

Quality		46SPb20		Free-cutting Steel		<i>Technical card</i>			
According to standard		ISO 683-4: 2018				Lucefin Group			
Number		1.0757				rev. 2024			
Chemical composition									
C%	Si% max	Mn%	P% max	S%	Pb%	Permissible deviations on the product			
0,42-0,50 ± 0.03	0,40 ± 0.03	0,70-1,10 ± 0.04	0,06 ± 0.008	0,15-0,25 ± 0.03	0,15-0,35 +0.03 -0.02				
Temperature °C									
Hot-forming	Natural state +U	Soft annealing +A	Carburizing	Hardening on carburized surface	Stress-relieving +SR				
1230-950	(HB 234 max)	680 air							
Normalizing +N	Direct hardening	Direct hardening	Stress-relieving +SR	Pre-heating welding	Stress-relieving after welding				
860 air	840 water	860 oil or polymer	540-680 furnace cooling		not recommended				
Mechanical properties									
Hot-rolled natural forming condition ISO 683-4: 2018				Hot-rolled quenched and tempered					
Testing at room temperature (longitudinal)				Testing at room temperature (longitudinal)					
size mm	R	HBW		R	Rp 0.2	A%	HBW		
from to	N/mm ²	max		N/mm ²	N/mm ² min	min	<i>for info.</i>		
5 10	590-800	234		700-850	490	12	213-253		
10 16	590-780	228		700-850	490	12	213-253		
16 40	590-760	222		650-800	430	13	200-240		
40 63	580-730	213		630-780	370	14	192-232		
63 100	560-710	207		630-780	370	14	192-232		
Cold-drawn +C EN ISO 683-7:24				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%	HB	R	Rp 0.2	A%	HB	
from to	N/mm ²	N/mm ² min	min	<i>for info.</i>	N/mm ²	N/mm ² min	min	max	
5 ^{b)} 10	740-980	570	5	224-295	-	-	-	-	
10 16	690-930	470	6	210-278	-	-	-	-	
16 40	640-880	400	7	198-263	590-760	-	-	222	
40 63	610-850	380	8	183-253	580-730	-	-	213	
63 100	580-820	340	8	172-246	560-710	-	-	207	
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									
Cold-drawn + quenching and tempering +C+QT EN ISO 683-7:24				Quenched and tempered + cold-drawn +QT+C					
size mm	Testing at room temperature (longitudinal)			Testing at room temperature (longitudinal)					
	R ^{c)}	Rp 0.2 ^{c)}	A% ^{c)}	HB ^{c)}	R	Rp 0.2	A%	HB	
from to	N/mm ²	N/mm ² min	min	<i>for info.</i>	N/mm ²	N/mm ² min	min	<i>for info.</i>	
5 ^{b)} 10	-	-	-	-	850-1000	595	8	253-298	
10 16	-	-	-	-	800-950	560	9	240-286	
16 40	650-800	430	13	200-240	700-850	490	10	213-253	
40 63	630-780	370	14	192-232	700-850	490	11	213-253	
63 100	630-780	370	14	192-232	650-850	455	11	200-253	
c) values valid also for +C+QT+G and +QT+SH									
b) for thickness < 5 mm, mechanical properties should be agreed before order placement									
EUROPE	ITALY	CHINA	GERMANY	FRANCE	U.K.	RUSSIA	USA		
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AISI/SAE		
46SPb20	46SPb20		45SPb20	46SPb20	46SPb20				