

STANDARDS

Standard Code	Standard Name	Standard Code	Standard Name
ASME SA-403	Wrought Austenitic Stainless Steel Piping Fittings	GOST 17375	Steel Butt-welding Pipe Fittings, Elbows
ASME B-16.9	Factory-Made wrought steel pipe fittings	GOST 17376	Steel Butt-welding Pipe Fittings, tees
ASME SA-234	Carbon and Alloy Steel Pipe Fittings	GOST 17378	Steel Butt-welding Pipe Fittings, reducers
ASME SA-420	Forged Carbon and Alloy Steel Pipe Fittings	GOST 17379	Steel Butt-welding Pipe Fittings, Caps
ASME B16.11	Socket-welding and Threaded Forging Fittings	GOST 12820	Steel Flange
ASME B16.28	Wrought Steel Butt-welding short radius elbows	GOST 12821	Steel Flange
ASME B16.25	Butt-welding Ends	DIN 2605	Steel Butt-welding Pipe Fittings
ASTM A312/A315M	Cold Worked Austenitic Stainless Steel Pipes	DIN 2615	Steel Butt-welding Pipe Fittings, Tees
ASME/ASTM A269	Stainless Steel Tubing	DIN 2616	Steel Butt-welding Pipe Fittings, Reducers
ASTM A999/A999M	Alloy and Stainless Steel Pipes	DIN 2617	Steel Butt-welding Pipe Fittings, Caps
ASME/ANSI B36.19M	Stainless Steel Pipe	EN 10253	Steel Pipe Fittings
ASTM A105/A105M	Carbon Steel Forgings for Piping Applications	EN 1092-1	Steel Flange
ASTM A106/A106M	High Temperature Seamless Carbon Steel Pipe	GB/T 14976	Stainless Steel Pipe
ASTM A335/A335M	Seamless Alloy-Steel Pipe for High-Temperature	GB/T 12459	Steel Butt-welding Seamless Fittings
ASTM 182/A182M	Forged Alloy and Stainless Fittings, Flanges	GB/T 13401	Steel Plate Butt-welding Pipe Fittings
ASTM 350/A350M	Carbon and Low Alloy Steel Forgings	GB/T 14383	Forged Steel Socket-welding Pipe Fittings
ASTM A815/A815M	Stainless Steel Pipe Fittings	GB/T 14626	Forged Steel threaded Pipe Fittings
ASTM A515/A515M	Carbon Steel Plate	SH 3065	Specification for Tube Furnace Sharp Bend
MSS SP-43	Wrought Stainless Steel Butt-welding Fittings	SH 3406	Steel Pipe Flanges for Petrochemical Industry
MSS SP-75	Forging Butt-welding fittings	SH 3408	Steel Butt-welding Seamless Fittings
MSS SP-79	Socket-welding reducing Inserts	SH 3409	Steel Plate Butt-welding Pipe Fittings
MSS SP-83	Stock-welding and threaded Unions	SH 3410	Forged Steel Stock-welding Fittings
MSS SP-95	Swaged nipples and round plugs	ISO3419	Non-Alloy Steel and Alloy Steel Butt-welding Fittings
MSS SP-97	Forged Outlet	ISO 5251	Stainless Steel Butt-welding Fittings

MATERIAL CROSS REFERENCE LIST

STAINLESS STEEL (AUSTENITIC)

USA	Japan	Germany		U.K.		France	Italy	Spain	Sweden	China
		AISI/SAE	JIS	W-nr.	DIN					
304L	SUS304L	1.4306	X2CrNi1911	304S11	-	Z2CN18.10	X2CrNi18.11	-	2352	0Cr19Ni10
304	SUS304	1.4350	X5CrNi189	304S11	58E	Z6CN18.09	X5CrNi1810	F.3551 / F.3541 F.3504	2332	0Cr18Ni9
303	SUS303	1.4305	X12CrNiS188	303S21	58M	Z10CNF18.09	X10CrNiS18.09	F.3508	2346	1Cr18Ni9Mo2r
-	SUS304L	-	-	304C12	-	Z3CN19.10	-	-	2333	-
304L	SCS19	1.4306	X2CrNi189	304S12	-	Z2CrNi1810	X2CrNi18.11	F.3503	2352	-
301	SUS301	1.4310	X12CrNi177	-	-	Z12CN17.07	X12CrNi1707	F.3517	2331	Cr17Ni7
304LN	SUS304LN	1.4311	X2CrNiN1810	304S62	-	Z2CN18.10	-	-	2371	-
316	SUS316	1.4401	X5CrNiMo1810	316S16	58J	Z6CND17.11	X5CrNiMo1712	F.3543	2347	0Cr17Ni11Mo2
-	SCS13	1.4308	G-X6CrNi189	304C15	-	Z6CN18.10M	-	-	-	-
-	SCS14	1.4408	G-X6CrNiMo1810	316C16	-	Z2CN18.10	-	F.8414	-	-
-	SCS22	1.4581	G-X5CrNiMo1810	316C17	-	Z4CND1812M	X8CrNiMo1811	-	-	-
316LN	SUS316LN	1.4429	X2CrNiMoN1813	-	-	Z2CND17.13	-	-	2375	0Cr17Ni13Mo
316L	-	1.4404	-	316S13	-	Z2CND17.12	X2CrNiMo1712	-	2348	-
316L	SCS16 / SUS316L	1.4435	X2CrNiMo1812	316S13	-	Z2CND17.12	X2CrNiMo1712	-	2353	0Cr27Ni12Mo3
316	-	1.4436	-	316S13	-	Z6CND18.12-03	X8CrNiMo1713	-	2343, 2347	-
317L	SUS317L	1.4438	X2CrNiMo1816	317S12	-	Z2CND19.15	X2CrNiMo1816	-	2367	0OCr19Ni13Mo
UNS V 0890A	-	1.4539	X1NiCrMo	-	-	Z6CNT18.10	-	-	2562	-
321	SUS321	1.4541	X10CrNiTi189	321S12	58B	Z6CNT18.10	X6CrNiTi1811	F.3553 F.3523	2337	1Cr18Ni9Ti
347	SUS347	1.4550	X10CrNiNb189	347S17	58F	Z6CNNb18.10	X6CrNiNb1811	F.3552 F.3524	2338	1Cr18Ni11Nb
316Ti	-	1.4571	X10CrNiMoTi1810	320S17	58J	Z6CND17.12	X6CrNiMoTi1712	F.3535	2350	Cr18Ni12Mo2Ti
318	-	1.4583	X10CrNiNbTi1812	-	-	Z6CND18.12-03	X8CrNiMoTi1713	-	-	Cr17Ni12Mo3Nb
309	SUH309	1.4828	X15CrNiS2012	309S24	-	Z15CNS20.12	X6CrNi2520	-	-	1Cr23Ni13
310S	SUH310	1.4845	X12CrNi2521	310S24	-	Z12CN2520	X6CrNi2520	F.331	2361	0Cr25Ni20
308	SCS17	1.4406	X10CrNi18.08	-	58C	Z1NCUD25.20	-	F.8414	2370	-
-	-	1.4418	X4CrNiMo165	-	-	Z6CND16-04-01	-	-	-	-
17-7PH	-	1.4568 1.4504	-	316S111	-	Z8CNA17-07	X2CrNiMo1712	-	-	-
NO8028 S31254	-	1.4563	-	-	-	Z1NCUD17-07-03 Z1NCUD20-18-06-02	-	-	2584 2378	-
321	SUS321	1.4878	X12CrNiTi189	321S32	58B, 58C	Z6CNT18.12B	X6CrNiTi18.11	F.3523	-	1Cr18Ni9Ti

STAINLESS STEEL (FERRITIC, MARTENSITIC)

USA	Japan	Germany		U.K.		France	Italy	Spain	Sweden	China
		AISI/SAE	JIS	W-nr.	DIN					
403	SUS403	1.4000	X7Cr13	403S17	-	Z6C13	X6Cr13	F.3110	2301	0Cr13 1Cr12
-	-	1.4001	X7Cr14	-	-	-	-	F.8401	-	-
416	SUS416	1.4005	X12CrS13	416S21	-	Z11CF13	X12CrS13	F.3411	2380	-
410	SUS410	1.4006	X10Cr13	410S21	56A	Z10C14	X12Cr13	F.3401	2302	1Cr13
430	SUS430	1.4016	X8Cr17	430S15	60	Z8C17	X8Cr17	F.3113	2320	1Cr17
-	SCS2	1.4027	G-X20Cr14	420C29	56B	Z20C13M	-	-	-	-
-	SUS420J2	1.4034	X46Cr13	420S45	56D	Z40CM	X40Cr14 Z38C13M	F.3405	2304	4Cr13
405	-	1.4003	-	405S17	-	Z8CA12	X6CrAl13	-	-	-
420	-	1.4021	-	420S37	-	Z8CA12	X20Cr13	-	2303	-
431	SUS431	1.4057	X22CrNi17	431S29	57	Z15CN16.02	X16CrNi16	F.3427	2321	1Cr17Ni2
430F	SUS430F	1.4104	X12CrMoS17	-	-	Z10CF17	X10CrS17	F.3117	2383	Y1Cr17
434	SUS434	1.4113	X6CrMo17	434S17	-	Z8CD17.01	X8CrMo17	-	2325	1Cr17Mo
CA6-NM	SCS5	1.4313	X5CrNi134	425C11	-	Z4CND13.4M	(G)X6CrNi304	-	2385	-
405	SUS405	1.4724	X10CrAl13	403S17	-	Z10C13	X10CrAl12	F.311	-	0Cr13Al
430	SUS430	1.4742	X10CrAl18	430S15	60	Z10CAS18	X8Cr17	F.3113	-	Cr17
HNv6	SUH4	1.4747	X80CrNiS20	443S65	59	Z80CSN20.02	X80CrSiNi20	F.320B	-	-
446	SUH446	1.4762	X10CrAl24	-	-	Z10CAS24	X16Cr26	-	2322	2Cr25N
EV8	SUH35	1.4871	X53CrMnNi219	349S54	-	Z52CMN21.09	X53CrMnNi219	-	-	5Cr2Mn9Ni4N
S44400	-	1.4521	X1CrMoTi182	-	-	-	-	-	2326	-
-	-	1.4922	X20CrMoV12-1	-	-	-	X20CrMoNi1201	-	2317	-
630	-	1.4542	-	-	-	Z7CNU17-04	-	-	-	-

AFNOR-STEEL GRADE COMPARISON TABLE

AFNOR-Steel Grade Equivalency Table

Europe EN	Germany DIN	France AFNOR	Italy UNI	USA SAE/AISI	Usual Finish
C10E	CK10		C10	SAE1010	HR-Hot Rolled
C12U	C125W	C120U	C120KU		
C12E	CK12		C12	SAE1012	HR-Hot Rolled
C15D	C15	CC12	C15	1015	
C16E	CK16		C16	SAE1016	HR-Hot Rolled
C30E	CK30		C30	SAE1020	HR-Hot Rolled
C22E	CK22	XC18			
C25E	CK25	XC25			
C30E	CK30	XC32			
C36E	CK36	XC38	C36	SAE1036	HR-Hot Rolled
C40E	CK40	XC42	C40	SAE1040	HR-Hot Rolled
C45E	CK45	XC48	C45	SAE1045	HR-Hot Rolled
C48E	CK48	XC48	C45	SAE1042-1045	HR-Hot Rolled
C50E	CK50		C50	SAE1050	HR-Hot Rolled
C55E	CK55	XC55		SAE1055	HR-Hot Rolled
C60E	CK60		C60	SAE1060	HR-Hot Rolled
C70E	CK70	XC70	C70	SAE1070	HR-Hot Rolled
C80E	CK80	XC80	C80	SAE1080	HR-Hot Rolled
C8E	CK8		C8	SAE1008	HR-Hot Rolled
DC01	ST12	C	FEPO1	A366/CO	HR-Cold Rolled
DC01EK				TYPE I	CR-Cold Rolled
DC03	ST13	E	FEPO2	A510/DO	HR-Hot Rolled
DC03ED				TYPE II	CR-Cold Rolled
DC04	ST14	ES	FEPO4	A620/DO5K	HR-Hot Rolled
DC04ED				TYPE II	CR-Cold Rolled
DC04EK	EK2	EME	EK2	HR-Hot Rolled	
DC05	ST15	BEF	FEPO5		HR-Hot Rolled
DC06	F18	IF	FEPO6	EDDS	CR-Cold Rolled
DC06ED				TYPE III	CR-Cold Rolled
DC06EK	EK4	EMES	FEPO3	TYPE III	CR-Cold Rolled
DC07			FEPO7		CR-Cold Rolled
DD11	STW22	1C	FEF11	C5	HR-Hot Rolled
DD11(Ou)	STW22(Cu)	1C(Ou)	FEF11(Ou)	C5(Cu)	HR-Hot Rolled
DD12	STW23		FEF12		HR-Hot Rolled
DD13	STW24	3C	FEF13	D5	HR-Hot Rolled
DD13(B)	STW24(B)	3C(B)	FEF13(B)	D5(B)	HR-Hot Rolled
DX51D	ST1022	GC	REP51G	LFD	HOG-Galvanized
DX51D	ST1022	GE	REP51G	DR	HOG-Galvanized
DX51D	ST1024	GE8	REP51G	DD5K	HOG-Galvanized
DX54D	ST062	REP56G	DD5	HOG-Galvanized	
E295	ST50-2	A50-2	FE290	HR-Hot Rolled	
E335	ST50-2	A50-2	FE290	HR-Hot Rolled	
E360	ST70-2	A70-2	FE360	HR-Hot Rolled	
HC-290LA	ZSTE260	E260		CR-Cold Rolled	
HC300LA	ZSTE300	E300		CR-Cold Rolled	
HC340LA	ZSTE340	E315G	FE315F	CR-Cold Rolled	
HC380LA	ZSTE380	E355G	FE355F	CR-Cold Rolled	
HC420LA	ZSTE420		FE420F	CR-Cold Rolled	
HCT450X(DP455)			FE450DPF ZNT25	HOG-Galvanized	
HCT450X(DP450)			FE450DPF	CR-Cold Rolled	
HCT500X(DP500)		XE300B	FE500DPF	CR-Cold Rolled	
HCT600X(DP600)			FE600DPF ZNT25	HOG-Galvanized	
HCT600X(DP550)		XE360B	FE600DPF	CR-Cold Rolled	
HCT700X(DP700)		XE450B	FE700DPF	CR-Cold Rolled	
HX260LAD	ZSTE260	E240C - E360C		HOG-Galvanized	
HX300LAD	ZSTE300	E240C - E315C	CR 45	HOG-Galvanized	
HX340LAD	ZSTE340	E555C	CR 50	HOG-Galvanized	
HX380LAD	ZSTE380		CR 55	HOG-Galvanized	
HX420LAD	ZSTE420		CR 60	HOG-Galvanized	
P235GH	HI	A37CP	FE360-1KW	A505 Gr. C-MH G.C.	HR-Hot Rolled
P235L	SPH 235	A37AP	Fe 360-2KW		HR-Hot Rolled
P245NH	SPH 245	BS 1	FE245 KR		HR-Hot Rolled
P265GH	HI	A49CP	FE415-1KW	A414 Gr. E	HR-Hot Rolled
P265NH	H 1	BS 2	FE272 KR		HR-Hot Rolled
P265L	SPH 265	A 42 AP	Fe 410-2KW		HR-Hot Rolled
P275SL	SPH-275				HR-Hot Rolled
P295GH	17Mn4	A49CP	FE480-1KW	A299 A414 Gr. F	HR-Hot Rolled
P301NB	17Mn4	BS 3	FE311 KR		HR-Hot Rolled
P355GH	A15Mn6	A52CP	FE515-1KW	A414 Gr. G	HR-Hot Rolled
P355NB	17Mn6	BS 4	FE324 KR		HR-Hot Rolled
P355NH	WSTE355	A510 AP	FE355 KW	A516 Gr. 70	HR-Hot Rolled
P355NL	WSTE355	A510 AP	FE355 KT	A516 Gr. 70	HR-Hot Rolled
S220GD		C230		SO-GRADE230	HOG-Galvanized
S235J0	ST37-3J	E24-3	FE360C		CR-Cold Rolled
S235J2W		E24W-3			HR-Hot Rolled
S235J2			A36		HR-Hot Rolled
S235J2(N)	ST37-3N	E244	FE360D	A284 Gr. D	HR-Hot Rolled
S235J2W(N)	ST37-3N	E244			HR-Hot Rolled
S235J2W	WST37-3	E24W-4			HR-Hot Rolled
S235LR	ST37-2	E24-2	FE360B	SAE1015	HR-Hot Rolled
S235LR(Ou)	ST37-2(Ou)	E24-2(Ou)	FE360B(Ou)	SAE1015(Cu)	HR-Hot Rolled
S235LRC	ST37-2	E24-2NE			HR-Hot Rolled
S250GD	STE250-2Z	C250	FE250G	SO-GRADE255	HOG-Galvanized
S275J0	ST44-3J	E26-3	FE430C	A572 Gr. 42	CR-Cold Rolled
S275J2(N)	ST44-3N	E26-4	FE430D	A572 Gr. 42-50	CR-Cold Rolled
S275LR	ST44-2	E26-2	FE430B	SAE1020	HR-Hot Rolled
S275LRC	ST44-2	E26-2			HR-Hot Rolled

Europe EN	Germany DIN	France AFNOR	Italy UNI	USA SAE/AISI	Usual Finish
S275M	ST235TM				HR-Hot Rolled
S275ML	TSTE285TM				HR-Hot Rolled
S275N	STE285				HR-Hot Rolled
S275NL	TSTE285				HR-Hot Rolled
S340GD	STE380-2Z	C280	FE280G	SO-GRADE275	HOG-Galvanized
S315MC	STE330TM	E3150	FE315	045XLR	HR-Hot Rolled
S350GD	STE350-3Z	C350	FE350G	SO-GRADE340	HOG-Galvanized
S365	STE2-3	E36		GR50	HR-Hot Rolled
S365J0	SSE2-3J	E36-3	FuE30C		HR-Hot Rolled
S355J0WP		E36W-B3	FE355W	A70960W	HR-Hot Rolled
S355J0		E36W-AS			HR-Hot Rolled
S355J0(N)	STE2-3N	E36-3	FE510D	A572 Gr. 50	CR-Cold Rolled
S355J2(N)	WTS2-3N	E36-3			HR-Hot Rolled
S355J2W	WTS2-3Z				HR-Hot Rolled
S355J2WP		E36W-A4			HR-Hot Rolled
S355JR		E36-2	FE510B	A633 Gr. A,C,D	HR-Hot Rolled
S355K2(N)		E36-4			CR-Cold Rolled
S355K2(N)		E36W-B4		A70960W	HR-Hot Rolled
S355K2(N)		E36W-B4			HR-Hot Rolled
S355M	STE315TM	E355R	FE355KGTM	A572 Gr. C	HR-Hot Rolled
S355MC	STE310TM	E360D	FE355	GR50	HR-Hot Rolled
S355ML	TSTE355TM	E355FP		A945 Gr. 50	HR-Hot Rolled
S355N	STE355	E355R	FE355KGN		HR-Hot Rolled
S355NL	TSTE355	E355FP		A633C	HR-Hot Rolled
S355NL	TSTE365	E355FP	FE355KTN	A633 Gr. C, D	CR-Cold Rolled
S420M	STE420TM	E420R		GR60	HR-Hot Rolled
S420MC	TSTE420TM	E420P	FE420	GR60	HR-Hot Rolled
S420N	STE420	E420R		A945 Gr. 60	HR-Hot Rolled
S420NL	TSTE420	E420P		A633E	HR-Hot Rolled
S460				GR65	HR-Hot Rolled
S460MC	GSTE460TM	E445D	FE460	GR65	HR-Hot Rolled
S460ML	TSTE460TM	E460FP			HR-Hot Rolled
S460N	STE460	E460R			HR-Hot Rolled
S460NL	TSTE460	E460FP			HR-Hot Rolled
S460Q		E460TR		A537A2	HR-Hot Rolled
S460QL	TSTE490V	E460TFP			HR-Hot Rolled
S500MC	GSTE500TM	E490D	FE490	GR70	HR-Hot Rolled
S500Q	STE500V	E500TR			HR-Hot Rolled
S500QL	TSTE500V	E500TFP			HR-Hot Rolled
S550GD		C550	FE550G	SO-GRADE550	HOG-Galvanized
S550MC	GSTE550TM	E590D	FE560	GR60	HR-Hot Rolled
S550MC	GSTE500TM	E590D	FE560	GR60	HR-Hot Rolled
S550Q	STE550V	E550TR			HR-Hot Rolled
S550QL	TSTE550V	E550TFP			HR-Hot Rolled
S550MC		E620D			HR-Hot Rolled
S620Q	STE620V	E620TR			HR-Hot Rolled
S620QL	TSTE620V	E620TFP			HR-Hot Rolled
S690Q	STE690V	E690TR		A514F	HR-Hot Rolled
S690QL	TSTE690V	E690TFP		A709100	HR-Hot Rolled
S700MC	GSTE700TM	E690D			HR-Hot Rolled
S890QL	TSTE890V				HR-Hot Rolled
S900QL	TSTE900V				HR-Hot Rolled
X100CMnV5	X100CMnV51	X100CMnV5	X100CMnV5-1 KJ	A-2	
X150CMnV12	X150CMnV1-1	X150CMnV12	X150CMnV12-1	D-2	
X170CMnV12	X160CMnV13			431 X	
X30CMnV3-3	X320CMnV3-3	X30CMnV3-3	X30CMnV3-3	H10	
X50CMnV12-12	X50CMnV12-12	X50CMnV12-12	X50CMnV12-12	308	
X60CMnV16-16	X60CMnV16-16	X60CMnV16-16	X60CMnV16-16	303	
X50MnS	STE480TM	E480R			HR-Hot Rolled
115Mn37	95Mn28	115Mn37	CP95Mn28	1215	
115Mn30	95Mn16Z8	115Mn30	CP95Mn16Z8	1214	
16Mn3	16Mn3	15D3	16Mn3	A204 Gr. B	HR-Hot Rolled
16Mn5	16Mn5			4520	
30MnB5	22B2	20MnB5RR	21B3		HR-Hot Rolled
20MnMoV2-2	21MnMoV22	20MnMoV2-2	20MnMoV2	9620	
25Cr2	25Cr2	25Cr4	25Cr4		HR-Hot Rolled
28Mn6	28Mn6				HR-Hot Rolled
30CMnMo8	30CMnMo8	30CDN8	30CMnMo8	SAE1537	HR-Hot Rolled
30MnB5	28B2	30MnB5RR			HR-Hot Rolled
34Cr4	34Cr4	34C4	34C4		HR-Hot Rolled
34CrMo4	34CrMo4	34C4D	34CrMo4		HR-Hot Rolled
34CrNiMo6	34CrNiMo6		34CrNiMo6	SAE4340	HR-Hot Rolled
35Cr2	35Cr2	35Cr2		1140	
36CrNiMo4	36CrNiMo4		36CrNiMo4		HR-Hot Rolled
38NiCrMo16	38NiCr16				HR-Hot Rolled
37Cr4	37Cr4	38C4	37Cr4		HR-Hot Rolled
38Cr2	38Cr2				HR-Hot Rolled
38Cr52	38Cr52	38Cr2u			HR-Hot Rolled
41Cr4	41Cr4	42C4	41Cr4		HR-Hot Rolled
42CrMo4	42CrMo4	42C4D	42CrMo4	SAE4142	HR-Hot Rolled
50CrMo4	50CrMo4		50CrMo4		HR-Hot Rolled
51CrV4	50CrV4	50CrV4	51CrV4	50CrV2	HR-Hot Rolled