
Warewashing
by Danamark Watercare

This module on warewashing equipment is broken down into 3 sections:

- Intro to Warewashing
- Types of Equipment
- Water Issues & Solutions

(note: the slides are timed, however you can pause the video at anytime. This video is 8 minutes & 20 seconds long)



Part One

Intro to Warewashing



Warewashing is the term used to describe the act of collecting and washing any kitchenware used in the preparation, serving, or storing of food.

This mainly refers to pots and pans, cutlery, flatware, glasses, kitchenware, serving pans and trays.



Most foodservice operations have at least one warewashing machine.

In addition to basic cleaning, restaurant managers expect spot free glassware and complete sanitation from their equipment.





Most Health Departments inspect the equipment on a regular basis to verify that the final rinse heat or chemical treatment is adequate to insure public safety.

Foodservice professionals know that failure to pass this health inspection will require immediate service and/or repair to correct any equipment problem.



Part Two

Types of Equipment





High Temp Machines include a small water heater to boost the temperature of the final rinse.

Inlet hot water temperature is usually set around 140 F degrees, and that temperature must be raised to a minimum of 180 F degrees to legally complete the sanitizing process.

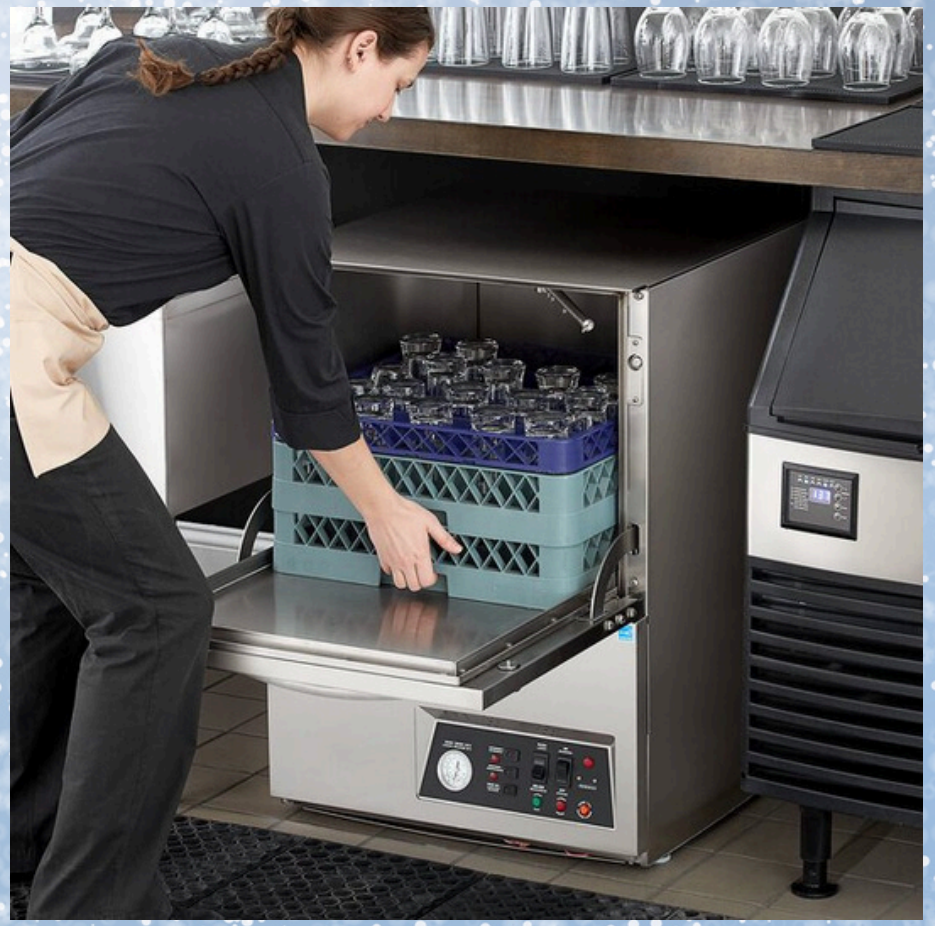


Low Temp Machines also use water supplied from the building hot water heater, but add chlorine based chemicals to the final rinse for sanitizing. This approach consumes less energy, but requires the extra cost of chemicals and monitoring of the chemical feed level.

There are also occasional complaints about the residual taste of chemical (chlorine) on the glassware, when using this approach.

Under Counter Warewashing units are used in small Restaurants, Diners, Quick Serve Restaurants and Convenience Stores.

They are generally simple, economical and designed for low volume applications.





Door Type Warewasher units are used in larger full-service Restaurants, small Cafeterias and other medium volume outlets. They usually include removable racks for easy loading of the items to be cleaned and the final air drying process may be completed outside of the equipment.

Rack Conveyers (Flight Line) are high volume units used in most areas of the institutional market (hospitals, prisons, schools, etc.). They represent a significant capital investment and require more frequent preventative maintenance.



TEMPERATURE OPTIONS

The final rinse cycle is the key to adequate sanitation in each warewashing equipment design.
After the dishes, glasses and utensils have been thoroughly washed and degreased, they are subjected to a final rinse with very hot water, or a warm chemical bath, to complete the sanitizing process.



Part Three

Water Issues & Solutions

Booster heaters, included in the rinse cycle for most commercial warewasher units, are simply small hot water heaters with submerged heating elements.

These elements are subject to the same problems as steamer heating elements (mineral scale and corrosion).





A layer of mineral scale insulates the heating elements causing a loss of energy efficiency, reduced water temperature, and premature burn out. The thermostat continues to call for heat, and the heating element is subject to metal fatigue and eventual destruction.

Water Treatment Options

Water Softening is an excellent solution for the problems associated with warewashing equipment. The softener reduces water hardness by exchanging calcium, magnesium (hard minerals) and iron for sodium. The softened water eliminates hard mineral scale, and the sodium is easily flushed through the machine during normal operation.





Soft water has been shown to extend the effectiveness of detergents, which means reduced costs, and will reduce the spotting on dishes and glassware.

Water softeners require significant space, available utilities (water, power and a drain), regular maintenance & monitoring, the addition of rock salt and capital investment.



For all of these reasons, compact and simple water treatment products have been developed, requiring less space, no electricity and lower capital investment.

Let's take a look at the HTS-10 & HFC-10



Kleenware HTS-10 Scale & Corrosion Inhibitor

The Everpure HTS-10 System was designed for the water booster heater (only) in High Temperature Warewashing equipment.



HTS-10 Features

A specially designed head and 'optional' clear bowl housing that can be installed directly on hot water lines, with up to 170 degree source water. This unit is easily installed in one hour or less, and supports up to 15 gallons per minute flow rate.

HTS-10 Features - continued...

Unique Hydroblend compound was designed specifically for hot water use and provides scale control for the booster heater. The flow-thru head meters the Hydroblend material into the water, enabling the heating elements to operate efficiently. The dish machine interiors stay cleaner too, due to reduced mineral deposits in the cabinet.

HFC-10 Deliming System



The Everpure HFC-10 Deliming System provides a simple and economical method for injecting ScaleKleen deliming compound into the warewashing equipment, without the use of tools and excessive labour.

HFC-10 Features

The HFC-10 consists of a head, bowl housing, dip tube and 1 kg. of ScaleKleen Powder.

The HFC-10 can be installed directly on a hot water line, with up to 170 degree source water. This unit is meant purely as a 'feeding' mechanism to introduce the deliming powder.

A Simplified Deliming Process:

- Shut off the water supply and relieve the pressure. Remove the feeder bowl and insert the dip tube into the head.
- Pour ScaleKleen powder into the feeder bowl. Reinstall the feeder bowl.
- Turn the water back on, to flush the ScaleKleen powder into the booster heater.
- Allow 30-45 minutes for the deliming process to dissolve mineral scale deposits.
- Flush dissolved minerals and balance of ScaleKleen to drain.

Deliming Schedule

The amount of water hardness, the amount of water used each day, and any existing pre-treatment are all factors. As a starting point, you may chose to apply the suggested deliming schedule, in this table, and then make adjustments according to your observations and experience.

Water Hardness	2 - 8	8 - 14	14 - 20
Soft, 0 – 3 gpg	30 days	24 days	18 days
Moderately Hard, 3 – 7 gpg	24 days	18 days	12 days
Hard, 7 – 15 gpg	15 days	9 days	6 days
Very Hard, > 15 gpg	9 days	6 days	3 days

RECAP

Watercare solutions pay for themselves through:

- Customer satisfaction by delivering consistently high quality water, day in and day out.
- Reduced emergency maintenance and wear & tear on equipment.
- Extended equipment life by less deliming with harsh chemicals.



This concludes this module.

Thank you for your time!