

Steel Type	Material (Code)	Standard	Version	Chemical Composition (%)									Tensile Strength (N/mm <sup>2</sup> )	Yield Strength (N/mm <sup>2</sup> )		Elongation (%)	Impact Strength ISO-V (J)	Hardness (HB)
				C	Si	Mn	P	S	Cr	Ni	Mo	Others		50.2	51			
USA	CF8	ASTM A 351/A351M	2000	≤ 0.08	≤ 2.00	≤ 1.50	≤ 0.040	≤ 0.040	18.0-21.0	8.0-11.0	≤ 0.50	-	≥ 485	≥ 205	-	≥ 35	-	-
	CF8M	ASTM A 351/A351M	2000	≤ 0.08	≤ 2.00	≤ 1.50	≤ 0.040	≤ 0.040	18.0-21.0	9.0-12.0	2.0-3.0	-	≥ 485	≥ 205	-	≥ 30	-	-
	CF3M	ASTM A 351/A351M	2000	≤ 0.03	≤ 1.50	≤ 1.50	≤ 0.040	≤ 0.040	17.0-21.0	9.0-13.0	2.0-3.0	-	≥ 485	≥ 205	-	≥ 30	-	-
	CN7M	ASTM A 351/A351M	2000	≤ 0.07	≤ 1.50	≤ 1.50	≤ 0.040	≤ 0.040	19.0-22.0	27.5-30.5	2.0-3.0	Cu:3.0-4.0	≥ 485	≥ 170	-	≥ 35	-	-
Germany	1.4308/GX5CrNi9-10	DIN EN 10213-4	1996	≤ 0.07	≤ 1.50	≤ 1.50	≤ 0.040	≤ 0.030	18.0-20.0	8.0-11.0	-	-	440-640	-	≥ 200	≥ 30	≥ 60	-
	1.4408/GX6CrNiMo19-11-2	DIN EN 10213-4	1996	≤ 0.07	≤ 1.50	≤ 1.50	≤ 0.040	≤ 0.030	18.0-20.0	9.0-12.0	2.0-2.5	N:≤0.2	440-640	-	≥ 210	≥ 30	≥ 60	-
	1.4409/GX2CrNiMo19-11-2	DIN EN 10213-4	1996	≤ 0.03	≤ 1.50	≤ 2.0	≤ 0.035	≤ 0.025	18.0-20.0	9.0-12.0	2.0-2.5	N:≤0.2	440-640	-	≥ 220	≥ 30	≥ 80	-
	1.4581/GX5CrNiMoNb19-11-2	DIN EN 10213-4	1996	≤ 0.07	≤ 1.50	≤ 1.50	≤ 0.040	≤ 0.030	18.0-20.0	9.0-12.0	2.0-2.5	Nb:8x%C-1.0	440-640	-	≥ 210	≥ 25	≥ 40	-
Japan	SCS 13	JIS G 5121	1991	≤ 0.08	≤ 2.00	≤ 2.00	≤ 0.040	≤ 0.040	18.0-21.0	8.0-11.0	-	-	≥ 440	≥ 185	-	≥ 30	-	≤ 183
	SCS 14	JIS G 5121	1991	≤ 0.08	≤ 2.00	≤ 2.00	≤ 0.040	≤ 0.040	17.0-20.0	10.0-14.0	2.0-3.0	-	≥ 440	≥ 185	-	≥ 28	-	≤ 183
	SCS 16	JIS G 5121	1991	≤ 0.03	≤ 1.50	≤ 2.00	≤ 0.040	≤ 0.040	17.0-20.0	12.0-16.0	2.0-3.0	-	≥ 390	≥ 175	-	≥ 33	-	≤ 183
British	304 C15	BS 3100	1991	≤ 0.08	≤ 1.50	≤ 2.00	≤ 0.040	≤ 0.040	18.0-21.0	8.0-11.0	-	-	≥ 480	-	≥ 215	≥ 26	-	-
	316 C16	BS 3100	1991	≤ 0.08	≤ 1.50	≤ 2.00	≤ 0.040	≤ 0.040	17.0-21.0	≥ 9.0	2.0-3.0	-	≥ 480	-	≥ 240	≥ 26	-	-
	316 C12	BS 3100	1991	≤ 0.03	≤ 1.50	≤ 2.00	≤ 0.040	≤ 0.040	17.0-21.0	≥ 9.0	2.0-3.0	-	≥ 430	≥ 215	-	≥ 22	-	-
	347C17	BS 3100	1991	≤ 0.08	≤ 1.50	≤ 2.00	≤ 0.040	≤ 0.040	18.0-21.0	9.0-12.0	-	Nb:8x%C-1.0	≥ 480	≥ 215	-	≥ 22	-	-
	ANC 4 Grade A	BS 3146: Part 2	1975	≤ 0.08	0.2-1.5	0.2-2.0	≤ 0.035	≤ 0.035	18.0-20.0	11.0-14.0	3.0-4.0	-	≥ 500	≥ 210	-	≥ 12	-	-
	ANC 4 Grade B	BS 3146: Part 2	1975	≤ 0.08	0.2-1.5	0.2-2.0	≤ 0.035	≤ 0.035	17.0-20.0	≥ 10	2.0-3.0	-	≥ 500	≥ 210	-	≥ 12	-	-
	ANC 4 Grade C	BS 3146: Part 2	1975	≤ 0.12	0.2-1.5	0.2-2.0	≤ 0.035	≤ 0.035	17.0-20.0	≥ 10	2.0-3.0	Nb:8x%C-1.1	≥ 500	≥ 210	-	≥ 12	-	-

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					C	Si	Mn	P	S	Cr	Ni	Mo		Others	σ <sub>0.2</sub>				σ <sub>1</sub>
Martensitic Steel	USA	CA15	ASTM A217/A217M	2002	≤0.15	≤0.15	≤1.00	≤0.040	≤0.040	11.5-14.0	≤1.00	≤0.50	-	620-795	≥450	-	≥18	-	
		CA-40	ASTM A743/A743M	98	0.20-0.40	≤0.15	≤1.00	≤0.040	≤0.040	11.5-14.0	≤1.00	≤0.50	-	≥690	≥485	-	≥15	-	
		CA6NM / Grade A	ASTMA 487/A487M	93	≤0.06	≤1.00	≤1.00	≤0.040	≤0.030	11.5-14.0	3.5-4.5	0.4-1.0	Cu ≤ 0.5 w ≤0.10 v ≤0.05	760-930	≥550	-	≥15	-	
	Germany	1.4317/GX 4CrNi13-4	DIN EN10213-2	1996	≤0.06	≤1.00	≤1.00	≤0.035	≤0.025	12.0-13.5	3.50-5.00	≤0.7	-	760-960	≥550	-	≥15	≥50	
		1.4405/GX 4CrNi16-5-1	DIN EN10213-2	1996	≤0.06	≤0.80	≤1.00	≤0.035	≤0.025	15.0-17.0	4.00-6.00	0.70-1.50	-	780-960	≥540	-	≥15	≥60	
		1.4059/G-X22CrNi17	DIN17445	84	0.20-0.27	≤1.00	≤1.00	≤0.045	≤0.030	16.0-18.0	1.00-2.00	-	-	780-980	≥590	-	≥4	-	230-300
		1.4059/G-X5CrNi13 4	DIN17445	84	≤0.07	≤1.00	≤1.5	≤0.035	≤0.025	12.0-13.5	3.50-5.00	≤0.70	-	760-960	≥550	-	≥15	≥50	240-300
	British	ANC2	BS3146: Part2	1975	0.12-0.25	0.2-1.0	0.2-1.0	≤0.035	≤0.035	15.5-20.0	1.5-3.0	-	-	850-1000	≥630	-	≥8	-	

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					C	Si	Mn	P	S	Cr	Ni	Mo		Others	50.2				51
Duplex Steel	USA	CD4MCu/Grade 1A	ASTM A 890/A890M	99	≤ 0.04	≤ 1.00	≤ 1.00	≤ 0.040	≤ 0.040	24.5-26.5	4.75-6.0	1.75-2.25	Cu:2.75-3.25	≥ 690	≥ 485	-	≥ 16	-	-
		CD3MN/Grade 4A	ASTM A 890/A890M	99	≤ 0.03	≤ 1.00	≤ 1.5	≤ 0.04	≤ 0.02	21-23.5	4.5-6.5	2.5-3.5	Cu: ≤ 1.00 N: 0.10-0.30	≥ 620	≥ 415	-	≥ 25	-	-
		5A (CE3MN)	ASTM A 890/A890M	99	≤ 0.03	≤ 1.00	≤ 1.5	≤ 0.04	≤ 0.04	24.0-26.0	6.0-8.0	4.0-5.0	N: 0.10-0.30	≥ 690	≥ 515	-	≥ 18	-	-
	Germany	1.4517/GX2CrNiMoCuN25-	DIN EN 10213-4	1996	≤ 0.03	≤ 1.00	≤ 1.5	≤ 0.035	≤ 0.025	24.5-26.5	5.0-7.0	2.5-3.5	Cu: 2.75-3.5 N: 0.12-	650-850	-	≥ 480	≥ 22	≥ 50	-
	Japan	SCS10	JISG 5121	1991	≤ 0.03	≤ 1.5	≤ 1.5	≤ 0.04	≤ 0.03	21.0-26.0	4.5-8.5	2.5-4.0	N:0.08-0.30	≥ 620	≥ 390	-	≥ 15	-	≤ 302
	British	ANC 6/Grade A	BS 3146: Part 2	1975	0.15-0.3	0.75-2.0	0.2-1.0	≤ 0.035	≤ 0.035	20.0-25.0	10.0-15.0	-	-	≥ 460	-	-	≥ 17	-	-
ANC 21		BS 3146: Part 2	1975	≤ 0.05	≤ 0.75	≤ 0.75	≤ 0.05	≤ 0.05	25.0-27.0	4.75-6.0	1.75-2.25	Cu:2.75-3.25 N: ≤ 0.10	≥ 700	≥ 500	-	≥ 18	≥ 10	-	
Carbon Steel	USA	WCA	ASTM A 216/A216M	93	≤ 0.25	≤ 0.6	≤ 0.75	≤ 0.04	≤ 0.045	≤ 0.5	≤ 0.5	≤ 0.2	Cu: ≤ 0.30 V: ≤ 0.03	415-585	≥ 205	-	≥ 24	-	-
		WCB	ASTM A 216/A216M	93	≤ 0.3	≤ 0.6	≤ 1	≤ 0.04	≤ 0.045	≤ 0.5	≤ 0.5	≤ 0.2	Cu: ≤ 0.30 V: ≤ 0.03	485-655	≥ 250	-	≥ 22	-	-
		WCC	ASTM A 216/A216M	93	≤ 0.25	≤ 0.6	≤ 1.2	≤ 0.04	≤ 0.045	≤ 0.5	≤ 0.5	≤ 0.2	Cu: ≤ 0.30 V: ≤ 0.03	485-655	≥ 275	-	≥ 22	-	-
		WC6	ASTM A 217/A 217M	2002	0.05-0.2	≤ 0.6	0.5-0.8	≤ 0.04	≤ 0.045	1.0-1.5	-	0.45-0.65	-	485-655	≥ 275	-	≥ 20	-	-
		WC9	ASTM A 217/A 217M	2002	0.05-0.18	≤ 0.6	0.4-0.7	≤ 0.04	≤ 0.045	2.0-2.75	-	0.9-1.2	-	485-655	≥ 275	-	≥ 20	-	-
	Germany	1.0619/GP240GH/GS-C25	DIN EN 10213-2	1996	0.18-0.23	≤ 0.6	0.5-1.2	≤ 0.03	≤ 0.02	-	-	-	-	420-600	≥ 240	-	≥ 22	≥ 27	-
		1.7357/G17CrMo5-5	DIN EN 10213-2	1996	0.15-0.2	0.3-0.6	0.5-0.8	≤ 0.02	≤ 0.015	1.0-1.5	-	0.45-0.55	-	490-690	≥ 315	-	≥ 20	≥ 27	-
	British	A4	BS 3100	1991	0.18-0.25	≤ 0.6	1.2-1.6	≤ 0.05	≤ 0.05	-	-	-	-	540-690	≥ 320	-	≥ 16	≥ 30	-