



MARYLAND METRICS

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Maryland Metrics: Technical Data Chart

INTERNATIONAL STANDARDS CONVERSION TABLE FOR STAINLESS STEEL

Including Chemical Composition & Mechanical Properties

This [data chart](#) is also available for downloading as a viewable/printable Acrobat PDF file.

U.S.A.	GERMANY	GERMANY	FRANCE	JAPAN	ITALY	SWEDEN	U.K.	E.U.	SPAIN	RUSSIA
AISI	DIN 17006	W.N. 17007	AFNOR	JIS	UNI	SIS	BSI	EURONORM	UNE	GOST
201				SUS 201						
301	X 12 CrNi 17 7	1.4310	Z 12 CN 17-07	SUS 301	X 12 CrNi 1707	23 31	301S21	X 12 CrNi 17 7	X 12 CrNi 17-07	
302	X 5 CrNi 18 7	1.4319	Z 10 CN 18-09	SUS 302	X 10 CrNi 1809	23 31	302S25	X 10 CrNi 18 9	X 10 CrNi 18-09	12KH18N9
303	X 10 CrNiS 18 9	1.4305	Z 10 CNF 18-09	SUS 303	X 10 CrNiS 1809	23 46	303S21	X 10 CrNiS 18 9	X 10 CrNiS 18-09	
303 Se			Z 10 CNF 18-09	SUS 303 Se	X 10 CrNiS 1809		303S41		X 10 CrNiS 18-09	12KH18N10E
304	X 5 CrNi 18 10 X 5 CrNi 18 12	1.4301 1.4303	Z 6 CN 18-09	SUS 304	X 5 CrNi 1810	23 32	304S15 304S16	X 6 CrNi 18 10	X 6 CrNi 19-10	08KH18N10 06KH18N11

304 N				SUS 304N1	X 5 CrNiN 1810					
304 H				SUS F 304H	X 8 CrNi 1910				X 6 CrNi 19-10	
304 L	X 2 CrNi 18 11	1.4306	Z 2 CN 18-10	SUS 304L	X 2 CrNi 1911	23 52	304S11	X 3 CrNi 18 10	X 2 CrNi 19-10	03KH18N11
	X 2 CrNiN 18 10	1.4311	Z 2 CN 18-10-Az	SUS 304LN	X 2 CrNiN 1811	23 71				
305			Z 8 CN 18-12	SUS 305	X 8 CrNi 1812	23 33	305S19	X 8 CrNi 18 12	X 8 CrNi 18-12	
			Z 6 CNU 18-10	SUS XM7				X 6 CrNiCu 18 10 4 Kd		
309	X 15 CrNiS 20 12	1.4828	Z 15 CN 24-13	SUH 309	X 16 CrNi 2314		309S24	X 15 CrNi 23 13		
309 S				SUS 309S	X 6 CrNi 2314			X 6 CrNi 22 13		
310	X 12 CrNi 25 21	1.4845		SUH 310	X 22 CrNi 2520		310S24			20KH23N18
310 S	X 12 CrNi 25 20	1.4842	Z 12 CN 25-20	SUS 310S	X 5 CrNi 2520	23 61		X 6 CrNi 25 20		10KH23N18
314	X 15 CrNiSi 25 20	1.4841	Z 12 CNS 25-20		X 16 CrNiSi 2520			X 15 CrNiSi 25 20		20KH25N20S2
316	X 5 CrNiMo 17 12 2	1.4401	Z 6 CND 17-11	SUS 316	X 5 CrNiMo 1712	23 47	316S31	X 6 CrNiMo 17 12 2	X 6 CrNiMo 17-12-03	
316	X 5 CrNiMo 17 13 3	1.4436	Z 6 CND 17-12	SUS 316	X 5 CrNiMo 1713	23 43	316S33	X 6 CrNiMo 17 13 3	X 6 CrNiMo 17-12-03	
316 F	X 12 CrNiMoS 18 11	1.4427								
316 N				SUS 316N						
316 H				SUS F 316H	X 8 CrNiMo 1712				X 5 CrNiMo 17-12	
316 H					X 8 CrNiMo 1713				X 6 CrNiMo 17-12-03	
316 L	X 2 CrNiMo 17 13 2	1.4404	Z 2 CND 17-12	SUS 316L	X 2 CrNiMo 1712	23 48	316S11	X 3 CrNiMo 17 12 2	X 2 CrNiMo 17-12-03	03KH17N14M2
	X 2 CrNiMoN 17 12 2	1.4406	Z 2 CND 17-12-Az	SUS 316LN	X 2 CrNiMoN 1712					
316 L	X 2 CrNiMo 18 14 3	1.4435	Z 2 CND 17-13		X 2 CrNiMo 1713	23 53	316S13	X 3 CrNiMo 17 13 3	X 2 CrNiMo 17-12-03	03KH16N15M3

	X 2 CrNiMoN 17 13 3	1.4429	Z 2 CND 17-13-Az		X 2 CrNiMoN 1713	23 75				
	X 6 CrNiMoTi 17 12 2	1.4571	Z6 CNDT 17-12		X 6 CrNiMoTi 1712	23 50	320S31	X 6 CrNiMoTi 17 12 2	X 6 CrNiMoTi 17-12-03	08KH17N13M2T 10KH17N13M2T
	X 10 CrNiMoTi 18 12	1.4573			X 6 CrNiMoTi 1713		320S33	X 6 CrNiMoTi 17 13 3	X 6 CrNiMoTi 17-12-03	08KH17N13M2T 10KH17N13M2T
	X 6 CrNiMoNb 17 12 2	1.4580	Z 6 CNDNb 17-12		X 6 CrNiMoNb 1712			X 6 CrNiMoNb 17 12 2		08KH16N13M2B
	X 10 CrNiMoNb 18 12	1.4583			X 6 CrNiMoNb 1713			X 6 CrNiMoNb 17 13 3		09KH16N15M3B
317				SUS 317	X 5 CrNiMo 1815	23 66	317S16			
317 L	X 2 CrNiMo 18 16 4	1.4438	Z 2 CND 19-15	SUS 317L	X 2 CrNiMo 1815	23 67	317S12	X 3 CrNiMo 18 16 4		
317 L	X 2 CrNiMo 18 16 4	1.4438	Z 2 CND 19-15	SUS 317L	X 2 CrNiMo 1816	23 67	317S12	X 3 CrNiMo 18 16 4		
330	X 12 NiCrSi 36 16	1.4864	Z 12NCS 35-16	SUH 330						
321	X 6 CrNiTi 18 10 X 12 CrNiTi 18 9	1.4541 1.4878	Z 6 CNT 18-10	SUS 321	X 6 CrNiTi 1811	23 37	321S31	X 6 CrNiTi 18 10	X 6 CrNiTi 18-11	08KH18N10T
321 H				SUS 321H	X 8 CrNiTi 1811		321S20		X 7 CrNiTi 18-11	12KH18N10T
329	X 8 CrNiMo 27 5	1.4460		SUS 329J1		23 24				
347	X 6 CrNiNb 18 10	1.4550	Z 6 CNNb 18-10	SUS 347	X 6 CrNiNb 1811	23 38	347S31	X 6 CrNiNb 18 10	X 6 CrNiNb 18-11	08KH18N12B
347 H				SUS F 347H	X 8 CrNiNb 1811				X 7 CrNiNb 18-11	
904L		1.4939	Z 12 CNDV 12-02							
	X 20 CrNiSi 25 4	1.4821								
UNS31803	X 2 CrNiMoN 22 5	1.4462								
UNS32760	X 3 CrNiMoN 25 7	1.4501	Z 3 CND 25-06Az							
403	X 6 Cr 13 X 10 Cr 13 X 15 Cr 13	1.4000 1.4006 1.4024	Z 12 C 13	SUS 403	X 12 Cr 13	23 02	403S17	X 10 Cr 13 X 12 Cr 13	X 6 Cr 13	12Kh13

405	X 6 CrAl 13	1.4002	Z 6 CA 13	SUS 405	X 6 CrAl 13		405S17	X 6 CrAl 13	X 6 CrAl 13	
	X 10 CrAl 7	1.4713	Z 8 CA 7					X 10 CrAl 7		
	X 10 CrAl 13	1.4724			X 10 CrAl 12					10Kh13SYu
	X 10 CrAl 18	1.4742						X 10 CrSiAl 18		15Kh18SYu
409	X 6 CrTi 12	1.4512	Z 6 CT 12	SUH 409	X 6 CrTi 12		409S19	X 5 CrTi 12		
					X 2 CrTi 12					
410	X 6 Cr 13 X 10 Cr 13 X 15 Cr 13	1.4000 1.4006 1.4024	Z 10 C 13 Z 12 C 13	SUS 410	X 12 Cr 13	23 02	410S21	X 12 Cr 13	X 12 Cr 13	12Kh13
410 S	X 6 Cr 13	1.4000	Z 6 C 13	SUS 410S	X 6 Cr 13	23 01	403S17	X 6 Cr 13		08Kh13
414										

These are austenitic grades

These are ferritic grades

These are ferritic-austenitic grades (otherwise known as Duplex and Superduplex)

Chemical Composition

Standard of Country					Chemical Composition							
USA	German		UK	Japan	C Max	Si Max	Mn Max	P max	S Max	Ni	Cr	Mo
AISI	W-Nr	DIN KURZNAME	BS	JIS								
301	1.4310	X12Cr Ni 177	301S21	SUS 301	0.15	1	2	0.045	0.03	6.00-8.00	16.00-18.00	-
304	1.4301	XDCr Ni 189	304S16	SUS304	0.08	1	2	0.045	0.03	8.00-10.50	18.00-20.00	-
304L	1.4306	X3Cr Ni 89	304S12	SUS 304L	0.03	1	2	0.045	0.03	9.00-13.00	18.00-20.00	-
305	1.4303	X5Cr Ni 1911	305S19	SUS 305	0.12	1	2	0.045	0.03	10.50-13.00	17.00-19.00	-

310S	1.4841	X 15 Cr Ni Si 2520	310S24	SUS 310S	0.08	1.5	2	0.045	0.03	19.00-22.00	24.00-26.00	-
316	1.4401	X15 Cr Ni Mo 1810	306S16	SUS 316	0.08	1	2	0.045	0.03	10.00-14.00	16.00-18.00	2.00-3.00
316L	1.4435	X15 Cr Ni Mo 1812	306S12	SUS 316 L	0.03	1	2	0.045	0.03	12.00-15.00	16.00-18.00	2.00-3.00
430	1.4016	X8Cr 17	430S17	SUS 430	0.12	0.75	1	0.04	0.03	0.6	16.00-18.00	-
434	1.4113	-	-	SUS 434	0.12	1	1	0.04	0.03	0.6	16.00-18.00	0.75-1.25
410	1.4006	X10 Cr 13	410S21	SUS 410	0.15	1	1	0.04	0.03	0.6	11.50-13.50	-
420	1.4021	X 20 Cr 13	420S29	SUS 420 J1	0.16-0.25	1	1	0.04	0.03	0.6	12.00-14.00	-
420	1.4034	X 40 Cr 13	420S45	SUS 420 J2	0.26 - 0.40	1	1	0.04	0.03	0.6	12.00-14.00	-

Mechanical Properties

USA	German		UK	Japan	Tensile test(min)				Hardness (Max)			
AISI	W-Nr	DIN KURZNAME	BS	JIS	Y/S kg/mm2	T/S N/mm2	T/S kgf/mm2	T/S N/mm2	Elongat-ion	HB	HRB	Hv
301	1.4310	X12Cr Ni 177	301S21	SUS 301	21	206	53	520	40	187	90	200
304	1.4301	XDCr Ni 189	304S16	SUS304	21	206	53	520	40	187	90	200
304L	1.4306	X3Cr Ni 89	304S12	SUS 304L	18	177	49	481	40	187	90	200

305	1.4303	X5Cr Ni 1911	305S19	SUS 305	18	177	49	481	40	187	90	200
310S	1.4841	X 15 Cr Ni Si 2520	310S24	SUS 310S	21	206	53	520	40	187	90	200
316	1.4401	X15 Cr Ni Mo 1810	306S16	SUS 316	21	206	53	520	40	187	90	200
316L	1.4435	X15 Cr Ni Mo 1812	306S12	SUS 316 L	18	177	49	481	40	187	90	200
430	1.4016	X8Cr 17	430S17	SUS 430	21	206	46	451	22	183	88	200
434	1.4113	-	-	SUS 434	21	206	46	451	22	183	88	200
410	1.4006	X10 Cr 13	410S21	SUS 410	21	206	45	441	20	200	93	210
420	1.4021	X 20 Cr 13	420S29	SUS 420 J1	23	226	53	520	18	223	97	234
420	1.4034	X 40 Cr 13	420S45	SUS 420 J2	23	226	55	539	18	235	99	247

INTERNATIONAL MATERIAL COMPARISON FOR STAINLESS STEELS

The interchangeability of the compared materials must be judged for individual cases

Werkstoff Nr.	DIN / DIN EN	AISI USA	UNS Unified	SS Swedish	AFNOR French	BS British
1.4000	X6 Cr 13	410 S	S 41008	2301	Z 8 C 12	403 S 17
1.4002	X6 CrAl 13	405	S 40500		Z 8 CA 12	405 S 17
1.4003	X2 CrNi 12					
1.4005	X12 CrS 13	416	S 41600	2380	Z 11 CF 13	416 S 21
1.4006	X12 Cr 13	410	S 41000	2302	Z 10 C 13	410 S 21
1.4016	X6 Cr 17	430	S 43000	2320	Z 8 C 17	430 S 15
1.4021	X20 Cr 13	420	S 42000	2303	Z 20 C 13	420 S 37
1.4024	X 15 Cr 13	-410	(S 41000)			420 S 29
1.4028	X30 Cr 13	420 F	S 42020	2304	Z 30 C 13	420 S 45
1.4031	X39 Cr 13			2304	Z 33 C 13	420 S 45
1.4034	X46 Cr 13			2304	Z 40 C 14	(420 S 45)

1.4057	X17 CrNi 16-2	431	S 43100	2321	Z 15 CN 16,02	431 S 29
1.4104	X14 CrMoS 17	430 F	S 43020	2383	Z 13 CF 17	(441 S 29)
1.4112	X90 CrMoV 18	440 B	S 44003			
1.4113	X6 CrMo 17-1	434	S 43400		Z 8 CD 17-01	434 S 17
1.4120	X20 CrMo 13				Z 20 CD 14	
1.4122	X39 CrMo 17-1					
1.4301	X5 CrNi 18-10	304	S 30400	2332	Z 6 CN 18,09	304 S 15
1.4303	X4 CrNi 18-12	-305	(S 30500)		Z 8 CN 18-12	305 S 19
1.4305	X8 CrNiS 18-9	303	S 30300	2346	Z 8 CNF 18,09	303 S 31
1.4306	X2 CrNi 19-11	304 L	S 30403	2352	Z 2 CN 18,09	304 S 11
1.4307	X2 CrNi 18-9	304 L		2352	Z 3 CN 18,10	304 S 11
1.4310	X10 CrNi 18-8	301	S 30100	2331	Z 12 CN 18,08	301 S 22
1.4311	X2 CrNiN 18-10	304 LN	S 30453	2371	Z 3 CN 18-10 AZ	304 S 61
1.4313	X3 CrNiMo 13-4	CA 6 NM		2384	Z 4 CND 13,04 M	425 C 11
1.4315	X5 CrNiN 19-9	304 N	S 30451		Z 6 CN 19-09 AZ	
1.4318	X2 CrNiN 18-7	301 LN				
1.4319	X 5 CrNi 18 7	302		23 31	Z 10 CN 18-09	302S25
1.4401	X5 CrNiMo 17-12-2	316	S 31600	2347	Z 7 CND 17,12,02	316 S 31
1.4404	X2 CrNiMo 17-12-2	316 L	S 31603	2348	Z 3 CND 18,12,02	316 S 11
1.4406	X 2 CrNiMoN 17 12 2				Z 2 CND 17-12-Az	
1.4418	X4 CrNiMo 16-5-1			2387	Z 6 CND 16,05,01	
1.4427	X4 CrNiMoS 18-11	316 F	S 31620			
1.4429	X2 CrNiMoN 17-13-3	316 LN	S 31653	2375	Z 3 CND 17-12 AZ	316 S 63
1.4432	X2 CrNiMo 17-12-3	316 L		2353	Z 3 CND 17,12,03	316 S 13
1.4435	X2 CrNiMo 18-14-3	316 L	S 31603	2353	Z 3 CND 18,14,03	316 S 11
1.4436	X3 CrNiMo 17-13-3	316	S 31600	2343	Z 7 CND 18,12,03	316 S 31
1.4438	X2 CrNiMo 18-15-4	317 L	S 31703	2367	Z 3 CND 19,15,04	317 S 12
1.4439	X2 CrNiMoN 17-13-5	(317 LMN)				
1.4449	X5 CrNiMo 17-13	317	S 31700			317 S 16
1.4460	X3 CrNiMoN 27-5-2	329	S 32900	2324	Z 5 CND 27.05.AZ	
1.4462	X2 CrNiMoN 22-5-3		S 31803	2377	(Z 5 CNDU 21,08)	

1.4465	X1 CrNiMoN 25-25-2				Z 2 CND 25-22 AZ	
1.4501	X 3 CrNiMoN 25 7	UNS32760			Z 3 CND 25-06Az	
1.4509	X2 CrTiNb 18	441			Z 3 CTNb 18	
1.4510	X3 CrTi17	439	S 43900		Z 4 CT 17	
1.4511	X8 CrNb 17				Z 4 CNb 17	
1.4512	X2 CrTi 12	409	S 40900		Z 3 CT 12	409 S 19
1.4520	X2 CrTi 17					
1.4521	X2 CrMoTi 18-2	444	S 44400			
1.4529	X1 NiCrMoCuN 25-20-7		(S 31254)			
1.4539	X1 NiCrMoCu 25-20-5	(904 L)	N 08904	2562	Z 1 NCDU 25,20	
1.4541	X6 CrNiTi 18-10	321	S 32100	2337	Z 6 CNT 18,10	321 S 31
1.4542	X5 CrNiCuNb 16-4	630	S 17400		Z 67CNU 15,05	
1.4544						
1.4546	X5 CrNiNb 18-10					
1.4550	X6 CrNiNb 18-10	347	S 34700	2338	Z 6 CNNb 18,10	347 S 31
1.4561	X1 CrNiMoTi 18-13-2	316 Ti	S 31603			
1.4563	X1 NiCrMoCu 31-27-4		N 08028	2584	Z 2 NCDU 31,27	
1.4565	X2 CrNiMnMoNbN 25-18 -5-4	S 34565				
1.4568	X7 CrNiAl 17-7	631	S 17700	2388	Z 9 CNA 17-07	
1.4571	X6 CrNiMoTi 17-12-2	316 Ti	S 31635	2350	Z 6 CNDT 17,12	320 S 31
1.4573	X 10 CrNiMoTi 18 12					320S33
1.4580	X 6 CrNiMoNb 17 12 2				Z 6 CNDNb 17-12	
1.4583	X 10 CrNiMoNb 18 12					
1.4589	X5 CrNiMoTi 15-2					
1.4713	X10 CrAlSi 7				Z 8 CA 7	
1.4724	X 10 CrAl 13				(Z 10 C 13)	
1.4742	X 10 CrAl 18				Z 10 CAS 18	
1.4762	X 10 CrAl 24	(446)	(S 44600)	(2322)	Z 10 CAS 24	
1.4821	X 20 CrNiSi 25 4				Z 20 CNS 25.04	
1.4828	X 15 CrNiSi 20 12	309	(S 30900)		Z 15 CNS 20.12	309 S 24

1.4841	X 15 CrNiSi 25 20	314	S 31400		Z 12 CNS 25.20	314 S 25
1.4842	X 12 CrNi 25 20	310 S		23 61	Z 12 CN 25-20	
1.4845	X 12 CrNi 25 21	310 S	S 31008	2361	Z 12 CN 25.20	310 S 24
1.4864	X 12 NiCrSi 36 16	330	N 08330		Z 12 CNS 35.16	(3076 NA 17)
1.4876	X 10 NiCrAlTi 32 20	B 163			Z 8 NC 32.21	3076 NA 15 H
1.4878	X 12 CrNiTi 18 9	321	S 32100	2337	Z 6 CNT 18.12	321 S 51
1.4939		904L			Z 12 CNDV 12-02	

The most common stainless high-grade steels, standardized in Europe are, classified in:

VA steel = chromium-nickel stainless steels, these are

Werkstoff Material NR. 1.4301, of 1,4305, 1,4306, 1,4541

VA steel = chrome nickel molybdenum steel, these are

Werkstoff Material NR. 1.4401, 1,4404, 1,4435, 1,4436, 1.4571

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