

ALLOY FAMILY	ALLOY GRADE	SPECIFICATION	SIMILAR METAL	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Other Elements	Tensile (ksi)	Yield (ksi)	Elongation	Red. of A	Notes	
Carbon Steel	WCB	ASTM A216	1020	0.25	0.6	0.7	0.04	0.045	0.5	0.5	0.2	0.3	V-0.03	60-80	30	24%	35%		
	WCB	ASTM A216	1025	0.3	0.6	1.0	0.04	0.045	0.5	0.5	0.2	0.3	V-0.03	70-95	36	22%	35%		
	WCB-HF	ASTM A216, DOC12964	1020	0.25	0.6	1.0	0.02	0.02	0.5	Low	0.2	Low	N<0.015, V<0.02, C<0.02, Al<0.08	70-95	36	22%	35%		
	WCB-LC	ASTM A216	1025	0.3	0.6	1.0	0.04	0.045	0.5	0.5	0.2	0.3	V-0.03	70-95	36	22%	35%		
	WCC	ASTM A216	1020	0.25	0.6	1.2	0.04	0.045	0.5	0.5	0.2	0.3	V-0.03	70-95	40	22%	35%		
	LCB	ASTM A352	1025	0.3	0.6	1.0	0.04	0.45	0.5	0.5	0.2	0.3	V-0.03	65	35	24%	35%	Charpy @ -46C: 13/10 ft-lbs	
	LCB	ASTM A352	1020	0.25	0.6	1.2	0.04	0.45	0.5	0.5	0.2	0.3	V-0.03	70-95	40	22%	35%	Charpy @ -46C: 15/11 ft-lbs	
	LCB	ASTM A27	1025	0.35	0.8	1.2	0.05	0.06	---	---	---	---	---	70	36	22%	30%		
	Low Alloy Steel	80-50	ASTM A148	---	---	---	---	0.05	0.06	---	---	---	---	---	80	50	22%	35%	
	WCL	ASTM A217	Mo steel	0.25	0.6	0.5-0.8	0.04	0.045	0.35	0.5	0.45-0.65	0.5	W-0.1	65-90	35	24%	35%		
WCE	ASTM A217	Cr-Mo Steel	0.05-0.20	0.6	0.5-0.8	0.04	0.045	1.0-1.5	0.5	0.45-0.65	0.5	W-0.1	70-95	40	20%	35%			
WCD	ASTM A217	Cr-Mo Steel	0.05-0.18	0.6	0.4-0.7	0.04	0.045	2.0-2.75	0.5	0.9-1.2	0.5	W-0.1	70-95	40	20%	35%			
Martensitic Stainless Steel	CA6NM	ASTM A352, A743	410	0.06	1.0	1.0	0.04	0.03	11.5-14.0	3.5-4.5	0.4-1.0	---	---	110	80	15%	35%		
	CA6NM-A	ASTM A487	410	0.06	1.0	1.0	0.04	0.03	11.5-14.0	3.5-4.5	0.4-1.0	---	V-0.05	110-135	80	15%	35%		
	CA6NM-B	ASTM A487	410	0.06	1.0	1.0	0.04	0.03	11.5-14.0	3.5-4.5	0.4-1.0	---	V-0.05	100	75	17%	35%		
	CA15	ASTM A217, A743	415	0.15	1.5	1.0	0.04	0.04	11.5-14.0	1.0	0.5	0.5	---	90	65	18%	30%		
	CB7C-1	ASTM-A747	17-4 PH	0.07	1.0	0.7	0.35	0.3	15.5-17.7	3.6-4.6	---	2.5-3.2	Nb 0.15-0.35, N<0.05	135	110	9%	---	HI 100 condition	
	CB7C-2	ASTM A747	15-5 PH	0.07	1.0	0.7	0.35	0.3	14.0-15.5	4.5-5.5	---	2.5-3.2	Nb 0.15-0.35, N<0.05	120	100	11%	30%		
	Austenitic Stainless steel	CF3	ASTM A351, A743, A744	304L	0.03	2.0	1.5	0.04	0.04	17.0-21.0	8.0-12.0	0.5	---	---	70	30	35%	---	
CF3M		ASTM A351, A743, A744	316L	0.03	1.5	1.5	0.04	0.04	17.0-21.0	9.0-13.0	2.0-3.0	---	---	70	30	30%	---		
CF3MN		ASTM A351, A743	316LN	0.03	1.5	1.5	0.04	0.04	18.0-21.0	9.0-12.0	2.0-3.0	---	N 0.10-0.20	70	30	30%	---		
CF8		ASTM A351, A743, A744	304	0.08	2.0	1.5	0.04	0.04	18.0-21.0	8.0-11.0	0.5	---	---	70	30	35%	---		
CF8M		ASTM A351, A743, A744	316	0.08	1.5	1.5	0.04	0.04	18.0-21.0	9.0-12.0	2.0-3.0	---	---	70	30	30%	---		
CG3M		ASTM A351, A743, A744	317L	0.03	1.5	1.5	0.04	0.04	18.0-21.0	9.0-13.0	3.0-4.0	---	---	75	35	25%	---		
CG3M-HS		ASTM A351, A743, A744	317L	0.03	1.5	1.5	0.04	0.04	18.0-21.0	9.0-13.0	3.0-4.0	---	---	80	50	25%	---		
CG8M		ASTM A351, A743, A744	317	0.08	1.5	1.5	0.04	0.04	18.0-21.0	9.0-13.0	3.0-4.0	---	---	75	35	25%	---		
CK3M/CuN		ASTM A351, A743, A744	Awesta 254-SMO	0.025	1.0	1.2	0.045	0.01	19.5-20.5	17.5-19.5	6.00-7.00	0.50-1.00	N 0.18-0.24	80	38	35%	---		
904L		FLOWSERVIE W1-0107	904L	0.03	1.5	1.5	0.04	0.04	18.0-21.0	23.5-27.0	3.75-5.0	1.0-2.0	---	65	28	35%	---	Tensile normally not required.	
CN7M		ASTM A351, A743, A744	Alloy 20	0.07	1.5	1.5	0.04	0.04	19.0-22.0	27.5-30.5	2.0-3.0	3.0-4.0	---	62	25	35%	---		
CN7MS		ASTM A743, A744	---	0.07	2.5-3.5	1.0	0.04	0.03	18.0-20.0	22.0-25.0	2.5-3.0	1.5-2.0	---	70	30	35%	---	Tensile properties are supplementary	
654 SMO		ASTM A240 REF	S32654	0.02	0.5	2.0-4.0	0.03	0.005	24.0-25.0	21.0-23.0	7.0-8.0	0.3-0.6	N 0.45-0.55	109	62	40%	---	Properties are for wrought. Cast is 20% less	
X-CrAlVALLOY		Flowserve X-Cavalloy	---	≈ 0.1	≈ 0.5	≈ 15.5	---	---	≈ 18.0	≈ 0.5	---	---	N ≈ 0.25	100	65	45%	---	Typical properties	
Duplex Stainless Steel		1A, CD4MCu	ASTM A890	---	0.04	1.0	1.0	0.04	0.04	24.5-26.5	4.75-6.0	1.75-2.25	2.75-3.25	---	100	70	16%	---	
	1B, CD4MCuN	ASTM A890, A895	---	0.04	1.0	1.0	0.04	0.04	24.5-26.5	4.7-6.0	1.7-2.3	2.7-3.3	N 0.10-0.25	100	70	16%	---		
	2A, CD6MN	ASTM A890	---	0.08	1.0	1.0	0.04	0.04	22.5-25.5	8.0-11.0	3.00-4.50	---	---	95	65	25%	---		
	3A, CD6MN	ASTM A890	---	0.06	1	1	0.04	0.04	24.0-27.0	4.0-6.0	1.75-2.50	---	---	95	65	25%	---		
	4A, CD6MN	ASTM A890	2205	0.03	1.0	1.5	0.04	0.02	21.0-23.5	4.5-6.5	2.5-3.5	1.0	N 0.10-0.30	95	60	25%	---		
	5A, CE3MN	ASTM A890, A895	2507	0.03	1.0	1.5	0.04	0.04	24.0-26.0	6.0-8.0	4.0-5.0	---	N 0.1-0.3	100	75	18%	---		
6A, CD3MWCuN	ASTM A890	Zeron100	0.03	1.0	1	0.03	0.025	24.0-26.0	6.5-8.5	3.0-4.0	0.5-1.0	N 0.2-0.3, W 0.5-1.0	100	65	25%	---			
Heat Resistant Steel	HH	ASTM A297	---	0.30-0.50	2.0	2.0	0.04	0.04	24.0-28.0	11.0-14.0	0.05	---	---	75	35	10%	---		
	HK	ASTM A297	---	0.20-0.60	2.0	2.0	0.04	0.04	24.0-28.0	18.0-22.0	0.05	---	---	65	35	10%	---		
	HN	ASTM A297	HI-35	0.20-0.50	2.0	2.0	0.04	0.04	19.0-23.0	23.0-30.0	0.05	---	---	63	---	8%	---		
	HT	ASTM A297	330 (15-35)	0.35-0.75	2.5	2.0	0.04	0.04	15.0-19.0	33.0-37.0	0.05	---	---	65	---	4%	---		
	HLCQ	ASTM A297	(19-39)	0.35-0.75	2.5	2.0	0.04	0.04	17.0-21.0	37.0-41.0	0.5	---	Nb 0.5-2.0 for Calcliner Tubes	65	---	4%	---		
	HK	ASTM A297	ACT HX	0.35-0.75	2.5	2.0	0.04	0.04	15.0-19.0	64.0-68.0	0.5	---	---	69	---	---	---		
	Bronze	C95800	ASTM B148	---	0.15	0.1	0.8-1.5	---	---	---	---	---	79.0 min	Al 8.5-9.5, Mn 8-1.5, Fe 3.5-4.5, Pb<0.03	85	35	15%	---	
Gray Iron	Class 30B	ASTM A48	---	---	---	---	---	---	---	---	---	---	---	30	---	---	---		
	Class 40B	ASTM A48	---	---	---	---	---	---	---	---	---	---	---	40	---	---	---		
Nickel Alloy	C2100	ASTM A494	Nickel 200	1.0	2.0	1.5	0.03	0.03	---	95.0 min	---	1.25	Fe<0.0	50	18	10%	---		
	IN617	ASTM A494	Monel 400	0.35	2.0	1.5	0.03	0.03	---	Balance	---	26.0-33.0	Fe<3.5, C<0.5	65	25	25%	---		