

COMPARISON OF MUEHLBAUER WIRE EMBEDDING

Version	Sheet size	Max. number of heads		UPH	UPH example	UPH example	axis accuracy	position repeatability		sheet loading
	(X Y; mm)	Slim	Combi	inlay / hour	8 x 6, PVC, (CL)	8 x 6, PVC, (DI)		embedding	welding	manual / automatic
MTT 2462 WE	600 x 600 (ID formats)	10	n/a	1)	n/a	2400	+/-0,006	+/-0,05	n/a	manual
MTT 2462 WE-A	600 x 600 (ID formats)	10	n/a	1)+2)	n/a	2400 ²⁾	+/-0,006	+/-0,05	n/a	automatic
MTT 2462 ETC	600 x 600 (ID formats)	n/a	7	up to 1400	1400	n/a	+/-0,006	+/-0,05	+/-0,01	manual
MTT 2462 ETC-A	600 x 600 (ID formats)	n/a	7	up to 1400	1400	n/a	+/-0,006	+/-0,05	+/-0,01	automatic
3D	~ 400 x 400, 3D objects	1	1	n/a	n/a	n/a	+/-0,05	+/-0,1	+/-0,1	automatic
MTT XL WE	800 x 800	24	n.n.	1)+3)	n/a	2400~4800 ³⁾	+/-0,05	+/-0,1	n/a	manual / automatic
MTT XL ETC	800 x 800	24	n.n.	1)+3)	2000~4000 ³⁾	2400~4800 ³⁾	+/-0,05	+/-0,1	+/-0,1	manual / automatic
MTT Lab	600 x 1000	n.n.	2	n/a	n/a	n/a	+/-0,006	+/-0,05	+/-0,01	manual / automatic
MTT-ST	1500 x 1000	12	6	n/a	n/a	n/a	+/-0,006	+/-0,05	+/-0,01	manual / automatic
IAL	width 800	12~24	n.n.	1)	2000~4000 ⁴⁾	2400~4800 ⁴⁾	+/-0,05	+/-0,1	+/-0,1	automatic

1) PC* PVC*
Dual interface (DI) 190-225 290-340
Coil on module (COM) 120-150 140-190
Contactless (CL) 190-250 210-300
*UPH per head. Total UPH depends on number of heads used according to layout

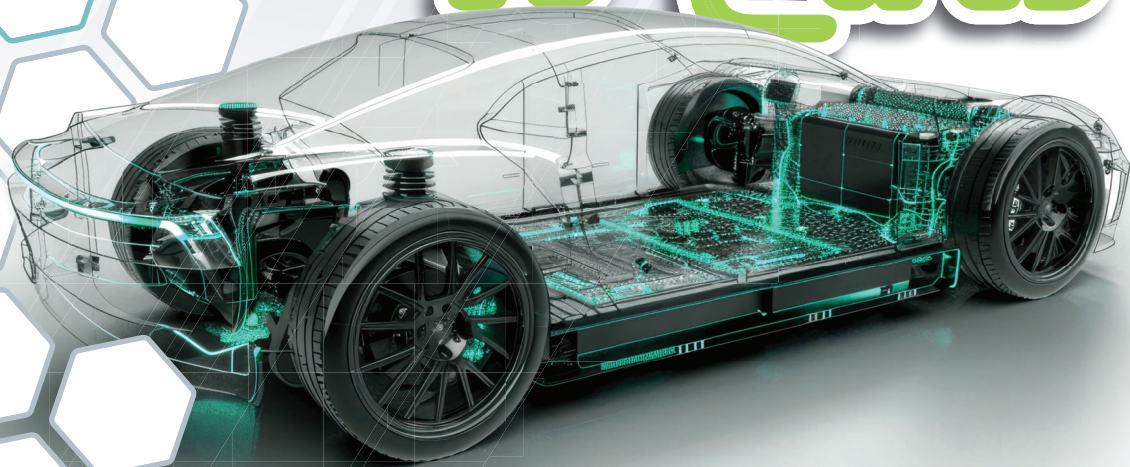
2)
Actual aut. handling has a limit of ~ 100 sheets/hour
~ 140 sheets/hour possible after SW update

3)
With special feature depending on layout compatibility

4)
Reachable with doubled wire embedding module



from Cards
to Cars



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WIRE EMBEDDING
PRODUCT OVERVIEW



MB ATECH MACHINES

MTT XL

HIGH-THROUGHPUT PLATFORM FOR LARGE FORMATS

The MTT XL expands the portfolio with a powerful solution for large-format, high-throughput production. It is available as a wire embedding or a combined system with module placement and welding option.

VERSIONS

- MTT XL WE – Wire Embedding only
- MTT XL ETC – Wire Embedding + Module Placement & Welding

KEY SPECIFICATIONS

- Supports up to 24 Heads
- 2x vacuum table: 800 x 850 mm
- Material size: 264 x 88 mm to 800 x 800 mm
- Semi-automated by default, automation available on request

MODULE PLACEMENT OUTPUT

- PVC: up to 300 pcs/hr/head » 8 x 6 layout = 2,400 pcs/hr
- PC: up to 250 pcs/hr/head » 8 x 6 layout = 2,000 pcs/hr

Also suited for high-throughput automotive applications requiring large formats and precise antenna embedding.

MTT LAB

R&D SYSTEM FOR PROTOTYPES & CUSTOM DESIGNS

MTT Lab is a compact version combining versatility and accuracy of a standard MTT for testing and laboratory purposes. It features an extended working area and is based on the MTT 2462 frame, enabling flexible configuration options.

- 1 x Y-table with vacuum, size 600 x 1000 mm (1 x Y table from standard MTT)
- Vacuum to hold material properly on the embedding table
 - » 1 x welding unit
 - » max. 2 x Combi Head
 - » Basic frame from standard MTT machine

Well suited for product development and testing such as large-format functional components, antennas, or heating elements.

MTT-ST

LARGE-FORMAT WIRE EMBEDDING SYSTEM

The MTT-ST is Muehlbauer's large-format wire embedding system, designed specifically for card applications. It features an extended Y-table and a vacuum table, supporting both semi-automated and robotic inline solutions for high-throughput production.

- Based on MTT 2462 frame with extended Y-table (up to 1500 x 1000 mm)
- Handles sheets up to 1500 x 1000 mm
- Vacuum table for precise material positioning
- Equipped with Amada welding unit
- Head configuration:
 - » Up to 12 Slim Heads (embedding only)
 - » Up to 6 Combi Heads (embedding + welding)
- Available as semi-automated or robotic inline solution

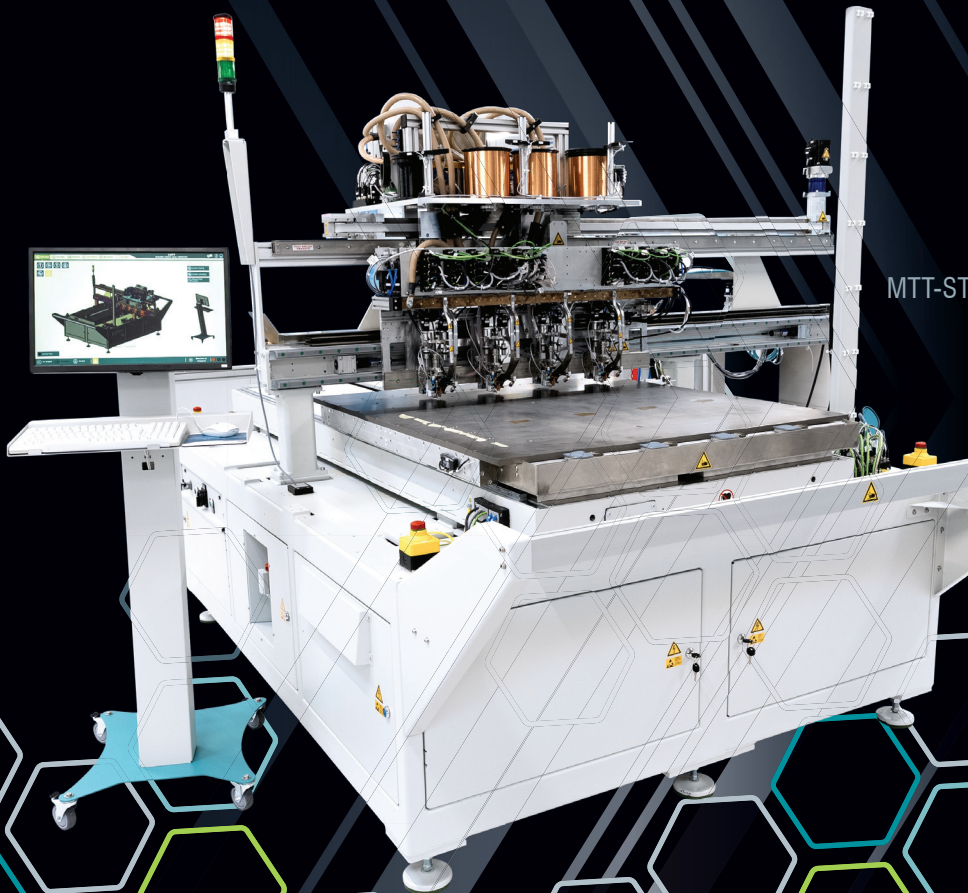
3D EMBEDDING UNIT

WIRE EMBEDDING ON COMPLEX SURFACES

The 3D Embedding Unit is a robotic system for embedding wire on complex or curved surfaces. It supports flexible design integration and enables high-precision processing for specialized applications.

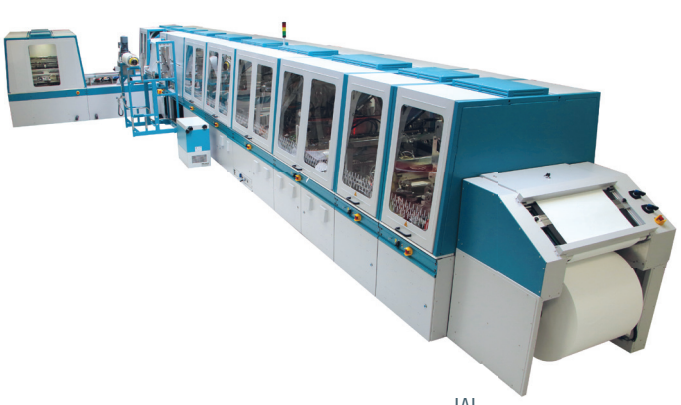
- Robotic wire embedding for 3D surfaces
- Suitable for curved or non-planar layouts
- Compatible with Combi Head and Slim Head

Ideal for embedding functional structures on complex automotive surfaces such as steering wheels, interior components, or heating modules.



MTT-ST

MB AUTOMATION MACHINES



IAL



MTT 2462

IAL

INLINE AUTOMATION FOR COMPLETE INLAY PRODUCTION

The IAL provides full inline automation for wire embedding and associated production steps. Supporting both sheet and roll input/output formats, it offers high flexibility and process integration.

INTEGRATED MODULES

- Input: Sheet or Roll
- Punching & Singulation
- Chip Placement (optional glue)
- Wire Embedding
- Welding (Bonding)
- Electrical Testing & Vision
- Output: Sheet or Roll

ADDITIONAL FEATURES

- Optional: Integration with prelam collating
- Supported formats:
 - » S2S (Sheet-to-Sheet)
 - » R2S (Roll-to-Sheet)
 - » R2R (Roll-to-Roll)*

*R2R: Proof of Concept required depending on layout and accuracy demands

Ideal for high-volume inline smart card production with minimal operator involvement.

MTT 2462

ESTABLISHED PLATFORM FOR WIRE EMBEDDING & MODULE PLACEMENT

The MTT 2462 represents Muehlbauer's proven technology platform for wire embedding and module placement. Designed in 2006 and continuously enhanced, it is available in multiple versions for both semi-automatic and automatic operation.

CONFIGURATION OPTIONS

- WE / WE-A II – Wire Embedding only (standard or with automation upgrade)
- ETC / ETC-A II – Module Placement & Welding (standard or with automation upgrade)

WIRE EMBEDDING PERFORMANCE (WE)

- Dual Interface (PVC): 290 - 340 antennas/hr/head
- Dual Interface Antenna (PC): 190 - 225 antennas/hr/head
- Coil Module Antenna (PVC): 175 - 190 antennas/hr/head
- Coil Module Antenna (PC): 120 - 150 antennas/hr/head

MODULE PLACEMENT PERFORMANCE (ETC)

- Layout examples:
 - » 4 heads, 8 x 3 (PVC): ~1203 UPH
 - » 6 heads, 6 x 8 (PVC): ~1349 UPH
 - » 7 heads, 7 x 8 (PVC): ~1371 UPH

WIRE EMBEDDING PERFORMANCE:

- Contactless Antenna (PVC): 210 - 300 antennas/hr/head
- Contactless Antenna (PC): 190 - 250 antennas/hr/head