

Punch Options — Shapes and Keyways

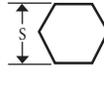
STANDARD SHAPES



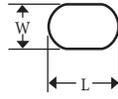
Round



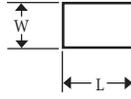
Square



Hex



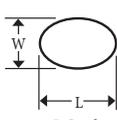
Oblong



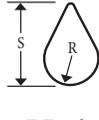
Rectangle

Non-stock sizes and shapes of stock style tooling can be shipped in 24 hours.

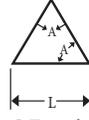
NON-STANDARD SHAPES



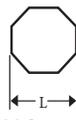
J-Oval (Ellipse)



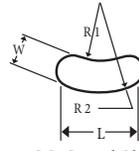
T-Teardrop



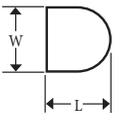
G-Triangle



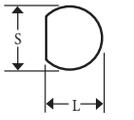
M-Octagon



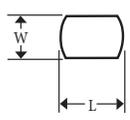
OO-Curved Oblong



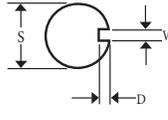
D-Half Oblong



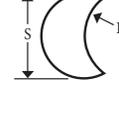
Q-Flatted Round



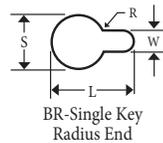
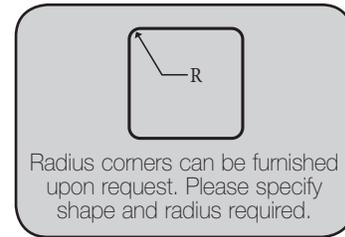
P-Double Flatted Round



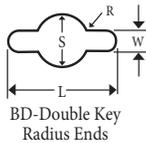
C-Knockout



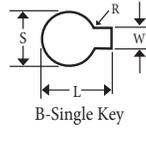
R-Corner Round



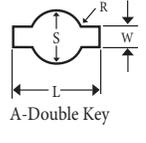
BR-Single Key Radius End



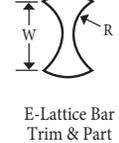
BD-Double Key Radius Ends



B-Single Key



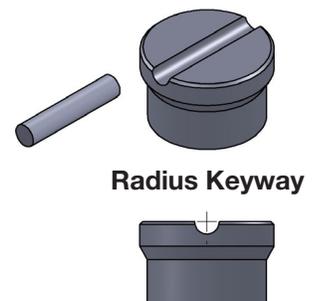
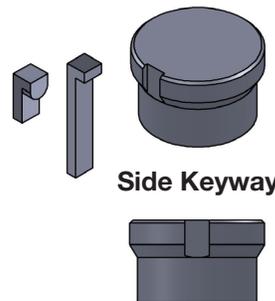
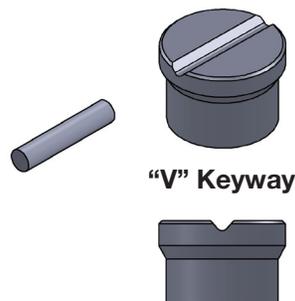
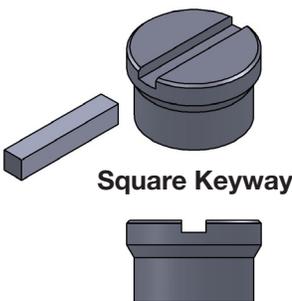
A-Double Key



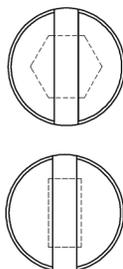
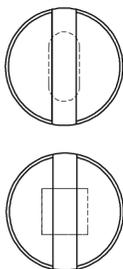
E-Lattice Bar Trim & Part

STANDARD KEYWAYS

Cleveland Steel Tool recommends the use of Keyways for positive alignment of shaped punches. Different ironworker machines use different size and style keyways. Some common styles, shapes and sizes are stocked with keyways, but the necessary keyway can be added to any punch upon request.

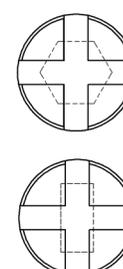
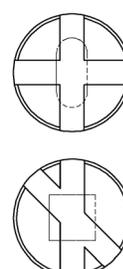


STANDARD KEYWAY POSITIONS



Keyway Sizes

1/4" x 1/8"
"V" Groove
2mm x 4mm
3mm x 6mm
Custom sizes



OPTIONAL KEYWAY POSITIONS

Punch Options

CHOICE OF PUNCH FACES

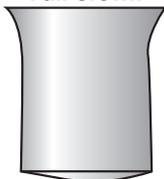
Cleveland Steel Tool offers a Crown Face with Center Point as our standard punch face. Other punch faces are available for special applications, including reducing distortion, and reducing tonnage requirements.

**CST Standard
Crown Face
Center Point**



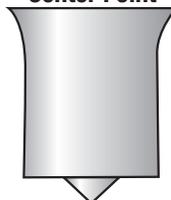
This standard face includes a center point for alignment and a crown face to reduce chipping of the cutting edge in heavy punching applications.

Full Crown



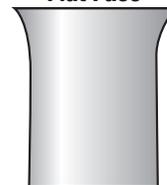
This face reduces the chipping of cutting edges in heavy punching applications. The center point is removed for height clearance between the punch and the material.

**Flat Face
Center Point**



This face includes a center point for alignment and a flat face to reduce distortion when punching repetitive holes in a narrow flat bar such as a fence or railing.

Flat Face



This face is used when punching thin material to reduce deformation of punched material caused by a center point. This punch is also used when the slug is being retained.

"Y" Shear



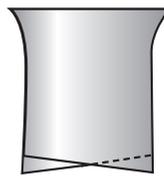
This face is used mainly on thicker material to reduce tonnage.

**"Y" Shear with
Center Point**



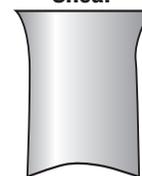
This face is also used on thicker material to reduce tonnage but has a center point for alignment.

"Z" Shear



This face is used for thin material to reduce tonnage and distortion. Must be used on material 16 gauge thick or lighter.

**Concave
Shear**



This face reduces tonnage and distortion on material 1/4" thick and less. This punch will break if used on thicker material.

PUNCH STYLES

These punch styles can be made to your exact specifications. Please provide the style number you require including all dimensions.

