrill™

## Features and Benefits

- Opens an existing hole in a single operation
- Ignores core shifts up to 3.175mm (1/8") providing straight and true holes without boring
- Allows for large amounts of material removal
- Unique design enables larger holes to be made on lower powered machines
- Multi-insert design reduces chip size for easy chip evacuation
- Smooth cutting action and quiet operation in lathes and mills
- Can be used as a rotating or stationary tool
- Useable in rough boring operations
- Special lengths, diameters and shanks available upon request

# Insert Geometry Information

## Standard Geometry

Inserts OP-05T308 have been designed to have an increased thickness compared to standard ISO inserts, increasing their strength and special radial clearance angles for improved performance in hole making applications.

When utilising these inserts in the Core Drill® and Revolution Drill® these features allow for excellent chip control and aggressive penetration rates in a wide range of materials.

**The inserts are stocked in our**

**P35 Carbide**

- AM300® coating
- AM200® coating
- TiN coating

**K35 Carbide**

- AM300® coating
- AM200® coating
- TiN coating

## NEW High Rake Geometry

The High Rake geometry for the Revolution Drill® inserts and the Core Drill® inserts is a new geometry which achieves superior chip formation and tool life over competitive tools in long chipping, carbon and alloy steels below 200Bhn (700 N/mm)

**High Rake with AM200® coating = HHR**
**High Rake with AM300® coating = PHR**

- Allows superior chip formation, even at lighter feed rates than competitive products
- The inserts are stocked in our C5 (P35) carbide grade in both AM200® and AM300® coatings

## Inserts are fully interchangeable between both products

| Item Number, Coating and Availability - 10 Piece Packs | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Grades | AM300™  | Stk. | AM200®  | Stk. | TiN  | Stk. | TiAlN  | Stk. | TiCN  | Stk. |
| OP04 Inserts for part numbers R26 - R32 Revolution Drill | | | | | | | | | | |
| P35 | OP-040304-P | ● | OP-040304-H | ● | OP-040304-T | ● | OP-040304-A | ◆ | OP-040304-N | ◆ |
| K35 | OP-040304-1P | ● | OP-040304-1H | ● | OP-040304-1T | ● | OP-040304-1A | ◆ | OP-040304-1N | ◆ |
| OP05 Inserts for Revolution & Core Drill | | | | | | | | | | |
| P35 | OP-05T308-P | ● | OP-05T308-H | ● | OP-05T308-T | ● | OP-05T308-A | ◆ | OP-05T308-N | ◆ |
| K35 | OP-05T308-1P | ● | OP-05T308-1H | ● | OP-05T308-1T | ● | OP-05T308-1A | ◆ | OP-05T308-1N | ◆ |


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## Substrates

### P35 Carbide

Excellent choice for drilling, free machining steel, low/medium carbon steels, alloy steels, high strength steels, tools steels, hardened steels and certain stainless steels

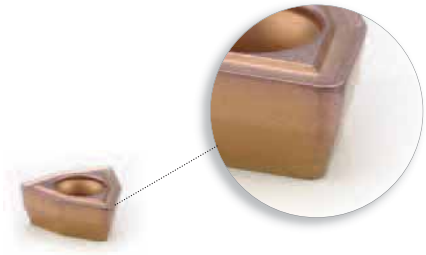
### K35 Carbide

First choice when a tougher grade is required for drilling free machining steel, low/medium carbon steels, alloy steels, high strength steels, tools steels, hardened steels and certain stainless steels

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

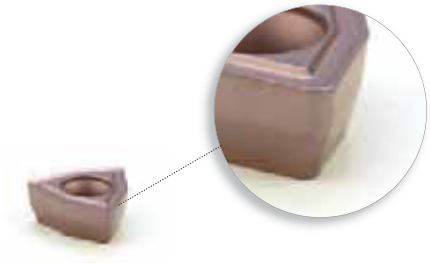
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 158.

## Insert Coatings



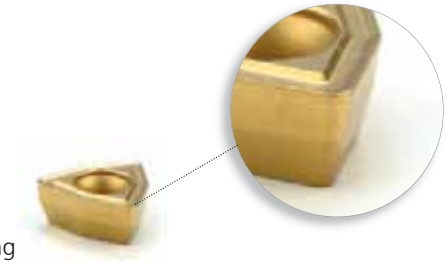
### AM300™

- Increased heat resistance over AM200®
- Provides superior tool life at high penetration rates
- Up to a 20% increase in tool life over AM200®
- Colour Light Bronze



### AM200®

- First choice for increased heat resistance over Tin, TiCN and TiAlN with Improved wear capabilities
- Allows for improved tool life and higher penetration rates
- Over 20% increased tool life over TiAlN coating
- Colour Copper / Bronze

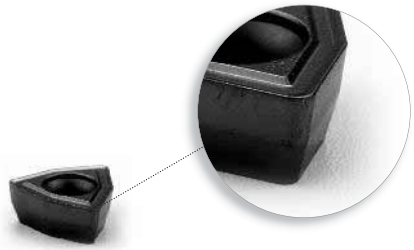


### TiN

- General purpose coating
- Improved tool life over a non coated insert
- First choice when machining Aluminium
- Colour Gold / Yellow

### TiCN

- Non Standard coating
- Excellent choice for wear resistance over low surface speeds
- Maximum working temperature 400° C
- Colour Blue / Grey



### TiAlN

- Non Standard coating
- Excellent choice for wear resistance over high surface speeds
- Excellent oxidation resistance
- Colour Violet / Grey

# Revolution Drill™ & Core Drill™ How to order information

RevolutionDrill™

CoreDrill™

## RevolutionDrill™ Body

**R34 X22-40M**

**Revolution Drill Series**
R26
R28
R32
R34
R36
R38
R42
R44
R46
R48
R52
R54
R56
R58

**Drill Ø Range (mm)**
R26 (38.10 - 41.28)
R28 (41.28 - 44.45)
R32 (44.45 - 47.63)
R34 (47.75 - 50.80)
R36 (50.80 - 55.88)
R38 (55.88 - 60.96)
R42 (60.96 - 66.04)
R44 (66.04 - 71.12)
R46 (71.12 - 76.20)
R48 (76.20 - 81.28)
R52 (81.28 - 86.36)
R54 (86.36 - 91.44)
R56 (91.44 - 96.52)
R58 (96.52 - 101.00)

**Length to Diameter Ratio**
1.0
2.2
2.5
3.5
4.5

**Shank**
40M
50M

## CoreDrill™ Body

**OP1-1S-40M**

**AMEC Core Drill**
OP1
OP2
OP3
OP4

**Drill Ø Range**
1 (50.80-63.50)
2 (63.50-76.20)
3 (76.20-104.65)
4 (104.65-142.75)

**Length**
1S – Short
1L - Long

**Shank**
40M
50M
BT40
BT50
HSK 63A/C
HSK 100A/C
ABS63
DV40
DV50

## RevolutionDrill™ Insert

## CoreDrill™ Insert

**OP – 05T308 - 1H**

**For use with:**
Revolution Drill
Core Drill

**Insert Specification**

**Substrate**
C5 (P35) - Blank
C1 (K35) - 1

**Coating**

**Standard Geometry**
P - AM300™
H – AM200®
A - TiAlN
N - TiCN
T – TiN
U - Uncoated

**High Rake Geometry**
PHR - AM300
HHR - AM200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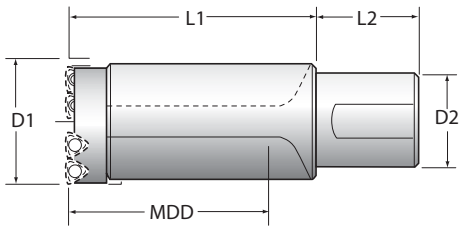



STRAIGHT SHANK
ISO 9766

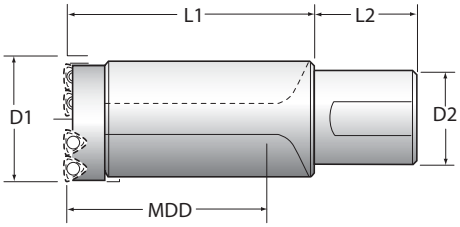
| Part Number | Diameter Range (D1) | Max Drill Depth (MDD) | Body Length (L1) | Shank Dia (D2) | Shank Length (L2) | Stk. | Replacements | | | | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Cartridges | Mounting Screw (1 Pack) | Adjustment Screw (1 Pack) | Insert Screws (10 Pack) | |
| R26X20-40M* | 38.10mm to 41.28mm | 82.6mm | 114.3mm | 40mm | 70mm | ○ | C26-FIX C26-ADJ C26SP-FIX* C26SP-ADJ* | MS-16M-4 | AS-16T8-4 | IS-8-10 | ● |
| R26X30-40M | | 123.8mm | 155.6mm | | | ○ | | | | | |
| R26X40-40M | | 165.1mm | 196.9mm | | | ○ | | | | | |
| R28X20-40M* | 41.28mm to 44.45mm | 88.9mm | 120.7mm | 40mm | 70mm | ○ | C28-FIX C28-ADJ C28SP-FIX* C28SP-ADJ* | MS-16M-4 | AS-16T8-4 | IS-8-10 | ● |
| R28X30-40M | | 133.3mm | 165.1mm | | | ○ | | | | | |
| R28X40-40M | | 177.8mm | 209.6mm | | | ○ | | | | | |
| R32X20-40M* | 44.45mm to 47.63mm | 95.3mm | 127.0mm | 40mm | 70mm | ○ | C32-FIX C32-ADJ C32SP-FIX* C32SP-ADJ* | MS-17M-4 | AS-16T8-4 | IS-10-10 | ● |
| R32X30-40M | | 142.9mm | 174.6mm | | | ○ | | | | | |
| R32X40-40M | | 191.0mm | 222.3mm | | | ○ | | | | | |
| R34X22-40M* | 47.75mm to 50.80mm | 114mm | 136.6mm | 40mm | 70mm | ○ | C34-FIX C34-ADJ C34SP-FIX* C34SP-ADJ* | MS-17M-4 | AS-16T9-4 | IS-10-10 | ● |
| R34X35-40M | | 178mm | 200.1mm | | | ○ | | | | | |
| R34X45-40M | | 228mm | 251.0mm | | | ○ | | | | | |
| R36X22-40M* | 50.80mm to 55.88mm | 127mm | 149.2mm | 40mm | 70mm | ○ | C36-FIX C36-ADJ C36SP-FIX* C36SP-ADJ* | MS-17M-4 | AS-18T9-4 | IS-10-10 | ● |
| R36X35-40M | | 197mm | 219.1mm | | | ○ | | | | | |
| R36X45-40M | | 254mm | 276.2mm | | | ○ | | | | | |
| R38X22-40M* | 55.88mm to 60.96mm | 140mm | 162.0mm | 40mm | 70mm | ○ | C38-FIX C38-ADJ C38SP-FIX* C38SP-ADJ* | MS-17M-4 | AS-18T9-4 | IS-10-10 | ● |
| R38X35-40M | | 216mm | 238.1mm | | | ○ | | | | | |
| R38X45-40M | | 280mm | 301.6mm | | | ○ | | | | | |
| R42X22-40M* | 60.96mm to 66.04mm | 146mm | 171.5mm | 40mm | 70mm | ○ | C42-FIX C42-ADJ C42SP-FIX* C42SP-ADJ* | MS-19M-4 | AS-18T9-4 | IS-10-10 | ● |
| R42X35-40M | | 235mm | 260.4mm | | | ○ | | | | | |
| R42X45-40M | | 298mm | 323.9mm | | | ○ | | | | | |
| R44x22-40M* | 66.04mm to 71.12mm | 159mm | 191.0mm | 40mm | 70mm | ○ | C44-FIX C44-ADJ C44SP-FIX* C44SP-ADJ* | MS-19M-4 | AS-18T9-4 | IS-10-10 | ● |
| R44X35-40M | | 254mm | 285.0mm | | | ○ | | | | | |
| R46X22-40M* | 71.12mm to 76.20mm | 172mm | 203.0mm | 40mm | 70mm | ○ | C46-FIX C46-ADJ C46SP-FIX* C46SP-ADJ* | MS-21M-4 | AS-18T9-4 | IS-10-10 | ● |
| R46X35-40M | | 267mm | 299.9mm | | | ○ | | | | | |
| R48X10-50M* | 76.20mm to 81.28mm | 82mm | 114.3mm | 50mm | 80mm | ○ | C48-FIX C48-ADJ C48SP-FIX* C48SP-ADJ* | MS-21M-4 | AS-18T9-4 | IS-10-10 | ● |
| R48X25-50M | | 203mm | 235.0mm | | | ○ | | | | | |
| R52X10-50M* | 81.28mm to 86.36mm | 89mm | 127.0mm | 50mm | 80mm | ○ | C52-FIX C52-ADJ C52SP-FIX* C52SP-ADJ* | MS-19M-4 | AS-18T9-4 | IS-10-10 | ● |
| R52X25-50M | | 216mm | 254.0mm | | | ○ | | | | | |
| R54X10-50M* | 86.36mm to 91.44mm | 95mm | 133.4mm | 50mm | 80mm | ○ | C54-FIX C54-ADJ C54SP-FIX* C54SP-ADJ* | MS-19M-4 | AS-18T9-4 | IS-10-10 | ● |
| R54X25-50M | | 229mm | 266.7mm | | | ○ | | | | | |
| R56X10-50M* | 91.44mm to 96.52mm | 102mm | 146.1mm | 50mm | 80mm | ○ | C56-FIX C56-ADJ C56SP-FIX* C56SP-ADJ* | MS-21M-4 | AS-18T9-4 | IS-10-10 | ● |
| R56X25-50M | | 241mm | 285.8mm | | | ○ | | | | | |
| R58X10-50M* | 96.52mm to 101.0mm | 102mm | 146.1mm | 50mm | 80mm | ○ | C58-FIX C58-ADJ C58SP-FIX* C58SP-ADJ* | MS-21M-4 | AS-18T9-4 | IS-10-10 | ● |
| R58X25-50M | | 254mm | 298.5mm | | | ○ | | | | | |

***NOTE:** Stacked plate (SP) cartridges avaliable upon request for use in short length holders **only**, please contact AMEC technical department for details.
**NOTE:** High rake geometry (HR) available in P35 Coating.

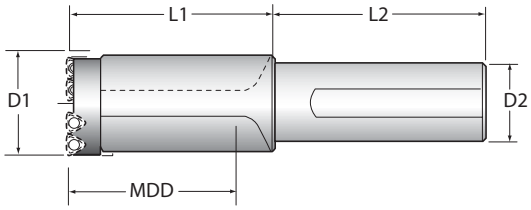
**Item Number, Coating and Availability - 10 Piece Packs**

| Grades | AM300™ | Stk. | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| **OP04 Inserts for part numbers R26 - R32** | | | | | | | | | | |
| P35 | OP-040304-P | ● | OP-040304-H | ● | OP-040304-T | ● | OP-040304-A | ◆ | OP-040304-N | ◆ |
| K35 | OP-040304-1P | ● | OP-040304-1H | ● | OP-040304-1T | ● | OP-040304-1A | ◆ | OP-040304-1N | ◆ |
| **OP05 Inserts for part numbers R34 - R58** | | | | | | | | | | |
| P35 | OP-05T308-P | ● | OP-05T308-H | ● | OP-05T308-T | ● | OP-05T308-A | ◆ | OP-05T308-N | ◆ |
| K35 | OP-05T308-1P | ● | OP-05T308-1H | ● | OP-05T308-1T | ● | OP-05T308-1A | ◆ | OP-05T308-1N | ◆ |

# Core Drill™ - Straight Shank and ABS



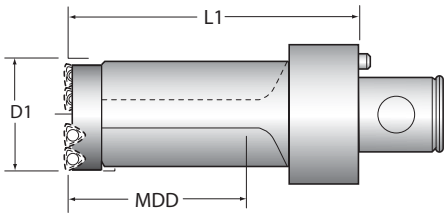

STRAIGHT SHANK ISO 9766
Short Length




STRAIGHT SHANK
Long Length

| | Item Number | Item Description | Diameter Range (D1) | Body Length (L1) | Max Drill Depth (MDD) | Shank Length (L2) | Shank Diameter (D2) | Stk. |
|---|---|---|---|---|---|---|---|---|
| Straight Shank (Metric) | OP1-1S-40M | OP1 SS40M Short Length | 50.80-63.50 | 101.60 | 82.55 | 70 | 40 | ○ |
| | OP1-1L-40M | OP1 SS40M Long Length | 50.80-63.50 | 158.75 | 139.70 | 70 | 40 | ○ |
| | OP2-1S-40M | OP2 SS40M Short Length | 63.50-76.20 | 139.70 | 120.65 | 70 | 40 | ○ |
| | OP2-1L-40M | OP2 SS40M Long Length | 63.50-76.20 | 215.90 | 196.85 | 70 | 40 | ○ |
| | OP3-1S-40M | OP3 SS40M Short Length | 76.20-104.65 | 152.40 | 127.00 | 70 | 40 | ○ |
| | OP3-1L-40M | OP3 SS40M Long Length | 76.20-104.65 | 254.00 | 228.60 | 70 | 40 | ○ |
| | OP4-1S-50M | OP4 SS50M Short Length | 104.65-142.75 | 152.40 | 127.00 | 80 | 50 | ○ |
| | OP4-1L-50M | OP4 SS50M Long Length | 104.65-142.75 | 292.10 | 266.70 | 80 | 50 | ○ |

| | Item Number | Item Description | Diameter Range (D1) | Body Length (L1) | Max Drill Depth (MDD) | Shank Length (L2) | Shank Diameter (D2) | Stk. |
|---|---|---|---|---|---|---|---|---|
| Straight Shank (Imperial) | OP1-1S-SS1.5 | OP1 SS 1.50 Short Length | 50.80-63.50 | 101.60 | 82.55 | 101.6 | 38.1 | ○ |
| | OP1-1L-SS1.5 | OP1 SS 1.50 Long Length | 50.80-63.50 | 158.75 | 139.70 | 101.6 | 38.1 | ○ |
| | OP2-1S-SS1.5 | OP2 SS 1.50 Short Length | 63.50-76.20 | 139.70 | 120.65 | 101.6 | 38.1 | ○ |
| | OP2-1L-SS1.5 | OP2 SS 1.50 Long Length | 63.50-76.20 | 215.90 | 196.85 | 101.6 | 38.1 | ○ |
| | OP3-1S-SS1.5 | OP3 SS 1.50 Short Length | 76.20-104.65 | 152.40 | 127.00 | 101.6 | 38.1 | ○ |
| | OP3-1L-SS1.5 | OP3 SS 1.50 Long Length | 76.20-104.65 | 254.00 | 228.60 | 101.6 | 38.1 | ○ |
| | OP4-1S-SS2.0 | OP4 SS 2.00 Short Length | 104.65-142.75 | 152.40 | 127.00 | 114.3 | 50.8 | ○ |
| | OP4-1L-SS2.0 | OP4 SS 2.00 Long Length | 104.65-142.75 | 292.10 | 266.70 | 114.3 | 50.8 | ○¶ |




**ABS 63**

| | Item Number | Item Description | Diameter Range (D1) | Body Length (L1) | Max Drill Depth (MDD) | Stk. |
|---|---|---|---|---|---|---|
| ABS63 | OP1-1S-ABS63 | OP1 ABS63 Short Length | 50.80-63.50 | 139.70 | 82.55 | ◆ |
| | OP1-1L-ABS63 | OP1 ABS63 Long Length | 50.80-63.50 | 196.85 | 139.70 | ◆ |
| | OP2-1S-ABS63 | OP2 ABS63 Short Length | 63.50-76.20 | 158.75 | 120.65 | ◆ |
| | OP2-1L-ABS63 | OP2 ABS63 Long Length | 63.50-76.20 | 234.95 | 196.85 | ◆ |
| | OP3-1S-ABS63 | OP3 ABS63 Short Length | 76.20-104.65 | 171.45 | 127.00 | ◆ |
| | OP3-1L-ABS63 | OP3 ABS63 Long Length | 76.20-104.65 | 273.05 | 228.60 | ◆ |
| | OP4-1S-ABS63 | OP4 ABS63 Short Length | 104.65-142.75 | 171.45 | 127.00 | ◆ |

**Stk. - Stock Availability.**
- ● Stocked Item
- ○ Stocked in limited quantities
- ◆ Non-Stocked Standard (6 week lead time)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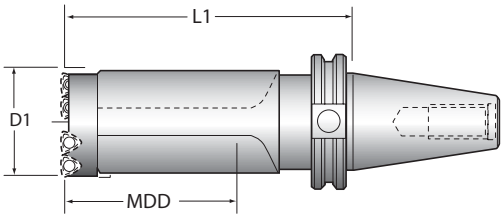
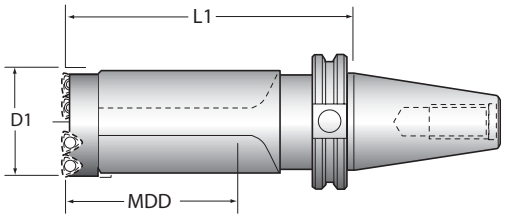



**DV40**

*DIN 69871 FORM 'A'*

| | Item Number | Item Description | Diameter Range (D1) | Body Length (L1) | Max Drill Depth (MDD) | Stk. |
|---|---|---|---|---|---|---|
| DV40 | OP1-1S-DV40 | OP1 DV40 Short Length | 50.80-63.50 | 136.65 | 82.55 | ◆ |
| | OP1-1L-DV40 | OP1 DV40 Long Length | 50.80-63.50 | 193.80 | 139.70 | ◆ |
| | OP2-1S-DV40 | OP2 DV40 Short Length | 63.50-76.20 | 174.75 | 120.65 | ◆ |
| | OP2-1L-DV40 | OP2 DV40 Long Length | 63.50-76.20 | 250.95 | 196.85 | ◆ |
| | OP3-1S-DV40 | OP3 DV40 Short Length | 76.20-104.65 | 187.45 | 127.00 | ◆ |
| | OP3-1L-DV40 | OP3 DV40 Long Length | 76.20-104.65 | 289.05 | 228.60 | ◆ |
| | OP4-1S-DV40 | OP4 DV40 Short Length | 104.65-142.75 | 187.45 | 127.00 | ◆ |




**DV50**

*DIN 69871 FORM 'A'*

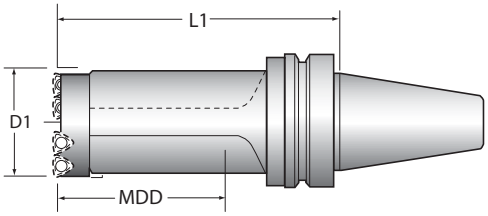
| | Item Number | Item Description | Diameter Range (D1) | Body Length (L1) | Max Drill Depth (MDD) | Stk. |
|---|---|---|---|---|---|---|
| DV50 | OP1-1S-DV50 | OP1 DV50 Short Length | 50.80-63.50 | 136.65 | 82.55 | ● |
| | OP1-1L-DV50 | OP1 DV50 Long Length | 50.80-63.50 | 193.80 | 139.70 | ● |
| | OP2-1S-DV50 | OP2 DV50 Short Length | 63.50-76.20 | 174.75 | 120.65 | ● |
| | OP2-1L-DV50 | OP2 DV50 Long Length | 63.50-76.20 | 250.95 | 196.85 | ● |
| | OP3-1S-DV50 | OP3 DV50 Short Length | 76.20-104.65 | 187.45 | 127.00 | ● |
| | OP3-1L-DV50 | OP3 DV50 Long Length | 76.20-104.65 | 289.05 | 228.60 | ● |
| | OP4-1S-DV50 | OP4 DV50 Short Length | 104.65-142.75 | 187.05 | 127.00 | ● |
| | OP4-1L-DV50 | OP4 DV50 Long Length | 104.65-142.75 | 327.15 | 266.70 | ● |

**Stk. - Stock Availability.**
- ● Stocked Item
- ○ Stocked in limited quantities
- ◆ Non-Stocked Standard (6 week lead time)

**Item Number, Coating and Availability - 10 Piece Packs**

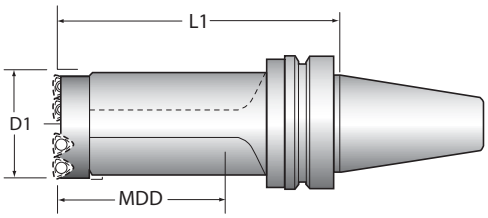
| Grades | AM300™ | Stk. | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| P35 | OP-05T308-P | ● | OP-05T308-H | ● | OP-05T308-T | ● | OP-05T308-A | ◆ | OP-05T308-N | ◆ |
| K35 | OP-05T308-1P | ● | OP-05T308-1H | ● | OP-05T308-1T | ● | OP-05T308-1A | ◆ | OP-05T308-1N | ◆ |

# Core Drill™ - BT40/BT50 Flange




BT40

| | Item Number | Item Description | Diameter Range (D1) | Body Length (L1) | Max Drill Depth (MDD) | Stk. |
|---|---|---|---|---|---|---|
| BT40 | OP1-1S-BT40 | OP1 BT40 Short Length | 50.80-63.50 | 136.65 | 82.55 | ◆ |
| | OP1-1L-BT40 | OP1 BT40 Long Length | 50.80-63.50 | 193.80 | 139.70 | ◆ |
| | OP2-1S-BT40 | OP2 BT40 Short Length | 63.50-76.20 | 174.75 | 120.65 | ◆ |
| | OP2-1L-BT40 | OP2 BT40 Long Length | 63.50-76.20 | 250.95 | 196.85 | ◆ |
| | OP3-1S-BT40 | OP3 BT40 Short Length | 76.20-104.65 | 187.45 | 127.00 | ◆ |
| | OP3-1L-BT40 | OP3 BT40 Long Length | 76.20-104.65 | 289.05 | 228.60 | ◆ |
| | OP4-1S-BT40 | OP4 BT40 Short Length | 104.65-142.75 | 187.45 | 127.00 | ◆ |




BT50

| | Item Number | Item Description | Diameter Range (D1) | Body Length (L1) | Max Drill Depth (MDD) | Stk. |
|---|---|---|---|---|---|---|
| BT50 | OP1-1S-BT50 | OP1 BT50 Short Length | 50.80-63.50 | 146.05 | 82.55 | ◆ |
| | OP1-1L-BT50 | OP1 BT50 Long Length | 50.80-63.50 | 203.20 | 139.70 | ◆ |
| | OP2-1S-BT50 | OP2 BT50 Short Length | 63.50-76.20 | 184.15 | 120.65 | ◆ |
| | OP2-1L-BT50 | OP2 BT50 Long Length | 63.50-76.20 | 260.35 | 196.85 | ◆ |
| | OP3-1S-BT50 | OP3 BT50 Short Length | 76.20-104.65 | 196.85 | 127.00 | ◆ |
| | OP3-1L-BT50 | OP3 BT50 Long Length | 76.20-104.65 | 298.45 | 228.60 | ◆ |
| | OP4-1S-BT50 | OP4 BT50 Short Length | 104.65-142.75 | 196.85 | 127.00 | ◆ |
| | OP4-1L-BT50 | OP4 BT50 Long Length | 104.65-142.75 | 336.55 | 266.70 | ◆ |

**Stk. - Stock Availability.**
- ● Stocked Item
- ○ Stocked in limited quantities
- ◆ Non-Stocked Standard (6 week lead time)

**Item Number, Coating and Availability - 10 Piece Packs**

| Grades | AM300™ | Stk. | AM200® | Stk. | TiN | Stk. | TiAlN | Stk. | TiCN | Stk. |
|---|---|---|---|---|---|---|---|---|---|---|
| P35 | OP-05T308-P | ● | OP-05T308-H | ● | OP-05T308-T | ● | OP-05T308-A | ◆ | OP-05T308-N | ◆ |
| K35 | OP-05T308-1P | ● | OP-05T308-1H | ● | OP-05T308-1T | ● | OP-05T308-1A | ◆ | OP-05T308-1N | ◆ |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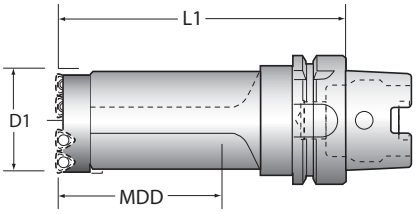
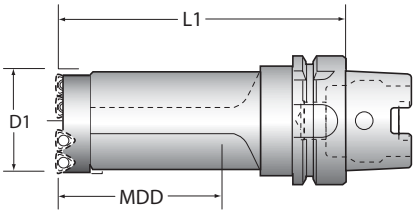



HSK 63A/C

| | Item Number | Item Description | Diameter Range (D1) | Body Length (L1) | Max Drill Depth (MDD) | Stk. |
|---|---|---|---|---|---|---|
| HSK63A/C | OP1-1S-HSK63 | OP1 HSK63A/C Short Length | 50.80-63.50 | 143.51 | 82.55 | ◆ |
| | OP1-1L-HSK63 | OP1 HSK63A/C Long Length | 50.80-63.50 | 200.66 | 139.70 | ◆ |
| | OP2-1S-HSK63 | OP2 HSK63A/C Short Length | 63.50-76.20 | 181.61 | 120.65 | ◆ |
| | OP2-1L-HSK63 | OP2 HSK63A/C Long Length | 63.50-76.20 | 257.81 | 196.85 | ◆ |
| | OP3-1S-HSK63 | OP3 HSK63A/C Short Length | 76.20-104.65 | 194.31 | 127.00 | ◆ |
| | OP3-1L-HSK63 | OP3 HSK63A/C Long Length | 76.20-104.65 | 295.91 | 228.60 | ◆ |
| | OP4-1S-HSK63 | OP4 HSK63A/C Short Length | 104.65-142.75 | 194.31 | 127.00 | ◆ |




HSK 100A/C

| | Item Number | Item Description | Diameter Range (D1) | Body Length (L1) | Max Drill Depth (MDD) | Stk. |
|---|---|---|---|---|---|---|
| HSK 100A/C | OP1-1S-HSK100 | OP1 HSK100A/C Short Length | 50.80-63.50 | 149.86 | 82.55 | ◆ |
| | OP1-1L-HSK100 | OP1 HSK100A/C Long Length | 50.80-63.50 | 207.01 | 139.70 | ◆ |
| | OP2-1S-HSK100 | OP2 HSK100A/C Short Length | 63.50-76.20 | 187.96 | 120.65 | ◆ |
| | OP2-1L-HSK100 | OP2 HSK100A/C Long Length | 63.50-76.20 | 264.16 | 196.85 | ◆ |
| | OP3-1S-HSK100 | OP3 HSK100A/C Short Length | 76.20-104.65 | 200.66 | 127.00 | ◆ |
| | OP3-1L-HSK100 | OP3 HSK100A/C Long Length | 76.20-104.65 | 302.26 | 228.60 | ◆ |
| | OP4-1S-HSK100 | OP4 HSK100A/C Short Length | 104.65-142.75 | 200.66 | 127.00 | ◆ |
| | OP4-1L-HSK100 | OP4 HSK100A/C Long Length | 104.65-142.75 | 340.36 | 266.70 | ◆ |

**Stk. - Stock Availability.**
- ● Stocked Item
- ○ Stocked in limited quantities
- ◆ Non-Stocked Standard (6 week lead time)

## Holder accessories

| | Replacement Cartridges  | Stk. | Qty Inserts Required | Insert Screw 10 Pack  | Stk. | Mounting Screw 4 Pack  | Stk. | Adjusting Screw 4 Pack  | Stk. |
|---|---|---|---|---|---|---|---|---|---|
| Item Number | OP1-WC05 | ● | 2 | IS-10-10 | ● | MS-13M-4 | ● | AS-10T9-4 | ● |
| | OP2-WC05 | ● | 2 | IS-10-10 | ● | MS-15M-4 | ● | AS-10T9-4 | ● |
| | OP3-WC05 | ● | 2 | IS-10-10 | ● | MS-15M-4 | ● | AS-12T9-4 | ● |
| | OP4-WC05 | ● | 3 | IS-10-10 | ● | MS-15M-4 | ● | AS-14T9-4 | ● |

## Recommended Cutting Data

| Material | Material Hardness (BHN) | Speed M/min | | | Feed (mm/rev) |
|---|---|---|---|---|---|
| | | AM300™ | AM200® | TiN | |
| Free Machining Steel | 110-250 | 274-396 | 260-380 | 215-275 | 0.09-0.18 |
| Low Carbon Steel | 85-275 | 259-381 | 245-365 | 200-260 | 0.08-0.17 |
| Medium Carbon Steel | 125-325 | 244-320 | 230-305 | 180-260 | 0.09-0.17 |
| Alloy Steel | 125-375 | 229-305 | 215-290 | 180-260 | 0.09-0.17 |
| High Strength Alloy | 225-400 | 183-259 | 170-245 | 120-200 | 0.08-0.13 |
| Structural Steel | 100-350 | 259-320 | 245-305 | 200-260 | 0.08-0.17 |
| Tool Steel | 150-250 | 122-244 | 110-230 | 75-200 | 0.06-0.13 |
| Stainless Steel | 135-275 | 183-259 | 170-245 | 120-200 | 0.08-0.15 |
| Cast Iron | 120-320 | 213-274 | 200-260 | 150-215 | 0.10-0.20 |
| Aluminium (use TiN coated insert) | 30-180 | 381-503 | 365-490 | 290-335 | 0.15-0.30 |
| Brass | 30-125 | 290-411 | 275-395 | 230-335 | 0.13-0.23 |

**Formulas:** **mm/min = rev/min • mm/rev** **M/min = rev/min • 0.003 • DIA** **rev/min = M/min • 318.47/DIA**

The speeds and feeds listed above are considered a general starting point for all applications.
Technical assistance is also available for your specific applications through the AMEC Application Engineering Team.
Please provide any details about the application to the Application Engineering Team.
Accurate information will enable Allied Maxcut's Application Engineers to give you the best possible solution.

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |



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## Recommended Cutting Data

| Material | Material Hardness (BHN) | Speed M/min | | | Feed (mm/rev) |
|---|---|---|---|---|---|
| | | AM300™ | AM200® | TiN | |
| Free Machining Steel | 110-250 | 274-396 | 260-380 | 215-275 | 0.09-0.18 |
| Low Carbon Steel | 85-275 | 259-381 | 245-365 | 200-260 | 0.08-0.17 |
| Medium Carbon Steel | 125-325 | 244-320 | 230-305 | 180-260 | 0.09-0.17 |
| Alloy Steel | 125-375 | 229-305 | 215-290 | 180-260 | 0.09-0.17 |
| High Strength Alloy | 225-400 | 183-259 | 170-245 | 120-200 | 0.08-0.13 |
| Structural Steel | 100-350 | 259-320 | 245-305 | 200-260 | 0.08-0.17 |
| Tool Steel | 150-250 | 122-244 | 110-230 | 75-200 | 0.06-0.13 |
| Stainless Steel | 135-275 | 183-259 | 170-245 | 120-200 | 0.08-0.15 |
| Cast Iron Grey, Ductile, Nodular | 120-320 | 213-274 | 200-260 | 150-215 | 0.10-0.20 |
| Aluminium (Use TiN on Cast Aluminium) | 30-180 | 381-503 | 365-490 | 290-335 | 0.15-0.30 |
| Brass | 30-125 | 290-411 | 275-395 | 230-335 | 0.13-0.23 |

*TiAlN & TiCN coatings are available upon request*

**Formulas:** **mm/min = rev/min • mm/rev** **M/min = rev/min • 0.003 • DIA** **rev/min = M/min • 318.47/DIA**

The speeds recommended for all coated tools are based on empirical data obtained under "Optimum Conditions". Many applications do not exhibit "Optimum Conditions." (Reductions in speed parameters may be required due to excessive tool wear generated in the application.)

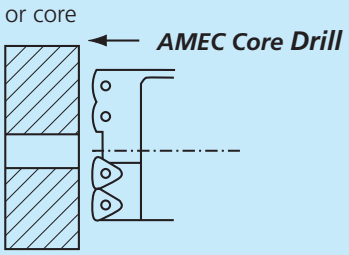
The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is also available for your specific applications through our Application Engineering Team. Please have item number, hole diameter, depth, material grade, BHN hardness and coolant pressure information available when you call. Additional information such as part and machine rigidity, horsepower and thrust limits, vertical or horizontal spindle, revolving or stationary tool, flood or through holder coolant will enable our Application Engineers to give you the best possible solution.

## Minimum Pilot Hole Calculation

To determine the minimum diameter of the pilot hole, use the following calculation:

**FINISH DIAMETER MINUS OPENING RANGE = MINIMUM PILOT HOLE DIAMETER**

For example: To open up an existing diameter hole to 66mm diameter, OP2 tool would be used and the minimum pilot hole diameter would be 66mm-47.75mm = 18.25mm.




| AMEC Core Drill Size | Adjustable O.D Range | Opening Range Diameter |
|---|---|---|
| OP1 | 50.80 - 63.50 | 47.75 |
| OP2 | 63.50 - 76.20 | 47.75 |
| OP3 | 76.20 - 104.65 | 47.75 |
| OP4 | 104.65 - 142.75 | 68.07 |

# Operation and Setup Procedure

**Presetter:** In setting the AMEC Core Drill the use of a presetter will allow for the most accurate setting of the tool.

## RevolutionDrill™ Set up instructions

1. Mount fixed cartridge and tighten mounting screw to 15-19 Nm (11-14 ft-lbf )


2. Finger tighten mounting screw on adjustable cartridge

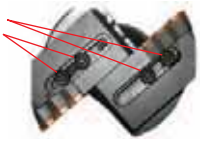
3. Set diameter using the adjustment screw against the mounting screw

Place tool in a presetter to ensure correct diameter setting

4. Tighten mounting screw to 15-19 Nm (11-14 ft-lbf)

## CoreDrill™ Set up instructions

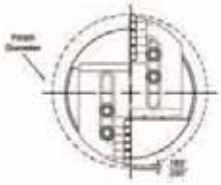
1. Loosen mounting screws on both cartridges



2. Set one cartridge to finish diameter by tightening adjustment screw against adjustment pin

3. Tighten mounting screws on cartridge to 15-19 Nm (11-14 ft-lbf)

4. Set opposing cartridge with 4.00mm to 5.00mm radial offset inward by tightening adjustment screw against adjustment pin (optimum situation for each insert to remove equal material)



5. Tighten mounting screw to 15-19 Nm (11-14 ft-lbf)

**Dial Test Indicator (DTI):** In the case that a presetter is unavailable the setting of the tool can be set accurately as follows:

**Figure 1**

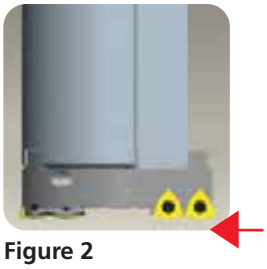


**Figure 2**

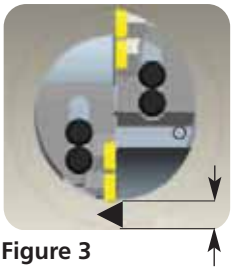


**Figure 3**

| Body Diameter | |
|---|---|
| OP1 | 46.7 |
| OP2 | 56.4 |
| OP3 | 71.3 |
| OP4 | 88.9 |

| | |
|---|---|
| 4.57 mean on radius | (Range 4.06mm - 5.08mm) |
| 9.14mm mean on dia | (Range 8.13mm - 10.16mm) |

**1) Outer Cartridge Setting (Finish diameter)**
**Finish Ø Minus Body Ø /2 =** Distance indicator will need to travel from tool body (Figure 1) to set outer cartridge at finish diameter (Figure 2) within setting range.

**2) Inner Cartridge Setting (Core drill only)**
**Offset the inner cartridge inwards by Ø 9.14/2 =** Distance indicator will need to travel from outer cartridge to set inner cartridge (Figure 3) ensuring optimum insert overlap.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# ASC 320™ Solid Carbide

**ASC 320™ has been specifically designed to deliver the higest metal removal rates and longest tool life in stainless steel, Inconel, Hastelloy and Titanium**

## Features and Benefits

- High productivity in difficult to machine materials
- Excellent chip control and hole quality
- Parallel core for optimum reconditioning opportunities
- Through coolant design as standard

**CONTENTS**

# ASC 320™ How to order information

## How to identify ASC 320™ Solid Carbide Drill

| 3 | 60 | M | 07500 | A21 | M |
|---|---|---|---|---|---|

**Drill Length**
3.5 – 35
6.0 – 60
9.0 - 90

**Diameter**

**Multi layer coating**

**Designates as ASC 320™**

**Style**
M – Metric
E - English

**Substrate & Geometry**

## Innovative high performance drilling systems

The ASC 320™ range of solid carbide high penetration drills has been specifically engineered to deliver high productivity in difficult to machine materials, including stainless steels, Inconel, Hastelloy and Titanium.

The unique combination of cutting edge geometry and high performance coatings provide excellent chip control, hole quality and extended tool life, making them ideal for use in a wide range of challenging applications and 'markets sectors'.

Further benefits of the drill design include a parallel core for optimum regrinding and a reinforced shank for added durability, as well as incorporating ports for through coolant. The AMEC ASC 320™ drilling solution covers diameters ranging from 3.0mm to 20mm in drill length to diameter ratios of 3.5x, 6x and 9x.

## Material selection guide

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| ● | ● | ○ | ○ | ● | ○ |

● First Choice
○ Alternative Choice

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section on page 169.


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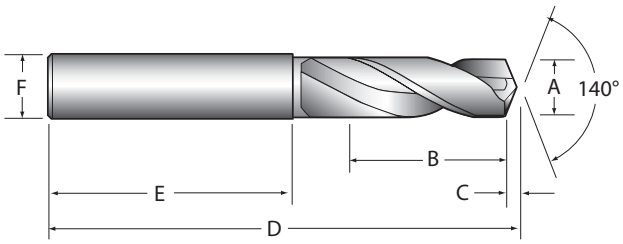
# ASC 320™ Solid Carbide Drills

## 3.5 x Diameter




| Item Number | A Drill Diameter | | | B Drill Depth (mm) | C Point Length (mm) | D Overall Length (mm) | E Shank Length (mm) | F Shank Dia. (mm) | Stock Status |
|---|---|---|---|---|---|---|---|---|---|
| | Ø Inch | Ø Metric | Ø Decimal | | | | | | |
| 335M03000A21M | | 3.00 | .1181" | 14 | 0.5 | 62.7 | 36 | 4 | ○ |
| 335E01250A21M | 1/8" | 3.18 | .1250" | 14 | 0.5 | 62.7 | 36 | 4 | ○ |
| 335M03200A21M | | 3.20 | .1260" | 14 | 0.5 | 62.7 | 36 | 4 | ○ |
| 335M03300A21M | | 3.30 | .1299" | 14 | 0.5 | 62.7 | 36 | 4 | ○ |
| 335M03500A21M | | 3.50 | .1378" | 14 | 0.5 | 62.7 | 36 | 4 | ○ |
| 335M03650A21M | | 3.65 | .1437" | 14 | 0.5 | 62.7 | 36 | 4 | ○ |
| 335M03700A21M | | 3.70 | .1457" | 14 | 0.5 | 62.7 | 36 | 4 | ○ |
| 335M03800A21M | | 3.80 | .1497" | 14 | 0.5 | 62.7 | 36 | 4 | ○ |
| 335M03900A21M | | 3.90 | .1535" | 14 | 0.5 | 62.7 | 36 | 4 | ○ |
| 335M04000A21M | | 4.00 | .1575" | 14 | 0.6 | 62.7 | 36 | 4 | ○ |
| 335M04100A21M | | 4.10 | .1614" | 21 | 0.7 | 67.1 | 36 | 6 | ○ |
| 335M04200A21M | | 4.20 | .1653" | 21 | 0.7 | 67.1 | 36 | 6 | ○ |
| 335E01719A21M | 11/64" | 4.37 | .1719" | 21 | 0.7 | 67.1 | 36 | 6 | ○ |
| 335M04500A21M | | 4.50 | .1771" | 21 | 0.7 | 67.1 | 36 | 6 | ○ |
| 335M04600A21M | | 4.60 | .1811" | 21 | 0.7 | 67.1 | 36 | 6 | ○ |
| 335E01875A21M | 3/16" | 4.76 | .1875" | 21 | 0.8 | 67.1 | 36 | 6 | ○ |
| 335M05000A21M | | 5.00 | .1968" | 21 | 0.8 | 67.1 | 36 | 6 | ○ |
| 335E02031A21M | 13/64" | 5.16 | .2031" | 21 | 0.8 | 67.1 | 36 | 6 | ○ |
| 335M05200A21M | | 5.20 | .2047" | 21 | 0.8 | 67.1 | 36 | 6 | ○ |
| 335E02130A21M | | 5.41 | .2130" | 21 | 0.8 | 67.1 | 36 | 6 | ○ |
| 335M05500A21M | | 5.50 | .2165" | 21 | 0.8 | 67.1 | 36 | 6 | ○ |
| 335E02188A21M | | 5.56 | .2188" | 21 | 0.8 | 67.1 | 36 | 6 | ○ |
| 335M05630A21M | | 5.63 | .2216" | 21 | 0.9 | 67.1 | 36 | 6 | ○ |
| 335E02280A21M | | 5.79 | .2279" | 21 | 0.9 | 67.1 | 36 | 6 | ○ |
| 335E02344A21M | 15/64" | 5.95 | .2344" | 21 | 1.0 | 67.1 | 36 | 6 | ○ |
| 335M06000A21M | | 6.00 | .2362" | 21 | 1.0 | 67.1 | 36 | 6 | ○ |
| 335E02460A21M | | 6.25 | .2460" | 28 | 1.0 | 79.4 | 36 | 8 | ○ |
| 335E02500A21M | 1/4" | 6.35 | .2500" | 28 | 1.0 | 79.4 | 36 | 8 | ○ |
| 335M06500A21M | | 6.50 | .2559" | 28 | 1.1 | 79.4 | 36 | 8 | ○ |
| 335E02656A21M | 17/64" | 6.75 | .2656" | 28 | 1.1 | 79.4 | 36 | 8 | ○ |
| 335M06800A21M | | 6.80 | .2677" | 28 | 1.1 | 79.4 | 36 | 8 | ○ |
| 335E02720A21M | | 6.91 | .2720" | 28 | 1.1 | 79.4 | 36 | 8 | ○ |
| 335M07000A21M | | 7.00 | .2756" | 28 | 1.1 | 79.4 | 36 | 8 | ○ |
| 335E02812A21M | 9/32" | 7.14 | .2812" | 28 | 1.2 | 79.4 | 36 | 8 | ○ |
| 335M07400A21M | | 7.40 | .2913" | 28 | 1.2 | 79.4 | 36 | 8 | ○ |
| 335M07500A21M | | 7.50 | .2953" | 28 | 1.2 | 79.4 | 36 | 8 | ○ |
| 335E02969A21M | 19/64" | 7.54 | .2969" | 28 | 1.2 | 79.4 | 36 | 8 | ○ |
| 335E03071A21M | | 7.80 | .3071" | 28 | 1.3 | 79.4 | 36 | 8 | ○ |
| 335E03125A21M | 5/16" | 7.94 | .3125" | 28 | 1.3 | 79.4 | 36 | 8 | ○ |
| 335M08000A21M | | 8.00 | .3150" | 28 | 1.3 | 79.4 | 36 | 8 | ○ |
| 335E03281A21M | 21/64" | 8.33 | .3281" | 35 | 1.4 | 90.7 | 40 | 10 | ○ |
| 335M08500A21M | | 8.50 | .3346" | 35 | 1.4 | 90.7 | 40 | 10 | ○ |
| 335E03438A21M | 11/32" | 8.73 | .3438" | 35 | 1.4 | 90.7 | 40 | 10 | ○ |
| 335M08800A21M | | 8.80 | .3464" | 35 | 1.4 | 90.7 | 40 | 10 | ○ |
| 335M09000A21M | | 9.00 | .3543" | 35 | 1.5 | 90.7 | 40 | 10 | ○ |
| 335E03594A21M | 23/64" | 9.13 | .3594" | 35 | 1.5 | 90.7 | 40 | 10 | ○ |

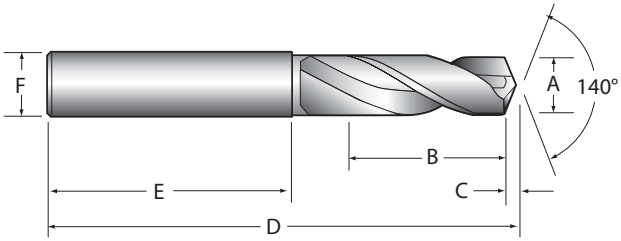
**Stock Availability**

● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 5 to 6 weeks.

**Any non-standard size available**

# ASC 320™ Solid Carbide Drills

## 3.5 x Diameter




| Item Number | A Drill Diameter | | | B Drill Depth (mm) | C Point Length (mm) | D Overall Length (mm) | E Shank Length (mm) | F Shank Dia. (mm) | Stock Status |
|---|---|---|---|---|---|---|---|---|---|
| | Ø Inch | Ø Metric | Ø Decimal | | | | | | |
| 335M09300A21M | | 9.30 | .3661" | 35 | 1.5 | 90.7 | 40 | 10 | ○ |
| 335E03680A21M | | 9.34 | .3677" | 35 | 1.5 | 90.7 | 40 | 10 | ○ |
| 335M09500A21M | | 9.50 | .3740" | 35 | 1.5 | 90.7 | 40 | 10 | ○ |
| 335E03750A21M | 3/8" | 9.53 | .3750" | 35 | 1.5 | 90.7 | 40 | 10 | ○ |
| 335E03858A21M | | 9.80 | .3858" | 35 | 1.6 | 90.7 | 40 | 10 | ○ |
| 335E03906A21M | 25/64" | 9.92 | .3906" | 35 | 1.6 | 90.7 | 40 | 10 | ○ |
| 335M10000A21M | | 10.00 | .3937" | 35 | 1.6 | 90.7 | 40 | 10 | ○ |
| 335M10200A21M | | 10.20 | .4016" | 42 | 1.7 | 106.1 | 45 | 12 | ○ |
| 335E04062A21M | 13/32" | 10.32 | .4062" | 42 | 1.7 | 106.1 | 45 | 12 | ○ |
| 335M10500A21M | | 10.50 | .4134" | 42 | 1.7 | 106.1 | 45 | 12 | ○ |
| 335E04219A21M | 27/64" | 10.72 | .4219" | 42 | 1.7 | 106.1 | 45 | 12 | ○ |
| 335M11000A21M | | 11.00 | .4331" | 42 | 1.8 | 106.1 | 45 | 12 | ○ |
| 335E04375A21M | 7/16" | 11.11 | .4375" | 42 | 1.8 | 106.1 | 45 | 12 | ○ |
| 335M01120A21M | | 11.20 | .4409" | 42 | 1.8 | 106.1 | 45 | 12 | ○ |
| 335M11500A21M | | 11.50 | .4527" | 42 | 1.9 | 106.1 | 45 | 12 | ○ |
| 335E04688A21M | 15/32" | 11.91 | .4688" | 42 | 1.9 | 106.1 | 45 | 12 | ○ |
| 335M1200A21M | | 12.00 | .4724" | 42 | 1.9 | 106.1 | 45 | 12 | ○ |
| 335E04844A21M | 31/64" | 12.30 | .4844" | 49 | 2.0 | 115.6 | 45 | 14 | ○ |
| 335M12500A21M | | 12.50 | .4921" | 49 | 2.0 | 115.6 | 45 | 14 | ○ |
| 335E05000A21M | 1/2" | 12.70 | .5000" | 49 | 2.1 | 115.6 | 45 | 14 | ○ |
| 335M13000A21M | | 13.00 | .5118" | 49 | 2.1 | 115.6 | 45 | 14 | ○ |
| 335E05156A21M | 33/64" | 13.10 | .5156" | 49 | 2.1 | 115.6 | 45 | 14 | ○ |
| 335E05312A21M | 17/32" | 13.49 | .5312" | 49 | 2.2 | 115.6 | 45 | 14 | ○ |
| 335M13500A21M | | 13.50 | .5315" | 49 | 2.2 | 115.6 | 45 | 14 | ○ |
| 335M13700A21M | | 13.70 | .5394" | 49 | 2.2 | 115.6 | 45 | 14 | ○ |
| 335E05469A21M | 35/64" | 13.89 | .5469" | 49 | 2.2 | 115.6 | 45 | 14 | ○ |
| 335M14000A21M | | 14.00 | .5512" | 49 | 2.4 | 115.6 | 45 | 14 | ○ |
| 335E05625A21M | 9/16" | 14.29 | .5625" | 56 | 2.4 | 128.8 | 48 | 16 | ○ |
| 335M14500A21M | | 14.50 | .5709" | 56 | 2.4 | 128.8 | 48 | 16 | ○ |
| 335E05781A21M | 37/64" | 14.68 | .5781" | 56 | 2.4 | 128.8 | 48 | 16 | ○ |
| 335M15000A21M | | 15.00 | .5906" | 56 | 2.4 | 128.8 | 48 | 16 | ○ |
| 335E05938A21M | 19/32" | 15.08 | .5938" | 56 | 2.4 | 128.8 | 48 | 16 | ○ |
| 335E06094A21M | 39/64" | 15.48 | .6094" | 56 | 2.4 | 128.8 | 48 | 16 | ○ |
| 335M15500A21M | | 15.50 | .6102" | 56 | 2.5 | 128.8 | 48 | 16 | ○ |
| 335E06250A21M | 5/8" | 15.88 | .6250" | 56 | 2.6 | 128.8 | 48 | 16 | ○ |
| 335M16000A21M | | 16.00 | .6299" | 56 | 2.6 | 128.8 | 48 | 16 | ○ |
| 335M16500A21M | | 16.50 | .6496" | 63 | 2.7 | 138.2 | 48 | 18 | ○ |
| 335E06562A21M | 21/32" | 16.67 | .6563" | 63 | 2.7 | 138.2 | 48 | 18 | ○ |
| 335M17000A21M | | 17.00 | .6693" | 63 | 2.8 | 138.2 | 48 | 18 | ○ |
| 335E06719A21M | 43/64" | 17.07 | .6719" | 63 | 2.8 | 138.2 | 48 | 18 | ○ |
| 335E06875A21M | 11/16" | 17.46 | .6875" | 63 | 2.8 | 138.2 | 48 | 18 | ○ |
| 335M17500A21M | | 17.50 | .6890" | 63 | 2.8 | 138.2 | 48 | 18 | ○ |
| 335E07031A21M | 45/64" | 17.86 | .7031" | 63 | 2.8 | 138.2 | 48 | 18 | ○ |
| 335M18000A21M | | 18.00 | .7087" | 63 | 2.9 | 138.2 | 48 | 18 | ○ |
| 335M18500A21M | | 18.50 | .7283" | 70 | 3.0 | 149.5 | 50 | 20 | ○ |
| 335E07344A21M | 47/64" | 18.65 | .7344" | 70 | 3.0 | 149.5 | 50 | 20 | ○ |
| 335M19000A21M | | 19.00 | .7480" | 70 | 3.1 | 149.5 | 50 | 20 | ○ |
| 335M19260A21M | | 19.26 | .7583" | 70 | 3.1 | 149.5 | 50 | 20 | ○ |
| 335M19500A21M | | 19.50 | .7677" | 70 | 3.2 | 149.5 | 50 | 20 | ○ |
| 335E07813A21M | 25/32" | 19.84 | .7813" | 70 | 3.2 | 149.5 | 50 | 20 | ○ |
| 335M20000A21M | | 20.00 | .7874" | 70 | 3.2 | 149.5 | 50 | 20 | ○ |





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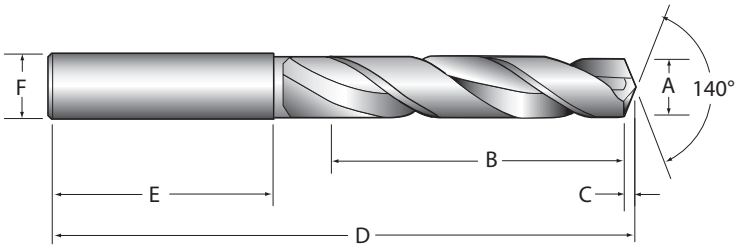
# ASC 320™ Solid Carbide Drills

## 6 x Diameter




| Item Number | A Drill Diameter | | | B Drill Depth (mm) | C Point Length (mm) | D Overall Length (mm) | E Shank Length (mm) | F Shank Dia. (mm) | Stock Status |
|---|---|---|---|---|---|---|---|---|---|
| | Ø Inch | Ø Metric | Ø Decimal | | | | | | |
| 360M03000A21M | | 3.00 | .1181" | 24 | 0.5 | 72.7 | 36 | 4 | ○ |
| 360E01250A21M | 1/8" | 3.18 | .1250" | 24 | 0.5 | 72.7 | 36 | 4 | ○ |
| 360M03500A21M | | 3.50 | .1378" | 24 | 0.5 | 72.7 | 36 | 4 | ○ |
| 360E01406A21M | 9/64" | 3.57 | .1406" | 24 | 0.5 | 72.7 | 36 | 4 | ○ |
| 360E01563A21M | 5/32" | 3.97 | .1563" | 24 | 0.5 | 72.7 | 36 | 4 | ○ |
| 360M04000A21M | | 4.00 | .1575" | 24 | 0.5 | 72.7 | 36 | 4 | ○ |
| 360M04200A21M | | 4.20 | .1653" | 36 | 0.7 | 83.1 | 36 | 6 | ○ |
| 360E01719A21M | 11/64" | 4.37 | .1719" | 36 | 0.7 | 83.1 | 36 | 6 | ○ |
| 360M04500A21M | | 4.50 | .1772" | 36 | 0.7 | 83.1 | 36 | 6 | ○ |
| 360M04600A21M | | 4.60 | .1811" | 36 | 0.7 | 83.1 | 36 | 6 | ○ |
| 360E01875A21M | 3/16" | 4.76 | .1875" | 36 | 0.8 | 83.1 | 36 | 6 | ○ |
| 360M04800A21M | | 4.80 | .1890" | 36 | 0.8 | 83.1 | 36 | 6 | ○ |
| 360M05000A21M | | 5.00 | .1969" | 36 | 0.8 | 83.1 | 36 | 6 | ○ |
| 360E01990A21M | | 5.05 | .1990" | 36 | 0.8 | 83.1 | 36 | 6 | ○ |
| 360E02010A21M | | 5.11 | .2010" | 36 | 0.8 | 83.1 | 36 | 6 | ○ |
| 360E02031A21M | 13/64" | 5.16 | .2031" | 36 | 0.8 | 83.1 | 36 | 6 | ○ |
| 360E02130A21M | | 5.41 | .2130" | 36 | 0.8 | 83.1 | 36 | 6 | ○ |
| 360M05500A21M | | 5.50 | .2165" | 36 | 0.9 | 83.1 | 36 | 6 | ○ |
| 360E02188A21M | 7/32" | 5.56 | .2188" | 36 | 0.9 | 83.1 | 36 | 6 | ○ |
| 360E02280A21M | | 5.79 | .2280" | 36 | 0.9 | 83.1 | 36 | 6 | ○ |
| 360E02344A21M | 15/64" | 5.95 | .2344" | 36 | 0.9 | 83.1 | 36 | 6 | ○ |
| 360M06000A21M | | 6.00 | .2362" | 36 | 0.9 | 83.1 | 36 | 6 | ○ |
| 360E02500A21M | 1/4" | 6.35 | .2500" | 48 | 1.0 | 109.4 | 36 | 8 | ○ |
| 360M06500A21M | | 6.50 | .2559" | 48 | 1.1 | 109.4 | 36 | 8 | ○ |
| 360E02656A21M | 47/64" | 6.75 | .2656" | 48 | 1.1 | 109.4 | 36 | 8 | ○ |
| 360M06800A21M | | 6.80 | .2677" | 48 | 1.1 | 109.4 | 36 | 8 | ○ |
| 360E02720A21M | | 6.91 | .2720" | 48 | 1.1 | 109.4 | 36 | 8 | ○ |
| 360M07000A21M | | 7.00 | .2756" | 48 | 1.1 | 109.4 | 36 | 8 | ○ |
| 360E02810A21M | 9/32" | 7.14 | .2810" | 48 | 1.2 | 109.4 | 36 | 8 | ○ |
| 360M07400A21M | | 7.40 | .2913" | 48 | 1.2 | 109.4 | 36 | 8 | ○ |
| 360M07500A21M | | 7.50 | .2953" | 48 | 1.2 | 109.4 | 36 | 8 | ○ |
| 360E02969A21M | 19/64" | 7.54 | .2969" | 48 | 1.2 | 109.4 | 36 | 8 | ○ |
| 360E03125A21M | 5/16" | 7.94 | .3125" | 48 | 1.2 | 109.4 | 36 | 8 | ○ |
| 360M08000A21M | | 8.00 | .3150" | 48 | 1.2 | 109.4 | 36 | 8 | ○ |
| 360E03281A21M | 21/64" | 8.33 | .3281" | 60 | 1.4 | 115.8 | 40 | 10 | ○ |
| 360M08500A21M | | 8.50 | .3346" | 60 | 1.4 | 115.8 | 40 | 10 | ○ |
| 360E03438A21M | 11/32" | 8.73 | .3438" | 60 | 1.4 | 115.8 | 40 | 10 | ○ |
| 360M08800A21M | | 8.80 | .3465" | 60 | 1.5 | 115.8 | 40 | 10 | ○ |
| 360M09000A21M | | 9.00 | .3543" | 60 | 1.5 | 115.8 | 40 | 10 | ○ |
| 360E03594A21M | 23/64" | 9.13 | .3594" | 60 | 1.5 | 115.8 | 40 | 10 | ○ |
| 360M09300A21M | | 9.30 | .3661" | 60 | 1.5 | 115.8 | 40 | 10 | ○ |
| 360M09500A21M | | 9.50 | .3740" | 60 | 1.5 | 115.8 | 40 | 10 | ○ |
| 360E03750A21M | 3/8" | 9.53 | .3750" | 60 | 1.5 | 115.8 | 40 | 10 | ○ |
| 360M09800A21M | | 9.80 | .3858" | 60 | 1.6 | 115.8 | 40 | 10 | ○ |
| 360E03906A21M | 25/64" | 9.92 | .3906" | 60 | 1.6 | 115.8 | 40 | 10 | ○ |
| 360M10000A21M | | 10.00 | .3937" | 60 | 1.6 | 115.8 | 40 | 10 | ○ |

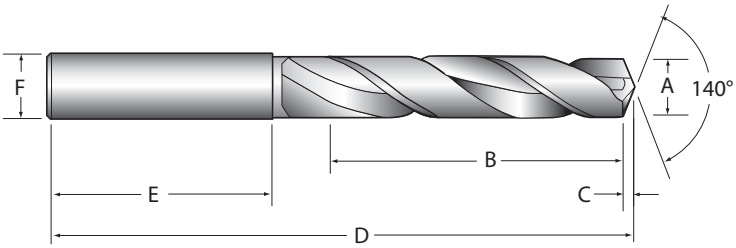
**Stock Availability**

● Stock Item.
○ Stocked in limited quantities, advanced planning is recommended.
◆ Non-stock standard. Normal delivery 5 to 6 weeks.

**Any non-standard size available**

# ASC 320™ Solid Carbide Drills

## 6 x Diameter




| Item Number | A Drill Diameter | | | B Drill Depth (mm) | C Point Length (mm) | D Overall Length (mm) | E Shank Length (mm) | F Shank Dia. (mm) | Stock Status |
|---|---|---|---|---|---|---|---|---|---|
| | Ø Inch | Ø Metric | Ø Decimal | | | | | | |
| 360M10200A21M | | 10.20 | .4016" | 72 | 1.7 | 136.2 | 45 | 12 | ○ |
| 360E04062A21M | 13/32" | 10.32 | .4062" | 72 | 1.7 | 136.2 | 45 | 12 | ○ |
| 360M10500A21M | | 10.50 | .4134" | 72 | 1.7 | 136.2 | 45 | 12 | ○ |
| 360E04219A21M | 27/64" | 10.72 | .4219" | 72 | 1.7 | 136.2 | 45 | 12 | ○ |
| 360M11000A21M | | 11.00 | .4331" | 72 | 1.8 | 136.2 | 45 | 12 | ○ |
| 360E04375A21M | 7/16" | 11.11 | .4375" | 72 | 1.8 | 136.2 | 45 | 12 | ○ |
| 360M11200A21M | | 11.20 | .4409" | 72 | 1.8 | 136.2 | 45 | 12 | ○ |
| 360M11500A21M | | 11.50 | .4528" | 72 | 1.9 | 136.2 | 45 | 12 | ○ |
| 360M11700A21M | | 11.70 | .4607" | 72 | 1.9 | 136.2 | 45 | 12 | ○ |
| 360E04688A21M | 15/32" | 11.91 | .4688" | 72 | 1.9 | 136.2 | 45 | 12 | ○ |
| 360M12000A21M | | 12.00 | .4724" | 72 | 1.9 | 136.2 | 45 | 12 | ○ |
| 360E04844A21M | 31/64" | 12.30 | .4844" | 84 | 2.0 | 150.5 | 45 | 14 | ○ |
| 360M12500A21M | | 12.50 | .4921" | 84 | 2.0 | 150.5 | 45 | 14 | ○ |
| 360E05000A21M | 1/2" | 12.70 | .5000" | 84 | 2.1 | 150.5 | 45 | 14 | ○ |
| 360M13000A21M | | 13.00 | .5118" | 84 | 2.1 | 150.5 | 45 | 14 | ○ |
| 360E05156A21M | 33/64" | 13.10 | .5156" | 84 | 2.2 | 150.5 | 45 | 14 | ○ |
| 360E05312A21M | 17/32" | 13.49 | .5312" | 84 | 2.2 | 150.5 | 45 | 14 | ○ |
| 360M13500A21M | | 13.50 | .5315" | 84 | 2.2 | 150.5 | 45 | 14 | ○ |
| 360E05469A21M | 35/64" | 13.89 | .5469" | 84 | 2.3 | 150.5 | 45 | 14 | ○ |
| 360M14000A21M | | 14.00 | .5512" | 84 | 2.3 | 150.5 | 45 | 14 | ○ |
| 360E05625A21M | 9/16" | 14.29 | .5625" | 96 | 2.3 | 168.9 | 48 | 16 | ○ |
| 360M14500A21M | | 14.50 | .5709" | 96 | 2.3 | 168.9 | 48 | 16 | ○ |
| 360E05781A21M | 37/64" | 14.68 | .5781" | 96 | 2.3 | 168.9 | 48 | 16 | ○ |
| 360M15000A21M | | 15.00 | .5906" | 96 | 2.4 | 168.9 | 48 | 16 | ○ |
| 360E05938A21M | 19/32" | 15.08 | .5938" | 96 | 2.4 | 168.9 | 48 | 16 | ○ |
| 360E06094A21M | 39/64" | 15.48 | .6094" | 96 | 2.4 | 168.9 | 48 | 16 | ○ |
| 360M15500A21M | | 15.50 | .6102" | 96 | 2.5 | 168.9 | 48 | 16 | ○ |
| 360M15700A21M | | 15.70 | .6181" | 96 | 2.5 | 168.9 | 48 | 16 | ○ |
| 360E06250A21M | 5/8" | 15.88 | .6250" | 96 | 2.6 | 168.9 | 48 | 16 | ○ |
| 360M16000A21M | | 16.00 | .6299" | 96 | 2.6 | 168.9 | 48 | 16 | ○ |
| 360E06406A21M | 41/64" | 16.27 | .6406" | 96 | 2.6 | 168.9 | 48 | 16 | ○ |
| 360M16500A21M | | 16.50 | .6496" | 108 | 2.7 | 183.3 | 48 | 18 | ○ |
| 360E06562A21M | 21/32" | 16.67 | .6563" | 108 | 2.7 | 183.3 | 48 | 18 | ○ |
| 360M17000A21M | | 17.00 | .6693" | 108 | 2.8 | 183.3 | 48 | 18 | ○ |
| 360E06719A21M | 43/64" | 17.07 | .6719" | 108 | 2.8 | 183.3 | 48 | 18 | ○ |
| 360E06875A21M | 11/16" | 17.46 | .6875" | 108 | 2.8 | 183.3 | 48 | 18 | ○ |
| 360M17500A21M | | 17.50 | .6890" | 108 | 2.8 | 183.3 | 48 | 18 | ○ |
| 360M18000A21M | | 18.00 | .7087" | 108 | 2.9 | 183.3 | 48 | 18 | ○ |
| 360E07188A21M | 23/32" | 18.26 | .7188" | 120 | 3.0 | 199.6 | 50 | 20 | ○ |
| 360M18500A21M | | 18.50 | .7283" | 120 | 3.0 | 199.6 | 50 | 20 | ○ |
| 360E07344A21M | 47/64" | 18.65 | .7344" | 120 | 3.0 | 199.6 | 50 | 20 | ○ |
| 360M19000A21M | | 19.00 | .7480" | 120 | 3.1 | 199.6 | 50 | 20 | ○ |
| 360E07500A21M | 3/4" | 19.05 | .7500" | 120 | 3.1 | 199.6 | 50 | 20 | ○ |
| 360E07656A21M | 49/64" | 19.45 | .7656" | 120 | 3.1 | 199.6 | 50 | 20 | ○ |
| 360M19500A21M | | 19.50 | .7677" | 120 | 3.2 | 199.6 | 50 | 20 | ○ |
| 360E07813A21M | 25/32" | 19.84 | .7813" | 120 | 3.2 | 199.6 | 50 | 20 | ○ |
| 360M20000A21M | | 20.00 | .7874" | 120 | 3.2 | 199.6 | 50 | 20 | ○ |

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**





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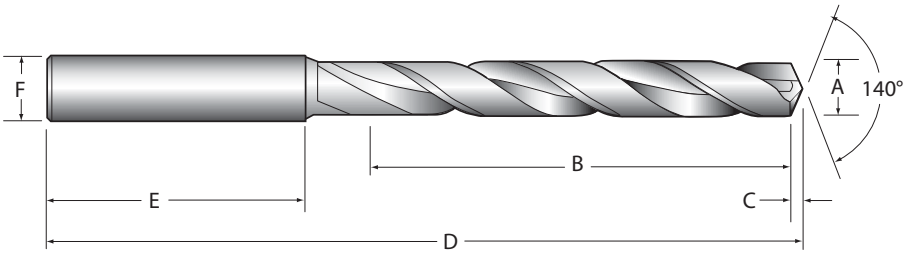
# ASC 320™ Solid Carbide Drills

## 9 x Diameter



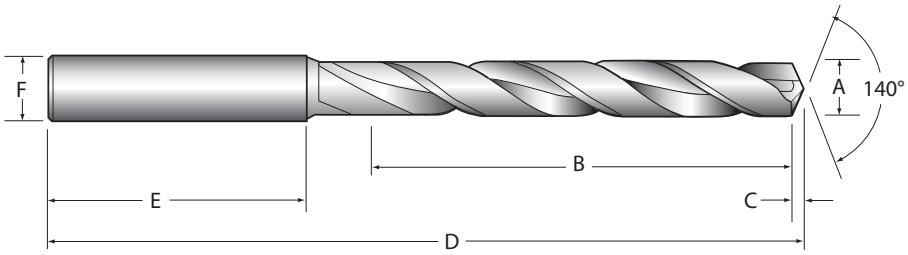

| Item Number | A Drill Diameter | | | B Drill Depth (mm) | C Point Length (mm) | D Overall Length (mm) | E Shank Length (mm) | F Shank Dia. (mm) | Stock Status |
|---|---|---|---|---|---|---|---|---|---|
| | Ø Inch | Ø Metric | Ø Decimal | | | | | | |
| 390E01969A21M | | 5.00 | .1969" | 54 | 0.8 | 101.1 | 36 | 6 | ○ |
| 390M05500A21M | | 5.50 | .2165" | 54 | 0.8 | 101.1 | 36 | 6 | ○ |
| 390M06000A21M | | 6.00 | .2362" | 54 | 1.0 | 101.1 | 36 | 6 | ○ |
| 390E02500A21M | 1/4" | 6.35 | .2500" | 72 | 1.0 | 123.4 | 36 | 8 | ○ |
| 390M06500A21M | | 6.50 | .2559" | 72 | 1.1 | 123.4 | 36 | 8 | ○ |
| 390E02656A21M | 17/64" | 6.75 | .2656" | 72 | 1.1 | 123.4 | 36 | 8 | ○ |
| 390M07000A21M | | 7.00 | .2756" | 72 | 1.1 | 123.4 | 36 | 8 | ○ |
| 390M07500A21M | | 7.50 | .2953" | 72 | 1.2 | 123.4 | 36 | 8 | ○ |
| 390E02969A21M | 19/64" | 7.54 | .2969" | 72 | 1.2 | 123.4 | 36 | 8 | ○ |
| 390M07800A21M | | 7.80 | .3071" | 72 | 1.2 | 123.4 | 36 | 8 | ○ |
| 390E03125A21M | 5/16" | 7.94 | .3125" | 72 | 1.2 | 123.4 | 36 | 8 | ○ |
| 390M08000A21M | | 8.00 | .3150" | 72 | 1.3 | 123.4 | 36 | 8 | ○ |
| 390E03281A21M | 21/64" | 8.33 | .3281" | 72 | 1.3 | 123.4 | 36 | 8 | ○ |
| 390M08500A21M | | 8.50 | .3346" | 90 | 1.4 | 145.8 | 40 | 10 | ○ |
| 390E03438A21M | 11/32" | 8.73 | .3438" | 90 | 1.4 | 145.8 | 40 | 10 | ○ |
| 390M09000A21M | | 9.00 | .3543" | 90 | 1.5 | 145.8 | 40 | 10 | ○ |
| 390E03594A21M | 23/64" | 9.13 | .3594" | 90 | 1.5 | 145.8 | 40 | 10 | ○ |
| 390M09500A21M | | 9.50 | .3740" | 90 | 1.5 | 145.8 | 40 | 10 | ○ |
| 390M09600A21M | 3/8" | 9.53 | .3750" | 90 | 1.5 | 145.8 | 40 | 10 | ○ |
| 390E03906A21M | 25/64" | 9.92 | .3906" | 90 | 1.5 | 145.8 | 40 | 10 | ○ |
| 390M10000A21M | | 10.00 | .3937" | 90 | 1.6 | 145.8 | 40 | 10 | ○ |
| 390M10200A21M | | 10.20 | .4016" | 108 | 1.6 | 172.2 | 45 | 12 | ○ |
| 390E04062A21M | 13/32" | 10.32 | .4062" | 108 | 1.6 | 172.2 | 45 | 12 | ○ |
| 390M10500A21M | | 10.50 | .4134" | 108 | 1.7 | 172.2 | 45 | 12 | ○ |
| 390E04219A21M | 27/64" | 10.72 | .4219" | 108 | 1.7 | 172.2 | 45 | 12 | ○ |
| 390M01100A21M | | 11.00 | .4331" | 108 | 1.8 | 172.2 | 45 | 12 | ○ |
| 390E04375A21M | 7/16" | 11.11 | .4374" | 108 | 1.8 | 172.2 | 45 | 12 | ○ |
| 390M11500A21M | | 11.50 | .4528" | 108 | 1.9 | 172.2 | 45 | 12 | ○ |
| 390E04531A21M | 29/64" | 11.51 | .4531" | 108 | 1.9 | 172.2 | 45 | 12 | ○ |
| 390E04688A21M | 15/32" | 11.91 | .4688" | 108 | 1.9 | 172.2 | 45 | 12 | ○ |
| 390M1200A21M | | 12.00 | .4724" | 108 | 1.9 | 172.2 | 45 | 12 | ○ |
| 390E04844A21M | 31/64" | 12.30 | .4844" | 108 | 1.9 | 172.2 | 45 | 12 | ○ |
| 390M12500A21M | | 12.50 | .4921" | 126 | 2.0 | 192.5 | 45 | 14 | ○ |
| 390E05000A21M | 1/2" | 12.70 | .5000" | 126 | 2.1 | 192.5 | 45 | 14 | ○ |
| 390M13000A21M | | 13.00 | .5118" | 126 | 2.1 | 192.5 | 45 | 14 | ○ |
| 390E05156A21M | 33/64" | 13.10 | .5156" | 126 | 2.1 | 192.5 | 45 | 14 | ○ |
| 390E05312A21M | 17/32" | 13.49 | .5312" | 126 | 2.1 | 192.5 | 45 | 14 | ○ |
| 390M13500A21M | | 13.50 | .5315" | 126 | 2.2 | 192.5 | 45 | 14 | ○ |
| 390E05469A21M | 35/64" | 13.89 | .5469" | 126 | 2.2 | 192.5 | 45 | 14 | ○ |
| 390M14000A21M | | 14.00 | .5512" | 126 | 2.3 | 192.5 | 45 | 14 | ○ |
| 390E05625A21M | 9/16" | 14.29 | .5625" | 144 | 2.3 | 216.9 | 48 | 16 | ○ |
| 390M14500A21M | | 14.50 | .5709" | 144 | 2.4 | 216.9 | 48 | 16 | ○ |
| 390E05781A21M | 37/64" | 14.68 | .5781" | 144 | 2.4 | 216.9 | 48 | 16 | ○ |
| 390M15000A21M | | 15.00 | .5906" | 144 | 2.4 | 216.9 | 48 | 16 | ○ |
| 390E05938A21M | 19/32" | 15.08 | .5938" | 144 | 2.4 | 216.9 | 48 | 16 | ○ |
| 390E05094A21M | 39/64" | 15.48 | .6094" | 144 | 2.4 | 216.9 | 48 | 16 | ○ |

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# ASC 320™ Solid Carbide Drills

## 9 x Diameter




| Item Number | A Drill Diameter | | | B Drill Depth (mm) | C Point Length (mm) | D Overall Length (mm) | E Shank Length (mm) | F Shank Dia. (mm) | Stock Status |
|---|---|---|---|---|---|---|---|---|---|
| | Ø Inch | Ø Metric | Ø Decimal | | | | | | |
| 390M15500A21M | | 15.50 | .6102" | 144 | 2.5 | 216.9 | 48 | 16 | ○ |
| 390E06250A21M | 5/8" | 15.88 | .6250" | 144 | 2.5 | 216.9 | 48 | 16 | ○ |
| 390M16000A21M | | 16.00 | .6299" | 144 | 2.6 | 216.9 | 48 | 16 | ○ |
| 390E06406A21M | 41/64" | 16.27 | .6406" | 144 | 2.6 | 216.9 | 48 | 16 | ○ |
| 390M16500A21M | | 16.50 | .6496" | 162 | 2.7 | 237.3 | 50 | 18 | ○ |
| 390E06563A21M | 21/32" | 16.67 | .6563" | 162 | 2.7 | 237.3 | 50 | 18 | ○ |
| 390M17000A21M | | 17.00 | .6693" | 162 | 2.8 | 237.3 | 50 | 18 | ○ |
| 390E06719A21M | 43/64" | 17.07 | .6719" | 162 | 2.8 | 237.3 | 50 | 18 | ○ |
| 390E06875A21M | 11/16" | 17.46 | .6875" | 162 | 2.8 | 237.3 | 50 | 18 | ○ |
| 390M17500A21M | | 17.50 | .6890" | 162 | 2.8 | 237.3 | 50 | 18 | ○ |
| 390E07031A21M | 45/64" | 17.86 | .7031" | 162 | 2.8 | 237.3 | 50 | 18 | ○ |
| 390M18000A21M | | 18.00 | .7087" | 162 | 2.9 | 237.3 | 50 | 18 | ○ |
| 390E07188A21M | 23/32" | 18.26 | .7188" | 162 | 2.9 | 237.3 | 50 | 18 | ○ |
| 390M18500A21M | | 18.50 | .7283" | 180 | 3.0 | 259.6 | 50 | 20 | ○ |
| 390E07344A21M | 47/64" | 18.65 | .7344" | 180 | 3.0 | 259.6 | 50 | 20 | ○ |
| 390M19000A21M | | 19.00 | .7480" | 180 | 3.1 | 259.6 | 50 | 20 | ○ |
| 390E07500A21M | 3/4" | 19.05 | .7500" | 180 | 3.1 | 259.6 | 50 | 20 | ○ |
| 390E07656A21M | 49/64" | 19.45 | .7656" | 180 | 3.1 | 259.6 | 50 | 20 | ○ |
| 390M19500A21M | | 19.50 | .7677" | 180 | 3.2 | 259.6 | 50 | 20 | ○ |
| 390E07813A21M | 25/32" | 19.84 | .7813" | 180 | 3.2 | 259.6 | 50 | 20 | ○ |
| 390M20000A21M | | 20.00 | .7874" | 180 | 3.2 | 259.6 | 50 | 20 | ○ |

**Stock Availability**

- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 5 to 6 weeks.

**Any non-standard size available**





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| Material | Material Hardness (BHN) | 3.5 x Diameter Solid Carbide | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Speed m/min | FEED mm/rev | | | | | | | | |
| | | | 3 - 4.0mm | 4.1 - 6.0mm | 6.1 - 8.0mm | 8.1 - 10.0mm | 10.1 - 12.0mm | 12.1 - 14.0mm | 14.1 - 16.0mm | 16.1 - 18.0mm | 18.1 - 20.0mm |
| Free Machining Steel | 100 - 150 | 135 | 0.18 | 0.23 | 0.28 | 0.33 | 0.36 | 0.41 | 0.46 | 0.51 | 0.56 |
| | 150 - 200 | 120 | 0.13 | 0.20 | 0.23 | 0.28 | 0.30 | 0.36 | 0.41 | 0.46 | 0.51 |
| | 200 - 250 | 115 | 0.10 | 0.15 | 0.18 | 0.23 | 0.25 | 0.30 | 0.36 | 0.41 | 0.46 |
| Low Carbon Steel | 85 - 125 | 130 | 0.18 | 0.23 | 0.28 | 0.33 | 0.38 | 0.43 | 0.48 | 0.48 | 0.53 |
| | 125 - 175 | 120 | 0.15 | 0.20 | 0.25 | 0.30 | 0.36 | 0.41 | 0.46 | 0.46 | 0.51 |
| | 175 - 225 | 110 | 0.13 | 0.20 | 0.25 | 0.28 | 0.33 | 0.38 | 0.43 | 0.43 | 0.48 |
| | 225 - 275 | 100 | 0.10 | 0.18 | 0.23 | 0.25 | 0.30 | 0.36 | 0.41 | 0.41 | 0.46 |
| Medium Carbon Steel | 125 - 175 | 120 | 0.15 | 0.20 | 0.25 | 0.30 | 0.33 | 0.36 | 0.41 | 0.46 | 0.51 |
| | 175 - 225 | 110 | 0.13 | 0.18 | 0.25 | 0.30 | 0.30 | 0.33 | 0.38 | 0.43 | 0.48 |
| | 225 - 275 | 95 | 0.10 | 0.15 | 0.23 | 0.28 | 0.28 | 0.30 | 0.36 | 0.41 | 0.46 |
| | 275 - 325 | 85 | 0.08 | 0.15 | 0.20 | 0.25 | 0.25 | 0.28 | 0.33 | 0.38 | 0.43 |
| Alloy Steel | 175 - 225 | 115 | 0.15 | 0.20 | 0.25 | 0.30 | 0.33 | 0.36 | 0.41 | 0.46 | 0.51 |
| | 225 - 275 | 105 | 0.13 | 0.18 | 0.23 | 0.28 | 0.30 | 0.33 | 0.38 | 0.43 | 0.48 |
| | 275 - 325 | 90 | 0.10 | 0.15 | 0.20 | 0.25 | 0.28 | 0.30 | 0.33 | 0.41 | 0.46 |
| | 325 - 375 | 85 | 0.08 | 0.13 | 0.18 | 0.23 | 0.25 | 0.25 | 0.30 | 0.36 | 0.41 |
| High Strength Alloy Steel | 225 - 300 | 80 | 0.13 | 0.18 | 0.20 | 0.28 | 0.28 | 0.30 | 0.33 | 0.36 | 0.41 |
| | 300 - 350 | 65 | 0.10 | 0.15 | 0.18 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.38 |
| | 350 - 400 | 50 | 0.08 | 0.13 | 0.15 | 0.20 | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 |
| Structural Steel | 100 - 150 | 110 | 0.13 | 0.20 | 0.23 | 0.28 | 0.30 | 0.33 | 0.36 | 0.41 | 0.46 |
| | 150 - 250 | 95 | 0.10 | 0.18 | 0.20 | 0.25 | 0.28 | 0.30 | 0.33 | 0.38 | 0.43 |
| | 250 - 350 | 80 | 0.08 | 0.13 | 0.18 | 0.20 | 0.23 | 0.25 | 0.28 | 0.33 | 0.38 |
| Tool Steel | 150 - 200 | 80 | 0.08 | 0.10 | 0.13 | 0.15 | 0.18 | 0.20 | 0.23 | 0.25 | 0.28 |
| | 200 - 250 | 65 | 0.05 | 0.08 | 0.10 | 0.13 | 0.15 | 0.18 | 0.20 | 0.23 | 0.25 |
| High Temp Alloy | 140 - 220 | 35 | 0.08 | 0.10 | 0.13 | 0.15 | 0.18 | 0.20 | 0.23 | 0.25 | 0.28 |
| | 220 - 310 | 25 | 0.05 | 0.08 | 0.08 | 0.10 | 0.13 | 0.15 | 0.18 | 0.20 | 0.23 |
| Stainless Steel | 135 - 185 | 60 | 0.10 | 0.13 | 0.15 | 0.18 | 0.20 | 0.23 | 0.28 | 0.30 | 0.33 |
| | 185 - 275 | 40 | 0.08 | 0.10 | 0.10 | 0.13 | 0.15 | 0.18 | 0.23 | 0.25 | 0.28 |
| Cast Iron Gray, Ductile, Nodular | 120 - 150 | 165 | 0.20 | 0.25 | 0.30 | 0.36 | 0.40 | 0.46 | 0.51 | 0.56 | 0.61 |
| | 150 - 200 | 150 | 0.20 | 0.25 | 0.30 | 0.36 | 0.40 | 0.46 | 0.51 | 0.56 | 0.61 |
| | 200 - 220 | 145 | 0.18 | 0.23 | 0.28 | 0.33 | 0.38 | 0.43 | 0.48 | 0.53 | 0.58 |
| | 220 - 260 | 130 | 0.18 | 0.23 | 0.28 | 0.33 | 0.38 | 0.43 | 0.48 | 0.53 | 0.58 |
| | 260 - 320 | 120 | 0.15 | 0.20 | 0.25 | 0.30 | 0.36 | 0.41 | 0.46 | 0.51 | 0.56 |
| Aluminium | 30 | 450 | 0.20 | 0.25 | 0.33 | 0.38 | 0.43 | 0.51 | 0.56 | 0.61 | 0.66 |
| | 180 | 300 | 0.15 | 0.20 | 0.28 | 0.33 | 0.38 | 0.46 | 0.51 | 0.56 | 0.61 |

**Formulae:** mm/min = RPM x mm/rev

$$\text{m/min} = \frac{(\text{RPM}) \times (3.14) \times (\text{Dia})}{1000}$$

$$\text{RPM} = \frac{(\text{M/min}) \times (1000)}{(3.14) \times (\text{Dia.})}$$

**To calculate speeds and feeds for 6 and 9 x diameter ASC320 Solid Carbide High Performance Drills use the following:**

| SPEED AND FEED MULTIPLIER | | |
|---|---|---|
| 3.5 x Diameter | 6 x Diameter | 9 x Diameter |
| See above chart | 0.90 | 0.75 |

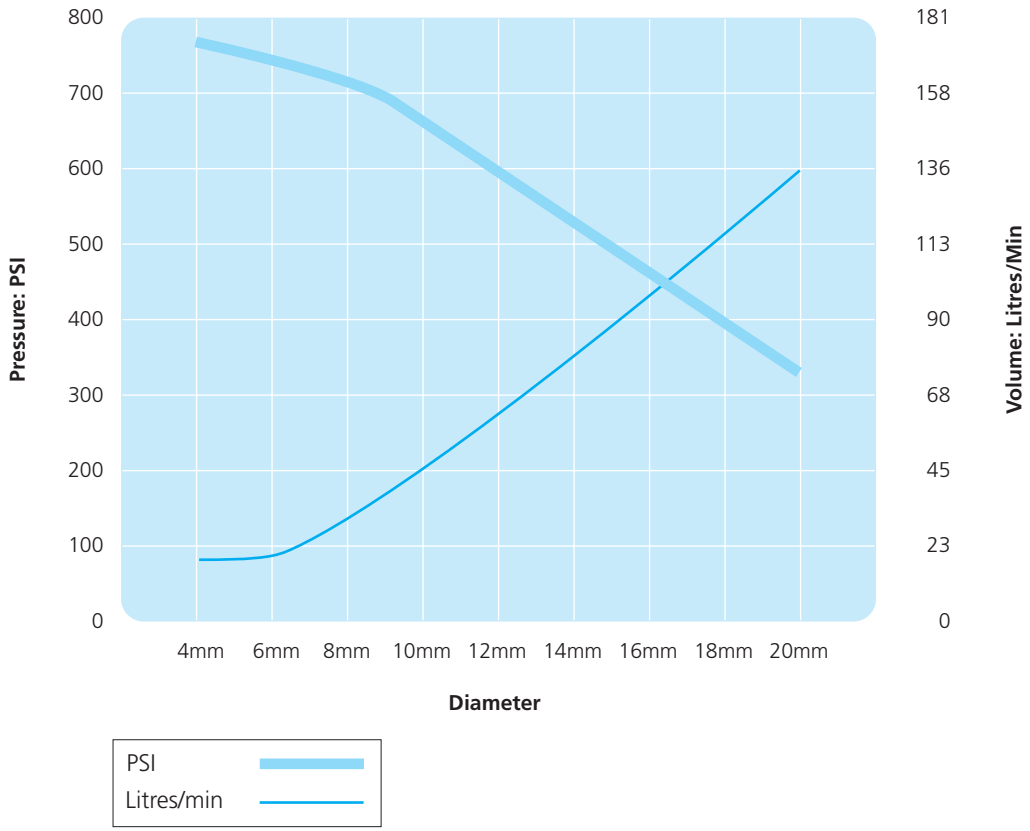
The speeds recommended for coated tools are based on empirical data obtained under "Optimum Conditions". Many applications do not exhibit "Optimum Conditions", reductions in speed parameters may be required due to excessive tool wear generated in the application.

The speeds and feeds listed above are considered a general starting point for all applications. Factory technical assistance is also available for your specific applications through our Application Engineering Team. Please have item number, hole diameter, depth, material grade, BHN hardness, and coolant pressure information available when you call. Additional information such as part and machine rigidity, horsepower and thrust limits, vertical or horizontal spindle, revolving or stationary tool, flood or through holder coolant are also very helpful to our Application Engineers.

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

# Technical Section - ASC 320™

## Coolant Recommendations




### SPEED AND FEED MULTIPLIER

| Coolant Multiplier | | |
|---|---|---|
| 3.5 x Diameter | 6 x Diameter | 9 x Diameter |
| See above chart | 1.5 | 2 |

The coolant pressure and flow rate recommendations above represents a good approximation to obtain optimum tool life and chip evacuation at AMEC® recommended speeds and feeds. For a more specific approximation of coolant requirements, consult the AMEC® Application Engineering Department. Although the above pressure and flow recommendations produce attractive tool life and chip evacuation, the ASC 320™ Solid Carbide High Penetration Drills will still function quite adequately if lower coolant capabilities exist. Call our Application Engineering Department for specific recommendations

### APPLICATION GUIDELINES

Always use the shortest drill the application will permit.
When using 9 x diameter drills reduce feed rate on entry by 25%.
Ensure work pieces and/or fixtures are secure and rigid – particularly on through hole operations.
AMEC® recommends the use of hydraulic or collet chucks with precision sealed collets to hold its ASC320™ Solid Carbide Drill.
Maximum TIR should be in the range of 0.006mm to 0.012mm.
Please refer to our tool holding catalogue available on request or contact our **Application Helpline Tel: +44 (0)1384 400900**

# AccuPort 432®

**Durable and precise, AccuPort 432® holders provide a strong and rigid platform for the drilling of hydraulic ports. The holders' precision ground insert location surfaces ensure total repeatability and simple, uncomplicated changing of the replaceable inserts.**

## Features and Benefits

- Single operation hydraulic port cutting system
- No pre-drilling required
- Replaceable inserts eliminate regrinding and resetting
- Available in all hydraulic port standards
- Reduced cost per hole

**CONTENTS**

## Advanced solutions – outstanding results

As designers and manufacturing engineers push the limits of production technology to improve productivity and performance, AMEC® has continued to innovate and develop new solutions, including the unique AccuPort 432® hydraulic port cutter system.

Every product in the AccuPort 432® system is designed to deliver maximum performance in a diverse range of hydraulic port cutting applications and demanding manufacturing environments.

Using precision replaceable inserts for both the drilling and port forming operations, AccuPort eliminates the need for tool re-grinding and enables absolute repeatability, an excellent surface finish and a reduced cost per port to be achieved. In use, AccuPort drills, forms and precision finishes the hydraulic port in one pass, replacing up to three separate cutting operations in a single tool to deliver outstanding improvements in productivity, accuracy and repeatability.

Hydraulic systems are present in an incredibly diverse range of industries and wherever a hydraulic port is required, AccuPort can provide a more cost effective and higher performance solution in a fraction of the time taken for traditional methods using separate drills, special forming tools and spot-facers.

Whatever your drilling need, AMEC® delivers high performance tooling at the cutting edge.

### AccuPort 432®

This innovative hydraulic port cutter uses high performance T-A® insert technology to deliver outstanding results, accuracy and productivity without the need for pilot drilling, which significantly reduces operation time and costs

**Features and Benefits**

- Drills hydraulic ports in a single pass
- No pre-drilling required
- Replaceable inserts eliminate regrinding and resetting
- Reduced cost per hole
- AccuPort kits produce finished threaded ports

### AccuThread 856®

AMEC's extensive threadmill range is manufactured with thicker cores and helical flutes as standard, which provides significantly increased strength and rigidity. In addition to the specific forms used in port cutting, a full threadmill programme is also available.

**Features and Benefits**

- AM210® coating provides a 25-50% increase in tool life over competitor product
- AccuPort specific threadmills stocked
- Standard cutting length allows for multiple applications without the need for special tooling

### Special Port Contour Cutters

AMEC's well established and highly developed special tools programme has helped solve thousands of application problems worldwide. The design and manufacture of special port contour cutters, as part of this capability, is a key part of our operation and one that sets AMEC® apart from other suppliers. For AMEC®, special is normal.

**Features and Benefits**

- Custom designed for specific applications and requirements
- Complete control over all elements of the cutting tool design
- Eliminates expensive additional cutting operations
- Reduced cost per hole



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## Choosing the right system

Every product in the AccuPort 432® programme is designed to deliver maximum performance in a diverse range of hydraulic port cutting applications and demanding manufacturing environments to ensure they deliver the best possible range of benefits in terms of productivity, cost per hole and tool life.

All hydraulic port standards are covered within the range, which also incorporates the AccuThread 856® threadmills to increase the manufacturing flexibility by allowing hydraulic ports to be produced in just two-operations. In addition, where a unique port profile is required, AMEC® provides a dedicated 'special tooling' solution using our extensive tool design and manufacturing experience to meet precise specifications.

## Typical components & industry sectors

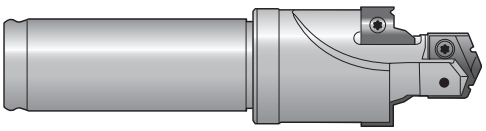
**Agricultural**
- Pumps
- Manifolds
- Cylinders & Rams
- Gear pumps

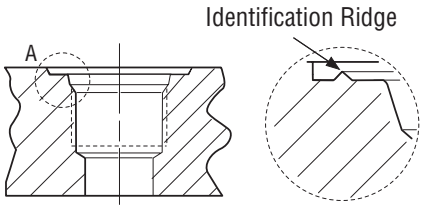
**Automotive**
- Motor valves
- Relief valves
- Brake cylinders
- Power steering pumps

**Aerospace**
- Pumps
- Landing gear
- Brake cylinders
- Manifolds

**Marine**
- Pumps
- Cylinders & Rams
- Motors
- Manifolds

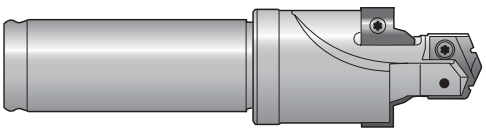
## Hydraulic Port Standards

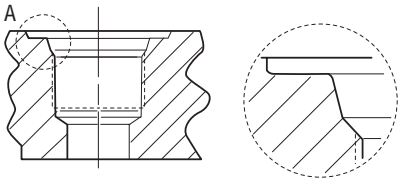





**METRIC**

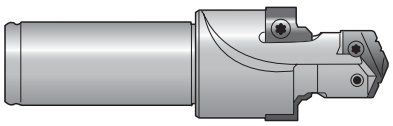
ISO 6149-1: 1993
SAE J-2244-1
(with and without ID Ridge)
*See page 175.*

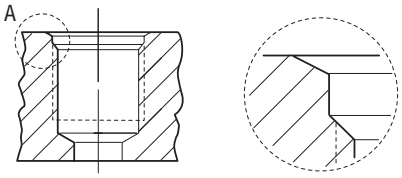





**IMPERIAL**

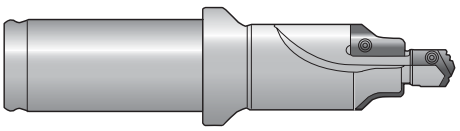
SAE J-1926-1
ISO 11926-1
MS-16142
*See pages 176 & 177.*

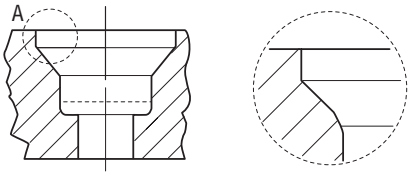





**IMPERIAL**

SAE AS5202
(Formerly UNJF-30
Milspec MS-33649)
UNF AND10050 (Using
Alternate Tap Drill Diameter)
*See page 178.*






**SPECIALS**

Available to suit any port standard / dimension (Example shown)

# Insert Substrates, Geometries and Coatings

## Substrates

### HSS Super Cobalt

Particularly suited for good to rigid machining applications, primarily used for drilling exotic and high alloy materials, or general use when the m/min surface speed needs to be increased. For use in material hardness up to 350 BHN 121kg.

### P40 Carbide

Excellent choice for drilling, free machining steel, low/ medium carbon steels, alloy steels, high strength steels, tool steels, hardened steels, and certain stainless steels refer to technical section.

### K10 Carbide

AMEC's K10 insert is specifically designed for drilling grey/white cast irons. The special geometry offers substantial increase in penetration rates and provides exceptional edge strength and tool life.

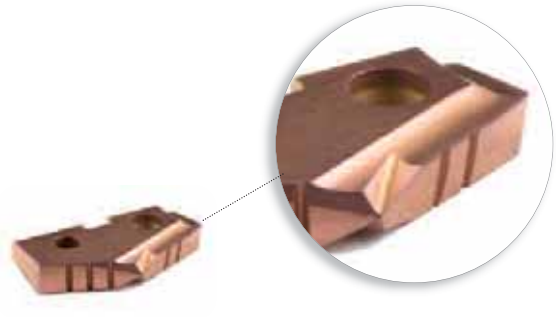
### K35 Carbide

Excellent choice for drilling, free machining steel, low/ medium carbon steels, alloy steels, high strength steels, tool steels, hardened steels, and certain stainless steels refer to technical section.

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 180.

## Geometries



### GEN2 T-A® Geometries

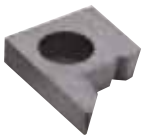
GEN2 T-A® geometries offer substantial increases in penetration rates and tool life. As well as improved centring, smoother break-out on through holes, increased drill stability, improved chip formation, and lower drill forces.

Particularly suited for good to rigid machining applications, primarily used for drilling exotic and high alloy materials, or general use when the m/min surface speed needs to be increased.

## Insert Coatings

### AM200®

- First choice for increased heat resistance over TiN, TiCN and TiAlN with improved wear capabilities.
- Allows for improved tool life and higher penetration rates
- Over 20% increased tool life over TiAlN coating
- Colour Copper / Bronze



### TiAlN

- Excellent choice for wear resistance over high surface speeds
- Excellent oxidation resistance
- Maximum working temperature 800˚C
- Hardness HV 3000
- Colour Violet/Grey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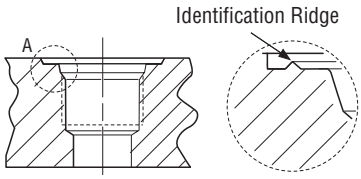
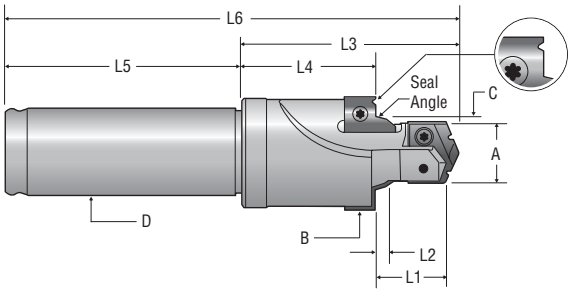
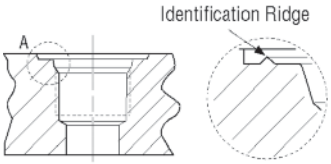



## Port Standards: ISO 6149-1:1993, SAE J-2244/1

| Tube Dash No. | Port Thread Size | Port Contour Cutter Number | Stk. | A Minor Dia. mm | L1 Minor Dia Length mm | B Spotface Dia. W/ridge mm | Seal Angle | C Seal Angle Dia. mm | L2 Seal Angle Length mm | L3 Reference Length mm | L4 Spot face to Shoulder Length mm | D Shank Dia. mm | L5 Shank Length mm | L6 OAL mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - 4 | M12 x 1.5 | I6149-04RY-16FM | ● | 10.5 | 14.1 | 24.0 | 15° | 13.8 | 2.6 | 38.8 | 22.2 | 16.0 | 41.9 | 80.7 |
| - 5 | M14 x 1.5 | I6149-05RZ-16FM | ● | 12.5 | 14.1 | 26.0 | 15° | 15.8 | 2.6 | 38.8 | 21.8 | 16.0 | 41.9 | 80.7 |
| - 6 | M16 x 1.5 | I6149-06R0-20FM | ● | 14.5 | 15.6 | 28.0 | 15° | 17.8 | 2.6 | 47.2 | 28.3 | 20.0 | 41.9 | 89.1 |
| - 8 | M18 x 1.5 | I6149-08R0-20FM | ● | 16.5 | 17.1 | 30.0 | 15° | 19.8 | 2.6 | 50.3 | 29.6 | 20.0 | 41.9 | 92.3 |
| - 10 | M22 x 1.5 | I6149-10R1-25FM | ● | 20.5 | 18.2 | 34.0 | 15° | 23.8 | 2.6 | 54.4 | 31.6 | 25.0 | 53.1 | 107.4 |
| - 12 | M27 x 2.0 | I6149-12R2-32FM | ● | 25.0 | 22.2 | 40.0 | 15° | 29.4 | 3.3 | 67.1 | 39.4 | 32.0 | 57.9 | 125.0 |
| - 14 | M30 x 2.0 | I6149-14R2-32FM | ● | 28.0 | 22.2 | 43.0 | 15° | 32.4 | 3.3 | 67.1 | 38.8 | 32.0 | 57.9 | 125.0 |
| - 16 | M33 x 2.0 | I6149-16R2-32FM | ● | 31.0 | 22.2 | 49.0 | 15° | 35.4 | 3.3 | 67.1 | 38.1 | 32.0 | 57.9 | 125.0 |
| - 20 | M42 x 2.0 | I6149-20R3-40FM | ● | 40.0 | 22.7 | 60.0 | 15° | 44.4 | 3.3 | 77.8 | 46.4 | 40.0 | 70.1 | 147.9 |
| - 24 | M48 x 2.0 | I6149-24R3-40FM | ● | 46.0 | 25.2 | 66.1 | 15° | 50.4 | 3.3 | 77.8 | 42.6 | 40.0 | 70.1 | 147.9 |
| - 32 | M60 x 2.0 | I6149-32R4-40FM | ● | 58.0 | 27.7 | 76.0 | 15° | 62.4 | 3.3 | 96.8 | 56.6 | 40.0 | 70.1 | 166.9 |

## Port Standards: ISO 6149-1:1993, SAE J-2244/1




| Tube Dash No. | Port Thread Size | Port Contour Cutter Number | T-A® Drill Item Numbers: Super Cobalt GEN2 T-A (AM200®) | Carbide GEN2 T-A (AM200®) | Torx Plus® Screw | Torx Plus® Driver | Port Form Insert Item Numbers: P40 Carbide (TiAlN) With Identification Ridge | P40 Carbide (TiAlN) Without Identification Ridge | Torx Plus® Screw | Torx Plus® Driver |
|---|---|---|---|---|---|---|---|---|---|---|
| - 4 | M12 x 1.5 | I6149-04RY-16FM | 45YH-10.5 | 4C1YH-10.5 | 724-IP7 | 8IP-7 | I6149-04R-C5A | I6149-04-C5A | 72556-IP8 | 8IP-8 |
| - 5 | M14 x 1.5 | I6149-05RZ-16FM | 45ZH-12.5 | 4C1ZH-12.5 | 7247-IP7 | 8IP-7 | I6149-04R-C5A | I6149-04-C5A | 72556-IP8 | 8IP-8 |
| - 6 | M16 x 1.5 | I6149-06R0-20FM | 450H-14.5 | 4C10H-14.5 | 72567-IP8 | 8IP-8 | I6149-06R-C5A | I6149-06-C5A | 72556-IP8 | 8IP-8 |
| - 8 | M18 x 1.5 | I6149-08R0-20FM | 450H-16.5 | 4C10H-16.5 | 72567-IP8 | 8IP-8 | I6149-06R-C5A | I6149-06-C5A | 72556-IP8 | 8IP-8 |
| - 10 | M22 x 1.5 | I6149-10R1-25FM | 451H-20.5 | 4C11H-20.5 | 7375-IP9 | 8IP-9 | I6149-04R-C5A | I6149-04-C5A | 72556-IP8 | 8IP-8 |
| - 12 | M27 x 2.0 | I6149-12R2-32FM | 452H-25 | 4C12H-25 | 7495-IP15 | 8IP-15 | I6149-12R-C5A | I6149-12-C5A | 72556-IP8 | 8IP-8 |
| - 14 | M30 x 2.0 | I6149-14R2-32FM | 452H-28 | 4C12H-28 | 7495-IP15 | 8IP-15 | I6149-14R-C5A | I6149-14-C5A | 72556-IP8 | 8IP-8 |
| - 16 | M33 x 2.0 | I6149-16R2-32FM | 452H-31 | 4C12H-31 | 7495-IP15 | 8IP-15 | I6149-16R-C5A | I6149-16-C5A | 7375-IP9 | 8IP-9 |
| - 20 | M42 x 2.0 | I6149-20R3-40FM | 453H-40 | 1C53A-40 | 7514-IP20 | 8IP-20 | I6149-20R-C5A | I6149-20-C5A | 7375-IP9 | 8IP-9 |
| - 24 | M48 x 2.0 | I6149-24R3-40FM | 453H-46 | 1C53A-46 | 7514-IP20 | 8IP-20 | I6149-24R-C5A | I6149-24-C5A | 7375-IP9 | 8IP-9 |
| - 32 | M60 x 2.0 | I6149-32R4-40FM | 454H-58 | N/A | 7514-IP20 | 8IP-20 | I6149-32R-C5A | I6149-32-C5A | 7375-IP9 | 8IP-9 |

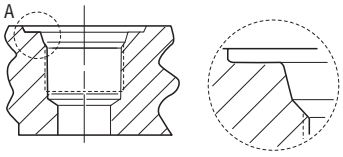
| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

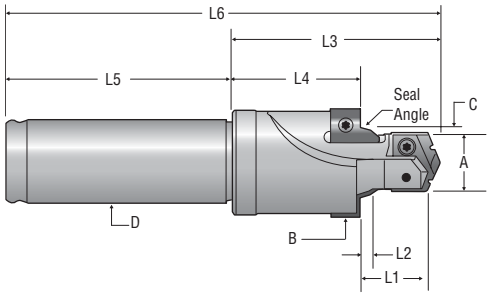
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 180.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# AccuPort 432®

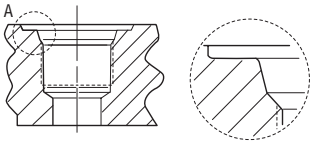



## Port Standards: SAE J-1926-1 / ISO 11926-1, and MS-16142

| Tube Dash No. | Port Thread Size | Port Contour Cutter Number | Stk. | A Minor Dia. mm | L1 Minor Dia Length mm | B Spotface Dia. mm | Seal Angle | C Seal Angle Dia. mm | L2 Seal Angle Length mm | L3 Reference Length mm | L4 Spot face to Shoulder Length mm | D Shank Dia. mm | L5 Shank Length mm | L6 OAL mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - 4 | 7/16-20 UNF-2B | J1926-04Y-16FM | ● | 9.8 | 14.0 | 21.4 | 12° | 12.5 | 2.7 | 38.8 | 22.8 | 16 | 47.6 | 86.4 |
| - 5 | 1/2-20 UNF-2B | J1926-05Z-16FM | ● | 11.5 | 14.0 | 23.0 | 12° | 14.1 | 2.7 | 38.8 | 22.4 | 16 | 47.6 | 86.4 |
| - 6 | 9/16-18 UNF-2B | J1926-060-20FM | ● | 13.0 | 15.5 | 24.6 | 12° | 15.7 | 2.7 | 47.2 | 29.0 | 20 | 51.6 | 98.8 |
| - 8 | 3/4-16 UNF-2B | J1926-080-20FM | ● | 17.5 | 17.5 | 30.7 | 15° | 20.7 | 2.7 | 50.3 | 29.2 | 20 | 51.6 | 101.1 |
| - 10 | 7/8-14 UNF-2B | J1926-101-25FM | ● | 20.5 | 20.0 | 34.0 | 15° | 24.0 | 2.7 | 54.4 | 30.1 | 25 | 57.9 | 112.3 |
| - 12 | 1 1/16-12 UN-2B | J1926-122-32FM | ● | 25.0 | 23.0 | 42.1 | 15° | 29.2 | 3.5 | 67.1 | 38.9 | 32 | 57.9 | 125.0 |
| - 14 | 1 3/16-12 UN-2B | J1926-142-32FM | ● | 28.0 | 23.0 | 45.3 | 15° | 32.4 | 3.5 | 67.1 | 38.2 | 32 | 57.9 | 125.0 |
| - 16 | 1 5/16-12 UN-2B | J1926-162-32FM | ● | 31.2 | 23.0 | 48.5 | 15° | 35.6 | 3.5 | 67.1 | 37.5 | 32 | 57.9 | 125.0 |
| - 20 | 1 5/8-12 UN-2B | J1926-203-32FM | ● | 39.0 | 23.0 | 58.7 | 15° | 43.6 | 3.5 | 77.8 | 46.6 | 32 | 57.9 | 146.0 |
| - 24 | 1 7/8-12 UN-2B | J1926-243-150F | ● | 45.5 | 23.0 | 65.0 | 15° | 49.9 | 3.5 | 77.8 | 45.2 | 38.1 | 68.3 | 146.0 |
| - 32 | 2 1/2-12 UN-2B | J1926-324-150F | ● | 61.5 | 23.0 | 88.0 | 15° | 65.8 | 3.5 | 96.8 | 60.8 | 38.1 | 68.3 | 165.1 |

## Port Standards: SAE J-1926-1 / ISO 11926-1 and MS-16142




| Tube Dash No. | Port Thread Size | Port Contour Cutter Number | T-A® Drill Item Numbers: Super Cobalt GEN2 T-A (AM200®) | Carbide GEN2 T-A (AM200®) | Torx Plus® Screw | Torx Plus® Driver | Port Form Insert Item Numbers: P40 Carbide (TiAlN) | K10 Carbide (AM200®) | Torx Plus® Screw | Torx Plus® Driver |
|---|---|---|---|---|---|---|---|---|---|---|
| - 4 | 7/16-20 UNF-2B | J1926-04Y-16FM | 45YH-.386 | 4C1YH-.386 | 724-IP7 | 8IP-7 | J1926-02-C5A | J1926-02-C3H | 72556-IP8 | 8IP-8 |
| - 5 | 1/2-20 UNF-2B | J1926-05Z-16FM | 45ZH-11.5 | 4C1ZH-11.5 | 7247-IP7 | 8IP-7 | J1926-02-C5A | J1926-02-C3H | 72556-IP8 | 8IP-8 |
| - 6 | 9/16-18 UNF-2B | J1926-060-20FM | 450H-13 | 4C10H-13 | 72556-IP8 | 8IP-8 | J1926-02-C5A | J1926-02-C3H | 72556-IP8 | 8IP-8 |
| - 8 | 3/4-16 UNF-2B | J1926-080-20FM | 450H-0022 | 4C10H-0022 | 72567-IP8 | 8IP-8 | J1926-07-C5A | J1926-07-C3H | 72556-IP8 | 8IP-8 |
| - 10 | 7/8-14 UNF-2B | J1926-101-25FM | 451H-20.5 | 4C11H-20.5 | 7375-IP9 | 8IP-9 | J1926-07-C5A | J1926-07-C3H | 72556-IP8 | 8IP-8 |
| - 12 | 1 1/16-12 UN-2B | J1926-122-32FM | 452H-25 | 4C12H-25 | 7495-IP15 | 8IP-15 | J1926-08-C5A | J1926-08-C3H | 7375-IP9 | 8IP-9 |
| - 14 | 1 3/16-12 UN-2B | J1926-142-32FM | 452H-28 | 4C12H-28 | 7495-IP15 | 8IP-15 | J1926-08-C5A | J1926-08-C3H | 7375-IP9 | 8IP-9 |
| - 16 | 1 5/16-12 UN-2B | J1926-162-32FM | 452H-31 | 4C12H-31 | 7495-IP15 | 8IP-15 | J1926-08-C5A | J1926-08-C3H | 7375-IP9 | 8IP-9 |
| - 20 | 1 5/8-12 UN-2B | J1926-203-32FM | 453H-39 | 1C53A-39 | 7514-IP20 | 8IP-20 | J1926-10-C5A | J1926-10-C3H | 7375-IP9 | 8IP-9 |
| - 24 | 1 7/8-12 UN-2B | J1926-243-150F | 453H-45.5 | 1C53A-45.5 | 7514-IP20 | 8IP-20 | J1926-10-C5A | J1926-10-C3H | 7375-IP9 | 8IP-9 |
| - 32 | 2 1/2-12 UN-2B | J1926-324-150F | 454H-61.5 | N/A | 7514-IP20 | 8IP-20 | J1926-12-C5A | J1926-12-C3H | 7375-IP9 | 8IP-9 |

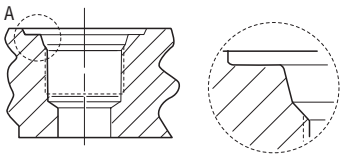
| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

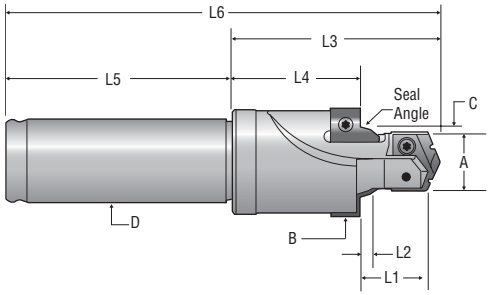
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 180.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**


+44 (0)1384 400 900 +44 (0)1384 400 105 enquiries@alliedmaxcut.com www.alliedmaxcut.com



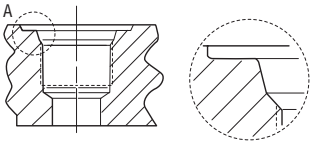




## Port Standards: SAE J-1926-1 / ISO 11926-1, and MS-16142

With extended minor diameter lengths (see column L1)

| Tube Dash No. | Port Thread Size | Port Contour Cutter Number | Stk. | A Minor Dia. mm | L1 Minor Dia. Length mm | B Spotface Dia. mm | Seal Angle | C Seal Angle Dia. mm | L2 Seal Angle Length mm | L3 Reference Length mm | L4 Spotface to Shoulder Length mm | D Shank Dia. mm | L5 Shank Length mm | L6 OAL mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - 4 | 7/16-20 UNF-2B | X1926-04Y-063F | ○ | 9.8 | 20.3 | 21.4 | 12° | 12.5 | 2.7 | 45.1 | 22.8 | 15.9 | 47.6 | 92.8 |
| - 5 | 1/2-20 UNF-2B | X1926-05Z-063F | ○ | 11.5 | 20.3 | 23.0 | 12° | 14.1 | 2.7 | 45.1 | 22.4 | 15.9 | 47.6 | 92.8 |
| - 6 | 9/16-18 UNF-2B | X1926-060-075F | ○ | 13.0 | 21.8 | 24.6 | 12° | 15.7 | 2.7 | 53.5 | 29.0 | 19.1 | 50.0 | 103.5 |
| - 8 | 3/4-16 UNF-2B | X1926-080-075F | ○ | 17.5 | 23.8 | 30.7 | 15° | 20.7 | 2.7 | 56.7 | 29.2 | 19.1 | 50.0 | 106.7 |
| - 10 | 7/8-14 UNF-2B | X1926-101-100F | ○ | 20.5 | 26.3 | 34.0 | 15° | 24.0 | 2.7 | 60.7 | 30.1 | 25.4 | 57.9 | 118.6 |
| - 12 | 1 1/16-12 UN-2B | X1926-122-125F | ○ | 25.0 | 29.3 | 42.1 | 15° | 29.2 | 3.5 | 73.4 | 38.9 | 31.8 | 57.9 | 131.3 |
| - 14 | 1 3/16-12 UN-2B | X1926-142-125F | ○ | 28.0 | 29.3 | 45.3 | 15° | 32.4 | 3.5 | 73.4 | 38.2 | 31.8 | 57.9 | 131.3 |
| - 16 | 1 5/16-12 UN-2B | X1926-162-125F | ○ | 31.2 | 29.3 | 48.5 | 15° | 35.6 | 3.5 | 73.4 | 37.5 | 31.8 | 57.9 | 131.3 |
| - 20 | 1 5/8-12 UN-2B | X1926-203-150F | ○ | 39.0 | 29.3 | 58.7 | 15° | 43.6 | 3.5 | 84.1 | 46.6 | 38.1 | 68.3 | 152.4 |
| - 24 | 1 7/8-12 UN-2B | X1926-243-150F | ○ | 45.5 | 29.3 | 65.0 | 15° | 49.9 | 3.5 | 84.1 | 45.2 | 38.1 | 68.3 | 152.4 |
| - 32 | 2 1/2-12 UN-2B | X1926-324-150F | ○ | 61.5 | 29.3 | 88.0 | 15° | 65.8 | 3.5 | 103.2 | 60.8 | 38.1 | 68.3 | 171.4 |

## Port Standards: SAE J-1926-1 / ISO 11926-1 and MS-16142




| Tube Dash No. | Port Thread Size | Port Contour Cutter Number | T-A® Drill Item Numbers: Super Cobalt GEN2 T-A (AM200®) | Carbide GEN2 T-A (AM200®) | Torx Plus® Screw | Torx Plus® Driver | Port Form Insert Item Numbers: P40 Carbide (TiAlN) | K10 Carbide (AM200®) | Torx Plus® Screw | Torx Plus® Driver |
|---|---|---|---|---|---|---|---|---|---|---|
| - 4 | 7/16-20 UNF-2B | X1926-04Y-063F | 45YH-.386 | 4C1YH-.386 | 724-IP7 | 8IP-7 | J1926-02-C5A | J1926-02-C3H | 72556-IP8 | 8IP-8 |
| - 5 | 1/2-20 UNF-2B | X1926-05Z-063F | 45ZH-11.5 | 4C1ZH-11.5 | 7247-IP7 | 8IP-7 | J1926-02-C5A | J1926-02-C3H | 72556-IP8 | 8IP-8 |
| - 6 | 9/16-18 UNF-2B | X1926-060-075F | 450H-13 | 4C10H-13 | 72556-IP8 | 8IP-8 | J1926-02-C5A | J1926-02-C3H | 72556-IP8 | 8IP-8 |
| - 8 | 3/4-16 UNF-2B | X1926-080-075F | 450H-0022 | 4C10H-0022 | 72567-IP8 | 8IP-8 | J1926-07-C5A | J1926-07-C3H | 72556-IP8 | 8IP-8 |
| - 10 | 7/8-14 UNF-2B | X1926-101-100F | 451H-20.5 | 4C11H-20.5 | 7375-IP9 | 8IP-9 | J1926-07-C5A | J1926-07-C3H | 72556-IP8 | 8IP-8 |
| - 12 | 1 1/16-12 UN-2B | X1926-122-125F | 452H-25 | 4C12H-25 | 7495-IP15 | 8IP-15 | J1926-08-C5A | J1926-08-C3H | 7375-IP9 | 8IP-9 |
| - 14 | 1 3/16-12 UN-2B | X1926-142-125F | 452H-28 | 4C12H-28 | 7495-IP15 | 8IP-15 | J1926-08-C5A | J1926-08-C3H | 7375-IP9 | 8IP-9 |
| - 16 | 1 5/16-12 UN-2B | X1926-162-125F | 452H-31 | 4C12H-31 | 7495-IP15 | 8IP-15 | J1926-08-C5A | J1926-08-C3H | 7375-IP9 | 8IP-9 |
| - 20 | 1 5/8-12 UN-2B | X1926-203-150F | 453H-39 | 1C53A-39 | 7514-IP20 | 8IP-20 | J1926-10-C5A | J1926-10-C3H | 7375-IP9 | 8IP-9 |
| - 24 | 1 7/8-12 UN-2B | X1926-243-150F | 453H-45.5 | 1C53A-45.5 | 7514-IP20 | 8IP-20 | J1926-10-C5A | J1926-10-C3H | 7375-IP9 | 8IP-9 |
| - 32 | 2 1/2-12 UN-2B | X1926-324-150F | 454H-61.5 | N/A | 7514-IP20 | 8IP-20 | J1926-12-C5A | J1926-12-C3H | 7375-IP9 | 8IP-9 |

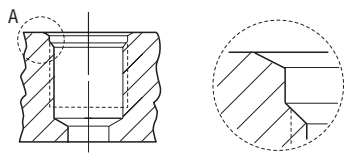
| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

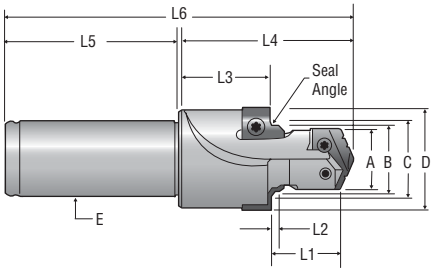
For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 180.

**Stk. - Stock Availability.**
- ● Stock Item.
- ○ Stocked in limited quantities, advanced planning is recommended.
- ◆ Non-stock standard. Normal delivery 15 to 20 days.

**Any non-standard size available.**

# AccuPort 432®




## Port Standards: SAE AS5202 (Formerly UNJF-30 MilSpec MS-33649)

Also conforms to UNF AND10050 Using Alternate Tap Drill Diameter (see column A1)

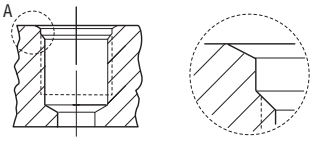
**A1 = AND10050 Specifications**

**A2 = SAE AS5202 Specifications**

| Tube Dash No. | Port Thread Size | Port Contour Cutter Number | Stk. | A1 Dia. mm | A2 Dia. mm | L1 Minor Dia. Length mm | B Pilot Dia mm | L2 Pilot Length mm | Seal Angle | C Seal Angle Dia mm | L2 Spot-face Dia mm | L3 Spot-face to Shoulder Length mm | L4 Total Head Length mm | D Shank Dia mm | L5 Shank Length mm | L6 OAL mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - 4 | 7/16-20 UNJF-3B | AS5202-04Y-063F | ○ | 9.8 | 9.9 | 16.79 | 11.53 | 2.11 | 60° | 14.34 | 22.23 | 22.76 | 41.58 | 15.88 | 47.63 | 89.20 |
| - 5 | 1/2-20 UNJF-3B | AS5202-05Z-063F | ○ | 11.45 | 11.5 | 16.79 | 13.13 | 2.11 | 60° | 15.88 | 23.27 | 22.39 | 41.58 | 15.88 | 47.63 | 89.20 |
| - 6 | 9/16-18 UNJF-3B | AS5202-06Z-075F | ○ | 12.85 | 12.95 | 18.14 | 14.73 | 2.11 | 60° | 17.46 | 24.87 | 28.43 | 49.28 | 19.05 | 50.01 | 99.29 |
| - 8 | 3/4-16 UNJF-3B | AS5202-080-075F | ○ | 17.46 | 17.5 | 21.31 | 19.53 | 2.39 | 60° | 22.23 | 30.43 | 28.57 | 53.52 | 19.05 | 50.01 | 103.53 |
| - 10 | 7/8-14 UNJF-3B | AS5202-101-100F | ○ | 20.35 | 20.5 | 23.75 | 22.76 | 2.72 | 60° | 25.46 | 34.39 | 30.19 | 58.17 | 25.40 | 57.94 | 116.10 |
| - 12 | 1 1/16-12 UNJ-3B | AS5202-122-125F | ○ | 24.8 | 25.0 | 27.15 | 27.58 | 3.18 | 60° | 31.42 | 41.53 | 37.94 | 70.23 | 31.75 | 57.94 | 128.17 |
| - 14 | 1 3/16-12 UNJ-3B | AS5202-142-125F | ○ | 28.0 | 28.17 | 27.15 | 30.76 | 3.18 | 60° | 34.61 | 45.09 | 37.22 | 70.23 | 31.75 | 57.94 | 128.17 |
| - 16 | 1 5/16-12 UNJ-3B | AS5202-162-125F | ○ | 31.15 | 31.34 | 27.15 | 33.93 | 3.18 | 60° | 37.77 | 48.77 | 36.51 | 70.23 | 31.75 | 57.94 | 128.17 |
| - 20 | 1 5/8-12 UNJ-3B | AS5202-203-150F | ○ | 39.0 | 39.29 | 28.47 | 41.86 | 3.18 | 60° | 45.69 | 57.91 | 44.32 | 80.95 | 38.10 | 68.28 | 149.23 |
| - 24 | 1 7/8-12 UNJ-3B | AS5202-243-150F | ○ | 45.5 | 45.64 | 28.75 | 48.21 | 3.18 | 60° | 52.07 | 65.28 | 42.58 | 80.95 | 38.10 | 68.28 | 149.23 |
| - 32 | 2 1/2-12 UNJ-3B | AS5202-324-150F | ○ | 61.3 | 61.49 | 34.87 | 64.11 | 3.18 | 60° | 67.97 | 88.65 | 45.78 | 93.65 | 38.10 | 68.28 | 161.93 |

## Port Standards: SAE AS5202 (Formerly UNJF-30 MilSpec MS-33649)

Also conforms to UNF AND10050 Using Alternate Tap Drill Diameter




| Tube Dash No. | Port Thread Size | Port Contour Cutter Number | T-A® Drill Item Numbers: Super Cobalt GEN2 T-A (AM200®) | T-A® Drill Item Numbers: Carbide GEN2 T-A (AM200®) | T-A® Drill Item Numbers: Torx Plus® Screw | T-A® Drill Item Numbers: Torx Plus® Driver | Port Form Insert Item Numbers: C5 Carbide (TiAlN) | Port Form Insert Item Numbers: Torx Plus® Screw | Port Form Insert Item Numbers: Torx Plus® Driver |
|---|---|---|---|---|---|---|---|---|---|
| - 4 | 7/16-20 UNJF-3B<br>7/16-20 UNF-3B | AS5202-04Y-063F | 45YH-.390<br>45YH-.386 | 4C1YH-.390<br>4C1YH-.386 | 724-IP7 | 8IP-7 | AS5202-04-C5A | 72556-IP8 | 8IP-8 |
| - 5 | 1/2-20 UNJF-3B<br>1/2-20 UNF-3B | AS5202-05Z-063F | 45ZH-11.5<br>45ZH-.451 | 4C1ZH-11.5<br>4C1ZH-.451 | 7247-IP7 | 8IP-7 | AS5202-05-C5A | 72556-IP8 | 8IP-8 |
| - 6 | 9/16-18 UNJF-3B<br>9/16-18 UNF-3B | AS5202-06Z-075F | 45ZH-.510<br>45ZH-.506 | 4C1ZH-.510<br>4C1ZH-.506 | 7247-IP7 | 8IP-7 | AS5202-06-C5A | 72556-IP8 | 8IP-8 |
| - 8 | 3/4-16 UNJF-3B<br>3/4-16 UNF-3B | AS5202-080-075F | 450H-17.5<br>450H-0022 | 4C10H-17.5<br>4C10H-0022 | 72567-IP8 | 8IP-8 | AS5202-08-C5A | 72556-IP8 | 8IP-8 |
| - 10 | 7/8-14 UNJF-3B<br>7/8-14 UNF-3B | AS5202-101-100F | 451H-20.5<br>451H-.801 | 4C11H-20.5<br>4C11H-.801 | 7375-IP9 | 8IP-9 | AS5202-10-C5A | 7495-IP15 | 8IP-15 |
| - 12 | 1 1/16-12 UNJ-3B<br>1 1/16-12 UN-3B | AS5202-122-125F | 452H-25<br>452H-.976 | 4C12H-25<br>4C12H-.976 | 7495-IP15 | 8IP-15 | AS5202-12-C5A | 7495-IP15 | 8IP-15 |
| - 14 | 1 3/16-12 UNJ-3B<br>1 3/16-12 UN-3B | AS5202-142-125F | 452H-1.109<br>452H-28 | 4C12H-1.109<br>4C12H-28 | 7495-IP15 | 8IP-15 | AS5202-14-C5A | 7495-IP15 | 8IP-15 |
| - 16 | 1 5/16-12 UNJ-3B<br>1 5/16-12 UN-3B | AS5202-162-125F | 452H-1.234<br>452H-1.226 | 4C12H-1.234<br>4C12H-1.226 | 7495-IP15 | 8IP-15 | AS5202-16-C5A | 7495-IP15 | 8IP-15 |
| - 20 | 1 5/8-12 UNJ-3B<br>1 5/8-12 UN-3B | AS5202-203-150F | 453H-1.547<br>453H-39 | 1C53A-1.547<br>1C53A-39 | 7514-IP20 | 8IP-20 | AS5202-20-C5A | 7495-IP15 | 8IP-15 |
| - 24 | 1 7/8-12 UNJ-3B<br>1 7/8-12 UN-3B | AS5202-243-150F | 453H-1.797<br>453H-45.5 | 1C53A-1.797<br>1C53A-45.5 | 7514-IP20 | 8IP-20 | AS5202-24-C5A | 7495-IP15 | 8IP-15 |
| - 32 | 2 1/2-12 UNJ-3B<br>2 1/2-12 UN-3B | AS5202-324-150F | 454H-61.5<br>454H-2.413 | N/A<br>N/A | 7514-IP20 | 8IP-20 | AS5202-32-C5A | 7495-IP15 | 8IP-15 |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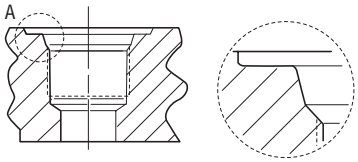


Producing fully finished threaded hydraulic ports has never been easier with the AccuPort 432® & AccuThread 856® Finishing Kit, which combines the AccuPort 432® port contour cutter with a dedicated AccuThread 856® threadmill in a single kit.

## Ferrous Material Kit

Port Standards: SAE J-1926-1/ISO 11926-1, and MS-16142

| Tube Dash Number | Port Thread Size | Port Contour Cutter Number | QTY | T-A® Drill Item Number | | Port Form Insert Item Numbers | | AccuThread 856® Item Numbers | | Kit Item Number |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Super Cobalt (AM200®) | QTY | C5 Carbide (TiAlN) | QTY | Solid Carbide (AM210®) | QTY | |
| - 4 | 7/16/20 UNF-2B | J1926-04Y-16FM | 1 | 45YH-.386 | 2 | J1926-02-C5A | 2 | TMAK0438-20M | 1 | ATK-K-04-M |
| - 5 | 1/2-20 UNF-2B | J1926-05Z-16FM | 1 | 45ZH-11.5 | 2 | J1926-02-C5A | 2 | TMAK0438-20M | 1 | ATK-K-05-M |
| - 6 | 9/16-18 UNF-2B | J1926-060-20FM | 1 | 450H-13 | 2 | J1926-02-C5A | 2 | TMAK0563-18M | 1 | ATK-K-06-M |
| - 8 | 3/4-16 UNF-2B | J1926-080-20FM | 1 | 450H-0022 | 2 | J1926-07-C5A | 2 | TMAK0750-16M | 1 | ATK-K-08-M |
| - 10 | 7/8-14 UNF-2B | J1926-101-25FM | 1 | 451H-20.5 | 2 | J1926-07-C5A | 2 | TMAK0875-14M | 1 | ATK-K-10-M |
| - 12 | 1 1/16-12 UN-2B | J1926-122-32FM | 1 | 452H-25 | 2 | J1926-08-C5A | 2 | TMAK1063-12M | 1 | ATK-K-12-M |
| - 14 | 1 3/16-12 UN-2B | J1926-142-32FM | 1 | 452H-28 | 2 | J1926-08-C5A | 2 | TMAK1063-12M | 1 | ATK-K-14-M |
| - 16 | 1 5/16-12 UN-2B | J1926-162-32FM | 1 | 452H-31 | 2 | J1926-08-C5A | 2 | TMAK1063-12M | 1 | ATK-K-16-M |
| - 20 | 1 5/8-12 UN-2B | J1926-203-32FM | 1 | 453H-39 | 1 | J1926-10-C5A | 2 | TMAK1063-12M | 1 | ATK-K-20-M |
| - 24 | 1 7/8-12 UN-2B | J1926-243-150F | 1 | 453H-45.5 | 1 | J1926-10-C5A | 2 | TMAK1063-12M | 1 | ATK-K-24-M |
| - 32 | 2 1/2-12 UN-2B | J1926-324-150F | 1 | 454H-61.5 | 1 | J1926-12-C5A | 2 | TMAK1063-12M | 1 | ATK-K-32-M |

| P | M | K | N | S | H |
|---|---|---|---|---|---|
| Steel N/mm² | Stainless Steel N/mm² | Cast and Ductile Iron N/mm² | Non-ferrous Material N/mm² | High Temperature Materials N/mm² | Hardened Materials N/mm² |
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

For further information on Material, Hardnesses and Cutting Data, please refer to the Technical Section from page 180.

# Technical Section - AccuPort 432®

## Recommended Cutting Data HSS – Metric

### GEN2 T-A HSS

| Material | Material Hardness (BHN) | Tool Steel Grade | GEN2 T-A AM200® M/min | TiN M/min | TiAlN M/min | TiCN M/min | Drilling Parameters for Port Contour Cutters Feed Rates (mm/rev) for Drill Insert Series: Tube No. 4-5 T-A® Series Y – Z | Tube No. 6-8 T-A® Series 0 | Tube No. 10 T-A® Series 1 | Tube No. 12-16 T-A® Series 2 | Tube No. 20-24 T-A® Series 3 | Tube No. 32 T-A® Series 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Free Machining Steel | 100 – 150 | HSS | 92 | 61 | 85 | 79 | 0.18 | 0.25 | 0.33 | 0.41 | 0.51 | 0.58 |
| | 150 – 200 | HSS | 87 | 55 | 79 | 72 | 0.18 | 0.25 | 0.33 | 0.41 | 0.51 | 0.58 |
| | 200 – 250 | HSS | 81 | 49 | 73 | 64 | 0.15 | 0.25 | 0.33 | 0.41 | 0.51 | 0.58 |
| Low Carbon Steel | 85 – 125 | HSS | 84 | 52 | 76 | 67 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | 0.58 |
| | 125 – 175 | HSS | 81 | 49 | 73 | 64 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | 0.58 |
| | 175 – 225 | HSS | 76 | 46 | 69 | 59 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 |
| | 225 – 275 | HSS | 70 | 43 | 64 | 55 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 |
| Medium Carbon Steel | 125 – 175 | HSS | 79 | 49 | 73 | 64 | 0.15 | 0.23 | 0.30 | 0.38 | 0.48 | 0.58 |
| | 175 – 225 | HSS | 75 | 46 | 69 | 59 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 |
| | 225 – 275 | HSS | 70 | 43 | 64 | 55 | 0.13 | 0.20 | 0.25 | 0.36 | 0.46 | 0.53 |
| | 275 – 325 | SC, PC | 66 | 40 | 59 | 52 | 0.10 | 0.18 | 0.23 | 0.30 | 0.41 | 0.48 |
| Alloy Steel | 125 – 175 | HSS | 69 | 46 | 64 | 59 | 0.15 | 0.20 | 0.25 | 0.36 | 0.43 | 0.48 |
| | 175 – 225 | HSS | 66 | 43 | 59 | 55 | 0.13 | 0.20 | 0.25 | 0.36 | 0.43 | 0.48 |
| | 225 – 275 | HSS | 60 | 40 | 55 | 52 | 0.13 | 0.18 | 0.25 | 0.36 | 0.43 | 0.48 |
| | 275 – 325 | SC, PC | 56 | 37 | 52 | 47 | 0.10 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 325 – 375 | SC, PC | 55 | 34 | 47 | 44 | 0.08 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| High Strength Alloy | 225 – 300 | SC, PC | 37 | 24 | 34 | 30 | 0.13 | 0.18 | 0.23 | 0.25 | 0.36 | 0.43 |
| | 300 – 350 | SC, PC | 27 | 18 | 26 | 24 | 0.10 | 0.18 | 0.23 | 0.25 | 0.36 | 0.43 |
| | 350 – 400 | PC | 23 | 15 | 21 | 20 | 0.08 | 0.15 | 0.20 | 0.23 | 0.30 | 0.38 |
| Structural Steel | 100 – 150 | HSS | 67 | 43 | 61 | 55 | 0.15 | 0.25 | 0.30 | 0.36 | 0.46 | 0.53 |
| | 150 – 250 | HSS | 56 | 37 | 52 | 47 | 0.13 | 0.23 | 0.25 | 0.30 | 0.41 | 0.48 |
| | 250 – 350 | SC, PC | 47 | 30 | 43 | 40 | 0.10 | 0.20 | 0.23 | 0.25 | 0.36 | 0.43 |
| Tool Steel | 150 – 200 | SC | 37 | 24 | 34 | 32 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.38 |
| | 200 – 250 | SC, PC | 31 | 18 | 27 | 26 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.38 |
| High Temp. Alloy | 140 – 220 | SC | 14 | 9 | 12 | 11 | 0.08 | 0.18 | 0.20 | 0.25 | 0.30 | 0.38 |
| | 220 – 310 | SC, PC | 12 | 8 | 11 | 9 | 0.08 | 0.15 | 0.18 | 0.20 | 0.25 | 0.30 |
| Stainless Steel | 135 – 185 | HSS | 33 | 23 | 32 | 29 | 0.15 | 0.20 | 0.23 | 0.28 | 0.36 | 0.41 |
| | 185 – 275 | HSS | 29 | 18 | 27 | 24 | 0.13 | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 |
| Cast Iron | 120 – 150 | HSS | 82 | 52 | 76 | 67 | 0.18 | 0.30 | 0.41 | 0.51 | 0.61 | 0.69 |
| | 150 – 200 | HSS | 75 | 46 | 69 | 59 | 0.15 | 0.28 | 0.36 | 0.46 | 0.56 | 0.64 |
| | 200 – 220 | HSS | 66 | 40 | 59 | 52 | 0.15 | 0.23 | 0.30 | 0.41 | 0.46 | 0.53 |
| | 220 – 260 | SC, PC | 55 | 34 | 50 | 44 | 0.13 | 0.18 | 0.23 | 0.30 | 0.36 | 0.43 |
| | 260 – 320 | SC, PC | 44 | 27 | 41 | 37 | 0.10 | 0.15 | 0.18 | 0.23 | 0.30 | 0.36 |
| Aluminium | 30 | HSS | - | 183 | 259 | 229 | 0.20 | 0.33 | 0.41 | 0.51 | 0.56 | 0.64 |
| | 180 | HSS | - | 91 | 137 | 122 | 0.20 | 0.33 | 0.41 | 0.46 | 0.56 | 0.64 |

* Parameters shown are only starting points. Speed should be calculated using the drill diameter.
Due to the short drill distance required, speed and feed rates can possibly be elevated.
Coolant through the cutter is preferred. Flood, Mist or Air coolant can also be used.
No spot drilling, pre-drilling, or dwell required.

**Formulas:** **mm/min = rev/min • mm/rev** **M/min = rev/min • 0.003 • DIA** **rev/min = M/min • 318.47/DIA**

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |


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## GEN2 T-A Carbide

| Material | Material Hardness (BHN) | Carbide Grade | GEN2 T-A AM200® M/min | TiN M/min | TiAlN M/min | Drilling Parameters for Port Contour Cutters Feed Rates (mm/rev) for Drill Insert Series: Tube No. 4-5 T-A® Series Y – Z | Tube No. 6-8 T-A® Series 0 | Tube No. 10 T-A® Series 1 | Tube No. 12-16 T-A® Series 2 | Tube No. 20-24 T-A® Series 3 |
|---|---|---|---|---|---|---|---|---|---|---|
| Free Machining Steel | 100 – 150 | K35, P40 | 146 | 98 | 128 | 0.20 | 0.30 | 0.38 | 0.46 | 0.53 |
| | 150 – 200 | K35, P40 | 126 | 85 | 110 | 0.18 | 0.28 | 0.36 | 0.41 | 0.48 |
| | 200 – 250 | K35, P40 | 119 | 79 | 104 | 0.15 | 0.25 | 0.33 | 0.38 | 0.43 |
| Low Carbon Steel | 85 – 125 | K35, P40 | 137 | 91 | 119 | 0.20 | 0.25 | 0.33 | 0.43 | 0.48 |
| | 125 – 175 | K35, P40 | 119 | 79 | 104 | 0.18 | 0.25 | 0.33 | 0.41 | 0.46 |
| | 175 – 225 | K35, P40 | 108 | 73 | 94 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 225 – 275 | K35, P40 | 94 | 64 | 82 | 0.13 | 0.23 | 0.30 | 0.38 | 0.43 |
| Medium Carbon Steel | 125 – 175 | K35, P40 | 119 | 79 | 104 | 0.18 | 0.25 | 0.33 | 0.41 | 0.46 |
| | 175 – 225 | K35, P40 | 108 | 73 | 94 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 225 – 275 | K35, P40 | 94 | 64 | 82 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 275 – 325 | K35, P40 | 81 | 55 | 70 | 0.13 | 0.20 | 0.28 | 0.36 | 0.41 |
| Alloy Steel | 125 – 175 | K35, P40 | 114 | 76 | 99 | 0.18 | 0.25 | 0.33 | 0.41 | 0.46 |
| | 175 – 225 | K35, P40 | 105 | 70 | 91 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 225 – 275 | K35, P40 | 94 | 64 | 82 | 0.15 | 0.23 | 0.30 | 0.38 | 0.43 |
| | 275 – 325 | K35, P40 | 87 | 61 | 76 | 0.13 | 0.20 | 0.28 | 0.36 | 0.41 |
| | 325 – 375 | K35, P40 | 78 | 52 | 67 | 0.10 | 0.18 | 0.25 | 0.33 | 0.38 |
| High Strength Alloy | 225 – 300 | K35, P40 | 73 | 49 | 61 | 0.15 | 0.23 | 0.25 | 0.30 | 0.38 |
| | 300 – 350 | K35, P40 | 62 | 43 | 55 | 0.13 | 0.20 | 0.23 | 0.28 | 0.36 |
| | 350 – 400 | K35, P40 | 56 | 37 | 49 | 0.10 | 0.18 | 0.20 | 0.25 | 0.30 |
| Structural Steel | 100 – 150 | K35, P40 | 108 | 73 | 94 | 0.20 | 0.28 | 0.36 | 0.41 | 0.46 |
| | 150 – 250 | K35, P40 | 87 | 61 | 76 | 0.15 | 0.25 | 0.30 | 0.36 | 0.41 |
| | 250 – 350 | K35, P40 | 81 | 55 | 70 | 0.13 | 0.23 | 0.28 | 0.30 | 0.36 |
| Tool Steel | 150 – 200 | K35, P40 | 78 | 49 | 67 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 |
| | 200 – 250 | K35, P40 | 59 | 37 | 52 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 |
| High Temp. Alloy | 140 – 220 | K20 | 36 | 24 | 32 | 0.10 | 0.18 | 0.23 | 0.28 | 0.33 |
| | 220 – 310 | K20 | 29 | 18 | 26 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 |
| Stainless Steel | 138 – 185 | K20 | 73 | 49 | 64 | 0.18 | 0.23 | 0.30 | 0.36 | 0.41 |
| | 185 – 275 | K20 | 56 | 37 | 49 | 0.15 | 0.20 | 0.28 | 0.30 | 0.36 |
| Cast Iron | 120 – 150 | K20, K10 | 152 | 98 | 140 | 0.20 | 0.30 | 0.38 | 0.48 | 0.58 |
| | 150 – 200 | K20, K10 | 146 | 82 | 122 | 0.18 | 0.28 | 0.33 | 0.43 | 0.53 |
| | 200 – 220 | K20, K10 | 131 | 73 | 110 | 0.15 | 0.23 | 0.30 | 0.38 | 0.46 |
| | 220 – 260 | K20, K10 | 113 | 64 | 94 | 0.13 | 0.20 | 0.28 | 0.33 | 0.38 |
| | 260 – 320 | K20, K10 | 102 | 55 | 82 | 0.13 | 0.18 | 0.25 | 0.28 | 0.33 |
| Aluminium | 30 | K20 | - | 366 | 457 | 0.25 | 0.38 | 0.46 | 0.51 | 0.56 |
| | 180 | K20 | - | 244 | 305 | 0.23 | 0.33 | 0.41 | 0.46 | 0.51 |

* Parameters shown are only starting points. Speed should be calculated using the drill diameter.
Due to the short drill distance required, speed and feed rates can possibly be elevated.
Coolant through the cutter is preferred. Flood, Mist or Air coolant can also be used.
No spot drilling, pre-drilling, or dwell required.

**Formulas:** **mm/min = rev/min • mm/rev** **M/min = rev/min • 0.003 • DIA** **rev/min = M/min • 318.47/DIA**

| P Steel N/mm² | M Stainless Steel N/mm² | K Cast and Ductile Iron N/mm² | N Non-ferrous Material N/mm² | S High Temperature Materials N/mm² | H Hardened Materials N/mm² |
|---|---|---|---|---|---|
| <1365 | <940 | <1020 | <855 | <990 | <1365 |

# Technical Section - AccuPort 432®

## Coolant Recommendations HSS & Carbide

Coolant through the cutter is preferred. Flood, Mist, Air coolant can also be used.

### HSS

| Material | Material Hardness (BHN) | Drilling Parameters for Port Contour Cutters – Coolant Pressure (Bar) / Coolant Volumetric Flowrate (l/min) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Tube No. 4-5 | Tube No. 6-8 | Tube No. 10 | Tube No. 12-16 | Tube No. 20-24 | Tube No. 32 |
| | | T-A® Series Y – Z | T-A® Series 0 | T-A® Series 1 | T-A® Series 2 | T-A® Series 3 | T-A® Series 4 |
| Free Machining Steel | 100 – 250 | 12.0 – 12.7 | 6.9 – 8.3 | 7.2 – 9.6 | 5.5 – 7.9 | 5.2 – 6.9 | 2.7 – 3.4 |
| | | 9.5 – 9.8 | 10.6 – 11.4 | 16.7 – 19.7 | 26.5 – 30.3 | 45.4 – 53.0 | 114 – 125 |
| Low Carbon Steel | 85 – 275 | 11.4 – 11.7 | 5.2- 6.2 | 5.2 – 6.5 | 4.1 – 5.5 | 3.8 – 5.2 | 2.0 – 2.7 |
| | | 9.1 – 9.5 | 9.1 – 9.8 | 14.0 – 15.9 | 22.7 – 26.5 | 41.6 – 45.4 | 98 – 114 |
| Medium Carbon Steel | 125 – 325 | 11.0 – 11.4 | 4.8 – 5.8 | 4.8 – 6.2 | 3.8 – 5.2 | 3.4 – 4.8 | 2.0 – 2.7 |
| | | 8.7 – 9.1 | 9.1 – 9.8 | 14.0 – 15.9 | 22.7 – 26.5 | 41.6 – 45.4 | 98 – 114 |
| Alloy Steel | 125 – 375 | 11.0 – 11.4 | 4.5 – 5.2 | 4.5 – 5.5 | 3.4 – 4.8 | 3.1 – 4.1 | 2.0 – 2.4 |
| | | 8.7 – 9.1 | 8.3 – 9.1 | 13.2 – 14.8 | 18.9 – 22.7 | 34.1 – 37.9 | 87 – 98 |
| High Strength Alloy | 225 – 400 | 10.3 – 10.7 | 4.1 – 4.5 | 3.4 – 3.8 | 2.0 – 2.4 | 1.7 – 2.0 | 1.7 – 2.0 |
| | | 8.7 – 9.1 | 7.9 – 8.3 | 11.0 – 11.7 | 15.1 – 18.9 | 26.5 – 30.3 | 79 – 87 |
| Structural Steel | 100 – 350 | 11.0 – 11.4 | 5.2 – 5.8 | 4.5 – 5.5 | 2.7 – 3.8 | 2.7 – 3.4 | 1.7 – 2.0 |
| | | 8.7 – 9.1 | 9.1 – 9.8 | 13.2 – 14.8 | 18.9 – 22.7 | 34.1 – 37.9 | 87 – 93 |
| Tool Steel | 150 – 250 | 10.3 – 10.7 | 3.8 – 4.1 | 3.1 – 3.4 | 1.7 – 2.0 | 1.7 – 2.0 | 1.4 – 1.7 |
| | | 8.7 – 9.1 | 7.9 – 8.3 | 11.0 – 11.7 | 15.1 – 18.9 | 26.5 – 30.3 | 79 – 87 |
| High Temp. Alloy | 140 – 310 | 10.3 – 10.7 | 4.1 – 4.5 | 3.4 – 3.8 | 2.0 – 2.4 | 1.7 – 2.0 | 1.7 – 2.0 |
| | | 8.7 – 9.1 | 8.3 – 8.7 | 11.7 – 12.1 | 15.1 – 18.9 | 26.5 – 30.3 | 87 – 98 |
| Stainless Steel | 135 – 275 | 11.4 – 11.7 | 4.8 – 5.8 | 4.5 – 5.2 | 2.7 – 3.8 | 2.7 – 3.4 | 1.7 – 2.0 |
| | | 9.1 – 9.5 | 8.7 – 9.8 | 13.2 – 14.0 | 18.9 – 22.7 | 34.1 – 37.9 | 87 – 98 |
| Cast Iron | 120 – 320 | 10.7 – 11.0 | 4.1 – 4.5 | 3.4 – 4.1 | 2.0 – 2.7 | 2.0 – 2.4 | 1.7 – 2.0 |
| | | 8.7 – 9.1 | 8.3 – 8.7 | 11.7 – 12.5 | 15.1 – 18.9 | 30.3 – 34.1 | 87 – 98 |
| Aluminium | 30 – 180 | 13.1 – 14.5 | 9.6 – 12.4 | 10.3 – 15.8 | 7.9 – 11.0 | 6.2 – 8.6 | 2.7 – 3.4 |
| | | 9.8 – 10.2 | 12.5 – 14.0 | 20.1 – 23.1 | 30.3 – 34.1 | 53.0 – 60.6 | 114 – 125 |

### Carbide

| Material | Material Hardness (BHN) | Drilling Parameters for Port Contour Cutters – Coolant Pressure (Bar) / Coolant Volumetric Flowrate (l/min) | | | | |
|---|---|---|---|---|---|---|
| | | Tube No. 4-5 | Tube No. 6-8 | Tube No. 10 | Tube No. 12-16 | Tube No. 20-24 |
| | | T-A® Series Y – Z | T-A® Series 0 | T-A® Series 1 | T-A® Series 2 | T-A® Series 3 |
| Free Machining Steel | 100 – 250 | 20.0 | 15.5 | 16.5 | 15.2 | 12.0 |
| | | 12.2 | 16.3 | 25.3 | 41.5 | 71.9 |
| Low Carbon Steel | 85 – 275 | 17.5 | 11.0 | 11.0 | 11.8 | 9.0 |
| | | 11.4 | 13.3 | 20.6 | 36.5 | 62.0 |
| Medium Carbon Steel | 125 – 325 | 17.2 | 9.6 | 10.4 | 10.4 | 7.5 |
| | | 11.3 | 12.5 | 20.0 | 33.8 | 57.0 |
| Alloy Steel | 125 – 375 | 16.5 | 9.3 | 9.6 | 7.9 | 7.2 |
| | | 11.1 | 12.3 | 19.3 | 30.0 | 55.8 |
| High Strength Alloy | 225 – 400 | 14.5 | 5.2 | 4.1 | 3.1 | 2.7 |
| | | 10.4 | 9.1 | 12.6 | 18.8 | 33.6 |
| Structural Steel | 100 – 350 | 15.8 | 9.0 | 7.9 | 6.9 | 5.2 |
| | | 10.8 | 12.0 | 17.5 | 27.8 | 47.1 |
| Tool Steel | 150 – 250 | 14.5 | 5.2 | 4.8 | 3.4 | 3.1 |
| | | 10.4 | 9.1 | 13.6 | 19.7 | 36.5 |
| High Temp. Alloy | 140 – 310 | 16.5 | 11.4 | 12.4 | 11.0 | 9.0 |
| | | 11.1 | 13.5 | 21.9 | 35.4 | 62.0 |
| Stainless Steel | 135 – 275 | 22.7 | 16.5 | 17.9 | 17.2 | 13.1 |
| | | 13.0 | 16.3 | 26.3 | 44.2 | 75.0 |
| Cast Iron | 120 – 320 | 15.5 | 7.2 | 6.2 | 6.2 | 5.5 |
| | | 10.7 | 10.8 | 15.4 | 26.5 | 48.7 |
| Aluminium | 30 – 180 | 24.1 | 22.0 | 21.7 | 19.6 | 13.8 |
| | | 13.4 | 18.8 | 29.0 | 47.2 | 77.0 |


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# Thread Milling

**The MaxThread™ and the AccuThread 856® threadmill ranges are designed to deliver outstanding performance, long tool life and high precision, whether using our solid carbide or indexable insert threadmills.**

## Features and Benefits

- Complete programme available of both solid carbide and indexable thread mills
- All tools can produce left or right hand threads
- Full profiles present on all inserts and solid carbide thread mills
- High technology manufacturing ensures consistent thread forms

**CONTENTS**

## High Performance Threading Solutions

AMEC's thread milling programme has developed into a comprehensive range of high precision tooling offering outstanding productivity with exceptional levels of tool life and thread accuracy. The thread mill range covers both solid carbide and indexable replaceable insert tools with an extensive range of threads forms.

Our thread milling programme has been specifically designed to provide customers with a wide choice. This is achieved by offering two thread mill ranges within our product line up – the low cost, general purpose MaxThread™ thread mill range and the high performance, high productivity AccuThread 856® range.

Both product ranges are designed for manufacturing and production environments and offer excellent performance and thread accuracy, allowing AMEC® to offer the best product for the job, to help give our customers the cutting edge.

Also available is AMEC's 'Special Products', solutions that provide engineers, designers and production managers with the opportunity of creating application specific tooling that can achieve levels of efficiency and performance beyond standard threading solutions.

## Solid Carbide

### MaxThread™ Thread Mills

The MaxThread™ threadmill range is manufactured from solid carbide with ground helical flutes and a TiAlN coating as standard. These product have been designed for the low volume / low cost production environment, providing excellent performance at a competitive price.

A helical flute design has been maintained across the MaxThread™ range to allow for maximum production benefits and to negate the need for straight flute thread mills. A comprehensive range of thread forms and technical information further supports the programme.

**Features and Benefits**

- Helical flute which offers increased strength and rigidity when cutting forces are applied
- TiAlN coated for increased tool life over uncoated tools
- Extensive range of thread forms
- High quality for consistent predictable production

### AccuThread 856®

The AccuThread 856® is AMEC's premium thread milling product range, manufactured from micro grain carbide and coated in AMEC's AM210® premium coating. This product is designed for the demanding environment of high production thread milling, providing extraordinary tool life and exceptionally high quality thread forms. The AccuThread range is available in a wide selection of thread standards and forms part of our specials programme allowing you to tailor design threadmills to your specific requirements.

**Features and Benefits**

- AMEC's proprietary AM210® coating has a 25-50% increase in tool life over competitor product
- Standard cutting lengths allow for multiple applications without the need for special thread mills
- Helical flute which offers increased strength and rigidity when cutting forces are applied
- CNC G code programmes available



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## Indexable Thread Milling

### AccuThread 856® - Bolt in style

The AccuThread 856® indexable bolt in style is our general purpose system available in two insert lengths with an extensive range of thread forms. The tool holders are manufactured from engineered dampened stainless steel providing excellent rigidity when in contact with the work pieces, helping to provide quality thread forms.

**Features and Benefits**

- Thread mill holders are manufactured from stainless steel that is engineered to dampen vibration during operation
- Extensive range of thread forms with two thread lengths
- Can produce left or right handed threads

### AccuThread 856® - Pin style

The AccuThread 856® indexable pin style is designed to allow for a deeper working thread and higher rigidity, enabling high productivity, extended tool life and excellent performance when producing threads. The tool holders are manufactured from dampened stainless steel, which provides outstanding rigidity when in contact with the work piece, helping ensure high quality thread forms are produced. Pin style tool holders incorporate through coolant as standard.

**Features and Benefits**

- Patented pin style locking system ensures unsurpassed repeatability
- Thread mill holders are manufactured from stainless steel that is engineered to dampen vibration during operation
- Extensive range of thread forms with two thread lengths

### AccuThread 856® - Indexable inserts

Bolt-in Style

Pin Style

**Features and Benefits**

- Full profiles present on all inserts allows 100% thread form against 65-75% for tapping
- AMEC's proprietary AM210® coating has a 25-50% increase in tool life over competitor product
- AMEC's premium carbide allows for extended tool life whilst providing high quality thread forms

# How to order information



## MaxThread™ Solid Carbide Threadmills

| MAX | A | 0250 | BSW | 20 |
|---|---|---|---|---|
| **MaxThread** | **Coating** | **Min. Thread Dia.** | **Thread Forms** | **Thread Pitch** |
| | A – TiAlN | English – 0250 = ¼"<br>Number Drill – 0008 - #8<br>Metric – 0450 = M 4.5 | BSW<br>BSPP<br>BSPT<br>NPT<br>NPTF<br><br>Metric and UN are shown with thread diameter and pitch only | UN – 20<br>Metric – 1.0 |

## AccuThread 856® Solid Carbide Threadmills

| TM | U | K | 0250 | – | 20 | M |
|---|---|---|---|---|---|---|
| **AccuThread** | **Thread Class** | **Coating** | **Min. Thread Dia.** | | **Thread Pitch** | **Shank Designation** |
| | U – UN, UNF<br>N – NPT, NPTF<br>M – Metric<br>A – AccuPort® Specific<br>B – BSP, BSPT | K – AM210®<br>H – AM200®<br>T – TiN<br>A – TiAlN<br>N – TiCN<br>U – Uncoated | English – 0250 = ¼"<br>Number Drill – 0008 - #8<br>Metric – 0450 = M 4.5 | | UN – 20<br>Metric – 1.0 | Blank - Imperial<br>M - Metric |

## AccuThread 856® Indexable Threadmill Holders

| THT | - | 0400 | - | 1F | 075 | M |
|---|---|---|---|---|---|---|
| **Holder Style** | | **Cutter Dia.** | | **# of Flutes** | **Length of Insert** | **Shank Designation** |
| THT – Tapered Head<br>THN – Straight Head (Neutral)<br>THP – Straight Head (Positive)<br>TSN – Shell Mill<br><br>THT and THN Holders utilise bolt-in style inserts<br>THP and TSN Holders utilise pin style inserts | | 400 - .400"(10.2mm) | | 1F – 1 Flute<br>2F – 2 Flutes<br>3F – 3 Flutes<br>5F – 5 Flutes<br>7F – 7 Flutes<br>8F – 8 Flutes | 075 – ¾"<br>100 – 1.00"<br>150 – 1.50" | Blank - Imperial<br>M - Metric |

## AccuThread 856® Indexable Threadmill Inserts

| TP | 075 | K | - | UN | 32 | I |
|---|---|---|---|---|---|---|
| **Insert Style** | **Insert Length** | **Coating** | | **Thread Class** | **Thread Pitch** | **Thread Style** |
| TP – Positive – Bolt In<br>TN – Neutral – Pin & Screw | 075 – ¾"<br>100 – 1.00"<br>150 – 1.50" | K – AM210®<br>H – AM200®<br>T – TiN<br>A – TiAlN<br>N – TiCN<br>U – Uncoated | | UN, UNJ<br>NPT, NPTF<br>BSP, BSPT<br>M - Metric<br>F – Full ACME<br>AP – API Round | UN – 20<br>Metric – 1.0 | I - Internal<br>E - External |


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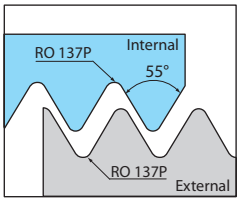
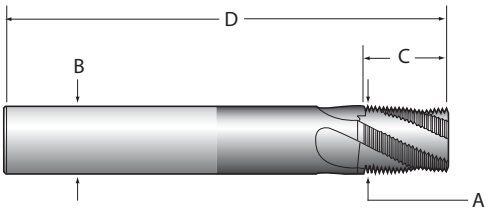
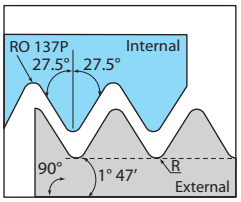
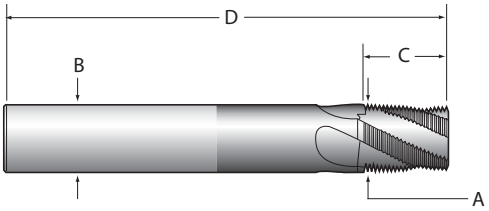



## Solid Carbide Threadmills BSPP

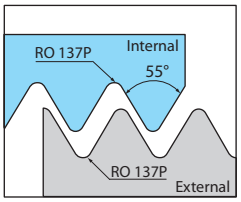
| Item Number | BSP Size | Pitch | Flutes | Max Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| MAXA0063BSPP28 | 1/16″ and 1/8″ BSPP | 28 | 3 | 5.97 | 6.00 | 14.53 | 51.00 | ● |
| MAXA0250BSPP19 | 1/4″ and 3/8″ BSPP | 19 | 4 | 9.91 | 10.00 | 18.72 | 73.00 | ● |
| MAXAF0375BSPP19 | 3/8″ BSPP | 19 | 4 | 11.94 | 12.00 | 29.00 | 84.00 | ● |
| MAXA0500BSPP14 | 1/2″ and 3/4″ BSPP | 14 | 4 | 11.94 | 12.00 | 29.03 | 84.00 | ● |
| MAXAF0500BSPP14 | 1/2″-5/8″-3/4″-7/8″ | 14 | 5 | 15.75 | 16.00 | 34.47 | 93.00 | ● |
| MAAF1000BSPP11 | 1″ | 11 | 5 | 15.75 | 16.00 | 34.67 | 93.00 | ● |
| MAXA1000BSPP11 | 1″ to 2″ BSPP | 11 | 4 | 15.75 | 16.00 | 34.67 | 93.00 | ● |

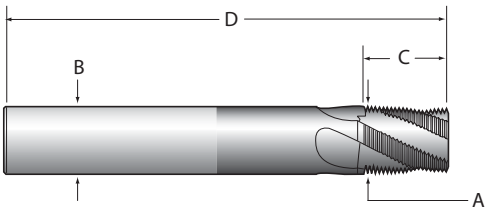



## Solid Carbide Threadmills BSPT

| Item Number | BSPT Size | Pitch | Flutes | Max Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| MAXA0063BSPT28 | 1/16″ and 1/8″ BSPT | 28 | 3 | 5.97 | 6.00 | 9.98 | 51.00 | ● |
| MAXA0250BSPT19 | 1/4″ and 3/8″ BSPT | 19 | 4 | 9.91 | 10.00 | 14.73 | 73.00 | ● |
| MAXA0500BSPT14 | 1/2″ and 3/4″ BSPT | 14 | 4 | 11.94 | 12.00 | 20.00 | 84.00 | ● |
| MAXA1000BSPT11 | 1″ to 2″ BSPT | 11 | 4 | 15.75 | 16.00 | 32.31 | 93.00 | ● |



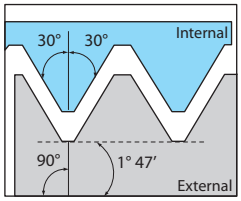



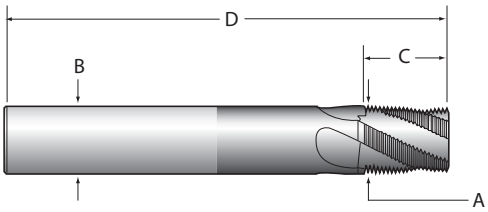

## Solid Carbide Threadmills BSW

| Item Number | Min. Thread Size | Pitch | Flutes | Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| MAXA0250BSW20 | 1/4″ | 20 | 3 | 4.50 | 6.00 | 10.16 | 58 | ● |
| MAXA0312BSW18 | 5/16″ | 18 | 3 | 5.00 | 6.00 | 11.29 | 58 | ● |
| MAXA0375BSW16 | 3/8″ | 16 | 5 | 7.00 | 8.00 | 14.29 | 64 | ● |
| MAXA0437BSW14 | 7/16″ | 14 | 5 | 7.90 | 8.00 | 18.15 | 64 | ● |
| MAXA0500BSW12 | 1/2″ – 9/16″ | 12 | 5 | 9.00 | 10.00 | 19.10 | 73 | ● |
| MAXA0625BSW11 | 5/8″ | 11 | 5 | 11.90 | 12.00 | 23.10 | 84 | ● |
| MAXA0750BSW10 | 3/4″ | 10 | 5 | 11.90 | 12.00 | 27.94 | 84 | ● |
| MAXA0875BSW9 | 7/8″ | 9 | 5 | 15.90 | 16.00 | 28.23 | 93 | ● |
| MAXA1000BSW8 | 1″ | 8 | 6 | 15.90 | 16.00 | 34.93 | 93 | ● |

# MaxThread™ Threadmills

## Solid Carbide Threadmills NPT/NPTF
## TiAlN coated




## Solid Carbide Threadmills NPT

| Item Number | NPT Size | Pitch | Flutes | Max Cutter Dia (A) mm | Shank Dia (B) mm | Length of Cut (C) mm | OAL (D) mm | Stk. |
|---|---|---|---|---|---|---|---|---|
| MAXA0063NPT27 | 1/16″ and 1/8″ NPT | 27 | 3 | 5.95 | 6.00 | 11.30 | 58.00 | ● |
| MAXA0250NPT18 | 1/4″ and 3/8″ NPT | 18 | 4 | 7.75 | 8.00 | 15.70 | 64.00 | ● |
| MAXA0500NPT14 | 1/2″ and 3/4″NPT | 14 | 4 | 11.95 | 12.00 | 23.70 | 84.00 | ● |
| MAXA1000NPT115 | 1″ to 2″ NPT | 11.5 | 4 | 15.75 | 16.00 | 28.75 | 93.00 | ● |
| MAXA2500NPT8 | 2-1/2″ to 6″ NPT | 8 | 5 | 19.75 | 20.00 | 38.10 | 115.00 | ● |

## Solid Carbide Threadmills NPTF

| Item Number | NPTF Size | Pitch | Flutes | Max Cutter Dia (A) mm | Shank Dia (B) mm | Length of Cut (C) mm | OAL (D) mm | Stk. |
|---|---|---|---|---|---|---|---|---|
| MAXA0063NPTF27 | 1/16″ and 1/8″ NPTF | 27 | 3 | 5.95 | 6.00 | 11.30 | 58.00 | ○ |
| MAXA0250NPTF18 | 1/4″ and 3/8″ NPTF | 18 | 4 | 7.75 | 8.00 | 15.70 | 64.00 | ○ |
| MAXA0500NPTF14 | 1/2″ and 3/4″ NPTF | 14 | 4 | 11.95 | 12.00 | 23.70 | 84.00 | ○ |
| MAXA1000NPTF115 | 1″ to 2″ NPTF | 11.5 | 4 | 15.75 | 16.00 | 28.75 | 93.00 | ○ |
| MAXA2500NPTF8 | 2-1/2″ to 6″ NPTF | 8 | 5 | 19.75 | 20.00 | 38.10 | 115.00 | ○ |

*Note: Solid Carbide Threadmills are sold in 1 piece packages*

**Stk. - Stock Availability**
- ● Stocked.
- ○ Stocked in limited quantities
- ◆ Non-Stocked Standard – 25 working days delivery

All other coatings are non-stocked standards – 25 working day delivery applies

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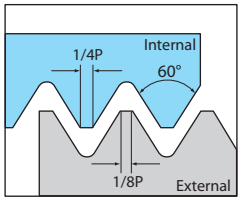
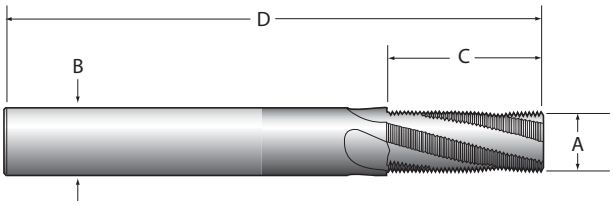
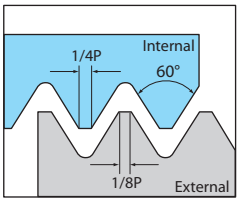
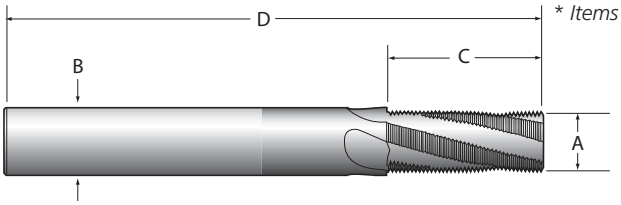



## Solid Carbide Threadmills UN

| Item Number | Min. Thread Size | Pitch | Flutes | Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| MAXA0002x64 | #2 | 64 | 3* | 1.65 | 3.00 | 3.20 | 39.00 | ● |
| MAXA0002x56 | #2 | 56 | 3* | 1.65 | 3.00 | 3.20 | 39.00 | ● |
| MAXA0003x48 | #3 | 48 | 3* | 1.80 | 3.00 | 3.75 | 39.00 | ● |
| MAXA0004x40 | #4 | 40 | 3* | 2.20 | 3.00 | 4.45 | 39.00 | ● |
| MAXA0005x44 | #5 | 44 | 3 | 2.40 | 3.00 | 4.65 | 39.00 | ● |
| MAXA0006x32 | #6 | 32 | 3 | 2.50 | 3.00 | 5.55 | 39.00 | ● |
| MAXA0008x36 | #8 | 36 | 3 | 3.00 | 4.00 | 6.35 | 51.00 | ● |
| MAXA0008x32 | #8 | 32 | 3 | 3.20 | 4.00 | 6.35 | 51.00 | ● |
| MAXA0010x32 | #10 | 32 | 3 | 3.80 | 4.00 | 7.95 | 51.00 | ● |
| MAXA0010x28 | #10 | 28 | 3 | 3.80 | 4.00 | 8.20 | 51.00 | ● |
| MAXA0010x24 | #10 | 24 | 3 | 3.70 | 4.00 | 8.50 | 51.00 | ● |
| MAXA0250x28 | 1/4" | 28 | 3 | 4.75 | 6.00 | 12.70 | 58.00 | ● |
| MAXA0250x20 | 1/4" | 20 | 3 | 4.75 | 6.00 | 12.70 | 58.00 | ● |
| MAXA0313x24 | 5/16" | 24 | 3 | 5.95 | 6.00 | 16.00 | 58.00 | ● |
| MAXA0313x18 | 5/16" | 18 | 3 | 5.95 | 6.00 | 17.00 | 58.00 | ● |
| MAXA0375x24 | 3/8" | 24 | 4 | 7.25 | 8.00 | 19.00 | 64.00 | ● |
| MAXA0375x16 | 3/8" | 16 | 4 | 7.25 | 8.00 | 19.00 | 64.00 | ● |
| MAXA0438x28 | 7/16" | 28 | 4 | 7.90 | 8.00 | 19.95 | 64.00 | ● |
| MAXA0438x20 | 7/16" | 20 | 4 | 8.75 | 10.00 | 22.85 | 73.00 | ● |
| MAXA0438x14 | 7/16" | 14 | 4 | 7.75 | 8.00 | 20.00 | 64.00 | ● |
| MAXA0500x13 | 1/2" | 13 | 4 | 9.40 | 10.00 | 23.50 | 73.00 | ● |
| MAXA0563x18 | 9/16" | 18 | 4 | 9.90 | 10.00 | 22.65 | 73.00 | ● |
| MAXA0563x12 | 9/16" | 12 | 4 | 9.90 | 10.00 | 22.65 | 73.00 | ● |
| MAXA0625x11 | 5/8" | 11 | 4 | 11.95 | 12.00 | 32.40 | 84.00 | ● |
| MAXA0750x16 | 3/4" | 16 | 4 | 11.95 | 12.00 | 31.75 | 84.00 | ● |
| MAXA0750x12 | 3/4" | 12 | 4 | 11.95 | 12.00 | 31.75 | 84.00 | ● |
| MAXA0750x10 | 3/4" | 10 | 4 | 11.95 | 12.00 | 33.00 | 84.00 | ● |
| MAXA0875x14 | 7/8" | 14 | 4 | 11.95 | 12.00 | 32.70 | 84.00 | ● |
| MAXAF0875x14 | 7/8" | 14 | 5 | 15.75 | 16.00 | 34.47 | 93.00 | ● |
| MAXA0875x9 | 7/8" | 9 | 4 | 15.75 | 16.00 | 36.75 | 93.00 | ● |
| MAXA1000x8 | 1" | 8 | 4 | 15.75 | 16.00 | 35.00 | 93.00 | ● |
| MAXAF1000x12 | 1"-1"1/16-1"1/8-1"1/4 | 12 | 5 | 15.75 | 16.00 | 33.87 | 93.00 | ● |
| MAXA1125x7 | 1 1/8" | 7 | 5 | 19.90 | 20.00 | 36.30 | 105.00 | ● |
| MAXA1375x6 | 1 3/8" | 6 | 5 | 19.90 | 20.00 | 38.10 | 105.00 | ● |




** Items marked with an asterisk are straight fluted*

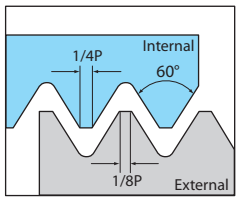
## Solid Carbide Threadmills UN Extra Length

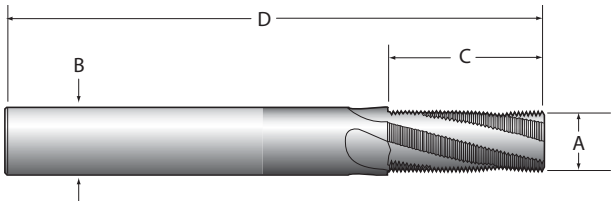
| Item Number | Min. Thread Size | Pitch | Flutes | Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| MAXA0625x11XL | 5/8" | 11 | 4 | 11.95 | 12.00 | 37.00 | 100.00 | ○ |
| MAXA0750x10XL | 3/4" | 10 | 4 | 11.95 | 12.00 | 40.70 | 100.00 | ○ |
| MAXA0875x9XL | 7/8" | 9 | 4 | 15.75 | 16.00 | 45.20 | 100.00 | ○ |
| MAXA1000x8XL | 1" | 8 | 6 | 19.90 | 20.00 | 50.80 | 115.00 | ○ |

*Note: Solid Carbide Threadmills are sold in 1 piece packages*

# MaxThread™ Threadmills

## Solid Carbide Threadmills Metric ISO
## TiAlN coated




## Solid Carbide Threadmills Metric

| Item Number | Thread Size | Pitch | Flutes | Max Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| MAXA0200x040 | M2 | 0.40 | 3 | 1.50 | 3.00* | 3.20 | 39.00 | ● |
| MAXA0250x045 | M2.5 | 0.45 | 3 | 1.50 | 3.00* | 3.60 | 39.00 | ● |
| MAXA0300x050 | M3 | 0.50 | 3 | 2.15 | 3.00* | 4.50 | 39.00 | ● |
| MAXA0400x070 | M4 | 0.70 | 3 | 2.90 | 3.00 | 8.00 | 39.00 | ● |
| MAXA0450x075 | M4.5 | 0.75 | 3 | 3.00 | 4.00 | 6.75 | 51.00 | ● |
| MAXA0500x080 | M5 | 0.80 | 3 | 3.60 | 4.00 | 8.00 | 51.00 | ● |
| MAXA0600x100 | M6 | 1.00 | 3 | 4.60 | 6.00 | 12.00 | 51.00 | ● |
| MAXA0600x075 | M6 | 0.75 | 3 | 4.60 | 6.00 | 12.00 | 51.00 | ● |
| MAXA0600x050 | M6 | 0.50 | 3 | 4.60 | 6.00 | 12.00 | 58.00 | ● |
| MAXA0800x125 | M8 | 1.25 | 3 | 5.90 | 6.00 | 16.25 | 51.00 | ● |
| MAXA1000x150 | M10 | 1.50 | 4 | 7.40 | 8.00 | 19.50 | 64.00 | ● |
| MAXA1000x075 | M10 | 0.75 | 4 | 7.95 | 8.00 | 15.00 | 64.00 | ● |
| MAXA1000x050 | M10 | 0.50 | 4 | 7.95 | 8.00 | 15.00 | 64.00 | ● |
| MAXA1200x175 | M12 | 1.75 | 4 | 9.40 | 10.00 | 22.71 | 73.00 | ● |
| MAXA1200x100 | M12 | 1.00 | 4 | 9.40 | 10.00 | 20.00 | 73.00 | ● |
| MAXA1400x150 | M14 | 1.50 | 4 | 10.90 | 12.00 | 27.00 | 84.00 | ● |
| MAXA1400x200 | M14 | 2.00 | 4 | 10.90 | 12.00 | 28.00 | 84.00 | ● |
| MAXA1800x150 | M18 | 1.50 | 4 | 11.90 | 12.00 | 31.50 | 84.00 | ● |
| MAXA2000x250 | M20 | 2.50 | 4 | 11.90 | 12.00 | 30.00 | 84.00 | ● |
| MAXA2000x200 | M20 | 2.00 | 4 | 11.95 | 12.00 | 30.00 | 84.00 | ● |
| MAXAF2000x150 | M20-M22-M24 | 1.50 | 5 | 15.75 | 16.00 | 36.00 | 93.00 | ● |
| MAXA2400x300 | M24 | 3.00 | 4 | 15.90 | 16.00 | 36.00 | 93.00 | ● |
| MAXA3000x350 | M30 | 3.50 | 4 | 15.75 | 16.00 | 38.50 | 100.00 | ● |
| MAXA3600x400 | M36 | 4.00 | 5 | 19.90 | 20.00 | 40.00 | 105.00 | ● |

** Items marked with an asterisk are straight fluted*

**Stk. - Stock Availability**
- ● Stocked.
- ○ Stocked in limited quantities
- ◆ Non-Stocked Standard – 25 working days delivery

All other coatings are non-stocked standards – 25 working day delivery applies





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## Recommended Cutting Data
## Solid Carbide Threadmills

| Material | Material Hardness (BHN) | Material Machinability | TiAlN M/min | Cutter (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Recommended Feed (mm/tooth) | | | | | | | |
| | | | | 3 | 5 | 6 | 8 | 10 | 12 | 16 | 19 |
| Free Machining Steel | 100-150 | Easy | 167 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 150-200 | Easy | 130 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 200-250 | Easy | 93 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| Low Carbon Steel | 85-125 | Average | 167 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 125-175 | Average | 130 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 175-225 | Average | 112 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 225-275 | Average | 93 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| Medium Carbon Steel | 125-175 | Average | 137 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 175-225 | Average | 120 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 225-275 | Average | 107 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 275-325 | Average | 95 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| Alloy Steel | 125-175 | Average | 107 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 175-225 | Average | 93 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 225-275 | Average | 84 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 275-325 | Difficult | 75 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 325-375 | Difficult | 70 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| High Strength Alloy | 225-300 | Average | 89 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 300-350 | Difficult | 80 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 350-400 | Difficult | 70 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| Structural Steel | 100-150 | Average | 143 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 150-250 | Average | 119 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 250-350 | Difficult | 107 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| Tool Steel | 150-200 | Difficult | 107 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 200-250 | Difficult | 93 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| High Temperature Alloy | 140-220 | Difficult | 31 | 0.008 | 0.010 | 0.015 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 |
| | 220-310 | Difficult | 21 | 0.008 | 0.010 | 0.015 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 |
| Stainless Steel | 135-185 | Average | 101 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | 185-275 | Difficult | 96 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| Stainless Steel PH | 185-275 | Average | 58 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | 275-325 | Difficult | 29 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| Cast Iron | 120-150 | Easy | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 150-200 | Easy | 142 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 200-220 | Easy | 130 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 220-260 | Average | 113 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 260-320 | Average | 108 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| Aluminium, Wrought | 30 | Easy | 335 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| | 180 | Easy | 305 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| Cast Aluminium* | 120 | Easy | 191 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| Brass | 30-125 | Easy | 295 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |

**Formulas:** Linear Feed Rate = RPM x mm/tooth x No. of Teeth M/min = (RPM x 3.142 x Dia)/1000. RPM = (M/min x 1000) / (Dia x 3.142)
Adjusted Feed Rate (AFR) for Internal Thread Milling = (Thread Major Dia – Cutter Dia) / major Dia) x Linear Feed Rate

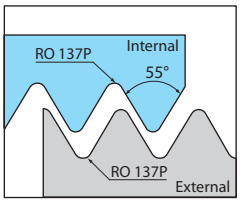
The above formula on an internal thread program adjusts the linear feed rate to be applied to the O.D. instead of the centre of the cutting tool.
If the feed rate is not adjusted, the excessive feed rate will cause the thread mill cutting edges to fail.
**Example of an Internal Thread Feed Rate Calculation: Cast Iron 125 BHN with a ½ - 13 thread form.**

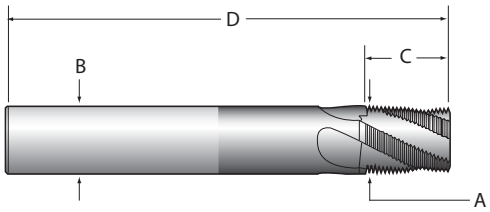
| Step 1 | Step 2 | Step 3 |
|---|---|---|
| RPM=(m/min x 1000)(Dia x 3.142) | Linear Feed Rate = RPM x mm/tooth x No of teeth | AFR for Internal Thread Milling = (Major Dia-Cutter Dia) / Major Dia) x Linear Feed Rate |
| RPM=(152 x 1000)(8.89 x 3.142) | Linear Feed Rate = 5442 x 0.038 x 4 | AFR for Internal Thread Milling = (12.7 – 8.89) / 12.7) x 827.18 |
| RPM=5442 | Linear Feed Rate = 827.18 mm/min | AFR for Internal Thread Milling = 248.15mm/min |

Note: Reduce feed and speed by 30% for NPT and NPTF Thread Forms due to tapered cutting action
* Uncoated thread mills are recommended for cast aluminium applications (price and availability upon request)
Refer to recommended pass chart on page 208 when referencing material machinability

# AccuThread 856®

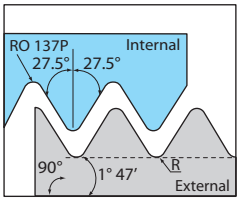
## Solid Carbide Threadmills BSPP/BSPT/BSW
## AM210® coated

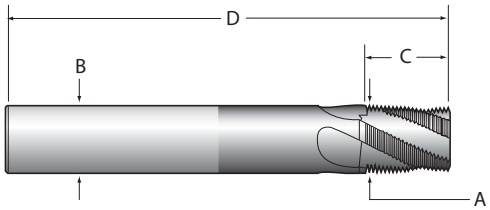



## Solid Carbide Threadmills BSPP

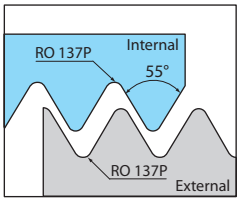
| Item Number | BSP Size | Pitch | Flutes | Max Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| TMBK0063-BSPPM | 1/16" and 1/8" BSP | 28 | 3 | 5.97 | 6.00 | 14.53 | 51.00 | ● |
| TMBK0250-BSPPM | 1/4" and 3/8" BSP | 19 | 4 | 9.91 | 10.00 | 18.72 | 73.00 | ● |
| TMBKF0375-BSPPM | 3/8" | 19 | 4 | 11.94 | 12.00 | 29.00 | 84.00 | ● |
| TMBK0500-BSPPM | 1/2" and 3/4" BSP | 14 | 4 | 11.94 | 12.00 | 29.03 | 84.00 | ● |
| TMBKF0500-BSPPM | 1/2"-5/8"-3/4"-7/8" | 14 | 5 | 15.75 | 16.00 | 34.47 | 93.00 | ● |
| TMBKF1000-BSPPM | 1" | 11 | 5 | 15.75 | 16.00 | 34.67 | 93.00 | ● |
| TMBK1000-BSPPM | 1" to 2" BSP | 11 | 4 | 15.75 | 16.00 | 34.67 | 93.00 | ● |

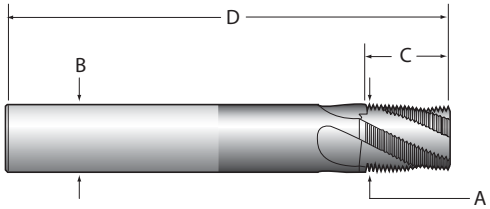



## Solid Carbide Threadmills BSPT

| Item Number | BSPT Size | Pitch | Flutes | Max Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| TMBK0063-BSPTM | 1/16" and 1/8" BSPT | 28 | 3 | 5.97 | 6.00 | 9.98 | 51.00 | ● |
| TMBK0250-BSPTM | 1/4" and 3/8" BSPT | 19 | 4 | 9.91 | 10.00 | 14.73 | 73.00 | ● |
| TMBK0500-BSPTM | 1/2" and 3/4" BSPT | 14 | 4 | 11.94 | 12.00 | 20.00 | 84.00 | ● |
| TMBK1000-BSPTM | 1" to 2" BSPT | 11 | 4 | 15.75 | 16.00 | 32.31 | 93.00 | ● |




## Solid Carbide Threadmills BSW

| Item Number | Min. Thread Size | Pitch | Flutes | Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| TMBK0250-BSWM | 1/4" | 20 | 3 | 4.50 | 6.00 | 10.16 | 58 | ● |
| TMBK0312-BSWM | 5/16" | 18 | 3 | 5.00 | 6.00 | 11.29 | 58 | ● |
| TMBK0375-BSWM | 3/8" | 16 | 5 | 7.00 | 8.00 | 14.29 | 64 | ● |
| TMBK0437-BSWM | 7/16" | 14 | 5 | 7.90 | 8.00 | 18.15 | 64 | ● |
| TMBK0500-BSWM | 1/2" – 9/16" | 12 | 5 | 9.00 | 10.00 | 19.10 | 73 | ● |
| TMBK0625-BSWM | 5/8" | 11 | 5 | 11.90 | 12.00 | 23.10 | 84 | ● |
| TMBK0750-BSWM | 3/4" | 10 | 5 | 11.90 | 12.00 | 27.94 | 84 | ● |
| TMBK0875-BSWM | 7/8" | 9 | 5 | 15.90 | 16.00 | 28.23 | 93 | ● |
| TMBK1000-BSWM | 1" | 8 | 6 | 15.90 | 16.00 | 34.93 | 93 | ● |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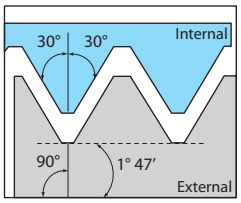
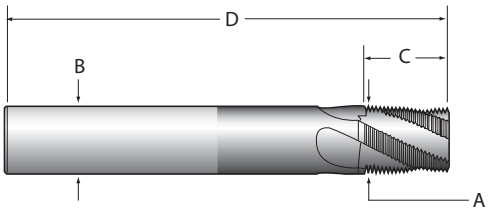


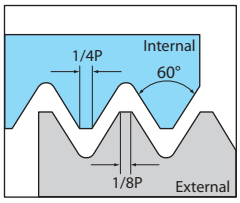

## Solid Carbide Threadmills NPT

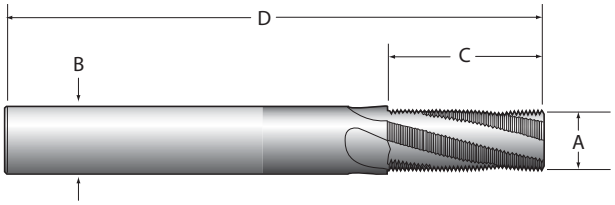
| Item Number | NPT Size | Pitch | Flutes | Max Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| TMNK0063-NPTM | 1/16″ and 1/8″ NPT | 27 | 3 | 5.95 | 6.00 | 11.30 | 58.00 | ● |
| TMNK0250-NPTM | 1/4″ and 3/8″ NPT | 18 | 4 | 7.75 | 8.00 | 15.70 | 64.00 | ● |
| TMNK0500-NPTM | 1/2″ and 3/4″NPT | 14 | 4 | 11.95 | 12.00 | 23.70 | 84.00 | ● |
| TMNK1000-NPTM | 1″ to 2″ NPT | 11.5 | 4 | 15.75 | 16.00 | 28.75 | 93.00 | ● |
| TMNK2500-NPTM | 2-1/2″ to 6″ NPT | 8 | 4 | 19.75 | 20.00 | 38.10 | 115.00 | ● |

## Solid Carbide Threadmills NPTF

| Item Number | NPTF Size | Pitch | Flutes | Max Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| TMNK0063-NPTFM | 1/16″ and 1/8″ NPTF | 27 | 3 | 5.95 | 6.00 | 11.30 | 58.00 | ○ |
| TMNK0250-NPTFM | 1/4″ and 3/8″ NPTF | 18 | 4 | 7.75 | 8.00 | 15.70 | 64.00 | ○ |
| TMNK0500-NPTFM | 1/2″ and 3/4″ NPTF | 14 | 4 | 11.95 | 12.00 | 23.70 | 84.00 | ○ |
| TMNK1000-NPTFM | 1″ to 2″ NPTF | 11.5 | 4 | 15.75 | 16.00 | 28.75 | 93.00 | ○ |
| TMNK2500-NPTFM | 2-1/2″ to 6″ NPTF | 8 | 4 | 19.75 | 20.00 | 38.10 | 115.00 | ○ |

*Note: Solid Carbide Threadmills are sold in 1 piece packages*



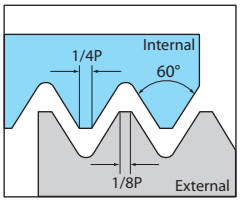

## Solid Carbide Threadmills AccuPort 432® Specific UN

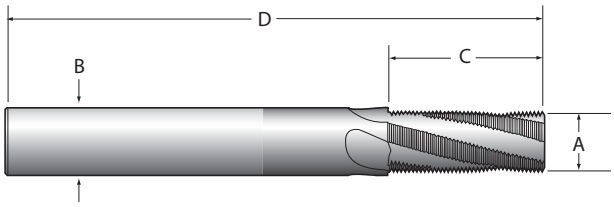
| Item Number | Port Size | Pitch | Flutes | Max Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| TMAK0438-20M | -4 to -5 | 20 | 4 | 8.51 | 10.00 | 15.24 | 73.00 | ● |
| TMAK0563-18M | -6 | 18 | 4 | 9.40 | 10.00 | 16.92 | 73.00 | ● |
| TMAK0750-16M | -8 | 16 | 4 | 11.94 | 12.00 | 19.05 | 84.00 | ● |
| TMAK0875-14M | -10 | 14 | 4 | 11.94 | 12.00 | 21.77 | 84.00 | ● |
| TMAK1063-12M | -12 to -32 | 12 | 4 | 11.94 | 12.00 | 23.29 | 84.00 | ● |

**Stk. - Stock Availability**
● Stocked.
○ Stocked in limited quantities
◆ Non-Stocked Standard – 25 working days delivery
All other coatings are non-stocked standards – 25 working day delivery applies

# AccuThread 856®

## Solid Carbide Threadmills UN
## AM210® coated

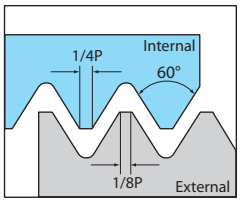


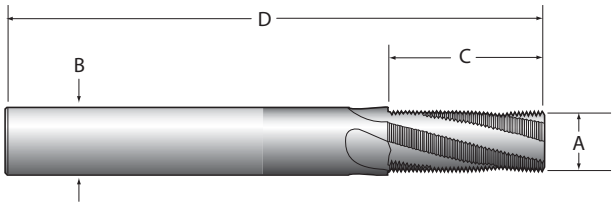




## Solid Carbide Threadmills UN

| Item Number | Min. Thread Size | Pitch | Flutes | Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| TMUK0002-64M | #2 | 64 | 3* | 1.65 | 3.00 | 3.20 | 39.00 | ● |
| TMUK0002-56M | #2 | 56 | 3* | 1.65 | 3.00 | 3.20 | 39.00 | ● |
| TMUK0003-48M | #3 | 48 | 3* | 1.80 | 3.00 | 3.75 | 39.00 | ● |
| TMUK0004-40M | #4 | 40 | 3* | 2.20 | 3.00 | 4.45 | 39.00 | ● |
| TMUK0005-44M | #5 | 44 | 3 | 2.40 | 3.00 | 4.65 | 39.00 | ● |
| TMUK0006-32M | #6 | 32 | 3 | 2.50 | 3.00 | 5.55 | 39.00 | ● |
| TMUK0008-36M | #8 | 36 | 3 | 3.00 | 4.00 | 6.35 | 51.00 | ● |
| TMUK0008-32M | #8 | 32 | 3 | 3.20 | 4.00 | 6.35 | 51.00 | ● |
| TMUK0010-32M | #10 | 32 | 3 | 3.80 | 4.00 | 7.95 | 51.00 | ● |
| TMUK0010-28M | #10 | 28 | 3 | 3.80 | 4.00 | 8.20 | 51.00 | ● |
| TMUK0010-24M | #10 | 24 | 3 | 3.70 | 4.00 | 8.50 | 51.00 | ● |
| TMUK0250-28M | ¼" | 28 | 3 | 4.75 | 6.00 | 12.70 | 58.00 | ● |
| TMUK0250-20M | ¼" | 20 | 3 | 4.75 | 6.00 | 12.70 | 58.00 | ● |
| TMUK0313-24M | 5/16" | 24 | 3 | 5.95 | 6.00 | 16.00 | 58.00 | ● |
| TMUK0313-18M | 5/16" | 18 | 3 | 5.95 | 6.00 | 17.00 | 58.00 | ● |
| TMUK0375-24M | ⅜" | 24 | 4 | 7.25 | 8.00 | 19.00 | 64.00 | ● |
| TMUK0375-16M | ⅜" | 16 | 4 | 7.25 | 8.00 | 19.00 | 64.00 | ● |
| TMUK0438-28M | 7/16" | 28 | 4 | 7.90 | 8.00 | 19.95 | 64.00 | ● |
| TMUK0438-20M | 7/16" | 20 | 4 | 8.75 | 10.00 | 22.85 | 73.00 | ● |
| TMUK0438-14M | 7/16" | 14 | 4 | 7.75 | 8.00 | 20.00 | 64.00 | ● |
| TMUK0500-13M | ½" | 13 | 4 | 9.40 | 10.00 | 23.50 | 73.00 | ● |
| TMUK0563-18M | 9/16" | 18 | 4 | 9.90 | 10.00 | 22.65 | 73.00 | ● |
| TMUK0563-12M | 9/16" | 12 | 4 | 9.90 | 10.00 | 22.65 | 73.00 | ● |
| TMUK0625-11M | ⅝" | 11 | 4 | 11.95 | 12.00 | 32.40 | 84.00 | ● |
| TMUK0750-16M | ¾" | 16 | 4 | 11.95 | 12.00 | 31.75 | 84.00 | ● |
| TMUK0750-12M | ¾" | 12 | 4 | 11.95 | 12.00 | 31.75 | 84.00 | ● |
| TMUK0750-10M | ¾" | 10 | 4 | 11.95 | 12.00 | 33.00 | 84.00 | ● |
| TMUK0875-14M | ⅞" | 14 | 4 | 11.95 | 12.00 | 32.70 | 84.00 | ● |
| TMUKF0875-14M | ⅞" | 14 | 5 | 15.75 | 16.00 | 34.47 | 93.00 | ● |
| TMUK0875-9M | ⅞" | 9 | 4 | 15.75 | 16.00 | 36.75 | 93.00 | ● |
| TMUK1000-8M | 1" | 8 | 4 | 15.75 | 16.00 | 35.00 | 93.00 | ● |
| TMUKF1000-12M | 1"-1" 1/16-1" ⅛-1" ¼ | 12 | 5 | 15.75 | 16.00 | 33.87 | 93.00 | ● |
| TMUK1125-7M | 1⅛" | 7 | 5 | 19.90 | 20.00 | 36.30 | 105.00 | ● |
| TMUK1375-6M | 1⅜" | 6 | 5 | 19.90 | 20.00 | 38.10 | 105.00 | ● |

** Items marked with an asterisk are straight fluted*




## Solid Carbide Threadmills UN Extra Length

| Item Number | Min. Thread Size | Pitch | Flutes | Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| TMUK0625-11XLM | ⅝" | 11 | 4 | 11.95 | 12.00 | 37.00 | 100.00 | ○ |
| TMUK0750-10XLM | ¾" | 10 | 4 | 11.95 | 12.00 | 40.70 | 100.00 | ○ |
| TMUK0875-9XLM | ⅞" | 9 | 4 | 15.75 | 16.00 | 45.20 | 100.00 | ○ |
| TMUK1000-8XLM | 1" | 8 | 6 | 19.90 | 20.00 | 50.80 | 115.00 | ○ |

*Note: Solid Carbide Threadmills are sold in 1 piece packages*





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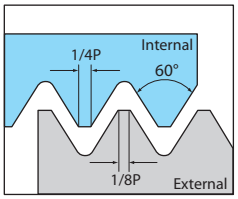
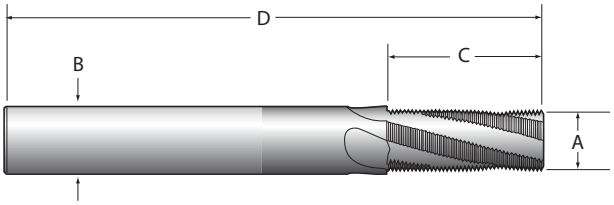


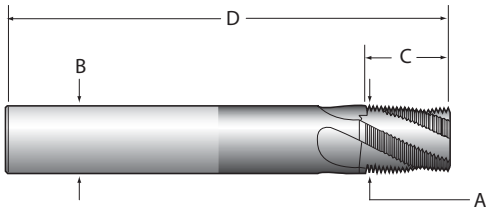

## Solid Carbide Threadmills Metric

| Item Number | Min. Thread Size | Pitch | Flutes | Max Cutter Dia (A) | Shank Dia (B) | Length of Cut (C) | OAL (D) | Stk. |
|---|---|---|---|---|---|---|---|---|
| | | | | mm | mm | mm | mm | |
| TMMK0200-040M | M2 | 0.40 | 3 | 1.50 | 3.00* | 3.20 | 39.00 | ● |
| TMMK0250-045M | M2.5 | 0.45 | 3 | 1.50 | 3.00* | 3.60 | 39.00 | ● |
| TMMK0300-050M | M3 | 0.50 | 3 | 2.15 | 3.00* | 4.50 | 39.00 | ● |
| TMMK0400-070M | M4 | 0.70 | 3 | 2.90 | 3.00 | 8.00 | 39.00 | ● |
| TMMK0450-075M | M4.5 | 0.75 | 3 | 3.00 | 4.00 | 6.75 | 51.00 | ● |
| TMMK0500-080M | M5 | 0.80 | 3 | 3.60 | 4.00 | 8.00 | 51.00 | ● |
| TMMK0600-100M | M6 | 1.00 | 3 | 4.60 | 6.00 | 12.00 | 51.00 | ● |
| TMMK0600-075M | M6 | 0.75 | 3 | 4.60 | 6.00 | 12.00 | 51.00 | ● |
| TMMK0600-050M | M6 | 0.50 | 3 | 4.60 | 6.00 | 12.00 | 58.00 | ● |
| TMMK0800-125M | M8 | 1.25 | 3 | 5.90 | 6.00 | 16.25 | 51.00 | ● |
| TMMK1000-150M | M10 | 1.50 | 4 | 7.40 | 8.00 | 19.50 | 64.00 | ● |
| TMMK1000-075M | M10 | 0.75 | 4 | 7.95 | 8.00 | 15.00 | 64.00 | ● |
| TMMK1000-050M | M10 | 0.50 | 4 | 7.95 | 8.00 | 15.00 | 64.00 | ● |
| TMMK1200-175M | M12 | 1.75 | 4 | 9.40 | 10.00 | 22.71 | 73.00 | ● |
| TMMK1200-100M | M12 | 1.00 | 4 | 9.40 | 10.00 | 20.00 | 73.00 | ● |
| TMMK1400-150M | M14 | 1.50 | 4 | 10.90 | 12.00 | 27.00 | 84.00 | ● |
| TMMK1400-200M | M14 | 2.00 | 4 | 10.90 | 12.00 | 28.00 | 84.00 | ● |
| TMMK1800-150M | M18 | 1.50 | 4 | 11.90 | 12.00 | 31.50 | 84.00 | ● |
| TMMK2000-250M | M20 | 2.50 | 4 | 11.90 | 12.00 | 30.00 | 84.00 | ● |
| TMMK2000-200M | M20 | 2.00 | 4 | 11.95 | 12.00 | 30.00 | 84.00 | ● |
| TMMKF2000-150M | M20-M22-M24 | 1.50 | 5 | 15.75 | 16.00 | 36.00 | 93.00 | ● |
| TMMK2400-300M | M24 | 3.00 | 4 | 15.90 | 16.00 | 36.00 | 93.00 | ● |
| TMMK3000-350M | M30 | 3.50 | 4 | 15.75 | 16.00 | 38.50 | 100.00 | ● |
| TMMK3600-400M | M36 | 4.00 | 5 | 19.90 | 20.00 | 40.00 | 105.00 | ● |

**Stk. - Stock Availability**
● Stocked.
○ Stocked in limited quantities
◆ Non-Stocked Standard – 25 working days delivery
All other coatings are non-stocked standards – 25 working day delivery applies

## Made to order tool specification – Priced on Request

Fax a copy of the table below to the AMEC's Application Engineering Department +44 1384 408372
or email engineering@alliedmaxcut.com to receive pricing for a special thread mill



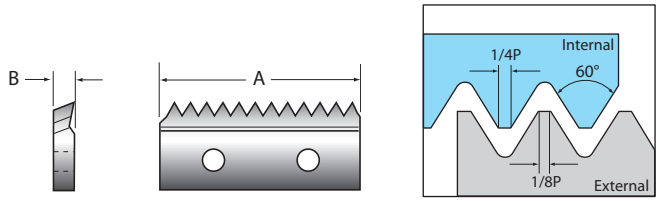

| Thread Size | Thread Form | Pitch | # Flutes | Cutter Diameter (A) | Shank Diameter (B) | Length of Cut (C) | OAL (D) | Flute Style | Coating | Qty |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

| | | | |
|---|---|---|---|
| Company Name | Contact Name | Telephone | Fax |
| Distributor Name | Distributor Contact Name | Telephone | Fax |

*Note: Solid Carbide Threadmills are sold in 1 piece packages*

# AccuThread 856®

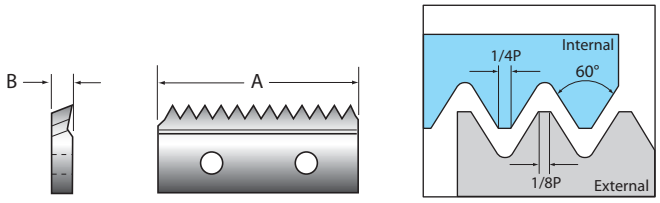
## Indexable Threadmills Bolt-In Inserts Style UN
## AM210® coated




### Bolt-In Style Inserts UN Internal

| Item Number | Threads per Inch | Insert Length (A) mm | Insert Thickness (B) mm | Stk. |
|---|---|---|---|---|
| TP075K-UN32I | 32 | 19.05 | 2.03 | ● |
| TP075K-UN24I | 24 | 19.05 | 2.03 | ● |
| TP075K-UN20I | 20 | 19.05 | 2.03 | ● |
| TP075K-UN18I | 18 | 19.05 | 2.03 | ● |
| TP075K-UN16I | 16 | 19.05 | 2.03 | ● |
| TP100K-UN32I | 32 | 25.40 | 3.56 | ● |
| TP100K-UN24I | 24 | 25.40 | 3.56 | ● |
| TP100K-UN20I | 20 | 25.40 | 3.56 | ● |
| TP100K-UN18I | 18 | 25.40 | 3.56 | ● |
| TP100K-UN16I | 16 | 25.40 | 3.56 | ● |
| TP100K-UN14I | 14 | 25.40 | 3.56 | ● |
| TP100K-UN12I | 12 | 25.40 | 3.56 | ● |
| TP100K-UN10I | 10 | 25.40 | 3.56 | ● |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*




### Bolt-In Style Inserts UN External

| Item Number | Threads per Inch | Insert Length (A) mm | Insert Thickness (B) mm | Stk. |
|---|---|---|---|---|
| TP075K-UN32E | 32 | 19.05 | 2.03 | ◆ |
| TP075K-UN24E | 24 | 19.05 | 2.03 | ◆ |
| TP075K-UN20E | 20 | 19.05 | 2.03 | ◆ |
| TP075K-UN18E | 18 | 19.05 | 2.03 | ◆ |
| TP075K-UN16E | 16 | 19.05 | 2.03 | ◆ |
| TP100K-UN32E | 32 | 25.40 | 3.56 | ◆ |
| TP100K-UN24E | 24 | 25.40 | 3.56 | ◆ |
| TP100K-UN20E | 20 | 25.40 | 3.56 | ◆ |
| TP100K-UN18E | 18 | 25.40 | 3.56 | ◆ |
| TP100K-UN16E | 16 | 25.40 | 3.56 | ◆ |
| TP100K-UN14E | 14 | 25.40 | 3.56 | ◆ |
| TP100K-UN12E | 12 | 25.40 | 3.56 | ◆ |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*

**Stk. - Stock Availability**
- ● Stocked.
- ○ Stocked in limited quantities
- ◆ Non-Stocked Standard – 25 working days delivery

All other coatings are non-stocked standards – 25 working day delivery applies

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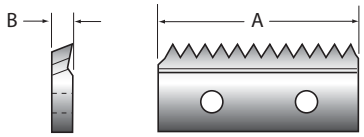
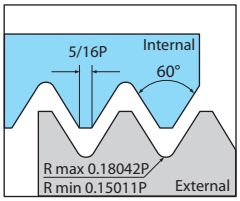
## Bolt-In Style Inserts UNJ Internal

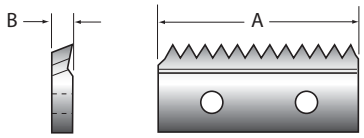


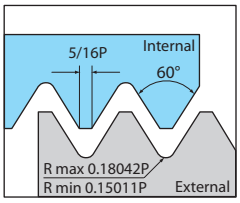




| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TP075K-UNJ32I | 32 | 19.05 | 2.03 | ◆ |
| TP075K-UNJ24I | 24 | 19.05 | 2.03 | ◆ |
| TP075K-UNJ20I | 20 | 19.05 | 2.03 | ◆ |
| TP075K-UNJ18I | 18 | 19.05 | 2.03 | ◆ |
| TP075K-UNJ16I | 16 | 19.05 | 2.03 | ◆ |
| TP100K-UNJ32I | 32 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ24I | 24 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ20I | 20 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ18I | 18 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ16I | 16 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ14I | 14 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ12I | 12 | 19.05 | 2.03 | ◆ |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*

## Bolt-In Style Inserts UNJ External




| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TP075K-UNJ32E | 32 | 19.05 | 2.03 | ◆ |
| TP075K-UNJ24E | 24 | 19.05 | 2.03 | ◆ |
| TP075K-UNJ20E | 20 | 19.05 | 2.03 | ◆ |
| TP075K-UNJ18E | 18 | 19.05 | 2.03 | ◆ |
| TP075K-UNJ16E | 16 | 19.05 | 2.03 | ◆ |
| TP100K-UNJ32E | 32 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ24E | 24 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ20E | 20 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ18E | 18 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ16E | 16 | 25.40 | 3.56 | ◆ |
| TP100K-UNJ12E | 12 | 25.40 | 3.56 | ◆ |

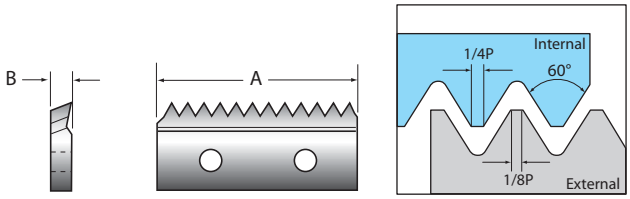
*Note: Indexable Threadmill Inserts are sold in 2 piece packages*

**Stk. - Stock Availability**
- ● Stocked.
- ○ Stocked in limited quantities
- ◆ Non-Stocked Standard – 25 working days delivery

All other coatings are non-stocked standards – 25 working day delivery applies

# AccuThread 856®

## Indexable Threadmills Metric/BSP and Holders
## AM210® coated




### Bolt-In Style Inserts Metric Internal

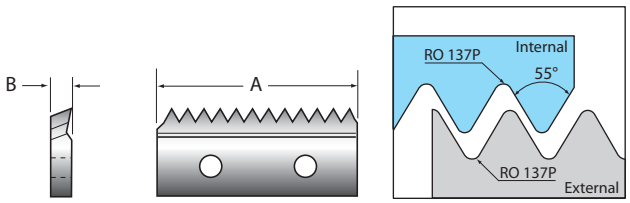
| Item Number | Pitch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TP075K-M0.5I | 0.5 | 19.05 | 2.03 | ● |
| TP075K-M1.0I | 1.0 | 19.05 | 2.03 | ● |
| TP075K-M1.25I | 1.25 | 19.05 | 2.03 | ● |
| TP075K-M1.5I | 1.5 | 19.05 | 2.03 | ● |
| TP100K-M1.0I | 1.0 | 25.40 | 3.56 | ● |
| TP100K-M1.5I | 1.5 | 25.40 | 3.56 | ● |
| TP100K-M2.0I | 2.0 | 25.40 | 3.56 | ● |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*

### Bolt-In Style Inserts Metric External

| Item Number | Pitch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TP100K-M1.0E | 1.0 | 25.40 | 3.56 | ◆ |
| TP100K-M1.5E | 1.5 | 25.40 | 3.56 | ◆ |
| TP100K-M2.0E | 2.0 | 25.40 | 3.56 | ◆ |

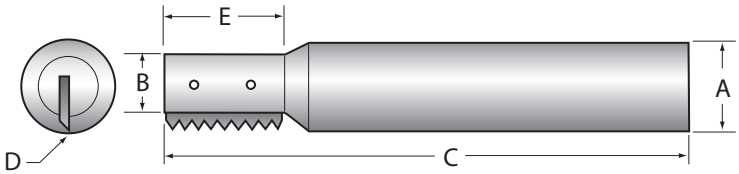
*Note: Indexable Threadmill Inserts are sold in 2 piece packages*




### Bolt-In Style Inserts BSPP Internal & External

| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TP075K-BSPP19 | 19 | 19.05 | 2.03 | ● |
| TP100K-BSPP14 | 14 | 25.40 | 3.56 | ● |
| TP100K-BSPP19 | 19 | 25.40 | 3.56 | ● |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*




### Straight Bolt-In Style UN/ISO/BSPP Internal & External

| Item Number | Insert | Shank Dia (A) | Pilot Dia (B) | OAL (C) | Cutter Dia (D) | Insert Length (E) | Flutes | Screw | Stk. |
|---|---|---|---|---|---|---|---|---|---|
| THN-0394-IF075M | TP075K-UN/ISO/BSPP | 13.00 | 6.35 | 76.20 | 10.01 | 19.05 | 1 | TMS-250 | ● |
| THN-0625-1F100M | TP100K-UN/ISO/BSPP | 20.00 | 11.58 | 88.90 | 15.88 | 25.40 | 1 | TMS-40 | ● |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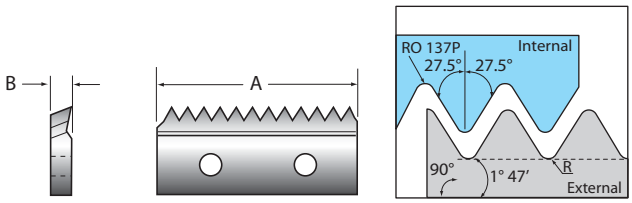
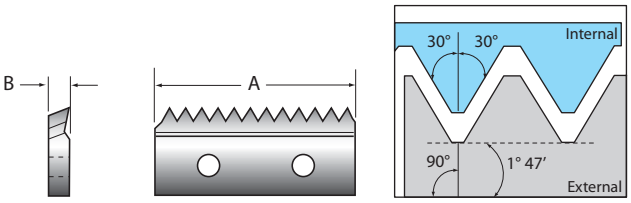



## Bolt-In Style Inserts BSPT Internal & External

| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TP075K-BSPT19 | 19 | 19.05 | 2.03 | ● |
| TP100K-BSPT14 | 14 | 25.40 | 3.56 | ● |
| TP100K-BSPT19 | 19 | 25.40 | 3.56 | ● |

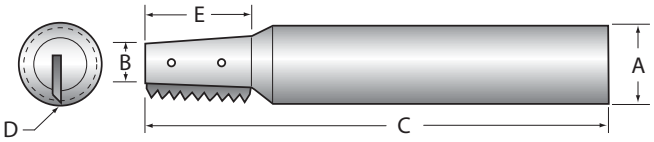
*Note: Indexable Threadmill Inserts are sold in 2 piece packages*




## Bolt-In Style Inserts NPT/NPTF Internal & External

| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TP075K-NPT18 | 18 | 19.05 | 2.03 | ● |
| TP075K-NPTF18 | 18 | 19.05 | 2.03 | ● |
| TP100K-NPT14 | 14 | 25.40 | 3.56 | ● |
| TP100K-NPTF14 | 14 | 25.40 | 3.56 | ● |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*




## Threadmill Holders Tapered Bolt-In Style NPT/NPTF/BSPT Internal & External

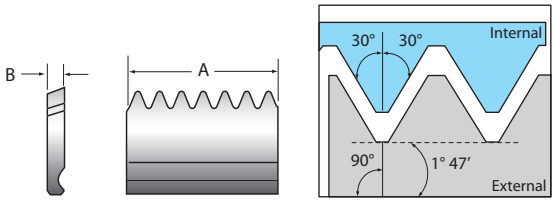
| Item Number | Stk. | Insert | Shank Dia (A) | Pilot Dia (B) | OAL (C) | Cutter Dia (D) | Insert Length (E) | Flutes | Screw |
|---|---|---|---|---|---|---|---|---|---|
| THT-0400-1F075M | ● | TP075K-NPT/NPTF/BSPT | 13.00 | 5.82 | 76.20 | 10.16 | 19.05 | 1 | TMS-250 |
| THT-0659-1F100M | ● | TP100K-NPT/NPTF/BSPT | 13.00 | 9.65 | 76.20 | 16.74 | 25.40 | 1 | TMS-45 |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*

**Stk. - Stock Availability**
● Stocked.
○ Stocked in limited quantities
◆ Non-Stocked Standard – 25 working days delivery
All other coatings are non-stocked standards – 25 working day delivery applies

# AccuThread 856®

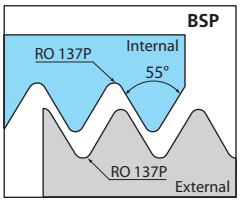
## Indexable Threadmills Pin Style Inserts NPT/NPTF/BSP/BSPT/API
## AM210® coated

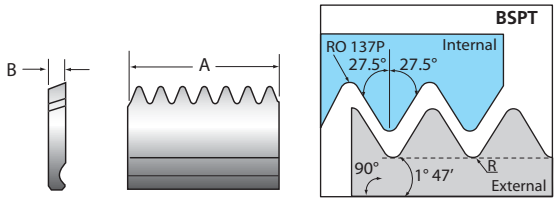



### Pin Style Inserts NPT/NPTF Internal & External

| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TN150K-NPT11.5 | 11.5 | 38.10 | 3.56 | ● |
| TN150K-NPTF11.5 | 11.5 | 38.10 | 3.56 | ● |
| TN150K-NPT8 | 8 | 38.10 | 3.56 | ● |
| TN150K-NPTF8 | 8 | 38.10 | 3.56 | ● |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*

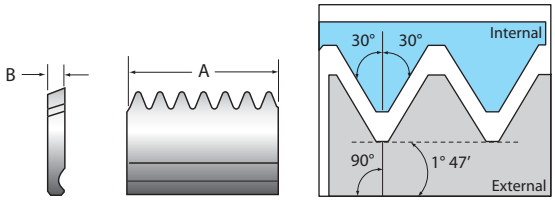



### Pin Style Inserts BSPP/BSPT Internal & External

| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TN150K-BSPP11 | 11 | 38.10 | 3.56 | ● |
| TN150K-BSPT11 | 11 | 38.10 | 3.56 | ● |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*




### Pin Style Inserts API-ROUND Internal & External

| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TN150K-AP10 | 10 | 38.10 | 3.56 | ○ |
| TN150K-AP8 | 8 | 38.10 | 3.56 | ○ |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*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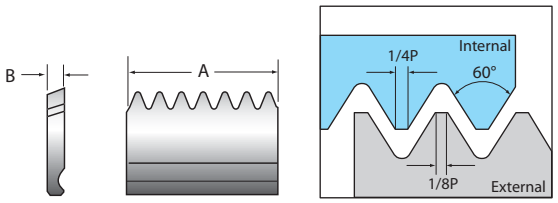
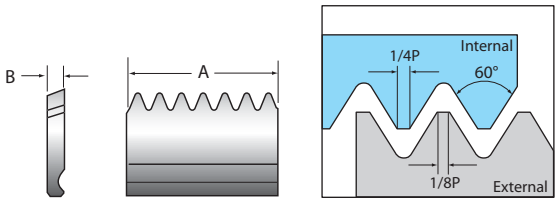



## Pin Style Inserts UN (Internal)

| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TN100K-UN32I | 32 | 25.40 | 3.56 | ● |
| TN100K-UN24I | 24 | 25.40 | 3.56 | ● |
| TN100K-UN20I | 20 | 25.40 | 3.56 | ● |
| TN100K-UN18I | 18 | 25.40 | 3.56 | ● |
| TN100K-UN16I | 16 | 25.40 | 3.56 | ● |
| TN100K-UN12I | 12 | 25.40 | 3.56 | ● |
| TN100K-UN10I | 10 | 25.40 | 3.56 | ● |
| TN100K-UN8I | 8 | 25.40 | 3.56 | ● |
| TN150K-UN24I | 24 | 38.10 | 3.56 | ● |
| TN150K-UN20I | 20 | 38.10 | 3.56 | ● |
| TN150K-UN18I | 18 | 38.10 | 3.56 | ● |
| TN150K-UN16I | 16 | 38.10 | 3.56 | ● |
| TN150K-UN14I | 14 | 38.10 | 3.56 | ● |
| TN150K-UN12I | 12 | 38.10 | 3.56 | ● |
| TN150K-UN10I | 10 | 38.10 | 3.56 | ● |
| TN150K-UN8I | 8 | 38.10 | 3.56 | ● |
| TN150K-UN7I | 7 | 38.10 | 3.56 | ● |
| TN150K-UN6I | 6 | 38.10 | 3.56 | ● |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*



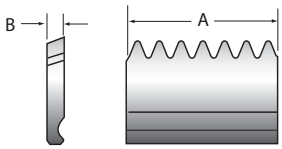

## Pin Style Inserts UN (External)

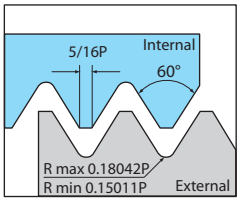
| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TN100K-UN32E | 32 | 25.40 | 3.56 | ◆ |
| TN100K-UN24E | 24 | 25.40 | 3.56 | ◆ |
| TN100K-UN20E | 20 | 25.40 | 3.56 | ◆ |
| TN100K-UN18E | 18 | 25.40 | 3.56 | ◆ |
| TN100K-UN16E | 16 | 25.40 | 3.56 | ◆ |
| TN100K-UN12E | 12 | 25.40 | 3.56 | ◆ |
| TN100K-UN10E | 10 | 25.40 | 3.56 | ◆ |
| TN100K-UN8E | 8 | 25.40 | 3.56 | ◆ |
| TN100K-UN7E | 7 | 25.40 | 3.56 | ◆ |
| TN150K-UN24E | 24 | 38.10 | 3.56 | ◆ |
| TN150K-UN20E | 20 | 38.10 | 3.56 | ◆ |
| TN150K-UN18E | 18 | 38.10 | 3.56 | ◆ |
| TN150K-UN16E | 16 | 38.10 | 3.56 | ◆ |
| TN150K-UN12E | 12 | 38.10 | 3.56 | ◆ |
| TN150K-UN10E | 10 | 38.10 | 3.56 | ◆ |
| TN150K-UN8E | 8 | 38.10 | 3.56 | ◆ |
| TN150K-UN7E | 7 | 38.10 | 3.56 | ◆ |
| TN150K-UN6E | 6 | 38.10 | 3.56 | ◆ |

*Note: Indexable Threadmill Inserts are sold in 2 piece packages*

# AccuThread 856®

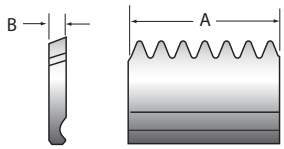
## Indexable Threadmills Pin Style UNJ
## AM210® coated

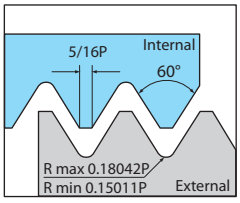



### Pin Style Inserts UNJ Internal

| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TN100K-UNJ32I | 32 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ24I | 24 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ20I | 20 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ18I | 18 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ16I | 16 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ12I | 12 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ10I | 10 | 25.40 | 3.56 | ◆ |
| TN150K-UNJ24I | 24 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ20I | 20 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ18I | 18 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ16I | 16 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ14I | 14 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ12I | 12 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ10I | 10 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ8I | 8 | 38.10 | 3.56 | ◆ |




### Pin Style Inserts UNJ External

| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | Inch | mm | |
| TN100K-UNJ32E | 32 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ24E | 24 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ20E | 20 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ18E | 18 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ16E | 16 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ12E | 12 | 25.40 | 3.56 | ◆ |
| TN100K-UNJ10E | 10 | 25.40 | 3.56 | ◆ |
| TN150K-UNJ24E | 24 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ20E | 20 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ18E | 18 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ16E | 16 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ12E | 12 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ10E | 10 | 38.10 | 3.56 | ◆ |
| TN150K-UNJ8E | 8 | 38.10 | 3.56 | ◆ |





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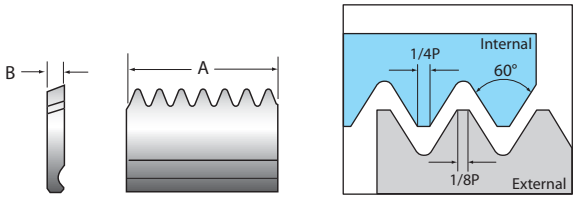
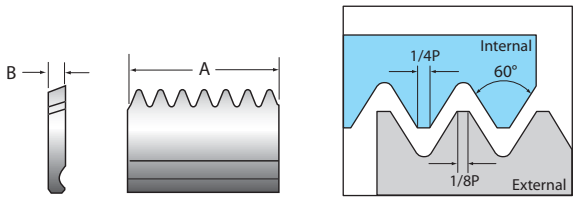
## Pin Style Inserts Metric Internal



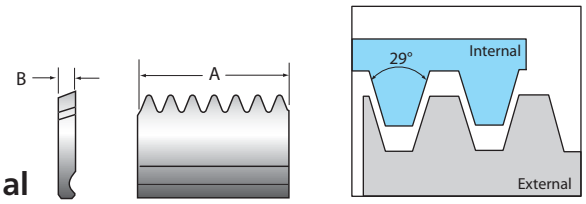

| Item Number | Pitch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TN150K-M2.0I | 2.0 | 38.10 | 3.56 | ● |
| TN150K-M2.5I | 2.5 | 38.10 | 3.56 | ● |
| TN150K-M3.0I | 3.0 | 38.10 | 3.56 | ● |
| TN150K-M3.5I | 3.5 | 38.10 | 3.56 | ● |
| TN150K-M4.0I | 4.0 | 38.10 | 3.56 | ● |
| TN150K-M4.5I | 4.5 | 38.10 | 3.56 | ● |
| TN150K-M5.0I | 5.0 | 38.10 | 3.56 | ● |
| TN150K-M6.0I | 6.0 | 38.10 | 3.56 | ● |

## Pin Style Inserts Metric External




| Item Number | Pitch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TN150K-M2.0E | 2.0 | 38.10 | 3.56 | ○ |
| TN150K-M4.0E | 4.0 | 38.10 | 3.56 | ○ |
| TN150K-M4.5E | 4.5 | 38.10 | 3.56 | ○ |
| TN150K-M5.0E | 5.0 | 38.10 | 3.56 | ○ |
| TN150K-M6.0E | 6.0 | 38.10 | 3.56 | ○ |

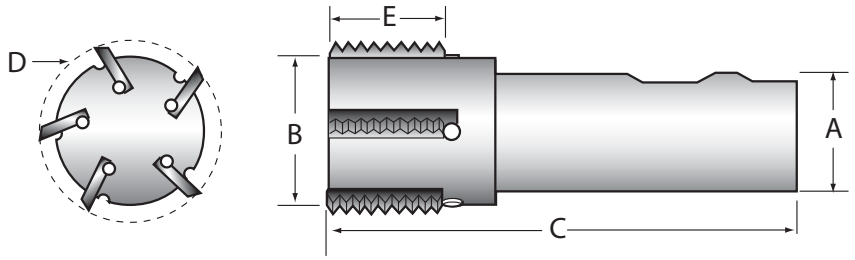
## Pin Style Inserts (Full Profile) ACME Internal & External




| Item Number | Threads per Inch | Insert Length (A) | Insert Thickness (B) | Stk. |
|---|---|---|---|---|
| | | mm | mm | |
| TN100K-FA12 | 12 | 25.40 | 3.56 | ○ |
| TN100K-FA10 | 10 | 25.40 | 3.56 | ○ |
| TN100K-FA8 | 8 | 25.40 | 3.56 | ○ |
| TN150K-FA12 | 12 | 38.10 | 3.56 | ○ |
| TN150K-FA10 | 10 | 38.10 | 3.56 | ○ |
| TN150K-FA8 | 8 | 38.10 | 3.56 | ○ |
| TN150K-FA6 | 6 | 38.10 | 3.56 | ○ |
| TN150K-FA5 | 5 | 38.10 | 3.56 | ○ |

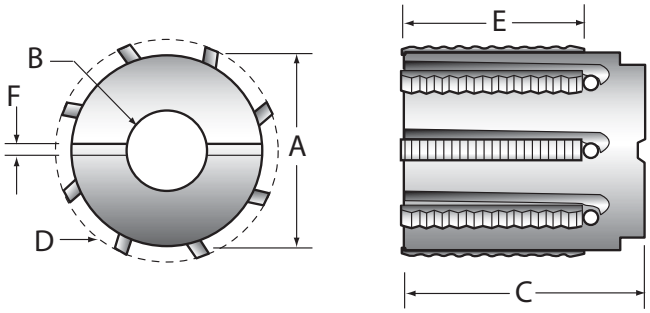
# AccuThread 856®

## Indexable Threadmill Pin Style Holders




### Pin Style Holders UN/NPT/ISO/ACME/API/NPTF/BSP & BSPT (Internal & External)

| Item Number | Stk. | Insert Size | Coolant Port | Shank Dia (A) | Pilot Dia (B) | OAL (C) | Cutter Dia (UN) Straight (D) | Cutter Dia (NPT) Tapered (D) | Insert Length (E) | Flutes | Screw | Pin |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| THP-0969-2F100M | ● | TN100K- | N | 25.00 | 19.05 | 114.30 | 24.61 | - | 25.40 | 2 | TMSS-3 | TMP-6 |
| THP-1755-5F100M | ● | TN100K- | Y | 32.00 | 38.10 | 101.60 | 44.58 | - | 25.40 | 5 | TMSS-2 | TMP-1 |
| THP-0932-1F150M | ● | TN150K- | N | 25.00 | 18.34 | 114.30 | 23.67 | 27.05 | 38.10 | 1 | TMSS-2 | TMP-2 |
| THP-1116-3F150M | ● | TN150K- | Y | 25.00 | 20.63 | 114.30 | 28.35 | 31.67 | 38.10 | 3 | TMSS-3 | TMP-2 |
| THP-1755-5F150M | ● | TN150K- | Y | 32.00 | 38.10 | 114.30 | 44.58 | 47.96 | 38.10 | 5 | TMSS-2 | TMP-2 |
| THP-0969-2F150M | ● | TN150K- | N | 25.00 | 19.05 | 114.30 | 24.61 | - | 38.10 | 2 | TMSS-3 | TMP-6 |




### Pin Style Holders (Shell Mill) UN/ISO/ACME/BSP (Internal & External)

| Item Number | Stk. | Insert Size | Body Dia (A) | Bore Dia (B) | OAL (C) | Cutter Dia (D) | Insert Length (E) | Slot Width (F) | Flutes | Screw | Pin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TSN-2846-7F150M | ● | TN150K- | 63.50 | 27.00 | 57.15 | 68.94* | 38.10 | 12.70 | 7 | TMSS-2 | TMP-2 |
| TSN-3341-8F150M | ● | TN150K- | 76.20 | 32.00 | 57.15 | 81.48* | 38.10 | 14.00 | 8 | TMSS-2 | T |

*** For larger thread forms this diameter will change. Please refer to on-line programming at www.alliedmaxcut.com**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# Recommended Cutting Data
## Solid Carbide Threadmills

| Material | Material Hardness (BHN) | Material Machinability | AM210® M/min | Cutter (mm) Recommended Feed (mm/tooth) 3 | 5 | 6 | 8 | 10 | 12 | 16 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Free Machining Steel | 100-150 | Easy | 274 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 150-200 | Easy | 213 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 200-250 | Easy | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| Low Carbon Steel | 85-125 | Average | 274 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 125-175 | Average | 213 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 175-225 | Average | 183 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 225-275 | Average | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| Medium Carbon Steel | 125-175 | Average | 175 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 175-225 | Average | 152 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 225-275 | Average | 137 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 275-325 | Average | 122 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| Alloy Steel | 125-175 | Average | 175 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 175-225 | Average | 152 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 225-275 | Average | 137 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 275-325 | Difficult | 122 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 325-375 | Difficult | 114 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| High Strength Alloy | 225-300 | Average | 137 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 300-350 | Difficult | 122 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| | 350-400 | Difficult | 107 | 0.010 | 0.013 | 0.015 | 0.020 | 0.025 | 0.033 | 0.046 | 0.051 |
| Structural Steel | 100-150 | Average | 183 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 150-250 | Average | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 250-350 | Difficult | 137 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| Tool Steel | 150-200 | Difficult | 175 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 200-250 | Difficult | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| High Temperature Alloy | 140-220 | Difficult | 37 | 0.008 | 0.010 | 0.015 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 |
| | 220-310 | Difficult | 27 | 0.008 | 0.010 | 0.015 | 0.020 | 0.023 | 0.025 | 0.030 | 0.038 |
| Stainless Steel | 135-185 | Average | 160 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | 185-275 | Difficult | 152 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| Stainless Steel PH | 185-275 | Average | 91 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| | 275-325 | Difficult | 46 | 0.010 | 0.013 | 0.015 | 0.020 | 0.023 | 0.025 | 0.038 | 0.051 |
| Cast Iron | 120-150 | Easy | 206 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 150-200 | Easy | 191 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 200-220 | Easy | 175 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 220-260 | Average | 152 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| | 260-320 | Average | 145 | 0.010 | 0.013 | 0.018 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 |
| Aluminium, Wrought | 30 | Easy | 335 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| | 180 | Easy | 305 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| Cast Aluminium* | 120 | Easy | 191 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |
| Brass | 30-125 | Easy | 335 | 0.013 | 0.015 | 0.023 | 0.025 | 0.038 | 0.051 | 0.064 | 0.076 |

**Formulas:** Linear Feed Rate = RPM x mm/tooth x No. of Teeth M/min = (RPM x 3.142 x Dia)/1000. RPM = (M/min x 1000) / (Dia x 3.142)
Adjusted Feed Rate (AFR) for Internal Thread Milling = (Thread Major Dia – Cutter Dia) / major Dia) x Linear Feed Rate

The above formula on an internal thread program adjusts the linear feed rate to be applied to the O.D. instead of the centre of the cutting tool.
If the feed rate is not adjusted, the excessive feed rate will cause the thread mill cutting edges to fail.
**Example of an Internal Thread Feed Rate Calculation: Cast Iron 125 BHN with a ½ - 13 thread form.**

| Step 1 | Step 2 | Step 3 |
|---|---|---|
| RPM=(m/min x 1000)(Dia x 3.142) | Linear Feed Rate = RPM x mm/tooth x No of teeth | AFR for Internal Thread Milling = (Major Dia-Cutter Dia) / Major Dia) x Linear Feed Rate |
| RPM=(152 x 1000)(8.89 x 3.142) | Linear Feed Rate = 5442 x 0.038 x 4 | AFR for Internal Thread Milling = (12.7 – 8.89) / 12.7) x 827.18 |
| RPM=5442 | Linear Feed Rate = 827.18 mm/min | AFR for Internal Thread Milling = 248.15mm/min |

Note: Reduce feed and speed by 30% for NPT and NPTF Thread Forms due to tapered cutting action
* Uncoated thread mills are recommended for cast aluminium applications (price and availability upon request)
Refer to recommended pass chart on page 208 when referencing material machinability

# Technical Section - AccuThread 856®

## Recommended Cutting Data
## Indexable Threadmills

| | Cutter Diameter (Metric) | | | 9.53-12.7 | 12.70-19.05 | 19.05-25.40 | 25.40-38.10 | 38.10-50.80 | 50.80-69.85 | 69.85-88.90 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number of Flutes) | | | 1 | 1 | 1&2 | 3 | 5 | 7 | 8 |
| Material | Material Hardness (BHN) | Material Machinability | AM210® M/min | Chipload per Tooth (mm per tooth) | | | | | | |
| Free Machining Steel | 100-150 | Easy | 274 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| | 150-200 | Easy | 213 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| | 200-250 | Easy | 152 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| Low Carbon Steel | 85-125 | Average | 274 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| | 125-175 | Average | 213 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| | 175-225 | Average | 183 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| | 225-275 | Average | 152 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| Medium Carbon Steel | 125-175 | Average | 175 | 0.02 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 175-225 | Average | 152 | 0.02 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 225-275 | Average | 137 | 0.02 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 275-325 | Average | 122 | 0.02 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| Alloy Steel | 125-175 | Average | 175 | 0.01 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 175-225 | Average | 152 | 0.01 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 225-275 | Average | 137 | 0.01 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 275-325 | Difficult | 122 | 0.01 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 325-375 | Difficult | 114 | 0.01 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| High Strength Alloy | 225-300 | Average | 137 | 0.01 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 300-350 | Difficult | 122 | 0.01 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 350-400 | Difficult | 107 | 0.01 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 |
| Structural Steel | 100-150 | Average | 183 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| | 150-250 | Average | 152 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| | 250-350 | Difficult | 137 | 0.02 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| Tool Steel | 150-200 | Difficult | 175 | 0.01 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| | 200-250 | Difficult | 152 | 0.01 | 0.03 | 0.03 | 0.04 | 0.05 | 0.06 | 0.08 |
| High Temperature Alloy | 140-220 | Difficult | 37 | 0.01 | 0.02 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 |
| | 220-310 | Difficult | 27 | 0.01 | 0.02 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 |
| Stainless Steel | 135-185 | Average | 160 | 0.01 | 0.02 | 0.02 | 0.04 | 0.04 | 0.05 | 0.06 |
| | 185-275 | Difficult | 152 | 0.01 | 0.02 | 0.02 | 0.04 | 0.04 | 0.05 | 0.06 |
| Stainless Steel PH | 185-275 | Average | 91 | 0.01 | 0.02 | 0.02 | 0.04 | 0.04 | 0.05 | 0.06 |
| | 275-325 | Difficult | 46 | 0.01 | 0.02 | 0.02 | 0.04 | 0.04 | 0.05 | 0.06 |
| Cast Iron | 120-150 | Easy | 206 | 0.02 | 0.03 | 0.04 | 0.05 | 0.08 | 0.10 | 0.13 |
| | 150-200 | Easy | 191 | 0.02 | 0.03 | 0.04 | 0.05 | 0.08 | 0.10 | 0.13 |
| | 200-220 | Easy | 175 | 0.02 | 0.03 | 0.04 | 0.05 | 0.08 | 0.10 | 0.13 |
| | 220-260 | Average | 152 | 0.02 | 0.03 | 0.04 | 0.05 | 0.08 | 0.10 | 0.13 |
| | 260-320 | Average | 145 | 0.02 | 0.03 | 0.04 | 0.05 | 0.08 | 0.10 | 0.13 |
| Aluminium, Wrought | 30 | Easy | 335 | 0.04 | 0.05 | 0.06 | 0.08 | 0.10 | 0.13 | 0.15 |
| | 180 | Easy | 305 | 0.04 | 0.05 | 0.06 | 0.08 | 0.10 | 0.13 | 0.15 |
| Cast Aluminium* | 120 | Easy | 191 | 0.03 | 0.05 | 0.06 | 0.08 | 0.10 | 0.13 | 0.15 |
| Brass | 30-125 | Easy | 335 | 0.05 | 0.06 | 0.08 | 0.10 | 0.11 | 0.14 | 0.17 |

**Formulas:** Linear Feed Rate = RPM x mm/tooth x No. of Teeth  M/min = (RPM x 3.142 x Dia)/1000.  RPM = (M/min x 1000) / (Dia x 3.142)
Adjusted Feed Rate (AFR) for Internal Thread Milling = (Thread Major Dia – Cutter Dia) / major Dia) x Linear Feed Rate

The above formula on an internal thread program adjusts the linear feed rate to be applied to the O.D. instead of the centre of the cutting tool. If the feed rate is not adjusted, the excessive feed rate will cause the thread mill cutting edges to fail.

**Note:** Reduce feed and speed by 30% for NPT and NPTF Thread Forms due to tapered cutting action
*Uncoated thread mills are recommended for cast aluminium applications (price and availability upon request)
Refer to recommended pass chart on page 208 when referencing material machinability




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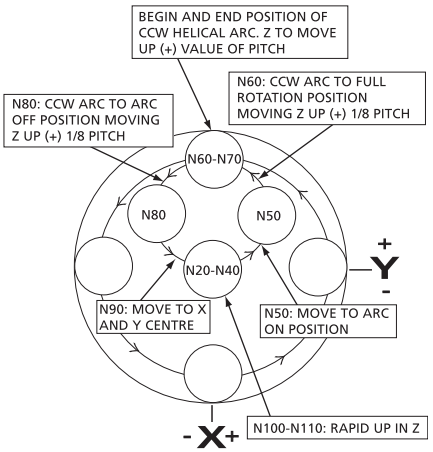
- Thread Milling can be easily accomplished with simple G code programming
- If your machine is capable of 3 axis (Helical) Interpolation, you can and should be thread milling
- Basic programming of a one pass thread mill can be achieved in 6 basic steps (see below)

**The following are examples of how to calculate and program a 7/16-20 right hand thread that will be ½" deep and produced in one pass**

| | | |
|---|---|---|
| Maj. Thread Diameter (mm) | 11.112 | Major diameter of thread (7/16 = 0.4375") |
| Threads Per Inch | 20 | Number of threads per inch (20 is from 7/16-20 designation) |
| Length of Thread (mm) | 12.7 | Desired length of thread |
| M/min Surface Speed | 145 | Recommended surface speed for material to be cut |
| Feed Per Flute (mm/tooth) | 0.0635 | Recommended feet rate per cutting edge |
| Number of Flutes | 4 | Number of flutes on tool to be used |
| Tool Diameter (mm) | 8.509 | Diameter of cutting tool |

Using the information below, the values can be calculated

| | | |
|---|---|---|
| Pitch (mm) | 1.27 | = 25.4/Threads Per Inch |
| RPM | 5419 | (m/min / Tool Dia) x 318 |
| Linear Feed (mm/min) | 1376.43 | RPM x Feed Per Flute x Number of Flutes |
| Feed Rate for Thread Milling | 322.43 | Linear Feed x (Maj Thread Dia – Tool Dia) / Maj Thread Dia |
| Z axis move for full thread | 12.86 | (Pitch / 8) + Length Of Thread |
| Z axis move on Arc On | 0.16 | (Pitch / 8) |
| Arc On/Off Value | 0.650 | (Maj Thread Dia – Tool Dia) / 4 |
| Full Rotation Value | 1.302 | (Maj Thread Dia – Tool Dia) 2 |




| | |
|---|---|
| Maj Thread Dia. | 11.112 |
| Cutter Diameter | 8.509 |
| Length Of Thread | 12.7 |

| | |
|---|---|
| Feed Rate For Thread Milling | 322.43 |
| Z axis Depth for Full Thread | 12.86 |
| Z axis Move for Arc On/Off | 0.16 |

| | |
|---|---|
| Arc On/Off | 0.65 |
| Full Rotation Value | 1.302 |
| Pitch Value | 1.27 |

**Incremental Program for 1 Pass Thread Mill**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | N10 | S | | 5416 | MO3 | | | |
| | | | Absolute position in rapid to centre of hole in X and Y, then rapid to Z0 (level with surface of hole) (assumed to be X0, Y0, Z0 for demonstration purposes). To be done by customer. | | | | | |
| | N20 | G90 | G00 | X 0.0000 | Y 0.000 | | | |
| | N30 | | | Z 0.000 | | | | |
| | | | Switch to incremental positioning and high feed to (Z axis depth for full thread). | | | | | |
| 2 | N40 | G91 | G01 | Z – 12.860 | | F 1270 | | |
| | | | Activate left diameter compensation for tool number 1 ('D' needs to be whatever tool number you are using) and feed to (arc on/off position) at 25% (feed rate for thread milling). | | | | | |
| 3 | N50 | G41 | G01 | X 0.650 | Y 0.650 | | D1 | F 80.600 |
| | | | CCW arc to full rotation from the arc on position at the calculated thread milling feedrate moving Z up (+) 1/8 pitch value (Z axis move up for arc on/off). X and Y positions are the incremental distance from where tool is to where it will be after arc (arc on/off value). I is the incremental X value of center of rotation from where tool currently is (arc on/off value multiplied by –1). J is the incremental Y value from current tool position to centre of rotation. | | | | | |
| | N60 | | G03 | X –0.650 | Y 0.650 | Z 0.160 | I -0.650 | J 0.00 | F 322.43 |
| | | | One complete CCW arc from the full arc rotation position at the calculated thread milling feed rate moving Z up (positive pitch value). I and J values are calculated the same as above. I will be 0.0 and J will be (full rotation value multiplied by –1). | | | | | |
| 4 | N70 | | G03 | X 0.0000 | Y 0.0000 | Z 1.270 | I 0.000 | J -1.302 | F 322.43 |
| | | | CCW arc from full rotation diameter to arc off position at double the calculated thread milling feed rate moving Z up (+) 1/8 pitch value (Z axis move up for arc on/off). I and J values. | | | | | |
| 5 | N80 | | G03 | X –0.650 | Y -0.650 | Z 0.160 | I 0.000 | J -0.650 | F 644.12 |
| | | | Shut off cutter comp and move from arc off position to centre of hole in X (arc on/off value multiplied by –1) and Y (arc on/off value multiplied by –1) at high feed rate. | | | | | |
| | N90 | G40 | G01 | X 0.650 | Y -0.650 | | | |
| | | | Rapid Z up incremental value (length of thread – all Z values in G03 arc commands). | | | | | |
| 6 | N100 | | GO0 | Z 11.270 | | | | |
| | | | Switch back to absolute positioning and rapid to a safe point in Z above part level (assumed to be 25mm above part level for demonstration purposes). | | | | | |
| | N110 | G90 | GO0 | Z 25.000 | | | | |

**1**
N10-N30
Preparatory commands Positioning above hole center and at hole level in Z in absolute position mode

**2**
N40
Change to incremental mode Feed to bottom of hole (Z axis depth for full thread)

**3**
N50-N60
Activate left cutter comp Feed to arc on position Arc to full rotation value while moving Z up ⅛ pitch (Z axis move for arc on)

**4**
N70
One complete CCW rotation at full arc rotation value while moving Z up 1 pitch value

**5**
N80-N90
CCW are from full rotation value to the arc on/off value while moving Z up ⅛ pitch (Z axis move for arc on)

**6**
N100-N110
Rapid up in Z

# Technical Section

## Pass Chart & Threadmilling Formulas

| Number of Passes NPT/NPTF | | | |
|---|---|---|---|
| Thread Size | Materials | | |
| | Easy to Machine | Average to Machine | Difficult to Machine |
| 1/16 NPT | 1 | 1 | 2 |
| 1/8 NPT | 1 | 1 | 2 |
| ¼ NPT | 1 | 1 | 2 |
| 3/8 NPT | 1 | 1 | 2 |
| ½ NPT | 1 | 2 | 3 |
| ¾ NPT | 1 | 2 | 3 |
| 1 NPT | 1 | 2 | 3 |
| 1-1/4 NPT | 1 | 2 | 3 |
| 1-1/2 NPT | 1 | 2 | 3 |
| 2 NPT | 1 | 2 | 3 |
| 2-1/2 NPT | 2 | 3 | 4 |
| 3 NPT | 2 | 3 | 4 |
| 3-1/2 NPT | 2 | 3 | 4 |
| 4 NPT | 2 | 3 | 4 |
| 5 NPT | 2 | 3 | 4 |
| 6 NPT | 2 | 3 | 4 |

| Number of Passes Metric (ISO) | | | |
|---|---|---|---|
| Thread Size | Materials | | |
| | Easy to Machine | Average to Machine | Difficult to Machine |
| M4.5 x .75 | 1 | 1 | 2 |
| M5 x .80 | 1 | 1 | 2 |
| M6 x .75 | 1 | 1 | 2 |
| M6 x 1.0 | 1 | 1 | 2 |
| M8 x .75 | 1 | 2 | 3 |
| M8 x 1.25 | 1 | 2 | 3 |
| M10 x 1.0 | 1 | 2 | 3 |
| M10 x 1.5 | 1 | 2 | 3 |
| M12 x 1.0 | 1 | 2 | 3 |
| M12 x 1.75 | 1 | 2 | 3 |
| M14 x 1.5 | 1 | 2 | 3 |
| M14 x 2.0 | 1 | 2 | 3 |
| M16 x 1.0 | 1 | 2 | 3 |
| M16 x 2.0 | 1 | 2 | 3 |
| M18 x 1.5 | 1 | 2 | 3 |
| M18 x 2.0 | 1 | 2 | 3 |
| M18 x 2.5 | 2 | 3 | 4 |
| M20 x 2.5 | 2 | 3 | 4 |
| M24 x 3.0 | 2 | 3 | 4 |
| M30 x 3.5 | 2 | 3 | 4 |
| M27 x 3.0 | 2 | 3 | 4 |
| M33 x 3.5 | 2 | 3 | 4 |
| M33 x 4.5 | 2 | 3 | 4 |
| M36 x 4.0 | 2 | 3 | 4 |
| M39 x 5.0 | 2 | 3 | 4 |
| M39 x 4.0 | 2 | 3 | 4 |
| M45 x 4.5 | 2 | 3 | 4 |
| M52 x 5.0 | 2 | 3 | 4 |
| M56 x 5.5 | 2 | 3 | 4 |

### Threadmill Drill Calculation

**Inch**

Based on nominal tap drill diameter. Based on .003" or .0075mm probable mean oversize

To calculate percent of full thread for given hole diameter:

$$\% \text{ Thread} = \text{No of Threads per Inch} \times \frac{(\text{Basic Major Dia of thread (Inch)} - \text{Drill Hole Size (Inch)})}{0.0130}$$

**Metric**

$$\% \text{ Thread} = \frac{76.93}{\text{Pitch (mm)}} * (\text{Basic Major Diameter of thread (mm)} - \text{Drill Hole Size (mm)})$$

| Number of Passes UN | | | |
|---|---|---|---|
| Thread Size | Materials | | |
| | Easy to Machine | Average to Machine | Difficult to Machine |
| #2-56 | 1 | 1 | 2 |
| #4-40 | 1 | 1 | 2 |
| #5-40 | 1 | 1 | 2 |
| #6-32 | 1 | 1 | 2 |
| #8-32 | 1 | 1 | 2 |
| #10-32 | 1 | 1 | 2 |
| #10-24 | 1 | 1 | 2 |
| #12-28 | 1 | 1 | 2 |
| #12-24 | 1 | 1 | 2 |
| ¼-28 | 1 | 2 | 3 |
| ¼-20 | 1 | 2 | 3 |
| 5/16-24 | 1 | 2 | 3 |
| 5/16-18 | 1 | 2 | 3 |
| ¾-24 | 1 | 2 | 3 |
| 3/8-16 | 1 | 2 | 3 |
| 7/16-20 | 1 | 2 | 3 |
| 7/16-14 | 1 | 2 | 3 |
| ½-20 | 1 | 2 | 3 |
| ½-13 | 1 | 2 | 3 |
| 9-16-18 | 1 | 2 | 3 |
| 9-16-2 | 1 | 2 | 3 |
| 5/8-18 | 1 | 2 | 3 |
| 5/8-11 | 2 | 2 | 4 |
| ¾-16 | 1 | 2 | 3 |
| ¾-10 | 2 | 3 | 4 |
| 7/8-14 | 1 | 2 | 3 |
| 7/8-9 | 2 | 3 | 4 |
| 1-14 | 1 | 2 | 3 |
| 1-10 | 2 | 3 | 4 |
| 1-8 | 2 | 2 | 4 |
| 1-1/8-7 | 2 | 3 | 4 |
| 1-1/4-7 | 2 | 3 | 4 |
| 1-3/8-6 | 2 | 3 | 4 |
| 1-1/2-6 | 2 | 3 | 4 |
| 1-3/4-5 | 2 | 3 | 4 |
| 2-4 ½ | 2 | 3 | 4 |
| 1-1/4-4 1/2 | 2 | 3 | 4 |
| 2-1/2-4 | 2 | 3 | 4 |
| 25-3/4-4 | 2 | 3 | 4 |
| 3-4 | 2 | 3 | 4 |

**Easy Machining Materials:** Non-ferrous and leaded steels

**Average Machining Materials:** Carbon and alloy steels up to 30 Rc. 300 and 400 series stainless

**Difficult Machining Materials:** Inconels, harder steels, titanium, 17-4PH Stainless

### Thread Milling Formulas

Linear Feed Rate = RPM * (mm/tooth x No of flutes)

M/min = (RPM x 3.142 x DIA/1000)

RPM = (m/min x 1000)/DIA x 3.142

AFR = (Major Diameter – Cutter Diameter) / Major Diameter) * Linear Feed Rate

Arc On/Off Value = (Major Diameter – Tool Diameter) / 4

2 Axis Move Full Thread = (Pitch / 8) + Length of Thread

2 Axis Move Arc On = (Pitch / 8)

### Major Thread Diameter for # Drills

| | | | | | |
|---|---|---|---|---|---|
| # 2 | 2.18 | # 5 | 3.17 | # 10 | 4.83 |
| # 3 | 2.51 | # 6 | 3.35 | # 12 | 5.49 |
| # 4 | 2.84 | # 8 | 4.16 | | |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| Thread Specification | Uses this drill | Closest Fraction | Decimal Inches |
|---|---|---|---|
| 2-56 | 50 | - | 0.0700 |
| 3-56 | 45 | - | 0.0820 |
| 4-40 | 43 | 3/32″ | 0.0890 |
| ¼-40 | 38 | - | 0.1015 |
| 5-40 | 38 | - | 0.1015 |
| 6-40 | 33 | - | 0.1130 |
| M4x0.7 | 3.4mm | - | 0.133 |
| M4x0.75 | 3.4mm | - | 0.1338 |
| 8-32 | 29 | - | 0.1360 |
| 8-40 | 28 | - | 0.1405 |
| 3/16-24 | 26 | - | 0.1470 |
| 10-24 | 25 | 5/32″ | 0.1495 |
| 3/16-32 | 22 | - | 0.1570 |
| 10-32 | 21 | 5/32″ | 0.1590 |
| M5-0.8 | 4.2mm | - | 0.1653 |
| M5-0.9 | 4.3mm | - | 0.1693 |
| 12-24 | 16 | 11/64″ | 0.1770 |
| 12-28 | 14 | 3/16″ | 0.1820 |
| 12-32 | 13 | - | 0.1850 |
| 14-20 | 10 | - | 0.1935 |
| ¼-20 | 7 | 13/64″ | 0.2010 |
| 14-24 | 7 | - | 0.2010 |
| M6-1.0 | 5.2mm | - | 0.2047 |
| ¼-24 | 4 | - | 02090 |
| ¼-28 | 3 | 7/32″ | 0.2130 |
| ¼-32 | 7/32″ | 7/32″ | 0.2188 |
| ¼-40 | 1 | - | 0.2280 |
| M7-1.0 | 6.1mm | 15/64″ | 0.2401 |
| 5/16-18 | F | 17/64″ | 0.2570 |
| M8-1.25 | 6.9mm | 17/64″ | 0.2716 |
| 5/16-24 | I | - | 0.2720 |
| M8-1.0 | 7.1mm | - | 0.2795 |
| 5/16-32 | 9/32″ | 9/32″ | 0.2812 |
| M9-1.25 | 7.9mm | - | 0.3110 |
| 3/8-16 | 5/16″ | 5/16″ | 0.3125 |
| M9-1.0 | 8.1mm | - | 0.3189 |
| M9-0.75 | 8.3mm | - | 0.3268 |
| 3/8-24 | Q | 21/64″ | 0.3320 |
| M10-1.5 | 8.7mm | - | 0.3425 |
| M10-1.25 | 8.9mm | 11/32″ | 0.3503 |
| M10-1.0 | 9.1mm | - | 0.3583 |
| 7/16-14 | U | 23/64″ | 0.3680 |
| M11-1.5 | 9.7mm | - | 0.3818 |
| 7/16-20 | 25/64″ | 25/64″ | 0.3906 |
| M12-1.75 | 10.5mm | - | 0.4133 |
| M12-1.5 | 10.7mm | 27/64″ | 0.4212 |
| ½-13 | 27/64″ | 27/64″ | 0.4291 |
| M12-1.25 | 10.9mm | 27/64″ | 0.4291 |

| Thread Specification | Uses this drill | Closest Fraction | Decimal Inches |
|---|---|---|---|
| ½-20 | 29/64″ | 29/64″ | 0.4531 |
| ½-24 | 29/64″ | 29/64″ | 0.4531 |
| M14-2.0 | 12.2mm | - | 0.4803 |
| 9/16-12 | 31/64″ | 31/64″ | 0.4844 |
| M14-1.5 | 12.7mm | - | 0.4999 |
| M14-1.25 | 12.8mm | - | 0.5039 |
| 9/16-18 | 33/64″ | 33/64″ | 0.5156 |
| 5/8-11 | 17/32″ | 17/32″ | 0.5312 |
| M16-2.0 | 14.2mm | 35/64″ | 0.5590 |
| 5/8-18 | 37/64″ | 37/64″ | 0.5781 |
| M16-1.5 | 14.7mm | - | 0.5787 |
| 11/16-11 | 19/32″ | 19/32″ | 0.5938 |
| M18-2.5 | 15.8mm | 39/64″ | 0.5220 |
| 11/16-16 | 5/8″ | 5/8″ | 0.6250 |
| 3/4-10 | 21/32″ | 21/32″ | 0.6562 |
| M18-1.5 | 16.8mm | - | 0.6614 |
| 3/4-16 | 11/16″ | 11/16″ | 0.6875 |
| M20-2.5 | 17.8mm | 11/16″ | 0.7008 |
| 7/8-9 | 49/64″ | 49/64″ | 0.7656 |
| 7/8-14 | 13/16″ | 13/16″ | 0.8125 |
| M22-1.5 | 20.9mm | - | 0.8228 |
| 7/8-18 | 53/64″ | 53/64″ | 0.8281 |
| M24-3.0 | 21.4mm | 53/64″ | 0.8425 |
| 1-8 | 7/8″ | 7/8″ | 0.8750 |
| M24-2.0 | 22.3mm | - | 0.8779 |
| 1-12 | 59/64″ | 59/64″ | 0.9219 |
| 1-14 | 15/16″ | 15/16″ | 0.9375 |
| 1-1/8-7 | 63/64″ | 63/64″ | 0.9844 |
| 1-1/8-12 | 1-3/64″ | 1-3/64″ | 1.0469 |
| 1-1/4-7 | 1-7/64″ | 1-7/64″ | 1.1094 |
| 1-1/4-12 | 1-11/64″ | 1-11/64″ | 1.1719 |
| 1-3/8-6 | 1-7/32″ | 1-7/32″ | 1.2188 |
| 1-3/8-12 | 1-19/64″ | 1-19/64″ | 1.2969 |
| 1-1/2-6 | 1-11/32″ | 1-11/32″ | 1.3438 |
| 1-1/2-12 | 1-27/64″ | 1-27/4″ | 1.4219 |

**Major Thread Diameter for # Drills**

| Thread Specification | Uses this drill | Closest Fraction | Decimal Inches |
|---|---|---|---|
| 1/8-27 NPT | R | - | 0.3390 |
| ¼-18 NPT | 7/16″ | 7/16″ | 0.4375 |
| 3/8-18 NPT | 37/64″ | 37/64″ | 0.5781 |
| ½-14 NPT | 45-64″ | 45/64″ | 0.7031 |
| ¾-14 NPT | 59/64″ | 59/64″ | 0.9219 |
| 1-11-1/2 NPT | 1-5/32″ | 1-5/32″ | 1.1562 |
| 1-1/4-11.5 NPT | 1-1/2″ | 1-1/2″ | 1.5000 |
| 1-1/2-11.5 NPT | 1-47/64″ | 1-47/64″ | 1.7344 |
| 2-11.5 NPT | 2-7/32″ | 2-7/32″ | 2.2188 |

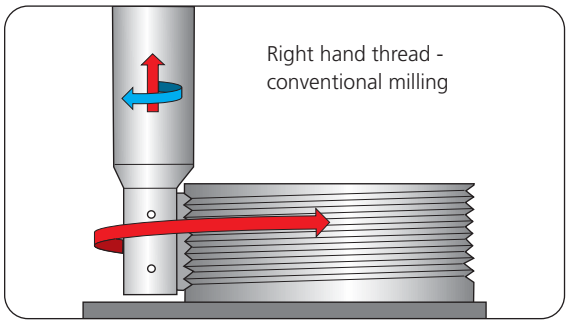
Based on nominal tap drill diameter. Based on .003″ or 0.075mm probable mean oversize.

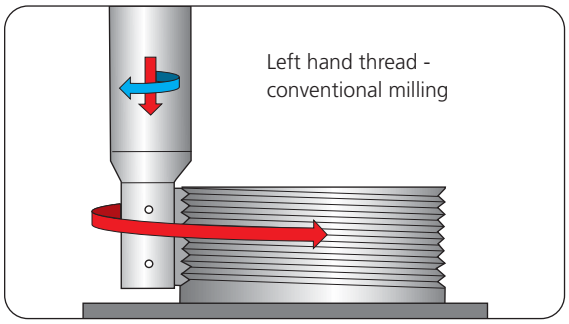
To calculate percent of full thread for a given hole diameter

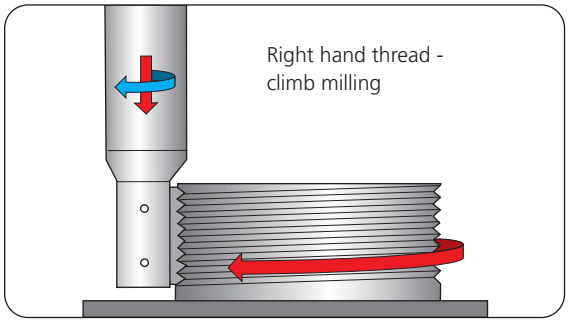
$$\% \text{ Thread} = \#\text{ of Threads per Inch} \times \left\{ \frac{\text{Basic Major Diameter Of thread (inch)} - \text{Drill Hole Size (inch)}}{.0130} \right\}$$

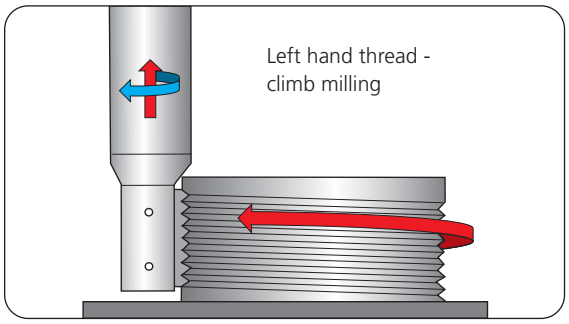
$$\% \text{ Thread} = \frac{76.93}{\text{Pitch (mm)}} \times \left\{ \text{Basic Major Diameter Of thread (mm)} - \text{Drill Hole Size (mm)} \right\}$$

## External

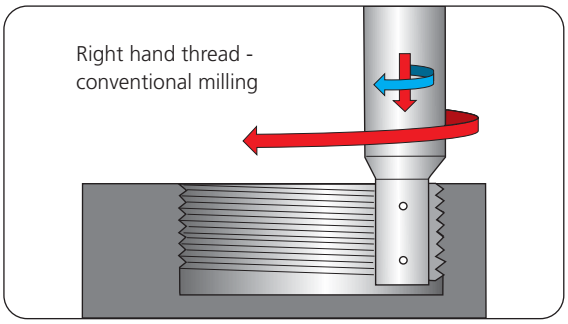


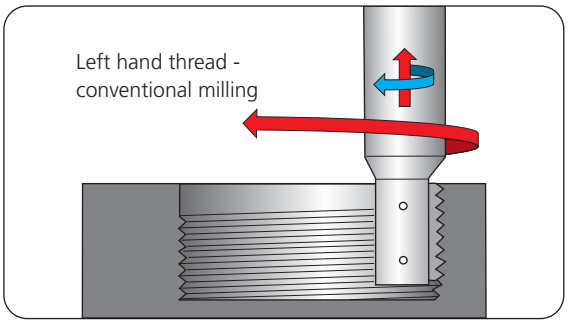



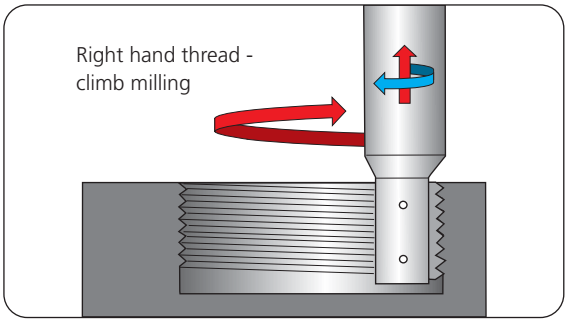



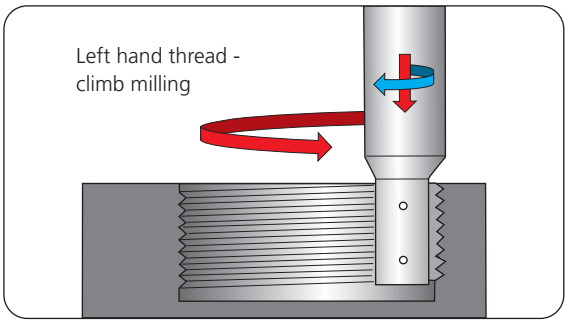




## Internal





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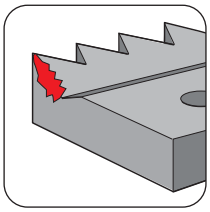
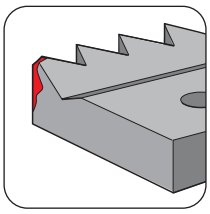
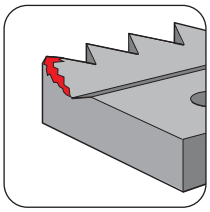
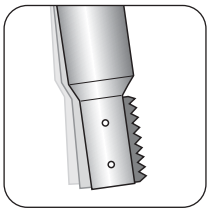
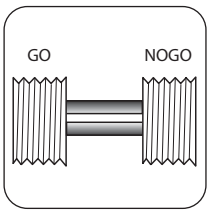
## G codes (ISO) for CNC Programme

| Code | Description | Code | Description |
|---|---|---|---|
| % | Recognition Code (ISO or EIA), +End of tape | H | Tool length compensation number |
| G00 | Rapid Traverse | D | Tool radius compensation number |
| G01 | Linear interpolation | X | X coordinate |
| G02 | Circular/Helical interpolation CW | Y | Y coordinate |
| G03 | Circular/Helical interpolation CCW | Z | Z coordinate |
| G40 | Cutter radius compensation cancel | R | Radius of travel |
| G41 | Cutter radius compensation left | I | X coordinate to centre of starting arc travel |
| G42 | Cutter radius compensation right | J | Y coordinate to centre of starting arc travel |
| G43 | Tool length compensation + | M3 | Spindle clockwise rotation |
| G49 | Tool length compensation cancel | M5 | Spindle stop |
| G57 | Work coordinate system selection | M30 | Programme end & rewind |
| G90 | Absolute command relative to work coordinate origin | O | Programme number |
| G91 | Incremental command relative to tool position | N | Block number (can be avoided) |
| F | Feed mm/min | ( | Start of comment |
| S | Spindle speed RPM | ) | End of comment |

## Troubleshooting guide

| | Problem | Possible cause | Solution |
|---|---|---|---|
|  | Increased insert flank wear | Cutting speed too high<br>Chip is too thin<br>Insufficient coolant | Reduce cutting speed<br>Increase feed rate<br>Increase coolant flow rate |
|  | Chipping of cutting edge | Chip is too thick<br>Vibration | Reduce feed rate / use the tangential arc method / increase RPM<br>Check stability |
|  | Material build up on the cutting edge | Incorrect cutting speed | Change cutting speed |
|  | Chatter/ vibration | Feed rate is too high<br>Profile is too deep<br>Thread length is too long | Reduce the feed<br>Execute two passes, each with increased cutting depth / Execute two passes, each cutting only half the thread length<br>Execute two passes, each cutting only half the thread length |
|  | Insufficient thread accuracy | Tool deflection | Reduce feed rate / execute a "ZERO" cut |

# Technical Section
## Troubleshooting Guide

| Cause | | Thread Mill is showing accelerated or excessive wear | Cutting edges are chipping | Thread mill is breaking in the first hole or part | Thread mill is creating excessive chatter | Out of round thread is produced | Bell mouthed thread form (small at bottom, big at top) | Part rejection because of rough flank insert | Steps in thread profile | Gauge difference from part to part | Machine not making correct paths to create thread profile | Control not accepting the program |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Catalogue | Incorrect tool selection | | | 1 | 1 | | | | | | | |
| | Incorrect speed and feed selection | 2,3 | 2,3 | | 2,3 | | | 2,3 | | | | |
| Speed and Feed | RPM too high | 5 | | | | | | | | | | |
| | RPM too low | | | | 4 | | 4 | 4 | | | | |
| | Machine tool specifications restricts RPM's | | | 5,19 | | | | | | | | |
| | Feed rate too high | | 7 | 7 | | | 7 | 7 | 7 | | | |
| | Feed rate too low | 6 | | | | | | | | | | |
| | Incorrect adjusted feed rate adjustment ratio | | | 12 | | | | | | | | |
| | Machine tool specification restrict feed rate | | | | | 7,19 | | | | | | |
| | Ramp-in is programmed as an axial move | | | 20 | | | | | 20 | | | |
| Tool | Thread mill moved or slipped in its holding device | 13 | 13 | 13 | 13 | | | 13 | 13 | | | |
| | Tool is sticking out of the holder too far | 15 | 15 | 15 | 15 | | | 15 | 15 | 15 | | |
| | Run out between thread mill and holder | | | | 10 | | | 10 | | | | |
| | Incorrect coating creating built up edge | 8,17 | | | | | | | | 8,17 | | |
| | Helix angle too low | | | | 9 | | | 9 | | | | |
| | Excessive thread mill wear | | | | | | | | 11 | 11 | | |
| | Excessive tool pressure | 7,11,14 | | | | | 7,11,14 | | | | | |
| Machine | Work piece moving in its fixturing | 16 | 16 | 16 | 16 | | | 16 | | 16 | | |
| | Insufficient coolant pressure or flow | 17 | 17 | | | | | | | | | |
| | Lack of machine rigidity | 16 | 16 | | 16 | | 16 | 16 | | | | |
| Programming | Incorrect number of passes | | | 22 | | | 22 | | | | | |
| | Incorrect program variables | | | 18,26 | | | | | | | 18,26 | |
| | Didn't account for X/Y radial moves for tapered threads | | | | | | | | | | 24,26 | |
| | Incorrect cutter compensation variables | | | 23,26 | | | | | | | | 23,26 |
| | Helical interpolation option not on machine or turned "off" | | | | | | | | | | 21,26 | 21,26 |
| | Machine tool control is not formatted to standard EIA/ASC11/ISO Code | | | | | | | | | | | 25,26 |

1. Refer to the catalogue to ensure proper tool selection.
2. Verify the correct speed was selected from the catalogue speed and feed chart.
3. Verify the correct feed rate was selected from the catalogue speed and feed chart.
4. Increase the spindle speed (RPM)
5. Decrease the spindle speed (RPM)
6. Increase the feed per tooth (mmpt)
7. Decrease the feed per tooth (mmpt)
8. Investigate other coatings
9. Increase the tool helix.
10. Gauge run out between thread mill and tool holder.
11. Perform tool change at quicker intervals.
12. Adjust the feed rate ratio properly to the correct actual penetration rate for internal threads. Refer to page 208 for formula.
13. Use hydraulic clamping chuck.
14. Check the tool for excessive wear, beginning threads will wear the fastest.
15. Make the amount of overhang in the holding device as short as possible.
16. Verify the work piece is being properly clamped, retighten or increase stability if necessary
17. Increase the coolant flow and volume
18. Check the milling program variables, especially the positive or negative value associated with I and J values.
19. Make sure the machine tool has the appropriate axis and path speed capabilities.
20. Make sure the thread mill is arcing in the major diameter instead of making a radial move.
21. Make sure the machine tool had helical interpolation option and that is "on"
22. Increase the number of thread mill passes.
23. Make sure the cutter comparison variables are input into the G41.
24. Adjust the program for pipe tap threads to taper out on diameter in X/Y directions to create proper form.
25. Request information from the machine tool builder regarding its programming formats.
26. Fax a copy of your programme to Allied Maxcut Engineering Department at (+44) 1384 408372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# Special Tooling

**AMEC's 'Special Products' solutions provide engineers, designers and production managers with the opportunity of creating application specific tooling that can achieve levels of efficiency and performance beyond standard hole making solutions. Although the variety of applications is virtually limitless, this section provides a guide to AMEC's special tooling service and some of the options that are available.**

## Features and Benefits

- Custom designed for specificic applications and requirements
- Complete control over all elements of the cutting tool design
- Eliminates expensive additional cutting operations
- Reduces cost per hole

**CONTENTS**

# Special Tooling Solutions

## Tooling design – scope, choice and versatility


AMEC's reputation has been built on innovation, precision and product performance together with the ability to deliver outstanding results across an exceptional array of industry sectors and production environments.

While the scope of options available within our standard drilling and hole making product range is incredibly wide, covering different holder styles, shank variations and lengths, as well as a comprehensive range of insert geometries and grades for different materials, there are some situations where off-the-shelf tooling is just the start point.

Recognising this need for dedicated or 'special purpose' tooling, for more than 10 years AMEC® has offered a 'special products' service where application specific tool holders and inserts can be conceived, specified and manufactured to meet the precise needs of a particular production operation.

Also, as technology has developed and the benefits of custom tooling have driven higher demand, the need for a faster turnaround from design to delivery has also increased.

As a result, over the years, we have continually evolved and developed our special products service, where custom tooling drawings are now produced from the tool specification online in just 60 seconds after the details have been keyed in by the customer. In addition, detailed production quotations are created in just a few minutes.

## Expertise and experience

Our experience of producing special tooling is unrivalled and has been generated over many years of dealing with demanding engineering, manufacturing and production specifications in a diverse range of industries.

The experience we gain in every application is used as a knowledge resource that we utilise for the benefit of our customers, when looking to create special tooling solutions. Often considerations, such as machine type, stability, age, choice of speeds and feeds available, can have an influence on how the final tool is manufactured to ensure the required performance levels are delivered.

Our dedicated team of specialist designers and technical engineers ensure that all aspects are considered when designing and manufacturing individual tooling tailored to specific jobs and machining applications.

The sheer diversity of products, manufacturing operations and industry sectors means that there is always a way to improve productivity, extend tool life or reduce manufacturing costs. For countless companies, AMEC's 'standard' product range is already helping them achieve these goals, while for others, our special tooling has helped take their manufacturing processes to yet another level.

To meet this level of demand and diversity, the AMEC® special products programme allows customers to change virtually every parameter in the tool design layout and configuration, which includes: -

- Special holder diameters
- Special length holders
- Drill lengths up to 60 x diameter
- Stepped and combination tooling for multiple operations
- Flute type, style and design
- Optional shank types
- Through coolant options
- Tooling for interrupted cuts incorporating wear pads or support bearings
- Dedicated deep hole drilling solutions including twin tube BT-A types
- Unique insert geometries, cutting forms and profiles
- AccuPort 432® specials for multiple operations

Whatever the application, specification and requirements, the complete flexibility of the AMEC® special tooling programme provides the widest choice and scope to ensure virtually any production requirement can be achieved.


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## Special tooling in an instant.

Insta-Quote™ is the most powerful, flexible and rapid method available of obtaining special AMEC tool holders and insert quotations on demand online. Already in widespread use across Europe, Insta-Quote is available to all account holders in Euro (€) and Stirling (£) currencies.

By logging on to www.alliedmaxcut.com and following the easy to navigate and simple prompts, in around 60 seconds, Insta-Quote™ will not only produce a price, for the manufacture of the special tool holders and inserts needed, but also produce the tool production drawings, which can be viewed on screen in a choice of formats.

- Custom drills quoted in minutes...not days!
- Drawings provided in real time on screen, instantly
- Provides the widest variety of special application solutions

When specifying special tooling, via Insta-Quote online, a wide range of parameters are available for selection as below.

### Tool holder options

- One step ICS
- Two step ICS
- Three step ICS
- Chrome helix
- Guided T-A®
- Chrome bushing
- Special length
- Shank style
- Thru spindle coolant options
- Hole profile
- IC insert styles
- Coating options (Chrome plated or Black oxide)


### Insert options

- Lip geometry options
- Web geometry options
- Chipbreaker geometry options
- Corner options
- Regrinding options
- Substrate options
- Coating options

# Insta-Quote™ user guide

## 1.

Complete the 'Login ID', 'Password' and 'Attention To' prompt boxes and hit the Log In button. Then select the Insta-Quote™" icon to enter the programme.


## 2.

From this screen you can create your special holder, blade or edit a previous special quote.


## 3.

Select the option of either a special T-A holder or a GEN3SYS holder and proceed by clicking on continue



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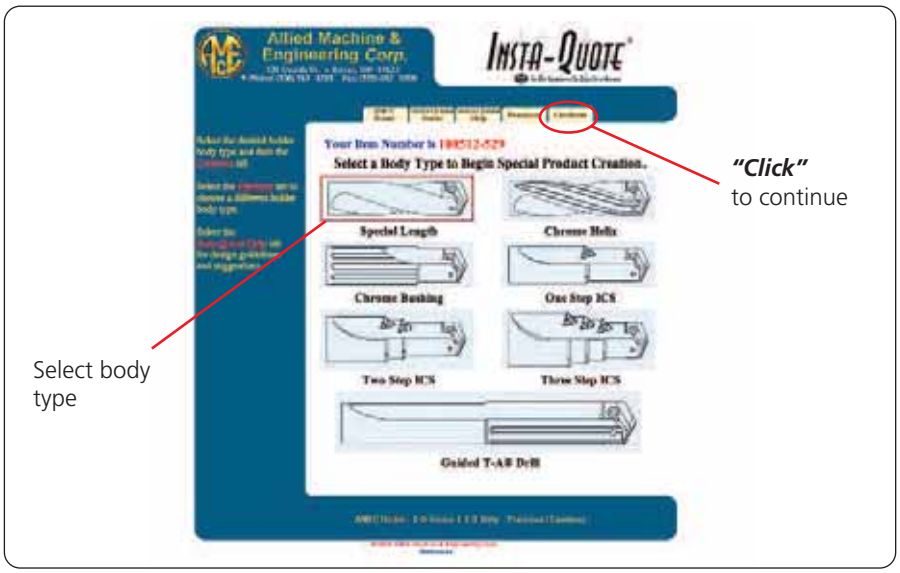
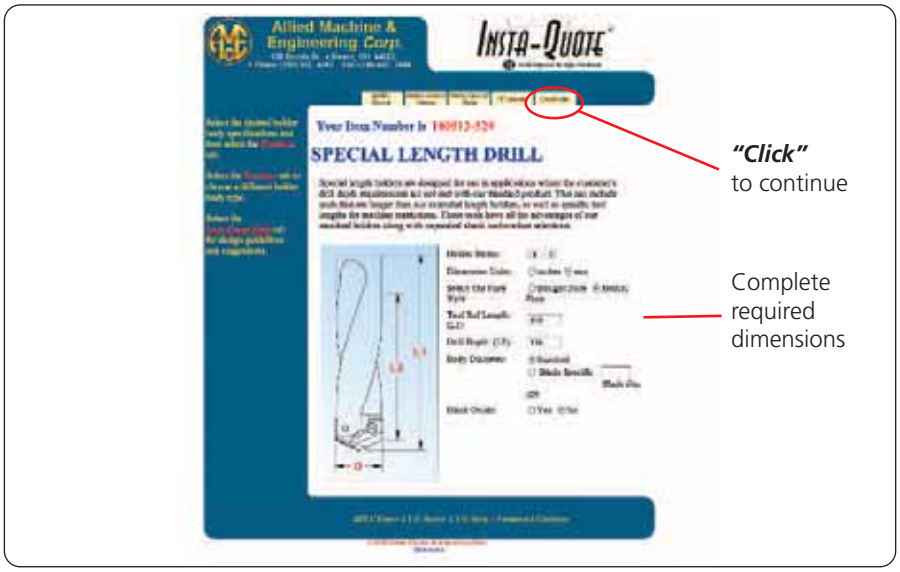
## 4.

Select the toolholder body type you require and proceed by clicking on continue



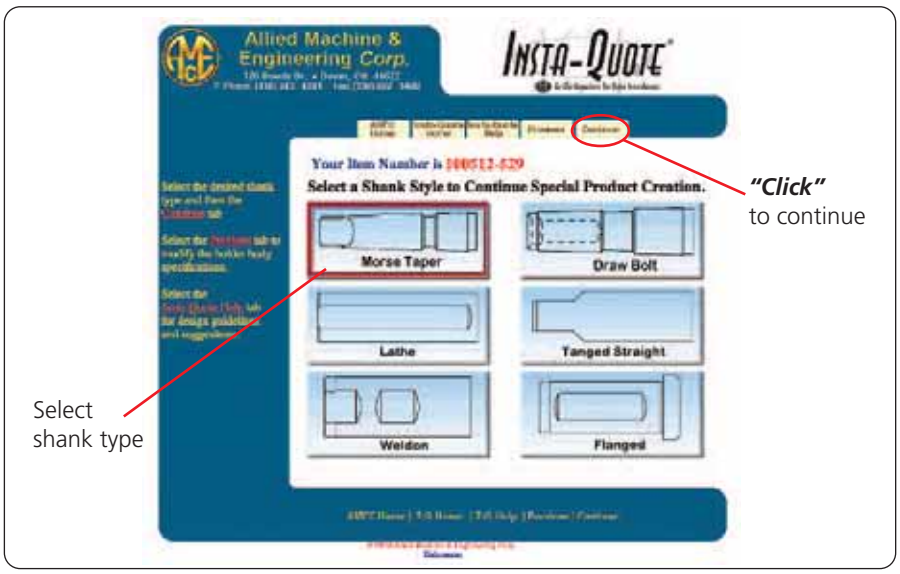

## 5.

Complete required dimensions and proceed by clicking on continue



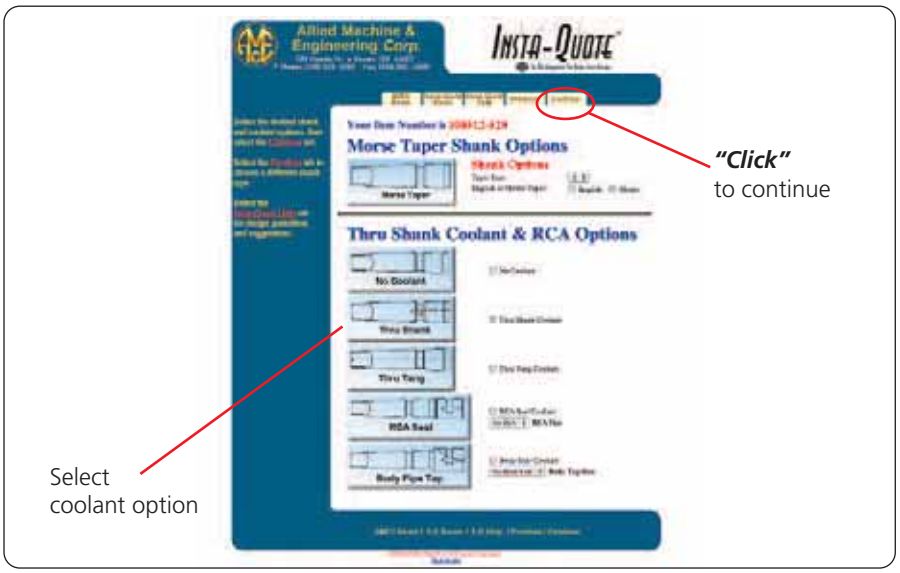

## 6.

Select the shank type you require and proceed by clicking on continue



## 7.

Select the shank coolant options you require and proceed by clicking on continue




## 8.

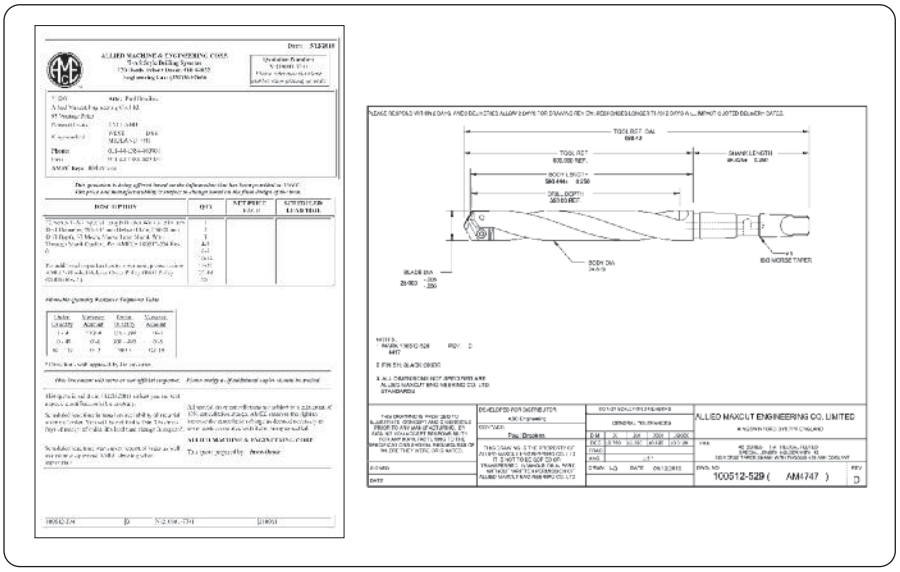
Complete contact details and tool reference requirements and select drawing language, and proceed by clicking on quote item


## 9.

Once you have clicked on **Quote Item**, a quotation will appear as a pdf. This can be either saved or printed.

You now can select **View Item** to obtain your drawing. The drawing contains all the relevant dimensions and will need to be signed off before manufacturing can begin.

Please note that the drawing is generic and not to scale.





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## Total control, complete versatility and absolute performance

While Insta-Quote can cover a broad range of special tool requirements with our ground breaking T-A® and innovative GEN3SYS® ranges, sometimes a particular application requires a totally unique solution.

With AMEC® 'Engineered Specials' we can provide the perfect tool, designed to meet every specific detail and facet of your production requirement. In addition, there are no product limitations to the service; the entire AMEC® product range is at your disposal to allow you find the correct product solution.

Whether it's a dedicated multi step cartridge tool, a unique profile insert or an 'ultra' diameter 'Core Drill', we can engineer a unique cutting tool solution that will not only solve your particular application, but will also take into consideration, the machine tool it will be used on as well as an array of other influencing factors.

Once you find the right tool for the job, everything seems to fall into place. Cycle times reduce, productivity improves and cost per hole drops. With AMEC® engineered specials, you get absolute performance, with complete versatility, yet you are always in control of the process.

## Examples of special engineered products

GEN3SYS® One step ICS

GEN3SYS® One step ICS

T-A® Custom Form Tool

GEN3SYS® Carbide Clad Tool

T-A® Custom Form Tool

T-A® Custom Form Tool

T-A® Custom Form Tool

T-A® Back Chamfering Tool

AccuPort 432® Special

T-A® Multi-Step Cartridge Tool

Core Drill™ - Special Diameter

# Guaranteed Application Request

## Guidelines on use

### Guidelines for use of the Guaranteed Application Request Form

The request for a Guaranteed Application is a method of proving AMEC tooling on demonstration.

The Guaranteed Application form must be completed as fully as possible and sent to the Allied Maxcut Technical Department.

**Example – Required Information**

**Contact Details:**

Purchase Order Number
Date
Customer Name
Customer Telephone and Fax Number
Proposed Date of the Demonstration
Customer Contact Name

**Application Information:**

| | |
|---|---|
| Hole: | Diameter, Depth, Finish and Tolerance |
| Material: | Specification, Hardness and Type (Flat/Rounds etc) |

**Machine and Set-up Information:**

| | |
|---|---|
| Machine: | Model, Type, and Power available |
| Tool: | Shank, Stationery or Revolves |
| Coolant: | Type, Volume, Pressure and Through Tool/Flood |

**Current Drill Information:**

Details of current, or previous tooling used on application, and its performance history

**What defines a successful test:**

The objective of the demonstration i.e. Decreased Cycle Time, Better Chip Control, Safer Process, Longer Tool Life and Reduced Cost per Hole

Providing the Allied Maxcut Technical Department have enough information to judge the application, and its objectives are feasible, the test will be approved.





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# Guaranteed Application Request

## CONTACT DETAILS

Trial P.O No..... Date..... Proposed Test Date.....

Distributor..... Distributor Contact.....

Customer Name..... Contact Name.....

## APPLICATION INFORMATION

ATTENTION: The following information is required to enable the best combination of tooling to be recommended. Please complete all that apply.

Material Type..... Specification..... Material Hardness..... ☐ BRN ☐ RC ☐ kg ☐ N/mm²

Material Condition ☐ Flat Stock ☐ Round Stock ☐ Tubular Stock ☐ Plate ☐ Stacked Plate ☐ Hot Rolled ☐ Cold Rolled ☐ Casting ☐ Forging

Hole Diameter..... ☐ mm ☐ Inch Hole Depth ..... ☐ Thru Hole ☐ Blind Hole

Drilled Hole Tolerance Req'd..... Drilled Hole RMS Finish Req'd..... ☐ µInch ☐ µMetre

## MACHINE AND SET-UP INFORMATION

Machine Tool Type ☐ Machining Centre ☐ Lathe ☐ Boring Mill ☐ Transfer Line ☐ Multi-spindle auto ☐ Multi spindle drill ☐ Radial Arm ☐ Gantry Machine ☐ Dial Index Machine ☐ Pedestal Drill ☐ Gun Drilling Machine ☐ Other

Machine Tool Builder..... Model.....

Machine Tool Control ☐ CNC ☐ NC ☐ Manual ☐ Other.....

Spindle Orientation ☐ Vertical ☐ Horizontal ☐ Other.....

Tool ☐ Stationery ☐ Revolves

Available Power..... ☐ KW ☐ HP Available Feed Thrust..... ☐ Newtons ☐ Lbs

Available Speed..... ☐ Variable ☐ Fixed ☐ RPM ☐ m/min

Preferred Shank Type ☐ Flanged ☐ Morse No ☐ RCA ☐ Lathe Diameter _____ ☐ mm ☐ Inch

Coolant Type ☐ Cutting Oil ☐ Water Soluble Oil ☐ Air Mist ☐ Air ☐ Dry

Coolant Pressure..... ☐ Bar ☐ PSI

Coolant Flow Rate..... ☐ L/min ☐ GPM Coolant ☐ Through Tool ☐ External

## CURRENT DRILL INFORMATION

Drill Manufacturer..... Part Number.....

Drill Type..... ☐ Twist ☐ Brazed ☐ Indexable Insert ☐ Gun Drill ☐ Removable Tip ☐ Other.....

Tool Grade ☐ HSS ☐ Carbide ☐ Ceramic ☐ Other.....

Tool Coating ☐ Uncoated ☐ TiN ☐ TiCN ☐ TiAlN ☐ Other.....

Current Speed..... ☐ RPM ☐ M/min ☐ Current Feed Rate..... ☐ mm/rev ☐ mm/min

Average Number of Holes Drilled New..... After Regrind?.....

Reason(s) for Tool Change ☐ Wear ☐ Chipping ☐ Fracture ☐ Chatter ☐ Burr ☐ Losing Hole Tolerance ☐ Losing Chip Control ☐ New Application ☐ Other.....

What criteria defines a successful test ☐ Decreased Cycle Time ☐ Better Chip Control ☐ Safer Process ☐ Longer Tool Life ☐ Reduced Cost per Hole ☐ Other.....

Potential this application: Current Annual Usage €/£: Tools per Annum?

**FOR OFFICE USE ONLY**
Application Engineer: Number: Status:

# AccuThread 856® & MaxThread

## Guidelines on use

### Guidelines for use of the Guaranteed Application Request Form

The request for a Guaranteed Application is a method of proving AMEC tooling on demonstration.

The Guaranteed Application form must be completed as fully as possible and sent to the Allied Maxcut Technical Department.

**Example – Required Information**

**Contact Details:**

Purchase Order Number
Date
Customer Name
Customer Telephone and Fax Number
Proposed Date of the Demonstration
Customer Contact Name

**Application Information:**

Thread Size and Pitch, Thread Depth, Material, Hardness
Thread Form%, Thread Mill

**Machine and Set-up Information:**

Machine Type, Maximum RPM, Horse Power
Clamping Method
CNC Control Type:

**Coolant Information:**

Coolant Pressure, Coolant Volume, Coolant Type

**Tooling To Be Used**

**Programming Data**

Providing the Allied Maxcut Technical Department have enough information to judge the application, and its objectives are feasible, the test will be approved.


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# AccuThread 856® & MaxThread

## Guaranteed Test Application Request Form

☐ Guaranteed Test
☐ Programme Request (Please tick box)

Distributor P.O. .....

**The following form must be filled out completely before test will be considered.**

Distributor: .....
Contact: .....
City: .....
Phone: .....
Email: .....

End User: .....
Contact: .....
Industry: .....
Phone: .....
Email: .....

### Application Information

Thread Size and Pitch..... Thread Depth..... Material..... Hardness ☐ BHN ☐ RC ☐ Nmm²

OAL..... Drill Size..... ☐ Thru ☐ Blind Material State ☐ Forged ☐ Bar ☐ Cast ☐ Other.....

Thread Form% ☐ 100 ☐ 75 Other..... Thread ☐ Internal ☐ External

Thread Mill ☐ Indexable ☐ Solid Carbide

### Machine Information

Machine Type ☐ Machine Centre ☐ Lathe ☐ Mill ☐ Other Builder..... Model#.....

Maximum RPM.....

Horse Power..... Spindle Orientation ☐ Vertical ☐ Horizontal

Clamping Method ☐ Side Lock ☐ Hydraulic Chuck ☐ Shrink Fit..... Rigidity ☐ Excellent ☐ Good ☐ Poor Tool Rotating ☐ Yes ☐ No

CNC Control Type: ☐ Fanuc ☐ Siemens ☐ Mazatrol ☐ Other..... Helical Interpolation ☐ Yes ☐ No ISO – ASCII Compatible ☐ Yes ☐ No

### Coolant Information

Coolant Pressure..... Coolant Volume..... Coolant Type.....

### Tooling To Be Used

| Item Number | Qty |
|---|---|
| | |
| | |
| | |
| | |
| | |

### Programming Data

| | | |
|---|---|---|
| Dimensions: | ☐ Inch | ☐ Metric |
| Arc Centre: | ☐ I and J | ☐ R (Radius) |
| Tool Path: | ☐ Offset | ☐ No Offset |
| Arc Limitation: | ☐ Full Circle | ☐ Quadrant |
| K Value: | ☐ Not Required | ☐ Required |
| If Required: | ☐ In Radians | ☐ Per Revolution |

# Notes




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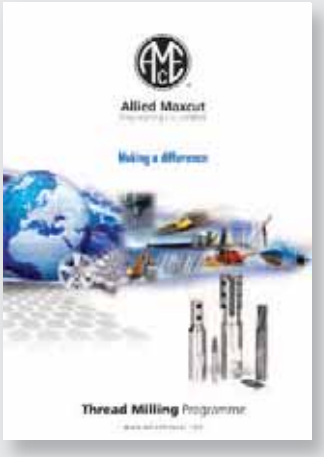
*Also available*




AMEC Thread Milling Programme


AMEC Revolution Drill & Core Drill Programme

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*FS 36985*

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