

Quality	10S20	Free-cutting Steel	<i>Technical card Lucefina Group rev. 2018</i>
According to standard	ISO 683-4: 2018		
Number	1.0721		

Chemical composition

C%	Si% max	Mn%	P% max	S%	Pb%	
0,07-0,13 ± 0.02	0,40 + 0.03	0,70-1,10 ± 0.04	0,06 + 0.008	0,15-0,25 ± 0.03	-	Product deviations are admitted

Temperature °C

Hot-forming	Natural state +U	Soft annealing +A	Carburizing	Hardening on carburized surface	Stress-relieving +SR		
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	Pre-heating welding	Stress-relieving after welding	not recommended	
900 air	880 water	890 oil or polymer	150-200 furnace cooling	Ac1 720	Ac3 815	Ms 485	Mf 270

Mechanical properties

Hot-rolled natural forming condition ISO 683-4: 2018				Hot-rolled quenched and tempered			
Testing at room temperature (longitudinal)							
size mm	R	HBW		R	Rp 0.2	A%	HB
over to	N/mm ²	max		N/mm ²	N/mm ² min	min	
5 to 10	360-530	156					
10 to 16	360-530	156		No from reference standards			
16 to 40	360-530	156					
40 to 63	360-530	156					
63 to 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)			Testing at room temperature (longitudinal)				
	R ^{a)}	Rp 0.2 ^{a)}	A%	HBW	R	Rp 0.2	A%	HBW
from to	N/mm ²	N/mm ² min	min	for inform.	N/mm ²	N/mm ² min	min	
5 ^{b)} to 10	520-780	410	7	155-232	-	-	-	-
10 to 16	490-740	390	8	149-224	-	-	-	-
16 to 40	460-720	360	9	139-223	360-530	-	-	156
40 to 63	410-660	295	10	122-202	360-530	-	-	156
63 to 100	380-630	235	11	110-192	350-490	-	-	146

^{a)} for flats and special sections, yield point can be - 10% and tensile strength can be ± 10%

^{b)} for thickness < 5 mm, mechanical properties should be agreed before order placement

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

EUROPE	ITALY	CHINA	GERMANY DIN	FRANCE	U.K.	RUSSIA	USA
EN	UNI	GB		AFNOR	B.S.	GOST	AISI/SAE
10S20	CF10S20	Y12	10S20	10F2	10S20	A12 ~	1108