



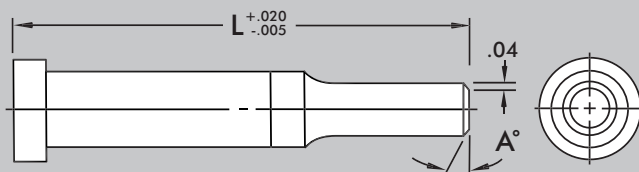
## Shear Angles

Shear Angles can be applied to all punch points. These angles are used primarily to reduce slug pulling. Single and Double Shears can be used to reduce the punching force as well as minimize slug pulling. These alterations are prepriced and do not add to the standard delivery of the product.

Shear Angles are also available on Classified Shapes, but are available as special order only.

### For Round Punches Only

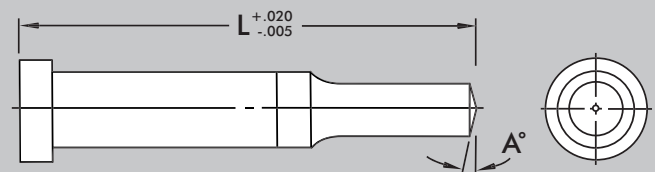
#### XS20 Chamfer



KPX 50 C300 P.400 XS20 A5°

#### XS21 Conical

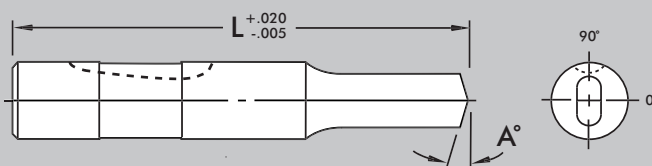
Shown as reflected view



KPX 50 C300 P.400 XS21 A7°

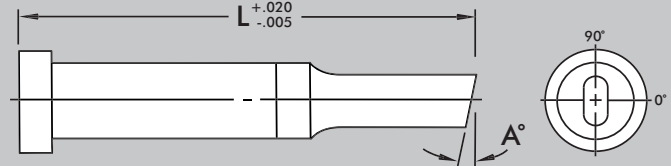
### For Round and Shape Punches

#### XS22 Double Shear



HP0 50 325 P.375 W.250 XS22 A10°

#### XS23 Single Shear



VPO 50 2332 P.400 W.300 XS23 A3°

For your reference standard head flat and dowel locations are at 0°. For ball lock punches the standard ball seat location is at 90°.

Simply add the alteration code shown next to the drawings, and the angle desired, to your punch catalog number. Tolerance on all angles is plus or minus 15 minutes.



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