

# Aquamill ST-40 L

Aquamill™ ST- 40 L is a liquid accelerated mass finishing compound for ferrous alloys.

Aquamill™ ST- 40 L is normally used in vibratory finishing mills although it can be used in oblique finishing barrels as well. When used in vibratory mills we recommend the use of ceramic long-life or ceramic medium cut medias. Media shape and size will be determined by part configuration.

Aquamill™ ST- 40 L may be used in flow through and closed bowl vibratory processes.

## Operating Conditions

Concentration: Full strength

Flow Rate: 50 to 100 ml per square foot of surface area (parts) per hour, depending on media and desired finish.

Time: 2.5 to 8 hours depending on starting surface finish.

## Media

- A. 5, 10 or 20 Bond Media will produce a reasonably bright finish after burnish without too much excess work on the part's edges. It is competitive to High Density Media when used correctly.
- B. Media must be selected to prevent lodging and be large enough to move the parts.
- C. Media can be various shapes and sizes; Angle Cut Cylinders, Triangles, Cones, Tristars. They are chosen based on their ability to reach critical areas; usually areas that are shielded present the biggest problem.
- D. Media's are often mixed in size and shape to reach all critical areas.

## Equipment

1. Flat bottom bowl lined with chemically resistant material including the drain.
2. The bowl is generally set up with a 3 mm - 5 mm amplitude with a 60-70 degree lead angle. This is usually done with the minimum weights required to roll the media and parts.
3. The vibratory bowl should be fitted with a closeable drain if batch processing is the method chosen to finish the work.
4. Metering pumps are required particularly when a flow through process is chosen.
5. Burnishing setup is required.

## General

Rule 1 – Generally 75 ml per square foot of surface area per hour. It is preferable to make additions to the bowl

every 3 hours as needed for longer cycles.

Rule 2 - Chemistry is depleted when the wipeable black film is no longer present or the liquid becomes too thick for the bowl to move the parts.

Rule 3 - Additions of water can be made if the bowl runs very hot and evaporation becomes a problem, however, the volume of water (metered into bowl) should not exceed 250 cc. per cubic foot per hour.

Rule 4 -The best surface finish (non-etched) is achieved by allowing the active chemistry to be consumed before burnishing.

## Closed Bowl

1. Cut using Aquamill™ ST- 40 L at 50 to 100 ml per square foot of surface area per hour with the drain closed.
2. Open drain.
3. Burnish using Lusterlume™ 3LX or Aquamill™ ST 1 at 2% to 3% by volume with a flow rate of 0.5 to 1 gallon per cubic foot of bowl capacity per hour. Normal burnish times are 30 to 60 minutes.
4. Unload

## Flow Through

1. Cut feeding Aquamill™ ST- 40 L at a constant rate over the course of the cut cycle, using the calculation of 75 ml per square foot of surface area per hour of cut. The flow of the Aquamill X should be stopped approximate 0.5 hours prior to the end of the cut cycle to allow the chemistry to die.
2. Burnish using Lusterlume™ 3 LX or Aquamill™ ST 1 at 2% to 3% by volume with a flow rate of 0.5 to 1 gallon per cubic foot of bowl capacity per hour for 30 to 60 minutes.
3. Unload.

Your Hubbard-Hall technical service representative is available to assist with process development.

It is advantageous for our technical service laboratory to process parts to fine-tune the process to your particular needs prior to field trials.



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For more information on this process,  
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