Quality	**44SMnPb28**	**Free-cutting Steel**	*Technical card*
According to standard	**ISO 683-4: 2018**		**Trafilix** Industries
Number			*rev.* 2025

Chemical composition

C%	**Si%** max	**Mn%**	**P%** max	**S%**	**Pb%**	
0,40-0,48	0,40	1,30-1,70	0,06	0,24-0,33	0,15-0,35	Product deviations are allowed
± 0.03	± 0.03	± 0.06	± 0.008	± 0.03	+0.05	

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
Testing at room temperature (longitudinal)

size mm		**R**	**HBW**
from	to	N/mm²	max
5	10	630-900	266
10	16	630-850	252
16	40	630-820	241
40	63	620-790	231
63	100	610-780	228

Hot-rolled quenched and tempered EN 10087: 2000
Testing at room temperature (longitudinal)

R	**Rp** 0.2	**A%**	***HBW***
N/mm²	N/mm² min	min	*for inform.*
700-850	520	16	*213-253*
700-850	480	16	*213-253*
700-850	420	16	*213-253*
700-850	410	16	*213-253*
700-850	400	16	*213-253*

Cold-drawn +C EN ISO 683-7:24
Values valid also for +C+G

size mm		Testing at room temperature (longitudinal)			
		R [a]	**Rp** 0.2 [a]	**A%**	***HBW***
from	to	N/mm²	N/mm² min	min	*for info.*
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*
40	63	650-870	430	7	*200-260*
63	100	630-840	390	7	*192-250*

Hot-rolled **Peeled** +SH
Values valid also for +SH+G
Testing at room temperature (longitudinal)

R	**Rp** 0.2	**A%**	**HBW**
N/mm²	N/mm² min	min	
-	-	-	-
-	-	-	-
630-820	-	-	187-242
620-790	-	-	184-235
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

size mm		Testing at room temperature (longitudinal)			
		R [c]	**Rp** 0.2 [c]	**A%** [c]	***HB*** [c]
from	to	N/mm²	N/mm² min	min	*for info.*
5 [b]	10	-	-	-	-
10	16	-	-	-	-
16	40	700-850	420	16	*213-253*
40	63	700-850	410	16	*213-253*
63	100	700-850	400	16	*213-253*

Quenched and tempered + **Cold-drawn** +QT+C
Testing at room temperature (longitudinal)

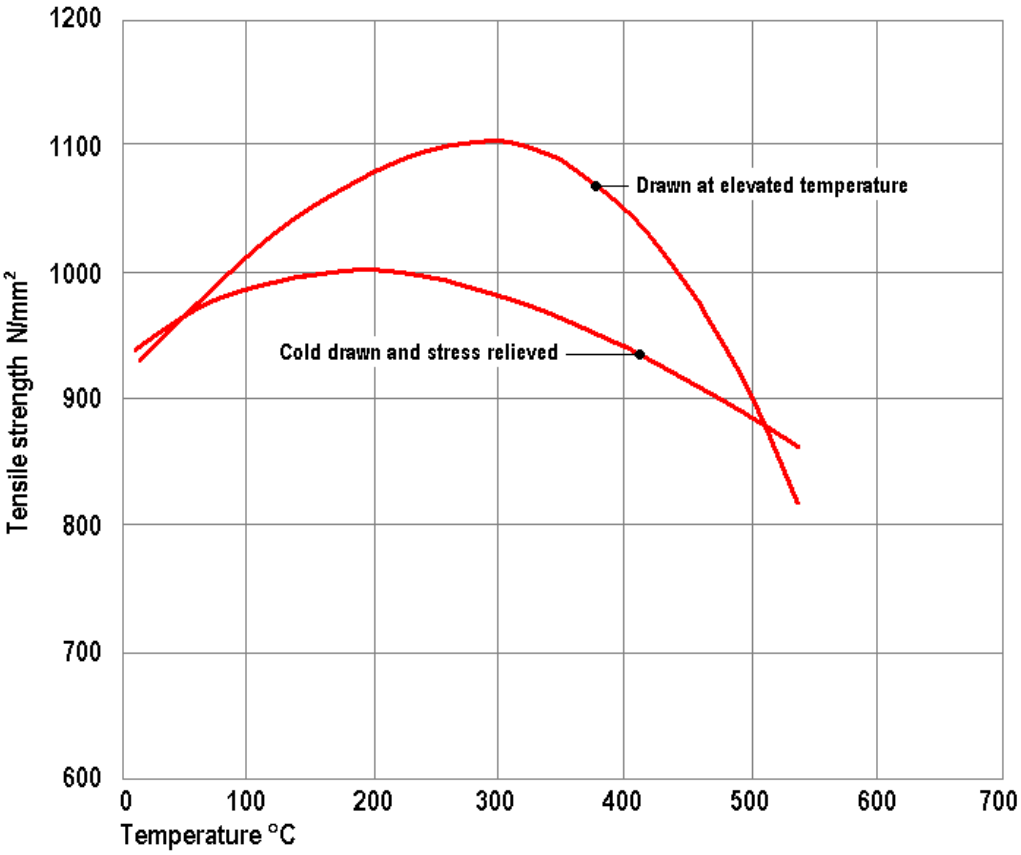
R [d]	**Rp** 0.2 [d]	**A%** [d]	***HB*** [d]
N/mm²	N/mm² min	min	*for info.*
850-1000	595	9	*253-298*
850-1000	595	9	*253-298*
700-900	490	11	*213-271*
700-900	490	12	*213-271*
700-900	490	12	*213-271*

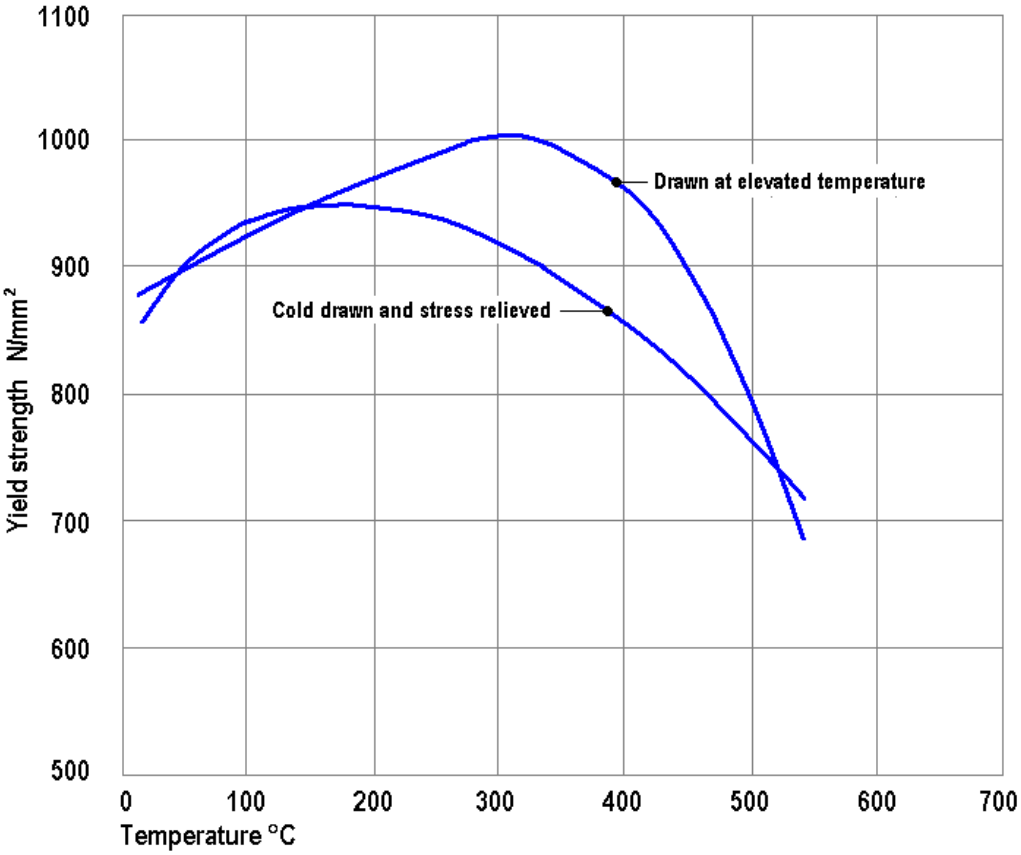
[c] values valid also for +C+QT+G and +QT+SH
[d] values valid also +QT+C+G
[b] for thickness < 5 mm, mechanical properties should be agreed before order placement

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	AISI/SAE
44SMn28	44SMn28	Y45Mn	1.0762	44SMn28	226M44	A40G	1144





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%.