FOAM CONTROL IN BASKET-STYLE CHIP CONVEYORS

New machine centers can have a greater tendency for foam issues due to many factors. One addition to many machine tools are chip conveyors with integrated basket/drum filters. These types of conveyors, when not properly set up, can greatly contribute to foaming in the sump.

HOW THEY WORK

Chip conveyors are designed to carry out large chips from the machine center to a chip bin. The conveyor only captures the larger chips that are produced, while the smaller chips collect at the bottom of the sump. This leads to reduced space in the sump and lower volume of total coolant. The basket/drum filters, as a newer addition to some chip conveyors, are designed to capture smaller fines down to the 25-micron range.

The baskets spin while the chip conveyor is running. They collect the smaller fines that are floating in solution and migrate together. On the back side of the basket, a coolant fan nozzle sprays off the basket to deposit the fines onto the chip conveyor.

These work well at collecting the smaller fines and help keep sumps cleaner. They especially work well when machining aluminum or other materials that tend to float in and on top of the coolant.

HOW THEY AFFECT FOAM

When these types of conveyors are installed on machine centers, the coolant line to the basket is typically a ¾-inch or 1-inch line with a valve at the coolant pump. This coolant line is often turned wide open and pumps a large volume of coolant with up to 100 psi of pressure. This volume and flow can cause the coolant to foam in this area and often overflows out of the conveyor onto the floor.

The other issue that occurs with these baskets is that chip stringers from the machining process can get caught. These stringers can build up and block the coolant, causing overflows onto the floor. If the machining operation produces stringers, this style conveyor with basket is not recommended.

HOW TO REMEDY THE FOAM

Trace the coolant line back to the coolant pump, removing the side panel from the machine if necessary. Turn the valve on the coolant line down to about 1/3 open. This will still supply enough coolant volume and pressure to clean the basket but greatly reduces the amount of foam generated by the coolant spray. This adjustment can reduce a safety risk with foam overs and satisfy end user needs for a low foam coolant.

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