



**Wet Technologies**  
SPOP 15 implemented in CT  
Metal Finishing Firm



**Waste Water Treatment**  
Overview of recent  
installations with several  
different technologies and  
their value in each installation



**Composite Bonding and  
Coating Preparation**  
Overview of equipment and  
process applications



# Innovative Finishing Technologies

IS001

## Green Technology



*Wet Technologies, WTSS-72*

This new Connecticut installation was implemented specifically for Pratt & Whitney SPOP 15, Wet Abrasive Blast for cleaning of MRO components for inspection. Wet Technologies worked closely with Pratt & Whitney to develop the correct systems and features to meet and exceed the SPOP 15 requirement. Replacing dry grit with wet grit blasting will reduce or eliminate parent material removal.

“Replacing dry grit with wet grit blasting will reduce or eliminate parent material removal.”

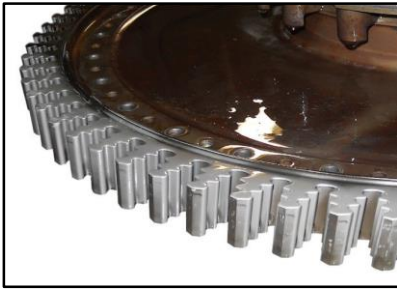
# Wet Technologies = Green Technology

Wet Technologies has been providing state of the art equipment and unsurpassed technological expertise in the wet blasting arena for almost two decades. As an authorized partner, IFT is excited to offer their technology to our customers. Our latest installation, (pictured here), is for a metal finishing company in CT. They have implemented Pratt & Whitney SPOP 15 to their extensive list of MRO approvals.

This unit is semi-automated with a pedal powered turntable and motorized trolley. The greatest advantage to Wet Technologies systems are their completely closed-looped configuration. Nothing goes down the drain!! We love nothing more than to offer GREEN solutions to our customers!



*Inside view: Wet Technologies, WTSS-72*



*Turbine disc fir tree slots cleaned by SPOP 15*

While this installation is for cleaning prior to inspection, there are many other applications for this equipment, such as, deburring, descaling, profiling, smoothing, stripping and cosmetic surface improvement to name a few. Materials processed range from composites to metals within many different applications. Composite bonding to alloys or peening for an even compressive stress layer are also good applications for this equipment.

Please contact us with any questions. Innovative Finishing looks forward to providing you with information on any application or working with you on developing a green solution to your application.

# Process Water Technology

In mass finishing there are several ways to treat and dispose of or recycle your process water. Recycling your waste water is ideal but in some cases not achievable. All of the systems mentioned in this article remove particulate from the waste stream while leaving the chemistry. This is good if you are using one compound as it will substantially reduce your volumes used. If you have more than one chemical in your mass finishing line, recycling would be difficult to easily achieve. If separating finishing chemistries isn't an option you can look to other alternatives, as in, discharging treated water, further filtration or evaporation.

Here are a few recent installations and their overview:

## Centrifuge Separation

Centrifuge separation uses centrifugal force to perform the solids separation. Typically down to the 5-10 micron range. There are many advantages to centrifugal separation. No disposable filter medias. In most cases no flocculant required to achieve acceptable separation. Flocculants may be used if necessary. Produces a relatively moisture free sludge for disposal. The water in the centrifuge system is continuously processed and there is no need to shut down to perform a treatment as in the flocculant systems.

The cost savings by utilizing a centrifuge over Flocculation separation can be realized immediately. Virtually no consumables are necessary in most applications.

The installation shown on the left is being used to treat and recycle vibratory wastewater in a metal stamping / laser cutting manufacturer.



*Walther Trowal ZM-03*

## Flocculant Separation

Flocculation is a waste water treatment process that uses a clay polymer to coagulate the solids in the vibratory waste water stream. The mixing of this clay polymer to your wastewater encapsulates the contaminants, oils, grease, heavy metals and suspended solids. The sludge created can be filtered out and dried using various methods. The sludge may then be sent to your local land fill in accordance with local regulations. The remaining treated water can be sent back to your finishing equipment for re-use or disposed of.

Some means of separating the encapsulated sludge can be through a filter bed, filter socks or centrifuge. Filter beds or socks require some time to drain the water out of the sludge and allow for handling to be disposed of. In higher volume applications the sludge is not completely dewatered and creates disposal issues. Utilizing a centrifuge to dewater the sludge is the most efficient way to quickly dewater. This method quickly spins the encapsulate down and allows for immediate disposal.

Flocculation treatment has a lower capital expense to get started but due to the consumables required, the continuous cost of operation is much higher than other means of wastewater treatment systems.



*This installation is being utilized in a mass finishing job shop for recycling their water.*

## Ultra Filtration

Ultra Filtration is a pressurized driven method of separating emulsified solutions. The solutions are continuously pumped through membranes. As the effluent is pushed through the membrane, the particles larger than the membrane pore size are concentrated, while the particles smaller than the pore size are pushed into a low concentration stream to be reused.

The installation shown on the right, is being used in an ultrasonic cleaning system. With higher temperature membranes, it is providing the customer with continuous cleaning during processing. This allows them a much greater time between solution change outs...

Ultra-Filtration can be used in mass finishing applications as well. Either as a stand alone or as final clean after centrifugal separation.

*Depending on your volume, application and consumables used we can develop a complete system that meets your requirements.*

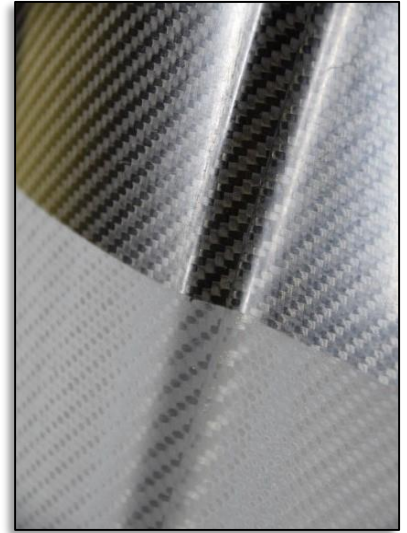


*Sanborn Technologies  
UVF 200*

# Composite Bonding and Coating Preparation

## Description:

Blasting parts with abrasive slurry in the Wet Tech Process. This creates a clean, even etched finish with no media embedded in the surface. Wet Technologies leads the way in developing wet slurry systems used to prepare composites for bonding. High quality anchoring patterns are achieved using the Wet Tech Process. Different composites exhibit special requirements based on weaves, resins, hardness, and matching surfaces. Wet Technologies has developed processes and equipment for high demand composite bonding applications with customers such as **Bell Helicopter, The Boeing Company, The National Institute for Aviation Research, Spirit, Sikorsky Helicopter**, and others in the industry



## Advantages:

- Quality of the finish can be strictly controlled
- Even and repeatable surface etching with depths and patterns to match the material.
- No water absorption
- Bond strengths can be drastically increased compared to dry blast, peel ply, and chemical techniques.
- In addition, bonds between composites and metals such as aluminum and specialty alloys are maximized using the same approach.
- The water/abrasive mixture cushions the process and Eliminates Embedded Abrasive.
- The Wet Tech Process is Dust Free- equipment can be installed in a clean environment.
- Blast, Rinse, and Dry surfaces in One System, ready for bonding and autoclave.
- The Wet Tech Process is Closed Loop, nothing goes down the drain!



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## Karen Zaccaro

Karen began her career in Teflon coatings. Working for The Donwell Company, over the course of a decade, learned all aspects of coating applications and surface preparation. Finding her niche in surface preparation and mechanical finishing, Karen founded Innovative Finishing Technologies, llc in 2000.

Initially, IFT was strictly consulting. Today IFT offers service, support, equipment integration, spare parts, media and supplies, and most importantly, process development.