

Cross reference material list ASTM, DIN, UNS, cast, forged, fittings, flanges & pipe

Material Group	Common Name	Material Type	Forging Spec	UNS	Casting Spec. Equivalent	Butt Weld Fittings	Pipe	DIN	DIN W.No	EN 10216	Application casting			
Carbon Steel	CS	C-Mn-Fe	A105/A105N/A106	K03504	A216-WCB, WCC	A234-WPB	A105-Gr.B/API5LB	C22.8 DIN 17243	1.046		Non-corrosive applications including water, oil and gases at temperatures between -20°F (-30°C) and +800°F (+425°C)			
Low Temperature Carbon Steel	LTCS	C-Mn-Fe	A350-LF2	K03011	A352-LC1	A420-WPL6	A333-Gr.6	TSTE 355 DIN 18103	1.0566		Low temperature applications to -75°F (-59°C). Not for use above +650°F (+340°C).			
		2-1/2 N		A352-LC2							Low temperature applications to -100°F (-73°C). Not for use above +650°F (+340°C).			
		C-Mn-Fe		A352-LC3								Low temperature applications to -50°F (-46°C). Not for use above +650°F (+340°C).		
		C-Mn-Fe		A352-LCC										
Low Temperature Alloy Steel	Nickel Steel	3.1/2Ni	A350-LF3	K32025	A352-LC3	A420-WPL3	A333-Gr.3	10Ni14	1.5637		Low temperature applications to -150°F (-101°C). Not for use above +650°F (+340°C).			
Low Alloy Steel	Moly Steel	C-1/2Mo	A182-F1	K12822	A217-WC1	A234-WP1	A335-Gr.P1/A691 CM-70	15Mo3	1.5415		Up to 875°F (468°C)			
		1/2Cr-1/2Mo Alloy Steel	A182-F2					A691 CM-75						
		1/4Cr-1/2Mo	A182-F11 cl2	K11572	A217-WC6	A234-WP11 CL2	A335-Gr.P11	13CrMo44	1.7335		Non-corrosive applications including water, oil and gases at temperatures between -20°F (-30°C) and +1100°F (+593°C)			
		1Cr-1/2Mo Alloy Steel	A182-F12 CL2		A217-WC8	A234-WP12 CL2	A335-Gr.P12							
		2.1/4Cr-1Mo	A182-F22 cl3	K21590	A217-WC9	A234-WP22 CL3	A335-Gr.P22	10CrMo910	1.738		Up to 1100°F (593°C), HP steam			
		3Cr-1/2Mo Alloy Steel	A182-F5			A234-WP5	A335-Gr.P5							
		3Cr-1/2Mo	A182-F5a	K41545	A217-C5			12CrMo195	1.7362		Mild corrosive or erosive applications as well as non-corrosive applications at temperatures between -20°F (-30°C) and +1200°F (+649°C)			
		9Cr-1Mo	A182-F9	K90941	A217-C12	A234-WP9	A335-Gr.9	X 12 CrMo 9-1	1.7386		Non-corrosive applications including water, oil and gases at temperatures between -20°F (-30°C) and +1100°F (+593°C)			
		9Cr-1Mo-V	A182-F91		A217-C12A			X 10 CrMoVNb 9-1	1.4903		Mild corrosive or erosive applications as well as non-corrosive applications at temperatures between -20°F (-30°C) and +1200°F (+649°C)			
					A217 CA15		A335-Gr.91					High pressure steam		
Stainless Steel	Austenitic	Austenitic S.Steel 300 series S.Steel	304 : 18Cr-8Ni	A182-F304	S30400	A351-CF8	A403-WP304	A321-TP304	DIN X5CrNi 18 9	1.4301	Corrosive or extremely high temperatures non-corrosive services between -450°F (-268°C) and +1200°F (+649°C). Above +800°F (+425°C) specify carbon content of 0.04% or greater.			
			304L : 18Cr-8Ni	A182-F304L	S30403	A351-CF3, A351-CF3A	A403-WP304L	A312-TP304L	X 2 CrNi 19 11	1.4306	Corrosive or non-corrosive services to +800F (+425°C).			
			304H :	A182-F304H	S30409	A351-CF10	A403-WP304H	A312-TP304H	n/a	n/a				
			Type 310 Stainless Steel 25Cr-20Ni	A182-F310H		A351-CK20	A403-WP310	A312-TP310						
			316 : 16Cr-12Ni-2Mo	A182-F316	S31600	A351-CF8M	A403-WP316	A312-TP316	X5CrNiMo 18 10	1.4401		Corrosive or either extremely low or high temperature non-corrosive services between -450°F (-268°C) and +1200°F (+649°C). Above +800°F (+425°C) specify carbon content of 0.04% or greater.		
			316L : 16Cr-12Ni-2Mo	A182-F316L	S31603	A351-CF3M	A403-WP316L	A312-TP316L	X 5 CrNiMo 17 12 2	1.4404		Corrosive or non-corrosive services to +800F (+425°C).		
			316H :	A182-F316H	S31609	A351-CF10M	A403-WP316H	A312-TP316H	n/a	n/a				
			316Ti :	A182-F316 Ti	S31635				X 6 CrNiMoTi 17 12 2	1.4571		Special grade		
			Type 317 Stainless Steel 18Cr-13Ni-3Mo	A182-F317		A351-Gr.CG8M**	A403-WP317	A312-TP317						
			Type 317 Stainless Steel 18Cr-13Ni-3Mo	A182-F317H		A351-Gr.CF8A								
			317L	A182-F317L	S31703	A351-CG3M*			X2CrNiMo18-16-4	1.4438				
			321 : 18Cr-10Ni-Ti	A182-F321	S32100		A403-WP321	A312-TP321	X 6 CrNiTi 18 10	1.4541				
			321H	A182-F321H	S32109		A403-WP321H	A312-TP321H	n/a	n/a		0.04%min. carbon (grade F321H) and heat treat at 2000°F (1100°C) for service temps. >1000°F (538°C)		
			347 : 18Cr-10Ni-Cb(Nb)	A182-F347	S34700	A351-CF8C	A403-WP347	A312-TP347		8556	1.455		Primarily for high temperature, corrosive applications between -450°F (-268°C) and +1200°F (+649°C). Above +1000°F (+540°C) specify carbon content of 0.04% or greater.	
			347H	A182-F347H	S34709		A403-WP347H	A312-TP347H	n/a	n/a				
			Type 348 Stainless Steel 18Cr-10Ni-Cb	A182-F348			A403-WP348	A312-TP348						
			Type 348 Stainless Steel 18Cr-10Ni-Cb	A182-F348H			A403-WP348H	A312-TP348H						
			Alloy	Alloy 20	28Ni-19Cr-Cu-Mo	A182-F20*	N08020	A351-CN7M†				14.500	2.466	Good resistance to hot sulfuric acid to +800F (+425°C).
			Duplex	Duplex 2205	22Cr-5Ni-3Mo-N	A182-F51	S31803	A351-CD3MN (A995-4A)*	S31803/S32205†	A789/A790-UNS31803	X2CrNiMoN22-5-3	1.4462		Very high strength, resistance to corrosion, pitting and stress corrosion in chloride media. Service to 600°F (316°C) - The original S31803 UNS designation has been supplemented by S32205 which has higher minimum N, CR, and Mo
			Super Austenitic	Super Austenitic/ 6Mo	20Cr-18Ni-6Mo	A182-F44	S31254	A351-CK3MCuN	S31254	A312-UNS S31254	X1CrNiMoCuN20-18-7	1.4547		Very high strength, high resistance to corrosion. Service to 600°F (316°C)
			Super Duplex	Super Duplex 2507	25Cr-7Ni-4Mo-N	A182-F53	S32750	A351-CD4MCu*	S32750	A789/A790-UNS32750	X2CrNiMoN27-7-4	1.4501		Service to 600°F (316°C)
				Super Duplex F55	25Cr-7Ni-3.5Mo-N-Cu-W	A182-F55	S32760	A995-SA1CE3MN	S32760	A789/A790-UNS32760	10088-1 (95)			Service to 600°F (316°C)
			Nickel-Iron Alloy	Incoloy 800	33Ni-42Fe-21Cr	B564-N08800	N08800	A494-CY40*			X10NiCrAlTi32-20	1.4876		Service to 1000°F (538°C)
				Incoloy 825	42Ni-21 Cr-3Mo-2.3Cu	B564-N08825*	N08825	A494-CU5MCuC*				17744	2.4858	Service to 600°F (316°C) for N02200, 1200°F (648°C) for N02201
			Nickel	Nickel	99/95Ni	B160-N02200	N02200	A494-CZ-100*			NW2200	1.7740		
Nickel-Copper	Monel 400	67Ni-30Cu	B564-N04400	N04400	A494-M35-1				17730	2.4360	Good resistance to corrosion by all common organic acids and salt water. Also highly resistant to most alkaline solutions to +750°F (+400°C).			
Nickel-Alloy	Monel 500		B564-N05500*	N05500						2.4375				
	904L		904L*	N08904	n/a			Z2 NCDU 25-20		1.4539				
Nickel Superalloys	Inconel 600	72Ni-15Cr-8Fe	B564-N06600	N06600	A494-CY40*				17742	2.4816	Very good for high temperature service. Good resistance to spaily corrosive media and atmosphere to +800°F (+425°C).			
	Inconel 625	80Ni-22Cr-9Mo-3.5Cb	B564-N06625	N06625	A494-CW-6MC*					2.4896				
	Hastelloy B				A743 N-12M						Is well suited for handling hydrofluoric acid at all concentrations and temperatures. Good resistance to sulphuric and phosphoric acids to +1200°F (+649°C).			
	Hastelloy C-276				A743 CW-12M						Good resistance to span oxidation conditions. Good properties at high temperatures. Good resistance to sulphuric and phosphoric acids to +1200°F (+649°C).			
Hastelloy C-276							NiMo 16 Cr 15 W		2.4819					
Titanium	Titanium	98Ti	B381-Gr2	R50400	B367-C2*			Ti 2		3.7035	Good resistance to corrosion together with low specific weight.			

† Cast CN7M only rated to 150°C, however 'New Alloy 20' grade CN3MCu is available which is to be rated to at least 316°C.

* No longer referenced in ANSI B16.34 - 2009, A995 supersedes A990 (meets & surpasses).