

Horizontal type energization diffusion bonding apparatus of small diameter round bar and round pipe !

This is the world's first horizontal type energization diffusion bonding apparatus. Possible to bond the same kind of metals and the dissimilar metals. Achieves high-precision and high strength bonding in a high vacuum of 1Pa in a short time, while minimizing the deformation and alteration of round rods and round pipes with small diameter.



5 Big features of 『M-600』

1

No intermediate material required

No intermediate material such as brazing material is required between the bonding surfaces. In addition, even when intermediate material is required, this apparatus can be used and it is possible to execute bonding relatively easily and in a short time without requiring special skills such as brazing craftsman.

2

Bonding in high vacuum

We have developed an energization diffusion bonding technique in a high vacuum environment of 1Pa. Vacuum chamber is an opening/closing type, which enabled to shorten the vacuuming time greatly by shrinking its size down to the work's size. In addition, it is easy to supply and discharge workpieces and it is also possible to use this chamber to produce an automatic bonding apparatus.

5

Realized a short time bonding

Using our unique temperature control technology, we have succeeded in developing a energization diffusion bonding apparatus that has less overshooting and is capable of rapid temperature rise. By drastically shortening the temperature rise time, we realized the short-time bonding which has been impossible in the past.

3

High precision temperature control

- We realized a pin-point temperature control ($\pm 1^{\circ}\text{C}$) in the diffusion temperature range.
- Possible to execute the diffusion bonding with quality reproducibility in individual bonding process.
- Depending on condition settings, it enables to realize the solid phase bonding and further also the liquid phase bonding.

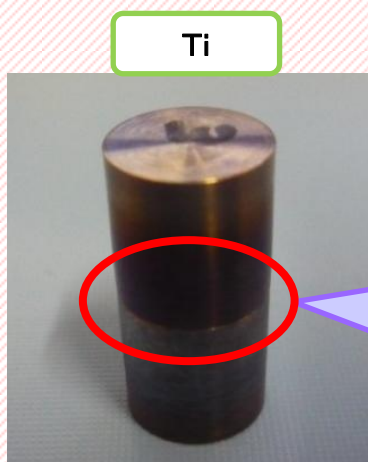
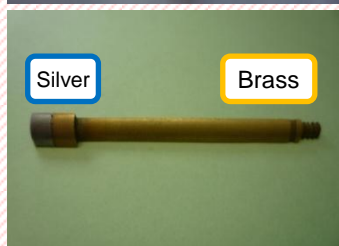
2 stage pressure control

- Energization is started after making close contact between the bonding surfaces of the work piece with a high pressure generated by direct pressure of electric servo.
- When the temperature of bonding interface reached the soldering point, electric servo is avoided so as to suppress the deformation by holding the work piece by only the minute pressure of an elastic body such as a spring.

4

1

『M-600』 bonding sample

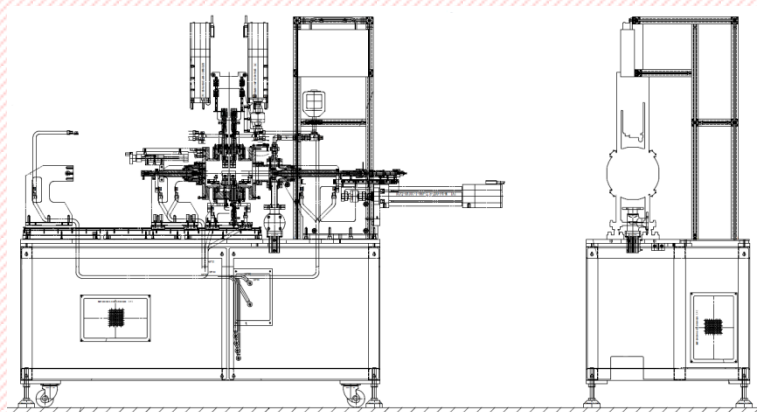


SEM photograph of
bonding interface [× 1,000]

2

Main specifications of 『M-600』

Item	Specification
Display/Operation part	Touch panel display (Various operations and display)
Servo stroke	X axis: 200mm / Y axis: 50mm (×2)
Servo pressure	X axis: 1,000N / Y axis: 1,714N (×2)
Power supply	Main body
	3 Phase AC200V±10% 50/60Hz 15A
	Welding power supply
	3 Phase AC180~240V ±10% 50/60Hz 55A
	Vacuum pump
	Single Phase AC100V 15A
	Cooling system
	Single Phase AC100V±10% 50/60Hz 11A (※)
	Nitrogen generator
	Single Phase AC100V 4A (※)
External dimensions (mm)	2,060 (W) × 700 (D) × 1,700 (H)
Weight	350kg (Main body + Welding Pow. S. + Vacuum pump)
Air source	0.5Mpa
Operation environment temperature	5 ~ 35℃



(※) is optional



When using this product, please read the operation manual carefully.

『ELEBON』 is a trademark or registered trademark of products using the energization diffusion (heating) bonding technology.

Manufacturer

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Please look at the information on the Internet.

<http://www.eco-a2010.co.jp/>