V2 CONSULTING LIMITED

Titanium and Titanium Alloy Products Catalogue
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About us

We liaised with the biggest manufacturer of Titanium and Titanium Alloy in China, providing you with the technically and commercially competitively Titanium products.

Our manufacturer has been in the field since 1960s, and has supplied various products to companies like NIPPON STEEL, TSM, KOBELCO, BOEING, AIRBUS, SAFRAN etc.

Also the manufacturer is specialized in Titanium and alloys Cladding made by Explosive Cladding or Explosive-Rolled Cladding, have been supplied in various applications:

- Power Plant Desulphurization
- Pressure Vessels
- Power Station Auxiliary Equipment
- Chemical Industry
- Petrochemical Industry
- Coal-to-Liquid Industry
- Vacuum-Evaporation Salt Industry
- Desalination Plant, etc.

With the manufacturer capacity of 25000t in Titanium Casting/Forging/Ingot, and 15000t in Titanium and its alloy, we will be able to supply you with various Titanium products that can meet your procurement requirements related to your various vessel fabrications.
Manufacturer Credential

- Among the oldest companies which were engaged in researching, developing and producing cladding plates in China.
- Accredited as the professional manufacturer of precious metal cladding plates in China.
- High-profile manufacturer with technology of explosive cladding, roll cladding, and explosive clad-rolling in China.
- Capable of manufacturing cladding plates of most specifications/configurations/sizes.
- The largest-scale Chinese manufacturer of titanium/steel cladding plate for chimney liners used in power plants.
- Specialized Chinese manufacturer of two-phase stainless steel clad plates for Vaporizing Tank used in salt industry.
- The first Chinese manufacturer to develop extreme large size Titanium/Stainless/Carbon Steel cladding used for Turbine Condenser.
- Have obtained BV Management System Certification and passed the production survey for exporting to Italy (France).
- Certified supplier of Dong Fang Turbine Co. Ltd for products used in nuclear power industry.
- Certified supplier of Morimatsu Group (China) for cladding plates.
- Certified supplier of BaoTi Group Equipment Design and Manufacturing Co. Ltd and Nanjing Baose Titanium Industry Co. Ltd for cladding plates used in pressure vessels.
- Certified supplier of China National Chemical Equipment Corporation for Chemical equipments.

Manufacturer R & D Strength

As the largest Titanium research base in China, our manufacturer has been engaged in scientific research and industrialized transformation of new materials including

- high temperature titanium alloys,
- corrosion-resistant titanium alloys,
- high-tensile structural titanium alloys,
- damage-tolerance titanium alloys,
- combustion-resistant titanium alloys,
- biomedical titanium alloys,
- marine titanium alloys,
- low-cost titanium alloys,
- cryogenic titanium alloys and many other special applications.
V2 Consulting Limited
Supplier of: Titanium and Titanium Alloy Products
Explosive Clad, Explosive-Rolled Clad, Rolled Clad
Plates, Sheets, Strips, Coils, Billet & Bars,
Tubes (Seamless and Welded), Discs,
Castings, Forging, Ingots, Rings, Wires

Process Flow Chart
Quality Control

Our manufacturer has been accredited for the following schemes:

- ISO 9001:2008 Quality Management System
- PED approval acc. to 97/23/EC
- NORSOK M650
- NADCAP Approval
- Approval issued by Boeing, Rolls-Royce, Airbus, etc. acc. to AECMA EASE requirements

Product Range

Our manufacturer is capable of producing all grades of C.P. Titanium and most of Titanium alloys in accordance with AMS, ASTM, MIL, ASME, DMS, AWS, JIS specification or equivalent as specified below:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ti-6Al-4V</td>
<td>Ti-5Al-2.5Sn</td>
<td>Ti-6Al-2Sn-4Zr-2Mo</td>
</tr>
<tr>
<td>Ti-6Al-4V ELI</td>
<td>Ti-0.2Pd</td>
<td>Ti-6Al-2Sn-4Zr-6Mo</td>
</tr>
<tr>
<td>Ti-15V-3Cr-3Sn-3Al</td>
<td>Ti-0.3Mo-0.8Ni</td>
<td>Ti-6Al-7Nb</td>
</tr>
<tr>
<td>Ti-10V-2Fe-3Al</td>
<td>Ti-3Al-8V-6Cr-4Zr-4Mo</td>
<td>Ti-2.5U</td>
</tr>
</tbody>
</table>

Products include:

- Cladding (Explosive, Explosive-Rolled, Rolled)
- Ingot
- Sheet & Plates
- Coils/Strips
- Seamless and Welded Tubes & Pipes
- Billet & Bars
- Rods & Wires
- Forging
- Precision castings
Clad Materials

Clad can be produced with Titanium/Titanium alloy, Stainless Steel, Copper, Nickel, Aluminium, Steel by Explosion, Explosion-Rolling, and Rolling.

Clad Plate:

Configuration: Ti+Cu, Ti+Al, Ti+Ni, Ti+Steel, Ti+Stainless Steel
Clad method: Explosion, Rolling, Explosion+Rolling
Part of Clad Products manufactured:

<table>
<thead>
<tr>
<th>Products</th>
<th>Clad Material</th>
<th>Base Material</th>
<th>Size (mm)</th>
<th>Standard</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ti/Carbon Steel Cladding</td>
<td>ASTM B265 Gr.1, Gr.2, Gr.9, Gr.12</td>
<td>ASTM A572-Gr.50, ASTM A516-Gr.60, ASTM A287-Gr.A, Gr.B, Gr.C, Gr.D</td>
<td>*B: (1<del>12)/5</del>120)x≤4500x≤6500 **BR: (1<del>12)/(5</del>120)x≤3000x≤6500</td>
<td>ASTM B898</td>
<td>Petrochemical, Chemical, Vacuum Salt Production, Chlor-Alkali, Food Production, etc.</td>
</tr>
<tr>
<td>Ti/Stainless Steel Cladding</td>
<td>ASTM B265 Gr.1, Gr.2, Gr.9, Gr.12</td>
<td>ASTM A240-410S</td>
<td>(1<del>6)/(5</del>120)x≤2000x≤8000</td>
<td>ASTM B898</td>
<td>Petrochemical, Chlor-Alkali, Aerospace, Food production, Low-temperature application, Light Industry, Medical, etc.</td>
</tr>
<tr>
<td>Ti/Aluminum Cladding</td>
<td>ASTM B265 Gr.1, Gr.2, Gr.9, Gr.12</td>
<td>ASTM B209M-1060</td>
<td>(1<del>10)/(5</del>50)x≤2000x≤8000</td>
<td>ASTM B898</td>
<td>Aerospace, Kitchenware, Cooking Utensil, Chemical, Industrial, Special Brazing Metal, etc.</td>
</tr>
<tr>
<td>Ti/Cu Cladding</td>
<td>ASTM B265 Gr.1, Gr.2, Gr.9, Gr.12</td>
<td>ASTM B152M-C1100P, ASTM B171M-C71500</td>
<td>(1<del>10)/(5</del>50)x≤2000x≤8000</td>
<td>ASTM B898</td>
<td>Power sector, Electrolytic Industry, Cooking Utensil, Hydrometallurgy, etc.</td>
</tr>
<tr>
<td>Ti/Nickel Cladding</td>
<td>ASTM B265 Gr.1, Gr.2, Gr.9, Gr.12</td>
<td>ASTM B162-N02201</td>
<td>(1<del>10)/(5</del>50)x≤2000x≤8000</td>
<td>ASTM B898</td>
<td>Metallurgical Industry</td>
</tr>
</tbody>
</table>
Ingots can be supplied as the following grades or equivalent in accordance with ASTM, AMS, DMS, JIS specification:

- C.P.Ti
- Ti-6AL-4V
- Ti-6Al-4V ELI
- Ti-6242
- Ti-5Al-2.5Sn
- Ti-3Al-2.5V
- Ti-0.2Pd
- Ti-1023
- Ti-0.3Mo-0.8Ni

### Nominal Diameter and Weight:

<table>
<thead>
<tr>
<th>Ingot</th>
<th>Nominal Dia (mm)</th>
<th>290</th>
<th>400</th>
<th>500</th>
<th>600</th>
<th>700</th>
<th>800</th>
<th>900</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Weight(kg)</td>
<td>260</td>
<td>1000</td>
<td>2000</td>
<td>3000</td>
<td>4500</td>
<td>6000</td>
<td>8000</td>
<td>10000</td>
<td></td>
</tr>
</tbody>
</table>

**Cast Slab**

260x1050x5000 mm Max.

350x1300x5000 mm Max.
Sheets & Plates

Our sheets and plates have been widely used in aerospace and pressure vessel fabrication all over the world.

Sheets and plates can be supplied as the following grades or equivalent in accordance with ASTM, AMS, DMS, JIS specification:

- C.P.Ti
- Ti-6Al-4V
- Ti-6Al-4V ELI
- Ti-15333
- Ti-6242
- Ti-3Al-2.5V
- Ti-0.2Pd
- Ti-38644
- Ti-0.3Mo-0.8Ni

<table>
<thead>
<tr>
<th>Thickness (mm)</th>
<th>Width (mm)</th>
<th>Length (mm)</th>
<th>Delivery Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6~&lt;0.8</td>
<td>Max. 600, Ti-6Al-4V</td>
<td>Max. 2000</td>
<td>pickled</td>
</tr>
<tr>
<td></td>
<td>Max. 800, C.P. Ti</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.8~&lt;5.0</td>
<td>Max. 1000</td>
<td>Max. 3048</td>
<td>pickled</td>
</tr>
<tr>
<td>5.0~&lt;8.0</td>
<td>Max. 2000</td>
<td>Max. 4000</td>
<td>Sand-blasted</td>
</tr>
<tr>
<td>8.0~&lt;50.0</td>
<td>Max. 2500</td>
<td>Max. 5000, Ti-6Al-4V</td>
<td>Sand-blasted</td>
</tr>
<tr>
<td></td>
<td>Max. 7000, C.P.Ti</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Equipments for processing:

- Grinding Machine
- Water jet cutting machine
- 3.3 m four-high reversible hot rolling mill
- 1.2 m four-high reversible hot rolling mill
- 1.2 m four-cold reversible hot rolling mill
- Vacuum annealing furnaces
- Vacuum creep flattening furnaces
Coils/Strips

With the 20-high cold rolling mill, our manufacturer is capable of supplying Titanium strip/coils for PHE (Plate Frame Heat Exchanger), welded tube applications and wide range of other strip/coil applications.

Coils/straps can be supplied as the following grades or equivalent in accordance with ASTM, ASME and AMS specification:

- C.P.Ti (Gr.1, Gr.2, Gr.3, Gr.4)
- Ti-0.2Pd
- Etc.

Dimension

Thk (0.3~4.7mm) x W (≤1350 mm)
Seamless Tubes & Pipes

Material Standard and Grades:

Gr.1, Gr.2, Gr.3, Gr.9, Gr.11, Gr.12, Gr.16 and Gr.17 according to ASTM B337, ASME SB337, ASME SB338, ASTM B338, ASTM B861.

Cold-Drawn Tubes and Pipes Dimension:

<table>
<thead>
<tr>
<th>Outside Diameter:</th>
<th>10~114 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall-thickness:</td>
<td>0.5~5.5 mm</td>
</tr>
<tr>
<td>Length:</td>
<td>For O.D. 10~15 mm, Max. 4,000 mm</td>
</tr>
<tr>
<td></td>
<td>For O.D. above 15 mm, Max. 12,000 mm</td>
</tr>
<tr>
<td>Delivery condition:</td>
<td>Cold drawn and annealed in vacuum annealing furnace</td>
</tr>
</tbody>
</table>

Extruded tubes and pipes Dimension:

<table>
<thead>
<tr>
<th>Outside Diameter:</th>
<th>25~210 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall-thickness:</td>
<td>4~30 mm</td>
</tr>
<tr>
<td>Length:</td>
<td>1,000~10,000 mm</td>
</tr>
</tbody>
</table>
Billets & Bars

Material Standard and Designation

Billets & Bars can be supplied as the following grades or equivalent in accordance with ASTM, ASME, AMS and MIL specification:

- C.P.Ti
- Ti-6AL-4V
- Ti-6Al-4V ELI
- Ti-5Al-2.5Sn
- Ti-15333
- Ti-6242
- Ti-3Al-2.5V
- Ti-0.2Pd
- Ti-38644
- Ti-6Al-7Nb
- Ti-662
- Ti-1023
- Ti-4322

Dimensions

Diameter: 7~300 mm

Finish

- As forged
- Sand blasted
- Pickled
- Machined (Turned or center-less grinded)
Rods & Wires

Material Standard and Grades

Wires can be supplied as the following grades in accordance with AWS A5.16 specification:

- ERTi-1,
- ERTi-2,
- ERTi-3,
- ERTi-5,
- ERTi-5ELI,
- ERTi-7,
- ERTi-9,
- ERTi-9ELI,
- ERTi-11,
- ERTi-12,
- ERTi-16,
- ERTi-17,
- ERTi-23

Diameter

Diameter of wire in coil: 0.5–7.0 mm

Standard Size of Straight Rods

Diameter: 1.0–7.0 mm
Finish: Cold-drawn, un-annealed/annealed
Forging

Discs & Rings

Material Standard and Grades

Discs and rings can be supplied as the following grades or equivalent in accordance with ASTM, ASME, AMS and MIL specification:

- C.P.Ti
- Ti-6AL-4V
- Ti-6Al-4V ELI
- Ti-0.3Mo-0.8Ni
- Ti-15333
- Ti-6242
- Ti-3Al-2.5V
- Ti-0.2Pd
- Ti-38644

Forged Discs & Rings Dimension

<table>
<thead>
<tr>
<th></th>
<th>Maximum Diameter:</th>
<th>Minimum Thickness:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discs</td>
<td>1400 mm</td>
<td>40 mm</td>
</tr>
<tr>
<td>Rings</td>
<td>200~1300 mm</td>
<td>60~1300 mm</td>
</tr>
<tr>
<td></td>
<td>40~700 mm</td>
<td></td>
</tr>
</tbody>
</table>

Finish

As forged or machined

Rolled Rings

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Diameter:</td>
<td>400~3000 mm</td>
</tr>
<tr>
<td>Inside Diameter:</td>
<td>300~2940 mm</td>
</tr>
<tr>
<td>Height:</td>
<td>80~600 mm</td>
</tr>
</tbody>
</table>
Forging

Forged Slabs

Forged slabs can be supplied as the following grades or equivalent in accordance with ASTM, ASME, AMS, DMS, JIS specification:

- C.P.Ti
- Ti-6AL-4V
- Ti-6Al-4V ELI
- Ti-0.3Mo-0.8Ni
- Ti-15333
- Ti-6242
- Ti-3Al-2.5V
- Ti-0.2Pd
- Ti-38644

**Dimension (mm)**

(150~300) x 1300 (Max.) x 8000 (Max.)

**Finish:** 2 faces and 2 ends are machined
Precision Casting

Machined Graphite Mold Casting

This method can simplify molding and effectively control metallurgical quality. Thicker and larger size castings can be made precisely by this method.

Ceramic Mold Investment Casting

The investment casting has an alpha case of 0.2 mm thickness, enabling machining work easy and economical.

1. Precise shaping, reducing machining work, thus less total manufacturing cost.
2. Ensuring dimension and location precision.
3. Logo can be cast very clearly.
4. Parts with large size, complicated shape and thin wall can be produced.

With the application of Vacuum Furnace melting, many pumps, valves, impellers, artificial joints and other shapes can be casted. Customized castings are made in accordance with drawing. X-Ray inspection will be carried out for all castings to ensure the good quality.