

# **Geometry of the deformation zone**

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### 1. Quiz - Key:

1. What is the effect of hydrostatic stresses on extrusion of materials?

Hydrostatic stress when applied during the extrusion, enhances the yield strength. Further, this procedure of introducing hydrostatic stress during extrusion could reduce the risk of center cracks, as the hydrostatic stress introduces surface compression. Moreover, hydrostatic stress is known to increase the workability of brittle materials, as it helps delay cracking during extrusion under larger reductions.

2. Define inhomogeneity factor.

It is the ratio of the difference in hardness between center and surface to the hardness at center.

3. Compare plane strain and axi-symmetric deformation (drawing) in respect of redundant deformation and  $\Delta$ .

$\Delta \phi$  are slightly higher for axi-symmetric drawing for equal ratio of cross-sectional area to contact area.