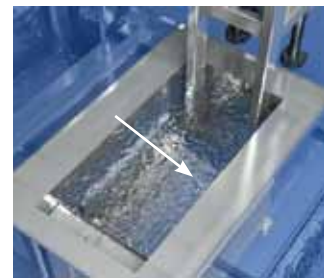
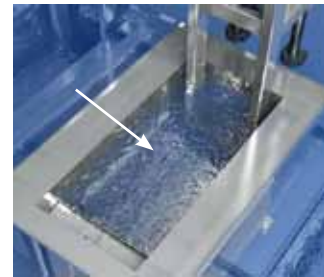
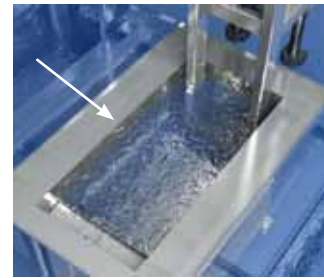




Elmasonic XL stand-alone units for the industrial parts cleaning with controlled cavitation zones between opposite side-sound transducers

improved ultrasonic distribution – better results – faster processes



Phase control

Elmasonic XL

- large ultrasonic units available in 3 sizes from 120 l up to 270 l
- ideal for removing polishing pastes, particles, fats and oils
- high ultrasonic cleaning power with floor-mounted ultrasonic transducers, or with transducers mounted to 2 or 3 sides
- multifrequency for coarse and fine cleaning applications at 25 or 45 kHz
- industrial operating panel with display, clearly arranged and very easy to operate
- controlled cavitation zones: with side-mounted transducers on 2 sides the cavitation zones can be controlled to optimize the distribution of the ultrasonic sound field
- all units equipped with overflow basin for the skimming of floating oils and particles, connection to an oil separator possible
- optional: vertical oscillation device for the basket to compensate for the standing wave generated by the floor-mounted transducers
- very powerful heating elements
- optional: hinged flip-top noise protection cover for the reduction of the ultrasonic noise level
- all units equipped with Pulse mode: sound wave modulation increases the ultrasonic power through varying phase shifts
- Sweep mode for an even distribution of the ultrasonic power
- Degas mode for the quick degassing of fresh cleaning baths

Elmasonic XL – optionally with phase control in units with 2-side ultrasound

Cavitation field control

The two opposite transducer elements are controlled by the Elmasonic generator so that the sound pressure maxima of the horizontal standing wave are shifted from one side to the other. The elements are specially synchronised to communicate with each other and the phase shift is modified so that the energy is evenly distributed throughout the bath. The cavitation zones are controlled and horizontal oscillation is not required.

The sound pressure maxima are moved horizontally through the bath as on a scanner, the speed of this horizontal movement can be adjusted.

In particular flat surfaced cleaning items, such as discs and optics, ought to be positioned perpendicular to the sound-transmitting tank walls. This position allows the most efficient ultrasonic performance with best cleaning results and much shorter cleaning times.

Advantages of the phase control system

More efficient cleaning

The surfaces of cleaning items are cleaned more efficiently and faster by the cavitating bubbles. Ordinary side-mounted ultrasonic transducers create a standing wave with stable maxima and minima. This leads to an uneven cleaning of the immersed surfaces. (In theory, a horizontal oscillation would be necessary. With activated phase control, the electronics take the part of an oscillation by moving cavitating bubble structures horizontally through the bath.)

Faster cleaning

The cleaning period of any application is determined by those spots and contaminations which are most difficult to clean. With phase control, there are no "weak zones" in the bath and the overall cleaning period is considerably reduced when the cleaning surfaces are positioned perpendicular to the sound-transmitting sides.

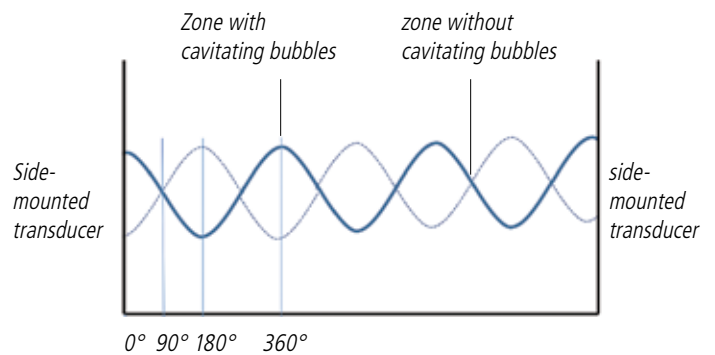
Easier to validate (Process validation)

In order to be valid, processes need to be reproducible and documentable. The even distribution of power in the bath assists the validation processes because it is no longer determined and affected by power minima. The phase control allows a considerably better process validation (see photos of aluminium foil).

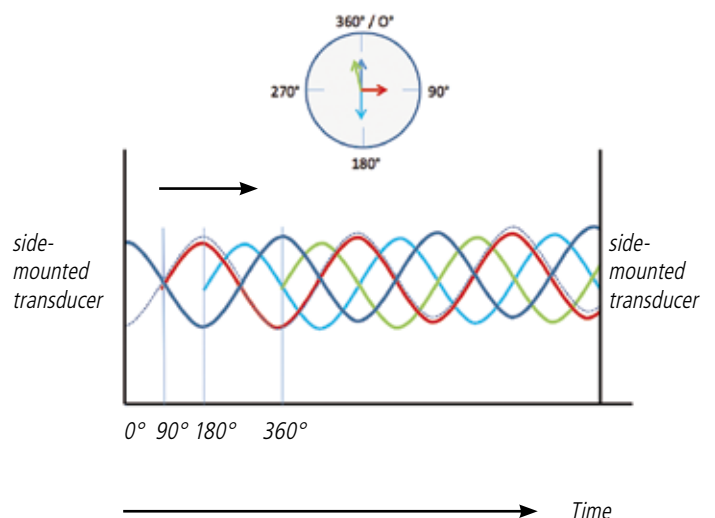


Aluminium foil: side sound without phase control and with phase control

Power distribution with side sound



...with phase control: same power everywhere



Elmasonic XL stand-alone units for the ultrasonic cleaning

In industry, service and workshop not all cleaning jobs are fine cleaning applications. Often, the cleaning items are large, heavyweight and badly contaminated with polishing pastes or oils. For these applications, Elma has designed the new Elmasonic XL units with overflow basin, optionally available surface skimming and strong baskets for heavy loads.

The cleaning items can be placed in a basket or suspended into the bath by a lifting device. The optionally available heavy-load oscillation system is integrated into the unit so that the noise protection cover can be kept closed during operation.

The cover reduces the operation noise and allows safe operation of the unit.

The exceptionally cavitation-proof transducer tanks are particularly long-lasting. All units are equipped with either floor-mounted ultrasonic transducers, with 2-side ultrasound including phase control or with 3-side ultrasound. The intelligent generator control provides the Elma-typical operating modes Sweep and Degas. There is also the Pulse mode which increases the peak performance by way of sound wave modulation, which is perfect for the removal of polishing pastes.

The units are available in 3 different sizes both as ultrasonic and as rinsing tanks. When arranged as a cleaning line, the units can be operated via integrated BUS control.



Heavy-load oscillation in the transducer tank



Flip-top noise protection cover



Technical details

	XL 1200			XL 1600			XL 2700		
	floor-mounted sound	2-side sound with phase control	3-side sound	floor-mounted sound	2-side sound with phase control	3-side sound	floor-mounted sound	2-side sound with phase control	3-side sound
Capacity	140,8	140,8	140,8	192,5	192,5	192,5	305	305	305
Voltage	400 V	400 V	400 V	400 V	400 V	400 V	400 V	400 V	400 V
Ultrasonic power effective	2000 W	3200 W	3000 W	2000 W	4000 W	4000 W	3000 W	4000 W	4000 W
Sweep	yes			yes			yes		
Pulse	yes			yes			yes		
Heating power	5800 W	5800 W	5800 W	8700 W	8700 W	8700 W	10500 W	10500 W	10500 W
Heating type	tube-shaped heating elements			tube-shaped heating elements			tube-shaped heating elements		
Internal dimensions (mm)	580 x 450 x 450			780 x 400 x 520			780 x 600 x 550		
Overflow capacity (litre)	15			21			32		
Basket internal dimensions WxLxH (mm)	464 x 368 x 296			664 x 318 x 354			664 x 518 x 354		
Unit external dimensions WxLxH (mm)	940 x 815 x 1020			1180 x 765 x 1020			1180 x 965 x 1020		
Max. basket load (with and without oscillation)	100 kg			100 kg			100 kg		

Accessory equipment: rinsing tank, flip-top noise protection cover, cover, basket, drain duct, showering device, further accessories on request

