⑧ Extrusion:-

① Extrusion is the process of confining metal in a closed cavity and then allowing it to flow from only one opening, so that the metal takes the shape of the opening.

② The operation is identical to the squeezing of toothpaste out of a ~~tooth~~ toothpaste tube.

⑧ Type of Extrusion:-

(A) Hot Extrusion:-

① It is carried out above the recrystallization temperature.

② It consists of pressing a metal inside a chamber to force it out by high pressure through an orifice which shaped to provide the desired form of the finished part.

③ Due to higher temperature involved, special equipment is needed and the wear rates are high.

④ The various method of hot extrusion are as following:

(i) Direction Extrusion
(ii) Indirection Extrusion

(B) Cold Extrusion :-

(1) It is carried out below the recrystallization temperature of metal being extruded.

(2) It could also be direct or reverse but extrusion ratio of lower and extrution pressure is higher than the hot extrusion.

(3) Following are the various cold extrusion process.

(i) Impact extrusion.

(ii) Hydrostatic extrusion.

(X) Extrusion Defects :-

(1) Irregularities during the process of extrusion.

(2) These are mainly due to the non-uniform flow and stress distribution.

(3) Number of defects depends upon :

(a) Wall friction

(b) Wall temperature.

Types of Extrusion Defects :-

(1) Surface Cracking.

(2) Internal Cracking.

(3) Piping defect.

① Surface Cracking :-

Surface cracks are developed due to

- High extrusion temperature
- High ram speed
- High friction

- It occurs at high temperature such as hot hardness
- Can also accurs at low temperature.
- These cracks are intergranular.