

<b>Quality</b>	<b>54NiCrMoV6</b>	Supply conditions:
According to standards		Quenched and Tempered
Number	<b>1.2711</b>	

## Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	Ni%	V%
0,50-0,60	0,15-0,35	0,50-0,80	0,025	0,025	0,60-0,80	0,25-0,35	1,50-1,80	0,07-0,12

## Temperature °C

Hot-forming	Quenching	Quenching	Tempering			
1000-850	heating up to 650, pause, then 830-870 oil, polymer (HRC 52-58)	870-900 air (HRC 44-50)	see table immediately after quenching minimum 2 cycles			
Soft annealing	Stress relieving annealing	Stress-relieving must be done after machining and before quenching	Pre-heating welding	Stress-relieving after welding		
660-700 furnace cooling to 150, then air (HB max 248)	670 furnace cooling to 300, then air		350	650 furnace cooling		
			<b>Ac1</b>	<b>Ac3</b>	<b>Ms</b>	<b>Mf</b>
			720	790	280	50

## Mechanical and physical properties

Tempering table						
<b>HB</b>	482	432	400	371	336	quenching in oil
<b>HRC</b>	50	46	43	40	36	quenching in oil
<b>N/mm<sup>2</sup></b>	1760	1520	1390	1250	1110	quenching in oil
<b>HB</b>	455	409	381	353	327	quenching in air
<b>HRC</b>	48	44	41	38	35	quenching in air
<b>N/mm<sup>2</sup></b>	1640	1430	1300	1180	1080	quenching in air
Tempering to °C	<b>400</b>	<b>500</b>	<b>550</b>	<b>600</b>	<b>650</b>	

<b>Modulus of elasticity</b>	long. GPa	215				176	165		
<b>Modulus of elasticity</b>	tang. GPa	82				68	63		
<b>Thermal expansion</b>	10 <sup>-6</sup> • K <sup>-1</sup>		12.5	13.1	13.4	13.9	14.0	14.2	14.4
<b>Thermal conductivity</b>	W/(m•K)	35.0					35.6	35.0	
<b>Specific heat capacity</b>	J/(Kg•K)	460					550	590	
<b>Specific electric resist.</b>	Ohm•mm <sup>2</sup> /m	0.30					0.71	0.84	
<b>Electrical conductivity</b>	Siemens•m/mm <sup>2</sup>	3.33					1.41	1.19	
<b>Density</b>	Kg/dm <sup>3</sup>	7.80					7.64	7.60	
<b>R</b> hardened and tempered for	N/mm <sup>2</sup>	<b>1600</b>				1200	1000	600	
<b>Rp 0.2</b>	N/mm <sup>2</sup>	1450				1000	750	350	
<b>R</b> hardened and tempered for	N/mm <sup>2</sup>	<b>1200</b>				950	700	300	
<b>Rp 0.2</b>	N/mm <sup>2</sup>	1040				700	500	200	
Test at	°C	<b>20</b>	<b>100</b>	<b>200</b>	<b>300</b>	<b>400</b>	<b>500</b>	<b>600</b>	<b>700</b>

### Hot-work tool steel

- good strength and toughness
- excellent wearproof
- suitable for deep engraving
- mean machinability
- applications: large-sized dies, extrusion press tools, press-forging dies, forming rolls, moulds for plastic industries, drop-forging dies, bending and embossing tools, dies for artificial resins, tools for tube extrusion