

Quality	100CrMnMoSi8-4-6	Bearing Steel	<i>Technical card</i>
According to standard	EN ISO 683-17: 2014		Lucefin Group
Number	1.3539		rev. 2018

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	Cu% max	Al% max	
0,93-1,05 ± 0.03	0,40-0,60 ± 0.05	0,80-1,10 ± 0.04	0,025 + 0.005	0,015 + 0.005	1,80-2,05 ± 0.05	0,50 -0,60 ± 0.05	0.30 +0.03	0.050 +0.010	Product deviations are allowed
The oxygen content max 0,0015 at the discretion of the manufacturer									

Temperature °C

Hot-forming	Pre-heating	Bainitic hardening	Tempering +T	Stress relief annealing +SR					
1050-880	500 stop in furnace then 850-880	850-880 salt bath 230-250	160-400 calm air	560-650 ^{x)} air	^{x)} Stress relief annealing must be carried out after machining and before final heat treatment				
Normalizing +N	Soft annealing +A (Prior the annealing, Normalizing is recommended)		Spheroidized annealing +AC	Pre-heating welding	Stress-relieving after welding				
880-910 air	820 cooling to 740, pause, cooling to 690pause, then air		(HB max 230)		not recommended				
				Ac1	Ac3	Ms	Mf		
				-	-	-	-		

Setting rate / Hardness obtained with austenitization at 870 °C

	seconds	minutes	minutes	minutes	minutes	minutes	minutes	minutes
Time	25	2	5	7	8	13	20	27
Hardness HRC	66	65	61	60	51	46	43	29

Mechanical properties

Table of tempering. Indicative values obtained at room temperature after quenching at 870 °C in oil

HB	662	662	654	634	595	543
HRC	60,5	60,5	60	59	57	54
HV	710	710	697	674	633	577
Tempering at °C	50	100	150	200	250	300

Thermal Expansion	10 ⁻⁶ • K ⁻¹	►	13.5	13.8	13.9	14.5	14.6	15.0	
Modulus of Elasticity long.	GPa		210						
Modulus of Elasticity tang.	GPa		80						
Poisson Number	ν		0.30						
Specific Heat Capacity	J/(Kg•K)		480						
Thermal Conductivity	W/(m•K)		45						
Density	Kg/dm ³		7.80						
Specific Electric Resistivity	$\Omega \cdot \text{mm}^2/\text{m}$		0.20						
Electrical Conductivity	Siemens•m/mm ²		5.0						
°C			20	100	200	300	400	500	600

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

EUROPE	ITALY	CHINA	GERMANY	FRANCE	U.K.	RUSSIA	USA
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AISI/SAE
100CrMnMoSi8-4-6	100CrMnMoSi8-4-6		1.3539	100CrMnMoSi8	100CrMnMoSi8-4-6		A 485 (B8)