

Crest Group



Service Partner for cleaning technology

For more than 60 years KLN Ultraschall has been dedicated to the development and application of the ultrasonic cleaning technology for industrial purposes. Due to constant development of this technology, we have now available a wide range of environmentally acceptable cleaning systems for a multitude of industrial applications.

It is practically impossible to list all the different applications in detail. In the course of the years, ultrasonic cleaning has been firmly established in industrial production and maintenance. In general, ultrasonic cleaning is the method of choice whenever the highest and perfectly consistent cleanliness is demanded and can achieve more efficient cleaning results than conventional methods. Ultrasonics offer the advantage of freeing personnel from unhealthy cleaning work and the cleaning result is always repeatable.

The manufacturing programme of KLN Ultraschall AG comprises the entire range of ultrasonic basic components, incorporating high-frequency generators in user-specific output power ranges, ultrasonic transducer systems – both submersible types and plate transducers – small and bench-type cleaning tanks as well as modular equipment suitable for different cleaning media.

A comprehensive range of optional extras, like mechanical agitation and lifting facilities, automatic handling and transport systems and many more, complements the manufacturing programme. KLN Ultraschall AG can claim to have established trend-setting standards in cleaning and drying technologies to the benefit of the customer. Our extensive cleaning applications laboratory readily tests customer applications to determine specific operating processes. The expert KLN team is at the customer's side to assist in all phases of the cleaning project, from consultation at the beginning up to the installation of the equipment, as well as in maintenance and after sales service. The result of this close co-operation is always to the benefit of the customer.

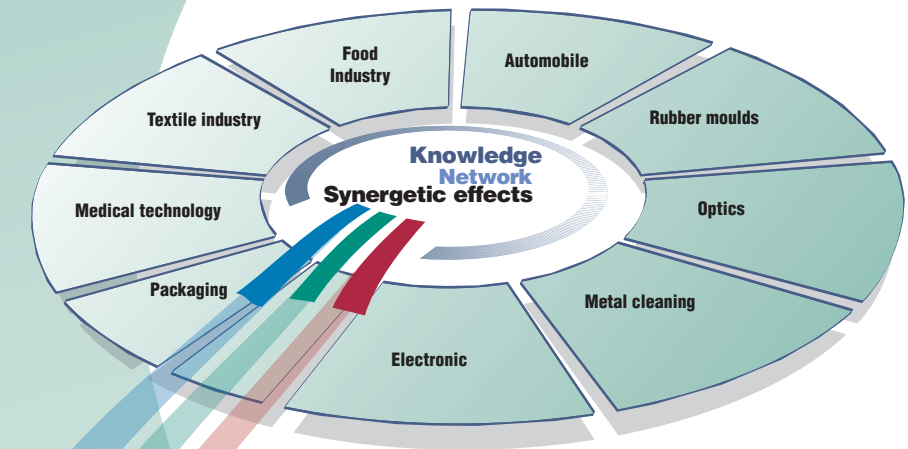


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Ultrasonic cleaning

Rinsing

Rust inhibiting

Drying

Agitation

Transport



The active principle of ultrasonic cleaning

..... is cavitation.

Cavitation means creation and dissolution of cavities in liquids by pressure variations. The ultrasonic field in the liquid creates waves with excess pressure and underpressure. This leads to pressure peaks up to 100.000 bar. These cavities arising and disappearing in cycles process the surface and thus clean them.

Grease and other adhesions will be mechanically loosened.

The machines consist of a tank filled with liquid, potentially with heating, one or more ultrasonic converters and ultrasonic transducers and one generator, supplying the transducer(s) with high-frequency electrical energy.

The transducers can be flanged either directly outside at the walls or at the bottom of the tank. This design leads the ultrasound directly via the walls and/or the bottom into the liquid.

Another version is realised with the so-called submersible transducers. They are attached in the liquid or fastened on frames in the tank. Moreover, there are also plate transducers, which are flanged into an opening in the tank wall.

Cleaning detergents, leaches or acids on aqueous basis significantly support the cleaning effect of ultrasonic baths.

Cleaning applications that require solvents are designed in accordance with the Guideline on protection against explosion.



KLN Ultraschall AG Heppenheim

Agitation

Mechanical lifts and agitation facilities are available for all modular cleaning and rinsing tanks. These additional systems contribute to increasing the throughput rates and safeguarding repeatable cleaning results whilst the operators are freed from handling heavy loads.



Automated Transport

In order to optimise the throughput and to control the entire cleaning operation, satisfying the requirements from individual cleaning problems, KLN provides automatic transport systems as a complement to the KLN cleaning equipment. Please do not hesitate to contact us. We will be pleased to assist you with your application requirements.



Customer-specific accessories

For customer-specific applications and optional extras, there are special accessories available as a supplement to the KLN cleaning equipment.

- rinse water processing and re-circulation systems
- bath-life enhancement
- pump-filter units
- various drying methods
- rotation baskets
- water conditioners
- metering systems



Application samples:
rubber moulds

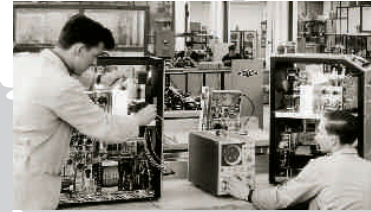


Modular Equipment Series

The modular equipment series is suitable for complex industrial cleaning applications and permits an easy sequential arrangement of all the various modular process tanks for cleaning, rinsing and drying to meet the customers' requirements. The modular series may be operated with aqueous solutions

The preceding process determines the drying operation to follow with either circulating hot air or vacuum.

Our expert cleaning staff will assist you in establishing the most suitable operating process and configuration of modular tanks. This also applies to the choice of peripheral equipment and PLC controlled handling systems enhancing the KLN modular equipment.



Founded in 1947 by the physicist Dr. Lehfeld and known since 1972 as KLN Ultraschall AG, we are today one of the leading European manufacturers of machines and equipment for welding thermoplastic parts and ultrasonic cleaning technology in Europe.

Flammable Solvent Degreasers

For contaminations which cannot be dissolved in aqueous solutions, KLN offers ultrasonic cleaning equipment for use of solvents. Single- und multi-stage ultrasonic cleaning equipment for the use of flammable solvents is designed in accordance to the regulations. Their concept will be adapted to the specific customer requirements.



Special Cleaning Equipment

To meet the specific customer requirements, the design and manufacture of special machines for different cleaning media has always been a KLN objective in addition to the approved standard units and modular systems.



In January 2000 KLN Ultraschall has joined the Crest Ultrasonics Corp., USA/Trenton, New Jersey, a group with international activities. All over the world a staff of more than 1.000 employees works on 20 locations in 12 countries. The complex technologies of plastics welding and ultrasonic cleaning are the main activities of the Crest Group. Currently at the German location in Heppenheim an expert team of 180 employees works on complex customer projects.

Ultrasonic cleaning technology

Ultrasonic vibration tanks, compact machines with drying feature, special machines, modular tank systems with agitation, rinsing, drying and rust inhibiting. Automation and visualisation of the total cleaning process.

Plastic welding technology

Standard machines for ultrasonic welding, ultrasonic multi-head machines, ultrasonic continuous welding for aluminum foil or thermoplastics, textiles, special machines, vibration welders, infrared welders, spin welders, hot plate welders, hot air riveting machines and processing machines for plastics fuel tanks.

Responsibility

Our main task is to satisfy our customers. That's why a qualified project leader will give you his full attention from the very beginning. He will be supported by a team, which is responsible for the optimum realization of your project: from the intensive examination of your application, to design, construction and on-site commissioning of the equipment, up to quality control - world-wide and just in time. Anywhere in the world you will always have available the international know-how of the whole Crest group of companies. Due to the close cooperation of the Crest companies and their continuous exchange of ideas and experience, you can be sure to get the individual solution for your cleaning application.

Generators

For use in ultrasonic cleaning systems KLN offers a variety of high-frequency generators.

These generators are equipped with A&F modulation as standard with selectable sweep frequency band width. Generators are available for the output power range required in frequencies 30 and 40 kHz pulsed wave operation. Power control is available either at the generator or by PLC/PC.



Submersible Transducers

Submersibles are arranged either on the tank bottom or on the tank side walls. The piezo-electric transducer elements fitted to the sound-irradiating face of the hermetically welded stainless steel boxes transform the electric energy into mechanical vibrational energy to be transmitted into the cleaning fluid. Submersible transducers are the most versatile transducer systems for industrial cleaning applications.

Plate Transducers

Unlike the submersible systems the plate transducers are bolted into the tank bottom or side walls and generate equally efficient cleaning results. The PZT transducer elements are fitted at the back of the sound-irradiating plate which is covered to protect against accidental contact.



Power-Transducer Systems

We have particular expertise in the fitting of small-volume and high-volume cleaning tanks with submersible and/or plate transducers driven by matched ultrasonic generators. The recently developed power transducer systems produce a homogeneous power radiation with particularly intensive ultrasonic (scrubbing) effect and provide an extremely long working life.

The long-term warranty of 8000 operating hours (maximum 3 years from delivery) enhances these characteristics. KLN offers various standard dimensions in all these systems, but in addition the POWER systems offer flexibility of manufacturing any size of submersibles or solid plate transducers to meet the customers' specific requirements.

Ultrasonic Cleaning Tanks

For cleaning applications in water-based cleaning solutions the KLN programme offers a variety of compact table models. Tank insert, the detached lid and housing are made of stainless steel, the ultrasonic generator is incorporated in the equipment base and the transducer elements are fitted to the outside tank bottom. The table tops are fitted with thermostat-controlled electric heaters and mechanical timer. Available tank volumes are 2, 4, 12, 25, 40, 60 and 90 litres. The ultrasonic frequency is either 30 or 40 kHz.



PWA Cleaning Systems

These specially powerful cleaning, rinsing and drying units are available with standardised tank volumes ranging from 70 up to 225 litres. The operation process may be determined to meet any individual application requirements of industrial users. Any combination of cleaning, warm or cold rinses as well as hot air dryers is possible. This modular-style arrangement of several individual process tanks will also accept automatization and other optional accessories with a view to achieving a high degree of specialization or even a fully automatic operation process.

Compact Cleaners

Compact cleaners are used for the treatment of electric components, degreasing applications in the electrical and medical industry, in the chemical industry, and in optics, as well as in service and maintenance.

The ultrasonic cleaning and rinsing compartment as well as the hot air drier are fitted in a robust frame. The control elements and tank drains are easily accessible from the front panels and are allocated to the respective tank. Cleaning and rinse tanks can be fitted with ultrasonics and electric heaters, as well as pump-filter units. Circulating hot air carries out the drying process in a separate compartment. Compact cleaners are available in the standard tank volumes 12 and 25 litres.

