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).

### Common Names
- ANSI B17.1, Class 1 fit; Metric DIN 6880 for key stock; DIN 6885 for machine keys

### Applicable Standards
- ANSI B17.1, Class 2 fit
- None known, though popularized as Mak-A-Key
- Depends on material grade; ASTM B29; 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 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; S303; S314; S316; DIN 6880; A2; A4; DIN 178; DIN 179
- 1018; 1045; S303; S304
- 1018; 1045; SS304; SS316
- 1018; 1045; O-1; W-1; 1095; S303; S304; 6061; CDA 360
- 1018; 1045; SS304; SS316
- 1018; 1045; 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 fitting 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, automotive 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.

### Secondary Processes
- 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.
- 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.


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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.

### Common Names
- Machine Keys; Sunk Keys; Key Stock
- Feather Key; Pratt & Whitney Key

### 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 width; 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 × 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, 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.

### Machine Keys - Form B
- Machine Key - Form B
- Form C

### Machine Keys - Form A
- Machine Key - Form A
- Form D

### Gib Head
- Gib Head Key; Cotton Picker Key
- Form E

### Woodruff
- Half-moon Key; Round Key
- Form F

### Hi-Pro
- High Profile Keys
- Form G

### Form C
- Form E

### Form D
- Form F

### Form E
- Form G

### Form F
- Form H

### Form G
- Form J

### Form H
- Form K

### Form J
- Form K

For best results, enlist the help of a reliable design engineer when designing new applications.