



# TITANIUM INDUSTRIES, INC.

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AEROSPACE ALLOY

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## Alloy 718 Bar (UNS-N07718)

Application-friendly, extremely versatile, Nickel-based alloy with excellent strength and ductility up to 1300° F (704° C). Alloy 718 exhibits good weldability with resistance to post-weld cracking, formability and superior cryogenic properties. Alloy 718 has excellent creep-rupture strength to 1300° F (700° C).

Typical applications of Alloy 718 include high-strength components for commercial and military aircraft, gas turbines, rocket motors, spacecraft, pumps, fasteners and tooling.



### Technical

- **Solution Treated Condition:** Approximately 20 – 25 HRC, can be aged to approximately 36 – 44HRC
- **Oxidation Resistance:** Good oxidation resistance to +/- 1800° F (982° C)
- **Machinability:** Readily machined in the solution treated and age-hardened conditions. Avoid sulfur-bearing lubricants or coolants or be sure to remove prior to heat treatment.
- **Heat Treatment:** Can be engineered for optimum impact properties, tensile and creep-rupture properties.
- **Physical & Mechanical Properties:**
  - Melting Range 2,300 – 2,450° F (1,260 – 1,343° C)
  - Density: 0.296 lbs/in<sup>3</sup> (8.19 gm/cm<sup>3</sup>)
  - Tensile Strength, ksi 195 (MPA 1,345)
  - .2% Yield Strength, ksi 160 (MPA 1,104)
  - Elongation, % 22
  - Reduction in Area, % 35

### Company & Product Line

Titanium Industries is a manufacturing distributor whose service centers maintain quality and certified inventory to support the aerospace industry. We supply products of the highest quality standards, with complete chemical and mechanical property test reports accompanying each shipment. Inventory is 100% traceable from melt source through processing to maintain quality-control requirements.

### Qualifications & Approvals

Titanium Industries has earned qualified and approved vendor status from the following corporations (partial list)...

- ISO 9001-2000
- AS 9100B
- 3I Implant Innovations
- Aerospatiale Hemmingford, Inc.
- Bijet, Inc.
- Biomet
- Bombardier Aerospace
- Bombardier De Haviland
- Cessna Aircraft Co.
- Conair Aviation Ltd.
- D.L.A. (Defense Logistics Agency)
- DC Fabricators (MIL-I-45208A)
- Deputy/Ace Medical
- E & W Aerospace
- E & W Manufacturing
- Electric Boat
- Fleet Industries
- General Dynamics
- GKN Westland Aerospace
- Heroux Aerospace
- Howmedica
- HTD Aerospace
- Ingersoll Dresser Pump (MIL-I-45208A)
- Jet Engineering
- Johnson & Johnson
- Litton/Ingalls Shipbuilding (MIL-I-45208A)
- Lockheed Martin
- Lucas Aerospace (Boeing)
- Medsource-Brimfield
- Medtronic Sofamor Danek
- Miniature Ball Bearings
- Newcomb Spring of Texas
- Northrup Grumman
- Osteonics
- Palmer Manufacturing (MIL-I-45208A)
- Portsmouth Naval Shipyard
- Pratt & Whitney (LCS)
- Precision Metal Products (PMP)
- Raytheon Airborne Systems
- Shaw Aero Devices, Inc.
- Shur-Lok Corporation
- Smith & Nephew
- Spar Aerospace
- Specialty Metals Corporation
- Stealth Engineering
- Sulzer Medica
- Superior Tube Co.
- Thiokol Aerospace & Industrial Technologies
- Timken Aerospace
- Young Engineers Co.
- Zimmer



TITANIUM INDUSTRIES, INC.  
ISO 9001:2000 REGISTERED

## 718 Alloy Bar Weight Table (Rounds, Squares)

SIZE (INCH)	SIZE (DEC)	ROUND (LB/FT)	SQUARE (LB/FT)	SIZE (INCH)	SIZE (DEC)	ROUND (LB/FT)	SQUARE (LB/FT)
1/4"	0.250	0.174	0.222	2 9/16"	2.5625	18.318	23.324
5/16"	0.3125	0.272	0.347	2 5/8"	2.625	19.223	24.476
3/8"	0.375	0.392	0.500	2 11/16"	2.6875	20.149	25.655
7/16"	0.4375	0.534	0.680	2 3/4"	2.750	21.097	26.862
1/2"	0.500	0.697	0.888	2 13/16"	2.8125	22.067	28.097
9/16"	0.5625	0.883	1.124	2 7/8"	2.875	23.059	29.360
5/8"	0.625	1.090	1.388	2 15/16"	2.9375	24.072	30.650
11/16"	0.6875	1.319	1.679	3"	3.000	25.107	31.968
3/4"	0.750	1.569	1.998	3 1/16"	3.0625	26.164	33.314
13/16"	0.8125	1.842	2.345	3 1/8"	3.125	27.243	34.688
7/8"	0.875	2.136	2.720	3 3/16"	3.1875	28.344	36.089
15/16"	0.9375	2.452	3.122	3 1/4"	3.2500	29.466	37.518
1"	1.000	2.790	3.552	3 5/16"	3.3125	30.610	38.975
1 1/16"	1.0625	3.149	4.010	3 3/8"	3.375	31.776	40.460
1 1/8"	1.125	3.531	4.496	3 7/16"	3.4375	32.964	41.972
1 3/16"	1.1875	3.934	5.009	3 1/2"	3.500	34.174	43.512
1 1/4"	1.250	4.359	5.550	3 9/16"	3.5625	35.405	45.080
1 5/16"	1.3125	4.806	6.119	3 5/8"	3.625	36.658	46.676
1 3/8"	1.375	5.274	6.716	3 11/16"	3.6875	37.933	48.299
1 7/16"	1.4375	5.765	7.340	3 3/4"	3.750	39.230	49.950
1 1/2"	1.500	6.277	7.992	3 13/16"	3.8125	40.549	51.629
1 9/16"	1.5625	6.811	8.672	3 7/8"	3.875	41.889	53.336
1 11/16"	1.6875	7.944	10.115	3 15/16"	3.9375	43.251	55.070
1 3/4"	1.750	8.543	10.878	4"	4.000	44.635	56.832
1 13/16"	1.8125	9.165	11.669	4 1/4"	4.250	50.389	64.158
1 7/8"	1.875	9.808	12.488	4 1/2"	4.500	56.491	71.928
1 15/16"	1.9375	10.472	13.334	4 3/4"	4.750	62.943	80.142
2"	2.000	11.159	14.208	5"	5.000	69.743	88.800
2 1/16"	2.0625	11.867	15.110	5 1/2"	5.500	84.388	107.448
2 1/8"	2.125	12.597	16.040	6"	6.000	100.429	127.872
2 3/16"	2.1875	13.349	16.997	6 1/2"	6.500	117.865	150.072
2 1/4"	2.250	14.123	17.982	7"	7.000	136.695	174.048
2 5/16"	2.3125	14.918	18.995	8"	8.000	178.541	227.328
2 3/8"	2.375	15.736	20.036	9"	9.000	225.966	287.712
2 7/16"	2.4375	16.575	21.104	10"	10.000	278.970	355.200
2 1/2"	2.500	17.436	22.200	12"	12.000	401.717	511.488

**Weights are based on a density of 0.296 pounds per cubic inch.**

**Use the following formulas to calculate lb/ft for sizes not shown:**

- Rounds . . . . . 2.7897 x (diameter)<sup>2</sup>
- Squares . . . . . 3.552 x (side)<sup>2</sup>
- Metric Conversion . . . 1 inch = 25.4 mm
- 1 meter = 3.2808 feet
- 1 pound = 0.4536 kg