

PINS

QUICK REFERENCE GUIDE

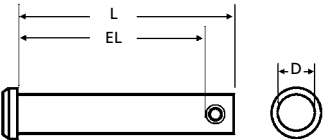
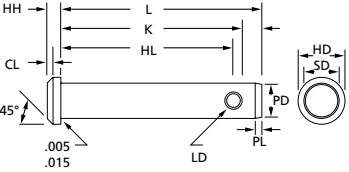
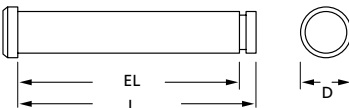


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www.huyett.com

G. L. Huyett is a manufacturer, importer, and master distributor of non-threaded fasteners and is located in Minneapolis, Kansas. Besides pins, the firm has an extensive line of retaining rings; keystock, bright bars, and shaft keys; flat washers, shims, and spacers; grease fittings and lubrication equipment; O-rings and seals; and bronze bushings. The firm has a machine shop and special order manufacturing capability that extends across nearly all of its product lines.

An extensive engineering, design, information services, and graphics department provides a plethora of customer support activities including field technical training; troubleshooting; product and package design and development; and sales support. The firm has its own in-house and dedicated advertising agency, and it maintains a state-of-the-art Tech Center, complete with multi-media capability.

Please contact us at sales@huyett.com with any technical question, regardless of commodity.

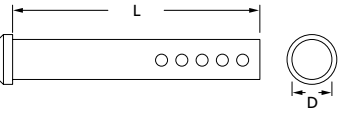
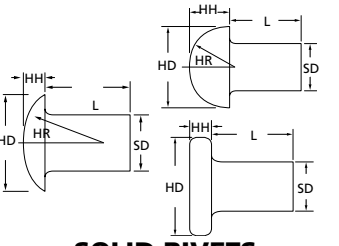
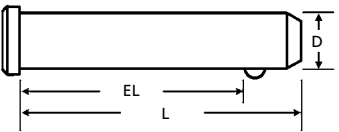
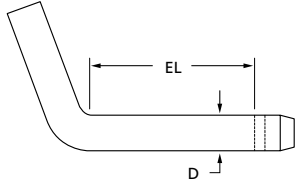
ITEM	COMMON NAMES	APPLICABLE STANDARDS	FABRICATION	HOW TO IDENTIFY	COMMON USES	COMMENTS
 <p style="text-align: center;">CLEVIS</p>	<p>Cornpicker Pin; Flat Head Pin; Hitch Pin</p>	<p>SAE standards, with specific call-outs to length. Subject to interpretation. DIN 1434</p>	<p>Turn or cold head a blank. Cross Drilling. Countersink may apply.</p>	<p>Nominal diameter x length of pin from beneath the head to end of pin. The hole is located one diameter from the end of pin.</p>	<p>Agricultural and power equipment, where there are non-precise movements. Used in moving linkages as a fulcrum or pivot, with low cost and quick disconnect feature.</p>	<p>Be careful of effective length versus total length; head diameter; and special hardness or materials. Use with bridge pin (a.k.a hitch pin clip) or cotter pin.</p>
 <p style="text-align: center;">SAE CLEVIS</p>	<p>SAE Clevis Pin; Clevis Pin.</p>	<p>No specific known SAE number, just a recited "SAE Standard." The standard is more of a guideline than a specification.</p>	<p>Turn or cold head a blank. Cross Drilling. Countersink is mandatory. End chamfer is mandatory.</p>	<p>Standard nominal sizing based on diameter, as in "SAE Clevis Pin, Half Inch." Length is established in standard.</p>	<p>Agricultural and power equipment, where there are nonprecise movements. Used in moving linkages as a fulcrum or pivot, with low cost and quick disconnect feature.</p>	<p>The SAE is an effort to develop common sizes, so as to reduce the number of clevis pins designed and in circulation.</p>
 <p style="text-align: center;">GROOVED CLEVIS</p>	<p>Grooved Pin; Grooved Clevis.</p>	<p>None known, other than for groove dimensions, to match mating E-Clip.</p>	<p>Turned complete in one CNC operation; or cold headed, and then grooved in a secondary operation.</p>	<p>Nominal diameter x length of pin from beneath the head to end of pin. The groove is located based on no particular science or known standards.</p>	<p>Used in similar applications as clevis pins. Advantage of grooved design is better lateral resistance and more precise effective length control.</p>	<p>Usually higher cost than standard clevis. Installation requires a special tool.</p>

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 <p style="text-align: center;">ADJUSTABLE CLEVIS</p>	<p>Universal Clevis; Multi-Grip Clevis.</p>	<p>None known. There are multiple designs in existence, with varying number of holes and hole sizes.</p>	<p>Turn or cold head a blank. Cross Drilling. Countersink may apply.</p>	<p>Nominal Diameter x Length of Pin, count the number of holes.</p>	<p>Good aftermarket part where the user is not certain of length requirement. Also used for applications where adjustment is needed.</p>	<p>Holes are typically 1/4" apart and should be aligned linearly. Some users cut off excess length after installation.</p>
 <p style="text-align: center;">SOLID RIVETS</p>	<p>Buttonhead; Truss Head; Flat Head Rivets</p>	<p>ASME B18.8.1 for up to 7/16" diameter. ASME B18.8.2 for diameters greater than 7/16".</p>	<p>Cold Head. In highly specialized applications, parts may be turned.</p>	<p>Head Design x Nominal Diameter x Length Beneath the Head</p>	<p>Mostly original equipment. Used for permanent jointing, at a lower cost than threaded, but without the torquing powers.</p>	<p>Application specific.</p>
 <p style="text-align: center;">COTTERLESS CLEVIS</p>	<p>Detent Clevis Pin</p>	<p>None known.</p>	<p>Turned or cold headed. Drilled for detent cavity. Detent ball installation using hydraulic press.</p>	<p>Nominal Diameter x Length from Beneath Head to End of Pin</p>	<p>Used in applications where frequent reusability or adjustment is needed. Low lateral torque, so generally lighter duty.</p>	<p>Two detent designs possible-- Buna seal, considered cheaper, but low heat, versus metal spring, more expensive.</p>
 <p style="text-align: center;">BENT PIN</p>	<p>Hitch Pin. Trailer Pin.</p>	<p>None known.</p>	<p>Shear or saw cut to length. Drill hole or turn groove. Bend.</p>	<p>Nominal Diameter x Effective Length. Effective Length is measured from "Bend" to edge of hole.</p>	<p>As a hitch pin in lighter duty trailers. The bend is an economical method to realize a handle, and end stop.</p>	<p>Bent pins with holes are generally more common than those with grooves, because holed versions are sturdier. Use with bridge pin, cotter pin, or hairpin.</p>

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<p style="text-align: center;">HEADLESS</p>	<p>Clevis Pin; Yoke Pin; Hydraulic Pin; Cylinder Pin</p>	<p>None known.</p>	<p>Turn. If with holes, cross drill holes. May be headed in certain applications.</p>	<p>Nominal Diameter x Grip Length (distance between grooves or holes).</p>	<p>Tend to be larger diameter than clevis pins, and therefore heavier duty. Use where access from both sides is needed. Lots of agriculture, power equipment; and construction applications.</p>	<p>Three typical designs: with holes, with grooves, with both. Grooved with e-clips have better lateral holding power. Use with hair pins, bridge pins, or cotter pins.</p>
<p style="text-align: center;">SNAPPER PIN</p>	<p>Snapper Pin; Wire Lock Pin; Clik-Pin; Lynch Pin; Lok Pin; Retainer Pin</p>	<p>None known.</p>	<p>Cold forging of the pin; wire forming of the loop; hand assembly.</p>	<p>Nominal Diameter x Effective Length, Single vs. Double Wire. Square loop vs. rounded loop.</p>	<p>Three point attachments on tractors and turf equipment. Moorings for sails, canvass, tarps, and grommeted covers. Best for frequent removal applications.</p>	<p>Single wire was designed to lower cost, but because of popularity, such cost savings is not evident.</p>
<p style="text-align: center;">TABLOCK PIN</p>	<p>Snapper Pin; Wire Lock Pin; Clik-Pin; Lynch Pin; Lok Pin; Retainer Pin</p>	<p>None known.</p>	<p>Cold forging of the pin; wire forming of the loop; hand assembly.</p>	<p>Nominal Diameter x Effective Length, Single vs. Double Wire. Square loop vs. rounded loop.</p>	<p>Three point attachments on tractors and turf equipment. Moorings for sails, canvass, tarps, and grommeted covers. Best for frequent removal applications.</p>	<p>Single wire was designed to lower cost, but because of popularity, such cost savings is not evident. Tab allows ease of removal versus standard Snapper Pin.</p>
<p style="text-align: center;">COIL TENSION</p>	<p>Tractor Pin; Snap Pin; Three Point Pin; Lock Pin</p>	<p>None known.</p>	<p>Cold forging of the pin; weldment of a collar for HD version; wire forming of the loop; hand assembly.</p>	<p>Nominal Diameter x Effective Length, Standard vs. Heavy Duty.</p>	<p>Heavy duty Ag and industrial attachments, where the extra protrusion of the wire spring loop does not interfere.</p>	<p>Wire is coiled to allow lateral play for heavier duty stretching of wire lock mechanism. For HD version, the welded collar acts as a stop for heavy duty applications. Pin shaft is grooved to mate with wire assembly for added strength.</p>

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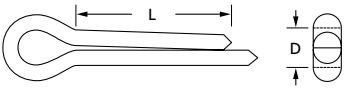
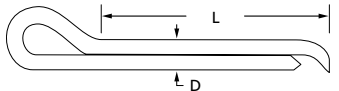
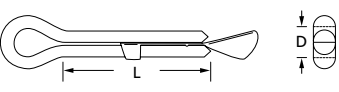
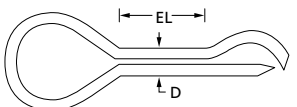
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<p style="text-align: center;">LYNCH</p>	Snap Pin; Self-Locking Pin; Klik Pin; Lok Pin	None known. DIN 11023 in Europe.	Hot forging of the pin; formation of the wire; hand assembly.	Nominal Diameter x Effective Length.	Lighter duty Ag. More constrained wire length means that lynch pins are used for retaining, versus as a pivot or lock mechanism. Nearly always used on rounds, but squares are available.	Typical problems with three point pins are workmanship or incorrect effective length. Lynch pins can be supplied with chain and cotter for fixed attachment (so one does not drop in the snow).
<p style="text-align: center;">HITCH</p>	Trailer Pin; Red Handles	None known.	Cold forging; weldment of collar; cross drilling; wire formation of the handles; assembly; heat treatment; dipping of handle where applied.	Nominal Diameter x Effective Length, Handle shape.	Trailers, especially light duty commercial and agricultural. Use where frequent disconnect is needed.	Use with bridge pin. Numerous design style sand types. Loose fitting, thus designs are interchangeable.
<p style="text-align: center;">DETENT</p>	Cotterless Pin; Fast Pin; Ring Grip Pin; Quick Release Pins; Faspins	None known.	Turning or forging of pin; cross drilling detent pilot; assembly.	Nominal Diameter x Effective Length.	Canvas and sailing applications, where quick disconnect and lighter duty retention is acceptable.	Ball protrusion, detent pressure, and spring design are leading causes of failure. Detent is best designed with metal spring, versus Buna, for hot environments.
<p style="text-align: center;">SELF LOCKING</p>	High Profile; Faspin; Quick Release Pin; Aircraft Pin; Push Button Pin; Positive Lock Pin	None known.	Turning of pin shaft; centerless grinding of shaft; installation of interior works; assembly.	Style x Nominal Diameter; x Effective Length.	Locating and tool and die applications, where precision and reuse is needed. Aircraft ground equipment and military.	Available with many handle types. Hole receptacles, lanyards, and accessories are available.

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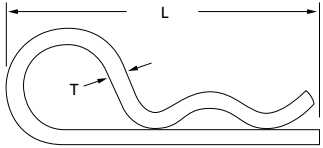
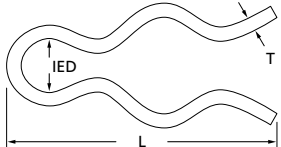
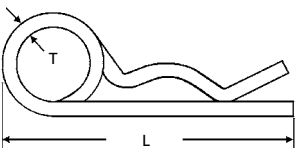
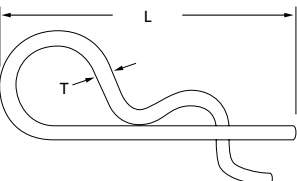
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 <p style="text-align: center;">COTTER PIN</p>	Cotter Keys; Wire Pin	ASME B18.8.1; MS 24665; MS 9245; DIN 94; ASME B18.8.6	Wire formation.	Style x Nominal Diameter; x Effective Length.	Simple attachment of pins with holes. Common in agricultural and outdoor power equipment, where simple design is desired.	Most common problems are end design, head design, or burrs. Extended prong is most common, with square cut available. Head design of metric is more rounded than ANSI.
 <p style="text-align: center;">HAMMERLOCK COTTER PIN</p>	Hammerlock; Castle Nut Cotter; Castle Key	ASME B18.8.1; MS 24665; MS 9245; DIN 94; ASME B18.8.6	Wire formation.	Style x Nominal Diameter; x Effective Length.	Use in castellated nuts, where cotter is used as a locking mechanism. End is intended to "pound" into place.	Cotter pins are not heat treated, so that material endures stress when bent, so that form is retained, versus returning like a spring.
 <p style="text-align: center;">WEDGEFAST</p>	Self Locking Cotter	None known.	Wire formation, and then assembly.	Style x Nominal Diameter; x Effective Length.	Use in heavier duty applications. Limited size range of just two diameters (5/16" and 3/8").	Requires screwdriver or driver of wedge after installation into hole.
 <p style="text-align: center;">CLINCH PIN</p>	Single Action Cotter; Self Locking Cotter Pin	None known.	Wire formation.	Style x Nominal Diameter; x Effective Length.	Light duty and special applications. Part is driven into hole and humped design at end "self locks" the part.	Special use, but part is sold into the market with some regularity.

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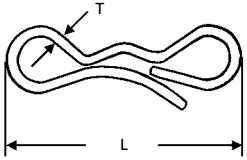
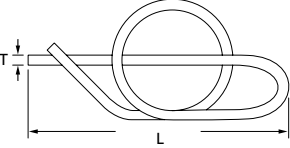
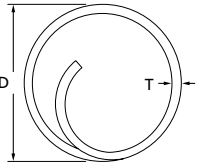
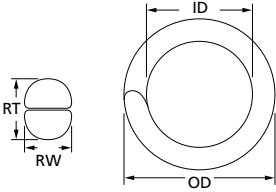
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 <p style="text-align: center;">BRIDGE PIN</p>	Hitch Pin Clips; Hairpin Cotters; Cotter Keys	None known.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Very difficult. Silhouettes are best. Otherwise, Western Wire number; manufacturer number; or use nominal wire diameter and total length, as a start.	Heavier duty and more specialized retention of clevis pins and hitch pins, or any pin that uses a hole for attachment.	Easier to remove and reuse than a cotter pin, and more heavy duty. Ring-like end serves as a handle for hand removal and installation. Identification is most challenging.
 <p style="text-align: center;">HAIRPIN</p>	Hairpin Clips; Hitch Pin Clips; Retaining Pin	None known.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Very difficult. Silhouettes are best. Otherwise, Western Wire number; manufacturer number; or use nominal wire diameter and total length, as a start.	Medium duty and more specialized retention of clevis pins and hitch pins, or any pin that uses a groove for attachment.	Not as heavy duty or precise as an e-clip or snap ring. More common with use on headless pins.
 <p style="text-align: center;">DOUBLE LOOP</p>	Bridge Pin, Ring Pin	None known.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	More common internationally. Very difficult. See Bridge Pins above.	Heavier duty and more specialized retention of clevis pins and hitch pins, or any pin that uses a hole for attachment.	Double loop is deemed heavier duty, and arguably in very high use applications would last longer over time. Fewer sizes available.
 <p style="text-align: center;">GRIP CLIP</p>	Twist Clip. Self Locking Pin	None known.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Only four common sizes available. Identify by Nominal Wire Diameter x Nominal Length.	Twist mechanism is more complicated and some users have difficulty, versus slip on style for standard bridge pin. Install into hole and twist to lock. Light to medium duty.	With all bridge pins, there is a range of shaft diameters available for use in the "gap" of the middle hump. That is one means to ID the correct part for the application.

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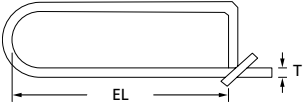
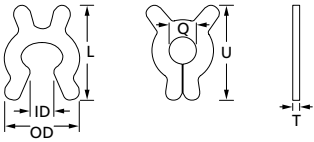
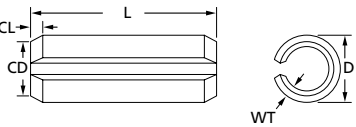
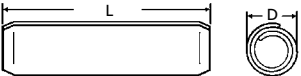
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 <p>BOW TIE COTTER</p>	Double Bridge Pin; Bow Tie	None known.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Only eight common sizes available. Identify by Nominal Wire Diameter x Nominal Length.	Use like a bridge pin. Product advantage is access can be made from both sides, and the part stays on better than a regular bridge pin.	Security in retention appears to be a greater and more popular product feature than dual access.
 <p>RING COTTER</p>	Rue Ring;	None known.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Eleven common sizes available. Identify by Nominal Wire Diameter x Nominal Length.	Heavier duty versions use a heavier gauge wire. Slip part over end of pin, and ring portion slides down to meet hole position. Part is encircled for greater retention.	Prong can be bent over to provide a nearly immovable lock feature.
 <p>CIRCLE COTTER</p>	Cotter Ring	None known.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Wire Diameter x Outside Diameter.	Lighter duty, for use as a retainer of parts with a hole for assembly.	Uses a round wire cross section.
 <p>SPLIT RING</p>	Key Ring, Circle Ring	None known.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Wire Diameter x Inside Diameter. Best to have Outside Diameter when trying to identify.	Heavier Duty, for use as a handle for removal.	Uses a heavier duty half-round wire cross sections, which enhances threading through the hole of mating part.

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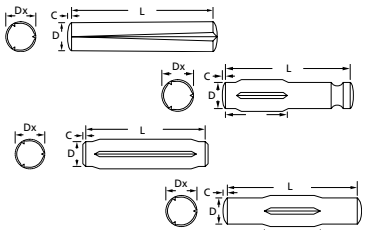
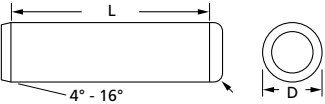
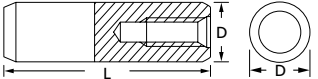
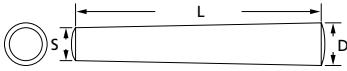
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 <p style="text-align: center;">SAFETY PIN</p>	Clip Style Retaining Pin; Diaper Pin; Wire Tension Pin	None known.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Wire Diameter x Effective Length.	Used in gates, on hitch pins, or in more permanent locations. Large size makes less convenient in many industrial applications.	Coiled version is heavy duty, far more common, and far more reliable. Sometimes used with a lanyard for permanent attachment to mating part.
 <p style="text-align: center;">X RINGS</p>	Crimp Ring Retainers; Snap Ring; Pinch Ring; Clinch Ring	None known.	Stamped part.	Sized for a standard retaining ring groove, thus size is identified by the shaft the part is applied onto.	A "reusable clip", used on grooved shafts, where removal and reuse is a consideration using common pliers.	More common on original equipment. Design is somewhat dated.
 <p style="text-align: center;">ROLLED PIN</p>	Expansion Pin; Spring Pin; Tension Pin; Split Pin	ASME B18.8.2; DIN 1481; ISO 8752; ASME B18.8.4	Roll formed, heat treated. 400 series stainless can be tempered to a much higher strength, but are magnetic, which can "stick" in the hole. 302 is non-magnetic, lower strength, and has better corrosion resistance. Passivation brightens SS parts and reduces user false perception that part is not stainless.	Nominal Diameter x Nominal Length.	Parts are larger than hole, so after installation, tension hold in place. Low cost and versatile pin used in all sectors. Removable and reusable. Problems stem in workmanship (rolled edges do not meet or are too close), and in material.	Problems with metric parts. International (ISO) standards are different than ASME standards. ASME parts have smaller slot, for less nesting; and are made from imperial-sized nominal strip. Parts are cheaper and perform better than DIN ISO counterpart, but makes ID and sale of metric parts challenging.
 <p style="text-align: center;">COILED PIN</p>	Spiral Pins; Expansion Pin; Tension Pin	ASME B18.8.2; ISO 8750; ISO 8748	Roll formed, heat treated. 400 series stainless can be tempered to a much higher strength, but are magnetic, which can "stick" in the hole. 302 is non-magnetic, lower strength, and has better corrosion resistance. Passivation brightens SS parts and reduces user false perception that part is not stainless.	Light Duty; Medium (Standard) Duty; Heavy Duty; Nominal Diameter x Nominal Length. The "duty" is driven by material thickness, which affects outside diameter.	Parts work similar as slotted pins, but because of coil action, parts perform better in out of round holes, and are less susceptible to vibration.	DIN standards are consistent here. The two DIN standards apply to standard duty versus heavy duty.

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ITEM	COMMON NAMES	APPLICABLE STANDARDS	FABRICATION	HOW TO IDENTIFY	COMMON USES	COMMENTS
 <p style="text-align: center;">GROOVED PIN</p>	<p style="text-align: center;">DrivLok Pin</p>	<p style="text-align: center;">ASME B18.8.2; DIN 1469; 1470; 1471; 1472; 1473; 1474; 1475</p>	<p>Parts are turned and grooves are swaged, a process that disrupts the surface of the pin, without removing material. The swage marks are driven into the hole, creating tension and force for holding the part in place.</p>	<p>Nominal Diameter x Nominal Length; define form. The form is determined by the location of the grooves and the presence of pilots and other features.</p>	<p>Mostly original equipment. Used in place of a dowel or rolled pin (Type A); or as a handle (Type E); a pivot point (Type C), or spring anchor (Type G).</p>	<p>Numerous designs. Metric designs are different than imperial, and are more common in Europe.</p>
 <p style="text-align: center;">DOWEL PIN</p>	<p style="text-align: center;">Lock Pins; Straight Pin</p>	<p style="text-align: center;">ASME B18.8.2; MS 16555; MS 16556; DIN 7 (unhardened); DIN 6325 (hardened); ISO 8734</p>	<p>Turning or cold forming for blank; heat-treat; precision centerless grinding. Parts may be fine blanked also.</p>	<p>Nominal Diameter x Nominal Length; define tolerance. Parts are sized based on application. Standard is slightly oversized.</p>	<p>Precision anchor or pivot often used in locating or joining precision parts. Common in tooling and fixtures. Parts should be pressed and not impact driven into the hole.</p>	<p>Measurement of OD is difficult. Must use micrometer and readings can be affected by relative humidity and temperature.</p>
 <p style="text-align: center;">PULL DOWEL PIN</p>	<p style="text-align: center;">Pull Dowel</p>	<p style="text-align: center;">ASME B18.8.2; DIN 7979D (pull out)</p>	<p>Turning or cold forming for blank; thread cutting; heat treat; precision centerless grinding. Parts may be fine blanked also.</p>	<p>Nominal Diameter x Nominal Length.</p>	<p>Precision anchor or pivot often used in locating or joining precision parts. Common in tooling and fixtures. Parts should be pressed and not impact driven into the hole.</p>	<p>Internal threads assist in part removal after installation. Other special designs of dowel pins are available, including vented, grooved, and fluted.</p>
 <p style="text-align: center;">TAPERED PIN</p>	<p style="text-align: center;">Taper Pin</p>	<p style="text-align: center;">ASME B18.8.2; MS 24692; AN 386; DIN 1; DIN 7977 (external thread); DIN 7978 (internally threaded)</p>	<p>Turning; thread rolling (if threaded)</p>	<p>Nominal Diameter x Nominal Length; The Nominal Diameter is called out as a number, that is used to signify the dimension.</p>	<p>Low torque positioning and locking. Often found on printing presses. Mostly used in original equipment. Declining popularity.</p>	<p>There is a precision class versus commercial classes. Precision class are ground parts. Taper is 1/4" per foot, or .0208333 rate of reduction in diameter.</p>