Quality	**40CrMnNiMo8-6-4**	Supply conditions:	*Technical card*
According to standards	**UNI EN ISO 4957: 2002**	Annealed HB max 235	***Lucefin Group***
Number	**1.2738**	Quenched and Tempered HB 290-340	*rev. 2018*

Chemical composition

C%	**Si%**	**Mn%**	**P%** max	**S%** max	**Cr%**	**Mo%**	**Ni%**
0,35-0,45	0,20-0,40	1,30-1,60	0,035	0,035	1,80-2,10	0,15-0,25	0,90-1,20
± 0.03	± 0.03	± 0.08	+ 0.005	+ 0.005	± 0.07	± 0.03	± 0.07

Product deviations are allowed

Upon agreement, the sulphur content can be increased to 0,05-0,10%

Temperature °C

Hot-forming	**Normalizing +N**	**Quenching +Q**	**Tempering +T**	**Tempering +T**
1050-850	850-890 air	840-860 oil or polymer (HRC ~ 52)	860-880 calm or forced air (HRC ~ 46)	500-600 calm air minimum **2** cycles

Soft annealing +A	**Stress-relieving +SR**	**Pre-heating welding**		**Stress-relieving after welding**	
710-740 furnace cooling max 20° h to 600, then air (HB max 235)	50° under the temperature of tempering	250-300		500 furnace cooling	
		Ac_1	**Ac_3**	**Ms**	**Mf**
		705	795	215	20

Mechanical properties

Heat treatment: quenching at 850 °C in oil, tempering at 600 °C *for information*

			Kv longitudinal J							**HB** at the depth **mm**						
R N/mm²	1020	900	18	20	25	35	40	50	75	340	340	340	336	330	310	HB
Rp 0.2 N/mm²	900	760								**100**	**200**	**300**	**400**	**500**	**600**	mm
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	512	512	504	482	475	468	448	432	409	390	353	319	286
HRC	52	52	51.5	50	49.5	49	47.5	46	44	42	38	34	30
R N/mm²	1880	1880	1850	1760	1730	1700	1600	1520	1430	1340	1180	1050	950
Kv +20 °C J	-	-	-	-	-	10	10	10	10	10	14	20	32
Tempering at **°C**	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**550**	**600**	**650**

Thermal expansion	$10^{-6} \bullet K^{-1}$	►	12.8	13.0	13.4	13.8	14.0	14.2	14.2	14.5
Modulus of elasticity long.	GPa	204			188			160		
Modulus of elasticity tang.	GPa	81			75			68		
Specific heat capacity	J/(Kg•K)	460			508			558		
Thermal conductivity	W/(m•K)	32.0			31.1			30.0		
Density	Kg/dm³	7.83								
Specific electric resist.	Ohm•mm²/m	0.19								
Electrical conductivity	Siemens•m/mm²	5.26								
°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	**Germany**	**China**	**Japan**	**India**	**R. of Korea**	**Russia**	**USA**
EN	DIN	GB	JIS	IS	KS	GOST	AISI/SAE
40CrMnNiMo8-6-4	40CrMnNiMo8-6-1						

Tool steel for plastic moulding and extrusion

- it is obtained through a special production process which allows a high micro-purity level
- good suitability for nitriding, good wear resistance, excellent suitability for photo-engraving and polishing
- good weldability
- applications: *large 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*
- extrusion: *dies and gauges for PVC, mechanical parts for extrusion presses*