Triplex Systems, Inc., first introduced combined automatic and manual cleaning operations in a single casting cleaning center in 1991. The benefits of combined automation and manual cleaning operations into one cleaning cabinet are many and should be considered, when selecting a waterjet cleaning process for your foundry. What most foundries do not fully understand is that the waterjet casting cleaning process is one of the most effective cleaning processes available to investment casting foundries. The waterjet cleaning process effectively does primary waterjet shell knock-out and secondary waterjet cleaning operations. After the waterjet cleaning process, the investment cast tree can go directly to cut-off. Triplex System's vision for an all waterjet casting cleaning finishing department has become a reality for foundries that have realized the many benefits of this technology. Triplex Systems has many customers that have implemented waterjet cleaning and cut-off operations into work cells. Cleaned trees go directly to cut-off, helping to reduce casting processing steps.

Combining the automatic and manual cleaning operations into one cabinet has the advantage of only requiring one high pressure pump unit, resulting in significant cost savings. With Triplex System's technology, your casting cleaning operation is streamlined, resulting in less floor space, highly effective primary automatic waterjet knockoff from 80% to 95% cleanliness, and highly effective secondary manual cleaning from 95% to 100%.

Triplex System's patented Hydro-Clamp Technology, has proven to be the best method for clamping investment casting trees by the pouring cup remnant. The Hydro-Clamp requires no adjustment, through the entire clamping range, up to 7.5” diameter. The Hydro-Clamp has many benefits including: compact rotary design, clamping speeds of 2 seconds, and high clamping forces for solid dynamic clamping. Another important benefit of Hydro-Clamp Technology is clamping trees with the pouring cup facing downward. This is important because no water can fill the voids within the central sprue caused by metal shrinkage, which may affect revert.

Triplex System's automatic, patented Random Automatic Movements, has been proven over many years to be highly effective for the removal of the majority of ceramic from investment cast trees. The waterjet is focused through one sapphire nozzle. Whether it is a 50, 75, or 100 horsepower system, 100% of the pressure and 100% of the water (mass) is directed at the investment cast tree through one nozzle. This is important for fast and effective cleaning of investment cast trees. The use of more nozzles, is not as beneficial. For example, two nozzles each directs 100% of the pressure, but only 50% of the water (mass) per nozzle and four nozzles each directs 100% of the pressure, but only 25% of the water (mass) per nozzle. High pressure cleaning is a function of both pressure and mass. With Random Automatic Movements, 4 to 5 axis of movements occur simultaneously, resulting in fast, efficient, and repeatable casting cleaning cycles, using only one waterjet nozzle. Machine programming is easy, requiring only the height of the tree and the cycle time to be entered. An HMI touch screen, allows for easy selection of saved cleaning programs and selection between automatic or manual cleaning cycles.

Triplex System's Slide Plate Technology, allows mechanical movement devices, drives, and sensors to be located outside of the waterjet casting cleaning chamber and within a dry guarded enclosure.

Benefits

- Eliminate mechanical knock-out and the potential for stress fractures, high levels of noise and excessive silica dust production. The waterjet cleaning process does not cause stress fractures, has lower noise levels and eliminates silica dust production by virtue of being a wet cleaning process.
- Eliminates or greatly reduces shotblast or sandblast as a shell removal process.
- Eliminates or greatly reduces the chemical leaching process and the hazardous waste associated with disposal.
- Combined automatic and manual waterjet cleaning, provides casting clean capabilities close to 100%. This allows trees to go directly to cut-off after cleaning.
• Combined automatic and manual waterjet cleaning into one cabinet, reduces valuable floor space and requires only one high pressure pump. This results in significant cost savings for machinery required in this process.

• Combined automatic and manual waterjet cleaning and cut-off operations in a work cell further improves manufacturing productivity.

• The waterjet cleaning process improves safety, ergonomics, and productivity.

For more information, visit www.triplexsystems.com.

Before and after photos below...