

Tables of Technical Properties* of Stainless Steels (flat products)

The selection of the appropriate stainless steel grade for each application is the result of various considerations. In order to assist the reader in this selection, Euro Inox makes the following tables of technical properties available:

- Chemical composition of stainless steels (flat products)
- Mechanical properties of stainless steels (flat products)
- Physical properties of stainless steels

The attached collection of data reflects inquiries directed to stainless steel development associations.

The enclosed documents are for information only and cannot replace reference to either EN 10088, or EN 10095.

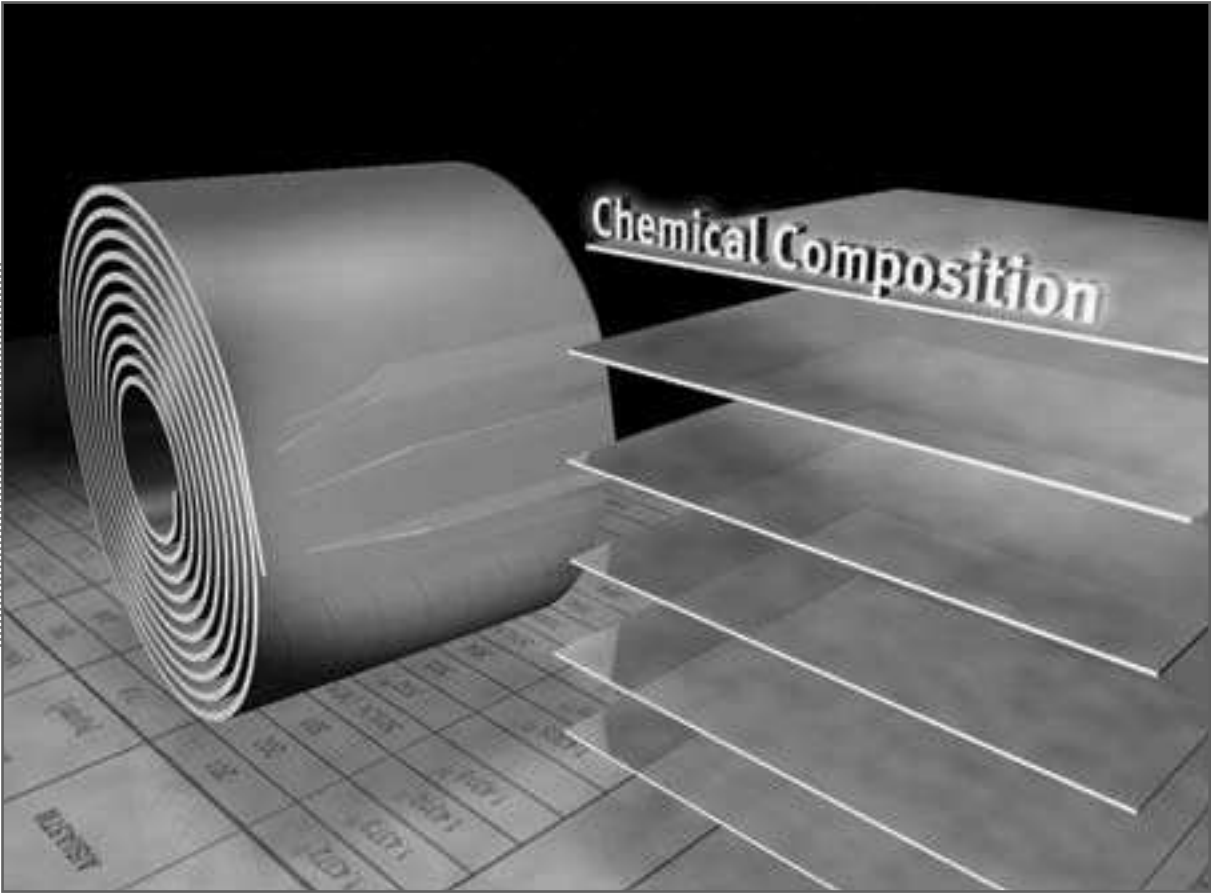
In order to make well-balanced decisions about grade selection, the reader is recommended to consult other documents of the “Materials and Applications” series on the Euro Inox website, like “The Euro Inox Handbook of Stainless Steel” and “Working with Stainless Steel”.

Care was taken to include as much information as possible about stainless steel flat products used throughout Europe, for the information of the user:

- Chemical and physical properties are in accordance with EN 10088-1:2005
- Mechanical properties are in accordance with EN 10088-2:2005, except for heat resisting grades (EN 10095:1999)
- Some “ASTM only” grades, which do not have European equivalents, are listed with their corresponding properties

Additional data were sourced from literature as highlighted in the corresponding footnotes. The contents of this document can also be consulted as an interactive database in 11 European languages through the following link: www.euro-inox.org/technical_tables.

(*) Adapted from “Raccolta di tabelle tecniche” with kind permission of Centro Inox, Italy.



GRADES	Chemical composition (cast analysis) ⁽¹⁾⁽⁷⁾ of stainless steel flat products												
	Name Designation EN	EN Number Designation	Designation AISI/ASTM	C	Si	Mn	P max	S	N	Cr	Mo	Ni	Others
AUSTENITIC	X12CrMnNiN17-7-5	1.4372	201	≤0,15	≤1,00	5,50 to 7,50	0,045	≤0,015	0,05 to 0,25	16,00 to 18,00		3,50 to 5,50	
	X12CrMnNiN18-9-5	1.4373	202	≤0,15	≤1,00	7,50 to 10,50	0,045	≤0,015	0,05 to 0,25	17,00 to 19,00		4,00 to 6,00	
	X2CrMnNiN17-7-5	1.4371		≤0,030	≤1,00	6,00 to 8,00	0,045	≤0,015	0,15 to 0,20	16,00 to 17,00		3,50 to 5,50	
	X8CrMnCuNB17-8-3 ⁽⁹⁾	1.4597 ⁽⁹⁾		≤0,10	≤2,00	6,50 to 8,50	0,040	≤0,030	0,15 to 0,30	16,00 to 18,00	≤1,00	≤2,00	Cu:2,00 to 3,50; B: 0,0005 to 0,0050
	X11CrNiMnN19-8-6	1.4369		0,07 to 0,15	0,50 to 1,00	5,00 to 7,50	0,030	≤0,015	0,20 to 0,30	17,50 to 19,50		6,50 to 8,50	
	X10CrNi18-8	1.4310	301	0,05 to 0,15	≤2,00	≤2,00	0,045	≤0,015	≤0,11	16,00 to 19,00	≤0,80	6,00 to 9,50	
			301 L ⁽⁸⁾	≤0,030	≤1,00	≤2,00	0,045	≤0,030	≤0,20	16,00 to 18,00		6,00 to 8,00	
	X5CrNi17-7	1.4319		≤0,07	≤1,00	≤2,00	0,045	≤0,030	≤0,11	16,00 to 18,00		6,00 to 8,00	
	X2CrNiN18-7	1.4318	301 LN	≤0,030	≤1,00	≤2,00	0,045	≤0,015	0,10 to 0,20	16,50 to 18,50		6,00 to 8,00	
			302 ⁽⁸⁾	≤0,15	≤0,75	≤2,00	0,045	≤0,030	≤0,10	17,00 to 19,00		8,00 to 10,00	
	X8CrNiS18-9 ⁽³⁾	1.4305 ⁽³⁾	303	≤0,10	≤1,00	≤2,00	0,045	0,15 to 0,35	≤0,11	17,00 to 19,00		8,00 to 10,00	Cu≤1,00
	X5CrNi18-10	1.4301	304	≤0,07	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	17,50 to 19,50		8,00 to 10,50	
	X2CrNiN18-10	1.4311	304 LN	≤0,030	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	0,12 to 0,22	17,50 to 19,50		8,50 to 11,50	
	X6CrNi18-10	1.4948	304 H	0,04 to 0,08	≤1,00	≤2,00	0,035	≤0,015 ⁽²⁾	≤0,11	17,00 to 19,00		8,00 to 11,00	
	X2CrNi18-9	1.4307	304 L	≤0,030	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	17,50 to 19,50		8,00 to 10,50	
	X2CrNi19-11	1.4306	304 L	≤0,030	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	18,00 to 20,00		10,00 to 12,00	
	X5CrNiN19-9	1.4315	304 N	≤0,06	≤1,00	≤2,00	0,045	≤0,015	0,12 to 0,22	18,00 to 20,00		8,00 to 11,00	
	X4CrNi18-12	1.4303	305	≤0,06	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	17,00 to 19,00		11,00 to 13,00	
	X15CrNiSi 20-12	1.4828		≤0,20	1,50 to 2,50	≤2,00	0,045	≤0,015	≤0,11	19,00 to 21,00		11,00 to 13,00	
	X12CrNi 23-13	1.4833	309 S	≤0,15	≤1,00	≤2,00	0,045	≤0,015	≤0,11	22,00 to 24,00		12,00 to 14,00	
	X8CrNi 25-21	1.4845	310 S	≤0,10	≤1,50	≤2,00	0,045	≤0,015	≤0,11	24,00 to 26,00		19,00 to 22,00	
	X15CrNiSi 25-21	1.4841	314	≤0,20	1,50 to 2,50	≤2,00	0,045	≤0,015	≤0,11	24,00 to 26,00		19,00 to 22,00	
	X5CrNiMo17-12-2	1.4401	316	≤0,07	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	16,50 to 18,50	2,00 to 2,50	10,00 to 13,00	
	X3CrNiMo17-13-3	1.4436	316	≤0,05	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	16,50 to 18,50	2,50 to 3,00	10,50 to 13,00	
			316 N ⁽⁸⁾	≤0,08	≤0,75	≤2,00	0,045	≤0,030	0,10 to 0,16	16,00 to 18,00	2,00 to 3,00	10,00 to 14,00	
			316 H ⁽⁸⁾	0,04 to 0,10	≤0,75	≤2,00	0,045	≤0,030		16,00 to 18,00	2,00 to 3,00	10,00 to 14,00	
AUSTENITIC	X2CrNiMo17-12-2	1.4404	316 L	≤0,030	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	16,50 to 18,50	2,00 to 2,50	10,00 to 13,00	
	X2CrNiMo18-14-3	1.4435	316 L	≤0,030	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	17,00 to 19,00	2,50 to 3,00	12,50 to 15,00	
	X2CrNiMo17-12-3	1.4432	316 L	≤0,030	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	16,50 to 18,50	2,50 to 3,00	10,50 to 13,00	
	X2CrNiMo17-11-2	1.4406	316 LN	≤0,030	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	0,12 to 0,22	16,50 to 18,50	2,00 to 2,50	10,00 to 12,50	
	X2CrNiMo17-13-3	1.4429	316 LN	≤0,030	≤1,00	≤2,00	0,045	≤0,015	0,12 to 0,22	16,50 to 18,50	2,50 to 3,00	11,00 to 14,00	
	X6CrNiMoTi17-12-2	1.4571	316 Ti	≤0,08	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾		16,50 to 18,50	2,00 to 2,50	10,50 to 13,50	Ti:5 x C to 0,70
	X6CrNiMoNb17-12-2	1.4580	316 Nb	≤0,08	≤1,00	≤2,00	0,045	≤0,015		16,50 to 18,50	2,00 to 2,50	10,50 to 13,50	Nb:10 x C to 1,00
			317 ⁽⁸⁾	≤0,08	≤0,75	≤2,00	0,045	≤0,030	≤0,10	18,00 to 20,00	3,00 to 4,00	11,00 to 15,00	
	X2CrNiMo18-15-4	1.4438	317 L	≤0,030	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾	≤0,11	17,50 to 19,50	3,00 to 4,00	13,00 to 16,00	
	X2CrNiMo18-12-4	1.4434	317 LN	≤0,030	≤1,00	≤2,00	0,045	≤0,015	0,10 to 0,20	16,50 to 19,50	3,00 to 4,00	10,50 to 14,00	
	X2CrNiMo17-13-5	1.4439	317 LMN	≤0,030	≤1,00	≤2,00	0,045	≤0,015	0,12 to 0,22	16,50 to 18,50	4,00 to 5,00	12,50 to 14,50	
	X6CrNiTi18-10	1.4541	321	≤0,08	≤1,00	≤2,00	0,045	≤0,015 ⁽²⁾		17,00 to 19,00		9,00 to 12,00	Ti:5 x C to 0,70
	X8CrNiTi18-10	1.4878	321H	≤0,10	≤1,00	≤2,00	0,045	≤0,015		17,00 to 19,00		9,00 to 12,00	Ti:5 x C to 0,80
	X6CrNiNb18-10	1.4550	347	≤0,08	≤1,00	≤2,00	0,045	≤0,015		17,00 to 19,00		9,00 to 12,00	Nb:10 x C to 1,00
			347 H ⁽⁸⁾	0,04 to 0,10	≤0,75	≤2,00	0,045	≤0,015		17,00 to 19,00		9,00 to 12,00	Nb:8 x C to 1,00
AUSTENITIC	X1CrNi25-21	1.4335		≤0,20	≤0,25	≤2,00	0,025	≤0,010	≤0,11	24,00 to 26,00	≤0,20	20,00 to 22,00	
	X1CrNiMo25-22-2	1.4466	310 MoLN	≤0,020	≤0,70	≤2,00	0,025	≤0,010	0,10 to 0,16	24,00 to 26,00	2,00 to 2,50	21,00 to 23,00	
	X1CrNiSi18-15-4	1.4361		≤0,015	3,70 to 4,50	≤2,00	0,025	≤0,010	≤0,11	16,50 to 18,50	≤0,20	14,00 to 16,00	
	X1NiCrMoCu31-27-4	1.4563		≤0,020	≤0,70	≤2,00	0,030	≤0,010	≤0,11	26,00 to 28,00	3,00 to 4,00	30,00 to 32,00	Cu:0,70 to 1,50
	X1CrNiMoCu25-25-5	1.4537		≤0,020	≤0,70	≤2,00	0,030	≤0,010	0,17 to 0,25	24,00 to 26,00	4,70 to 5,70	24,00 to 27,00	Cu:1,00 to 2,00
	X1NiCrMoCu25-20-5	1.4539	904 L	≤0,020	≤0,70	≤2,00	0,030	≤0,010	≤0,15	19,00 to 21,00	4,00 to 5,00	24,00 to 26,00	Cu:1,20 to 2,00
	X1CrNiMoCuN20-18-7	1.4547		≤0,020	≤0,70	≤1,00	0,030	≤0,010	0,18 to 0,25	19,50 to 20,50	6,00 to 7,00	17,50 to 18,50	Cu:0,50 to 1,00
	X1CrNiMoCuN24-22-8 ⁽⁹⁾	1.4652 ⁽⁹⁾		≤0,020	≤0,50	2,00 to 4,00	0,030	≤0,005	0,45 to 0,55	23,00 to 25,00	7,00 to 8,00	21,00 to 23,00	Cu:0,30 to 0,60
	X1CrNiMoCuNW24-22-6	1.4659		≤0,020	≤0,70	2,00 to 4,00	0,030	≤0,010	0,35 to 0,50	23,00 to 25,00	5,50 to 6,50	21,00 to 23,00	Cu:1,00 to 2,00; W: 1,50 to 2,50
	X1NiCrMoCuN25-20-7	1.4529		≤0,020	≤0,50	≤1,00	0,030	≤0,010	0,15 to 0,25	19,00 to 21,00	6,00 to 7,00	24,00 to 26,00	Cu:0,50 to 1,50
	X2CrNiMnMoN25-18-6-5	1.4565		≤0,030	≤1,00	5,00 to 7,00	0,030	≤0,015	0,30 to 0,60	24,00 to 26,00	4,00 to 5,00	16,00 to 19,00	Nb≤0,15
	X12NiCrSi35-16	1.4864	330	≤0,015	1,00 to 2,00	≤2,00	0,045	≤0,015	≤0,11	15,00 to 17,00		33,00 to 37,00	
	X9CrNiSiN21-11-2	1.4835		0,05 to 0,12	1,40 to 2,50	≤1,00	0,045	≤0,015	0,12 to 0,20	20,00 to 22,00		10,00 to 12,00	Ce:0,03 to 0,08
	X10NiCrAlTi32-21	1.4876		≤0,12	≤1,00	≤2,00	0,030	≤0,015		19,00 to 23,00		30,00 to 34,00	Al:0,15 to 0,60; Ti:0,15 to 0,60
	X6NiCrNbCe32-27	1.4877		0,04 to 0,08	≤0,30	≤1,00	0,020	≤0,010	≤0,11	26,00 to 28,00		31,00 to 33,00	Al:0,025; Ce:0,05 to 0,10; Nb:0,60 to 1,00
	X6CrNiSiN21-11-2	1.4818		0,04 to 0,08	1,00 to 2,00	≤1,00	0,045	≤0,015	0,12 to 0,20	18,00 to 20,00		9,00 to 11,00	Ce:0,03 to 0,08
	X6NiCrSiN21-11-2 ⁽⁹⁾	1.4854 ⁽⁹⁾		0,04 to 0,08	1,20 to 2,00	≤2,00	0,040	≤0,015	0,12 to 0,20	24,00 to 26,00		34,00 to 36,00	Ce:0,03 to 0,08

Adapted from “Raccolta di tabelle tecniche” with kind permission of Centro Inox, Italy.

GRADES	Chemical composition (cast analysis) ⁽¹⁾⁽⁷⁾ of stainless steel flat products												
	Name Designation EN	EN Number Designation	Designation AISI/ASTM	C	Si	Mn	P max	S	N	Cr	Mo	Ni	Others
DUPLEX	X2CrNiMoN22-5-3 ⁽⁸⁾	1.4462 ⁽⁸⁾	2205	≤0,030	≤1,00	≤2,00	0,035	≤0,015	0,10 to 0,22	21,00 to 23,00	2,50 to 3,50	4,50 to 6,50	
	X2CrNiN23-4 ⁽⁹⁾	1.4362 ⁽⁹⁾	2304	≤0,030	≤1,00	≤2,00	0,035	≤0,015	0,05 to 0,20	22,00 to 24,00	0,10 to 0,60	3,50 to 5,50	Cu:0,10 to 0,60
	X2CrNiCuN23-4	1.4655		≤0,030	≤1,00	≤2,00	0,035	≤0,015	0,05 to 0,20	22,00 to 24,00	0,10 to 0,60	3,50 to 5,50	Cu:1,00 to 3,00
	X2CrNiMoN25-7-4 ⁽⁹⁾	1.4410 ⁽⁹⁾	2507	≤0,030	≤1,00	≤2,00	0,035	≤0,015	0,24 to 0,35	24,00 to 26,00	3,00 to 4,50	6,00 to 8,00	
	X2CrNiMoCuN25-6-3	1.4507	255	≤0,030	≤0,70	≤2,00	0,035	≤0,015	0,20 to 0,30	24,00 to 26,00	3,00 to 4,00	6,00 to 8,00	Cu:1,00 to 2,50
	X2CrNiMoCuWN25-7-4	1.4501		≤0,030	≤1,00	≤1,00	0,035	≤0,015	0,20 to 0,30	24,00 to 26,00	3,00 to 4,00	6,00 to 8,00	Cu:0,50 to 1,00; W: 0,50 to 1,00
	X2CrNiMoSi18-5-3	1.4424		≤0,030	1,40 to 2,00	1,20 to 2,00	0,035	≤0,015	0,05 to 0,10	18,00 to 19,00	2,50 to 3,00	4,50 to 5,20	
	X2CrNiMoN29-7-2 ⁽⁸⁾	1.4477 ⁽⁸⁾		≤0,030	≤0,50	0,80 to 1,50	0,030	≤0,015	0,30 to 0,40	28,00 to 30,00	1,50 to 2,60	5,80 to 7,50	Cu≤0,80
FERRITIC	X2CrNi12	1.4003		≤0,030	≤1,00	≤1,50	0,040	≤0,015 ⁽²⁾	≤0,030	10,50 to 12,50		0,30 to 1,00	
	X2CrTi12	1.4512	409	≤0,030	≤1,00	≤1,00	0,040	≤0,015		10,50 to 12,50			Ti:6x(C+N) to 0,65
	X6CrNiTi12	1.4516		≤0,08	≤0,70	≤1,50	0,040	≤0,015		10,50 to 12,50		0,50 to 1,50	Ti:0,05 to 0,35
	X6Cr13	1.4000	410S	≤0,08	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		12,00 to 14,00			
	X6CrAl13	1.4002	405	≤0,08	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		12,00 to 14,00			Al: 0,10 to 0,30
	X5CrNiMoTi15-2	1.4589		≤0,08	≤1,00	≤1,00	0,040	≤0,015		13,50 to 15,50	0,20 to 1,20	1,00 to 2,50	Ti: 0,30 to 0,50
			429 ⁽⁸⁾	≤0,12	≤1,00	≤1,00	0,040	≤0,030		14,00 to 16,00			
	X1CrNb15	1.4595		≤0,020	≤1,00	≤1,00	0,025	≤0,015	≤0,020	14,00 to 16,00			Nb: 0,20 to 0,60
	X6Cr17	1.4016	430	≤0,08	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		16,00 to 18,00			
	X2CrTi17	1.4520		≤0,025	≤0,50	≤0,50	0,040	≤0,015	≤0,015	16,00 to 18,00			Ti: 0,30 to 0,60
	X3CrNb17	1.4511		≤0,05	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		16,00 to 18,00			Nb:12xC to 1,00
	X6CrNi17-1	1.4017		≤0,08	≤1,00	≤1,00	0,040	≤0,015		16,00 to 18,00		1,20 to 1,60	
	X6CrMo17-1	1.4113	434	≤0,08	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		16,00 to 18,00	0,90 to 1,40		
	X3CrTi17	1.4510	439	≤0,05	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		16,00 to 18,00			Ti:4x(C+N)+0,15 to 0,80 ⁽³⁾
	X2CrMoTi17-1	1.4513		≤0,025	≤1,00	≤1,00	0,040	≤0,015	≤0,020	16,00 to 18,00	0,80 to 1,40		Ti: 0,30 to 0,60
	X2CrMoTi18-2	1.4521	444	≤0,025	≤1,00	≤1,00	0,040	≤0,015	≤0,030	17,00 to 20,00	1,80 to 2,50		Ti:4x(C+N)+0,15 to 0,80 ⁽³⁾
	X6CrMoNb17-1	1.4526	436	≤0,08	≤1,00	≤1,00	0,040	≤0,015	≤0,040	16,00 to 18,00	0,80 to 1,40		Nb:7x(C+N)+0,10 to 1,00
	X2CrTiNb18	1.4509		≤0,030	≤1,00	≤1,00	0,040	≤0,015		17,50 to 18,50			Nb:3xC+0,30 to 1,00; Ti:0,10 to 0,60
	X2CrNbZr17	1.4590		≤0,030	≤1,00	≤1,00	0,040	≤0,015		16,00 to 17,50			Nb: 0,35 to 0,55; Zr ≥ 7x(C+N)+0,15
	X18CrN28	1.4749	446	0,15 to 0,20	≤1,00	≤1,00	0,040	≤0,015	0,15 to 0,25	26,00 to 29,00			
	X10CrAlSi7	1.4713		≤0,12	0,50 to 1,00	≤1,00	0,040	≤0,015		6,00 to 8,00			Al: 0,50 to 1,00
	X10CrAlSi13	1.4724		≤0,12	0,70 to 1,40	≤1,00	0,040	≤0,015		12,00 to 14,00			Al: 0,70 to 1,20
	X10CrAlSi25	1.4762		≤0,12	0,70 to 1,40	≤1,00	0,040	≤0,015		23,00 to 26,00			Al: 1,20 to 1,70
	X2CrMoTi29-4	1.4592		≤0,025	≤1,00	≤1,00	0,030	≤0,010	≤0,045	28,00 to 30,00	3,50 to 4,50		Ti:4x(C+N)+0,15 to 0,80 ⁽³⁾
MARTENSITIC ⁽¹⁰⁾	X12Cr13	1.4006	410	0,08 to 0,15	≤1,00	≤1,50	0,040	≤0,015 ⁽²⁾		11,50 to 13,50		≤0,75	
	X15Cr13	1.4024		0,12 to 0,17	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		12,00 to 14,00			
	X20Cr13	1.4021	420	0,16 to 0,25	≤1,00	≤1,50	0,040	≤0,015 ⁽²⁾		12,00 to 14,00			
	X30Cr13	1.4028	420	0,26 to 0,35	≤1,00	≤1,50	0,040	≤0,015 ⁽²⁾		12,00 to 14,00			
	X39Cr13	1.4031	420	0,36 to 0,42	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		12,50 to 14,50			
	X46Cr13	1.4034	420	0,43 to 0,50	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		12,50 to 14,50			
	X50CrMoV15	1.4116		0,45 to 0,55	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		14,00 to 15,00	0,50 to 0,80		V: 0,10 to 0,20
	X55CrMo14	1.4110		0,48 to 0,60	≤1,00	≤1,00	0,040	≤0,015 ⁽²⁾		13,00 to 15,00	0,50 to 0,80		V≤0,15
	X38CrMo14	1.4419		0,36 to 0,42	≤1,00	≤1,00	0,040	≤0,015		13,00 to 14,50	0,60 to 1,00		
	X39CrMo17-1	1.4122		0,33 to 0,45	≤1,00	≤1,50	0,040	≤0,015 ⁽²⁾		15,50 to 17,50	0,80 to 1,30	≤1,00	
	X3CrNiMo13-4	1.4313		≤0,05	≤0,70	≤1,50	0,040	≤0,015	≥0,020	12,00 to 14,00	0,30 to 0,70	3,50 to 4,50	
	X4CrNiMo16-5-1	1.4418		≤0,06	≤0,70	≤1,50	0,040	≤0,015 ⁽²⁾	≥0,020	15,00 to 17,00	0,80 to 1,50	4,00 to 6,00	
	X1CrNiMoCu12-5-2	1.4422		≤0,020	≤0,50	≤2,00	0,040	≤0,003	≤0,020	11,00 to 13,00	1,30 to 1,80	4,00 to 5,00	Cu:0,20 to 0,80
	X1CrNiMoCu12-7-3	1.4423		≤0,020	≤0,50	≤2,00	0,040	≤0,003	≤0,020	11,00 to 13,00	2,30 to 2,80	6,00 to 7,00	Cu:0,20 to 0,80
PH ⁽¹⁰⁾	X5CrNiCuNb16-4	1.4542	630	≤0,07	≤0,70	≤1,50	0,040	≤0,015 ⁽²⁾		15,00 to 17,00	≤0,60	3,00 to 5,00	Cu:3,00 to 5,00; Nb: 5xC to 0,45
	X7CrNiAl17-7	1.4568	631	≤0,09	≤0,70	≤1,00	0,040	≤0,015		16,00 to 18,00		6,50 to 7,80 ⁽⁴⁾	Al: 0,70 to 1,50

(1) Elements not quoted in this table may not be intentionally added to the steel without the agreement of the purchaser except for the finishing of the cast. All appropriate precautions are to be taken to avoid the addition of such elements from scrap and other materials used in production which would impair mechanical properties and the suitability of the steel.

(2) For products to be machined, a controlled sulfur content of 0,015% to 0,030% is recommended and permitted. For weldability, a controlled sulphur content of 0,008% to 0,030% is recommended and permitted. For polishability, a controlled sulphur content of 0,015% max. is recommended.

(3) Parts made of high sulphur free cutting austenitic stainless steels may not comply with European Directive 94/27 regarding articles in contact with human skin.

(4) For better cold deformability, the upper limit may be increased to 8,30%.

(5) The stabilization may be made by use of titanium or niobium or zirconium. According to the atomic number of these elements and the content of carbon and nitrogen, the equivalence shall be the following $Ti^4=7/4Nb^4=7/4Zr$

(6) By agreement, this grade can be supplied with a Pitting Resistance Equivalent number (PRE = Cr + 3,3 Mo + 16 N) greater than 34

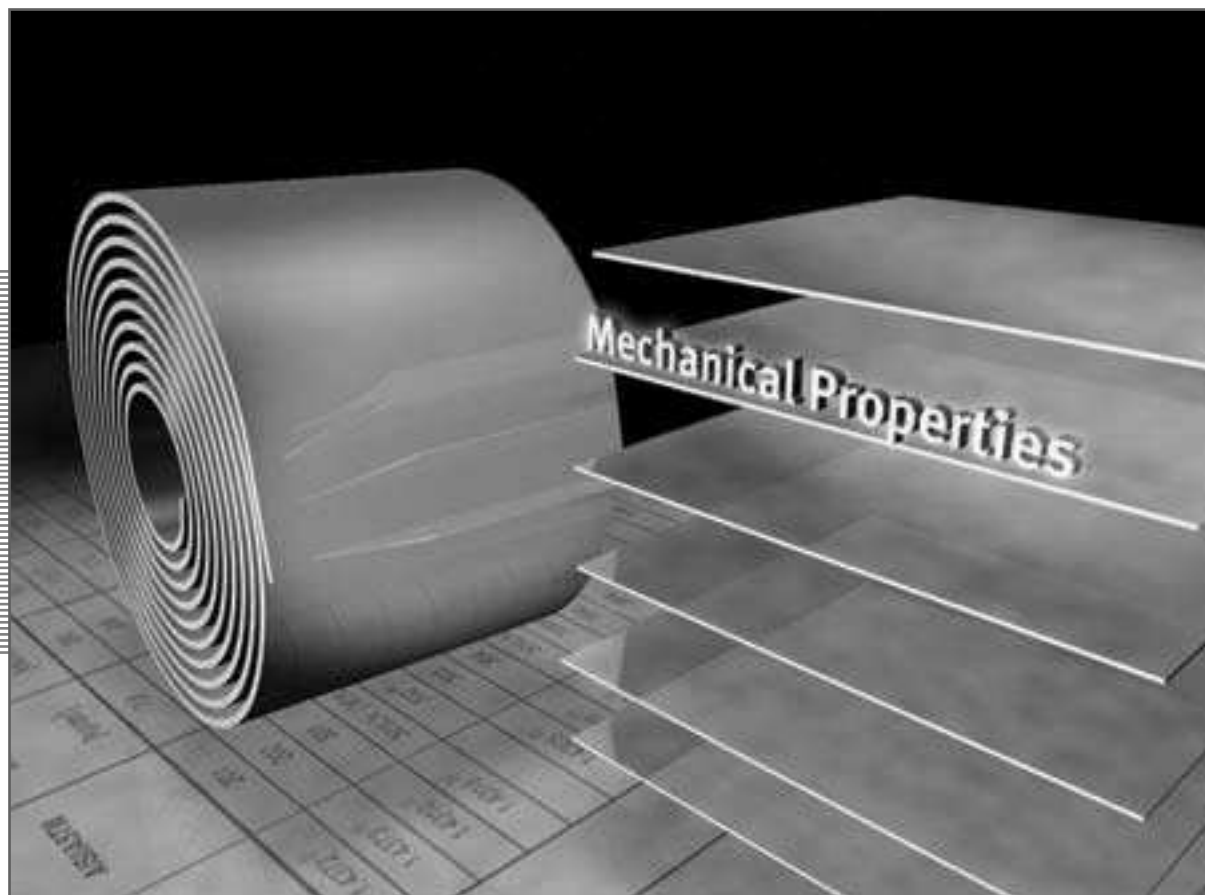
(7) according to EN 10088-1:2005

(8) According to ASTM A240/A240M-05a

(9) Patented steel grade.

(10) Tighter Carbon ranges may be agreed at the time of enquiry and order (martensitic and PH grades).

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GRADES	Mechanical properties of stainless steel flat products															
	DESIGNATIONS (▼)		Product Form (1)	Thickness max [mm]	Heat Treatment (5) (13)	Hardness		Proof strength R _{p0.2} [MPa] min. (14) (15) (transverse)	Tensile strength R _m [MPa]	Elongation after fracture		Impact energy (ISO-V)				
	EN [N°]	AISI/ASTM				HRB max	HB or HV max			A _{80mm} [%] min (2) th<3mm (tr. and long.)	A [%] min (3) th≥3mm (tr. and long.)	KV [J] min th>10mm (longitudinal)	(transverse)			
AUSTENITIC	1.4372 ⁽¹⁾	201	C	8	AT	90 ⁽³⁰⁾	241 ⁽⁴²⁾	350	from 750 to 950	45	45	100	60			
			H	13,5				330		40	40					
			P ⁽⁴⁾	75				330								
	1.4373 ⁽¹⁾	202	C	8	AT	90 ⁽³⁰⁾	241 ⁽⁴²⁾	340	from 680 to 880	45	45	100	60			
			H	13,5				320		35	35					
			P ⁽⁴⁾	75				320								
	1.4371 ⁽¹⁾		C	8	AT			300	from 650 to 850	45	45	100	60			
			H	13,5				280		35	35					
			P ⁽⁴⁾	75				280								
	1.4597 ⁽¹⁾		C	8	AT			300	from 580 to 780	40	40	100	60			
			H	13,5				300								
	1.4369 ⁽¹⁾		C	4	AT			340	from 750 to 950	35	35					
	1.4310 ⁽¹⁾	301	C	8	AT	85 ⁽¹⁹⁾	217 ⁽⁴²⁾	250	from 600 to 950	40	40					
		301 L ⁽⁴⁵⁾			AT	100	241	220 *	min 550	45 *						
	1.4319 (I)		C	3	AT			230	from 550 to 750	45	45					
			H	6				230								
1.4318 ⁽¹⁾	301 LN	C	8	AT	100 ⁽⁴²⁾	241 ⁽⁴²⁾	350	from 650 to 850	35	40	90	60				
		H	13,5				330		45	45						
		P ⁽⁴⁾	75				330	from 630 to 830								
	302 ⁽³⁵⁾			AT	85 ⁽³⁰⁾	201 ⁽⁴²⁾	276 * ⁽³⁰⁾	621	50 * ⁽³⁰⁾		108 ⁽³¹⁾					
					80 ⁽³¹⁾		241 * ⁽³¹⁾		60 * ⁽³¹⁾							
1.4305 ⁽¹⁾	303	P ⁽⁴⁾	75	AT			190	from 500 to 700	35	35						
1.4301 ⁽¹⁾	304	C	8	AT	80 ⁽¹⁹⁾		230	from 540 to 750	45 ⁽¹⁶⁾	45 ⁽¹⁶⁾	100	60				
		H	13,5				210	from 520 to 720								
		P ⁽⁴⁾	75				210	45	45							
1.4311 ⁽¹⁾	304 LN	C	8	AT	95 ⁽⁴²⁾	217 ⁽⁴²⁾	290	from 550 to 750	40	40	100	60				
		H	13,5				270									
		P ⁽⁴⁾	75				270									
1.4948 ⁽¹⁰⁾	304 H	C	6	AT	92 ⁽⁴²⁾	201 ⁽⁴²⁾	230	from 530 to 740	45 ⁽¹⁶⁾	45 ⁽¹⁶⁾	100	60				
		H	12				210	from 510 to 710								
		P	75				190	45	45							
1.4307 ⁽¹⁾	304 L	C	8	AT	79 ⁽¹⁹⁾	143 ⁽²¹⁾	220	from 520 to 700	45	45	100	60				
		H	13,5		79 ⁽²⁰⁾		200									
		P ⁽⁴⁾	75				200	from 500 to 700								
1.4306 ⁽¹⁾	304 L	C	8	AT	79 ⁽¹⁹⁾	143 ⁽²¹⁾	220	from 520 to 700	45	45	100	60				
		H	13,5		79 ⁽²⁰⁾		200	from 500 to 700								
		P ⁽⁴⁾	75				200									
1.4315 (I)	304 N	C	8	AT	85 ⁽²⁰⁾	217 ⁽⁴²⁾	290	from 500 to 750	40	40	100	60				
		H	13,5				270									
		P ⁽⁴⁾	75				270									

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GRADES	Mechanical properties of stainless steel flat products												
	DESIGNATIONS (▼)		Product Form (1)	Thickness max [mm]	Heat Treatment (5) (13)	Hardness		Proof strength R _{p0.2} [MPa] min. (14) (15) (transverse)	Tensile strength R _m [MPa]	Elongation after fracture		Impact energy (ISO-V)	
	EN [N°]	AISI/ASTM				HRB max	HB or HV max			A _{80mm} [%] min (2) th<3mm (tr. and long.)	A [%] min (3) th≥3mm (tr. and long.)	KV [J] min th>10mm (longitudinal)	(transverse)
AUSTENITIC	1.4303 ⁽¹⁾	305	C	8	AT	80 ⁽³⁰⁾	183 ⁽⁴²⁾	220	from 500 to 650	45	45		
	1.4828 ⁽¹¹⁾		⁽³²⁾	75	AT		223 ⁽¹⁷⁾	230 *	from 550 to 750	28 ⁽²⁶⁾	30	30 ⁽⁴⁶⁾	
	1.4833 ⁽¹¹⁾	309 S	⁽³²⁾	75	AT	85 ⁽³⁰⁾	192 ⁽¹⁷⁾	210 *	from 500 to 700	33 ⁽²⁶⁾	35	30 ⁽⁴⁶⁾	
	1.4845 ⁽¹¹⁾	310 S	⁽³²⁾	75	AT	95 ⁽⁴²⁾	192 ⁽¹⁷⁾	210 *	from 500 to 700	33 ⁽²⁶⁾	35	30 ⁽⁴⁶⁾	
	1.4841 ⁽¹¹⁾	314		75	AT		223 ⁽¹⁷⁾	230 *	from 550 to 750	28 ⁽²⁶⁾	30	30 ⁽⁴⁶⁾	
	1.4401 ⁽¹⁾	316	C	8	AT	79 ⁽¹⁹⁾		240	from 530 to 680	40	40	100	60
			H	13,5		79 ⁽²⁰⁾		220					
			P ⁽⁴⁾	75			149 ⁽²¹⁾	220					
	1.4436 ⁽¹⁾	316	C	8	AT	79 ⁽¹⁹⁾		240	from 550 to 700	40	40	100	60
			H	13,5		79 ⁽²⁰⁾		220					
P ⁽⁴⁾			75			149 ⁽²¹⁾	220						
	316 N ⁽³⁵⁾			AT	85 ⁽²⁰⁾	217 ⁽⁴²⁾	331 *	621	48 *				
	316 H ⁽⁴⁵⁾			AT	95	217	205 *	min 515	40 *				
AUSTENITIC	1.4404 ⁽¹⁾	316 L	C	8	AT	79 ⁽¹⁹⁾		240	from 530 to 680	40	40	100	60
			H	13,5		79 ⁽²⁰⁾		220					
			P ⁽⁴⁾	75			146 ⁽²¹⁾	220					
	1.4435 ⁽¹⁾	316 L	C	8	AT	79 ⁽¹⁹⁾		240	from 550 to 700	40	40	100	60
			H	13,5		79 ⁽²⁰⁾		220					
			P ⁽⁴⁾	75			146 ⁽²¹⁾	220					
	1.4432 ⁽¹⁾	316 L	C	8	AT	79 ⁽¹⁹⁾		240	from 550 to 700	40	40	100	60
			H	13,5		79 ⁽²⁰⁾		220					
			P ⁽⁴⁾	75			146 ⁽²¹⁾	220					
	1.4406 ⁽¹⁾	316 LN	C	8	AT	95 ⁽⁴²⁾	217 ⁽⁴²⁾	300	from 580 to 780	40	40	100	60
			H	13,5				280					
			P ⁽⁴⁾	75				280					
	1.4429 ⁽¹⁾	316 LN	C	8	AT	95 ⁽⁴²⁾	217 ⁽⁴²⁾	300	from 580 to 780	35	35	100	60
			H	13,5				280					
			P ⁽⁴⁾	75				280					
	1.4571 ⁽¹⁾	316 Ti	C	8	AT	95 ⁽⁴²⁾	217 ⁽⁴²⁾	240	from 540 to 690	40	40	100	60
			H	13,5				220					
			P ⁽⁴⁾	75				220					
1.4580 ⁽¹⁾	316 Cb	P ⁽⁴⁾	75	AT	95 ⁽⁴²⁾	217 ⁽⁴²⁾	220	from 520 to 720	40	40	100	60	
	317 ⁽³⁵⁾			AT	85 ⁽³⁰⁾	160 ⁽²¹⁾	276 *	from 586 to 621	from 45 to 50 *		149		
1.4438 ⁽¹⁾	317 L	C	8	AT		217 ⁽⁴²⁾	240	from 550 to 700	35	35	100	60	
		H	13,5		85 ⁽²⁰⁾		220						
		P ⁽⁴⁾	75		80 ⁽³¹⁾		220						

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GRADES	Mechanical properties of stainless steel flat products												
	DESIGNATIONS (▼)		Product Form (1)	Thickness max [mm]	Heat Treatment (5) (13)	Hardness		Proof strength R _{p0.2} [MPa] min. (14) (15) (transverse)	Tensile strength R _m [MPa]	Elongation after fracture		Impact energy (ISO-V)	
	EN [N°]	AISI/ASTM				HRB max	HB or HV max			A _{80mm} [%] min (2) th<3mm (tr. and long.)	A [%] min (3) th≥3mm (tr. and long.)	KV [J] min th>10mm (longitudinal)	(transverse)
AUSTENITIC	1.4434 ⁽¹⁾	317 LN	C	8	AT	95 ⁽⁴²⁾	217 ⁽⁴²⁾	290	from 570 to 770	35	35	100	60
			H	13,5				270					
			P ⁽⁴⁾	75				270					
	1.4439 ⁽¹⁾	317 LMN	C	8	AT	96 ⁽⁴²⁾	223 ⁽⁴²⁾	290	from 580 to 780	35	35	100	60
			H	13,5				270					
			P ⁽⁴⁾	75				270					
	1.4541 ⁽¹⁾	321	C	8	AT	80 ⁽¹⁹⁾	160 ⁽²¹⁾	220	from 520 to 720	40	40	100	60
			H	13,5		80 ⁽²⁰⁾		200					
			P ⁽⁴⁾	75		200							
	1.4878 ⁽¹⁾	321 H	⁽³²⁾	75	AT	95 ⁽⁴²⁾	215 ⁽¹⁷⁾	190 *	from 500 to 720	40 ⁽²⁶⁾	40	45 ⁽⁴⁶⁾	
	1.4550 ⁽¹⁾	347	C	8	AT	85 ⁽¹⁹⁾	160 ⁽²¹⁾	220	from 520 to 720	40	40	100	60
			H	13,5		85 ⁽²⁰⁾		200					
			P ⁽⁴⁾	75		200							
		347 H ⁽⁴⁵⁾			AT	92	201	205 *	min 515	40 *			
	1.4335 ⁽¹⁾		P	75	AT			200	from 470 to 670	40	40	100	60
	1.4466 ⁽¹⁾	310 MoLN	P ⁽⁴⁾	75	AT	95 ⁽⁴²⁾	217 ⁽⁴²⁾	250	from 540 to 740	40	40	100	60
	1.4361 ⁽¹⁾		P ⁽⁴⁾	75	AT			220	from 530 to 730	40	40	100	60
	1.4563 ⁽¹⁾		P ⁽⁴⁾	75	AT	from 70 to 90 ⁽⁴⁸⁾		220	from 500 to 700	40	40	100	60
	1.4537 ⁽¹⁾		P ⁽⁴⁾	75	AT			290	from 600 to 800	40	40	100	60
1.4539 ⁽¹⁾	904 L	C	8	AT	90 ⁽⁴²⁾		240	from 530 to 730	35	35	100	60	
		H	13,5				220						
		P ⁽⁴⁾	75				220						
1.4547 ⁽¹⁾		C	8	AT	96 ⁽⁴²⁾	223 ⁽⁴²⁾	320	from 650 to 850	35	35	100	60	
		H	13,5				300						
		P ⁽⁴⁾	75				300						
1.4652 ⁽¹⁾		C	8	AT			430	from 750 to 1000	40	40	100	60	
		H	13,5				430						
		P	75				430						
1.4659 ⁽¹⁾		P ⁽⁴⁾	75	AT			420	from 800 to 1000		40	100	60	
1.4529 ⁽¹⁾		P ⁽⁴⁾	75	AT			300	from 650 to 850	40	40	100	60	
1.4565 ⁽¹⁾		C	6	AT			420	from 800 to 950	30	30	120	90	
		H	10										
		P	40										
1.4864 ⁽¹⁾	330 ⁽³⁶⁾			AT		223 ⁽¹⁷⁾	230 *	from 550 to 750	28 ⁽²⁶⁾	30	30 ⁽⁴⁷⁾		
1.4835 ⁽¹⁾		⁽³²⁾	75	AT	95 ⁽⁴²⁾	210 ⁽¹⁷⁾	310 *	from 650 to 850	37 ⁽²⁶⁾	40			
1.4876 ⁽¹⁾		⁽³²⁾		AT	86 ^{(49) (50)}	192 ⁽¹⁷⁾	170 *	from 450 to 680	28 ⁽²⁶⁾	30	30 ⁽⁴⁷⁾		
1.4877 ⁽¹⁾				AT	95 ⁽²²⁾	223 ⁽¹⁷⁾	180 *	from 500 to 750	30 * ⁽²²⁾				
1.4818 ⁽¹⁾		⁽³²⁾		AT	95 ⁽⁴²⁾	210 ⁽¹⁷⁾	290 *	from 600 to 800	30 ⁽²⁶⁾	40			
1.4854 ⁽¹⁾		⁽³²⁾		AT	95 ⁽⁴²⁾	210 ⁽¹⁷⁾	300 *	from 650 to 850	40 ⁽²⁶⁾	40			

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GRADES	Mechanical properties of stainless steel flat products																
	DESIGNATIONS (▼)		Product Form	Thickness	Heat Treatment	Hardness		Proof strength	Tensile strength	Elongation after fracture		Impact energy (ISO-V)					
	EN [N°]	AISI/ASTM	(1)	max	(5) (13)	HRB max	HB or HV max	R _{p0.2} [MPa] min. (14) (15)	R _m	A _{th=mm} [%] min (2)	A [%] min (3)	KV [J] min th>10mm					
				[mm]				(transverse)	[MPa]	th<3mm (tr. and long.)	th≥3mm (tr. and long.)	(longitudinal)	(transverse)				
DUPLEX	1.4462 ⁽¹⁾	2205	C	8	AT	31 ⁽³³⁾	293 ⁽⁴²⁾	500 ^{(23) (44)}	from 700 to 950	20	20	100	60				
			H	13,5				460 ^{(23) (44)}		25	25						
			P	75				460 ^{(23) (44)}	from 640 to 840	25	25						
	1.4362 ⁽¹⁾	2304	C	8	AT	32 ⁽³³⁾	290 ⁽⁴²⁾	450 ^{(23) (44)}	from 650 to 850	20	20	100	60				
			H	13,5				400 ^{(23) (44)}									
			P	75				400 ^{(23) (44)}	from 630 to 800	25	25						
	1.4655 ⁽¹⁾		C	8	AT			420 ^{(23) (44)}	from 600 to 850	20	20	100	60				
			H	13,5				400 ^{(23) (44)}									
			P	75				400 ^{(23) (44)}	from 630 to 800	25	25						
	1.4410 ⁽¹⁾	2507	C	8	AT	32 ⁽³³⁾	310 ⁽⁴²⁾	550 ^{(23) (44)}	from 750 to 1000	15	15	100	60				
			H	13,5				530 ^{(23) (44)}									
			P	75				530 ^{(23) (44)}	from 730 to 930	20	20						
	1.4507 ⁽¹⁾	255	C	8	AT	32 ⁽³³⁾	302 ⁽⁴²⁾	550 ^{(23) (44)}	from 750 to 1000	17	17	100	60				
			H	13,5				530 ^{(23) (44)}									
			P	75				530 ^{(23) (44)}	from 730 to 930	25	25						
	1.4501 ⁽¹⁾		P	75	AT		270 ⁽⁴²⁾	530 ^{(23) (44)}	from 730 to 930	25	25	100	60				
	1.4424 ⁽¹⁾		C	8	AT			450 ^{(23) (44)}	from 700 to 900	25	25	100	60				
			H	13,5													
			P	75				400 ^{(23) (44)}	from 680 to 900								
	1.4477 ⁽¹⁾		C	8	AT			650 ^{(23) (44)}	from 800 to 1050	20	20	100	60				
			H	13,5				550 ^{(23) (44)}	from 750 to 1000								
			P	75				550 ^{(23) (44)}									
FERRITIC	1.4003 ⁽¹⁾		C	8	A	89 ⁽⁴²⁾	183 ⁽⁴²⁾	320 *	from 450 to 650	20		100 ⁽³⁷⁾					
			H	13,5													
			P	25 ⁽¹⁸⁾				280 *		18							
	1.4512 ⁽¹⁾	409	C	8	A	75 ⁽³⁰⁾		220 *	from 380 to 560	25							
			H	13,5													
	1.4516 ⁽¹⁾		C	8	A			320 *	from 450 to 650	23		150 ⁽³⁴⁾					
			H	13,5													
			P	25 ⁽¹⁸⁾				280 *		20							
	1.4000 ⁽¹⁾	410 S	C	8	A	89 ⁽⁴²⁾	183 ⁽⁴²⁾	250 *	from 400 to 600	19							
			H	13,5				230 *									
			P	25 ⁽¹⁸⁾				230 *									
	1.4002 ⁽¹⁾	405	C	8	A	75 ⁽²⁰⁾	150 ⁽²¹⁾	250 *	from 400 to 600	17							
			H	13,5				230 *									
			P	25 ⁽¹⁶⁾				230 *									
	1.4589 ⁽¹⁾		C	8	A			420 *	from 550 to 750	16							
			H	13,5				380 *		14							
		429 ⁽³⁵⁾			A	80	163	276 *	483	30 *							

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GRADES	Mechanical properties of stainless steel flat products														
	DESIGNATIONS (▼)		Product Form (1)	Thickness max [mm]	Heat Treatment (5) (13)	Hardness		Proof strength R _{p0.2} [MPa] min. (14) (15) (transverse)	Tensile strength R _m [MPa]	Elongation after fracture			Impact energy (ISO-V)		
	EN [N°]	AISI/ASTM				HRB max	HB or HV max			A _{80mm} [%] min (2) th<3mm (tr. and long.)	A [%] min (3) th≥3mm (tr. and long.)	KV [J] min th>10mm (longitudinal)	(transverse)		
FERRITIC	1.4595 ⁽¹⁾		C	8	A			220 *	from 380 to 560	25					
	1.4016 ⁽¹⁾	430	C	8	A	85 ⁽³⁰⁾		280 *	from 450 to 600	20					
			H	13,5				260 *		18					
			P	25 ⁽¹⁸⁾			160 ⁽²¹⁾			260 *	20				
	1.4520 ⁽¹⁾		C	8	A			200 *	from 380 to 530	24					
	1.4511 ⁽¹⁾		C	8	A			240 *	from 420 to 600	23					
	1.4017 ⁽¹⁾		C	8	A			350 *	from 500 to 750	12					
	1.4113 ⁽¹⁾	434	C	8	A	83 ⁽³⁰⁾		280 *	from 450 to 630	18					
			H	13,5											
	1.4513 ⁽¹⁾		C	8	A			220 *	from 400 to 550	23					
	1.4510 ⁽¹⁾	439	C	8	A	89 ⁽⁴²⁾	183 ⁽⁴²⁾	240 *	from 420 to 600	23					
			H	13,5											
	1.4521 ⁽¹⁾	444	C	8	A	96 ⁽⁴²⁾	217 ⁽⁴²⁾	320 *	from 420 to 640	20					
			H	13,5				300 *	from 400 to 600						
			P	13,5				300 *	from 420 to 620						
	1.4526 ⁽¹⁾	436	C	8	A			300 *	from 480 to 560	25					
	1.4509 ⁽¹⁾		C	8	A			250 *	from 430 to 630	18					
	1.4590 ⁽¹⁾		C	8	A			250 *	from 400 to 550	23					
1.4749 ⁽¹⁾	446	⁽³²⁾	12	A		212 ⁽¹⁷⁾	280 *	from 500 to 700	13 ⁽²⁶⁾	15 ⁽²⁸⁾	15 ⁽²⁹⁾				
		⁽³²⁾	13,5	A		192 ⁽¹⁷⁾	220 *	from 420 to 620		20 ⁽²⁸⁾	15 ⁽²⁹⁾				
		⁽³²⁾	13,5	A		192 ⁽¹⁷⁾	250 *	from 450 to 650	13 ⁽²⁶⁾	15 ⁽²⁸⁾	15 ⁽²⁹⁾				
		⁽³²⁾		A		223 ⁽¹⁷⁾	280 *	from 520 to 720	13 ⁽²⁶⁾	15 ⁽²⁸⁾	15 ⁽²⁹⁾				
		C	8	A			450 *	from 550 to 700	20						
MARTENSITIC	1.4006 ⁽¹⁾	410	C	8	A	90 ⁽⁶⁾	200 ⁽⁶⁾	205 * ⁽⁴¹⁾	max 600	20					
			H	13,5											
			P ^{(4) (7)}	75	QT550				400 *	from 550 to 750	15			upon agreement	
					QT650				450 *	from 650 to 850	12				
	1.4024 ⁽¹⁾		C	8	A	90 ⁽⁶⁾	200 ⁽⁶⁾		max 650	20					
			H	13,5					max 650	20					
			P	75											
			P	75	QT550				400 *	from 550 to 750	15			upon agreement	
			P	75	QT650				450 *	from 650 to 850	12				
	1.4021 ⁽¹⁾	420	C	3	QT	from 44 to 50 ⁽²⁴⁾	from 440 to 530 ⁽²⁵⁾								
			C	8	A	95 ⁽⁶⁾	225 ⁽⁶⁾	345 * ⁽¹⁹⁾	max 700	15					
			H	13,5											
P ^{(4) (7)}			75	QT650				450 *	from 650 to 850	12			upon agreement		
				QT750				550 *	from 750 to 950	10					

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GRADES	Mechanical properties of stainless steel flat products													
	DESIGNATIONS (▼)		Product Form (1)	Thickness max [mm]	Heat Treatment (5) (13)	Hardness		Proof strength R _{p0.2} [MPa] min. (14) (15) (transverse)	Tensile strength R _m [MPa]	Elongation after fracture		Impact energy (ISO-V)		
	EN [N°]	AISI/ASTM				HRB max	HB or HV max			A _{80mm} [%] min (2) th<3mm (tr. and long.)	A [%] min (3) th≥3mm (tr. and long.)	KV [J] min th>10mm (longitudinal)	(transverse)	
MARTENSITIC	1.4028 ⁽¹⁾	420	C	3	QT	from 45 to 51 ⁽²⁴⁾	from 450 to 550 ⁽²⁵⁾							
			C	8	A	97 ⁽⁶⁾	235 ⁽⁶⁾	345 * ⁽¹⁹⁾	max 740	15				
			H	13,5										
	1.4031 ⁽¹⁾	420	P ^{(4) (7)}	75	QT800			600 *	from 800 to 1000	10				
			C	3	QT	from 47 to 53 ⁽²⁴⁾	from 480 to 580 ⁽²⁵⁾							
			C	8	A	98 ⁽⁶⁾	240 ⁽⁶⁾	345 * ⁽¹⁹⁾	max 760	12				
	1.4034 ⁽¹⁾	420	H	13,5										
			C	8	A	99 ⁽⁶⁾	245 ⁽⁶⁾	345 * ⁽¹⁹⁾	max 780	12				
	1.4116 ⁽¹⁾		H	13,5										
			C	8	A	100 ⁽⁶⁾	280 ⁽⁶⁾		max 850	12				
	1.4110 ⁽¹⁾		H	13,5										
			C	8	A	100 ⁽⁶⁾	280 ⁽⁶⁾		max 850	12				
			H	13,5										
	1.4419 ⁽¹⁾		P	75										
			C	3	QT	from 46 to 52 ⁽²⁴⁾	from 450 to 560 ⁽²⁵⁾							
			C	4	A	97 ⁽⁶⁾	235 ⁽⁶⁾		max 760	15				
	1.4122 ⁽¹⁾		H	6,5										
			C	3	QT	from 47 to 53 ⁽²⁴⁾	from 480 to 580 ⁽²⁵⁾							
			C	8	A	100 ⁽⁶⁾	280 ⁽⁶⁾		max 900	12				
	1.4313 ⁽¹⁾		H	13,5										
			P ⁽⁴⁾	75	QT780			630 *	from 780 to 980	15		70		
	1.4418 ⁽¹⁾		QT900					800 *	from 900 to 1100	11				
			P ⁽⁴⁾	75	QT840			660 *	from 840 to 1100	14		55		
	1.4422 ⁽¹⁾		H	13,5	A	100 ⁽⁶⁾	300 ⁽⁶⁾	550 *	from 750 to 950		15	100		
			P	75	QT650		max 300 ⁽²⁵⁾							
	1.4423 ⁽¹⁾		H	13,5	A	100 ⁽⁶⁾	300 ⁽⁶⁾	550 *	from 750 to 950		15	100		
			P	75	QT650		max 300 ⁽²⁵⁾							
PH	1.4542 ⁽¹⁾	630	C	8	AT ⁽⁸⁾	35 ⁽³⁸⁾		1000 * ⁽²⁰⁾	≤ 1275	5				
					P1300 ⁽⁹⁾			1150 *	≥ 1300	3				
					P900 ⁽⁹⁾			700 *	≥ 900	6				
			P	50	P1070 ⁽¹⁰⁾			1000 *	from 1070 to 1270	8	10			
					P950 ⁽¹⁰⁾			800 *	from 950 to 1150	10	12			
					P850 ⁽¹⁰⁾			600 *	from 850 to 1050	12	14			
					SR630 ⁽¹¹⁾				≤ 1050					
	1.4568 ⁽¹⁾	631	C	8	AT ^{(8) (12)}	92 ⁽⁴³⁾		max 380 * ⁽⁴³⁾	≤ 1030	19				
					P1450 ⁽⁹⁾			1310 *	≥ 1450	2				

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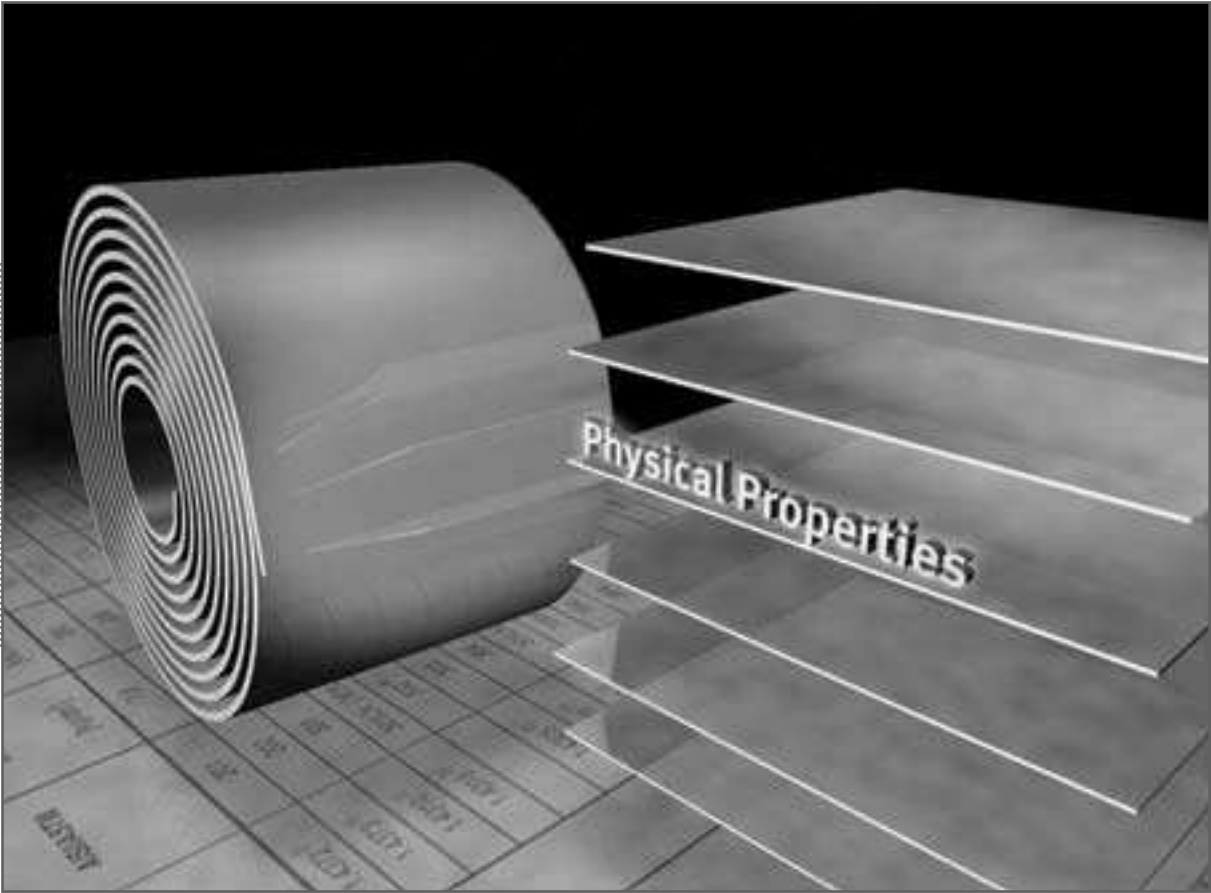
NOTES:

- (I) Mechanical properties according to EN 10088-2, June 2005
- (II) Mechanical properties according to EN 10095, March 1999
- (III) Mechanical properties according to EN 10028-7, January 2000
- (*) The notes in the column heading do not apply
- (▼) The designations of the materials in accordance with AISI/ASTM are not dependent on the type of steel product
- (1) C = cold-rolled strip; H = hot-rolled strip; P = hot-rolled plate
- (2) The values apply for test pieces with a gauge length of 80 mm and a width of 20 mm; test pieces with a gauge length of 50 mm and a width of 12.5 mm may also be used; solely for the austenitic types mentioned in EN 10088-2, June 2005, and EN 10028-7, January 2000, figures refer to the transverse direction only
- (3) The values apply for test pieces with a gauge length of $5,65 \cdot \sqrt{S_0}$. Solely for the austenitic types mentioned in EN 10088-2, June 2005, and EN 10028-7, January 2000, figures refer to the transverse direction only
- (4) For thicknesses exceeding 75 mm (martensitic and austenitic grades), mechanical properties may be agreed upon
- (5) A = annealed; QT = quenched and tempered; AT = solution annealed; P = precipitation-hardened; SR = stress-relieved
- (6) The Brinell or Vickers or Rockwell hardness is normally determined for product forms C and H in heat-treatment condition A. The tensile test shall be carried out in referee testing.
- (7) Plates may also be delivered in the annealed condition; in such cases, the mechanical properties are to be agreed at the time of enquiry and order
- (8) Delivery condition
- (9) Condition of application; other precipitation-hardening temperatures may be agreed.
- (10) If the product is ordered in the finally-treated condition
- (11) Delivery condition for further processing; final treatment according to table A.3 of EN 10088-2, June 2005
- (12) For spring-hard rolled condition see EN 10151
- (13) Solely for the austenitic types mentioned in EN 10088-2, June 2005, the solution treatment may be omitted if the conditions for hot working and subsequent cooling are such that the requirements for the mechanical properties of the product and the resistance to intergranular corrosion as defined in EN ISO 3651-2 are obtained
- (14) If, in the case of strip in rolling widths <300 mm, longitudinal test pieces are taken, the minimum values are reduced as follows:
 - proof strength: minus 15 MPa
 - elongation for constant gauge length: minus 5%
 - elongation for proportional gauge length: minus 2%
- (15) For continuously hot-rolled products, 20 MPa higher minimum values of $R_{p0,2}$ may be agreed at the time of enquiry and order.
- (16) For stretcher levelled material, the minimum value is 5% lower
- (17) Value for guidance purposes
- (18) For thicknesses exceeding 25 mm (ferritic grades), mechanical properties may be agreed upon
- (19) Value for Strip format according to AISI manual, December 1974 edition; supplement, March 1979
- (20) Value for Sheet format according to AISI manual, December 1974 edition; supplement, March 1979
- (21) Hardness value (HB) for Plate format according to AISI manual, December 1974 edition; supplement, March 1979
- (22) Properties according to ASTM A 240 / A 240 M-05a with respect to the equivalent UNS S 33228

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- (23) If, in the case of strip in rolling widths $< 300\text{ mm}$, longitudinal test pieces are taken, minimum proof strength values are reduced by 15 MPa
- (24) HRC hardness
- (25) HV hardness
- (26) Elongation after fracture A% for thicknesses $0.5 \leq s < 3\text{ mm}$ (longitudinal, transverse)
- (27) For thicknesses exceeding 25 mm (duplex grades), mechanical properties may be agreed upon
- (28) Elongation after fracture A% for thicknesses $s \geq 3\text{ mm}$ (longitudinal)
- (29) Elongation after fracture A% for thicknesses $s \geq 3\text{ mm}$ (transverse)
- (30) Value for Strip/Sheet formats according to AISI manual, December 1974 edition; supplement, March 1979
- (31) Value for Plate format according to AISI manual, December 1974 edition; supplement, March 1979
- (32) Product form: flat products (in general)
- (33) Hardness (HRC) according to ASTM A 240 / A 240 M-05a
- (34) Impact energy KV at room temperature in accordance with NF A 35-573, May 1990
- (35) Properties according to AISI manual, December 1974 edition; supplement, March 1979
- (36) Properties according to ASTM A 176-99 (reapproved 2004)
- (37) Value according to SEW 400, 1997
- (38) Hardness value (HRC) for Sheet format according to AISI manual, December 1974 edition; supplement, March 1979
- (39) IZOD impact test [J]
- (40) Solely for martensitic and PH types, the number after the letters identifies a specific heat treatment as per tables A.2 and A.3 of EN 10088-2, June 2005
- (41) According to ASTM A 176-99 (reapproved 2004)
- (42) According to ASTM A 240 / A 240 M-05a. In the absence of an equivalent Type, reference is made to the UNS number
- (43) According to ASTM A 693-93
- (44) Only note (15) in the column heading applies
- (45) Properties according to ASTM A 240 / A 240 M-05a
- (46) Impact energy KU at room temperature in accordance with NF A 35-578, October 1991
- (47) Value at room temperature in accordance with NF A 35-578, October 1991
- (48) Value for guidance purposes according to ASTM B 709-04
- (49) Value according to ASTM B 409-01
- (50) Value for Sheet and Strip formats. For Strip format with thickness between 0.13 and 0.25 mm, the maximum HRB value is 88

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GRADES	Physical properties of stainless steels								
	DESIGNATIONS (▼)		DENSITY	MODULUS OF ELASTICITY	MEAN COEFFICIENT OF THERMAL EXPANSION		THERMAL CONDUCTIVITY	SPECIFIC HEAT	ELECTRICAL RESISTIVITY
	EN [N°]	AISI/ASTM	at 20°C	at 20°C	[10 ⁻⁶ x K ⁻¹]		at 20°C	at 20°C	at 20°C
			[kg/dm ³]	[GPa]	20°C ÷ 200°C	20°C ÷ 400°C	[W/(m x K)]	[J/(kg x K)]	[Ω x mm ²)/m]
AUSTENITIC	1.4372 ^(l)	201	7,8	200	15,7 ^(a)	17,5 ^(b)	15	500 ^(e)	0,70
	1.4373 ^(l)	202	7,8	200	17,5 ^(f)	18,4 ^(b)	15	503 ^(d)	0,70
	1.4371 ^(l)		7,8	200	17,5	18,5	15	500	0,70
	1.4597 ^(l)		7,8	200	16,5	17,0	15	500	0,73
	1.4369 ^(l)		7,9	190	17,0	18,5	15	500	0,70
	1.4310 ^(l)	301	7,9	200	17,0	18,0	15	500	0,73
	1.4319 ^(l)		7,9	200	16,5	17,5	15	500	0,73
	1.4318 ^(l)	301LN (301L)	7,9	200	16,5	17,5	15	500	0,73
		302 ^(h)	8,06	193	17,2 ^(a)	17,8 ^(b)	16,3 ^(c)	503	0,72
	1.4305 ^(l)	303	7,9	200	16,5	17,5	15	500	0,73
	1.4301 ^(l)	304	7,9	200	16,5	17,5	15	500	0,73
	1.4311 ^(l)	304LN	7,9	200	16,5	17,5	15	500	0,73
	1.4948 ^(iv)	304H	7,9	200	16,9	17,8	17	450	0,71
	1.4307 ^(l)	304L	7,9	200	16,5	18,0	15	500	0,73
	1.4306 ^(l)	304L	7,9	200	16,5	17,5	15	500	0,73
	1.4315 ^(l)	304N	7,9	200	16,5	17,5	15	500	0,73
	1.4303 ^(l)	305	7,9	200	16,5	17,5	15	500	0,73
	1.4567 ^(l)		7,9	200	17,2	18,1	11,3 ⁽ⁱ⁾	503 ^(r)	0,72 ^(e)
		308 ^(h)	8,06	193	17,3 ^(a)	17,8 ^(b)	15,3 ^(c)	503	0,72
	1.4828 ⁽ⁱⁱⁱ⁾		7,9	200 ^(s)	16,5	17,5	15	500	0,85
	1.4833 ⁽ⁱⁱⁱ⁾	309S	7,9	200 ^(r)	16,0	17,5	15	500	0,78
		310 ^(h)	8,06	200	15,9 ^(a)	16,2 ^(b)	14,2 ^(c)	503	0,78
	1.4845 ⁽ⁱⁱⁱ⁾	310S	7,9	200 ^(r)	15,5	17,0	15	500	0,85
	1.4841 ⁽ⁱⁱⁱ⁾	314	7,9	200 ^(r)	15,5	17,0	15	500	0,90

NON MAGNETIC

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GRADES	Physical properties of stainless steels								
	DESIGNATIONS (▼)		DENSITY	MODULUS OF ELASTICITY	MEAN COEFFICIENT OF THERMAL EXPANSION		THERMAL CONDUCTIVITY	SPECIFIC HEAT	ELECTRICAL RESISTIVITY
	EN [N°]	AISI/ASTM	at 20°C [kg/dm³]	at 20°C [GPa]	[10 ⁻⁶ xK ⁻¹]		at 20°C [W/(m×K)]	at 20°C [J/(kg×K)]	at 20°C [Ω×mm²)/m]
AUSTENITIC	1.4401 ^(l)	316	8,0	200	16,5	17,5	15	500	0,75
	1.4436 ^(l)	316	8,0	200	16,5	17,5	15	500	0,75
		316F ^(h)	8,06	200	16,5 ^(a)	17,5 ^(b)	14,4 ^(c)	486	0,74
		316N ^(h)	8,06	196	(n.r.)	(n.r.)	(n.r.)	503	0,74
		316H ^(t)	8,03	193	15,9 ^(u)	16,2 ^(v)	16,3 ^(z)	500	0,74
	1.4404 ^(l)	316L	8,0	200	16,5	17,5	15	500	0,75
	1.4435 ^(l)	316L	8,0	200	16,5	17,5	15	500	0,75
	1.4432 ^(l)	316L	8,0	200	16,5	17,5	15	500	0,75
	1.4406 ^(l)	316LN	8,0	200	16,5	17,5	15	500	0,75
	1.4429 ^(l)	316LN	8,0	200	16,5	17,5	15	500	0,75
	1.4571 ^(l)	316Ti	8,0	200	17,5	18,5	15	500	0,75
	1.4580 ^(l)	316Cb	8,0	200	17,5	18,5	15	500	0,75
		317 ^(h)	8,06	193	16,0 ^(a)	16,2 ^(b)	16,3 ^(c)	503	0,74
	1.4438 ^(l)	317L	8,0	200	16,5	17,5	14	500	0,85
	1.4434 ^(l)	317LN	8,0	200	16,5	17,5	15	500	0,75
	1.4439 ^(l)	317 LMN	8,0	200	16,5	17,5	14	500	0,85
	1.4541 ^(l)	321	7,9	200	16,5	17,5	15	500	0,73
	1.4878 ^(ll)	321H	7,9	200 ^(l)	17,0	18,0	15	500	0,73
	1.4550 ^(l)	347	7,9	200	16,5	17,5	15	500	0,73
		347H ^(t)	8,03	193	16,6 ^(u)	18,2 ^(v)	16,1 ^(z)	500	0,72
	1.4335 ^(l)		7,9	195	16,1	16,9	14	450	0,85
	1.4466 ^(l)	310MoLN	8,0	195	15,7 ^(m)	17,0 ⁽ⁿ⁾	14	500	0,80
	1.4361 ^(l)		7,7	200	(n.r.)	(n.r.)	14	(n.r.)	(n.r.)
	1.4570 ^(q)		7,9	200	16,5	17,5	15	500	0,70

NON MAGNETIC

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GRADES	Physical properties of stainless steels									
	DESIGNATIONS (▼)		DENSITY	MODULUS OF ELASTICITY	MEAN COEFFICIENT OF THERMAL EXPANSION		THERMAL CONDUCTIVITY	SPECIFIC HEAT	ELECTRICAL RESISTIVITY	
	EN [N°]	AISI/ASTM	at 20°C	at 20°C	[10 ⁻⁶ xK ⁻¹]		at 20°C	at 20°C	at 20°C	
			[kg/dm³]	[GPa]	20°C ÷ 200°C	20°C ÷ 400°C	[W/(m×K)]	[J/(kg×K)]	[(Ω×mm²)/m]	
AUSTENITIC	1.4578 ^(l)		8,0	200	(n.r.)	(n.r.)	(n.r.)	(n.r.)	(n.r.)	NON MAGNETIC
	1.4563 ^(l)		8,0	195	16,1	16,9	12	450	1,00	
	1.4537 ^(l)		8,1	195	(n.r.)	(n.r.)	14	500	0,85	
	1.4539 ^(l)	904L	8,0	195	16,1	16,9	12	450	1,00	
	1.4547 ^(l)		8,0	195	17,0	18,0	14	500	0,85	
	1.4652 ^(l)		8,0	190	15,4	16,2	8,6	500	0,78	
	1.4659 ^(l)		8,2	190	15,5	16,3	12	450	1,00	
	1.4529 ^(l)		8,1	195	16,1	16,9	12	450	1,00	
	1.4565 ^(l)		8,0	190	15,5	16,8	12	450	0,92	
	1.4864 ^(ll)	330	8,0	196 ^(r)	15,0	16,0	12,5	550	1,00	
	1.4835 ^(ll)		7,8	(n.r.)	17,0	18,0	15	500	0,85	
	1.4876 ^(lll)		8,0	196 ^(g)	15,0	16,0	12	550	1,00	
	1.4877 ^(lll)		8,0	(n.r.)	15,5	16,5	12	450	0,96	
	1.4818 ^(lll)		7,8	(n.r.)	16,5	18,0	15	500	0,85	
	1.4854 ^(lll)		7,9	(n.r.)	15,5	16,5	11	450	1,00	
		384 ^(h)	8,06	193	17,2 ^(a)	(n.r.)	16,3 ^(c)	503	0,79	
DUPLEX	1.4460 ^(l)	329	7,8	200	13,5	(n.r.)	15	500	0,80	FERROMAGNETIC
	1.4462 ^(l)	2205	7,8	200	13,5	14,0 ^(g)	15	500	0,80	
	1.4362 ^(l)	2304	7,8	200	13,5	14,0 ⁽ⁿ⁾	15	500	0,80	
	1.4655 ^(l)		7,8	200	13,5	(n.r.)	15	500	0,80	
	1.4410 ^(l)	2507	7,8	200	12,5 ^(m)	13,5 ⁽ⁿ⁾	15	500	0,80	
	1.4507 ^(l)	255	7,8	200	12,5 ^(m)	13,5 ⁽ⁿ⁾	15	500	0,80	
	1.4501 ^(l)		7,8	200	13,5	(n.r.)	15	500	0,80	
	1.4424 ^(l)		7,8	200	13,5	(n.r.)	13	475	0,80	
	1.4477 ^(l)		7,7	200	12,0	(n.r.)	13	470	0,80	

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