Elma®
Laboratory





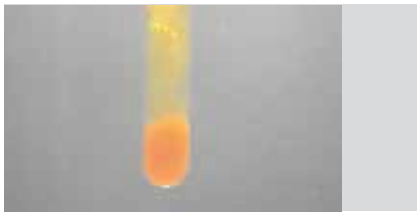
Solutions for the laboratory – designed for professionals

Elmasonic ultrasonic technology for the analytical, pharmaceutical and industrial laboratory

State-of-the-Art Technology

Equipment designed for laboratory applications

Open communication and constructive dialogue are the basis for innovations.



Dissolving and homogenising

of hardly soluble substances for analytical purposes or for the production of analytical substances.

Elma – the specialists for ultrasonic technology work in close cooperation with the customers to develop new solutions for laboratory applications, such as analysing, sample processing and cleaning of laboratory instruments. The range of our ultrasonic units is optimized for the use in laboratories. The Elma units are indispensable both for research and for the practical use in the lab to find solutions for problems and to get reproducible test results.

Elma offers various different types of ultrasonic cleaners. Each series consists of units of different sizes. They are designed for special applications and meet the requirements of the everyday work in a lab.

Practical accessories facilitate the handling, and specialized additional equipment expand the range of possible applications, e.g. for sieve cleaning.

The cleaning of laboratory glassware and laboratory instruments is a crucial task in any lab. Elma offers a special programme of chemical cleaners which can be used both in ultrasonic units and in laboratory rinsing automats.

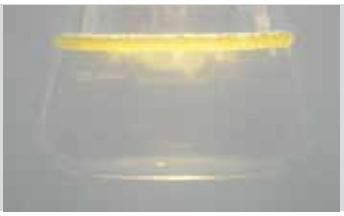
The use of Elmasonic ultrasonic units combined with elma lab clean chemicals guarantees a high degree of efficiency and excellent environmental compatibility.

elma lab clean cleaning solutions
Solutions for the laboratory
see page 9

Elmasonic S 150
specialised laboratory Elmasonic S unit

Degassing

for the reliable removal of gas from samples (e.g. for the removal of carbon dioxide) or for the degassing of HPLC solvents in the analytical lab.



Emulsifying

of two liquids that are not ordinarily mixable, e.g. oil in water.

Dispersing

of substances that are not ordinarily mixable; generally solid substances in liquid, e.g. pigments in water.

Cleaning

of laboratory glassware or laboratory instruments, even in joints of articulated components and in hollow bodies.
A special application is the cleaning of analytical sieves. Combined with elma lab clean chemicals this is an environment-friendly application.

Elmasonic S

Approved standard ultrasonic technology with the most important laboratory functions degassing, dissolving and cleaning

The Elmasonic S units are available in 13 different sizes and have all the technical features that are indispensable for modern everyday laboratory applications. The materials used and the elaborate technology prolong the service life of the units. The design is functional and operation is intuitive and easy.

The basis for the optimised ultrasonic performance are the 37 kHz transducer systems. The intelligent generator automatically adjusts itself to the filling level and transmits the required ultrasonic power safely into the liquid.

Typical laboratory applications such as dissolving, emulsifying or dispersing are carried out reliably and thoroughly in the powerful units. The special Degas mode allows quick degassing of HPLC solvents, and the Sweep mode helps to get perfect cleaning results. In Sweep mode the "electronic oscillation" cleans the immersed items independent of the filling level, and the ultrasonic power is the same throughout the tank.

The features

- Electronic timer and temperature control
- Performance transducers
- Heating safe to run dry
- Quick degassing (Degas/Autodegas)
- Electronic sound field oscillation (Sweep)
- Temperature-controlled Autostart

Elmasonic S 30
with basket and cover

Technical data

		S 10 / H	S 15 / H	S 30 / H	S 40 / H	S 60 / H	S 70 / H	S 80 / H	S 100 / H	S 120 / H	S 180 / H	S 300 / H	S 450 H	S 900 H
Tank max. Volume	litre	0.8	1.75	2.75	4.25	5.75	6.9	9.4	9.5	12.75	18	28	45	90
Tank service volume	litre	0.2	0.5	0.7	1.0	1.5	1.8	2.4	2.5	3.4	4.7	7.4	11.9	23,8
Tank internal dimensions	W x D x H mm	190x85x60	151x137x100	240x137x100	240x137x150	300x151x150	505x137x100	505x137x150	300x240x150	300x240x200	327x300x200	505x300x200	500x300x300	600x500x300
Unit external dimensions	W x D x H mm	206x116x178	175x180x212	300x179x214	300x179x264	365x186x264	568x179x214	568x179x264	365x278x264	365x278x321	390x340x321	568x340x321	615x370x467	715x570x467
Weight	kg (ca.)	2.0	2.1	3.3	4.0	5.1	5.6	6.4	5.9	7.5	8.5	11.0	25	45
Ultrasonic frequency	kHz	37	37	37	37	37	37	37	37	37	37	37	37	37
Ultrasonic peak power max. *1)	W	240*2)	280*2)	320*3)	560*3)	600*3)	600*3)	600*3)	600*3)	800*3)	800*3)	1200*3)	1600*3)	3200*3)
Heating power	W	0 / 60	0 / 60	0 / 200	0 / 200	0 / 400	0 / 600	0 / 600	0 / 400	0 / 800	0 / 800	0 / 1200	1600	2000
Power consumption total	W	30 / 90	35 / 95	80 / 280	140 / 340	150 / 550	150 / 750	150 / 750	150 / 550	200 / 1000	200 / 1000	300 / 1500	2000	2800
Sweep		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Degas / Autodegas		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Carrying handles		no	no	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Drain duct / diameter	inch	no	no	3/8″	3/8″	3/8″	3/8″	3/8″	3/8″	3/8″	3/8″	3/8″	1/2″	1/2″
Order number														
with heating *4)	220-240 Vac	100 1214	100 2060	100 1955	100 2006	100 2238	100 2140	100 2170	100 2279	100 2825	100 2877	100 3033	100 3908	100 3946
without heating *4)	220-240 Vac	100 5507	100 4626	100 4631	100 4635	100 4643	100 4650	100 4652	100 4655	100 4658	100 4662	100 4669	–	–
Accessories:														
Basket internal dimensions	W x D x H mm	177x73x30	112x103x50	198x106x50	190x105x75	255x115x75	465x106x50	455x106x75	255x200x80	250x190x115	280x250x115	455x250x115	455x270x194	545x450x250
Basket mesh size	mm	7x1	7x1	7x1	7x1	9x1	9x1	9x1	9x1	9x1	9x1	9x1	9x1	16x1,2
Basket loading	kg	1	1	1	3	5	5	5	6	7	8	10	20	30

*1) The choice of the waveform has been matched to the relevant tank size.
*2) Impulse waveform.
*3) Standard sine-wave modulation.
*4) Units also available with 100–120 VAC (except S 450 H & S 900 H).

Elmasonic S series
units available in 13 different sizes

Elmasonic P

Ultrasonic multi-frequency units with extra strong power, exceptionally silent, the right solution for every laboratory

Digital display, self-explanatory indication of all values, clear arrangement of set and actual values, very easy operating with all parameters in view: that's the Elmasonic P series, professional units for the laboratory.

Two frequencies (interchangeable) in one unit:
37 kHz – for coarse contaminations, for dissolving, mixing, dispersing and degassing.
80 kHz – silent, perfect for quiet work places, extended operating time, ideal for the cleaning of hollow bodies, e.g. capillaries.

Features

- Standard mode – for laboratory applications such as mixing, dissolving, dispersing
- Pulse mode – activatable extra power, approx. 20 % more power through increased ultrasonic peak
- Sweep mode – for an even distribution of the ultrasonic power throughout the unit
- Degas mode – for the quick degassing of samples or HPLC solvents
- Power regulation – for sensitive surfaces the ultrasonic power can be reduced

Additional features

- Pause – interrupts the current application
- Temperature-controlled Auto Start – starts the ultrasound automatically when the set temperature is reached

Normal

Pulse

Sweep

Degas

Technical details

	P 30 H	P 60 H	P 70 H	P 120 H	P 180 H	P 300 H
Tank max. capacity (litre)	2.75	5.75	6.9	12.75	18.0	28.0
Tank internal dimensions W/H/D (mm)	240x137x100	300x151x150	505x137x100	300x240x200	327x300x200	505x300x200
Unit external dimensions W/H/D (mm)	300x179x221	365x186x271	568x179x221	365x278x321	390x340x321	568x340x321
Basket (accessory) internal dim. W/H/D (mm)	198x106x50	255x115x75	465x106x50	250x190x115	280x250x115	455x250x115
Voltage (V)	115-120 220-240	115-120 220-240	115-120 220-240	220-240	220-240	220-240
Power consumption total (W)	320/300	580/550	820	1130	1130	1580
Ultrasonic frequency	37/80	37/80	37/80	37/80	37/80	37/80
Ultrasonic power effective (W)	120 / 100	180 / 150	220	330	330	380
Ultrasonic peak power (W)	480 / 400	720 / 600	880	1320	1320	1520
Sweep	integrated	integrated	integrated	integrated	integrated	integrated
Pulse	activatable	activatable	activatable	activatable	activatable	activatable
Heating power (W)	200	400	600	800	800	1200
Drain duct V4A (")	3/8	3/8	3/8	3/8	3/8	3/8

Elmasonic P, available in 6 different sizes

Accessory laboratory equipment and cleaning chemicals

The right accessories for perfect results

In an analytical laboratory there are multiple different requirements for various laboratory applications and cleaning. The ultrasonic unit can be used for dissolving, emulsifying or degassing and it is also indispensable for various cleaning jobs.

Practical accessory equipment optimizes and facilitates all possible applications. The Elma accessory product range contains a large number of useful equipment, from glass beaker holders (including cover with holes) to specialized holders for flasks, immersion cooling devices (to keep temperatures at a constant level) or acid-resistant tubs. With the aid of these elaborate helpers, almost any laboratory job can be done easily and quickly.

Noise protection in the laboratory

Noise is becoming more and more an issue in everyday laboratory work. With units of the Elmasonic P series, a large amount of laboratory jobs can be carried out using the high 80 kHz frequency. The extended application time is more than compensated by the exceptionally silent operation.

For applications requiring high power the units can be operated at 37 kHz. If the noise is inacceptable the unit can be placed in a noise protection box. Two different sizes are available.

A unit operating in a noise protection box is on average 3 to 4 times less noisy (dBA level) than when operated outside the box. The vapours produced during operation are carried off through a noise-reduced exhaust outlet. The hinged cover has a large window so that the display and if necessary the tank can be monitored with closed cover. Due to the ventilation system the window does not steam up on the inside.

elma lab clean

Cleaning solutions for the laboratory

- Powerful cleaning concentrates from acid to alkaline
- Suitable for the chemico-analytical and biological laboratory and for tenside-free special applications in measuring analysis
- Universally applicable in ultrasonic units and for splash and spray cleaning in laboratory rinsing automats

Contamination	Surface material	Product (type of cleaning solution)	pH value (concentrate)	Dosing suggestion	Recommended temperature	Ultrasound	Rinsing automat	Additional information	Package sizes
Blood, saliva, protein, bone and tissue residues, fat, oil, abrasives and polishing media, glass grease, resinified and tarish residues, marker, labels, fingermarks, dust.	Medical and laboratory instruments made of alkali-resistant glass, porcelain, ceramics, metals, alkali-resistant plastics. Not suitable for Al, Mg and light metal alloys.	elma lab clean A25 (alkaline)	~14	Ultrasound: ca. 1-2% Spray cleaning: ca. 0.5-1%	Ultrasound: 50-75°C Spray cleaning: >55°C	×	×	prevents redeposition of lime soaps	1l 2.5l 10l 25l
Light fat and grease, lime soap residues, fingermarks, dust.	Laboratory instruments for volumetric measuring analysis (pipettes, burettes, measuring cylinders) made of glass, stainless steel, ceramics and plastics. Not suitable for Al, Mg and light metal alloys.	elma lab clean A20sf (mild alkaline)	11.5	Ultrasound: ca. 1% Spray cleaning: ca. 0.5%	Ultrasound: 50-75°C Spray cleaning: >55°C	×	×	tenside-free, prevents redeposition of lime soaps	1l 2.5l 10l 25l
Emulsions, fat and grease, dust, glass grease, resinified residues, marker, labels, lime soaps and lime deposits	Laboratory instruments made of glass, porcelain, ceramics, plastics, metals. Check Al, Mg and light metal alloys before application.	elma lab clean A10 (mild alkaline)	11.3	Ultrasound: ca. 1-2% Spray cleaning: ca. 0.5-1%	Ultrasound: 50-75°C Spray cleaning: >55°C	×	×	prevents redeposition of lime soaps	1l 2.5l 10l 25l
Emulsions, residues of marker and labels, Ca and Mg bound contaminations (lime soaps), light oil and grease, fingermarks, dust.	Laboratory instruments made of glass, porcelain, ceramics, plastics, metals incl. Al and light metal alloys. Check Mg alloys before application.	elma lab clean N10 (neutral)	8.2	Ultrasound: ca. 2% Spray cleaning: ca. 1%	Ultrasound: 30-75°C Spray cleaning: >55°C	×	×	prevents redeposition of lime and lime soaps	1l 2.5l 10l 25l
Ca and mg bound contaminations (lime, lime soaps), nonferrous metal oxides, light mineral oil and grease, fingermarks, dust.	Laboratory instruments made of glass, porcelain, ceramics, plastics, metals incl. aluminum alloys. Check Mg alloys and acid-sensitive glass before application.	elma lab clean S10 (mild acid)	2.5	Ultrasound: ca. 1% Spray cleaning: ca. 0.5%	Ultrasound: 50-75°C Spray cleaning >55°C	×	×	prevents redeposition of lime and lime soaps	1l 2.5l 10l 25l
Ca and Mg bound contaminations (lime, lime soaps), metal oxides (rust), flux media, anorganic residues, mineral oil and grease, fingermarks, dust.	Laboratory and medical instruments made of glass, ceramics, plastics, metals. Not suitable for Al, Mg and light metal alloys. Check acid-sensitive glass and plastics before application.	elma lab clean S20 (strong acid)	<1	Ultrasound: ca. 1-2% Spray cleaning: ca. 0.5%	Ultrasound: 50-80°C Spray cleaning: >55°C	×	×	prevents redeposition of lime and lime soaps	1l 2.5l 10l 25l

Elmasonic S 50 R – laboratory sieve cleaning

Only clean sieves will provide safe analysing results

Sieve analysis is a standard process in the analytical, the food and the environmental laboratory and works perfectly if the sieves are cleaned to the last grain.
Elma has a special unit on offer, both for the intensive cleaning of individual sieves and for the simultaneous processing of up to 4 sieves. Special ultrasonic modes provide perfect cleaning results independent of the filling level.

Sieve cleaning and HPLC solvent degassing in one unit

For sieve cleaning, the sieve is placed in the sieve holder and then put into the unit. The special "sieve cleaning" programme uses two ultrasonic modes alternatingly which creates strong active cleaning pulses regardless of the filling level.
The process can be standardized and repeated as required which makes it ideal for defined laboratory applications.
For the use in a food laboratory it may be required to apply a cleaning medium which can be rinsed off without residues. For this purpose elma lab clean N10 is reliable and well proven (no dangerous good).

HPLC solvent degassing

Degassing in the Elmasonic S 50 R is very efficient and noise-reduced.
The Degas mode alternates between maximum power and a special operating mode which moves the macroscopic bubbles up and out of the liquid in a lift-out effect.
The unit has an integrated laboratory stand connection to avoid the unpleasant noisy rattling of the glass on the tank floor.

Elmasonic S 300 and sieve cleaning module SRH 4/200

The quality of a cleaning result can be measured

In sieve analysis several sieves are used simultaneously. With the rotating module the throughput can be increased.
The sieves are placed into a universal support rack. The baskets rotate during cleaning and the inclination of the sieves ensures that the removed grains fall out of the sieves automatically.

- Time and cost saving intensive cleaning of up to 4 analysing sieves D 200 / 203 mm, 8"
- Sieves of different manufacturers can be processed simultaneously
- Gentle ultrasonic cleaning (as opposed to rough manual cleaning), tension of the tissue and mesh size are not changed; the measuring accuracy remains 100% unaltered.

Residual dirt analysis and special applications

The right equipment for correct analyses

Cover with hole, made of PP

Elma plastic tub, made of PP

Elma stainless-steel cover with holes

Test tube rack

For the residual dirt analysis the particles must be removed from the test item before the actual analysis is carried out. Ultrasound with its predefined parameters is a suitable and cost-saving method for this. After removal the dirt particles are filtered and analysed. The right ultrasonic units with thought-through accessories are crucial for a successful analysis. For residual dirt analysis Elma offers the Elmasonic S 120.

To prevent a recontamination two glass beakers are inserted in the PP cover. The ultrasound is transmitted through the liquid in the tank.

Cooling and keeping the temperature at a constant level with the modular cooling coil system

For many laboratory applications the temperature in the bath needs to be kept constant or must even be cooled down.

The cooling coil can be easily mounted into any of the Elmasonic S or P units. It takes less than 10 seconds to fit it into the tank between the basket and the tank wall. For larger tanks, two or more cooling coils can be combined. The cooling coils is connected to a customer-provided laboratory cryostat or to the tap water system.

Elmasonic P with cooling coil

Elmasonic X-tra 30 / 50 / 70 / 150 with single frequency ultrasound

Ultrasonic units with extra long service lives for highest demands

In industrial laboratories, materials and products are analysed for quality assurance purposes both for the inspection of incoming items and for the pre-delivery inspection of manufactured products. For this Elmasonic S and Elmasonic P units are used.
For research and development, additional inspections of technical products and semi-manufactured parts are carried out on a daily basis. For this Elma has designed the Elmasonic X-tra units.

The features

- Long service life and extended warranty period of 3 years on the tank due to the special cavitation-proof stainless steel
- Sweep, for an optimized sound field distribution
- Powerful, additional transducer elements
- High heating power for short heating times, safe to run dry
- Two cleaning levels: powerclean or softclean
- Splash-water protected operating panel for the use under rough conditions

Elmasonic TI-H with multi-frequency technology

Specialised Elma units for the multiple requirements in terms of power, permanent operation or different frequencies in the industrial laboratory and for simulation purposes in the technical centre

Elmasonic TI-H units with multi-frequency technology available in 4 different sizes

The features

- two ultrasonic frequencies for intensive and gentle cleaning, interchangable, two different models available: MF2 and MF3
  frequencies MF2: 25/45 kHz
  frequencies MF3: 35/130 kHz
  or single frequency 35 kHz
- multi-frequency model 25/45 kHz:
  25 kHz for the coarse cleaning and removal of lapping and polishing media
  45 kHz for the fine cleaning and removal of oil and grease
  Perfect for hard metal and glass surfaces in industry, handicraft and jewellery manufacturing, only hard precious stones
- multi-frequency model 35/130 kHz:
  35 kHz for the removal of oil and grease from hard metal and glass surfaces and from hard precious stones
  130 kHz for the cleaning of sensitive surfaces in jewellery and electronics manufacturing
- Degas mode for the efficient degassing of the cleaning liquid
- Sweep mode for the optimised sound field distribution
- adjustable ultrasonic power
- transducer tanks made of special robust stainless steel, for tough applications and for an extended service life
- timer, ultrasonic operation can be set to periods between 1 and 15 min

Elmasonic TI-H 10 with multi-frequency technology 25/45 kHz and cover with holes

Elmasonic X-tra pro Flex 1 and 2 with rinsing station

Ultrasonic stationary floor units as single unit, as Flex combination optional with rinsing station

Cleaning unit

Rinsing unit

Hot air dryer

Elmasonic X-tra pro Flex 2

The Elmasonic X-tra Line Flex 1 and Flex 2 with rinsing tank presents a professional solution with perfect cleaning results for pre-productional stages in the industry or for smaller production quantities.

- 5 different unit sizes in 2 multi-frequency versions: 25/45 kHz or 35/130 kHz
- LCD display for setting and indication of all parameters, 5 additional programmes can be set up individually by the customer
- ultrasonic power regulation
- Pulse mode for an increase of the ultrasonic peak power
- Degas mode for a quick degassing
- Overflow basin for the surface skimming of floating dirt particles and oil

The units can be arranged to form customised cleaning lines, both with manual and fully automatic operation.
Please contact us and ask for our industrial catalogue.

Elmasonic X-tra pro Flex 1 with shower rinsing device

We about us

Ultrasonic Cleaning Technology · Industrial Cleaning Technology · Appliances · Cleaning Media & Procedures

The name Elma represents quality and know-how in all sectors where cleaning processes and cleaning technology are required – and it has done so for more than 50 years now. The heart of the company's success is the ultrasonic technology.

The Elma product range for ultrasonic cleaning is the largest worldwide, both with regard to serial units and to standardised and special cleaning lines. Based on its long-term experience, its innovative development and the specialised know-how, Elma manufactures and supplies top of the range technology for all sorts of cleaning jobs. This is what has made Elma famous as supplier of problem solutions all over the world, even for the most crucial cleaning tasks. But the high quality standard does not end with developing and manufacturing equipment and installations: our perfect service and round-the-clock technical support complete the excellent general picture.

The cleaning chemicals, developed for various cleaning purposes in our own laboratory, are another Elma product.
Today, Elma employs over 200 people; we are certified according to DIN EN 9001 and stand for reliability and cooperation with our customers.
"Made by Elma Germany" – that's the underlying principle which guarantees motivation, precision, quality and a constant enthusiasm for new developments.

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