EW 2 - Automated Endoscope Reprocessor

Automatic endoscope reprocessor for low temperature washing and high level disinfection of flexible endoscopes. It is developed for the treatment of all types and brands of flexible endoscopes.

The new Steelco EW 2 machine has been developed to fully comply with the ISO 15883-4 directives and it incorporates all the latest innovative technologies.

It can be supplied in a pass-through interlocked double door version, or single door with overturning wing at an ergonomic height.

Steelco EW 2 can run the washing and high-level disinfection cycle at low temperature of 2 flexible endoscopes simultaneously.

For video bronchoscopes and fibrobronchoscopes the capacity can be even increased up to eight instruments per batch.

It also allows the process of thermal disinfection for instruments such as rigid scopes with a specific wash cart.

Pass-through interlocked double door version

The modern endoscopic reprocessing department has a physical separation between the clean and the unclean area.

Only frontal loading models are suitable for this purpose. Steelco automated endoscope reprocessor EW2 is available as a double-door model with interlocked doors. When opened, folding doors are also useful as ergonomic working surface for the connection of the endoscopes.

Steelco is one of the world’s leading manufacturers of WD's for the Central Service. Our long-term experience in the field of instrument reprocessing can be easily recognized in the innovative leadership of EW 2 machine.
**EW 2 - Unique features**

- Compatible and tested with peracetic acid (cold disinfection) and glutaraldehyde (chemo-thermal)
- RFID detection of the process chemicals
- User and instrument recognition through bar code reading system or RIFD (Radio Frequency Identification).
- Precise endoscope channel-check (up to 7 channels) with two independent monitoring systems through pressure and flow measurement.
- Leak test at the beginning of the cycle and continuous monitoring during all cycle phases with automatic cycle stop in case of anomaly.
- Dedicated individual pumps, pressure and flow control for each endoscope channel.
- Individual pressure and flow channel control system with data logging during the whole cycle.
- Self thermal disinfection cycle at 90°C as required from the UNI EN ISO 15883-4 rule including endoscope basket and connections.
- Disinfection of all the water used in the process with a two stage high level water filtering (0.5 μm and 0.1 μm filters) for endotoxin removal.
- Complete **cleaning and disinfection cycle time** of 2 flexible endoscopes in **30 minutes**.
- The use of Steelco chemicals for cleaning and disinfection guarantees highest microbiological efficiency and documented results in the instruments biofilm removal
- Integrated sterile air filter for channel leak test, purging and drying.
- Data logging of all program data and instrument parameters, graphically visualized as a curve.
- Large color LCD touch screen display for easy machine operation and endoscope/operator database management.
- Complete documentation on integrated printer or to PC/hospital server with SteelcoData software.

**Optional**

- Drain pump
- RFID sensor for instrument/operator recognition
- Oil free air compressor (requires medical compressed air filtering system)
- Conductivity sensor
- Bar code reader for instrument/operator recognition
- Light inside the chamber
- Steelcodata software for data management and devices remote monitoring
- Medical compressed air filtering system (for air compressor or connection to no medical quality compressed air source)
- Remote control assistance
- Increased total power for reduced disinfection cycle time
- Washing chamber forced warm air drying

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**Dimensions and connections**

<table>
<thead>
<tr>
<th>Standard electrical connection (International)*</th>
<th>400V/3↔N/50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional electrical connection (North America)</td>
<td>208V/3↔N/60Hz</td>
</tr>
<tr>
<td>Power</td>
<td>6050 W</td>
</tr>
<tr>
<td>Noise</td>
<td>62,4 dB(A)</td>
</tr>
<tr>
<td>Permitted room temperature</td>
<td>+5°C/41°F - +40°C/104°F</td>
</tr>
</tbody>
</table>

*other available connections: monophase 230V/50Hz with total power reduced to 3550 W
triphas 400/50Hz with increased total power and reduced disinfection cycle time

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**Connectors**

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>Thread Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demineralized water connection</td>
<td>¾&quot; male DN 20 mm</td>
</tr>
<tr>
<td>Cold water connection*</td>
<td>¾&quot; male DN 20 mm</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>¼&quot; male - ø8 mm pipe holder</td>
</tr>
<tr>
<td>Medical compressed air connection</td>
<td>¼&quot; male - ø8 mm pipe holder</td>
</tr>
<tr>
<td>Machine drain</td>
<td>1&quot; female DN 25 mm</td>
</tr>
<tr>
<td>Chamber exhaust pipe connection</td>
<td>0 60 mm</td>
</tr>
</tbody>
</table>

* to be used if demi water is not available
Steelco Patented rotating wash cart for flexible endoscopes has been developed for effortless general operation and also for restricted space areas.

The rotation of the cart assures a frontal insertion of both instruments making the connection of the washing channels easy.

The process is separately controlled for each instrument.

C558 rotating wash cart for 2 flexible endoscopes

Locking device
The alignment of the cart for a proper working position is assured by a one way locking device.

External surface cleaning
A dedicated system ensures the safe storage of the instrument during the process and a complete disinfection/sterilization of the external surface of the endoscope.
Steelco has manufactured a 2 levels basket that allows the simultaneous treatment of 2 flexible endoscopes which can also be easily used in areas with restricted space.

The removable tray can be used for the no-contact transportation of the endoscope to the ED 100/200 cabinets for drying and storage.

The endoscopic instrument should be placed within the removable basket preventing the contact between the parts of the endoscope that can generate areas unreachable by washing/disinfection.

The accessory C565 avoids endoscopic instrument overlapping points, places the connection tube and the distal tube in a constant slope to facilitate the natural drain of fluids from the channels.

SAFE CASE for compliant and validated TEE probe reprocessing

With Steelco SAFE CASE the electronic control and connection cable are placed inside an hermetic case and isolated from the distal tube that requires a complete washing cycle and a high level non thermal disinfection.

The whole package can be placed inside a washer disinfector where an automatic, compliant and validated reprocessing cycle can be executed.

To be used on a 2 level wash cart C559 with dedicated C562 insert to allow the simultaneous treatment of 2 transesophageal probes.

C560 - video bronchoscope, fibrobronchoscope wash cart

Wash cart for the simultaneous treatment of: 4 videobronchoscopes/cystoscopes or 8 fiberscopes/cystoscopes with separate control.

This innovative system allows to save money but with the high process safety. Standard cycle 5 minutes at 35°C, high level disinfection cycle that can be tested with biological indicators.
EW 2 - Washing carts

C563 rigid scopes wash cart

Wash cart for nr. 20 rigid scopes with the possibility of luer lock connection for washing.

In accordance to the UNI 15883/1 guideline and coherent to an environmental conscious behaviour Steelco strongly recommends to apply thermodisinfection process for all reusable medical devices that can be high temperature treated. EW2 endoscope reprocessor machine can run a standard thermal disinfection cleaning program.

C568 endoscope storage cassettes wash cart

Wash cart for nr. 2 endoscope storage cassettes.

Conformity to UNI EN ISO 15883

Steelco EW2 is fully complying to the UNI EN ISO 15883-1 and UNI EN ISO 15883-4 and incorporates the most advanced technologies in this field.

The process has been validated by some of the most important microbiological institutes.
**EW 2 - Endoscope connections**

<table>
<thead>
<tr>
<th>Channel</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bioptic 1</td>
<td></td>
</tr>
<tr>
<td>bioptic 2</td>
<td></td>
</tr>
<tr>
<td>water</td>
<td></td>
</tr>
<tr>
<td>air</td>
<td></td>
</tr>
<tr>
<td>suction</td>
<td></td>
</tr>
<tr>
<td>elevator</td>
<td></td>
</tr>
<tr>
<td>aux water/CO₂</td>
<td></td>
</tr>
</tbody>
</table>

**Connection scheme**
The number and kind of connections change from scope to scope. Colour coded connection for easy identification of each individual channel.

**Channel connections**
A typical connection scheme is also impressed on the washing cart for operator's aid. Endoscope position is easily identified by a number.

**Cart/washing machine coupling system.**

**Connection hoses**
The connection hoses used in the EW 2 are flexible for easy attachment of the adapters to the endoscope and crimped thus avoiding unnecessary interruptions of the treatment program. Hoses are made with FDA-approved materials to offer protection against biofilm and can be disinfected both chemically and thermally (EW2 self disinfection cycle at 90° C).

**Adapters and connectors**
The ARES program includes a complete range of manufacturer-specific connectors for the endoscopes reprocessing. The products are characterized by a high quality manufacturing for longer life and to ensure the tight connection to the cleaning system without pressure loss. The Steelco adapters range includes connectors for virtually all flexible endoscopes from all manufacturers.
**EW 2 - standard cycle description**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- pre wash</td>
<td>This is required to remove chemical residues from manual washing and to remove contaminant agents.</td>
</tr>
<tr>
<td>2- main wash</td>
<td>This is required to remove organic residues and microbial biofilm.</td>
</tr>
<tr>
<td>3- first rinse</td>
<td>Rinse from the chemical residues of the previous main wash.</td>
</tr>
<tr>
<td>4- high disinfection</td>
<td>The standard program for high level disinfection grants a 5 minutes cycle at 35°C/95°F.</td>
</tr>
<tr>
<td>5- rinse</td>
<td>Rinse phase with 0.1µm filtered water (medical device) to assure a process with sterile water and without endotoxines. Additional rinses (opt.) with sterile filtered water from the EW2 high level water filtering system.</td>
</tr>
</tbody>
</table>

* EW2 performs sterile air channel purging before every single cycle phase

**Optimal performance with Steelco process chemicals**

In cooperation with the market leading manufacturer for process chemicals used in instrument disinfection Dr. Weigert GmbH & Co. KG, neodisher® products were configured specifically for the Steelco EW2.

Steelco has implemented (first in the market) the use of RFID technology for the identification of the process chemicals together with the registration of the lot number and expiration date. An important safety application that keeps the process monitored and documented also in this often neglected aspect.

**Steelco neodisher® SC**
This product guarantees the excellence in cleaning performances and protection of the materials even at dosing temperature of 35°C/95°F.

**Steelco neodisher® Septo PAC**
Based on peracetic acid, this disinfectant chemical has a broad spectrum of activity providing secure and fast processes with the best material compatibility.

**neodisher® Mediklar**
The use of this rinsing agent improves the drying results of the instruments.

By using Steelco process chemicals the EW 2 automatic endoscope reprocessor reaches the highest efficiency results proven by microbiological tests together with complete documentation and instruments maximum safety conditions.

**Final rinse sterile water**

The double-stage microbiological filtration system not only secures the validated disinfection of process water for the final rinse phase, it also disinfects the amount of water needed for the whole cycle, so that the spread of germs from the site water supply in the endoscope reprocessor is totally excluded.

Filters performances are continuously checked providing maximum security.
Filters are decontaminated during the thermal self-disinfection program of the machine thus guaranteeing a long time service life. Both filters are approved medical devices.
The most advanced controller, the easiest interface, the safest system.

The EW2 is controlled by a last generation PLC which communicates with a redundant system of probes for temperature control, chemical dosing and water consumption. For additional functioning security it is foreseen a second electronic board.

A 5,7” touch screen panel lets the operator interface.

The system access is protected by a 3 levels password (installer - maintenance technician - final user) and requests operator identification to enable the washing cycle programming or their own start.

The software manages a database of endoscopes. At the first start of the machine the technician associates to each instrument the relevant elements for its identification, i.e. manufacturer, type, model and the parameters related to flow and pressure, number of active channels, pump functioning mode.

The standard features of the EW2, and the optional bar code reader or RFID sensors avoid the risk of human error for the identification and selection of the disinfection program.

The startup screen of the cycle is simple and, in case of automatic recognition of the instrument, the cycle start is almost immediate.

The graphic interface is very similar to the drying and storage cabinet one as well as to the Steelcodata software one.

From when the cycle is started the progress of the cycle will graphically be shown and the parameters referred to time remaining for phase and cycle completion will be displayed.

During the instrument reprocessing cycle, the EW2 display allows the visualization of:

- General state of functions
- Active parts
- Temperature trend and leak test
- Selection of the 4 synoptic for the visualization in real time of sensitive parameters such as channel active pumps, channel flows, channel pressures, temperature, etc.

All parameters are recorded for later processing and storage.

The Steelcodata software and the Steelco medical devices control panel interface are available for the mainly spoken worldwide languages: English, French, Spanish, German, Dutch, Italian ...