

Operators manual Slim Square 16L water heater

Isotemp Slim water heater has been designed and produced to ensure that your water heater will give long and trouble free operation for many years.

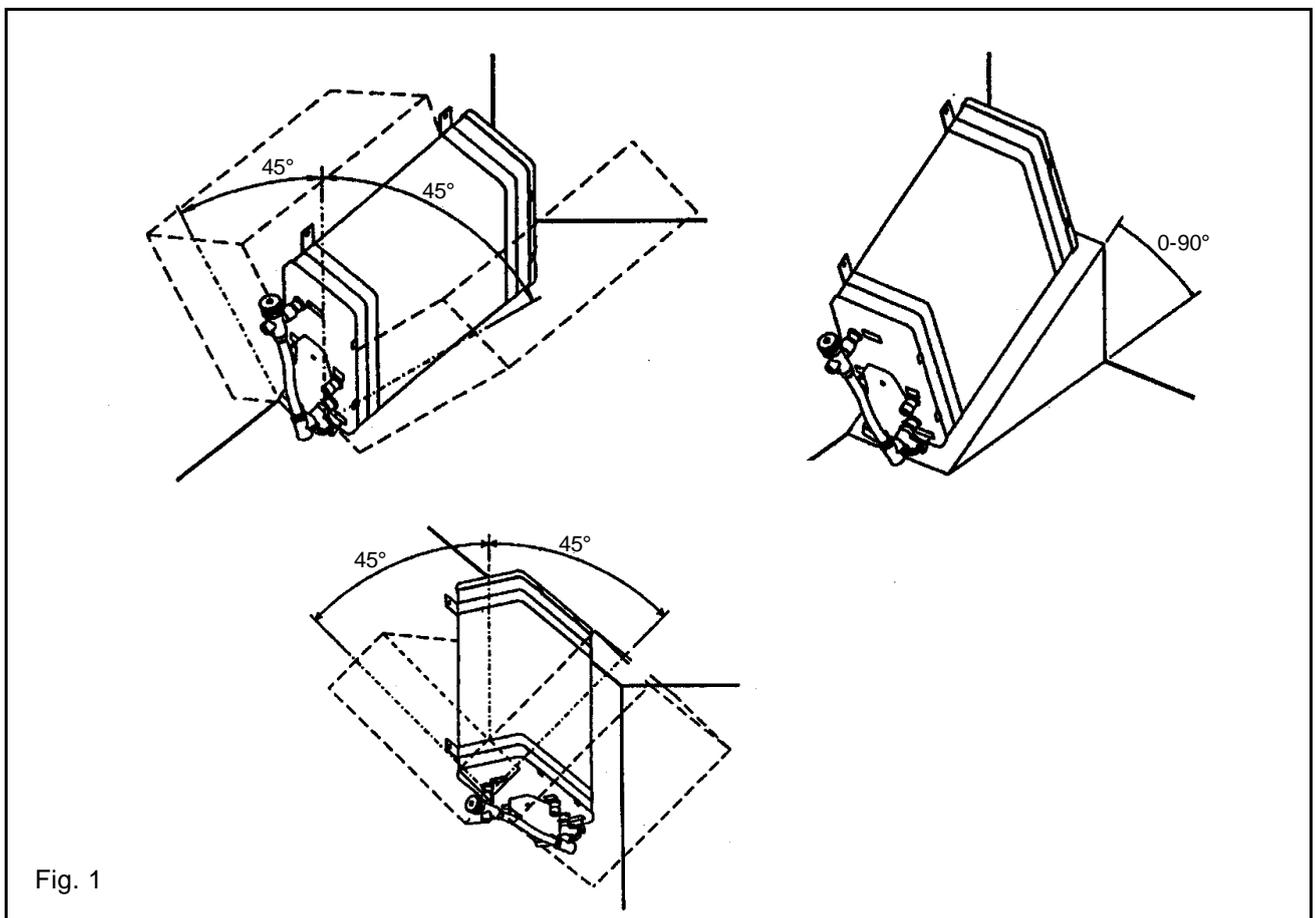
It is important, however, that your Isotemp water heater is correctly installed and maintained. During the winter period when the unit is not being used, it is essential that it is drained to avoid risk of damage due to freezing.

Every single Isotemp water heater is individually pressure tested prior to delivery and carries a 2 year factory warranty in respect of defects in material and/or manufacture and a limited 5 year warranty on the inner tank.

Installation:

1. Placement: The water heater may be positioned in a suitable place with the engine water connectors on the water heater below the level of the engine header tank. The connection hoses between the engine and the water heater should be kept as short as possible and placed with as little level differences as possible to keep flow losses on a reasonable level. Long hoses also result in heat losses. The water heater is to be placed in such a way, that the thermostat, heater element and safety valve are easily accessible for service. These components and all water connections are placed on the water heater front gable.

2. Mounting: The water heater can be mounted horizontal, vertical or leaning with the safety valve with its drainage valve as the lowest point, safely fastened in its mounting brackets. (See fig. 1) The mounting brackets can be turned to fit the bottom or a bulkhead on board. Bear in mind the extra weight of the unit, when full of water.



3. Water connections:

3.1 Fittings and hoses: Use only fittings and accessories made of non-corrosive material such as brass or stainless steel. Avoid plastic fittings on the water heater depending on the heat. For the engine cooling water connections, use heat resistant (100°C / 210°F) reinforced rubber hoses, resistant to anti-freeze and pressure proved for 5 bar (70 psi). For the fresh water, cold in and hot out, use heat resistant fresh water hoses (food industry quality). They shall be rated min. 8 bar (115 psi) and heat resistant. Seal the threaded connections with e.g. Loctite 577 or Bondline T777.

3.2 Engine connections (see diagram, fig. 2): The water heater is meant for use on fresh water cooled engines. Some sea water cooled engines, having a thermostat temperature control and possible hot water hose connections, could also be used, if the working temperature is enough, 65 - 85°C / 150 - 185°F. The flow of cooling water from the engine through the water heater must be at least 2 litres/min. If the boat has two engines, connect the water heater to one engine only. If two water heaters are to be mounted, connect them in parallel.

Connection to the engine shall be done with min. 16 mm / 5/8" hoses and adaptors to avoid restrictions. See the instructions in the engine operators manual, regarding hose connection points.

On some smaller engines, 10-15 Hp, it may be necessary to reduce the flow with a restrictor to keep the engines cooling capacity on a correct level.

3.3 Freshwater connections (see diagram, fig. 2): The water heater is fed with fresh water from the electrical fresh water pump connected to the fresh water tank. Max pressure for the pump 3 bar (42 psi). A multi chamber pump creates less pressure peaks and gives a smooth flow. The hot water outlet, which also vents the water heater, should be connected to a mixer tap at the sink and/or basin outlet, to mix cold water with hot to avoid scalding. If the water heater is equipped with a thermostat mixer valve a suitable temperature between 38 and 65°C / 100 and 150 °F can be chosen with the thermostat mixer valve.

A waste water hose can be mounted on the safety valve outlet, 10 mm / 3/8", it must always have a free outlet, to a lower point. There must be no valves or skin fittings, fitted to a waste water hose. A small quantity of water may be expended via the safety valve during the heating up period.

3:4 Electrical connection: All internal connections are made in the factory. The mains power supply cable is fitted with an international plug (EU plug), which should be fitted to a correctly installed socket. This socket shall be connected to a on board mounted double fuse unit including an earth leak switch. All "high-voltage" installations on board, must be carried out in a proper way to fulfil valid regulations. The Isotemp Slim water heater is designed to meet EU regulations in this field.

Important! The water heater shall be connected to the mains power supply only when it is in service. When leaving the boat for any length of a period, it is recommended to pull out the cable connector from the socket to also disconnect the earth protection. This should be done even if the shore power system is shut off, as there can be a potential difference, between the earth from shore and the sea water earth of the boat. This can seriously damage, by stray current corrosion, the immersion heater, water heater tank or the engine with its drive unit.

Installation of an insulation transformer in the shore power equipment eliminates the risk of galvanic corrosion via the shore power connection.

4. Start up/Test: Start the engine and check the circulation of the cooling water. Secure the hoses after checking. Compensate with anti-freeze in the header tank on a fresh water cooled engine, for the additional volume in hoses and heat exchanger. Fill up the water heater with fresh water by starting the fresh water pump, leaving the hot water tap open to air the system. Check there are no water leaks and finally connect the power cable when the water heater is full. Check that the safety valve outlet is free to allow water to escape.

Note: the water expands during warm up, a small quantity may come out through the safety valve.

5. Maintenance:

5:1 Winter drain: When there is a risk of freezing temperatures, the water heater must be drained.

This is done by pulling the lever on the safety valve to its open position. Take off the hot water hose and/or open the air bleeder screw on the mixer valve, to allow air coming into the tank. It is a small stainless steel M5 screw.

The water heater can be left safely on board over winter after it has been drained.

5:2 Heater element: The heater element is 750W. The water heater has a working thermostat 75°C / 167°F and a two-pole overheat protection thermostat, 95°C / 203°C. This is manually re-settable, by pushing the indicator pin at the top of the housing (see figure 3). Also check why the overheat thermostat initially tripped before re-connection the power supply.

When leaving the boat for long periods, it is recommended to disconnect the power supply cable plug. See also info at 3:4.

The water heater is available in 230 VAC and 115 VAC versions.

5:3 Controls: Check regularly that there is no leakage at the hose connections.

Tecnical data Isotemp Slim Square 16L

Type	Volume lit.	L x W x H mm	Weight kg	Thermostat mixer valve	Heater element
601631Q000003	16	565 x 180 x 400	16	Yes	230V/750W
601631Q000000	16	540 x 180 x 400	15	No	230V/750W

Type	Volume US gal.	L x W x H in	Weight Lbs	Thermostat mixer valve	Heater element
601623Q000003	4.2	22-1/4 x 7-3/16 x 15-3/4	35	Yes	115V/750W
601623Q000000	4.2	21-1/4 x 7-3/16 x 15-3/4	33	No	115V/750W

Connections fresh water: BSPP 1/2" inside and outside.

Connections engine water: BSPP 1/2" outside.

Material: Engine water coil, storage tank and all connections: Stainless steel AISI 316

Outside: Cover and mounting brackets; Stainless steel AISI 304 (Non magnetic)

Gables: Plastic

Heater element: Copper covered by nickel.

Safety valve: 6.0 bar / 85 psi.

Insulation: Injected expanded polyurethane

The manufacturer reserves the right to change the specification without prior notice.



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Principal connection diagram

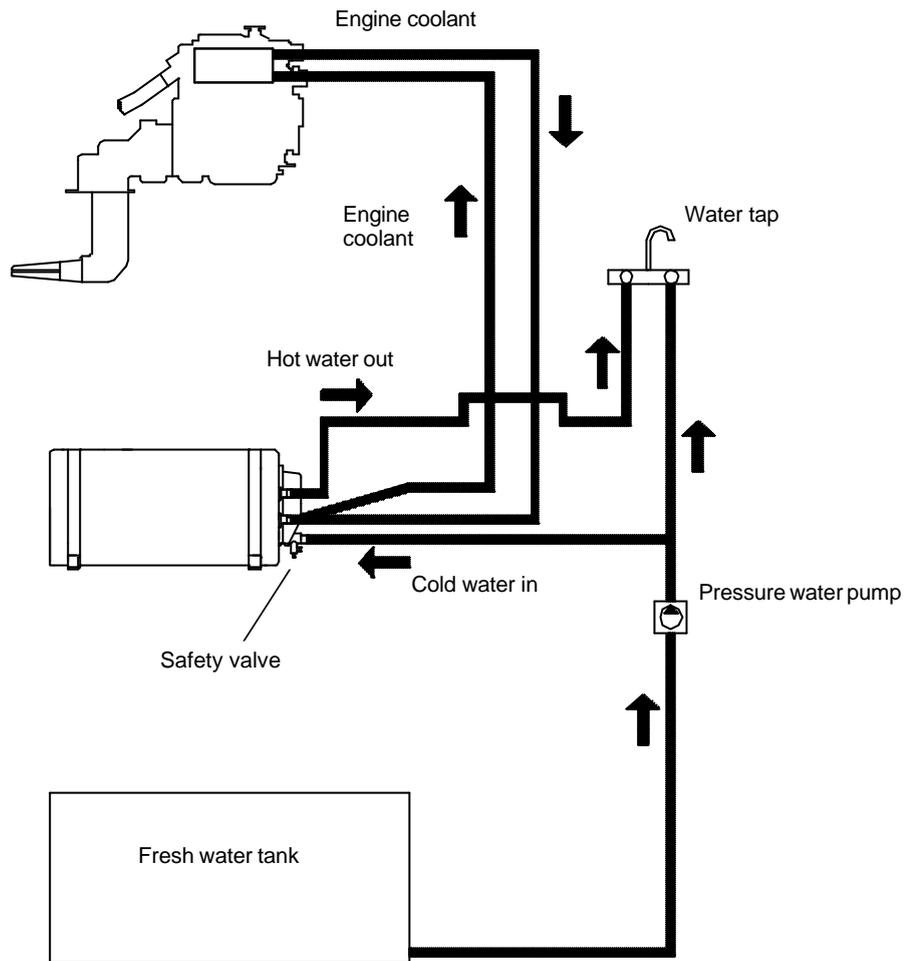


Fig. 2

Thermostat & overheat protection

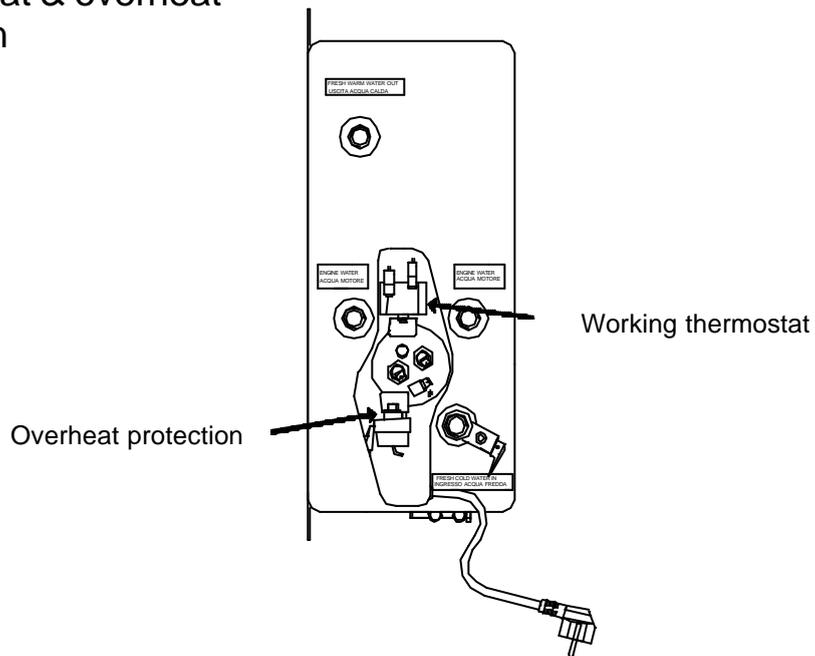


Fig. 3

Dimensiones (mm) without thermostat mixer valve

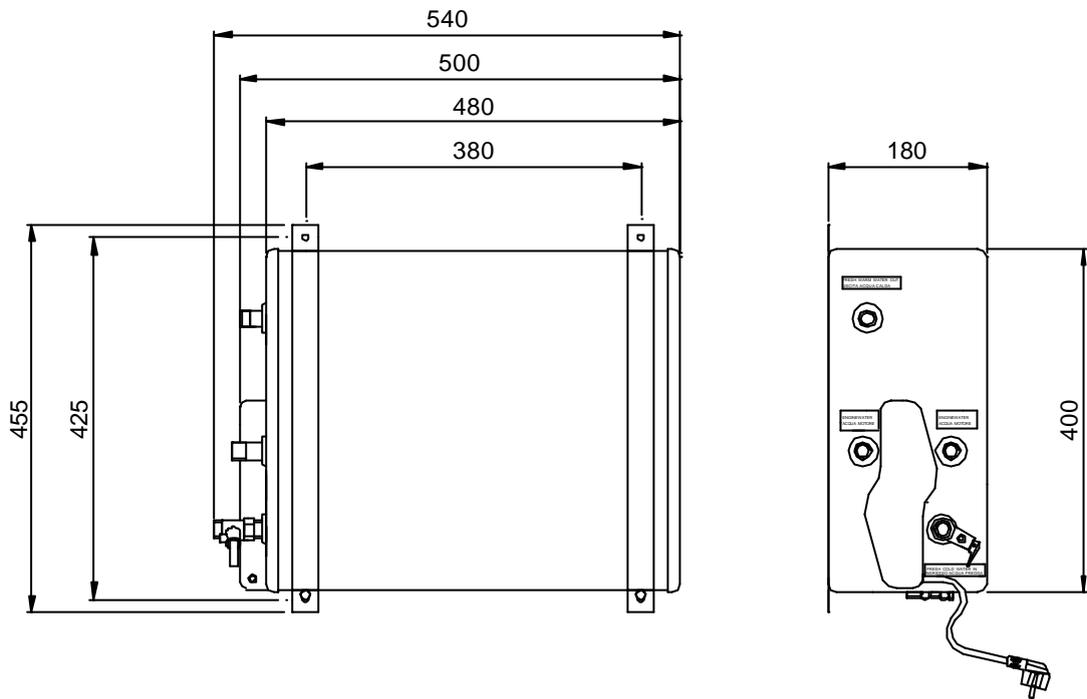


Fig. 4

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Dimensiones (mm) with thermostat mixer valve

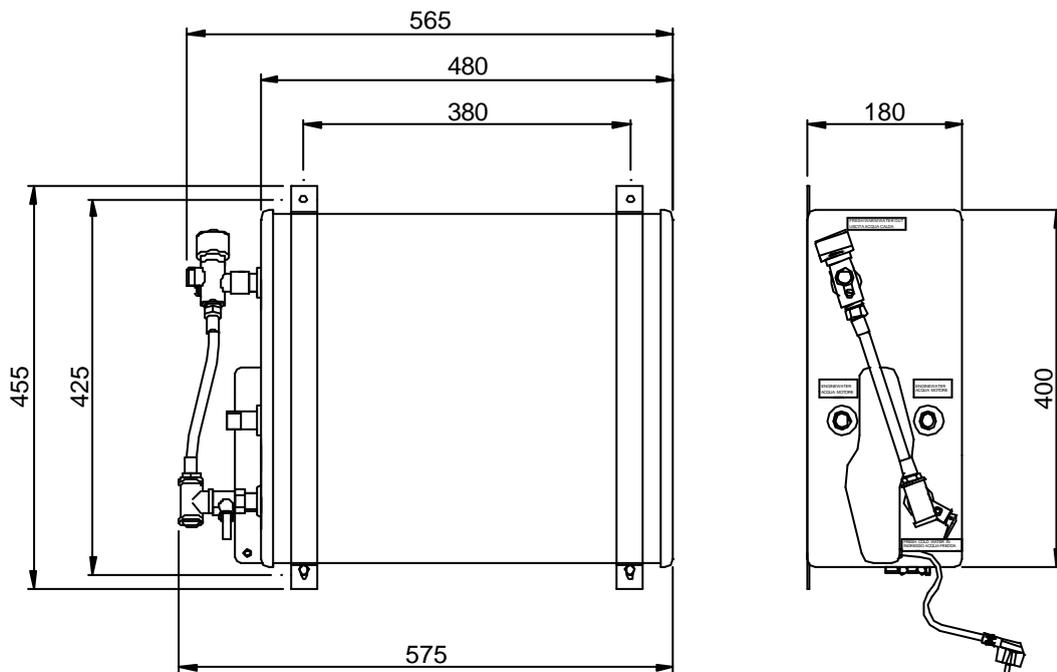


Fig. 5

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Dimensions (inch) without thermostat mixer valve

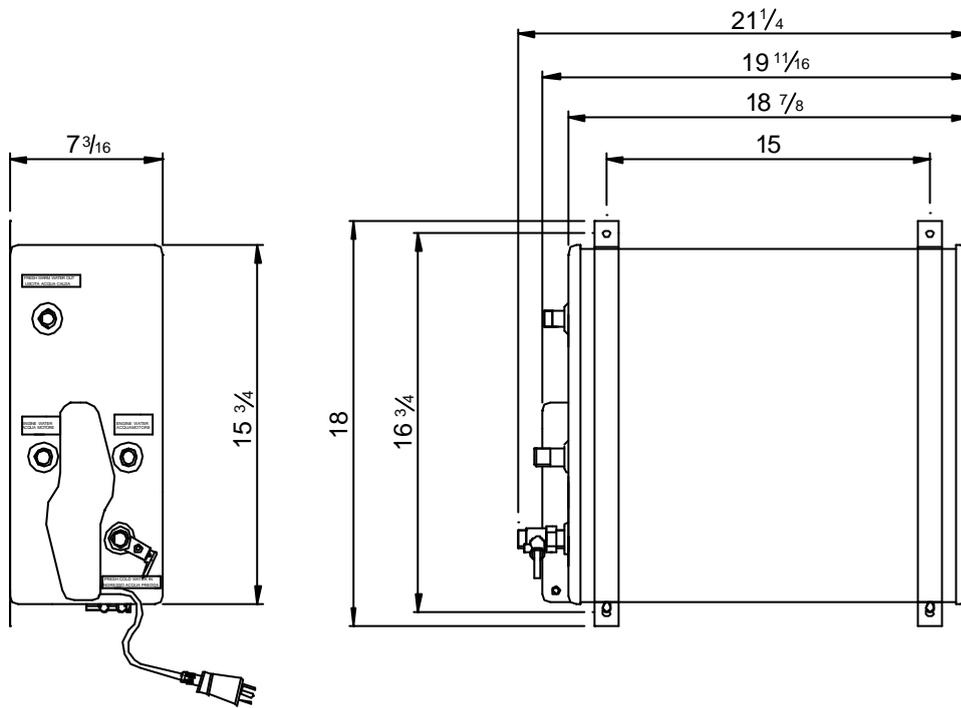


Fig. 6

000790-2 in

Dimensions (inch) with thermostat mixer valve

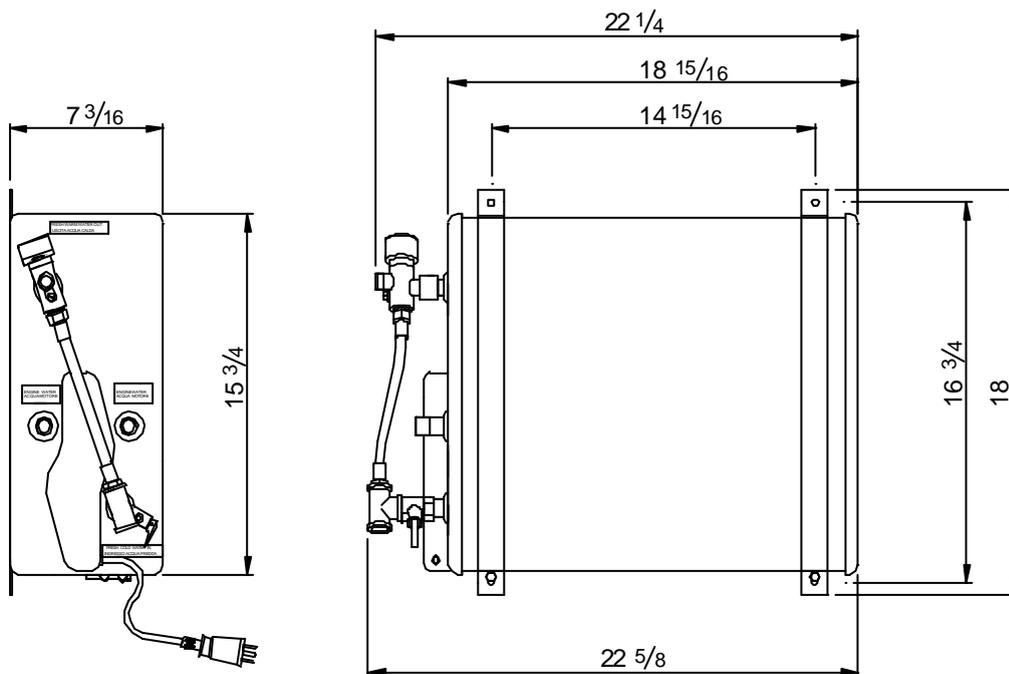


Fig. 7

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