Bulk Deformation Process – Forging

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1.Bulk Deformation Process – Forging:

1. Quiz:

1. Why is friction factor preferred over coefficient of friction in forming analysis?
2. Which of the following processes are forging operations? Cogging, swaging, thread rolling, trimming, upsetting.
3. A hot upset forging operation is performed on a disk of initial diameter of 25 mm and initial height of 50 mm. The disk is upset to a diameter of 50 mm. The yield strength of the work material at the forging temperature is 85 MPa, with n =0. Assuming a coefficient of friction value of 0.4, determine the final height of the part and the maximum force in the upsetting.
4. Two solid cylinders of equal diameter but of different heights are compressed in a frictionless process to the same percentage height reduction. Show that the final diameters will be the same.
5. A rectangular billet of height 40 mm, width 100 mm and depth 25 mm is upset to a height reduction of 80%. Calculate the force to be applied, taking the strength coefficient as 375 MPa, strain hardening exponent as 0.25 and coefficient of friction as 0.2.