

Analysis of forming- Slipline Field Method

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Analysis of forming –Slipline Field Method

1. Quiz - Key:

1. What is a hodograph?

It is the representation of the velocity vectors in the deformation zone.

2. Define slip lines.

They are planes of maximum shear, along which the material deforms by slip.

3. What is the relation between hydrostatic pressure and shear stress in plane strain deformation?

The general stress state on a solid can be expressed as sum of hydrostatic pressure and shear stress, i.e.

$$\sigma_1 = -p + k \text{ etc.}$$

4. What are the limitations of slip line field method?

It is applicable for plane strain deformation only. It is not valid for strain hardening materials.

5. Define plane strain deformation.

It is a condition in which the strains along one of the three principal directions remain zero.