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**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Model 7015-4PL</th>
<th>Model 6015-4PL</th>
<th>Model 5020-4PL</th>
<th>Model 6015-4PS</th>
<th>Model 5020-4PS</th>
<th>Model 3020-2PLF</th>
<th>Model 3028-2PL</th>
<th>Model 3540-2PS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter (mm)</td>
<td>70</td>
<td>60</td>
<td>50</td>
<td>60</td>
<td>59</td>
<td>30</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Total Length (mm)</td>
<td>166</td>
<td>164</td>
<td>128</td>
<td>146</td>
<td>115</td>
<td>132</td>
<td>92</td>
<td>66</td>
</tr>
<tr>
<td>Weight (gr)</td>
<td>2560</td>
<td>1900</td>
<td>980</td>
<td>2000</td>
<td>960</td>
<td>310</td>
<td>220</td>
<td>200</td>
</tr>
<tr>
<td>Connection Torque (kg.cm)</td>
<td>1100</td>
<td>1000</td>
<td>800</td>
<td>800</td>
<td>600</td>
<td>390</td>
<td>300</td>
<td>200</td>
</tr>
<tr>
<td>Connection Tap</td>
<td>M24 P1.5</td>
<td>M20 P1.5</td>
<td>M18 P1.5</td>
<td>M10 P1.5</td>
<td>M18 P1.5</td>
<td>M10 P1.0</td>
<td>M10 P1.0</td>
<td>M8 P0.8</td>
</tr>
<tr>
<td>Nominal Freq (KHz)</td>
<td>15</td>
<td>15</td>
<td>20</td>
<td>15</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>Admittance (S)</td>
<td>1.180</td>
<td>0.185</td>
<td>0.190</td>
<td>0.389</td>
<td>0.190</td>
<td>0.010</td>
<td>0.050</td>
<td>0.050</td>
</tr>
<tr>
<td>Capacitance (PF)</td>
<td>17000</td>
<td>11000</td>
<td>14000</td>
<td>11000</td>
<td>14000</td>
<td>28000</td>
<td>25000</td>
<td>40000</td>
</tr>
<tr>
<td>Max Input Power (W)</td>
<td>2400</td>
<td>1800</td>
<td>1400</td>
<td>2200</td>
<td>1500</td>
<td>300</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

![Diagram of PL Type](image1.png)

![Diagram of PS Type](image2.png)
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
<table>
<thead>
<tr>
<th>MODEL</th>
<th>XIT-4010</th>
<th>XIT-6020</th>
<th>XIT-6021</th>
<th>XIT-1230</th>
<th>XIT-1231</th>
<th>XIT-1232</th>
<th>XIT-1233</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>400 watt</td>
<td>600 watt</td>
<td></td>
<td>1200 watt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIMENSIONS</td>
<td>190x330</td>
<td>360x280</td>
<td>270x410</td>
<td>290x440</td>
<td>270x490</td>
<td>370x330</td>
<td>400x550</td>
</tr>
<tr>
<td>ACTIVE AREA</td>
<td>190x290</td>
<td>360x240</td>
<td>270x370</td>
<td>290x400</td>
<td>270x450</td>
<td>370x290</td>
<td>400x510</td>
</tr>
<tr>
<td>MATERIAL</td>
<td>SUS304, Hard-Cr plating (OPTION: SUS316L)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRANSDUCERS</td>
<td>8–9 pcs</td>
<td>12–14 pcs</td>
<td>24–28 pcs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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)

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

<table>
<thead>
<tr>
<th>MPI-MODEL</th>
<th>ITT-28-600</th>
<th>ITT-28-900</th>
<th>ITT-28-1200</th>
<th>ITT-28-1500</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>600 watt</td>
<td>900 watt</td>
<td>1200 watt</td>
<td>1500 watt</td>
</tr>
<tr>
<td>FREQUENCY</td>
<td>28 KHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIMENSION (mm)</td>
<td>ø±76.3 x L310</td>
<td>ø±76.3 x L460</td>
<td>ø±76.3 x L580</td>
<td>ø±76.3 x L680</td>
</tr>
<tr>
<td>POWER</td>
<td>600 watt</td>
<td>900 watt</td>
<td>1200 watt</td>
<td>1500 watt</td>
</tr>
<tr>
<td>FREQUENCY</td>
<td>40 KHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIMENSION (mm)</td>
<td>ø±60.5 x L310</td>
<td>ø±60.5 x L460</td>
<td>ø±60.5 x L580</td>
<td>ø±60.5 x L680</td>
</tr>
</tbody>
</table>

### Bulk head type
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

<table>
<thead>
<tr>
<th>Probe Submerged</th>
<th>50% Amplitude</th>
<th>100% Amplitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full submerge:</td>
<td>1,000 W</td>
<td>1,500 W</td>
</tr>
<tr>
<td>½ Submerge:</td>
<td>600 W</td>
<td>1,000 W</td>
</tr>
<tr>
<td>¼ Submerge:</td>
<td>600 W</td>
<td>1,000 W</td>
</tr>
<tr>
<td>¼ Submerge:</td>
<td>300 W</td>
<td>600 W</td>
</tr>
</tbody>
</table>
MMM, Sonic & Ultrasonic Liquid Processing

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

![Image of MMM equipment]

**Product Specification/Models**

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>Internal Dimension (WxLxH mm)</th>
<th>Overall Dimension (WxLxH mm)</th>
<th>Output Power (Watt)</th>
<th>Fluid Capacity</th>
<th>Heater (Watt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISB-Y-40</td>
<td>200x380x250</td>
<td>280x460x360</td>
<td>400</td>
<td>15</td>
<td>220V, 4A/1KW</td>
</tr>
<tr>
<td>ISB-Y-60</td>
<td>280x380x300</td>
<td>360x460x410</td>
<td>600</td>
<td>32</td>
<td>220V, 5A/1KW</td>
</tr>
<tr>
<td>ISB-Y-80</td>
<td>300x380x410</td>
<td>410x460x510</td>
<td>800</td>
<td>51</td>
<td>220V, 9A/8KW</td>
</tr>
<tr>
<td>ISB-Y-100</td>
<td>380x410x460</td>
<td>460x480x560</td>
<td>1000</td>
<td>70</td>
<td>220V, 12.8A/3KW</td>
</tr>
<tr>
<td>ISB-Y-120</td>
<td>330x530x510</td>
<td>410x610x610</td>
<td>1200</td>
<td>89</td>
<td>220V, 14A/4KW</td>
</tr>
<tr>
<td>ISB-Y-150</td>
<td>430x530x510</td>
<td>510x610x610</td>
<td>1500</td>
<td>117</td>
<td>220V, 18A/5KW</td>
</tr>
<tr>
<td>ISB-Y-240</td>
<td>580x530x560</td>
<td>660x610x660</td>
<td>2400</td>
<td>174</td>
<td>220V, 21A/6KW</td>
</tr>
</tbody>
</table>

**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
mpi@mastersonic.com
mpi@bluewin.ch