

<b>Quality</b>	<b>100CrMo7</b>	<b>Bearing Steel</b>	<i>Technical card</i>
According to standard	<b>EN ISO 683-17: 2014</b>		<b>Lucefin Group</b>
Number	<b>1.3537</b>		<i>rev. 2018</i>

### Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	Cu%max	Al% max	
0,93-1,05	0,15-0,35	0,25-0,45	0,025	0,015	1,65-1,95	0,15-0,30	0.30	0.050	Product deviations are allowed
± 0.03	± 0.03	± 0.04	+ 0.005	+ 0.005	± 0.05	± 0.03	+0.03	+0.010	
The oxygen content max 0,0015 at the discretion of the manufacturer									

### Temperature °C

Hot-forming	Pre-heating	Quenching +Q	Tempering +T	Stress relief annealing +SR					
1100-850	400 stop in furnace, then 850	850 oil or polymer salt bath 500-550	150-220 air	600-650 <sup>x)</sup> furnace cooling	x) annealing must be carried out after machining and before final heat treatment				
Soft annealing +A	Spheroidized annealing +AC				Pre-heating welding				
730 air (HB max ~ 220)	800 furnace cooling to 720, then furnace to 600, then air (HB max 217)				not recommended				
					Ac1 start	Ac1 end	Ms	Mf	
					755	785	200	-10 subcooling	
Hardness in the globular annealed and cold-worked state (hot rolled +AC+C) can be HB 251 max									

### Mechanical properties

**Table of tempering** values obtained at room temperature on round of Ø 10 mm after quenching at 850 °C in oil

HB	739 739 722 670 615 595 613 512 482 432 415 344 286 253														
HRC	65 65 64 61 58 57 56 52 50 46 44.5 37 30 25														
R	N/mm <sup>2</sup>	- - 2000 2400 2430 2300 2150 1950 1770 1610 1450 1240 1000 840													
Rp 0.2	N/mm <sup>2</sup>	- - 1800 2050 2150 2090 1960 1810 1650 1500 1350 1150 900 750													
A	%	- - - - - - - - 3.0 4.6 6.4 9.0 12.5 16.5													
Z	%	- - - - - - - - 15 20 30 38 44 52													
Tempering at °C	50	100	150	200	250	300	350	400	450	500	550	600	650	700	

**HRC from surface to core for diameter Ø quenched at 850 °C in oil**

Hardness variations show the mass effect

mm	0 5 10 15 20 25 30 35 40 45 50											Hardening in oil on round of Ø 20 mm	
												°C	HRC
Ø 20	66	66	65.5									800	62
Ø 30	65.5	65.5	65.5	65							820	64	
Ø 40	65.5	65.5	65.5	65	65					840	65.5		
Ø 50	65.5	64	62	61	60.5	60.5				850	66		
Ø 60	64.5	63	58.5	54	52	51.5	51			860	66		
Ø 80	62.5	58	50.5	47.5	46	45	44.5	44	43.5	880	66		
Ø 100	61	56	49	46.5	45	44.5	43.5	43	42.5	42.5	42.5	900	65

**Thermal Expansion**

10<sup>-6</sup> • K<sup>-1</sup>

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**Modulus of Elasticity**

long. GPa

210

**Modulus of Elasticity**

tang. GPa

80

**Poisson Number**

v

0.30

**Specific Heat Capacity**

J/(Kg•K)

480

**Density**

Kg/dm<sup>3</sup>

7.80

**Thermal Conductivity**

W/(m•K)

45

**Specific Electric Resistivity**

Ohm•mm<sup>2</sup>/m

0.22

**Electrical Conductivity**

Siemens•m/mm<sup>2</sup>

4.54

°C

20

100

200

300

EUROPE	ITALY	CHINA	GERMANY	FRANCE	U.K.	RUSSIA	USA
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AISI/SAE
100CrMo7	100CrMo7	GC18Mo	100CrMo7	100CD7			A485(3)