

HMoD/1.2889

CHEMICAL PROPERTIES:

Brand	Mat.-No.	Short name	Reference analysis %						
			C	Si	Mn	Co	Cr	Mo	V
HMoD	1.2889	X45CoCrMoV5-5-3	0.45	0.30	0.40	4.50	4.50	3.0	2.0

TYPE OF STEEL AND CHARACTERISTICS:

High alloy hot-work steel with maximum tempering resistance, high temperature strength and wear resistance. Analysis is similar to that of „HWD“, but on molybdenum base instead of tungsten, thus providing improved toughness.

APPLICATIONS:

Extrusion dies for brass, die holders for the extrusion of copper and copper alloys; die casting tools for copper and copper alloys, particularly for thin wall parts; cores exposed directly to pouring stream in die casting moulds for aluminium alloys; press tools, mainly punches, for copper and copper alloys; small inserts and dies for steel extrusion.

HEAT TREATMENT:

Annealing: Temperature: 820 - 840°C

Holding time: 4 - 6 h; slow furnace cooling

Hardness after annealing: max. 240 HB.

Stress relieving: Temperature: appr. 650°C

Holding time: 2 - 4 h; slow cooling

Hardening: Temperature: 1120 - 1150°C

Quenching: air, step quenching at appr.540°C, oil or polymer (when oil or polymer,interrupt at 250 - 300°C); or vacuum hardening.

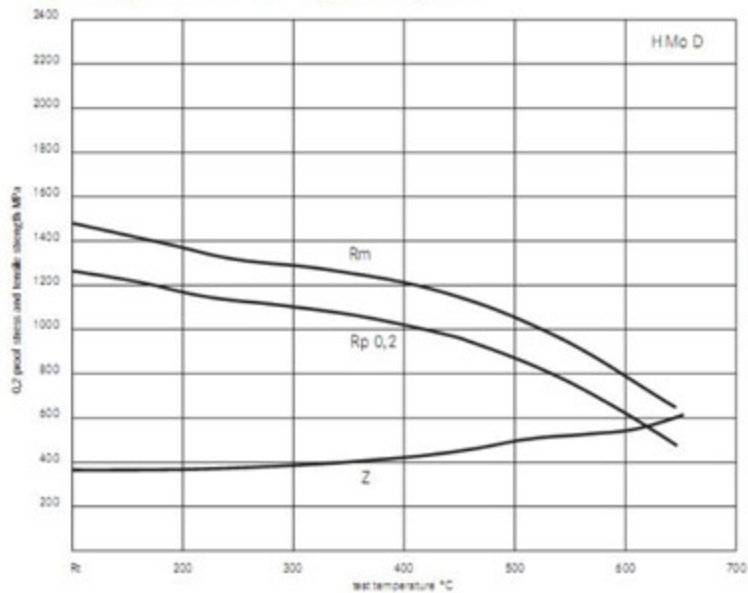
Hardness obtainable: appr. 54 HRC (oil or polymer quenching).

Tempering: Temperature: 580 - 750°C ,To increase toughness, temper 2 or 3 times

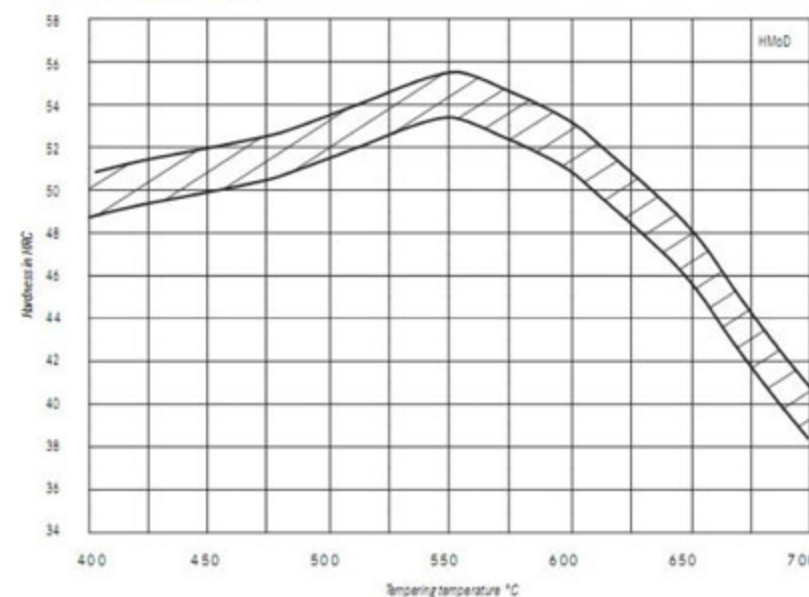
Nitriding: possible

preheating before use: 200 - 400°C – is recommended.

High temperature strength diagram



Tempering diagram



TTT-Diagram

