

Quality	11SMn30	Free-cutting Steel	<i>Technical card</i>
According to standards	ISO 683-4 : 2018		Lucefin Group
Number	1.0715		rev. 2024

Chemical composition

C%	Si% ^{a)}	Mn%	P%	S%	Pb%	
max	max		max			
0,14	0,05	0,90-1,30	0,11	0,27-0,33	-	Product deviations are allowed
± 0.02	+ 0.01	± 0.04	+ 0.02	± 0.03	-	

^{a)} Since silicon has an adverse effect on machinability, it is not intentionally added to specified limits, but if the formation of special oxide is guaranteed, a Si-content of 0,10% to 0,40% can be agreed.

Temperature °C

Hot-forming	Natural state +U	Soft annealing +A	Carburizing	Hardening on carburized surface	Stress-relieving +SR
1250-950		680 air (HB 150 max)	(880-950)	(770-810)	(180-200)
	(HB 180 max)				
Normalizing +N	Direct hardening	Direct hardening	Stress-relieving +C+SR	Pre-heating welding	Stress-relieving after welding
900 air	880 water	890 oil or polymer	600-650 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)							
size mm	R	HBW	R	Rp 0.2	A%	HB	
from to	N/mm ²	max	N/mm ²	N/mm ² min	min		
5 to 10	380-570	169					Not suitable for heat treatment
10 to 16	380-570	169					
16 to 40	380-570	169					
40 to 63	370-570	169					
63 to 100	360-520	154					

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%	HBW
over	to	N/mm ²	N/mm ² min	min	for inform.	N/mm ²	N/mm ² min	min	max
5 ^{b)}	10	510-810	440	6	154-243	-	-	-	-
10	16	490-760	410	7	149-226	-	-	-	-
16	40	460-710	375	8	139-218	380-570	-	-	169
40	63	400-650	305	9	119-200	370-570	-	-	169
63	100	360-630	245	9	104-192	360-520	-	-	154

^{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

Effect of cold-working (hot-rolled +C). Approximate values

R	N/mm ²	438	530	536	559	561	576	579	633
Reduction	%	4	8	9	13	14	18	19	23

EUROPE	ITALY	CHINA	GERMANY	FRANCE	U.K.	RUSSIA	USA
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AISI/SAE
11SMn30	CF 9SMn28	Y15	9SMn28	S250	230M07		1215