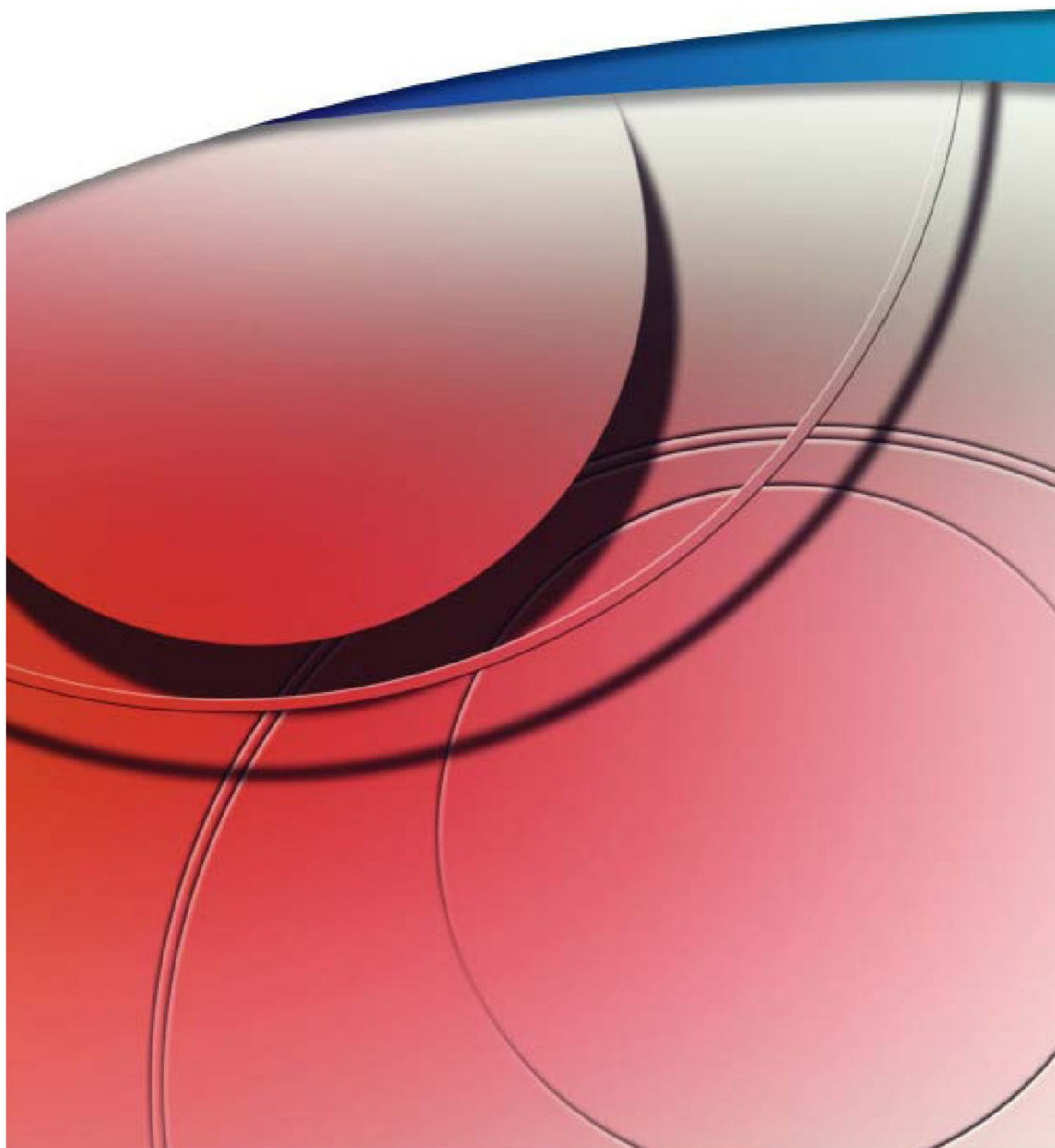
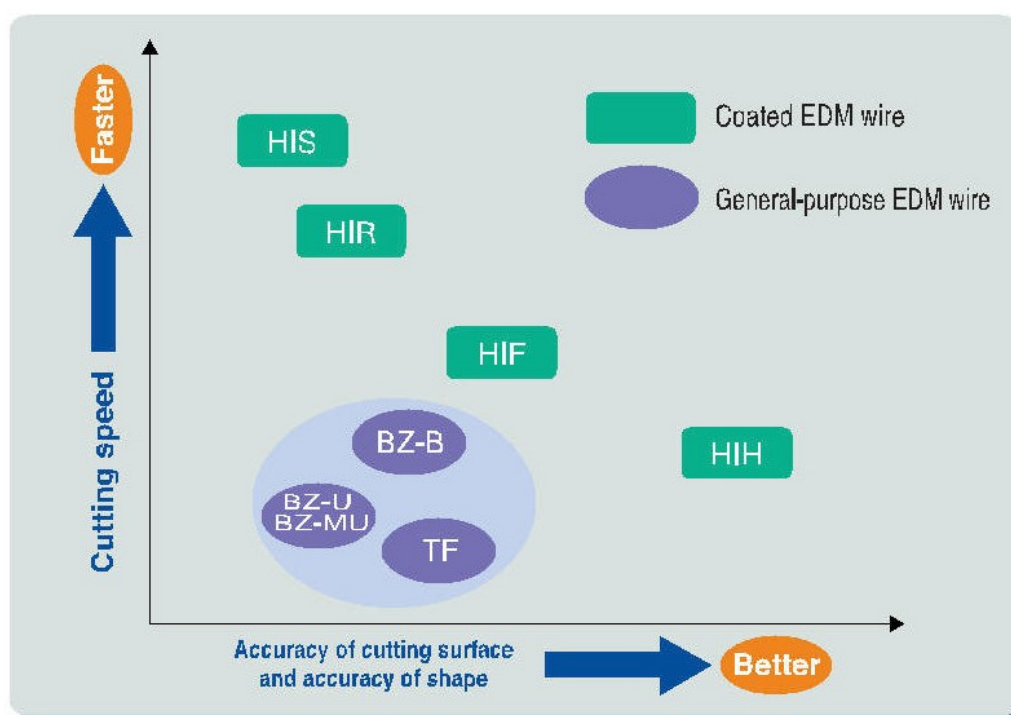


## **Hitachi Electrical Discharge Machining Wire <EDM wire>**



## Guideline for selecting products

### Positioning of each wire type



### Cutting for each wire type

Cutting target		Standard EDM wire		Special EDM wire				Coated EDM wire			
		HBZ-U	HBZ-MU	HBZ-B	HTF	ABZ-T	*OFC	HIH	HIF	HIR	HIS
Cutting purpose	Standard cutting	●	●	●	○	—	—	○	○	○	○
	Taper cutting	○	○	○	○	★	○	○	○	○	○
	Rough cutting	○	○	●	○	—	—	○	★	★	★
	High accuracy cutting	○	○	●	●	—	—	★	●	●	○
	Thick material cutting	○	○	○	●	—	—	○	★	★	★
	Surface accuracy cutting	○	○	○	●	—	—	★	●	★	●
	High-speed cutting	○	○	●	○	—	—	○	●	★	★
	Automatic threading	★	★	○	○	—	—	●	○	●	○
	Poor jet flow cutting	○	○	○	●	—	—	○	●	○	●
	Copper adhesion less cutting	○	○	●	★	—	—	★	○	○	○
	Brass powder less cutting	●	★	○	○	○	—	○	○	○	○
Steel products	Aluminum cutting	○	○	●	○	—	—	○	★	★	★
	Graphite cutting	○	○	○	○	—	★	●	★	●	★
	Powder crystal diamond(PCD)	○	○	○	○	—	—	★	○	●	○
	WC-Co cutting	○	○	●	○	—	—	★	○	○	○
	Stainless steel cutting	○	○	○	○	—	—	●	★	●	★
	Low conductivity Materials	○	○	○	○	—	★	●	★	●	★
EDM machines	Mitsubishi	●	★	●	●	—	—	○	○	★	★
	Makino	●	●	○	○	—	—	●	○	●	○
	Sodick	●	●	●	●	—	—	●	○	●	○
	Fanuc	★	●	●	●	★	—	★	★	★	●
	Brother	●	●	○	○	—	—	○	○	●	●
	Agie	●	●	○	○	—	—	★	○	●	○
	Charmilles	●	●	○	○	★	—	●	★	○	●
	Hitachi Via Mechanics	●	●	○	○	—	—	○	○	○	○

★ : Excellent   ● : Better   ○ : Good   — : Not recommended   \*OFC : Oxygen Free Copper

General-purpose  
EDM wire

# BZ-U wire

Standard brass

(JIS C 2800  
equivalent)

Capable of automatic threading

For hard material

- Hitachi's standard brass wire
- High cutting speed due to its zinc-rich constitution
- Improved automatic threading capability due to its excellent straightness
- Can be used for all EDM machines with an automatic threading function of any company

General characteristics of BZ-U wire

Type	Product name	Size ( $\phi$ mm)	Wire Tolerance (mm)	Tensile strength		Elongation (%)
				(MPa)	(kgf/mm <sup>2</sup> )	
H (Hard)	BZ-U	0.10~0.33	$\pm 0.001$	980 over (0.10~0.20mm)	100 over (0.10~0.20mm)	0.4 over

Note: 1. Please contact us separately for the production of special sizes (0.10 mm less, or 0.33 mm over).  
2. This wire is manufactured for only H (hard) type.

General-purpose  
EDM wire

# BZ-MU wire

Standard brass

(JIS C 2700  
equivalent)

Reduction of brass powder

Capable of automatic threading

For hard material

For soft material

- Significant reduction of brass powder adhered to cutting surface
- Rate of automatic threading is improved due to its excellent straightness
- Can be used for all the models of EDM machines equipped with an automatic threading device in the form of pipe, jet and annealed systems.

General characteristics of BZ-MU wire

Type	Product name	Size ( $\phi$ mm)	Wire Tolerance (mm)	Tensile strength		Elongation (%)
				(MPa)	(kgf/mm <sup>2</sup> )	
H (Hard)	BZ-MU	0.10~0.33	$\pm 0.001$	980 over (0.10~0.20mm)	100 over (0.10~0.20mm)	0.4 over
A (Soft)	BZ			441 over	45 over	15 over

Note: 1. Please contact us separately for the production of special sizes (0.10 mm less, or 0.33 mm over).  
2. In the case of A (Soft) type, the product name is ABZ.



Special  
EDM wire

# BZ-B wire

Special brass

(Zinc content  
increased)

High-speed cutting

Reduction of brass powder

Improvement in surface accuracy

For hard material

For soft material

- Zinc-richer than BZ-U
- Improvement in cutting speed and surface accuracy

General characteristics of BZ-B wire

Type	Product name	Size ( $\phi$ mm)	Wire Tolerance (mm)	Tensile strength		Elongation (%)
				(MPa)	(kgf/mm <sup>2</sup> )	
H (Hard)	BZ-B	0.10~0.33	$\pm 0.001$	833 over	85 over	0.4 over
A (Soft)				441 over	45 over	15 over

Note: 1. Please contact us separately for the production of special sizes (0.10 mm less. or 0.33 mm over).

Special  
EDM wire

# TF wire

Alloy brass

(Special metallic-  
element addition  
Elements added)

Breaking protection

Avoiding of brass adhesion

For hard material

For soft material

- For cutting thick objects  
(can be used for board thickness of 100 mm over)
- Significant reduction of brass adhered to machining surface

General characteristics of TF wire

Type	Product name	Size ( $\phi$ mm)	Wire Tolerance (mm)	Tensile strength		Elongation (%)
				(MPa)	(kgf/mm <sup>2</sup> )	
H (Hard)	TF	0.10~0.33	$\pm 0.001$	980 over	100 over	0.4 over
A (Soft)				441 over	45 over	10 over

Note: 1. Please contact us separately for the production of special sizes (0.10 mm less. or 0.33 mm over).

Coated  
EDM wire

# HIH wire

Improvement in surface accuracy

Reduction of zinc powder

Capable of automatic threading

For hard material



Zinc  
Coated  
wire

Zinc (Zn)

- For cutting focusing on surface accuracy and shape accuracy
- Zinc (Zn) coating
- Reduction of heat-affected layer of the cutting surface, increased life of the press mold

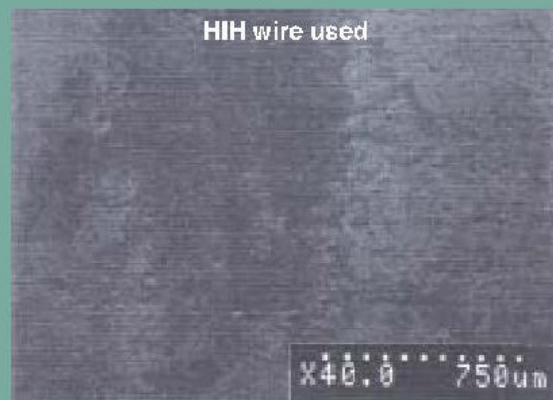
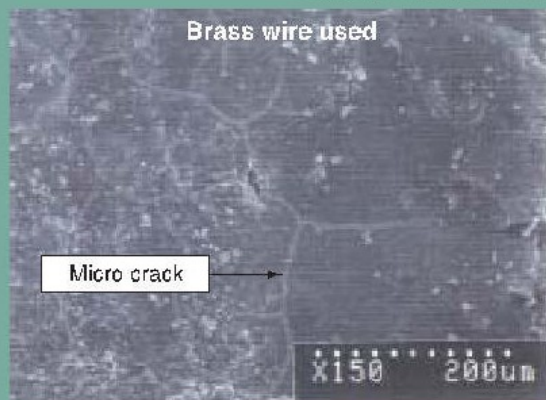
## General characteristics of HIH wire

Product name (Type)	Size ( $\phi$ mm)	Wire Tolerance (mm)	Tensile strength		Elongation (%)
			(MPa)	(kgf/mm <sup>2</sup> )	
HIH (Hard)	0.10~0.30	$\pm 0.001$	980 over (0.10~0.20mm)	100 over (0.10~0.20mm)	0.4 over

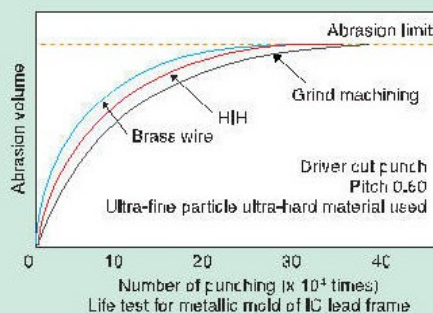
Note: 1. Please contact us separately for the production of special sizes (0.10 mm less, or 0.30 mm over).  
2. This wire is manufactured for only H (Hard) type.

## Difference of ultra-hard (WC-Co) cutting surface

### Cutting surface of ultra-hard material (WC-Co)



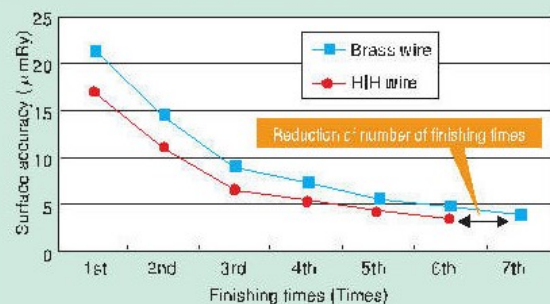
## Longer life of metallic mold



The electrical discharge heat caused by cutting is dispersed by the surface coating of zinc. This reduces the heat-affected layer of the cutting surface, thus prolonging the life of the press metallic mold including IC lead frame.

※ Especially in ultra-hard machining, the hardness of the machining surface will fall and the press life will be shortened by melting of Co (cobalt), which is the binder.

## Reduction of finishing times



Conventionally, metallic molds achieved a surface accuracy by performing finishes many times. Now, however, it is possible to acquire the same surface accuracy by using HIH wire, while reducing the number of times of finishes, thus also reducing the machining time.

※ This wire is effective for high-accuracy metallic mold cutting, etc., including plastic molds.



## Product specifications

Product category	Type	Product name	Standard size (φmm)	Wire tolerance (φmm)	Tensile strength (MPa)	Elongation (%)	Conductivity (%)	
General-purpose EDM wire	H (hard)	BZ-U	0.10~0.33	±0.001	980 over (0.10~0.20mm)	0.4 over	20 over	
	H (hard)	BZ-MU						
	A (soft)	BZ			441 over	15 over		
Special EDM wire	H (hard)	BZ-B			833 over	0.4 over	20 over	
	A (soft)				441 over	15 over		
	H (hard)				980 over	0.4 over		17 over
	A (soft)	TF			441 over	10 over		
	A (ultra-soft)	BZ-T	0.20~0.30		441 less	30 over	20 over	
	H (hard)	10FC	0.20~0.30		441 over	0.4 over	90 over	
	A (soft)				294 less	15 over		
Coated EDM wire	HHH		0.10~0.30			980 over (0.10~0.20mm)	0.4 over	20 over
	HIF		0.20~0.30			735 over		50 over
	HIR					800 over		20 over
	HIS					50 over		

## Bobbin name and dimensions

(mm)

Bobbin name	Flange diameter: D	Barrel diameter: d	Outer width: L	Flange thickness: a	Arbor hole diameter: h	Standard winding volume (kg)	Bobbin dimensions
P-1JT	140	70	39	4.5	12.5	1.5	
P-1FT	140	70	39	4.5	46	1.5	
P-3RT	130	80	110	10	20	3	
P-5RT	160	90	114	12	20	5	
P-10T	200	90	134	12	25	10	
P-15L	250	110	140	15	34	20	
P-30	280	200	220	20	73	30	
P-50	320	162	217	20	34	50	
K-125	125	80	125	12.5	16	3	
K-160	160	100	160	16	22	6	
K-200	200	125	200	20	22	15	

## Packing method

Bobbin name	Standard winding volume (kg)	Boxed number (pcs/box)	Cardboard box size L x W x H (mm)	Packing form
P-1JT	1.5	10	370×290×200	Photo 1 (Common to outer boxes)
P-1FT	1.5			
P-3RT	3			
P-5RT	5			
P-10T	10	1	300×210×290	Photo 2 (Common to outer boxes)
P-15L	20		310×250×320	Photo 3
P-30	30			
K-125	3	4	370×290×200	Photo 1 (Common to outer boxes)
K-160	6	2		
K-200	15	1	300×210×290	Photo 2 (Common to outer boxes)



Photo 1 (Box for multiple units)



Photo 2 (Box to pack 1 bobbin)



Photo 3 (Box exclusively for P-30)