

Typhoon



The model name and serial number should always be provided when ordering spare parts or during queries per telephone or written correspondence:

Serial number of the machine:

.....

Machine model:

.....

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PREFACE

The user manual describes the design and operation of the machine and the maintenance for which the user is responsible. The installation manual describes the machine's installation. The technical manual describes necessary information for operators and maintenance personnel. The information in the manual must be complied with to ensure safe and error-free operation.



Read the manual before use.

Users must read through the manual before using the machine for the first time, as well as familiarizing themselves with the operation of the machine and its safety instructions. Operators and maintenance personnel must have completed training through the marketing organization of Arjo.

The information in this manual describes the machine as dispatched from Arjo. There may be differences due to customization for customers or countries.

The machine is accompanied by the following documentation:

- User manual
- Installation manual
- Quick guide

The following documentation shall be provided by the sales company to the end-user on request:

- Technical manual
- Spare parts list

The accompanying Quick guide must be hung up and clearly visible in the installation area.

Arjo reserves the right to change the specification and design without prior notice. The information in this manual was up-to-date on the date that the manual was issued.

1 SAFETY PRECAUTIONS

This machine has a number of built-in safety devices.

To avoid injury, it is highly important not to bypass these safety devices.

If the equipment is used in a manner not specified by the manufacturer this can impair the safety equipment on the machine.

Operators and maintenance personnel must undergo safety training for the machine. All personnel who handle chemicals for washing and disinfection must understand the washing process, possible health hazards and ways of detecting leaks of toxic chemicals.

Operators and maintenance personnel must undergo regular training in the operation and maintenance of the equipment. There must be a documented list of personnel who have been trained to use the machine. Trained personnel must be tested to verify the training program.

1.1 Important

- Take care when handling the chemical agents used in the machine. Read the details on the container or contact the manufacturer:
 - if the agent comes into contact with the operator's eyes or skin or if the vapors are breathed in, etc.
 - about storing the detergent and disposing of empty containers.
- The equipment must only be used by personnel with proper knowledge and who are trained to use it. Personnel must also receive regular training on this equipment.
- Read the user manual thoroughly before use
- Never use the flusher-disinfector if you are not sure how to operate it.
- Follow the written instructions.
- Keep the equipment clean.
- The electric power must be switched off before the machine cabinet is opened. (The machine cabinet contains electrical components).
- Make sure that there is always detergent in the bottles. This is important both for the operation of the machine and for keeping the washing chamber free from discolorations.
- Always use the equipment in accordance with the local regulations.
- Always connect the equipment via an RCD (residual current device).
- Always use a grounded power supply for the flusher-disinfector.
- If the items have not cooled down after cleaning, be sure to handle them with care
 - in order to avoid burns.
- Before starting, check the waste outlet at the bottom of the flushing chamber for blockages. This will ensure that the flusher disinfector works properly.
- Do not place items that are sensitive to heat or moisture on top of the flusher-disinfector.

1.2 Make sure assembly and installation work is carried out by

- by qualified personnel.
- in accordance with current local regulations and rules.

1.3 Isolator switch

The machine must always be equipped with a separate isolator switch in the feed power supply. The isolator switch must be easily accessible on a wall close to the machine. The external electrical isolator switch must be marked “I” and “O” to identify the position of the switch.

1.4 In an emergency

- Switch off the main switch.
- Close shutoff valves in the water supply line.

1.5 Product liability

CE marking indicating conformity with European Community harmonised legislation.

Any modification or incorrect use of the equipment without the approval of Arjo negates Arjo's product liability.



**CE marking indicating conformity with European
Community harmonised legislation
Figures indicate Notified Body supervision.**

1.6 Attention symbols

Some of the warnings, instructions and advice in this manual require extra attention. The symbols and designs used are:



Risk of injuries or machine damage.

2 INSTALLATION

2.1 General

2.1.1 Make sure assembly and installation work is carried out



To avoid the risk of back injury, this equipment should be assembled and installed by at least two people.

- by qualified personnel.
- in accordance with current local regulations and rules.
- for indoor installation only.
- not to be installed in wet locations.

2.1.2 Installation order

Carry out the installation in the following order:

1. Unpacking
2. Positioning
3. Connecting water
4. Connecting electric power
5. Installation inspection

2.2 Unpacking

Note! Before installing make sure the flusher-disinfector has not been damaged in transit.

The following items must accompany the flusher-disinfector when it is delivered:

- Two cabinet keys
- One folder containing documentation

The flusher-disinfector is supplied securely bolted to a pallet.

1. Remove the packaging.
2. Move the flusher- disinfector as close to the installation position as possible, when still secure to the pallet using mechanical means.
3. Remove the bolts securing the flusher disinfector to the pallet.

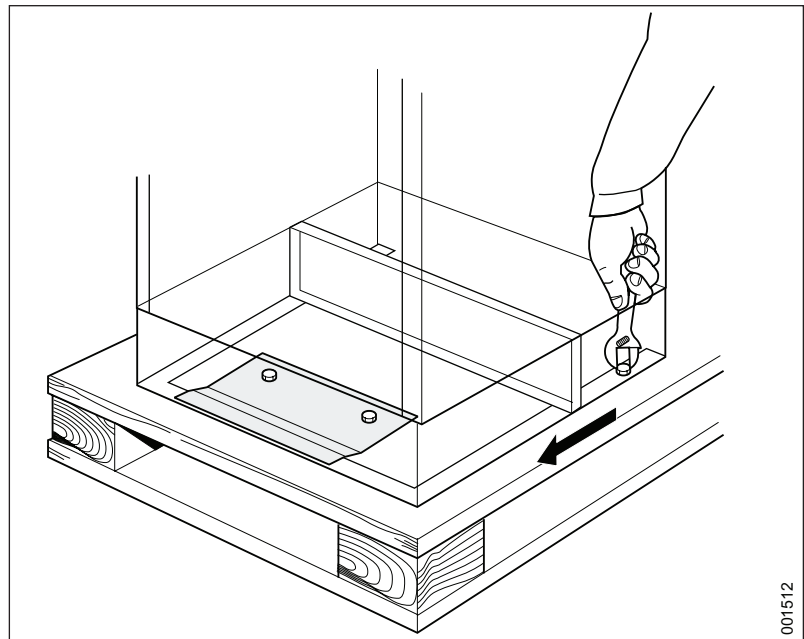


Figure 1. Unscrew bolts

4. Assess the flusher-disinfector for lifting from the pallet. Use at least two persons to lift the flusher-disinfector to the floor or to a low level wheeled trolley to aid movements to the final position.

2.3 Diagram showing dimensions and hole pattern

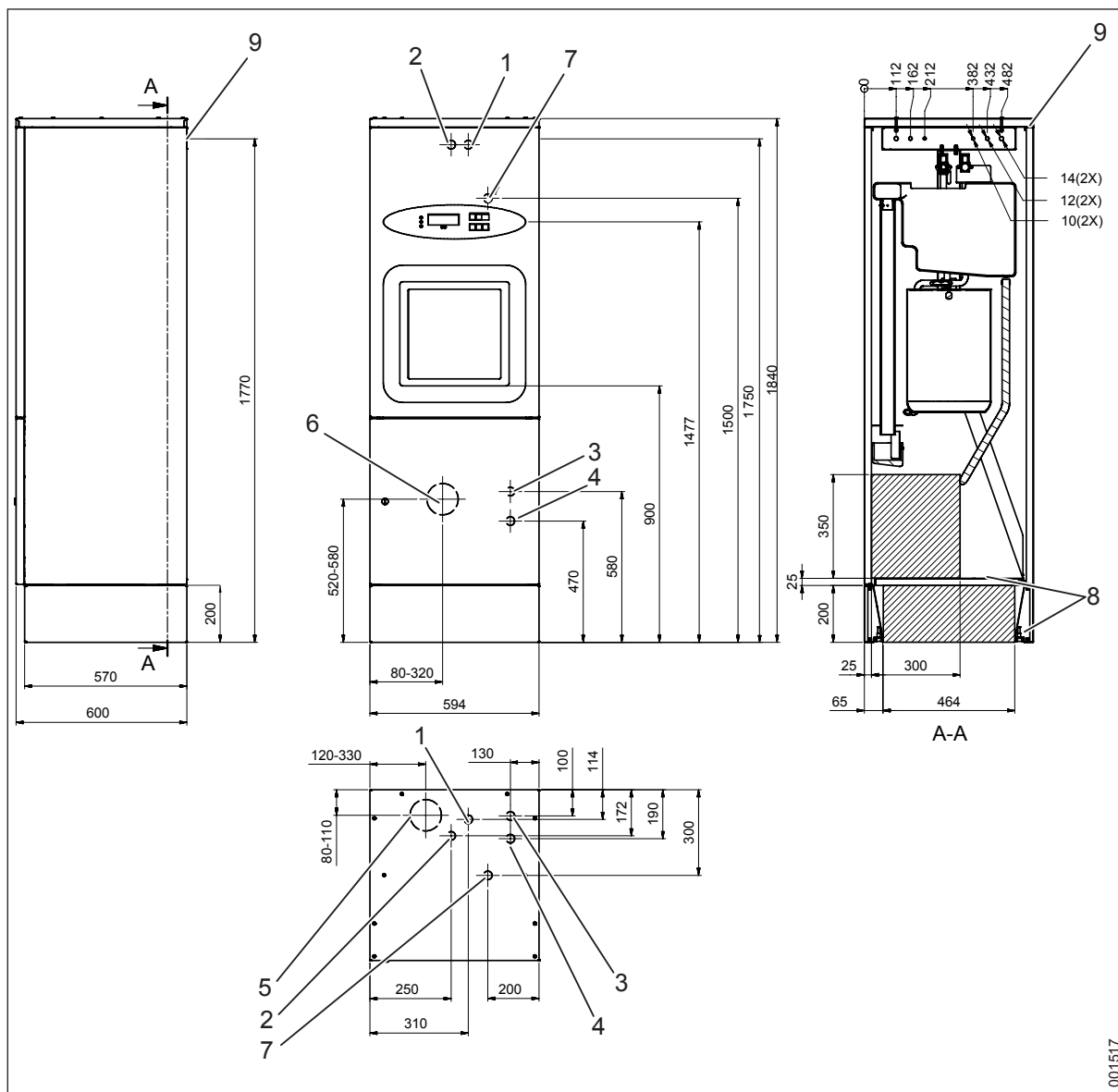


Figure 2. Diagrams showing dimensions and hole pattern

1. CW, G1/2" female (TWO METERS OF HOSE FROM THIS POINT ARE INCLUDED WITH THE MACHINE)
2. HW, G1/2" female (TWO METERS OF HOSE FROM THIS POINT ARE INCLUDED WITH THE MACHINE)
3. EXTERNAL STEAM, G1/2" female
4. SOFT WATER, G1/2" female
5. WASTE CONNECTION, S-TRAP, FLOOR, 110/90.
6. WASTE CONNECTION, P-TRAP, WALL, 110/90.
7. ELECTRICAL CONNECTION. (4 M CABLE FROM THIS POINT IS INCLUDED WITH THE MACHINE.)
8. AREAS FOR INCOMING MEDIA. (DEPENDS ON HOW THE DRAINAGE IS ARRANGED).
9. HOLE FOR ATTACHING TO THE WALL

2.4 Positioning

- Fit the trap to the waste outlet. The trap can be connected towards the rear or downwards. The pipe diameter is 90 or 110 mm.
- Position the machine and level it using a spirit level held vertically against the side of the machine. Adjust with the adjustable feet of the machine using at least a 25 cm long slotted screwdriver.

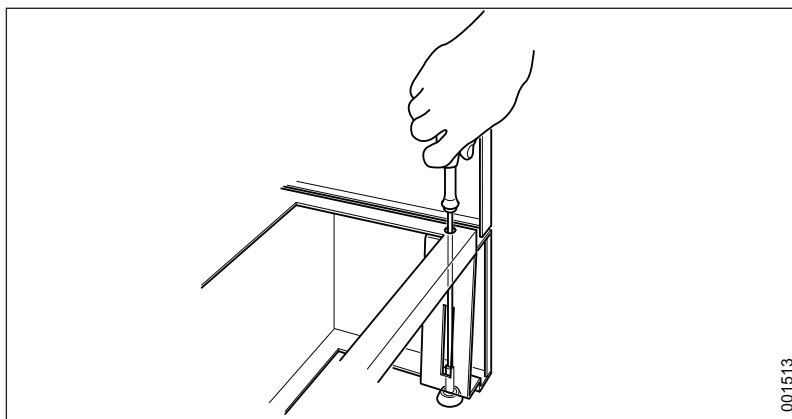


Figure 3. Adjusting the feet of the machine

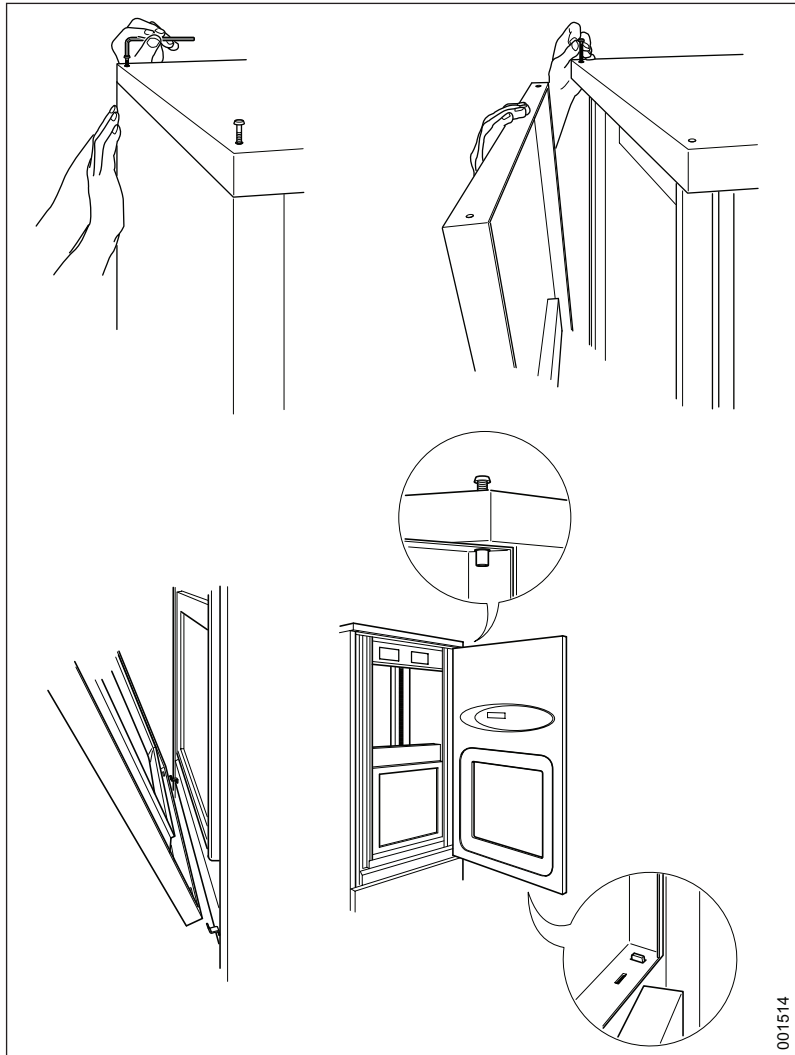
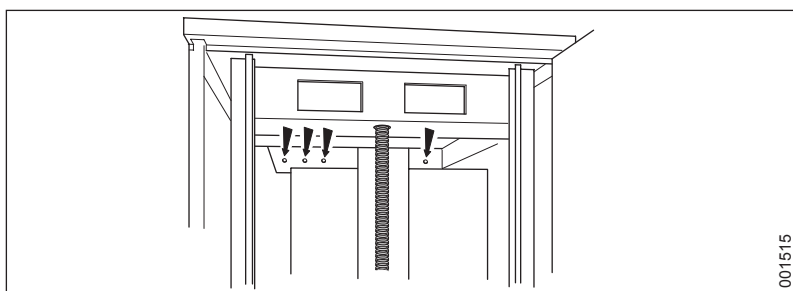


Figure 4. Handling panels

- Release the panel and lock it in the service position.
- Measure up and drill the holes for securing the machine to the wall.



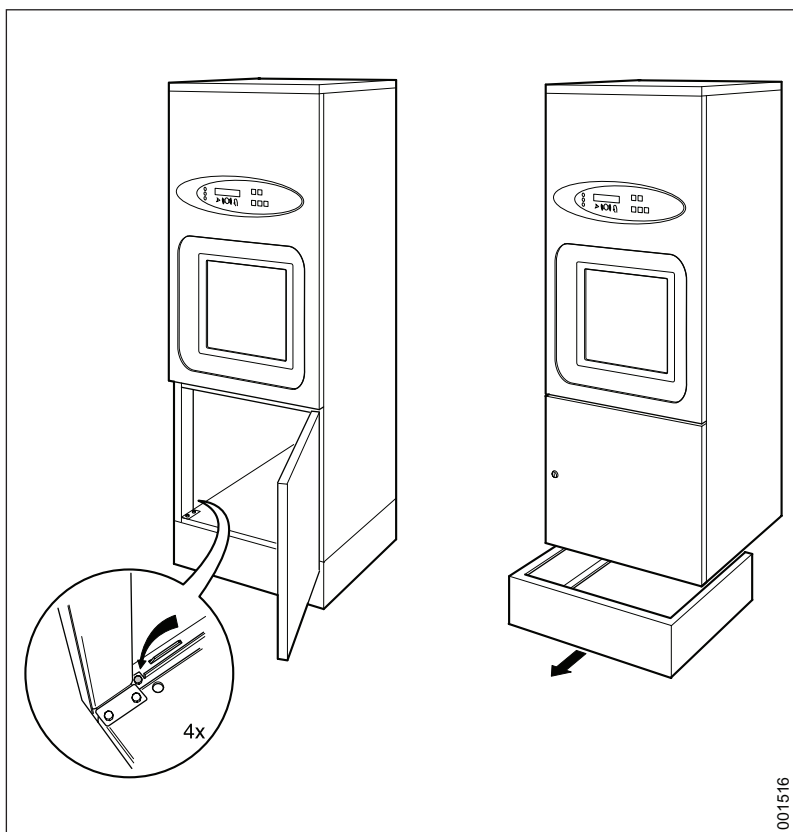
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Figure 5. Measure up the holes on the wall

- Fix the machine to the wall. Use suitable screws and washers for the material of the wall.

Note! When the plinth is removed, the entire weight of the machine is now supported by the bolts in the wall.

- If the plinth is not going to be used, remove it by unscrewing the four bolts and pull out the plinth.



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Figure 6. Unscrew the plinth

2.5 Connecting water

- The connections must satisfy the requirements for water connection in accordance with the table below.

	Cold water Blue	Warm water Red
Connection	15 mm (1/2")	15 mm (1/2")
Pressure	100-800 kPa	100-800 kPa
Flow rate	20 l/min at 400 kPa pressure	20 l/min at 400 kPa pressure
Temperature	≥2°C	45-60°C

- Connect the water supplies.
- The pipes must be fitted with an approved 1/2" shutoff valve.
- Seal all connections with PTFE tape.

2.6 Connecting electric power

Carry out the electrical installation as follows:

- Install the machine in accordance with installation category CAT II.
- Make a hole for electric cables in the plinth or baseplate of the machine.
- Fit the supplied cable bushing and pull the cables through.

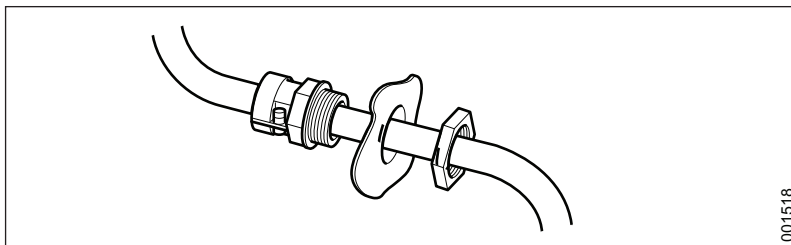


Figure 7. Cable gland

- Connect the machine to a separate isolator switch approved to local standards, which must be mounted on the wall close to the machine.
- Connect to the protective grounding and to the supply voltage stated on the type plate. Check that the connection has suitable overcurrent protection. The correct fuse rating is stated on the type plate.
- All cables must be classified for at least 90°C.
- Fuses as per. Curve C.

2.6.1 Coupling alternative

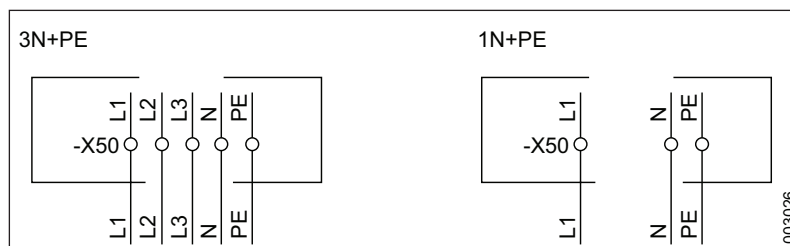


Figure 8. Electrical connection

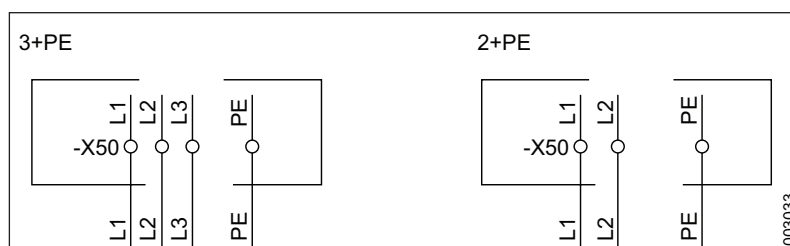


Figure 9. Electrical connection

Voltage	Connection	Frequency	Fuse	Power requirement
400 V	3N+PE (TN)	60 Hz	3 × 15 A	5.71 kW
400 V	3N+PE (TN)	50 Hz	3 × 10 A	5.51 kW
240 V	3+PE (TN)	60 Hz	3 × 15 A	5.71 kW
240 V	2+PE (TN)	60 Hz	1 × 20 A	4.35 kW
240 V	2+PE (TN)	60 Hz	1 × 10 A	1.36 kW
230 V	3+PE (TN)	50 Hz	3 × 16 A	5.51 kW
230 V	1N+PE (TN)	50 Hz	1 × 20 A	4.35 kW
230 V	1N+PE (TN)	50 Hz	1 × 10 A	1.16 kW
208 V	3+PE (TN)	60 Hz	3 × 20 A	5.71 kW
208 V	2+PE (TN)	60 Hz	1 × 22 A	4.35 kW
208 V	2+PE (TN)	60 Hz	1 × 10 A	1.36 kW
200 V	3+PE (TN)	60 Hz	3 × 20 A	5.71 kW
200 V	3+PE (TN)	50 Hz	3 × 20 A	5.51 kW
200 V	2+PE (TN)	60 Hz	1 × 25 A	4.35 kW
200 V	2+PE (TN)	50 Hz	1 × 25 A	4.35 kW
200 V	2+PE (TN)	60 Hz	1 × 10 A	1.36 kW
200 V	2+PE (TN)	50 Hz	1 × 10 A	1.16 kW

Operates within MAINS supply voltage fluctuations up to $\pm 10\%$ of the nominal voltage.

2.7 When the work is complete, check that


- all parts have been installed according to the installation manual.
- all screws have been properly tightened.
- there are no sharp edges on any parts that may come into contact with people.
- all hoses, pipes and connections are intact and free from defects.
- all the functions of the machine are working properly. Adjust if necessary.

Carry out an Installation Qualification, an Operating Qualification, and a Performance Qualification according to ISO 15883 before putting the machine into service.



Incorrect use may result in damage to objects and personal injury.

2.8 Function check

Note! Make sure that the suction hose in the dosing pump is full of agent before beginning. The dosing pumps can be operated separately in the service program to fill the hoses with agent, line 82 (se Technical manual).

- Check that the flusher-disinfector is connected to the correct supply voltage and that it is protected by a fuse of the correct rating as shown on the type plate.
- Turn on the isolator switch. Check that all lamps on the panel light up and that the buzzer sounds. The display then shows the current program version, followed by the preselected program. Open the water valves.
- If the machine has detergent dosing: Press  and check that the light in the button comes on.
- Check that the temperature of the incoming water is correct. The temperature must be in the 45-60°C range for hot water and not less than 2°C for cold water.

Note! Make sure that the suction hose in the dosing pump is full of agent before beginning. The dosing pumps can be operated separately in the service program to fill the hoses with agent, line 82 (se Technical manual).

- Start a program with the machine empty and check that:
 - yellow light flashes for 6 seconds.
 - yellow light on  comes on.
 - - the temperature rises continuously until the cooling phase begins.
 - pause for heating-up does not exceed about 10 min.
 - - the temperature reaches 90°C.
 - the green lamp at  lights up and the display shows U7 (hot goods).
 - when the door is fully open, check max temperature.

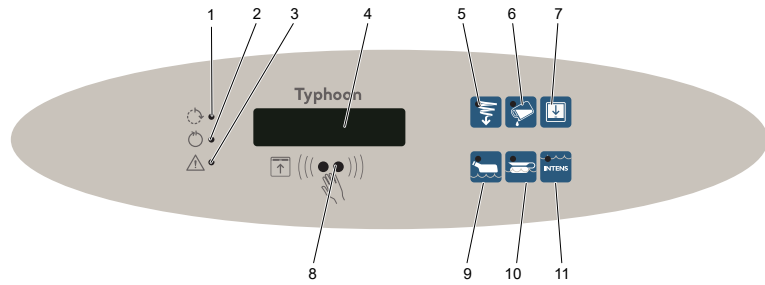



Figure 10. Control panel

1. Yellow: Process running
 2. Green: Process complete
 3. Red: Disinfection not achieved or other error code F
 4. Display
 5. Rim flushing
 6. Option (detergent)
 7. Open/close door.
 8. Sensor to open/close door and to start preselected program
 9. Economy program
 10. Normal program
 11. Intensive program
- The machine has a dosing system for descaler and possibly for processing agent (optional). Start a normal program and check that the disinfectant consumes the correct amount. For descaler, the amount per program is usually about 1.5 - 4.0 ml (follow the supplier's recommendations). Check the service program in the Technical Manual for checking and adjusting the dosage amount.
 - If the machine has a rim flushing program:
 - Press the  button and check that the rim flushing program is running.
 - Check that the door can be opened and closed with the sensor.
 - Check that there are no water leaks. If necessary, tighten connections and pipe couplings.

3 TECHNICAL DATA

3.1 Dimensions and weights

Dimensions and weights	
Weight	135 kg
Width	600 mm
Depth	600 mm
Height (incl. plinth 200 mm)	1840 mm

3.2 Connections

Water consumption		
Economy program	25 ± 10%	l/process
Normal program	31 ± 10%	l/process
Intensive program	39 ± 10%	l/process

Cold Water	
Connection	15 (1/2") mm
Pressure	100-800 kPa
Flow rate	20 l/min

Hot Water	
Temperature	45-60°C (113 - 140°F)
Connection	15 (1/2") mm
Pressure	100-800 kPa
Flow rate	20 l/min

Softened water	
Temperature	45-60°C (113 - 140°F)
Connection	15 (1/2") mm
Pressure	100-800 kPa
Flow rate	20 l/min

Steam	
Connection	15 (1/2") mm
Pressure	30-300 kPa
Flow rate	0.3 kg/process

Drainage	
Connection	Ø 90/110 mm

3.3 Miscellaneous

Miscellaneous	
Dead volume	<2.3 l (main pump and steam generator)
Sound level	60 dB (A) leq

3.4 Environmental requirements

Air humidity, maximum	80% at 31°C (87°F)
Room temperature	5 - 40°C (41 - 104°F)

3.5 Protection class

Pollution Degree	2
Overvoltage category	II
Protection class	IP 21
Max altitude*	2000m above sea level

* Maximum height above sea level to use the machine.

3.6 Accessories

Article number	Description
499631900	Combination valve (shutoff valve/non-return valve/filter) 1 pair
502321001	Isolator switch
JAA101090	Tray for instruments
JAA101490	Insert tray
502391600	P-trap, (diam. 110 mm)
502391700	S-trap, (diam. 110 mm)
502391800	P trap (diam 90 mm)
502391900	S trap (diam 90 mm)
502520100	Straight compression coupling
502520000	Hose insert

When connecting plastic hose, this coupling and inserts may be purchased to join the hose to give the desired length.

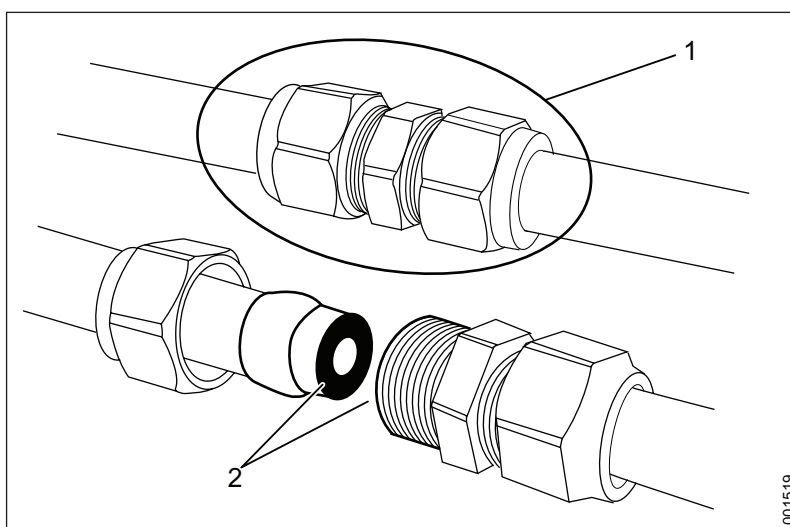


Figure 11. Coupling and hose insert

1. 502520100 Straight compression coupling
2. 502520000 Hose insert × 2

4 WATER QUALITY



It is the customer's responsibility to supply the washer-disinfector with water of the right quality.

The quality of the water used in all stages of cleaning is important for good cleaning results. The water used in each step should be compatible with:

- The material that the washer-disinfector is made of.
- The chemicals used in the process.
- Process requirements for the various stages of the process

The main factors for good water quality are:

Hardness	High hardness will cause limescale deposits in the washer-disinfector, leading to poor cleaning results.
Ionic contaminants	A high concentration of ionic contaminants may cause corrosion and pitting on stainless steel. Heavy metals such as iron, manganese or copper cause instruments to tarnish.
Microbial contaminants	Goods to be washed are treated for microorganisms and their residual products, which may cause fever-like symptoms if they get into the human body. Use water that does not increase the biological load.
Sanitary chemicals	High concentrations of, and high exposure to, sanitary chemicals may cause corrosion and pitting on stainless steel.

Arjo recommends that water used in the pre-rinsing, washing and final rinsing phases should be of drinking quality in accordance with the guidelines. Recommended water quality is drinking water with max 5°dH. Detailed information about acceptable water quality can be found in “Guidelines for Drinking Water Quality, published by WHO.

Follow local standards if they are stricter than Arjo’s recommendations. Especially when treated water is used for the final washing/disinfection phase. A typical specification for treated water is:

pH	5.5 to 8
Conductivity	<30 µs.cm-1
TDS	<40 mg/l
Maximum hardness	<50 mg/l
Chlorine	<10 mg/l
Heavy metals	<10 mg/l
Phosphates	<0.2 mg/l as P2O5
Silicates	<0.2 mg/l as SiO2
Endotoxins	<0.25 EU/ml
Total number of micro-organisms	<100 per 100 ml

Additional advice should also be obtained from the manufacturers of chemical and medical equipment.

5 END OF LIFE DISPOSAL

Equipment that has electrical and electronic components should be disassembled and recycled per Waste of Electrical and Electronic Equipment (WEEE) or in accordance with local or national regulation.

Disinfection liquids – if you have extra liquid, it's safe to pour it down the drain with running water. These products are water soluble and usually mixed with water when used for cleaning, your municipality will treat these cleaners the same way they would if you used them for cleaning.

The packaging containers should be recycled according to the national or local regulations.



WARNING!

The product may be contaminated and has to be disinfected before recycling.

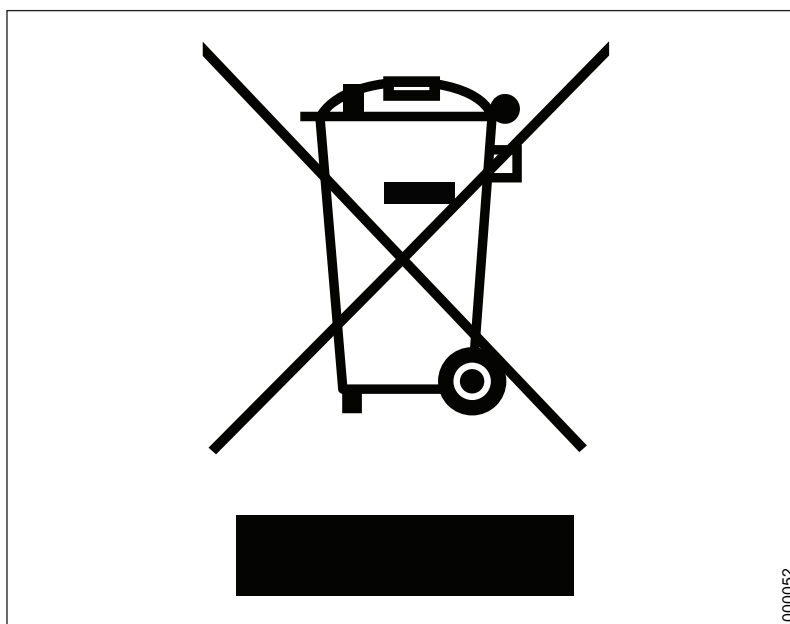


Figure 12. Recycling symbol

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At Arjo, we believe that empowering movement within healthcare environments is essential to quality care. Our products and solutions are designed to promote a safe and dignified experience through patient handling, medical beds, personal hygiene, disinfection, diagnostics, and the prevention of pressure injuries and venous thromboembolism. With over 6500 people worldwide and 65 years caring for patients and healthcare professionals, we are committed to driving healthier outcomes for people facing mobility challenges.



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