www.eunsungind.co.kr

EUNSUNG CO.,LTD.

3SCUT

EDM WIRE

(주)은성은 1992년 설립되어 지금까지 비철금속 특수합금 와이어를 제조 및 판매를 하고 있습니다.
생산시스템의 표준화와 체계적이고 까다로운 품질관리를 통해 최상의 품질과 서비스를 제공합니다.

Eunsung Co., Ltd. was established in 1992 and has been manufacturing and selling non-ferrous metal special alloy wire. We provide the best quality and service through standardization of production systems and systematic and strict quality control.

비전 VISION

기업의 가치를 높이고 고객의 니즈에 부합하는 지속적인 기술개발과 시스템 구축

Continuous technology development and system construction to increase corporate value and meet customer needs.

고객 혜택

Customer Benefits

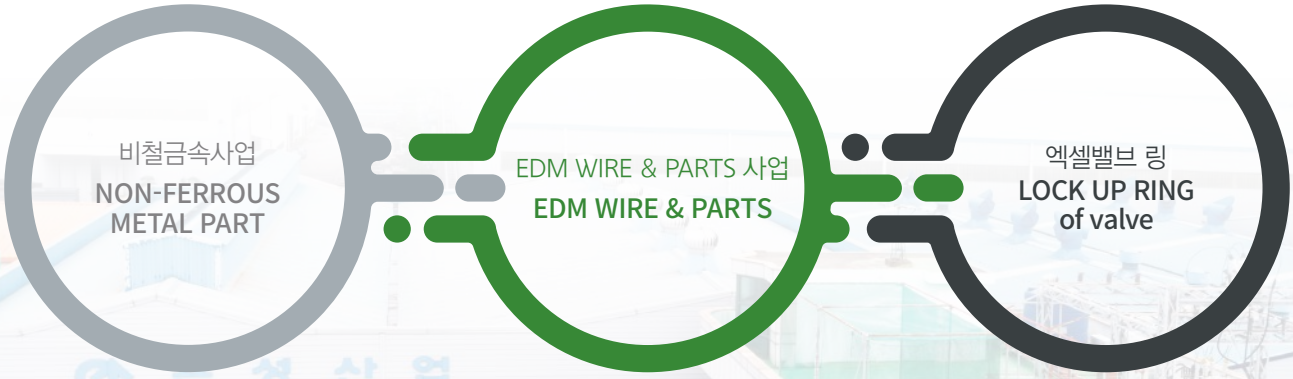
기술 솔루션

Technological Solutions

상생협력

Partnership

사업영역 BUSINESS AREA



Contents

연혁 HISTORY

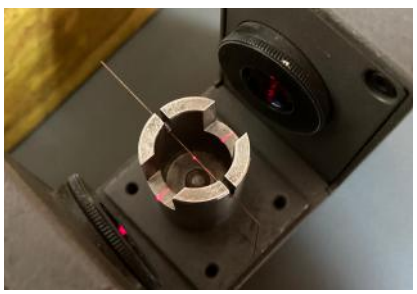
1990~

1992	03	은성산업 설립 Established as EUNSUNG Industrial Co.,Ltd
	11	본사 및 공장 확장 이전 Moved headquarter and factory for the extension
1993	11	인발기 및 부대설비 증설 Expansion of drawing machines and auxiliary facilities
1995	03	용해로 가동 및 생산설비 증설(특수합금선재 생산) Melting furnace operation and production facility expansion (production of special alloy wire)
1996	05	파이프 연결링 생산시작 Began to produce the pipe connection ring
1997	09	파이프 연결링 특허 등록 Patent registration of pipe connection ring

2000~

2001	06	녹산산업공단으로 확장이전 Expanded and moved to Noksan Industrial Complex
		고주파 용해로 설비 증설 Expansion of high frequency melting furnace facilities
2007	01	스프링용 관상로 및 와이어 드로잉 머신 증설 Expanded tubular furnace and drawing machine of wire for spring.
2010	07	(주)은성으로 법인 전환 Converted to Eunsung Co., Ltd.
2011	04	ISO 9001 인증 획득 Acquired ISO 9001 Certification
2012	01	플라즈마 절단용 팁 재료 개발 Development of the material for the tip for cutting plasma
2016	12	황동 용접봉(EW 시리즈) 개발 Development of brass welding rod (EW series)
2017	08	PVC 온수배관 파이프 연결 패킹링 제조법 개발 Developed PVC hot water pipe connection packing ring manufacturing method
2018	02	기업부설연구소 설립 Establishment of R&D Center
2019	10	EDM WIRE 생산설비 도입 Introduced EDM wire production facilities



SMART • SPEED • STRONG

3SCUT

EDM WIRE

30여 년간의 동합금 제조의 노하우로 고순도 고품질의 소재를 사용

High-purity and high-quality materials are used with the know-how of copper alloy manufacturing for over 30 years.

뛰어난 가공성

Excellent processability

- 마이크론 0.001mm 단위의 엄격한 공차관리로 안정적인 선경을 유지하여 정확한 치수로 가공이 가능
- Strict tolerance management in units of 0.001mm micron maintains a stable wire diameter and enables machining with accurate dimensions
- 와이어의 철저한 표면관리로 표피박탈현상이 없어 가공 시 부드러운 절단면을 제공하고 가루발생이 적음
- Thorough surface management of the wire does not cause skin exfoliation, providing a smooth cut surface during machining and less generation of powder

우수한 진직도

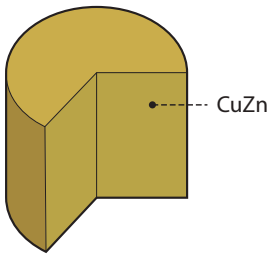
Excellent straightness

- 선꼬임이 없고 안정적인 자동결선이 가능함
- No twisting of wires and stable automatic wiring

모든 강도(HARD, SOFT)에서 안정적인 작업이 가능

Stable work is possible in all strengths (HARD, SOFT)

BRASS WIRE



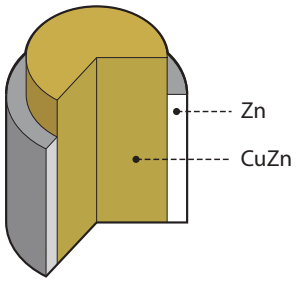
Brass wire는 모든 유형의 가공에 적합한 범용 EDM wire이다.

Brass wire is a general-purpose EDM wire suitable for all types of machining.

적용분야

- 항공 우주 / 항공 Aerospace / Aeronautics
- 일반 기계 / 정밀 기계 General Mechanic / Fine Mechanic
- 의료 Medical

ZINC COATING WIRE



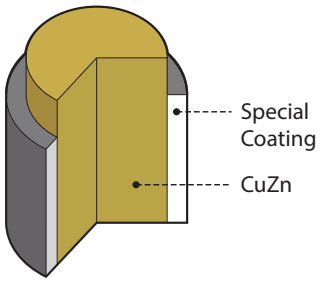
Brass wire보다 빠른 가공속도와 높은 정밀도. 깔끔한 마무리가 특징이다.

Faster speed, high precision and clean finish than brass wire.

적용분야

- 항공 우주 / 항공 Aerospace / Aeronautics
- 일반 기계 / 정밀 기계 General Mechanic / Fine Mechanic
- 자동차 Automotive
- 금형 / 금형 / 도구 Molds / Dies / Tools

GAMMA WIRE

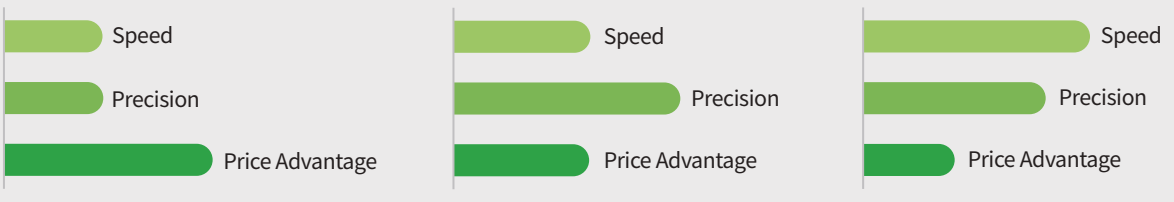


특수 코팅 처리된 최신의 혁신 EDM 와이어.
신뢰성 높은 자동결선처리의 기능과 커팅 속도 증가로 가공시간 20% 감소.
설비종합효율(OEE)이 가장 높음.

The latest innovation EDM wire with special coating. 20% reduction in machining time due to reliable automatic wiring function and increased cutting speed. The highest Overall Equipment Efficiency (OEE)

적용분야

- 항공 우주 / 항공 Aerospace / Aeronautics
- 일반 기계 / 정밀 기계 General Mechanic / Fine Mechanic
- 자동차 Automotive
- 금형 / 도구 Molds / Tools
- 하이엔드 전자 High-end Electronic



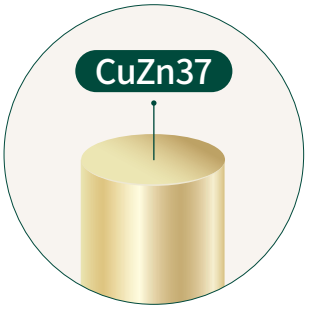
BRASS WIRE ZINC COATING WIRE GAMMA WIRE

BRASS WIRE

3SB1

순동과 아연의 합금으로 구성된 표준 방전가공용 황동와이어로, 다양한 가공환경에 적용가능한 범용 EDM WIRE이다.
파우더 발생방지를 위한 표면처리와 우수한 직진성으로 원활한 자동결선이 가능하다.

It is a standard electric discharge machining brass wire composed of an alloy of pure copper and zinc, and is a general-purpose EDM wire applicable to various machining environments. Smooth automatic wiring is possible with surface treatment to prevent powder generation and excellent straightness.



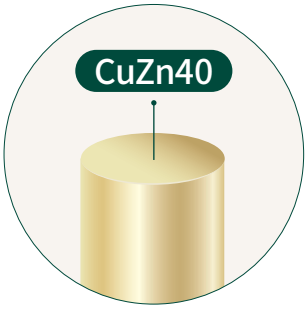
Product NO.	Diameter(mm)		Tensile Strength		Conductivity	Color	Spool							
	Size	Tolerance	N/mm²	Type			P3	P4(P5)	P10	P20(15)	D125	D160	D200	D250
3SB1-10H	0.10	+0 -0.002	≥900	Hard	21%	GOLD	○				○			
3SB1-15H	0.15						○	○			○	○		
3SB1-20H	0.20						○	○	○	○	○	○	○	○
3SB1-25H	0.25						○	○	○	○	○	○	○	○
3SB1-30H	0.30						○	○	○	○	○	○	○	○
3SB1-33H	0.33							○	○	○		○	○	○
3SB1-35H	0.35							○	○	○		○	○	○
3SB1-10S	0.10	+0 -0.002	460~520	Soft	21%	GOLD	○				○			
3SB1-15S	0.15						○	○			○	○		
3SB1-20S	0.20						○	○	○	○	○	○	○	○
3SB1-25S	0.25						○	○	○	○	○	○	○	○
3SB1-30S	0.30						○	○	○	○	○	○	○	○
3SB1-33S	0.33							○	○	○		○	○	○
3SB1-35S	0.35							○	○	○		○	○	○

BRASS WIRE

3SB2

아연합금이 추가되어 3SB1에 비해 가공속도가 빠르며 좀더 만족스러운 정밀가공이 가능하다.
파우더 발생방지를 위한 표면처리와 우수한 직진성으로 원활한 자동결선이 가능하다.

With the addition of zinc alloy, machining speed is faster than 3SB1 and more satisfactory precision machining is possible. Smooth automatic wiring is possible with surface treatment to prevent powder generation and excellent straightness.



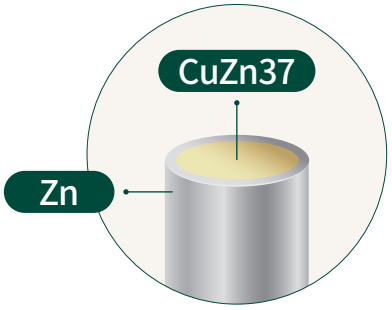
Product NO.	Diameter(mm)		Tensile Strength		Conductivity	Color	Spool							
	Size	Tolerance	N/mm²	Type			P3	P4(P5)	P10	P20(15)	D125	D160	D200	D250
3SB2-10H	0.10	+0 -0.002	≥900	Hard	23%	GOLD	○				○			
3SB2-15H	0.15						○	○			○	○		
3SB2-20H	0.20						○	○	○	○	○	○	○	○
3SB2-25H	0.25						○	○	○	○	○	○	○	○
3SB2-30H	0.30						○	○	○	○	○	○	○	○
3SB2-33H	0.33							○	○	○		○	○	○
3SB2-35H	0.35							○	○	○		○	○	○
3SB2-10S	0.10	+0 -0.002	460~520	Soft	23%	GOLD	○				○			
3SB2-15S	0.15						○	○			○	○		
3SB2-20S	0.20						○	○	○	○	○	○	○	○
3SB2-25S	0.25						○	○	○	○	○	○	○	○
3SB2-30S	0.30						○	○	○	○	○	○	○	○
3SB2-33S	0.33							○	○	○		○	○	○
3SB2-35S	0.35							○	○	○		○	○	○

ZINC COATING WIRE

3SZB

다양한 가공 환경에서 뛰어난 성능을 보이는 다목적 코팅와이어이다. 황동와이어 대비 우수한 가공속도 및 퍼포먼스를 제공한다.
파우더 발생을 최소화하고 우수한 전도성으로 가공성이 매우 높다.

It is a multi-purpose coated wire that shows excellent performance in various machining environments. It provides superior machining speed and performance compared to brass wire. It minimizes the occurrence of powder and has very high machineability with excellent conductivity.



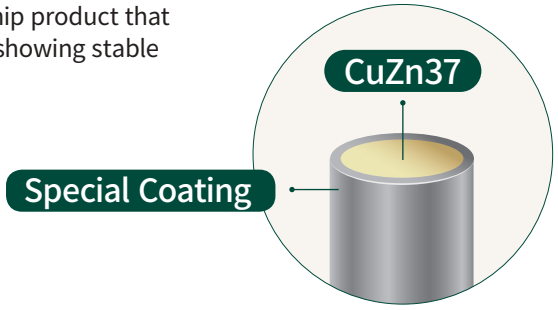
Product NO.	Diameter(mm)		Tensile Strength		Conductivity	Color	Spool							
	Size	Tolerance	N/mm²	Type			P3	P4(P5)	P10	P20(15)	D125	D160	D200	D250
3SZB-10H	0.10	+0 -0.002	≥930	Hard	21%	SILVER	○				○			
3SZB-15H	0.15						○	○			○	○		
3SZB-20H	0.20						○	○	○	○	○	○	○	○
3SZB-25H	0.25						○	○	○	○	○	○	○	○
3SZB-30H	0.30						○	○	○	○	○	○	○	○
3SZB-33H	0.33							○	○	○		○	○	○
3SZB-10S	0.10	+0 -0.002	450~510	Soft	21%	SILVER	○				○			
3SZB-15S	0.15						○	○			○	○		
3SZB-20S	0.20						○	○	○	○	○	○	○	○
3SZB-25S	0.25						○	○	○	○	○	○	○	○
3SZB-30S	0.30						○	○	○	○	○	○	○	○
3SZB-33S	0.33							○	○	○		○	○	○

GAMMA WIRE

3SZG

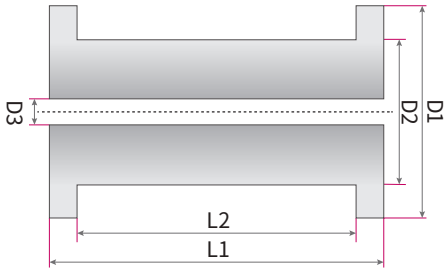
3SZB의 업그레이드 제품으로서 가공속도 향상은 물론 안정적인 가공성능을 보이는 최상의 고품질의 제품으로 은성의 기술력이 반영된 차세대 주력제품이다.

As an upgraded product of 3SZB, it is the next-generation flagship product that reflects Eunsung's technology as the best high-quality product showing stable machining performance as well as improving machining speed.



Product NO.	Diameter(mm)		Tensile Strength		Conductivity	Color	Spool							
	Size	Tolerance	N/mm²	Type			P3	P4(P5)	P10	P20(15)	D125	D160	D200	D250
3SZG-10H	0.10	+0 -0.002	≥890	Hard	23%	SILVER	○				○			
3SZG-15H	0.15						○	○			○	○		
3SZG-20H	0.20						○	○	○	○	○	○	○	○
3SZG-25H	0.25						○	○	○	○	○	○	○	○
3SZG-30H	0.30						○	○	○	○	○	○	○	○
3SZG-33H	0.33							○	○	○		○	○	○
3SZG-10S	0.10	+0 -0.002	460~520	Soft	23%	SILVER	○				○			
3SZG-15S	0.15						○	○			○	○		
3SZG-20S	0.20						○	○	○	○	○	○	○	○
3SZG-25S	0.25						○	○	○	○	○	○	○	○
3SZG-30S	0.30						○	○	○	○	○	○	○	○
3SZG-33S	0.33							○	○	○		○	○	○

SPOOL / PACKING INFO



SPOOL INFO.

Spool Type	Dimension(mm)				
	D1	D2	L1	L2	D3
P3	130	80	110	90	21
P5(P4)	160	90	114	90	21
P10	200	90	134	110	25
P20(15)	250	110	140	110	34
D125	125	80	125	100	16
D160	160	100	160	128	22
D200	200	125	200	160	22
D250	250	160	200	160	22

PACKING INFO.

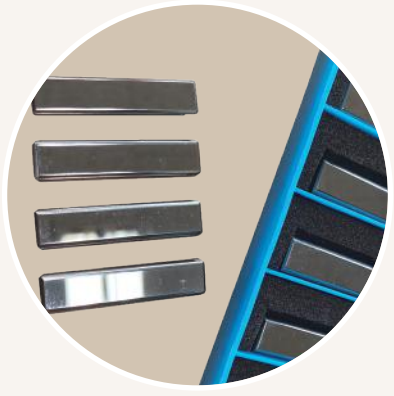
Spool Type	Weight KG/1EA	Packing(1 BOX)		
		EA	KG	SIZE
P3	3	6	18	CUSTOMIZE
P5(P4)	5	4	20	
P10	10	2	20	
P20(15)	20	1	20	
D125	3	6	18	
D160	8	2	16	
D200	15	1	15	
D250	25	1	25	

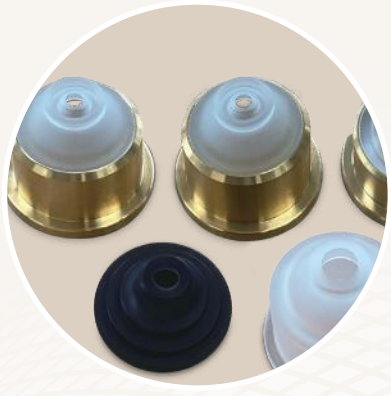
HOW TO ORDER

	Product NO.	Spool Type	Qualtity (BOX or KG)	ORDER
ex1	3SB1-15H	P5	10 BOX	3SB1-25H-P5-10BOX
ex2	3SB2-25S	P10	1000KG	3SB2-25S-P10-1000KG

EDM ACCESSORY

"We will supply consumables for smooth cutting work that meets customer needs in the shortest time."





EDM FILTER

	PRODUCT NO.	FILTER SIZE	APPLICABLE MAKER	PRESSURE
일반형 (General)	EF-01	150X35X345	JAPAX, SODICK, SEIBU	External
	EF-17	260X29X340	MITSUBISHI, HITACHI	External
	EF-20	300X29X500	MITSUBISHI, BROTHER	Internal
	EF-23	260X46X280	MAKINO	External
	EF-26	300X46X340	HITACHI	Internal
	EF-27	260X46X400	BROTHER	Internal
	EF-28	150X31X375	CHARMILLES, AGIE	Internal
	EF-28M	150X31X364	CHARMILLES, AGIE	Internal
	EF-28M/M	150X31X364	CHARMILLES, AGIE	Internal
	EF-35	340X46X300	FANUC	Internal
	EF-39	300X58X500	HITACHI	Internal / External
	EF-40	340X46X450	FANUC, JAPAX, SODICK, CHARMILLES	Internal
	EF-42	300X46X500	MITSUBISHI, MAKINO, HITACHI, SPM, SEIBU	Internal / External
	EF-45	300X46X400	INTERTEC.	Internal / External
표준형 (Standard)	EHF-40	300X500 (Center Nipple)	MITSUBISHI, MAKINO, HITACHI, SEIBU	Internal
	EHF-41	300X29X250	MITSUBISHI, BROTHER, HITACHI	Internal
	EHF-42	340X46X300	SODICK, FANUC	Internal
	EHF-43	340X46X300	MITSUBISHI, MAKINO, HITACHI, SEIBU	Internal / External
	EHF-43C	340X300	MITSUBISHI, MAKINO, HITACHI, SEIBU	Internal
	EHF-43F	340X300 (Side Nipple)	FANUC	Internal / External
	EHF-43FC	340X300 (Center Nipple)	FANUC	Internal
	EHF-44	300X29X500	MITSUBISHI, HITACHI	Internal
	EHF-45	340X450 (Side Nipple)	MITSUBISHI	Internal / External
	EHF-45MC	340xG1/2"x450[340x19x450] (Center Nipple)	MITSUBISHI	Internal
	EHF-45C	340XG3/4"X450 [340X25X450]	CHARMILLES, AGIE	Internal
	EHF-45BC	340X450	FANUC	Internal
	EHF-46	300X250 (Center Nipple)	MITSUBISHI, MAKINO, HITACHI	Internal
고급형 (Special)	EMF-340F	340X46X300	SODICK, FANUC	Internal / Center
	EMF-340FK	340X300	MITSUBISHI, MAKINO, HITACHI, SEIBU	Internal
	EMF-340FKB	340X300	FANUC	Internal
	EMF-400FKB	340X340	FANUC	Internal

DRILL EDM FILTER

PRODUCT NO.	FILTER SIZE	APPLICABLE MAKER	PRESSURE
HD-450	200X450	NSD500	Internal
DHF-43	340x46x300	NSD500	Internal / External

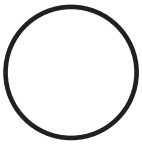
TUBE ELECTRODE

철저한 품질관리로 생산된 전극관은 어떠한 형태에서도 정확한 사이즈를 유지하고 있으며 직진성 또한 매우 우수하다.
또한 여러 공정에서도 뛰어난 성능을 보이며 전극관의 잔량이 남지 않는 실용성을 보장한다.

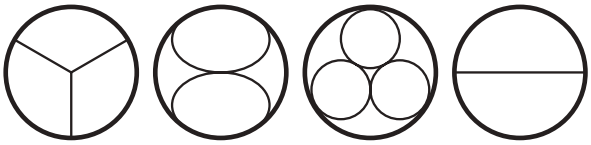
Tube Electrode manufactured on tight inspection holds constant inside and out side diameters at any position, and competent straightness.
It assure complete counter botring and deep holing with no potion remains in machine.

■ Material : Brass, Copper ■ Tube Shape : Single Hole, Multi Hole

Single Hole



Multi Hole



Y Hole Double Hole Triple Hole Half Hole

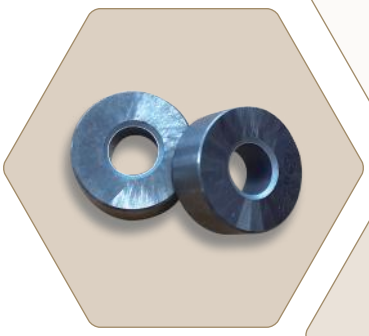
Size Info

COPPER TUBE					BRASS TUBE				
O.D.	O.D. Tolerance	I.D.	I.D. Tolerance	Length	O.D.	O.D. Tolerance	I.D.	I.D. Tolerance	Length
0.07									
0.08									
0.09									
0.10	+0 -0.00	0.01~0.07		200	0.10				
0.12					0.12				
0.13					0.13	+0 -0.00	0.01~0.07		
0.15					0.15				200
0.17					0.17				
0.20		0.10			0.20		0.10	0.10	
0.25					0.25				
0.30		0.12			0.30		0.12	0.12	
0.35	+0 -0.01				0.35	+0 -0.01			400
0.40		0.15			0.40		0.15	0.15	
0.45					0.45				
0.50		0.18			0.50		0.18	0.18	
0.60		0.20			0.60		0 / -0.02	0.20	
0.70					0.70		0 / -0.02		
0.80		0.30			0.80		0 / -0.02		
0.90					0.90		0 / -0.02	0.30	
1.00			+-0.02		1.00		0 / -0.02		
1.10					1.10		0 / -0.02		
1.20		0.40			1.20		0 / -0.02		
1.30	+0 -0.02			300	1.30	+0 -0.02	0 / -0.02	0.40	
1.40				~	1.40		0 / -0.02		
1.50		0.45		400	1.50		0 / -0.02	0.45	
1.60		0.50			1.60		0 / -0.02	0.50	400
1.70					1.70		0 / -0.02		~
1.80		0.60			1.80		0 / -0.02	0.60	600
1.90					1.90		0 / -0.02		
2.00					2.00		0 / -0.02		
2.10		0.70			2.10		0 / -0.02	0.70	
2.20					2.20		0 / -0.02		
2.30					2.30		0 / -0.02		
2.40		0.80			2.40		0 / -0.02		
2.50	+0 -0.03		+-0.03		2.50	+0 -0.03	0 / -0.02	0.80	
2.60					2.60		0 / -0.02		
2.70		0.90			2.70		0 / -0.02		
2.80					2.80		0 / -0.02	0.90	
2.90					2.90		0 / -0.02		
3.00		1.00			3.00		0 / -0.02	1.00	

OTHERS

모든 EDM MACHINE 의 소모품 취급 가능
Available for all major machine manufacturers
: Agie, Brother, Charmilles, Fanuc, Hitachi, Japax, Makino, Mitsubishi, Ona, Seibu, and Sodick.

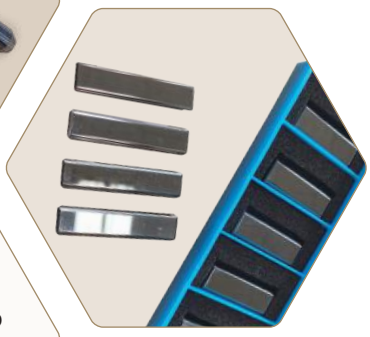
ION EXCHANGE RESIN



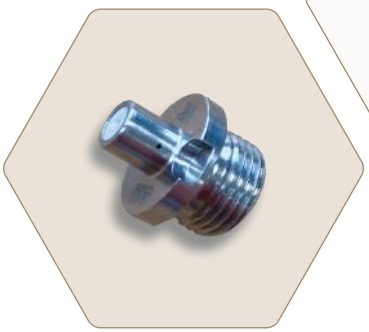
CHEMICAL

GUIDE PARTS

POWER FEED CONTACT PARTS

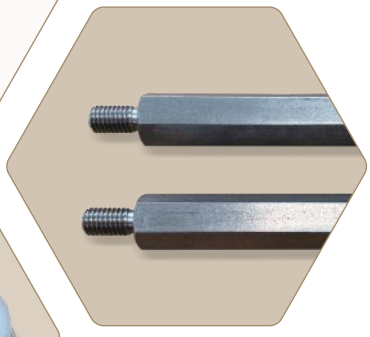


OTHER CONNECTED PARTS



NOZZLE PARTS

JIG AND CLAMP PARTS



INQUIRY INFORMATION

1 Product Name 2 Spec.(Size) 3 Machine Maker & Model No.

NON-FERROUS METAL

Tough Pitch Copper

Alloy No.	Chemical Composition(%)						Standard	
	Cu	Pb	Fe	Sn	Zn	P	JIS	ASTM
C1100	99.90 Min						C1100	C11000

Phosphorus Deoxidized Copper

Alloy No.	Chemical Composition(%)						Standard	
	Cu	Pb	Fe	Sn	Zn	P	JIS	ASTM
C1201	99.90 Min					0.004~ 0.014	C1201	C12000
C1220	99.90 Min					0.015~ 0.04	C1220	C12200
C1221	99.75 Min					0.004~ 0.04	C1221	C12210

Oxygen Free Copper(OFC & OFC with Ag)

Alloy No.	Chemical Composition(%)							Standard	
	Cu	Pb	Fe	Sn	Zn	Ag	O	JIS	ASTM
C1010	99.99 Min						0.0005 Max	C1010	C10100
C1020	99.96 Min						0.001 Max	C1020	C10200
C1040	99.95 Min					0.027 Min	0.001 Max	C1040	C10400
C1050	99.95 Min					0.034 Min	0.001 Max	C1050	C10500
C1070	99.95 Min					0.085 Min	0.001 Max	C1070	C10700

Phosphor Bronze

Alloy No.	Chemical Composition(%)							Standard	
	Cu	Pb	Fe	Sn	Zn	P	Cu+Sn+P	JIS	ASTM
C5102		0.02 Max	0.10 Max	4.5~5.5	0.20 Max	0.03~ 0.35	99.5 Min	C5102	C51000
C5191		0.02 Max	0.10 Max	5.5~7.0	0.20 Max	0.03~ 0.35	99.5 Min	C5191	C51900
C5212		0.02 Max	0.10 Max	7.0~9.0	0.20 Max	0.03~ 0.35	99.5 Min	C5212	C52100

Red Brass

Alloy No.	Chemical Composition(%)									Standard	
	Cu	Pb	Fe	Sn	Zn	P	Ni	Mn	Al	JIS	ASTM
C2100	94~96	0.02 Max	0.02 Max		Rem		0.02 Max	0.02 Max	0.02 Max	C2100	C21000
C2200	89~91	0.02 Max	0.02 Max		Rem		0.02 Max	0.02 Max	0.02 Max	C2200	C22000
C2300	84~86	0.02 Max	0.02 Max		Rem		0.02 Max	0.02 Max	0.02 Max	C2300	C23000
C2400	78.5~ 81.5	0.02 Max	0.02 Max		Rem		0.02 Max	0.02 Max	0.02 Max	C2400	C24000

Yellow Brass

Alloy No.	Chemical Composition(%)									Standard	
	Cu	Pb	Fe	Sn	Zn	P	Ni	Mn	Al	JIS	ATM
C2600	68.5~ 71.5	0.02 Max	0.02 Max		Rem		0.02 Max	0.02 Max	0.02 Max	C2600	C26000
C2700	63~67	0.02 Max	0.02 Max		Rem		0.02 Max	0.02 Max	0.02 Max	C2700	C27000
C2800	59~63	0.02 Max	0.02 Max		Rem		0.02 Max	0.02 Max	0.02 Max	C2800	C28000
C2680	64~68	0.05 Max	0.05 Max							C2680	C26800
C2720	62~64	0.07 Max	0.07 Max							C2720	C27200
C2801	59~62	0.10 Max	0.07 Max							C2801	C28000

Free Cutting Brass

Alloy No.	Chemical Composition(%)						Standard	
	Cu	Pb	Fe	Sn	Zn	Fe+Sn	JIS	ATM
C3601	59~63	1.8~3.7	0.30 Max		Rem	0.50 Max	C3601	C36000
C3602	59~63	1.8~3.7	0.50 Max		Rem	1.00 Max	C3602	C36000
C3603	57~61	1.8~3.7	0.35 Max		Rem	0.60 Max	C3603	C36000
C3604	57~61	1.8~3.7	0.50 Max		Rem	1.00 Max	C3604	C36000
C3605	56~60	3.5~4.5	0.50 Max		Rem	1.00 Max	C3605	C36000
C3710	58~62	0.6~1.2	0.1 Max		Rem		C3710	C37100

Nickel Silver

Alloy No.	Chemical Composition(%)							Standard	
	Cu	Pb	Fe	Sn	Zn	Mn	Ni	JIS	ASTM
C7701	54~58	0.03 Max	0.25 Max		Rem	0.50 Max	16.5~19.5	C7701	C77000
C7521	62~66	0.03 Max	0.25 Max		Rem	0.50 Max	16.5~19.5	C7521	C75200
C7541	60~64	0.03 Max	0.25 Max		Rem	0.50 Max	12.5~15.5	C7541	C75400
C7451	63~67	0.03 Max	0.25 Max		Rem	0.50 Max	8.5~11.0	C7451	C74500

Copper-Iron

Alloy No.	Chemical Composition(%)					Standard	
	Cu	Pb	Fe	Zn	P	JIS	ASTM
C1921	Rem		0.05~0.15		0.015~0.05	C1921	C19210
C1940	Rem	0.03 Max	2.10~2.6	0.05~0.2	0.015~0.15	C1940	C19400

Forged Brass Rod

Alloy No.	Chemical Composition(%)					Standard	
	Cu	Pb	Fe	Fe+Sn	Zn	JIS	ASTM
C3712	58.0~62.00	0.25~1.2		0.80 Max	Rem	C3712	C36500
C3771	57.0~61.00	1.0~2.5		1.00 Max	Rem	C3771	C37700

Naval Brass

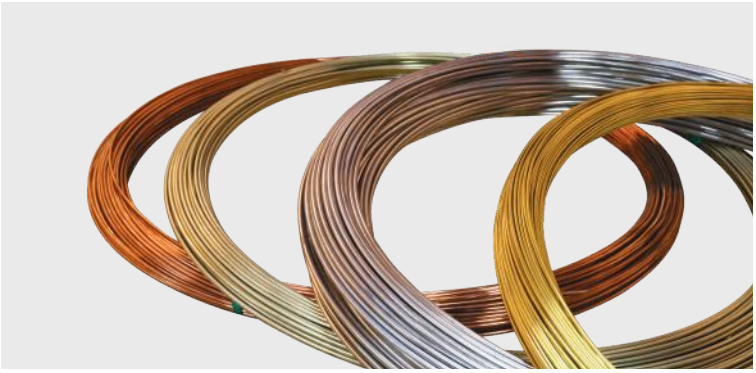
Alloy No.	Chemical Composition(%)					Standard	
	Cu	Pb	Fe	Sn	Zn	JIS	ASTM
C4621	61.0~64.00	0.20 Max	0.10 Max	0.7~1.5	Rem	C4621	C46210
C4640	59.0~62.00	0.20 Max	0.10 Max	0.5~1.0	Rem	C4640	C46400

Beryllium Copper and Nikel Silicon Copper

Alloy No.	Chemical Composition(%)													
	Cu	Pb	Fe	Be	Al	Co	Ni	Si	Cr	Zr	Ni+Co	Ni+Co +Fe	Cu+Be +Ni	Cu+Be +Ni+Co+Fe
C17200	Rem			1.8~2.0							0.20 Min	0.60 Max		99.50 Min
C17500	Rem		0.20 Max	0.4~0.7	0.20 Max	2.4~2.7		0.20 Max						
C17510	Rem		0.20 Max	0.2~0.6	0.20 Max	0.30 Max	1.4~2.2	0.20 Max					99.50 Min	
C18000			0.15 Max				1.8~3.0	0.4~0.8	0.1~0.8					
C18150									0.5~1.5	0.02~0.2				
C18200		0.05 Max	0.10 Max					0.10 Max	0.6~1.2					

Aluminum

Alloy No.	Chemical Composition(%)										The others	
	Al	Si	Fe	Cu	Mn	Mg	Cr	Zn	Bi, Pb, Zr, Zr+Ti, V	Ti	each	sum
A1050	99.50 Min	0.25 Max	0.40 Max	0.05 Max	0.05 Max	0.05 Max		0.05 Max	V : 0.05 Max	0.03 Max	0.03 Max	
A1070	99.70 Min	0.20 Max	0.25 Max	0.04 Max	0.03 Max	0.03 Max		0.04 Max	V : 0.05 Max	0.03 Max	0.03 Max	
A1100	99.00 Min	0.95(sum) Max		0.05~ 0.20	0.05 Max			0.10 Max			0.05 Max	0.15 Max
A2011	Rem	0.40 Max	0.70 Max	5.0~6.0				0.30 Max	Bi : 0.2~0.6 Pb : 0.2~0.6		0.05 Max	0.15 Max
A2014	Rem	0.5~ 1.2	0.70 Max	3.9~5.0	0.4~1.2	0.2~0.8	0.1 Max	0.25 Max		0.15 Max	0.05 Max	0.15 Max
A2017	Rem	0.2~ 0.80	0.70 Max	3.5~4.5	0.4~1.0	0.4~0.8	0.1 Max	0.25 Max		0.15 Max	0.05 Max	0.15 Max
A2024	Rem	0.50 Max	0.50 Max	3.8~4.9	0.3~0.9	1.2~1.8	0.1 Max	0.25 Max		0.15 Max	0.05 Max	0.15 Max
A2117	Rem	0.80 Max	0.70 Max	2.2~3.0	0.10 Max	0.2~0.5		0.25 Max			0.05 Max	0.15 Max
A3003	Rem	0.60 Max	0.70 Max	0.05~ 0.20	1.0~1.5			0.10 Max			0.05 Max	0.15 Max
A5005	Rem	0.30 Max	0.70 Max	0.20 Max	0.20 Max	0.5~1.1	0.1 Max	0.25 Max			0.05 Max	0.15 Max
A5052	Rem	0.25 Max	0.40 Max	0.10 Max	0.10 Max	2.2~2.8	0.15~ 0.35	0.10 Max			0.05 Max	0.15 Max
A5056	Rem	0.30 Max	0.40 Max	0.10 Max	0.05~ 0.20	4.5~5.6	0.05~ 0.2	0.10 Max			0.05 Max	0.15 Max
A5083	Rem	0.40 Max	0.40 Max	0.10 Max	0.4~1.0	4.0~4.9	0.05~ 0.25	0.25 Max		0.15 Max	0.05 Max	0.15 Max
A5154	Rem	0.25 Max	0.40 Max	0.10 Max	0.10 Max	3.1~3.9	0.15~ 0.35	0.20 Max		0.20 Max	0.05 Max	0.15 Max
A6061	Rem	0.4~ 0.80	0.70 Max	0.15~ 0.40	0.15 Max	0.8~1.2	0.04~ 0.35	0.25 Max		0.15 Max	0.05 Max	0.15 Max
A6063	Rem	0.2~ 0.60	0.35 Max	0.10 Max	0.10 Max	0.45~ 0.90	0.10 Max	0.10 Max		0.10 Max	0.05 Max	0.15 Max



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