STAHLBECKER

Data Sheet Spring Steel Strip
1.4310

Material Code	X10CrNi18-8 (previous: X12CrNi17-7)
Material Number	1.4310 (~ AISI 301)
Quality according	EN 10151
Tolerances according	EN ISO 9445

Chemical analysis (in %) according EN 10151

C	0,01 to 0,15
Si	max. 2,00
Mn	max. 2,00
P	max. 0,045
S	max. 0,015
N	max. 0,11
Cr	16,00 to 19,0
Mo	max. 0,80
Ni	6,0 to 9,5
Surface	2H (strain-hardened, blank)
Surface roughness Ra	< 0,3 µm (at Rm > 1150 N/mm²)

Mechanical properties according EN 10151

Edging possibilities (r/t) for thicknesses in mm at an angle of 90°

	rod across/along the grain							
thickness	> 0,05 to 0,25 mm		> 0,25 to 0,50 mm		> 0,50 to 0,75 mm		> 0,75 to 1,00 mm	
Tensile strength	across	along	across	along	across	along	across	along
1150-1300	≤ 0,5	≤ 2,5	≤ 1,0	≤ 3,0	≤ 2,0	≤ 4,0	≤ 2,5	≤ 5,0
1300-1500	≤ 1,5	≤ 3,0	≤ 2,0	≤ 4,0	≤ 2,5	≤ 5,0	≤ 3,0	≤ 7,0
1500-1700	≤ 2,0	≤ 4,5	≤ 2,5	≤ 5,0	≤ 3,0	≤ 7,0	≤ 3,5	≤ 9,5
1700-1900	≤ 2,5	≤ 9,0	≤ 3,0	≤ 9,5	≤ 3,5	≤ 11	-	-

r = radius of the rod
t = thickness of the material

Remark:
All specified values (out of standard EN 10151) have not been tested by Stahl Becker. It seems like the prefix "≤" is definitely wrong and has to be “≥”. That means, if the thickness is for example 1 mm, tensile strength 1300 to 1500 N/mm², edging across the grain, the quotient of radius of the rod and thickness has to be ≥ 3 and not ≤ 3.

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Minimum Elongation A80 % at different tensile strengths

Tensile strength	A80 %
+C1150	15
+C1300	10
+C1500	5
+C1700	2
+C1900	1

E-modulus in GPa (Gigapascal) at room temperature

	Delivery condition	
Tensile strength (in Mega Pascal)	cold rolled	cold rolled and heat treated
approx. 1800	185	195
approx. 1300	179	189

Samples measured along the grain. Interim values can be mediated.
1 Pascal = 1 N/m^2

Dimensional tolerances according ISO 9445:2006-05

Thickness

	Tolerance of thickness t at a width w of								
	w < 125			125 w < 250			250 w < 600		
thickness t	normal	fine	precision	normal	fine	precision	normal	fine	precision
0,05 ≤ t < 0,10	± 0,10*t	± 0,06*t	± 0,04*t	± 0,12*t	± 0,10*t	± 0,08*t	± 0,15*t	± 0,10*t	± 0,08*t
0,10 ≤ t < 0,15	± 0,010	± 0,008	± 0,006	± 0,015	± 0,012	± 0,008	± 0,020	± 0,015	± 0,010
0,15 ≤ t < 0,20	± 0,015	± 0,010	± 0,008	± 0,020	± 0,012	± 0,010	± 0,025	± 0,015	± 0,012
0,20 ≤ t < 0,25	± 0,015	± 0,012	± 0,008	± 0,020	± 0,015	± 0,010	± 0,025	± 0,020	± 0,012
0,25 ≤ t < 0,30	± 0,017	± 0,012	± 0,009	± 0,025	± 0,015	± 0,012	± 0,030	± 0,020	± 0,015
0,30 ≤ t < 0,40	± 0,020	± 0,015	± 0,010	± 0,025	± 0,020	± 0,012	± 0,030	± 0,025	± 0,015
0,40 ≤ t < 0,50	± 0,025	± 0,020	± 0,012	± 0,030	± 0,020	± 0,015	± 0,035	± 0,025	± 0,018
0,50 ≤ t < 0,60	± 0,030	± 0,020	± 0,014	± 0,030	± 0,025	± 0,015	± 0,040	± 0,030	± 0,020
0,60 ≤ t < 0,80	± 0,030	± 0,025	± 0,015	± 0,035	± 0,030	± 0,018	± 0,040	± 0,035	± 0,025
0,80 ≤ t < 1,00	± 0,030	± 0,025	± 0,018	± 0,040	± 0,030	± 0,020	± 0,050	± 0,035	± 0,025
1,00 ≤ t < 1,20	± 0,035	± 0,030	± 0,020	± 0,045	± 0,035	± 0,025	± 0,050	± 0,040	± 0,030
1,20 ≤ t < 1,50	± 0,040	± 0,030	± 0,020	± 0,050	± 0,035	± 0,025	± 0,060	± 0,045	± 0,030
1,50 ≤ t < 2,00	± 0,050	± 0,035	± 0,025	± 0,060	± 0,040	± 0,030	± 0,070	± 0,050	± 0,035
2,00 ≤ t < 2,50	± 0,050	± 0,035	± 0,025	± 0,070	± 0,045	± 0,030	± 0,080	± 0,060	± 0,040
2,50 ≤ t < 3,00	± 0,060	± 0,045	± 0,030	± 0,070	± 0,050	± 0,035	± 0,090	± 0,070	± 0,045

All dimensions in mm. Usually strips are produced at normal or fine tolerance. Precision tolerance is available on demand.

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Width

	width (w)											
	w ≤ 40			40 < w ≤ 125			125 < w < 250			250 < w < 600		
thickness t	N	F	P	N	F	P	N	F	P	N	F	P
t < 0,25	+ 0,17	+ 0,13	+ 0,10	+ 0,20	+ 0,15	+ 0,12	+ 0,25	+ 0,20	+ 0,15	+ 0,50	+ 0,50	+ 0,40
0,25 ≤ t < 0,50	+ 0,20	+ 0,15	+ 0,12	+ 0,25	+ 0,20	+ 0,15	+ 0,30	+ 0,22	+ 0,17	+ 0,60	+ 0,50	+ 0,40
0,50 ≤ t < 1,00	+ 0,25	+ 0,22	+ 0,15	+ 0,25	+ 0,22	+ 0,17	+ 0,40	+ 0,25	+ 0,20	+ 0,70	+ 0,60	+ 0,50
1,00 ≤ t < 1,50	+ 0,25	+ 0,22	+ 0,15	+ 0,30	+ 0,025	+ 0,17	+ 0,50	+ 0,30	+ 0,22	+ 1,0	+ 0,70	+ 0,60
1,50 ≤ t < 2,50	-	-	-	+ 0,40	+ 0,25	+ 0,20	+ 0,60	+ 0,40	+ 0,25	+ 1,0	+ 0,80	+ 0,60
2,50 ≤ t < 3,00	-	-	-	+ 0,50	+ 0,30	+ 0,25	+ 0,60	+ 0,40	+ 0,25	+ 1,2	+ 1,0	+ 0,80

N – normal, F – fine, P – precision

All dimensions in mm and with a lower barrier of -0 mm. The range of tolerance can be shifted upon agreement. Usually strips are produced at normal or fine tolerance. Precision tolerance is available on demand.

Length

	Tolerance	
length l	normal	special
l ≤ 2000	+ 3	+ 1,5
2000 < l ≤ 4000	+ 5	+ 2

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