BT-A Drill

DRILLING

BTA-STS (Single Tube System) Machining
Allied Machine & Engineering is a worldwide leader in holemaking 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.
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The Foundation
Since 1941, Allied Machine & Engineering has provided dependable and practical holemaking 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: holemaking.

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 revolutionized the holemaking 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.
Replaceable Insert Drills

- Reduce costs by decreasing setup 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
  - T-A® | T-A® GEN2 | T-A Pro™
  - 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:
  - 4TEX® Drill
  - Revolution Drill®
  - Opening Drill®

Replaceable / Indexable Insert Drills

- Drill large diameter holes and maximize penetration rates even on low horsepower machines
- Delivers strength and versatility needed for any deep hole drilling application
- 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 - 20mm
- Can be made-to-order specifically for your application (Superion® quoted specials)
  - ASC 320®
  - Superion®
• Reduce costs by decreasing setup 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

- T-A®
- T-A® GEN2
- T-A® Pro™

- High Performance
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- ASC 320®
- Superion®

Solid Carbide Drills

- 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:
- T-A®
- T-A® GEN2
- GEN3SYS® XT Pro

Structural Steel Solutions

• The internal ejection system flushes chips and debris from the hole with no interference to the cutting process
• Utilizes 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

BTA (STS) Machining Solutions

• Save significant time and money by performing four processes in one step
• Replaceable insert design reduces costs, inventory, and setup times

Available in four industry specifications:
- Imperial: SAE J-1926
- Metric: ISO 6149-1:2006
- Military: SAE AS5202
- John Deere: JDS-G173.1

Products:
- AccuPort 432®

Hydraulic Port Contour Cutters

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

4 in 1
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 job shops and tooling rooms
- Provides an economical solution for low volume and/or short-term production applications
- Offers 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
- Holds tight tolerances to ensure processes are performed to accurate specifications
- Reduces tooling costs because many items are available for reconditioning
- 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
• 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
  • Available with coolant through options
  • Covers a wide range of thread forms
  • Provides optimal solutions for both high production projects and short-run applications
  • Products
    - AccuThread™ 856
    - AccuThread™ T3
    - ThreadMills USA™

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

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

• 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
• Holds tight tolerances to ensure processes are performed to accurate specifications
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• Products: ALVAN® Reamers

• 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

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 Superion® technology and capabilities, we can customize made-to-order solid carbide tools to achieve optimal results for your applications.

Whatever your application, Allied Machine has the answer.
Design your custom tooling and receive a drawing and quote...all within minutes.

Eliminate the wait. Get your program now.

Increase the production and success of your applications today.

- Choose the best thread mill for your application
- Create program code for your machine
- Available as a PC download app (that can be used offline)
- Website app available 24/7
- Design and quote your own tooling
- Generate the solution you need in just a few steps
- Features the following products
  - T-A® Inserts
  - T-A® Holders
  - GEN3SYS® XT Holders
  - ALVAN® Reamers

Direct access to 2D drawings and 3D models
- Assemble and view tool images in your browser
- Download drawings for use in most machining software programs
- Browse products, search item numbers, and save assemblies for future use

Find the best insert for your application.

- Generate the correct boring insert for your job in just six easy steps
- Choose type, shape, substrate, insert form, nose radius, and material
- Order easily by adding the item to your cart

Use the product selector to find the right tool for your application.

- Follow guided steps to generate the right tool for your application
- Learn about your recommended tool and how to maximize its performance

Find the best insert for your application.
Eliminate the wait. Get your program now.

- Choose the best thread mill for your application
- Create program code for your machine
- Available as a PC download app (that can be used offline)
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Insta-Code also has a Cycle Time Calculator

alliedmachine.com/InstaCode

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Design your custom tooling and receive a drawing and quote...all within minutes.

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iq.alliedmachine.com

Solution Hub App

All Allied all the time.

- Quickly look up product information
- Links to our free online tools
- Locate distributors
- Stay up to date on news and events

Machinist Tool App

Quickly convert cutting tool parameters for the machine inputs you need.

- Input data to calculate the RPM and speed and feed rates
- Also features the Boring Insert Selector
- Access product literature right at your fingertips

alliedmachine.com/InstaQuote
BT-A Drill

BTA (STS) Deep Hole Machining System

- **Diameter Range:** 0.5100” - 1.8820” (12.95mm - 47.80mm)

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**Material Ejection with Efficiency**

The BT-A Drill (using the single tube system, or STS) conquers deep hole applications in ways other drills simply cannot. The internal ejection system flushes chips and debris from the hole with no interference to the cutting process.

By utilizing the countless advantages of the T-A® drill insert, the BT-A design significantly increases penetration rates over brazed heads and traditional gun drills. A specific BT geometry has also been developed to increase productivity in these types of drilling applications.

- Excellent hole size and finish
- Optimizes chip evacuation
- Up to 2x the penetration rate of traditional BTA heads

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**Applicable Industries**

- Aerospace
- Agriculture
- Automotive
- Heavy Equipment
- Hydraulics
- Tool, Mold, and Die
- Oil & Gas

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Your safety and the safety of others is very important. This catalog 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 catalog, 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 catalog. Safety messages follow these words.

**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.
Reference Icons
The following icons will appear throughout the catalog to help you navigate between products.

T-A® Inserts
Refers to the range of inserts that connect with the corresponding holders

Recommended Cutting Data
Speed and feed recommendations for optimum and safe drilling

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<tr>
<th>Series</th>
<th>Diameter Range</th>
<th>Diameter Range</th>
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<td>12.95 - 17.68</td>
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<td>1</td>
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<td>3</td>
<td>1.3801 - 1.8820</td>
<td>35.06 - 47.80</td>
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System Overview

BTA Machining
BTA machining is the reverse of typical gun drilling systems. The BT-A Drill is a drill head consisting of a holder body and a replaceable tip T-A® insert. The drill head threads into an STS (single tube system) cylindrical tube with a diameter smaller than the drill head. The difference in diameter forms an annular area between the hole and the tube OD. This allows high volume coolant to be directed to the cutting edge.

- **Improve hole straightness** with the laser clad bearing area
- **Eliminate the need for re-sharpening** with replaceable cutting edges
- **Reduce your inventory** with the replaceable T-A® feature
- **Compatibility** heads are compatible with standard BTA-STS systems
- **Balanced cutting forces**
- **Patent-pending design**

**2x INCREASE** in penetration rates over traditional BTA heads
## Product Nomenclature

### BT-A Drill Holders

<table>
<thead>
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<th>Symbol</th>
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1. **BT-A Drill T-A Insert Series**
   - BTA0 = 0 series T-A insert
   - BTA1 = 1 series T-A insert
   - BTA2 = 2 series T-A insert
   - BTA3 = 3 series T-A insert

### Tube Size

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<tr>
<td>L1</td>
<td>Overall length</td>
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<tr>
<td>L2</td>
<td>Holder reference length</td>
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<td>L3</td>
<td>Shank length</td>
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### BT-A Drill Tubes

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1. **BT-A Drill T-A Insert Series**
   - BTAT = BT-A Tube

### Tube Size

<table>
<thead>
<tr>
<th>Series</th>
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**Reference Key**

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<td>ID1</td>
<td>Internal diameter</td>
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### BT-A Drill Holders

**0 Series**  |  **Diameter Range:** 0.5100" - 0.6959" (12.95mm - 17.68mm)

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### Tube Sizes

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**Key to A93:**

- (i) = Imperial (in)
- (m) = Metric (mm)
## BT-A Drill Holders

1 Series | Diameter Range: 0.6960” - 0.9600” (17.69mm - 24.38mm)

<table>
<thead>
<tr>
<th>Tube Size</th>
<th>(D_1)</th>
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<th>(L_7)</th>
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Section A30
BT-A Drill Holders

2 Series  |  Diameter Range: 0.9601” - 1.3800” (24.39mm - 35.05mm)

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Key:

= Imperial (in)

= Metric (mm)
BT-A Drill Holders
3 Series | Diameter Range: 1.3801” - 1.8820” (35.06mm - 47.80mm)

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Notes

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A93: 8

www.alliedmachine.com   |   1.330.343.4283
**Guaranteed Test / Demo Application Form**

The following must be filled out completely before your test will be considered.

**Distributor Information**
- Company Name: ____________________
- Contact: ____________________
- Account Number: ____________________
- Phone: ____________________
- Email: ____________________

**End User Information**
- Company Name: ____________________
- Contact: ____________________
- Industry: ____________________
- Phone: ____________________
- Email: ____________________

**Current Process**
List all tooling, coatings, substrates, speeds and feeds, tool life, and any problems you are experiencing.

**Test Objective**
List what would make this a successful test (i.e. penetration rate, finish, tool life, hole size, etc.).

**Application Information**
- Hole Diameter: ____________ in/mm
- Tolerance: ____________
- Material: ____________________
  (4150 / A36 / Cast Iron / etc.)
- Pre-existing Diameter: ____________ in/mm
- Depth of Cut: ____________ in/mm
- Hardness: ____________
  (BHN / Rc)
- Required Finish: ____________ RMS
- State: ____________________
  (Casting / Hot rolled / Forging)

**Machine Information**
- Machine Type: ____________________
  (Lathe / Screw machine / Machine center / etc.)
- Builder: ____________________
  (Haas, Mori Seiki, etc.)
- Model #: ____________
- Shank Required: ____________________
  (CAT50 / Morse taper, etc.)
- Power: ____________ HP/KW
- Thrust: ____________ lbs/N
- Orientation: ____________________
  (Vertical / Horizontal)
- Tool Rotating: ____________________
  (Yes / No)
- Rigidty: ____________________
  (Excellent / Good / Poor)

**Coolant Information**
- Coolant Delivery: ____________________
  (Through tool / Flood)
- Coolant Pressure: ____________ PSI / bar
- Coolant Type: ____________________
  (Air mist, oil, synthetic, water soluble, etc.)
- Coolant Volume: ____________ GPM / LPM

**Requested Tooling**

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Allied Machine & Engineering
ALLIED MACHINE & ENGINEERING
120 Deeds Drive
Dover, OH 44622

Telephone: (330) 343-4283
Toll Free USA & Canada: (800) 321-5537
Fax: (330) 602-3400
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Allied Machine’s sole and exclusive obligation under this warranty is limited to, at its option, without additional charge, replacing or repairing this product or issuing a credit. For this warranty to be applied, the product must be returned freight prepaid to the plant designated by an Allied Machine representative and which, upon inspection, is determined by Allied Machine to be defective in material and workmanship.

Complete information as to operating conditions, machine, setup, and the application of cutting fluid should accompany any product returned for inspection. This warranty shall not apply to any Allied Machine products which have been subjected to misuse, abuse, improper operating conditions, improper machine setup or improper application of cutting fluid or which have been repaired or altered if such repair or alteration, in the judgment of Allied Machine, would adversely affect the performance of the product.

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United States

Allied Machine & Engineering
120 Deeds Drive
Dover OH 44622
United States

Phone: +1.330.343.4283
Fax: +1.330.602.3400

Allied Machine & Engineering
485 W Third Street
Dover OH 44622
United States

Phone: +1.330.343.4283
Fax: +1.330.364.7666
(Engineering Dept.)

Europe

Allied Machine & Engineering Co. (Europe) Ltd.
93 Vantage Point
Pensnett Estate
Kingswinford
West Midlands
DY6 7FR England

Phone: +44 (0) 1384.400900

Wohlhaupter GmbH
Maybachstrasse 4
Postfach 1264
72636 Frickenhausen
Germany

Phone: +49 (0) 7022.408.0
Fax: +49 (0) 7022.408.212

Asia

Wohlhaupter India Pvt. Ltd.
B-23, 2nd Floor
B Block Community Centre
Janakpuri, New Delhi - 110058
India

Phone: +91 (0) 11.41827044

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