

Quality	44SMn28	Free-cutting Steel	<i>Technical card</i>
According to standard	ISO 683-4: 2018		Lucefin Group
Number	1.0762		rev. 2024

Chemical composition

C%	Si%	Mn%	P%	S%	Pb%	
	max		max			
0,40-0,48	0,40	1,30-1,70	0,06	0,24-0,33	-	Product deviations are allowed
± 0.03	± 0.03	± 0.06	± 0.008	± 0.03	-	

Temperature °C

Hot-forming	Natural state +U	Soft annealing +A	Full annealing	Stress-relieving +QT+C+SR	
1230-950	- (HB 247 max)	680 air	890-slow cooling to 600 then cooling 20 °C/h to room temperature	350	
Normalizing +N	Direct hardening	Direct hardening	Tempering +T	Pre-heating welding	Stress-relieving after welding
860-840 air (HB 230 ~)	840 water (HRC 52-55)	860 oil or polymer	540-680 air	not recommended	

Mechanical properties

Hot-rolled natural forming condition ISO 683-4: 2018				Hot-rolled quenched and tempered EN 10087: 2000			
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	for inform.
5 10	630-900	266		700-850	520	16	213-253
10 16	630-850	252		700-850	480	16	213-253
16 40	630-820	241		700-850	420	16	213-253
40 63	620-790	231		700-850	410	16	213-253
63 100	610-780	228		700-850	400	16	213-253

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%	HBW	R	Rp 0.2	A%	HBW
from to	N/mm ²	N/mm ² min	min	for info.	N/mm ²	N/mm ² min	min	
5 ^{b)} 10	760-1030	600	5	226-311	-	-	-	-
10 16	710-980	530	5	218-295	-	-	-	-
16 40	660-900	460	6	202-271	630-820	-	-	187-242
40 63	650-870	430	7	200-260	620-790	-	-	184-235
63 100	630-840	390	7	192-250	610-780	-	-	181-231

^{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 ^{d)}	Rp 0.2 ^{d)}	A% ^{d)}	HB ^{d)}
from to	N/mm ²	N/mm ² min	min	for info.	N/mm ²	N/mm ² min	min	for info.
5 ^{b)} 10	-	-	-	-	850-1000	595	9	253-298
10 16	-	-	-	-	850-1000	595	9	253-298
16 40	700-850	420	16	213-253	700-900	490	11	213-271
40 63	700-850	410	16	213-253	700-900	490	12	213-271
63 100	700-850	400	16	213-253	700-900	490	12	213-271

^{c)} values valid also for +C+QT+G and +QT+SH

^{d)} values valid also +QT+C+G

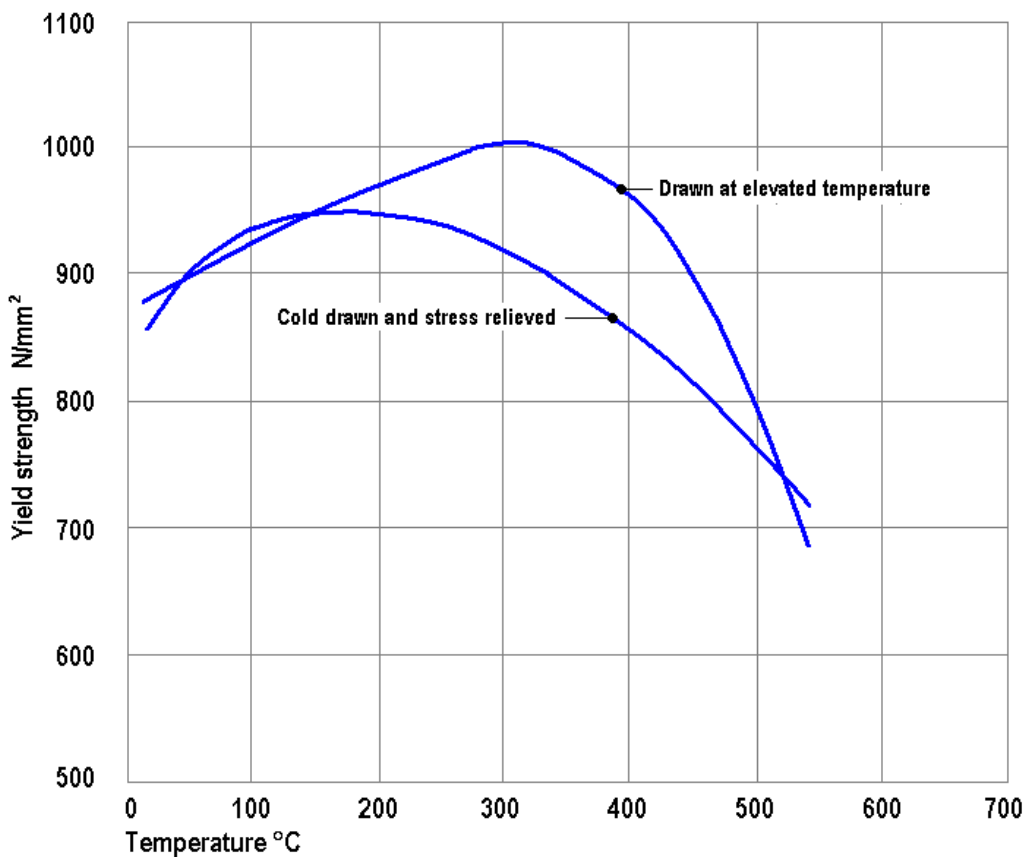
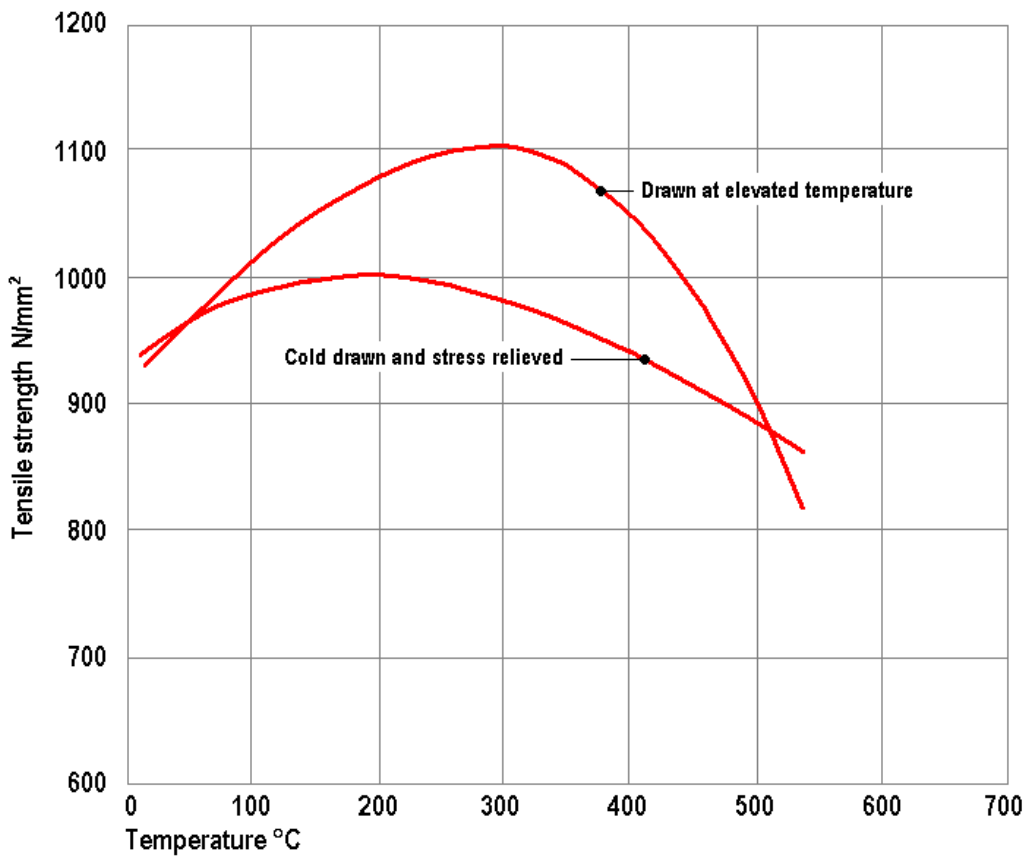
^{b)} for thickness < 5 mm, mechanical properties should be agreed before order placement

Table of tempering values obtained at room temperature on rounds Ø 10 mm after quenching at 840 °C in water

HB	512	512	496	455	409	371	327	294	271
HRC	52	52	51	48	44	40	35	31	28
R N/mm²	1880	1880	1820	1640	1430	1250	1080	970	900
Temp. at °C	50	100	200	300	400	450	500	550	600

EUROPE	ITALY	CHINA	GERMANY	FRANCE	U.K.	RUSSIA	USA
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AI/SAE
44SMn28	44SMn28	Y45Mn	1.0762	44SMn28	226M44	A40G	1144

44SMn28 1.0762



ASM Vol. 01

The hot drawing (95-540 °C) is a special process that achieves, with the same reduction ratio, steel bars with strength and yield strength higher than the cold drawn and stress relieved ones.

The tables show the values that have been obtained on AISI 1144 (44SMn28) steel bars with diameter 25 mm and reduction ratio of ~ 20%.