ULTRASONIC WELDING TECHNOLOGY

HYGIENE

Herrmann Ultraschall

Ultrasonic welding technology.
For the hygiene industry.

Hygiene products for everyday use are adapted for various applications and requirements. The goal: to simplify your everyday life. Product properties, such as wear comfort, ease of use, skin-friendliness and discreet protection, play an important role. These are decisive factors in regards to customer satisfaction with the product and the brand.

Herrmann Ultraschall is a world leader in the field of ultrasonic welding and provides customized solutions for hygiene products. Our innovative and highly efficient technologies are suitable for a large number of processes and applications.

Perforating

Laminating

Cutting

Embossing

Welding

Continuous bonding of roll goods.
As individual as the product itself.

Incontinence

Baby hygiene

Optimized solutions.
For your specific requirements.

Feel, wear comfort and functionality of the product are key criteria for consumers. Most important for manufacturers are factors such as maximum production speeds, low material consumption, and reduced electrical energy – all important parameters for an efficient manufacturing process.

The new generation of Herrmann ultrasonic welding modules allows for high-speed production with consistent quality and elimination of adhesives and other consumables. It ensures stable processes, even with variable production speeds. Additional advantages: The ultrasonic process is immediately available without pre-heating or cool-down phases. The laminated materials provide a pleasant softness and improve the quality of the final product.

Femcare

Cosmetic products

Personal care products

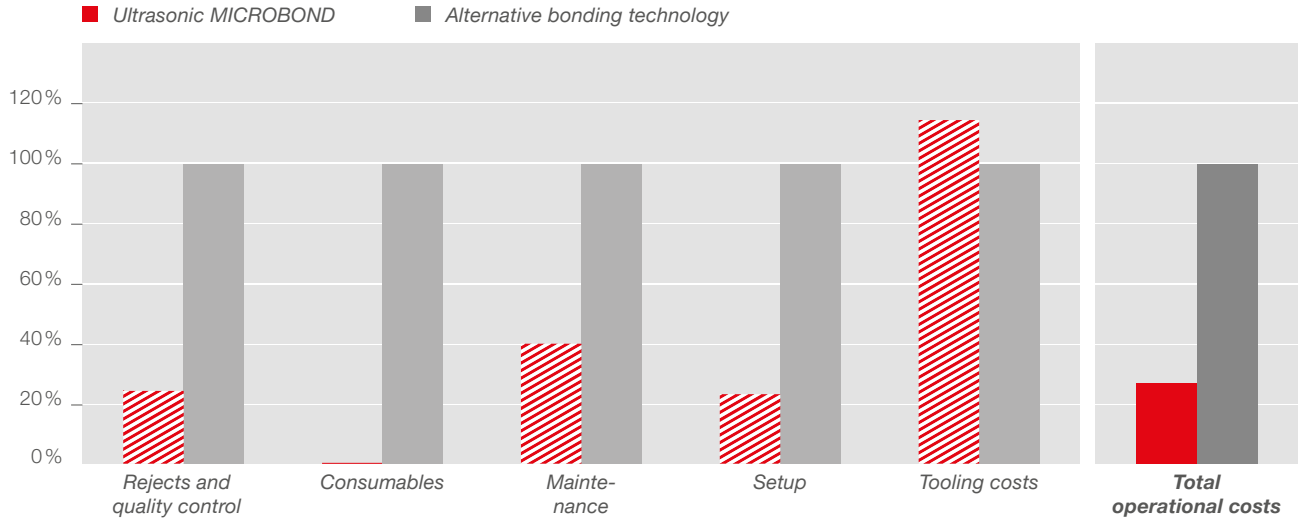
Typical product requirements.
Possible with technology from Herrmann Ultraschall.

- High wear comfort due to soft laminated material
- Strong bonding of layers due to homogeneous melting points
- Discreet protection due to tight welds
- Elimination of skin irritation due to glue-free bonding
- Purity of raw materials due to removal of additives
- Permanent elasticity, even after welding
- Design options by means of embossing patterns

Highly efficient.
Due to reduction of operational costs.

A significant reduction of operational costs for using the MICROBOND system patented by Herrmann Ultraschall, guarantees an increase in machine OEE (overall equipment effectiveness) compared to alternative processes.

Important components of the Total Operational Costs



Advantage through efficiency. With revolutionary technology.

For processing of nonwovens, composite materials, films and paper, continuous manufacturing processes are required, which distinguish themselves through high speed and accuracy. Short setup time, minimum wear, high equipment efficiency and consistent product quality have the highest priority. These are requirements that conventional processing methods can only partially fulfill. The MicrogapControl developed and patented by Herrmann Ultraschall combines all these advantages.

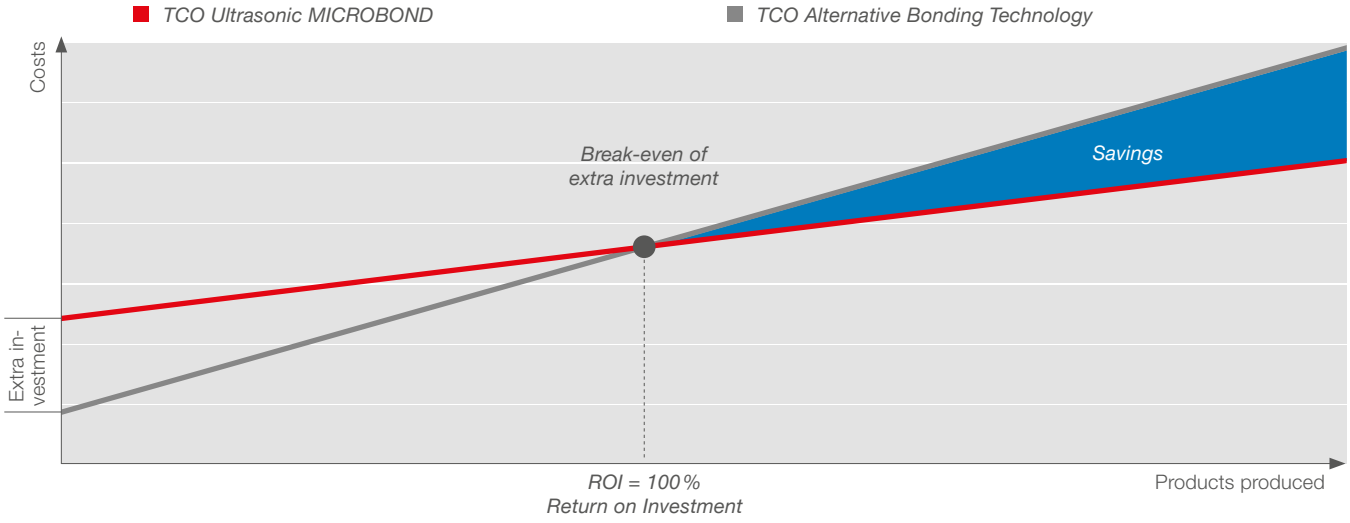
Characteristics and benefits

- Low reject rates due to closed-loop process control and weld quality detection
- No consumables required due to glue-free bonding technologies
- Fast setup and changeover time by automatic recipe management
- No contamination by consumables
- Reduction of energy costs, since tools do not require heat-up

Highly efficient.
Returns on the extra investment (ROI).

The higher initial investment for the ultrasonic system compared to other bonding technologies is quickly recovered through the reduction in operational costs.

Comparison of total operational costs – Total Cost of Ownership (TCO)



Environmentally friendly and energy efficient

BLUeCOMPETENCE Alliance Member
Partner of the Engineering Industry Sustainability Initiative

Ultrasonic welding technology is considered environmentally friendly. It uses up to 75 % less electric energy than other bonding methods due to targeted energy input in the joining area. In addition, bonding of various materials does not require any consumables, such as adhesives or hot glue. With ultrasonic systems, products can be produced energy efficient and easy recyclable as no additives are added.

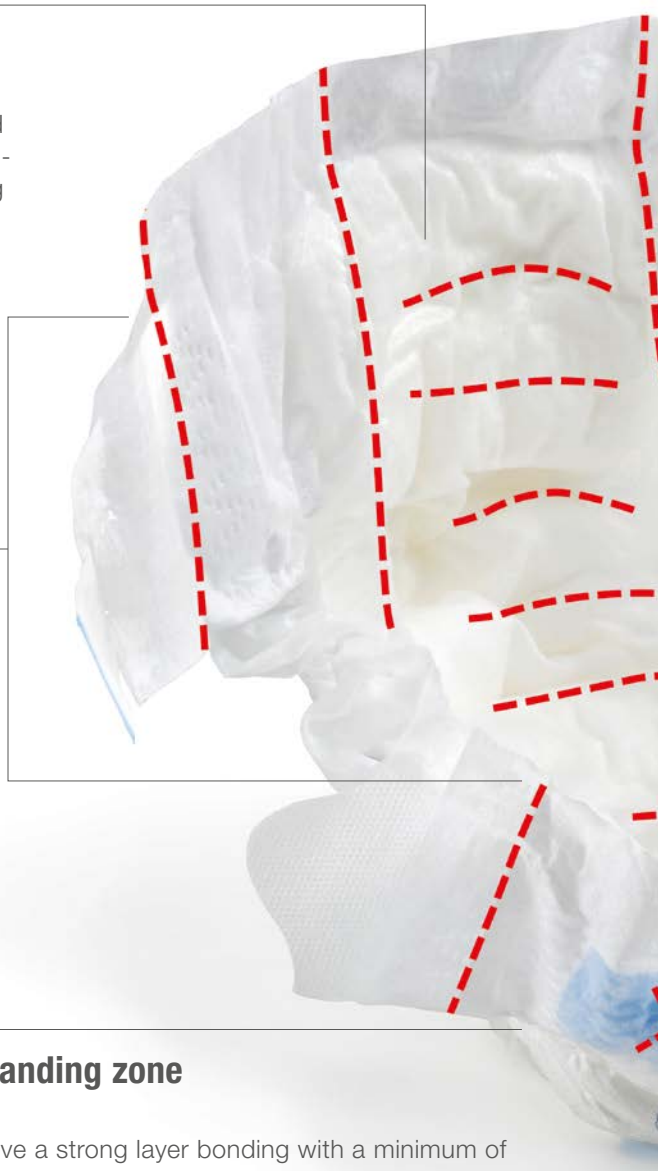
Properties and advantages

- Very low energy required due to optimum efficiency
- System is ready on-demand, no preheating required
- Easy recycling due to purity of raw materials and no use of additives
- Energy is focused specifically in the bonding area and only during the actual weld time
- No power dissipation through heat radiation as with typical thermal processes

High-speed bonding.
For glue-free diapers.

Layer bonding – ADL attachment

Topsheet and acquisition distribution layer (ADL) are joined together at high speeds. Targeted energy input on ultra-sonic welding points result in soft surfaces providing optimum wear comfort.



Weld on front and back ear tabs

Intermittent fixation of diaper ear tabs to the diaper chassis: Good bonding for optimal layer adhesion is a characteristic of high quality. This is achieved by using ultrasonics without any additives.

Closing system – landing zone

The challenge is to achieve a strong layer bonding with a minimum of bonding points. The soft feel can be retained with ultrasonic welding technology by Herrmann Ultraschall. The welding points provide additional design features.

Fastening system – tape

Welding of diaper fastening systems on different materials is performed at high speeds. With ultrasonic welding, attachment to elastic materials also achieves good layer adhesion and additional reinforcement in the opening and closing area.

Leg cuff

High-speed welding of lightweight materials is necessary in the elastic leg cuff of a diaper, combined with secure bonding of the various layers. The ultrasonic welding technology ensures a high level of wear comfort in combination with secure bonding of the various layers that are in direct skin contact.

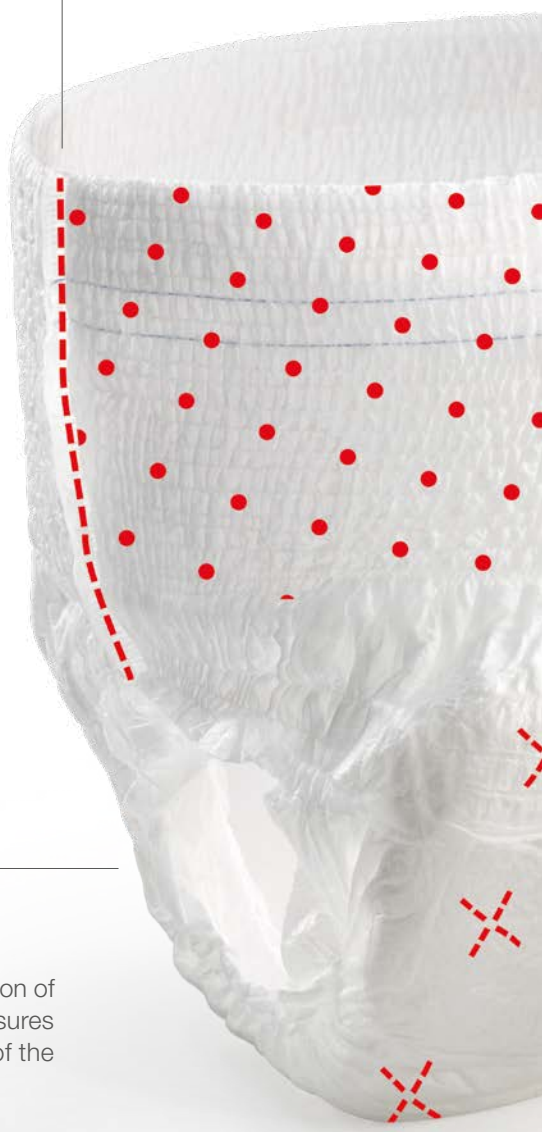
Lamination of nonwovens and film – back sheet

Layer bonding and prevention of leakage are challenging requirements for the lamination of film and nonwovens. Thanks to the specifically adapted technologies by Herrmann Ultraschall, this type of ultrasonic welding is also a frequently used solution.

Precise processes.
For discreet security.

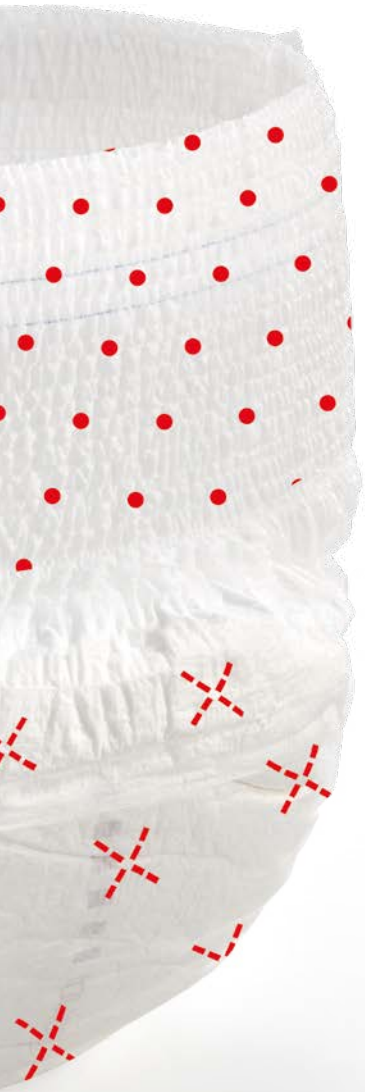
Side seam

The side seam is produced either in machine direction or cross direction. During this process up to eight layers of various materials are welded together. Outstanding quality characteristics are mainly the high tensile strength and optimum softness.



Leg cuff

High-speed welding of lightweight materials is used for the production of the elastic leg cuff of a diaper. The ultrasonic welding technology ensures a high level of wear comfort in combination with secure bonding of the various layers that are in direct skin contact.



Laminating nonwovens and elastic materials – stretch

High degree of stretch ability, good layer adhesion and soft surfaces are key requirements for the elastic waistband of “pull-up” products. These requirements can be easily achieved with ultrasonic technology by Herrmann Ultraschall.

Lamination of nonwovens and film – back sheet

Layer bonding and prevention of leakage are challenging requirements for the lamination of film and nonwovens. Thanks to the specifically adapted technologies by Herrmann Ultraschall, this type of ultrasonic welding is also a frequently used solution.

Customized solutions.
For unique applications.

Shape-welding

Shape-welding is required i.e. for single-use hand mittens in different variations. In such applications, ultrasonic technology achieves maximum bond strength without producing hard edges in the joining area.

Cutting

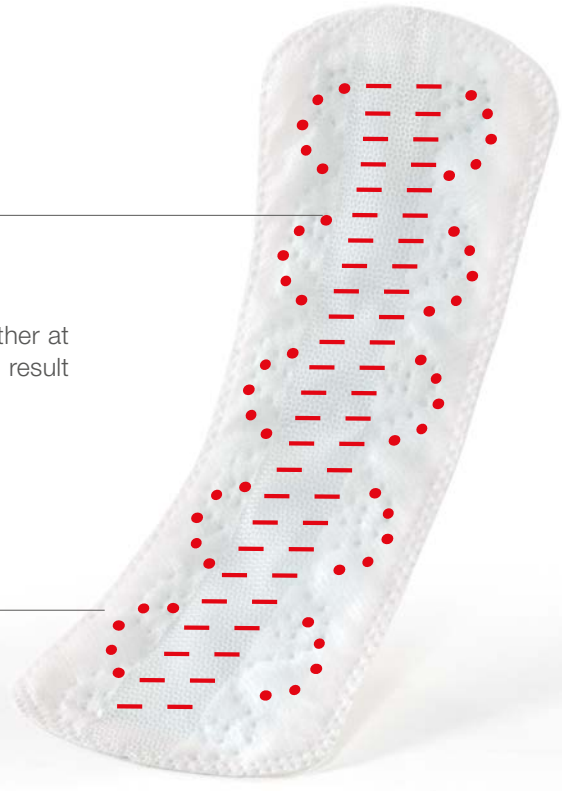
Various pads require fiber-free cutting. Ultrasonics ensures a clean and precise cutting pattern.

Embossing/laminating

Precise embossing with ultrasonics maintains soft surfaces. Lamination of various functional layers of cleaning pads is economically achieved with ultrasonics.

Wing attachment

Ultrasonics ensures high strength and softness for the attachment of wings.



Layer bonding – ADL attachment

Topsheet and acquisition distribution layer (ADL) are joined together at high speeds. Targeted energy input on ultrasonic welding points result in soft surfaces providing optimum wear comfort.

Textile edges

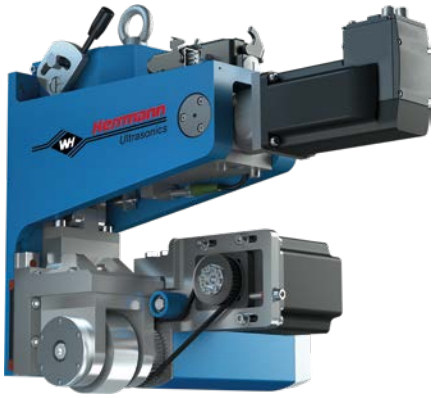
Important is the soft bonding of functional layers with the soft outer layer. Optimum results are achieved at high production speeds.

Innovative technology.
Leading in speed and precision.

MICROBOND CSI

Une sonotrode fixe combinée avec la technique de régulation du processus MicrogapControl brevetée et prouvée garantit une qualité produit constante. Le système MICROBOND CSI offre un rendement élevé grâce à des générateurs d'ultrasons performants et peut être utilisé jusqu'à une vitesse de bandes de 800 m/min. La largeur de travail peut être modulée de plusieurs mètres.

- High process speed
- Extendable production widths
- Intermittent welding
- Consistent weld quality



MICROBOND RSD

The rotary weld module is particularly suited for gentle welding of fluffy or intermittent materials. The low resistance of the rotary weld system minimizes the generation of particles. Rotary sonotrodes in combination with the MicrogapControl technology allow for high web speeds.

- Prevention of wrinkling thanks to the low friction rotary process
- High production speeds
- Soft feel of the weld areas
- High weld quality without material distortion

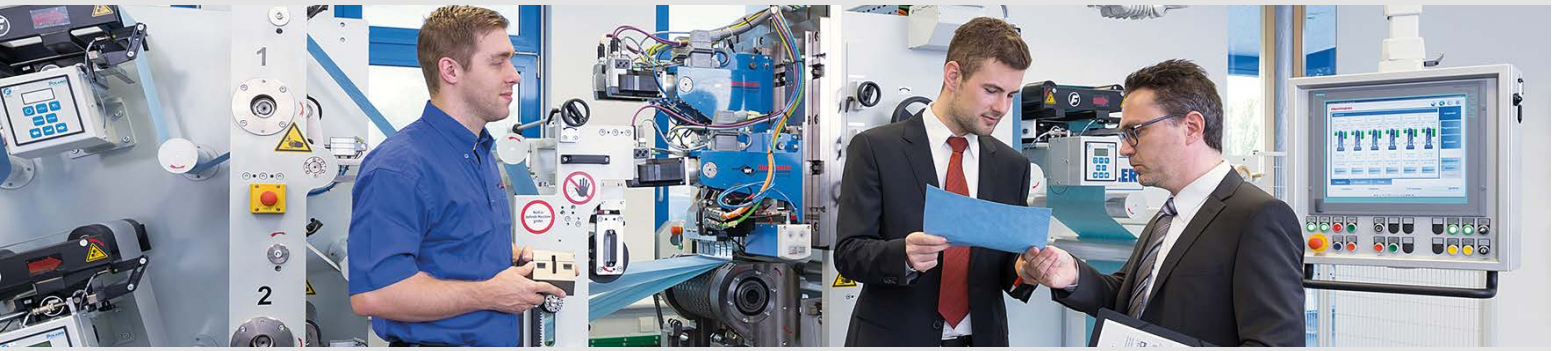
EASYBOND CSI

The EASYBOND product line has been designed for simple, continuous weld applications for nonwovens and web material. The equipment features of the ultrasonic modules are precisely adapted to customer requirements. Its flexible design allows for upgrade to MICROBOND technology.

- High quality for simple ultrasonic applications
- Rigid CSI sonotrode support
- Minimum sonotrode distance possible
- Compact modular design

Continuous support from the beginning.
ULTRASONIC ENGINEERING.

The expert teams at Herrmann Ultraschall will support you during every phase of your project. This includes production-related trials in the application laboratories, on-site assistance during start of production as well as after-sales and training services. The cost-effectiveness of the processes is always the number one focus.



Ultrasonic laboratory nonwovens

Application tests

- Laboratory tests and initial sampling at speeds up to 800 m/min
- Recommendations for suitable testing specifications
- Consulting on new application concepts
- Feasibility analyses for new product ideas based on original materials
- Scientific analyses in cooperation with leading universities

Application optimization

- Determination and optimization of production process limits
- Review of decisive weld and seam properties
- Verification of research results with the help of tensile tests, leak tests, high-speed cameras, burst tests, microscopy and microtome cuts
- Complete documentation of the test series

Optimization of anvil design

- Optimized pattern design based on customer-specific requirements
- More than 100 test anvil drums with different patterns are available for test welds
- Support in determining the right anvil drum dimensions

Technical project management

- Consistent implementation of customer requirements and test results in design concepts
- 3D supported mechanical design collision analysis
- FEM assisted tool design
- Mechanical and electrical interface definition
- Guidance on the integration of the welding process in the machine sequence

Training and customer services

- Beginner and expert seminars
- Hands-on user trainings
- Trainings on-site or at our local facilities
- Customer-specific trainings

Start-up

- On-site integration and start-up of the ultrasonic welding systems by our service specialists
- Ensuring a smooth and fast production start-up
- Fine-tuning and optimization of the bonding process quality

After-sales service

- Optional 24 hours technician hotline
- Preventative maintenance and servicing measures
- Reworking of tooling and spare parts management
- Targeted production process optimization

FIRST CLASS TECHNOLOGY. WORLDWIDE. 24 LOCATIONS IN 18 COUNTRIES.

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