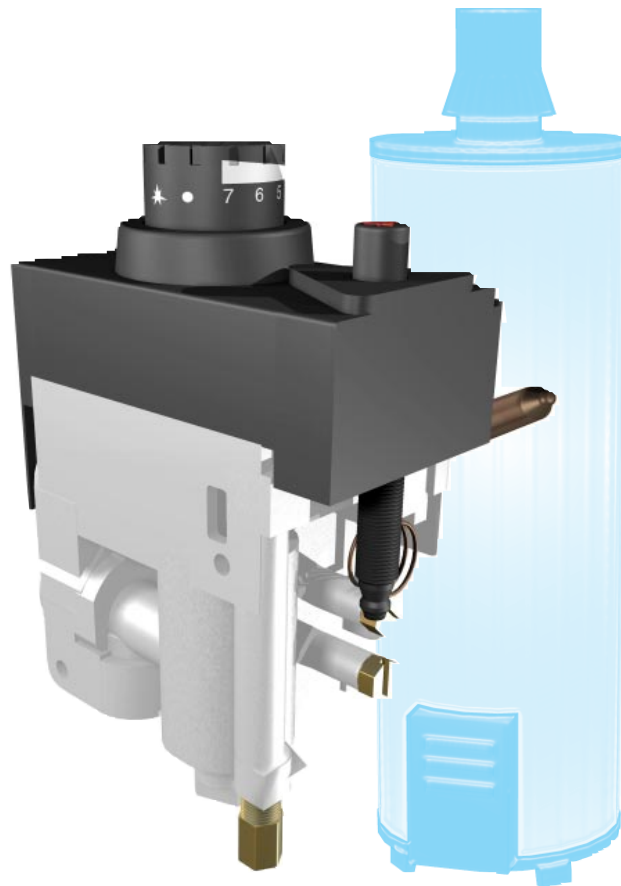




SIT Group

630 EUROSIT SWH



THERMOSTATIC GAS CONTROL FOR WATER STORAGE HEATERS

Field of application

Gas burner operated
Storage Water Heaters.

Reference standard

EN 126
Multifunctional controls for
gas burning appliances.

Main features

Three-position control
knob: Off, Pilot and On.
Pressure regulator.
Thermoelectric flame
failure device.

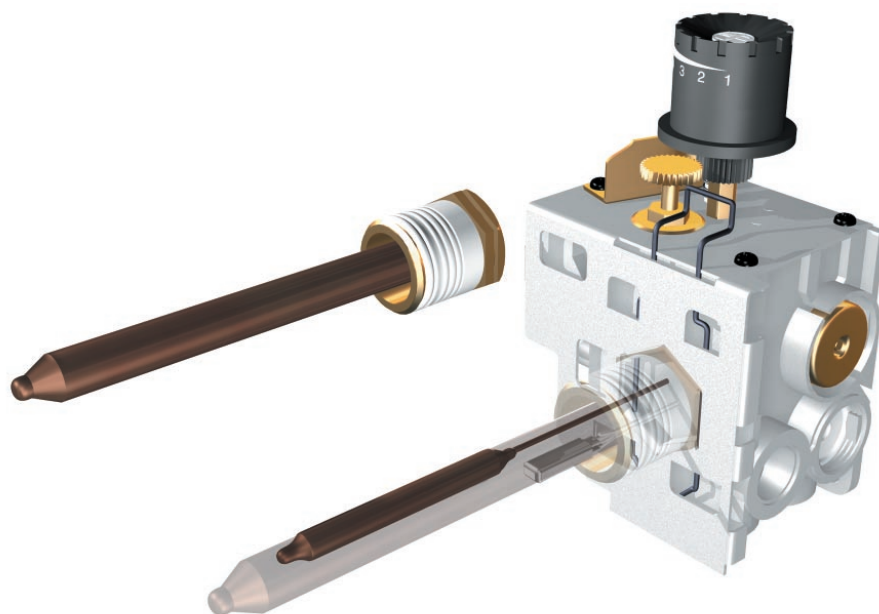


INTRODUCTION

630 EUROSIT series SWH is a new SIT control specially designed for use in gas burner operated storage water heaters.

New design concepts have been implemented on the basic structure of the 630 EUROSIT, a gas control which has been on the market for many years with high performance in terms of reliability and versatility. These new concepts provide considerable advantages in terms of both applications and management.

The main innovation is the possibility of separating the two traditional elements – the valve body and the thermostat flange – and being able to combine them quickly and reliably.



The main advantages are:

- Storage** Because the two parts of the system can be ordered separately a lower storage volume is required for the same number of units: this means greater flexibility in the management of stocks.
- Production** By using the separability of the two elements, new approaches can be tried in heater production and in the control processes to reduce time and the number of assembly operations.
- Maintenance** Any replacements which have to be made as a result of the controls require much shorter times both for emptying the heater and because of the use of the fast connection.

GENERAL DATA

CONSTRUCTION FEATURES

- Body in aluminium alloy
- Main gas inlet on the side
- Main gas outlet on the bottom
- Inlet filter
- Pilot outlet with flow rate setting screw
- Two holes for mechanical fixing $\varnothing 5$
- Separable thermostat flange with threaded connection fitting
- Inlet and outlet pressure test points
- Valve body ready for fast connection with the thermostat flange by means of a steel locking spring
- Incorporated safety thermostat (ECO)

CONDITIONS OF USE

- | | |
|--------------------------|------------------|
| • Mounting position | Any position |
| • Gas families | 1st, 2nd and 3rd |
| • Ambient temperature | 0...80 °C |
| • Maximum inlet pressure | 50 mbar |

MECHANICAL CONNECTIONS

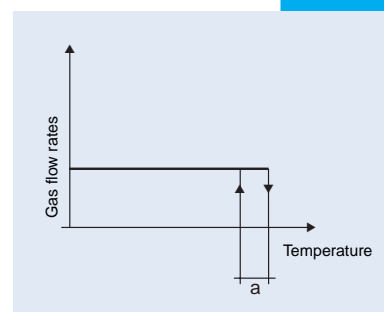
- | | |
|---|--|
| • Main gas inlet | Rp 1/2 ISO 7 (DN 15 - EN 126) |
| • Main gas outlet | 0.75 UNS with bundy flare olive fitted |
| • Pilot | M 10x1 for nut and olive
(use $\varnothing 4.6$ mm or 1/4" pipes) |
| • Pressures test points | $\varnothing 9$ mm (internal threading M5 x 0.8) |
| • Thermostat flange water connection | R 3/4 UNI ISO 7 |
| • Fast body connection on thermostat flange | with steel locking spring |
| • Thermocouple | 11/32" ASA |

THERMOELECTRIC SAFETY DEVICE

- | | |
|----------------------------|---|
| • Device class | B (EN 125) |
| • Closing current | ≥ 45 mA (other values on request) |
| • Opening current | ≤ 200 mA (other values on request) |
| • Magnetic unit resistance | $18 \text{ m}\Omega \pm 2$ |
| • ECO resistance | $\leq 18 \text{ m}\Omega$ |

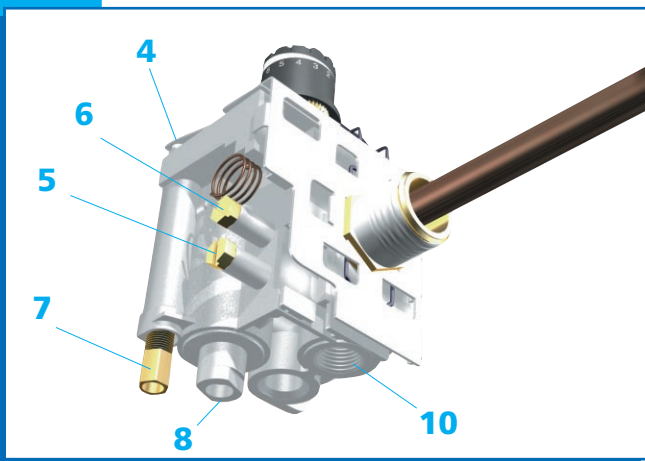
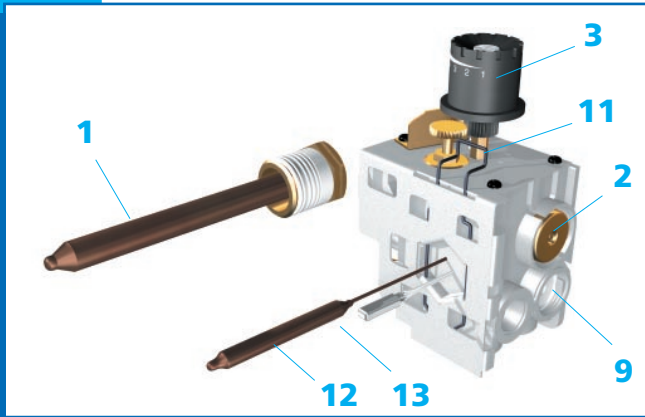
FUNCTIONS

- | | |
|---------------------------|--|
| • Pressure regulation | Class B to EN 126 |
| • Thermostat | On/off control
Tightness to EN 126
Regulation range 28...65 °C
Differential (a) ≤ 5 °C |
| • Safety thermostat (ECO) | Intervention temperature 82 °C ± 3
Differential (a) ≤ 30 °C |





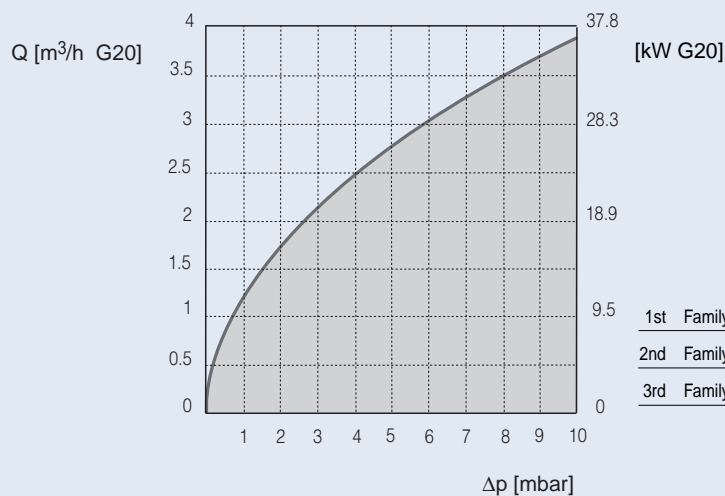
DESCRIPTION



- 1 Thermostat flange
- 2 Outlet pressure setting screw
- 3 Control and regulation knob
- 4 Pilot gas flow rate adjuster
- 5 Inlet pressure test point
- 6 Outlet pressure test point
- 7 Pilot outlet
- 8 Thermocouple connector
- 9 Gas inlet
- 10 Gas outlet
- 11 Locking spring
- 12 Thermostat bulb
- 13 Safety thermostat (ECO)

FLOW RATES

FLOW RATE Q AS A FUNCTION OF THE PRESSURE LOSS ΔP



1st	Family (d = 0.45)	Q = 3.0 m ³ /h	$\Delta p = 5$ mbar
2nd	Family (d = 0.55)	Q = 2.7 m ³ /h	$\Delta p = 5$ mbar
3rd	Family (d = 1.55)	Q = 1.6 m ³ /h	$\Delta p = 5$ mbar

OPERATION

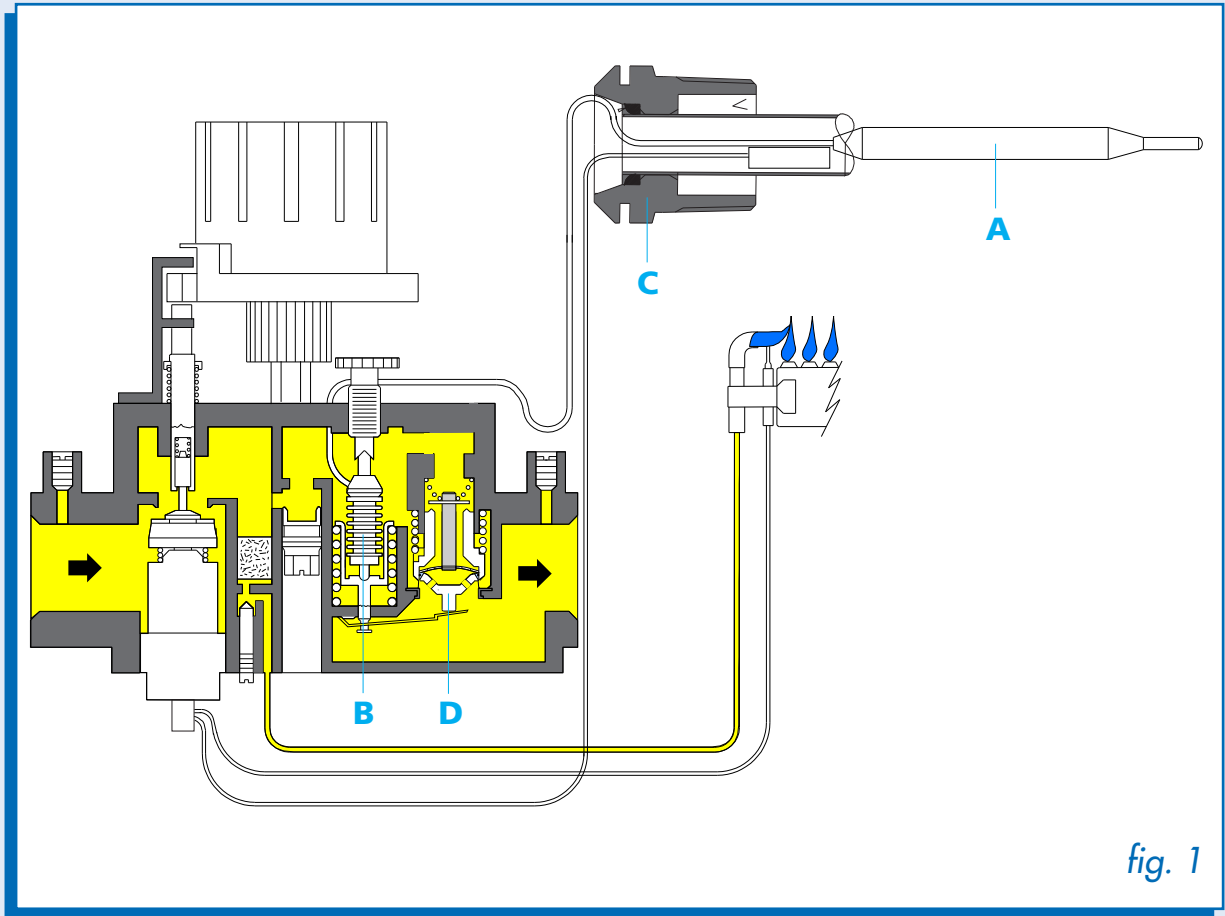


fig. 1

The system operates by means of the thermal expansion of an appropriate liquid contained in a bulb (A) and connected by a capillary to an expandable bellows (B). The bulb is housed in a thermostatic sheath (C) which is immersed in the water. In working conditions with the water temperature below the requested value, the gas passage to the main burner is open (fig. 1).

As the water temperature increases, the bellows expands and acts on the gas valve seat (D) by means of a lever mechanism. When the temperature approaches the requested value, the system closes sharply, thanks to a specially designed functional discontinuity, and turns off the main burner (fig. 2).

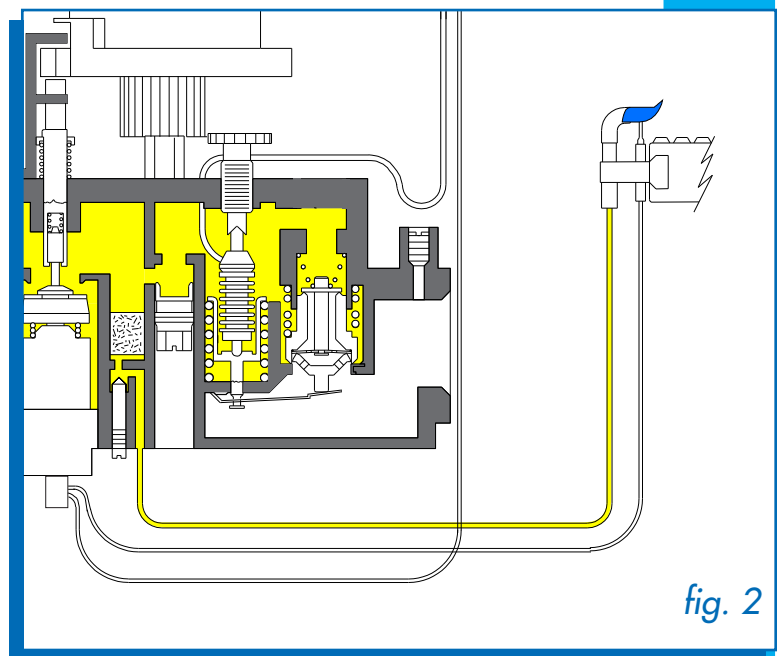



fig. 2



PROCEDURE FOR USE

Ignition

Depress the control knob and turn it anticlockwise until it clicks into the pilot position . Depress the knob and light the pilot flame, keeping the knob fully depressed for a few seconds (fig. 3). Release the knob and check that the pilot flame stays on. If it goes out, repeat the ignition operations.

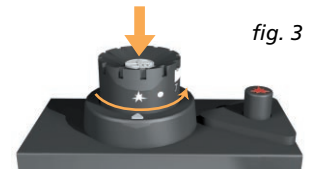


fig. 3

Ignition of the main burner

Depress the knob and turn it anticlockwise to the point corresponding to the desired temperature (fig. 4). The temperature increases as the knob is turned anticlockwise.

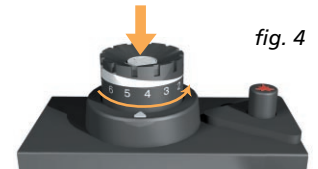



fig. 4

Pilot position

To turn off the main burner and keep the pilot flame on, turn the control knob clockwise until it clicks into the pilot position .

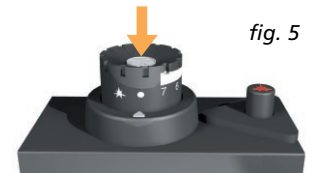



fig. 5

Turning off

Depress the control knob to the OFF position  (fig. 5).

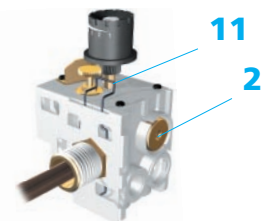
ADJUSTMENTS

The gas control flow rates have been pre-set at the factory and no adjustment should be necessary.

Check the inlet and outlet pressures by means of the pressure test points.

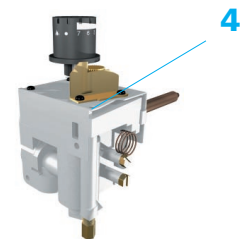
Inlet pressure

Turn off the gas supply to the appliance. Remove the pressure test point screw and connect the manometer to the inlet test point [6]. Turn the gas supply back on and relight the appliance. With the main burner fully operational take the reading. Turn the gas supply off and disconnect the manometer, replace the pressure test point screw and tighten to 2 Nm then relight the appliance.



Outlet pressure

Turn off the gas supply to the appliance. Remove the pressure test point screw and connect the manometer to the outlet test point [5]. Turn the gas supply back on and relight the appliance. With the main burner fully operational take the reading. Turn the gas supply off and disconnect the manometer, replace the pressure test point screw and tighten to 2 Nm then relight the appliance.



INSTALLATION

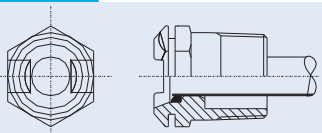


fig. 6

Connecting the thermostat flange to the appliance

The flange is supplied separately with the Teflon gasket pre-mounted on the thread. Screw the flange onto its seat in the appliance, taking care that at the end of the operation, the groove of the hexagon is horizontal (fig. 6).

Use a 27 mm hexagonal key. Maximum torque 70 Nm.

Valve body connection

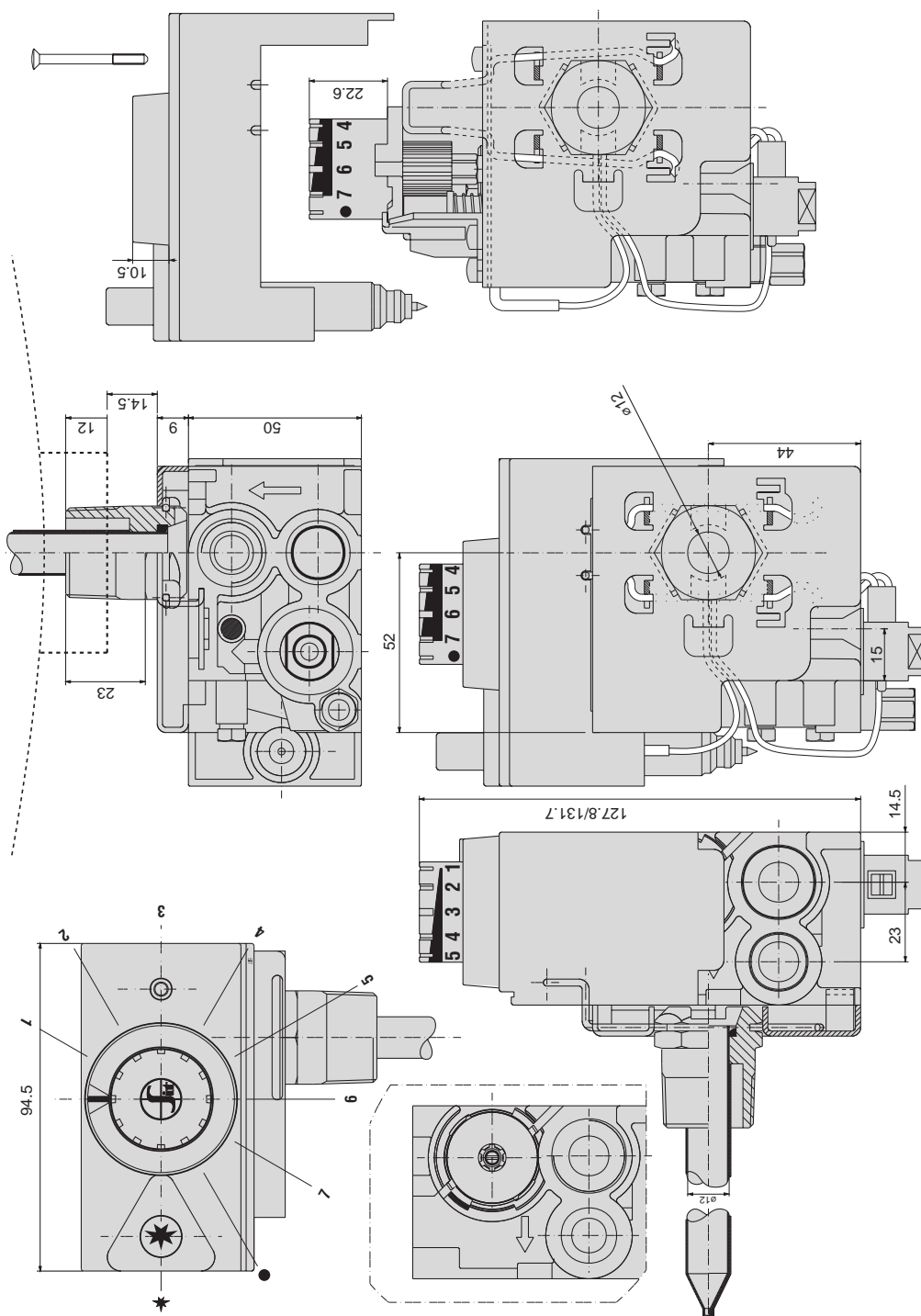
Carefully insert the thermostat bulb/ECO unit into the flange. Press the valve body towards the appliance so that the body and flange mate. Press further so that the locking spring goes into its seat and creates the connection. To disengage the valve body, remove the cover and then raise the locking spring by acting on the hook (11) using a special tool.

Connection to the pilot burner

ø 4 mm; ø 6 mm; ø 1/4" pipes can be used.

Use appropriately dimensioned nut and olive. Tighten to torque: 7 Nm.

DIMENSIONS





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