



# Fortessa

## Fortessa Inc. Guidelines on The Care & Maintenance of Stainless Steel Cutlery (Essentials of Flatware Maintenance)



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**Beautiful** stainless steel flatware is not only the prime, functional accessory of dining service, but today's elegant cutlery designs also play an important part in dressing the restaurant table.

While durable and easy to clean, stainless steel needs consistent, knowing care to keep its unique look and qualities - and to secure your flatware investment.

This **Fortessa manual** provides information on key points and procedures to help you plan or upgrade a maintenance program that will extend the life of your restaurant flatware.

The manual does more: it offers step-by-step directions, do's and don'ts and tips on simple solutions to the complex problems around operating high-tech cleaning machines and materials.

All of these guidelines are based on industry research, tested methods and the highest standards of performance for metalware products.

One day, perhaps, a new steel alloy might be discovered that will produce "scratchless steel." Until then, we have "stainless steel," which depends on expert maintenance to retain its smooth, original patina.

### **The Essentials of expert stainless-steel cutlery maintenance are:**

- 1 Correct Chemicals (in the smallest possible amounts)
- 2 Clean Water (pure and chemical free - ideally, filtered)
- 3 Dry Air (absolutely arid)
- 4 Small Batches (a minimum number of pieces in racking, washing & storing)
- 5 Gentle Handling

## **1. Pre-Soaking**

### **Key Points:**

- Pre-soaking, softens and loosens any food particles
- Prevents corrosion of base materials and blades



## Procedure

1. For best results, restaurant flatware should be "parked" or lined up on large surfaces, never stacked one piece atop another.
2. Remove any food residue from pieces: Immediately and carefully clean particles of food (particularly egg, mayonnaise, lemon vinegar, fish) from flatware, using a soft bristle brush or a strong jet of water.

Do not leave flatware with left-over food particles unwashed overnight.

*Never* use a metal scraper or steel wool. Particles from carbon steel brushes or steel wool can become embedded in the metal surface, causing rust (ferric ion contamination).

3. To prevent scratches or scrapes/ always use a plastic pre-soaking container.
4. If you select a chemical solution, instead of just water, be sure to read and to carefully follow the manufacturer's instructions.

**Note:** Never use products that contain chlorides (chlorine or hypochlorite), iodides, or bromides.

These three major points are critical:

- a. Water temperature
  - b. Product concentration
  - c. Immersion time
5. If you select a chemical solution, instead of just water, be sure to read and carefully follow the manufacturer's instructions.
  6. Pre-soaking time can run from five to 20 minutes, but should never exceed 30 minutes. This time period is more than sufficient to loosen food soil. A longer pre-soak will do nothing more than tie-up inventory and promote a general disregard for proper handling procedures.
- Moreover, in cases when a high concentration of chemicals is used extra soaking time can start the corrosion process.



When choosing cleaning products, consider potential post-cleaning problems; in particular, remember that residue from some detergents, if not completely removed, can cause corrosion.

7. Keep the solution clean: When the pre-soak becomes contaminated (tell-tale signs: suds beginning to dissipate...a thin film of grease appearing on the surface), it's time to change the solution.

The average life of a pre-soak solution is up to two hours (an average of eight washing cycles).

8. Rust is the "virus" of flatware care. Iron-based materials, such as used in some kitchen pots and pans, are by their nature, subject to rusting.

If pre-soaked/washed with 18/10 steel flatware, they can transfer rust to the more noble 18-10 utensils, causing corrosion problems (a real virus transmission).

Keep in mind: Once the corrosion process starts, nothing can stop it.

## 2. Racking

Key Points:

- Racks made of plastic materials work best.
- Racking a minimum number of pieces will assure thorough washing.
- Vertical containers not flat racks should be used to wash flatware.

After removing flatware from the pre-soak, pieces should be racked upright, then immediately rinsed and put through the washing machine. If allowed to stand, food soil dries, hardens on pieces - and defeats the purpose of pre-soaking.

Even if the flatware looks clean after the pre-soak bath, in fact, it is not. An invisible, thin greasy film still remains on the pieces and can be removed only by the washing cycle.

Place products in vertical racks, in a loose, non-segregated manner, which is the only way to be sure flatware will receive a through washing and rinsing.



Vertical racks should have open areas/ so the wash solution can completely cover flatware pieces.

Alternate forks & spoons in the racks. This prevents spoon heads from nesting or sticking together.

Wash knives separately from spoons and forks.

Stand cutlery with heads, prongs and blades in an upright position.

Never wash flatware in flat racks, which make it impossible for the wash solution to clean pieces thoroughly, and for the rinse cycle to sanitize pieces.

Also, because water won't run off a flat surface, droplets of moisture remaining on flatware can cause "spotting."

As noted in the previous chapter (Pre-Soak), do not combine 18/10 flatware with iron-based materials.

Pre-soaking OR washing stainless steel pieces with iron-based materials sets up an electro-chemical reaction (ferric ion contamination) that transfers rust to 18/10 utensils and causes serious corrosion.

### **3. Washing**

#### **Key points:**

- The recommended temperature for washing solution ranges from 150-170°F or 65-75°C.
  - Use the right dose (concentration) of detergent.
  - Good quality detergent is free of chlorides, chloramines, iodides and bromides.
1. Before issuing washing guidelines to staff, make sure you have obtained and understood the key information on the washing cycle, from the manufacturer of your dish-washer and the supplier of the detergent selected.



**Here's a checklist of points to check & review:**

Water	Is the supply hard or soft?
Detergent solution	Quantity & temperature to suit your water supply?
Contact time	How long a wash is required?
Nozzles	Number & filters
Rinsing	Number of times, water pressure & temperature?

2. Water quality is crucial to ensuring best results in the washing cycle.

Wash water must be free of solid substances, such as mould and sand, which can clog nozzles.

Ask your supplier to check for any foreign matter and, if necessary, recommend filters that can be installed to keep water clean and clear of hard or dense materials.

The supplier should also check water for chemical composition, in particular water hardness and chlorine content.

Based on this analysis of water quality/content, the supplier can suggest the right detergent, with the proper concentration, for the best wash results and then fine tune the dish-washer machine accordingly.

**Note: To avoid water quality problems, installation of a de-chlorinator upstream from the dishwasher is always strongly recommended.**

3. The machine operator must:

- Change the washing solution after every cycle.
- Check weekly on the solution temperature, nozzle efficiency, detergent consumption, and the quantity of other products used in the washing cycle.

**Note: In the hot, closed dishwasher environment, all chlorine compounds, such as chlorine dioxide (ClO<sub>2</sub>) (used to sanitize tap water), tend to form chloric acid (HClO<sub>3</sub>).**

Chloric acid is an aggressive agent that attacks stainless steel, particularly the steel used for knives (420 family).



This phenomenon is readily detected: products can show signs of corrosion even after the first turn in the dishwasher.

**To neutralize or completely avoid this potential problem:**

- Quickly remove products from the dishwasher as soon as the cycle is finished, and then wipe pieces with a soft cloth, even if they seem dry.
- As recommended, installation of a de-chlorinator upstream from the dishwasher will help prevent corrosion problems.

Some alkaline products and solutions also have a corrosive effect on stainless steel, but only when present in high concentration and/or under high-temperature conditions.

The exception is common bleach (sodium hypochlorite), which contains both oxidizing agents and chlorine that can cause corrosion under any conditions.

**Laboratory tests have shown that contact with bleach products causes the formation of microscopic corrosion over the entire steel surface within 20-30 minutes.**

Microscopic corrosion can repair itself if the clean, dry flatware pieces are exposed to the open air over a period of time, long enough to form a protective layer of atmospheric oxygen; however, signs of corrosion might remain.

Another common cause of corrosion is the use of salt tablets to soften the water trough, instead of equipping the machine with a de-chlorinating filter.

Because it's impossible to control dilution and concentration of the tablets, a high salt concentration in the hot dishwasher can start a corrosive pitting condition in steel utensils.

Remember: One mistake is enough to cause irreparable damage. Once the corrosion process starts, its course can be limited or slowed, but it will continue inexorably and cannot be reversed.

While manufacturers' guarantees for flatware and cutlery cover production defects, they do not include corrosion caused by improper maintenance or use of strong chemicals, as described here.

Ten or 15 years ago, no doubt, maintenance of stainless steel was far simpler. The major enemy of flatware then was hard water, responsible for "white stain" on mirror surfaces.



Today, with the dramatic increase in the content and concentration of chemicals, water must be sanitized and treated for an enormous number of potential problems. That's why close, careful attention should be given to planning a new operation and determining proper, easy-to-follow maintenance guidelines for your staff.

## 4. Rinsing & Drying

### Key Points:

- Adequate rinse-flow pressure.
- Proper water pressure.

### Procedures:

1. After cleaning, rinse cutlery thoroughly with running water, Check the machine's rinse cycle, to be sure the cycle time is correct (long enough) and the water pressure strong enough to remove all traces of detergents.

Where racking was done improperly and the basket overloaded with flatware pieces, rinse results will be poor; any detergent remaining on the surfaces will leave stains (from "rainbows" to grey "clouds")

2. Wipe the blades of knives with a soft cloth, to be sure they are perfectly dry, and to remove any trace of limestone (hard water), thus guarding against corrosion and oxidation marks.

Never leave the basket in the dishwasher overnight. It's a common misconception that flatware/cutlery can be safely dried in place while the machine is extremely hot, saving an extra, tedious operation.

But inside a hot dish-washer, chlorine, limestone, and other detergent residues readily coat the surfaces of flatware and, enhanced by the high temperature, will have a corrosive effect on flatware pieces.



## 5. Storing

### Key Points:

- Locate storage area far from kitchen fumes.
- Group like items together.

### Procedures:

1. Set aside one room for storage of all flatware items. The single storeroom will avoid time wasted in looking for various pieces and checking inventory.

Be sure the room or space is free and far from sulphurous vapours, drafts from air conditioning and dampness, to prevent corrosion. A room with a single door would help to keep an even temperature and make an ideal storage space.

2. Separate and store forks, knives and spoons in their own compartments. Nest spoons with their bowls joined. Do the same for forks. Knives should be placed blade up.
3. Store pieces in cutlery drawers made of plastic material (e.g. Moplen, polypropylene) or even better, wood.

**Time-saver Tip:** Everyday pieces can be left right in the plastic basket from the washing cycle.

4. Before storing, all pieces should be thoroughly dry, to prevent calcium deposits (oxidation calcareous) and severe corrosion on knife blades.
5. As a final safeguard and to assure efficient, careful handling, appoint one trained staff member to be solely responsible for storing and withdrawing flatware pieces.



This compendium of flatware maintenance facts, information and recommendations has been compiled and cross-referenced with the help of the research facilities and publications of the following international associations and organisations:

- American Iron and Steel Institute (AISI)
- American Society for Testing and Materials (ASTM)
- Specialty Steel Industry of North America (SSINA)
- British Specialty Steel Association (BSSA)
- European Stainless Steel Development Association (Euroinox)



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