



**ALLIED MACHINE
& ENGINEERING**

WOHLHAUPTER®

Holemaking Solutions for Today's Manufacturing



Drilling



Boring



Reaming



Burnishing



Threading



Specials

► Special Tooling Solutions

Now Featuring

 **SUPERION™**

North America

Allied Machine

120 Deeds Drive
Dover, OH 44622
United States

Allied Machine

485 West 3rd Street
Dover, OH 44622
United States

ThreadMills USA™

4185 Crosstowne Ct #B
Evans, GA 30809
United States

Superion™

1285 S Patton St.
Xenia, OH 45385
United States

Europe

Allied Machine Europe

93 Vantage Point
Pensnett Estate
Kingswinford
West Midlands
DY6 7FR, United Kingdom

Wohlhaupter® GmbH

Maybachstrasse 4
72636 Frickenhausen
Germany

Asia

Wohlhaupter® India

B-23, 2nd Floor
B Block Community Centre
Janakpuri, New Delhi - 110058
India



Allied Machine & Engineering is a worldwide leader in holmaking and finishing solutions. We are committed to providing practical and dependable solutions to our customers through innovative designs and superior customer and technical support.

We continue to expand our product offering in order to provide new and different solutions. With Field Sales Engineers located around the world, we position ourselves to provide technical support on site, right at your spindle.



**ALLIED MACHINE
& ENGINEERING**

WOHLHAUPTER®

Holmaking Solutions for Today's Manufacturing

www.alliedmachine.com

The Foundation

Since 1941, Allied Machine & Engineering has provided dependable and practical holmaking solutions to the world. What was once a small job shop in Ohio is now a worldwide leader in cutting tool technology. With three manufacturing facilities in Ohio, one in Georgia, another in Germany and headquarters in both the United States and Europe, Allied Machine is positioned to bring innovative solutions and technical expertise directly to the customers' hands.



The Beginning

Harold E. Stokey founded Allied Machine & Engineering to aid the war effort, manufacturing taper bearing lock nuts for the production of M1 tanks. Years later, after a sales meeting gone wrong, Stokey possessed a warehouse stocked with spade drill inserts. He set forth into the industry that would become Allied Machine's thriving identity: holmaking.



The T-A®

When Harold's son, William H. Stokey, became the president and CEO, he developed the Throw Away, or T-A®, spade drill insert system. The T-A® revolutionised the holmaking industry, launching Allied Machine ahead of the competition. Since then, numerous innovations and advancements have been created from the T-A®'s inspiration.



The Innovation

Since the development of the T-A®, Allied Machine has expanded its product offering to support a vast range of customer applications, including large diameter and deep hole drilling, boring, reaming, burnishing, porting and threading.

The People

Allied Machine understands that high quality products are only one facet of success. Our customer support is crucial to what we do and that's why we make sure the best engineers and customer service associates are in place to assist our customers around the world.

The Future

With over 75 years of experience, Allied Machine has encountered the challenges of growth and success. By investing in cutting edge technology and the brightest and sharpest minds, our knowledge and capabilities continue to expand and grow every day.



Steve Stokey

Executive Vice President
Allied Machine & Engineering Corp.

Frank-M. Wohlhaupter

Managing Director
Wohlhaupter GmbH

Paul Crawford

Managing Director
AMEC Europe

Mike Stokey

Executive Vice President
Allied Machine & Engineering Corp.

Allied Machine Dover, OH, USA



Wohlhaupter GmbH, Frickenhausen, Germany



Allied Machine Europe, Kingswinford, UK



**ALLIED MACHINE
& ENGINEERING**

Holmaking Solutions for Today's Manufacturing

WOHLHAUPTER®



SUPERION™

CRITERION™



Product Offering Overview

Replaceable Insert Drills

- Reduce costs by decreasing set-up time and utilizing a single holder for the lives of multiple inserts
- Provide flexibility to quickly switch between inserts with different geometries
- Products:
 - GEN3SYS® XT | GEN3SYS® XT Pro
 - Original T-A® | GEN2 T-A®
 - High Performance | Universal



Indexable Insert Drills

- Protect your investment and reduce your inventory with replaceable cartridges that allow the same holder to be used repeatedly
- Indexable inserts increase productivity and tool life while reducing costs
- Products:
 - Revolution Drill®
 - Opening Drill®



Replaceable / Indexable Insert Drills

- Allow for higher spindle speeds and take advantage of the power curve on modern CNC machines
- Achieve maximum penetration rates in deep hole drilling applications
- Holders cover a range of sizes with the replaceable heads determining the cutting diameter
- Products:
 - APX Drill



Solid Carbide Drills

- Offer greater strength and stability when drilling tougher materials
- Available in diameters from 3mm - 50mm
- Can be made-to-order specifically for your application (Superion™ quoted specials)
 - ASC 320®
 - Superion™



Structural Steel Solutions



- Deliver outstanding performance and durability in structural steel applications
- Designed to produce optimal results in difficult-to-machine materials
- Available in multiple lengths and diameters
- T-A® style drills have different insert geometry options to improve performance depending on material
- Products:
 - Original T-A® | GEN2 T-A®
 - GEN3SYS® XT

BTA (STS) Machining Solutions

- The internal ejection system flushes chips and debris from the hole with no interference to the cutting process
- Utilises the advantages of the T-A® drill insert
- Designed to significantly increase penetration rates over brazed heads and traditional gun drills
- Products:
 - BT-A® Drill



Hydraulic Port Contour Cutters

- Save significant time and money by performing four processes in one step
- Replaceable insert design reduces costs, inventory and set-up times
- Available in 4 industry specifications:
 - Imperial: SAE J-1926
 - Metric: ISO 6149-1:2006
 - Military: SAE AS5202
 - John Deere: JDS-G173.1
- Products:
 - AccuPort 432®



4 IN 1

Enhanced Special Drilling Capabilities

- Allied Machine Engineers are available to meet with you to evaluate your application and recommend the best solution for you
- Special drilling solutions can incorporate advanced features such as adjustable diameter locations, multiple steps, additional coolant designs, special lengths and diameters and more
- Special drills can drastically reduce your cost-per-hole and increase your overall productivity by eliminating multiple processes and increasing tool life





Product Offering Overview

WOHLHAUPTER®

High Precision Boring Systems

- Designs available for high volume applications that increase rigidity to improve performance
- Versatile boring heads that are flexible with changing applications while maintaining excellent performance
- Provides high precision with absolute repeatability to ensure every part is held to tolerance
- Offers an industry leading modular shank connection that maintains rigidity and reduces inventory on your boring system
- Available with both digital and analog settings
- Products:
 - Wohlhaupter® Boring Tools



CRITERION™

Modular Boring Systems

- The modular capabilities are ideal for use across multiple different projects
- Offers versatile boring heads suitable for all job shops and tooling rooms
- Provides an economical solution for low volume and/or short-term production applications
- Offers both rough and finish boring solutions
- Products:
 - Criterion™ Boring Tools

S.C.A.M.I.®

Expandable Reaming Solutions

- Expandable cutting diameters accommodate for wear, which extends tool life
- Replaceable cutting heads and rings reduce waste and improve production time versus solid high speed steel and carbide reamers
- Hold tight tolerances to ensure processes are performed to accurate specifications
- Reduce tooling costs because many items are available for recondition
- Products:
 - ALVAN® Reamers



S.C.A.M.I.®

Roller Burnishing Solutions

- Produce excellent surface finishes
- Provide accurate size control
- Increase surface hardness
- Solutions for both through hole and blind hole applications
- Products:
 - S.C.A.M.I.® Roller Burnishing Tools





Solid Carbide Thread Mills

- Available with coolant through options
- Cover a wide range of thread forms
- Provide optimal solutions for both high production projects and short-run applications
- Products
 - **AccuThread™ 856**
 - **ThreadMills USA**



Indexable Insert Thread Mills

- 3 insert lengths are available that cover a wide range of thread forms
- Holders can utilise inserts with different pitches and thread forms
- Repeatability is achieved by both the bolt-in style and the pin style locking systems
- Increase tool life by 25 - 50% with Allied Machine's AM210® coating
- Products
 - **AccuThread™ 856: Bolt-in Style**
 - **AccuThread™ 856: Pin Style**




SPECIAL CAPABILITIES

When it comes to designing and developing special solutions for customers, Allied Machine is the top choice. If your application requires special tooling, give us a call. Our engineered specials are developed by the brightest engineers in the industry. Most of our standard tooling can be altered as specials, or we can create entirely new concepts for particularly unique applications.

One special tooling solution is Insta-Quote™, the online system that allows you to design your own special tooling 24/7. Receive a quote and drawings within minutes just by following the steps.

And with the addition of Superior™ technology and capabilities, we can customise made-to-order solid carbide tools to achieve optimal results for your applications.

Whatever your application, Allied Machine has the answer.

Insta-Quote™ 



 **SUPERION™**



Special Tooling Solutions

Superion™ | Insta-Quote™ | Engineered Specials



Speciality is Our Speciality

It's true. When it comes to designing and developing special solutions for customers, Allied Machine is the top choice. Our engineers see applications in ways many others don't and that ability allows us to win situations that haven't been won before.

If you have a particularly unique or difficult application, give us a call. Most of our tooling can be tweaked as specials, and we can create entirely new concepts if alterations to standard product won't do the trick.

After all, everyone deserves some special attention.



Your safety and the safety of others is very important. This catalogue contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalogue, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalogue. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

Special Tooling Solutions Contents

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Special Tooling Options

Special Tooling is Our Speciality

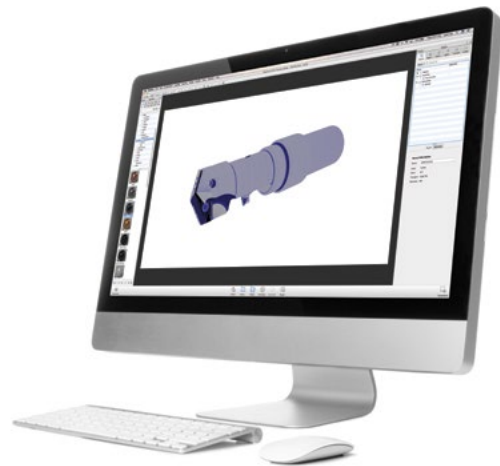
Allied Machine offers three methods for obtaining special tooling to solve any application problem you encounter: Superion™, Insta-Quote™ and Engineered Specials. We know standard tooling can't be the answer for everyone and that's why we specialise in developing unique tooling to fit your needs.

Many of our products can be altered as specials. In fact, many of our standard items are results of frequently requested special features. Many times, one special design can end up solving problems for multiple customers across a variety of industries. Our specials capabilities truly sets us apart from our competition.

Our Application Engineering Team and Field Sales Engineers are trained and highly skilled to develop unique solutions that you won't find anywhere else. If you need special tooling, give us a call. Let us be the ones to tell you it can't be done. But don't expect us to.



Solid Carbide Specials

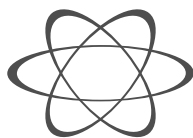


Advanced Capabilities

With the addition of the Superion™ solid carbide products, Allied Machine can now provide made-to-order special tooling to better help customers achieve optimal performance and productivity in their holmaking applications. Give us a call today and see the new solutions we can provide.

Made-to-Order Solid Carbide Specials

- PCD Tooling
- Burnishing Drills
- Solid Carbide Drills
- Carbide / PCD Step Reamers



Insta-Quote™

Insta-Quote™ is an online custom tool designer. The program is available 24/7 and guides you through the steps as you create a special tool designed to meet the requirements of your application.

Products Available:

- T-A® Inserts
- T-A® Holders
- GEN3SYS® XT Holders



See pages X: 6 - 13



Engineered Specials

When the requirements of your application fall outside the limitations of Insta-Quote™, your special tooling becomes an Engineered Special. These are tool designs that our engineers get to create and develop specifically for you.

Reasons to Call:

- Many standard products can be specially engineered
- Allied Machine specials can save you time and increase tool life
- Our engineers have the skills and knowledge to create designs that meet the challenge



See pages X: 14 - 21

Industry Solutions

Every Industry Needs Some Special Attention

Many specific industry applications can be tricky and processes can change drastically from one sector to the next. Allied's Field Sales Engineers and Application Engineers work together to develop breakthrough solutions that help customers master processes that before seemed impossible to improve.

You know your parts. You know your materials. You know what works and what doesn't. All you need to do is let us know what you're dealing with and we'll take it from there. Whether you're machining the wings of an airplane or the engine block in a new car, we'll develop the right design to solve the problem you're facing.

For more industry examples, see Allied Machine's Case Studies and Success Stories at www.alliedmachine.com.



Automotive
Engine Block



Aerospace
Central Fuselage Wing Box

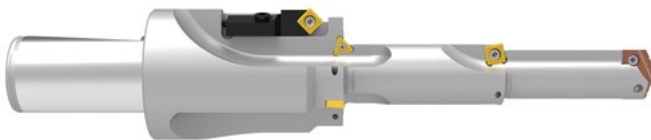


Heavy Machinery
Track Links



Oil and Gas
Heat Exchanger

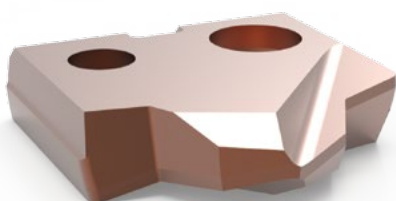
COMPLEX SOLUTIONS



INNOVATIVE SOLUTIONS



LONG SOLUTIONS



EVERY PROBLEM
HAS A
SOLUTION

**Superion™**

Solid Carbide Special Capabilities

**ALLIED MACHINE
& ENGINEERING**

a solid combination

Providing New Capabilities

With the acquisition of Superion™, Inc., Allied Machine has gained the ability to provide top-of-the-line solid carbide special tooling. Superion™ has built its reputation as a manufacturer of innovative special solid carbide and PCD tipped rotary cutting tools such as:

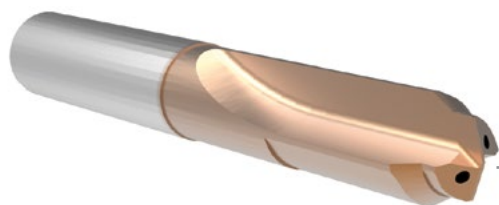
- PCD Tools
- Reamers
- Drills
- Step Tools

Superion™ is widely recognised as the expert in developing customised solutions in speciality tooling. And now Allied Machine is bringing that expertise to you.

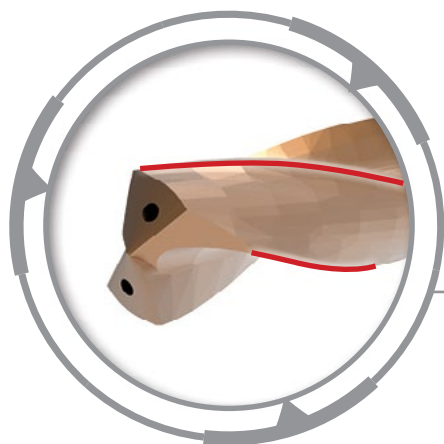
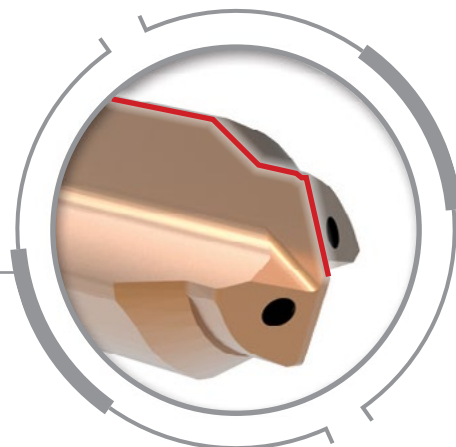


SOLID CARBIDE SPECIALS

PCD Tooling | Burnishing Drills | Solid Carbide Drills | Carbide / PCD Step Reamers

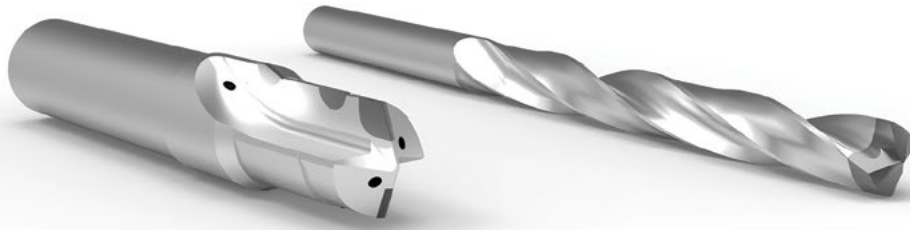


FORM DRILL



DOUBLE MARGIN





01 PCD DRILLS



Industry Application
Aerospace



Industry Application
Automotive

Wafer Style

- Wide diameter range of 3mm - 50mm
- Can be designed with multiple steps
- Can be designed with coolant through

Solid Head Style

- Diameter range of 3mm - 16mm
- Available with PCD to the centre of the tool
- Can be reground

Aerospace

- Solid head PCD tools are used in composite materials (CFRP)
- Wafer tools are used for aluminium applications



02 SOLID CARBIDE DRILLS



Industry Application
Firearms



Industry Application
Automotive



Industry Application
Aerospace

Diameter | 25xD

- Wide diameter range of 3mm - 50mm
- Depth-to-diameter ratio up to 25xD

Multi-Step

- Can be designed with multiple steps
- Reduces cost per hole by eliminating tool changes

Automotive | Firearm

- Customised solutions available for the automotive, firearm, and aerospace industries



03 BURNISHING DRILLS



Industry Application
Aerospace



Industry Application
Automotive

Range

- Wide diameter range of 3mm - 50mm

Design

- Straight flutes, thinned web, four margins
- Available with or without coolant

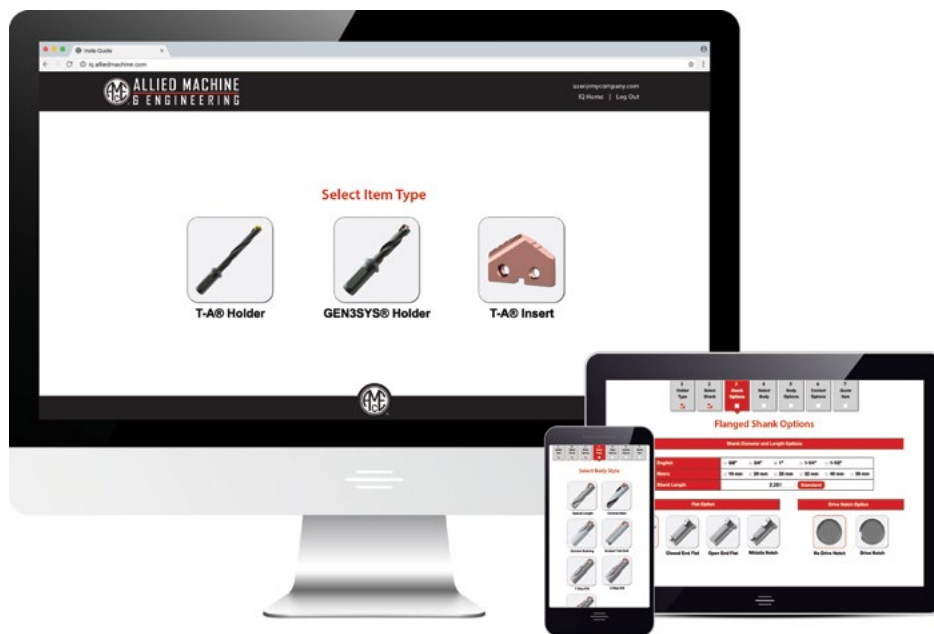
Materials

- Specifically designed for cast iron and aluminium applications
- Produces rounder, more consistent holes

**Insta-Quote™**

Design Your Custom Tooling

Insta-Quote™

Design your custom tooling and receive a drawing and quote...all within *minutes*.**iq.alliedmachine.com****Design Your Own Solutions**

Insta-Quote™ is an online program that allows you to design and quote your own tooling in a matter of minutes. After you log in, Insta-Quote™ will guide you through the steps to gather all the necessary information and generate the solution you need. Within the system, you can choose from the following tools to design:

- T-A® Inserts
- T-A® Holders
- GEN3SYS® XT Holders



Design anytime from anywhere.
Available online 24/7.



Insta-Quote™

User Guide



Where Do I Find Insta-Quote™?

There are two ways to access Insta-Quote™:

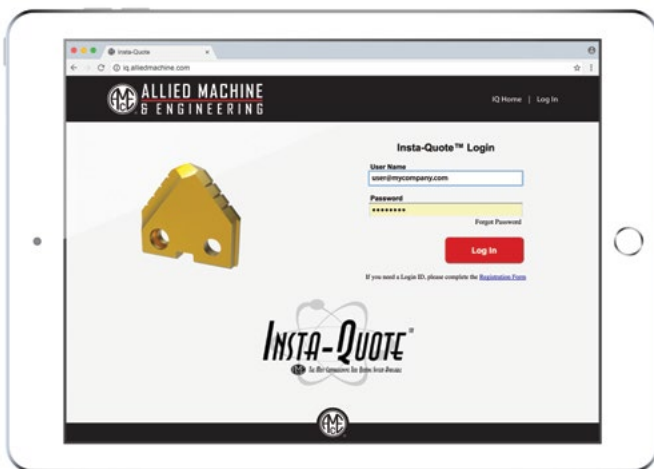
- Visit our website (www.alliedmachine.com) for Passport to AMEC®
- Or visit iq.alliedmachine.com

Please contact us in the first instance for login details.

Login

OR

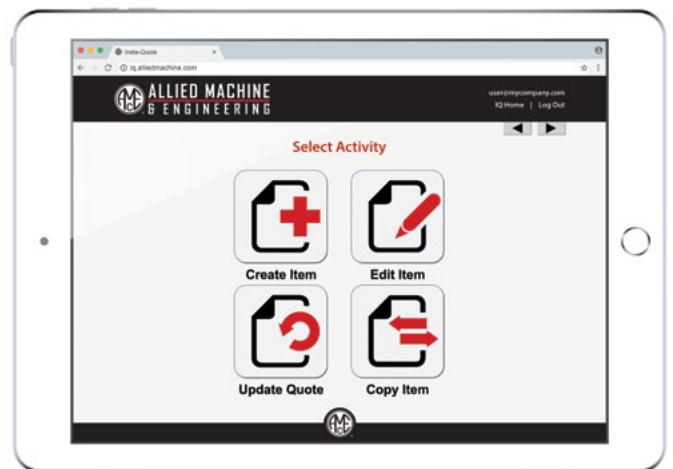
iq.alliedmachine.com



1

Log In

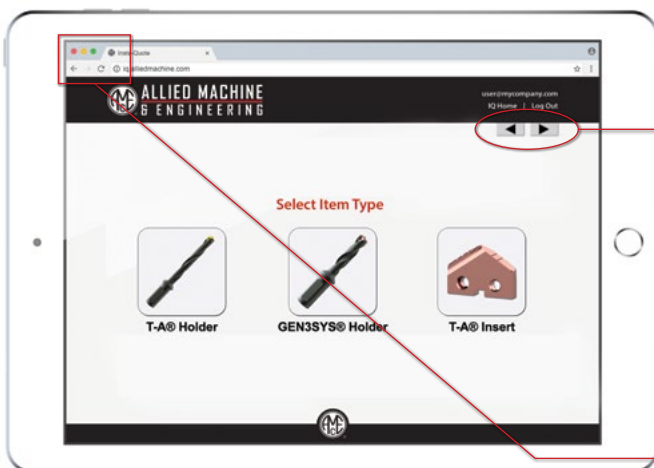
Fill in "User Name" and "Password" and click the login button. If you do not have a login, just click the "Registration Form" option beneath the log in button and submit your registration.



2

Select Activity

On this screen, you can choose to create a new tool, edit a previous tool, update your quote, or copy a previous item.



3

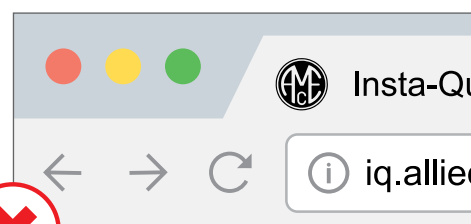
Select Tool Type

Choose the type of special tool you would like to create. The options include T-A® inserts, T-A® holders and GEN3SYS® holders.



IMPORTANT:

The right and left arrows will navigate you through each step. **DO NOT** use the web browser's back and forward buttons; doing so may result in loss of progress.



Do not use the web browser's back and forward arrows



What is My Item Number?

As soon as you select the type of product you want to design, Insta-Quote™ automatically generates the item number for your tool. The item number will appear at the top left-hand side of your screen.

170209-547

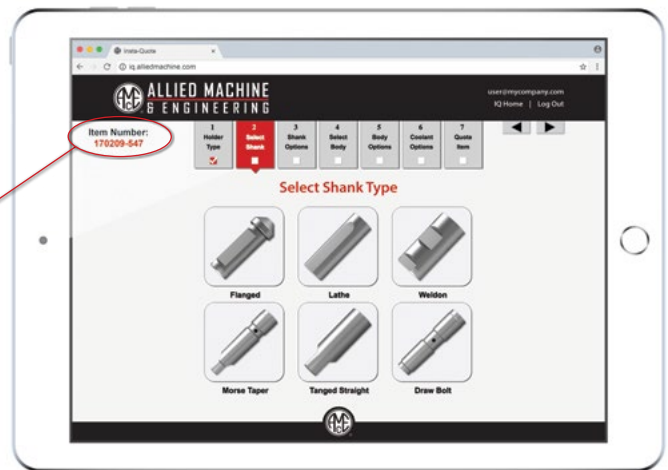
Year Month Day Reference No.

First Part of the Item Number:

This represents the date you began designing your tool (ex. 170209 = 09 February, 2017).

Second Part of the Item Number:

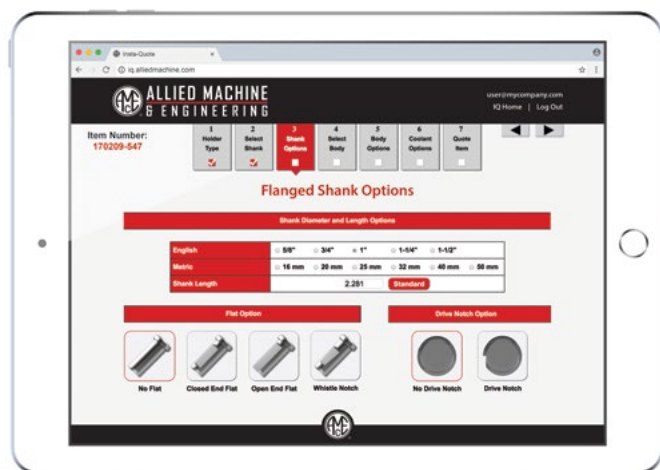
This is the reference number for that specific item. If you begin designing another tool on the same day, the first part of the new item number would be the same, but the reference number would be unique to that new item.



4

Shank Selection

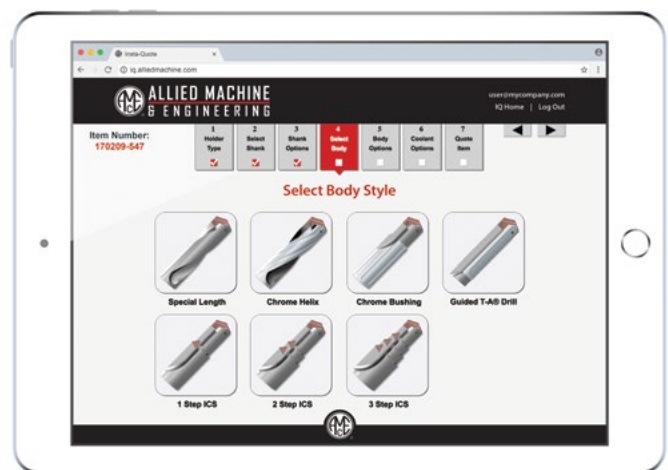
Select the shank type you require and then click the right arrow button ► to proceed.



5

Shank Options

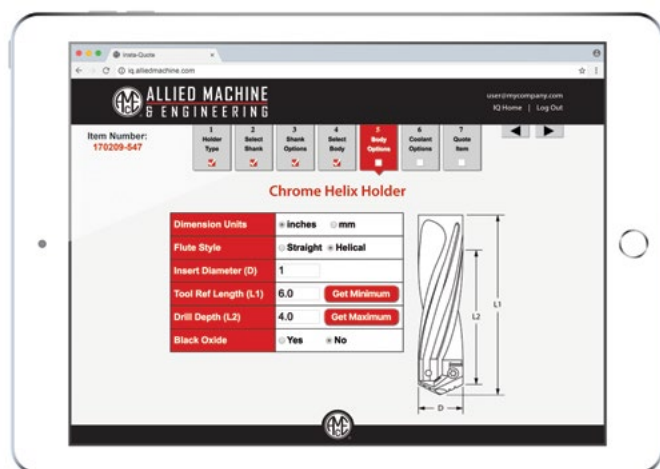
After choosing the shank type, you will be provided with additional shank options (if applicable). Once your selections are made, click the right arrow button ► to proceed.



6

Select Body Style

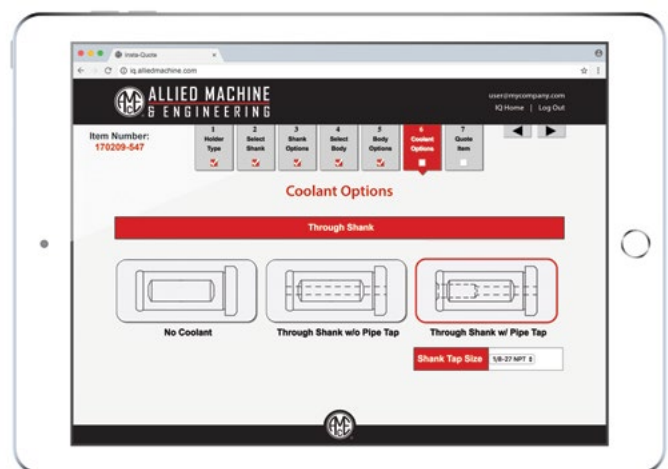
Choose the holder style you need, and then click the right arrow button ► to proceed.



7

Body Options

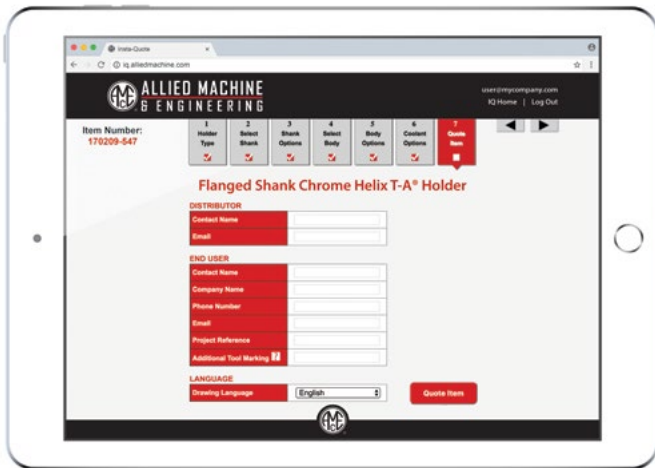
After choosing the holder style, you will be provided with additional holder options (if applicable). Once your selections are made, click the right arrow button ► to proceed.



8

Coolant Options

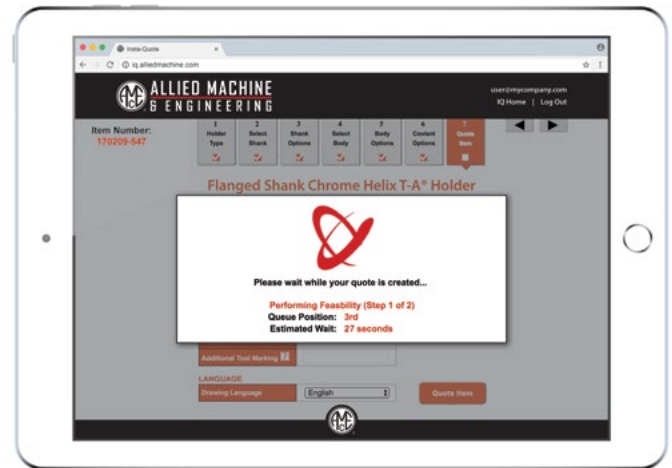
On this screen you will select your coolant options. When finished, click the right arrow button ► to proceed.



9

Contact Information

Complete the contact details and select a language for the drawing. Click the "Quote Item" button to proceed.



10

Quote Your Item

Once you have selected "Quote Item," a box will appear to let you know the estimated time remaining before your quote and drawing are created (typical wait time is less than 1 minute).

NOTE: Your pop-up blocker must be disabled in order to view the downloaded files.

ALLIED MACHINE & ENGINEERING
Metalworking Solutions for Today's Manufacturing

130 Deeds Drive
Dover, OH 44622
P: +1.330.343.4283
F: +1.330.602.3400
www.alliedmachine.com

Attn: Joe Thomas
Customer Account
123 Holmeking Pkwy
Suite 1000
Dover OH 44622
Phone: 330-343-4283
Fax: 330-602-3400
AMEC Rep: Harold Stokely

Customer Name: ABC Company
Customer Contact: Joe Thomas
Customer Item Reference: N/A
Email: joe@mycompany.com
Phone: 330-330-3300

Quotation Number:
N-012345-678910
Please reference the above number when placing an order

Date: 02/09/2017

This quotation is being offered based on the information that has been provided to AMEC. The price and manufacturability is subject to change based on the final design of the item.

DESCRIPTION	QTY	LIST PRICE EACH (U.S. \$)
#2 Series T-A® Chrome Helix Holder With 1.000" Drill Diameter, 5.860" Helical Flute, 1.000" Dia. By 2.281" Long Flanged Shank With No Flat With Through Shank Coolant, Per AMEC# 170210-523 Rev. 0	1	\$ 0.00
	2	\$ 0.00
	3	\$ 0.00
	4-5	\$ 0.00
	6-9	\$ 0.00
	10-14	\$ 0.00
	15-24	\$ 0.00
	25-49	\$ 0.00
	50+	\$ 0.00

For additional opportunities to lower cost, please review AMEC's Blanket Release Order Policy (BRO Policy 020100 Rev.1).

Order Quantity	Variance Amount	Order Quantity	Variance Amount
1-9	+0/-0	150-299	+0/-3
10-49	+0/-1	300-499	+0/-5
50-149	+0/-2	500+	+0/-10

* Deviations with approval by the customer

WARNING: For Deep Hole Drilling
Test before use cause serious injury. To prevent:
- When using holders greater than 100" without support tubing, use a short length holder to establish an initial hole that is 2-3 diameters deep.
- Do not rotate tool more than 50 RPM unless it is engaged with workpiece or fixture.
- Follow the Deep Hole Drilling Guidelines in technical reference section of the catalog for best practice.
- In cutting, use speed & feed multipliers at bottom of speed and feed charts to calculate proper speed & feed recommendations.
- To cutting, use coolant multipliers at bottom of coolant charts to calculate proper coolant recommendations.
Visit www.alliedmachine.com/deep-hole-drilling for most up-to-date information and procedures.
Factory technical assistance is also available at (203) 521-6337 or at (203) 543-4283 within the US and Canada.

This Document will serve as our official response. Please notify us if additional copies should be mailed.

This quote is valid until 12/31/2018 unless you are sent a specific notification to the contrary.

Scheduled lead time is based on availability of material at time of order. You will be notified within 3 business days of receipt of order, if a lead time change is required.

Scheduled lead time starts upon receipt of order as well as customer approved AMEC drawing when appropriate.

All special order cancellations are subject to a minimum of 10% cancellation charge. AMEC reserves the right to increase the cancellation charge as deemed necessary to cover costs associated with items being cancelled.

ALLIED MACHINE & ENGINEERING CORP
This quote prepared by: Insta-Quote

PLEASE RESPOND WITHIN 2 DAYS. AMEC DELIVERIES ALLOW 2 DAYS FOR DRAWING REVIEW. RESPONSES LONGER THAN 2 DAYS WILL IMPACT QUOTED DELIVERY DATES.

TOOL REF. DIAL 6.25
TOOL REF. 6.000 REF.
BODY LENGTH 5.860 ± 0.010
DRILL DEPTH 4.00 REF.
SHANK LENGTH 2.281 ± 0.010
NO FLAT ON SHANK
1/8-27 NPT TAP
SHANK OD 1 IN FLANGED
BLADE DIA 1.0000 -0.0012 -0.0012

NOTES:
1. MARK : 170210-523 REV. 0
2. ALL DIMENSIONS NOT SPECIFIED ARE ALLIED MACHINE AND ENGINEERING CORP. STANDARDS.

THIS DRAWING IS PROVIDED TO ILLUSTRATE CONCEPT AND DIMENSIONS PRIOR TO ANY MANUFACTURING. BY SIGNING YOU ACCEPT RESPONSIBILITY FOR ANY MANUFACTURING TO THE SPECIFICATIONS SHOWN, REGARDLESS OF WHERE THEY WERE ORIGINATED.

DEVELOPED FOR DISTRIBUTOR : ABC Company
CONTACT : Joe Thomas

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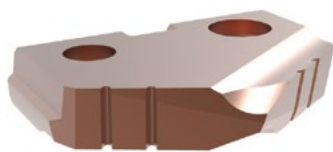
SIGNED :
DATE :

GENERAL TOLERANCES
DIM. 3X .001 .002 .005 .010 .020 .050 .100 .200 .500 1.000 2.000 5.000 10.000 25.000 50.000 100.000 250.000 500.000 1000.000
FRACTION 1/32 1/16 1/8 1/4 1/2 3/4 1 1 1/2 2 3 4 5 6 8 10 12 16 20 25 30 36 45 60 72 90 108 120 144 180 216 270 324 360 432 480 540 648 720 864 960 1080 1296 1440 1728 1920 2160 2592 2880 3240 3600 4320 4800 5400 6480 7200 8640 9600 10800 12960 14400 17280 19200 21600 25920 28800 32400 36000 43200 48000 54000 64800 72000 86400 96000 108000 129600 144000 172800 192000 216000 259200 288000 324000 360000 432000 480000 540000 648000 720000 864000 960000 1080000 1296000 1440000 1728000 1920000 2160000 2592000 2880000 3240000 3600000 4320000 4800000 5400000 6480000 7200000 8640000 9600000 10800000 12960000 14400000 17280000 19200000 21600000 25920000 28800000 32400000 36000000 43200000 48000000 54000000 64800000 72000000 86400000 96000000 108000000 129600000 144000000 172800000 192000000 216000000 259200000 288000000 324000000 360000000 432000000 480000000 540000000 648000000 720000000 864000000 960000000 1080000000 1296000000 1440000000 1728000000 1920000000 2160000000 2592000000 2880000000 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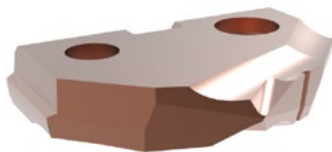


Insta-Quote™ Custom Tooling

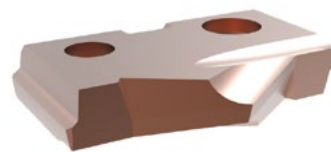
T-A® Inserts



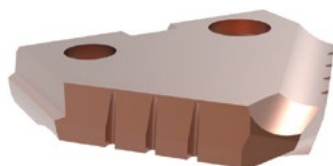
Special Angle



Double Angle



Spur Point



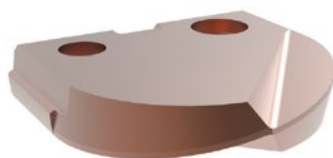
Spot and Chamfer



Step Insert

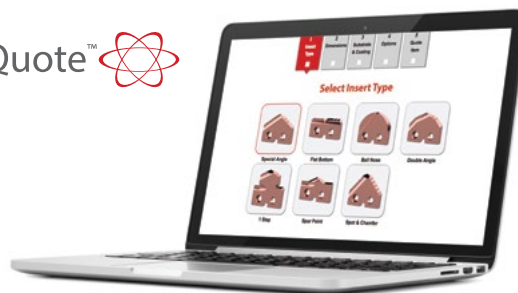


Flat Bottom



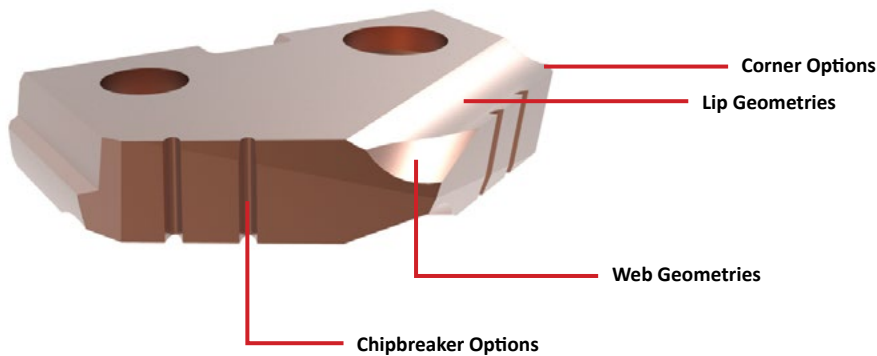
Ball Nose

Insta-Quote™



Additional Features

Insta-Quote™ provides multiple options to enhance different areas of the insert. If you have questions about which options would most benefit your application, just give us a call. We'll be happy to provide in-depth explanations about how certain options can optimise your results.



Substrate Options

HSS:
Super Cobalt, Premium Cobalt

Carbide:
C1, C2, C3, C5

Coating Options

AM200®



TiN



TiAlN



TiCN



Insta-Quote™ Custom Tooling

T-A® Holders



Chrome Helix



Chrome Bushing



Guided Holder



One Step ICS



Two Step ICS

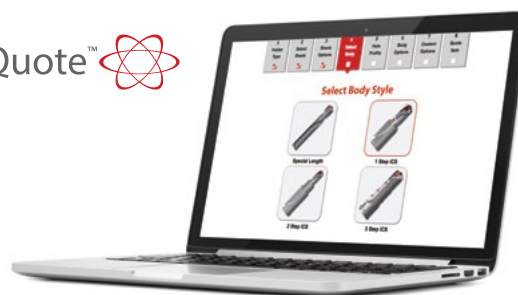


Three Step ICS



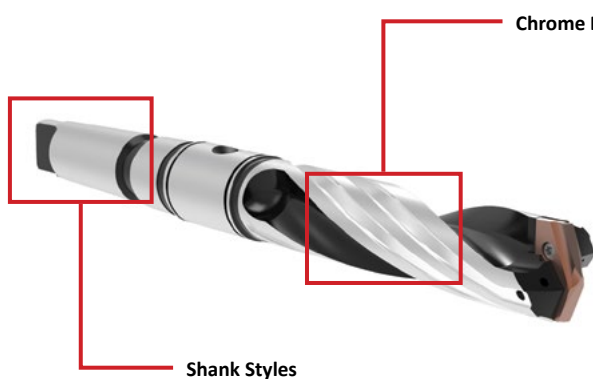
Special Length

Insta-Quote™



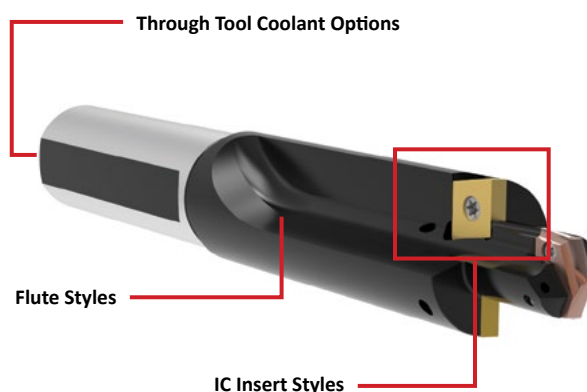
Additional Features

Insta-Quote provides multiple options to enhance different parts of the holder. If you have questions about which options would most benefit your application, just give us a call. We'll be happy to provide in-depth explanations about how certain options can optimise your results.



Chrome Bearing Areas

Shank Styles



Through Tool Coolant Options

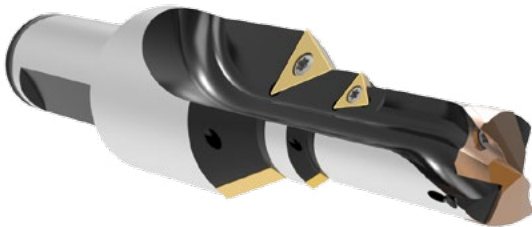
Flute Styles

IC Insert Styles

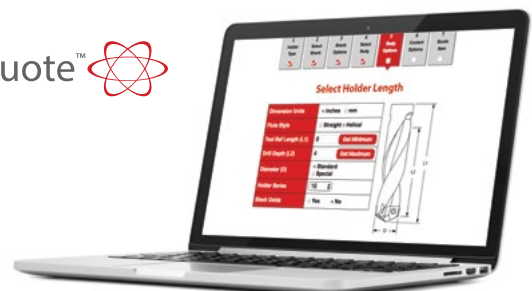
⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page X: 26 for deep hole drilling guidelines in this section of the catalogue. Visit www.alliedmachine.com/deepholeguidelines.aspx for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.

**Insta-Quote™ Custom Tooling**

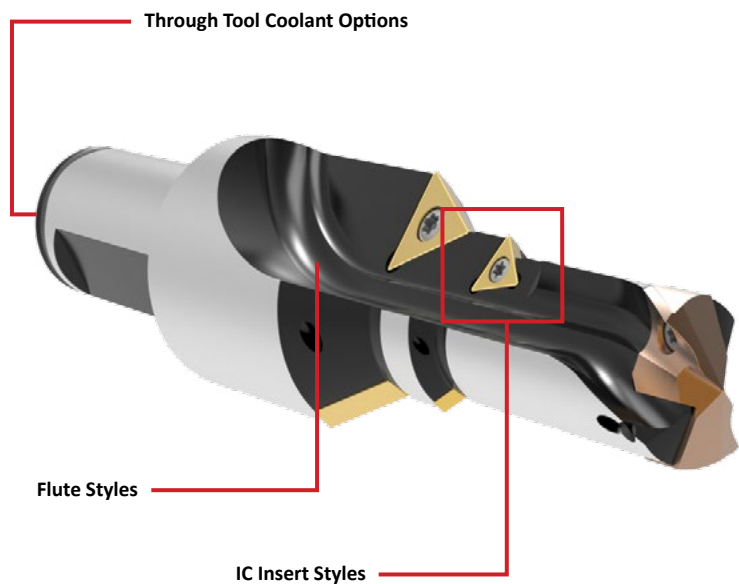
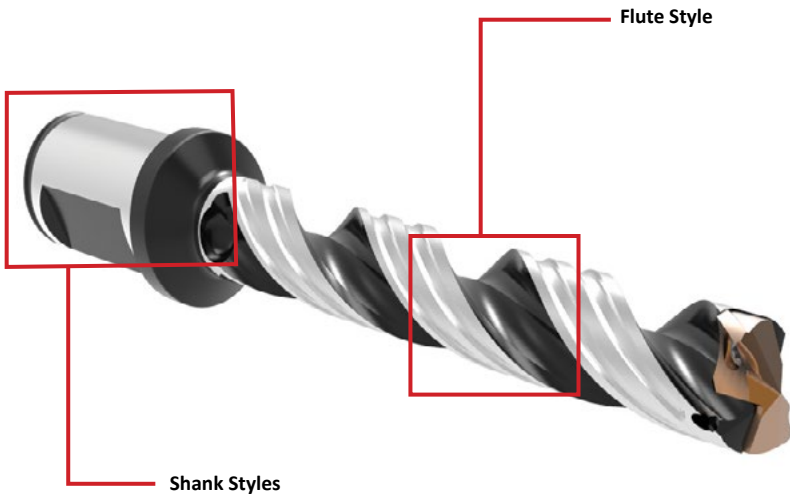
GEN3SYS® XT Holders

**One Step ICS****⚠ Special Length****Two Step ICS****Three Step ICS****Additional Features**

Insta-Quote™ provides multiple options to enhance different parts of the holder. If you have questions about which options would most benefit your application, just give us a call. We'll be happy to provide in-depth explanations about how certain options can optimise your results.

Insta-Quote™ 

Insta-Quote™ Custom Tooling



Where are the Inserts?

Though Insta-Quote™ incorporates special designs for GEN3SYS® XT holders, it does not include options for designing special GEN3SYS® XT inserts. GEN3SYS® XT holders utilise standard GEN3SYS® XT inserts, which can be found in Section A20 of the product catalogue.

If you need a special insert, or would simply like to discuss options for designing one to fit your application, please contact us and we can create a special design as an engineered special.



Engineered Special
GEN3SYS XT insert designed for
specific aerospace application

⚠ WARNING Refer to Speed and Feed charts for recommended adjustments to speeds and feeds. Refer to page X: 26 for deep hole drilling guidelines in this section of the catalogue. Visit www.alliedmachine.com/deepholeguidelines.aspx for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.



Engineered Specials

Insert Designs

Infinite Solutions

Though Insta-Quote™ and i-Form are incredible special tooling systems, some applications require a deeper level of engineering to accomplish the optimal results. No matter what the application may be, Allied Machine engineers have the knowledge, experience and expertise to design and develop a special product to exceed your expectations.

Engineered Specials are not limited to T-A® or GEN3SYS® XT products. In fact, Engineered Specials can be created for most products offered by Allied Machine, including APX Drill, Opening Drill®, ASC 320®, AccuThread™ 856, Wohlhaupter® boring products, and many other product families.



Multiple Step



Special Point

Non-Center Cutting
and Chamfer

Back Chamfer

Back Chamfer
with ChipbreakersFlat Bottom with Pilot,
Corner Radius, and Chamfer

Special Step



Back chamfer

Non-Center Cutting,
Counterbore and Chamfer

PCD Inserts

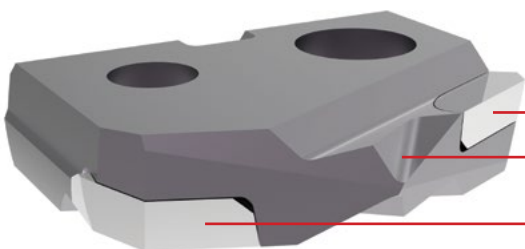
T-A® PCD Diamond Tipped Insert: Why PCD?

What allows the PCD (polycrystalline diamond) insert to generate such great success is the sharp cutting edge made for extreme wear resistance. While other tools encounter massive tearing when exiting, the PCD insert geometry, along with precise OD corner prep and Notch Point® technology, encounters minimal delamination. This produces an almost perfect tight tolerance and smooth hole.

The Proof is in the Numbers

See the following results from a customer who was experiencing difficulty when drilling CFRP material:

- The fibres are characterised by high strength
- The material is difficult to cut, which wears down the cutting tool and causes splintering and/or fraying
- The plastic matrix is sensitive to heat and will melt
- The structure is built up by layers of material, which results in delamination upon exit



PCD Tip

Notch Point®
Geometry

PCD Tip

Insert Highlights

- C3 carbide substrate increases tool life
- PCD tip is designed for carbon fiber reinforced polymer (CFRP) material
- Notch Point® geometry, special corner clip, and drill point angle help minimise delamination upon exiting the hole



Industry Application

Aerospace

INCREASED
tool life by **80%**

Number of Holes Drilled: ONE Competing Insert



10

Number of Holes Drilled: ONE PCD Tipped T-A Insert



10



20



30



40



50



60



70



80

Engineered Specials

Featured Design | GEN3SYS® XT Vacuum Drill

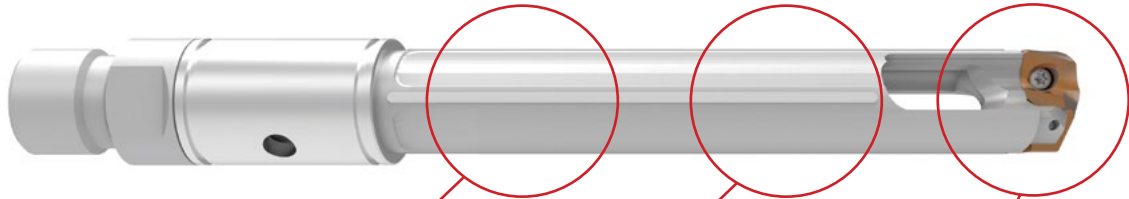


Vacuum Drill Highlights

- Keeps material contained in a sealed vacuum system
- Provides mobile ability to perform operations away from a stationary machine tool
- Eliminates operation limitations
- There is a range of diameters per holder
- The same holder can be used for different material specific inserts



Industry Application
Aerospace



Tight tolerance body diameter
to run through a drill bushing

Spent coolant and chips are
evacuated through an internal flute

Replaceable insert for
quick and easy changes

Carbon-Fibre-Reinforced Polymers (CFRP)

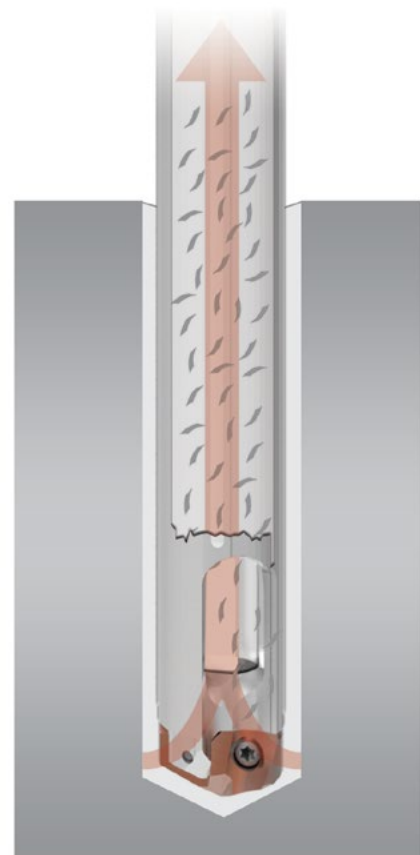
These are composite materials consisting of two parts: a matrix and a reinforcement (carbon fibre). Unlike isotropic materials like steel and aluminium, CFRP has directional strength properties, which depend on the layouts of the carbon fibre and the proportion of the carbon fibres in relation to the polymer.

Drilling in CFRP

- These applications are run with the vacuum only, no coolant
- Can be run with or without a micro peck cycle

Drilling in Metal

- These applications are run with the vacuum and coolant or mist coolant
- Recommended to be run with a micro peck cycle





Engineered Specials

Featured Design | T-A® Stealth Drill

A

DRILLING



T-A® Stealth Drill Highlights

- Adjustable pin allows for insert concentricity adjustment to reduce TIR
- Provides improved tool life and hole finish
- Guided wear pads improve hole straightness
- Through coolant design with multiple coolant outlets along the drill holder provides stability in deep hole drilling applications and also improves chip evacuation

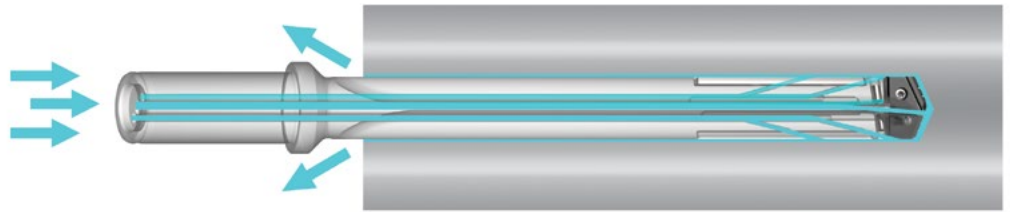
Industry Application
AutomotiveIndustry Application
Aerospace

B

BORING

Triple Coolant Outlets

- Increase coolant flow through the tool to aid chip evacuation
- For longer holes, the bearing outlets increase stability, improving hole straightness

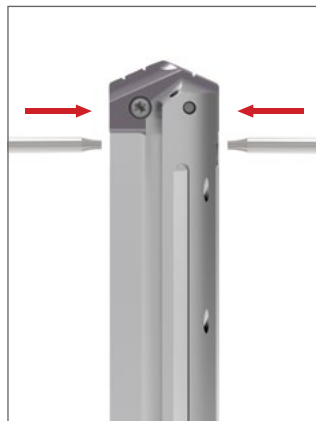


C

REAMING



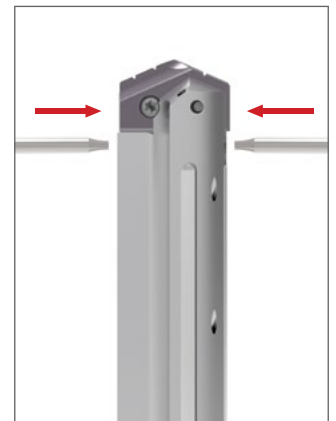
Locate the 2 adjustable Torx® PLUS screws (one on each side).



Loosen each screw.



Adjust insert position.



Tighten each screw.

D

BURNISHING

The Proof is in the Numbers

The following results came from a real-life application that utilised the T-A® Stealth Drill. The customer was experiencing a high scrap rate and needed to find a solution to eliminate the problem.

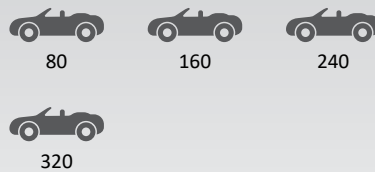


E

THREADING

X

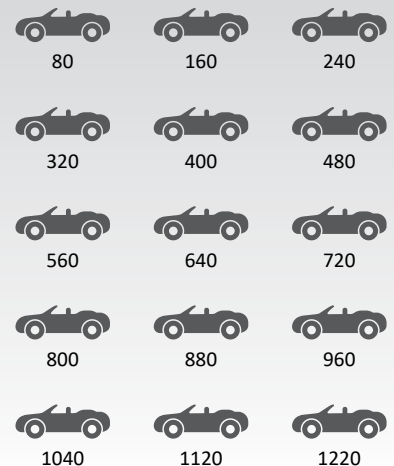
SPECIALS

Number of Holes Drilled:
ONE Competing Insert & Holder

In this application, Allied Machine:

- Eliminated **£150k/€170k** in scrap per year
- Optimised the chip formation
- Enhanced the chip evacuation
- Provided excellent surface finish

INCREASED tool life by
280%

Number of Holes Drilled:
ONE Allied Machine Special Insert & Holder

Engineered Specials

Success Stories

Real-Life Results

Below are five brief success stories. Each one provides an overview of specific situations when our special tooling achieved top-quality performance for our customers.



Industry Application

Oil & Gas

Special AccuPort 432° Port Contour Cutter

Hydraulic Manifolds

- Eliminated multiple tools in the process
- Eliminated regrinds
- Improved performance in cross hole applications



Industry Application

Heavy Equipment

Special T-A® Holder & Insert

Axle Shafts

- 100% increase in tool life
- £4700/€5300 reduction in set-up costs
- Eliminated scrap that was caused by set-up issues



Industry Application

Firearms

i-Form Drill

Barrel Nut

- Eliminated three tools in the process
- Reduced cycle time by 25%
- Improved chip formation



Industry Application

Automotive

T-A® Rim Drill

Aluminium Wheels

- 50% increase in penetration rates
- 50% increase in tool life
- Eliminated regrinds



Industry Application

Aerospace

Special Carbide Clad T-A® Holder with Diamond Coated Insert

Carbon Fibre Landing Arm

- Eliminated delamination of carbon fibre
- 7x more tool life
- Special shank threads directly into drill unit for easy tool change



A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS



Engineered Specials

i-Form Custom Indexable Drill / Form Tool System

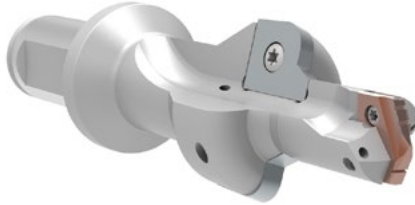
Any Way You Want It

What if you could utilise complex forms that only seem to be available as brazed or solid carbide tools? Allied Machine's i-Form custom indexable drill/form tool system allows for complex designs with a replaceable cutting edge. This will reduce set-up times and eliminate regrinds, allowing you to increase your productivity and reduce costs. Don't settle for being good when the possibility of being great is right in front of you.

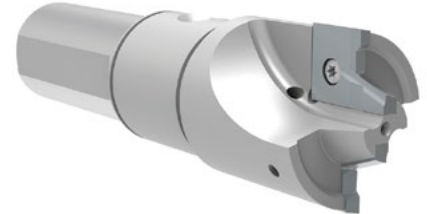
This is just a small sample of what you can do.



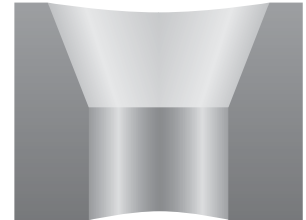
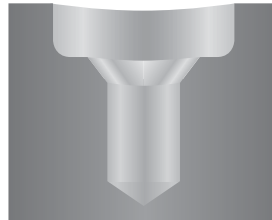
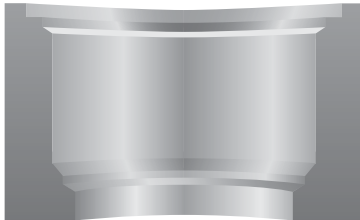
**i-Form Holder
with i-Form Inserts**



**Bolt Hole T-A® Drill
with i-Form Inserts**



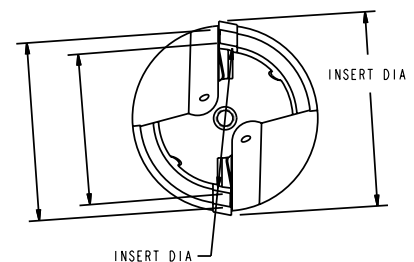
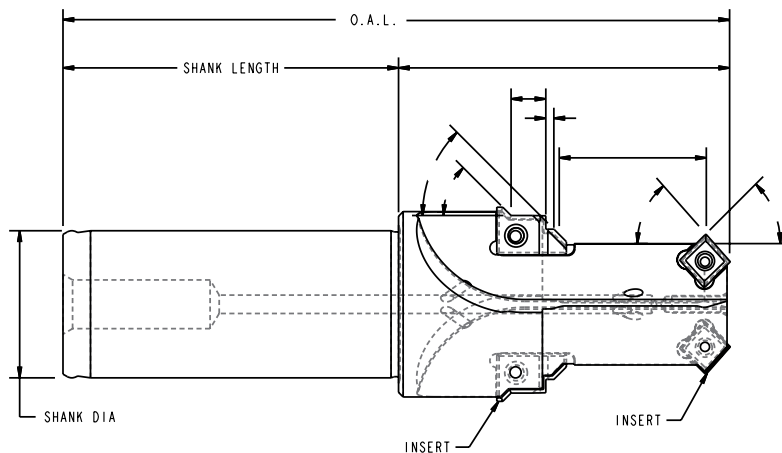
**i-Form Drill for Facing Operations
with ID-OD Chamfer**



Design Complex Forms for ANY Hole Style

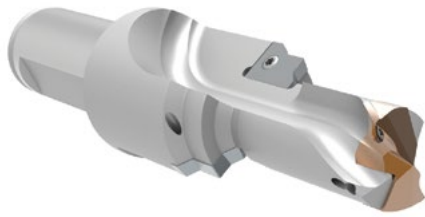
i-Form allows you to design complex forms for any style hole with increased productivity. The i-Form product line - both pilot inserts and form inserts - creates custom engineered forms that provide complex designs with replaceable cutting edges and improved consistency, all while outperforming brazed and solid carbide tooling. i-Form tools will increase your productivity, minimise set-up times, and eliminate regrind tool float and inconsistency.

- Holders have through coolant capabilities
- Holders can utilise standard inserts, Insta-Quote™ inserts, and/or special insert designs



Engineered Specials

i-Form Custom Indexable Drill / Form Tool System



**GEN3SYS® XT Pilot Insert
with i-Form Inserts**



**GEN3SYS® XT Pilot Insert
with i-Form Inserts**



**GEN3SYS® XT Back Chamfer Insert
with i-Form Inserts**



**T-A® Flat Bottom Form Drill
with i-Form Inserts**



**T-A® ICS Drill
with i-Form Inserts**



**T-A® Pilot Insert
with i-Form Inserts**



**Square QDSI 34® Inserts
with i-Form Inserts**



**3 Flute IC Drill
with QDSI 34® Inserts**



**i-Form Holder
with i-Form Inserts**



**AccuPort 432® Drill
with Special T-A® Form Insert**



**T-A® 3 Step IC Drill
with i-Form Inserts**



**Special Core Drill
with i-Form Inserts**

A

DRILLING

B

BORING

C

REAMING

D

BURNISHING

E

THREADING

X

SPECIALS

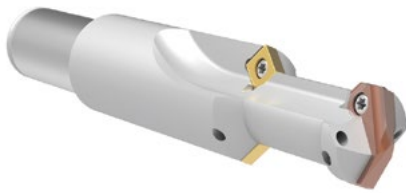


Engineered Specials

Special Designs | T-A® Products

A

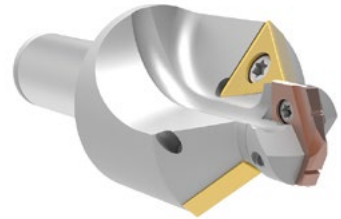
DRILLING



**T-A® ICS Drill
with Back Chamfer Insert**



**T-A® 1 Step IC Drill
M.T. shank**



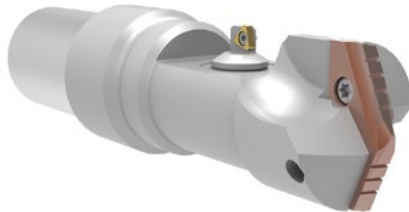
**T-A® IC Drill
Cylindrical Shank**

B

BORING



T-A® 2 Step ICS Drill



**T-A® Counter Bore Tool
with Micro Adjustable Cartridge**



**T-A® Form Drill
with Adjustable Cartridge**

C

REAMING



**T-A® 3 Flute Drill
with Adjustable Cartridge**



**T-A® Large Diameter
Multiple Step IC Drill**



T-A® Deburr Drill

D

BURNISHING



**T-A® IC Drill
with Customer Defined Shank**



**T-A® Deep Hole Drill
with Customer Defined Design**



**T-A® Chrome Bearing Drill
with Customer Defined Shank**

E

THREADING



**T-A® 1 Step ICS Drill
with Flat Bottom Insert**



T-A® I-Form Drill



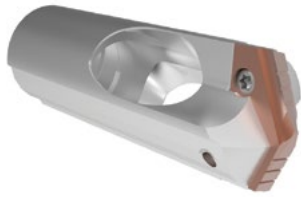
**T-A® Drill
with Special Holder and Insert Design**

X

SPECIALS

Engineered Specials

Special Designs | Other Products



**Special BT-A Drill
with Internal Thread**



Special BT-A Drill



Special BT-A Drill



**APX Drill
with Carbide Clad Guides**



**APX Drill
with 1 Step Design**



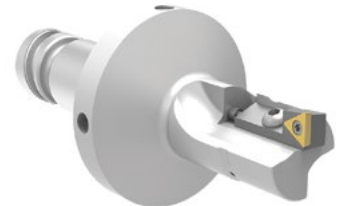
**APX Drill
with HSK Shank**



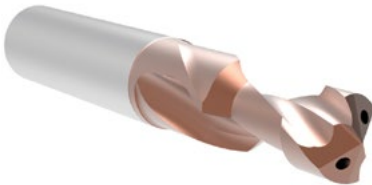
**Opening Drill™
with Special Diameter**



**Special Core Drill™
with 2 Step Design**



**ICS Drill
with Adjustable Cartridge**



**Superion™ Solid Carbide
with AM200® Coating**



**AccuThread™ 856
with Through Coolant**



**AccuPort 432®
Special Length**



**ALVAN® Ring Style Reamer
with Special Length + Integral Shank**



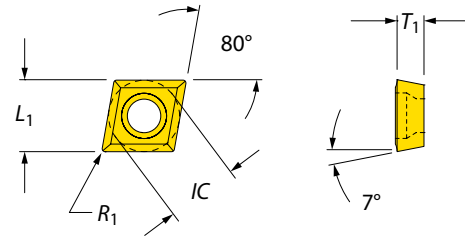
**GEN3SYS® XT
with Morse Taper Shank**






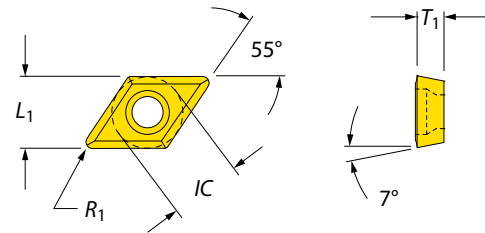
**GEN3SYS® XT
ICS Drill**




**QDSI 34® Inserts**

80° Diamond | 55° Diamond

**80° Diamond Inserts**

Metric (mm)				Imperial (inch)					ANSI Designation		
IC	L ₁	T ₁	R ₁	IC	L ₁	T ₁	R ₁				
6.35	6.32	2.39	0.20	0.250	0.249	0.094	0.008	CCGT-060202	CCGT 2(1.5)0.5	7256-IP8-1	8IP-8
6.35	6.28	2.39	0.40	0.250	0.247	0.094	0.016	CCMT-060204	CCMT 2(1.5)1	7256-IP8-1	8IP-8
6.35	6.21	2.39	0.80	0.250	0.244	0.094	0.031	CCMT-060208	CCMT 2(1.5)2	7256-IP8-1	8IP-8
6.35	6.21	3.96	0.80	0.250	0.244	0.156	0.031	CCGT-06T308	CCGT 2(2.5)2	7256-IP8-1	8IP-8
9.53	9.49	3.96	0.20	0.375	0.374	0.156	0.008	CCGT-09T302	CCGT 3(2.5)0.5	7359-IP15-1	8IP-15
9.53	9.46	3.96	0.40	0.375	0.372	0.156	0.016	CCMT-09T304	CCMT 3(2.5)1	7359-IP15-1	8IP-15
9.53	9.39	3.96	0.80	0.375	0.369	0.156	0.031	CCMT-09T308	CCMT 3(2.5)2	7359-IP15-1	8IP-15
12.70	12.63	4.76	0.40	0.500	0.497	0.188	0.016	CCMT-120404	CCMT 431	745105-IP20-1	8IP-20
12.70	12.56	4.76	0.80	0.500	0.494	0.188	0.031	CCMT-120408	CCMT 432	745105-IP20-1	8IP-20

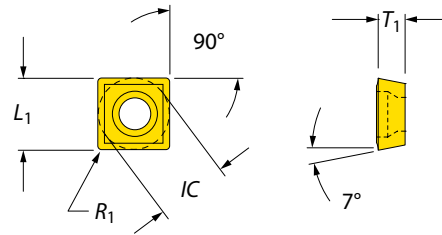
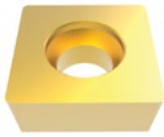
NOTE: QDSI 34® inserts are utilised only in special ICS holders. Speeds and feeds for QDSI 34® inserts are determined by drill insert.**55° Diamond Inserts**

Metric (mm)				Imperial (inch)					ANSI Designation		
IC	L ₁	T ₁	R ₁	IC	L ₁	T ₁	R ₁				
6.35	6.18	2.39	0.20	0.250	0.243	0.094	0.008	DCGT-070202	DCGT 2(1.5)0.5	7256-IP8-1	8IP-8
6.35	6.01	2.39	0.40	0.250	0.237	0.094	0.016	DCMT-070204	DCMT 2(1.5)1	7256-IP8-1	8IP-8
6.35	5.67	2.39	0.80	0.250	0.223	0.094	0.031	DCMT-070208	DCMT 2(1.5)2	7256-IP8-1	8IP-8
9.53	9.19	3.96	0.40	0.375	0.362	0.156	0.016	DCMT-11T304	DCMT 3(2.5)1	7359-IP15-1	8IP-15
9.53	8.85	3.96	0.80	0.375	0.348	0.156	0.031	DCMT-11T308	DCMT 3(2.5)2	7359-IP15-1	8IP-15

NOTE: QDSI 34® inserts are utilised only in special ICS holders. Speeds and feeds for QDSI 34® inserts are determined by drill insert.

QDSI 34® Inserts

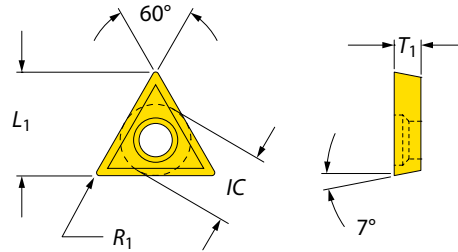
Square | 60° Triangle



Square Inserts

Metric (mm)				Imperial (inch)				 Part No.	ANSI Designation	 Torx Screw	 Torx Driver
IC	L ₁	T ₁	R ₁	IC	L ₁	T ₁	R ₁				
9.53	9.53	3.96	0.40	0.375	0.375	0.156	0.016	SCMT-09T304	SCMT 3(2.5)1	7359-IP15-1	8IP-15

NOTE: QDSI 34® inserts are utilised only in special ICS holders. Speeds and feeds for QDSI 34® inserts are determined by drill insert.



60° Triangle Inserts

Metric (mm)				Imperial (inch)				 Part No.	ANSI Designation	 Torx Screw	 Torx Driver
IC	L ₁	T ₁	R ₁	IC	L ₁	T ₁	R ₁				
3.97	6.58	1.98	0.20	0.156	0.259	0.078	0.008	TCGT-06T102	TCGT 1.2(1.2)0.5	724-IP6-1	8IP-6
3.97	6.29	1.98	0.40	0.156	0.248	0.078	0.016	TCGT-06T104	TCGT 1.2(1.2)1	724-IP6-1	8IP-6
3.97	5.71	1.98	0.80	0.156	0.225	0.078	0.031	TCGT-06T108	TCGT 1.2(1.2)2	724-IP6-1	8IP-6
5.65	9.33	2.39	0.20	0.219	0.367	0.094	0.008	TCGT-090202	TCGT 1.8(1.5)0.5	7225-IP7-1	8IP-7
5.65	9.04	2.39	0.40	0.219	0.356	0.094	0.016	TCGT-090204	TCGT 1.8(1.5)1	7225-IP7-1	8IP-7
5.65	8.46	2.39	0.80	0.219	0.333	0.094	0.031	TCGT-090208	TCGT 1.8(1.5)2	7225-IP7-1	8IP-7
6.35	10.71	2.39	0.20	0.250	0.422	0.094	0.008	TCGT-110202	TCGT 2(1.5)0.5	7256-IP8-1	8IP-8
6.35	10.42	2.39	0.40	0.250	0.410	0.094	0.016	TCMT-110204	TCMT 2(1.5)1	7256-IP8-1	8IP-8
6.35	9.84	2.39	0.80	0.250	0.387	0.094	0.031	TCMT-110208	TCMT 2(1.5)2	7256-IP8-1	8IP-8
9.53	15.92	3.96	0.40	0.375	0.627	0.156	0.016	TCMT-16T304	TCMT 3(2.5)1	7359-IP15-1	8IP-15
9.53	15.34	3.96	0.80	0.375	0.604	0.156	0.031	TCMT-16T308	TCMT 3(2.5)2	7359-IP15-1	8IP-15
12.70	20.83	4.76	0.80	0.500	0.820	0.188	0.031	TCGT-220408	TCGT 432	745105-IP20-1	8IP-20

NOTE: QDSI 34® inserts are utilised only in special ICS holders. Speeds and feeds for QDSI 34® inserts are determined by drill insert.



Special Tooling

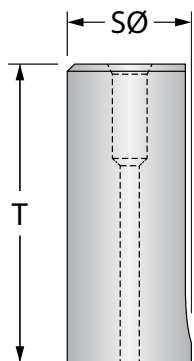
Complete Your Design

Show Us What You Need

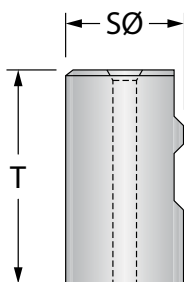
These pages have been included so you can assist us with defining your special tooling requirements.

- Select a Shank (1 - 6), or define Shank 7
- Indicate if the shank will be used with or without a Rotary Coolant Adapter (RCA)

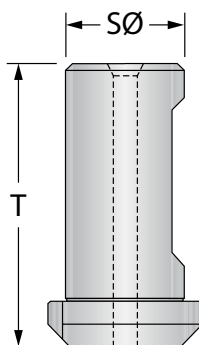
We ask that you define your hole profile and offer an example of a tool form to help us with the design process. Tools 1 - 5 cover only a small portion of our capabilities, so feel free to use your imagination. Please scan these pages, record your information in the boxes on the next page, and email the information for our quickest response.



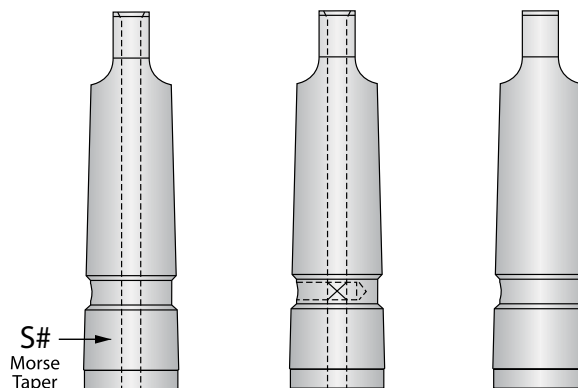
Shank 1: Straight



Shank 2: Weldon



Shank 3: Flanged

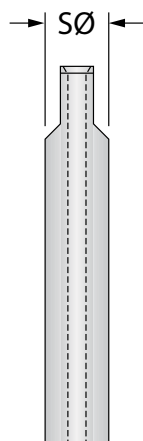


Shank 4: Morse Taper

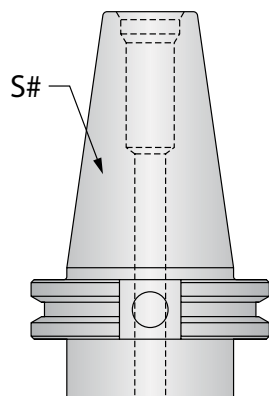
Shank 4A:
Coolant Through
Tang End

Shank 4B:
Through Shank Coolant

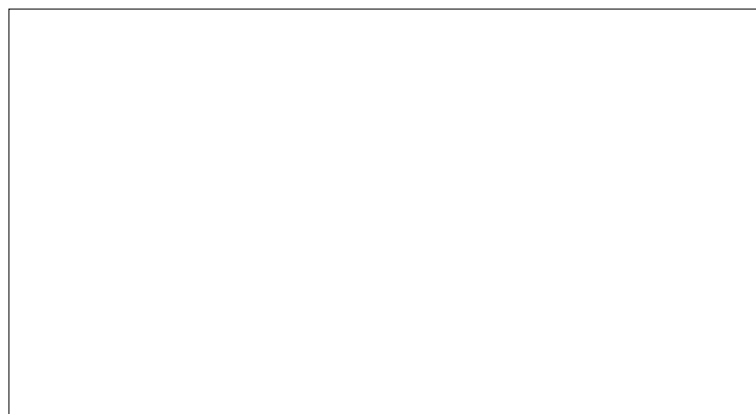
Shank 4C:
No Coolant



Shank 5:
Tang Straight Shank

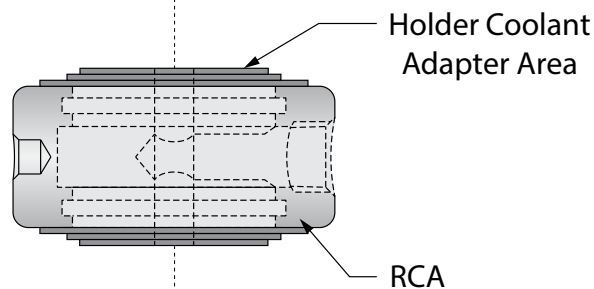


Shank 6: DV50



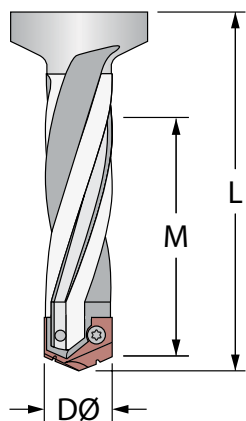
Shank 7: Customer Defined Shank Information

Shank	SØ	S#	T	RCA
4A (EXAMPLE)	-	4MT	-	YES <input checked="" type="radio"/> NO
				YES / NO
				YES / NO
				YES / NO

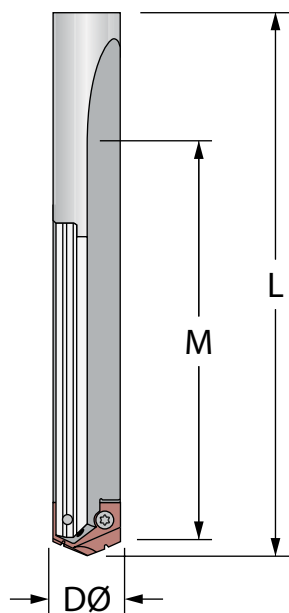


**Tool 1**

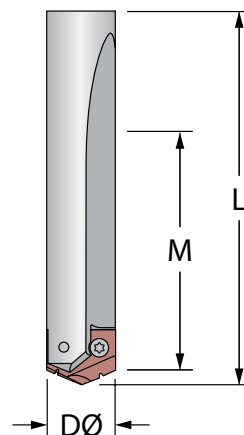
- ☐ Carbide Clad
☐ Chrome Plate
☐ Helical Flute
☐ Straight Flute

**Tool 2**

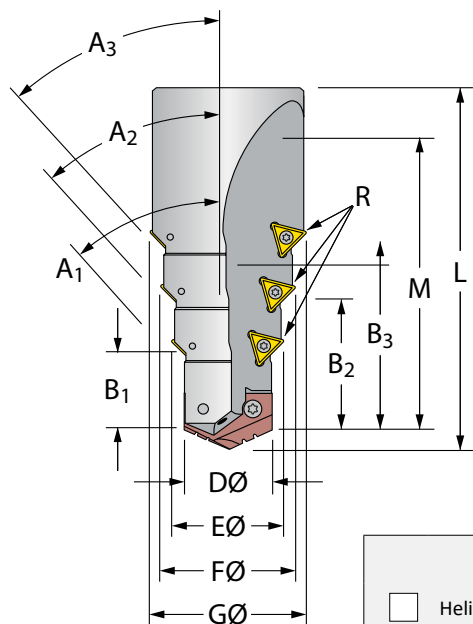
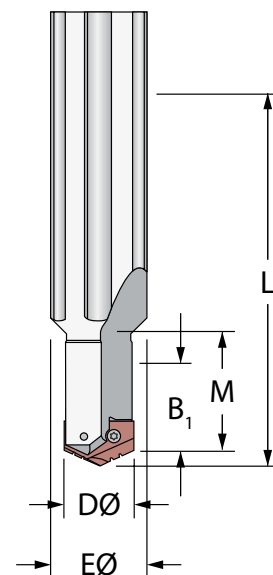
- ☐ Helical Pilot
☐ Chrome Pilot

**Tool 3**

- ☐ Helical Flute
☐ Straight Flute

**Tool 4**

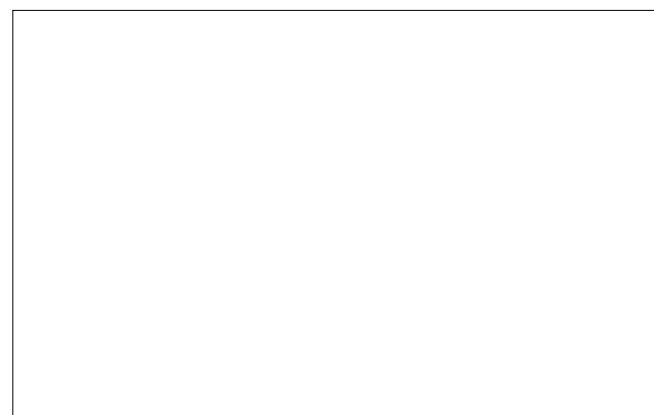
- ☐ Helical Pilot
☐ Chrome Pilot



R = Corner Radius Needed
M = Drill Depth
L = Tool Ref Length

Tool 5

- ☐ Helical Pilot
☐ Chrome Pilot

**Hole Profile**

Please email your design to:
Application Engineering Department
P: 0044 (0)1384 400 900
E: engineering.eu@alliedmachine.com

Item	Tool	A ₁	A ₂	A ₃	B ₁	B ₂	B ₃	D Ø	E Ø	F Ø	G	L	M
EXAMPLE	5	30°	—	—	25	—	—	16	31	—	—	114	76

Customer Signature:

Date:

Please be sure to include shank and coolant information from the previous page when sending tool designs



Deep Hole Drilling Guidelines

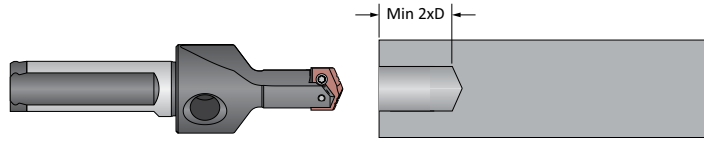
For Lengths greater than 9xD (including Extended, Long, XL, 3XL, and Special Length)

A
DRILLING

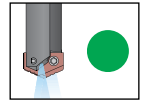
1. Pilot Hole

100 % RPM
100% mm/rev (IPR)

Establish the pilot hole using the same diameter short drill to a depth of 2xD minimum.
Utilise a pilot drill with the same or larger included point angle.



Coolant ON

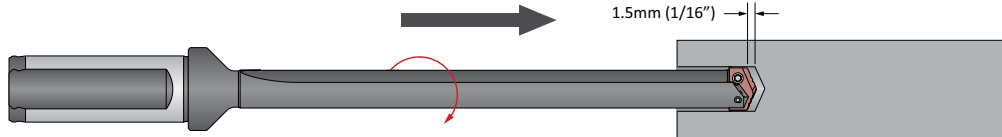
B
BORING

2. Feed-in

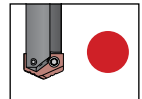
50 RPM max
300 mm/min (12 IPM)



Feed the longer drill within 1.5mm (1/16") short of the established pilot hole bottom at a **maximum of 50 RPM** and 300 mm/min (12 IPM) feed rate.



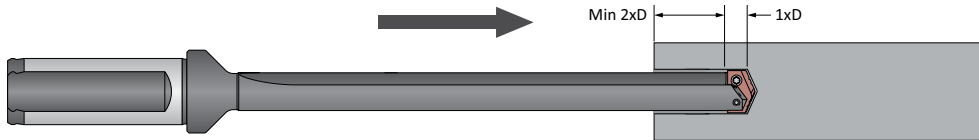
Coolant OFF

C
REAMING

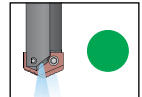
3. Deep Hole Transition Drilling

50 % RPM
75% mm/rev (IPR)

Drill additional 1xD past the bottom of the pilot hole at 50% reduction of recommended speed and 25% reduction of recommended feed.
Minimum of 1 second dwell is required to meet full speed before feeding.



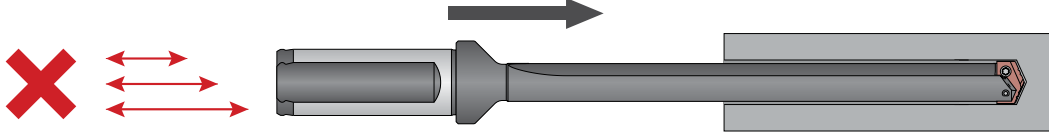
Coolant ON

D
BURNISHING

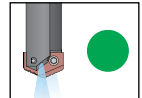
4. Deep Hole Drilling - Blind

100% RPM
100% mm/rev (IPR)

Drill to full depth at recommended speed and feed for longer drill according to Allied speed and feed charts.
No peck cycle recommended.



Coolant ON

E
THREADING

6. Drill Retract

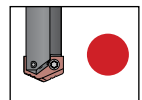
50 RPM max



Reduce speed to a **maximum of 50 RPM** before retracting from the hole.



Coolant OFF

X
SPECIALS

⚠ WARNING Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holders more than 50 RPM unless it is engaged with the workpiece or fixture.

Visit www.alliedmachine.com for the most up-to-date information and procedures. Factory technical assistance is available for your specific applications through our Application Engineering Team.