

## BOLTS AND STUDS

Our vast bolt blank inventory allows your local Fastenal store to offer instant price quotes and accelerated lead times (often within 2-3 days) for a wide range of sizes, grades, and styles of bolts, including hex bolts, hex cap screws, structural bolts, and socket head bolts. Can't find what you need with our available bolt blank stock? Fastenal Manufacturing also specializes in hot upset forging, with the ability to forge many exotic materials including Inconel, Monel, Hastelloy, and Titanium.

Our 24/7 operations include a large fleet of saws, chamfer machines, and benders, spread strategically throughout our distribution network. This equipment, supported by our impressive metals and threaded rod inventory, allows us to minimize your lead time on full thread studs, double end studs, single end studs, u-bolts, j-bolts, and concrete anchor bolts.

## REVERSE ENGINEERING

With resources such as automatic coordinate measuring machines, optical comparators, hardness testers, and spectrometers, we can reverse engineer just about any customer supplied sample. In instances where a blueprint, specifications, or tolerances are not available, an actual part can be sent in for quotation. Based on your approval, we'll create a print and custom manufacture your required volume of replacement parts. Product can be stocked at your servicing Fastenal store, so you'll always have replacement inventory immediately available.



Portable XRF



Rockwell Hardness Tester

## FIELD ENGINEERS

Manufacturing/Engineering Sales Specialists work with customers to develop and implement programs to assist in the reengineering of parts as well as in new applications.

## FASTENAL ENGINEERING & DESIGN SUPPORT

Whereas our field engineers focus on assisting Fastenal Manufacturing customers, Fastenal's Engineering & Design Support team provides general fastener application engineering support. Leveraging the resources of our in-house A2LA laboratory, they can answer your technical fastener questions, provide application testing and training, and help you utilize fasteners more efficiently.

## A2LA ACCREDITED QUALITY ASSURANCE

Our in-house quality lab can provide services to meet your needs, including 100% material traceability. Through our primary Winona, MN lab, we offer a wide range of testing, including:

- Salt Spray
- ISO 9001:2008
- ISO 17025:2005
- CMM
- Proof Load
- Micro/Macrohardness
- Hydrogen Embrittlement
- Spectrograph
- Charpy
- Tensile
- X-Ray Fluorescence
- Magnetic Particle
- Eddy Current
- Sorting



Malaysia Test Cert # 1046.05  
Shanghai Test Cert # 1046.04  
Taiwan Test Cert # 1046.03  
Winona Test Cert # 1046.01  
Winona Calibration Cert # 1046.02

Contact Fastenal's manufacturing division directly for our full scope of accreditation.

## WHEN IT MATTERS MOST™

**Quality:** Through superior cold forming expertise and proprietary processing, HOLO-KROME offers socket heads that better withstand the rigors of heavy industrial and critical applications.

**Consistency:** Every part is manufactured using consistent processes and superior engineered specifications.

**Product Features:** HOLO-KROME socket heads offer user-friendly and cost-saving design features. For example, all cap screws and set screws offer Easy-Entry chamfering, making hex key insertion easy for faster equipment assembly.

- ISO 9001:2008 Certified
- Holo-Code Traceability
- Limited raw material suppliers to ensure the right chemistry
- ROHS Compliant
- QSLM Class 2 Approved
- DFARS Compliant

### CAP SCREWS



- Socket Head • Button Head • Flat Head • Low Head**
- Socket Head Caps are also available in stainless steel
  - Manufactured using alloy steel
  - Available in Inch and Metric sizes

### SOCKET SHOULDER SCREWS



- HOLO-KROME step grinds shoulder and roll thread diameter in one operation after heat treatment to assure concentricity
- Available in Inch and Metric sizes

### SOCKET PRESSURE PLUGS



- HOLO-KROME Socket Pressure Plugs are made from high alloy steel
- Close tolerance control prevents spiral leakage
- Brass flush Socket Pressure Plugs are available
- Stainless Steel Plugs are available in selected sizes

### SET SCREWS



- Cup Point • Holo-Knurl® Point**
- HOLO-KROME Cup Point and exclusive Holo-Knurl Point Socket Set Screws provide maximal axial, torsional and vibrational holding power and long life
  - Available in Inch sizes only



### ALLENUTS®



- Unique HOLO-KROME offering
- Available in alloy and stainless steel

### JAM SCREWS



- Available in Inch sizes only

### DOWEL PINS



- Standard • Oversize • Pull**
- Standard and .001" oversize are heat treated to a core hardness of HRC 47-58
  - Standard available in Inch and Metric sizes

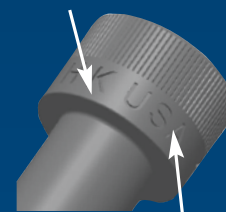
### SPECIALTY PARTS



- Parts with unusual contour
- Two or more outside diameters
- Recess or bore up to 2x diameter in depth
- Specialty material

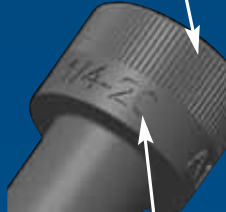


### "H-K" MARKING



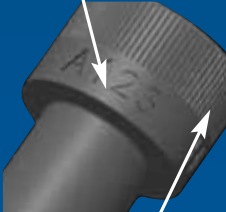
### MADE IN "USA" MARKING

### CHAMFERED DRIVE



### SIZE MARKING

### HOLO-CODE® TRACEABILITY



### LONGER AND DEEPER KNURLS

# FASTENAL®

## MANUFACTURING, MACHINING & ENGINEERING SERVICES WE MAKE THE UNAVAILABLE PART AVAILABLE™





If you can't find it on our shelves, we'll make it for you at one of our eleven manufacturing locations:

Europe

Brno, Czech Republic

North America

(USA) Houston, TX; Modesto, CA; Rockford, IL; Wallingford, CT; Winona, MN; Indianapolis, IN; (Canada) Edmonton, Alberta; Kitchener, Ontario

Asia

Johor, Malaysia

South America

Joinville, Brazil

Emergency service available 24/7 with same-day order fulfillment.

## PRODUCTS

Bolts - Screws - Studs	Hex Heads, Heavy Hex, Penta Head, Dog Points, Ferry Cap Screws (12pt.), Single End, Double End, Fully Threaded, Pad Studs, Tie Rods <small>According to: A193/A193M, A320/A320M, ANSI B18.2.1, DIN 931, 933, 960, &amp; 961, A325/A325M, A490, A449, A354BD, SAE J429, and MORE</small>
Socket or Slotted Head Cap Screws & Engineers Studs	All Types of Socket Cap Screws <small>According to: ANSI B18.3, DIN 912, 913, 914, 915, 916, A574, A193/A193M, A320/A320M, and MORE</small>
Nuts	Hex, Heavy Hex, Cap Nuts, Coupling, Slotted, Tie Wire <small>According to: ANSI B18.2.2, DIN 934, A194/A194M</small>
Washers	Flat, SAE, Tab <small>According to: DIN, ANSI, IFI, ASTM</small>
Custom Machined Parts <small>(Made to Print or Reverse Engineered)</small>	Full-service machining capabilities with over 60 units of CNC equipment and 24/7 service. Whether it is high demand or safety critical, Fastenal Manufacturing can "make the unavailable parts available."

## COLD FORMED PARTS

Head Styles	Binding Undercut, Carriage, Collar Studs, Dome Head, Ext 6 Lobe Washer Head, Fillister, Flat 82°, 90° & 100°, Flat Undercut, Hex, Indented Hex, Indented Hex Washer, Oval, Pan, Plow, Round, Round (U-Drive), Serrated Hex Washer
Point Types	Type A, Type B, Type AB, Type F, Type 1, Type 17, T 23, BT 25, Self-Drilling Screw, Self-Piercing, Tri-Lobular, Wood Screw, U, UNC, UNF
Drives	Phillips, Slotted, Combination: Phillips/Slotted, Combination: Phillips/Square, Hex/Slotted, Hex Socket Drive, Six Lobe, Square

## RAW MATERIALS

Carbon & Alloy Steel	A36, A193, B7, B7M, B5, B16, B16A, A320/A320M, L7/L7M, 1018, 1045, 12L14, 4140/42, 4130, 4340, ETD-150 (AMS 6378), 8620/30, and MORE
Stainless Steel	303/304 (18-8), 310, 316/316L, 321, 347, A2/A4 (50/70/80), 410, 416, 420, 422, 431, B8/B8M/B8T (Class1&2), B8C, B6/B6X, 17-4, PH (H925/H950/H1025/H1075/H1100/H1150/DH1150), Nitronic 50/60 (AMS 5764/5848), and MORE
Super Alloys & Duplex Steel	Duplex 2205, Monel™ 400/K500, Inconel® 600/601/625/718, Incoloy® 800/800HT/825/925, Hastelloy® B2, C, C4, C22, C276/AMS 5667, A453 660 A&B, MP35N (AMS 5844/5845), Titanium Grades 1, 2, 4, 5, 7, Ti-6Al-4V, and MORE
Non-Ferrous & Plastics	Aluminum/Aluminum Bronze, Silicon Aluminum Bronze, Brass, Naval Brass, Copper/Beryllium Copper, Plastics, Nylon, Delrin, HDPE, UHMW, PTFE

## COATINGS

Electrolytic Coatings	Zinc Plating, Nickel Plating, Chromium Plating, Copper Plating, Aluminum Plating, Cadmium Plating
Chemical & Other Coatings	Mn/Zn Phosphating, Electroless Nickel Plating, Hot Dip Galvanizing, Dacromet®, Molybdenum Disulphide, Xylar® (Xylar Xylan), PTFE

Product/Material Standards: ASTM, API, ANSI, ISO, DIN, NACE, SAE, IFI, and MORE

For more information or to place a manufacturing order, contact your local Fastenal store. To find your local Fastenal store, visit [fastenal.com](https://www.fastenal.com).



## MACHINING & PART SIZE CAPABILITIES

### TURNING CENTERS

- Turning – CNC Turned Parts: up to 6" Diameter x 80" Long (up to 20" Diameter Capable)
- Sub Spindles
- Live Tooling
- Steady Rest
- Face, Turn, Point, Groove, Broach & Thread
- Rack Loading Bar Feeders

### EDM (ELECTRICAL DISCHARGE MACHINING)

- Up to 13" x 19" Material, 11" Thick
- Wire
- Sinker
- Tight Tolerances

### FABRICATION AND WELDING

- Sheet Metal Bending
- Punching: Up to 1/2" Thick, up to 1-1/2" Diameter Holes, Simultaneous Multi-Hole Punching
- Manual 20 Station Turret Punch
- Shearing: 12 Gauge Thick x 4' Wide up to 1/2" Thick by 12" Wide
- MIG/TIG
- Certified Welders

### MULTI-FUNCTION TURNING CENTER

- Simple Turning and Milling to Complex Multi Axis Simultaneous Machining
- Extremely Fast Tool Changing for Decreased Cycle Times
- Max Bar Size of 3" Diameter x 40" Long With a Working Window of 42.7" x 21.9"
- Drop Parts Complete, Eliminating Secondary Operations

### WATERJET CUTTING

- Up to 4' x 10' Sheets, 6" Thick
- Metal, Foam, Plastic, etc.
- Precision Cutting

### COLD HEADING

*Let our engineers design a special fastener for your application!*

- Shank Slotting
- Head Slotting
- Heat Treat & Plating
- Organic Coatings
- Shaving
- Locking Patches

### MACHINING CENTERS

- Pallet Changers and Indexers
- 5 Axis Capability
- Milling – CNC Milled Parts Working Window of: VMC 45" x 20" x 25" HMC 30" x 26" x 26"

### HOT UPSET FORGING

- Large Diameter Bolt Blanks in Stock: up to 2-1/2"/M72 Cut up to 20" (500mm) Long
- Hot Heading and Forging: Up to 4" Diameter and 24" Long, Up to 2" Diameter and 34" Long, Or up to 1-1/2" Diameter and 36" Long
- Non-Standard Head Styles
- Vertical/Horizontal/Automatic (IMPACT-up to 3/4" Diameter x 40" Long)

### BAR/PIPE BENDING

- Up to 2" Diameter Bar (Material Dependent)
- Cold/Hot
- U-Bolts, J-Bolts
- Round/Square End
- EyeBolts

### THREADING

- All Standard and Metric Thread Pitches (UNC, UNF, UNJ, ACME, Metric, Pipe, & British Standard)
- Rolled: up to 4" Diameter
- Cut: up to 7" Diameter
- Right/Left Hand

### BAR/PIPE BENDING

- Up to 2" Diameter Bar (Material Dependent)
- Cold/Hot
- U-Bolts, J-Bolts
- Round/Square End
- EyeBolts