


UNDERSIZED TAPPING ELECTRODES

ELECTRODES FOR ENGRAVING

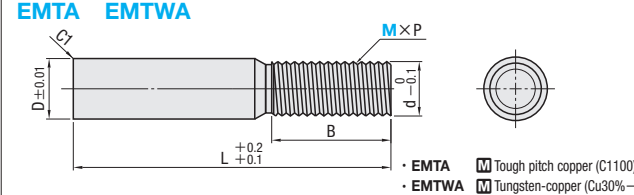
—Round type—

ⓘ Non JIS material definition is listed on P.1351 - 1352

—UNDERSIZED TAPPING ELECTRODES— **RoHS**

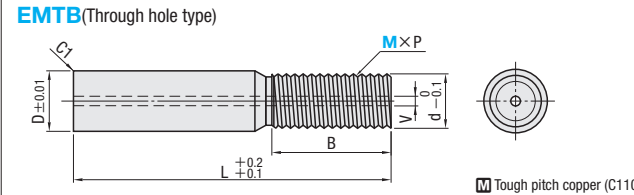


EMTA EMTWA



• EMTA Tough pitch copper (C1100)
• EMTWA Tungsten-copper (Cu30%—W)

EMTB(Through hole type)




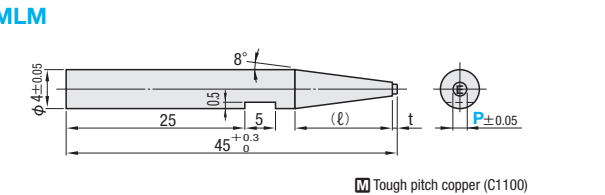
Tough pitch copper (C1100)

[EMTWA] Even a work made of carbide can be processed since it contains tungsten.
(An electric discharging machine capable of using a copper tungsten electrode is required.)

[EMTB] Has a through hole for water circulation that enables higher processing speed and helps reduce secondary electric discharge.

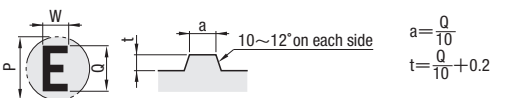
—ROUND TYPE— **RoHS**

EMLM

Tough pitch copper (C1100)

■ Character size



$a = \frac{Q}{10}$
 $t = \frac{Q}{10} + 0.2$

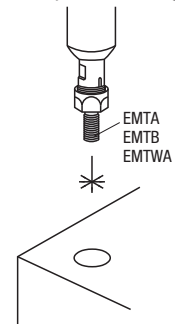
D	d	P	L	B	V (EMTB only)	Part Number		U/Price 1~4		
						Type	M	EMTA	EMTB	EMTWA
5	2.2	0.5	50	15	0.5	EMTA	3			
	3.0	0.7			4					
	3.9	0.8			5					
8	4.7	1.0	60	20	1.2	EMTB (Through hole type)	6			
	6.4	1.25			8					
12	8.2	1.5	70	30	2.5	EMTWA (M3~12)	10			
	10.0	1.75			12					
16	13.6	2.0	80	40	3					
20	17.1	2.5			3					

Order **Part Number**
EMTA4

Price **Quotation**

Days to Ship **Quotation**

Example ■ Undersized Tapping Electrodes
This electrode is used when forming a female thread in hardened steel by electrical discharge machining.



ⓘ Tip diameter (d) is smaller than the screw size (M).
Insert an undersized tapping electrode in the low screw hole (low hole diameter reference value P.1347), and perform electrical discharge machining while rocking X and Y directions.

- Swing amount = $M - d - 0.1$ (Target)
- Clearance for electro discharge = on one side 0.1~0.5

What is copper tungsten?

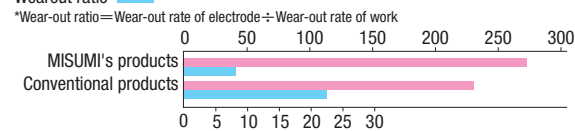
- Characteristics
- The composition and alloy structure are optimally adjusted to extend life of an electrode and to raise efficiency of electrical discharge machining at the same time.
 - It is possible to increase the machining speed, and reduce the wear of the electrode itself. Tungsten is very hard, permitting accurate electrical discharge machining.

■ Characteristic values

Material characteristics	Copper tungsten
Gravity	14.0
Hardness (HRB)	93.5
Conductivity (IACS%)	50
Tensile strength (kgf/mm ²)	60
Transverse rupture strength (kgf/mm ²)	125

■ Comparison of machining data

Work: Carbide V3
Machining condition: 14~16μm settings
Machining speed (g/min.)
Wearout ratio



ℓ	Q			W			Part Number		Characters for engraving (Round Gothic type)	U/Price 1~9
	Numerals alphabetical characters	< /	+	Numerals alphabetical characters	< /	+	Type	P		
11.4	0.4	0.36	0.23	0.23	0.185	0.23	EMLM	*0.8A	1234567890 ABCDEFGHI JKLMNOPQR STUVWXYZ Note1 Note2 / > < + -	Quotation
11.4	0.6	0.53	0.35	0.3	0.27	0.35		0.8		
10.7	0.7	0.62	0.41	0.4	0.31	0.41		1.0		
10	1.0	0.88	0.58	0.6	0.44	0.58		1.2		
8.9	1.2	1.06	0.7	0.7	0.53	0.70		1.5		
7.1	1.6	1.42	0.93	1.1	0.71	0.93		2.0		
5.3	2.0	1.77	1.16	1.4	0.89	1.16		2.5		
3.6	2.5	2.22	1.46	1.7	1.11	1.46		3.0		
—	3.5	3.11	2.04	2.4	1.57	2.04		4.0		

ⓘ Concentricity between the engraving character and the shank is about 0.1.
ⓘ Note 1 : Use ¥ for designating / (slash) ; Note 2 : Use # for — (minus).

*When 0.8A (P=0.8), only character size becomes small.

Order **Part Number** — **Characters for engraving**
EMLM0.8A — A
EMLM2.0 — ¥ (The actual engraved character is /.)

Price **Quotation**

Days to Ship **Quotation**