Building Sector

EVAC

PRODUCT CATALOGUE

EFR RELEASE 003694-1-315

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GENERAL

- **EVAC GROUP**
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EVAC GROUP

Evac is a global company that designs, manufactures and markets environmentally friendly water, waste and wastewater collection and treatment systems for the shipbuilding, offshore and construction industries. Skilled personnel, professional design and high-quality technical solutions have facilitated continuous growth, both in market share and turnover.

EVAC'S MISSION

We design and market integrated water, waste and wastewater management systems that provide innovative engineering, high product quality and superior customer service. We strive to meet our customers' unique construction and environmental requirements.

EVAC – CLEANTECH SOLUTIONS, ANYWHERE

Evac companies and representatives in more than 40 countries are responsible for the marine and building business worldwide. Our premises are located in Espoo/Finland, Illinois (Cherry Valley)/USA, Paris/France, Sao-Paulo/brazil, Shanghai/China, Rellingen/Germany and Notodden/Norway. Additionally we have branch offices in Pusan, Korea and Florida (Deerfield Beach)/USA.

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EVAC BUILDING DIVISION

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We promise to our customers all around the world gravity free collection and treatment solutions without any blockage during the lifetime of their buildings

WE ARE THE GLOBAL LEADER

Evac is the global leader in vacuum systems and treatment units with over 10 billion m^3 of water per year flowing through Evac technologies.

WE KNOW YOUR INDUSTRY

The 35 year presence of Evac in the construction market has not only created a unique installed base but also strengthened our expertise in serving customers. Evac provides solutions for a broad range of industries with the widest portfolio of technologies mastered by our company in this market.

WE ARE CLOSE TO YOU

Evac worldwide network of representatives and service professionals operates in more than 40 countries supported by Evac regional presence on every continent.

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EVAC INDUSTRIES

ACHIEVING INDUSTRY EXCELLENCE

Evac Group solutions for the building industry provide significant savings with very low water consumption toilets (90% reduction), total flexibility in piping layout with gravity free routing utilizing smaller diameter piping, and the most cost effective solution for gravity drainage issues related to high ground water, sandy soil or flat topography.

The 35 year presence of the Evac Group in the construction market has not only created a unique installed base of several thousand references but also improved Evac team's expertise in serving customers. The benefits and features previously mentioned are supported by the widest portfolio of vacuum technologies available on the market and serve the broadest range of industries independently of the building application.

The Evac Group understands its customers' needs and requirements from design to the operational phases of hotels, shipbuilding, shopping centers, restaurants, subway stations, airports, prisons, universities, schools, laboratories, factories, supermarkets, hospitals, retirement homes, office buildings, and resorts.

Major examples of Evac Group applied solutions, valued by thousands of customers and users worldwide, are vacuum toilets for water saving in heavy duty buildings, supermarket condensate drainage for total layout flexibility and remodeling, efficient management of healthcare radioactive wastewater, vacuum drainage and toilets for high security operation in correctional facilities, and wastewater treatment and reuse in sensitive areas.

EVAC INDUSTRIES

SUPERMARKET

SUPERMARKET AND FOOD PREPARATION

Evac systems bring a competitive edge to grocery stores, supermarkets and hypermarkets by increasing store layout and design flexibility making store remodeling less expensive and faster.
Evac's overhead vacuum system removes condensation from refrigerated cases and drains water from sinks and free-standing kiosks avoiding any gravity concern.

Highlights:

- **Reduce cost of store remodeling**
- **Reduce construction and remodeling schedule**
- **Minimize customer disruption**
- **Enlarge or relocate departments without cutting the finished floor**
- **Eliminate underground unknowns during remodels and conversions**
- **Reduce maintenance**
- **Reduce odor with vacuum grease separation**

Easy remodeling

It is easy to remodel without damaging finished floors while avoiding floor and roof penetrations. Unlike gravity systems where sewer piping is enclosed in concrete, the store can operate independent of foundation constraints.
No concrete and tile work is needed when relocating or adding display cases. Buffer boxes hidden above the slab and under the freezer cases are easy to move.
Floor plan can be adjusted quickly and easily at the last minute. The close time of the store and customer disruption are greatly reduced.

Easy maintenance

Maintenance is easier, cheaper and quicker with easy access to above slab buffer and overhead piping compared to under slab gravity system. Evac parts can be changed without hand tools for quick and easy maintenance.

Minimal customer disruption

New concepts and services can be added overnight without disruption to store operation.
The piping system is air tight and air can only leak in so no odor or sewage can affect the customer experience.
A gravity floor drain will dry out and release odor to the premises when there is a little or no condensate produced.

EVAC INDUSTRIES

CORRECTIONAL

CORRECTIONAL BUILDING

Highlights:

- **Increase security and control**
- **Reduce maintenance and especially in cell maintenance**
- **Reduce construction time and costs**
- **Reduce water and sewage cost**

Increased Security and Control

Less maintenance means fewer maintenance personnel in secured areas. Correctional Officers can shut off individual or blocks of toilets prior to shakedowns, eliminating the toilet as a means of disposing contraband or weapons. The vacuum toilet makes flushed contraband irretrievable and also eliminates communication and passing of contraband between cells.

Reduced Maintenance

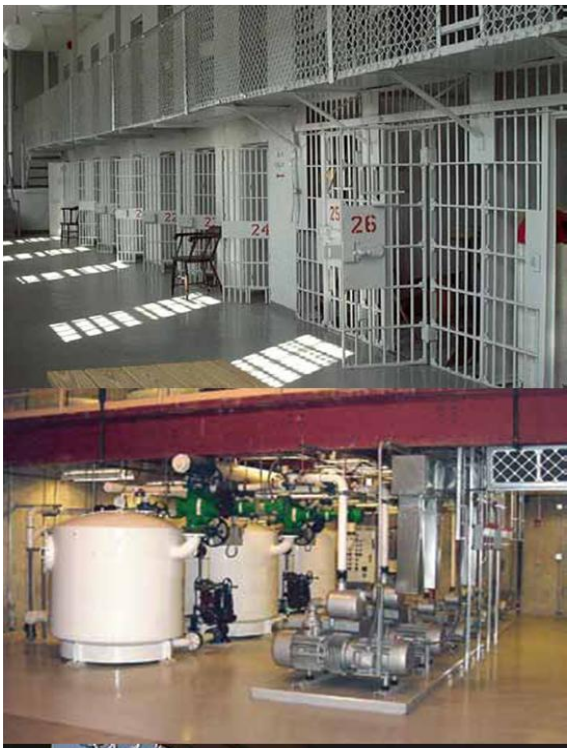
Evac virtually eliminates main line blockages by restricting abusive materials from entering the piping system at the toilet. Attempted abuse is isolated in the cell at the toilet fixture so that disciplinary measures can resolve future attempts.

Reduced Construction Time and Costs

The smaller diameter vacuum piping system can be installed horizontally or vertically. Waste piping is typically routed above the slab, minimizing the need for costly and time consuming trenching. This allows flexibility in the layout, design, and installation: saving time and costs on both new construction and remodeling projects.

Reduces Water and Sewage Cost

The Evac Vacuum Toilet uses less than 1/2 gallon per flush (1.2 L). Water acquisition and sewage disposal cost can be dramatically reduced.
Examples:
250 beds facility: 2 M Gallons saved each year! (7560 m^3/year)
1000 beds facility: 8 M Gallons saved each year! (30240 m^3/year)



EVAC INDUSTRIES

HEALTHCARE

HEALTHCARE BUILDING

Highlights:

- **Reduce risk of contamination**
- **Reduce odor**
- **Reduce radioactive wastewater volume and save space**
- **Reduce water consumption**
- **Reduce construction schedule**

Increased hygiene

Unlike conventional toilets, permitting bacteria and odor to enter the atmosphere, the Evac toilet takes out up to 60 liters of air on each flush, removing virus, bacteria and odor from the bowl and into the system – enhancing hygiene and personal comfort within washrooms. By encouraging the cycle of air, the toilet accommodation will stay fresh.

Save footprint

As Evac toilets have a very low consumption of water, the actual amount of the produced sewage is reduced. This is particularly valuable for radioactive treatment department where radioactive wastewater is produced and has to be contained until radioactivity has decreased before discharge to the city sewer or treatment plant. The amount of wastewater to store is extremely reduced and allow great space saving. In addition the risk of leakage of radioactive wastewater in the piping is reduced as the piping network is under vacuum condition only air can leak in.

Save time

During construction, remodeling and maintenance, disruption of healthcare operations are minimized. With no multiple floor penetration, and accessible piping network, the construction work is cleaner and faster.

EVAC INDUSTRIES

COMMERCIAL AND HEAVY DUTY

COMMERCIAL BUILDING & HEAVY DUTY

Highlights:

- **Save water and water cost**
- **Gain green label points**
- **Preserve historical building**
- **Increase net leasable space**
- **Reduce loss of activity with tight construction and remodeling schedule**

Cost saving

A typical vacuum toilet requires just over one liter of water per flush - one sixth of that used by a conventional toilet, as they have very low water consumption. Consequently, the water bill is greatly reduced especially in heavy duty building such as airport or train station where public toilets are the main source of water consumption.

Water saving

Vacuum toilet systems are very environmentally friendly - one of the biggest savings on natural resources is the dramatic reduction in water consumption.
Also the actual amount of the produced sewage is reduced - helping to ease the burden on overloaded public sewage plants.

Green label

Water saving with Evac systems allows getting between 7 and 10 points on the LEED and BREAM label, with low water consumption and advanced wastewater treatment for reuse. It also participates to company green policy.

Business boosting

Historical building can be preserved with Evac system, offering great opportunities for remodeling and refurbishing while conserving the building structure and features.
By allowing great flexibility in water features layout, the building net lease space is increased.
Construction and remodeling time is greatly reduced so that commercial activity can be start or restarted in a very tight schedule.

EVAC INDUSTRIES

SEPTIC SYSTEM

SEPTIC TANKS DISCHARGE

Highlights:

- **Provide fast and clean drainage of train and ship septic tanks**
- **Provide ready to use operation**
- **Avoid clogging**
- **Reduce storage volume requirements**

Train stations and pits

Evac's systems are used to empty passenger cars' septic tanks, which collect all sewage on a train. The suction stations can be located on separate service lanes or inside a train hangar and the vacuum units can be located in outdoor inside containers and sheds, or inside technical areas. The vacuum ensures that the septic tanks are emptied fast, smoothly and in a clean way so that the trains can continue the journey and serve the passengers.

Marina solutions

The Evac system can be installed in a simple shed on the pier, with the suction pipes submerged into or below the pier. The suction stations are positioned in convenient positions for the ships to empty their septic tanks. The vacuum units stay on standby, ready to operate whenever an operator open an emptying valve.

Remote area

Cabins, cottages, houses and other remote small-scale buildings can utilize vacuum toilets because of the water saving benefits. Whenever sewage treatment or the disposal of sewage water is challenging, vacuum toilets will minimize the amount of waste compared to the traditional gravity toilet system and hence the size of the decentralized treatment or storage.

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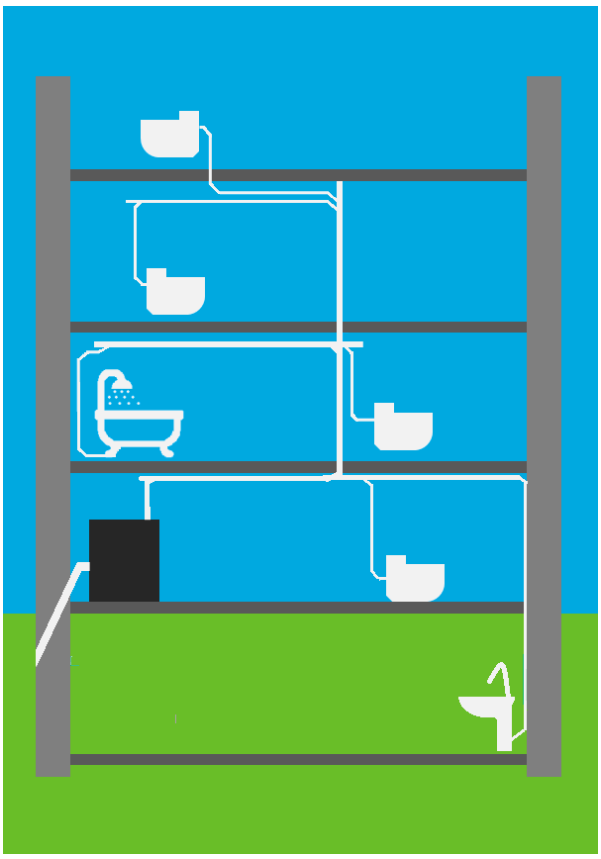
EVAC SYSTEMS

HOW DOES IT WORK

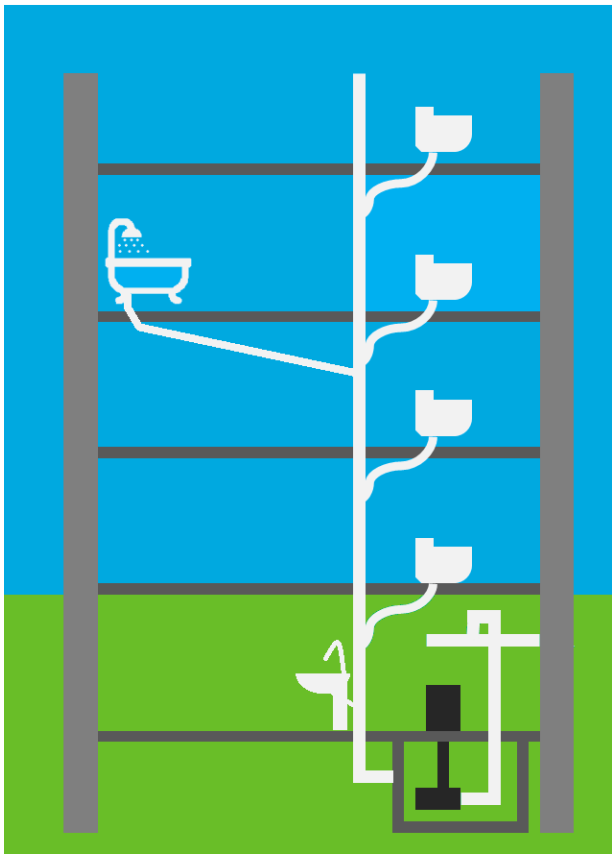
EVAC VACUUM SYSTEM

Evac solutions are based on vacuum transport, not gravity, which makes it possible to move wastewater horizontally or even lift vertically into overhead piping. Vacuum even allows you to move over and around obstacles. A vacuum drainage system is able to transfer all of the wastewater and condensate inside a building to any single location without additional pumping stations.

The Evac wastewater handling solution is an integrated system that consists of vacuum toilets, grey water and condensate vacuum interface units, vacuum piping, vacuum collection tanks, as well as wastewater treatment plants. Evac toilets and grey water interfaces can be installed just about anywhere in a building. Pipes are small bore (normally 50mm) and can be routed around and even over obstructions. As they are not reliant on the locations of service core and do not need vent stacks, design flexibility is maximized. Anywhere you can imagine an Evac toilet system in the design of your new build or refurbishment project, it can be achieved. Evac systems give vertical lift of up to 4 to 5 meters for wastewater and up to 6 m for condensate, giving unparalleled flexibility in installation. Now you can position toilet cubicles, urinals, showers and hand basins wherever you want, regardless of conventional soil stack practice. Toilet facilities can even be located below the level of the vacuum plant module. As there is no need to be adjacent to a central soil stack, the location of toilet accommodation can vary from floor to floor.
Evac vacuum pipes can be located in ceiling voids and floor spaces - in fact just about anywhere!
They can easily be routed around beams, fire walls, ventilation systems and other obstacles.
This can translate into significant reductions in the minimum floor to floor height.



Evac System

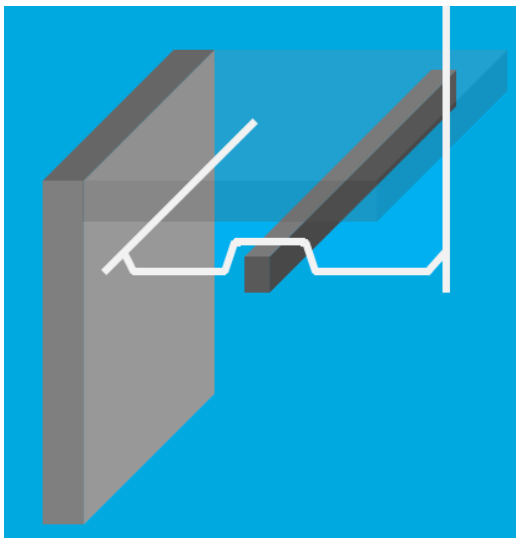


Gravity System

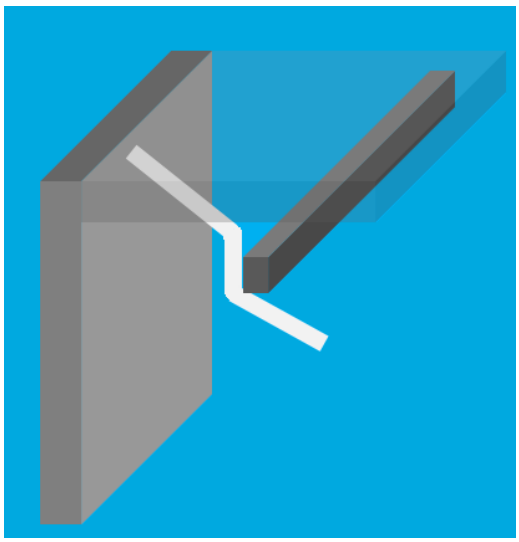
EVAC SYSTEMS

HOW DOES IT WORK

In speculative buildings, a prospective tenant will often wish to plan the space available in a building to suit its business operation. The Evac system gives you this extra capability. Final decisions on the floor plan can be delayed leaving maximum room to maneuver and giving the client maximum flexibility to plan space.
Most businesses go through some form of office reorganization on a regular basis - growth, departmental restructuring and even downsizing, all affect the layout of a building. The Evac system opens the door to a wide range of space planning options than have not previously been possible. Space reorganization projects, which involve changing the location of washrooms, are made easy and do not demand major rebuilding works.

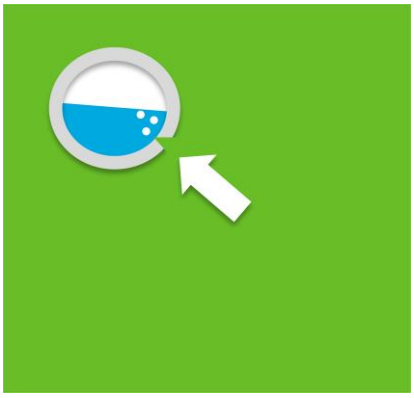


Evac System

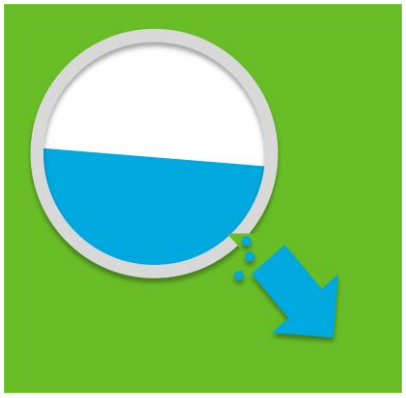


Gravity System

Every Evac system, when installed, is a closed loop. This is particularly important where an organization requires that waste must be contained if contamination is considered high risk, e.g. Hospitals, Research Facilities and Prisons. All waste is stored in a central vacuum module before being discharged to either a municipal sewer, or disposed of via specialist waste disposal facility. Evac systems reduce leakage problems. Because the entire system is under vacuum, leaks pull air in and don't not allow waste and odor to exit. The opposite is true with gravity systems.



Evac System



Gravity System

EVAC SYSTEMS

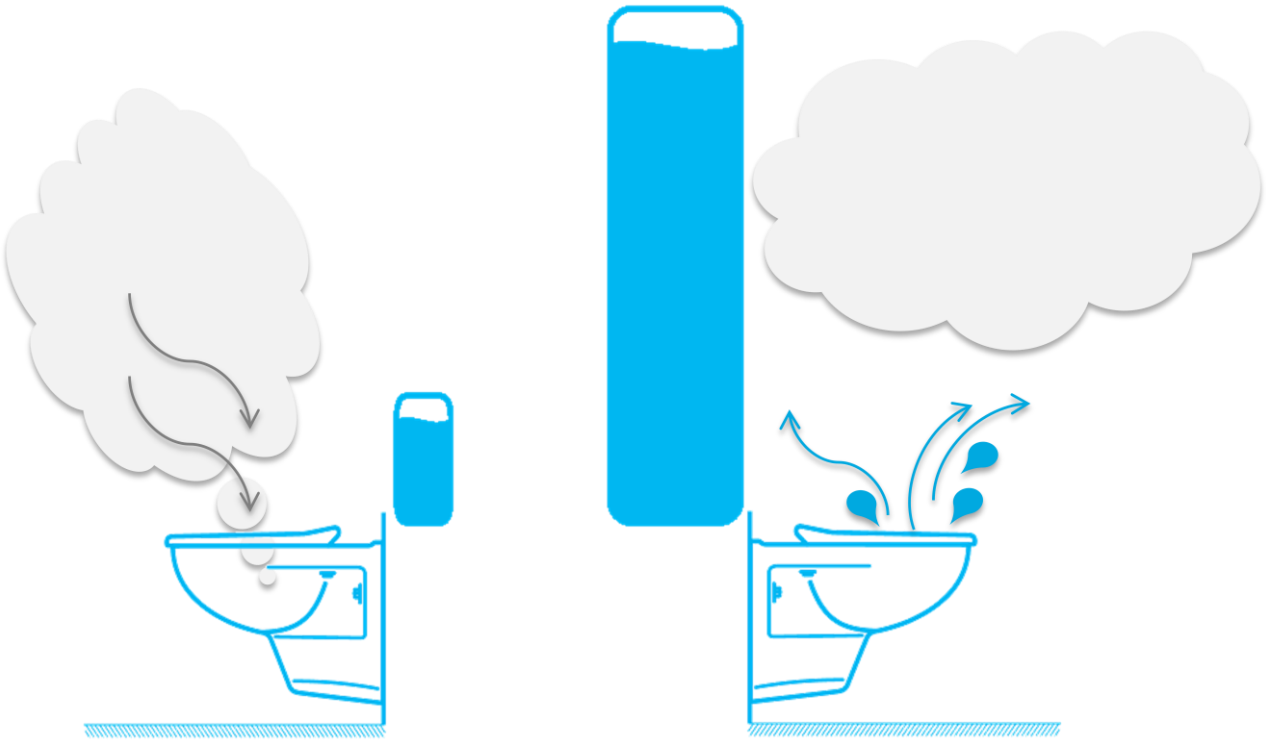
HOW DOES IT WORK

EVAC VACUUM TOILETS

A conventional toilet consumes seven liters of water every time it is flushed. The Evac toilet typically uses just over one liter of water per flush - one sixth of that used by a conventional toilet. Using less water will bring significant cost savings as water rates rise.
Evac systems are also cleaner. Unlike conventional toilets which permit bacteria and odors to enter the atmosphere, the Evac toilet takes out up 60 liters of air on each flush, removing viruses, bacteria and odors from the bowl and into the system enhancing hygiene and personal comfort within washrooms. By encouraging the cycle of air, toilet accommodations will stay fresh.

The Evac Vacuum Toilet System could not be simpler. Instead of relying on traditional solutions, which use the principle of gravity to remove waste and are heavily reliant on the location of services cores and outgoing sewer connections, the Evac system creates a powerful vacuum to flush the toilet.
Once the flush button is pushed, a pneumatic signal is sent to the control mechanism, which opens the discharge valve by allowing vacuum from the pipe work system to enter the discharge valve diaphragm thus connecting the bowl to the vacuum system. Air at atmospheric pressure then forces the sewage through the discharge valve and into the piping. Simultaneously the water valve is opens and pressurized rinse water cleans the bowl. This whole operation is performed using just vacuum, NO electrical connections are required.

Evac toilets can be re-flushed more than four times as fast as conventional gravity toilet. On average, an Evac toilet will take 3 seconds to complete a flush cycle. Evac vacuum toilets are quiet when compared with traditional systems, during the flush cycle, as there is no toilet cistern to refill.



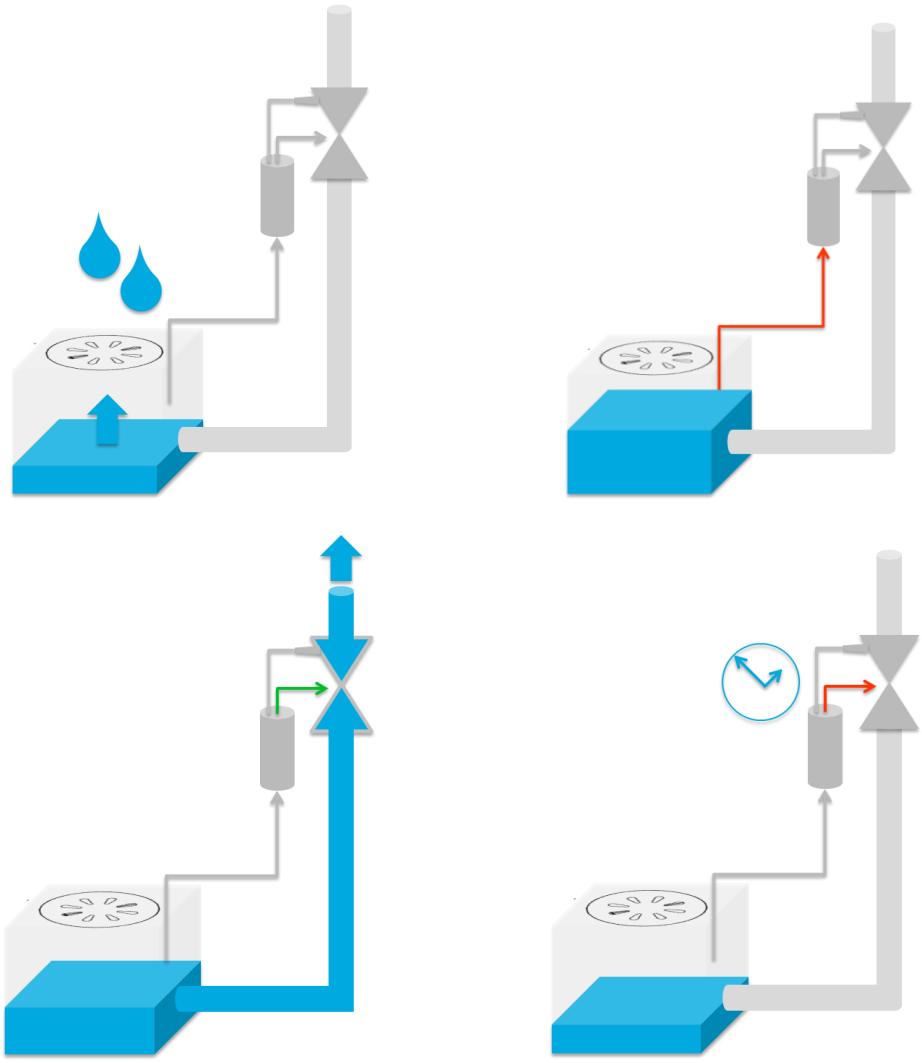
Evac System *Gravity System*

EVAC SYSTEMS

HOW DOES IT WORK

EVAC VACUUM INTERFACE UNITS FOR STANDARD FEATURES

Whilst the Evac vacuum toilet is an integral part of the system, the system will accept waste from all other gravity fixtures, including wash basins, baths, urinals, sumps and showers using a Vacuum Interface Valve.
The Evac vacuum interface unit is similar in operation to the Evac vacuum toilet. The activator is triggered when a static head has been built up in the collection buffer. The activator transfers the operating vacuum to the plunger diaphragm so that the discharge valve opens. After 3 seconds the activator shall close the supply of the operating vacuum to the discharge valve which immediately closes.
The whole operation is automatic and, once again, no electrical connections are required.
The vacuum Interface units allow standard bathroom fittings to be connected to the vacuum drainage system in new build projects and eliminate the need to replace existing fittings in a refurbishment project.



Sequences of an Evac floor drain operation

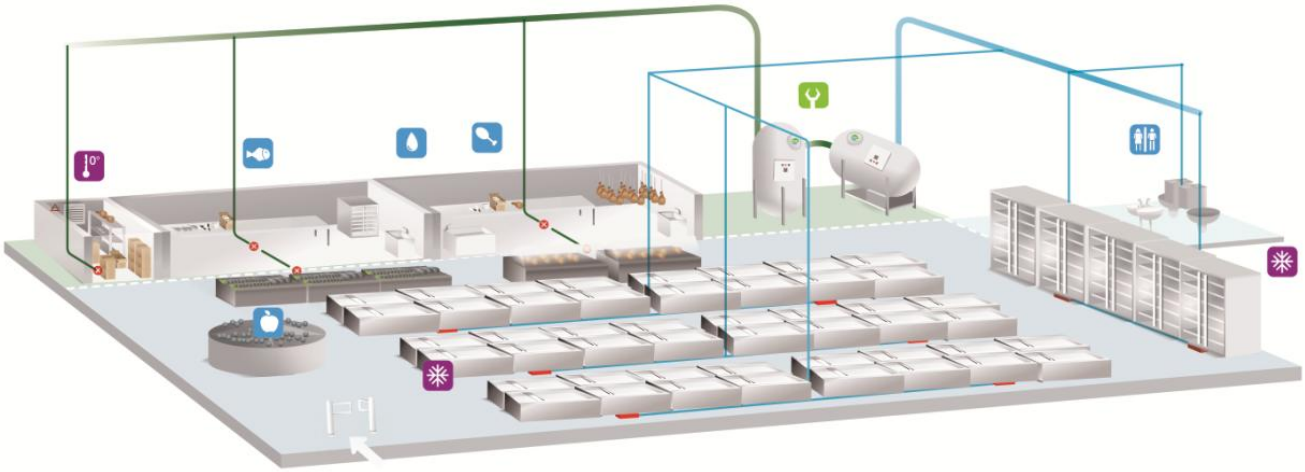
EVAC SYSTEMS

HOW DOES IT WORK

EVAC VACUUM INTERFACE FOR CONDENSATE COLLECTION

Condensate water enters a tank or section of piping called a “buffer”, placed on the slab below the display case. The buffer acts as a temporary collection for the water and operates the same way as a grey water interface system. As condensate water accumulates in the buffer, a pneumatic signal equivalent to a certain water column is sent to the activator. The activator opens the vacuum discharge valve and the condensate water is transported toward the collection station. The activator controls the amount of time in which the vacuum valve is open.

The Evac vacuum condensate collection system uses the same principles as the larger vacuum waste collection systems found in hotels and sports centers providing total system reliability and minimal maintenance.
A vacuum collection system in a supermarket allows for the refrigerated display case condensate waste piping to be mounted in the overhead near the roof joists. A lift as great as 6 m can be accomplished using an Evac vacuum waste collection system.



Example of Evac system layout for supermarket condensate collection

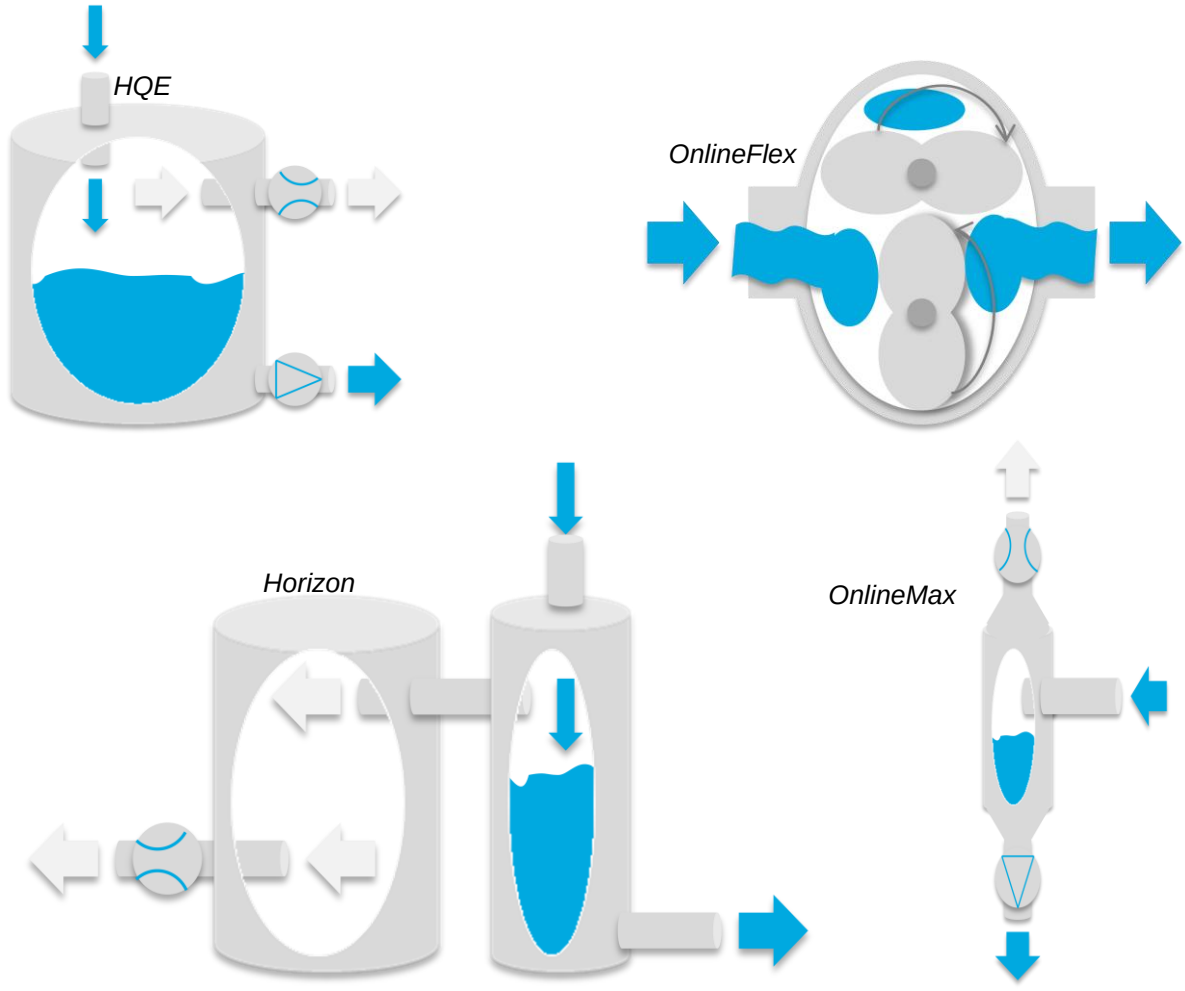
EVAC SYSTEMS

HOW DOES IT WORK

EVAC VACUUM COLLECTION UNIT

Evac offers various solutions adapted to the customer's needs, region and applications. There are two main types of vacuum generation units: vacuum tank and online vacuum pump.

Vacuum tank models		Online vacuum pump models	
SMC260 **SS230** **Horizon** **Horizon Jr.** **Modular Collection Systems** **HQE N°10** **HQE N°30** **MiniVac**	• Vacuum buffer for stable level of vacuum in the system • High reliability • Suitable for all capacities • Easy maintenance	**OnlineFlex** **OnlineVac** **OnlineMax**	• Low weight and small footprint • Optimized for small capacities • Robust • Low cost maintenance



EVAC SYSTEMS

HOW DOES IT WORK

System	condensate	greywater	blackwater	Installed vacuum capacity range	Tank volume	type of vacuum pumps	Discharge
OnlineFlex		x	x	17 - 25 m^3/h	NA	Rotary lobe	pump
OnlineMax		x	x	80 - 300 m^3/h	NA	Rotary claw	pump
OnlineVac		x	x	14 - 52 m^3/h	NA	Helical screw	pump
SS 230	x	x	x	350 m^3/h	2x 30 Gal	Rotary lobe	gravity
SMC 260	x	x	x	144-525 m^3/h	2x 60 Gal	Rotary lobe/vane	gravity or pump
HQE N°10 R1	x	x		120 - 280 m^3/h	1200 L	Rotary claw	pump
HQE N°10 R2	x	x	x	120 - 280 m^3/h	1200 L	Rotary claw	pump
HQE N°30 R2	x	x	x	280 - 600 m^3/h	2900 L	Rotary claw	pump
MiniVac 2	x			160 m^3/h	700 L	Liquid ring	pump
Horizon	x	x		70 - 240 CFM	2x 40 Gal wastewater 1x 150 Gal vacuum	Liquid ring	gravity
Horizon Jr.	x			68 CFM	1x 30 Gal	Liquid ring	gravity
Modular Collection Systems	x	x	x	As per project	1-3x 160-940 Gal	As per project	

EVAC SYSTEMS

HOW DOES IT WORK

EVAC ADVANCED WASTEWATER TREATMENT

The Evac MBR is based on proven membrane bioreactor technology, which is capable of filtering out particles as small as bacteria.

The treatment process consists of three phases:

- Pre-treatment: flow equalization and maceration
- Biological process: aerobic organic removal or all nutrients including organic, nitrogen and phosphorus
- Membrane filtration: with effective pore size of 0.01 µm (0.00001 mm) providing biomass retention, particulate matter retention and disinfection

Highlights:

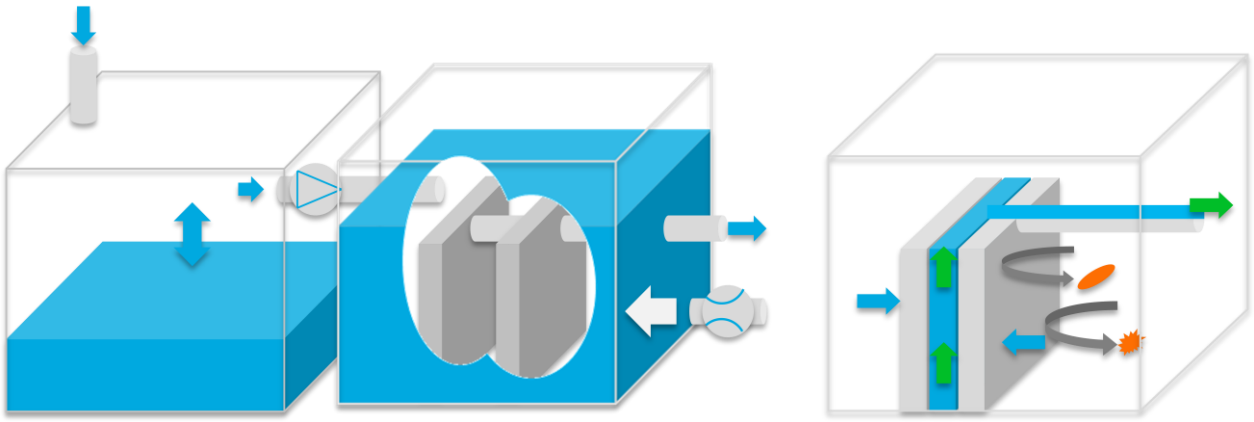
- **Robust and reliable**
- **Very small footprint**
- **Odorless**
- **Very high effluent quality Minimized sludge production**
- **Energy conservative operation**
- **7-10 years life membrane**

Compared to a conventional biological treatment:

- **Up to 5 times smaller,**
- **Can handle more than twice the organic loading**
- **Better performances, up to 6 times less pollutants**

Clean water is separated from the biomass by membrane filtration. Evac MBR membranes are submerged flat-sheet type membranes. The pressure difference for the membrane filtration is only around 30 mbar; such a small amount of pressure acting on the membranes guarantees them an extremely long lifetime. The treated water does not need any further disinfection and can be discharged directly into sensitive areas or it can be reused. The Evac MBR does not require any back-flushing or constant chemical cleaning, making it the most economical and maintenance-friendly membrane solution.

The Evac standard MBR is also available as a combined unit with vacuum generation integrated. All Evac MBR models have effluent quality certification, and have been tested by a certified laboratory for 6 months.



Pre-treatment *Coupled biological and membrane process* *Detail of membrane process*

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EVAC VACUUM TOILETS

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EVAC VACUUM TOILETS

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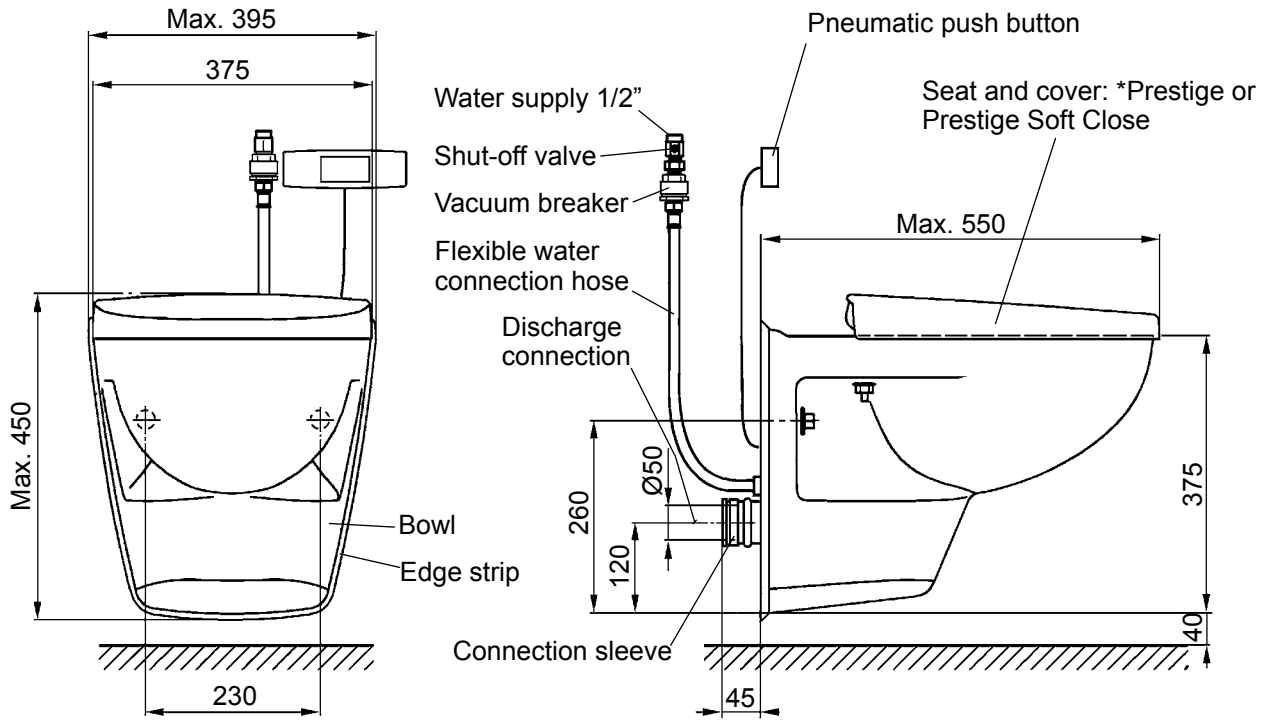
VACUUM TOILET

6559513 EVAC OPTIMA 5, WALL MODEL, PRESTIGE
6559517 EVAC OPTIMA 5, WALL MODEL, PRESTIGE SOFT CLOSE



* Prestige seat and cover fulfill ANSI Z124.5 - 1997 [Plastic Toilet (Water closet) Seats] requirements.

Materials
Bowl: White vitreous china
Seat and cover; *Prestige and Prestige Soft Close: UF-S
Pneumatic push button: White plastic, ABS
Discharge valve; plastic parts: PP, rubber parts: NR

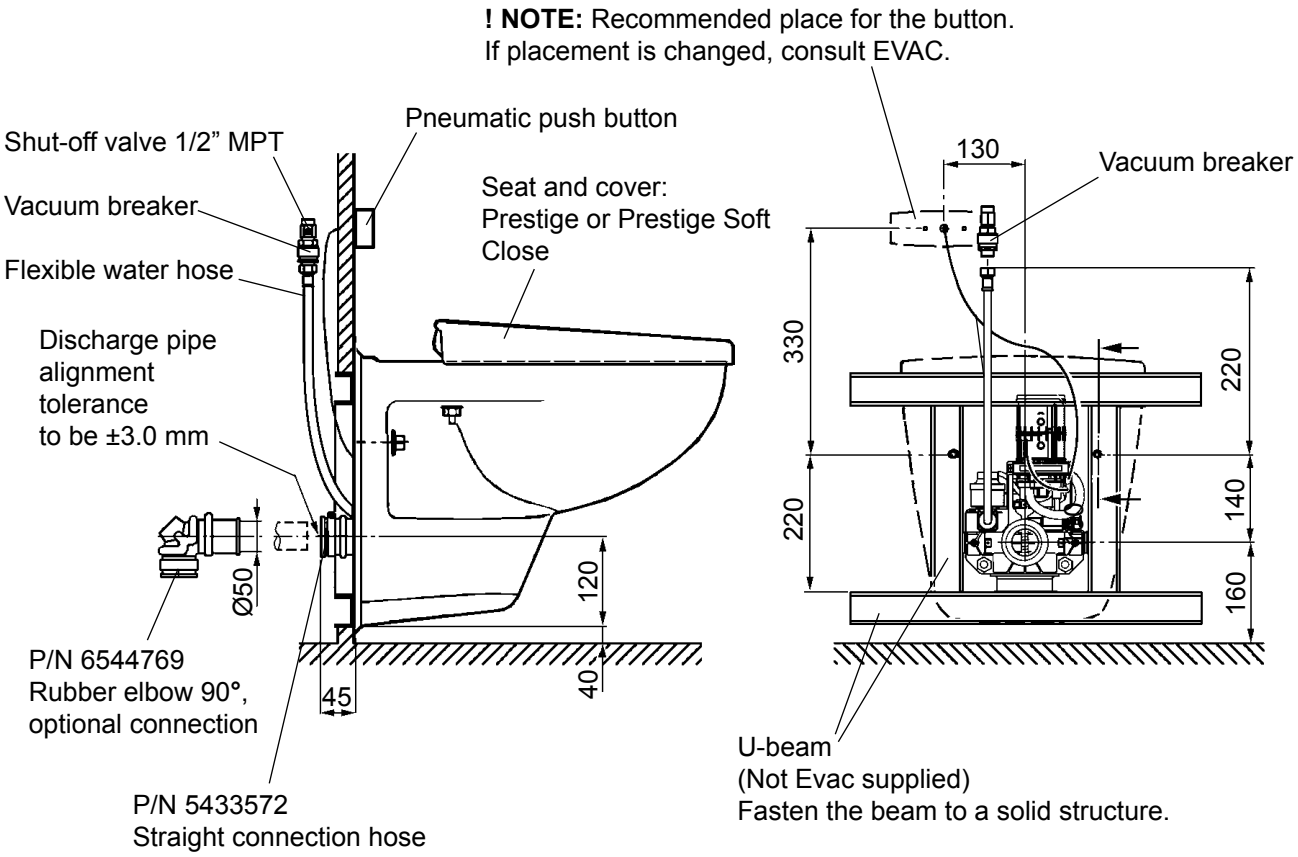
Operating data
Water pressure: 3...10 bar
Operating vacuum: -0.3...- 0.6 bar
Water consumption: ~1.2 ±0.15 litres/flush (water pressure: 4 bar, vacuum: -0.4 bar)
Air consumption: ~ 60 ±10 litres/flush (normal atmospheric air)

Connections
Water supply: 1/2” MPT, flexible hose
Discharge: Discharge connection Ø50, connection sleeve includes two hose clamps to O.D. 48 - 52 mm pipes

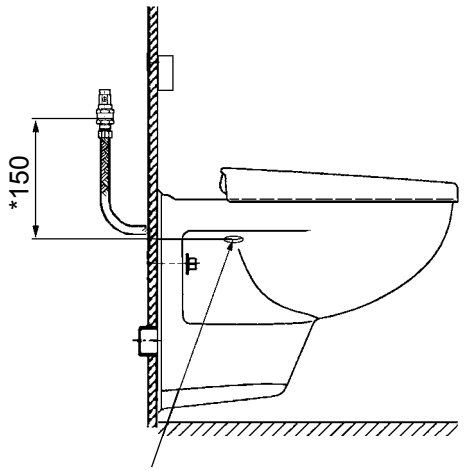
Shipping data
P/N 6559513 Optima 5, wall model, Prestige
P/N 6559517 Optima 5, wall model, Prestige Soft Close
Net weight: 21.1 ±0.5 kg
Shipping weight: 24.6 ±0.5 kg
Shipping volume: 0.168 m³

VACUUM TOILET

6559513 EVAC OPTIMA 5, WALL MODEL, PRESTIGE
6559517 EVAC OPTIMA 5, WALL MODEL, PRESTIGE SOFT CLOSE



Overflow point



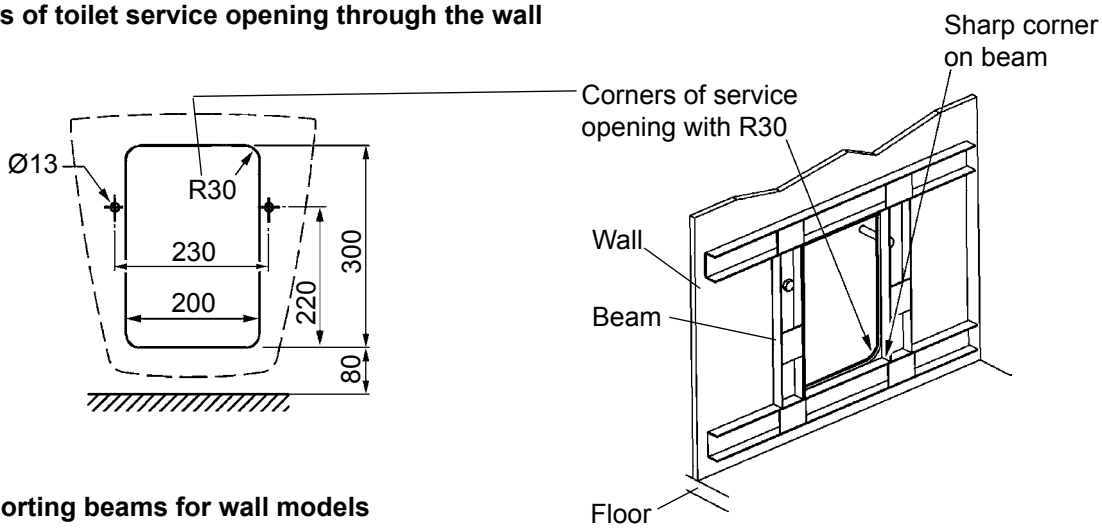
! NOTE: Overflow point is inside the toilet bowl

* The vacuum breaker air inlet must be located at a minimum of 150 mm (6”) above the overflow point of the toilet.

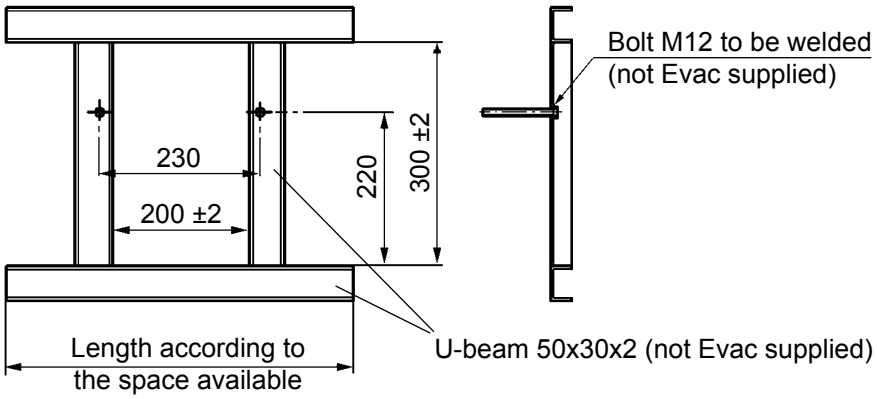
VACUUM TOILET

6559513 EVAC OPTIMA 5, WALL MODEL, PRESTIGE
6559517 EVAC OPTIMA 5, WALL MODEL, PRESTIGE SOFT CLOSE

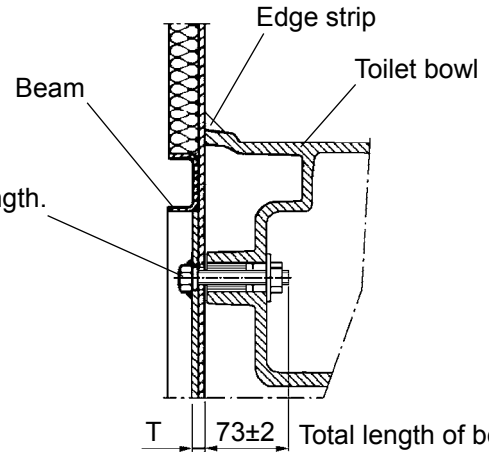
Dimensions of toilet service opening through the wall



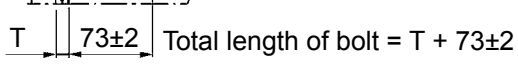
Toilet supporting beams for wall models



Cross section A - A



Bolt M12 (not Evac supplied) to be welded.
! NOTE: Thread on the bolt must be full length.



Installation kit P/N 6560986 consists of:

Plastic nut M12	2 pcs
Guiding nut	2 pcs
Edge strip	1 pc
Connection sleeve	1 pc
Hose clamp	2 pcs

VACUUM TOILET

6559513 EVAC OPTIMA 5, WALL MODEL, PRESTIGE
6559517 EVAC OPTIMA 5, WALL MODEL, PRESTIGE SOFT CLOSE

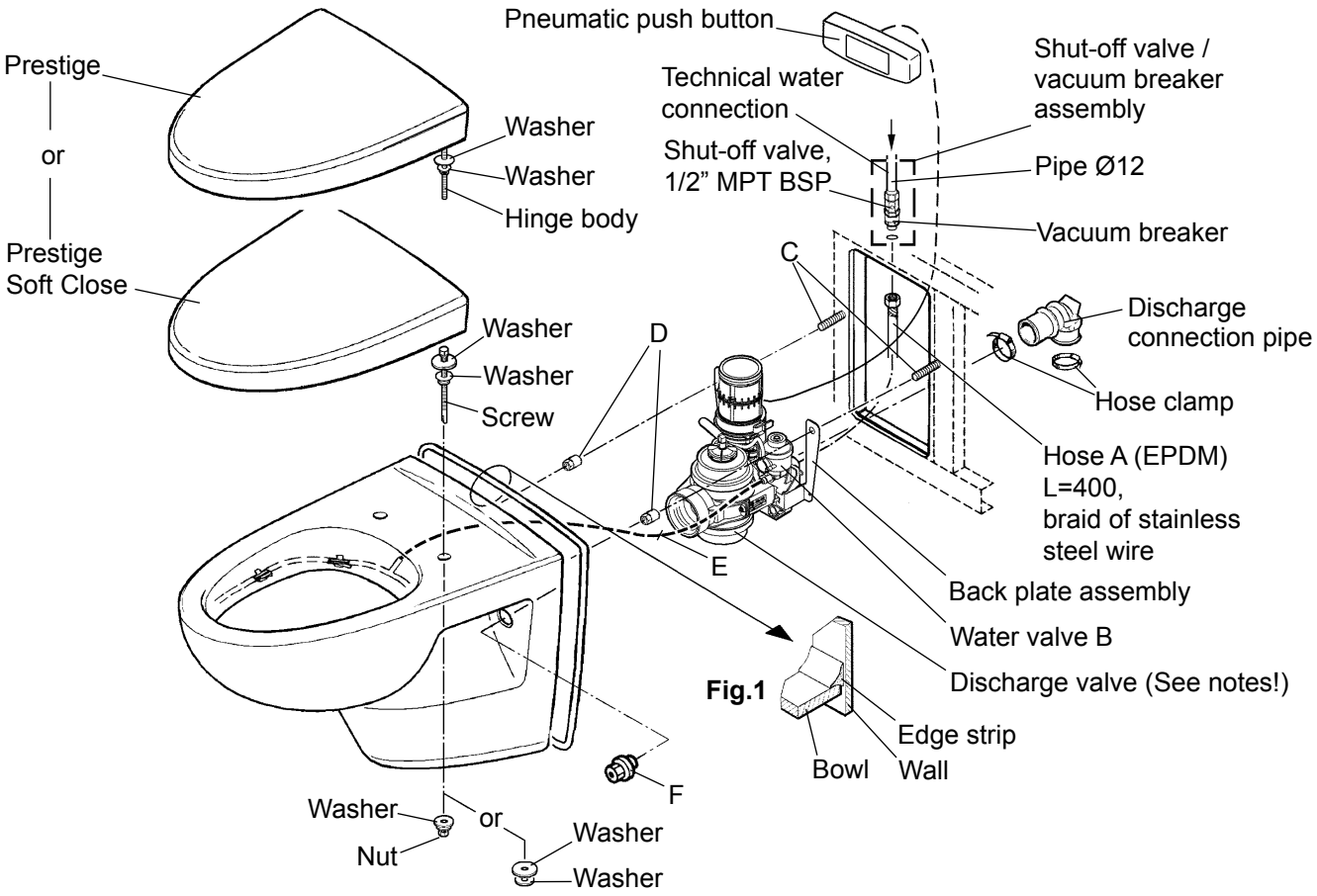


Fig.1

- Connect the water connection hose (A) to the water valve (B).
- Install the back plate assembly to the wall using the bowl fastening bolts (C) (M12, not included) and the guiding nuts (D) (M12). The guiding nuts are necessary.
- Connect the hose (E) from the flushing ring to the water valve (B). **Do not use any kind of grease during installation!** Secure with the hose clamps. Tighten the hose clamps with pliers.

! NOTE: Install the hose (E) from the flushing ring in the toilet bowl to the right side of the discharge valve.

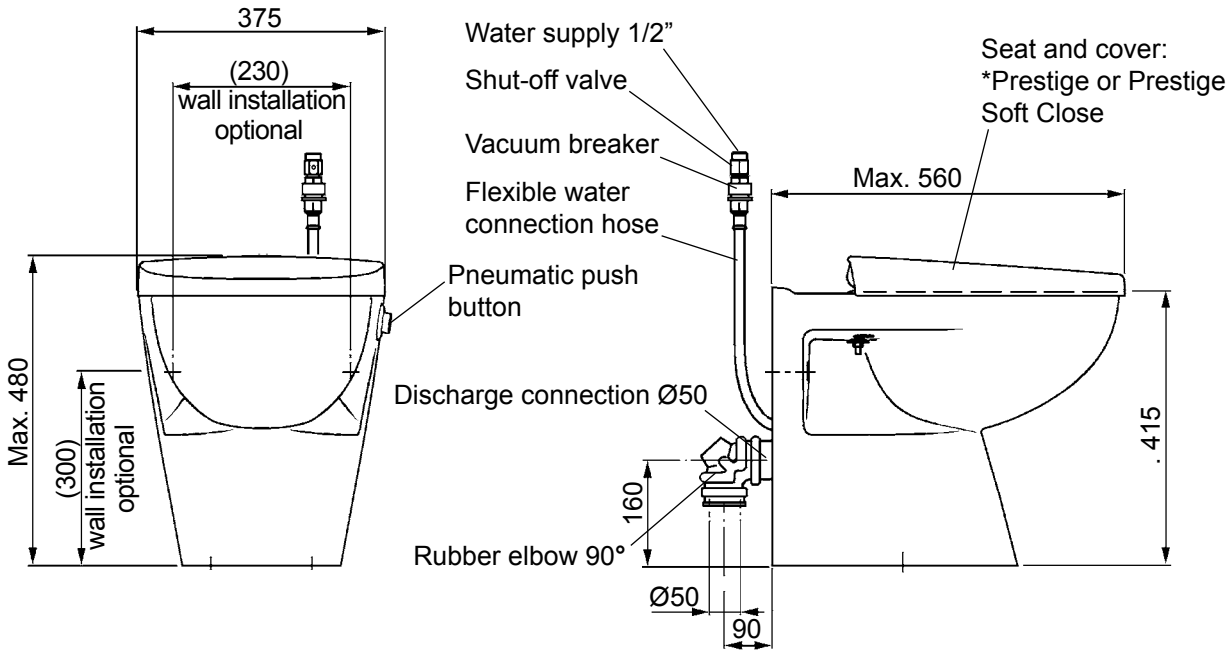
- Lift bowl onto the fastening bolts (C) and tighten the securing nuts (F). Tightening torque is 15-20 Nm.

! NOTE: Check through the toilet service opening in the wall that the hoses run smoothly. The hoses shall not have any kinks.

- Fit the edge strip as shown in figure 1. Place the joint of the strip to the bottom side of the bowl.
- Install the seat and the cover. See the installation of the Prestige Soft Close (doc. 002503-2).
- Connect the discharge connection pipe. Secure with the hose clamps.
- Connect the shut-off valve/vacuum breaker assembly to the water supply. The shut-off valve must be installed to the water supply piping's side to ensure the correct flow direction in the vacuum breaker. Note the vacuum breaker must be installed vertically as shown.
- Connect the water connection hose (A) to the shut-off valve/vacuum breaker assembly.
- Install the pneumatic push button (doc. 003607-1).

VACUUM TOILET

6559515 EVAC OPTIMA 5, FLOOR MODEL, PRESTIGE
6559519 EVAC OPTIMA 5, FLOOR MODEL, PRESTIGE SOFT CLOSE



* Prestige seat and cover fulfill ANSI Z124.5 - 1997 [Plastic Toilet (Water closet) Seats] requirements.

Materials

Bowl: White vitreous china
Seat and cover; *Prestige and Prestige Soft Close: UF-S
Pneumatic push button: Chrome plated plastic
Discharge valve: Plastic parts: PP, rubber parts: NR

Operating data

Water pressure: 3...10 bar
Operating vacuum: -0.3...-0.6 bar
Water consumption: 1.2 ±0.15 litres/flush (water pressure: 4 bar, vacuum: -0.4 bar)
Air consumption: 60 ±10 litres/flush (normal atmospheric air)

Connections

Water supply: 1/2” MPT, flexible hose
Discharge: Rubber elbow 90°, two hose clamps are included in the rubber elbow 90° to O.D. 48-52 mm pipe.

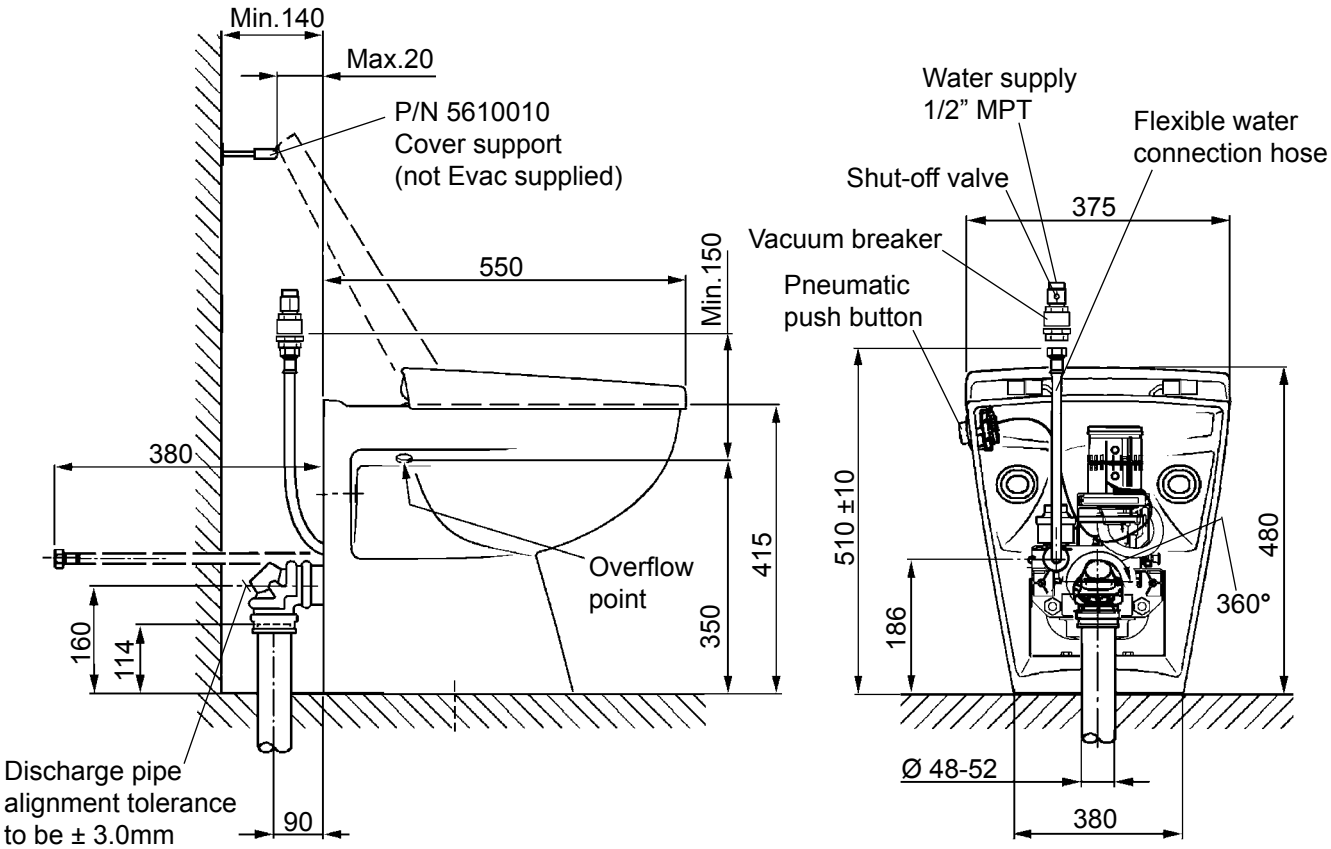
Shipping data

P/N 6559515 Optima 5, floor model, Prestige
Net weight: 20.1 ±0.5 kg
Shipping weight: 22.1 ±0.5 kg
Shipping volume: 0.168 m³

P/N 6559519 Optima 5, floor model, Prestige Soft Close
Net weight: 20.1 ±0.5 kg
Shipping weight: 22.1 ±0.5 kg
Shipping volume: 0.168 m³

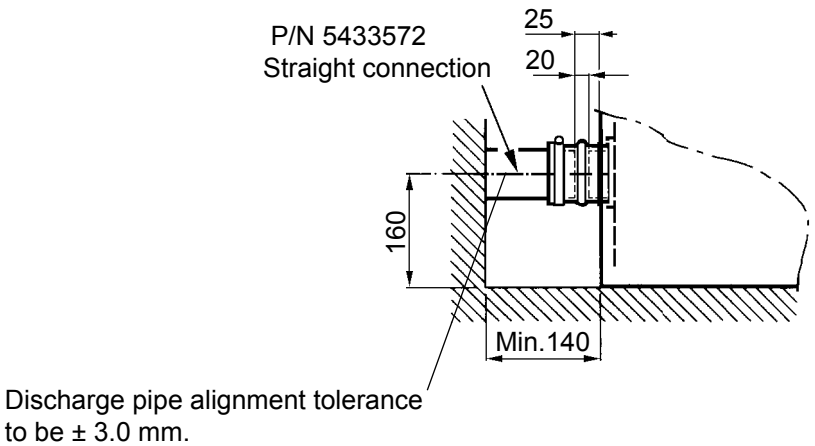
VACUUM TOILET

6559515 EVAC OPTIMA 5, FLOOR MODEL, PRESTIGE
6559519 EVAC OPTIMA 5, FLOOR MODEL, PRESTIGE SOFT CLOSE



* The vacuum breaker air inlet must be installed min.150 mm (6") above the overflow point of the toilet.

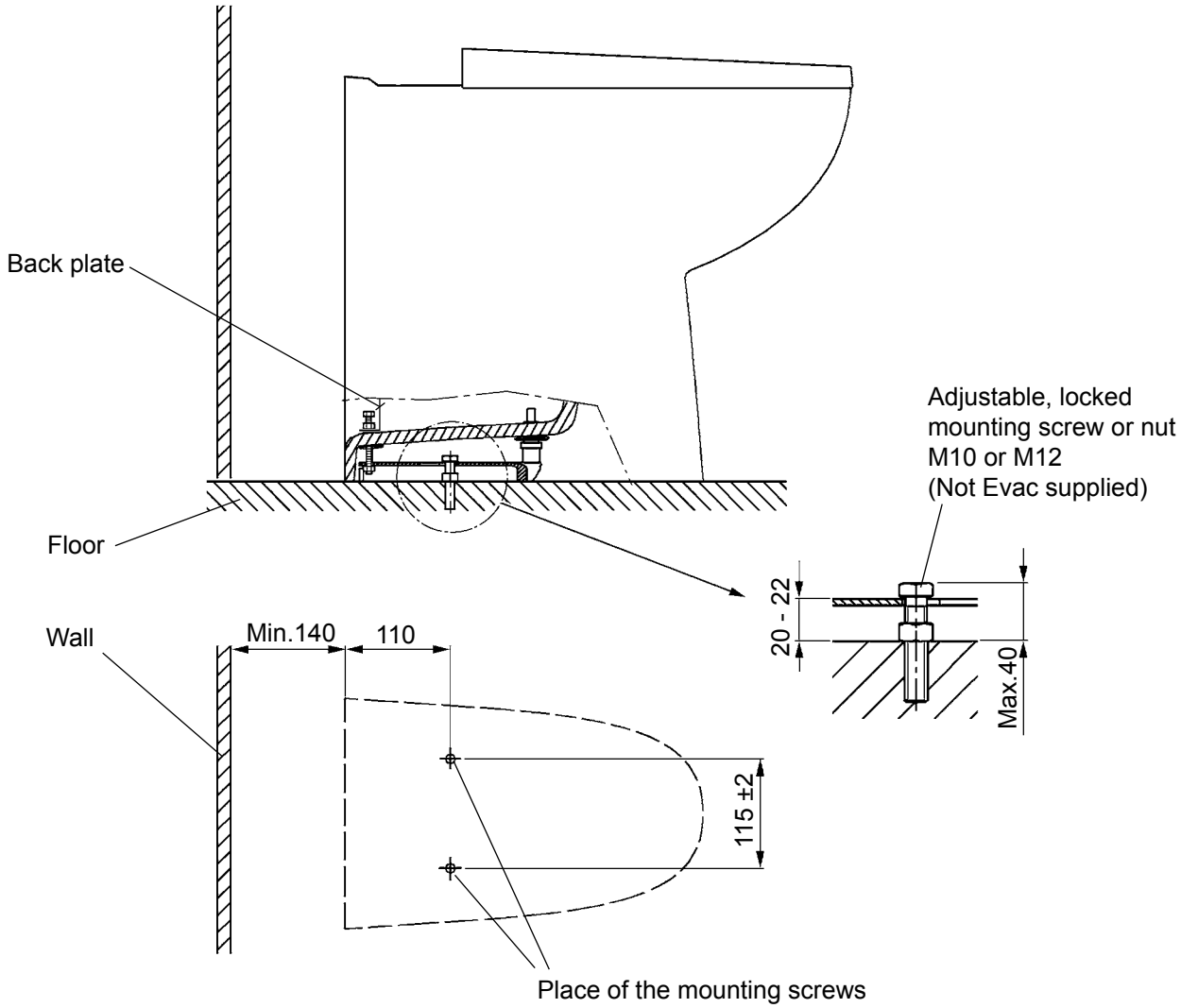
Optional discharge connection



VACUUM TOILET

6559515 EVAC OPTIMA 5, FLOOR MODEL, PRESTIGE
6559519 EVAC OPTIMA 5, FLOOR MODEL, PRESTIGE SOFT CLOSE

Mounting screws on the foor

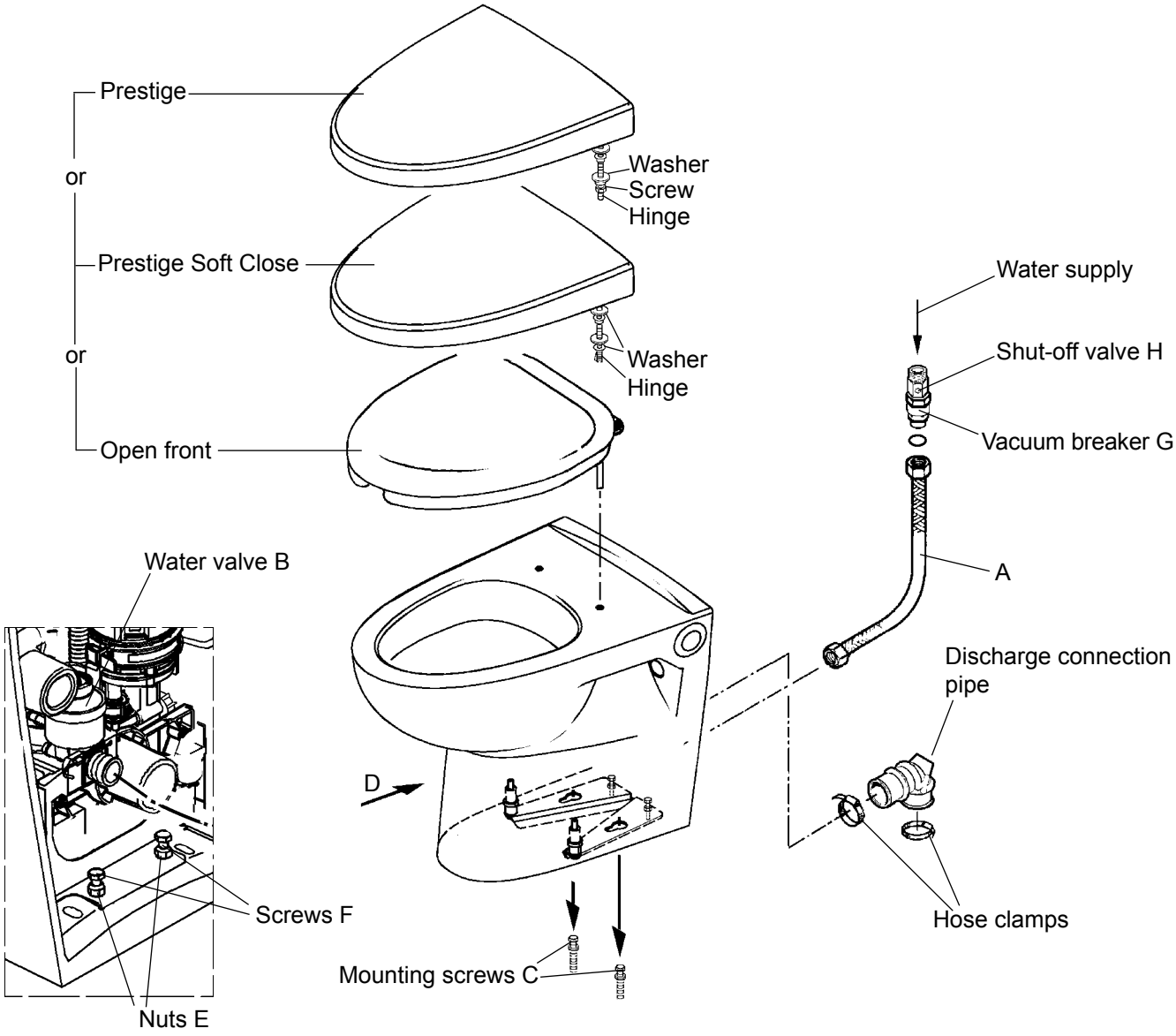


Installation kit P/N 6560988 consists of:

Rubber elbow	1 pc
Hose clamp	2 pcs

VACUUM TOILET

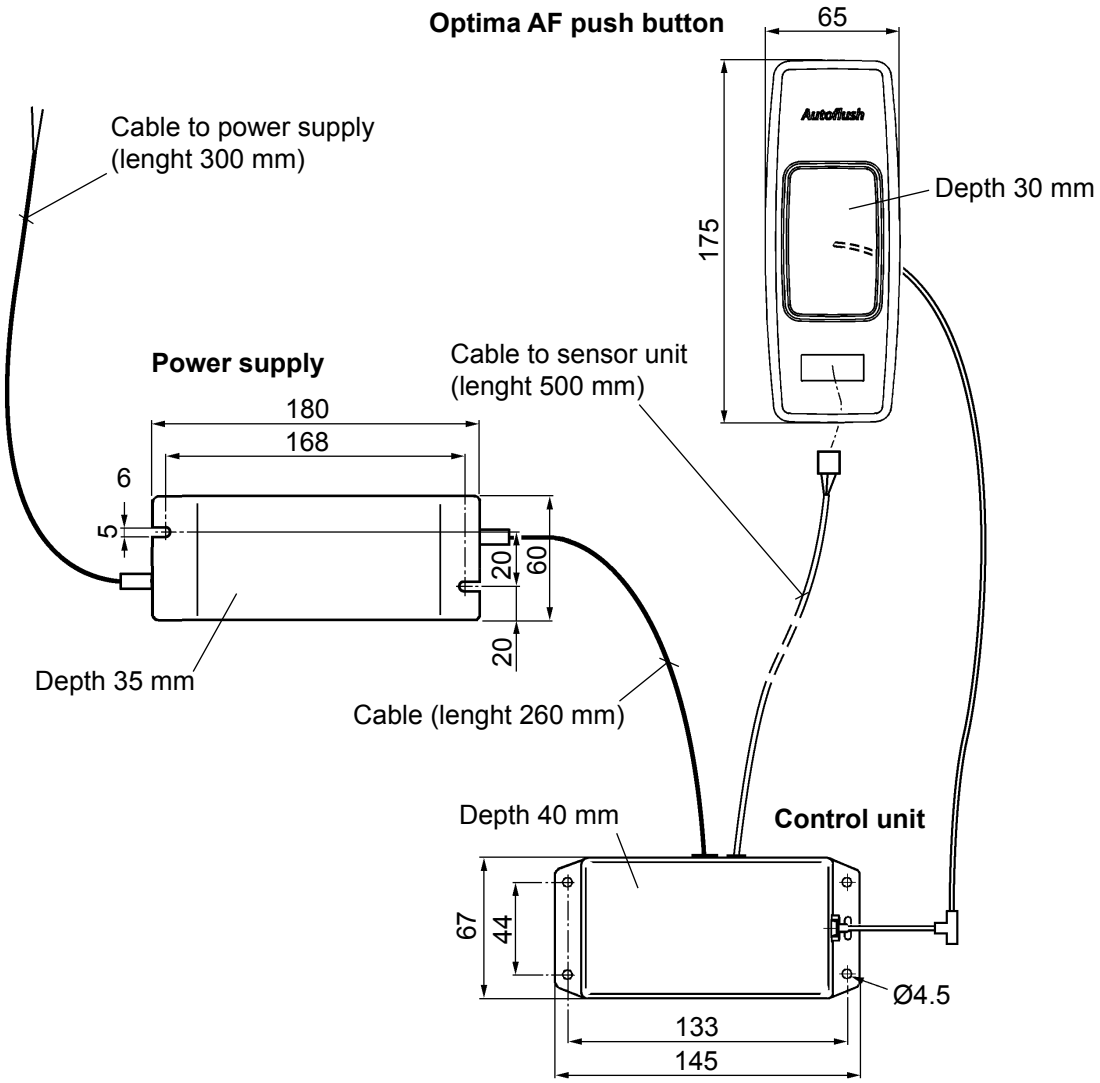
6559515 EVAC OPTIMA 5, FLOOR MODEL, PRESTIGE
6559519 EVAC OPTIMA 5, FLOOR MODEL, PRESTIGE SOFT CLOSE



- Connect the water connection hose (A) to the water valve (B).
- Connect the discharge connection pipe to the floor/wall pipe.
- Put the toilet bowl to the floor on the mounting screws (C). Push the toilet 20 mm to the arrow (D) direction. Lock the toilet by tightening the nuts (E) onto the place. ! NOTE: Do not turn the screws (F). Secure the discharge connection with the hose clamps.
- Connect the shut-off valve (H) to the water supply.
- Connect the water connection hose (A) to the vacuum breaker (G).
- Install the seat and the cover.

VACUUM TOILET

6560803 OPTIMA AUTOFLUSH UNIT



Materials

Control unit; bellows: rubber, cover and bottom of control box: ABS
Sensor; cover: ABS white, bottom plate: POM
Box of power supply: plastic

Operating data

Sensor type: Infra red
Sensor distance: 600 mm (set); 100 ... 700 (adjustable)
Sensor activation: delay 5 sec. (set); 0 ... 10 sec. (adjustable)
Flushing timing: 2.5 sec. (set); 0 ... 10 sec. (adjustable)
Flushing activation delay: < 2 sec.
Power consumption: Stand-by 0.7 W, operating 45 W
Operating temperature: 0 ... +60°C
Operating voltage: 24V DC 30 mA
Protection class; Control unit: IP44, Power supply: IP64

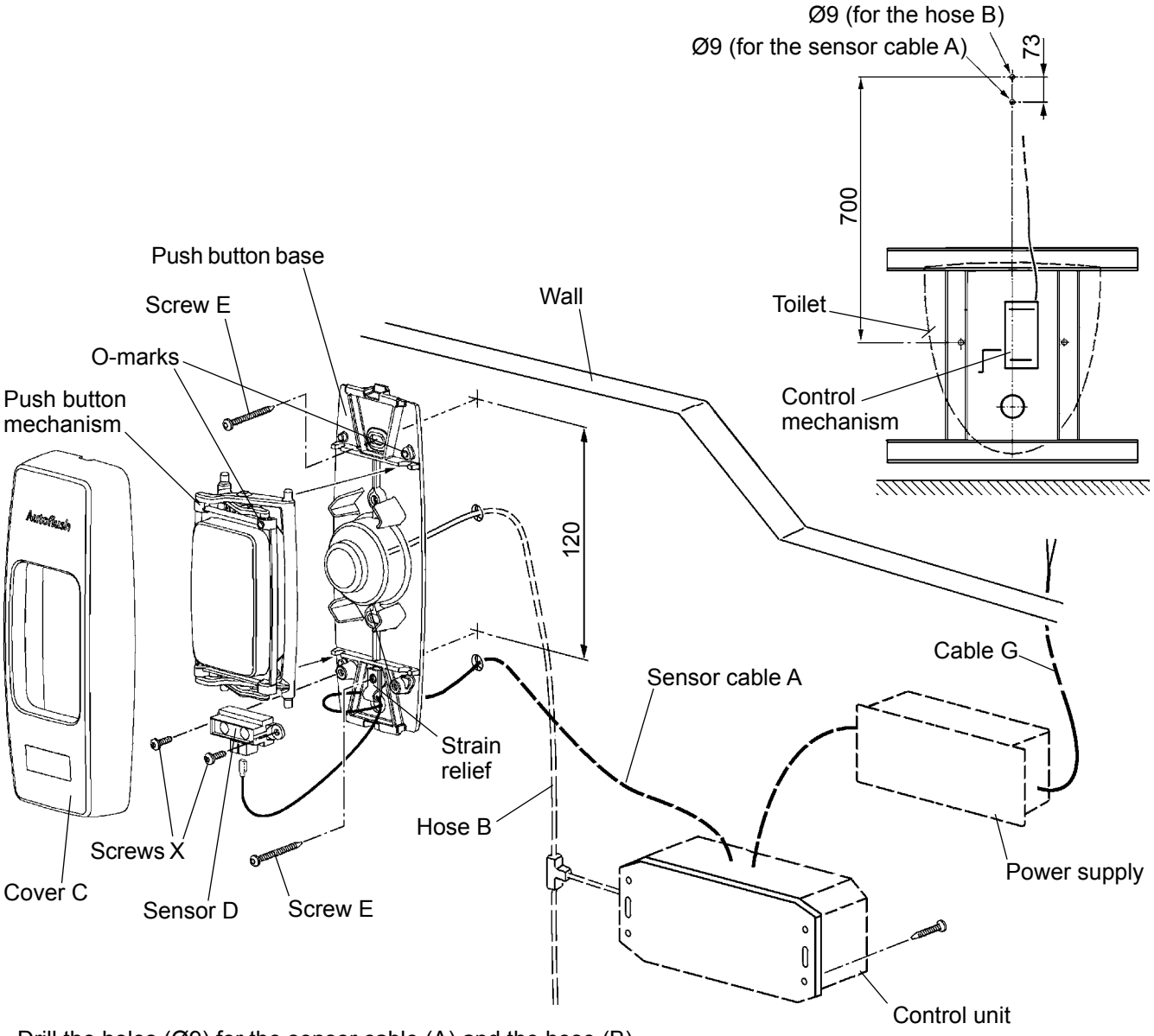
Connections: Power supply: 100-240 V ~ 1.5-0.7 A, 50/60 Hz

Shipping data: Net weight: 0.83 kg

Other Installation screws are not included in delivery

VACUUM TOILET

6560803 OPTIMA AUTOFLUSH UNIT



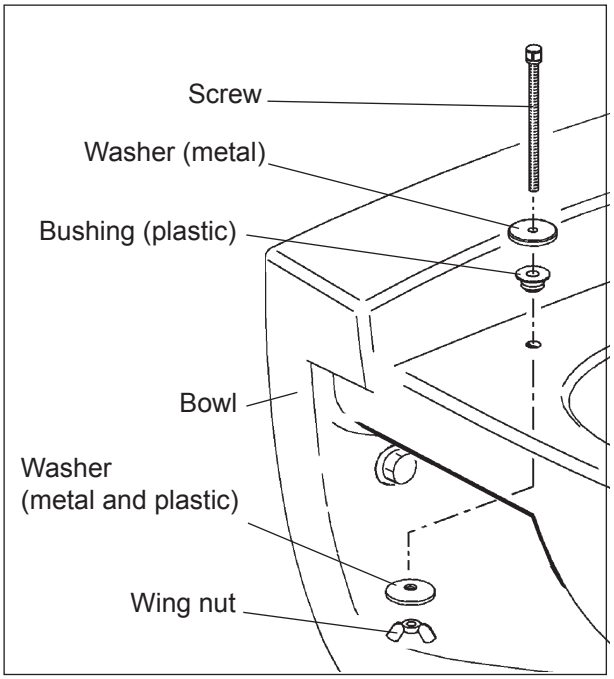
- Drill the holes (Ø9) for the sensor cable (A) and the hose (B).
- Loose the cover (C).
- Loose the sensor (D) and the strain relief.
- Thread the sensor cable and hose (B) through the wall.
- Connect the hose (B) to the nipple of the push button base. Warm the end of the hose if needed to help installation.
  ! NOTE: Secure the hose (B) is not flattened during installation. The air impulse must be always flow free.
- Put the sensor calble through the strain relief.
- Note place of the the strain relief. Install the push button base with the strain relief useing the screws (E) to the wall.
- Place the push button mechanism. Note ”O“-marks.
- Place the sensor (D) with the screws (X).
- Connect the cable (A) to the sensor (D).
- Snap on the cover (C).
- Install the control unit and the power suppy (optional places, note the length (1m) of the hose (B) and the cable (A)) with the screws (not included) on the wall.
- Connect the cable (G) to the power supply.

! NOTE: Installation screws are not included in delivery.

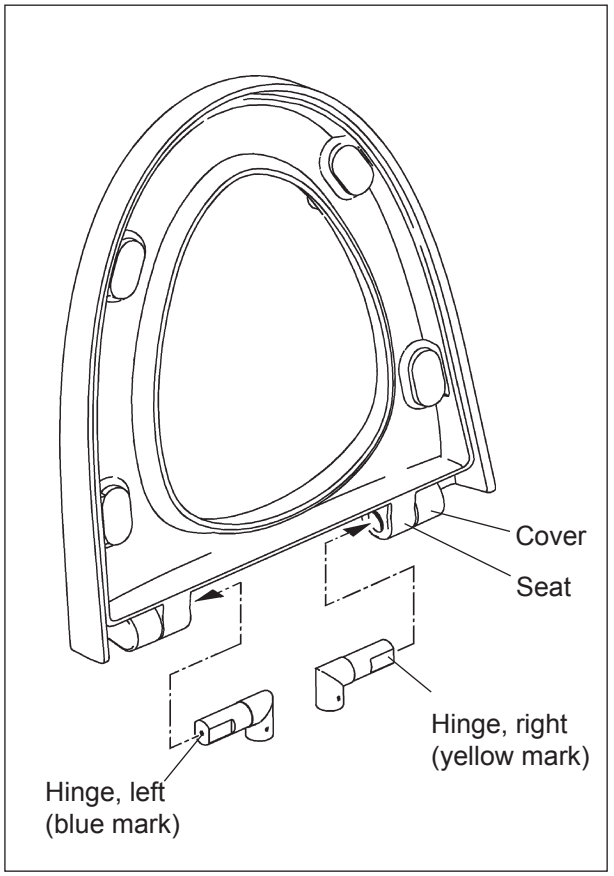
VACUUM TOILET

6546819 PRESTIGE SOFT CLOSING, SEAT AND COVER

Installation

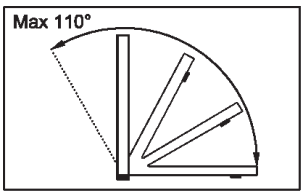


1. Install the parts of the installation kit. Note installation order.



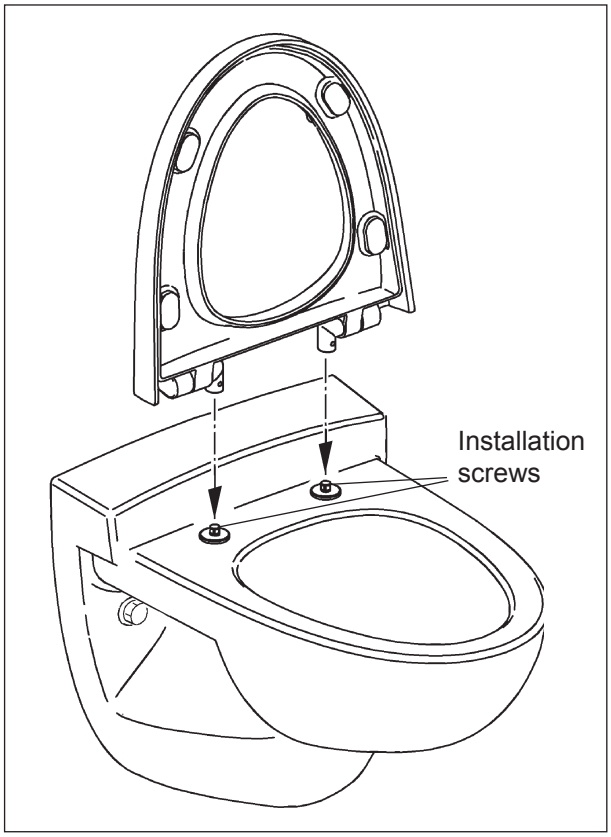
2. Push the hinges into the hole of the seat and the cover.

! NOTE: Do not open the seat (with the hinges inserted) hinges before assembly. The opening angle must not exceed 110°.

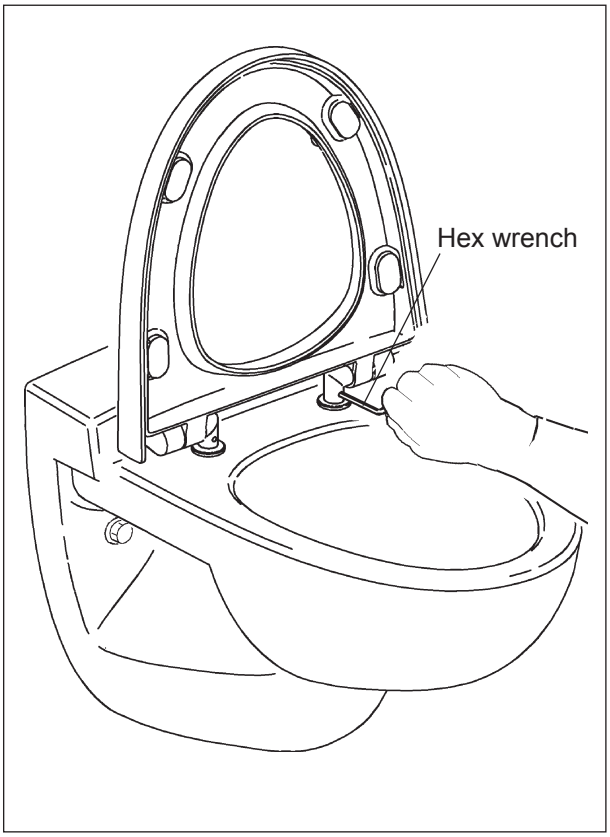


VACUUM TOILET

6546819 PRESTIGE SOFT CLOSING, SEAT AND COVER



3. Install the seat and the cover with the hinges on the installation screws on the bowl.



4. Tighten the retaining screws with a hex wrench. (The installation kit includes two hex wrenches.)

! NOTE: Do not use excessive force.

Do not use excessive force when closing, this may cause irreparable damage to the device.

Maintenance

The seat is easy to clean, with just a few simple directions for you to observe.
- Use mild soap solution or biological cleaners.
- Rince the seat and cover and the hinges with water and dry with a soft cloth.
- Do not use abrasive scouring powders for the seat, cover and hinges.
- Be careful with chemicals and cosmetics. Some of them may damage the seat.
- When you use abrasive, corrosive or chlorine based cleaners for the bowl, avoid contact with the seat, cover and hinges. Therefore, when you clean the bowl and flush cleaner away, make sure that the seat and the cover are in an upright position.

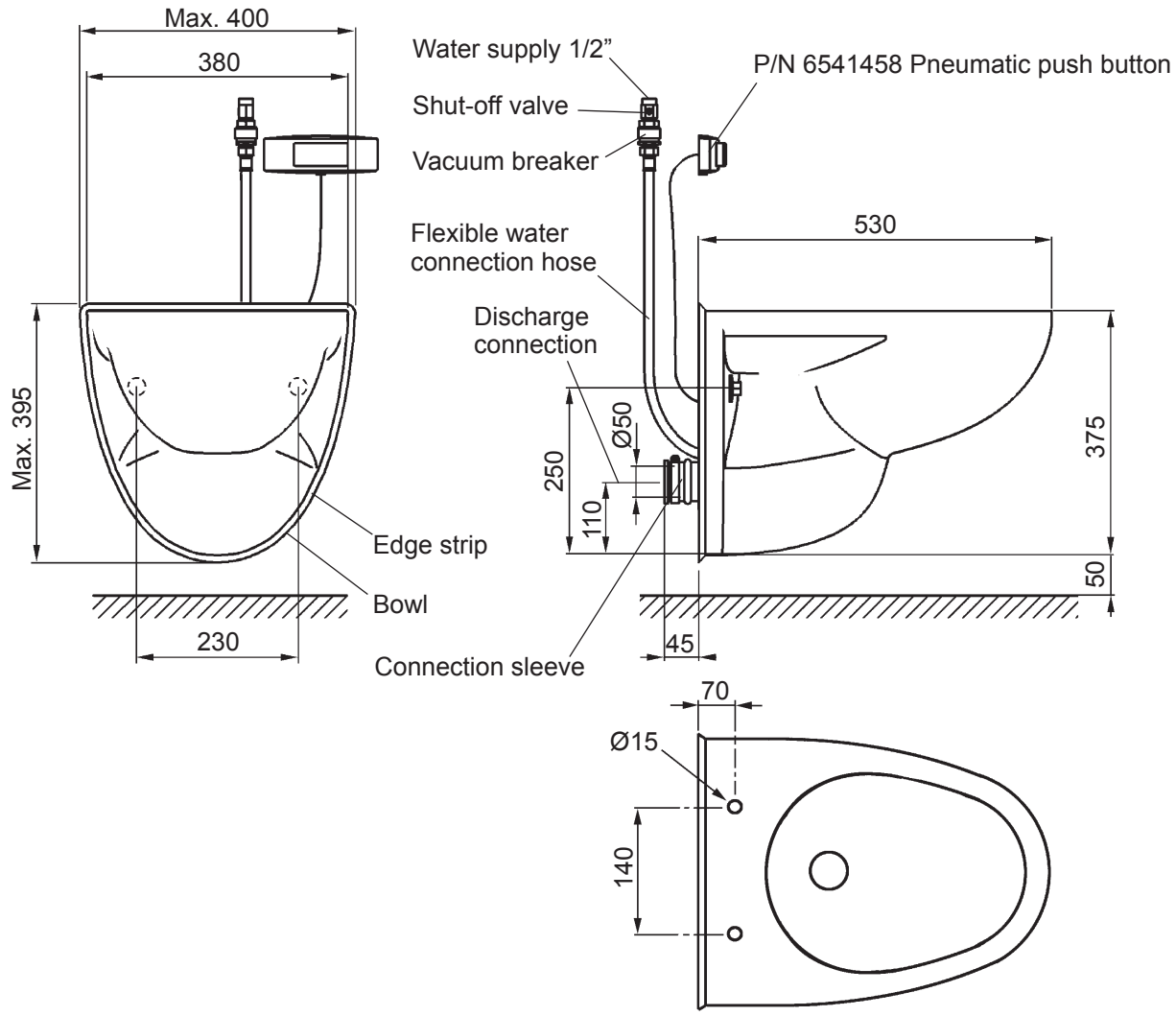
Cleantech Solutions.
Anywhere.

EVAC VACUUM TOILETS

- EVAC OPTIMA 5
- EVAC 912
- EVAC 910

VACUUM TOILET

6552550 EVAC 912, WALL MODEL TOILET (WITHOUT SEAT AND COVER)



Materials

Bowl: White vitreous china
Pneumatic push button: White plastic, ABS
Discharge valve; plastic parts: PP, rubber parts: NR

Operating data

Water pressure: 3 ... 10 bar
Operating vacuum: -0.3 ... - 0.6 bar
Water consumption: ~1.2 ±0.15 litres/flush (water pressure: 4 bar, vacuum: -0.4 bar)
Air consumption: ~60±10 litres/flush (normal atmospheric air)

Connections

Water supply: 1/2” MPT, flexible hose
Discharge: Discharge connection Ø50, connection sleeve includes two hose clamps to O.D. 48 - 52 mm pipes

Shipping data

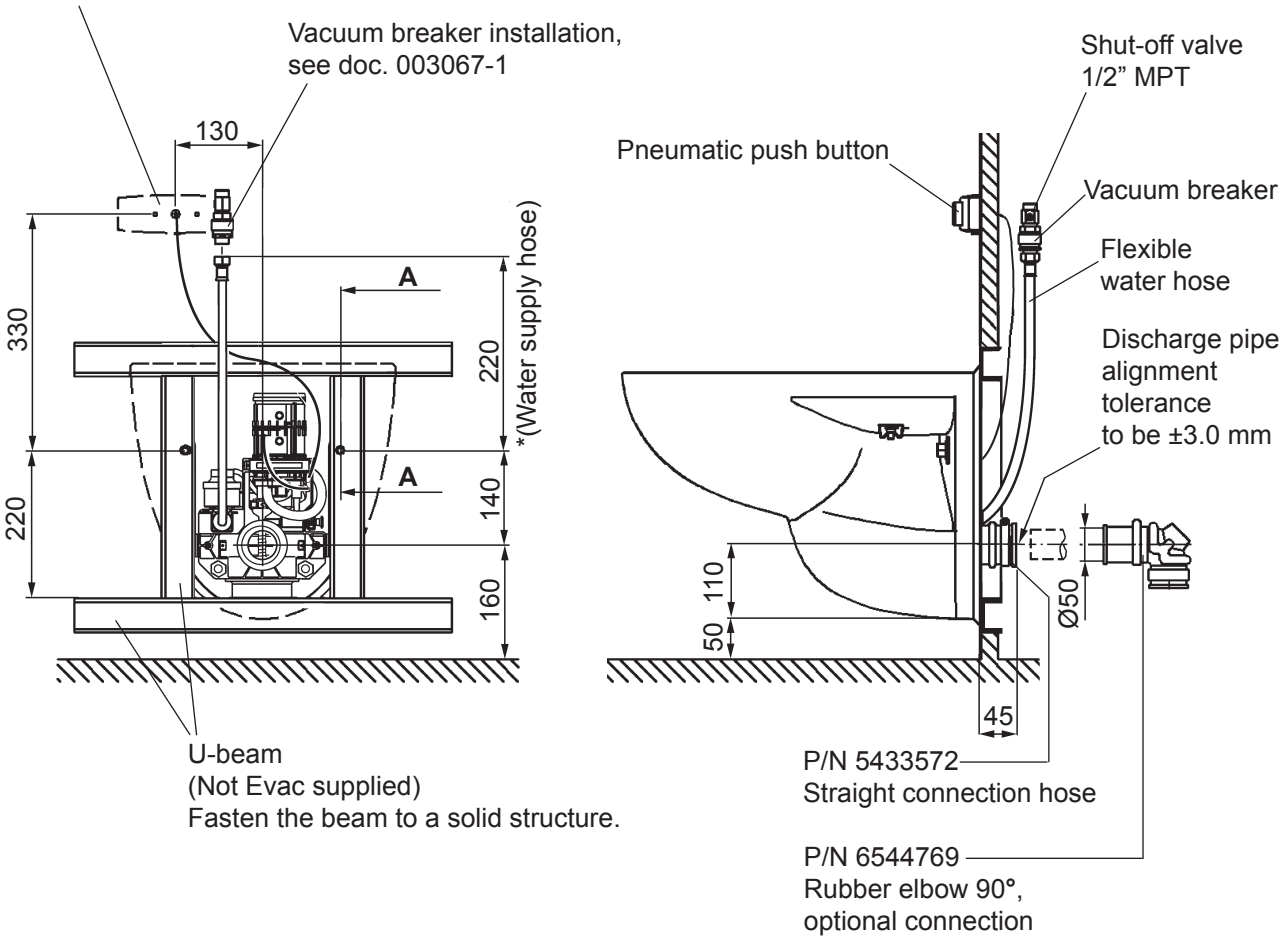
Net weight: 17.8 kg
Shipping weight: 20.1 kg
Shipping volume: 0.168 m³

! NOTE: Please consult Evac representative for suitable washlet or seat and cover.

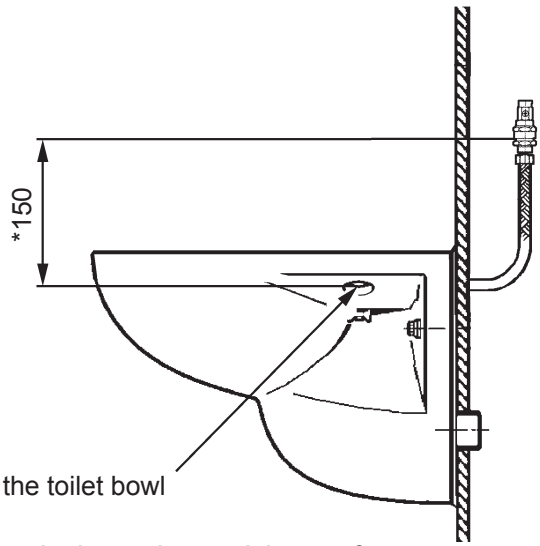
VACUUM TOILET

6552550 EVAC 912, WALL MODEL TOILET (WITHOUT SEAT AND COVER)

! NOTE: Recommended place for the button.
If placement is changed, consult EVAC.



Overflow point



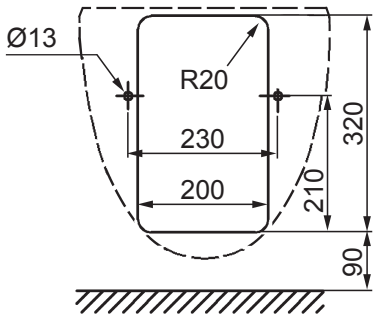
! NOTE: Overflow point is inside the toilet bowl

* The vacuum breaker air inlet must be located at a minimum of 150 mm (6") above the overflow point of the toilet.

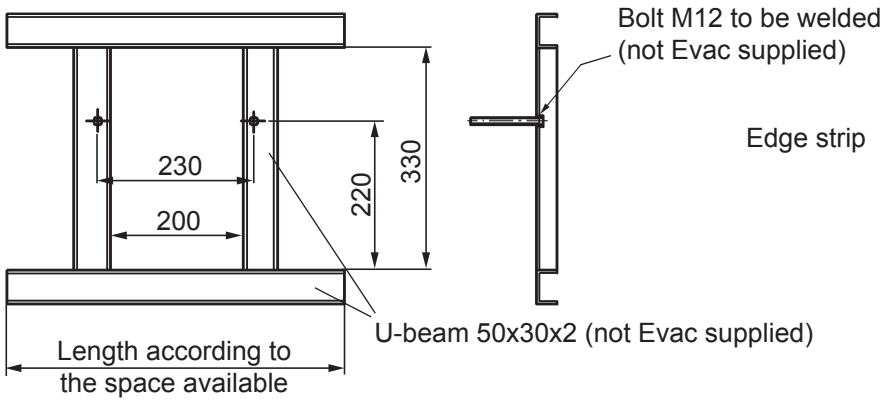
VACUUM TOILET

6552550 EVAC 912, WALL MODEL TOILET (WITHOUT SEAT AND COVER)

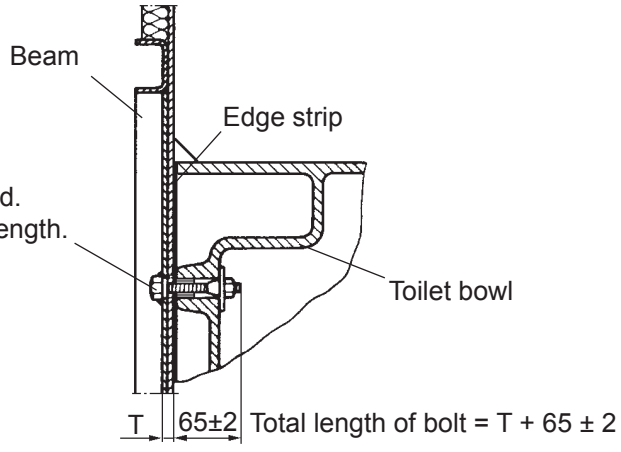
Dimensions of toilet service opening through the wall



Toilet supporting beams for wall models



Cross section A - A



Bolt M12 (not Evac supplied) to be welded.
! NOTE: Thread on the bolt must be full length.

Installation kit 6540972 consists of:

Plastic nut M12	2 pcs
Guiding nut	2 pcs
Edge strip	1 pc
Mounting instruction	1 pc
Straight connection hose	1 pc
Hose clamp	2 pcs

Cleantech Solutions.
Anywhere.

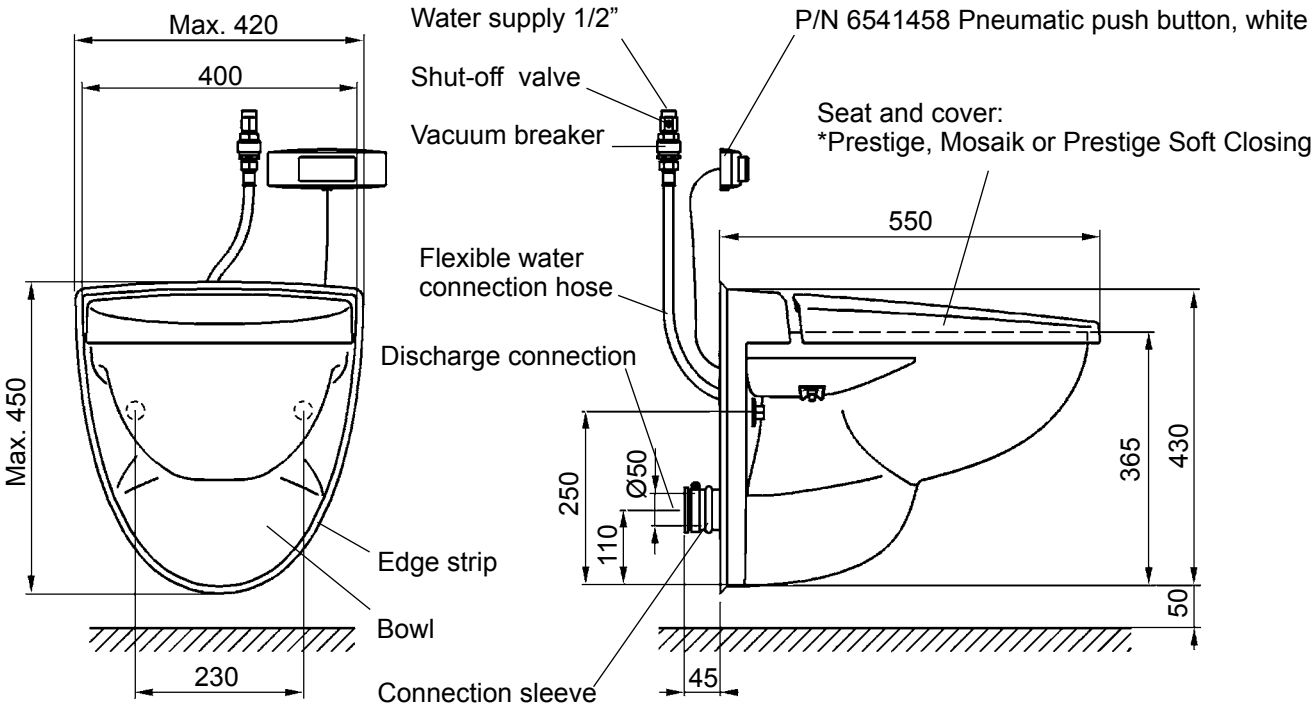
EVAC VACUUM TOILETS

- EVAC OPTIMA 5
- EVAC 912
- EVAC 910

R.003694-1-0315

VACUUM TOILET

6543418 EVAC 910, WALL MODEL, PRESTIGE SILENT, WHITE
6543419 EVAC 910, WALL MODEL, MOSAIK, WHITE
6547226 EVAC 910, WALL MODEL, PRESTIGE SOFT CLOSING, WHITE



* Prestige seat and cover fulfill ANSI Z124.5 - 1997 [Plastic Toilet (Water closet) Seats] requirements.

Materials

Bowl: White vitreous china
Seat; *Prestige and Prestige Soft Closing: UF-S, Mosaik: PP
Cover; *Prestige and Prestige Soft Closing: UF-S, Mosaik: PP
Pneumatic push button: White plastic, ABS
Discharge valve; plastic parts: PP, rubber parts: NR

Operating data

Water pressure: 3 ... 10 bar
Operating vacuum: -0.3 ... - 0.6 bar
Water consumption: ~1.2 ±0.15 litres/flush (water pressure: 4 bar, vacuum: -0.4 bar)
Air consumption: ~60 ±10 litres/flush (normal atmospheric air)

Connections

Water supply: 1/2” MPT, flexible hose
Discharge: Discharge connection Ø50, connection sleeve includes two hose clamps to O.D. 48 - 52 mm pipes

Shipping data

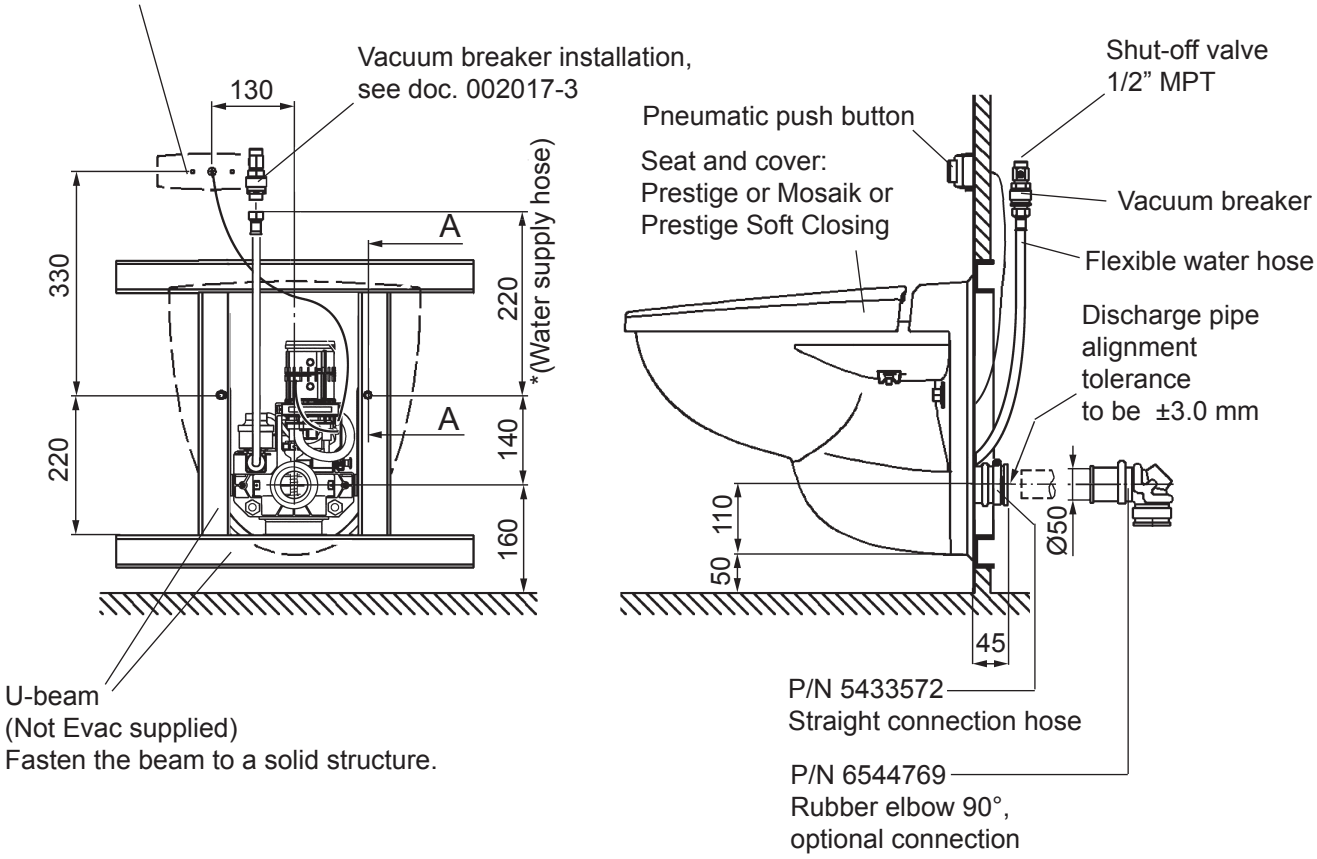
P/N 6543418 Evac 910, wall model, Prestige Silent and
P/N 6547226 Evac 910, wall model, Prestige Soft Closing:
Net weight: 20.8 kg
Shipping weight: 23.1 kg
Shipping volume: 0.168 m³

P/N 6543419 Evac 910, wall model, Mosaik:
Net weight: 17.7 kg
Shipping weight: 19.7 kg
Shipping volume: 0.168 m³

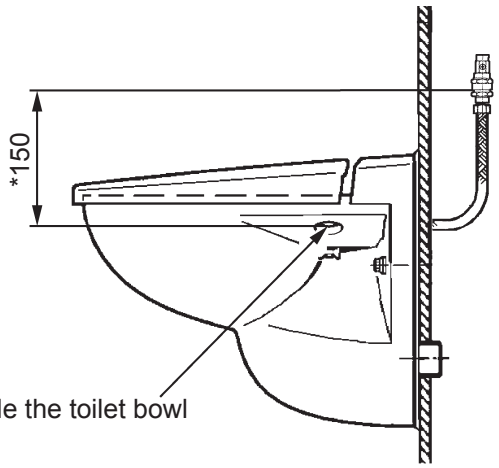
VACUUM TOILET

6543418 EVAC 910, WALL MODEL, PRESTIGE SILENT
6543419 EVAC 910, WALL MODEL, MOSAIK
6547226 EVAC 910, WALL MODEL, PRESTIGE SOFT CLOSING

! NOTE: Recommended place for the button.
If placement is changed, consult EVAC.



Overflow point



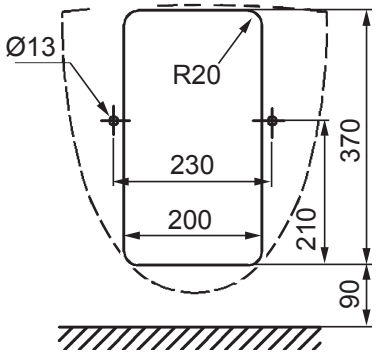
! NOTE: Overflow point is inside the toilet bowl

* The vacuum breaker air inlet must be located at a minimum of 150 mm (6") above the overflow point of the toilet.

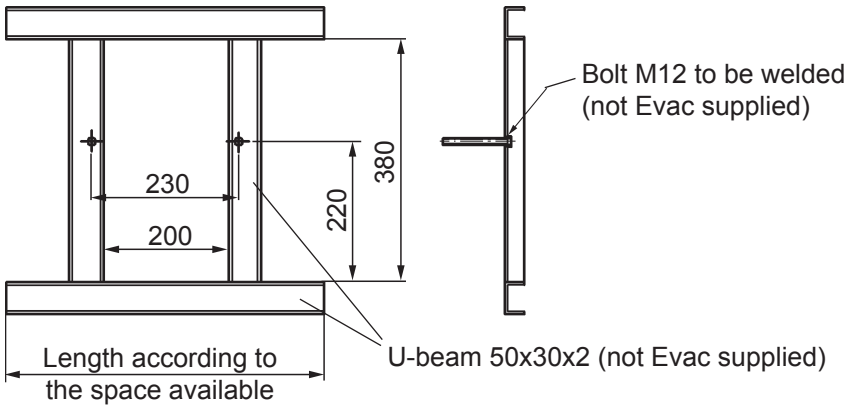
VACUUM TOILET

6543418 EVAC 910, WALL MODEL, PRESTIGE SILENT
6543419 EVAC 910, WALL MODEL, MOSAIK
6547226 EVAC 910, WALL MODEL, PRESTIGE SOFT CLOSING

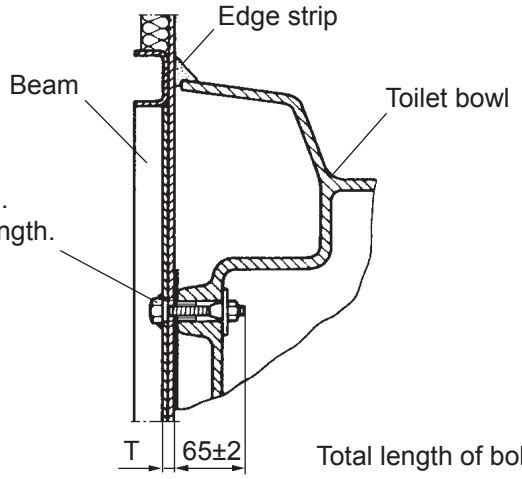
Dimensions of toilet service opening through the wall



Toilet supporting beams for wall models



Cross section A - A



Bolt M12 (not Evac supplied) to be welded.
! NOTE: Thread on the bolt must be full length.

Total length of bolt = T + 65 ± 2

Installation kit 6540972 consists of:

Plastic nut M12	2 pcs
Guiding nut	2 pcs
Edge strip	1 pc
Mounting instruction	1 pc
Straight connection hose	1 pc
Hose clamp	2 pcs

VACUUM TOILET

6543418 EVAC 910, WALL MODEL, PRESTIGE SILENT
6543419 EVAC 910, WALL MODEL, MOSAIK
6547226 EVAC 910, WALL MODEL, PRESTIGE SOFT CLOSING

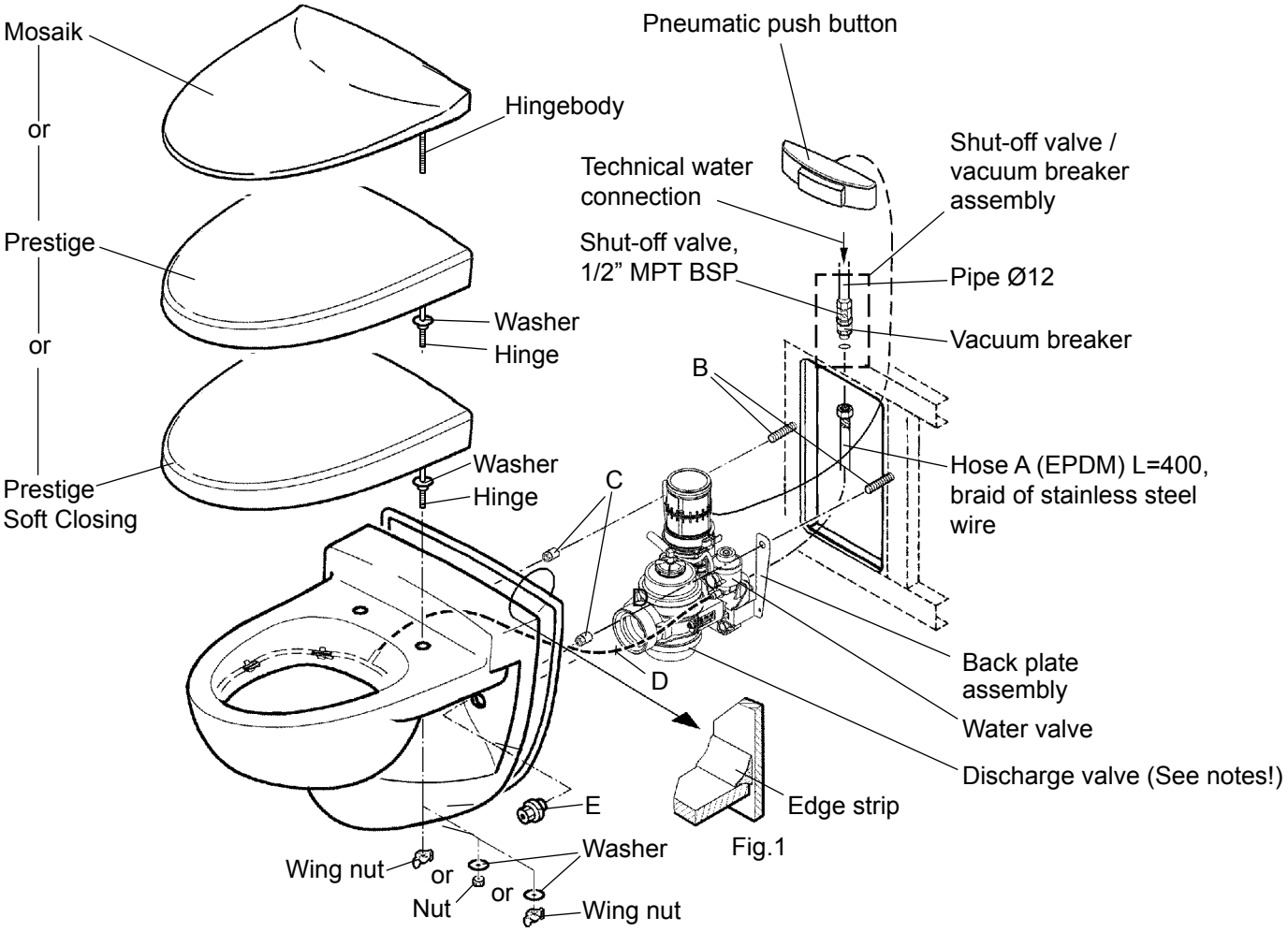


Fig.1

- Connect the water connection hose (A) to the water valve.
- Install the back plate assembly to the wall using the bowl fastening bolts (B) (M12, not included) and the guiding nuts (C) (M12). The guiding nuts are necessary.
- Connect the hose (D) from the flushing ring to the water valve. **Do not use any kind of grease during installation!** Secure with hose clamps. Tighten the hose clamps with pliers.

! NOTE: Install the hose (D) from the flushing ring in the toilet bowl to the right side of the discharge valve and below all other hoses.

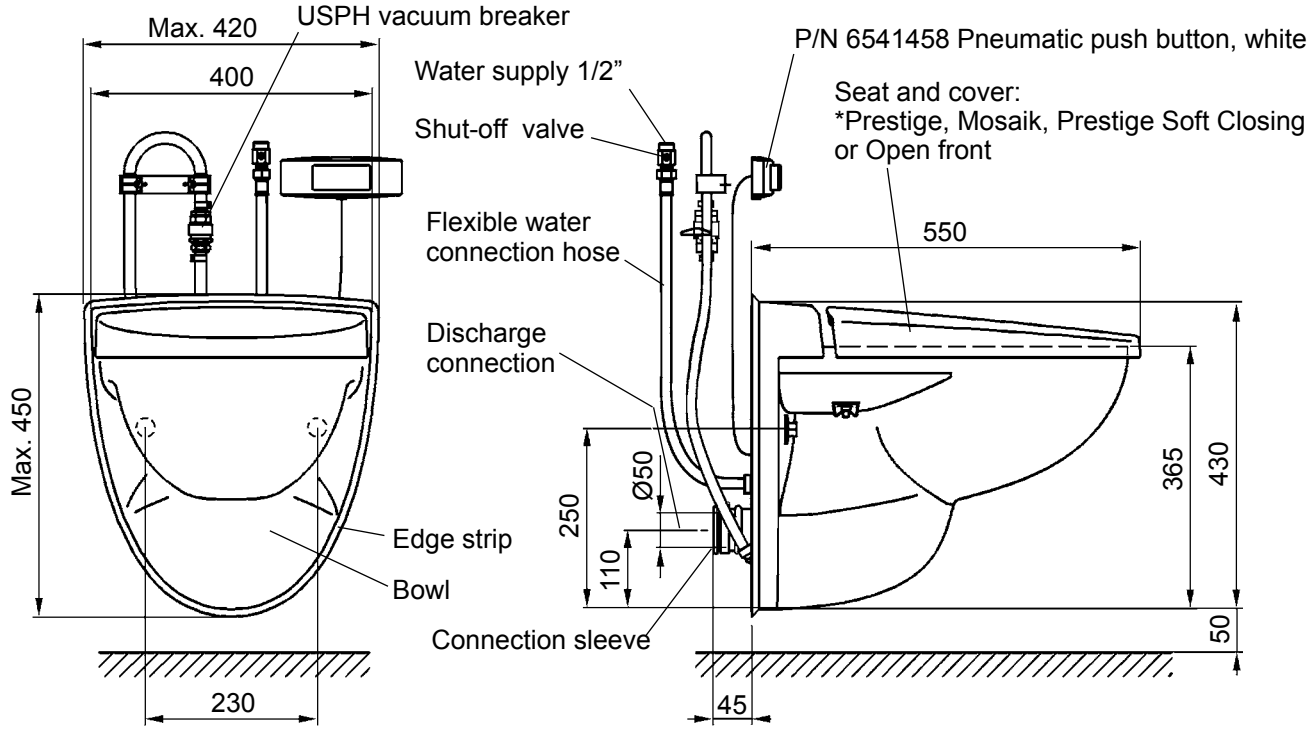
- Lift bowl onto the fastening bolts and tighten the securing nuts (E). Tightening torque is 15-20 Nm.

! NOTE: Check through the toilet service opening in the wall that the hoses run smoothly. The hoses shall not have any kinks.

- Fit the edge strip as shown in figure 1. Place the joint of the strip to the bottom side of the bowl.
- Install the seat and the cover. See the installation of the Prestige Soft Closing (doc 002503-2).
- Connect the discharge connection. Secure with the hose clamps.
- Connect the shut-off valve/vacuum breaker assembly to the water supply. The shut-off valve must be installed to the water supply piping's side to ensure the correct flow direction in the vacuum breaker. Note the vacuum breaker must be installed vertically as shown.
- Connect the water connection hose (A) to the shut-off valve/vacuum breaker assembly.
- Install the pneumatic push button (See document 002002-3).

VACUUM TOILET

6543420 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT, WHITE
6543421 EVAC 910, WALL MODEL USPH, MOSAIK, WHITE
6544766 EVAC 910, WALL MODEL USPH, OPEN FRONT, WHITE
6547227 EVAC 910, WALL MODEL USPH, PRESTIGE SOFT CLOSING



* Prestige seat and cover fulfill ANSI Z124.5 - 1997 [Plastic Toilet (Water closet) Seats] requirements.

Materials

Bowl: White vitreous china
Seat; *Prestige, Prestige Soft Closing and Open front: UF-S, Mosaik: PP
Cover; *Prestige, Prestige Soft Closing and Open Front: UF-S, Mosaik: PP
Pneumatic push button: White plastic, ABS
Discharge valve; plastic parts: PP, rubber parts: NR

Operating data

Water pressure: 3 ... 10 bar
Operating vacuum: -0.3 ... - 0.6 bar
Water consumption: ~1.2 ±0.15 litres/flush (water pressure: 4 bar, vacuum: -0.4 bar)
Air consumption: ~ 60 ±10 litres/flush (normal atmospheric air)

Connections

Water supply with USPH: 1/2” MPT, flexible hose
Discharge: Discharge connection Ø50, connection sleeve includes two hose clamps to O.D. 48 - 52 mm pipes

Shipping data

P/N 6543420 Evac 910, wall model USPH, Prestige Silent and
P/N 6547227 Evac 910, wall model USPH, Prestige Soft Closing:
Net weight: 21.6 ±0.5 kg
Shipping weight: 25.1 ±0.5 kg
Shipping volume: 0.168 m³

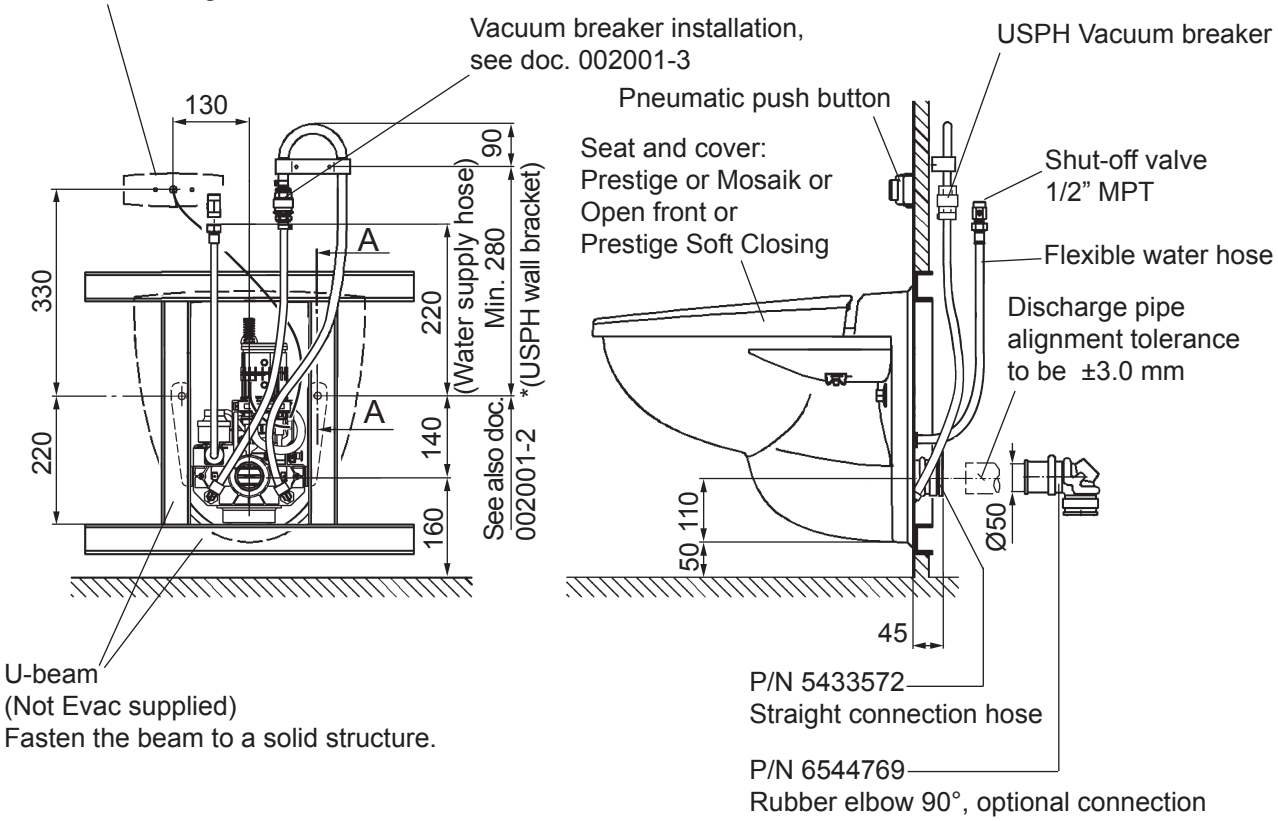
P/N 6543421 Evac 910, wall model USPH, Mosaik:
Net weight: 18.6 ±0.5 kg
Shipping weight: 20.6 ±0.5 kg
Shipping volume: 0.168 m³

P/N 6544766 Evac 910, wall model USPH, Open front:
Net weight: 20.4 ±0.5 kg
Shipping weight: 22.9 ±0.5 kg
Shipping volume: 0.168 m³

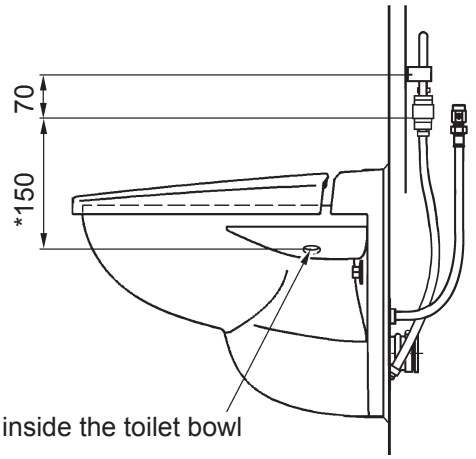
VACUUM TOILET

6543420 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT
6543421 EVAC 910, WALL MODEL USPH, MOSAIK
6544766 EVAC 910, WALL MODEL USPH, OPEN FRONT
6547227 EVAC 910, WALL MODEL USPH, PRESTIGE SOFT CLOSING

! NOTE: Recommended place for the button.
If placement is changed, consult EVAC.



Overflow point



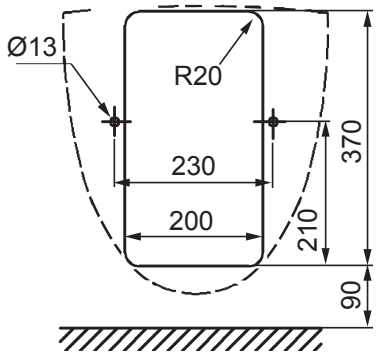
! NOTE: Overflow point is inside the toilet bowl

* The vacuum breaker air inlet must be located at a minimum of 150 mm (6") above the overflow point of the toilet.

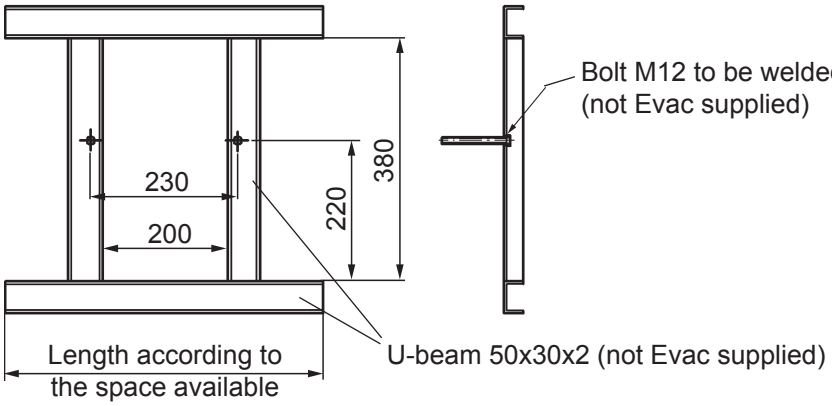
VACUUM TOILET

6543420 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT
6543421 EVAC 910, WALL MODEL USPH, MOSAIK
6544766 EVAC 910, WALL MODEL USPH, OPEN FRONT
6547227 EVAC 910, WALL MODEL USPH, PRESTIGE SOFT CLOSING

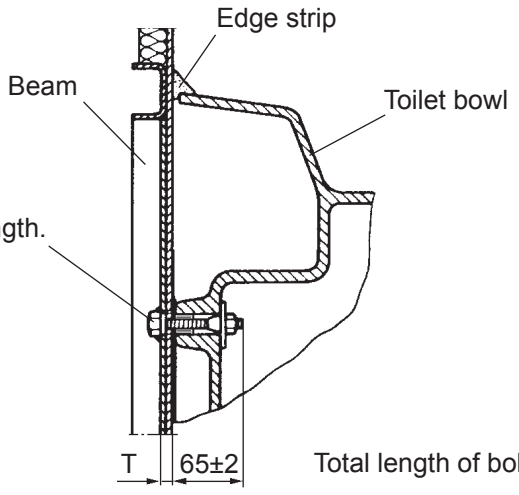
Dimensions of toilet service opening through the wall



Toilet supporting beams for wall models



Cross section A - A



Bolt M12 (not Evac supplied) to be welded.
! NOTE: Thread on the bolt must be full length.

Total length of bolt = T + 65 ± 2

Installation kit 6540972 consists of:

Plastic nut	2 pcs
Guiding nut	2 pcs
Edge strip	1 pc
Mounting instruction	1 pc
Straight connection hose	1 pc
Hose clamp	2 pcs

VACUUM TOILET

6543420 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT
6543421 EVAC 910, WALL MODEL USPH, MOSAIK
6544766 EVAC 910, WALL MODEL USPH, OPEN FRONT
6547227 EVAC 910, WALL MODEL USPH, PRESTIGE SOFT CLOSING

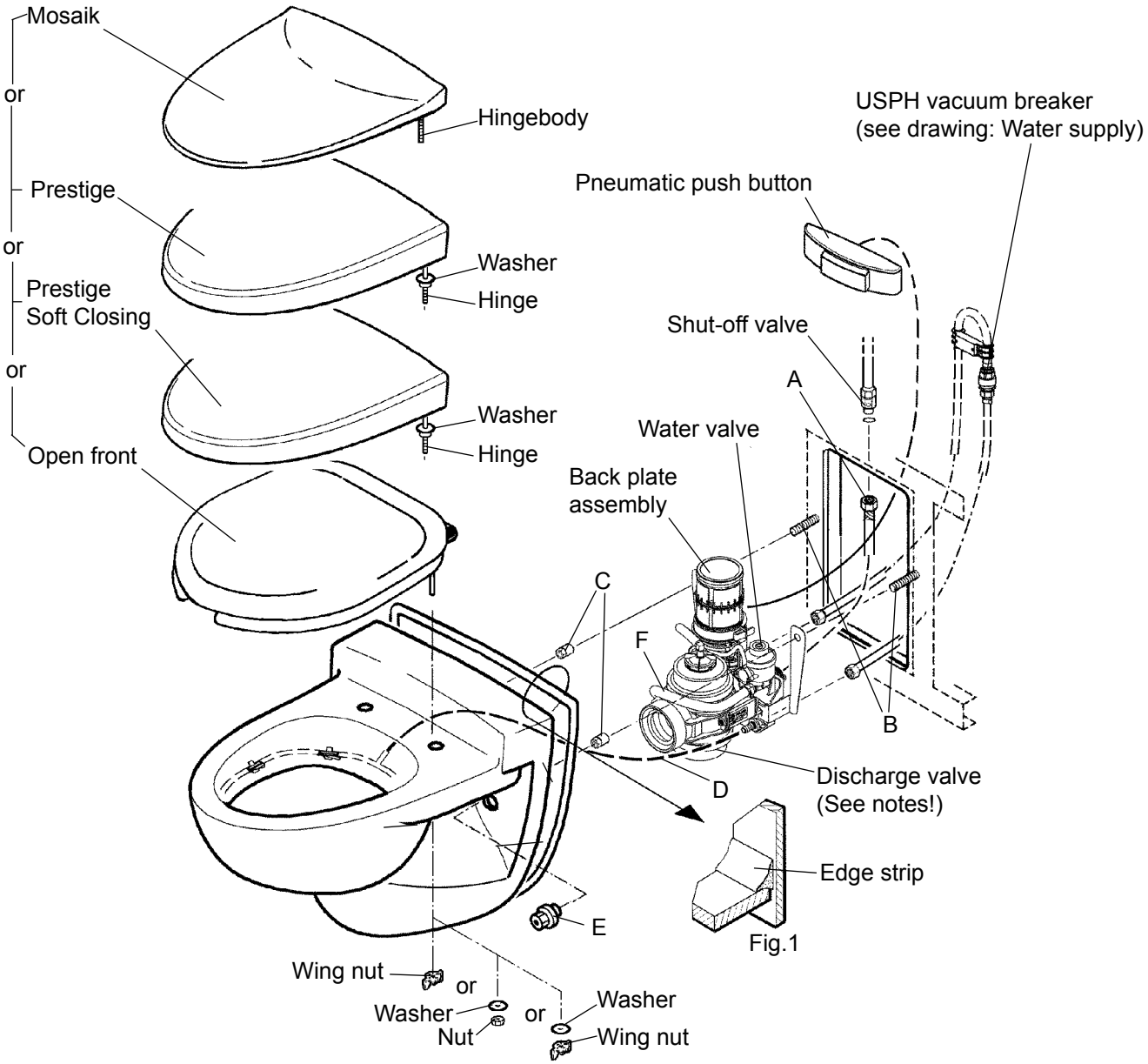


Fig.1

- Connect the water connection hose (A) to the water valve.
- Install the backplate assembly on the wall using the bowl fastening bolts (B) (M12, not included) and the guiding nuts (C) (M12). The guiding nuts are necessary.
- Connect the hose (D) from the flushing ring to the connecting nipple on the backplate (see drawing: Water supply). **Do not use any kind of grease during installation!** Secure with hose clamps. Tighten the hose clamps with pliers.

! NOTE: Install the hose (D) to the right side of the discharge valve and below the hose (F).

- Lift bowl onto the fastening bolts and tighten the securing nuts (E). Tightening torque is 15-20 Nm.

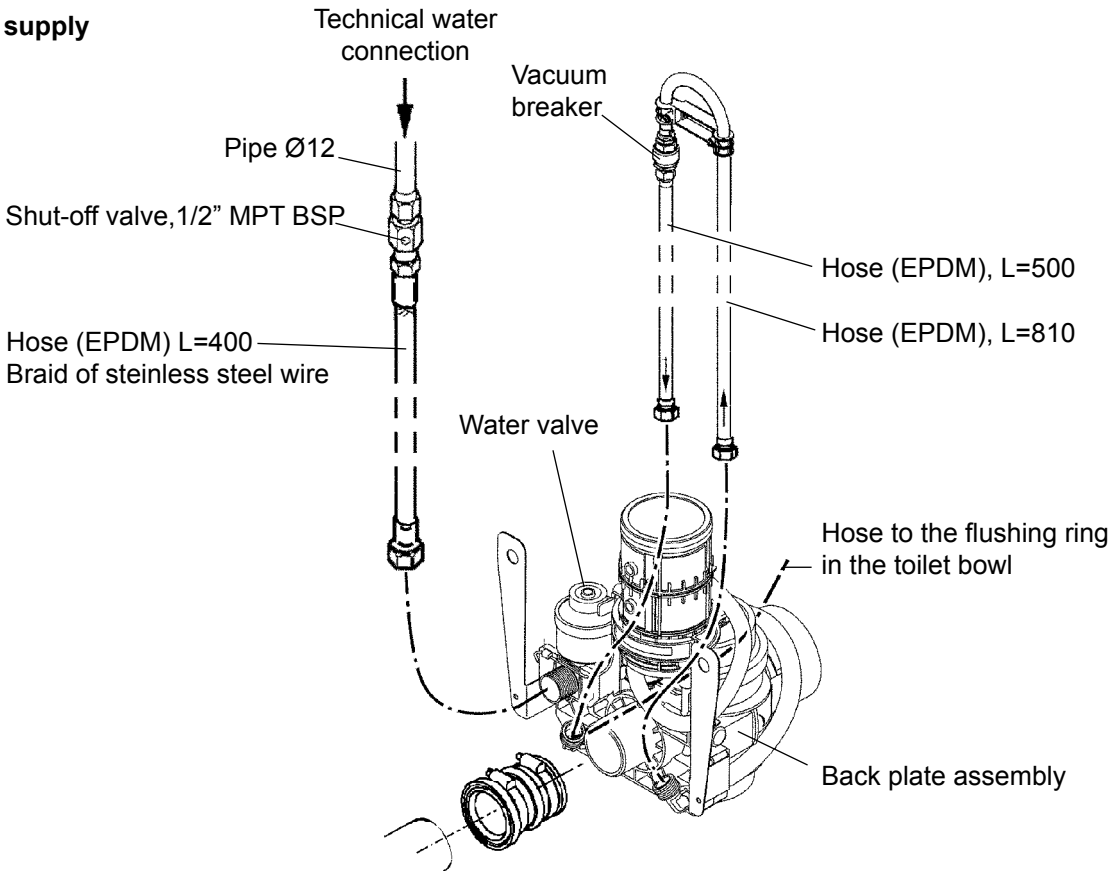
! NOTE: Check through the toilet service opening in the wall that the hoses run smoothly. The hoses shall not have any kinks.

VACUUM TOILET

6543420 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT
6543421 EVAC 910, WALL MODEL USPH, MOSAIK
6544766 EVAC 910, WALL MODEL USPH, OPEN FRONT
6547227 EVAC 910, WALL MODEL USPH, PRESTIGE SOFT CLOSING

- Fit the edge strip as shown in the figure 1. Place the joint of the strip to the bottom side of the bowl.
- Install the seat and the cover. See the installation of the Prestig Soft Closing (document 002503-2).
- Connect the USPH vacuum breaker to the back plate's connecting nipples (see drawing: Water supply).
- Fix the USPH vacuum breaker to the wall (see drawing: Water supply and see dimensions from document 002000-6).
- Connect the discharge connection. Secure with the hose clamps.
- Connect the shut-off valve to the water supply. The shut-off valve must be installed to the water supply piping's side to ensure the correct flow direction in the vacuum breaker. Note that the vacuum breaker must be installed vertically as shown.
- Connect the water connection hose (A) to the shut-off valve.
- Install the pneumatic push button (see document 002002-3).

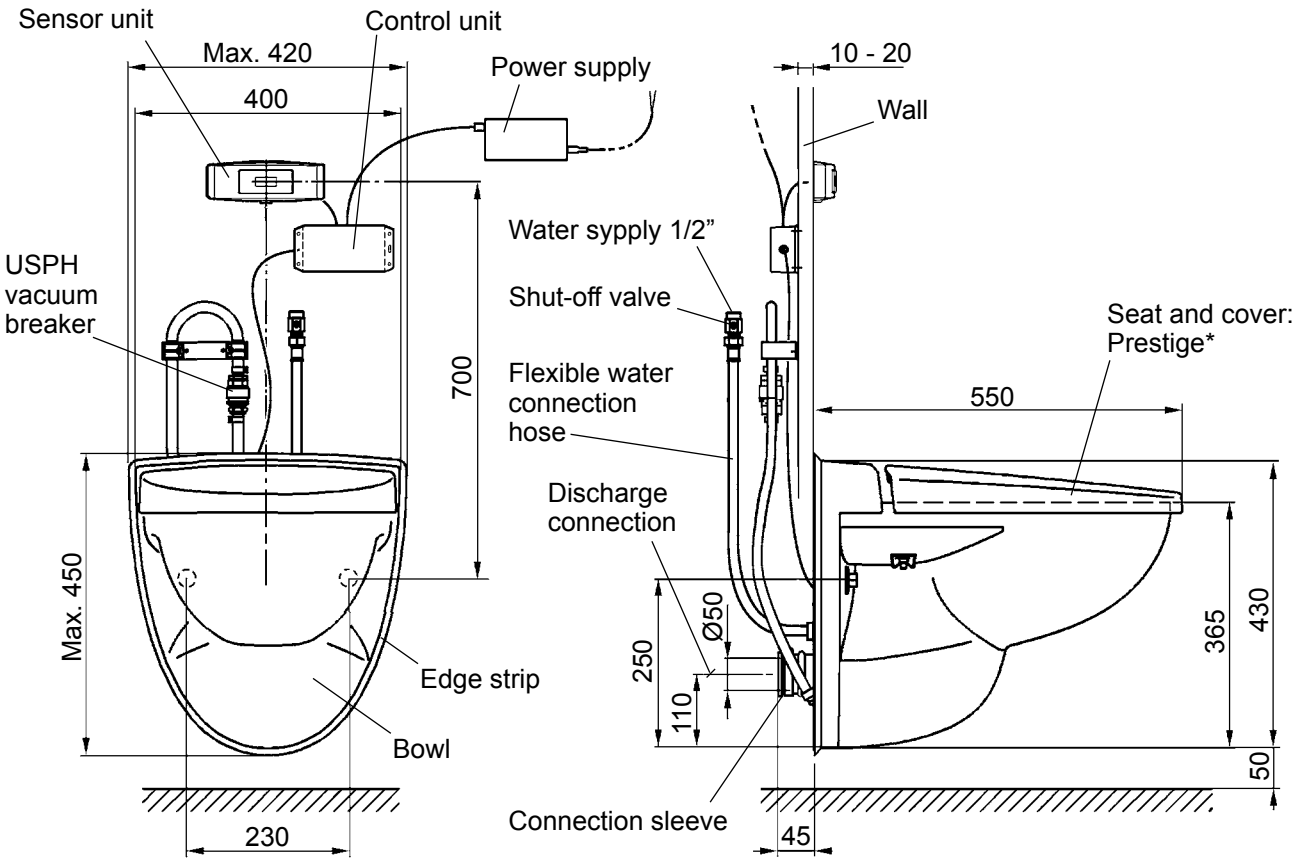
Water supply



! NOTE: For non-U.S. flag vessels

VACUUM TOILET

6545818 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT, WHITE WITH AUTOFLUSH UNIT



* Prestige seat and cover fulfill ANSI 2124.5 - 1997 [Plastic Toilet (Water closet) Seats] requirements.

Materials

Bowl: White vitreous china
Seat* : UF-S
Cover* : UF-S
Box of control unit: ABS
Cover of sensor: ABS
Box of power supply: plastic

Operating data

Water pressure: 3 ... 10 bar
Operating vacuum: -0.3 ... -0.6 bar
Water consumption: ~1.2 ±0.15 litres/flush (water pressure: 4 bar, vacuum: -0.4 bar)
Air consumption: ~ 60 ±10 litres/flush (normal atmospheric air)
Sensor distance: 600 mm (set); 100 ... 700 mm (adjustable)

Electrical data

Power supply: 100 ... 240 V ~ 1.5-0.7 A, 50/60 Hz 1-phase

Connections

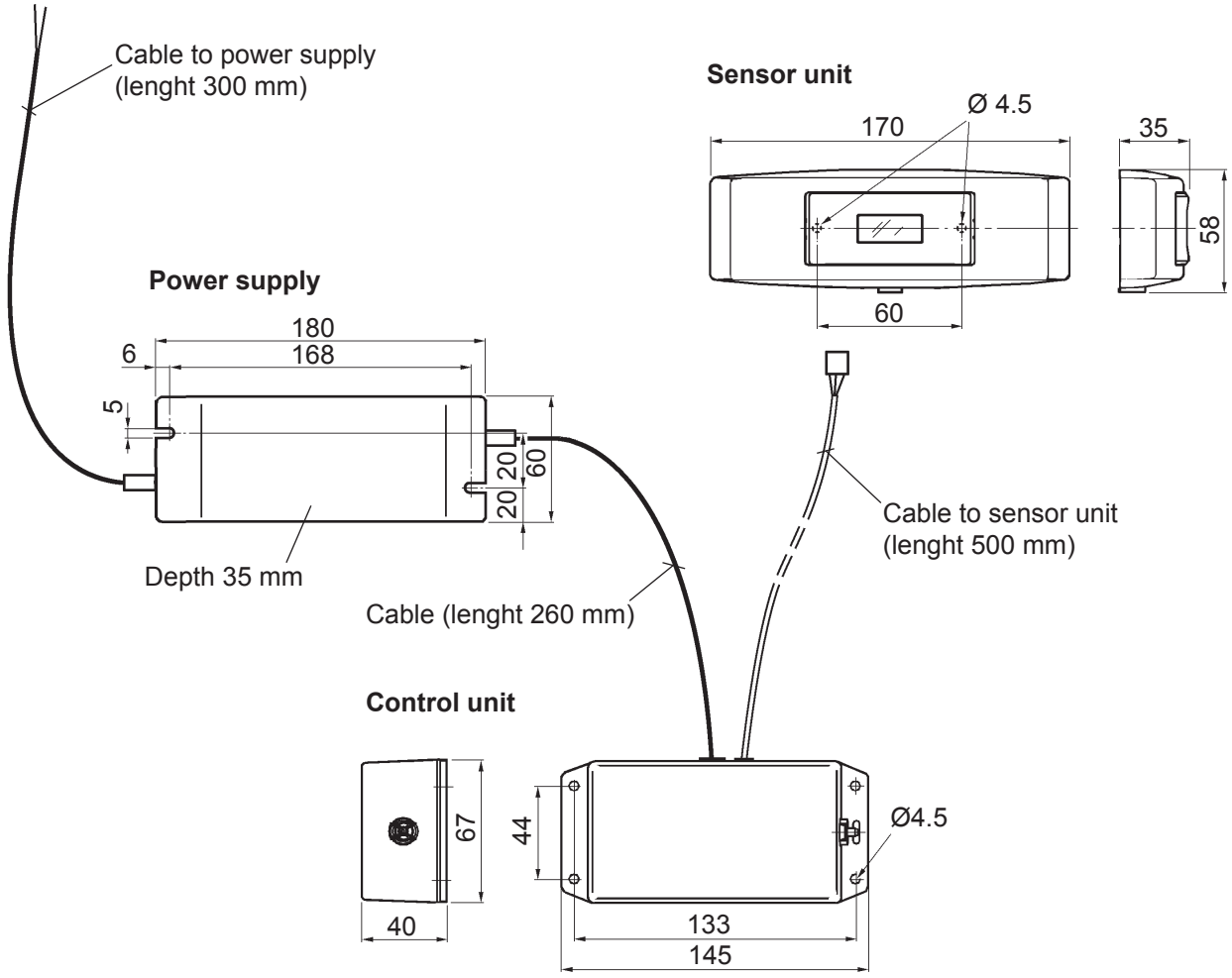
Water supply with USPH: 1/2” MPT, flexible hose
Discharge: Discharge connection Ø50, connection sleeve to O.D. 48 - 52 mm pipe includes two hose clamps

Shipping data

Net weight: 21.9 ±0.5 kg
Shipping weight: 24.2 ±0.5 kg
Shipping volume: 0.168 m³

VACUUM TOILET

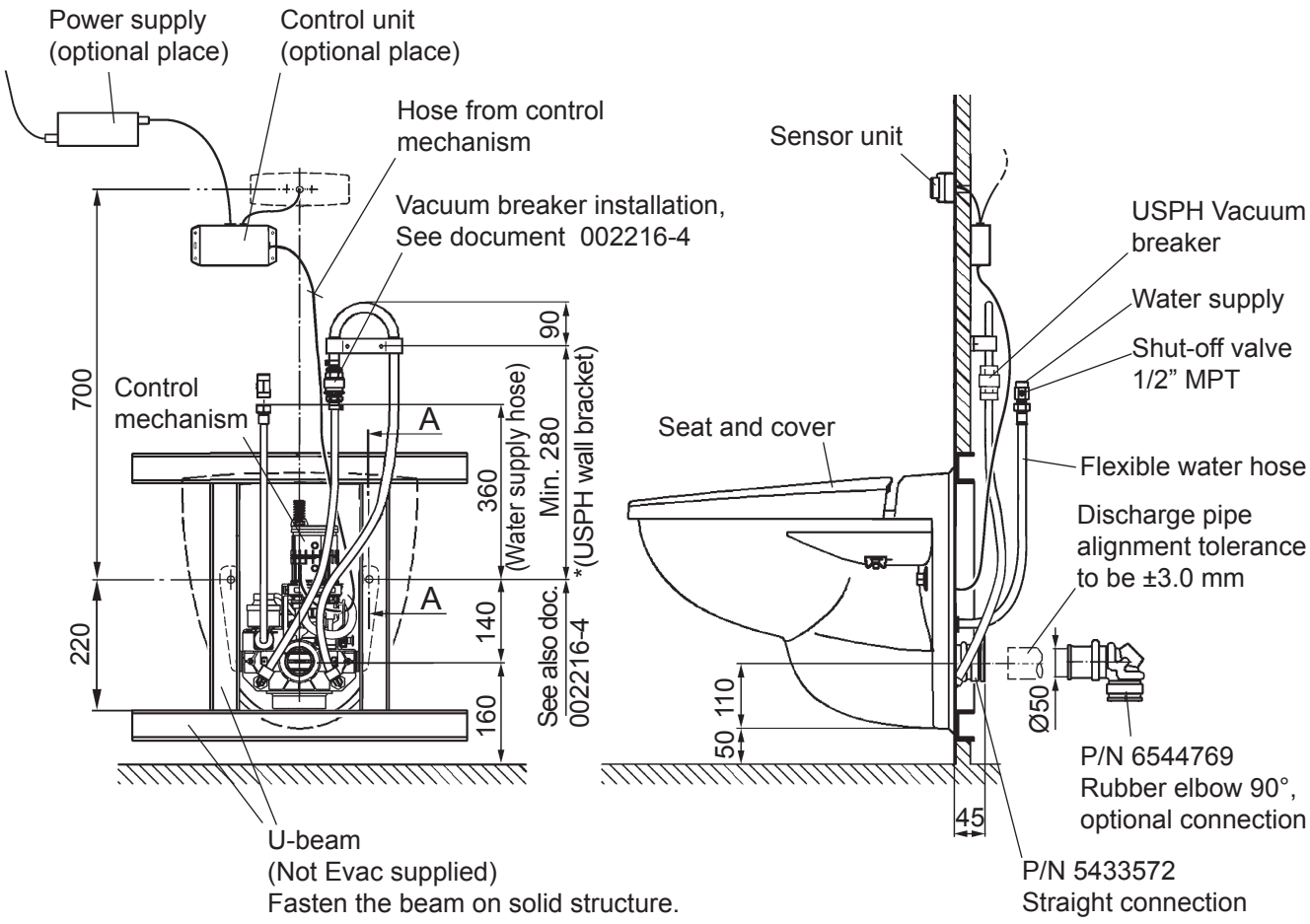
6545538 AUTOFLUSH UNIT



Materials	Control unit; bellows: rubber, cover and bottom of control box: ABS Sensor; cover: ABS white, bottom plate: POM natural Box of power supply: plastic
Operating data	Sensor type: Infra red Sensor distance: 600 mm (set); 100 ... 700 (adjustable) Sensor activation: delay 5 sec. (set); 0 ... 10 sec. (adjustable) Flushing timing: 2.5 sec. (set); 0 ... 10 sec. (adjustable) Flushing activation delay: < 2 sec. Power consumption: Stand-by 0.7 W, operating 45 W Operating temperature: 0 ... +60°C Operating voltage: 24V DC 30 mA Protection class; Control unit: IP44, Power supply: IP64
Connections:	Power supply: 100-240 V ~ 1.5-0.7 A, 50/60 Hz
Shipping data:	Net weight: 0.83 kg
Other	Installation screws are not included in delivery

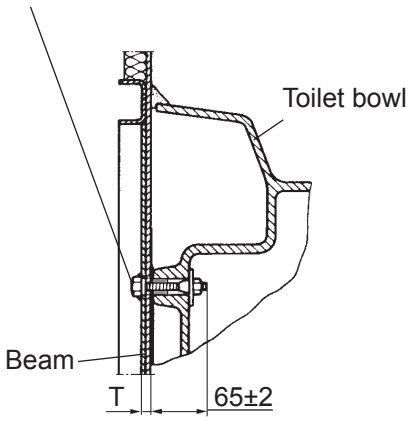
VACUUM TOILET

6545818 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT WITH AUTOFLUSH UNIT



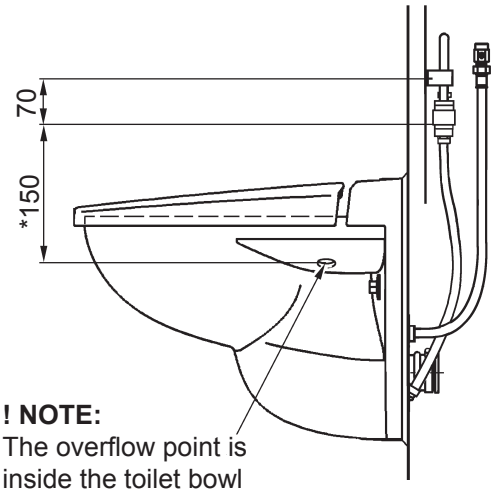
Cross section A - A

Bolt M12 (not Evac supplied) to be welded.
! NOTE: Thread on the bolt must be full length.



Total length of bolt = T + 65±2

Overflow point



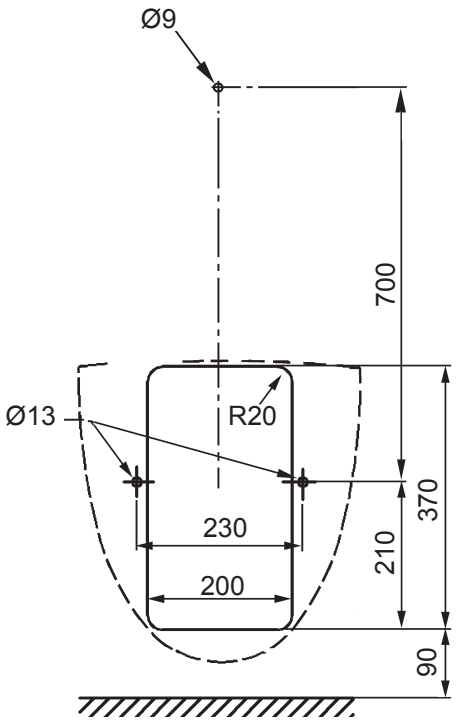
! NOTE:
The overflow point is inside the toilet bowl

* The vacuum breaker air inlet must be located at minimum of 150 mm (6") above overflow point of the toilet.

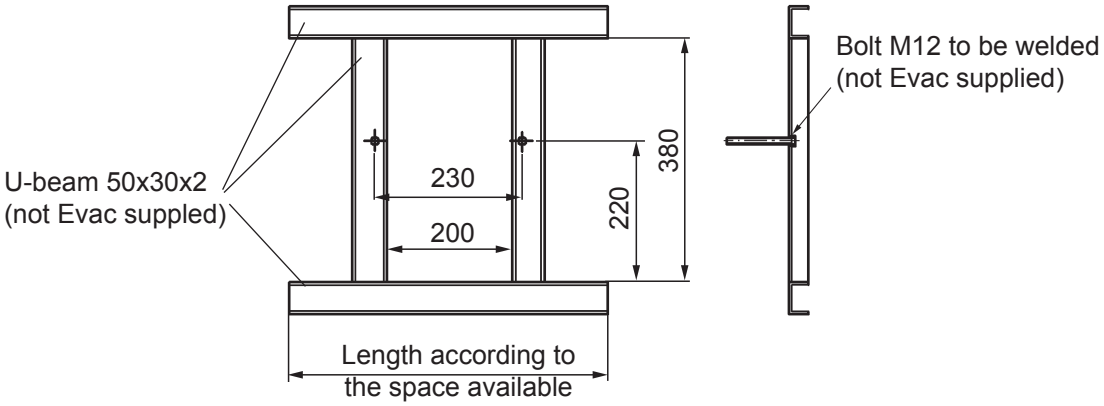
VACUUM TOILET

6545818 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT WITH AUTOFLUSH UNIT

Dimensions to the toilet service opening and the holes of the autoflush unit



Toilet supporting beams for wall models



Installation kit

6540972 INSTALLATION KIT

Plastic nut, M12	2 pcs
Guiding nut	2 pcs
Edge strip	1 pc
Mounting instruction	1 pc
Straight connection hose	1 pc
Hose clamp	2 pcs

VACUUM TOILET

6545818 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT WITH AUTOFLUSH UNIT

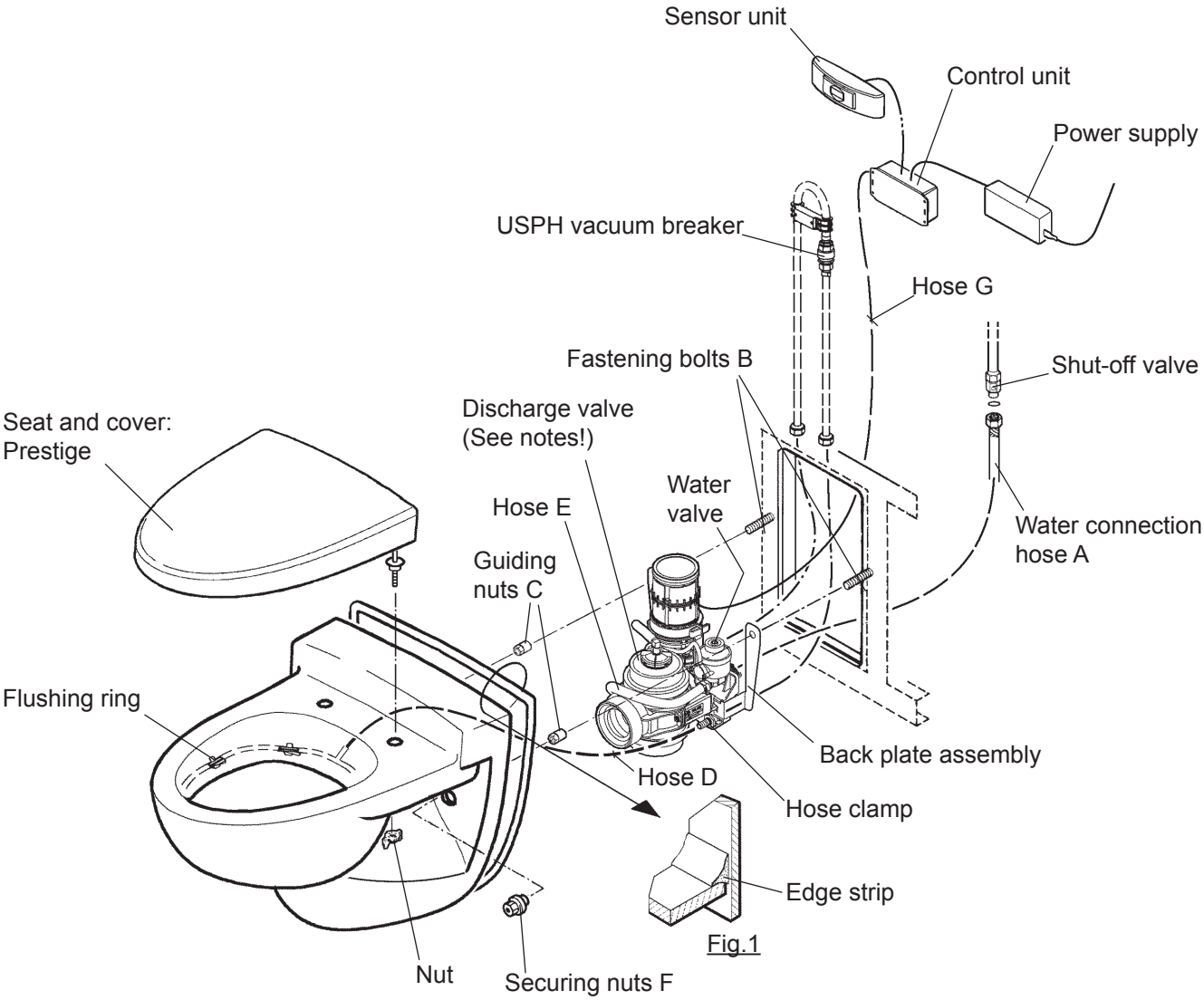


Fig.1

- Connect the water connection hose (A) to the water valve.
- Install the backplate assembly on the wall using the bowl fastening bolts (B) (M12, not included) and the guiding nuts (C) (M12). The guiding nuts are necessary.
- Connect the hose (D) from the flushing ring to the connecting nipple on the backplate.

! NOTE: Do not use any kind of grease during installation.

! NOTE: Install the hose (D) to the right side of the discharge valve and below the hose (E).

- Secure with the hose clamp. Tighten the hose clamp with the pliers.
- Lift the bowl onto the fastening bolts and tighten the securing nuts (F). Tightening torque is 15-20 Nm.

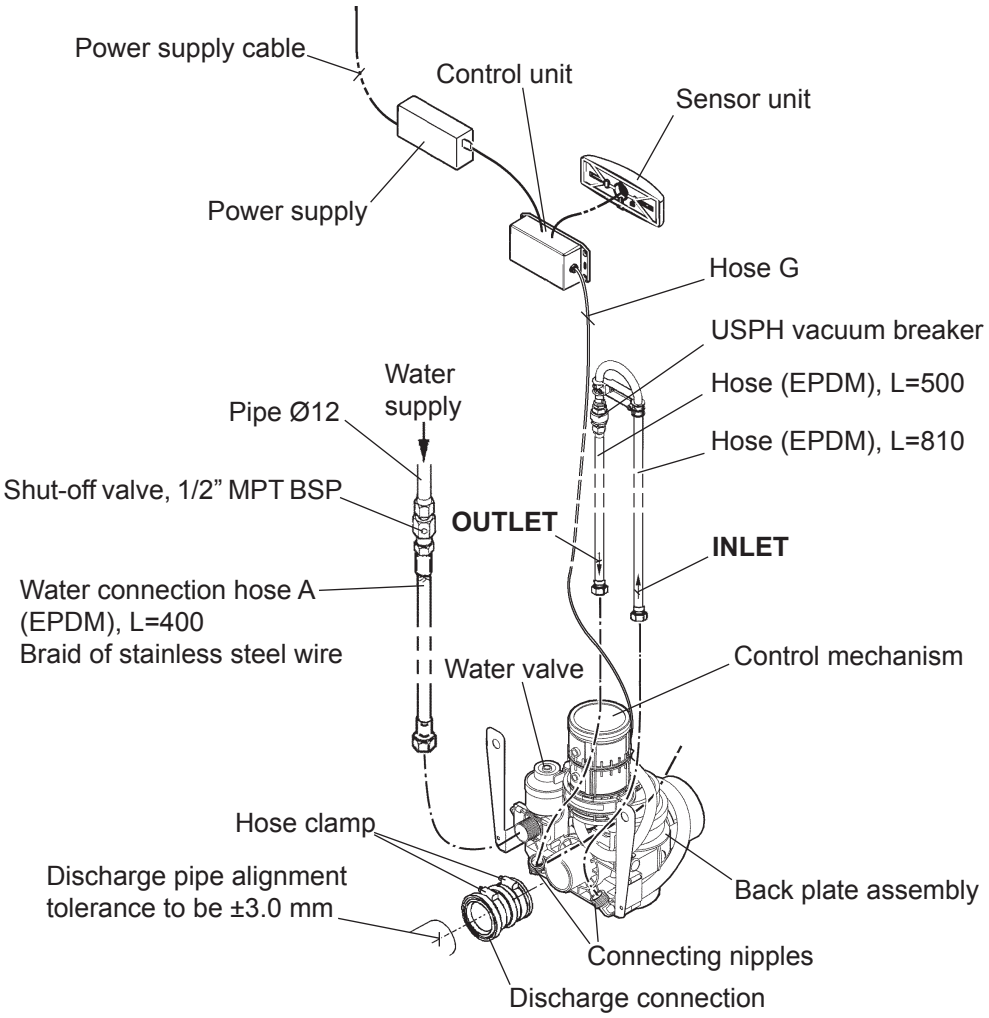
! NOTE: Check through the toilet service opening in the wall that the hoses run smoothly. The hoses shall not have any kinks.

- Fit the edge strip as shown in the figure 1. Put the joint of the edge strip to the bottom side of the bowl.

- Install seat and cover.

VACUUM TOILET

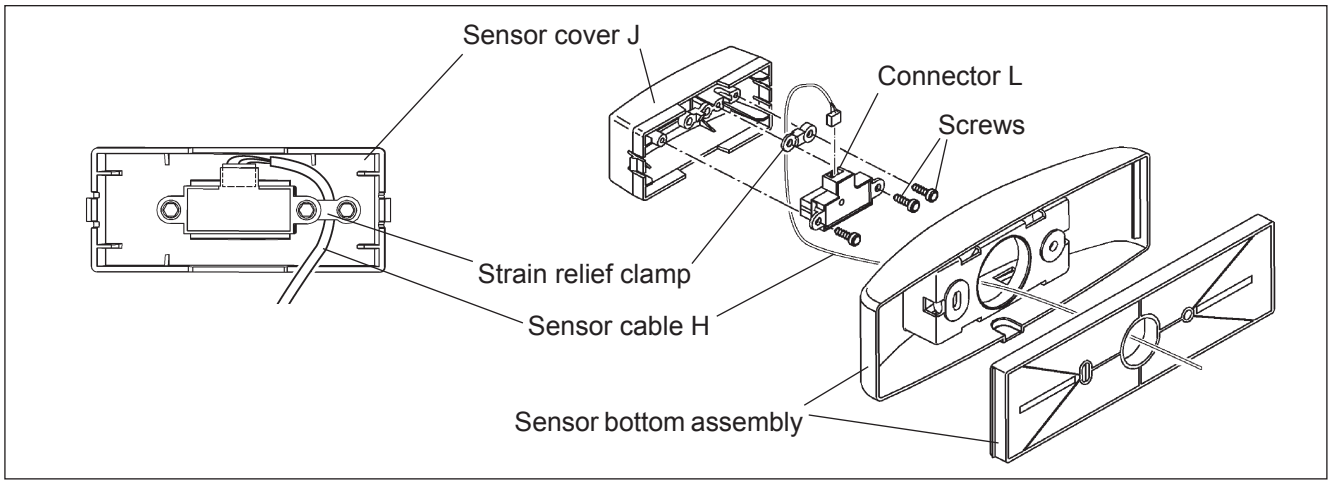
6545818 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT WITH AUTOFLUSH UNIT

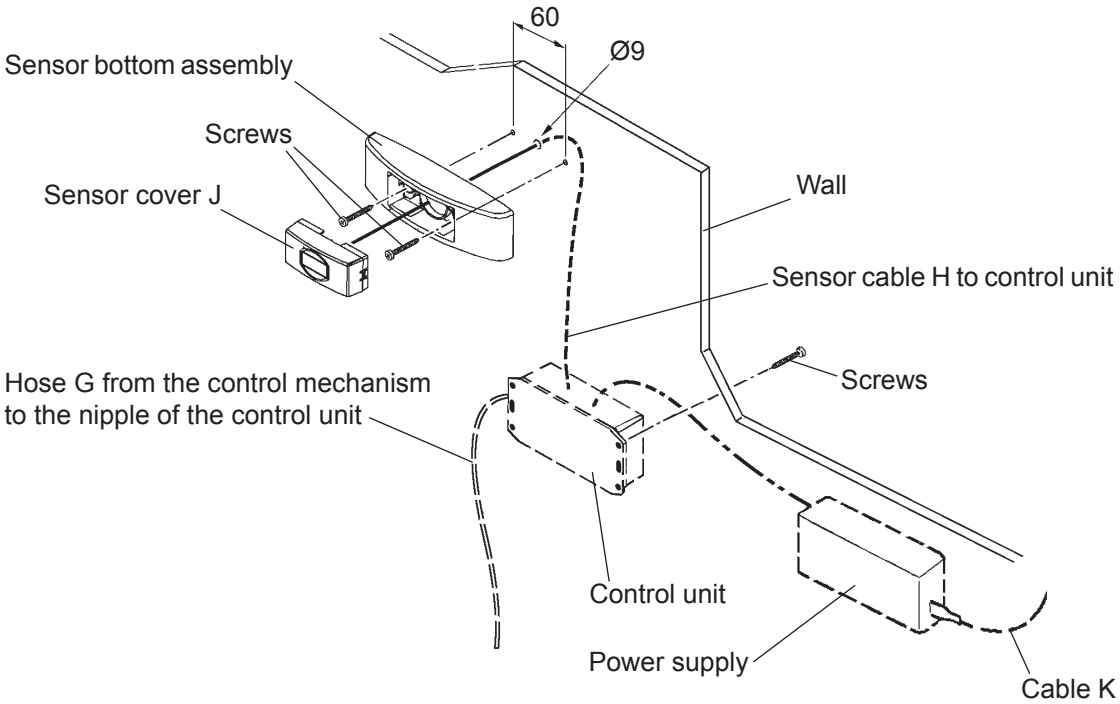


- Connect the USPH vacuum breaker to the connecting nipples of the back plate.
- Install the USPH vacuum breaker on to the wall. (See the drawing from the water supply and see the dimensions in the document 002215-4.
- Connect the discharge connection. Secure with the hose clamps.
- Connect the shut-off valve to the water supply. The shut-off must be installed to the water supply piping´s side to ensure the correct flow direction in the USPH vacuum breaker. Note that the USPH vacuum breaker must be installed vertically as shown.
- Connect the water connection hose (A) to the shut-off valve.
- Install the control unit and the sensor of the autoflush unit on to the wall. (See dimensions in the document 002215-4).
- Install the autoflush unit and the sensor on the wall.
- Connect the hose G from the control mechanism to the autoflush unit.
- Connect the power supply (220 - 240 V AC 50 Hz) to the autoflush unit.

VACUUM TOILET

6545818 EVAC 910, WALL MODEL USPH, PRESTIGE SILENT WITH AUTOFLUSH UNIT





- Loosen the sensor cover (J) from the sensor bottom assembly.
- Loosen the sensor cable (H) from the connector (L).
- Install the sensor bottom assembly with the screws on to the wall.
- Thread the cable (H) through the hole of the sensor bottom and the wall.
- Connect the sensor cable (H) to the connector (L).
- Put the sensor cable (H) under the strain relief clamp and tighten with the screws.
- Snap on the cover (J).
- Install the control unit and the power suppy (optional places, note the lenghts (1m) of the hose (G) and the cable (H)) with the screws (not included) on to the wall.
- Install the hose (G) from the control mechanism (see the previous page) to the nipple of the control unit. Warm the end of the hose if needed to help installation.

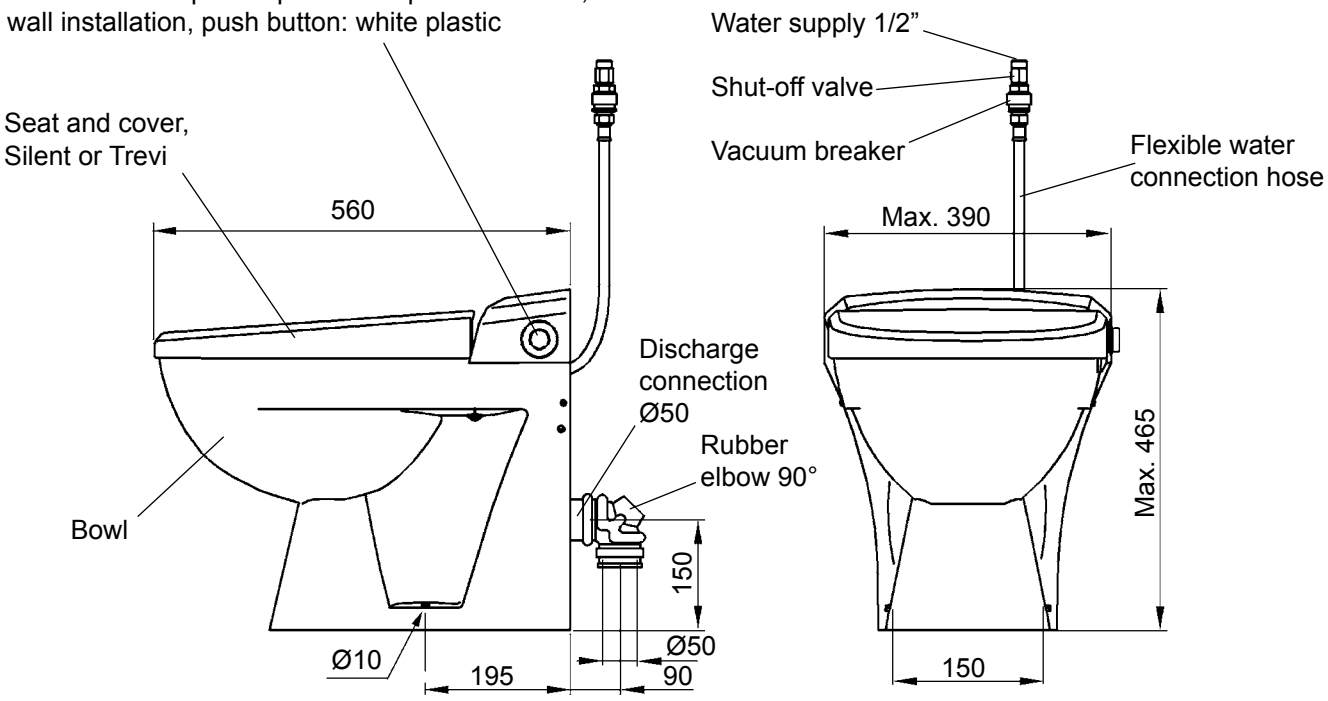
! NOTE: Ensure the hose (G) is not flattened during installation. The air impulse must be always free flowing.

- Connect the cable (K) to the power supply.

VACUUM TOILET

6545825 EVAC 910, FLOOR MODEL, SILENT (EVACINHUSH), WHITE
6545826 EVAC 910, FLOOR MODEL, TREVI, WHITE

P/N 6544996 Pneumatic push button
P/N 6541057 Optional pneumatic push button kit, wall installation, push button: white plastic



Materials

Bowl: White vitreous china
Seat; Silent: PP, Trevi: PP
Cover; Silent: PP, Trevi: PP
Pneumatic push button: Plastic
Discharge valve: Plastic parts: PP, rubber parts: NR

Operating data

Water pressure: 3 ...10 bar
Operating vacuum: -0.3 ... -0.6 bar
Water consumption: ~1.2 ±0.15 litres/flush (water pressure: 4 bar, vacuum: -0.4 bar)
Air consumption: ~ 60 ±10 litres/flush (normal atmospheric air)

Connections

Water supply: 1/2” MPT, flexible hose
Discharge: Rubber elbow 90°, two hose clamps are included in the rubber elbow 90° to O.D. 48 - 52 mm pipe.

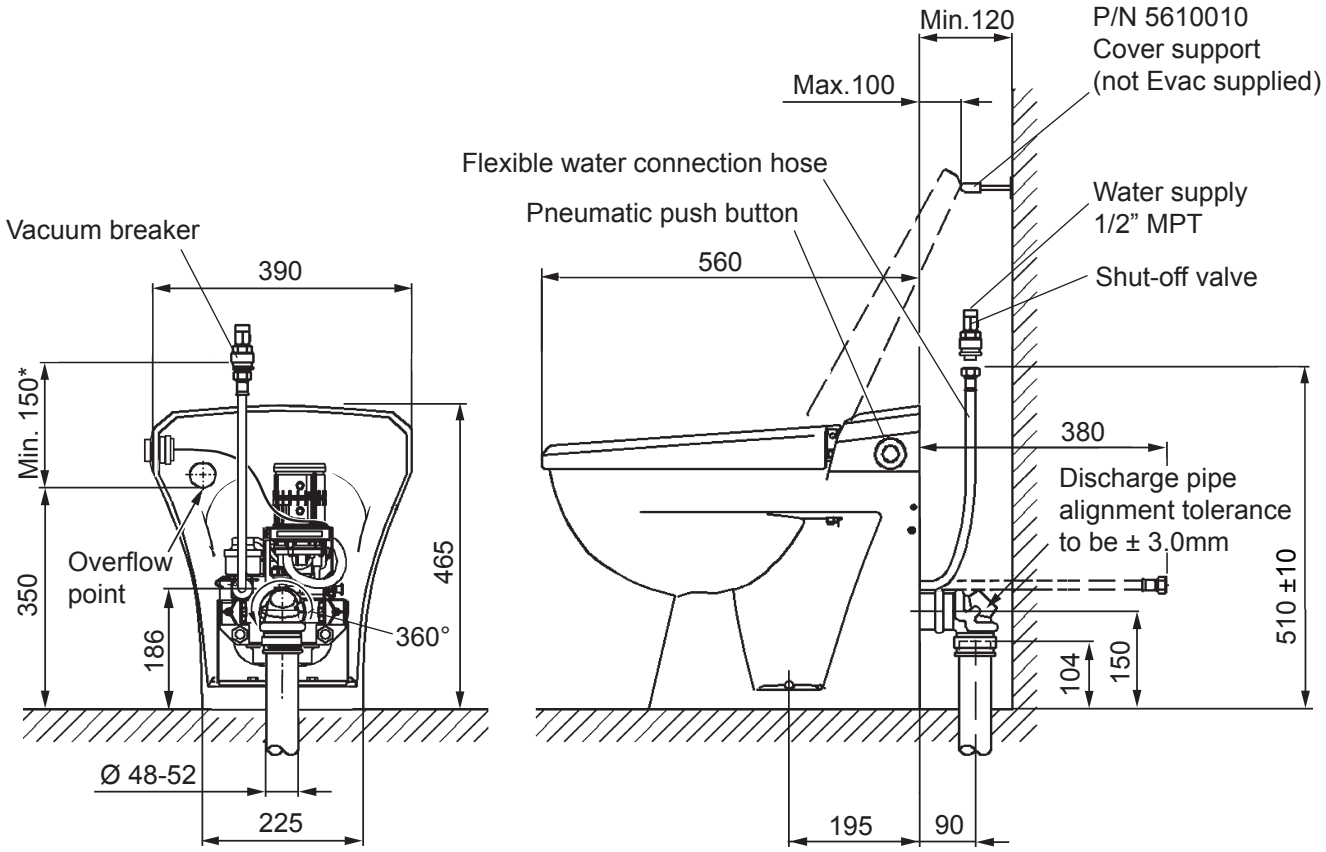
Shipping data

P/N 6545825 EVAC 910, floor model, Silent:
Net weight: 22.6 ±0.5 kg
Shipping weight: 24.6 ±0.5 kg
Shipping volume: 0.168 m³

P/N 6545826 EVAC 910, floor model, Trevi:
Net weight: 20.7 ±0.5 kg
Shipping weight: 19.4 ±0.5 kg
Shipping volume: 0.168 m³

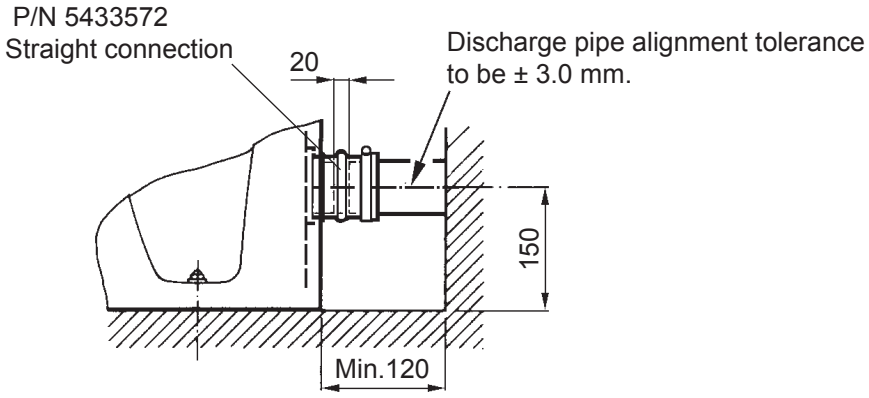
VACUUM TOILET

6545825 EVAC 910, FLOOR MODEL, SILENT (EVACINHUSH)
6545826 EVAC 910, FLOOR MODEL, TREVI



* The vacuum breaker air inlet must be installed min.150 mm (6") above the overflow point of the toilet.

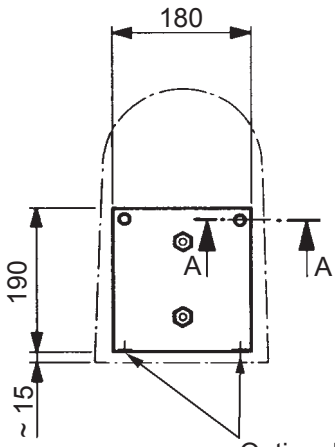
Optional discharge connection

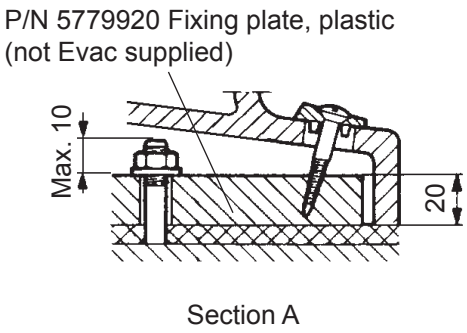


VACUUM TOILET

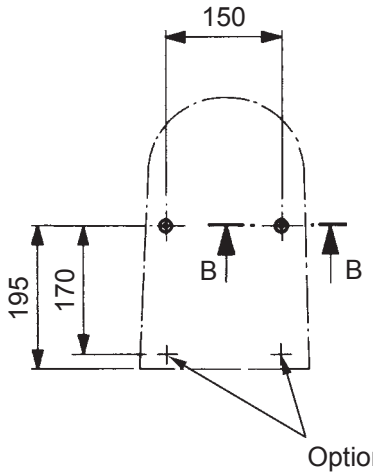
6545825 EVAC 910, FLOOR MODEL, SILENT (EVACINHUSH)
6545826 EVAC 910, FLOOR MODEL, TREVI

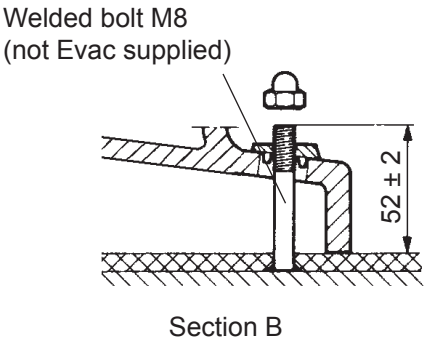
Fixing to the floor with a fixing plate and wood screws





Fixing to the floor with welded bolts





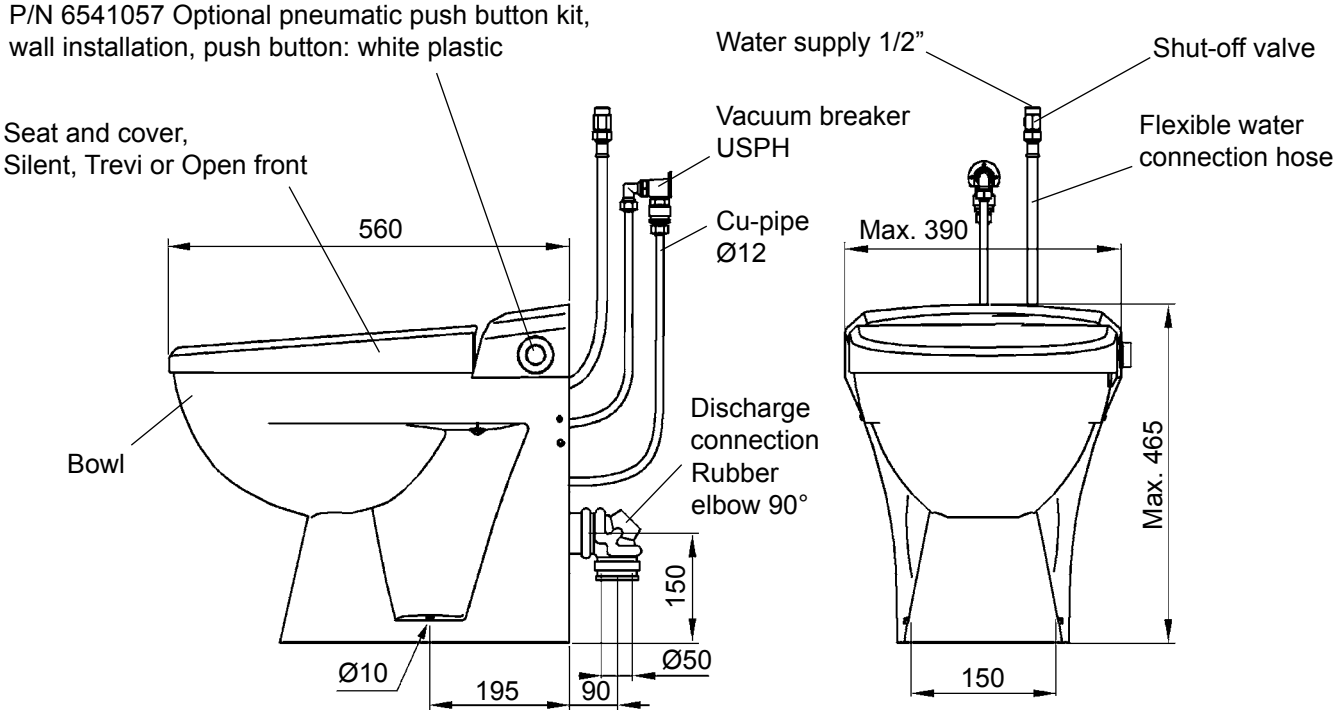
Installation kit P/N 5824900 consists of:

Wood screw 5x45	2 pcs
Rubber elbow	1 pc
Hose clamp	2 pcs
Plastic washer	2 pcs
Nut M8	2 pcs
Mounting instruction	1 pc

VACUUM TOILET

6545827 EVAC 910, FLOOR MODEL USPH, SILENT (EVACINHUSH), WHITE
6545828 EVAC 910, FLOOR MODEL USPH, TREVI, WHITE
6545829 EVAC 910, FLOOR MODEL USPH, OPEN FRONT, WHITE

P/N 6544996 Pneumatic push button
P/N 6541057 Optional pneumatic push button kit, wall installation, push button: white plastic



Materials

Bowl: White vitreous china
Seat; Silent: PP, Trevi: PP, Open front: UF-S
Cover; Silent: PP, Trevi: PP, Open front: UF-S
Pneumatic push button: Plastic
Discharge valve: Plastic parts: PP, rubber parts: NR

Operating data

Water pressure: 3 ... 10 bar
Operating vacuum: -0.3 ... -0.6 bar
Water consumption: 1.2 ±0.15 litres/flush (water pressure: 4 bar, vacuum: -0.4 bar)
Air consumption: 60 ±10 litres/flush (normal atmospheric air)

Connections

Water supply: 1/2” MPT, flexible hose
Discharge: Rubber elbow 90°, two hose clamps are included in the rubber elbow 90° to O.D. 48-52 mm pipe.

Shipping data

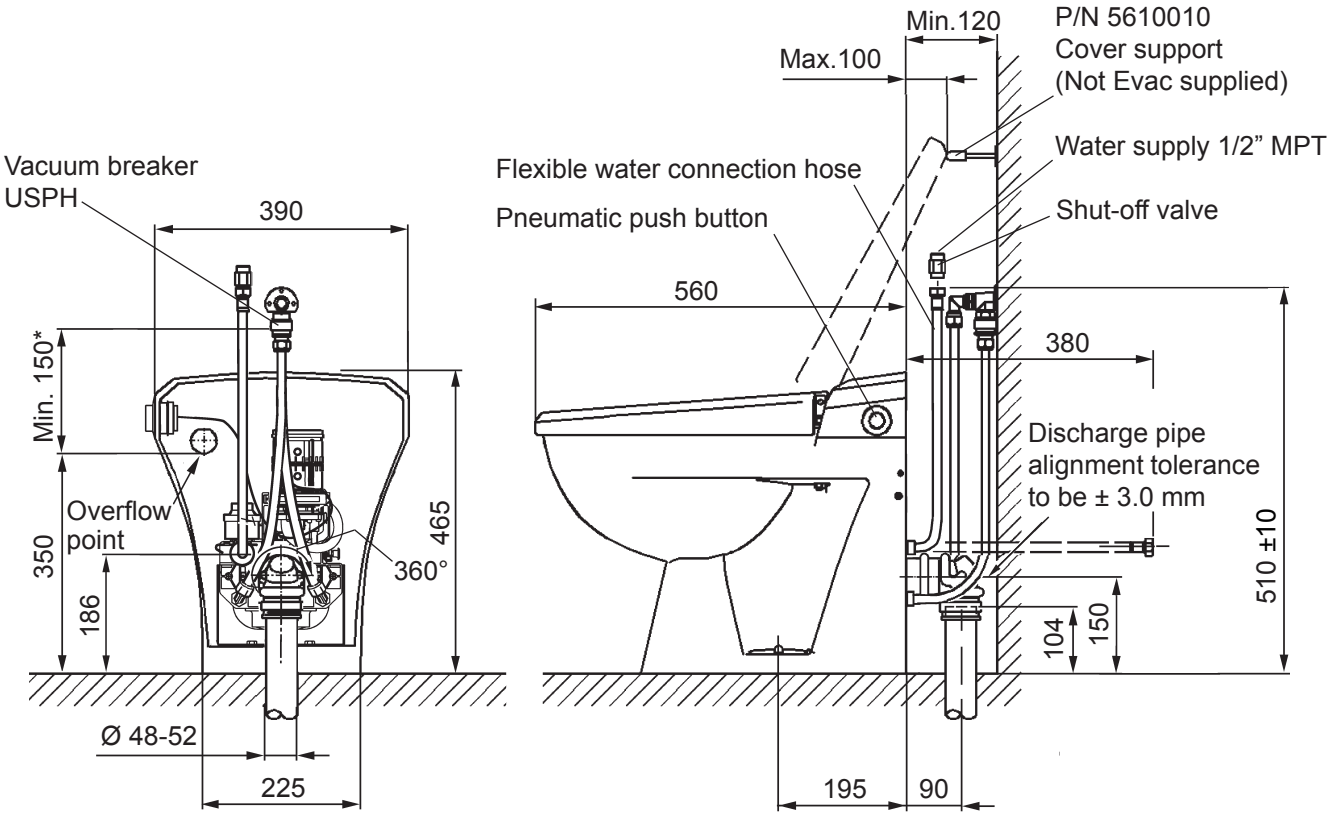
P/N 6545827 EVAC 910, floor model USPH, Silent:
Net weight: 23.6 ±0.5 kg
Shipping weight: 25.6 ±0.5 kg
Shipping volume: 0.168 m³

P/N 6545828 EVAC 910, floor model USPH, Trevi:
Net weight: 21.7 ±0.5 kg
Shipping weight: 23.7 ±0.5 kg
Shipping volume: 0.168 m³

P/N 6545829 EVAC 910, floor model USPH, Open front:
Net weight: 23.6 ±0.5 kg
Shipping weight: 25.6 ±0.5 kg
Shipping volume: 0.168 m³

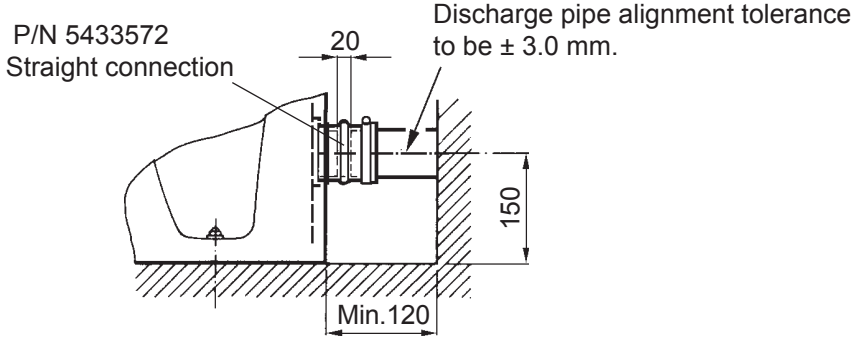
VACUUM TOILET

6545827 EVAC 910, FLOOR MODEL USPH, SILENT (EVACINHUSH)
6545828 EVAC 910, FLOOR MODEL USPH, TREVI
6545829 EVAC 910, FLOOR MODEL USPH, OPEN FRONT



*The vacuum breaker air inlet must be installed min.150 mm (6") above the overflow point of the toilet.

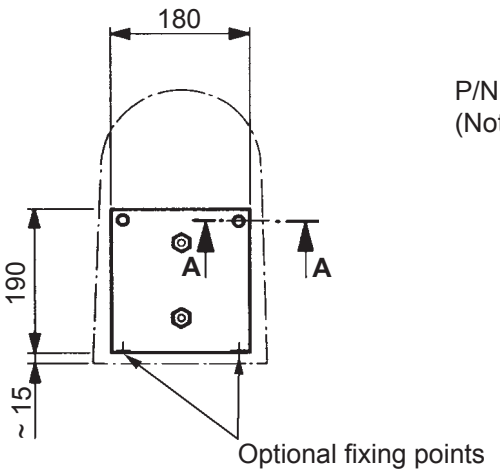
Optional discharge connection

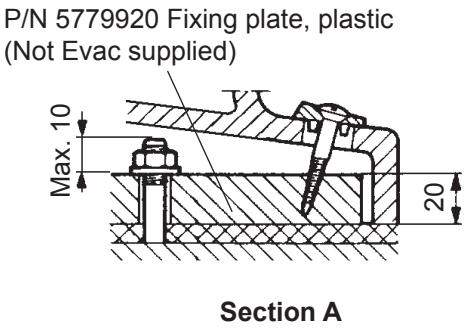


VACUUM TOILET

6545827 EVAC 910, FLOOR MODEL USPH, SILENT (EVACINHUSH)
6545828 EVAC 910, FLOOR MODEL USPH, TREVI
6545829 EVAC 910, FLOOR MODEL USPH, OPEN FRONT

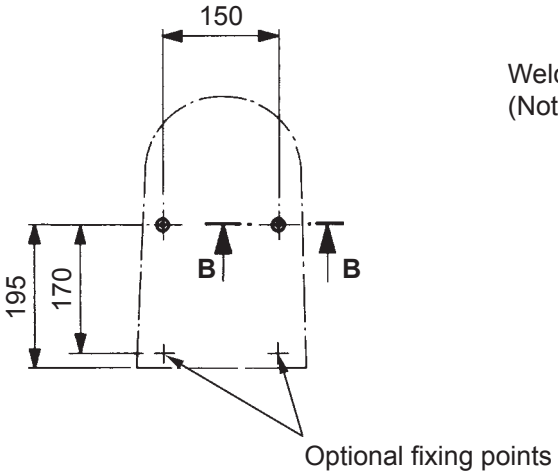
Fixing to the floor with a fixing plate and wood screws

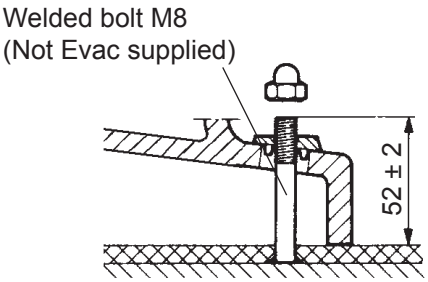




Section A

Fixing to the floor with welded bolts





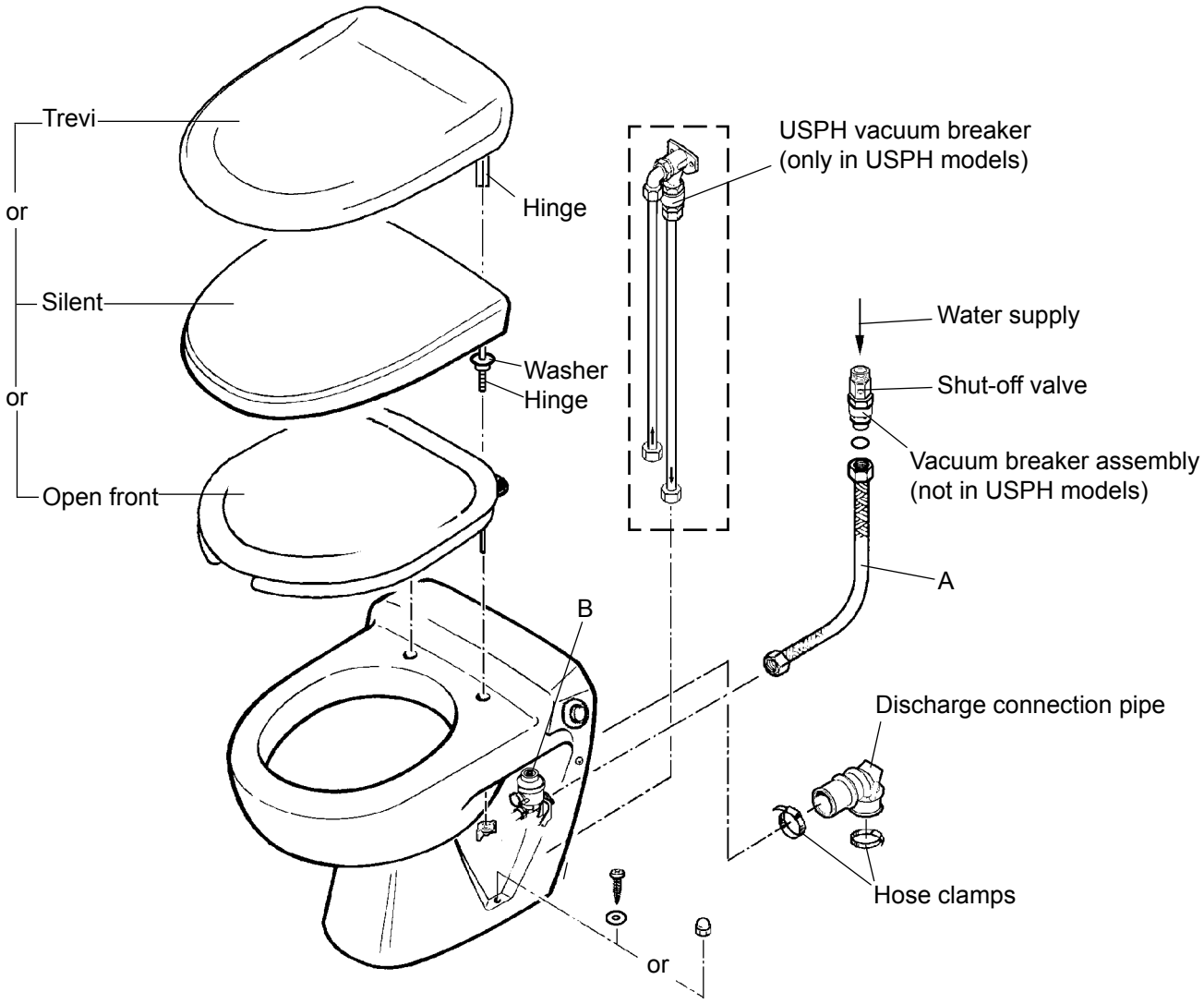
Section B

Installation kit P/N 5824900 consists of:

Wood screw 5x45	2 pcs
Rubber elbow	1 pc
Hose clamp	2 pcs
Plastic washer	2 pcs
Nut M8	2 pcs
Mounting instruction	1 pc

VACUUM TOILET

6545825 EVAC 910, FLOOR MODEL, SILENT (EVACINHUSH)
6545826 EVAC 910, FLOOR MODEL, TREVI
6545827 EVAC 910, FLOOR MODEL USPH, SILENT (EVACINHUSH)
6545828 EVAC 910, FLOOR MODEL USPH, TREVI
6545829 EVAC 910, FLOOR MODEL USPH, OPEN FRONT

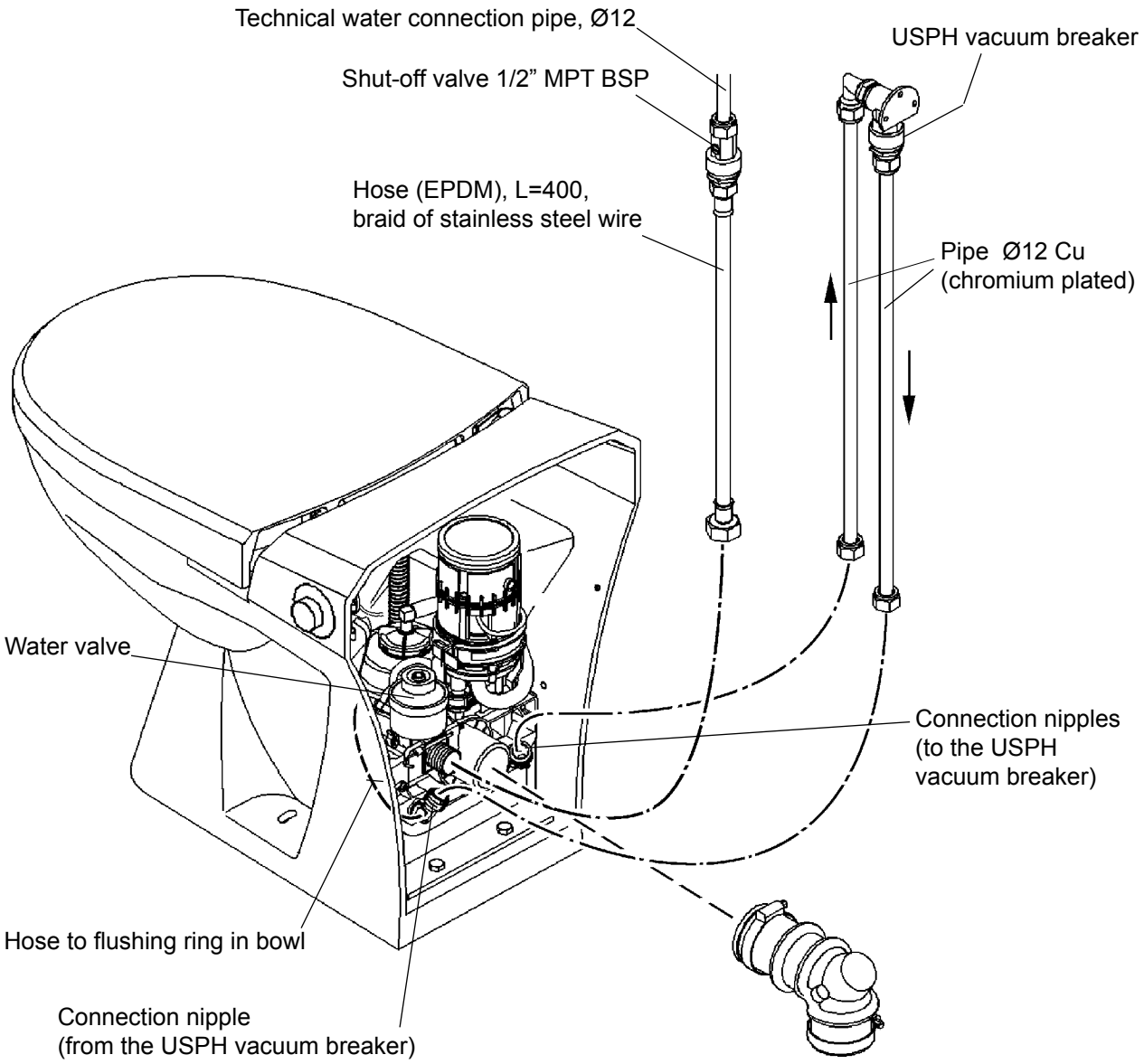


- Connect the water connection hose (A) to the water valve (B).
- Connect the pipes from the USPH vacuum breaker to the connecting nipples of the backplate. Note the correct flow direction (see water supply in the USPH models in the next page).
- If you have an optional wall push button follow the installation instructions in the document 002002-3.
- Lift the toilet bowl into place, fix to the floor using the screws/nuts and the washers. Use silicone compound to seal joint between the bowl and the floor.
- Connect the discharge connection. Secure with hose clamps.
- Fix the USPH vacuum breaker on the wall (only in the USPH models).
- Connect the shut-off valve/vacuum breaker assembly (the vacuum breaker assembly is not included in the USPH models) to the water supply. The shut-off valve must be installed to the water supply piping's side to ensure the correct flow direction in the vacuum breaker. Note that the vacuum breaker must be installed vertically as shown.
- Connect the water connection hose (A) to the shut-off valve/vacuum breaker.
- Install the seat and the cover.

VACUUM TOILET

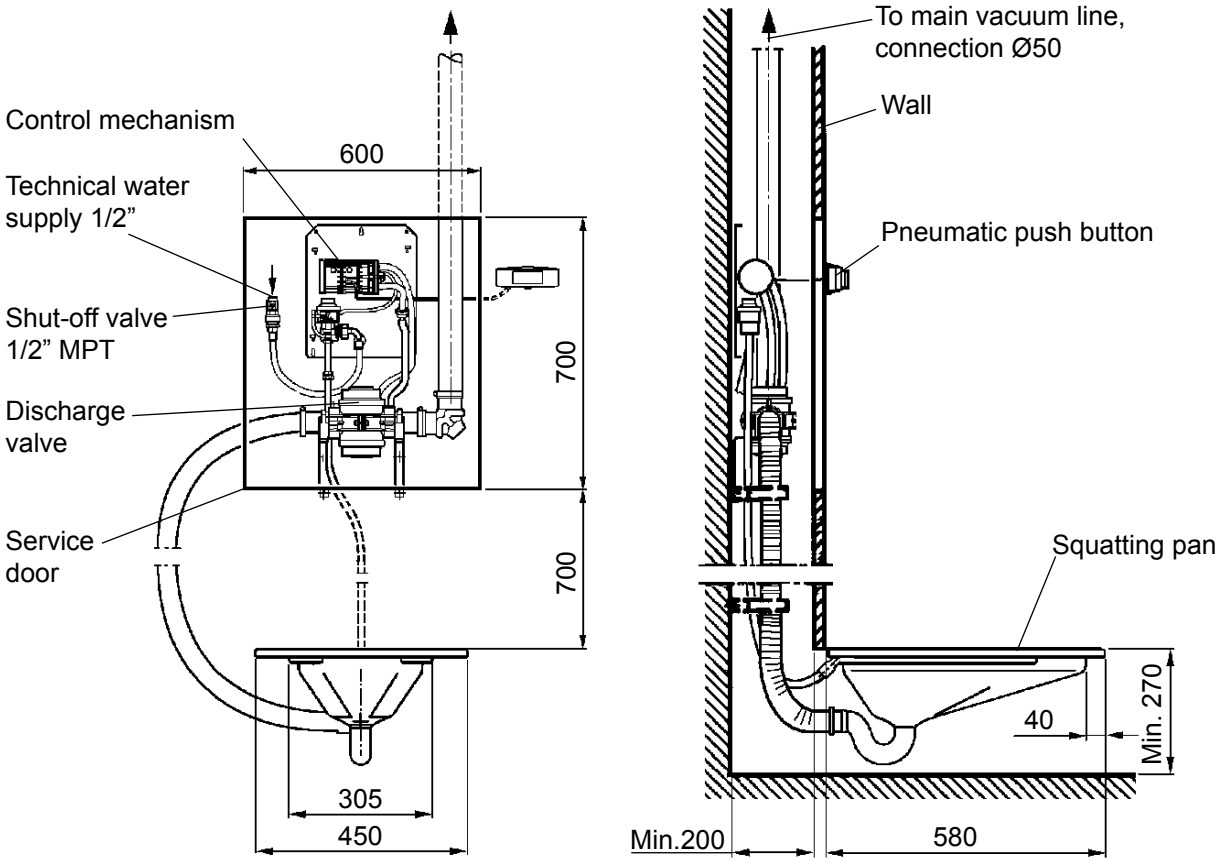
6545825 EVAC 910, FLOOR MODEL, SILENT (EVACINHUSH)
6545826 EVAC 910, FLOOR MODEL, TREVI
6545827 EVAC 910, FLOOR MODEL USPH, SILENT (EVACINHUSH)
6545828 EVAC 910, FLOOR MODEL USPH, TREVI
6545829 EVAC 910, FLOOR MODEL USPH, OPEN FRONT

Water supply in the USPH models



VACUUM TOILET

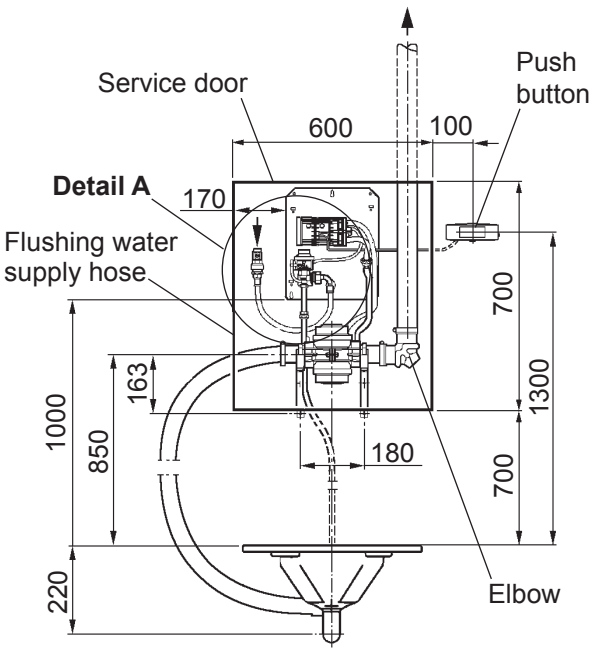
6550029 EVAC 910, SQUATTING TOILET

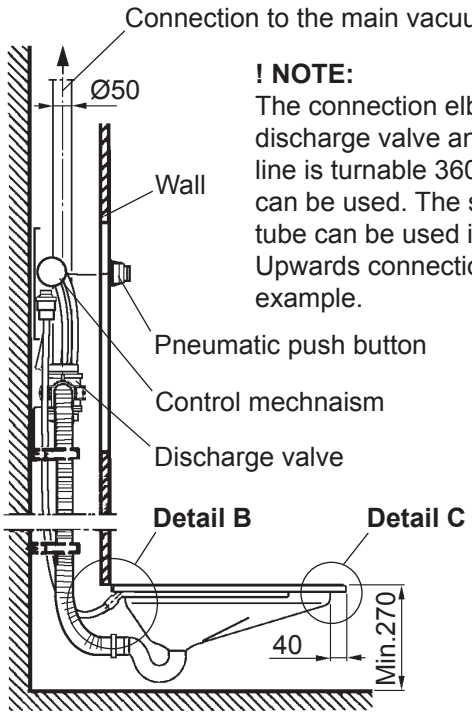


Materials	Squatting pan: Stainless steel EN 1.4301 Pneumatic push button: white plastic, ABS
Operating data	Water pressure: 3 ... 10 bar Operating vacuum: -0.3 ... -0.6 bar Water consumption: 1.5 - 2.5 litres/flush, adjustable Air consumption: 60 ±10 litres/flush (normal atmospheric air)
Connections	Water supply: 1/2” MPT Discharge: Straight rubber coupling connection or 90° rubber elbow to pipe size 48...52 O.D.
Shipping data	Net weight: 9 kg Shipping weight: 12 kg Shipping volume: 0.2 m³

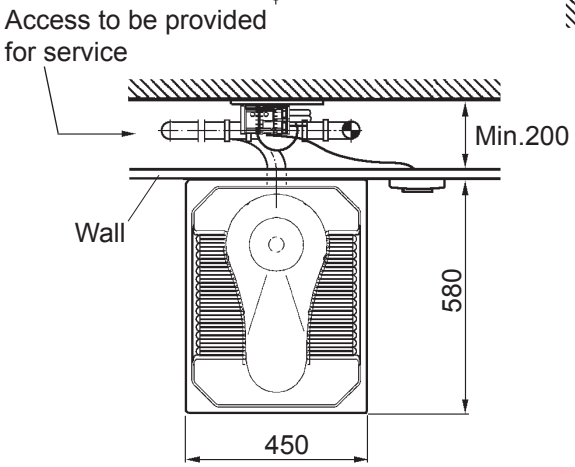
VACUUM TOILET

6550029 EVAC 910, SQUATTING TOILET

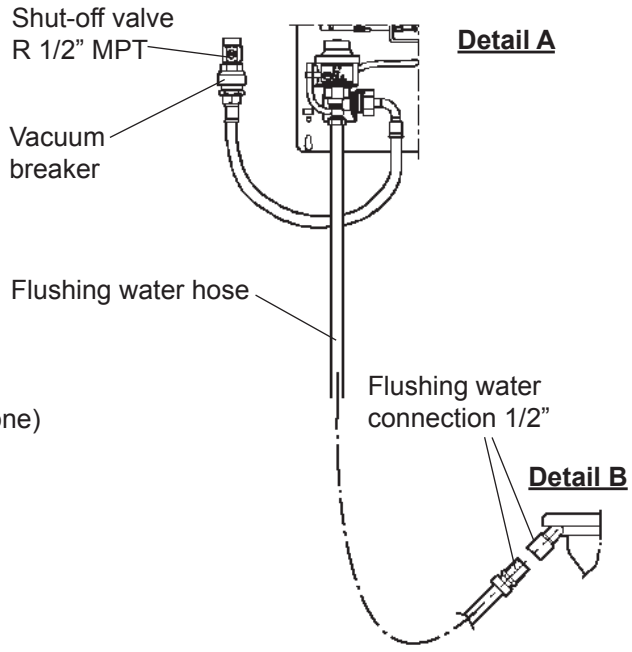




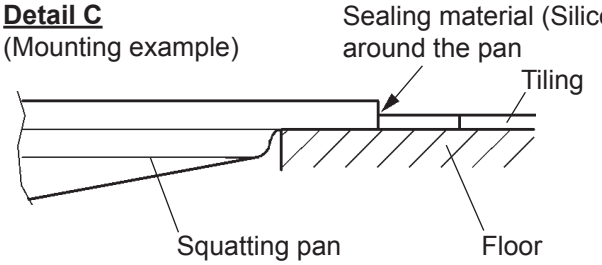
! NOTE:
The connection elbow between the discharge valve and the main vacuum line is turnable 360°. Different positions can be used. The straight connection tube can be used instead of the elbow. Upwards connection shown only as an example.



Water connection
(Mounting example)

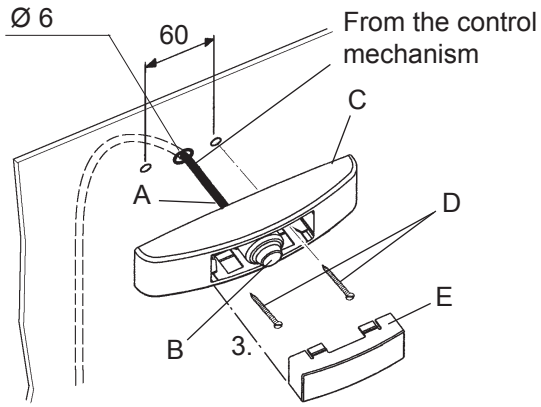


Detail C
(Mounting example)



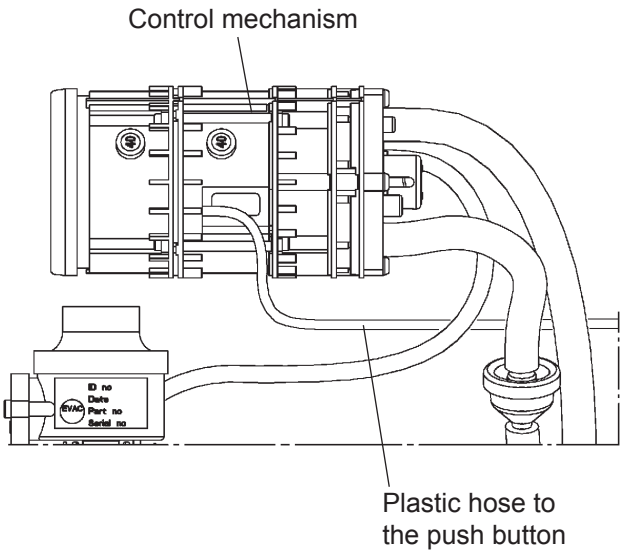
VACUUM TOILET

6550029 EVAC 910, SQUATTING TOILET



1. Drill Ø6 mm hole for the hose (A).
2. Connect the plastic hose (A) from the control mechanism to the bellows (B). Warm the end of the hose if needed to help installation.
3. Install the body (C) of the push button onto the wall using the screws (D) (not Evac supplied).
4. Snap the cover (E) of the push button bellows into place.

! NOTE: Ensure, that the hose (A) is not flattened after installation. Air pulse must always be free flowing.

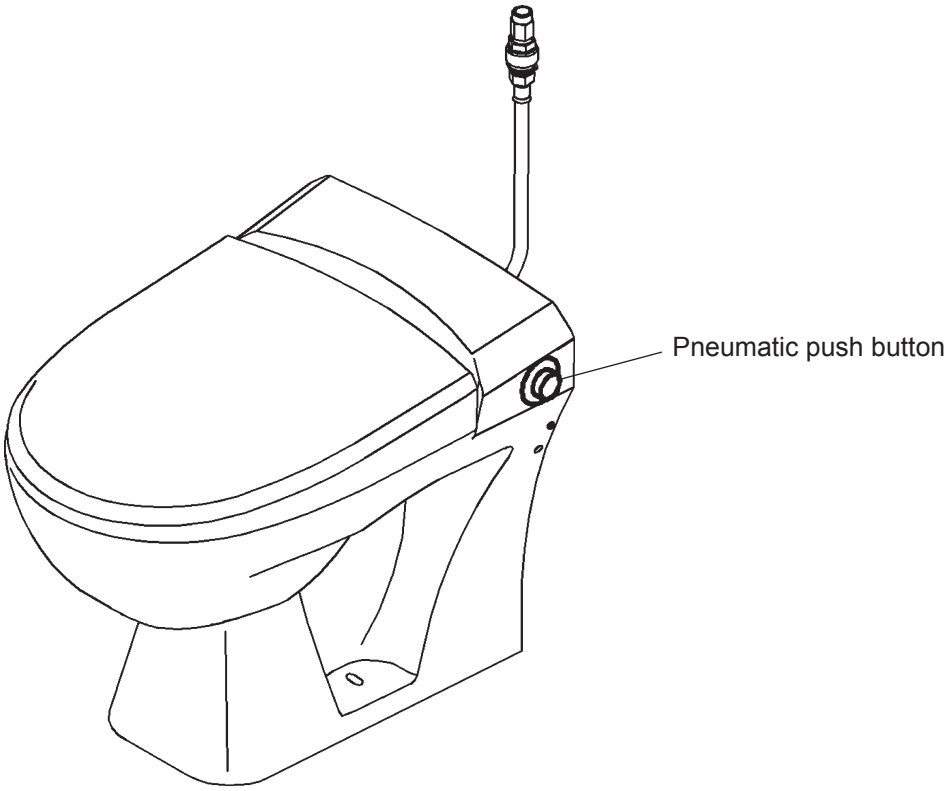


Control mechanism

Make sure that the plastic hose does not detach from the control mechanism.

VACUUM TOILET

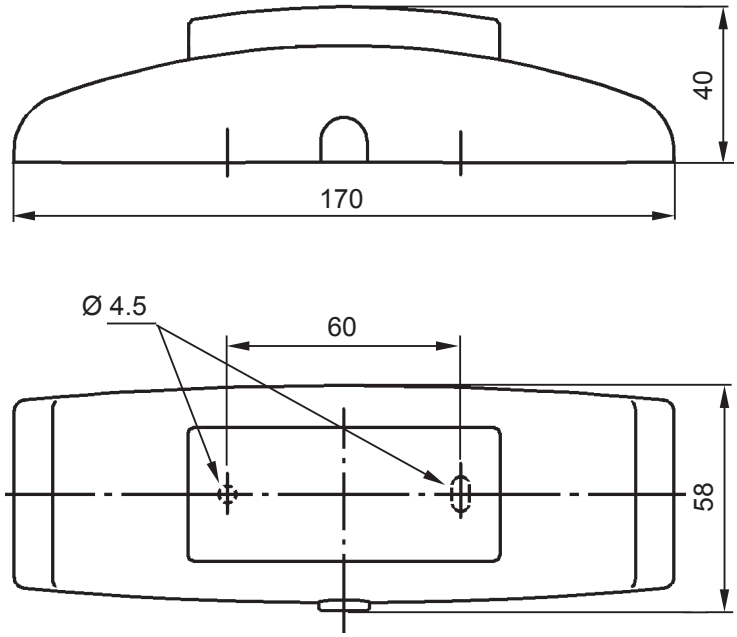
6544996 PNEUMATIC PUSH BUTTON



Materials	Push button: Plastic
Connections	Hose nipple Ø4/Ø2
Shipping data	Net weight: 0.05 kg

VACUUM TOILET

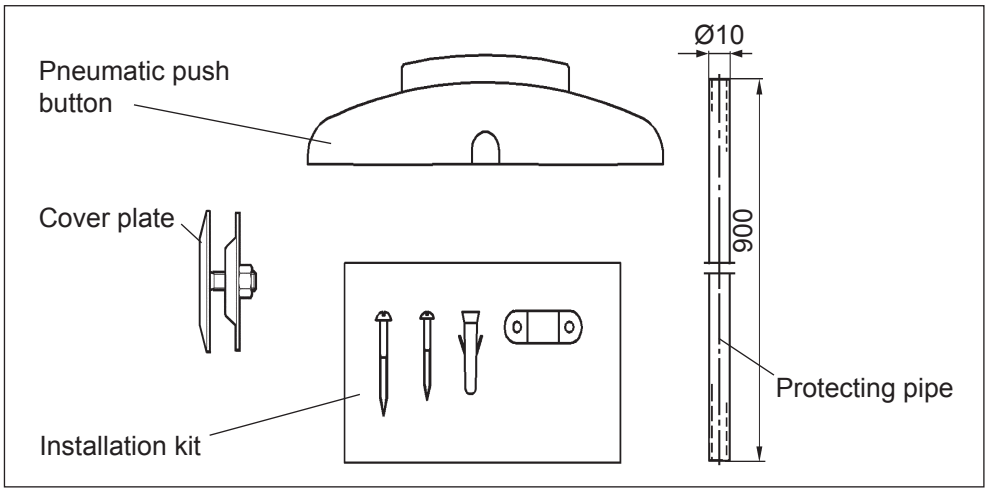
6541458 PNEUMATIC PUSH BUTTON, WHITE



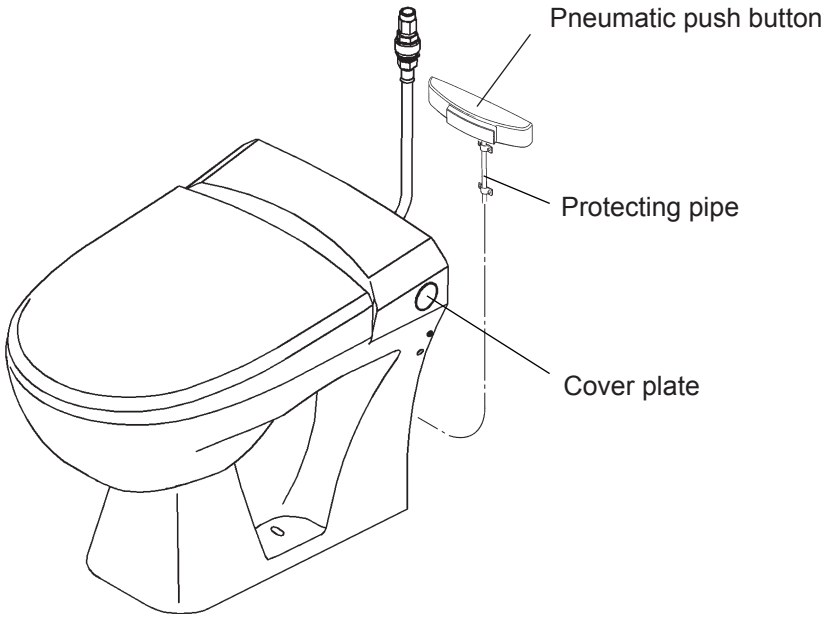
Materials	Cover: ABS, white Button: PBT, white Bottom plate: POM, natural
Connections	Hose nipple Ø4
Shipping data	Net weight: 0.2 kg

VACUUM TOILET

6541057 OPTIONAL PNEUMATIC PUSH BUTTON KIT

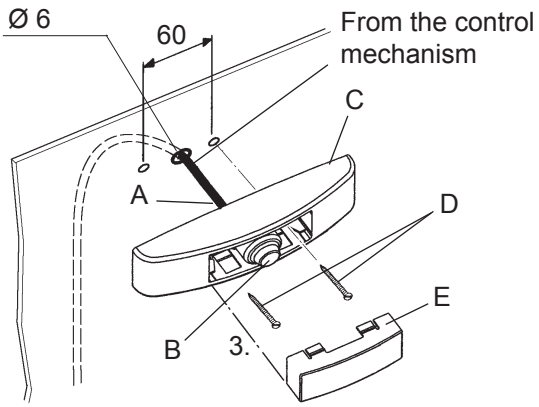


Materials	Pneumatic push button, cover and button: White plastic Cover plate: Nickel-plated brass Protecting pipe: White color PVC
Connections	Hose nipple Ø4/Ø2
Shipping data	Net weight: 0.2 kg



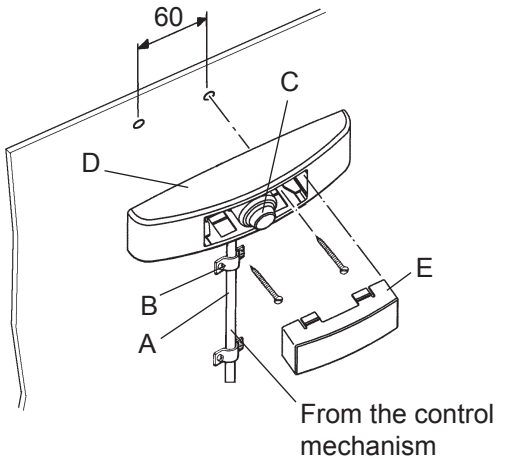
VACUUM TOILET

6541458 PNEUMATIC PUSH BUTTON, EVAC 910, WALL MODELS
6541057 OPTIONAL PNEUMATIC PUSH BUTTON KIT, EVAC 910, FLOOR MODELS



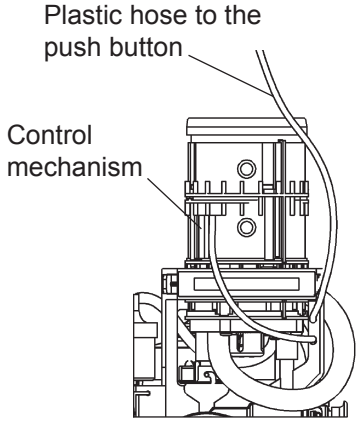
1. Drill Ø6 mm hole for the hose (A).
2. Connect the plastic hose (A) from the control mechanism to the bellows (B). Warm the end of the hose if needed to help installation.
3. Install the body (C) of push button on the wall using screws (D) (not included).
4. Snap the cover (E) of the push button its place.

! NOTE: Note, that the hose (A) is not flattened after installation. Air impulse must always be free flowing.



Installing the push button on the wall, floor models with the optional push button kit.
(Hose and protecting pipe on the surface of the wall)

1. Thread the hose from the control mechanism through the protection pipe (A).
2. Install the protection pipe (A) on the wall using screws and clamps (B).
3. Cut off the film of the bushing for the plastic hose in the bottom side of the push button cover.
4. Connect plastic hose from the control mechanism to the bellows (C). Snap the plastic hose on the clip behind the bottom plate.
5. Install the push button body (D) to the wall using screws (not included).
6. Snap the cover of the push button (E) into place.

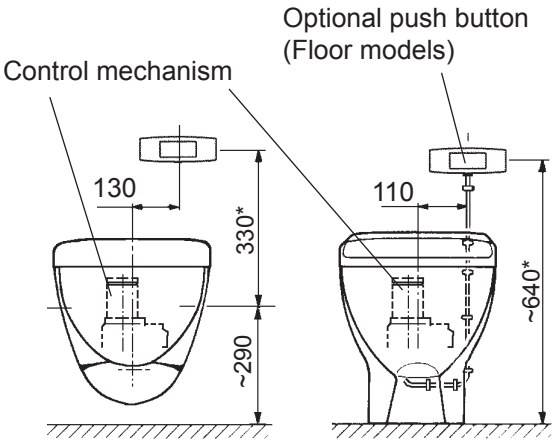


Control mechanism

Make sure, that the plastic hose does not detach from the control mechanism.

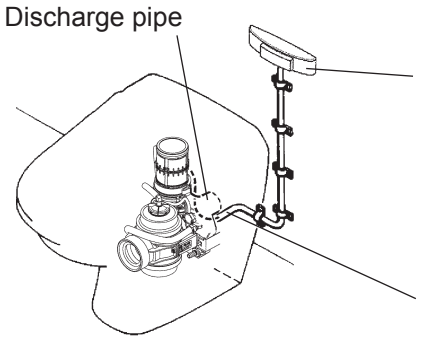
VACUUM TOILET

6541458 PNEUMATIC PUSH BUTTON, EVAC 910, WALL MODELS
6541057 OPTIONAL PNEUMATIC PUSH BUTTON KIT, EVAC 910, FLOOR MODELS



Recommended place for the button

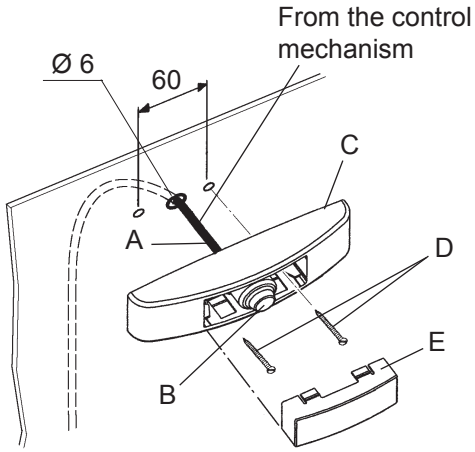
! NOTE: Make sure that the cover does not interfere with the push button when opened. (*In Aniara/Mosaik/Trevi models dimension is 100 mm smaller due to the flexible cover.) If placement is changed, consult Evac.



Floor models

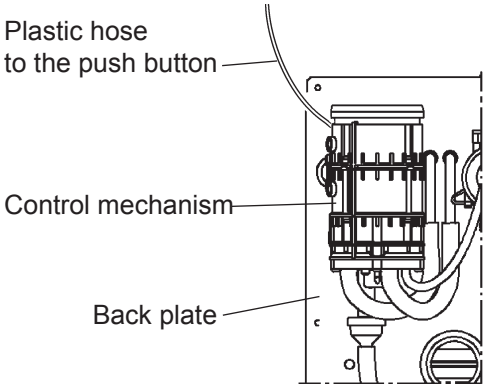
VACUUM TOILET

6541458 PNEUMATIC PUSH BUTTON, EVAC 910, B15, WALL MODELS



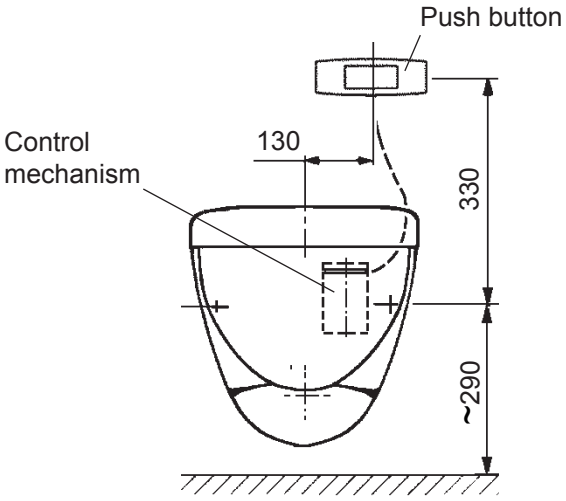
1. Drill Ø6 mm hole for the hose (A).
2. Connect the plastic hose (A) from the control mechanism to the bellow (B). Warm the end of the hose if needed to help installation.
3. Install the body (C) of push button on the wall using screws (D) (not included).
4. Snap the cover (E) of the push button bellow in its place.

! NOTE: Ensure, that the hose (A) is not flattened after installation. Air impulse must always flow free.



Control mechanism

Make sure, that the plastic hose does not get loose from the control mechanism.



Recommended place for the button

! NOTE: Make sure, that cover does not interfere with the push button when opened. If the placement is changed, consult Evac.

Evac Cleantech Solutions. Anywhere.

EVAC VACUUM INTERFACE UNITS









Cleantech Solutions.
Anywhere.

EVAC VACUUM INTERFACE UNITS

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- EVAC BUFFER KITS
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- EVAC SHOWER DRAINS
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Cleantech Solutions.
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EVAC VACUUM INTERFACE UNITS

- **EVAC BUFFER KITS**
- EVAC INTERFACE VALVES
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- EVAC FLOOR DRAINS
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EVAC VACUUM INTERFACE UNITS

- **EVAC BUFFER KITS**
  - **BUFFER BOX**
  - **DIFFERENTIAL VALVE**
  - **COMPONENTS**

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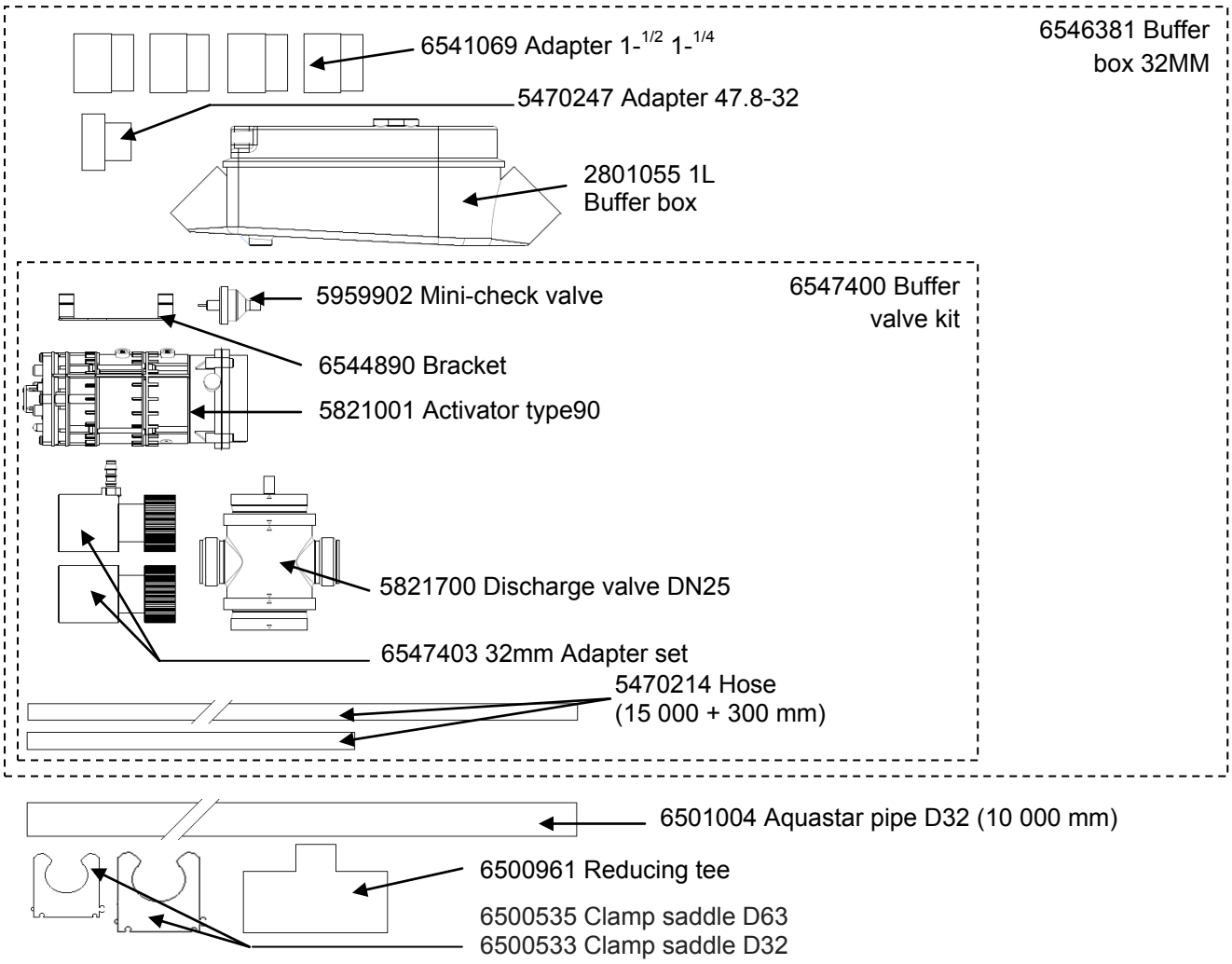
EVAC VACUUM INTERFACE UNITS

- EVAC BUFFER KITS
  - **BUFFER BOX**
  - DIFFERENTIAL VALVE
  - COMPONENTS

VACUUM INTERFACE UNITS

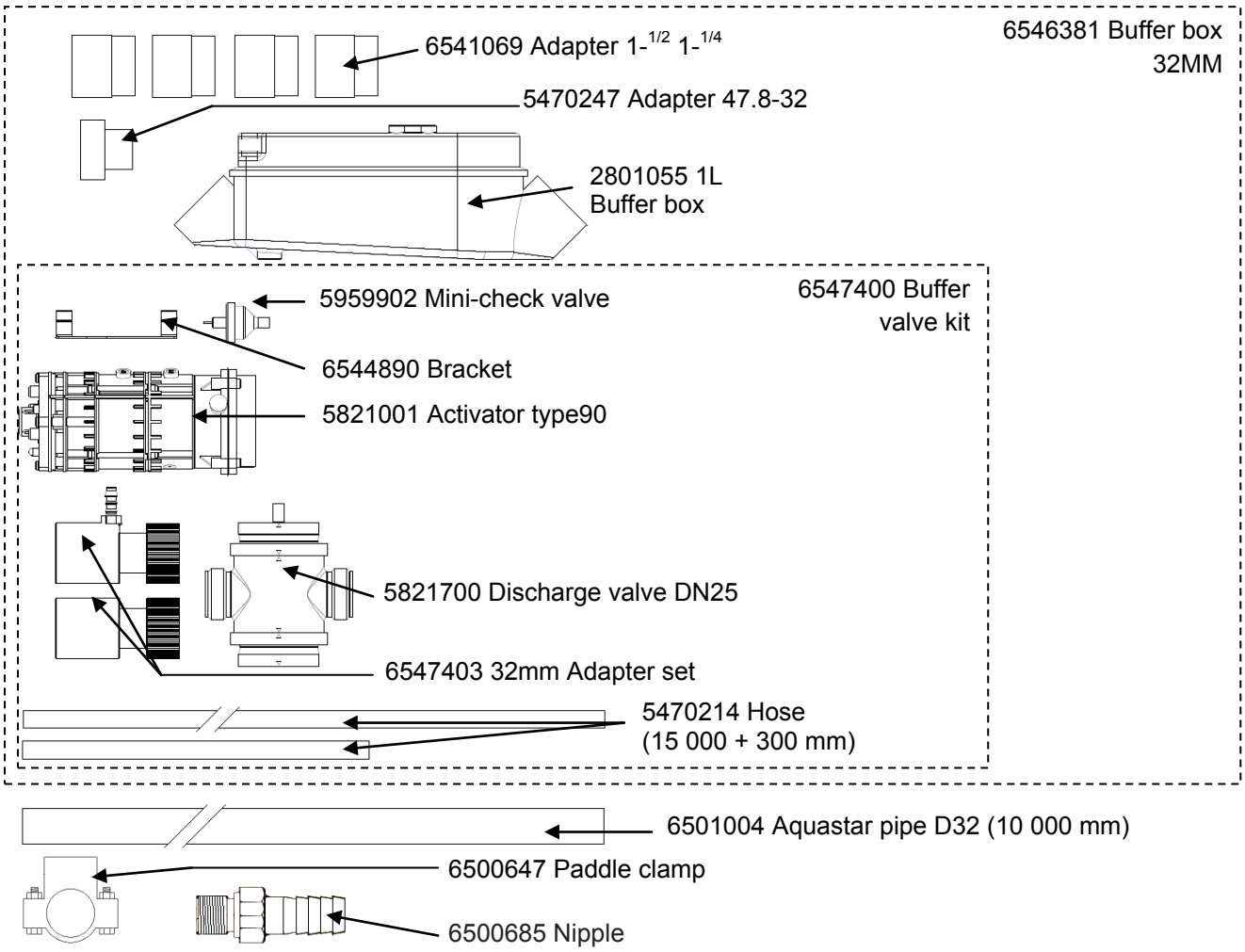
6541619 BUFFER BOX KIT



Material	Box: PVC Discharge valve: Polyacetal Activator: Rigid PVC and Polyacetal Mini-check valve: Acetal Flexible tubing: EPDM hose Ø 14 x 7mm
Operating data	Operating vacuum: -30... -60 kPa Minimum operating vacuum: -25 kPa Maximum discharge height: 6 m Activating volume: 1.5 L
Connections	Outlet / vacuum line and inlet / gravity line: 32 mm PVC
Capacity	-50 kPa : 0.8 L/sec; -30 kPa: 0.5 L/sec
Shipping data	Net weight: 4.75 kg Shipping weight: 5 kg Shipping volume: 0.02 m^3

VACUUM INTERFACE UNITS

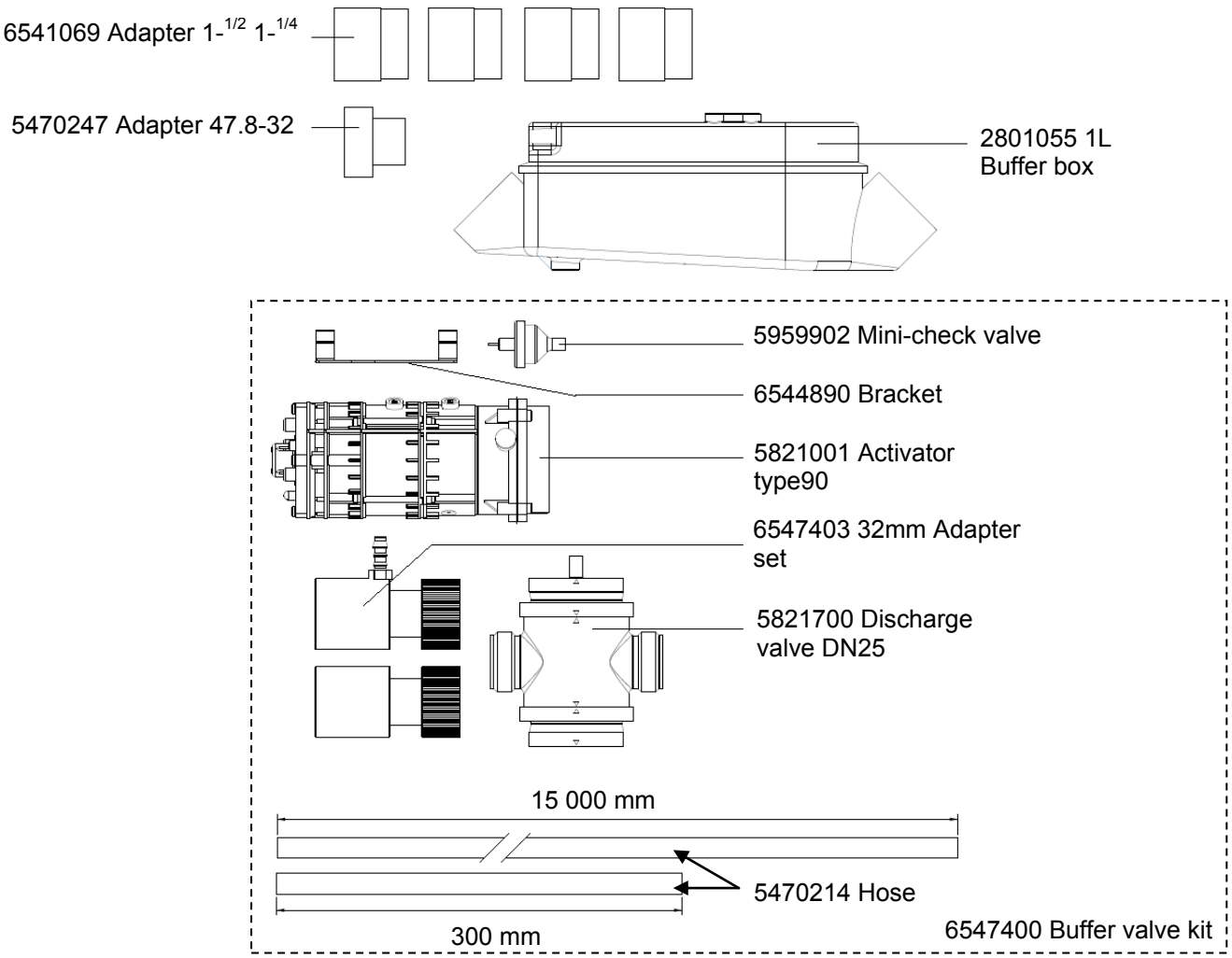
6501327 BUFFER BOX KIT



Material	Box: PVC Discharge valve: Polyacetal Activator: Rigid PVC and Polyacetal Mini-check valve: Acetal Flexible tubing: EPDM hose Ø 14 x 7mm
Operating data	Operating vacuum: -30... -60 kPa Minimum operating vacuum: -25 kPa Maximum discharge height: 6 m Activating volume: 1.5 L
Connections	Outlet / vacuum line and inlet / gravity line: 32 mm PVC
Capacity	-50 kPa : 0.8 L/sec; -30 kPa: 0.5 L/sec
Shipping data	Net weight : 4.75 kg Shipping weight: 5 kg Shipping volume: 0.02 m^3

VACUUM INTERFACE UNITS

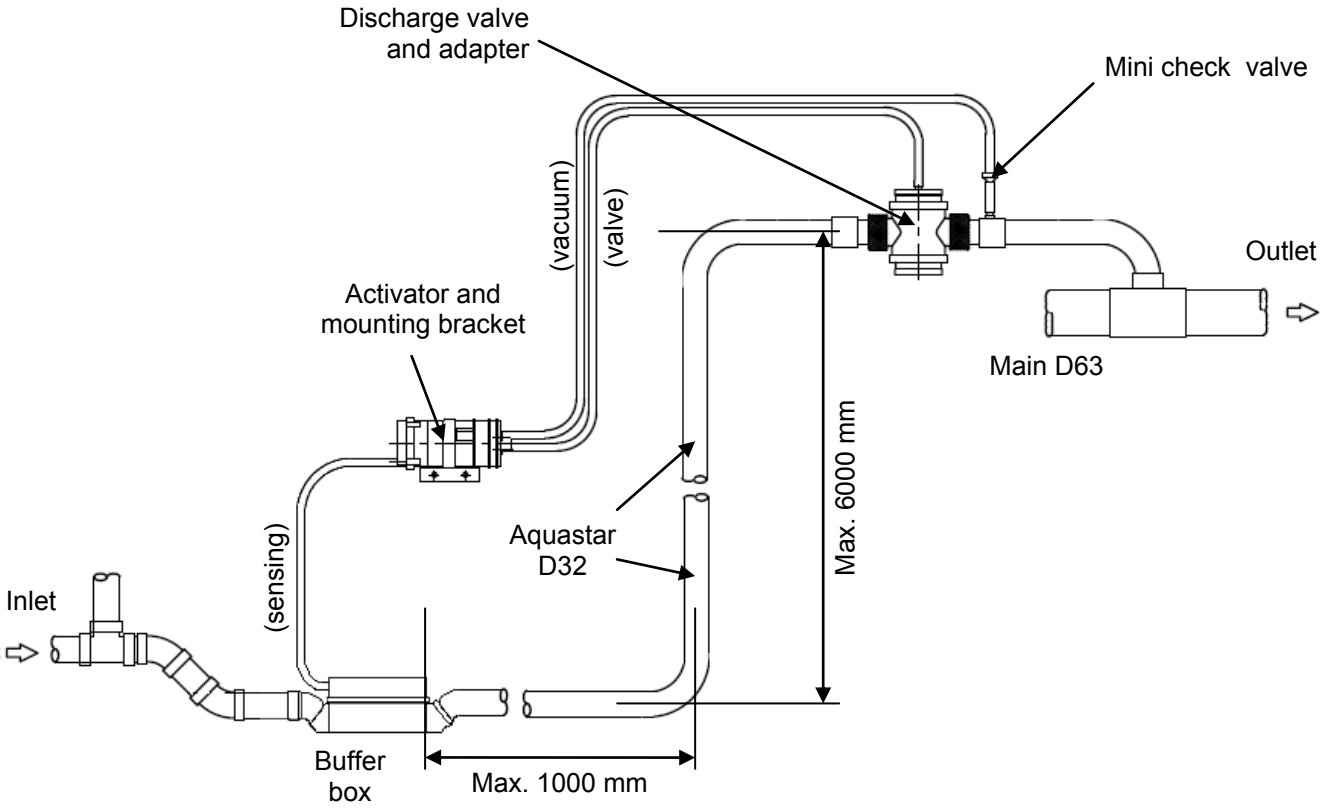
6546381 BUFFER BOX KIT

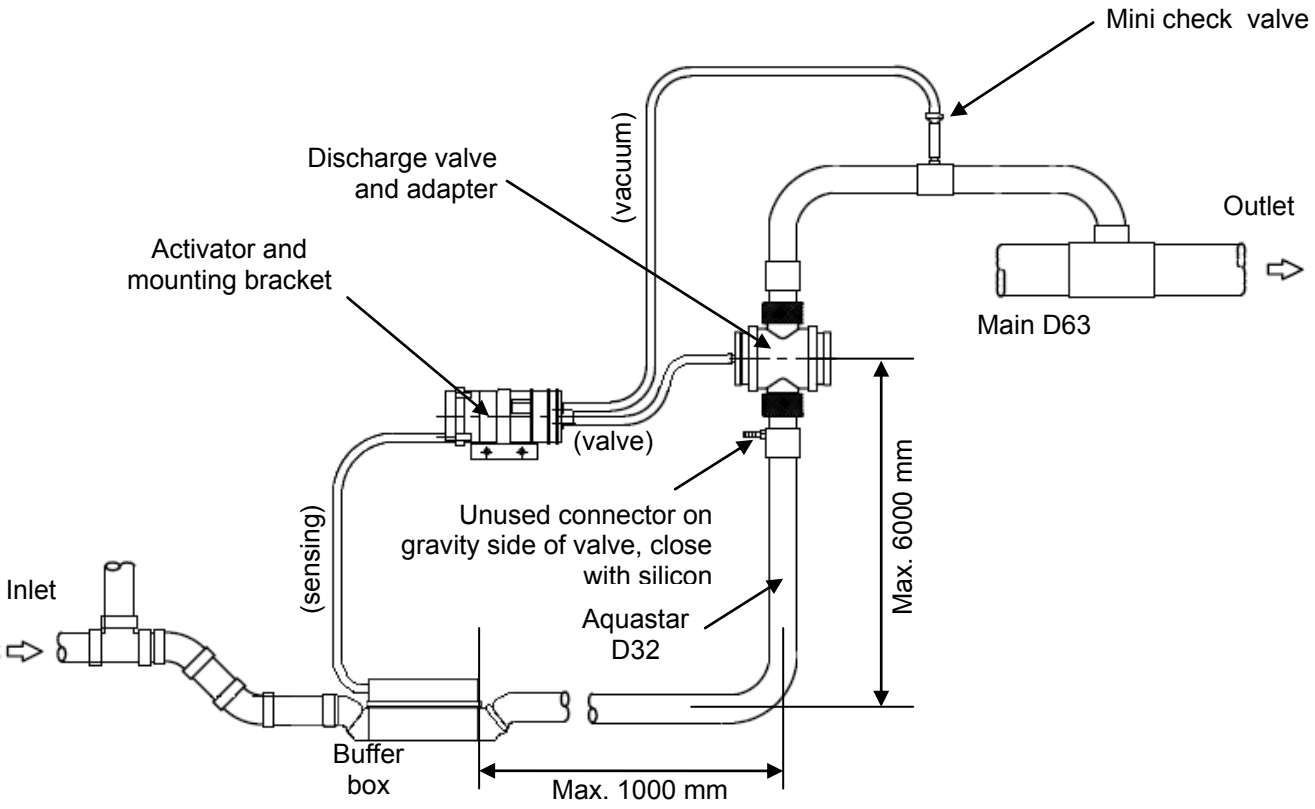


Material	Box: PVC Discharge valve: Polyacetal Activator: Rigid PVC and Polyacetal Mini-check valve: Acetal Flexible tubing: EPDM hose Ø 14 x 7mm
Operating data	Operating vacuum: -30... -60 kPa Minimum operating vacuum: -25 kPa Maximum discharge height: 6 m Activating volume: 1.5 L
Connections	Outlet / vacuum line and inlet / gravity line: 32 mm PVC
Capacity	-50 kPa : 0.8 L/sec; -30 kPa: 0.5 L/sec
Shipping data	Net weight : 4.75 kg Shipping weight: 5 kg Shipping volume: 0.02 m^3

VACUUM INTERFACE UNITS

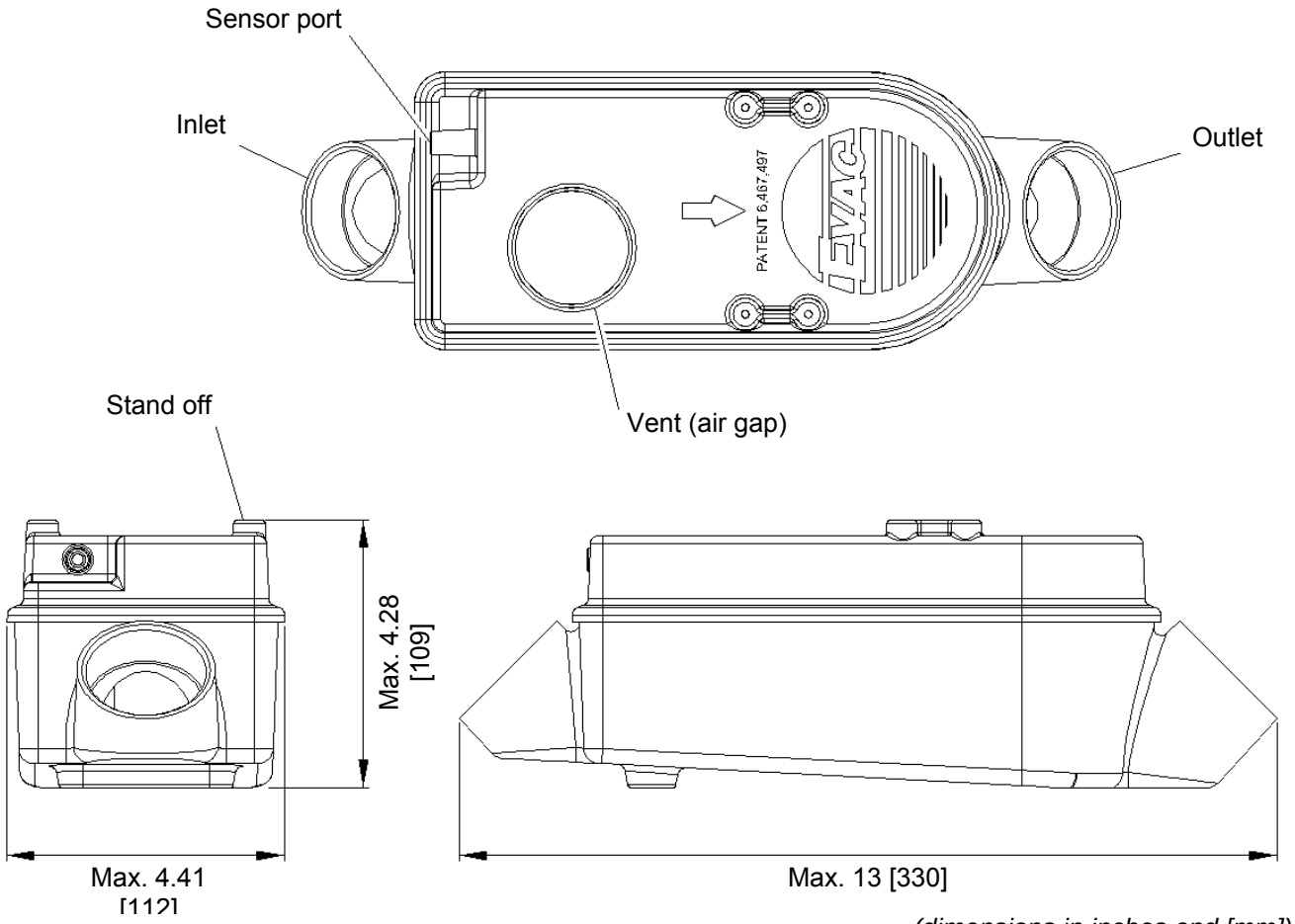
6541619 BUFFER BOX KIT **6546381 BUFFER BOX KIT**
6501327 BUFFER BOX KIT





VACUUM INTERFACE UNITS

2801055 1L BUFFER BOX

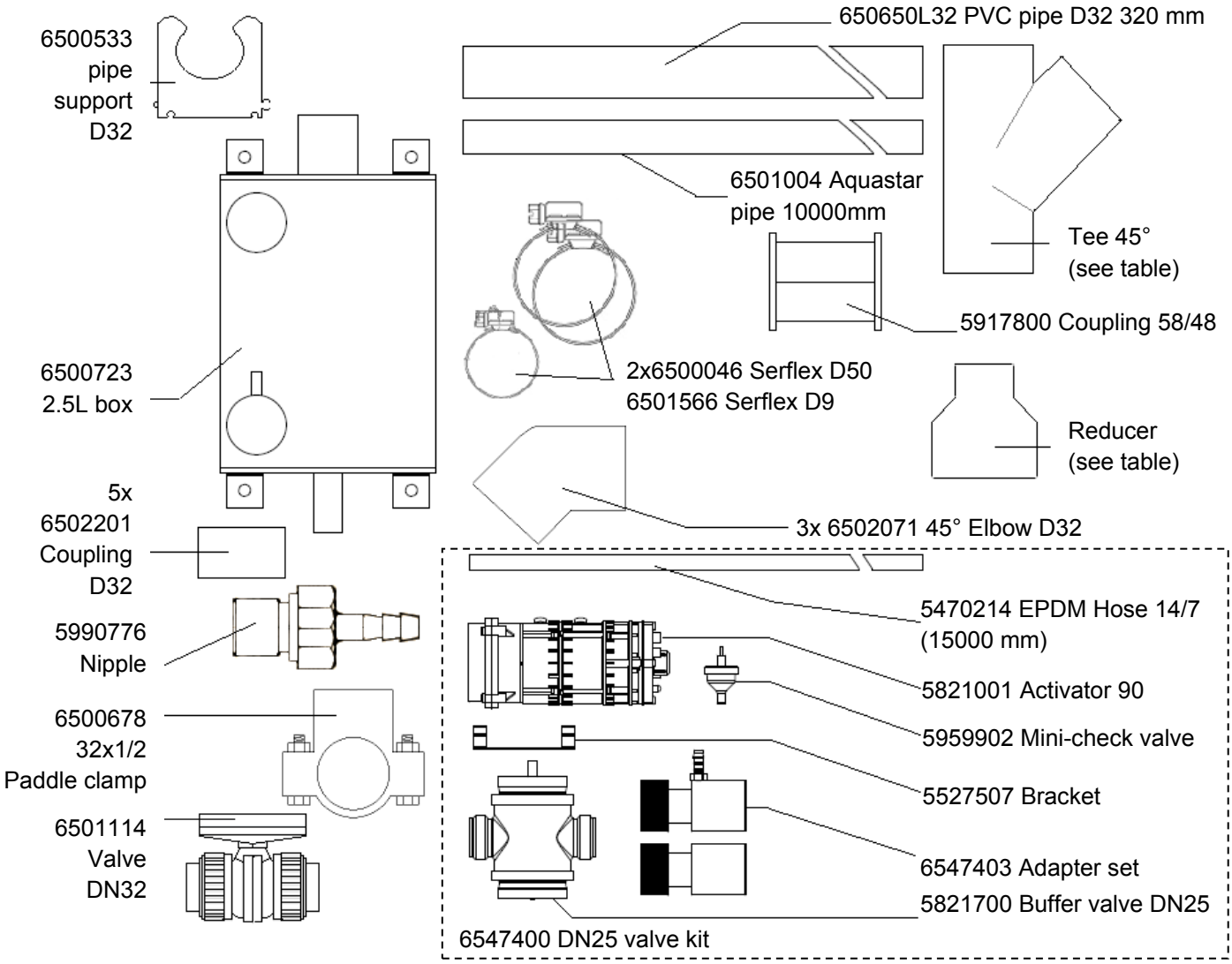


(dimensions in inches and [mm])

Materials	PVC
Operating Data	Handles incoming flow rates up to 6.0 gpm
Capacity	0.26 gal (1 L)
Connections	Inlet and outlet: 1-1/2” PVC sockets
Installation	Installed on a level surface with wastewater piping sloping into the buffer box. Connect to piping with mechanical couplings.
Shipping Data	Net Weight: 1.25 lbs / 0.57 kg Shipping weight: 1.32 lbs/ 0.60 kg Shipping volume: 7 ft^3 /0.2 m^3

VACUUM INTERFACE UNITS

6500722TDN40 2.5 L CONDENSATE BOX DN40 KIT 6500722TDN50 2.5 L CONDENSATE BOX DN50 KIT
6500722TDN65 2.5 L CONDENSATE BOX DN65 KIT



P/N of Kits	Tee 45°	Reducer
6500722DN40	6502200 Tee 45°DN40	6500578 Reducer PVC 40/32
6500722DN50	6500545 Tee 45°DN50	6500641 Reducer PVC 50/32
6500722DN65	6500546 Tee 45°DN65	6501033 Reducer PVC 65/32

Material
Tank: Stainless Steel 304L
Discharge valve: Polyacetal; Activator: Rigid PVC and Polyacetal
Mini-check valve: Acetal; Flexible tubing: EPDM hose Ø 14 x 7mm

Operating data
Operating vacuum: -30... -70kPa; Activating volume: 2.0 L
Min. operating vacuum: -25kPa; Max. discharge height: 7 m

Connections
Outlet / vacuum line: 25 mm flexible PVC; Inlet / gravity line: 50 mm

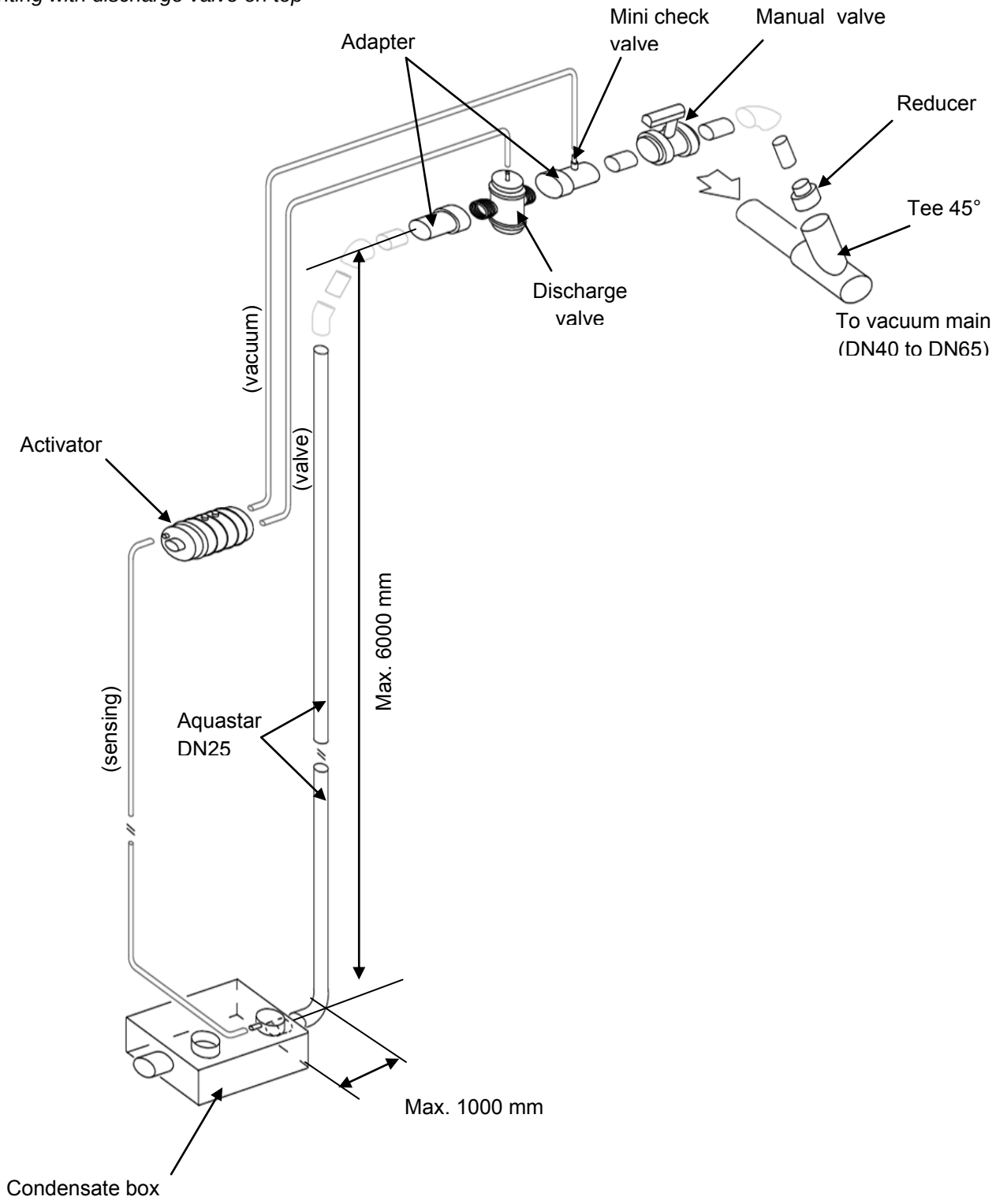
Capacity
-50kPa : 0.8 L/sec

Shipping data
Net weight : 2.5 kg; Shipping weight: 3 kg; Shipping volume: 0.04 m^3

VACUUM INTERFACE UNITS

6500722TDN40 2.5 L CONDENSATE BOX DN40 KIT 6500722TDN50 2.5 L CONDENSATE BOX DN50 KIT
6500722TDN65 2.5 L CONDENSATE BOX DN65 KIT

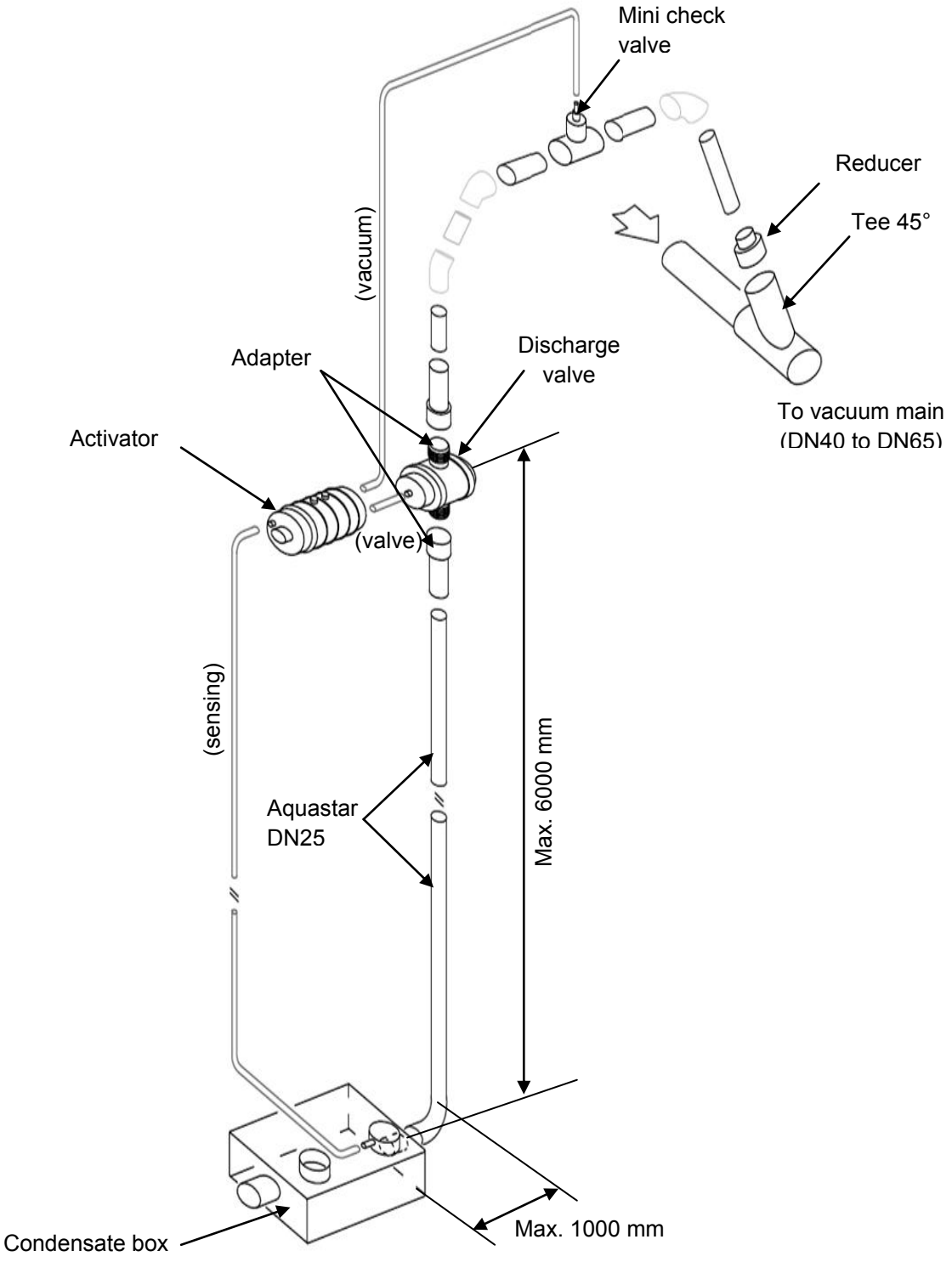
Mounting with discharge valve on top



VACUUM INTERFACE UNITS

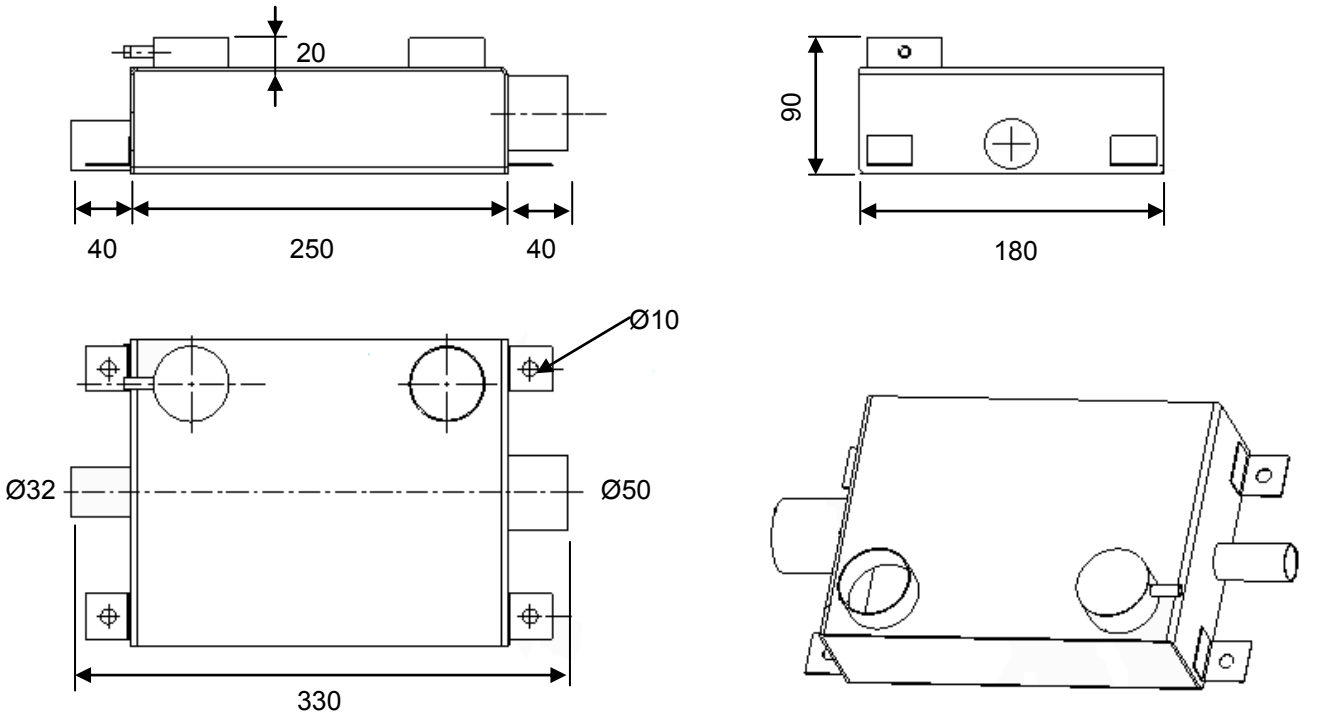
6500722TDN40 2.5 L CONDENSATE BOX DN40 KIT 6500722TDN50 2.5 L CONDENSATE BOX DN50 KIT
6500722TDN65 2.5 L CONDENSATE BOX DN65 KIT

Mounting with discharge valve on riser



VACUUM INTERFACE UNITS

6500723 2.5L CONDENSATE BOX

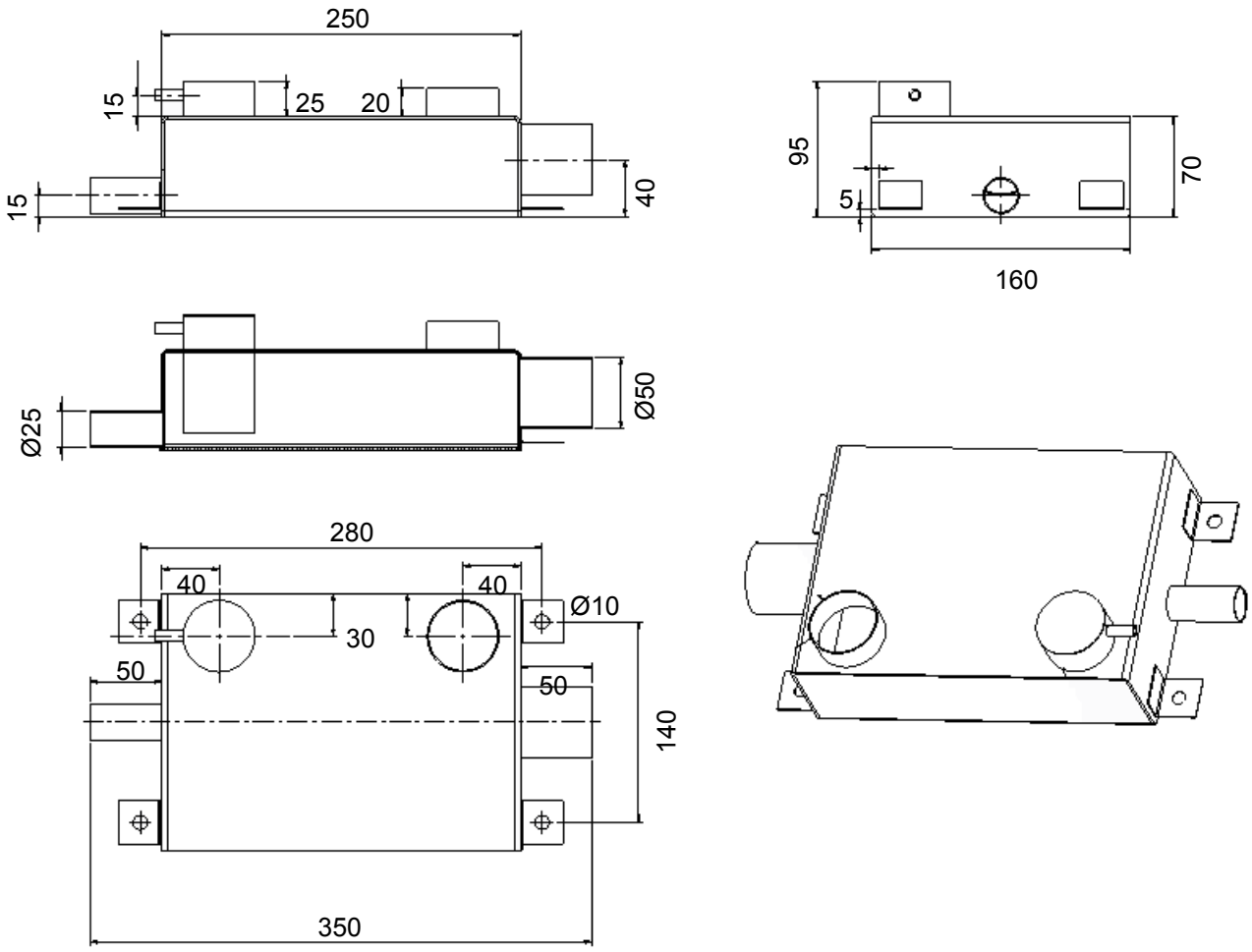


(Dimensions in mm)

Material	Stainless Steel 304L
Connections	Outlet / vacuum line: Ø32mm flexible PVC Inlet / gravity line: DN40 mm
Shipping data	Net weight: 2.5 kg Shipping weight: 3 kg Shipping volume: 0.04 m^3

VACUUM INTERFACE UNITS

6500688 2.5 L CONDENSATE BOX



(dimensions in mm)

Material	Tank: Stainless Steel 304L
Connections	Outlet / vacuum line: 25 mm flexible PVC Inlet / gravity line: 50 mm
Shipping data	Net weight : 2.5 kg Shipping weight: 3 kg Shipping volume: 0.04 m^3

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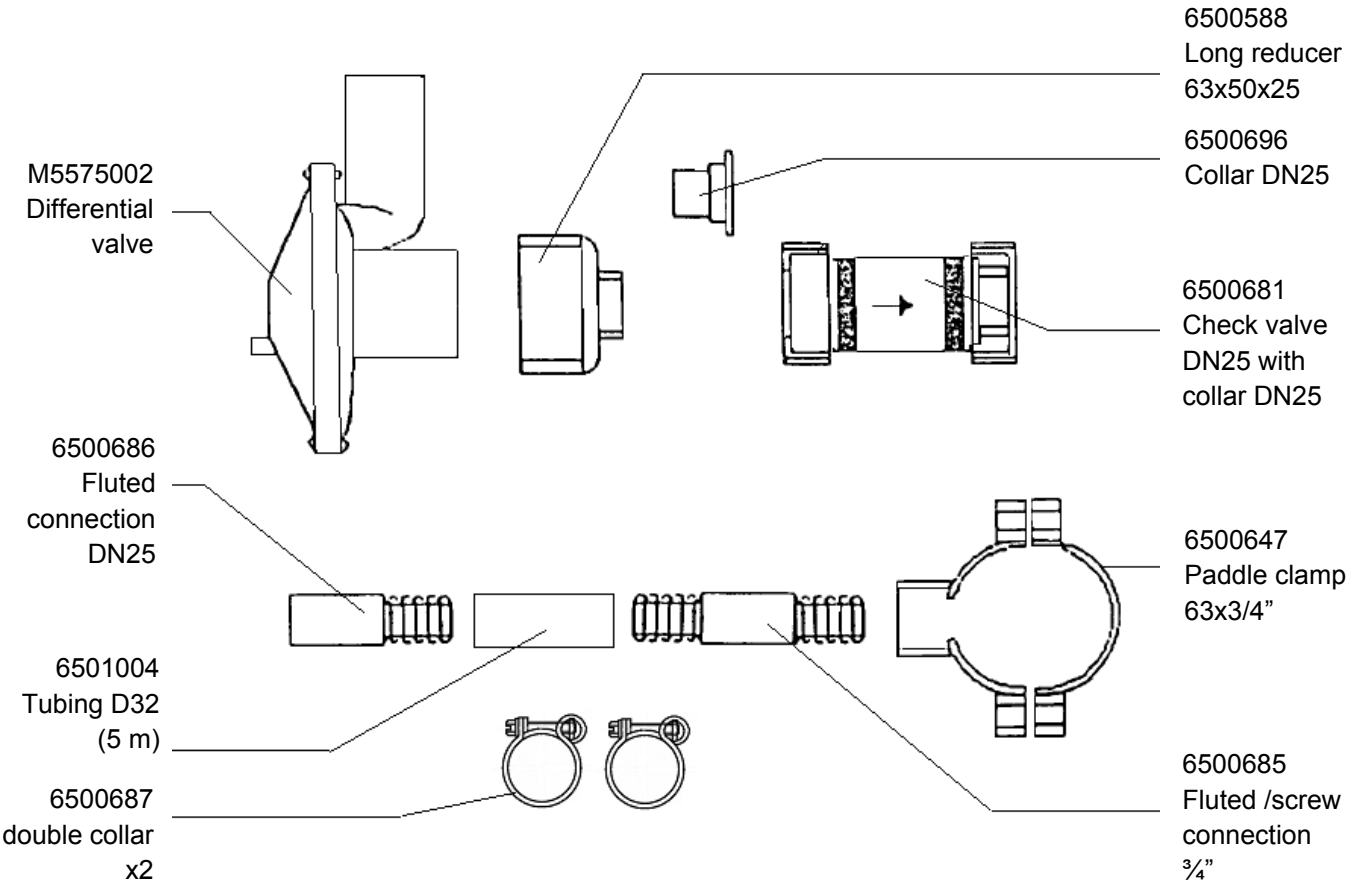
EVAC VACUUM INTERFACE UNITS

- EVAC BUFFER KITS
  - BUFFER BOX
  - **DIFFERENTIAL VALVE**
  - COMPONENTS

VACUUM INTERFACE UNITS

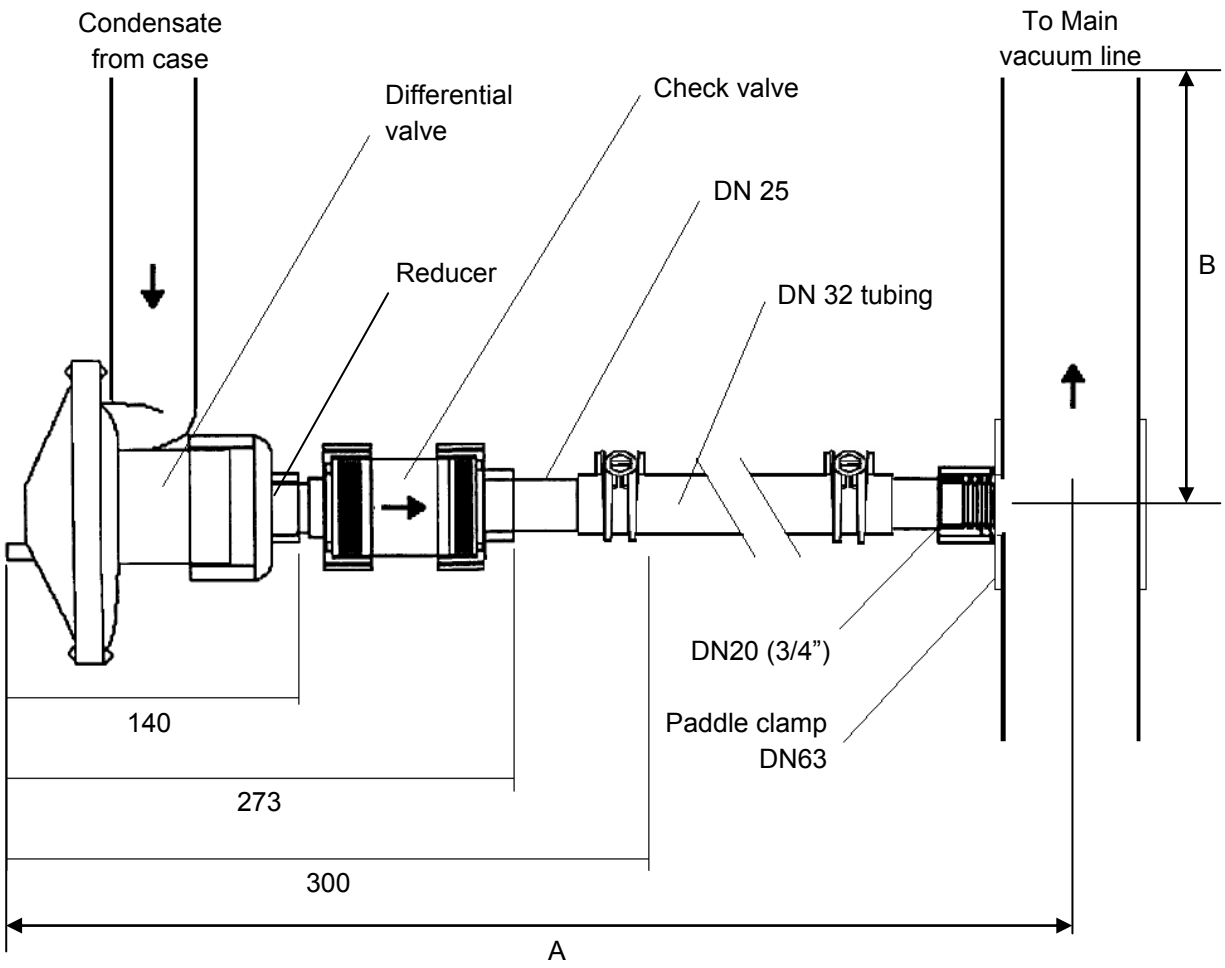
6500740 DIFFERENTIAL VALVE KIT



Material	Differential valve: PVC Connectors, reducer, check valve: PVC Tubing: Aquastar DN25
Operating data	Operating vacuum: -30... -70kPa Minimum operating vacuum: -25kPa
Connections	Inlet for condensate: diameter OD 50 mm Outlet / vacuum line: diameter OD 40 mm
Capacity	-60 kPa: 0.15 L/sec
Shipping data	Net weight: 0.8 kg Shipping weight: 1 kg Shipping volume: 0.04 m^3

VACUUM INTERFACE UNITS

6500740 DIFFERENTIAL VALVE KIT

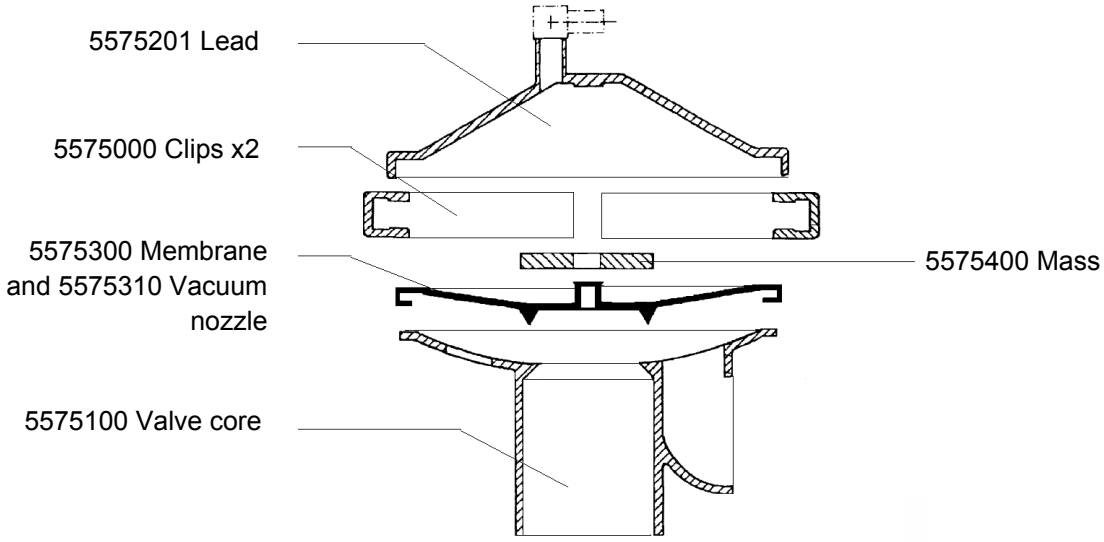


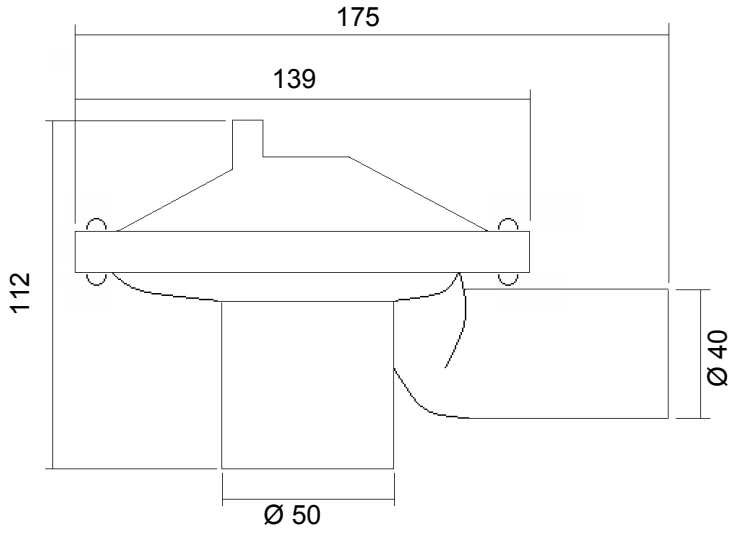
(dimensions in mm otherwise noted, assembly not at scale)

- Please specify rising heights and floor distances to Evac
- Activators and discharge valves should remain accessible for maintenance
- Distance A+B should be less than 6 m

VACUUM INTERFACE UNITS

M5575002 DIFFERENTIAL VALVE





(dimensions in mm)

Material	Housing and diaphragm: PVC Mass: stainless steel Membrane and nozzle: rubber
Connections	Inlet for condensate: diameter OD 50 mm Outlet / vacuum line: diameter OD 40 mm
Shipping data	Net weight: 0.2 kg Shipping weight: 0.25 kg

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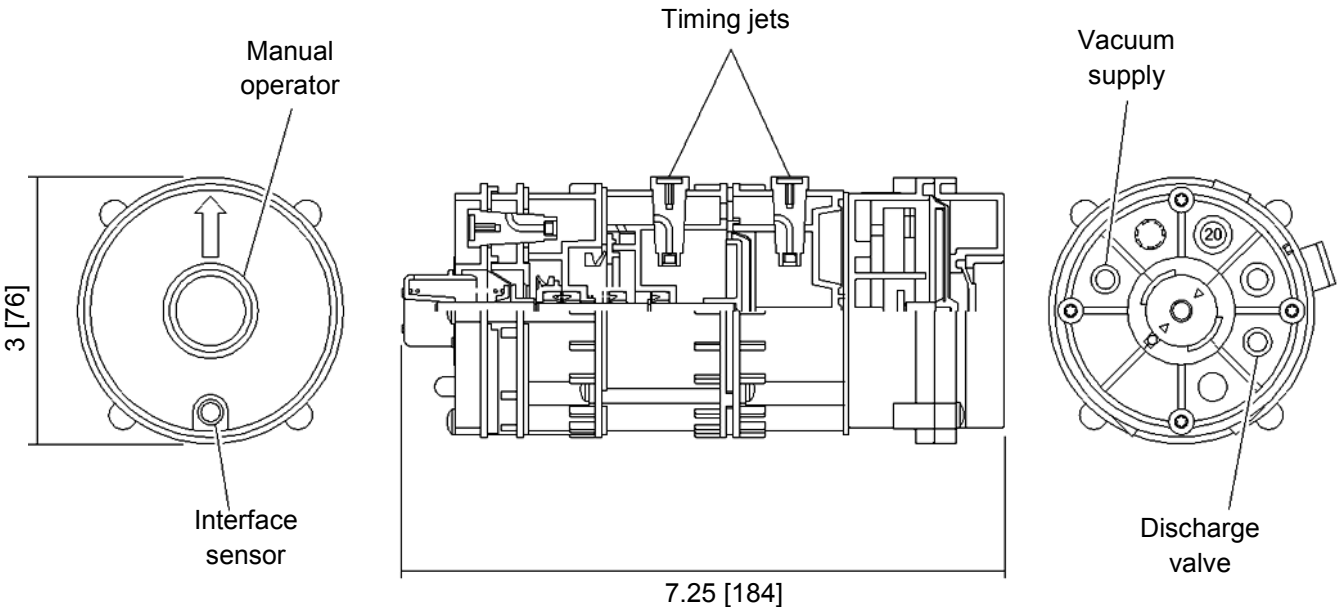
EVAC VACUUM INTERFACE UNITS

- EVAC BUFFER KITS
  - BUFFER BOX
  - DIFFERENTIAL VALVE
  - **COMPONENTS**

VACUUM INTERFACE UNITS

5821001 PNEUMATIC ACTIVATOR



(Dimensions in inches [mm])

Material	Internal: EPDM Housing: POM
Connections	Sensor, vacuum and valve: Ø14x7 EPDM hose
Installation:	Mounted with activator bracket
Shipping data	Net Weight: 1.00 lbs / 0.45 kg

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EVAC VACUUM INTERFACE UNITS

- EVAC BUFFER KITS
- **EVAC INTERFACE VALVES**
- EVAC SHOWER DRAINS
- EVAC FLOOR DRAINS
- EVAC SINGLE APPLIANCE UNITS

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EVAC VACUUM INTERFACE UNITS

- **EVAC INTERFACE VALVES**
  - **2L INTERFACE UNIT**
  - **5L INTERFACE UNIT**
  - **GRAVITY TOILET INTERFACE UNIT**

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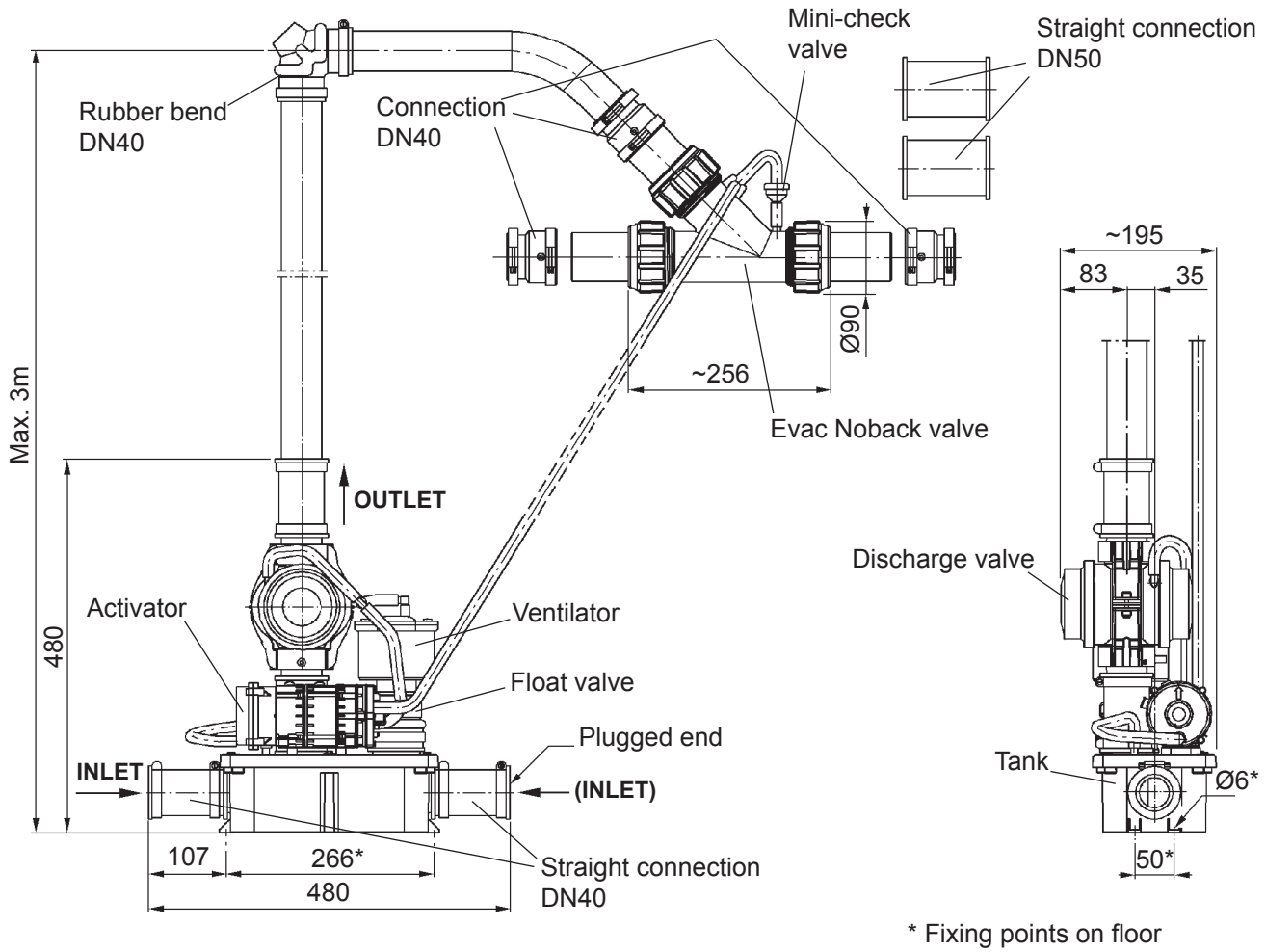
EVAC VACUUM INTERFACE UNITS

- EVAC INTERFACE VALVES
  - **2L INTERFACE UNIT**
  - 5L INTERFACE UNIT
  - GRAVITY TOILET INTERFACE UNIT

VACUUM INTERFACE VALVE

6543521 VACUUM INTERFACE UNIT 2 L, CONNECTION UPWARDS



* Fixing points on floor

Materials

Tank: PP
Float valve: Rubber
Discharge valve: Polyacetal
Activator: Rigid PVC and polyasetal
Ventilator: Acetal / PVC
Mini-check valve: Actetal
Flexible tubing: EPDM
Connections: EPDM
EvacNoback valve body: PP

Operating data

Operating vacuum: -30 ... -60 kPa
Max. lifting height: 3 m
Minimum operating vacuum: -25 kPa
Nominal activating head: 80 mm
Activating volume: 2.0 l

Capacity

-50 kPa: 2.00 l/s (instantaneous value)
-30 kPa: 1.20 l/s (instantaneous value)

Connections

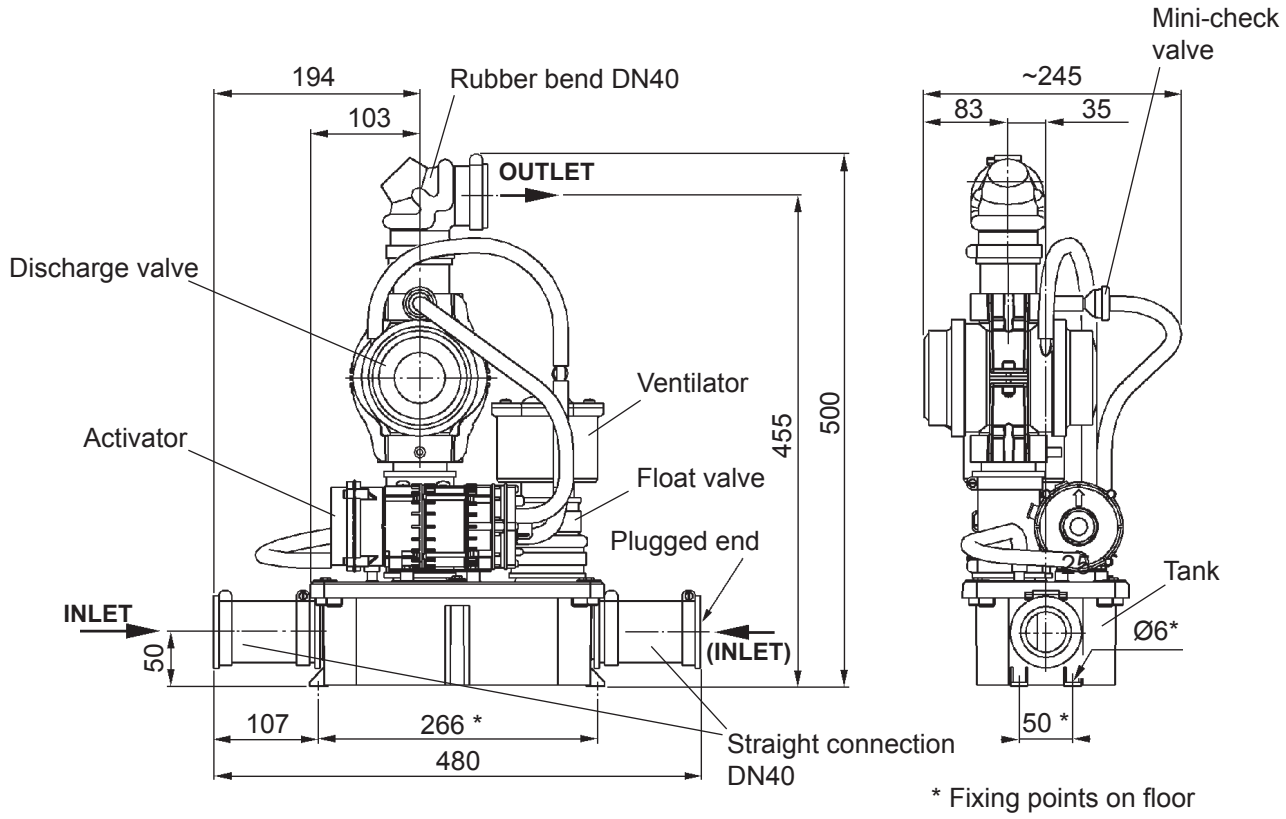
Outlet / vacuum line: Rubber bend connection to pipe DN40/DN50
Inlet / gravity line: Straght connection to pipe DN40

Shipping data

Net weight: 5.5 kg

VACUUM INTERFACE VALVE

6543469 VACUUM INTERFACE UNIT 2 L, CONNECTION DOWNWARDS / SIDEWARDS



Materials

Tank: PP
Float valve: Rubber
Discharge valve: Polyacetal
Activator: Rigid PVC and polyasetal
Ventilator: Acetal / PVC
Mini-check valve: Actetal
Flexible tubing: EPDM
Connections: EPDM

Operating data

Operating vacuum: -30 ... -60 kPa
Minimum operating vacuum: -25 kPa
Nominal activating head: 80 mm
Activating volume: 2.0 l

Capacity

-50 kPa: 2.00 l/s (instantaneous value)
-30 kPa: 1.20 l/s (instantaneous value)

Connections

Outlet / vacuum line: Rubber bend connection to pipe DN40
Inlet / gravity line: Straght connection to pipe DN40

Shipping data

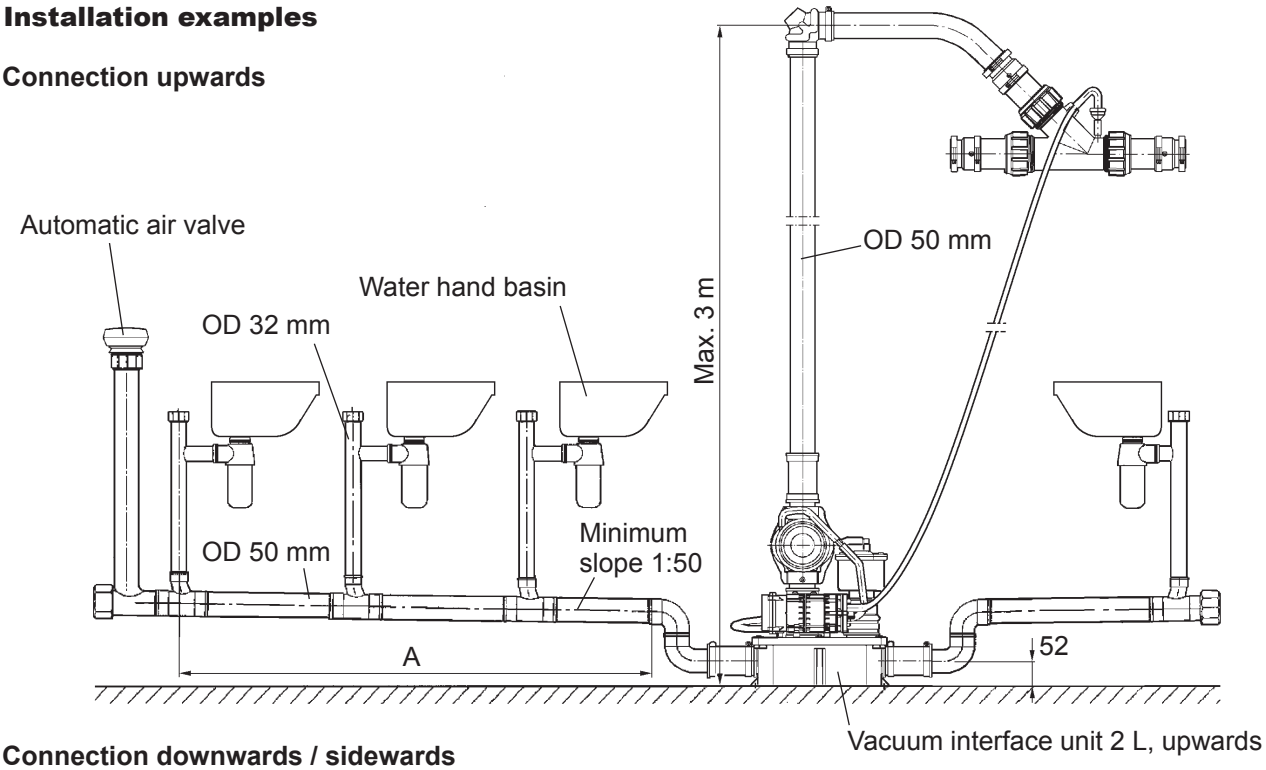
Net weight: 3.5 kg

VACUUM INTERFACE VALVES

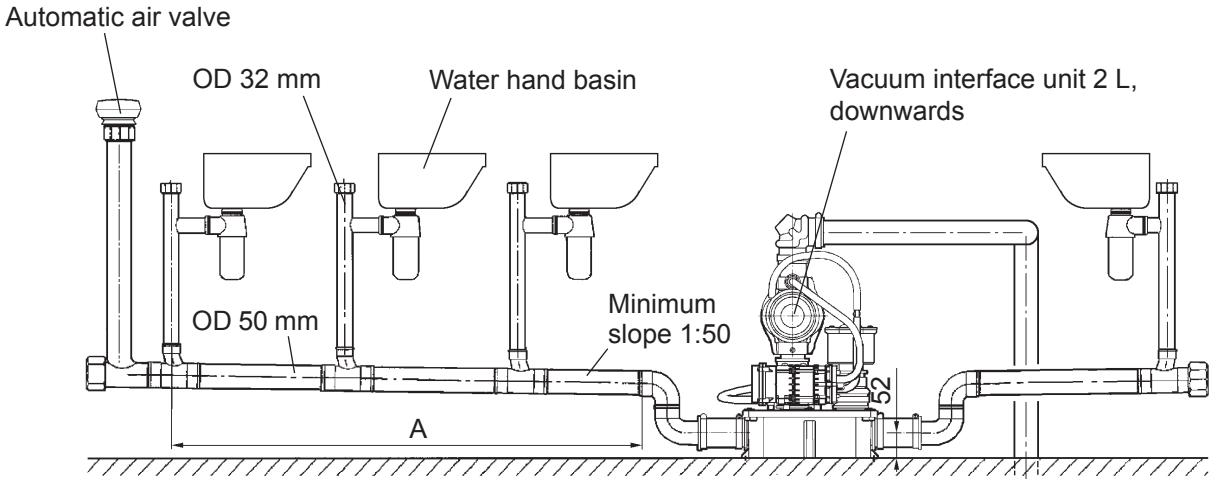
6543521 VACUUM INTERFACE UNIT 2 L, CONNECTION UPVARDS
6543469 VACUUM INTERFACE UNIT 2 L, CONNECTION DOWNWARDS / SIDEWARDS

Installation examples

Connection upwards



Connection downwards / sidewards



Pipe sizes

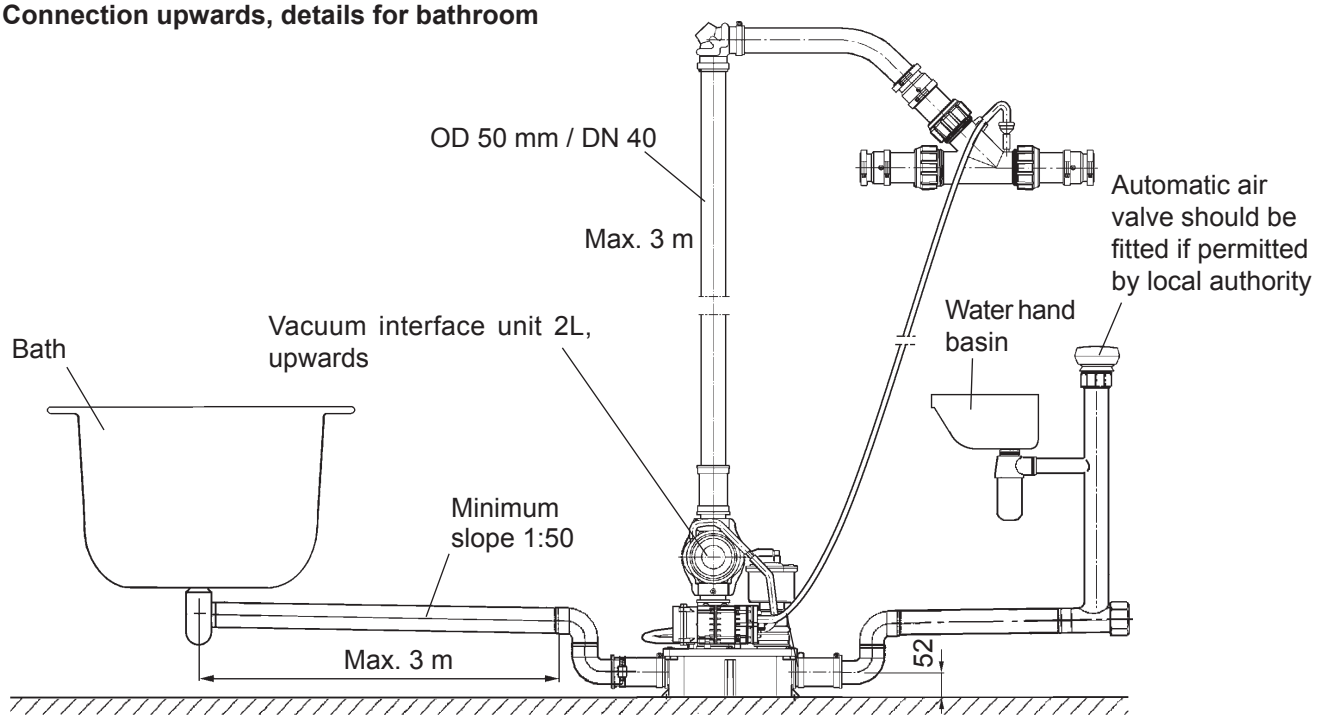
Gravity connection	Water trap unventilated	Water trap with automatic air valve
Maximum lenght A	3 m	5 m
Maximum size of vertical piping	OD 32 mm	OD 32 mm
Minimum size of horizontal piping	OD 50 mm	OD 50 mm

! NOTE: The maximum flow to the vacuum interface unit from all appliances must not exceed:
- 2.0 litres/second (not tested) at -50 kPa (3.0 m lift)
- 1.2 litres/second (not tested) at -30 kPa (3.0 m lift)

VACUUM INTERFACE VALVES

6543521 VACUUM INTERFACE UNIT 2 L, CONNECTION UPVARDS
6543469 VACUUM INTERFACE UNIT 2 L, CONNECTION DOWNWARDS / SIDEWARDS

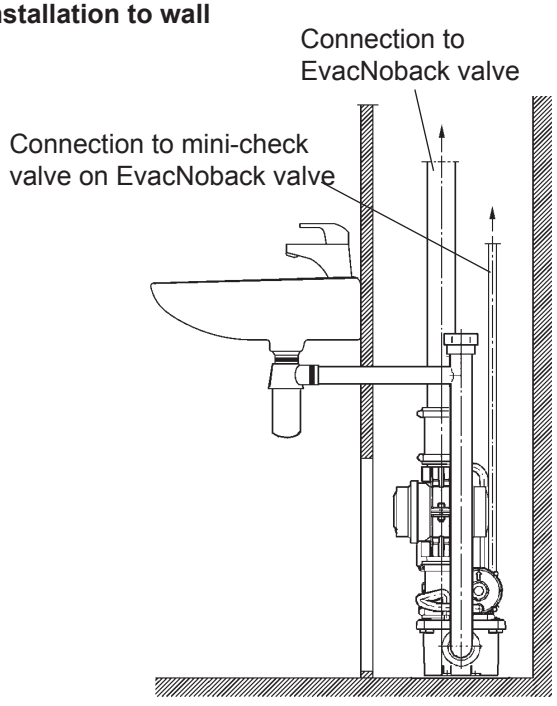
Connection upwards, details for bathroom



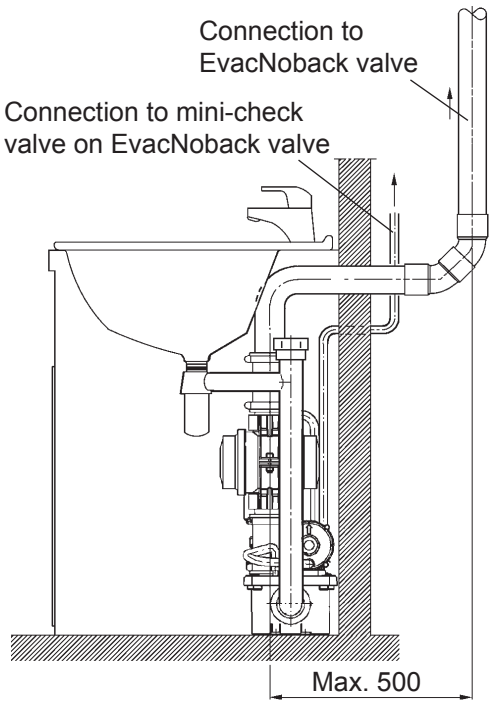
! NOTE: The maximum flow to the vacuum interface unit from all appliencies must not exceed:
- 2.0 litres/second (not tested) at -50 kPa (3.0 m lift)
- 1.2 litres/second (not tested) at -30 kPa (3.0 m lift)

Connection upwards, wash basin installation

Installation to wall



Installation to wash basin cabin



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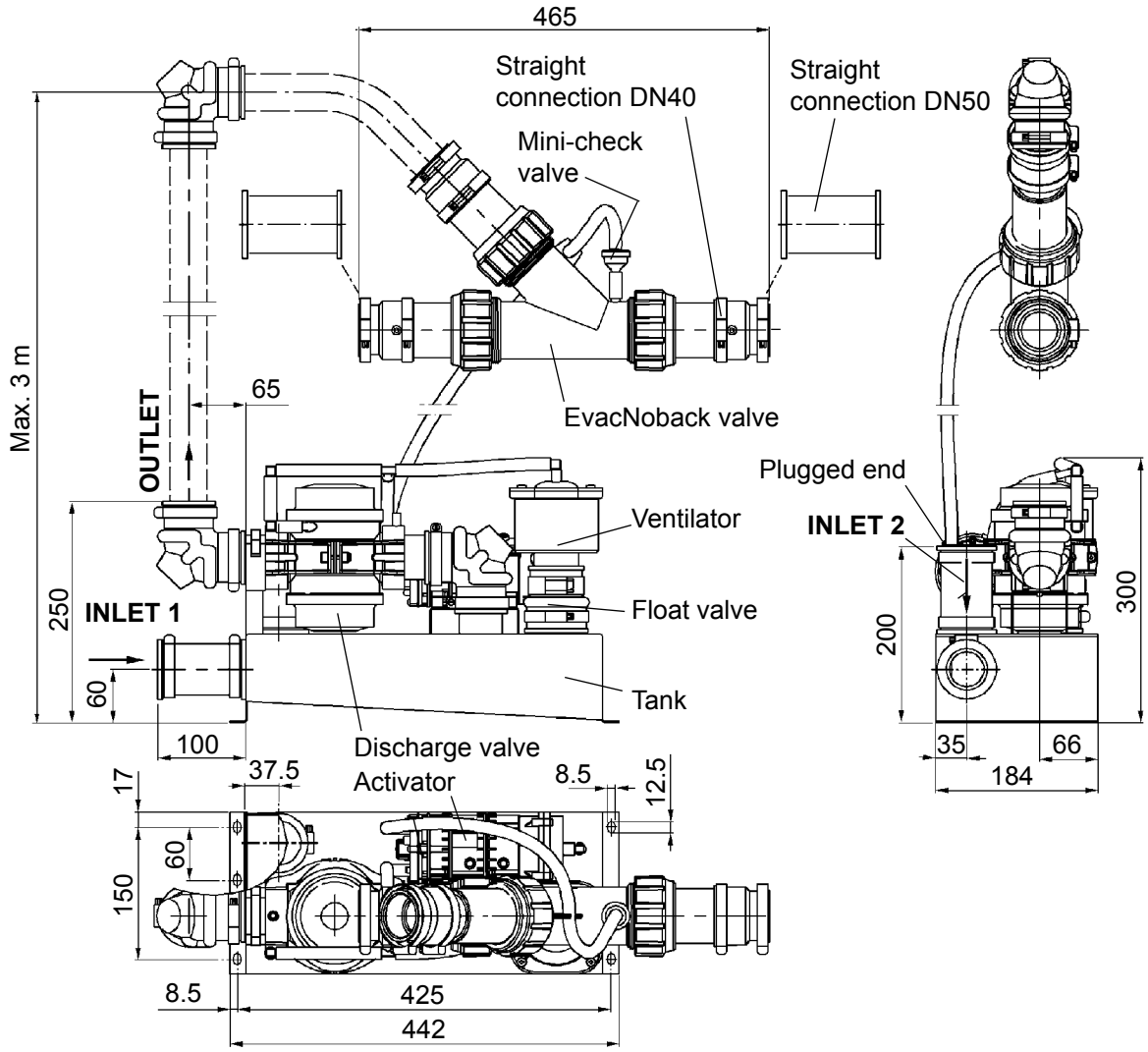
EVAC VACUUM INTERFACE UNITS

- EVAC INTERFACE VALVES
  - 2L INTERFACE UNIT
  - **5L INTERFACE UNIT**
  - GRAVITY TOILET INTERFACE UNIT

VACUUM INTERFACE UNITS

6545872 VACUUM INTERFACE UNIT 5L, CONNECTION UPWARDS



Materials

Tank: Stainless steel EN 1.4404
Float valve: rubber
Discharge valve: Polyacetal
Activator: Rigid PVC and polyacetal
Ventilator: Acetal/PVC
Mini-check valve: Acetal
Flexible tubing: EPDM hose Ø14 x 7 mm
EvacNoback valve body: PP

Operating data

Operating vacuum: -30... -60 kPa
Minimum operting vacuum: -25 kPa
Normal activating head: 75 mm
Activating volume: 5.4 L

Capacity:

-50 kPa: 2.2 L/s
-30 kPa: 1.2 L/s

Connections:

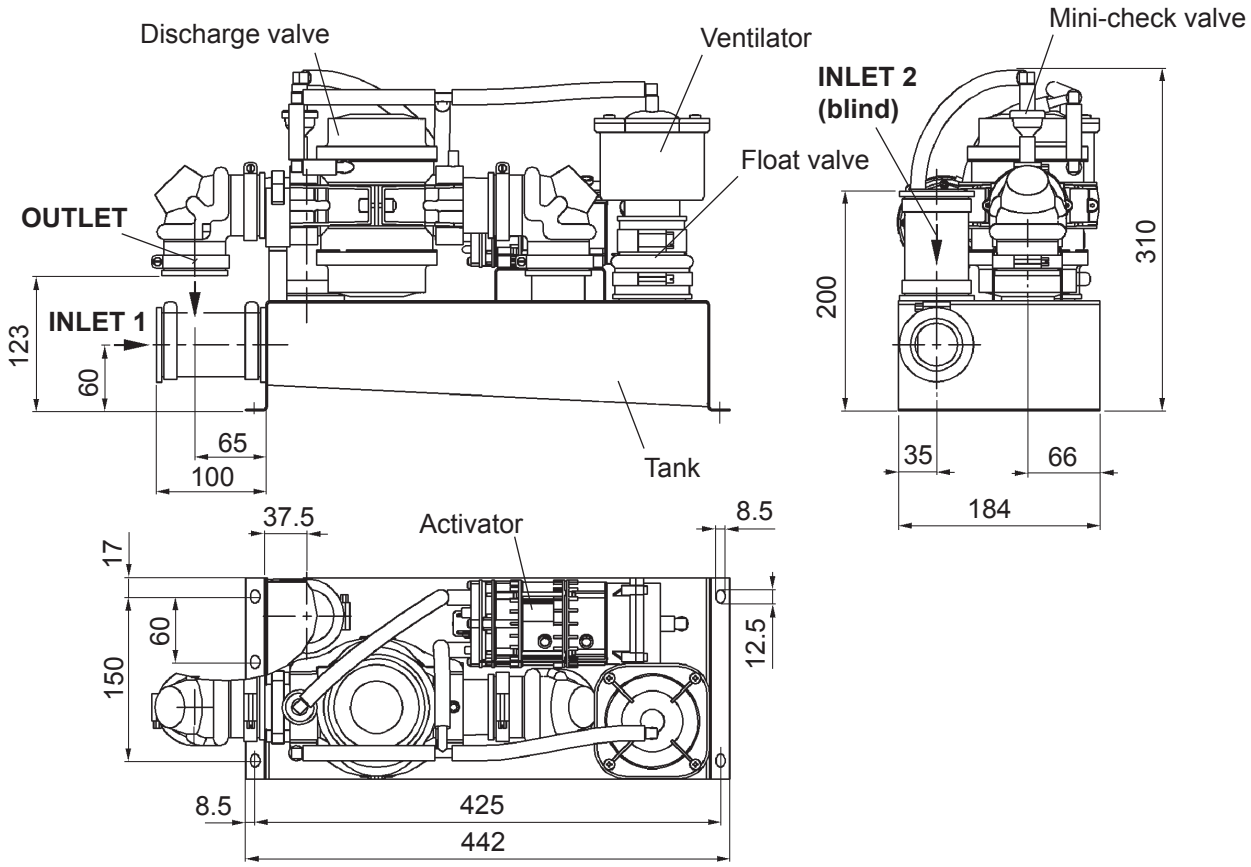
Outlet / vacuum line: Rubber sleeve connections to pipe DN40 and DN50 (EvacNoback valve)
Inlet / gravity line: Rubber sleeve connection to pipe DN40

Shipping data:

Net weight: 7 kg
Shipping weight: 8 kg
shipping volume: 0.08 m³

VACUUM INTERFACE VALVE

6545873 VACUUM INTERFACE UNIT 5 L, CONNECTION DOWNWARDS



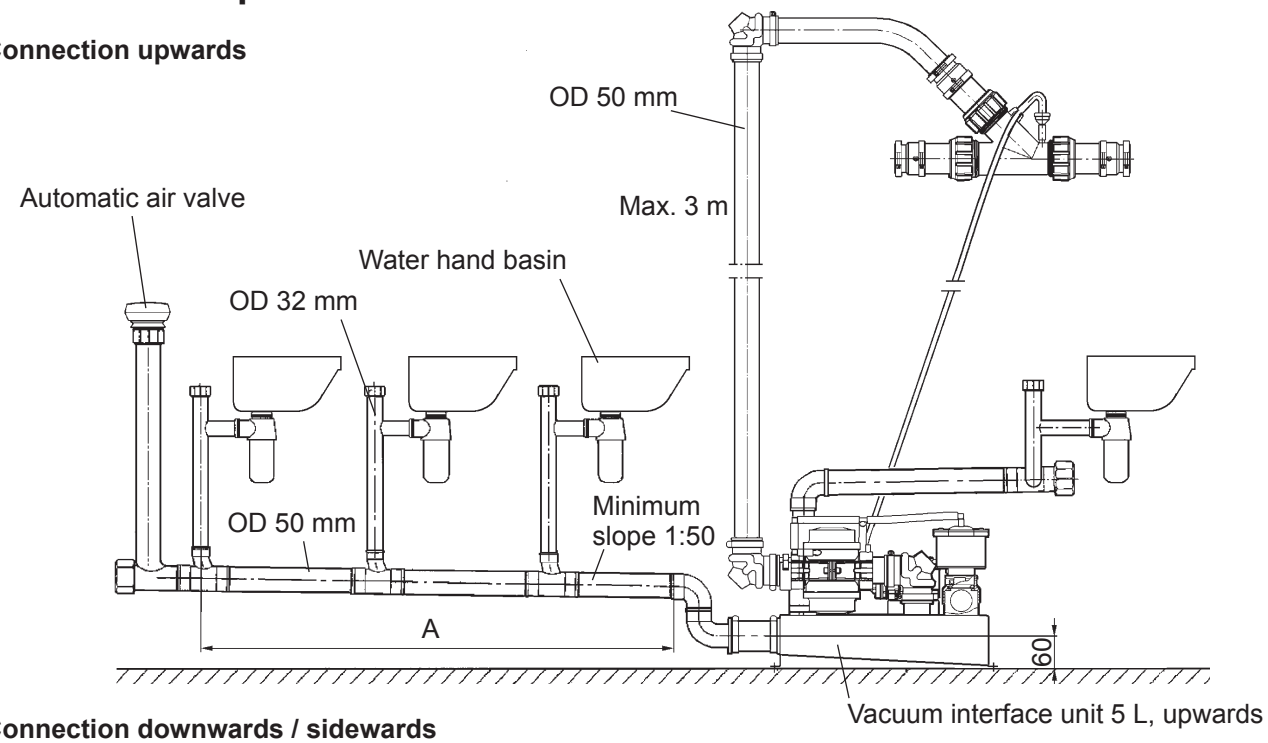
Materials	Tank: Stainless steel EN 1.4404 Float valve: Rubber Discharge valve: Polyacetal Activator: Rigid PVC and polyacetal Ventilator: Acetal Mini-check valve: Acetal Flexible tubing: EPDM hose Ø14 x 7 mm
Operating data	Operating vacuum: -30... - 60 kPa Minimum operting vacuum: -25 kPa Normal activating head: 75 mm Activating volume: 5.4 L
Capacity:	-50 kPa: 2.2 L/s -30 kPa: 1.2 L/s
Connections:	Outlet / vacuum line: Rubber sleeve connection to pipe DN40 Inlet / gravity line: Rubber sleeve connection to pipe DN40
Shipping data:	Net weight: 6 kg Shipping weight: 7 kg shipping volume: 0.08 m³

VACUUM INTERFACE VALVES

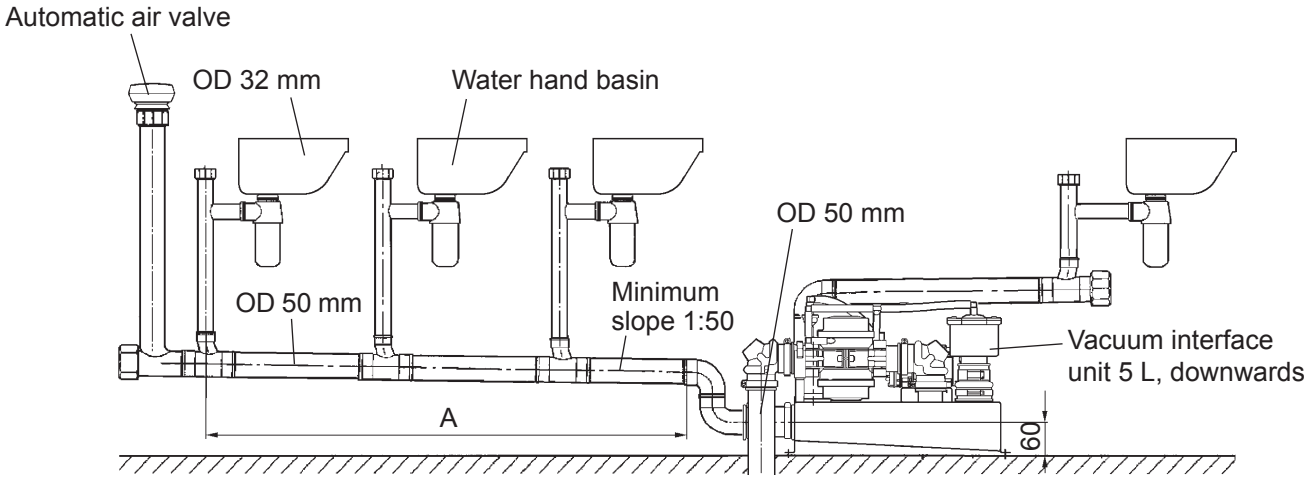
6545872 VACUUM INTERFACE UNIT 5 L, CONNECTION UPVARDS
6545873 VACUUM INTERFACE UNIT 5 L, CONNECTION DOWNWARDS

Installation examples

Connection upwards



Connection downwards / sidewards



Pipe sizes

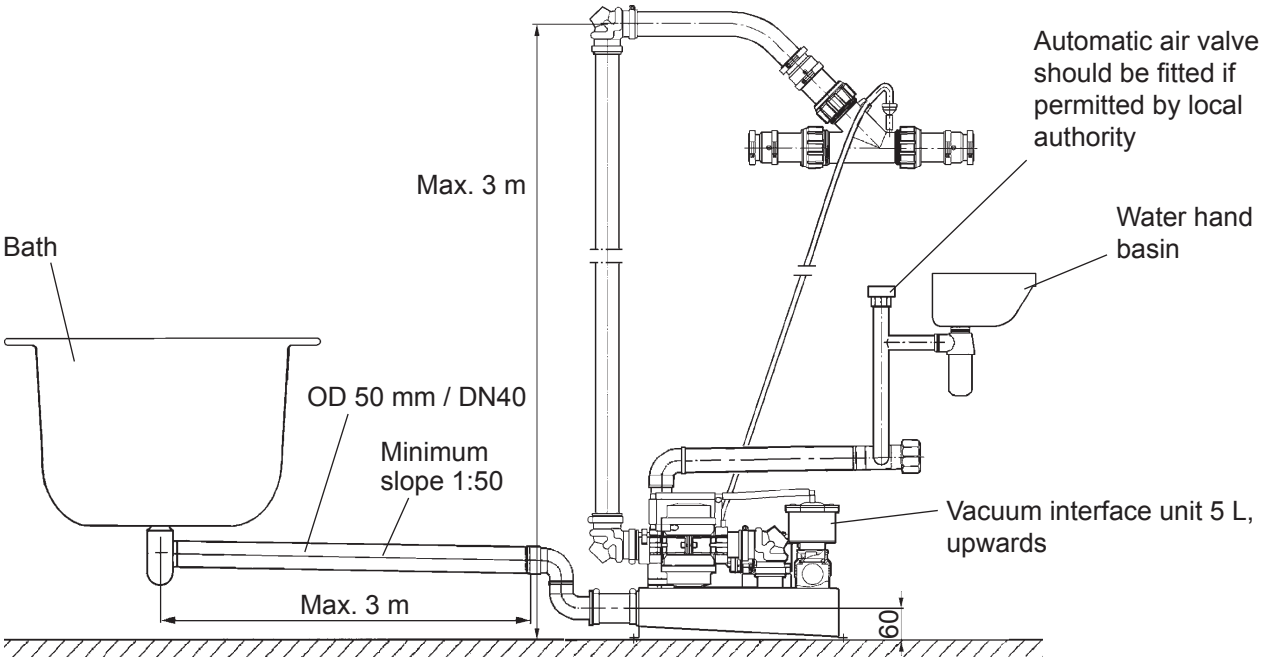
Gravity connection	Water trap unventilated	Water trap with automatic air valve
Maximum lenght A	3 m	5 m
Maximum size of vertical piping	OD 32 mm	OD 32 mm
Minimum size of horizontal piping	OD 50 mm	OD 50 mm

! NOTE: The maximum flow to the vacuum interface unit from all appliencies must not exceed:
- 2.0 litres/second (not tested) at -50 kPa (3.0 m lift)
- 1.2 litres/second (not tested) at -30 kPa (3.0 m lift)

VACUUM INTERFACE VALVES

6545872 VACUUM INTERFACE UNIT 5 L, CONNECTION UPVARDS
6545873 VACUUM INTERFACE UNIT 5 L, CONNECTION DOWNWARDS

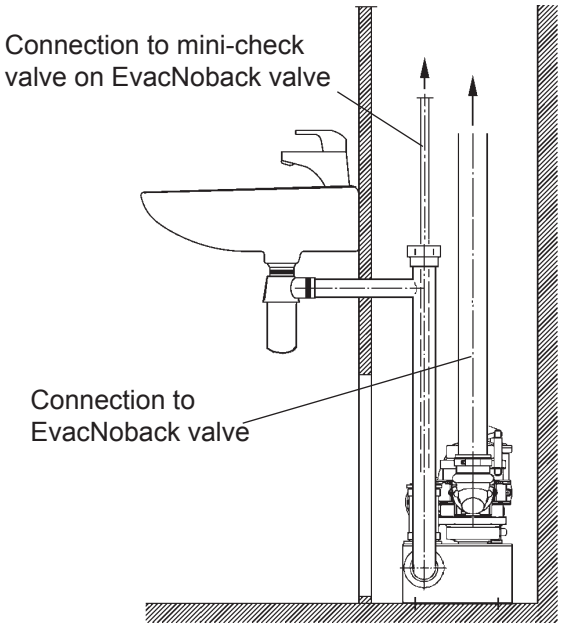
Connection upwards, details for bathroom



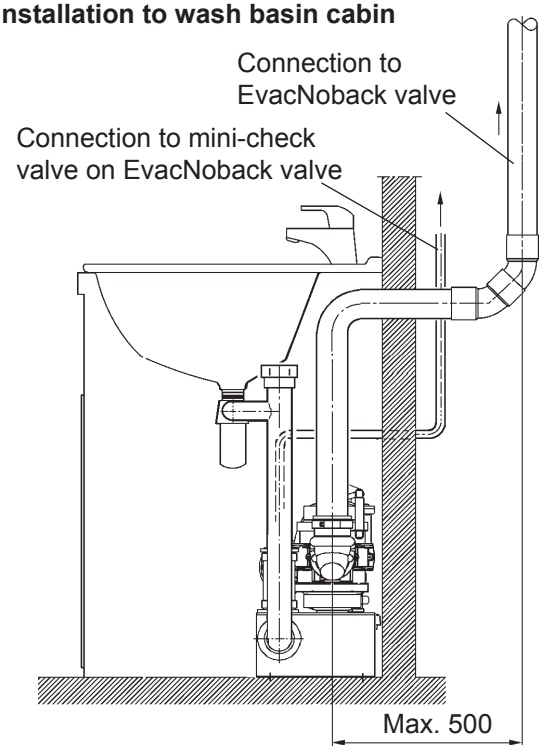
! NOTE: The maximum flow to the vacuum interface unit from all appliencies must not exceed:
- 2.0 litres/second (not tested) at -50 kPa (3.0 m lift)
- 1.2 litres/second (not tested) at -30 kPa (3.0 m lift)

Connection upwards, wash basin installation

Installation on to wall



Installation to wash basin cabin



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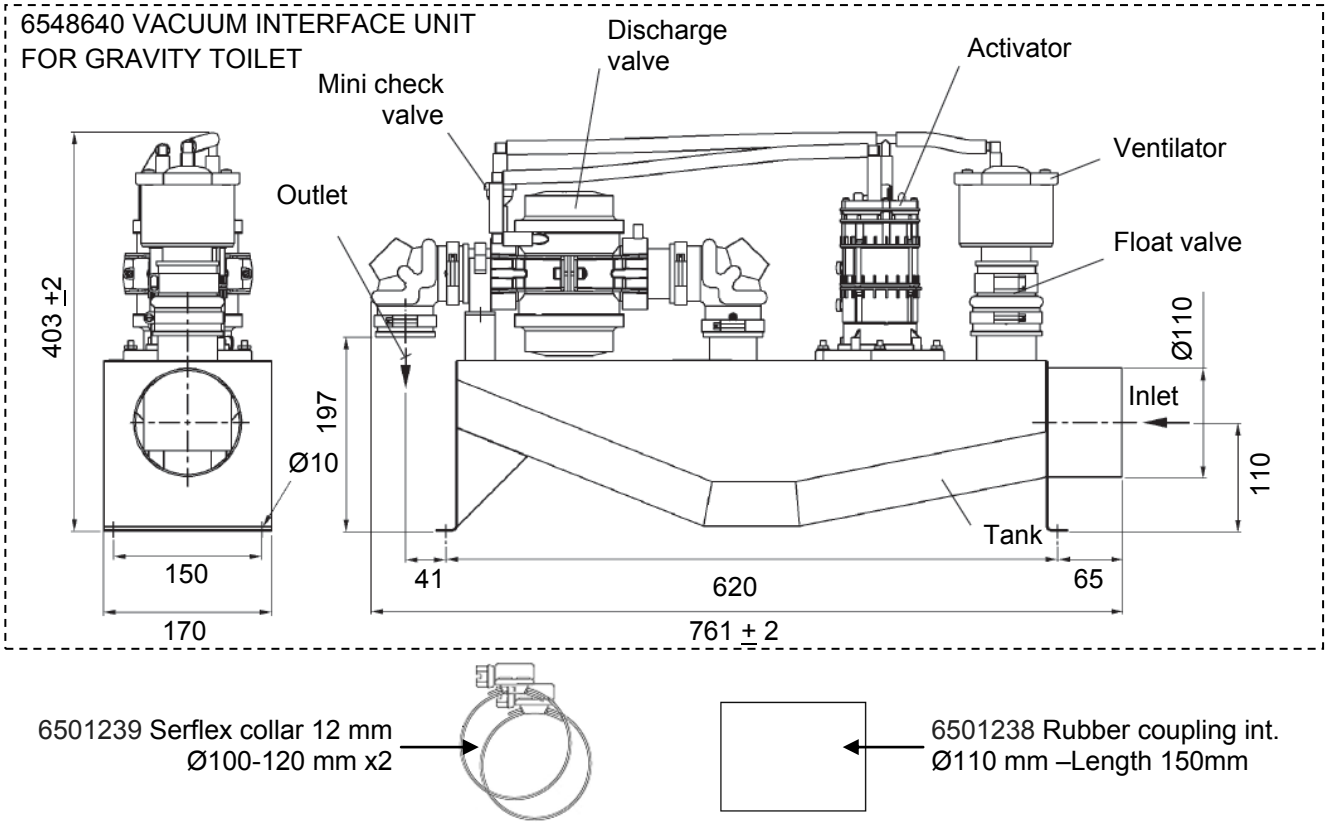
EVAC VACUUM INTERFACE UNITS

- EVAC INTERFACE VALVES
  - 2L INTERFACE UNIT
  - 5L INTERFACE UNIT
  - **GRAVITY TOILET INTERFACE UNIT**

VACUUM INTERFACE UNITS

6500748FI 15L VACUUM INTERFACE UNIT KIT

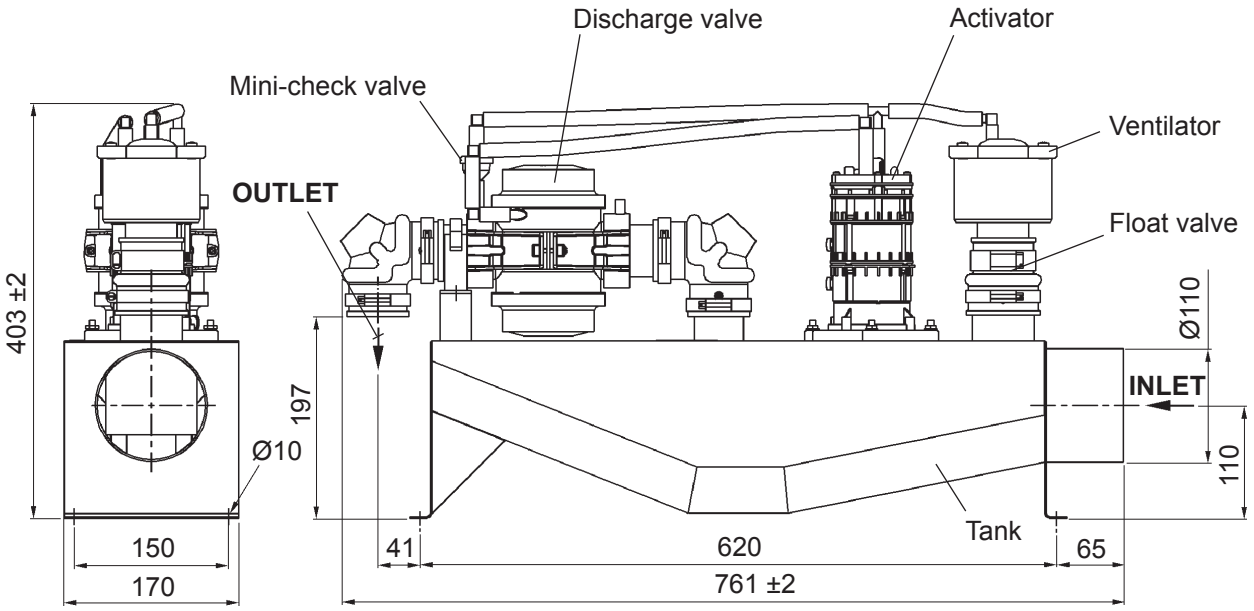


(dimensions in mm)

Materials	Tank: Stainless steel EN 1.4404
Operating data	Operating vacuum: -30... -60 kPa Activating volume: 8.0 l ± 10% Suitable for grey and blackwater
Capacity	-50 kPa: 2.2 L/s -30 kPa: 1.2 L/s Tank volume: 15L
Connections	Outlet/vacuum line: Rubber sleeve connection to pipe DN40 Inlet/gravity line: Rubber sleeve connection to pipe Ø110 mm
Shipping data	Net weight: 11 kg Shipping weight: 13 kg Shipping volume: 0.1 m³

VACUUM INTERFACE VALVE

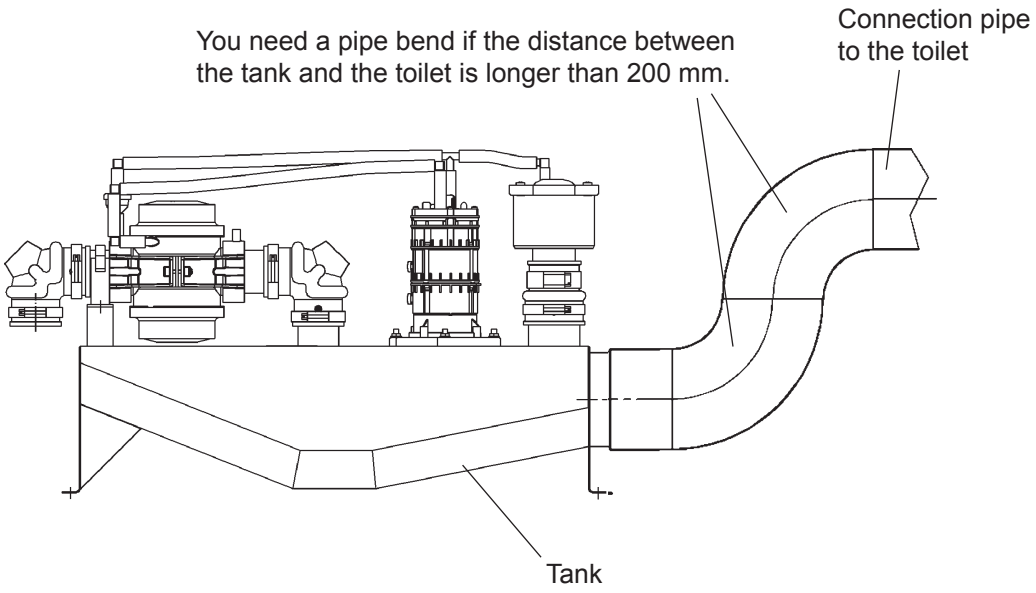
6548640 VACUUM INTERFACE UNIT FOR GRAVITY TOILET

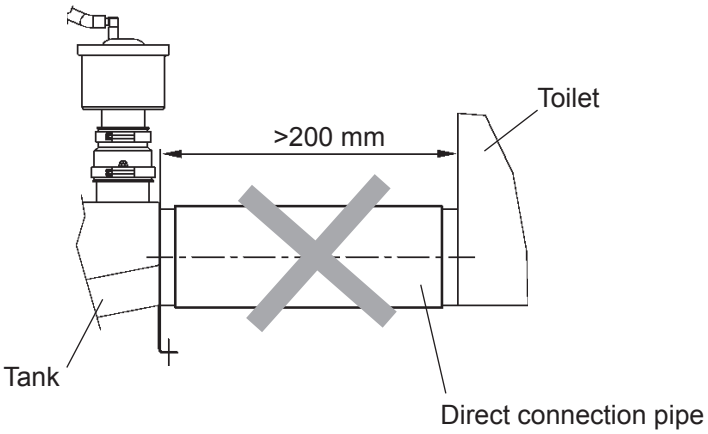


Materials	Tank: Stainless steel EN 1.4404
Operating data	Operating vacuum: -30... -60 kPa Activating volume: 8.0 l ± 10%
Capacity	-50 kPa: 2.2 l/s -30 kPa: 1.2 l/s
Connections	Outlet/vacuum line: Rubber sleeve connection to pipe DN40 Inlet/gravity line: Rubber sleeve connection to pipe Ø110
Shipping data	Net weight: 11 kg Shipping weight: 13 kg Shipping volume: 0.1 m³

VACUUM INTERFACE VALVE

6548640 VACUUM INTERFACE UNIT FOR GRAVITY TOILET





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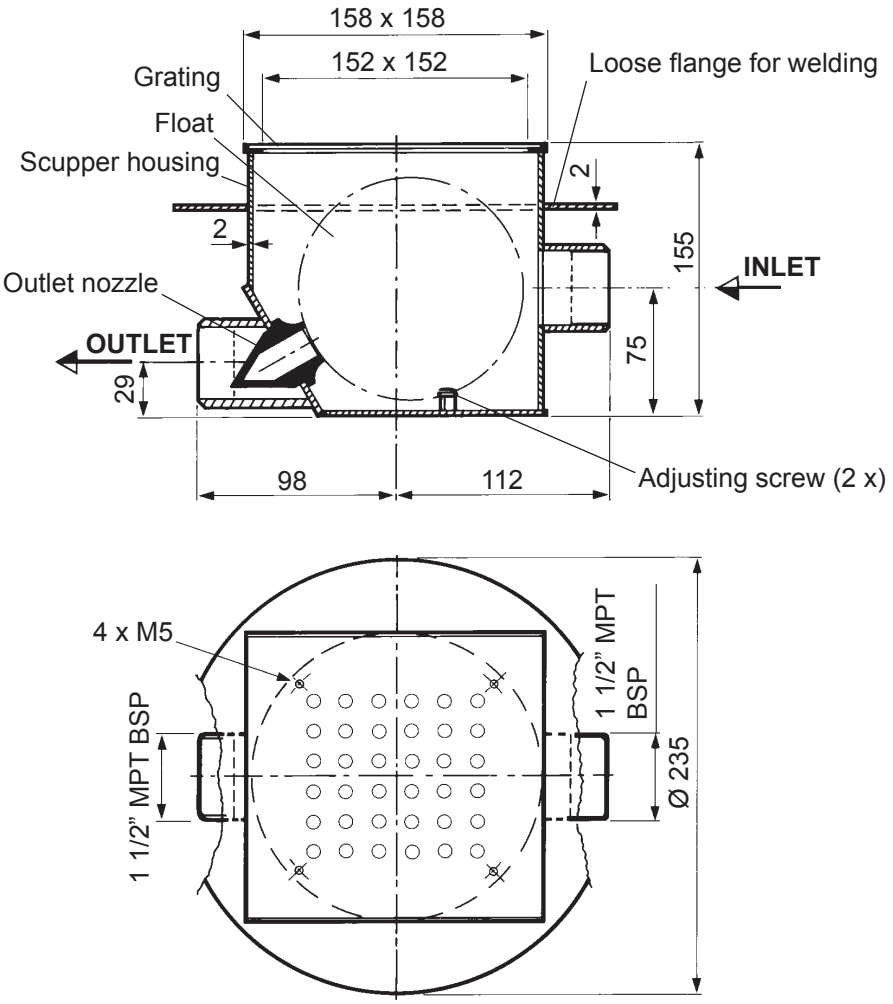
EVAC VACUUM INTERFACE UNITS

- EVAC BUFFER KITS
- EVAC INTERFACE VALVES
- **EVAC SHOWER DRAINS**
- EVAC FLOOR DRAINS
- EVAC SINGLE APPLIANCE UNITS

VACUUM INTERFACE VALVE

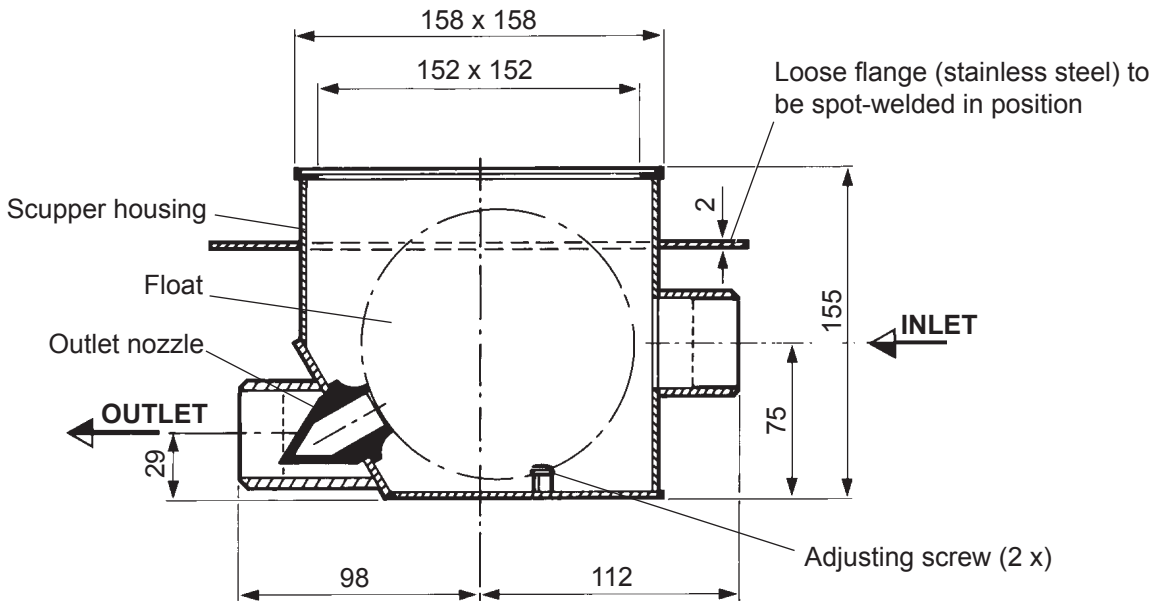
5439590 SHOWER DRAIN

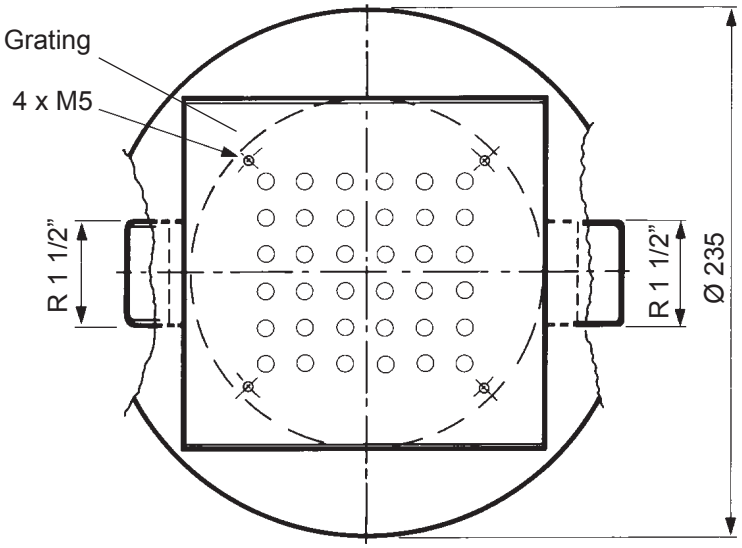


Materials	Body: Stainless steel EN 1.4404 Float: Acetal POM Outlet nozzle / Backflow preventer: EPDM
Operating data	Operating vacuum: -30... -50 kPa Min. operating vacuum: -20 kPa Activating volume: 1 l
Capacity:	45 l/min, 3 wash basins or equivalvet
Connections	Outlet / vacuum line: 1 1/2" MPT BSP DN40 Inlet / gravity line: 1 1/2" MPT BSP DN40
Shipping data	Net weight: 2.5 kg Shipping weight: 4.0 kg Shipping volume: 0.01 m³

VACUUM INTERFACE VALVE

5439590 SHOWER DRAIN





! NOTE: Incoming gravity line must be ventilated above the highest sanitary fixture.

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EVAC VACUUM INTERFACE UNITS

- EVAC BUFFER KITS
- EVAC INTERFACE VALVES
- EVAC SHOWER DRAINS
- **EVAC FLOOR DRAINS**
- EVAC SINGLE APPLIANCE UNITS

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EVAC VACUUM INTERFACE UNITS

- **EVAC FLOOR DRAINS**
  - **6L FLOOR DRAIN**
  - **60L FLOOR DRAIN**

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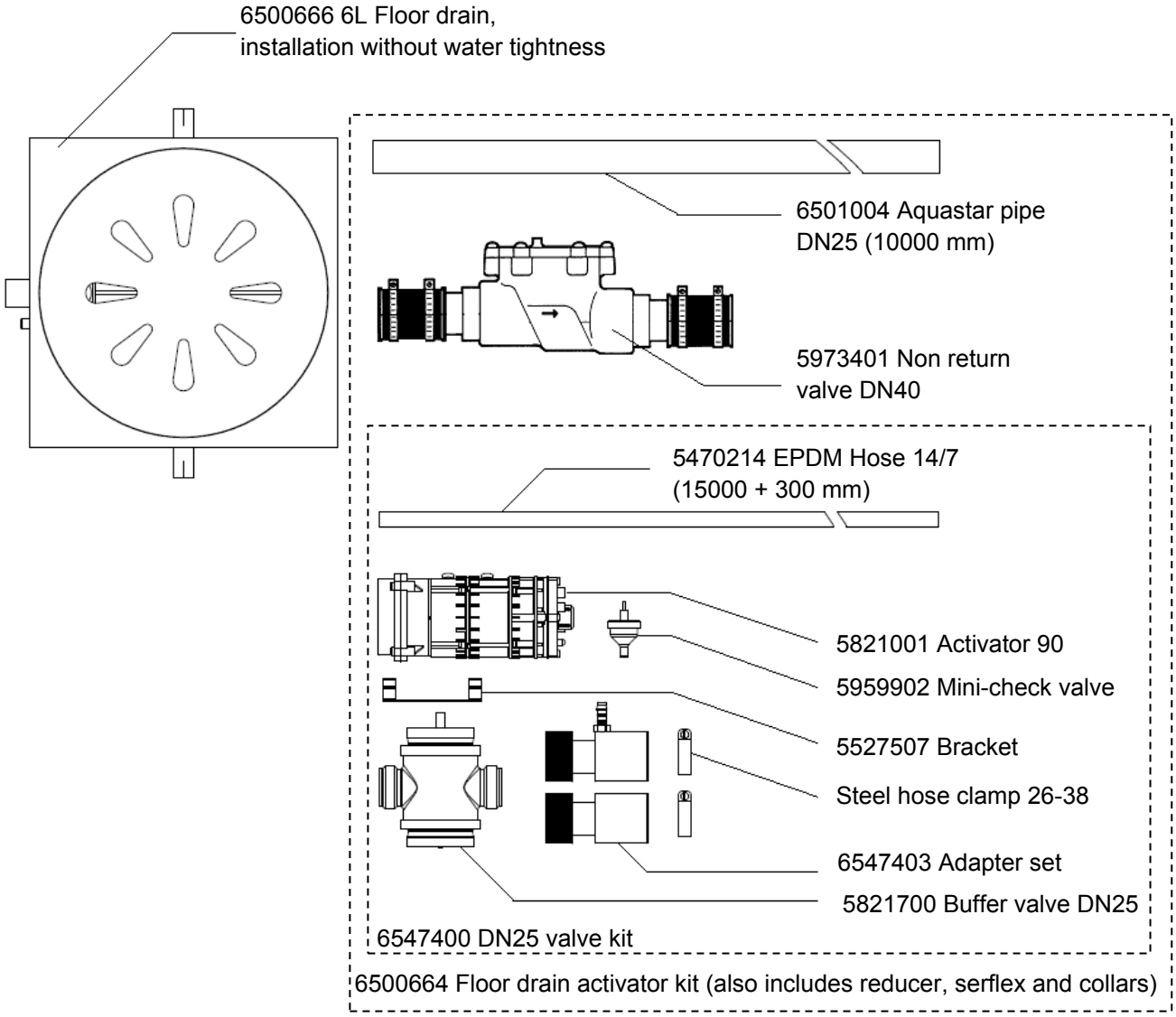
EVAC VACUUM INTERFACE UNITS

- EVAC FLOOR DRAINS
  - 6L FLOOR DRAIN
  - 60L FLOOR DRAIN

VACUUM INTERFACE UNITS

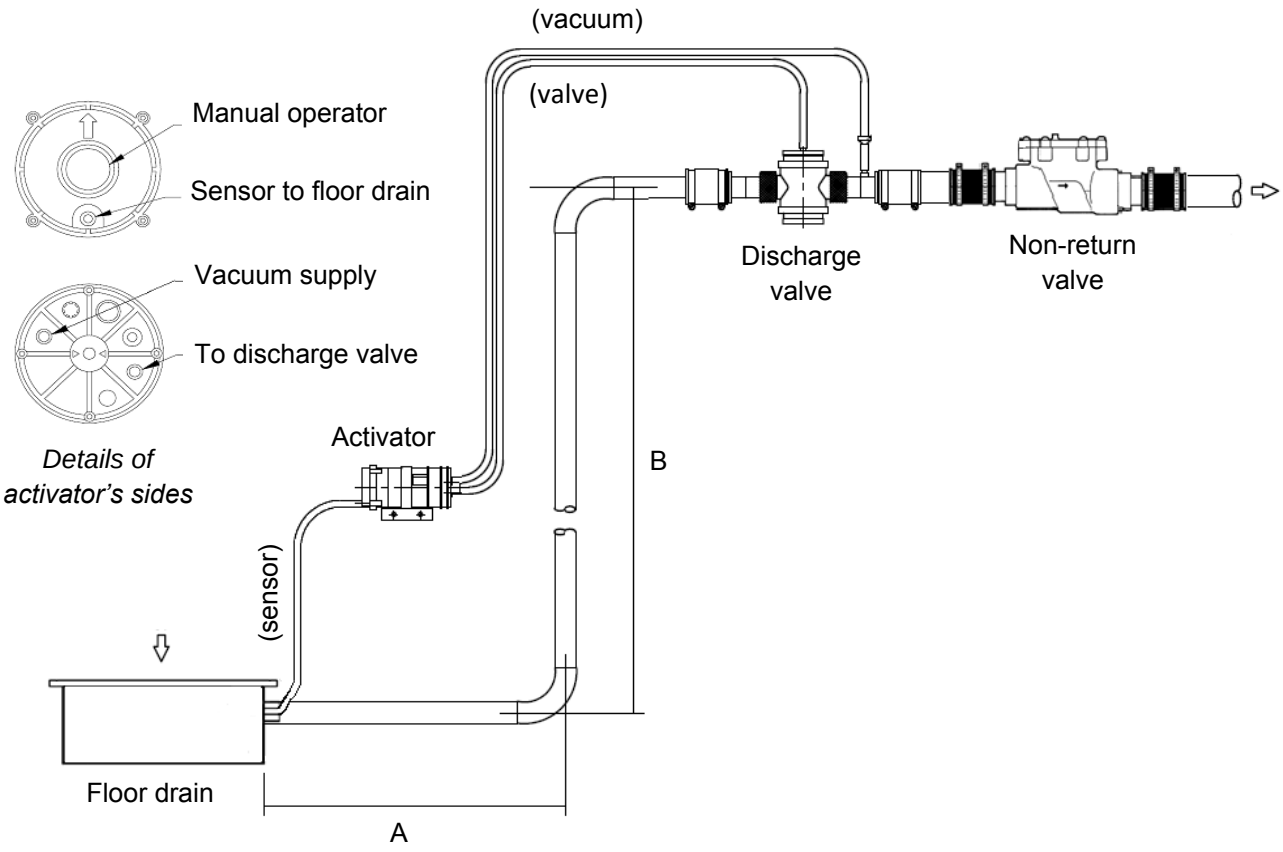
6500818 6 L FLOOR DRAIN KIT



Material	Tank: Stainless Steel 304L Discharge valve: Polyacetal Activator: Rigid PVC and Polyacetal Mini-check valve: Acetal Flexible tubing: EPDM hose Ø 14 x 7mm and Aquastar Ø25
Operating data	Operating vacuum: -30... -70kPa Min. operating vacuum: -25kPa; Min. activating volume: 3.0 L
Connections	Outlet / vacuum line: DN25 flexible PVC
Capacity	-50kPa: 1.7 L/sec; -30kPa: 1.0 L/sec
Shipping data	Net weight: 2.5 kg; Shipping weight: 3 kg Shipping volume: 0.04 m^3

VACUUM INTERFACE UNITS

6500818 6 L FLOOR DRAIN KIT

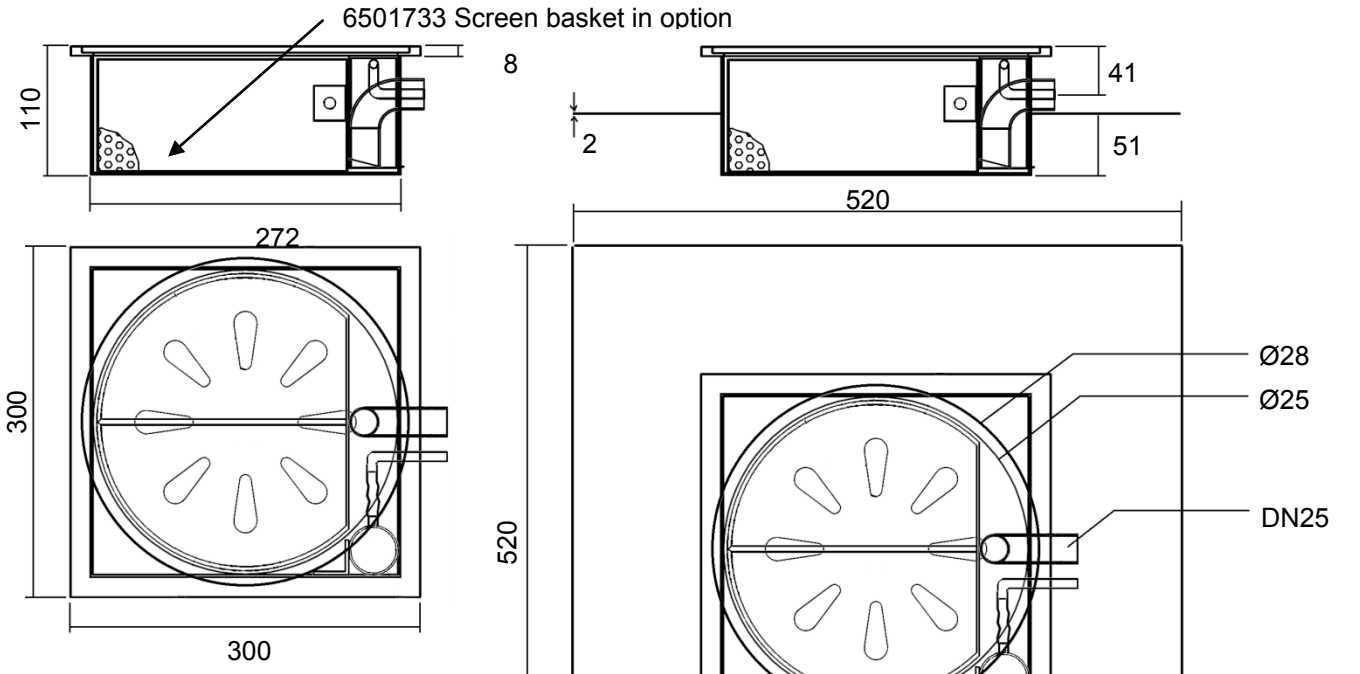


(not at scale)

- Please specify rising heights and floor distances to Evac
- Activators and discharge valves should remain accessible for maintenance
- Do not use 90° elbow fitting
- Distance A+B should be less than 7 m

VACUUM INTERFACE UNITS

6500666 6 L FLOOR DRAIN



Configuration for installation without water tightness

Configuration for installation with water tightness

(dimensions in mm)

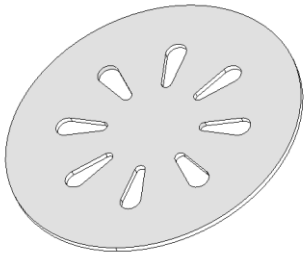
Material	Tank: Stainless Steel 304L
Connections	Outlet / vacuum line: DN25 flexible PVC
Shipping data	Net weight: 2.5 kg Shipping weight: 3 kg Shipping volume: 0.04 m^3

VACUUM INTERFACE UNITS

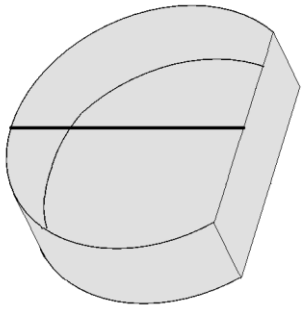
6500666 6 L FLOOR DRAIN

Configurations for installation without water tightness

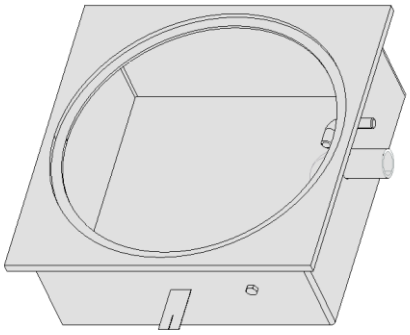
Part 3 : Cover



6501733 Screen basket optional



Part 2 : Core

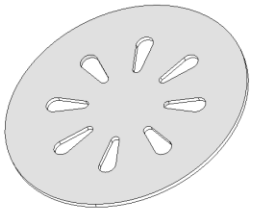


VACUUM INTERFACE UNITS

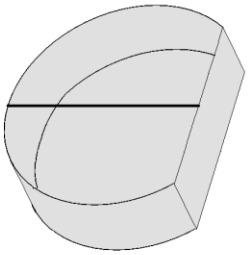
6500666 6 L FLOOR DRAIN

Configuration for installation with water tightness system

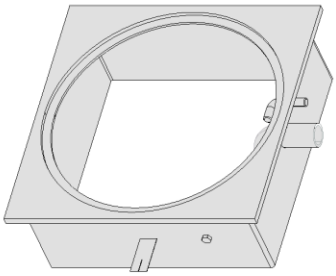
Part 3 : Cover



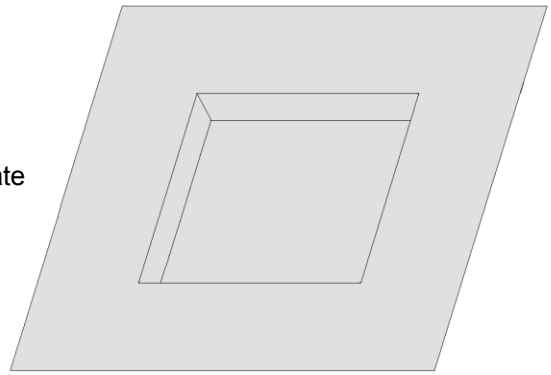
6501733 Screen basket optional



Part 2 : Core

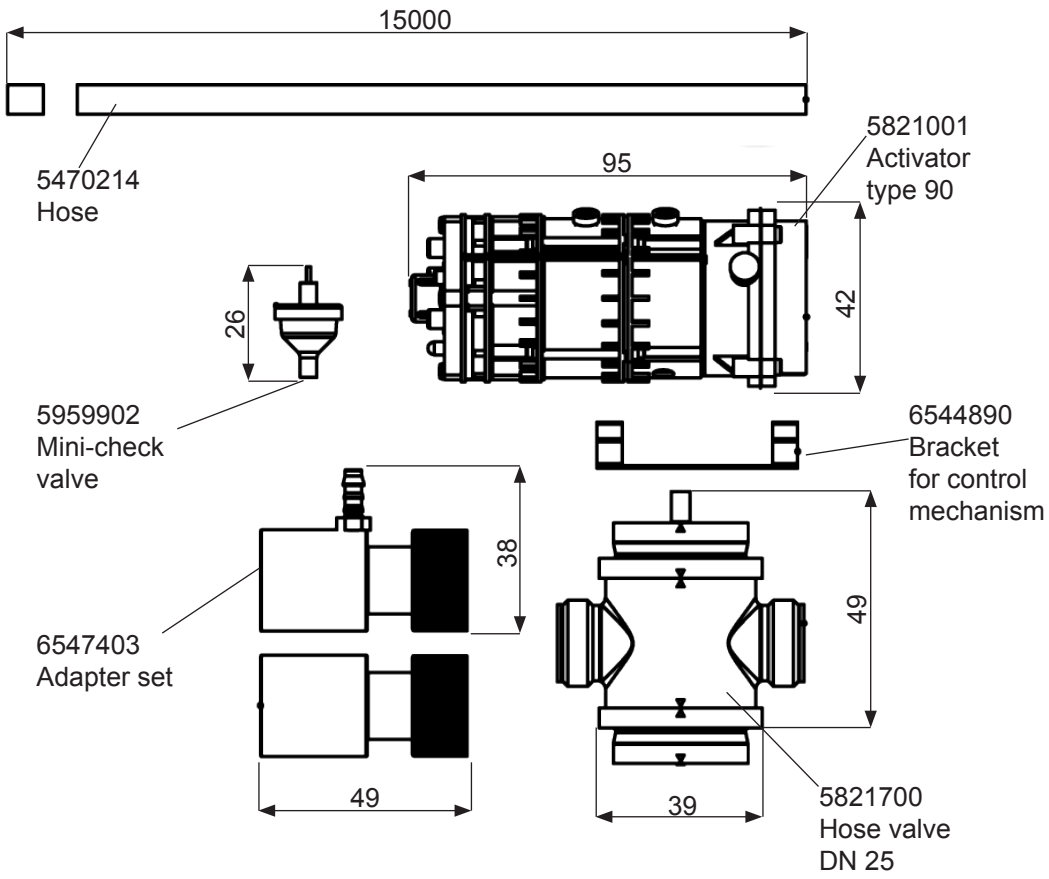


Part 1 : 6500584 Anchor plate



FLOOR DRAIN

6547400 Buffer valve kit



Materials

Activator: POM
Adapter: PVC
Hose: EPDM
Hose valve: POM
Mini-check valve: POM

Shipping data

Weight: 3.5 Kg

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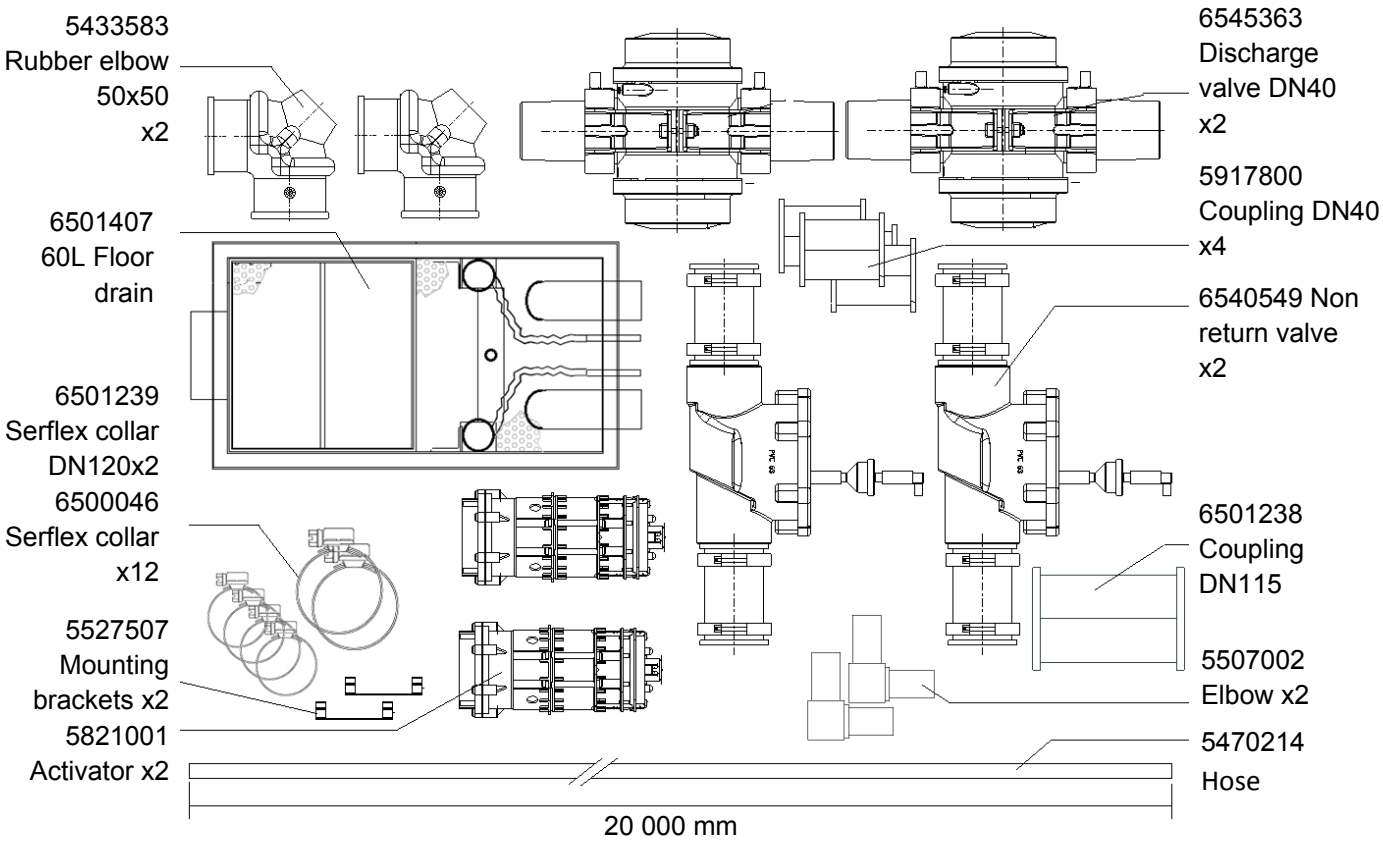
EVAC VACUUM INTERFACE UNITS

- EVAC FLOOR DRAINS
  - 6L FLOOR DRAIN
  - **60L FLOOR DRAIN**

VACUUM INTERFACE UNITS

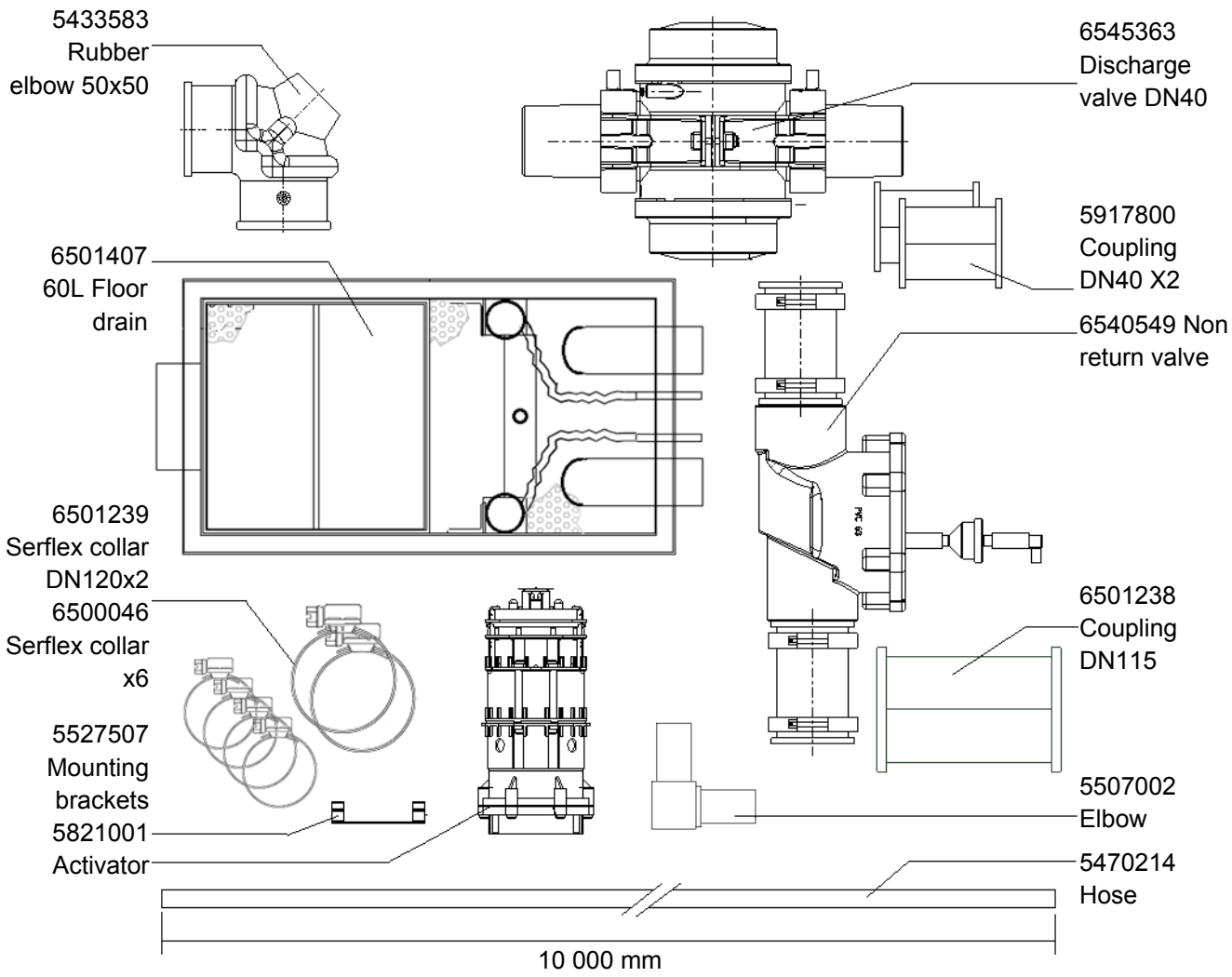
6500734 60 L FLOOR DRAIN KIT DOUBLE DISCHARGE



Material	Floor drain: AISI 304 Activator: acetal Non return valve: acetal Hose: EPDM Discharge valve: acetal
Connections	Outlet / vacuum line: DN40 double discharge Connection to activator: 10 mm EPDM hose Ø 14 x 7mm Other connections: DN115
Capacity	-50kPa : 2.0 L/sec -30 kPa: 1.0L /sec
Shipping data	Net weight : 8.8 kg Shipping weight: 10 kg Shipping volume: 0.1 m^3

VACUUM INTERFACE UNITS

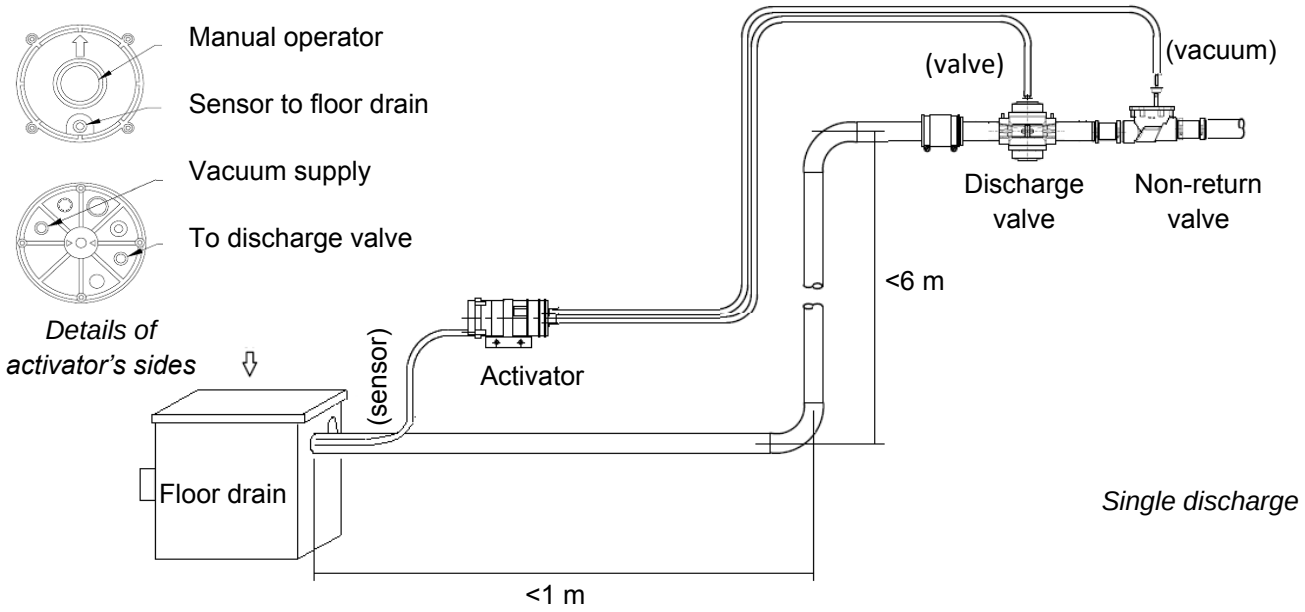
6501370 60 L FLOOR DRAIN KIT SINGLE DISCHARGE



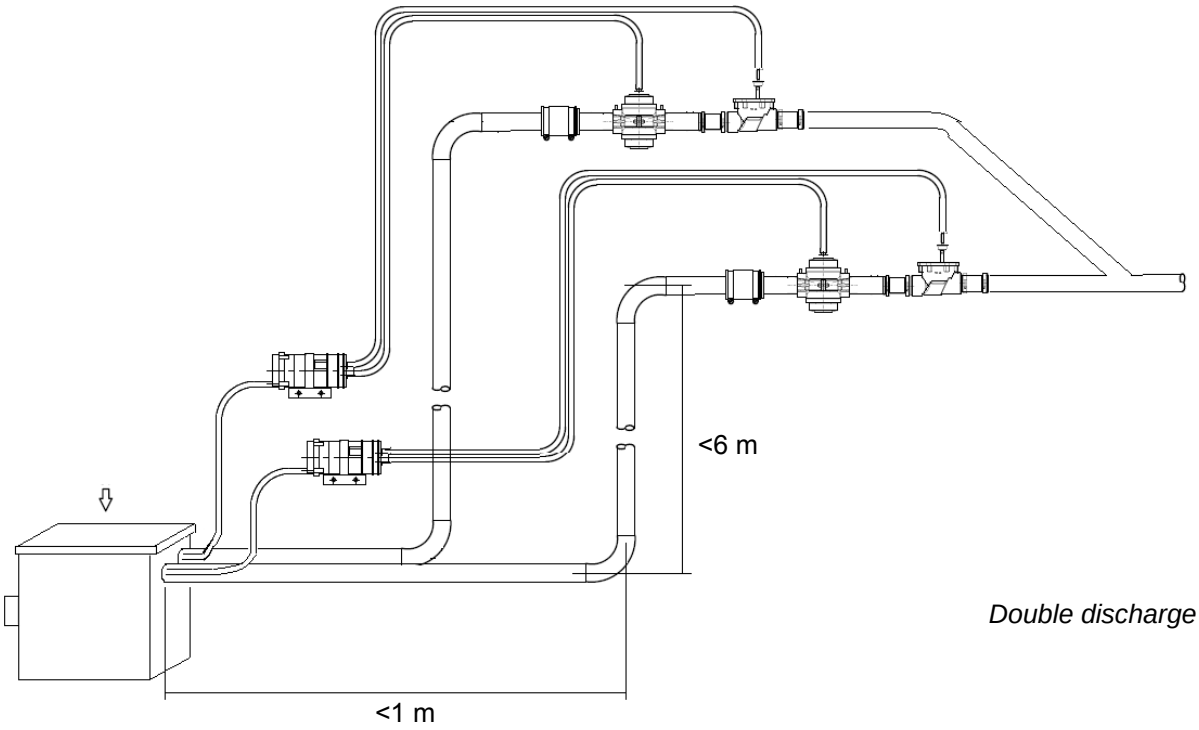
Material	Floor drain: AISI 304 Activator: acetal Non return valve: acetal Hose: EPDM Discharge valve: acetal
Connections	Outlet / vacuum line: DN40 single discharge Connection to activator: 10 mm EPDM hose Ø 14 x 7mm Other connections: DN115
Capacity	-50kPa : 2.0 L/sec -30 kPa: 1.0 L /sec
Shipping data	Net weight : 6.8 kg Shipping weight: 8 kg Shipping volume: 0.1 m^3

VACUUM INTERFACE UNITS

6501370 60 L FLOOR DRAIN KIT SINGLE DISCHARGE
6500734 60 L FLOOR DRAIN KIT DOUBLE DISCHARGE



Single discharge



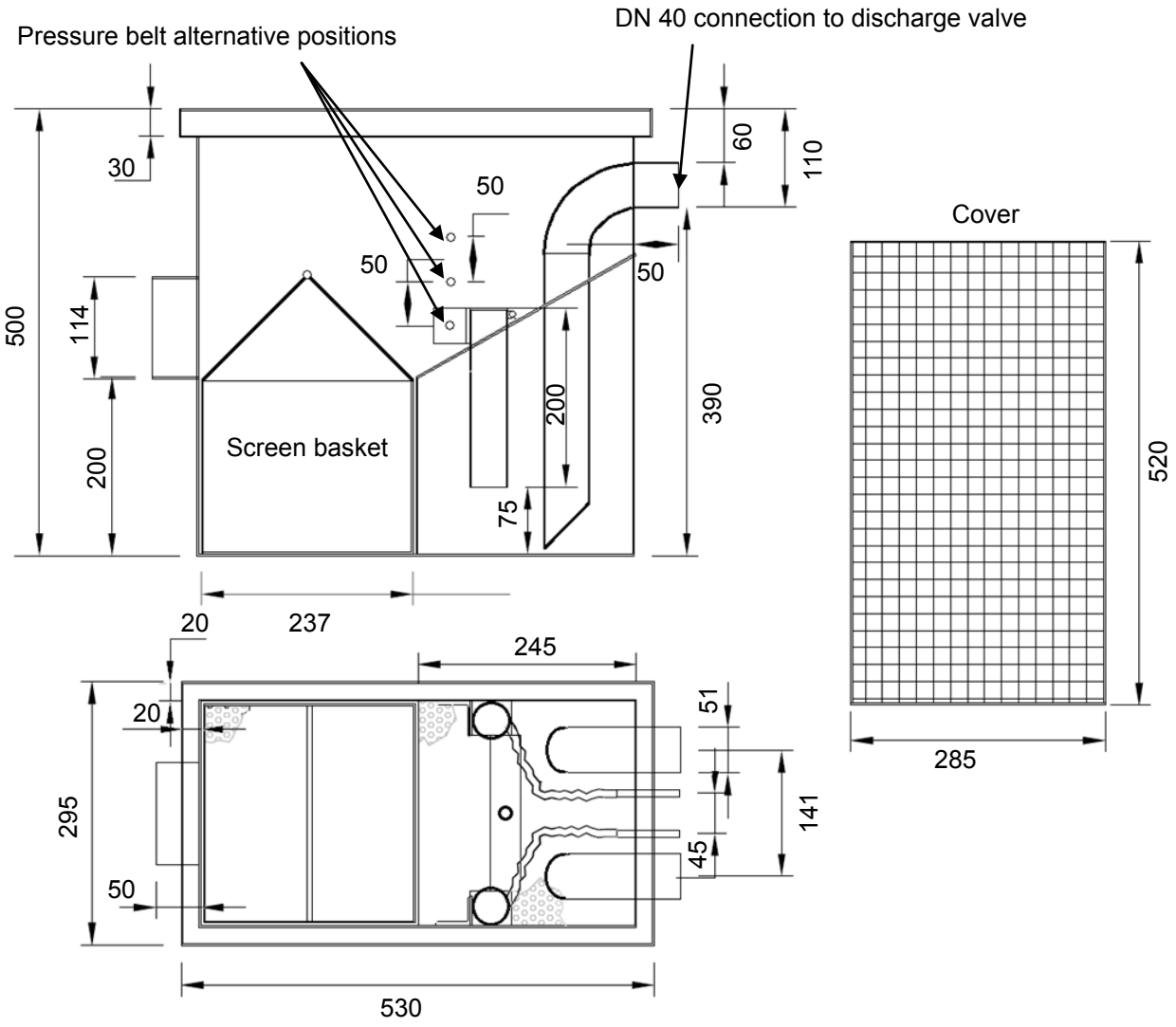
Double discharge

(not at scale)

- Please specify rising heights and floor distances to Evac
- Activators and discharge valves should remain accessible for maintenance
- Do not use 90° elbow fitting
- 3 positions available on the pressure belt

VACUUM INTERFACE UNITS

6501407 60 L FLOOR DRAIN



(dimensions in mm)

Material	Stainless Steel AISI 304
Connections	Outlet / vacuum line: DN40 double discharge Connection to activator: 10 mm EPDM hose Ø 14 x 7mm Other connections: DN115
Shipping data	Net weight: 5 kg Shipping weight: 5 kg Shipping volume: 0.1 m^3

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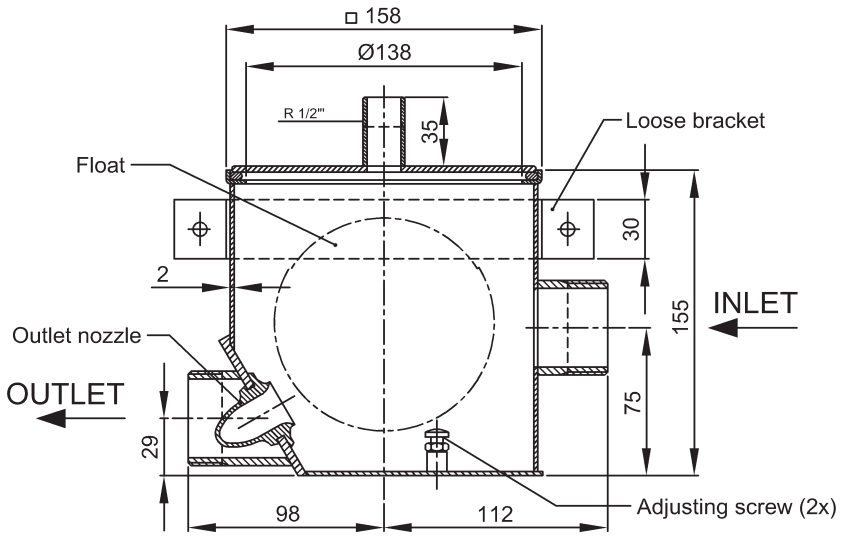
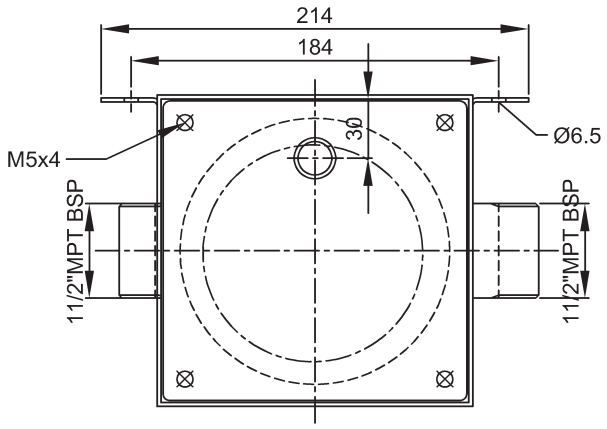
EVAC VACUUM INTERFACE UNITS

- EVAC BUFFER KITS
- EVAC INTERFACE VALVES
- EVAC SHOWER DRAINS
- EVAC FLOOR DRAINS
- **EVAC SINGLE APPLIANCE UNITS**

VACUUM INTERFACE UNIT

5439603 SINGLE APPLIANCE UNIT





Materials	Body SIS 2343/AISI 316 Float Acetal POM Outlet nozzle/Backflow preventer EPDM
Operating data	Operating vacuum -30 kPa ... -50 kPa Min. operating vacuum -20 kPa Activating volume 1 litre
Connections	Outlet/vacuum line 1 1/2” MPT BSP DN 40 Inlet/gravity line 1 1/2” MPT BSP DN 40
Design flow	0,75 l/s
Shipping data	Net weight 2.5 kg Shipping weight 4.0 kg Shipping volume 0.01 m^3

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EVAC GREASE SEPARATORS

GREASE SEPARATORS

6501847 1200L GREASE SEPARATOR FOR VACUUM SYSTEM
6501754 2000L GREASE SEPARATOR FOR VACUUM SYSTEM

Grease separation for heavy greywater in vacuum system

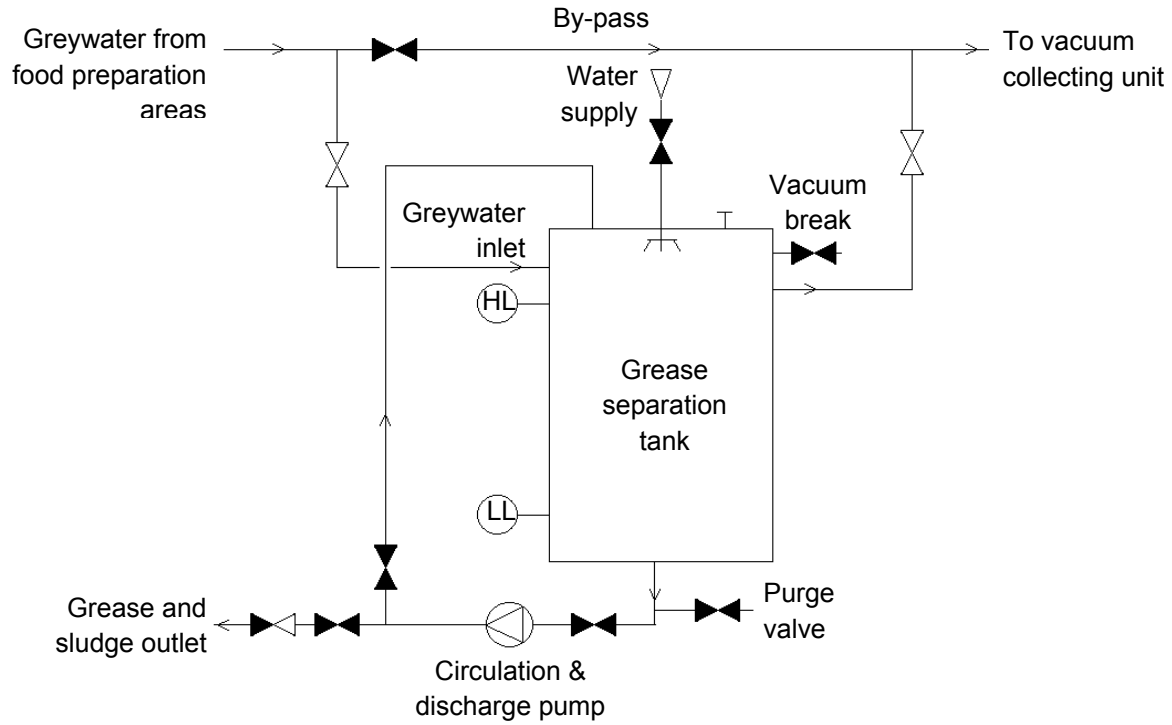
When grease enters the sewage system in significant quantity, it causes pipe clogging and odor. This often requires inconvenient and expensive cleaning as well as serious nuisance in sewage treatment facilities. When wastewater containing fat, oil and grease enters in contact with cold sewage, grease solidifies and builds up inside the pipes. For these reasons, it is highly recommended and in most cases mandatory to equip any food service kitchen with a grease separator. When gravity drainage is an issue, a vacuum grease separator is installed.

- The vacuum grease separator is composed of:
- A collecting and grease separation tank of 1200L or 2000L capacity (for higher capacity please consult Evac)
- A circulation and discharge pump
- A rotating wash head on top inside the tank
- A high level switch for tank filling process
- A low level switch for discharge pump stop
- Connections to the PVC vacuum network pipes for inlet, connection to outlet
- Discharge connection DN50 for the sludge and grease outlet
- One control panel for the power, level and discharge management

Advantages

- No odor
- Lower and easier maintenance requirement
- No gravity drainage requirement

Flow diagram



GREASE SEPARATORS

6501847 1200L GREASE SEPARATOR FOR VACUUM SYSTEM
6501754 2000L GREASE SEPARATOR FOR VACUUM SYSTEM

Functioning

The grease separator is installed in a vacuum network and operated under vacuum condition. Greywater is directed through the inlet to the grease separator tank, where grease and water are separated by gravity according to their density. Fat, oil and grease are trapped at the top of the tank and constitute eventually a crust. The separated water is taken in the lower end of the tank to the outlet and sucked into the vacuum network.

After a while the tank has reached its sludge and grease storage capacity and the tank discharge is needed. The discharge alarm is set on a timer.

The discharge process includes circulation of wastewater from the bottom to the top of the tank, cleaning with the rotating wash head and tap water, and once the crust is broken down the valves can be turned so that the pump is in discharge mode to the truck. When the low level is reach the discharge pump is automatically stopped. Before restarting the grease separator after a discharge, the tank is filled with water until the high level switch is reached.

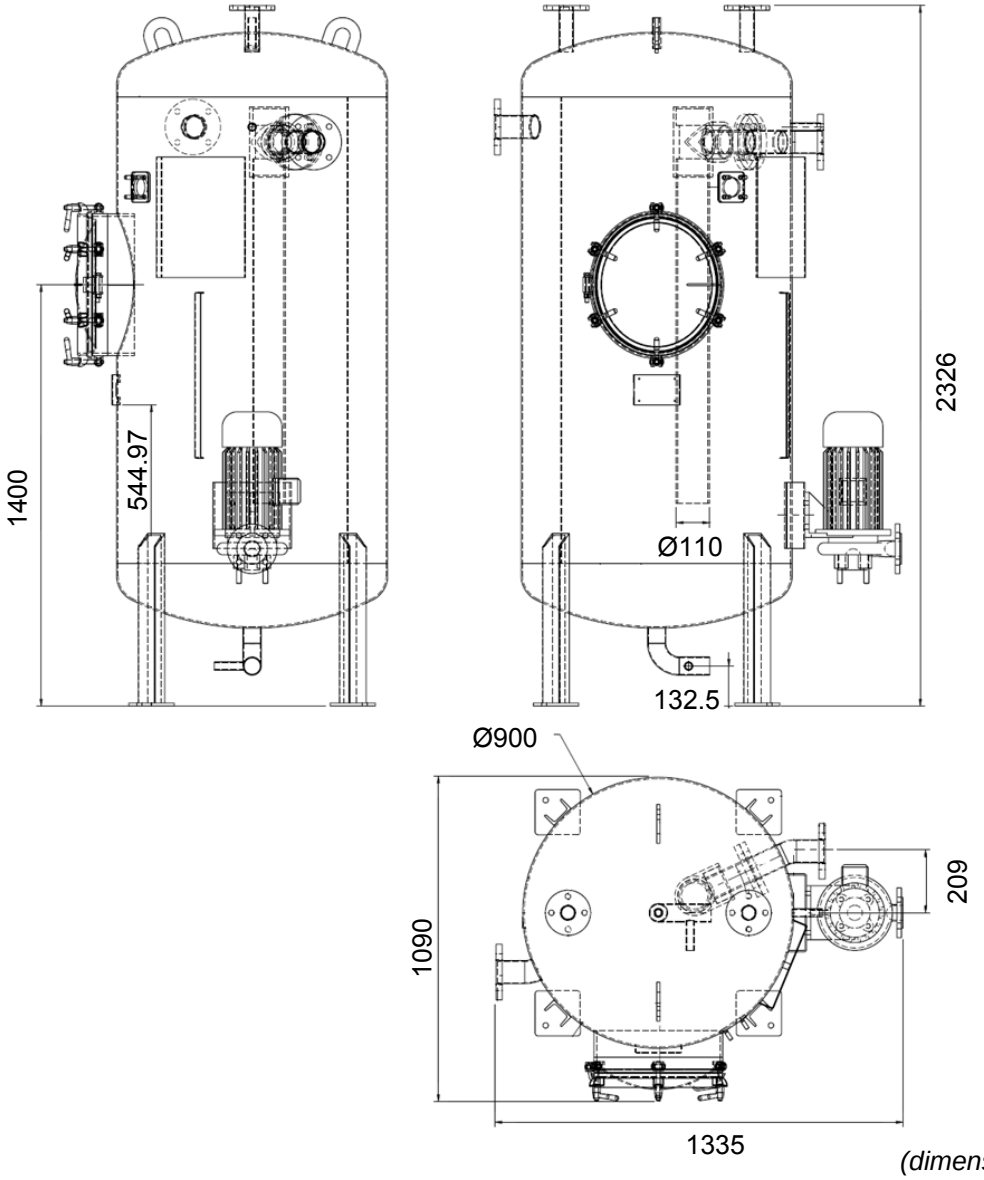
Vacuum grease separator models

Design and selection of Evac vacuum grease separators are carried out according to the European standard EN1825-1 and-2. For larger capacity please consult Evac.

Type	P/N	Nominal size	Volume of grease storage L	Volume of grease separation zone L	Volume of sludge storage L
1200 L Grease separator for vacuum system	6501847	NS 3	110	700	270
2000 L Grease separator for vacuum system	6501754	NS 5	190	1150	450

GREASE SEPARATORS

6501847 1200L GREASE SEPARATOR FOR VACUUM SYSTEM

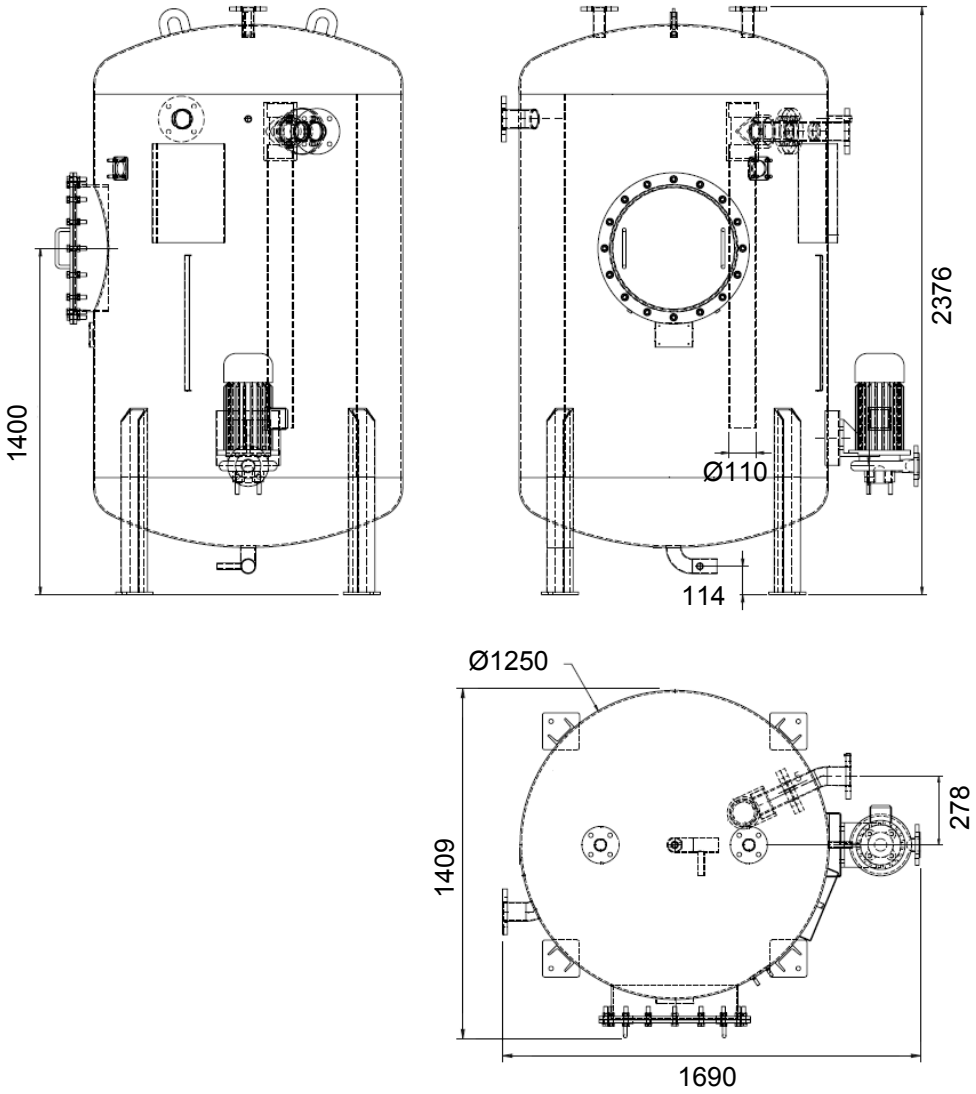


(dimensions in mm)

Materials	Tank: coated
Capacity	Volume of grease separation zone: 700 L Nominal size: 3 L/sec
Electrical data	Motor: 400/440V, 3.0/3.6kW, 50/60Hz Control panel: 220/400/440V, 50/60Hz
Connections	Greywater inlet and outlet: DN65 DIN Flange Grease/sludge outlet: DN50
Shipping data	Net weight (dry): appr. 340 kg without equipment Shipping volume: appr. 5.5 m^3 with equipment

GREASE SEPARATORS

6501754 2000L GREASE SEPARATOR FOR VACUUM SYSTEM

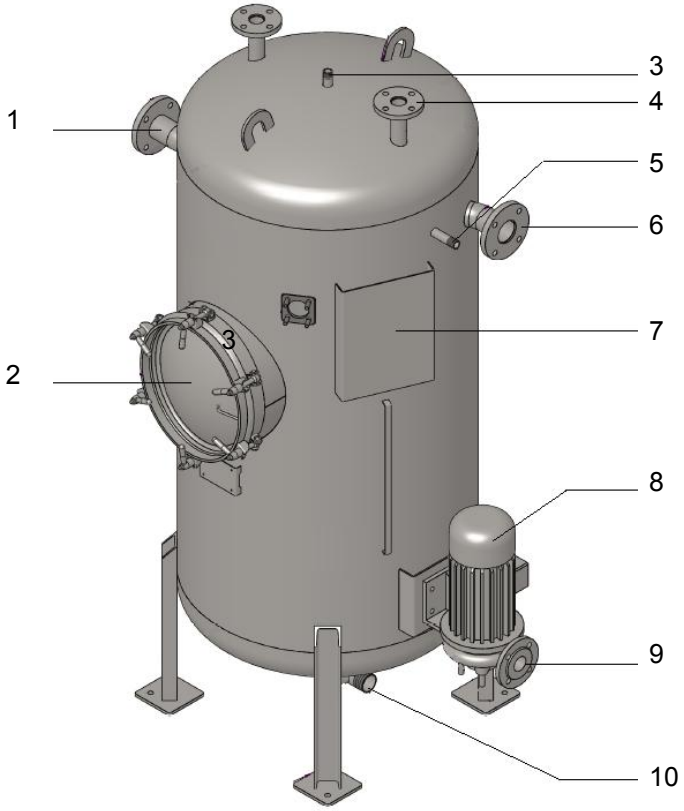


(dimensions in mm)

Materials	Tank: Epoxy coated
Capacity	Volume of grease separation zone: 1150 L Nominal size: 5 L/sec
Electrical data	Motor: 400/440V, 3.0/3.6kW, 50/60Hz Control panel: 220/400/440V, 50/60Hz
Connections	Greywater inlet and outlet: DN65 DIN Flange Grease/sludge outlet: DN50
Shipping data	Net weight (dry): appr. 575 kg without equipment Shipping volume: appr. 7.5 m^3 with equipment

GREASE SEPARATORS

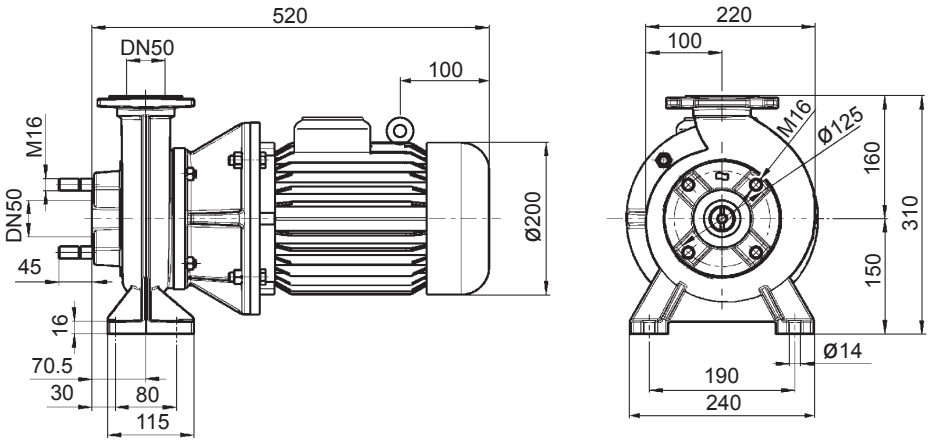
6501847 1200L GREASE SEPARATOR FOR VACUUM SYSTEM
6501754 2000L GREASE SEPARATOR FOR VACUUM SYSTEM



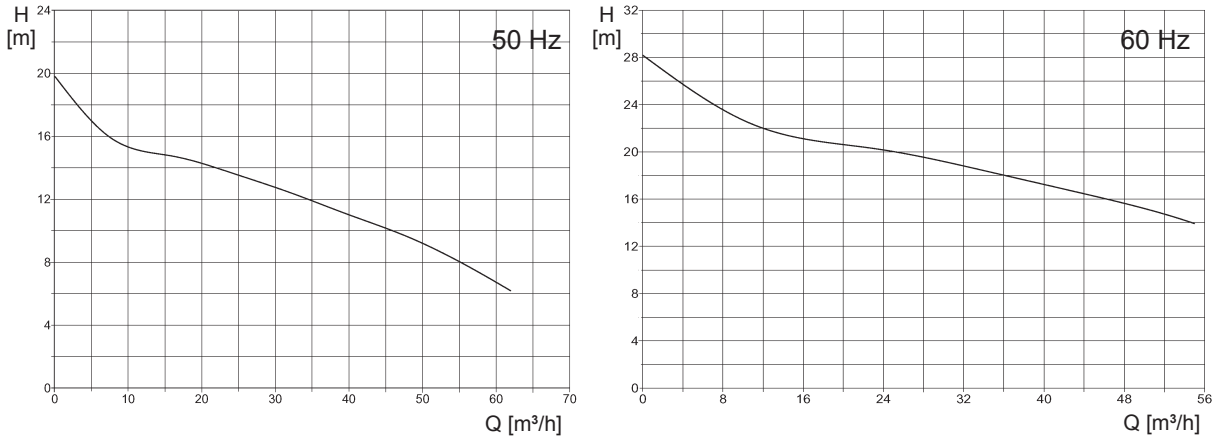
Main components

Item	Name	P/N	6501847	6501754
1	Inlet connection DN65		1	1
2	Manhole		1	1
3	Water connection and wash head 1”	6500236	1	1
4	Recycling connection DN50		1	1
5	Vacuum break valve	6500297	1	1
6	Outlet connection DN65		1	1
7	Control panel	6506117	1	1
8	Discharge and recycling pump S30	6546910	1	1
9	Recycling and discharge connection 2”		1	1
10	Pump connection DN50		1	1
	Purge valve	6500297	1	1
	Level switch HLS	5430612	1	1
	Level switch LLS	6500178	1	1

6546910 PUMP S30, 3x380-420 V 50 Hz, 3x440-480 V 60 Hz, 3x660-690 V 50 Hz



Capacity



Electrical data

Voltage: 3x380-420 V 50 Hz			Voltage: 3x440-480 V 60 Hz			Voltage: 3x660-690 V 50 Hz		
Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current		Power	Current	
3.0 kW	6.5 A	3000 rpm	3.6 kW	6.3 A	3600 rpm	3.0 kW	3.75 A	3000 rpm

Protection class: IP55
Insulation class: F
Efficiency: IE1

Materials

Pump casing and interstage casing: Cast iron EN-GJL-250 (GG25)
Impeller: Cast iron EN-GJL-250 (GG25)
Shaft: Stainless steel SIS 2350 (AISI316Ti)
Impeller nut: Copper alloy UNS 38500
Metal seals: Carbon stainless steel

Other

Impeller: Ø120

Shipping data

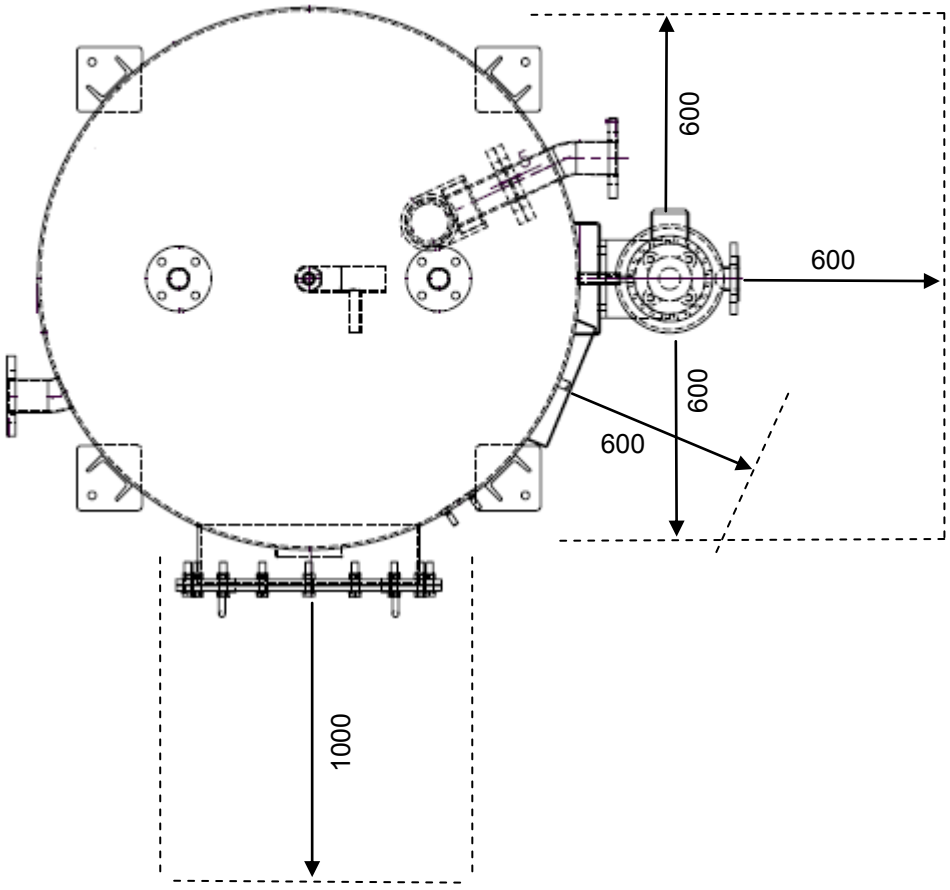
Net weight: 56 kg

GREASE SEPARATORS

6501847 1200L GREASE SEPARATOR FOR VACUUM SYSTEM
6501754 2000L GREASE SEPARATOR FOR VACUUM SYSTEM

The installation of an Evac vacuum system requires:

- Supply of electricity 400-460V 50Hz
- Greywater vacuum piping arrival DN65
- Pipe disposal of grease and sludge, DN50
- Maintenance space: Minimum 1000mm in front of the manhole, 600 mm in front the control panel and around the discharge pump.



(Min. maintenance distances in mm, top view)

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EVAC VACUUM COLLECTING UNITS








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EVAC VACUUM COLLECTING UNITS

TABLE OF CONTENTS

EVAC TANK SYSTEMS

- MINIVAC
- HQE 10
- HQE 30

EVAC ONLINE SYSTEMS

- ONLINEFLEX

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EVAC VACUUM COLLECTING UNITS

EVAC TANK SYSTEMS

- **MINIVAC**
- HQE 10
- HQE 30

EVAC ONLINE SYSTEMS

- ONLINEFLEX

VACUUM COLLECTING UNITS

6501743S30 MINIVAC 2

Vacuum suction for condensates only:

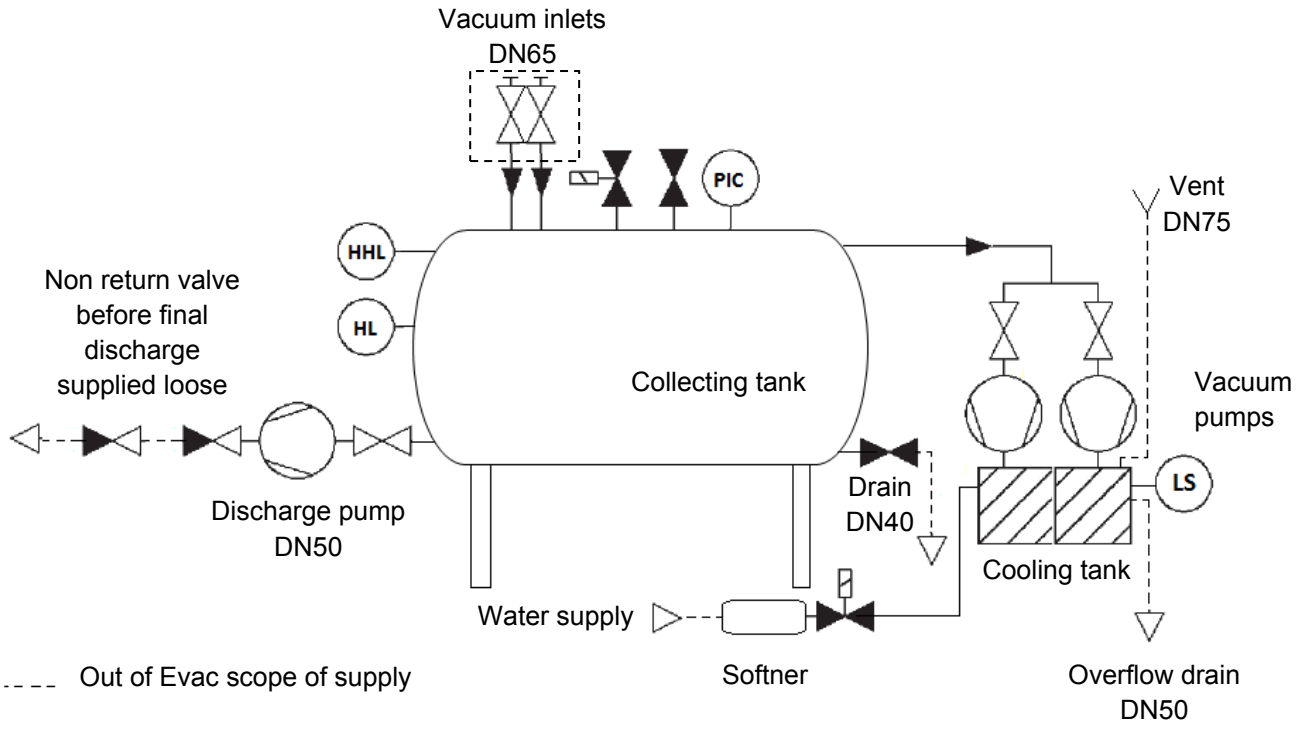
The vacuum system MiniVac N°2 is composed of:

- One 500 liters collecting tank.
- Two vacuum liquid ring pumps of 80 m^3/h each
- One plastic water cooling tank.
- One discharge pump.
- One control panel with PLC for the power and the regulation.
- Two inlet connections for PVC DN65 (PN16) network pipes
- A coated frame mount with anti choc support on the ground.

Advantages

- Competitive price
- Small footprint
- Robust and simple

Flow diagram



VACUUM COLLECTING UNITS

6501743S30 MINIVAC 2

Functioning

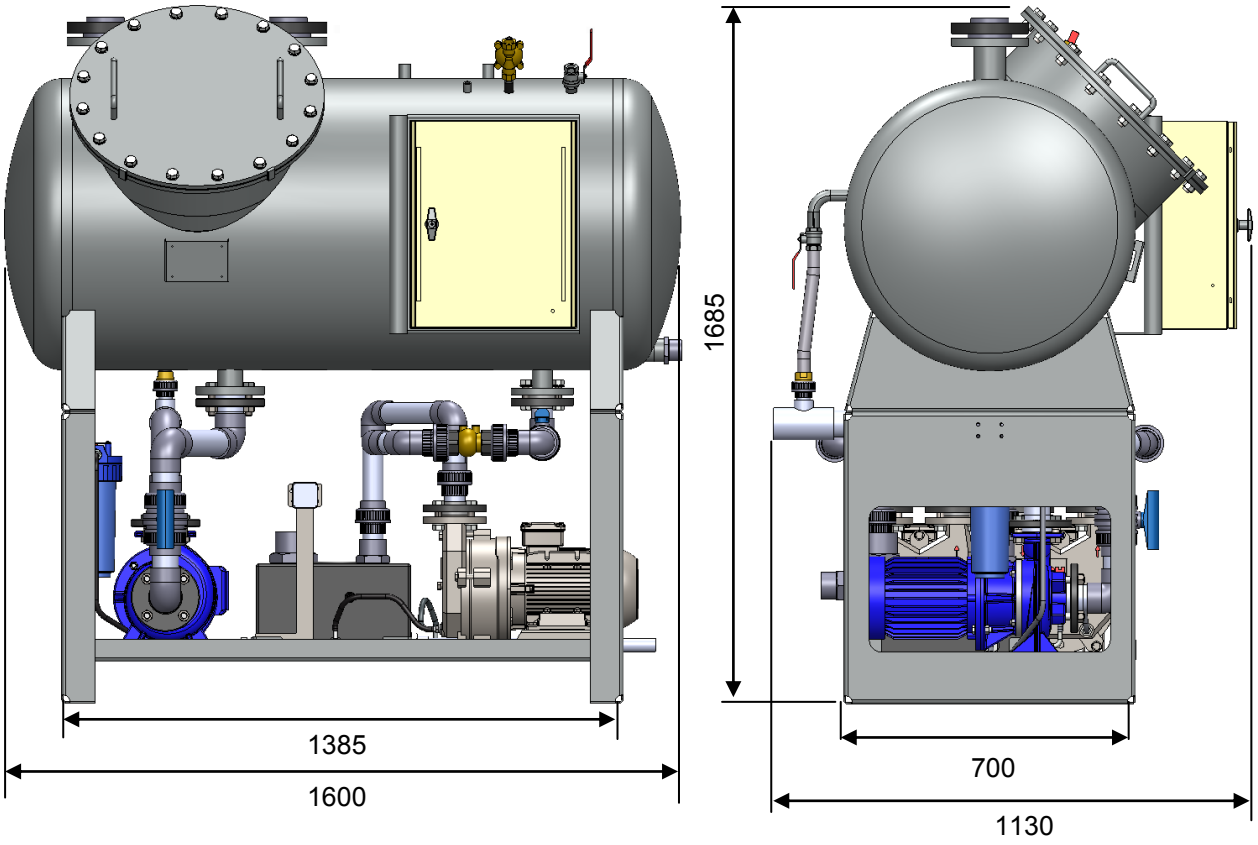
- The vacuum pumps are connected to the collecting tank and then to the pipe network. These pumps maintain a constant level of vacuum in the system.
- The vacuum electronic measurement system regulates the vacuum pumps operation.
- The collecting tank, equipped with level control, receives condensate water coming from the piping network (branch and main).
- Two DN65 inlets are located on the upper left part of the tank.
- When the vacuum pumps are running, vacuum is created in all the system.
- When needed the vacuum pumps are stopped, and the discharge pump is activated to discharge the tank to the sewage system through the DN50 PVC pipe.
- The control panel of the PLC manages the entire system.

Limit of use

The MiniVac N°2 system can handle up to 18 interfaces of 2.5 liters capacity. To connect more interfaces a vacuum plant type N°10 or N°30 will be recommended, please consult Evac.

VACUUM COLLECTING UNITS

6501743S30 MINIVAC 2

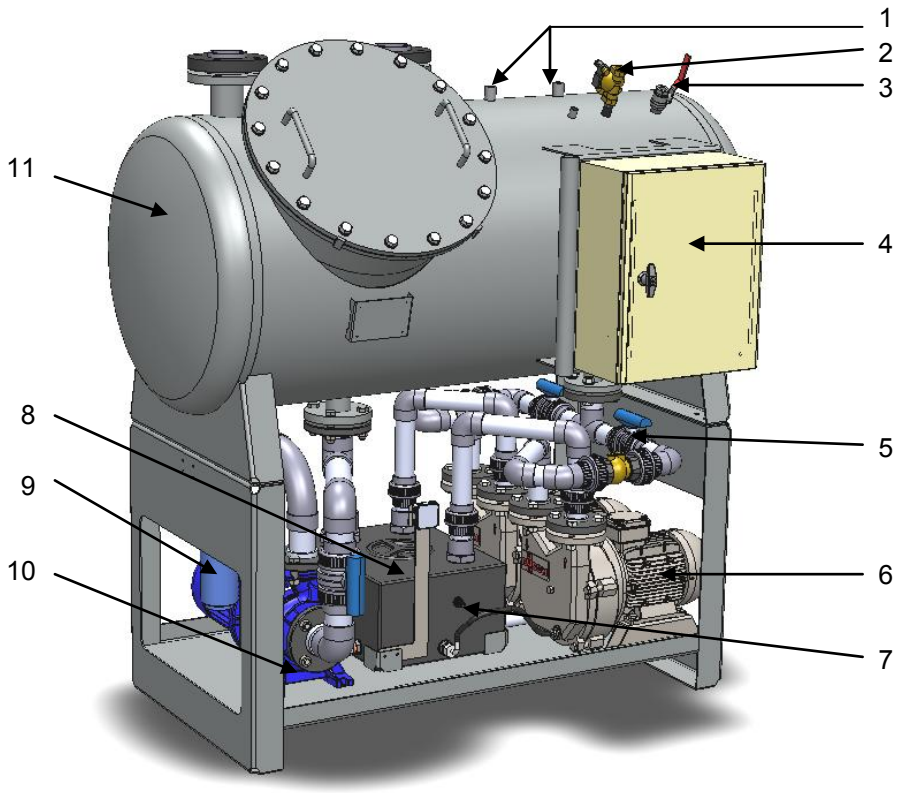


(dimensions in mm)

Materials	Vacuum pump; pump casing: cast iron, PTEF coated inside Frame and tank: Epoxy coated
Capacity	Tank volume: 500 L Vacuum capacity: 2 x 72 m^3/h (50Hz)
Electrical data	Voltage: 415V/50Hz, 3 phases +earth Nominal current: 17.3 A; Nominal power: 7.4 kW
Connections	Inlet: DN65; Outlet (discharge): DN50 Vent: DN75
Shipping data	Dry weight: 580 kg tank and frame only

VACUUM COLLECTING UNITS

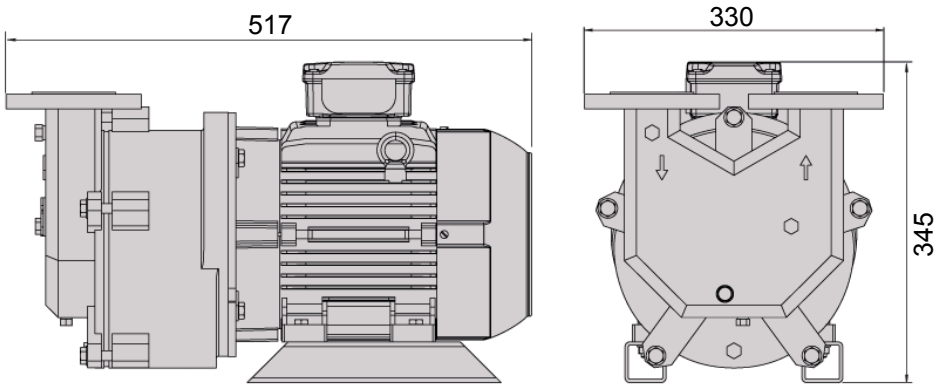
6501743S30 MINIVAC 2



Main components

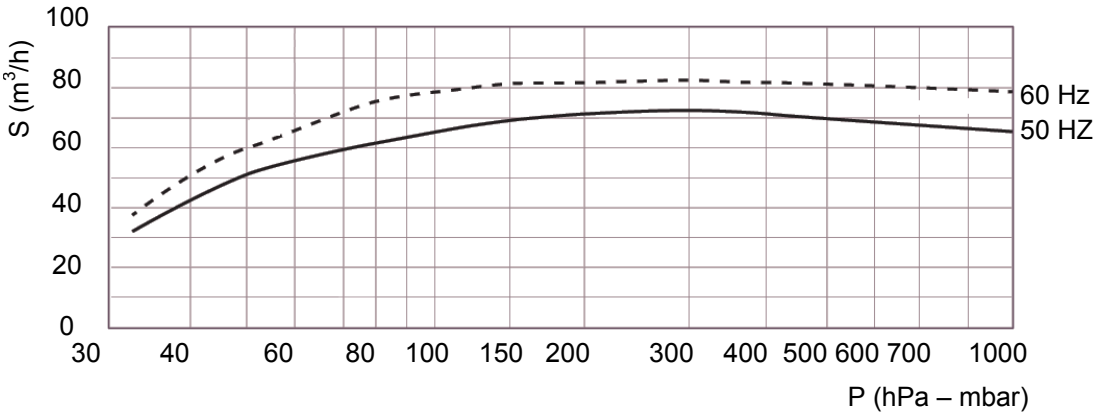
Item	Name	P/N	Quantity
1	Tank level switch	6500178	2
2	Solenoid air valve	6500339	1
3	Manual shut-off valve for vacuum break	6500297	1
4	Control panel MiniVac	6506104	1
5	Manual shut-off valve DN40	6500055	2
6	Liquid ring vacuum pump	6501729	2
7	Cooling tank level switch	6500751	1
8	Cooling tank	6500394	1
9	Water supply filter Cartridge filter	6501001 6501002	1 1
10	Discharge pump S30	6546910	1
11	MiniVac tank	6501742S30	1
	Flexible for cooling tank	6500371	2
	Flexible for water valve	6500051	1
	Solenoid water valve	6500339	1
	Manual ball valve DN50	6500056	1
	Non return-valve for discharge	6546452	1
	Non return-valve for discharge (supplied loose)	6500069	1
	Non return valve vacuum line	6501737	2

6501729 VACUUM PUMP



(dimensions in mm)

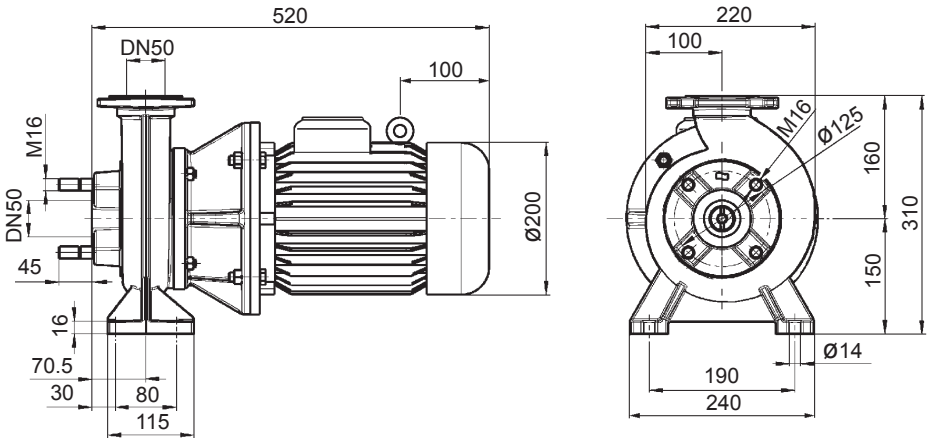
Capacity



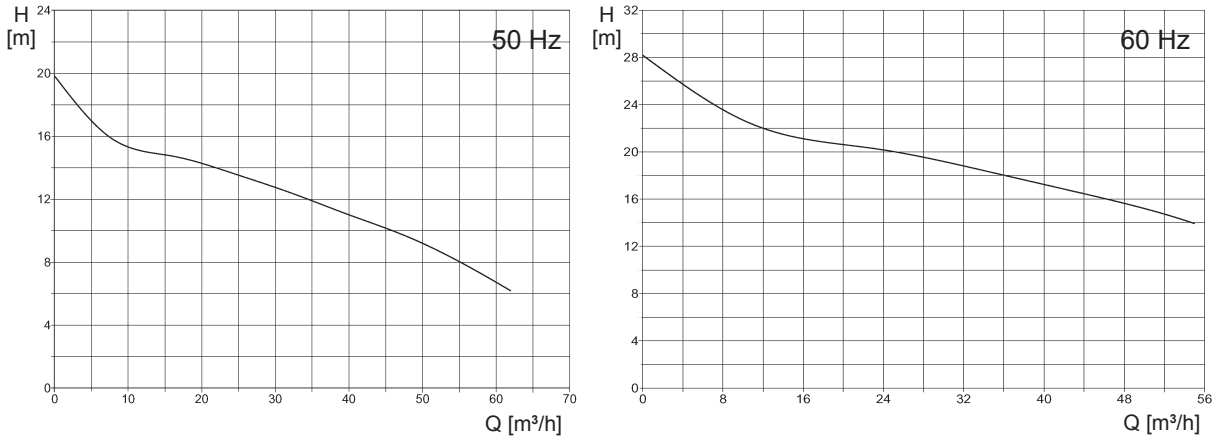
Air à 20 °C. Tolérance: ± 10% 50 Hz 60 Hz

Type	Liquid ring vacuum pump
Capacity	Nominal displacement**:** 50Hz: 72 m^3/h; 60Hz: 83 m^3/h
Materials	Housing: Cast iron housing; impeller: 316 stainless steel
Connections	Suction and discharge connection: DN40
Other	Sound level: 70dB(A) ISO 2151
Electrical data	Nominal motor rating: 50Hz: 2.2 KW; 60Hz:3.0 KW Motor speed: 50Hz: 1500 rpm; 60Hz:1800 rpm
Shipping data	Weight approx: 50Hz: 55 kg; 60Hz: 58 kg

6546910 PUMP S30, 3x380-420 V 50 Hz, 3x440-480 V 60 Hz, 3x660-690 V 50 Hz



Capacity



Electrical data

Voltage: 3x380-420 V 50 Hz			Voltage: 3x440-480 V 60 Hz			Voltage: 3x660-690 V 50 Hz		
Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current		Power	Current	
3.0 kW	6.5 A	3000 rpm	3.6 kW	6.3 A	3600 rpm	3.0 kW	3.75 A	3000 rpm

Protection class: IP55
Insulation class: F
Efficiency: IE1

Materials

Pump casing and interstage casing: Cast iron EN-GJL-250 (GG25)
Impeller: Cast iron EN-GJL-250 (GG25)
Shaft: Stainless steel SIS 2350 (AISI316Ti)
Impeller nut: Copper alloy UNS 38500
Metal seals: Carbon stainless steel

Other

Impeller: Ø120

Shipping data

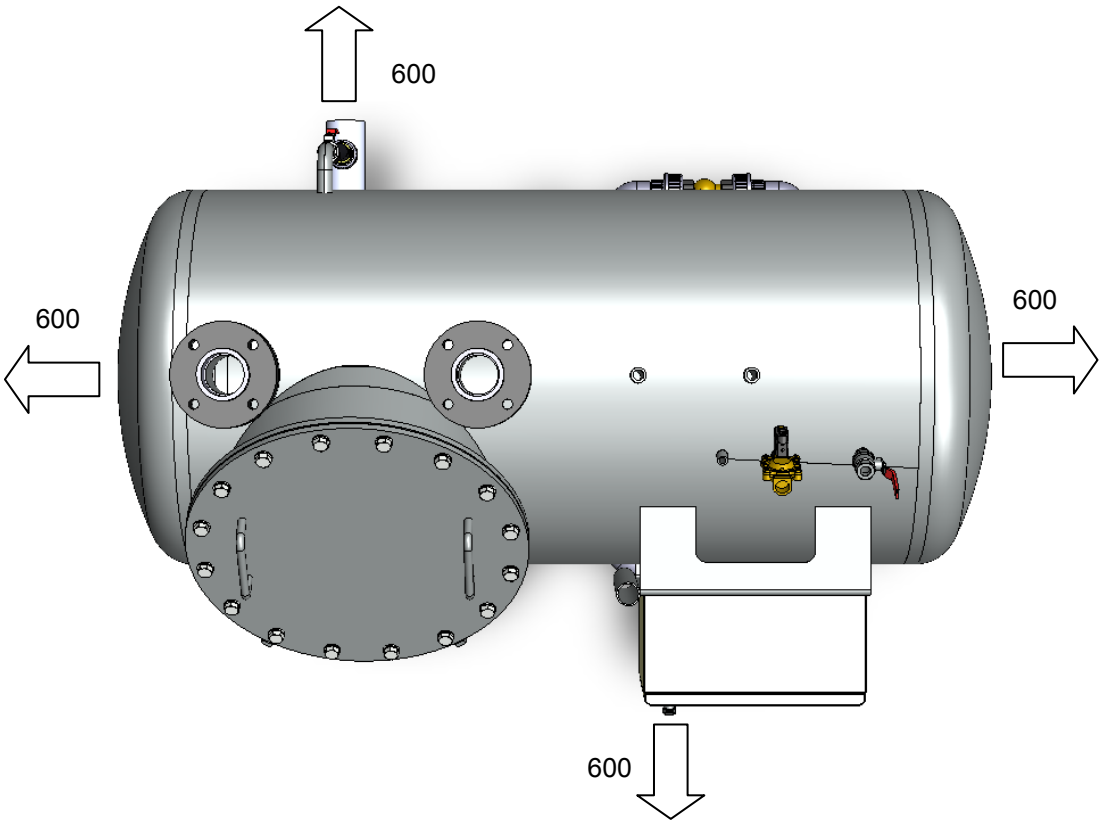
Net weight: 56 kg

VACUUM COLLECTING UNITS

6501743S30 MINIVAC 2

The installation of an Evac vacuum system requires:

- Area for equipment, providing space to the sides for maintenance and services, minimum plant room area approx 6.5 m^2
- Water supply
- A gravity floor drain or an Evac vacuum interface unit for the cooling tank overflow
- Supply of electricity, 415V/50Hz, 3 phases + earth
- Vacuum piping arrival
- Gravity discharge line
- Ventilation of the cooling tank (DN75) to the atmosphere, outside of the plant room



(maintenance distances requirement in mm)

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EVAC VACUUM COLLECTING UNITS

EVAC TANK SYSTEMS

- MINIVAC
- **HQE 10**
- HQE 30

EVAC ONLINE SYSTEMS

- ONLINEFLEX

VACUUM COLLECTING UNITS

6501399 VACUUM STATION 10 HQE 60 R1
6500393 VACUUM STATION 10 HQE 105 R1
6500390 VACUUM STATION 10 HQE 140 R2
6500386 VACUUM STATION 10 HQE 60 R2
6501539 VACUUM STATION 10 HQE 105 R2

Vacuum suction for grey water and condensates, and blackwater for R2 models only

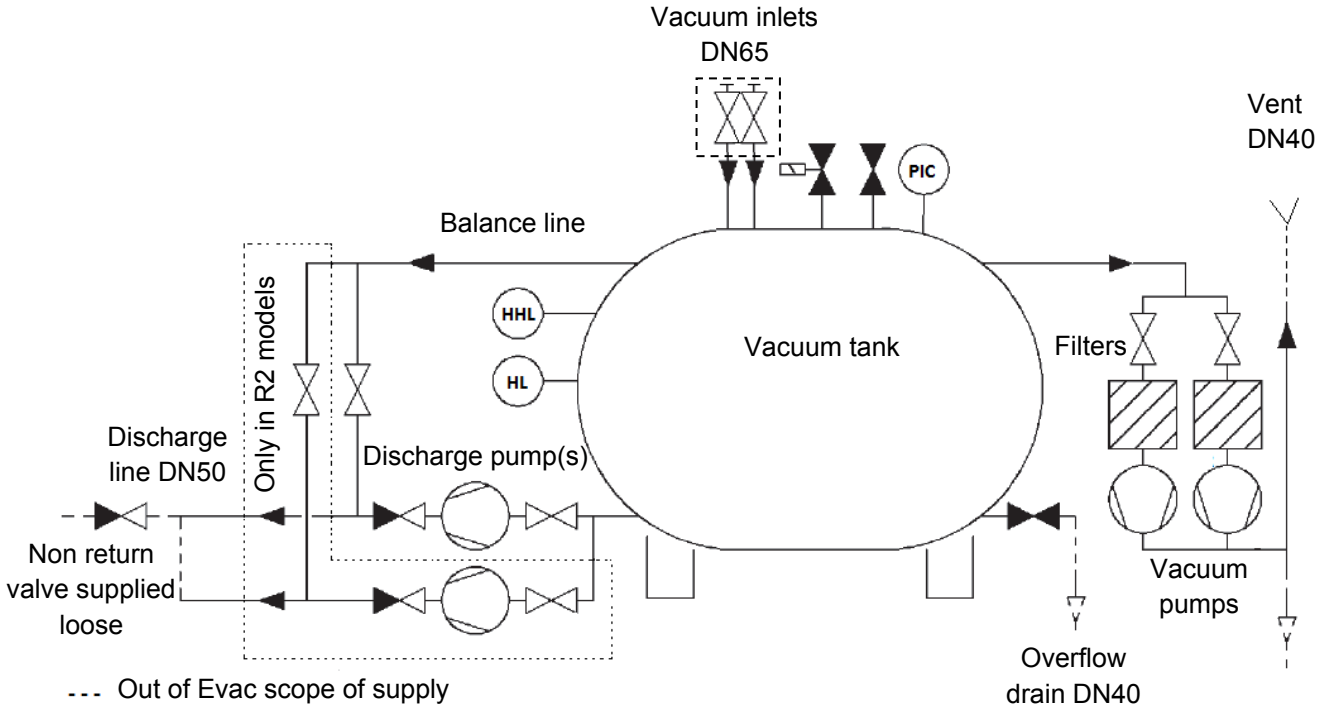
The vacuum system N°10 HQE is composed of:

- One 1100 liters epoxy coated or stainless steel collecting tank.
- Two rotary claw vacuum pumps of Evac design, with stainless steel filter, available with various flow rates
- One (R1) or two (R2) discharge pumps
- One control panel for power and regulation (BMS available in option)
- Connections for PVC (PN16) network pipes
- Two wastewater inlets connections
- An epoxy coated mount frame with anti choc

Advantages

- Competitive price
- Compact and powered
- No water consumption
- Low electricity consumption

Flow diagram



VACUUM COLLECTING UNITS

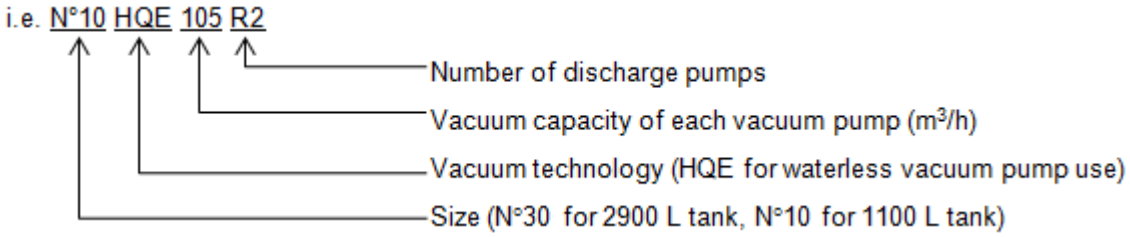
6501399 VACUUM STATION 10 HQE 60 R1
6500393 VACUUM STATION 10 HQE 105 R1
6500390 VACUUM STATION 10 HQE 140 R2
6500386 VACUUM STATION 10 HQE 60 R2
6501539 VACUUM STATION 10 HQE 105 R2

Functioning

- The vacuum pumps are connected to the collecting tank and then to the pipe network. These pumps maintain a constant level of vacuum in the system.
- The vacuum electronic measurement system regulates the starting and stopping of the vacuum pumps.
- The collecting tank collects waste water through the pipe network (branch and main).
- Two DN65 inlets are located on the upper left part of the tank.
- When the vacuum pumps are running, vacuum is created in all the system.
- When needed the vacuum pumps are stopped, and the discharge pump is activated to discharge the tank to the sewage system through the DN50 PVC pipe.
- The control panel of the PLC manages the entire system. All Vacuum Collection Unit are equipped with free contact for default report and optional connection to BMS.

Vacuum collection unit range

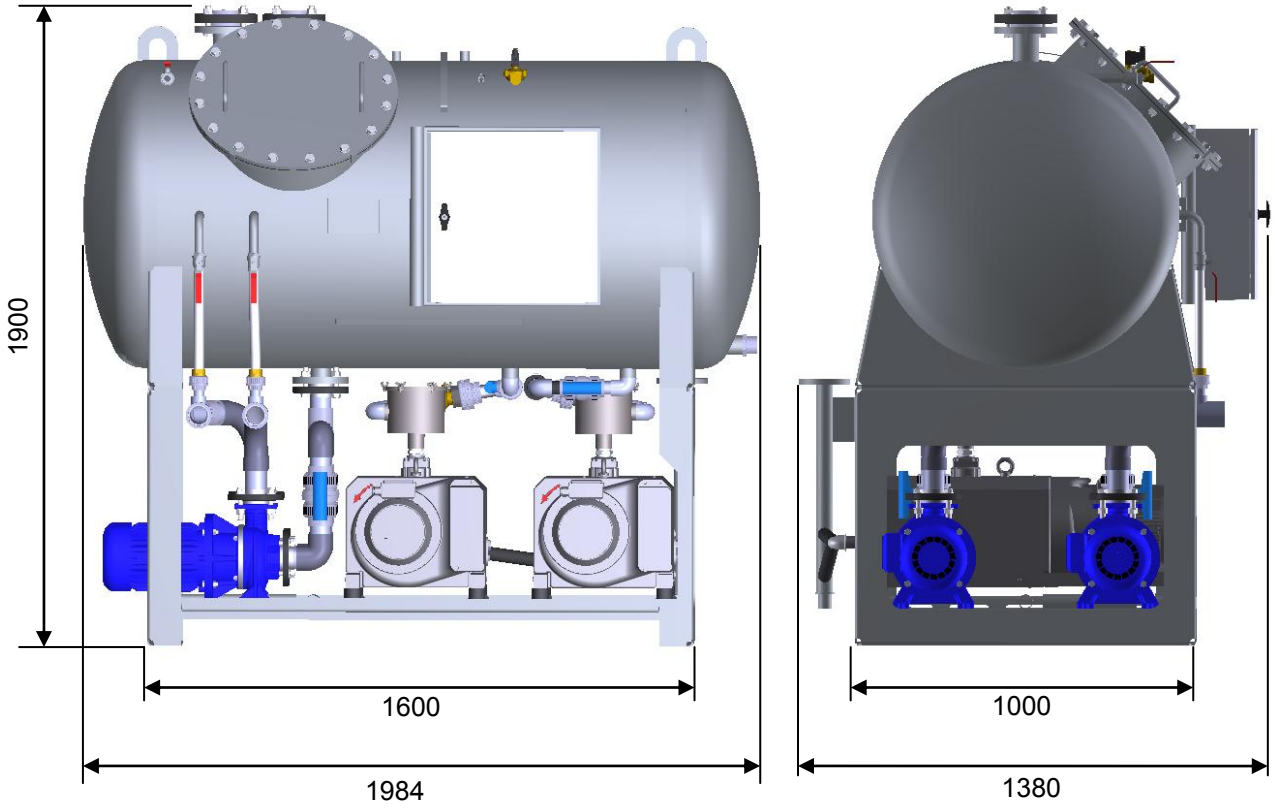
How to read the plant type:



P/N	Models	Vacuum pump capacity m^3/h	Number of discharge pumps	Power KW
6501399	10 HQE 60 R1	60	1	5.6
6500386	10 HQE 60 R2	60	2	8.6
6500393	10 HQE 105 R1	105	1	8.6
6501539	10 HQE 105 R2	105	2	11.6
6500390	10 HQE 140 R2	140	2	13

VACUUM COLLECTING UNITS

6501399 VACUUM STATION 10 HQE 60 R1
6500393 VACUUM STATION 10 HQE 105 R1
6500390 VACUUM STATION 10 HQE 140 R2
6500386 VACUUM STATION 10 HQE 60 R2
6501539 VACUUM STATION 10 HQE 105 R2



(dimensions in mm)

Technical data

Type	Power KW	Dry weight Kg	Total vacuum capacity m^3/h
10 HQE 60 R1	5.6	1050	120
10 HQE 60 R2	8.6	1100	120
10 HQE 105 R1	8.6	1050	210
10 HQE 105 R2	11.6	1100	210
10 HQE 140 R2	13	1130	280

Materials Vacuum pump; pump casing: cast iron, PTEF coated inside
Frame and tank: epoxy coated or stainless steel

Capacity Tank volume: 1,100 L

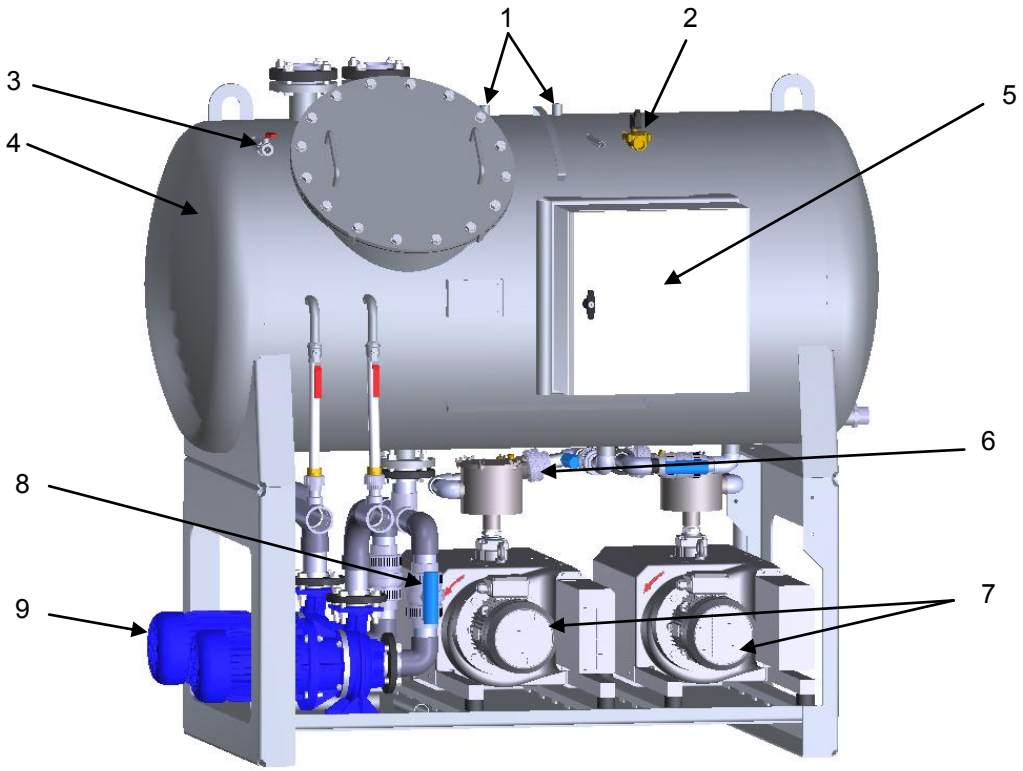
Electrical data Voltage: 380V/50Hz, 3 phases +earth

Connections Inlet: DN65
Outlet (discharge): DN50

Shipping data Volume: 1.2 m^3 appr.

VACUUM COLLECTING UNITS

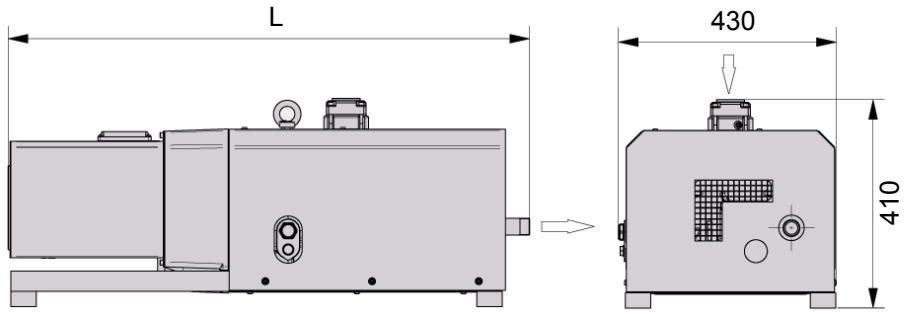
6501399 VACUUM STATION 10 HQE 60 R1
6500393 VACUUM STATION 10 HQE 105 R1
6500390 VACUUM STATION 10 HQE 140 R2
6500386 VACUUM STATION 10 HQE 60 R2
6501539 VACUUM STATION 10 HQE 105 R2



Main components

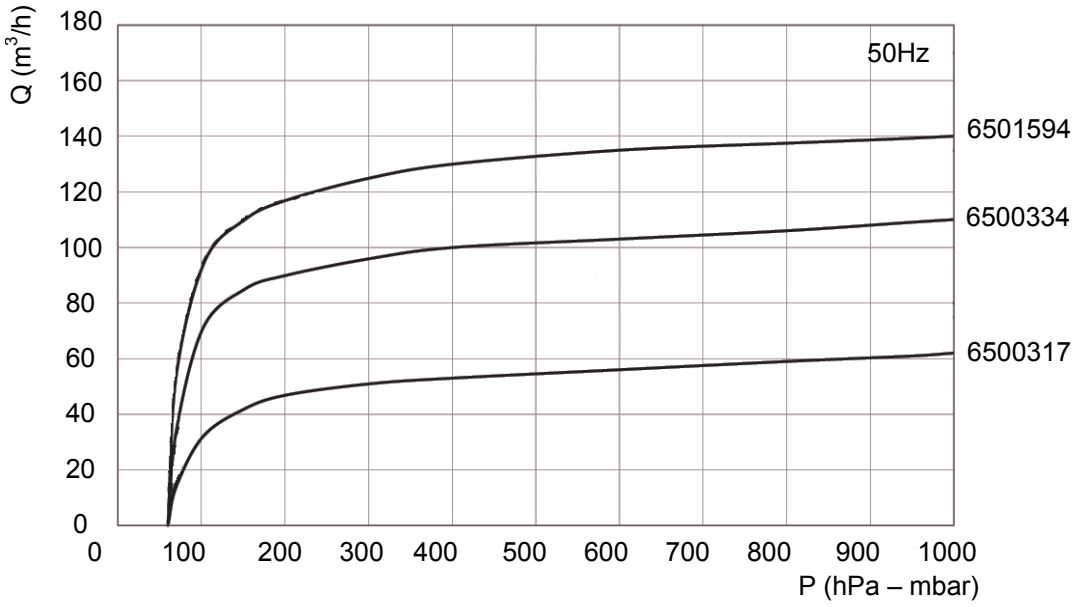
Item	Name	P/N	N°10 HQE				
			60R1	60R2	105R1	105 R2	140 R2
1	Level switches	6500178	2	2	2	2	2
2	Solenoid air valve	6500339	1	1	1	1	1
3	Manual shut-off valve for vacuum break	6500297	1	1	1	1	1
4	Epoxy coated collection tank with frame	6500401		1		1	1
		6500400	1		1		
5	Control panel with vacuum display	6506003	1	1	1	1	1
6	Non return valve 1” 1/4	6501737	2	2	2	2	2
7	Rotary claw vacuum pumps	6500317	2	2			
		6500334			2	2	
		6501594					2
8	Manual ball valve	6500056	1	2	1	2	2
9	Discharge pumps	6546910	1	2	1	2	2
	SS Filter 1” ¼ complete	6544423	2	2	2	2	2
	Cartridge filter	6544424	2	2	2	2	2
	Reinforced plastic non return valve (supplied loose)	6546452	1	2	1	2	2
	Cast iron non return valve (supplied loose)	6500069	1	1	1	1	1

6500317 VACUUM PUMP ME 60 50Hz **6500334 VACUUM PUMP ME 105 50Hz**
6501594 VACUUM PUMP ME 140 50Hz



(dimensions in mm)

Capacity

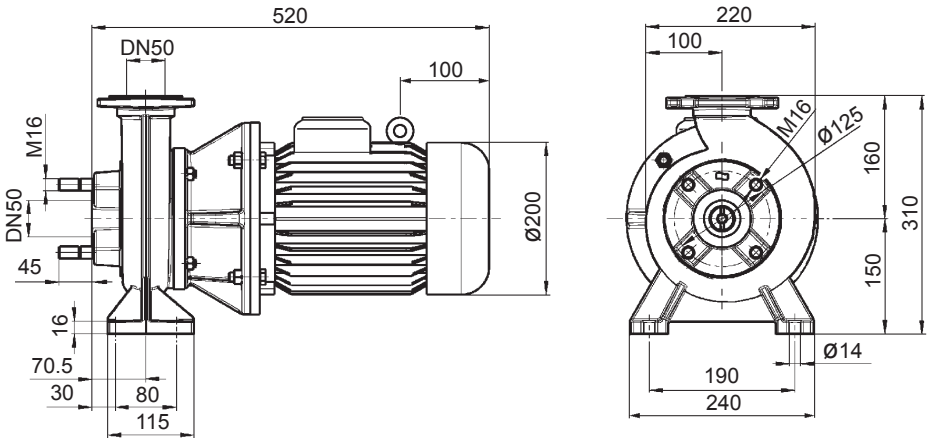


The displacement curves are valid for air at 20 °C. Tolerance: ± 10%

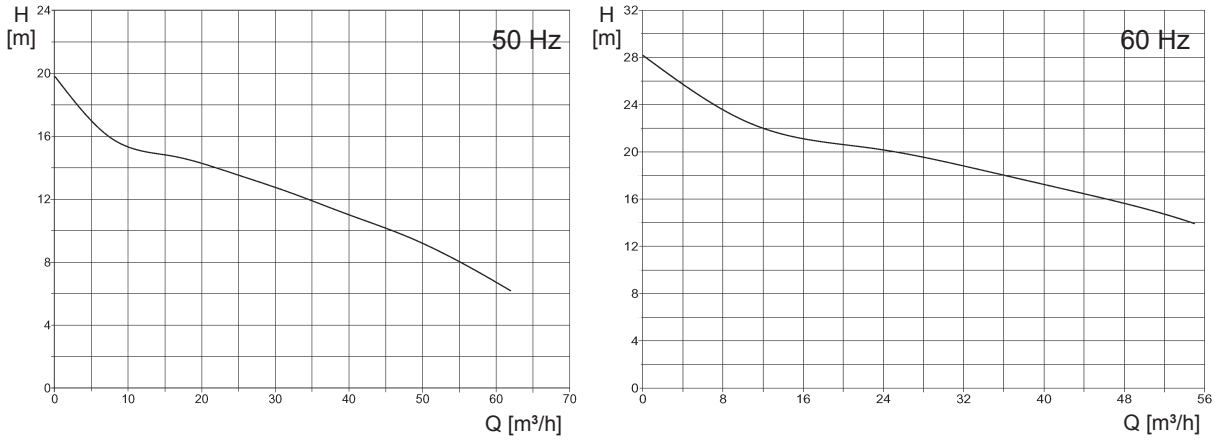
P/N	L mm	Nominal flow rate m^3/h	Weight Kg	Nominal power rating KW	Motor speed rpm	Sound level dB(A)
6500317	970	62	180	1.3	1500	66
6500334	1010	105	180	2.8	3000	75
6501594	1030	140	185	3.5	3000	75

Type	Rotary claw vacuum pump
Materials	Casing and Impellers: Cast iron, PTFE coated inside
Connections	Inlet: 1 ¼", outlet: 1"
Electrical data	Voltage: 400/440 V, 50Hz

6546910 PUMP S30, 3x380-420 V 50 Hz, 3x440-480 V 60 Hz, 3x660-690 V 50 Hz



Capacity



Electrical data

Voltage: 3x380-420 V 50 Hz			Voltage: 3x440-480 V 60 Hz			Voltage: 3x660-690 V 50 Hz		
Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current		Power	Current	
3.0 kW	6.5 A	3000 rpm	3.6 kW	6.3 A	3600 rpm	3.0 kW	3.75 A	3000 rpm

Protection class: IP55
Insulation class: F
Efficiency: IE1

Materials

Pump casing and interstage casing: Cast iron EN-GJL-250 (GG25)
Impeller: Cast iron EN-GJL-250 (GG25)
Shaft: Stainless steel SIS 2350 (AISI316Ti)
Impeller nut: Copper alloy UNS 38500
Metal seals: Carbon stainless steel

Other

Impeller: Ø120

Shipping data

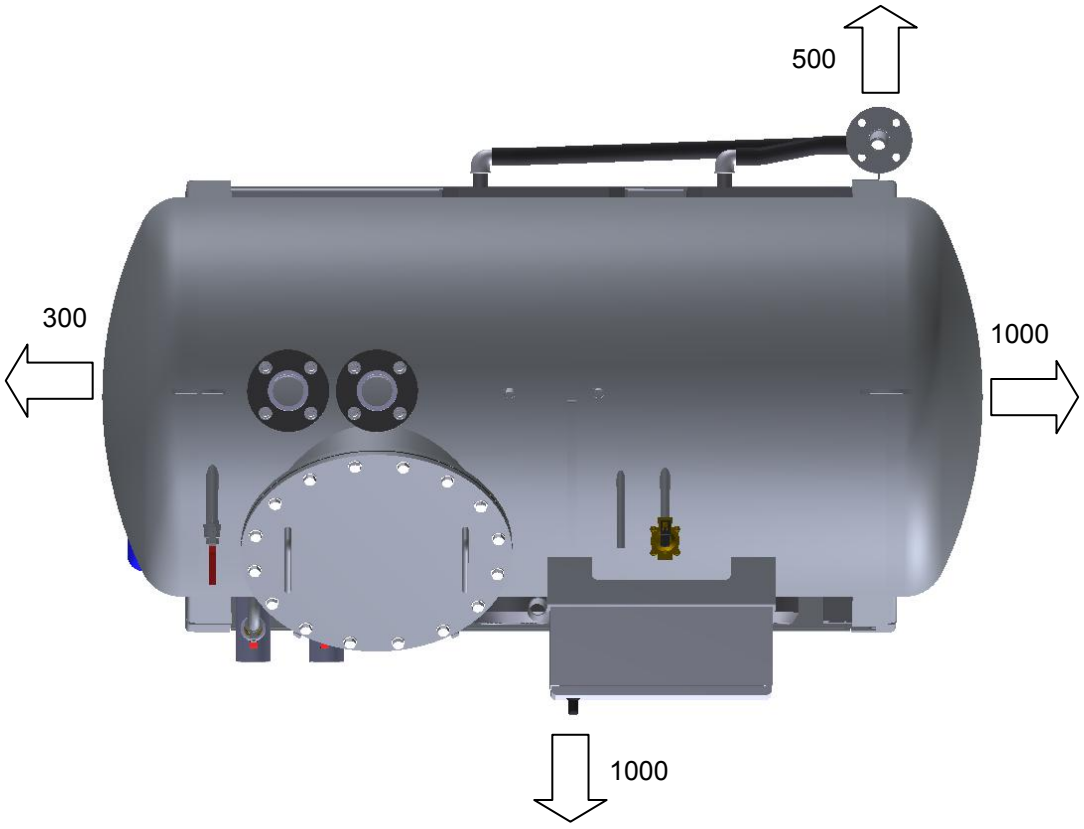
Net weight: 56 kg

VACUUM COLLECTING UNITS

6501399 VACUUM STATION 10 HQE 60 R1
6500393 VACUUM STATION 10 HQE 105 R1
6500390 VACUUM STATION 10 HQE 140 R2
6500386 VACUUM STATION 10 HQE 60 R2
6501539 VACUUM STATION 10 HQE 105 R2

The installation of an Evac vacuum system requires:

- Area for equipment, providing space to the sides for maintenance and services, minimum plant room area approx : 3 x 4 m with 2.5 m height
- Water supply and bib tap for maintenance purposes
- Lighting and 240 V for maintenance purposes
- A floor drain for the vent line condensates (or a single appliance unit)
- Supply of electricity, 415V/50Hz, 3 phases +earth
- Pipe arrival sewer vacuum
- Final sewage discharge location adapted to the discharge pump capacity
- Ventilation pipe for the vacuum pump exhaust is connected to atmosphere, outside of the building, ending in a swan neck. Pipe sizing according to site.



(maintenance distances requirement in mm)

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EVAC VACUUM COLLECTING UNITS

EVAC TANK SYSTEMS

- MINIVAC
- HQE 10
- **HQE 30**

EVAC ONLINE SYSTEMS

- ONLINEFLEX

VACUUM COLLECTING UNITS

6500443 N° 30 HQE 140 R2
6500470 N° 30 HQE 160 R2 MAX
6500472 N° 30 HQE 250 R2 MAX
6500487 N° 30 HQE 140 R2 MAX
6500471 N° 30 HQE 200 R2 MAX
6500473 N° 30 HQE 300 R2 MAX

Vacuum suction for black water, grey water and condensates

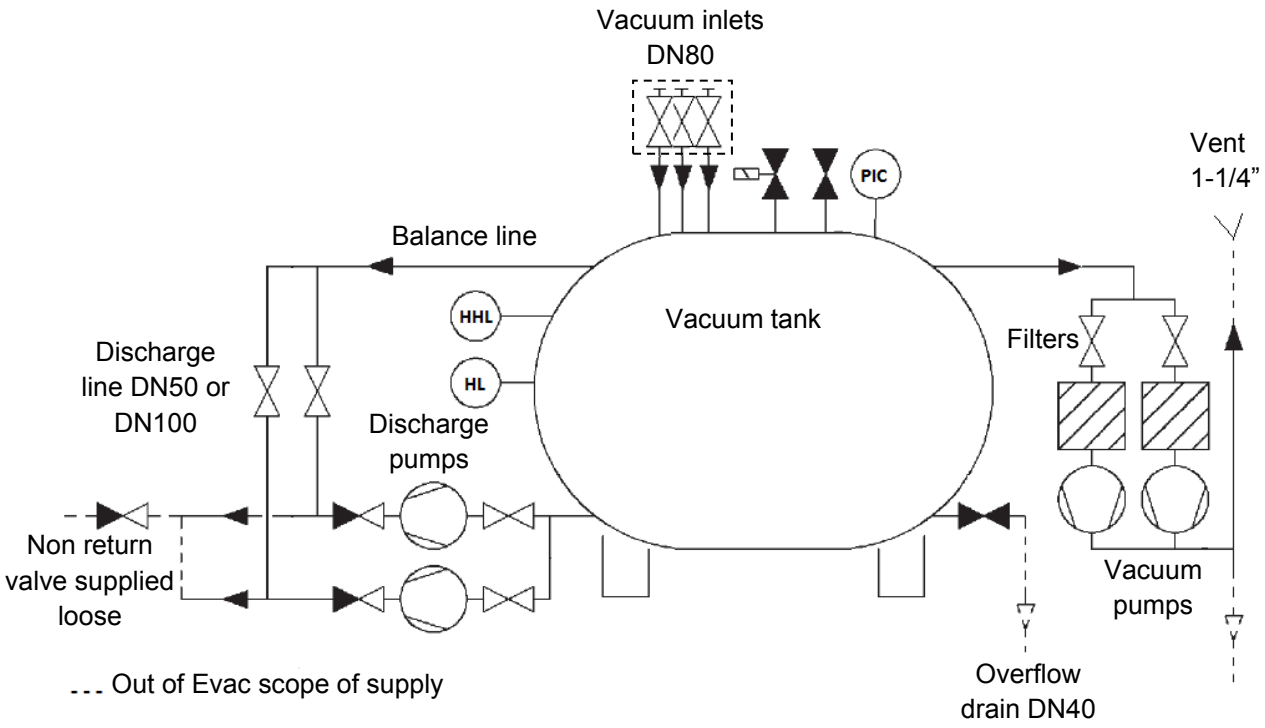
The vacuum system N°30 HQE is composed of:

- One 2 900 liters epoxy coated or stainless steel collecting tank.
- Two rotary claw vacuum pumps in Aqua version available with various flow rates.
- Two discharge pumps (DN100 for MAX units and DN50 for other units)
- One control panel for power and regulation (BMS available in option)
- Connections for PVC (PN16) network pipes
- Three wastewater inlets connections
- Epoxy coated mount frame with anti choc

Advantages

- Competitive price
- Compact and powered
- No water consumption
- Low electricity consumption

Flow diagram



VACUUM COLLECTING UNITS

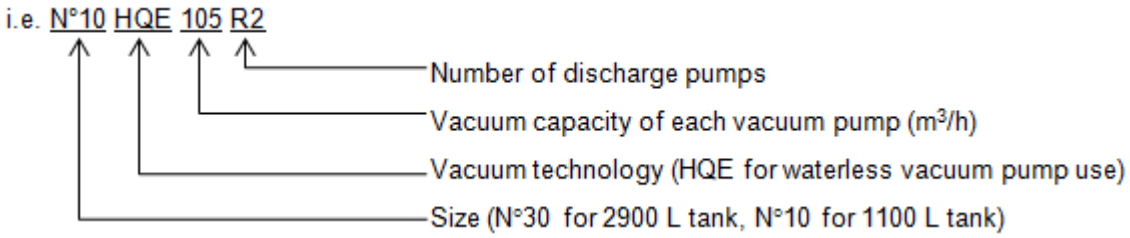
6500443 N° 30 HQE 140 R2
6500487 N° 30 HQE 140 R2 MAX
6500470 N° 30 HQE 160 R2 MAX
6500471 N° 30 HQE 200 R2 MAX
6500472 N° 30 HQE 250 R2 MAX
6500473 N° 30 HQE 300 R2 MAX

Functioning

- The vacuum pumps are connected to the collecting tank and then to the pipe network. These pumps maintain a constant level of vacuum in the system.
- The vacuum electronic measurement system regulates the starting and stopping of the vacuum pumps.
- The collecting tank collects waste water through the pipe network (branch and main).
- Three DN80 inlets are located on the upper left part of the tank.
- When the vacuum pumps are running, vacuum is created in all the system.
- When needed the vacuum pumps are stopped, and the discharge pump is activated to discharge the tank to the sewage system through the DN50 or a DN100 PVC pipe.
- The control panel of the PLC manages the entire system. All Vacuum Collection Unit are equipped with fault diagnostic systems and volt free connections for BMS.

Vacuum collection unit range

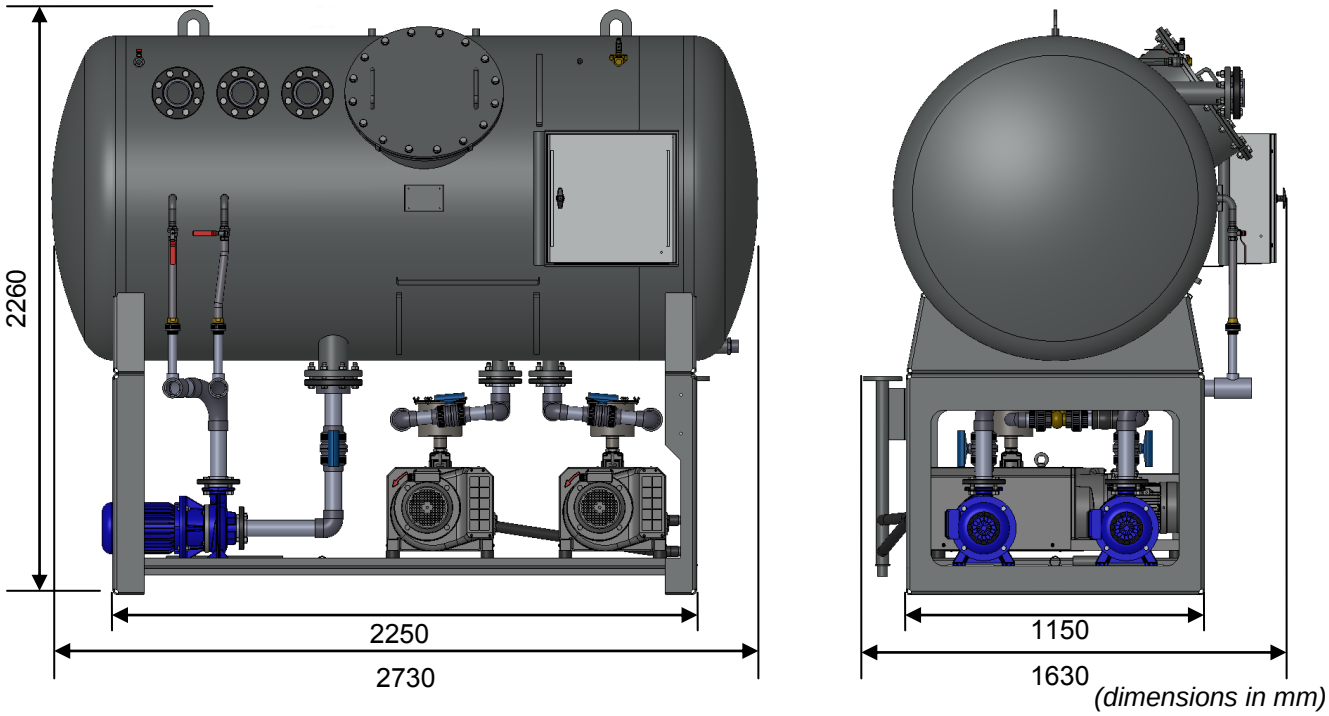
How to read the plant type:



Evac N°30 HQE includes two vacuum pumps and two discharge pumps. Vacuum capacity ranges between 210 and 600 m^3/h. The unit 140R2 is also available in “MAX” using higher capacity discharge pump with DN100 outlet.

VACUUM COLLECTING UNITS

6500443 N° 30 HQE 140 R2
6500470 N° 30 HQE 160 R2 MAX
6500472 N° 30 HQE 250 R2 MAX
6500487 N° 30 HQE 140 R2 MAX
6500471 N° 30 HQE 200 R2 MAX
6500473 N° 30 HQE 300 R2 MAX



(dimensions in mm)
(Max type not shown)

Type	Power KW	Dry weight Kg	Total vacuum capacity m^3/h
30 HQE 140 R2	13.5	1520	252
30 HQE 140 R2 MAX	15	1570	252
~~**30 HQE 160 R2 MAX**~~	~~14~~	~~1610~~	~~288~~
30 HQE 200 R2 MAX	16.4	1630	360
~~**30 HQE 250 R2 MAX**~~	~~18~~	~~1640~~	~~450~~
30 HQE 300 R2 MAX	20	1640	540

Materials Vacuum pump; pump casing: cast iron, PTEF coated inside
Frame and tank: Epoxy coated or stainless steel

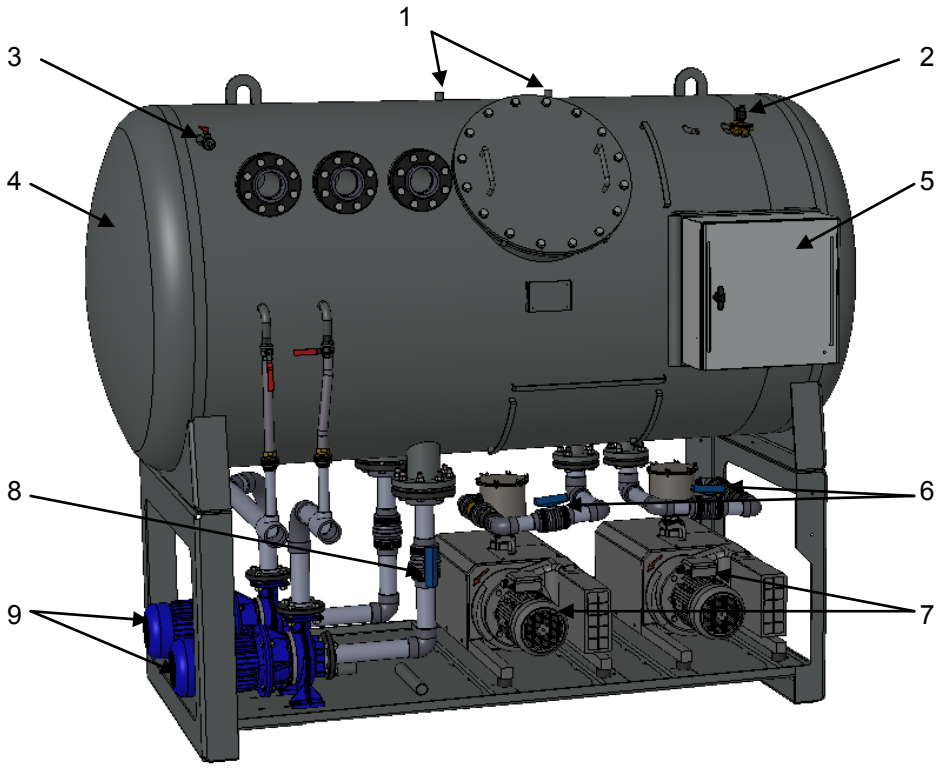
Capacity Tank volume: 2 900 L

Electrical data Voltage: 415V/50Hz, 3 phases + earth

Connections Inlet: DN80;
140 R2: Outlet (discharge): DN50; 140 R2 MAX: DN100
160 R2 MAX, 200 R2 MAX, 250 R2 MAX, 300R2 MAX: Outlet (discharge): DN100

VACUUM COLLECTING UNITS

6500443 N° 30 HQE 140 R2
6500470 N° 30 HQE 160 R2 MAX
6500472 N° 30 HQE 250 R2 MAX
6500487 N° 30 HQE 140 R2 MAX
6500471 N° 30 HQE 200 R2 MAX
6500473 N° 30 HQE 300 R2 MAX



Main components

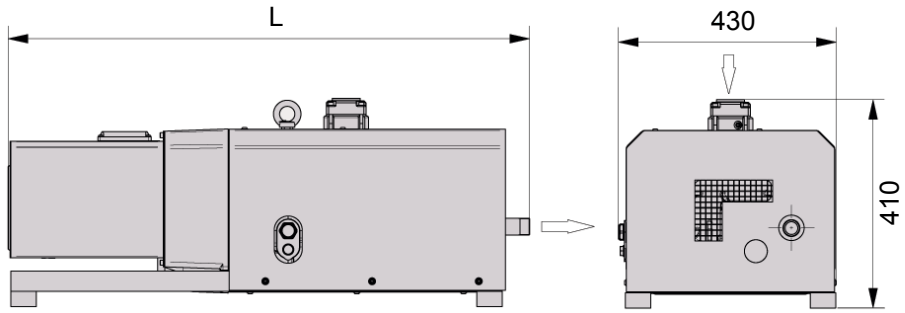
N°	Name	P/N	140R2	140R2 MAX	160R2 MAX	200R2 MAX	250R2 MAX	300R2 MAX
1	Level switches	6500178	2	2	2	2	2	2
2	Solenoid air valve	6501535	1	1	1	1	1	1
3	Manual shut-off valve for vacuum break	6500297	1	1	1	1	1	1
4	Collection tank with frame	6500403	1	1	1	1	1	1
5	Control panel with vacuum display	6506003	1	1	1	1	1	1
6	Manual shut-off valve DN32	6500970	2	2				
	Manual shut-off valve DN40	6500055			2	2	2	2
7	Rotary claw vacuum pumps	6501594	2	2				
		6500396			2			
		6500860				2		
		6500465					2	
		6500467						2

VACUUM COLLECTING UNITS

6500443 N° 30 HQE 140 R2
6500470 N° 30 HQE 160 R2 MAX
6500472 N° 30 HQE 250 R2 MAX
6500487 N° 30 HQE 140 R2 MAX
6500471 N° 30 HQE 200 R2 MAX
6500473 N° 30 HQE 300 R2 MAX

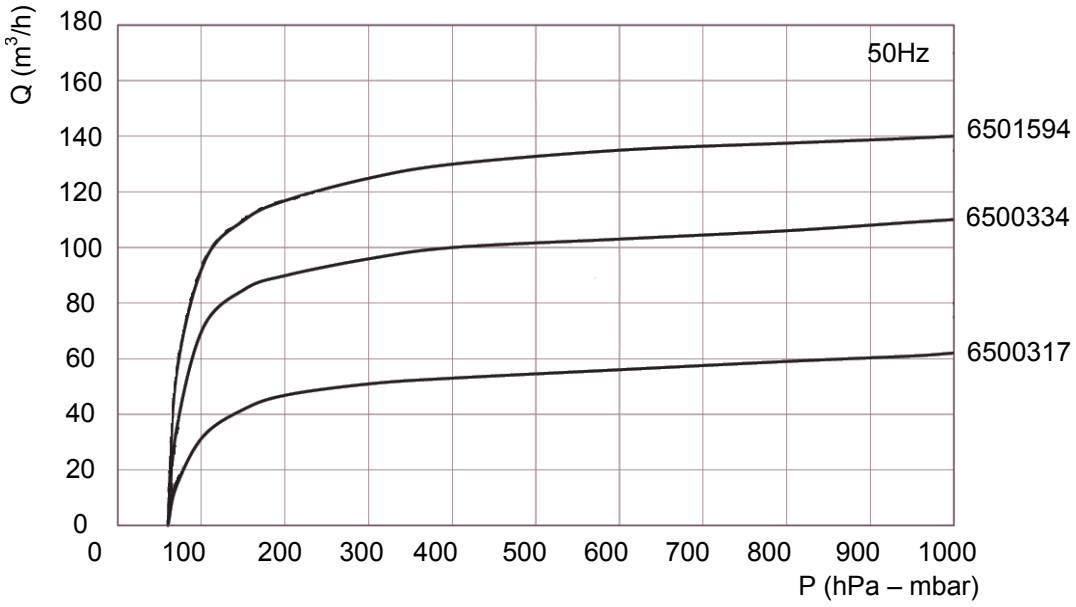
N°	Name	P/N	140R2	140R2 MAX	160R2 MAX	200R2 MAX	250R2 MAX	300R2 MAX
8	Manual shut-off valves	6500056	2					
		6500067		2	2	2	2	2
9	Discharge pumps	6546910	2					
		6540369		2	2	2	2	2
	Non return plastic valve DN50	6546452	2					
	Non return valve 1-1/4”	6501737	2					
	Non return valve 1-1/2”	6500248		2	2	2	2	2
	Non return cast iron valve DN50	6500069	1					
	Non return cast iron valve DN100	6500068		3	3	3	3	3

6500317 VACUUM PUMP ME 60 50Hz **6500334 VACUUM PUMP ME 105 50Hz**
6501594 VACUUM PUMP ME 140 50Hz



(dimensions in mm)

Capacity

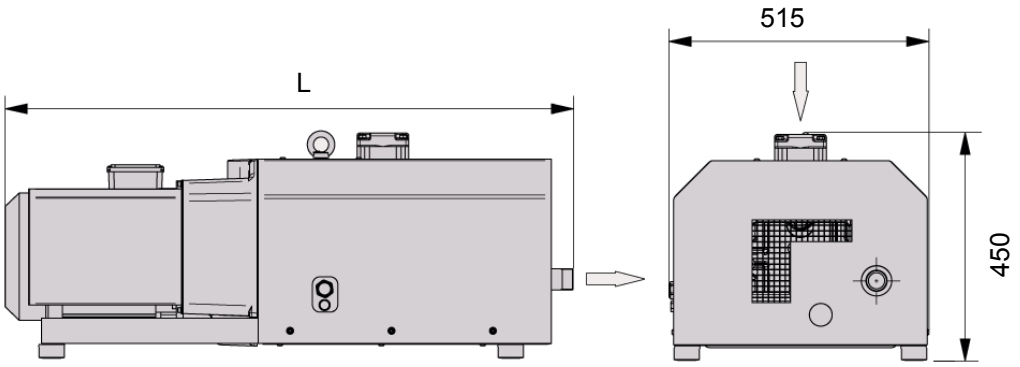


The displacement curves are valid for air at 20 °C. Tolerance: ± 10%

P/N	L mm	Nominal flow rate m^3/h	Weight Kg	Nominal power rating KW	Motor speed rpm	Sound level dB(A)
6500317	970	62	180	1.3	1500	66
6500334	1010	105	180	2.8	3000	75
6501594	1030	140	185	3.5	3000	75

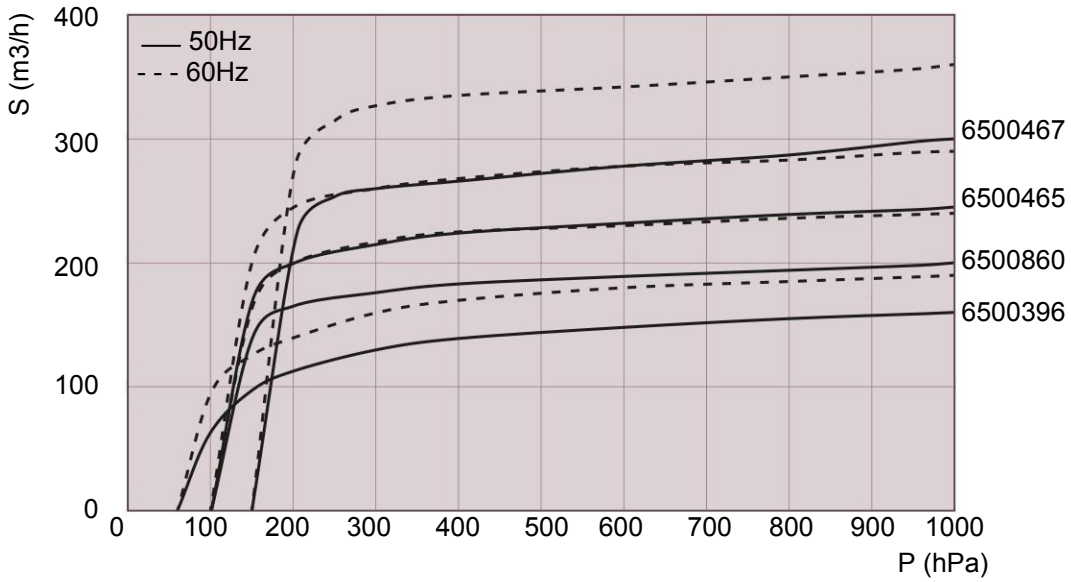
Type	Rotary claw vacuum pump
Materials	Casing and Impellers: Cast iron, PTFE coated inside
Connections	Inlet: 1 ¼", outlet: 1"
Electrical data	Voltage: 400/440 V, 50Hz

6500396 VACUUM PUMP ME 160 **6500860 VACUUM PUMP ME 200**
6500465 VACUUM PUMP ME 250 **6500467 VACUUM PUMP ME 300**



(dimensions in mm)

Capacity



The displacement curves are valid for air at 20 °C. Tolerance: ± 10%

P/N	Nominal displacement (m^3/h)	Sound level (dB(A))	Nominal power rating (KW)	Weight approx. (Kg)	L (mm)
6500396	160	70	3	240	1040
6500860	200	75	4.2	240	1010
6500465	250	75	5	240	1050
6500467	300	77	6	260	1120

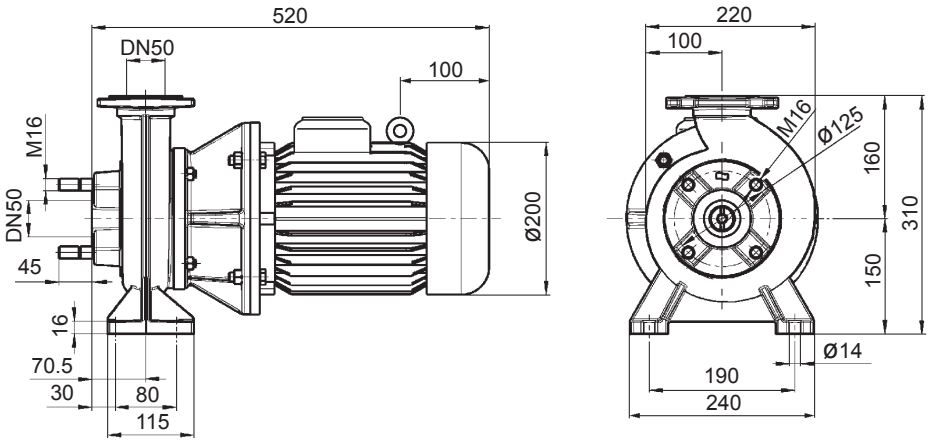
Type Rotary claw vacuum pump

Materials Cast iron, PTFE coated inside

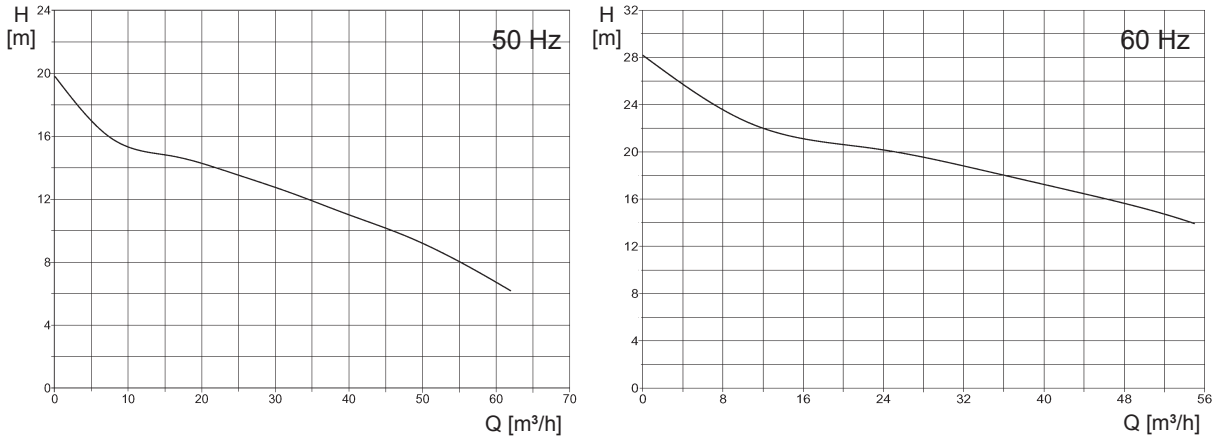
Other Max. gas inlet temperature: 40°C

Electrical data Voltage: 400/440 V, 50Hz

6546910 PUMP S30, 3x380-420 V 50 Hz, 3x440-480 V 60 Hz, 3x660-690 V 50 Hz



Capacity



Electrical data

Voltage: 3x380-420 V 50 Hz			Voltage: 3x440-480 V 60 Hz			Voltage: 3x660-690 V 50 Hz		
Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current		Power	Current	
3.0 kW	6.5 A	3000 rpm	3.6 kW	6.3 A	3600 rpm	3.0 kW	3.75 A	3000 rpm

Protection class: IP55
Insulation class: F
Efficiency: IE1

Materials

Pump casing and interstage casing: Cast iron EN-GJL-250 (GG25)
Impeller: Cast iron EN-GJL-250 (GG25)
Shaft: Stainless steel SIS 2350 (AISI316Ti)
Impeller nut: Copper alloy UNS 38500
Metal seals: Carbon stainless steel

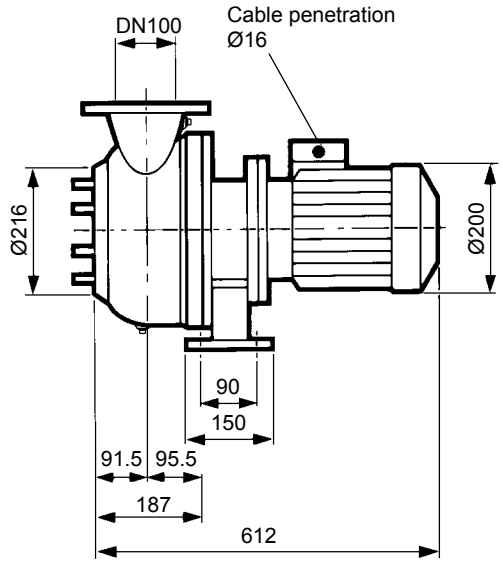
Other

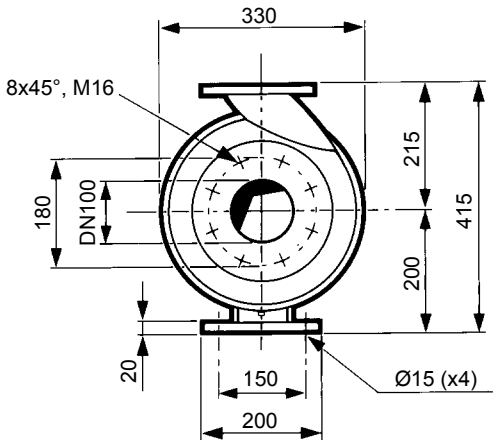
Impeller: Ø120

Shipping data

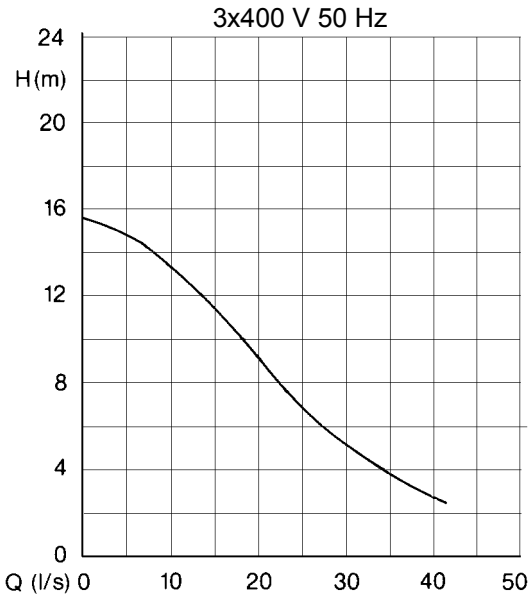
Net weight: 56 kg

6540369 PUMP EVAC SE 044A, 3x380-420 / 3x660-690 V 50 Hz





Capacity



Electrical data

Voltage: 3x400 V 50 Hz
Nominal power: 4.0 kW 50 Hz
Nominal current: 9.15 A 50 Hz
Rotation speed: 1430 rpm
Insulation class: F (140 - 155°C)
Protection class: IP55

Materials

Pump casing and sealing housing: Cast iron EN-GJL-200 SFS-EN 1561
Impeller: Ductile iron EN-GJS-500 SFS-EN 1563
Shaft: Stainless steel SIS 2324
Nuts, screws and impeller key: Stainless steel SIS 2333
Mechanical seals: Fluoric rubber (VITON), Silicon carbide coated carbon, Stainless steel SIS 2343

Other

Impeller: Ø235

Shipping data

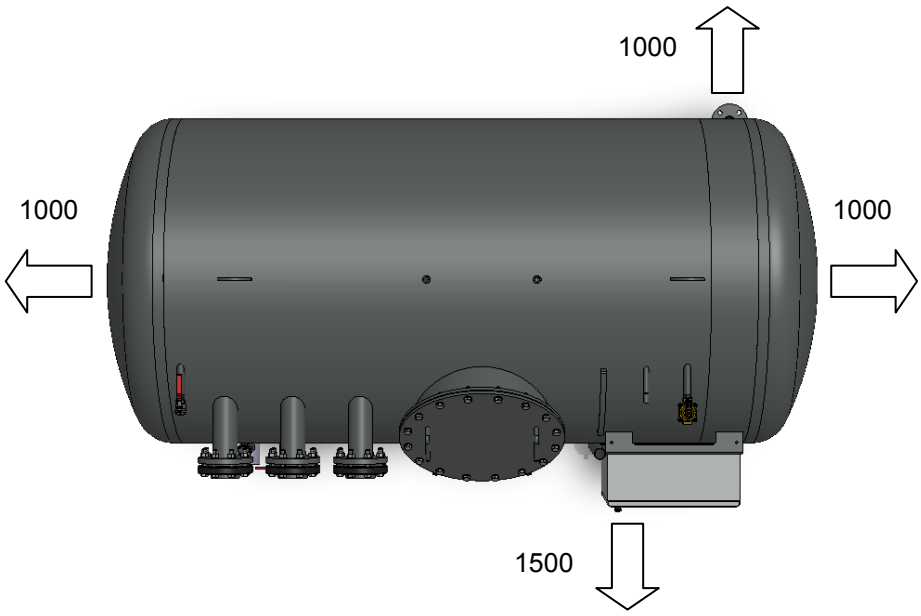
Net weight: 84 kg

VACUUM COLLECTING UNITS

6500443 N° 30 HQE 140 R2
6500470 N° 30 HQE 160 R2 MAX
6500472 N° 30 HQE 250 R2 MAX
6500487 N° 30 HQE 140 R2 MAX
6500471 N° 30 HQE 200 R2 MAX
6500473 N° 30 HQE 300 R2 MAX

The installation of an Evac vacuum system requires:

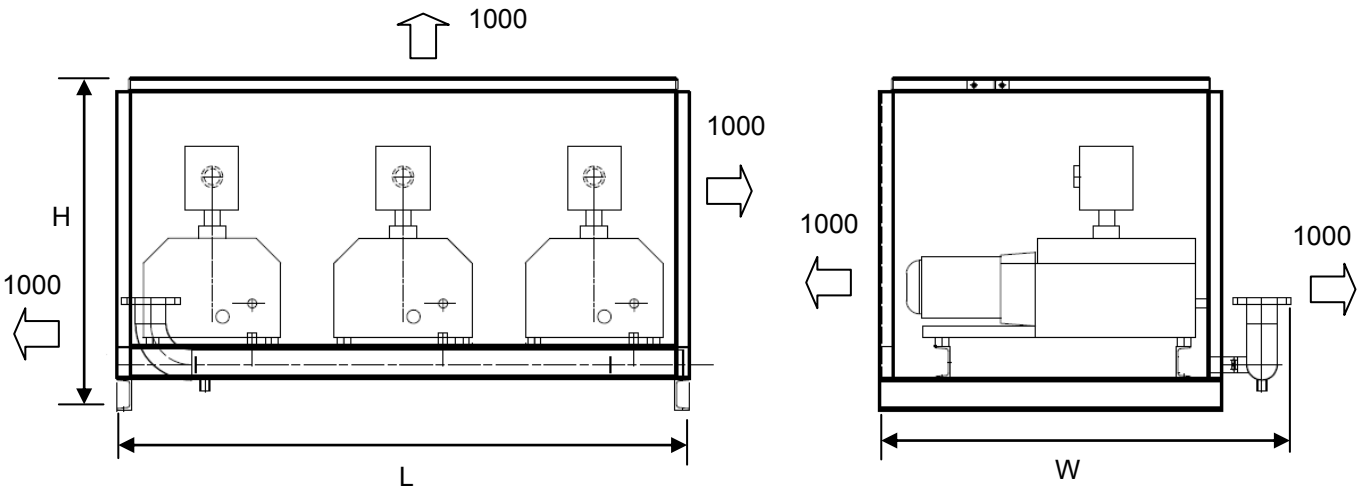
- Area for equipment, providing space to the sides for maintenance and services, minimum plant room area approx : 4 x 5 m with 2.80 m height
- Water supply and bib tap for maintenance purposes
- Lighting and 240 V for maintenance purposes
- A floor drain for the vent line condensates (or a single appliance unit)
- Supply of electricity, 415V/50Hz, 3 phases +earth
- Pipe arrival sewer vacuum
- Final sewage discharge location adapted to the discharge pump capacity
- Ventilation pipe for the vacuum pump exhaust is connected to atmosphere, outside of the building, ending in a swan neck. Pipe sizing according to site.



(Min. maintenance distances requirement in mm)

VACUUM COLLECTION RETROFIT

6501806 GV HQE 105 **6501807 GV HQE 140**
6501944 GV HQE 3X200



(GV HQE 3x200)
(Maintenance distance in mm, add 500 mm in front of the control panel, not shown)

Materials

Skid: Galvanized Steel
Pumps: see pumps data sheets

Capacity, electrical data and dimensions

Type	Pump P/N	Capacity (m^3/h)	Power (kW, @ 50Hz)	Pump Net weight (kg)	Dimensions (mm)		
					L	W	H
GV HQE 105	6500334	2x105	5.6	2x180	1200	1460	1310
GV HQE 140	6501594	2x140	7.0	2x185	1385	1394	1240
GV HQE 200	6500860	2 or 3x 200	8.4 to 12.6	2 or 3x 240	2145	1540	1240

Other capacities as per project.

Components

Control panel HQE R2 with automation
Vacuum pumps , rotary claw type, 2 or 3 per skid
Skid
Connection to Vacuum line: GV HQE 105 and 140: DN32; GV HQE 3x200: DN40
Each pump can be connected individually to the collection tank
Vent: GV HQE 105 and 140: DN65; GV HQE 3x200: DN100
2x Non return valves per vacuum pump
½" motor valve

Options

Air filter
Level switches
Two parts skid configuration
GTC (RJ45 connection)

Cleantech Solutions.
Anywhere.

EVAC VACUUM COLLECTING UNITS

EVAC TANK SYSTEMS

- MINIVAC
- HQE 10
- HQE 30

EVAC ONLINE SYSTEMS

- **ONLINEFLEX**

R.003694-1-0315

EVAC ONLINEFLEX

EVAC ONLINEFLEX

The Evac OnlineFlex unit is optimal for small vacuum systems collecting light wastewater, with limited footprint available.

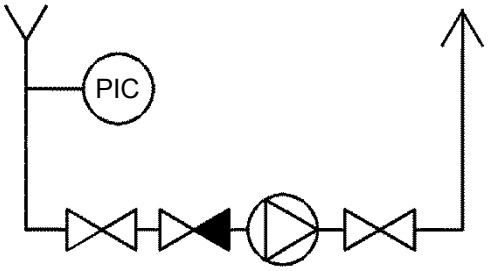
Benefits

- Extremely small footprint, 1m²
- Reliable and robust technology
- Low maintenance

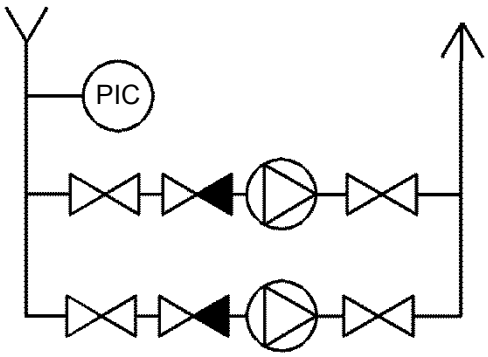
System overview

Vacuum is generated and sewage is pumped by special type of rotary lobe pump. Vacuum generation is controlled by the vacuum sensor and PLC.

Flow diagram



Evac OnlineFlex FX 30
Evac OnlineFlex FXi 30
Evac OnlineFlex FX 60
Evac OnlineFlex FXi 60

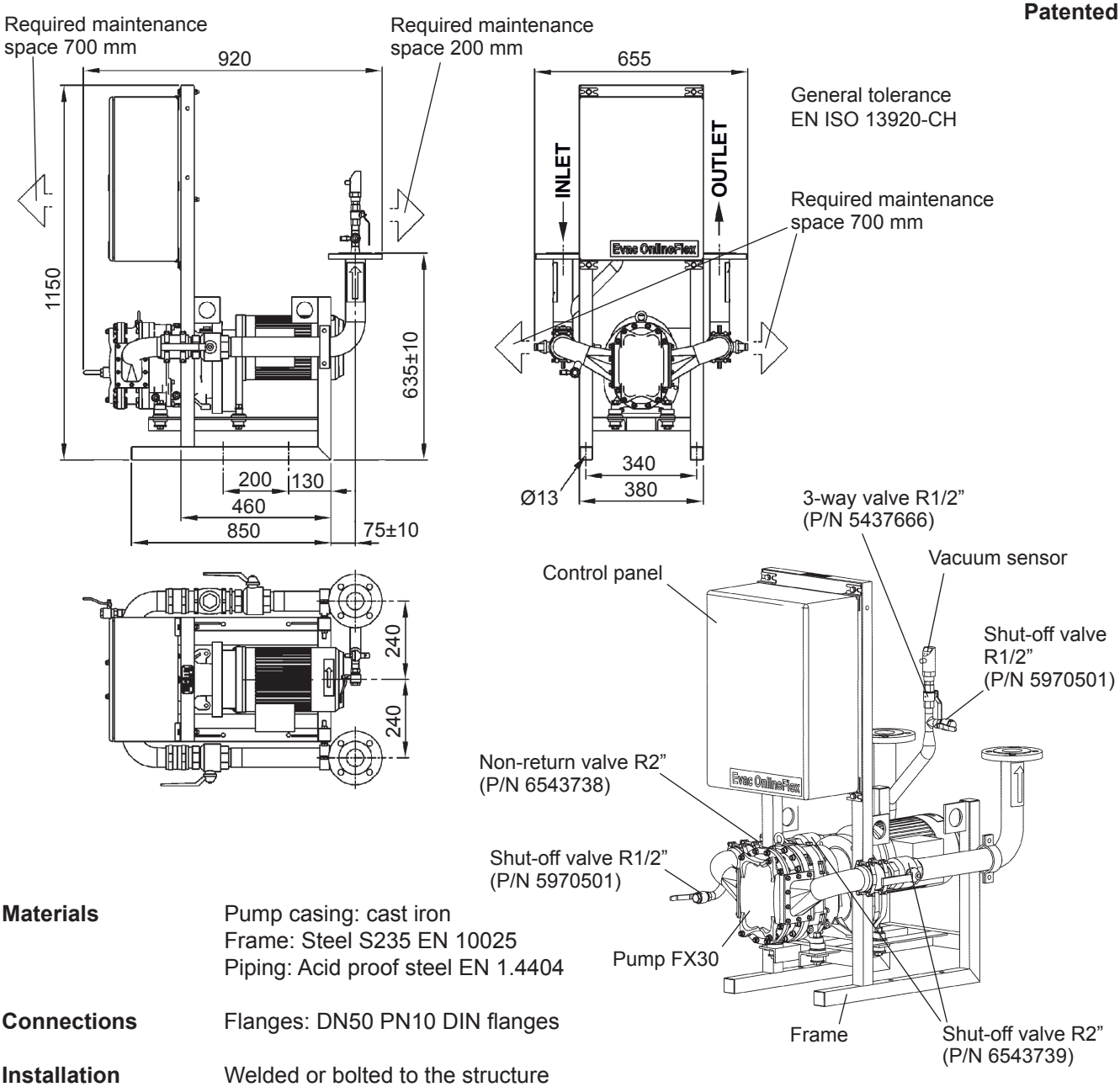


Evac OnlineFlex 2 FX 30
Evac OnlineFlex 2 FXi 30
Evac OnlineFlex 2 FX 60
Evac OnlineFlex 2 FXi 60

EVAC ONLINEFLEX

6545599 EVAC ONLINEFLEX FX 30, 400/460 V 50/60 Hz, 690 V 50 Hz
6550112 EVAC ONLINEFLEX FX 30, 690 V 60 Hz

Patented



Materials
Pump casing: cast iron
Frame: Steel S235 EN 10025
Piping: Acid proof steel EN 1.4404

Connections
Flanges: DN50 PN10 DIN flanges

Installation
Welded or bolted to the structure

Capacity
Max. vacuum capacity (-0.3 bar vacuum): 8.5/10 m³/h (NTP), 50/60 Hz
Max. lifting height: 15 m, 50/60 Hz

Electrical data
Voltage: 380-690 V, 50/60 Hz, other voltages on request
Nominal power: 2.2/2.6 kW, 50/60 Hz

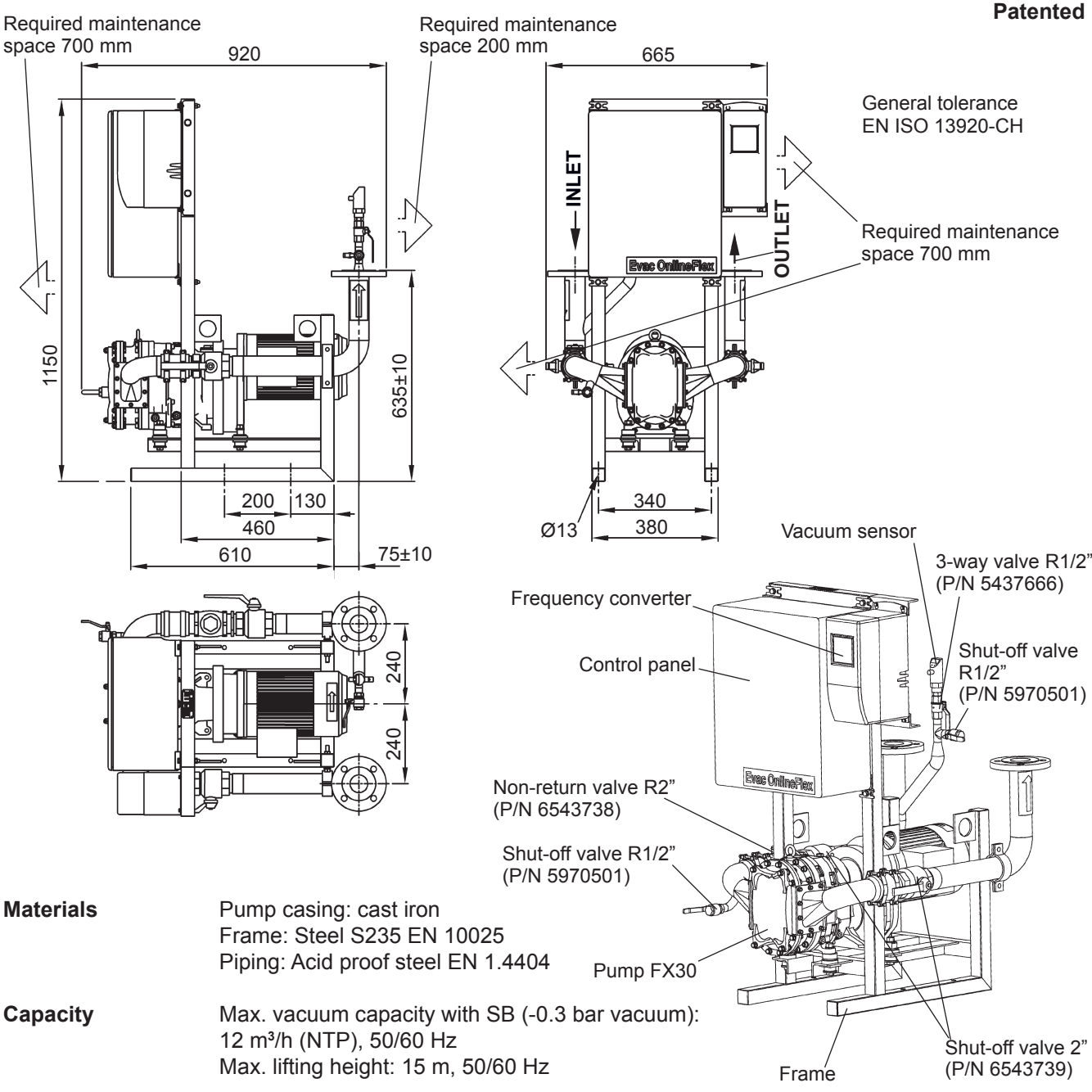
Other
Frame colour: RAL 5019

Shipping data
Net weight (dry): 150 kg
Shipping weight: 180 kg
Shipping volume: 1.5 m³

EVAC ONLINEFLEX

6545600 EVAC ONLINEFLEX FXi 30, 400/460 V 50/60 Hz, 690 V 50 Hz
6550113 EVAC ONLINEFLEX FXi 30, 690 V 60 Hz

Patented



Materials
Pump casing: cast iron
Frame: Steel S235 EN 10025
Piping: Acid proof steel EN 1.4404

Capacity
Max. vacuum capacity with SB (-0.3 bar vacuum):
12 m³/h (NTP), 50/60 Hz
Max. lifting height: 15 m, 50/60 Hz

Electrical data
Voltage: 380-690 V, 50/60 Hz, other voltages on request
Nominal power: 2.2/2.6 kW, 50/60 Hz

Connections
Flanges: DN50 PN10 DIN flanges

Installation
Welded or bolted to the structure

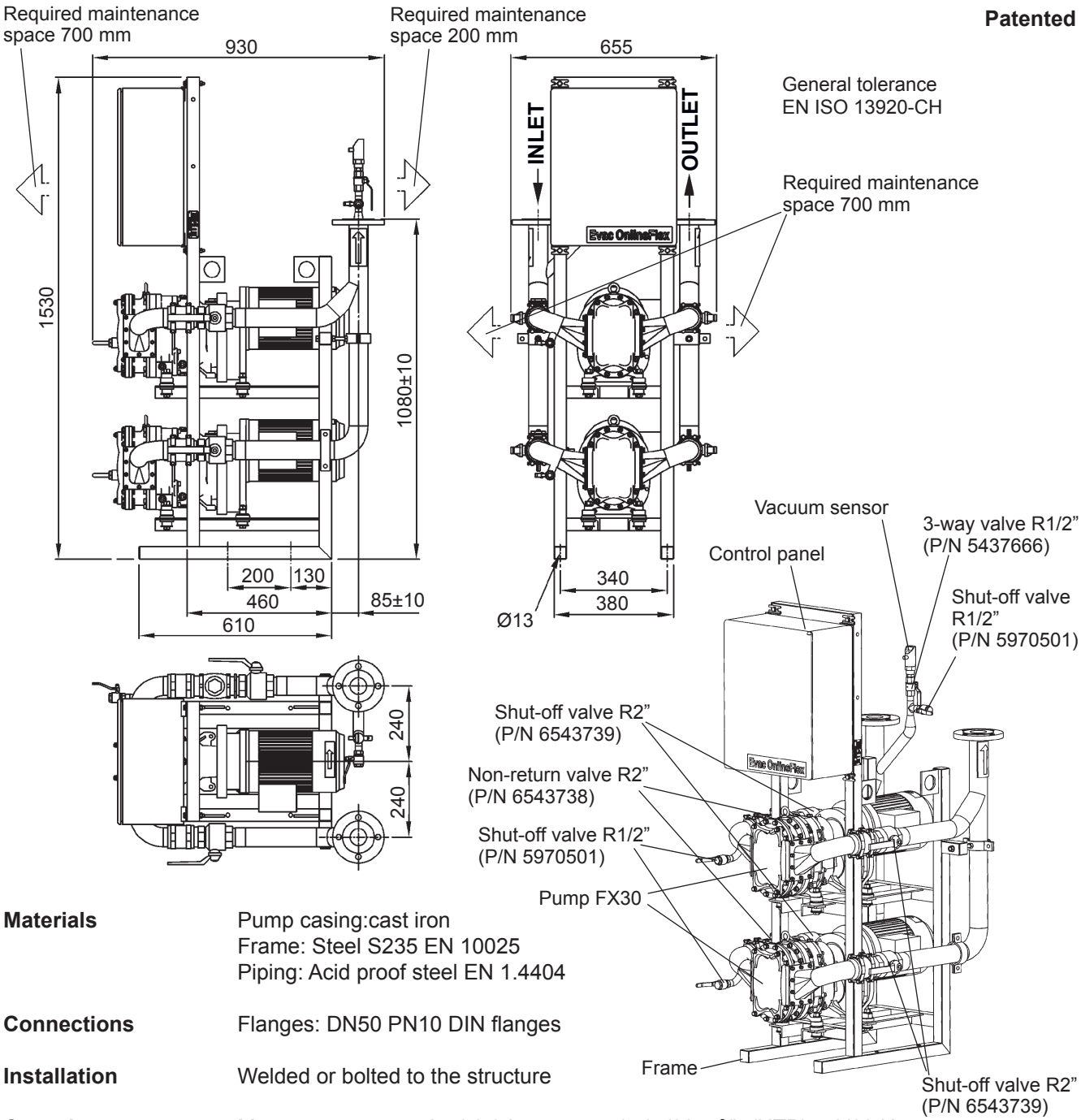
Other
Frame colour: RAL 5019

Shipping data
Net weight (dry): 160 kg
Shipping weight: 190 kg
Shipping volume: 1.5 m³

EVAC ONLINEFLEX

6545601 EVAC ONLINEFLEX 2 FX 30, 400/460 V 50/60 Hz, 690 V 50 Hz
6550114 EVAC ONLINEFLEX 2 FX 30, 690 V 60 Hz

Patented

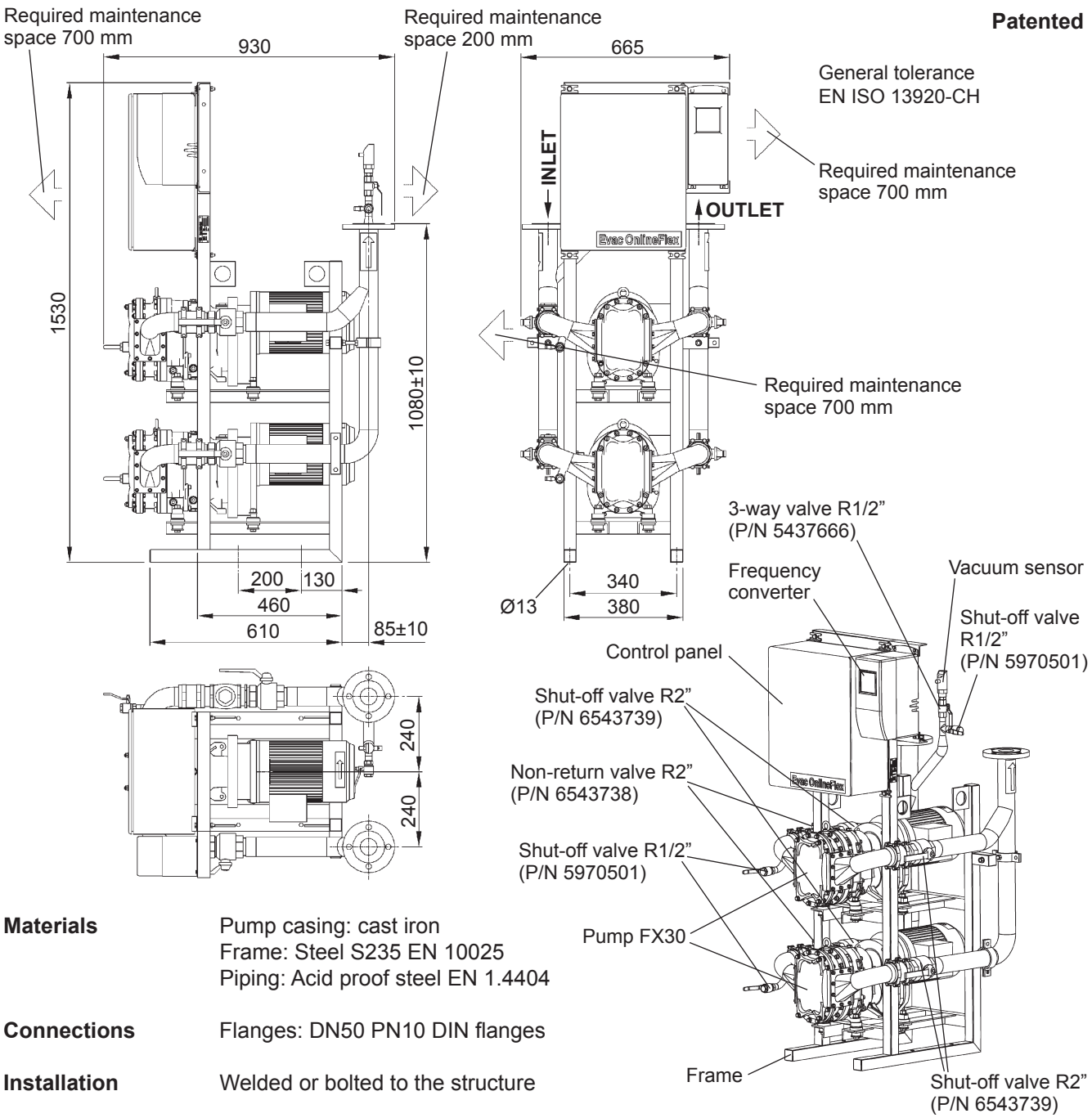


Materials	Pump casing:cast iron Frame: Steel S235 EN 10025 Piping: Acid proof steel EN 1.4404
Connections	Flanges: DN50 PN10 DIN flanges
Installation	Welded or bolted to the structure
Capacity	Max. vacuum capacity (-0.3 bar vacuum): 17/20 m^3/h (NTP), 50/60 Hz Max. lifting height: 15 m, 50/60 Hz
Electrical data	Voltage: 380-690 V, 50/60 Hz, other voltages on request Nominal power: 4.4/5.2 kW, 50/60 Hz
Other	Frame colour: RAL 5019
Shipping data	Net weight (dry): 270 kg Shipping weight: 300 kg Shipping volume: 1.7 m^3

EVAC ONLINEFLEX

6545602 EVAC ONLINEFLEX 2 FXi 30, 400/460 V 50/60 Hz, 690 V 50 Hz
6550115 EVAC ONLINEFLEX 2 FXi 30, 690 V 60 Hz

Patented

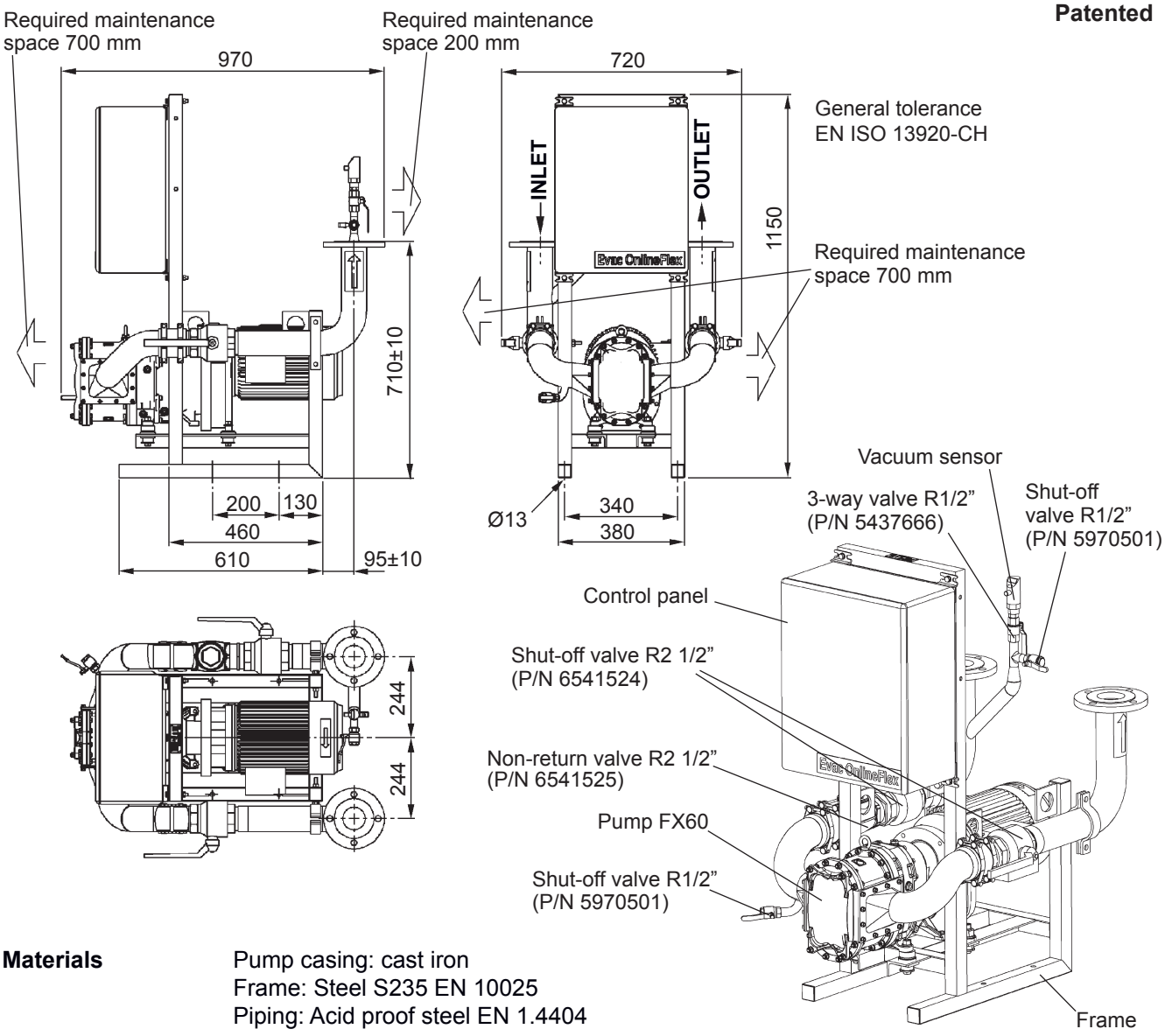


Materials	Pump casing: cast iron Frame: Steel S235 EN 10025 Piping: Acid proof steel EN 1.4404
Connections	Flanges: DN50 PN10 DIN flanges
Installation	Welded or bolted to the structure
Capacity	Max. vacuum capacity with SB (-0.3 bar vacuum): 23/25 m³/h (NTP), 50/60 Hz Max. lifting height: 15 m, 50/60 Hz
Electrical data	Voltage: 380-690 V, 50/60 Hz, other voltages on request Nominal power: 4.4/5.2 kW, 50/60 Hz
Other	Frame colour: RAL 5019
Shipping data	Net weight (dry): 280 kg Shipping weight: 310 kg Shipping volume: 1.7 m³

EVAC ONLINEFLEX

6545595 EVAC ONLINEFLEX FX 60, 400/460 V 50/60 Hz, 690 V 50 Hz
6550108 EVAC ONLINEFLEX FX 60, 690 V 60 Hz

Patented

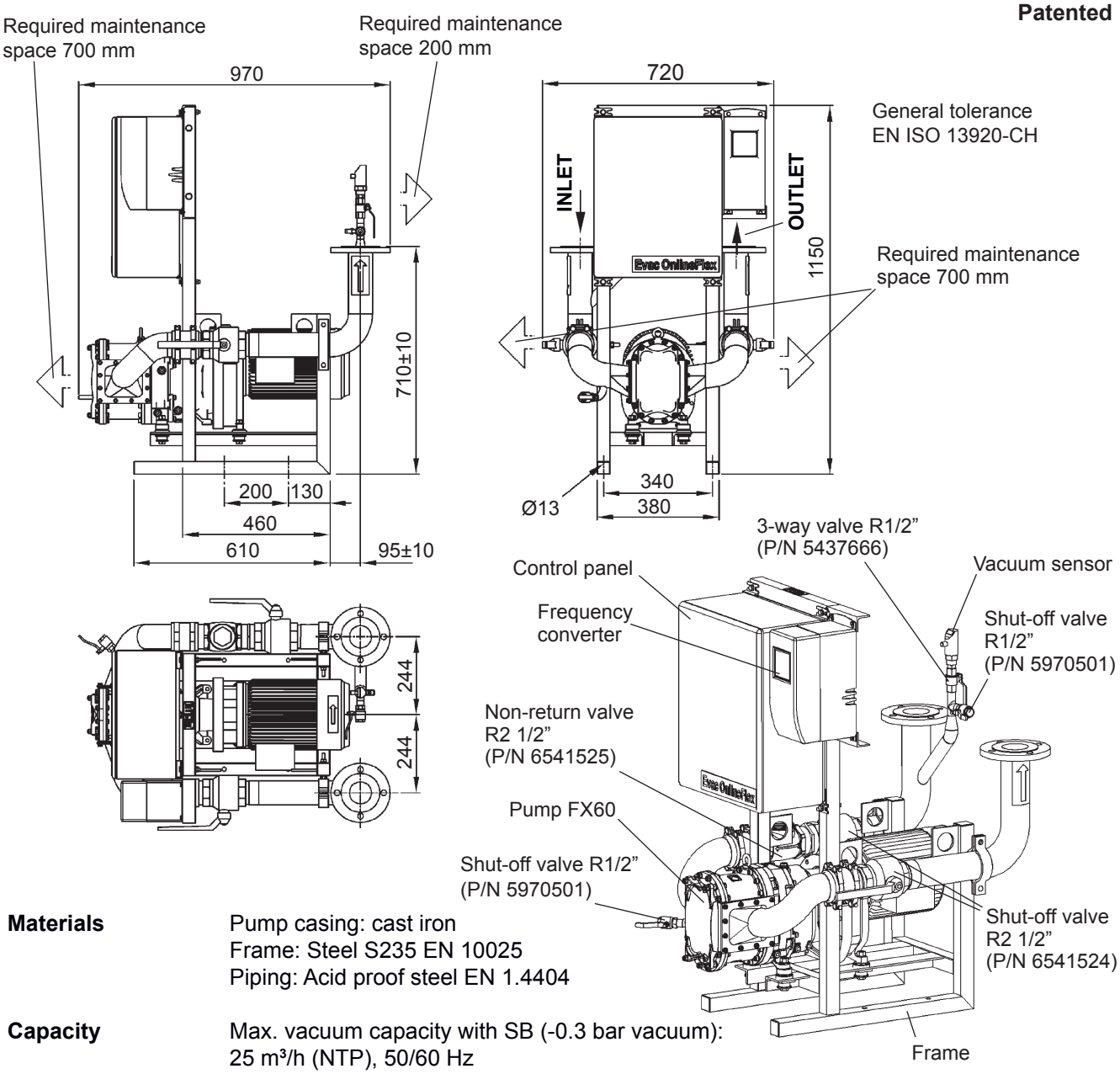


Materials	Pump casing: cast iron Frame: Steel S235 EN 10025 Piping: Acid proof steel EN 1.4404
Capacity	Max. vacuum capacity (-0.3 bar vacuum): 17/20 m³/h (NTP), 50/60 Hz Max. lifting height: 15 m, 50/60 Hz
Electrical data	Voltage: 380-690 V, 50/60 Hz, other voltages on request Nominal power: 4.0/4.8 kW, 50/60 Hz
Connections	Flanges: DN65 PN10 DIN flanges
Installation	Welded or bolted to the structure
Other	Frame colour: RAL 5019
Shipping data	Net weight (dry): 170 kg Shipping weight: 200 kg Shipping volume: 1.5 m³

EVAC ONLINEFLEX

6545596 EVAC ONLINEFLEX FXi 60, 400/460 V 50/60 Hz, 690 V 50Hz
6550109 EVAC ONLINEFLEX FXi 60, 690 V 60 Hz

Patented

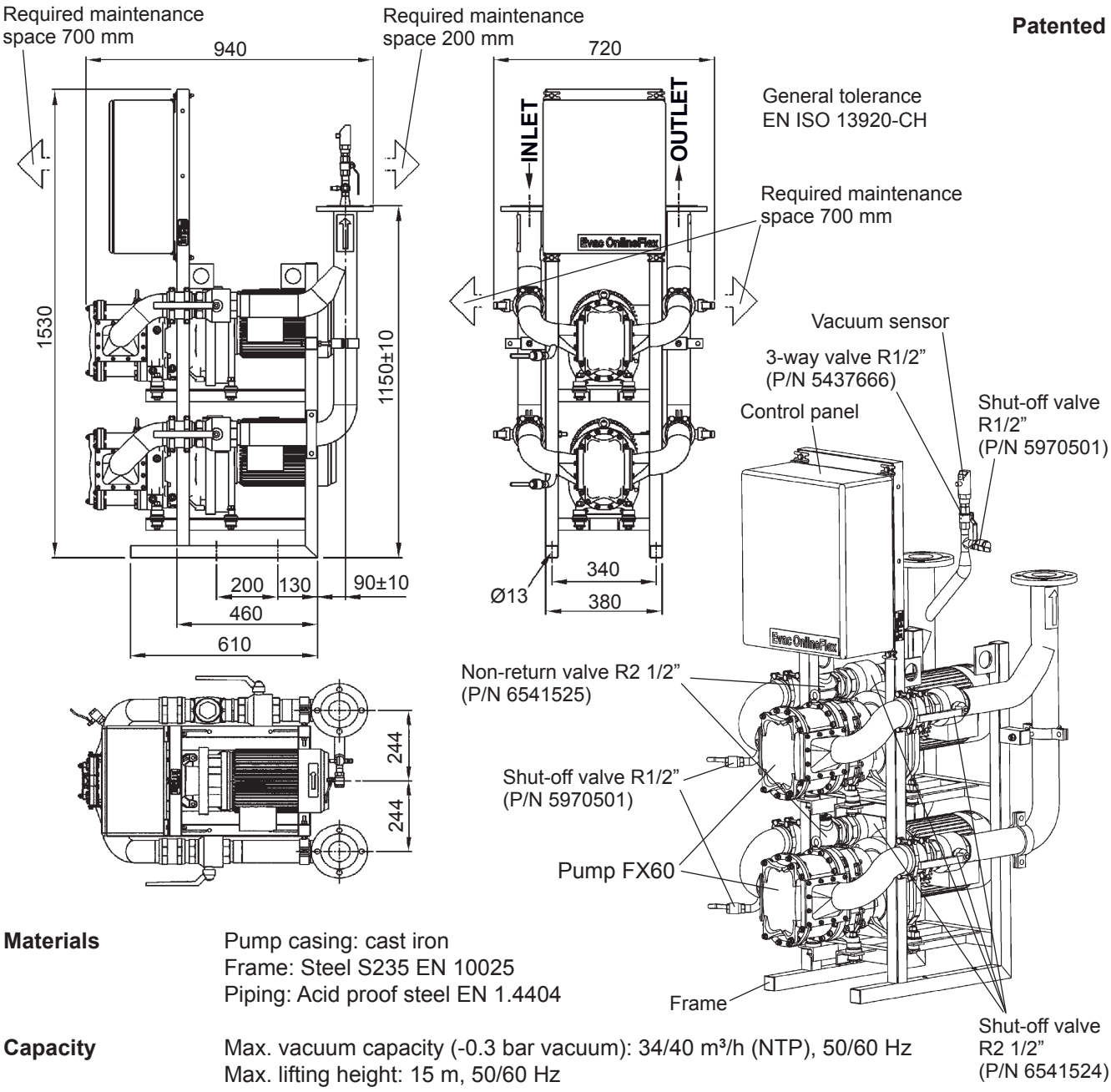


Materials	Pump casing: cast iron Frame: Steel S235 EN 10025 Piping: Acid proof steel EN 1.4404
Capacity	Max. vacuum capacity with SB (-0.3 bar vacuum): 25 m³/h (NTP), 50/60 Hz Max. discharge head: 15 m, 50/60 Hz
Electrical data	Voltage: 380V-690V, 50/60 Hz, other voltages on request Nominal power: 4.0/4.8 kW, 50/60 Hz
Connections	Flanges: DN65 PN10 DIN flanges
Installation	Welded or bolted to the structure
Other	Frame colour: RAL 5019
Shipping data	Net weight (dry): 180 kg Shipping weight: 210 kg Shipping volume: 1.5 m³

EVAC ONLINEFLEX

6545597 EVAC ONLINEFLEX 2 FX 60, 400/460 V 50/60 Hz, 690 V 50 Hz
6550110 EVAC ONLINEFLEX 2 FX 60, 690 V 60 Hz

Patented

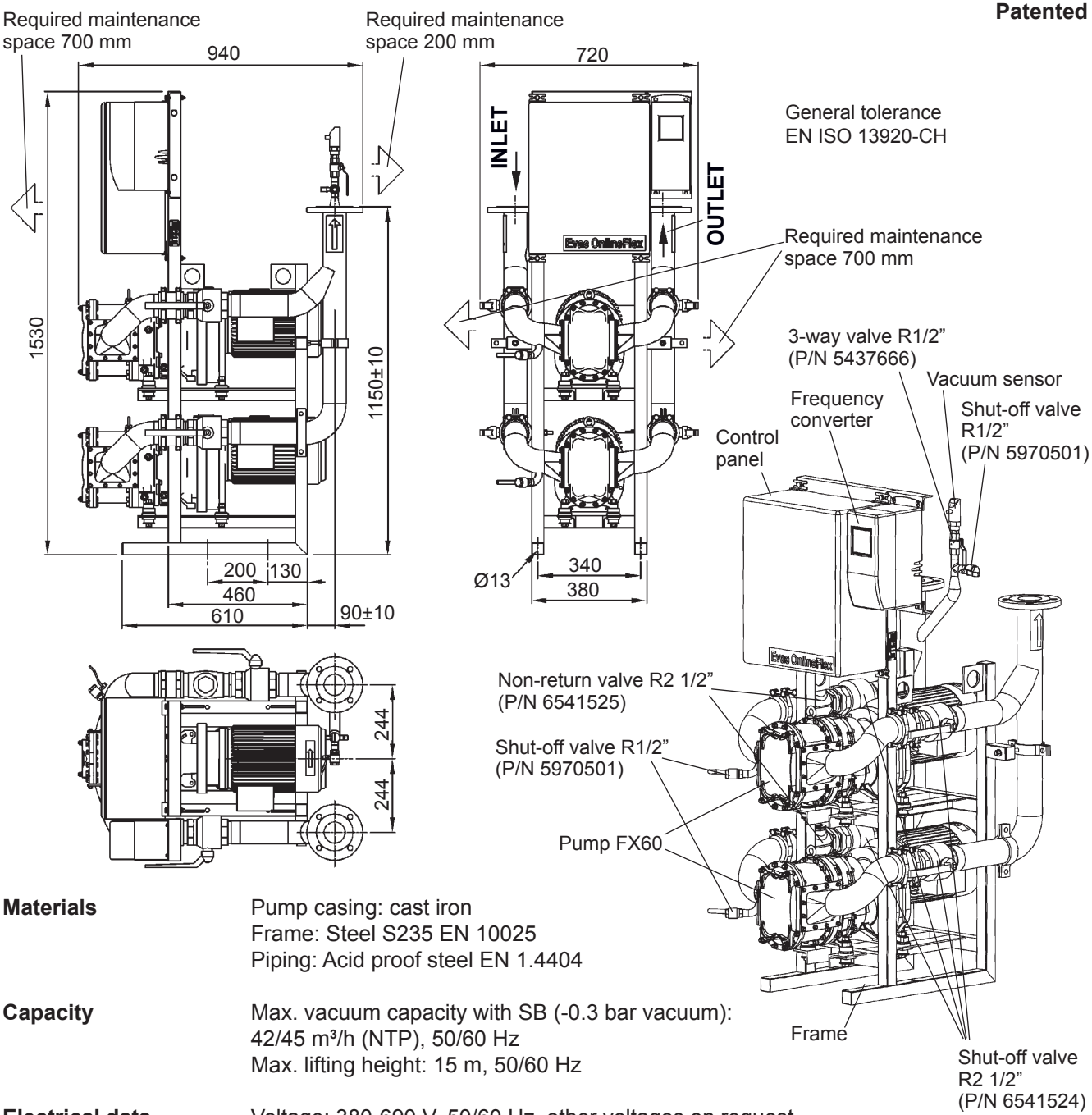


Materials	Pump casing: cast iron Frame: Steel S235 EN 10025 Piping: Acid proof steel EN 1.4404
Capacity	Max. vacuum capacity (-0.3 bar vacuum): 34/40 m³/h (NTP), 50/60 Hz Max. lifting height: 15 m, 50/60 Hz
Electrical data	Voltage: 380-690 V, 50/60 Hz, other voltages on request Nominal power: 8.0/9.6 kW, 50/60 Hz
Connections	Flanges: DN65 PN10 DIN flanges
Installation	Welded or bolted to the structure
Other	Frame colour: RAL 5019
Shipping data	Net weight (dry): 320 kg Shipping weight: 350 kg Shipping volume: 1.7 m³

EVAC ONLINEFLEX

6545598 EVAC ONLINEFLEX 2 FXi 60, 400/460 V 50/60 Hz, 690 V 50 Hz
6550111 EVAC ONLINEFLEX 2 FXi 60, 690 V 60 Hz

Patented



Materials
Pump casing: cast iron
Frame: Steel S235 EN 10025
Piping: Acid proof steel EN 1.4404

Capacity
Max. vacuum capacity with SB (-0.3 bar vacuum):
42/45 m³/h (NTP), 50/60 Hz
Max. lifting height: 15 m, 50/60 Hz

Electrical data
Voltage: 380-690 V, 50/60 Hz, other voltages on request
Nominal power: 8.0/9.6 kW, 50/60 Hz

Connections
Flanges: DN65 PN10 DIN flanges

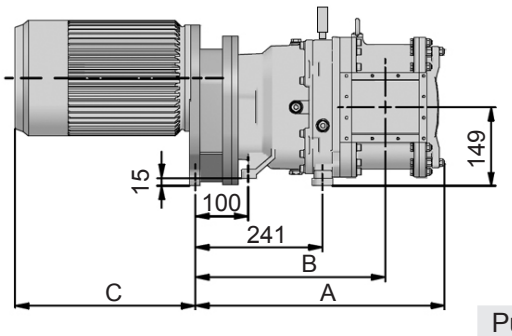
Installation
Welded or bolted to the structure

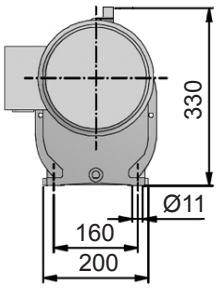
Other
Frame colour: RAL 5019

Shipping data
Net weight (dry): 330 kg
Shipping weight: 360 kg
Shipping volume: 1.7 m³

EVAC ONLINEFLEX

6545640 EVAC ONLINE PUMP FX30, 400/690 V 50 Hz, 460 V 60 Hz
6545641 EVAC ONLINE PUMP FX60, 400/690 V 50 Hz, 460 V 60 Hz
6550104 EVAC ONLINE PUMP FX30, 3x690 V 60 Hz
6550106 EVAC ONLINE PUMP FX60, 3x690 V 60 Hz





Pump	A	B	C
FX30	410	328	345
FX60	474	360	338

Materials

Pump housing: Cast iron GG25, mat. no. 0.6025
Lobes (Special Evac lobes): Cast iron GG25, NBR
Shaft: Steel C45, mat. no. 1.0503 (EN10083-2)
Mechanical sealing: Duronit V, NBR

Operation data

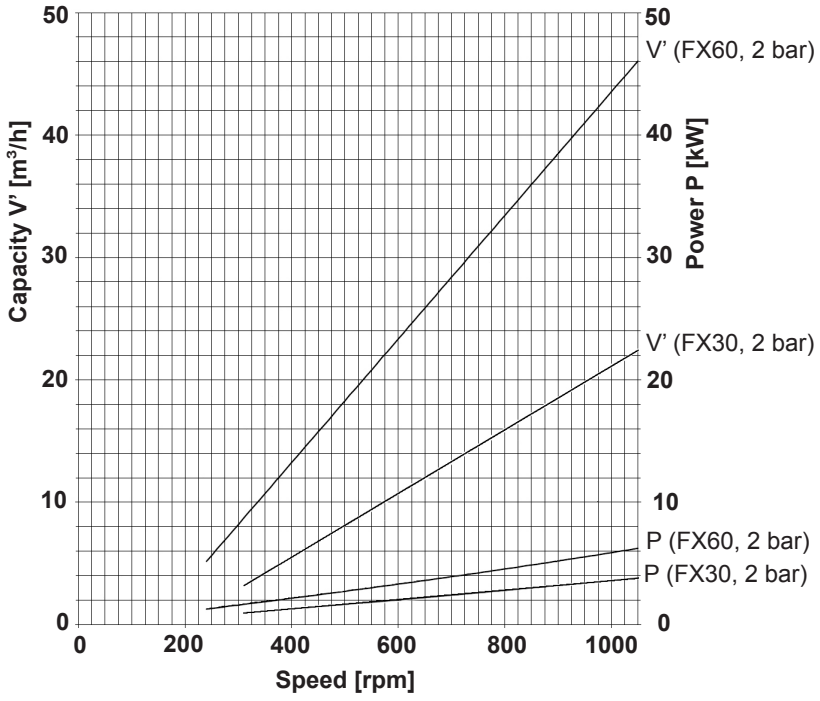
Ambient temperature: Max.+40°C

Pump

Pump No.	6545640	6545641	6550104	6550106
Pump rpm/min	664	664	795	795
Pump gear ratio i	2.19			

Capacity

Sewage: 12/15 m³/h, 50/60 Hz (FX30), 26/32 m³/h, 50/60 Hz (FX60)
Max. discharge head: 15/15 m, 50/60 Hz (with -0.5 bar)



EVAC ONLINEFLEX

6545640 EVAC ONLINE PUMP FX30, 400/690 V 50 Hz, 460 V 60 Hz
6545641 EVAC ONLINE PUMP FX60, 400/690 V 50 Hz, 460 V 60 Hz
6550104 EVAC ONLINE PUMP FX30, 3x690 V 60 Hz
6550106 EVAC ONLINE PUMP FX60, 3x690 V 60 Hz

Electrical data

P/N 6545640								
Voltage: 400 VD 50 Hz			Voltage: 690 VY 50 Hz			Voltage: 460 VD 60 Hz		
Nominal		Motor speed rpm/min	Nominal		Motor speed rpm/min	Nominal		Motor speed rpm/min
Power	Current		Power	Current		Power	Current	
2.2 kW	4.6 A	1455	2.2 kW	2.7 A	1455	2.55 kW	4.4 A	1755

P/N 6545641								
Voltage: 400 VD 50 Hz			Voltage: 690 VY 50 Hz			Voltage: 460 VD 60 Hz		
Nominal		Motor speed rpm/min	Nominal		Motor speed rpm/min	Nominal		Motor speed rpm/min
Power	Current		Power	Current		Power	Current	
4.0 kW	8.2 A	1460	4.0 kW	4.8 A	1460	4.0 kW	8.0 A	1760

P/N 6550104		
Voltage: 3x690 VY 60 Hz		
Nominal		Motor speed rpm/min
Power	Current	
3.0 kW	3.6 A	1750

P/N 6550106		
Voltage: 3x690 VY 60 Hz		
Nominal		Motor speed rpm/min
Power	Current	
5.5 kW	6.5 A	1740

Protection class: IP55
Insulation class: F
Efficiency: IE2

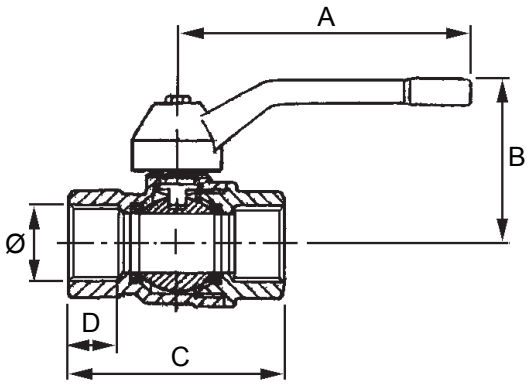
Connection Special flange

Shipping data Net weight: 90/103 kg (FX30/FX60)

EVAC ONLINEFLEX

5970501 SHUT-OFF VALVE R 1/2”
6543367 SHUT-OFF VALVE R1 1/4”
5437666 THREE WAY VALVE R 1/2”
6543739 SHUT-OFF VALVE R2”
6541524 SHUT-OFF VALVE R2 1/2”

P/N 5970501 Shut-off valve R 1/2”
P/N 6543367 Shut-off valve R1 1/4”
P/N 6543739 Shut-off valve R2”
P/N 6541524 Shut-off valve R2 1/2”

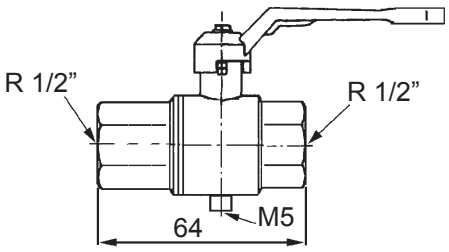


Ø	A	B	C	D
R 1/2”	84.5	40	47.5	12
R1 1/4”	110	63	66	18
R2”	150	87	110	21
R2 1/2”	200	120	134	21

Materials
Body: Brass Ms 58
Ball: Brass, chromium plated
Sealing ring: P.T.F.E.
Lever: Aluminium

Operating data
Nominal pressure: PN25 (up to 95°C)

P/N 5437666 Three way valve R 1/2”



Materials
Body: Brass nickel-plated
Ball: Brass chrome-plated

Connections
R 1/2”, M5

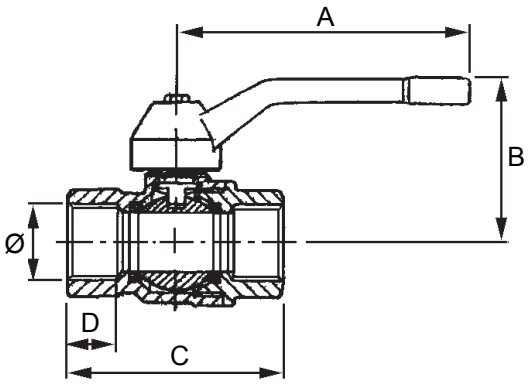
Shipping data
Net weight: 0.320 kg

EVAC ONLINEFLEX

6543739	SHUT-OFF VALVE R2”	6541525	NON-RETURN VALVE R2 1/2”
6541524	SHUT-OFF VALVE R2 1/2”	5437666	THREE WAY VALVE R1/2”
6543738	NON-RETURN VALVE R2”	6544544	THREE WAY VALVE R1/2”

P/N 6543739 Shut-off valve R2”
P/N 6541524 Shut-off valve R2 1/2”

Ø	A	B	C	D
R2”	150	87	110	21
R2 1/2”	200	120	134	21

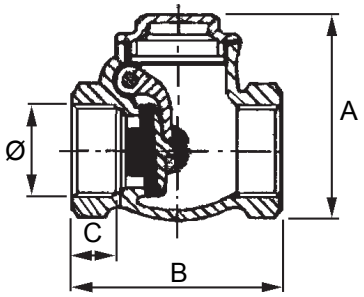


Materials
Body: Brass Ms 58
Ball: Brass, chromium plated
Sealing ring: P.T.F.E.
Lever: Aluminium

Operating data
Nominal pressure: PN25 (up to 95°C)

P/N 6543738 Non-return valve R2”
P/N 6541525 Non-return valve R2 1/2”

Ø	A	B	C
R2”	102	97	11
R2 1/2”	110	120	16



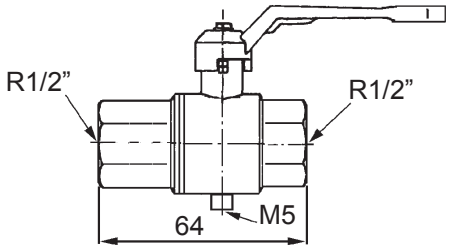
Materials
Body: Brass

P/N 5437666 Three way valve R1/2”

Materials
Body: Brass nickel-plated
Ball: Brass chrome-plated

Connections
R1/2”, M5

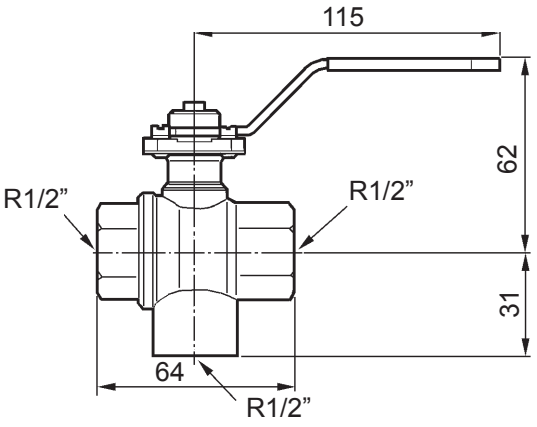
Shipping data
Net weight: 0.320 kg



P/N 6544544 Three way valve R1/2”

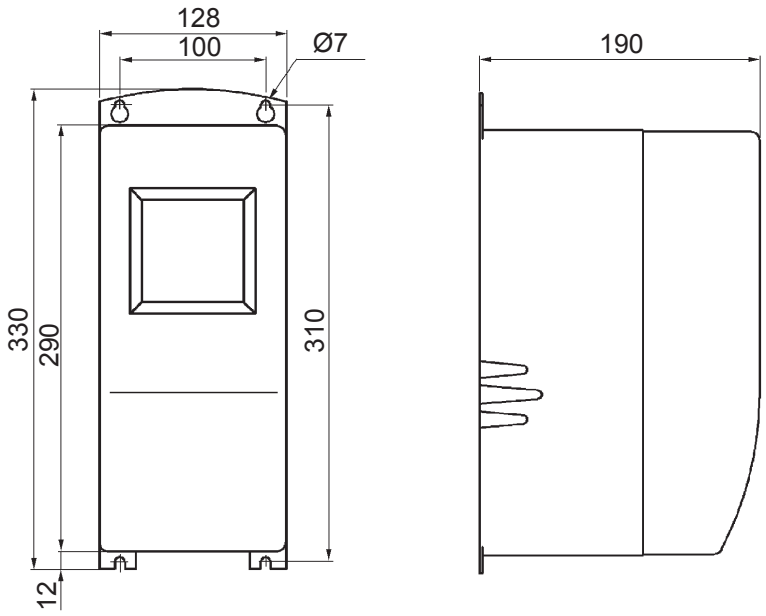
Materials
Body: Brass nickel-plated
Ball: Brass chrome-plated

Connections
R1/2”



EVAC ONLINEFLEX

6543776 FREQUENCY CONVERTER



Operating data

Operating temperature: -10°C (no frost)...+50°C
Enclosure class: IP54

Electrical data:

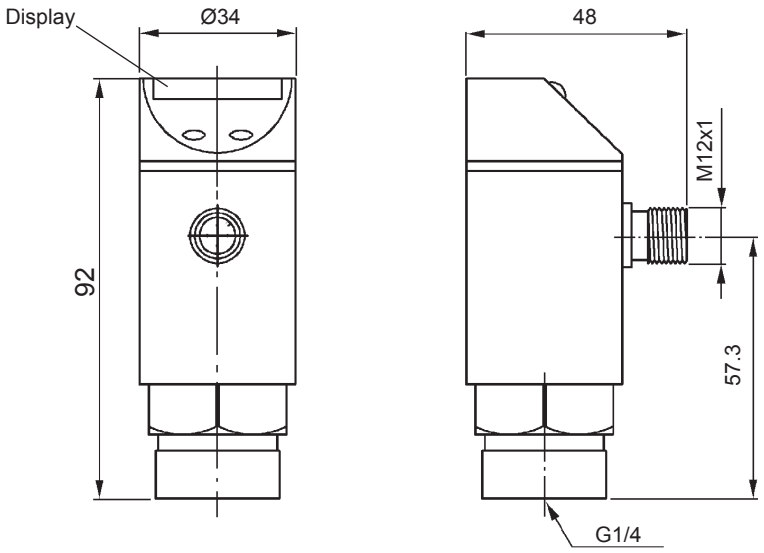
Input voltage: 380-500 V ±10%
Input frequency: 45...66 Hz
Loadability, low; rated continuous current: 12 A, 10%
overload current: 13.2 A

Shipping data:

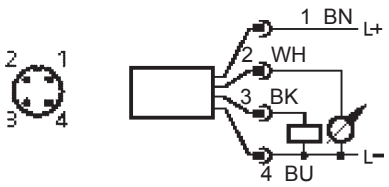
Weight: 5 kg

EVAC ONLINEFLEX

6541552 VACUUM SENSOR WITH DISPLAY



Wiring

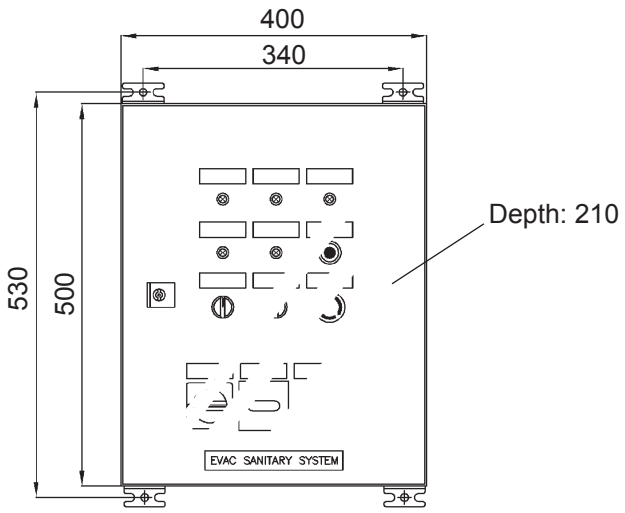


Materials	Housing: Stainless steel
Operating data	Operating temperature: -20ºC...+80ºC Medium temperature: -20ºC...+80ºC Measuring range: -1000...0 mbar Linearity, hysteresis, repetitiveness: < 0,3%
Connection:	Pipe connection: G1/4”
Electrical data:	Supply voltage: 18...36V DC Output signal: 4...20 mA or 0...10 V Function display: 4-digit alphanumeric display Electrical connection: M12 Insulation class: IP65

EVAC ONLINEFLEX

5461509 EVAC CONTROL PANEL, 3x380-480 / 690 / 230 V 50/60 Hz
5461510 EVAC CONTROL PANEL, 3x380-480 / 690 / 230 V 50/60 Hz
5461511 EVAC CONTROL PANEL, 3x380-480 / 230 V 50/60 Hz
5461512 EVAC CONTROL PANEL, 3x380-480 / 230 V 50/60 Hz

Control panel P/N	Evac OnlineFlex P/N
5461509	6545595
	6545599
	6550108
	6550112
5461510	6545597
	6545601
	6550110
	6550114
5461511	6545596
	6545600
	6550109
	6550113
5461512	6545598
	6545602
	6550111
	6550115



Cabinet
Tagplates: Fastening with glue
Control lights: Leds
Color: Ral 7035 Grey
Protection: IP54

Programmable controller
Siemens Logo

Components
Internal cabling: Halogen free/Flame retardant, (Marine approved)
Marking: All components and cables

EVAC ONLINEFLEX

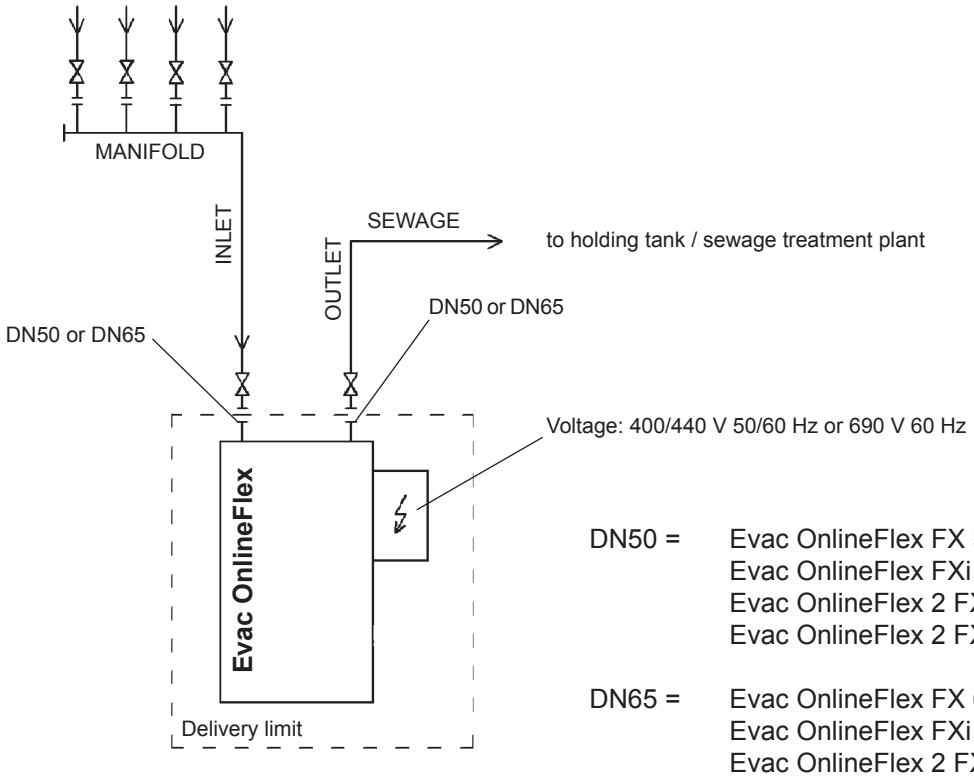
EVAC ONLINEFLEX

Installation

Welded to the structure

New building installation

The vacuum sensor can be also connected to the manifold (in case of an abnormal start or stop sequence).



DN50 = Evac OnlineFlex FX 30
Evac OnlineFlex FXi 30
Evac OnlineFlex 2 FX 30
Evac OnlineFlex 2 FXi 30

DN65 = Evac OnlineFlex FX 60
Evac OnlineFlex FXi 60
Evac OnlineFlex 2 FX 60
Evac OnlineFlex 2 FXi 60

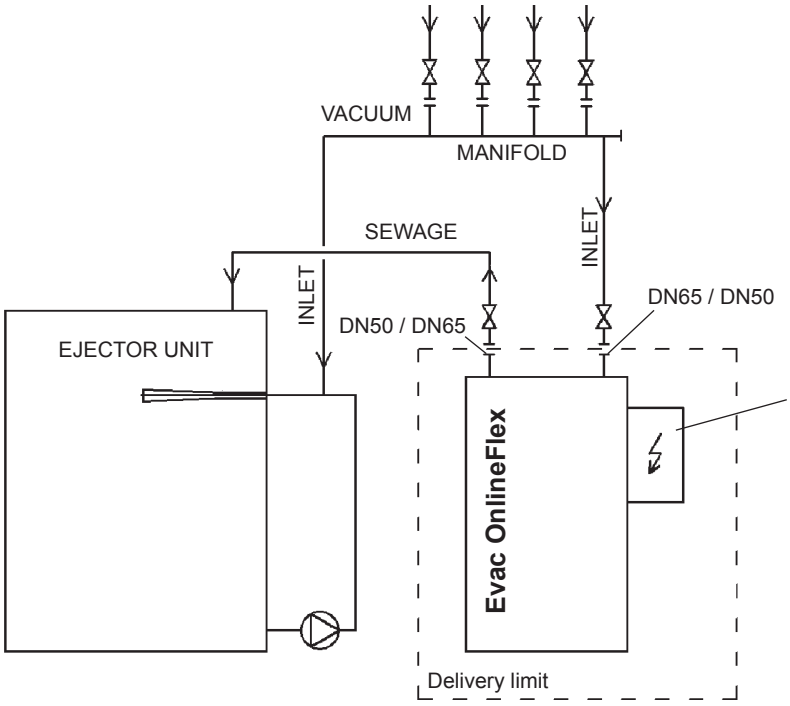
Retrofit installation

If the OnlineFlex is connected to the existing vacuum system, the old system runs as a backup.
The old system empties the existing collecting tank when it is full, therefore it cannot be turned off.
No electrical work is required when installing The OnlineFlex unit onto the side of the existing system.

EVAC ONLINEFLEX

EVAC ONLINEFLEX

The vacuum sensor can be also connected to the manifold (in case of an abnormal start or stop sequence).



Vacuum level settings:

- Start and stop values for the OnlineFlex unit must be set at a higher level than in the ejector unit.
- for example; ejector unit: start -0.3 bar, stop -0.4 bar, OnlineFlex: start -0.35 bar, stop -0,50 bar

DN50 = Evac OnlineFlex FX 30
Evac OnlineFlex FXi 30
Evac OnlineFlex 2 FX 30
Evac OnlineFlex 2 FXi 30

DN65 = Evac OnlineFlex FX 60
Evac OnlineFlex FXi 60
Evac OnlineFlex 2 FX 60
Evac OnlineFlex 2 FXi 60

Cleantech Solutions.
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EVAC WASTEWATER TREATMENT PLANTS

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Anywhere.

EVAC WASTEWATER TREATMENT PLANTS

TABLE OF CONTENTS

EVAC ADVANCED TREATMENT PLANT

- **EVAC MBR SMALL RANGE**
- **EVAC MBR MEDIUM RANGE**

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EVAC WASTEWATER TREATMENT PLANTS

EVAC ADVANCED TREATMENT PLANT

- **EVAC MBR SMALL RANGE**
- EVAC MBR MEDIUM RANGE

STANDARD MBR UNITS

EVAC MBR 8-32

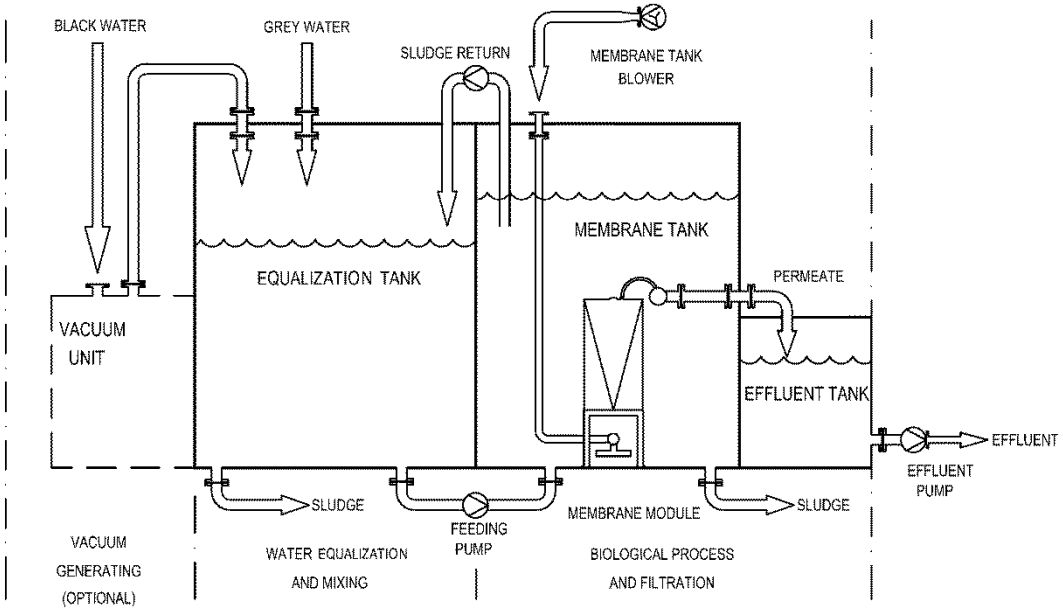
Advanced wastewater treatment

Evac MBR is recommended for decentralized treatment system where the required discharge effluent quality is very high or/and when the footprint available is very low. Compared to a conventional biological treatment, the system is up to 5 times smaller, can handle more than twice the organic loading, offers better performances, up to 6 times as less pollutant, and produces more than twice as less sludge.

Benefits

- Robust and reliable
- Small footprint with design according to extremely limited space on shipbuilding
- 7-10 years life membrane
- Above ground package plant
- Very high effluent quality suitable for reuse or discharge to sensitive area
- Minimized sludge production
- More than 600 MBR installed
- Certified quality

Flow diagram



Functioning

The Evac MBR is an advanced wastewater treatment process where all the wastewater streams are treated to meet current and future standards.

Wastewater collecting, equalizing and mixing

Knowledge of the building's operational profile, source and amount of wastewater, and collection methods, among others things, is the key to the achieving an optimal process. As wastewater, is produced unevenly

STANDARD MBR UNITS

EVAC MBR 8-32

during the day, the best results are achieved by ensuring a constant feed to the treatment plant. The Evac MBR is a compact design, which includes equalization, a membrane and an effluent tank.

Pre-treatment
Foreign objects (towels, rubber gloves, rings etc.) in the wastewater have to be removed at the front end of the process. Heavy objects are separated and the waste is macerated. Grease has to be removed from the effluent produced by restaurant or canteen kitchen. Exposure of the membrane bioreactor to concentrations of any component known to be toxic or detrimental to the sludge should not be permitted.

Biological process
In the biological wastewater treatment process, organic materials are turned into carbon dioxide, water and biomass (MLSS). The Evac MBR is designed to operate with elevated concentrations of biomass, which gives stability to the bioprocess. An oxygen supply for the biomass is secured through the air diffusers.

Membrane filtration
Clean water is separated from the biomass by membrane filtration. A membrane filter is a physical barrier, producing treated water without solids. The lifetime of the submerged membranes are between 7 to 10 years or longer. The Evac MBR does not require any backflushing or continual chemical consumption, making it the most economical and maintenance friendly membrane solution. The difference in pressure for membrane filtration is created using the water pressure.

Range
The Evac MBR is sized according to wastewater influent design data information. The Evac MBR function is only guaranteed when organic and hydraulic loading conditions do not exceeding their certified maximum values. Please ensure the correct load rating for your requirements.

Modele	Hydraulic loading m^3/d	Organic loading $kgBOD_5/d$	Population equivalent*
MBR 8	1.5	0.75	9
MBR 16	3.0	1.50	18
MBR 24	4.4	2.25	27
MBR 32	5.9	3.00	36

* considering 160L/person/day

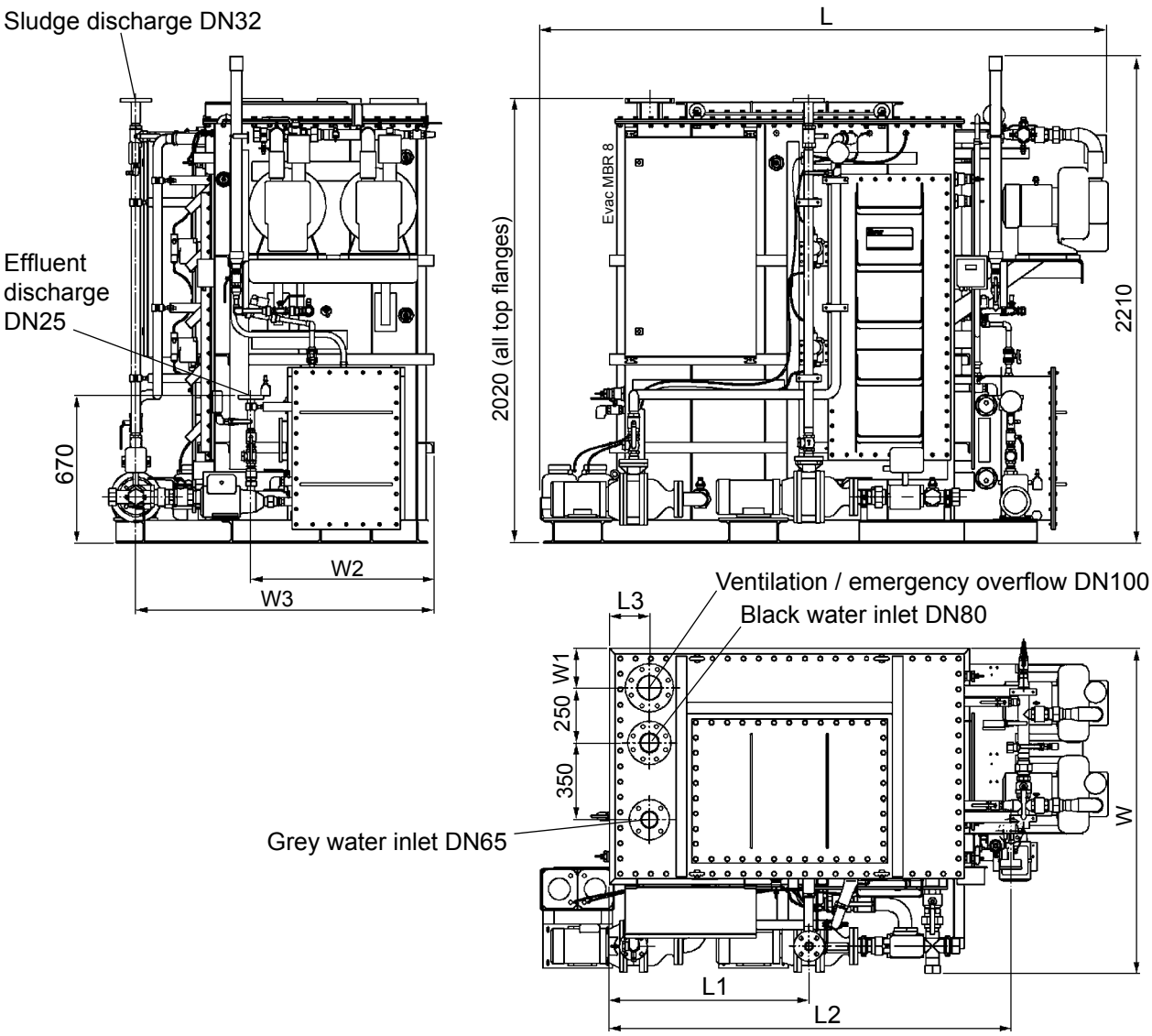
Performances

Parameters	IMO Marpol Certification (marine)	EN 12566-3 CEN 91 271 and USA regulations	Reuse standards USA**-EU	Evac MBR certification test results	Removal efficiency (%)
TSS mg/L	35	30-35	10	2.5	99.5
BOD_5 mgO_2/L	25	25-30	10-20	1.6	99.0
COD mgO_2/L	125	100-125		33.0	97.0
TN mg/L	20 (70%)	10-15		*8.8	88.6
TP mg/L	1 (80%)	2		*0.3	98.0
Thermotolerant Coliforms CFU/100mL	100	50-200	2-1000	3.3	5 Log

** with nutrient removal option*
***depends on State and conditions*

STANDARD MBR UNITS

6549370 EVAC MBR 8 **6549374 EVAC MBR 24**
6549372 EVAC MBR 16 **6549376 EVAC MBR 32**



Main dimensions (mm)

MBR type	L	W	L1	L2	L3	W1	W2	W3
Evac MBR 8	2550	1480	910	1825	185	180	830	1355
Evac MBR 16	2550	1480	910	1825	185	180	835	1355
Evac MBR 24	2570	1965	910	1830	190	340	1215	1845
Evac MBR 32	3030	1965	1380	2590	190	340	1215	1845

General tolerance: EN ISO 13920-CH

Electrical data

MBR type	Supply: 380-480 V 50 Hz		Supply: 660-690 V 50 Hz	
	Peak power	Average power	Peak power	Average power
Evac MBR 8	9.5 kW / 11.2 kVA	6.2 kW / 7.3 kVA	9.1 kW / 10.7 kVA	5.9 kW / 7.0 kVA
Evac MBR 16				
Evac MBR 24				
Evac MBR 32				

STANDARD MBR UNITS

6549370 EVAC MBR 8 **6549374 EVAC MBR 24**
6549372 EVAC MBR 16 **6549376 EVAC MBR 32**

Materials Tank material; Steel S355 EN10025, inside: Epoxy coated, outside: painted

Operating data Discharge height: 15 m

Connections Connection flanges: DIN 2576 (PN10)

Installation Fixing to base: welded or bolted to steel structure

Weight

MBR type	Dry weight kg ±10%	Wet weight kg ±5%
Evac MBR 8	1230	3480
Evac MBR 16	1260	3510
Evac MBR 24	1520	4770
Evac MBR 32	1820	6770

Plant loading

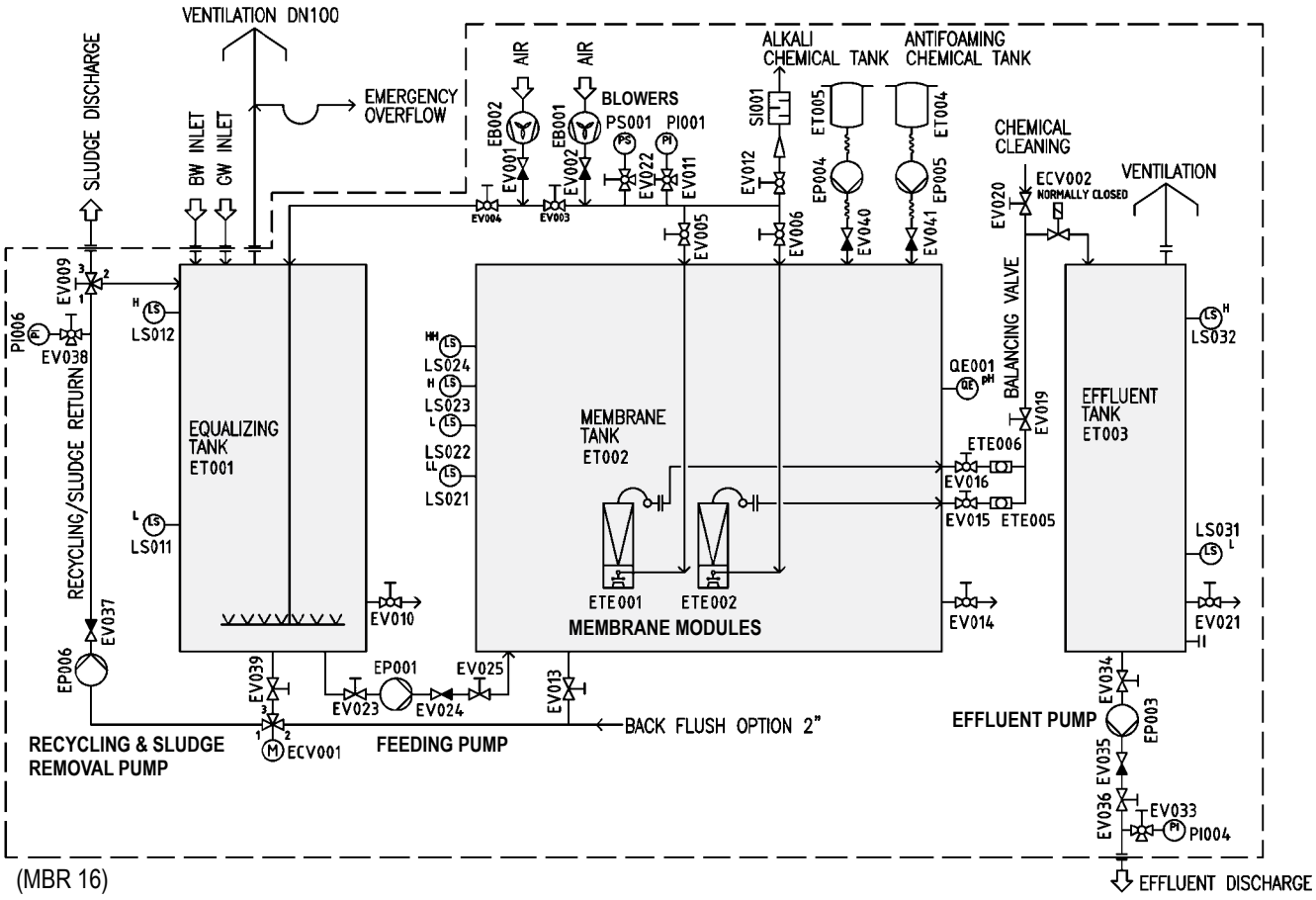
The following table shows wet volume, maximum hydraulic and organic loading per day of the plant type.

MBR type	Max. hydraulic load (m^3/day)	Max.BOD_5 load (kg/day)
Evac MBR 8	1.5	0.75
Evac MBR 16	3.0	1.5
Evac MBR 24	4.4	2.25
Evac MBR 32	5.9	3.0

STANDARD MBR UNITS

6549370 EVAC MBR 8 **6549374 EVAC MBR 24**
6549372 EVAC MBR 16 **6549376 EVAC MBR 32**

MAIN COMPONENTS



COMPONENTS LIST

PI-code	P/N	Name	Components (pcs) per Evac MBR unit			
			MBR 8	MBR 16	MBR 24	MBR 32
EP001	6549821 or 6550008	Feeding pump	1	1	1	1
EP003	6545616 or 6545617	Pump	1	1	1	1
EP006	6546907 or 6546908	Discharge pump	1	1	1	1
ETE001 ETE002 ETE003 ETE004	6550532	Membrane module	1	2	3	4
EB001 EB002	6546810 or 6546812	Air blower	2	2	2	2
EP004 EP005	6547140	Dosing pump set	2	2	2	2

STANDARD MBR UNITS

6549370 EVAC MBR 8 **6549374 EVAC MBR 24**
6549372 EVAC MBR 16 **6549376 EVAC MBR 32**

PI-code	P/N	Name	Components (pcs) per Evac MBR unit			
			MBR 8	MBR 16	MBR 24	MBR 32
QE001	6545376	pH transmitter set	1	1	1	1
PI004 PI006	6546805	Pressure gauge	2	2	2	2
PI001	6546804	Pressure gauge	1	1	1	1
LS031 LS032	6543825	Level switch	2	2	2	2
LS011 LS012 LS021 LS022 LS023 LS024	6547369	Level switch	6	6	6	6
EV011 EV022 EV033 EV038	5437666	3-way valve 1/2”	4	4	4	4
EV009	6545686	3-way valve 1 1/4”	1	1	1	1
EV035	6545806	Non-return valve 1”	1	1	1	1
EV024 EV037	6545510	Non-return valve 1 1/4”	2	2	2	2
EV001 EV002	6547122	Non-return valve 1 1/2”	2	2	2	2
EV019	6550407	Control ball valve 1/2”	1	1	-	-
EV019	6550441	Control ball valve 3/4”	-	-	1	1
ECV001	6548890	Motor valve R2”	1	1	1	1
ECV002	6550502	Solenoid valve 3/4”	-	-	1	1
ECV002	6550436	Solenoid valve 1/2”	1	1	-	-
EV004 EV005 EV006 EV007 EV008 EV010 EV012 EV014 EV020 EV021 EV034 EV036	6541699	Shut-off valve 1”	9	10	11	12
EV025	6543367	Shut-off valve 1 1/4”	1	1	1	1
EV003	6544199	Shut-off valve 1 1/2”	1	1	1	1

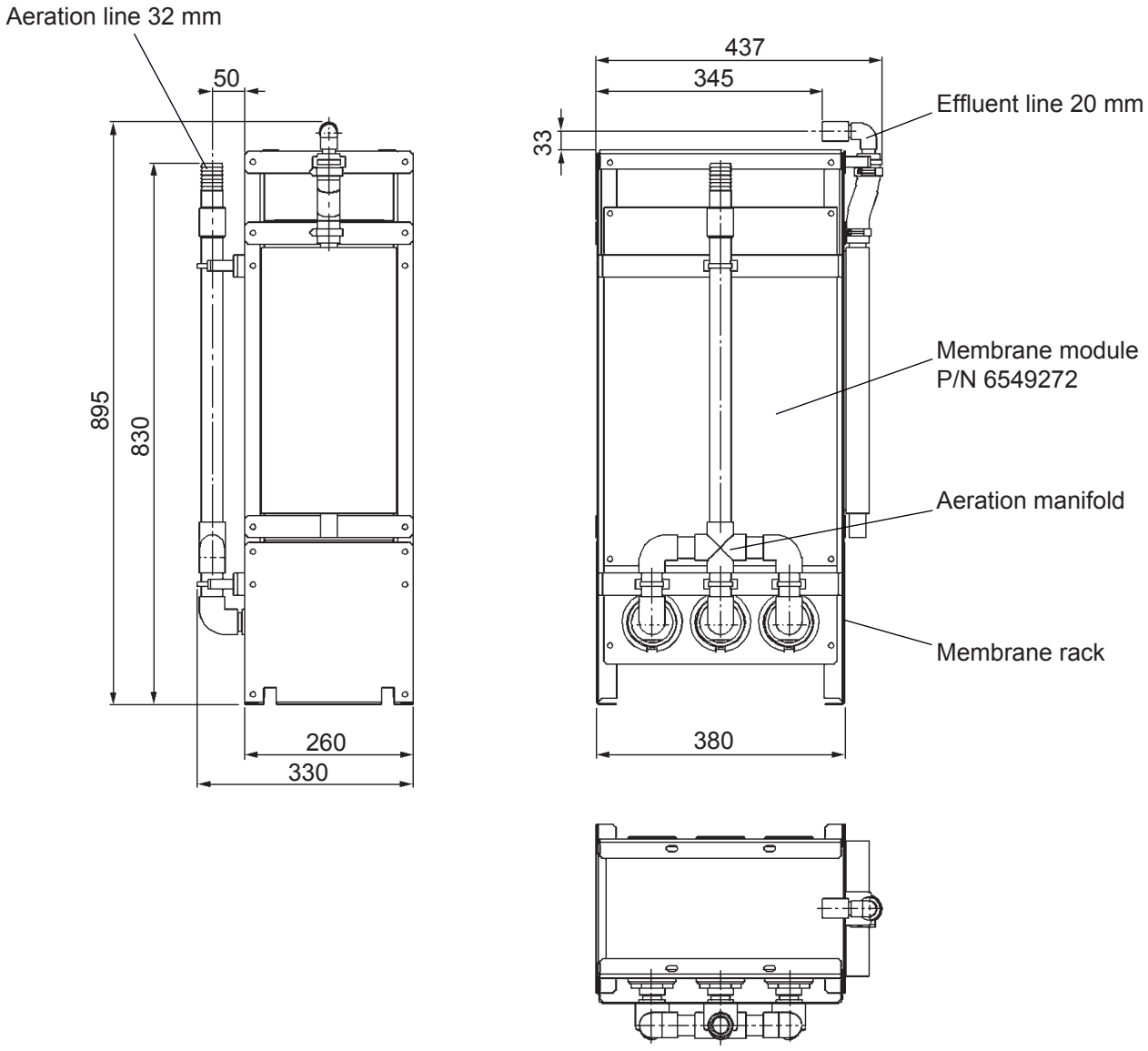
STANDARD MBR UNITS

6549370 EVAC MBR 8 **6549374 EVAC MBR 24**
6549372 EVAC MBR 16 **6549376 EVAC MBR 32**

PI-code	P/N	Name	Components (pcs) per Evac MBR unit			
			MBR 8	MBR 16	MBR 24	MBR 32
EV013 EV023 EV039	6543739	Shut-off valve 2”	3	3	3	3
EV015 EV016 EV017 EV018	6550394	Shut-off valve D=20	1	2	3	4
PS001	6545393	Air pressure switch	1	1	1	1
SI001	6545587	Silencer G1”	1	1	1	1
ECP01	5461695	Control panel	1	1	1	1

STANDARD MBR UNITS

6550532 MEMBRANE MODULE

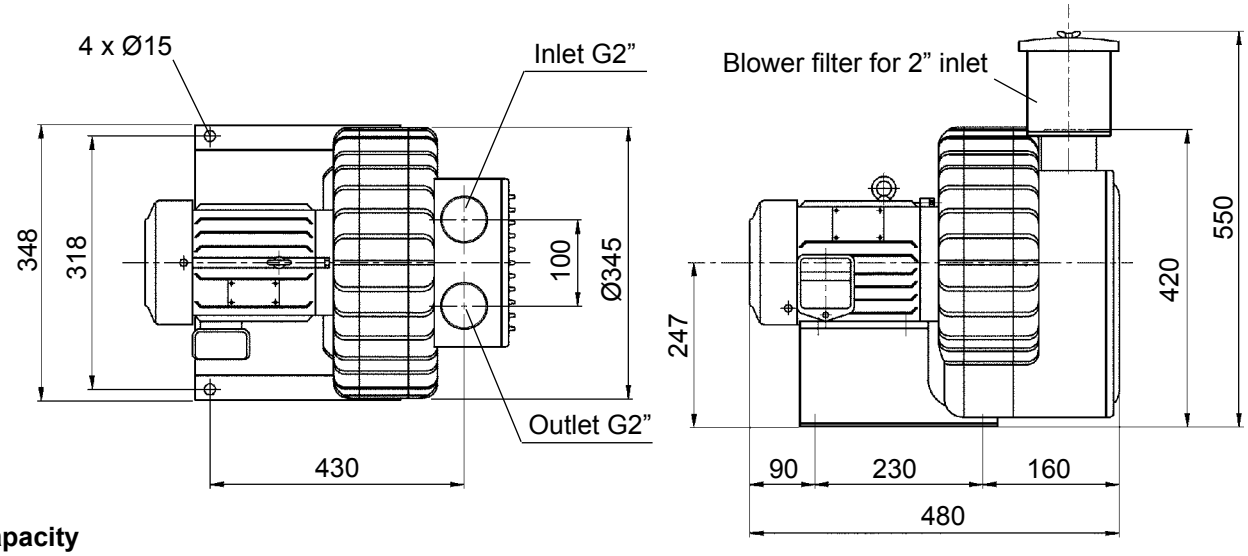


Materials Frame: Stainless steel EN 1.4301 (AISI304)

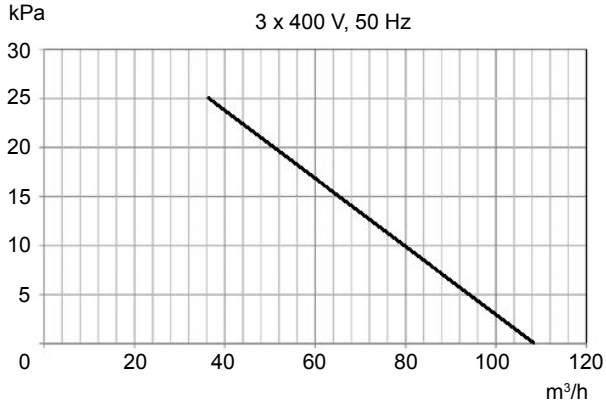
Shipping data Wet weight: 25 kg

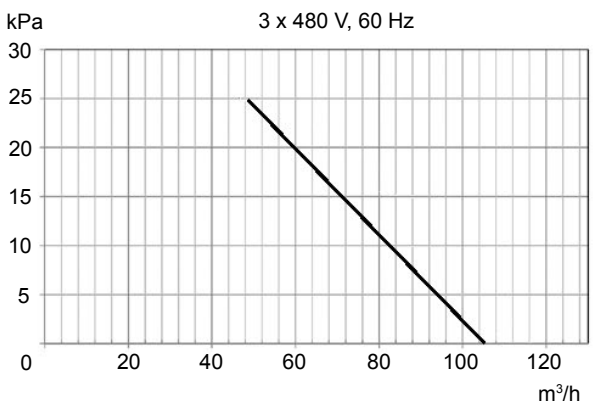
STANDARD MBR UNITS

6546810 AIR BLOWER 3x380-415 V 50 Hz, 3x440-480 V 60 Hz, 3x660-720 V 50 Hz
6546812 AIR BLOWER 3x380-415 V 60 Hz, 3x660-720 V 60 Hz



Capacity





Electrical data

P/N 6546810								
Voltage: 380-415 V 50 Hz			Voltage: 660-720 V 50 Hz			Voltage: 440-480 V 60 Hz		
Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current		Power	Current	
1.5 kW	3.4 A	2800 rpm	1.5 kW	2.0 A	2800 rpm	1.75 kW	3.4 A	3400 rpm

P/N 6546812					
Voltage: 380-415 V 60 Hz			Voltage: 660-720 V 60 Hz		
Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current	
1.5 kW	3.4 A	3400 rpm	1.5 kW	2.0 A	3400 rpm

Protection class: IP55
Insulation class: F
Efficiency: IE1

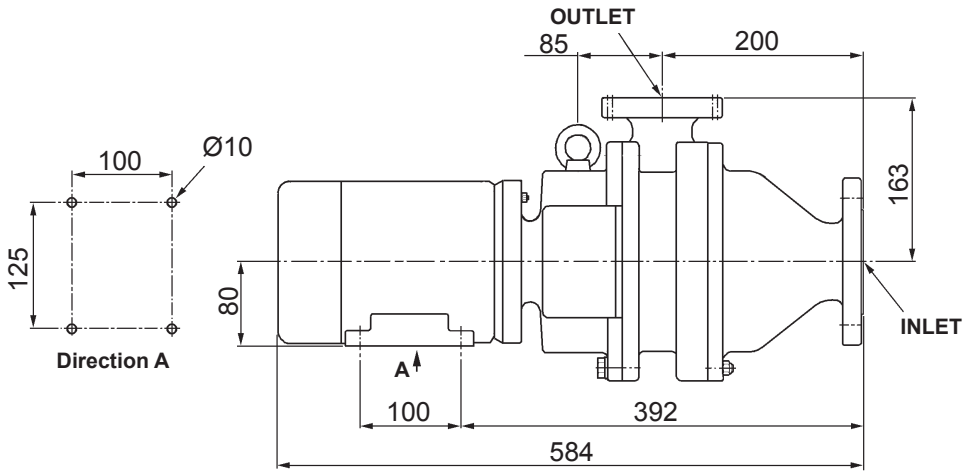
Operating data
Max. ambient temperature: +50°C

Materials
Blower casing: Aluminium G-AlSi 10 Mg
Blower impeller: Aluminium G-AlSi 10 Mg
Nuts, screws: Stainless steel SIS 2333 (AISI 304)
Mounting bracket: R St 37-2 DIN 17100

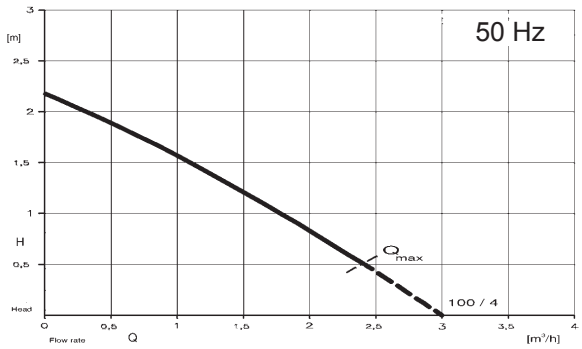
Connections
Inlet: G2”
Outlet: G2”

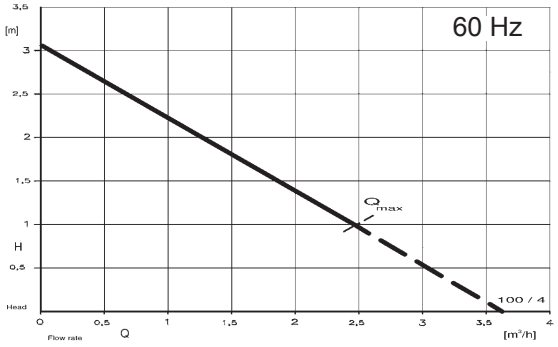
Shipping data
Net weight: 35 kg

6549821 PUMP, 3x380-420 V 50 Hz, 3x660-690 V 50 Hz, 3x440-500 V 60 Hz



Capacity





Electrical data

Voltage: 380-420 V 50 Hz			Voltage: 660-690 V 50 Hz			Voltage: 440-500 V 60 Hz		
Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current		Power	Current	
0.75 kW	2.10 A	1400 rpm	0.75 kW	1.21 A	1400 rpm	0.9 kW	2.15 A	1710 rpm

Protection class: IP55
Insulation class: F
Efficiency: IE1

Operating data

Operating mode: S 1 continuous duty
Max. ambient temperature: +55°C

Materials

Pump housing, motor casing: Cast iron EN-JL 2030
Shaft: Stainless steel 1.4021
Impeller: Stainless steel 1.4528
Multiple cutter: Stainless steel 1.4528
Multiple knife: Stainless steel 1.4528
Mechanical seal: SiC/SiC

Connections

Inlet: DN50 PN10
Outlet: DN40 PN6/PN10 (DN40 PN10 and DN32 PN10 flanges are usable for counter flange)

Other

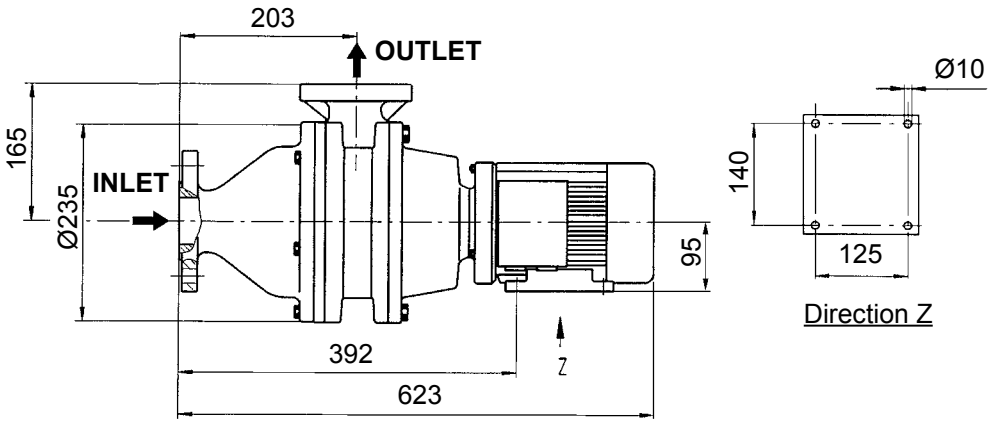
Impeller: Ø100 mm

Shipping data

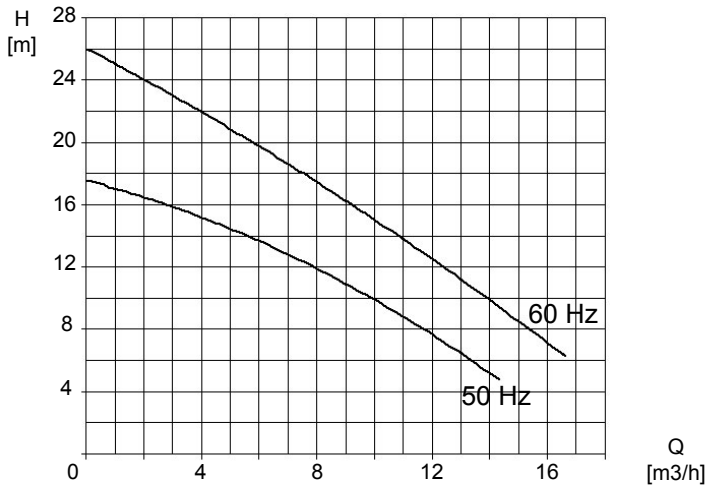
Net weight: 45 kg

STANDARD MBR UNITS

6546907 PUMP, 3x380-420 V 50 Hz, 3x440-480 V 60 Hz
6546908 PUMP, 3x660-690 V 50 Hz, 3x660-690 V 60 Hz



Capacity



Electrical data

P/N 6546907						P/N 6546908					
Voltage: 380-420 V 50 Hz			Voltage: 440-480 V 60 Hz			Voltage: 660-690 V 50 Hz			Voltage: 660-690 V 60 Hz		
Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current		Power	Current		Power	Current	
2.2 kW	4.6 A	2900 rpm	2.64 kW	5.0 A	3400 rpm	2.2 kW	2.7 A	2900 rpm	2.64 kW	2.9 A	3400 rpm

Protection class: IP55
Insulation class: F
Efficiency: IE1

Operating data
Operating mode: S 1 continuous duty
Max. ambient temperature: +50°C

Materials
Pump body: Cast iron GG20
Impeller: Cast iron GG20
Shaft: Stainless steel
Nuts, screws: Stainless steel SIS 2333 (AISI 304)
O-rings: NBR
Slide rings: Silicon carbide

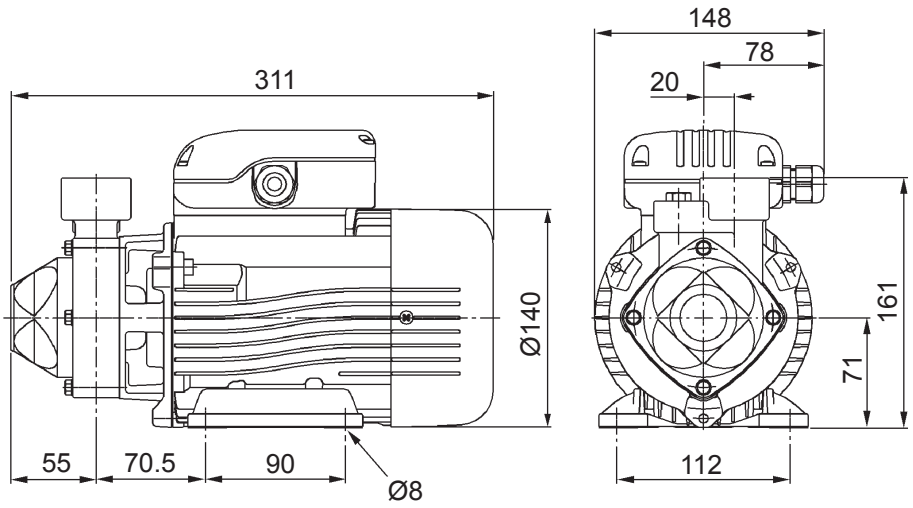
Connections
Inlet: DN50 PN10
Outlet: DN40 PN6

Other
Impeller: Ø120 mm

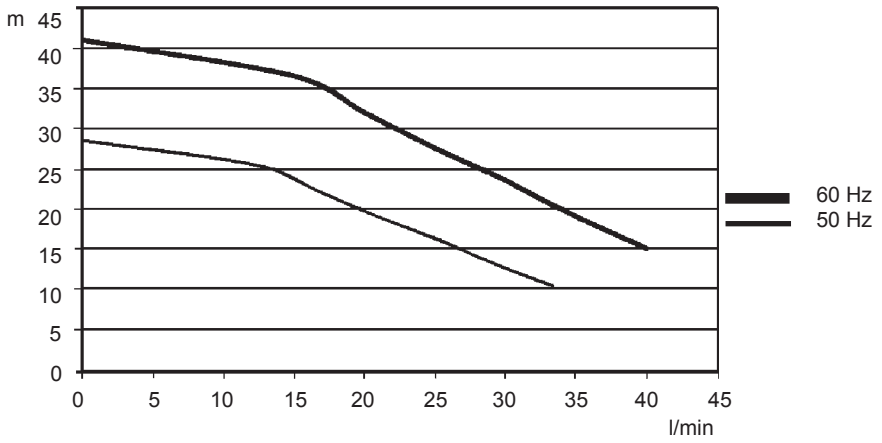
Shipping data
Net weight: 54 kg

STANDARD MBR UNITS

6545616 EFFLUENT PUMP, 3x380-415 V 50 Hz, 3x660-690 V 50 Hz, 3x380-440/660 V 60 Hz
6545617 EFFLUENT PUMP, 3x440-460 V 50 Hz, 3x460-480 V 60 Hz



Capacity



Electrical data

P/N 6545616											
Voltage: 3x380-415 V 50 Hz			Voltage: 660-690 V 50 Hz			Voltage: 3x380-440 V 60 Hz			Voltage: 660 V 60 Hz		
Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current		Power	Current		Power	Current	
0.55 kW	1.54 A	2850 rpm	0.55 kW	0.89 A	2850 rpm	0.55 kW	1.38 A	3400 rpm	0.55 kW	0.8 A	3400 rpm

P/N 6545617					
Voltage: 3x440-460 V 50 Hz			Voltage: 3x460-480 V 60 Hz		
Nominal		Motor speed	Nominal		Motor speed
Power	Current		Power	Current	
0.55 kW	1.42 A	2850 rpm	0.55 kW	1.28 A	3400 rpm

Protection class: IP55
Insulation class: F
Efficiency: IE1

Operating data
Operating mode: S1 continuous duty
Max. ambient temperature: +50°C

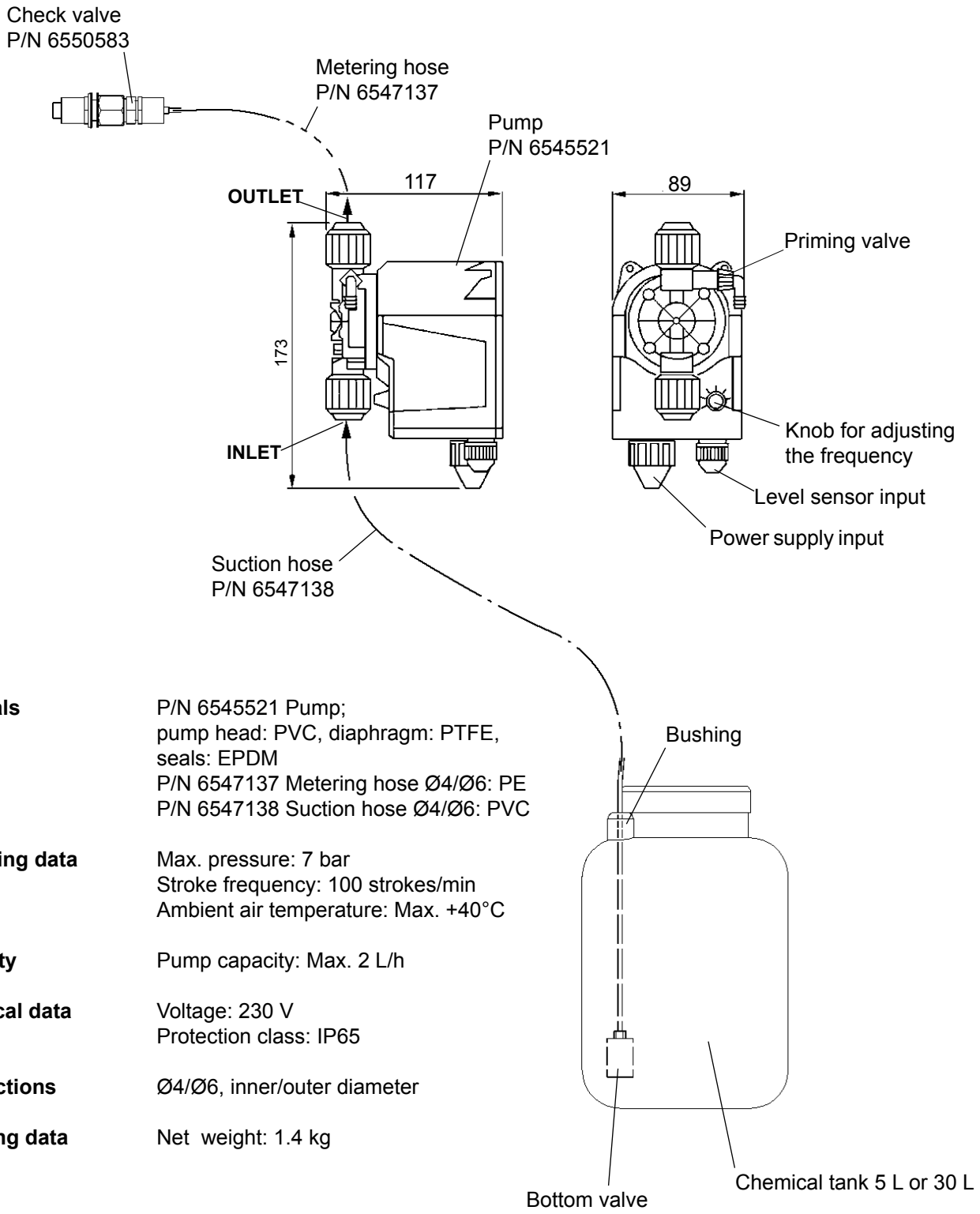
Materials
Pump body: Cast iron
Shaft: Stainless steel DIN 1.4305 (AISI 303)
Mechanical seal: Ceramic/Carbon/NBR
Impeller: Brass

Connections
Inlet: Rp1”
Outlet: Rp1”

Shipping data
Weight: 9.7 kg

STANDARD MBR UNITS

6547140 DOSING PUMP SET, TANK 5 L
6547141 DOSING PUMP SET, TANK 30 L



Materials	P/N 6545521 Pump; pump head: PVC, diaphragm: PTFE, seals: EPDM P/N 6547137 Metering hose Ø4/Ø6: PE P/N 6547138 Suction hose Ø4/Ø6: PVC
Operating data	Max. pressure: 7 bar Stroke frequency: 100 strokes/min Ambient air temperature: Max. +40°C
Capacity	Pump capacity: Max. 2 L/h
Electrical data	Voltage: 230 V Protection class: IP65
Connections	Ø4/Ø6, inner/outer diameter
Shipping data	Net weight: 1.4 kg

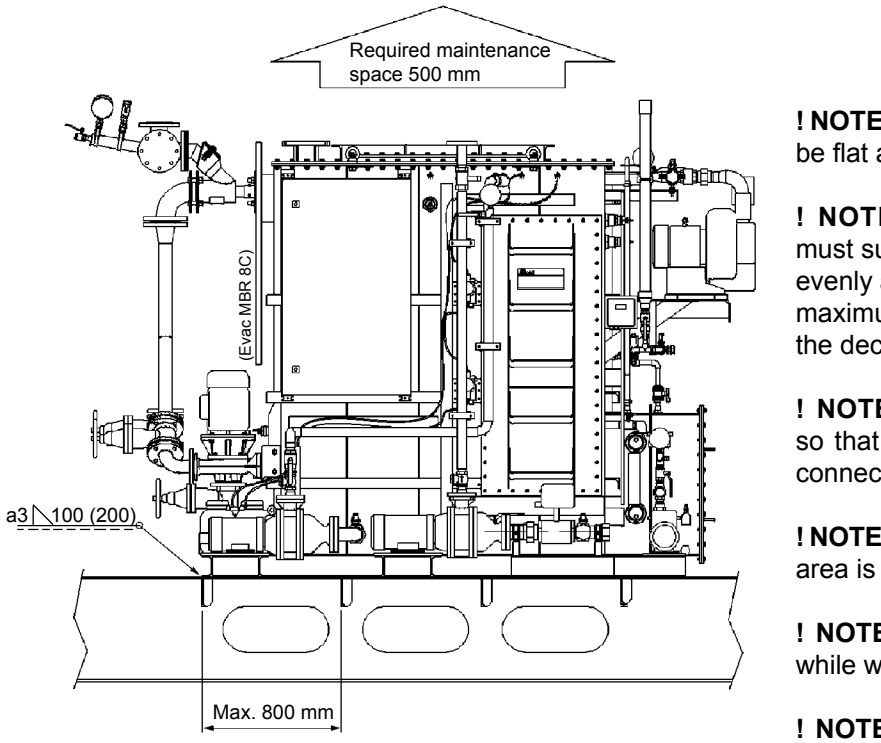
STANDARD MBR UNITS

EVAC MBR 8 - 32
EVAC MBR 8C - 32C

EVAC MBR 40
EVAC MBR 40C

Foundation

The Evac MBR plants are delivered with a foundation allowing welding or bolting onto the deck of a vessel or an installation frame. The welding instructions provided below must be followed carefully. For bolted instructions, please consult Evac.



! NOTE: The installation frame/deck must be flat and level.

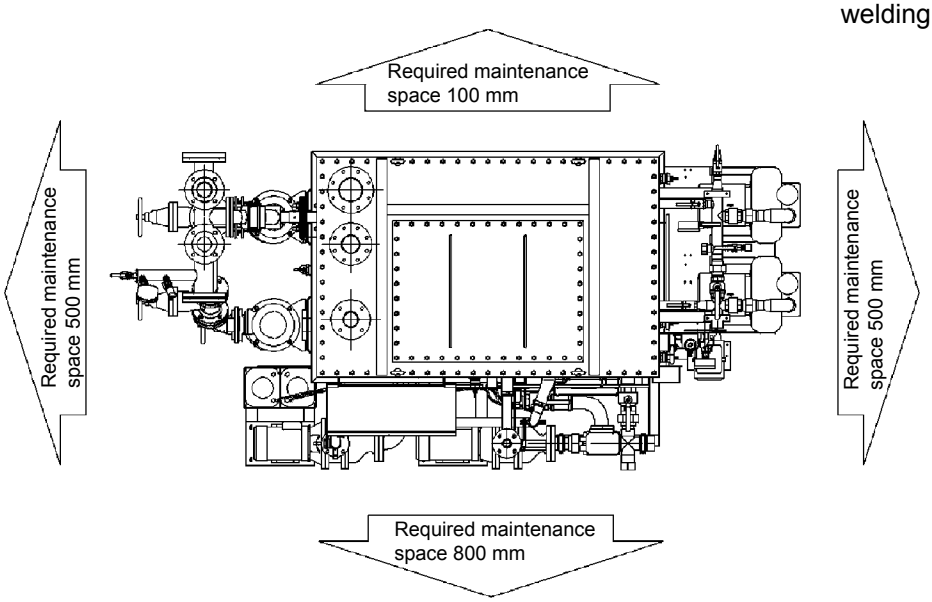
! NOTE: The installation frame/deck must support the bottom frames of tanks evenly across the whole frame area. The maximum permitted difference between the deck's stiffeners is 800 mm.

! NOTE: The piping must be installed so that there is no stress on the flange connections.

! NOTE: Welding outside of the foundation area is not allowed.

! NOTE: Do not damage the paintwork while welding. Observe heat conduction.

! NOTE: Fill the tank with water before welding to avoid paint damage during welding.



STANDARD MBR UNITS

EVAC MBR 8 - 32
EVAC MBR 8C - 32C
EVAC MBR 40
EVAC MBR 40C

Pipings system

The Evac MBR can process:
- black water from a vacuum sewage system
- black water from a gravity sewage system
- black water from a vacuum sewage system and grey water
- black water from a gravity sewage system and grey water

Installation and piping arrangements depend on the vessel's sewage system.

The Evac MBR has the following flange connections which must be connected to the vessel's piping system by the yard/customer:
- sewage inlet
- sludge discharge
- ventilation / overflow
- flushing (only temporary use)
- effluent outlet

! NOTE: The number of flange connections in custom-made treatment plants may vary

! NOTE: The ventilation pipe(s) must be constructed so that there are no air pockets.

Required additional components

Please contact Evac for sewage treatment system options and any required additional components.

Grease separator

Grease is detrimental to the treatment process. If galley water is conducted to treatment unit, a grease separator must be installed in front of the treatment plant.

! NOTE: All external components are to be installed by the yard/customer.

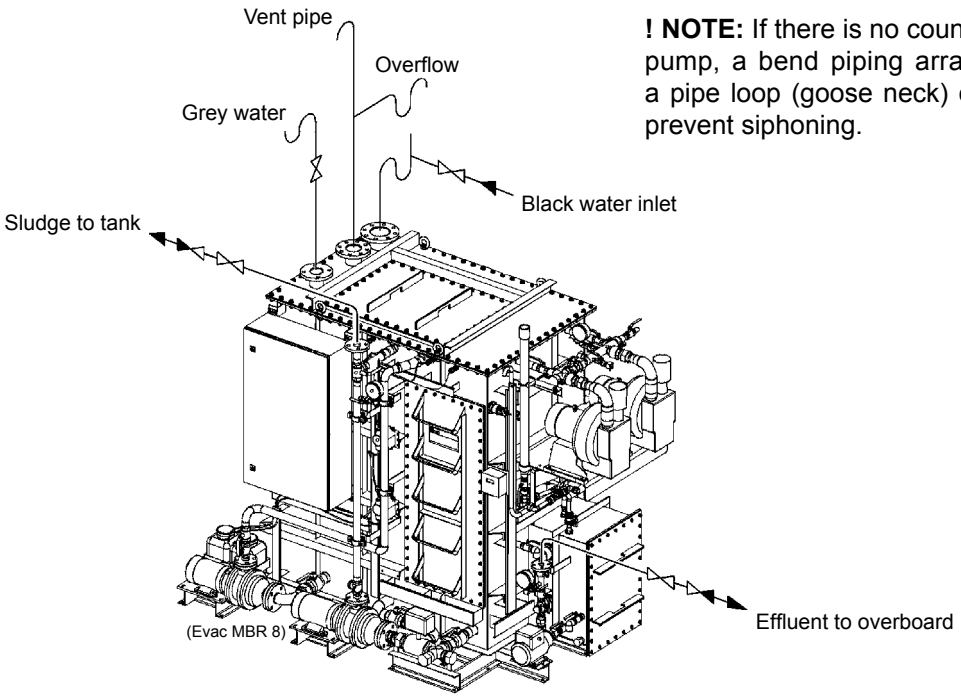
! NOTE: If there is no counter pressure for the discharge pump, a bend piping arrangement must be made with a pipe loop (goose neck) over the tank's water level to prevent siphoning.

STANDARD MBR UNITS

EVAC MBR 8 - 32
EVAC MBR 8C - 32C

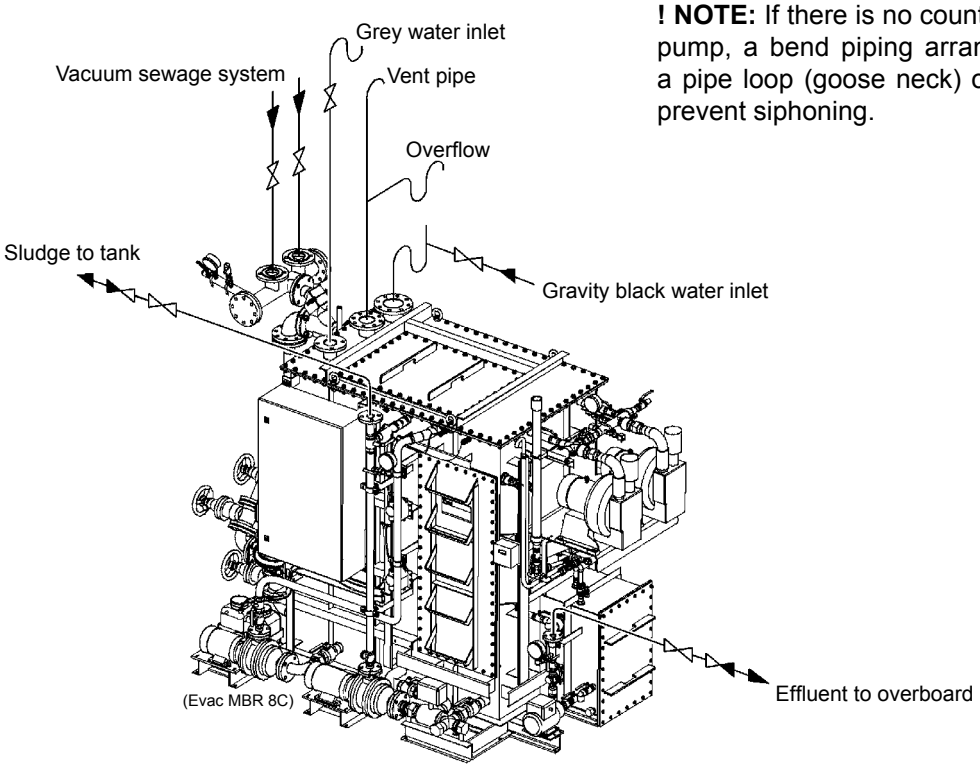
EVAC MBR 40
EVAC MBR 40C

Installation principle for gravity sewage systems



! NOTE: If there is no counter pressure for the discharge pump, a bend piping arrangement must be done with a pipe loop (goose neck) over the tank´s water level to prevent siphoning.

Installation principle for vacuum sewage systems and grey water system



! NOTE: If there is no counter pressure for the discharge pump, a bend piping arrangement must be made with a pipe loop (goose neck) over the tank´s water level to prevent siphoning.

Cleantech Solutions.
Anywhere.

EVAC WASTEWATER TREATMENT PLANTS

EVAC ADVANCED TREATMENT PLANT

- EVAC MBR SMALL RANGE
- **EVAC MBR MEDIUM RANGE**

STANDARD MBR UNITS

EVAC MBR 40-240

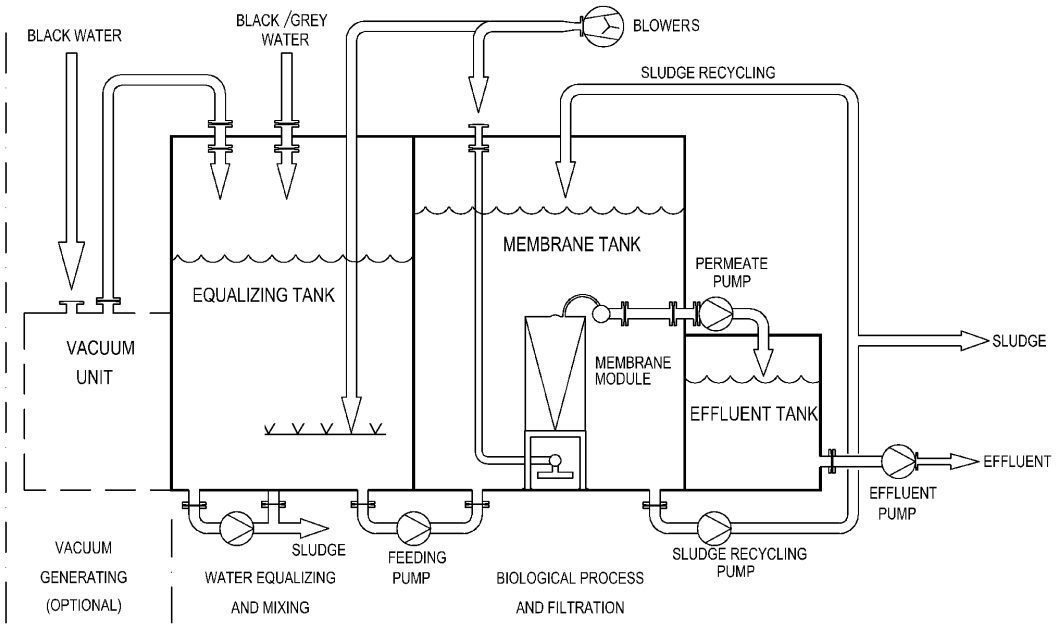
Advanced wastewater treatment

Evac MBR is recommended for decentralized treatment system where the required discharge effluent quality is very high or/and when the footprint available is very low. Compared to a conventional biological treatment, the system is up to 5 times smaller, can handle more than twice the organic loading, offers better performances, up to 6 times as less pollutant, and produces more than twice as less sludge.

Benefits

- Robust and reliable
- Small footprint with design according to extremely limited space on shipbuilding
- 7-10 years life membrane
- Above ground package plant
- Very high effluent quality suitable for reuse or discharge to sensitive area
- Minimized sludge production
- More than 600 MBR installed
- Certified quality

Flow diagram



Functioning

The Evac MBR is an advanced wastewater treatment process where all the wastewater streams are treated to meet current and future standards.

Wastewater collecting, equalizing and mixing

Knowledge of the building's operational profile, source and amount of wastewater, and collection methods, among others things, is the key to the achieving an optimal process. As wastewater, is produced unevenly

STANDARD MBR UNITS

EVAC MBR 40-240

during the day, the best results are achieved by ensuring a constant feed to the treatment plant. The Evac MBR is a compact design, which includes equalization, a membrane and an effluent tank.

Pre-treatment
Foreign objects (towels, rubber gloves, rings etc.) in the wastewater have to be removed at the front end of the process. Heavy objects are separated and the waste is macerated. Grease has to be removed from the effluent produced by restaurant or canteen kitchen. Exposure of the membrane bioreactor to concentrations of any component known to be toxic or detrimental to the sludge should not be permitted.

Biological process
In the biological wastewater treatment process, organic materials are turned into carbon dioxide, water and biomass (MLSS). The Evac MBR is designed to operate with elevated concentrations of biomass, which gives stability to the bioprocess. An oxygen supply for the biomass is secured through the air diffusers.

Membrane filtration
Clean water is separated from the biomass by membrane filtration. A membrane filter is a physical barrier, producing treated water without solids. The lifetime of the submerged membranes are between 7 to 10 years or longer. The Evac MBR does not require any backflushing or continual chemical consumption, making it the most economical and maintenance friendly membrane solution. The difference in pressure for membrane filtration is created using the water pressure.

Range

The Evac MBR is sized according to wastewater influent design data information. The Evac MBR function is only guaranteed when organic and hydraulic loading conditions do not exceeding their certified maximum values. Please ensure the correct load rating for your requirements.

Model	Hydraulic loading m^3/d	Organic loading $kgBOD_5/d$	Population equivalent*
MBR 40	7.4	3.7	46
MBR 80	14.8	7.4	92
MBR120	22.2	11.1	138
MBR160	29.6	14.8	185
MBR240	44.4	22.2	277

*considering 160L/person/day

Performances

Parameters	IMO Marpol Certification (marine)	EN 12566-3 CEN 91 271 and USA regulations	Reuse standards USA**-EU	Evac MBR certification test results	Removal efficiency (%)
TSS mg/L	35	30-35	10	2.5	99.5
BOD_5 mgO_2/L	25	25-30	10-20	1.6	99.0
COD mgO_2/L	125	100-125		33.0	97.0
TN mg/L	20 (70%)	10-15		*8.8	88.6
TP mg/L	1 (80%)	2		*0.3	98.0
Thermotolerant Coliforms CFU/100mL	100	50-200	2-1000	3.3	5 Log

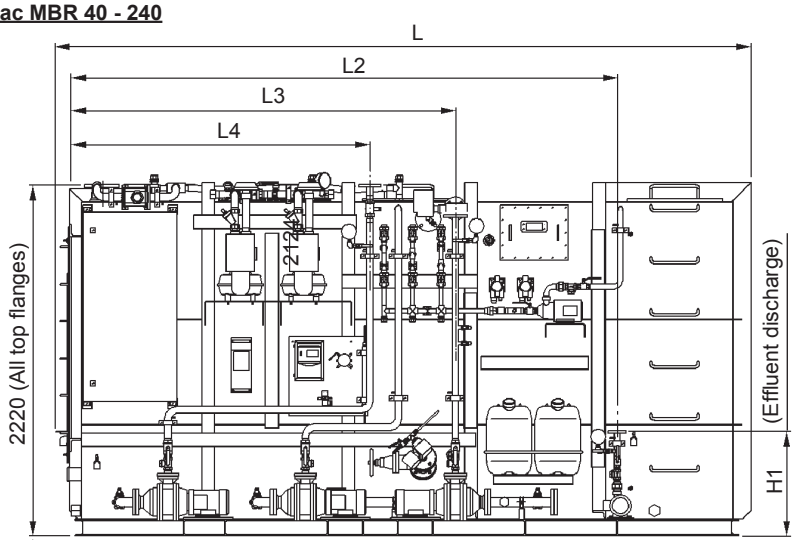
** with nutrient removal option*

***depends on State and conditions*

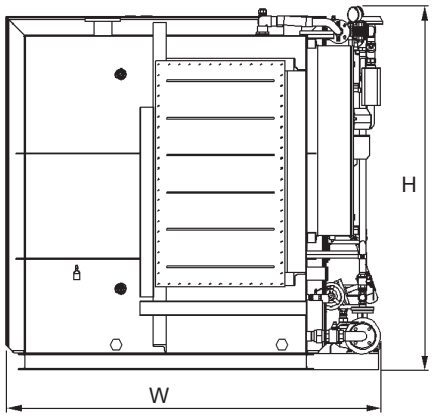
STANDARD MBR UNITS

6546142 EVAC MBR 40
6546143 EVAC MBR 80
6546144 EVAC MBR 120
6546145 EVAC MBR 160
6546146 EVAC MBR 240

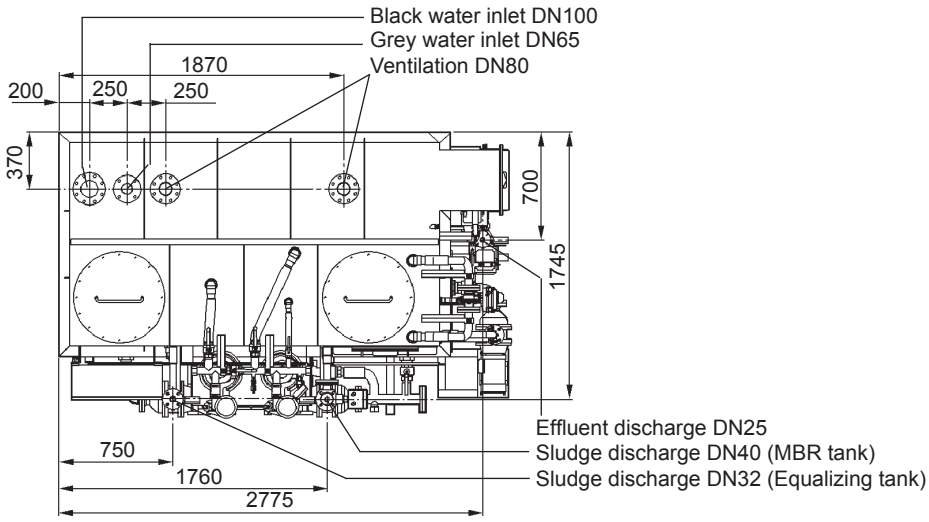
Evac MBR 40 - 240



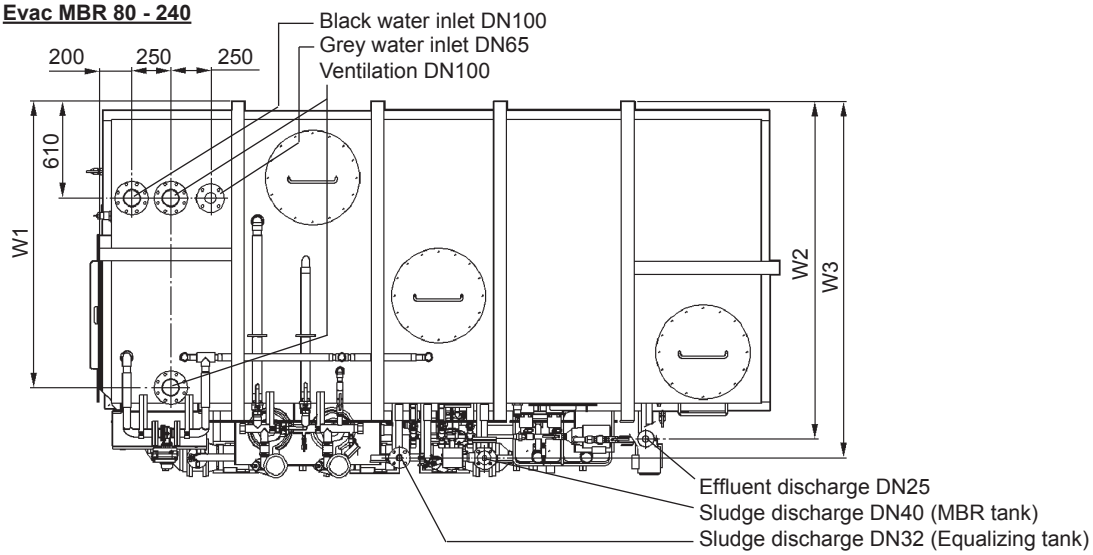
General tolerance: EN ISO 13920-CH



Evac MBR 40



Evac MBR 80 - 240



STANDARD MBR UNITS

6546142 EVAC MBR 40
6546143 EVAC MBR 80
6546144 EVAC MBR 120
6546145 EVAC MBR 160
6546146 EVAC MBR 240

Main dimensions (mm)

MBR Type	L	W	H	L2	L3	L4	W1	W2	W3	H1
Evac MBR 40	2970	1870	2295	-	-	-	-	-	-	730
Evac MBR 80	3900	2375	2295	3465	2440	1900	1810	2135	2255	665
Evac MBR 120	4400	2375	2295	3465	2440	1900	1810	2135	2255	665
Evac MBR 160	4700	2885	2295	4225	2260	1900	1960	2630	2765	730
Evac MBR 240	5515	2885	2335	4185	2440	1900	1960	2645	2765	730

General tolerance: EN ISO 13920-CH

MBR type	Dry weight kg ±10%	Wet weight kg ±5%
Evac MBR 40	2460	7700
Evac MBR 80	3770	15690
Evac MBR 120	4160	17530
Evac MBR 160	4850	22580
Evac MBR 240	5820	26750

Materials	Tank material: Steel S355 EN10025
Connections	Connection flanges: DIN 2576 (PN10)
Installation	Fixing to base: welded or bolted to steel structure
Operating data	Discharge height: 15m
Electrical data	Voltage: 380 - 690V, 50/60Hz

! NOTE:
Grease is harmful for treatment process. If there is galley water entering to the treatment unit, a grease separator must be installed before treatment plant.

STANDARD MBR UNITS

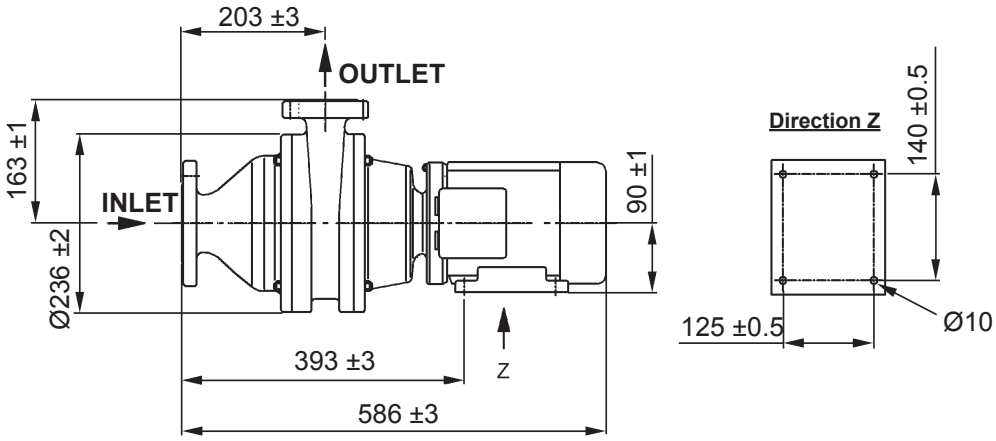
6546142 EVAC MBR 40 **6546144 EVAC MBR 120** **6546146 EVAC MBR 240**
6546143 EVAC MBR 80 **6546145 EVAC MBR 160**

MAIN COMPONENTS

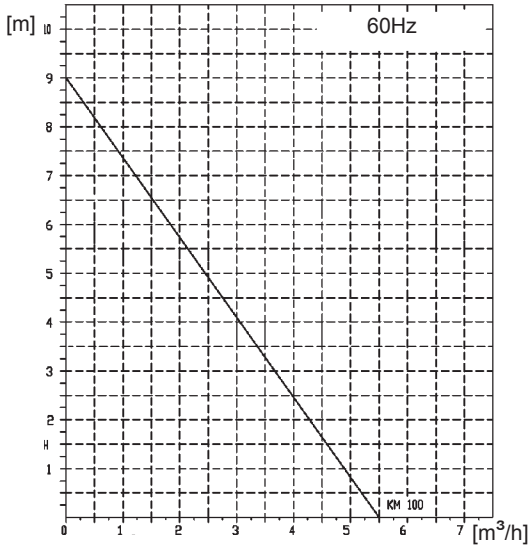
		Components (pcs) per Evac MBR unit				
P/N	**Name**	**MBR 40**	**MBR 80**	**MBR 120**	**MBR 160**	**MBR 240**
6545725 or 6545763	Feeding pump	1	1	1	1	1
6545723 or 6545724	Discharge pump	1	2	2	2	2
6545616 or 6545617	Effluent pump	1	2	2	2	1
6547141	Dosing pump set	2	2	2	2	2
70302001or 70303001or 6542305 or 6542695 or 6546583	Air blower	2	2	2	2	2
6543096	Membrane				2	
6543097	Membrane					2
6546367	Membrane	1	2	3		
6543825	Lewel switch	2	2	2	2	2
6548892	Lewel switch	4	4	4	4	4
5430595	Shut-off valve DN50	6	6	6	6	1
5437666	Shut-off valve R 1/2"	3	3	3	3	3
6541699	Shut-off valve R 1"	12	12	12	12	12
6544199	Shut-off valve R 1 1/2"	3	3	3	3	3
6546852 or 6547100	3-way motor valve DN40	1	1	1	1	1
6543739	Ball valve 2"	7	7	7	7	7
6545537	Non-return valve	2	2	2	2	2
5913502	Pressure gauge 1/2"		3	3	3	3
6543104	Pressure transmitter	1	1	1	1	1
6543142	Pressure gauge 1/2"	1	1	1	1	1
6543200	Sludge sprey nozzle	2	3	4	4	4
6544839	Pressure transmitter	1	1	1	1	1
6545393	Air pressure switch	1	1	1	1	1
6545662	Control box	1	1	1	1	1
6545663	Connection box	1	1	1	1	1
6545664	O2X sensor	1	1	1	1	1
6545665	ITX sensor	1	1	1	1	1
6545666	pHX sensor	1	1	1	1	1
6546945 or 6747086	Frequency converter	1	1	1	1	1
5461630	Control panel	1				
5461632	Control panel		1			
5461634	Control panel			1		
5461636	Control panel				1	
5461638	Control panel					1

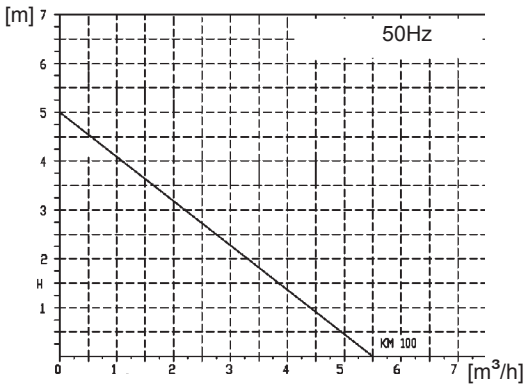
STANDARD MBR UNITS

6545725 PUMP KM 100, 3 x 380 - 690V / 50HZ, 3 x 380 - 660V / 60HZ
6545763 PUMP KM 100, 3 x 690V / 60HZ



Capacity





Operating data
Operating mode: S 1 continuous duty
Max. ambient temperature: +45°C

Electrical data
Voltage;
6545725: 3 x 380 - 690V / 50Hz, 3 x 380 - 660V / 60Hz
6545763: 3 x 690V / 60Hz
Nominal power: 2.2/2.6kW, 50/60Hz
Nominal current: 4.55/4.6A, 50/60Hz
Protection class: IP 55
Insulation class: F
Rotation speed: 2830/3420rpm, 50/60Hz

Connections
Inlet: DN40 PN6
Outlet: DN40 PN10

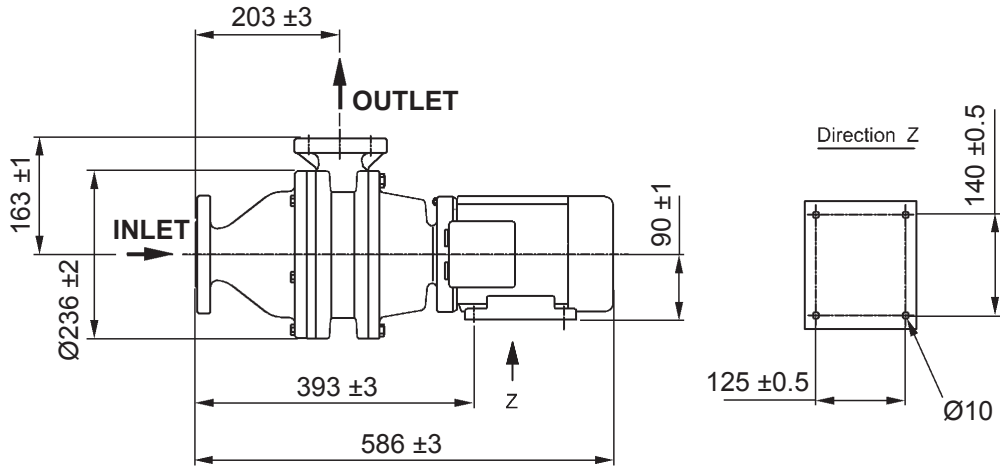
Materials
Pump casing and sealing housing: Cast iron GG20
Impeller: Stainless steel X105CrCoMo 18 2 DIN 1.4528
Shaft: Stainless steel X20 Cr13
Nuts, screws: Stainless steel SIS 2333 (AISI 304)
O-rings: NBR
Slide rings: Silicon carbide

Other
Impeller: Ø100mm

Shipping data
Net weight: 52kg

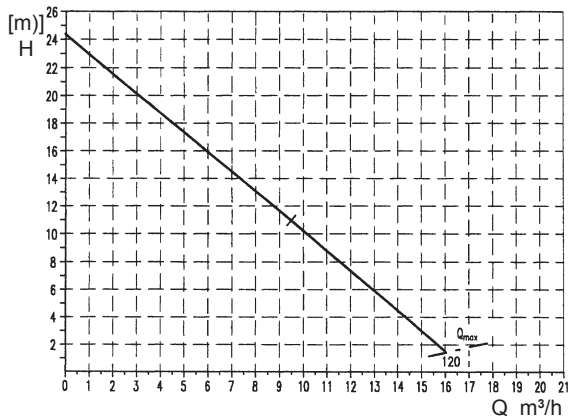
STANDARD MBR UNITS

6545723 PUMP ES 120W, 3 x 380 - 690V / 50HZ, 3 x 380 - 660V / 60HZ
6545724 PUMP ES 120W, 3 x 690V / 60HZ

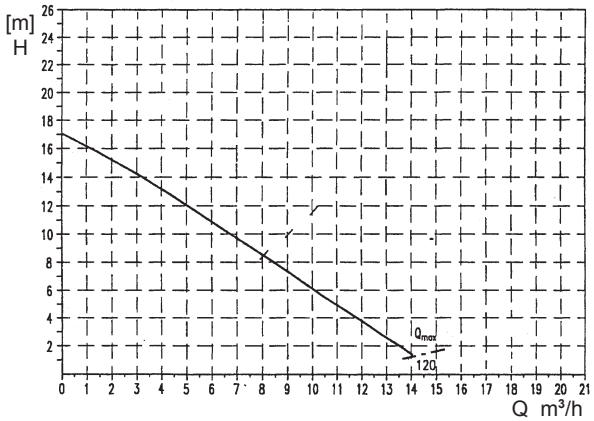


Capacity

3x400V, 60Hz



3x480V, 50Hz



Operating data
Operating mode: S 1 continuous duty
Max. ambient temperature: +45°C

Electrical data
Voltage:
P/N 6545723: 3 x 380 - 690V / 50Hz, 3 x 380 - 660V / 60Hz
P/N 6545724: 3 x 690V / 60Hz
Nominal power: 2.2/2.6kW, 50/60Hz
Nominal current: 4.55/4.6A, 50/60Hz
Protection class: IP 55
Insulation class: F
Rotation speed: 2830/3420rpm, 50/60Hz

Connections
Inlet: DN40 PN6
Outlet: DN40 PN10

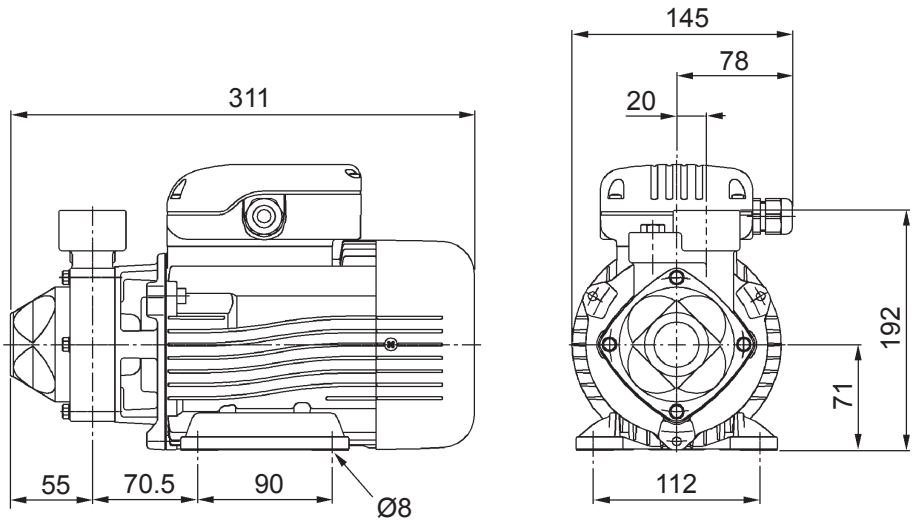
Materials
Pump casing and sealing housing: Cast iron GG20
Impeller: EN-GJL-HB195 EN 1561:1997
W.-Nr.: EN-JL 2030
Shaft: Stainless steel X20 Cr13
Nuts, screws: Stainless steel SIS 2333 (AISI 304)
O-rings: NBR
Slide rings: Silicon carbide

Other
Impeller: Ø120mm

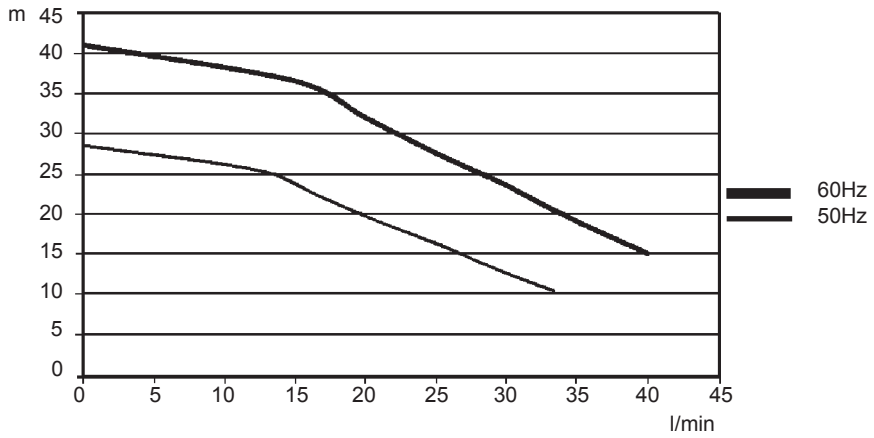
Shipping data
Net weight: 55kg

STANDARD MBR UNITS

6545616 EFFLUENT PUMP, 3 x 380 - 415V / 660V 50HZ, 3 x 440 - 460V / 690V 60HZ
6545617 EFFLUENT PUMP, 3 x 440 - 460V 50HZ



Capacity



Operating data
Operating mode: S1 continuous duty
Max. ambient temperature: +50°C

Electrical data
Voltage;
P/N 6545616: 3 x 380 - 415V / 660V 50Hz, 3 x 440 - 460v / 690V 60Hz
P/N 6545617: 3 x 440 - 460V 50Hz
Nominal power: 0.55kW, 50/60Hz
Protection class: IP 54
Insulation class: F

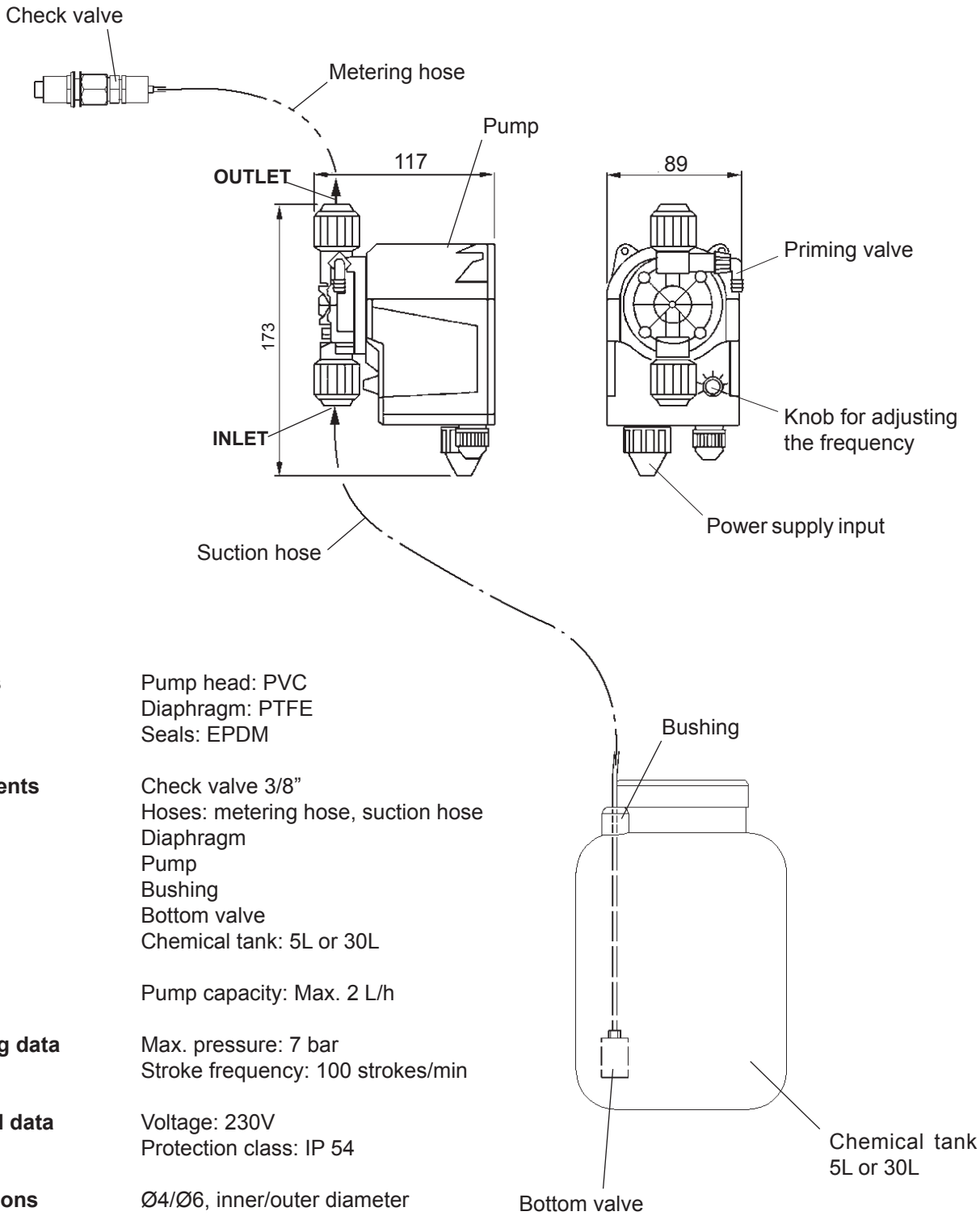
Connections
Inlet: Rp1”
Outlet: Rp1”

Materials
Pump casing and sealing housing: Cast iron
Impeller: Brass
Shaft: Stainless steel (AISI 303, DIN 1.4305)

Shipping data
Weight: 11kg

STANDARD MBR UNITS

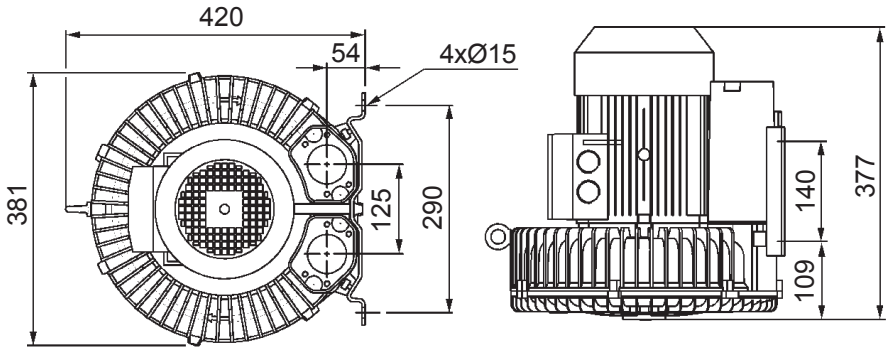
6547140 DOSING PUMP SET, TANK 5L
6547141 DOSING PUMP SET, TANK 30L



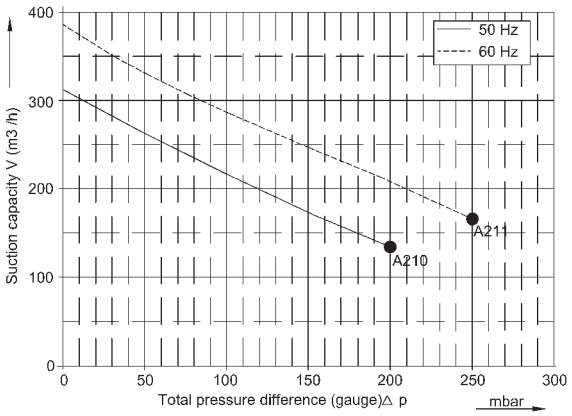
Materials	Pump head: PVC Diaphragm: PTFE Seals: EPDM
Components	Check valve 3/8” Hoses: metering hose, suction hose Diaphragm Pump Bushing Bottom valve Chemical tank: 5L or 30L
Capacity	Pump capacity: Max. 2 L/h
Operating data	Max. pressure: 7 bar Stroke frequency: 100 strokes/min
Electrical data	Voltage: 230V Protection class: IP 54
Connections	Ø4/Ø6, inner/outer diameter
Shipping data	Net weight: 1.4kg

STANDARD MBR UNITS

6546583 AIR BLOWER



Capacity



Electrical data

Voltage: 3 x 345-415V / 380-480V, 50/60Hz
Rated power: 2.2 / 3.5kW, 50/60Hz
Input current: 7.2/7.3A, 50/60Hz
Protection class: IP 55
Insulation class: F

Operating data

Max.ambient temperature: +40°C

Connections

Inlet: R 2” FTP
Outlet: R 2” FTP

Materials

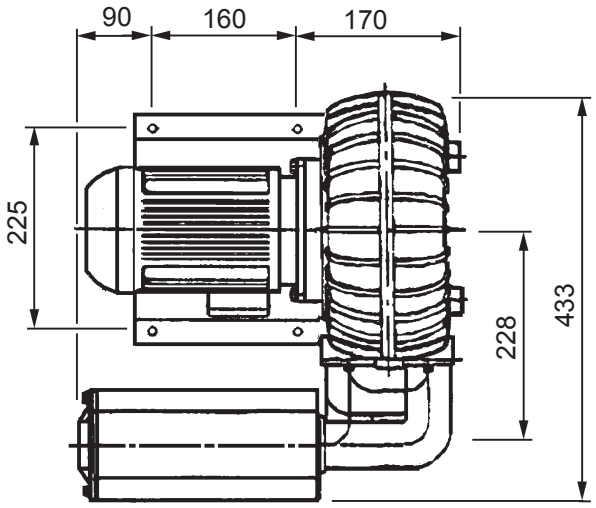
Blower casing: Aluminium G-AlSi 10 Mg
Blower impeller: Aluminium G-AlSi 10 Mg
Nuts, screws: Stainless steel SIS 2333 (AISI 304)
Mounting bracket: R St 37-2 DIN 17100

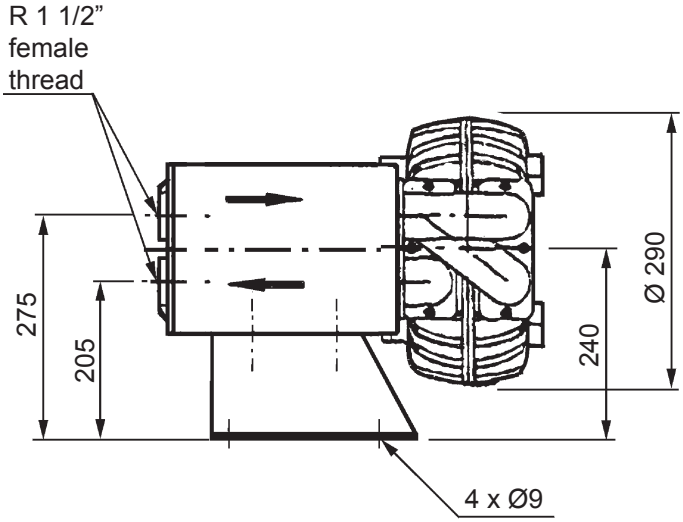
Shipping data

Net weight: 36kg

STANDARD MBR UNITS

70302001 AIR BLOWER V12YR





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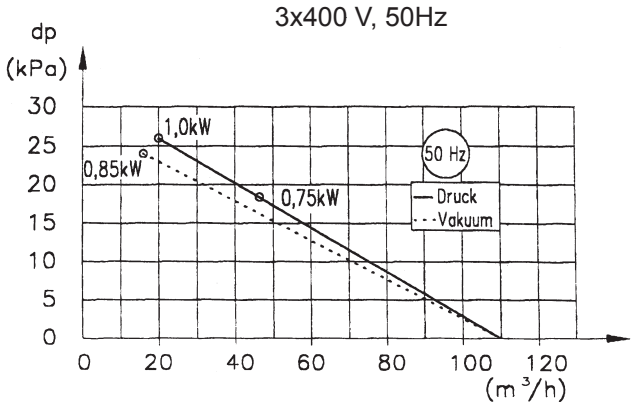
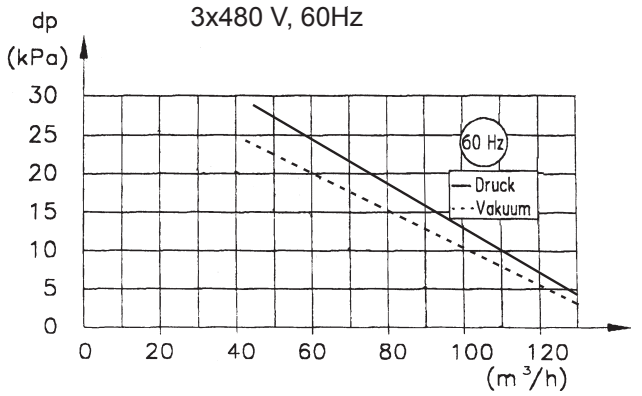




Air volume

Tolerance: ±5%

Operating data

Max ambient temperature: +50°C

Electrical data

Voltage: 3x400/480V, 50/60Hz
Nominal power: 1.1/1.3kW, 50/60Hz
Nominal current: 2.7/2.7A, 50/60Hz
Starting current: 14.3/14.3A, 50/60Hz
Protection class: IP 55
Rotation speed: 2850/3400 rpm, 50/60Hz

Connections

Inlet: R1 1/2" FTP
Outlet: R1 1/2" FTP

Materials

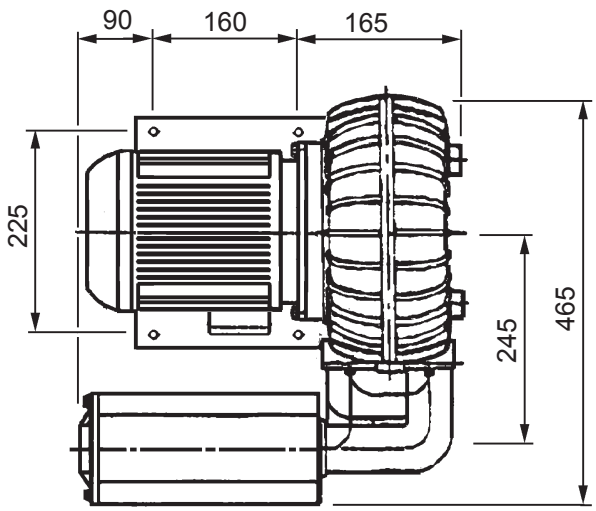
Blower casing: Aluminium G-AlSi 10 Mg
Blower impeller: Aluminium G-AlSi 10 Mg
Nuts, screws: Stainless steel SIS 2333 (AISI 304)
Mounting bracket: R St 37-2 DIN 17100

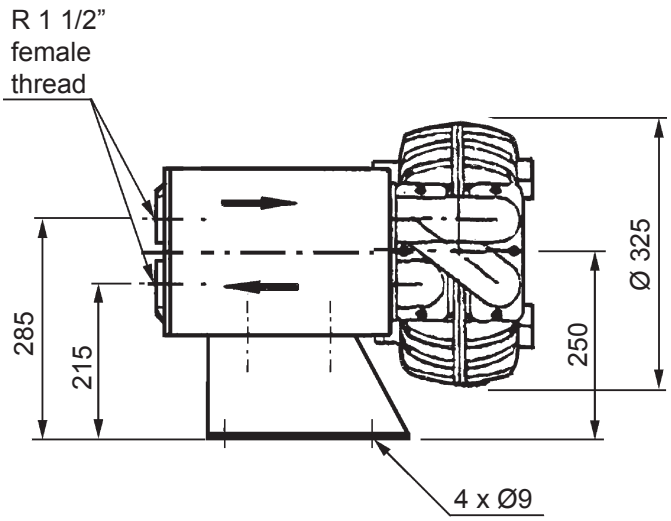
Shipping data

Net weight: 27kg

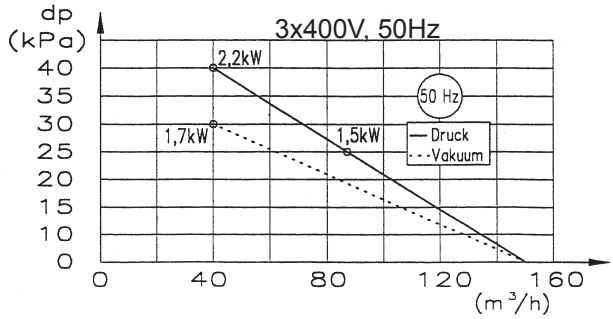
STANDARD MBR UNITS

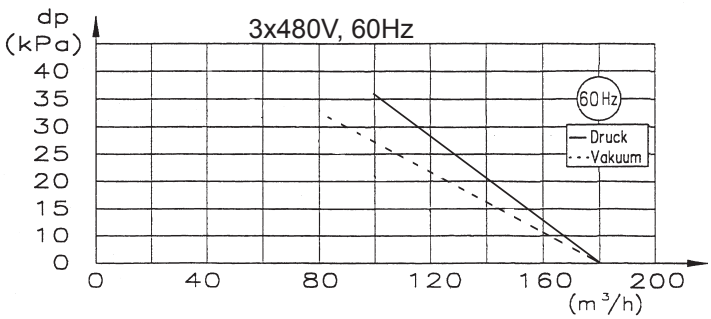
70303001 AIR BLOWER V22YR





Capacity





Tolerance: ±5%

Operating data
Max.ambient temperature: +40°C

Electrical data
Voltage: 3x400/480V, 50/60Hz
Nominal power: 2.2/2.6kW, 50/60Hz
Nominal current: 4.9/4.95A, 50/60Hz
Starting current: 30.9/31.2A, 50/60Hz
Protection class: IP 55
Rotation speed: 2850/3400rpm, 50/60Hz

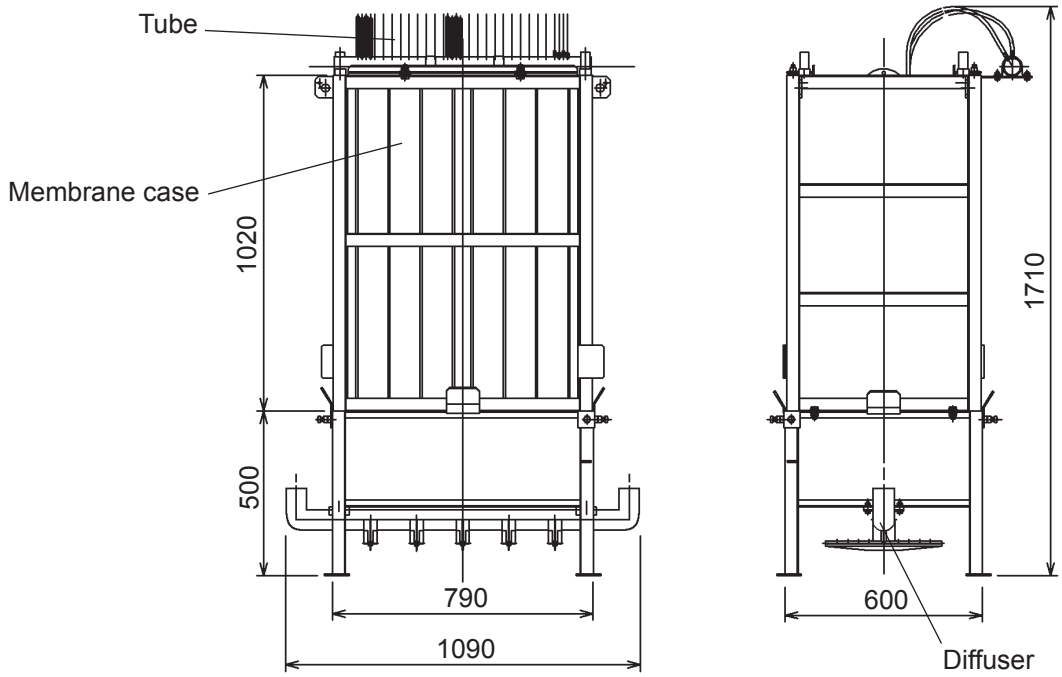
Connections
Inlet: R1 1/2" FTP
Outlet: R1 1/2" FTP

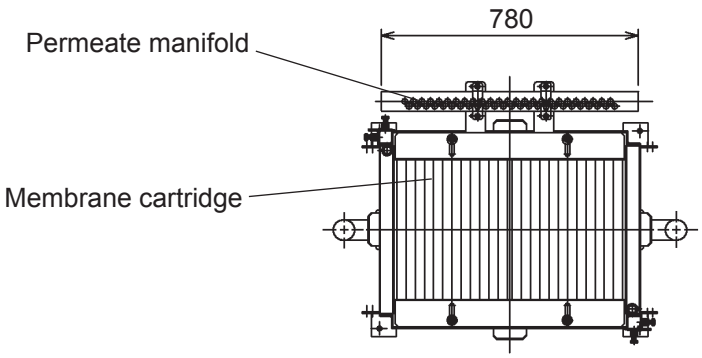
Materials
Blower casing: Aluminium G-AlSi 10 Mg
Blower impeller: Aluminium G-AlSi 10 Mg
Nuts, screws: Stainless steel SIS 2333 (AISI 304)
Mounting bracket: R St 37-2 DIN 17100

Shipping data
Net weight: 34kg

STANDARD MBR UNITS

6543096 MEMBRANE MODULE FS50



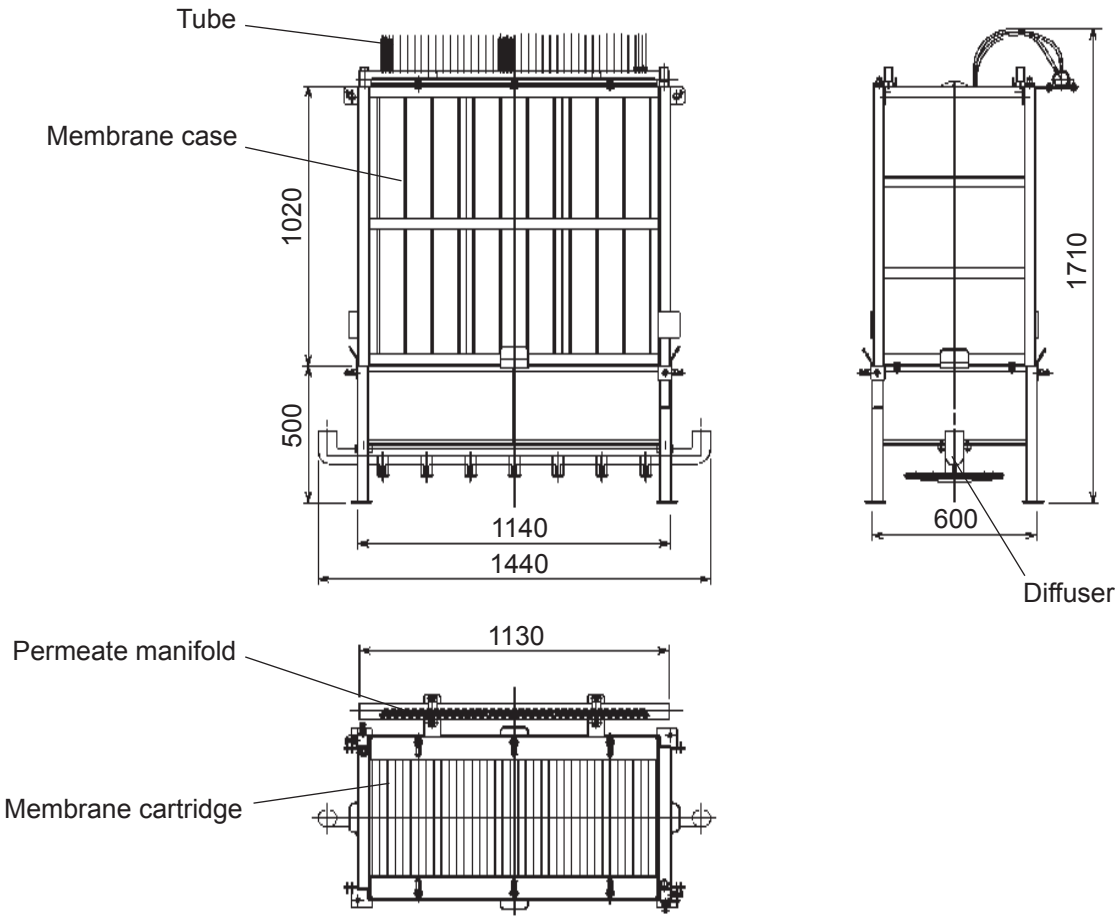


Materials Frame: Acid proof steel EN 1.4404 (AISI 316)

Shipping data Dry weight: 230kg
Max. weight: 330kg

STANDARD MBR UNITS

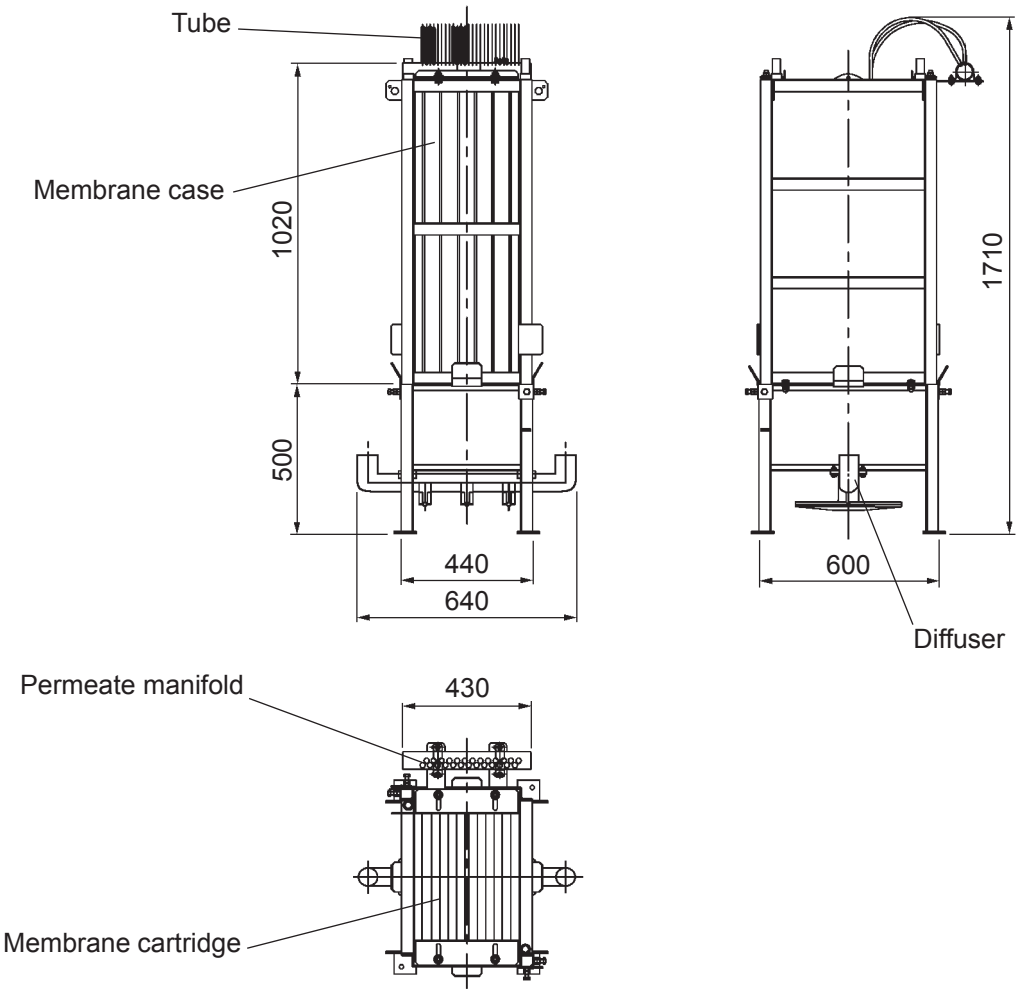
6543097 MEMBRANE MODULE FS75



Materials	Frame: Acid proof steel EN 1.4404 (AISI 316)
Shipping data	Dry weight: 440kg Max. weight: 650kg

STANDARD MBR UNITS

6546367 MEMBRANE MODULE FF25



Materials	Frame: Acid proof steel EN 1.4404 (AISI 316)
Shipping data	Dry weight: 140kg Max. weight: 190kg

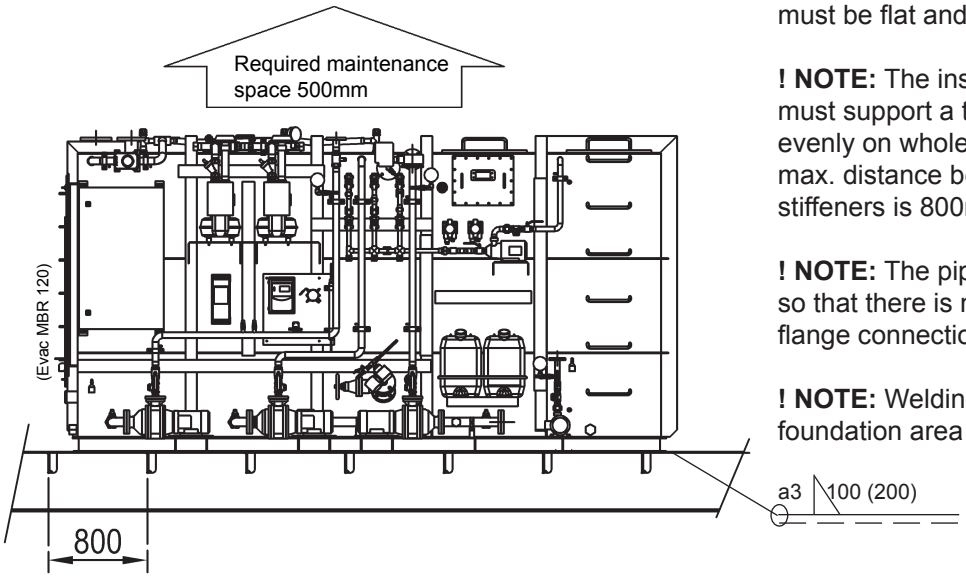
STANDARD MBR UNITS

EVAC MBR 40 - 240 **EVAC MBR 40C - 240C**

Foundation

The Evac MBR plants are delivered with a foundation allowing welding or bolting to a vessel's deck or an installation frame. The welding instruction below must be carefully followed. Please, consult EVAC for bolted installation.

MBR 40 - 240



! NOTE: The installation frame/deck must be flat and even.

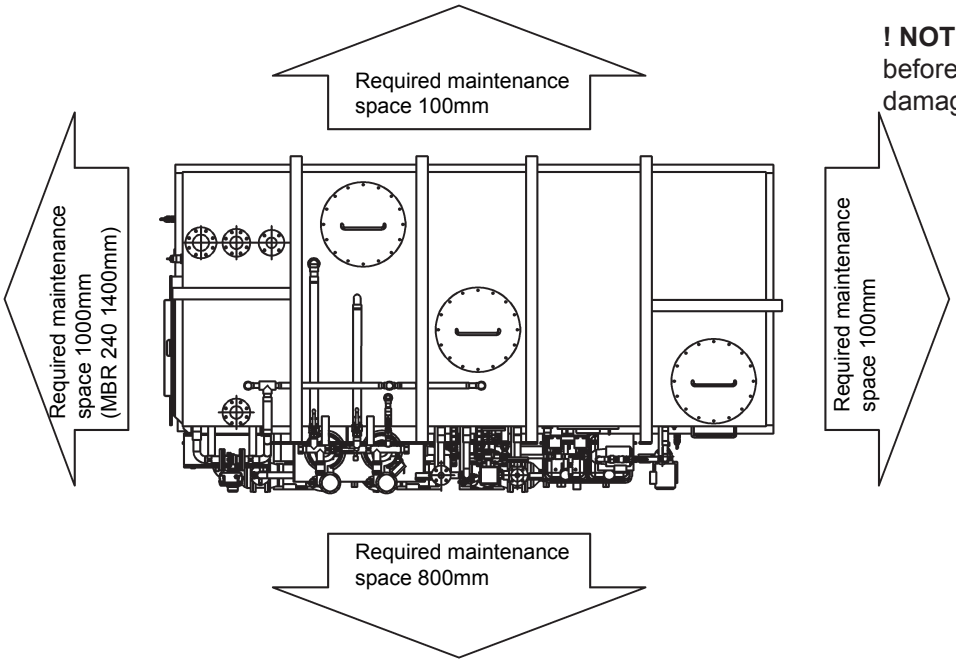
! NOTE: The installation frame/deck must support a tank's bottom frame evenly on whole frame area. Allowed max. distance between the deck's stiffeners is 800mm.

! NOTE: The piping must be installed so that there is no stress in the flange connections.

! NOTE: Welding outside the foundation area is not allowed.

! NOTE: Do not damage the painting of the tank during welding. Observe heat conduction.

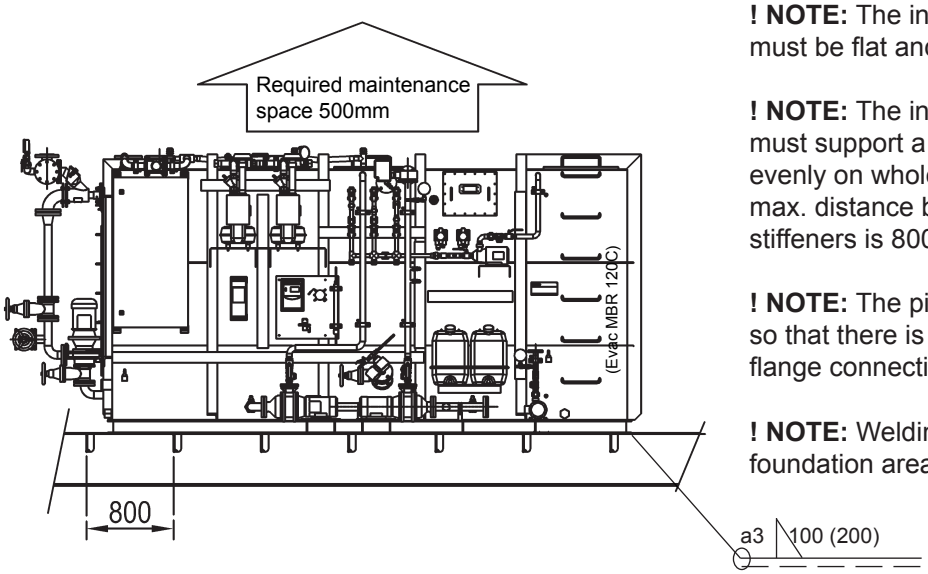
! NOTE: Fill the tank with water before welding to avoid painting damages during welding.



STANDARD MBR UNITS

EVAC MBR 40 - 240 **EVAC MBR 40C - 240C**

MBR 40C - 240C

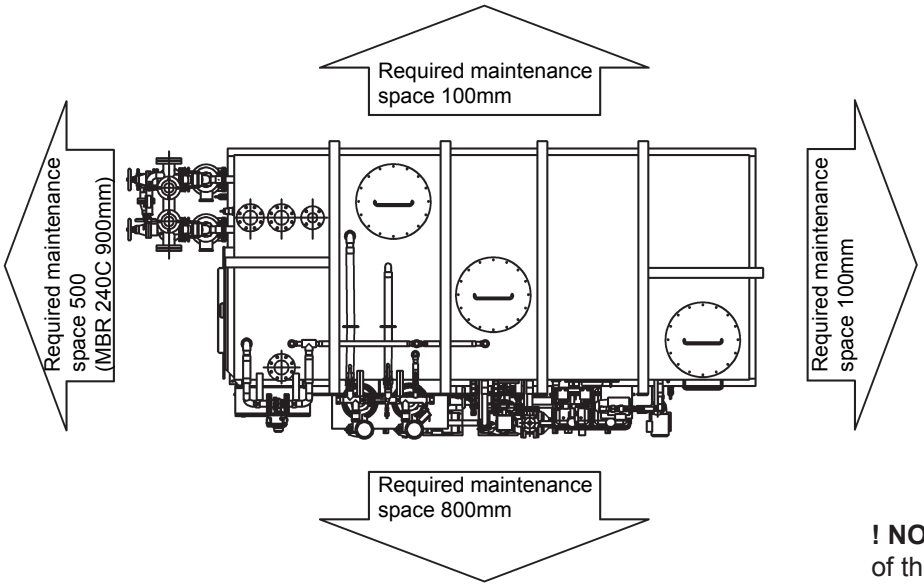


! NOTE: The installation frame/deck must be flat and even.

! NOTE: The installation frame/deck must support a tank's bottom frame evenly on whole frame area. Allowed max. distance between the deck's stiffeners is 800mm.

! NOTE: The piping must be installed so that there is no stress in the flange connections.

! NOTE: Welding outside the foundation area is not allowed.



! NOTE: Do not damage the painting of the tank during welding. Observe heat conduction.

! NOTE: Fill the tank with water before welding to avoid painting damages during welding.

STANDARD MBR UNITS

EVAC MBR 40 - 240 **EVAC MBR 40C - 240C**

Pipings system

The Evac MBR can process:
- black water from vacuum sewage system
- black water from gravity sewage system
- black water from vacuum sewage system and grey water
- black water from gravity sewage system and grey water

Installation and piping arrangement is depending on the vessel's sewage system. Please, consult Evac for sewage treatment system options and required additional components.

The Evac MBR has the following flange connections which must be connected to a vessel's piping system by the yard/customer:
- sewage inlet
- sludge discharge
- ventilation / overflow
- flushing (only temporary use)
- effluent outlet

! NOTE: In custom made treatment plants a number of flange connections may vary.

! NOTE: Ventilation pipe must be constructed so that there is no pockets.

Required additional components

A sewage treatment plant may require additional components for optimal operation, please consult Evac.

Grease separator

Grease is harmful for treatment process. If there is galley water entering to the treatment unit, a grease separator must be installed before treatment plant.

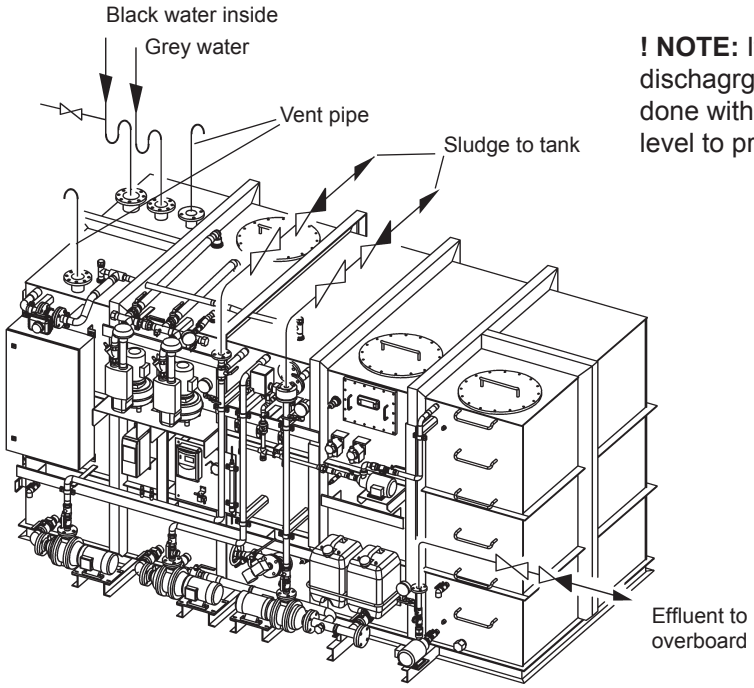
! NOTE: All external components are installed by a yard/customer.

! NOTE: If there is no counter pressure for the discharge pump, a bend piping arrangement must be done with a pipe loop (goose neck) over tank's water level to prevent siphoning.

STANDARD MBR UNITS

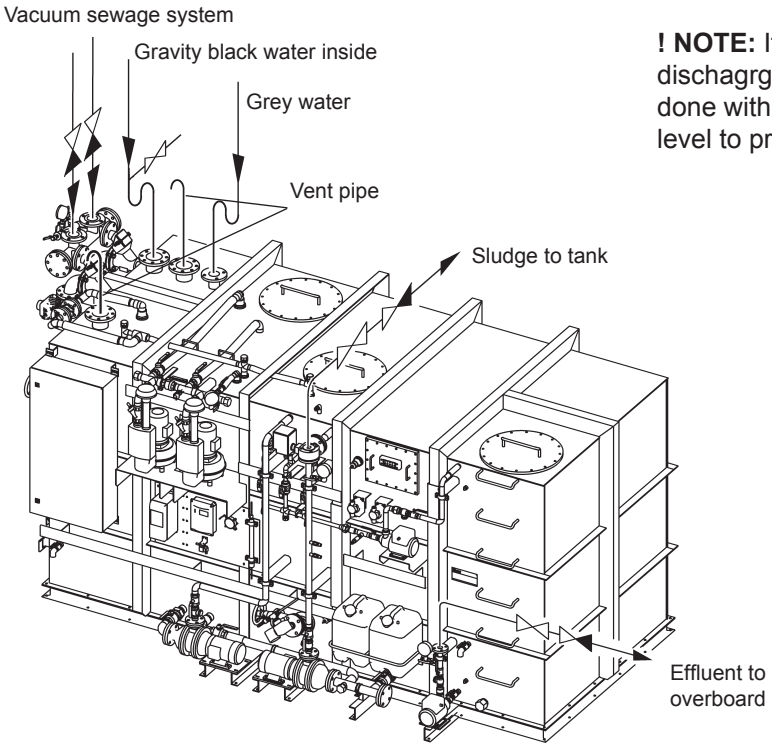
EVAC MBR 40 - 240 **EVAC MBR 40C - 240C**

Installation principle for gravity sewage systems



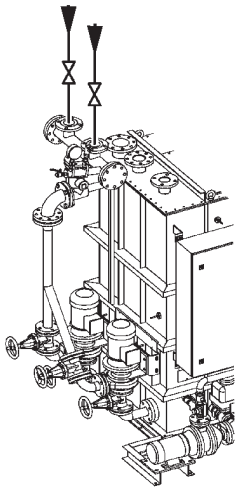
! NOTE: If there is no counter pressure for the dischagrge pump, a bend piping arrangement must be done with a pipe loop (goose neck) over a tank´s water level to prevent siphoning.

Installation principle for vacuum sewage systems and grey water system



! NOTE: If there is no counter pressure for the dischagrge pump, a bend piping arrangement must be done with a pipe loop (goose neck) over tank´s water level to prevent siphoning.

Vacuum sewage system



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EVAC FRESH WATER TREATMENT

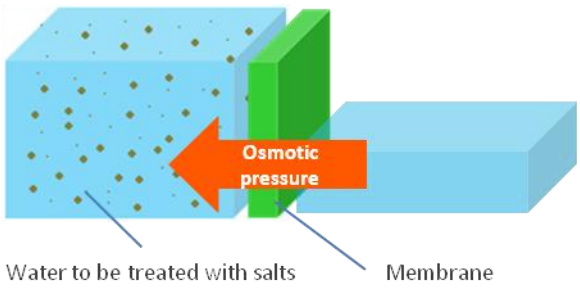
R.003694-1-0315

FRESH WATER TREATMENT SYSTEMS

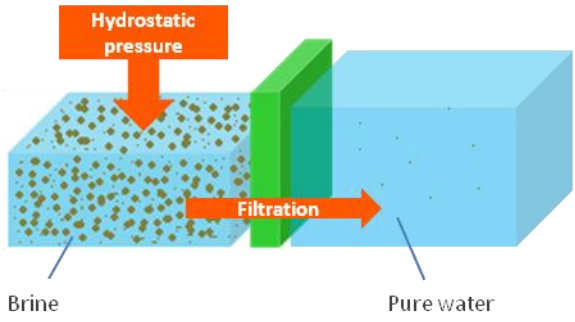
Triton-Evac's fresh water treatment solutions consist of seawater desalination systems by reverse osmosis (RO) and potable water treatment systems by i.e. mineralization, disinfection etc. Triton-Evac's fresh water treatment equipment provides an independent, long-lasting, low-energy and reliable supply of potable and/or process water for marine, coastal and island installations. Triton-Evac's equipment is easy to operate, has a small foot print and supplies fresh water of outstanding quality. The RO system is the state-of-the art installation due to the economical efficiency compared to evaporators. Even higher energy efficiency can be achieved if energy recovery systems are used and thus shorter amortization is reached.

REVERSE OSMOSIS

In reverse osmosis (RO) seawater is forced at high pressure (to overcome the osmotic pressure) through a semi-permeable membrane. The membrane works like a filter, only allowing certain atoms and molecules through. The process makes it possible to separate the water from the dissolved materials. The membrane filter retains solids, bacteria, viruses, lime and, for instance, heavy metals.
The osmotic pressure rises as the salt concentration increases, so at some point the process comes to an end. The concentrate must therefore be taken away. Our drinking water supply installations can be fitted with additional preliminary filters according to what kinds of substances are present in the water. Solids with a particle size down to 20 micrometers can be separated in this way. It is also possible to follow the purification with UV irradiation, providing an additional level of protection against germs.



Natural phenomenon of osmosis



Reverse osmosis filtration

Summary

- Reverse osmosis for seawater desalination is today's state-of-the art technology
- Effective pre-treatment lengthens the service life of the membranes, minimizing cleaning and filter exchange costs
- Shock disinfection prevents biological growth
- Low filter speed (< 15 m/h) and special filter material (garnet)
- The permeate flow is not interrupted during back-washing of the multimedia filter
- Triton-Evac offers optional turbochargers and/or pressure exchangers as energy recovery installations
- Full permeate performance over water temperature range from 5°C to 32°C
- Many references for marine (new construction and retrofitting), hotel and island installations
- Triton-Evac is the world's market leader for seawater desalination for cruise ships using reverse osmosis

FRESH WATER TREATMENT SYSTEMS

POTABLE WATER TREATMENT

Our water treatment installations can turn seawater into process, service and drinking water. Our equipment filters, disinfects, adjusts water hardness and mineralizes fresh water that has been created or stored, resulting in high-quality process, service and drinking water. UV light, chlorination, alkalis, acids and CO_2 are amongst the techniques used.

Our equipment covers the following range of applications

- Treatment of water for storage
- Preparation of engineering water
- Preparation of laundry water
- Preparation of service water
- Mineralization
- Pressure reservoirs
- Window washing equipment
- Water-softening plant

Range of water treatment

- Bunker water treatment
- A/C drain water treatment
- Laundry water treatment
- Service water treatment
- Mineralizing water treatment for evaporator water and RO
- Hydrophore units
- Softening filter system
- Windshield washer system
- UV system

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OTHER EVAC PRODUCTS

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OTHER EVAC PRODUCTS

TABLE OF CONTENTS

- NON-RETURN VALVES
- CATCHER UNITS

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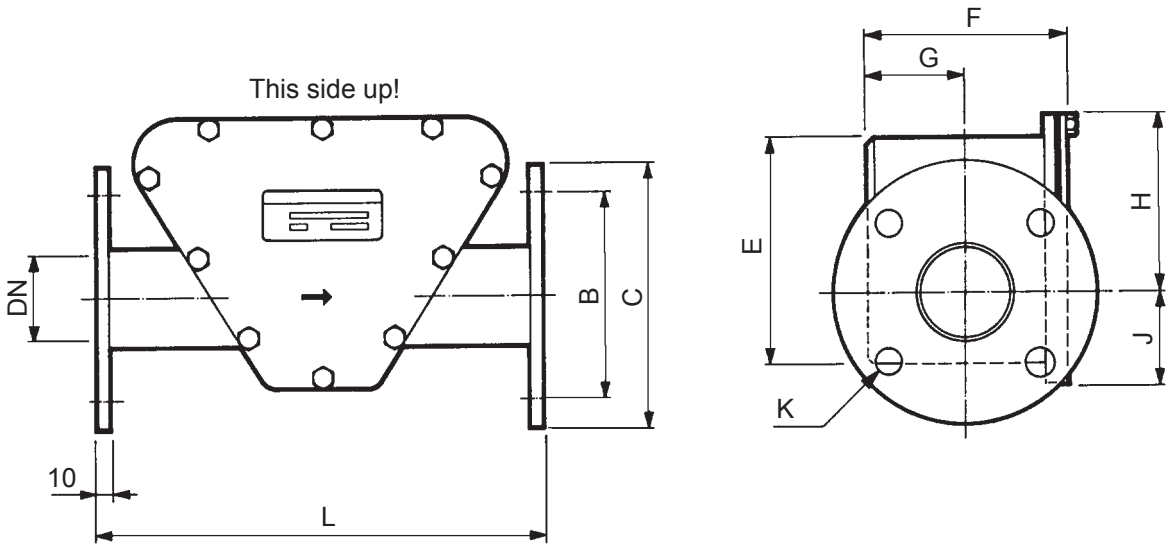
OTHER EVAC PRODUCTS

- **NON-RETURN VALVES**
- **CATCHER UNITS**

NON-RETURN VALVES

5410219 NON-RETURN VALVE WITH FLANGES DN40
5410220 NON-RETURN VALVE WITH FLANGES DN50
5410221 NON-RETURN VALVE WITH FLANGES DN65
5410222 NON-RETURN VALVE WITH FLANGES DN80



! NOTE: Non-return valve must be installed horizontally to secure a proper operation.

P/N	DN	ØB	ØC	E	F	G	H	J	K	L
5410219	40	110	150	106	91	45	81	55	4 x Ø18	250
5410220	50	125	165	106	91	45	81	55	4 x Ø18	250
5410221	65	145	185	160	131	64	125	65	4 x Ø18	300
5410222	80	160	200	160	131	64	110	80	8 x Ø18	300

Materials

Valve body: Acid proof steel EN 1.4436
Valve lid: Acid proof steel EN 1.4436
Screw: Acid proof steel EN 1.4436
Flap shaft: Acid proof steel EN 1.4436
Flap: Natural rubber NR
Gaskets: Rubber

Connections

Inlet: Flange ISO PN10
Outlet: Flange ISO PN10

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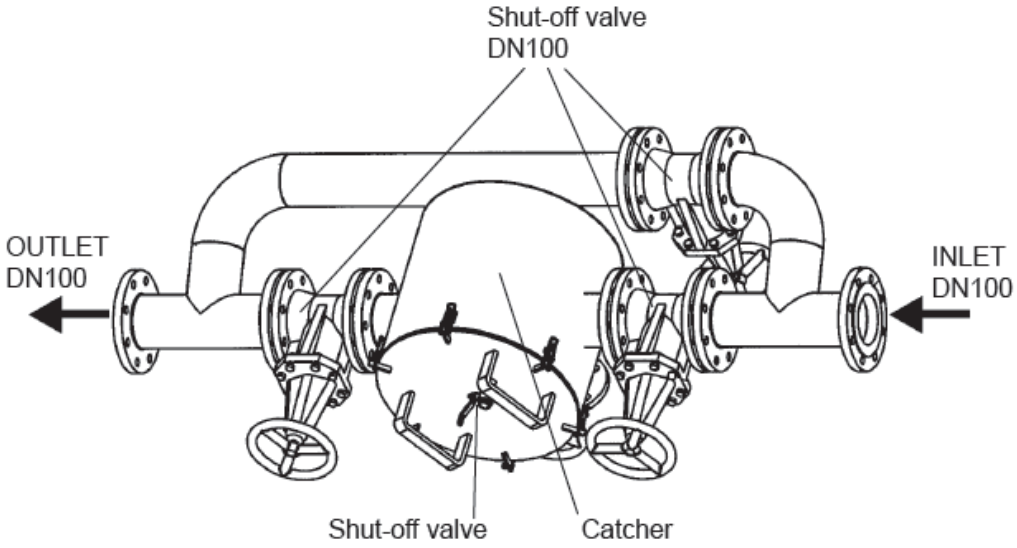
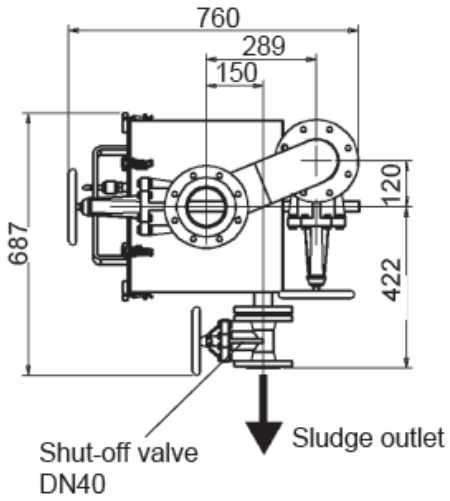
OTHER EVAC PRODUCTS

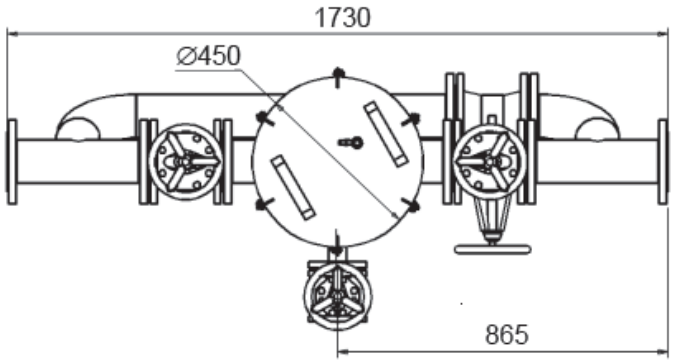
- NON-RETURN VALVES
- CATCHER UNITS

CATCHER UNIT

6541712 CATCHER UNIT







(dimensions in mm)

Materials	Catcher: EN 1.4404 Piping: EN 1.4404 Shut-off valves: Cast iron
Connections	Inlet: DN100 PN10 Outlet: DN100 PN10 Sludge outlet: DN40 PN10
Shipping data	Net weight: approx. 160kg

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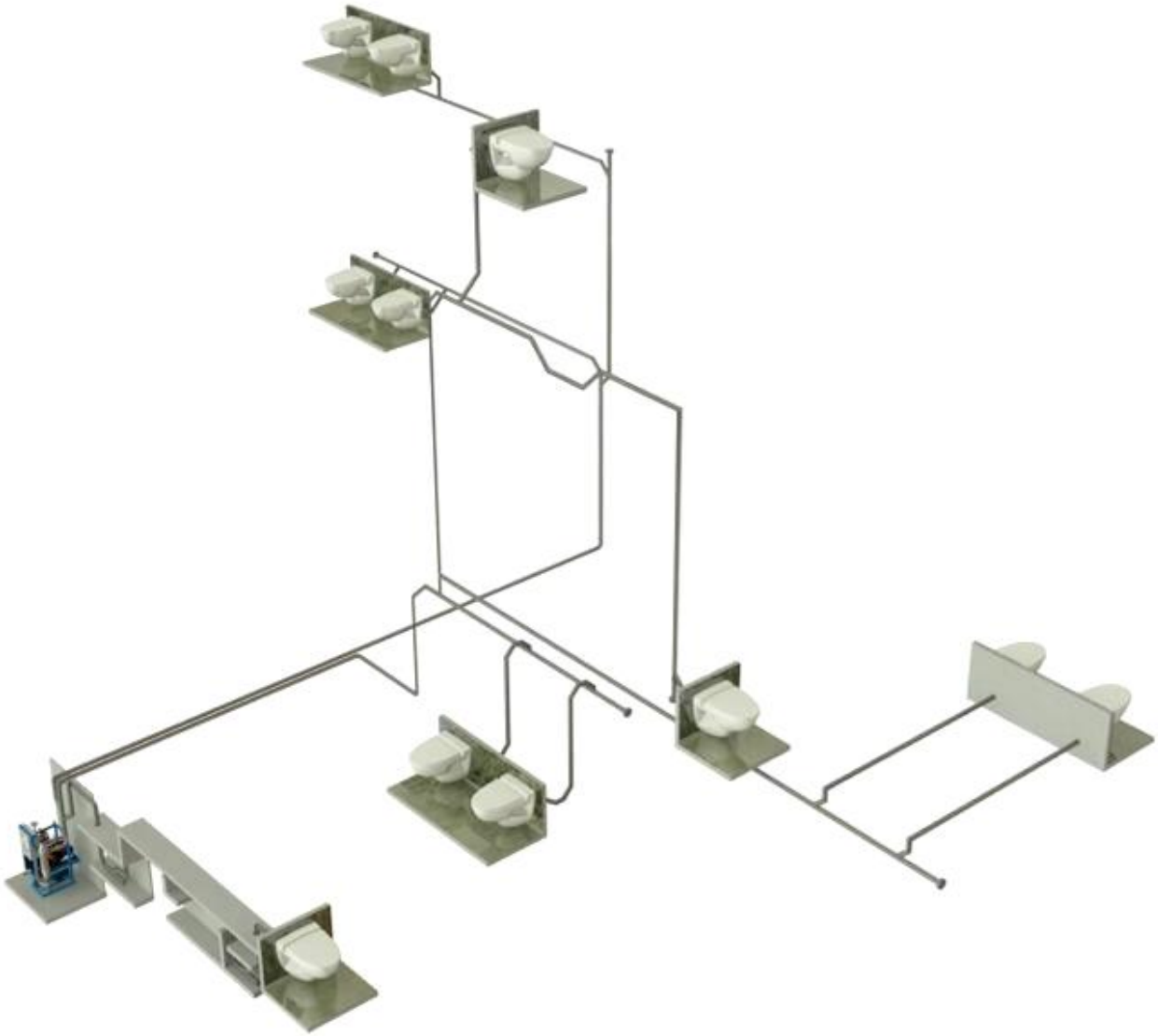
EVAC VACUUM PIPING



PIPING GUIDELINES

EUROPE AND ASIA

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3. Pipe Sizing 3
4. Brackets 4
5. Transport / Reform Pocket 4
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10. Riser 9
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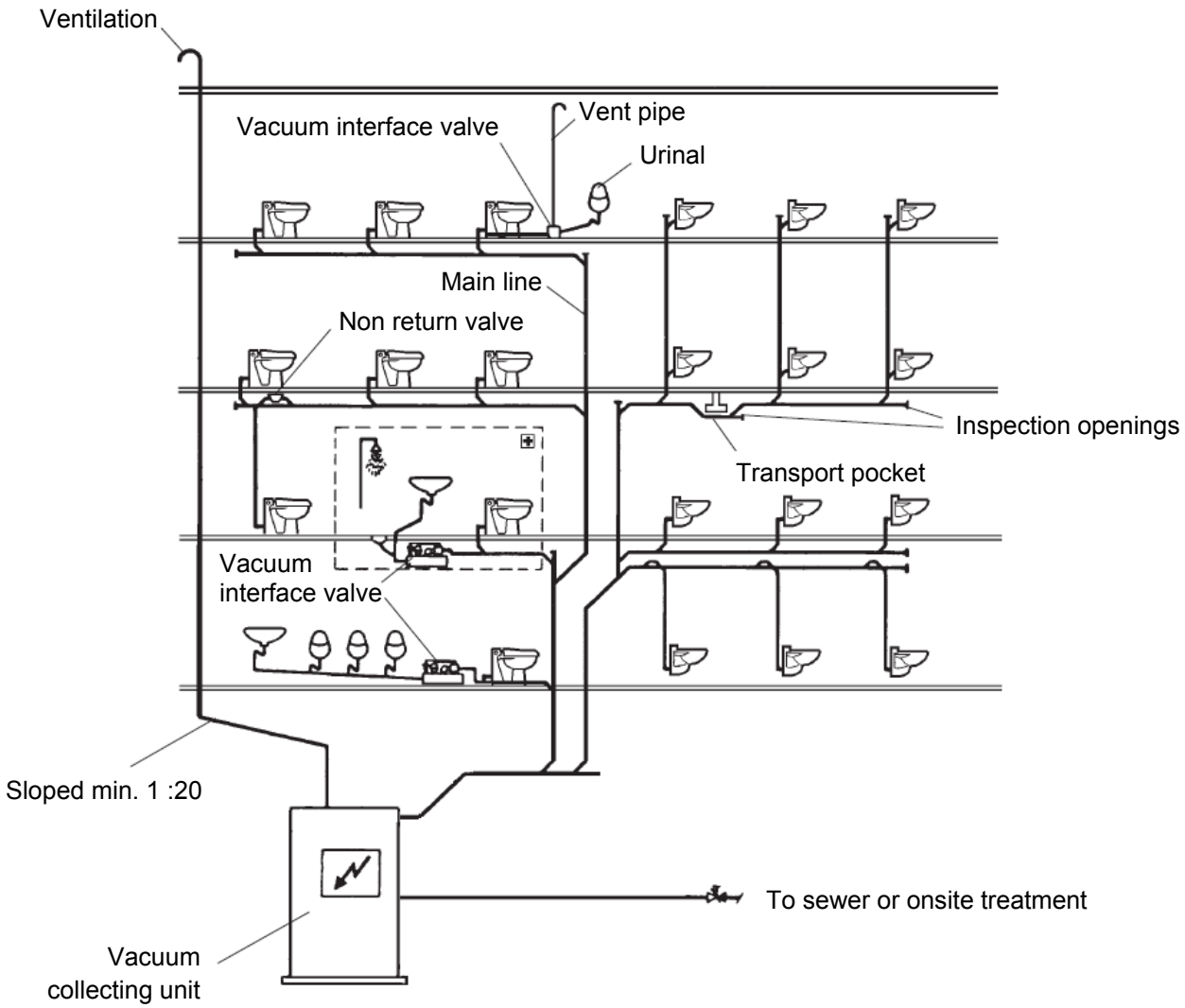
PIPING GUIDELINES

EUROPE AND ASIA

1. General piping design

In vacuum systems sewage transport is done by vacuum (air) instead of water and gravity. Sewage is transported in "slugs". Optimal "slug" transport is obtained by following these Design and Installation instructions. System capacity must be dimensioned considering normal daily variations in use and different operation conditions, following the standard EN 12.109 or local equivalent.
In general the piping layout is similar to that of a conventional system i.e. all bends should be long radius, all branches should be 45º, and rodding eyes should be provided at change of direction.
System load (flushings) should be divided evenly between main lines. It is advisable to split the vacuum drainage system pipework into at least two separate systems connecting together at the Vacuum Collection Unit. The best horizontal transport solution is obtained with sloped pipe of a minimum of 1:200, with transport pockets at interval of 25 - 30m. Piping shall be designed so that possible maintenance is not stopping the whole system. System pipe tightness must be tested, documented and maintained for good system operation and low energy consumption. Piping shall be accessible and divided in sections for easy maintenance.



PIPING GUIDELINES

EUROPE AND ASIA

2. Pipe materials

Pipe material must be suitable for sewage transport in vacuum conditions (pressure piping). Fire, corrosion and maintenance aspects must be considered.

Material	HDPE	PVC	Steel	Stainless steel AISI 316 (L)
Min. pressure class	PN16	PN16	PN10	To be tested and approved for vacuum applications
Joints	Butt welding Resistance welding	Glue joint	Welded joint Flange coupling	Socket Couplings

HDPE = High Density Polyethylene
PVC = Polyvinylchloride (DIN 86013)
When plastic pipes are used, fire protection regulations must be observed. Note the differences between the different kinds of plastic materials. HDPE may not be allowed by some authorities.
Check carefully aspects relating to safety and industrial hygiene. Vapors released by PVC solvents are harmful.
Plastic piping does not resist temperatures above 40°C. (Always check with the pipe manufacturer)

3. Pipe Sizing

Pipe sizes are as follows:

Vacuum Toilet = 1 Flow Unit
Vacuum Interface Unit = 3 Flow Units

Type of pipe	DN	O.D. mm
Risers from Interface Units (Buffer Kits only)	25	32
Risers from Interface Units and Toilets	40	50
Headers serving up to 3 Flow Units	40	50
Headers serving up to 25 Flow Units	50	63
Headers serving up to 100 Flow Units	65	70

When more than a 100 flow units are to be connected, a new header should be considered. Please consult Evac to find the most appropriate layout.

THE ABOVE SIZING CHART SHOULD BE USED AS A GUIDE ONLY. THE BUILDING TYPE SIMULATENITY COEFFICIENT SHOULD BE TAKEN INTO ACCOUNT.

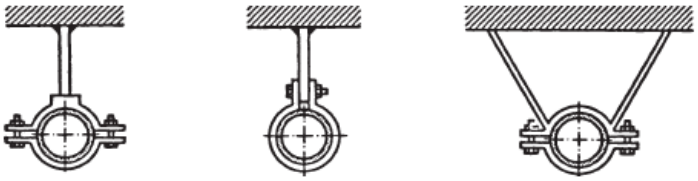
PLEASE CONSULT EVAC TO CONFIRM PIPE SIZES.

PIPING GUIDELINES

EUROPE AND ASIA

4. Brackets

In vacuum piping high "slug" speed temporarily creates strong forces at bends and branches. Pipes must be firmly secured by using brackets and clamps. For plastic pipes use steel brackets with a resilient liner between bracket and pipe, or plastic clamps. Ensure that pipes will not be damaged by vibration or thermal expansion / contraction. Brackets or clamps must be fitted at every change of direction. When connecting a riser pipe to an overhead main line, brackets or clamps must be secured both behind the toilet and at the top of the riser. For straight steel pipes, fit brackets at 2.5 m centers and on plastic pipes at 1.5 m centers, or according to maker´s recommendation.

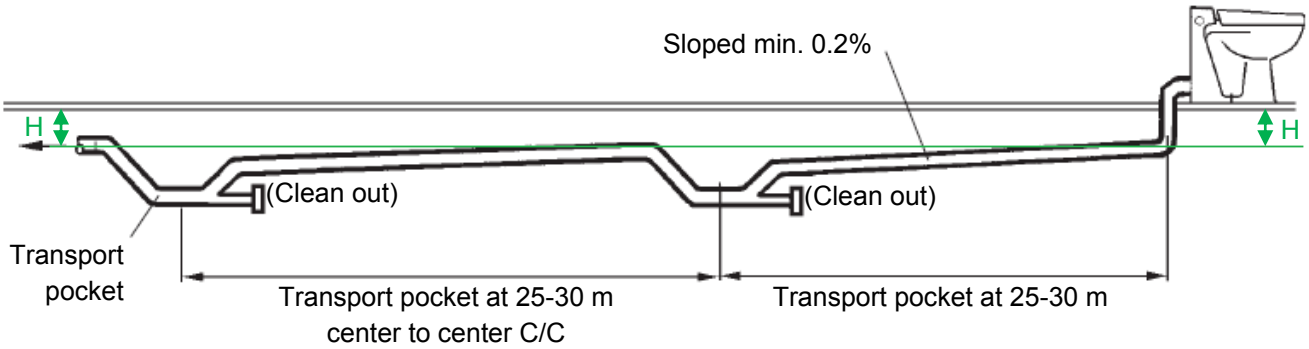


Brackets must resist lateral force.

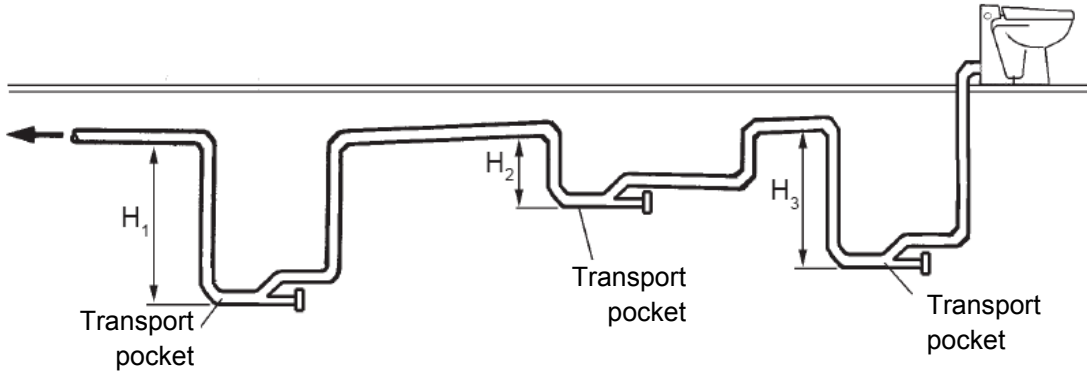
5. Transport / Reform Pocket

Transport / Reform pockets should be installed every 25 to 30m. They may be used to recapture the slope of the vacuum pipework or to route under and obstacle. The maximum lift at a pocket should be no greater then 350mm.

Ideal pipe profile: Slope and pocket



Allowable pipe profile: Pocket at every lift, horizontal pipes, the sum of risers (H1+ H2 + H3+…) should always remain below 3 m.



PIPING GUIDELINES

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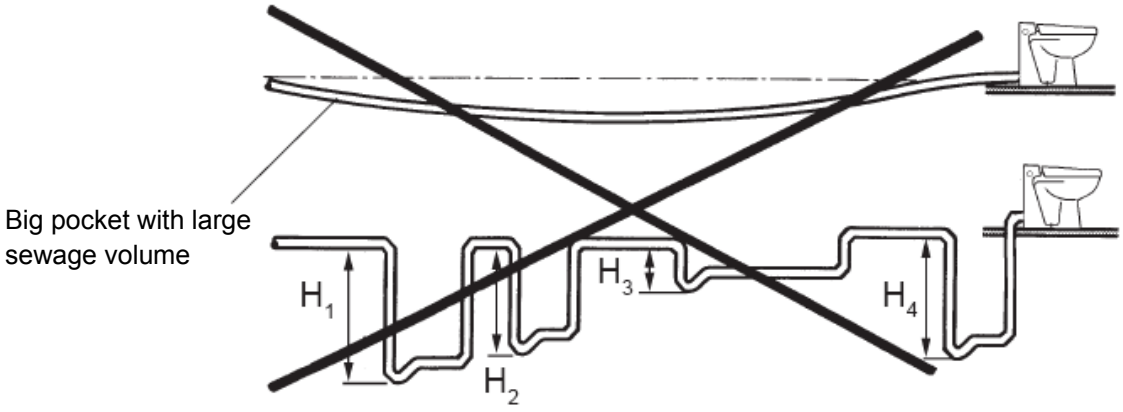
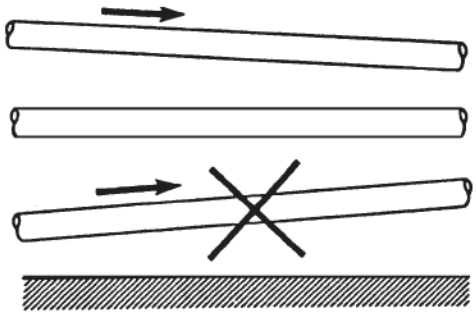
Not allowable pipe profiles





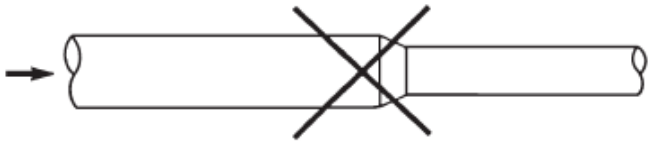
+ 0 With slope (min. 0.2%)

± 0 Can be used if back flow is prevented

- 0 Not acceptable

Horizontal pipes shall run either downwards in the direction of the flow or horizontally, never with a steady upward gradient.
The maximum length for a straight, horizontal pipe is 25 - 30 m before a pocket, non-return valve or downward piping.

Pipe diameter cannot be reduced in the direction of flow.



PIPING GUIDELINES

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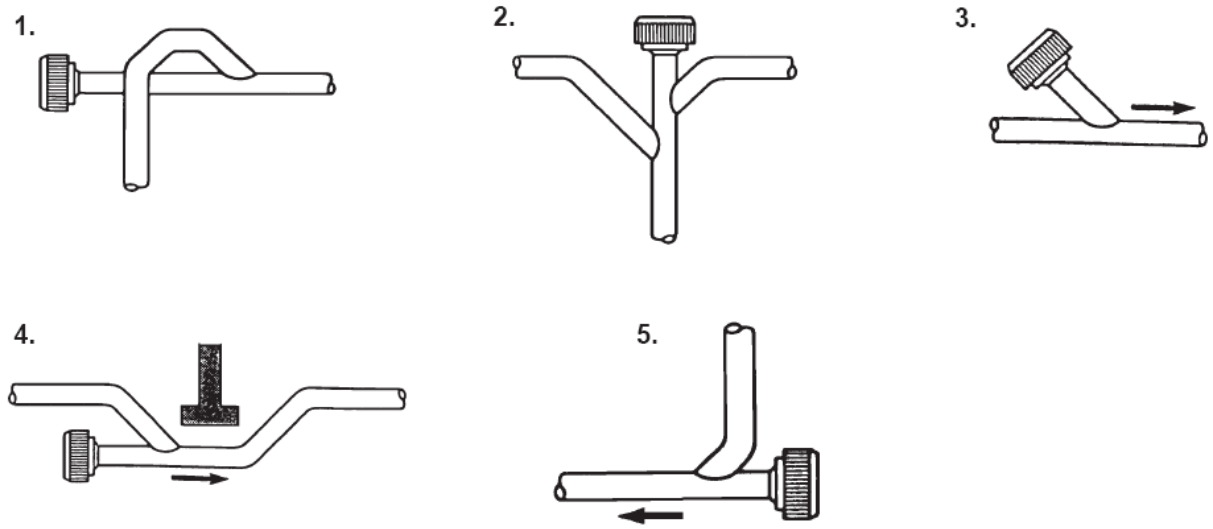
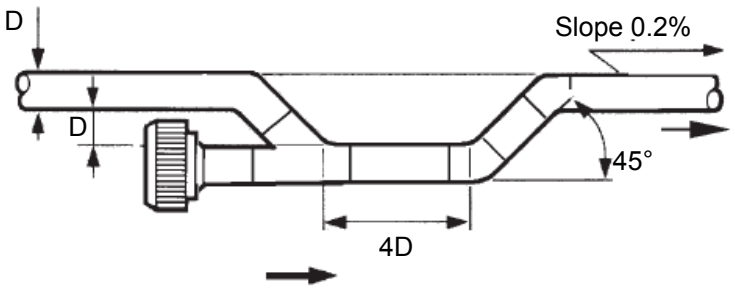
6. Clean Outs

Clean out points can be located in the vacuum piping at ends of mains and branches or in a convenient position to aid maintenance. Please consult Evac to determine if your project requires clean outs.

Locations:
1. At the end of horizontal pipelines
2. At the upper end of vertical main pipelines
3. At intervals of 25 - 30 meters on horizontal pipelines
4. At pockets
5. At 90° bends



Example of a pocket with clean plug



D = outside diameter
C/C 25-30 m horizontally

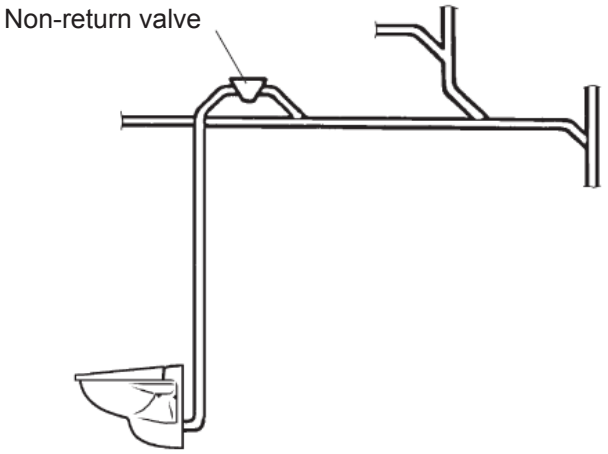
Inspection openings should be located in such a way that possible clogging in the piping can be reached at all points. Maximum distance between openings is 25 - 30 meters.

PIPING GUIDELINES

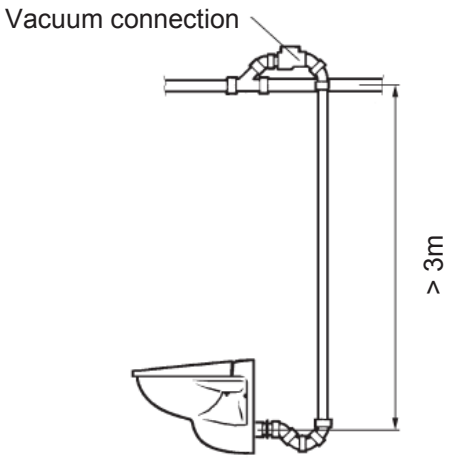
EUROPE AND ASIA

7. Isolation Valves

Isolation valves must be fitted to all vacuum lines entering the Vacuum Collection Unit plant room within 2m of the Vacuum Collection Unit. Isolation valves may be placed in convenient positions around the vacuum drainage system to aid maintenance, i.e. at branch lines off of main riser pipes. It is not necessary to fit isolation valves at every vacuum interface unit or vacuum toilet, these should be split into manageable sections.
Shut-off valves should be straight-channel valves (slide, membrane or ball). The valves should be located in such a way that a malfunction or leakage would not stop the whole system. Valves should generally be installed on each main pipeline.
If possible, the shut-off valve should be located on a vertical part of a pipe. In such position, possible sedimentation in front of the slide will not easily cause a stoppage.
! NOTE: Horizontal valve installation is allowed with ball valves.
A non-return valve is used where a riser or horizontal part of the piping system might become flooded due to backflow.
If a horizontal collector has connections from both above and below, riser pipe shall be fitted with a non-return valve located at the highest point of the riser pipe.



In case the riser height exceeds 3 m the vacuum connection should be placed at the top of the riser.

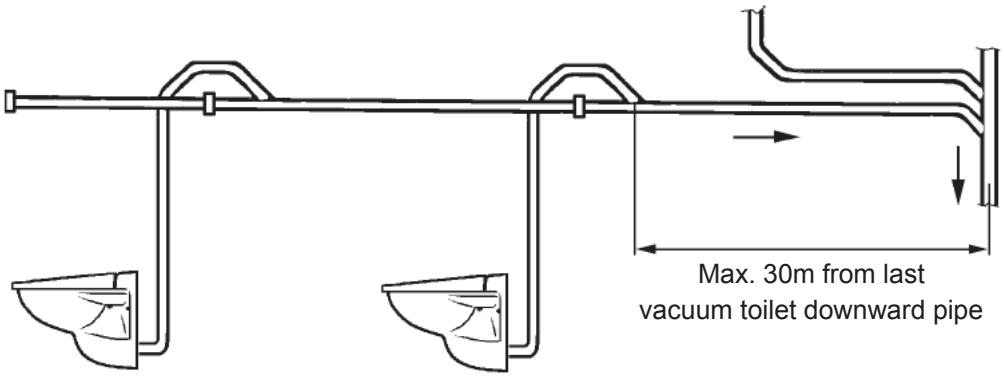


! NOTE: It is preferable to provide two horizontal collectors: one for connections from above and one for

PIPING GUIDELINES

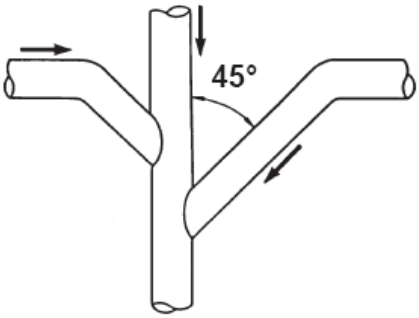
EUROPE AND ASIA

connections from below. In this case non-return valves may be omitted.

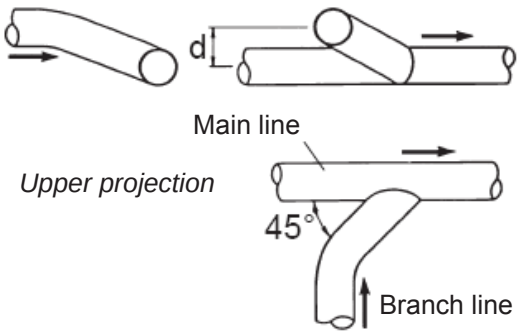


8. Branches

Branch pipes must be connected to the main line with an angle of 45° in direction of the flow. Y- or T- branches are not allowed.



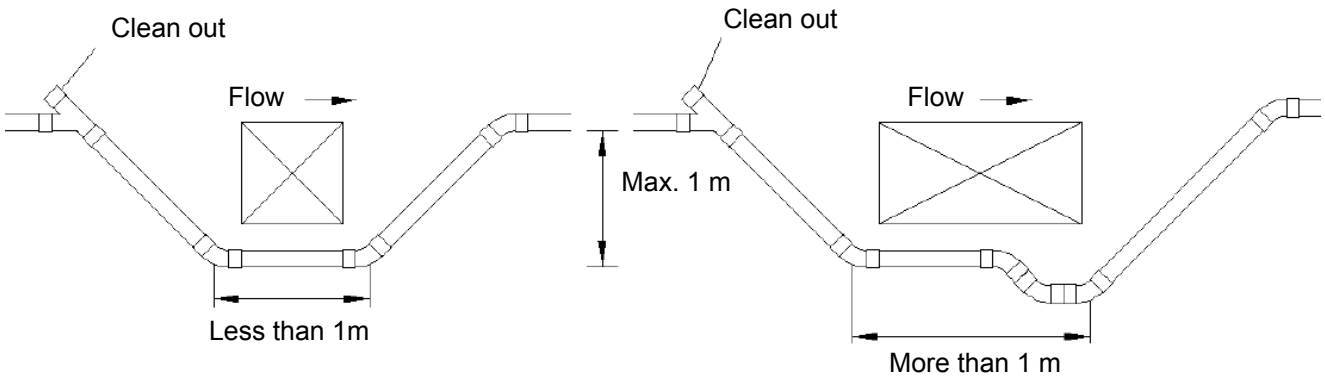
~~if~~ a branch pipe is connected to the main line from above. (For example, when connecting branch pipe to a horizontal main line), the branch pipe must be connected with a smooth bend to the upper side of the main line with a 45° angle.



PIPING GUIDELINES

EUROPE AND ASIA

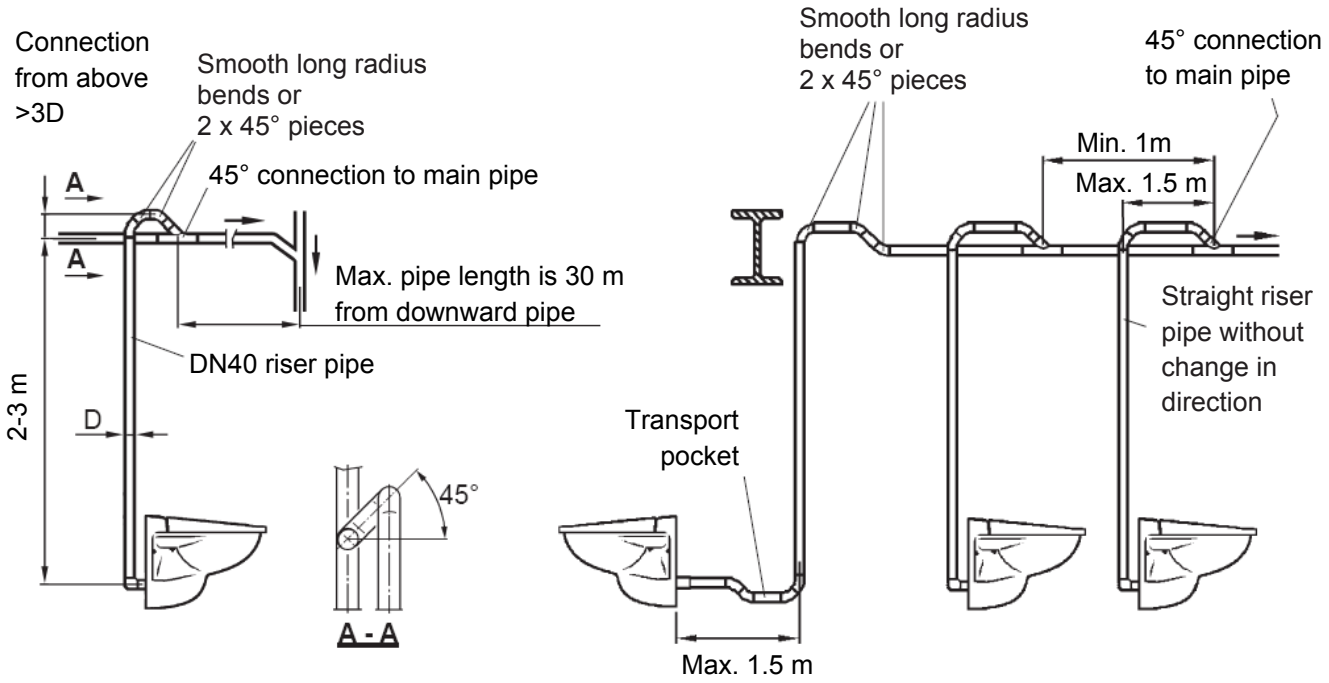
9. Pipe around obstruction



Obstruction Piping

10. Riser

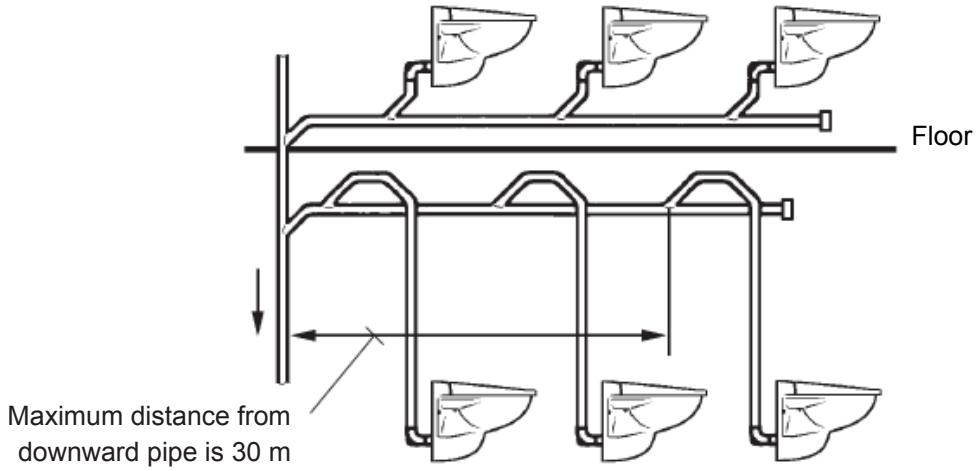
Please remember that a ”downward” piping design is best for system operation.
Typical 2-3 m riser pipe with a toilet or interface valve:



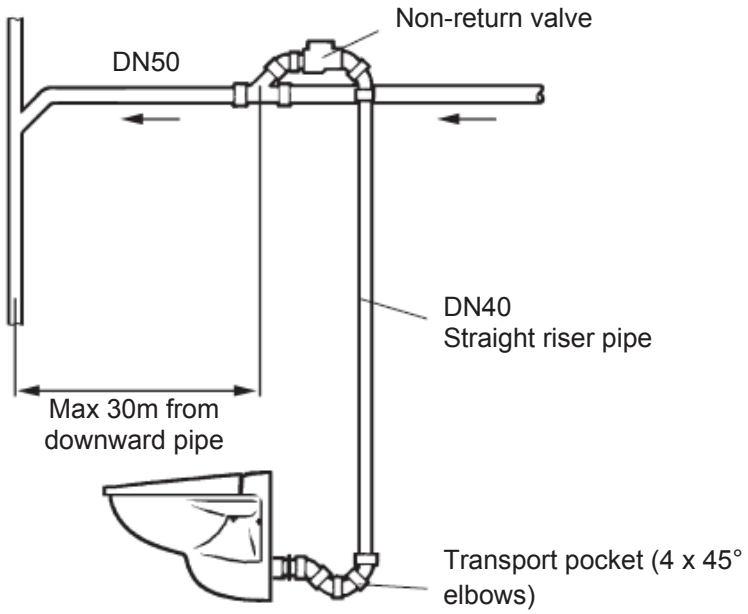
PIPING GUIDELINES

EUROPE AND ASIA

Connections from above and below should have separate horizontal branch pipes. Each toilet is provided with its own riser pipe, and maximum distance between the downward pipe and end toilet riser pipe is 30 m.



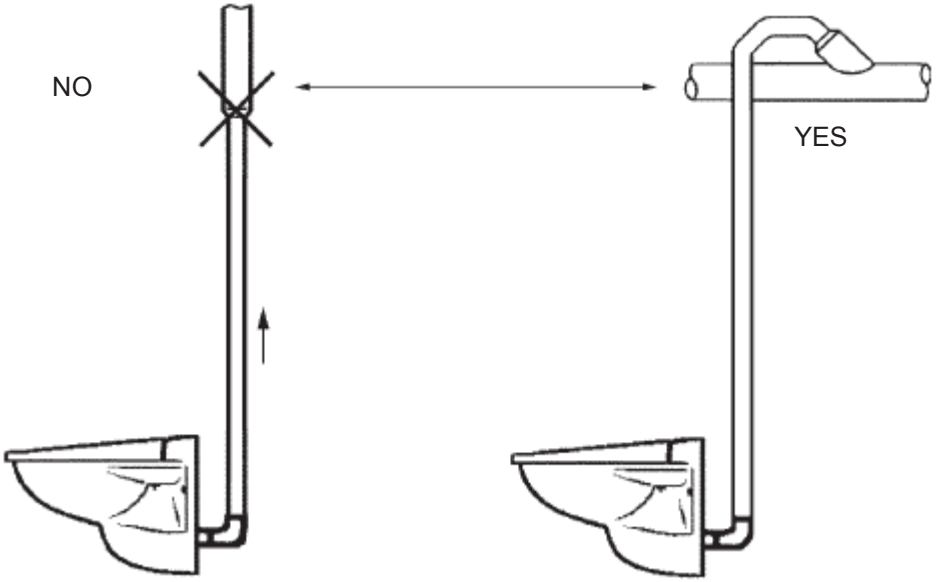
Riser pipe with lift 3 ... 5 m lift is allowed only immediately after a toilet and back flow must be prevented by a transport pocket and non-return valve.



PIPING GUIDELINES

EUROPE AND ASIA

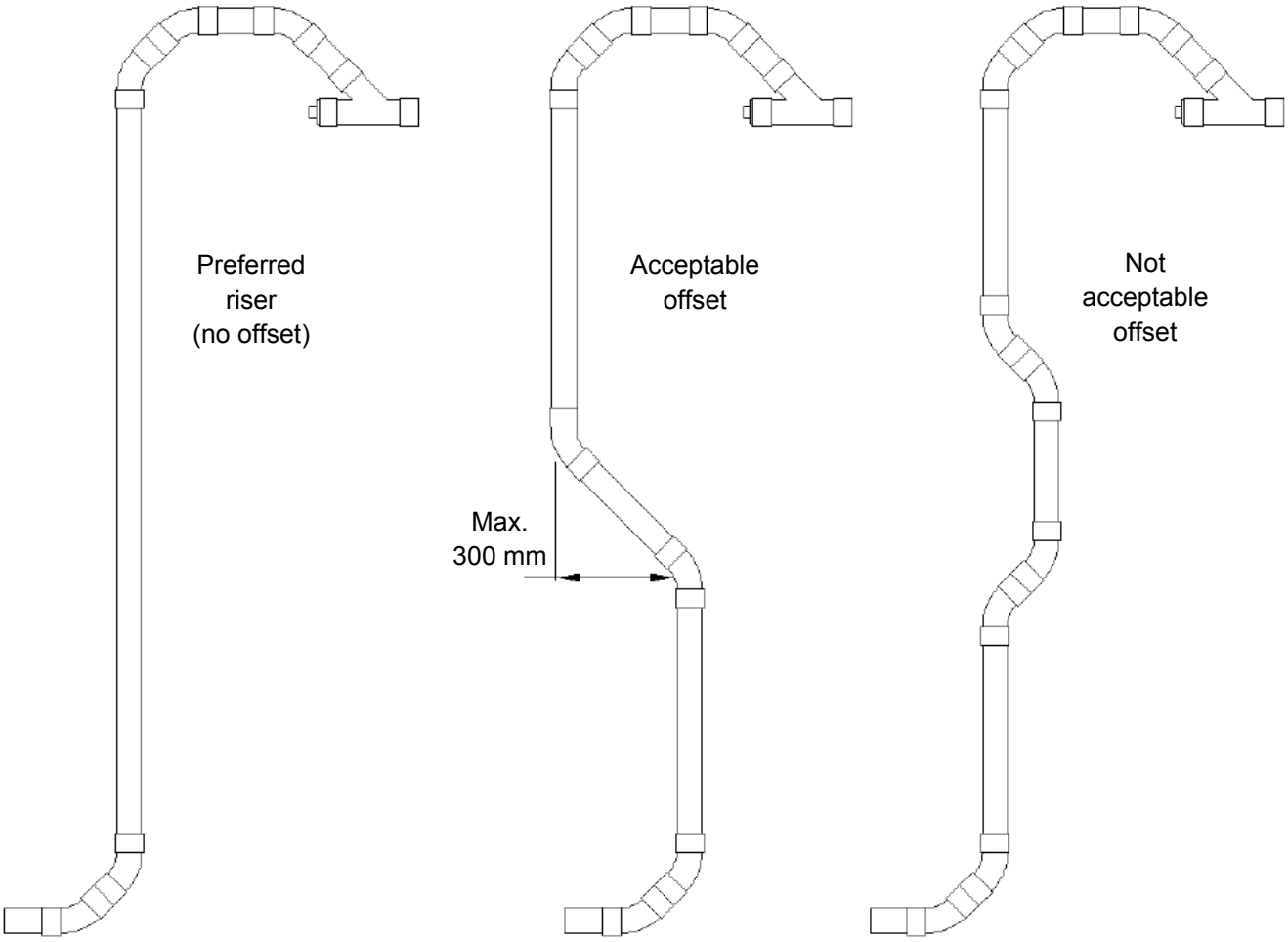
The diameter of the riser pipe must not be enlarged in the rising part.



PIPING GUIDELINES

EUROPE AND ASIA

Obstructions with risers should be avoided at all times. If an obstruction is inevitable, use two 45° Schedule 80 fittings to make the offset shown in the figure below. The offset must not be more than 300 mm and only one offset is allowed per riser.



Riser Pipe Offset

PIPING GUIDELINES

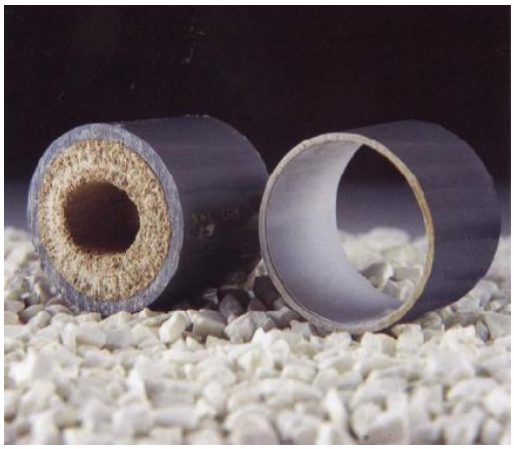
EUROPE AND ASIA

11. Operation and maintenance recommendations

This document provides information about pipe operation and maintenance and shall be used as advisory only. The maintenance shall be carried out by qualified and authorized personnel to avoid any risks and misuses. While carrying out the maintenance, the safety instructions must be followed.

Follow-up of pipe condition

As sewage is an aggressive liquid and can cause corrosion which may lead to leakages in pipes and in system components, it is recommended that the piping should be inspected once per year visually through cleaning plugs and flanges. During inspection, also check the cleanness of the pipe.



After several years of intensive use, the diameter of the vacuum pipes can shrink because of the scale and concentrated urine that precipitate. It exists cleaning products made of concentrated acidic, but they may be dangerous for the operator, to the treatment plant, to the joints and to the environment.

Evac has developed a high-performance product, Cleanvac composed of non-toxic biological agents, non-corrosive and 100% biodegradable. Cleanvac is easy to use. Simply pour a small amount of product in each toilet every day for 10 days. The toilet may continue to be used normally; it even facilitates the work of bacteria.

After 10 days, the product continues to act in the network and after 12 days the pipes are fully cleaned. The operation is repeated every 5-7 years only.

PIPE CLEANING AND CLEANING CHEMICALS

CHEMICAL RESISTANCE OF METAL PIPES USED IN EVAC SYSTEMS

Chemical	Pipes				
	SS315	Black steel	Calvanized steel	Epoxy coated, galvanized steel, type LORO	CuNiFer
Hydrochloric Acid 100%	2	3	3	4	3
Hydrochloric Acid 20%	2	3	3	4	3
Phosphoric Acid	2	1	2	2	2
Chlorine	2	2	2	2	2

Scale:
1 = Very good
2 = Good
3 = Moderate
4 = Not recommended

PIPE CLEANING AND CLEANING CHEMICALS

CHEMICAL RESISTANCE OF MAJOR ELASTOMERS USED IN EVAC COMPONENTS

Chemical Agent	NR	NBR	EPDM	SBR
Acetaldehyde	3	4	1	4
Acetylene	1	1	-	1
Acetophenone	3	4	1	4
Acetone	1	1	1	4
Acetic Acid 10%	4	4	3	4
Acetic Acid 50%	4	4	4	3
Acetic Acid 25%	4	4	4	4
Acetic Acid 100%	4	1	1	2
Boric Acid 10%	1	1	1	1
Citric Acid	1	1	1	1
Chloroacetic Acid	3	3	3	3
Chromic Acid 40%	4	4	4	4
Formic Acid	3	2	2	2
Formic Acid	-	-	-	3
Phosphoric Acid 60%	2	1	1	3
Hypochlorous Acidc	-	1	-	2
Lactic Acid	1	1	-	1
Maleic Acid	1	-	2	2
Naphthenic Acid	-	-	-	1
Nitric Acid 10%	2	2	3	3
Nitric Acidc 65%	4	4	4	4
Palmitic Acid	3	3	2	1
Salicyclic Acid	1	-	1	3
Stearic Acid	3	3	2	2
Sulfuric Acid 10%	1	1	1	3
Sulfuric Acid 20%	1	1	-	1
Sulfuric Acid 25%	1	1	-	4
Sulfuric Acid 50%	1	1	-	4
Sulfuric Acid 60%	1	1	-	4
Sulfuric Acid 75%	4	4	-	4
Sulfuric Acid 65%	4	4	3	4
Sulfurous Acid	1	2	2	2
Tannic Acid	1	3	-	2
Tartaric Acid 10%	1	1	2	1
Deionized water	2	1	1	1
Turpentine	4	4	-	4
Acrylonitrile	1	4	2	4
Ammonia	2	1	1	1
Aniline	2	2	2	4
Aniline	4	4	1	4
Asphalt	4	4	4	1
ASTM 1OIL	4	3	4	1
ASTM 2 OIL	4	4	4	1
ASTM 3 OIL	4	4	4	1
Benzene	4	4	4	4
Sodium Bicarbonate	1	1	1	1
Carbon dioxide	1	1	1	1
Butter	4	4	3	1
Butadene	-	-	-	4
Liquid Butane	4	4	4	1
Fuel A (100% Isoctane)	4	3	4	1
Fuel B (70% Isoctane, 50%Toluol)	4	4	4	2
Fuel C (50% Isoctane, 50%Toloul)	4	4	4	2
Fuel with methanol or ethanol	4	4	4	3
Kerosene	4	4	-	1
Cyclohexane	4	4	4	1
Cloroacetone	-	-	1	4
Chlorobenzene	4	4	4	4
Chloroforme	4	4	4	4
Choloroprene chlorine	4	4	4	4

Chemical Agent	NR	NBR	EPDM	SBR
Dry chlorine	3	3	3	-
Wet chlorine	4	4	4	4
Dibutyl phthalate	4	4	1	4
Diethylene glycol	1	1	1	1
Diethyl sebacate	4	-	2	4
Dinitrotoluene	-	4	4	4
Dioctyl phthalate	4	4	1	3
Dioctyl sebacate	4	-	2	3
Epychlorohydrin	-	-	2	4
Hexane	4	4	4	1
Ethanol	1	1	1	2
Fluorobenzene	4	4	4	4
Formaldehyde 40%	1	1	-	1
Freon 11	2	2	4	1
Freon 12	1	1	2	1
Freon 21	3	3	3	3
Freon 22	1	1	1	1
Freon 113	3	2	3	3
Freon 114	1	-	1	1
Glycerine	1	1	1	1
Silicone wax	-	-	1	1
Hydrogen	1	-	1	1
Calcium Hydroxide	1	1	-	2
Sodium hypochlorite 10%	2	2	1	2
Milk	2	-	1	1
Mercury	1	1	-	1
Methanol	1	1	1	2
Methyl ethyl ketone	3	3	1	4
Naphtha	4	4	4	2
Nitrobenzene	4	4	1	4
Nitroethane	2	3	2	4
Nitrometane	1	1	2	4
Nitropropane	3	3	1	4
Animal oli (Whale-seal)	4	4	2	1
Cereal oil	4	4	1	1
Coconut oil	3	-	3	-
Cod liver oil	4	-	2	1
Olive oil	4	3	3	1
Cotton seed oil	4	4	2	1
Silicone oil	-	-	1	1
Castor oil	2	1	1	2
Oxygen	3	3	1	1
Ozone	4	4	1	4
Perchloroethylene	4	4	4	3
Potassium Permanganate 25%	4	-	4	-
Tetraethyllead	-	-	4	-
Propane	4	-	1	2
Soda (sodium hydroxide) 10%	1	1	1	1
Styrene	4	4	4	4
Toluene	4	4	4	4
Trichloroethylene	4	4	4	4
Sulfur	3	3	1	1

NR= Natural rubber
NBR = Nitrile rubber
EPDM = Ethylene propylene rubber
SBR = Styrene butadiene rubber

Class:
1 = Very good
2 = Good
3 = Moderate
4 = Not recommended

! NOTE: Always check chemical reisistance of Evac components if you are using any of the listed chemicals in your sewage system.

PIPE CLEANING AND CLEANING CHEMICALS

CHEMICAL RESISTANCE OF MAJOR POLYMERS USED IN EVAC COMPONENTS

Chemicals	PP	PE	PVC	PA
Acetaldehyde	1	3	4	1
Acetamide	1	1	4	1
Acetic Acid 80%	1	4	4	4
Acetone	1	2	4	1
Acetylene	1	1	1	1
Alcohols: Amyl	2	2	1	1
Bennzyl	1	4	4	1
Butyl	1	1	1	1
Ethyl	1	2	3	1
Isopropyl	1	1	1	2
Methyl	1	1	1	1
Aluminum Sulfate	1	1	1	1
Ammonia	1	3	1	2
Ammonia Nitrate	1	-	2	4
Aniline	3	2	3	3
Anti-Freeze	4	-	1	4
Aromatic Hydrocarbons	4	3	4	-
Arsenic Acid	1	2	1	3
Barium Carbonate	1	2	1	1
Barium Sulfate	2	2	2	1
Benzaldehyde	1	1	4	3
Benzene	3	3	3	1
Benzoic Acid	3	2	1	3
Benzol	1	3	-	4
Borax	2	1	2	1
Boric Acid	1	1	1	2
Butadiene	4	4	3	1
Butane	3	3	3	1
Butylene	-	2	3	2
Calcium Sulfate	1	2	1	4
Carbon Bisulfide	3	-	4	1
Carbon Dioxide	1	3	1	1
Carbon Disulfide	4	3	4	2
Carbonic Acid	2	2	1	1
Chloric Acid	-	-	1	4
Chlorine, anhidrous	2	2	3	4
Chloroform	3	3	4	4
Chromic Acid 50%	2	1	3	4
Citric Acid	1	1	2	1
Clorox (Bleach)	4	-	1	1
Copper Sulfate	1	2	1	3
Cyanic Acid	-	-	-	-
Diesel Fuel	1	3	1	1
Ethane	3	-	4	4
Ethylene Glycol	1	1	1	2
Fatty Acids	2	1	2	1
Ferric Chloride	2	1	1	3
Ferric Sulfate	2	1	1	1
Fluorine	4	3	4	4
Formaldehyde 100%	3	2	1	4
Formic Acid	1	2	1	3
Gasoline	3	3	3	1
Grease	-	-	1	-
Heptane	3	2	3	1
Hydrazine	3	-	-	-
Hydrocloric Acid 20%	2	1	1	4
Hydrocloric Acid 100%	2	-	2	4
Hydrogen Peroxyde 30%	2	3	1	4
Hydrogen Peroxyde 100%	2	3	3	4
Iodine	4	1	4	4

Chemicals	PP	PE	PVC	PA
Magnesium Hydroxide	1	1	1	2
Mercury	2	1	2	1
Oleum 100%	4	4	4	4
Petrolatum	4	2	2	4
Phenol	2	2	3	3
Phosphoric Acid	2	2	2	2
Picric Acid	2	-	4	3
Potassium Carbonate	1	1	1	1
Silver Nitrate	1	2	1	1
Sodium Bicarbonate	1	1	1	1
Stearic Acid	1	2	2	1
Sulfuric Acid 105	1	1	1	4
Sulfuric Acid >75%	3	2	4	4
Tannic Acid	1	2	1	3
Toluene	3	2	4	1
Zinc Sulfate	1	1	1	1

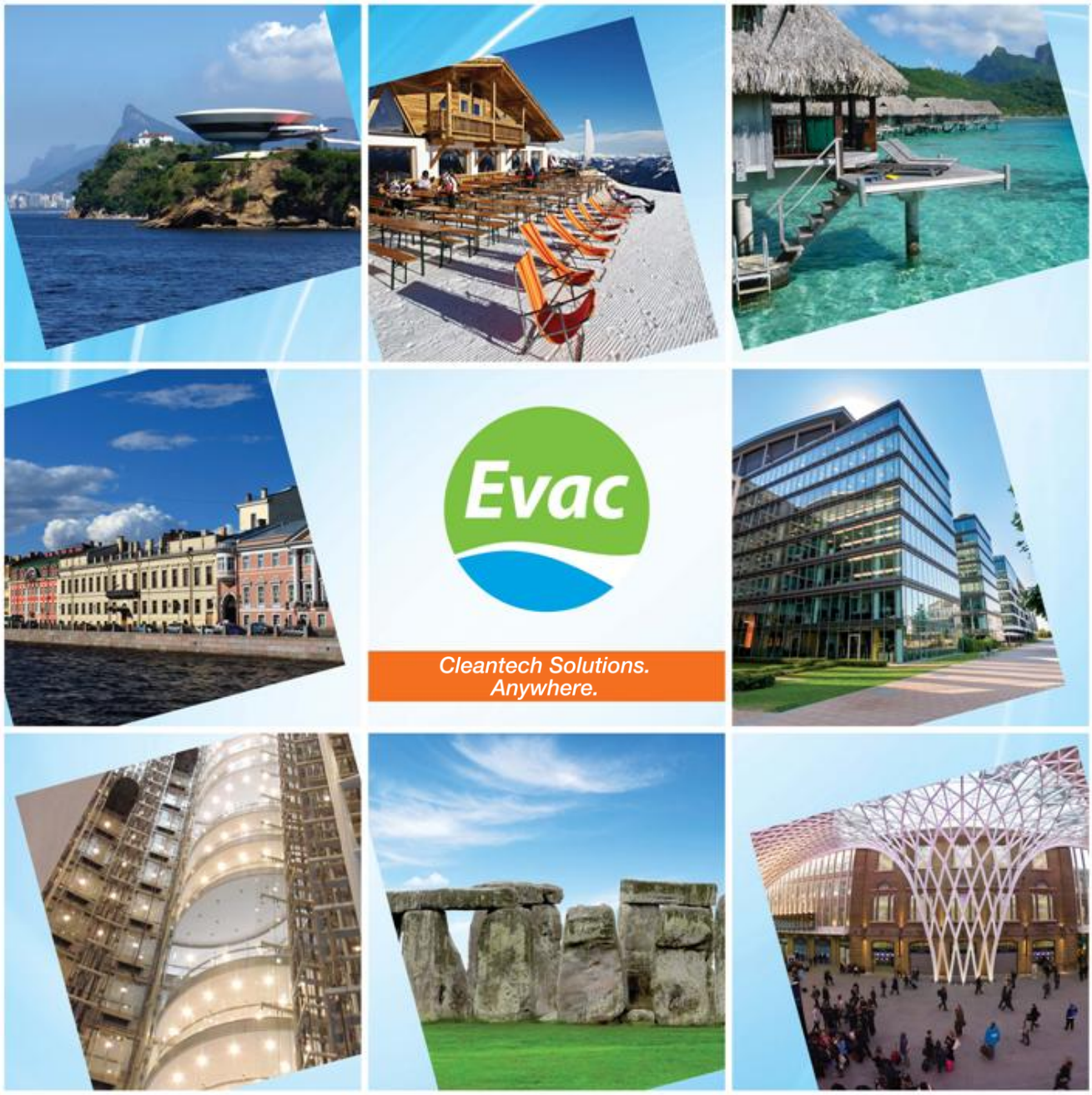
! NOTE: Always check chemical reisistance of Evac components if you are using any of the listed chemicals in your sewage system.

PP = Poly propene
PE = Polyethylene
PVC = Polyvinyl chloride
PA = Polyamide

Class:
1 = Very good
2 = Good
3 = Moderate
4 = Not recommended

Evac Cleantech Solutions. Anywhere.

EVAC REFERENCES AND CERTIFICATES



Cleantech Solutions.
Anywhere.

EVAC REFERENCES AND CERTIFICATES

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- **CERTIFICATES**

Cleantech Solutions.
Anywhere.

EVAC REFERENCES AND CERTIFICATES

- **BUILDING REFERENCES**
- **SUPERMARKET REFERENCES**
- **CERTIFICATES**

REFERENCES

PROJECT NAME	COUNTRY
AIRPORT	
INFRAERO AEROPORTO DE RECIFE	BRAZIL
INFRAERO AEROPORTO SANTOS DUMONT	BRAZIL
INFRAERO AEROPORTO SANTOS DUMONT (EXPANSÂO)	BRAZIL
ARLANDA AIRPORT	SWEDEN
HEATHROW AIRPORT	UK
AÉROPORT DU BOURGET	FRANCE
AIR TERMINAL, ALERT, NWT	CANADA
AIR TERMINAL, BAKER LAKE, NWT	CANADA
AIRPORT TERMINAL, SACHS HARBOUR, NWT	CANADA
AIRPORT TERMINAL, STRATHCONA SOUND, NWT	CANADA
TERMINAL BUILDING, IGLOOLIK, NWT	CANADA
TERMINAL BUILDING, RANKIN INLET, NWT	CANADA
TERMINAL, DEADHORSE AK	USA
BRIDGE	
100TH STREET BRIDGE	USA
106TH STREET BRIDGE	USA
92ND STREET BRIDGE	USA
95TH STREET BRIDGE	USA
CERMAK ROAD BRIDGE	USA
CHICAGO AVENUE BRIDGE	USA
DEARBORN STREET BRIDGE	USA
DIVISION STREET BRIDGE	USA
FRANKLIN-ORLEANS STREET BRIDGE	USA
GRAND AVENUE BRIDGE	USA
KENNEDY EXPWY. FEEDER BRIDGE	USA
LAKE STREET BRIDGE	USA
MADISON STREET BRIDGE	USA
MICHIGAN AVENUE BRIDGE	USA
PONTE VECCHIO	ITALIA
STATE STREET BRIDGE	USA
TORRENCE AVE. BRIDGE	USA
WABASH AVENUE BRIDGE	USA
WELLS STREET BRIDGE	USA
WELLS STREET BRIDGE	USA
CONVENTION CENTER, THEATER AND MUSEUM	
ESPAÇO LABORATÓRIO ACHE	BRAZIL
MUSTANG DRIVE-IN MOVIE THEATRE, ONT.	CANADA
NO. 5 DRIVE-IN MOVIE THEATRE, ONTARIO	CANADA
TURNER HOUSE	UK
PARC DES EXPOSITIONS	FRANCE

REFERENCES

NOVOTEL JARAGUÁ	BRAZIL
CORRECTIONAL FACILITIES	
ANDERSON COUNTY JAIL	USA
BEMALILLO COUNTY DETENTION CENTER	USA
CORRECTIONAL CENTER, JOLIET, IL	USA
GUNNISON, UT CORRECTIONAL FACILITY - *TBA	USA
JACKSON COUNTY YOUTH	USA
MAHONING COUNTY JUSTICE CENTER	USA
MEN'S FACILITY, UMATILLA, OR	USA
OREGON DEPARTMENT OF CORRECTIONS	USA
SALT LAKE COUNTY ADULT DETETENTION FACILITY	USA
SALT LAKE YOUTH DETENTION CENTER	USA
SLC ADULT DET. FACILITY, SLC, UT	USA
SLC YOUTH DETENTION CENTER, SLC, UT	USA
SLC YOUTH DETENTION CENTER, SLC, UT - *TBA	USA
STATEVILLE CORRECTIONAL CENTER	USA
UTAH DEPARTMENT OF CORRECTIONS	USA
VENTURA COUNTY JAIL	USA
WACOL MEN'S PRISON	AUSTRALIA
WACOL PRISON, WOMEN'S	AUSTRALIA
WINNEBAGO COUNTY JAIL	USA
WOMEN'S FACILITY, WILSONVILLE, OR	USA
WOODFORD CORRECTIONAL CENTER	AUSTRALIA
INDUSTRY, FACTORY AND LABORATORY	
CENTRE DE RECHERCHE EN VIROLOGIE DE L'INRA	FRANCE
LABORATOIRE COSMÉTIQUE	FRANCE
SNCF USINE TRAINS CORAIL	FRANCE
USINE DE FABRICATION DE BISCUIT	FRANCE
BOYERS, PA STORAGE SITES (8 SITES)	USA
BROOKVILLE RESERVOIR	USA
CENTERTOWN SEWER	USA
CHANG'AN FORD	CHINA
CORTE MADERA, CA	USA
FACTORY	USA
SHENZHEN - GENZON GROUP CBD	CHINA
ICS SKF DO BRASIL	BRAZIL
MARBLE HILL NUCLEAR PLANT	USA
METSO PAPER MACHINERY	CHINA
MILLSTONE NUCLEAR STATION	USA
MILNE POINT, AK	USA
NASSAU, BAHAMAS	BAHAMAS
NATURA COSMÉTICOS	BRAZIL

REFERENCES

NATURA COSMÉTICOS (EXTENSÃO)	BRAZIL
NAVAL TEST FACILITIES, MONTREAL, QUEBEC	CANADA
NIKE LOGISTIC CENTER	CHINA
PHIPPS BEND NUCLEAR STATION	USA
SUNNYSIDE WAREHOUSE, BC	CANADA
TIPPECANOE LABORATORIES	USA
TOYOTA MOTORS	BRAZIL
TRAIN DEPOTS (4 SITES)	FINLAND
TRAIN DEPOTS	RUSSIA
TREATMENT PLANT, DRUMHELLER, ALTA.	CANADA
VANKE R&D CENTER	CHINA
WASTE TREATMENT PLANT	USA
WEST SIDE WATER FLOOD (2 SITES)	USA
GAS STATION	
BR. 01, 02, 03 BLDG., NORTH SLOPE, AK (3 SITES)	USA
EXXON GAS STATION	USA
FLOATING GAS STATION, BC	CANADA
PRUDHOE BAY, AK (6 SITES)	USA
SERVICE STATION	USA
HEALTHCARE FACILITIES	
AARHUS UNIVERSITY HOSPITAL	DENMARK
ARCHWAY HEALTH CLINIC LONDON	UK
BUPA CORNHILL	UK
IUCT CANCEROPOLE	FRANCE
CHU NANTES	FRANCE
CLINIQUE CLERET	FRANCE
CLINIQUE LA CHENNEVIERE	FRANCE
CLÍNICA UNIMAGEM (CLÍNICA LIFE CENTER)	BRAZIL
CLÍNICA VITTA	BRAZIL
CLINIQUE ROSEMOND	FRANCE
HOPITAL DE ST BRIEUC	FRANCE
HOPITAL DOCTEUR RECAMIER	FRANCE
CLINIQUE GRANDVAL	FRANCE
CLINIQUE SULLY	FRANCE
HOPITAL ST VALLIER	FRANCE
HOPITAL DE ST JULIEN	FRANCE
DENTAL CLINIC	FINLAND
C.H.G SAINT NICOLAS	FRANCE
CLINIQUE DES DOMES	FRANCE
CLINIQUE LA FRANCILIENNE	FRANCE
CLINIQUE ST LOUIS	FRANCE
CLINIQUE ST PRIVAT	FRANCE
POLYCLINIQUE DES BLEUETS	FRANCE

REFERENCES

CLINIQUE HARTMANN	FRANCE
MAISON DE RETRAITE PETITES SŒURS DES PAUVRES	FRANCE
CLINIQUE DE CHOISY LE ROI	FRANCE
CLINIQUE GEOFFROY ST HILAIRE	FRANCE
CLINIQUE MARCEL SEMBAT	FRANCE
CLINIQUE ST JEAN	FRANCE
HOPITAL DIEU DE CLERMOND FERRAND	FRANCE
HOPITAL DE SARCELLES	FRANCE
C.M.C LES PETITES ROCHES	FRANCE
C.M.C ROCHEPLANE	FRANCE
HOSPITAL FOR CHEMOTHERAPY PATIENTS 1	RUSSIA
HOSPITAL FOR CHEMOTHERAPY PATIENTS 2	RUSSIA
HOSPITAL FOR CHEMOTHERAPY PATIENTS 3	RUSSIA
HOSPITAL WITH CHEMOTHERAPY	KAZAKHSTAN
CLINIQUE AMBROISE PARE	FRANCE
CLINIQUE MISTRAL	FRANCE
CLINIQUE ST LEONARD	FRANCE
C.R.F L'EAU VIVE TURRIERS	FRANCE
CENTRE HOSPITALIER CHALLANS	FRANCE
CLINIQUE D'AULANY	FRANCE
CLINIQUE DES BAINS	FRANCE
CLINIQUE LE JASMIN	FRANCE
CLINIQUE PASTEUR	FRANCE
HOPITAL ST JOSEPH	FRANCE
CLINIQUE BACHAUMONT	FRANCE
CLINIQUE DE L'YVETTE	FRANCE
CLINIQUE DU PARC MONCEAU	FRANCE
CLINIQUE VICTOR HUGO	FRANCE
MAISON DE SANTE DES SOEURS AUGUSTINES	FRANCE
CENTRE MÉDICAL AUCHAN	FRANCE
CLINIQUE ROBERT DEBRÉ	FRANCE
INSTITUTE OF REPRODUCTIVE SCIENCES OXFORD	UK
CLINIQUE SPONTINI	FRANCE
HOPITAL DU VAL DE GRACE	FRANCE
MAISON DE REPOS MAILHOL	FRANCE
LOCKER ROOMS PÄÄPOSTITALO	FINLAND
CLINIQUE DES PALMIERS	FRANCE
CLINIQUE MUTUALISTE BONNEVEINE	FRANCE
CENTRE HOSPITAIER DE MOULINS	FRANCE
MEDICAL ARTS BUILDING	USA
CLINIQUE DU DR DROGOUL	FRANCE

REFERENCES

NAT'L CANCER RESEARCH INST.	USA
NOORVIK, AK	USA
MAISON DE CONVALESCENCE LES COMBATTANTS	FRANCE
CLINIQUE MARTIAL	FRANCE
CLINIQUE MICHELET	FRANCE
SENADO FEDERAL	BRAZIL
UNIMED	BRAZIL
CLINIQUE MONTSOURIS	FRANCE
MAISON DE RETRAITE LES CEDRES	FRANCE
CLINIQUE DELAGENIERE	FRANCE
CLINIQUE DU BON SAUVEUR	FRANCE
MAISON DE RETRAITE ADOSOM	FRANCE
HOTEL AND ACCOMODATION	
60 HOUSEBOATS	USA
ACCOMMODATION BASE, COPPERMINE, NWT	CANADA
ACCOMODATION BASE, CORAL HARBOUR, NWT	CANADA
ANDAZ HOTEL	UK
ATLANTIS HOTEL - NASSAU	BAHAMAS
BIRCHANGER GREEN LODGE	UK
BUNGALOWS ON WATER	SENEGAL
CAMP CAROLINE, HOTEL, ALBERTA	CANADA
REFUGE DU GOUTER	FRANCE
CAVALRY AND GUARDS CLUB PRIVATE HOTEL	UK
CHÂTEAU DE MONTVAILLANT & LABAHOU	FRANCE
HÔTEL LES ANTIQUES	FRANCE
LA FERME CADARACHE	FRANCE
HÔTEL FAURE ET MACHET	FRANCE
VILLAGE DE VACANCES OCCITAN	FRANCE
HOTEL DE LA JAMAGNE	FRANCE
HÔTEL TRAYAS	FRANCE
CENTRE DE VACANCES ARMEE DU SALUT	FRANCE
CHATEAU DE CURZAY	FRANCE
HÔTEL PARINOR	FRANCE
DORMITORY, CAMP CHESTERMERE, ALBERTA	CANADA
HOTEL SNCF BREST	FRANCE
EDITION HOTEL	UK
FAIRMONT HOT SPRINGS CHALET	CANADA
HOTEL IBIS NANTERRE	FRANCE
CAMPING DE MOLIÈRE	FRANCE
GLASSHOUSE HOTEL	UK
HOTEL LEROY SNC	FRANCE
HÔTEL SCANDIC CROWN	FRANCE

REFERENCES

HOTEL IBIS LIEGE	BELGIUM
HOTEL IGLU, BAKER LAKE, NWT	CANADA
HÔTEL SAINT MARTIN	FRANCE
HOTEL MERIDIEN BORA BORA	POLYNESIA
HOTEL RICA	SWEDEN
HOTEL RITZ CARLTON BORA BORA	POLYNESIA
ENSAM CLUNY	FRANCE
KANANASKIS RECREATION CENTRE, ALBERTA	CANADA
KEBLE COLLEGE	UK
CAMPING DE ROMILLY	FRANCE
HÔTEL IMMOSA	FRANCE
HÔTEL LA BARAQUE	FRANCE
HÔTEL SOFITEL	FRANCE
VENDOME	FRANCE
HÔTEL LE WAFOU	FRANCE
HÔTEL PÉNICHE-HÔTEL MONTRACHET	FRANCE
VILLAGE DE VACANCES BORME-LES-MIMOSAS	FRANCE
MARBLE ARCH FLATS	UK
VILLAGE DE VACANCES VILLAGE OCEANIQUE	FRANCE
MARK & SPENCERS PRIVATE HOTEL	UK
MARTLETS CRAWLEY	UK
MT. NORQUAY UPPER LODGE, ALTA. (2 SITES)	CANADA
NOORVIK VILLAGE (2 SITES)	USA
ONE ALDWYCH HOTEL	UK
HÔTEL FRANCE-ANGLETERRE	FRANCE
CAMPING DE DE LA CHENERAIS	FRANCE
PEARL RIVER BASIN DEV. DIST.	USA
PELICAN RESORT - ST. MAARTEN (6 SITES)	ST MARTIN
CAMPING DE DES AMMONITES	FRANCE
CAMPING DE EUROLAC	FRANCE
PROVIDENCE, MASS.	USA
HÔTEL ARBARON	FRANCE
CAMPING DE L'ETANG DE LA BRECHE	FRANCE
RESIDENTIAL PROJECT (2 SITES)	USA
RESIDENTIAL SUBDIV., SYLVAN LAKE, ALBERTA	CANADA
RESORT COTTAGE, WINDERMERE, BC	CANADA
RESORT, FORT ERIE, ONTARIO	CANADA
SCHIPHOL AIRPORT HOTEL	HOLLAND
SHOW-HOME, DELTA, BC	CANADA
SKI CHALET, LOWER MARMOT BASIN, ALBERTA	CANADA
SKI CHALET, UPPER MARMOT BASIN, ALBERTA	CANADA
HOTEL AU SANGLIER DES ARDENNES	FRANCE
HÔTEL LE NORD	FRANCE

REFERENCES

SOFITEL	POLYNESIA
HOTEL DU CENTRE BASTIA CORSE	FRANCE
STAFF DORMITORY, TANGLE CREEK, ALBERTA	CANADA
STRATTON MOUNTAIN, VT	USA
SULPHUR MTN. GONDOLA STATION, ALBERTA	CANADA
RÉSIDENCE SOLEIL COUCHANT	FRANCE
CAMPING DE ST GERMAIN SUR AY	FRANCE
TEMPLE DAY LODGE, LAKE LOUISE, ALTA.	CANADA
VALE DO RIO DOCE CARAJAS	BRAZIL
HÔTEL CYRANO	FRANCE
HÔTEL PUY FERNAND	FRANCE
CAMPING DE SAINT CAST	FRANCE
WATER LODGE	UK
WPM3	USA
YOTEL HEATHROW	UK
HÔTEL THERMAL	FRANCE
HÔTEL KASSELSLAY	FRANCE
CHÂTEAU DE MARTRAGNY	FRANCE
FOYER S.N.C.F	FRANCE
HOTEL ABBAYE SORREZE	FRANCE
HOTEL ADOSON CANNES	FRANCE
HOTEL ALTITUDE VAL D'ISÈRE	FRANCE
HOTEL CAMPING	FRANCE
HOTEL CITY LOFT	FRANCE
HOTEL DES ARMÉES	FRANCE
HOTEL MERIDIEN PARIS MONTPARNASSE	FRANCE
LES SABLES BLANCS	FRANCE
PAUVRE DIABLE	FRANCE
SPLENDIDE HOTEL	FRANCE

OFFICE AND INSTITUTIONAL BUILDING

ABERDEEN PROVING GROUND	USA
ARIZON PUBLIC SERVICE	USA
ASSEMBLY HALL BLDG., FT. LAUDERDALE, FL	USA
BANCO CENTRAL DO BRASIL	BRAZIL
BLDG. 303 ENDICOTT ISLAND, AK	USA
BLDG. 601 ENDICOTT ISLAND, AK	USA
BLDG. 604 ENDICOTT ISLAND, AK	USA
BLDG. 616 ENDICOTT ISLAND, AK	USA
BLIGH STREET OFFICE	AUSTRALIA
BOC BLDG. ENDICOTT ISLAND, AK	USA
BUILDING SERVICES, THUNDER BAY, ONT	CANADA
CAESB BRASÍLIA - SEDE	BRAZIL
CAIXA ECONÔMICA FEDERAL	BRAZIL

REFERENCES

BIBLIOTHÈQUE UNIVERSITAIRE DE CAEN	FRANCE
FONDATION BON SAUVEUR	FRANCE
BPM CONSTRUCTEUR	FRANCE
CRÉDIT LYONNAIS	FRANCE
SEPHORA	FRANCE
CHEZ STENAT	FRANCE
G,LOHIER	FRANCE
PARCE D'ACTIVITE DES PETITS CARREAUX	FRANCE
CONSELHO DE JUSTIÇA	BRAZIL
CONSTRUCTION OFFICE, ENDICOTT ISLAND, AK	USA
DAIWA HOUSE	UK
DUQUESNE LIGHT CO.	USA
EDIFICIO ITAIGARA (PETROS / PETROBRAS)	BRAZIL
EDIFÍCIO THE CITY (EDIFÌCIO JK 1 455)	BRAZIL
EMMONAK WATER/SEWER	USA
ENDICOTT ISLAND, AK	USA
ETHIOPIA RADAR STATION	AFRICA
FAA TOWER	USA
GLOBAL MARINE CHELMSFORD	UK
CENTRO ADMINISTRATIVO DO ESTADO DE MINAS GERAIS	BRAZIL
GREEN OFFICES LEEDS	UK
BRITISH LIBRARY EUSTON	FRANCE
ENTREPRISE CHARLET	FRANCE
ENTREPRISE SAUVAGET	FRANCE
ELECTROLUX	FRANCE
LE FROID INDUSTRIEL YORK S,A	FRANCE
KARNATAKA GOVERNMENT ASSEMBLY	INDIA
LONZA	UK
MARIE DE SENLIS	FRANCE
MCC BLDG. ENDICOTT ISLAND, AK	USA
MT. SEYMOUR TRANSMITTER STATION, BC	CANADA
NATIONAL AUDIT OFFICE	UK
OFFICE BUILDING	USA
PETROBRAS REPLAN PAULÍNEA	BRAZIL
PETROBRAS SEDE	BRAZIL
PRUDHOE BAY OPER. CENTER	USA
PRUDHOE BAY, AK (15 SITES)	USA
REFINARIA PRESIDENTE BERNARDES	BRAZIL
SCOTTISH PARLIAMENT	UK
SECR. PLANEJAMENTO DA FAZENDA	BRAZIL
SERPRO RECIFE	BRAZIL
SERPRO BRASÍLIA	BRAZIL

REFERENCES

SESC - COLÉGIO EXCELÊNCIA	BRAZIL
SESC - SENAC SEDE NACIONAL	BRAZIL
SKY TOWER	BRAZIL
STUDIO CHANGEROOM ONTARIO	CANADA
THAMES WATER	UK
TORRE DIGITAL	BRAZIL
TRAINING UNIT, FLEET SCHOOL	CANADA
TSE	BRAZIL
VIVO CELULAR	BRAZIL
VODAFONE NEWBURY	UK
LONGUEIL-ANNEL	FRANCE
MOET&CHANDON	FRANCE
OIL AND GAS	
COMPRESSOR STATION, NORMAN WELLS, NWT	CANADA
INTERPORVINCIAL PIPE LINE, NWT	CANADA
TEXAS GULF CHANGEHOUSE, ONTARIO	CANADA
TEXAS GULF REFINERY WASHCAR, ONTARIO	CANADA
TEXAS GULF SMELTER, ONTARIO	CANADA
PARK	
BIG BEAR LAKE II, CA	USA
BIG BEAR LAKE, CA	USA
CAMPSITE, PACIFIC RIM, VACOUVER ISLAND, BC	CANADA
CAMPSITE, VANCOUVER, BC	CANADA
EVERGLADES NAT'L PARK	USA
MARATHON TRAILER PARK, FL	USA
O'HARA LODGE/COTTAGES, YOHO PARK	CANADA
PARQUE DONA LINDU	BRAZIL
PICTURED ROCK, PARK	USA
PARQUE MUNICIPAL RIBEIRÃO PRETO	BRAZIL
PUBLIC RESTROOM, BARNET BEACH PARK, BC	CANADA
RECREATION FAIRGROUNDS, MARKHAM, ONTARIO	CANADA
SHELTER VALLEY CAMPGROUND, ONTARIO	CANADA
STONE HENGE VISITOR CENTRE	UK
SUFSIDE RV PARK, VANCOUVER, BC	CANADA
TRAILER WASHCAR, BC (2 SITES)	CANADA
TRAILER WASHCAR, BC	CANADA
TRAILER WASHCAR, OTTAWA, ONTARIO (6 SITES)	CANADA
WASHINGTON CROSSING PARK	USA
WAWAYANDA STATE PARK	USA
PORT AND MARINA	
DINNER KEY MARINA	USA
FRANCOIS FERRY TERMINAL I, BC	CANADA

REFERENCES

FRANCOIS FERRY TERMINAL II, BC	CANADA
GLEN COVE MARINA	USA
HALKOLAITURI	FINLAND
HEATHER CIVIC MARINA, VANCOUVER, BC	CANADA
MARINA (2 SITES)	UK
MARINA, CASPER'S LANDING, ONTARIO	CANADA
MARINA, FIFTY POINT, ONTARIO	CANADA
NANAIMO FERRY TERMINAL BUILDING, BC	CANADA
OYSTER POINT MARINA	USA
POHJOISRANTA	FINLAND
PORT OF HELSINKI	FINLAND
PRUDHOE BAY, AK	USA
PUNTA MARINA	ITALIA
SEA VILLAGE MARINA	CANADA
SKIDEGATE FERRY TERMINAL, BC	CANADA
SPRUCE HARBOUR MARINA, BC	CANADA
VALDEZ FUEL PIERS	USA
REST AREA AND PUBLIC RESTROOM	
HIGHWAY REST AREA (FRANCIOLI)	FRANCE
TÉLEPHÉRIQUE FLAINE	FRANCE
HIGHWAY REST STOP, GARRETT COUNTY, MD	USA
HIGHWAY REST STOP, SOMERSET COUNTY, MD	USA
TÉLEPHÉRIQUE DES GRANDS MONTETS	FRANCE
PISTE DE SKI SAMPLAST	FRANCE
MODULAR TOILETS, MOSCOW CITY	RUSSIA
PISMO BEACH PIER PROJECT	USA
PUBLIC RESTROOM, ALBERTA GAME FARM	CANADA
PUBLIC RESTROOM, CYPRESS BOWL RESORT, BC	CANADA
PUBLIC RESTROOMS, GREENPOINT, VAN. IS., BC	CANADA
PUBLIC RESTROOM, GROUSE MTN. RESORT, BC	CANADA
PUBLIC RESTROOM, MCLEESE LAKE, BC	CANADA
PUBLIC RESTROOM, ONTARIO	CANADA
PUBLIC RESTROOMS, PACIFIC RIM I &II, VAN. IS., BC (5 SITES)	CANADA
PUBLIC RESTROOMS, PARK, BRONTE ONTARIO	CANADA
REST STOP, BASSANO, ALBERTA	CANADA
REST STOP, CROSSFIELD, ALBERTA	CANADA
REST STOP, GENERAL ANDREWS, MN	USA
REST STOP, KETTLE RIVER, MN	USA
RESTROOM BLDG., WATERFRONT, TORONTO, ONTARIO	CANADA
RESTROOM CABIN UNIT, FOREST, ONTARIO	CANADA
RESTROOM CABIN UNIT, TIVERTON, ONTARIO	CANADA

REFERENCES

RESTROOM FACILITIES	USA
SHOWER/TOILET FACILITY (2)	USA
TERMINAL BUILDING, HALL BEACH, NWT	CANADA
THOMAS EDISON SERVICE AREA	USA
WAREHOUSE WASHROOM, ENDICOTT ISLAND, AK	USA
WHISTLER MOUNTAIN MID-STATION, BC	CANADA
WHISTLER MOUNTAIN ROUNDHOUSE, BC	CANADA
RESTAURANT BAR	
BAR E RESTAURANTE DON DONNIE	BRAZIL
RAM ALIMENTOS FOZ DO IGUAÇU	BRAZIL
RESTAURANTE OUTBACK (SHOPPING FREI CANECA)	BRAZIL
RESTAURANTE OUTBACK (SHOPPING TIJUCA)	BRAZIL
CHEZ GINETTE	FRANCE
LES GLACIERS	FRANCE
MAC DONALD'S	FRANCE
LE PANORAMIC	FRANCE
AUBERGE DE MEHRBACHEL	FRANCE
MAC DONALD'S	FRANCE
FAST FOOD 3200	FRANCE
PIZZA PINO	FRANCE
LA ROCHE DE MOI	FRANCE
LA PÉNICHE	FRANCE
POD FOOD HOLBORN	UK
FLUNCH	FRANCE
LA CHOUETTE	FRANCE
CHAMONIX	FRANCE
BARRIO LATINO	FRANCE
ANKOR RESTAURANT, VANCOUVER, BC	CANADA
CROSSBOW INN PUB, SOOKE, BC	CANADA
FIFTH DIMENSION DISCOTHEQUE, MARKHAM, ONT.	CANADA
HORSE & RIDER PUB, LANGLEY, BC	CANADA
SHOPPING AREA	
BAKER LAKE MAINTENANCE GARAGE, NWT	CANADA
BOLSA DE MERCADORIAS E FUTUROS	BRAZIL
BRAGG CREEK SHOPPING CENTRE, ALBERTA	CANADA
BREWERY SHOPPING CENTER	UK
GALERIES SAINT GEORGES	FRANCE
CHURCHILL PLACE CANARY WHARF	UK
DUNDRUM SHOPPING CENTER	IRELAND
JORDANS FURNITURE, RENNOVATION, AVON, MA	USA

REFERENCES

LOJAS ETNA	BRAZIL
MAINTENANCE GARAGE, RANKIN INLET, NWT	CANADA
MARTLETS SHOPPING CENTER	UK
ODEON UXBRIDGE	UK
ONE SOUTHAMPTON ROW SHOPPING CENTER	UK
PORTFOLIO CLUBE (PREDIO SENAC)	BRAZIL
RECIFE TRADE CENTER	BRAZIL
RIO MAR SHOPPING RECIFE	BRAZIL
RIO MAR SHOPPING FORTALEZA	BRAZIL
ROYAL EXCHANGE SHOPPING CENTER	UK
ROYAL EXCHANGE SHOPPING CENTER	UK
SALVADOR NORTE SHOPPING	BRAZIL
SALVADOR SHOPPING CENTER	BRAZIL
SHOPPING VILA LOBOS	BRAZIL
SHOPPING CIDADE BELO HORIZONTE	BRAZIL
SHOPPING FREI CANECA	BRAZIL
SHOPPING FREI CANECA (EXTENSÃO)	BRAZIL
SHOPPING GUARARAPES	BRAZIL
SHOPPING MANAUARA	BRAZIL
CARREFOUR SHOPPING ELDORADO	BRAZIL
ST. ALMERT SHOPPING CENTRE	CANADA
TK MAXX HAMMERSMITH	UK
WHITE FLINT MALL	USA
STADIUM AND SPORTS CLUB	
DAVID LLOYD FULHAM	UK
DAVID LLOYD KENSINGTON	UK
GALPHARM STADIUM	UK
HUDDERSFIELD STADIUM	UK
JOHN SMITHS STADIUM	UK
LORDS CRICKET GROUND	UK
BASE DE LOISIR DE SAINT LEU D'ESSERENT	FRANCE
SIGNAL IDUNA PARK STADIUM- DORTMUND	GERMANY
SOKOS VALTAKULMA	FINLAND
VELTINS ARENA - GELSENKIRCHEN	GERMANY
VIRGIN ACTIVE HOLMES PLACE	UK
TRAIN STATION AND DEPOT	
RAILROAD CARS	CANADA
TEMPLE MILLS	UK
BLACKFRIARS STATION	UK
GARE DU NORD PARIS	FRANCE
GARE DE LYON PARIS	FRANCE
SNCF DE ST PIERRE DES CORPS	FRANCE
SNCF TOURS	FRANCE

REFERENCES

GARE DE BREST	FRANCE
GARE TÉLÉCABINE CLUSES	FRANCE
KINGS CROSS STATION	UK
GARE ST QUENTIN	FRANCE
METRÔ DO RIO ESTAÇÃO CIDADE NOVA	BRAZIL
METRÔ ESTAÇÃO URUGUAY	BRAZIL
SAINT-PANCRAS STATION	UK
SOUTH RAIL STATION	CHINA
UNIVERSITY AND SCHOOL	
RÉSIDENCE HÔTELLIÈRE	FRANCE
ECOLE MATERNELLE	FRANCE
DIAMOND SYNCATRON	UK
FLINT CAMPUS CLASSROOM BLDG.	USA
UNIVERSIDADE UNINOVE	BRAZIL
WORKER CAMP AND MOBILE UNIT	
30 MAN WORKCAMP	CANADA
98 MAN MOBILE WORKCAMP	CANADA
ASAMERA MINE, DAWN LAKE, SASK.	CANADA
CONST. CAMP, JUBAIL, SAUDI ARABIA	MIDDLE EAST
MINE - ALASKA	USA
MINE, PORT RADIUM, NWT	CANADA
MOBILE RESTROOM, TIMMINS, ONTARIO	CANADA
POLARIS MINE, LITTLE CORNWALLIS IS., NWT	CANADA
PORABLE RESTROOM, FT. SIMPSON, NWT	CANADA
PORTABLE RESTROOM, PENTICTON AIRPORT, BC	CANADA
PORTABLE RESTROOM, SOREL, QUEBEC	CANADA
PORTABLE VACUUM PUMP-OUT STATION	CANADA
RESTROOM UNIT, CONSTRUCTION CAMP, TIMMINS	CANADA
TRAIN WORKCAMP UNIT, C.P.R. (MULTIPLE SITES)	CANADA
ATCO (B.P. EXPLORATION)	USA

Cleantech Solutions.
Anywhere.

EVAC REFERENCES AND CERTIFICATES

- BUILDING REFERENCES
- **SUPERMARKET REFERENCES**
- CERTIFICATES

REFERENCES

SUPERMARKET BRAND	NUMBER OF INSTALLATIONS	COUNTRY
SIMPLY MARKET	5	FRANCE
CARREFOUR MARKET	20	FRANCE
HYPER U/ SUPER U	9	FRANCE
INTERMARCHÉ	6	FRANCE
LECLERC	2	FRANCE
CASINO	46	FRANCE
CARREFOUR	26	FRANCE
LECLERC	24	FRANCE
AUCHAN	7	FRANCE
CARREFOUR	69	FRANCE
AUCHAN	65	FRANCE
CARREFOUR CITY	2	FRANCE
MONOPRIX	1	FRANCE
CORA	1	FRANCE
AUCHAN CITY	1	FRANCE
SIMPLY MARKET	1	FRANCE
CARREFOUR MARKET	1	FRANCE
HYPER U/ SUPER U	1	FRANCE
AUCHAN	1	FRANCE
1ST ALTERNATIVE CO-OP	1	USA
LECLERC	1	FRANCE
CARREFOUR	1	FRANCE
HYPER U/ SUPER U	1	FRANCE
SHOPPING DEL REI	1	BRAZIL
SHOPPING EL DORADO	1	BRAZIL
WAL-MART SAM'S CLUB	1	CHINA
WAL-MART SUPERMARKET	1	CHINA
A & P	1	USA
ACME SUPERMARKETS	9	USA
ALBERTSON'S	1	USA
AL CAMPO	1	SPAIN
AMERICAN ASIAN MARKET	1	USA
ASSOCIATED WHOLESALE	1	USA
ASDA	23	UK
BEL-AIR MARKET	2	USA
AUCHAN	1	HUNGARY
AUCHAN	1	ITALY
AUCHAN	1	CHINA
AUCHAN	1	POLAND
BIG V SUPERMARKETS	1	USA
BIG Y FOODS, INC.	8	USA

REFERENCES

BILO MARKETS INC.	126	USA
BOZZUTOS INC.	1	USA
BRACKETS	1	USA
BUEHLERS	1	USA
C&S WHOLESALE	1	USA
CATALANO'S, INC.	1	USA
CARREFOUR	1	MONACO
CARREFOUR	1	SPAIN
CARREFOUR	2	FRANCE DOM
CITY MARKET	3	USA
COLES	1	USA
CITYMARKET	1	FINLAND?
COLES	1	AUSTRALIA
AUCHAN	1	POLAND
CARREFOUR	1	GREECE
CARREFOUR	1	SPAIN
COOP	1	ITALY
CUB FOODS	1	USA
D&W FOOD CENTRES	1	USA
D´AVÓ SUPERMERCADO	1	BRAZIL
DAVE'S MARKETS, INC.	1	USA
DOMINICKS	1	USA
DORTHY LANE	1	USA
DOWN TO EARTH	2	USA
ENICEL MARKET	1	USA
DUNES	3	IRELAND
EROSKI	1	ITALY
EROSKI VITORIA	1	SPAIN
EUROMERCADO	1	ITALY
FLEMINGS	1	USA
FOOD 4 LESS	21	USA
FOODMASTER, INC.	1	USA
FOUR CORNERS MARKET	1	USA
FRED MEYERS	22	USA
FRESH FIELDS INC.	3	USA
FRY'S FOOD AND DRUG	16	USA
GELSON'S	1	USA
GIANT FOODS(LANDOVER)	4	USA
GIANT-EAGLE	10	USA
GOLUB CORP.	1	USA
GREAT A&P TEA CO.	1	USA
GREEN HILLS FARMS	1	USA
GROCERY OUTLET	89	USA

REFERENCES

H.E.B.	2	USA
HANNAFORD BROS.	3	USA
HARRIS TEETER	5	USA
HATTENBACH	1	USA
HIPERMENCHIO PITUSA	1	USA
JOHN LEWIS BLUEWATER	1	UK
KING SOOPERS	17	USA
K-MART	1	USA
KTA SUPERSTORE	1	USA
K-VA-T	1	USA
LABONNE'S EPICURE MARKET	1	USA
LOWES FOOD STORES	9	USA
MACRO	19	UK
MACRO	1	IRELAND
MARSH	1	USA
MARUKAI MARKET	1	USA
MAXI (PROVIGO)	1	CANADA
MAXI'S	1	USA
THE MEAT HOUSE	1	USA
MEIJER, INC.	1	USA
MIGROS	1	SUISSE
MORRISONS	3	UK
NOB HILL FOODS	2	USA
OMAHA STEAKS	1	USA
OVERWAITEA SHANGRILLA	1	USA
PARADISE FOODS	2	USA
PATHMARK	1	USA
PBI MARKET EQUIPMENT - LB	1	USA
PEPPERS MARKET	1	USA
PRICE CHOPPER, INC.	2	USA
PRICEMART	1	JAMAICA
PRICEMART	1	MANILA
PRICEMART	4	MEXICO
PRICEMART	1	NICARAGUA
PRICEMART	1	USA
PRISMA	1	FINLAND
PRISMA	1	LATVIA
PRISMA	1	RUSSIA
PRYCA	1	SPAIN
PUBLIX	2	USA
RAINBOW FOODS	1	USA
RALEY'S	12	USA
RALPH'S	8	USA

REFERENCES

ROTH'S MARKET	1	USA
ROUNDY'S SUPERMARKETS	1	USA
S MARKET	1	FINLAND
SAFEWAY, INC.	35	USA
SAINSBURY'S	13	UK
SALE	1	FINLAND?
SAM'S FOODS, PR	1	USA
SAVE A LOT	1	USA
SAVE-ON	2	USA
LOJAS AMERICANAS (TV HIFI)	1	BRAZIL
RICOY SUPERMERCADOS	1	BRAZIL
SHAWS SUPERMARKET	6	USA
SHOP & SAVE	2	USA
SHOPPER'S FOOD WAREHOUSE	1	USA
SHOPRITE	4	USA
SIMAGO	1	SPAIN
SMART & FINAL	15	USA
SMITH'S FOOD & DRUG	1	USA
SOK	1	FINLAND?
ATACADÃO	1	BRAZIL
STAR MARKETS, INC.	1	USA
STEARK'S FOODS	1	USA
STEW LEONARDS	1	USA
STOP & SHOP	94	USA
SUPERMERCADOS PÃO DE AÇÚCAR	1	BRAZIL
SUPERVALU, INC.	1	USA
TARGET	17	USA
TESCO	1	HUNGARY
TESCO	1	IRELAND
TESCO	1	UK
THE NORTH WEST CO.	1	CANADA
TOPS MARKETS	16	USA
TRADER JOE'S	24	USA
UNIVERSITY MARKET	1	USA
WAISTROSE	25	UK
WAL-MART, INC.	2	USA
WEGMANS FOOD MARKETS	2	USA
WEIS MARKETS	1	USA
WESTAR PLUMBING	1	USA
WESTERN EXPO UNIT	1	USA
WHOLE FOODS	1	UK
WHOLE FOODS	3	USA

REFERENCES

WILD OATS NO WARRANTY	1	USA
ZELLERS	1	USA
ZELLERS	1	CANADA
MATCH	2	FRANCE
U EXPRESS	1	FRANCE

CERTIFICATES

- ✓ ISO 9001:2008 CERTIFICATE FOR EVAC E.U.R.L. (BUREAU VERITAS, 2010)
- ✓ ISO 9001:2008 CERTIFICATE FOR EVAC VACUUM SYSTEMS (SHANGHAI) CO., LTD. (DNV, 2009)
- ✓ ISO 14001:2004 CERTIFICATE FOR EVAC VACUUM SYSTEMS (SHANGHAI) CO., LTD. REGARDING FABRICATION OF VACUUM SYSTEMS AND SEWAGE TREATMENT EQUIPMENT (DNV, 2009)
- ✓ ISO 9001:2008 CERTIFICATE FOR EVAC NORTH AMERICA, REGARDING DESIGN, PRODUCTION AND SERVICE OF VACUUM COLLECTION SYSTEMS AND TREATMENT PLANTS (SQA, INC., 2009)
- ✓ ISO 14001:2004 CERTIFICATE FOR EVAC OY, REGARDING SALES, DESIGN AND MANAGEMENT OF MANUFACTURE OF VACUUM DRAINAGE AND FOOD WASTE, DRY WASTE AND SEWAGE TREATMENT SYSTEMS (LRQA, 2012)
- ✓ ISO 9001:2008 CERTIFICATE FOR EVAC OY, REGARDING SALES, DESIGN AND MANAGEMENT OF MANUFACTURE OF VACUUM DRAINAGE AND FOOD WASTE, DRY WASTE AND SEWAGE TREATMENT SYSTEMS (LRQA, 2012)
- ✓ ISO 9001:2008 CERTIFICATE FOR NORSK INOVA AS, REGARDING DESIGN, DEVELOPMENT, SALE AND PROJECT MANAGEMENT OF WASTE AND ENERGY TREATMENT SYSTEMS (DNV, 2009)

- ✓ RAPPORT DE VERIFICATION DE CONFORMITE DE MACHINE: CENTRALE DE VIDE HQE (BUREAU VERITAS, 2010)
- ✓ AVIS TECHNIQUE 15/98-249 RELATIF AU SYSTEME D'EVACUATION SOUS VIDE EVAC (CSTB, 2004)
- ✓ BBA CERTIFICATE (BBA, 1995)
- ✓ MARINE CERTIFICATES INCLUDE GOST, SOLAS, RMRS, USCG, B15, IMO MARPOL RESOLUTION MEPC 227(64) AND MEPC 159(55)
- ✓ HORIZON COLLECTING UNITS ARE CERTIFIED UL, IAPMO,CSA AND NSF AND ARE CE MARKED
- ✓ HORIZON JR COLLECTING UNITS ARE CERTIFIED UL, IAPMO,CSA AND NSF
- ✓ ONLINEVAC52 IS ALSO UL CERTIFIED AND CE MARKED
- ✓ OTHER USA PRODUCTS ARE UL CERTIFIED AS REQUIRED BY PROJECTS

Cleantech Solutions.
Anywhere.

EVAC CONTACTS

Cleantech Solutions. Anywhere.

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