



TROWAL CUTLERY CLEANING TECHNOLOGY

The all-in-one solution for cutlery cleaning

Walther Trowal Cutlery Cleaning Systems

A well-known problem

Cleaning of dirty cutlery parts, especially removal of dried-on encrusted food, is extremely laborious, time-consuming and costly. Standard washing machine systems cannot generally provide a consistent and spotless cleaning result without significant effort.



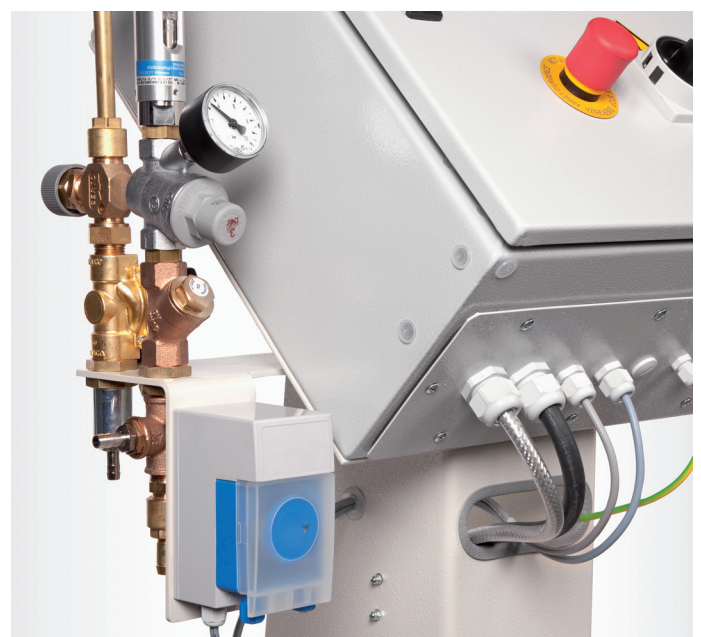
Rinsing area of a BRA machine

An innovative solution

Walther Trowal, specializing in surface treatment technology for over 75 years, has developed the **hydro-mechanical 3-stage technology (HDS)** that automatically

- cleans
 - rinses and disinfects
 - dries
- in one cycle.

Stainless steel or silver cutlery parts are gently cleaned with maximum savings of energy and cleaning agent. The time consuming and labor intensive pre-cleaning of the dirty cutlery can be eliminated. The expensive manual post polishing process is no longer required.



Dosing station for adjustable quantities of the cleaning agent

The HDS Process

Step 1: Washing

The dirty cutlery is fed into the washing bowl with no pre-treatment and is cleaned mechanically using of polishing media. Even stubborn dried-on food residues, as well as, rust stains on knife blades are removed in only one cycle. At the same time, the cutlery parts are polished during each washing process.



Step 2: Rinsing

The cleaned and polished cutlery parts are automatically transferred to the rinsing area and rinsed there with fresh tap water.

The cutlery parts are completely and hygienically clean!



Step 3: Spotless drying

The wet cutlery then slides from the rinsing area into the subsequent cutlery drier, which is filled with heated and germ-free drying granules. Here, the cutlery parts are dried gently leaving no spots. By means of a "hot spot" in the drier, the granules are consistently heated up to more than 130°C / 266°F and hence kept germ-free.



Trowal cutlery cleaning systems of the BRA series

In contrast to common cleaning technology, Trowal cutlery cleaning systems are operated with special ceramic polishing media which offers many advantages. The consumption of cleaning agent and water is reduced by the mechanical cleaning effect, along with the power consumption because the water does not need to be heated up to more than 40°C / 104°F. Even stubborn dirt and rust can be removed reliably with the BRA machine with no pre-treatment of the cutlery. If silver cutlery is cleaned with the HDS process, layers of oxide are also removed, and the annoying polishing of silver by hand is a thing of the past. Furthermore, the process protects the metal against quick re-tarnishing and discoloration.

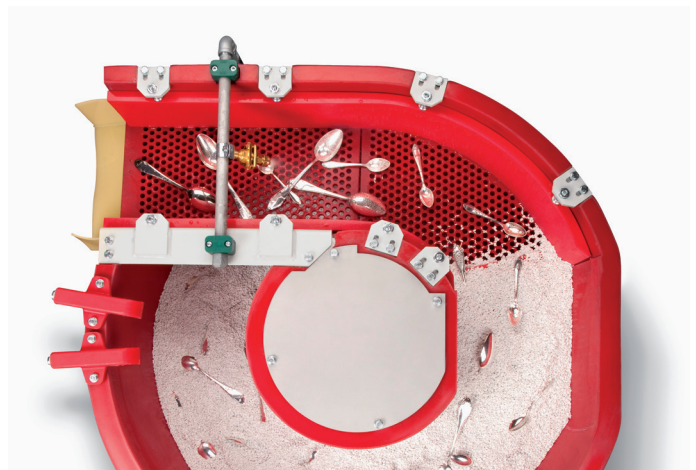


Silver cutlery before and after cleaning/polishing

Hygiene of the machines

The leftovers dragged into the machine with the cutlery parts are grated by the polishing media and discharged out of the machine together with the water and washing agent without any residues. After the cleaning process, you get germ-free, high gloss cutlery, which does not need to be post-treated.

The machine hygiene of the BRA series outperforms the requirements of the rigorous European standard DIN 10510:2008-06 significantly.



Washing bowl of a BRA machine, seen from above

Reconditioning the cutlery

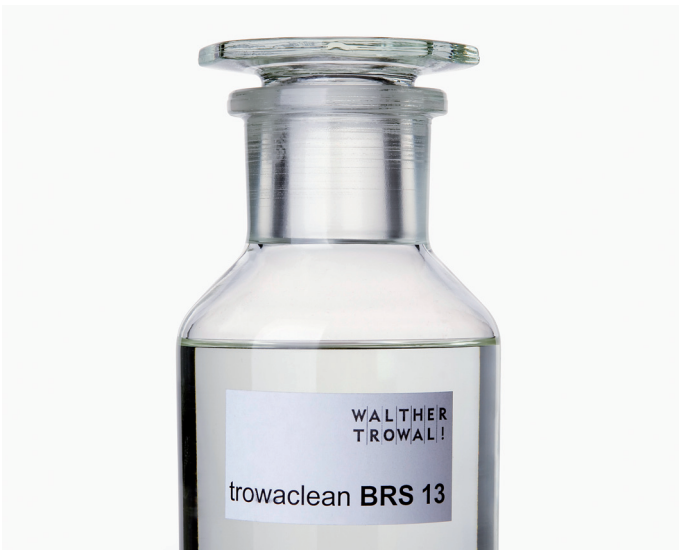
Under continued use, cutlery parts become tarnished, show scratches, lime scale and corrosion stains or layers of oxide which often can be difficult to remove. The BRA is perfect for reconditioning and polishing of cutlery and kitchen utensils made of stainless steel and silver.



Stainless steel cutlery before and after reconditioning

Walther Trowal Cutlery Driers

Despite modern cleaning technology, knives, forks and spoons seldom leave dishwashing machines completely dry and stain free. Result: cutlery cannot be used without labor intensive polishing. The Trowal BT cutlery drier range provides shiny and hygienic results.



Cleaning agent BRS 13



Drying granules GTM



Polishing media BPK

Function

The wet cutlery is fed directly from the dishwasher baskets into the drier and does not have to be inserted by hand individually, as typical for common cutlery driers. The corn granules are heated up to 65°C / 149°F which dries the cutlery germ-free and without spots. All driers are integrated into our BRA machines as a drying unit, but they can also be purchased as stand-alone machines.

Consumable supplies

Walther Trowal provides specially developed in-house consumables of highest quality and recommends their exclusive use in the cleaning process.

Cleaning agent BRS 13

The Trowaclean BRS 13 cutlery cleaning agent has been specially developed for low application temperatures between starting with 40°C / 104°F. The cutlery parts get a bright and shiny finish.

Drying granules GTM

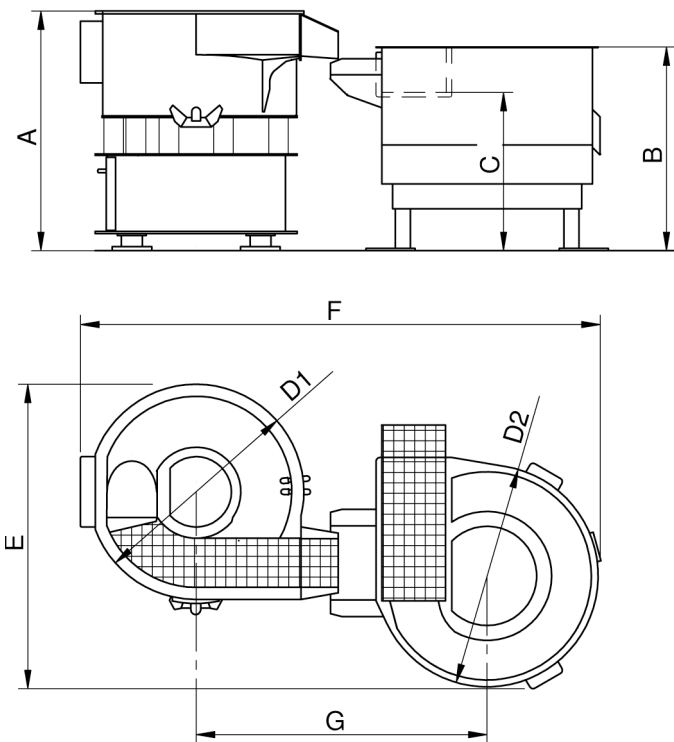
The special GTM 300 drying medium for spotless drying of cleaned cutlery has very low dust levels and is sterilized (according to stringent European standards, DIN EN 1174, Lab no. 23036M068). The granules are air classified and have a defined grit size, so that jamming between fork tines is avoided.

Polishing media BPK

With the use of BPK polishing media dirt, stains, rust and scratches are removed from your cutlery, and at the same time, a high-gloss finish is achieved. This increases the service life of your cutlery significantly.

Basic dimensions cutlery cleaning machines

| | BRA 900 | BRA 1200 | BRA 1600 | BRA 2500 |
|----|---------|----------|----------|----------|
| A | 1,044 | 1,294 | 1,410 | 1,520 |
| B | 886 | 1,100 | 1,165 | 1,270 |
| C | 680 | 855 | 920 | 975 |
| D1 | 980 | 1,162 | 1,462 | 1,616 |
| D2 | 978 | 1,198 | 1,198 | 1,652 |
| E | 1,390 | 1,840 | 2,194 | 2,525 |
| F | 2,350 | 2,921 | 3,192 | 3,910 |
| G | 1,250 | 1,700 | 1,835 | 2,250 |



Space requirements for machine and control panel with dosing system

| | BRA 900 | BRA 1200 | BRA 1600 | BRA 2500 |
|-------------------------------|----------------------------|----------------------------|----------------------------|-----------------------------|
| Washing vibrator and drier | approx. 3.2 m ² | approx. 5.3 m ² | approx. 7.0 m ² | approx. 9.8 m ² |
| Control panel and dosing unit | approx. 0.6 m ² | approx. 0.6 m ² | approx. 0.6 m ² | approx. 0.6 m ² |
| Total | approx. 3.8 m ² | approx. 5.9 m ² | approx. 7.6 m ² | approx. 10.4 m ² |

Technical data

| | BRA 900 | BRA 1200 | BRA 1600 | BRA 2500 |
|--------------------------------------|------------------|---------------|---------------|---------------|
| Cutlery volumes parts/hour | 1,250 | 2,000 | 3,000 | 5,000 |
| Washing vibrator | BRR 100 | BRR 200 | BRR 400 | BRR 600 |
| Filling polishing media BPK | 200 kg | 250 kg | 450 kg | 800 kg |
| Weight of washing vibrator, filled | 520 kg | 1,100 kg | 1,750 kg | 2,100 kg |
| Fresh water consumption | 60 l/h | 190 l/h | 250 l/h | 330 l/h |
| Fresh water temperature | ≥ 40 °C / 104 °F | | | |
| Consumption of rinsing agent BRS 13 | 0.14 kg/h | 0.29 kg/h | 0.52 kg/h | 0.68 kg/h |
| Granulate drier | BT 100 | BT 200 | BT 200 | BT 500 |
| Granulate filling GTM 300 | 36 kg | 54 kg | 54 kg | 126 kg |
| Weight of drier, filled | 460 kg | 650 kg | 650 kg | 1,250 kg |
| Working temperature, drier | > 65 °C / 149 °F | | | |
| Electrical connection | 400 V - 50 Hz | 400 V - 50 Hz | 400 V - 50 Hz | 400 V - 50 Hz |
| Connected load | 8.4 kVA - 32 A | 18 kVA - 32 A | 18 kVA - 32 A | 38 kVA - 54 A |
| Current consumption, total, per hour | 4.5 kWh | 8.4 kWh | 9.8 kWh | 21.9 kWh |
| Fresh water connection | 1/2" | 3/4" | 3/4" | 3/4" |
| Waste water connection | DN 40 | DN 20 | DN 20 | DN 20 |