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MELAG
competence in hygiene

Technical Manual

Cliniclave® 45 D

Large steam sterilizer

from software version 3.218



EN

Read this manual carefully and in the correct order before setting up and commissioning the device. The instructions include important safety information. You also receive a user manual with the device. Please store this manual and the user manual carefully and in close proximity to the device. They represent a component of the product.

CE 0197

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1 General guidelines

Read this manual carefully and in the correct order before setting up and commissioning the device. The instructions include important safety information. You also receive a user manual with the device. Please store this manual and the user manual carefully and in close proximity to the device. They represent a component of the product.

Symbols used

Symbol	Explanation
	Indicates a dangerous situation, which if not avoided, could entail slight to life-threatening injuries.
	Draws your attention to a situation, which if not avoided, could result in damage to the instruments, the practice fittings or the device.
	Draws your attention to important information.

Formatting rules

Example	Explanation
see **Chapter 2**	Reference to another text section within this document.
`Universal-Program`	Words or phrases appearing on the display of the device are marked as display text.

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2 Installation requirements

Installation material

Installation set (art. no. 09027) for the water connections includes:

Qty.	Article	Art. no.
1	Surface-mounted siphon	72420
1	Rubber seal 3/4“ for external water supply	56950
1	Hose clamp	---
1	Hanger bolt M8x60	---

Included in the scope of delivery of the steam sterilizer (and required for installation):

Qty.	Article	Art. no.
4	Carrying handle	---
2	Transport bars inc. fixing material (if the steam sterilizer and floor unit are delivered separately)	---
1	Protective gloves (1 pair)	89600
1	Water outlet hose (1.5 m)	86610
1	Special key (hex for casters)	---
1	Test package for Bowie & Dick test	---
1	Membrane grommet (large) for the outlet hose	---
1	Membrane grommet (small) for the network cable	---
1	Ø 8/6 mm PTFE hose for the “emergency release” connection	---
1	Ø 16/13 mm PTFE hose for the over-pressure line connection “double jacket”	---
1	Ø 16/13 mm PTFE hose for the over-pressure line connection “chamber”	---

The following additional material can be ordered as required:

Qty.	Article	Art. no.
1	3/4“ water tap with safety combination	37310
1	Water stop	01056

Set for casing the wall breakthrough (component set wall installation, art. no. 88000) includes:

Qty.	Article	Art. no.
1	Corner rail with limit stop left	---
1	Corner rail with limit stop right	---
1	Corner rail without limit stop left	---
1	Corner rail without limit stop right	---
2	Corner rail above	---
2	Centring roll	---
1	Centring gauge	---
1	Spacer plate below 1	---
2	Spacer plate below 2	---
1	Stop bar	---
8	Hexagonal nut M6	---
2	Casing panel, right, magnetic	84155

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Qty.	Article	Art. no.
2	Casing panel, left, magnetic	84156
2	Casing panel, above, magnetic	84157
2	Casing panel, below, magnetic	84158
50	Drill head screws 3.5 x 25 mm	---
50	Drill head screw 3.9 x 50 mm	---
1	HSS drill bit N 2.5 mm	---
1	Bit 1/4“ (Torx 10)	---
1	Bit 1/4“ (Torx 20)	---

The connection set*) for installation of the MELAdem 56 reverse osmosis unit contains:

Qty.	Article	Art. no.
1	1.3 m feed water hose, Ø 10/8 mm PE hose	---
1	0.7 m outlet hose, Ø 6/4 mm PE hose	---
1	1 m permeate line, Ø 6/4 mm PE hose	---
1	0.7 m cold water line, Ø 8/6 mm PE hose	---
1	Manometer for measuring the primary pressure in the pressure tank	---

*) Only included in the scope of delivery of the steam sterilizer if a corresponding reverse osmosis unit is included in the delivery.

The required volume of feed water for immediate commissioning:

13 l in accordance with EN 285, Appendix B

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Installation location

WARNING

Failure to comply with the set-up conditions can result in injuries and/or damage to the steam sterilizer.

- The steam sterilizer should only be setup, installed and commissioned by persons authorized by MELAG.
- The steam sterilizer is not suitable for operation in explosive atmospheres.
- The steam sterilizer is conceived for use outside the patient area. The device should be located a minimum of 1.5 m radius away from the treatment area.

General requirements

Property	Requirements of the installation location
Clear width from the entrance of the practice to the installation location	min. 70 cm
Installation surface	level and horizontal in accordance with EN 285: waterproof, collects or deflects water running out of the steam sterilizer
Installation location	interior of a building (dry and protected from dust)
Max. floor loading (hydraulic pressure test)*)	465 kg | 116.3 kg per caster
Heat emission (with max. load)**)	1.4 kW
Ambient temperature	5-40 °C (ideal range 16-26 °C) Sufficient ventilation of the room must be guaranteed.
Relative humidity	max. 80 % at 31 °C, decreases in a linear fashion up to max. 50 % relative humidity at 40 °C
Max. altitude	star connection: 3000 m | delta connection: 4000 m
Illumination	in accordance with EN ISO 12100 and EN 1837
*) When using a MELAdem 56, an additional weight of 38 kg (9.5 kg per caster) must be taken into account. **) This applies to a maximum, solid load and opened door.	

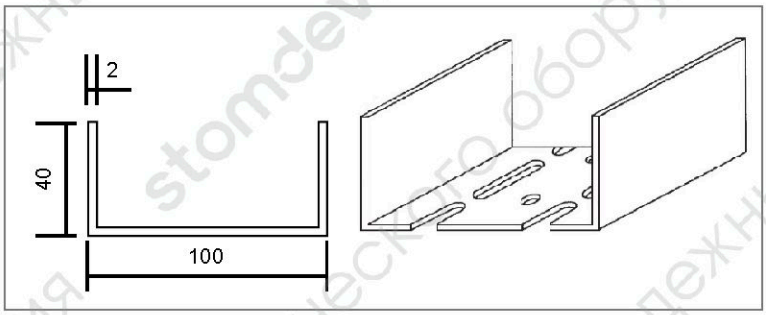
Steam egress can occur during operation. Do not set up the device in the immediate proximity of a smoke detector. Maintain clearance from materials which could suffer damage from steam.

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Separation of the loading and removal side

The steam sterilizer must be placed in a partition wall with a breakthrough to ensure a division between the clean and unclean sides. This partition wall should preferably consist of a drywall construction using U-shaped bracing profile 100 x 40 x 2.

Cross-section of a U-shaped bracing profile (all dimensions in mm)



Important information for existing solid walls: With existing solid walls, it is advantageous to install a drywall in the area of the steam sterilizer. The width of the drywall must selected so that the solenoid casing panels can be fitted easily and provides sufficient space for installation on the loading side. This requires a minimum width of 1.75 m, see also Space requirements [▸ page 14]. Optical reasons require that the wall be min. 2 m wide. If it is not possible to install a drywall, the solenoid casing panels can be fitted on the solid wall. This requires consultation with MELAG.

Requirements placed on the partition wall and the wall breakthrough

Properties	Requirements
Composition	dry construction form
Wall thickness K	min. 12 cm; max. 17 cm*)
Wall breakthrough	stable framework construction with reinforced U-bracing profile UA 100 x 40 x 2 (2 mm steel panel); subsequent casing using a layer of drywall
Width between the UA profiles	73.7 ± 0,5 cm plus 2x drywall strength
Height between the floor and the UA profiles	160 ± 0.5 cm plus 1x drywall strength
Width of the wall breakthrough (final dimension)	73.7 ± 0.5 cm
Height of the wall breakthrough (final dimension)	160 ± 0.5 cm**)
*) With diverging wall thicknesses, please consult with MELAG. **) From the floor / tile edge	

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Setting up the frame

The width and the height of the frame depend on the strength of the drywall. The following dimensions table helps determine the correct dimensions for the wall breakthrough:

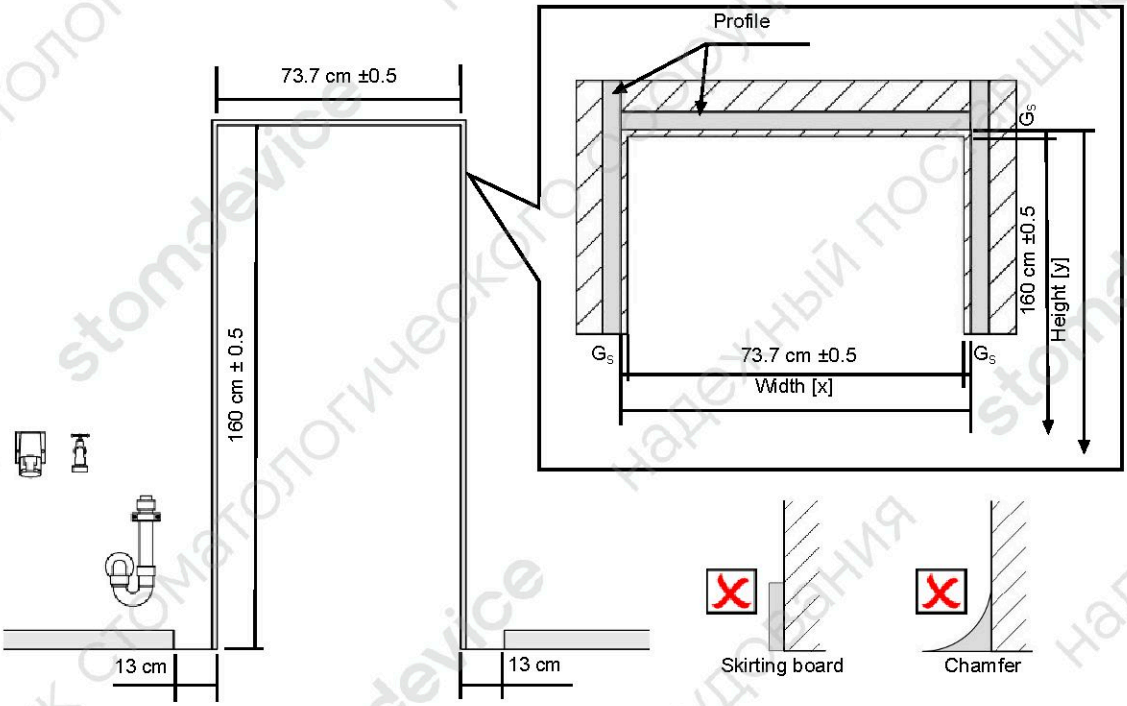
Strength of the drywall Gs	Wall breakthrough	
	Width [x]	Height [y]
1 cm	75.7 cm	161 cm
1.25 cm	76.2 cm	161.25 cm
1.5 cm (max.)	76.7 cm	161.5 cm

Given differing drywall strengths, calculate the wall breakthrough as follows:

Width of the wall breakthrough [x] = 73.7 ± 0.5 cm + 2x drywall strength G_s
The height of the wall breakthrough [y] = 160 ± 0.5 cm + 1x drywall strength G_s

To permit flush installation of the metal cladding, no skirting boards or chamfers may be applied 13 cm left or right of the wall breakthrough on either the loading or the removal side.

Wall breakthrough with U-shaped bracing profiles

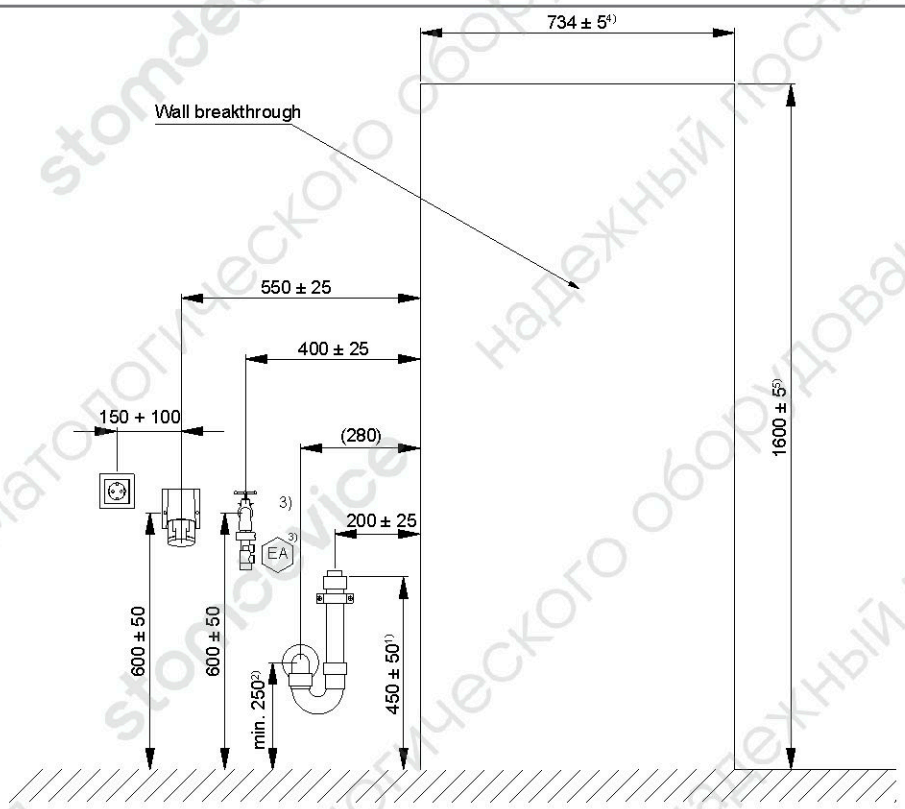


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On-side connections for installation

All water and electricity connections were installed on the loading side. The installation connections on the left-hand side of the wall breakthrough are shown as an example. The installation connections can be arranged in inverted fashion on the right-hand side or on both sides of the wall breakthrough.

Necessary installation requirements for the connections (all dimensions in mm)



1) Specifications apply when using the extension pipe (siphon and extension pipe included in the installation package).
2) max. 500 mm, if no extension pipe is used. Depending on the height of the wastewater connection, the extension pipe must be cut to the necessary length.
3) The type EA back-flow preventer (included in the kiwa connection set art. no. ME86902) is only required in the Netherlands.
4) Dimensions including the drywall cladding.
5) From the floor or the edge of the tiling.

Mains supply

WARNING

Improper installation may lead to a short-circuit, fire, water damage or electrical shock.

This could result in serious injury.

- Only have the device set up, installed and commissioned by people authorized by MELAG.

Implement the following safety measures when dealing with the cable and power plug:

- Never damage or alter the power plug or cable.
- Never bend or twist the power cable.
- Never remove the plug by pulling on the power cable. Always take a grip on the plug.
- Never place any heavy objects on the power cable.
- Never run the power cable over areas in which it could become trapped (e.g. doors or windows).

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- Never lead the cable along a source of heat.
- Never use any nails, paper fasteners or similar objects to fix the cable.
- Should the power plug or cable suffer damage, switch off the device. The power cable or plug should only be replaced by authorized technicians.

On-site requirements of the mains connection

Properties	On-site requirements
Local requirements	The electrical equipment must accord with DIN VDE 0100. A main switch (all-pole) should be fitted outside the installation room. This must be marked as a separator for the device and be easily accessible for the operator. The feed line to the electrical connection must be laid separately from the distribution to the device. Observe the clockwise rotating field!
Electrical power	10.5 kW
Electricity supply **(star connection):**	CEE socket (red) with 3x380-415 V + N + PE, 16 A, 50/60 Hz, position PE: 6 h
Building fuses **(star connection):**	A separate circuit with fuse (to guarantee continued practice operation during steam sterilizer malfunction): 3x16 A, RCD 30 mA
Electricity supply **(delta connection)**	CEE socket (blue) with 3x220-240 V + PE, 32 A, 50/60 Hz, position PE: 9 h
Building fuses **(delta connection)**	A separate circuit with fuse (to guarantee continued practice operation during steam sterilizer malfunction): 3x32 A, RCD 30 mA
Length of the power cable	max. 1.6-1.9 m from floor unit (depending on connecting side)
Other	Additional socket 230 V 50 Hz for leakage water detector (water stop), MELAprint 60 label printer or MELAprint 42/44 log printer

Connection to a network socket / MELAprint 60 label printer

The installation in the floor unit requires a network cable of sufficient length.

The network cable can be installed either on the loading or removal side and in the right or left of the floor unit. Various cable lengths of up to 1.7 m can be required for installation in the floor unit depending on the version.

When selecting the length of a suitable network cable, take into account the additional length from the floor unit to the peripheral device or network socket.

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Water connection

	Cold water	Feed water	Wastewater
Connection in the practice	To the cold water cut-off valve (water inflow tap) G 3/4"	To a water treatment unit	To a surface-mounted siphon (included in the installation package)
Length of the hose from the floor unit[1)]	max. 1.15-1.4 m	--	max. 0.35-0.45 m
Installation height	55-65 cm	--	45 ± 2.5 cm (upper edge of the siphon)
Min. flow pressure	1.5 bar at 8 l/min	0.5 bar at 5 l/min	--
Recommended flow pressure	2.5-6 bar at 8 l/min	2-4 bar at 5 l/min	--
Min. water pressure (static)	--	2 bar	--
Max. water pressure (static)	10 bar	5 bar	--
Max. throughflow volume	--	--	short-term max. 9 l/min
Max. water temperature	max. 20 °C (ideal 15 °C)[2)]	--	short-term max. 90 °C
Water quality	drinking water, water hardness 4-12 °dH (in accordance with EN 285)[3)]	EN 285, Appendix B, table B.1, max. conductivity 5 µS/cm	--
Measures for protecting the drinking water supply	None (internally secured against backflow into the drinking water supply by an air gap in accordance with EN 1717, fluid category class 5)	**With MELAdem 56** None (internally secured against backflow into the drinking water supply by an air gap in accordance with EN 1717, fluid category class 5) **With an different water treatment unit** additional protection required in accordance with EN 1717, fluid category class 5	--
Leakage water detector	We recommend the installation of a leakage water detector with a cut-off valve (e.g. MELAG water stop).		

PLEASE NOTE

The outlet hose must be fitted at a constant decline without kinks or sagging. Deviations to the installation arrangements require consultation with MELAG.

Failure to do so can result in malfunctions of the steam sterilizer.

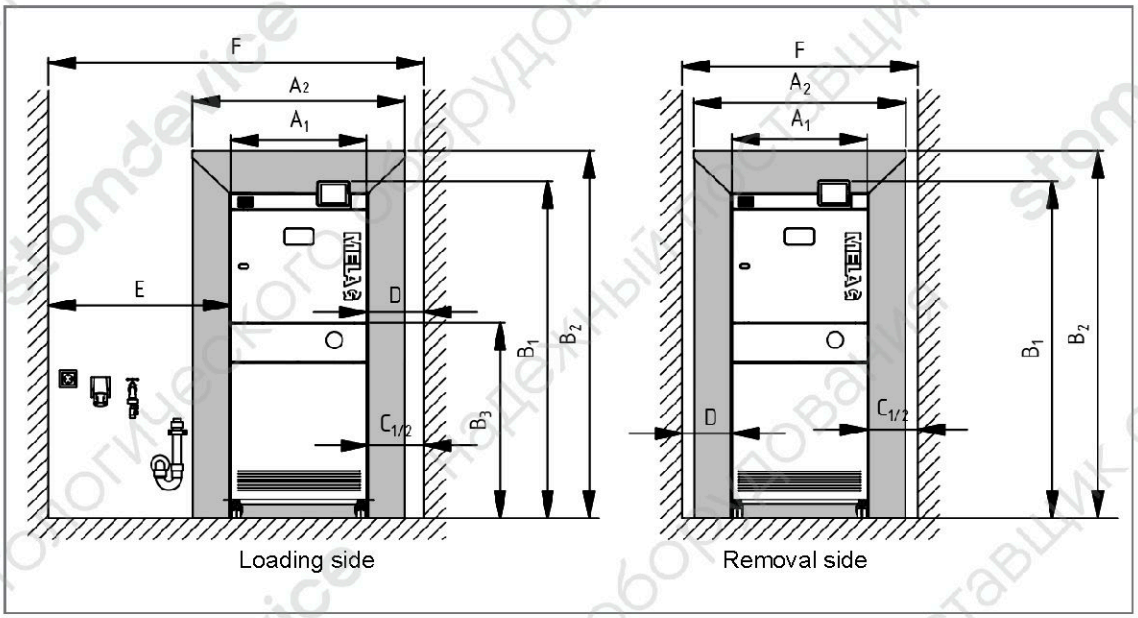
[1)] The length varies, depending on the position from which the hoses are led out of the floor unit.
[2)] The higher the temperature, the longer the operating times and the higher the water consumption.
[3)] Higher levels of water hardness necessitate the upstream installation of a water-softening unit.

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Space requirements

View from the front, door hinge right on both sides



The minimum clearances to be maintained on both sides in the area of the wall installation

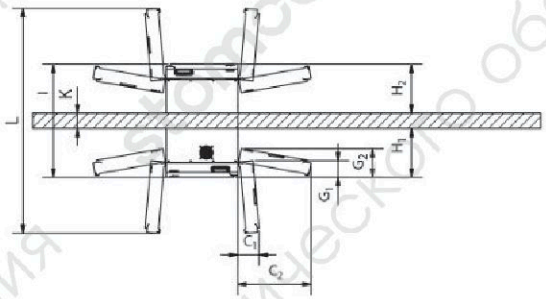
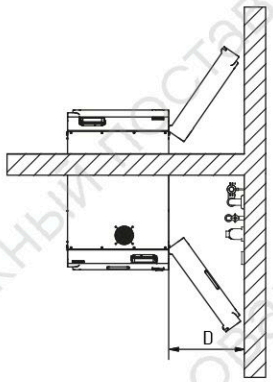
Dimensions		Loading side	Removal side
Width	A_1	65 cm	
Width inc. metal cladding	A_2	100 cm	
Height	B_1	158 cm	
Height inc. metal cladding	B_2	c. 170 cm	
Height to door of steam sterilizer	B_3	90 cm	
Min. clearance to the side of the door hinge*)	$C_{1/2}$	25 cm (opening angle 95°) 75 cm (opening angle 170°)	
Min. clearance to the side**)	D	25 cm	
Space for installation	E	85 cm	
Niche width required	F	min. 175 cm	min. 110 cm (opening angle 95°) min. 160 cm (opening angle 170°)

*) With the door hinge on the left-hand side, the clearance $C_{1/2}$ is to be inverted.

**) A minimum clearance D is to be maintained on both sides.

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Door swing range when installed

Standard installation: Installation in the wall without any laterally adjacent wall	**Alternative installation:** Wall installation with an adjacent lateral wall, door hinge right/left.
Removal side  Loading side	Removal side  Loading side

With door hinge on the left, the clearances are to be inverted. The steam sterilizer must be pulled out of the wall for maintenance. The corresponding space must be available on the loading side.

The minimum clearances to be maintained in the swing range

Dimensions		**Loading side**	**Removal side**
Min. clearance to the side of the door hinge without any laterally adjacent wall*)	C_1	25 cm (opening angle 95°)	
	C_2	75 cm (opening angle 170°)	
Max. clearance to the side of the door hinge with an adjacent lateral wall**)	D	45 cm	
Swing range	G_1	15 cm (opening angle 95°)	
	G_2	26 cm (opening angle 170°)	
Wall clearance	$H_{1/2}$	min. 35 cm	min. 27 cm
Depth	I	101 cm	
Wall thickness	K	12-17 cm	
Depth with opened doors	L	200 cm (opening angle 95°)	

*) The clearances are to be held mirror-inverted depending on the position of the door hinge.

**) The specifications correspond to the recommended installation of the outlet hose, i.e. if this is inserted in both tensioning carriages. Given deviating installation preconditions, please contact MELAG. It is imperative to ensure that the outlet hose is installed without kinks or sagging.

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Safeguarding in accordance with EN 1717

The connection of the steam sterilizer to the water line is comparable with the connection of a washing machine in a domestic context. In general, the connection of consumers to the drinking water supply should be performed in accordance with EN 1717, so that the drinking water supply is protected against contamination through the possible flow back of the water. The steam sterilizer has been developed in accordance with all the requirements of EN 1717 and is equipped with an air gap in accordance with fluid category 5. This obviates the need for additional protection from a safety combination consisting of a back-flow preventer and a pipe aerator. If a safety combination is already present, the drinking water supply is subject to double protection; this need not be removed. If the steam sterilizer is supplied with feed water via the MELAdem 56/MELAdem 56 M reverse osmosis unit, EN 1717 has been fulfilled, even in the absence of a building safety system. The drinking water supply is protected, as the water treatment unit is supplied with water via the air gap integrated in the steam sterilizer. If the steam sterilizer is supplied with feed water via a domestic network, the water treatment unit requires protection via a protection unit in accordance with EN 1717, fluid category 5. Comply with all local regulations!

Checking the rotating field direction of the CEE socket

NOTICE

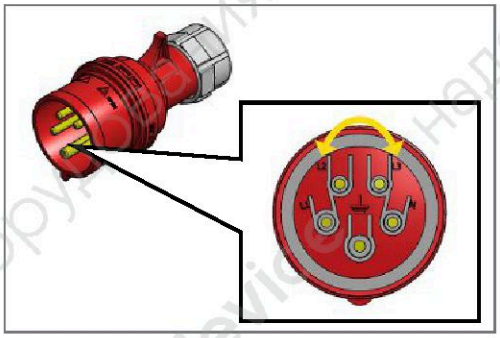
An incorrect rotating field can result in preservatives entering the steam sterilizer from the pump.

An opposite rotating field can cause malfunctions and damage to the steam sterilizer and practice fittings.

- Never connect the steam sterilizer to the power supply without first having checked the rotating field direction of the power supply. The steam sterilizer has been conceived exclusively for a clockwise rotating field.

1. Check the direction of rotation of the high-voltage current socket using a rotating field tester. The mains socket must have a clockwise rotating field. If this is not the case, commission a qualified electrician to change the rotating field on the high-voltage current socket.

2. If it is not possible to adapt it to the electric socket, commission a qualified electrician to switch phases L2 and L3 in the high-voltage current plug (figure: example Cliniclave 45 D star connection 16 A).



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System and network safety

The device is fitted with multiple external interfaces. Comply with the following information pertaining to the use of these interfaces to ensure safe operation of the device, especially to ensure incorporation in the local network (LAN).

Interfaces and connections

NOTICE

Only connect the hardware to the device which is listed in the following table. Only use the software which has been intended for the purpose and approved by the manufacturer.

Interface	Type	Hardware	Purpose/software
CF card slot	CF type I	MELAflash CF card up to 4 GB with an FAT16 or FAT32 file system	Writing log data on a MELAflash CF card
		MELAflash CF card up to 4 GB with a FAT16 file system	Update of the device software
Ethernet	Ethernet IEEE 802.3	Switch port (via CAT-5 patch cable)	MELAview saving log data, querying device data
			MELAtrace saving log data
			FTP server saving log data
			MELAconnect (mobile app) querying device data
			Connection to the local network (LAN)
		MELAprint 60 (via CAT-5 patch cable)	Label printing
		MELAprint 42/44 (via CAT-5 patch cable with network adapter)	Log printing

NOTICE

When performing a device software update, use only the update data authorized by MELAG for the corresponding device type.

Operating the device with memory media (CF card)

To prevent data loss, only use memory media to save the log data with the following characteristics:

- Functional capability (without malware etc.)
- Writeable
- Formatted with a correct file system

Perform regular data backup. Restrict access to the device and systems with access authorization to the necessary circle of persons.

Only use MELAflash CF cards.

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Operating the device in the local network (LAN)

NOTICE

Do not connect the device to a public network (e.g. the internet).

An Ethernet/IP-based network connection (LAN) is required to operate the device in a local network. In its delivery state, the device is configured to obtain the IP address automatically from a DHCP server operated in a LAN.

NOTICE

Check the IP address carefully during the conversion for a manual configuration before connecting the device to the LAN.

An incorrectly-entered IP address can cause IP conflicts in the network and thus disturb another device in your network.

In the LAN with a firewall, only permit connections to and from the device which correspond to the intended use of the device. All ports not used are blocked on the device side.

The device is able to make the following connections as standard:

Log	Port source	Port destination	Direction	Purpose
TCP	≥ 1025	21	Outgoing	FTP control
TCP	Any	≥ 1025	Listening / incoming	FTP (active) data transfer (device set to FTP logging)
UDP	68	67	Outgoing	Communication to DHCP server - requests to the DHCP server
UDP	67	68	Listening / incoming	Answers from DHCP server(s)
TCP	Any	80	Listening	Data transfer to the MELAconnect app or web browser
TCP	Any	65001	Listening / incoming	Data transfer log data (device set to TCP logging)
UDP	17784	17784	Outgoing	Broadcast search log printer
TCP	50001	50000	Outgoing	Data transfer to log printer
UDP	42380	3000	Outgoing	Broadcast search label printer
TCP	52382 - 53382	9100	Outgoing	Data transfer to label printer

Network bandwidth / Quality of Service (QoS)

The device does not place any requirements on the LAN bandwidth for data transfer, that exceed the standard time-out times of the respective logs.

Process	Volume max.	Volume normal
Transfer status, legend, program, malfunction log	10 kB	2-6 kB
System log	64 kB	--
Graphic log	800 kB	580 kB
Data transfer MELAconnect	240 bit/s per device	c. 200 bit/s per device
Data transfer, web interface (browser)	12 kbits/s per connection	--

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3 Setup and installation

WARNING

Improper installation may lead to a short-circuit, fire, water damage or electrical shock.

This could result in serious injury.

- Only have the device set up, installed and commissioned by people authorized by MELAG.

Fitting the corner rails and centring rolls

Fitting the corner rails

CAUTION

Danger of injury from sharp edges.

- Wear gloves for safety

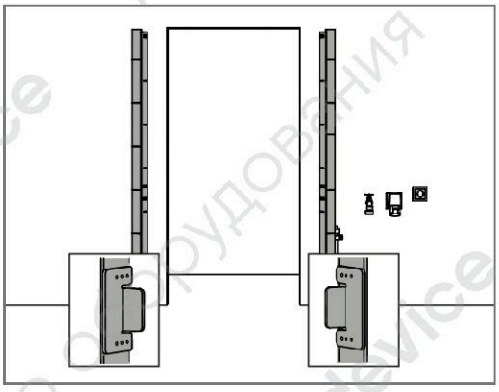
Screw on corner rails and two centring rolls to the reinforced profiles of the wall breakthrough with which the steam sterilizer is centred in the wall breakthrough. Before applying the corner rails, check that the floor in the area of the wall breakthrough is level. This is necessary to fix the centring rolls. If the floor is not level, it must be made so. The corner rails are applied as follows:

Loading side

The following requirement must be fulfilled:

✓ *The wall breakthrough has been made and corresponds with the installation requirements*

1. Align both **corner rails with the limit stop** pointing downwards on the left and right-hand side of the edge of the frame so that the rails come into contact with the floor and the lugs point inwards (as shown in the diagram). Both corner rails must be level, otherwise height-equalization is required.



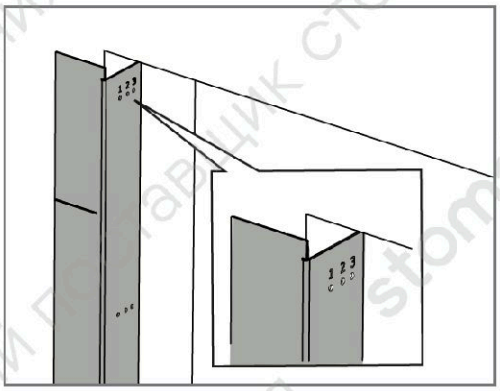
PLEASE NOTE

The corner rails are slightly bent to ensure better assembly. Ensure that there is no clearance between the wall and the corner rails on the fore side and that the plate lies snugly on the wall.

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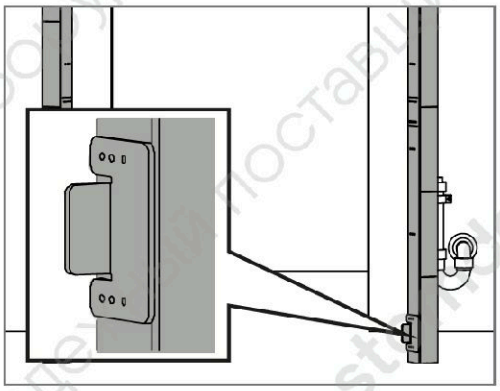
2. Place at least one screw in each row of the drillholes in the corner rails to fix them. Use only the drillholes in which the screws have a secure purchase.



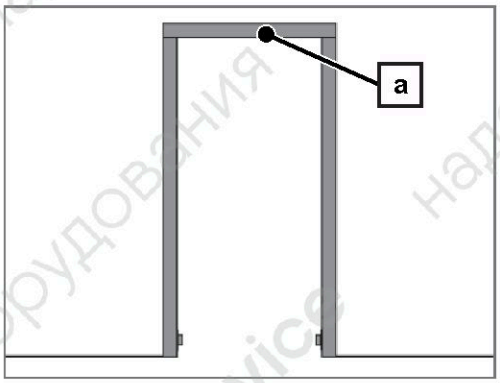
PLEASE NOTE

For ease of screwing, you can pre-drill 2.5 mm drillholes in the U-shaped bracing profile at the corresponding locations.

3. Screw two screws in the pre-drilled drill-holes at the top and bottom of the lower limit stop.

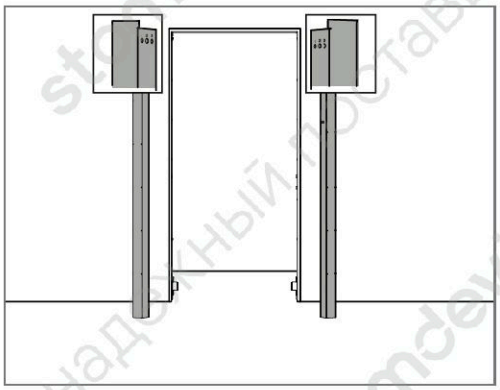


4. Screw one of the two short corner rails (pos. a) to the upper frame edge of the loading side.



Removal side

1. Align the two **corner rails without the limit stop** on the frame edge with the circular recess pointing upwards, so that the rails are in contact with the floor. Both corner rails must be level, otherwise height-equalization is required.



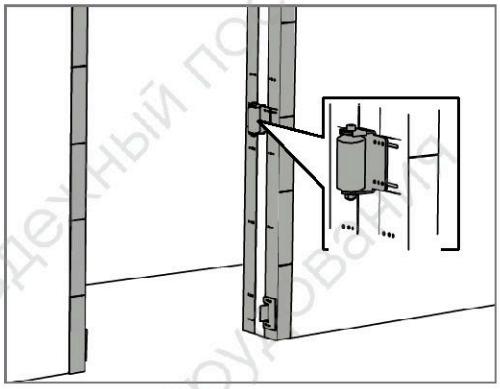
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2. Fix the rails with screws in the same manner as on the loading side.

3. Screw the second short corner rail to the upper frame edge of the removal side.

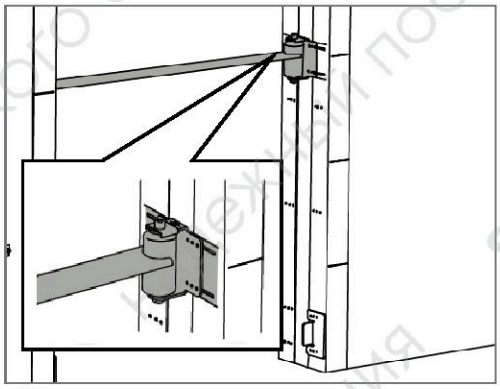
Fitting the centring rolls

1. Place the centring rolls on the locations marked on the corner rails with the screw head pointing upwards (see adjacent figure) and screw the centring rolls tight with four screws for each centring roll.

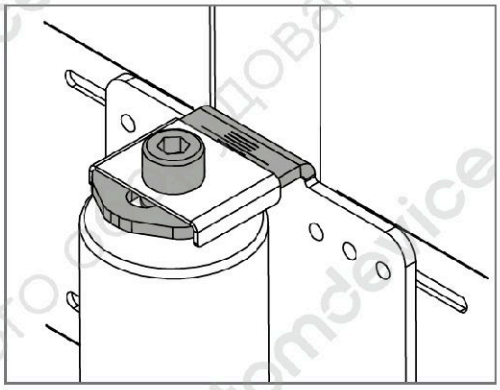


2. Loosen the Allen screws on both centring rolls a little.

3. Hold the centring gauge included in the scope of delivery level between the centring rolls without tilting.



4. Align the two centring rolls using the centring gauge so that they have the same clearance to the wall. The line markings on the holding plate serve as orientation. The same number of line markings must be visible on each side.



5. Re-tighten the Allen screws fully.

6. Move the gauge up and down between the centring rolls to check the equal clearance.

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Dispatch / delivery

CAUTION

Danger of back injury and crushing from lifting excess loads.

- The steam sterilizer should be carried by at least six people.
- Comply with the safety regulations issued by your professional association.

Depending on the transport route and method, the steam sterilizer and the floor unit will be delivered either screwed together or separately.

Method 1: Complete dispatch

The steam sterilizer is delivered on the floor unit as a single package. When removing the transport packaging, comply with the separate set of instructions “Unpacking the complete dispatch package” (doc. AS_015-17).

Method 2: Separate delivery of steam sterilizer and floor unit

NOTICE

After having removed the packing hull, do not place the steam sterilizer directly on the floor; this could damage the hose connections and components on the underside of the steam sterilizer.

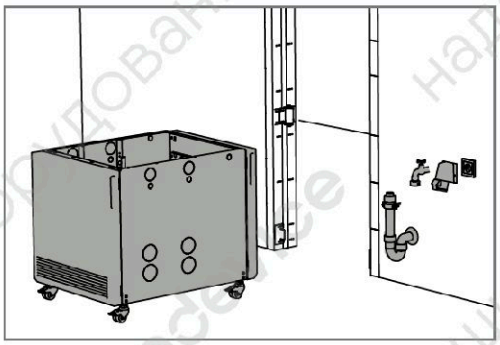
The steam sterilizer and floor unit should be transported on the shipping pallet and placed as closely to the installation location as possible. Only then should they be fitted together using the transport bars included in the scope of delivery.

Removal from the packaging

This section indicates how to proceed when the floor unit and steam sterilizer have been dispatched separately. If the steam sterilizer is delivered screwed to the floor unit, begin with step 8.

1. Remove the packaging from the steam sterilizer and floor unit. Leave the steam sterilizer to stand on the shipping pallet.

2. Place the floor unit on the side with the installation connections, the loading side.



3. Unscrew the four plastic screws on the side walls of the steam sterilizer.

4. Fit the two transport bars on the left and right-hand side of the steam sterilizer each with 4 hexagonal screws and 4 spacers. Tighten the screws fully.

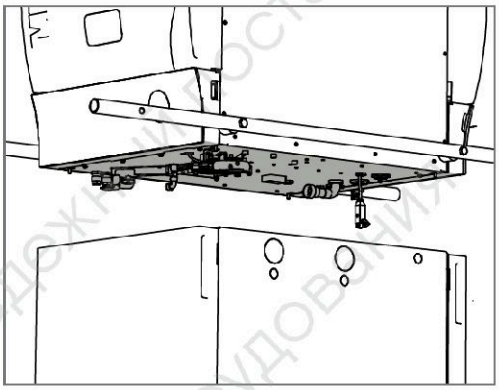
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PLEASE NOTE

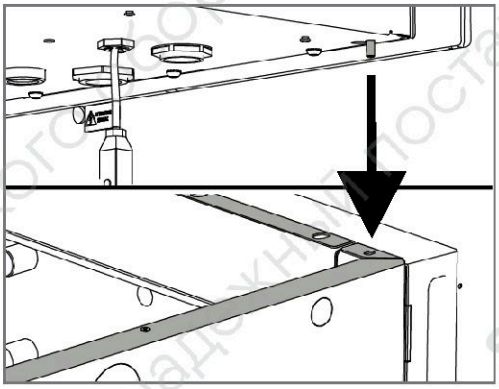
Recognizing the loading and removal side of the steam sterilizer and the floor unit:

- The fan at the top of the steam sterilizer always lies on the loading side.
- The door of the floor unit can only be opened on the loading side.

5. Working with a minimum of six people, lift the steam sterilizer from the shipping pallet onto the floor unit so that the loading side of the steam sterilizer and the floor unit face in the same direction.



6. Ensure that the four pins on the underside of the steam sterilizer are guided into the slots on the floor unit. The power cable and the inflow hose must be led into the floor unit and may not become jammed. Align the steam sterilizer with the floor unit so that the housing parts are flush along the side (use the transport bars). The two plastic fronts of the floor unit and the steam sterilizer must also be aligned.



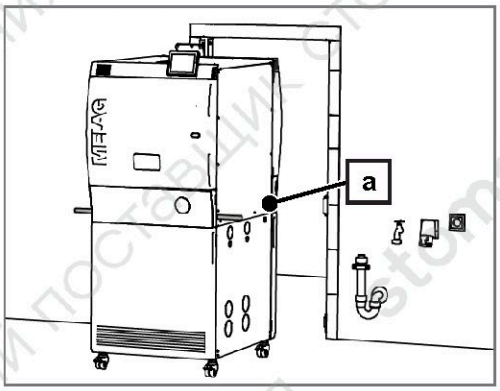
7. Working from below in the floor unit, tighten the nuts with toothed lock washers (included in the scope of delivery) to the pins, in order to screw the floor unit and steam sterilizer together.

8. **With separate delivery of steam sterilizer and floor unit:**
   Remove the transport bars and retain them for later use. Instead, screw two carrying handles onto the loading side.
   With complete dispatch:
   Unpack the device in accordance with the separate set of instructions “Unpacking the complete dispatch package of the Cliniclave 45 series” (doc. AS_015-17).
   Remove the carrying handles on the removal side of the steam sterilizer.

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9. Screw the two plastic screws onto the removal side in the location on which the transport bars or carrying handles were previously screwed in (pos. a).



10. Position the steam sterilizer in front of the wall breakthrough. The removal side of the steam sterilizer faces the wall breakthrough.

NOTICE

The housing screws can loose while transporting.

Tighten all housing screws.

Shielding the clean side

Before the steam sterilizer can be slid into the wall breakthrough, separating plates must be placed under the floor unit to shield the clean from the unclean side under the floor unit.

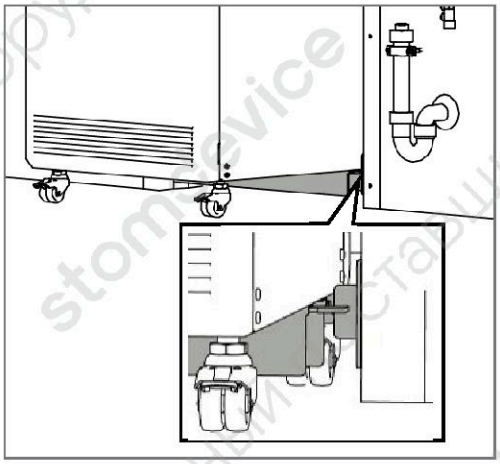
Fit these separating plates in accordance with a separate set of instructions “Fitting the separating plates” (doc. AS_020-17).

Placing the device in the wall breakthrough

The following requirements must be fulfilled:

- ✓ *The steam sterilizer is in front of the wall breakthrough.*
- ✓ *The removal side is facing the wall breakthrough.*
- ✓ *The metal construction is to be fitted to the underside of the floor unit in accordance with a separate set of instructions.*

1. Slide the steam sterilizer between the two centring rolls in the wall breakthrough to its fullest extent.



2. Check whether the steam sterilizer is in the desired installation position. If required, adjust the spacer plates under the floor unit.

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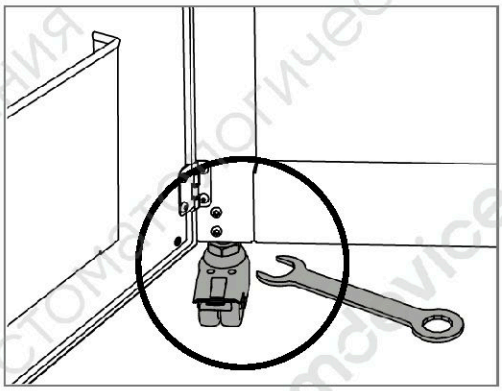
3. Lock the casters on the floor unit.

4. Unscrew the two remaining carrying handles on the loading side and replace them with the plastic screws.

Aligning the steam sterilizer

To align the steam sterilizer, it must be located in its final installation location. Align the steam sterilizer using a spirit level so that it is plumb on all sides. To this end, place the spirit level on the top of the unit cover (1x fore - 1x rear - 1x right and 1x left).

The casters can be screwed out up to 20 mm to compensate for an uneven floor, using the open-end wrench included in the scope of delivery. The casters are delivered completely screwed in. If the steam sterilizer is to be aligned before being slid into its final position, the alignment must be re-checked once in its final position. Then apply the brakes on the casters.



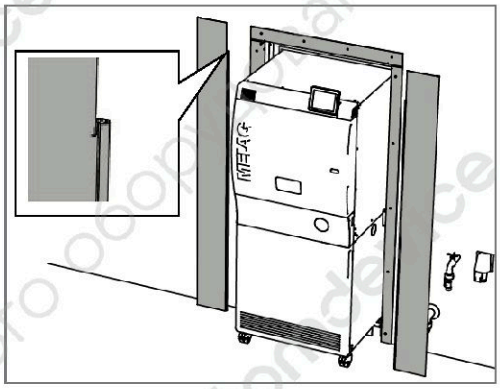
Applying the metal cladding

There are two long and one short casing panels for the loading and removal side. The casing panels are magnetic, so they can be applied easily to the corner rails.

- Remove all the casing panels from the packaging.

Loading side

1. Remove the lateral casing panels one after each other and place them upright on the floor next to the steam sterilizer, with the protruding rubber seal pointing upwards. Press the casing panel onto the side wall of the steam sterilizer until the rubber seal is flush with the side wall. Press the casing panel against the corner rail. The magnetic strips on the rear of the casing panel mean that the panels will attach directly and cover the breakthrough aperture on this side.

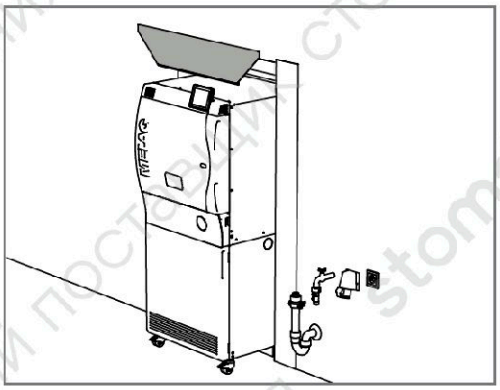


2. Check again that there is no gap between the casing panel and the side wall of the steam sterilizer.

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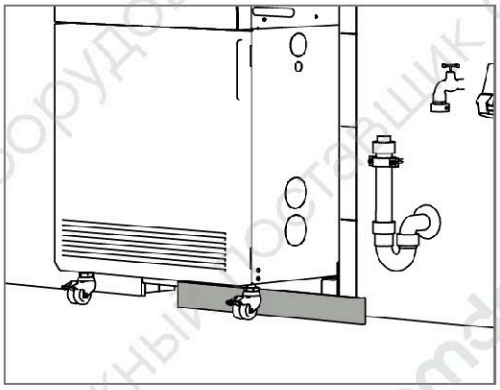
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3. Apply the upper casing panel with the seal on the upper side of the steam sterilizer and fit it between the two lateral cladding panels.



4. Press the upper cladding panel with the magnetic strip on the upper corner rail until it clamps magnetically.

5. Slide the lower casing panel under the floor unit and press it against the metal construction until it clamps magnetically. Ensure that the metal lugs to the left and right do not tilt and that the plate seals the gap to the floor as well as possible.



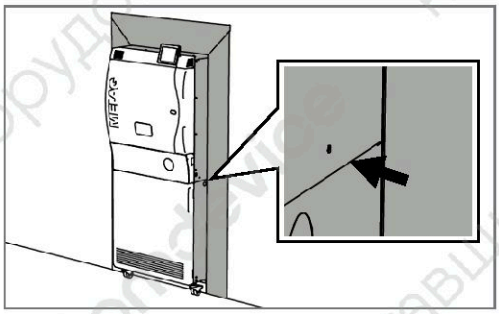
Removal side

- Proceed on the removal side in a similar fashion to the loading side.

Check the position of the metal cladding.

1. Check that the upper casing panel is level and that the side panels are at right-angles to the steam sterilizer.

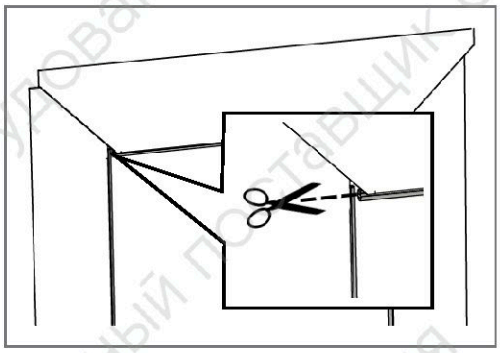
2. Check the position of the casing panels and any gaps between the rubber seal and the side wall / the upper side of the steam sterilizer.



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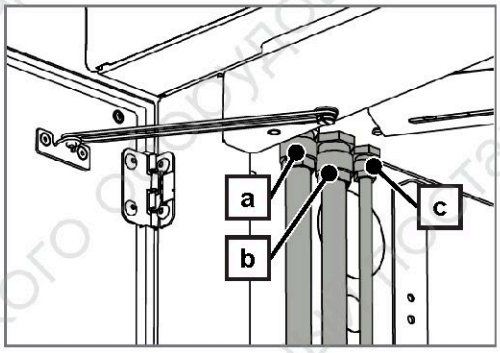
Shortening the rubber seal of the cladding panels

- If the rubber seal protrudes over the upper casing panel, shorten them with a pair of tin snips. Ensure that the rubber seal closes with the lateral rubber seals and that a gap does not develop.

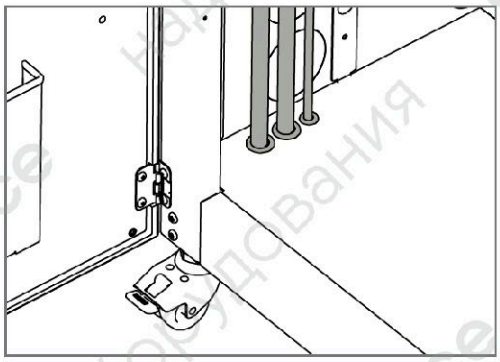


Hose connections for over-pressure lines

1. Connect the two Ø 16 mm hoses on the over-pressure line connections to the spring safety valve “double jacket” (pos. a) and “chamber” (pos. b) and the Ø 8 mm hose for the emergency release to the corresponding connections on the underside of the steam sterilizer (for left). The hoses are included in the accessories kit.



2. Slide the union nut over the hoses and fix the hoses to the connections.
3. Lead the three hoses below through the grommets in the base of the floor unit to the outside.



4. Fix the three union nuts hand-tight and then tighten them 1-2 revolutions with an open-end wrench (size 12 or size 19) depending on requirements.

Connecting the inflow and outlet hose

PLEASE NOTE

To prevent water damage, MELAG recommends the use of a leakage water detector e.g. the MELAG water stop.

1. Install the leakage water detector (optional).
2. Check whether the steam sterilizer is in its final position.

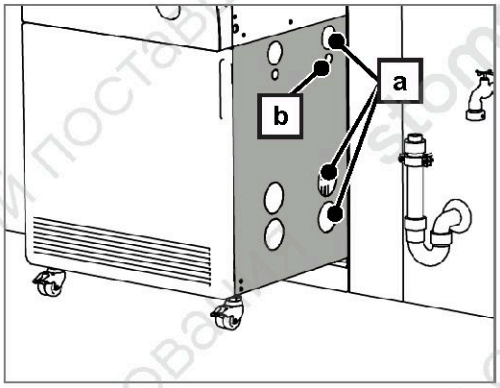
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Knocking out the circular recesses

Two rows of drillholes are located on both sides of the floor unit (see following figure) each with three pre-cut large holes (pos. a) for the outflow and inflow hose and the power cable as well as a smaller hole (pos. b) for the network cable.

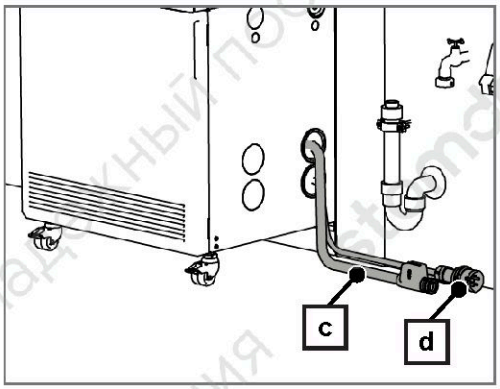
1. Knock out the three large overlapping circular recesses (pos. a) in the floor unit (on the installation connection side) with the lowest clearance to the wall.



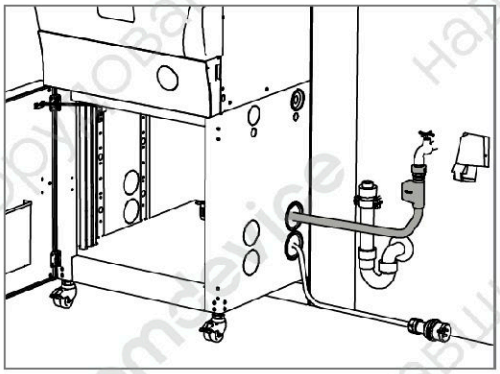
2. Insert the largest grommet (included in the installation set) in the upper-most hole.

Connecting the inflow hose and installing the power cable

1. Lead the inflow hose (pos. c) through the centre hole and lead the power cable (pos. d) through the lower hole to the outside; press the rubber grommets into the circular recesses. These are already sitting on the inflow hose and the power cable.



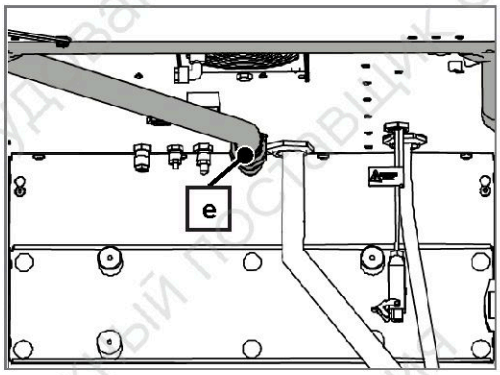
2. Only connect the inflow hose onto the building-side cold water connection. Do not connect the power cable



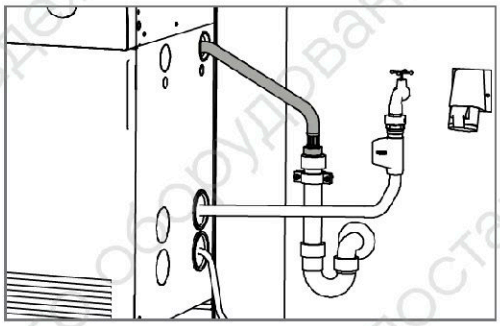
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Connecting the outlet hose

- Connect the outlet hose with one of the seals included in the scope of delivery to the steam sterilizer wastewater fitting (pos. e) in the floor unit.



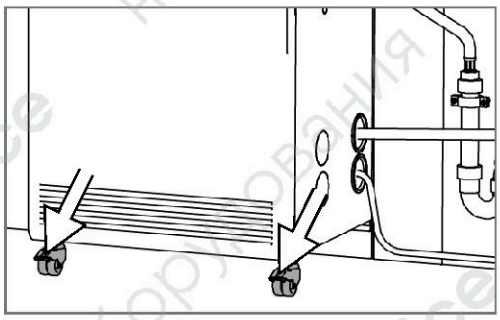
- Lead the outlet hose laterally through the upper hole in the floor unit and to the outside. Connect it to the siphon with the second seal from the installation set.



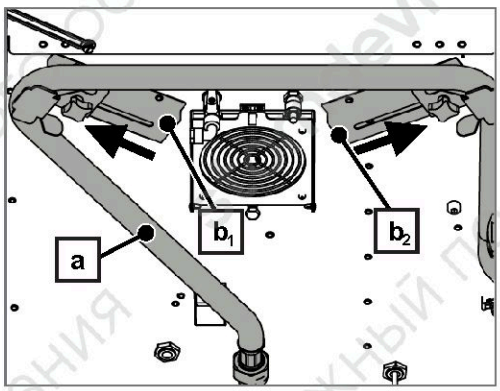
Tensioning the outlet hose

The outlet hose must be free of kinks and sagging to ensure malfunction-free operation of the steam sterilizer. To this end, a tensioning mechanism consists of two adjustable tensioning carriages is fitted on the underside of the steam sterilizer. Depending on the clearance between the outlet hose and the siphon, the hose can be tensioned as follows:

1. Check that the brakes on the casters have been applied.



2. Insert the outlet hose (pos. a) in the two tensioning carriages (Pos. $b_{1/2}$).

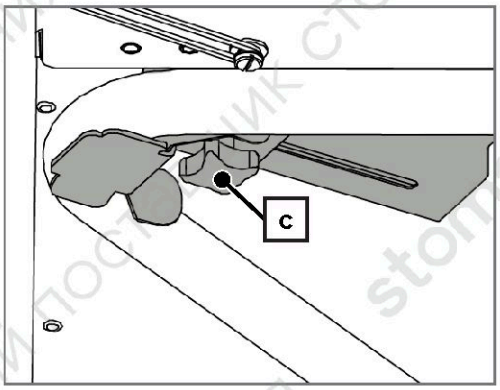


3. Pull the clamps so far outwards that the outlet hose is tensioned slightly. The tensioning lengths of the two tensioning carriages should be roughly equal.

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4. Tighten the star knob (pos. c) in the first tensioning carriage and then the second.

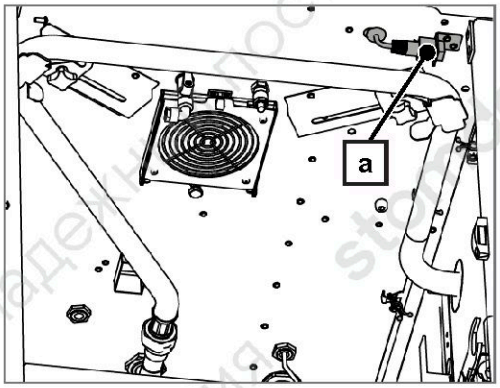


5. Check that the outlet hose has been installed without kinking and for the stability of the siphon to the wall next to the steam sterilizer.

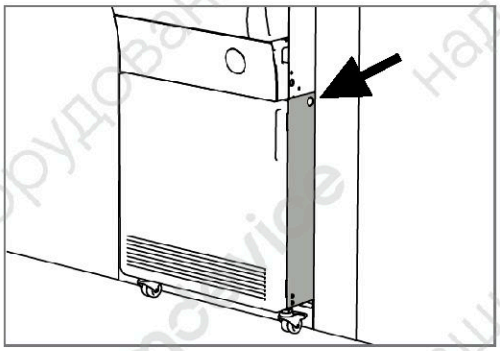
Connecting the network cable (optional)

You can lead the network cable out of the loading or removal side and connect it to a computer (in the practice network) or a label printer. Depending on the position of the device in the partition wall, the network cable is lead out to the side or on the floor of the floor unit (only removal side).

1. Connect the network cable on the underside of the steam sterilizer to the network socket (pos. a).



2. Find the perforation in the side wall of the floor unit located closest to the peripheral device or the network socket.
   - Network connection/MELAprint 60 label printer on the **loading side**: The perforation can be located on left or right-hand side of the device.
   - Network connection/MELAprint 60 label printer on the **removal side**: The perforation can be located in the side of the device or in the floor of the floor unit on the right or left-hand side.



3. Knock the perforations that you have located out of the floor unit.
4. Insert a small membrane grommet in the hole thus generated (included in the scope of delivery).

NOTICE

Damage to the network cable

Ensure that the network cable does not come into contact with any sharp edges.

5. Guide the network cable in the floor unit over the cable clips.

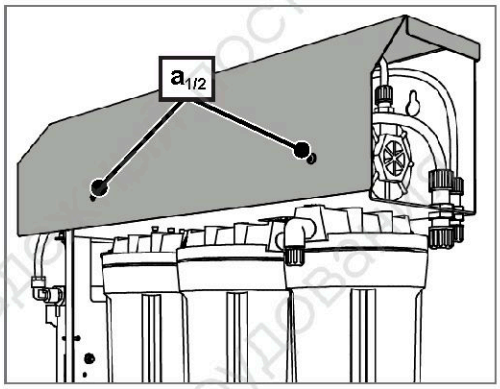
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6. Introduce the network cable through the membrane grommet to the outside.
7. Connect the network cable to the network socket/the label printer.

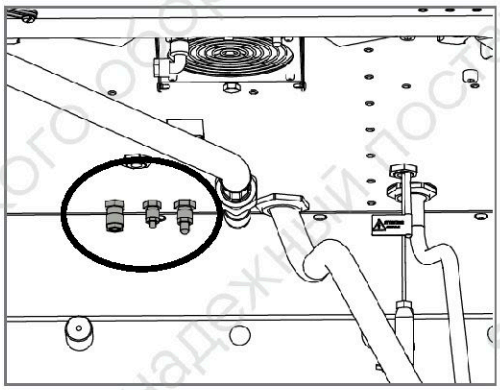
Installing the MELAdem 56 (optional)

Proceed as follows to connect the reverse osmosis unit and prepare rinsing:

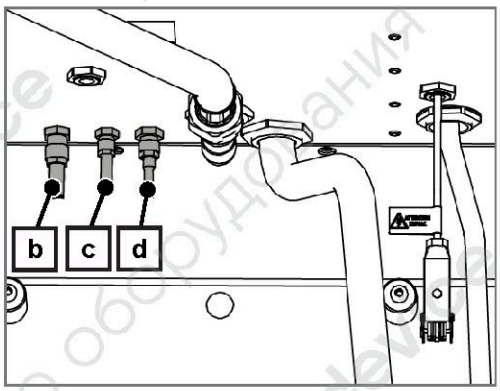
1. Loosen the screws (TX20) (pos. $a_{1/2}$) on the cover of the osmosis module and pull the cover upwards. Proceed with caution.



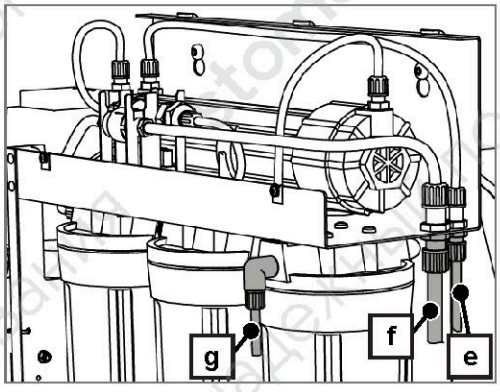
2. Work carefully to remove the sealing caps from the hose connections on the underside of the steam sterilizer. To do so, disconnect the union nuts. Store the sealing caps carefully. They could be required for transport or decommissioning.



3. Connect the feed water hose (pos. b), the outlet hose (pos. c) and the inflow hose (pos. d) to the corresponding connections on the underside of the steam sterilizer; see Installation material [▶ page 6] for the hose diameter and lengths.



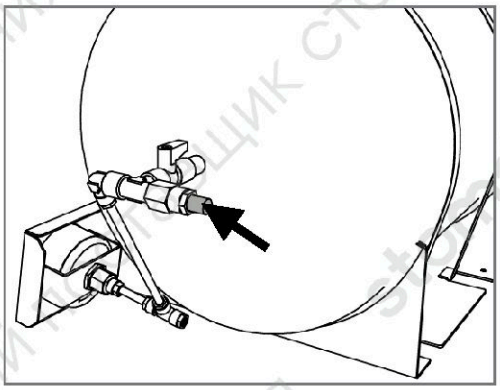
4. Remove the sealing caps on the hose connections of the reverse osmosis unit and connect the outlet hose (pos. e) and the inflow hose (pos. f) with the corresponding connections of the osmosis module. Connect the permeate line (pos. g) to the filter housing of the ion exchanger.



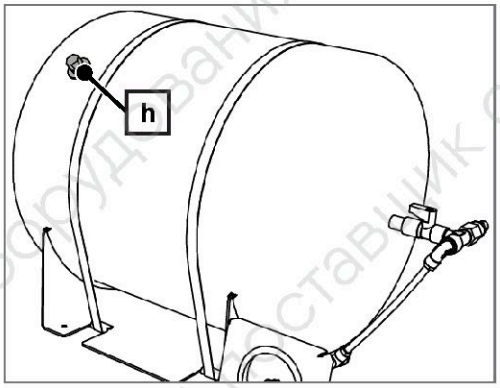
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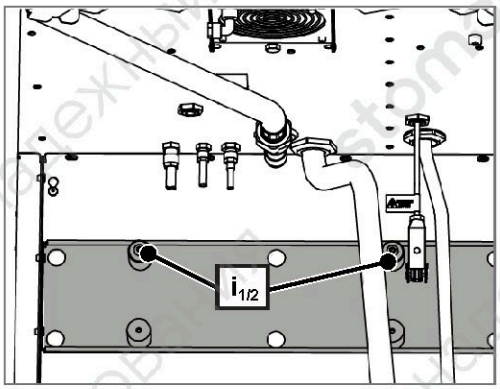
5. Do **not** yet remove the sealing cap on the feed water connection of the pressure tank (upper T-piece).



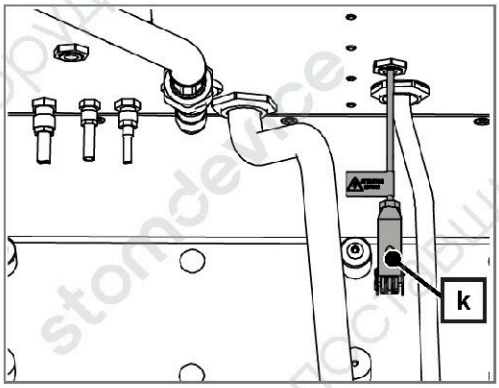
6. Open the valve (pos. h) on the pressure tank and measure the primary pressure using the manometer included in the scope of delivery. The target pressure is 0.6 bar. Should the primary pressure of an empty pressure tank exceed this value, reduce the pressure by pressing in the valve tappet. Given insufficient pressure, increase this pressure using e.g. a car foot pump.



7. Hang the reverse osmosis unit on the brackets (pos. $i_{1/2}$) on the rear wall in the floor unit. Ensure that the inflow hose and the power cable do not become jammed behind the reverse osmosis unit.



8. Connect the power plug of the reverse osmosis unit to the cable socket (pos. k) on the underside of the steam sterilizer.



9. The reverse osmosis unit is rinsed during the Test runs [▸ page 33].

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4 Test runs

In order to reduce the installation time and ensure quicker commissioning of the steam sterilizer, a separate container with a min. 13 l feed water of sufficient quality (in accordance with EN 285, Appendix B, Table B.1) is required.

If a container is not present, follow the installation instructions contained in the user manual of the MELAdem 56/56 M reverse osmosis unit. The following section describes the time-saving version of commissioning the steam sterilizer with the reverse osmosis unit.

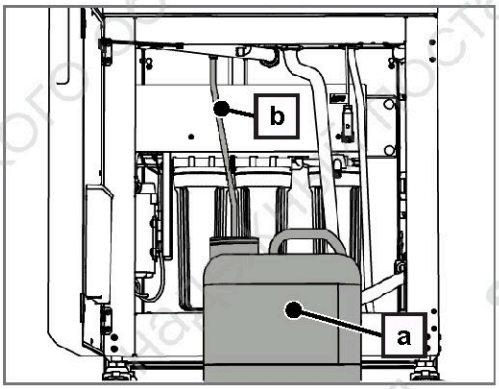
Vacuum test and rinsing the reverse osmosis unit

PLEASE NOTE

The reverse osmosis unit does not need not be removed from the rear panel in the floor unit for this procedure.

A) Preparations

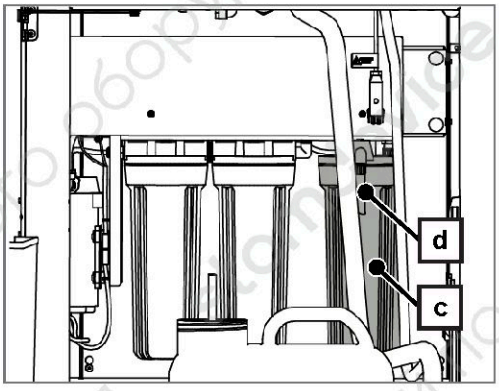
1. Fill fresh feed water of the corresponding quality into a container with a min. volume of 13 l (pos. a). Place it in front of the floor unit and lead the free end of the feed water hose (pos. b) into the container.



PLEASE NOTE

The feed water hose must reach to the floor of the container so that the water can be pumped in even when the water level falls.

2. Unscrew the filter housing of the ion exchanger (pos. c) using the filter key (included in the scope of delivery of the reverse osmosis unit). Remove the mixed-bed resin cartridge and screw back on the empty filter housing to rinse the reverse osmosis unit. Insert the free end of the permeate line from the ion exchanger (pos. d) in a further bucket with a minimum volume of 5 l.



B) Checking the direction of rotation of the vacuum pump

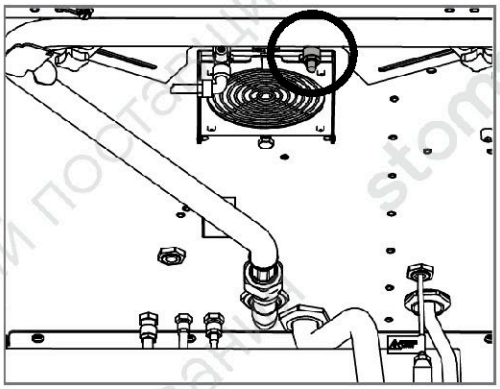
1. Open the cold water inflow.

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2. Connect the power plug and switch on the steam sterilizer. The vacuum pump will run for a short while after activation.

3. Directly during activation, check whether the silicone cap (marking) on the de-calcification connection contracts, i.e. suction. This indicates a correct direction of rotation.



➥ If the silicone cap does not contract, switch off the steam sterilizer immediately and check the rotating field again in accordance with section Checking the rotating field direction of the CEE socket [▸ page 16].

C) Starting a vacuum test and rinsing the reverse osmosis unit

1. After activation, working on the display in the menu `Settings` > `Device settings` > `Water supply` select the option `NO` and save the setting. The steam generator will begin to fill. At the same time, check whether the hose in the bucket is immersed far enough in the water. **NOTICE! Do not permit it to suck in air.**
2. Start the vacuum test with a cold, empty chamber.

   ➥ At the same time, the reverse osmosis unit is flushed, freeing it of preservatives and dust residue. The process lasts approx. 20 min.
3. Use this time to begin with the instruction of the operators. The vacuum test must be successful (a leakage rate of 0-0.4 mbar/min).

D) Ending the rinsing process

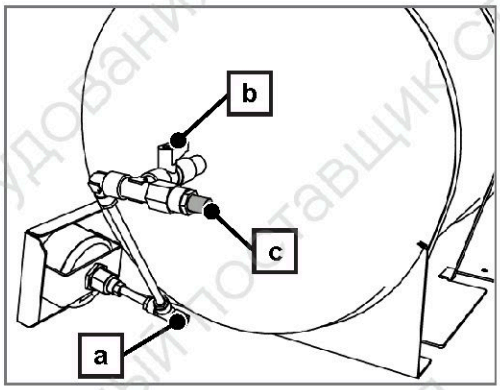
1. Following a successful vacuum test, working in the display, select menu `Diagnosis & Service`.

   ➥ This ends the rinsing process.
2. Unscrew the filter housing of the ion exchanger and pour out the water in the filter housing.
   Please note: The filter housing is filled to the brim with water.
3. Replace the mixed-bed resin cartridge in the filter housing. Ensure that the flat seal of the mixed-bed resin cartridge points upwards. Consult the user manual of the reverse osmosis unit.
4. Screw the filter housing back onto the ion exchanger and tighten the filter housing a little using the filter key.

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5. Connect the free end of the permeate line to the lower T-piece of the pressure tank (pos. a) and open the pressure tank shut-off valve (pos. b). The feed water connection (pos. c) on the upper T-piece of the pressure tank must remain closed for now.



6. Place the pressure tank in the floor unit.
7. Leave menu `Diagnosis & Service`.

   ↪ The feed water supply will begin and the pressure in the pressure tank increases. The pressure increase can be followed on the pressure tank manometer.

Bowie & Dick test and instruction

1. Place the Bowie & Dick test package (included in the scope of delivery) in the steam sterilizer and start the Bowie & Dick test.
2. Start with or continue the instruction of the user.

Documenting the test runs

1. Document the results of the vacuum test and the Bowie & Dick test on the record of installation and setup.
2. Print the sterilization logs if possible, and attach to the record of installation and setup.

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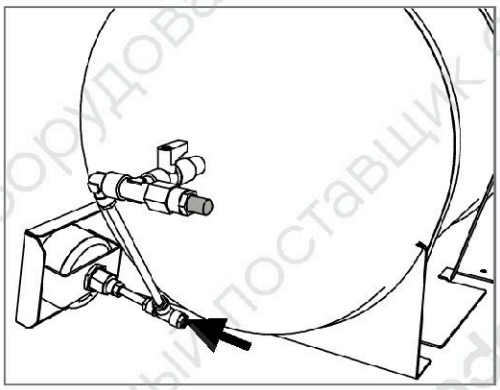
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5 Operational readiness

Determining the delivery capacity and the conductivity of the reverse osmosis unit

Proceed as follows to determine the delivery capacity of the reverse osmosis unit:

1. Select menu `Diagnosis & Service`.
   ➥ The reverse osmosis unit does not function in this state.
2. Close the pressure tank shut-off valve.
3. Disconnect the permeate line from the lower T-piece of the pressure tank (arrow marking) and hold the hose in a measuring beaker with a minimum volume of 0.5 l.



4. Leave menu `Diagnosis & Service` to start water supply to the measuring beaker.
5. Run water into the measuring beaker for 2 min and check the required amount of feed water. This must amount at least 260 ml after 2 min.
6. Enter the value in the record of installation and setting up.
7. Select again menu `Diagnosis & Service` and reconnect the permeate line to the pressure tank.
8. Open the shut-off valve on the pressure tank.
9. Leave menu `Diagnosis & Service`.
   ➥ The pump in the reverse osmosis unit is started and the pressure tank is refilled.
10. Check the conductivity of the water in the measuring beaker with a conductivity meter. The conductivity should not exceed 5 µS/cm.

Operational readiness

When using the MELAG water treatment unit

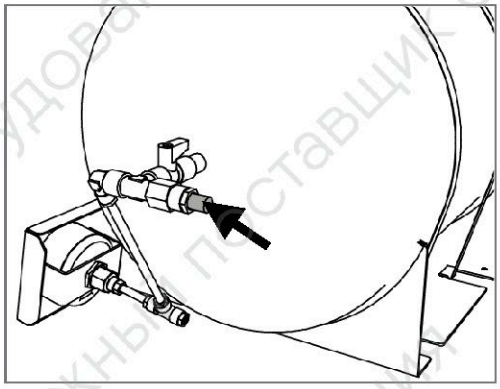
From a pressure of 1.5 bar in the pressure tank, you can convert the feed water supply to the reverse osmosis unit by proceeding as follows:

1. Select menu `Diagnosis & Service`.
   ➥ This ends the water supply in the reverse osmosis unit.

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2. Close the pressure tank shut-off valve.

3. Remove the cap from the feed water connection on the upper T-piece of the pressure tank. Store this cover cap carefully.



4. Open the pressure tank shut-off valve and working in menu `Settings` > `Device settings` > `Water supply` set the feed water supply to `YES`, save the settings and leave the menu.

5. Check all lines and connections of the reverse osmosis unit for leaks; then refit the cover of the osmosis unit and replace the reverse osmosis unit cover. Ensure that no hoses become jammed or kinked.

6. Do not switch off the steam sterilizer, so that the pressure can rise to a minimum of 2 bar.

When using a central water treatment unit

You will find further information regarding the establishment of the connection in the separate set of instructions “Connecting to an external water supply” (doc. IA_001-14).

Checking the pressure of the reverse osmosis unit

Check the pressure in the pressure tank on the manometer. Record the pressure in the record of installation and setup.

Instructing the user

- After performing the actions from section Settings and adjustment [▶ page 38] explain to the user all the user-typical features for the documentation and setting combinations.
- Inform the operators that they must always check the pressure on the manometer before switching off the steam sterilizer. In daily operation, the operating pressure should always amount to a minimum of 2 bar. If the pressure is < 2 bar, the steam sterilizer should remain activated until 2.5 bar has been reached. This avoids unnecessary waiting times, warnings and any program aborts.
- Hand over the user manual and technical manual, the manufacturer's inspection report and the warranty certificate. The declarations of conformity regarding the Pressure Equipment Directive and the Medical Devices Act are included in the manufacturer's inspection report.

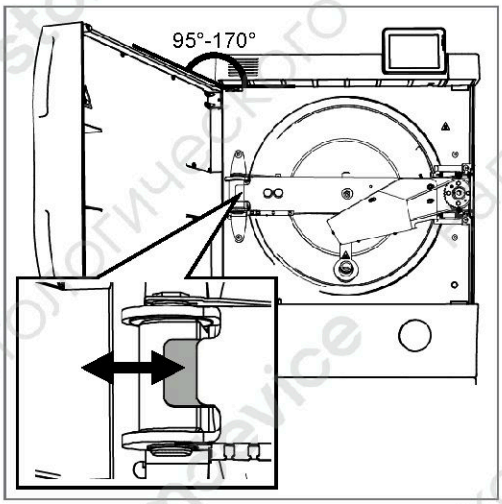
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6 Settings and adjustment

Setting the door hinge

In the delivery state, the opening angle of the door on the loading and removal side is approx. 95°. This can be set to any angle up to 170°. Working with a separate set of instructions “Setting the door hinge” (doc. JA_005- 13) set the opening angle of both doors to fit the space provision of the practice and the wishes of the operators.



Aligning the door panels

Door panels of the steam sterilizer (loading and removal side)

The clearances of the door panels have been set in advance. Nevertheless, the clearances can vary during setup, according to the levelness of the floor at the installation location. Check the clearance of the door panels after setting up the steam sterilizer and if required, set them in accordance with a separate set of instructions “Setting the door panel” (doc. JA_009-13):

- When in the correct position, the two horizontal clearances above and below the door panel must be the same size and must run parallel.
- The door panel must be laterally flush with the plastic panel above and below the door panel.

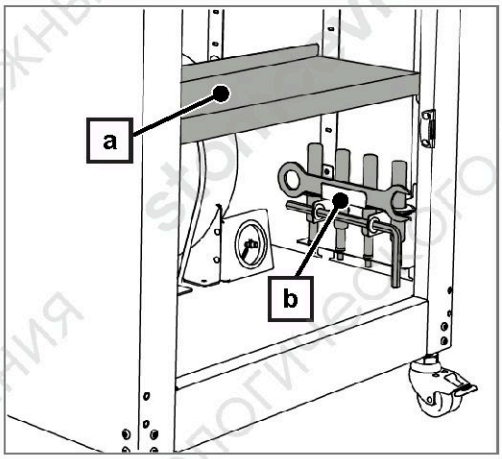
Door panel of the floor unit (only loading side)

If the clearance between the floor unit and the lower steam sterilizer panel is not parallel, set the door panel in accordance with a separate set of instructions “Setting the clearance of the door panel of the floor unit” (doc. JA_010-13).

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Inserting the shelf

You can insert the shelf (pos. a) at the desired height. Guide the hoses through aperture in the floor mat on the left-hand side. You can install the tool bracket (pos. b) in the mounting intended for this purpose. It can be used to store the carrying handles, the special key (hex for the casters) and the Allen key with which to open the door in an emergency.



Setting the display position

The display can be set at various positions to permit ergonomic working on the steam sterilizer.

PLEASE NOTE

The lower guide bars remain in the fore long groove (see arrow).



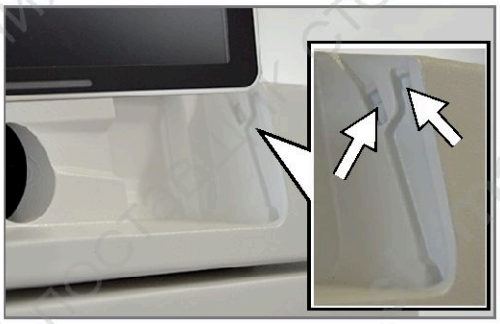
1. Grasp the display left and right and pull it upwards until leaving its locking position.



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2. Guide both lateral display locking elements into the same guide groove on the steam sterilizer.



3. Press the display downwards until you feel it engaging.

Settings on the steam sterilizer

Date and time

Check the date and time and set if necessary. Consult the user manual.

Display settings

If required, working in the `Settings` menu, adjust the brightness, key tone and the touch-sensitivity.

Contact data of the service partner

Working in the `Settings` > `Service` menu, enter the name and address of the responsible service partner.

Resetting the maintenance counter

Reset the maintenance counter in accordance with the instructions “Resetting the maintenance counter upon initial commissioning and maintenance” (doc. PW_common).

User administration and logging

Instruct the user in the user administration and possible logging: consult user manual. If you require an admin PIN, enter this and any further settings in the record of installation and setup.

IP addresses

NOTICE

The setting up in the (practice) network will require in-depth understanding of the network technology.

Handling errors of IP addresses can result in malfunctions and data loss in your user network.

- IP addresses may only be set by the (practice) network system administrator.

The device is equipped as standard with IP addresses which all belong to a common network with the subnet mask stated in the following table. These pre-set IP addresses listed in may not yet been assigned in the (practice) network.

Works pre-setting of the device IP addresses

Device	IP address	Remarks
Steam sterilizer	192.168.40.40	Pre-set works side
Computer	192.168.40.140	Pre-set works side
Log printer	192.168.40.240	Pre-set works side
Label printer	192.168.40.160	Pre-set works side
Gateway	192.168.40.244	Not relevant within a network

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Device	IP address	Remarks
Subnet mask	255.255.255.0	Possibly to be adopted by customer network

Additional drying and further program modifications

The stages of the steam sterilizer programs (fractionating, heating, sterilizing, pressure release, drying and aeration) and its parameters (pressure, temperature and time) are conform with the usual requirements placed by a practice environment. The `Additional drying` function in the `Settings` menu provides a standard possibility of influencing the course of the program run. Further alterations to the program run are possible in each individual case and will still ensure the effectiveness of the sterilization, but may only be performed by authorized technicians. Please consult your stockist or MELAG.

System and status log

Output a system and status log and document this on the record of installation and setup.

Counter stands

Working in menu `Info & Status`, you can access counter stands and other up-to-date technical data.

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7 Frequently Asked Questions (FAQ)

What does the log name mean?

Complete encoding of both the serial number and the total batch number is performed in the 8 digit log name. Manually re-named files are always easy to identify but not to be recommended. A log name is never assigned twice. The log name achieves good log sortability.

Knowledge of the encoding within the name of the log file is not necessary, as a double-click on the file reveals the content and thus serial number and total batch number immediately. This requires assignment of a log file to a text editor.

Example	H	5	0 P 1	0 0 B	.	P R 0
Meaning	**Serial number**			**Total batches**		**File ending**
	Year of construction	Type	Production no.			
Explanation	H...2017 I...2018 J...2019 K...2020	5...45 5...45 M 5...45 D 5...45 MD				Example: .PRO = successfully ended program

Date and time of the log files

The date and time of the log files in Windows explorer are identical with the time of the program start, provided of course that the files were saved on the corresponding medium via immediate output. The information is lost upon subsequent collected issue on a medium or e-mail dispatch.

How to format a CF card on the computer correctly?

The CF card should be only formatted on the device. Formatting on the computer is permissible only under exceptional circumstances. The CF card to be used may have a max. memory capacity of 4 GB and must be formatted with the file system FAT16 or FAT32. CF cards from which a software update is to be performed may only be formatted in a FAT16 file system.

The device can only file or read data on CF cards formatted in this way. CF cards supplied by MELAG fulfil these requirements and have already been formatted.

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Formatting on a computer is described in Windows 10:

1. Insert the CF card in the MELAflash card reader installed and connected to the computer.
2. Working in Windows Explorer, `This PC` > `Devices and drives` select the corresponding drive and open the menu window by right-click.
3. Working in the menu window, select `Format...`. The adjacent dialogue window opens.
4. Working under the file system, select format `FAT (Default)`.
5. Working under `Allocation unit size`, Windows automatically selects the appropriate allocation unit for the size of the CF card. The allocation unit is dependent of the size of the CF card.
6. Click on `Start`.



How to integrate the device in a (practice) network?

Arrange for the IT company that services your network to integrate your device in the network.

The following requirements must be fulfilled:

- The computer is fitted with a network card with RJ45 bushing (LAN).
- Log archive via FTP: an FTP server*) or an FTP service is installed on the computer that permits the creation of users with write permission independent of the operating system.
- Log output via TCP: a suitable program, e.g. MELAview/MELAtrace, is installed.

*) We recommend using the MELAG FTP server to integrate network-compatible MELAG devices in a (practice) network.

1. Setting up the FTP server (only with log output via FTP)

A computer must be determined in the (practice) network on which the FTP server should run. This program receives the logs via data transfer. The steam sterilizer searches for the FTP server using the IP address set in the steam sterilizer and logs on. The logs of the completed program are saved on this computer later. When choosing the computer, be aware that it would be advantageous to integrate the logs thus saved in the practice automatic data saving system.

MELAG provides its own FTP program free of charge. Using the MELAG FTP server enables the registration of multiple devices as users simultaneously and the receipt of data from the steam sterilizer and other devices such as a washer-disinfector. The FTP server supports the so-called multithread capability. You can determine the folder in which the device directory and log files are to be stored in the FTP server program.

1. Working in the (practice) network, determine which computer should run on the FTP server.
2. If an FTP server has not yet been installed, install the MELAG FTP server for preference and set the steam sterilizer as user with a user name and password.
3. Working on the steam sterilizer, set the computer as the log output medium (log output via FTP). Further information regarding log output is set out in the user manual (chapter Settings, Logging).

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2. Connecting the network cable

- Connect the network cable to any network data connection of the device and connect it to the (practice) network (see Connecting the network cable (optional) [▶ page 30]).

3. Adjusting IP addresses in the steam sterilizer

NOTICE

The setting up in the (practice) network will require in-depth understanding of the network technology.

Handling errors of IP addresses can result in malfunctions and data loss in your user network.

- IP addresses may only be set by the (practice) network system administrator.

NOTICE

If you use a subnet mask other than that set in the steam sterilizer, an IT specialist should adapt all the IP addresses in the device.

As a matter of course: The selected computer must always have a fixed IP address, regardless of whether it is in an automatically or manually configured network. In an automatically configured network, it is necessary to inform the DHCP server of the area with the number or the number itself as a static IP address(es). The computer can also be assigned multiple IP addresses if those already present in the computer are not to be used.

1. Ask the IT administrator for the IP address of the computer first or find out yourself.
2. Check whether the computer has a dynamic or a fixed IP address.

   ➥ The computer must be issued with a fixed IP address. Change this if necessary.

With a manually-configured (practice) network:

1. Check whether the steam sterilizer and the computer belong to a subnetwork. In the majority of cases, this usually means that the first three numbers of the IP address of the sub network should correspond (e.g. **192.168.40**.xx). The IP addresses of the steam sterilizer and the computer must be different in the fourth number block (e.g. IP steam sterilizer: 192.168.40.**20** and IP computer: 192.168.40.**140**).

   ➥ If the IP addresses of both devices do not belong to a subnetwork, change the steam sterilizer IP address directly in the steam sterilizer.
2. Check whether the IP address of the computer set in the steam sterilizer is correct.

   ➥ If the IP address of the practice computer deviates from the IP address set in the steam sterilizer, adapt the IP address of the computer in the steam sterilizer.

With a dynamic (practice) network (DHCP):

The steam sterilizer can also be administered automatically in a dynamic network. If log output is made via FTP, the computer should be issued with a fixed IP address which is entered on the steam sterilizer.

1. Working in the `Settings` menu > `Logging`, set the IP address of the steam sterilizer to DHCP.



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2. Check whether the IP address of the computer set in the steam sterilizer is correct.

   ➥ If the IP address of the practice computer deviates from the IP address set in the steam sterilizer, adapt the IP address of the computer in the steam sterilizer.

PLEASE NOTE

If a DHCP server cannot be located in the (practice) network, the steam sterilizer will automatically receive the pre-set static IP address.

How do I determine the IP address or network setting of a computer (Windows 7/10)?

1. Open “Network and Sharing Center” or the network and internet settings.
2. Open the Properties window under “Local Area Connection” > right-click on “Properties”.
3. Working in the Properties window, select “Internet Protocol Version 4 (TCP/IPv4)” and click on push-button “Properties”.

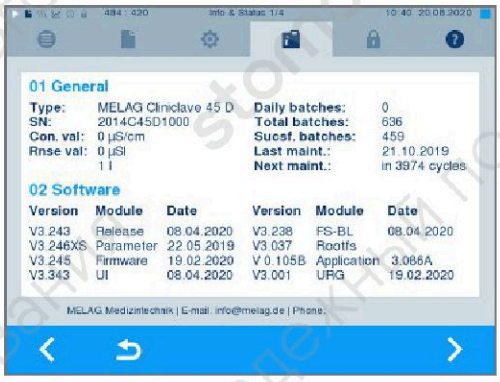
   ➥ If “Obtain the IP address automatically” is selected in the opening dialogue window, the computer is addressed dynamically in the (practice) network i.e. via DHCP.

What do the terms IP address, subnetwork and DHCP mean?

Term	Meaning
IP address	The IP address is a identifier of the computer or device expressed in numbers in a network. It serves to identify the computer or device with four number blocks (e.g. 192.168.88.8).
Subnetwork	Every IP address is divided into a network and a device (host) section. The division is performed via the subnetwork mask (also: subnet/sub-net mask). The network section of the IP addresses must be identical so that the devices can communicate with each other. With a network entry mask = 255.255.255.0 (the most often) the first three numbers (e.g. 192.168.88.x) must be the same. The device part of the IP address is assigned individually and only once. The first (network itself) and the highest (broadcast) device address may not be issued.
DHCP	The IP addresses are automatically issued in a computer network via DHCP (= Dynamic Host Configuration Protocol) i.e. the IP addresses need not be entered manually in every device in the network. The precondition is the presence of a DHCP server in a network.

How can I check the software version of the steam sterilizer?

▸ You can read off the software version of the activated steam sterilizer from the `Info & Status` menu.



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8 Technical tables

Feed water quality

EN 285 Appendix B, Table B.1 – Impurities in the feed water for an assigned steam generator

Substance/property	Feed water
Evaporation residue	≤ 10 mg/l
Silicates	≤ 1 mg/l
Iron	≤ 0.2 mg/l
Cadmium	≤ 0.005 mg/l
Lead	≤ 0.05 mg/l
Residues of heavy metals apart from iron, cadmium, lead	≤ 0.1 mg/l
Chloride	≤ 0.5 mg/l
Phosphate	≤ 0.5 mg/l
Conductivity (at 25 °C)	≤ 5 µS/cm
pH Value	5-7.5
Appearance	without colour, without residue
Hardness	≤ 0.02 mmol/l

EN 285, section 13.3.4, table 4 - Suggested maximum values of impurities in the condensate from the steam supply for the sterilizer chamber

Substance/property	Condensate
Silicates	≤ 0.1 mg/l
Iron	≤ 0.1 mg/l
Cadmium	≤ 0.005 mg/l
Lead	≤ 0.05 mg/l
Residues of heavy metals apart from iron, cadmium, lead	≤ 0.1 mg/l
Chloride	≤ 0.1 mg/l
Phosphate	≤ 0.1 mg/l
Conductivity	≤ 4.3 µS/cm
pH Value	5-7
Appearance	without colour, no deposits
Hardness	≤ 0.02 mmol/l

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Precision and drift behaviour

Sensors

Temperature sensors

Sensor type	PT 1000 Class A according to DIN EN 60751
Precision (at 135 °C)	± 0.42 K
Drift per year	± 0.05 K
Drift in 5 years	± 0.25 K

Pressure sensor

Sensor type	Piezoresistant absolute pressure sensor 0 to 4000 mbar
Precision	± 0.3 % corresponds to ± 12 mbar corresponds to approx. ± 0.13 K steam
Drift per year	± 0.2 % corresponds to ± 8 mbar corresponds to approx. ± 0.09 K steam
Drift in 5 years	± 1.0 % corresponds to ± 40 mbar corresponds to approx. ± 0.44 K steam

Measuring chains

Measuring chain for the temperature measurement on the electronics (without sensor)

Precision (at 135 °C)	± 0.2 K
Drift per year	± 0.005 K
Drift in 5 years	± 0.025 K

Measuring chain for the pressure measurement on the electronics (without sensor)

Precision	± 0.2 % corresponds to ± 8.0 mbar corresponds to approx. ± 0.09 K steam
Drift per year	± 0.004 % corresponds to ± 0.16 mbar corresponds to approx. ± 0.017 K steam
Drift in 5 years	± 0.02 % corresponds to ± 0.8 mbar corresponds to approx. ± 0.09 K steam

After 1 year

Entire measuring chain of the temperature measurement

Precision (at 135 °C)	at pure addition of individual errors approx. ± 0.70 K
Precision (at 135 °C)	according to Gauss' law of propagation approx. ± 0.47 K

Entire measuring chain of the pressure measurement

Precision	at pure addition of indiv. errors	± 0.70 % corresponds to ± 28.0 mbar corresponds to approx. ± 0.30 K steam temperature
Precision	per Gauss' law of propagation	± 0.41 % corresponds to ± 16.5 mbar corresponds to approx. ± 0.18 K steam temperature

After 5 year

Entire measuring chain of the temperature measurement

Precision (at 135 °C)	at pure addition of individual errors approx. ± 0.70 K
Precision (at 135 °C)	according to Gauss' law of propagation approx. ± 0.47 K

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Entire measuring chain of the pressure measurement

Precision	at pure addition of individual errors	± 0.70 % corresponds to ± 28.0 mbar corresponds to approx. ± 0.30 K steam temperature
Precision	per Gauss' law of propagation	± 0.41 % corresponds to ± 16.5 mbar corresponds to approx. ± 0.18 K steam temperature

Nominal value tolerances

	Universal-Program		Quick-Program B		Prion-Program		Gentle-Program		Quick-Program S			
Step	Press. P	Tolerance	P	Tol.	P	Tol.	P	Tol.	P	Tol.	*All values in mbar*	
SK11	1700	+100/- 20	◄	◄	◄	◄	◄	◄	◄	◄	Steam intake	1
SK12	1300	+ 20/- 50	◄	◄	◄	◄	◄	◄	◄	◄	Pressure release	
SK11	1700	+100/- 20	◄	◄	◄	◄	◄	◄	---	---	Steam intake	
SK12	1300	+ 20/- 50	◄	◄	◄	◄	◄	◄	---	---	Pressure release	
SK21	1700	+100/- 20	◄	◄	◄	◄	◄	◄	◄	◄	Steam intake	
SK22	1300	+ 20/- 50	◄	◄	◄	◄	◄	◄	◄	◄	Pressure release	
SK21	1700	+100/- 20	◄	◄	◄	◄	◄	◄	---	---	Steam intake	
SK22	1300	+ 20/- 50	◄	◄	◄	◄	◄	◄	---	---	Pressure release	
SK21	1700	+100/- 20	◄	◄	◄	◄	◄	◄	---	---	Steam intake	
SK22	1300	+ 20/- 50	◄	◄	◄	◄	◄	◄	---	---	Pressure release	
SF12	500	+ 30/- 30	◄	◄	◄	◄	◄	◄	◄	◄	Evacuation	2
SF13	1600	+100/- 20	◄	◄	◄	◄	◄	◄	◄	◄	Steam intake	
SF21	1300	+ 20/- 50	◄	◄	◄	◄	◄	◄	◄	◄	Pressure release	
SF22	180	+ 30/- 30	◄	◄	◄	◄	◄	◄	◄	◄	Evacuation	
SF23	1800	+100/- 20	◄	◄	◄	◄	◄	◄	◄	◄	Steam intake	
SF31	1300	+ 20/- 50	◄	◄	◄	◄	◄	◄	◄	◄	Pressure release	
SF32	200	+ 30/- 30	◄	◄	◄	◄	◄	◄	◄	◄	Evacuation	
SF33	1900	+100/- 20	◄	◄	◄	◄	◄	◄	◄	◄	Steam intake	
SF41	1300	+ 20/- 50	◄	◄	◄	◄	◄	◄	---	---	Pressure release	
SF42	400	+ 30/- 30	◄	◄	◄	◄	◄	◄	---	---	Evacuation	
SF43	1700	+100/- 20	◄	◄	◄	◄	**1800**	◄	---	---	Steam intake	
SH01	2750	+ 60/- 60	◄	◄	◄	◄	**1850**	◄	◄	◄	Hold steam intake	
SH02	2880	+ 60/- 60	◄	◄	◄	◄	**1950**	◄	◄	◄	Hold control	
SS01	3080	+ 60/- 60	◄	◄	◄	◄	**2080**	◄	◄	◄	Sterilization entry	
SS02	3170	+ 60/- 60	◄	◄	◄	◄	**2150**	◄	◄	◄	Sterilization	
SA00	1300	+ 20/- 50	◄	◄	◄	◄	**1300**	◄	◄	◄	Pressure release	

Key:

◄ As in Universal-Program

1 - Conditioning

2 - Fractionation

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Pressure-time charts

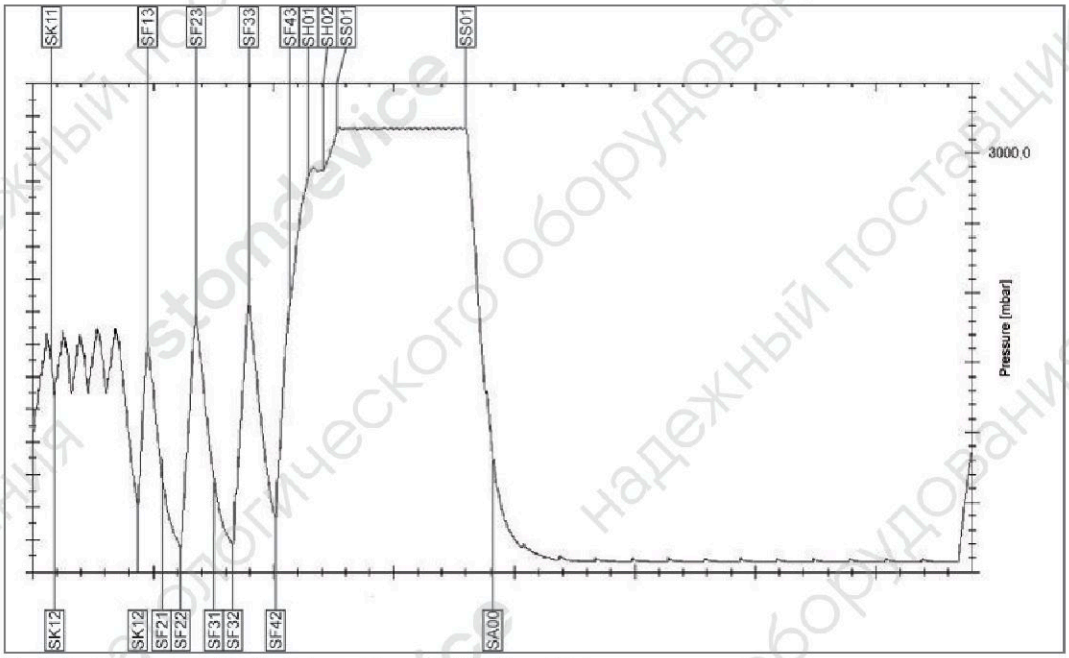


Fig. 1: Pressure-time chart for the Universal-Program, 134 °C and 2.1 bar

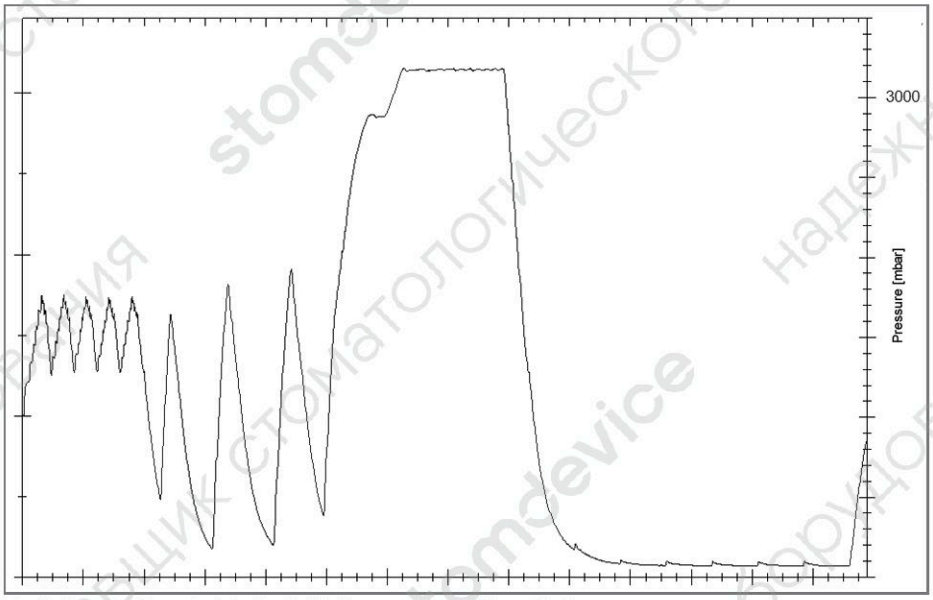


Fig. 2: Pressure-time chart for the Quick-Program B, 134 °C and 2.1 bar

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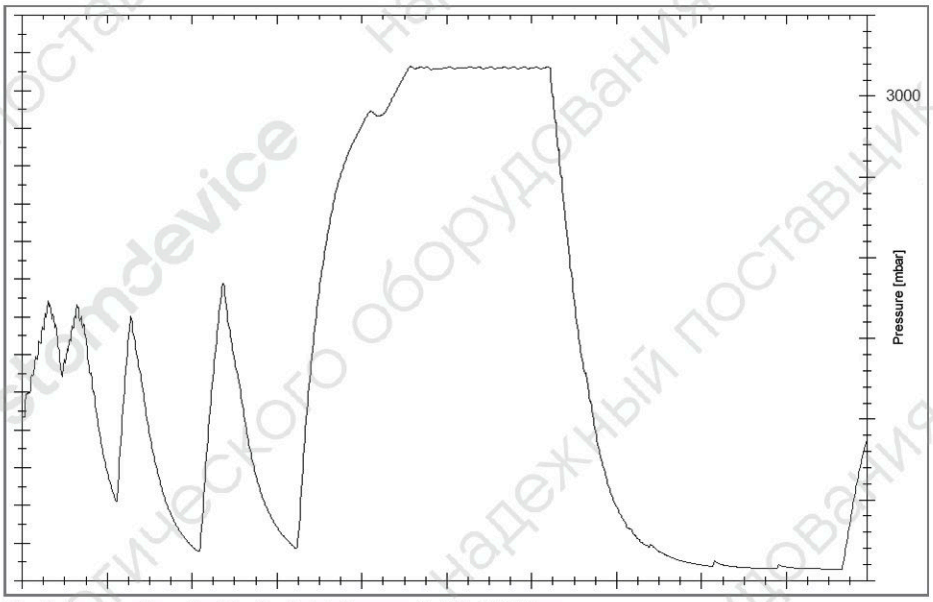


Fig. 3: Pressure-time chart for the Quick-Program S, 134 °C 2.1 bar

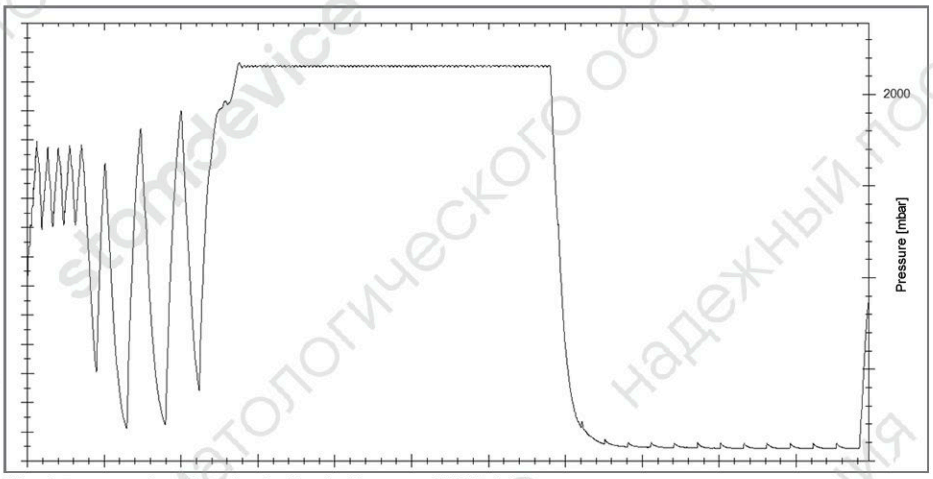


Fig. 4: Pressure-time chart for the Gentle-Program, 121 °C 1.1 bar

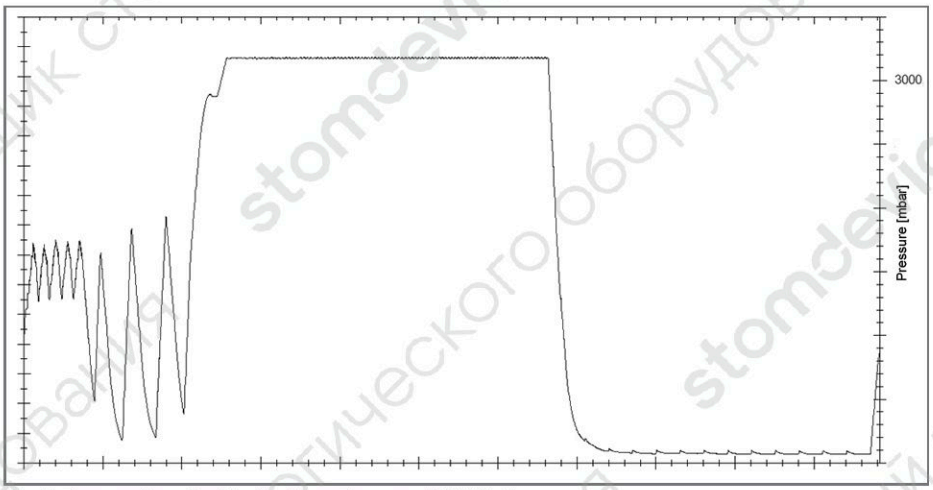


Fig. 5: Pressure-time chart for the Prion-Program, 134 °C 2.1 bar

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