

Ultrasonic Cleaning Systems



Innovative Cleaning Solutions

POWERHOUSE OF ULTRASONIC TECHNOLOGY[®]



Microprocessor based Ultrasonic Cleaners



Ultrasonics, i.e. high frequency vibrations, generate agitation in liquid resulting into 'Cavitation', which is rapid formation and collapse of minute bubbles in liquid. Implosion of bubbles with high pressure on exposed surface of component dislodges and removes contamination like dirt, dust, oil, grease, chips, wax, lapping paste, carbon etc.

Very high degree of cleaning can be achieved in multi-chamber/multi-operation cleaning system with proper orientation of components, filtration of cleaning liquid, rinsing of components and drying with air and/or vacuum.

Technical Specification

TYPE		TPC - 15H	TPC - 25H	TPC - 40H	TPC - 120H	TPC - 280H
Mains Voltage	V	230	230	230	230	230
Current consumption incl. heater	A _{max}	0.8	1.0	1.2	5.0	8.0
Ultrasonic output eff/peak	V _{max}	75/150	75/150	150/130	300/600	600/1200
Operating frequency	Khz	30/40	30/40	30/40	30/40	30/40
Digital adjustable thermostats	20°-80° c	Yes	Yes	Yes	Yes	Yes
Digital timer	1 _{Sec} - 99 _{Min}	Yes	Yes	Yes	Yes	Yes
Heating Power	W	120	150	150	800	1200
Tank Capacity	L	1.5	2.5	4	12	28
Int. dimensions LxWxD	mm	150x135x100	235x135x100	235x135x150	300x235x200	505x300x200
Ext. dimensions LxWxD	mm	180x165x220	265x165x220	265x165x262	330x270x325	535x330x370
Output valve		No	No	No	Yes	Yes
Weight	kg	3.0	3.5	3.5	9.0	18.0
Item Code		900 970 010	900 976 010	900 978 010	900 979 010	900 981 010

Accessories



Beaker with basket and positioning cover



Tank cover/Beaker with positioning cover



Insert basket for tank and beaker



Suction Pump

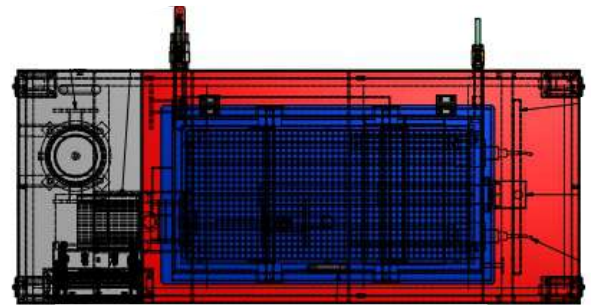
Industrial Tanks



It consists of process tank with ultrasonic tube resonator & ECO-generator. Tube resonator is provided at the tank bottom to provide ultrasonic vibrations in the liquid, which uniformly cleans the component. SS heater is provided at the bottom for heating the solution. A level switch is provided to switch off ultrasonic parts and heater to avoid damage due to dry running. A drain valve is also provided for periodical drain of complete solution manually. The inner tank is provided with insulation.

The Online Filtration helps in removal of the contamination out of the system and ensures a clean bath. The clean bath helps in sustaining the cleaning level for a longer duration of time/period.

Optional Filter



Features

- Efficiency more than 95 %
- Absolute & fully automatic monitoring, independent of voltage fluctuations
- Optimum operating frequency under all operating conditions
- Optimum output power with all variations of temperature, solution level and workload
- Wave pulse modulation ensures high cavitation, therefore resulting in High cleaning action
- Protection against short circuit and idling conditions
- Power variation from 50 - 100 % with potentiometer integrated in the Front panel
- Latest electronic component (IGBT) technology
- Each generator module is an independent generator
- Versatile provision for mounting
- Practically maintenance-free

Ultraclean

Industrial cleaner with filtration, collection and oil skimmer

The demand for industrial cleaning has been ever increasing as highly cleaned components are indispensable for various production units. This is not only to create conditions for trouble free manufacturing but also decides the quality and service life of the product. Which cleaning should be applied for demand will depend on various aspects: type of component, material, surface quality, type of contamination and required cleanliness.

Ultrasonics can remove all kinds of dirt and other particles such as grinding and polishing residue, as well as oil, grease. Its scope of application ranges from cleaning the movement of a watch to overhauling the engines of a jumbojet.



Features

- Ultrasonic and heat insulation.
 - Sloped floor for complete emptying.
 - Edged work area prevents liquid from dropping down.
 - Beveled cover guides water condensation back to the tank.
 - Protection against dry running for ultrasound and heating.
 - Ultrasonic generator is integrated.
 - Temperature regulation.
 - Timer for ultrasonic activity.
 - Contents of 36, 50, 70, 110, 170, 250 liters.
 - Working frequencies 25, 40 kHz.
 - Tank, cover, sheathing and drainage tap made of stainless steel.
 - Overflow edge with connection (set watertight).
- We also manufacture Industrial ultrasonic cleaners with filtration capability.



Inside View



Basket



Oil Skimmer

RT Series

Single Chamber Cleaner with Filtration, dunking and oil collection pocket tank

We have developed a Standardized range of single chamber cleaners for intermediate cleaning. Our product boasts of precision cleaning capability, low power consumption, reduced labor time and cost-effectiveness. The machine can be used for general cleaning applications including, fuel pumps, coolers, pistons, convertors, cylinder heads, turbo compressors, injectors, carburetors and gear boxes.

Our standardized range of single chamber cleaner reaches upto a maximum load of 330 kgs.



It has a special pneumatic lift platform. It has multi-language touch-screen HMI. Our patented tube resonators are installed in the equipment. It has a laminal flow oil cover and an insulated top cover. The top cover has a gas spring for safety in handling.

Currently we are making RT series cleaners having a capacity of 70, 180, 300 and 400 liters.

Features

- Modular design
- Ready and fault signal in the front panel of generators
- Automatic and monitoring and control of ultrasonic power
- Wave pulse modulation for highest cavitation, resulting highly uniform cleaning
- Optimum frequency under all load conditions

IMO - Intergrated Multi Operational cleaner



The machine is designed to occupy minimum floor space with ergonomically designed operation panel for ease of operation. The highly efficient system results in the most effective cleaning for diverse range of applications. The system can not only clean mass-produced parts but also assembly parts with cleanliness level as high as 0.01 mg/component.

Defined size in fine cleaning can be achieved by selecting the appropriate filtering system and other application- dependent options available thus making the system usable for various application areas.

Features

- Cleaning, rinsing and drying process in a work chamber
- High power injection flood washing
- High efficiency ultrasonic tube resonator
- Automatic work chamber door locking
- Rotation and oscillation movements to support the cleaning and drying effect (Optional)
- Integrated oil-separator
- Hot-air drying facility
- Siemens S7 PLC control system for custom programming of process sequences
- Error diagnosis via plain text display on operator control panel
- Incorporates closed system housing made of M.S powder coated (optionally available in S.S 304)

BEFORE



AFTER



Process Selection

- Spray Cleaning
- Turbulence Cleaning
- Ultrasonic Cleaning
- Spray Rinsing
- Turbulence Rinse
- Ultrasonic Rinse
- Hot Air Drying

Ultrasonic Multi-Chamber Cleaning Systems



COMPONENT CLEANING - INTEGRAL PART OF MODERN PRODUCTION SEQUENCE

Cleaning is, almost by definition, a part of any manufacturing process for the removal of sufficient surface contamination to make something suitable for the next phase of its use. It may come in at the raw material prep stage, some intermediate manufacturing stage, or prior to surface finishing such as plating or painting or before final packaging. The cleaning sequence depends on various aspects like: type of component, material, surface quality, type of contamination and required cleanliness level in terms of Millipore as well as particle size.

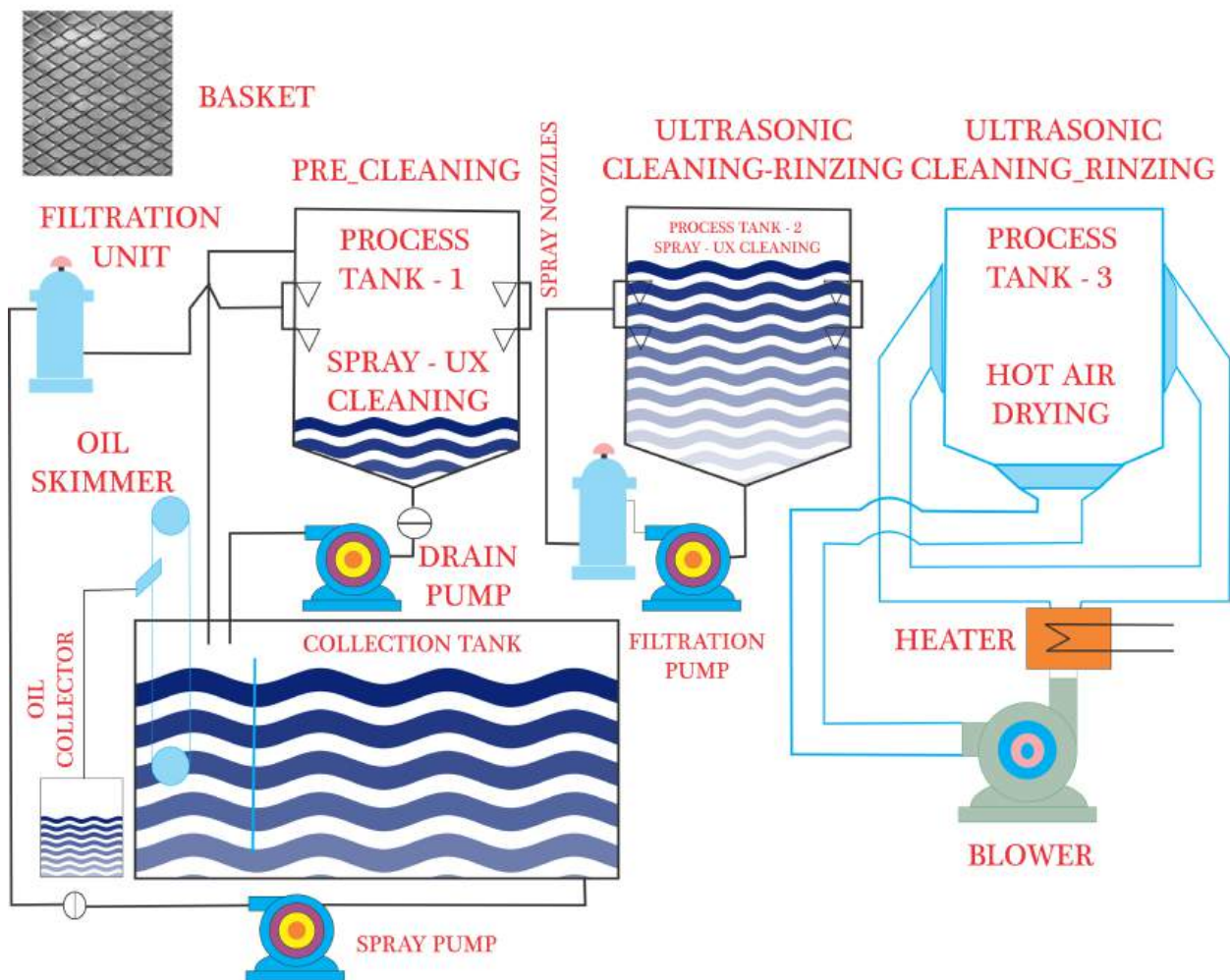
Products Range

- Single chamber multi-operation cleaning systems (coarse /intermediate / fine cleaning)
- Vapour degreasing systems
- Ultrasonic Components : Tube resonators , Eco-generators, Immersible boxes, Transducers etc.
- Customized Single Chamber Ultrasonic Cleaners of any capacity
- Conveyorized Ultrasonic cleaning systems
- Online Ultrasonic wire / strip cleaning system
- Multi-chamber Ultrasonic cleaning systems

Stages of MultiChamber Cleaning Systems

- Pre-cleaning
- Ultrasonic-cleaning
- Rinsing
- Anti-rust coating
- Hot air drying
- Vacuum drying
- Selection of number of stages depends upon the desired cleanliness level
- Available systems :- 3 to 10 chambers

A Typical Process Diagram



Features

- Advanced proven TECHNOLOGY for Micro-processor controlled Ultrasonic Generators
- Use of high efficiency Ultrasonic components like patented Tube Resonators / Immersible Transducers box / conventional Transducers.
- Provided with filtration / recovery units / oil separators
- Automated Material Handling systems Design of baskets / trays / fixtures to get the optimum throughput with required cleanliness level
- Well equipped Lab available for Millipore testing which allows selecting / recommending / designing optimum system for desired cleanliness level.
- Various options available to choose from: High pressure jet cleaning / Inject flood washing / Turbulence / Plain dip / Ultrasonic cleaning / Ultrasonic rinsing / Anti-rust coating / Hot air drying / Vacuum drying
- Options available for multiple frequencies: 20 / 25 / 30 / 36 / 40 / 80 / 120 kHz

Mouldeto

Mouldeto is designed to do maintenance cleaning of complicated parts. It is ideal for cleaning equipment which could get marks or cuts through cleaning.

Ultrasonic cleaning is gentle yet precise. It leverages from the property of water to cavitate when ultrasonic waves are passed through it. The bubbles formed from cavitation reach the most inaccessible holes and crevices.



40-50 %
cost savings



Basket



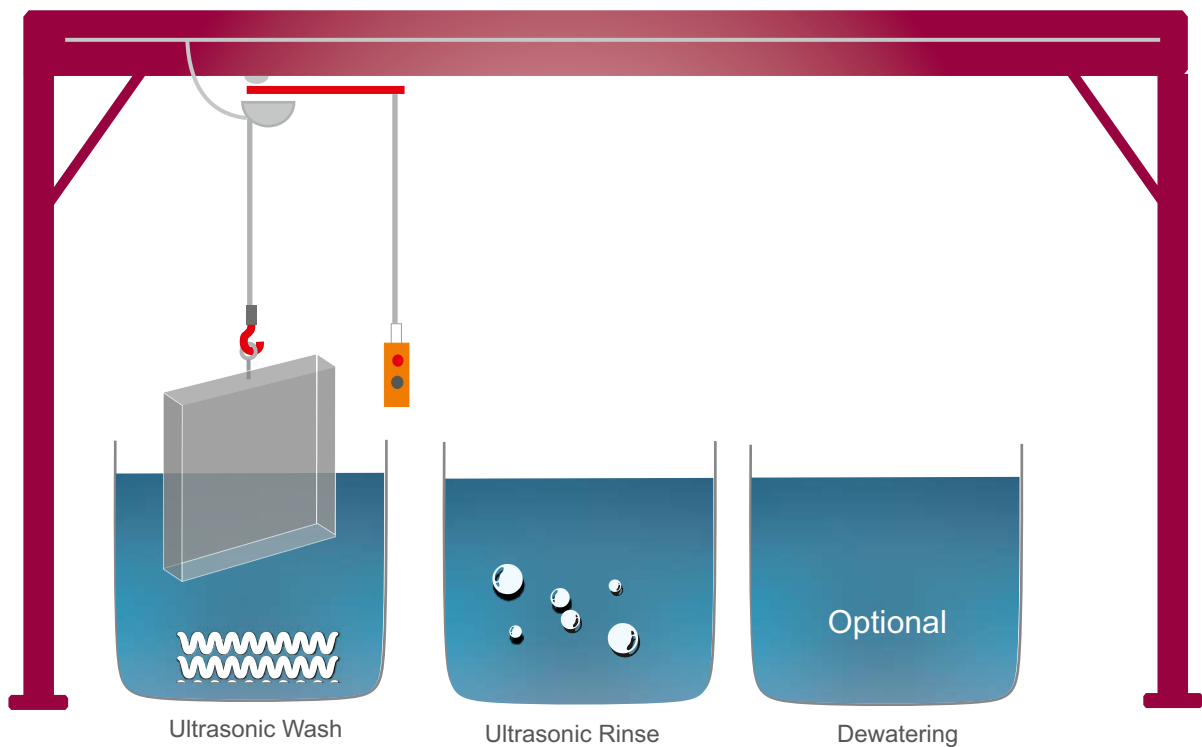
Mouldeto

Mould Cleaning Process

1. Ultrasonic wash at 80°C for about 5-15 minutes
2. Rinsing with air bubble agitation for about 1 minute

Optional

3. Preservation with dewatering or hot passivation for about 1 minute
4. Inspection / manual intervention



Cleaning Chemical



Detergent/cleaning solvent is essential for achieving high cleanliness level. During ultrasonic washing we require a high pH level cleaner. RTUL's cleaning solvent is a strong cleaning solution which can work effectively on the most difficult contaminations without eroding surface layer. of the component to be cleaned.

Cleaning Components

Advanced Cleaning Generators



20 - 170 kHz
(Automatic Control)



600 - 1500 Watts
Power Output



105 x 155 x 390 mm



Unique Features

- SD card data storage option
- Automatic Degas option
- Pulse & continuous mode selection & parameters
- Sweep mode with selection & parameters
- GUI messages, warnings & faults monitoring with TFT option
- Table Top housing, 19" Rack mounted version, DIN-rail-mounting or wall fastening.
- Five Dc-isolated 24V inputs, for external power setting for instance
- Over-temperature and over-current turn off
- Protected against short-circuit and no-load operation
- Coefficient of efficiency >90%
- Fully automatic control and monitoring
- Boost mode with selection & parameters
- High end PC software
- Latest MCU controlled
- Fully automatic IGBT based
- Optimum frequency under all load conditions
- Optimum power output with all variations of temperature, solution level and work load
- Wave pulse modulation for highest cavitation, resulting highly uniform cleaning

Tube Resonators

This novel design of transducer in tubular form ensures ultrasonic in all 360° and ease in retrofitting in existing system. This is available in various frequencies and different mounting lengths.



- Very intensive and homogeneous sound field due 360° to radiation
- No delicate adhesive points or seals
- Low weight and volume allows a mounting in confined spaces
- Possible to mount in pressure and vacuum tanks
- No dirt deposit onto the radiation surface
- Ideal for retrofit in existing tanks
- Minimum radiation in axial directions
- Multiple application, thanks to different mounting lengths
- Low power consumption due to high coefficient of efficiency (>92%)
- Suitable for large output powers
- Frequency range: 25 & 40 kHz
- Very long life

Immersible Box

Immersible box is available in different sizes & dimensions with different output power.



- Easy to install, they are simply placed or fixed in the cleaning tank
- Laser welded body
- Custom shapes possible
- Single frequency 30 kHz, 40 kHz, 68 kHz, 80 kHz, 120 kHz & 170 kHz, other frequencies can be customized
- Dual frequency 30/68 kHz, 40/80 kHz & 40/120 kHz
- Temperature resistance
- Homogeneous sound field through optimal array of the transducer elements
- Suitable for many ultrasonic cleaning applications

Innovative Cleaning Solutions

We have successfully been catering to the needs of various industries.



Automotive



Aviation



Gems & Jewellery



Mould Cleaning



Medical



Textile



Industrial Components



Electronics



Optical

ROOP ULTRASONIX LIMITED

Corporate Office: 803, C Wing, 32 Corporate Avenue,
Off Mahakali Caves Road, Andheri (E), Mumbai - 400 093.
Tel: 022-42111500, Fax: 42111505, Email: support@rtulgroup.com, Web: www.rtulgroup.com

