Body Materials

	Specification	Carbon Steel ASTM A105	Low Temp. Steel per ASTM A350		Austenitic Stainless Steel per ASTM A182									
			LF2	LF3	F5	F9	F11 Class 2	F22 Class 3	F304	F304H	F304L	F316	F316L	F347H
Chem. Composition (°)	Carbon max %	0.35	0.35	0.20	0.15	0.15	0.10-0.20	0.05-0.15	0.08	0.04-0.10	0.035	0.08	0.035	0.04-0.10
	Manganese max %	0.60-1.05	0.60-1.35	0.90	0.30-0.60	0.30-0.60	0.30-0.80	0.30-0.60	2.00	2.00	2.00	2.00	2.00	2.00
	Phosphorus max %	0.035	0.035	0.035	0.030	0.030	0.040	0.040	0.045	0.045	0.045	0.045	0.045	0.045
	Sulphur max %	0.040	0.040	0.040	0.030	0.030	0.040	0.040	0.030	0.030	0.030	0.030	0.030	0.030
	Silicon max %	0.10-0.35	0.15-0.30	0.20-0.35	0.50	0.50-1.00	0.50-1.00	0.50	1.00	1.00	1.00	1.00	1.00	1.00
	Nickel max %	0.40	0.40	3.3-3.7	0.50	–	–	–	8.0-11.0	8.0-11.0	8.0-13.0	10.0-14.0	10.0-15.0	9.0-13.0
	Chromium max %	0.30	0.30	0.30	4.0-6.0	8.0-10.0	1.00-1.50	2.00-2.50	18.0-20.0	18.0-20.0	18.0-20.0	16.0-18.0	16.0-18.0	17.0-20.0
	Molybdenum max %	0.12	0.12	0.12	0.44-0.65	0.90-1.10	0.44-0.65	0.87-1.13	–	–	–	2.00-3.00	2.00-3.00	–
Mechanical Properties (°)	Tensile Strength min. k.s.i.	70	70-95	70-95	70	85	70	75	75	75	70	75	70	75
	Yield Strength min. k.s.i.	36	36	37.5	40	55	40	45	30	30	25	30	25	30
	Elongation in 2" min. %	22	22	22	20	20	20	20	30	30	30	30	30	30
	Reduction of area min. %	30	30	35	35	40	30	30	50	50	50	50	50	50
	Hardness, HB max	187(2)	197	197	143-217	179-217	143-207	156-207	–	–	–	–	–	–

(°) Values shown are referred to ASTM specs. 1998 edition.
Tensile properties shown apply to room temperature tests. Low temperature steel impact tested according to ASTM A370; 10 x 10 "V" notch specimen, obtained from representative test bar. At minus 50°F average value of three specimen set is 15 ft. Lb. with a minimum of 12 ft. Lb. for one specimen only.
(2) Applicable on small forgings where no test specimen or representative test bar are available or when forgings have been liquid quenched and tempered.

Trim Material and Bolting Materials

		TRIM MATERIALS					BOLTING MATERIALS				
	Specification	AISI 410	AISI 416	AISI 420	Monel ASTM B164	Stellite Gr.6	ASTM A193		AISI 430	ASTM A194	
							B7	B8		2H	G8
Chem. Composition (°)	Carbon %	0.15 max.	0.15 max.	0.15 min.	0.3 max	1.00	0.37-0.49	0.08 max.	0.12 max.	0.40 min	0.08 max.
	Manganese %	1.00 max.	1.25 max.	1.00 max.	2.0 max.	1.00 max.	0.65-1.10	2.0 max.	1.00 max	1.00 max.	2.00 max
	Phosphor. max. %	0.040	0.060max.	0 040	—	—	0.035	0.045	0.040	0.040 max	0.045
	Sulphur max. %	0.030	0.15 min.	0.030	0.024	—	0.04	0.030	0.030	0.050 max.	0.030
	Silicon %	1.00 max.	1.00 max.	1.00 max.	0.5 max	1.00	0.15-0.35	1.00 max.	1.00 max	0.40 max.	1.00max.
	Chromium %	11.50-13.50	12.00-14.00	12.00-14.00	—	28.00	0.75-1.20	18.00-20.00	14.00-18.00	—	18.00-20.00
	Nickel %	—	—	—	63.0min.	3.0max.	—	8.00-11.0	—	—	8.00-10.5
	Molybdenum %	—	0.60max.	—	—	—	0.15-0.25	—	—	—	—
	Copper %	—	—	—	28.0-34.0	—	—	—	—	—	—
	0ther elem. %	—	—	—	Fe:2.5 max.	Fe:3.0 max. W .:4.0 Co:balance	—	—	—	—	—
Mechanical Properties (°°)	Tensile Strength min. k.s.i kg/mm²	99/185 70/130	85/170 60/120	149/298 105/210	70(2) 49.2	—	125 87.8	75 52.7	75.4 53	—	—
	Yield Strength min. k.s.i. kg/mm²	59/170 42/120	59/128 42/90	119/199 84/140	25(2) 17.6	—	105 73.8	30 21	40 28	—	—
	Elongation in 2" min. %	(15)(1)	(10)(1)	(8)(1)	(35)(2)	—	16	30	28	—	—
	Reduction of area min. %	50/75	8/60	5/40	—	—	50	50	65	—	—
	Brinell Hardness	180-375	180-375	300-600	—	HRC min.37	—	—	160	248-352	126-300

(°) Values shown are referred to ASTM, AISI and AMS specs.
(°°) These values refer to material in the heat treated condition (quenched and tempered or solution annealed) as suggested by manufacturer practice or required by related specifications.
(1) Indicative only.
(2) Age hardened material available with higher tensile values.