



LEADING IN PRODUCTION EFFICIENCY

Ecopaint Gluing

GLUING BODY IN WHITE

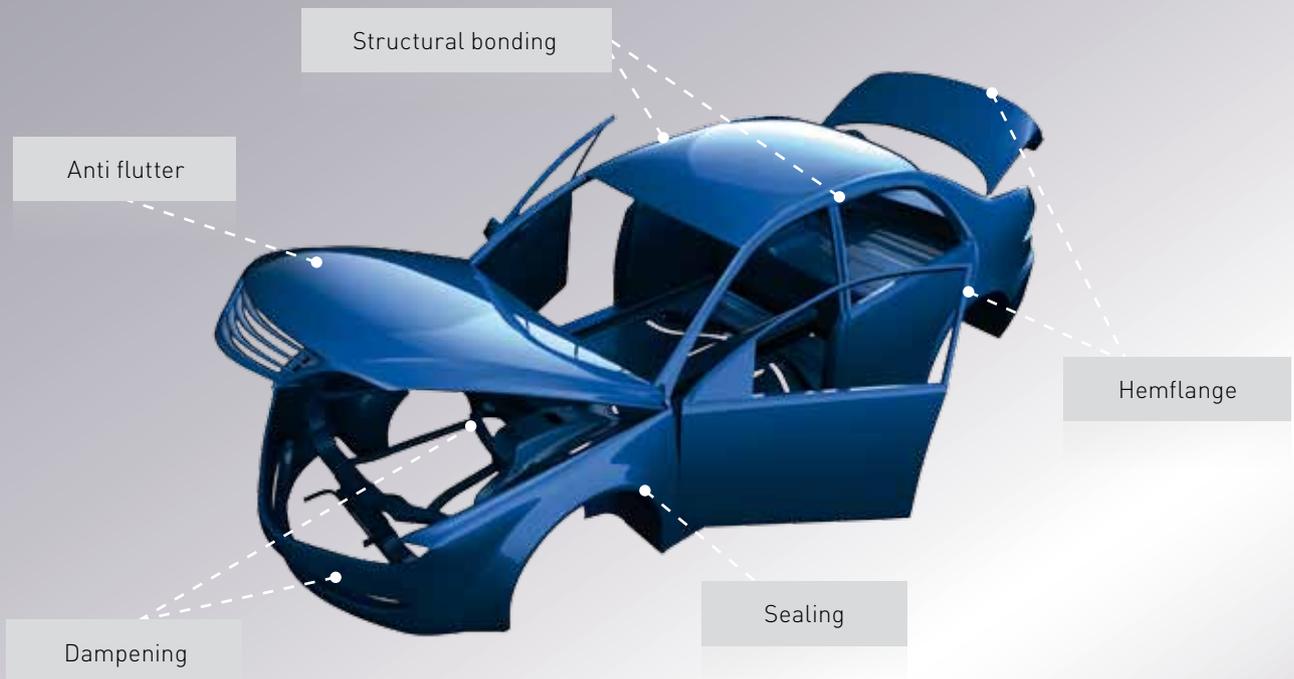


GLUING PROCESSES IN BODY IN WHITE

Gluing as a joining method is particularly well-suited for the dynamic stresses of combining different materials.

Gluing technology not only lowers costs per unit in spot welding, but also offers advantages in sealing and damping. Moreover, the increasing requirements for automotive safety, rigidity and comfort can be better fulfilled. Crevice and contact corrosion through the contact of different materials is also avoided. Adhesive joints are subject to considerable requirements in body shell construction. These must, during the entire length of service, carry the car body securely and be resistant to any stresses. Innovative and light architecture concepts with mixed materials aren't possible without adhesive joints.

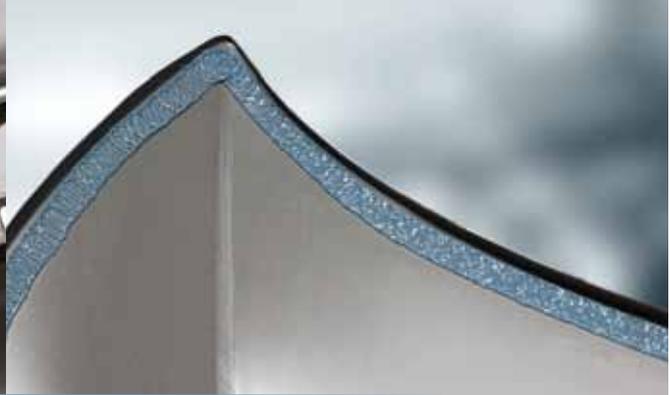
The optimal calculation and location of the glue seam, the choice of glue, the surface pre-treatment and the right application of glue has definite importance for the securing of the quality demands. For the automated gluing application production process in body shell construction, Dürr offers perfect solutions with its **ECO+EFFICIENCY** system. The **ECO+EFFICIENCY** system includes all dimensions of efficiency, with which Dürr supports its customers in the production process and so the unit costs – of highest quality – are dropped to a sustainable level. Dürr has the necessary process and material knowledge needed for the planning of the best suited system components. With computer-supported simulations, the processes of gluing applications are optimized.



» The illustration shows the examples of the most common used applications in body shell construction.



» *Glue application with swirl application*



THE BENEFITS AT A GLANCE

Reduction of unit costs

- » Automated processes reduce the cycle time and unit costs.
- » Simultaneously, error rates and post-treatment costs are decreased.

Maximum quality

Application systems of the **Ecopaint** Gluing product range ensure an optimum, reproducible process control and thus a constant quality of the gluing application. All decisive parameters for safety-relevant gluing are 100% documented.

Reduction of worker exposure

Automated solutions reduce the physical exposure when handling components and avoid the direct contact with hazardous materials.

Manufacture, assembly and initial operation = All under one roof

Manufacture and pre-commissioning of products and systems takes place in the Dürr-owned production areas to ensure quality and delivery deadlines. The assembly and initial operation at the customer's site is handled by experienced Dürr staff.



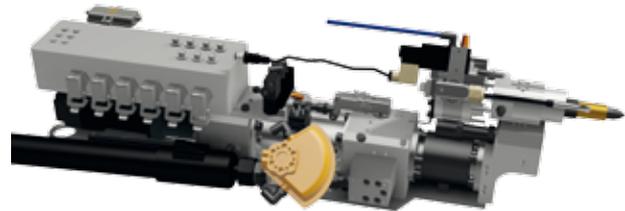
» *Structural gluing for body components with short bead application*



» *Flat stream application for acoustic material*

FOR ALL REQUIREMENTS

Dürr offers the most modern products and technologies for all gluing requirements:



Robots

For specific job definitions and requirements, robots are available in various sizes and with various loads. The desired degree of automation is determined by the type and extent of the specific interfaces and the requested bus system. Dürr offers solutions for all relevant bus systems.

Dosing systems

Ecopaint Gluing dosing systems meet all requirements for the optimum dosing of highly viscous glues. Standardized systems are used in the 1K and 2K sectors. Flow rate systems are largely used. For special applications (e.g. Versilock® 2K) dosing chambers can be used.

Dosing system	Description	Filling volume in m ³	Standard ratio (other sizes on request)	Heating zones (standard)	Material pressure in bar (standard)
EcoDose ED7,5	Electrical doser for hose outlet	7,5	5 or 12	6	250
EcoDose PD7,5	Electrical pistol dosing chamber	7,5	5 or 12	6	250
EcoDose ED60	Electrical dosing chamber for hose outlet	60	5 or 12	6	250
EcoDose PD60	Electrical pistol dosing chamber	60	5 or 12	6	250
EcoDose D150	Electrical dosing chamber for hose outlet	150	7 or 12	6	250
EcoDose D150	Electrical pistol dosing chamber	150	7 or 12	6	250
EcoDose D150	Electrical double dosing chamber for hose outlet	2 x 150	7 or 12	12	250

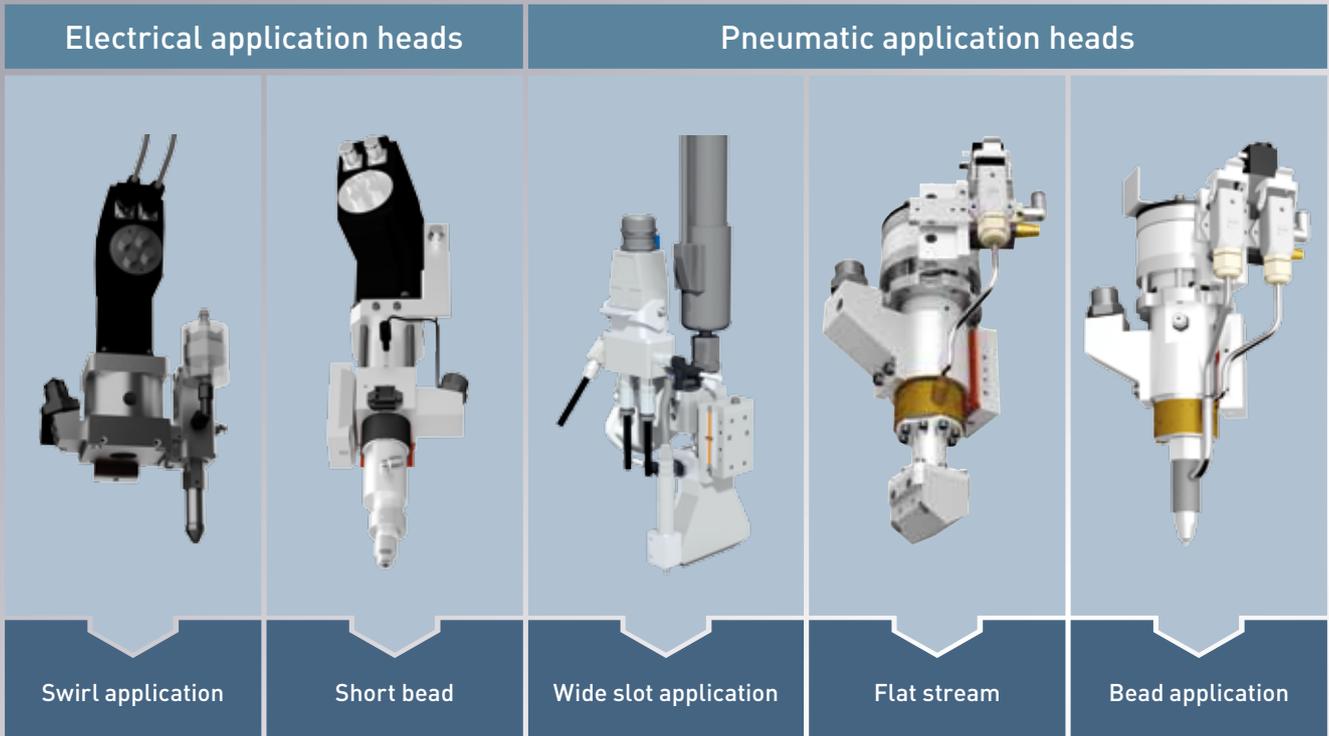
Material flows up to 36 cc/s. For larger volume flows, the dosing chambers with 700 cc and 1,000 cc are available. All dosing chambers are designed for up to 250 bar material pressure.

APPLICATION TECHNOLOGY

Application heads	Description	Types of application	Preferred field of use	Drive material	Pressure in bar
EcoGun PVR	Pneumatic radial valve	Wide slot application	Bottle application slow	Pneumatic	250
EcoGun PVA	Pneumatic axial valve	Airless, flat stream, bead	Dynamic applications	Pneumatic	250
EcoGun EVR	Electrical radial valve	Bead, swirl application	Highly dynamic applications	Electrical servo-motor	250

Optionally available: supervision of closing time, nozzle distance control etc.

EcoGun Gluing applicators enable the application of highly viscous adhesives with various cross-sections of adhesive beads and differing order procedures.



Applicators can be used with various **EcoJet** nozzles that can be fitted project-specifically. The nozzles can be changed easily.

MATERIAL SUPPLY



» 200l/30l double pump

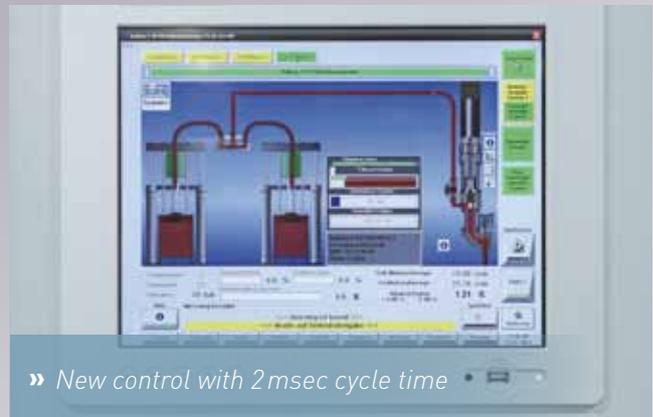


» 200l double pump

- » Drums of 20/30 l, 50 l, 200 l and 1,000 l are possible.
- » Shovel head pump with ratios of 55:1 and 90:1 can be used.

Control equipment, plant visualization system

The control software used for gluing offers the possibility to first test all the processes during gluing in a simulation. During a real run, this could lead to longer waiting times in the production cycle. In addition, tests needed for less than the current practice are also possible.



» New control with 2 msec cycle time

ACCESSORIES

Conditioning of the material for stable application results

The targeted heating of the application materials restricts the process from being affected by fluctuating material temperatures. The material temperature remains constant in an optimal quality for the application area.

Standardized modules on the pumps and in the controls can be used.

Ecopaint TESTCENTER GLUING

In the **Ecopaint** Testcenter Gluing at the Dürr site, Bietigheim-Bissingen, the processes of gluing application are optimized under real-life conditions. In Detroit, Shanghai, Sao Paulo and Wolfsburg, customers can now too optimize their gluing processes before the production start, in the standardized Dürr glue testcenters. Further testcenters will follow for clients nearby.

» Glue cell in the **Ecopaint** Testcenter Gluing for structural gluing



Benefits of gluing

- » Joining without mechanical impairment of parts
- » Material mix allow adhesion
- » Low-heat joining methods
- » Thin-walled structures can be joined
- » Additional functionality due to glue film
- » Combinable with other joining methods



LEADING IN PRODUCTION EFFICIENCY

Dürr – Leading in Production Efficiency

Four divisions, one goal: maximum production efficiency for our customers

- » **Paint and Assembly Systems:** Paint shops and final assembly plants for the automotive industry and aerospace construction
- » **Application Technology:** Robot and application technology for applying paint, adhesives and sealants
- » **Measuring and Process Systems:** Balancing technology, cleaning and surface processing technology as well as testing, filling and assembly products
- » **Clean Technology Systems:** Exhaust air purification systems, energy efficiency technologies

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