

# COTTER PINS

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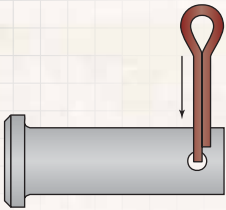
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## COTTER PIN FEATURES

Cotter pins are wire formed pins with two prongs that separate during installation. They are used as a locking device to hold pins or castle nuts in place. These low-cost and highly versatile fasteners are used virtually everywhere.

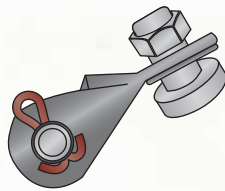
### DESIGN CONSIDERATIONS

#### EASY TO INSTALL



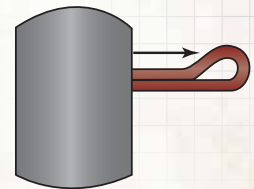
*COTTER PINS CAN BE INSTALLED QUICKLY WITH NO SPECIAL TOOLS*

#### EASY LOCKING



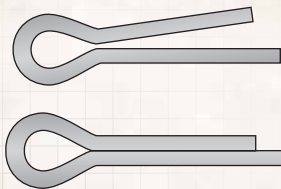
*DESIGNED TO BE EASILY LOCKED IN PLACE, COTTER PINS PROVIDE SECURE FASTENING*

#### REUSABLE



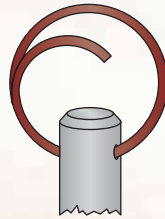
*MOST COTTER PINS ARE EASILY REMOVED AND REUSED, SAVING TIME AND MONEY*

#### EXTENDED PRONG







*EXTENDED PRONG MAKES SEPARATION OF THE PRONGS EASIER*

#### SPECIALIZED FORMS



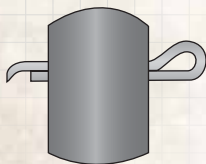
*SPECIALIZED COTTER PINS PROVIDE UNIQUE DESIGN POSSIBILITIES AND ELIMINATE BENDING TO INSTALL*

#### WIRE FORM PINS ARE INTERCHANGEABLE IN MANY APPLICATIONS

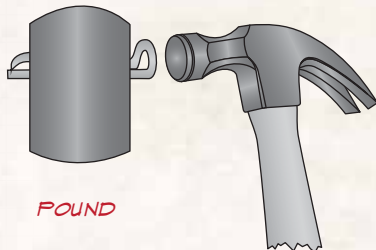
	Bridge Pins Page 106		Cotter Pins Page 82
	Ring Cotter Pins Page 97		Grip Clip Pins Page 118
	Bow Tie Pins Page 96		Circle Cotter Pins Page 98

### INSTALLATION CONSIDERATIONS

#### INSTALLATION OF A HAMMERLOCK PIN



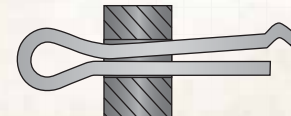
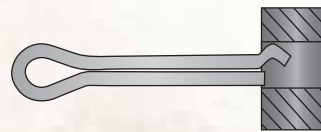
*INSERT*



*POUND*

*PRONGS ARE FORCED APART TO LOCK THE PIN IN PLACE*

#### INSTALLATION OF A CLINCH PIN

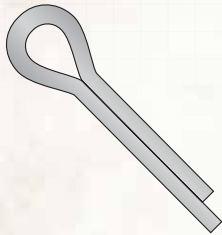


*END SPRINGS OPEN TO LOCK CLINCH PIN INTO PLACE*

## COTTER PIN TYPES

### STANDARD

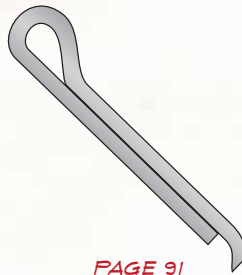
Cotter pins are available in imperial and metric sizes. Standard materials are steel, zinc plated steel, and stainless in extended prong style. Metric is manufactured to DIN 94 specifications.



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### HAMMERLOCK

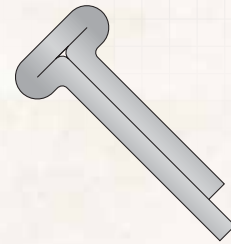
Used with castle nuts, this design allows for fast and accurate assembly. Available in 3/64" through 1/2" diameters.



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### T-HEAD

Same function as standard cotter pins, but designed for use in applications with limited clearance. Available in plain steel, zinc plated steel, and stainless steel.



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### WEDGEFAST

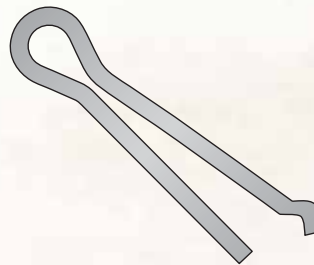
Heavier-duty style with self-locking mechanism incorporated into the design. Available in 5/16" and 3/8" diameters only.



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### CLINCH

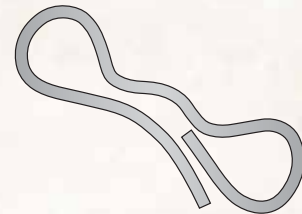
Clinch pins are self-locking reducing installation time by eliminating additional bending after insertion.



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### BOW TIE

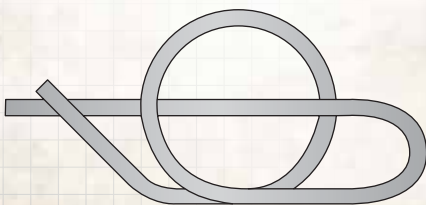
Unique double-end design allows pin to be pulled or pushed into hole from either side. Dual ends provide stronger locking mechanism vs. conventional styles.



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### RING

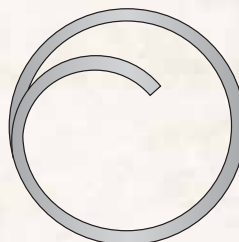
This light/medium duty pin automatically locks into place when the ring slides over the pin. Bending the straight prong after insertion provides additional locking protection.



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### CIRCLE

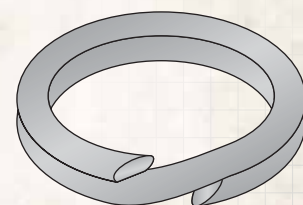
Sharp point is internal to part, thus circle cotters are often used where sharp points are not desirable. Examples include fabric and rubber-sealed environments.



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### SPLIT RING

Heavy duty wire with an off-set or "kickout" to ease installation. Generally made from heavier gauge wire than circle cotters.



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## QUICK REFERENCE GUIDE

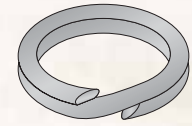
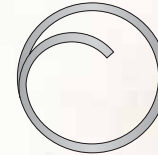
Cotter pins are manufactured from a single strand of half-round wire that is passed through a series of dies and shaped to have a loop at one end to create the head. The formed pin is then inserted into a drilled hole of a clevis pin, shaft, or other mating assembly. Once the prongs are spread apart, the cotter pin becomes the locking mechanism. Specialized designs do not require bending to lock in place.



	COTTER	HAMMERLOCK	WEDGEFAST	CLINCH
<b>COMMON NAMES</b>	Castle Key, Cotter Key, Split Pin, Wire Pin	Castle Key, Castle Nut Cotter	Self-locking Cotter Pin	Single Action Cotter, Self-locking Cotter Pin
<b>APPLICABLE STANDARDS</b>	ASME B18.8.1, MS 24665, MS 9245, DIN 94, ASME B18.8.6	ASME B18.8.1, MS 24665, MS 9245, DIN 94, ASME B18.8.6	None known.	None known.
<b>FABRICATION</b>	Wire formation.	Wire formation.	Wire formation, and then assembly.	Wire formation.
<b>HOW TO IDENTIFY</b>	Style x nominal diameter x effective length.	Style x nominal diameter x effective length.	Style x nominal diameter x effective length.	Style x nominal diameter x effective length.
<b>COMMON USES</b>	Simple attachment of pins with holes. Common in agricultural and outdoor power equipment where simple design is desired.	Use in castellated nuts, where cotter is used as a locking mechanism. End is intended to "pound" into place.	Use in heavier duty applications. Limited size range of just two diameters, 5/16" and 3/8".	Light duty and special applications. Part is driven into hole and humped design at end combined with spring action of prongs self-locks the part.
<b>COMMENTS</b>	Most common problems are end design, head design, or burrs. Extended prong with square cut is most common. Head design of metric is more rounded than ANSI.	Cotter pins are not heat treated making the pin pliable to retain bent form rather than springing back to original shape.	Requires a tap hammer or similar tool to drive the wedge after installation into hole.	Appeared on the market as a special use pin, but usage is more widespread because of self-locking feature.



## QUICK REFERENCE GUIDE



	BOW TIE	RING	CIRCLE	SPLIT RING
<b>COMMON NAMES</b>	Double Bridge Pin, Bow Tie	Rue Ring	Cotter Ring	Key Ring, Circle Ring
<b>APPLICABLE STANDARDS</b>	None known.	None known.	None known.	None known.
<b>FABRICATION</b>	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.	Wire formation. Part requires more specialized tooling. Heat treatment for spring tempering.
<b>HOW TO IDENTIFY</b>	Nominal wire diameter x nominal length.	Nominal wire diameter x nominal length.	Wire diameter x outside diameter.	Wire diameter x inside diameter.
<b>COMMON USES</b>	Extra loop provides additional security. Pin can be pushed or pulled to install.	Heavier duty versions use a heavier gauge wire. When installed ring encircles mating pin locking itself in place.	Lighter duty. Used in applications where protection from prong ends is required.	Heavier duty, for use as a handle for removal rather than a locking device.
<b>COMMENTS</b>	More secure than a standard bridge pin.	Straight prong can be bent over to provide a nearly immovable lock feature.	Uses a round wire cross section.	Manufactured from heavier duty half-round wire which enhances threading through the hole of the mating part.