Quality	**40CrMnNiMo8-6-4**	Supply conditions:	*Technical card*
According to standards	EN ISO 4957: 2002	Quenched and Tempered	***Lucefin Group***
Number	**1.2738**		

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**	**Quenching**	**Tempering**	**Tempering**
1050-850	850-890 air	840-860 oil or polymer	860-880 calm or forced air	500-600 calm air minimum **2** cycles

Soft annealing	**Stress-relieving**	**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 **Lucchini**Sidermeccanica esperience KeyLos 2728

	N/mm²	N/mm²	**Kv** longitudinal J							**HB** at the depth **mm**						
R	1020	900	18	20	25	35	40	50	75	340	340	340	336	330	310	HB
Rp 0.2	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°	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	210			196			177			
Modulus of elasticity	tang.	GPa	81			75			68			
Testing at	**°C**		**20**	**100**	**200**	**250**	**300**	**400**	**500**	**600**	**700**	

Specific heat capacity	**Density**	**Thermal conductivity** W/(m•K)			**Specific electric resist.**	**Electrical conductivity**
J/(Kg•K)	Kg/dm³	**20 °C**	**250 °C**	**500 °C**	Ohm•mm²/m	Siemens•m/mm²
460	7.83	32.0	31.1	30.0	0.19	5.26

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*