

Quality	40CrMnMoS8-6	Supply conditions:	<i>Technical card</i>
According to standards	DIN 17350: 1980	Annealed HB max 230	Lucefin Group
Number	1.2312	Quenched and Tempered HB 280-330	<i>rev. 2018</i>

Chemical composition

C%	Si%	Mn%	P% max	S%	Cr%	Mo%
0,35-0,45	0,30-0,50	1,40-1,60	0,030	0,05-0,10	1,80-2,00	0,15-0,25
± 0.03	± 0.03	± 0.08	+ 0.005	± 0.01	± 0.07	± 0.04

Product deviations are allowed

Temperature °C

Hot-forming	Normalizing +N	Quenching +Q	Quenching +Q	Tempering +T		
1050-850	850-900 air	840-860 oil or polymer (HRC ~ 54)	860-880 calm or forced air (HRC ~ 46)	600-680 calm air minimum 2 cycles		
Soft annealing +A	Stress-relieving +SR		Pre-heating welding	Stress-relieving after welding		
700-740 furnace cooling max 20 °C/h to 600, then air (HB max 230)	50 under the temperature of tempering		250-300	600 furnace cooling		
			Ac1	Ac3	Ms	Mf
			760	800	260	140

Mechanical properties

Heat treatment: quenching at 860 °C in oil, tempering at 600 °C *for information*

		Kv longitudinal J									HB at the depth mm					
R	N/mm ²	1000	890	16	20	30	40	50	60	78	340	336	330	327	318	HB
Rp 0.2	N/mm ²	880	750													
Test at °C	20	200	0	20	40	60	80	100	120							

Tempering table values at room temperature on round of Ø 25 mm after quenching at 860 °C in oil

HB	543	525	520	512	496	482	468	450	432	400	371	336	301	286
HRC	54	53	52.5	52	51	50	49	47.5	46	43	40	36	32	30
R N/mm²	2010	1950	1900	1880	1820	1760	1700	1600	1520	1390	1250	1110	1010	950
Kv +20 °C J	-	-	-	-	-	9	9	9	8	9	14	20	30	-
Tempering at °C	50	100	150	200	250	300	350	400	450	500	550	600	650	700

Thermal expansion	10 ⁻⁶ .K ⁻¹	▶	12.8	13.0	13.8	14.0	14.2	14.4	14.5	
Modulus of elasticity	long. GPa	210	196	177						
Modulus of elasticity	tang. GPa	81	75	68						
Specific heat capacity	J/(Kg.K)	460								
Thermal conductivity	W/(m.K)	34.0	33.4	33.0						
Density	Kg/dm ³	7.85								
Specific electric resist.	Ohm.mm ² /m	0.19								
Electrical conductivity	Siemens.m/mm ²									
°C		20	100	200	250	300	400	500	600	700

The symbol ▶ indicates temperature between 20 °C and 100 °C, 20 °C and 200 °C ...

Europe EN	Germany DIN	China GB	Japan JIS	India IS	R. of Korea KS	Russia GOST	USA AISI/SAE
40CrMnMoS8-6							

Tool steel for plastic moulding and extrusion

- it is obtained through a special production process which allows a high level of micro-purity
- high level of machinability
- good suitability for nitriding, good wear resistance
- applications: *small and medium-sized moulds for the automotive and food industry, moulds for rubber pressing, pressure moulds for thermosetting compounds (SMC Sheet Moulding Compound, BMC Bulk Moulding Compound), bolsters, moulds for coining*
- extrusion: *dies and gauges for PVC, mechanical parts for extrusion presses*