

<b>Quality</b>	<b>40CrMnNiMo8-6-4</b>	Supply conditions:
According to standards	EN ISO 4957: 2002	Quenched and Tempered
Number	<b>1.2738</b>	

## 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
<b>Soft annealing</b>		<b>Stress-relieving</b>		<b>Pre-heating welding</b>
710-740 furnace cooling max 20° h to 600, then air (HB max 235)		50° under the temperature of tempering		250-300
				<b>Stress-relieving after welding</b>
				500 furnace cooling
				<b>Ac1</b> <b>Ac3</b> <b>Ms</b> <b>Mf</b>
				705      795      215      20

## Mechanical properties

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

	N/mm <sup>2</sup>	N/mm <sup>2</sup>	Kv longitudinal J							HB at the depth mm						
<b>R</b>	1020	900	18	20	25	35	40	50	75	340	340	340	336	330	310	HB
<b>Rp 0.2</b>	900	760								<b>100</b>	<b>200</b>	<b>300</b>	<b>400</b>	<b>500</b>	<b>600</b>	mm
Test at °C	<b>20</b>	<b>200</b>	<b>0</b>	<b>20</b>	<b>40</b>	<b>60</b>	<b>80</b>	<b>100</b>	<b>120</b>							

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

<b>HB</b>	512	512	504	482	475	468	448	432	409	390	353	319	286
<b>HRC</b>	52	52	51.5	50	49.5	49	47.5	46	44	42	38	34	30
<b>R</b> N/mm <sup>2</sup>	1880	1880	1850	1760	1730	1700	1600	1520	1430	1340	1180	1050	950
<b>Kv +20°</b> J						10	10	10	10	10	14	20	32
Tempering at °C	<b>50</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>	<b>300</b>	<b>350</b>	<b>400</b>	<b>450</b>	<b>500</b>	<b>550</b>	<b>600</b>	<b>650</b>

<b>Thermal expansion</b>	10 <sup>-6</sup> •K <sup>-1</sup>			12.8	13.0	13.4	13.8	14.0	14.2	14.2	14.5
<b>Modulus of elasticity</b> long.	GPa		210			196			177		
<b>Modulus of elasticity</b> tang.	GPa		81			75			68		
Testing at	°C		<b>20</b>	<b>100</b>	<b>200</b>	<b>250</b>	<b>300</b>	<b>400</b>	<b>500</b>	<b>600</b>	<b>700</b>

Specific heat capacity J/(Kg•K)	Density Kg/dm <sup>3</sup>	Thermal conductivity W/(m•K)			Specific electric resist. Ohm•mm <sup>2</sup> /m	Electrical conductivity Siemens•m/mm <sup>2</sup>
		20 °C	250 °C	500 °C		
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*