

Quality	35CrMo7	Supply conditions:
According to standards	UNI EN ISO 4957: 2002	Quenched and tempered
Number	1.2302	

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	Deviations allowed for analysis product
0,30-0,40	0,30-0,70	0,60-1,00	0,030	0,030	1,50-2,00	0,35-0,55	
± 0.03	± 0.03	± 0.04	+ 0.005	+ 0.005	± 0.07	± 0.05	

Product deviations are allowed

Temperature °C

Hot-forming	Normalizing	Quenching ¹⁾	Quenching ²⁾	Tempering _{1) or 2)}	Pre-heating welding	Stress-relieving after welding	
1050-900	850-900 air	840-860 oil or polymer	860-880 air	650-670 air minimum 2 cycles	250-300	600 furnace cooling	
Soft annealing	Isothermal annealing	Spheroidizing	End quench hardenableity test	Ac1	Ac3	Ms	Mf
720-740 calm air (HB max 230)				760	780	340	100

Usually supplied quenched and tempered with hardness value of about 300 HB

Mechanical and physical properties

Table of tempering values at room temperature on round Ø 10 mm after quenching at 860°C in oil

HB	496	482	482	468	461	455	437	421	400	381	353	327	286
HRC	51	50	50	49	48.5	48	46.5	45	43	41	38	35	30
N/mm ²	1820	1760	1760	1700	1670	1640	1550	1480	1390	1300	1180	1080	950
Tempering at °C	50	100	150	200	250	300	350	400	450	500	550	600	650

Thermal expansion	10 ⁻⁶ • K ⁻¹			12.8	13.0	13.8	14.0	14.2
Modulus of elasticity	longitudinal	GPa	210					
Modulus of elasticity	tangential	GPa	80					
Testing at °C			20	100	200	300	400	500

Specific heat capacity J/(Kg•K)	Density Kg/dm ³	Thermal conductivity W/(m•K)	Specific electric resist. Ohm•mm ² /m	Electrical conductivity Siemens•m/mm ²
460	7.85	33	0.19	5.26

Cold-work tool steels

- chromium-molybdenum-low carbon steel family is largely used for the manufacturing of medium-sized moulds for the plastic industry
- easily machinable also in its hardened and tempered state; the last peculiarity allows the hardening of complex shape tools, without risks of crack
- particularly suitable for polishing and photo-engraving
- applications: *moulds in general; hard metal roughing cutters*