

GRADES	Chemical composition (cast analysis) <sup>(1)(7)</sup> 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	X12CrMnNi17-7-5	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	
	X12CrMnNi18-9-5	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	
	X2CrMnNi17-7-5	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 <sup>(H)</sup>	1.4597 <sup>(H)</sup>		≤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
	X11CrNiMn19-8-6	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 <sup>(H)</sup>	≤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	
	X2CrNi18-7	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 <sup>(H)</sup>	≤0,15	≤0,75	≤2,00	0,045	≤0,030	≤0,10	17,00 to 19,00		8,00 to 10,00	
	X8CrNiS18-9 <sup>(H)</sup>	1.4305 <sup>(H)</sup>	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 <sup>(1)</sup>	≤0,11	17,50 to 19,50		8,00 to 10,50	
	X2CrNi18-10	1.4311	304 LN	≤0,030	≤1,00	≤2,00	0,045	≤0,015 <sup>(1)</sup>	0,12 to 0,22	17,50 to 19,50		8,50 to 11,50	
	X8CrNi18-10	1.4948	304 H	0,04 to 0,08	≤1,00	≤2,00	0,035	≤0,015 <sup>(1)</sup>	≤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 <sup>(1)</sup>	≤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 <sup>(1)</sup>	≤0,11	18,00 to 20,00		10,00 to 12,00	
	X5CrNi19-9	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 <sup>(1)</sup>	≤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 <sup>(1)</sup>	≤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 <sup>(1)</sup>	≤0,11	16,50 to 18,50	2,50 to 3,00	10,50 to 13,00	
			316 N <sup>(H)</sup>	≤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 <sup>(H)</sup>	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	
	X2CrNiMo17-12-2	1.4404	316 L	≤0,030	≤1,00	≤2,00	0,045	≤0,015 <sup>(1)</sup>	≤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 <sup>(1)</sup>	≤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 <sup>(1)</sup>	≤0,11	16,50 to 18,50	2,50 to 3,00	10,50 to 13,00	
	X2CrNiMoN17-11-2	1.4406	316 LN	≤0,030	≤1,00	≤2,00	0,045	≤0,015 <sup>(1)</sup>	0,12 to 0,22	16,50 to 18,50	2,00 to 2,50	10,00 to 12,50	
	X2CrNiMoN17-13-3	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 <sup>(1)</sup>		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	1.4560	316 Cb	≤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 <sup>(H)</sup>	≤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 <sup>(1)</sup>	≤0,11	17,50 to 19,50	3,00 to 4,00	13,00 to 16,00	
	X2CrNiMoN18-12-4	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	
	X2CrNiMoN17-13-5	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	
	X8CrNiTi18-10	1.4541	321	≤0,08	≤1,00	≤2,00	0,045	≤0,015 <sup>(1)</sup>		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 <sup>(H)</sup>	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
	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	
X1CrNiMoN25-22-2	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 <sup>(H)</sup>	1.4852 <sup>(H)</sup>		≤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	
X1CrNiMoCuNW24-22-8	1.4859		≤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		
X9CrNiSiCe21-11-2	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	
X6NiCrNbCu32-27	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	
X6CrNiSiNCe19-10	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	
X6NiCrSiNCe35-25 <sup>(H)</sup>	1.4854 <sup>(H)</sup>		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	

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	Name Designation EN	EN Number Designation	Designation AISI/ASTM	C	Si	Mn	P max	S	N	Cr	Mo	Ni	Others	
DUPLEX	X2CrNiMoN22-5-3 <sup>(8)</sup>	1.4462 <sup>(8)</sup>	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 <sup>(8)</sup>	1.4382 <sup>(8)</sup>	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 <sup>(8)</sup>	1.4410 <sup>(8)</sup>	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	
	X2CrNiMoS18-5-3	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 <sup>(8)</sup>	1.4477 <sup>(8)</sup>		≤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 <sup>(1)</sup>	≤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	
	X8Cr13	1.4000	410S	≤0,08	≤1,00	≤1,00	0,040	≤0,015 <sup>(1)</sup>		12,00 to 14,00				
	X8CrAl13	1.4002	405	≤0,08	≤1,00	≤1,00	0,040	≤0,015 <sup>(1)</sup>		12,00 to 14,00			Al: 0,10 to 0,30	
	X5CrNiMoTi16-2	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 <sup>(8)</sup>	≤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
	X8Cr17	1.4016	430	≤0,08	≤1,00	≤1,00	0,040	≤0,015 <sup>(1)</sup>		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 <sup>(1)</sup>		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 <sup>(1)</sup>		16,00 to 18,00	0,90 to 1,40			
	X3CrTi17	1.4510	439	≤0,05	≤1,00	≤1,00	0,040	≤0,015 <sup>(1)</sup>		16,00 to 18,00				
	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 <sup>(1)</sup>
	X8CrMoNb17-1	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 <sup>(1)</sup>	
MARTENSITIC <sup>(10)</sup>	X12Cr13	1.4006	410	0,08 to 0,15	≤1,00	≤1,50	0,040	≤0,015 <sup>(1)</sup>		11,50 to 13,50		≤0,75		
	X15Cr13	1.4024		0,12 to 0,17	≤1,00	≤1,00	0,040	≤0,015 <sup>(1)</sup>		12,00 to 14,00				
	X20Cr13	1.4021	420	0,16 to 0,25	≤1,00	≤1,50	0,040	≤0,015 <sup>(1)</sup>		12,00 to 14,00				
	X30Cr13	1.4028	420	0,26 to 0,35	≤1,00	≤1,50	0,040	≤0,015 <sup>(1)</sup>		12,00 to 14,00				
	X39Cr13	1.4031	420	0,36 to 0,42	≤1,00	≤1,00	0,040	≤0,015 <sup>(1)</sup>		12,50 to 14,50				
	X46Cr13	1.4034	420	0,43 to 0,50	≤1,00	≤1,00	0,040	≤0,015 <sup>(1)</sup>		12,50 to 14,50				
	X50CrMoV15	1.4116		0,45 to 0,55	≤1,00	≤1,00	0,040	≤0,015 <sup>(1)</sup>		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 <sup>(1)</sup>		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 <sup>(1)</sup>		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 <sup>(1)</sup>	≥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 <sup>(10)</sup>	X5CrNiCuNb16-4	1.4542	630	≤0,07	≤0,70	≤1,50	0,040	≤0,015 <sup>(1)</sup>		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 <sup>(4)</sup>	Al: 0,70 to 1,50	