

COMPACT ULTRASONIC CLEANER



Compact Ultrasonic Cleaner - ToronUC™ S Series

ToronUC™ S Series Compact Ultrasonic Cleaner is a compact, digitally controlled benchtop ultrasonic cleaning system constructed entirely from 304 stainless steel, engineered to deliver professional-grade ultrasonic cleaning performance across a broad range of benchtop, counter-top, and light industrial applications. Starting from an ultra-compact 1.3-liter model and scaling up to 27 liters, the S Series covers the widest capacity range in the ToronUC™ family.

Each unit features a full LED digital display for precise real-time monitoring of cleaning time and temperature, ceramic heating elements for improved thermal efficiency and longevity, and high-performance ultrasonic transducers for powerful and reliable cavitation throughout the cleaning cycle. The all-stainless construction — from the external case panels to the inner cleaning tank — provides superior corrosion resistance for use with a wide range of aqueous cleaning solutions.

Drainage taps and cooling fans are integrated on 6L and larger models, supporting continuous-production industrial ultrasonic cleaning workflows. Ergonomic handles on larger models and skid-proof rubber feet across all models enhance safe and practical laboratory and workshop operation. The ToronUC™ S Series is well-suited as a versatile ultrasonic jewelry cleaner, ultrasonic glasses cleaner, dental ultrasonic cleaner, and general-purpose industrial ultrasonic cleaner for North American laboratories, workshops, and service facilities.

40 kHz FREQUENCY	1.3-27 L VOLUME RANGE	500 W MAX US POWER	0-80°C TEMP. RANGE	Full SS CONSTRUCTION
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APPLICATIONS

Compact Ultrasonic Cleaner - ToronUC™ S Series Applications

- Jewelry & Precious Metals: Highly effective ultrasonic jewelry cleaner and ultrasonic cleaner jewelry polisher for professional jewelers, removing tarnish, polishing compounds, oils, and embedded soils from all precious metal types and most gemstone settings.
- Eyeglasses & Optical: Functions as a compact ultrasonic glasses cleaner for optical retail locations, optometry practices, and eyeglass repair shops, restoring clarity to frames and lenses by removing skin oils, cosmetics, and environmental deposits.
- Dental Instruments: Operates as a dental ultrasonic cleaner and ultrasonic dental cleaner for pre-sterilization instrument decontamination in dental offices, dental labs, and oral surgery suites. The 0-80°C range supports enzymatic cleaning protocols.
- Small Parts & Hardware: Ideal for cleaning small machined parts, fasteners, springs, pins, and precision hardware items in manufacturing QC, prototyping, and repair shop environments using the compact 1.3L-3L models.
- PCBs & Electronics: Removes flux, solder paste, and contamination from populated PCBs, connector assemblies, and precision electronic components using appropriate ultrasonic cleaning chemistry.
- Automotive & Carburetors: Available in larger S Series tank sizes for light industrial applications including ultrasonic carburetor cleaner service, fuel system component cleaning, and small parts degreasing in automotive maintenance shops.



FEATURES

Compact Ultrasonic Cleaner – ToronUC™ S Series Key Features

- **Full 304 Stainless Steel Construction:** The entire unit — external case, inner tank, and structural components — is manufactured from 304 stainless steel, providing corrosion resistance, chemical compatibility with industrial cleaning solutions, and a durable, professional appearance.
- **LED Digital Control Display:** An intuitive LED panel displays real-time cleaning time and temperature simultaneously, enabling at-a-glance monitoring of cleaning conditions without interrupting the ultrasonic cleaning cycle.
- **Ceramic Heater Technology:** Ceramic heating elements deliver improved energy efficiency, chemical resistance, and service life compared to conventional metal-sheath heaters, maintaining consistent bath temperature over extended cleaning operations.
- **High-Performance Transducers:** Premium ultrasonic transducers are bonded directly to the tank base for maximum acoustic energy transfer, delivering powerful and uniform cavitation throughout the full tank volume for consistent ultrasonic cleaning results.
- **Drainage & Cooling Fan (6L+):** 6L and larger models include a bottom-drain valve for in-place solution change without tank removal, and an integrated cooling fan for thermal management during continuous industrial ultrasonic cleaning production.
- **Ergonomic Handles (Large Models):** Larger tank models are equipped with side-mounted ergonomic handles for safe two-handed lifting and positioning, essential for safe handling of heavy fluid-filled cleaning baths in workshop environments.
- **Skid-Proof Rubber Feet:** All models feature non-slip rubber feet that prevent the unit from moving during high-power ultrasonic cleaning cycles, ensuring safe and stable operation on workshop benches and laboratory counters.
- **Wide Capacity Range (1.3–27L):** Nine tank sizes from 1.3L to 27L provide the flexibility to select the exact capacity for the application, from compact countertop ultrasonic cleaning of jewelry and glasses to larger parts cleaning for industrial ultrasonic cleaner applications.
- **1–99 Minute Timer:** Wide digital timer range from 1 to 99 minutes supports both quick cleaning cycles for lightly soiled items and extended ultrasonic cleaning programs for heavy industrial contamination removal.

Theory & Ultrasonic Cleaning Method

Ultrasonic cleaning is based on the physical phenomenon of acoustic cavitation. When high-frequency sound waves typically 40 kHz are transmitted through a liquid cleaning solution, they generate millions of microscopic vacuum bubbles that form and violently implode at rates corresponding to the ultrasonic frequency. Each implosion releases an intense local jet of energy reaching temperatures of several thousand degrees Celsius and pressures exceeding 500 atmospheres but only at a microscopic scale, ensuring the parts being cleaned are unaffected by thermal or mechanical shock.

This cavitation process is the core mechanism of all ultrasonic cleaning. The energy released by each collapsing bubble penetrates into surface pores, blind holes, threads, crevices, and complex geometries that brushes, sprays, and manual wiping methods simply cannot reach. Contaminants including oils, greases, flux residues, machining chips, polishing compounds, biological debris, fingerprints, and corrosion products are dislodged from the substrate surface and dispersed into the cleaning solution, leaving a thoroughly clean part surface in a fraction of the time required by conventional methods.

The heating function complements cavitation by reducing the viscosity of oily contaminants, improving the solubility of cleaning chemistry, and accelerating the overall cleaning reaction. The degas function (where available) purges dissolved gases from the cleaning solution during the initial warm-up phase, improving cavitation intensity and ensuring optimal ultrasonic cleaning performance from the first cycle.

Ultrasonic Cleaning Process Steps

1. Solution Preparation — Fill the tank with an appropriate water-based cleaning solution or solvent compatible with the parts being cleaned. Add recommended cleaning chemistry at the manufacturer-specified dilution ratio.

- 2. Pre-Heat (if required)** — Activate the heating function and set the target temperature. Allow the bath to stabilize before loading parts to ensure consistent cavitation intensity.
- 3. Degas (if available)** — Run the degas cycle to purge dissolved gases from the cleaning solution, maximizing cavitation efficiency and cleaning effectiveness from the first production run.
- 4. Load & Run** — Submerge parts in the basket or cleaning cradle, ensuring all surfaces are exposed to the cleaning solution. Set the timer and activate the ultrasonic transducers.
- 5. Rinse & Dry** — Remove parts and rinse with clean water to remove residual cleaning chemistry and loosened contaminants. Dry with compressed air or a clean cloth as appropriate.

TECHNICAL SPECIFICATIONS

Compact Ultrasonic Cleaner - ToronUC™ S Series Technical Specifications

Model	Tank Size L×W×H (mm)	Unit Size L×W×H (mm)	Volume (L)	US Power (W)	Freq. (kHz)	Heating Power (W)	Timer (min)	Temp. (°C)
ToronUC™ 1S	150×140×65	190×170×185	1.3	50	40	100	1-99	0-80
ToronUC™ 2S	150×140×100	190×170×220	2	50	40	100	1-99	0-80
ToronUC™ 3S	240×140×100	270×170×240	3	100	40	100	1-99	0-80
ToronUC™ 6S	300×155×150	330×180×310	6	150	40	300	1-99	0-80
ToronUC™ 9S	300×240×150	330×270×310	9	200	40	300	1-99	0-80
ToronUC™ 10S	505×135×150	530×165×310	10	200	40	400	1-99	0-80

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ToronUC™ 13S	330×300×150	360×330×310	13	300	40	400	1-99	0-80
ToronUC™ 20S	500×300×150	550×330×310	20	400	40	500	1-99	0-80
ToronUC™ 27S	500×300×200	550×330×360	27	500	40	500	1-99	0-80



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