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Ultrasonic Injection Mold Cleaning

APPLICATION: The use of ultrasonic cleaning equipment for routine injection mold maintenance has been effectively employed for many years. It provides a number of benefits not achievable using more traditional methods. As it is a non-contact process, mold detail is not damaged during cleaning. Critical tolerances can be preserved, thereby extending mold life. The higher levels of cleanliness attained using ultrasonic cleaning also results in better releases and longer runs while improving productivity and minimizing scrap. The penetrating nature of ultrasonic cleaning minimizes the requirement for mold dis-assembly and removes residual polymer and releases from mechanically active mold components thus extending their life. It can also remove buildups from internal cooling ports and channels, thereby improving polymer flows.



ULTRASONIC TECHNOLOGY: Ultrasonic cleaning utilizes cavitation and implosion, the rapid formation and violent collapse of minute bubbles or cavities in a cleaning liquid, to enhance cleaning. This activity, when combined with an appropriate cleaning chemistry, creates a unique penetrating action that is highly effective, even in blind holes and tiny crevices. This combination of high energy and deep penetration without part contact gets results. No other process cleans faster, more safely, or more thoroughly.



EQUIPMENT: Ultrasonics is an immersion technology that requires three components. The first is a tank to hold the cleaning liquid. The second is a number of ultrasonic transducers, which convert electrical energy to sound energy, and finally, an ultrasonic generator to produce the required high frequency power, which is delivered to the transducers. Blackstone~NEY Ultrasonics offers a number of equipment configurations to meet the specific needs of your application. Sizes range from tabletop units for small molds or mold segments to fully integrated automated systems for larger molds or the higher volumes found in larger molding operations. Through experience, we have learned that part agitation used in conjunction with ultrasonics is very beneficial to the cleaning process. As a result, many popular sized units are supplied with integral agitation platforms capable of handling the weight of a typical plastic injection mold. These air driven platforms are adjustable in stroke and frequency and also serve to lift and lower the parts being cleaned to facilitate placement and handling.



THE CHEMISTRY: While the chemistry may vary based on the mold material or the type of soil; most molds are cleaned in a buffered alkaline solution. These materials are widely available and relatively inexpensive to use. To help with chemistry selection and process development, Blackstone~NEY Ultrasonics maintains a free application evaluation service. Parts submitted to the applications laboratory will be cleaned and returned with recommendations for chemistry, process, and equipment to meet your operational needs.

TYPICAL SYSTEM * STANDARD FEATURES

- Blackstone~NEY Series ultrasonic generators for maximum power and process control
- Modern piezoelectric transducers for long life and reliability
- Stainless steel construction throughout for durability
- Thermostatically controlled heat to enhance ultrasonics and improve cleaning
- Integral agitation is standard on many units and an available option on others
- Optional pump and filter system available on all units

SYSTEM BENEFITS

- Easy to operate and maintain
- Substantially fewer man-hours spent on maintenance
- Improved mold life through the elimination of abrasion in cleaning
- More shots between maintenance tasks with better product finish and detail
- Reduced scrap and waste



AgiSonic™ Ultrasonic Agitation Cleaning



**HT Series Ultrasonic
Cleaning Process Tanks**