

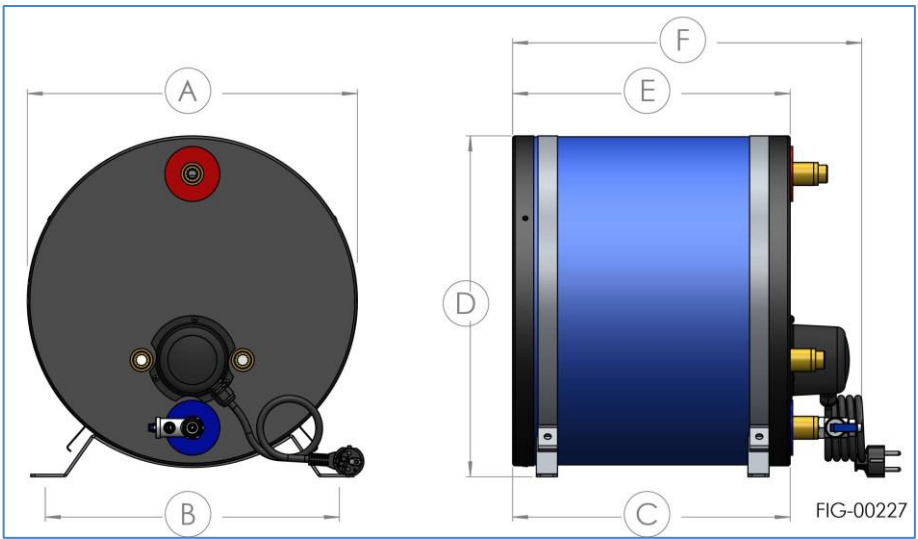


BL22.. BL30.. BL45.. BL60..

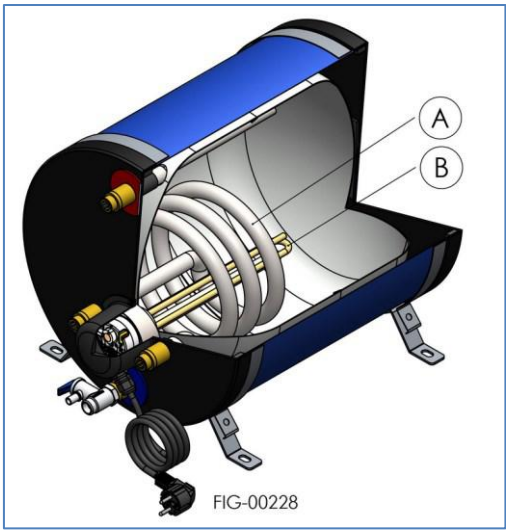


**INSTRUCTION
MANUAL**

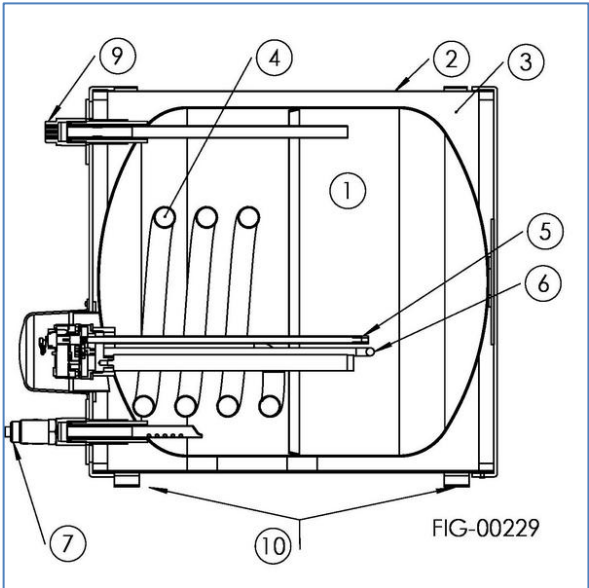
**MARINE WATER HEATER WITH DUAL
HEATING AS STANDARD:
ELECTRICAL HEATING AND
INDIRECT HEATING**



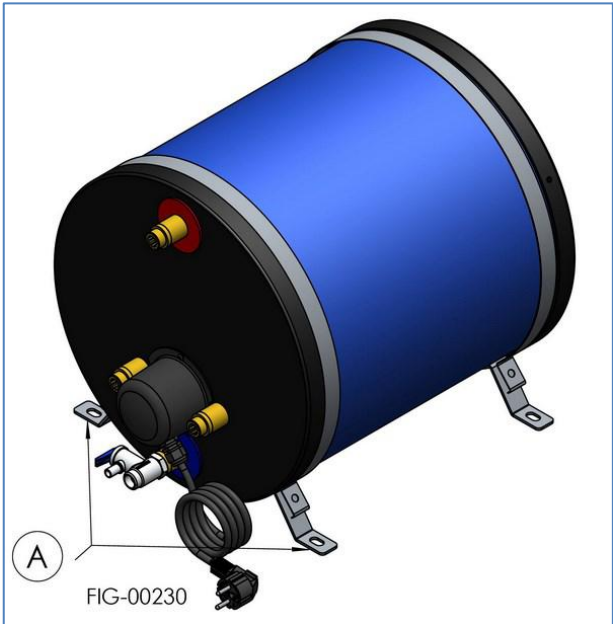
FIG_04-1



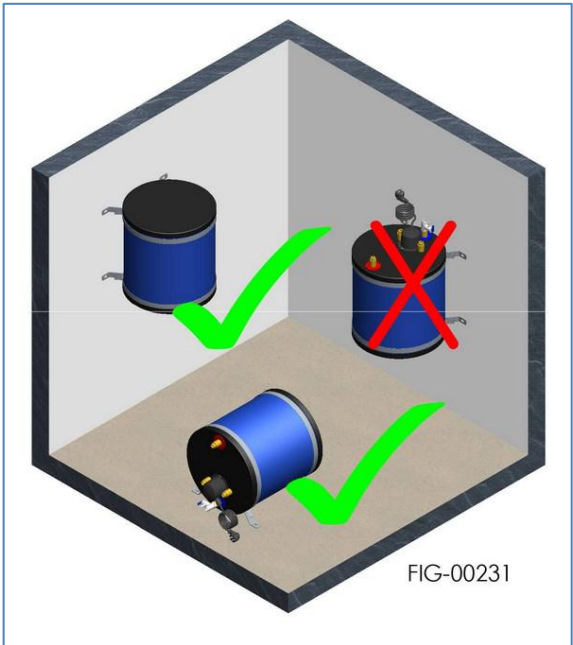
FIG_05-1



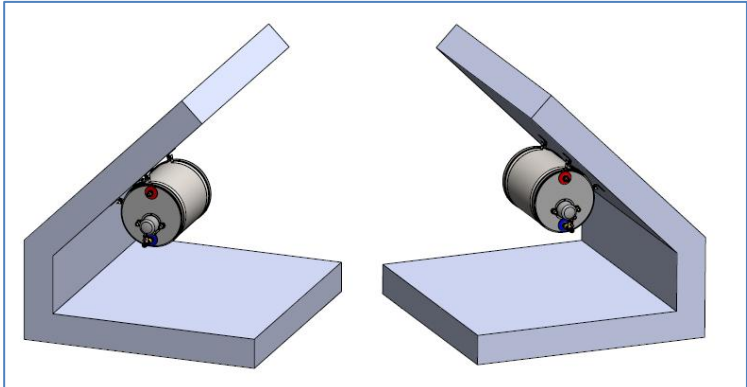
FIG_05-2



FIG_07-1



FIG_07-2



FIG_07-3



This water heater has been designed and produced to ensure long and trouble free operation for many years. Every single water heater is individually pressure tested prior to delivery.

The range includes 4 different models available with the following features to suit any installation requirements and usage

- 4 storage capacity (22 / 30 / 45 / 60 l - 5,8 / 7,9 / 11,9 / 15,8 gallons)
- 1 power supply: 230 V ~
- 3 power: 550 / 850 / 1250 w

1. GENERAL PRECAUTIONS IMPORTANT SAFETY

To reduce the risk of fire, electric shock, or injury when using the appliance, carefully follow these basic precautions:

- ⚠ Read all instructions before installing and using the appliance. This manual is an integral and essential part of the device: it must be kept on hand for future reference.
- ⚠ Use the water heater in the applications described in this manual. do not use this device for other types of operations
- ⚠ The installation must be performed by a qualified person who is responsible for the implementation of existing security standards. Improper installation, caused by failure to follow the manufacturer's instructions, may cause injury to persons, animals or damage to other equipment for which the manufacturer assumes no responsibility
- ⚠ The appliance must not be installed in environments with excessive presence of water and must be protected from splashing water, jets of water or other liquids, in order to avoid short circuits.
- ⚠ This device is not intended for use by persons (including children) with reduced physical sensory or mental capabilities, or lack of experience and knowledge, unless they are given supervision or instruction for use of the appliance by a person responsible for their safety.
- ⚠ Children being supervised not to play with the appliance.
- ⚠ Do not clean appliance parts with flammable fluids and do not store or use gasoline or other flammable vapors and liquids in the vicinity of this. Gases and vapours can create a fire hazard or explosion.
- ⚠ The packaging material (plastic bags, foam, clips, etc.) Must be kept away from children, because they can be dangerous.
- ⚠ If the appliance is sold to another owner, make sure that this booklet stays with the appliance so that the new owner and / or installer can consult it

2. SPECIFICATIONS

		BL2205	BL2208	BL2212	BL3005	BL3008	BL3012	BL4505	BL4508	BL4512	BL6005	BL6008	BL6012
electrical supply	V~	230	230	230	230	230	230	230	230	230	230	230	230
	A	2,2	3,5	5,2	2,2	3,5	5,2	2,2	3,5	5,2	2,2	3,5	5,2
power	w	550	850	1.250	550	850	1.250	550	850	1.250	550	850	1.250
		BL22051	BL22081	BL22121	BL30051	BL30081	BL30121	BL45051	BL45081	BL45121	BL60051	BL60081	BL60121
electrical supply	V~	120	120	120	120	120	120	120	120	120	120	120	120
	A	4,2	6,7	10,0	4,2	6,7	10,0	4,2	6,7	10,0	4,2	6,7	10,0
power	w	500	800	1.200	500	800	1.200	500	800	1.200	500	800	1.200
capacity	lt (gal)	22 (6)			30 (8)			45 (11)			60 (15)		
maximum pressure	kPa (psi)	700 (102)			700 (102)			700 (102)			700 (102)		
weight empty	kg (lb)	11 (24)			12 (26)			14 (31)			16 (35)		
weight filled	kg (lb)	33 (72)			42 (92)			59 (129)			59 (129)		

3. PACKAGING

The device is packaged and delivered in a cardboard box with adequate protection. In addition the unit, inside the box there is installation manual

4. DIMENSIONS (FIG_04-1)

P/N	A mm (inch")	B mm (inch")	C mm (inch")	D mm (inch")	E mm (inch")	F mm (inch")
BL22..	390 (15,4)	340 (13,4)	250 (9,8)	403 (15,9)	332 (13,1)	413 (16,2)
BL30..	390 (15,4)	340 (13,4)	330 (13,0)	403 (15,9)	412 (16,2)	493 (19,3)
BL45..	390 (15,4)	340 (13,4)	480 (18,9)	403 (15,9)	572 (22,5)	653 (25,6)
BL60..	390 (15,4)	340 (13,4)	640 (25,2)	403 (15,9)	732 (28,8)	813 (31,9)



5. CONSTRUCTION DESCRIPTION AND OPERATION

The purpose of this device is to heat the domestic hot water in two different ways (see FIG_5-1.):

- A. through the heat exchange between the engine cooling water and the water stored in the tank. Such heat exchange is possible thanks to a heat exchanger. The engine cooling water circulates through a coil placed at the center of the tank to spread the heat evenly.
- B. by means of an electric resistance (supplied as standard with the appliance).

Main parts (see FIG_5-2.):

1. Storage tank: it is entirely made of steel submitted internally to a double enamelling treatment that is a vitreous coating cooked at over 850 °C.
2. External coating: aluminum; it is highly resistant to shocks and external solicitations, having at the same time a very pleasant design.
3. Thermal insulation: made of expanded polyurethane with closed cells avoids unnecessary heat losses. In this way the heat loss by thermal inertia is reduced to 1 ° C per hour for a period of 24 hours.
4. Heat exchanger: it is made of enamelled iron and its exchange surface allows to exploit at best the heat of the engine cooling water and to get hot water also in extreme conditions (very small temperature differences.).
5. Electrical resistance: the device is equipped with an electric heating element to heat the water even when the boat engine is turned off (for example when the boat is on the dock). Material: Incoloy corrosion resistant alloy.
6. Thermostat: has two functions, namely
 - a. temperature control: interrupts the power supply to the heater element when reaching the set temperature
 - b. overtemperature safety: interrupts the power supply to the resistance in case of excessive water temperature.
 characteristics: temperature control: 0 ° C - 60 ° C; Differential temperature: about 9 ° C; intervention temperature: 83 ° C; maximum current: 20 A
7. Cold water inlet and pressure relief valve (it protects the tank from possible excessive pressures caused by the expansion of water during heating. Automatically, without the assistance of different energy from that of the hot fluid under pressure, discharge a quantity of fluid such as to prevent them from being exceeded the predetermined pressure and temperature limits to protect the storage tanks. Calibration: 800 kpa - 116 psi)
8. Hot water outlet
10. Mounting bracket

6. GENERAL WARNINGS

- The installation must be performed in accordance with current legislation, by a qualified person who can do, not only a proper set up of the device, but also the necessary tests before starting the water heater.
- during the original installation and subsequent maintenance, follow the instructions in this booklet carefully. changes to any type of connection or failure to follow instructions will cause the warranty expires.
- before the installation, maintenance or repair, remove the power supply unit.



WARNING: USE THE BOILER ONLY FOR APPLICATIONS IN THIS SECTION. DO NOT USE THIS EQUIPMENT FOR OTHER TYPES OF OPERATION. THE MANUFACTURER DOESN'T ASSUME RESPONSIBILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY IMPROPER APPLIANCE.

7. POSITION AND ASSEMBLY

The device can be installed in any space, without limitation, subject to compliance with the instructions provided in section 1. GENERAL PRECAUTIONS.

On the unit there are two fixing brackets (FIG_7-1). This way you get easy installation but stable and safe.

The appliance must be installed in such a way that the heat exchanger and / or the electrical resistance are placed in the lower part (FIG_7-2). For other installations not covered in this manual and for installation on sloping walls, contact our technical office.

It is possible to install the device even on sloping walls (FIG_7-2)

8. HYDRAULIC CONNECTIONS

To extend the life of the appliance water quality must meet the following limits:

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. hardness comprised between 15 and 50 ° F (in particular, where the water has undergone a softening or desalination treatment) | <ol style="list-style-type: none"> 2. chlorides comprised between 25 and 100 mg / l 3. PH between 6.5 and 9.5 4. conductivity between 400 and 1500mS / cm |
|--|--|

Minimum pressure water inlet: 70 kpa.

Maximum water inlet pressure: 750 kpa (for higher inlet pressures is necessary to mount a pressure reducer with compensation of inlet pressure; adjustable downstream pressure, max 700 kpa)

Connect the appliance according to the following directions:



Connections (FIG_8-1):

1. cold water inlet (1/2 ")
2. hot water outlet (1/2 ")
3. Water supply to the engine cooling circuit (1/2 ")
4. return water from the engine cooling circuit (1/2 ")

Plant scheme (FIG_8-2):

- A. sanitary water tank
- B. pump
- C. pressure reducer
- D. non-return valve
- E. water heaters
- F. engine cooling circuit
- G. point of hot / cold water use (shower, sink, etc ..)



MAX TEMPERATURE OF RETURN WATER FROM THE ENGINE COOLING CIRCUIT : 65 °C

It is recommended to insulate the hot water pipes in order to avoid unnecessary waste of energy.

The device is equipped with pressure relief valve (calibration: 800 kpa) : it protects the tank from possible excessive pressures caused by the expansion of water during heating.

Upon the occurrence of this situation, the water is discharged through the outlet of which is equipped with the valve (S - FIG_8-1). Caution: Connect the water drain valve to a rubber tube



PIPE CONNECTED TO DISCHARGE VALVE MUST NOT BE SEALED OR LOCKED, MUST BE INSTALLED WITH A CONSTANT INCLINE DOWN AND PROTECTED BY ICE. IT MUST NOT BE CONNECTED TO A COCK AND MUST BE KEPT CONSTANTLY FREE OF OBSTRUCTION

9. ELECTRICAL CONNECTIONS

The heater be connected to a single-phase power supply (please pay attention to connect the correct voltage according to the data present on the label) and to an effective ground connection.



CAUTION: BEFORE MAKING THE CONNECTION, MAKE SURE THE POWER IS COMPLETELY DISCONNECTED. THE BUILDER DOES NOT ACCEPT RESPONSIBILITY FOR POSSIBLE DAMAGE CAUSED BY FAILURE OF THE APPLIANCE BE GROUNDED

The apparatus is equipped with a power cord with plug. Plug the power cord in accordance with the wiring regulations in force in the country where the equipment is installed.

Should it is not necessary to use the safety plug is possible to cut the power cord and connect it to a different plug or directly to the supply connection (operation that can be performed only by authorized personnel).

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard

In case of replacement of the power cord, use only a cable with the same characteristics: H05 VV-F - 3G 1.5 mm²

Be careful in properly connect the polarities (FIG_9-1):

L → phase (brown wire)

N → neutral (blue wire)

The electrical system a bipolar switch must be installed to turn on and off the device and a fuse of suitable rating. The connections to the mains must be made in accordance with the national standards of electrical installations.



WARNING: CONNECT THE POWER TO THE ELECTRIC HEATER ONLY WHEN THE TANK IS FULL OF WATER. THE HEATING ELEMENT IS NOT SUITABLE FOR OPERATION DRY

10. SETTING THE WATER TEMPERATURE

On the electrical resistance there is a thermostat, which interrupts the power supply when the preset temperature is reached.

Setting the temperature (T - FIG_09-1): it is possible to adjust the hot water temperature between 0 ° C and 60 ° C, according to the user's needs. The thermostat regulates the water temperature in the operation exclusively with electrical resistance.



WARNING: BEFORE WORKING ON THE THERMOSTAT, MAKE SURE THE POWER IS COMPLETELY DISCONNECTED

11. MAIN PARTS (FIG_11-1)

POS.	COD.	DESCRIPTION	BL..05	BL..08	BL..12
1	0-0410	fixing-mounting bracket	2	2	2
3	020-0060	heating element cap	1	1	1
4	100-0086	gasket	1	1	1
5	130-0134	MF 1/2" x 30 extension fitting	1	1	1
6	130-0092	pressure relief valve	1	1	1
7	140-0001	cable gland	1	1	1
8	280-0014	heating element 550 w – 230 V	1		
8	280-0015	heating element 850 w – 230 V		1	
8	280-0016	heating element 1250 w – 230 V			1
9	280-0042	thermostat	1	1	1
10	900-0135	power cable	1	1	1

12. INTERVENTION WATER SAFETY

The electrical heater is equipped with a thermostat which also has safety function: it interrupts the power supply to the electric heater in case of excessive water temperature. If this occurs, to start again the appliance, it is necessary a manual intervention (manual reset).



DANGER: THE OPERATION OF THE THERMAL CUT-OUT INDICATES A POSSIBLY DANGEROUS SITUATION. DO NOT RESET THE THERMAL CUT-OUT UNTIL THE WATER HEATER HAS BEEN SERVICED BY A QUALIFIED PERSON

For the manual reset operation proceed as follows:

- a) disconnect the power supply
- b) remove the electrical resistance of the protective cover (FIG_12-1)
- c) press reset button positioned on the thermostat (R - FIG_9-1)
- d) mount of electrical resistance protective cover (FIG_12-1)
- e) restore power supply

13. SAFETY VALVE INTERVENTION

The device is equipped with overpressure safety valve: it protects the tank from possible excessive pressure caused by the expansion of water during heating. Upon the occurrence of this situation, the water is discharged through the outlet of which is equipped with the valve.

A small amount of water may escape from this exhaust during the step of heating water.



**CONTINUE A LOSS OF WATER FROM THE VALVE MAY INDICATE A PROBLEM WITH HEATING.
FAILURE TO OPERATE THE RELIEF VALVE EASING GEAR AT LEAST ONCE EVERY SIX MONTHS MAY RESULT IN THE WATER HEATER EXPLODING. CONTINUOUS LEAKAGE OF WATER FROM THE VALVE MAY INDICATE A PROBLEM WITH THE WATER HEATER**

14. MAINTENANCE OF THE APPLIANCE

To make ensure safe operation and extend its life, it is recommended regular inspection (at least annually) by the authorized customer service or by suitably qualified personnel

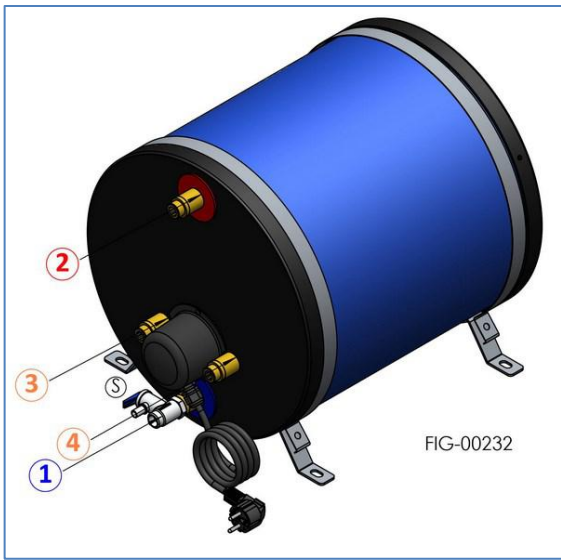
Recommended operations during the periodic inspection:

- sealing the plumbing fittings
- Failure to fully loosen the safety valve
- fastening occurs (replace the fastening screws in case they are worn)
- electrical system efficiency and electrical grounding
- conditions of the power cable (if it is damaged it must be replaced by the manufacturer, authorized technical service or by qualified personnel in order to avoid risks)
- the pressure-relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked
- yearly replacement of the anode (FIG_14-1)

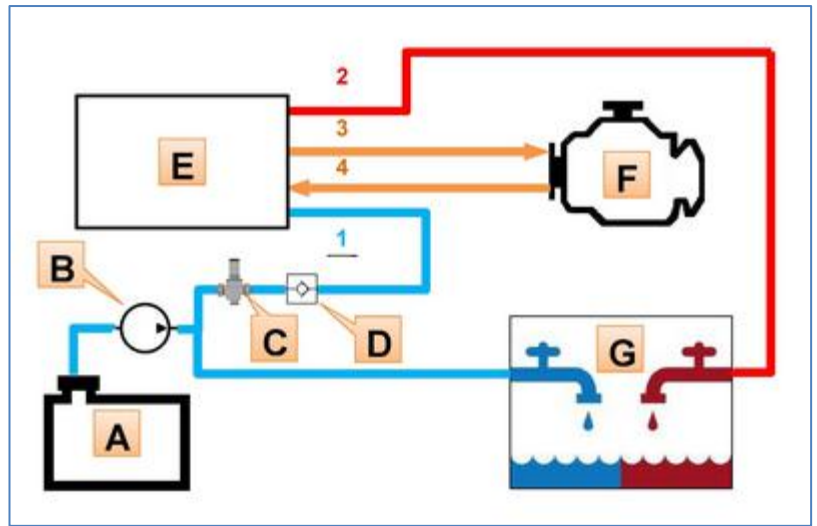
To avoid damage caused by frost during the cold season, in the case the boiler is not used, it is necessary to completely empty the apparatus.

15. WARRANTY

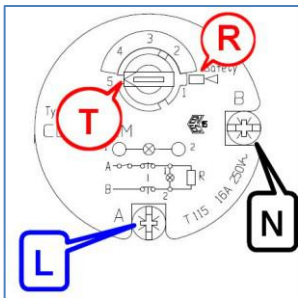
The warranty terms are valid provided that the installation instructions contained in this booklet are followed. The warranty begins since date of manufacture printed on data label and it has a duration of 36 months. For safety reasons and for the validity of the guarantee it is mandatory to use only original spare parts.



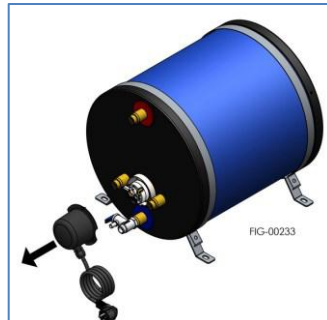
FIG_08-1



FIG_08-2



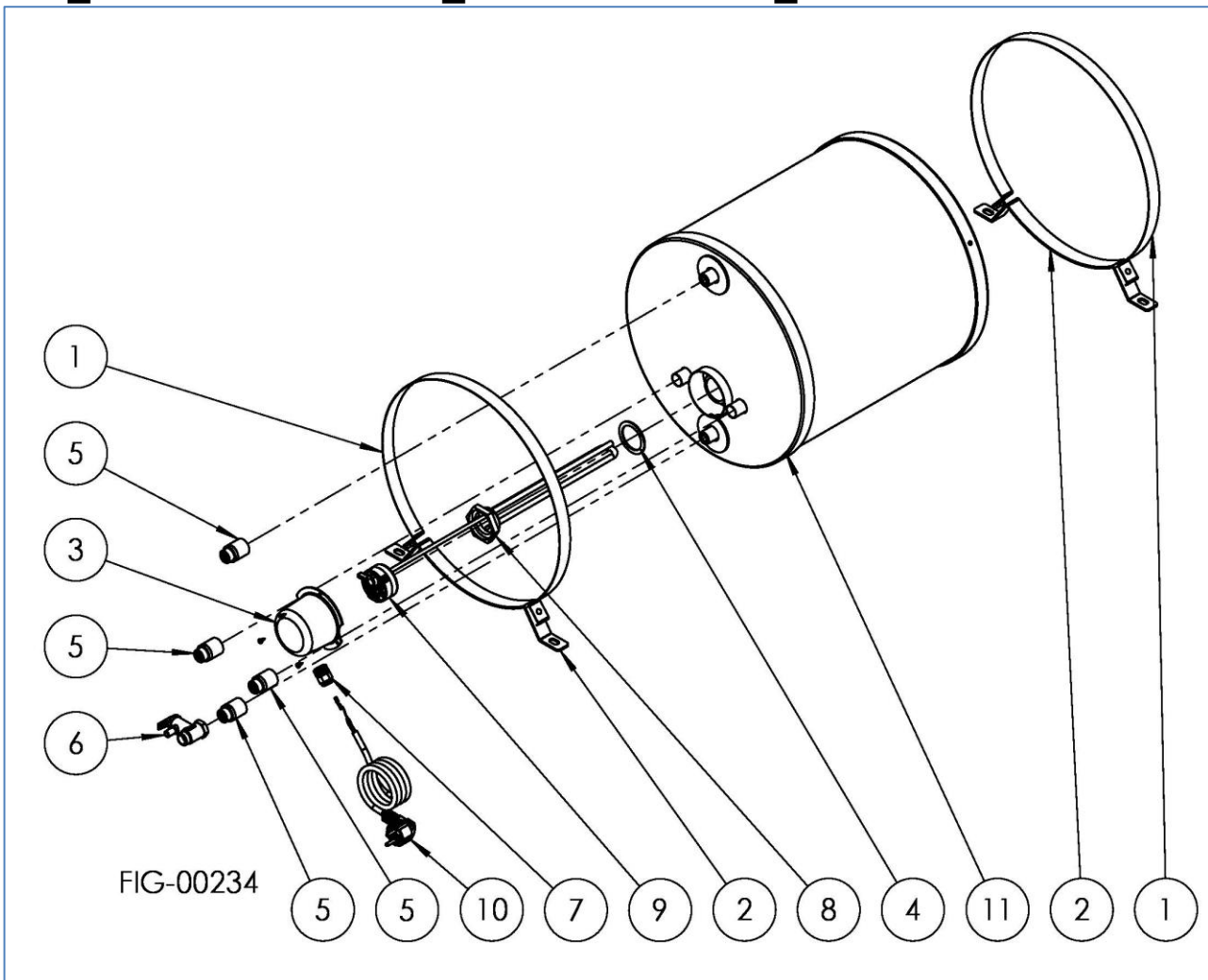
FIG_09-1



FIG_12-1



FIG_14-1



FIG_11-1



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