

## Different Cleaning Transducers



## Ultrasonic transducers (IBLT types)

- Highest mechanical quality factor (highest efficiency and minimal heat dissipation)
- Very low series resonance impedance (lower driving voltage), and very high parallel resonance impedance (low losses)
- Stable and durable under severe working environment and elevated temperature
- Made of high grade stainless steel, highest quality aluminum and high density PZT

Here are two of the most widely used, excellent qualities cleaning transducers (already sold in millions of pieces): 28 kHz and 40 kHz, 50 Watts:

## 28 kHz, cleaning transducers: MPI-C-28



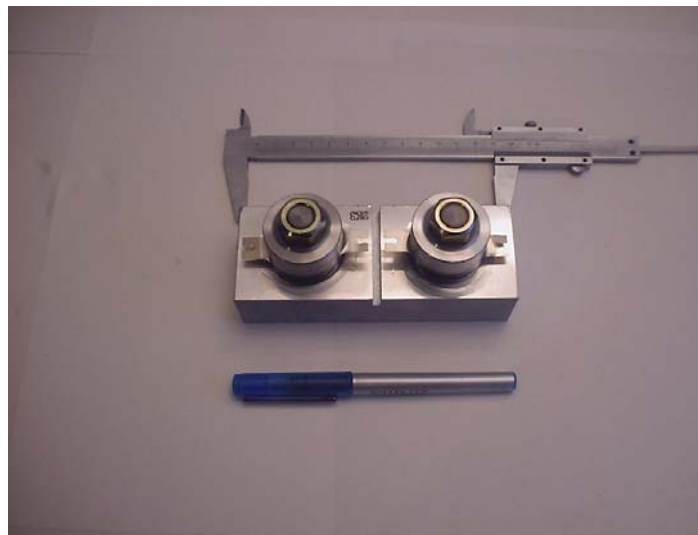
Total axial length = 80 mm,  
Front mass diameter = 45 mm  
Back mass diameter = 35.5 mm  
Central operating frequency: 28 kHz  
Continuous operating power: 50 Watts  
Best results will be achieved with MMM power supplies  
Good for applications in MMM technology, and in constant frequency applications  
MPI-C-28 is the general use cleaning and liquid processing transducer

## 40 kHz, cleaning transducers: MPI-C-40



Total axial length = 48 mm,  
 Front mass output-diameter = 50 mm  
 Back mass diameter = 38.5 mm  
 Central operating frequency: 40 kHz  
 Continuous operating power: 50 Watts  
 Best results will be achieved with MMM  
 power supplies  
 Good for applications in MMM technology,  
 and in constant frequency applications  
 MPI-C-40 is the general use cleaning and  
 liquid processing transducer

## Wideband, cleaning transducers: MPI-C-4090M & MPI-C-2575M



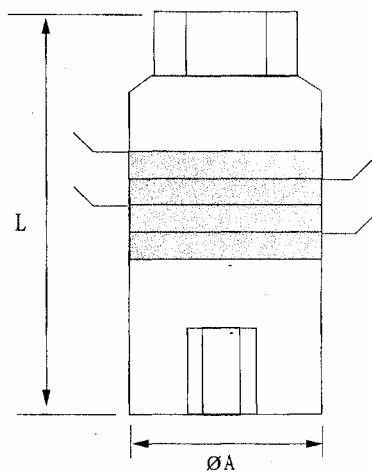
**MPI-C-4090M & MPI-C-2575M, general use cleaning and liquid processing transducers**  
 Good for applications in MMM technology, and in constant frequency applications  
 MPI-C-4090M, operating frequency range without MMM: 40 to 90 kHz  
 MPI-C-2575M, operating frequency range without MMM: 25 to 75 kHz  
 Continuous operating power: 100 Watts  
 Best results will be achieved with MMM power supplies

## Different Welding Transducers

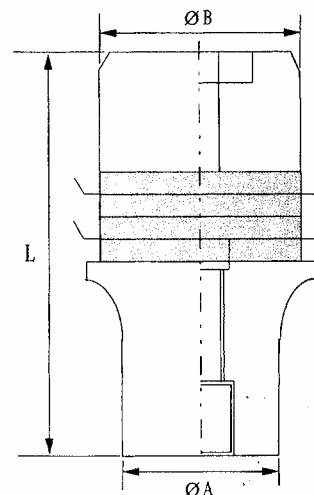


### Specification for ordering

SPECIFICATION		MODEL	7015 -4PL	6015 -4PL	5020 -4PL	6015 -4PS	5020 -4PS	3020 -2PLF	3028 -2PL	3540 -2PS
MECHANICAL SPEC	DIAMETER (mm)		70	60	50	60	50	30	30	35
	TOTAL LEIGHT (mm)		166	164	128	146	115	132	92	66
	WEIGHT (gr)		2560	1900	980	2000	960	310	220	200
	CONNECTION TORQUE (kg. cm)		1100	1000	800	800	600	300	300	200
	CONNECTION TAP		M24 P1.5	M20 P1.5	M18 P1.5	M20 P1.5	M18 P1.5	M10 P1.0	M10 P1.0	M8 P0.8
ELECTRICAL CHARACTERISTICS	NOMINAL FREQ (KHZ)		15	15	20	15	20	20	28	40
	ADMITTANCE (S)		1.180	0.185	0.190	0.389	0.190	0.010	0.050	0.050
	CAPACITANCE (PF)		17000	11000	14000	11000	14000	28000	25000	4000
	MAX INPUT POWER (W)		2400	1800	1400	2200	1500	300	200	200

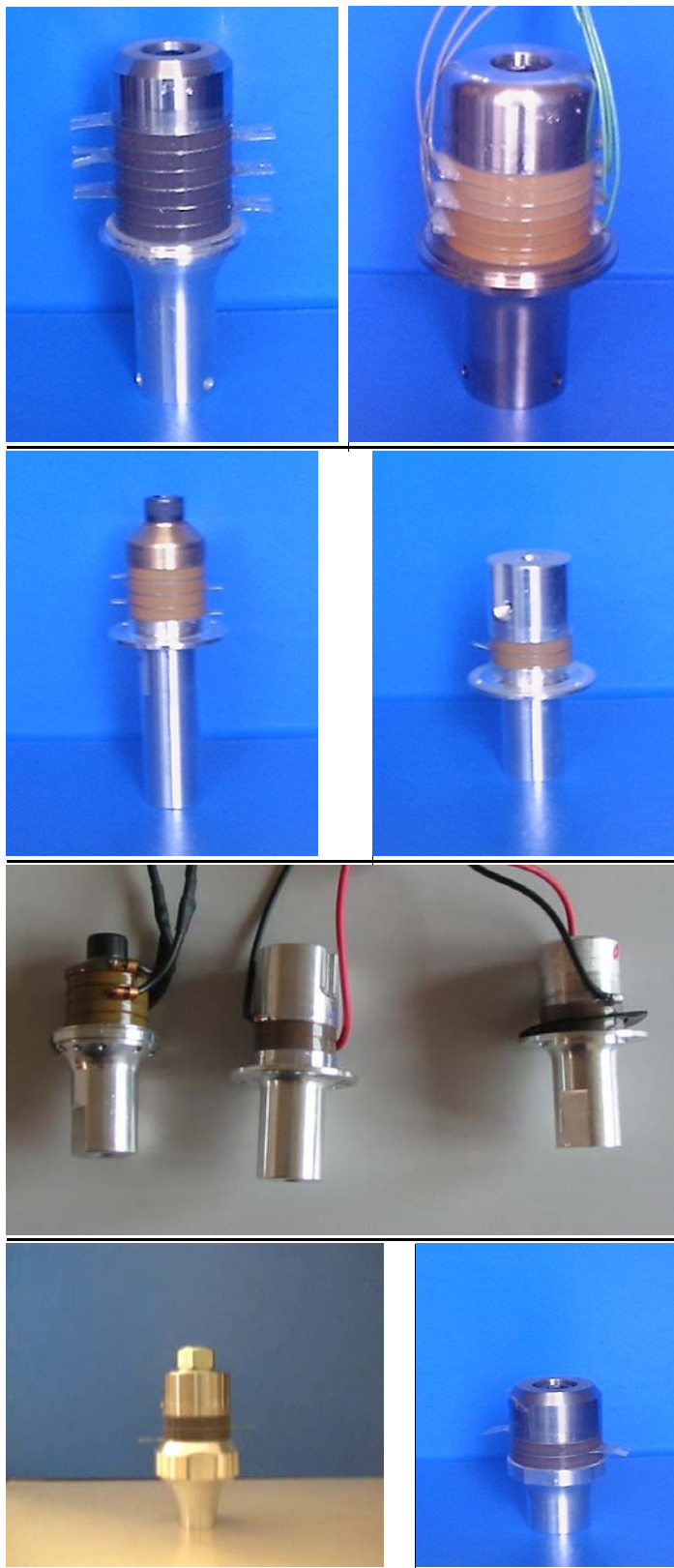


(PL TYPE)



(PS TYPE)

# Custom-made Transducers



## IMMERSIBLE ULTRASONIC TRANSDUCERS

The cleaning results are increased with the effective transducer arrangement  
 Cr-plating increases total operating life and durability against cavitation  
 Uniform ultrasonic energy distribution and excellent cleaning effects  
 Corrosion free and water proof design  
 High quality transducer cases (SUS 306, SUS 316L)  
 Strong transducers' bolt & adhesive type bonding  
 Available frequencies: 24KHz, 40KHz, 68KHz, 80KHz, 120KHz etc.

### Wideband, rectangular boxes, cleaning-transducer arrays: MPI-ITB-28 and MPI-IT-40



General use cleaning and liquid processing transducers. Many models available

MPI-ITB-28: Central operating frequency 28 kHz

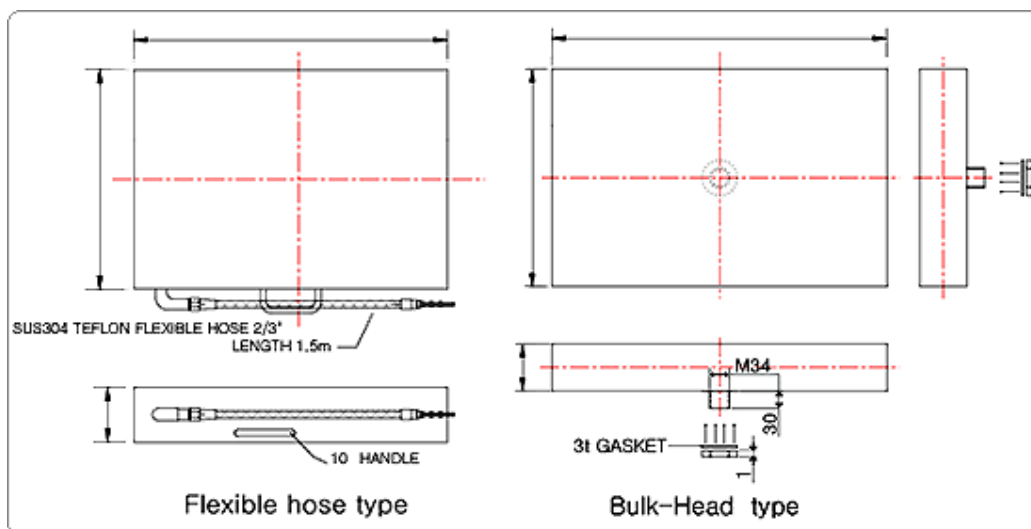
MPI-ITB-40: Central operating frequency 40 kHz

Good for applications in MMM technology, and in constant frequency applications

Continuous operating power: Different models from 300 W to 1500 Watts

Best results will be achieved with MMM power supplies

#### Specification for ordering



MODEL	XIT-4010	XIT-6020	XIT-6021	XIT-1230	XIT-1231	XIT-1232	XIT-1233
POWER	400 watt	600 watt		1200 watt			
DIMENSIONS	190x330	360x280	270x410	290x440	270x490	370x330	400x550
ACTIVE AREA	190x290	360x240	270x370	290x400	270x450	370x290	400x510
MATERIAL	SUS304, Hard-Cr plating (OPTION: SUS316L)						
TRANSDUCERS	8-9 pcs	12-14 pcs		24-28 pcs			

**Wideband, plate, cleaning transducer arrays:**  
**MPI-IPT-28 and MPI-IPT-40**



General use cleaning and liquid processing transducers. Many models available  
 MPI-IPT-28: Central operating frequency 28 kHz  
 MPI-IPT-40: Central operating frequency 40 kHz  
 Good for applications in MMM technology, and in constant frequency applications  
 Continuous operating power: Different models from 300 W to 1500 Watts  
 Best results will be achieved with MMM power supplies

**MMM, wideband, tubular, cleaning transducer arrays:**  
**MPI-ITT-28 and MPI-ITT-40**



General use cleaning and liquid processing transducers. Many models available

MPI-ITT-28: Central operating frequency 28 kHz

MPI-ITT-40: Central operating frequency 40 kHz

Good for applications in MMM technology, and in constant frequency applications

Continuous operating power: Different models from 300 W to 1500 Watts

Best results will be achieved with MMM generators

Excellent for Sonochemistry, Cleaning, Waste Waters Processing, Filtering, Nano Powders Technologies, Catalysts and Free Radicals Creation...

Original and unique design (patent pending),

High density and uniform cavitation, no standing waves (From Hz to MHz)

Since the cavitation occurs uniformly and omni directionally, all around the MMM tube, sonic and ultrasonic energy distribution in the tank is very uniform, creating excellent cleaning and liquid processing effects

Superior and fast cleaning effects

Corrosion free, water proof design

Anti-corrosion (cavitation resistant, 316L & 20 microns hard Cr plating)

MMM (multifrequency) concept prevents creation of standing waves, resulting that the surface-erosion damage is much lower than that of traditional transducers, operating on constant frequency (see about MMM concept at: [www.mpi-ultrasonics.com](http://www.mpi-ultrasonics.com))

## Power Performances

The output power of MMM tubular transducers is not significantly affected by immersion depth, capacity of a bath or sonoreactor, load and liquid temperature variations, pressure...

## Versatility of applications & Installation

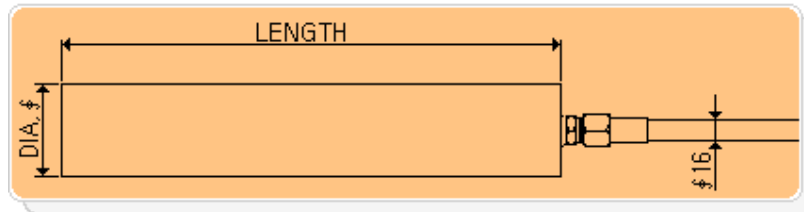
A tubular shape and number of available lengths makes it easy to install or place very simply in every available tank or reservoir. MMM tubular transducer is radiating omni-directionally on its integral external surface, without creating standing-waves inactivity

## Lifetime

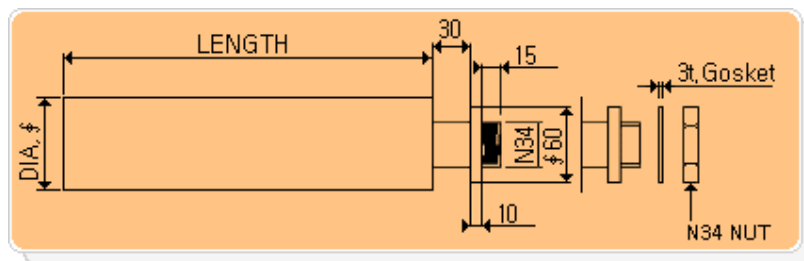
Compared to conventional submersible transducers MMM tubular transducers have several times longer operating life

### Specification for ordering

#### Flexible hose type



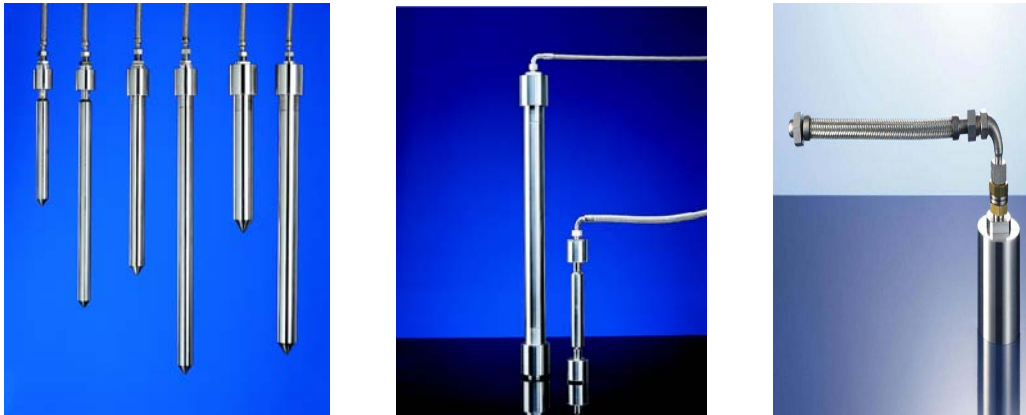
#### Bulk head type



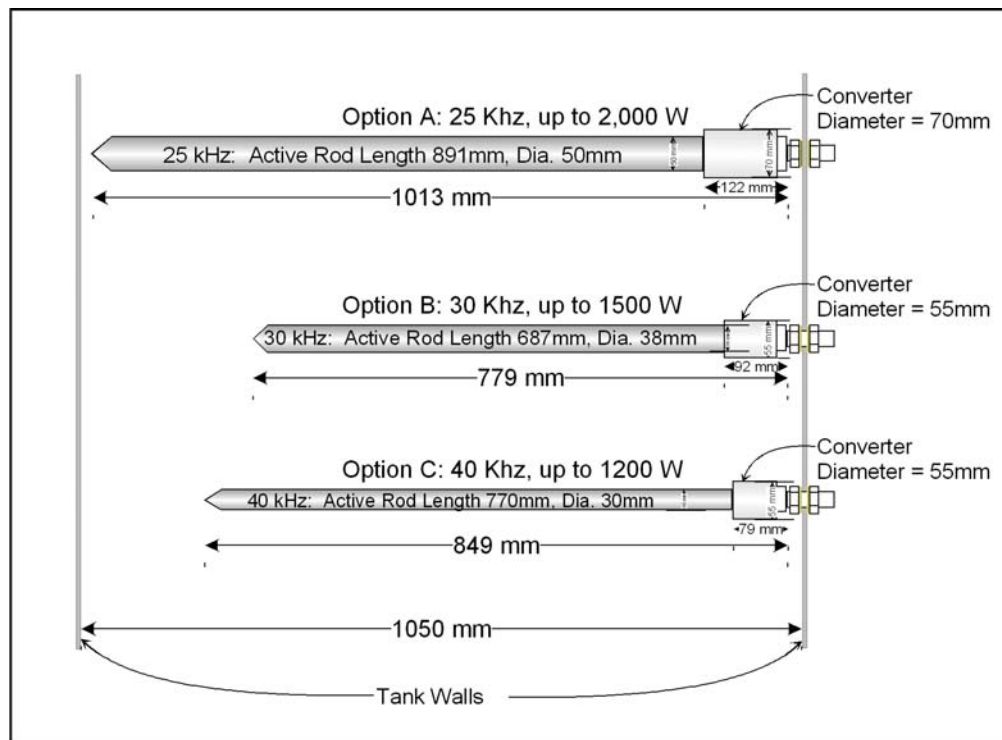
<b>MPI-MODEL</b>	<b>ITT-28-600</b>	<b>ITT-28-900</b>	<b>ITT-28-1200</b>	<b>ITT-28-1500</b>
<b>POWER</b>	600 watt	900 watt	1200 watt	1500 watt
<b>FREQUENCY</b>		28 KHz		
<b>DIMENSION (mm)</b>	$\phi\pm 76.3 \times L310$	$\phi\pm 76.3 \times L460$	$\phi\pm 76.3 \times L580$	$\phi\pm 76.3 \times L680$
<b>MODEL</b>	<b>TU-40-600</b>	<b>TU-40-900</b>	<b>TU-40-1200</b>	<b>TU-40-1500</b>
<b>POWER</b>	600 watt	900 watt	1200 watt	1500 watt
<b>FREQUENCY</b>		40 KHz		
<b>DIMENSION</b>	$\phi\pm 60.5 \times L310$	$\phi\pm 60.5 \times L460$	$\phi\pm 60.5 \times L580$	$\phi\pm 60.5 \times L680$



## SPM, Immersible transducers: (Constant operating frequency)



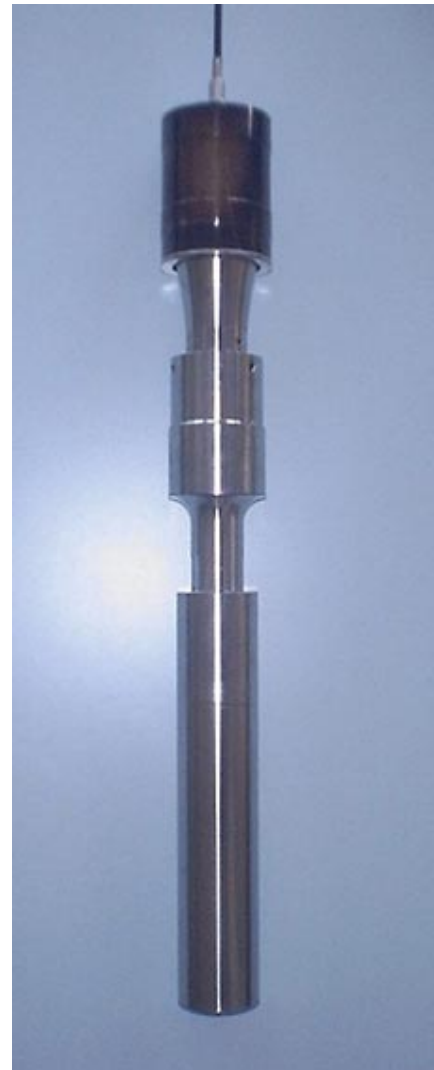
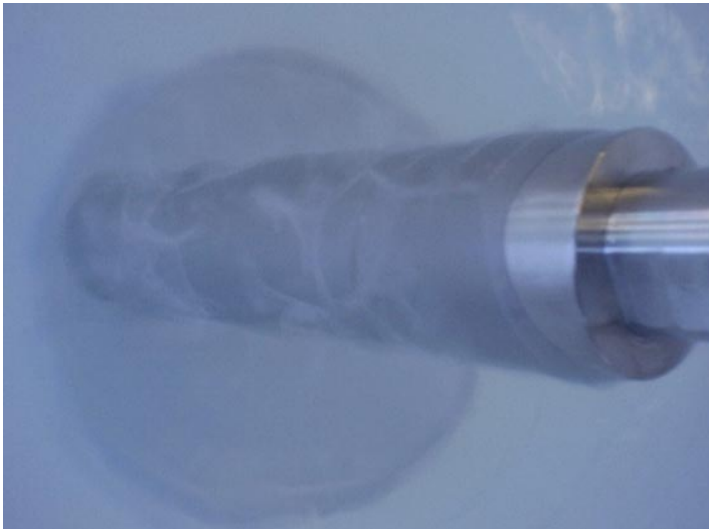
Picture of Converter Housing and Through Tank Wall Mounting Option  
Standard length for external Stainless steel hose is 2.5 meters.



Depicted are 3 available Options.

## High Power Fixed Frequency Piston Probe

- 20 kHz Fixed frequency
- 2,000 watts max
- Booster Ratio 1:2.0
- Fullwave Probe (titanium)
  - Diameter = 50mm
  - Length = 250 mm
- Very high Axial energy produces strong cavitation and acoustic power for mixing, homogenization, flock & particle breakdown.
- New probe design also provides high radial energy for strong cavitation along the probe length.



Power Draw Test: In Water		
Probe Submerged	50% Amplitude	100% Amplitude
Full submerge:	1,000 W	1,500 W
½ Submerge:	600 W	1,000 W
½ Submerge:	600 W	1,000 W
¼ Submerge:	300 W	600 W

## MMM, Sonic & Ultrasonic Liquid Processing

Wideband multifrequency systems for liquid processing, Cleaning and Sonochemistry: MMM technology



### Product Specification/Models

items example(if items is ISB-Y-40)

S - single mode(M : multi mode) BLT

B - bench top, Y - 40kHz(X : 28kHz), 40 - 400W/effective power

ITEMS	Internal Dimension (WxLxH mm)	Overall Dimension (WxLxH mm)	Output Power (Watt)	Fluid Capacity	Heater (Watt)
ISB-Y-40	200x380x250	280x460x360	400	19	220V, 4A/1KW
ISB-Y-60	280x380x300	360x460x410	600	32	220V, 5A/1KW
ISB-Y-80	300x380x410	410x460x510	800	51	220V, 9A/8KW
ISB-Y-100	380x410x460	460x480x560	1000	70	220V, 12.8A/3KW
ISB-Y-120	330x530x510	410x610x610	1200	89	220V, 14A/4KW
ISB-Y-150	430x530x510	510x610x610	1500	117	220V, 18A/5KW
ISB-Y-240	580x530x560	660x610x660	2400	174	220V, 21A/6KW

- Accessories**
- Tank Cover
  - Basket
  - Drain Valve

## MMM, Universal and Wideband Multifrequency Power Supplies for driving all kind of piezoelectric transducers

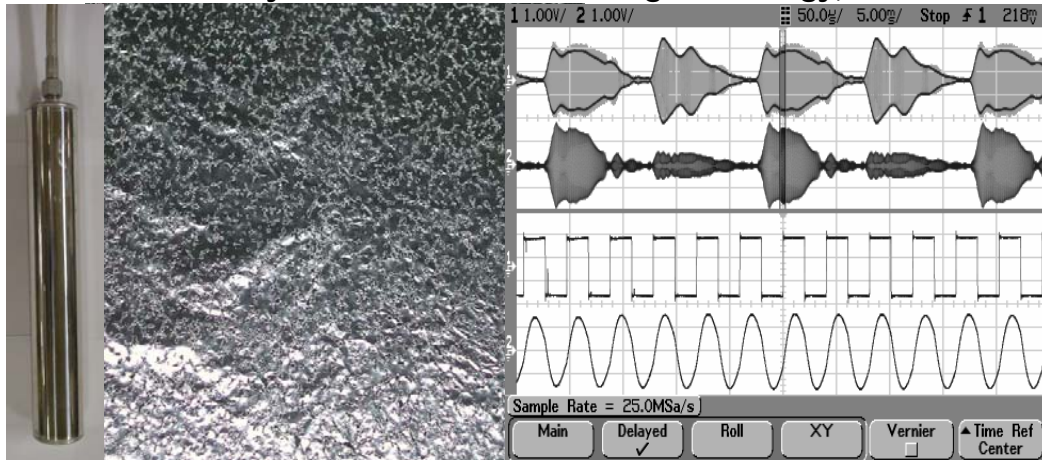
Multiple modulations operation: MMM technology

MMM, Universal Ultrasonic Power Supplies are replacing all other types of constant or sweeping frequency power supplies for driving all kind of piezoelectric transducers, submersible transducers, bench top cleaners, Sonochemical reactors... bringing number of advantages and new options.



### MMM Technology Multifrequency, Multimode, Modulated Sonic & Ultrasonic Technology

- No other manufacturer has yet achieved and matched MMM exciting standards in precision cleaning. MMM is not only more efficient and effective than any other ultrasonic cleaning technology, it is **UNIQUE**.



Perfectly, uniformly perforated aluminum foil, after 5 to 10 seconds of exposure to MMM ultrasonic vibrations in a ultrasonic cleaner  
Frequency Range: From Hz to MHz; From Infrasonic to Supersonic

# MMM Cleaning & Liquid Processing

- Superior and deep penetration, independent of water levels.
- Reliability with extra power spread throughout the bath.
- Even distribution of ultrasonic energy throughout the liquid gives uniform and thorough cleaning of the surface without the risk of damage to fine parts and sensitive instrument.
- Extremely efficient electronics and transducer coupling to ultrasonic bath (overall approx. 95% efficiency) eliminates or reduces the additional need for heating.
- Spatial distribution of ultrasonic activity inside of a cleaning liquid is homogenous (no dead zones, no standing waves, fast and large frequency sweeping, broadband spectrum, complex modulation).
- Cleaning solvents, detergents and additives can be significantly reduced, or even eliminated because of the very high cleaning activity of the acoustic broadband spectrum.
- Cleaning time can be several times shorter comparing to traditional ultrasonic cleaning technology.
- Fast liquid conditioning and degassing because of very large regulating zone between maximal and average ultrasonic power and because of the ability to switch instantaneously between acoustic spectrums.
- Smooth Ultrasonic, PWM-power regulation from 1% to 100%. Ultrasonic energy can be easily adjusted in order to clean very fine and sensitive parts

Please visit our website for more details and have a look at our production line technology, or contact us directly with any inquiries.

Homepage: <http://www.mpi-ultrasonics.com>

E-mail: [mpi@mpi-ultrasonics.com](mailto:mpi@mpi-ultrasonics.com)

[mpi@mastersonic.com](mailto:mpi@mastersonic.com)

[mpi@bluewin.ch](mailto:mpi@bluewin.ch)