



## ***Indications for Installation and Use***

### MARINE TOILET WITH VORTEX SYSTEM

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**MADE IN ITALY**



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## **WARNINGS AND GUARANTEES**

Follow the indications for installation and use written in the present guide and, as general, respect the rules of the good sense and the normal role for on board use devices.

The missed observance of those rules can cause malfunction, damages or loss of properties and human lives. Planus declines every responsibility for damages to people or things originated by the bad use and by the wrong installation.

Planus warrants its products to be free from defects in material and workmanship. The warranty period is twentyfour (24) months (see Planus "Marine General Warranty Terms").

## **GENERAL INFORMATION**

The Planus toilet is basically composed by three parts: a toilet in ceramic containing the discharge pump; a flush controller; a device for the water inlet (solenoid or inlet pump).

The 3 components must be electrically and hydraulically connected between them. Some needed materials (as i.e. tubes and screws) are not supplied. Be sure all the needed materials are available before setting the work.

**It's strictly recommended the usage of qualified personnel for electrical and hydraulic installation.**

### *IMPORTANT:*

- If the toilet is placed beneath the water line, the installation of a ventilation valve at a sufficiently higher level is needed.
- All possible navigational conditions must be taken into account when estimating the water line.
- The valves of ventilation, furnished if required, must be adequately installed along the hydraulic line of outlet and/or inlet.
- The seacock must be installed properly to avoid that pressure is generated on the plumbing during sailing.
- Before starting the installation of the toilet Planus make sure that the plant respects all the indications included in this manual. In case of doubts or uncertainties please contact our technical staff.

## **TYPES OF INSTALLATION**

The toilet Planus can directly work with fresh water or marine water and being installed above or under the waterline. However, it is necessary to determine in which conditions will have to operate the WC in order to execute a correct installation of it. It is also opportune to understand preventively the characteristics of the several available Flush Controller and to take it in consideration while choosing the implant.

### **Characteristics of available Flush Controllers**

- ∨ Single Button Flush Controllers ("Family" Switch and One Button Control Panel)

By the pressure of the single button the automatic flush sequence is activated. It determines the addition of fresh water for the rinse and the activation of the discharge pump, in a pre-set sequence. At the end, a certain quantity of water remains into the bowl, in order to have to toilet ready for next usage.

The "Family" switch doesn't have any LED for Full Tank indicator.

- ∨ Double Buttons Control Panel

Before the usage the user must activate the pre-filing sequence with water by the usage of the left button ("Before Use"). At the end, by the pressure of the right button ("After Use") the automatic flush sequence will be activated. After that, the bowl will remain dry.

### **Choose of fresh or marine water usage**

- ∨ Fresh water Centralized System (fig. 1)

Connect the toilet to the pressurized fresh water plant by the usage of a  $\frac{3}{4}$ " pipe. It's possible to easily realize a derivation from the common cold water line already present in the bathroom to serve the other devices (as the sink). Along this line it must be installed the solenoid. The exact location of the solenoid along the line is basically irrelevant.

## Marine water System

It must be used a pump to fill the bowl with sea water. The plant is different depending by the usage of a unique centralized pump (not supplied by Planus), used for all the onboard toilets, or by the usage of a single inlet pump for each toilet (supplied by Planus).

### ∨ Marine water centralized system (fig. 2)

Each toilet must be connected to the unique centralized pump adding, between pump and toilet, a solenoid for each toilet. The exact location of the solenoid along the line is basically irrelevant.

Basically, respect the indication of the manufacturer for the installation of the inlet pump. Strictly respect the safety rules for the realization of the seacock.

For the electrical connection, please note that control panels and solenoids must be connected to the inlet pump in a proper way to avoid back signals able to activate at once all the solenoids connected, with the consequence that all the toilets on board will be filled of water while one toilet is used. (a possible technical solution is, as example, the addition of relays, not supplied– see Fig.8)

### ∨ Independent Marine water system (fig. 3)

Connect each single inlet pump to its toilet. Connect the inlet pipe of each pump to a properly realized seacock (respect the safety rules for the realization of the seacock).

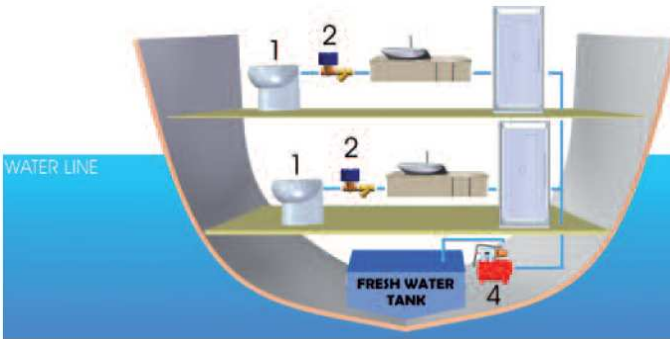
It is basically irrelevant if each inlet pump is connected to a dedicated seacock or if all the pumps are connected to the same seacock.

The exact location of the inlet pump along the line is basically irrelevant.

# HYDRAULIC SYSTEM INSTALLATION: INLET

(Examples of equipment are given for purely illustrative purposes)

## ∨ Fresh water Centralized System (fig. 1)



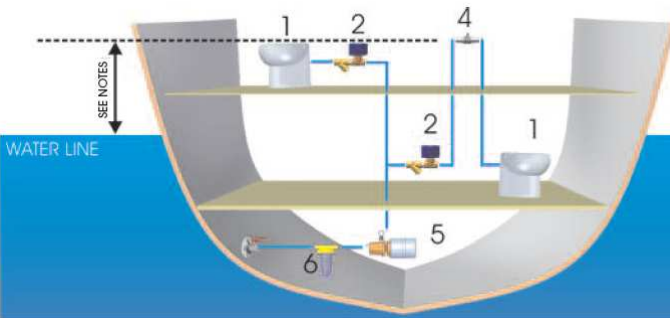
Components supplied for each toilet:

1. Bowl
2. Solenoid
3. Flush Controller

Components not provided:

4. Fresh water automatic pressure pump

## ∨ Marine water Centralized system (fig. 2)



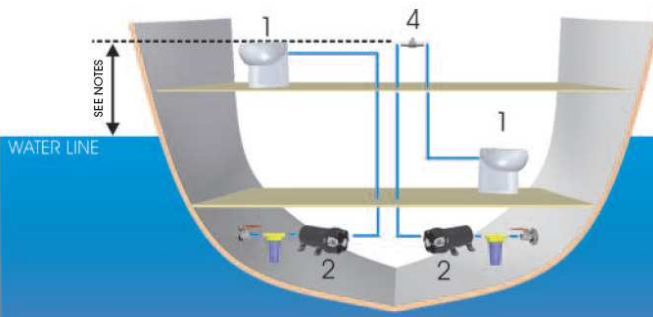
Components supplied for each toilet:

1. Bowl
2. Solenoid
3. Flush Controller
4. Inlet ventilation valve (optional extra)

Components not provided:

5. Centralized water inlet pump
6. Filter

## ∨ Marine water Independent System (fig. 3)



Components supplied for each toilet:

1. Bowl
2. Inlet pump with filter
3. Flush Controller
4. Inlet ventilation valve (optional extra)

# HYDRAULIC SYSTEM INSTALLATION: OUTLET

*(Examples of equipment are given for purely illustrative purposes)*

The high performances of the VORTEX pump gives the greatest possible flexibility in planning the route of the discharge hoses.



Fig. 4

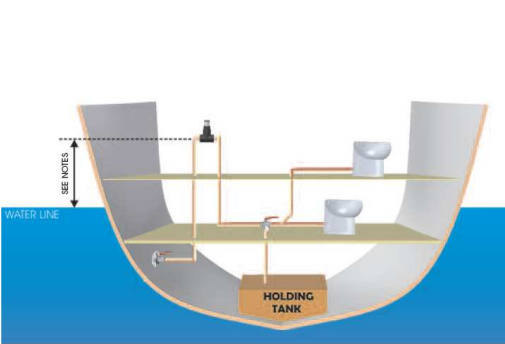


Fig. 5



Fig. 6

## NOTES:

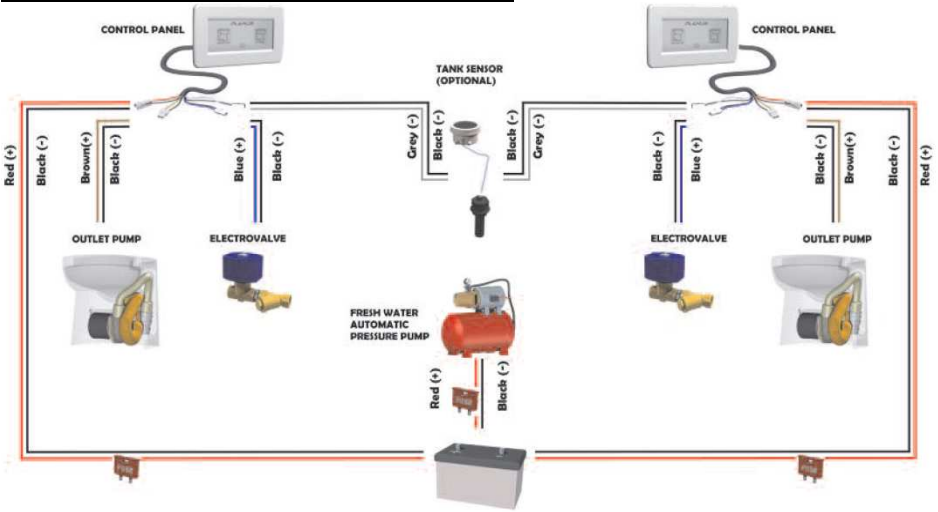
The VORTEX pump is capable of discharging into a holding tank, even at a significant distance, or directly to the sea.

In case of discharge into the sea, check if the addition of a ventilation valve along the discharge line is needed and if, in any possible sailing condition, the toilet could be placed under the waterline or close to it.

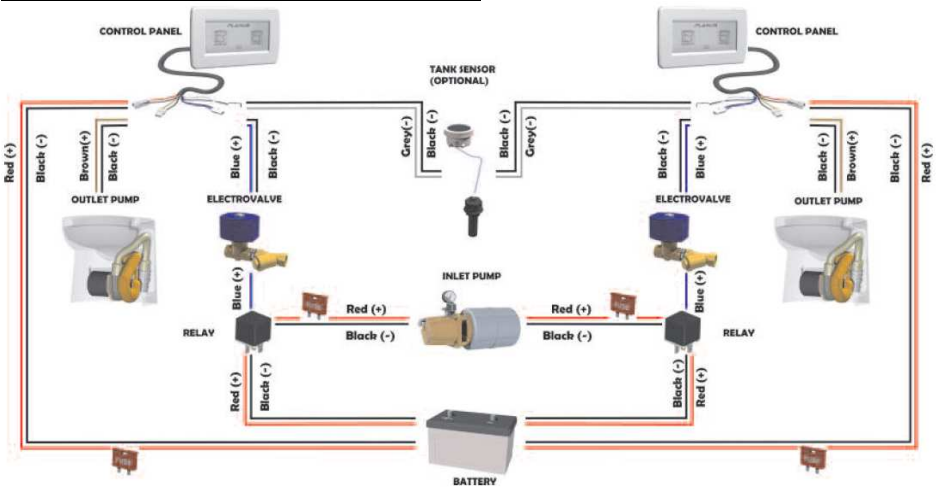
**The discharge into the sea is subject to specific local rules.**

# WIRING

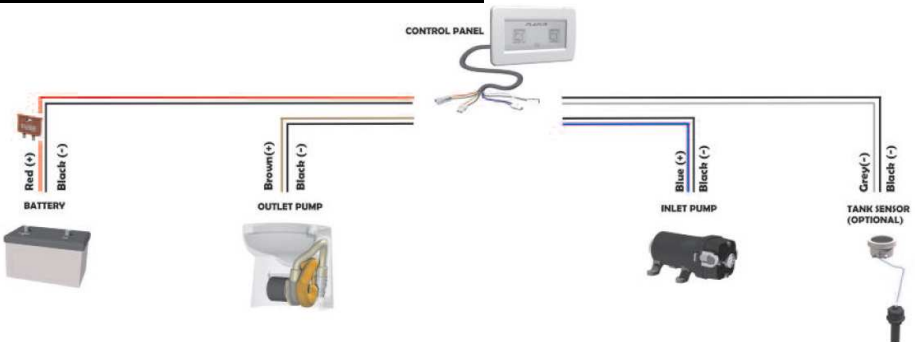
## Fresh water Centralized System (Fig. 7)



## Sea water Centralized System (Fig. 8)



## Sea water Independent System (Fig. 9)



# TECHNICAL SPECIFICATIONS

## Connections

### HYDRAULIC CONNECTIONS

Inlet	Hose with ID of 20 mm (¾")
Outlet	Hose with ID of 40 mm (1½")

### ELECTRICAL CONNECTIONS

Voltage	12 Vdc	24 Vdc	230 Vac
Minimal wire gauge up to 5 mt (<15 feet)	6 mm <sup>2</sup> (9 AWG)	4 mm <sup>2</sup> (11 AWG)	0,75 mm <sup>2</sup> (18 AWG)
Minimal wire gauge over 5 mt (>15 feet)	10 mm <sup>2</sup> (7 AWG)	6 mm <sup>2</sup> (9 AWG)	1 mm <sup>2</sup> (17 AWG)

## Technical specification of the main components

### VORTEX DISCHARGE PUMP

Hydraulic performances: up to 9 mt (29 feet) vertically, up to 80 mt (262 feet) horizontally	Voltage	12 Vdc	24 Vdc	230 Vac
	Absorption	40 A	25 A	3 A

### INLET ELECTROVALVE

DIRECT ACTING Version (for both fresh water and sea water inlet systems)	Voltage	12 Vdc	24 Vdc	230 Vac
	Power	80 W	80 W	80 W
SERVO PILOTED Version (for fresh water inlet only)	Voltage	12 Vdc	24 Vdc	230 Vac
	Power	15 W	15 W	15 W

### INDEPENDENT INLET PUMP

Voltage	12 Vdc	24 Vdc	230 Vac
Absorption	3,6 A	1,8 A	-

### CENTRALIZED INLET PUMP (not supplied)

Recommended specifications	Working pressure	Min 1 bar - Max 3 bar
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## Water level regulation

### ✓ Control panel with one button and Family switch

When the toilet isn't used, the water level must be 1 cm above the outlet hole in the ceramic bowl. Anyway for different installation condition water level adjustment could be required. If so, turn the shaft trimmer in the rear part of the control panel, up to adjust the level at 1 cm. above the outlet ceramic hole.

### ✓ Control panel with two buttons

From stand by position (when the bowl is completely empty), pressing "before use" button the bowl will be automatically filled up to the correct water level at 1 cm. above the outlet hole in the ceramic bowl.

Anyway for different installation condition water level adjustment could be required.

If so, turn the shaft trimmer in the rear part of the control panel, up to adjust the level at 1 cm. above the outlet ceramic hole.

## ACCESSORIES

### ✓ Toilet with integrated bidet water jet

Artic and Elite ranges toilets are available with integrated bidet water jet. Connect the water mixer to the hot and cold water piping. While using, start the sequence for flushing the toilet before filling the bowl.

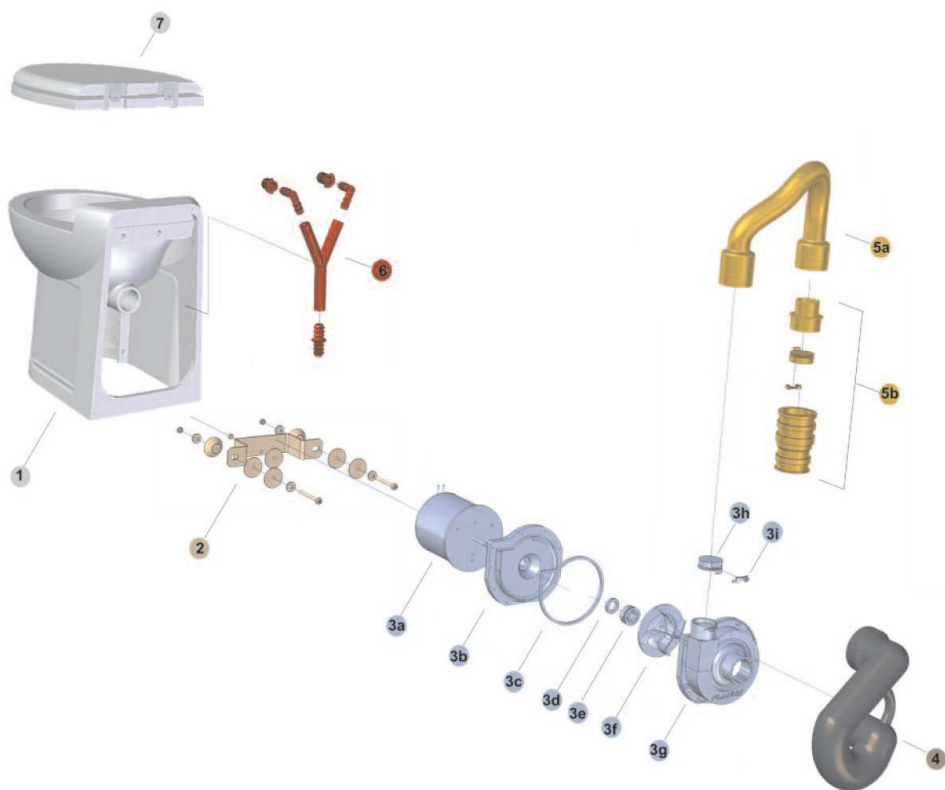
### ✓ Black water tank sensor

It is possible to connect the control panel one or two buttons to a tank sensor level (provided as an optional). For the electric connection refer to the diagram on page 7. While reaching the alarm level, the LED status of the control panel will change color (from green to red)

Notes:

- 1) The full tank signal (red light) does not stop operating.
- 2) The "Family" switch haven't a LED for Full Tank indicator.

# SPARE PARTS LIST



For further information please visit the website: [www.planus.biz](http://www.planus.biz)

1	CERAMIC BOWL				
2	COMPLETE FIXING BRACKET		PW.026.00		
3	VORTEX OUTLET PUMP	12v	PW.001.00		
		24v	PW.002.00		
		230v	PW.034.00		
3a	Motor	12v	04.001.00		
		24v	04.002.00		
		230v	04.025.00		
3b	Flange for pump		02.005.00		
3c	Sealing for pump		03.006.00		
3d	Stationary seal for impeller		05.001.00		
3e	Rotary seal for impeller		05.002.00		
3f	Impeller		02.004.00		
3g	Housing for pump		02.003.00		
3h	One-way valve		03.005.00		
3i	Clamp for one-way valve		02.009.00		
4	SIPHON HOSE		PW.003.00		
5	DISCHARGE HOSE COMPLETE		PW.005.00		
5a	Discharge hose		03.002.00		
5b	One-way valve - Assembly		PW.006.00		
6	INLET PIPE		PW.007.00		
7	SEAT & COVER				



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