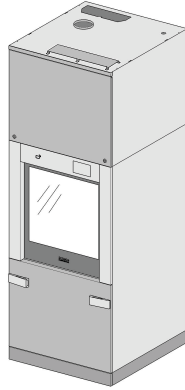


Miele



Installation plan

PLW 8616

en - US, CA

M.-Nr. 11 426 702

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Information on the installation plan

For safe installation and commissioning of the laboratory glassware washer, please read the installation plan, the service documentation, the operating instructions, and the programming manual.

This installation plan includes the dimensions of the laboratory glassware washer, the technical data, and the requirements to be met by the customer for installation.

The laboratory glassware washer is generally referred to as “the machine” in these operating instructions.

The dimensions in the figures are given in inches (mm). Dimensions that deviate from this are labeled accordingly.

The machine features vary depending on the model and can be extended with additional options. The installation plan describes the maximum amount of possible features.

Individual connections are not required for each item of optional equipment, e.g., a steam connection or cold water for the steam condenser.

Optional extras

| | |
|-----------|---|
| CT | Combi tank |
| DP | Drain pump |
| DU 900 | Drying unit and top-box paneling |
| DU 900 RV | Drying unit and top-box paneling with air vents |
| EL | Electric heating |
| EL/S | Steam/electric heating |
| FP 900 | Stand |
| SC | Steam condenser |
| TC 900 | Top-box paneling |

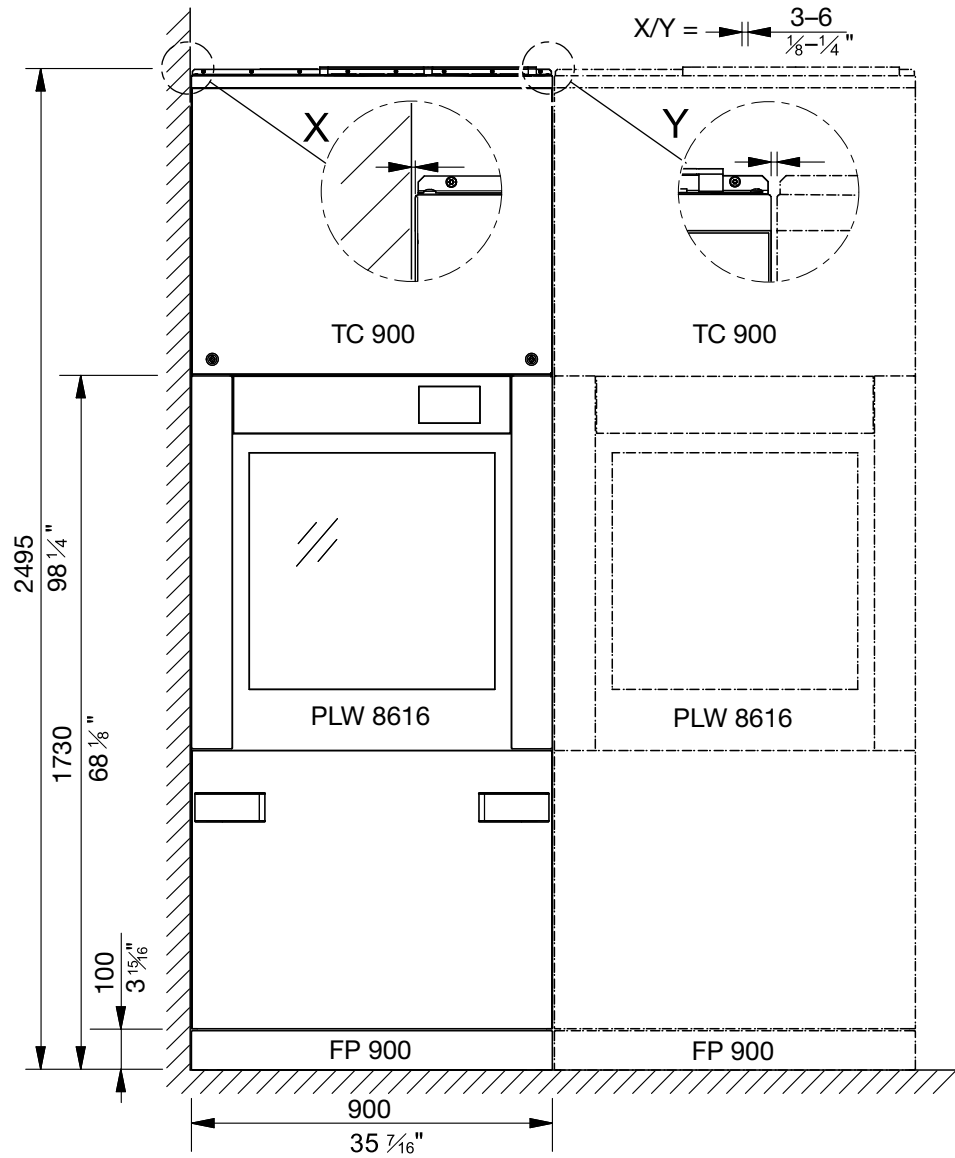
Installation requirements

Installation and commissioning work should be performed by Miele Customer Service or a suitably authorized technician in accordance with local and national safety regulations.

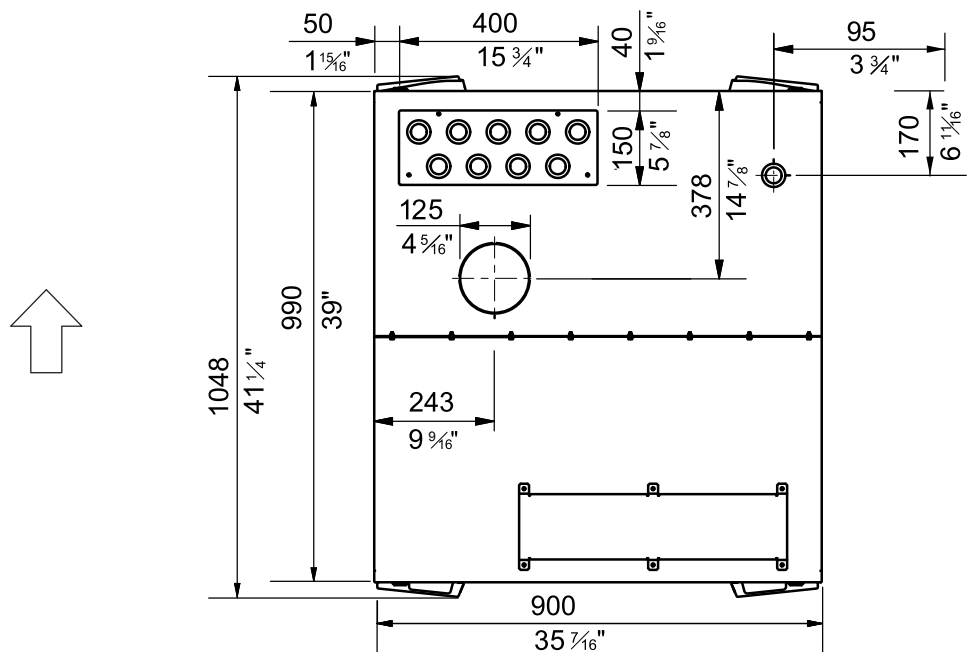
Installation must comply with valid regulations, legal requirements, relevant standards, and accident prevention regulations.

Machine dimensions

Front view

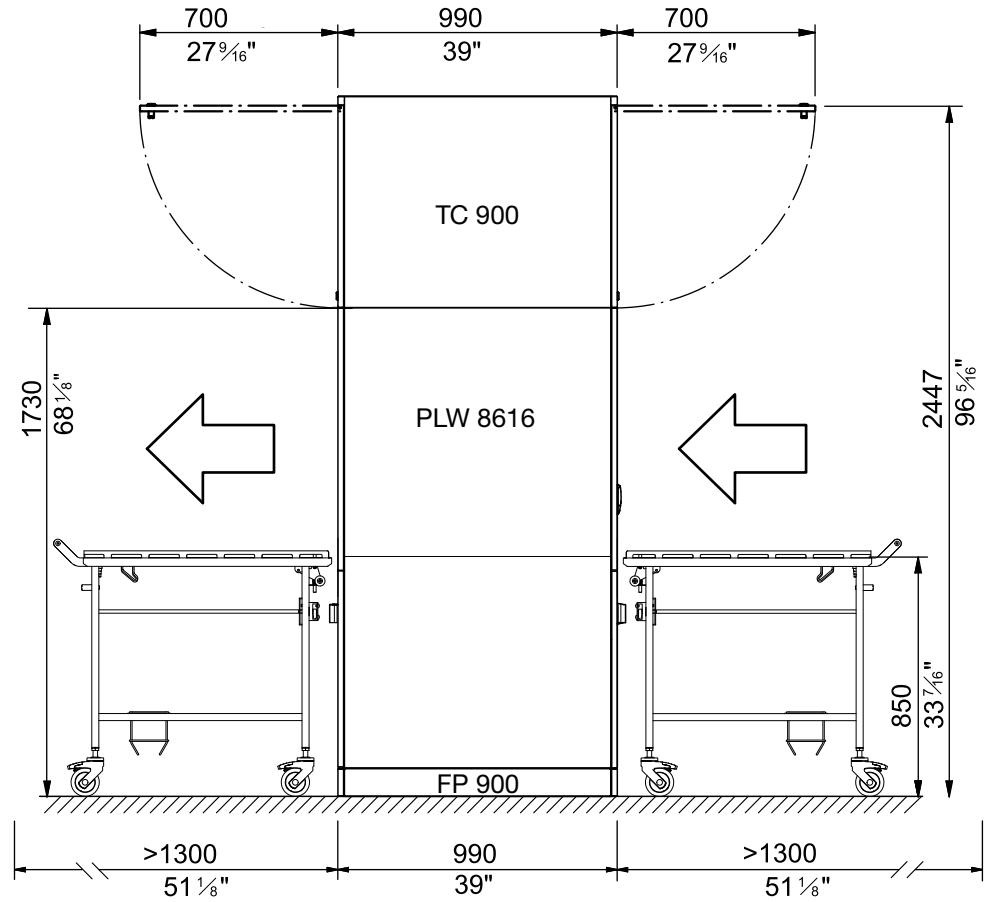


View from above - top-box paneling (TC)

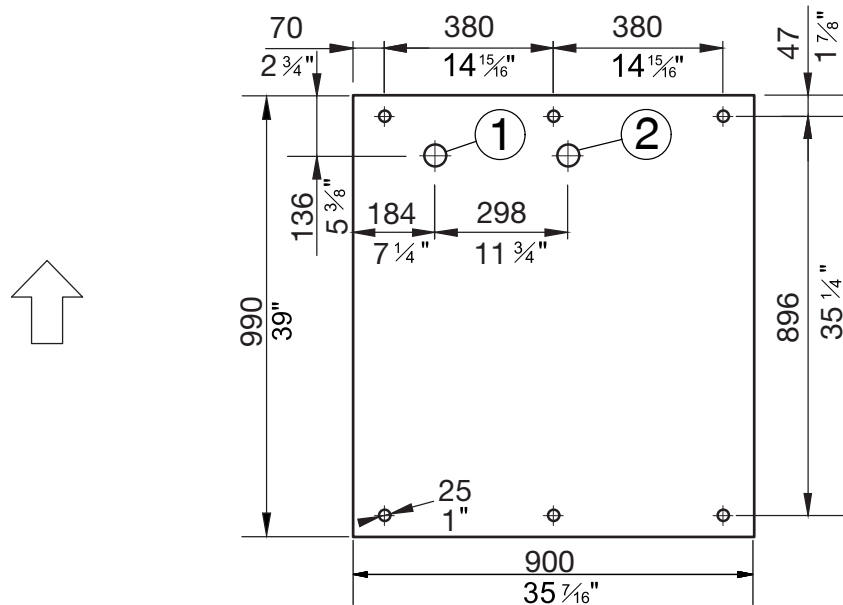


Machine dimensions

Side view



View from above plinth (FP)



① Floor-tray drain

↑ Loading/unloading direction

② Waste water

Installation notes

Installation

- Stand (FP)** A stand is required to install the machine. The stand comes with height-adjustable feed and a drip tray, e.g., for condensation.
- Top-box paneling (TC)** The top-box paneling (TC) makes it possible to access the technical equipment above the wash cabinet, e.g., on drying units, for maintenance and service work. To enable the top-box paneling to be placed pre-assembled on the machine, a clear height of at least 8' 7" (2.62 m) is required. If the clear height is between 8' 2" (2.50 m) and 8' 7" (2.62 m), the top-box paneling must be removed. The individual parts are reassembled above the machine and then riveted again.
- Mount the cover provided with watertight hose feed-throughs on the top-box paneling. If the shut-off valves or screw connections are leaky, the cover prevents water from getting into the machine.
- Paneling at the customer's site** Install paneling with inspection flaps at the customer's site from the top-box paneling to the ceiling. The supply lines can be accessed from the outfeed of the machine.
- Multiple side-by-side installation** Several machines can be installed next to one another in a row. A gap of 1/8"-1/4" (3–6 mm) is required between two machines or a machine and a partition wall.
- The stands of the individual machines can be connected together.

After installation has been completed, the customer must seal the joints with a suitable flexible sealant.

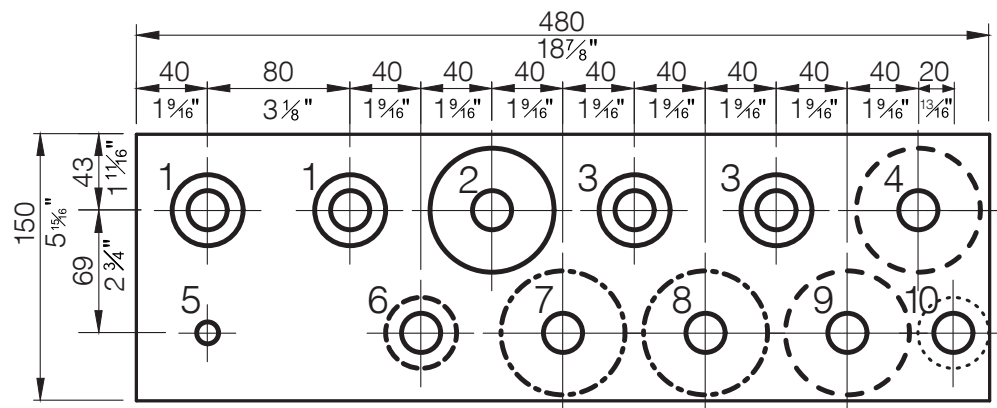
Supply lines

The connections for the supply lines are on the machine above the top-box paneling.

The supply lines provided by the customer and the exhaust duct must end 8' 8" (2,650 mm) above the top edge of the finished floor so that the top-box paneling (TC) can be installed on the machine. For the supply lines in the second row of the installation area, a height of 9' 2" (2,800 mm) is recommended as this will mean that the shut-off valves are more easily accessible.

Customer's installation area

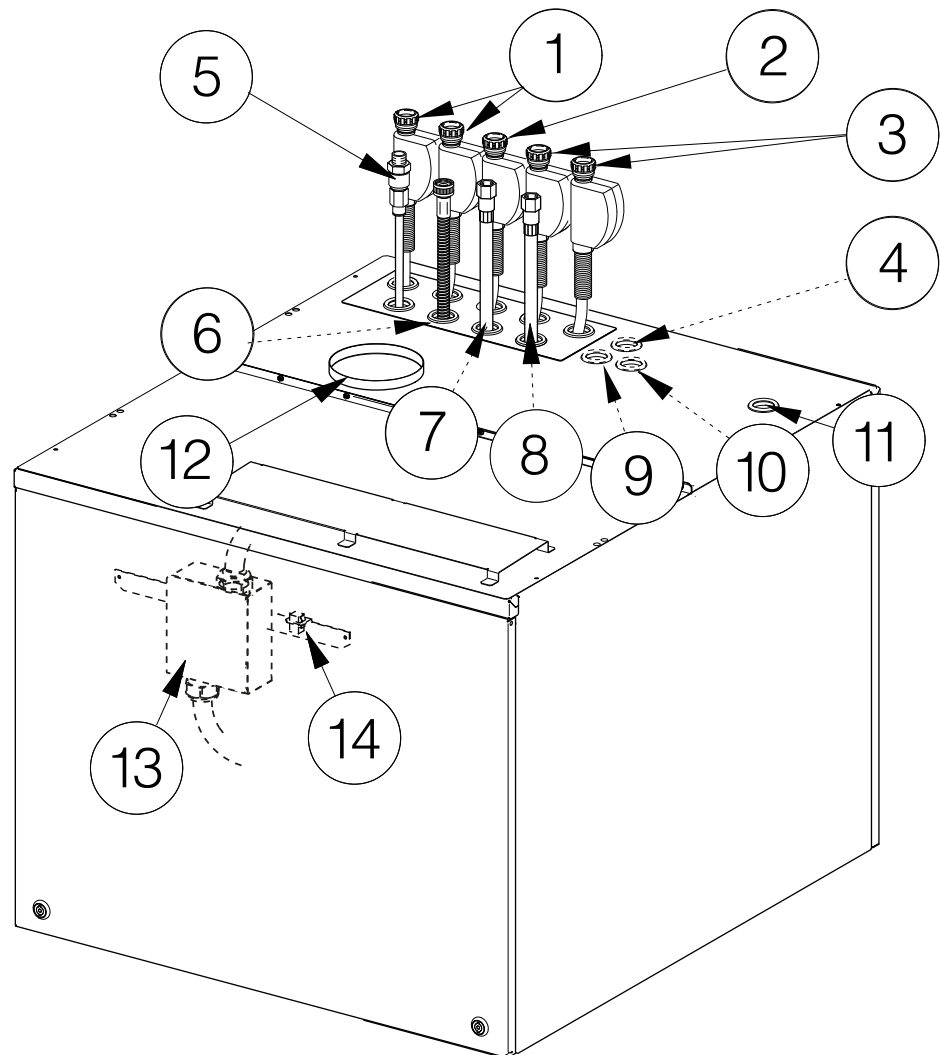
The customer's supply line must be above the machine. The installation area must be at least 18 7/8" x 5 7/8" (480 x 150 mm):



- ① 2 x DI water
- ② 1 x hot water
- ③ 2 x cold water
- ④ Cooling circuit, feed line (optional)
- ⑤ Compressed air, technical grade
- ⑥ Cold-water inlet, steam condenser (optional)
- ⑦ Supply line, steam (optional)
- ⑧ Condensate line, steam (optional)
- ⑨ Cooling circuit, return (optional)
- ⑩ Waste-water disposal line, drain pump (optional)

Installation notes

Top-box paneling (TC) connections The following lines are routed outside the installation area through the cover of the machine:



⑪ Implementation for:

- Power cord
- Data line
- Equipotential bonding and grounding (optional)
- External voltage for potential-free contacts on the connection module (optional)
- Lines to the potential-free contacts on the connection module (optional)

⑫ Vent ducting

⑬ Power-cord connection box

⑭ Ethernet plug, data line

① to ⑩; see “Customer’s installation area”

Electrical connection

All work on the electrical connection must be carried out by Miele Customer Service or a qualified electrician.

The machine installation must comply with measurement category CAT II in accordance with IEC 61010-1.

The machine is connected to the electrical supply from above. You will need power cord at least 4' 11" (1,500 mm) long inside the top-box paneling.

The voltage may deviate from the rated voltage by max. $\pm 10\%$.

Power connection The connection box for the electrical connection is inside the top-box paneling. The power cord must be connected to the terminal block in the connection box at the customer's site.

Install a power switch capable of disconnecting the machine at all poles at the customer's site. This power switch must have a contact gap of at least 1/8" (3 mm).

The power switch must be accessible after the machine has been installed. This is to enable an electrical safety test to be carried out after installation and after any servicing work.
The power cord must be laid protected from the risk of thermal damage.

Residual current device (RCD) For added safety, each machine should be protected by a type B residual current device with a trip current of 30 mA.
The residual current device must be installed so that it is easily accessible.

Clockwise rotation Machine phases must be connected in the correct sequence (clockwise rotating field). The clockwise rotating field determines the direction of rotation of the machine's motorized drives.

Equipotential bonding and grounding The machine has been set up for equipotential bonding and grounding. The connection screw (M8) is on the infeed side above the lifting door.
Equipotential bonding and grounding should be carried out if possible on site.

Installation notes

Steam connection (optional)

Dual-heated machines with steam and electric heating (EL/S) must be connected to a dry industrial-steam supply. The hoses for steam and condensate can protrude from the top-box paneling by approx. 12" (300 mm).

A shut-off valve, a dirt trap, and drainage must be installed in the steam line.

To avoid impacts in the cold condensate lines when starting up the machine, install a non-return valve directly downstream of the condensate trap at the customer's site.

The customer's connections require the following outer threads, which seal the surface at the end:

- Supply line, steam 3/4"
- Drainage line, condensate 1/2"

Install shut-off valves for the steam and condensate lines at the customer's site.

The shut-off valves must be accessible after the machine has been installed.

Compressed-air connection

Oil-free, technical-grade compressed air is required to operate the machine door.

In machines with a steam connection, the technical-grade compressed air is also required to control the steam valves.

A shut-off valve and a coupling socket with 1/2" female quick lock is required at the customer's site for connection purposes.

The compressed-air hoses can protrude from the top-box paneling by approx. 3 ft (900 mm).

Network connection

The machine has an Ethernet interface. The RJ45 network connection is inside the top-box paneling above the wash cabinet.

A network connection is required above the machine at the customer's site. If the network cable and electrical connection are laid in parallel, you will need a 5 ft (1,500 mm) cable inside the top-box paneling. Use a CAT 5 network cable or better.

 Unauthorized access poses a health risk.

Settings in the machine, e.g., parameters for disinfection or dispensing process chemicals, may be changed as a result of unauthorized access via the network.

Under no circumstances should it be possible to access the machine via the Internet or other public or unsecured networks, either directly or indirectly (e.g., using port forwarding)!

The IP addresses from 192.168.10.1 to 192.168.10.255 are reserved for Miele Customer Service. They must never be set in the internal network.

1. The machine should be operated only in a separate network segment which meets one of the following requirements:
 - It is physically separated from other network segments
 - Access to the segment is restricted by a firewall or a router which has been configured accordingly
2. Limit access to this separate network segment to persons requiring access in the course of their work.
3. Use strong passwords to protect access to systems that are connected to the machine.
4. Configure the Ethernet interface.

The network connections and the connected machines must comply with IEC 62368-1.

Network protocols

The machine supports communication via the following network protocols:

| Network protocols | Description | Port |
|-------------------|--|---------|
| DHCPv4 | Assignment of dynamic IPv4 addresses | 68/UDP |
| DHCPv6 | Assignment of dynamic IPv6 addresses | 546/UDP |
| HTTPS | Web interface for configuring the machine parameters | 443/TCP |

The ICMPv4 and ICMPv6 protocols are also supported.

Installation notes

Water connection

Water inlet

The machine must only be connected to fully vented pipework. A brief increase in the water pressure can damage components of the machine.

The quality of the incoming water must correspond to the drinking water specification of the country in which the machine is being operated.

The machine must be connected to hot, cold, and DI water. The water-inlet hoses can protrude from the top-box paneling by approx. 3 ft (900 mm). The customer's connections require a 3/4" outer thread, which seals the surface at the end. Install shut-off valves for the water-inlet hoses at the customer's site.

The shut-off valves must be accessible after the machine has been installed.

Drainage

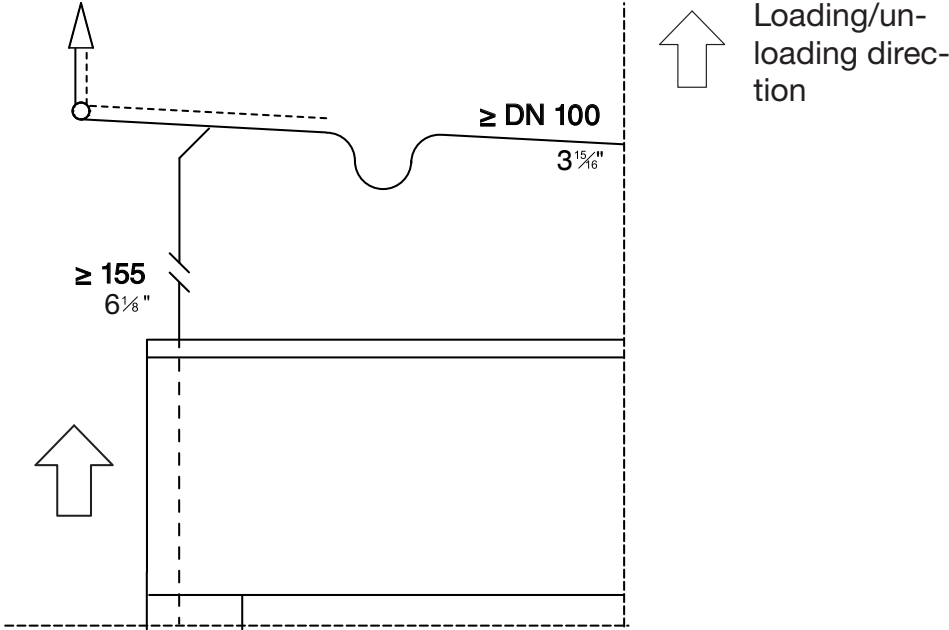
The waste water must be received by a suitably dimensioned manifold \geq DN 100 with incline.

The drain lines must be heat resistant to at least 200°F (94°C). Install an odor trap at the customer's site.

If several machines are installed in a row, the manifold must be able to take the corresponding amount of waste water. If the waste water drains too slowly, you can increase the drainage time during the program sequence in the machine's controls. Also install a flow restrictor on the drain valve, e.g., a reducer or drain orifice.

Drain pump (DP)

The machine has a drain pump. The drain pump pumps the waste water to a floor drain or a drain line on the ceiling. The maximum delivery head is 9' 10" (3,000 mm).



Detailed front view – top-box paneling

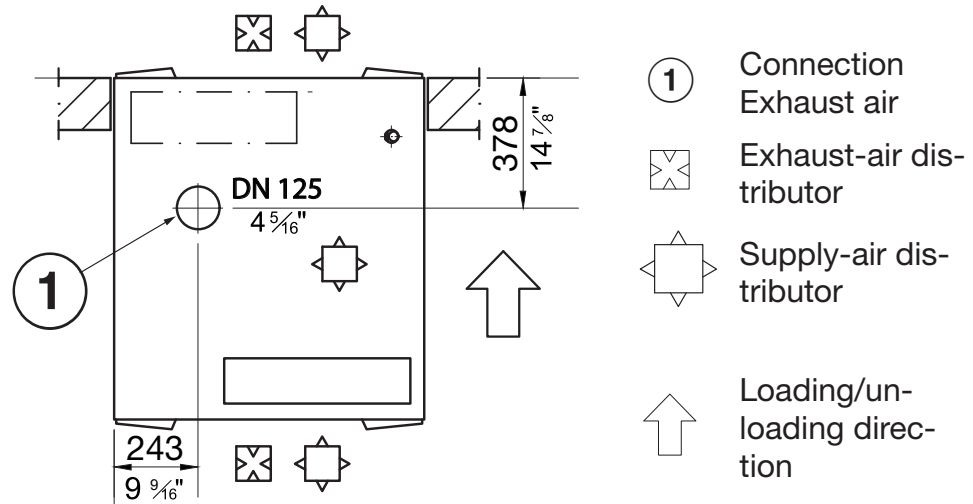
Drain line on the ceiling:
The drain hose is on the left-hand side of the machine viewed from the infeed side. The drain hose can protrude from the top-box paneling by approx. 2 ft (600 mm).

Floor drain:
The drain hose must be laid in a curve inside the machine so that the waste water cannot run back. The minimum delivery head is 8" (200 mm), measured above the non-return valve in the machine.

Installation notes

Exhaust duct

The machine must be connected to a ventilation or air-conditioning system. During operation, a permanent flow rate of 350 m³/h is required for the exhaust duct for each machine. There must be sufficient air intake via the ventilation system above the top-box paneling (TC) to match the air outlet volume. If there is no air-intake line, the top-box paneling must have vents on the infeed side.



View from above – top-box paneling (TC)

If connected to an air-conditioning system, a steam condenser must be connected upstream to dehumidify the exhaust air.

If the machine is connected to an extraction system that is vented into the open air, you do not need a steam condenser.

Install the vent ducting sloping toward the exhaust airflow so that the condensate cannot run back into the machine. Drain the condensate line at the lowest point.

Install separate vent ducting for each machine if possible.

If the vent ducting for several machines need to be laid together, the output of the exhaust-air system on-site must be calculated and planned in line with the flow rate.

The heat dissipated during operation must be discharged via the ventilation system.

Steam condenser (optional)

If the machine's vent ducting is connected to an air-conditioning system, a steam condenser must be connected upstream to dehumidify the exhaust air.

The steam condenser must be operated together with a drying unit.

Install shut-off valves in the water inlet for the steam condenser at the customer's site.

The shut-off valves must be accessible after the machine has been installed.

Steam condenser (SC)

The steam condenser (SC) can be connected to the cold water or a cooling circuit at the customer's site.

Connection to cold water

You will need a cold-water connection at the customer's site for the steam-condenser water inlet. The connection hose has an internal diameter of 1/2" (13 mm).

The water is routed from the steam condenser into the machine's drain via a free-flowing section.

Connection to a cooling circuit

To connect the steam condenser to the cooling circuit, you will need a 3/4" regulating valve and a conversion kit with two connection hoses (optional accessories). The connection hoses have an internal diameter of 1/2" (13 mm) and are 78 3/4" (2,000 mm) long.

The solenoid valves supplied with the machine and the free-flowing section are not used.

Installation notes

Connection module

The machine is equipped with a connection module. Its potential-free inputs and outputs can be used to query operating statuses and control external components. The connection module has 3 plugs: plug 5 (yellow) with 4 inputs, plug 6 (green) with 5 outputs, and plug 7 (red) with 4 outputs.

The assignment of the inputs is fixed. The voltage at the inputs must be 200–240 V AC.

The assignment of the outputs can be set; see “Possible assignment of the potential-free outputs” table. The voltage at the outputs of a plug can be either 12–24 V DC or 200–240 V AC.

The same voltage must always be used at the outputs within a plug.

Damage to the relay contacts

The outputs on the connection module may only be loaded with max. 1 A to prevent damage to the relay contacts.

Attach external connector relays or contactors if higher ratings are switched at the connection-module outputs.

Inputs

- Peak-load negotiation of the electric heating
- Fill-level monitor for the external dispenser canister
- Flow control for the external dispenser pumps
- External message

Potential-free outputs

| Parameter | The contact is activated ... |
|----------------------------|--|
| Off | – |
| Active drying | if the drying unit is active |
| Program running | while a program is running |
| Operation | when the machine is switched on |
| Fault | if a fault is present |
| Door status - Loading side | when the door is open on the infeed side |
| Unloading side status | when the door is open on the outfeed side |
| Program finished | between the end of the program and the door being opened |
| Pause with rinse | if the water intake is active in the pause program stage |
| Drainage Standard | if standard drainage is active in the program sequence |
| Drainage Recycling | if recycling drainage is active in the program sequence |
| Cold valve | during water intake through the set valve |
| Valve hot | |
| DI cold | |
| DI hot | |
| Cold valve delayed | during water intake through the set valve, a. delayed by the set “Water intake start delay” b. upstream by the set “Water intake stop delay” |
| Valve hot delayed | |
| DI cold delayed | |
| DI hot delayed | |
| DOS 7 external | as a signal for external dispenser pump 7 |
| DOS 8 external | as a signal for external dispenser pump 8 |
| DOS 9 external | as a signal for external dispenser pump 9 |
| DOS 10 external | as a signal for external dispenser pump 10 |
| DOS 1 control | when dispenser pump 1 is active |
| DOS 2 control | when dispenser pump 2 is active |
| DOS 3 control | when dispenser pump 3 is active |
| DOS 4 control | when dispenser pump 4 is active |
| DOS 5 control | when dispenser pump 5 is active |
| DOS 6 control | when dispenser pump 6 is active |
| External drainage contact | if the “External drainage contact” parameter is active during drainage |

Technical details

Dimensions

| | | |
|---|-----------|---------|
| Height incl. stand | 69 11/16" | 1770 mm |
| Height incl. stand and top-box paneling | 98 1/4" | 2495 mm |
| Width | 35 7/16" | 900 mm |
| Depth | 39" | 990 mm |

Weight

| Option | PLW 8616 EL | PLW 8616 EL |
|--|-----------------------|-----------------------|
| Net weight incl. stand and top-box paneling | 1027 | 466 kg |
| Net weight plus EL/S, DU, SC, CT | 1409 | 639 kg |
| Max. operating weight | 1797 | 815 kg |
| Max. individual load (foot 5 cm ²) | 1333 N | 1333 N |
| Max. distributed load (load-bearing capacity) | 9.0 kN/m ² | 9.0 kN/m ² |
| Optional extras | | |
| Steam/electric heating (EL/S) | 11 lbs | 5 kg |
| Drying unit (DU) | 254 lbs | 115 kg |
| Steam condenser (SC) | 115 lbs | 52 kg |
| Combi tank (CT) | 30 lbs | 13.5 kg |

Electrical connection

| | | |
|---|--------------------|--------------------|
| Voltage | 3 AC 208 V | 3 AC 208 V |
| Frequency | 60 Hz | 60 Hz |
| Fuse rating | 3 x 60 A | 3 x 60 A |
| Heater rating | 18 kW | 18 kW |
| Total rated load | 21 kW | 21 kW |
| Power cord cross-section | 6/4 AWG | 6/4 AWG |
| Customer's power cord, length within TC | 59 1/16" | 5 7/8 m |
| Connection | Mains junction box | Mains junction box |

Dual-heated machines in "steam" heating mode (optional)

| | | |
|------------------|----------|----------|
| Fuse rating | 3 x 30 A | 3 x 30 A |
| Total rated load | 10 kW | 10 kW |

Steam connection

| | | |
|---|-----------------------|-----------------------|
| Quality | Industrial steam, dry | Industrial steam, dry |
| Steam pressure (overpressure) | 36–145 psi | 250–1,000 kPa |
| Peak capacity for steam and condensate line | 110 lbs/h | 50 kg/h |
| Steam line at customer's site with shut-off valve, outer thread that seals the surface | 3/4" GHT | 3/4" |
| Condensate line at customer's site with shut-off valve, outer thread that seals the surface | 1/2" | 1/2" |

Compressed-air connection

| | | |
|---|---------------------|---------------------|
| Compressed air, technical grade | ISO 8573-1: class 4 | ISO 8573-1: class 4 |
| Pressure | 87–116 psi | 600–800 kPa |
| Peak capacity | 1.32 gpm | 5 l/min |
| Connection at customer's site with shut-off valve and coupling socket with quick lock ♀ | 1/2" | 1/2" |

Exhaust air

| | | |
|--|--------------------------|-------------------------|
| Exhaust duct | DN 125 | DN 125 |
| Flow rate during operation | 1,589 ft ³ /s | 350 m ³ /h * |
| Temperature with steam condenser without steam condenser | 113–118.4°F 158–203°F | 45–48°C 70–95°C |
| Relative humidity with steam condenser without steam condenser | 65–100% 80–100% | 65–100% 80–100% |

* The corresponding air intake must be routed inside the top-box paneling via the ventilation system; alternatively, if there is no air-intake line, top-box paneling with vents on the infeed side is available

Technical details

Water inlet

| | | |
|---|-------------------------|----------------------|
| Water connections | | |
| - Cold water | 2 | 2 |
| - Hot water | 1 | 1 |
| - DI water | 2 | 2 |
| Water temperature | | |
| - Cold water | 41–68°F | 5–20°C |
| - Hot water | 41–149°F | 5–65°C |
| - DI water | 41–149°F | 5–65°C |
| Connection at customer's site with shut-off valve | 3/4" | 3/4" |
| Outer thread that seals the surface | Male garden-hose thread | |
| Water connection pressure | 29–145 psi | 200–1000 kPa |
| Flow rate | 3.7 g/min | 14 l/min |
| Max. water hardness | 0.710 mmol/l 4 gpg | 0.710 mmol/l 4°dH |
| DI water | | |
| Recommended conductivity | <15 µS/cm | <15 µS/cm |
| Chloride content | <100 mg/l | <100 mg/l |
| pH value | 5–8 | 5–8 |

Drainage

Drain pump (DP)

| | | |
|--------------------------|----------|-----------|
| Max. water temperature | 201°F | 94°C |
| Max. transient flow rate | 43 gpm | 162 l/min |
| Min. delivery head | 7 7/8" | 200 mm |
| Max. delivery head | 118 1/8" | 3,000 mm |
| Hose inner diameter (Ø) | 7/8" | 22 mm |
| Drain line | ≥ DN 100 | ≥ DN 100 |

Cooling circuit* (optional)

| | | |
|----------------------------------|---------|---------|
| Cooling capacity | 3.5 kW | 3.5 kW |
| Spread | 43/54°F | 6/12°C |
| Max. connection pressure | 800 kPa | 800 kPa |
| Pressure loss in steam condenser | 25 kPa | 25 kPa |

* In conjunction with a steam condenser

Operating conditions

| | | |
|---|----------|---------|
| Ambient temperature | 41–104°F | 5–40°C |
| Relative humidity: | | |
| Minimum | 10% | 10% |
| Maximum for temperatures up to 201°F (31°C) | 80% | 80% |
| | 50% | 50% |
| Decreasing linearly for temperatures up to 104°F (40°C) | | |
| Max. altitude above sea level up to | 4,921' | 1,500 m |

Storage and transportation conditions

| | | |
|-------------------------------------|---------------|---------------|
| Ambient temperature | -4 to +140°F | -20 to +60°C |
| Relative humidity | 10–85% | 10–85% |
| Air pressure | 500–1,060 hPa | 500–1,060 hPa |
| Maximum floor load, transport route | 6 kN | 6 kN |

Site-access dimensions including transport pallet

| | | |
|--------|---------|---------|
| Height | 77 3/16 | 1960 mm |
| Width | 39 3/8" | 1000 mm |
| Depth | 44 1/2" | 1130 mm |

Emission values

Heat dissipation

| | |
|----------------------------|--------|
| Infeed side | 600 W |
| Outfeed side | 600 W |
| Wash items after unloading | 1400 W |

Sound pressure level

| | |
|---|---------------------|
| Sound pressure level LpA during cleaning and drying | <65 dB(A) re 20 µPa |
|---|---------------------|



Please have the model and serial number of your machine available when contacting Technical Service.

Veuillez indiquer le modèle et le numéro de série de votre appareil lorsque vous contactez le service à la clientèle.

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