

Thermal effects and friction in forming

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1. What is the difference between m and μ ?

m varies between 1 and 0. μ can exceed 1. Moreover m is independent of the normal pressure.

2. Mention some solid lubricants used in forming process.

Graphite, Molybdenum disulfide, stearates.

3. How does strain rate affect hot forming?

Strain sensitivity parameter depends on temperature. At higher temperatures, the parameter takes up higher values. Therefore, hot forming is very sensitive to strain rates. Higher strain rates during hot working results in adiabatic heating.

4. How does friction help in rolling process?

During rolling of strip, friction acts along the direction of rolling in the lagging zone. Thus friction helps in drawing the material into the roll gap.

5. Under what conditions will sticking friction happen?

When the normal stress at the interface exceeds the yield strength of the material, sticking friction could happen. Also under dry conditions – without lubrication, it can occur.