Titanium Specification

Classification		Features	Standards	Applications	Tensile properties				Bend properties			Hardness	Chemical composition, mass%					
					Tensile Strength, MPa(min)	0.2% proof strength, MPa	Elongation, %(min)	Reduction of area, %(min)	Bend angle, degree	Internal radius, mm(min) T(Thickness)≤1.8	Internal radius, mm(min) 1.8<T≤4.75		Main elements (min/max)	N (max)	C (max)	H (max)	Fe (max)	O (max)
Commercially pure titanium		Excellent formability Excellent corrosion resistance	ASTM Gr.1	PHE Press forming parts Chemical & petrochemical Heat exchanger tubing Piping & lining Electrolysis	240	170-310	24	30	105	1.5T	2T	RB70	bal. Ti	0.03	0.08	0.015	0.20	0.18
		Relatively higher strength Excellent corrosion resistance	ASTM Gr.2	Chemical & petrochemical Heat exchanger tubing Piping & lining Electrolysis	345	275-450	20	30	105	2T	2.5T	RB80	bal. Ti	0.03	0.08	0.015	0.30	0.25
			ASTM Gr.3	Tube sheets	450	380-550	18	30	105	2T	2.5T	RB90	bal. Ti	0.05	0.08	0.015	0.30	0.35
			ASTM Gr.4	Medical Parts	550	483-655	15	25	105	2.5T	3T	RB100	bal. Ti	0.05	0.08	0.015	0.50	0.40
Low alloy titanium		Superior corrosion resistance	ASTM Gr.7	Chemical & petrochemical Heat exchanger tubing Piping & lining Electrolysis	345	275-450	20	30	105	2T	2.5T	RB80	Pd 0.12/0.25, bal. Ti	0.03	0.08	0.015	0.30	0.25
			ASTM Gr.11		240	170-310	24	30	105	1.5T	2T	-	Pd 0.12/0.25, bal. Ti	0.03	0.08	0.015	0.20	0.18
			ASTM Gr.12		483	min345	18	25	105	2T	2.5T	-	Mo 0.2/0.4, Ni 0.6/0.9, bal. Ti	0.03	0.08	0.015	0.30	0.25
			ASTM Gr.33		345	275-450	20	30	105	2T	2.5T	-	Ru 0.02/0.04, Pd 0.01/0.02, Cr 0.1/0.2, Ni 0.35/0.55, bal. Ti	0.03	0.08	0.015	0.30	0.25
Titanium alloy	α-β alloy	High strength Balanced mechanical property between strength and toughness	ASTM Gr.5 (Ti-6-4)	Aircraft structure & parts Fasteners Golf club head	895	min828	10	25	105	4.5T	5T	RC36	Al 5.5/6.75, V 3.5/4.5, bal. Ti	0.05	0.08	0.015	0.40	0.20
			ASTM Gr.9	Exhaust systems Bicycle frames	620	min483	15	25	105	2.5T	3T	-	Al 2.5/3.5, V 2.0/3.0, bal. Ti	0.03	0.08	0.015	0.25	0.15
			ASTM Gr.23 (Ti-6-4ELI)	Medical implant	828	min759	10	15	105	4.5T	5T	-	Al 5.5/6.5, V 3.5/4.5, bal. Ti	0.05	0.08	0.013	0.25	0.13
			ASTM Gr.35	Aircraft structure & parts Fasteners Golf club head	895	min828	5	20	105	5T	5T	-	Al 4.0/5.0, Mo 1.5/2.5, V 1.1/2.1, Si 0.2/0.4, bal. Ti	0.05	0.08	0.015	0.20/0.80	0.25
			AMS4981 (Ti-6-2-4-6)	Jet engine parts	1172	min1103	L direction 10 T direction 8	L direction 20 T direction 15	-	-	-	-	Al 5.5/6.5, Zr 3.5/4.5, Sn 1.75/2.25, Mo 5.5/6.5, bal. Ti	0.04	0.04	0.015	0.15	0.15
	β alloy	Cold workable(ST) Superior high strength(STA)	AMS4914 (Ti-15-3-3-3)	Aircraft parts Bicycle gears Golf club head	703-945	689-869	12	-	105	T≤1.78 2T	1.78<T≤3.18 2.5T	-	V 14.0/16.0, Cr 2.5/3.5, Sn 2.5/3.5, Al 2.5/3.5, bal. Ti	0.05	0.05	0.015	0.25	0.13
					1241	min1172	5	-	-	-	-	-						

*ELI: Extra low interstitial ST: Solution treatment STA: Solution treatment & aging

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*Available Specifications: ASTM, AMS, MIL, AWS, etc.

*Other Grades and Specification Available upon Request.