

### TITANIUM

7	www.tiwmo.com						7	7	7	٦	7	7	7	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7





Our motto: The needs of our clients are ours; we will endeavor to meet and exceed our clients' requirements and provide the best possible services.





We are one of leading manufacturers and distributors of Titanium and Titanium alloy products in China. Apart from processing traditional materials, we also develop new products with the help of high technology. Relying on years of experiences, advanced technologies, quality equipments, highly efficient manufacture and standard management, we have established a comprehensive system of research, manufacture and marketing of Titanium products, which are widely used in aerospace, marine engineering, geothermal engineering, refrigeration engineering, chemical processing, oil and gas, power generation, metallurgy, medical equipment, sports as well as automotive industries etc. Our products, well known for their excellent properties, have been approved by various international authoritative institutions and have been supplied to customers in many countries.

# Titanium Ingot, VAR Melted / EBM

Titanium electrodes made of sponge are melted into ingots with multiple melts in VAR (Vacuum Arc Remelting) furnace or EB (Electric Beam Cooling Hearth Melting) furnace.

Chemistry & Standard: ASTM B348, F67, F136, ASME SB348, AMS-4928, ISO5832-2

#### Materials:

**CP Ti:** Grade1, Grade2, Grade3, Grade4 **Ti Alloys:** Grade5(Ti6AI-4V), Grade7, Grade9, Grade12, Grade23(Ti6AI-4VEli)

Size:  $\Phi$  200mm- $\Phi$  820mm











### Titanium Billets / Bars

Billets and bars are forged by the 3150T, 1250T Hydraulic Forging Press or GFM Precision Forging Machine, and further to be rolled and machined.

Chemistry & Standard: ASTM B348, F67, F136, ASME SB348, AMS-4928, ISO5832-2

#### Materials:

**CP Ti:** Grade1, Grade2, Grade3, Grade 4 **Ti alloys:** Grade5(Ti6Al-4V), Grade 7, Grade 9, Grade 12, Grade 23(Ti6Al-4VEli)

**Size:** Φ 8mm-Φ 3000mm

Diameter tolerance: h8, h9, h10, h11









# Titanium Wires, Hot Drawn(Alloys) or Cold Drawn(CP Ti)

**Manufacturing Steps:**  $\Phi$  11 mm coils peeling down to around  $\Phi$  9.5mm -> cold/hot drawing with annealing after each drawing pass -> acid pickling at final diameter, cutting and straightening for cut to length wire -> cleaning and vacuum annealing -> spooling and packaging



Chemistry & Standard: AWS A5.16, ASTM B863, AMS-4951, AMS-4954, AMS-4956

#### Materials:

**CP Ti:** ERTi-1, ERTi-2, ERTi-3, ERTi-4, Grade1, Grade2, Grade3, Grade4 **Ti alloys:** ERTi-5, ERTi-7, ERTi-9, ERTi-23, Grade5(Ti6Al-4V), Grade7, Grade9, Grade12, Grade23(Ti6Al-4VEli)

Size:  $\Phi$  0.08mm -  $\Phi$  8.0mm

Forms: Cut to length( $\Phi$ 1.0mm and above); Spool( $\Phi$ 0.08mm- $\Phi$ 3.0mm); Coils(all sizes)



### Titanium Plates / Sheets

Plates and sheets are rolled by 650mm, 1200mm, 3300mm hot and cold rolling mills.

Chemistry & Standard: ASTM B265, ASTM F67, ASTM F136, AMS 4902, AMS 4911

#### Materials:

**CP Ti:** Grade1, Grade2, Grade3, Grade 4 **Ti alloys:** Grade 5(Ti6Al-4V), Grade 7, Grade 9, Grade 12, Grade 17, Grade 23



#### Size:

**Cold rolled:** Thickness 0.5mm-5.0mm  $\times$  Width 1200max  $\times$  Length 3000mm max **Hot rolled:** Thickness 5.0mm-100mm  $\times$  Width 2800max  $\times$  Length 7000mm max

















### Titanium Foils / Coils

Foils and coils are rolled by the 20-high cold rolling mill.

Chemistry & Standard: ASTM B265, F67, F136

Materials: CP Ti: Grade1, Grade2, Grade3, Grade4

Size: Thickness 0.025-0.1 mm  $\times$  Width  $\leqslant$  310mm  $\times$  Length









### Titanium Seamless Tubes / Pipes

Tubes and pipes manufactured by cold rolling process from extruded pipe blanks and annealed in vacuum annealing furnace, have good quality and various outside diameter and wall-thickness.

Chemistry & Standard: ASTM B338, ASME SB338, ASTM B861, ASME SB861, ASTM B862, ASME SB862, etc.

#### Materials:

**CP Ti:** Grade1, Grade2, Grade3 **Ti alloys:** Grade 7, Grade 9, Grade 12, Grade 16, Grade 17

Size: OD 2.0-219mm  $\times$  Wall 0.3-12mm  $\times$  Length  $\leqslant$  18000mm



### **Titanium Fasteners**

After forging and heat treatment, titanium billets or blanks are machined down to finished parts with turning lathe, milling (or machining centre), planing, grinding machines and CNC.

Standard: DIN, ISO, ANSI, BS and OEM parts

Materials: Grade 2, Grade 3, Grade 4, Grade 5, Grade 7, Grade 9, Grade 12, etc.















### Titanium Forgings / Flanges / Others

By various techniques, including pressing, casting, forging, rolling, turning, milling, grinding, polishing etc., manufactured into rings, discs, targets, pipe fittings, baskets, flanges, valves and others.

Chemistry & Standard: ASTM B381, ANSI B16.5, etc. Materials: F2, F3, F4, F5, F7, F9, F12, etc. Size: According to the requirements of users.















# Core Equipments















7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	↗	↗	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
ד	R	R	Я	7	7	7	٦	7	я	R	R	я	R	R	R	Я	Я	R	7	7	R	R	R



1	1.	1	1	1	1	1	1	1	1	1	1	1	1	1	1.	1	1-	1.	1	1	1.	1	1
7	7	7	7	7	7	7	7	7	7	7	7	7	↗	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

Add: 6F Jia`Xiang Int`l Building, 216 South HanGuang Rd., Xi`an, Shaanxi, China Tel: +86-29-88210716/88210717/88213012 Fax: +86-29-88245349 Http://www.tiwmo.com E-mail: info@tiwmo.com

Shaanxi Yi Heng Non-Ferrous Metals Industries Co., Ltd. Xi`an Metals & Minerals Import & Export Co., Ltd.>

