

# Flat, Round, Square & Angular Steel



Hygienic



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## Material Parameters

### Chemical Composition of the Steels acc. to DIN EN 10088 Part 1

Type of steel		Reference analysis						
Material	Abbreviated name	C ≤	Si ≤	Mn ≤	Cr	Mo	Ni	other
1.4301	X 5 CrNi 18 10	0.07	1.0	2.0	17.5 - 19.5		8.0 - 10.5	
1.4306	X 2 CrNi 19 11	0.03	1.0	2.0	18.0 - 20.0		10.0 - 12.0	
1.4307	X 2 CrNi 18 9	0.03	1.0	2.0	17.5 - 19.5		8.0 - 10.5	
1.4541	X 6 CrNiTi 18 10	0.08	1.0	2.0	17.0 - 19.0		9.0 - 12.0	Ti ≥ 5 x C to 0.7
1.4401	X 6 CrNiMo 17 12 2	0.07	1.0	2.0	16.5 - 18.5	2.0 - 2.5	10.0 - 13.0	
1.4404	X 2 CrNiMo 17 13 2	0.03	1.0	2.0	16.5 - 18.5	2.0 - 2.5	10.0 - 13.0	
1.4571	X 6 CrNiMoTi 17 12 2	0.08	1.0	2.0	16.5 - 18.5	2.0 - 2.5	10.5 - 13.5	Ti ≥ 5 x C to 0.7
1.4435	X 2 CrNiMo 18 14 3	0.03	1.0	2.0	17.0 - 19.0	2.5 - 3.0	12.5 - 15.0	S ≤ 0.015
1.4432	X 2 CrNiMo 17 12 3	0.03	1.0	2.0	16.5 - 18.5	2.5 - 3.0	10.5 - 13.0	
1.4539	X 1 CrNiMoCu 25 20 5	0.02	0.7	2.0	19.0 - 21.0	4.0 - 5.0	24.0 - 26.0	Cu 1.2 - 2.0

### Yield Point and Limit Temperature

Type of steel		0.2 % yield point [N/mm <sup>2</sup> ] at a temp. °C of										1.0 % yield point [N/mm <sup>2</sup> ] at a temp. °C of										Limit temp.		
Material	Abbreviated name	50	100	150	200	250	300	350	400	450	500	550	50	100	150	200	250	300	350	400	450	500	550	in °C
1.4301	X 5 CrNi 18 10	180	157	142	127	118	110	104	98	95	92	90	218	191	172	157	145	135	129	125	122	120	120	300
1.4306	X 2 CrNi 19 11	165	147	132	118	108	100	94	89	85	81	80	200	181	162	147	137	127	121	116	112	109	108	350
1.4307	X 2 CrNi 18 9	165	147	132	118	108	100	94	89	85	81	80	200	181	162	147	137	127	121	116	112	109	108	350
1.4541	X 6 CrNiTi 18 10	190	176	167	157	147	136	130	125	121	119	118	222	208	196	186	177	167	161	156	152	149	147	400
1.4401	X 6 CrNiMo 17 12 2	193	177	162	147	137	127	120	115	112	110	108	230	211	191	177	167	156	150	144	141	139	137	300
1.4404	X 2 CrNiMo 17 13 2	182	166	152	137	127	118	113	108	103	100	98	217	199	181	167	157	145	139	135	130	128	127	400
1.4571	X 6 CrNiMoTi 17 12 2	202	185	177	167	157	145	140	135	131	129	127	234	218	206	196	186	175	169	164	160	158	157	400
1.4435	X 2 CrNiMo 18 14 3	180	165	150	137	127	119	113	108	103	100	98	217	200	180	165	153	145	139	135	130	128	127	400
1.4432	X 2 CrNiMo 17 12 3	182	166	152	137	127	118	113	108	103	100	98	217	199	181	167	157	145	139	135	130	128	127	400
1.4539	X 1 CrNiMoCu 25 20 5	216	205	190	175	160	145	135	125	115	110	105	244	235	220	205	190	175	165	155	145	140	135	400

Minimum values for the 0.2 % and 1.0 % yield point at increased temperatures and reference indications on the limit temperature in case of strain to intergranular corrosion

1)... Up to this temperature (up to 100,000 h) the material has not shown any susceptibility with regards to intergranular corrosion testing.

Remarks: The values refer to parts which are in a solution annealed and quenched condition.

Source: DIN EN 10217-7

### Chemical Composition of the Steels acc. to AISI Qualities

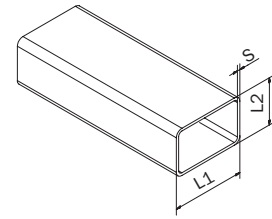
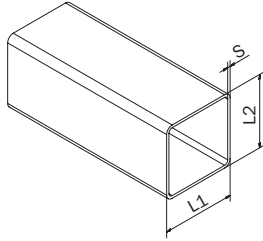
Type of steel		Reference analysis						
Material	Altern. material no.	C ≤	Si ≤	Mn ≤	Cr	Mo	Ni	other
304	1.4301	0.08	1.0	2.0	18.0 - 20.0		8.0 - 10.5	
304 L	1.4307	0.03	1.0	2.0	18.0 - 20.0		8.0 - 12.0	
316	1.4401 / 1.4436	0.08	1.0	2.0	16.0 - 18.0	2.0 - 3.0	10.0 - 14.0	
316 L	1.4404 / 1.4435	0.03	1.0	2.0	16.5 - 18.5	2.0 - 3.0	10.0 - 14.0	
904 L	1.4539	0.02	0.7	2.0	19.0 - 21.0	4.0 - 5.0	24.0 - 26.0	

### Physical Properties of the Steels acc. to DIN EN 10088 Part 1

Type of steel		Density	Modulus of elasticity	Tensile strength	Heat exp.	Thermal conduct.	Spec. heat	Elec. resistance
Material	Abbreviated name	[kg/dm <sup>3</sup> ]	at 20 °C [N/mm <sup>2</sup> ]	[N/mm <sup>2</sup> ]	20-100 °C [10 <sup>-6</sup> K <sup>-1</sup> ]	at 20 °C [W/mK]	at 20 °C [J/kgK]	at 20 °C [Ω mm <sup>2</sup> /m]
1.4301	X 5 CrNi 18 10	7.90	200	500 - 750	16.0	15	500	0.73
1.4306	X 2 CrNi 19 11	7.90	200	450 - 700	16.0	15	500	0.73
1.4307	X 2 CrNi 18 9	7.90	200	450 - 700	16.0	15	500	0.73
1.4541	X 6 CrNiTi 18 10	7.90	200	540 - 740	16.0	15	500	0.73
1.4401	X 6 CrNiMo 17 12 2	8.00	200	550 - 700	16.0	15	500	0.75
1.4404	X 2 CrNiMo 17 13 2	8.00	200	450 - 700	16.0	15	500	0.75
1.4571	X 6 CrNiMoTi 17 12 2	8.00	200	540 - 690	16.5	15	500	0.75
1.4435	X 2 CrNiMo 18 14 3	8.00	200	500 - 700	16.0	15	500	0.75
1.4432	X 2 CrNiMo 17 12 3	8.00	200	490 - 690	16.0	15	500	0.75
1.4539	X 1 CrNiMoCu 25 20 5	8.00	195	520 - 720	15.8	12	450	1.00



## Square Tube / Round Steel



### Square Tube

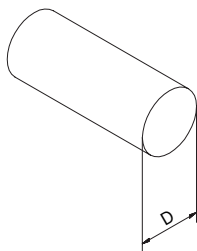
			1.4301 (304)	
L1	L2	S	Article No.	Gewicht [kg/m]
15	15	1	801 004	0.453
15	15	1.5	801 008	0.661
20	20	1	801 012	0.613
20	20	1.5	801 020	0.910
20	20	2	801 024	1.176
25	25	1	801 028	0.772
25	25	1.25	801 032	0.921
25	25	1.5	801 036	1.140
25	25	2	801 040	1.494
30	30	1.5	801 052	1.379
30	30	2	801 056	1.813
30	30	3	801 060	2.645
35	35	1	801 072	1.091
35	35	1.5	801 068	1.618
35	35	2	801 072	2.132
40	40	1.5	801 080	1.857
40	40	2	801 084	2.451
40	40	3	801 092	3.602
50	50	1.5	801 105	2.336
50	50	2	801 109	3.089
50	50	3	801 117	4.559
60	60	2	801 121	3.727
60	60	3	801 129	5.516
60	60	4	801 360	7.255
80	80	2	801 133	5.003
80	80	3	801 141	7.430
80	80	4	801 147	9.807
100	100	2	801 962	6.279
100	100	3	801 149	9.343
100	100	4	801 153	12.358
120	120	2	801 168	7.555
120	120	3	801 164	11.258
120	120	4	801 162	14.910

other dimensions on request

### Rectangular Tube

			1.4301 (304)	
L1	L2	S	Article No.	Gewicht [kg/m]
30	20	1.5	801 186	1.140
30	20	2	801 190	1.494
40	20	1.25	801 062	1.112
40	20	1.5	801 193	1.379
40	20	2	801 197	1.813
40	30	1.5	801 203	1.618
40	30	2	801 205	2.133
50	25	1.5	801 209	1.738
50	25	2	801 212	2.292
50	30	1.5	801 216	1.858
50	30	2	801 220	2.451
50	30	3	801 870	3.602
60	30	1.5	801 224	2.097
60	30	2	801 228	2.771
60	30	3	801 586	4.081
60	40	2	801 236	3.090
60	40	3	801 244	4.559
80	40	2	801 248	3.728
80	40	3	801 256	5.516
80	40	4	802 193	7.255
80	60	2	801 741	4.366
80	60	3	801 260	6.473
80	60	4	801 262	8.531
100	40	2	801 264	4.366
100	40	3	801 272	6.473
100	50	2	801 276	4.685
100	50	3	801 280	6.952
100	50	4	802 150	9.169
100	60	3	802 225	7.430
100	60	4	802 226	9.807
120	60	2	802 278	5.641
120	60	3	802 210	8.387
120	60	4	801 965	11.083

other dimensions on request



### Round Steel DIN EN 10278

1.4301 (304)/1.4307 (304L)		
D	Article No.	Weight [kg/m]
4	050 007	0.099
6	050 019	0.222
8	050 031	0.395
10	050 043	0.617
12	050 055	0.888
14	050 067	1.208
16	050 079	1.578
18	050 091	1.998
20	050 104	2.466

other dimensions on request



Armaturenwerk Hötensleben GmbH  
Schulstr. 5 - 6  
39393 Hoetensleben

Tel.: +49 39405 92-0  
Fax: +49 39405 92-111  
e-mail: info@awh.eu  
http://www.awh.eu

## NEUMO Ehrenberg Group

Armaturenwerk Hötensleben GmbH (Germany)

