

Quality	45NiCrMo16	Supply conditions:	<i>Technical card</i>
According to standards	UNI EN ISO 4957 : 2002	Annealed HB max 285	Lucefin Group
Number	1.2767		<i>rev. 2018</i>

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	Ni%
0,40-0,50	0,10-0,40	0,20-0,50	0,030	0,030	1,20-1,50	0,15-0,35	3,80-4,30
± 0.03	± 0.03	± 0.04	+ 0.005	+ 0.005	± 0.07	± 0.03	± 0.07

Product deviations are allowed

Temperature °C

Hot-forming	Quenching +Q	Tempering +T	Stress-relieving ¹⁾ +SR	¹⁾ Stress-relieving must be done after machining and before quenching
1050-850	heating up to 680, pause, then 840-870 oil, polymer (HRC 54-58) forced air (HRC 53-57)	immediately after quenching 200-600 air minimum 2 cycles	630 furnace cooling to 350, then air	
Soft annealing +A	Stress-relieving +SR	Pre-heating welding	Stress-relieving after welding	
630-650 air (HB max 285)	50° under the temperature of tempering	350	550 furnace cooling	
		Ac1	Ac3	Ms
		640	740	250
				Mf
				30

Mechanical and physical properties

Tempering table values at room temperature on Ø 25 mm after quenching at 880°C in oil												
HB	577	577	560	543	512	482	455	432	409	390	371	353
HRC	56	56	55	54	52	50	48	46	44	42	40	38
R N/mm ²	2160	2160	2070	2010	1880	1760	1640	1520	1430	1340	1250	1180
Tempering at °C	50	100	150	200	250	300	350	400	450	500	550	600
Thermal expansion	10 ⁻⁶ • K ⁻¹		►	11.7	12.5	13.0	13.4	13.7	13.8			
Modulus of elasticity long.	GPa		210									
Modulus of elasticity tang.	GPa		80									
Specific heat capacity	J/(Kg•K)		460									
Thermal conductivity	W/(m•K)		28.0	32.9	34.6	35.1						
Density	Kg/dm ³		7.85									
Specific electric resist.	Ohm•mm ² /m		0.30									
Electrical conductivity	Siemens•m/mm ²		3.33									
°C	20	100	200	300	400	500	600					

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
45NiCrMo16	X45NiCrMo4		SKT 6		STF 6	45Ch2N4MA	

Steel for medium and large-sized moulds (hot and cold work)

- high hardenability also for large dimensions
- it is supplied in the annealed state to be easily machined before quenching
- self-hardening steel, good toughness
- little sensitive to deformation during heat treatment
- good polishability
- applications: *anvils block, rams, drop balls, moulds for coinings, shears, shear blades*