威尔钛业
TI WIRE

宝鸡威尔钛业有限公司
BAOJI TITANIUM WIRE INDUSTRY CO., LTD.

TITANIUM/TITANIUM ALLOY FOR SURGICAL IMPLANT APPLICATIONS

TITANIUM / TITANIUM ALLOY

- WIRES
- BARS / RODS
- BILLETS
- TUBES / PIPES
- SHEETS / PLATES

FOR SURGICAL IMPLANT APPLICATIONS

Pure Titanium (Gr. 1, Gr. 2, Gr.3, Gr. 4) | Titanium-6Aluminum-4Vanadium ELI Alloy

ISO9001:2008 • ASTM F67 • ASTM F136

威尔钛业
TI WIRE

宝鸡威尔钛业有限公司
BAOJI TITANIUM WIRE INDUSTRY CO., LTD.

TITANIUM/TITANIUM ALLOY FOR SURGICAL IMPLANT APPLICATIONS

PRODUCT SPECIFICATIONS

Titanium is a strong, lightweight, silver-gray metal that is found fairly commonly in igneous rocks and geological deposits. Titanium has a number of impressive properties, including the ability to bind with human bone in a process called biointegration or osseointegration. Because of this, and the fact that the body will not reject it, this metal can be used for a number of medical and dental purposes. Hip and knee replacements, for example, often involve the use of a titanium implant.

The unique properties of titanium make it especially suited to medical applications. It is very strong for its weight, virtually nonmagnetic, and totally compatible with the human body. This is highly noteworthy, because metallic elements are not found in very many places in the human body. Where metals exist, they are almost always there as parts of other molecules and complexes rather than in elemental form. Such is the case with iron, which bonds with oxygen in the bloodstream.

About one million patients worldwide are treated every year for replacement of arthritic or damaged hips and knees. The range of available alloys of titanium allows the designers of implants to closely tailor the material for its desired application. A titanium implant of the correct alloy will not corrode once inside the body, as an implant of any other metal would. It is one of the few materials that naturally meet every requirement for implantation in the human body.

An additional advantage offered by titanium is that there are ways in which to treat the surface of a titanium implant so as to further encourage osseointegration. For example, giving the implant a roughened surface and treating it with a bioactive agent such as hydroxyapatite, will stimulate osseointegration and also increase the lifetime of the implant. This is of particular importance for younger patients, and also because older patients, as life expectancies increase.

The field of dentistry is increasingly finding use for titanium implants as well. A titanium implant for dental use will typically consist of a screw which resembles the root of a tooth and has either a smooth or roughened surface. The “root” is placed in the jawbone and the process of osseointegration is allowed to take place for several weeks or months. At the appropriate time, a dentist will then attach a crown to the root. Because the root is already integrated, the patient is then immediately able to use the new implant as if it were a natural tooth.

Leo Liu
leo@tiwire. com

Joanna Gong
joanna@tiwire. com

威尔钛业
TI WIRE

宝鸡威尔钛业有限公司
BAOJI TITANIUM WIRE INDUSTRY CO., LTD.

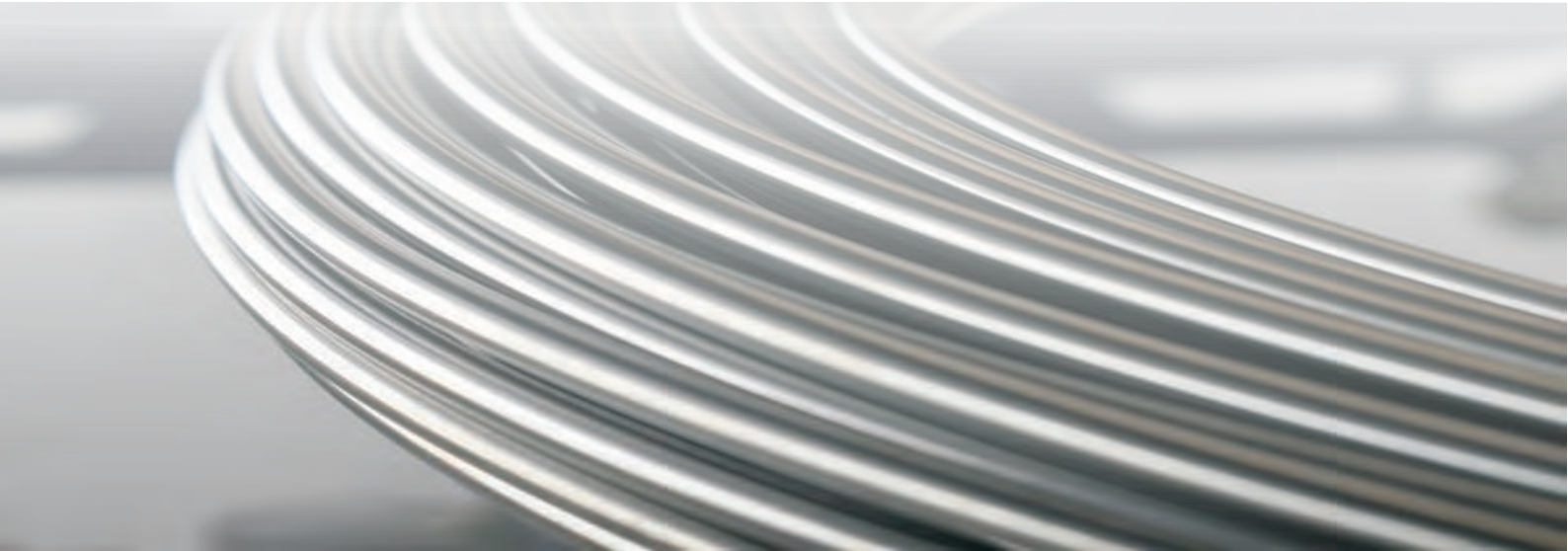
ASTM F67 Unalloyed Titanium, for Surgical Implant Applications (UNSR50250, UNS R50400, UNS R50550, UNS R50700)

Mechanical Property: Annealed-Bar, Billet, Forging, Wire

Grade	Tensile Strength, min		Yield Strength, 0.2 % Offset, min		Elongation in 4D, min, %	Reduction of Area, min, %
	ksi	MPa	ksi	MPa		
Gr. 1	35	240	25	170	24	30
Gr. 2	50	345	40	275	20	30
Gr. 3	65	450	55	380	18	30
Gr. 4	80	550	70	483	15	25

Chemical Composition

Element	Composition, % (mass/mass)			
	Grade 1 UNS R50250	Grade 2 UNS R50400	Grade 3 UNS R50550	Grade 4 UNS R50700
Nitrogen, max	0.03	0.03	0.05	0.05
Carbon, max	0.08	0.08	0.08	0.08
Hydrogen, max	0.015	0.015	0.015	0.015
Iron, max	0.2	0.3	0.3	0.5
Oxygen, max	0.18	0.25	0.35	0.4
Titanium	balance	balance	balance	balance



威尔钛业
TI WIRE

宝鸡威尔钛业有限公司
BAOJI TITANIUM WIRE INDUSTRY CO., LTD.

ASTM F136 Wrought Titanium-6Aluminum-4Vanadium ELI (Extra Low Interstitial) Alloy for Surgical Implant Applications (UNS R56401)

Annealed Mechanical Property:

Nominal Diameter or Distance Between Parallel Sides, in. (mm)	Tensile Strength min, psi (MPa)	Yield Strength (0.2 % offset) min, psi (MPa)	Elongation in 4D or 4W min,%		
			L	LT	ST
Under 0.187 (4.75) thickness or diameter	125 000 (860)	115 000 (795)	10	...	...
0.187 (4.75) to under 1.75 (44.45), incl	125 000 (860)	115 000 (795)	10	...	...
1.75 (44.45) to under 2.50 (63.50), incl	120 000 (825)	110 000 (760)	8	...	...
2.50 (63.50) to 4.00 (101.60), incl	120 000 (825)	110 000 (760)	8	8	8
	Bend Test		Reduction of Area min, %		
	Under 0.070 (1.778) in thickness	0.070 (1.778) to 0.187 (4.75), incl	L	LT	ST
Under 0.187 (4.75) thickness or diameter	9 T	10 T	...	...	...
0.187 (4.75) to under 1.75 (44.45), incl	...	...	25	...	...
1.75 (44.45) to under 2.50 (63.50), incl	...	...	20	...	...
2.50 (63.50) to 4.00 (101.60), incl	...	...	15	15	15

Chemical Composition

Element	Composition , %
Nitrogen, max	0.05
Carbon, max	0.08
Hydrogen, max	0.012
Iron, max	0.25
Oxygen, max	0.13
Aluminum	5.5–6.50
Vanadium	3.5–4.5
Titanium	balance

威尔钛业
TI WIRE

宝鸡威尔钛业有限公司
BAOJI TITANIUM WIRE INDUSTRY CO., LTD.

Capability

Annual Capability: 600 Metric Tons Wires & 600 Metric Tons Bars

Packing Methods

Bars/Rods: Standard export plywood case

Wire In Coil: Protected by foam paper+ plywood case.

Wire In spool: Carton box + plywood case.

Trade Terms

Delivery Time: 5-25 days

Shipping: By International Express(TNT, FEDEX, DHL, UPS, etc.),
By Air, By Sea

Trade Terms: FOB China, CIF, C&F

Payment Terms: T/T, L/C, PayPal, Western Union

威尔钛业
TI WIRE

宝鸡威尔钛业有限公司
BAOJI TITANIUM WIRE INDUSTRY CO., LTD.

PRODUCT RANGES	GRADES
Titanium Wires	Commercial PureTi
Titanium Welding Wires	Grade 5: Ti-6Al-4V
Titanium Bars/Rods	Grade 6: Ti-5Al-2.5Sn
Titanium Pipes/Tubes	Grade 7: Ti-0.2Pb
Titanium Sheets/Plates	Grade 9: Ti-3Al-2.5V
	Grade 12: Ti-0.3Mo-0.8Ni
	Grade 23: Ti-6Al-4V ELI

The King River Industrial Area
Meixian County, Baoji City
Shaanxi, P.R.China

T +86 29 6885 9920
Mr. Leo Liu
Ms. Joanna Gong

F +86 917 5721 555
Email: leo@tiwire.com
Email: joanna@tiwire.com