

Quality	35NiCrMoV12-5	Supply conditions:	<i>Technical card</i>
According to standards	Werkstoff	Annealed HB max 240	Lucefin Group
Number	1.6959	Quenched and Tempered 230-280 / 270-320	<i>rev. 2018</i>

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	Ni%	V%
0,30-0,40	0,15-0,35	0,40-0,70	0,015	0,015	1,00-1,40	0,35-0,60	2,50-3,50	0,08-0,20

Temperature °C

Hot-forming	Quenching +Q	Tempering see table +T	Stress-relieving +SR	Stress-relieving must be done after machining and before quenching			
1100-900	heating up to 650, pause, then 850 oil, polymer, forced air	immediately after quenching minimum 2 cycles	680 furnace cooling to 300, then air				
Soft annealing +A	750 furnace cooling max 20°/h to 600, pause, then air (HB max 240)		Stress-relieving +SR	Pre-heating welding	Stress-relieving after welding		
		50° under the temperature of tempering, furnace cooling max 20°/h to 300, then air	300	550 furnace cooling			
			Ac1	Ac3	Ms	Mf	
			710	800	320	100	
Flame and induction hardening	850-870 water, oil		Nitriding	500-530			

Mechanical properties

Tempering table values at room temperature after quenching at 850 °C in oil. For information

HB	468	435	420	381	375	
HRC	49	46.5	44.5	41	38.5	
R N/mm ²	1700	1550	1460	1300	1200	
Tempering at °C	450	500	550	600	650	
Thermal expansion	10 ⁻⁶ · K ⁻¹	▶	11.1	12.1	13.4	14.8
Modulus of elasticity long.	GPa	210			196	177
Modulus of elasticity tang.	GPa	81			75	68
R after tempering at 550 °C	N/mm ²	1460		1280		
Rp 0.2 after tempering at 550 °C	N/mm ²	1320		1120		
Specific heat capacity	J/(Kg·K)	460				
Thermal conductivity	W/(m·K)	24.7			24.3	23.9
Density	Kg/dm ³	7.85				
Specific electric resistivity	Ohm·mm ² /m	0.19				
Electrical conductivity	Siemens·m/mm ²					
°C		20	100	200	250	500

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
35NiCrMoV12-5	35NiCrMoV12-5					38ChN3MFA	

Alloyed steel for plastic moulds

- high resistance to mechanical stress, excellent toughness
- good machinability, excellent suitability for photo-engraving and polishing
- good suitability to nitriding, excellent wear resistance
- good weldability
- applications: *medium and large-sized moulds for the automotive industry, moulds for pressing, pressure moulds, bolsters for plastic pressure pouring*
- extrusion: *mechanical parts for extrusion presses, dies and gauges for PVC*