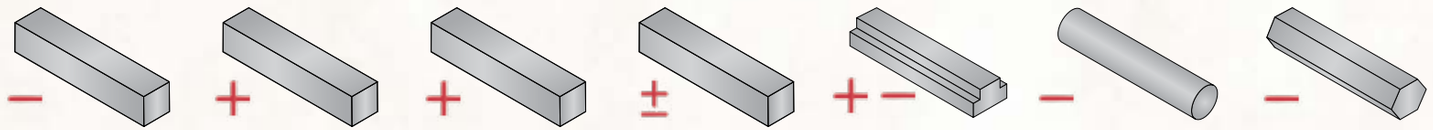
KEY STOCK

QUICK REFERENCE GUIDE

MAK-A-KEY™
HUYETT.COM • 785-392-3017
BOX 232 • MINNEAPOLIS, KS • 67467

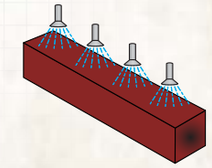
Understanding the standards and tolerances (permitted variance) of key stock can be complicated. Key stock is called out by nominal or named size. Among squares and flats, tolerances are referred to as “oversize” (over nominal) or “undersize” (under nominal).



	UNDERSIZE	MOLTRUP	OVERSIZE	SPECIALTY GRADES	STEP KEY STOCK	ROUND	HEX
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.	T-form, offered in both oversize and undersize tolerances.	Round form, with undersize tolerances.	Hex form, with undersize tolerances.
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	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
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	Sizing aligns to ANSI B17.1 Class 1 fit, bar stock.	Depends on material grade. ASTM A108; ASTM A681; ASTM A686	ASTM A108
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.	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.
COMMON GRADES (AISI AND DIN REFERENCES)	1018; 1045; 1060; 4140; SS303; SS314; SS316; DIN 6880; A2; A4; DIN 178; DIN 179	1045; 8630; 4140	1018; 1045; SS303; SS304	1095; 6061; CDA 360; some grades of stainless steel.	1018; 1045; SS304; SS316	1018; 1045; O-1; W-1; 1095; SS303; SS304; 6061; CDA 360	1018; 1045; 8630; 4140
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.	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.
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.	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.

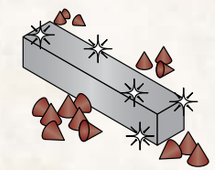
SECONDARY PROCESSES

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



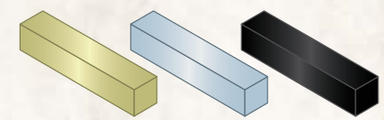
HEAT TREATING

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.

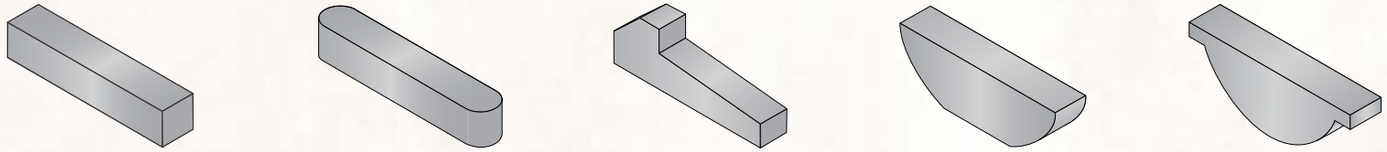
HUYETT.COM/CATALOGS

MACHINE KEYS

QUICK REFERENCE GUIDE

HUYETT.COM • 785-392-3017
BOX 232 • MINNEAPOLIS, KS • 67467

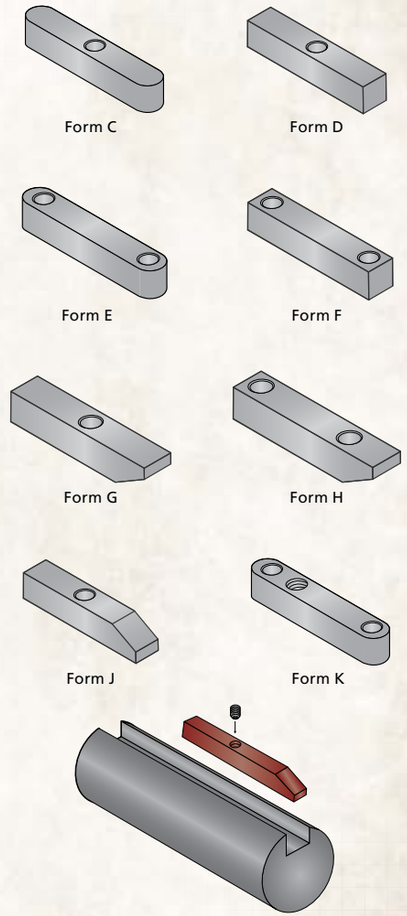
Machine keys are used to transmit torque from a rotating shaft to a gear or sprocket. They can be finished in a variety of shapes, sizes, and materials for just about any application. Standard sizes are ready to use with little or no cutting or filing.



	MACHINE KEY - FORM B	MACHINE KEY - FORM A	GIB HEAD	WOODRUFF	HI-PRO
COMMON NAMES	Machine Keys; Sunk Keys; Key Stock	Feather Key; Pratt & Whitney Key	Gib Head Key; Cotton Picker Key	Half-moon Key; Round Key	High Profile Keys
APPLICABLE STANDARDS	ANSI B17.1; DIN 6885	ANSI B17.1; DIN 6885	DIN 6884/6887; Industry norm	ANSI B17.1; DIN 6888	ANSI B17.1; 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.	Cold drawn profile; cut to width; grind; tumble.	Cold drawn profile; cut to width; grind; tumble.
HOW TO IDENTIFY	Imperial is measured height × width × length. Metric is measured width × height × length.	Imperial is measured height × width × length. Metric is measured width × height × length.	Imperial is measured width × length. Metric is measured width × effective height × length. Commercial keys do not usually meet the ANSI specification.	Imperial is measured diameter × width. Metric is measured width × height. Woodruff keys may have round or flat bottoms depending on specifications.	Width × length × lip height. Hi-pro keys have small "feet" to keep them from rocking in the key way.
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.	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	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.	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.

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.



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