

Immersible Ultrasonic Transducers for Industrial Parts Cleaning



BLACKSTONE~NEY
ULTRASONICS

Your Global Partner In Cleaning Innovation



Blackstone-NEY Ultrasonics' IM-Series Immersible Ultrasonic Transducers are designed for installation in new or existing cleaning tanks to improve the speed and effectiveness of washing, rinsing and other liquid processes. Single or multi-module installations can be custom designed for tanks from a few gallons to several thousand gallons capacity. Ultrasonic energy is especially helpful when cleaning porous surfaces, intricate configurations, and in the removal of difficult contaminants such as buffing compound.

Unique features found only in Blackstone-NEY Ultrasonics' equipment assure that they will function flawlessly for years in 24-hours a day use, seven days a week, even in the high temperature and humidity conditions found in many production environments.

Typical Cleaning Applications

- Electronics
- Glass and ceramics
- Cleaning prior to plating
- Printing
- Metal machining
- Metal stamping
- Surface finishing
- Engine reconditioning; service
- Aerospace
- Filter cleaning
- Plastic and rubber mold cleaning
- Medical / surgical instruments
- Textiles
- Food processing
- Chemical
- Heat exchangers

The IM-Series

With the wide variety of transducer configurations available, custom installation design possibilities are nearly unlimited. A single unit is often used in tanks up to 20 gallons capacity. Multiple units are used in larger tanks. A typical 1,000 gallon tank might have 10 to 20 transducers, while a 3,000 gallon tank could require 48 or more depending on the volume of throughput and the ultrasonic energy level needed.

IM-Series immersible transducers are equipped with a factory-matched Blackstone-NEY™ Series Ultrasonic Generator. Generator's feature frequency pulse and sweep modes of operation and a tailored wave output for optimum ultrasonic performance.

For large systems or for use in severe environments such as plating shops, the associated generators can (and in some cases, must) be housed in a free-standing NEMA enclosure.

Each IM-Series Immersible Ultrasonic Transducer is constructed of heavy gauge 316L stainless steel. Seams are TIG welded. The radiating surface is hard chrome plated to reduce surface erosion and extend the life of the transducer.

Product Features

- Independent modular blocks of gentle yet thorough cleaning power
- Reliable, efficient operation compatible with a wide range of cleaning chemicals
- Heavy-duty construction for long life, even in severe environments
- Highly efficient piezoelectric transducers metallurgically attached to the transducer housing. This attachment is guaranteed for the life of the radiating plate.
- Chemical-resistant 316L stainless steel radiating surface. Optional: Hard Chrome
- Custom sizes available from 3" to 60" or more
- Available in 25kHz, 40kHz, 72, 80, 104, 120, 140, 170, 220, & 270 kHz.
- Choice of mounting options
- Free customer support in systems design
- Multiple array modules



Mounting Options

Immersible transducers afford versatility and optimum performance when the appropriate mounting option is selected for the tank and task.



Wall-mounted transducers are often used in applications that release heavy contaminants into the wash solution. Any sludge collecting in the bottom of the tank will not affect their performance.



Bottom-mounted transducers are appropriate when the size of the tank or the geometry of the parts being cleaned play a role in system design.

Rack-mounted transducers are shipped assembled from Blackstone-NEY Ultrasonics and require only simple insertion into the tank prior to operation. Rack-mounted units are also easy to remove for tank cleaning or inspection, and can be moved from tank to tank if required. This feature has saved many users the cost of one or more complete ultrasonic cleaning systems.

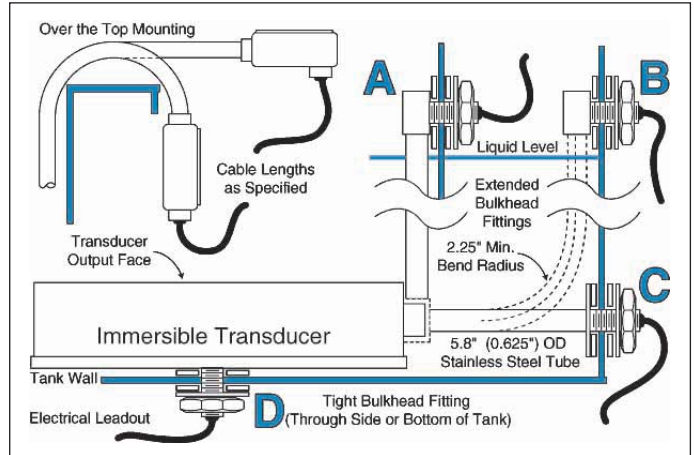


Mounting Flanges

Transducer mounting flanges, which are included in the price of the system, are made of heavy gauge stainless steel and can be supplied in nearly any configuration. Please specify the required flange location, its length and width; the size and placement of any holes required in the flange must also be specified.

Internal Wiring

All internal wiring uses high temperature teflon-insulated multi-strand hookup wire. Interconnecting wiring, the electrostrictive element electrodes and all connections are vibration dampened to prevent failure from vibrational fatigue.



Feed Wiring

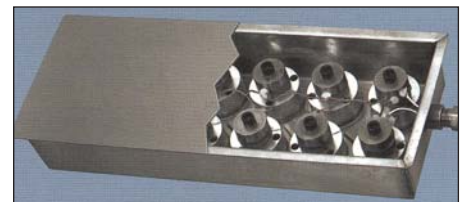
The electrical connection from the ultrasonic generator to the transducer is by low loss RF cable. This cable is very flexible and has excellent electrical transmission characteristics at the ultrasonic frequency allowing mounting of the ultrasonic generator up to several hundred feet from the transducer. Wires are normally carried out of the cleaning tank through either welded stainless steel tubes or bulkhead fittings, factory-welded into the transducer housing. Choice of pipe location and bend configuration provides the flexibility to meet a wide variety of installation requirements.

Piezoelectric Elements

The transducer elements contained in the immersible housing have pre-stressed, high intensity, high efficiency lead/zirconate/titanate driving crystals.

Vacuum Brazed

25kHz transducer elements are vacuum brazed to the radiating surface using a proprietary process. This not only improves durability and reliability, but also prevents the loss of energy that occurs with an epoxy joint. This attachment is guaranteed for the life of the radiating surface.



Blackstone~NEY Ultrasonics' Immersible Ultrasonic Transducers are available for operation at output frequencies of 25, 40, 72, 80, 104, 120, 140, 170, 220, and 270 kHz. Lower frequencies are typically utilized in industrial applications where very aggressive cleaning action is required. Higher frequencies provide better cleaning results in many specialized, precision cleaning processes. In yet other applications, a combination of frequencies (processing at first one frequency and then another) provides superior results. In addition to frequency options, all standard models can also be readily customized to meet specific size and ultrasonic watt density requirements. Our Applications Engineers are available to help you in the proper selection of model and frequency for your intended use.

Specifications

IM-Series: 40 kHz, and Higher Frequencies

Model/Radiating Surface Dimensions W" X L" (X 2.75" deep)	Ultrasonic Power Watts (RMS)
IM-5.75 X 16	600
IM-8.25 X 11	600
IM-5.75 X 21.25	800
IM-11 X 11	800
IM-5.75 X 31.5	1,000
IM-8.25 X 21.25	1,000
IM-11 X 16	1,000
IM-6.5 X 32.5	1,200
IM-9.5 X 23.625	1,200
IM-11 X 18.5	1,200
IM-6.5 X 41.5	1,500
IM-9.5 X 26.5	1,500
IM-11 X 22.5	1,500

IM-Series: 25 kHz

Model/Radiating Surface Dimensions W" X L" (X 3.37" deep)	Ultrasonic Power Watts (RMS)
IM-6.5 X 18	600
IM-10 X 14	600
IM-6.5 X 23.75	800
IM-12.25 X 12.25	800
IM-12.5 X 18	1,000
IM-10 X 24	1,000
IM-6.5 X 35.5	1,000
IM-8 X 39.5	1,200
IM-10 X 28	1,200
IM-12.5 X 21.375	1,200
IM-6.5 X 48	1,500
IM-10 X 35	1,500
IM-12.5 X 24	1,500

Immersible transducers can also be custom-sized to meet your specific requirements.

The IM-Series Delivers -

- Improved quality: Cleaner parts, consistent results
- Increased productivity with faster throughput and reduced labor
- Environmental benefits: Safer chemicals, lower concentrations, less waste water treatment
- Lowest total cost
- Longer life
- Greater reliability

Service and Support

Blackstone~NEY Ultrasonics offers superior after-sale customer support. In addition to factory-direct customer service, field technicians are based in key locations throughout North America, Europe and Asia.

US Service Centers:

Cincinnati, OH
Jamestown, NY
Los Angeles, CA

International Service Centers:

Italy
England
Ireland
Singapore



Blackstone~NEY Ultrasonics, Inc.
A Cleaning Technologies Group Company
9 North Main Street
P. O. Box 220
Jamestown, NY 14702-0220
800 766-6606 or 716 665-2340 Fax 716 665-2480
www.blackstone-ney.com