

# Goodfellow

Serving The Needs of Science and Industry Worldwide

Au service de la Science et de l'Industrie dans le monde entier

Weltweiter Lieferant für Wissenschaft und Industrie

Metals and Alloys  
Métaux et Alliages  
Metalle und Legierungen

Ceramics  
Céramiques  
Keramiken

Polymers  
Polymères  
Polymere

Composites  
Composites  
Verbundwerkstoffe



**Goodfellow Cambridge Limited**

Ermine Business Park  
HUNTINGDON  
PE29 6WR  
England

Tel: +44 1480 424 800  
or +44 1480 424 800  
Fax: +44 1480 424 900  
or +44 1480 424 900

**Goodfellow Corporation**

125 Hookstown Grade Road  
Coraopolis, PA 15108-9302  
USA

Tel: 1-800-821-2870 (USA and Canada)  
or +1 724 695 7060  
Fax: 1-800-283-2020 (USA and Canada)  
or +1 724 695 7063

**Goodfellow SARL**

229, rue Solférino  
F-59000 Lille  
France

Tel : 0800 917 241 (numéro vert)  
or +44 1480 424 813  
Fax : 0800 917 313 (numéro vert)  
or +44 1480 424 900

**Goodfellow GmbH**

Am Edelspfad 4  
D-61169 Friedberg  
Germany

Tel: 0800 1000 579 (freecall)  
or +44 1480 424 810  
Fax: 0800 1000 580 (freecall)  
or +44 1480 424 900

**Goodfellow (Shanghai) Trading Co., Ltd**

Room 803, Centro Build, No. 568 Hengfeng Road  
SHANGHAI  
200070

The People's Republic of China  
Tel: 00 86 21 6112 1560

# Standard Price List for Titanium

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## Introduction

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Goodfellow is well known as a specialist supplier of small to medium size quantities of metals, alloys, ceramics, polymers and other materials to meet the research, development and specialist production requirements of science and industry worldwide. We realise that "small" means different things to different people, but we consider small to mean any quantity from a few grammes to a few kilos.

Goodfellow offers two distinct services to meet the requirements of our customers:

- The first meets the needs of our customers who need small quantities of products from our standard range of materials within 24-48 hours.
- The second service is for those who require larger quantities or further processing of our standard products or who need an item which falls within our general area of supply expertise.

The range of materials offered by Goodfellow is extensive, as are the forms in which the various products are available. This Catalogue provides a detailed overview of our standard products which are available from stock. Full details of all of these items, including prices and technical information, can be found in our web Catalogue at [www.goodfellow.com](http://www.goodfellow.com).

### Materials

#### ***Metals and Alloys***

Goodfellow supplies virtually all of the pure metals from Aluminium to Zirconium as well as a comprehensive range of alloys. Most are available in a variety of forms, including rod, wire and foil. The Catalog details those materials which are available as standard products from stock. Custom-made items are also available, so please contact us if you are unable to identify the item you require.

#### ***Ceramics***

The ceramic materials offered by Goodfellow have been carefully chosen, and include both the established as well as more recently developed products. All are available as either standard or custom-made products in a variety of forms and sizes. The Catalog details those items which are

available from stock. For ceramic components made to customer drawings, our Ceramic and Glass Division would be delighted to help. Please visit [www.goodfellow-ceramics.com](http://www.goodfellow-ceramics.com) for further information.

#### ***Polymers***

The range of polymers supplied by Goodfellow is broad and includes both the familiar as well as some of the more unusual or recently developed materials. The Catalog details those items which are available from stock; please contact us if you are unable to find the item you specifically require.

#### ***Compounds & Intermetallics***

Goodfellow can supply aluminides, borides and silicides as well as other intermetallics and compounds. The majority of these items are made to order and the Catalog details those which are available. Please contact us with details of your requirements.

#### ***Composites***

Some examples of these materials are listed in the Catalog. As some of these are manufactured on a custom-made basis, please contact us with details of your requirements.

#### ***Glasses***

Goodfellow offers two distinct types of glass products. The first are generally silica-based and transparent. Generally, these products are made to order for customers, so we do not list them in our Catalog, however, they are available through the Goodfellow Ceramic and Glass Division. Please contact us with your requirements.

The second type of glass product is commonly referred to as "metallic glasses" or "glassy metals". In contrast to crystalline metals and alloys with highly ordered atomic structures, these are non-crystalline (amorphous) metals or, more usually, alloys. Our Catalogue details those glassy metals which are available from stock; please contact us if you are unable to find the item you specifically require.

**Product Descriptions**



**Bar**

A straight length of rectangular, square or oval section material.

**Tolerances**

Section dimensions:	≤ 10mm	± 10%
	> 10mm	± 1mm
Length:	< 100mm	± 1mm
	≥ 100mm	+ 5% / - 1%



**Bolt**

A threaded pin that can be screwed into a nut or a tapped hole to fasten items together. Bolts are available with different head styles and also in metric and inch-threaded sizes.

**Tolerances**

See item



**Chopped Fibre**

Fibres cut into short lengths called cut, staple or chopped fibre.

**Tolerances**

Fibre diameter:	± 25%
Number of strands:	± 10%
Tex number:	± 10%
Length:	+ 5% / - 1%



**Crucible**

A vessel in which other materials may be heated or melted, usually at high temperatures.

**Tolerances**

Height:	± 10%
Inside Dimensions:	± 10%
Outside Dimensions:	± 10%



**Fabric**

Woven fabrics are made by the regular interlacing of two arrays of yarns at right angles to each other, these being referred to as the warp and weft (see also Non-woven fabric).

**Tolerances**

Fabric thickness:	± 25%
Number of yarns:	± 10%
Tex number:	± 10%
Size (linear dimension):	< 100mm ± 5mm
	≥ 100mm ± 5%



**Fibre**

Yarns or tows consisting of several approximately parallel individual filaments, each filament usually being smaller in diameter than a monofilament. Yarns contain a defined number of filaments, typically three to several hundred; tows contain thousands of filaments whose number is only defined approximately. Both are primarily specified by their linear density measured in "tex", the weight in grams of a 1km length of material.

**Tolerances**

Fibre diameter:	± 25%
Number of strands:	± 10%
Tex number:	± 10%
Length:	+ 5% / - 1%



**Film**

A non-metallic sheet material with a thickness < 0.5mm.

**Tolerances**

Thickness:	± 20%
Size (linear dimension):	< 100mm ± 1mm
	≥ 100mm + 2% / - 1%



**Flake**

Flat, irregularly shaped pieces of material. A maximum flake size is indicated but individual flakes may vary greatly in size.

**Tolerances**

Dimensions shown are nominal

**Product Descriptions**



**Foam**

A low density, permeable structure of cells and continuous ligaments offering a high surface area to volume ratio, and also a high strength to weight ratio. Owing to the nature of this material, dimensions are nominal.



**Foil**

Thin sheets of pure metal and metal alloys. Due to their fragile nature, some foils are coated on one side with an acrylic or polyester support. Where foils are supported they are indicated in the detailed item description.

**Tolerances**

Thickness: < 0.010mm ± 25%  
 0.01-0.05mm ± 15%  
 > 0.050mm ± 10%  
 Size (linear dimension): < 100mm ± 1mm  
 ≥ 100mm + 2% / -1%



**Granule**

Pellets of an approximately regular shape. Granules may vary in size and, therefore, the dimensions stated are nominal. In addition, the shape of a granule may vary from item to item.

**Tolerances**

Dimensions shown are nominal



**Honeycomb**

A cellular structure similar in appearance to natural honeycomb. Owing to the nature of this material, dimensions are nominal.



**Insulated Wire**

A single or multiple flexible strand of metal or alloy with an insulating sheath.

**Tolerances**

Wire diameter: ± 10%  
 Length: + 5% / -1%  
 Insulation thickness: Nominal values only



**Laminate**

Layers of material which have been bonded together by the use of heat, pressure and, possibly, adhesive.

**Tolerances**

Thickness: ± 10%  
 Size (linear dimension): ≤ 100mm ± 1mm  
 > 100mm + 2% / -1%



**Lump**

A solid piece of material with no defined shape.

**Tolerances**

Dimensions shown are nominal



**Mesh**

Mesh is available as either a woven wire or electroformed product; in all cases, the quoted aperture sizes are nominal. Wire mesh: a material which is woven from metal wires to provide a thin grid with a regular series of holes. Electroformed mesh: a product made by electroplating the mesh geometry through a mask onto a substrate which is subsequently etched away.

**Tolerances**

Thickness: woven: ± 10%  
 electroformed: ± 20%  
 Wire diameter: ± 10%  
 Size (linear dimension): < 100mm ± 1mm  
 ≥ 100mm + 2% / -1%

**Product Descriptions**



**Metallised Film**

Film which is coated with a metal. The thickness of the metal is measured and described in terms of the material's specific electrical resistance in ohms per square.

**Tolerances**

Thickness:  $\pm 10\%$   
 Size (linear dimension):  $< 100\text{mm}$   $\pm 1\text{mm}$   
 $\geq 100\text{mm}$   $+2\% / -1\%$



**Microfoil**

An extremely thin sheet of metal or alloy mounted on a permanent support. This support **cannot** be removed without destroying the Microfoil.

**Tolerances**

Thickness:  $\pm 30\%$   
 Size:  $\pm 20\%$



**Microleaf**

An extremely thin sheet of metal mounted on a removable support. Microleaf is not available for metals which are too brittle to be free standing.

**Tolerances**

Thickness:  $\pm 30\%$   
 Size:  $\pm 20\%$



**Monofilament**

A single strand of a non-metallic material.

**Tolerances**

Diameter:  $\pm 20\%$   
 Length:  $+5\% / -1\%$



**Non-Woven Fabric**

Non-woven fabrics are made by methods other than weaving or knitting, the yarns and fibres being held together, often quite loosely, by means other than geometric interlacing. Due to the open and porous nature of this material, all other dimensions are nominal. conventional textile fabrics. Due to the open and porous nature of this material, all other dimensions are nominal.

**Tolerances**

Size (linear dimension):  $< 100\text{mm}$   $\pm 5\text{mm}$   
 $> 100\text{mm}$   $\pm 5\%$



**Nut**

Generally a flat piece of material with a threaded hole which can be screwed onto a bolt to fasten items together. Nuts typically have a hexagonal external shape. Nuts are available in metric and inch-threaded sizes.

**Tolerances**

See item



**Powder**

Small particles with an approximately defined size range. Those materials described as alloy precursors are not true alloys - they are made by sintering a blend of powders of the component metals to achieve alloying by diffusion. The resultant cake is ground and sieved to the required particle size range. Unless otherwise stated, the particle sizes shown are for guidance only. We do not guarantee either any particular size distribution between the quoted minimum and maximum sizes, or a specific particle shape.

**Tolerances**

Dimensions shown are nominal

**Product Descriptions**



**Rod**

A straight length of circular section material.

**Tolerances**

Diameter:	≤ 10mm	± 10%
	Polymer	+ 20%/-10%
	Ceramic	+ 20%/-10%
> 10mm	± 5%	
	Ceramic	+ 20%/-10%
	Polymer	+ 20%/-10%
Length:	< 100mm	± 1mm
	≥ 100mm	+ 5% / -1%



**Sheet**

Flat material with a thickness > 0.5mm.

**Tolerances**

Thickness:		± 10%
	Ceramic	± 20%
	Composite	± 20%
	Polymer	± 20%
Size (linear dimension):	< 100mm	± 1mm
	≥ 100mm	+ 2% / -1%



**Single Crystal**

A material grown as a monocrystal, generally to a specific orientation, dimension and surface finish. It may contain a dopant. Single crystals are usually made to order.

**Tolerances**

Orientation:	± 3°
Size:	Sizes shown are nominal



**Sphere**

A regular solid or hollow three-dimensional form in which every cross-section is a circle. Spheres are available with standard or precision tolerances, and can be supplied with different surface finishes depending on the material.

**Tolerances**

Diameter (standard):	± 5%
Diameter (precision):	see item



**Sputtering Target**

A high purity material used as a source for sputtering, a cold vapourisation process in which atoms are physically removed from the target surface by ion bombardment.

**Tolerances**

Thickness:	± 0.5mm
Size:	± 0.5mm



**Tube**

A hollow length of material normally circular in section. Most tubes are straight except those made of flexible polymer.

**Tolerances**

Outside diameter:	≤ 2mm	± 0.05mm
	Polymer	± 10%
	Ceramic	± 10%
≤ 5mm	± 0.1mm	
	Polymer	± 10%
	Ceramic	± 10%
> 5mm	± 5%	
	Polymer	± 10%
	Ceramic	± 10%
Wall thickness:	± 10%	
	Polymer	± 20%
	Ceramic	± 20%
Length:	< 100mm	± 1mm
	≥ 100mm	+ 5% / -1%



**Washer**

A thin, flat piece of material with a hole in the middle, used in conjunction with bolts and nuts to distribute the load of a threaded fastener.

**Tolerances**

See item



## Product Descriptions



### Wire

A single or multiple flexible strand of pure metal or alloy.

#### Tolerances

Wire diameter:  $\pm 10\%$   
Length:  $+5\% / -1\%$

## Hazards Information

### HAZARDS

All materials listed in this catalogue, whatever the quantity supplied, are sold for research or development purposes. We make no warranty that the materials are fit for a particular purpose. In purchasing materials from this catalogue, customers should be aware that there may be hazards associated with their use and in the handling of them. Complete toxicological or hazard investigations are the responsibility of the customer. Ingestion or contact with the human body may be harmful. The responsibility for the safe use of our products rests with the customer. All materials should be handled by qualified personnel familiar with laboratory procedures and who are familiar with the nature of the material and any necessary precautions which should be taken in the handling, use and storage of the products. The customer shall be responsible for the control and use of the products offered in this catalogue whether alone or in combination with other articles or substances or in any other manner whatsoever.

### HAZARD SYMBOLS



C

#### Corrosive

Chemicals which may destroy living tissue when in contact with them.



D

#### Dangerous when wet

Chemicals which, in contact with water or damp air, evolve highly flammable or toxic gases and vapours in dangerous quantities.



E

#### Explosive

Chemicals which may react exothermically without atmospheric oxygen, quickly evolving gases, and which under defined test conditions detonate, quickly deflagrate or upon heating explode when partially confined.



F+

#### Extremely Flammable

Chemicals which when finely divided (small particle size) are liable to ignite spontaneously.



Xn

#### Harmful

Chemicals which may cause death or acute or chronic damage to health when inhaled, ingested or absorbed via the skin.



F

#### Highly flammable

Chemicals which will ignite after contact with flame, or which will evolve highly flammable gases in contact with water.



Xi

#### Irritant

Non-corrosive chemicals which, through immediate, prolonged or repeated contact with the skin or mucous membrane may cause inflammation.



R

#### Radioactive

Chemicals which will emit ionising radiation without being subject to irradiation. General precautions for Toxic chemicals apply to those of low activity. For chemicals of medium or high activity special regulations apply.



T

#### Toxic

Chemicals which may cause death or acute or chronic damage to health when inhaled, ingested or absorbed via the skin.



T+

#### Very Toxic

Chemicals which in low quantities cause death or acute or chronic damage to health when inhaled, ingested or absorbed via the skin.

## General Information

### Analyses

#### Typical Analysis :

Where appropriate a typical analysis is given. All figures are parts per million (ppm) by weight unless otherwise stated. It must be emphasised that this data is "typical" and no guarantee is given that the material supplied will conform to these analyses. The compositions shown under alloy headings are generally weight percent. Exceptions are the glassy alloys and the rare earth magnets where the convention of using atomic ratio is followed.

#### Purity

Purities listed are quoted with respect to total metallic impurities. Typical analyses may give additional information about likely non-metallic impurities.

#### High Purity

For materials described as High Purity, the actual analysis of metallic impurities will be supplied free of charge. For other items, an actual analysis can be supplied and a charge will be made for the analysis and for the sample used.

If you require an analysis please tell us whether you require analysis of metallic impurities only or metallic and gaseous. Where an analysis is required the shipment of your order may be delayed.

### Supports

Some items from our range of foils need to be supported on one side of the foil to enable both you and us to handle these very delicate materials. Two types of support can be used, the choice being governed by the material. Wherever possible we use a temporary support, a permanent support only being used when the material is brittle (for example Chromium or Manganese).

The temporary support is Acrylic, approximately 0.2mm thick. This may be removed by dissolving in 2-Propanone (Acetone).

Our permanent support is Polyester, thickness 0.125mm, which is hot-press laminated to one face of the foil. It **cannot** be removed without destroying the foil.

Microfoil is mounted on a permanent 3.5µm polyester support. This support **cannot** be removed without destroying the Microfoil.

Microleaf is mounted on a specially treated support which allows separation of the metal film from the support. Full instructions on the method of removal are issued with each Microleaf supplied.

### Light Tight (LT) & Not Light Tested (NLT)

Light tight (LT) foils are supplied without visible pinholes after examination without magnification. Foils 0.025mm or more in thickness are supplied LT unless otherwise stated.

Foils less than 0.025mm thick are normally supplied Not-Light Tested (NLT), and will normally contain pinholes but may occasionally be free from pinholes. Foils less than 0.025mm in thickness can often be supplied LT but may incur additional charges. Please specify if you require LT foils

### Vacuum tight

Vacuum tight foils show no detectable leakage when tested with a helium mass spectrometer with a sensitivity of  $10^{-9}$  atm-cm<sup>3</sup>.s<sup>-1</sup>.

### Continuous Lengths

If you require material in continuous lengths please tell us when you place your order. Unless otherwise specified, we reserve the right to supply in more than one length.

### Technical Data and Information

All information and technical data are given as a guide only. Although every effort has been made to ensure that the information is correct, no warranty is given as to its completeness or accuracy.

### Tolerances

For details of our standard tolerances, please refer to the Product Description section. In many cases, closer tolerances are available but may be subject to an extra charge. If you have any special requirements it is important that you tell us at the time of ordering. This includes special tolerances, dimensional uniformity or any other special requirement which you may have (for example edge finish, packaging, labelling etc.). Please indicate precisely what is required and we shall do our best to meet your specification.

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## Order information

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### General Information

There are over 70,000 stock packs listed and if you cannot find what you need amongst them, please ask for special sizes, thicknesses, tolerances, dimensions or larger quantities. We are also able to offer many other pure metals, alloys, polymers and ceramics to special order.

### Prices

All the prices listed are total (lot) prices for the sizes and quantities listed. Prices are subject to change without notice.

Prices shown include delivery except for those items marked as "special offer" or dangerous goods with transport restriction. They do not include value added tax, any import duties or local taxes.

### Transport Restriction

Some of the materials supplied by Goodfellow are subject to special transport restrictions. Additional shipment charges may apply which are dependent on destination. Please check the individual item on our website or contact us for details of the charges.

If you intend to have the material transported or sent onwards please ensure that you are aware of the relevant transport restrictions.

### Delivery

#### Split shipment

All orders are accepted for one shipment on one date to one address. A charge will be made for split shipments made at the customer's request.

#### Special Analysis, Supports or Tolerances

An extra charge is made for non-standard supports, alternative tolerances and certificates of analysis. The analysis is free of charge for items marked "High Purity".

#### Cancellations

A charge for cancellation of orders may be made. The amount will depend on the circumstances.

#### Express Service

An administration charge of £10 will be made for any order received for which same day shipment within the UK is requested.

### Shipment

We aim to have all items listed in this catalogue in stock in the quantities and sizes listed. We can only undertake to despatch an order on a particular date. The date of delivery at the customer's address is subject to the normal variations of the delivery service used.

### Despatch

Orders will normally be despatched within 48 hours of receipt.

### Non delivery

If we have notified you of despatch of goods and you have not received delivery within 7 days, please contact us.

### Insurance

All consignments will be insured by us against the usual risks unless we are instructed in writing to the contrary.

### Export Restrictions

A UK Government export licence may be required for some items to some destinations. If the item you require needs a special export licence or an end-use statement we will inform you at the time you order.

### Materials Handling

Many of our materials are extremely delicate and it is essential every care is taken when handling them. Special attention is drawn to the extreme fragility of Microfoil, Microleaf and thinner and finer materials.

All materials are carefully packed to ensure safe transport of goods to your address. We do not accept responsibility for damage caused by mishandling once the outer transit packaging has been removed.

### Terms of payment

Our normal terms of payment are net 30 days from date of invoice. Any alternative terms of payment are to be agreed with us in writing at the time of placing an order. Customers may be asked to pay cash with order or cash against pro-forma invoice with their first order. In order to establish a credit account we will require details of your bankers, along with two trade references.

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## Order information

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### Credit account

We endeavour to keep our costs down and customers are requested to pay our invoices on time. We reserve the right to delay delivery if there are overdue invoices on the account. Accounts which remain unpaid beyond the due date may incur an interest charge at a rate of 2% per month.

### Credit card payments

We also accept payment using the following credit and charge cards:

Mastercard, VISA, American Express, DELTA and Switch.

### VAT

VAT number: GB 212 8527 79

### UK

VAT will be added to the invoice at the rate ruling at the date of invoice. Where a customer is exempt, VAT will be charged unless we receive a copy of the exemption form at the time the order is placed.

### EU

Customers registered for VAT who provide their local registration number will not be charged UK VAT.

Customers who are exempt from VAT will not be charged UK VAT provided we are given a copy of their exemption form at the time the goods are ordered.

Customers not registered for VAT or who fail to give us their registration number will be charged UK VAT at the current rate.

### Export

All exports to countries outside the EU are zero-rated for UK VAT unless the invoice is being paid from within the EU.

### Return of goods

We will only accept return of goods provided we are contacted BEFORE the goods are returned. When we agree to the return we will issue a Goods Return Number and give instructions for the method of return of the goods. Goods will not be accepted for return without a valid Goods Return Number. Due to the nature of some of our materials, it is imperative that you check any possible transport restrictions with your proposed freight company.

### Claims

Great care is taken during manufacture and packing and all items are carefully inspected before shipment. Any claim in respect of short delivery, incorrect material or defective quality must be notified to us in writing within three days of delivery. Please retain ALL packaging for our inspection. Our liability for any such claim shall not exceed the cost of replacement of the goods free of charge, or crediting the customer with the invoice value thereof.

### Goods ordered in error

We do not accept responsibility for customers' errors in ordering. The amount of credit for returned goods will be at our discretion. Where we accept returned goods a restocking charge will be made.

### Conditions of sale

All orders, contracts and quotations are subject to our standard terms and conditions of sale.

Information and statements provided are indicative only and do not form part of any offer or contract.

### Exclusions

We supply materials according to our specification. All conditions warranties and representations regarding the quality, fitness for purpose or state, size, shape, capacity or colour of goods supplied whether expressed or implied by common law or statute or otherwise are hereby expressly excluded. We shall not be liable for any damage direct or consequential arising from the use of goods supplied by us however such damage is caused, nor for delay in delivery.

### Law

Customers in the USA: Contracts between Goodfellow Corporation and the customer shall be deemed to be subject in all respects to the laws of the Commonwealth of Pennsylvania, or the United States of America.

Customers in France: Contracts between Goodfellow SARL and the customer shall be deemed to be subject in all respects to French law unless otherwise agreed in writing

Customers in Germany: Contracts between Goodfellow GmbH and the customer shall be deemed to be subject in all respects to German law unless otherwise agreed in writing

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## Order information

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Customers in the UK and all other countries: Contracts between Goodfellow Cambridge Limited and the customer shall be deemed to be subject in all respects to English law unless otherwise agreed in writing.

Copies of our General Terms and Conditions are available upon request or can be downloaded from our websites at [www.goodfellow.com](http://www.goodfellow.com) or [www.goodfellowusa.com](http://www.goodfellowusa.com).

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## Company Details

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### Company Structure

The Goodfellow Group consists of five companies:

#### ***Goodfellow Cambridge Limited***

Goodfellow was established in the City of London in 1946. The Company now has subsidiary operations in France, Germany and North America with the Group's research laboratories, workshop facilities & central administration located in Huntingdon, England.

#### ***Goodfellow Corporation***

Established at the same time as our associate company in Germany, Goodfellow Corporation was set up to service the requirements of our customers in the USA.

#### ***Goodfellow GmbH***

Since 1989, this member of the Goodfellow group of companies has been serving the needs of our German speaking customers within Europe.

#### ***Goodfellow SARL***

Goodfellow established an operation in France in 1993 to meet the needs of our French-speaking customers in Europe.

#### ***Goodfellow (Shanghai) Trading Co., Ltd***

Goodfellow established a representative office in Shanghai in 2006, and in 2012 followed this with the creation of a fully-fledged trading company, servicing the research and specialist manufacturing requirements of the Chinese market.

### COMPANY DETAILS

#### **Goodfellow Cambridge Limited**

Ermine Business Park  
HUNTINGDON  
PE29 6WR  
England  
Registered in England and Wales no. 1188162  
VAT registration GB 212 8527 79

#### **Goodfellow Corporation**

125 Hookstown Grade Road  
Coraopolis, PA 15108-9302  
USA  
A Pennsylvania corporation  
EIN 23-2557381

#### **Goodfellow SARL**

229, rue Solférino  
F-59000 Lille  
France  
Registered in Lille : RCS : B 381 486 836  
Siren : 381486836  
Numéro de TVA Intracommunitaire :  
FR 06 381 486 836

#### **Goodfellow GmbH**

Am Edelspfad 4  
D-61169 Friedberg  
Germany  
Registered in Friedberg (Hessen) No. HRB 1309  
Import VAT number DE112610478

#### **Goodfellow (Shanghai) Trading Co., Ltd**

Room 803, Centro Build, No. 568 Hengfeng Road  
SHANGHAI  
200070  
The People's Republic of China

# Conditions of Sale

## 1 GENERAL

### 1.1 In these Conditions:

#### 1.1.1 the following expressions shall have the following meanings:-

- "Buyer" the individual firm company or other party from whom an order to supply Goods and/or Services is received by the Seller;
- "Conditions" the standard terms and conditions of sale of the Seller as set out herein and includes any additional terms and conditions of sale agreed in writing by the Seller;
- "Contract" a contract for the Supply of Goods and/or Services by the Seller to the Buyer;
- "Date of Delivery" the date on which delivery of the Goods or Services takes place pursuant to Condition 7;
- "Goods" the goods which the Seller is to supply (or, in relation to Condition 11, the goods in respect of which the Seller is to provide Services) under the Contract and includes any of them or any part of them and where the context so admits includes raw materials, processed materials and/or manufactured products whether processed or manufactured by the Seller or not;
- "Prepayment" a payment to be made by the Buyer pursuant to Condition 6.2 to be used at the Seller's discretion for the purchase of materials and/or towards the costs of labour and other costs relating to the supply of Goods;
- "Recommendations for Use" the recommendations (if any) relating to the storage, handling, application and/or use of the Goods contained in the published literature of the Seller (or, if relevant, a Supplier) or any recommendations made in Writing by an authorised representative of the Seller (or, if relevant, a Supplier);
- "Seller" Goodfellow Cambridge Limited and any subsidiary or holding company or associate (as such terms are defined in the Companies Act 1985 (as amended)) of the said company;
- "Services" the work or services or any of them to be provided by the Seller under the Contract;
- "Supplier" any person, firm or company who or which supplies materials to the Seller which make up the Goods which are to be supplied to the Buyer;

#### 1.1.2 words importing the singular number shall include the plural and vice versa, words importing one gender shall include all genders, and words importing persons shall include bodies corporate, unincorporated associations and partnerships

- 1.2 If satisfactory references and information on the Buyer are not provided within seven days of a request therefore by the Seller, or if, following the provision of such information, the Seller is unable to obtain satisfactory trade indemnity or similar cover in respect of its dealings with the Buyer, the Seller may terminate the Contract and the rights and liabilities of the parties shall be the same as if the Contract had been cancelled in accordance with the provisions of Condition 10.2
- 1.3 The seller reserves the right to assign, sub-contract the Contract or any part thereof. The Buyer shall not be entitled to assign the benefit or burden of the Contract without the consent in writing of the Seller
- 1.4 In relation to all obligations of the Buyer under these Conditions, the time of performance is of the essence
- 1.5 The legal construction of these Conditions shall not be effected by their headings which are for convenience of reference only

## 2 ORDERS

- 2.1 Notwithstanding that the Seller may have given a detailed quotation or estimate either verbally or in writing no order shall be binding on the Seller unless and until it has been acknowledged in writing by the Seller or the Goods are delivered or the Services are provided by the Seller to the Buyer pursuant to the order
- 2.2 In order to avoid duplication of orders the Buyer shall be responsible for ensuring that any confirmation of an order previously placed is prominently marked as being a confirmation and not a new order. The Buyer acknowledges that any order or confirmation of order which is not so marked may be treated and accepted by the Seller as a new order to create a Contract in addition to any Contract arising out of the previously placed order
- 2.3 These Conditions are incorporated in the Contract and together with any matter set out in the Seller's quotation or acceptance/acknowledgement of order contain the entire obligations between the Seller and the Buyer. In the case of any inconsistency between any letter or quotation incorporating or referring to these Conditions and any order, letter or form of contract sent by the Buyer to the Seller, whatever may be their respective dates, the provisions of these Conditions shall prevail. In the event of the Seller entering into the Contract without the Seller having submitted a written quotation or other letter or document incorporating or referring to these Conditions but in circumstances where the Buyer has had prior notice of these Conditions then all Goods or Services supplied shall be subject to these Conditions
- 2.4 No variation of the Contract by the Buyer shall be binding upon the Seller unless made in Writing and signed on behalf of the Seller. In the event of such variation the Buyer shall indemnify and keep indemnified the Seller in full against all loss, which term shall include (but without prejudice to the generality thereof) loss of profit, costs (including the cost of labour and materials), damages, charges and expenses incurred (directly or indirectly) by the Seller as a result of such variation

- 2.5 Any representations (except fraudulent misrepresentations) or warranties made by or on behalf of the Seller prior to the Contract (whether verbally or in writing) are hereby expressly excluded and shall be of no effect

## 3 DESCRIPTION

- 3.1 Any figures, statements, descriptions, illustrations, photographs, drawings, weights or any other matters contained in the Seller's catalogues, pamphlets, price lists or advertising literature are not guaranteed to be accurate and are intended merely to represent a general picture of the Seller's products and shall not form part of the Contract nor be regarded as a warranty or representation relating to the Goods or Services
- 3.2 The Seller reserves the right to amend the specification of its products and services from time to time so that the descriptions thereof as set out in its catalogues, pamphlets, price lists or advertising literature may not be identical with those set out in the Seller's quotation and the Buyer is advised to check the specification set out in the Seller's quotation before placing an order

## 4 SPECIFICATIONS AND INTELLECTUAL PROPERTY

- 4.1 Where goods are supplied to the Buyer's own specification, or where standard goods of the Seller are altered in accordance with the Buyer's instructions the Buyer warrants and undertakes full responsibility for the suitability and fitness of the specification, pattern or design but also that such specification, pattern or design does not infringe any patent, trade mark, registered design, copyright or any other proprietary right of any third party and the Buyer shall indemnify and keep the Seller indemnified in full against any loss, damage or expense whatsoever (including costs) which the Seller may incur in or arising from the performance of the Contract by reason of any infringement of any such patent, trade mark, registered design, copyright or any other proprietary right
- 4.2 The Seller reserves the right to change the Buyer's specification as required to ensure that the Goods comply with any health, safety or other statutory requirement or provision and no such change by the Seller will constitute a breach of contract or impose upon the Seller any liability whatsoever
- 4.3 Unless otherwise agreed in writing, the Seller will be the sole owner of all inventions, formulations, tools, patterns, designs or other similar items and the copyright in all documents and drawings made or produced by it in preparing a quotation for the Buyer or in the course of work on any Contract with the Buyer

## 5 QUOTATIONS

- 5.1 The Seller's quotations are provisional in so far as they are subject to alteration by reference to any changes in the price of raw materials, any item to be acquired by the Seller from a third party, rates of wages, other costs of production and any other circumstances beyond the Seller's control taking place between the date of the quotation and the Buyer's placing of an order in respect thereof

## 6 PRICE

- 6.1 The Seller shall be entitled to adjust the Contract price of the Goods or Services whether before or after the making of the Contract in the event of any variation in the cost to the Seller of supplying the same or any part thereof caused by:-
- 6.1.1 any increase in the cost of materials required by the Seller for the completion of the Contract; or
- 6.1.2 any increase in wages or production and manufacturing costs or other overheads; or
- 6.1.3 any other reason whatsoever beyond the control of the Seller including (but without prejudice to the generality of the foregoing) fluctuations in exchange rates between monetary currencies the action of any government or any other authority or any labour problems
- 6.2 In the Seller's absolute discretion, a Prepayment in respect of the Contract may be required to be paid by the Buyer to the Seller on the terms set out in this Condition. The Prepayment shall be applied as follows:-
- 6.2.1 in the event that the Contract is performed in full by both parties the Prepayment shall be retained by the Seller in reduction of the total price payable by the Buyer under the Contract;
- 6.2.2 in the event that the Buyer is either in default of any of its obligations under the Contract or cancels or suspends the Contract in accordance with Condition 10 the Prepayment shall be set off by the Seller against its proper costs losses or damages arising in connection with the default and/or cancellation or suspension
- 6.3 Unless otherwise stated, the price set out in the Seller's quotation includes the cost of packaging, carriage, and (save as provided in Condition 6.4) insurance. In respect of supplies of Goods in the United States of America, Canada and Japan the price also includes import duties and sales taxes (if any). In respect of supplies of Goods in other countries the price does not include import duties or VAT or sales taxes which will be extra charges based on prevailing rates
- 6.4 Where the Buyer requests a particular means of delivery, the price set out in the Seller's quotation does not include insurance, which is to be arranged at the responsibility of the Buyer.

## 7 DELIVERY

- 7.1 Delivery of Goods shall be deemed to be effected by the Seller at the following times:-
- 7.1.1 where Goods are collected by or on behalf of the Buyer by its servants or agents, or where Goods are collected in



## Conditions of Sale

- accordance with a means of delivery specifically requested by the Buyer, when the same are collected;
- 7.1.2 where delivery of the Goods is to be the responsibility of the Seller, when they arrive prior to unloading at the Buyer's premises;
- 7.1.3 where Goods are sold FOB or CIF, when they pass the ship's rail or are loaded onto the aircraft
- 7.2 Delivery of Services shall be deemed to be effected by the Seller at the time of completion by the Seller of the Services
- 7.3 Whilst the Seller will make every reasonable effort to complete the Contract by the date or dates therein specified for delivery of Goods or provision of Services such date or dates shall only constitute the times by which the Seller expects to effect such delivery and if no time is agreed delivery will be within a reasonable time but the performance of the Contract by the Seller shall not be the essence of the Contract, the Seller's failure to so deliver by the due date or dates shall not constitute a breach of Contract and the Seller shall not in any circumstances be responsible for any direct or consequential loss or damage of any kind whatsoever resulting therefrom. The Seller may wholly or partly suspend deliveries of Goods or provision of Services and the Buyer shall accept late delivery of such Goods or Services unless the Buyer has cancelled the Contract in accordance with the provisions of Condition 10.3

### 8 QUANTITIES INSTALMENTS AND STORAGE

- 8.1 Where Goods are delivered or Services are by instalment each instalment shall be deemed to be sold under a separate Contract and the party in default in respect of any instalment shall be liable accordingly, but no default in respect of any one instalment shall effect due performance of the Contract as regards other instalments
- 8.2 The Seller will endeavour to deliver the quantity of Goods ordered and every delivery shall be deemed to comply with the order. If there is a surplus or shortage of Goods which is no more than 10% of the quantity specified in the order the Buyer shall be deemed to have accepted the Goods and shall pay for the actual quantity delivered
- 8.3 If Goods or Services are to be delivered by instalments, the Seller shall be entitled to invoice each instalment as and when delivery is made and payment for all delivered instalments shall be due notwithstanding the non-delivery of other instalments or other default by the Seller. Failure by the Buyer to make payment by the due date for any one instalment for whatever reason shall entitle the Seller to suspend deliveries of Goods or provision of Services under the Contract but without prejudice to any other right the Seller may have under any of the other provisions of these Conditions
- 8.4 Notwithstanding that risk shall have passed to the Buyer pursuant to Condition 15 the Seller may in its absolute discretion arrange for storage of the Goods either at the request of the Buyer or as a result of the failure by the Buyer to take delivery of the Goods under Condition 7. The Seller may insure the goods whilst in storage and the Buyer shall indemnify and keep indemnified the Seller in full against all costs, losses, damages and expenses whatsoever arising in connection with the storage provided for hereunder and such costs, losses, damages and expenses will be added to and form part of the price of the Goods
- 8.5 Unless otherwise agreed between the Buyer and the Seller, the Seller shall be entitled in its absolute discretion and without giving prior notice to the Buyer at the expiration of 3 months to sell or otherwise dispose of Goods kept in storage as provided in Condition 8.4

### 9 TERMS OF PAYMENT

- 9.1 Unless otherwise agreed the price shall be due and payable at the Seller's offices 30 days after the date of the Seller's invoice
- 9.2 If the Buyer does not pay the whole or any part of the price on the required day then the Buyer shall pay to the Seller on request interest on the amount outstanding from the required day until the actual date of payment at the rate of 2% p.a. over the base rate of Barclays Bank plc from time to time in force which shall accrue on a daily basis
- 9.3 Condition 12 shall apply in the event of any alleged defect or failure in or of the Goods or Services and the Buyer shall not delay or refuse to make payment in any such event
- 9.4 The Buyer shall not be entitled to withhold payment of any amount due to the Seller by reason of any disputed claim by the Buyer in connection with the Contract nor shall the Buyer be entitled to set off against any amount payable under the Contract to the Seller any amount which is not then due and payable by the Seller or for which the Seller disputes liability
- 9.5 All payments payable to the Seller under the Contract shall become due immediately upon termination of the Contract despite any other provision.

### 10 SUSPENSION AND CANCELLATION

- 10.1 If the Buyer shall commit any breach of the Contract and fail to remedy the same within 7 days of receiving the Seller's request in writing so to do or any distress or execution is levied upon any goods or property of the Buyer or the Buyer makes any voluntary arrangement with its creditors or becomes subject to an administration order or (being an individual or firm) becomes bankrupt or (being an incorporated company) passes a resolution for winding up (otherwise than for the purpose of amalgamation or reconstruction), or a Court makes an order to that effect, or an encumbrancer takes possession, or an administrative receiver or receiver is appointed, of any of the property or assets of the Buyer, or the Buyer ceases, or threatens to cease, to carry on business or is unable to pay its debts within the meaning of section 123 Insolvency Act, 1986, or the Seller reasonably apprehends that any of the events mentioned above is about to occur in relation to the Buyer and notifies the Buyer accordingly, the Seller may:-
- 10.1.1 stop any Goods in transit and suspend any further deliveries;

and/or

- 10.1.2 suspend work on the Contract; and/or
- 10.1.3 determine the Contract forthwith and if the Goods or Services, or any part of them have been delivered but not paid for, the price shall become immediately due and payable notwithstanding any previous agreement to the contrary but without prejudice to the Seller's right to any unpaid price for Goods or Services delivered under the Contract and to damages for loss (both direct and consequential) suffered in consequence of such determination
- 10.2 If the Buyer requires cancellation of the Contract this will only be accepted at the sole discretion of the Seller and unless otherwise agreed in writing only upon condition that any costs, charges or expenses (both direct and consequential) incurred by the Seller up to the date of cancellation and the value of all loss or damage (both direct and consequential) incurred by the Seller by reason of such cancellation will be reimbursed by the Buyer to the Seller forthwith. Acceptance by the Seller of any cancellation by the Buyer will only be binding upon the Seller if it is made in writing
- 10.3 In the event of the Seller other than in any of the circumstances set out in Condition 10.1 being prevented or hindered from completing the Contract either wholly or in part in accordance with the terms thereof for any reason whatsoever beyond its reasonable control which, for the avoidance of doubt and without prejudice to the generality of the foregoing, shall include governmental action, war, riot, civil commotion, fire, flood, epidemic, labour disputes (including labour disputes involving the work force or any part thereof of the Seller or Supplier), restraints or delays affecting shipping or carriers, licensing, exporting or importing restrictions, currency restrictions and Acts of God then further performance of the Contract shall be suspended for the period during which the Seller is so prevented provided that in the event of the Contract being suspended for a continuous period of more than 3 months then either party may give the other notice in writing to terminate the Contract forthwith and in such circumstances the Buyer shall pay for all Goods or Services supplied to the date of such termination such payment to be made on or before the last day following the month during which termination was effected. The Seller shall be under no liability whatsoever to the Buyer for any direct or consequential loss or damage suffered by the Buyer as a result of the Seller's inability to perform its obligations under the Contract in these circumstances
- 10.4 The Seller's rights contained in Condition 17 (but not the Buyer's rights) shall continue beyond the discharge of the parties' primary obligations under the Contract consequent upon its termination
- 10.5 The termination of the Contract for whatever reason will be without prejudice to the rights and duties of either party accrued prior to termination

### 11 INSPECTION AND CLAIMS FOR DEFECTS

- 11.1 The Goods are of a highly specialised nature and must be treated with the utmost care. It is essential that the Buyer checks that they correspond in all respects with the Buyer's requirements. Any discrepancies should be notified to the Seller immediately. The Buyer undertakes to ensure that all Goods are unpacked and handled only by persons qualified to deal with such specialised products, to safeguard against injury to the Goods or to the Buyer's personnel
- 11.2 The Buyer shall inspect the Goods and carry out tests to ensure the Goods conform with the description of the Goods or Services in the Buyer's orders within 7 days of Delivery and whether or not the Buyer carries out such obligation to inspect and test no claims for non-delivery, shortages in quantity of units delivered, defective Goods or Services, non-conformity to description or partial loss or damage to Goods will be accepted by the Seller unless:-
- 11.2.1 they are notified in writing by the Buyer to the Seller within 10 days after the Date of Delivery (in the case of partial loss, damage, non-conforming or defective Goods or Services) or 14 days after the date of the invoice (in the case of non-delivery);
- 11.2.2 the Goods in respect of which a claim is made together with all the relevant packing are preserved intact as received for a period of 35 days from notification of any such claim and the Buyer permits the Seller or its servants or agents full and free right of access to inspect the Goods and investigate the claim; and
- 11.2.3 if the Buyer fails to give the appropriate notice as specified in Condition 11.2.1, the Buyer's claim will be deemed to have been waived and will be absolutely barred
- 11.3 It is in all cases the responsibility of the Buyer to ensure by testing or otherwise that the Goods are fit and suitable for the purposes for which the Buyer requires them in the conditions in which they will be used. The Buyer acknowledges that the Seller shall be under no liability of any description to the Buyer if the Goods prove to be unsuitable for whatever reason for application or use notwithstanding that the Seller may, at the request of the Buyer, have given in good faith technical or other advice in relation to the proposed application or use of the Goods and the Buyer shall indemnify and keep indemnified the Seller in full against any and all liability of any kind arising out of or connected with the application or use of the Goods
- 11.4 Section 3 Sale and Supply of Goods Act 1994 shall not apply
- 11.5 The Seller will not accept the return of Goods in any circumstances unless it has first issued a Goods return number and such number is quoted with the returned Goods

### 12 WARRANTY

- 12.1 In substitution for all and any other rights which the Buyer might or would have had but for these Conditions and subject to Condition 11,

## Conditions of Sale

the Seller shall make good by replacement any failure in the Goods or Services which results from defects in the Seller's materials or workmanship and which appear not later than 2 months after the Date of Delivery and shall replace any Goods or Services which do not conform with the description in the Buyer's order

- 12.2 Notwithstanding the provisions of Condition 12.1, in the case of a claim falling within Condition 12.1, the Seller reserves the right at its sole discretion to credit the Buyer in full the price paid by the Buyer to the Seller
- 12.3 The Seller's liability under this Condition shall automatically cease if:
- 12.3.1 the Buyer has not paid for all Goods or Services supplied under any Contract by the due date or is otherwise in breach of this or any other Contract made with the Seller; or
- 12.3.2 the Seller or its servants or agents are denied full and free right of access to the allegedly defective Goods; or
- 12.3.3 the Buyer has not properly maintained the Goods or has not complied with any Recommendations for Use; or
- 12.3.4 the defect or failure is caused by a breach by the Buyer of its undertakings and warranties contained in Condition 17; or
- 12.3.5 the Buyer has failed to notify the Seller in writing of any defect or suspected defect within 14 days of the same coming to the knowledge of the Buyer
- 12.4 The warranty set out in Condition 12.1 shall be in lieu of any warranties conditions or undertakings whether express or implied by statute, common law or otherwise howsoever which warranties, conditions and undertakings are hereby expressly excluded, except that such exclusions will not apply to any implied condition that the Seller has or will have the right to sell the Goods when the property is to pass
- 12.5 Nothing in these Conditions excludes or limits the liability of the Seller for death or personal injury caused by the Seller's negligence or fraudulent misrepresentation
- 12.6 SUBJECT TO CONDITIONS 12.4 AND 12.5
- 12.6.1 the seller's total liability in contract, tort (including negligence or breach of statutory duty), misrepresentation or otherwise, arising in connection with the performance or contemplated performance of the contract shall be limited to the price paid for the goods or services under the contract; and
- 12.6.2 the seller shall not be liable to the buyer for any indirect or consequential loss or damage (whether for loss of profit, loss of business, depletion of goodwill or otherwise), costs, expenses or other claims for consequential compensation whatsoever (however caused) which arise out of or in connection with the contract

### 13 CONSUMER SALES

- 13.1 Where the Goods are sold under a consumer sale (as defined by the Sale of Goods Act 1979) the statutory rights of the Buyer are not affected by these conditions

### 14 TITLE TO GOODS

- 14.1 Full legal and beneficial ownership of the Goods shall be retained by the Seller notwithstanding that the risk in the same shall pass to the Buyer at the time of delivery until the Seller has received payment in full in respect of
- 14.1.1 The Goods; and
- 14.1.2 All other sums which become due and owing by the Buyer to the Seller on any account whatsoever
- 14.2 Until ownership of the Goods has passed to the Buyer the Buyer shall hold the Goods in a fiduciary capacity and as bailee of the Seller and shall at all times take proper care of the same and will not obliterate or obscure any identifying mark or their packaging and will keep the Goods separate from any other goods and in such manner that they may be clearly identified as belonging to the Seller and the Buyer hereby grants to the Seller the right to enter on the Buyer's premises at any time during the continuation of the Contract to check that the Buyer is complying with the obligation contained in this Condition. The Buyer will return the Goods to the Seller if it receives a request whether verbally or in Writing so to do prior to payment in full as aforesaid having been made and the Seller will then repay any part of the purchase price it has already received in respect of the Goods less a reasonable amount in respect of its costs and expenses in connection with the Contract
- 14.3 For the purposes of Condition 14.1, the expression "the Buyer" includes any subsidiary or holding company or associate of the Buyer (as such terms are defined in the Companies Act 1985 (as amended))
- 14.4 The Seller will have the right to maintain an action against the Buyer for the price of the Goods notwithstanding that property in the Goods has not been passed

### 15 RISK AND INSURANCE

- 15.1 The risk in the Goods shall pass to the Buyer at the time of delivery as provided for in Condition 7
- 15.2 Notwithstanding the reservation of title contained in Condition 14, the Buyer shall insure the Goods and/or any products made wholly or partly therefrom for the full amount of the price payable under the Contract with an insurance office of repute from the time of delivery of the Goods until the date title in the Goods passes to the Buyer pursuant to Condition 14.1

### 16 EXPORT TERMS

- 16.1 In these Conditions "Incoterms" means the international rules for the interpretation of trade terms of the International Chamber of Commerce

as in force at the date when the Contract is made. Unless the context otherwise requires, any term or expression which is defined in or given a particular meaning by the provisions of Incoterms has the same meaning in the Contract

- 16.2 Where the Goods are supplied for export from the United Kingdom then unless otherwise agreed in writing between the Buyer and the Seller

- 16.2.1 the provisions of Incoterms shall (subject to any special terms agreed in writing between the Buyer and the Seller) apply but if there is any conflict between the provisions of Incoterms and these Conditions, the latter shall prevail.
- 16.2.2 the Buyer shall be responsible for complying with any legislation or regulations governing the importation of the Goods into the country of destination and (save in respect of the United States of America, Canada and Japan) for the payment of any duties and taxes thereon unless payment for these is included in the Contract
- 16.2.3 the Buyer shall be deemed to have satisfied itself that such Goods comply with the safety regulations of any country or state in which the Goods are to be used outside the United Kingdom and the Buyer shall indemnify and keep indemnified the Seller in full for any loss or damage whatsoever which the Seller may incur if such Goods do not comply with such safety regulations

- 16.3 The Goods shall not be used in any country other than that for which the Seller was aware they were originally ordered without the Seller's consent in writing

- 16.4 The Buyer undertakes not to offer the Goods for resale in any country notified by the Seller at or before the time the Buyer's order is placed, or to sell the Goods to any person if the Buyer knows or has reason to believe that person intends to resell the Goods in any such country

### 17 BUYER'S WARRANTIES

- 17.1 The Buyer warrants to the Seller that:
- 17.1.1 the Buyer will install, operate or otherwise use or store the Goods strictly in accordance with the Recommendations for Use and with all relevant or applicable statutory or other regulations governing the installation, operation, use or storage of the Goods; and
- 17.1.2 any collection vehicle, container, ship or other means of transport provided by the Buyer or any agent of the Buyer will comply with all relevant legislation and regulations relating to health and safety requirements; and
- 17.1.3 the storage and transport facilities and all parts thereof and all equipment used in connection therewith is suitable for storage (both short term and long term) and transport of the Goods and complies with any statute, regulation, bye law or other rule having the force of law and relating to the storage of goods of the nature of the Goods; and
- 17.1.4 the Buyer will ensure that the Goods are stored in conditions appropriate to goods of that nature and will comply with any recommendations as to the storage of Goods notified to it by the Seller from time to time; and
- 17.2 The Buyer shall indemnify and keep indemnified the Seller in full against any claim, loss or damage (including, without limitation, damage to the reputation of the Seller) arising directly or indirectly from any breach of the warranty contained in Condition 17.1

### 18 SEVERANCE

- 18.1 If at any time any one or more of the provisions or part thereof of these Conditions becomes or is invalid, illegal or unenforceable in any respect under any law or is held by a court to be invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions hereof and the remainder of such provision shall not in any way be affected or impaired thereby

### 19 JURISDICTION

- 19.1 These Conditions and each and every Contract made pursuant to them shall be governed by and construed in all respects in accordance with the laws of England and the Seller and the Buyer hereby agree to submit to the non-exclusive jurisdiction of the English Courts

### 20 NOTICES

- 20.1 Any notice required or permitted to be given by either party to the other under these Conditions shall be in writing addressed to that other party at its registered office or principal place of business or such other address as may at the relevant time have been notified pursuant to this provision to the party giving notice
- 20.2 Any notice given pursuant to clause 20.1 shall be deemed to have been served:
- 20.2.1 if delivered by hand, on the first Business Day following delivery;
- 20.2.2 if sent by post, on the third Business Day after posting if the address of the recipient is in the country of despatch, otherwise on the seventh Business Day after posting;
- 20.2.3 if sent by facsimile transmission, on the first Business Day following successful transmission
- 20.3 In proving service it shall be sufficient proof in the case of a notice sent by post, that the envelope containing the same was properly stamped, addressed and placed in the post and, in the case of facsimile transmission, that it was properly addressed and successfully transmitted
- 20.4 In this Condition 20, "Business Day" shall mean any day other than Saturday, Sunday or any other day which is a public holiday in the place at which the notice is left or to which such notice is despatched

### 21 WAIVER

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## Conditions of Sale

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21.1 No waiver by the Seller of any breach of any provision of the Contract by the Buyer shall be considered as a waiver of any subsequent breach

of the same or any other provision and the Seller shall not be prejudiced by any forbearance or indulgence granted by it to the Buyer

## Titanium

### Ti

Titanium was discovered by Rev. William Gregor in 1791 in Creed, Cornwall, England and, independently, by M.H. Klaproth in 1795 in Berlin, Germany.

Titanium is a hard, lustrous, silvery metal which is obtained by magnesium or calcium reduction of the tetrachloride. It is a relatively abundant element, there being 5600 ppm in the earth's crust. It forms a protective oxide coating and, hence, resists corrosion, although powdered metal burns in air. Titanium tends to be inert at low temperatures but will combine with a variety of reagents at elevated temperatures.

Titanium and its alloys are characterised by their lightness, strength and corrosion resistance and are used widely in aerospace applications. In addition, these properties also make the material suitable for medical applications (e.g. replacement hip joints). Titanium dioxide, TiO<sub>2</sub> is used as a white pigment in paints and plastics as it provides great opacity. The same material is also used in the manufacture of heat resisting and durable glass, the TiO<sub>2</sub> replacing certain proportions of the soda. Titanium carbide is used to manufacture cemented carbides.

<b>Atomic Properties</b>		<b>Physical Properties</b>	
Atomic number	22	Boiling point	3287 C
Atomic radius - Goldschmidt	0.147 nm	Density @20C	4.5 g cm <sup>-3</sup>
Atomic weight	47.88 amu	Melting point	1660 C
Crystal structure	Hexagonal close packed	<b>Electrical Properties</b>	
Electronic structure	Ar 3d <sup>2</sup> 4s <sup>2</sup>	Electrical resistivity @20C	54 μOhmcm
Photo-electric work function	4.1 eV	Temperature coefficient @0-100C	0.0038 K <sup>-1</sup>
Thermal neutron absorption cross-section	6.1 Barns	Superconductivity critical temperature	0.40 K
Valences shown	2, 3, 4	<b>Thermal Properties</b>	
Natural isotope distribution		Mass No.	%
		46	8.0
		47	7.5
		48	73.7
		49	5.5
		50	5.3
Ionisation potential		No.	eV
		1	6.82
		2	13.6
		3	27.5
		4	43.3
		5	99.2
		6	119
		<b>Mechanical Properties</b>	
		Material condition	Annealed Polycrystalline
		Bulk modulus	108.4 GPa
		Hardness - Vickers	60
		Izod toughness	61 J m <sup>-1</sup>
		Poisson's ratio	0.361
		Tensile modulus	120.2 GPa
		Tensile strength	230-460 MPa
		Yield strength	140-250 MPa



## Microfoil

CONTRACT COATING of customers' own components or assemblies is available to special order.

<b>TI004500</b>	Thinness.....	<b>0.1μm</b>	Area density.....	<b>42.8μg.cm<sup>-2</sup></b>	
	Purity.....	<b>99.6+%</b>	Support.....	<b>Permanent Mylar 3.5μm</b>	
<b>Quantity</b>					
<b>Web Code</b>	<b>Disc diam.</b>	<b>1 disc</b>	<b>2discs</b>	<b>5discs</b>	<b>10discs</b>
059-252-810	10 mm	YEN 31600	YEN 43000	YEN 77000	YEN 122000
825-798-434	25 mm	YEN 46800	YEN 65500	YEN 122000	YEN 198000

Typical Analysis : Starting Material : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.  
 This item is normally made to order for delivery within 4-5 weeks.

<b>TI004600</b>	Thinness.....	<b>0.25μm</b>	Area density.....	<b>112.6μg.cm<sup>-2</sup></b>	
	Purity.....	<b>99.6+%</b>	Support.....	<b>Permanent Mylar 3.5μm</b>	
<b>Quantity</b>					
<b>Web Code</b>	<b>Disc diam.</b>	<b>1 disc</b>	<b>2discs</b>	<b>5discs</b>	<b>10discs</b>
525-512-225	10 mm	YEN 35000	YEN 48000	YEN 87000	YEN 139000
129-297-443	25 mm	YEN 52500	YEN 74000	YEN 139000	YEN 226000

Typical Analysis : Starting Material : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.  
 This item is normally made to order for delivery within 4-5 weeks.

<b>TI004700</b>	Thinness.....	<b>0.5μm</b>	Area density.....	<b>225.4μg.cm<sup>-2</sup></b>	
	Purity.....	<b>99.6+%</b>	Support.....	<b>Permanent Mylar 3.5μm</b>	
<b>Quantity</b>					
<b>Web Code</b>	<b>Disc diam.</b>	<b>1 disc</b>	<b>2discs</b>	<b>5discs</b>	<b>10discs</b>
139-599-398	10 mm	YEN 37200	YEN 51500	YEN 94000	YEN 151000
239-166-185	25 mm	YEN 56000	YEN 80000	YEN 151000	YEN 245000

Typical Analysis : Starting Material : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.  
 This item is normally made to order for delivery within 4-5 weeks.

<b>TI004850</b>	Thinness.....	<b>1.0μm</b>	Area density.....	<b>429μg.cm<sup>-2</sup></b>	
	Purity.....	<b>99.6+%</b>	Support.....	<b>Permanent Mylar 3.5μm</b>	
<b>Quantity</b>					
<b>Web Code</b>	<b>Disc diam.</b>	<b>1 disc</b>	<b>2discs</b>	<b>5discs</b>	<b>10discs</b>
060-822-869	10 mm	YEN 43000	YEN 60000	YEN 111000	YEN 179000
356-832-183	25 mm	YEN 65500	YEN 94000	YEN 179000	YEN 292000

Typical Analysis : Starting Material : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.  
 This item is normally made to order for delivery within 4-5 weeks.

**Titanium**

**Ti**



**Foil**

**TI000205** Thickness ..... **0.001mm** High Purity ..... **99.99+%**  
 Temper ..... **As rolled**

Web Code	Size	Quantity		
		1pc	2pcs	5pcs
912-066-045	25 x 25 mm	YEN 86000	YEN 118000	YEN 184000
086-830-273	50 x 50 mm	YEN 160000	YEN 223000	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI000090** Thickness ..... **0.002mm** Purity ..... **99.6+%**

Web Code	Size	Quantity		
		1pc	2pcs	5pcs
079-450-947	25 x 25 mm	YEN 54500	YEN 72500	YEN 109000
882-226-421	50 x 50 mm	YEN 95500	YEN 130000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000206** Thickness ..... **0.002mm** High Purity ..... **99.99+%**  
 Temper ..... **As rolled**

Web Code	Size	Quantity		
		1pc	2pcs	5pcs
045-468-855	25 x 25 mm	YEN 78500	YEN 107000	YEN 167000
645-780-331	50 x 50 mm	YEN 144000	YEN 201000	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI000100** Thickness ..... **0.0025mm** Purity ..... **99.6+%**

Web Code	Size	Quantity		
		1pc	2pcs	5pcs
688-203-858	25 x 25 mm	YEN 52000	YEN 69500	YEN 104000
060-778-536	50 x 50 mm	YEN 91000	YEN 124000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000110** Thickness ..... **0.003mm** Purity ..... **99.6+%**

Web Code	Size	Quantity		
		1pc	2pcs	5pcs
536-162-812	25 x 25 mm	YEN 50000	YEN 66500	YEN 100000
825-766-602	50 x 50 mm	YEN 87000	YEN 119000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000121** Thickness ..... **0.004mm** Purity ..... **99.6+%**

Web Code	Size	Quantity		
		1pc	2pcs	5pcs
104-119-736	25 x 25 mm	YEN 46200	YEN 61000	YEN 91000
292-868-505	50 x 50 mm	YEN 79000	YEN 107000	
224-731-655	100 x 100 mm	YEN 180000		

Web Code	Size	Quantity		
		1pc	2pcs	5pcs
785-692-968	25 x 25 mm	YEN 55500	YEN 73000	YEN 109000
002-536-064	50 x 50 mm	YEN 119000	YEN 161000	

Web Code	Diameter	Quantity		
		10 discs	20 discs	50 discs
132-291-866	4 mm	YEN 47600	YEN 59000	YEN 86000
536-487-144	6 mm	YEN 57000	YEN 72500	YEN 107000
060-894-747	8 mm	YEN 66500	YEN 86000	YEN 129000
611-840-001	10 mm	YEN 76000	YEN 99500	YEN 151000
480-006-974	15 mm	YEN 99000	YEN 132000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**Metal – Titanium**

**Titanium**

**Ti**



**Foil**

**TI000210**

Thickness ..... **0.005mm**

Purity ..... **99.6+%**

**NLT Sizes**

**Web Code**

166-536-961  
 220-683-347  
 450-972-306

Size	Quantity		
	1pc	2pcs	5pcs
25 x 25 mm	YEN 35400	YEN 43800	YEN 60500
50 x 50 mm	YEN 54500	YEN 71000	
100 x 100 mm	YEN 123000		

**Sizes LT**

**Web Code**

270-344-449

Size	Quantity		
	1pc	2pcs	5pcs
25 x 25 mm	YEN 39000	YEN 48200	YEN 66500

**Discs**

**Web Code**

408-527-282  
 065-900-770  
 237-599-389  
 699-918-029  
 489-758-450

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 42200	YEN 51500	YEN 68500
6 mm	YEN 48200	YEN 60000	YEN 82500
8 mm	YEN 54000	YEN 68500	YEN 96500
10 mm	YEN 60500	YEN 77000	YEN 111000
15 mm	YEN 75000	YEN 98500	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000208**

Thickness ..... **0.005mm**

High Purity ..... **99.99+%**

Temper ..... **As rolled**

**NLT Sizes**

**Web Code**

205-276-680  
 055-111-473  
 426-443-033

Size	Quantity		
	1pc	2pcs	5pcs
25 x 25 mm	YEN 57500	YEN 80000	YEN 131000
50 x 50 mm	YEN 94500	YEN 132000	
100 x 100 mm	YEN 168000		

**Sizes LT**

**Web Code**

501-822-204  
 224-191-870

Size	Quantity		
	1pc	2pcs	5pcs
25 x 25 mm	YEN 63500	YEN 87500	YEN 144000
50 x 50 mm	YEN 118000	YEN 165000	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI000140**

Thickness ..... **0.006mm**

Purity ..... **99.6+%**

**NLT Sizes**

**Web Code**

148-886-945  
 129-741-932  
 517-667-132

Size	Quantity	
	1pc	2pcs
25 x 25 mm	YEN 42200	YEN 55000
50 x 50 mm	YEN 71000	YEN 96000
100 x 100 mm	YEN 171000	

**Sizes LT**

**Web Code**

410-260-256  
 769-784-123

Size	Quantity	
	1pc	2pcs
25 x 25 mm	YEN 46400	YEN 60500
50 x 50 mm	YEN 89000	YEN 120000

**Discs**

**Web Code**

113-674-130  
 209-268-740  
 158-597-940  
 824-740-947  
 092-613-455

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 45400	YEN 56000	YEN 81000
6 mm	YEN 53500	YEN 67500	YEN 99500
8 mm	YEN 62000	YEN 79500	YEN 119000
10 mm	YEN 70000	YEN 91500	YEN 138000
15 mm	YEN 90500	YEN 120000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000150**

Thickness ..... **0.007mm**

Purity ..... **99.6+%**

**NLT Sizes**

**Web Code**

855-392-130  
 185-053-464  
 393-808-679  
 115-593-372

Size	Quantity			
	1pc	2pcs	5pcs	10pcs
25 x 25 mm	YEN 42000	YEN 55000	YEN 81500	YEN 116000
50 x 50 mm	YEN 70500	YEN 95000	YEN 211000	
100 x 100 mm	YEN 168000	YEN 324000		
150 x 150 mm	YEN 362000			

**Sizes LT**

**Web Code**

769-480-263  
 397-971-951

Size	Quantity			
	1pc	2pcs	5pcs	10pcs
25 x 25 mm	YEN 46200	YEN 60500	YEN 89500	YEN 128000
50 x 50 mm	YEN 77500	YEN 105000	YEN 232000	

**Discs**

**Web Code**

031-461-509  
 932-699-089  
 587-386-527  
 423-317-228  
 914-657-809  
 332-230-147

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 45200	YEN 55500	YEN 80500
6 mm	YEN 53500	YEN 67000	YEN 99000
8 mm	YEN 61500	YEN 79000	YEN 118000
10 mm	YEN 69500	YEN 90500	YEN 137000
15 mm	YEN 90000	YEN 119000	YEN 241000
25 mm	YEN 138000		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**Metal – Titanium**

**Titanium**

**Ti**



**Foil**

**TI000211**

Thickness ..... **0.008mm**  
 Purity ..... **99.6+%**

Coil width ..... **104mm**

**Coil**

**Web Code**  
 021-584-331  
 659-926-525

**Width 104mm**

**Quantity**

**Length 1 Reel**  
 0.2 m YEN 84000  
 0.3 m YEN 114000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000160**

Thickness ..... **0.008mm**

Purity ..... **99.6+%**

**NLT Sizes**

**Web Code**  
 410-264-638  
 855-629-725  
 566-804-320  
 406-154-449

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm

**Quantity**

	1pc	2pcs	5pcs	10pcs
25 x 25 mm	YEN 40400	YEN 52500	YEN 78000	YEN 113000
50 x 50 mm	YEN 67500	YEN 91000	YEN 205000	
100 x 100 mm	YEN 163000	YEN 314000		
150 x 150 mm	YEN 350000			

**Sizes LT**

**Web Code**  
 683-083-649  
 984-569-898

**Size**  
 25 x 25 mm  
 50 x 50 mm

**Quantity**

	1pc	2pcs	5pcs	10pcs
25 x 25 mm	YEN 44400	YEN 58000	YEN 86000	YEN 124000
50 x 50 mm	YEN 74000	YEN 100000	YEN 225000	

**Discs**

**Web Code**  
 890-279-724  
 284-972-801  
 621-609-045  
 701-127-200  
 640-900-870  
 112-611-681

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm

**Quantity**

	10 discs	20 discs	50 discs
4 mm	YEN 44400	YEN 54500	YEN 78500
6 mm	YEN 52000	YEN 65500	YEN 96000
8 mm	YEN 59500	YEN 76500	YEN 114000
10 mm	YEN 67500	YEN 87500	YEN 132000
15 mm	YEN 86500	YEN 115000	YEN 235000
25 mm	YEN 134000	YEN 243000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000170**

Thickness ..... **0.009mm**

Purity ..... **99.6+%**

**NLT Sizes**

**Web Code**  
 606-259-869  
 470-380-247  
 132-104-234  
 669-276-069

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm

**Quantity**

	1pc	2pcs	5pcs	10pcs
25 x 25 mm	YEN 39000	YEN 50500	YEN 75000	YEN 111000
50 x 50 mm	YEN 64500	YEN 87500	YEN 200000	
100 x 100 mm	YEN 159000	YEN 307000		
150 x 150 mm	YEN 342000			

**Sizes LT**

**Web Code**  
 921-913-726  
 730-624-021

**Size**  
 25 x 25 mm  
 50 x 50 mm

**Quantity**

	1pc	2pcs	5pcs	10pcs
25 x 25 mm	YEN 43000	YEN 56000	YEN 82500	YEN 122000
50 x 50 mm	YEN 71000	YEN 96000	YEN 220000	

**Discs**

**Web Code**  
 808-704-520  
 088-064-735  
 008-097-487  
 012-176-180  
 522-019-326  
 252-415-547

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm

**Quantity**

	10 discs	20 discs	50 discs
4 mm	YEN 43600	YEN 53500	YEN 77000
6 mm	YEN 51000	YEN 64000	YEN 93500
8 mm	YEN 58000	YEN 74500	YEN 111000
10 mm	YEN 65500	YEN 85000	YEN 128000
15 mm	YEN 83500	YEN 111000	YEN 230000
25 mm	YEN 131000	YEN 237000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000213**

Thickness ..... **0.010mm**

Purity ..... **99.6+%**

**NLT Sizes**

**Web Code**  
 828-848-647  
 518-098-674  
 985-450-125

**Size**  
 100 x 100 mm  
 150 x 150 mm  
 200 x 200 mm

**Quantity**

	1pc	2pcs	5pcs	10pcs	20pcs
100 x 100 mm	YEN 43800	YEN 55500	YEN 80000	YEN 109000	
150 x 150 mm	YEN 57500	YEN 75000	YEN 111000		
200 x 200 mm	YEN 71000	YEN 94500			

**Sizes LT**

**Web Code**  
 373-084-615  
 039-370-796  
 269-444-548

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm

**Quantity**

	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 23400	YEN 26800	YEN 34600	YEN 44200	YEN 60000
50 x 50 mm	YEN 30200	YEN 36400	YEN 49800	YEN 66000	YEN 90500
100 x 100 mm	YEN 48200	YEN 61500	YEN 88000	YEN 120000	

**Coil**

**Web Code**  
 974-012-368  
 829-667-312  
 989-971-926  
 766-205-510

**Width 150mm**

**Quantity**

**Length 1 Reel**  
 0.2 m YEN 67000  
 0.3 m YEN 78000  
 0.5 m YEN 94500  
 1 m YEN 126000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**Metal – Titanium**

**Titanium**

**Ti**



**Foil**

**TI000212**

Thickness ..... **0.01mm**  
 Temper ..... **As rolled**

High Purity ..... **99.99+%**

**NLT Sizes**

**Web Code**  
 098-397-513  
 493-860-886

Size	Quantity		
	1pc	2pcs	5pcs
50 x 50 mm	YEN 93000	YEN 128000	
100 x 100 mm	YEN 173000		

**Sizes LT**

**Web Code**  
 174-909-779  
 258-429-339  
 923-125-799

Size	Quantity		
	1pc	2pcs	5pcs
25 x 25 mm	YEN 52500	YEN 71000	YEN 109000
50 x 50 mm	YEN 102000	YEN 141000	
100 x 100 mm	YEN 216000		

**Discs**

**Web Code**  
 792-053-392  
 006-670-870  
 833-853-998  
 231-747-483  
 968-435-058  
 054-381-677

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 57000	YEN 83000	YEN 106000
6 mm	YEN 67500	YEN 97500	YEN 130000
8 mm	YEN 77500	YEN 112000	YEN 153000
10 mm	YEN 88000	YEN 127000	YEN 177000
15 mm	YEN 114000	YEN 164000	
25 mm	YEN 166000		

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI000215**

Thickness ..... **0.012mm**

Purity ..... **99.6+%**

**NLT Sizes**

**Web Code**  
 020-471-715  
 229-759-260

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 x 100 mm	YEN 43000	YEN 54500	YEN 78500	YEN 106000	
200 x 200 mm	YEN 69500	YEN 92000	YEN 138000		

**Sizes LT**

**Web Code**  
 042-393-568  
 139-628-099  
 107-841-890

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 23200	YEN 26600	YEN 34000	YEN 43600	YEN 59500
50 x 50 mm	YEN 29800	YEN 36000	YEN 48800	YEN 64500	YEN 89000
100 x 100 mm	YEN 47200	YEN 60000	YEN 86500	YEN 117000	

**Coil**

**Web Code**  
 252-822-899  
 602-855-739  
 356-966-276  
 620-776-860

Length	Quantity
	1 Reel
0.2 m	YEN 73500
0.3 m	YEN 85500
0.5 m	YEN 104000
1 m	YEN 139000

**Discs**

**Web Code**  
 597-102-260  
 637-776-627  
 722-082-013  
 260-256-451  
 532-062-205  
 507-778-596  
 472-323-015

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 42400	YEN 52500	YEN 63500
6 mm	YEN 44400	YEN 55500	YEN 68000
8 mm	YEN 46400	YEN 58000	YEN 72500
10 mm	YEN 48600	YEN 61000	YEN 77000
15 mm	YEN 53500	YEN 68000	YEN 88000
25 mm	YEN 63500	YEN 82500	YEN 111000
50 mm	YEN 89000	YEN 118000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000220**

Thickness ..... **0.0125mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**NLT Sizes**

**Web Code**  
 658-526-576  
 028-348-496  
 999-863-822

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 x 100 mm	YEN 37800	YEN 46800	YEN 65000	YEN 86000	
150 x 150 mm	YEN 48400	YEN 62000	YEN 88500		
279 x 300 mm	YEN 78000	YEN 104000			

**Sizes LT**

**Web Code**  
 884-849-128  
 723-150-208  
 881-950-459  
 265-809-660  
 142-915-249

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 21800	YEN 24200	YEN 29400	YEN 35600	YEN 45000
50 x 50 mm	YEN 27200	YEN 31800	YEN 41200	YEN 52500	YEN 68500
100 x 100 mm	YEN 41600	YEN 51500	YEN 71500	YEN 94500	
150 x 150 mm	YEN 58000	YEN 74000	YEN 106000		
279 x 300 mm	YEN 97500	YEN 129000			

**Coil**

**Web Code**  
 046-933-275

Length	Quantity
	1 Reel
0.5 m	YEN 100000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**Metal – Titanium**



**Titanium**

**Ti**



**Foil**

**TI000230**

Thickness ..... **0.015mm**

Purity ..... **99.6+%**

**Size**

**Web Code**

603-751-240  
 468-903-772  
 612-965-543  
 382-539-332  
 657-861-588

**Size**

25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 130 x 150 mm  
 266 x 300 mm

**1pc**

**2pcs**

**Quantity**

**5pcs**

**10pcs**

**20pcs**

YEN 20200	YEN 22600	YEN 27600	YEN 33600	YEN 42800
YEN 25400	YEN 29800	YEN 39200	YEN 50000	YEN 66000
YEN 35600	YEN 44600	YEN 62500	YEN 83000	
YEN 44000	YEN 56000	YEN 80500		
YEN 73500	YEN 98000			

**Coil**

**Web Code**

650-175-936  
 263-144-779

**Width 266mm**

**Length**

0.5 m YEN 94500  
 1 m YEN 126000

**Quantity**

**1 Reel**

**Discs**

**Web Code**

492-484-908  
 560-623-461  
 077-932-426  
 741-558-443  
 694-807-936  
 850-990-458  
 373-804-051

**Diameter**

4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

**Quantity**

**10 discs**

YEN 31000	YEN 35200	YEN 45400
YEN 32600	YEN 37600	YEN 49000
YEN 34200	YEN 39800	YEN 52500
YEN 35800	YEN 42000	YEN 56000
YEN 39600	YEN 47600	YEN 65000
YEN 47600	YEN 58500	YEN 82500
YEN 67500	YEN 86500	YEN 127000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000251**

Thickness ..... **0.02mm**

Purity ..... **99.6+%**

Temper ..... **Annealed**

**Size**

**Web Code**

725-505-933  
 013-347-084  
 862-537-128  
 547-313-928  
 151-240-699

**Size**

25 x 25 mm  
 50 x 50 mm  
 95 x 100 mm  
 150 x 150 mm  
 197 x 300 mm

**1pc**

**2pcs**

**Quantity**

**5pcs**

**10pcs**

**20pcs**

YEN 19500	YEN 22000	YEN 27000	YEN 33400	YEN 42800
YEN 24800	YEN 29600	YEN 39200	YEN 50500	YEN 67000
YEN 35000	YEN 44000	YEN 62000	YEN 82500	YEN 112000
YEN 46400	YEN 60000	YEN 87000	YEN 118000	
YEN 66500	YEN 88000	YEN 135000		

**Coil**

**Web Code**

780-977-641  
 688-247-503  
 030-949-833

**Width 180mm**

**Length**

0.5 m YEN 82500  
 1 m YEN 109000  
 2 m YEN 164000

**Quantity**

**1 Reel**

**Discs**

**Web Code**

591-051-892  
 881-483-249  
 185-401-434  
 175-177-199  
 897-149-426  
 143-681-926  
 960-248-212

**Diameter**

4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

**Quantity**

**10 discs**

YEN 30000	YEN 34400	YEN 44600
YEN 31800	YEN 36800	YEN 48400
YEN 33400	YEN 39000	YEN 52000
YEN 35000	YEN 41400	YEN 55500
YEN 39000	YEN 47200	YEN 65000
YEN 47200	YEN 58500	YEN 83000
YEN 67500	YEN 87500	YEN 129000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000295**

Thickness ..... **0.025mm**

High Purity ..... **99.99+%**

Temper ..... **As rolled**

**Size**

**Web Code**

260-020-112  
 502-513-281  
 814-153-684

**Size**

25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm

**1pc**

**2pcs**

**Quantity**

**5pcs**

YEN 33600	YEN 43600	YEN 64000
YEN 56500	YEN 82500	
YEN 153000		

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

## Titanium

### Ti



## Foil

**TI000290**

Thickness ..... **0.025mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

#### Size

##### Web Code

031-029-506  
 878-697-274  
 837-161-390  
 645-165-294  
 530-740-549

##### Size

25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 300 x 300 mm

##### Quantity

1pc	2pcs	5pcs	10pcs	20pcs
YEN 13700	YEN 15500	YEN 20000	YEN 26400	YEN 34600
YEN 16000	YEN 18700	YEN 25000	YEN 33400	YEN 44600
YEN 20400	YEN 25000	YEN 35000	YEN 47600	YEN 64500
YEN 25000	YEN 31400	YEN 45000	YEN 62000	
YEN 38400	YEN 50500	YEN 75000		

#### Coil

##### Web Code

541-201-473  
 706-989-091  
 373-635-638

Width **305mm**

##### Length

0.5 m  
 1 m  
 2 m

##### Quantity

1 Reel
YEN 48400
YEN 63500
YEN 92500

#### Discs

##### Web Code

041-289-593  
 161-195-367  
 149-422-240  
 677-783-752  
 722-970-744  
 371-344-688  
 418-080-124

##### Diameter

4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

##### Quantity

10 discs	20 discs	50 discs
YEN 31800	YEN 38600	YEN 58500
YEN 32400	YEN 39600	YEN 60000
YEN 33000	YEN 40400	YEN 61500
YEN 33800	YEN 41400	YEN 63000
YEN 35400	YEN 43800	YEN 67000
YEN 38800	YEN 48600	YEN 74500
YEN 47400	YEN 60500	YEN 93500

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000300**

Thickness ..... **0.03mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

#### Size

##### Web Code

998-215-480  
 776-929-668  
 116-205-498  
 525-680-067  
 710-000-318

##### Size

25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 200 x 300 mm

##### Quantity

1pc	2pcs	5pcs	10pcs	20pcs
YEN 15400	YEN 16500	YEN 18800	YEN 21800	YEN 27000
YEN 17400	YEN 19200	YEN 23200	YEN 28000	YEN 35600
YEN 21200	YEN 24800	YEN 31800	YEN 40400	YEN 53000
YEN 25200	YEN 30200	YEN 40600	YEN 52500	YEN 70500
YEN 32600	YEN 40600	YEN 57000		

#### Coil

##### Web Code

780-329-650  
 750-038-818  
 754-861-569

Width **200mm**

##### Length

0.5 m  
 1 m  
 2 m

##### Quantity

1 Reel
YEN 42000
YEN 52500
YEN 67000

#### Discs

##### Web Code

873-554-681  
 194-325-373  
 290-663-064  
 332-886-005  
 610-757-511  
 344-689-593  
 086-195-872

##### Diameter

4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

##### Quantity

10 discs	20 discs	50 discs
YEN 25400	YEN 28200	YEN 35400
YEN 25800	YEN 29000	YEN 36400
YEN 26400	YEN 29600	YEN 37600
YEN 26800	YEN 30400	YEN 38600
YEN 28000	YEN 32200	YEN 41400
YEN 30600	YEN 35600	YEN 47000
YEN 36800	YEN 44400	YEN 61000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000315**

Thickness ..... **0.05mm**  
 Temper ..... **As rolled**

High Purity ..... **99.99+%**

#### Size

##### Web Code

136-555-505  
 069-442-058  
 680-253-151

##### Size

25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm

##### Quantity

1pc	2pcs	5pcs
YEN 31800	YEN 41200	YEN 60000
YEN 53000	YEN 78500	
YEN 145000		

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**Titanium**

**Ti**



**Foil**

**TI000310**

Thickness ..... **0.05mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 774-477-060  
 809-628-922  
 203-623-286  
 452-908-860  
 162-476-409

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 12300	YEN 13700	YEN 17300	YEN 22200	YEN 28000
50 x 50 mm	YEN 14300	YEN 16700	YEN 22000	YEN 28800	YEN 37400
100 x 100 mm	YEN 18500	YEN 22600	YEN 31200	YEN 42000	YEN 56000
150 x 150 mm	YEN 22600	YEN 28400	YEN 40600	YEN 55000	
300 x 300 mm	YEN 35200	YEN 46200	YEN 68500		

**Coil**

**Web Code**  
 446-242-685  
 613-602-427  
 700-305-724

Length	Quantity
	1 Reel
0.5 m	YEN 46400
1 m	YEN 60000
2 m	YEN 79000

**Discs**

**Web Code**  
 085-074-265  
 634-286-980  
 285-865-592  
 733-188-886  
 648-612-419  
 076-552-726  
 569-092-458

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 25400	YEN 28800	YEN 38800
6 mm	YEN 26000	YEN 29600	YEN 40000
8 mm	YEN 26400	YEN 30400	YEN 41200
10 mm	YEN 27000	YEN 31000	YEN 42400
15 mm	YEN 28200	YEN 33000	YEN 45400
25 mm	YEN 31000	YEN 36600	YEN 51000
50 mm	YEN 37600	YEN 46000	YEN 66000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000351**

Thickness ..... **0.075mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**  
 Condition ..... **Flattened**

**Size**

**Web Code**  
 241-256-776  
 156-724-497  
 025-928-623

Size	Quantity			
	1pc	2pcs	5pcs	10pcs
100 x 100 mm	YEN 28200	YEN 34400	YEN 47400	YEN 62000
150 x 200 mm	YEN 39000	YEN 49600	YEN 71500	YEN 96000
200 x 300 mm	YEN 49400	YEN 64500	YEN 95000	

**Discs**

**Web Code**  
 242-222-155  
 735-695-837  
 452-586-774  
 197-150-362  
 671-494-452  
 734-313-015  
 026-127-530

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 26200	YEN 29600	YEN 37400
6 mm	YEN 27200	YEN 30800	YEN 39400
8 mm	YEN 28200	YEN 32200	YEN 41400
10 mm	YEN 29000	YEN 33400	YEN 43600
15 mm	YEN 31400	YEN 36800	YEN 48800
25 mm	YEN 36000	YEN 43400	YEN 59000
50 mm	YEN 47600	YEN 60000	YEN 85500

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000350**

Thickness ..... **0.075mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 123-954-154  
 494-270-281  
 783-783-283  
 972-902-877  
 612-862-167

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 16200	YEN 17600	YEN 20600	YEN 24400	YEN 30600
50 x 50 mm	YEN 19000	YEN 21600	YEN 26800	YEN 33200	YEN 42800
100 x 100 mm	YEN 24400	YEN 29200	YEN 39000	YEN 50500	YEN 67500
150 x 150 mm	YEN 30000	YEN 37000	YEN 51500	YEN 68000	YEN 92000
300 x 300 mm	YEN 46400	YEN 60500	YEN 88500		

**Coil**

**Web Code**  
 243-569-985  
 607-769-501  
 971-192-093

Length	Quantity
	1 Reel
0.5 m	YEN 60500
1 m	YEN 78500
2 m	YEN 104000

**Discs**

**Web Code**  
 386-192-659  
 274-079-101  
 259-896-320  
 487-045-860  
 880-728-253  
 091-032-385  
 379-046-876

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 25800	YEN 28800	YEN 36200
6 mm	YEN 26400	YEN 29800	YEN 37800
8 mm	YEN 27200	YEN 30800	YEN 39400
10 mm	YEN 27800	YEN 31800	YEN 41000
15 mm	YEN 29600	YEN 34200	YEN 44800
25 mm	YEN 33000	YEN 39200	YEN 52500
50 mm	YEN 41800	YEN 51500	YEN 72000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

## Titanium

Ti



### Foil

**TI000371**

Thickness ..... **0.10mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**  
 Condition ..... **Flattened**

**Size**

**Web Code**  
 630-171-429  
 041-183-299

Size	Quantity			
	1pc	2pcs	5pcs	10pcs
150 x 200 mm	YEN 42800	YEN 55500	YEN 80000	YEN 112000
200 x 300 mm	YEN 55000	YEN 72500	YEN 111000	

**Discs**

**Web Code**  
 423-021-686  
 175-968-623  
 907-277-026  
 316-579-676  
 094-437-742  
 160-968-338  
 637-919-830

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 26600	YEN 30000	YEN 38000
6 mm	YEN 27600	YEN 31400	YEN 40400
8 mm	YEN 28600	YEN 33000	YEN 42800
10 mm	YEN 29800	YEN 34400	YEN 45200
15 mm	YEN 32400	YEN 38200	YEN 51000
25 mm	YEN 37800	YEN 45800	YEN 63000
50 mm	YEN 51500	YEN 65000	YEN 93500

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000370**

Thickness ..... **0.1mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 380-858-910  
 607-371-481  
 921-437-060  
 179-629-378  
 664-077-116

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 16900	YEN 18400	YEN 21800	YEN 25800	YEN 32600
50 x 50 mm	YEN 20000	YEN 22800	YEN 28800	YEN 35800	YEN 46600
100 x 100 mm	YEN 26200	YEN 31800	YEN 42800	YEN 55500	
150 x 150 mm	YEN 32600	YEN 40600	YEN 57000		
300 x 300 mm	YEN 51500	YEN 67500			

**Coil**

**Web Code**  
 189-018-411  
 707-882-026

Width 300mm	Quantity
	1 Reel
Length 0.5 m	YEN 66500
1 m	YEN 86500

**Discs**

**Web Code**  
 809-251-386  
 156-416-369  
 552-049-618  
 006-211-220  
 776-410-055  
 051-251-261  
 406-410-729

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 26200	YEN 29400	YEN 37000
6 mm	YEN 27000	YEN 30400	YEN 38800
8 mm	YEN 27800	YEN 31600	YEN 40600
10 mm	YEN 28600	YEN 32800	YEN 42400
15 mm	YEN 30600	YEN 35600	YEN 46800
25 mm	YEN 34600	YEN 41200	YEN 55500
50 mm	YEN 44600	YEN 55500	YEN 78000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000385**

Thickness ..... **0.125mm**  
 Temper ..... **As rolled**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 727-305-262  
 913-150-763  
 143-849-769

Size	Quantity		
	1pc	2pcs	5pcs
25 x 25 mm	YEN 26200	YEN 33200	YEN 53500
50 x 50 mm	YEN 43000	YEN 76000	
100 x 100 mm	YEN 140000		

**Discs**

**Web Code**  
 981-214-161  
 651-770-958  
 471-373-838  
 921-732-484  
 216-554-361

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 32800	YEN 42400	YEN 55500
6 mm	YEN 37000	YEN 48200	YEN 65000
8 mm	YEN 41000	YEN 54000	YEN 81000
10 mm	YEN 45200	YEN 60000	YEN 105000
15 mm	YEN 55000	YEN 91000	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

Metal – Titanium

**Titanium**

**Ti**



**Foil**

**TI000380**

Thickness ..... **0.125mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

057-906-071  
 238-253-034  
 781-636-016  
 704-503-213  
 062-901-753  
 922-485-882

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 200 x 300 mm  
 292 x 300 mm

		<b>Quantity</b>				
		<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>	<b>10pcs</b>	<b>20pcs</b>
YEN	12700	YEN 14100	YEN 17400	YEN 22200	YEN 30800	
YEN	14500	YEN 16700	YEN 21600	YEN 28200	YEN 39200	
YEN	18300	YEN 22000	YEN 30000	YEN 40000	YEN 56000	
YEN	22000	YEN 27400	YEN 38400	YEN 52000		
YEN	29200	YEN 37400	YEN 59000			
YEN	33000	YEN 42800				

**Coil**

**Web Code**  
 545-948-500  
 862-715-984

**Width 292mm**

**Length 1 Reel**  
 0.5 m YEN 39000  
 1 m YEN 55000

**Quantity**

**Discs**

**Web Code**

557-246-320  
 655-797-546  
 974-690-389  
 836-290-194  
 536-267-545  
 033-446-776  
 180-848-104

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

**Quantity**

		<b>10 discs</b>	<b>20 discs</b>	<b>50 discs</b>
YEN	25800	YEN 32400	YEN 39400	
YEN	26400	YEN 33000	YEN 40400	
YEN	26800	YEN 33800	YEN 41600	
YEN	27400	YEN 34400	YEN 42600	
YEN	28400	YEN 36000	YEN 45200	
YEN	30800	YEN 39400	YEN 50500	
YEN	36800	YEN 47800	YEN 64000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000382**

Thickness ..... **0.140mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

606-012-500  
 010-177-731  
 272-216-225  
 027-035-967  
 379-493-508  
 742-088-872

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 160 x 300 mm  
 300 x 300 mm

		<b>Quantity</b>				
		<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>	<b>10pcs</b>	<b>20pcs</b>
YEN	12800	YEN 14300	YEN 17800	YEN 22800	YEN 31400	
YEN	14900	YEN 17200	YEN 22400	YEN 29200	YEN 40600	
YEN	19000	YEN 23000	YEN 31600	YEN 42200	YEN 59000	
YEN	23000	YEN 28800	YEN 40600	YEN 55000		
YEN	28800	YEN 36800	YEN 53500			
YEN	35400	YEN 46200				

**Coil**

**Web Code**  
 436-693-678  
 751-563-854

**Width 305mm**

**Length 1 Reel**  
 0.5 m YEN 42200  
 1 m YEN 58500

**Quantity**

**Discs**

**Web Code**

028-375-940  
 546-997-443  
 374-685-253  
 835-655-353  
 456-918-924  
 114-862-575  
 357-818-460

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

**Quantity**

		<b>10 discs</b>	<b>20 discs</b>	<b>50 discs</b>
YEN	26000	YEN 32400	YEN 39600	
YEN	26400	YEN 33200	YEN 40800	
YEN	27000	YEN 34000	YEN 42000	
YEN	27600	YEN 34600	YEN 43200	
YEN	28800	YEN 36600	YEN 46000	
YEN	31400	YEN 40200	YEN 52000	
YEN	38000	YEN 49400	YEN 66500	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000401**

Thickness ..... **0.2mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

Condition ..... **Flattened**

**Size**

**Web Code**

907-888-770  
 204-903-429  
 313-677-415

**Size**  
 50 x 50 mm  
 100 x 100 mm  
 200 x 300 mm

		<b>Quantity</b>			
		<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>	<b>10pcs</b>
YEN	18200	YEN 21800	YEN 29800	YEN 39600	
YEN	25600	YEN 32200	YEN 46200		
YEN	47000	YEN 62500			

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**Titanium**

**Ti**



**Foil**

**TI000400**

Thickness ..... **0.2mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

129-380-472  
 580-405-247  
 941-750-285  
 236-895-810  
 973-163-541

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 300 x 300 mm

		<b>Quantity</b>				
	<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>	<b>10pcs</b>	<b>20pcs</b>	
YEN 13500	YEN 15200	YEN 19300	YEN 24800	YEN 34400	YEN 46600	
YEN 16200	YEN 19000	YEN 25400	YEN 33400	YEN 46600		
YEN 21600	YEN 26600	YEN 37400	YEN 50500			
YEN 27000	YEN 34400	YEN 49400				
YEN 43200	YEN 57500					

**Coil**

**Web Code**  
 825-843-223  
 228-266-286

**Width 300mm**  
**Length 1 Reel**  
 0.5 m YEN 52000  
 1 m YEN 69500

**Quantity**

**Discs**

**Web Code**  
 986-033-217  
 968-970-654  
 543-435-716  
 178-645-566  
 380-041-064  
 595-064-213  
 299-707-372

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

**Quantity**

	<b>10 discs</b>	<b>20 discs</b>	<b>50 discs</b>
YEN 26200	YEN 33000	YEN 43200	
YEN 27000	YEN 34000	YEN 44800	
YEN 27600	YEN 34800	YEN 46200	
YEN 28400	YEN 35800	YEN 47800	
YEN 30000	YEN 38200	YEN 51500	
YEN 33400	YEN 43200	YEN 59500	
YEN 42000	YEN 55500	YEN 78500	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000410**

Thickness ..... **0.25mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

768-534-698  
 066-835-971  
 354-498-924  
 312-367-578  
 045-940-137

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 300 x 300 mm

		<b>Quantity</b>				
	<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>	<b>10pcs</b>	<b>20pcs</b>	
YEN 13700	YEN 15600	YEN 19800	YEN 25600	YEN 35400	YEN 48600	
YEN 16700	YEN 19700	YEN 26400	YEN 34800	YEN 48600		
YEN 22600	YEN 28000	YEN 39600	YEN 53500			
YEN 28400	YEN 36400	YEN 52500				
YEN 46000	YEN 61500					

**Coil**

**Web Code**  
 316-367-513  
 742-519-425

**Width 305mm**  
**Length 1 Reel**  
 0.5 m YEN 56000  
 1 m YEN 75000

**Quantity**

**Discs**

**Web Code**  
 674-850-554  
 356-312-880  
 539-103-561  
 387-945-396  
 493-170-938  
 646-364-761  
 795-591-392

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

**Quantity**

	<b>10 discs</b>	<b>20 discs</b>	<b>50 discs</b>
YEN 26400	YEN 33200	YEN 43400	
YEN 27200	YEN 34200	YEN 45200	
YEN 28000	YEN 35200	YEN 46800	
YEN 28600	YEN 36200	YEN 48400	
YEN 30600	YEN 39000	YEN 52500	
YEN 34200	YEN 44200	YEN 61000	
YEN 43600	YEN 57500	YEN 82000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI000416**

Thickness ..... **0.3mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

169-498-291  
 235-167-601  
 221-732-416

**Size**  
 100 x 100 mm  
 150 x 150 mm  
 300 x 300 mm

		<b>Quantity</b>		
	<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>	
YEN 23200	YEN 29000	YEN 41200		
YEN 29600	YEN 38000	YEN 55000		
YEN 48400	YEN 64500			

**Coil**

**Web Code**  
 132-825-015  
 554-285-099

**Width 300mm**  
**Length 1 Reel**  
 0.5 m YEN 58500  
 1 m YEN 79000

**Quantity**

**Discs**

**Web Code**  
 408-518-289  
 688-508-383  
 143-762-475  
 787-600-313  
 644-217-040  
 360-282-234  
 548-345-091

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

**Quantity**

	<b>10 discs</b>	<b>20 discs</b>	<b>50 discs</b>
YEN 26600	YEN 33200	YEN 43600	
YEN 27400	YEN 34400	YEN 45400	
YEN 28200	YEN 35400	YEN 47200	
YEN 28800	YEN 36600	YEN 49000	
YEN 30800	YEN 39400	YEN 53500	
YEN 34800	YEN 45000	YEN 62500	
YEN 44800	YEN 59000	YEN 85000	

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

## Titanium

Ti



### Foil

<b>TI000419</b>	Thickness .....	<b>0.35mm</b>	Purity .....	<b>99.6+%</b>
	Temper .....	<b>Annealed</b>	Condition .....	<b>Platinised on both sides</b>
<b>Size</b>		<b>Quantity</b>		
<b>Web Code</b>	<b>Size</b>	<b>1pc</b>		
386-456-572	100 x 100 mm	YEN 66500		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

<b>TI000423</b>	Thickness .....	<b>0.5mm</b>	Purity .....	<b>99.6+%</b>
	Condition .....	<b>Ion Implanted</b>		
<b>Size</b>		<b>Quantity</b>		
<b>Web Code</b>	<b>Size</b>	<b>1pc</b>		
116-312-044	50 x 50 mm	POA		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.  
 This material has been Ion Implanted with Nitrogen Ions to a dose of  $3 \times 10^{17}$  ions  $\text{cm}^{-2}$ .

<b>TI000425</b>	Thickness .....	<b>0.5mm</b>	Purity .....	<b>99.6+%</b>
	Temper .....	<b>Annealed</b>	Condition .....	<b>Polished on both sides</b>
<b>Size</b>		<b>Quantity</b>		
<b>Web Code</b>	<b>Size</b>	<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>
772-974-842	100 x 100 mm	YEN 24200	YEN 31200	YEN 47400

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

<b>TI000421</b>	Thickness .....	<b>0.5mm</b>	Purity .....	<b>99.6+%</b>
	Surface treatment .....	<b>Titanium Nitride coating 2-3 microns</b>		
<b>Size</b>		<b>Quantity</b>		
<b>Web Code</b>	<b>Size</b>	<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>
541-806-825	25 x 25 mm	YEN 19500	YEN 23800	YEN 32800
725-858-944	50 x 50 mm	YEN 28200	YEN 36000	
732-369-991	100 x 100 mm	YEN 45600		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.  
 This item is shown as an example of Titanium Nitride (TiN) coated material. Other items or your own material may also have a coating applied, please ask for more details.

<b>TI000420</b>	Thickness .....	<b>0.5mm</b>	Purity .....	<b>99.6+%</b>		
	Temper .....	<b>Annealed</b>				
<b>Size</b>		<b>Quantity</b>				
<b>Web Code</b>	<b>Size</b>	<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>	<b>10pcs</b>	<b>20pcs</b>
395-215-502	25 x 25 mm	YEN 12900	YEN 14500	YEN 18200	YEN 23400	YEN 29200
401-947-946	50 x 50 mm	YEN 15100	YEN 17500	YEN 22800	YEN 30000	YEN 38600
243-490-913	100 x 100 mm	YEN 19300	YEN 23400	YEN 32400	YEN 43400	
436-363-166	150 x 150 mm	YEN 23600	YEN 29400	YEN 41800		
545-396-026	300 x 300 mm	YEN 36200	YEN 52500			
<b>Discs</b>		<b>Quantity</b>				
<b>Web Code</b>	<b>Diameter</b>	<b>10 discs</b>	<b>20 discs</b>	<b>50 discs</b>		
174-503-000	4 mm	YEN 28600	YEN 32800	YEN 45200		
812-883-333	6 mm	YEN 29200	YEN 33800	YEN 46600		
610-424-962	8 mm	YEN 29800	YEN 34600	YEN 48000		
303-115-363	10 mm	YEN 30400	YEN 35600	YEN 49400		
889-416-404	15 mm	YEN 32000	YEN 37800	YEN 53000		
177-058-647	25 mm	YEN 35200	YEN 42400	YEN 60000		
132-334-408	50 mm	YEN 43400	YEN 53500			

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

<b>TI000417</b>	Thickness .....	<b>0.5mm</b>	Purity .....	<b>99.6+%</b>	
	Temper .....	<b>Annealed</b>	Condition .....	<b>Polished on 1 side</b>	
<b>Size</b>		<b>Quantity</b>			
<b>Web Code</b>	<b>Size</b>	<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>	<b>10pcs</b>
832-171-022	10 x 10 mm	YEN 22600	YEN 28000	YEN 41600	YEN 73000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

Metal – Titanium

**Titanium**

**Ti**



**Foil**

**TI000422**

Thickness ..... **0.7mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

205-817-696  
 727-209-309  
 901-170-200  
 646-283-102  
 785-398-996  
 174-873-228

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 300 x 300 mm  
 500 x 500 mm

		Quantity							
		1pc	2pcs	5pcs	10pcs	20pcs			
YEN	13900	YEN	15200	YEN	17900	YEN	21200	YEN	26800
YEN	16300	YEN	18500	YEN	23200	YEN	28800	YEN	37400
YEN	21000	YEN	25200	YEN	33800	YEN	43800		
YEN	25800	YEN	31800	YEN	44200				
YEN	40000	YEN	52000						
YEN	59000								

**Discs**

**Web Code**

859-151-435  
 393-937-489  
 242-177-694  
 272-211-949  
 026-499-559  
 312-438-349  
 054-791-401

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

		Quantity			
		10 discs	20 discs	50 discs	
YEN	24400	YEN	27800	YEN	35800
YEN	25200	YEN	28600	YEN	37200
YEN	25800	YEN	29600	YEN	38800
YEN	26400	YEN	30600	YEN	40200
YEN	28200	YEN	32800	YEN	43800
YEN	31400	YEN	37600	YEN	51500
YEN	39600	YEN	49200	YEN	70000

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI000432**

Thickness ..... **1.0mm**  
 Temper ..... **As rolled**

High Purity ..... **99.99+%**

**Size**

**Web Code**

584-866-631  
 108-336-569  
 542-069-398

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm

		Quantity			
		1pc	2pcs	5pcs	
YEN	29000	YEN	38600	YEN	59500
YEN	43800	YEN	64000		
YEN	107000				

**Discs**

**Web Code**

758-671-372  
 833-914-083  
 239-257-642  
 907-208-069  
 401-012-081

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm

		Quantity			
		10 discs	20 discs	50 discs	
YEN	54500	YEN	77500	YEN	142000
YEN	59000	YEN	83500	YEN	151000
YEN	63000	YEN	89500	YEN	161000
YEN	67500	YEN	95500	YEN	176000
YEN	78000	YEN	113000		

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI000433**

Thickness ..... **1.0mm**  
 Temper ..... **As rolled**

High Purity ..... **99.999%**

**Size**

**Web Code**

812-737-861  
 592-230-675

**Size**  
 25 x 25 mm  
 50 x 50 mm

		Quantity	
		1pc	2pcs
YEN	45800	YEN	62500
YEN	89000		

**Discs**

**Web Code**

603-234-420  
 404-307-191  
 538-399-744  
 299-968-929

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm

		Quantity			
		10 discs	20 discs	50 discs	
YEN	64000	YEN	91000	YEN	163000
YEN	73500	YEN	104000		
YEN	82500	YEN	117000		
YEN	92000				

Typical Analysis : Al 2, Cu 1, Fe 3, Si 1, Sn 1

**TI000431**

Thickness ..... **1.0mm**  
 Surface treatment ..... **Titanium Nitride coating 2-3 microns**

Purity ..... **99.6+%**

**Size**

**Web Code**

702-374-695  
 796-826-641  
 603-328-130

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm

		Quantity					
		1pc	2pcs	5pcs	10pcs		
YEN	19000	YEN	23000	YEN	31400	YEN	42000
YEN	27200	YEN	34400	YEN	49800		
YEN	43400						

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**Metal – Titanium**



## Titanium

Ti



### Foil

**TI000430**

Thickness ..... **1.0mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

457-003-322  
 125-412-506  
 676-571-029  
 571-381-273  
 422-657-739  
 832-224-674

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 300 x 300 mm  
 500 x 500 mm

		Quantity							
		1pc	2pcs	5pcs	10pcs	20pcs			
YEN	12500	YEN	14400	YEN	19400	YEN	27000	YEN	41400
YEN	14200	YEN	16800	YEN	23200	YEN	32400	YEN	49000
YEN	17600	YEN	21600	YEN	30800	YEN	43200		
YEN	21000	YEN	26400	YEN	38400				
YEN	31000	YEN	45400						
YEN	57500								

**Discs**

**Web Code**

028-078-493  
 509-804-178  
 725-523-593  
 690-438-003  
 304-758-631  
 094-828-900  
 853-618-903

**Diameter**  
 4 mm  
 6 mm  
 8 mm  
 10 mm  
 15 mm  
 25 mm  
 50 mm

		Quantity			
		10 discs	20 discs	50 discs	
YEN	32800	YEN	46600	YEN	67500
YEN	33200	YEN	47200	YEN	68500
YEN	33800	YEN	48000	YEN	69500
YEN	34200	YEN	48600	YEN	70500
YEN	35400	YEN	50500	YEN	73500
YEN	37800	YEN	53500	YEN	78500
YEN	43800	YEN	62000	YEN	92000

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI000436**

Thickness ..... **1.20mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

145-934-621  
 463-826-320

**Size**  
 150 x 150 mm  
 300 x 300 mm

		Quantity			
		1pc	2pcs	5pcs	
YEN	29400	YEN	37000	YEN	52500
YEN	47200	YEN	64000		

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI000437**

Thickness ..... **1.5mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

101-479-356  
 684-924-816  
 615-609-851  
 951-226-388  
 903-294-963

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 300 x 300 mm

		Quantity							
		1pc	2pcs	5pcs	10pcs	20pcs			
YEN	14600	YEN	16100	YEN	19400	YEN	23400	YEN	29800
YEN	17600	YEN	20400	YEN	26200	YEN	33000	YEN	43400
YEN	23800	YEN	29000	YEN	39800	YEN	52000		
YEN	29800	YEN	37600	YEN	53500				
YEN	48000	YEN	74000						

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.  
 We can also offer 99.99% material, prices on request.

**TI000441**

Thickness ..... **2.0mm**  
 Surface treatment ..... **Titanium Nitride coating 2-3 microns**

Purity ..... **99.6+%**

**Size**

**Web Code**

936-788-231  
 098-526-117  
 315-763-502

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm

		Quantity					
		1pc	2pcs	5pcs	10pcs		
YEN	19900	YEN	24000	YEN	32800	YEN	43600
YEN	28400	YEN	36000	YEN	51500		
YEN	45200						

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.  
 This item is shown as an example of Titanium Nitride (TiN) coated material.

**TI000440**

Thickness ..... **2.0mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

263-376-857  
 922-100-049  
 262-509-593  
 813-694-122  
 711-767-761  
 970-963-485

**Size**  
 25 x 25 mm  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 300 x 300 mm  
 500 x 500 mm

		Quantity							
		1pc	2pcs	5pcs	10pcs	20pcs			
YEN	14800	YEN	16400	YEN	19800	YEN	24000	YEN	30800
YEN	18000	YEN	21000	YEN	27000	YEN	34200	YEN	45200
YEN	24600	YEN	30200	YEN	41400	YEN	54500		
YEN	31000	YEN	39200	YEN	56000				
YEN	50500	YEN	67500						
YEN	88500								

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI000460**

Thickness ..... **3.0mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**

881-241-821  
 155-226-563  
 403-321-253  
 549-675-408  
 415-152-205

**Size**  
 50 x 50 mm  
 100 x 100 mm  
 150 x 150 mm  
 190 x 300 mm  
 300 x 300 mm

		Quantity			
		1pc	2pcs	5pcs	
YEN	19400	YEN	22800	YEN	30000
YEN	27200	YEN	34000	YEN	47600
YEN	35000	YEN	45000		
YEN	49000				
YEN	58500				

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

Metal – Titanium

## Titanium

Ti



### Foil

**TI000500**

Thickness ..... **3.2mm**  
 Temper ..... **As rolled**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 894-032-736  
 754-091-171  
 261-396-631

Size	Quantity		
	1pc	2pcs	5pcs
25 x 25 mm	YEN 30200	YEN 40400	YEN 62000
50 x 50 mm	YEN 46400	YEN 72000	
100 x 100 mm	YEN 123000		

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.



### Sheet

**TI003140**

Thickness ..... **4.0mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Discs**

**Web Code**  
 192-447-187

Diameter	Quantity	
	1 pcs	2 pcs
26 mm	YEN POA	YEN POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI003150**

Thickness ..... **5.0mm**  
 Purity ..... **99.6+%**

Tolerance ..... **20 %**  
 Temper ..... **Annealed**

**Size**

**Web Code**  
 433-101-802  
 121-072-818

Size	Quantity
	1pc
150 x 150 mm	POA
300 x 300 mm	POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI003151**

Thickness ..... **5.0mm**  
 Purity ..... **99.6+%**

Tolerance ..... **20 %**  
 Temper ..... **Annealed**

**Size**

**Web Code**  
 846-346-453

Size	Quantity			
	1pc	2pcs	5pcs	10pcs
20 x 20 mm	YEN 12100	YEN 14800	YEN 21800	YEN 37200

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI003200**

Thickness ..... **7.0mm**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 739-589-782  
 448-715-217

Size	Quantity
	1pc
150 x 150 mm	POA
300 x 300 mm	POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI003230**

Thickness ..... **8.0mm**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 089-994-764  
 609-269-915  
 117-989-168  
 322-171-842

Size	Quantity
	1pc
75 x 75 mm	POA
75 x 105 mm	POA
90 x 340 mm	POA
92 x 498 mm	POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI003250**

Thickness ..... **12.0mm**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 089-409-444  
 176-182-493

Size	Quantity
	1pc
150 x 150 mm	POA
300 x 300 mm	POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.



### Sputtering Target

**TI009100**

Thickness ..... **1.0mm**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 393-206-927

Disc diam.	Quantity
	1disc
33 mm	POA

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.  
 These targets are normally available for immediate shipment from stock. Other sizes are available to special order.

Metal – Titanium

**Titanium**

Ti



**Sputtering Target**

**TI009300**

Thickness ..... **3.0mm** High Purity ..... **99.99+%**

<b>Size</b>	<b>Quantity</b>
<b>Web Code</b>	<b>Disc diam.</b> <b>1disc</b>
877-206-666	25 mm              POA
789-984-168	50 mm              POA
748-016-513	75 mm              POA

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.  
 These targets are normally available for immediate shipment from stock. Other sizes are available to special order.

**TI009301**

Thickness ..... **3.0mm** Purity ..... **99.6+%**

<b>Size</b>	<b>Quantity</b>
<b>Web Code</b>	<b>Disc diam.</b> <b>1disc</b>
502-063-393	50 mm              POA
757-916-720	75 mm              POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.  
 These targets are normally available for immediate shipment from stock. Other sizes are available to special order.

**TI009600**

Thickness ..... **6.0mm** High Purity ..... **99.99+%**

<b>Size</b>	<b>Quantity</b>
<b>Web Code</b>	<b>Disc diam.</b> <b>1disc</b>
388-404-527	25.4 mm            POA
327-130-952	50 mm              POA
930-533-923	75 mm              POA
894-411-415	101.6 mm           POA

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.  
 These targets are normally available for immediate shipment from stock. Other sizes are available to special order.

**TI009512**

Thickness ..... **6.0mm** Purity ..... **99.6+%**

<b>Size</b>	<b>Quantity</b>
<b>Web Code</b>	<b>Disc diam.</b> <b>1disc</b>
503-269-618	120 mm             POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI009515**

Thickness ..... **6.0mm** Purity ..... **99.6+%**

<b>Size</b>	<b>Quantity</b>
<b>Web Code</b>	<b>Disc diam.</b> <b>1disc</b>
908-701-507	152.4 mm           POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI009520**

Thickness ..... **6.0mm** Purity ..... **99.6+%**

<b>Size</b>	<b>Quantity</b>
<b>Web Code</b>	<b>Disc diam.</b> <b>1disc</b>
587-693-758	203.2 mm           POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI009700**

Thickness ..... **7.0mm** Purity ..... **99.6+%**

<b>Size</b>	<b>Quantity</b>
<b>Web Code</b>	<b>Disc diam.</b> <b>1disc</b>
073-522-547	50 mm              POA
190-319-810	75 mm              POA

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.  
 These targets are normally available for immediate shipment from stock. Other sizes are available to special order.



**Mesh**

**TI008710**

Nominal Aperture..... **0.19mm** Wire diameter..... **0.23mm**  
 Wires/inch..... **60x60** Open area ..... **20%**  
 Weave..... **Twill**

<b>Size</b>	<b>Quantity</b>
<b>Web Code</b>	<b>Size</b> <b>1pc</b> <b>2pcs</b> <b>5pcs</b>
113-282-527	50 x 50 mm      YEN 40000      YEN 53500      YEN 76500
160-318-438	100 x 100 mm    YEN 55500      YEN 75500      YEN 113000
039-809-321	150 x 150 mm    YEN 71000      YEN 97500

**TI008720**

Nominal Aperture..... **4.3mm** Wire diameter..... **1.5mm**  
 Wires/inch..... **4.4x4.4** Open area ..... **94%**  
 Condition..... **Diamond pattern** Condition..... **Platinised**

<b>Size</b>	<b>Quantity</b>
<b>Web Code</b>	<b>Size</b> <b>1pc</b>
293-740-051	100 x 100 mm    YEN 62000

**Metal – Titanium**

## Titanium

Ti



### Wire

<b>TI005100</b>	Diameter . . . . . <b>0.05mm</b> Temper . . . . . <b>Hard</b>	Purity . . . . . <b>99.8%</b>
	<b>Length</b> <b>Web Code</b>	<b>Quantity</b>
	703-333-766	<b>Length 1 Reel</b>
	916-721-398	10 m YEN 32200
	590-169-228	20 m YEN 39400
	771-155-069	50 m YEN 53500
	044-552-997	100 m YEN 70000
		200 m YEN 93500
Typical Analysis : Al 1, Cr 30, Cu 10, Fe 90, Mg 10, Mn 400, Ni 50, Si 30, V 50, H 80, N 20, O 400.		
<b>TI005108</b>	Diameter . . . . . <b>0.08mm</b> Temper . . . . . <b>As drawn</b>	Purity . . . . . <b>99.6+%</b>
	<b>Length</b> <b>Web Code</b>	<b>Quantity</b>
	688-190-022	<b>Length 1 Reel</b>
		10 m YEN 32200
Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.		
<b>TI005112</b>	Diameter . . . . . <b>0.125mm</b> Temper . . . . . <b>Annealed</b>	Purity . . . . . <b>99.6+%</b>
	<b>Length</b> <b>Web Code</b>	<b>Quantity</b>
	162-135-533	<b>Length 1 Reel</b>
	266-947-713	10 m YEN 21000
	622-638-419	20 m YEN 25600
	368-464-341	50 m YEN 34800
	349-966-852	100 m YEN 45200
		200 m YEN 60500
Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.		
<b>TI005119</b>	Diameter . . . . . <b>0.20mm</b> Temper . . . . . <b>As drawn</b>	Purity . . . . . <b>99.6+%</b>
	<b>Length</b> <b>Web Code</b>	<b>Quantity</b>
	109-417-803	<b>Length 1 Reel</b>
		10 m YEN 20600
Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000. 10m reels only.		
<b>TI005121</b>	Diameter . . . . . <b>0.20mm</b> Temper . . . . . <b>Annealed</b>	Purity . . . . . <b>99.6+%</b>
	<b>Length</b> <b>Web Code</b>	<b>Quantity</b>
	407-756-100	<b>Length 1 Reel</b>
	474-042-012	1 m YEN 14100
	963-914-025	5 m YEN 16800
	782-680-564	25 m YEN 22800
	364-257-070	100 m YEN 34200
	434-034-311	200 m YEN 44000
		500 m YEN 85000
Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.		
<b>TI005124</b>	Diameter . . . . . <b>0.25mm</b> Temper . . . . . <b>As drawn</b>	Purity . . . . . <b>99.6+%</b>
	<b>Length</b> <b>Web Code</b>	<b>Quantity</b>
	552-625-721	<b>Length 1 Reel</b>
		10 m YEN 19900
Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000. 10m reels only.		
<b>TI005120</b>	Diameter . . . . . <b>0.25mm</b> Temper . . . . . <b>As drawn</b>	High Purity . . . . . <b>99.99+%</b>
	<b>Length</b> <b>Web Code</b>	<b>Quantity</b>
	254-793-337	<b>Length 1 Reel</b>
	849-171-880	0.5 m YEN 18500
	146-486-879	1 m YEN 23200
	310-857-604	2 m YEN 30000
		5 m YEN 44600
Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.		

Metal – Titanium

**Titanium**

**Ti**



**Wire**

**TI005122**

Diameter . . . . . **0.25mm** Purity . . . . . **99.6+%**  
 Temper . . . . . **Annealed**

<b>Length</b>		<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1 Reel</b>	
782-345-219	1 m	YEN	14300
793-150-275	5 m	YEN	17100
143-776-319	25 m	YEN	23400
972-049-909	100 m	YEN	35400
506-244-341	200 m	YEN	45600
280-545-040	500 m	YEN	92500

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI005123**

Diameter . . . . . **0.25mm** Purity . . . . . **99.6+%**  
 Temper . . . . . **As drawn**

<b>Length</b>		<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1 Reel</b>	
128-690-626	1 m	YEN	14300
969-449-238	5 m	YEN	17100
557-759-758	25 m	YEN	23400
461-325-340	100 m	YEN	35400
007-612-179	200 m	YEN	45600
510-587-840	500 m	YEN	92500

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI005127**

Diameter . . . . . **0.5mm** Purity . . . . . **99.975+%**  
 Temper . . . . . **Annealed**

<b>Length</b>		<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1 Reel</b>	
341-440-179	0.5 m	YEN	18600
680-020-060	1 m	YEN	23200
002-501-645	2 m	YEN	31000

Typical Analysis : Al <10, Ca <5, Cr <10, Cu <5, Fe <160, K <1, Li <1, Mg <10, Mo <10, Na <1, Si <10.

**TI005128**

Diameter . . . . . **0.5mm** High Purity . . . . . **99.99+%**  
 Temper . . . . . **As drawn**

<b>Length</b>		<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1 Reel</b>	
809-328-225	0.5 m	YEN	20000
166-027-687	1 m	YEN	25200
753-455-659	2 m	YEN	32800
181-958-579	5 m	YEN	59000

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI005125**

Diameter . . . . . **0.5mm** Purity . . . . . **99.6+%**  
 Temper . . . . . **As drawn**

<b>Length</b>		<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1 Reel</b>	
068-135-256	1 m	YEN	13900
516-906-634	5 m	YEN	17100
613-334-558	25 m	YEN	24200
666-822-887	100 m	YEN	37400
352-853-849	200 m	YEN	50500

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI005126**

Diameter . . . . . **0.75mm** Purity . . . . . **99.6+%**  
 Temper . . . . . **As drawn**

<b>Length</b>		<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1 Reel</b>	
269-768-530	1 m	YEN	14900
906-884-492	5 m	YEN	19300
767-359-636	10 m	YEN	22600
691-686-624	20 m	YEN	27200
612-284-036	50 m	YEN	36600
717-833-543	100 m	YEN	48000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI005320**

Diameter . . . . . **1.0mm** Purity . . . . . **99.6+%**  
 Condition . . . . . **Straight wire** Temper . . . . . **As drawn**

<b>Size</b>		<b>Quantity</b>				
<b>Web Code</b>	<b>Length</b>	<b>1pc</b>	<b>2pcs</b>	<b>5pcs</b>	<b>10pcs</b>	<b>20pcs</b>
				3.6g	#1000 mm#	

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**Metal – Titanium**

## Titanium

Ti



### Wire

**TI005130**

Diameter ..... **1.0mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Length**

**Web Code**  
 762-664-231  
 333-028-321  
 628-549-595  
 568-687-660  
 085-951-196

Quantity	
Length	1 Reel
0.5 m	YEN 13300
1 m	YEN 14600
5 m	YEN 20200
25 m	YEN 32600
100 m	YEN 62000

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI005129**

Diameter ..... **1.0mm**  
 Temper ..... **As drawn**

Purity ..... **99.6+%**

**Length**

**Web Code**  
 710-202-350  
 775-296-397  
 912-044-669  
 005-581-872  
 697-731-818

Quantity	
Length	1 Reel
0.5 m	YEN 13300
1 m	YEN 14600
5 m	YEN 20200
25 m	YEN 32600
100 m	YEN 62000

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI005135**

Diameter ..... **1.0mm**  
 Temper ..... **As drawn**

High Purity ..... **99.99+%**

**Length**

**Web Code**  
 743-899-888  
 987-481-525  
 435-199-458

Quantity	
Length	1 Reel
0.5 m	YEN 23800
1 m	YEN 29600
2 m	YEN 38000

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI005136**

Diameter ..... **1.0mm**  
 Temper ..... **Annealed**

Purity ..... **99.99+%**

**Length**

**Web Code**  
 684-191-326  
 301-401-658  
 042-269-369

Quantity	
Length	1 Reel
0.5 m	YEN 23800
1 m	YEN 29600
2 m	YEN 38000

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI005140**

Diameter ..... **1.5mm**  
 Temper ..... **As drawn**

Purity ..... **99.6+%**

**Length**

**Web Code**  
 809-085-444  
 506-434-790  
 941-505-933  
 755-186-249  
 833-122-096

Quantity	
Length	1 Reel
1 m	YEN 16400
5 m	YEN 24200
10 m	YEN 30000
20 m	YEN 38200
50 m	YEN 60000

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI005160**

Diameter ..... **3.0mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Length**

**Web Code**  
 902-253-893

Quantity	
Length	1 Reel
1 m	YEN 20800

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.



### Rod

**TI007905**

Diameter ..... **1.5mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 726-938-831  
 455-869-852  
 038-382-829  
 341-063-631

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 14000	YEN 16900	YEN 20800	YEN 26600	YEN 37600
200 mm	YEN 14500	YEN 17700	YEN 22000	YEN 28200	YEN 40000
500 mm	YEN 15600	YEN 19100	YEN 24200	YEN 31600	YEN 44600
1000 mm	YEN 16700	YEN 20800	YEN 26800	YEN 35200	YEN 49800

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

Metal – Titanium

## Titanium

### Ti



## Rod

**TI007910**

Diameter ..... **2mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 613-226-991  
 653-367-004  
 039-162-907  
 860-685-368

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 14400	YEN 17400	YEN 21600	YEN 27800	YEN 39200
200 mm	YEN 15000	YEN 18400	YEN 23000	YEN 29800	YEN 42200
490 mm	YEN 16300	YEN 20200	YEN 25800	YEN 33800	YEN 47800
1000 mm	YEN 17800	YEN 22400	YEN 29200	YEN 38600	YEN 56500

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007911**

Diameter ..... **2mm**  
 Temper ..... **As drawn**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 669-911-794  
 626-767-595  
 331-228-329  
 587-909-642

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 18300	YEN 22000	YEN 28200	YEN 43400
200 mm	YEN 21200	YEN 26200	YEN 42600	YEN 74000
500 mm	YEN 27200	YEN 42200	YEN 88500	
1000 mm	YEN 41600	YEN 73000		

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI007913**

Diameter ..... **2mm**  
 Temper ..... **Annealed**

Purity ..... **99.99+%**

**Size**

**Web Code**  
 487-942-601  
 720-919-424  
 246-190-801  
 263-199-777

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 19800	YEN 23400	YEN 29800	YEN 44800
200 mm	YEN 22800	YEN 27600	YEN 44200	YEN 75500
500 mm	YEN 28800	YEN 43800	YEN 90000	
1000 mm	YEN 43000	YEN 74500		

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI007915**

Diameter ..... **3.0mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 993-901-341  
 177-055-164  
 167-721-605  
 548-835-815

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 14900	YEN 18100	YEN 22600	YEN 29200	YEN 41400
200 mm	YEN 15700	YEN 19400	YEN 24600	YEN 32000	YEN 45200
500 mm	YEN 17500	YEN 21800	YEN 28400	YEN 37600	YEN 53500
1000 mm	YEN 19400	YEN 24600	YEN 32800	YEN 44000	YEN 74500

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007916**

Diameter ..... **4mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 647-843-137  
 549-782-494  
 814-360-570  
 144-236-334

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 15700	YEN 19200	YEN 24000	YEN 31000	YEN 43400
200 mm	YEN 16900	YEN 20800	YEN 26600	YEN 34600	YEN 48400
500 mm	YEN 19100	YEN 24000	YEN 31600	YEN 43200	YEN 73000
1000 mm	YEN 21600	YEN 27600	YEN 38800	YEN 64000	

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007920**

Diameter ..... **5mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 585-670-678  
 208-829-984  
 103-746-780  
 968-344-939

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 15800	YEN 19400	YEN 24400	YEN 31400	YEN 43800
200 mm	YEN 17000	YEN 21000	YEN 27000	YEN 35000	YEN 49400
500 mm	YEN 19300	YEN 24400	YEN 32200	YEN 45000	YEN 76500
1000 mm	YEN 22000	YEN 28000	YEN 40600	YEN 67500	

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007918**

Diameter ..... **5.0mm**  
 Temper ..... **As drawn**

Purity ..... **99.99+%**

**Size**

**Web Code**  
 428-536-198  
 267-928-716

Length	Quantity	
	1pc	2pcs
50 mm	YEN 32400	YEN 40800
100 mm	YEN 38800	YEN 49800

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

## Titanium

Ti



### Rod

**TI007921**

Diameter ..... **6mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 043-116-388  
 389-540-768  
 692-593-155  
 574-141-796

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 17600	YEN 21600	YEN 27000	YEN 34600
200 mm	YEN 19000	YEN 23600	YEN 30200	YEN 39000
500 mm	YEN 21800	YEN 27600	YEN 36400	YEN 56500
1000 mm	YEN 25000	YEN 32000	YEN 52000	

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007923**

Diameter ..... **6.2mm**  
 Temper ..... **Annealed**

Purity ..... **99.99+%**

**Size**

**Web Code**  
 017-601-271  
 571-501-549  
 384-667-485

Length	Quantity
	1pc
154 mm	YEN 45400
370 mm	YEN 74000
895 mm	YEN 155000

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI007922**

Diameter ..... **6.35mm**  
 Temper ..... **Annealed**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 664-090-505  
 519-300-427  
 277-294-013

Length	Quantity	
	1pc	2pcs
50 mm	YEN 33200	YEN 41800
100 mm	YEN 39800	YEN 51500
200 mm	YEN 49200	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI007925**

Diameter ..... **8.0mm**  
 Temper ..... **As drawn**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 823-918-786  
 405-093-456  
 986-116-236

Length	Quantity	
	1pc	2pcs
50 mm	YEN 37400	YEN 47800
100 mm	YEN 45600	YEN 68000
200 mm	YEN 66000	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI007931**

Diameter ..... **9.5mm**  
 Temper ..... **Annealed**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 351-300-359  
 912-539-653  
 918-599-677  
 824-951-989

Length	Quantity		
	1pc	2pcs	5pcs
25 mm	YEN 34000	YEN 43000	YEN 63000
50 mm	YEN 41000	YEN 53000	
100 mm	YEN 51000	YEN 87000	
200 mm	YEN 85000		

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI007930**

Diameter ..... **10mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 767-723-911  
 965-493-289  
 686-650-782  
 831-348-743

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 19100	YEN 23000	YEN 29400	YEN 37600
200 mm	YEN 21000	YEN 25800	YEN 33600	
500 mm	YEN 24800	YEN 31200		
1000 mm	YEN 29200			

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007937**

Diameter ..... **16mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 390-400-846  
 800-104-921  
 013-124-908  
 640-617-607

Length	Quantity		
	1pc	2pcs	5pcs
100 mm	YEN 21400	YEN 26200	YEN 34000
200 mm	YEN 24000	YEN 30000	YEN 46000
500 mm	YEN 29200	YEN 43400	
1000 mm	YEN 41200		

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007938**

Diameter ..... **16mm**  
 Temper ..... **As drawn**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 501-713-189  
 480-926-876  
 877-169-973

Length	Quantity	
	1pc	2pcs
25 mm	YEN 37600	YEN 49000
50 mm	YEN 47000	YEN 79500
100 mm	YEN 77500	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

Metal – Titanium



**Titanium**

**Ti**



**Rod**

**TI007940**

Diameter ..... **20mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 650-810-444  
 354-463-169  
 307-897-152  
 487-146-660  
 077-206-463

Length	Quantity		
	1pc	2pcs	5pcs
50 mm	YEN 16400	YEN 19500	POA
100 mm	YEN 18200	YEN 22000	POA
200 mm	YEN 20800	POA	
500 mm	POA		
1000 mm	POA		

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007941**

Diameter ..... **20mm**  
 Temper ..... **As drawn**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 417-393-521  
 049-096-533  
 097-147-193

Length	Quantity	
	1pc	2pcs
25 mm	YEN 39400	YEN 53000
50 mm	YEN 51000	YEN 89000
100 mm	YEN 87000	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI007945**

Diameter ..... **25mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 667-385-278  
 570-710-445  
 249-765-258  
 390-711-673  
 894-550-342

Length	Quantity		
	1pc	2pcs	5pcs
50 mm	YEN 17500	YEN 21000	POA
100 mm	YEN 19800	YEN 25200	POA
200 mm	YEN 24000	POA	
500 mm	POA		
1000 mm	POA		

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007946**

Diameter ..... **25mm**  
 Temper ..... **As drawn**

High Purity ..... **99.99+%**

**Size**

**Web Code**  
 373-425-482  
 946-302-718

Length	Quantity	
	1pc	2pcs
25 mm	YEN 44400	YEN 70000
50 mm	YEN 68000	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI007947**

Diameter ..... **30mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 483-440-583  
 330-430-696  
 609-494-572  
 897-523-046  
 210-713-265

Length	Quantity		
	1pc	2pcs	5pcs
50 mm	YEN 18600	YEN 22600	POA
100 mm	YEN 21200	YEN 30200	POA
200 mm	YEN 29000	POA	
500 mm	POA		
1000 mm	POA		

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007948**

Diameter ..... **40mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 727-887-547  
 177-997-770  
 430-360-174  
 670-459-346  
 336-998-532

Length	Quantity		
	1pc	2pcs	5pcs
50 mm	YEN 20800	YEN 28200	POA
100 mm	YEN 27000	POA	
200 mm	POA		
500 mm	POA		
1000 mm	POA		

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI007950**

Diameter ..... **50mm**  
 Temper ..... **Annealed**

Purity ..... **99.6+%**

**Size**

**Web Code**  
 368-631-967  
 893-334-663  
 666-829-969  
 353-747-982  
 218-490-266  
 642-046-246

Length	Quantity		
	1pc	2pcs	5pcs
25 mm	YEN 20600	YEN 26000	POA
50 mm	YEN 24600	POA	
100 mm	POA		
200 mm	POA		
500 mm	POA		
1000 mm	POA		

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

## Titanium

Ti



### Rod

**TI007955**

Diameter ..... 50mm

High Purity ..... 99.99+%

**Size**

**Web Code**  
 311-277-120  
 909-639-289

Length	Quantity	
	1pc	2pcs
10 mm	YEN 50000	
25 mm	YEN 86000	

Typical Analysis : Al <3, Ca <2, Cr <6, Cu <10, Fe <10, Mg <1, Mn <1, Nb <5, Ni <3, S <1, Si <5, V <3, Zn <1, Zr <3.

**TI007975**

Diameter ..... 75mm  
 Temper ..... Annealed

Purity ..... 99.6+%

**Size**

**Web Code**  
 045-504-645  
 010-155-025  
 289-420-615  
 957-338-168  
 423-492-152  
 299-047-015

Length	Quantity	
	1pc	2pcs
25 mm	YEN 24200	POA
50 mm	POA	
100 mm	POA	
200 mm	POA	
500 mm	POA	
1000 mm	POA	

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.



### Bar

**TI008003**

Side Length ..... 10mm  
 Purity ..... 99.6+%

Side Length (of longer side)12mm

**Size**

**Web Code**  
 024-847-271  
 871-756-044  
 655-568-722  
 289-180-194

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 9600	YEN 11700	YEN 16000	YEN 26800
200 mm	YEN 11500	YEN 14200	YEN 26400	
500 mm	YEN 15600	YEN 26200		
1000 mm	YEN 26000	YEN 47000		

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI008010**

Side Length ..... 50mm  
 Purity ..... 99.6+%

Side Length (of longer side)50mm

**Size**

**Web Code**  
 943-781-460

Length	Quantity	
	1pc	2pcs
100 mm	POA	

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.



### Tube

**TI007050**

Outside Diameter ..... 0.51mm  
 Inside Diameter ..... 0.35mm  
 Temper ..... Annealed

Wall Thickness ..... 0.08mm  
 Purity ..... 99.6+%

**Size**

**Web Code**  
 139-002-057  
 375-258-559  
 907-315-054

Length	Quantity		
	1pc	2pcs	5pcs
100 mm	YEN 37800	YEN 46800	YEN 83000
200 mm	YEN 45400	YEN 69500	
500 mm	YEN 80500		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007060**

Outside Diameter ..... 0.81mm  
 Inside Diameter ..... 0.61mm  
 Temper ..... As drawn

Wall Thickness ..... 0.1mm  
 Purity ..... 99.6+%

**Size**

**Web Code**  
 212-007-468  
 084-327-266  
 627-380-069  
 600-924-567

Length	Quantity		
	1pc	2pcs	5pcs
100 mm	YEN 35800	YEN 44000	YEN 70500
200 mm	YEN 42600	YEN 60000	YEN 120000
500 mm	YEN 68500	YEN 119000	
1000 mm	YEN 117000		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007068**

Outside Diameter ..... 1.00mm  
 Inside Diameter ..... 0.36mm  
 Temper ..... Hard

Wall Thickness ..... 0.32mm  
 Purity ..... 99.6+%

**Size**

**Web Code**  
 307-126-652

Length	Quantity			
	10pcs	20pcs	50pcs	100pcs
20 mm	YEN 34400	YEN 49200	YEN 94000	YEN 168000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

Metal – Titanium

**Titanium**

**Ti**



**Tube**

<b>TI007070</b>	Outside Diameter..... <b>1.05mm</b>	Wall Thickness..... <b>0.15mm</b>
	Inside Diameter..... <b>0.75mm</b>	Purity..... <b>99.6+%</b>
	Temper..... <b>Annealed</b>	
<b>Size</b>	<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1pc 2pcs 5pcs</b>
414-378-307	100 mm	YEN 35800 YEN 44000 YEN 70500
797-294-422	200 mm	YEN 42600 YEN 60000 YEN 120000
661-800-346	500 mm	YEN 68500 YEN 119000
328-012-513	1000 mm	YEN 117000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

<b>TI007075</b>	Outside Diameter..... <b>1.5mm</b>	Wall Thickness..... <b>0.175mm</b>
	Inside Diameter..... <b>1.15mm</b>	Purity..... <b>99.6+%</b>
	Temper..... <b>Hard</b>	
<b>Size</b>	<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1pc 2pcs 5pcs</b>
772-144-387	230 mm	YEN 36200 YEN 45000 YEN 62000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

<b>TI007085</b>	Outside Diameter..... <b>1.6mm</b>	Wall Thickness..... <b>0.5mm</b>
	Inside Diameter..... <b>0.6mm</b>	Purity..... <b>99.6+%</b>
	Temper..... <b>Annealed</b>	
<b>Size</b>	<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1pc 2pcs 5pcs</b>
550-158-262	100 mm	YEN 23000 YEN 28600 YEN 47600
054-267-481	200 mm	YEN 27400 YEN 40400 YEN 81500
934-343-170	500 mm	YEN 46200 YEN 81000
272-244-568	1000 mm	YEN 80000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

<b>TI007080</b>	Outside Diameter..... <b>1.6mm</b>	Wall Thickness..... <b>0.2mm</b>
	Inside Diameter..... <b>1.2mm</b>	Purity..... <b>99.6+%</b>
	Temper..... <b>Hard</b>	
<b>Size</b>	<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1pc 2pcs 5pcs</b>
656-944-268	100 mm	YEN 23000 YEN 28600 YEN 47600
492-647-132	200 mm	YEN 27400 YEN 40400 YEN 81500
863-991-063	500 mm	YEN 46200 YEN 81000
054-380-668	1000 mm	YEN 80000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

<b>TI007101</b>	Outside Diameter..... <b>2.03mm</b>	Wall Thickness..... <b>0.24mm</b>
	Inside Diameter..... <b>1.55mm</b>	Purity..... <b>99.6+%</b>
	Temper..... <b>Annealed</b>	
<b>Size</b>	<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1pc 2pcs 5pcs</b>
139-154-472	100 mm	YEN 20400 YEN 24800 YEN 33000
322-700-154	200 mm	YEN 23800 YEN 29600 YEN 52000
295-841-870	500 mm	YEN 31400 YEN 52000
686-703-660	1220 mm	YEN 59000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

<b>TI007100</b>	Outside Diameter..... <b>2.03mm</b>	Wall Thickness..... <b>0.2mm</b>
	Inside Diameter..... <b>1.63mm</b>	Purity..... <b>99.6+%</b>
	Temper..... <b>Annealed</b>	
<b>Size</b>	<b>Quantity</b>	
<b>Web Code</b>	<b>Length</b>	<b>1pc 2pcs 5pcs</b>
725-038-271	100 mm	YEN 21600 YEN 26600 YEN 39200
629-775-405	200 mm	YEN 25400 YEN 33600 YEN 64500
721-931-142	500 mm	YEN 37600 YEN 64000
173-953-754	1000 mm	YEN 63000

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

<b>TI007126</b>	Outside Diameter..... <b>2.65mm</b>	Wall Thickness..... <b>0.1mm</b>		
	Inside Diameter..... <b>2.45mm</b>	Purity..... <b>99.6+%</b>		
	Temper..... <b>Hard</b>			
<b>Size</b>	<b>Quantity</b>			
<b>Web Code</b>	<b>Length</b>	<b>10pcs 25pcs 50pcs 100pcs</b>		
117-672-939	4 mm	YEN 20000 YEN 25400 YEN 32400 YEN 45200		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**Metal – Titanium**

**Titanium**

**Ti**



**Tube**

**TI007210**

Outside Diameter..... **3.0mm**  
 Inside Diameter..... **1.5mm**  
 Temper..... **Annealed**

Wall Thickness..... **0.75mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

832-381-277  
 047-658-559  
 957-319-600  
 664-952-794

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 19000	YEN 23000	YEN 30600	YEN 48200
200 mm	YEN 21800	YEN 26800	YEN 47600	
500 mm	YEN 29200	YEN 47200		
1000 mm	YEN 46200			

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007250**

Outside Diameter..... **4.25mm**  
 Inside Diameter..... **3.75mm**  
 Temper..... **Annealed**

Wall Thickness..... **0.25mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

119-099-329  
 887-420-548  
 927-568-528  
 946-070-401

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 18400	YEN 22000	YEN 27600	YEN 36400
200 mm	YEN 21000	YEN 25600	YEN 35800	YEN 58500
500 mm	YEN 26000	YEN 35400		
1000 mm	YEN 34400	YEN 57500		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007295**

Outside Diameter..... **6.1mm**  
 Inside Diameter..... **5.1mm**  
 Temper..... **Annealed**

Wall Thickness..... **0.5mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

481-675-901  
 356-826-007  
 504-026-630  
 206-109-979

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 20800	YEN 25400	YEN 34600	YEN 55500
200 mm	YEN 24200	YEN 30200	YEN 55000	YEN 96000
500 mm	YEN 33000	YEN 54500		
1000 mm	YEN 53000	YEN 94500		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007350**

Outside Diameter..... **6.35mm**  
 Inside Diameter..... **4.57mm**  
 Temper..... **Annealed**

Wall Thickness..... **0.89mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

739-151-280  
 393-908-800  
 238-601-445  
 825-177-227

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 20400	YEN 24600	YEN 31400	YEN 49000
200 mm	YEN 23400	YEN 29000	YEN 48200	
500 mm	YEN 29800	YEN 47800		
1000 mm	YEN 46600			

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007300**

Outside Diameter..... **6.35mm**  
 Inside Diameter..... **5.53mm**  
 Temper..... **Annealed**

Wall Thickness..... **0.41mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

258-804-851  
 350-610-838  
 826-351-383  
 293-913-295

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 20800	YEN 25400	YEN 34600	YEN 55500
200 mm	YEN 24200	YEN 30200	YEN 55000	
500 mm	YEN 33000	YEN 54500		
1000 mm	YEN 53000			

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007370**

Outside Diameter..... **7.0mm**  
 Inside Diameter..... **5mm**  
 Temper..... **Annealed**

Wall Thickness..... **1.0mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

223-418-007  
 106-208-414  
 648-580-126  
 036-921-236

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 20400	YEN 24600	YEN 31400	YEN 49000
200 mm	YEN 23400	YEN 29000	YEN 48200	
500 mm	YEN 29800	YEN 47800		
1000 mm	YEN 46600			

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007401**

Outside Diameter..... **9.5mm**  
 Inside Diameter..... **8.2mm**  
 Temper..... **Annealed**

Wall Thickness..... **0.65mm**  
 Purity..... **99.6+%**  
 Condition..... **Lightly Oxidised surface**

**Size**

**Web Code**

060-031-005  
 635-270-033  
 520-055-962  
 854-966-646

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 17100	YEN 20800	YEN 24400	YEN 28800
200 mm	YEN 18800	YEN 23200	YEN 28200	YEN 39400
500 mm	YEN 22000	YEN 27800	YEN 44600	
1000 mm	YEN 25800	YEN 38400		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**Titanium**

**Ti**



**Tube**

**TI007461**

Outside Diameter..... **10mm**  
 Inside Diameter..... **8mm**  
 Temper..... **Annealed**

Wall Thickness..... **1.0mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

026-656-727  
 886-397-128  
 640-012-142  
 429-596-619

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 19100	YEN 22800	YEN 28600	YEN 39800
200 mm	YEN 21800	YEN 26600	YEN 39000	
500 mm	YEN 27000	YEN 38600		
1000 mm	YEN 37400			

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007460**

Outside Diameter..... **10.3mm**  
 Inside Diameter..... **8.7mm**  
 Temper..... **Annealed**

Wall Thickness..... **0.8mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

284-117-036  
 514-633-570  
 329-199-253  
 149-909-352

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 19100	YEN 22800	YEN 28600	YEN 39800
200 mm	YEN 21800	YEN 26600	YEN 39000	
500 mm	YEN 27000	YEN 38600		
1000 mm	YEN 37400			

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007500**

Outside Diameter..... **12.7mm**  
 Inside Diameter..... **10.9mm**  
 Temper..... **Annealed**

Wall Thickness..... **0.9mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

738-669-986  
 333-737-954  
 717-241-244  
 655-150-249

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 19400	YEN 23400	YEN 29200	YEN 42200
200 mm	YEN 22200	YEN 27200	YEN 41400	YEN 69000
500 mm	YEN 27600	YEN 41000		
1000 mm	YEN 39800	YEN 68000		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.

**TI007550**

Outside Diameter..... **25.4mm**  
 Inside Diameter..... **23.62mm**  
 Temper..... **Annealed**

Wall Thickness..... **0.89mm**  
 Purity..... **99.6+%**

**Size**

**Web Code**

893-777-018  
 722-128-135  
 266-023-212  
 252-905-815

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
100 mm	YEN 20600	YEN 24800	YEN 30800	YEN 44400
200 mm	YEN 23400	YEN 28600	YEN 43600	YEN 72500
500 mm	YEN 28800	YEN 43000		
1000 mm	YEN 41800	YEN 71000		

Typical Analysis : Al 300, Ca 20, Cr 50, Cu 5, Fe 1500, Mn 100, Ni 50, Si 300, Sn 200, C 300, H 60, N 150, O 2000.



**Powder**

**TI006030**

Max. Particle size..... **45micron**  
 Condition..... **Grade 1**  
 Condition..... **Spherical**

Purity..... **99.5%**  
 Condition..... **Gas atomized**



**Web Code**  
 350-340-381

Quantity	Weight	1 Pot
50 g	YEN 31800	

Typical Analysis : C <100, Chlorides 1700, Fe 200, N <100, O 1000.

May be suitable for additive manufacturing research and development purposes.

Hazardous goods, additional shipment charges apply which are dependent on destination. Please check the individual item on our website or contact us for further details.

**TI006075**

Max. Particle size..... **45micron**  
 Condition..... **Grade 1**  
 Condition..... **Spherical**

Purity..... **99.5%**  
 Condition..... **Gas atomized**



**Web Code**  
 471-838-560

Quantity	Weight	1 Pot
100 g	YEN 38000	

Typical Analysis : C <100, Chlorides 1700, Fe 200, N <100, O 1000.

May be suitable for additive manufacturing research and development purposes.

Hazardous goods, additional shipment charges apply which are dependent on destination. Please check the individual item on our website or contact us for further details.

**Metal – Titanium**

## Titanium

Ti



### Powder

**TI006021**

Max. Particle size ..... **45micron**  
 Condition..... **Grade 2**  
 Condition..... **Spherical**

Purity..... **99.5%**  
 Condition..... **Gas atomized**



**Web Code**  
 145-365-376

Quantity	Weight	1 Pot
	50 g	YEN 31800

Typical Analysis : C <100, Chlorides 1700, Fe 200, N <100, O 1000.

May be suitable for additive manufacturing research and development purposes.

Hazardous goods, additional shipment charges apply which are dependent on destination. Please check the individual item on our website or contact us for further details.

**TI006022**

Max. Particle size ..... **75micron**

Purity..... **99.5%**



**Web Code**  
 780-284-214  
 815-389-828  
 563-440-572  
 310-743-087

Quantity	Weight	1 Pot
	50 g	YEN 26200
	100 g	YEN 33600
	200 g	YEN 40600
	500 g	YEN 68000

Typical Analysis : C <100, Chlorides 1700, Fe 200, N <100, O 1000.

Hazardous goods, additional shipment charges apply which are dependent on destination. Please check the individual item on our website or contact us for further details.

**TI006076**

Max. Particle size ..... **106micron**  
 Condition..... **Grade 2**  
 Condition..... **Spherical**

Purity..... **99.5%**  
 Condition..... **Gas atomized**



**Web Code**  
 679-009-014

Quantity	Weight	1 Pot
	50 g	YEN 29400

Typical Analysis : C <100, Chlorides 1700, Fe 200, N <100, O 1000.

May be suitable for additive manufacturing research and development purposes.

Hazardous goods, additional shipment charges apply which are dependent on destination. Please check the individual item on our website or contact us for further details.

**TI006020**

Max. Particle size ..... **150micron**

Purity..... **99.5%**



**Web Code**  
 051-375-012  
 421-878-116  
 201-125-457  
 734-771-099  
 846-380-654

Quantity	Weight	1 Pot
	50 g	YEN 20800
	100 g	YEN 24600
	200 g	YEN 30200
	500 g	YEN 41000
	1000 g	YEN 70000

Typical Analysis : C <100, Chlorides 1700, Fe 200, N <100, O 1000.

Hazardous goods, additional shipment charges apply which are dependent on destination. Please check the individual item on our website or contact us for further details.



### Lump

**TI006104**

Max. Lump size ..... **4mm**

Purity..... **99.6+%**

**Web Code**  
 744-070-240

Quantity	Weight	1 Pot
	20 g	YEN 17900

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.

**TI006101**

Max. Lump size ..... **4mm**  
 Condition..... **Pellets**

High Purity ..... **99.99+%**

**Web Code**  
 693-862-822  
 230-788-207  
 691-854-254

Quantity	Weight	1 Pot
	20 g	YEN 25200
	50 g	YEN 40000
	100 g	YEN 67500

Typical Analysis : Al <3, Ca <2, Cr <2, Cu <1, Fe <10, Mn <1, Nb <5, Ni <3, Si <5, V <3, Zn <1, Zr <3.

Nominally 3mm diameter x 3mm length pellets. Please ask for prices for larger quantities.

Metal – Titanium

## Titanium

Ti



### Lump

**TI006102**

Max. Lump size ..... **6mm** High Purity ..... **99.99+%**  
 Condition..... **Pellets**

**Web Code**

466-661-763  
 036-450-754  
 259-017-715

**Quantity**

**Weight**

20 g  
 50 g  
 100 g

**1 Pot**

YEN 24000  
 YEN 35600  
 YEN 59000

Typical Analysis : Al <3, Ca <2, Cr <2, Cu <1, Fe <10, Mn <1, Nb <5, Ni <3, Si <5, V <3, Zn <1, Zr <3.  
 Nominally 4.7mm diameter x 4.7mm length pellets. Please ask for prices for larger quantities.

**TI006111**

Max. Lump size ..... **6mm** High Purity ..... **99.999%**  
 Condition..... **Pellets**

**Web Code**

797-622-142  
 421-821-863  
 217-107-759

**Quantity**

**Weight**

20 g  
 50 g  
 100 g

**1 Pot**

YEN 29600  
 YEN 50500  
 YEN 86500

Typical Analysis : Al 2, Cu 1, Fe 3, Si 1, Sn 1  
 Nominally 4.7mm diameter x 4.7mm length pellets. Please ask for prices for larger quantities.

**TI006100**

Max. Lump size ..... **10mm** High Purity ..... **99.99+%**  
 Condition..... **Pellets**

**Web Code**

128-330-856  
 041-351-482  
 168-929-050

**Quantity**

**Weight**

20 g  
 50 g  
 100 g

**1 Pot**

YEN 21200  
 YEN 30600  
 YEN 48600

Typical Analysis : Al <3, Ca <2, Cr <2, Cu <1, Fe <10, Mn <1, Nb <5, Ni <3, Si <5, V <3, Zn <1, Zr <3.  
 Pellets - nominal size 9.5mm diameter x 9.5mm length Please ask for prices for larger quantities.

**TI006110**

Max. Lump size ..... **10mm** High Purity ..... **99.999%**  
 Condition..... **Pellets**

**Web Code**

609-177-118  
 147-144-895  
 393-112-098

**Quantity**

**Weight**

20 g  
 50 g  
 100 g

**1 Pot**

YEN 28800  
 YEN 46600  
 YEN 79500

Typical Analysis : Al 2, Cu 1, Fe 3, Si 1, Sn 1  
 Pellets - nominal size 9.5mm diameter x 9.5mm length Please ask for prices for larger quantities.



### Sphere

**TI006830**

Diameter ..... **3mm** Purity..... **99.6+%**

**Quantity**

**Web Code**  
 220-739-924  
 757-094-570  
 347-398-370

**Quantity**

**Spheres**

50 pcs  
 100 pcs  
 200 pcs

**1 Pot**

YEN 20400  
 YEN 33800  
 YEN 60000

Typical Analysis : Al 500, Co 2, Cr 500, Cu 200, Fe 300, Mg 20, Mn 500, Ni 500, Si 200, Sn 200, Ta 10, V 500.



### Single Crystal

**TI002122**

Oriented ..... **(0001)** Thickness ..... **1mm**  
 Condition..... **Unpolished**

**Web Code**  
 366-248-096

**Quantity**

**Size**  
 3x5

**1pc**

YEN POA

**TI002120**

Oriented ..... **(0001)** Thickness ..... **1mm**  
 Diameter..... **5mm** Condition..... **Unpolished**

**Web Code**  
 769-085-275

**Quantity**

**1pc**

YEN POA

**TI002121**

Oriented ..... **(0001)** Thickness ..... **1mm**  
 Diameter..... **8mm** Condition..... **Unpolished**

**Web Code**  
 690-308-068

**Quantity**

**1pc**

YEN POA

Metal – Titanium

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