

<b>Quality</b>	<b>10SPb20</b>	<b>Free-cutting Steel</b>	<i>Technical card</i> <b>Lucefina Group</b> rev. 2018
According to standard	<b>ISO 683-4 :2018</b>		
Number	<b>1.0722</b>		

<b>Chemical composition</b>						
C%	Si%	Mn%	P%	S%	Pb%	
	max		max			
0,07-0,13	0,40	0,70-1,10	0,06	0,15-0,25	0,20-0,35	Product deviations are admitted
± 0.02	+ 0.03	± 0.04	+ 0.008	± 0.03	+0.03 -0.02	

<b>Temperature °C</b>							
Hot-forming	Natural state +U	Soft annealing +A	Carburizing	Hardening on carburized surface	Pre-heating welding	Stress-relieving +SR	Stress-relieving after welding
1250-950	(HB 160 max)	690 air	880-980	770-810 water / oil / polymer		180-200	
Normalizing +N	Direct hardening	Direct hardening	Stress-relieving +SR	not recommended			
900 air	880 water	890 oil or polymer	150-200 furnace cooling	<b>Ac1</b> 720	<b>Ac3</b> 815	<b>Ms</b> 485	<b>Mf</b> 270

<b>Mechanical properties</b>								
Hot-rolled natural forming condition ISO 683-4 :2018					Hot-rolled quenched and tempered			
Testing at room temperature (longitudinal)					R	Rp 0.2	A%	HBW
size mm	R	HBW			R	Rp 0.2	A%	HBW
over to	N/mm <sup>2</sup>	for information			N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min	
5 10	360-530	156						
10 16	360-530	156			No from reference standards			
16 40	360-530	156						
40 63	360-530	156						
63 100	350-490	146						

Cold-drawn +C EN 10277: 2018					Hot-rolled Peeled +SH				
Values valid also for +C+G					Values valid also for +SH+G				
size mm					Testing at room temperature (longitudinal)				
		R <sup>a)</sup>	Rp 0.2 <sup>a)</sup>	A%	HBW	R	Rp 0.2	A%	HBW
from	to	N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min	for inform.	N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min	max
5 <sup>b)</sup>	10	520-780	410	7	155-232	-	-	-	-
10	16	490-740	390	8	149-224	-	-	-	-
16	40	460-720	360	9	139-223	360-530	-	-	156
40	63	410-660	295	10	122-202	360-530	-	-	156
63	100	380-630	235	11	110-192	350-490	-	-	146

<sup>a)</sup> for flats and special sections, yield point can be - 10% and tensile strength can be ± 10%

<sup>b)</sup> for thickness < 5 mm, mechanical properties should be agreed before order placement

<b>Melting Temperature</b>	°C	1500-1540
<b>Modulus of Elasticity long.</b>	GPa	200
<b>Specific Heat Capacity</b>	J/(Kg.K)	440
<b>Density</b>	Kg/dm <sup>3</sup>	7.85
<b>Thermal Conductivity</b>	W/(m.K)	47
<b>°C</b>		<b>20</b>

EUROPE	ITALY	CHINA	GERMANY	FRANCE	U.K.	RUSSIA	USA
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AISI/SAE
10SPb20	CF10SPb20	Y12Pb	10SPb20	10PbF2		AS 14	11L08