

## COMMERCIALLY PURE (CP) TITANIUM - GRADES 2 & 4

Commercially Pure titanium is "unalloyed" and comes in 4 grades determined by strength and impurity content.

President Titanium stocks CP Grade 2 & CP-Grade 4.

**List of some common specs:** AMS 4901, AMS 4902, AMS 4921, ASTM B-265, ASTM B-348, ASTM F-67, MIL-T-9046J, MIL-T-9047G

**Principle Uses** Primary uses are for corrosion resistance when high strengths are not needed such as heat exchangers and chemical industry piping systems.

**Available Forms** Sheet, Plate, Round Bar, Flat Bar, & Wire

**Type Structure** Alpha

Chemistry Limits (%)	GRADE 2	GRADE 4
Carbon - Max	0.1	0.1
Oxygen - Max	0.25	0.4
Iron - Max	0.2	0.3
Nitrogen - Max	0.03	0.05
Hydrogen - Max	0.015	0.015

### Typical Minimum Mechanical Properties

(as shipped in the Annealed Condition)	GRADE 2	GRADE 4
Ultimate Tensile Strength - ksi	50	80
Yield Strength - ksi	40	70
Elongation %	20	15

Typical Physical Properties	GRADE 2	GRADE 4
Density (lbs/in <sup>3</sup> )	0.163	0.163
Elastic Modulus (x106 psi)	14.9	15.1
Beta Transus Temp (°F)	1675°F +/-25°F	1740°F +/-25°F
Weldability	Excellent	Good
Hardness	Brinell 200	Brinell 265
Annealing Sheet/Plate	1200-1500°F, 15-120 minute air cool	
Annealing Bar/Forgings	1200-1450°F, 1-2 hour air cool	

*\* This information is provided as an "Informational only" reference and is not binding. Please reference the titanium material specifications for more detailed properties and complete material information.*