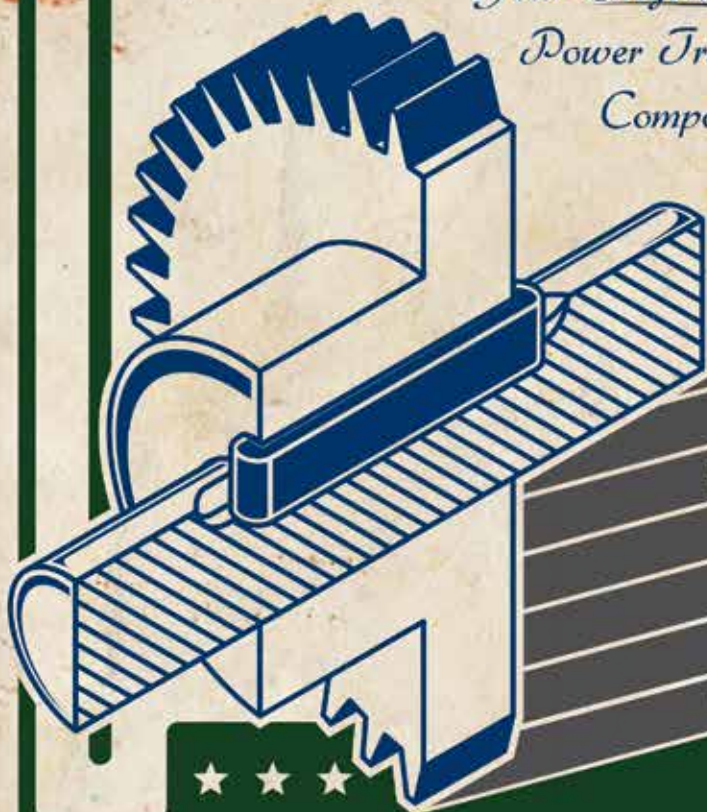


PRECISION KEY STOCK
MAK-A-KEY
CUT, FILE, & FIT

Huyett

Your Original Source for
Power Transmission
Components



- KEY STOCK
- MACHINE KEYS
- SHAFTS
- TOOL STEEL
- SHIMS & SPACERS
- SHAFT COLLARS
- TOOLS
- BEARINGS
- PRECISION BALLS



HIGHEST QUALITY

Key Stock

EST. 1906

MADE IN USA



Purveyors of a Way of Life™

HUYETT
Contact Information

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E-mail: SALES@HUYETT.COM

Website: WWW.HUYETT.COM

Purveyors of a Way of Life™



WHO WE ARE

Huyett is a low-overhead manufacturer, master distributor, and importer of industrial fasteners & components, and premium lifting hardware. Our corporate office is located just 50 miles from the geographic center of the United States. With multiple warehouse locations, we are two days shipping time from 60% of the country.

We were founded by a German immigrant over 100 years ago in a tin shed located in a place some call the Great American Desert. The experience of trying to work the land and make a life here has been formative to our culture and we are here to serve you.

Huyett has a complete machine shop and manufactures an array of fasteners and special assemblies. Our manufacturing facility is equipped to make exotic material products in Monel™, Inconel™, Carpenter™ 20, and other alloys.

WHAT WE DO

FRIENDLY PEOPLE
WHO ARE READY TO HELP!

We serve our customers by reducing total costs through a combination of competitive sourcing, value-added services, and an inventory of more than 100,000 unique fasteners. We save our customers time and money by offering the opportunity to quote, order, ship, and receive a wide variety of parts on one purchase order.

We serve our partners by providing programs and opportunities to facilitate the achievement of business and professional goals. We have forged relationships with key manufacturers on a worldwide basis so that you can receive the benefit of global sourcing on standard items, and cost effective solutions on short run parts that are made right here in the USA.

We serve our employees by creating a work environment that is productive, exciting, and full of possibility. We help our employees meet their professional and personal goals through training programs, mentoring, and "employer of choice" pay and benefits.

We serve our community by working with organizations and individuals to create solutions for their local needs. We are committed to helping education, family-life, and local nonprofit organizations in a manner that improves quality of life.

HOW WE DO IT

WE MAKE YOUR
LIFE EASY!

With over 100,000 parts in one place, and a complete machine shop to manufacture special orders, you can consolidate items normally purchased from multiple suppliers into one box.

- In stock orders ship next business day.
- Business hours: 7:00 a.m. to 5:00 p.m. CST, Monday thru Friday.
- All parts ship from U.S. Locations, on one PO, along with the "Pack List That Will Change Your Life.™"



TO LEARN MORE, VISIT HUYETT.COM



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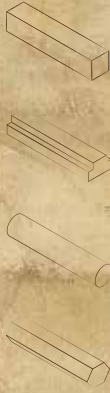
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Custom Manufacturing



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Performance Reviews



Custom Solutions



Blind Dropships



COUNTRY OF ORIGIN – KEY STOCK & MACHINE KEYS

Huyett produces precision key stock and machine keys from raw materials into useable lengths, dimensions, and finishes. This substantial transformation is performed in the U.S. and can include milling, cutting, tumbling, plating, and heat treating. The raw material, based on availability and quality requirements, is sourced from mills that meet the highest quality and tolerance standards and can come from countries that would include the U.S., Canada, Germany, Taiwan, and Italy. Due to the substantial transformation performed by our facilities in the U.S. and the associated costs, these products are designated as *Made in the USA*. Raw Material Country of Origin is available upon request along with the potential processing charge, at the lot level.



Visit huyett.com to download **Material, Compliance, and RoHS/REACH Certifications*** in your Account Order History.

* Some exclusions apply

LOCATING WHAT YOU NEED

This catalog represents years of research and experience by Huyett staff. In addition to the technical information included to make it easy for you to order the parts you need, we have provided informative and educational details about product lines and unique parts. Many of our power transmission and motion control (PT/MC) components are available in imperial and metric sizes and can be purchased in preassembled boxed assortments or customized to meet your needs.

MATERIAL OR PART TYPE

SHIMS & SPACERS

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SHIM WASHER

DIN 988

PART SPECIFICATION

ITEM DESCRIPTION & IDENTIFICATION

KEY STOCK

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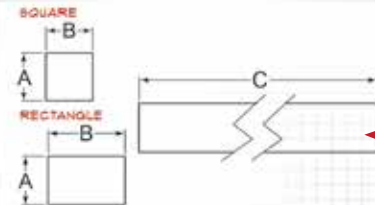
COLD FINISHED STEEL - IMPERIAL

DESCRIPTION

A stock of material that is one foot or greater in length, and from which machine keys are made. It is available in stocked standard sizes or can be custom made to your specifications.

HOW TO IDENTIFY

1. Measure height (A).
2. Measure width (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.



ILLUSTRATED VISUAL REFERENCES

AVAILABLE MATERIALS AND FINISHES

PREFIX	MATERIAL/FINISH
30	Cold Finished Steel, Plain*
31	Cold Finished Steel, Zinc Clear Trivalent
45	Cold Finished Steel, Plain* (1045)
46	Cold Finished Steel, Zinc Clear Trivalent (1045)
65	Cold Finished Alloy Steel, Plain* (4140)
66	Cold Finished Alloy Steel, Zinc Clear Trivalent (4140)

OVERSIZE
35 = Cold Finished Steel, Plain*
36 = Cold Finished Steel, Zinc Clear Trivalent
Material/finish combinations may not be available in all sizes.
Note: Unless specifically stated, our standard key stock (30 series) is any one of the following grades, subject to market availability: 1018, 1025, 1045, 1095, 1215, or 9830. Call for precise grade.

EACH SIZE RANGE INCLUDES MINIMUM & MAXIMUM TOLERANCES

HEIGHT (A) AND WIDTH (B) TOLERANCES	LENGTH (C) TOLERANCES				
	MATERIAL	SQUARE	RECTANGLE	LENGTH	TOLERANCE
Undersize				12 - 36"	+0/-125"
30	Cold Finished Steel, Plain*	>.625 - .7500" +0/-0.020" >.7500 - 1.5000" +0/-0.030" >1.5000 - 2.5000" +0/-0.040" >2.5000" +	.8938 - .7500" +0/-0.030" >.7500 - 1.5000" +0/-0.040" >1.5000 - 3.0000" +0/-0.050" >3.0000" +	>36"-144"	+0/-250"
31	Cold Finished Steel, Zinc Clear Trivalent	+0/-0.020" +0/-0.030" +0/-0.040"	+0/-0.030" +0/-0.040" +0/-0.050"	144"	+0"
45	Cold Finished Steel, Plain* (1045)	>.625 - .7500" +0/-0.040" >.7500 - 1.5000" +0/-0.050" >1.5000 - 2.5000" +0/-0.060"	.2500 - .7500" +0/-0.040" >.7500 - 1.5000" +0/-0.050" >1.5000 - 3.0000" +0/-0.060"	Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.	
46	Cold Finished Steel, Zinc Clear Trivalent (1045)	+0/-0.040" +0/-0.050" +0/-0.060"	+0/-0.040" +0/-0.050" +0/-0.060"		
65	Cold Finished Alloy Steel, Plain* (4140)	>.625 - .7500" +0/-0.05" >.7500 - 1.5000" +0/-0.06" >1.5000 - 3.0000" +0/-0.07"	.625 - .7500" +0/-0.05" >.7500 - 1.5000" +0/-0.06" >1.5000 - 3.0000" +0/-0.07"		
66	Cold Finished Alloy Steel, Zinc Clear (4140)	+0/-0.05" +0/-0.06" +0/-0.07"	+0/-0.05" +0/-0.06" +0/-0.07"		
Oversize					
35	Cold Finished Steel, Plain*	>.625 - .7500" +0/-0.020" >.7500 - 1.5000" +0/-0.030" >1.5000 - 2.5000" +0/-0.040"	.8938 - .7500" +0/-0.030" >.7500 - 1.5000" +0/-0.040" >1.5000 - 3.0000" +0/-0.050"		
36	Cold Finished Steel, Zinc Clear	+0/-0.020" +0/-0.030" +0/-0.040"	+0/-0.030" +0/-0.040" +0/-0.050"		

HEIGHT OR WIDTH?
Unless otherwise noted, tolerances are based on the larger of the height or width. Both sides will have the same tolerance.

USEFUL INFORMATION TO HELP YOU MAKE INFORMED BUYING DECISIONS

LOCATING WHAT YOU NEED

CATALOG SECTION

HOW TO BUILD YOUR PART NUMBER



KEY STOCK

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COLD FINISHED STEEL - IMPERIAL

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS SEE PAGE 16

HOW TO BUILD A PART NUMBER

3001250250-36

LIST THE SMALLER DIMENSION OF (A) OR (B) FIRST

SIZE CODES

ITEM PREFIX	(A) HEIGHT	(B) WIDTH	(C) LENGTH
30	1/16" to 2-1/2"	1/16" to 2-1/2"	12" to 144"
30	0125	0250	-36
TO ORDER CHOOSE YOUR MATERIAL	CHOOSE YOUR HEIGHT	CHOOSE YOUR WIDTH	CHOOSE YOUR LENGTH

CODE	MATERIAL	CODE	HEIGHT	CODE	WIDTH	CODE	LENGTH
30	Cold Finished Steel, Plain Underize	0062	.0625" (1/16)	0062	.0625" (1/16)	-12	12" (12)
		0093	.0938" (3/32)	0093	.0938" (3/32)	-24	24" (24)
		0125	.1250" (1/8)	0125	.1250" (1/8)	-36	36" (36)
		0156	.1563" (5/32)	0156	.1563" (5/32)	-48	48" (48)
		0187	.1875" (3/16)	0187	.1875" (3/16)	-72	72" (72)
		0218	.2188" (7/32)	0218	.2188" (7/32)	-120	120" (107)
		0250	.2500" (1/4)	0250	.2500" (1/4)	-144	144" (127)
36	Cold Finished Steel, Zinc Clear Underize	0281	.2813" (9/32)	0281	.2813" (9/32)		
		0312	.3125" (5/16)	0312	.3125" (5/16)		
45	Cold Finished Steel, Plain (1045) Underize	0343	.3438" (11/32)	0343	.3438" (11/32)		
		0375	.3750" (3/8)	0375	.3750" (3/8)		
46	Cold Finished Steel, Zinc Clear Trivalent (1045) Underize	0406	.4063" (13/32)	0406	.4063" (13/32)		
		0437	.4375" (7/16)	0437	.4375" (7/16)		
		0468	.4688" (15/32)	0468	.4688" (15/32)		
55	Cold Finished Alloy Steel, Plain (4140) Underize	0500	.5000" (1/2)	0500	.5000" (1/2)		
		0562	.5625" (9/16)	0562	.5625" (9/16)		
		0625	.6250" (5/8)	0625	.6250" (5/8)		
		0687	.6875" (11/16)	0687	.6875" (11/16)		
		0750	.7500" (3/4)	0750	.7500" (3/4)		
		0812	.8125" (13/16)	0812	.8125" (13/16)		
		0875	.8750" (7/8)	0875	.8750" (7/8)		
		0937	.9375" (15/16)	0937	.9375" (15/16)		
		1000	1.0000" (1)	1000	1.0000" (1)		
		1500	1.5000" (1-1/2)	1500	1.5000" (1-1/2)		
		2000	2.0000" (2)	2000	2.0000" (2)		
		2500	2.5000" (2-1/2)	2500	2.5000" (2-1/2)		

Nonstandard lengths up to 144" are available. Lengths over 3" may be subject to a packaging charge.

ALWAYS CUTTING THE SAME KEY?
Check out our full range of machine keys beginning on page 25. Also, our state of the art manufacturing facility can produce keys to any specification.



IMPERIAL

METRIC

ASSORTMENTS

COLOR CODING

1/4" x 1/4" (-SIZE) RoHS MADE IN THE USA

1, 2, AND 6" STAINLESS STEEL AND PLATED KEY STOCK ARE MARKED FOR EASY IDENTIFICATION

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM
Prices, materials, dimensions, tolerances, designs, and grades subject to change without notice. © 2018 U.S. Huyett
*Limited warranty for surface finish. At least three diam of chamfer. See page 12 for details.

ADDITIONAL INFORMATION IS AVAILABLE AT HUYETT.COM

INTRODUCTION

Huyett stocks and manufactures a wide range of fasteners for the PT/MC Industry that securely hold or interlock components to keep your machines and manufacturing lines moving. The following is a brief introduction to some basic power transmission concepts.

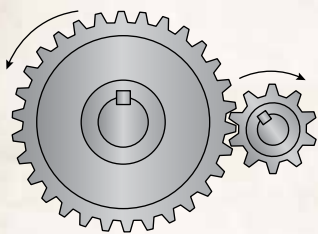


HUYETT'S PLAIN
CARBON AND
STAINLESS
STEEL PARTS
ARE RoHS
COMPLIANT

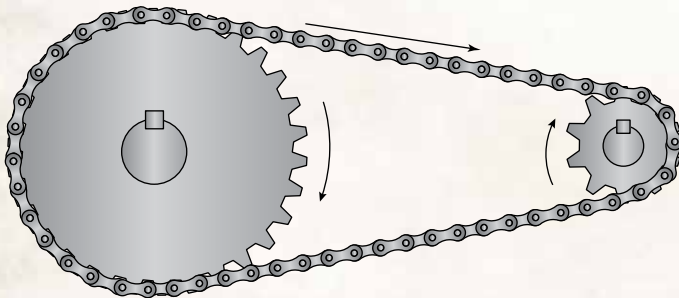
WHAT IS POWER TRANSMISSION?

In its simplest form, power transmission is the transfer of energy from one place to another where it is then put to work. This transfer of power, also known as mechanical work, is a system of integrating gears and shafts that provide speed and torque conversion using basic principles of physics. To the best of our knowledge, the mechanical gear – a rotating machine part with cut teeth or cogs, which meshes with another toothed part in order to transmit torque – was invented sometime around 300 B.C. by Greek mechanics in Alexandria. In the centuries since, this simple concept has enabled the invention and evolution of all sorts of machinery and vehicles.

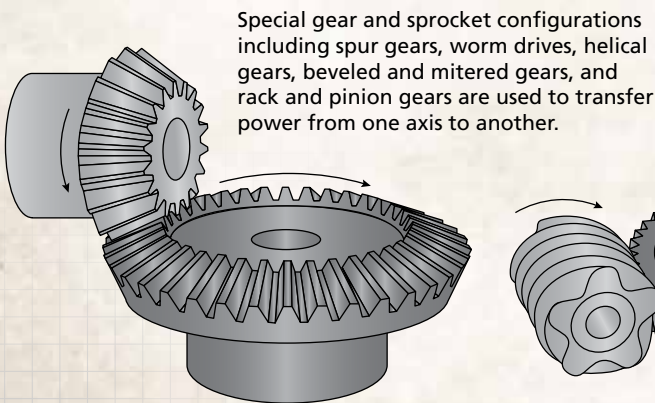
GEARS & SPROCKETS



Adjacent, interlocked gears rotate at different speeds in opposite directions, with the smaller gear rotating more quickly.



Similarly, sprockets are profiled wheels that connect with a chain or track. They differ from gears in that they do not touch. In this configuration, both sprockets turn in the same direction as the chain that connects them.



Special gear and sprocket configurations including spur gears, worm drives, helical gears, beveled and mitered gears, and rack and pinion gears are used to transfer power from one axis to another.

FUNDAMENTALS

FORCE

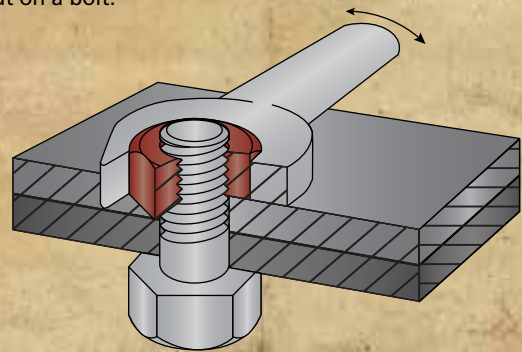
The push or pull on an object that results in a change of shape, speed, or location.

FRICTION

Friction is a force of resistance that acts in the direct opposite of another force to oppose any attempt to initiate motion. Friction must be consistently overcome in order for motion to occur.

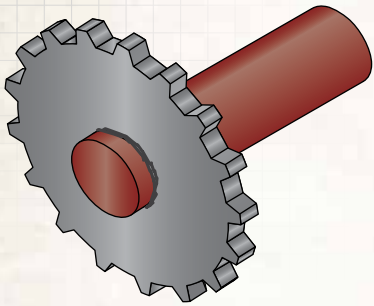
TORQUE

Just as force is a push or a pull, torque is more of a twist. It is the tendency of an object to rotate as a result of a force being applied at some distance away from the center of rotation. For instance, pushing or pulling on the wrench below applies force that creates torque to loosen or tighten a nut on a bolt.



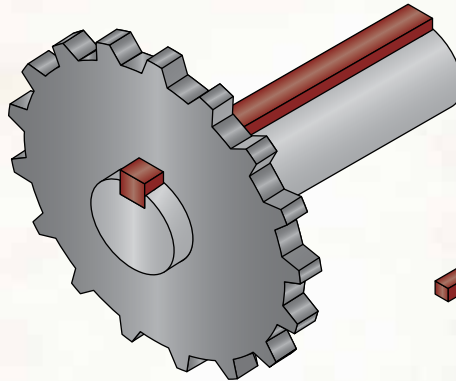
INTRODUCTION

SHAFTS, KEY STOCK, & MACHINE KEYS

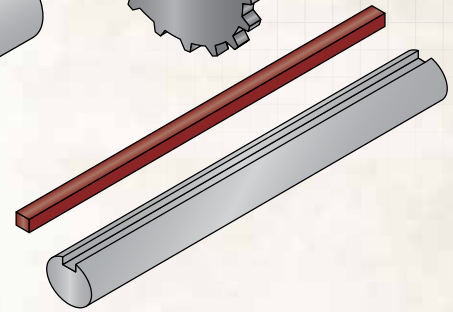


GEARS ARE CONNECTED TO METAL SHAFTS THAT ROTATE TO PRODUCE TORQUE

SOMETIMES GEARS ARE PERMANENTLY WELDED TO A SOLID SHAFT



MORE OFTEN, A KEYED SHAFT AND A GEAR WITH A KEY WAY ARE JOINED USING A PIECE OF KEY STOCK (OR A MACHINE KEY) TO PRODUCE A VERSATILE, REUSABLE ASSEMBLY THAT CAN BE DISASSEMBLED AND REASSEMBLED FOR REPAIR OR MAINTENANCE



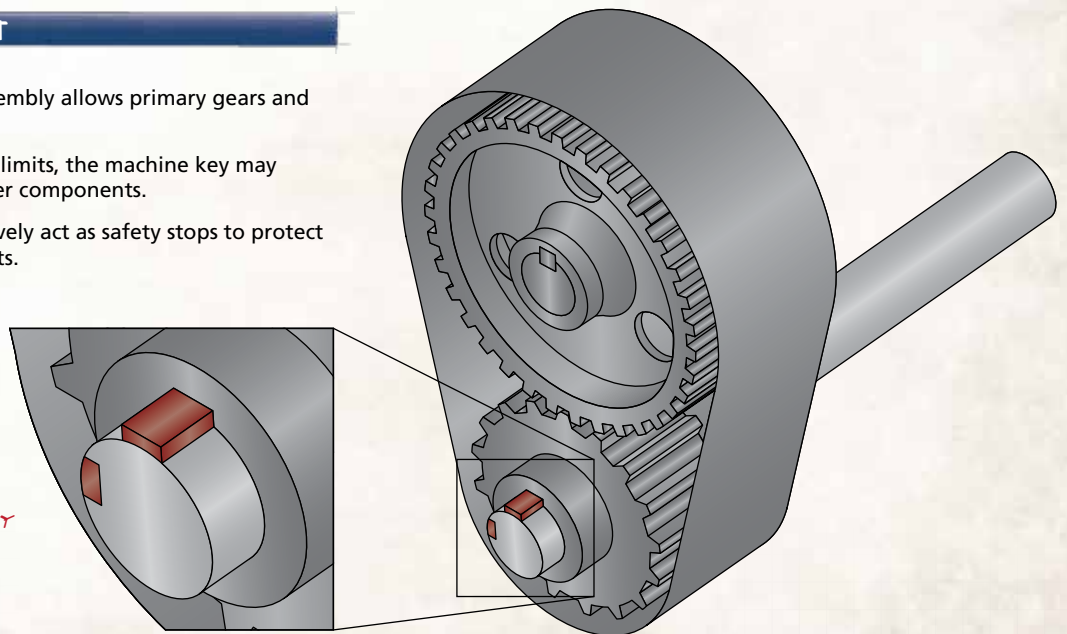
Should a power transmission component become damaged or break from stress and wear, the potential for catastrophic and collateral damage is enhanced in welded assemblies because of the linkage of the components.

PROTECTIVE BENEFIT

In normal operation, a keyed assembly allows primary gears and drive shafts to turn together.

However, if forces exceed design limits, the machine key may shear preventing damage to other components.

Inexpensive machine keys effectively act as safety stops to protect expensive mechanical components.



WHEN KEYS SHEAR OFF THE DRIVE SHAFT CONTINUES TO ROTATE WITHOUT DAMAGING COSTLY OR HARD TO REPLACE GEARS OR SHAFTING

CRITICAL DESIGN & MANUFACTURING CONSIDERATIONS

Key stock and machine keys must be made to proper specifications for each application. Design Engineers must account for load, material, and heat treatment to prevent placing users in potentially dangerous situations or subjecting machine components to stresses that could result in property damage if parts shear. *For additional information about shear strength, see page 14.*

GETTING THE RIGHT FIT

When two parts are designed to be pieced together, there may be play or looseness between them or they may be tight to the point they are nearly bonded. This degree of tightness or looseness is referred to as "fit." The fit between a shaft, machine key, and the mating component can be critical to the operation and safety of the assembly.

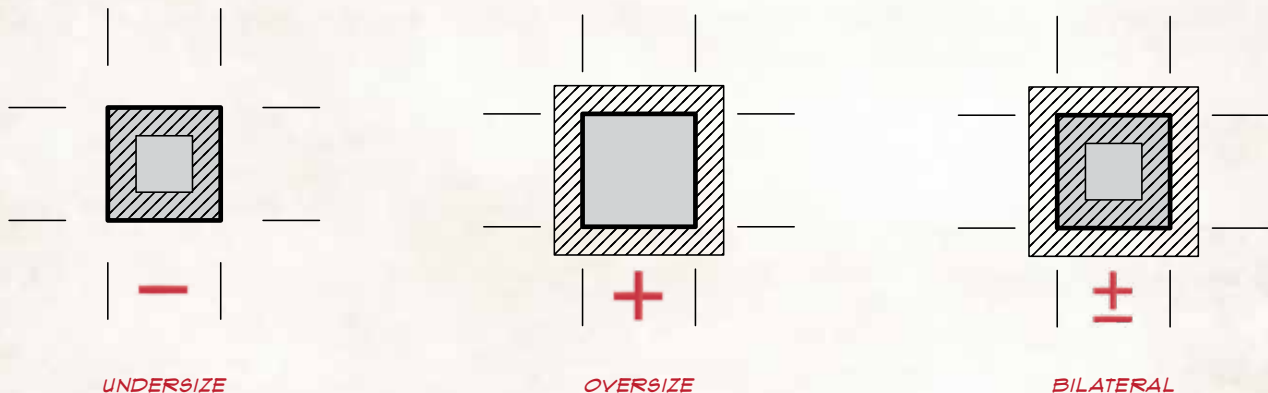
FIT & TOLERANCE

Before the age of the assembly line and interchangeable parts, skilled craftsmen known as "fitters" were required to piece together mating parts. Since the parts were usually hand-crafted, production was limited to one assembly at a time. The craftsman employed a system of cut, try, cut again, try again to eventually achieve proper fit between components.

With the advent of the assembly line, it became necessary to supply parts that could be used interchangeably, so that any one like part could be used to complete the component. Since it is extremely difficult to produce exactly identical parts, a system of tolerances and specifications was developed to determine when parts were close enough to be interchangeable.

NOMINAL SIZING TOLERANCES

Tolerance is the limit of how much a part can deviate from its nominal or named size. Tolerances can deviate less than the nominal size (referred to as undersize), greater than the nominal size (referred to as oversize), or both.

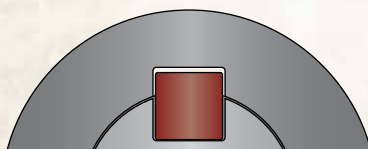


These tolerances cannot be larger than the nominal size but may be smaller.

These tolerances cannot be smaller than the nominal size but may be larger.

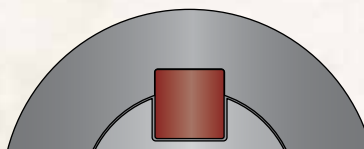
These tolerances may be either smaller or larger than the nominal size.

ANSI B17.1 KEYS & KEY WAY FIT CLASSES



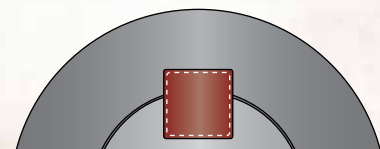
CLASS 1

Sometimes called a clearance fit, the key width will be slightly smaller than the key way allowing the shaft and component piece to slide over each other.



CLASS 2

Also known as a transition fit, the key width and the key way can have a slight clearance fit or a slight interference fit. Generally this fit is sufficient to hold mating parts together while still allowing for disassembly.



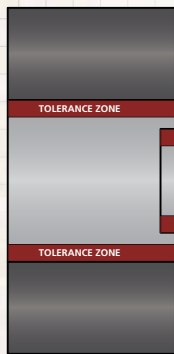
CLASS 3

This is an interference fit, meaning the key will be larger than the key way and will encounter interference during installation. Some means of force or the use of temperature differential is required for installation. ANSI B17.1 does not have specific standards for this class of fit.

GETTING THE RIGHT FIT

Each application will determine the type of fit required. Should it be a loose fit for easy disassembly? Does it need to precisely hold a component in place? Is it a bearing joint that requires movement? Will it be a semi-permanent bond? The dimensional tolerances of a given part must be taken into account when determining the correct fit for an application.

TYPES OF FIT



CLEARANCE FIT

In a clearance fit, a space will exist between the two mating parts. The difference in sizes is referred to as a positive difference. The minimum clearance will be the difference between the maximum tolerance of the inserted part and the minimum tolerance of the receiving part.

LOOSE FIT

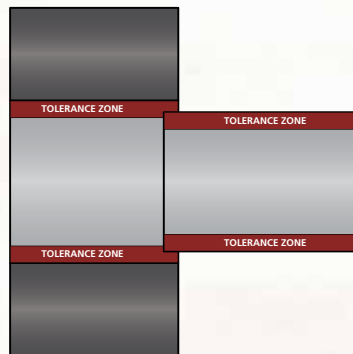
Used in applications that do not require precision, such as pulleys, agricultural equipment, or other applications requiring frequent disassembly.

RUNNING FIT

This type of clearance fit has just enough space to maintain a film of lubrication between the mating parts. Most bearings will require this type of fit.

SLIDE FIT

Also known as a medium fit, this fit is used when precision is required. It is used on slides, slide valves, and some automobile part assemblies.



TRANSITION FIT

In a transition fit, a space may exist or the parts may collide. If the inserted part is at maximum tolerance and the receiving part is at minimum tolerance an interference will occur. However, a clearance fit will result if the inserted part is at minimum tolerance and the receiving part is at maximum tolerance.

PUSH FIT

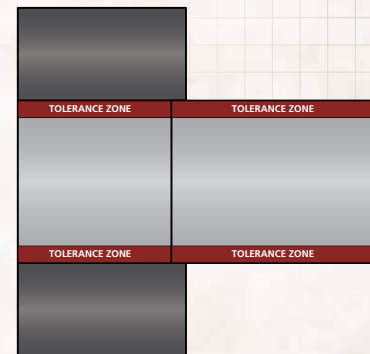
Also known as a snug fit, this fit has zero allowance between the mating parts and will require a slight pressure to install. This is a good fit where vibration may be encountered.

SHRINK/FORCE FIT

This fit is required when the two mating parts are to be rigidly fixed so that they move together. It will require high pressure or expansion by heating to install.

WRINGING FIT

A small negative allowance is allowed between the two mating parts requiring pressure to assemble. It is used on flushed bolts, driven bushings, and electric motors.



INTERFERENCE FIT

In an interference fit, the tolerance zones of both parts will collide with each other regardless if they are at minimum or maximum. The degree to which they collide will determine the strength of the fit. An interference fit will require either force or temperature change to facilitate installation.

SHRINK FIT

Also known as a heavy force fit, the receiving part is heated to cause expansion allowing the inserted part to fit. This is commonly used in rims and heavy duty assemblies such as railway wheels.

MEDIUM FORCE FIT

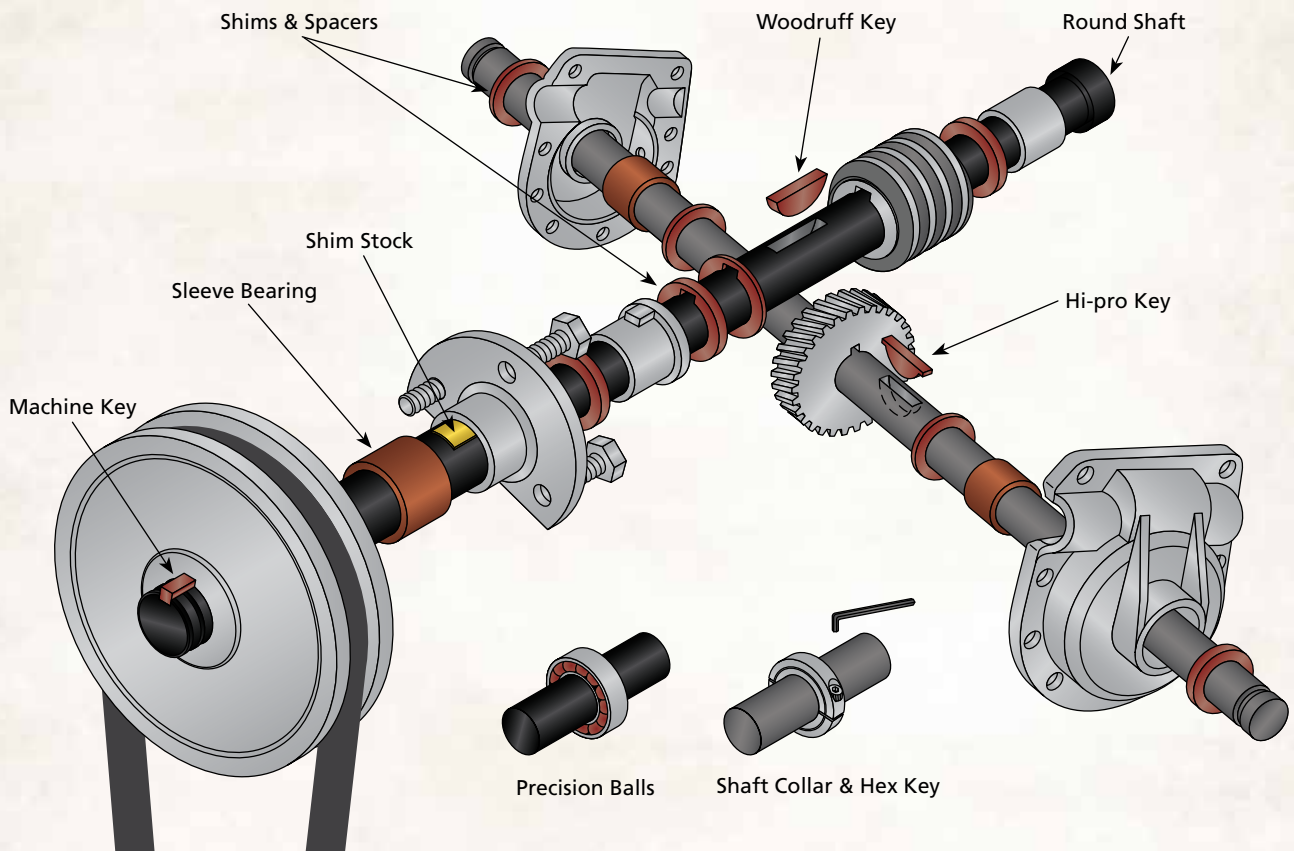
With this fit, a substantial amount of pressure is required to force the parts together. This is used for car wheels, dynamo armatures, and other semi-permanent joints.

TIGHT FIT

Also known as press fit, the parts can be mated by hand with a hammer or light pressure. It is used in keyed pulleys, rocker arms, and applications not requiring a large force.

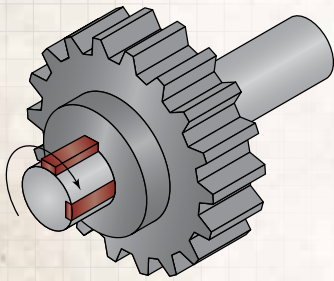
INDUSTRY USES

Nearly every engine, motor, gearbox, differential, gear reducer, and transmission uses power transmission components and mating mechanical components such as shafts, gears, sprockets, and pulleys to turn energy into work. From key stock to machine keys, shafting to shaft collars, and balls to bushings, Huyett offers a complete line of fasteners and industrial components to suit your needs.

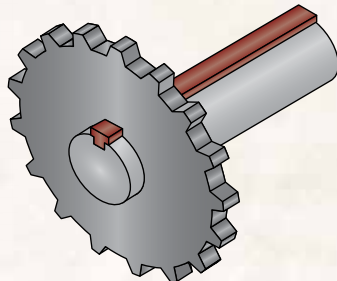


DURABLE SOLUTIONS FOR EVERY NEED

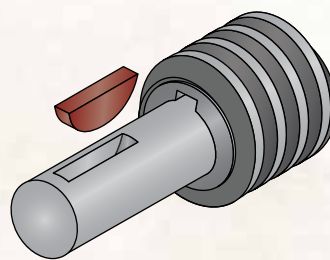
KEY STOCK & MACHINE KEYS



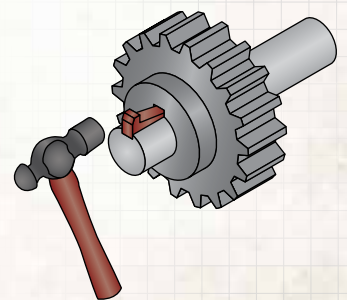
Key stock and machine keys may shear under stress to protect people and expensive equipment.



Step key stock is used for repair and maintenance operations to fix broken key ways.



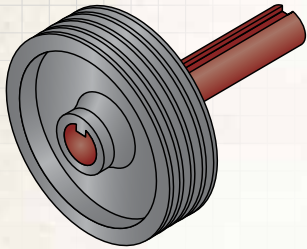
Woodruff keys are designed to be installed deep into a shaft and can not fall out once installed.



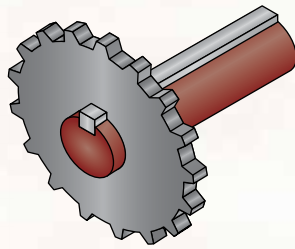
Gib keys are installed by pounding the key in the shaft until a snug fit is achieved.

INDUSTRY USES

SHAFTS & TOOL STEEL



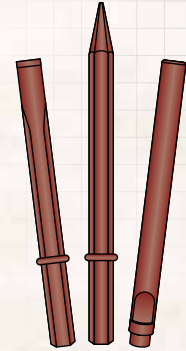
A hub with an integral key allows a keyed shaft to be used without key stock or a machine key.



Keyed shaft paired with key stock or a machine key assemble components in a non-permanent manner.

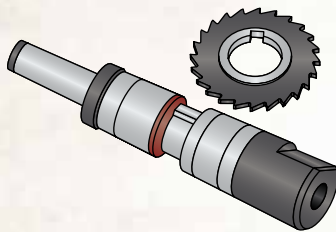


Ground flat stock is used to produce knife blades, shear blades, chisels, and other precision machining devices.

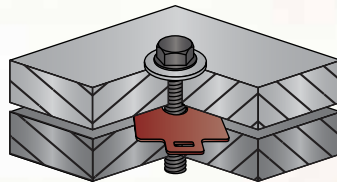


As its name suggests, drill rod is frequently used to make drill bits, taps, files, hammers, and other hand tools.

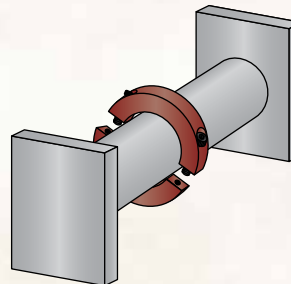
SHIMS, SHAFT COLLARS, & SPACERS



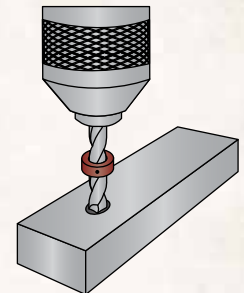
Arbor shims are installed on either side of a cutting tool to take up slack.



Slotted shims are used on assembled machine components for alignment and balance.

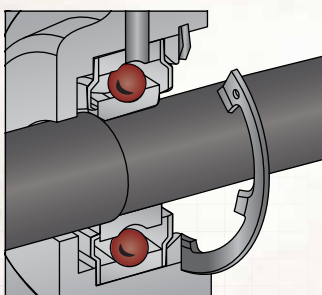


Double-split shaft collars can be installed where components will not allow axial installation.

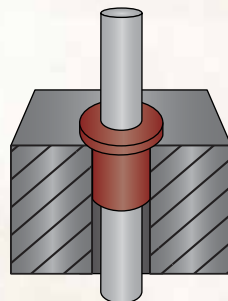


Set shaft collars can be used as a stop on a drill bit to control the depth of the drilled hole.

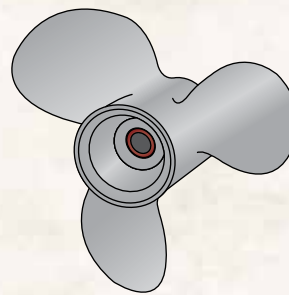
BALLS & BEARINGS



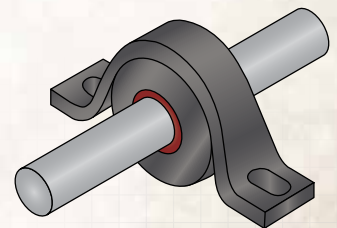
Precision balls are highly precise balls that are used in ball bearing assemblies and in kinematic mounting applications.



Flange bearings allow the shaft to slide or spin freely within the bearing.



Thrust bearings are used where rotating objects will create lateral forces.



Sleeve bearings are used in applications with light loads and low rotational speeds.

TYPES OF ALLOY STEEL

The following information should be considered only as a basic guideline; the data should not be considered as absolute. For specific applications, proper testing is required. The hardness of a metal is determined by its resistance to deformation, indentation, or scratching. Rockwell hardness is the most common measure of a metal's hardness. Soft steels are usually measured using the Rockwell B scale while harder steels and deep case hardened steels are usually measured on the Rockwell C scale. Additionally, the size of the piece can affect the hardness rating.



HUYETT'S PLAIN CARBON AND STAINLESS STEEL PARTS ARE ROHS COMPLIANT

COMMON GRADES OF ALLOY STEELS

1018

Heat treating in contact with carbon (carburizing) hardens the surface of this low-carbon steel. It is easy to cold-form, bend, braze, and weld. Rockwell hardness is B71. Melting point is 1,538°C (2,800°F). Yield strength is 45,000 psi. It is commonly used in shafts, spindles, pins, rods, sprockets, and component parts such as clevis pins, straight pins, machine keys, and key stock.

1045

This medium carbon steel is stronger than 1018 and is slightly more difficult to machine and weld. It can be through hardened or case hardened. Rockwell hardness is B84. Melting point is 1,538°C (2,800°F). Yield strength is 65,000 psi. It is used in gears, shafts, axles, bolts, studs, clevis pins, machine keys, and key stock.

A36

General purpose carbon steel is suitable for welding and mechanical fastening. Rockwell hardness is B68. Melting point is 1,094°C (2,100°F). Yield strength is 36,000 psi. This is used primarily for structural and commercial grade steel.

12L14

A low carbon steel that has excellent machining characteristics and good ductility that makes it easy to bend, crimp, and rivet. It is very difficult to weld and cannot be case hardened. Rockwell hardness is B75 – B90. Melting point is 1,538°C (2,800°F). Yield strength is 60,000 – 80,000 psi. This grade can be used for grease fittings, clevis pins, and custom pins.

1144

A medium carbon, resulfurized steel with free-machining qualities. 1144 steel heat treats better than 1045 steel. Stress relieving allows it to obtain maximum ductility with minimum warping. Rockwell hardness is B97. Melting point is 1,510°C (2,750°F). Yield strength is 95,000 psi. Frequently used in keyed shafts, clevis pins, and detent pins.

4140 ALLOY

Also called "Chrome-Moly" steel. Ideal for forging and heat treating, 4140 alloy is tough, ductile, and wear resistant. Rockwell hardness is B92. Melting point is 1,510°C (2,750°F). Yield strength is 60,000 – 75,800 psi. It is the most common steel and is used in virtually all industries and applications. Common uses include clutch keys, clevis pins, and military clevis pins.

4140 ASTM-A193 GRADE B7 ALLOY

Similar to 4140 alloy, but it is already quenched, tempered, and stress relieved. Maximum Rockwell hardness is C35. It is commonly used for threaded rod.

8630 ALLOY

This alloy is tough yet ductile. It responds well to heat treating, exhibits superb core characteristics, and has good weldability and machining properties. Maximum attainable Rockwell hardness is C50. Melting point is 1,538°C (2,800°F). Yield strength is 79,800 psi. This grade is frequently used in machine keys, woodruff keys, gear drive keys, and key stock.

CARE & HANDLING OF PLAIN FINISH PARTS

30-DAY LIMITED WARRANTY FOR SURFACE FINISH

A special sealer and treatment is applied to all plain finish parts to prevent corrosion, and specially formulated plastic liners are used to protect parts from the atmosphere. It is vital that the following handling instructions be maintained:

1. **Inspect containers upon receipt.**
2. **Do not remove parts from original packing until ready for use.**
3. After opening containers, **reroll the inner liner and reclose the box** for storage.
4. When touching plain finished parts, **wear neoprene, latex, or thick cotton gloves** to prevent hand oils from contacting the surface of the parts.
5. **Avoid allowing human sweat or any other type of contaminant** to contact the surface of the parts.

Surface corrosion can appear in as little as 24 hours if plain finish parts are not handled correctly, especially during the months of June, July, August, and September in North America. Improper handling will void any and all warranties.

To learn more, visit:

HUYETT.COM/HANDLING

TYPES OF STAINLESS STEEL

Stainless steel is the term used for grades of steel that contain more than 11% chromium, with or without other alloying elements. Stainless steel resists corrosion, maintains its strength at high temperatures, and is easily maintained. It is used predominately in the automotive, aerospace, and construction industries.

There are numerous grades of stainless steel which divide into four major groups:

- 100 series: austenitic general purpose stainless steel
- 200 series: austenitic chromium/nickel/manganese alloys
- 300 series: austenitic chromium/nickel alloys
- 400 series: ferritic and martensitic chromium alloys.

Additional information can be found in our Engineering Handbook, visit huyett.com/catalogs to download a copy.

18-8 IS NOT A SPECIFICATION FOR STAINLESS STEEL
HUYETT CONSIDERS 18-8 TO BE ANY 300 SERIES STAINLESS STEEL

COMMON GRADES OF STAINLESS STEEL

302

A common heat-resisting stainless steel, 302 is austenitic, non-magnetic, extremely tough, and ductile. Cold working will dramatically increase its hardness. It is amenable to stamping, spinning, and wire forming. 302 is commonly used for washers, springs, screens, and cables. It can be found in bridge pins, spring pins, and spiral rings.

303

303 is a popular free-machining stainless steel providing excellent speed and feed capabilities. 303 is used extensively in the screw and machining industries to make hardware fasteners such as lock nuts, valve parts, nozzles, and trim. It can also be used for keyed shafts, pins, and grease fittings.

304

304 was the first formulation of austenitic stainless steel and is the most commonly specified grade, accounting for more than half of the stainless steel produced in the world. This grade withstands ordinary corrosion in architecture, is durable in typical food processing

environments, and resists most chemicals. 304 is available in virtually all product forms and finishes and is used for cookware, appliances, sinks, and tabletops. It can be found in bridge pins, thread inserts, hose clamps, and spring pins.

316

Commonly referred to as marine grade stainless steel, this austenitic stainless steel contains 2% – 3% molybdenum (whereas 304 has none). The inclusion of molybdenum gives 316 greater resistance to various forms of deterioration. It is well-suited for extreme situations such as laboratory equipment, chloride environments, and sub-zero temperatures. 316 is frequently used for chemical, food, paper, mining, pharmaceutical, and petroleum equipment. It is one of the most common stainless steels and can be found in most types of pins, hose clamps, keyed shafts, threaded rod, machine keys, and key stock.

410

The most widely used martensitic (plain chromium stainless class with exceptional strength) stainless steel, featuring the high-level of strength conferred by

martensitic steels. It is a low-cost, heat-treatable grade suitable for non-severe corrosion applications. It is used for cutlery, turbine blades, bushings, valve components, fasteners, screens, kitchen utensils, and spring pins.

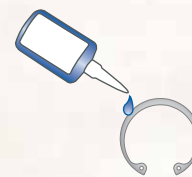
416

This was one of the first free-machining stainless steels. It has excellent machinability and non-galling characteristics and is magnetic. It is used for nuts, bolts, screws, gears and pinions, valve trim, shafts, axles, dowel pins, and key stock.

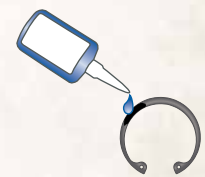
IDENTIFYING 300 SERIES

Chemical Testing

Place a drop of 20% nitric acid solution on a cleaned portion of the specimen.



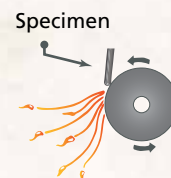
Stainless steel will remain unstained



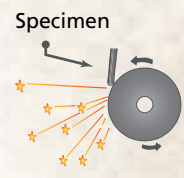
Carbon Steel will turn dark

Mechanical Testing

Hold the specimen with pliers and place it against a grinding wheel.



Stainless steel will make curved tails



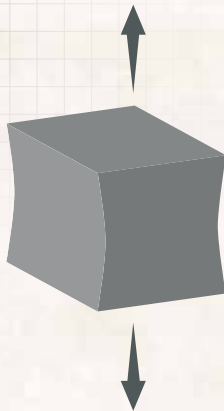
Carbon steel will look like fireworks



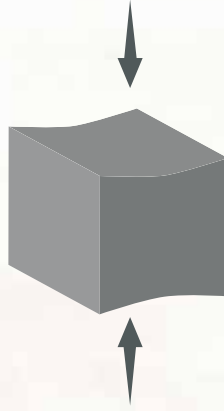
MEASURING STEEL STRENGTH

Determining the strength of steel is an examination of the relationship between external forces applied to steel and the resulting deformations and stresses. These forces are produced by the action of gravity, by accelerations and impacts of moving parts, by gases and fluids under pressure, and by the transmission of mechanical power. They can occur separately, in combination, or progressively. Time is also a critical element in determining the effects of external forces – a force may be static or change so slowly that its maximum value can be treated as if it were static, it may be suddenly applied, as with an impact, or it may have a repetitive or cyclic behavior.

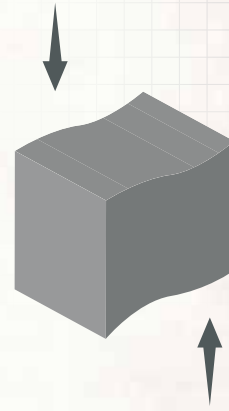
TYPES OF STRESS



TENSILE STRESS
Pulls apart



COMPRESSIVE STRESS
Pushes together



SHEARING STRESS
Pushes from opposite sides

STRESS

Stress is defined as force per unit area and in the U.S. is usually expressed in pounds per square inch (psi). Tensile stress will stretch or lengthen steel. Compressive stress will compress or shorten steel. Shearing stress will break or tear steel into pieces. Tensile and compressive stresses always act at right angles to the applied force; shearing stresses always act in the same plane.

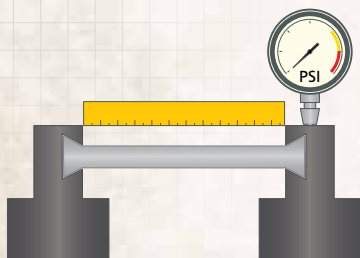
FATIGUE

When steel is subjected to many cycles of stress reversal or fluctuation (variation in magnitude without reversal), failure may occur, often at levels considerably less than if the stress were constant. Fatigue properties are determined by subjecting test specimens to stress cycles and counting the number of cycles to failure.

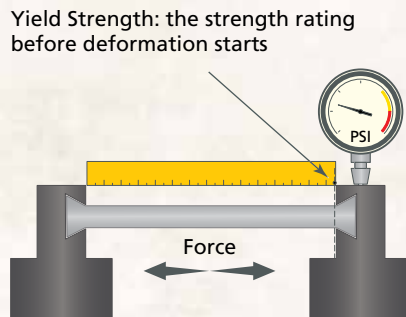
DUCTILITY

Ductility is the ability of steel to undergo permanent changes in shape (such as stretching into a wire) from tensile stress without fracturing at room temperature or losing its toughness. Brittleness is the opposite of ductility. Malleability refers to deformation under compressive stress (such as being pressed into a sheet). Ductility is sometimes used to refer to both types.

TESTING & MEASURING TENSILE STRENGTH

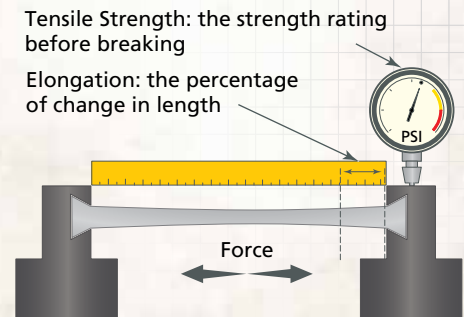


Sample mounted in test fixture with no force applied



Yield Strength: the strength rating before deformation starts

Sample is pulled from opposite ends to the point of deformation



Tensile Strength: the strength rating before breaking

Elongation: the percentage of change in length

Sample is pulled apart; permanent deformation and eventual breakage occurs

MEASURING STEEL STRENGTH

When steel is subjected to many cycles of stress reversal or fluctuation (variation in magnitude without reversal), failure may occur, even though the maximum stress at any cycle is considerably less than the value at which failure would occur if the stress were constant. Fatigue properties are determined by subjecting test specimens to stress cycles and counting the number of cycles to failure. Fatigue is tested on fixtures that are unique to the application. These tests should account for all modes of failure, including thermal causes and the presence of corrosive elements.

MODES OF FATIGUE FAILURE

LOW-/HIGH-CYCLE

This fatigue process covers cyclic loading in two significantly different domains with different physical mechanisms of failure. "High-cycle fatigue" is characterized by relatively low cyclic loads, strain cycles confined largely to the elastic range, and long lives or a high number of cycles to failure. "Low-cycle fatigue" or cyclic strain-controlled fatigue, has cyclic loads that are relatively high, significant amounts of plastic strain induced during each cycle, and short lives or a low number of cycles to failure.

CORROSION

Corrosion fatigue is a failure mode where cyclic stresses and a corrosion producing environment combine to initiate and propagate cracks in fewer stress cycles and at lower stress amplitudes than would be required in a more inert environment. The corrosion process forms pits and surface discontinuities that act as stress raisers to accelerate fatigue cracking. The cyclic loads may also cause cracking and flaking of the corrosion layer, baring fresh metal to the corrosive environment. Each process accelerates the other, making the cumulative result more serious.

THERMAL

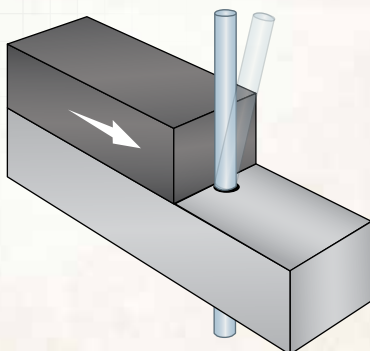
Cyclic temperature changes in a machine part will produce cyclic stresses and strains if natural thermal expansions and contractions are either wholly or partially constrained. These cyclic strains produce fatigue failure just as though they were produced by external mechanical loading. When strain cycling is produced by a fluctuating temperature field, the failure process is termed "thermal fatigue."

SURFACE OR CONTACT

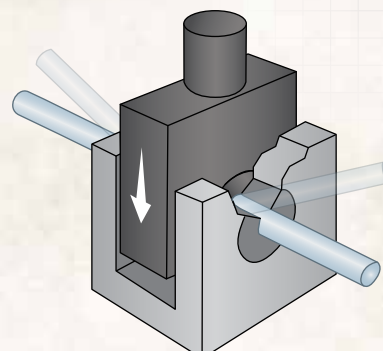
Surface fatigue failure is usually associated with rolling surfaces in contact, and results in pitting, cracking, and spalling of the contacting surfaces from cyclic contact stresses that cause shear stresses to be slightly below the surface. The cyclic subsurface shear stresses generate cracks that propagate to the contacting surface, dislodging particles in the process.

TESTING & MEASURING SHEAR STRENGTH

Shear strength is tested by measuring the force necessary to sever a sample into two pieces for single shear, or three pieces for double shear. In a single shear test the workpiece is supported on only one end whereas in a double shear test the workpiece is supported from both ends which requires greater force to break a middle piece free. Both tests result in strength ratings that categorize the metal.



SINGLE SHEAR
Creates one fracture



DOUBLE SHEAR
Creates two fractures

TYPES OF FINISHES

COMMON PLATINGS AND FINISHES

PLATING, COATING, OR FINISH	FOR USE ON	DEGREE OF CORROSION RESISTANCE	CHARACTERISTICS	ROHS COMPLIANT
RUST INHIBITORS	All metals	Varies with type	Oils, greases, etc. Vary in color and film thickness. Usually applied to bare carbon steel. Used to protect parts in temporary storage.	Huyett uses RoHS compliant rust inhibitor 
ZINC, ELECTROPLATED	All metals	Fair	Blue to blue-white-gray color.	RoHS compliant without supplementary treatments 
CADMIUM, ELECTROPLATED	Most metals	Excellent	Bright, silver-gray, or black finish. Particularly effective corrosion protection in marine applications. Used for decorative purposes. High lubricity.	Not RoHS compliant
CLEAR CHROMATE FINISH	Zinc and cadmium plated parts	Very good to excellent	Clear bright or iridescent chemical conversion coating applied to plated parts to enhance corrosion protection, coloring, and paint bonding.	Types II, III, IV are not RoHS compliant
CLEAR CHROMATE FINISH	Zinc plated parts	Very good to excellent	Clear bright or iridescent chemical conversion coating applied to plated parts to enhance corrosion protection, coloring, and paint bonding.	Types V and VI are RoHS compliant 
DICHROMATE & COLOR CHROMATE	Zinc and cadmium plated parts	Very good to excellent	Yellow, brown, green, olive drab, blue, gold, bronze, or iridescent colored coating. Same as clear chromate.	Not RoHS compliant
BLACK OXIDE	Most Metals	Limited	Dark brown to black in color. Minimal dimensional impact. May be enhanced with oil or wax for better corrosion resistance.	RoHS compliant 
ZINC OR MANGANESE PHOSPHATE	Steel	Good	Black in color. Added protection when oiled with a nondrying petroleum oil containing corrosion inhibitors. Good lubricity.	Not RoHS compliant when rinsed with dichromate supplementary treatment
COLOR PHOSPHATE COATINGS	Steel	Superior to regular phosphate and oiled surfaces	Chemically produced color coating. Available in blue, green, red, purple, etc.	Not RoHS compliant when rinsed with dichromate supplementary treatment
MECHANICALLY DEPOSITED ZINC	Steel	Very good	Dull gray, smooth finish. Corrosion protection depends on coating thickness. Good coverage in recesses and thread roots.	RoHS compliant when trivalent passivated 
PASSIVATING	Stainless Steel	Excellent	Chemical treatment. Removes iron particles and produces a passive or corrosion resistant surface.	RoHS compliant 

HAVE QUESTIONS ABOUT PLATINGS AND FINISHES?
CONTACT OUR SALES TEAM AT 785-392-3017 OR SALES@HUYETT.COM

TYPES OF FINISHES

ENVIRONMENTAL CONCERNS

Huyett is committed to maintaining the safety of our environment. The processes for plating and coating steels have the potential of introducing harmful chemical substances to the environment and are strictly controlled. Huyett complies with all environmental regulations and laws which apply to our products and services. *Learn more at huyett.com/quality.*

RoHS - RESTRICTION OF HAZARDOUS SUBSTANCES



European Union legislation restricting the use of hazardous substances in electrical and electronic equipment (RoHS Directive 2002/95/EC) and promoting the collection and recycling of this equipment (WEEE Directive 2002/96/EC) has been in force since February 2003. The legislation provides for the creation of collection schemes where consumers return their used e-waste free of charge. The objective of these schemes is to increase the recycling

and/or re-use of these products. It also requires heavy metals such as lead, mercury, cadmium, and hexavalent chromium and flame retardants such as polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) to be substituted by safer alternatives.

Inadequately treated e-waste poses environmental and health risks. In December 2008, the European Commission therefore proposed to revise the directives on electrical and electronic equipment in order to tackle the fast increasing waste stream of these products. The aim is to increase the amount of e-waste that is appropriately treated and to reduce the volume that goes to disposal. The aim of the RoHS recast was also to reduce administrative burdens and ensure coherency with newer policies and legislation covering, for example, chemicals and the new legislative framework for the marketing of products in the European Union. The RoHS Recast Directive was published in the Official Journal on July 1, 2011.



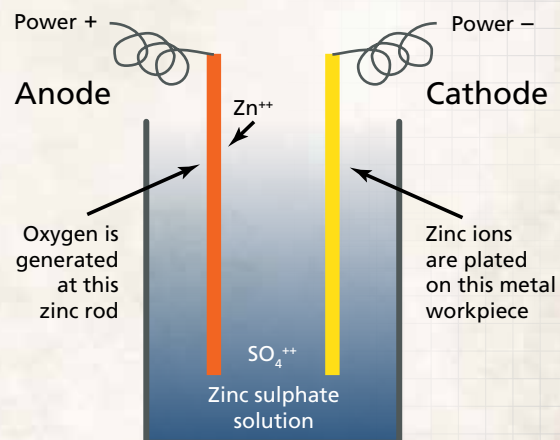
ZINC ELECTROPLATING

ZINC PLATING

Due to its low cost, versatility, corrosion resistance, and attractive appearance, zinc plating is one of the most common types of electroplating and serves as a barrier to oxidation for iron, steel, and other metals. Combined with nickel, cobalt, tin, or iron alloys, zinc forms a coating on the base metal that when exposed to corrosion sacrifices itself to delay the formation of rust on bare metal even after portions of the coating have been dissolved, scratched, or punctured.

VERSATILITY OF ZINC PLATING

Additionally, it provides excellent receptivity for chromate conversion coatings and is a safer alternative to metal plating processes that use toxic materials such as cadmium. It is ductile and offers excellent adhesion and provides an effective undercoat for paint.

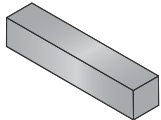
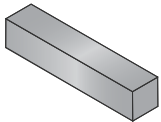
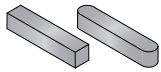
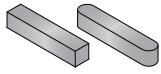
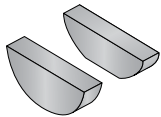
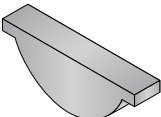


ZINC PLATING

One of the most common types of electroplating

TYPES OF SPECIFICATIONS

While it would be ideal to have one universal standard of measurement and production guidelines to ensure consistency, compatibility, and standardization of industrial non-threaded fasteners, there are more than 25 Standards Developing Organizations (SDOs) worldwide in addition to the International Organization for Standardization (ISO). ISO standards adopted by one SDO may contain variations that substantially alter them from ISO documentation. The chart below indicates the Huyett parts that are compliant with or exceed these standards.

ITEM DESCRIPTION	PAGE	APPLICABLE SPECS	SPEC DESCRIPTION	IMAGE
UNDERSIZE KEY STOCK	Page 22	ANSI B17.1; ANSI-AGMA 9002-B04; ASTM A108; ASTM A276; ASTM A29; ASTM A582	Undersize key stock is material with a tolerance below its nominal or named size. It is typically used in aftermarket or one-off applications in the field.	 UNDERSIZE (-)
	Page 30	DIN 174; DIN 178; DIN 6880; DIN EN 10088-3; DIN EN 10277-2		
OVERSIZE KEY STOCK	Pages 28 & 36	ANSI B17.1; ASTM A276; ASTM A29	Oversize key stock is material with a tolerance above its nominal or named size. It is typically used in aftermarket or one-off applications in the field.	 OVERSIZE (+)
	Page 30	Aligned with industry standard for metric key stock		
UNDERSIZE MACHINE KEYS	Pages 56 & 62	ANSI-AGMA 9002-B04; ANSI B17.1	Undersize machine keys are the actual size of material with a tolerance range slightly under the nominal based on material selected. Machine keys are available in two styles: form A (European standard with both ends round), or form B (most common imperial standard with square ends on both), and are cut to a specified length to fit specific application needs.	 UNDERSIZE (-)
	Pages 60 & 64	DIN 6885		
OVERSIZE MACHINE KEYS	Pages 56 & 62	ANSI-AGMA 9002-B04; ANSI B17.1	Oversize machine keys are the actual size of material with a tolerance range slightly above the nominal based on material selected. Machine keys are available in two styles: form A (European standard with both ends round), or form B (most common imperial standard with square ends on both), and are cut to a specified length to fit specific application needs.	 OVERSIZE (+)
WOODRUFF KEYS	Page 78	ANSI B17.1	This half-moon shaped key is intended for use on shaft assemblies where milling a key way near stress-concentration prone shaft shoulders is not desirable.	
HI-PRO KEYS	Page 84	ANSI B17.1, High Profile	Hi-pro keys are standard woodruff keys with the added feature of anti-rock "feet." These feet keep the key from rolling in the key way and improve assembly efficiency. They are used to lock pulleys and gears to transmission shafts.	

TYPES OF SPECIFICATIONS

ITEM DESCRIPTION	PAGE	APPLICABLE SPECS	SPEC DESCRIPTION	IMAGE
GIB HEAD KEYS	Page 70	ANSI B17.1; DIN 6887	The taper on the gib head keys allows for a tight fit between the hub and the shaft during installation. The notched head provides leverage that makes it easy to remove the part for maintenance.	
KEYED SHAFT	Page 94	ANSI B17.1	Keyed shafting is round shafting that has a key way milled the full length of the shaft. The key way is cut according to ANSI B17.1 standards and is directly aligned to the diameter of the shaft. Used in applications where a non-permanent assembly is desired for maintenance purposes.	
	Page 96	BS 4235		
DRILL ROD	Page 102	ASTM A681; ASTM A686	Depending on application needs, drill rod is typically used to fabricate tools, dies, or fixtures in one-offs or aftermarket applications.	
GROUND STOCK	Page 100	ASTM A681	Depending on application needs, ground stock is typically used to fabricate tools, dies, or fixtures in one-offs or aftermarket applications.	
HEX KEYS (ALLEN WRENCHES)	Page 162	ASME B18.3	A full piece of hex material with a bent "L" arm on one end for use in tight spaces. Typically used to aid in installation, maintenance, or removal of hex head set screws and cap screws. Available in common imperial and metric hex sizes.	
	Page 163	DIN 911		
PRECISION BALLS	Page 177	ABMA STD-10	Precision balls are made of full hardened steel, special steels, and other metallic or non-metallic materials for specific applications or general industrial use.	
	Page 178	DIN 5401		

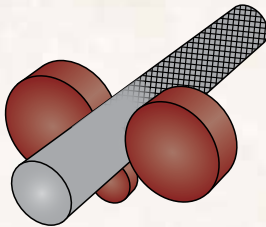
MANUFACTURING PROCESSES

Huyett is unique in the breadth of its manufacturing operations and product offerings. We proudly manufacture or source a wide-range of hard-to-find products from around the globe to make it easy for you to get what you need. Our manufacturing capabilities are complemented with a state-of-the-art, world-class warehouse featuring over 100,000 non-threaded fasteners and industrial components. Whether you need one part, or 1,000s individually bagged and/or labeled with your brand, we offer customized solutions for manufacturing, packaging, and delivery.

NEED A CUSTOM PART? CONTACT SALES@HUYETT.COM OR CALL 785-392-3017

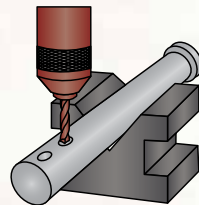
CENTERLESS GRINDING

Centerless grinding is an abrasive machining process used to remove material from a workpiece efficiently to produce a high volume of parts in a short time. Material, supported by a blade or work rest, is passed between two rotary grinding wheels without the use of a spindle or fixture to secure the workpiece.



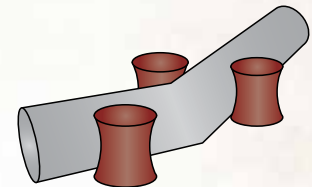
DRILLING

Usually performed during turning or milling operations, multi-tooled turrets can be configured to drill transverse holes, bore internal holes, or ream straight, tapered, or cylindrical holes.



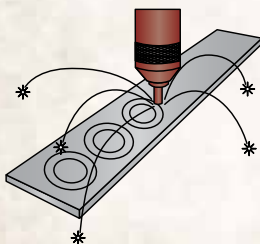
FORMING

Forming reshapes a workpiece without adding or removing material by rolling, extruding, die forming, forging, or indenting to create roll splines, gears, worms, and threads. Parts may also be broached using a toothed tool to efficiently remove and shape material on a lathe or an arbor press.



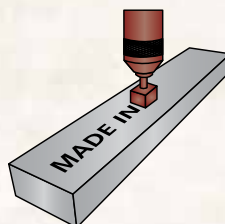
LASER CUTTING

Good for short runs where tooling costs can be prohibitive, lasers use a high-energy beam supported by a coaxial supply of cutting gas to melt, vaporize, and/or combust material in a small and concentrated area. Lasered parts are generally flat – such as washers – but parts can also be bent at angles following laser work.



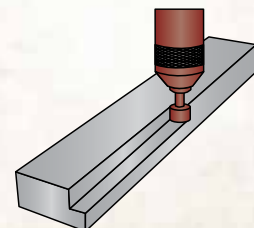
MARKING

Huyett has automated inkjet printing and engraving capabilities that mark (print) your name or part number directly onto your finished parts along with dimensional information using RoHS compliant ink. Finished parts can also be bagged or boxed with your company's branding in quantities of your choosing.



MILLING

Milling is used to shape or modify the tolerances (dimensions) of parts, to install steps or cutouts, to drill and tap holes with exacting precision, or to deburr parts. We offer an extensive range of tooling, tool holding, and insertion options capable of producing just about anything.



MANUFACTURING PROCESSES

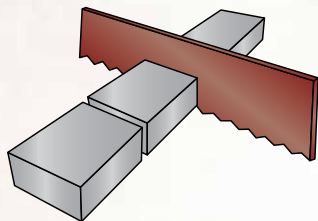


We have engineering support staff along with a complete manufacturing facility where we can produce one-offs and specials. The case studies featured in our *Engineering Handbook* are just a few examples of some of the challenges we have solved with cost-effective solutions.

E-mail sales@huyett.com or call 785-392-3017 to request your copy today and find out what we can do for you.

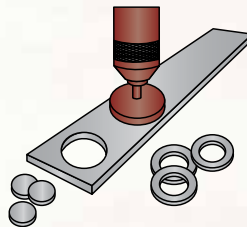
SAWING

Huyett utilizes metal-cutting band saws to make precise, uniformly cut key stock and machine keys to tight tolerances. We have the world's largest selection of 1', 3', 6', and 12' lengths of key stock in plain carbon or zinc plated steel, special grades, and nonferrous material up to 3" square.



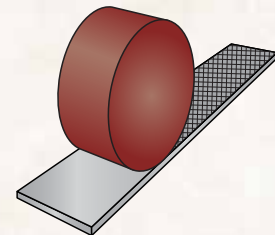
STAMPING

Stamping, also referred to as punching, is a process of using a hydraulic press to punch through material and into a die to create a hole in the workpiece. Generally, more than one part can be punched in a single stroke for higher volume applications. A progressive set of dies can also be used to form more complicated designs.



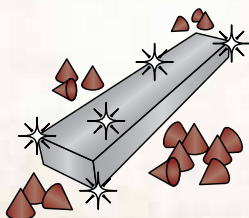
SURFACE GRINDING

In order to guarantee precise tolerances for your parts, Huyett offers surface grinding – a machining process in which abrasive particles, bonded to a grinding wheel, remove small amounts of material from a workpiece. Parts are held in place magnetically to assist in efficient and streamlined production.



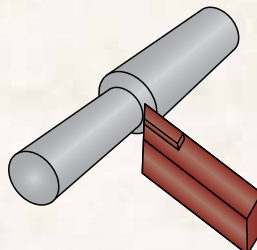
TUMBLING

After being machined, parts are tumbled to tight tolerances before being cleaned and dried. The cleaning and drying process also introduces rust inhibitors that extend the shelf life of plain finish parts. Additionally, Huyett's employees wear gloves to prevent exposing finished parts to oils and impurities.



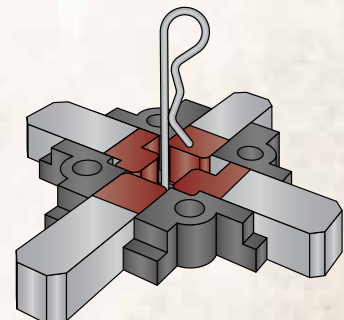
TURNING

Our experienced lathe operators can turn, face, part, or groove complex parts with tight tolerances including the formation of a head (clevis pins) or radial grooves (headless pins).



WIRE FORMING

Many parts such as cotter pins, hitch pin clips, rings, and hooks are manufactured using a process called wire forming. Round, square, and shaped wire may be pulled through dies, extruded, bent, or coiled to suit your needs. We offer hundreds of standard wire forms or can customize to your specifications.



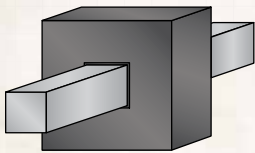
KEY STOCK FEATURES

Key stock is a general term for a stock of square or rectangular cold drawn steel that is 1' (305 mm) or greater in length from which machine keys are produced (for lengths less than 12", see *Machine Keys* on page 48). Hex, round, and step profiles are available to mate with a variety of gears, key ways, sprockets, or other assembly components. Depending on their use, hex and round profiles are sometimes called shafting, just as cut-to-size key stock is commonly referred to as machine keys.

DESIGN CONSIDERATIONS

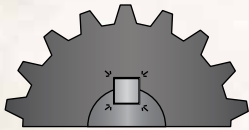
PRODUCTION QUALITY

Key stock, or "bright steel," refers to square and rectangle bars that are drawn to exacting tolerances with sharp corners, perpendicular and parallel sides, and smooth, bright surface finishes.



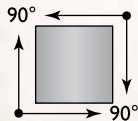
COLD DRAWN STEEL

Manufacturing true key stock to tight tolerances is challenging as tolerances for square and rectangle key stock tend to be more precise than for rounds or other forms because of the desired interference fit into the key way.



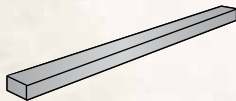
SHARP CORNERS

During production, as material passes through a die, stresses from cold working are introduced that may cause twisting. To produce superior finished results, Huyett has supported the development of cold drawing technologies while working in concert with U.S. and international steel mills.



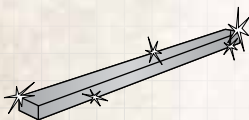
PERPENDICULAR PLANES

Though harder to draw and more difficult to install, key stock with sharp corners is desired so that the interference fit of the key into the corners of the key way is optimized to reduce bearing stresses.



STRAIGHT

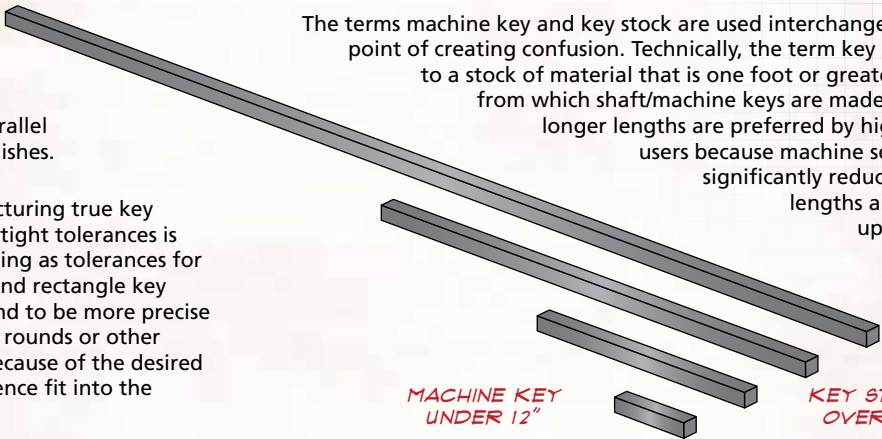
Key stock is more costly and difficult to produce, but it is near-finished when drawn compared to conventional steel bars. To produce a bright finish, key stock can be treated to produce a surface finish that is more uniform and precise compared to rounds and other forms.



BRIGHT

KEY STOCK VS. MACHINE KEYS

The terms machine key and key stock are used interchangeably to the point of creating confusion. Technically, the term key stock refers to a stock of material that is one foot or greater in length from which shaft/machine keys are made. Generally, longer lengths are preferred by high quantity users because machine setup time is significantly reduced. Custom lengths are available upon request.



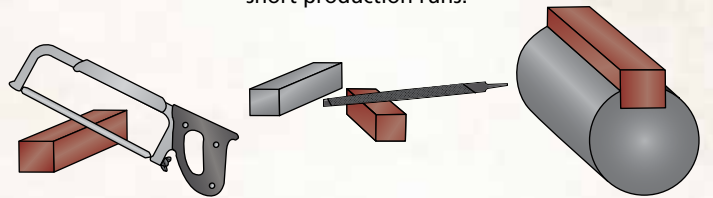
MACHINE KEY UNDER 12"

KEY STOCK OVER 12"

KEY STOCK IS AVAILABLE IN ANY LENGTH FROM 1' TO 12'

CUT TO FIT

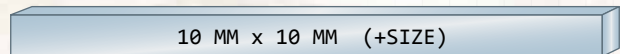
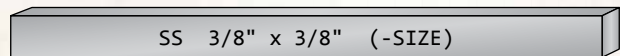
A key may be cut from stock in the field and fit into a key way for aftermarket repairs, or in contract shops that use short production runs.



CUT TO LENGTH

FILE

FIT INTO KEY WAY

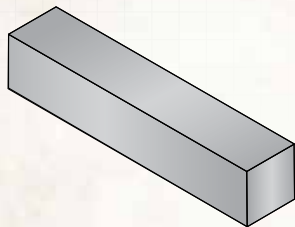
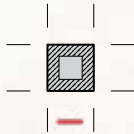


1', 3', 6', 305 MM, AND 1,000 MM
 STAINLESS STEEL AND PLATED KEY STOCK
 ARE MARKED FOR EASY IDENTIFICATION

KEY STOCK TYPES

UNDERSIZE

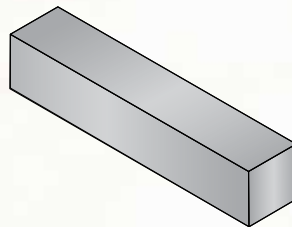
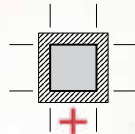
The actual size of undersize material will be at least the specified size and may be slightly smaller than the specified size within the acceptable tolerance range.



PAGES 28 & 36

OVERSIZE

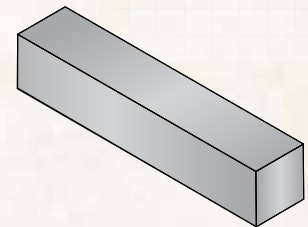
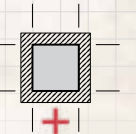
The actual size of oversize material will be at least the specified size and may be slightly larger than the specified size within the acceptable tolerance range.



PAGES 28 & 36

MOLTRUP

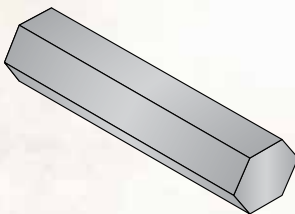
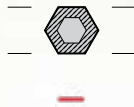
Moltrup key stock is tightly toleranced oversize material designed to provide a tight, interference fit when a Class 2 fit is desired.



PAGE 34

HEX

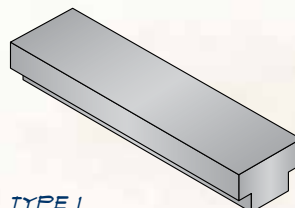
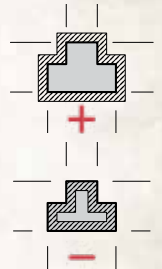
Hex key stock is frequently used for tool shafts, tool steel, drill bits, transmission shafts, axles, machine mounts, and gearbox output shafts.



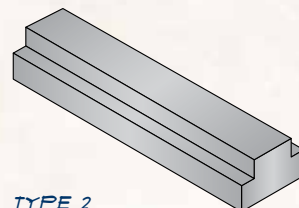
PAGE 44

STEP KEY STOCK

Step key stock is used when worn or damaged key ways have been repaired. Type 1 is designed for use in key ways of repaired gears, sprockets, pulleys, and other hub assembly components. Type 2 is designed for use in repaired shaft key ways.



TYPE 1

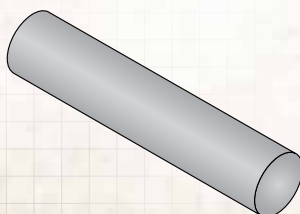
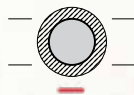


TYPE 2

PAGE 38

ROUND

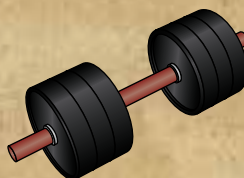
Round key stock may be used as a rotating device or to connect or align components. It can be easily welded, machined, or fabricated.



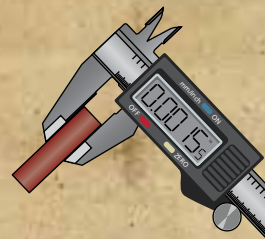
PAGE 40

COLD DRAWN BRIGHT STEEL

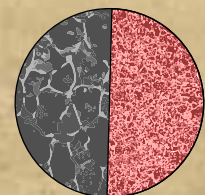
All of Huyett's key stock, shafting, and machine keys are produced using cold drawn bright steel. While higher in cost than traditional cold drawn steel, bright steel is stronger, made to tighter tolerances, and has a finer surface finish.



STRONGER



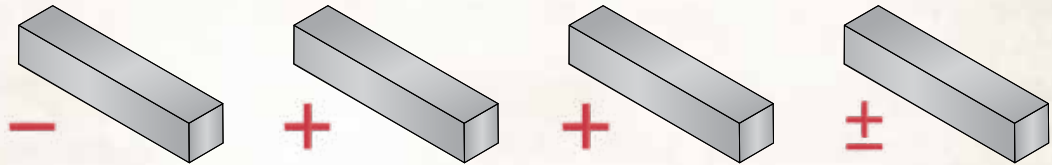
TIGHTER TOLERANCES



FINER SURFACE FINISH

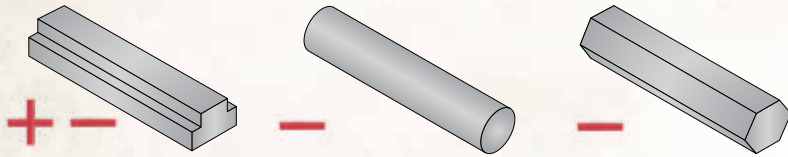
QUICK REFERENCE GUIDE

Understanding the standards and tolerances (permitted variance) of key stock can be complicated. Key stock is called out by nominal or named size. Among squares and flats, tolerances are referred to as "oversize" (over nominal) or "undersize" (under nominal).



	UNDERSIZE	MOLTRUP	OVERSIZE	SPECIALTY GRADES
DESCRIPTION	Actual size is nominal to less than nominal.	Actual size is very slightly over nominal.	Actual size is nominal to greater than nominal.	Actual size can be above or below nominal.
COMMON NAMES	Bar Stock; Redi-Key; Key Bar Stock; Machine Key Bar Stock; Broad Key Stock; Negative Key Stock	Moltrup Steel; True Key Stock; Bright Steel; Close Key Stock	Bar Stock; Redi-Key; Key Bar Stock; Machine Key Bar Stock; Mak-A-Key™; Close Key Stock; Plus Key Stock	Bar Stock; Mak-A-Key
APPLICABLE STANDARDS	ANSI B17.1, Class 1 fit; Metric DIN 6880 for key stock; DIN 6885 for machine keys	ANSI B17.1, Class 2 fit	None known, though popularized as Mak-A-Key.	Depends on material grade. ASTM 829; ASTM 484; ASTM 582; ASTM B16; ASTM A276
FABRICATION	Typically cold drawn. DIN may be polished to make bright.	Typically cold drawn. May be polished to make bright.	Cold drawn steel.	Cold drawn material. Some nonferrous may be extruded.
COMMON GRADES (AISI AND DIN REFERENCES)	1018; 1045; 1060; 4140; S5303; S5314; S5316; DIN 6880; A2; A4; DIN 178; DIN 179	1045; 8630; 4140	1018; 1045; S5303; S5304	1095; 6061; CDA 360; some grades of stainless steel.
COMMON USES	Used in field applications for repair, with no filing normally needed.	Most popular in original equipment manufacturing due to precision finish and tight fit in key way.	Based on Mak-A-Key specifications, which require filing in the field for repair applications.	Typically used in field applications for repair.
COMMENTS	Some commercial tolerances deviate from the ANSI spec. Plated parts are marked with the size. Plating normally adds .0005" to the height and width. Relatively free fitting bar stock keys. Only applies to parallel keys.	This is true +.0010" Class 2 ANSI spec key stock with tight tolerances. Material is difficult to draw and is not always easy to find in the U.S.	Used when a custom fit is required or desired for an oversize key way, for field repairs, or in worn key ways.	Does not match ANSI spec, and is a frequent source of confusion. Most desirable grade in maintenance repair operations, and has wide acceptance, but limited commercial availability.

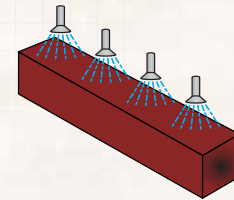
QUICK REFERENCE GUIDE



STEP KEY STOCK	ROUND	HEX
T-form, offered in both oversize and undersize tolerances.	Round form, with undersize tolerances.	Hex form, with undersize tolerances.
Offset Key Stock; Repair Key Stock	Round Linear Shaft; Round Bar; Round Stock; Rod; Round Axle; Mak-A-Pin	Hex Bar Stock; Hexagon Shaft; Hex Shaft Stock; Hex Stock; Hex Rod; Hex Axle
Sizing aligns to ANSI B17.1 Class 1 fit, bar stock.	Depends on material grade. ASTM A108; ASTM A681; ASTM A686	ASTM A108
Cold drawn steel. Milled for step and to size; usually plated and marked with size.	Cold drawn steel. Sometimes turned and polished.	Cold drawn steel.
1018; 1045; SS304; SS316	1018; 1045; O-1; W-1; 1095; SS303; SS304; 6061; CDA 360	1018; 1045; 8630; 4140
Used in repair of damaged key ways in shafts, sprockets, and pulleys.	Versatile material used as shafting, straight pins, rails, or for locating in a wide range of applications and industries.	Machinery, gears, machine parts, structural components, automobile parts, axles, and drive shafts.
Step key stock is often erroneously called "offset key stock," which generally refers to "Z" shaped rectangle key stock machined with inverse steps on opposing faces.	Round key stock is not drill rod. Drill rod is precision ground to size and surface finished.	The primary benefit of hex key stock is that there is no key needed and no key way to cut which saves machining time.

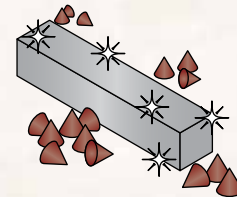
SECONDARY PROCESSES

Depending on your application, a secondary process may be necessary.



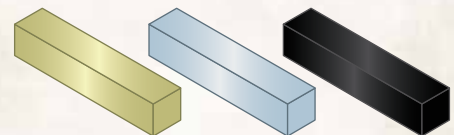
HEAT TREATING

Heat treating is used to increase strength by raising the temperature of the steel and then cooling it in a controlled manner to change the grain structure of the steel.



TUMBLING

Parts are tumbled to remove burrs prior to shipment or plating. Using friction, the tumbling media is engineered to polish the parts in a controlled manner.



PLATING

The primary purpose of plating is to protect steel from oxidation and corrosion. Zinc electroplating is one of the most common types of electroplating.

Huyett's *Engineering Handbook* gives an in-depth explanation of heat treating and other finishing processes.

HUYETT.COM/CATALOGS

MATERIAL CODES

Huyett stocks over 1,000,000 lbs. of key stock in a wide variety of material. Material/finish combinations may not be available in all sizes. Unless specifically stated, our standard key stock (30 series) is any one of the following grades, subject to market availability: 1018, 1035, 1045, 1095, 1215, or 8630. For precise grade call 785-392-3017.

ZINC PLATING AND
 OTHER FINISHES
 AVAILABLE FOR
 ALL PARTS
 SEE PAGE 16

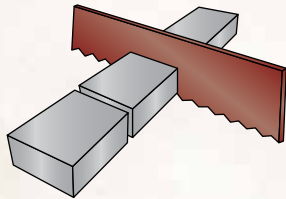
MATERIAL		TOLERANCE
(Prefix)	(Material/Finish)	
04	Aluminum, Plain**	(+/-)
06	Brass, Plain**	(+/-)
10	Nickel Copper Alloy / Monel 400®, Plain	Undersize (-)
12	Nylon, Plain**	(+/-)
30	Cold Finished Steel, Plain*	Undersize (-)
31	Cold Finished Steel, Zinc Clear Trivalent	Undersize (-)
35	Cold Finished Steel, Plain*	Oversize (+)
36	Cold Finished Steel, Zinc Clear Trivalent	Oversize (+)
45	Cold Finished Steel, Plain* (1045)	Undersize (-)
46	Cold Finished Steel, Zinc Clear Trivalent (1045)	Undersize (-)

MATERIAL		TOLERANCE
(Prefix)	(Material/Finish)	
60	Moltrup Quality Steel, Plain* (8630)	Oversize (+)
65	Cold Finished Alloy Steel, Plain (4140)	Undersize (-)
66	Cold Finished Alloy Steel, Zinc Clear Trivalent (4140)	Undersize (-)
70	300 Series Stainless Steel, Plain	Undersize (-)
75	300 Series Stainless Steel, Plain	Oversize (+)
80	316 Stainless Steel, Plain	Undersize (-)
85	416 Stainless Steel, Plain	Undersize (-)
MS34	Mil-Spec Grade C / Carbon Steel, Plain	Oversize (+)
MS60	Mil-Spec Grade B / Alloy Steel, Plain	Oversize (+)
MS85	Mil-Spec Grade A / Stainless Steel, Passivated	Oversize (+)

**Size can vary over or under from nominal size.

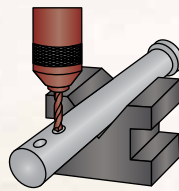
CUSTOMIZATION

Our state-of-the-art manufacturing facility is capable of producing custom key stock and machine keys. With experience in the automotive, power transmission, and agricultural industries, your special is our specialty.



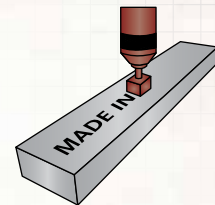
SAWING

Lengths can be cut up to 144" with profiles from 1/8" to 6".



DRILLING

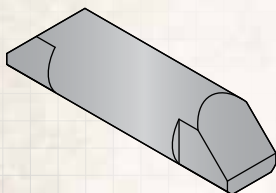
Usually performed with turning or milling operations.



MARKING

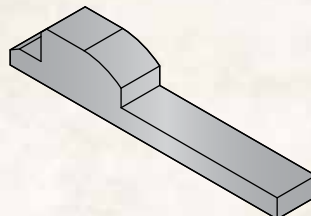
Inkjet printing capabilities to mark information directly on parts. RoHS compliant ink.

EXAMPLES OF WHAT WE CAN DO FOR YOU



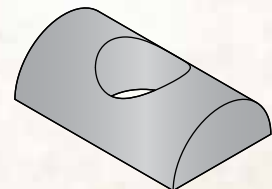
HALF-ROUND KEY WITH MILLED ENDS

This machine key was saw cut and milled to create its shape.



FLYWHEEL KEY

This flywheel key was saw cut and milled. Then it was heat treated.



HALF ROUND KEY WITH HOLE

This half round key was saw cut and milled. Then drilled to create the hole.



KEY STOCK STANDARDS

The world of key stock is confusing and non-standardized. For the user, it is important to note:

- Key stock is produced to a very high level of precision.
- Imperial product tends to be close tolerance oversize if called "key stock" and wider tolerance undersize if called "bar stock."
- Metric parts are nearly always close tolerance undersize.
- The tighter the tolerance, the more the product costs to manufacture.

The addition of other features and attributes such as heat treatment can further complicate production of machine keys. Heat treatment can relieve material stresses, and parts can swell and shrink. In close tolerance key stock applications, the addition of heat treatment can result in additional processing costs for stress relieving, grinding, or milling.

Huyett's Sales Team can assist in finding the right balance of specification and cost, so the part yields desirable mechanical benefits at the desired cost.

ANSI B17.1

ANSI B17.1 is the prevailing standard for key stock, but even this standard causes confusion. Within the standard are call outs for "Class 1, a clearance or metal-to-metal side fit using bar stock and key way tolerances... This is known as a relatively free fit and applies only to parallel keys." and "Class 2, a side fit, with possible interference or clearance, obtained by using key stock and key way tolerances... This is a relatively tight fit." While the terms "bar stock," "key stock," and "parallel keys" are used in the standard, the definitions are somewhat ambiguous. The standard defines that there are two classes of stock for parallel keys: Class 1; broad, negative tolerance bar stock, and Class 2; close, plus tolerance key stock. There is a Class 3 noted, but no standards are given and it is suggested to use Class 2 for Class 3 applications.

The variance in standards is to account for the availability of material at economic costs in the marketplace. Some refer to the Class 1 standard as "bar stock" and the Class 2 as "key stock" or "true key stock."

Class 2 aligns to the conventional and historical definition of key stock. This specification denotes oversize, close tolerance standards of $+0.001/-0$ " from nominal on sizes up to 1-1/4". The idea is that such tolerance will insure a tight fit with minimum rocking of the key in the key way.

Class 1 widens the permitted standards to the standards of ASTM A108 used by the commercial steel industry. It is thought that this second standard was created to ensure a commercially viable alternative to so-called "true key stock."

ANSI KEY STOCK TOLERANCE SPECIFICATIONS

ANSI B17.1	KEY WIDTH		TOLERANCE
	OVER	TO (INCL)	
Class 1: "A clearance or metal-to-metal side fit obtained by using bar stock keys and key way tolerances."	-	3/4"	+0/-0.002"
	3/4"	1-1/2"	+0/-0.003"
	1-1/2"	2-1/2"	+0/-0.004"
	2-1/2"	3-1/2"	+0/-0.006"
Class 2: "A side fit, with possible interference or clearance, obtained by using key stock and key way tolerances."	-	1-1/4"	+0.001/-0"
	1-1/4"	3"	+0.002/-0"
	3"	3-1/2"	+0.003/-0"

DIN AND ISO



Historically, metric key stock was specified under DIN 6880 and parallel and tapered keys in DIN 6885, ISO R773, and ISO 2491. These standards have been withdrawn without replacement standards. Because there was no replacement standard issued, these standards are still in use today with DIN 6885 predominating.

Contrarily, ANSI standards contemplate close tolerance oversize material for Class 2, and wider tolerance undersize for Class 1; ISO contemplates **only undersize** and only one tolerance specification that is roughly equal to Class 2 ANSI, except the tolerances are under the nominal.

BRANDING AND TRADE NAMES

The traditional branding and trade names for key stock add additional complexity and confusion. Class 2 and ISO key stock are difficult to make, and only specialized mills using specialized equipment can maintain such close tolerances.

Moltrup Steel of Beaver Falls, PA, is one of the more famous brand names for key stock. Moltrup was bought out as the steel industry consolidated in the 1980s. The plant closed and is no longer in operation. Moltrup is still listed on many prints and when listed, the general inference is that the user wants ANSI B17.1 Class 2 fit.

Mak-A-Key™, originally trademarked by Devan-Johnson Co., was the first branded key stock intended as an aftermarket product. Technically, a machine key is a cut-to-length part for an application, while key stock is a "stock" of material 12" or longer that is cut in the field. Mak-A-Key's moniker is "cut, file, fit."

Mak-A-Key was historically advertised as "key stock." The material was actually oversize drawn bar stock. In this regard, Mak-A-Key is unique. Oversize bar stock is quite rare and rarely specified in applications, however Mak-A-Key and Moltrup are still commonly referenced by design engineers.

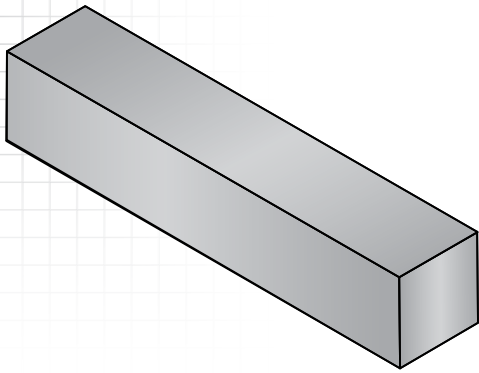
COLD FINISHED STEEL – IMPERIAL

DESCRIPTION

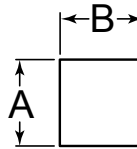
A stock of material that is one foot or greater in length, and from which machine keys are made. It is available in stocked standard sizes or can be custom made to your specifications.

HOW TO IDENTIFY

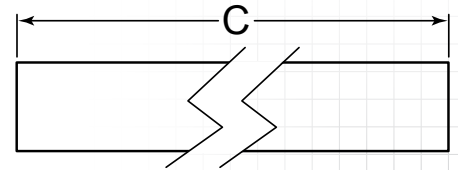
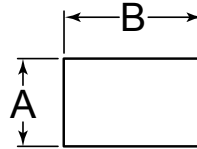
1. Measure height (A).
2. Measure width (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.



SQUARE



RECTANGLE



PREFIX MATERIAL/FINISH

UNDERSIZE

30	=	Cold Finished Steel, Plain*
31	=	Cold Finished Steel, Zinc Clear Trivalent
45	=	Cold Finished Steel, Plain* (1045)
46	=	Cold Finished Steel, Zinc Clear Trivalent (1045)
65	=	Cold Finished Alloy Steel, Plain* (4140)
66	=	Cold Finished Alloy Steel, Zinc Clear Trivalent (4140)

OVERSIZE

35	=	Cold Finished Steel, Plain*
36	=	Cold Finished Steel, Zinc Clear Trivalent

Material/finish combinations may not be available in all sizes.
Note: Unless specifically stated, our standard key stock (30 series) is any one of the following grades, subject to market availability: 1018, 1035, 1045, 1095, 1215, or 8630. Call for precise grade.

HEIGHT (A) AND WIDTH (B) TOLERANCES

MATERIAL		SQUARE		RECTANGLE	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
Undersize					
30	Cold Finished Steel, Plain*	.0625 – .7500" >.7500 – 1.5000" >1.5000 – 2.5000" >2.5000" +	+0/-.0020" +0/-.0030" +0/-.0040" +0/-.0060"	.0938 – .7500" >.7500 – 1.5000" >1.5000 – 3.0000" >3.0000" +	+0/-.0030" +0/-.0040" +0/-.0050" +0/-.0060"
31	Cold Finished Steel, Zinc Clear Trivalent				
45	Cold Finished Steel, Plain* (1045)	.0625 – .7500" >.7500 – 1.5000" >1.5000 – 2.5000"	+0/-.0040" +0/-.0050" +0/-.0060"	.2500 – .7500" >.7500 – 1.5000" >1.5000 – 3.0000"	+0/-.0040" +0/-.0050" +0/-.0060"
46	Cold Finished Steel, Zinc Clear Trivalent (1045)				
65	Cold Finished Alloy Steel, Plain* (4140)	.0625 – .7500" >.7500 – 1.5000" >1.5000 – 3.0000"	+0/-.005" +0/-.006" +0/-.007"	.0625 – .7500" >.7500 – 1.5000" >1.5000 – 3.0000"	+0/-.005" +0/-.006" +0/-.007"
66	Cold Finished Alloy Steel, Zinc Clear (4140)				
Oversize					
35	Cold Finished Steel, Plain*	.0625 – .7500" >.7500 – 1.5000" >1.5000 – 2.5000"	+0.0020/0" +0.0030/0" +0.0040/0"	.1875 – .7500" >.7500 – 1.5000" >1.5000 – 3.0000"	+0.0030/0" +0.0040/0" +0.0050/0"
36	Cold Finished Steel, Zinc Clear				

LENGTH (C) TOLERANCES

LENGTH	TOLERANCE
12 – 36"	+0/-.125"
>36 – <144"	+0/-.250"
144"	±6"

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.

HEIGHT OR WIDTH?



Unless otherwise noted, tolerances are based on the larger of the height or width. Both sides will have the same tolerance.

COLD FINISHED STEEL – IMPERIAL

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

LIST THE **SMALLER** DIMENSION OF (A) OR (B) FIRST

3001250250-36



30

TO ORDER CHOOSE YOUR MATERIAL,

0125

CHOOSE YOUR HEIGHT,

0250

CHOOSE YOUR WIDTH,

-36

CHOOSE YOUR LENGTH.

CODE	MATERIAL
30	Cold Finished Steel, Plain*, Undersize
31	Cold Finished Steel, Zinc Clear Trivalent, Undersize
35	Cold Finished Steel, Plain*, Oversize
36	Cold Finished Steel, Zinc Clear, Oversize
45	Cold Finished Steel, Plain* (1045), Undersize
46	Cold Finished Steel, Zinc Clear Trivalent (1045), Undersize
65	Cold Finished Alloy Steel, Plain* (4140), Undersize
66	Cold Finished Alloy Steel, Zinc Clear Trivalent (4140), Undersize

CODE	HEIGHT
0062	.0625" (1/16)
0093	.0938" (3/32)
0125	.1250" (1/8)
0156	.1563" (5/32)
0187	.1875" (3/16)
0218	.2188" (7/32)
0250	.2500" (1/4)
0281	.2813" (9/32)
0312	.3125" (5/16)
0343	.3438" (11/32)
0375	.3750" (3/8)
0406	.4063" (13/32)
0437	.4375" (7/16)
0468	.4688" (15/32)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9375" (15/16)
1000	1.0000" (1)
1500	1.5000" (1-1/2)
2000	2.0000" (2)
2500	2.5000" (2-1/2)

CODE	WIDTH
0062	.0625" (1/16)
0093	.0938" (3/32)
0125	.1250" (1/8)
0156	.1563" (5/32)
0187	.1875" (3/16)
0218	.2188" (7/32)
0250	.2500" (1/4)
0281	.2813" (9/32)
0312	.3125" (5/16)
0343	.3438" (11/32)
0375	.3750" (3/8)
0406	.4063" (13/32)
0437	.4375" (7/16)
0468	.4688" (15/32)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9375" (15/16)
1000	1.0000" (1)
1500	1.5000" (1-1/2)
2000	2.0000" (2)
2500	2.5000" (2-1/2)

CODE	LENGTH
-12	12" (1')
-24	24" (2')
-36	36" (3')
-48	48" (4')
-72	72" (6')
-120	120" (10')
-144	144" (12')

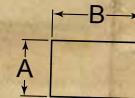
Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.

ALWAYS CUTTING THE SAME KEY?

Check out our full range of machine keys beginning on page 48. Also, our state of the art manufacturing facility can produce keys to any specification.

MEASURING IMPERIAL KEY STOCK

Imperial key stock is available in square or rectangle profiles.



IMPERIAL

Imperial key stock calls out height (A) first, then width (B).

Additional sizes up to 7" available as special order, visit huyett.com for more details.

1/4" x 1/4" (-SIZE)

1', 3', AND 6' STAINLESS STEEL AND PLATED KEY STOCK ARE MARKED FOR EASY IDENTIFICATION

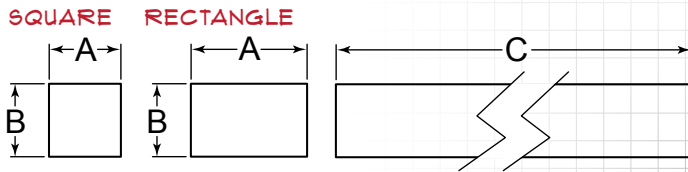
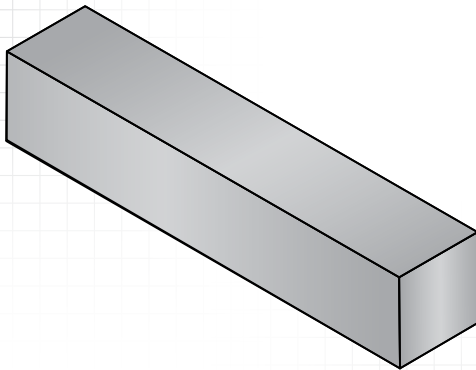
METRIC

DESCRIPTION

A stock of material that is 305 mm or greater in length from which machine keys are made. It is available in stocked standard sizes or can be custom made to your specifications.

HOW TO IDENTIFY

1. Measure width (A).
2. Measure height (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

UNDERSIZE

- 30 = Cold Finished Steel, Plain*
- 31 = Cold Finished Steel, Zinc Yellow Trivalent
- 70 = 300 Series (A1-A5) Stainless Steel, Plain
- 80 = 316 (A4) Stainless Steel, Plain

OVERSIZE

- 35 = Cold Finished Steel, Plain*
- 36 = Cold Finished Steel, Zinc Clear Trivalent
- 75 = 300 Series (A1-A5) Stainless Steel, Plain

Material/finish combinations may not be available in all sizes. Unless specifically stated, our standard cold finished steel key stock (30 series) is any one of the following grades, subject to market availability: 1018, 1035, 1045, 1095, 1215, or 8630. Our standard stainless steel key stock (70 series) is any 300 series (A1-A5) stainless steel subject to market availability. Call for precise grade.



305 MM AND 1,000 MM STAINLESS STEEL AND PLATED KEY STOCK ARE MARKED FOR EASY IDENTIFICATION

WIDTH (A) AND HEIGHT (B) TOLERANCES

MATERIAL		SQUARE		RECTANGLE	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
Undersize					
30	Cold Finished Steel, Plain*	0 – 3 mm	+0/-0.025 mm	See "DIN 6880 Standard Tolerancing for Flat Metric Steels," on page 32.	
		>3 – 6 mm	+0/-0.030 mm		
31	Cold Finished Steel, Zinc Yellow Trivalent	>6 – 10 mm	+0/-0.036 mm		
		>10 – 19 mm	+0/-0.043 mm		
		>19 – 30 mm	+0/-0.052 mm		
70	300 Series Stainless Steel, Plain	>30 – 50 mm	+0/-0.062 mm		
80	316 Stainless Steel, Plain				
Oversize					
35	Cold Finished Steel, Plain*	All Sizes	+0.076/-0 mm	All Sizes	+0.076/-0 mm
36	Cold Finished Steel, Zinc Clear Trivalent				
75	300 Series Stainless Steel, Plain				

LENGTH (C) TOLERANCES

LENGTH	TOLERANCE
305 – 1,000 mm	+0/-3.175 mm
>1,000 – 3,000 mm	+0/-6.35 mm
>3,000 – 4,000 mm	+0/-152.4 mm

Nonstandard lengths up to 4,000 mm are available. Lengths over 1 m may be subject to a packaging charge.



TOLERANCE NOTES

DIN 6880 is the most common European specification for key stock. Grade 30 is undersized and meets this tolerance specification. Grade 35 is oversized and drawn to bar stock tolerances similar to Mak-A-Key™ designs.

METRIC

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

LIST THE LARGER DIMENSION OF (A) OR (B) FIRST

350807-1000

ITEM PREFIX

(A)
WIDTH

(B)
HEIGHT

(C)
LENGTH

1 mm to 50 mm

1 mm to 50 mm

305 mm to 4,000 mm

35

08

07

-1000

TO ORDER CHOOSE YOUR MATERIAL,

CHOOSE YOUR WIDTH,

CHOOSE YOUR HEIGHT,

CHOOSE YOUR LENGTH.

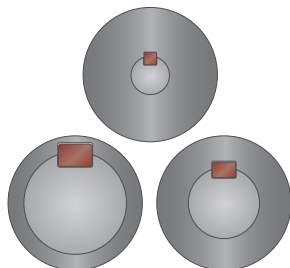
CODE	MATERIAL
30	Cold Finished Steel, Plain*, Undersize
31	Cold Finished Steel, Zinc Yellow Trivalent, Undersize
35	Cold Finished Steel, Plain*, Oversize
36	Cold Finished Steel, Zinc Clear Trivalent, Oversize
70	300 Series Stainless Steel, Plain, Undersize
75	300 Series Stainless Steel, Plain, Oversize
80	316 Stainless Steel, Plain, Undersize

CODE	WIDTH
01	1.00 mm
02	2.00 mm
025	2.50 mm
03	3.00 mm
04	4.00 mm
05	5.00 mm
06	6.00 mm
07	7.00 mm
08	8.00 mm
09	9.00 mm
10	10.00 mm
11	11.00 mm
12	12.00 mm
13	13.00 mm
14	14.00 mm
15	15.00 mm
16	16.00 mm
17	17.00 mm
18	18.00 mm
19	19.00 mm
20	20.00 mm
21	21.00 mm
22	22.00 mm
23	23.00 mm
24	24.00 mm
25	25.00 mm
28	28.00 mm
30	30.00 mm
32	32.00 mm
35	35.00 mm
36	36.00 mm
38	38.00 mm
40	40.00 mm
45	45.00 mm
50	50.00 mm

CODE	HEIGHT
01	1.00 mm
02	2.00 mm
025	2.50 mm
03	3.00 mm
04	4.00 mm
05	5.00 mm
06	6.00 mm
07	7.00 mm
08	8.00 mm
09	9.00 mm
10	10.00 mm
11	11.00 mm
12	12.00 mm
13	13.00 mm
14	14.00 mm
15	15.00 mm
16	16.00 mm
17	17.00 mm
18	18.00 mm
19	19.00 mm
20	20.00 mm
21	21.00 mm
22	22.00 mm
23	23.00 mm
24	24.00 mm
25	25.00 mm
28	28.00 mm
30	30.00 mm
32	32.00 mm
35	35.00 mm
36	36.00 mm
38	38.00 mm
40	40.00 mm
45	45.00 mm
50	50.00 mm

CODE	LENGTH
-305	305 mm (1')
-1000	1,000 mm (1 m)
-3000	3,000 mm (3 m)
-4000	4,000 mm (4 m)

Nonstandard lengths up to 4,000 mm are available. Lengths over 1 m may be subject to a packaging charge.

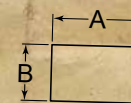


SIZING KEYS TO SHAFTS

Unless the mating hub lacks clearance, small shafts generally use square keys. Larger shaft diameters (over 170 mm or 6.5") use rectangular keys.

MEASURING METRIC KEY STOCK

Metric key stock is available in square or rectangle profiles.



METRIC

Metric key stock calls out width (A) first, then height (B).

DIN TOLERANCES

DIN 6880 IS THE MOST COMMON EUROPEAN KEY STOCK STANDARD

DIN 6880 key stock is the standard for metric key stock worldwide. DIN 6880 is drawn to close undersize tolerance to yield a tight fit in the mating key way. As the material is drawn, the steel may be bead blasted to remove surface imperfections and increase brightness.

DIN 6880 is made to a C45 designation (AISI 1045) for carbon steel and A4 (AISI 316) for stainless steel. In some instances, we may substitute DIN 174 or DIN 178 for stainless steel only.

DIN 6880 STANDARD TOLERANCING FOR RECTANGLE (FLAT) METRIC STEELS		
(Width x Height)	(Width Tolerance)	(Height Tolerance)
5 x 3	+0/-0.030 mm	+0/-0.060 mm
6 x 4	+0/-0.030 mm	-0.075
7 x 4	+0/-0.036 mm	+0/-0.030 mm
8 x 5		
8 x 7		
10 x 6		
10 x 8	+0/-0.036 mm	+0/-0.036 mm
12 x 6	+0/-0.043 mm	+0/-0.075 mm
12 x 8	+0/-0.043 mm	+0/-0.036 mm
12 x 10		
14 x 6	+0/-0.043 mm	+0/-0.075 mm
14 x 9	+0/-0.043 mm	+0/-0.090 mm
16 x 7		
16 x 10		
18 x 7		
18 x 11	+0/-0.052 mm	+0/-0.090 mm
20 x 8		+0/-0.110 mm
20 x 12		+0/-0.090 mm
22 x 9		+0/-0.110 mm
22 x 14		+0/-0.090 mm
25 x 9		+0/-0.110 mm
25 x 14		+0/-0.130 mm
25 x 22		+0/-0.090 mm
28 x 10		+0/-0.110 mm
28 x 16		+0/-0.130 mm
28 x 25	+0/-0.062 mm	+0/-0.110 mm
32 x 18		+0/-0.130 mm
32 x 11		+0/-0.110 mm
32 x 30		+0/-0.160 mm
36 x 20		+0/-0.130 mm
36 x 12		+0/-0.160 mm
36 x 34		+0/-0.130 mm
40 x 22		+0/-0.160 mm
40 x 38	+0/-0.130 mm	
45 x 25	+0/-0.160 mm	
45 x 43	+0/-0.130 mm	
50 x 28	+0/-0.130 mm	

DIN 178 SQUARE MATERIAL (ISO TOLERANCE H11)			
(Height & Width)	(Tolerance)	(Height & Width)	(Tolerance)
0 – 3 mm	+0/-0.060 mm	10 – 18 mm	+0/-0.110 mm
3 – 6 mm	+0/-0.075 mm	18 – 30 mm	+0/-0.130 mm
6 – 10 mm	+0/-0.090 mm	30 – 50 mm	+0/-0.160 mm

DECARBURIZATION

Decarburization, also known as decarbonization or decarb, is the reduction of carbon content in steel. This can be an intentional process or a side effect of a process. It can happen in three distinct events: a reaction at the surface, diffusion of carbon atoms, or as a result of carbides dissolving in the steel.

CAUSE AND EFFECT

The amount of carbon within a metal determines its hardness. Decarburization occurs when the steel is heated above 700°C (1,292°F) or as a side effect from cold rolling. Reducing carbon in the surface of the steel can result in softer readings when measuring hardness.

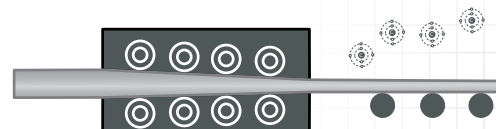
Decarburization is a serious problem because surface properties can be significantly degraded compared to interior properties. It can bring down the strength of steel and increase shear strain below the surface. Fatigue resistance can be decreased and crack growth and wear rate increased.

Decarburization can be remedied on through hardened parts by grinding the surface, while case hardened parts can be carburized in furnaces with inert gas atmospheres.

ASTM A108 Level 1 allows a .010" deep decarburization layer on cold finished steel bar sides up to 5/8". Sides over 5/8" are allowed a maximum of 1.6%. Decarburization will be more likely to occur in medium and high carbon grades. The decarb must be removed prior to testing to accurately measure hardness.



RESULT OF HEATING



RESULT OF ROLLING

DIN 174 RECTANGLE (FLAT) MATERIAL (ISO TOLERANCE H11)			
(Width)	(Tolerance)	(Height)	(Tolerance)
5 – 6 mm	+0/-0.075 mm	1.5 – 3 mm	+0/-0.060 mm
8 – 10 mm	+0/-0.090 mm	4 – 6 mm	+0/-0.075 mm
12 – 18 mm	+0/-0.110 mm	8 – 10 mm	+0/-0.090 mm
20 – 30 mm	+0/-0.130 mm	12 – 16 mm	+0/-0.110 mm
32 – 50 mm	+0/-0.160 mm	20 – 30 mm	+0/-0.130 mm

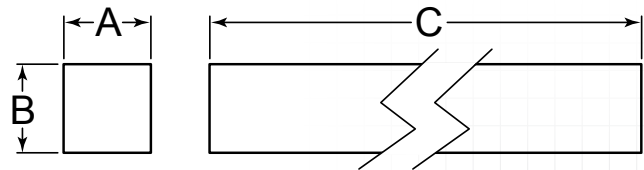
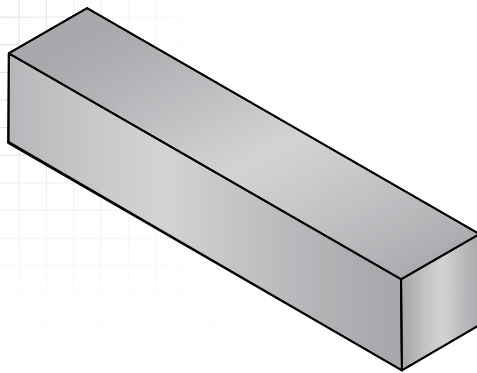
MIL-SPEC – IMPERIAL

DESCRIPTION

MIL-SPEC compliant key stock is precision manufactured to the most exacting specifications. The raw material is procured from DFARS qualifying countries in accordance with Article 252.225-7009. Available in 1ft and 3ft lengths, MIL-SPEC compliant key stock can be cut to match lengths listed in most standards including NASM20065, NASM20066, and NASM20068.

HOW TO IDENTIFY

1. Measure height (A).
2. Measure width (B).
3. Measure length (C).
4. Build the part number from the chart below.



PREFIX MATERIAL/FINISH

OVERSIZE

- MS34 = Grade C, Carbon Steel, Plain*
 - MS60 = Grade B, Alloy Steel, Plain
 - MS85 = Grade A, Stainless Steel, Plain
- Material/finish combinations may not be available in all sizes.

HOW TO BUILD A PART NUMBER

MS6002500250-12

ITEM PREFIX

30

TO ORDER CHOOSE YOUR MATERIAL,

(A)
HEIGHT

1/16" to 2-1/2"

0125

CHOOSE YOUR HEIGHT,

(B)
WIDTH

1/16" to 2-1/2"

0250

CHOOSE YOUR WIDTH,

(C)
LENGTH

12" to 144"

-36

CHOOSE YOUR LENGTH.

CODE	MATERIAL
MS34	Grade C, Carbon Steel, Plain
MS60	Grade B, Alloy Steel, Plain
MS85	Grade A, Stainless Steel, Plain

CODE	HEIGHT
0093	.0938" (3/32)
0125	.1250" (1/8)
0187	.1875" (3/16)
0250	.2500" (1/4)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0750	.7500" (3/4)
0875	.8750" (7/8)
1000	1.0000" (1)

CODE	WIDTH
0093	.0938" (3/32)
0125	.1250" (1/8)
0187	.1875" (3/16)
0250	.2500" (1/4)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0750	.7500" (3/4)
0875	.8750" (7/8)
1000	1.0000" (1)

CODE	LENGTH
-12	12" (1')
-24	24" (2')
-36	36" (3')
-48	48" (4')
-72	72" (6')
-120	120" (10')
-144	144" (12')

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.

Additional sizes available as special order, visit huyett.com for more details.

MOLTRUP

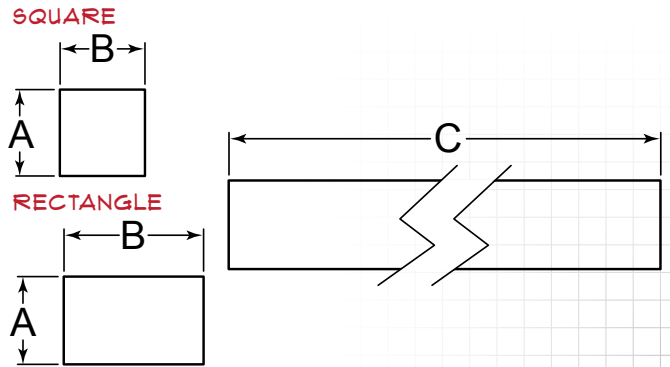
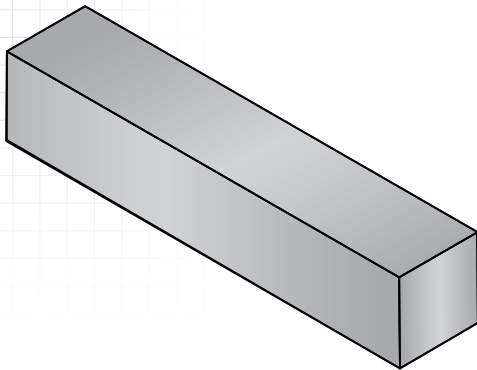
ASME B17.1 CLASS 2

DESCRIPTION

A stock of material that is one foot or greater in length from which machine keys are made. Moltrup key stock is tightly toleranced material designed to provide a tight, interference fit when a Class 2 fit is desired. It is available in stocked standard sizes or can be custom made to your specifications.

HOW TO IDENTIFY

1. Measure height (A).
2. Measure width (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

60 = MOLTRUP QUALITY STEEL, PLAIN* (1045 OR 8630)
 Material/finish combinations may not be available in all sizes.

HEIGHT (A) AND WIDTH (B) TOLERANCES					LENGTH (C) TOLERANCES		
MATERIAL		SQUARE		RECTANGLE		LENGTH	TOLERANCE
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)		
60	Moltrup Quality Steel, Plain* (1045 or 8630)	.0625 – 1.2500"	+0.0010/-0"	(Width) .0625 – 1.2500"	+0.0010/-0"	12 – 36"	+0/-.125"
		>1.2500 – 3.0000"	+0.0020/-0"	>1.2500 – 3.0000"	+0.0020/-0"	>36 – <144"	+0/-.250"
				(Height) .0625 – 7.0000"	±0.0050"	144"	±6"

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.

MOLTRUP STEEL COMPANY

MOLTRUP OR MOLTRIP?

While the correct spelling is "Moltrup," at some point early in its history someone spelled it with an "i." Both versions are still used today. Although the name is commonly used to reference a particular kind of steel, it is not an actual grade.

Moltrup Steel is considered one of the most important and pioneering steel companies in the niche business of bright steel for keys and key stock. Founded in Beaver Falls, PA, in 1914 by Stephen and J. T. Moltrup, the company was the inventor of what was known as the "Moltrup Die," which is a sectional die that allows adjustments to be made in the die without removal from the die bench. Moltrup was an early adopter of automation and by 1924, they had developed a drawbench capable of drawing four bars at a time, known as "the Duplex." Inventor J. T. Moltrup was said to have developed the concept after touring a bread factory in Battle Creek, MI.

Precision drawn bright steel served many uses. Moltrup steel was used to produce crankshafts for Liberty airplanes in World War I; and for engraving and foundry plates, including engraving plates for the Federal Bureau of Printing and Engraving. These plates were used to produce paper money and food stamps.

During the mid-twentieth century, Moltrup steel was often used in hand tools, such as the shafts for screwdrivers, and according to a 1969 company biography, "wherever close fit or fine finishes are required, including the auto, appliance, business machine, computer, and machine tool industries."

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

Prices, materials, dimensions, tolerances, designs, and grades subject to change without notice. © 2022 Huyett
 *Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

ASME B17.1 CLASS 2

MOLTRUP

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

6002500750-36

LIST THE **SMALLER** DIMENSION OF (A) OR (B) FIRST

ITEM PREFIX

(A) HEIGHT

(B) WIDTH

(C) LENGTH

60

0250

0750

-36

TO ORDER ADD YOUR MATERIAL,

CHOOSE YOUR HEIGHT,

CHOOSE YOUR WIDTH,

CHOOSE YOUR LENGTH.

CODE	MATERIAL
60	Moltrup Quality Steel, Plain* (1045 or 8630)

CODE	HEIGHT
0250	.2500" (1/4)
0281	.2813" (9/32)
0312	.3125" (5/16)
0343	.3438" (11/32)
0375	.3750" (3/8)
0406	.4063" (13/32)
0437	.4375" (7/16)
0468	.4688" (15/32)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9375" (15/16)
1000	1.0000" (1)
1500	1.5000" (1-1/2)
2000	2.0000" (2)

CODE	WIDTH
0250	.2500" (1/4)
0281	.2813" (9/32)
0312	.3125" (5/16)
0343	.3438" (11/32)
0375	.3750" (3/8)
0406	.4063" (13/32)
0437	.4375" (7/16)
0468	.4688" (15/32)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9375" (15/16)
1000	1.0000" (1)
1500	1.5000" (1-1/2)
2000	2.0000" (2)

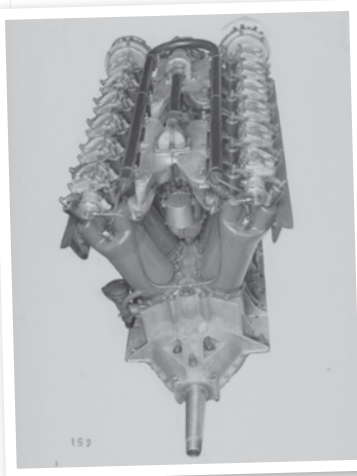
CODE	LENGTH
-12	12" (1')
-24	24" (2')
-36	36" (3')
-48	48" (4')
-72	72" (6')
-120	120" (10')
-144	144" (12')

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.



WELL KNOWN FOR ITS QUALITY AND PRECISION FOR DRAWN BRIGHT STEEL, MOLTRUP STEEL IS STILL REGULARLY REQUESTED, EVEN THOUGH THE FOUNDRY CLOSED ITS DOORS IN 2002

Additional sizes up to 7" available as special order, visit huyett.com for more details.



A variety of steel profiles and parts produced by Moltrup Steel.

Moltrup Steel manufactured crankshafts for Liberty 12-cylinder engines during World War 1.



Antique steel tool and die machining badge used to identify key stock lots.



Original plat of foundry grounds.

Photos courtesy of Beaver County Industrial Museum, Beaver Falls, PA.

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

Prices, materials, dimensions, tolerances, designs, and grades subject to change without notice. © 2022 Huyett

*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

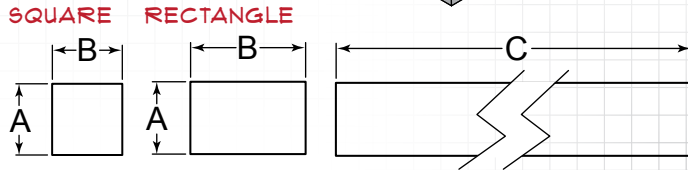
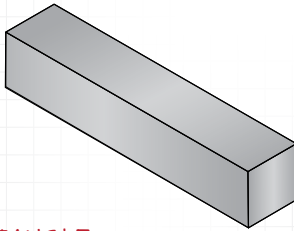
STAINLESS & NONFERROUS – IMPERIAL

DESCRIPTION

A stock of material that is one foot or greater in length from which machine keys are made. It is available in stocked standard sizes or can be custom made to your specifications.

HOW TO IDENTIFY

1. Measure height (A).
2. Measure width (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

STAINLESS STEEL

- 70 = 300 Series (A1-A5) Stainless Steel, Plain
- 75 = 300 Series (A1-A5) Stainless Steel, Plain
- 80 = 316 (A4) Stainless Steel, Plain
- 85 = 416 Stainless Steel, Plain

NONFERROUS

- 04 = Aluminum, Plain
- 06 = Brass, Plain
- 10 = Nickel Copper Alloy / Monel 400®, Plain
- 12 = Nylon, Plain

Material/finish combinations may not be available in all sizes. Our standard stainless steel key stock (70 series) is any 300 series (A1-A5) stainless steel subject to market availability. Call for precise grade.

HEIGHT (A) AND WIDTH (B) TOLERANCES

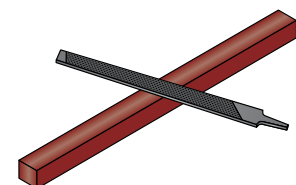
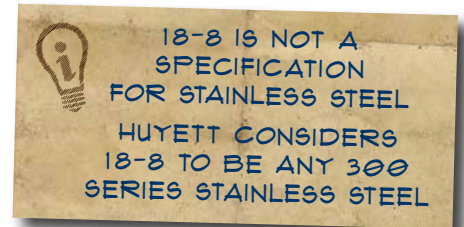
MATERIAL		SQUARE	RECTANGLE
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)
Stainless Steel			
70	300 Series Stainless Steel, Plain**	.0937 – .3120" >.3120 – .5000" >.5000 – 1.0000" >1.0000 – 2.0000"	+0/- .0020" +0/- .0030" +0/- .0040" +0/- .0060"
75	300 Series Stainless Steel, Plain, Oversize	.0625 – .5625" >.5625 – 1.0000" >1.0000 – 2.0000"	+ .0030/-0" + .0050/-0" + .0060/-0"
80	316 Stainless Steel, Plain, Undersize	.0937 – .3120" >.3120 – .5000" >.5000 – 1.0000" >1.0000 – 2.0000"	(Width Size) .0625 – .3750" ±.0050" >.3750 – 1.0000" ±.0040" >1.0010 – 2.0000" ±.0060" (Height Size) .03500 – 1.0000" ±.0020" >1.0000 – 2.0000" ±.0030"
85	416 Stainless Steel, Plain, Undersize	.0937 – .3120" >.3120 – .5000" >.5000 – 1.0000" >1.0000 – 2.0000"	(Width Size) .0625 – .3750" ±.0050" >.3750 – 1.0000" ±.0040" >1.0010 – 2.0000" ±.0060" (Height Size) .03500 – 1.0000" ±.0020" >1.0000 – 2.0000" ±.0030"
Nonferrous			
04	Aluminum, Plain**	.1250 – .3750" ±.0080" >.3750 – .6250" ±.0090" >.6250 – .8750" ±.0100" >.8750 – 1.2500" ±.0120" >1.2500 – 1.7500" ±.0140" >1.7500 – 2.5000" ±.0240"	.1250 – .3750" ±.0080" >.3750 – .6250" ±.0090" >.6250 – .8750" ±.0100" >.8750 – 1.2500" ±.0120" >1.2500 – 1.7500" ±.0140" >1.7500 – 2.5000" ±.0240"
06	Brass, Plain**	.1250" ±.0020" >.1875 – .5000" ±.0030" >.5000 – 1.0000" ±.0040" >1.0000 – 2.0000" ±.0050"	.1250" ±.0020" >.1250 – .5000" ±.0030" >.5000 – 1.0000" ±.0040" >1.0000 – 2.0000" ±.0050"
10	Nickel Copper Alloy / Monel 400®	.0937 – .7500" ±.0020"	.0937 – .7500" ±.0020"
12	Nylon, Plain**	All Sizes ±.0050"	All Sizes ±.0050"

**Depending on profile, size can vary over or under from nominal size.

LENGTH (C) TOLERANCES

LENGTH	TOLERANCE
12 – 36"	+0/- .125"
>36 – <144"	+0/- .250"
144"	±6"

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.



KEY STOCK MAY BE FILED OR SURFACE GROUND TO FIT

STAINLESS & NONFERROUS – IMPERIAL

HOW TO BUILD A PART NUMBER

LIST THE **SMALLER** DIMENSION OF (A) OR (B) FIRST

7003120375-12



70

TO ORDER CHOOSE YOUR MATERIAL,

0312

CHOOSE YOUR HEIGHT,

0375

CHOOSE YOUR WIDTH,

-12

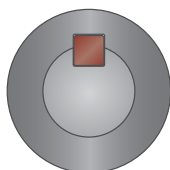
CHOOSE YOUR LENGTH.

CODE	MATERIAL	CODE	HEIGHT	CODE	WIDTH	CODE	LENGTH
04	Aluminum, Plain**	0062	.0625" (1/16)	0062	.0625" (1/16)	-12	12" (1')
		0093	.0938" (3/32)	0093	.0938" (3/32)	-24	24" (2')
06	Brass, Plain**	0125	.1250" (1/8)	0125	.1250" (1/8)	-36	36" (3')
		0156	.1563" (5/32)	0156	.1563" (5/32)	-48	48" (4')
10	Nickel Copper Alloy / Monel 400®, Plain, Undersize	0187	.1875" (3/16)	0187	.1875" (3/16)	-72	72" (6')
		0218	.2188" (7/32)	0218	.2188" (7/32)	-120	120" (10')
12	Nylon, Plain**	0250	.2500" (1/4)	0250	.2500" (1/4)	-144	144" (12')
		0281	.2813" (9/32)	0281	.2813" (9/32)		
70	300 Series Stainless Steel, Plain**	0312	.3125" (5/16)	0312	.3125" (5/16)		
		0343	.3438" (11/32)	0343	.3438" (11/32)		
75	300 Series Stainless Steel, Plain, Oversize	0375	.3750" (3/8)	0375	.3750" (3/8)		
		0406	.4063" (13/32)	0406	.4063" (13/32)		
80	316 Stainless Steel, Plain, Undersize	0437	.4375" (7/16)	0437	.4375" (7/16)		
		0468	.4688" (15/32)	0468	.4688" (15/32)		
85	416 Stainless Steel, Plain, Undersize	0500	.5000" (1/2)	0500	.5000" (1/2)		
		0562	.5625" (9/16)	0562	.5625" (9/16)		
		0625	.6250" (5/8)	0625	.6250" (5/8)		
		0687	.6875" (11/16)	0687	.6875" (11/16)		
		0750	.7500" (3/4)	0750	.7500" (3/4)		
		0812	.8125" (13/16)	0812	.8125" (13/16)		
		0875	.8750" (7/8)	0875	.8750" (7/8)		
		0937	.9375" (15/16)	0937	.9375" (15/16)		
		1000	1.0000" (1)	1000	1.0000" (1)		
		1500	1.5000" (1-1/2)	1500	1.5000" (1-1/2)		
		2000	2.0000" (2)	2000	2.0000" (2)		
		2500	2.5000" (2-1/2)	2500	2.5000" (2-1/2)		

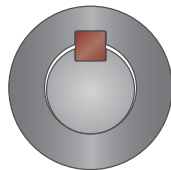
**Depending on profile, size can vary over or under from nominal size.

DON'T SEE WHAT YOU'RE LOOKING FOR? CONTACT SALES@HUYETT.COM OR CALL 785-392-3017

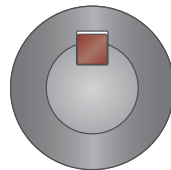
Additional sizes up to 7" available as special order, visit huyett.com for more details.



GENERALLY, THE KEY, SHAFT, AND HUB FIT SNUGGLY TOGETHER



A KEY WAY THAT IS TOO TALL OR TOO SHORT RESULTS IN IMPROPER SEATING BETWEEN THE HUB AND SHAFT



* Some exclusions apply

Visit your Account Order History at huyett.com to download **Free* Material, Compliance, and RoHS/REACH Certifications** along with:

Order Status

Order Tracking Info

Expected Ship Date

Your Favorites

huyett.com/MyAccount/OrderHistory

* Some exclusions apply

STEP KEY

DESCRIPTION

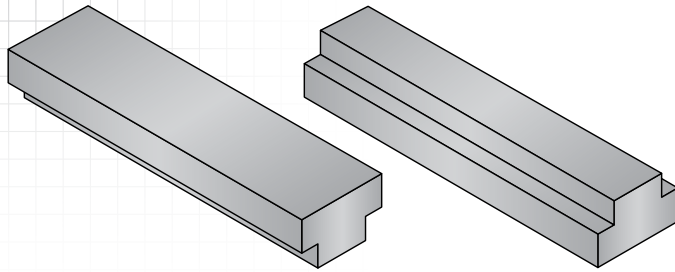
Step key stock is used when worn or damaged key ways have been repaired. Type 1 is designed for use in key ways of repaired gears, sprockets, pulleys, and other hub assembly components. Type 2 is designed for use in repaired shaft key ways.

HOW TO IDENTIFY

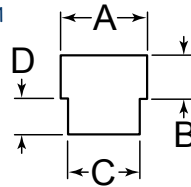
1. Measure width (A).
2. Measure width 2 (C).
3. Measure height (B).
4. Measure height 2 (D).
5. Find the part number in the chart on the next page.

TYPE 1

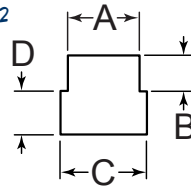
TYPE 2



TYPE 1



TYPE 2



PREFIX

MATERIAL/FINISH

SK	=	COLD FINISHED STEEL, ZINC CLEAR TRIVALENT
SKO	=	COLD FINISHED STEEL, ZINC CLEAR TRIVALENT, OVERSIZE
SKS	=	STAINLESS STEEL, PLAIN

Material/finish combinations may not be available in all sizes.

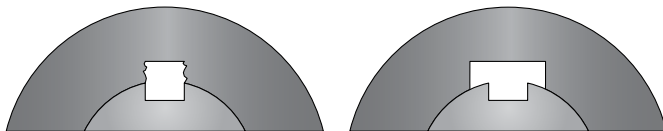
STEP KEY TOLERANCES



Tolerances for step key stock are dependent upon the material from which it is made. For material and tolerance information, contact sales@huyett.com or 785-392-3017.

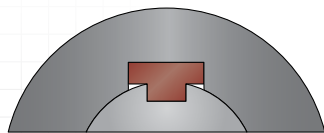
HOW TO USE STEP KEYS

TYPE 1



SIDEWALLS OF THE HUB ASSEMBLY KEY WAY ARE SEVERELY DAMAGED

THE KEY WAY IS BROACHED TO A LARGER SIZE TO REPAIR THE DAMAGED HUB



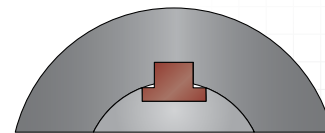
A TYPE 1 STEP KEY IS USED TO FILL THE MISMATCHED KEY WAYS

TYPE 2



SIDEWALLS OF THE SHAFT KEY WAY ARE SEVERELY DAMAGED

THE SHAFT KEY WAY IS BROACHED TO A LARGER SIZE TO REPAIR THE DAMAGED SHAFT



TO ACCOUNT FOR THE CURVATURE OF THE SHAFT A TYPE 2 STEP KEY IS USED TO FILL THE MISMATCHED KEY WAYS



STEP KEY

ITEM NUMBER	(A x C) SIZE	(A) WIDTH	(C) WIDTH 2	(B) HEIGHT	(D) HEIGHT 2	(E) LENGTH
-------------	--------------	-----------	-------------	------------	--------------	------------

Type 1

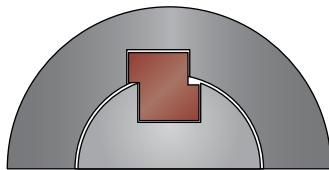
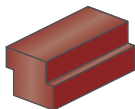
PREFIX01-1	3/16" x 1/8"	.1875" (3/16)	.1250" (1/8)	.0938" (3/32)	.0625" (1/16)	12.0000" (12)
PREFIX07-1	3/8" x 5/16"	.3750" (3/8)	.3125" (5/16)	.1875" (3/16)	.1250" (1/8)	12.0000" (12)
PREFIX08-1	3/8" x 5/16"	.3750" (3/8)	.3125" (5/16)	.1875" (3/16)	.1563" (5/32)	12.0000" (12)
PREFIX12-1	1/2" x 7/16"	.5000" (1/2)	.4375" (7/16)	.2500" (1/4)	.1563" (5/32)	12.0000" (12)
PREFIX17-1	5/8" x 3/8"	.6250" (5/8)	.3750" (3/8)	.3125" (5/16)	.1875" (3/16)	12.0000" (12)
PREFIX19-1	3/4" x 1/2"	.7500" (3/4)	.5000" (1/2)	.3750" (3/8)	.2500" (1/4)	12.0000" (12)
PREFIX20-1	3/4" x 5/8"	.7500" (3/4)	.6250" (5/8)	.3750" (3/8)	.1875" (3/16)	12.0000" (12)
PREFIX21-1	3/4" x 5/8"	.7500" (3/4)	.6250" (5/8)	.3750" (3/8)	.3125" (5/16)	12.0000" (12)
PREFIX22-1	3/4" x 11/16"	.7500" (3/4)	.6875" (11/16)	.3750" (3/8)	.2500" (1/4)	12.0000" (12)
PREFIX27-1	1" x 7/8"	1.0000" (1)	.8750" (7/8)	.5000" (1/2)	.4375" (7/16)	12.0000" (12)

Type 2

PREFIX02-2	3/16" x 1/4"	.1875" (3/16)	.2500" (1/4)	.0938" (3/32)	.0938" (3/32)	12.0000" (12)
PREFIX03-2	3/16" x 1/4"	.1875" (3/16)	.2500" (1/4)	.0938" (3/32)	.1250" (1/8)	12.0000" (12)
PREFIX04-2	1/4" x 5/16"	.2500" (1/4)	.3125" (5/16)	.1250" (1/8)	.1250" (1/8)	12.0000" (12)
PREFIX05-2	1/4" x 3/8"	.2500" (1/4)	.3750" (3/8)	.1250" (1/8)	.1250" (1/8)	12.0000" (12)
PREFIX06-2	1/4" x 3/8"	.2500" (1/4)	.3750" (3/8)	.1250" (1/8)	.1875" (3/16)	12.0000" (12)
PREFIX09-2	3/8" x 7/16"	.3750" (3/8)	.4375" (7/16)	.1875" (3/16)	.1563" (5/32)	12.0000" (12)
PREFIX10-2	3/8" x 1/2"	.3750" (3/8)	.5000" (1/2)	.1875" (3/16)	.1875" (3/16)	12.0000" (12)
PREFIX11-2	3/8" x 1/2"	.3750" (3/8)	.5000" (1/2)	.1875" (3/16)	.2500" (1/4)	12.0000" (12)
PREFIX13-2	1/2" x 9/16"	.5000" (1/2)	.5625" (9/16)	.2500" (1/4)	.1875" (3/16)	12.0000" (12)
PREFIX14-2	1/2" x 5/8"	.5000" (1/2)	.6250" (5/8)	.2500" (1/4)	.1875" (3/16)	12.0000" (12)
PREFIX15-2	1/2" x 5/8"	.5000" (1/2)	.6250" (5/8)	.2500" (1/4)	.3125" (5/16)	12.0000" (12)
PREFIX16-2	1/2" x 11/16"	.5000" (1/2)	.6875" (11/16)	.2500" (1/4)	.2500" (1/4)	12.0000" (12)
PREFIX18-2	5/8" x 11/16"	.6250" (5/8)	.6875" (11/16)	.3125" (5/16)	.2500" (1/4)	12.0000" (12)
PREFIX23-2	3/4" x 13/16"	.7500" (3/4)	.8125" (13/16)	.3750" (3/8)	.2813" (9/32)	12.0000" (12)
PREFIX24-2	3/4" x 7/8"	.7500" (3/4)	.8750" (7/8)	.3750" (3/8)	.4375" (7/16)	12.0000" (12)
PREFIX25-2	3/4" x 15/16"	.7500" (3/4)	.9375" (15/16)	.3750" (3/8)	.3125" (5/16)	12.0000" (12)
PREFIX26-2	3/4" x 1"	.7500" (3/4)	1.0000" (1)	.3750" (3/8)	.5000" (1/2)	12.0000" (12)

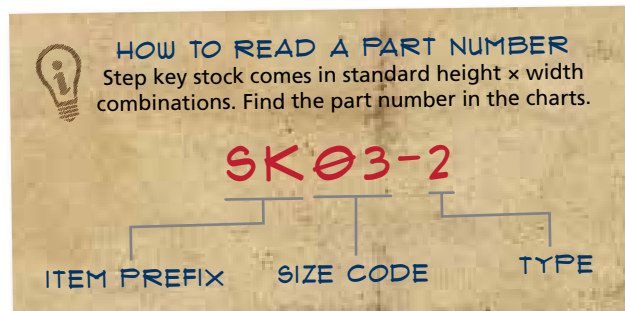
TO ORDER, REPLACE PREFIX WITH YOUR CHOICE:

SK • SKO • SKS



OFFSET KEY STOCK

Unlike step key stock, offset key stock is machined with inverse steps on opposing faces. Huyett can make custom offset key stock, but does not offer it as an off-the-shelf part. Contact engineering support@huyett.com.



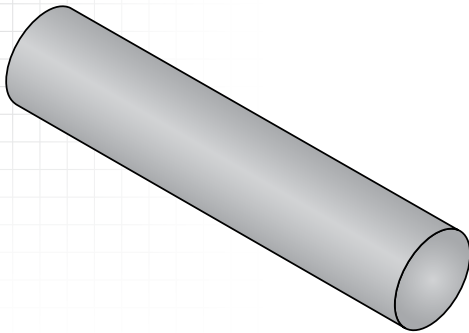
ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS

SEE PAGE 16

ROUND – IMPERIAL

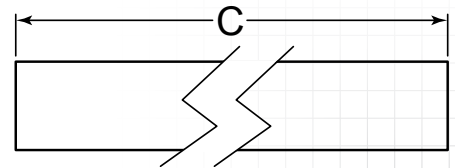
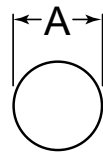
DESCRIPTION

A stock of material that is one foot or greater in length from which machine keys are made. We manufacture key stock to suit every application need you have, in nearly every size, grade, and tolerance imaginable. Available in stocked standard sizes or custom made to your specifications.



HOW TO IDENTIFY

1. Measure diameter (A).
2. Measure length (C).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

RK = COLD FINISHED STEEL, PLAIN*
RKZ = COLD FINISHED STEEL, ZINC CLEAR TRIVALENT
RK45 = COLD FINISHED STEEL, PLAIN* (1045)
RK65 = COLD FINISHED ALLOY STEEL, PLAIN* (4140)

RKA = ALUMINUM, PLAIN
RKB = BRASS, PLAIN
RKS = STAINLESS STEEL, PLAIN
RKS36 = 316 STAINLESS STEEL, PLAIN
 Material/finish combinations may not be available in all sizes.

DIAMETER (A) TOLERANCES

MATERIAL		DIAMETER	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)
RK	Cold Finished Steel, Plain*	.0625 – 1.5000"	+0/-.0020"
RKZ	Cold Finish Steel, Zinc Clear Trivalent	>1.5000 – 2.5000"	+0/-.0030"
RK45	Cold Finished Steel, Plain* (1045)	.7500" – >.7500 – 1.0000"	+0/-.0030" +0/-.0020"
RK65	Cold Finished Alloy Steel, Plain* (4140)	.3125" – >.3125" – 1.0000"	+0/-.0050" +0/-.0060"
RKA	Aluminum, Plain	.1250" – >.1250 – .1875" – >.1875 – .4375" – >.4375 – .6250" – >.6250 – .8750" – >.8750 – 1.2500" – >1.2500 – 1.5000" – >1.5000 – 2.0000"	±.0060" ±.0070" ±.0080" ±.0090" ±.0100" ±.0120" ±.0150" ±.0200"
RKB	Brass, Plain	.1250 – .5000" – >.5000 – 1.1250" – >1.1250 – 2.2500"	±.0020" ±.0030" ±.0040"
RKS	Stainless Steel, Plain	.0625 – .3125" – >.3125 – .4375" – >.4375 – .8750" – >.8750 – 1.4375" – >1.4375 – 2.0000"	±.0010" ±.0015" ±.0020" ±.0250" ±.0030"
RKS36	316 Stainless Steel, Plain	.2500" – >.2500 – .3750" – >.3750 – .5000"	±.0010" ±.0015" ±.0020"

LENGTH (C) TOLERANCES

LENGTH	TOLERANCE
12 – 36"	+0/-.125"
>36 – <144"	+0/-.250"
144"	±6"

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.

ROUND KEY STOCK
CAN BE PRODUCED IN
MANY DIAMETER AND
LENGTH COMBINATIONS

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

ROUND – IMPERIAL

ZINC PLATING AND
OTHER FINISHES
AVAILABLE FOR
ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

RK-1062-72

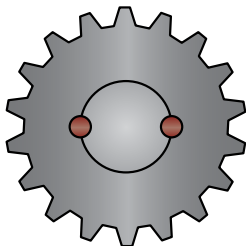
ITEM PREFIX

RK-

TO ORDER CHOOSE
YOUR MATERIAL,

CODE	MATERIAL
RK-	Cold Finished Steel, Plain*
RKZ-	Cold Finished Steel, Zinc Clear Trivalent
RK45-	Cold Finished Steel, Plain* (1045)
RK65-	Cold Finished Alloy Steel, Plain* (4140)
RKA-	Aluminum, Plain
RKB-	Brass, Plain
RKS-	Stainless Steel, Plain
RKS36-	316 Stainless Steel, Plain

DON'T SEE WHAT
YOU'RE LOOKING
FOR? CONTACT
SALES@HUYETT.COM
OR
CALL 785-392-3017



DEPENDING ON YOUR
APPLICATION, ROUND KEY STOCK
MAY BE USED AS SHAFTING AND/
OR CUT-TO-LENGTH MACHINE KEYS

(A)
DIAMETER

1/16" to 2"

1062

CHOOSE YOUR
DIAMETER,

CODE	DIAMETER
0062	.0625" (1/16)
0093	.0938" (3/32)
0125	.1250" (1/8)
0156	.1562" (5/32)
0187	.1875" (3/16)
0250	.2500" (1/4)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9375" (15/16)
1000	1.0000" (1)
1062	1.0625" (1-1/16)
1125	1.1250" (1-1/8)
1187	1.1875" (1-3/16)
1250	1.2500" (1-1/4)
1312	1.3125" (1-5/16)
1375	1.3750" (1-3/8)
1437	1.4375" (1-7/16)
1500	1.5000" (1-1/2)
1625	1.6250" (1-5/8)
1687	1.6875" (1-11/16)
1750	1.7500" (1-3/4)
1875	1.8750" (1-7/8)
1937	1.9375" (1-15/16)
2000	2.0000" (2)
2187	2.1875" (2-3/16)
2250	2.2500" (2-1/4)
2437	2.4375" (2-7/16)
2500	2.5000" (2-1/2)

(C)
LENGTH

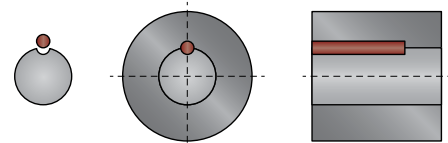
12" to 144"

-72

CHOOSE YOUR
LENGTH.

CODE	LENGTH
-12	12" (1')
-24	24" (2')
-36	36" (3')
-48	48" (4')
-72	72" (6')
-120	120" (10')
-144	144" (12')

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.



Round keys – or pin keys – are cylindrical keys inserted into a cylindrical key way that has been drilled and reamed partly in the shaft and partly in the hub while the application is assembled. A tight interference fit is required between the key and the key way to ensure uniformity along the length of the key.

Compared with square, parallel, or hex keys this design results in lower stress concentration making it appropriate for low power applications such as fastening a collar and pulley to a shaft.

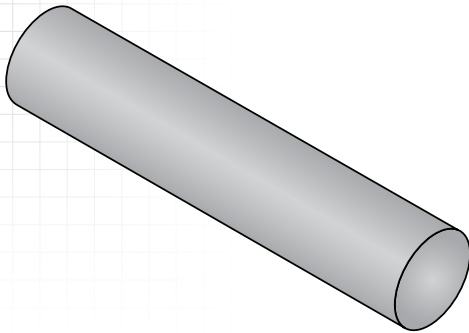
For more information on types of fits, see "Getting the Right Fit," page 9.

ROUND – METRIC

DIN 671

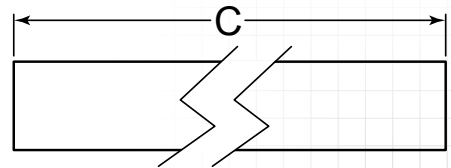
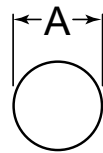
DESCRIPTION

A stock of material that is one foot or greater in length from which machine keys are made. Undersize round key stock is slightly smaller in diameter than the sizes listed here. It is available in stocked standard sizes or can be custom made to your specifications.



HOW TO IDENTIFY

1. Measure diameter (A).
2. Measure length (C).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

- RKM** = COLD FINISHED STEEL, PLAIN*
 - RKMZ** = COLD FINISHED STEEL, ZINC YELLOW TRIVALENT
 - RKMS** = STAINLESS STEEL, PLAIN
- Material/finish combinations may not be available in all sizes.

ROUND KEY STOCK CAN BE PRODUCED IN MANY DIAMETER AND LENGTH COMBINATIONS

DIAMETER (A) TOLERANCES

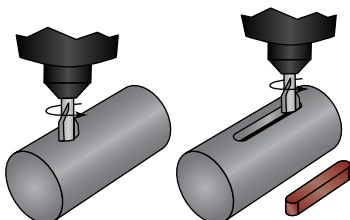
MATERIAL		DIAMETER	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)
RKM	Cold Finished Steel, Plain*	3 mm	+0/-0.020 mm
		>3 – 6 mm	+0/-0.030 mm
		>6 – 18 mm	+0/-0.040 mm
		>18 – 30 mm	+0/-0.050 mm
RKMZ	Cold Finished Steel, Zinc Yellow Trivalent	>30 – 50 mm	+0/-0.060 mm
		>50 – 70 mm	+0/-0.070 mm
RKMS	Stainless Steel, Plain	3 mm	+0/-0.020 mm
		>3 – 6 mm	+0/-0.030 mm
		>6 – 18 mm	+0/-0.040 mm
		>18 – 30 mm	+0/-0.050 mm
		>30 – 50 mm	+0/-0.060 mm
		>50 – 70 mm	+0/-0.070 mm

LENGTH (C) TOLERANCES

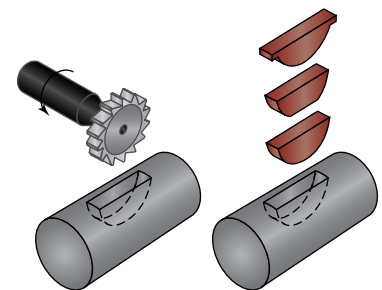
LENGTH	TOLERANCE
305 – 1,000 mm	+0/-3.175 mm
>1,000 – 3,000 mm	+0/-6.35 mm
>3,000 – 4,000 mm	+0/-152.4 mm

Nonstandard lengths up to 4,000 mm are available. Lengths over 1 m may be subject to a packaging charge.

USING ROUND KEY STOCK AS SHAFTS



KEYWAYS CAN BE MILLED AXIALLY ALONG ROUND KEY STOCK TO ALLOW FOR THE USE OF A VARIETY OF HALF-MOON MACHINE KEY PROFILES



FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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DIN 671

ROUND – METRIC

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

RKM-010-1000

ITEM PREFIX

(A)
DIAMETER

(C)
LENGTH

3 mm to 70 mm

305 mm to 4,000 mm

RKM-

010

-1000

TO ORDER CHOOSE YOUR MATERIAL,

CHOOSE YOUR DIAMETER,

CHOOSE YOUR LENGTH.

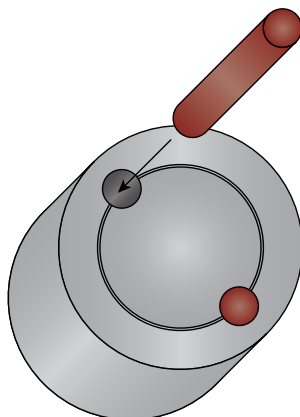
CODE	MATERIAL
RKM-	Carbon Steel, Plain*
RKMZ-	Cold Finished Steel, Zinc Yellow Trivalent
RKMS-	Stainless Steel, Plain

CODE	DIAMETER
003	3.00 mm
004	4.00 mm
005	5.00 mm
006	6.00 mm
007	7.00 mm
008	8.00 mm
009	9.00 mm
010	10.00 mm
011	11.00 mm
012	12.00 mm
013	13.00 mm
014	14.00 mm
015	15.00 mm
016	16.00 mm
017	17.00 mm
018	18.00 mm
019	19.00 mm
020	20.00 mm
022	22.00 mm
024	24.00 mm
025	25.00 mm
026	26.00 mm
027	27.00 mm
028	28.00 mm
030	30.00 mm
032	32.00 mm
035	35.00 mm
040	40.00 mm
045	45.00 mm
050	50.00 mm
060	60.00 mm
065	65.00 mm
070	70.00 mm

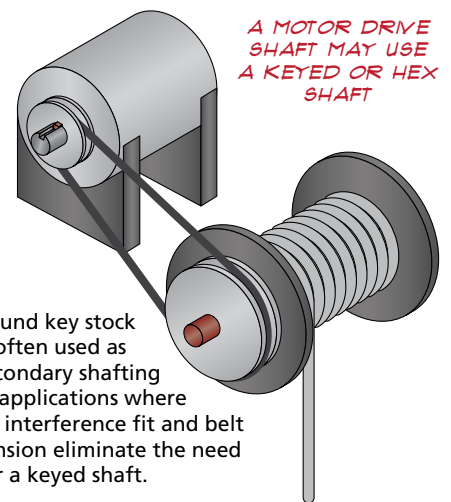
CODE	LENGTH
-305	305 mm (1')
-1000	1,000 mm (1 m)
-3000	3,000 mm (3 m)
-4000	4,000 mm (4 m)

Nonstandard lengths up to 4,000 mm are available. Lengths over 1 m may be subject to a packaging charge.

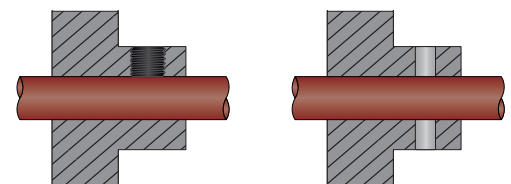
DON'T SEE WHAT YOU'RE LOOKING FOR? CONTACT SALES@HUYETT.COM OR CALL 785-392-3017



AN ADVANTAGE OF ROUND KEY STOCK IS THAT IT CAN BE INSTALLED IN HOLES BORED IN ASSEMBLED APPLICATIONS FOR A PRECISE FIT



Round key stock is often used as secondary shafting in applications where an interference fit and belt tension eliminate the need for a keyed shaft.



RATHER THAN USING A KEY, ROUND KEY STOCK MAY BE HELD IN PLACE WITH A SET SCREW OR A DOWEL PIN

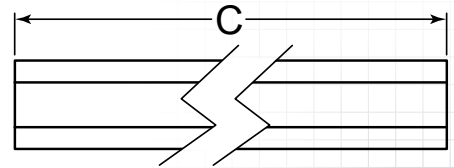
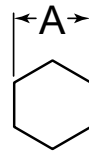
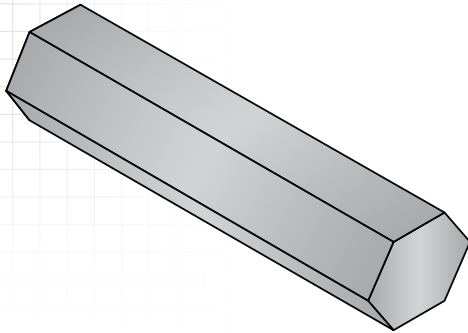
HEX – IMPERIAL

DESCRIPTION

Hex key stock is a stock of material that is one foot or greater in length from which hex machine keys are made. This stock has a hexagonal profile. Hex size is measured across parallel flats.


HOW TO IDENTIFY

1. Measure hex across the flats (A).
2. Measure length (C).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

HEX = COLD FINISHED STEEL, PLAIN*
HEX40 = COLD FINISHED ALLOY STEEL, PLAIN* (4140)
HEXB = BRASS, PLAIN
 Material/finish combinations may not be available in all sizes.

 THE PRIMARY BENEFIT OF USING HEX KEY STOCK FOR SHAFTING IS THAT IT DOES NOT REQUIRE A KEY WAY OR MACHINE KEY

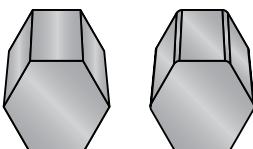
HEX (A) TOLERANCES

MATERIAL		HEX	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)
HEX	Cold Finished Steel, Plain*	.1250 – .7500"	+0/-.0020"
		>.7500 – 1.500"	+0/-.0030"
		>1.5000 – 2.5000"	+0/-.0040"
		>2.5000 – 4.0000"	+0/-.0050"
HEX40	Cold Finished Alloy Steel, Plain* (4140)	.1250 – .7500"	+0/-.0030"
		>.7500 – 1.500"	+0/-.0040"
		>1.5000 – 2.5000"	+0/-.0050"
		>2.5000 – 4.0000"	+0/-.0060"
HEXB	Brass, Plain	.1250"	±.0025"
		>.1250 – .5000"	±.0030"
		>.5000 – 1.0000"	±.0040"
		>1.0000 – 2.0000"	±.0050"
		>2.0000 – 2.1250"	±.0060"
		>2.1250 – 2.3750"	±.0070"
		>2.3750 – 2.7500"	±.0080"
		>2.7500 – 3.2500"	±.0090"
		>3.2500 – 3.5000"	±.0110"
		>3.5000 – 4.0000"	±.0120"

LENGTH (C) TOLERANCES

LENGTH	TOLERANCE
12 – 36"	+0/-.125"
>36 – <144"	+0/-.250"
144"	±6"

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.



FITTING HEX KEY STOCK TO HEX BEARINGS OR HUBS CAN BE CHALLENGING, OFTEN TIMES TURNING HEX STOCK ON A LATHE TO SLIGHTLY ROUND SHARP CORNERS WILL HELP EASE FIT

HEX KEY STOCK CAN BE PRODUCED IN MANY HEX SIZE AND LENGTH COMBINATIONS

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

HEX – IMPERIAL

ZINC PLATING AND
OTHER FINISHES
AVAILABLE FOR
ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

HEX-0562-144

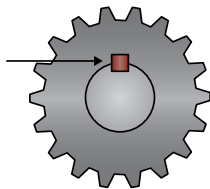
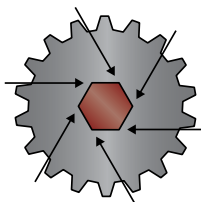
ITEM PREFIX

HEX-

TO ORDER CHOOSE
YOUR MATERIAL,

CODE	MATERIAL
HEX-	Cold Finished Steel, Plain*
HEX40-	Cold Finished Alloy Steel, Plain* (4140)
HEXB-	Brass, Plain

METRIC HEX KEY
STOCK IS AVAILABLE
AS A SPECIAL ORDER
CONTACT
SALES@HUYETT.COM OR
CALL 785-392-3017



WHY CONSIDER USING HEX KEY STOCK INSTEAD OF SQUARE OR ROUND?

A hex shaft distributes the torque load across six points of contact (the six corners of the hex shaft) as opposed to concentrated points of a key way.

(A) HEX

1/8" to 3"

0562

CHOOSE YOUR
HEX SIZE,

CODE	HEX
0125	.1250" (1/8)
0187	.1875" (3/16)
0218	.2188" (7/32)
0250	.2500" (1/4)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9375" (15/16)
1000	1.0000" (1)
1062	1.0625" (1-1/16)
1125	1.1250" (1-1/8)
1187	1.1875" (1-3/16)
1250	1.2500" (1-1/4)
1312	1.3125" (1-5/16)
1375	1.3750" (1-3/8)
1437	1.4375" (1-7/16)
1500	1.5000" (1-1/2)
1625	1.6250" (1-5/8)
1750	1.7500" (1-3/4)
1812	1.8125" (1-13/16)
1875	1.8750" (1-7/8)
2000	2.0000" (2)
2062	2.0625" (2-1/16)
2250	2.2500" (2-1/4)
2500	2.5000" (2-1/2)
2750	2.7500" (2-3/4)
3000	3.0000" (3)

Additional sizes up to 7" available as a special order. Visit huyett.com for more details.

(C) LENGTH

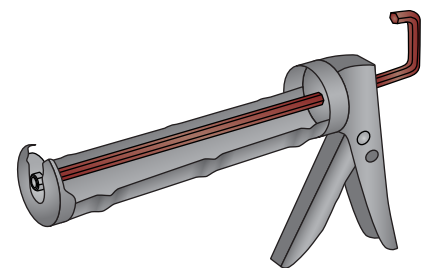
12" to 144"

-144

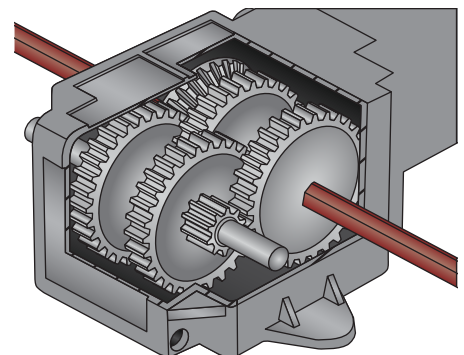
CHOOSE YOUR
LENGTH.

CODE	LENGTH
-12	12" (1')
-24	24" (2')
-36	36" (3')
-48	48" (4')
-72	72" (6')
-120	120" (10')
-144	144" (12')

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.



HEX KEY STOCK IS USED IN SIMPLE MACHINES LIKE THIS CAULKING GUN, OR IN SOPHISTICATED WORM GEAR, HELICAL GEAR, AND BEVEL GEAR SPEED REDUCTION BOXES



ASSORTMENTS

MAK-A-KEY®

CUT, FILE, & FIT KEY STOCK

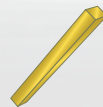
Choose one of our assortments or call for your own customized assortment.

- Use assortments for:
- Easy bin stocking
 - POS displays
 - Sampling opportunities
 - Special promotions
 - Specific applications
 - Maintenance kits



Key Stock Imperial DISP-KSB031

31 Pieces
Brass, Plain
Display box included.



Parts Included	Size	Quantity
0601250125-12	1/8" x 1/8" x 12"	5
0601870187-12	3/16" x 3/16" x 12"	5
0602500250-12	1/4" x 1/4" x 12"	5
0603120312-12	5/16" x 5/16" x 12"	5
0603750375-12	3/8" x 3/8" x 12"	5
0604370437-12	7/16" x 7/16" x 12"	3
0605000500-12	1/2" x 1/2" x 12"	3

Key Stock Imperial DISP-KSS031

31 Pieces
300 Series Stainless Steel, Plain
Display box included.



Parts Included	Size	Quantity
7001250125-12	1/8" x 1/8" x 12"	5
7001870187-12	3/16" x 3/16" x 12"	5
7002500250-12	1/4" x 1/4" x 12"	5
7003120312-12	5/16" x 5/16" x 12"	5
7003750375-12	3/8" x 3/8" x 12"	5
7004370437-12	7/16" x 7/16" x 12"	3
7005000500-12	1/2" x 1/2" x 12"	3

Key Stock Imperial DISP-KSZC031

31 Pieces
Cold Finished Steel, Zinc Clear Trivalent
Display box included.



Parts Included	Size	Quantity
3101250125-12	1/8" x 1/8" x 12"	5
3101870187-12	3/16" x 3/16" x 12"	5
3102500250-12	1/4" x 1/4" x 12"	5
3103120312-12	5/16" x 5/16" x 12"	5
3103750375-12	3/8" x 3/8" x 12"	5
3104370437-12	7/16" x 7/16" x 12"	3
3105000500-12	1/2" x 1/2" x 12"	3

Key Stock Imperial, Oversize DISP-KSZC031-OV

31 Pieces
Cold Finished Steel, Zinc Clear Trivalent
Display box included.



Parts Included	Size	Quantity
3601250125-12	1/8" x 1/8" x 12"	5
3601870187-12	3/16" x 3/16" x 12"	5
3602500250-12	1/4" x 1/4" x 12"	5
3603120312-12	5/16" x 5/16" x 12"	5
3603750375-12	3/8" x 3/8" x 12"	5
3604370437-12	7/16" x 7/16" x 12"	3
3605000500-12	1/2" x 1/2" x 12"	3

Key Stock Imperial DISP-KSZC060

60 Pieces
Cold Finished Steel, Zinc Clear Trivalent
Display box included.



Parts Included	Size	Quantity
3101250125-12	1/8" x 1/8" x 12"	10
3101870187-12	3/16" x 3/16" x 12"	10
3102500250-12	1/4" x 1/4" x 12"	10
3103120312-12	5/16" x 5/16" x 12"	10
3103750375-12	3/8" x 3/8" x 12"	10
3104370437-12	7/16" x 7/16" x 12"	5
3105000500-12	1/2" x 1/2" x 12"	5

Round Key Stock Imperial DISP-KSRSS031

31 Pieces
300 Series Stainless Steel, Plain
Display box included.



Parts Included	Size	Quantity
RKS-0125-12	1/8" x 12"	5
RKS-0187-12	3/16" x 12"	5
RKS-0250-12	1/4" x 12"	5
RKS-0312-12	5/16" x 12"	5
RKS-0375-12	3/8" x 12"	5
RKS-0437-12	7/16" x 12"	3
RKS-0500-12	1/2" x 12"	3

Round Key Stock Imperial DISP-KSRZ060

60 Pieces
Cold Finished Steel, Zinc Clear Trivalent
Display box included.



Parts Included	Size	Quantity
RKZ-0125-12	1/8" x 12"	10
RKZ-0187-12	3/16" x 12"	10
RKZ-0250-12	1/4" x 12"	10
RKZ-0312-12	5/16" x 12"	10
RKZ-0375-12	3/8" x 12"	10
RKZ-0437-12	7/16" x 12"	5
RKZ-0500-12	1/2" x 12"	5

All key stock assortments are undersize material unless stated otherwise.

ASSORTMENTS

Key Stock Metric DISP-KSM031

31 Pieces
Cold Finished Steel,
Plain*
Display box included.



Parts Included	Size	Quantity
300404-305	4 mm x 4 mm x 305 mm	4
300505-305	5 mm x 5 mm x 305 mm	4
300606-305	6 mm x 6 mm x 305 mm	4
300808-305	8 mm x 8 mm x 305 mm	3
301010-305	10 mm x 10 mm x 305 mm	3
301212-305	12 mm x 12 mm x 305 mm	3
301414-305	14 mm x 14 mm x 305 mm	2
301616-305	16 mm x 16 mm x 305 mm	2
301818-305	18 mm x 18 mm x 305 mm	2
302020-305	20 mm x 20 mm x 305 mm	2
302222-305	22 mm x 22 mm x 305 mm	2

Key Stock Metric DISP-KSMS031

31 Pieces
300 Series Stainless
Steel, Plain
Display box included.



Parts Included	Size	Quantity
700404-305	4 mm x 4 mm x 305 mm	5
700505-305	5 mm x 5 mm x 305 mm	5
700606-305	6 mm x 6 mm x 305 mm	5
700707-305	7 mm x 7 mm x 305 mm	5
700808-305	8 mm x 8 mm x 305 mm	5
701010-305	10 mm x 10 mm x 305 mm	3
701212-305	12 mm x 12 mm x 305 mm	3

Key Stock Metric DISP-KSMZY031

31 Pieces
Cold Finished Steel,
Zinc Yellow Trivalent
Display box included.



Parts Included	Size	Quantity
310404-305	4 mm x 4 mm x 305 mm	5
310505-305	5 mm x 5 mm x 305 mm	5
310606-305	6 mm x 6 mm x 305 mm	5
310707-305	7 mm x 7 mm x 305 mm	5
310808-305	8 mm x 8 mm x 305 mm	5
311010-305	10 mm x 10 mm x 305 mm	3
311212-305	12 mm x 12 mm x 305 mm	3

Unless specifically stated, our standard cold finished steel key stock (30 series) is any one of the following grades, subject to market availability: 1018, 1035, 1045, 1095, 1215, or 8630. Our standard stainless steel key stock (70 series) is any 300 series (A1-A5) stainless steel subject to market availability. Call for precise grade.

REACH & ROHS

Huyett is committed to maintaining the safety of our environment. The processes for plating and coating steels have the potential of introducing harmful chemical substances into the environment and are strictly controlled. Huyett complies with all environmental regulations and laws which apply to our products and services.

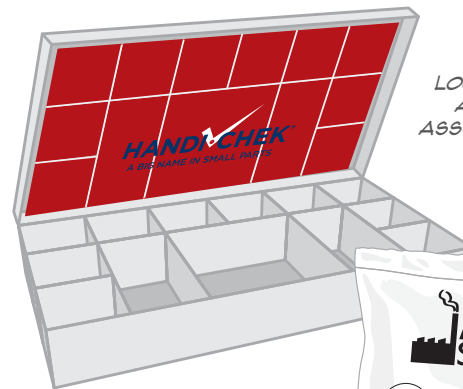
Learn more at huyett.com/quality.



RoHS
Restriction of
Hazardous
Substances



REACH
Registration,
Evaluation,
Authorization,
and Restriction
of Chemical
Substances



LOOKING FOR
A CUSTOM
ASSORTMENT OF
PARTS?

WE'LL WORK WITH
YOU TO DEVELOP,
PACKAGE, AND LABEL
PARTS WITH YOUR
BRAND



1/4" x 1/4" (-SIZE)

1', 3', AND 6' STAINLESS STEEL AND PLATED KEY STOCK
ARE MARKED FOR EASY IDENTIFICATION

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

Prices, materials, dimensions, tolerances, designs, and grades subject to change without notice. © 2022 Huyett

*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

MACHINE KEYS

HUYETT.COM • 785-392-3017

BOX 232 • MINNEAPOLIS, KS • 67467
SALES@HUYETT.COM • FAX 785-392-2845

MACHINE KEY FEATURES

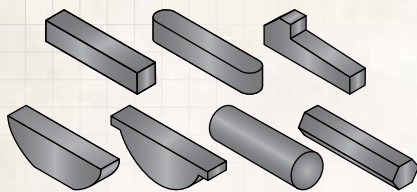
Machine keys are removable machine elements installed between shaft key seats and hub key ways to transmit torque in power transmission assemblies. They can be machined; finished in a variety of shapes, sizes, and materials; and tumbled by the thousands for automated assembly lines or just about any application. Though simple in design, they are a necessity in the transfer of power.



THE TERMS SHAFT KEYS AND MACHINE KEYS ARE USED INTERCHANGEABLY TO DESCRIBE THE SAME THING

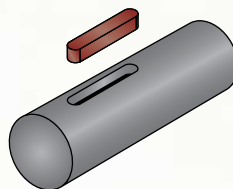
DESIGN CONSIDERATIONS

FORM



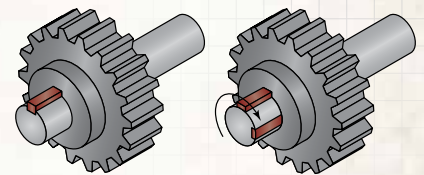
MACHINE KEYS ARE AN EFFICIENT SOLUTION FOR APPLICATIONS REQUIRING THE TRANSMISSION OF TORQUE IN AN ASSEMBLY

FIT



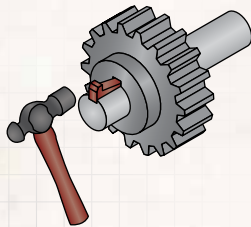
UNDERSIZE KEYS FIT LOOSELY, OTHERS FIT SNUGGLY, AND OVERSIZE KEYS CAN BE FILED TO FIT SEE PAGE 8 FOR MORE DETAILS

FUNCTION



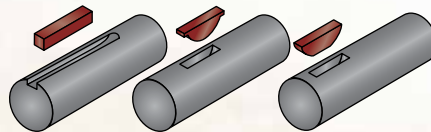
MACHINE KEYS MAY SHEAR UNDER STRESS TO PROTECT PEOPLE AND EXPENSIVE EQUIPMENT

EASE OF USE



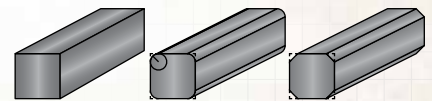
TABBED AND TAPERED GIB HEAD KEYS SECURE PULLEYS AND GEARS TIGHTLY WHILE ALLOWING FOR QUICK REMOVAL DURING DISASSEMBLY

LOCATION



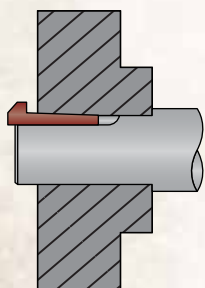
DEPENDING ON THE APPLICATION, KEYWAYS ARE LOCATED AT THE END OR ALONG THE LENGTH OF THE SHAFT LOCATION CAN IMPACT KEY DESIGN

CORNER DESIGNS

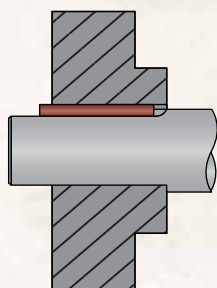


SHARP, SQUARE CORNERS PROVIDE THE MOST SURFACE CONTACT WHILE RADIUSSED OR CHAMFERED CORNERS ARE A LITTLE EASIER TO INSTALL AND FULLY SEAT IN A KEYWAY

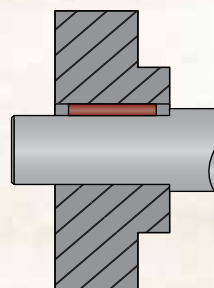
KEYS FOR EVERY APPLICATION



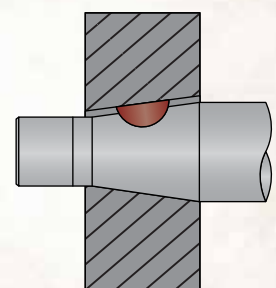
Top fitting gib head keys ease assembly and disassembly.



Parallel keys located in keyways at the end of a shaft may protrude for full contact between key and shaft.



Keyways located along the length of a shaft allow for full contact in assembly with no way for the key to work itself out.

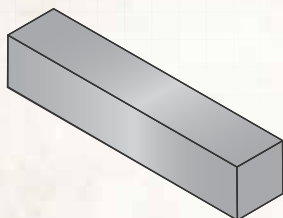


Woodruff Keys are frequently used with tapered shafts. Although more difficult to install, they can not fall out of an assembly.

MACHINE KEY TYPES

FORM B

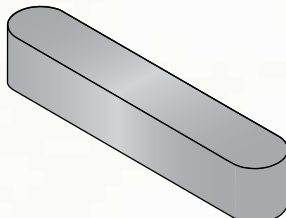
Form B machine keys with both ends square feature straight, 90° parallel sides and provide the most surface contact with both the key seat and the hub of a sprocket, gear, pulley, or cog.



PAGE 56

FORM A

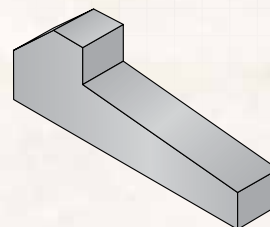
More common in Europe than the U.S., form A machine keys have rounded end profiles so the key fully fills a milled key way. Some users suggest that the round design eases installation into the key way.



PAGE 56

GIB HEAD

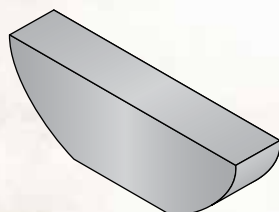
Gib head keys are tapered machine keys that are hammered in place to secure pulleys and gears tightly on the shaft. The added feature of a head provides for easy removal.



PAGE 70

WOODRUFF

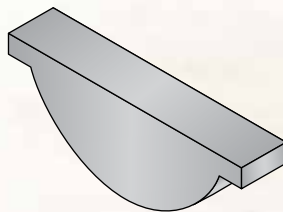
Woodruff keys are used to avoid milling a key way near stress concentration prone shaft shoulders at the end of a shaft. With a woodruff key, the key way does not extend to the end of the shaft so a stronger design is realized.



PAGE 78

HI-PRO

A variation of the woodruff key is the high-profile or hi-pro key. These keys have "feet" that prevent the key from rocking and limit movement in a rounded key way.



PAGE 84

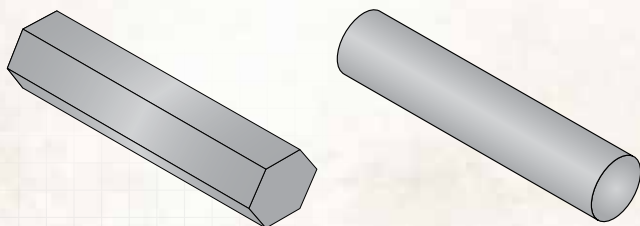


* Some exclusions apply

Visit huyett.com to download **Material, Compliance, and RoHS/REACH Certifications*** in your Account Order History.

* Some exclusions apply

ALSO AVAILABLE...



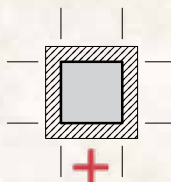
HEX AND ROUND MACHINE KEYS ARE AVAILABLE AS A SPECIAL ORDER

SEE PAGES 40 - 45 FOR HEX AND ROUND KEY STOCK

OVERSIZE OR UNDERSIZE?

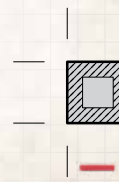
OVERSIZE

The actual size of oversize material will be at least the specified size and may be slightly larger than the specified size within the acceptable tolerance range.




UNDERSIZE

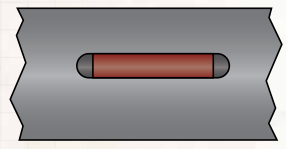
The actual size of undersize material will be at least the specified size and may be slightly smaller than the specified size within the acceptable tolerance range.



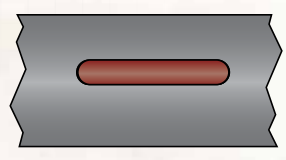
DESIGN & USE

 THE TERMS KEY WAY AND KEY SEAT ARE USED INTERCHANGEABLY TO DESCRIBE THE SAME THING

MACHINE KEY FORMS & MILLING KEY WAYS

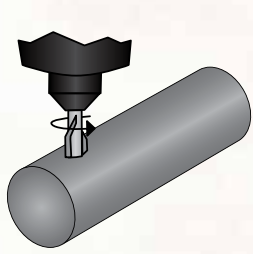


FORM B

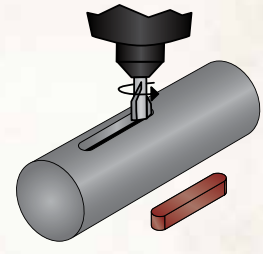


FORM A

Key ways are typically milled using an end-mill tool. The circular shape of the end-mill creates a slot on the surface of the shaft. Round-end keys occupy the entire slot, while square-end keys leave a void at either end of the slot.

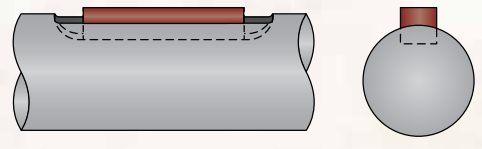


END MILL ENTERS SURFACE AREA OF SHAFT CREATING A RADIUSED END



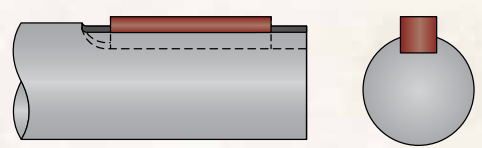
END MILL PROCEEDS AXIALLY DOWN THE SHAFT SURFACE UPON EXIT, THE END MILL FORMS ANOTHER RADIUSED END

TYPES OF KEY WAYS



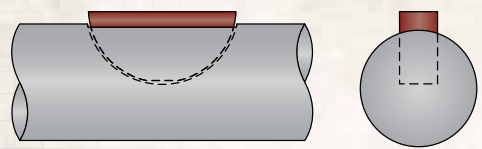
PROFILE OR CLOSED

MILLED ALONG LENGTH OF THE SHAFT, BUT DOES NOT EXTEND TO END OF THE SHAFT



SLED RUNNER

LOOK LIKE THE RUNNERS OF A SLED WITH A ROUND TAPER ON ONE END



WOODRUFF OR HI-PRO

IS CUT ALONG THE LENGTH OF THE SHAFT WITH AN ARBOR CUTTING TOOL


SECONDARY PROCESS:
HEAT TREATING

OUR STANDARD MATERIALS POSSESS
A TYPICAL HARDNESS OF HRB-80

HRB-80

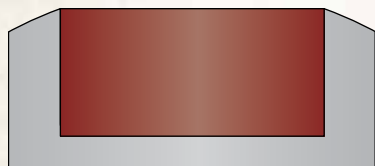
NEED SOMETHING HARDER
THAN HRB-80?

CONTACT SALES@HUYETT.COM OR
CALL 785-392-3017

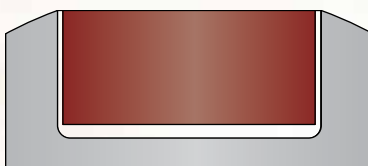
 FOR BEST RESULTS, ENLIST THE HELP OF A RELIABLE DESIGN ENGINEER WHEN DESIGNING NEW APPLICATIONS

DESIGN & USE

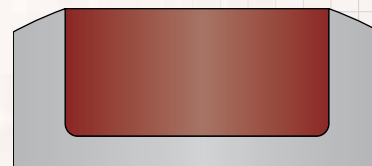
CUTTING CORNERS



Square key way with square key stock



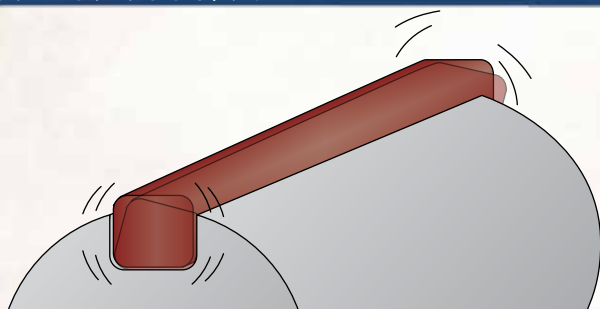
Radiused key way with square key stock



Radiused key way with radiused key stock

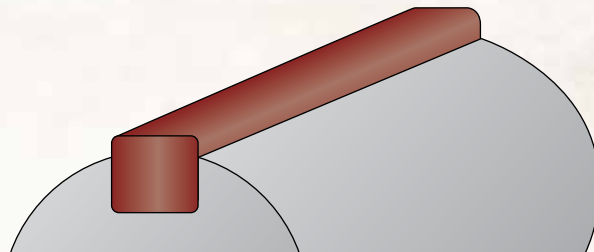
*KEY WAYS MAY HAVE FILLETED (ROUNDED) CORNERS TO DECREASE STRESS CONCENTRATION
KEY STOCK WITH SQUARE CORNERS WILL NOT FULLY SEAT IN FILLETED KEY WAYS*

HOLD ON LOOSELY



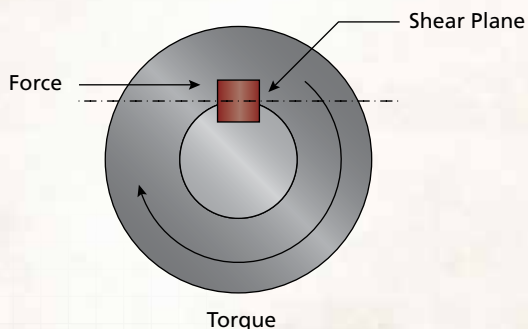
Over-radiused machine keys with "rolled" corners fit looser in a key way and can lead to "rattling."

INTERFERENCE FIT



A tight, interference fit, is produced when the machine key is slightly larger than the key way it is installed in. See page 8 for more details.

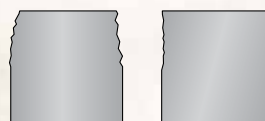
SHEAR ANALYSIS



Keys may fail if they are crushed due to excessive compression, bearing forces, or shear off in catastrophic failure.

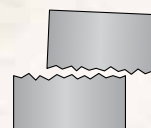
Keys can also wear out or get distorted through fretting from high pressure and constant load.

FRETTING



A machine key may wear out or get distorted from high pressure and/or constant load bearing.

CATASTROPHIC FAILURE



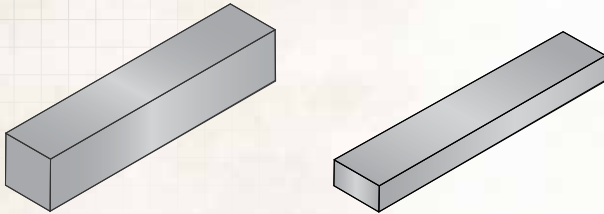
If an application fails a machine key may shear or be crushed on load and will need to be replaced.

SELECTING THE RIGHT KEY

A number of considerations contribute to machine key design. Some designs are based on how the parts are used, while others look at how the parts are manufactured or enhance efficiency in assembly. For best results, consult with a design engineer when developing a new application.

PARALLEL KEYS

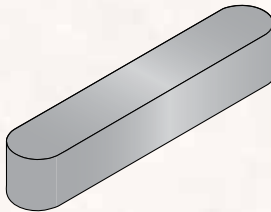
SQUARES AND RECTANGLES



Square and rectangle profiles are the most common forms for parallel keys. They are often referred to as straight keys.

Parallel or straight keys are more common in the U.S. and cost less to produce than feathered keys. They are "side fitting" which means they fit edge to edge in the key way.

FEATHERED

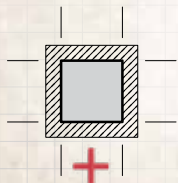


Feathered keys are parallel keys with round ends. They are more common in Europe. The round end design allows for the key to fully seat in the key way.

OVERSIZE OR UNDERSIZE?

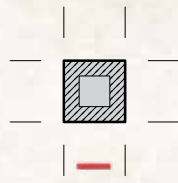
OVERSIZE

The actual size of oversize material will be at least the specified size and may be slightly larger than the specified size within the acceptable tolerance range.

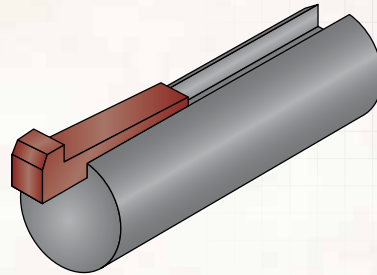


UNDERSIZE

The actual size of undersize material will be at least the specified size and may be slightly smaller than the specified size within the acceptable tolerance range.

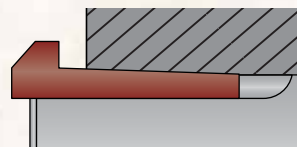
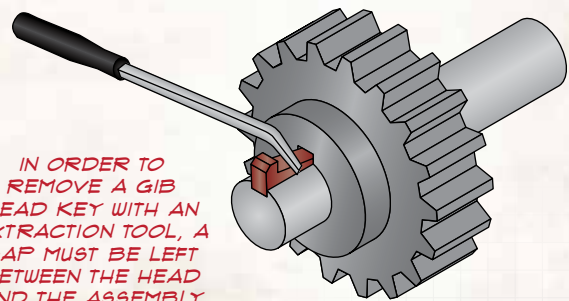
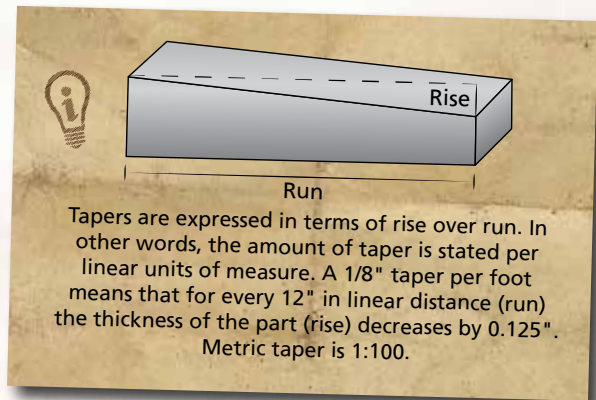


GIB HEAD KEYS



Gib head keys are designed for applications that require periodic maintenance or removal during disassembly.

Typically the height is less than width. Gib head keys fit in the key way with "top and side fitting" which bears load on all sides.

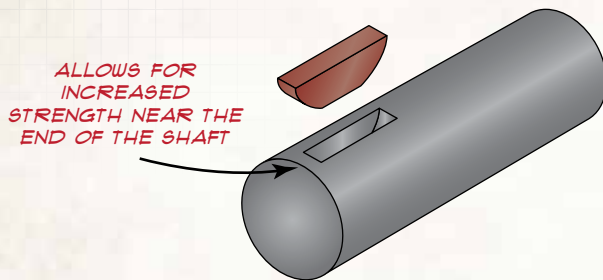


BOTH THE GIB KEY AND THE HUB KEY WAY ARE TAPERED

SELECTING THE RIGHT KEY

WOODRUFF KEYS

Woodruff keys, sometimes referred to as "half-moon" keys because of their shape, are designed to install and pivot in the key way and will not fall out once assembled.

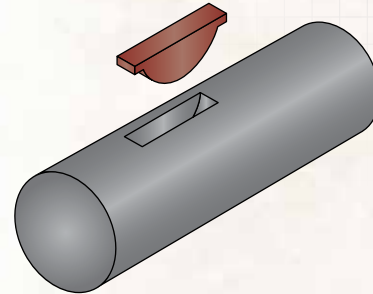


W.N. WOODRUFF

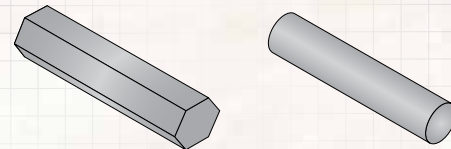
Woodruff keys were invented by W.N. Woodruff of Connecticut in 1888. The main purpose of the woodruff key is to avoid milling a key way near the stress concentrated end of a shaft.

HI-PRO KEYS

Hi-pro keys perform like woodruff keys, but have the added benefit of "feet" that aid in installation by eliminating the potential for the key to rock in the key way.



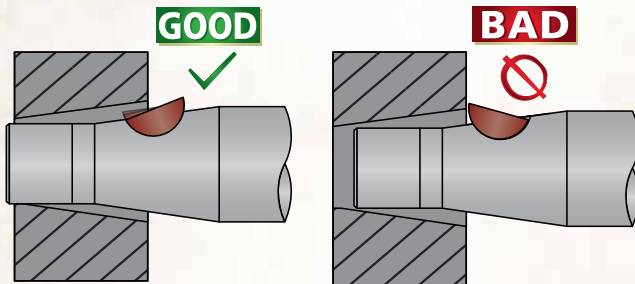
ALSO AVAILABLE...



HEX AND ROUND MACHINE KEYS ARE AVAILABLE AS A SPECIAL ORDER

SEE PAGES 40 - 45 FOR HEX AND ROUND KEY STOCK

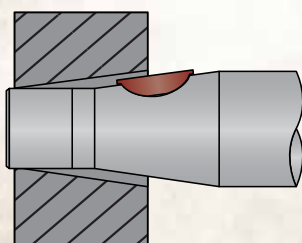
PROPER INSTALLATION



WOODRUFF KEYS

Woodruff keys should be installed with the low side toward the hub. During installation the key will rock in the key way allowing for a tight fit.

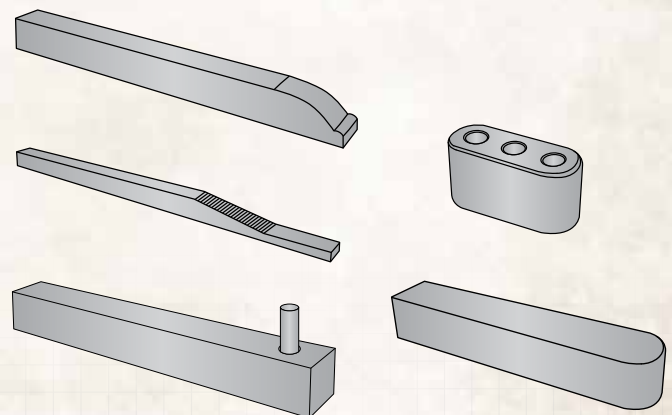
If the key is installed with the high side to the hub, the key will catch causing improper installation and risk damage to the assembly.



HI-PRO KEYS

Hi-pro keys eliminate any play or movement during installation.

CUSTOM CONFIGURATIONS



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LOOKING FOR?
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OR CALL 785-392-3017

MACHINE KEYS

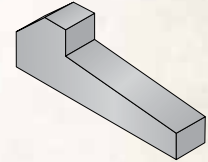
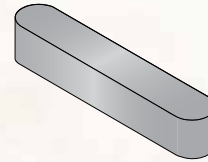
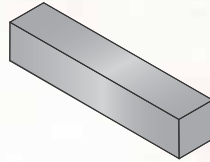
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SALES@HUYETT.COM • FAX 785-392-2845

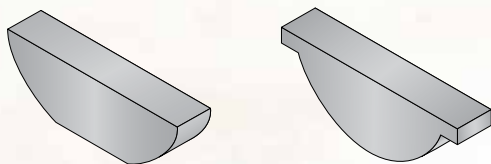
QUICK REFERENCE GUIDE

Machine keys are used to transmit torque from a rotating shaft to a gear or sprocket. They can be finished in a variety of shapes, sizes, and materials for just about any application. Standard sizes are ready to use with little or no cutting or filing.



	MACHINE KEY - FORM B	MACHINE KEY - FORM A	GIB HEAD
COMMON NAMES	Machine Keys; Sunk Keys; Key Stock	Feather Key; Pratt & Whitney Key	Gib Head Key; Cotton Picker Key
APPLICABLE STANDARDS	ANSI B17.1; DIN 6885	ANSI B17.1; DIN 6885	DIN 6884/6887; Industry norm
FABRICATION	Cold drawn steel; cut to length; tumbled to remove burrs.	Cold drawn steel; cut to length; both ends radiused.	Cold drawn steel; cut to length; machined tapered surface; tumble to deburr.
HOW TO IDENTIFY	Imperial is measured height x width x length. Metric is measured width x height x length.	Imperial is measured height x width x length. Metric is measured width x height x length.	Imperial is measured width x length. Metric is measured width x effective height x length. Commercial keys do not usually meet the ANSI specification.
COMMON USES	Original equipment, including motors, gear boxes, gear reducers, and transmissions.	Original equipment, including motors, gear boxes, gear reducers, and transmissions.	Original equipment, including motors, gear boxes, gear reducers, and transmissions. Farm equipment, especially cotton pickers, harvesters, and combines.
COMMENTS	Square ends are more common in U.S.	Radiused ends are more common in Europe.	Used to progressively install the key and take up slack from one access end. The head serves as a concussion point for hammering without damage to the shaft of the key. Common taper is 1/8" taper per foot.

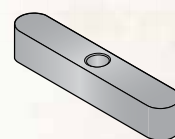
QUICK REFERENCE GUIDE



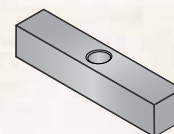
SPECIAL ORDER METRIC DIN 6885

Machine keys can be designed with special dimensional features like set screws, tapers, and other attributes. Mechanical features like tensile strength, shear strength, and wear resistance can be enhanced by material and secondary processes (like heat treating) that give parts added benefits.

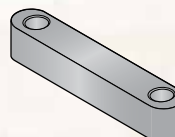
	WOODRUFF	HI-PRO
COMMON NAMES	Half-moon Key; Round Key	High Profile Keys
APPLICABLE STANDARDS	ANSI B17.1; DIN 6888	ANSI B17.1; Industry norm
FABRICATION	Cold drawn profile; cut to width; grind; tumble.	Cold drawn profile; cut to width; grind; tumble.
HOW TO IDENTIFY	Imperial is measured diameter x width. Metric is measured width x height. Woodruff keys may have round or flat bottoms depending on specifications.	Width x length x lip height. Hi-pro keys have small "feet" to keep them from rocking in the key way.
COMMON USES	Original equipment, where an arbor cutter is used to cut a key way that is half-moon shaped.	Original equipment, where an arbor cutter is used to cut a key way that is half-moon shaped.
COMMENTS	Alloy hardened keys usually have hash marks (small lines) embedded into the surface of the key along the top.	Alloy hardened keys usually have hash marks (small lines) embedded into the surface of the key along the top.



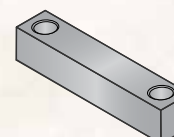
Form C



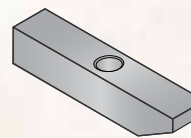
Form D



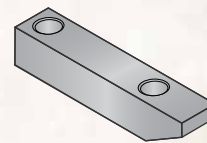
Form E



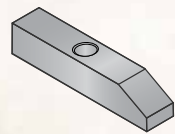
Form F



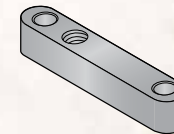
Form G



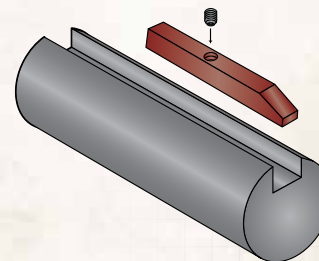
Form H



Form J



Form K



FOR BEST RESULTS, ENLIST THE HELP OF A RELIABLE DESIGN ENGINEER WHEN DESIGNING NEW APPLICATIONS

MACHINE KEYS

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COLD FINISHED STEEL – IMPERIAL

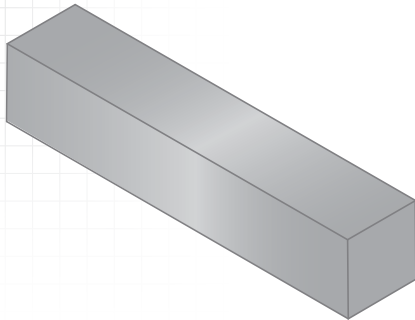
DESCRIPTION

Machine keys are used to transmit torque from a rotating shaft to a gear or sprocket. They can be finished in a variety of shapes, sizes, and materials for just about any application. Standard sizes are ready to use with little or no cutting or filing.

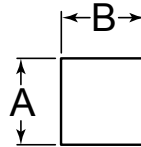
HOW TO IDENTIFY

1. Measure height (A).
2. Measure width (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.

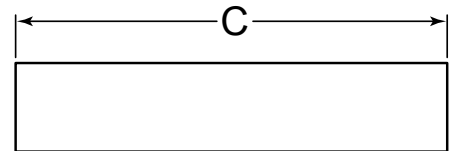
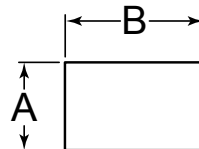
FORM B



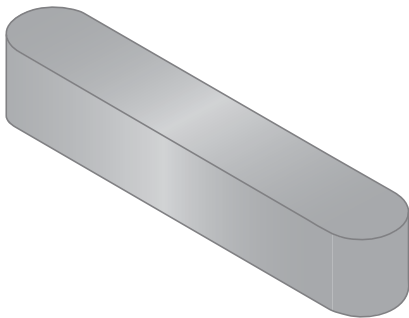
SQUARE



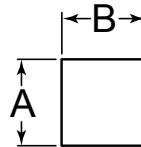
RECTANGLE



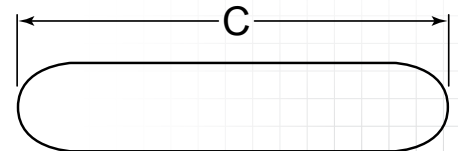
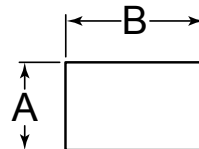
FORM A



SQUARE



RECTANGLE



PREFIX MATERIAL/FINISH

FORM B

UNDERSIZE

30	=	Cold Finished Steel, Plain*
31	=	Cold Finished Steel, Zinc Clear Trivalent
45	=	Cold Finished Steel, Plain* (1045)
46	=	Cold Finished Steel, Zinc Clear Trivalent (1045)
65	=	Cold Finished Alloy Steel, Plain* (4140)
66	=	Cold Finished Alloy Steel, Zinc Clear Trivalent (4140)

OVERSIZE

35	=	Cold Finished Steel, Plain*
36	=	Cold Finished Steel, Zinc Clear Trivalent

FORM A

UNDERSIZE

32	=	Cold Finished Steel, Plain*
32Z	=	Cold Finished Steel, Zinc Clear Trivalent
47	=	Cold Finished Steel, Plain* (1045)
67	=	Cold Finished Alloy Steel, Plain* (4140)

OVERSIZE

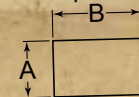
37	=	Cold Finished Steel, Plain*
----	---	-----------------------------

Material/finish combinations may not be available in all sizes. Unless specifically stated, our standard machine key stock (30 series) is any one of the following grades, subject to market availability: 1018, 1035, 1045, 1095, 1215, or 8630. Call for precise grade.

SEE PAGE 66 FOR TOLERANCES

MEASURING IMPERIAL KEYS

Imperial machine keys are available in square or rectangle profiles.



Imperial machine keys call out height (A) first, then width (B).

IMPERIAL

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

Prices, materials, dimensions, tolerances, designs, and grades subject to change without notice. © 2022 Huyett

*Limited warranty for surface finish: 30 days from date of shipment. See page ## for details.



COLD FINISHED STEEL – IMPERIAL

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

35 0125 0625 - 0875

LIST THE **SMALLER** DIMENSION OF (A) OR (B) FIRST



ITEM PREFIX

(A)
HEIGHT

(B)
WIDTH

(C)
LENGTH

35

1/16" to 2-1/2"

1/16" to 2-1/2"

3/16" to <12"

0125

0625

-0875

TO ORDER CHOOSE YOUR MATERIAL,

CHOOSE YOUR HEIGHT,

CHOOSE YOUR WIDTH,

CHOOSE YOUR LENGTH.

CODE	MATERIAL
30	Cold Finished Steel, Plain*, Form B, Undersize
31	Cold Finished Steel, Zinc Clear Trivalent, Form B, Undersize
32	Cold Finished Steel, Plain*, Form A, Undersize
32Z	Cold Finished Steel, Zinc Clear Trivalent, Form A, Undersize
35	Cold Finished Steel, Plain*, Form B, Oversize
36	Cold Finished Steel, Zinc Clear Trivalent, Form B, Oversize
37	Cold Finished Steel, Plain*, Form A, Oversize
45	Cold Finished Steel, Plain* (1045), Form B, Undersize
46	Cold Finished Steel, Zinc Clear Trivalent (1045), Form B, Undersize
47	Cold Finished Steel, Plain* (1045), Form A, Undersize
65	Cold Finished Alloy Steel, Plain* (4140), Form B, Undersize
66	Cold Finished Steel, Zinc Clear Trivalent, Form B, Undersize
67	Cold Finished Alloy Steel, Plain* (4140), Form A, Undersize

CODE	HEIGHT & WIDTH SIZE OPTIONS
0062	.0625" (1/16)
0093	.0938" (3/32)
0125	.1250" (1/8)
0156	.1563" (5/32)
0187	.1875" (3/16)
0218	.2188" (7/32)
0250	.2500" (1/4)
0281	.2813" (9/32)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9378" (15/16)
1000	1.0000" (1)
1062	1.0625" (1-1/16)
1125	1.1250" (1-1/8)
1187	1.1875" (1-3/16)
1250	1.2500" (1-1/4)
1375	1.3750" (1-3/8)
1500	1.5000" (1-1/2)
1625	1.6250" (1-5/8)
1750	1.7500" (1-3/4)
1875	1.8750" (1-7/8)
2000	2.0000" (2)
2250	2.2500" (2-1/4)
2500	2.5000" (2-1/2)

Nonstandard sizes up to 2-1/2" are available.

CODE	LENGTH
0187	.1875" (3/16)
0250	.2500" (1/4)
0375	.3750" (3/8)
0500	.5000" (1/2)
0625	.6250" (5/8)
0750	.7500" (3/4)
0875	.8750" (7/8)
1000	1.0000" (1)
1500	1.5000" (1-1/2)
2000	2.0000" (2)
4000	4.0000" (4)
6000	6.0000" (6)
8000	8.0000" (8)
10	10.0000" (10)
11	11.0000" (11)
11.5	11.5000" (11-1/2)

Nonstandard lengths less than 12" are available.

**SECONDARY PROCESS:
HEAT TREATING**

OUR STANDARD MATERIALS
POSSESS A TYPICAL
HARDNESS OF HRB-80

HRB-80

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THAN HRB-80?

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MACHINE KEYS

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MOLTRUP

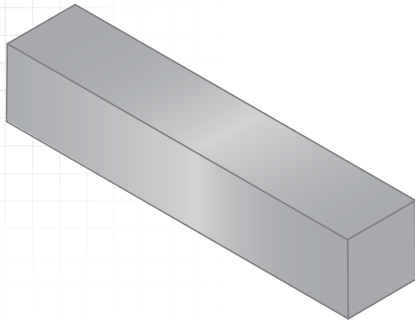
DESCRIPTION

Machine keys are used to transmit torque from a rotating shaft to a gear or sprocket. They can be finished in a variety of shapes, sizes, and materials for just about any application. Standard sizes are ready to use with little or no cutting or filing.

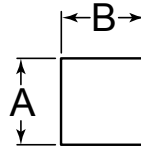
HOW TO IDENTIFY

1. Measure height (A).
2. Measure width (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.

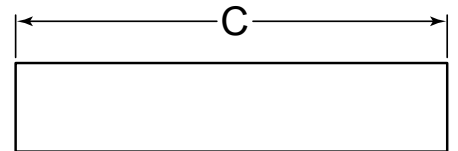
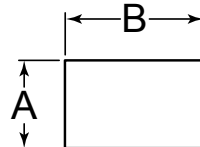
FORM B



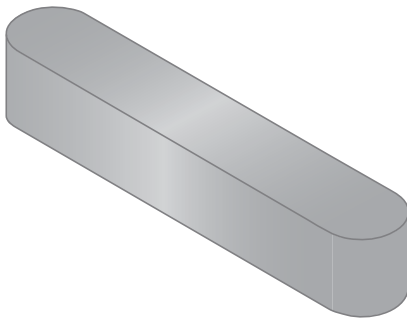
SQUARE



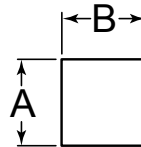
RECTANGLE



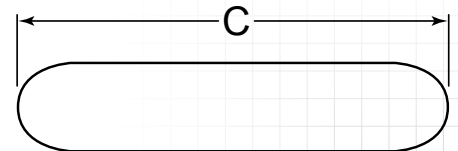
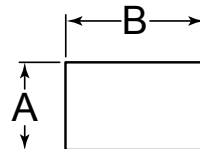
FORM A



SQUARE



RECTANGLE



PREFIX MATERIAL/FINISH

FORM B

60 = Moltrup Quality Steel, Plain*
(1045 or 8630)

FORM A

62 = Moltrup Quality Steel, Plain*
(1045 or 8630)

Moltrup quality steel is "+" tolerance from nominal (true "key stock" in accordance with ANSI B17.1). Material/finish combinations may not be available in all sizes.

This exquisitely detailed HO scale model of the Moltrup Steel Company was produced by David Moltrup, great-grandson of one of the founders of the company.

Photo courtesy of David Moltrup



FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.



MOLTRUP

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS SEE PAGE 16

HOW TO BUILD A PART NUMBER

6003750375-1500

LIST THE SMALLER DIMENSION OF (A) OR (B) FIRST



ITEM PREFIX

(A) HEIGHT

(B) WIDTH

(C) LENGTH

1/16" to 2-1/2"

1/16" to 2-1/2"

3/16" to <12"

60

0375

0375

-1500

TO ORDER ADD YOUR MATERIAL,

CHOOSE YOUR HEIGHT,

CHOOSE YOUR WIDTH,

CHOOSE YOUR LENGTH.

CODE	MATERIAL
60	Moltrup Quality Steel, Plain* (1045 or 8630), Form B
62	Moltrup Quality Steel, Plain* (1045 or 8630), Form A

CODE	HEIGHT & WIDTH SIZE OPTIONS
0062	.0625" (1/16)
0093	.0938" (3/32)
0125	.1250" (1/8)
0156	.1563" (5/32)
0187	.1875" (3/16)
0218	.2188" (7/32)
0250	.2500" (1/4)
0281	.2813" (9/32)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9378" (15/16)
1000	1.0000" (1)
1062	1.0625" (1-1/16)
1125	1.1250" (1-1/8)
1187	1.1875" (1-3/16)
1250	1.2500" (1-1/4)
1375	1.3750" (1-3/8)
1500	1.5000" (1-1/2)
1625	1.6250" (1-5/8)
1750	1.7500" (1-3/4)
1875	1.8750" (1-7/8)
2000	2.0000" (2)
2250	2.2500" (2-1/4)
2500	2.5000" (2-1/2)

CODE	LENGTH
0187	.1875" (3/16)
0250	.2500" (1/4)
0375	.3750" (3/8)
0500	.5000" (1/2)
0625	.6250" (5/8)
0750	.7500" (3/4)
0875	.8750" (7/8)
1000	1.0000" (1)
1500	1.5000" (1-1/2)
2000	2.0000" (2)
4000	4.0000" (4)
6000	6.0000" (6)
8000	8.0000" (8)
10	10.0000" (10)
11	11.0000" (11)
11.5	11.5000" (11-1/2)

MOLTRUP STEEL COMPANY

Beaver Falls, PA, was the original home of Moltrup Steel, a specialized producer of U.S. steel well known for their ability to draw a wide range of steel profiles including close toleranced bright steel for machine keys and key stock.

Though inventor J.T. Moltrup engineered most of the equipment used by his former employer, when he founded Moltrup Steel in 1914 he started from scratch and redesigned all of the machinery used to draw, straighten, and polish steel.

At its peak, the foundry employed nearly 600 men worldwide. In the 1980s, the company was bought out as the steel industry consolidated. While the firm closed years ago, Moltrup is still listed on many prints and when listed, the general inference is that the user wants ANSI B17.1 Class 2 fit.

To learn more about the Moltrup Steel Company, see page 34.

Nonstandard lengths less than 12" are available.

DON'T SEE WHAT YOU'RE LOOKING FOR? CONTACT SALES@HUYETT.COM OR CALL 785-392-3017

Nonstandard sizes up to 2-1/2" are available.

MACHINE KEYS

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COLD FINISHED STEEL – METRIC

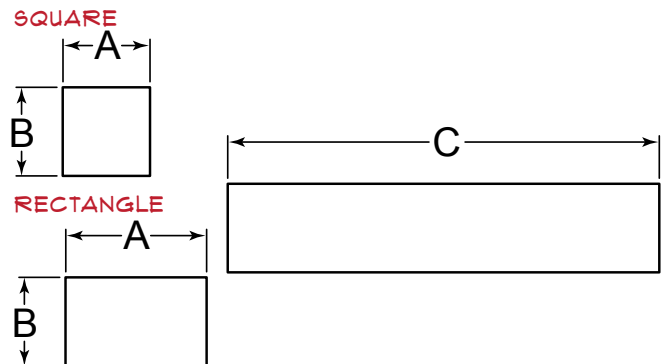
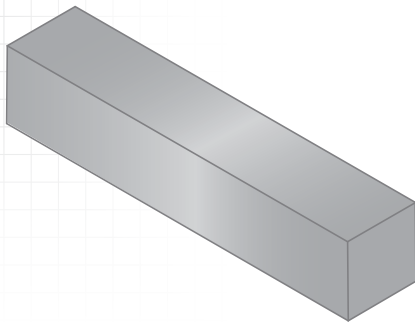
DESCRIPTION

Machine keys are used to transmit torque from a rotating shaft to a gear or sprocket. They can be finished in a variety of shapes, sizes, and materials for just about any application. Standard sizes are ready to use with little or no cutting or filing.

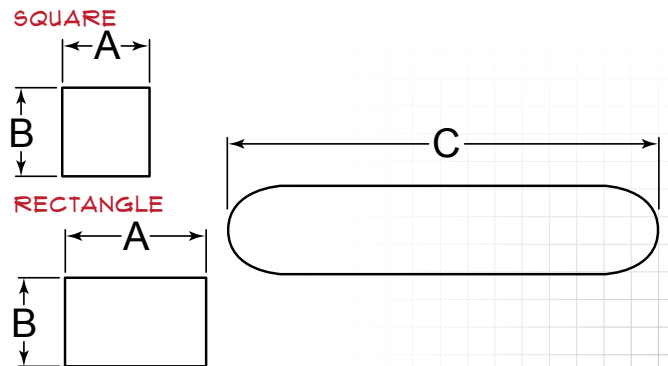
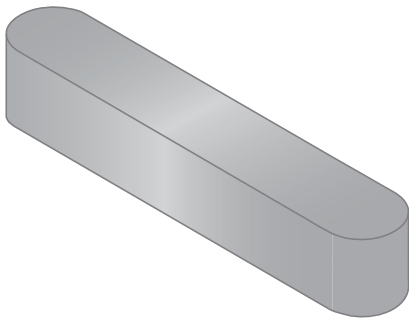
HOW TO IDENTIFY

1. Measure width (A).
2. Measure height (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.

FORM B



FORM A



PREFIX MATERIAL/FINISH

FORM B

UNDERSIZE

- 30 = Cold Finished Steel, Plain*
- 31 = Cold Finished Steel, Zinc Clear Trivalent

OVERSIZE

- 35 = Cold Finished Steel, Plain*
- 36 = Cold Finished Steel, Zinc Clear Trivalent

FORM A

UNDERSIZE

- 32 = Cold Finished Steel, Plain*
- 32Z = Cold Finished Steel, Zinc Clear Trivalent

OVERSIZE

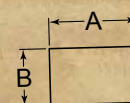
- 37 = Cold Finished Steel, Plain*

Material/finish combinations may not be available in all sizes. Unless specifically stated, our standard machine key stock (30 series) is any one of the following grades, subject to market availability: 1018, 1035, 1045, 1095, 1215, or 8630. Call for precise grade.

SEE PAGE 66 FOR
TOLERANCES

MEASURING METRIC KEYS

Metric machine keys are available in square or rectangle profiles.



Metric machine keys call out width (A) first, then height (B).

METRIC

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.



COLD FINISHED STEEL – METRIC

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

LIST THE LARGER DIMENSION OF (A) OR (B) FIRST

320606-030

ITEM PREFIX

(A) WIDTH

(B) HEIGHT

(C) LENGTH

2 mm to 50 mm

2 mm to 50 mm

4 mm to <305 mm

32

06

06

-030

TO ORDER CHOOSE YOUR MATERIAL,

CHOOSE YOUR WIDTH,

CHOOSE YOUR HEIGHT,

CHOOSE YOUR LENGTH.

CODE	MATERIAL
30	Cold Finished Steel, Plain*, Form B, Undersize
31	Cold Finished Steel, Zinc Clear Trivalent, Form B, Undersize
32	Cold Finished Steel, Plain*, Form A, Undersize
32Z	Cold Finished Steel, Zinc Clear Trivalent, Form A, Undersize
35	Cold Finished Steel, Plain*, Form B, Oversize
36	Cold Finished Steel, Zinc Clear Trivalent, Form B, Oversize
37	Cold Finished Steel, Plain*, Form A, Oversize

CODE	WIDTH & HEIGHT SIZE OPTIONS
02	2.00 mm
03	3.00 mm
04	4.00 mm
05	5.00 mm
06	6.00 mm
07	7.00 mm
08	8.00 mm
09	9.00 mm
10	10.00 mm
11	11.00 mm
12	12.00 mm
13	13.00 mm
14	14.00 mm
15	15.00 mm
16	16.00 mm
18	18.00 mm
20	20.00 mm
22	22.00 mm
24	24.00 mm
25	25.00 mm
28	28.00 mm
30	30.00 mm
32	32.00 mm
36	36.00 mm
40	40.00 mm
45	45.00 mm
50	50.00 mm

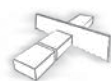
CODE	LENGTH
004	4.00 mm
008	8.00 mm
010	10.00 mm
012	12.00 mm
014	14.00 mm
025	25.00 mm
030	30.00 mm
040	40.00 mm
050	50.00 mm
063	63.00 mm
070	70.00 mm
080	80.00 mm
090	90.00 mm
100	100.00 mm
120	120.00 mm
150	150.00 mm
180	180.00 mm
200	200.00 mm
220	220.00 mm
250	250.00 mm
280	280.00 mm
300	300.00 mm

Nonstandard lengths less than 305 mm are available.

Nonstandard sizes up to 50 mm are available.

DON'T SEE WHAT YOU'RE LOOKING FOR? CONTACT SALES@HUYETT.COM OR CALL 785-392-3017

MANUFACTURING CAPABILITIES:



Sawing



Milling



Drilling



Turning



Tumbling



Surface Grinding



Centerless Grinding

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

MACHINE KEYS

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STAINLESS & NONFERROUS – IMPERIAL

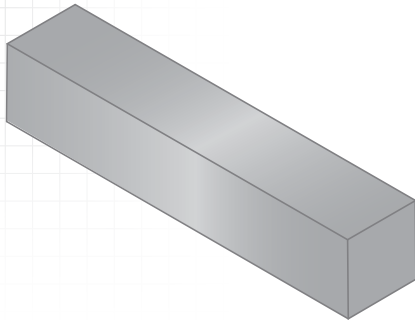
DESCRIPTION

Machine keys are used to transmit torque from a rotating shaft to a gear or sprocket. They can be finished in a variety of shapes, sizes, and materials for just about any application. Standard sizes are ready to use with little or no cutting or filing.

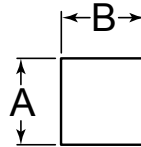
HOW TO IDENTIFY

1. Measure height (A).
2. Measure width (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.

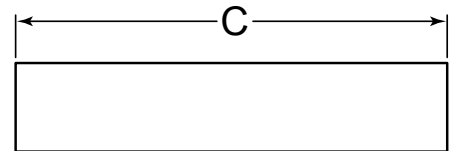
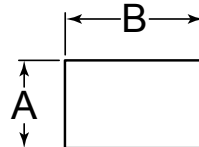
FORM B



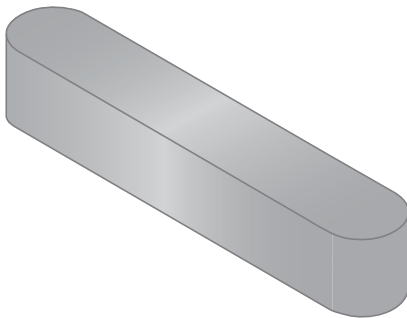
SQUARE



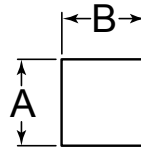
RECTANGLE



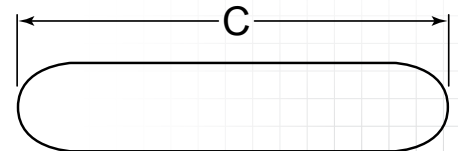
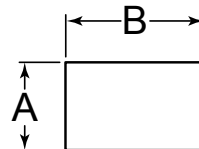
FORM A



SQUARE



RECTANGLE



PREFIX MATERIAL/FINISH

FORM B

STAINLESS STEEL

70	=	300 Series Stainless Steel, Plain**
75	=	300 Series Stainless Steel, Plain, Oversize
80	=	316 Stainless Steel, Plain**
85	=	416 Stainless Steel, Plain**

NONFERROUS

04	=	Aluminum, Plain**
06	=	Brass, Plain**

FORM A

STAINLESS STEEL

72	=	300 Series Stainless Steel, Plain, Squares**
77	=	300 Series Stainless Steel, Plain, Oversize
82	=	316 Stainless Steel, Plain**
87	=	416 Stainless Steel, Plain**

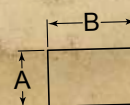
Material/finish combinations may not be available in all sizes.

**Depending on profile, size can vary over or under from nominal size.

SEE PAGE 66 FOR TOLERANCES

MEASURING IMPERIAL KEYS

Imperial machine keys are available in square or rectangle profiles.



IMPERIAL

Imperial machine keys call out height (A) first, then width (B).



STAINLESS & NONFERROUS – IMPERIAL

HOW TO BUILD A PART NUMBER

8005002500-2750

LIST THE **SMALLER** DIMENSION OF (A) OR (B) FIRST



ITEM PREFIX

(A)
HEIGHT

(B)
WIDTH

(C)
LENGTH

80

1/16" to 2-1/2"

1/16" to 2-1/2"

3/16" to <12"

0500

2500

-2750

TO ORDER CHOOSE YOUR MATERIAL,

CHOOSE YOUR HEIGHT,

CHOOSE YOUR WIDTH,

CHOOSE YOUR LENGTH.

CODE	MATERIAL
04	Aluminum, Plain, Form B**
06	Brass, Plain, Form B**
70	300 Series Stainless Steel, Plain, Form B**
72	300 Series Stainless Steel, Plain, Form A, Squares**
75	300 Series Stainless Steel, Plain, Form B, Oversize
77	300 Series Stainless Steel, Plain, Form A, Oversize
80	316 Stainless Steel, Plain, Form B**
82	316 Stainless Steel, Plain, Form A**
85	416 Stainless Steel, Plain, Form B**
87	416 Stainless Steel, Plain, Form A**

**Depending on profile, size can vary over or under from nominal size.

CODE	HEIGHT & WIDTH SIZE OPTIONS
0062	.0625" (1/16)
0093	.0938" (3/32)
0125	.1250" (1/8)
0156	.1563" (5/32)
0187	.1875" (3/16)
0218	.2188" (7/32)
0250	.2500" (1/4)
0281	.2813" (9/32)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9378" (15/16)
1000	1.0000" (1)
1062	1.0625" (1-1/16)
1125	1.1250" (1-1/8)
1187	1.1875" (1-3/16)
1250	1.2500" (1-1/4)
1375	1.3750" (1-3/8)
1500	1.5000" (1-1/2)
1625	1.6250" (1-5/8)
1750	1.7500" (1-3/4)
1875	1.8750" (1-7/8)
2000	2.0000" (2)
2250	2.2500" (2-1/4)
2500	2.5000" (2-1/2)

Nonstandard sizes up to 2-1/2" are available.

CODE	LENGTH
0187	.1875" (3/16)
0250	.2500" (1/4)
0375	.3750" (3/8)
0500	.5000" (1/2)
0625	.6250" (5/8)
0750	.7500" (3/4)
0875	.8750" (7/8)
1000	1.0000" (1)
1500	1.5000" (1-1/2)
2000	2.0000" (2)
4000	4.0000" (4)
6000	6.0000" (6)
8000	8.0000" (8)
10	10.0000" (10)
11	11.0000" (11)
11.5	11.5000" (11-1/2)

Nonstandard lengths less than 12" are available.

18-8 IS NOT A SPECIFICATION FOR STAINLESS STEEL
HUYETT CONSIDERS 18-8 TO BE ANY 300 SERIES STAINLESS STEEL

DON'T SEE WHAT YOU'RE LOOKING FOR? CONTACT SALES@HUYETT.COM OR CALL 785-392-3017

MACHINE KEYS

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STAINLESS STEEL – METRIC

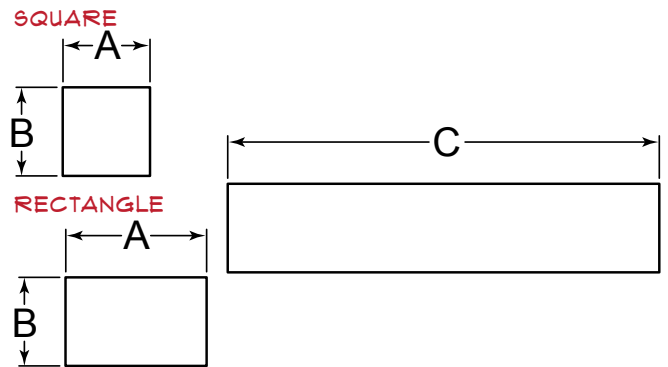
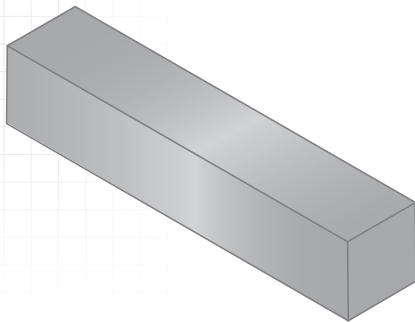
DESCRIPTION

Machine keys are used to transmit torque from a rotating shaft to a gear or sprocket. They can be finished in a variety of shapes, sizes, and materials for just about any application. Standard sizes are ready to use with little or no cutting or filing.

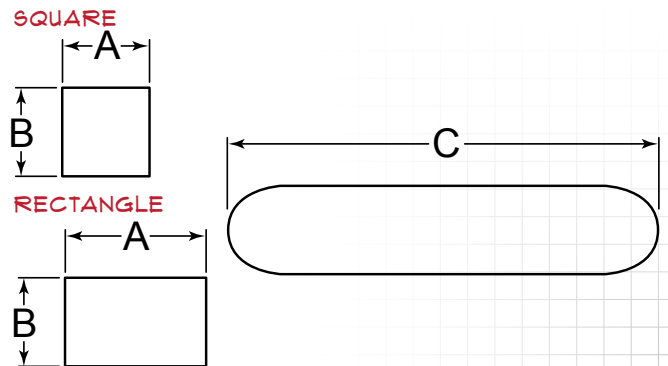
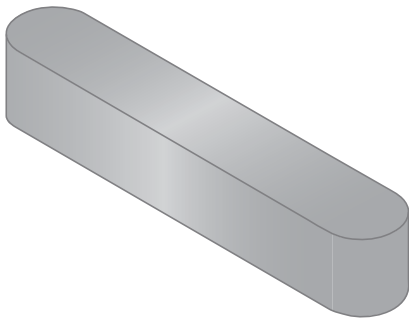
HOW TO IDENTIFY

1. Measure width (A).
2. Measure height (B).
3. Measure length (C).
4. Build the part number from the chart on the next page.

FORM B



FORM A



PREFIX MATERIAL/FINISH

FORM B

UNDERSIZE

- 70 = 300 Series Stainless Steel, Plain
- 80 = 316 Stainless Steel, Plain

OVERSIZE

- 75 = 300 Series Stainless Steel, Plain

FORM A

UNDERSIZE

- 72 = 300 Series Stainless Steel, Plain
- Material/finish combinations may not be available in all sizes.

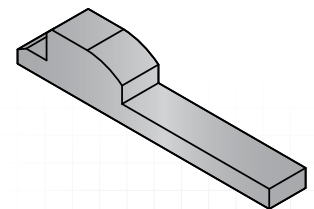
SEE PAGE 66 FOR TOLERANCES

ALSO AVAILABLE...

With in-house engineering support and a complete manufacturing facility, we can make your custom part.

Give our Sales Team a call today.

785-392-3017



HUYETT.COM

STAINLESS STEEL – METRIC

HOW TO BUILD A PART NUMBER

LIST THE **LARGER** DIMENSION OF (A) OR (B) FIRST

720807-025

ITEM PREFIX

(A)
WIDTH

(B)
HEIGHT

(C)
LENGTH

2 mm to 50 mm

2 mm to 50 mm

4 mm to <305 mm

72

08

07

-025

TO ORDER CHOOSE YOUR MATERIAL,

CHOOSE YOUR WIDTH,

CHOOSE YOUR HEIGHT,

CHOOSE YOUR LENGTH.

CODE	MATERIAL
70	300 Series Stainless Steel, Plain, Undersize, Form B
72	300 Series Stainless Steel, Plain, Undersize, Form A
75	300 Series Stainless Steel, Plain, Oversize, Form B
80	316 Stainless Steel, Plain, Undersize, Form B

CODE	WIDTH & HEIGHT SIZE OPTIONS
02	2.00 mm
03	3.00 mm
04	4.00 mm
05	5.00 mm
06	6.00 mm
07	7.00 mm
08	8.00 mm
09	9.00 mm
10	10.00 mm
11	11.00 mm
12	12.00 mm
13	13.00 mm
14	14.00 mm
15	15.00 mm
16	16.00 mm
18	18.00 mm
20	20.00 mm
22	22.00 mm
24	24.00 mm
25	25.00 mm
28	28.00 mm
30	30.00 mm
32	32.00 mm
36	36.00 mm
40	40.00 mm
45	45.00 mm
50	50.00 mm

CODE	LENGTH
004	4.00 mm
008	8.00 mm
010	10.00 mm
012	12.00 mm
014	14.00 mm
025	25.00 mm
030	30.00 mm
040	40.00 mm
050	50.00 mm
063	63.00 mm
070	70.00 mm
080	80.00 mm
090	90.00 mm
100	100.00 mm
120	120.00 mm
150	150.00 mm
180	180.00 mm
200	200.00 mm
220	220.00 mm
250	250.00 mm
280	280.00 mm
300	300.00 mm

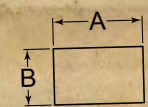
Nonstandard lengths less than 305 mm are available.

DON'T SEE WHAT YOU'RE LOOKING FOR? CONTACT SALES@HUYETT.COM OR CALL 785-392-3017

18-8 IS NOT A SPECIFICATION FOR STAINLESS STEEL
HUYETT CONSIDERS 18-8 TO BE ANY 300 SERIES STAINLESS STEEL

MEASURING METRIC KEYS

Metric machine keys are available in square or rectangle profiles.



Metric machine keys call out width (A) first, then height (B).

METRIC

Nonstandard sizes up to 50 mm are available.

MACHINE KEYS

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IMPERIAL TOLERANCES


MATERIAL		FORM	SQUARE		RECTANGLE		LENGTH	
(Prefix)	(Material/Finish)		(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
Cold Finished Steel								
30	Cold Finished Steel, Plain*, Undersize	Form B	.0625 – .7500"	+0/-.0020"	.0938 – .7500"	+0/-.0030"	All sizes	+0/-.0300"
			>.7500 – 1.5000"	+0/-.0030"	>.7500 – 1.5000"	+0/-.0040"		
			>1.5000 – 2.5000"	+0/-.0040"	>1.5000 – 3.0000"	+0/-.0050"		
			>2.5000" +	+0/-.0060"	>3.0000" +	+0/-.0060"		
31	Cold Finished Steel, Zinc Clear Trivalent, Undersize							
32	Cold Finished Steel, Plain*, Undersize	Form A						
32Z	Cold Finished Steel, Zinc Clear Trivalent, Undersize							
35	Cold Finished Steel, Plain*, Oversize	Form B	.0625 – .7500"	+0.0020/-0"	.1875 – .7500"	+0.0030/-0"	All sizes	+0/-.0300"
			>.7500 – 1.5000"	+0.0030/-0"	>.7500 – 1.5000"	+0.0040/-0"		
			>1.5000 – 2.5000"	+0.0040/-0"	>1.5000 – 3.0000"	+0.0050/-0"		
36	Cold Finished Steel, Zinc Clear Trivalent, Oversize							
37	Cold Finished Steel, Plain*, Oversize	Form A						
45	Cold Finished Steel, Plain* (1045), Undersize	Form B	.0625 – .7500"	+0/-.0040"	.2500 – .7500"	+0/-.0040"	All sizes	+0/-.0300"
			>.7500 – 1.5000"	+0/-.0050"	>.7500 – 1.5000"	+0/-.0050"		
			>1.5000 – 2.5000"	+0/-.0060"	>1.5000 – 3.0000"	+0/-.0060"		
46	Cold Finished Steel, Zinc Clear Trivalent, Undersize							
47	Cold Finished Steel, Plain* (1045), Undersize	Form A						
65	Cold Finished Alloy Steel, Plain* (4140), Undersize	Form B	.0625 – .7500"	+0/-.005"	.0625 – .7500"	+0/-.005"	All sizes	+0/-.0300"
			>.7500 – 1.5000"	+0/-.006"	>.7500 – 1.5000"	+0/-.006"		
			>1.5000 – 3.0000"	+0/-.007"	>1.5000 – 3.0000"	+0/-.007"		
66	Cold Finished Steel, Zinc Clear Trivalent, Undersize							
67	Cold Finished Alloy Steel, Plain* (4140), Undersize	Form A						
Moltrup								
60	Moltrup Quality Steel, Plain* (1045 or 8630)	Form B	.0625 – 1.2500"	+0.0010/-0"	(Width) .0625 – 1.2500"	+0.0010/-0"	All Sizes	+0/-.0300"
			>1.2500 – 3.0000"	+0.0020/-0"	>1.2500 – 3.0000"	+0.0020/-0"		
62	Moltrup Quality Steel, Plain* (1045 or 8630)	Form A			(Height) .0625 – 7.0000"	±.0050"		

Note: Unless specifically stated, our standard machine key stock (30 series) is any one of the following grades, subject to market availability: 1018, 1035, 1045, 1095, 1215, or 8630. Call for precise grade.



IMPERIAL TOLERANCES

MATERIAL		FORM	SQUARE		RECTANGLE		LENGTH	
(Prefix)	(Material/Finish)		(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
Stainless Steel								
70	300 Series Stainless Steel, Plain**	Form B	.0937 – .3120" >.3120 – .5000" >.5000 – 1.0000" >1.0000 – 2.0000"	+0/-.0020" +0/-.0030" +0/-.0040" +0/-.0060"	(Width Size) .0625 – .3750" >.3750 – 1.0000" >1.0010 – 2.0000"	±.0050" ±.0040" ±.0060"	All sizes	+0/-.0300"
72	300 Series Stainless Steel, Plain**	Form A			(Height Size) .03500 – 1.0000" >1.0000 – 2.0000"	±.0020" ±.0030"		
75	300 Series Stainless Steel, Plain, Oversize	Form B	.0625 – .5625" >.5625 – 1.0000" >1.0000 – 2.0000"	+ .0030/-0" + .0050/-0" + .0060/-0"	.0625 – .5625" >.5625 – 1.0000" >1.0000 – 2.0000"	+ .0030/-0" + .0050/-0" + .0060/-0"	All sizes	+0/-.0300"
77	300 Series Stainless Steel, Plain, Oversize	Form A						
80	316 Stainless Steel, Plain**	Form B	.0937 – .3120" >.3120 – .5000" >.5000 – 1.0000" >1.0000 – 2.0000"	+0/-.0020" +0/-.0030" +0/-.0040" +0/-.0060"	(Width Size) .0625 – .3750" >.3750 – 1.0000" >1.0010 – 2.0000"	±.0050" ±.0040" ±.0060"	All sizes	+0/-.0300"
82	316 Stainless Steel, Plain**	Form A			(Height Size) .03500 – 1.0000" >1.0000 – 2.0000"	±.0020" ±.0030"		
85	416 Stainless Steel, Plain**	Form B						
87	416 Stainless Steel, Plain**	Form A						
Nonferrous								
04	Aluminum, Plain**	Form B	.1250 – .3750" >.3750 – .6250" >.6250 – .8750" >.8750 – 1.2500" >1.2500 – 1.7500" >1.7500 – 2.5000"	±.0080" ±.0090" ±.0100" ±.0120" ±.0140" ±.0240"	.1250 – .3750" >.3750 – .6250" >.6250 – .8750" >.8750 – 1.2500" >1.2500 – 1.7500" >1.7500 – 2.5000"	±.0080" ±.0090" ±.0100" ±.0120" ±.0140" ±.0240"	All Sizes	+0/-.0300"
06	Brass, Plain**	Form B	.1250" >.1875 – .5000" >.5000 – 1.0000" >1.0000 – 2.0000"	±.0020" ±.0030" ±.0040" ±.0050"	.1250" >.1250 – .5000" >.5000 – 1.0000" >1.0000 – 2.0000"	±.0020" ±.0030" ±.0040" ±.0050"	All Sizes	+0/-.0300"

 18-8 IS NOT A SPECIFICATION FOR STAINLESS STEEL
HUYETT CONSIDERS 18-8 TO BE ANY 300 SERIES STAINLESS STEEL

**Depending on profile, size can vary over or under from nominal size.

ENVIRONMENTAL CONCERNS

Huyett is committed to maintaining the safety of our environment. The processes for plating and coating steels have the potential of introducing harmful chemical substances into the environment and are strictly controlled. Huyett complies with all environmental regulations and laws which apply to our products and services.

Learn more at huyett.com/quality.



REACH
Registration, Evaluation, Authorization, and Restriction of Chemical Substances



RoHS
Restriction of Hazardous Substances

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METRIC TOLERANCES

MATERIAL		FORM	SQUARE		RECTANGLE		LENGTH		
(Prefix)	(Material/Finish)		(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	
Cold Finished Steel									
30	Cold Finished Steel, Plain*, Undersize	Form B	0 – 3 mm	+0/-0.025 mm	See "DIN 6880 Standard Tolerancing for Flat Metric Steels," page 32.		10 – 28 mm	+0/-0.200 mm	
			>3 – 6 mm	+0/-0.030 mm			>28 – 80 mm	+0/-0.300 mm	
		>6 – 10 mm	+0/-0.036 mm	>80 – 250 mm			+0/-0.500 mm		
		>10 – 19 mm	+0/-0.043 mm	>250 mm			Call for tolerance.		
31	Cold Finished Steel, Zinc Clear Trivalent, Undersize		>19 – 30 mm	+0/-0.052 mm					
			>30 – 50 mm	+0/-0.062 mm					
32	Cold Finished Steel, Plain*, Undersize	Form A							
32Z	Cold Finished Steel, Zinc Clear Trivalent, Undersize								
35	Cold Finished Steel, Plain*, Oversize	Form B	All Sizes	+0.076/-0 mm	All Sizes	+0.076/-0 mm			
36	Cold Finished Steel, Zinc Clear Trivalent, Oversize								
37	Cold Finished Steel, Plain*, Oversize	Form A							
Stainless Steel									
70	300 Stainless Steel, Plain, Undersize	Form B	0 – 3 mm	+0/-0.025 mm	See "DIN 6880 Standard Tolerancing for Flat Metric Steels," page 32.		10 – 28 mm	+0/-0.200 mm	
			>3 – 6 mm	+0/-0.030 mm			>28 – 80 mm	+0/-0.300 mm	
		>7 – 10 mm	+0/-0.036 mm	>80 – 250 mm			+0/-0.500 mm		
		>10 – 19 mm	+0/-0.043 mm	>250 mm			Call for tolerance.		
		>19 – 30 mm	+0/-0.052 mm						
		>30 – 50 mm	+0/-0.062 mm						
72	300 Stainless Steel, Plain, Undersize	Form A							
75	300 Series Stainless Steel, Plain, Oversize	Form B	All Sizes	+0.076/-0 mm	All Sizes	+0.076/-0 mm			
80	316 Stainless Steel, Plain, Undersize	Form B	0 – 3 mm	+0/-0.025 mm	See "DIN 6880 Standard Tolerancing for Flat Metric Steels," page 32.		10 – 28 mm	+0/-0.200 mm	
			>3 – 6 mm	+0/-0.030 mm			>28 – 80 mm	+0/-0.300 mm	
		>7 – 10 mm	+0/-0.036 mm	>80 – 250 mm			+0/-0.500 mm		
		>10 – 19 mm	+0/-0.043 mm	>250 mm			Call for tolerance.		
		>19 – 30 mm	+0/-0.052 mm						
		>30 – 50 mm	+0/-0.062 mm						

Note: Unless specifically stated, our standard machine key stock (30 series) is any one of the following grades, subject to market availability: 1018, 1035, 1045, 1095, 1215, or 8630. Call for precise grade.

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

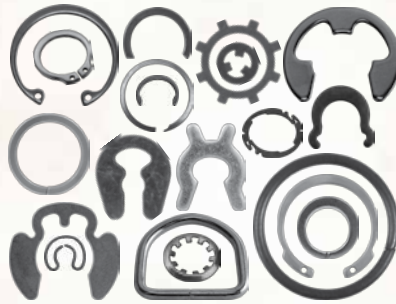


MANUFACTURER & MASTER DISTRIBUTOR

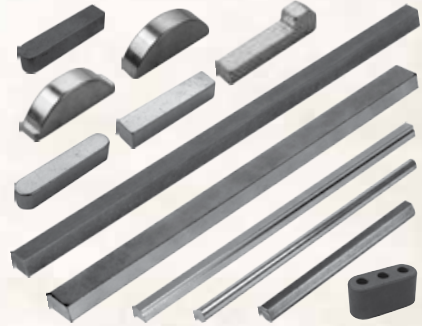
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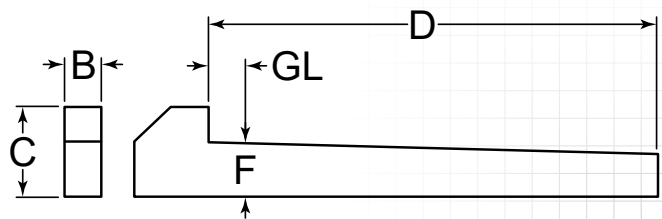
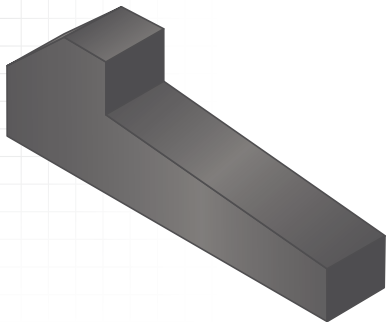
GIB HEAD – IMPERIAL

DESCRIPTION

Gib head keys are tapered machine keys used on power transmission keyed shafts to hold pulleys and gears tightly on the shaft. The added feature of a head provides for easy removal.

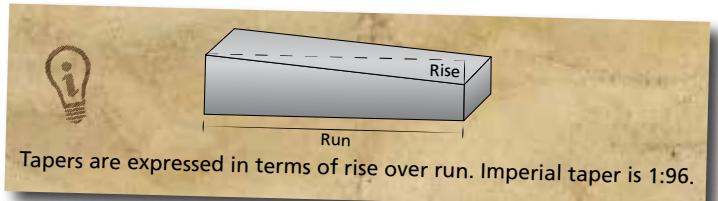
HOW TO IDENTIFY

1. Verify tapered key with gib head design.
2. Measure width (B).
3. Measure length (D).
4. Find the part number in the chart below.



PREFIX MATERIAL/FINISH

GIB = **CARBON STEEL, PLAIN***
Material/finish combinations may not be available in all sizes.



ITEM NUMBER	(D) LENGTH
-------------	------------

.1250" (1/8)

(B) Width

(F) Effective Height: .1250" (1/8)
(C) Overall Height: .2500" (1/4)
(GL) Gage Length: .1250" (1/8)

GIB-0125-1000	1.0000" (1)
GIB-0125-1500	1.5000" (1-1/2)
GIB-0125-2000	2.0000" (2)
GIB-0125-2500	2.5000" (2-1/2)
GIB-0125-3000	3.0000" (3)
GIB-0125-3500	3.5000" (3-1/2)
GIB-0125-4000	4.0000" (4)
GIB-0125-4500	4.5000" (4-1/2)
GIB-0125-5000	5.0000" (5)

.1875" (3/16)

(B) Width

(F) Effective Height: .1875" (3/16)
(C) Overall Height: .3125" (5/16)
(GL) Gage Length: .1875" (3/16)

GIB-0187-1000	1.0000" (1)
GIB-0187-1187	1.1875" (1-3/16)
GIB-0187-1500	1.5000" (1-1/2)

ITEM NUMBER	(D) LENGTH
-------------	------------

.2500" (1/4)

(B) Width

(F) Effective Height: .2500" (1/4)
(C) Overall Height: .4375" (7/16)
(GL) Gage Length: .2500" (1/4)

GIB-0250-1000	1.0000" (1)
GIB-0250-1187	1.1875" (1-3/16)
GIB-0250-1250	1.2500" (1-1/4)
GIB-0250-1500	1.5000" (1-1/2)
GIB-0250-1625	1.6250" (1-5/8)
GIB-0250-1687	1.6875" (1-11/16)
GIB-0250-1750	1.7500" (1-3/4)
GIB-0250-1937	1.9375" (1-15/16)
GIB-0250-2000	2.0000" (2)
GIB-0250-2500	2.5000" (2-1/2)
GIB-0250-3000	3.0000" (3)

ITEM NUMBER	(D) LENGTH
-------------	------------

.3125" (5/16)

(B) Width

(F) Effective Height: .3125" (5/16)
(C) Overall Height: .5000" (1/2)
(GL) Gage Length: .3125" (5/16)

GIB-0312-0750	.7500" (3/4)
GIB-0312-1000	1.0000" (1)
GIB-0312-1250	1.2500" (1-1/4)
GIB-0312-1500	1.5000" (1-1/2)
GIB-0312-1937	1.9375" (1-15/16)
GIB-0312-2000	2.0000" (2)
GIB-0312-2500	2.5000" (2-1/2)
GIB-0312-3000	3.0000" (3)
GIB-0312-3500	3.5000" (3-1/2)
GIB-0312-4000	4.0000" (4)
GIB-0312-4500	4.5000" (4-1/2)
GIB-0312-5000	5.0000" (5)

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.



GIB HEAD – IMPERIAL

ITEM NUMBER	(D) LENGTH
GIB-0312-5500	5.5000" (5-1/2)
GIB-0312-6000	6.0000" (6)
GIB-0312-6500	6.5000" (6-1/2)
GIB-0312-7000	7.0000" (7)

.3750" (3/8) (B) Width	
(F) Effective Height: .3750" (3/8)	
(C) Overall Height: .6250" (5/8)	
(GL) Gage Length: .3750" (3/8)	
GIB-0375-1000	1.0000" (1)
GIB-0375-1250	1.2500" (1-1/4)
GIB-0375-1375	1.3750" (1-3/8)
GIB-0375-1500	1.5000" (1-1/2)
GIB-0375-1937	1.9375" (1-15/16)
GIB-0375-2000	2.0000" (2)
GIB-0375-2250	2.2500" (2-1/4)
GIB-0375-2500	2.5000" (2-1/2)
GIB-0375-2750	2.7500" (2-3/4)
GIB-0375-2937	2.9375" (2-15/16)
GIB-0375-3000	3.0000" (3)
GIB-0375-3500	3.5000" (3-1/2)
GIB-0375-4000	4.0000" (4)
GIB-0375-4500	4.5000" (4-1/2)
GIB-0375-5000	5.0000" (5)
GIB-0375-5500	5.5000" (5-1/2)
GIB-0375-6000	6.0000" (6)
GIB-0375-6500	6.5000" (6-1/2)
GIB-0375-7000	7.0000" (7)
GIB-0375-7500	7.5000" (7-1/2)
GIB-0375-8000	8.0000" (8)
GIB-0375-8500	8.5000" (8-1/2)

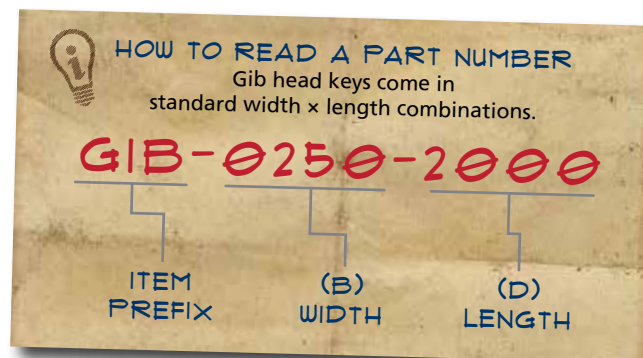
.4375" (7/16) (B) Width	
(F) Effective Height: .4375" (7/16)	
(C) Overall Height: .7500" (3/4)	
(GL) Gage Length: .4375" (7/16)	
GIB-0437-1000	1.0000" (1)
GIB-0437-1500	1.5000" (1-1/2)
GIB-0437-2000	2.0000" (2)
GIB-0437-2500	2.5000" (2-1/2)
GIB-0437-3000	3.0000" (3)
GIB-0437-3500	3.5000" (3-1/2)
GIB-0437-4000	4.0000" (4)
GIB-0437-4500	4.5000" (4-1/2)
GIB-0437-5000	5.0000" (5)
GIB-0437-5500	5.5000" (5-1/2)
GIB-0437-6000	6.0000" (6)
GIB-0437-6500	6.5000" (6-1/2)
GIB-0437-7000	7.0000" (7)
GIB-0437-7500	7.5000" (7-1/2)
GIB-0437-8000	8.0000" (8)

ITEM NUMBER	(D) LENGTH
GIB-0437-8500	8.5000" (8-1/2)
GIB-0437-9000	9.0000" (9)
GIB-0437-9500	9.5000" (9-1/2)
GIB-0437-10000	10.0000" (10)

.5000" (1/2) (B) Width	
(F) Effective Height: .5000" (1/2)	
(C) Overall Height: .7500" (3/4)	
(GL) Gage Length: .5000" (1/2)	
GIB-0500-1000	1.0000" (1)
GIB-0500-1500	1.5000" (1-1/2)
GIB-0500-2000	2.0000" (2)
GIB-0500-2250	2.2500" (2-1/4)
GIB-0500-2500	2.5000" (2-1/2)
GIB-0500-2750	2.7500" (2-3/4)
GIB-0500-2937	2.9375" (2-15/16)
GIB-0500-3000	3.0000" (3)
GIB-0500-3500	3.5000" (3-1/2)
GIB-0500-3750	3.7500" (3-3/4)
GIB-0500-4000	4.0000" (4)
GIB-0500-4500	4.5000" (4-1/2)
GIB-0500-5000	5.0000" (5)
GIB-0500-5500	5.5000" (5-1/2)
GIB-0500-6000	6.0000" (6)
GIB-0500-6500	6.5000" (6-1/2)
GIB-0500-7000	7.0000" (7)
GIB-0500-7500	7.5000" (7-1/2)
GIB-0500-8000	8.0000" (8)
GIB-0500-8500	8.5000" (8-1/2)
GIB-0500-9000	9.0000" (9)
GIB-0500-9500	9.5000" (9-1/2)
GIB-0500-10000	10.0000" (10)
GIB-0500-10500	10.5000" (10-1/2)
GIB-0500-11000	11.0000" (11)
GIB-0500-11500	11.5000" (11-1/2)
GIB-0500-12000	12.0000" (12)

ITEM NUMBER	(D) LENGTH
.5625" (9/16) (B) Width	
(F) Effective Height: .5625" (9/16)	
(C) Overall Height: .8750" (7/8)	
(GL) Gage Length: .5625" (9/16)	
GIB-0562-1000	1.0000" (1)
GIB-0562-1500	1.5000" (1-1/2)
GIB-0562-2000	2.0000" (2)
GIB-0562-2500	2.5000" (2-1/2)
GIB-0562-3000	3.0000" (3)
GIB-0562-3500	3.5000" (3-1/2)
GIB-0562-4000	4.0000" (4)
GIB-0562-4500	4.5000" (4-1/2)
GIB-0562-5000	5.0000" (5)
GIB-0562-5500	5.5000" (5-1/2)
GIB-0562-6000	6.0000" (6)
GIB-0562-6500	6.5000" (6-1/2)
GIB-0562-7000	7.0000" (7)
GIB-0562-7500	7.5000" (7-1/2)
GIB-0562-8000	8.0000" (8)
GIB-0562-8500	8.5000" (8-1/2)
GIB-0562-9000	9.0000" (9)
GIB-0562-9500	9.5000" (9-1/2)
GIB-0562-10000	10.0000" (10)
GIB-0562-10500	10.5000" (10-1/2)
GIB-0562-11000	11.0000" (11)
GIB-0562-11500	11.5000" (11-1/2)
GIB-0562-12000	12.0000" (12)

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16



MACHINE KEYS

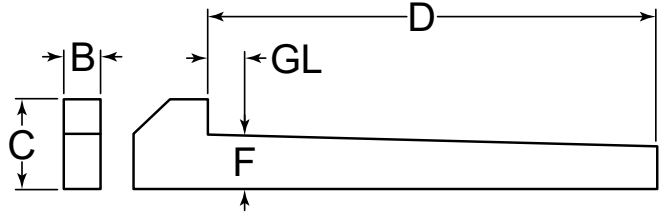
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GIB HEAD – IMPERIAL

PREFIX MATERIAL/FINISH

GIB = CARBON STEEL, PLAIN*
Material/finish combinations may not be available in all sizes.



ITEM NUMBER	(D) LENGTH
.6250" (5/8) (B) Width	
(F) Effective Height: .6250" (5/8) (C) Overall Height: 1.0000" (1) (GL) Gauge Length: .6250" (5/8)	
GIB-0625-1500	1.5000" (1-1/2)
GIB-0625-2000	2.0000" (2)
GIB-0625-2500	2.5000" (2-1/2)
GIB-0625-2750	2.7500" (2-3/4)
GIB-0625-2937	2.9375" (2-15/16)
GIB-0625-3000	3.0000" (3)
GIB-0625-3500	3.5000" (3-1/2)
GIB-0625-4000	4.0000" (4)
GIB-0625-4500	4.5000" (4-1/2)
GIB-0625-5000	5.0000" (5)
GIB-0625-5500	5.5000" (5-1/2)
GIB-0625-6000	6.0000" (6)
GIB-0625-6500	6.5000" (6-1/2)
GIB-0625-7000	7.0000" (7)
GIB-0625-7500	7.5000" (7-1/2)
GIB-0625-8000	8.0000" (8)
GIB-0625-8500	8.5000" (8-1/2)
GIB-0625-9000	9.0000" (9)
GIB-0625-9500	9.5000" (9-1/2)
GIB-0625-10000	10.0000" (10)
GIB-0625-10500	10.5000" (10-1/2)
GIB-0625-11000	11.0000" (11)
GIB-0625-11500	11.5000" (11-1/2)
GIB-0625-12000	12.0000" (12)
.7500" (3/4) (B) Width	
(F) Effective Height: .7500" (3/4) (C) Overall Height: 1.1250" (1-1/8) (GL) Gauge Length: .7500" (3/4)	
GIB-0750-1500	1.5000" (1-1/2)
GIB-0750-2000	2.0000" (2)
GIB-0750-2500	2.5000" (2-1/2)
GIB-0750-3000	3.0000" (3)
GIB-0750-3500	3.5000" (3-1/2)
GIB-0750-3750	3.7500" (3-3/4)
GIB-0750-4000	4.0000" (4)
GIB-0750-4500	4.5000" (4-1/2)
GIB-0750-5000	5.0000" (5)

ITEM NUMBER	(D) LENGTH
GIB-0750-5500	5.5000" (5-1/2)
GIB-0750-6000	6.0000" (6)
GIB-0750-6500	6.5000" (6-1/2)
GIB-0750-7000	7.0000" (7)
GIB-0750-7500	7.5000" (7-1/2)
GIB-0750-7750	7.7500" (7-3/4)
GIB-0750-8000	8.0000" (8)
GIB-0750-8500	8.5000" (8-1/2)
GIB-0750-9000	9.0000" (9)
GIB-0750-9500	9.5000" (9-1/2)
GIB-0750-10000	10.0000" (10)
GIB-0750-10500	10.5000" (10-1/2)
GIB-0750-11000	11.0000" (11)
GIB-0750-11500	11.5000" (11-1/2)
GIB-0750-12000	12.0000" (12)
.8750" (7/8) (B) Width	
(F) Effective Height: .8750" (7/8) (C) Overall Height: 1.2500" (1-1/4) (GL) Gauge Length: .8750" (7/8)	
GIB-0875-2000	2.0000" (2)
GIB-0875-2500	2.5000" (2-1/2)
GIB-0875-3000	3.0000" (3)
GIB-0875-3500	3.5000" (3-1/2)
GIB-0875-4000	4.0000" (4)
GIB-0875-4500	4.5000" (4-1/2)
GIB-0875-5000	5.0000" (5)
GIB-0875-5500	5.5000" (5-1/2)
GIB-0875-6000	6.0000" (6)
GIB-0875-6500	6.5000" (6-1/2)
GIB-0875-7000	7.0000" (7)
GIB-0875-7500	7.5000" (7-1/2)
GIB-0875-8000	8.0000" (8)
GIB-0875-8500	8.5000" (8-1/2)
GIB-0875-9000	9.0000" (9)
GIB-0875-9500	9.5000" (9-1/2)
GIB-0875-10000	10.0000" (10)
GIB-0875-10500	10.5000" (10-1/2)
GIB-0875-11000	11.0000" (11)
GIB-0875-11500	11.5000" (11-1/2)
GIB-0875-12000	12.0000" (12)

ITEM NUMBER	(D) LENGTH
1.0000" (1) (B) Width	
(F) Effective Height: 1.0000" (1) (C) Overall Height: 1.5000" (1-1/2) (GL) Gauge Length: 1.0000" (1)	
GIB-1000-2500	2.5000" (2-1/2)
GIB-1000-3000	3.0000" (3)
GIB-1000-3500	3.5000" (3-1/2)
GIB-1000-4000	4.0000" (4)
GIB-1000-4500	4.5000" (4-1/2)
GIB-1000-4750	4.7500" (4-3/4)
GIB-1000-5000	5.0000" (5)
GIB-1000-5500	5.5000" (5-1/2)
GIB-1000-6000	6.0000" (6)
GIB-1000-6500	6.5000" (6-1/2)
GIB-1000-7000	7.0000" (7)
GIB-1000-7500	7.5000" (7-1/2)
GIB-1000-8000	8.0000" (8)
GIB-1000-8500	8.5000" (8-1/2)
GIB-1000-9000	9.0000" (9)
GIB-1000-9500	9.5000" (9-1/2)
GIB-1000-10000	10.0000" (10)
GIB-1000-10500	10.5000" (10-1/2)
GIB-1000-11000	11.0000" (11)
GIB-1000-11500	11.5000" (11-1/2)
GIB-1000-12000	12.0000" (12)
GIB-1000-16000	16.0000" (16)
1.1250" (1-1/8) (B) Width	
(F) Effective Height: 1.1250" (1-1/8) (C) Overall Height: 1.7500" (1-3/4) (GL) Gauge Length: 1.1250" (1-1/8)	
GIB-1125-2500	2.5000" (2-1/2)
GIB-1125-3000	3.0000" (3)
GIB-1125-3500	3.5000" (3-1/2)
GIB-1125-4000	4.0000" (4)
GIB-1125-4500	4.5000" (4-1/2)
GIB-1125-5000	5.0000" (5)
GIB-1125-5500	5.5000" (5-1/2)
GIB-1125-6000	6.0000" (6)
GIB-1125-6500	6.5000" (6-1/2)
GIB-1125-7000	7.0000" (7)
GIB-1125-7500	7.5000" (7-1/2)

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.
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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.



GIB HEAD – IMPERIAL

ITEM NUMBER	(D) LENGTH
GIB-1125-8000	8.0000" (8)
GIB-1125-8500	8.5000" (8-1/2)
GIB-1125-9000	9.0000" (9)
GIB-1125-9500	9.5000" (9-1/2)
GIB-1125-10000	10.0000" (10)
GIB-1125-10500	10.5000" (10-1/2)
GIB-1125-11000	11.0000" (11)
GIB-1125-11500	11.5000" (11-1/2)
GIB-1125-12000	12.0000" (12)

ITEM NUMBER	(D) LENGTH
GIB-1375-8000	8.0000" (8)
GIB-1375-8500	8.5000" (8-1/2)
GIB-1375-9000	9.0000" (9)
GIB-1375-9500	9.5000" (9-1/2)
GIB-1375-10000	10.0000" (10)
GIB-1375-10500	10.5000" (10-1/2)
GIB-1375-11000	11.0000" (11)
GIB-1375-11500	11.5000" (11-1/2)
GIB-1375-12000	12.0000" (12)

ITEM NUMBER	(D) LENGTH
GIB-1625-9500	9.5000" (9-1/2)
GIB-1625-10000	10.0000" (10)
GIB-1625-10500	10.5000" (10-1/2)
GIB-1625-11000	11.0000" (11)
GIB-1625-11500	11.5000" (11-1/2)
GIB-1625-12000	12.0000" (12)

1.7500" (1-3/4)

(B) Width

(F) Effective Height: 1.7500" (1-3/4)
 (C) Overall Height: 2.7500" (2-3/4)
 (GL) Gage Length: 1.7500" (1-3/4)

GIB-1750-4000	4.0000" (4)
GIB-1750-4500	4.5000" (4-1/2)
GIB-1750-5000	5.0000" (5)
GIB-1750-5500	5.5000" (5-1/2)
GIB-1750-6000	6.0000" (6)
GIB-1750-6500	6.5000" (6-1/2)
GIB-1750-7000	7.0000" (7)
GIB-1750-7500	7.5000" (7-1/2)
GIB-1750-8000	8.0000" (8)
GIB-1750-8500	8.5000" (8-1/2)
GIB-1750-9000	9.0000" (9)
GIB-1750-9500	9.5000" (9-1/2)
GIB-1750-10000	10.0000" (10)
GIB-1750-10500	10.5000" (10-1/2)
GIB-1750-11000	11.0000" (11)
GIB-1750-11500	11.5000" (11-1/2)
GIB-1750-12000	12.0000" (12)

2.0000" (2)

(B) Width

(F) Effective Height: 2.0000" (2)
 (C) Overall Height: 3.0000" (3)
 (GL) Gage Length: 2.0000" (2)

GIB-2000-4500	4.5000" (4-1/2)
GIB-2000-5000	5.0000" (5)
GIB-2000-5500	5.5000" (5-1/2)
GIB-2000-6000	6.0000" (6)
GIB-2000-6500	6.5000" (6-1/2)
GIB-2000-7000	7.0000" (7)
GIB-2000-7500	7.5000" (7-1/2)
GIB-2000-8000	8.0000" (8)
GIB-2000-8500	8.5000" (8-1/2)
GIB-2000-9000	9.0000" (9)
GIB-2000-9500	9.5000" (9-1/2)
GIB-2000-10000	10.0000" (10)
GIB-2000-10500	10.5000" (10-1/2)
GIB-2000-11000	11.0000" (11)
GIB-2000-11500	11.5000" (11-1/2)
GIB-2000-12000	12.0000" (12)

1.2500" (1-1/4)

(B) Width

(F) Effective Height: 1.2500" (1-1/4)
 (C) Overall Height: 1.8750" (1-7/8)
 (GL) Gage Length: 1.2500" (1-1/4)

GIB-1250-3000	3.0000" (3)
GIB-1250-3500	3.5000" (3-1/2)
GIB-1250-4000	4.0000" (4)
GIB-1250-4500	4.5000" (4-1/2)
GIB-1250-5000	5.0000" (5)
GIB-1250-5500	5.5000" (5-1/2)
GIB-1250-6000	6.0000" (6)
GIB-1250-6500	6.5000" (6-1/2)
GIB-1250-7000	7.0000" (7)
GIB-1250-7500	7.5000" (7-1/2)
GIB-1250-8000	8.0000" (8)
GIB-1250-8500	8.5000" (8-1/2)
GIB-1250-9000	9.0000" (9)
GIB-1250-9500	9.5000" (9-1/2)
GIB-1250-10000	10.0000" (10)
GIB-1250-10500	10.5000" (10-1/2)
GIB-1250-11000	11.0000" (11)
GIB-1250-11500	11.5000" (11-1/2)
GIB-1250-12000	12.0000" (12)
GIB-1250-14000	14.0000" (14)

1.5000" (1-1/2)

(B) Width

(F) Effective Height: 1.5000" (1-1/2)
 (C) Overall Height: 2.5000" (2-1/2)
 (GL) Gage Length: 1.5000" (1-1/2)

GIB-1500-3500	3.5000" (3-1/2)
GIB-1500-4000	4.0000" (4)
GIB-1500-4500	4.5000" (4-1/2)
GIB-1500-5000	5.0000" (5)
GIB-1500-5500	5.5000" (5-1/2)
GIB-1500-6000	6.0000" (6)
GIB-1500-6500	6.5000" (6-1/2)
GIB-1500-7000	7.0000" (7)
GIB-1500-7500	7.5000" (7-1/2)
GIB-1500-8000	8.0000" (8)
GIB-1500-8500	8.5000" (8-1/2)
GIB-1500-9000	9.0000" (9)
GIB-1500-9500	9.5000" (9-1/2)
GIB-1500-10000	10.0000" (10)
GIB-1500-10500	10.5000" (10-1/2)
GIB-1500-11000	11.0000" (11)
GIB-1500-11500	11.5000" (11-1/2)
GIB-1500-12000	12.0000" (12)

1.6250" (1-5/8)

(B) Width

(F) Effective Height: 1.6250" (1-5/8)
 (C) Overall Height: 2.5000" (2-1/2)
 (GL) Gage Length: 1.6250" (1-5/8)

GIB-1625-3500	3.5000" (3-1/2)
GIB-1625-4000	4.0000" (4)
GIB-1625-4500	4.5000" (4-1/2)
GIB-1625-5000	5.0000" (5)
GIB-1625-5500	5.5000" (5-1/2)
GIB-1625-6000	6.0000" (6)
GIB-1625-6500	6.5000" (6-1/2)
GIB-1625-7000	7.0000" (7)
GIB-1625-7500	7.5000" (7-1/2)
GIB-1625-8000	8.0000" (8)
GIB-1625-8500	8.5000" (8-1/2)
GIB-1625-9000	9.0000" (9)

1.3750" (1-3/8)

(B) Width

(F) Effective Height: 1.3750" (1-3/8)
 (C) Overall Height: 2.0000" (2)
 (GL) Gage Length: 1.3750" (1-3/8)

GIB-1375-3000	3.0000" (3)
GIB-1375-3500	3.5000" (3-1/2)
GIB-1375-4000	4.0000" (4)
GIB-1375-4500	4.5000" (4-1/2)
GIB-1375-5000	5.0000" (5)
GIB-1375-5500	5.5000" (5-1/2)
GIB-1375-6000	6.0000" (6)
GIB-1375-6500	6.5000" (6-1/2)
GIB-1375-7000	7.0000" (7)
GIB-1375-7500	7.5000" (7-1/2)

MACHINE KEYS

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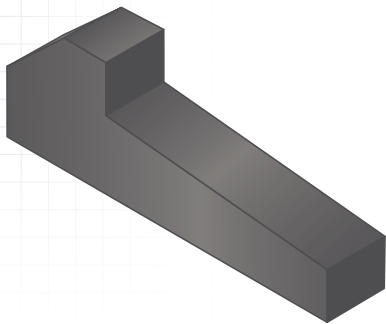
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GIB HEAD – METRIC

DIN 6887

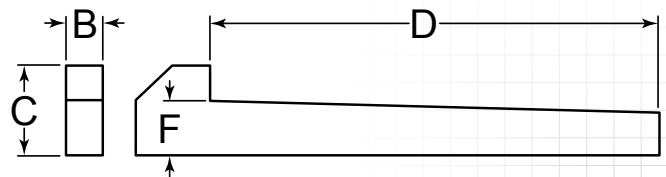
DESCRIPTION

Gib head keys are tapered machine keys used on power transmission keyed shafts to hold pulleys and gears tightly on the shaft. The added feature of a head provides for easy removal.



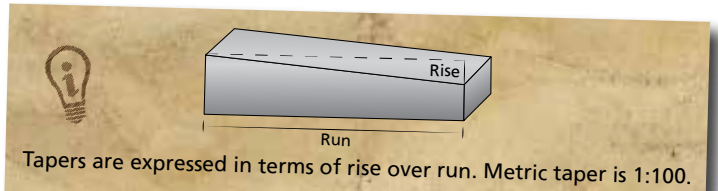
HOW TO IDENTIFY

1. Verify tapered key with gib head design.
2. Measure width (B).
3. Measure effective height (F).
4. Measure length (D).
5. Find the part number in the chart below.



PREFIX MATERIAL/FINISH

GIBM = CARBON STEEL, PLAIN*
Material/finish combinations may not be available in all sizes.



ITEM NUMBER	(D) LENGTH	(F) EFFECTIVE HEIGHT
-------------	------------	----------------------

4.00 mm (B) Width		(C) Overall Height: 7.00 mm
GIBM-0404-030	30.00 mm	4.00 mm
GIBM-0404-040	40.00 mm	4.00 mm
GIBM-0404-050	50.00 mm	4.00 mm
GIBM-0404-060	60.00 mm	4.00 mm
GIBM-0404-070	70.00 mm	4.00 mm
GIBM-0404-080	80.00 mm	4.00 mm

5.00 mm (B) Width		(C) Overall Height: 8.00 mm
GIBM-0505-030	30.00 mm	5.00 mm
GIBM-0505-040	40.00 mm	5.00 mm
GIBM-0505-050	50.00 mm	5.00 mm
GIBM-0505-060	60.00 mm	5.00 mm
GIBM-0505-070	70.00 mm	5.00 mm
GIBM-0505-080	80.00 mm	5.00 mm

6.00 mm (B) Width		(C) Overall Height: 10.00 mm
GIBM-0606-030	30.00 mm	6.00 mm
GIBM-0606-040	40.00 mm	6.00 mm

ITEM NUMBER	(D) LENGTH	(F) EFFECTIVE HEIGHT
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GIBM-0606-050	50.00 mm	6.00 mm
GIBM-0606-060	60.00 mm	6.00 mm
GIBM-0606-070	70.00 mm	6.00 mm
GIBM-0606-080	80.00 mm	6.00 mm

8.00 mm (B) Width		(C) Overall Height: 11.00 mm
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GIBM-0805-030	30.00 mm	5.00 mm
GIBM-0805-040	40.00 mm	5.00 mm
GIBM-0805-050	50.00 mm	5.00 mm
GIBM-0805-060	60.00 mm	5.00 mm
GIBM-0805-070	70.00 mm	5.00 mm
GIBM-0805-080	80.00 mm	5.00 mm
GIBM-0805-090	90.00 mm	5.00 mm
GIBM-0805-100	100.00 mm	5.00 mm
GIBM-0807-030	30.00 mm	7.00 mm
GIBM-0807-040	40.00 mm	7.00 mm
GIBM-0807-050	50.00 mm	7.00 mm
GIBM-0807-060	60.00 mm	7.00 mm
GIBM-0807-070	70.00 mm	7.00 mm
GIBM-0807-080	80.00 mm	7.00 mm
GIBM-0807-090	90.00 mm	7.00 mm
GIBM-0807-100	100.00 mm	7.00 mm

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.



DIN 6887

GIB HEAD – METRIC

ITEM NUMBER	(D) LENGTH	(F) EFFECTIVE HEIGHT
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10.00 mm (B) Width		
(C) Overall Height: 12.00 mm		
GIBM-1006-040	40.00 mm	6.00 mm
GIBM-1006-050	50.00 mm	6.00 mm
GIBM-1006-060	60.00 mm	6.00 mm
GIBM-1006-070	70.00 mm	6.00 mm
GIBM-1006-080	80.00 mm	6.00 mm
GIBM-1006-090	90.00 mm	6.00 mm
GIBM-1006-100	100.00 mm	6.00 mm
GIBM-1008-040	40.00 mm	8.00 mm
GIBM-1008-050	50.00 mm	8.00 mm
GIBM-1008-060	60.00 mm	8.00 mm
GIBM-1008-070	70.00 mm	8.00 mm
GIBM-1008-080	80.00 mm	8.00 mm
GIBM-1008-090	90.00 mm	8.00 mm
GIBM-1008-100	100.00 mm	8.00 mm
GIBM-1008-120	120.00 mm	8.00 mm

12.00 mm (B) Width		
(C) Overall Height: 12.00 mm		
GIBM-1206-040	40.00 mm	6.00 mm
GIBM-1206-050	50.00 mm	6.00 mm
GIBM-1206-060	60.00 mm	6.00 mm
GIBM-1206-070	70.00 mm	6.00 mm
GIBM-1206-080	80.00 mm	6.00 mm
GIBM-1206-090	90.00 mm	6.00 mm
GIBM-1206-100	100.00 mm	6.00 mm
GIBM-1206-120	120.00 mm	6.00 mm
GIBM-1208-040	40.00 mm	8.00 mm
GIBM-1208-050	50.00 mm	8.00 mm
GIBM-1208-060	60.00 mm	8.00 mm
GIBM-1208-070	70.00 mm	8.00 mm
GIBM-1208-080	80.00 mm	8.00 mm
GIBM-1208-090	90.00 mm	8.00 mm
GIBM-1208-100	100.00 mm	8.00 mm
GIBM-1208-120	120.00 mm	8.00 mm

14.00 mm (B) Width		
(C) Overall Height: 14.00 mm		
GIBM-1406-040	40.00 mm	6.00 mm
GIBM-1406-050	50.00 mm	6.00 mm
GIBM-1406-060	60.00 mm	6.00 mm
GIBM-1406-070	70.00 mm	6.00 mm
GIBM-1406-080	80.00 mm	6.00 mm
GIBM-1406-090	90.00 mm	6.00 mm
GIBM-1406-100	100.00 mm	6.00 mm
GIBM-1406-120	120.00 mm	6.00 mm
GIBM-1406-140	140.00 mm	6.00 mm
GIBM-1406-160	160.00 mm	6.00 mm
GIBM-1409-040	40.00 mm	9.00 mm

ITEM NUMBER	(D) LENGTH	(F) EFFECTIVE HEIGHT
GIBM-1409-050	50.00 mm	9.00 mm
GIBM-1409-060	60.00 mm	9.00 mm
GIBM-1409-070	70.00 mm	9.00 mm
GIBM-1409-080	80.00 mm	9.00 mm
GIBM-1409-090	90.00 mm	9.00 mm
GIBM-1409-100	100.00 mm	9.00 mm
GIBM-1409-120	120.00 mm	9.00 mm
GIBM-1409-140	140.00 mm	9.00 mm
GIBM-1409-160	160.00 mm	9.00 mm

16.00 mm (B) Width		
(C) Overall Height: 16.00 mm		
GIBM-1607-040	40.00 mm	7.00 mm
GIBM-1607-050	50.00 mm	7.00 mm
GIBM-1607-060	60.00 mm	7.00 mm
GIBM-1607-070	70.00 mm	7.00 mm
GIBM-1607-080	80.00 mm	7.00 mm
GIBM-1607-090	90.00 mm	7.00 mm
GIBM-1607-100	100.00 mm	7.00 mm
GIBM-1607-120	120.00 mm	7.00 mm
GIBM-1607-140	140.00 mm	7.00 mm
GIBM-1607-160	160.00 mm	7.00 mm
GIBM-1607-180	180.00 mm	7.00 mm
GIBM-1610-040	40.00 mm	10.00 mm
GIBM-1610-050	50.00 mm	10.00 mm
GIBM-1610-060	60.00 mm	10.00 mm
GIBM-1610-070	70.00 mm	10.00 mm
GIBM-1610-080	80.00 mm	10.00 mm
GIBM-1610-090	90.00 mm	10.00 mm
GIBM-1610-100	100.00 mm	10.00 mm
GIBM-1610-120	120.00 mm	10.00 mm
GIBM-1610-140	140.00 mm	10.00 mm
GIBM-1610-160	160.00 mm	10.00 mm
GIBM-1610-180	180.00 mm	10.00 mm
GIBM-1610-200	200.00 mm	10.00 mm

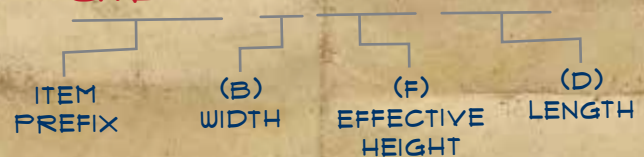
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AVAILABLE FOR ALL PARTS

SEE PAGE 16



HOW TO READ A PART NUMBER
Gib head keys come in standard
width x effective height x length combinations.

GIBM-1206-070



MACHINE KEYS

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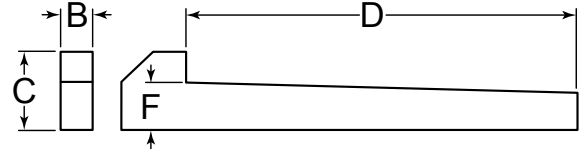
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GIB HEAD – METRIC

DIN 6887

PREFIX MATERIAL/FINISH

GIBM = CARBON STEEL, PLAIN*
Material/finish combinations may not be available in all sizes.



ITEM NUMBER	(D) LENGTH	(F) EFFECTIVE HEIGHT
-------------	------------	----------------------

18.00 mm (B) Width		(C) Overall Height: 18.00 mm
GIBM-1807-060	60.00 mm	7.00 mm
GIBM-1807-070	70.00 mm	7.00 mm
GIBM-1807-080	80.00 mm	7.00 mm
GIBM-1807-090	90.00 mm	7.00 mm
GIBM-1807-100	100.00 mm	7.00 mm
GIBM-1807-120	120.00 mm	7.00 mm
GIBM-1807-140	140.00 mm	7.00 mm
GIBM-1807-160	160.00 mm	7.00 mm
GIBM-1807-180	180.00 mm	7.00 mm
GIBM-1807-200	200.00 mm	7.00 mm
GIBM-1807-220	220.00 mm	7.00 mm
GIBM-1811-060	60.00 mm	11.00 mm
GIBM-1811-070	70.00 mm	11.00 mm
GIBM-1811-080	80.00 mm	11.00 mm
GIBM-1811-090	90.00 mm	11.00 mm
GIBM-1811-100	100.00 mm	11.00 mm
GIBM-1811-120	120.00 mm	11.00 mm
GIBM-1811-140	140.00 mm	11.00 mm
GIBM-1811-160	160.00 mm	11.00 mm
GIBM-1811-180	180.00 mm	11.00 mm
GIBM-1811-200	200.00 mm	11.00 mm
GIBM-1811-220	220.00 mm	11.00 mm

20.00 mm (B) Width		(C) Overall Height: 20.00 mm
GIBM-2008-060	60.00 mm	8.00 mm
GIBM-2008-070	70.00 mm	8.00 mm
GIBM-2008-080	80.00 mm	8.00 mm
GIBM-2008-090	90.00 mm	8.00 mm
GIBM-2008-100	100.00 mm	8.00 mm
GIBM-2008-120	120.00 mm	8.00 mm
GIBM-2008-140	140.00 mm	8.00 mm
GIBM-2008-160	160.00 mm	8.00 mm
GIBM-2008-180	180.00 mm	8.00 mm
GIBM-2008-200	200.00 mm	8.00 mm
GIBM-2008-220	220.00 mm	8.00 mm
GIBM-2008-240	240.00 mm	8.00 mm
GIBM-2012-060	60.00 mm	12.00 mm
GIBM-2012-070	70.00 mm	12.00 mm
GIBM-2012-080	80.00 mm	12.00 mm
GIBM-2012-090	90.00 mm	12.00 mm

ITEM NUMBER	(D) LENGTH	(F) EFFECTIVE HEIGHT
GIBM-2012-100	100.00 mm	12.00 mm
GIBM-2012-120	120.00 mm	12.00 mm
GIBM-2012-140	140.00 mm	12.00 mm
GIBM-2012-160	160.00 mm	12.00 mm
GIBM-2012-180	180.00 mm	12.00 mm
GIBM-2012-200	200.00 mm	12.00 mm
GIBM-2012-220	220.00 mm	12.00 mm
GIBM-2012-240	240.00 mm	12.00 mm

22.00 mm (B) Width		(C) Overall Height: 22.00 mm
GIBM-2209-080	80.00 mm	9.00 mm
GIBM-2209-090	90.00 mm	9.00 mm
GIBM-2209-100	100.00 mm	9.00 mm
GIBM-2209-120	120.00 mm	9.00 mm
GIBM-2209-140	140.00 mm	9.00 mm
GIBM-2209-160	160.00 mm	9.00 mm
GIBM-2209-180	180.00 mm	9.00 mm
GIBM-2209-200	200.00 mm	9.00 mm
GIBM-2209-220	220.00 mm	9.00 mm
GIBM-2209-240	240.00 mm	9.00 mm
GIBM-2209-260	260.00 mm	9.00 mm
GIBM-2209-280	280.00 mm	9.00 mm
GIBM-2209-300	300.00 mm	9.00 mm
GIBM-2214-080	80.00 mm	14.00 mm
GIBM-2214-090	90.00 mm	14.00 mm
GIBM-2214-100	100.00 mm	14.00 mm
GIBM-2214-120	120.00 mm	14.00 mm
GIBM-2214-140	140.00 mm	14.00 mm
GIBM-2214-160	160.00 mm	14.00 mm
GIBM-2214-180	180.00 mm	14.00 mm
GIBM-2214-200	200.00 mm	14.00 mm
GIBM-2214-220	220.00 mm	14.00 mm
GIBM-2214-240	240.00 mm	14.00 mm
GIBM-2214-260	260.00 mm	14.00 mm
GIBM-2214-280	280.00 mm	14.00 mm
GIBM-2214-300	300.00 mm	14.00 mm

25.00 mm (B) Width		(C) Overall Height: 22.00 mm
GIBM-2509-080	80.00 mm	9.00 mm
GIBM-2509-090	90.00 mm	9.00 mm
GIBM-2509-100	100.00 mm	9.00 mm
GIBM-2509-120	120.00 mm	9.00 mm

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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DIN 6887

GIB HEAD – METRIC

ITEM NUMBER	(D) LENGTH	(F) EFFECTIVE HEIGHT
GIBM-2509-140	140.00 mm	9.00 mm
GIBM-2509-160	160.00 mm	9.00 mm
GIBM-2509-180	180.00 mm	9.00 mm
GIBM-2509-200	200.00 mm	9.00 mm
GIBM-2509-220	220.00 mm	9.00 mm
GIBM-2509-240	240.00 mm	9.00 mm
GIBM-2509-260	260.00 mm	9.00 mm
GIBM-2509-280	280.00 mm	9.00 mm
GIBM-2509-300	300.00 mm	9.00 mm
GIBM-2514-080	80.00 mm	14.00 mm
GIBM-2514-090	90.00 mm	14.00 mm
GIBM-2514-100	100.00 mm	14.00 mm
GIBM-2514-120	120.00 mm	14.00 mm
GIBM-2514-140	140.00 mm	14.00 mm
GIBM-2514-160	160.00 mm	14.00 mm
GIBM-2514-180	180.00 mm	14.00 mm
GIBM-2514-200	200.00 mm	14.00 mm
GIBM-2514-220	220.00 mm	14.00 mm
GIBM-2514-240	240.00 mm	14.00 mm
GIBM-2514-260	260.00 mm	14.00 mm
GIBM-2514-280	280.00 mm	14.00 mm
GIBM-2514-300	300.00 mm	14.00 mm

28.00 mm (B) Width		(C) Overall Height: 25.00 mm
GIBM-2810-090	90.00 mm	10.00 mm
GIBM-2810-100	100.00 mm	10.00 mm
GIBM-2810-120	120.00 mm	10.00 mm
GIBM-2810-140	140.00 mm	10.00 mm
GIBM-2810-160	160.00 mm	10.00 mm
GIBM-2810-180	180.00 mm	10.00 mm
GIBM-2810-200	200.00 mm	10.00 mm
GIBM-2810-220	220.00 mm	10.00 mm
GIBM-2810-240	240.00 mm	10.00 mm
GIBM-2810-260	260.00 mm	10.00 mm
GIBM-2810-280	280.00 mm	10.00 mm
GIBM-2810-300	300.00 mm	10.00 mm
GIBM-2810-350	350.00 mm	10.00 mm
GIBM-2810-400	400.00 mm	10.00 mm
GIBM-2816-090	90.00 mm	16.00 mm
GIBM-2816-100	100.00 mm	16.00 mm
GIBM-2816-120	120.00 mm	16.00 mm
GIBM-2816-140	140.00 mm	16.00 mm
GIBM-2816-160	160.00 mm	16.00 mm
GIBM-2816-180	180.00 mm	16.00 mm
GIBM-2816-200	200.00 mm	16.00 mm
GIBM-2816-220	220.00 mm	16.00 mm
GIBM-2816-240	240.00 mm	16.00 mm
GIBM-2816-260	260.00 mm	16.00 mm
GIBM-2816-280	280.00 mm	16.00 mm

ITEM NUMBER	(D) LENGTH	(F) EFFECTIVE HEIGHT
GIBM-2816-300	300.00 mm	16.00 mm
GIBM-2816-350	350.00 mm	16.00 mm
GIBM-2816-400	400.00 mm	16.00 mm

32.00 mm (B) Width		(C) Overall Height: 28.00 mm
GIBM-3211-100	100.00 mm	11.00 mm
GIBM-3211-120	120.00 mm	11.00 mm
GIBM-3211-140	140.00 mm	11.00 mm
GIBM-3211-160	160.00 mm	11.00 mm
GIBM-3211-180	180.00 mm	11.00 mm
GIBM-3211-200	200.00 mm	11.00 mm
GIBM-3211-220	220.00 mm	11.00 mm
GIBM-3211-240	240.00 mm	11.00 mm
GIBM-3211-260	260.00 mm	11.00 mm
GIBM-3211-280	280.00 mm	11.00 mm
GIBM-3211-300	300.00 mm	11.00 mm
GIBM-3211-350	350.00 mm	11.00 mm
GIBM-3211-400	400.00 mm	11.00 mm
GIBM-3218-100	100.00 mm	18.00 mm
GIBM-3218-120	120.00 mm	18.00 mm
GIBM-3218-140	140.00 mm	18.00 mm
GIBM-3218-160	160.00 mm	18.00 mm
GIBM-3218-180	180.00 mm	18.00 mm
GIBM-3218-200	200.00 mm	18.00 mm
GIBM-3218-220	220.00 mm	18.00 mm
GIBM-3218-240	240.00 mm	18.00 mm
GIBM-3218-260	260.00 mm	18.00 mm
GIBM-3218-280	280.00 mm	18.00 mm
GIBM-3218-300	300.00 mm	18.00 mm
GIBM-3218-350	350.00 mm	18.00 mm
GIBM-3218-400	400.00 mm	18.00 mm

36.00 mm (B) Width		(C) Overall Height: 32.00 mm
GIBM-3620-120	120.00 mm	20.00 mm
GIBM-3620-140	140.00 mm	20.00 mm
GIBM-3620-160	160.00 mm	20.00 mm
GIBM-3620-180	180.00 mm	20.00 mm
GIBM-3620-200	200.00 mm	20.00 mm
GIBM-3620-220	220.00 mm	20.00 mm
GIBM-3620-240	240.00 mm	20.00 mm
GIBM-3620-260	260.00 mm	20.00 mm
GIBM-3620-280	280.00 mm	20.00 mm
GIBM-3620-300	300.00 mm	20.00 mm
GIBM-3620-350	350.00 mm	20.00 mm
GIBM-3620-400	400.00 mm	20.00 mm
GIBM-3620-450	450.00 mm	20.00 mm

MACHINE KEYS

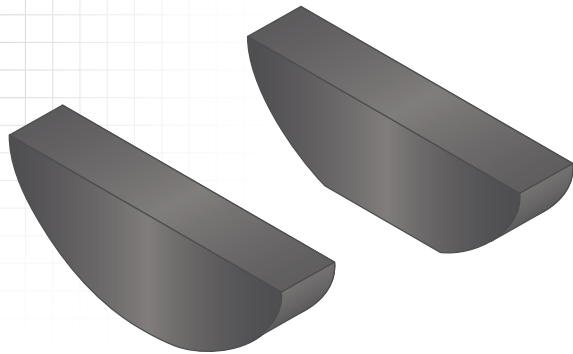
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WOODRUFF – IMPERIAL

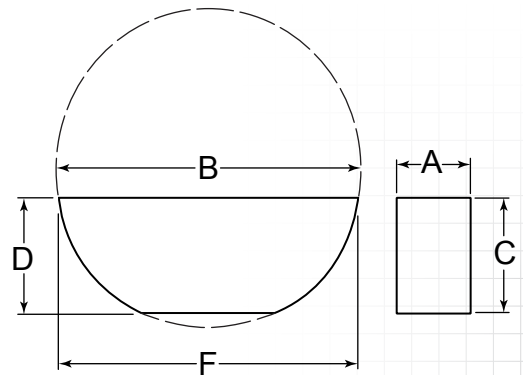
DESCRIPTION

Woodruff keys are commonly found in machine tools and automotive applications. They are designed to be installed deep into a shaft and firmly embedded. As a result, they are less likely to slip out of the key way. Both round and flat bottom designs are standard and function equally. If a specific style is required, please contact our Sales Team.



HOW TO IDENTIFY

1. Verify half-moon shape.
2. Measure diameter (B).
3. Measure width (A).
4. Find the part number in the chart on the next page.
Or, compare your part to the part silhouettes in the chart on the next page.



PREFIX MATERIAL/FINISH

WKA = COLD FINISHED ALLOY STEEL, PLAIN*
WKC = COLD FINISHED STEEL, PLAIN*
WKS = 300 SERIES STAINLESS STEEL, PLAIN
WKS-XXX-PAS = 300 SERIES STAINLESS STEEL, PASSIVATED

WKC-XXX-ZC = COLD FINISHED STEEL, ZINC CLEAR TRIVALENT
WKC-XXX-ZY = COLD FINISHED STEEL, ZINC YELLOW TRIVALENT
Material/finish combinations may not be available in all sizes.

WOODRUFF KEYS CAN BE PRODUCED IN MANY HEIGHT, WIDTH, AND LENGTH COMBINATIONS

WOODRUFF TOLERANCES

MATERIAL		DIAMETER (B)		WIDTH (A)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
WKA	Cold Finished Alloy Steel, Plain*	All Sizes	+0/-.0100"	All Sizes	+0/-.0010"
WKC	Cold Finished Steel, Plain*				
WKS	300 Series Stainless Steel, Plain				
WKS-XXX-PAS	300 Series Stainless Steel, Passivated				
WKC-XXX-ZC	Cold Finished Steel, Zinc Clear Trivalent				
WKC-XXX-ZY	Cold Finished Steel, Zinc Yellow Trivalent				





ZINC PLATING AND OTHER FINISHES
AVAILABLE FOR ALL PARTS
SEE PAGE 16



WIDTH MEASUREMENTS

.0625" (1/16)	.0937" (3/32)	.1250" (1/8)	.1562" (3/32)	.1875" (3/16)	.2187" (7/32)	.2500" (1/4)	.3125" (5/16)	.3750" (3/8)	.4375" (7/16)	.5000" (1/2)	.6250" (5/8)	.7500" (3/4)	

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

WOODRUFF – IMPERIAL

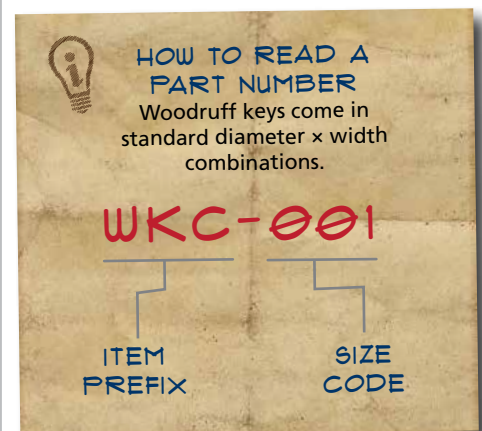
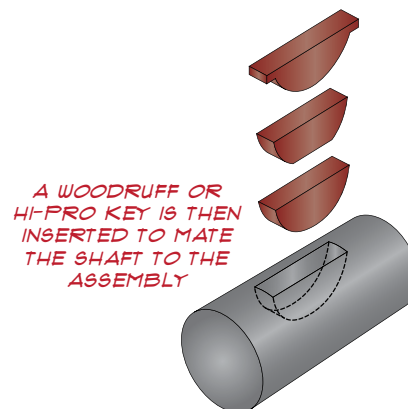
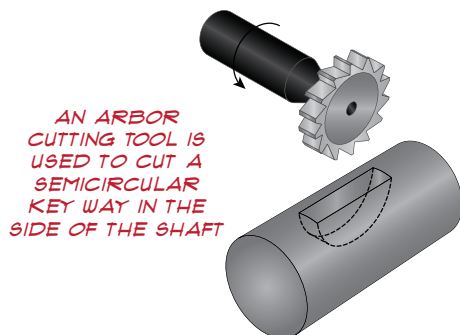
	1/4"			5/16"			3/8"			1/2"		
												
ITEM NUMBER	PREFIX-201	PREFIX-206	PREFIX-207	PREFIX-211	PREFIX-212	PREFIX-213	PREFIX-001	PREFIX-002	PREFIX-003			
(B) DIAMETER	.250" (1/4)	.313" (5/16)	.313" (5/16)	.375" (3/8)	.375" (3/8)	.375" (3/8)	.500" (1/2)	.500" (1/2)	.500" (1/2)			
(A) WIDTH	.063" (1/16)	.063" (1/16)	.094" (3/32)	.063" (1/16)	.094" (3/32)	.125" (1/8)	.063" (1/16)	.094" (3/32)	.125" (1/8)			

	5/8"						3/4"		
									
ITEM NUMBER	PREFIX-004	PREFIX-005	PREFIX-006	PREFIX-061	PREFIX-007	PREFIX-008	PREFIX-009	PREFIX-091	
(B) DIAMETER	.625" (5/8)	.625" (5/8)	.625" (5/8)	.625" (5/8)	.750" (3/4)	.750" (3/4)	.750" (3/4)	.750" (3/4)	
(A) WIDTH	.094" (3/32)	.125" (1/8)	.156" (5/32)	.188" (3/16)	.125" (1/8)	.156" (5/32)	.188" (3/16)	.250" (1/4)	

	7/8"				2-1/8"			
								
ITEM NUMBER	PREFIX-010	PREFIX-011	PREFIX-012	PREFIX-00A	PREFIX-026	PREFIX-027	PREFIX-028	PREFIX-029
(B) DIAMETER	.875" (7/8)	.875" (7/8)	.875" (7/8)	.875" (7/8)	2.125" (2-1/8)	2.125" (2-1/8)	2.125" (2-1/8)	2.125" (2-1/8)
(A) WIDTH	.156" (5/32)	.188" (3/16)	.219" (7/32)	.250" (1/4)	.188" (3/16)	.250" (1/4)	.313" (5/16)	.375" (3/8)

Images are approximate actual size.

MILLING THE KEY WAY



MACHINE KEYS

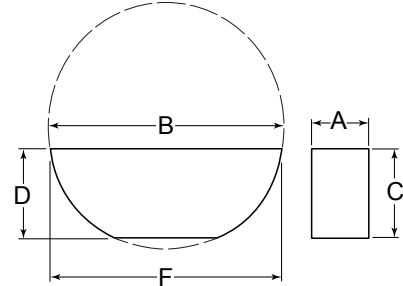
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WOODRUFF – IMPERIAL

PREFIX MATERIAL/FINISH

- WKA** = COLD FINISHED ALLOY STEEL, PLAIN*
 - WKC** = COLD FINISHED STEEL, PLAIN*
 - WKS** = 300 SERIES STAINLESS STEEL, PLAIN
 - WKS-XXX-PAS** = 300 SERIES STAINLESS STEEL, PASSIVATED
 - WKC-XXX-ZC** = COLD FINISHED STEEL, ZINC CLEAR TRIVALENT
 - WKC-XXX-ZY** = COLD FINISHED STEEL, ZINC YELLOW TRIVALENT
- Material/finish combinations may not be available in all sizes.



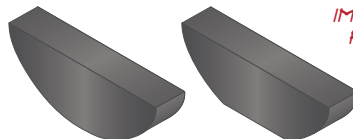
	1"					1-3/8"			
ITEM NUMBER	PREFIX-013	PREFIX-014	PREFIX-015	PREFIX-00B	PREFIX-152	PREFIX-141	PREFIX-022	PREFIX-023	PREFIX-00F
(B) DIAMETER	1.000" (1)	1.000" (1)	1.000" (1)	1.000" (1)	1.000" (1)	1.000" (1)	1.375" (1-3/8)	1.375" (1-3/8)	1.375" (1-3/8)
(A) WIDTH	.188" (3/16)	.219" (7/32)	.250" (1/4)	.313" (5/16)	.375" (3/8)	.250" (1/4)	.250" (1/4)	.313" (5/16)	.375" (3/8)

	1-1/8"				1-1/4"				
ITEM NUMBER	PREFIX-016	PREFIX-017	PREFIX-018	PREFIX-00C	PREFIX-019	PREFIX-020	PREFIX-021	PREFIX-00D	PREFIX-00E
(B) DIAMETER	1.125" (1-1/8)	1.125" (1-1/8)	1.125" (1-1/8)	1.125" (1-1/8)	1.250" (1-1/4)	1.250" (1-1/4)	1.250" (1-1/4)	1.250" (1-1/4)	1.250" (1-1/4)
(A) WIDTH	.188" (3/16)	.219" (7/32)	.250" (1/4)	.313" (5/16)	.188" (3/16)	.219" (7/32)	.250" (1/4)	.313" (5/16)	.375" (3/8)

	1-1/2"			2-1/8"			
ITEM NUMBER	PREFIX-024	PREFIX-025	PREFIX-00G	PREFIX-126	PREFIX-127	PREFIX-128	PREFIX-129
(B) DIAMETER	1.500" (1-1/2)	1.500" (1-1/2)	1.500" (1-1/2)	2.125" (2-1/8)	2.125" (2-1/8)	2.125" (2-1/8)	2.125" (2-1/8)
(A) WIDTH	.250" (1/4)	.313" (5/16)	.375" (3/8)	.188" (3/16)	.250" (1/4)	.313" (5/16)	.375" (3/8)

Images are approximate actual size.

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16



IMPERIAL WOODRUFF KEYS MAY HAVE A ROUNDED OR FLAT BOTTOM AT THE MANUFACTURERS' DISCRETION

BOTH DESIGNS ARE STANDARD

IF A SPECIFIC STYLE IS REQUIRED, PLEASE CONTACT OUR SALES TEAM

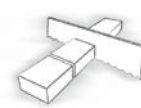
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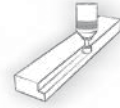
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WOODRUFF – IMPERIAL

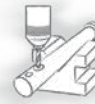
MANUFACTURING CAPABILITIES:



Sawing



Milling



Drilling



Turning



Tumbling



Centerless Grinding





Surface Grinding

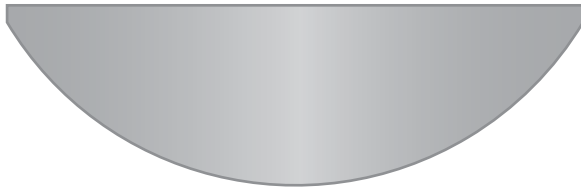
FOR MORE INFORMATION ABOUT OUR MANUFACTURING CAPABILITIES SEE "MANUFACTURING PROCESSES" ON PAGE 20




Our *Engineering Handbook* is a great companion resource to this Key Stock Catalog. To learn about the steelmaking process, different grades of steel, platings, finishes, testing hardness, heat treating, and mechanical properties of steel, visit huyett.com/catalogs to view a pdf or download a copy today.

2-3/4"					
					
ITEM NUMBER	PREFIX-00R	PREFIX-00S	PREFIX-00T	PREFIX-00U	PREFIX-00V
(B) DIAMETER	2.750" (2-3/4)	2.750" (2-3/4)	2.750" (2-3/4)	2.750" (2-3/4)	2.750" (2-3/4)
(A) WIDTH	.250" (1/4)	.313" (5/16)	.375" (3/8)	.438" (7/16)	.500" (1/2)

2-3/4"					
					
ITEM NUMBER	PREFIX-0RX	PREFIX-0SX	PREFIX-0TX	PREFIX-0UX	PREFIX-0VX
(B) DIAMETER	2.750" (2-3/4)	2.750" (2-3/4)	2.750" (2-3/4)	2.750" (2-3/4)	2.750" (2-3/4)
(A) WIDTH	.250" (1/4)	.313" (5/16)	.375" (3/8)	.438" (7/16)	.500" (1/2)

3-1/2"		
		
ITEM NUMBER	WKC-030	WKC-032
(B) DIAMETER	3.500" (3-1/2)	3.500" (3-1/2)
(A) WIDTH	.375" (3/8)	.500" (1/2)

3-1/2"		
		
ITEM NUMBER	PREFIX-034	PREFIX-036
(B) DIAMETER	3.500" (3-1/2)	3.500" (3-1/2)
(A) WIDTH	.625" (5/8)	.750" (3/4)

Images are approximate actual size.

MACHINE KEYS

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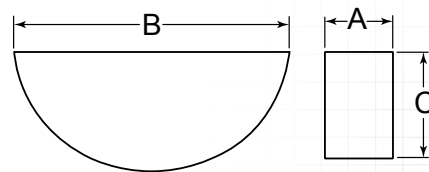
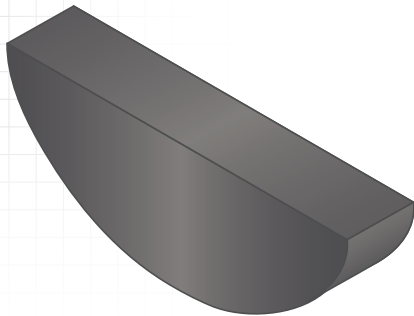
WOODRUFF – METRIC

DESCRIPTION

Woodruff keys are commonly found in machine tools and automotive applications. They are designed to be installed deep into a shaft and firmly embedded. As a result, they are less likely to slip out of the key way. Metric woodruff keys are only available with round bottoms.

HOW TO IDENTIFY

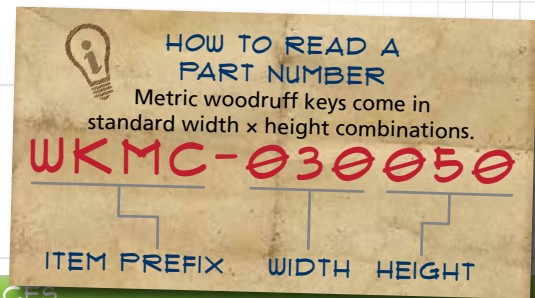
1. Verify half-moon shape.
2. Measure width (A).
3. Measure height (C).
4. Find the part number in the chart below.
Or, compare your part to the part silhouettes in the chart below.



PREFIX MATERIAL/FINISH

WKMC = CARBON STEEL, PLAIN*
WKMC-XXX-ZC = COLD FINISHED STEEL, ZINC CLEAR TRIVALENT

Material/finish combinations may not be available in all sizes.

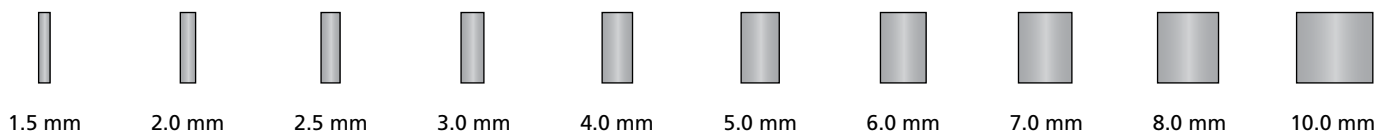


WOODRUFF TOLERANCES

MATERIAL		WIDTH (A)		HEIGHT (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
WKMC	Carbon Steel, Plain*	1.5 – 3 mm	+0/-0.020 mm	0 – 3 mm	+0/-0.10 mm
		4 – 10 mm	+0/-0.030 mm	>3 – 6 mm	+0/-0.12 mm
WKMC-XXX-ZC	Cold Finished Steel, Zinc Clear Trivalent			>6 – 10 mm	+0/-0.15 mm
				>10 – 18 mm	+0/-0.18 mm

	2.60 mm		3.70 mm			5.00 mm	5.00 mm	
ITEM NUMBER	WKMC-015026	WKMC-020026	WKMC-020037	WKMC-025037	WKMC-030037	WKMC-020050	WKMC-030050	WKMC-040050
(C) HEIGHT	2.60 mm	2.60 mm	3.70 mm	3.70 mm	3.70 mm	5.00 mm	5.00 mm	5.00 mm
(A) WIDTH	1.50 mm	2.00 mm	2.00 mm	2.50 mm	3.00 mm	2.00 mm	3.00 mm	4.00 mm
(B) LENGTH	6.76 mm	6.76 mm	9.66 mm	9.66 mm	9.66 mm	12.65 mm	12.65 mm	12.65 mm

WIDTH MEASUREMENTS




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WOODRUFF – METRIC

	6.50 mm			7.50 mm		
						
ITEM NUMBER	WKMC-030065	WKMC-040065	WKMC-050065	WKMC-040075	WKMC-050075	WKMC-060075
(C) HEIGHT	6.50 mm	6.50 mm	6.50 mm	7.50 mm	7.50 mm	7.50 mm
(A) WIDTH	3.00 mm	4.00 mm	5.00 mm	4.00 mm	5.00 mm	6.00 mm
(B) LENGTH	15.72 mm	15.72 mm	15.72 mm	18.57 mm	18.57 mm	18.57 mm

	9.00 mm			10.00 mm	
					
ITEM NUMBER	WKMC-050090	WKMC-060090	WKMC-080090	WKMC-050100	WKMC-060100
(C) HEIGHT	9.00 mm	9.00 mm	9.00 mm	10.00 mm	10.00 mm
(A) WIDTH	5.00 mm	6.00 mm	8.00 mm	5.00 mm	6.00 mm
(B) LENGTH	21.63 mm	21.63 mm	21.63 mm	24.49 mm	24.49 mm

	10.00 mm	11.00 mm		
				
ITEM NUMBER	WKMC-070100	WKMC-060110	WKMC-080110	WKMC-100110
(C) HEIGHT	10.00 mm	11.00 mm	11.00 mm	11.00 mm
(A) WIDTH	7.00 mm	6.00 mm	8.00 mm	10.00 mm
(B) LENGTH	24.49 mm	27.35 mm	27.35 mm	27.35 mm

	13.00 mm		16.00 mm
			
ITEM NUMBER	WKMC-080130	WKMC-100130	WKMC-100160
(C) HEIGHT	13.00 mm	13.00 mm	16.00 mm
(A) WIDTH	8.00 mm	10.00 mm	10.00 mm
(B) LENGTH	31.43 mm	31.43 mm	43.08 mm

Images are approximate actual size.

ZINC PLATING AND OTHER FINISHES
AVAILABLE FOR ALL PARTS
SEE PAGE 16

MACHINE KEYS

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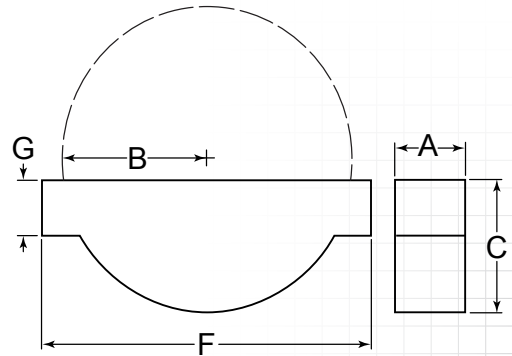
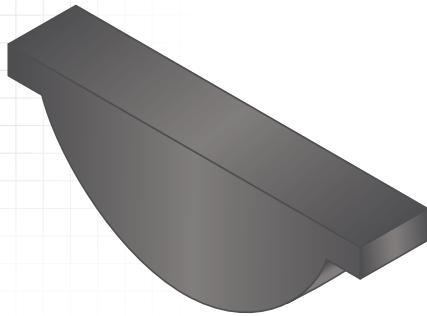
HI-PRO

DESCRIPTION

Hi-pro keys are standard woodruff keys with the added feature of anti-rock "feet." These feet keep the key from rolling in the key way and improve assembly efficiency. They are used to lock pulleys and gears to transmission shafts.

HOW TO IDENTIFY

1. Verify half-moon shape with feet.
2. Measure width (A).
3. Measure length (F).
4. Measure lip height (G).
5. Find the part number in the chart on the next page.
Or, compare your part to the part silhouettes in the chart on the next page.



PREFIX MATERIAL/FINISH

HIPRO = COLD FINISHED STEEL, PLAIN*
HIPROA = COLD FINISHED ALLOY STEEL, PLAIN*
HIPROS = STAINLESS STEEL, PLAIN
 Material/finish combinations may not be available in all sizes.

ZINC PLATING AND OTHER FINISHES
AVAILABLE FOR ALL PARTS
SEE PAGE 16

HI-PRO KEYS CAN BE PRODUCED IN MANY RADIUS, WIDTH, AND LENGTH COMBINATIONS

HI-PRO TOLERANCES

MATERIAL		WIDTH (A)		LENGTH (F)		LIP HEIGHT (G)		HEIGHT (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
HIPRO	Cold Finished Steel, Plain*	All Sizes	+0.0010/-0"	All Sizes	±0.0100"	All Sizes	±0.0050"	All Sizes	+0/-0.0060"
HIPROA	Cold Finished Alloy Steel, Plain*								
HIPROS	Stainless Steel, Plain								



HOW TO READ A PART NUMBER

Hi-pro keys come in standard radius x width x length combinations.

HIPRO-403

ITEM PREFIX

SIZE CODE

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.



HI-PRO

	1/4"			5/16"			
ITEM NUMBER	PREFIX-402	PREFIX-403	PREFIX-404	PREFIX-503	PREFIX-504	PREFIX-505	PREFIX-506
(B) RADIUS	.2500" (1/4)	.2500" (1/4)	.2500" (1/4)	.3125" (5/16)	.3125" (5/16)	.3125" (5/16)	.3125" (5/16)
(A) WIDTH	.0625" (1/16)	.0938" (3/32)	.1250" (1/8)	.0938" (3/32)	.1250" (1/8)	.1563" (5/32)	.1875" (3/16)
(F) LENGTH	.5313" (17/32)	.5313" (17/32)	.5313" (17/32)	.6563" (21/32)	.6563" (21/32)	.6563" (21/32)	.6563" (21/32)
(G) LIP HEIGHT	.028"	.042"	.056"	.042"	.056"	.071"	.086"
(C) HEIGHT	.194"	.194"	.194"	.240"	.240"	.240"	.240"

	3/8"				7/16"	
ITEM NUMBER	PREFIX-604	PREFIX-605	PREFIX-606	PREFIX-608	PREFIX-705	PREFIX-706
(B) RADIUS	.3750" (3/8)	.3750" (3/8)	.3750" (3/8)	.3750" (3/8)	.4375" (7/16)	.4375" (7/16)
(A) WIDTH	.1250" (1/8)	.1563" (5/32)	.1875" (3/16)	.2500" (1/4)	.1563" (5/32)	.1875" (3/16)
(F) LENGTH	.7813" (25/32)	.7813" (25/32)	.7813" (25/32)	.7813" (25/32)	.9375" (15/16)	.9375" (15/16)
(G) LIP HEIGHT	.057"	.071"	.085"	.113"	.071"	.086"
(C) HEIGHT	.303"	.303"	.303"	.303"	.365"	.365"

	7/16"			1/2"	
ITEM NUMBER	PREFIX-707	PREFIX-708	PREFIX-806	PREFIX-807	PREFIX-808
(B) RADIUS	.4375" (7/16)	.4375" (7/16)	.5000" (1/2)	.5000" (1/2)	.5000" (1/2)
(A) WIDTH	.2188" (7/32)	.2500" (1/4)	.1875" (3/16)	.2188" (7/32)	.2500" (1/4)
(F) LENGTH	.9375" (15/16)	.9375" (15/16)	.9375" (15/16)	1.0625" (1-1/16)	1.0625" (1-1/16)
(G) LIP HEIGHT	.100"	.114"	.086"	.100"	.115"
(C) HEIGHT	.365"	.365"	.428"	.428"	.428"

	1/2"		9/16"		
ITEM NUMBER	PREFIX-810	PREFIX-906	PREFIX-907	PREFIX-908	PREFIX-910
(B) RADIUS	.5000" (1/2)	.5625" (9/16)	.5625" (9/16)	.5625" (9/16)	.5625" (9/16)
(A) WIDTH	.3125" (5/16)	.1875" (3/16)	.2188" (7/32)	.2500" (1/4)	.3125" (5/16)
(F) LENGTH	1.0625" (1-1/16)	1.1875" (1-3/16)	1.1875" (1-3/16)	1.1875" (1-3/16)	1.1875" (1-3/16)
(G) LIP HEIGHT	.142"	.086"	.100"	.115"	.143"
(C) HEIGHT	.428"	.475"	.475"	.475"	.475"

Images are approximate actual size.

MACHINE KEYS

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HI-PRO

5/8"



ITEM NUMBER	PREFIX-1006	PREFIX-1008	PREFIX-1010	PREFIX-1012
(B) RADIUS	.6250" (5/8)	.6250" (5/8)	.6250" (5/8)	.6250" (5/8)
(A) WIDTH	.1875" (3/16)	.2500" (1/4)	.3125" (5/16)	.3750" (3/8)
(F) LENGTH	1.3125" (1-5/16)	1.3125" (1-5/16)	1.3125" (1-5/16)	1.3125" (1-5/16)
(G) LIP HEIGHT	.086"	.115"	.143"	.172"
(C) HEIGHT	.537"	.537"	.537"	.537"

11/16"



ITEM NUMBER	PREFIX-1108	PREFIX-1110	PREFIX-1112
(B) RADIUS	.6875" (11/16)	.6875" (11/16)	.6875" (11/16)
(A) WIDTH	.2500" (1/4)	.3125" (5/16)	.3750" (3/8)
(F) LENGTH	1.4375" (1-7/16)	1.4375" (1-7/16)	1.4375" (1-7/16)
(G) LIP HEIGHT	.115"	.143"	.172"
(C) HEIGHT	.584"	.584"	.584"

3/4"



ITEM NUMBER	PREFIX-1208	PREFIX-1210	PREFIX-1212
(B) RADIUS	.7500" (3/4)	.7500" (3/4)	.7500" (3/4)
(A) WIDTH	.2500" (1/4)	.3125" (5/16)	.3750" (3/8)
(F) LENGTH	1.5625" (1-9/16)	1.5625" (1-9/16)	1.5625" (1-9/16)
(G) LIP HEIGHT	.115"	.145"	.175"
(C) HEIGHT	.631"	.631"	.631"

1-1/16"



ITEM NUMBER	PREFIX-1706A	PREFIX-1706B	PREFIX-1708A
(B) RADIUS	1.0625" (1-1/16)	1.0625" (1-1/16)	1.0625" (1-1/16)
(A) WIDTH	.1875" (3/16)	.1875" (3/16)	.2500" (1/4)
(F) LENGTH	1.6250" (1-5/8)	1.8750" (1-7/8)	1.5625" (1-9/16)
(G) LIP HEIGHT	.084"	.084"	.115"
(C) HEIGHT	.396"	.521"	.396"

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HI-PRO

	1-1/16"		
ITEM NUMBER	PREFIX-1708B	PREFIX-1710A	PREFIX-1712A
(B) RADIUS	1.0625" (1-1/16)	1.0625" (1-1/16)	1.0625" (1-1/16)
(A) WIDTH	.2500" (1/4)	.3125" (5/16)	.3750" (3/8)
(F) LENGTH	1.8125" (1-13/16)	1.5625" (1-9/16)	1.5000" (1-1/2)
(G) LIP HEIGHT	.115"	.146"	.177"
(C) HEIGHT	.521"	.396"	.396"

	1-3/8"	1-3/4"
ITEM NUMBER	PREFIX-2216A	PREFIX-2816
(B) RADIUS	1.3750" (1-3/8)	1.7500" (1-3/4)
(A) WIDTH	.5000" (1/2)	.5000" (1/2)
(F) LENGTH	2.0625" (2-1/16)	3.0000" (3)
(G) LIP HEIGHT	.241"	.240"
(C) HEIGHT	.584"	.9375"

	1-3/4"
ITEM NUMBER	PREFIX-2820
(B) RADIUS	1.7500" (1-3/4)
(A) WIDTH	.6250" (5/8)
(F) LENGTH	2.8750" (2-7/8)
(G) LIP HEIGHT	.303"
(C) HEIGHT	.9375"

Images are approximate actual size.

ZINC PLATING AND OTHER FINISHES
AVAILABLE FOR ALL PARTS
SEE PAGE 16

WIDTH MEASUREMENTS

.0625" (1/16)	.0938" (3/32)	.1250" (1/8)	.1563" (3/32)	.1875" (3/16)
.2188" (7/32)	.2500" (1/4)	.3125" (5/16)	.3750" (3/8)	.4375" (7/16)
.5000" (1/2)	.6250" (5/8)	.7500" (3/4)		

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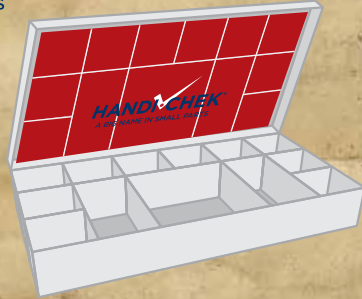
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HANDICHEK
A BIG NAME IN SMALL PARTS

Choose one of our assortments or call to customize your own.

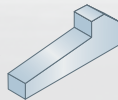
Use assortments for:

- Easy bin stocking
- POS displays
- Sampling opportunities
- Special promotions
- Specific applications
- Maintenance kits



Gib Head Key Imperial DISP-GHK060

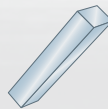
60 Pieces
Cold Finished Steel,
Zinc Clear Trivalent



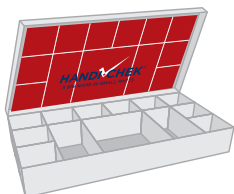
Parts Included	Size	Qty
GIB-0375-1000ZC	3/8" x 1"	5
GIB-0375-2000ZC	3/8" x 2"	5
GIB-0500-1000ZC	1/2" x 1"	5
GIB-0250-1000ZC	1/4" x 1"	5
GIB-0500-1500ZC	1/2" x 1-1/2"	5
GIB-0250-2000ZC	1/4" x 2"	5
GIB-0312-1000ZC	5/16" x 1"	5
GIB-0312-2000ZC	5/16" x 2"	5
GIB-0250-1500ZC	1/4" x 1-1/2"	5
GIB-0312-1500ZC	5/16" x 1-1/2"	5
GIB-0500-2000ZC	1/2" x 2"	5
GIB-0375-1500ZC	3/8" x 1-1/2"	5

Machine Key Imperial DISP-MK070

70 Pieces, Form B
Cold Finished Steel,
Zinc Clear Trivalent



Parts Included	Size	Qty
3101250125-1500	1/8" x 1/8" x 1-1/2"	20
3101870187-1500	3/16" x 3/16" x 1-1/2"	12
3101870250-1500	3/16" x 1/4" x 1-1/2"	12
3102500250-1500	1/4" x 1/4" x 1-1/2"	10
3103120312-1500	5/16" x 5/16" x 1-1/2"	8
3103750375-1500	3/8" x 3/8" x 1-1/2"	8



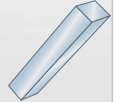
LOOKING FOR A CUSTOM ASSORTMENT OF PARTS?

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Machine Key Imperial DISP-MK300

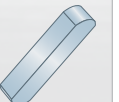
300 Pieces, Form B
Cold Finished Steel,
Zinc Clear Trivalent



Parts Included	Size	Qty
3101250125-0750	1/8" x 1/8" x 3/4"	25
3101250125-1000	1/8" x 1/8" x 1"	25
3101870187-0750	3/16" x 3/16" x 3/4"	25
3101870187-1000	3/16" x 3/16" x 1"	25
3101870187-1250	3/16" x 3/16" x 1-1/4"	25
3101870187-1500	3/16" x 3/16" x 1-1/2"	25
3102500250-0750	1/4" x 1/4" x 3/4"	25
3102500250-1000	1/4" x 1/4" x 1"	25
3102500250-1250	1/4" x 1/4" x 1-1/4"	25
3102500250-1500	1/4" x 1/4" x 1-1/2"	25
3103120312-1250	5/16" x 5/16" x 1-1/4"	25
3103120312-1500	5/16" x 5/16" x 1-1/2"	25

Machine Key Metric DISP-MKM025

25 Pieces, Form A
Cold Finished Steel,
Zinc Clear Trivalent



Parts Included	Size	Qty
32Z0404-080	4 mm x 4 mm x 80 mm	2
32Z0505-080	5 mm x 5 mm x 80 mm	3
32Z0606-080	6 mm x 6 mm x 80 mm	2
32Z0707-080	7 mm x 7 mm x 80 mm	2
32Z0807-080	8 mm x 7 mm x 80 mm	2
32Z0808-080	8 mm x 8 mm x 80 mm	3
32Z1008-080	10 mm x 8 mm x 80 mm	2
32Z1010-080	10 mm x 10 mm x 80 mm	2
32Z1208-080	12 mm x 8 mm x 80 mm	2
32Z1212-080	12 mm x 12 mm x 80 mm	2
32Z1610-080	16 mm x 10 mm x 80 mm	1
32Z1811-080	18 mm x 11 mm x 80 mm	1
32Z2012-080	20 mm x 12 mm x 80 mm	1

Machine Key Metric DISP-MKM058

58 Pieces, Form A
Cold Finished Steel,
Zinc Clear Trivalent

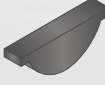


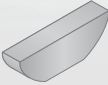
Parts Included	Size	Qty
32Z0404-040	4 mm x 4 mm x 40 mm	8
32Z0505-040	5 mm x 5 mm x 40 mm	8
32Z0606-040	6 mm x 6 mm x 40 mm	10
32Z0807-040	8 mm x 7 mm x 40 mm	4
32Z0808-040	8 mm x 8 mm x 40 mm	10
32Z1008-040	10 mm x 8 mm x 40 mm	4
32Z1010-040	10 mm x 10 mm x 40 mm	4
32Z1212-040	12 mm x 12 mm x 40 mm	4
32Z1409-040	14 mm x 9 mm x 40 mm	4
32Z1610-040	16 mm x 10 mm x 40 mm	2

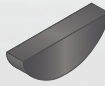
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ASSORTMENTS

Hi-Pro Key Imperial DISP-HPK120		60 Pieces Cold Finished Steel, Plain*	
Parts Included	Size	Qty	
HIPRO-606	3/16" x 3/4"	10	
HIPRO-706	3/16" x 7/8"	10	
HIPRO-504	1/8" x 5/8"	10	
HIPRO-503	3/32" x 5/8"	10	
HIPRO-505	5/32" x 5/8"	10	
HIPRO-403	3/32" x 1/2"	10	
HIPRO-404	1/8" x 1/2"	10	
HIPRO-402	1/16" x 1/2"	10	
HIPRO-605	5/32" x 3/4"	10	
HIPRO-708	1/4" x 7/8"	10	
HIPRO-808	1/4" x 1"	10	
HIPRO-604	1/8" x 3/4"	10	

Woodruff Key Imperial DISP-WKS060		60 Pieces Stainless Steel, Plain	
Parts Included	Size	Qty	
WKS-002	3/32" x 1/2"	8	
WKS-003	1/8" x 1/2"	8	
WKS-005	1/8" x 5/8"	5	
WKS-006	5/32" x 5/8"	5	
WKS-007	1/8" x 3/4"	5	
WKS-009	3/16" x 3/4"	4	
WKS-00A	1/4" x 7/8"	2	
WKS-011	3/16" x 7/8"	2	
WKS-015	1/4" x 1"	2	
WKS-061	3/16" x 5/8"	5	
WKS-091	1/4" x 3/4"	4	
WKS-212	3/32" x 3/8"	10	

Woodruff Key Imperial DISP-WKC250		250 Pieces Cold Finished Steel, Plain*	
Parts Included	Size	Qty	
WKC-001	1/16" x 1/2"	10	
WKC-002	3/32" x 1/2"	20	
WKC-003	1/8" x 1/2"	20	
WKC-004	3/32" x 5/8"	10	
WKC-005	1/8" x 5/8"	30	
WKC-006	5/32" x 5/8"	40	
WKC-007	1/8" x 3/4"	20	
WKC-008	5/32" x 3/4"	10	
WKC-009	3/16" x 3/4"	20	
WKC-00A	1/4" x 7/8"	5	
WKC-010	5/32" x 7/8"	5	
WKC-011	3/16" x 7/8"	5	
WKC-012	7/32" x 7/8"	5	
WKC-061	3/16" x 5/8"	5	
WKC-091	1/4" x 3/4"	5	
WKC-211	1/16" x 3/8"	10	
WKC-212	3/32" x 3/8"	20	
WKC-213	1/8" x 3/8"	10	

Woodruff Key Metric DISP-WKMC350		350 Pieces Cold Finished Steel, Plain*	
Parts Included	Size	Qty	
WKMC-015026	1.5 mm x 2.6 mm	25	
WKMC-020026	2 mm x 2.6 mm	25	
WKMC-020050	2 mm x 5 mm	25	
WKMC-025037	2.5 mm x 3.7 mm	25	
WKMC-030037	3 mm x 3.7 mm	25	
WKMC-030065	3 mm x 6.5 mm	25	
WKMC-040050	4 mm x 5 mm	25	
WKMC-040075	4 mm x 7.5 mm	25	
WKMC-050075	5 mm x 7.5 mm	20	
WKMC-050090	5 mm x 9 mm	20	
WKMC-050100	5 mm x 10 mm	15	
WKMC-060075	6 mm x 7.5 mm	15	
WKMC-060090	6 mm x 9 mm	15	
WKMC-060110	6 mm x 11 mm	15	
WKMC-080110	8 mm x 11 mm	15	
WKMC-080130	8 mm x 13 mm	15	
WKMC-100130	10 mm x 13 mm	10	
WKMC-100160	10 mm x 16 mm	10	

ENVIRONMENTAL CONCERNS

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REACH
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Authorization,
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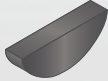
MACHINE KEYS

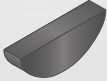
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ASSORTMENTS

Woodruff Key Imperial DISP-WKC100		100 Pieces Cold Finished Steel, Plain*	
Parts Included	Size	Qty	
WKC-001	1/16" x 1/2"	3	
WKC-002	3/32" x 1/2"	3	
WKC-003	1/8" x 1/2"	5	
WKC-004	3/32" x 5/8"	3	
WKC-005	1/8" x 5/8"	3	
WKC-006	5/32" x 5/8"	5	
WKC-007	1/8" x 3/4"	5	
WKC-008	5/32" x 3/4"	3	
WKC-009	3/16" x 3/4"	13	
WKC-00A	1/4" x 7/8"	9	
WKC-00B	5/16" x 1"	2	
WKC-00D	5/16" x 1-1/4"	1	
WKC-00E	3/8" x 1-1/4"	1	
WKC-00F	3/8" x 1-3/8"	1	
WKC-00G	3/8" x 1-1/2"	1	
WKC-010	5/32" x 7/8"	3	
WKC-011	3/16" x 7/8"	10	
WKC-012	7/32" x 7/8"	2	
WKC-013	3/16" x 1"	2	
WKC-014	7/32" x 1"	1	
WKC-015	1/4" x 1"	2	
WKC-016	3/16" x 1-1/8"	1	
WKC-017	7/32" x 1-1/8"	1	
WKC-018	1/4" x 1-1/8"	1	
WKC-019	3/16" x 1-1/4"	1	
WKC-020	7/32" x 1-1/4"	1	
WKC-021	1/4" x 1-1/4"	1	
WKC-022	1/4" x 1-3/8"	1	
WKC-023	5/16" x 1-3/8"	1	
WKC-024	1/4" x 1-1/2"	1	
WKC-025	5/16" x 1-1/2"	1	
WKC-091	1/4" x 3/4"	3	
WKC-ORX	1/4" x 2-3/4"	1	
WKC-OTX	3/8" x 2-3/4"	1	
WKC-0VX	1/2" x 2-3/4"	1	
WKC-126	3/16" x 2-1/8"	1	
WKC-127	1/4" x 2-1/8"	1	
WKC-128	5/16" x 2-1/8"	1	
WKC-129	3/8" x 2-1/8"	1	
WKC-152	3/8" x 1"	2	

Woodruff Key Imperial DISP-WKC350		350 Pieces Cold Finished Steel, Plain*	
Parts Included	Size	Qty	
WKC-001	1/16" x 1/2"	10	
WKC-002	3/32" x 1/2"	20	
WKC-003	1/8" x 1/2"	20	
WKC-004	3/32" x 5/8"	20	
WKC-005	1/8" x 5/8"	30	
WKC-006	5/32" x 5/8"	40	
WKC-007	1/8" x 3/4"	10	
WKC-008	5/32" x 3/4"	20	
WKC-009	3/16" x 3/4"	20	
WKC-00A	1/4" x 7/8"	10	
WKC-00B	5/16" x 1"	5	
WKC-00C	5/16" x 1-1/8"	5	
WKC-00D	5/16" x 1-1/4"	5	
WKC-00E	3/8" x 1-1/4"	5	
WKC-00F	3/8" x 1-3/8"	3	
WKC-00G	3/8" x 1-1/2"	3	
WKC-010	5/32" x 7/8"	5	
WKC-011	3/16" x 7/8"	5	
WKC-012	7/32" x 7/8"	5	
WKC-015	1/4" x 1"	5	
WKC-018	1/4" x 1-1/8"	5	
WKC-020	7/32" x 1-1/4"	5	
WKC-021	1/4" x 1-1/4"	5	
WKC-022	1/4" x 1-3/8"	5	
WKC-023	5/16" x 1-3/8"	5	
WKC-024	1/4" x 1-1/2"	3	
WKC-025	5/16" x 1-1/2"	3	
WKC-026	3/16" x 2-1/8"	3	
WKC-028	5/16" x 2-1/8"	3	
WKC-061	3/16" x 5/8"	15	
WKC-091	1/4" x 3/4"	10	
WKC-126	3/16" x 2-1/8"	3	
WKC-128	5/16" x 2-1/8"	3	
WKC-211	1/16" x 3/8"	10	
WKC-212	3/32" x 3/8"	20	
WKC-213	1/8" x 3/8"	10	
WKC-127	1/4" x 2-1/8"	1	
WKC-128	5/16" x 2-1/8"	1	
WKC-129	3/8" x 2-1/8"	1	
WKC-152	3/8" x 1"	2	



* Some exclusions apply

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- SAE-LT
- PTF/NPTF
- BRITISH STANDARD
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A comprehensive guide to grease fittings and threads with:

- Scale illustrations of every fitting
- Technical and educational information
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and more related to grease fittings and accessories.

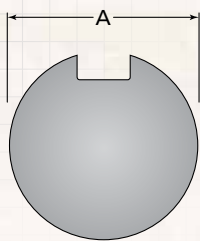
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SHAFT FEATURES

A shaft is part of an assembly used to transmit power from one part to another. Keyed shafts have a key way milled axially along the full length of the shaft that holds key stock or machine keys to assembled components in a non-permanent manner. Partial key ways and other materials are available, including turned and polished and medium carbon steel (suitable to heat treat).

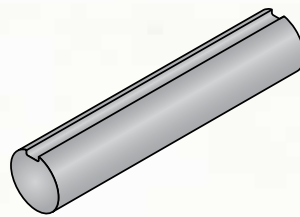
DESIGN CONSIDERATIONS

DIAMETER



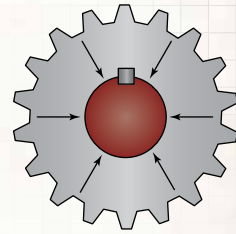
SHAFT SIZE IS DETERMINED BY THE TORQUE REQUIRED BY THE ASSEMBLY

KEY WAY



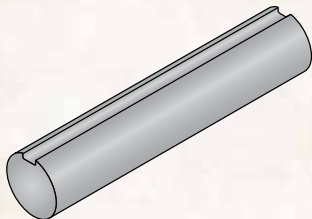
SHAFTS ARE KEYED TO ANSI STANDARDS

TOLERANCES



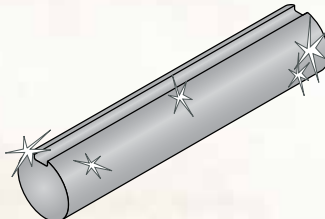
TIGHTER TOLERANCES ENSURE UNIFORM DISTRIBUTION OF LOADS

STRAIGHTNESS



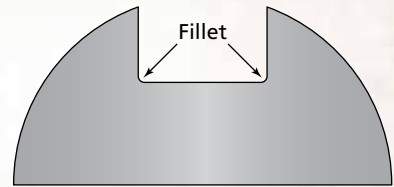
PRECISION STRAIGHTNESS WITH DECREASED RUN OUT IMPROVES ALIGNMENT OF COMPONENTS ALONG THE LENGTH OF THE SHAFT

SURFACE



STANDARD 125 RA SURFACE ROUGHNESS FEATURES MINIMAL SURFACE IRREGULARITIES AND WAVINESS

STRESS CONCENTRATION



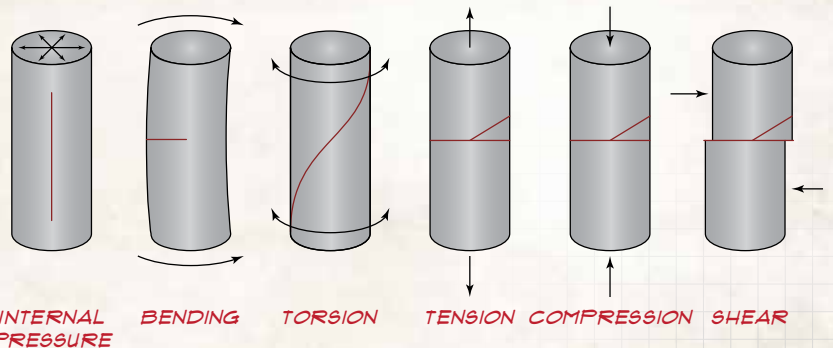
A FILLET RADIUS IN THE KEY WAY OF A SHAFT REDUCES STRESS CONCENTRATION

MATERIAL FATIGUE

Material fatigue results from cyclical stress, a repetitive process of applying and then releasing a load from an object. These stresses can be reversals – where the force switches to the opposite direction and back again; fluctuations – where the magnitude of the force continually varies; or in combination.

In addition to stress, corrosion reduces the fatigue strength of materials. The extent of the damage depends on both the severity of the corrosion and the number of stress cycles. Eventually, cyclic stress produces cracks in the material that grow perpendicular to the plane of the encountered force.

Once cracks become visible to the naked eye they can be examined to determine the root cause by looking carefully at the point where the failure started to identify the source and direction of the force.



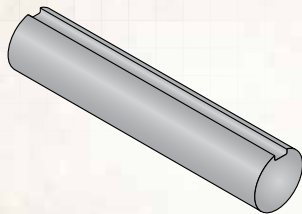
POTENTIAL FATIGUE FAILURES

Fracture planes caused by common fatigue forces. Some fractures occur in the same plane as the force, while others are perpendicular.

SHAFT TYPES

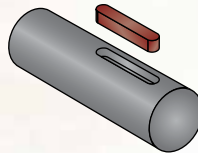
KEYED

Keyed shafts are round shafting that have a key way cut into the material to mate with key stock or machine keys for assembly components.

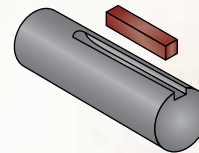


PAGE 94

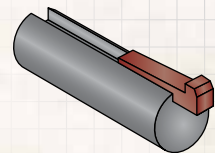
KEYS & KEYWAYS



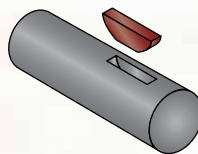
FORM A



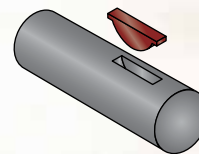
FORM B



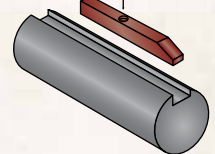
GIB HEAD



WOODRUFF



HI-PRO



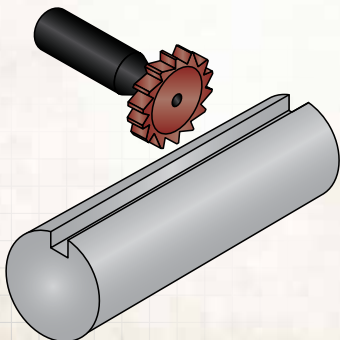
CUSTOM

QUICK REFERENCE GUIDE

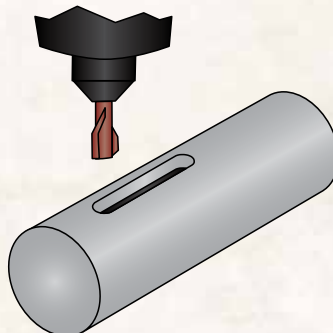
	COMMON NAMES	APPLICABLE STANDARDS	FABRICATION	HOW TO IDENTIFY	COMMON USES	COMMENTS
KEYED	Pre-keyed Shaft; Keyed Shaft	ANSI B17.1; BS 4235	Shafts are formed by hot rolling and finished to size by cold drawing or turning and grinding. Key ways are machined into the shaft.	Diameter x length. The shaft diameter can be equal to or marginally less than nominal size.	Shafts, paired with key stock or machine keys, are used to transmit power from one part to another.	Depending on application, the shaft and key should be of comparable hardness.

MACHINING KEYWAYS

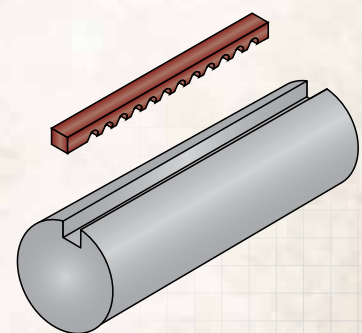
Key ways can be cut on a horizontal or vertical mill, a key seater, a vertical slotting machine, or a broach.



HORIZONTAL MILL



VERTICAL MILL



BROACH

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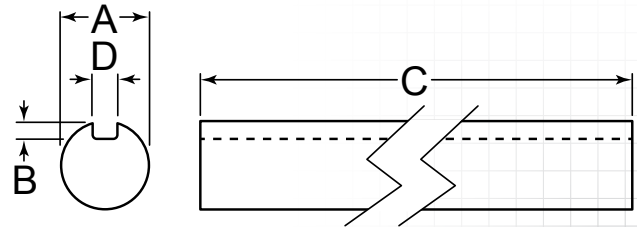
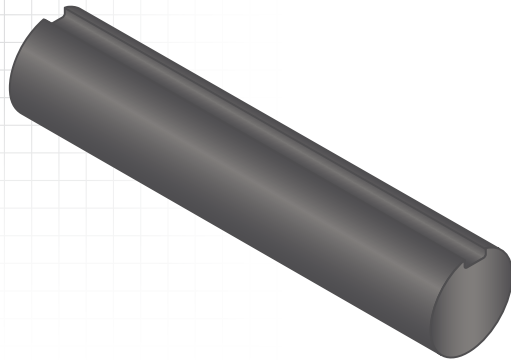
KEYED – IMPERIAL

DESCRIPTION

Fully keyed shafts provide a good fit between the key and the key way. Key ways are cut in accordance with ANSI B17.1. Partial key ways and other materials are available including turned and polished and medium carbon steel (suitable to heat treat).

HOW TO IDENTIFY

1. Measure diameter (A).
2. Measure length (C).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

KF = COLD FINISHED STEEL, PLAIN* (1018)
KF44 = COLD FINISHED STEEL, PLAIN* (1144)
KF45 = COLD FINISHED STEEL, PLAIN* (1045)
KF6 = 303 STAINLESS STEEL, PLAIN

KFS6 = 316 STAINLESS STEEL, PLAIN
KFTP = COLD FINISHED STEEL, PLAIN* (1045)
 TURNED & POLISHED
KFZ = COLD FINISHED STEEL, ZINC CLEAR (1018)

DIAMETER (A) TOLERANCES			
MATERIAL	DIAMETER		
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)
KF	Cold Finished Steel, Plain* (1018)	All Sizes	+0/-0.0020"
KF44	Cold Finished Steel, Plain* (1144)	All Sizes	+0/-0.0010"
KF45	Cold Finished Steel, Plain* (1045)		
KF5	303 Stainless Steel, Plain		
KF6	316 Stainless Steel, Plain	All Sizes	+0/-0.0020"
KFTP	Cold Finished Steel, Plain* (1045), Turned & Polished	All Sizes	-0.0005/-0.0015"
KFZ	Cold Finished Steel, Zinc Clear (1018)	All Sizes	+0/-0.0020"

KEY WAY (D x B) SIZE	
DIAMETER	KEY WAY
(Shaft Size Range)	(D) x (B)
1/2"	1/8" x 1/16"
5/8 – 7/8"	3/16" x 3/32"
15/16 – 1-1/4"	1/4" x 1/8"
1-5/16 – 1-3/8"	5/16" x 5/32"
1-7/16 – 1-3/4"	3/8" x 3/16"
1-7/8 – 2-3/16"	1/2" x 1/4"
2-7/16 – 2-1/2"	5/8" x 5/16"
2-15/16 – 3-1/4"	3/4" x 3/8"
3-3/8 – 3-3/4"	7/8" x 7/16"
3-15/16 – 4-1/2"	1" x 1/2"

LENGTH (C) TOLERANCES		
LENGTH		TOLERANCE
(Suffix)	(Length)	(Tolerance)
-12	12" (1')	±2"
-36	36" (3')	
-72	72" (6')	
-144	144" (12')	

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.

KEYED SHAFTING CAN BE PRODUCED IN MANY DIAMETER AND LENGTH COMBINATIONS

PLAIN FINISH PARTS REQUIRE SPECIAL HANDLING TO PREVENT SURFACE CORROSION AND EXTEND SHELF LIFE

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KEYED – IMPERIAL

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

KF-0500-36

MATERIAL PREFIX

KF-

TO ORDER CHOOSE YOUR MATERIAL,

(A)
DIAMETER

1/2" to 4-1/2"

0500

CHOOSE YOUR DIAMETER,

(C)
LENGTH

12" up to 144"

-36

CHOOSE YOUR LENGTH.

CODE	MATERIAL
KF-	Cold Finished Steel (1018), Plain*
KF44-	Cold Finished Steel (1144), Plain*
KF45-	Cold Finished Steel (1045), Plain*
KFS-	303 Stainless Steel
KFS6-	316 Stainless Steel
KFTP-	Cold Finished Steel, (1045) Plain* Turned & Polished
KFZ-	Cold Finished Steel (1018), Zinc Clear

CODE	DIAMETER
Key Way Size (D x B): 1/8" x 1/16"	
0500	.500" (1/2)
Key Way Size (D x B): 3/16" x 3/32"	
0625	.625" (5/8)
0687	.687" (11/16)
0750	.750" (3/4)
0812	.813" (13/16)
0875	.875" (7/8)
Key Way Size (D x B): 1/4" x 1/8"	
0937	.938" (15/16)
1000	1.000" (1)
1062	1.063" (1-1/16)
1125	1.125" (1-1/8)
1187	1.188" (1-3/16)
1250	1.250" (1-1/4)
Key Way Size (D x B): 5/16" x 5/32"	
1312	1.313" (1-5/16)
1375	1.375" (1-3/8)
Key Way Size (D x B): 3/8" x 3/16"	
1437	1.438" (1-7/16)
1500	1.500" (1-1/2)
1625	1.625" (1-5/8)
1687	1.688" (1-11/16)
1750	1.750" (1-3/4)
Key Way Size (D x B): 1/2" x 1/4"	
1875	1.875" (1-7/8)
1937	1.938" (1-15/16)
2000	2.000" (2)
2187	2.188" (2-3/16)
2250	2.250" (2-1/4)

CODE	DIAMETER
Key Way Size (D x B): 5/8" x 5/16"	
2437	2.438" (2-7/16)
2500	2.500" (2-1/2)
2687	2.688" (2-11/16)
Key Way Size (D x B): 3/4" x 3/8"	
2937	2.938" (2-15/16)
3000	3.000" (3)
3125	3.125" (3-1/8)
3187	3.188" (3-3/16)
3250	3.250" (3-1/4)
Key Way Size (D x B): 7/8" x 7/16"	
3375	3.375" (3-3/8)
3437	3.438" (3-7/16)
3500	3.500" (3-1/2)
3625	3.625" (3-5/8)
3750	3.750" (3-3/4)
Key Way Size (D x B): 1" x 1/2"	
3937	3.938" (3-15/16)
4000	4.000" (4)
4250	4.250" (4-1/4)
4375	4.375" (4-3/8)
4437	4.438" (4-7/16)
4500	4.500" (4-1/2)

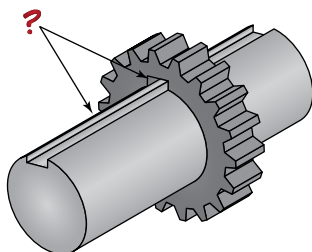
CODE	LENGTH
-12	12" (1')
-36	36" (3')
-72	72" (6')
-144	144" (12')

Nonstandard lengths up to 144" are available. Lengths over 3' may be subject to a packaging charge.



* Some exclusions apply

KEY WAY OR KEY SEAT?



THE CHANNEL, GROOVE, OR SLOT CUT INTO A SHAFT OR HUB OF A GEAR, SPROCKET, OR PULLEY MAY BE CALLED A KEY WAY, OR KEY SEAT

BOTH TERMS ARE USED INTERCHANGEABLY TO DESCRIBE THE SAME THING

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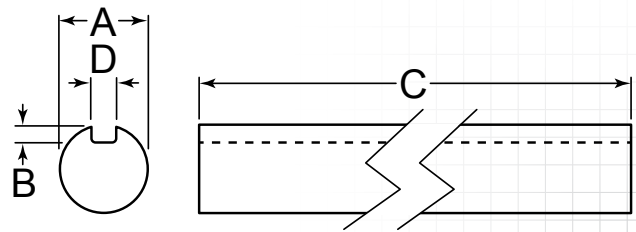
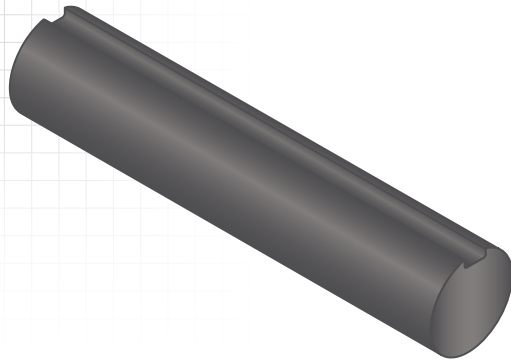
KEYED – METRIC

DESCRIPTION

Fully keyed shafting that provides a good fit between the key and the key way. Key ways are cut in accordance with DIN 6885. Partial key ways and other materials are available, including turned and polished and medium carbon steel (suitable to heat treat).

HOW TO IDENTIFY

1. Measure diameter (A).
2. Measure length (C).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

KFM = COLD FINISHED STEEL, PLAIN* (1045)
KFMS = 303 STAINLESS STEEL, PLAIN

DIAMETER (A) TOLERANCES

MATERIAL		DIAMETER	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)
KFM	Cold Finished Steel, Plain* (1045)	All Sizes	+0/-0.0250 mm
KFMS	303 Stainless Steel, Plain		

KEY WAY (D x B) SIZE

DIAMETER	KEY WAY
(Shaft Size Range)	(D) x (B)
13 – 17 mm	5 mm x 3 mm
18 – 22 mm	6 mm x 3.5 mm
23 – 30 mm	8 mm x 4 mm
32 – 36 mm	10 mm x 5 mm
40 mm	12 mm x 5 mm
45 – 50 mm	14 mm x 5.5 mm
60 – 65 mm	18 mm x 7 mm

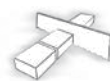
LENGTH (C) TOLERANCES

LENGTH		TOL.
(Suffix)	(Length)	(Tolerance)
-914	914.00 mm (3')	±50.8 mm
-1219	1,219.20 mm (4')	
-1829	1,829.00 mm (6')	
-3048	3,048.00 mm (10')	
-3658	3,658.00 mm (12')	

Nonstandard lengths up to 3,658 mm are available. Lengths over 3' may be subject to a packaging charge.

KEYED SHAFTING CAN BE PRODUCED IN MANY DIAMETER AND LENGTH COMBINATIONS

MANUFACTURING CAPABILITIES:



Sawing



Milling



Drilling



Turning



Tumbling



Surface Grinding



Centerless Grinding

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KEYED – METRIC

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

KF-Ø18-914

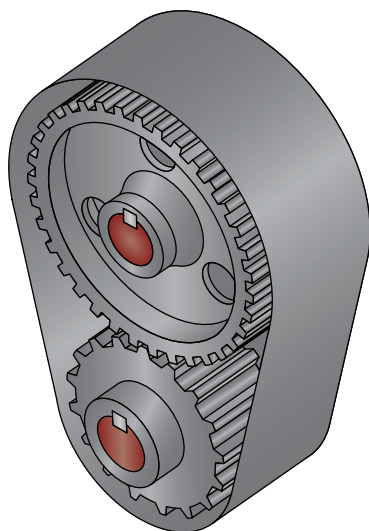
MATERIAL PREFIX

KFM-

TO ORDER CHOOSE YOUR MATERIAL,

CODE	MATERIAL
KFM-	Cold Finished Steel, Plain*
KFMS-	303 Stainless Steel

DON'T SEE WHAT YOU'RE LOOKING FOR? CONTACT SALES@HUYETT.COM OR CALL 785-392-3017



USED WITH KEY STOCK TO CONNECT TO A HUB

(A) DIAMETER

13 mm to 65 mm

Ø18

CHOOSE YOUR DIAMETER,

CODE	DIAMETER
Key Way Size (D × B): 5 mm × 3 mm	
013	13.00 mm
014	14.00 mm
015	15.00 mm
016	16.00 mm
017	17.00 mm
Key Way Size (D × B): 6 mm × 3.5 mm	
018	18.00 mm
019	19.00 mm
020	20.00 mm
021	21.00 mm
022	22.00 mm
Key Way Size (D × B): 8 mm × 4 mm	
023	23.00 mm
024	24.00 mm
025	25.00 mm
026	26.00 mm
027	27.00 mm
028	28.00 mm
030	30.00 mm
Key Way Size (D × B): 10 mm × 5 mm	
032	32.00 mm
033	33.00 mm
035	35.00 mm
036	36.00 mm
Key Way Size (D × B): 12 mm × 5 mm	
040	40.00 mm
Key Way Size (D × B): 14 mm × 5.5 mm	
045	45.00 mm
050	50.00 mm
Key Way Size (D × B): 18 mm × 7 mm	
060	60.00 mm
065	65.00 mm

(C) LENGTH

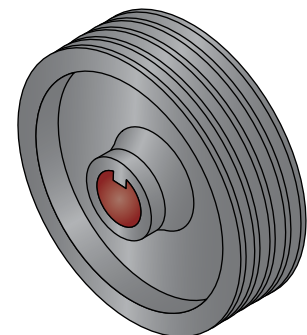
914 mm to 3,658 mm

-914

CHOOSE YOUR LENGTH.

CODE	LENGTH
-914	914.00 mm (3')
-1219	1,219.20 mm (4')
-1829	1,829.00 mm (6')
-3048	3,048.00 mm (10')
-3658	3,658.00 mm (12')

Nonstandard lengths up to 3,658 mm are available. Lengths over 3' may be subject to a packaging charge.



A HUB WITH AN INTEGRAL KEY ALLOWS KEYED SHAFT TO BE USED WITHOUT KEY STOCK OR A MACHINE KEY



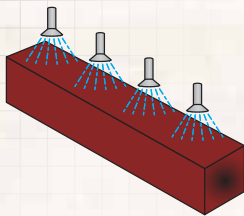
PLAIN FINISH PARTS REQUIRE SPECIAL HANDLING TO PREVENT SURFACE CORROSION AND EXTEND SHELF LIFE

TOOL STEEL FEATURES

Characterized by their durability, hardness, price, and ability to withstand shock without deforming, tool steels are used to cut, press, extrude, or stamp other metals. After being worked, they may be hardened to increase wear resistance and strength. Grades are specified by the American Iron and Steel Institute (AISI), the Society of Automotive Engineers (SAE), or the American Society for Testing and Materials (ASTM). *For more information, see Tool Steel Comparison on page 105.*

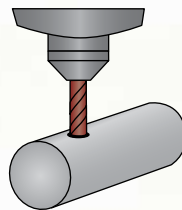
DESIGN CONSIDERATIONS

HEAT TREATING



AFTER MACHINING, STEEL IS HEAT TREATED AND QUENCHED, DEPENDING ON THE TYPE OF STEEL USED, TO INCREASE TOUGHNESS AND STRENGTH

DURABILITY



RESISTANCE TO DEFORMATION AT ELEVATED TEMPERATURES (ALSO KNOWN AS RED-HARDNESS)

COMPARATIVE COST



LOW COST WATER-HARDENING TOOL STEEL IS USED MORE OFTEN THAN OIL- OR AIR-HARDENING TOOL STEELS

TOOL STEEL GRADES

Tool steels are defined by their dimensional stability, wear resistance, toughness, hot hardness, and machinability. Severe conditions – high temperatures, heavy loads, or corrosive environments – require higher alloy and carbon contents.

COLD WORK STEELS

Frequently used for making cold working tools for applications under 200°C (392°F). Higher amounts of chromium reduce distortion during heat treatment. Feature high hardenability, high toughness, and high abrasion, impact, and wear resistances.

A2-A10, AIR-HARDENING

Medium alloy composition with 1% – 6% carbon and up to 5% chromium. Has the least tendency to crack during hardening. Considered a mid-range grade between oil-hardening and shock resistant grades. Do not quench in oil or water.

O1-O7, OIL-HARDENING

A low alloy/high carbon (0.85% – 1.55%) steel with manganese, chromium, and molybdenum. Quenched in oil to produce high wear resistance and hardness between HRC 56-62.

D2-D7, HIGH CARBON, HIGH CHROMIUM

Contain 1.4% – 2.3% carbon and 12% – 14% chromium along with molybdenum, cobalt, and vanadium. Often thought of as stainless or semi-stainless, but corrosion resistance is limited due to high chromium and carbon. Wear resistant, but not as tough as low alloy steels.

HOT WORK STEELS

Feature high hot yield strength, toughness, high red-hardness, wear resistance, erosion resistance, and resistance to softening in temperatures up to 675°C (1,247°F).

H1-H19

Medium carbon content with 5% chromium. Can be through hardened to HRC 40-55 with little distortion. Requires oil quenching.

H20-H26

Low carbon content with 9% – 18% tungsten and 3% – 4% chromium. Extra resistant to softening, more prone to brittleness, working hardness to HRC 45-55. To minimize scaling, quench in oil or salt.

H41-H43

Low carbon content with 8% molybdenum along with chromium, tungsten, and vanadium.

WATER-HARDENING STEELS

W1-W3

Most common. These general purpose, low-cost, medium to high carbon (0.60% – 1.3%) steels are easily machined, or formed. They can be case hardened by heat treating up to HRC 68. Overall, they are more brittle and more susceptible to cracking or warping

than other steels. Best suited for small parts and working conditions up to 150°C (302°F).

HIGH-SPEED STEELS (HSS)

Designed for high speed metal cutting and machining operations. Features hardenability to HRC 60-70, high heat resistance for red-hardness up to 500°C (932°F) enables sharpening without damaging material, and reasonable toughness.

M1-M47

Contain molybdenum as a primary alloying element that increases resistance to softening at elevated temperatures.

SHOCK-RESISTANT STEELS

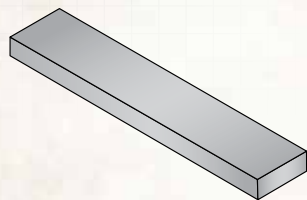
S1-S7

Contain medium carbon content from 0.40 – 0.55%, 1% – 2% silicon, or up to 3% nickel. As their name suggests, they have good wear/abrasion resistance and resist shock at low to medium temperatures, with high strength and toughness. Can achieve HRC 58-60.

TOOL STEEL TYPES

GROUND STOCK

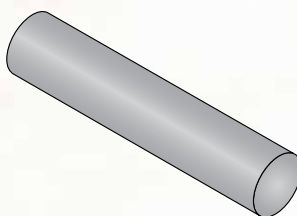
Ground stock is rectangular or square steel that has been ground to close tolerances for use in a wide range of industries. Once shaped, ground stock may be heat treated to harden.



PAGE 100

DRILL ROD

Drill rod is round unhardened tool steel which is precision ground to tight tolerances. After machining, it may be hardened by heat treating, then drawn back to the desired hardness.



PAGE 102

DEFINITIONS

HARDNESS

The measure of how resistant steel is to various kinds of permanent deformation when a force is applied.

STRENGTH

A measure of steel's elastic range, where it will return to its original shape when gradual force is removed.

TOUGHNESS

The maximum amount of energy or impact force that can be absorbed before fracturing.

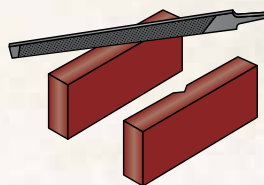
QUICK REFERENCE GUIDE

	COMMON NAMES	APPLICABLE STANDARDS	FABRICATION	HOW TO IDENTIFY	COMMON USES	COMMENTS
GROUND STOCK	Tool Steel; Ground Flat Stock; Flat Bar Stock; Flat Stock; Gauge Plate	AISI/SAE A2; AISI/SAE D2; AISI/SAE O2; AISI/SAE W2	Cold drawn, annealed bar stock that is subsequently ground to remove all traces of decarburization and achieve precision height and width.	Tight tolerances and ground surface finish. Durable and resistant to abrasion.	Depending on grade, ground stock can be used as dies, punches, templates, and stripper plates.	Ground stock is free from decarburization.
DRILL ROD	Drill Rod	AISI/SAE A2; AISI/SAE D2; AISI/SAE O2; AISI/SAE H13; AISI/SAE W2	Cold drawn, annealed round stock that is ground and polished to achieve exacting size with no decarburization left on the bars.	Tight tolerances and ground surface finish. Durable and resistant to abrasion.	Drill rod, depending on grade, is used to make tools like drill bits, taps, dowel pins, and hammers.	Drill rod is free from decarburization.

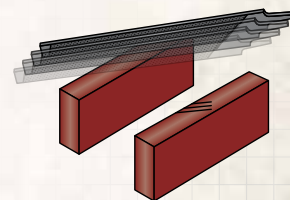
MILD STEEL VS. HARDENED STEEL

Hardened steel is much more difficult to work or machine. Mild steel can generally be machined using high-speed steel (HSS) or cobalt tools. Both mild steel and hardened steel can be called "ground" as this refers to a method used to shape steel, not the material or the tempering process.

Have a piece of steel and are unsure if it has been hardened or not? Here's an easy way to find out:



MILD STEEL CAN BE FILED FAIRLY EASILY AND LEAVES A VISIBLE RELIEF



A FILE WILL TEND TO SKID ALONG THE SURFACE OF HARDENED STEEL

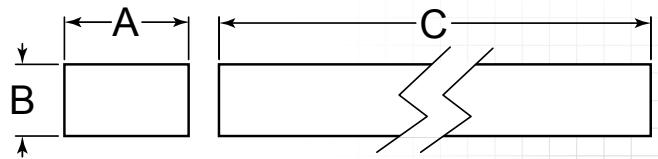
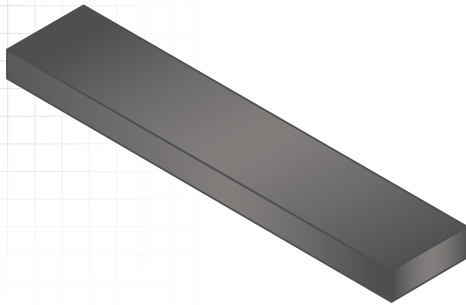
GROUND STOCK

DESCRIPTION

Ground stock is annealed rectangular or square steel that has been ground to close tolerance for use in a wide range of industries. Once shaped, ground stock may be heat treated to harden. To learn more about heat treating, visit huyett.com/catalogs to download a copy of our *Engineering Handbook*.

HOW TO IDENTIFY

1. Measure thickness (B).
2. Measure width (A).
3. Measure length (C).
4. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

GS01 = O1* (Oil-hardening Steel)	GS50 = M2* (High-speed Steel)
GS02 = O1* (Oil-hardening Steel), Oversize	GS60 = Cold Finished Alloy Steel, Plain* (4142)
GS10 = D2* (High-chrome Air-hardening Steel)	GS61 = Cold Finished Alloy Steel, Plain* (4142), Oversize
GS11 = D2* (High-chrome Air-hardening Steel), Oversize	GS70 = O6* (Oil-hardening Steel)
GS20 = S7* (Shock-resistant Air-hardening Steel), Oversize	GS90 = 410 Stainless Steel, Plain
GS30 = Cold Finished Carbon Steel, Plain* (1018)	GS91 = 440C Stainless Steel, Plain, Oversize
GS41 = A2* (Air-hardening Steel)	
GS42 = A2* (Air-hardening Steel), Oversize	

Material/finish combinations may not be available in all sizes.

THICKNESS (B) AND WIDTH (A) TOLERANCES

MATERIAL		SQUARE		RECTANGLE		
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	
Standard						
GS01	O1* (Oil-hardening Steel)	All Sizes	±.0010"	(Thickness Size)	±.0010"	
GS10	D2* (High-chrome Air-hardening Steel)			(Width Size)		
GS30	Cold Finished Steel, Plain* (1018)			All Sizes		+ .0050/-0"
GS41	A2* (Air-hardening Steel)					
GS50	M2* (High-speed Steel)					
GS60	Cold Finished Alloy Steel, Plain* (4142)					
GS70	O6* (Oil-hardening Steel)					
GS90	410 Stainless Steel, Plain					
Oversize						
GS02	O1* (Oil-hardening Steel)	All Sizes	+.0100/+.0150"	(Thickness Size)	+.0100/+.0150"	
GS11	D2* (High-chrome Air-hardening Steel)			(Width Size)		
GS20	S7* (Shock-resistant Air-hardening Steel)			All Sizes		+ .0100/+.0150"
GS42	A2* (Air-hardening Steel)					
GS61	Cold Finished Alloy Steel, Plain* (4142)					
GS91	440C Stainless Steel, Plain					

LENGTH (C) TOLERANCES

	LENGTH	TOLERANCE
(Suffix)	(Length)	(Tolerance)
-12	12" (1')	+ .1250/+.2500"
-18	18" (1-1/2')	
-24	24" (2')	+ .1875/+.3750" +.5000/-0" (Stainless)
-36	36" (3')	+ .2500/+.5000"
-60	60" (5')	+ 1.0000/-0"

Nonstandard lengths up to 60" are available. Lengths over 3' may be subject to a packaging charge.

**GROUND FLAT STOCK
CAN BE PRODUCED IN
MANY HEIGHT, WIDTH, AND
LENGTH COMBINATIONS**

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

Prices, materials, dimensions, tolerances, designs, and grades subject to change without notice. © 2022 Huyett

*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

GROUND STOCK

HOW TO BUILD A PART NUMBER

GS0100460312-36

ITEM PREFIX

(B)
THICKNESS

(A)
WIDTH

(C)
LENGTH

GS01

1/64" to 2"

0046

1/8" to 14"

0312

12" to 60"

-36

TO ORDER CHOOSE
YOUR MATERIAL,

CHOOSE YOUR
THICKNESS,

CHOOSE YOUR
WIDTH,

CHOOSE YOUR
LENGTH.

CODE	MATERIAL
GS01	O1* (Oil-hardening Steel)
GS02	O1* (Oil-hardening Steel), Oversize
GS10	D2* (High-chrome Air-hardening Steel)
GS11	D2* (High-chrome Air-hardening Steel), Oversize
GS20	S7* (Shock-resistant Air-Hardening Steel)
GS30	Cold Finished Steel, Plain* (1018)
GS41	A2* (Air-hardening Steel)
GS42	A2* (Air-hardening Steel), Oversize
GS50	M2* (High-speed Steel)
GS60	Cold Finished Alloy Steel, Plain* (4142)
GS61	Cold Finished Alloy Steel, Plain* (4142), Oversize
GS70	O6* (Oil-hardening Steel)
GS90	410 Stainless Steel, Plain
GS91	440C Stainless Steel, Plain, Oversize

CODE	THICKNESS
0015	.0156" (1/64)
0031	.0313" (1/32)
0046	.0469" (3/64)
0062	.0625" (1/16)
0078	.0781" (5/64)
0093	.0938" (3/32)
0109	.1094" (7/64)
0125	.1250" (1/8)
0140	.1406" (9/64)
0156	.1563" (5/32)
0187	.1875" (3/16)
0218	.2188" (7/32)
0250	.2500" (1/4)
0281	.2813" (9/32)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0750	.7500" (3/4)
0875	.8750" (7/8)
1000	1.0000" (1)
1125	1.1250" (1-1/8)
1250	1.2500" (1-1/4)
1312	1.3125" (1-5/16)
1500	1.5000" (1-1/2)
2000	2.0000" (2)

CODE	WIDTH
0125	.1250" (1/8)
0140	.1406" (9/64)
0156	.1563" (5/32)
0187	.1875" (3/16)
0218	.2188" (7/32)
0250	.2500" (1/4)
0281	.2813" (9/32)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0750	.7500" (3/4)
0875	.8750" (7/8)
1000	1.0000" (1)
1125	1.1250" (1-1/8)
1250	1.2500" (1-1/4)
1375	1.3750" (1-3/8)
1500	1.5000" (1-1/2)
1750	1.7500" (1-3/4)
2000	2.0000" (2)
2500	2.5000" (2-1/2)
3000	3.0000" (3)
3500	3.5000" (3-1/2)
4000	4.0000" (4)
4500	4.5000" (4-1/2)
5000	5.0000" (5)
5500	5.5000" (5-1/2)
6000	6.0000" (6)
7000	7.0000" (7)
8000	8.0000" (8)
9000	9.0000" (9)
10	10.0000" (10)
12	12.0000" (12)
14	14.0000" (14)

CODE	LENGTH
-12	12" (1')
-18	18" (1-1/2')
-24	24" (2')
-36	36" (3')
-60	60" (5')

Nonstandard lengths up to 60" are available. Lengths over 3' may be subject to a packaging charge.



Our *Engineering Handbook* provides a fresh perspective on steelmaking from iron ore to finished product. With 144 pages of informative content you'll learn about the steelmaking process, different grades of steel and finishes, testing steel hardness, heat treating steel, and mechanical properties of steel. Bonus features include manufacturing case studies and metric/imperial conversion charts.

HUYETT.COM/CATALOGS

HUYETT.COM

COMPLETE ORDER HISTORY AND EASY REORDERING

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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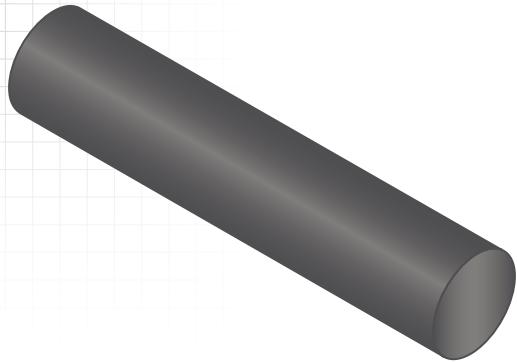
DRILL ROD – FRACTIONAL INCH

DESCRIPTION

Drill rod is round unhardened (but tough) tool steel that is precision ground to tight tolerances and machined to produce a wide variety of tools. It may then be hardened by heat treating then drawn back to the desired hardness. (DRV is pre-hardened.)

HOW TO IDENTIFY

1. Measure diameter (A).
2. Build the part number from the chart on the next page.



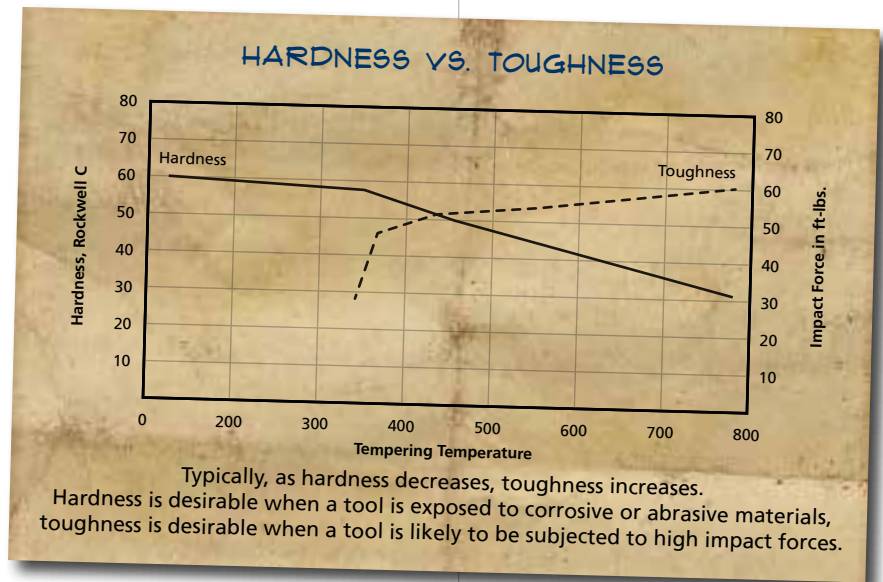
PREFIX MATERIAL/FINISH

DRA = A2* (Air-hardening Steel)
DRA8 = A8* (Air-hardening Steel)
DRD = D2* (High-chrome Air-hardening Steel)
DRH13 = H13* (High-hardenability Air-hardening Steel)
DRM2 = M2* (High-speed Steel)

DRO = O1* (Oil-hardening Steel)
DRS = S7* (Shock-resistant Air-hardening Steel)
DRV = V44* (Pre-hardened H13S Steel)
DRW = W1* (Water-hardening Steel)
 Material/finish combinations may not be available in all sizes.

DRILL ROD TOLERANCES

MATERIAL		DIAMETER (A)		LENGTH (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Length)	(Tolerance)
DRA	A2* (Air-hardening Steel)	.0625 – .1250" >.1250 – .5000" >.5000 – 3.0000"	±.0003" ±.0005" ±.0010"	36" (3')	+ .1250/-0"
DRA8	A8* (Air-hardening Steel)				
DRD	D2* (High-chrome Air-hardening Steel)				
DRH13	H13* (High-hardenability Air-hardening Steel)				
DRM2	M2* (High-speed Steel)				
DRO	O1* (Oil-hardening Steel)				
DRS	S7* (Shock-resistant Air-hardening Steel)				
DRV	V44* (Pre-hardened H13S Steel, HRC 43–48)				
DRW	W1* (Water-hardening Steel)				



DRILL ROD – FRACTIONAL INCH

HOW TO BUILD A PART NUMBER

DRA-Ø250

SOLD IN
36" LENGTHS

ITEM PREFIX

(A)
DIAMETER

DRA-

TO ORDER CHOOSE
YOUR MATERIAL,

1/16" to 3"

Ø250

CHOOSE YOUR
DIAMETER.

CODE	MATERIAL
DRA-	A2* (Air-hardening Steel)
DRA8-	A8* (Air-hardening Steel)
DRD-	D2* (High-chrome Air-hardening Steel)
DRH13-	H13* (High-hardenability Air-hardening Steel)
DRM2-	M2* (High-speed Steel)
DRO-	O1 (Oil-hardening Steel)
DRS-	S7* (Shock-resistant Air-hardening Steel)
DRV-	V44* (Pre-hardened H13S Steel, HRC 43-48)
DRW-	W1 (Water-hardening Steel)

* Other sizes (A – Z & #1 – #52) available on the next page.

DON'T SEE WHAT
YOU'RE LOOKING
FOR? CONTACT
SALES@HUYETT.COM
OR
CALL 785-392-3017

CODE	DIAMETER
0062	.0625" (1/16)
0078	.0781" (5/64)
0093	.0938" (3/32)
0109	.1094" (7/64)
0125	.1250" (1/8)
0140	.1406" (9/64)
0156	.1563" (5/32)
0171	.1719" (11/64)
0187	.1875" (3/16)
0203	.2031" (13/64)
0218	.2188" (7/32)
0234	.2344" (15/64)
0250	.2500" (1/4)
0265	.2656" (17/64)
0281	.2813" (9/32)
0296	.2969" (19/64)
0312	.3125" (5/16)
0328	.3281" (21/64)
0343	.3438" (11/32)
0359	.3594" (23/64)
0375	.3750" (3/8)
0390	.3906" (25/64)
0406	.4063" (13/32)
0421	.4219" (27/64)
0437	.4375" (7/16)
0453	.4531" (29/64)
0468	.4688" (15/32)
0484	.4844" (31/64)
0500	.5000" (1/2)
0515	.5156" (33/64)
0531	.5313" (17/32)
0546	.5469" (35/64)
0562	.5625" (9/16)
0578	.5781" (37/64)
0593	.5938" (19/32)

CODE	DIAMETER
0609	.6094" (39/64)
0625	.6250" (5/8)
0640	.6406" (41/64)
0656	.6563" (21/32)
0671	.6719" (43/64)
0687	.6875" (11/16)
0703	.7031" (45/64)
0718	.7188" (23/32)
0734	.7344" (47/64)
0750	.7500" (3/4)
0765	.7656" (49/64)
0781	.7813" (25/32)
0796	.7969" (51/64)
0812	.8125" (13/16)
0828	.8281" (53/64)
0843	.8438" (27/32)
0859	.8594" (55/64)
0875	.8750" (7/8)
0890	.8906" (57/64)
0906	.9063" (29/32)
0921	.9219" (59/64)
0937	.9375" (15/16)
0953	.9531" (61/64)
0968	.9688" (31/32)
0984	.9844" (63/64)
1000	1.0000" (1)
1015	1.0156" (1-1/64)
1031	1.0313" (1-1/32)
1046	1.0468" (1-3/64)
1062	1.0625" (1-1/16)
1078	1.0781" (1-5/64)
1093	1.0938" (1-3/32)
1109	1.1094" (1-7/64)
1125	1.1250" (1-1/8)
1140	1.1406" (1-9/64)

CODE	DIAMETER
1156	1.1563" (1-5/32)
1171	1.1719" (1-11/64)
1187	1.1875" (1-3/16)
1203	1.2031" (1-13/64)
1218	1.2188" (1-7/32)
1234	1.2344" (1-15/64)
1250	1.2500" (1-1/4)
1265	1.2656" (1-17/64)
1281	1.2813" (1-9/32)
1296	1.2969" (1-19/64)
1312	1.3125" (1-5/16)
1328	1.3281" (1-21/64)
1343	1.3438" (1-11/32)
1359	1.3594" (1-23/64)
1375	1.3750" (1-3/8)
1390	1.3906" (1-25/64)
1406	1.4063" (1-13/32)
1421	1.4219" (1-27/64)
1437	1.4375" (1-7/16)
1453	1.4531" (1-29/64)
1468	1.4688" (1-15/32)
1484	1.4844" (1-31/64)
1500	1.5000" (1-1/2)
1562	1.5625" (1-9/16)
1625	1.6250" (1-5/8)
1687	1.6875" (1-11/16)
1750	1.7500" (1-3/4)
1812	1.8125" (1-13/16)
1875	1.8750" (1-7/8)
1937	1.9375" (1-15/16)
2000	2.0000" (2)
2250	2.2500" (2-1/4)
2500	2.5000" (2-1/2)
2750	2.7500" (2-3/4)
3000	3.0000" (3)

TOOL STEEL

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DRILL ROD – LETTER & NUMBER

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

DRO-000A

SOLD IN 36" LENGTHS

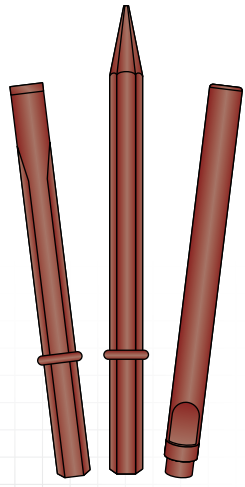
ITEM PREFIX

(A)
DIAMETER

DRO-

TO ORDER CHOOSE YOUR MATERIAL,

CODE	MATERIAL
DRO-	O1* (Oil-hardening Steel)
DRW-	W1* (Water-hardening Steel)



DRILL ROD CAN BE SHAPED AND HARDENED TO FORM TOOLS FOR WOODWORKING, ENGRAVING, CONSTRUCTION, AND MORE

000A

CHOOSE YOUR DIAMETER.

CODE	DIAMETER
000A	.2340" (A)
000B	.2380" (B)
000C	.2420" (C)
000D	.2460" (D)
000F	.2570" (F)
000G	.2610" (G)
000H	.2660" (H)
000I	.2720" (I)
000J	.2770" (J)
000K	.2810" (K)
000L	.2902" (L)
000M	.2950" (M)
000N	.3020" (N)
000O	.3160" (O)
000P	.3230" (P)
000Q	.3320" (Q)
000R	.3390" (R)
000S	.3480" (S)
000T	.3580" (T)
000U	.3680" (U)
000V	.3770" (V)
000W	.3860" (W)
000X	.3970" (X)
000Y	.4040" (Y)
000Z	.4130" (Z)

CODE	DIAMETER
0001	.2270" (#1)
0002	.2190" (#2)
0003	.2120" (#3)
0004	.2070" (#4)
0005	.2040" (#5)
0006	.2010" (#6)
0007	.1990" (#7)
0008	.1970" (#8)
0009	.1940" (#9)
0010	.1910" (#10)
0011	.1880" (#11)
0012	.1850" (#12)
0013	.1820" (#13)
0014	.1800" (#14)
0015	.1780" (#15)
0016	.1750" (#16)
0017	.1720" (#17)
0018	.1680" (#18)
0019	.1640" (#19)
0020	.1610" (#20)
0021	.1570" (#21)
0022	.1550" (#22)
0023	.1530" (#23)
0024	.1510" (#24)
0025	.1480" (#25)
0026	.1460" (#26)

CODE	DIAMETER
0027	.1430" (#27)
0028	.1390" (#28)
0029	.1340" (#29)
0030	.1270" (#30)
0031	.1200" (#31)
0032	.1150" (#32)
0033	.1120" (#33)
0034	.1100" (#34)
0035	.1080" (#35)
0036	.1060" (#36)
0037	.1030" (#37)
0038	.1010" (#38)
0039	.0990" (#39)
0040	.0970" (#40)
0041	.0950" (#41)
0042	.0920" (#42)
0043	.0880" (#43)
0044	.0850" (#44)
0045	.0810" (#45)
0046	.0790" (#46)
0047	.0770" (#47)
0048	.0750" (#48)
0049	.0720" (#49)
0050	.0690" (#50)
0051	.0660" (#51)
0052	.0630" (#52)

PROUD DISTRIBUTORS OF:



FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.
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TOOL STEEL COMPARISON

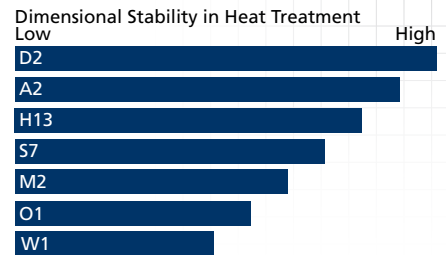
The American Iron and Steel Institute (AISI) and Society of Automotive Engineer (SAE) developed a scale of tool steel grades that is widely accepted throughout the industry by both producers and users of tool steels. That system is used in the following as a base for providing concise information on tool steel types, their properties, and methods of tool steel selection.

For example, an ejector pin for die-casting requires high toughness and hot hardness. For toughness the chart suggests H13, V44, and S7. For hot hardness the chart suggests M2, H13, and V44. Since H13 seems to be a good balance of the two necessary traits (toughness and hot hardness), it is a logical start. If the H13 part wears too rapidly, the next choice is S7.

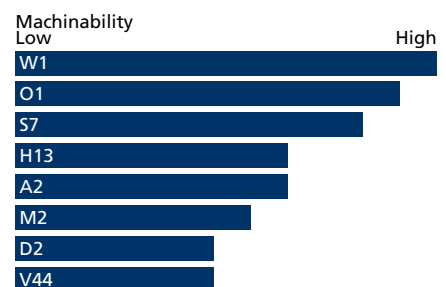
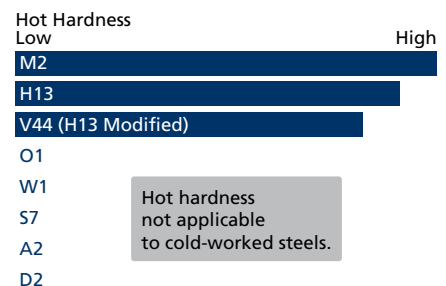
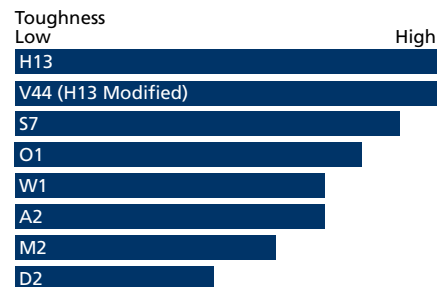
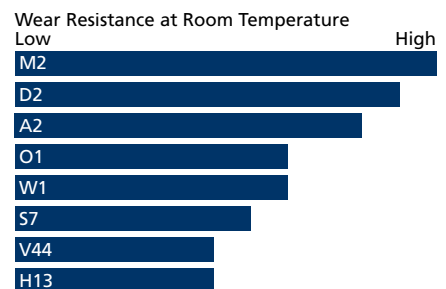
AISI/SAE TOOL STEEL PROPERTIES		
TYPE	COMPARATIVE PROPERTIES	USE
A2	Used in place of O1 in applications requiring safer heat treatment, less distortion, and greater wear resistance. Maximum HRC 63.	Machining to finish job
A8	Air-hardening grade that has higher toughness than D2 and better wear resistance than S7.	Pneumatic tools
D2	Offers better wear resistance and higher compressive strength than A2. Good for long duration runs. Maximum HRC 63.	Shock resistant, machine to finish
H13	Air-hardening material that resists thermal fatigue cracking. Better hardenability and wear resistance than 4140. Maximum HRC 54.	Hot-work die steel
M2	High-speed steel with good abrasion resistance and good toughness. Resists softening at high temperatures. Maximum HRC 65.	High heat environments
O1	Dimensionally stable during hardening with high hardness response in low temperatures. Heat treatable up to HRC 65.	Tool and die
O6	Oil-hardening, non-deforming type tool steel with good resistance to wear and abrasion. Especially suitable for dies and punches in drawing, forming, and shaping operations.	Tool and die
S7	Used in cold-work tools needing high shock resistance. Good toughness with ease of heat treat and machinability. Maximum HRC 58.	Mold dies
V44	Free machining version of H13 that is pre-hardened to HRC 43-48.	Pre-hardened for machine to finish
W1	Also known as commercial carbon for use in general metal working. Used where simple heat treatment is desirable. Maximum HRC 68.	General purpose
1018	Very common cold-forming steel for bending, brazing, welding, and forming. Must be carburized during heat treatment.	Weldable
1144	Medium-carbon resulfurized steel with excellent free machining capabilities. Maximum HRC 22.	Free machining
4142	Pre-hardened to HRC 30. Good wear resistance, toughness, and machinability.	Forging

Rockwell Hardness C Scale (HRC)

PROPERTIES



V44 is pre-hardened.



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TOOL STEEL

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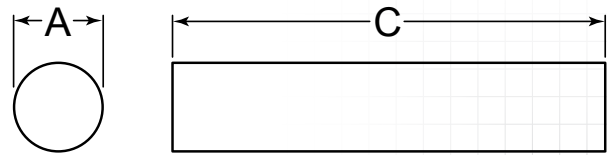
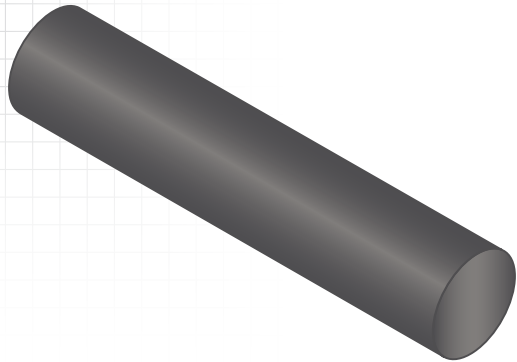
DRILL ROD – METRIC

DESCRIPTION

Drill rod is round, unhardened (but tough) tool steel that is precision ground to tight tolerances that is machined to produce a wide variety of tools. It may then be hardened by heat treating then drawn back to the desired hardness.

HOW TO IDENTIFY

1. Measure diameter (A).
2. Measure length (C).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

DRMA = A2* (AIR-HARDENING STEEL)
DRMO = O1* (OIL-HARDENING STEEL)
DRMW = W1* (WATER-HARDENING STEEL)
 Material/finish combinations may not be available in all sizes.

✳ DRMO SERIES LENGTHS:
DRMO-### = 914.40 mm (3')
DRMO-###-2 = 2000.00 mm (6.56')
DRMO-###-4 = 3657.60 mm (12')
 All other materials available in 914.40 mm lengths only.

DRILL ROD TOLERANCES

MATERIAL		DIAMETER (A)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)
DRMA	A2* (Air-hardening Steel)	2 – 3 mm	+0/-0.025 mm
		>3 – 6 mm	+0/-0.030 mm
		>6 – 10 mm	+0/-0.036 mm
		>10 – 18 mm	+0/-0.043 mm
		>18 – 25 mm	+0/-0.052 mm
DRMO	O1* (Oil-hardening Steel)	1 – 3 mm	+0/-0.025 mm
		>3 – 6 mm	+0/-0.030 mm
		>6 – 10 mm	+0/-0.036 mm
		>10 – 18 mm	+0/-0.043 mm
		>18 – 30 mm	+0/-0.052 mm
		>30 – 50 mm	+0/-0.062 mm
DRMW	W1* (Water-hardening Steel)	1 – 3 mm	+0/-0.025 mm
		>3 – 6 mm	+0/-0.030 mm
		>6 – 10 mm	+0/-0.036 mm
		>10 – 18 mm	+0/-0.043 mm
		>18 – 30 mm	+0/-0.052 mm
		>30 – 50 mm	+0/-0.062 mm

LENGTH (C) TOLERANCES

LENGTH	TOL.
(Suffix)	(Length) (Tolerance)
(None)	914.40 mm (3') +3.175/-0 mm
-2 (DRMO Only)	2000.00 mm (6.56') +3.175/-0 mm
-4 (DRMO Only)	3657.6 mm (12') ±152.4 mm

Nonstandard lengths up to 12' are available. Lengths over 3' may be subject to a packaging charge.

DRILL ROD CAN BE PRODUCED IN MANY DIAMETER AND LENGTH COMBINATIONS



BE SURE TO MARK AIR-, WATER-, AND OIL-HARDENING TOOL STEEL SCRAPS TO PREVENT MACHINING ERRORS AND HEAT TREATING WITH THE WRONG QUENCHING PROCESS

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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DRILL ROD – METRIC

HOW TO BUILD A PART NUMBER

DRMO-006-2

ITEM PREFIX

DRMO-

TO ORDER CHOOSE YOUR MATERIAL,

CODE	MATERIAL
DRMA-	A2* (Air-hardening Steel)
* DRMO-	O1* (Oil-hardening Steel)
DRMW-	W1* (Water-hardening Steel)

(A)
DIAMETER

1 mm to 50 mm

006

CHOOSE YOUR DIAMETER,

CODE	DIAMETER	CODE	DIAMETER	CODE	DIAMETER
001	1.00 mm	005	5.00 mm	021	21.00 mm
0013	1.30 mm	006	6.00 mm	022	22.00 mm
0014	1.40 mm	007	7.00 mm	023	23.00 mm
0015	1.50 mm	008	8.00 mm	024	24.00 mm
0016	1.60 mm	009	9.00 mm	025	25.00 mm
0017	1.70 mm	010	10.00 mm	027	27.00 mm
0018	1.80 mm	011	11.00 mm	030	30.00 mm
002	2.00 mm	012	12.00 mm	032	32.00 mm
0022	2.20 mm	013	13.00 mm	033	33.00 mm
0025	2.50 mm	014	14.00 mm	035	35.00 mm
0026	2.60 mm	015	15.00 mm	036	36.00 mm
0028	2.80 mm	016	16.00 mm	040	40.00 mm
003	3.00 mm	017	17.00 mm	045	45.00 mm
0035	3.50 mm	018	18.00 mm	050	50.00 mm
004	4.00 mm	019	19.00 mm		
0045	4.50 mm	020	20.00 mm		

(C)
LENGTH

-2

CHOOSE YOUR LENGTH.

CODE	LENGTH
(None)	914.40 mm (3')
* -2 (DRMO Only)	2000.00 mm (6.56')
* -4 (DRMO Only)	3657.6 mm (12')

Nonstandard lengths up to 12' are available. Lengths over 3' may be subject to a packaging charge.

DON'T SEE WHAT YOU'RE LOOKING FOR? CONTACT SALES@HUYETT.COM OR CALL 785-392-3017



PLAIN FINISH PARTS REQUIRE SPECIAL HANDLING TO PREVENT SURFACE CORROSION AND EXTEND SHELF LIFE



* Some exclusions apply

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Order Status



Expected Ship Date



Order Tracking Info



Your Favorites

SHIMS & SPACERS

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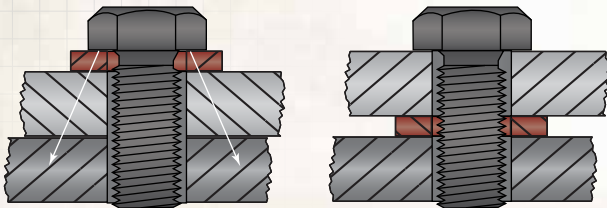
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SHIM & SPACER FEATURES

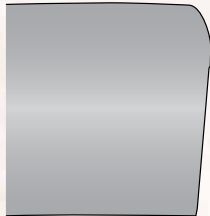
Shims are slices of metal or plastic material used to fill space between two objects or faces of objects. They are used for leveling, for adding support, or adjusting for a better fit. While some shims are wedge shaped to make them easier to install, machined shims are usually flat, with tight tolerances. They are available in a variety of styles and configurations to accommodate almost any application. While shim rings and washers have the same appearance and some shims are even called washers, the two have very different functions – washers are designed to take and spread loads, shims fill space.

DESIGN CONSIDERATIONS

WASHERS VS. SHIMS



WHILE BOTH ARE USED TO PROTECT MACHINED COMPONENTS, REDUCE VIBRATION, OR ACT AS A SOUND BUFFER, WASHERS SPREAD THE LOAD OF A BOLT OR SCREW, SHIMS TAKE UP SPACE AND ALIGN PARALLEL AND ANGLED SURFACES OF INTERFACING ELEMENTS



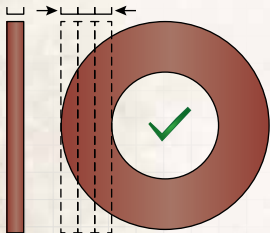
WASHERS ARE STAMPED LEAVING A ROLLOVER EDGE AND BREAKOUT EDGE

WASHERS COST LESS THAN SHIMS

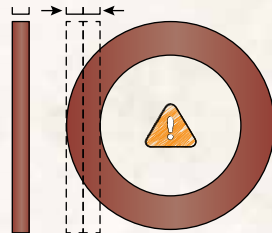


SHIMS HAVE SMOOTH CORNERS, FLAT EDGES, AND PARALLEL FACES

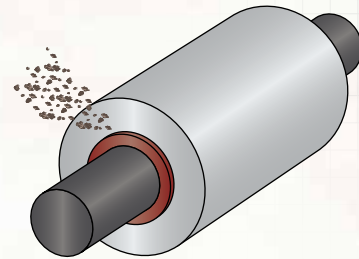
VERY FLAT WITH CONSISTENT THICKNESS



FOR BEST RESULTS, WALL THICKNESS FOR SHIMS SHOULD BE AT LEAST THREE TIMES THE MATERIAL THICKNESS

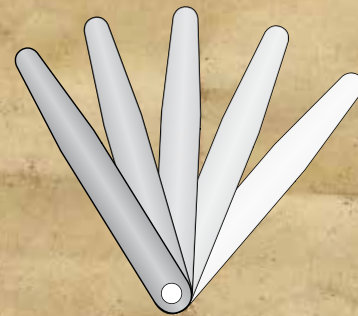


PREVENTING WEAR



IF THE HARDNESS OF THE SHIM AND COMPONENT FACES DO NOT MATCH, THE SOFTER FACE WILL BE SUBJECTED TO EXCESSIVE WEAR
FOR BEST RESULTS, AND TO SAVE TIME AND MONEY ON REBUILDS, SHIMS SHOULD BE DESIGNED INTO APPLICATIONS TO PREVENT CONTACT BETWEEN EXPENSIVE COMPONENTS

MEASURING SPACE

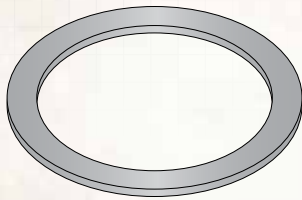


A set of feeler gauges (or leaf gauge) can be very handy to determine the amount of space that needs to be shimmed.

SHIM & SPACER TYPES

ARBOR SHIMS

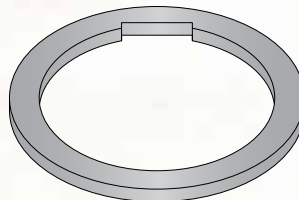
Also known as shim rings, arbor shims are made from precise materials with specific tolerances. They are used for spacing and alignment.



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ARBOR SPACERS

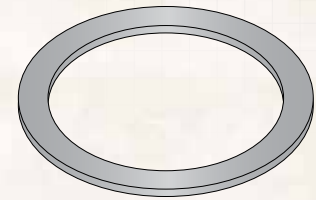
The inside diameter of an arbor spacer features a key way that slides over a shaft and machine key during installation. A wide range of sizes and thicknesses allow accurate alignment and spacing.



PAGE 116

SHIM WASHERS (DIN 938)

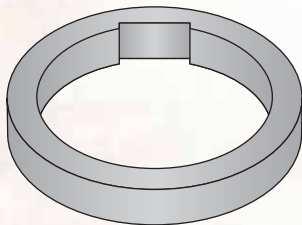
Full hard low carbon and spring steel metric DIN 988 shim washers are supplied in two styles: PS and SS. SS support rings are thicker and harder than PS shim washers.



PAGE 118

COLLARS

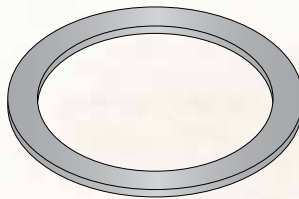
Collars are similar to arbor spacers. A key way cut into the inside diameter slides over, and turns with, shafts and machine keys to precisely position arbors in milling machines, saws, and grinders.



PAGE 126

LENGTHENING

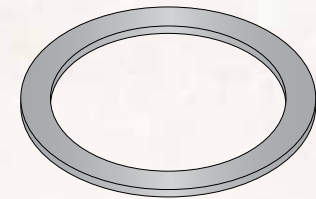
Lengthening shims fit over the screw threads and under the shoulder of stripper bolts, which, in effect, lengthens the stripper bolt length.



PAGE 128

SHORTENING

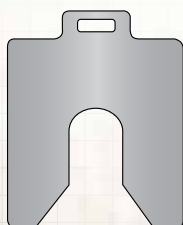
Shortening shims fit over the shank just under the head of a stripper bolt, shortening the effective length of the bolt.



PAGE 130

SLOTTED

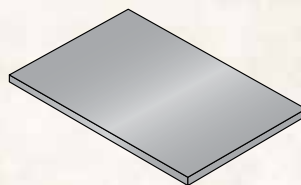
Slotted shims are an efficient way to solve alignment and leveling problems because they do not have to be hand cut. They are used on assembled machine components in order to maximize alignment and balance.



PAGE 132

STOCK

Shim stock is available in flat sheets, laminated flat sheets, and rolls in a variety of materials to fit your need. It can be cut in the field to fit your application.



PAGE 134



* Some exclusions apply

Visit huyett.com to download **Material, Compliance, and RoHS/REACH Certifications*** in your Account Order History.

* Some exclusions apply

SHIMS & SPACERS

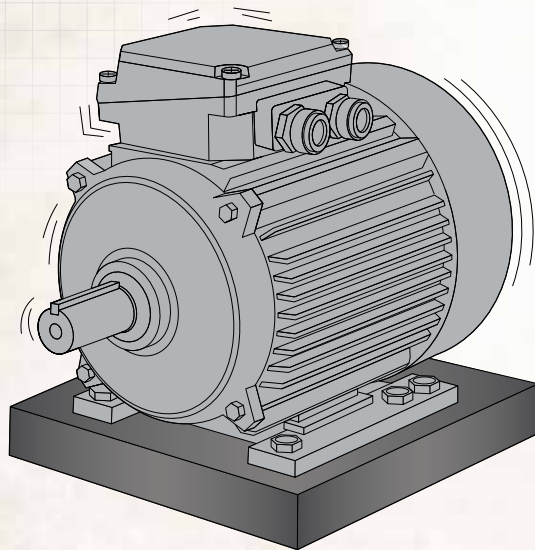
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DESIGN & USE

SLOTTED SHIMS FOR MACHINE ALIGNMENT



IMPROPERLY MOUNTED MOTOR

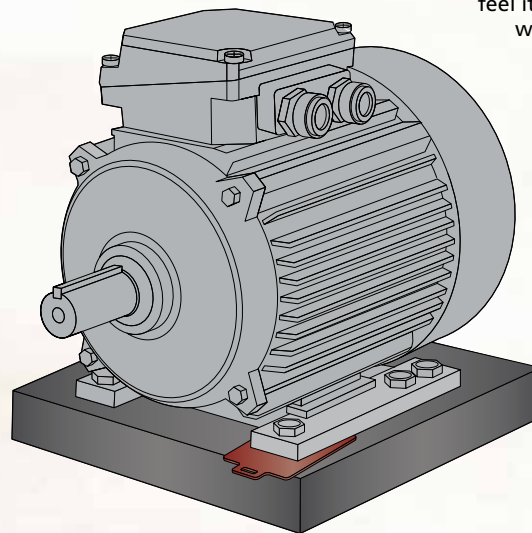
An improperly mounted motor may cause significant damage to the motor house, mounts, and adjoining components.

Shimming the mounts provides a repeatable alignment preventing damage to valuable equipment.



Slotted shims are used to align machinery and are installed around anchor bolts that connect to motor mounts. Typically the machine is lifted or tilted while the shims are slid into place near motor mounts. In most cases the anchor bolt is straddled on either side through the shim slot.

It is important for the slot to completely straddle the threads so as not to interfere with threads during torquing, and to prevent distortion of the shim. The tab of the shim is used to prevent the opportunity for the installer's fingers to be crushed when the machine is lowered onto the mounts. The best method of installation is to slide the shim and straddle the anchor bolt until you can feel it touching, then withdraw the shim a small amount (approx. 1 mm) to ensure clearance of the threads.



MOTOR WITH SHIM INSTALLED

PROUD DISTRIBUTOR OF



Hose Clamps, Bridge Pins, Cotter Pins, Hitch Pins, Shaft Collars, & Grease Fittings



Precision Key Stock & Machine Keys



Lifting Eye Bolts & Nuts, Turnbuckles, Turnbuckle Ends, Rod Ends, Shackles, Hooks, & Rope & Chain Hardware



Ready-Made & Custom Fastener Assortments & Kits



High Carbon & Stainless Steel Slotted Spring Pins



Reusable, Standard & Heavy Duty, Engineered Self-Locking Wedge Locking Washers



Speed Nuts, Expansion Nuts, U-Nuts, Self-Thread Lock Nuts, Trim & Panel Clips, Palnut Push-Ons, & Nut/Bolt Assemblies



Clevis Pins, Lanyards, & Helical Spring Lock Washers



Single-Use, Heavy Duty, Engineered Self-Locking Washers & Safety Wheel Nuts



Connecting & Mounting Clamps, Quick Connectors, Rings, Straps, & Tools



Threaded Inserts, Studs, Rivets, & Tools



Grease Fittings, Grease Guns, Lubrication & Fluid Handling & Management Systems



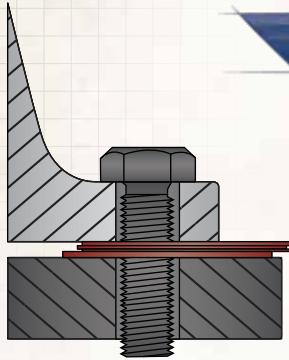
Coiled Spring Pins, Slotted Spring Pins, Spacers, & Thrust Washers



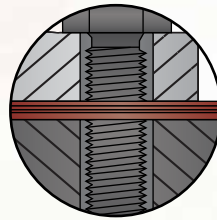
Retaining Rings, Circlips, Hose Clamps, Spiral Rings, Constant Section Rings, & Wave Springs

DESIGN & USE

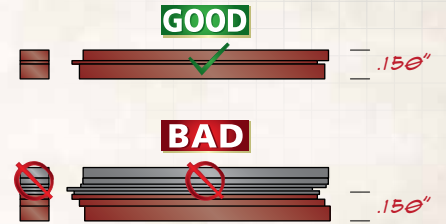
SHIM SELECTION GUIDELINES



FOR BEST RESULTS, DO NOT USE MORE THAN FOUR SHIMS IN ONE SETTING



SANDWICH THINNER SHIMS BETWEEN THICKER SHIMS FOR PROTECTION



NEVER SHIM MORE THAN AN OVERALL ELEVATION OF .150"

Shim assortments include a variety of thicknesses that can be used individually or in combination to create any thickness from .001" to .150". For best results, keep your shim assortment fully stocked so that you can remain within these design standards in any application.

STANDARD SIZES

Shim sizing is proportional to the size of the anchor bolts and can be estimated based on the horsepower of the machine:

ESTIMATED SHIM SIZES AND HORSEPOWER RANGES

	SHIM DIMENSIONS	HORSEPOWER RANGE
Size A	2" x 2" with 9/16" slot	0.25 – 15
Size B	3" x 3" with 13/16" slot	10 – 60
Size C	4" x 4" with 1-3/16" slot	50 – 200
Size D	5" x 5" with 1-9/16" slot	150 – 1,000

MOTOR FRAME SIZING

There are some standard shim sizes based on standard motor frame numbers. The following table serves as a guide:

MOTOR FRAME NUMBERS

SIZE A		SIZE B		SIZE C		SIZE D	
2" x 2" x 9/16"		3" x 3" x 13/16"		4" x 4" x 1-3/16"		5" x 5" x 1-9/16"	
42	184	66*	325	203*	408	502	681
48	185	253	326	204*	409	503	682
56	186	254	327	224*	443	504	683
143	187	255	328	225*	444	505	684
145	188	256	329	363	445	506	685
162	189	257		364	446	507	686
163	1810	258		365	447	508	687
164	213	259		366	448	509	689
165	214	283		367	449	582	
166	215	284		368	504*	583	
167	216	285		369	505*	585	
168	217	286		403	506*	586	
169	218	287		404	507*	587	
1610	219	288		405	508*	588	
182	2110	289		406	509*	589	
183		323		407			
		324					

* Old frame number

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SHIMS & SPACERS

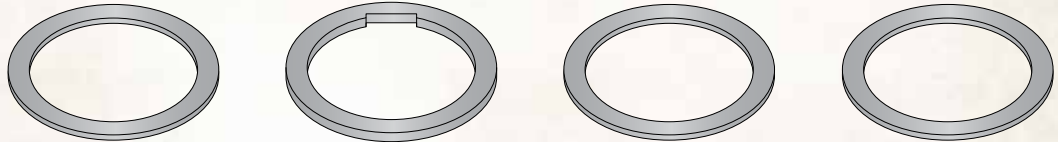
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QUICK REFERENCE GUIDE

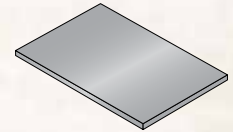
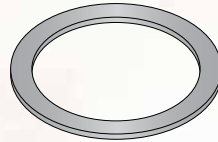
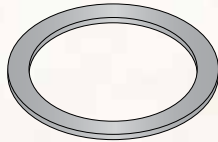
Shims are a class of materials used for spacing and alignment. Made with precise materials and production techniques, shims are available in a variety of styles and materials to suit your needs.



	ARBOR SHIM	ARBOR SPACER	SHIM WASHER	SHIM SUPPORT WASHER
COMMON NAMES	Shim; Slitter Shim; Shim Washer	Keyed Spacer; Arbor Shim	Shim Washer; PS Shim Washer	Support Washers; Support Rings; SS Shim Ring; Backup Ring
APPLICABLE STANDARDS	None known	Other than matching standard key way sizes, no standards are known.	DIN 988 PS series	DIN 988 SS series
FABRICATION	Most commonly made from high carbon steel, also known as blue tempered, stainless steel, or brass. Other materials not standard, but are used.	Most commonly made from high carbon steel, also known as blue tempered, stainless steel, or brass. Other materials not standard, but are used.	Usually stamped from shim steel (1045 – 1075). Standard sizes generally 0.25 – 1.0 mm thick, though range is 0.15 – 1.9 mm. ID and OD generally expressed in increments of 0.1 mm.	Usually stamped from spring steel to HRC 44 – 49. Larger sizes sometimes machined from tubing with ground side faces.
HOW TO IDENTIFY	Outside diameter × inside diameter × thickness.	Outside diameter × inside diameter × thickness.	Outside diameter × inside diameter × thickness.	Outside diameter × inside diameter × thickness.
COMMON USES	Used for fast, accurate spacing of milling cutters, gang cutters, saws, slitting blades, and grinding tools.	Used to fit arbors onto various types of small machine tools, including grinders. Key way aligns to the mating key ways of mating components.	Primary purpose is to take up axial play between machine components. Shim washers are common components in gear boxes and gearing systems.	Used between machine components. Often used to provide a flat and solid surface for a retaining ring that retains components against a shaft.
COMMENTS	Some versions made from 1010 full hard material, which is more pliable but has less wear properties than blue tempered.	There is a thicker version that is produced from machined parts known as a keyed spacer.	Generally much less expensive than DIN 988 SS series. No imperial standards.	Generally much more expensive than DIN 988 PS series due to more precision in manufacturing. No imperial standards.



QUICK REFERENCE GUIDE



	SPACER / COLLAR	LENGTHENING / SHORTENING	SLOTTED	SHIM STOCK
COMMON NAMES	Slitter Spacer; Arbor Spacer; Arbor Collar	Variable Shim; Lengthening Shim; Shoulder Screw Shim; Stripper Bolt Shim	Slotted Shim; Horseshoe Shim; Slotted Motor Shim	Shim Stock; Shim Rolls; Rolled Shim
APPLICABLE STANDARDS	While there are no known standards, thicknesses and tolerances are aligned with industry norms.	None known, though ID and OD match the mating dimensions of a stripper bolt.	Stainless steel and plastic are most common. Sizes are called out using letters representing the squared dimensions of the slot.	While there are no known standards, thickness tolerances are carefully controlled, as is the material content.
FABRICATION	Usually hardened and ground parallel and perpendicular. Lapped for parallelism. Edges are chamfered.	Stamped from spring steel, or medium to high carbon grades, 1045 – 1095.	Designed with a bolt slot to ease installation. Stainless steel is most common.	Rolled or flat sheets. Rolled is more economical to manufacture, ship, and store, though flat sheets tend to work better when trying to cut a large piece to size, as the rolls tend to want to reroll and not stay flat until installed.
HOW TO IDENTIFY	Most often specified to an application using a blueprint. Mostly custom parts.	Screw/bolt size x thickness.	Size code x thickness.	Length x width x thickness.
COMMON USES	Used for spacing and as collets for machined components on shafts.	Used to increase the effective length of shoulder bolts/stripper screws by installing over the threads but remaining beneath the stepped shaft of the stripper bolt.	Used to level motors and machinery, especially to ensure the alignment of components, such as a motor to a pump.	Primary use is in tool and die alignment. Also used for automotive and truck axle shims.
COMMENTS	Generally a custom fabricated part.	Stripper bolts are used in tool and die work to hold stripper plates in place. Stripper plates guide the punch tip in a stamping operation and this controlling parallelism is important.	The tab allows for safe installation without risk to operator to crush fingers. Do not shim more than .150" and use thicker shims on either side of thin shims to minimize wear.	Color coded plastic stock eliminates need to check thickness with a micrometer. Custom cut edges need to be deburred before installation.

SHIMS & SPACERS

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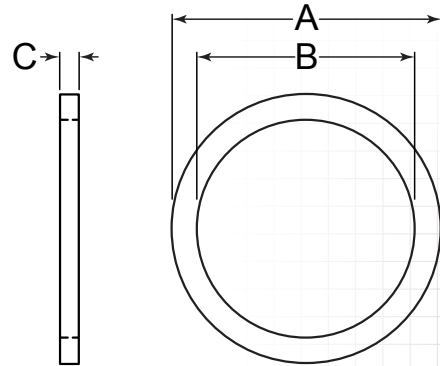
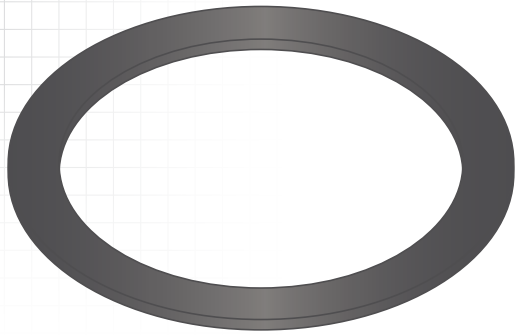
ARBOR SHIM

DESCRIPTION

Arbor shims are thin, washer-like discs designed to prevent axial movement in assembled components. Unlike washers, shims are manufactured with specific tolerances for an exact fit. The contact faces of the shim and component must be smooth and of similar hardness to avoid excessive wear.

HOW TO IDENTIFY

1. Measure inside diameter (B).
2. Measure thickness (C).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

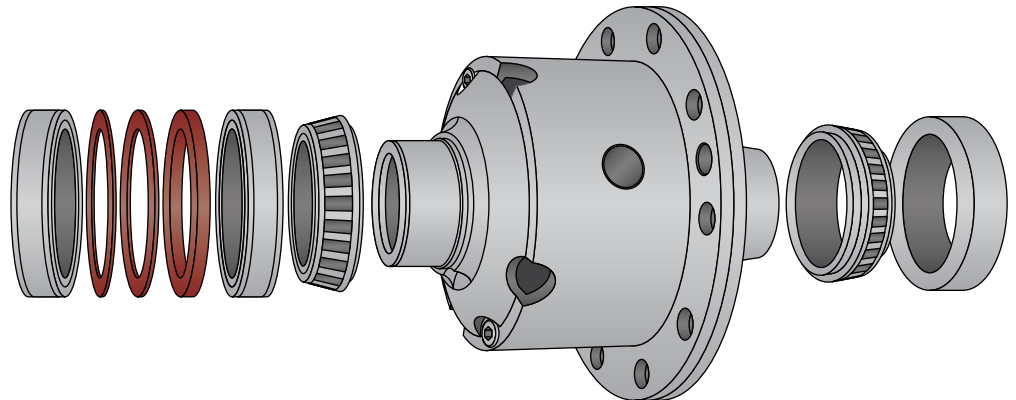
SHIM = CARBON STEEL, PLAIN*
SHIMS = STAINLESS STEEL, PLAIN

Material/finish combinations may not be available in all sizes.

ARBOR SHIM TOLERANCES

MATERIAL	OUTSIDE DIAMETER (A)		INSIDE DIAMETER (B)		THICKNESS (C)			
	(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
SHIM		Carbon Steel, Plain*	All Sizes	+0/-.005"	All Sizes	+.005/-0"	.007 - .015"	±.00075"
		.020 - .025"					±.001"	
		.032"					±.002"	
		.047 - .093"					±.0025"	
SHIMS		Stainless Steel, Plain					.125"	±.003"

Assembled machines like this air locking differential may require several thin adjustment shims along with a thicker master shim.



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ARBOR SHIM

HOW TO BUILD A PART NUMBER

SHIM-1375-020

ITEM PREFIX

(B)
INSIDE DIAMETER

(C)
THICKNESS

SHIM-

TO ORDER CHOOSE
YOUR MATERIAL,

CODE	MATERIAL
SHIM-	Carbon Steel, Plain*
SHIMS-	Stainless Steel, Plain

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1375

CHOOSE YOUR
INSIDE DIAMETER,

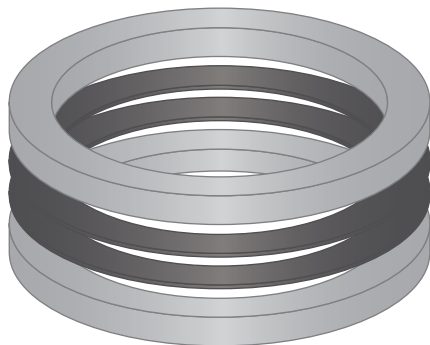
CODE	INSIDE DIAMETER	OUTSIDE DIAMETER
0250	.250" (1/4)	.500" (1/2)
0312	.312" (5/16)	.625" (5/8)
0375	.375" (3/8)	.625" (5/8)
0500	.500" (1/2)	.750" (3/4)
0625	.625" (5/8)	1.000" (1)
0750	.750" (3/4)	1.125" (1-1/8)
0875	.875" (7/8)	1.375" (1-3/8)
1000	1.000" (1)	1.500" (1-1/2)
1125	1.125" (1-1/8)	1.625" (1-5/8)
1250	1.250" (1-1/4)	1.750" (1-3/4)
1375	1.375" (1-3/8)	1.875" (1-7/8)
1500	1.500" (1-1/2)	2.125" (2-1/8)
1625	1.625" (1-5/8)	2.500" (2-1/2)
1750	1.750" (1-3/4)	2.750" (2-3/4)
1875	1.875" (1-7/8)	2.875" (2-7/8)
2000	2.000" (2)	2.750" (2-3/4)
2250	2.250" (2-1/4)	3.250" (3-1/4)
2500	2.500" (2-1/2)	3.250" (3-1/4)
2750	2.750" (2-3/4)	4.000" (4)
3000	3.000" (3)	4.375" (4-3/8)
3500	3.500" (3-1/2)	4.750" (4-3/4)
4000	4.000" (4)	5.500" (5-1/2)

-020

CHOOSE YOUR
THICKNESS.

CODE	THICKNESS
007	.007"
008	.008"
010	.010"
012	.012"
015	.015"
020	.020"
025	.025"
032	.032"
047	.047"
062	.062"
093	.093"
125	.125"

HOW MANY SHIMS CAN I USE?



For best results, shims should be installed with the thinner shims in the middle to protect them. They should not be stacked more than four deep.

Additional shims can introduce slippage and create opportunities for dirt and corrosion to develop between layers.

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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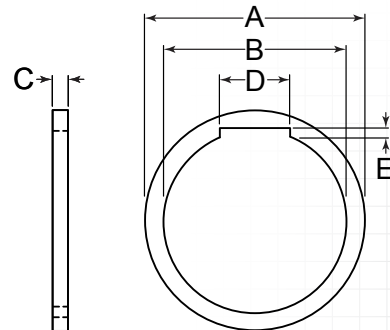
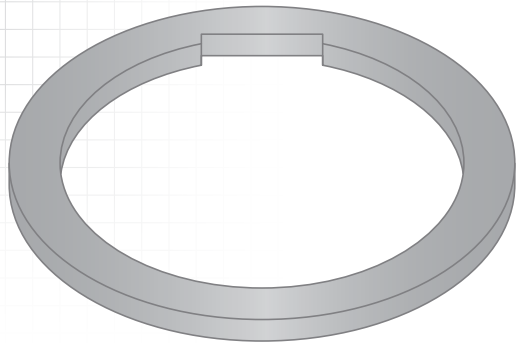
ARBOR SPACER

DESCRIPTION

The inside diameter of an arbor spacer features a key way that slides over a shaft and machine key during installation. A wide range of tightly toleranced sizes and thicknesses are available for accurate alignment and spacing.

HOW TO IDENTIFY

1. Measure inside diameter (B).
2. Measure thickness (C).
3. Find the part number in the chart on the next page.



PREFIX MATERIAL/FINISH

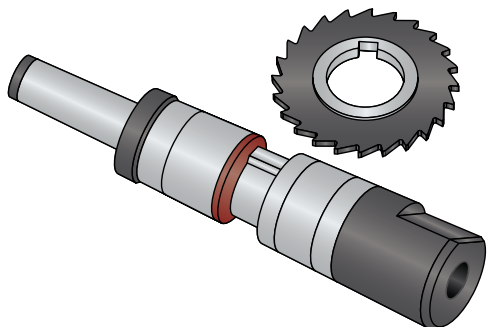
ARBOR = CARBON STEEL, PLAIN*

FOR THICKNESSES GREATER THAN .125" SEE ARBOR COLLARS ON PAGE 126

ARBOR SPACER TOLERANCES

MATERIAL		OUTSIDE DIAMETER (A)		INSIDE DIAMETER (B)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
ARBOR	Carbon Steel, Plain*	All Sizes	±.002"	All Sizes	+0.011/-0"	.001 - .003" .004 - .006" .007 - .012" .015 - .020" .025 - .031" .047" .062" .093 - .125"	±10% ±.0005" ±.00075" ±.001" ±.0015" ±.002" ±.0025" ±.003"

WHAT'S AN ARBOR?



An arbor or mandrel, is a shaft, rod, or axle used to secure or support material, components, blades, or other work tools.

Arbor spacers are installed on either side of cutting tools in saws, slitters, and milling machines to take up slack.

KEY WAY SIZE

ID (B)	KEY WAY (D × E)
3/8 - 1/2"	1/8" × 3/64"
5/8"	5/32" × 1/16"
3/4 - 7/8"	3/16" × 5/64"
1 - 1-1/8"	1/4" × 3/32"
1-1/4 - 1-3/8"	5/16" × 1/8"
1-1/2 - 1-5/8"	3/8" × 5/32"
1-3/4 - 1-7/8"	7/16" × 3/16"
2"	1/2" × 3/16"
2-1/4 - 2-1/2"	5/8" × 7/32"
2-3/4 - 3-1/2"	3/4" × 1/4"
4"	1" × 5/8"

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ARBOR SPACER

HOW TO BUILD A PART NUMBER

ARBOR-0375-003

ITEM PREFIX

(B)
INSIDE DIAMETER

(C)
THICKNESS

ARBOR-

TO ORDER ADD
YOUR MATERIAL,

CODE	MATERIAL
ARBOR-	Carbon Steel, Plain*

0375

CHOOSE YOUR
INSIDE DIAMETER,

CODE	INSIDE DIAMETER	OUTSIDE DIAMETER
0375	.375" (3/8)	.625" (5/8)
0500	.500" (1/2)	.750" (3/4)
0625	.625" (5/8)	1.000" (1)
0750	.750" (3/4)	1.125" (1-1/8)
0875	.875" (7/8)	1.375" (1-3/8)
1000	1.000" (1)	1.500" (1-1/2)
1125	1.125" (1-1/8)	1.625" (1-5/8)
1250	1.250" (1-1/4)	1.750" (1-3/4)
1375	1.375" (1-3/8)	1.875" (1-7/8)
1500	1.500" (1-1/2)	2.125" (2-1/8)
1625	1.625" (1-5/8)	2.500" (2-1/2)
1750	1.750" (1-3/4)	2.750" (2-3/4)
1875	1.875" (1-7/8)	2.875" (2-7/8)
2000	2.000" (2)	2.750" (2-3/4)
2250	2.250" (2-1/4)	3.250" (3-1/4)
2500	2.500" (2-1/2)	3.250" (3-1/4)
2750	2.750" (2-3/4)	4.000" (4)
3000	3.000" (3)	4.375" (4-3/8)
3500	3.500" (3-1/2)	4.750" (4-3/4)
4000	4.000" (4)	5.500" (5-1/2)

-003

CHOOSE YOUR
THICKNESS.

CODE	THICKNESS
001	.001"
0015	.0015"
002	.002"
003	.003"
004	.004"
005	.005"
006	.006"
007	.007"
008	.008"
010	.010"
012	.012"
015	.015"
020	.020"
025	.025"
031	.031"
047	.047"
062	.062"
093	.093"
125	.125"

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SNAP RINGS



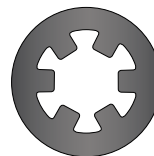
CLIPS



SPIRAL RINGS



WIRE RINGS



PUSH-ON RINGS



WAVE SPRINGS

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SHIM WASHER



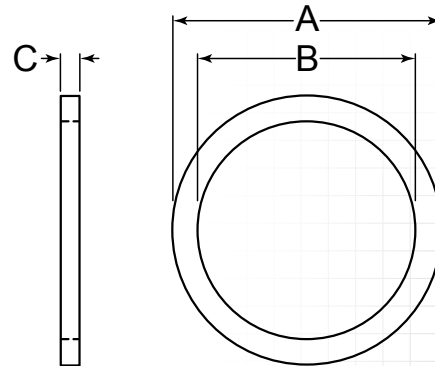
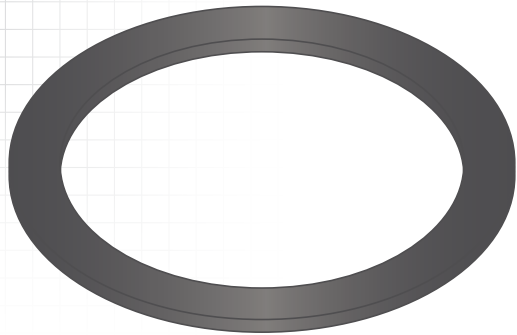
DIN 988

DESCRIPTION

Frequently used with retaining rings or lock washers, shim washers prevent axial movement by taking up play between machine components. To ensure they retain their shape under excessive forces, the contact faces of the shim and component must be smooth and of similar hardness to avoid excessive wear.

HOW TO IDENTIFY

1. Measure inside diameter (B).
2. Measure thickness (C).
3. Find the part number in the chart on next page.



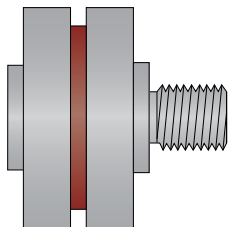
PREFIX MATERIAL/FINISH

PS = CARBON STEEL, PLAIN*
Material/finish combinations may not be available in all sizes.

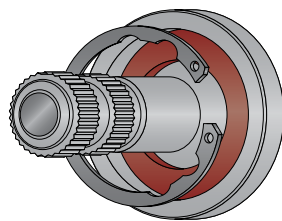
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SHIM WASHER METRIC TOLERANCES

MATERIAL		OUTSIDE DIAMETER (A)		INSIDE DIAMETER (B)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
	Carbon Steel, Plain* - Shim Washer	6 mm	-0.030/-0.150 mm	3 mm	+0.120/+0.020 mm	0.100 mm	±0.030 mm
		8 - 10 mm	-0.040/-0.190 mm	4 - 6 mm	+0.150/+0.030 mm	0.150 - 0.250 mm	±0.040 mm
		12 - 18 mm	-0.050/-0.230 mm	7 - 10 mm	+0.190/+0.040 mm	0.300 - 1.000 mm	±0.050 mm
		19 - 30 mm	-0.065/-0.275 mm	11 - 18 mm	+0.230/+0.050 mm	1.200 - 2.000 mm	±0.070 mm
		32 - 50 mm	-0.080/-0.330 mm	19 - 30 mm	+0.275/+0.065 mm		
		52 - 80 mm	-0.100/-0.400 mm	32 - 50 mm	+0.330/+0.080 mm		
		85 - 120 mm	-0.120/-0.470 mm	52 - 80 mm	+0.400/+0.100 mm		
		125 - 180 mm	-0.145/-0.545 mm	85 - 120 mm	+0.470/+0.120 mm		
		190 - 200 mm	-0.170/-0.630 mm	130 - 170 mm	+0.545/+0.145 mm		



Shim washers fill clearance between components while acting as buffers to suppress sound and prevent damage to machined components.



A lock washer or retaining ring may be used to secure the shim washer against interfacing elements.

HOW TO READ A PART NUMBER
Shim washers come in standard inside diameter x outside diameter x thickness combinations.

PS-004008-02

ITEM PREFIX (B) INSIDE DIAMETER (A) OUTSIDE DIAMETER (C) THICKNESS

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DIN 988



SHIM WASHER

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
-------------	----------------------	---------------

3.00 mm

(B) Inside Diameter

PS-003006-01	6.00 mm	0.10 mm
PS-003006-015	6.00 mm	0.15 mm
PS-003006-02	6.00 mm	0.20 mm
PS-003006-03	6.00 mm	0.30 mm
PS-003006-05	6.00 mm	0.50 mm
PS-003006-1	6.00 mm	1.00 mm

4.00 mm

(B) Inside Diameter

PS-004008-01	8.00 mm	0.10 mm
PS-004008-015	8.00 mm	0.15 mm
PS-004008-02	8.00 mm	0.20 mm
PS-004008-03	8.00 mm	0.30 mm
PS-004008-05	8.00 mm	0.50 mm
PS-004008-1	8.00 mm	1.00 mm

5.00 mm

(B) Inside Diameter

PS-005010-01	10.00 mm	0.10 mm
PS-005010-015	10.00 mm	0.15 mm
PS-005010-02	10.00 mm	0.20 mm
PS-005010-03	10.00 mm	0.30 mm
PS-005010-05	10.00 mm	0.50 mm
PS-005010-1	10.00 mm	1.00 mm

6.00 mm

(B) Inside Diameter

PS-006012-01	12.00 mm	0.10 mm
PS-006012-015	12.00 mm	0.15 mm
PS-006012-02	12.00 mm	0.20 mm
PS-006012-03	12.00 mm	0.30 mm
PS-006012-05	12.00 mm	0.50 mm
PS-006012-1	12.00 mm	1.00 mm

7.00 mm

(B) Inside Diameter

PS-007013-01	13.00 mm	0.10 mm
PS-007013-015	13.00 mm	0.15 mm
PS-007013-02	13.00 mm	0.20 mm
PS-007013-025	13.00 mm	0.25 mm
PS-007013-03	13.00 mm	0.30 mm
PS-007013-05	13.00 mm	0.50 mm
PS-007013-1	13.00 mm	1.00 mm

8.00 mm

(B) Inside Diameter

PS-008014-01	14.00 mm	0.10 mm
PS-008014-015	14.00 mm	0.15 mm
PS-008014-02	14.00 mm	0.20 mm
PS-008014-025	14.00 mm	0.25 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
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PS-008014-03	14.00 mm	0.30 mm
PS-008014-05	14.00 mm	0.50 mm
PS-008014-1	14.00 mm	1.00 mm

9.00 mm

(B) Inside Diameter

PS-009015-01	15.00 mm	0.10 mm
PS-009015-015	15.00 mm	0.15 mm
PS-009015-02	15.00 mm	0.20 mm
PS-009015-025	15.00 mm	0.25 mm
PS-009015-03	15.00 mm	0.30 mm
PS-009015-05	15.00 mm	0.50 mm
PS-009015-1	15.00 mm	1.00 mm

10.00 mm

(B) Inside Diameter

PS-010016-01	16.00 mm	0.10 mm
PS-010016-015	16.00 mm	0.15 mm
PS-010016-02	16.00 mm	0.20 mm
PS-010016-025	16.00 mm	0.25 mm
PS-010016-03	16.00 mm	0.30 mm
PS-010016-05	16.00 mm	0.50 mm
PS-010016-1	16.00 mm	1.00 mm

11.00 mm

(B) Inside Diameter

PS-011017-01	17.00 mm	0.10 mm
PS-011017-015	17.00 mm	0.15 mm
PS-011017-02	17.00 mm	0.20 mm
PS-011017-03	17.00 mm	0.30 mm
PS-011017-05	17.00 mm	0.50 mm
PS-011017-1	17.00 mm	1.00 mm

12.00 mm

(B) Inside Diameter

PS-012018-01	18.00 mm	0.10 mm
PS-012018-015	18.00 mm	0.15 mm
PS-012018-02	18.00 mm	0.20 mm
PS-012018-025	18.00 mm	0.25 mm
PS-012018-03	18.00 mm	0.30 mm
PS-012018-05	18.00 mm	0.50 mm
PS-012018-1	18.00 mm	1.00 mm

13.00 mm

(B) Inside Diameter

PS-013019-01	19.00 mm	0.10 mm
PS-013019-015	19.00 mm	0.15 mm
PS-013019-02	19.00 mm	0.20 mm
PS-013019-03	19.00 mm	0.30 mm
PS-013019-05	19.00 mm	0.50 mm
PS-013019-1	19.00 mm	1.00 mm
PS-013019-12	19.00 mm	1.20 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
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14.00 mm

(B) Inside Diameter

PS-014020-01	20.00 mm	0.10 mm
PS-014020-015	20.00 mm	0.15 mm
PS-014020-02	20.00 mm	0.20 mm
PS-014020-025	20.00 mm	0.25 mm
PS-014020-03	20.00 mm	0.30 mm
PS-014020-05	20.00 mm	0.50 mm
PS-014020-1	20.00 mm	1.00 mm
PS-014020-12	20.00 mm	1.20 mm

15.00 mm

(B) Inside Diameter

PS-015021-01	21.00 mm	0.10 mm
PS-015021-015	21.00 mm	0.15 mm
PS-015021-02	21.00 mm	0.20 mm
PS-015021-03	21.00 mm	0.30 mm
PS-015021-05	21.00 mm	0.50 mm
PS-015021-1	21.00 mm	1.00 mm
PS-015021-12	21.00 mm	1.20 mm

15.00 mm

(B) Inside Diameter

PS-015022-01	22.00 mm	0.10 mm
PS-015022-015	22.00 mm	0.15 mm
PS-015022-02	22.00 mm	0.20 mm
PS-015022-025	22.00 mm	0.25 mm
PS-015022-03	22.00 mm	0.30 mm
PS-015022-05	22.00 mm	0.50 mm
PS-015022-1	22.00 mm	1.00 mm
PS-015022-12	22.00 mm	1.20 mm

16.00 mm

(B) Inside Diameter

PS-016022-01	22.00 mm	0.10 mm
PS-016022-015	22.00 mm	0.15 mm
PS-016022-02	22.00 mm	0.20 mm
PS-016022-025	22.00 mm	0.25 mm
PS-016022-03	22.00 mm	0.30 mm
PS-016022-05	22.00 mm	0.50 mm
PS-016022-1	22.00 mm	1.00 mm
PS-016022-12	22.00 mm	1.20 mm

17.00 mm

(B) Inside Diameter

PS-017024-01	24.00 mm	0.10 mm
PS-017024-015	24.00 mm	0.15 mm
PS-017024-02	24.00 mm	0.20 mm
PS-017024-025	24.00 mm	0.25 mm
PS-017024-03	24.00 mm	0.30 mm
PS-017024-05	24.00 mm	0.50 mm
PS-017024-1	24.00 mm	1.00 mm

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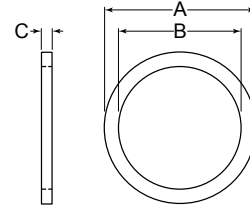
SHIM WASHER



DIN 988

PREFIX MATERIAL/FINISH

PS = CARBON STEEL, PLAIN*
Material/finish combinations may not be available in all sizes.



SEE PAGE 118 FOR
PS SHIM WASHER TOLERANCES

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
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17.00 mm (B) Inside Diameter

PS-017024-12	24.00 mm	1.20 mm
PS-017024-2	24.00 mm	2.00 mm

18.00 mm (B) Inside Diameter

PS-018025-01	25.00 mm	0.10 mm
PS-018025-015	25.00 mm	0.15 mm
PS-018025-02	25.00 mm	0.20 mm
PS-018025-025	25.00 mm	0.25 mm
PS-018025-03	25.00 mm	0.30 mm
PS-018025-05	25.00 mm	0.50 mm
PS-018025-1	25.00 mm	1.00 mm
PS-018025-12	25.00 mm	1.20 mm

19.00 mm (B) Inside Diameter

PS-019026-01	26.00 mm	0.10 mm
PS-019026-015	26.00 mm	0.15 mm
PS-019026-02	26.00 mm	0.20 mm
PS-019026-025	26.00 mm	0.25 mm
PS-019026-03	26.00 mm	0.30 mm
PS-019026-05	26.00 mm	0.50 mm
PS-019026-1	26.00 mm	1.00 mm

20.00 mm (B) Inside Diameter

PS-020028-01	28.00 mm	0.10 mm
PS-020028-015	28.00 mm	0.15 mm
PS-020028-02	28.00 mm	0.20 mm
PS-020028-025	28.00 mm	0.25 mm
PS-020028-03	28.00 mm	0.30 mm
PS-020028-05	28.00 mm	0.50 mm
PS-020028-1	28.00 mm	1.00 mm
PS-020028-12	28.00 mm	1.20 mm
PS-020028-15	28.00 mm	1.50 mm

22.00 mm (B) Inside Diameter

PS-022030-01	30.00 mm	0.10 mm
PS-022030-015	30.00 mm	0.15 mm
PS-022030-02	30.00 mm	0.20 mm
PS-022030-025	30.00 mm	0.25 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
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PS-022030-03	30.00 mm	0.30 mm
PS-022030-05	30.00 mm	0.50 mm
PS-022030-1	30.00 mm	1.00 mm
PS-022030-12	30.00 mm	1.20 mm
PS-022030-15	30.00 mm	1.50 mm
PS-022032-01	32.00 mm	0.10 mm
PS-022032-015	32.00 mm	0.15 mm
PS-022032-02	32.00 mm	0.20 mm
PS-022032-025	32.00 mm	0.25 mm
PS-022032-03	32.00 mm	0.30 mm
PS-022032-05	32.00 mm	0.50 mm
PS-022032-1	32.00 mm	1.00 mm
PS-022032-12	32.00 mm	1.20 mm
PS-022032-15	32.00 mm	1.50 mm

25.00 mm (B) Inside Diameter

PS-025035-01	35.00 mm	0.10 mm
PS-025035-015	35.00 mm	0.15 mm
PS-025035-02	35.00 mm	0.20 mm
PS-025035-025	35.00 mm	0.25 mm
PS-025035-03	35.00 mm	0.30 mm
PS-025035-05	35.00 mm	0.50 mm
PS-025035-1	35.00 mm	1.00 mm
PS-025035-12	35.00 mm	1.20 mm
PS-025035-15	35.00 mm	1.50 mm
PS-025036-01	36.00 mm	0.10 mm
PS-025036-015	36.00 mm	0.15 mm
PS-025036-02	36.00 mm	0.20 mm
PS-025036-025	36.00 mm	0.25 mm
PS-025036-03	36.00 mm	0.30 mm
PS-025036-05	36.00 mm	0.50 mm
PS-025036-1	36.00 mm	1.00 mm
PS-025036-12	36.00 mm	1.20 mm
PS-025036-15	36.00 mm	1.50 mm

26.00 mm (B) Inside Diameter

PS-026037-01	37.00 mm	0.10 mm
PS-026037-015	37.00 mm	0.15 mm
PS-026037-02	37.00 mm	0.20 mm
PS-026037-025	37.00 mm	0.25 mm
PS-026037-03	37.00 mm	0.30 mm
PS-026037-05	37.00 mm	0.50 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
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PS-026037-1	37.00 mm	1.00 mm
PS-026037-12	37.00 mm	1.20 mm
PS-026037-15	37.00 mm	1.50 mm

28.00 mm (B) Inside Diameter

PS-028040-01	40.00 mm	0.10 mm
PS-028040-015	40.00 mm	0.15 mm
PS-028040-02	40.00 mm	0.20 mm
PS-028040-025	40.00 mm	0.25 mm
PS-028040-03	40.00 mm	0.30 mm
PS-028040-05	40.00 mm	0.50 mm
PS-028040-1	40.00 mm	1.00 mm
PS-028040-12	40.00 mm	1.20 mm
PS-028040-15	40.00 mm	1.50 mm

30.00 mm (B) Inside Diameter

PS-030042-01	42.00 mm	0.10 mm
PS-030042-015	42.00 mm	0.15 mm
PS-030042-02	42.00 mm	0.20 mm
PS-030042-025	42.00 mm	0.25 mm
PS-030042-03	42.00 mm	0.30 mm
PS-030042-05	42.00 mm	0.50 mm
PS-030042-1	42.00 mm	1.00 mm
PS-030042-12	42.00 mm	1.20 mm
PS-030042-15	42.00 mm	1.50 mm
PS-030042-2	42.00 mm	2.00 mm

32.00 mm (B) Inside Diameter

PS-032045-01	45.00 mm	0.10 mm
PS-032045-015	45.00 mm	0.15 mm
PS-032045-02	45.00 mm	0.20 mm
PS-032045-025	45.00 mm	0.25 mm
PS-032045-03	45.00 mm	0.30 mm
PS-032045-05	45.00 mm	0.50 mm
PS-032045-1	45.00 mm	1.00 mm
PS-032045-12	45.00 mm	1.20 mm
PS-032045-15	45.00 mm	1.50 mm
PS-032045-2	45.00 mm	2.00 mm

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SHIM WASHER

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
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35.00 mm

(B) Inside Diameter

PS-035040-01	40.00 mm	0.10 mm
PS-035040-015	40.00 mm	0.15 mm
PS-035045-01	45.00 mm	0.10 mm
PS-035045-015	45.00 mm	0.15 mm
PS-035045-02	45.00 mm	0.20 mm
PS-035045-025	45.00 mm	0.25 mm
PS-035045-03	45.00 mm	0.30 mm
PS-035045-05	45.00 mm	0.50 mm
PS-035045-1	45.00 mm	1.00 mm
PS-035045-12	45.00 mm	1.20 mm
PS-035045-15	45.00 mm	1.50 mm
PS-035045-2	45.00 mm	2.00 mm

36.00 mm

(B) Inside Diameter

PS-036045-01	45.00 mm	0.10 mm
PS-036045-015	45.00 mm	0.15 mm
PS-036045-02	45.00 mm	0.20 mm
PS-036045-025	45.00 mm	0.25 mm
PS-036045-03	45.00 mm	0.30 mm
PS-036045-05	45.00 mm	0.50 mm
PS-036045-1	45.00 mm	1.00 mm
PS-036045-12	45.00 mm	1.20 mm
PS-036045-15	45.00 mm	1.50 mm
PS-036045-2	45.00 mm	2.00 mm

37.00 mm

(B) Inside Diameter

PS-037047-01	47.00 mm	0.10 mm
PS-037047-015	47.00 mm	0.15 mm
PS-037047-02	47.00 mm	0.20 mm
PS-037047-025	47.00 mm	0.25 mm
PS-037047-03	47.00 mm	0.30 mm
PS-037047-05	47.00 mm	0.50 mm
PS-037047-1	47.00 mm	1.00 mm
PS-037047-12	47.00 mm	1.20 mm
PS-037047-15	47.00 mm	1.50 mm
PS-037047-2	47.00 mm	2.00 mm

40.00 mm

(B) Inside Diameter

PS-040047-01	47.00 mm	0.10 mm
PS-040047-015	47.00 mm	0.15 mm
PS-040050-01	50.00 mm	0.10 mm
PS-040050-015	50.00 mm	0.15 mm
PS-040050-02	50.00 mm	0.20 mm
PS-040050-025	50.00 mm	0.25 mm
PS-040050-03	50.00 mm	0.30 mm
PS-040050-05	50.00 mm	0.50 mm
PS-040050-1	50.00 mm	1.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
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PS-040050-12	50.00 mm	1.20 mm
PS-040050-15	50.00 mm	1.50 mm
PS-040050-2	50.00 mm	2.00 mm

42.00 mm

(B) Inside Diameter

PS-042052-01	52.00 mm	0.10 mm
PS-042052-015	52.00 mm	0.15 mm
PS-042052-02	52.00 mm	0.20 mm
PS-042052-025	52.00 mm	0.25 mm
PS-042052-03	52.00 mm	0.30 mm
PS-042052-05	52.00 mm	0.50 mm
PS-042052-1	52.00 mm	1.00 mm
PS-042052-12	52.00 mm	1.20 mm
PS-042052-15	52.00 mm	1.50 mm
PS-042052-2	52.00 mm	2.00 mm

45.00 mm

(B) Inside Diameter

PS-045055-01	55.00 mm	0.10 mm
PS-045055-015	55.00 mm	0.15 mm
PS-045055-02	55.00 mm	0.20 mm
PS-045055-025	55.00 mm	0.25 mm
PS-045055-03	55.00 mm	0.30 mm
PS-045055-05	55.00 mm	0.50 mm
PS-045055-1	55.00 mm	1.00 mm
PS-045055-12	55.00 mm	1.20 mm
PS-045055-15	55.00 mm	1.50 mm
PS-045055-2	55.00 mm	2.00 mm
PS-045056-01	56.00 mm	0.10 mm
PS-045056-015	56.00 mm	0.15 mm
PS-045056-02	56.00 mm	0.20 mm
PS-045056-025	56.00 mm	0.25 mm
PS-045056-03	56.00 mm	0.30 mm
PS-045056-05	56.00 mm	0.50 mm
PS-045056-1	56.00 mm	1.00 mm
PS-045056-12	56.00 mm	1.20 mm
PS-045056-15	56.00 mm	1.50 mm
PS-045056-2	56.00 mm	2.00 mm

48.00 mm

(B) Inside Diameter

PS-048060-01	60.00 mm	0.10 mm
PS-048060-015	60.00 mm	0.15 mm
PS-048060-02	60.00 mm	0.20 mm
PS-048060-025	60.00 mm	0.25 mm
PS-048060-03	60.00 mm	0.30 mm
PS-048060-05	60.00 mm	0.50 mm
PS-048060-1	60.00 mm	1.00 mm
PS-048060-12	60.00 mm	1.20 mm
PS-048060-15	60.00 mm	1.50 mm
PS-048060-2	60.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
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50.00 mm

(B) Inside Diameter

PS-050062-01	62.00 mm	0.10 mm
PS-050062-015	62.00 mm	0.15 mm
PS-050062-02	62.00 mm	0.20 mm
PS-050062-025	62.00 mm	0.25 mm
PS-050062-03	62.00 mm	0.30 mm
PS-050062-05	62.00 mm	0.50 mm
PS-050062-1	62.00 mm	1.00 mm
PS-050062-12	62.00 mm	1.20 mm
PS-050062-15	62.00 mm	1.50 mm
PS-050062-2	62.00 mm	2.00 mm
PS-050063-01	63.00 mm	0.10 mm
PS-050063-015	63.00 mm	0.15 mm
PS-050063-02	63.00 mm	0.20 mm
PS-050063-025	63.00 mm	0.25 mm
PS-050063-03	63.00 mm	0.30 mm
PS-050063-05	63.00 mm	0.50 mm
PS-050063-1	63.00 mm	1.00 mm
PS-050063-12	63.00 mm	1.20 mm
PS-050063-15	63.00 mm	1.50 mm
PS-050063-2	63.00 mm	2.00 mm
PS-050070-12	70.00 mm	1.20 mm

52.00 mm

(B) Inside Diameter

PS-052065-01	65.00 mm	0.10 mm
PS-052065-015	65.00 mm	0.15 mm
PS-052065-02	65.00 mm	0.20 mm
PS-052065-025	65.00 mm	0.25 mm
PS-052065-03	65.00 mm	0.30 mm
PS-052065-05	65.00 mm	0.50 mm
PS-052065-1	65.00 mm	1.00 mm
PS-052065-12	65.00 mm	1.20 mm
PS-052065-15	65.00 mm	1.50 mm
PS-052065-2	65.00 mm	2.00 mm

54.00 mm

(B) Inside Diameter

PS-054062-01	62.00 mm	0.10 mm
PS-054062-015	62.00 mm	0.15 mm
PS-054062-15	62.00 mm	1.50 mm

55.00 mm

(B) Inside Diameter

PS-055068-01	68.00 mm	0.10 mm
PS-055068-015	68.00 mm	0.15 mm
PS-055068-02	68.00 mm	0.20 mm
PS-055068-025	68.00 mm	0.25 mm
PS-055068-03	68.00 mm	0.30 mm
PS-055068-05	68.00 mm	0.50 mm
PS-055068-1	68.00 mm	1.00 mm

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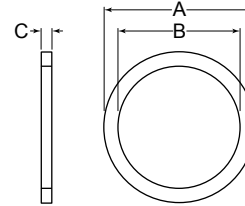
SHIM WASHER



DIN 988

PREFIX MATERIAL/FINISH

PS = CARBON STEEL, PLAIN*
Material/finish combinations may not be available in all sizes.



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ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
55.00 mm (B) Inside Diameter		
PS-055068-12	68.00 mm	1.20 mm
PS-055068-15	68.00 mm	1.50 mm
PS-055068-2	68.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
56.00 mm (B) Inside Diameter		
PS-056070-01	70.00 mm	0.10 mm
PS-056070-015	70.00 mm	0.15 mm
PS-056070-02	70.00 mm	0.20 mm
PS-056070-025	70.00 mm	0.25 mm
PS-056070-03	70.00 mm	0.30 mm
PS-056070-05	70.00 mm	0.50 mm
PS-056070-1	70.00 mm	1.00 mm
PS-056070-15	70.00 mm	1.50 mm
PS-056072-01	72.00 mm	0.10 mm
PS-056072-015	72.00 mm	0.15 mm
PS-056072-02	72.00 mm	0.20 mm
PS-056072-03	72.00 mm	0.30 mm
PS-056072-05	72.00 mm	0.50 mm
PS-056072-1	72.00 mm	1.00 mm
PS-056072-2	72.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
59.00 mm (B) Inside Diameter		
PS-059072-01	72.00 mm	0.10 mm
PS-059072-03	72.00 mm	0.30 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
60.00 mm (B) Inside Diameter		
PS-060075-01	75.00 mm	0.10 mm
PS-060075-02	75.00 mm	0.20 mm
PS-060075-03	75.00 mm	0.30 mm
PS-060075-05	75.00 mm	0.50 mm
PS-060075-1	75.00 mm	1.00 mm
PS-060075-15	75.00 mm	1.50 mm
PS-060075-2	75.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
63.00 mm (B) Inside Diameter		
PS-063080-01	80.00 mm	0.10 mm
PS-063080-015	80.00 mm	0.15 mm
PS-063080-02	80.00 mm	0.20 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
PS-063080-03	80.00 mm	0.30 mm
PS-063080-05	80.00 mm	0.50 mm
PS-063080-1	80.00 mm	1.00 mm
PS-063080-2	80.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
65.00 mm (B) Inside Diameter		
PS-065085-01	85.00 mm	0.10 mm
PS-065085-02	85.00 mm	0.20 mm
PS-065085-03	85.00 mm	0.30 mm
PS-065085-05	85.00 mm	0.50 mm
PS-065085-1	85.00 mm	1.00 mm
PS-065085-15	85.00 mm	1.50 mm
PS-065085-2	85.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
70.00 mm (B) Inside Diameter		
PS-070080-01	80.00 mm	0.10 mm
PS-070080-015	80.00 mm	0.15 mm
PS-070090-01	90.00 mm	0.10 mm
PS-070090-015	90.00 mm	0.15 mm
PS-070090-02	90.00 mm	0.20 mm
PS-070090-03	90.00 mm	0.30 mm
PS-070090-05	90.00 mm	0.50 mm
PS-070090-1	90.00 mm	1.00 mm
PS-070090-15	90.00 mm	1.50 mm
PS-070090-2	90.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
75.00 mm (B) Inside Diameter		
PS-075095-01	95.00 mm	0.10 mm
PS-075095-015	95.00 mm	0.15 mm
PS-075095-02	95.00 mm	0.20 mm
PS-075095-03	95.00 mm	0.30 mm
PS-075095-05	95.00 mm	0.50 mm
PS-075095-1	95.00 mm	1.00 mm
PS-075095-15	95.00 mm	1.50 mm
PS-075095-2	95.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
80.00 mm (B) Inside Diameter		
PS-080090-01	90.00 mm	0.10 mm
PS-080090-015	90.00 mm	0.15 mm
PS-080100-01	100.00 mm	0.10 mm
PS-080100-015	100.00 mm	0.15 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
PS-080100-02	100.00 mm	0.20 mm
PS-080100-03	100.00 mm	0.30 mm
PS-080100-05	100.00 mm	0.50 mm
PS-080100-1	100.00 mm	1.00 mm
PS-080100-15	100.00 mm	1.50 mm
PS-080100-2	100.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
85.00 mm (B) Inside Diameter		
PS-085105-01	105.00 mm	0.10 mm
PS-085105-03	105.00 mm	0.30 mm
PS-085105-05	105.00 mm	0.50 mm
PS-085105-1	105.00 mm	1.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
88.00 mm (B) Inside Diameter		
PS-088100-015	100.00 mm	0.15 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
90.00 mm (B) Inside Diameter		
PS-090110-01	110.00 mm	0.10 mm
PS-090110-015	110.00 mm	0.15 mm
PS-090110-02	110.00 mm	0.20 mm
PS-090110-03	110.00 mm	0.30 mm
PS-090110-05	110.00 mm	0.50 mm
PS-090110-1	110.00 mm	1.00 mm
PS-090110-15	110.00 mm	1.50 mm
PS-090110-2	110.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
95.00 mm (B) Inside Diameter		
PS-095115-01	115.00 mm	0.10 mm
PS-095115-03	115.00 mm	0.30 mm
PS-095115-05	115.00 mm	0.50 mm
PS-095115-1	115.00 mm	1.00 mm
PS-095115-12	115.00 mm	1.50 mm
PS-095115-2	115.00 mm	2.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
100.00 mm (B) Inside Diameter		
PS-100120-01	120.00 mm	0.10 mm
PS-100120-02	120.00 mm	0.20 mm
PS-100120-03	120.00 mm	0.30 mm
PS-100120-05	120.00 mm	0.50 mm
PS-100120-1	120.00 mm	1.00 mm

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DIN 988



SHIM WASHER

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
PS-100120-2	120.00 mm	2.00 mm
PS-100125-01	125.00 mm	0.10 mm
PS-100125-02	125.00 mm	0.20 mm
PS-100125-03	125.00 mm	0.30 mm
PS-100125-05	125.00 mm	0.50 mm
PS-100125-1	125.00 mm	1.00 mm

105.00 mm (B) Inside Diameter		
PS-105130-01	130.00 mm	0.10 mm
PS-105130-015	130.00 mm	0.15 mm
PS-105130-02	130.00 mm	0.20 mm
PS-105130-03	130.00 mm	0.30 mm
PS-105130-05	130.00 mm	0.50 mm
PS-105130-1	130.00 mm	1.00 mm

110.00 mm (B) Inside Diameter		
PS-110125-01	125.00 mm	0.10 mm
PS-110125-015	125.00 mm	0.15 mm
PS-110140-01	140.00 mm	0.10 mm
PS-110140-015	140.00 mm	0.15 mm
PS-110140-02	140.00 mm	0.20 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
PS-110140-03	140.00 mm	0.30 mm
PS-110140-05	140.00 mm	0.50 mm
PS-110140-1	140.00 mm	1.00 mm

120.00 mm (B) Inside Diameter		
PS-120150-01	150.00 mm	0.10 mm
PS-120150-015	150.00 mm	0.15 mm
PS-120150-02	150.00 mm	0.20 mm
PS-120150-03	150.00 mm	0.30 mm
PS-120150-05	150.00 mm	0.50 mm
PS-120150-1	150.00 mm	1.00 mm

130.00 mm (B) Inside Diameter		
PS-130160-01	160.00 mm	0.10 mm
PS-130160-03	160.00 mm	0.30 mm
PS-130160-05	160.00 mm	0.50 mm
PS-130160-1	160.00 mm	1.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(C) THICKNESS
140.00 mm (B) Inside Diameter		
PS-140170-03	170.00 mm	0.30 mm
PS-140170-05	170.00 mm	0.50 mm
PS-140170-1	170.00 mm	1.00 mm

150.00 mm (B) Inside Diameter		
PS-150180-01	180.00 mm	0.10 mm
PS-150180-03	180.00 mm	0.30 mm
PS-150180-05	180.00 mm	0.50 mm
PS-150180-1	180.00 mm	1.00 mm

160.00 mm (B) Inside Diameter		
PS-160190-05	190.00 mm	0.50 mm
PS-160190-1	190.00 mm	1.00 mm

170.00 mm (B) Inside Diameter		
PS-170200-03	200.00 mm	0.30 mm
PS-170200-05	200.00 mm	0.50 mm



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SUPPORT RING



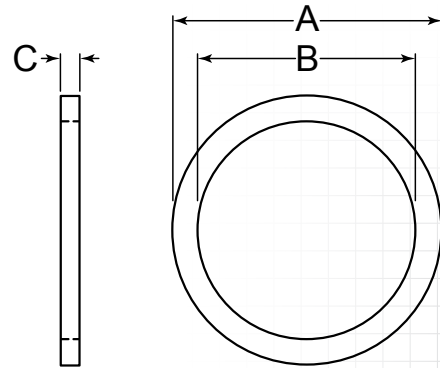
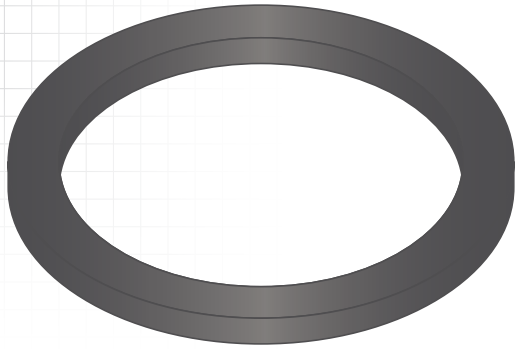
DIN 988

DESCRIPTION

Similar to shim washers, support rings are covered under the DIN 988 specification. Support rings have a harder specification of spring steel, and are thicker. They are generally used with a snap ring or lock washers where excessive axial force is expected.

HOW TO IDENTIFY

1. Measure inside diameter (B).
2. Measure thickness (C).
3. Find the part number in the chart on the next page.



PREFIX MATERIAL/FINISH

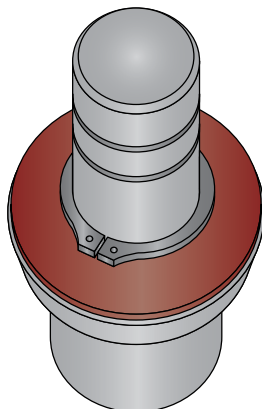
SS = **SPRING STEEL, HARDENED***
Material/finish combinations may not be available in all sizes.

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SHIM RING METRIC TOLERANCES

MATERIAL		OUTSIDE DIAMETER (A)		INSIDE DIAMETER (B)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
	Spring Steel, Hardened – Support Washer	6 mm	-0.030/-0.150 mm	3 mm	+0.120/+0.020 mm	All Sizes	+0/-0.050 mm
		8 – 10 mm	-0.040/-0.190 mm	4 – 6 mm	+0.150/+0.030 mm		
		12 – 18 mm	-0.050/-0.230 mm	7 – 10 mm	+0.190/+0.040 mm		
		19 – 30 mm	-0.065/-0.275 mm	11 – 18 mm	+0.230/+0.050 mm		
		32 – 50 mm	-0.080/-0.330 mm	19 – 30 mm	+0.275/+0.065 mm		
		52 – 80 mm	-0.100/-0.400 mm	32 – 50 mm	+0.330/+0.080 mm		
		85 – 120 mm	-0.120/-0.470 mm	52 – 80 mm	+0.400/+0.100 mm		
		125 – 180 mm	-0.145/-0.545 mm	81 – 120 mm	+0.470/+0.120 mm		
		190 – 200 mm	-0.170/-0.630 mm	130 – 170 mm	+0.545/+0.145 mm		

A SNAP RING MAY BE USED TO SECURE THE SHIM WASHER AGAINST INTERFACING ELEMENTS



HOW TO READ A PART NUMBER
Support rings come in standard inside diameter x outside diameter x thickness combinations.

SS-018025-15

ITEM PREFIX (B) INSIDE DIAMETER (A) OUTSIDE DIAMETER (C) THICKNESS

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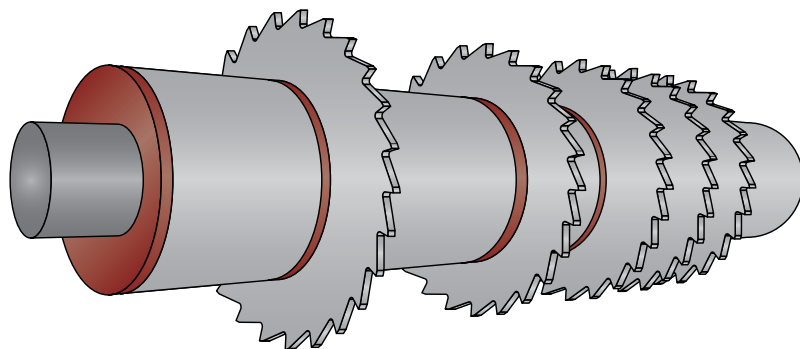
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ITEM NUMBER	(A) OUTSIDE DIAMETER	(B) INSIDE DIAMETER	(C) THICKNESS
SS-003006-1	6.00 mm	3.00 mm	1.00 mm
SS-004008-1	8.00 mm	4.00 mm	1.00 mm
SS-005010-1	10.00 mm	5.00 mm	1.00 mm
SS-006012-12	12.00 mm	6.00 mm	1.20 mm
SS-007013-12	13.00 mm	7.00 mm	1.20 mm
SS-008014-12	14.00 mm	8.00 mm	1.20 mm
SS-009015-12	15.00 mm	9.00 mm	1.20 mm
SS-010016-12	16.00 mm	10.00 mm	1.20 mm
SS-011017-12	17.00 mm	11.00 mm	1.20 mm
SS-012018-12	18.00 mm	12.00 mm	1.20 mm
SS-013019-15	19.00 mm	13.00 mm	1.50 mm
SS-014020-15	20.00 mm	14.00 mm	1.50 mm
SS-015021-15	21.00 mm	15.00 mm	1.50 mm
SS-015022-15	22.00 mm	15.00 mm	1.50 mm
SS-016022-15	22.00 mm	16.00 mm	1.50 mm
SS-017024-15	24.00 mm	17.00 mm	1.50 mm
SS-018025-15	25.00 mm	18.00 mm	1.50 mm
SS-019026-15	26.00 mm	19.00 mm	1.50 mm
SS-020028-2	28.00 mm	20.00 mm	2.00 mm
SS-022030-2	30.00 mm	22.00 mm	2.00 mm
SS-022032-2	32.00 mm	22.00 mm	2.00 mm
SS-025035-2	35.00 mm	25.00 mm	2.00 mm
SS-025036-2	36.00 mm	25.00 mm	2.00 mm
SS-026037-2	37.00 mm	26.00 mm	2.00 mm
SS-028040-2	40.00 mm	28.00 mm	2.00 mm
SS-030042-25	42.00 mm	30.00 mm	2.50 mm
SS-032045-25	45.00 mm	32.00 mm	2.50 mm
SS-035045-25	45.00 mm	35.00 mm	2.50 mm
SS-036042-25	42.00 mm	36.00 mm	2.50 mm
SS-036045-25	45.00 mm	36.00 mm	2.50 mm
SS-037047-25	47.00 mm	37.00 mm	2.50 mm
SS-040047-25	47.00 mm	40.00 mm	2.50 mm
SS-040050-25	50.00 mm	40.00 mm	2.50 mm
SS-042052-25	52.00 mm	42.00 mm	2.50 mm
SS-045055-3	55.00 mm	45.00 mm	3.00 mm

ITEM NUMBER	(A) OUTSIDE DIAMETER	(B) INSIDE DIAMETER	(C) THICKNESS
SS-045056-3	56.00 mm	45.00 mm	3.00 mm
SS-046060-9	60.00 mm	46.00 mm	9.00 mm
SS-048060-3	60.00 mm	48.00 mm	3.00 mm
SS-050062-3	62.00 mm	50.00 mm	3.00 mm
SS-050063-3	63.00 mm	50.00 mm	3.00 mm
SS-052065-3	65.00 mm	52.00 mm	3.00 mm
SS-055068-3	68.00 mm	55.00 mm	3.00 mm
SS-056065-121	65.00 mm	56.00 mm	12.10 mm
SS-056070-3	70.00 mm	56.00 mm	3.00 mm
SS-056072-3	72.00 mm	56.00 mm	3.00 mm
SS-060075-3	75.00 mm	60.00 mm	3.00 mm
SS-063080-3	80.00 mm	63.00 mm	3.00 mm
SS-065085-35	85.00 mm	65.00 mm	3.50 mm
SS-066075-124	75.00 mm	66.00 mm	12.40 mm
SS-066080-3	80.00 mm	66.00 mm	3.00 mm
SS-070090-35	90.00 mm	70.00 mm	3.50 mm
SS-075095-35	95.00 mm	75.00 mm	3.50 mm
SS-080090-35	90.00 mm	80.00 mm	3.50 mm
SS-080100-35	100.00 mm	80.00 mm	3.50 mm
SS-081095-112	95.00 mm	81.00 mm	11.20 mm
SS-081100-35	100.00 mm	81.00 mm	3.50 mm
SS-085105-35	105.00 mm	85.00 mm	3.50 mm
SS-090110-35	110.00 mm	90.00 mm	3.50 mm
SS-095115-35	115.00 mm	95.00 mm	3.50 mm
SS-100120-35	120.00 mm	100.00 mm	3.50 mm
SS-100125-35	125.00 mm	100.00 mm	3.50 mm
SS-105130-35	130.00 mm	105.00 mm	3.50 mm
SS-110140-35	140.00 mm	110.00 mm	3.50 mm
SS-120150-35	150.00 mm	120.00 mm	3.50 mm
SS-130160-35	160.00 mm	130.00 mm	3.50 mm
SS-140170-35	170.00 mm	140.00 mm	3.50 mm
SS-150180-35	180.00 mm	150.00 mm	3.50 mm
SS-160190-35	190.00 mm	160.00 mm	3.50 mm
SS-170200-35	200.00 mm	170.00 mm	3.50 mm

APPLICATION



IN ADDITION TO FILLING GAPS BETWEEN COMPONENTS, HARDENED SUPPORT RINGS PROTECT EXPENSIVE COMPONENTS

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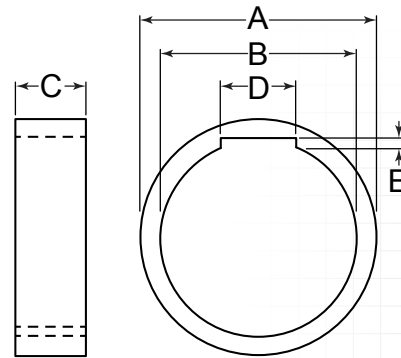
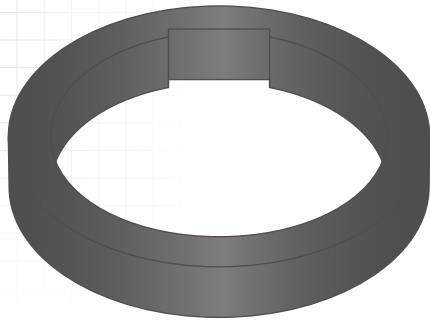
COLLAR

DESCRIPTION

Collars are similar to arbor spacers and available in greater thicknesses. A key way cut into the inside diameter slides over, and turns with, shafts and machine keys to precisely position arbors in milling machines, saws, slitters, and grinders.

HOW TO IDENTIFY

1. Measure inside diameter (B).
2. Measure thickness (C).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

SPCO = CARBON STEEL, PLAIN*

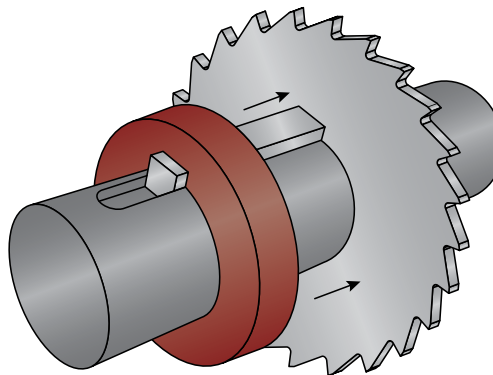
COLLAR TOLERANCES

MATERIAL		OUTSIDE DIAMETER (A)		INSIDE DIAMETER (B)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
SPCO	Carbon Steel, Plain*	All Sizes	+0/-0.010"	All Sizes	+0.003/-0.001"	All Sizes	±0.0005"

KEY WAY SIZE

ID (B)	KEY WAY (D × E)
3/4"	1/8" × 1/16"
1"	1/4" × 3/32"
1-1/4"	5/16" × 1/8"
1-1/2"	3/8" × 5/32"
2"	1/2" × 3/16"
2-1/2"	5/8" × 7/32"

APPLICATION



SIMILAR TO ARBOR SPACERS, COLLARS ARE USED IN KEYED ASSEMBLIES TO SPACE OR POSITION CUTTING TOOLS

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COLLAR

HOW TO BUILD A PART NUMBER

SPCO-0375-0625

ITEM PREFIX

(B)
INSIDE DIAMETER

(C)
THICKNESS

SPCO-

TO ORDER ADD
YOUR MATERIAL,

CODE	MATERIAL
SPCO-	Carbon Steel, Plain*

0375

CHOOSE YOUR
INSIDE DIAMETER,

CODE	INSIDE DIAMETER	OUTSIDE DIAMETER
0750	.7500" (3/4)	1.1250" (1-1/8)
1000	1.0000" (1)	1.5000" (1-1/2)
1250	1.2500" (1-1/4)	1.7500" (1-3/4)
1500	1.5000" (1-1/2)	2.1250" (2-1/8)
2000	2.0000" (2)	2.7500" (2-3/4)
2500	2.5000" (2-1/2)	3.2500" (3-1/4)

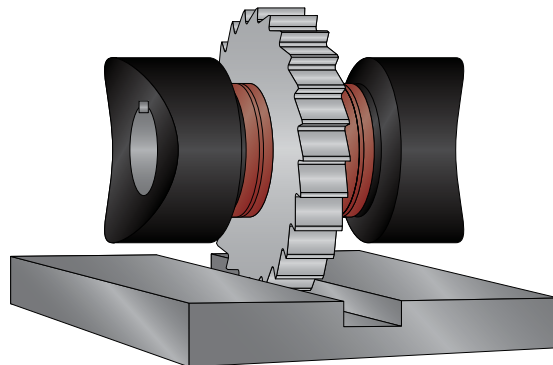
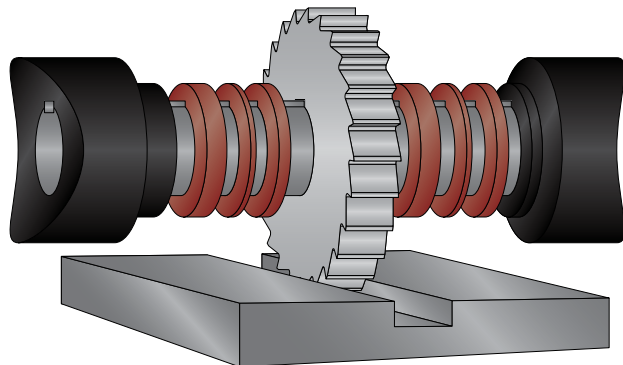
-0625

CHOOSE YOUR
THICKNESS.

CODE	THICKNESS
0125	.1250" (1/8)
0187	.1875" (3/16)
0250	.2500" (1/4)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0625	.6250" (5/8)
0750	.7500" (3/4)
0875	.8750" (7/8)
1000	1.0000" (1)
1250	1.2500" (1-1/4)
1500	1.5000" (1-1/2)
2000	2.0000" (2)
3000	3.0000" (3)

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APPLICATION



ARBOR SPACERS AND COLLARS ARE FREQUENTLY USED TOGETHER TO
PRECISELY POSITION CUTTING TOOLS OR SPACE COMPONENTS

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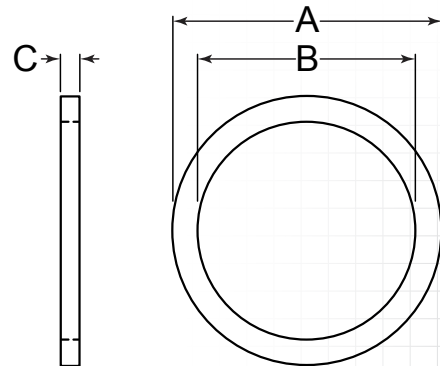
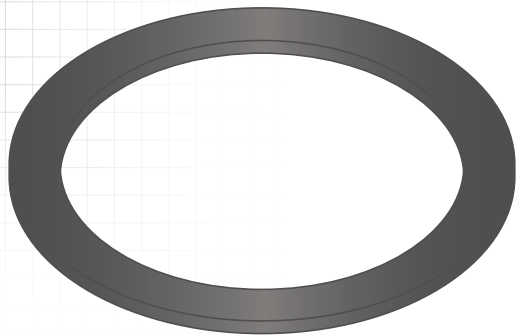
LENGTHENING

DESCRIPTION

Lengthening shims are used to increase the effective length of the shaft of a stripper bolt, also known as a shoulder screw. The shim is placed at the base of the shaft over the threads.

HOW TO IDENTIFY

1. Measure inside diameter (B).
2. Measure thickness (C).
3. Find the part number in the chart on the next page.



PREFIX MATERIAL/FINISH

- VSHIM = CARBON STEEL, PLAIN*, COMMERCIAL TOLERANCE
VSHIM-###L = CARBON STEEL, PLAIN*, PRECISION TOLERANCE

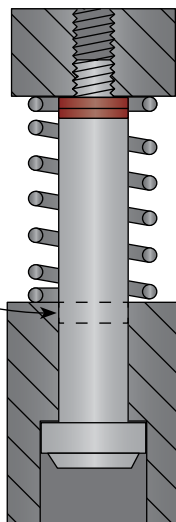
ADDITIONAL SIZES AND FINISHES MAY BE AVAILABLE UPON REQUEST

LENGTHENING SHIM TOLERANCES

MATERIAL		OUTSIDE DIAMETER (A)		INSIDE DIAMETER (B)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
VSHIM	Carbon Steel, Plain*	All Sizes	+0/-0.005"	All Sizes	+0.005/-0"	All Sizes	±0.001"
VSHIM-###L	Carbon Steel, Plain*	All Sizes	±0.004"	All Sizes	+0.004/-0"	All Sizes	±0.001"

PLACING LENGTHENING SHIMS OVER THE THREADS OF STRIPPER BOLTS INCREASES THE EFFECTIVE LENGTH OF THE SHANK

Shank length increased



HOW TO READ A PART NUMBER

Lengthening shims come in standard inside diameter x outside diameter x thickness combinations.

VSHIM-0500-032L
 ITEM PREFIX SCREW SIZE (C) THICKNESS
 OR
 VSHIM-26066
 ITEM PREFIX SIZE CODE

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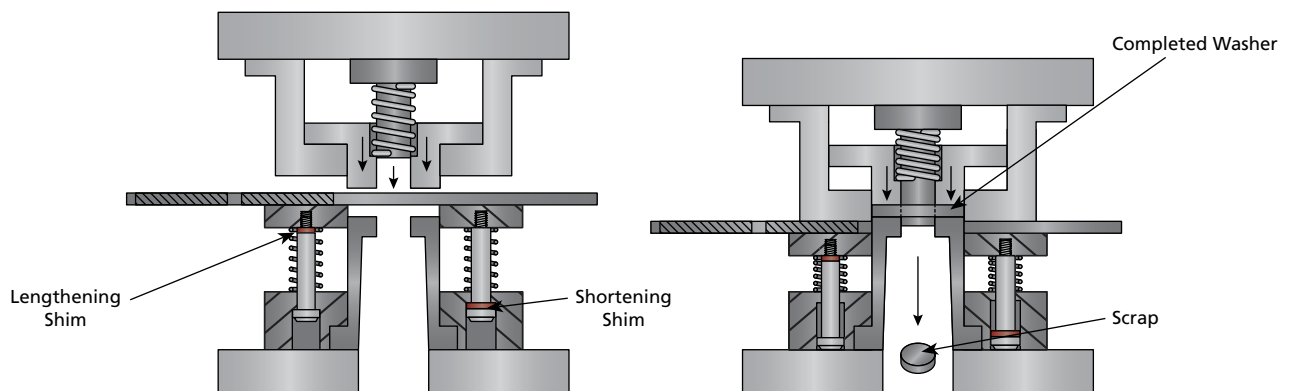
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LENGTHENING

ITEM NUMBER	SCREW SIZE	(A) OUTSIDE DIAMETER	(B) INSIDE DIAMETER	(C) THICKNESS
VSHIM-0250-005L	.250" (1/4)	.248"	.171"	.005"
VSHIM-0250-015L	.250" (1/4)	.248"	.171"	.015"
VSHIM-26051	.250" (1/4)	.248"	.171"	.005"
VSHIM-0250-032L	.250" (1/4)	.248"	.187"	.032"
VSHIM-26053	.250" (1/4)	.248"	.187"	.032"
VSHIM-0312-005L	.313" (5/16)	.308"	.234"	.005"
VSHIM-0312-015L	.313" (5/16)	.308"	.234"	.015"
VSHIM-0312-032L	.313" (5/16)	.308"	.234"	.032"
VSHIM-26056	.313" (5/16)	.308"	.234"	.032"
VSHIM-0375-005L	.375" (3/8)	.371"	.289"	.005"
VSHIM-0375-015L	.375" (3/8)	.371"	.289"	.015"
VSHIM-0375-032L	.375" (3/8)	.371"	.289"	.032"
VSHIM-26059	.375" (3/8)	.371"	.296"	.032"
VSHIM-0500-005L	.500" (1/2)	.496"	.352"	.005"
VSHIM-0500-015L	.500" (1/2)	.496"	.352"	.015"
VSHIM-0500-032L	.500" (1/2)	.496"	.352"	.032"
VSHIM-26060	.500" (1/2)	.496"	.352"	.005"
VSHIM-26061	.500" (1/2)	.496"	.352"	.015"
VSHIM-26062	.500" (1/2)	.496"	.352"	.032"
VSHIM-0625-005L	.625" (5/8)	.621"	.473"	.005"
VSHIM-0625-015L	.625" (5/8)	.621"	.473"	.015"
VSHIM-0625-032L	.625" (5/8)	.621"	.473"	.032"
VSHIM-26063	.625" (5/8)	.621"	.473"	.005"
VSHIM-26064	.625" (5/8)	.621"	.473"	.015"
VSHIM-26065	.625" (5/8)	.621"	.473"	.032"
VSHIM-0750-005L	.750" (3/4)	.746"	.598"	.005"
VSHIM-0750-015L	.750" (3/4)	.746"	.598"	.015"
VSHIM-0750-032L	.750" (3/4)	.746"	.598"	.032"
VSHIM-26066	.750" (3/4)	.748"	.598"	.005"
VSHIM-26067	.750" (3/4)	.748"	.598"	.015"
VSHIM-26068	.750" (3/4)	.748"	.598"	.032"

APPLICATION



LENGTHENING AND SHORTENING SHIMS ARE USED TO INCREASE OR DECREASE THE EFFECTIVE LENGTH OF STRIPPER BOLTS IN PUNCH AND DIE ASSEMBLIES LIKE THIS COMPOUND PUNCH USED TO PRODUCE WASHERS FROM FLAT STRIPS OF METAL

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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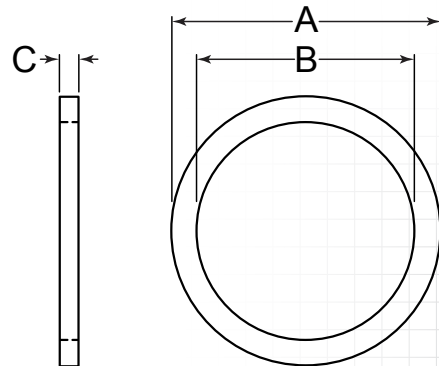
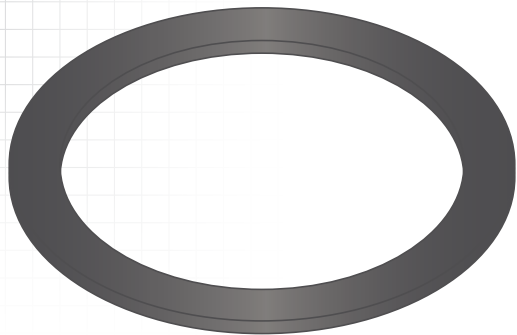
SHORTENING

DESCRIPTION

Used to shorten the length of the threads on stripper bolts, also known as shoulder screws. The shim is placed over the shaft under the head of the screw.

HOW TO IDENTIFY

1. Measure inside diameter (B).
2. Measure thickness (C).
3. Find the part number in the chart on the next page.



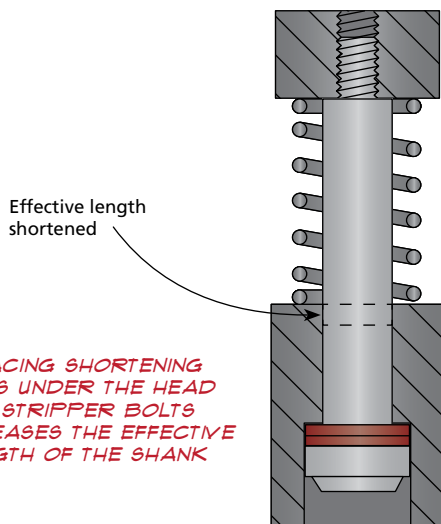
PREFIX MATERIAL/FINISH

- VSHIM = CARBON STEEL, PLAIN*, COMMERCIAL TOLERANCE
VSHIM-###S = CARBON STEEL, PLAIN*, PRECISION TOLERANCE

ADDITIONAL SIZES AND FINISHES MAY BE AVAILABLE UPON REQUEST

SHORTENING SHIM TOLERANCES

MATERIAL		OUTSIDE DIAMETER (A)		INSIDE DIAMETER (B)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
VSHIM	Carbon Steel, Plain*	All Sizes	+0/-0.005"	All Sizes	+0.005/-0"	All Sizes	±0.001"
VSHIM-###S	Carbon Steel, Plain*	All Sizes	±0.001"	All Sizes	±0.001"	All Sizes	±0.001"



PLACING SHORTENING SHIMS UNDER THE HEAD OF STRIPPER BOLTS DECREASES THE EFFECTIVE LENGTH OF THE SHANK

HOW TO READ A PART NUMBER
Shortening shims come in standard inside diameter x outside diameter x thickness combinations.

VSHIM-0750-062S

VSHIM: ITEM PREFIX
0750: SCREW SIZE
062S: (C) THICKNESS

OR

VSHIM-26153

VSHIM: ITEM PREFIX
26153: SIZE CODE

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SHORTENING

ITEM NUMBER	SCREW SIZE	(A) OUTSIDE DIAMETER	(B) INSIDE DIAMETER	(C) THICKNESS
VSHIM-0250-005S	.250" (1/4)	.366"	.252"	.005"
VSHIM-0250-010S	.250" (1/4)	.366"	.252"	.010"
VSHIM-0250-015S	.250" (1/4)	.366"	.252"	.015"
VSHIM-0250-020S	.250" (1/4)	.366"	.252"	.020"
VSHIM-0250-032S	.250" (1/4)	.366"	.252"	.032"
VSHIM-0250-062S	.250" (1/4)	.366"	.252"	.062"
VSHIM-26151	.250" (1/4)	.366"	.252"	.005"
VSHIM-26152	.250" (1/4)	.366"	.252"	.015"
VSHIM-26153	.250" (1/4)	.366"	.252"	.032"
VSHIM-0312-005S	.313" (5/16)	.424"	.313"	.005"
VSHIM-0312-010S	.313" (5/16)	.424"	.313"	.010"
VSHIM-0312-015S	.313" (5/16)	.424"	.313"	.015"
VSHIM-0312-020S	.313" (5/16)	.424"	.313"	.020"
VSHIM-0312-032S	.313" (5/16)	.424"	.313"	.032"
VSHIM-0312-062S	.313" (5/16)	.424"	.313"	.062"
VSHIM-26156	.313" (5/16)	.424"	.313"	.032"
VSHIM-0375-005S	.375" (3/8)	.557"	.376"	.005"
VSHIM-0375-010S	.375" (3/8)	.557"	.376"	.010"
VSHIM-0375-015S	.375" (3/8)	.557"	.376"	.015"
VSHIM-0375-020S	.375" (3/8)	.557"	.376"	.020"
VSHIM-0375-032S	.375" (3/8)	.557"	.376"	.032"
VSHIM-0375-062S	.375" (3/8)	.557"	.376"	.062"
VSHIM-26157	.375" (3/8)	.557"	.376"	.005"
VSHIM-26158	.375" (3/8)	.557"	.376"	.015"
VSHIM-26159	.375" (3/8)	.557"	.376"	.032"
VSHIM-0500-005S	.500" (1/2)	.738"	.501"	.005"
VSHIM-0500-010S	.500" (1/2)	.738"	.501"	.010"
VSHIM-0500-015S	.500" (1/2)	.738"	.501"	.015"
VSHIM-0500-020S	.500" (1/2)	.738"	.501"	.020"
VSHIM-0500-032S	.500" (1/2)	.738"	.501"	.032"
VSHIM-0500-062S	.500" (1/2)	.738"	.501"	.062"
VSHIM-26160	.500" (1/2)	.738"	.501"	.005"
VSHIM-26161	.500" (1/2)	.738"	.501"	.015"
VSHIM-26162	.500" (1/2)	.738"	.501"	.032"
VSHIM-0625-005S	.625" (5/8)	.870"	.626"	.005"
VSHIM-0625-010S	.625" (5/8)	.870"	.626"	.010"
VSHIM-0625-015S	.625" (5/8)	.870"	.626"	.015"
VSHIM-0625-020S	.625" (5/8)	.870"	.626"	.020"
VSHIM-0625-032S	.625" (5/8)	.870"	.626"	.032"
VSHIM-0625-062S	.625" (5/8)	.870"	.626"	.062"
VSHIM-26163	.625" (5/8)	.870"	.626"	.005"
VSHIM-26164	.625" (5/8)	.870"	.626"	.015"
VSHIM-26165	.625" (5/8)	.870"	.626"	.032"
VSHIM-0750-005S	.750" (3/4)	.995"	.751"	.005"
VSHIM-0750-010S	.750" (3/4)	.995"	.751"	.010"
VSHIM-0750-015S	.750" (3/4)	.995"	.751"	.015"
VSHIM-0750-020S	.750" (3/4)	.995"	.751"	.020"
VSHIM-0750-032S	.750" (3/4)	.995"	.751"	.032"
VSHIM-0750-062S	.750" (3/4)	.995"	.751"	.062"
VSHIM-26166	.750" (3/4)	.995"	.751"	.005"
VSHIM-26167	.750" (3/4)	.995"	.751"	.015"
VSHIM-26168	.750" (3/4)	.995"	.751"	.032"

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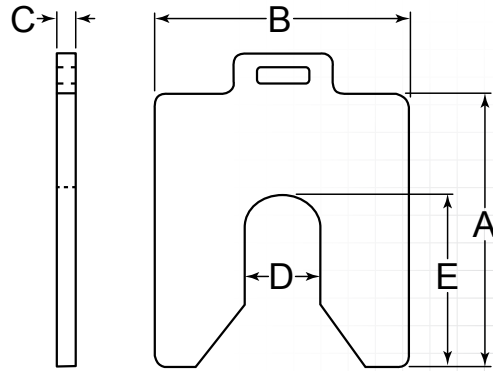
SLOTTED

DESCRIPTION

Slotted shims are used on assembled machine components for alignment and balance. The slot allows insertion without disassembling components. The tab is used as a handle during installation.

HOW TO IDENTIFY

1. Measure width (A).
2. Measure length (B).
3. Measure thickness (C).
4. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

SLOT = STAINLESS STEEL, PLAIN
SLOTC = PLASTIC, ELASTOMER
SLOTP = PLASTIC, POLYESTER/VINYL
Material/finish combinations may not be available in all sizes.

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SLOTTED SHIM TOLERANCES

MATERIAL		LENGTH (A)		WIDTH (B)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
SLOT	Stainless Steel, Plain	A	±.200"	A	±.020"	.001"	±.00008"
		B	±.300"	B	±.030"	.002"	±.00010"
		C	±.400"	C	±.040"	.003"	±.00015"
		D	±.500"	D	±.050"	.004"	±.00020"
SLOTC	Plastic, Elastomer			A - B	±.015"	All Sizes	±.00500"
				C	±.040"		
				D	±.050"		
				All Sizes	±.015"		
					.0005"		±.00003"
					.001"		±.00005"
					.0015"		±.00008"
SLOTP	Plastic, Polyester/Vinyl			All Sizes	±.015"		±.00010"
					.002"	±.00015"	
					.003"	±.00020"	
					.004"	±.00025"	
					.005"	±.00038"	
					.007"	±.00050"	
					.010"	±.00063"	
					.0125"	±.00075"	
					.015"	±.00100"	
					.020"	±.00125"	
					.025"	±.00150"	
					.030"	±.00200"	
					.040"	±.00250"	
					.050"	±.00300"	
			.060"				

SLOT SIZE

SHIM	(D) × (E)
Class AA (1.5" × 1.5")	5/16" × .728"
Class A (2" × 2")	SLOT: 5/8" × 1-9/32"
	SLOTC, SLOTP: 5/8" × 1-3/16"
Class B (3" × 3")	SLOT: 7/8" × 2-1/8"
	SLOTC, SLOTP: 3/4" × 1-11/16"
Class C (4" × 4")	1-1/4" × 2-3/4"
Class D (5" × 5")	1-5/8" × 3-5/8"

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SLOTTED

HOW TO BUILD A PART NUMBER

SLOT-001D

ITEM PREFIX

(C)
THICKNESS

(A x B)
SIZE

SLOT-

001

D

TO ORDER CHOOSE
YOUR MATERIAL,

CHOOSE YOUR
THICKNESS,

CHOOSE YOUR
SIZE.

CODE	MATERIAL
SLOT-	Stainless Steel, Plain
SLOTP-	Plastic, Polyester/ Vinyl

CODE	THICKNESS	CODE	THICKNESS
0005	.0005"	0125	.0125"
001	.0010"	015	.0150"
0015	.0015"	020	.0200"
002	.0020"	025	.0250"
003	.0030"	030	.0300"
004	.0040"	031	.0310"
005	.0050"	040	.0400"
006	.0060"	045	.0450"
007	.0070"	050	.0500"
0075	.0075"	060	.0600"
008	.0080"	062	.0620"
009	.0090"	075	.0750"
010	.0100"	100	.1000"
012	.0120"	125	.1250"

CODE	SIZE
AA	1.5" x 1.5"
A	2" x 2"
B	3" x 3"
C	4" x 4"
D	5" x 5"

SLOTC-020B

ITEM PREFIX

(C)
THICKNESS

(A x B)
SIZE

SLOTC-

020

B

TO ORDER ADD
YOUR MATERIAL,

CHOOSE YOUR
THICKNESS,

CHOOSE YOUR
SIZE.

CODE	MATERIAL
SLOTC-	Plastic, Elastomer

CODE	THICKNESS	COLOR
020	.0200"	Blue
045	.0450"	Yellow

CODE	SIZE
A	2" x 2"
B	3" x 3"
C	4" x 4"
D	5" x 5"

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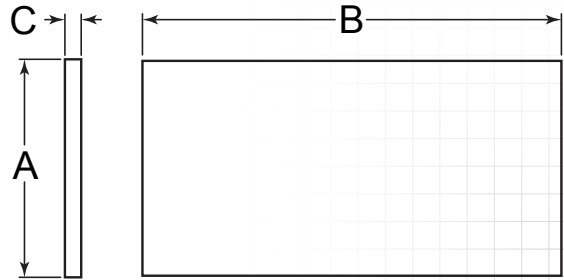
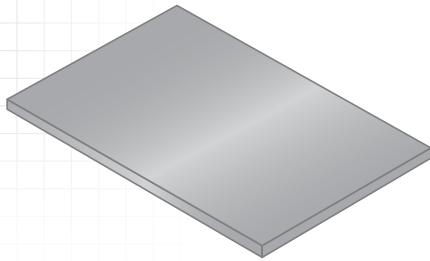
FLAT SHIM STOCK – METAL

DESCRIPTION

Flat shim stock is easy to use and versatile. It is available in sheets and offered in a variety of materials. It is easily cut to fit your specific application.

HOW TO IDENTIFY

1. Measure width (A).
2. Measure length (B).
3. Measure thickness (C).
4. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

FLT-### = CARBON STEEL, PLAIN*
 FLT-###-BR = BRASS, PLAIN
 FLT-###-BT = CARBON STEEL, BLUE TEMPERED (1095)
 FLT-###-CU = COPPER, PLAIN

FLT-###-PB = BRONZE, PLAIN
 FLT-###-SS = STAINLESS STEEL, PLAIN
 Material/finish combinations may not be available in all sizes.

FLAT METAL SHIM STOCK TOLERANCES

(Prefix)	MATERIAL (Material/Finish)	WIDTH (A)		LENGTH (B)	
		(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
FLT-###	Carbon Steel, Plain*	6"	±.060"	12"	±.075"
		8"	±.075"	18 – 25"	±.060"
FLT-###-BR	Brass, Plain	6"	±.060"	12 – 18"	±.060"
		8"	±.063"	25"	+3/- .500"
FLT-###-BT	Carbon Steel, Blue Tempered (1095)	All Sizes	±.060"	All Sizes	+3/- .500"
FLT-###-CU	Copper, Plain	All Sizes	±.010"	All Sizes	+ .500/- .250"
FLT-###-PB	Bronze, Plain	All Sizes	±.010"	All Sizes	+ .250/- .125"
FLT-###-SS	Stainless Steel, Plain	6"	±.075"	12"	±.031"
		8"	±.010"	25"	±.075"

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FLAT SHIM STOCK – METAL

HOW TO BUILD A PART NUMBER

FLT-0612012-BR



(A)
WIDTH

(B)
LENGTH

(C)
THICKNESS

ITEM SUFFIX

06

TO ORDER CHOOSE
YOUR WIDTH,

CODE	WIDTH
01	1.50"
04	4.00"
05	5.00"
06	6.00"
08	8.00"
10	10.00"
12	12.00"
20	20.00"
21	21.00"

12

CHOOSE YOUR
LENGTH,

CODE	LENGTH
12	12.00"
18	18.00"
20	20.00"
24	24.00"
25	25.00"
40	40.00"
50	50.00"
51	51.00"

012

CHOOSE YOUR
THICKNESS,

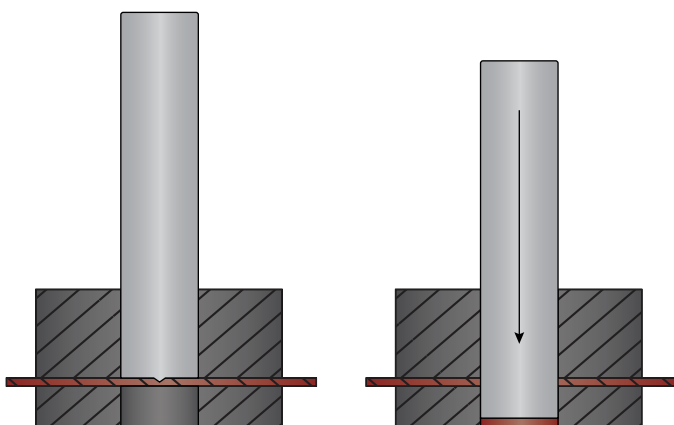
CODE	THICKNESS
0005	.0005"
0008	.0008"
001	.0010"
0015	.0015"
002	.0020"
003	.0030"
004	.0040"
005	.0050"
006	.0060"
007	.0070"
0075	.0075"
008	.0080"
009	.0090"
010	.0100"
012	.0120"
0125	.0125"
0135	.0135"
015	.0150"
016	.0160"
0165	.0165"
018	.0180"
020	.0200"
022	.0220"
025	.0250"
030	.0300"
031	.0310"
032	.0320"
035	.0350"
040	.0400"
042	.0420"
050	.0500"
060	.0600"
062	.0620"
070	.0700"
080	.0800"
090	.0900"
094	.0940"
125	.1250"

-BR

CHOOSE YOUR
MATERIAL.

CODE	MATERIAL
(blank)	Carbon Steel, Plain*
-BR	Brass, Plain
-BT	Carbon Steel, Blue Tempered (1095)
-CU	Copper, Plain
-PB	Bronze, Plain
-SS	Stainless Steel, Plain

PUNCHING HOLES IN SHIM STOCK



Cut a piece of shim stock to size and place it beneath the block needing shimmed. Use a transfer punch to mark any hole positions. Using a shim stock hole punch set, place the shim stock in the punch block/die set. Maintain consistent pressure on the shim to keep it from moving, remove the transfer punch, install the shim punch, and punch the hole for a perfect fit.

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DEPENDING ON THE THICKNESS AND MATERIAL, SOME FLAT SHIM STOCK CAN BE CUT WITH SCISSORS FOR QUICK AND EASY ON-THE-SPOT ADJUSTMENTS

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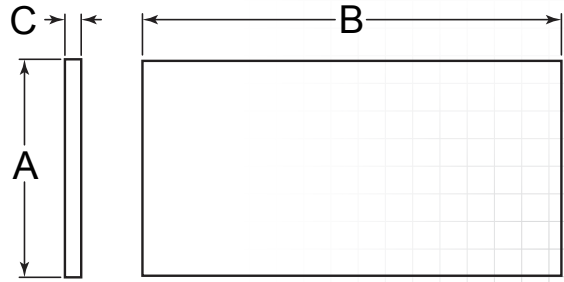
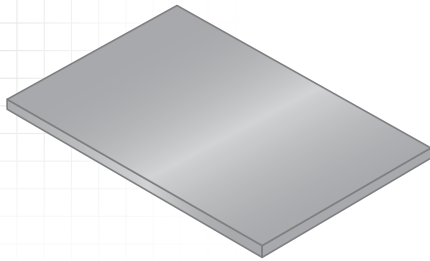
FLAT SHIM STOCK – PLASTIC

DESCRIPTION

Available in a wide range of thicknesses, color coded plastic shim stock is easy to identify as each sheet color represents a specific thickness. It can be cut easily with scissors and combined to shim just about any thickness needed for your application.

HOW TO IDENTIFY

1. Measure width (A).
2. Measure length (B).
3. Measure thickness (C) or match color.
4. Build the part number from the chart on the next page.

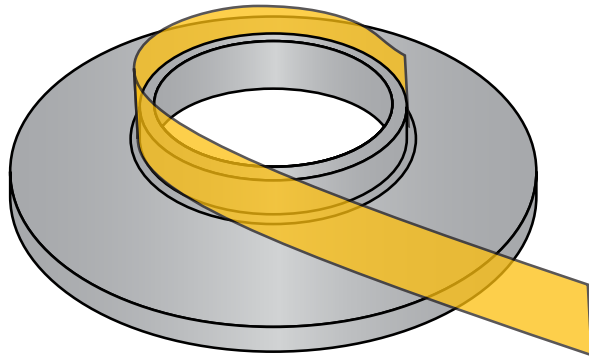


PREFIX MATERIAL/FINISH

FLT-###-PL = PLASTIC, PLAIN

FLAT PLASTIC SHIM STOCK TOLERANCES

MATERIAL		WIDTH (A)		LENGTH (B)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
FLT-###-PL	Plastic, Plain	All Sizes	±.030"	All Sizes	±.030"



THINNER SIZES ARE FLEXIBLE, MAKING IT EASY TO FIT THEM TO JUST ABOUT ANY CONTOUR, CHUCK, OR FIXTURE

High quality plastic shim stock is rust-proof and corrosion-resistant for use in fixtures or other machine application where steel would corrode. It is less expensive than metal shim stock, non-magnetic, and will not mar surfaces or conduct electricity.

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FLAT SHIM STOCK – PLASTIC

HOW TO BUILD A PART NUMBER

FLT-0612015-PL



06

TO ORDER CHOOSE YOUR WIDTH,

CODE	WIDTH
01	1.50"
04	4.00"
05	5.00"
06	6.00"
08	8.00"
10	10.00"
12	12.00"
20	20.00"
21	21.00"

12

CHOOSE YOUR LENGTH,

CODE	LENGTH
12	12.00"
18	18.00"
20	20.00"
24	24.00"
25	25.00"
40	40.00"
50	50.00"
51	51.00"

015

CHOOSE YOUR THICKNESS,

CODE	THICKNESS	PLASTIC COLOR
0005	.0005"	Silver
0008	.0008"	Gold
001	.0010"	Amber
0015	.0015"	Purple
002	.0020"	Red
003	.0030"	Green
004	.0040"	Tan
005	.0050"	Blue
0075	.0075"	Matte
010	.0100"	Brown
0125	.0125"	Black
015	.0150"	Pink
020	.0200"	Yellow
025	.0250"	White
030	.0300"	Coral
040	.0400"	Clear Black
050	.0500"	Clear Gray
060	.0600"	Clear Cream

-PL

ADD YOUR MATERIAL.

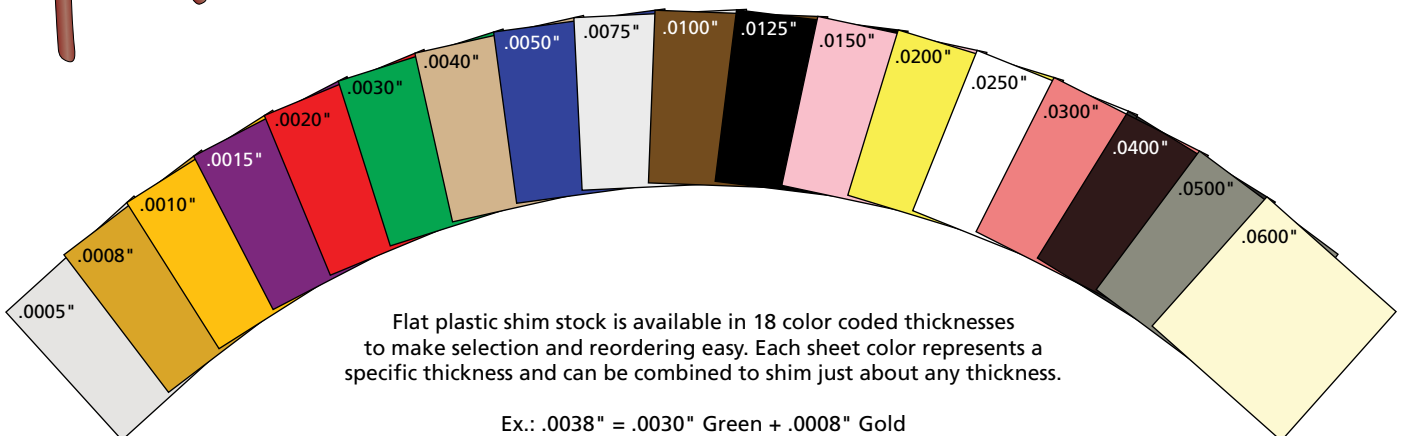
CODE	MATERIAL
-PL	Plastic, Plain

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PLASTIC SHIM STOCK CUTS EASILY WITH SHARP SCISSORS WITHOUT CURLING, BURRS, OR SHARP EDGES

IT CAN ALSO BE LASER CUT TO ANY SHAPE AND HOLDS UP AS GOOD AS OR BETTER THAN ALUMINUM, STEEL, OR BRASS SHIM STOCK



Flat plastic shim stock is available in 18 color coded thicknesses to make selection and reordering easy. Each sheet color represents a specific thickness and can be combined to shim just about any thickness.

Ex.: .0038" = .0030" Green + .0008" Gold

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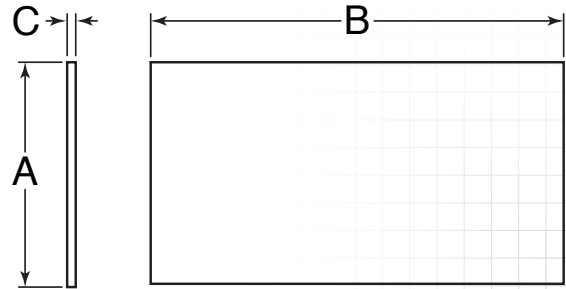
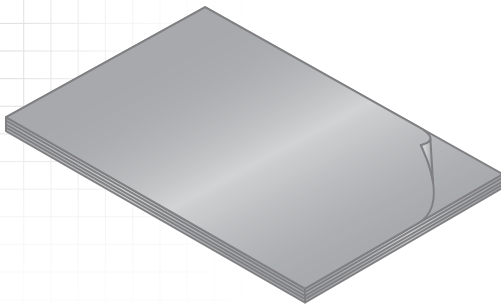
LAMINATED FLAT SHIM STOCK

DESCRIPTION

Common in tool rooms and machine shops, simply peel away layers to achieve the required thickness. Material may be cut, sawed, stamped, milled, or bored to desired configurations.

HOW TO IDENTIFY

1. Measure width (A).
2. Measure length (B).
3. Measure thickness (C).
4. Determine Class 1 or Class 2 layer thickness.
5. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

LAM-###-A1 = ALUMINUM, PLAIN CLASS 1
 LAM-###-A2 = ALUMINUM, PLAIN CLASS 2
 LAM-###-B1 = BRASS, PLAIN CLASS 1
 LAM-###-B2 = BRASS, PLAIN CLASS 2
 LAM-###-P1 = CARBON STEEL, PLAIN* CLASS 1

LAM-###-P2 = CARBON STEEL, PLAIN* CLASS 2
 LAM-###-S1 = STAINLESS STEEL, PLAIN CLASS 1
 LAM-###-S2 = STAINLESS STEEL, PLAIN CLASS 2
 Material/finish combinations may not be available in all sizes.

LAMINATED FLAT STOCK TOLERANCES

MATERIAL		WIDTH (A)		LENGTH (B)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
LAM-###-A1	Aluminum, Plain Class 1 (.0020")	All Sizes	±.005"	All Sizes	±.250"	.0060 - .0150"	+0.015/-0.009"
LAM-###-A2	Aluminum, Plain Class 2 (.0030")					.0160"	+0.015/-0.010"
LAM-###-B1	Brass, Plain Class 1 (.0020")					.0210"	+0.020/-0.010"
LAM-###-B2	Brass, Plain Class 2 (.0030")					.0320"	+0.030/-0.010"
LAM-###-P1	Carbon Steel, Plain* Class 1 (.0020")					.0330"	+0.030/-0.020"
LAM-###-P2	Carbon Steel, Plain* Class 2 (.0030")					.0480"	+0.050/-0.020"
LAM-###-S1	Stainless Steel, Plain Class 1 (.0020")					.0620 - .0930"	+0.060/-0.020"
LAM-###-S2	Stainless Steel, Plain Class 2 (.0030")					.0940"	+0.090/-0.030"
						.1250"	+0.120/-0.030"
						.1870"	+0.180/-0.040"
						.2500"	+0.250/-0.050"
						.3750"	+0.250/-0.250"

LAYER THICKNESS 101

Class 1 = .0020" Thick Layers

Class 2 = .0030" Thick Layers

To determine the number of layers, divide the total thickness by the layer thickness:

EXAMPLE

$$\frac{.0060 \text{ " Total thickness}}{.0020 \text{ " Class 1}} = 3 \text{ layers}$$



Dimensions listed are nominal and may not divide evenly.

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.



LAMINATED FLAT SHIM STOCK

HOW TO BUILD A PART NUMBER

LAM-Ø824Ø15-B2



(A)
WIDTH

(B)
LENGTH

(C)
THICKNESS

ITEM SUFFIX

Ø8

TO ORDER CHOOSE YOUR WIDTH,

CODE	WIDTH
08	8.00"
12	12.00"
20	20.00"
24	24.00"

24

ADD YOUR LENGTH,

CODE	LENGTH
24	24.00"

Ø15

CHOOSE YOUR THICKNESS,

CODE	THICKNESS
006	.0060"
008	.0080"
009	.0090"
010	.0100"
015	.0150"
016	.0160"
021	.0210"
032	.0320"
033	.0330"
048	.0480"
062	.0620"
063	.0630"
093	.0930"
094	.0940"
125	.1250"
187	.1870"
250	.2500"
375	.3750"

-B2

CHOOSE YOUR MATERIAL & CLASS.

CODE	MATERIAL
-A1	Aluminum, Plain Class 1 (.0020")
-A2	Aluminum, Plain Class 2 (.0030")
-B1	Brass, Plain Class 1 (.0020")
-B2	Brass, Plain Class 2 (.0030")
-P1	Carbon Steel, Plain* Class 1 (.0020")
-P2	Carbon Steel, Plain* Class 2 (.0030")
-S1	Stainless Steel, Plain Class 1 (.0020")
-S2	Stainless Steel, Plain Class 2 (.0030")

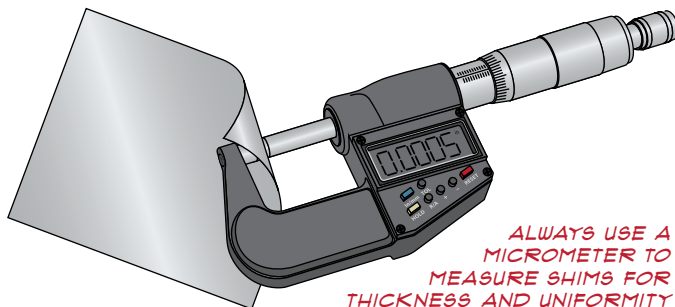
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CUSTOMIZE YOUR APPLICATION

For simple or complex designs, laminated flat shim stock allows you to cut, punch, saw, stamp, mill, or shear shims to just about any size and shape, along with the flexibility of being able to remove thin layers to achieve the thickness you need. Save money by reducing inventory, increase efficiency by making quick adjustments during assembly, and prevent contaminants from finding their way between stacked shims.

For best results, laminated shims should not be "ground round" while deburring in order to maintain uniformity and parallel faces.

LAMINATED FLAT STOCK PROVIDES THE ADVANTAGE OF CREATING COMPLICATED SHIMS IN THE THICKNESS YOU NEED WITHOUT CREATING MULTIPLE SHIMS



ALWAYS USE A MICROMETER TO MEASURE SHIMS FOR THICKNESS AND UNIFORMITY



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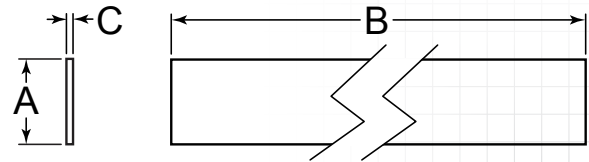
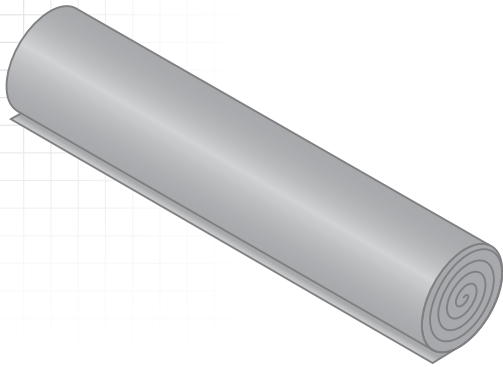
ROLLED SHIM STOCK – IMPERIAL

DESCRIPTION

Shim stock is used to solve alignment and leveling problems within machinery. Rolled shim stock is simple to use and available in a variety of materials for a wide range of applications.

HOW TO IDENTIFY

1. Measure width (A).
2. Measure length (B).
3. Measure thickness (C).
4. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

RL-### = CARBON STEEL, PLAIN*
 RL-###-AL = ALUMINUM, PLAIN
 RL-###-BR = BRASS, PLAIN
 RL-###-BT = CARBON STEEL, BLUE TEMPERED (1095)
 RL-###-CU = COPPER, PLAIN

RL-###-NI = NICKEL, PLAIN
 RL-###-PB = BRONZE, PLAIN
 RL-###-S6 = 316 STAINLESS STEEL, PLAIN
 RL-###-SS = STAINLESS STEEL, PLAIN
 Material/finish combinations may not be available in all sizes.

ROLLED SHIM STOCK TOLERANCES

(Prefix)	MATERIAL (Material/Finish)	WIDTH (A)		LENGTH (B)	
		(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
RL-###	Carbon Steel, Plain*	All Sizes	±.005"	All Sizes	±.250"
RL-###-AL	Aluminum, Plain	All Sizes	±.005"	All Sizes	±.250"
RL-###-BR	Brass, Plain	All Sizes	±.005"	All Sizes	±.250"
RL-###-BT	Carbon Steel, Blue Tempered (1095)	All Sizes	±.005"	All Sizes	±.250"
RL-###-CU	Copper, Plain	All Sizes	±.005"	All Sizes	±.250"
RL-###-NI	Nickel, Plain	All Sizes	±.005"	All Sizes	±.250"
RL-###-PB	Bronze, Plain	All Sizes	±.010"	All Sizes	+.500/- .250"
RL-###-S6	316 Stainless Steel, Plain	All Sizes	±.005"	All Sizes	±.250"
RL-###-SS	Stainless Steel, Plain	All Sizes	±.005"	All Sizes	±.250"

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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ROLLED SHIM STOCK – IMPERIAL

HOW TO BUILD A PART NUMBER

RL-06050016-BR



(A)
WIDTH

3" to 24"

06

TO ORDER CHOOSE
YOUR WIDTH,

CODE	WIDTH
03	3.00"
05	5.00"
06	6.00"
12	12.00"
24	24.00"

(B)
LENGTH

50" to 180"

050

CHOOSE YOUR
LENGTH,

CODE	LENGTH
050	50.00"
060	60.00"
100	100.00"
120	120.00"
180	180.00"

(C)
THICKNESS

.0005" to .0400"

016

CHOOSE YOUR
THICKNESS,

CODE	THICKNESS
0005	.0005"
001	.0010"
0015	.0015"
002	.0020"
0025	.0025"
003	.0030"
0035	.0035"
004	.0040"
005	.0050"
006	.0060"
007	.0070"
008	.0080"
009	.0090"
010	.0100"
012	.0120"
013	.0130"
0135	.0135"
015	.0150"
016	.0160"
0165	.0165"
018	.0180"
020	.0200"
022	.0220"
025	.0250"
028	.0280"
030	.0300"
031	.0310"
032	.0320"
040	.0400"

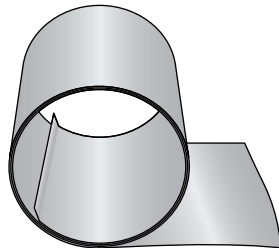
ITEM SUFFIX

-BR

CHOOSE YOUR
MATERIAL.

CODE	MATERIAL
(blank)	Carbon Steel, Plain*
-AL	Aluminum, Plain
-BR	Brass, Plain
-BT	Carbon Steel, Blue Tempered (1095)
-CU	Copper, Plain
-NI	Nickel, Plain
-PB	Bronze, Plain
-S6	316 Stainless Steel, Plain
-SS	Stainless Steel, Plain

WHY USE ROLLED SHIM STOCK?



*"CAN'T I JUST USE ALUMINUM FOIL
AND FOLD IT A FEW TIMES?"*

While it might seem like aluminum foil would be a suitable substitution for rolled shim stock, aluminum foil sold on the shelves in grocery stores is more malleable than shim stock and may compress, deform, and tear over time.

Industrial strength rolled shim stock is toleranced, consistent in thickness, and comes in a variety of materials for many applications. To avoid corrosion and reduce wear during use, choose shim stock material that matches your application.

In the long run, aluminum foil, match books, playing cards, guitar picks, plastic baggies, aluminum cans, and newspapers, are not acceptable shim substitutes.

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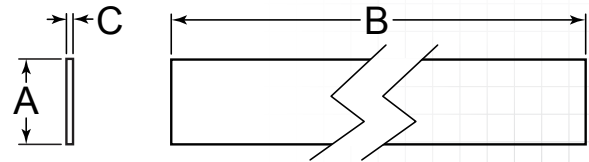
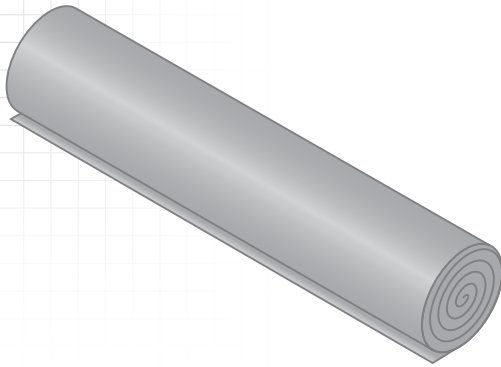
ROLLED SHIM STOCK – METRIC

DESCRIPTION

Shim stock is used to solve alignment and leveling problems within machinery. Rolled shim stock is simple to use and available in a variety of materials for a wide range of applications.

HOW TO IDENTIFY

1. Measure length (B).
2. Measure thickness (C).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

- RL-###-M = CARBON STEEL, PLAIN*
 - RL-###-MB = BRASS, PLAIN
 - RL-###-MS = STAINLESS STEEL, PLAIN
- Material/finish combinations may not be available in all sizes.

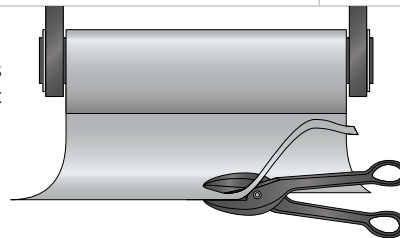
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ROLLED SHIM STOCK TOLERANCES

MATERIAL		WIDTH (A)		LENGTH (B)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
RL-###-M	Carbon Steel, Plain*	All Sizes	+0.010/-0 mm	All Sizes	±0.250 mm	All Sizes	±5%
RL-###-MB	Brass, Plain	All Sizes	+0.010/-0 mm	All Sizes	±0.250 mm		
RL-###-MS	Stainless Steel, Plain	All Sizes	+0.010/-0 mm	All Sizes	±0.250 mm		

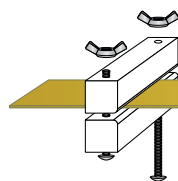
APPLICATION

For thinner material that behaves like aluminum foil, try hanging it overhead to save space.

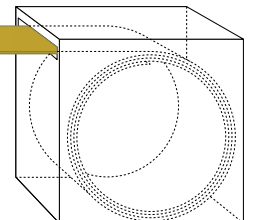


ROLLED SHIM STOCK IS SPRING STEEL UNDER TENSION, SO WORKING WITH IT CAN BE TRICKY AS IT ALWAYS SEEMS TO WANT TO RECOIL TO ITS ROLLED UP STATE

HERE ARE A COUPLE OF IDEAS TO CONSIDER FOR STORING IT TO MAKE IT EASIER TO USE



For thicker stuff, keep it rolled up in a wood or cardboard box with a slit you can feed it through. Secure the other end with a couple of radiused wood blocks, machine screws, and wing nuts.



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ROLLED SHIM STOCK – METRIC

HOW TO BUILD A PART NUMBER

RL-150125040-MS

(A)
WIDTH

(B)
LENGTH

(C)
THICKNESS

ITEM SUFFIX

150

TO ORDER ADD
YOUR WIDTH,

CODE	WIDTH
150	150.00 mm

1250

CHOOSE YOUR
LENGTH,

CODE	LENGTH
1250	1250 mm
2500	2500 mm

40

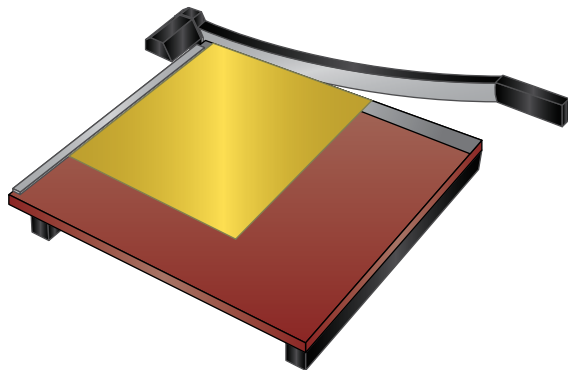
CHOOSE YOUR
THICKNESS,

CODE	THICKNESS
05	0.05 mm
10	0.10 mm
15	0.15 mm
20	0.20 mm
25	0.25 mm
30	0.30 mm
40	0.40 mm
50	0.50 mm
65	0.65 mm
80	0.80 mm

-MS

CHOOSE YOUR
MATERIAL.

CODE	MATERIAL
-M	Carbon Steel, Plain*
-MB	Brass, Plain
-MS	Stainless Steel, Plain



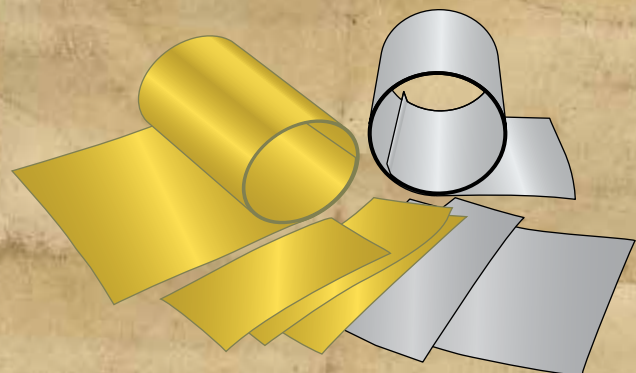
WHEN CUTTING THIN SHIM STOCK, TRY USING A GUILLOTINE STYLE PAPER CUTTER INSTEAD OF SCISSORS OR SHEARS TO GET FASTER RESULTS WITH CLEANER EDGES

CONSIDER USING BRASS

The type of metal you use for shimming will depend on your application, but there are some benefits to using brass. Though harder than copper and bronze, brass is a malleable metal that can be easily manipulated and formed, making it versatile for shimming fixtures and aligning machinery.

It has a high resistance to corrosion which makes it suitable for use in humid or wet environments. It is a good conductor of heat and electricity, but is not magnetic, it has a low friction rate that prevents sparking, and is easily recycled. Additionally, brass can be used in sterile environments as it has an inherent ability to efficiently destroy harmful microbes and bacteria.

ROLLED VS. FLAT



While rolled shim stock is available in longer lengths, flat sheets tend to be easier to work with as they are typically smaller and they start flat, and stay flat. Flat shim stock takes less time to wrangle and there is no fuss associated with rerolling it. Whichever you choose, always wear gloves when handling it.

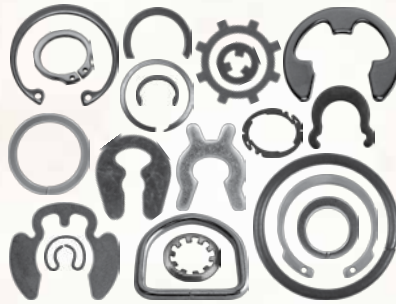


MANUFACTURER & MASTER DISTRIBUTOR

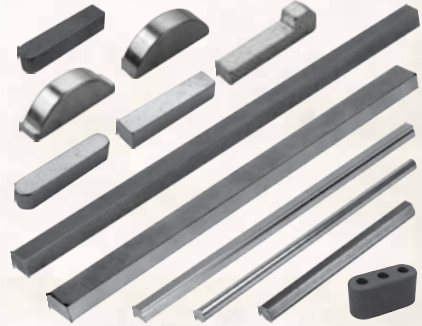
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Reusable, Standard & Heavy Duty, Engineered Self-Locking Wedge Locking Washers



Groove Pins



Speed Nuts, Expansion Nuts, U-Nuts, Self-Thread Lock Nuts, Trim & Panel Clips, Palnut Push-Ons, & Nut/Bolt Assemblies



Clevis Pins, Lanyards, & Helical Spring Lock Washers



Single-Use, Heavy Duty, Engineered Self-Locking Washers & Safety Wheel Nuts



Connecting & Mounting Clamps, Quick Connectors, Rings, Straps, & Tools



Threaded Inserts, Studs, Rivets, & Tools



Grease Fittings, Grease Guns, Lubrication & Fluid Handling & Management Systems



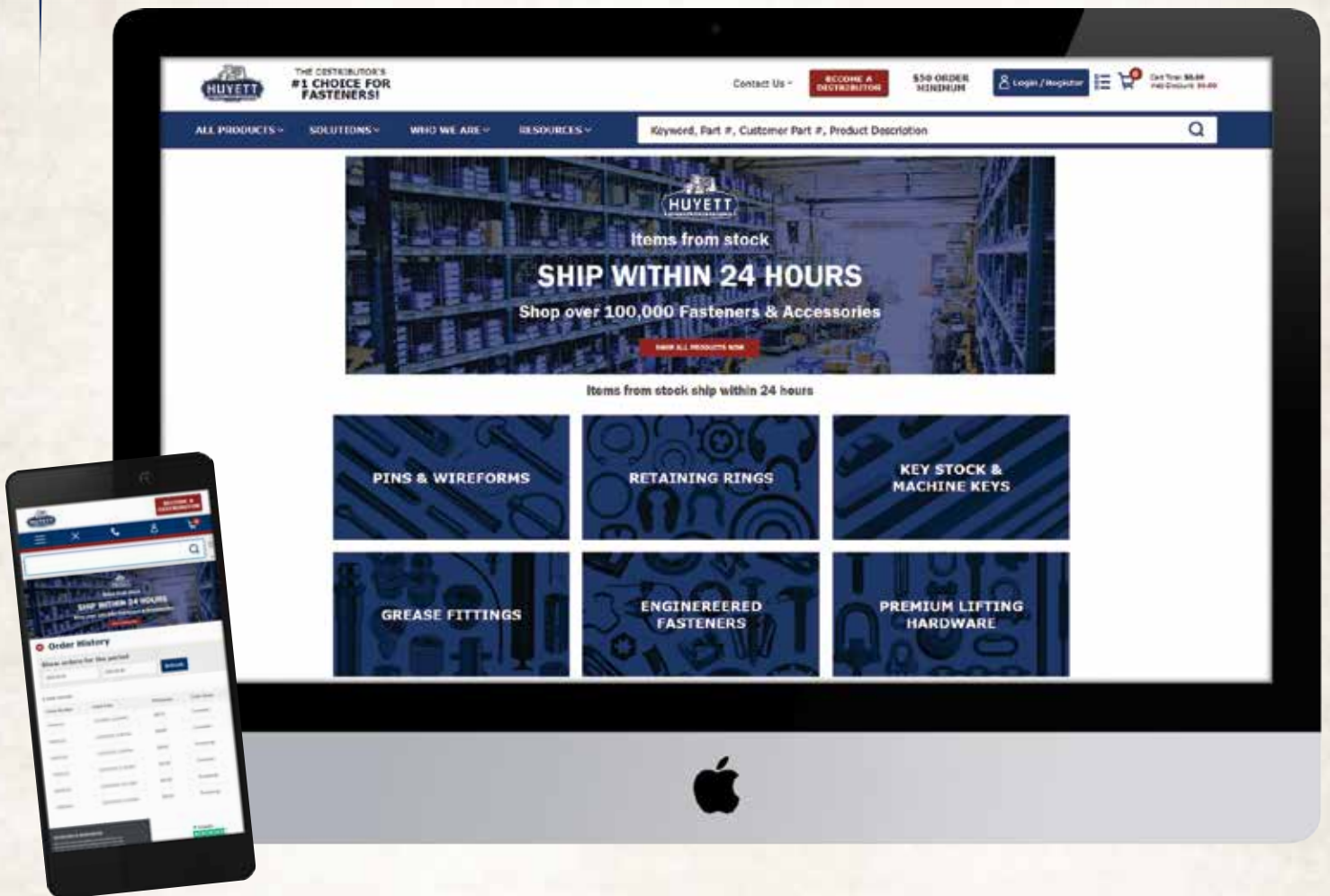
Coiled Spring Pins, Slotted Spring Pins, Spacers, & Thrust Washers



Retaining Rings, Circlips, Hose Clamps, Spiral Rings, Constant Section Rings, & Wave Springs

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SHAFT COLLARS

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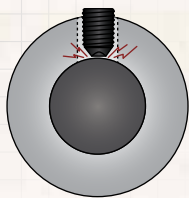
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SHAFT COLLAR FEATURES

Shaft collars are machine components found in many power transmission applications, most notably motors and gear boxes. They are used as mechanical stops, locating components, or bearing faces. They install easily and are available in a variety of styles and materials.

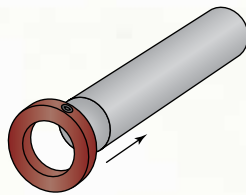
DESIGN CONSIDERATIONS

POSITIONING & MATERIALS



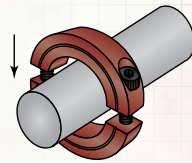
SET COLLARS ARE SECURED TO UNHARDENED SHAFTS WITH A SET SCREW THAT WILL PENETRATE AND MAR THE SHAFT SURFACE

AXIAL INSTALLATION



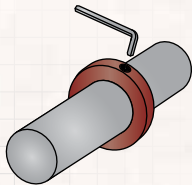
SET COLLARS AND SINGLE-SPLIT COLLARS ARE INSTALLED AXIALLY BY SLIDING OVER THE SHAFT

RADIAL INSTALLATION



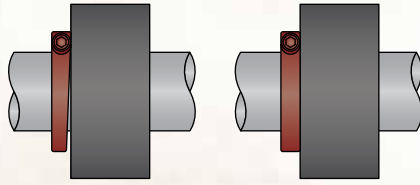
DOUBLE-SPLIT COLLARS ARE INSTALLED RADIALY WITHOUT DISASSEMBLING THE COMPONENT

INSTALLATION REQUIREMENTS



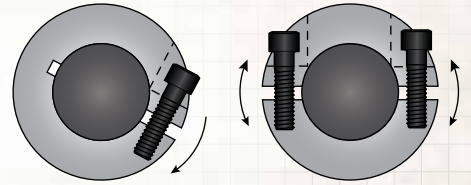
SHAFT COLLARS ARE EASILY INSTALLED WITH A HEX KEY TOOL

PRECISION FACING



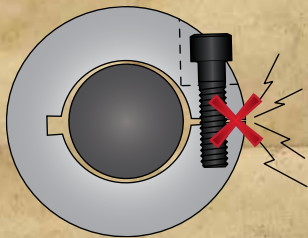
HAVING A PERPENDICULAR FACE IS CRITICAL FOR THE COLLAR TO HOLD OTHER COMPONENTS IN PLACE

BALANCE



DOUBLE-SPLIT COLLARS ARE IDEAL FOR HIGH RPM APPLICATIONS BECAUSE THE OPPOSING SCREWS BALANCE EACH OTHER

DON'T CLOSE THE GAP

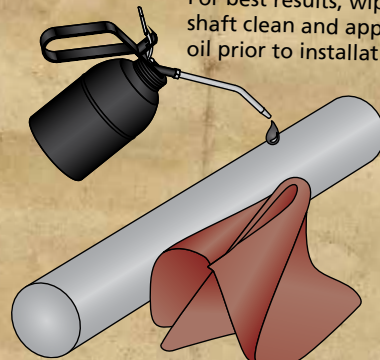


When tightening a split collar, the edges of the split should not touch when fully tightened. If the split is completely closed the collar is too large and will not clamp on the shaft.



CLEAN INSTALLS

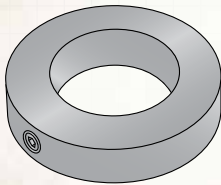
For best results, wipe the shaft clean and apply light oil prior to installation.



SHAFT COLLAR TYPES

SET

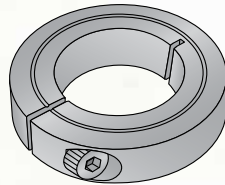
Set collars are the oldest type of shaft collars and use a hardened set screw to penetrate the surface of an unhardened shaft to achieve grip. They are ideal for holding spacers, bearings, and sprocket hubs in place.



PAGE 150

SINGLE-SPLIT

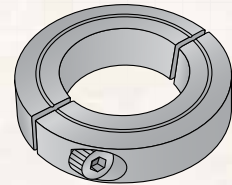
Single-split collars are used on round shafts, bars, and tubes. They use friction to grip and are more secure than set collar designs.



PAGE 154

DOUBLE-SPLIT

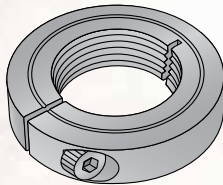
Double-split collars allow installation without disassembling machinery. They provide superior grip and are ideal for applications where access is limited. Opposing screws balance each other in rotating applications.



PAGE 154

THREADED

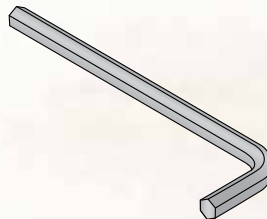
Threaded bore collars are used in threaded shaft applications where precise positioning is required or where high axial loads will be encountered. The threads provide a positive mechanical stop.



PAGE 158

HEX KEYS

Hex keys are a simple six-sided, L-shaped tool used to tighten or loosen socket head screws. They are more commonly known as "Allen Wrenches," a proprietary name of Apex Tool Group, LLC.



PAGE 162

ALSO AVAILABLE:



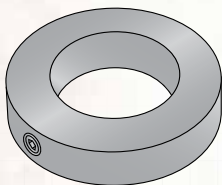
Set Screws



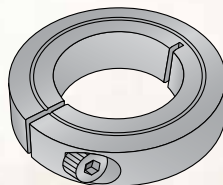
Cap Screws

HUYETT.COM

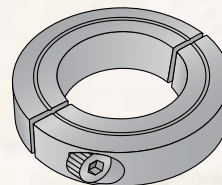
WHICH SHAFT COLLAR DO I NEED?



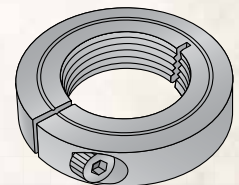
Set collars are economical, install axially, and are used on unhardened shafts. They are secured with a set screw.



Single-split collars provide better holding power than set collars, and must be installed axially.



Double-split collars install easily without disassembling machinery and provide excellent clamping power.



Single- or double-split threaded shaft collars provide precision placement and tolerate extreme axial forces.

*ALL SINGLE-SPLIT AND DOUBLE-SPLIT SHAFT COLLARS FEATURE A GROOVED FACE
THE GROOVE INDICATES THE FACE THAT IS PRECISION MACHINED PERPENDICULAR TO THE BORE*

SHAFT COLLARS

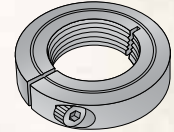
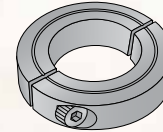
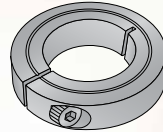
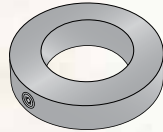
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QUICK REFERENCE GUIDE

Shaft collars are used in machine applications to secure or position components on shafts. They can be used as mechanical stops, stroke limiters, or bearing holders. A variety of styles provides solutions for almost any power transmission application.



	SET	SINGLE-SPLIT	DOUBLE-SPLIT	THREADED
COMMON NAMES	Set Screw Collar; Solid Clamping Collar; Set Shaft Collar	Split Hub Collar; Clamp Collar	Two-piece Clamp-on Collar	Threaded Clamp Collar
APPLICABLE STANDARDS	There are no applicable standards; however, most manufacturers follow similar designs.	There are no applicable standards; however, most manufacturers follow similar designs.	There are no applicable standards; however, most manufacturers follow similar designs.	There are no applicable standards; however, most manufacturers follow similar designs.
FABRICATION	Material is bored and single-point faced.	Material is bored and single-point faced.	Material is bored and single-point faced.	Material is bored and single-point faced.
HOW TO IDENTIFY	Bore (inside diameter); solid one-piece design with set screw.	Bore (inside diameter); one-piece design with a cut through one side and a relief cut opposite; clamped with a cap screw.	Bore (inside diameter); two-piece design with a cap screw on each side.	Fine or coarse threaded bore (inside diameter); single- or double-split design.
COMMON USES	Used as mechanical stops, locating components, and bearing faces. Found in applications such as sprocket hubs, bearing holders, and shaft protectors.	Used as mechanical stops, locating components, and bearing faces. Found in applications such as sprocket hubs, bearing holders, and shaft protectors.	Used as mechanical stops, locating components, and bearing faces. Found in applications such as sprocket hubs, bearing holders, and shaft protectors.	Used as mechanical stops, locating components, and bearing faces. Found in applications such as sprocket hubs, bearing holders, and shaft protectors.
COMMENTS	Shaft must be unhardened and softer than the set screw. Marring on the shaft can occur. Lowest cost.	Must be installed over the end of the shaft while it is disassembled from other components. Relief cut enables easy tightening.	Can be installed in-line without disassembling component parts.	Available in fine or coarse threads. Relief cut enables easy tightening.

MEASURING

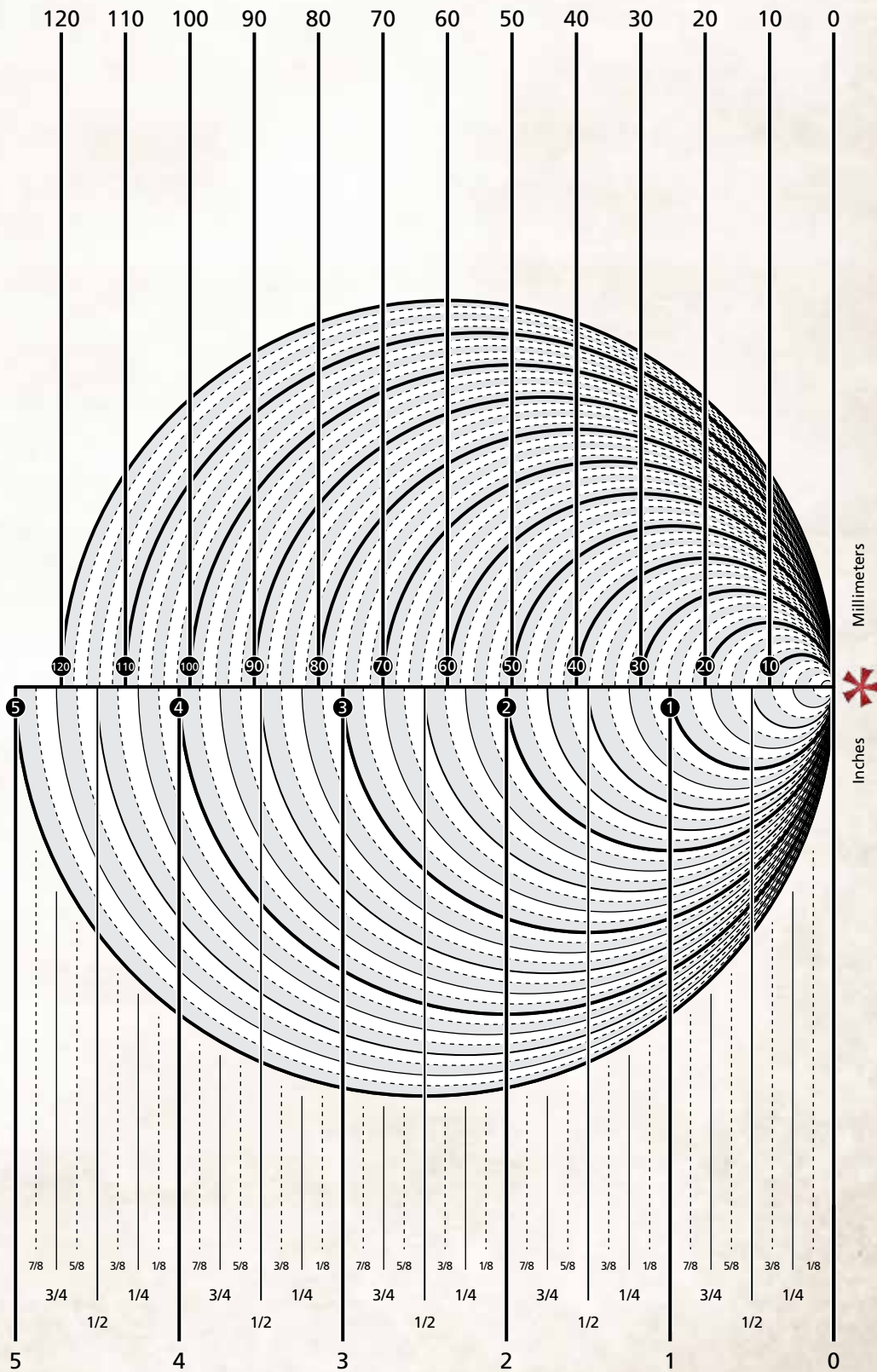
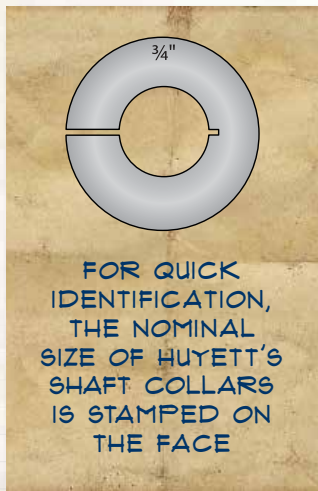


A shaft collar's size is determined by its bore and is sized to match the shaft diameter. For example, if your shaft size is 1" then you would want a 1" shaft collar.

To use this size chart, align the inside diameter of your shaft collar against the "zero" line on the right edge. Visually note where the left edge of the inside diameter falls and follow the line to the imperial measurement below or the metric measure above. Sixteenth measurements and single millimeters have been left off for clarity.



ALIGN THE RIGHT SIDE OF THE BORE OF THE COLLAR TO THE RIGHT EDGE OF THE CIRCLE TO DETERMINE THE SIZE OF THE COLLAR



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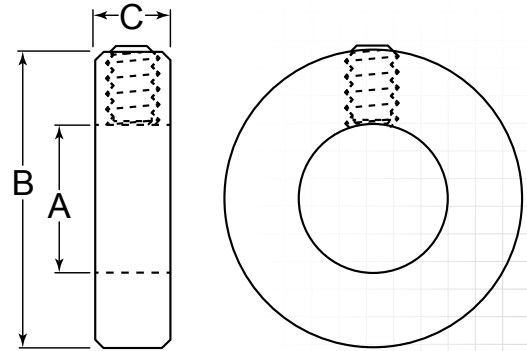
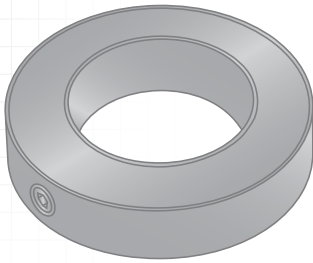
SET – IMPERIAL

DESCRIPTION

Set collars are used in machine applications for securing components on shafts. They can be used for stroke limitations, positioning, or as mechanical stops. Because the set screw must penetrate the shaft, set collars are used only on unhardened shafts and when frequent adjustment is not a consideration.

HOW TO IDENTIFY

1. Verify solid style with set screw.
2. Measure bore (A).
3. Build the part number from the chart on the next page.



PREFIX MATERIAL/FINISH

SC-#### = CARBON STEEL, PLAIN*
 SC-####-AL = ALUMINUM, PLAIN
 SC-####-BO = CARBON STEEL, BLACK OXIDE
 SC-####-NY = NYLON, PLAIN

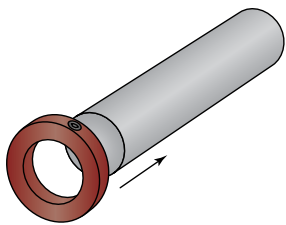
SC-####-SS = STAINLESS STEEL, PLAIN
 SC-####-ZC = CARBON STEEL, ZINC CLEAR

BORE (A) TOLERANCES

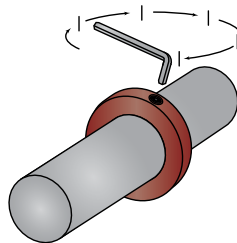
(Size Range)	(Tolerance)
.1250 – .1875"	+ .0008/+ .0030"
.2500 – 1.1250"	+ .0008/+ .0040"
1.1875 – 2.9375"	+ .0008/+ .0060"
3.0000 – 6.0000"	+ .0008/+ .0080"

ADDITIONAL SIZES AND FINISHES MAY
BE AVAILABLE UPON REQUEST

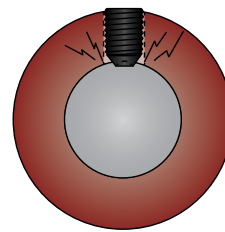
INSTALLING A SET COLLAR



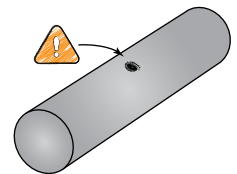
SLIDE THE COLLAR AXIALLY
ONTO THE SHAFT



SET IN PLACE BY TIGHTENING
THE SET SCREW



THE SET SCREW WILL
PENETRATE THE SHAFT
SURFACE...



MARRING THE SHAFT
SURFACE

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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SHAFT COLLARS

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SET - IMPERIAL

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS SEE PAGE 16

HOW TO BUILD A PART NUMBER

SC-Ø125

LEAVE BLANK FOR CARBON STEEL, PLAIN* OR SELECT MATERIAL AND FINISH FROM THE LIST BELOW

ITEM PREFIX

(A) BORE

MATERIAL SUFFIX

SC-

Ø125

TO ORDER ADD YOUR STYLE,

CHOOSE YOUR BORE,

CHOOSE YOUR MATERIAL.

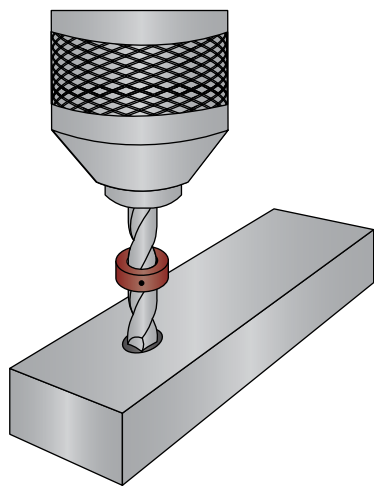
CODE	STYLE
SC-	Set Collar

CODE	BORE
0125	.1250" (1/8)
0187	.1875" (3/16)
0250	.2500" (1/4)
0312	.3125" (5/16)
0375	.3750" (3/8)
0437	.4375" (7/16)
0500	.5000" (1/2)
0562	.5625" (9/16)
0625	.6250" (5/8)
0687	.6875" (11/16)
0750	.7500" (3/4)
0812	.8125" (13/16)
0875	.8750" (7/8)
0937	.9375" (15/16)
1000	1.0000" (1)
1062	1.0625" (1-1/16)
1125	1.1250" (1-1/8)
1187	1.1875" (1-3/16)
1250	1.2500" (1-1/4)
1312	1.3125" (1-5/16)
1375	1.3750" (1-3/8)
1437	1.4375" (1-7/16)
1500	1.5000" (1-1/2)
1562	1.5625" (1-9/16)
1625	1.6250" (1-5/8)
1687	1.6875" (1-11/16)
1750	1.7500" (1-3/4)
1812	1.8125" (1-13/16)
1875	1.8750" (1-7/8)
1937	1.9375" (1-15/16)
2000	2.0000" (2)
2062	2.0625" (2-1/16)
2125	2.1250" (2-1/8)

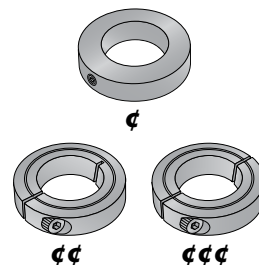
CODE	BORE
2187	2.1875" (2-3/16)
2250	2.2500" (2-1/4)
2312	2.3125" (2-5/16)
2375	2.3750" (2-3/8)
2437	2.4375" (2-7/16)
2500	2.5000" (2-1/2)
2562	2.5625" (2-9/16)
2625	2.6250" (2-5/8)
2687	2.6875" (2-11/16)
2750	2.7500" (2-3/4)
2812	2.8125" (2-13/16)
2875	2.8750" (2-7/8)
2937	2.9375" (2-15/16)
3000	3.0000" (3)
3062	3.0625" (3-1/16)
3125	3.1250" (3-1/8)
3187	3.1875" (3-3/16)
3250	3.2500" (3-1/4)
3312	3.3125" (3-5/16)
3375	3.3750" (3-3/8)
3437	3.4375" (3-7/16)
3500	3.5000" (3-1/2)
3562	3.5625" (3-9/16)
3625	3.6250" (3-5/8)
3687	3.6875" (3-11/16)
3750	3.7500" (3-3/4)
3812	3.8125" (3-13/16)
3875	3.8750" (3-7/8)
3937	3.9375" (3-15/16)
4000	4.0000" (4)
4437	4.4375" (4-7/16)
4937	4.9375" (4-15/16)

CODE	MATERIAL/FINISH
(blank)	Carbon Steel, Plain*
-AL	Aluminum, Plain
-BO	Carbon Steel, Black Oxide
-NY	Nylon, Plain
-SS	Stainless Steel, Plain
-ZC	Carbon Steel, Zinc Clear

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USED AS A STOP ON A DRILL BIT TO CONTROL THE DEPTH OF THE DRILLED HOLE



SET COLLARS PROVIDE A LOW COST SOLUTION FOR MANY POWER TRANSMISSION APPLICATIONS

BLACK OXIDE



Black oxide provides excellent corrosion resistance for indoor environments, but is not intended for use in outdoor applications.

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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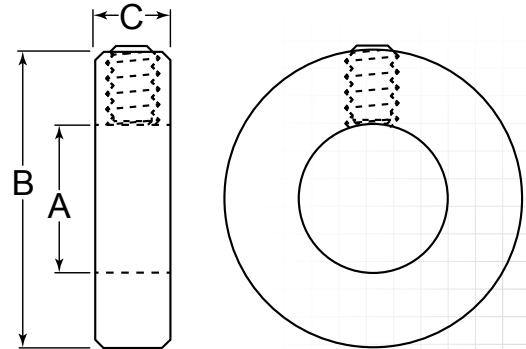
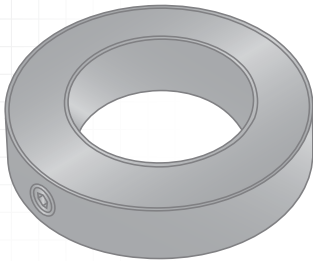
SET – METRIC

DESCRIPTION

Set collars are used in machine applications for securing components on shafts. They can be used for stroke limitations, positioning, or as mechanical stops. Because the set screw must penetrate the shaft, set collars are used only on unhardened shafts and when frequent adjustment is not a consideration.

HOW TO IDENTIFY

1. Verify solid style with set screw.
2. Measure bore (A).
3. Build the part number from the chart on the next page.



PREFIX

MATERIAL/FINISH

SCM-### = CARBON STEEL, PLAIN*
 SCM-###-BO = CARBON STEEL, BLACK OXIDE
 SCM-###-SS = STAINLESS STEEL, PLAIN
 SCM-###-ZC = CARBON STEEL, ZINC CLEAR

ADDITIONAL SIZES AND FINISHES MAY
BE AVAILABLE UPON REQUEST

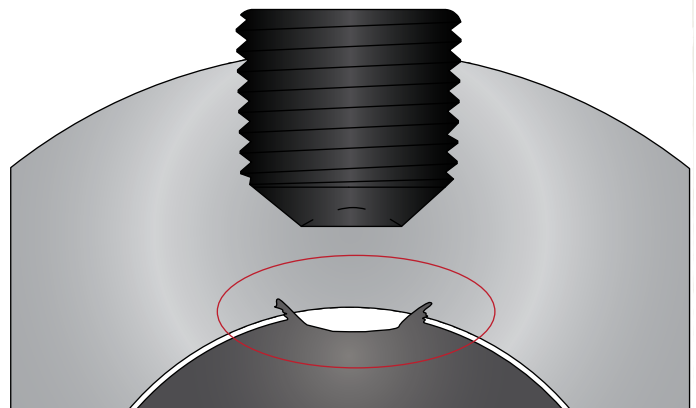
BORE (A) TOLERANCES

(Size Range)	(Tolerance)
2 mm – 26 mm	+0.10/+0.02 mm
28 mm – 200 mm	+0.12/+0.02 mm

FLARE UPS & BURNS

THE SET SCREW IN A SET COLLAR WILL CREATE A
"FLARE UP" OR "BURN" WHEN INSTALLED

THIS MAKES SUBSEQUENT ADJUSTMENTS AND
REPOSITIONING DIFFICULT BECAUSE THE SET SCREW WILL
SEEK ITS ORIGINAL POSITION



CLOSE UP OF A FLARE UP

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SET – METRIC

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

SCM-0035

LEAVE BLANK FOR CARBON STEEL, PLAIN*
OR SELECT MATERIAL AND FINISH FROM THE LIST BELOW

ITEM PREFIX

(A)
BORE

MATERIAL SUFFIX

SCM-

0035

TO ORDER ADD YOUR STYLE,

CHOOSE YOUR BORE,

CHOOSE YOUR MATERIAL.

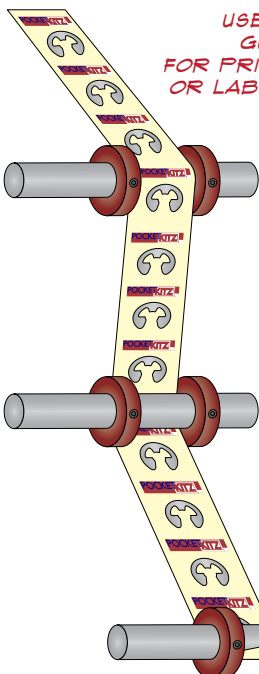
CODE	STYLE
SCM-	Set Collar, Metric

CODE	BORE
002	2.00 mm
0025	2.50 mm
003	3.00 mm
0035	3.50 mm
004	4.00 mm
0045	4.50 mm
005	5.00 mm
0055	5.50 mm
006	6.00 mm
007	7.00 mm
008	8.00 mm
009	9.00 mm
010	10.00 mm
011	11.00 mm
012	12.00 mm
013	13.00 mm
014	14.00 mm
015	15.00 mm
016	16.00 mm
018	18.00 mm
020	20.00 mm
022	22.00 mm
024	24.00 mm
025	25.00 mm
026	26.00 mm
028	28.00 mm
030	30.00 mm
032	32.00 mm
034	34.00 mm
035	35.00 mm
036	36.00 mm
038	38.00 mm
040	40.00 mm

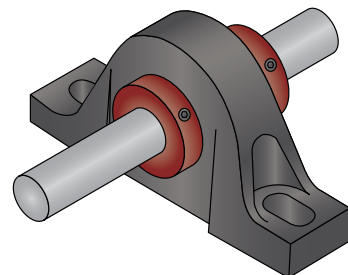
CODE	BORE
042	42.00 mm
045	45.00 mm
048	48.00 mm
050	50.00 mm
052	52.00 mm
055	55.00 mm
056	56.00 mm
058	58.00 mm
060	60.00 mm
063	63.00 mm
065	65.00 mm
068	68.00 mm
070	70.00 mm
072	72.00 mm
075	75.00 mm
080	80.00 mm
085	85.00 mm
090	90.00 mm
095	95.00 mm
100	100.00 mm
110	110.00 mm
120	120.00 mm
125	125.00 mm
130	130.00 mm
135	135.00 mm
140	140.00 mm
150	150.00 mm
160	160.00 mm
170	170.00 mm
180	180.00 mm
190	190.00 mm
200	200.00 mm

CODE	MATERIAL/FINISH
(blank)	Carbon Steel, Plain*
-BO	Carbon Steel, Black Oxide
-SS	Stainless Steel, Plain
-ZC	Carbon Steel, Zinc Clear

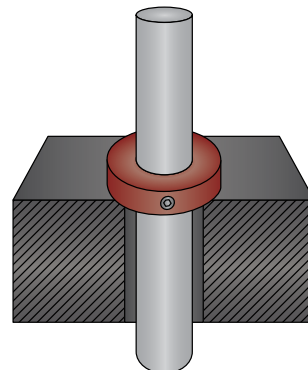
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USED AS GUIDES FOR PRINTING OR LABELING



USED TO HOLD A SHAFT IN A BEARING BLOCK



USED AS A MECHANICAL STOP TO LIMIT MOVEMENT

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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SPLIT – IMPERIAL

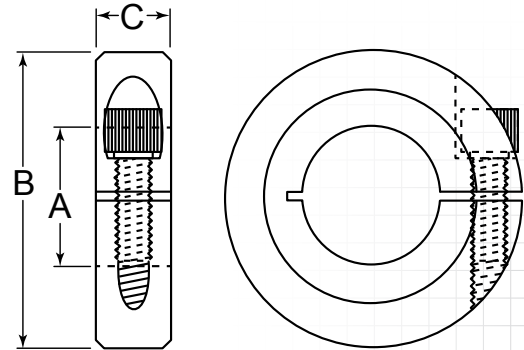
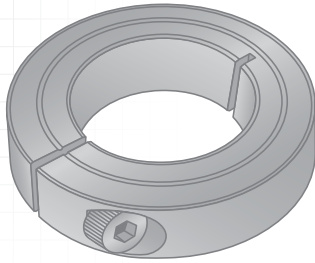
DESCRIPTION

Split collars provide greater clamping force than set collars by squeezing the shaft rather than penetrating it with a set screw. Double-split collars provide more clamping force than single-split collars and have the added feature of being able to be installed radially and clamp from both sides.

HOW TO IDENTIFY

1. Verify single- or double-split style.
2. Measure bore (A).
3. Build the part number from the chart on the next page.

SINGLE-SPLIT

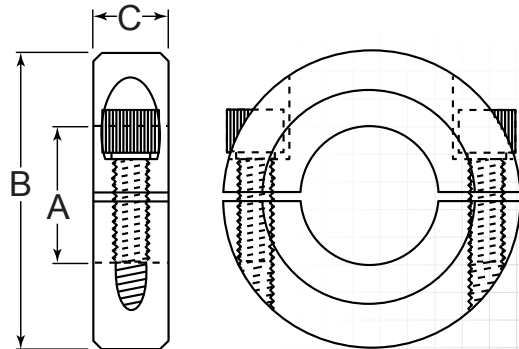
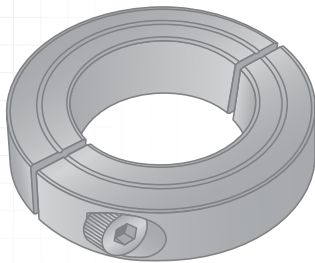


PREFIX MATERIAL/FINISH

- SC1-####-AL = ALUMINUM, PLAIN
SC1-####-BO = CARBON STEEL, BLACK OXIDE
SC1-####-NY = NYLON, PLAIN
SC1-####-SS = STAINLESS STEEL, PLAIN

ADDITIONAL SIZES AND FINISHES MAY BE AVAILABLE UPON REQUEST

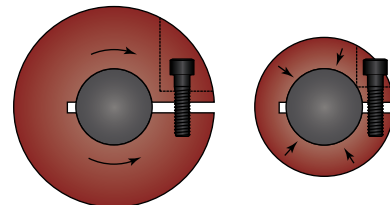
DOUBLE-SPLIT



PREFIX MATERIAL/FINISH

- SC2-####-AL = ALUMINUM, PLAIN
SC2-####-BO = CARBON STEEL, BLACK OXIDE
SC2-####-NY = NYLON, PLAIN
SC2-####-SS = STAINLESS STEEL, PLAIN

FACT AND FRICTION



A thicker collar is not necessarily a stronger collar. The same size cap screw in a thicker collar will expend more energy bending the collar before it actually applies clamping force.

BORE (A) TOLERANCES

(Size Range)	(Tolerance)
Single-split & Double-split	
.1250 – .1875"	+.0006/+.0030"
.2500 – 1.1250"	+.0008/+.0040"
1.1875 – 2.9375"	+.0008/+.0060"
3.0000 – 6.0000"	+.0008/+.0080"

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.
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SPLIT - IMPERIAL

ZINC PLATING AND
OTHER FINISHES
AVAILABLE FOR
ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

SC2-1937-AL

ITEM PREFIX

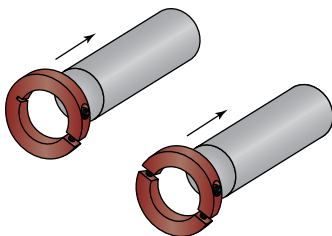
(A)
BORE

MATERIAL SUFFIX

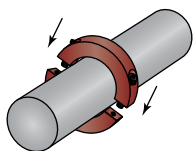
SC2-

TO ORDER CHOOSE
YOUR STYLE,

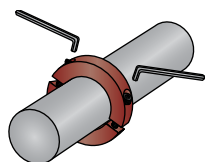
CODE	STYLE
SC1-	Single-split Collar
SC2-	Double-split Collar



SINGLE- AND DOUBLE-SPLIT
COLLARS ARE INSTALLED
AXIALLY



DOUBLE-SPLIT COLLARS
CAN ALSO BE INSTALLED
RADIALLY



WHEN POSITIONED,
TIGHTEN CAP SCREWS TO
LOCK IN PLACE

1/8" to 4-15/16"

1937

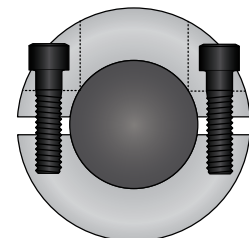
CHOOSE YOUR
BORE,

CODE	BORE	CODE	BORE
0125	.1250" (1/8)	2000	2.0000" (2)
0187	.1875" (3/16)	2062	2.0625" (2-1/16)
0250	.2500" (1/4)	2125	2.1250" (2-1/8)
0312	.3125" (5/16)	2187	2.1875" (2-3/16)
0375	.3750" (3/8)	2250	2.2500" (2-1/4)
0437	.4375" (7/16)	2312	2.3125" (2-5/16)
0500	.5000" (1/2)	2375	2.3750" (2-3/8)
0562	.5625" (9/16)	2437	2.4375" (2-7/16)
0625	.6250" (5/8)	2500	2.5000" (2-1/2)
0687	.6875" (11/16)	2562	2.5625" (2-9/16)
0750	.7500" (3/4)	2625	2.6250" (2-5/8)
0812	.8125" (13/16)	2687	2.6875" (2-11/16)
0875	.8750" (7/8)	2750	2.7500" (2-3/4)
0937	.9375" (15/16)	2812	2.8125" (2-13/16)
1000	1.0000" (1)	2875	2.8750" (2-7/8)
1062	1.0625" (1-1/16)	2937	2.9375" (2-15/16)
1125	1.1250" (1-1/8)	3000	3.0000" (3)
1187	1.1875" (1-3/16)	3187	3.1875" (3-3/16)
1250	1.2500" (1-1/4)	3250	3.2500" (3-1/4)
1312	1.3125" (1-5/16)	3437	3.4375" (3-7/16)
1375	1.3750" (1-3/8)	3500	3.5000" (3-1/2)
1437	1.4375" (1-7/16)	3562	3.5625" (3-9/16)
1500	1.5000" (1-1/2)	3687	3.6875" (3-11/16)
1562	1.5625" (1-9/16)	3750	3.7500" (3-3/4)
1625	1.6250" (1-5/8)	3812	3.8125" (3-13/16)
1687	1.6875" (1-11/16)	3875	3.8750" (3-7/8)
1750	1.7500" (1-3/4)	3937	3.9375" (3-15/16)
1812	1.8125" (1-13/16)	4000	4.0000" (4)
1875	1.8750" (1-7/8)	4437	4.4375" (4-7/16)
1937	1.9375" (1-15/16)	4937	4.9375" (4-15/16)

-AL

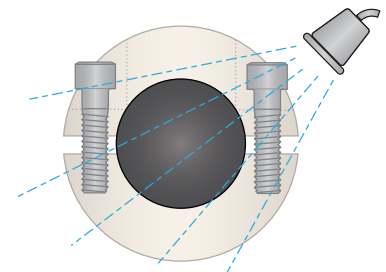
CHOOSE YOUR
MATERIAL.

CODE	MATERIAL/FINISH
-AL	Aluminum, Plain
-BO	Carbon Steel, Black Oxide
-NY	Nylon, Plain
-SS	Stainless Steel, Plain



TORQUE AND BALANCE

With a cap screw on each side, all of the torque from each screw is applied to the clamping force. Additionally, the two screws will balance each other in high rpm applications.



CLEAN UP

Nylon shaft collars with stainless steel cap screws tolerate frequent wash ups. They are perfect for food processing and pharmaceutical applications.

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SPLIT – METRIC

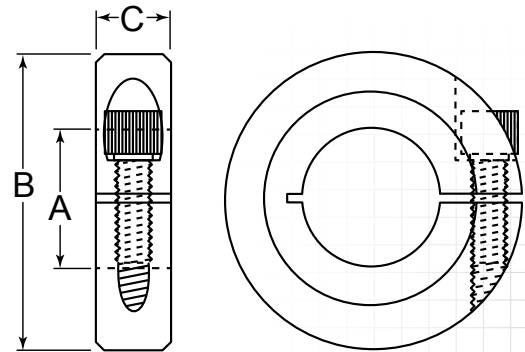
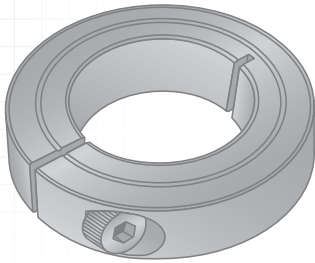
DESCRIPTION

Split collars provide greater clamping force than set collars by squeezing the shaft rather than penetrating it with a set screw. Double-split collars provide more clamping force than single-split collars and have the added feature of being able to be installed radially and clamp from both sides.

HOW TO IDENTIFY

1. Verify single- or double-split style.
2. Measure bore (A).
3. Build the part number from the chart on the next page.

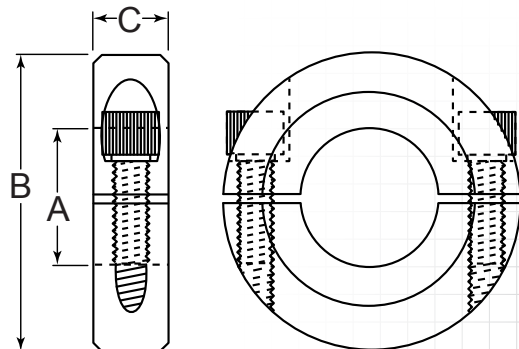
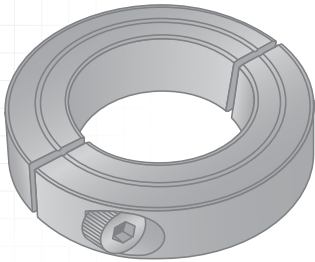
SINGLE-SPLIT



PREFIX MATERIAL/FINISH

- SCM1-### = CARBON STEEL, PLAIN*
 SCM1-###-AL = ALUMINUM, PLAIN
 SCM1-###-BO = CARBON STEEL, BLACK OXIDE
 SCM1-###-SS = STAINLESS STEEL, PLAIN

DOUBLE-SPLIT

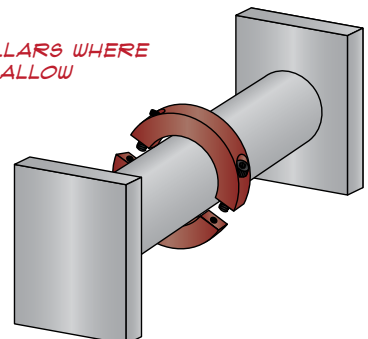


PREFIX MATERIAL/FINISH

- SCM2-### = CARBON STEEL, PLAIN*
 SCM2-###-AL = ALUMINUM, PLAIN
 SCM2-###-BO = CARBON STEEL, BLACK OXIDE
 SCM2-###-SS = STAINLESS STEEL, PLAIN
 SCM2-###-ZC = CARBON STEEL, ZINC CLEAR

APPLICATION

USE DOUBLE-SPLIT COLLARS WHERE COMPONENTS WILL NOT ALLOW AXIAL INSTALLATION



BORE (A) TOLERANCES

(Size Range)	(Tolerance)
Single-split & Double-split	
3 mm – 5 mm	+0.01/+0.080 mm
6 mm – 24 mm	+0.02/+0.012 mm
25 mm – 75 mm	+0.02/+0.150 mm
80 mm – 100 mm	+0.02/+0.200 mm

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SPLIT – METRIC

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

SCM2-Ø12-SS

LEAVE BLANK FOR CARBON STEEL, PLAIN*
OR SELECT MATERIAL AND FINISH FROM THE LIST BELOW

ITEM PREFIX

(A)
BORE

MATERIAL SUFFIX

SCM2-

TO ORDER CHOOSE YOUR STYLE,

CODE	STYLE
SCM1-	Single-split Collar, Metric
SCM2-	Double-split Collar, Metric

3 mm to 100 mm

Ø12

CHOOSE YOUR BORE,

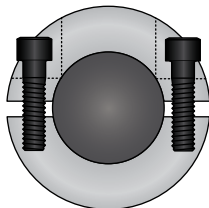
CODE	BORE	CODE	BORE
003	3.00 mm	028	28.00 mm
004	4.00 mm	030	30.00 mm
005	5.00 mm	032	32.00 mm
006	6.00 mm	034	34.00 mm
007	7.00 mm	035	35.00 mm
008	8.00 mm	036	36.00 mm
009	9.00 mm	038	38.00 mm
010	10.00 mm	040	40.00 mm
011	11.00 mm	042	42.00 mm
012	12.00 mm	045	45.00 mm
013	13.00 mm	048	48.00 mm
014	14.00 mm	050	50.00 mm
015	15.00 mm	054	54.00 mm
016	16.00 mm	055	55.00 mm
017	17.00 mm	060	60.00 mm
018	18.00 mm	065	65.00 mm
019	19.00 mm	070	70.00 mm
020	20.00 mm	075	75.00 mm
021	21.00 mm	080	80.00 mm
022	22.00 mm	085	85.00 mm
023	23.00 mm	090	90.00 mm
024	24.00 mm	095	95.00 mm
025	25.00 mm	100	100.00 mm
026	26.00 mm		

-SS

CHOOSE YOUR MATERIAL.

CODE	MATERIAL/FINISH
(blank)	Carbon Steel, Plain*
-AL	Aluminum, Plain
-BO	Carbon Steel, Black Oxide
-SS	Stainless Steel, Plain
-ZC	Carbon Steel, Zinc Clear

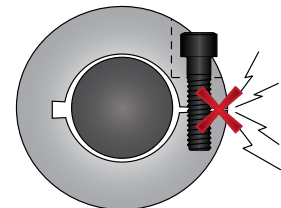
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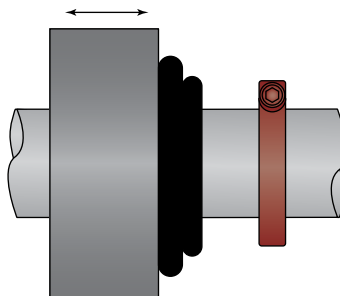
Single- and double-split shaft collars can be installed on shafts with diameters of 0.381 mm (.015") less than the nominal bore sizes listed here.

HOLDING POWER

The small slit, called a relief cut, opposite the cap screw reduces the amount of force required to bend the collar. This allows the cap screw to transfer more clamping force through the collar to the shaft.



When tightened, the edges of the split should not touch. If the split is completely closed the collar is too large and will not securely clamp on the shaft.



USED AS AN ADJUSTABLE STROKE LIMITER IN MECHANICAL APPLICATIONS

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THREADED

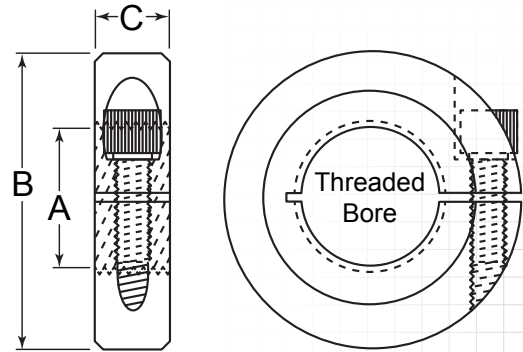
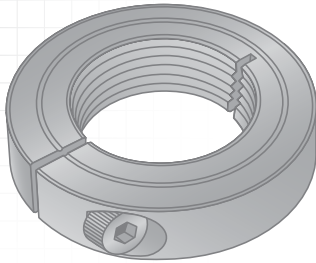
DESCRIPTION

Threaded bore shaft collars are useful in applications that require precise positioning or where high axial loads are encountered. The collar can be twisted on the shaft to an exact location and tightened without damaging shaft threads. The shaft threads also act as a positive mechanical stop preventing lateral movement.

HOW TO IDENTIFY

1. Verify threaded bore, thread style, and collar type.
2. Determine thread size (A).
3. Build the part number from the chart on the next page.

SINGLE-SPLIT



PREFIX MATERIAL/FINISH

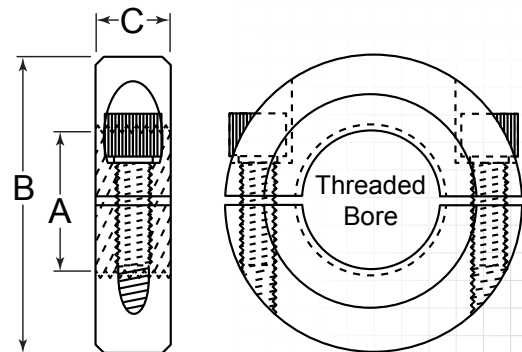
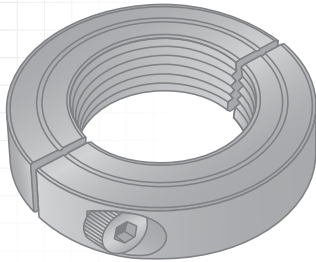
SINGLE-SPLIT, COARSE THREAD

- SCC1-####-BO = Carbon Steel, Black Oxide
- SCC1-####-SS = Stainless Steel, Plain

SINGLE-SPLIT, FINE THREAD

- SCF1-####-BO = Carbon Steel, Black Oxide
 - SCF1-####-SS = Stainless Steel, Plain
- Material/finish combinations may not be available in all sizes.

DOUBLE-SPLIT



PREFIX MATERIAL/FINISH

DOUBLE-SPLIT, COARSE THREAD

- SCC2-####-BO = Carbon Steel, Black Oxide
- SCC2-####-SS = Stainless Steel, Plain

DOUBLE-SPLIT, FINE THREAD

- SCF2-####-BO = Carbon Steel, Black Oxide
 - SCF2-####-SS = Stainless Steel, Plain
- Material/finish combinations may not be available in all sizes.



SHAFT COLLARS

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THREADED

ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

HOW TO BUILD A PART NUMBER

SCC2-1125-BO

ITEM PREFIX

SCC2-

TO ORDER CHOOSE YOUR STYLE,

CODE	STYLE
SCC1-	Single-split Collar, Coarse Thread
SCC2-	Double-split Collar, Coarse Thread

(A)
THREAD SIZE

1125

CHOOSE YOUR BORE,

CODE	THREAD SIZE	CODE	THREAD SIZE
0010	#10-24	0750	3/4"-10
0250	1/4"-20	0875	7/8"-9
0312	5/16"-18	1000	1"-8
0375	3/8"-16	1125	1-1/8"-7
0437	7/16"-14	1250	1-1/4"-7
0500	1/2"-13	1375	1-3/8"-6
0625	5/8"-11	1500	1-1/2"-6

MATERIAL SUFFIX

-BO

CHOOSE YOUR MATERIAL.

CODE	MATERIAL/FINISH
-BO	Carbon Steel, Black Oxide
-SS	Stainless Steel, Plain

SCF1-Ø312-SS

ITEM PREFIX

SCF1-

TO ORDER CHOOSE YOUR STYLE,

CODE	STYLE
SCF1-	Single-split Collar, Fine Thread
SCF2-	Double-split Collar, Fine Thread

(A)
THREAD SIZE

Ø312

CHOOSE YOUR BORE,

CODE	THREAD SIZE	CODE	THREAD SIZE
0008	#8-32	100014	1"-14
0010	#10-32	1125	1-1/8"-12
0250	1/4"-28	1250	1-1/4"-12
0312	5/16"-24	1375	1-3/8"-12
0375	3/8"-24	1500	1-1/4"-12
0437	7/16"-20	1750	1-3/4"-16
0500	1/2"-20	2000	2"-12
0625	5/8"-18	2250	2-1/4"-12
0750	3/4"-16		
0875	7/8"-14		
100012	1"-12		

MATERIAL SUFFIX

-SS

CHOOSE YOUR MATERIAL.

CODE	MATERIAL/FINISH
-BO	Carbon Steel, Black Oxide
-SS	Stainless Steel, Plain

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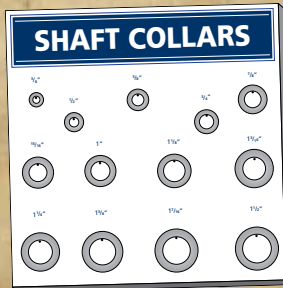
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ASSORTMENTS

HANDICHEK
A BIG NAME IN SMALL PARTS

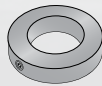
Choose one of our assortments or call to customize your own.

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 - Maintenance kits



Set Collar Imperial DISP-SCSS045

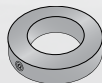
45 Pieces
Stainless Steel, Plain
Display board included.
Parts Only = DISP-SCSS045R



Parts Included	Bore	Size (OD x ID x T)	Quantity
SC-0375-SS	3/8"	3/4" x 3/8" x 3/8"	5
SC-0500-SS	1/2"	1" x 1/2" x 7/16"	4
SC-0625-SS	5/8"	1-1/8" x 5/8" x 1/2"	3
SC-0750-SS	3/4"	1-1/4" x 3/4" x 9/16"	3
SC-0875-SS	7/8"	1-1/2" x 7/8" x 9/16"	3
SC-0937-SS	15/16"	1-5/8" x 15/16" x 9/16"	3
SC-1000-SS	1"	1-5/8" x 1" x 5/8"	3
SC-1125-SS	1-1/8"	1-3/4" x 1-1/8" x 5/8"	3
SC-1187-SS	1-3/16"	2" x 1-3/16" x 11/16"	3
SC-1250-SS	1-1/4"	2" x 1-1/4" x 11/16"	3
SC-1375-SS	1-3/8"	2-1/8" x 1-3/8" x 3/4"	3
SC-1437-SS	1-7/16"	2-1/4" x 1-7/16" x 3/4"	3
SC-1500-SS	1-1/2"	2-1/4" x 1-1/2" x 3/4"	3

Set Collar Imperial DISP-SCZ045

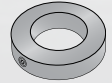
45 Pieces
Carbon Steel, Zinc Clear
Display board included.
Parts Only = DISP-SCZ045R



Parts Included	Bore	Size (OD x ID x T)	Quantity
SC-0375-ZC	3/8"	3/4" x 3/8" x 3/8"	5
SC-0500-ZC	1/2"	1" x 1/2" x 7/16"	4
SC-0625-ZC	5/8"	1-1/8" x 5/8" x 1/2"	3
SC-0750-ZC	3/4"	1-1/4" x 3/4" x 9/16"	3
SC-0875-ZC	7/8"	1-1/2" x 7/8" x 9/16"	3
SC-0937-ZC	15/16"	1-5/8" x 15/16" x 9/16"	3
SC-1000-ZC	1"	1-5/8" x 1" x 5/8"	3
SC-1125-ZC	1-1/8"	1-3/4" x 1-1/8" x 5/8"	3
SC-1187-ZC	1-3/16"	2" x 1-3/16" x 11/16"	3
SC-1250-ZC	1-1/4"	2" x 1-1/4" x 11/16"	3
SC-1375-ZC	1-3/8"	2-1/8" x 1-3/8" x 3/4"	3
SC-1437-ZC	1-7/16"	2-1/4" x 1-7/16" x 3/4"	3
SC-1500-ZC	1-1/2"	2-1/4" x 1-1/2" x 3/4"	3

Set Collar Metric DISP-SCM045

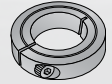
45 Pieces
Carbon Steel, Black Oxide
Display board included.
Parts Only = DISP-SCM045R



Parts Included	Bore	Size (OD x ID x T)	Quantity
SCM-012-BO	12 mm	22 mm x 12 mm x 12 mm	8
SCM-015-BO	15 mm	25 mm x 15 mm x 12 mm	8
SCM-020-BO	20 mm	32 mm x 20 mm x 14 mm	6
SCM-025-BO	25 mm	40 mm x 25 mm x 16 mm	6
SCM-030-BO	30 mm	45 mm x 30 mm x 16 mm	6
SCM-035-BO	35 mm	56 mm x 35 mm x 16 mm	6
SCM-040-BO	40 mm	63 mm x 40 mm x 18 mm	5

Single-split Imperial DISP-SC1-BO

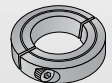
42 Pieces
Carbon Steel, Black Oxide
Display board included.
Parts Only = DISP-SC1-BOR



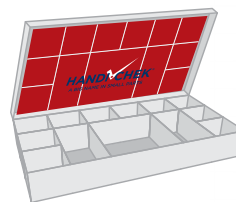
Parts Included	Bore	Size (OD x ID x T)	Quantity
SC1-0187-BO	3/16"	5/8" x 3/16" x 5/16"	6
SC1-0250-BO	1/4"	11/16" x 1/4" x 5/16"	6
SC1-0312-BO	5/16"	11/16" x 5/16" x 5/16"	6
SC1-0375-BO	3/8"	7/8" x 3/8" x 11/32"	6
SC1-0437-BO	7/16"	15/16" x 7/16" x 3/8"	5
SC1-0500-BO	1/2"	1-1/8" x 1/2" x 13/32"	5
SC1-0562-BO	9/16"	1-5/16" x 9/16" x 7/16"	5
SC1-0625-BO	5/8"	1-5/16" x 5/8" x 7/16"	4

Double-split Imperial DISP-SC2-BO

42 Pieces
Carbon Steel, Black Oxide
Display board included.
Parts Only = DISP-SC2-BOR



Parts Included	Bore	Size (OD x ID x T)	Quantity
SC2-0187-BO	3/16"	5/8" x 3/16" x 5/16"	6
SC2-0250-BO	1/4"	11/16" x 1/4" x 5/16"	6
SC2-0312-BO	5/16"	11/16" x 5/16" x 5/16"	6
SC2-0375-BO	3/8"	7/8" x 3/8" x 11/32"	6
SC2-0437-BO	7/16"	15/16" x 7/16" x 3/8"	5
SC2-0500-BO	1/2"	1-1/8" x 1/2" x 13/32"	5
SC2-0562-BO	9/16"	1-5/16" x 9/16" x 7/16"	5
SC2-0625-BO	5/8"	1-5/16" x 5/8" x 7/16"	4



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Rectangular; Crimped



Push-On Rings
Internal & External; Toothed,
Round, & Triangle; Grooveless



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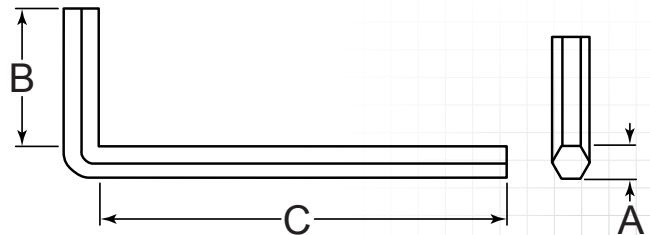
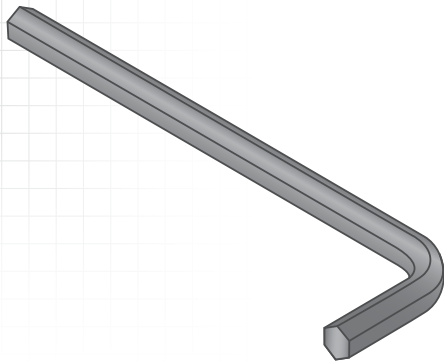
HEX KEY – IMPERIAL

DESCRIPTION

An L-shaped bar with a hexagonal profile. Either end can be used to tighten or loosen socket head cap screws or set screws with hexagonal sockets. Hex key sizes are measured across parallel flats. They are more commonly known as "Allen Wrenches," a proprietary name of Apex Tool Group, LLC.

HOW TO IDENTIFY

1. Verify L-shaped hexagonal key.
2. Measure hex size (A).
3. Find the part number in the chart below.



PREFIX MATERIAL/FINISH

- HK-01 = COLD FINISHED 8650 ALLOY STEEL, BLACK OXIDE, SHORT ARM
 - HK-02 = COLD FINISHED 8650 ALLOY STEEL, BLACK OXIDE, LONG ARM
 - HK-03 = COLD FINISHED 6150 ALLOY STEEL, BLACK OXIDE, SHORT ARM
 - HK-04 = COLD FINISHED 6150 ALLOY STEEL, BLACK OXIDE, LONG ARM
- Material/finish combinations may not be available in all sizes.

LONG ARM/SHORT ARM REFERS TO THE LENGTH OF THE SHANK (C)

HOW TO BUILD A PART NUMBER

HK-01-0500

ARM TYPE

HK-01-

TO ORDER CHOOSE YOUR ARM TYPE,

(A)
HEX SIZE

0500

CHOOSE YOUR HEX SIZE.

CODE	ARM TYPE
HK-01-	Short Arm (8650 Alloy)
HK-02-	Long Arm (8650 Alloy)
HK-03-	Short Arm (6150 Alloy)
HK-04-	Long Arm (6150 Alloy)

CODE	HEX SIZE	(C) SHANK LENGTH	
		HK-01, HK-03	HK-02, HK-04
0028	.028" (1-3/16)	1.188" (1-3/16)	-
0035	.035" (1-5/8)	1.188" (1-3/16)	-
0050	.050" (1-7/8)	1.625" (1-5/8)	2.875" (2-7/8)
0063	.063" (1/16)	1.750" (1-3/4)	3.000" (3)
0078	.078" (5/64)	1.875" (1-7/8)	3.125" (3-1/8)
0094	.094" (3/32)	2.000" (2)	3.375" (3-3/8)
0109	.109" (7/64)	2.125" (2-1/8)	3.500" (3-1/2)
0125	.125" (1/8)	2.313" (2-5/16)	3.750" (3-3/4)
0141	.141" (9/64)	2.313" (2-5/16)	3.875" (3-7/8)
0156	.156" (5/32)	2.500" (2-1/2)	4.125" (4-1/8)
0188	.188" (3/16)	2.750" (2-3/4)	4.500" (4-1/2)
0219	.219" (7/32)	3.000" (3)	4.875" (4-7/8)
0250	.250" (1/4)	3.250" (3-1/4)	5.250" (5-1/4)
0313	.313" (5/16)	3.750" (3-3/4)	6.000" (6)

CODE	HEX SIZE	(C) SHANK LENGTH	
		HK-01, HK-03	HK-02, HK-04
0375	.375" (3/8)	4.313" (4-5/16)	6.750" (6-3/4)
0438	.438" (7/16)	4.750" (4-3/4)	7.500" (7-1/2)
0500	.500" (1/2)	5.250" (5-1/4)	8.250" (8-1/4)
0563	.563" (9/16)	5.750" (5-3/4)	9.000" (9)
0625	.625" (5/8)	6.250" (6-1/4)	9.750" (9-3/4)
0750	.750" (3/4)	7.250" (7-1/4)	11.250" (11-1/4)
0875	.875" (7/8)	8.250" (8-1/4)	12.750" (12-3/4)
1000	1.000" (1)	9.250" (9-1/4)	14.250" (14-1/4)
1125	1.125" (1-1/8)	10.250" (10-1/4)	-
1250	1.250" (1-1/4)	11.250" (11-1/4)	-
1375	1.375" (1-3/8)	12.250" (12-1/4)	-
1500	1.500" (1-1/2)	13.250" (13-1/4)	-
1750	1.750" (1-3/4)	15.250" (15-1/4)	-

DIN 911

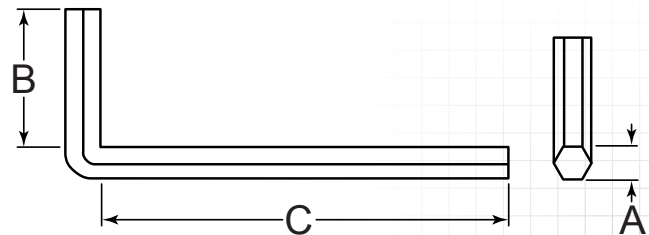
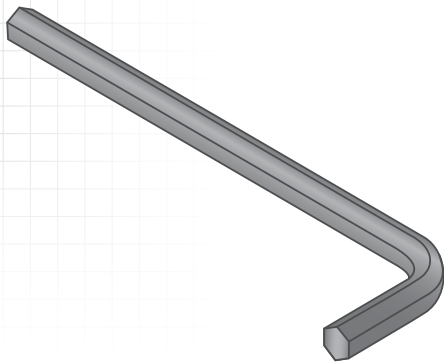
HEX KEY – METRIC

DESCRIPTION

An L-shaped bar with a hexagonal profile. Either end can be used to tighten or loosen socket head cap screws or set screws with hexagonal sockets. Hex key sizes are measured across parallel flats. They are more commonly known as "Allen Wrenches," a proprietary name of Apex Tool Group, LLC.

HOW TO IDENTIFY

1. Verify L-shaped hexagonal key.
2. Measure hex size (A).
3. Find the part number in the chart below.



PREFIX MATERIAL/FINISH

- HKM-01** = COLD FINISHED ALLOY STEEL, BLACK OXIDE, SHORT ARM
HKM-02 = COLD FINISHED ALLOY STEEL, BLACK OXIDE, LONG ARM

Material/finish combinations may not be available in all sizes.

LONG ARM/SHORT ARM REFERS TO THE LENGTH OF THE SHANK (C)

HOW TO BUILD A PART NUMBER

HKM-01-110

ARM TYPE

(A)
HEX SIZE

HKM-01-

TO ORDER CHOOSE YOUR ARM TYPE,

110

CHOOSE YOUR HEX SIZE.

CODE	ARM TYPE
HKM-01-	Short Arm
HKM-02-	Long Arm

CODE	HEX SIZE	(C) SHANK LENGTH	
		HKM-01	HK-02
007	0.70 mm	30.00 mm	-
009	0.90 mm	30.00 mm	-
013	1.30 mm	42.00 mm	-
015	1.50 mm	44.00 mm	77.00 mm
020	2.00 mm	49.00 mm	82.00 mm
025	2.50 mm	55.00 mm	88.00 mm
030	3.00 mm	62.00 mm	99.00 mm
040	4.00 mm	68.00 mm	104.00 mm
050	5.00 mm	78.00 mm	116.00 mm
060	6.00 mm	88.00 mm	138.00 mm
070	7.00 mm	93.00 mm	148.00 mm
080	8.00 mm	97.00 mm	157.00 mm
090	9.00 mm	103.00 mm	-
100	10.00 mm	109.00 mm	166.00 mm
110	11.00 mm	116.00 mm	-
120	12.00 mm	123.00 mm	210.00 mm
130	13.00 mm	128.00 mm	-

CODE	HEX SIZE	(C) SHANK LENGTH	
		HKM-01	HK-02
140	14.00 mm	136.00 mm	232.00 mm
150	15.00 mm	136.00 mm	-
160	16.00 mm	141.00 mm	-
170	17.00 mm	156.00 mm	246.00 mm
190	19.00 mm	175.00 mm	275.00 mm
200	20.00 mm	180.00 mm	-
210	21.00 mm	185.00 mm	-
220	22.00 mm	195.00 mm	-
240	24.00 mm	220.00 mm	-
270	27.00 mm	245.00 mm	-
300	30.00 mm	275.00 mm	-
320	32.00 mm	310.00 mm	-
360	36.00 mm	350.00 mm	-
410	41.00 mm	396.00 mm	-
460	46.00 mm	439.00 mm	-
500	50.00 mm	469.00 mm	-
550	55.00 mm	515.00 mm	-

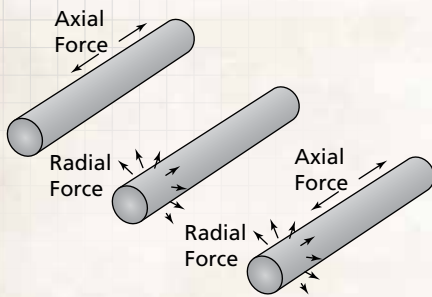
ZINC PLATING AND OTHER FINISHES AVAILABLE FOR ALL PARTS
SEE PAGE 16

BEARINGS FEATURES

Bearings are machine elements that support adjoining moving parts and allow them to move in a desired motion. This motion may be linear, rotational, or a combination of the two. Bearings facilitate the desired motion as much as possible by minimizing friction. They are categorized broadly according to the type of operation performed, the motions allowed, or the direction of the loads (force) applied to the parts.

DESIGN CONSIDERATIONS

LOAD TYPE

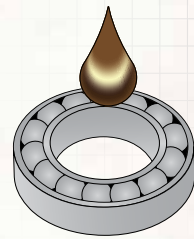


WILL THE LOAD BE AXIAL, RADIAL, OR BOTH?

LUBRICATION

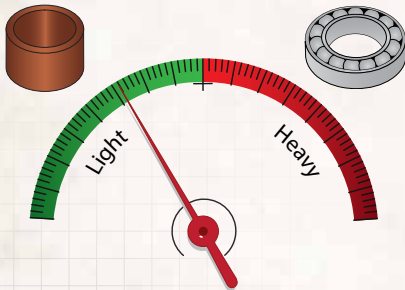


SINTERED BRONZE BEARINGS AND SEALED ROLLER BEARINGS DO NOT REQUIRE REGULAR GREASE OR OIL MAINTENANCE



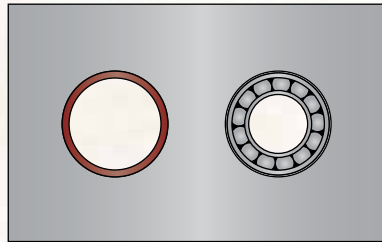
UNSEALED ROLLING BEARINGS MUST BE GREASED OR OILED ON A RECURRING BASIS

LOAD



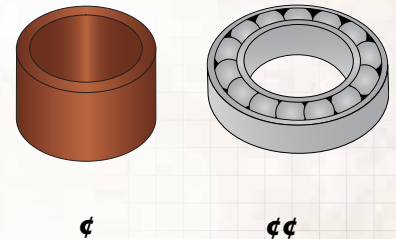
SINTERED BRONZE BEARINGS ARE IDEAL FOR LIGHT DUTY APPLICATIONS, ROLLER BEARINGS ARE BETTER SUITED FOR HEAVY DUTY APPLICATIONS

SPACE



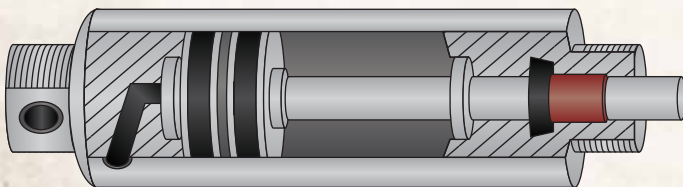
SINTERED BRONZE BEARINGS TAKE UP LESS SPACE THAN ROLLER BEARINGS WHEN INSTALLED

COST



SINTERED BRONZE BEARINGS ARE LESS EXPENSIVE THAN ROLLER BEARINGS

APPLICATION



SINTERED BRONZE BEARINGS ARE USED IN HYDRAULICS



HOW TO READ A PART NUMBER

Bearings come in standard inside diameter x outside diameter x length combinations. Find the part number in charts beginning on page 166.

FB-1220-08

ITEM PREFIX

SIZE CODE

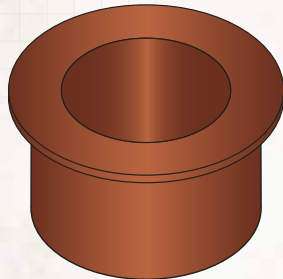
BEARING PREFIXES:

- FB • FLANGE BEARING
- SB • SLEEVE BEARING
- TB • THRUST BEARING

BEARINGS TYPES

FLANGE

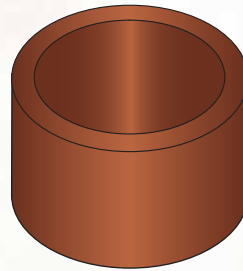
Flange bearings “support” a load. They allow the shaft to slide freely within the bearing. They are used in lower speed applications with lighter loads.



PAGE 166

SLEEVE

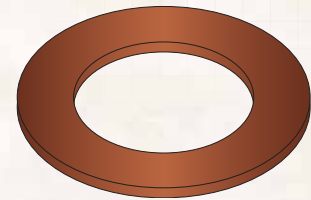
Sleeve bearings typically handle radial loads. The sleeve allows the shaft to spin freely in the bearing.



PAGE 170

THRUST

Thrust bearings are long-wearing, washer-shaped bearings that allow axial loads and protect rotating mechanisms along a shaft.



PAGE 172

QUICK REFERENCE GUIDE

	COMMON NAMES	APPLICABLE STANDARDS	FABRICATION	HOW TO IDENTIFY	COMMON USES	COMMENTS
FLANGE	Bushing; Flange; Oilube®; Oilite®	SAE 841, vacuum impregnated with SAE 30 for sintered bronze. SAE 660 for cast bronze.	Formed, sintered, sized, and vacuum impregnated with oil. Cast bronze are formed in a mold.	Inside diameter x length x flange size x thickness of flange.	Used in agriculture, aircraft, automotive, appliances, machine tools, and hydraulics.	Can seize up if allowed to dry out. Re-oiling will prevent this.
SLEEVE	Plain Bearing; Journal Bearing; Mechanical Bushing; Oilube; Oilite	SAE 841, vacuum impregnated with SAE 30 for sintered bronze. SAE 660 for cast bronze.	Formed, sintered, sized, and vacuum impregnated with oil. Cast bronze are formed in a mold.	Inside diameter x outside diameter x length.	Used in agriculture, aircraft, automotive, appliances, machine tools, and hydraulics.	Can seize up if allowed to dry out. Re-oiling will prevent this.
THRUST	Thrust Washer; Bearing Thrust Washer; Oilube; Oilite	SAE 841, vacuum impregnated with SAE 30 for sintered bronze. SAE 660 for cast bronze.	Formed, sintered, sized, and vacuum impregnated with oil. Cast bronze are formed in a mold.	Inside diameter x outside diameter x thickness.	Used in appliances, machines, automobiles, power tools, and recreational vehicles.	Can seize up if allowed to dry out. Re-oiling will prevent this.

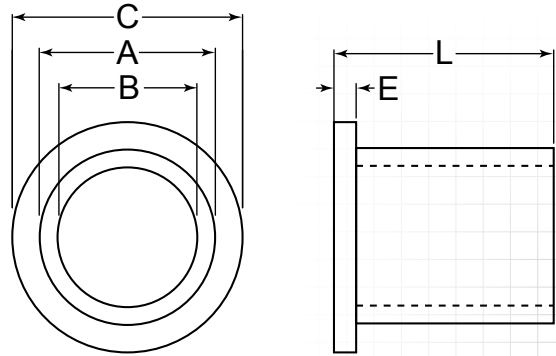
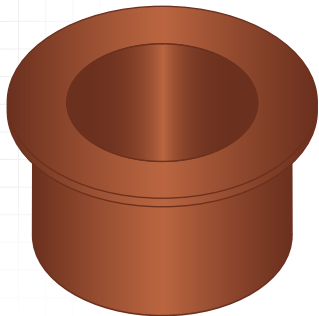
FLANGE

DESCRIPTION

Flange bearings incorporate the designs of a sleeve bearing and a thrust bearing into one piece, eliminating the need to stock multiple parts. This bearing is able to withstand both radial and axial loads.

HOW TO IDENTIFY

1. Verify sleeve cylinder with flange at one end.
2. Measure inside diameter (B).
3. Measure outside diameter (A).
4. Measure length (L).
5. Find the part number in the chart below.



PREFIX MATERIAL/FINISH

FB = SAE 841 SINTERED BRONZE, PLAIN, OIL IMPREGNATED

FBS = SAE 841 SINTERED BRONZE, PLAIN, OIL IMPREGNATED, SPECIAL DIMENSION

FLANGE BEARING TOLERANCES

MATERIAL	DIAMETERS (A&B)		LENGTH (L)		FLANGE DIA. (C)		FLANGE THICK. (E)	
(Prefix) (Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
FB or FBS Sintered Bronze, Plain, Oil Impregnated	0 – 1.5000"	+0/-.0010"	0 – 1.5000"	±.0050"	0 – 1.5000"	±.0050"	0 – 1.5000"	±.0050"
	>1.5000 – 2.5000"	+0/-.0015"	>1.5000 – 3.0000"	±.0075"	>1.5000 – 3.0000"	±.0100"	>1.5000 – 3.0000"	±.0100"
	>2.5000 – 3.0000"	+0/-.0020"	>3.0000 – 5.0000"	±.0100"	>3.0000 – 6.0000"	±.0250"	>3.0000 – 6.0000"	±.0150"
	>3.0000 – 4.0000"	+0/-.0030"						
	>4.0000 – 5.0000"	+0/-.0040"						
	>5.0000 – 6.0000"	+0/-.0050"						

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
-------------	---------------------	----------------------	------------	---------------	----------------------

1/8" x 1/4"

Nominal

FB-0408-04	.1260"	.2520"	.2500"	.3125"	.0625"
FB-0408-06	.1260"	.2520"	.3750"	.3125"	.0625"

1/8" x 5/16"

Nominal

FB-0410-04	.1270"	.3150"	.2500"	.3750"	.0469"
FB-0410-06	.1270"	.3150"	.3750"	.3750"	.0469"

3/16" x 5/16"

Nominal

FB-0610-04	.1870"	.3130"	.2500"	.3750"	.0625"
FB-0610-02	.1890"	.3145"	.1250"	.3750"	.0469"
FBS-0035-02	.1890"	.3145"	.2500"	.3750"	.0469"
FBS-0035-03	.1890"	.3145"	.3750"	.3750"	.0469"
FB-0610-03	.1895"	.3140"	.1875"	.4375"	.0625"
FB-0610-05	.1895"	.3140"	.3125"	.4375"	.0625"
FB-0610-06	.1895"	.3140"	.3750"	.4375"	.0625"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
-------------	---------------------	----------------------	------------	---------------	----------------------

FB-0610-08	.1895"	.3140"	.5000"	.4375"	.0625"
------------	--------	--------	--------	--------	--------

3/16" x 3/8"

Nominal

FB-0612-06	.1895"	.3765"	.3750"	.4375"	.0625"
FB-0612-08	.1895"	.3765"	.5000"	.4375"	.0625"

1/4" x 3/8"

Nominal

FB-0812-03	.2500"	.3810"	.1875"	.5000"	.0625"
FB-0812-04	.2500"	.3810"	.2500"	.5000"	.0625"
FB-0812-05	.2500"	.3810"	.3125"	.5000"	.0625"
FB-0812-06	.2500"	.3810"	.3750"	.5000"	.0625"
FB-0812-07	.2500"	.3810"	.4375"	.5000"	.0625"
FB-0812-08	.2500"	.3810"	.5000"	.5000"	.0625"
FB-0812-09	.2500"	.3810"	.5625"	.5000"	.0625"
FB-0812-11	.2500"	.3810"	.6875"	.5000"	.0625"
FBS-0046-02	.2520"	.3770"	.2500"	.5000"	.0469"
FB-0812-04-04	.2520"	.3780"	.2500"	.5000"	.0625"
FBS-0046-03	.2520"	.3770"	.3750"	.5000"	.0469"



FLANGE

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
FBS-0046-04	.2520"	.3770"	.5000"	.5000"	.0469"
FBS-0046-05	.2520"	.3770"	.6250"	.5000"	.0469"
FB-0812-10	.2520"	.3780"	.6250"	.5000"	.0625"
FBS-0046-06	.2520"	.3770"	.7500"	.5000"	.0469"
FB-0812-12	.2520"	.3780"	.7500"	.5000"	.0625"

1/4" x 7/16" Nominal

FB-0814-08	.2510"	.4395"	.5000"	.5000"	.0625"
------------	--------	--------	--------	--------	--------

1/4" x 1/2" Nominal

FB-0816-10	.2520"	.5030"	.6250"	.6250"	.0625"
FB-0816-12	.2520"	.5030"	.7500"	.6250"	.0625"

5/16" x 3/8" Nominal

FB-1012-06	.3140"	.3770"	.3750"	.5000"	.0469"
------------	--------	--------	--------	--------	--------

5/16" x 7/16" Nominal

FB-1014-06	.3125"	.4400"	.3750"	.5625"	.0625"
FB-1014-08	.3125"	.4400"	.5000"	.5625"	.0625"
FB-1014-14	.3125"	.4400"	.8750"	.5625"	.0625"
FBS-0057-03	.3140"	.4390"	.3750"	.6250"	.0938"
FBS-0057-06	.3140"	.4390"	.7500"	.6250"	.0938"
FB-1014-12	.3145"	.4405"	.7500"	.5625"	.0625"

5/16" x 1/2" Nominal

FB-1016-06	.3140"	.5020"	.3750"	.6875"	.0938"
FB-1016-08	.3140"	.5020"	.5000"	.6875"	.0938"
FB-1016-10	.3140"	.5020"	.6250"	.6875"	.0938"

3/8" x 1/2" Nominal

FB-1216-04	.3765"	.5020"	.2500"	.6250"	.0625"
FB-1216-05	.3765"	.5020"	.3125"	.6250"	.0625"
FB-1216-06	.3765"	.5020"	.3750"	.6250"	.0625"
FB-1216-08	.3765"	.5020"	.5000"	.6250"	.0625"
FB-1216-10	.3765"	.5030"	.6250"	.6250"	.0938"
FBS-0068-03	.3770"	.5020"	.3750"	.6875"	.0938"
FB-1216-06-3	.3770"	.5030"	.3750"	.6875"	.0625"
FB-1216-6.5	.3770"	.5020"	.4063"	.6875"	.0938"
FBS-0068-04	.3770"	.5020"	.5000"	.6875"	.0938"
FBS-0068-05	.3770"	.5020"	.6250"	.6875"	.0938"
FBS-0068-06	.3770"	.5020"	.7500"	.6875"	.0938"
FB-1216-12	.3770"	.5030"	.7500"	.6875"	.0625"
FBS-0068-08	.3770"	.5020"	1.0000"	.6875"	.0938"
FB-1216-16	.3770"	.5030"	1.0000"	.6875"	.0625"
FB-1216-20	.3770"	.5020"	1.2500"	.6875"	.0938"



SAE 660 CAST BRONZE
AVAILABLE UPON REQUEST

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
-------------	---------------------	----------------------	------------	---------------	----------------------

3/8" x 9/16" Nominal

FB-1218-11	.3760"	.5640"	.6875"	.7500"	.0625"
FB-1218-13	.3760"	.5640"	.8125"	.7400"	.0625"
FB-1218-08	.3770"	.5655"	.5000"	.6875"	.0625"
FBS-0069-06	.3770"	.5645"	.7500"	.7500"	.1250"
FB-1218-12	.3770"	.5655"	.7500"	.6875"	.0625"
FB-1218-20	.3770"	.5645"	1.2500"	.7500"	.1250"

3/8" x 5/8" Nominal

FBS-0610-04	.3750"	.6250"	.5000"	.8750"	.1250"
FBS-0610-06	.3750"	.6250"	.7500"	.8750"	.1250"
FBS-0610-08	.3750"	.6250"	1.0000"	.8750"	.1250"
FBS-0610-10	.3750"	.6250"	1.2500"	.8750"	.1250"
FB-1220-08	.3760"	.6270"	.5000"	.8750"	.0625"
FB-1220-12	.3760"	.6270"	.7500"	.8750"	.0625"
FB-1220-20	.3760"	.6270"	1.2500"	.8750"	.0625"
FB-1220-16	.3770"	.6270"	1.0000"	.8750"	.0625"

3/8" x 3/4" Nominal

FB-1224-08	.3770"	.7530"	.5000"	1.0000"	.1250"
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7/16" x 9/16" Nominal

FB-1418-08	.4390"	.5650"	.5000"	.6875"	.0625"
FB-1418-10	.4390"	.5650"	.6250"	.6875"	.0625"
FB-1418-12	.4390"	.5650"	.7500"	.6875"	.0625"

7/16" x 5/8" Nominal

FB-1420-12	.4385"	.6270"	.7500"	.8750"	.1250"
FB-1420-20	.4385"	.6270"	1.2500"	.8750"	.1250"
FB-1420-10	.4390"	.6280"	.6250"	.8750"	.1250"
FBS-0710-10	.4390"	.6280"	1.2500"	.8750"	.1250"

1/2" x 5/8" Nominal

FBS-0810-03	.5000"	.6250"	.3750"	.8750"	.1250"
FB-1620-05	.5020"	.6270"	.3125"	.7500"	.0938"
FB-1620-06	.5020"	.6280"	.3750"	.8750"	.1250"
FB-1620-08	.5020"	.6280"	.5000"	.8750"	.1250"
FB-1620-09	.5020"	.6270"	.5625"	.8750"	.0625"
FB-1620-10	.5020"	.6280"	.6250"	.8750"	.1250"
FB-1620-11	.5020"	.6270"	.6875"	.8750"	.0625"
FB-1620-12	.5020"	.6280"	.7500"	.8750"	.1250"
FB-1620-15	.5020"	.6270"	.9375"	.8750"	.0625"
FB-1620-16	.5020"	.6280"	1.0000"	.8750"	.1250"
FB-1620-18	.5020"	.6270"	1.1250"	.8750"	.0625"
FB-1620-20	.5020"	.6280"	1.2500"	.8750"	.1250"
FB-1620-24	.5020"	.6280"	1.5000"	.8750"	.1250"
FBS-0810-14	.5020"	.6280"	1.7500"	.8750"	.1250"
FB-1620-28	.5020"	.6270"	1.7500"	.9688"	.0938"

BEARINGS

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FLANGE

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
1/2" x 11/16" Nominal					
FB-1622-05	.5020"	.6910"	.3125"	.8125"	.0625"
FB-1622-08	.5020"	.6910"	.5000"	.8125"	.0625"
FBS-0811-04	.5020"	.6900"	.5000"	.9375"	.1250"
FB-1622-12	.5020"	.6910"	.7500"	.8125"	.0625"
FBS-0811-06	.5020"	.6900"	.7500"	.9375"	.1250"
FB-1622-13	.5020"	.6910"	.8125"	.8125"	.0625"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
1/2" x 3/4" Nominal					
FBS-0812-04	.5000"	.7500"	.5000"	1.0000"	.1250"
FBS-0812-05	.5000"	.7500"	.6250"	1.0000"	.1250"
FBS-0812-06	.5000"	.7500"	.7500"	1.0000"	.1250"
FBS-0812-07	.5000"	.7500"	.8750"	1.0000"	.1250"
FBS-0812-08	.5000"	.7500"	1.0000"	1.0000"	.1250"
FBS-0812-10	.5000"	.7500"	1.2500"	1.0000"	.1250"
FBS-0812-12	.5000"	.7500"	1.5000"	1.0000"	.1250"
FB-1624-08	.5020"	.7530"	.5000"	1.0000"	.1250"
FB-1624-10	.5020"	.7530"	.6250"	1.0000"	.1250"
FB-1624-12	.5020"	.7530"	.7500"	1.0000"	.1250"
FB-1624-14	.5020"	.7530"	.8750"	1.0000"	.1250"
FB-1624-16	.5020"	.7530"	1.0000"	1.0000"	.1250"
FB-1624-20	.5020"	.7530"	1.2500"	1.0000"	.1250"
FB-1624-24	.5020"	.7530"	1.5000"	1.0000"	.1250"
FB-1624-06	.5050"	.7530"	.3750"	1.0000"	.1250"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
9/16" x 3/4" Nominal					
FBS-0912-08	.5650"	.7530"	1.0000"	1.0000"	.1250"
FB-1824-16	.5650"	.7530"	1.0000"	1.0000"	.1250"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
5/8" x 3/4" Nominal					
FBS-1012-06	.6250"	.7500"	.7500"	1.0000"	.1250"
FBS-1012-04	.6260"	.7530"	.5000"	1.0000"	.1250"
FBS-1012-05	.6260"	.7530"	.6250"	1.0000"	.1250"
FBS-1012-08	.6260"	.7530"	1.0000"	1.0000"	.1250"
FBS-1012-10	.6260"	.7530"	1.2500"	1.0000"	.1250"
FB-2024-08	.6260"	.7530"	.5000"	1.0000"	.1250"
FB-2024-10	.6260"	.7530"	.6250"	1.0000"	.1250"
FB-2024-12	.6260"	.7530"	.7500"	1.0000"	.1250"
FB-2024-16	.6260"	.7530"	1.0000"	1.0000"	.1250"
FB-2024-18	.6270"	.7530"	1.1250"	1.0000"	.1250"
FB-2024-20	.6260"	.7530"	1.2500"	1.0000"	.1250"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
5/8" x 13/16" Nominal					
FB-2026-08	.6260"	.8150"	.5000"	1.0000"	.1250"
FBS-1013-06	.6270"	.8150"	.7500"	1.0625"	.1563"
FB-2026-12	.6270"	.8165"	.7500"	1.0000"	.1250"
FBS-1013-08	.6270"	.8150"	1.0000"	1.0625"	.1563"
FB-2026-16	.6270"	.8165"	1.0000"	1.0000"	.1250"
FBS-1013-10	.6270"	.8150"	1.2500"	1.0625"	.1563"
FB-2026-20	.6270"	.8165"	1.2500"	1.0000"	.1250"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
FBS-1013-11	.6270"	.8150"	1.4375"	1.0625"	.1563"
FBS-1013-12	.6270"	.8150"	1.5000"	1.0625"	.1563"
FB-2026-24	.6270"	.8165"	1.5000"	1.0000"	.1250"
FBS-1013-16	.6270"	.8150"	2.0000"	1.0625"	.1563"
FB-2026-23	.6280"	.8160"	1.4375"	1.2500"	.1250"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
5/8" x 7/8" Nominal					
FB-2028-08	.6270"	.8790"	.5000"	1.1250"	.1250"
FBS-1014-05	.6270"	.8780"	.6250"	1.1250"	.1563"
FB-2028-10	.6270"	.8770"	.6250"	1.0000"	.1250"
FBS-1014-06	.6270"	.8780"	.7500"	1.0000"	.1250"
FB-2028-12	.6270"	.8790"	.7500"	1.1250"	.1250"
FBS-1014-08	.6270"	.8780"	1.0000"	1.0000"	.1250"
FB-2028-16	.6270"	.8790"	1.0000"	1.1250"	.1250"
FB-2028-20	.6270"	.8790"	1.2500"	1.1250"	.1250"
FBS-1014-14	.6270"	.8780"	1.7500"	1.0000"	.1250"
FB-2028-28	.6270"	.8780"	1.7500"	1.1250"	.1563"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
5/8" x 1" Nominal					
FBS-1016-06	.6250"	1.0000"	.7500"	1.2500"	.1563"
FBS-1016-08	.6250"	1.0000"	1.0000"	1.2500"	.1563"
FB-2032-16	.6270"	1.0030"	1.0000"	1.2500"	.1562"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
3/4" x 7/8" Nominal					
FB-2428-08	.7520"	.8790"	.5000"	1.1250"	.1250"
FBS-1214-06	.7520"	.8780"	.7500"	1.1250"	.1563"
FB-2428-12	.7520"	.8790"	.7500"	1.1250"	.1250"
FB-2428-16	.7520"	.8780"	1.0000"	1.1250"	.1563"
FBS-1214-10	.7520"	.8780"	1.2500"	1.1250"	.1563"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
3/4" x 15/16" Nominal					
FBS-1215-08	.7520"	.9400"	1.0000"	1.1875"	.1563"
FB-2430-20	.7520"	.9400"	1.2500"	1.1875"	.1563"
FB-2430-24	.7520"	.9400"	1.5000"	1.1875"	.1563"
FB-2430-09	.7530"	.9380"	.5625"	1.3125"	.1250"
FB-2430-12	.7530"	.9380"	.7500"	1.3125"	.1250"
FB-2430-16	.7530"	.9400"	1.0000"	1.2500"	.1250"
FB-2430-18	.7530"	.9405"	1.1250"	1.1750"	.1250"
FB-2430-25	.7530"	.9380"	1.5625"	1.3125"	.1250"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
3/4" x 1" Nominal					
FBS-1216-05	.7500"	1.0000"	.6250"	1.2500"	.1563"
FBS-1216-06	.7500"	1.0000"	.7500"	1.2500"	.1563"
FBS-1216-08	.7500"	1.0000"	1.0000"	1.2500"	.1563"
FBS-1216-10	.7500"	1.0000"	1.2500"	1.2500"	.1563"
FBS-1216-12	.7500"	1.0000"	1.5000"	1.2500"	.1563"
FBS-1216-16	.7500"	1.0000"	2.0000"	1.2500"	.1563"
FBS-1216-082110	.7505"	1.0020"	1.0000"	1.4375"	.1250"
FB-2432-10	.7520"	1.0040"	.6250"	1.2500"	.1875"
FB-2432-12	.7520"	1.0040"	.7500"	1.2500"	.1875"
FB-2432-16	.7520"	1.0040"	1.0000"	1.2500"	.1875"

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.
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FLANGE

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
FB-2432-18	.7520"	1.0040"	1.1250"	1.2500"	.1875"
FB-2432-20	.7520"	1.0040"	1.2500"	1.2500"	.1875"
FB-2432-24	.7520"	1.0040"	1.5000"	1.2500"	.1875"
FB-2432-32	.7520"	1.0030"	2.0000"	1.2500"	.1563"
FB-2432-08	.7530"	1.0030"	.5000"	1.1250"	.1250"

3/4" x 1-1/16"

Nominal

FB-2434-19	.7520"	1.0655"	1.1875"	1.1875"	.1250"
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7/8" x 1"

Nominal

FB-2832-10	.8765"	1.0030"	.6250"	1.2500"	.1250"
FB-2832-08	.8770"	1.0040"	.5000"	1.2500"	.1875"
FB-1416-06	.8770"	1.0030"	.7500"	1.2500"	.1563"
FB-2832-12	.8770"	1.0040"	.7500"	1.2500"	.1875"
FB-2832-16	.8770"	1.0040"	1.0000"	1.2500"	.1875"
FB-2832-20	.8770"	1.0030"	1.2500"	1.2500"	.1563"

7/8" x 1-1/8"

Nominal

FBS-1418-08	.8750"	1.1250"	1.0000"	1.3750"	.1563"
FBS-1418-12	.8750"	1.1250"	1.5000"	1.3750"	.1563"
FB-2836-10	.8770"	1.1280"	.6250"	1.5000"	.1250"
FB-2836-16	.8770"	1.1280"	1.0000"	1.5000"	.1250"
FB-2836-20	.8770"	1.1280"	1.2500"	1.5000"	.1250"
FB-2836-24	.8770"	1.1280"	1.5000"	1.3750"	.1563"
FB-2836-28	.8770"	1.1280"	1.7500"	1.5000"	.1250"
FB-2836-12	.8780"	1.1280"	.7500"	1.5000"	.1250"

1" x 1-1/4"

Nominal

FBS-1620-06	1.0000"	1.2500"	.7500"	1.5000"	.1875"
FBS-1620-08	1.0000"	1.2500"	1.0000"	1.5000"	.1875"
FBS-1620-10	1.0000"	1.2500"	1.2500"	1.5000"	.1875"
FBS-1620-12	1.0000"	1.2500"	1.5000"	1.5000"	.1875"
FBS-1620-16	1.0000"	1.2500"	2.0000"	1.5000"	.1875"
FB-3240-28	1.0020"	1.2520"	1.7500"	1.6250"	.1250"
FB-3240-32	1.0020"	1.2530"	2.0000"	1.5000"	.1875"
FB-3240-12	1.0030"	1.2540"	.7500"	1.5000"	.1250"
FB-3240-16	1.0030"	1.2540"	1.0000"	1.5000"	.1250"
FB-3240-20	1.0030"	1.2540"	1.2500"	1.5000"	.1250"
FB-3240-24	1.0030"	1.2540"	1.5000"	1.5000"	.1250"

1" x 1-5/16"

Nominal

FB-3242-20	1.0010"	1.3160"	1.2500"	1.7500"	.2188"
FB-3242-24	1.0015"	1.3155"	1.5000"	1.8750"	.1250"

1" x 1-3/8"

Nominal

FBS-1622-08	1.0000"	1.3750"	1.0000"	1.6250"	.1875"
FBS-1622-14	1.0000"	1.3750"	1.7500"	1.6250"	.1875"
FB-3244-16	1.0020"	1.3780"	1.0000"	1.6250"	.1875"
FB-3244-24	1.0020"	1.3780"	1.5000"	1.6250"	.1875"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH	(C) FLANGE OD	(E) FLANGE THICKNESS
FB-3244-28	1.0020"	1.3780"	1.7500"	1.6250"	.1875"
FB-3244-12	1.0030"	1.3790"	.7500"	1.6250"	.1875"
FB-3244-32	1.0030"	1.3780"	2.0000"	1.6250"	.1875"

1-1/8" x 1-3/8"

Nominal

FB-3644-12	1.1270"	1.3770"	.7500"	1.7500"	.1250"
FB-3644-16	1.1270"	1.3770"	1.0000"	1.7500"	.1250"
FB-3644-20	1.1270"	1.3770"	1.2500"	1.7500"	.1250"

1-1/4" x 1-1/2"

Nominal

FBS-2024-08	1.2500"	1.5000"	1.0000"	1.7500"	.1875"
FBS-2024-10	1.2500"	1.5000"	1.2500"	1.7500"	.1875"
FBS-2024-12	1.2500"	1.5000"	1.5000"	1.7500"	.1875"
FB-4048-08	1.2515"	1.5030"	.5000"	1.6875"	.1250"
FB-4048-16	1.2520"	1.5030"	1.0000"	1.7500"	.1875"
FB-4048-20	1.2520"	1.5030"	1.2500"	1.7500"	.1875"
FB-4048-24	1.2520"	1.5030"	1.5000"	1.7500"	.1875"
FB-4048-28	1.2520"	1.5030"	1.7500"	2.0000"	.0938"

1-3/8" x 1-5/8"

Nominal

FB-4452-12	1.3770"	1.6280"	.7500"	2.0000"	.1250"
FB-4452-16	1.3770"	1.6280"	1.0000"	2.0000"	.1250"

1-1/2" x 1-3/4"

Nominal

FBS-2428-12	1.5000"	1.7500"	1.5000"	2.0625"	.1875"
FB-4856-24	1.5040"	1.7550"	1.5000"	2.0000"	.1875"

1-5/8" x 2"

Nominal

FB-5264-32	1.6265"	2.0040"	2.0000"	2.2500"	.1875"
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1-3/4" x 2-1/4"

Nominal

FB-5672-40	1.7530"	2.2540"	2.5000"	3.0000"	.2500"
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2" x 2-1/4"

Nominal

FB-6472-12	2.0030"	2.2540"	.7500"	2.5000"	.1250"
FB-6472-16	2.0030"	2.2540"	1.0000"	2.5000"	.1250"
FB-6472-20	2.0030"	2.2540"	1.2500"	2.5000"	.1250"
FB-6472-32	2.0030"	2.2540"	2.0000"	2.5000"	.1250"

2" x 2-1/2"

Nominal

FB-6480-38	2.0020"	2.5010"	2.3750"	3.0000"	.3750"
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2-3/4" x 3-1/4"

Nominal

FB-88104-24	2.7520"	3.2550"	1.5000"	4.0000"	.1875"
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3" x 3-1/2"

Nominal

FB-96112-38	3.0020"	3.5020"	2.3750"	4.0000"	.3750"
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BEARINGS

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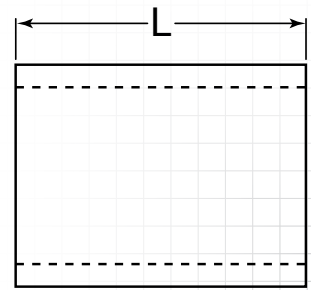
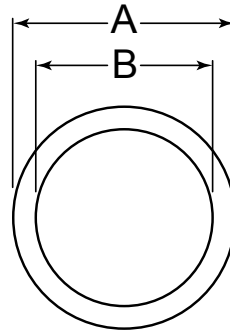
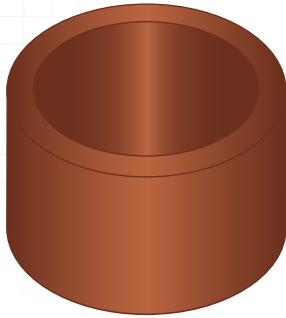
SLEEVE

DESCRIPTION

A tubular lining used to reduce friction and wear between parts, or constrain parts in motion. Generally used in light to medium duty applications not requiring a rolling bearing.

HOW TO IDENTIFY

1. Verify sleeve cylinder design.
2. Measure inside diameter (B).
3. Measure outside diameter (A).
4. Measure length (L).
5. Find the part number in the chart below.



PREFIX MATERIAL/FINISH

SB = SAE 841 SINTERED BRONZE, PLAIN, OIL IMPREGNATED

ADDITIONAL SIZES AND FINISHES MAY BE AVAILABLE UPON REQUEST

SLEEVE BEARING TOLERANCES

MATERIAL		INSIDE DIAMETER (B)		LENGTH (L)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
SB	Sintered Bronze, Plain, Oil Impregnated	0 - 1.5000"	+0/-0.0010"	0 - 1.5000"	±0.0050"
		>1.5000 - 2.5000"	+0/-0.0015"	>1.5000 - 3.0000"	±0.0075"
		>2.5000 - 3.0000"	+0/-0.0020"	>3.0000 - 4.0000"	±0.0100"
		>3.0000 - 4.0000"	+0/-0.0030"		
		>4.0000 - 5.0000"	+0/-0.0040"		
		>5.0000 - 6.0000"	+0/-0.0050"		

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH
3/16" x 1/4" Nominal			
SB-0608-10	.1890"	.2520"	.6250" (5/8)
3/16" x 3/8" Nominal			
SB-0612-12	.1900"	.3770"	.7500" (3/4)
1/4" x 5/16" Nominal			
SB-0810-06	.2520"	.3150"	.3750" (3/8)
SB-0810-08	.2520"	.3150"	.5000" (1/2)
1/4" x 3/8" Nominal			
SB-0812-08	.2520"	.3770"	.5000" (1/2)
SB-0812-16	.2520"	.3770"	1.0000" (1)

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH
1/4" x 7/16" Nominal			
SB-0814-16	.2520"	.4390"	1.0000" (1)
1/4" x 1/2" Nominal			
SB-0816-12	.2520"	.5030"	.7500" (3/4)
5/16" x 3/8" Nominal			
SB-1012-16	.3145"	.3780"	1.0000" (1)
5/16" x 7/16" Nominal			
SB-1014-04	.3145"	.4400"	.2500" (1/4)

SAE 660 CAST BRONZE
AVAILABLE UPON REQUEST

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.
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SLEEVE

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH
-------------	---------------------------	----------------------------	---------------

5/16" × 1/2"

Nominal

SB-1016-08	.3145"	.5030"	.5000" (1/2)
SB-1016-10	.3145"	.5030"	.6250" (5/8)
SB-1016-16	.3145"	.5030"	1.0000" (1)
SB-1016-24	.3145"	.5030"	1.5000" (1-1/2)

3/8" × 7/16"

Nominal

SB-1214-08	.3770"	.4400"	.5000" (1/2)
------------	--------	--------	--------------

3/8" × 1/2"

Nominal

SB-1216-06	.3780"	.5030"	.3750" (3/8)
SB-1216-16	.3780"	.5030"	1.0000" (1)
SB-1216-20	.3780"	.5030"	1.2500" (1-1/4)

3/8" × 9/16"

Nominal

SB-1218-12	.3780"	.5650"	.7500" (3/4)
------------	--------	--------	--------------

3/8" × 5/8"

Nominal

SB-1220-08	.3780"	.6280"	.5000" (1/2)
SB-1220-14	.3780"	.6280"	.8750" (7/8)
SB-1220-16	.3780"	.6280"	1.0000" (1)

3/8" × 3/4"

Nominal

SB-1224-12	.3780"	.7530"	.7500" (3/4)
------------	--------	--------	--------------

7/16" × 9/16"

Nominal

SB-1418-20	.4400"	.5650"	1.2500" (1-1/4)
------------	--------	--------	-----------------

1/2" × 5/8"

Nominal

SB-1620-08	.5020"	.6280"	.5000" (1/2)
SB-1620-10	.5020"	.6280"	.6250" (5/8)
SB-1620-24	.5020"	.6280"	1.5000" (1-1/2)
SB-628-5	.5015"	.6280"	1.5000" (1-1/2)

1/2" × 11/16"

Nominal

SB-1622-08	.5030"	.6900"	.5000" (1/2)
------------	--------	--------	--------------

1/2" × 3/4"

Nominal

SB-1624-08	.5030"	.7530"	.5000" (1/2)
SB-1624-10	.5030"	.7530"	.6250" (5/8)
SB-1624-12	.5030"	.7530"	.7500" (3/4)
SB-1624-28	.5030"	.7530"	1.7500" (1-3/4)
SB-1624-32	.5030"	.7530"	2.0000" (2)

1/2" × 13/16"

Nominal

SB-1626-08	.5030"	.8150"	.5000" (1/2)
------------	--------	--------	--------------

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(L) LENGTH
-------------	---------------------------	----------------------------	---------------

1/2" × 7/8"

Nominal

SB-1628-12	.5030"	.8780"	.7500" (3/4)
SB-1628-16	.5030"	.8780"	1.0000" (1)

9/16" × 11/16"

Nominal

SB-1822-16	.5650"	.6900"	1.0000" (1)
------------	--------	--------	-------------

9/16" × 3/4"

Nominal

SB-1824-08	.5650"	.7530"	.5000" (1/2)
------------	--------	--------	--------------

5/8" × 3/4"

Nominal

SB-2024-06	.6270"	.7530"	.3750" (3/8)
SB-2024-12	.6280"	.7530"	.7500" (3/4)
SB-2024-18	.6280"	.7530"	1.1250" (1-1/8)

5/8" × 13/16"

Nominal

SB-2026-12	.6280"	.8150"	.7500" (3/4)
------------	--------	--------	--------------

5/8" × 7/8"

Nominal

SB-2028-24	.6280"	.8780"	1.5000" (1-1/2)
------------	--------	--------	-----------------

3/4" × 7/8"

Nominal

SB-2428-16	.7530"	.8780"	1.0000" (1)
------------	--------	--------	-------------

3/4" × 1"

Nominal

SB-2432-06	.7520"	1.0025"	.3750" (3/8)
SB-2432-08	.7530"	1.0030"	.5000" (1/2)
SB-2432-12	.7530"	1.0030"	.7500" (3/4)
SB-2432-16	.7530"	1.0030"	1.0000" (1)

7/8" × 1"

Nominal

SB-2832-16	.8780"	1.0030"	1.0000" (1)
------------	--------	---------	-------------

7/8" × 1-1/4"

Nominal

SB-2840-12	.8780"	1.2530"	.7500" (3/4)
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1" × 1-3/8"

Nominal

SB-3244-22	1.0030"	1.3770"	1.3750" (1-3/8)
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1-1/4" × 1-1/2"

Nominal

SB-4048-24	1.2540"	1.5040"	1.5000" (1-1/2)
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1-1/2" × 1-3/4"

Nominal

SB-4856-16	1.5040"	1.7540"	1.0000" (1)
------------	---------	---------	-------------

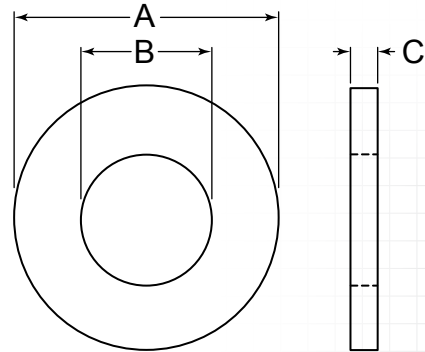
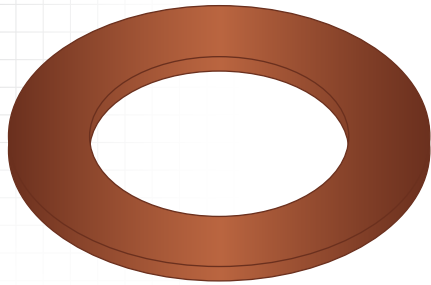
THRUST

DESCRIPTION

A washer-shaped component designed to support axial loads in rotating applications. Used to keep components lubricated and aligned along a shaft. A standard steel washer in the same application will deteriorate and cause excessive wear.

HOW TO IDENTIFY

1. Verify flat washer-shaped design.
2. Measure inside diameter (B).
3. Measure outside diameter (A).
4. Measure thickness (C).
5. Find the part number in the chart below.



PREFIX MATERIAL/FINISH

TB = SAE 841 SINTERED BRONZE, PLAIN, OIL IMPREGNATED

ADDITIONAL SIZES AND FINISHES MAY BE AVAILABLE UPON REQUEST

THRUST BEARING TOLERANCES

MATERIAL		INSIDE DIA. (B)		OUTSIDE DIA. (A)		THICKNESS (C)	
(Prefix)	(Material/Finish)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)	(Size Range)	(Tolerance)
TB	Sintered Bronze, Plain, Oil Impregnated	0 - 1.2500" >1.2500 - 2.5000" >2.5000 - 4.0000" >4.0000 - 6.0000"	±.0050" ±.0100" ±.0150" ±.0200"	0 - 1.5000" >1.5000 - 3.0000" >3.0000 - 4.5000" >4.5000 - 6.0000"	±.0100" ±.0150" ±.0200" ±.0250"	All Sizes	±.0025"

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(C) THICKNESS
1/4" x 7/16" Nominal			
TB-0814-02	.2550"	.4380"	.0625" (1/16)
1/4" x 1/2" Nominal			
TB-0816-02	.2550"	.5000"	.0625" (1/16)
1/4" x 5/8" Nominal			
TB-0820-02	.2550"	.6250"	.0625" (1/16)
5/16" x 5/8" Nominal			
TB-1020-02	.3145"	.6250"	.0625" (1/16)

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(C) THICKNESS
5/16" x 3/4" Nominal			
TB-1024-02	.3150"	.7500"	.0625" (1/16)
3/8" x 5/8" Nominal			
TB-1220-02	.3850"	.6250"	.0625" (1/16)
3/8" x 3/4" Nominal			
TB-1224-01	.3900"	.7500"	.0313" (1/32)
TB-1224-02	.3775"	.7500"	.0625" (1/16)
TB-1224-04	.3775"	.7500"	.1250" (1/8)



THRUST

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(C) THICKNESS
-------------	---------------------------	----------------------------	------------------

7/16" x 3/4"

Nominal

TB-1424-02	.4385"	.7500"	.0625" (1/16)
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1/2" x 3/4"

Nominal

TB-1624-02	.5050"	.7500"	.0625" (1/16)
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1/2" x 7/8"

Nominal

TB-1628-06	.5050"	.8750"	.1875" (3/16)
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1/2" x 1"

Nominal

TB-1632-02	.5100"	1.0000"	.0625" (1/16)
TB-1632-03	.5100"	1.0000"	.0938" (3/32)
TB-1632-04	.5100"	1.0000"	.1250" (1/8)

9/16" x 1-1/4"

Nominal

TB-1840-02	.5650"	1.2500"	.0625" (1/16)
TB-1840-04	.5650"	1.2500"	.1250" (1/8)

5/8" x 1"

Nominal

TB-2032-02	.6280"	1.0000"	.0625" (1/16)
TB-2032-04	.6280"	1.0000"	.1250" (1/8)

5/8" x 1-3/16"

Nominal

TB-2038-02	.6270"	1.1875"	.0625" (1/16)
TB-2038-03	.6270"	1.1875"	.0938" (3/32)
TB-2038-04	.6270"	1.1875"	.1250" (1/8)

5/8" x 1-1/4"

Nominal

TB-2040-02	.6280"	1.2500"	.0625" (1/16)
TB-2040-04	.6280"	1.2500"	.1250" (1/8)

5/8" x 1-1/2"

Nominal

TB-2048-04	.6280"	1.5000"	.1250" (1/8)
------------	--------	---------	--------------

21/32" x 1-1/2"

Nominal

TB-2148-02	.6560"	1.5000"	.0625" (1/16)
TB-2148-04	.6560"	1.5000"	.1250" (1/8)

3/4" x 1-1/4"

Nominal

TB-2440-02	.7530"	1.2500"	.0625" (1/16)
TB-2440-04	.7530"	1.2500"	.1250" (1/8)



SAE 660 CAST BRONZE
AVAILABLE UPON REQUEST

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(C) THICKNESS
-------------	---------------------------	----------------------------	------------------

3/4" x 1-3/8"

Nominal

TB-2444-02	.7530"	1.3750"	.0625" (1/16)
TB-2444-04	.7530"	1.3750"	.1250" (1/8)
TB-2444-08	.7530"	1.3750"	.2500" (1/4)

3/4" x 1-9/16"

Nominal

TB-2450-03	.7650"	1.5625"	.0938" (3/32)
------------	--------	---------	---------------

3/4" x 1-3/4"

Nominal

TB-2456-04	.7650"	1.7500"	.1250" (1/8)
------------	--------	---------	--------------

7/8" x 1-1/2"

Nominal

TB-2848-02	.8905"	1.5000"	.0625" (1/16)
TB-2848-04	.8905"	1.5000"	.1250" (1/8)

7/8" x 2"

Nominal

TB-2864-04	.8800"	2.0000"	.1250" (1/8)
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7/8" x 2-1/8"

Nominal

TB-2868-04	.8905"	2.1250"	.1250" (1/8)
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1" x 1-1/2"

Nominal

TB-3248-02	1.0030"	1.5040"	.0625" (1/16)
TB-3248-04	1.0030"	1.5040"	.1250" (1/8)
TB-3248-06	1.0030"	1.5040"	.1875" (3/16)

1" x 1-5/8"

Nominal

TB-3252-02	1.0155"	1.6250"	.0625" (1/16)
TB-3252-04	1.0155"	1.6250"	.1250" (1/8)
TB-3252-08	1.0155"	1.6250"	.2500" (1/4)

1" x 1-3/4"

Nominal

TB-3256-02	1.0120"	1.7500"	.0625" (1/16)
TB-3256-04	1.0120"	1.7500"	.1250" (1/8)



HOW TO READ A PART NUMBER

Bearings come in standard inside diameter x outside diameter x length combinations.

TB-88124-08

ITEM PREFIX

SIZE CODE

THRUST

ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(C) THICKNESS
-------------	---------------------------	----------------------------	------------------

1" x 2" Nominal

TB-3264-04	1.0160"	2.0000"	.1250" (1/8)
TB-3264-06	1.0160"	2.0000"	.0938" (3/32)

1" x 2-7/8" Nominal

TB-3292-04	1.0155"	2.8750"	.1250" (1/8)
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1-1/16" x 2-3/8" Nominal

TB-3476-02	1.0625"	2.3750"	.0625" (1/16)
TB-3476-04	1.0625"	2.3750"	.1250" (1/8)

1-1/8" x 1-7/8" Nominal

TB-3660-04	1.1400"	1.8750"	.1250" (1/8)
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1-1/4" x 3-5/16" Nominal

TB-40106-02	1.2550"	3.3120"	.0625" (1/16)
TB-40106-04	1.2550"	3.3120"	.1250" (1/8)

1-1/4" x 1-11/16" Nominal

TB-4054-04	1.2530"	1.6900"	.1250" (1/8)
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1-1/4" x 2" Nominal

TB-4064-02	1.2650"	2.0000"	.0625" (1/16)
TB-4064-04	1.2650"	2.0000"	.1250" (1/8)

1-1/4" x 2-3/8" Nominal

TB-4076-02	1.2650"	2.3750"	.0625" (1/16)
TB-4076-04	1.2650"	2.3750"	.1250" (1/8)

1-3/8" x 1-15/16" Nominal

TB-4462-04	1.3790"	1.9400"	.1250" (1/8)
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1-1/2" x 2" Nominal

TB-4864-04	1.5030"	2.0000"	.1250" (1/8)
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1-1/2" x 2-1/2" Nominal

TB-4880-04	1.5050"	2.5050"	.1250" (1/8)
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1-1/2" x 3-1/2" Nominal

TB-48112-06	1.5100"	3.5000"	.1875" (3/16)
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ITEM NUMBER	(B) INSIDE DIAMETER	(A) OUTSIDE DIAMETER	(C) THICKNESS
-------------	---------------------------	----------------------------	------------------

1-9/16" x 2-7/16" Nominal

TB-5078-04	1.5780"	2.4375"	.1250" (1/8)
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1-3/4" x 2-7/16" Nominal

TB-5678-04	1.7550"	2.4400"	.1250" (1/8)
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1-3/4" x 2-5/8" Nominal

TB-5684-04	1.7650"	2.6250"	.1250" (1/8)
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1-15/16" x 2-5/8" Nominal

TB-6284-04	1.9530"	2.6250"	.1250" (1/8)
------------	---------	---------	--------------

2" x 3" Nominal

TB-6496-04	2.0100"	3.0000"	.1250" (1/8)
TB-6496-06	2.0100"	3.0000"	.1875" (3/16)
TB-6496-08	2.0100"	3.0000"	.2500" (1/4)

2" x 3-5/8" Nominal

TB-64116-06	2.0310"	3.6250"	.1875" (3/16)
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2-1/16" x 4" Nominal

TB-66128-04	2.0620"	4.0000"	.2500" (1/4)
-------------	---------	---------	--------------

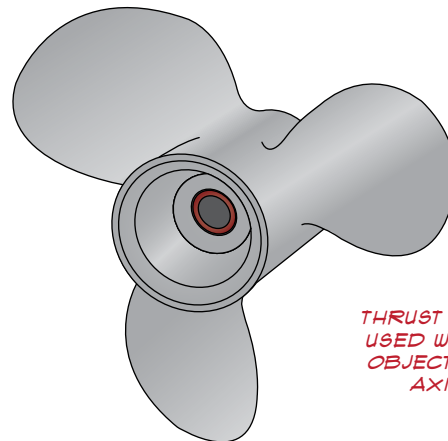
2-1/2" x 3-1/4" Nominal

TB-80104-04	2.5020"	3.2500"	.1250" (1/8)
-------------	---------	---------	--------------

2-3/4" x 3-7/8" Nominal

TB-88124-08	2.7660"	3.8750"	.2500" (1/4)
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APPLICATION



THRUST BEARINGS ARE USED WHERE ROTATING OBJECTS WILL CREATE AXIAL FORCES

ABOUT BRONZE

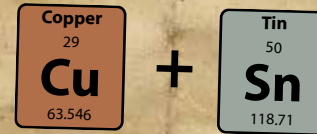
BENEFITS OF BRONZE

Bronze is a durable alloy for use as bearings as it has a low friction coefficient compared to steel on steel, making it a natural bearing material with excellent performance.

While not as resistant as stainless steel, bronze has better corrosion resistance than tin, lead, cast iron, or steel. Over time, it will develop a copper oxide layer on the surface protecting the metal beneath.

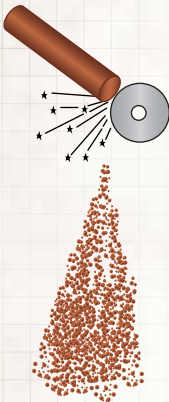
When properly designed, installed, and maintained, bronze bearings have been known to outlast the components they bear.

WHAT IS BRONZE?

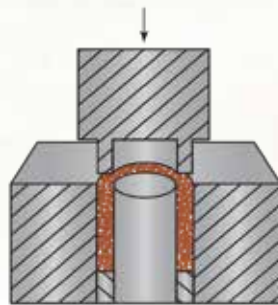


Bronze is an alloy made from copper and tin. SAE 841 bronze is copper (89%), tin (10%), and iron (1%). Other metals, metalloids, and non-metals are added to affect its stiffness, ductility, and machinability.

SINTERED BRONZE



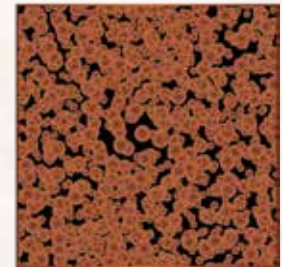
Bronze is ground to make a very fine powder.



The powder is formed together under pressure.



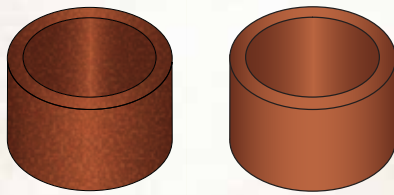
The formed powder is heated, but not melted, to weld the particles together.



The result is a sintered product with pores capable of holding a lubricating liquid.

SINTERED BRONZE VS. CAST BRONZE

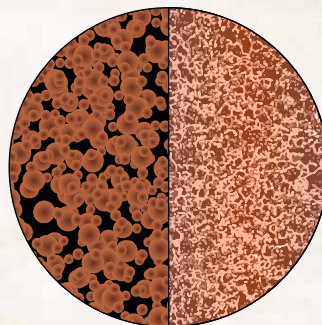
Sintered bronze bearings are pressed from bronze powder, sintered into a hardened part, and vacuum impregnated with oil. Cast bronze bearings begin with continuous cast bronze and are then machined on a lathe to create their shape.



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EFFICIENTLY MANUFACTURED SINTERED BRONZE BEARINGS ARE LESS EXPENSIVE AND PRODUCE LESS SCRAP THAN CAST BRONZE BEARINGS



CAST BRONZE BEARINGS HAVE A FINER GRAIN STRUCTURE AND STRONGER MECHANICAL PROPERTIES THAN SINTERED BRONZE BEARINGS



SINTERED BRONZE BEARINGS ARE IMPREGNATED WITH OIL AND REQUIRE LITTLE OR NO MAINTENANCE

BALLS

HUYETT.COM • 785-392-3017

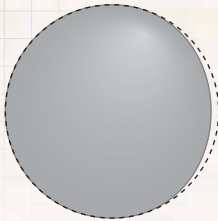
BOX 232 • MINNEAPOLIS, KS • 67467
SALES@HUYETT.COM • FAX 785-392-2845

PRECISION BALL FEATURES

Precision balls are used mainly in ball bearing designs and other demanding industrial applications. They are manufactured to the American Bearing Manufacturers Association (ABMA) Standard 10, which characterizes their geometric tolerances. Grades range from 2000 to 3. The smaller the number the higher the precision and lack of flats, pits, cuts, or other geometric anomalies. The surface roughness of precision balls may be as smooth as .000008" Arithmetic Average depending on grade. Hardness varies depending on material grade selected.

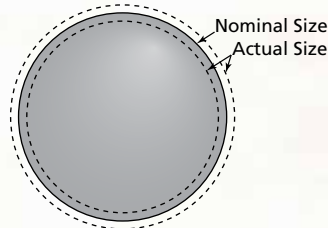
DESIGN CONSIDERATIONS

SPHERICITY



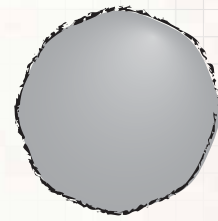
A MEASURE OF HOW MUCH THE BALL DEVIATES FROM A TRUE SPHERE

SIZE



ACTUAL SIZE MAY BE SLIGHTLY LARGER OR SMALLER THAN NOMINAL SIZE

SMOOTHNESS

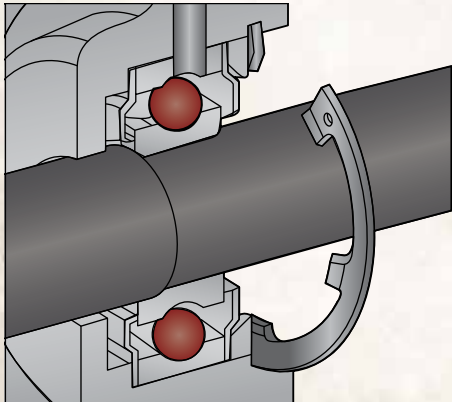


A MEASURE OF THE TEXTURE AND WAVINESS OF THE SURFACE

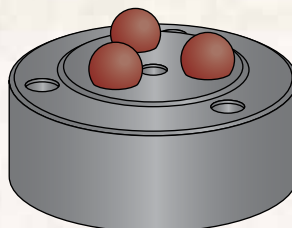
QUICK REFERENCE GUIDE

PRECISION BALLS	COMMON NAMES	APPLICABLE STANDARDS	FABRICATION	HOW TO IDENTIFY	COMMON USES	COMMENTS
	Bearing Balls; Steel Balls	ABMA STD-10	Wire is cut into pellets, which are then spherized using specialized machinery. Steel balls may be heat treated and ground.	Diameter x grade.	Ball bearings, precision valves, free wheel mechanisms, kinematic mounts.	Imperfections are generally not visible to the naked eye.

APPLICATION



PRECISION BALLS ARE USED IN BALL BEARING ASSEMBLIES AND IN KINEMATIC MOUNTING APPLICATIONS



MEASURING

Depending on their grade, variances from nominal sizes for precision balls may be so slight (± 0.000001 ") that they can not be measured using calipers or micrometers.

Accurately measuring precision balls requires highly specialized equipment like the **HEIDENHAIN-CERTO Length Gauge** or a **Talyrd Machine** capable of measuring the size, roundness, and cylindricity of the ball between two parallel flats.

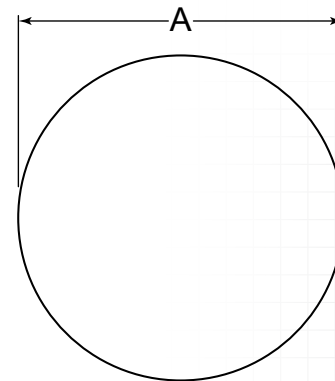
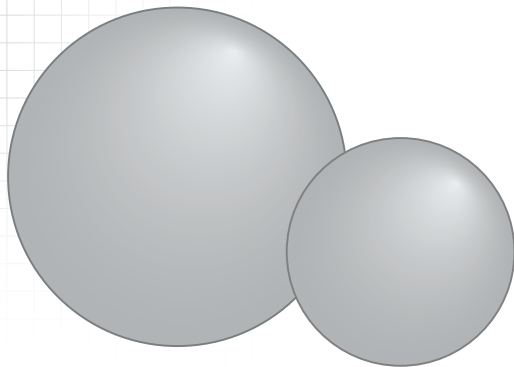
PRECISION – IMPERIAL

DESCRIPTION

Precision balls are used mainly in ball bearing designs and other demanding industrial applications. The surface roughness of precision balls may be as smooth as .000008" Arithmetic Average depending on grade. Hardness varies depending on material grade selected.

HOW TO IDENTIFY

1. Verify round design.
2. Select grade.
3. Measure diameter (A).
4. Build the part number from the chart below.



PREFIX MATERIAL/FINISH

BALL-10 = GRADE 25, CHROME STEEL, PLAIN
BALL-11 = GRADE 1000, CARBON STEEL, PLAIN*
BALL-12 = GRADE 100, 440 STAINLESS STEEL, PLAIN

BALL-121 = GRADE 100, 316 STAINLESS STEEL, PLAIN
 Material/finish combinations may not be available in all sizes.

HOW TO BUILD A PART NUMBER

BALL-10-1437

BALL-10-

1437

ITEM PREFIX

TO ORDER CHOOSE YOUR MATERIAL,

(A)
DIAMETER

CHOOSE YOUR DIAMETER.

CODE	MATERIAL
BALL-10	Grade 25, Chrome Steel, Plain
BALL-11	Grade 1000, Carbon Steel, Plain*
BALL-12	Grade 100, 440 Stainless Steel, Plain
BALL-121	Grade 100, 316 Stainless Steel, Plain

CODE	DIAMETER
0015	.0156" (1/64)
0031	.0313" (1/32)
0404	.0400"
0046	.0469" (3/64)
0062	.0625" (1/16)
0078	.0781" (5/64)
0083	.0830"
0093	.0938" (3/32)
0109	.1094" (7/64)
0125	.1250" (1/8)
0140	.1406" (9/64)
0156	.1563" (5/32)
0171	.1719" (11/64)
0187	.1875" (3/16)
0203	.2031" (13/64)
0218	.2188" (7/32)
0234	.2344" (15/64)
0250	.2500" (1/4)
0265	.2656" (17/64)

CODE	DIAMETER
0281	.2813" (9/32)
0296	.2969" (19/64)
0312	.3125" (5/16)
0328	.3281" (21/64)
0343	.3437" (11/32)
0359	.3594" (23/64)
0375	.3750" (3/8)
0406	.4063" (13/32)
0437	.4375" (7/16)
0453	.4531" (29/64)
0468	.4687" (15/32)
0484	.4844" (31/64)
0500	.5000" (1/2)
0531	.5312" (17/32)
0562	.5625" (9/16)
0593	.5937" (19/32)
0625	.6250" (1/16)
0656	.6562" (21/32)
0687	.6875" (11/16)

CODE	DIAMETER
0718	.7188" (23/32)
0750	.7500" (3/4)
0781	.7813" (25/32)
0812	.8125" (13/16)
0843	.8438" (27/32)
0875	.8750" (7/8)
0906	.9063" (29/32)
0937	.9375" (15/16)
0959	.9590"
0968	.9688" (31/32)
1000	1.0000" (1)
1062	1.0625" (1-1/16)
1125	1.1250" (1-1/8)
1187	1.1875" (1-3/16)
1250	1.2500" (1-1/4)
1312	1.3125" (1-5/16)
1375	1.3750" (1-3/8)
1437	1.4375" (1-7/16)
1500	1.5000" (1-1/2)

CODE	DIAMETER
1562	1.5625" (1-9/16)
1625	1.6250" (1-5/8)
1687	1.6875" (1-11/16)
1750	1.7500" (1-3/4)
1812	1.8125" (1-13/16)
1875	1.8750" (1-7/8)
1937	1.9375" (1-15/16)
2000	2.0000" (2)
2125	2.1250" (2-1/8)
2250	2.2500" (2-1/4)
2375	2.3750" (2-3/8)
2500	2.5000" (2-1/2)
2625	2.6250" (2-5/8)
2750	2.7500" (2-3/4)
3000	3.0000" (3)
5500	5.5000" (5-1/2)

TOLERANCES

Grade	Tolerance
25	±.000025"
100	±.0001"
1000	±.001"

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

Prices, materials, dimensions, tolerances, designs, and grades subject to change without notice. © 2022 Huyett

*Limited warranty for surface finish: 30 days from date of shipment. See page 12 for details.

BALLS

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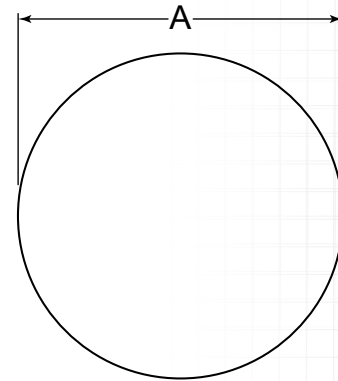
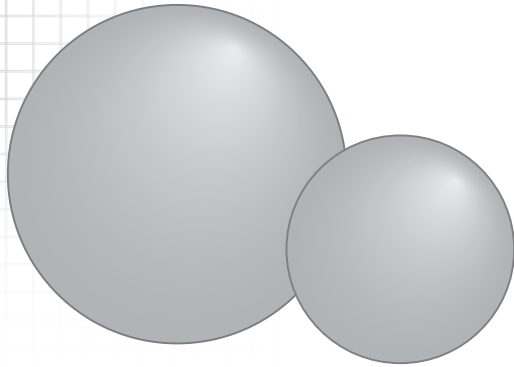
PRECISION – METRIC

DESCRIPTION

Precision balls are used mainly in ball bearing designs and other demanding industrial applications. The surface is fine finished and through hardened for a high load capacity.

HOW TO IDENTIFY

1. Verify round design.
2. Select grade.
3. Measure diameter (A).
4. Build the part number from the chart below.



PREFIX MATERIAL/FINISH

BALLM16 = GRADE 200,
316 STAINLESS STEEL, PLAIN
BALLM-1210 = GRADE 25, CHROME STEEL, PLAIN

BALLM-1215 = GRADE 25,
440 STAINLESS STEEL, PLAIN
Material/finish combinations may not be available in all sizes.

HOW TO BUILD A PART NUMBER

BALLM-1210-135

BALLM-1210-

135

ITEM PREFIX

TO ORDER CHOOSE
YOUR MATERIAL,

(A)
DIAMETER

CHOOSE YOUR
DIAMETER.

CODE	MATERIAL
BALLM16	Grade 200, 316 Stainless Steel, Plain
BALLM-1210	Grade 25, Chrome Steel, Plain
BALLM-1215	Grade 25, 440 Stainless Steel, plain

CODE	DIAMETER
008	0.80 mm
010	1.00 mm
012	1.20 mm
015	1.50 mm
020	2.00 mm
025	2.50 mm
030	3.00 mm
035	3.50 mm
040	4.00 mm
045	4.50 mm
050	5.00 mm
055	5.50 mm
060	6.00 mm
065	6.50 mm

CODE	DIAMETER
070	7.00 mm
075	7.50 mm
080	8.00 mm
085	8.50 mm
090	9.00 mm
095	9.50 mm
100	10.00 mm
105	10.50 mm
110	11.00 mm
115	11.50 mm
120	12.00 mm
125	12.50 mm
130	13.00 mm
135	13.50 mm

CODE	DIAMETER
140	14.00 mm
150	15.00 mm
155	15.50 mm
160	16.00 mm
170	17.00 mm
180	18.00 mm
190	19.00 mm
200	20.00 mm
210	21.00 mm
220	22.00 mm
230	23.00 mm
240	24.00 mm
250	25.00 mm
260	26.00 mm

CODE	DIAMETER
270	27.00 mm
280	28.00 mm
300	30.00 mm
320	32.00 mm
340	34.00 mm
350	35.00 mm
360	36.00 mm
380	38.00 mm
400	40.00 mm
450	45.00 mm
500	50.00 mm

TOLERANCES

Grade	Tolerance
25	±0.00025 mm
200	±0.0752 mm

FOR DETAILED SPECIFICATIONS AND TOLERANCES, VISIT HUYETT.COM.

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ALSO AVAILABLE...

INDUSTRIAL PINS & WIREFORMS

The Perfect Alignment for Every Application

Huyett features the world's most complete inventory of pins, pins, and more pins including every size and shape you can imagine in a wide range of materials in inch and metric sizes. Our Pins Catalog features clevis pins, three-point hitch pins, self-locking pins, cotter pins, hitch pin clips, wire forms, rolled pins, grooved pins, dowel pins, tapered pins, and assortments. We've also included technical data related to chemical and mechanical properties, hardness, heat treating, shear strength, platings and finishes, and common uses.



Clevis
Standard; SAE; Universal;
Cotterless; Drilled and Grooved
Headless; Bent; Rivet



Three-Point
Snap; Tab Lock; Coil Tension;
Lynch; Round, Square, & Red
Handle Hitch; Lynch



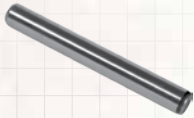
Positive Lock
Detent; Button Head;
Ring Handle;
T-Handle; L-Handle



Cotter
Standard; Military; Nonferrous;
Hammerlock; T-head; Wedgefast; Clinch;
Bow Tie; Ring; Circle; Split Ring



Hitch Pin Clips
Bridge; Double Loop;
Grip; Hair; E-Clip;
X-Ring; Tethers



Dowel
Standard; Hardened; Oversized;
Pullout; Ground Hollow; Flat Vent;
Grooved



Groove & Taper
Groove: Type A, C, E, G, H, U; DIN
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Internal Threaded



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- Hitch Pins
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- Safety Pins
- Snap Pins
- Coiled/Slotted Spring Pins
- Taper Pins
- Tethers
- Assortments



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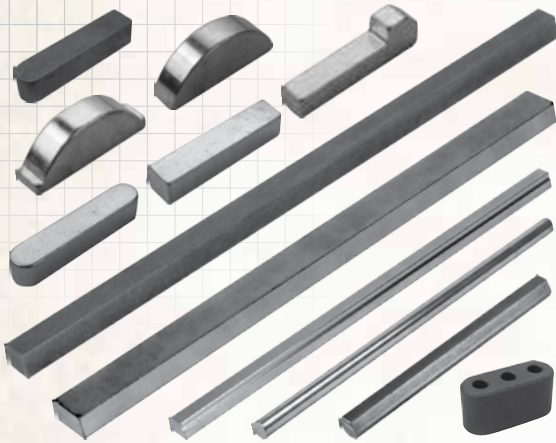
- Crescent Rings & E-Clips
- Push-On Rings
- Grip Rings
- Housing Rings
- Snap Rings
- Interlocking Rings
- Bearing Lock Nuts
- Bearing Lock Washers
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The Perfect Fit for Every Application:

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- Thread Forming Grease Fittings
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- Adapters
- Couplers
- Extensions
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- Plugs & Bushings
- Vents & Breathers
- Assortments



PREMIUM LIFTING HARDWARE



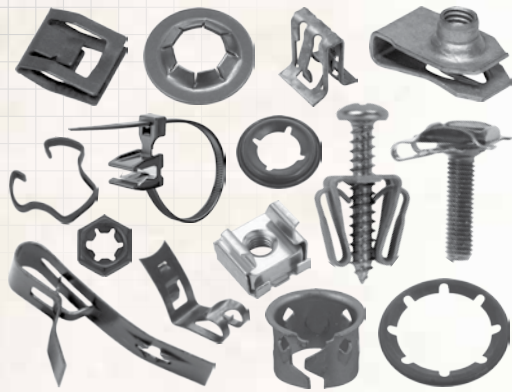
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IF IT'S HARD TO FIND...

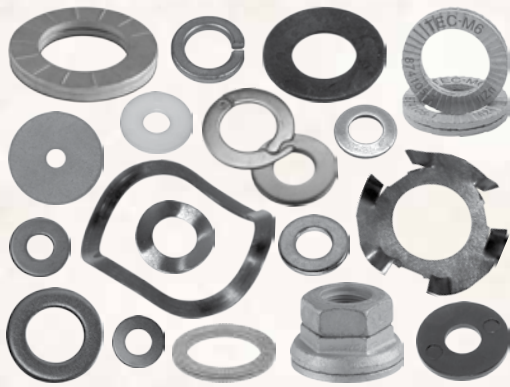
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RIVET NUTS



WASHERS



SHAFT RETENTION



HOSE CLAMPS

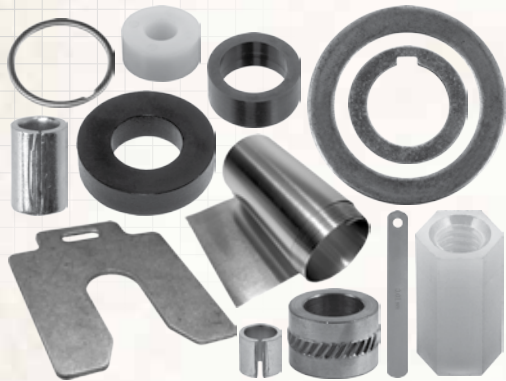


O-RINGS & PIPE PLUGS

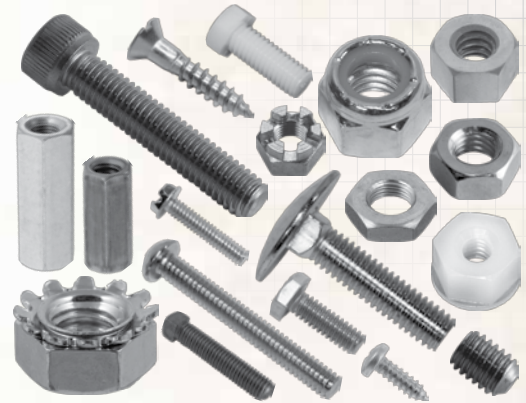


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SHIMS & SPACERS



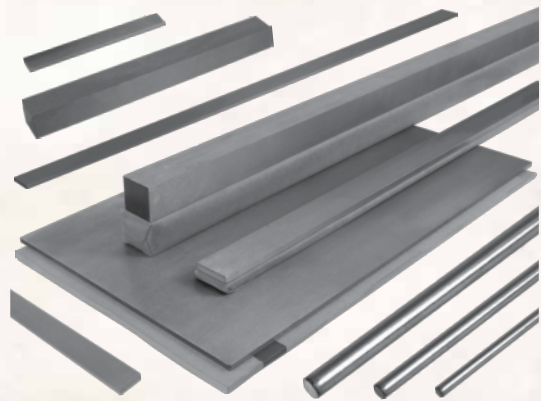
NUTS, BOLTS, & SCREWS



BEARINGS & BUSHINGS



FLAT STOCK & DRILL ROD



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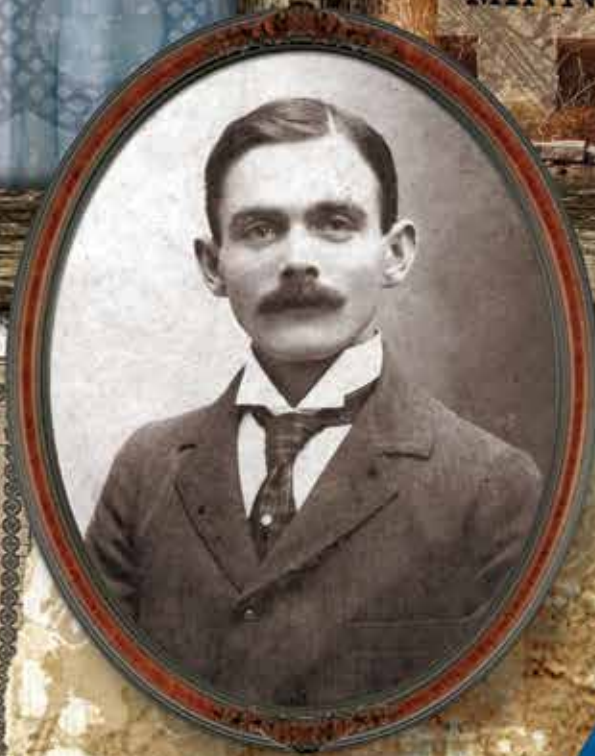
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 #300-12 Snap Ring Kit
 #350-26 LG. Woodruff Key Kit
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 1 1/4"
 1-1/8" Rect. Key Stock
 1/4" x 1"
 5/8" Shafting x 3
 3/4" Shafting x 3
 1" x 3
 1-7/8" x 3
 1-1/2" x 3

\$ 520.00/EA. 230.00
 17.00/EA. 68.00
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 9.25/FT. 16.52
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 6.28/FT. 16.20
 1.62/BAR 2.10
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UBS Charges: \$289.90
 35.61

\$325.51

Shipped 3-2-72
 via UBS = \$ 35.61
 Order Complete
 14 discount on \$ 289.90 only,
 please. (10 days)
 THANKS.

*Plan -
 I have refigured all prices and
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 We will apply these prices per ft.
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 up to 12 ft.
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1 3/4 1/2

1 7/8

1/2

3/8

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1952-5

*Dolly,
 Here is the nickel
 I owe you*

John at Acorn

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1/8" x 5/8"	3/32" x 5/8"	1/4" x 5/8"	1/2" x 5/8"
1/8" x 3/8"	3/32" x 3/8"	1/4" x 3/8"	1/2" x 3/8"
1/8" x 1/4"	3/32" x 1/4"	1/4" x 1/4"	1/2" x 1/4"

BORN OUT OF THE OLD TIN SHED

The Old Tin Shed houses the story of Huyett. According to newspaper accounts, a German immigrant named Guy Huyett bought the hardware stock of the Globe Department Store in 1899 and moved it to a location on Main Street in Minneapolis, Kansas. He incorporated the business in 1906, the date that we trace to our founding, over 100 years ago.

From 1906 until 1994, the shed sheltered our entire company. The shed was originally an old hotel that was hitched to a team of horses and drug a ¼ mile down South Concord Street so that Huyett could be closer to the local rail spur. Many of the images on the cover of this book come from our storied history in the shed.

Our story isn't unique...and that is exactly what we love about it. It is a story you have heard a hundred times before...a story filled with human drama, pain, struggle, and triumph. It is a story lived by millions of lucky people. It is the American Dream.

During the Great Depression, Henry Hahn, successor to Guy Huyett, sold alfalfa seed to supplement lost hardware sales so that he could stay in business. Henry eventually turned the business over to his son Louis, who was a notorious entrepreneur in these parts. Later, Louis allowed his son Bob to join the firm, which, at the time was largely centered on the machinery bushing product line. On Sunday afternoons, locals would gather around an old oak tree and socialize. To pass time, they would count and wire tie rings of 25, 50, and 100 machinery bushings while sipping whiskey. The group was affectionately known as "the South Side Sunday Sippin' Society" or "SSSSS."

Soon Bob took to the road and expanded product lines to include, among other things, pins, key stock, grease fittings, snap rings, and more. Bob worked days packing and shipping orders and answering the phone while his wife Dolly worked nights pounding out invoices on a Smith Corona typewriter. Sometimes Bob would meet Dolly going to bed while Dolly was arising to start typing. Some customers were known to "appreciate" Dolly's penny-pinching ways and would mail coins taped to postcards so that Dolly would stop calling to collect for small billing differences.

Today, Huyett has grown into a highly entrepreneurial enterprise with an interest in personal improvement and commitment to community that is inherent to the spirit of the pioneers who made the Great American Desert into America's Breadbasket. We now manufacture a large part of our sales mix and are committed to improving our community and the life of our customers by executing to the principles of our humble past.

We call this our "Way of Life™" and we are proud to have you as part of our lives. Our job is to make your job easier and we thank you for the opportunity.



Δ COMMUNITY OF VALUE-ADDED COMMUNITIES BUILDING COMMUNITY



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THE OLD TIN SHED 126 SOUTH CONCORD STREET MINNEAPOLIS, KS USA



CONTACT METHOD, SINCE 1962, IN USE AT GLH UNTIL 1994



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