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1. GENERAL SPECIFICATIONS

THERMO JP® offers the technology of coated wire optimized for Japanese machines, without changing the original parameters.

THERMO JP® creates more erosion on the work piece and less erosion on the wire, increasing speed and productivity with a good surface finish.

2. DETAILED CHARACTERISTICS

CORE:	Brass 60/40
COATING:	Gamma CuZn
DIAMETER TOLERANCE:	0 / -0.002 mm
OVALISATION:	0.001 mm (maxi)
TENSILE STRENGTH:	>900 N/mm ²
YIELD STRENGTH:	>775 N/mm ²
ELONGATION:	2%
CONDUCTIBILITY:	22% IACS

3. USAGE RECOMMENDED

USE ON MACHINE: ONA, Sodick, Fanuc, Mitsubishi, Makino.

USAGE RECOMMENDED: General mechanics, dies and tools.

MATERIAL: Steel, copper, tungsten carbide, aluminium, nickel, titanium, PCD

4. PATENTS

US 5 945 010	EP 1 009 574	CA 2 302 202
US 8 338 735	CN ZL 2008 1 0009227.7	TW i 350780
CN 101 234 442	JP 5 627 841	KR 10-0981035
EP 1 949 995		

Manufactured in Europe by Thermocompact.

Manufactured in Asia by HWA.

5. TESTS AND COMPARISON PERFORMANCES - Realized by Thermocompact R&D Dept.

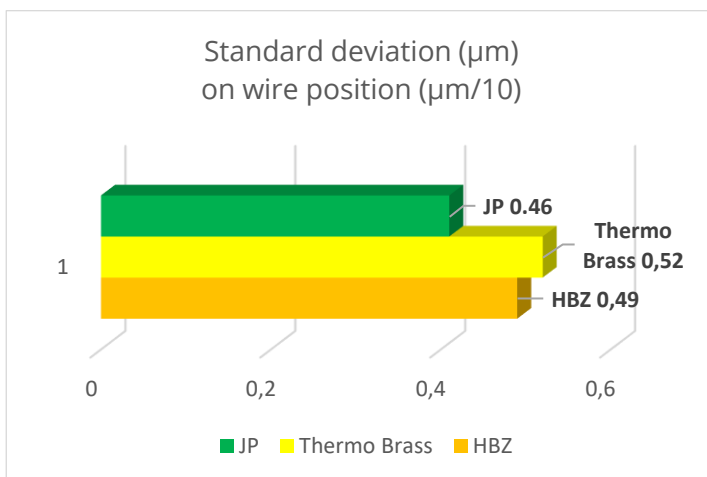
Good performance tests on EDM machines, compared to brass HBZ (Hitachi): *see next tests for accuracy, surface finish (Ra), geometry, uptime, machining time.*

➔ **ACCURACY (measurement of the machined block positioning by the wire - electric test):**

Wire	HBZ	Thermo Brass	Thermo JP
Position (µm/10)	96	61	44
	108	60	61
	110	63	59
	108	61	63
	94	59	55
	106	66	53
	108	56	52
	109	55	50
	103	56	53
	113	58	57
	105	52	57
	108	52	56
	100	51	55
	105	47	59
	102	54	52
	99	54	53
	102	50	54
	103	49	51
	99	48	53
	101	53	46
Standard deviation (µm)	0,49	0,52	0,46

The smaller the standard deviation is, the better the repeatability is.

- **Good electrical touch** for Thermo JP wire due to the structure of the external layer.
- Standard deviation on **Thermo JP** is better



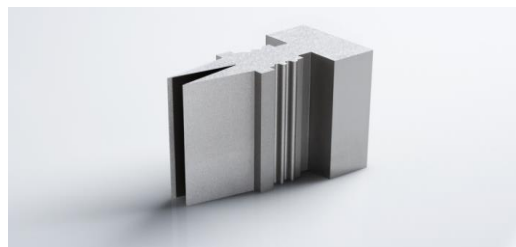
➔ SURFACE FINISH (Ra):

Machine	Technology	Number of cuts	Contact between nozzles and work piece	Contour	Ra
Sodick AG600L LN2W	Brass technology	3	No	closed	1,14
Sodick SLC400 G	Brass technology	3	Yes	closed	0,6

➔ GEOMETRY:

Machining	Technology	Contact between nozzles and work piece	T _{km}
Sodick SLC 400G	1 main + 2 Trims	Yes	2
Sodick AG600L	1 Main + 2 Trims	Yes	1,5

T_{km} (µm) = Precision of dimension between 2 parallel surfaces.

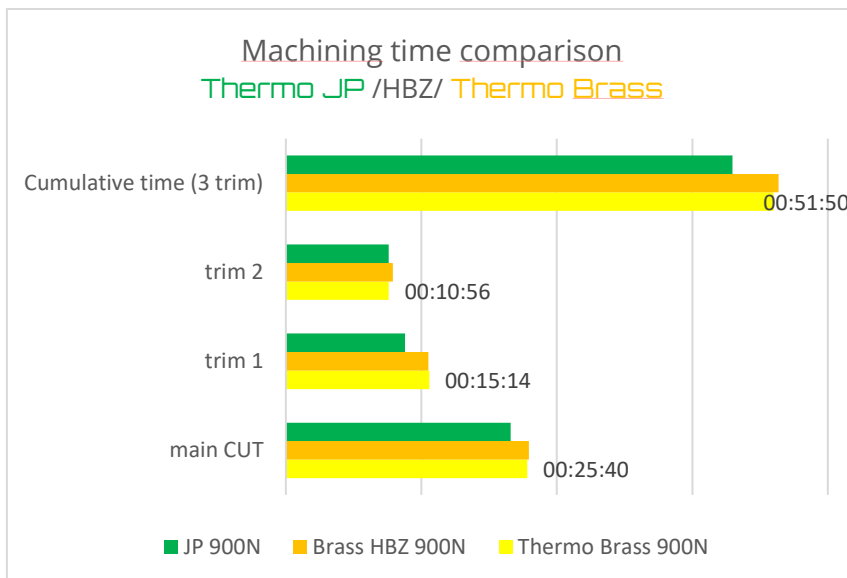


➔ **UPTIME on Sodick SLC400G:**

Thermo JP® performances - 3 passes machining			
Wire type	Thermo Brass	Brass HBZ 900N	Thermo JP 900 N
Main cut time	00:25:40	00:25:50	00:23:54
Trim 1 time	00:15:14	00:15:09	00:12:39
Trim 2 time	00:10:56	00:12:39	00:10:55
Total processing time (cumulative time)	00:51:50	00:52:22	00:47:28
Dimensional accuracy (µm)	Tkm < 3 µm	Tkm < 3 µm	Tkm < 3 µm
Roughness (µm) Ra // fil Lt=17,5mm Lc=2,5*5	0,54	0,57	0,55

Testing conditions :

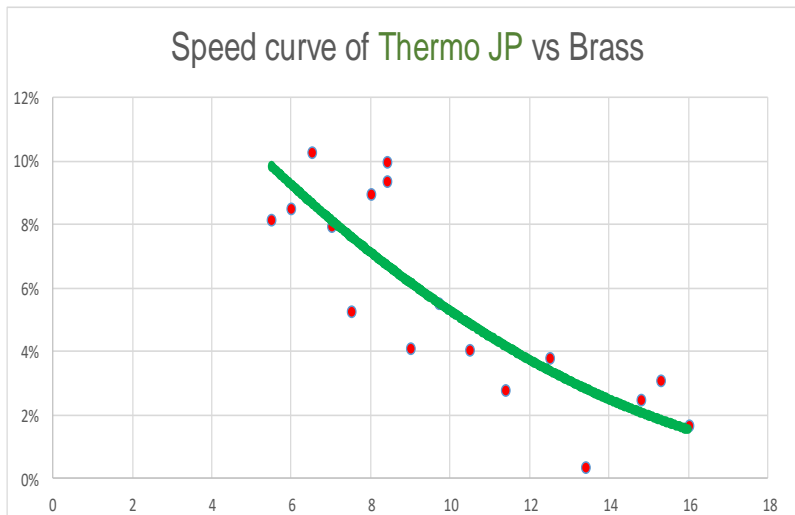
- Wire diameter : 0,25mm
- Steel material h= 50mm
- 1 main cut & 2 finish cuts
- **Sodick SLC400G machine**
- Nozzles position : plated



Wire type	Brass HBZ 900N	Thermo JP 900 N
SAVING TIME JP vs HBZ (%) (constant speed)	+1,4%	- 9,45%

- Total saving time for Thermo JP 900 N compared to HBZ = - 9,45%.
- ⇒ Significant cumulative saving time versus HBZ and Brass.

➔ **SPEED**

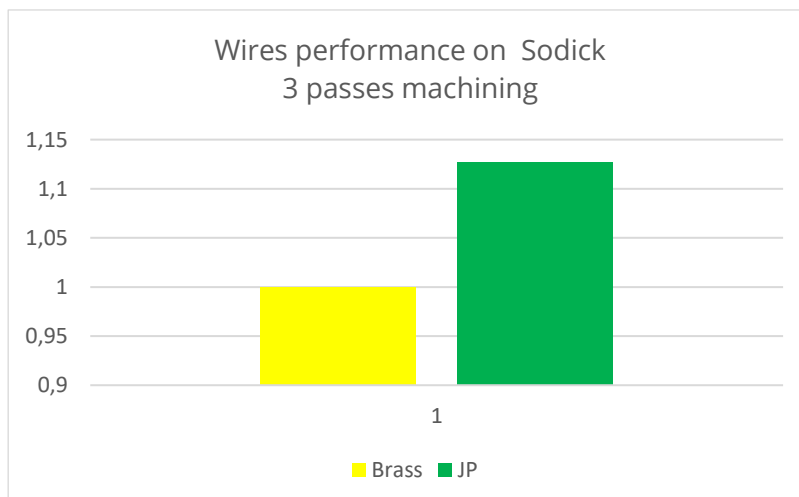


Testing conditions :

- Wire diameter : 0,25mm
- Steel material h= 50mm
- 1 main cut & 2 finish cuts
- **Sodick SLC 400G machine**
- Nozzles in contact

- Cutting speed advantage of **Thermo JP vs Brass**

➔ **UPTIME on Sodick AG 600L**



Testing conditions :

- Wire diameter : 0,25mm
- Steel material h= 50mm
- 1 main cut & 2 finish cuts
- **Sodick AG600L LN2W machine**
- Technology : Water 3
- Nozzles position : 5mm up & 5 mm down

- Better performance for **Thermo JP vs Brass**

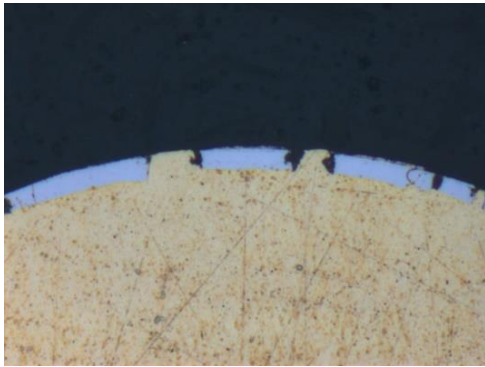
6. BENEFITS RESUME / AVAILABILITY

Thermo JP proven benefits :

- ⇒ Technology of coated wire :
 - Good electrical touch due to its external layer
- ⇒ Optimized for Japanese machines :
 - without changing the original parameters of brass wire
 - Speed, better processing time than HBZ
- Brass Very clean wire, i Thermo JP2
 - Good surface finish and geometry
- ⇒ Competitive advantage secured by patents

AVAILABILITY:

Thermo JP		K100	T125	T160	T200	K250	JP5	JP10	JP15
0,20 mm 0,008"	JP		■	■	■		■	■	■
0,25 mm 0,010"	JP		■	■	■	■	■	■	■
0,30 mm 0,012"	JP		■	■	■	■	■	■	■



Picture : metallographic section of Thermo JP

NB: this product specification sheet is upgraded on a regular basis, please check it regularly to obtain new tests and comparison performances.