



K M V

D2

COLD WORK TOOL STEEL

Nominal Chemical
Analysis %

C	1.50
Cr	12.00
Mo	.80
V	.90

Heat Treatment

Annealing

800 / 850°C for 4 hours approx.
Cool slowly in the furnace at 20°C maximum per hour.

Stress Relieving

650 / 700°C for 2 hours approx.
Cool in still air. Always stress relieve before hardening.

Hardening

Pre-Heating

- (i) 400°C Holding time at temperature:
1 min / mm effective section approx.
- (ii) 650°C Holding time at temperature:
30 sec / mm effective section approx.
- (iii) 850°C Holding time at temperature:
30 sec / mm effective section approx.

Austenitizing

980/1020°C Holding time at temperature:
90 sec / mm effective section approx.

D2 is suitable for Vacuum Hardening.

Quenching:-

- (i) Quench in Air or,
- (ii) Quench in Oil or,
- (iii) Quench into Neutral Salts (Martempering) at 500 / 550°C then cool slowly in still air.

Temper immediately after quenching whilst tools are still hand warm.

Corresponding Specifications

AISI	D2
BS EN ISO 4957:2000	X153CrMoV12
Supersedes BS4659	BD2
WKSTOFF	1.2379

Colour Code: Purple

Delivery Condition

Annealed 255 BHN Max

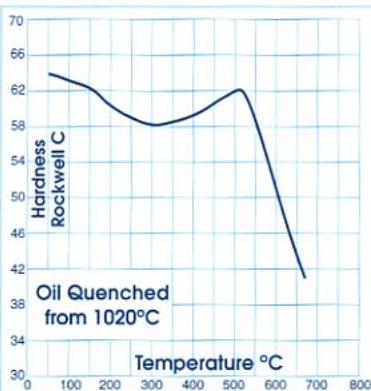
Characteristics

D2 is a high carbon, high chromium tool steel giving a combination of excellent wear resistance, high hardness and good toughness. It is extremely stable in hardening and is capable of being nitrided.

Applications

D2 is suitable for many cold working applications: fine blanking tools, heavier duty press tools, punches and dies, shear blades, granulating knives, slitting cutters, clipping tools, thread rolling dies, moulds for abrasive compounds, forming rolls, deep drawing tools, cold extrusion tools, spinning tools.

Tempering



Consult the tempering diagram and temper according to requirements.

Temper for 1 hour / 25mm effective section for a minimum of 2 hours, then cool in still air.

For guidance, temper at:

- 150 / 220°C for maximum hardness
- 250 / 300°C for hardness with toughness
- 450 / 550°C for maximum toughness

Triple tempering is recommended, cooling to room temperature between tempers.

NB. Lower hardness values will tend to result when hardening larger sections.