

Quality	X38CrMoV5-3	Supply conditions:	<i>Technical card</i>
According to standards	UNI EN ISO 4957: 2002	Annealed HB max 229	Lucefin Group
Number	1.2367		<i>rev. 2018</i>

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	V%
0,35-0,42	0,30-0,50	0,30-0,50	0,030	0,020	4,80-5,20	2,70-3,20	0,40-0,60
± 0.02	± 0.03	± 0.04	+ 0.005	+ 0.005	± 0.10	± 0.10	± 0.04

Product deviations are allowed

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 850, pause, then 1030-1080 oil, polymer, vacuum 10°/min. (HRC ~ 56)	Immediately after quenching minimum 2 cycles	600-650 furnace cooling to 300, then air				
Soft annealing +A	Stress relieving ¹⁾ +SR		Pre-heating welding	Stress-relieving after welding			
800 furnace cooling max 25°/h to 600, then air (HB max 229)	50° under the temperature of tempering		350	¹⁾			
			Ac1	Ac3	Ms	Mf	
			850	950	335	120	

Mechanical properties

Tempering table values at room temperature on Ø 25 mm after quenching at 1040 °C in oil

HB	577	560	543	512	512	512	512	525	543	543	543	512	432
HRC	56	55	54	52	52	52	52	53	54	54	54	52	46
R N/mm ²	2160	2070	2010	1880	1880	1880	1880	1950	2010	2010	2010	1880	1520
Tempering at °C	50	100	150	200	250	300	350	400	450	500	550	600	650

Mechanical values related to hardness HRC

HRC hardness	R N/mm ²	Rp 0.2 N/mm ²	A%	Z%
52	1880	1552	12	35
48	1640	1331	13	38
44	1430	1179	13	40

Thermal expansion	10 ⁻⁶ • K ⁻¹	►	11.5	12.0	12.2	12.5	12.9	13.0	13.2				
Modulus of elasticity long.	GPa		210			175		166					
Modulus of elasticity tang.	GPa		80			67		640					
R +QT	N/mm ²		1600			1350	1150	900	700				
Rp 0.2	N/mm ²		1460			1150	950	700	580				
Specific heat capacity	J/(Kg•K)		460				550	590					
Thermal conductivity	W/(m•K)		25.0				34.2	34.9					
Density	Kg/dm ³		7.85				7.69	7.65					
Specific electric resist.	Ohm•mm ² /m		0.50				0.84	0.94					
Electrical conductivity	Siemens•m/mm ²												
°C			20	100	200	300	400	500	600	650	700		

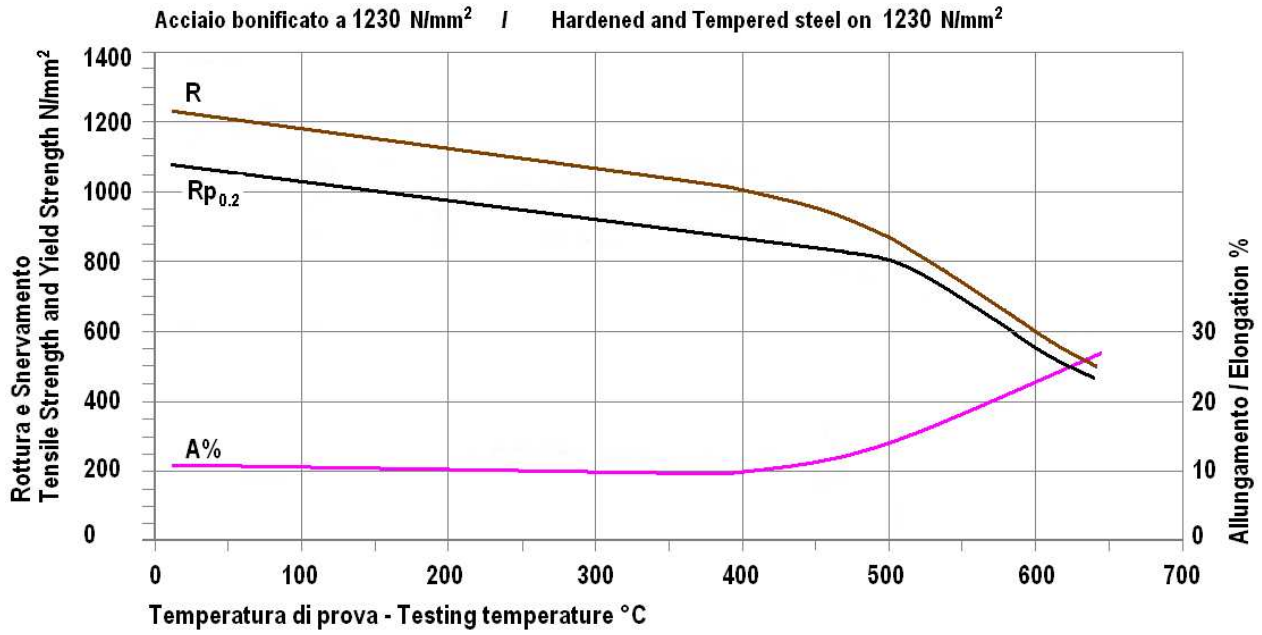
The symbol ► indicates temperature between 20 °C and 100 °C, 20 °C and 200 °C ...

Europe	Germany	China	Japan	India	R. of Korea	Russia	USA
EN	DIN	GB	JIS	IS	KS	GOST	AISI/SAE
X38CrMoV5-3	X38CrMoV5-3						

Chrome-molybdenum-vanadium alloyed tool steel (designed for dies, moulds, punches subject to high-working temperatures)

- high resistance to thermal shock and hot cracking
- excellent mechanical characteristics and toughness in hot condition
- good resistance to tempering
- very low segregation level and excellent machinability
- applications: *dies for aluminium die-casting, dies subject to low pressure, chill moulds for gravity casting, containers and dies for aluminium extrusion, extrusion press blocks, injection moulds*

X38CrMoV5-3 1.2367 Mechanical properties at elevated temperature R 1230 N/mm²



X38CrMoV5-3 1.2367 Mechanical properties at elevated temperature R 1430 N/mm²

