IS 4296 (Part 2): 2024 Tools for Pressing — Punches Part 2 Punches with Cylindrical Head and Straight or Reduced Shank

Punch is a tool with a pointed or shaped tip that is used to create a hole or mark in a work piece by driving it into the material with force

Pressing tools are crucial across various industries, including construction, metallurgy, and automotive. The main use of the punches specified in this Standard is for punching holes in steel sheet. They may also be used for punching in other materials.

Good quality parameters for punches with cylindrical heads and straight or reduced shanks are crucial to ensure durability, precision, and safety in their application. The following quality parameters for such punches are as follow:

i) **Surface Finish**
ii) **Dimensions and tolerances**
iii) **Material Hardness**

Surface finish is typically quantified in terms of **surface roughness parameters**, commonly measured in micrometers (µm) or microns. Standards often specify **Ra** (average roughness) values for specific applications.

This standard specifies the **basic dimensions and tolerances**, in millimetres, of punches with cylindrical head and straight or reduced shank for normal and heavy loads. Cylindrical head punches with straight and reduced shank are standardized in round, oblong, square, rectangular, rectangular with radius and edge ground shapes.

These punches are available with shank diameters from **1 mm to 32 mm.**

This Standard specifies 12 types of punches namely A, B, BS, BR, BO, C, D, E, F, FS, FR or FO.

The choice of material is left to the manufacturer's discretion; however, recommended hardness values are provided for alloyed cold-work steel with 5 to 12 percent Cr and for high-speed steel.

The above requirements within 4296 (Part 2): 2024 ensure that punches are manufactured and tested to meet the dimensional requirements and surface finish so that the hole made are within the tolerances.