

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



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Standard Price List for Brass (Cu63/ Zn37)

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Introduction

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.

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 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

Ceramics: ANSI B18.6.7M-1985



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

Ceramics: ANSI B18.2.4.1M-1979
 (R1995)



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

Ceramics:	see item
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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-cm³.s⁻¹.

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.

Order information

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.

Order information

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

Order information

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 or www.goodfellowusa.com.

Company Details

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

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VAT registration GB 212 8527 79

Goodfellow Corporation

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USA
A Pennsylvania corporation
EIN 23-2557381

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Siren : 381486836
Numéro de TVA Intracommunitaire :
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Goodfellow GmbH

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Germany
Registered in Friedberg (Hessen) No. HRB 1309
Import VAT number DE112610478

Goodfellow (Shanghai) Trading Co., Ltd

Fl. 23, 758 Nanjing Road West
SHANGHAI
200040
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

Conditions of Sale

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

Brass

Cu63/Zn37

Common Brand Names : Boltomet L[®], IMI 237[®], MS 63

Good machineability, excellent for hot working, forming and brazing. Uses include architectural grillwork, reflectors, chain, fasteners, rivets and screws.

Physical Properties

Density 8.45 g cm⁻³
 Melting point 900-920 C

Thermal Properties

Coefficient of thermal expansion @20-100C 19.0-20.5 x10⁻⁶ K⁻¹
 Thermal conductivity @23C 125 W m⁻¹ K⁻¹

Electrical Properties

Electrical resistivity 6.2-6.6 μOhmcm
 Temperature coefficient 0.0016-0.0017 K⁻¹

Mechanical Properties

Elongation at break < 55 %
 Hardness - Brinell 65-136
 Modulus of elasticity 95-110 GPa
 Shear strength 280-310 MPa
 Tensile strength 330-500 MPa



Foil

CU020200 Thickness 0.005mm

Temper As rolled

Sizes LT

Web Code
 000-020-916
 317-111-820
 722-632-689

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 22600	YEN 25800	YEN 32200	YEN 40000	YEN 51500
50 x 50 mm	YEN 29600	YEN 35600	YEN 47800	YEN 62000	YEN 82500
100 x 100 mm	YEN 43400	YEN 55000	YEN 78500	YEN 106000	

Coil

Web Code
 288-653-246
 199-582-480
 947-804-244

Width 100mm

Length	Quantity
	1 Reel
0.2 m	YEN 59000
0.5 m	YEN 81500
1 m	YEN 107000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities < 6000, Zn balance.

CU020205 Thickness 0.008mm

Temper Hard

Size

Web Code
 866-086-605
 962-730-185
 946-283-247
 124-066-320

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 17100	YEN 17900	YEN 19700	YEN 22200	YEN 26400
50 x 50 mm	YEN 18400	YEN 19700	YEN 22600	YEN 26200	YEN 32200
100 x 100 mm	YEN 21000	YEN 23400	YEN 28400	YEN 34400	YEN 43800
200 x 200 mm	YEN 26200	YEN 30800	YEN 40000	YEN 51000	YEN 67000

Coil

Web Code
 252-217-432
 975-498-576
 335-138-143
 408-208-469

Width 200mm

Length	Quantity
	1 Reel
1 m	YEN 43000
2 m	YEN 52500
5 m	YEN 72000
10 m	YEN 94000

Discs

Web Code
 881-541-292
 035-671-571
 598-625-729
 351-074-881
 935-204-811
 187-251-487
 962-880-707

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 29600	YEN 33000	YEN 41200
6 mm	YEN 30000	YEN 33600	YEN 42000
8 mm	YEN 30400	YEN 34000	YEN 43000
10 mm	YEN 30800	YEN 34600	YEN 43800
15 mm	YEN 31800	YEN 36000	YEN 46000
25 mm	YEN 33800	YEN 38800	YEN 50500
50 mm	YEN 38800	YEN 45800	YEN 61500

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities < 6000, Zn balance.

Brass
Cu63/Zn37



Foil

CU020208 Thickness **0.01mm**

Temper **Hard**

NLT Sizes

Web Code
351-274-022

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
300 x 300 mm	YEN 33200	YEN 40600	YEN 55500	YEN 73000	

Sizes LT

Web Code
261-908-845
671-733-188
087-441-376
201-166-847

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 17200	YEN 18100	YEN 20000	YEN 22600	YEN 27000
50 x 50 mm	YEN 18700	YEN 20200	YEN 23200	YEN 27200	YEN 33400
100 x 100 mm	YEN 21600	YEN 24200	YEN 29800	YEN 36400	YEN 46400
150 x 150 mm	YEN 24400	YEN 28400	YEN 36200	YEN 45600	YEN 59500

Coil

Web Code
071-757-419
763-692-470
339-814-089
469-299-762

Length	Quantity	
	1 Reel	
0.5 m	YEN 42200	
1 m	YEN 51500	
2 m	YEN 65000	
5 m	YEN 91000	

Discs

Web Code
323-023-036
336-023-413
393-961-233
421-288-058
744-511-575
600-855-606
469-516-234

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 29800	YEN 33200	YEN 41400
6 mm	YEN 30200	YEN 33800	YEN 42400
8 mm	YEN 30600	YEN 34400	YEN 43400
10 mm	YEN 31000	YEN 35000	YEN 44400
15 mm	YEN 32200	YEN 36600	YEN 46800
25 mm	YEN 34400	YEN 39600	YEN 51500
50 mm	YEN 39800	YEN 47400	YEN 64000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020210 Thickness **0.0125mm**

Temper **Half hard**

Size

Web Code
079-912-206
989-036-949
629-614-862
701-859-220

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 17000	YEN 17700	YEN 19400	YEN 21800	YEN 25800
50 x 50 mm	YEN 18100	YEN 19300	YEN 22000	YEN 25400	YEN 31000
100 x 100 mm	YEN 20400	YEN 22600	YEN 27200	YEN 32800	YEN 41400
150 x 150 mm	YEN 22800	YEN 26000	YEN 32400	YEN 40200	YEN 52000

Coil

Web Code
732-408-933
551-114-183
889-266-983
158-372-623
796-577-789

Length	Quantity	
	1 Reel	
1 m	YEN 38000	
2 m	YEN 45600	
5 m	YEN 60500	
10 m	YEN 78000	
20 m	YEN 103000	

Discs

Web Code
852-112-650
514-083-566
260-445-344
555-665-680
458-208-186
276-018-596
502-323-386

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 29600	YEN 32800	YEN 41000
6 mm	YEN 30000	YEN 33400	YEN 41800
8 mm	YEN 30200	YEN 33800	YEN 42600
10 mm	YEN 30600	YEN 34400	YEN 43400
15 mm	YEN 31600	YEN 35600	YEN 45400
25 mm	YEN 33400	YEN 38200	YEN 49400
50 mm	YEN 37800	YEN 44400	YEN 59500

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020220 Thickness **0.025mm**

Temper **Hard**

Size

Web Code
790-416-186
802-018-321
252-288-523
536-068-754

Size	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
25 x 25 mm	YEN 12400	YEN 12900	YEN 14300	YEN 16300	YEN 19800
50 x 50 mm	YEN 13100	YEN 14000	YEN 16000	YEN 18700	YEN 23200
100 x 100 mm	YEN 14700	YEN 16200	YEN 19400	YEN 23600	YEN 30000
150 x 150 mm	YEN 16200	YEN 18300	YEN 22800	YEN 28400	YEN 37000

Coil

Web Code
008-591-692
073-956-331
244-545-153
568-149-031
018-627-716

Length	Quantity	
	1 Reel	
1 m	YEN 27600	
2 m	YEN 32600	
5 m	YEN 42600	
10 m	YEN 54000	
20 m	YEN 70500	

Discs

Web Code
058-758-928
344-870-842
108-860-478
607-559-912
944-995-779
124-470-972
558-866-752

Diameter	Quantity		
	10 discs	20 discs	50 discs
4 mm	YEN 24400	YEN 27400	YEN 35400
6 mm	YEN 24600	YEN 27800	YEN 36000
8 mm	YEN 24800	YEN 28200	YEN 36400
10 mm	YEN 25000	YEN 28400	YEN 37000
15 mm	YEN 25600	YEN 29200	YEN 38200
25 mm	YEN 26800	YEN 31000	YEN 40800
50 mm	YEN 29600	YEN 35000	YEN 47400

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

Brass

Cu63/Zn37



Foil

CU020230

Thickness **0.038mm**

Temper **Hard**

Size

Web Code

858-348-957
 293-622-820
 702-852-042
 856-505-768

Size

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

1pc

2pcs

Quantity

5pcs

10pcs

20pcs

YEN 12400	YEN 13000	YEN 14400	YEN 16500	YEN 20000
YEN 13300	YEN 14200	YEN 16300	YEN 19100	YEN 23800
YEN 14900	YEN 16500	YEN 20000	YEN 24400	YEN 31200
YEN 16600	YEN 18900	YEN 23800	YEN 29600	YEN 38600

Coil

Web Code

063-221-046
 902-636-174
 829-522-756
 690-343-612

Width 150mm

Length

1 m
 2 m
 5 m
 10 m

1 Reel

Quantity

YEN 28600	YEN 34000	YEN 44800	YEN 57000
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Discs

Web Code

292-956-926
 619-614-185
 451-771-270
 471-400-622
 925-085-100
 635-649-470
 456-185-767

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 27600	YEN 35600
YEN 24600	YEN 27800	YEN 36000
YEN 24800	YEN 28200	YEN 36600
YEN 25200	YEN 28600	YEN 37200
YEN 25800	YEN 29600	YEN 38600
YEN 27000	YEN 31200	YEN 41400
YEN 30200	YEN 35800	YEN 48600

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020240

Thickness **0.05mm**

Temper **Half hard**

Size

Web Code

023-220-432
 902-552-145
 819-017-403
 377-178-927

Size

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

1pc

2pcs

Quantity

5pcs

10pcs

20pcs

YEN 11900	YEN 12300	YEN 13300	YEN 14900	YEN 17800
YEN 12300	YEN 12800	YEN 14100	YEN 15900	YEN 19300
YEN 12900	YEN 13700	YEN 15600	YEN 18100	YEN 22200
YEN 13600	YEN 14700	YEN 17100	YEN 20200	YEN 25200

Coil

Web Code

147-372-719
 421-588-193
 698-516-500
 314-565-596
 320-687-731

Width 152.4mm

Length

1 m
 2 m
 5 m
 10 m
 20 m

1 Reel

Quantity

YEN 20800	YEN 23000	YEN 27600	YEN 32800	YEN 40600
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Discs

Web Code

227-762-733
 470-348-840
 793-612-202
 201-533-264
 191-661-608
 957-711-554
 713-947-896

Diameter

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

Quantity

10 discs

20 discs

50 discs

YEN 22600	YEN 25200	YEN 31600
YEN 22800	YEN 25400	YEN 31800
YEN 22800	YEN 25400	YEN 32000
YEN 23000	YEN 25600	YEN 32200
YEN 23200	YEN 25800	YEN 32600
YEN 23600	YEN 26400	YEN 33600
YEN 24600	YEN 28000	YEN 36000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020250

Thickness **0.075mm**

Temper **Half hard**

Size

Web Code

243-475-832
 434-485-648
 310-702-707
 837-845-494
 502-330-367

Size

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

1pc

2pcs

Quantity

5pcs

10pcs

20pcs

YEN 11900	YEN 12300	YEN 13300	YEN 14800	YEN 17700
YEN 12200	YEN 12700	YEN 13900	YEN 15700	YEN 19000
YEN 12800	YEN 13500	YEN 15300	YEN 17600	YEN 21600
YEN 13400	YEN 14400	YEN 16600	YEN 19500	YEN 24400
YEN 15200	YEN 16900	YEN 20600	YEN 25200	YEN 32400

Coil

Web Code

730-683-077
 335-375-177
 921-893-790
 236-715-604
 589-455-733

Width 165mm

Length

1 m
 2 m
 5 m
 10 m
 20 m

1 Reel

Quantity

YEN 20400	YEN 22600	YEN 26800	YEN 31800	YEN 39000
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Discs

Web Code

246-448-422
 806-060-997
 757-616-681
 702-083-553
 760-437-962
 054-749-210
 843-655-453

Diameter

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

Quantity

10 discs

20 discs

50 discs

YEN 22600	YEN 25200	YEN 31600
YEN 22800	YEN 25400	YEN 31800
YEN 22800	YEN 25400	YEN 32000
YEN 22800	YEN 25600	YEN 32200
YEN 23000	YEN 25800	YEN 32600
YEN 23400	YEN 26400	YEN 33400
YEN 24400	YEN 27600	YEN 35600

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

Alloy - Brass

Brass

Cu63/Zn37



Foil

CU020260

Thickness **0.1mm**

Temper **Half hard**

Size

Web Code

456-935-792
 116-963-625
 620-451-311
 556-422-049

Size

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

1pc

YEN 11900
 YEN 12200
 YEN 12800
 YEN 13500

2pcs

YEN 12300
 YEN 12700
 YEN 13600
 YEN 14500

5pcs

YEN 13300
 YEN 14000
 YEN 15400
 YEN 16800

10pcs

YEN 14800
 YEN 15800
 YEN 17800
 YEN 19800

20pcs

YEN 17700
 YEN 19100
 YEN 22000
 YEN 24600

Coil

Web Code

552-756-004
 094-500-641
 812-581-270
 572-650-492
 581-310-424

Width 150mm

Length

1 m
 2 m
 5 m
 10 m
 20 m

1 Reel

YEN 20400
 YEN 22600
 YEN 26800
 YEN 31600
 YEN 38800

Discs

Web Code

663-805-193
 975-645-953
 955-737-842
 467-229-336
 403-663-808
 457-978-111
 247-274-285

Diameter

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

Quantity

10 discs

YEN 22600
 YEN 22800
 YEN 22800
 YEN 22800
 YEN 23000
 YEN 23400
 YEN 24400

20 discs

YEN 25200
 YEN 25400
 YEN 25400
 YEN 25600
 YEN 25800
 YEN 26400
 YEN 27800

50 discs

YEN 31600
 YEN 31800
 YEN 32000
 YEN 32200
 YEN 32600
 YEN 33400
 YEN 35800

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020261

Thickness **0.1mm**
 Condition **Flattened**

Temper **Hard**

Size

Web Code

579-690-408
 639-084-119
 632-275-839

Size

150 x 150 mm
 300 x 300 mm
 300 x 450 mm

1pc

YEN 14000
 YEN 18800
 YEN 21000

2pcs

YEN 16400
 YEN 23200
 YEN 26200

5pcs

YEN 21600

10pcs

YEN 28200

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020270

Thickness **0.125mm**

Temper **Half hard**

Size

Web Code

909-281-214
 660-158-069
 519-759-845
 969-978-975

Size

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

1pc

YEN 11900
 YEN 12200
 YEN 12800
 YEN 13400

2pcs

YEN 12300
 YEN 12700
 YEN 13500
 YEN 14400

5pcs

YEN 13300
 YEN 13900
 YEN 15300
 YEN 16600

10pcs

YEN 14800
 YEN 15700
 YEN 17600
 YEN 19500

20pcs

YEN 17700
 YEN 19000
 YEN 21600
 YEN 24400

Coil

Web Code

247-366-533
 920-814-717
 101-845-217
 730-656-521
 332-067-013

Width 150mm

Length

1 m
 2 m
 5 m
 10 m
 20 m

1 Reel

YEN 20200
 YEN 22200
 YEN 26400
 YEN 31000
 YEN 39000

Discs

Web Code

548-318-982
 539-864-509
 483-074-395
 384-296-131
 037-016-636
 627-078-224
 384-777-511

Diameter

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

Quantity

10 discs

YEN 22600
 YEN 22800
 YEN 22800
 YEN 22800
 YEN 23000
 YEN 23400
 YEN 24400

20 discs

YEN 25200
 YEN 25400
 YEN 25400
 YEN 25600
 YEN 25800
 YEN 26400
 YEN 27600

50 discs

YEN 31600
 YEN 31800
 YEN 32000
 YEN 32200
 YEN 32600
 YEN 33400
 YEN 35600

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

Alloy – Brass

Brass

Cu63/Zn37



Foil

CU020276

Thickness **0.125mm**

Temper **Half hard**

Size

Web Code

310-664-444
 833-062-137
 132-773-926
 596-747-420
 593-430-823

Size

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

1pc

2pcs

Quantity

5pcs

10pcs

20pcs

YEN 11900	YEN 12300	YEN 13300	YEN 14800	YEN 17700
YEN 12200	YEN 12700	YEN 13900	YEN 15700	YEN 19000
YEN 12800	YEN 13500	YEN 15300	YEN 17600	YEN 21600
YEN 13400	YEN 14400	YEN 16600	YEN 19500	YEN 24400
YEN 15200	YEN 16900	YEN 20600	YEN 25200	YEN 32400

Coil

Web Code

178-850-769
 356-343-594
 542-948-022
 868-507-713
 542-120-602

Width 305mm

Length

1 m
 2 m
 5 m
 10 m
 20 m

Quantity

1 Reel

YEN 22200
 YEN 25000
 YEN 30800
 YEN 38600
 YEN 61500

Discs

Web Code

563-469-810
 433-727-406
 215-931-347
 991-423-756
 927-965-862
 995-736-099
 467-000-419

Diameter

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

Quantity

YEN 22600	YEN 25200	YEN 31600
YEN 22800	YEN 25400	YEN 31800
YEN 22800	YEN 25400	YEN 32000
YEN 22800	YEN 25600	YEN 32200
YEN 23000	YEN 25800	YEN 32600
YEN 23400	YEN 26400	YEN 33400
YEN 24400	YEN 27600	YEN 35600

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020280

Thickness **0.15mm**

Temper **Half hard**

Size

Web Code

375-053-587
 881-699-900
 212-491-765
 561-465-632

Size

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

1pc

2pcs

Quantity

5pcs

10pcs

20pcs

YEN 11900	YEN 12300	YEN 13300	YEN 14900	YEN 17800
YEN 12200	YEN 12800	YEN 14000	YEN 15900	YEN 19300
YEN 12900	YEN 13700	YEN 15500	YEN 18000	YEN 22200
YEN 13600	YEN 14600	YEN 17000	YEN 20000	YEN 25200

Coil

Web Code

183-209-141
 901-144-875
 643-109-257

Width 150mm

Length

1 m
 2 m
 5 m

Quantity

1 Reel

YEN 20600
 YEN 22800
 YEN 27400

Discs

Web Code

000-400-933
 050-112-549
 264-074-814
 009-361-215
 170-158-241
 269-780-806
 722-605-245

Diameter

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

Quantity

YEN 22600	YEN 25200	YEN 31600
YEN 22800	YEN 25400	YEN 31800
YEN 22800	YEN 25400	YEN 32000
YEN 23000	YEN 25600	YEN 32200
YEN 23200	YEN 25800	YEN 32600
YEN 23600	YEN 26400	YEN 33600
YEN 24600	YEN 28000	YEN 36000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020290

Thickness **0.15mm**

Temper **Hard**

Size

Web Code

325-657-647
 401-351-713
 168-970-230

Size

25 x 25 mm
 100 x 100 mm
 150 x 150 mm

1pc

2pcs

Quantity

5pcs

10pcs

20pcs

YEN 11900	YEN 12300	YEN 13300	YEN 14900	YEN 17800
YEN 12900	YEN 13700	YEN 15500	YEN 18000	YEN 22200
YEN 13600	YEN 14600	YEN 17000	YEN 20000	YEN 25200

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

Alloy – Brass

Brass

Cu63/Zn37



Foil

CU020291

Thickness **0.15mm**

Temper **Half hard**

Size

Web Code

460-952-281
 825-389-728
 370-751-368
 848-717-501
 665-022-233

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 11900	YEN 12300	YEN 13300	YEN 14900	YEN 17800
YEN 12200	YEN 12800	YEN 14000	YEN 15900	YEN 19300
YEN 12900	YEN 13700	YEN 15500	YEN 18000	YEN 22200
YEN 13600	YEN 14600	YEN 17000	YEN 20000	YEN 25200
YEN 15500	YEN 17400	YEN 21400	YEN 26200	YEN 33800

Coil

Web Code

009-382-028
 099-257-132
 184-575-996
 612-081-862
 891-124-615

Width 300mm

Length

1 m
 2 m
 5 m
 10 m
 20 m

Quantity

1 Reel

YEN 22800
YEN 25800
YEN 32000
YEN 42600
YEN 69500

Discs

Web Code

907-872-701
 104-280-384
 450-244-105
 220-287-342
 992-916-175
 996-780-097
 988-491-438

Diameter

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

Quantity

10 discs	20 discs	50 discs
YEN 22600	YEN 25200	YEN 31600
YEN 22800	YEN 25400	YEN 31800
YEN 22800	YEN 25400	YEN 32000
YEN 23000	YEN 25600	YEN 32200
YEN 23200	YEN 25800	YEN 32600
YEN 23600	YEN 26400	YEN 33600
YEN 24600	YEN 28000	YEN 36000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020300

Thickness **0.25mm**

Temper **Half hard**

Size

Web Code

764-087-575
 510-948-295
 868-529-975
 566-241-487

Size

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

Quantity

1pc	2pcs	5pcs	10pcs	20pcs
YEN 11100	YEN 11500	YEN 12600	YEN 14200	YEN 17100
YEN 11500	YEN 12000	YEN 13400	YEN 15300	YEN 18800
YEN 12200	YEN 13100	YEN 15100	YEN 17700	YEN 22200
YEN 13000	YEN 14100	YEN 16700	YEN 20000	YEN 25400

Coil

Web Code

780-179-468
 522-425-998
 303-243-381
 905-420-333
 177-539-355

Width 150mm

Length

1 m
 2 m
 5 m
 10 m
 20 m

Quantity

1 Reel

YEN 20600
YEN 23000
YEN 28000
YEN 33800
YEN 50500

Discs

Web Code

192-415-916
 051-991-278
 498-902-246
 362-782-641
 347-834-106
 479-273-570
 909-187-591

Diameter

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

Quantity

10 discs	20 discs	50 discs
YEN 21800	YEN 24400	YEN 30800
YEN 22000	YEN 24600	YEN 31000
YEN 22000	YEN 24600	YEN 31200
YEN 22200	YEN 24800	YEN 31400
YEN 22400	YEN 25200	YEN 32000
YEN 22800	YEN 25800	YEN 33000
YEN 24000	YEN 27400	YEN 35800

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020301

Thickness **0.25mm**

Temper **Half hard**

Size

Web Code

648-445-781

Size

300 x 300 mm

Quantity

1pc	2pcs	5pcs	10pcs	20pcs
YEN 15200	YEN 17300	YEN 21600	YEN 27000	YEN 35800

Coil

Web Code

055-720-980
 965-114-848
 639-354-553
 919-313-734
 914-224-794

Width 305mm

Length

0.5 m
 1 m
 2 m
 5 m
 10 m

Quantity

1 Reel

YEN 20600
YEN 23000
YEN 26400
YEN 33400
YEN 50000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

Alloy – Brass

Brass

Cu63/Zn37



Foil

CU020375

Thickness **0.38mm**

Temper **Half hard**

Size

Web Code

396-360-637
 853-262-067
 464-005-217
 624-473-173

Size

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

1pc

2pcs

5pcs

10pcs

20pcs

YEN 10300	YEN 10700	YEN 11800	YEN 13400	YEN 16500
YEN 10700	YEN 11300	YEN 12700	YEN 14700	YEN 18300
YEN 11500	YEN 12500	YEN 14600	YEN 17300	YEN 22000
YEN 12300	YEN 13600	YEN 16400	YEN 19900	YEN 25600

Coil

Web Code

721-263-123
 878-560-598
 324-917-628

Width 165mm

Length

1 m YEN 20600
 2 m YEN 23400
 5 m YEN 29200

Quantity

Discs

Web Code

956-450-107
 256-914-296
 646-935-036
 839-579-561
 303-491-770
 375-329-871
 697-012-834

Diameter

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

Quantity

10 discs	20 discs	50 discs
YEN 21000	YEN 23600	YEN 30000
YEN 21200	YEN 23800	YEN 30200
YEN 21200	YEN 23800	YEN 30600
YEN 21400	YEN 24000	YEN 30800
YEN 21600	YEN 24400	YEN 31400
YEN 22000	YEN 25200	YEN 32400
YEN 23400	YEN 27000	YEN 35400

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020400

Thickness **0.5mm**

Temper **Half hard**

Size

Web Code

278-094-225
 761-782-349
 222-789-664
 848-702-320
 087-791-135

Size

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

1pc

2pcs

5pcs

10pcs

20pcs

YEN 10400	YEN 10800	YEN 11900	YEN 13600	YEN 16700
YEN 10800	YEN 11500	YEN 13000	YEN 15100	YEN 18800
YEN 11800	YEN 12800	YEN 15100	YEN 18100	YEN 23000
YEN 12700	YEN 14100	YEN 17200	YEN 21000	YEN 27200
YEN 15500	YEN 18100	YEN 23600		

Coil

Web Code

796-335-693
 973-899-275
 737-406-074
 175-755-884

Width 305mm

Length

0.5 m YEN 21200
 1 m YEN 24400
 2 m YEN 28800
 5 m YEN 50500

Quantity

Discs

Web Code

969-479-608
 184-960-428
 120-057-833
 007-225-845
 903-233-770
 904-222-217
 027-782-628

Diameter

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

Quantity

10 discs	20 discs	50 discs
YEN 21000	YEN 23600	YEN 30200
YEN 21200	YEN 23800	YEN 30400
YEN 21200	YEN 24000	YEN 30600
YEN 21400	YEN 24200	YEN 31000
YEN 21600	YEN 24600	YEN 31600
YEN 22200	YEN 25400	YEN 33000
YEN 23800	YEN 27600	YEN 36200

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020450

Thickness **1.0mm**

Temper **Half hard**

Size

Web Code

472-834-420
 104-301-436
 037-680-041
 710-003-125
 750-396-550

Size

50 x 50 mm
 100 x 100 mm
 150 x 150 mm
 300 x 300 mm
 600 x 600 mm

1pc

2pcs

5pcs

10pcs

20pcs

YEN 10800	YEN 11400	YEN 12800	YEN 14700	YEN 18100
YEN 11700	YEN 12700	YEN 14900	YEN 17800	YEN 22400
YEN 12700	YEN 14100	YEN 17100	YEN 20800	YEN 27200
YEN 15600	YEN 18100	YEN 24200		
YEN 21200				

Discs

Web Code

799-564-997
 945-622-642
 202-836-121
 354-516-487
 314-557-941
 319-748-916
 968-619-988

Diameter

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

Quantity

10 discs	20 discs	50 discs
YEN 21600	YEN 24200	YEN 30600
YEN 21800	YEN 24400	YEN 31000
YEN 21800	YEN 24600	YEN 31200
YEN 22000	YEN 24800	YEN 31600
YEN 22400	YEN 25400	YEN 32400
YEN 23200	YEN 26400	YEN 34000
YEN 25000	YEN 29000	YEN 38200

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020500

Thickness **1.42mm**

Temper **Half hard**

Size

Web Code

215-508-905

Size

25 x 25 mm

1pc

2pcs

3pcs

5pcs

10pcs

20pcs

YEN 10800	YEN 11500	YEN 12000	YEN 12900	YEN 14900	YEN 18300
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Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

Alloy - Brass

Brass

Cu63/Zn37



Foil

CU020600

Thickness **2.0mm**

Temper **Half hard**

Size

Web Code

689-683-116
 210-389-586
 298-698-686
 337-328-518
 166-064-145

Size

50 x 50 mm
 100 x 100 mm
 150 x 150 mm
 300 x 300 mm
 600 x 600 mm

Quantity

1pc	2pcs	5pcs	10pcs	20pcs
YEN 11000	YEN 11700	YEN 13300	YEN 15400	YEN 19100
YEN 12200	YEN 13400	YEN 15900	YEN 19200	YEN 26200
YEN 13400	YEN 15000	YEN 18600	YEN 25600	
YEN 16900	YEN 21200	YEN 38400		
YEN 32000				

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020620

Thickness **3.0mm**

Temper **Half hard**

Size

Web Code

421-014-135
 826-439-022
 528-095-549

Size

75 x 75 mm
 150 x 150 mm
 300 x 300 mm

Quantity

1pc	2pcs
YEN 14100	YEN 16100
YEN 18500	YEN 22200
YEN 27200	

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU020630

Thickness **4.0mm**

Size

Web Code

092-247-377
 099-693-952

Size

50 x 50 mm
 200 x 410 mm

Quantity

1pc
YEN 13100
YEN 29400

CU020650

Thickness **6.0mm**

Temper **Half hard**

Size

Web Code

708-798-219
 507-086-391
 364-328-733

Size

75 x 75 mm
 150 x 150 mm
 300 x 300 mm

Quantity

1pc	2pcs
YEN 15900	YEN 18700
YEN 22000	YEN 27400
YEN 42000	

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.



Wire

CU025120

Diameter **0.08mm**

Temper **Hard**

Length

Web Code

729-553-019
 644-174-955
 751-836-119
 353-777-137
 728-321-927
 483-350-148

Length

100 m
 250 m
 500 m
 1000 m
 2000 m
 5000 m

Quantity

1 Reel
YEN 14600
YEN 18800
YEN 24200
YEN 33000
YEN 40000
YEN 54000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU025130

Diameter **0.125mm**

Temper **Hard**

Length

Web Code

036-832-467
 604-055-998
 506-991-006
 373-885-937
 735-743-090
 967-884-681

Length

100 m
 250 m
 500 m
 1000 m
 2000 m
 5000 m

Quantity

1 Reel
YEN 12600
YEN 15600
YEN 19700
YEN 26800
YEN 31000
YEN 40000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU025140

Diameter **0.25mm**

Temper **Hard**

Length

Web Code

985-582-965
 197-868-659
 733-585-129
 698-143-893
 267-984-404
 498-059-612

Length

25 m
 100 m
 200 m
 500 m
 1000 m
 2000 m

Quantity

1 Reel
YEN 10800
YEN 13100
YEN 15400
YEN 20800
YEN 28200
YEN 34600

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

Alloy – Brass

Brass

Cu63/Zn37



Wire

CU025150

Diameter **0.5mm** Temper **Hard**

Length	Quantity	
	1 Reel	
453-733-830	10 m	YEN 11500
832-480-387	25 m	YEN 13100
744-628-902	50 m	YEN 15000
060-041-458	100 m	YEN 17800
505-177-509	200 m	YEN 22000
147-194-626	500 m	YEN 31200

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU025160

Diameter **1.0mm** Temper **Hard**

Length	Quantity	
	1 Reel	
465-625-319	1 m	YEN 10700
203-168-778	5 m	YEN 13000
396-090-633	25 m	YEN 18300
511-337-338	50 m	YEN 22200
917-167-344	100 m	YEN 28000
645-914-432	200 m	YEN 45000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.



Rod

CU027910

Diameter **2.0mm** Temper **As drawn**

Size	Length	Quantity				
		1pc	2pcs	5pcs	10pcs	20pcs
234-948-990	100 mm	YEN 10300	YEN 11000	YEN 12500	YEN 14100	YEN 16800
368-620-504	200 mm	YEN 10800	YEN 11700	YEN 13600	YEN 15700	YEN 19100
077-573-768	500 mm	YEN 11800	YEN 13100	YEN 15900	YEN 18900	YEN 28000
696-720-881	1000 mm	YEN 12900	YEN 14700	YEN 18400		

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU027916

Diameter **3.3mm** Temper **As drawn**

Size	Length	Quantity	
		1pc	
184-650-483	155 mm	YEN 11600	
248-504-147	310 mm	YEN 12500	

CU027920

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

Size	Length	Quantity				
		1pc	2pcs	5pcs	10pcs	20pcs
090-109-320	100 mm	YEN 11300	YEN 12700	YEN 16200	YEN 19500	YEN 25200
263-667-115	200 mm	YEN 12000	YEN 13700	YEN 17800	YEN 21800	YEN 31000
958-399-365	500 mm	YEN 13400	YEN 15700	YEN 21000	YEN 30800	
799-912-524	1000 mm	YEN 15000	YEN 18000	YEN 29000		

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU027930

Diameter **10.0mm** Temper **Annealed**

Size	Length	Quantity			
		1pc	2pcs	5pcs	10pcs
989-074-412	100 mm	YEN 12600	YEN 14600	YEN 19200	YEN 23800
634-308-711	200 mm	YEN 13900	YEN 16400	YEN 22000	YEN 32600
288-592-483	500 mm	YEN 16400	YEN 19900	YEN 35600	
074-052-978	1000 mm	YEN 19200	YEN 28800		

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.



Bar

CU028020

Side Length **6.35mm** Side Length (of longer side) **12.7mm**

Size	Length	Quantity			
		1pc	2pcs	5pcs	10pcs
404-394-041	100 mm	YEN 13100	YEN 15200	YEN 20000	YEN 26400
790-271-627	200 mm	YEN 14500	YEN 17100	YEN 23000	
519-497-492	500 mm	YEN 17100	YEN 20800		
988-588-951	1000 mm	YEN 20200			

Alloy – Brass

Brass
Cu63/Zn37



Tube

CU027100	Outside Diameter	0.61mm	Wall Thickness	0.18mm				
	Inside Diameter	0.25mm	Temper	As drawn				
Size	Quantity							
Web Code	Length	1pc	2pcs	5pcs	10pcs	20pcs		
413-712-422	100 mm	YEN 15100	YEN 17000	YEN 21400	YEN 27400	YEN 33600		
714-056-589	200 mm	YEN 16400	YEN 18800	YEN 24400	YEN 31600	YEN 39400		
257-065-722	500 mm	YEN 18900	YEN 22400	YEN 30000	YEN 39600			
844-065-851	900 mm	YEN 21400	YEN 25800	YEN 35400				
Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.								

CU027101	Outside Diameter	0.61mm	Wall Thickness	0.089mm				
	Inside Diameter	0.432mm	Temper	As drawn				
Size	Quantity							
Web Code	Length	1pc						
828-218-982	95 mm	YEN 16000						
Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.								

CU027150	Outside Diameter	0.76mm	Wall Thickness	0.25mm				
	Inside Diameter	0.26mm	Temper	As drawn				
Size	Quantity							
Web Code	Length	1pc	2pcs	5pcs	10pcs	20pcs		
027-156-894	100 mm	YEN 15000	YEN 16900	YEN 21200	YEN 27200	YEN 33000		
394-603-384	200 mm	YEN 16300	YEN 18700	YEN 24200	YEN 31200	YEN 38600		
325-415-557	500 mm	YEN 18800	YEN 22200	YEN 29800	YEN 39200	YEN 57500		
676-946-536	1000 mm	YEN 21600	YEN 26200	YEN 36000	YEN 56000	YEN 95500		
Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.								

CU027170	Outside Diameter	1.18mm	Wall Thickness	0.23mm				
	Inside Diameter	0.72mm	Temper	As drawn				
Size	Quantity							
Web Code	Length	1pc	2pcs	5pcs	10pcs	20pcs		
618-319-979	100 mm	YEN 15300	YEN 17300	YEN 22000	YEN 28200	YEN 34600		
289-989-389	200 mm	YEN 16700	YEN 19300	YEN 25000	YEN 32600	YEN 40800		
248-664-778	500 mm	YEN 19400	YEN 23200	YEN 31200	YEN 41200	YEN 65500		
083-088-307	1000 mm	YEN 22600	YEN 27400	YEN 38000	YEN 63500			
Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.								

CU027171	Outside Diameter	1.18mm	Wall Thickness	0.23mm				
	Inside Diameter	0.72mm	Temper	As drawn				
Size	Quantity							
Web Code	Length	10pcs	20pcs	50pcs	100pcs			
727-093-649	31 mm	YEN 26000	YEN 31400	YEN 44600	YEN 65000			
Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.								

CU027180	Outside Diameter	1.24mm	Wall Thickness	0.19mm				
	Inside Diameter	0.86mm	Temper	As drawn				
Size	Quantity							
Web Code	Length	1pc	2pcs	5pcs	10pcs	20pcs		
549-282-997	100 mm	YEN 14800	YEN 16700	YEN 21000	YEN 27000	YEN 33200		
121-157-073	200 mm	YEN 16000	YEN 18500	YEN 23800	YEN 31000			
637-973-943	500 mm	YEN 18500	YEN 22000	YEN 29400				
489-024-309	1000 mm	YEN 21400	YEN 26000					
Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.								

CU027200	Outside Diameter	1.5mm	Wall Thickness	0.25mm				
	Inside Diameter	1mm	Temper	As drawn				
Size	Quantity							
Web Code	Length	1pc	2pcs	5pcs	10pcs	20pcs		
386-048-542	100 mm	YEN 14200	YEN 16100	YEN 20400	YEN 26400	YEN 32600		
256-063-685	200 mm	YEN 15400	YEN 17800	YEN 23200	YEN 30400	YEN 38200		
007-958-653	500 mm	YEN 17900	YEN 21400	YEN 28800	YEN 38400	YEN 57000		
994-831-269	1000 mm	YEN 20800	YEN 25400	YEN 35200	YEN 55000	YEN 95000		
Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.								

CU027250	Outside Diameter	1.83mm	Wall Thickness	0.27mm				
	Inside Diameter	1.29mm	Temper	As drawn				
Size	Quantity							
Web Code	Length	1pc	2pcs	5pcs	10pcs	20pcs		
353-900-664	100 mm	YEN 12600	YEN 14200	YEN 18100	YEN 23400	YEN 28600		
237-578-686	200 mm	YEN 13600	YEN 15600	YEN 20200	YEN 26600	YEN 33000		
697-325-248	500 mm	YEN 15600	YEN 18400	YEN 24600	YEN 34000	YEN 54000		
165-658-230	1000 mm	YEN 17800	YEN 21600	YEN 30800	YEN 52000	YEN 90500		
Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.								

Alloy – Brass

Brass

Cu63/Zn37



Tube

CU027260

Outside Diameter..... **2mm**
 Inside Diameter..... **1.6mm**

Wall Thickness..... **0.2mm**
 Temper..... **Hard**

Size

Web Code
 348-786-062

Length	Quantity			
	1pc	2pcs	5pcs	10pcs
500 mm	YEN 15600	YEN 18400	YEN 24800	YEN 34200

CU027280

Outside Diameter..... **2.2mm**
 Inside Diameter..... **1.06mm**

Wall Thickness..... **0.57mm**
 Temper..... **As drawn**

Size

Web Code
 707-276-989
 409-621-917
 202-738-131
 342-267-717

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 12600	YEN 14200	YEN 18000	YEN 23400	YEN 28200
200 mm	YEN 13600	YEN 15600	YEN 20200	YEN 26400	YEN 32600
500 mm	YEN 15500	YEN 18300	YEN 24400	YEN 33400	YEN 53000
1000 mm	YEN 17700	YEN 21400	YEN 30400	YEN 51000	YEN 88000

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU027300

Outside Diameter..... **2.26mm**
 Inside Diameter..... **1.7mm**

Wall Thickness..... **0.28mm**
 Temper..... **As drawn**

Size

Web Code
 783-463-891
 932-982-693
 622-836-308
 854-549-507

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 12600	YEN 14100	YEN 17900	YEN 23200	YEN 28400
200 mm	YEN 13500	YEN 15500	YEN 20000	YEN 26200	YEN 32600
500 mm	YEN 15400	YEN 18200	YEN 24200	YEN 33000	YEN 52000
1000 mm	YEN 17500	YEN 21200	YEN 29800	YEN 50000	

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU027500

Outside Diameter..... **3.0mm**
 Inside Diameter..... **2mm**

Wall Thickness..... **0.5mm**
 Temper..... **As drawn**

Size

Web Code
 185-284-192
 160-514-411
 064-306-876
 038-355-936

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 12500	YEN 14100	YEN 17800	YEN 23000	YEN 28200
200 mm	YEN 13500	YEN 15400	YEN 19900	YEN 26000	YEN 32400
500 mm	YEN 15300	YEN 18000	YEN 24000	YEN 32400	YEN 51000
1000 mm	YEN 17400	YEN 21000	YEN 29200	YEN 48800	

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU027450

Outside Diameter..... **3.0mm**
 Inside Diameter..... **2.4mm**

Wall Thickness..... **0.3mm**
 Temper..... **As drawn**

Size

Web Code
 818-693-050
 336-632-925
 079-115-812
 889-482-212

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 12500	YEN 14000	YEN 17700	YEN 23000	YEN 28000
200 mm	YEN 13400	YEN 15300	YEN 19800	YEN 25800	YEN 32000
500 mm	YEN 15200	YEN 17900	YEN 23800	YEN 31800	YEN 49600
1000 mm	YEN 17300	YEN 20800	YEN 28600	YEN 47600	

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU027600

Outside Diameter..... **3.56mm**
 Inside Diameter..... **2.74mm**

Wall Thickness..... **0.41mm**
 Temper..... **As drawn**

Size

Web Code
 580-075-949
 509-488-716
 795-080-985
 449-086-236

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 12600	YEN 14100	YEN 17900	YEN 23200	YEN 28400
200 mm	YEN 13500	YEN 15500	YEN 20000	YEN 26200	YEN 32600
350 mm	YEN 14600	YEN 17000	YEN 22400	YEN 29600	YEN 41800
700 mm	YEN 16300	YEN 19500	YEN 26400	YEN 39800	YEN 65500

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

CU027750

Outside Diameter..... **7.0mm**
 Inside Diameter..... **4.50mm**

Wall Thickness..... **1.25mm**
 Temper..... **Hard**

Size

Web Code
 777-614-806
 877-958-712
 070-772-474
 608-708-433

Length	Quantity				
	1pc	2pcs	5pcs	10pcs	20pcs
100 mm	YEN 14200	YEN 16500	YEN 21600	YEN 25600	YEN 33800
200 mm	YEN 15800	YEN 18700	YEN 25000	YEN 32600	YEN 52500
500 mm	YEN 18900	YEN 23000	YEN 36600	YEN 60500	YEN 109000
1000 mm	YEN 22400	YEN 29800	YEN 60000	YEN 107000	

Typical Analysis : Cu 61.5 - 64%, Pb <3000, total impurities <6000, Zn balance.

Alloy – Brass

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