Cold Header Tooling

Specifications



Cold heading carbide is chosen for toughness first: the die must survive repeated impact, not just abrasion. The grades we supply sit in the ranges below; which end of the range depends on the part.

Property	Range supplied
Cobalt (binder) content	About 15–25 %
Tungsten carbide content	About 75–85 %
Grain size	About 2–9 µm
Density	About 13.1–14.0 g/cm³
Hardness	About 81–86 HRA
Transverse rupture strength	About 2,000–2,900 MPa

The work the die does sets the direction. Where wear dominates — extrusion and reducing — a lower-cobalt grade holds its size longer. Where impact dominates — upsetting and heavy heading blows — a higher-cobalt grade resists cracking.

Our recommendation:

- Heavy impact — large heads, long upsets, hard wire: higher cobalt (around 20–25 %) with a coarser grain. Tougher, less likely to crack.
- Wear-critical dies and stainless steel wire: lower cobalt (around 15–18 %) with a finer grain. Harder, longer wear life where impact is moderate.

- Standard carbon-steel screws and bolts: a mid-range grade with about 20 % cobalt is the usual choice.

Grade is matched to your part, wire and machine, and confirmed on the quotation. Carbide inserts are supplied in steel cases to the case dimensions your machine takes.