

Assembly



EUROPEAN BODY PANELS

EBP



All common assembly techniques under one roof

EBP's assembly techniques meet the automobile industry's growing need for OEM and OES production of body panels in small series while meeting the highest requirements for quality, strength, fit and finish of the finished product.

Hemming. Today we work with two different hemming techniques: Table-top, press hemming and roller hemming. Table-top hemming is often replaced by roller hemming for spare-part production after EOP, for production of shrinking volumes while retaining good economy and unimpaired quality.

The roller hemming method is very flexible, featuring short set-up times and low tooling costs, making this method particularly suitable for small volumes, both in OEM and OES production.

Bonding. EBP can produce closures that are to be bonded either with fixed or robot-mounted nozzles. We can handle most adhesive types found on the market, in both the flex-line and stand-alone cells as well as in equipment taken over from the customer.

Spot-welding. For spot-welding of steel, we use both manual and robot-mounted welding guns as well as fixed welding guns, in the flex-line or in equipment provided by the customer. If automated formatting of the welding electrodes is possible, an automated electrode dressing station is used to ensure the quality of the spot-weld.

Laser Brazing. Automated production laser brazing using a Trumpf laser unit. Used to Join split panels (outers and inners), typically on decklids and tailgates which have variations on the lower part of the assembly which are required for different markets.

MIG Welding. We have the equipment and expertise for MIG welding of both steel and aluminium using automated production in robot cells. Where an automated solution is not applicable, we also have competence for manual welding carried out by licensed welders.

Riveting and Clinching. For joining of aluminium, we use clinching, self-piercing riveting and riveting, depending on which process the customer has selected for the specific product.

Hole-punching & Cutting

We can perform hole-punching and cutting with immense precision. Cutting of entire sides in small series takes place manually via nibbling, while larger series are cut automatically in our in-house-manufactured cutter jigs. We also use laser cutting equipment for cutting and hole-punching with maximum accuracy.

Tooling Competence

Utilizing flexible, adaptable technology is largely about being able to program industrial robots and adjust fixtures, jigs and holders. EBP's staff are thoroughly acquainted with the automotive industry's most modern assembly technologies. We have robots from ABB, Kuka and Hyundai in our production plant, and our systems are entirely compatible with the full range of industrial robot technologies that exist in our industry.

Project Management

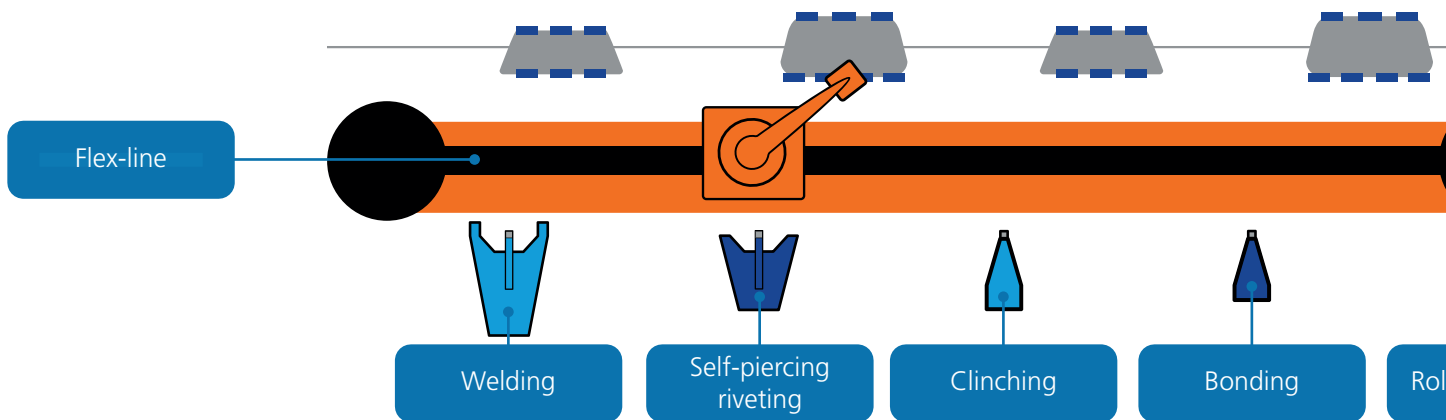
Thanks to our expertise and our long experience from the automotive industry, we can lead large or small transfer or out-phasing projects. We can also offer proposals for product optimisation for low-volume production, naturally without compromising on the properties of the series-manufactured original part.

Our references include a wide range of successful project plans and implemented transfers of assembly briefs for Swedish, German, British and Japanese car manufacturers.

Eye on Quality

At EBP, quality control is built into the entire process as documented in our ISO/TS 16949 and ISO 14001 certifications. The gap and flush of each assembled body-in-white part is checked in a measurement fixture before leaving the plant.

According to the customer's specifications, we also carry out regular sampling to check the dimensional precision, curvature, surface finish and durability of the various products.



Flex-line techniques:

- Assembly techniques: Clinching, spot-welding, roller hemming, bonding, stamp riveting. Easily expandable with other technologies
- Material: Steel, aluminium
- Annual capacity: 30 000 parts/shift
- Robots: 2 ABB robots, IRB 6650
- Lifting capacity/range: 150 kg/2800 mm, incl. tool changers and media
- Servo-steered conveyor line, length 13700 mm

Clinching

- Robot 1: 2 x Tox press with adjustable pressure and stroke as well as replaceable stamps and cushions Roller

Hemming

- Robot 2: Part size 1800 x 2000 mm max
- Roller hemming head: 1 pressure roller for flat hems and beaded seams
- Roller hemming loop: Adjustable pressure with actual and nominal values controlled by the robot's servo loop, can be optimized during operation

Bonding

- Robot 2: 2 x Scanrex on/off systems
- 2 x heating systems

Spot-welding with fixed machines

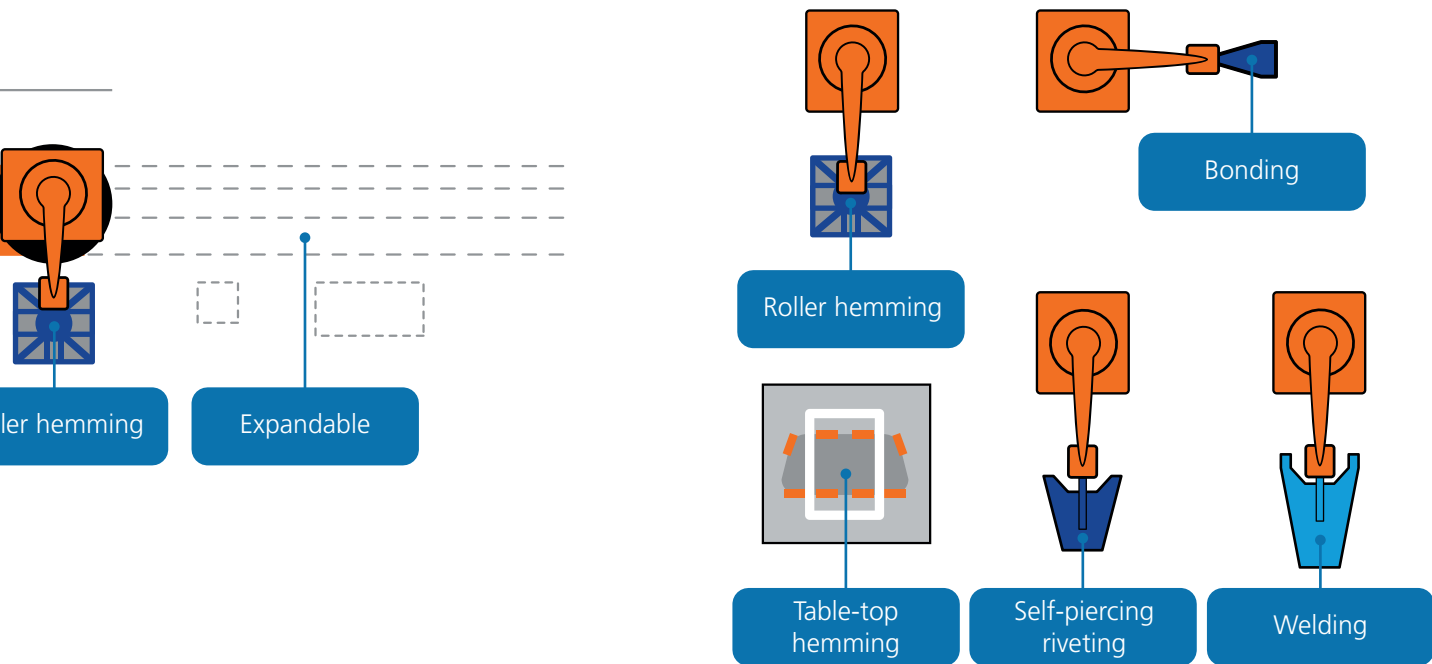
- Scissor-gun d=580 mm, h=310 mm
- C-gun d=297.5 mm, h= 393.5 mm, opening 122 mm

Robot-mounted welding guns

- Robot 1: C-gun, pneumatic
- Robot 2: C-gun, pneumatic, Scissor-tong d=580 mm, h=310 mm

Self-piercing riveting

- EMHART self-piercing riveting system
- 5 x 3.3 mm rivet guns with varying depth and stroke, of which 4 robot-mounted and 1 stationary on the robot with gripper claws
- 1 x 5.3 mm rivet guns, robot-mounted



Other assembly techniques:

Table-top hemming

- Drive: Hydraulic and electrical units
- Transferred customer-specific equipment is tailored to suit EBP's production environment

Roller hemming

- Material: Steel, aluminium
- Annual capacity: 33000 parts/shift
- Robot: ABB IRB 6400
- Lifting capacity/range: 120 kg/2500 mm, incl. tool exchanger and media
- Positions: 1) Fixed in stand. 2) Conveyor, sheet holder with quick-release attachment, servo-steered or pneumatic
- Roller hemming heads: 1 x dragging/pushing, 2 x pushing
- Roller hemming loop: Adjustable pressure with actual and nominal values that are regulated by the robot's servo loop, can be optimised during operation

Self-piercing riveting

- EMHART self-piercing riveting system
- 5 x 3.3 mm rivet guns of varying depth and stroke, of which 4 robot-mounted and 1 stationary on the robot with gripper claws on
- 1 x 5.3 mm rivet guns, robot-mounted

Welding

- MIG welding cell
- Welder unit: Fronius
- Shielding gas: Argon
- KUKA robot with tool changer (MIG pistol/gripper)

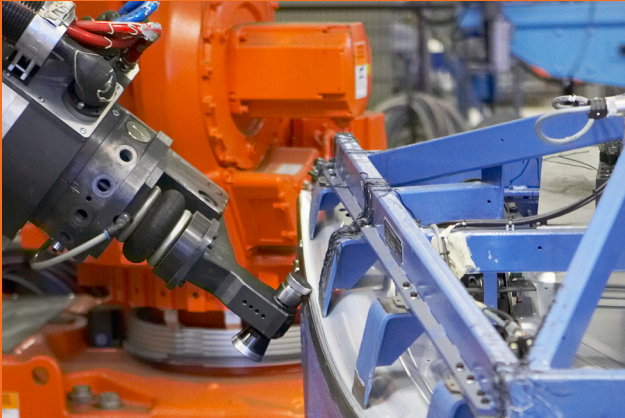
Epoxy bonding

- Robot: Hyundai Hx 165, lifting capacity 145 kg
- Lifting capacity: 7 kg max
- Adhesive types: Epoxy, 2 hot and 2 cold. Not 2-component
- Fixture table with quick-release attachment
- Part size 2000 x 2000 mm max

Hardening oven

- Temperature: 185 °C/205 °C
- Size: L = 2220 mm, B = 1420 mm
- Annual capacity: 3600 racks per shift

.....Whatever it takes



Roller Hemming. EBP roller hems both steel and aluminium, in both the flex-line and in flexible stand-alone cells. Roller hemming is used primarily for smaller production volumes, in series production as well as for aftermarket operations.



Clinching. EBP uses clinching in the flex-line, primarily when assembling doors and bonnets. Clinching is used in both steel and aluminium.

