

**KITZ**

# Company Profile

**since 1959**



KITZ METAL WORKS CORPORATION

We are engaged in the brass bar business, though which we bring the our products friendly to people and the environment, from the rich nature of Yatsugatake mountains.

**Our factory has been certified under ISO 14001.**

The Chino factory of Kitz Metal Works occupies an extensive area of 93,000 square meters at the foot of Yatsugatake. Since 1960, we manufacture extended copper products and parts, which are in turn used in valve products, various machines, construction materials, etc. Thanks to the unique alloying technologies we have accumulated over the years, we are actively developing and selling new, Human - and Earth - friendly materials. Brass bars that are resistant to dezincification corrosion, and Pb-free brass bars, are among various examples.

**KITZ METAL WORKS**



We have a dream. “Kitz Metal Works”

**D R E A M**

**D**evelopment & **R**esearch

**E**nvironment

**A**nalysis & Evaluation

**M**anufacture



## Message

In April 2004, Kitz Corporation spun off its brass bars division to mark the birth of Kitz Metal Works. Since then the company--which started as a producer of brass bars for the valves supplied to Kitz Corporation--has stubbornly adhered to its management motto: "Customer & Quality First." Over the years, we have contributed extensively to the development of industries and the creation of comfortable living spaces by supplying the world with brass bars products that meet the changing needs of the times. We have done so based on our manufacturing principle of "providing quality products in an affordable, timely."

Given the rapid progress of globalization and information networks, the corporate environment surrounding Kitz Metal Works is also changing dramatically. In this challenging time we aim to become a company that can create a new era through the business of brass bars.

As a creative company, we will continue to provide high-quality products and services backed by our original technologies, and therefore dedicate ourselves to the attainment of our dream.

We appreciate your continuous support to Kitz Metal Works.



**Yoshimasa Kobayashi**  
Representative/President

## Company profile

<b>Trade name</b>	Kitz Metal Works Corporation
<b>Line of business</b>	The manufacture and sale of brass bars products and associated processed products
<b>Establishment</b>	April 1, 2004 (Kitz Corporation spun off its brass bars division.)
<b>Representative</b>	Yoshimasa Kobayashi, Representative/President
<b>Capital</b>	490 million yen
<b>Major shareholders</b>	Kitz Corporation 100%
<b>Various permits and certifications</b>	JIS H 3250 (brass bars), ISO 14001, ISO 9001

### Sales items

#### Brass Bars

- JIS-compliant free-cutting brass bars and brass bars for forging  
Cd-free JIS-compliant free-cutting brass bars and brass bars for forging
- Dezincification-resistant brass bars (KZ Metal / Patent No. 2841270; FZ Metal / Patent No. 2841269)  
Cd-free dezincification-resistant brass bars (KZ Metal / FZ Metal)
- High-corrosion-resistant brass bars (TZ Metal, developed jointly with TOTO)  
Cd-free high-corrosion-resistant brass bars (TZ Metal)
- Pb-free, Cd-free brass bars  
Pb-free, Cd-free, dezincification-resistant brass bars (KEEPALLOY)

#### Processed products

- Cut and machined products
- Forged products

## Corporate History

<b>1960 April</b>	Start production of brass bars under the name of Toyo Kinzoku Co.,Ltd. at Nagasaka plant of Kitazawa Mfg Co.,Ltd. (current Kitz Corporation)
<b>1962 March</b>	Introduce hot-forging press for brass bars and start manufacturing forged brass valves (first forged brass valves manufacturer in Japan)
<b>1967 June</b>	Introduce horizontal continuous casting machine and 1660-ton extrusion press and establish mass production system
<b>1975 April</b>	Complete construction of current Chino plant and introduce 3200-ton extrusion press
<b>1977 June</b>	Authorized as JIS certified brass bars factory
<b>1986 March</b>	Introduce vertical continuous casting machine
<b>1990 Aug.</b>	Complete construction of processed brass products factory
<b>1991 April</b>	Merged by Kitz Corporation and start as brass bars division
<b>1994 Feb.</b>	Develop dezincification-resistance brass bars with high corrosion resistance
<b>1995 May</b>	Become first manufacturer of brass bars in Japan to acquire ISO9002 certification
<b>1997 Oct.</b>	Develop TZ high-strength dezincification-resistant brass bars with TOTO jointly
<b>1999 May</b>	Develop Earth-friendly lead-free brass bars "KEEPALLOY"
<b>2001 Feb.</b>	Authorized as a plant of ISO 14001 certification
<b>2002 June</b>	Authorized as a plant of ISO 9001-2000
<b>2004 April</b>	Start newly as Kitz Metal Works, independent from Kitz Corporation
<b>2005 May</b>	Acquire Kyoto Brass Co.,Ltd. and keep as a subsidiary company
<b>2006 July</b>	Purchase assets from Kicho Co.Ltd.
<b>2009 July</b>	Merger with Kyoto Brass Co.,Ltd. and consolidate production sites

# Development & Research



## Bringing You High-Quality Products in a Timely Delivery Our Manufacturing/Processing Lines Can Meet All Your Needs.

Our brass-bar shop is one of the largest facilities of its kind in Japan. The long manufacturing lines are fully mechanized and automated to ensure one-stop manufacturing, from the conversion of raw material through to finished products. Through our manufacturing lines we can meet all your needs for quality, standards certification and delivery. Additionally, our lines are directly linked to processing lines where the finished brass bars are processed into specific shapes based on our customers' requirements. The automation of our processing lines has been optimized to achieve high-precision, high-speed cutting and machining.



### Key facilities

Casting shop	Low-frequency induction furnace	5 units
	High-frequency induction furnace	1 units
	Vertical continuous casting machine	1 units
	Horizontal semi-continuous casting machine	2 units
Bar manufacturing shop	Low-frequency induction heating system	4 units
	Extrusion machine	2 units
Cutting & machining shop	Multiple-axis automatic screw machine and combined NC automatic screw machine	
		37 units
Forging shop	Forging press	15 units

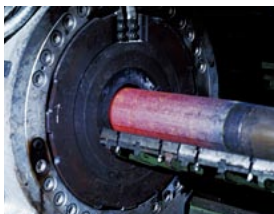
### ■ Manufacturing line



Vertical continuous casting machine



Billet stocker



Extrusion machine



End cutter



Coiler



Coil storage

### ■ Processing line



Forging



Cutting and machining line



Precision cutting and machining



Tool pre-setter



High-speed NC lathe

# Environment



We of Kitz Metal Works are committed to bringing a better tomorrow for our children by manufacturing products that are friendly to people and the environment.

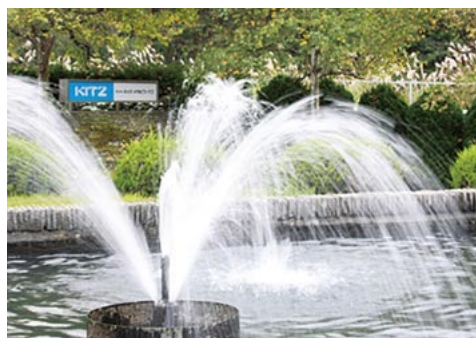
Our factory aspires to be a place that is friendly to the environment by adopting all possible facilities and equipment to treat smoke and waste water; and to reduce noise. Thus it is certified under ISO 14001. We collect waste materials and recycle them into raw materials so they can be used again.



Materials to be recycled into resources



Waste-water treatment plant



Final-waste water pool



Soot-and-smoke treatment system



Soundproof walls

# Analysis & Evaluation



## A thorough quality-control system to meet your expectations for reliability

Various inspections and tests are conducted as part of our automated processes to implement thorough quality control under the careful watch of our experts and the precise settings of machines. All our lines meet the relevant JIS standards, and we are the first manufacturer of brass bars in Japan to have obtained the ISO 9001 certification.



ICP



Fluorescent x-ray analyzer



20-ton Amsler universal testing machine



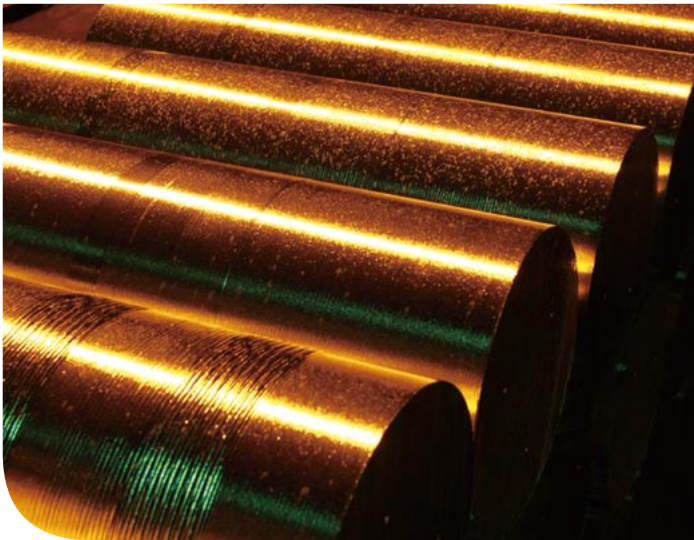
Inspection

# Manufacture



We aspire to develop new products that meet the changing needs of the times.

In order for our customers to have high-quality our brass bars and parts used in their products must be of equally high quality. We have a system in place by which to control the flow of information from order receipt to delivery, and thereby ensure high quality with the shortest possible lead-time.



## Brass bars

### JIS-compliant brass bars

We provide free-cutting materials that ensure excellent machinability as well as forging materials that offer superior forginability.

### Pb-free brass bars

Our products meet the Pb exudation standard set by an ordinance of the Ministry of Health, Labour and Welfare.

### Dezincification-resistant brass bars

Dezincification resistance has been improved while maintaining the mechanical and machinability of similar JIS-compliant materials.

### RoHS-compliant brass bars

We can provide materials conforming to the European RoHS Directive based on the aforementioned raw materials.

## Cut and machined products

We offer various cut and machined products to meet your specifications through the use of our high-quality, free-cutting brass bars.

## Forged brass products

We can use our high-quality brass bars for forging to supply various parts suitable for gas equipment, hydraulic equipment, valves, pipe equipment, and other machines and equipment requiring toughness and air-tightness.





# Brass and copper alloy bar products of Kitz Metal Works

Our products can meet the diverse needs of our customers.

## Types of brass & copper bars

The types and characteristics of bar materials are as follows.

### JIS-brand

KITZ METAL WORKS SERIES															
Purpose of use	JIS Alloy No. JIS H 3250	Brand	Manufacturing method	Chemical composition(%) Representative value					Tie-rope	Processability					
				Cu	Pb	Fe	Fe+Sn	Zn		Finished surface	Hole drilling	Clinching	Knurling	Rolling	Forginability
Free-cutting brass bars	C3601	GM	Drawn	60.3	2.9	0.1	0.4	Rem.	green	◎	○	◎	◎	○	—
	C3602	CM	Drawn	60.3	2.9	0.2	0.5	Rem.	yellow	◎	○	◎	◎	○	—
			Extruded												
	C3602	TM	Drawn	60.3	2.0	0.2	0.5	Rem.	purple	○	△	◎	○	◎	—
		YM	Drawn	61.1	2.0	0.2	0.5	Rem.	yellow	○	△	◎	○	◎	—
	C3604	AM	Drawn	57.2	3.5	0.2	0.5	Rem.	white	◎	◎	△	△	△	—
			Extruded												
		HM	Drawn	59.1	3.2	0.2	0.5	Rem.	white	◎	◎	○	○	△	—
	SM	Drawn	58.0	3.3	0.2	0.5	Rem.	red	◎	◎	△	△	△	—	
C3605	UM	Drawn	57.0	3.9	0.2	0.5	Rem.	red	◎	◎	△	△	△	—	
Forging brass bars	C3771	FS	Drawn	58.9	2.2	0.2	0.5	Rem.	blue	○	△	○	○	○	◎
			Extruded						white						
		YF	Drawn	59.0	1.6	0.2	0.5	Rem.	white	○	△	○	○	○	◎
	Extruded		white												
	MF	Drawn	59.2	1.9	0.1	0.4	Rem.	white	○	△	○	○	○	◎	

KICHO·SAKU SERIES															
Purpose of use	JIS Alloy No. JIS H 3250	Brand	Manufacturing method	Chemical composition(%) Representative value					Tie-rope	Processability					
				Cu	Pb	Fe	Fe+Sn	Zn		Finished surface	Hole drilling	Clinching	Knurling	Rolling	Forginability
Free-cutting brass bars	C3602	SAKU-61	Drawn	60.7	3.2	0.2	0.3	Rem.	white	○	△	◎	○	◎	—
			Extruded												
		SAKU-60	Drawn	60.3	3.0	0.2	0.3	Rem.	yellow	◎	○	◎	◎	○	—
	Extruded														
	C3603	KOUBAKOBO	Drawn	58.3	2.8	0.03	0.05	Rem.	gray	◎	◎	○	○	△	—
	C3604	SAKU-59	Drawn	59.0	3.2	0.2	0.3	Rem.	orange	◎	◎	○	○	△	—
Extruded															
SAKU-58		Drawn	58.0	3.3	0.2	0.3	Rem.	brown	◎	◎	△	△	△	—	
	SAKU-57	Drawn	57.0	3.3	0.2	0.3	Rem.	blue	◎	◎	△	△	△	—	

※Chemical composition is indicated by representative values of respective materials.  
 ※Only representative products are mentioned in this catalogue. Please contact us for details.

## Types of brass & copper bars

### Special Brand

#### Dezincification resistance brass bars

Purpose of use	Product name	Brand	Manufacturing method	Tie-ropes	Features						
					Dezincification corrosion resistance	Erosion and corrosion resistance	Stress corrosion cracking resistance	Strength	Machinability	Forginability	
Cutting	Dezincification resistance KZ Metal	KZ	Drawn	black	◎	×	○	○	○	—	
	Dezincification resistance FZ Metal 2	FZ	Drawn	black	○	○	○	○	○	—	
	Dezincification resistance TZ Metal (TZ-SC)	SE	Drawn	black	○	○	○	◎	○	—	
	Dezincification resistance NCRB-1	AB	Drawn	black	○	○	○	○	○	—	
Forging	Dezincification resistance FZ Metal I	FZ	Drawn	black	○	○	○	○	○	○	
	Extruded										
	Dezincification resistance TZ Metal (TZ-SF)	SB	Drawn	black	○	○	○	◎	○	○	
	Dezincification resistance NCRB-3S	BB	Drawn	black	○	○	○	○	○	○	
			Extruded								

#### Pb-Free brass bars

Cutting	KEEPALLOY Dezincification resistance ZE Metal	ZE	Drawn	black	○	○	×	○	○	—	Japan Copper and Brass Association Technical Standard  Alloy number: C6803  Pb content: KEEPALLY 0.01% (by mass) or less  Cd content: 0.001% (by mass) or less (10 ppm or less)
Forging	KEEPALLOY Dezincification resistance ZA Metal	ZA	Drawn	black	○	○	×	○	○	○	
			Extruded								
Cutting	KEEPALLOY ZN Metal 2	ZN	Drawn	white	×	×	×	○	○	—	
Forging	KEEPALLOY ZN Metal I	ZN	Drawn	white	×	×	×	○	○	○	
			Extruded								
Standard material	C3604	HM	Drawn	white	×	×	○	○	◎	—	
	C3771	FS	Extruded	white	×	×	○	○	◎	◎	

※We recommended that if dezincing-resistant brass bars or Pb-free dezincing-resistant brass bars are used for hot forging,

we recommend that you provide appropriate heat treatment after forging to improve dezincification corrosion resistance further and remove residual stress.

※Dezincification corrosion resistance was evaluated according to the ISO and JBMA dezincification corrosion tests,

while erosion/corrosion resistance was evaluated by the gap jet corrosion test. Stress corrosion cracking resistance was evaluated by applying a torque of 9.8 N•m to samples that had been machined to add internal thread and then conducting the ammonia test. Strength, machinability and forginability were evaluated by the tensile test, cutting resistance test and upset test, respectively.

#### Manik Z-100 Free-cutting/high-strength white copper alloy bars

- White copper alloy having silver-white gloss similar to stainless steel or nickel silver
- Copper alloy having machinability equivalent to that of free-cutting brass
- Copper alloy stronger than free-cutting brass and as strong as stainless steel

※We can meet various manufacturing ranges you require. Please contact us for separate consultation.

#### CRB Brass bars for compact vessel propeller shafts

- Certified by the Japan Craft Inspection Organization (JCI) as suitable for compact vessel propeller shafts. (Certification No. 151).
- Brass bars offering favorable corrosion resistance and strength

※We can meet various manufacturing ranges you require. Please contact us for separate consultation.

## RoHS-compliant copper alloy bars (low-Cd material/Cd- and Pb-free material)

We can produce brass and copper alloy bars conforming to the RoHS Directive with all types of materials.

### JIS-brand

Pb content	Cd content	KITZ METALWORKS	KYOTO BRASS	KICHO·SAKU SERIES
		Below 50 ppm	—	G1
4% Max.	Below 75 ppm	CD75	G2	R
	Below 100 ppm	CD100	G3	—

※The category code at the end of each material identifies whether the material has low Cd content.

※The Pb content is 4% (by mass) or less with all materials, except for those classified under JIS Alloy No. C3605.

### Special Brand

- Please contact us for separate consultation if you require special low-Cd materials.
- The Cd-free, Pb-free brass bar material KEEPALLY contains not more than 0.01% of Pb and not more than 10 ppm of Cd.

## Manufacturing ranges

Diameters, or width across flats and standard lengths of bar materials of our standard manufacturing specifications are as follows.

Shape	Finish method	Diameter, or width across flats		Standard length
		Drawn bar	Extruded bar	Drawn and extruded bar
Round		1.5 ~ 75	22 ~ 110	2,000 to 5,000 (Tolerance: 0 to +15)  If you require specifications outside of the above ranges, please contact us for separate consultation.
Hexagon		4.5 ~ 65	25 ~ 70	
Square		4.5 ~ 50	25 ~ 70	
Flat square and irregular shape		Please contact us for separate consultation.		

unit:mm

## Dimensional tolerances of bars

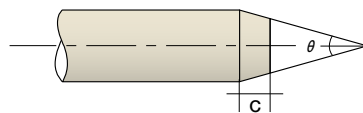
Dimensional tolerances of diameters or width across flats for bars are as follows.

Category of diameter, width across flats	Shape	Tolerance		
		Drawn bar		Extruded bar
		Round shape for automated machines	Square, rectangle and hexagon	Round, square, rectangle and hexagon
1 or more but not more than 3		0 ~ -0.03	—	±1.0%, where the minimum value is ±0.3
Over 3 but not more than 6		0 ~ -0.04	0 ~ -0.05	
Over 6 but not more than 10		0 ~ -0.05	0 ~ -0.05	
Over 10 but not more than 20		0 ~ -0.07	0 ~ -0.07	
Over 20 but not more than 35		0 ~ -0.08	0 ~ -0.08	
Over 35 but not more than 50		0 ~ -0.12	0 ~ -0.12	
Over 50		Please contact us for separate consultation.		

unit:mm

## Chamfering shape at bar end

Bar ends are chamfered as follows.

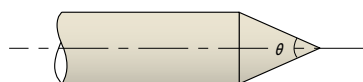


$C=2\sim 3\text{mm}$   
 $\theta=60^\circ$

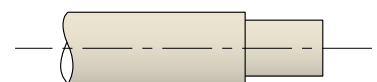
This can be applied to one side or both sides.

Please consult us if you require any special chamfering shape.

Example of chamfering



$\theta=60^\circ, 90^\circ$



Stepped chamfering

We have a dream. "Kitz Metal Works"

**D R E A M**

## KITZ METAL WORKS CORPORATION

■ Head office/factory

7377, MiyagawaKobayakawa, Chino-shi, Nagano 391-8555, Japan  
Phone: 81-266-79-3030 Fax: 81-266-70-1800

■ Kanto Sales Office

1-10-1, Nakase, Mihama-ku, Chiba 261-8577, Japan  
Phone: 81-43-299-1747 Fax: 81-43-299-1793

<http://www.kitzmetalworks.com>

