

MATERIALS, GRADES AVAILABLE

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(1) Austenitic stainless steels:

UNS	Material	W.Nr,or...
S31008	AISI 310S	1.4841
S31603	AISI 316L	1.4404
S31703	AISI 317L	1.4438
S31726	AISI 317LMN	1.4439
S32100	AISI 321	1.4541
S32109	AISI 321H	1.4878
S34700	AISI 347	1.4550
S41000	AISI410	1.4006
S43100	AISI431	1.4057

(2) Super austenitic stainless steels:

S31254	S31254	1.4547; F44
N08367	AL-6XN	
N08904	904L	1.4539

(3) Steels type Duplex and Super Duplex (Ferretic-Austenitic):

S31803	Duplex S31803	1.4462; F51
S32550	Ferrallium 255	1.4507; F61
S32760	Supper duplex F55	1.4501
S32750	Super duplex S32750	1.4410; F3

(4) Super Alloys Cr, Ni, Mo,....

S17400	17-4PH	1.4542; A564 Gr630
N08020	20Cb3	Alloy 20; 2.4660
N10675	Hastelloy B3	2.4617
N06022	Hastelloy C22	2.4602
N10276	Hastelloy C276	2.4819
N06455	Hastelloy C4	2.4610
N08028	Incoloy 028	1.4563;Sanicro28
N08330	Incoloy 330	1.4333
N08800	Incoloy 800	1.4876
N08810	Incoloy 800H	1.4876;1.4958
N08811	Incoloy 800HT	1.4876;1.4959
N08825	Incoloy 825	2.4858
S66286	Incoloy A286	1.4980;A638Gr 660
N08330	Incoloy DS	1.4864
N06600	Inconel 600	2.4816
N06601	Inconel 601	2.4851
N06625	Inconel 625	2.4856
N07718	Inconel 718	2.4668
N07750	Inconel X750	2.4669
N04400	Monel 400	2.4360
N05500	Monel K500	2.4375

(5) Nickels:

N02200	Niquel 200	2.4060;2.4066
N02201	Niquel 201	2.4061;2.4068

(6) Exotic metals:

	Niobium	
	Tantalo	
N50250....	Titanio Gr1. 2 y 7	
	Zirconium	

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COMPARISON OF INTERNATIONAL STANDARDS FOR STAINLESS STEEL

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Werkstoff-Nr.	DIN.	AISI.	UNS.	AFNOR.	BS.	JIS	SS.	GOST
1.4000	X6Cr13 (X7Cr13)	403(410S)	S 41008	Z6C13	403 S17	SUS 403	2301	08Ch13
1.4002	X6CrAl13 (X7CrAl13)	405	S 40500	Z6CA13	405 S17	SUS 405	-	08Ch11NYU
1.4006	X10Cr13	410	S 41000	Z12C13	410 S21	SUS 410	2302	12Ch13
1.4016	X6Cr17 (X8CR17)	430	S 43000	Z8C17	430 S15 430 S17	SUS 430	2320	12Ch17
1.4021	X20Cr13	420	S 42000	Z20C13	420 S29 420 S37 420 S45	SUS 420J1 SUS 420J2	2303	20Ch13
1.4024	X15Cr13	410	S 41000	-	420 S29 410 S21	SUS 410J1	-	-
1.4028	X30Cr13	420	S 42000	Z30C13	420 S45	SUS 420J2	2304	30Ch13
1.4031	X38Cr13 (X40Cr13)	420	S 42000	Z40C14	-	SUS 420J2	2304	40Ch13
1.4034	X46Cr13	420	S 42000	Z40C14 Z38C13M	420 S45	-	-	40Ch13
1.4057	X20CrNi172 (X22CrNi17)	431	S 43100	Z15CN16-02	431 S29	SUS 431	2321	20Ch17N2
1.4510	X6CrTi17 (X8CrTi17)	XM8 430Ti	-	Z8CT17	-	SUS 430LX	-	08Ch17T
1.4512	X6CrTi12	409	S 40900	Z6CT12	409 S19 409 S17	SUH 409	-	-
1.4301	X5CrNi1810 (X5CrNi189)	304/304H	S 30400	Z6CN18-09	304 S31	SUS 304	2332	08Ch18N10
1.4305	X10CrNiS189 (X12CrNiS188)	303	S 30300	Z10CNF18-09	303 S21	SUS 303	2346	-
1.4306	X2CrNi1911 (X2CrNi189) (G-X2Cr189)	304L	S 30403	Z2CN18-10 Z3CN19-10M Z2CN18-09	304 S12 304 C12 304 S11	SCS 19 SUS 304L	2352 2333	03Ch18N11
1.4310	X12CrNi177	301	S 30100	Z12CN17-07 Z12Cn18-07	301 S21	SUS301	-	-
1.4311	X2CrNiN1810	304LN	S 30453	Z2CN18-10Az	304 S62	SUS 304LN	2371	-
1.4401	X5CrNiMo17122	316	S 31600	Z6CND17-11	316 S16	SUS 316	2347	-
1.4404	X2CrNiMo17132 (X2CrNiMo1810) (GX2CrNiMo1810)	316L	S 31603	Z2CND 18-13 Z2CND17-12	316 S14	SUS 316L	2348	-
1.4429	X2CrNiMoN17133 (X2CrNiMoN1813)	316LN	S 31653	Z2CND17-13	-	SUS 316LN	2375	-
1.4435	X2CrNiMo18143 (X2CrNiMo1812)	316L	S 31603	Z2CND17-13	316 S11 316 S12 316 S13	SCS 16 SUS 316L	2353	03Ch17N14 M2
1.4436	X5CrNiMo17133 (X5CrNiMo1812)	316	S31600	Z6CND17-12	316 S16 316 S33	SUS 316	2343	-
1.4438	X2CrNiMo18164 (X2CrNiMo1816)	317L	S 31703	Z2CND19-15	317 S12	SUS 317L	2367	-
1.4439	X2CrNiMoN17135	317LNM	S 31726	Z2CND19-15	317 S16	-	-	-
1.4449	X5CrNiMo1713	317	-	-	317 S16	SUS 317	-	-

1.4465	X1CrNiMoN25252	-	N 08310	-	-	-	-	-
1.4505	X5CrNiMoCuNb2018	-	-	-	-	-	-	07Ch17N20 M2D2T
1.4521	X2CrMoTi182	440	S 44400	-	-	-	2326	-
1.4529	X1NiCrMoCuN25206	-	N08925	-	-	-	-	-

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Werkstoff-Nr.	DIN.	AISI.	UNS.	AFNOR.	BS.	JIS.	SS.	GOST
1.4539	X1NiCrMoCu25205	904L	N 08904	Z1NCDU25-2004	-	-	2562	-
1.4541	X6CrNiTi1810 (X10CrNiTi189)	321	S 32100	Z6CNT18-10	321 S12 321 S20 (321 S31)	SUS 321	2337	1Ch18N12T
1.4550	X6CrNiNb1810 (X10CrNiNb189)	347	S 34700	Z6CNNb18-10	347 S17 347 S31	SUS 347	2338	08Ch18N128
1.4558	X2NiCrAlTi3220	-	N 08800	-	-	-	-	-
1.4563	X1NiCrMoCuN31274	-	N 08028	Z1NCDU31273A z	-	-	-	-
1.4571	X6CrNiMoTi17122 (X10CrNiMoTi1810)	316Ti	S 31635	Z6CNDT17-12	320 S31 320 S17	-	2350	10Ch17N13M2T
1.4580	X6CrNiMoNb17122 (X10CrNiMoNb1810)	316Cb	-	Z6CNDNb17-12 Z6CNDNb19-13	-	-	-	08Ch16N13M2B
1.4583	X10CrNiMoNb1812	318	-	-	-	-	-	-
1.4586	X5CrMoCuNb2218	-	-	-	-	-	-	-
1.4335	X1CrNi2521	310LC	-	Z2CN25-20	-	-	-	-
1.4713	X10CrAl17	-	-	Z8CA7	-	-	-	-
1.4718	X45CrSi93	HNV3	-	Z45CS9	401 S45	SUH1	-	-
1.4724	X10CrAl13	(405)	-	Z10C13	403 S17	-	-	-
1.4742	X10CrAl18	(430)	-	Z10CAS18	430 S15	SUS 430 SUH 21	-	-
1.4749	X18CrN28	446-1	-	-	-	-	-	Ch25
1.4762	X10CrAl24	(446)	-	Z10CAS24	-	-	-	-
1.4821	X20CrNiSi254	327	-	Z20CNS25-04	-	-	-	-
1.4828	X15CrNiSi2012	309	-	Z15CNS20-12	309 S24	SUH 309	-	Ch24N12S1
1.4833	X7CrNi2314	309S	-	Z15CN24-13	-	SUS 3095	-	-
1.4841	X15CrNiSi2520	314/310	-	Z12CNS25-20	-	SUH 310	-	20Ch25N20S2
1.4845	X12CrNi2521	310 S	-	Z12CN25-20	310 S24	SUH 310 SUS 310S	2361	10Ch23N18
1.4848	(G-X40CrNiSi2520)	-	-	-	310 C40	SCH 21	-	-
1.4864	X12NiCrSi3616	330	N 08330	Z12NCS37-18 Z12NCS35-16 Z12NC37-18	Na 17	SUH 330	-	-
1.4871	X53CrMnNiN219	EV8	-	Z52CMN21-09	349 S54	SUH 35 SUH 36	-	-
1.4876	X10NiCrAlTi3320	B163	N 08800	Z8NC32-21	NA 15(H)	NCF 8000	-	-
1.4876	X10CrNiAlTi3320	B163	N 08810	Z8NC32-21	NA 15	-	-	-
1.4878	Z12CrNiTi189	321H	-	Z6CNT18-12(B)	S21 S20 (321 S12)	SUS 321	2337	-
1.4893	-	-	S 30815	-	-	-	2368	-
-	-	-	S 32750	-	-	-	-	-
1.4362	-	-	S 32304	-	-	-	-	-
1.4417	-	-	S 31500	-	-	-	-	-
1.4460	X4CrNiMo2751 (XBCrNiMo275)	329	S 32900	-	-	SUS 329J1 SCH 11 SCH 11	2324	-

1.4462	X2CrNiMoN2253	-	S 31803	Z2CND22-05Az	-	-	-	-
-	-	-	S 31200	-	-	-	-	-
-	-	-	S 31260	-	-	-	-	-
-	-	-	S 32550	-	-	-	-	-
-	-	-	S 32950	-	-	-	-	-

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CROSS REFERENCE OF STANDARD FOR EQUIVALENT GRADES OF STEEL

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MATERIAL CROSS REFERENCE LIST FOR CARBON STEEL

USA	Japan	Germany		U.K.		France	Italy	Spain	Sweden	China
AISI/SAE	JIS	W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	
A570.36	STKM 12A STKM 12C	1.0038	RSt.37-2	4360 40 C	-	E 24-2 Ne	-	-	1311	15
1015	-	1.0401	C15	080M15	-	CC12	C15, C16	F.111	1350	15
1020	-	1.0402	C22	050A20	2C	CC20	C20, C21	F.112	1450	20
1213	SUM22	1.0715	9SMn28	230M07	1A	S250	CF9SMn28	F.2111 11SMn28	1912	Y15
12L13	SUM22L	1.0718	9SMnPb28	-	-	S250Pb	CF9SMnPb28	11SMnPb28	1914	-
-	-	1.0722	10SPb20	-	-	10PbF2	CF10Pb20	10SPb20	-	-
1215	-	1.0736	9SMn36	240M07	1B	S300	CF9SMn36	12SMn35	-	Y13
12L14	-	1.0737	9SMnPb36	-	-	S300PB	CF9SMnPb36	12SMnP35	1926	-
1015	S15C	1.1141	Ck15	080M15	32C	XC12	C16	C15K	1370	15
1025	S25C	1.1158	Ck25	-	-	-	-	-	-	25
A572-60	-	1.890	StE380	4360 55 E	-	-	FeE390KG	-	2145	-
1035	-	1.0501	C35	060A35	-	CC35	C35	F.113	1550	35
1045	-	1.0503	C45	080M46	-	CC45	C45	F.114	1650	45
1140	-	1.0726	35S20	212M36	8M	35MF4	-	F210G	1957	-
1039	-	1.1157	40Mn4	150M36	15	35M5	-	-	-	40Mn
1335	SMn438(H)	1.1167	36Mn5	-	-	40M5	-	36Mn5	2120	35Mn2
1330	SCMn1	1.1170	28Mn6	150M28	14A	20M5	C28Mn	-	-	30Mn
1035	S35C	1.1183	Cf35	060A35	-	XC38TS	C36	-	1572	35Mn
1045	S45C	1.1191	Ck45	080M46	-	XC42	C45	C45K	1672	Ck45
1050	S50C	1.1213	Cf53	060A52	-	XC48TS	C53	-	1674	50
1055	-	1.0535	C55	070M55	9	-	C55	-	1655	55
1060	-	1.0601	C60	080A62	43D	CC55	C60	-	-	60
1055	S55C	1.1203	Ck55	070M55	-	XC55	C50	C55K	-	55
1060	S58C	1.1221	Ck60	080A62	43D	XC60	C60	-	1678	60Mn
1095	-	1.1274	Ck101	060A96	-	XC100	-	F.5117	1870	-
W1	SK3	1.1545	C105W1	BW1A	-	Y105	C36KU	F.5118	1880	-
W210	SUP4	1.1545	C105W1	BW2	-	Y120	C120KU	F.515	2900	-

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CROSS REFERENCE OF STANDARDS FOR EQUIVALENT GRADES OF STEEL

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1. BEARING QUALITY STEEL:

BS	DIN	IS	EN	SAE/AISI
534A99/535A99	100Cr6	103Cr1	EN31	52100

2. ALLOY STEEL:

BS	DIN	IS	EN	SAE/AISI
530A40	37Cr4	40Cr1	EN18	5140
817M40	34CrNiMo6	40NiCr4Mo3	EN24	4340
709M40	-	40Cr4Mo3	EN19C	4140,4142
709M40	42 Cr4Mo2	40Cr4Mo3	EN19	4140,4142
530A40	37 Cr4	40Cr1	EN18D	5140
530A40	37 Cr4	40Cr1	EN18C	5140
815M17	-	15NiCr1Mo12	EN353	-
530A40	37 Cr4	40Cr1	EN18A	5140
820M17	-	15NiVCr1Mo15	EN354	4320
-	28Mn6	27C15	-	1527
-	20MnCr5	20MnCr1	-	-
150M28	-	20Mn2	EN14A	1524
-	16MnCr5	17Mn1Cr95	-	5120
523A14	15Cr3	15Cr65	EN206	5015
530A40	37Cr4	40Cr1	EN18B	5140
805M20	-	20NiCrMo2	EN362	SAE8620

3. CARBON STEEL:

BS	DIN	IS	EN	SAE/AISI
150M36	36Mn5	37Mn2,37C15	EN15B	1536
-	CK15	C14	EN32B	1015,1016,1018
-	CK38	-	-	1038
-	-	C50	EN43C	1050
-	CK45	45C8	1045	-
070M55	CK55	C55	EN9	1055
-	C35	35C8,C35Mn75	-	1035
-	CK75	80C6	EN42	1074
-	C67	65C6	EN42B	1065
080M50	C55	60C6	EN43	1055
080A47	CK45	-	EN43B	1045
150M36	36Mn7	37C15	EN15,15A	SAE1541
080A40	CK45	45C8	EN8	1040,1045
080A40	CK45	45C8	EN8A	1040,1045
080A40	CK45	45C8	45C8	1040,1045

080A40	CK45	45C8	EN8C	1040,1045
080A40	CK45	45C8	EN8D	1040,1045

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Equivalent Specifications : Stainless Steel

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GRADE	IS INDIA	AISI USA	DIN GERMANY	AFNOR FRANCE	JIS JAPAN	BS BRITIAN	SIS SWEDEN	UNS	UNI ITALY
SS 301	X10 Cr 17Ni 7	301	1.4310	Z 12 CN 17-08	SUS 301	301 S 21	142331	S 30100	X12 Cr Ni 1707
SS 304	X02 Cr 19 Ni 10	304	1.4301	Z 6 CN 18-19	SUS 304	304 S 15	142333	S 30400	X5 Cr Ni 1810
SS 304L	-	304L	1.4306	Z 2 CN 18-10	SUS 304L	304 S 11	142352	S 30303	X2 Cr Ni 1811
SS 310S	-	310S	1.4845	-	SUS 310 S	-	142361	S 31008	X6 Cr Ni 2520
SS 316	X04 Cr 17 Ni 12 Mo 2	316	1.4401	Z 6 CND 17-11	SUS 316	316 S 31	142347	S 31600	X8 Cr Ni Mo 1713
SS 316L	X02 Cr 17 Ni 12 Mo 2	316L	1.4404	Z 2 CND 17-12	SUS 316L	316 S 31	142338	S 31603	X2 Cr Ni Mo 1712
SS 321	X04 Cr 18 Ni 10 Ti 20	321	1.4878	Z 6 CNT 18-12	SUS 321	321 S 31	142337	S 32100	X6 Cr Ni Ti 1811
SS 409	-	409	1.4512	Z 5 CT 12	SUS 409	409 S 17	-	S 40900	-
SS 410S	-	410S	-	-	-	-	-	-	-
SS 430	X10 Cr 17	430	1.4016	Z 8 C 17	SUS 430	430 S 17	142320	S 43000	X12 Cr 17 C
SS 409M	-	-	-	-	-	HYFAB 3/12	-	-	-

SUPER METAL MANUFACTURING CO.

LEADING STOCKHOLDER IN NICKEL ALLOYS

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Material	Trademark*	UNS	Werkst. Nr.	Density	Bar/Billet	Forgings	Flanges	Tube	Pipe	Plate	Fittings	ASME Fittings
Nickel Alloys								smls/wld	Smls/wld			
Alloy 200	Nickel 200	N02200	2.4066	8,89	B160	B564	B564	B163/B730	B161/B725	B162	B366	WPN
Alloy 201	Nickel 201	N02201	2.4068	8,89	B160			B163/B730	B161/B725	B162	B366	WPNL
Alloy 400	Monel 400	N04400	2.4360	8,83	B164	B564	B564	B163/B730	B165/B725	B127	B366	WPNC
Alloy K-500	Monel K-500	N05500	2.4375	8,46	B865	B865	B865					
Alloy 600	Inconel 600	N06600	2.4816	8,42	B166	B564	B564	B163/B516	B167/517	B168	B366	WPNCI
Alloy 601	Inconel 601	N06601	2.4851	8,20	B166			B16	B167	B168		
Alloy 625	Inconel 625	N06625	2.4856	8,44	B446	B564	B564	B444/B704	B444/B705	B443	B366	WPNCMC
Alloy 718	Inconel 718	N07718	2.4668	8,19	B637	B637	B637			B670		
Alloy 800H	Inconel 800H	N08810	1.4876	8,00	B408	B564	B564	B163/B515	B407/B514	B409	B366	WPNIC10
Alloy 800HT	Inconel 800HT	N08811	1.4876	8,00	B408	B564	B564	B163/B515	B407	B409	B366	WPNIC11
Alloy 825	Inconel 825	N08825	2.4858	8,18	B425	B564	B564	B163/B704	B423/B705	B424	B366	WPNICMC
Alloy C-276	Hastelloy C-276	N10276	2.4819	8,87	B574	B564	B564	B622/B626	B622/B619	B575	B366	WPHC276
Alloy C-22	Hastelloy C-22	N06022	2.4602	8,69	B574	B564	B564	B622/B626	B622/B619	B575	B366	WPHC22
Alloy B-2	Hastelloy B-2	N10665	2.4617	9,22	B335	B564	B564	B622/B626	B622/B619	B333	B366	WPHB2
Alloy B-3	Hastelloy B-3	N10675	2.4600	9,20	B335	B564	B564	B622/B626	B622/B619		B366	WPHB3
Alloy 59	Nicrofer 5923 hMo	N06059	2.4605	8,60	B574	B564	B564	B622/B626	B622/B619	B575	B366	
Alloy 20	Carpenter 20Cb3	N08020	2.4660	8,10	B473	B462	B462	B729/B468	B729/B464	B463	B366	WP20CB
Alloy 904L		N08904	1.4539	8,05	B649	B459		B677/B674	B677/B673	B625	B403	WP904L
Reactive Metals												
Titanium Grade 2		R50400	3.7035	4,50	B348	B381	B381	B338	B861/B862	B265	B363	WPT2
Titanium Grade 5		R56400	3.7165	4,40	B348	B381	B381	B338	B861/B862	B265	B363	

Zirconium 702	R60702		6,60	B550	B493	B493	B523	B658	B551	B653	
Tantalum	R05200		16,66	B365			B521		B708		

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