



*with you*

Trade name FUJII MANUFACTURING CO. ,LTD.

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Home Page <https://www.fujii-mfg.com/>

Founded September, 1946

Established May, 1948

President Takashi Fujii 藤井 隆



## Premises and Buildings

	Total Site Area	Total Building Site
Headquarter	736.4 square meters	507.6 square meters
Factory	21,873.2 square meters	9,800.3 square meters



## Business Items

### Wrought copper alloy products

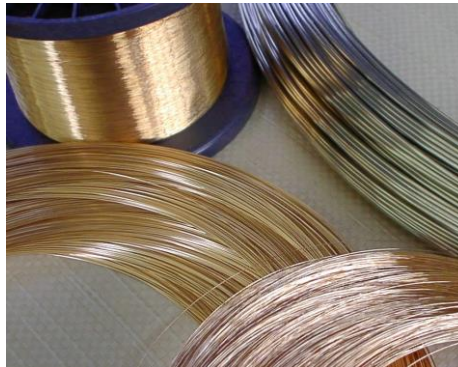
Bar • Wire • Deformed Wire and Bar

Phosphor Bronze • Free-Cutting Phosphor Bronze •  
Nickel Silver • Free-Cutting Nickel Silver • Beryllium Copper  
Free-Cutting Beryllium Copper Other Special Copper Alloy

Wire Size • • • •  $\phi$  0.05~10.0mm

Bar Size • • • •  $\phi$  1.0~350.0mm

Capacity/Month • • • • 200 t



### Machine Equipments

Melt Casting Equipment

Vacuum Melt Furnace

Vertically Consecutive Casting Equipment

Cold Wire Drawing Equipment

Drawing Machine (10~30t Draw Bench)

Wire Drawing Machine

Consecutive Wire Drawing Machine

Straightening Equipment

Correction Machine

Eddy Current Straight-Line Equipment

Centerless Grinder

Heat Processing Equipment

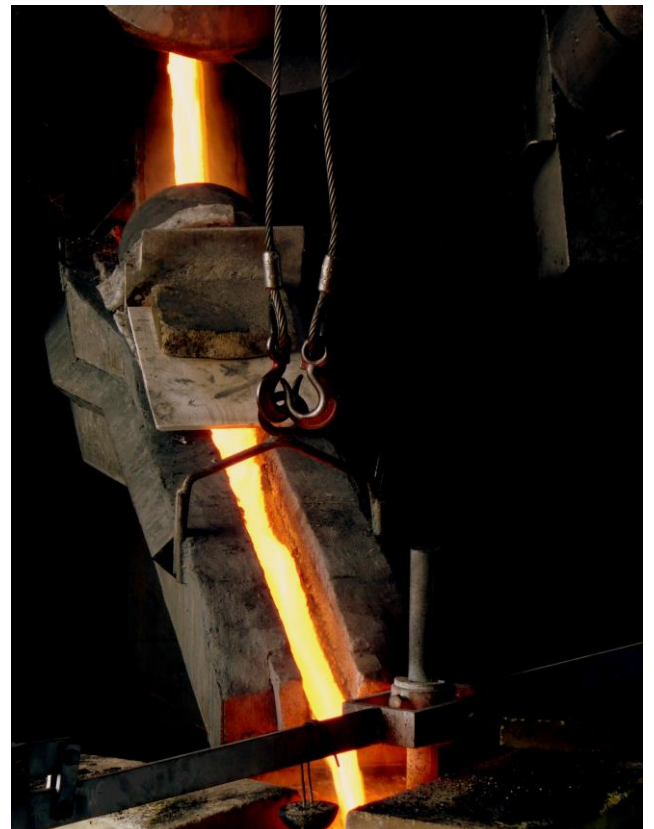
Trolley Heat Processing Furnace

RH BAF • Pipe BAF • Bell BAF

Others

Cold Metal Rolling Machine • Swaging •

Turning Machine

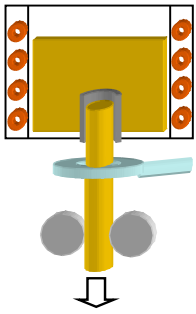


Our Cold Rolling and Drawing Wire Process

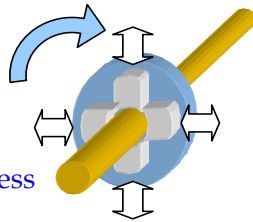


株式会社 藤井製作所  
FUJII MANUFACTURING CO.,LTD.

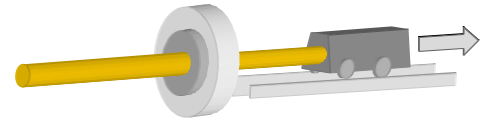
Vertically Consecutive Casting



Product of  
 $\phi$  61.0mm or less



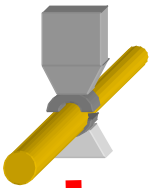
Swaging



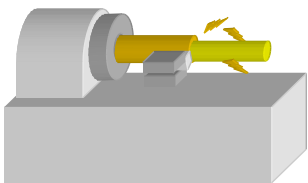
Draw Bench Drawing

Product of  
 $\phi$  62.0mm or more.

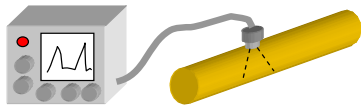
Cold Molding



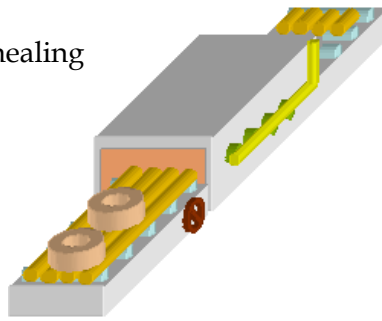
Face Milling by Turning



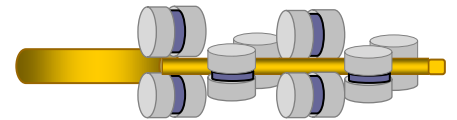
Ultrasonic Inspection



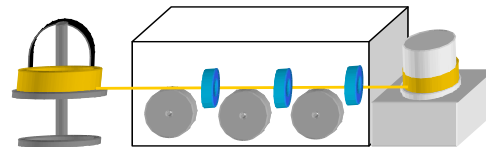
Annealing



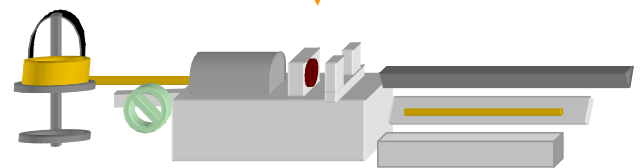
Rolling



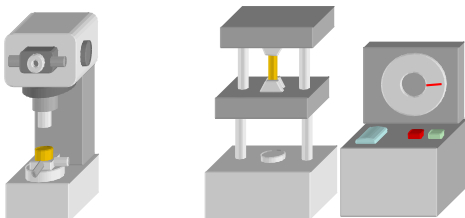
Consecutive Drawing Wire



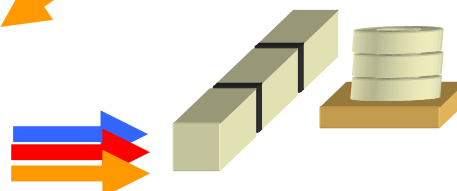
Eddy Current Direct Wire



Hardness and Tensile Strength Test



Packing Shipping



## Specification

Phosphor Bronze is an alloy tinned to copper. An alloy that is strong to spring specifications, corrosion, strength and abrasion.

### [Usage]

Strip is widely used for gear, Cam, joint, axis, bearing, screw, bolt, nuts and connectors.

Wire is widely used for coil spring, eddy spring, snap button, header and washer.

Alloy No.	Cu	Sn	P	Zn	Fe	Pb	Cu+Sn+P
C5111	-	3.5-4.5	0.03-0.35	0.20 max.	0.10 max.	0.02 max.	99.5 min.
C5102	-	4.5-5.5	0.03-0.35	0.20 max.	0.10 max.	0.02 max.	99.5 min.
C5191	-	5.5-7.0	0.03-0.35	0.20 max.	0.10 max.	0.02 max.	99.5 min.
C5212	-	7.0-9.0	0.03-0.35	0.20 max.	0.10 max.	0.02 max.	99.5 min.

※The above-mentioned material corresponds with RoHS.

wt%



Free-Cutting Phosphor Bronze is an alloy that the lead is added to Phosphor Bronze.

This Free-Cutting Phosphor Bronze has not just corrosion-resistance and fatigue -endurance but also machinability.

### [Usage]

This is widely used for Electric Parts, Screw, Bearing, Bush, Bolt, Nuts and Inner Portion of the clock.

Alloy No.	Cu	Sn	P	Zn	Pb	Cu+Sn+P+Pb(+Zn)
C5341	-	3.5-5.8	0.03-0.35		0.8-1.5	99.5 min.
C5441	-	3.0-4.5	0.01-0.50	1.5-4.5	3.5-4.0	99.5 min.
FX415	-	3.0-4.5	0.01-0.50	2.5-5.5	1.0-2.3	99.5 min.
FX400	-	3.0-4.5	0.01-0.50	1.5-4.5	3.5-3.9	99.5 min.

※Content of Pb on this product is controlled in less than 4% and applicable to RoHS.

wt%



Nickel Silver is a copper added to Nickel and Zinc. It is glossy and corrosion-resistance and fatigue-endurance.

[Usage]

This is widely used for ornament, musical instrument, glasses, medical equipment and fishing.

Alloy No.	Cu	Ni	Mn	Zn	Fe	Pb
C7701	54.0-58.0	16.5-19.5	0.50 max.	Rem.	0.25 max.	0.03 max.
C7521	62.0-66.0	16.5-19.5	0.50 max.	Rem.	0.25 max.	0.03 max.
C7541	60.0-64.0	12.5-15.5	0.50 max.	Rem.	0.25 max.	0.03 max.
C7451	63.0-67.0	8.5-11.0	0.50 max.	Rem.	0.25 max.	0.03 max.

※The above-mentioned material corresponds with RoHS.

wt%



Free-Cutting Nickel Silver is an alloy that the lead is added to Nickel Silver.

This Free-Cutting Nickel Silver has not just corrosion-resistance and fatigue-endurance but also machinability.

[Usage]

This is widely used for Rollerball Pen, Musical Instruments, Automobile Parts, Glasses and Lead Screw.

Alloy No.	Cu	Ni	Mn	Zn	Fe	Pb
FX15	57.0-61.0	14.0-16.0	0.50 max.	Rem.	0.25 max.	2.5-3.5
C7941	60.0-64.0	16.5-19.5	0.50 max.	Rem.	0.25 max.	0.8-1.8

wt%

※Content of Pb on this product is controlled in less than 4% and applicable to RoHS.

High-Strength Phosphor Bronze FX510 is Our Original material. It's a Copper Alloy that Ni is added to C5212 and improved tremendously in Mechanic Capability Value (Tensile Strength, Hardness and Spring features).

FX510 is High-Strength Copper Alloy which is second to Our Beryllium Copper and this material is expected to be used as a replacement for Beryllium Copper.

Alloy No.	Cu	Sn	P	Zn	Fe	Pb	Ni	Cu+Sn+P+Ni
FX510	-	7.0-9.0	0.03-0.35	0.20 max.	0.10 max.	0.02 max.	0.3-1.3	99.5 min.

※The above-mentioned material corresponds with RoHS.

wt%

	Tensile Strength (H) N/mm <sup>2</sup>	0.2%proof stress N/mm <sup>2</sup>	Young's modulus N/mm <sup>2</sup>	Conductivity %IACS
FX510	970-1420※	345	86	12
C5191	860-1060	450	106	13
C5212	940-1090	335	87	12

※ We made it possible to draw out approximately equal to or more than 1.5 times (our company measurement) of strength of C5212 by adjusting Ni addition quantity and processing percentage.

The above data is using the product data of equal to or less than 3.0 our company's files.

Lead-free cutting phosphor bronze with complete compliance with RoHS / ELV directive

It is complete lead-free bronze that is superior in plastic workability while maintaining mechanical properties and cutting properties of conventional free cutting phosphor bronze.

Excellent machinability was realized by adding elements that have no influence on

Alloy No.	Cu	Sn	P	S	Ni	Pb	Cu+Sn+S+Ni+P
KFX41	—	2.0-6.0	0.03-0.35	0.1-0.5	0.6-3.0	0.10max.	99.5以上

※The above-mentioned material corresponds with RoHS.

wt%

Alloy No.	Temper	Size [ mm ]	Tensile Strength [ N/mm <sup>2</sup> ]	Elongation [ % ]
KFX41	H	1 - 6 max.	440 min.	-
		6 - 13 max.	410 min.	10 min.
		13 - 25 max.	375 min.	12 min.

