

# TECHNICAL DATA SHEET

MANIFOLD CHAMBER TERRA series

PRAWTECH

Ver. 3.04/2020

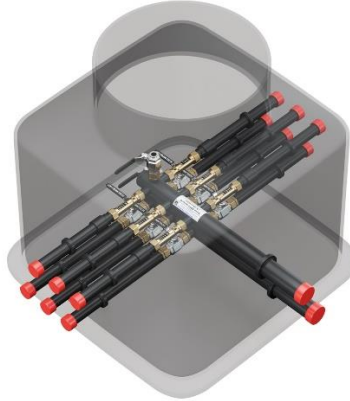
**Terra MINI/ Terra OPTI**

**TERRA PRO / TERRA UNI**



The wide range of Terra manifold chambers is a component of the PRAWTECH ground source system for heat pumps. The TERRA chamber consists of a geothermal manifold permanently installed in a black polyethylene chamber. The chamber has been designed to protect the hydraulic distributor against the pressure of soil and ground water and guarantee access to basic regulatory and service activities.

### Manifold configuration



The plastic manifold for the ground source system consists of two collector bars made of HDPE100/RC with particular number of outlets (so-called ground source sections/loops):



**The supply manifold bar** is equipped on each section with brass inline flowmeter in the range of 8-38 l/min. Flowmeters allow for regulation of the flow and cutting off a given section of the geothermal installation through a ball valve integrated in the body of the flowmeter.

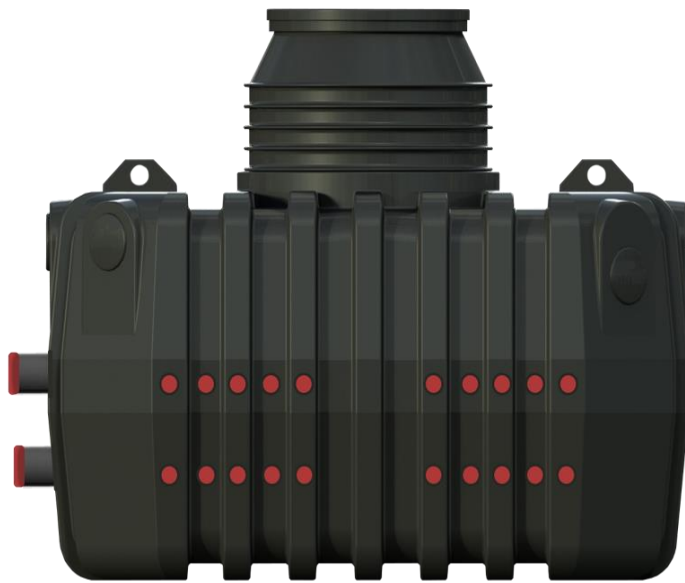
**The return manifold bar** is equipped with a cut-off ball valve on each section. The ball valves allow complete cut-off of the flow individually for each ground source loop.

Adjustment of the flow should only be made by adjusting the flowmeters. The valves are only used to cut off the flow.

Each of TERRA chamber manifold bars is equipped with a 3/4" (for 2-6 way) or 1" (for 7-28 way) internal thread vent / filling valve. This sections allow you to effectively flush, fill and vent the ground source system.

The valves and flow meters are installed in the distributor in a way that allows their easy replacement. Brass elements have been integrated with the plastic part of the manifold by union connections, whose unscrewing guarantees access to service activities such as part replacement or its inspection.

**TERRA PRO chambers** are designed for power plants. In order to increase the comfort and safety of operating the hydraulics of the ground source system, the PRO series chambers are equipped with a DN100 lug wafers mounted on the main collectors (supply and return) bars. The valves make it possible to separate the entire hydraulic distributor together with the heat exchanger field from the flow and return pipes and the heat pump's engine room.



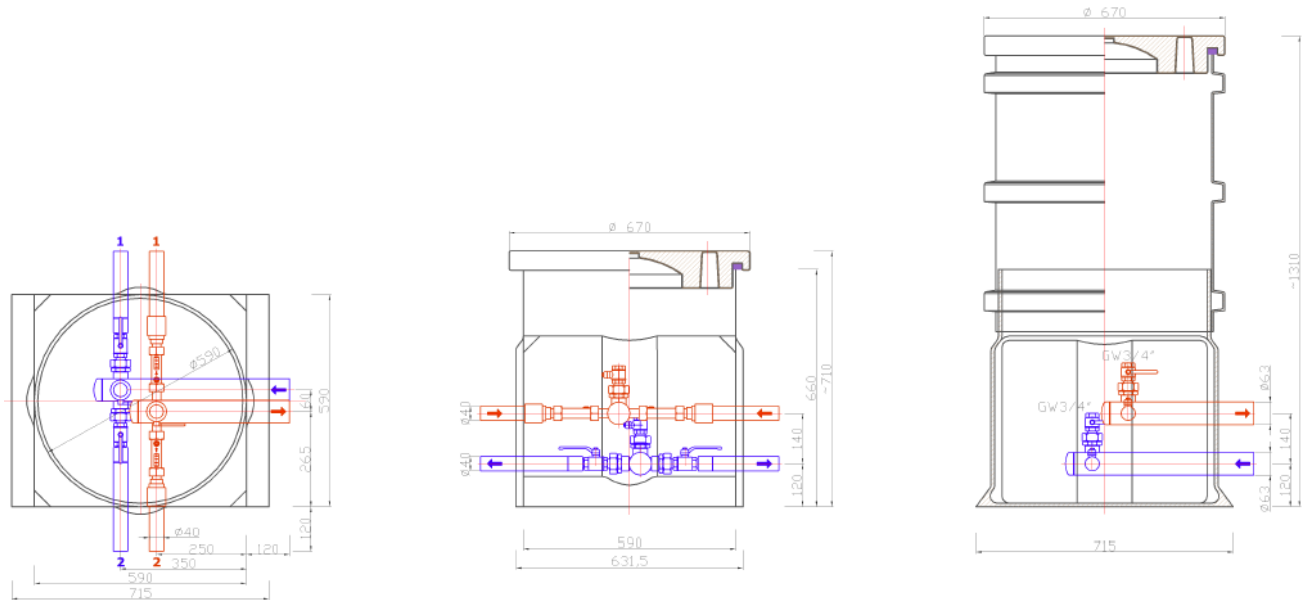
**Terra UNI cascade chambers** are a specialized product line dedicated to the operation of complex ground source systems. Their task is to integrate the predesigned borehole fields by centrally connecting individual manifold chambers. UNI cascade chambers are compatible with the whole series of PRAWTECH chambers: MINI, OPTI and PRO. For this reason, they come in three standard configurations, alternatively with valves and connections DN 50 (transition F&R pipes 63mm), DN 80 (transition F&R pipes 90mm) or DN 100 (transition F&R pipes 110mm).

### Basic product characteristics

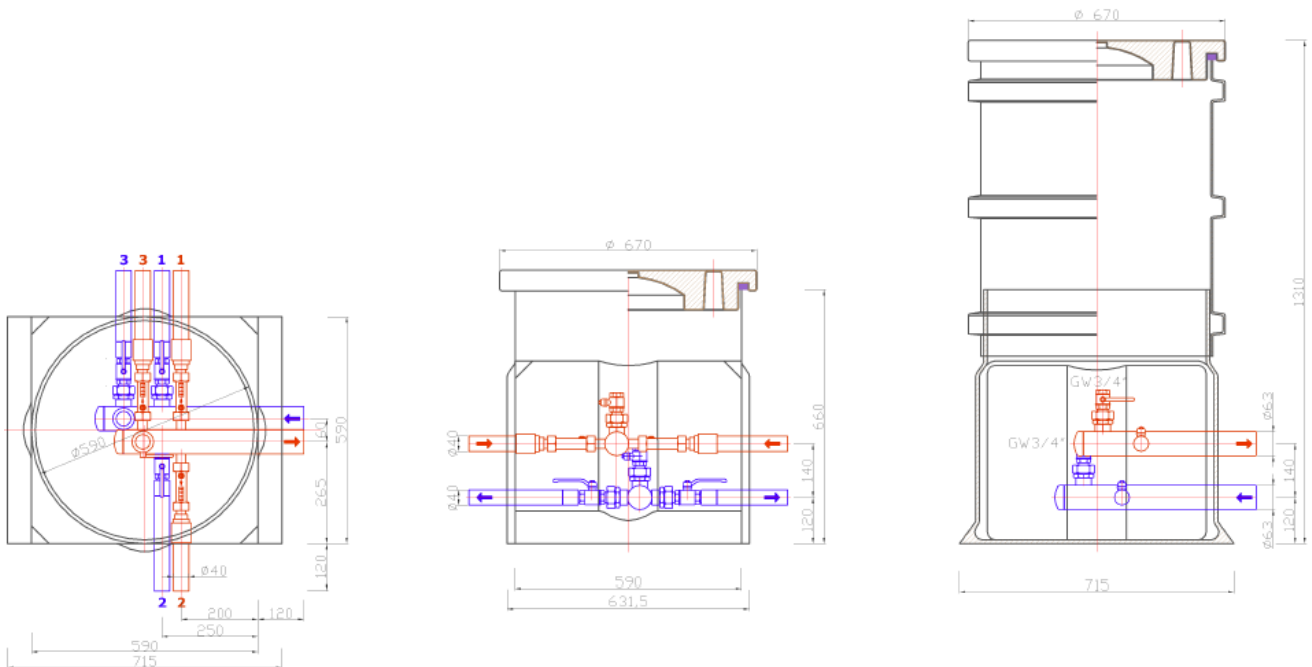
The ground source manifold in-built inside the chamber is responsible for transporting the antifreeze fluid from the heat pump to the ground and back towards the heat pump's engine room. The products are designed to work with anti-freeze based on glycols. Fluids recommended by the manufacturer are propylene and ethylene glycols with addition of corrosion inhibitors and anti-foam additives. More details are available in: *PRAWTECH chemical strength card*.

The construction of the geothermal manifold built into the chamber also allows for proper flushing, filling and venting of the ground source collectors.

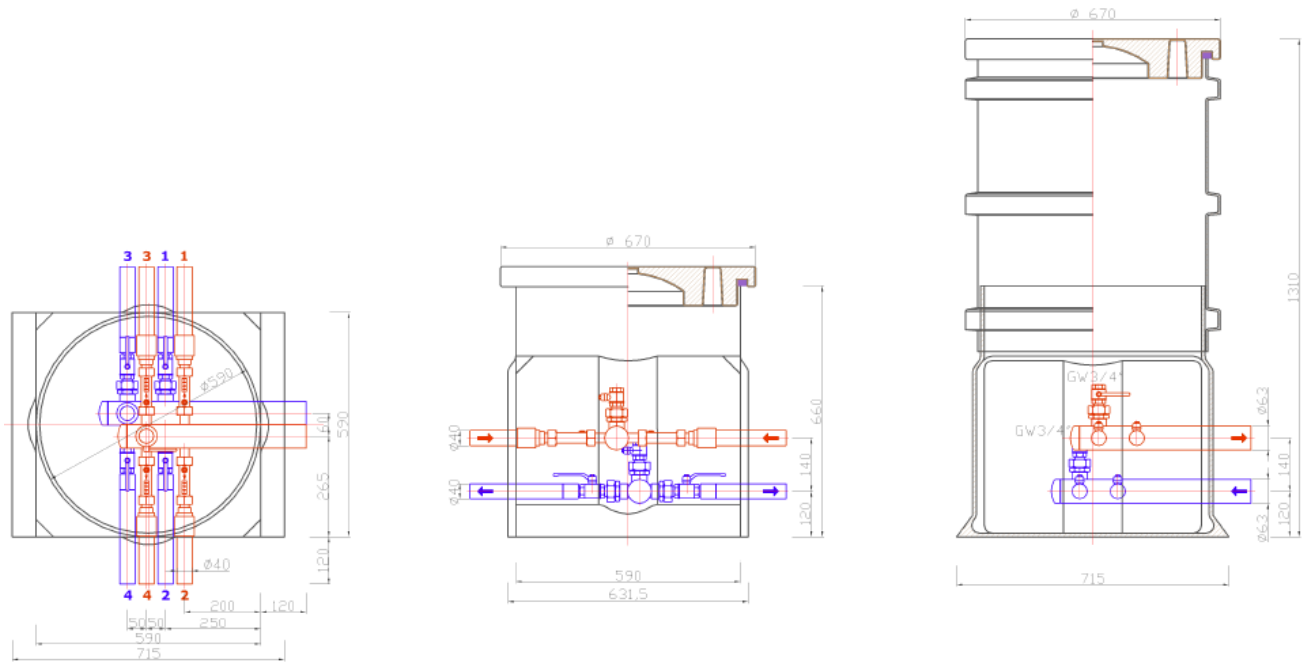
### Terra manifolds chamber dimensions



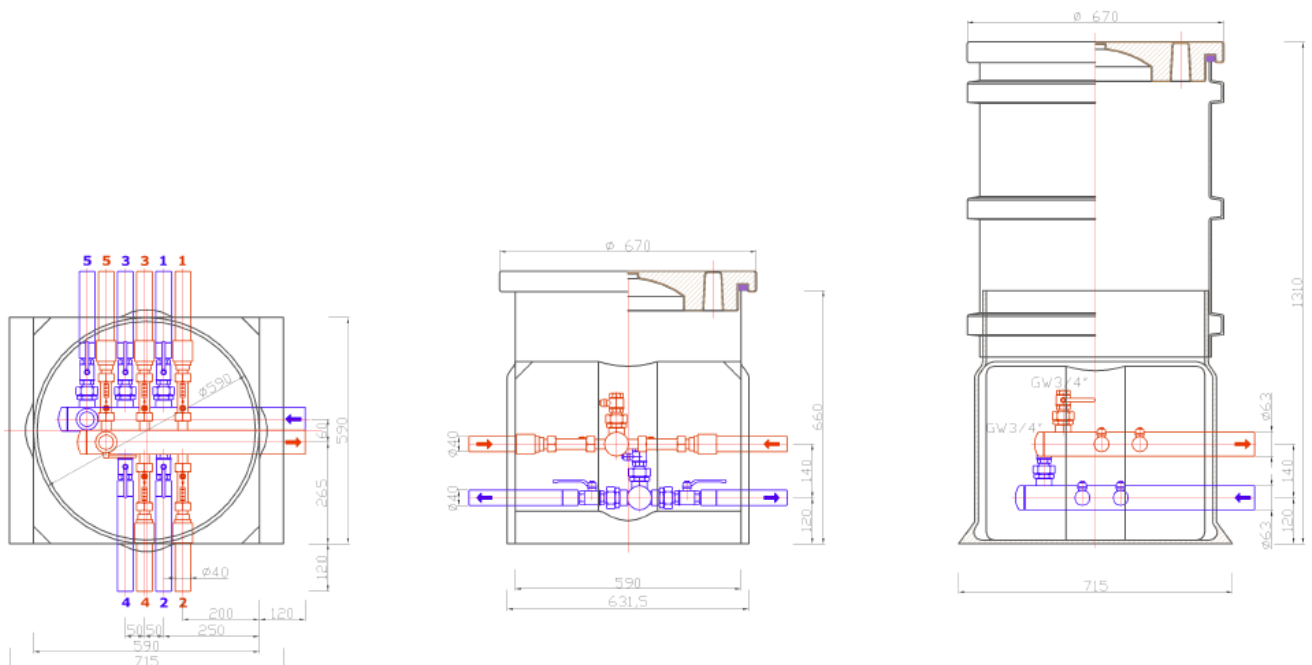
*Fig. 1. 2-way Terra MINI with flowmeters*



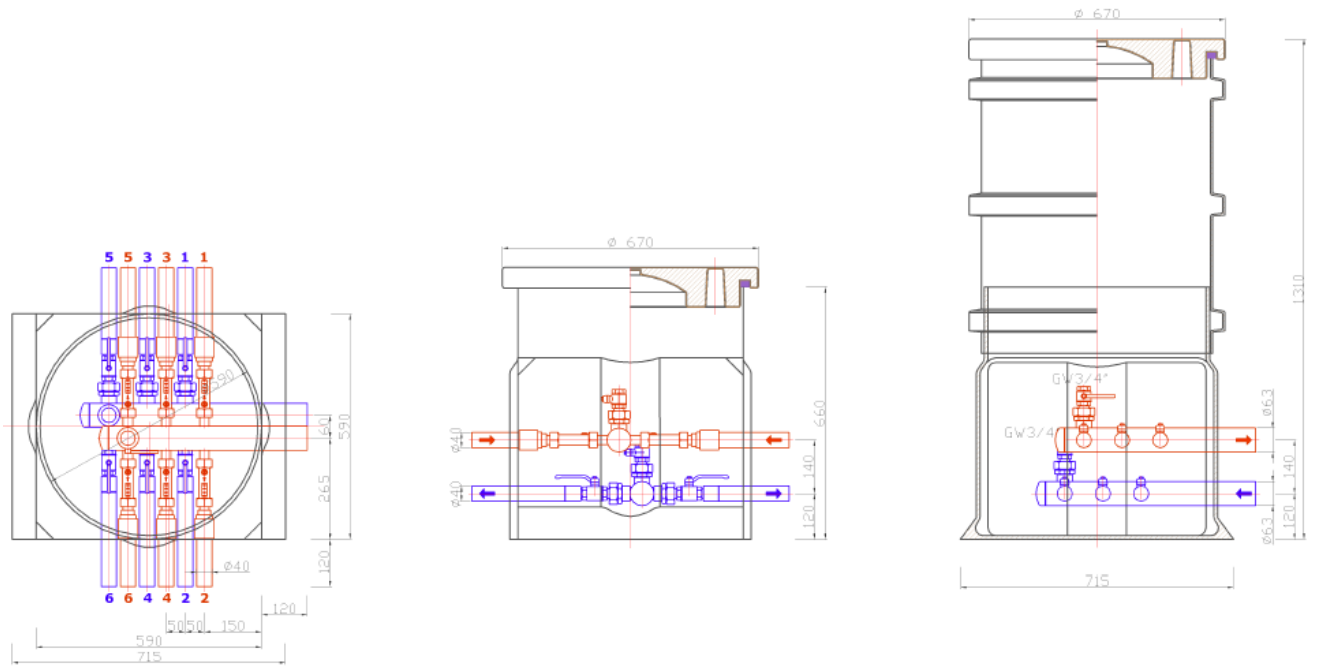
*Fig. 2. 3-way Terra MINI with flowmeters*



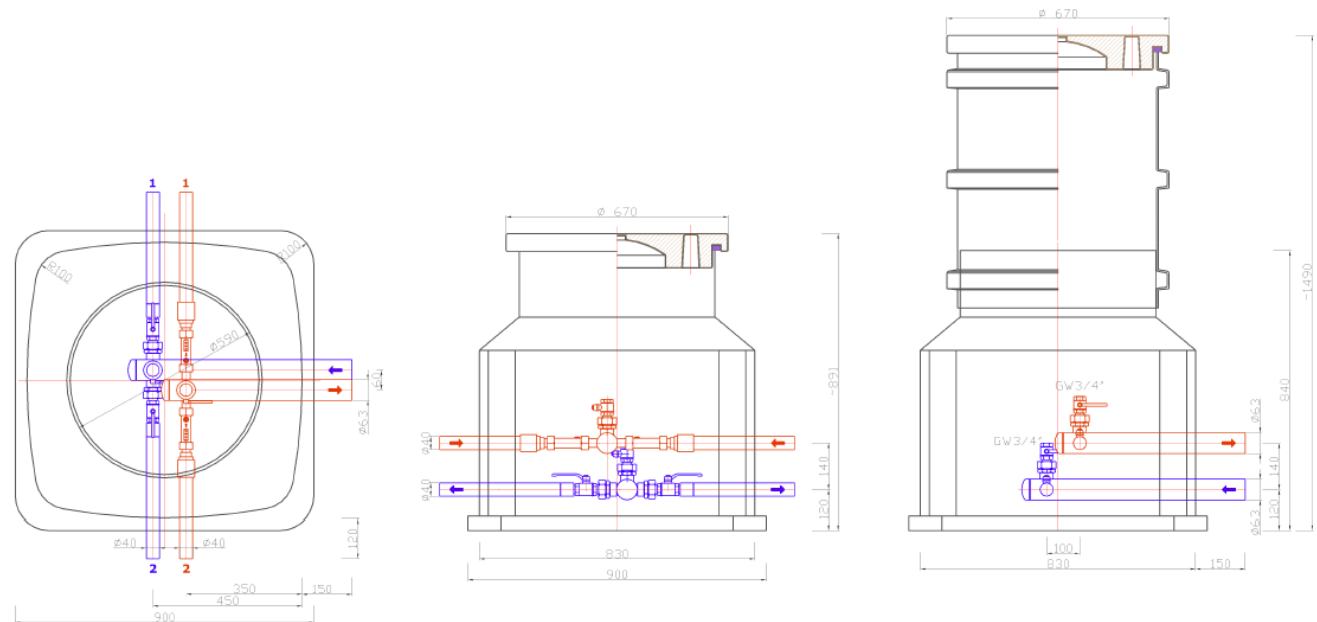
**Fig. 3.** 4-way Terra MINI with flowmeters



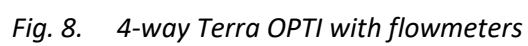
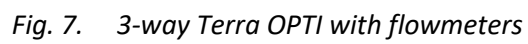
**Fig. 4.** 5-way Terra MINI with flowmeters

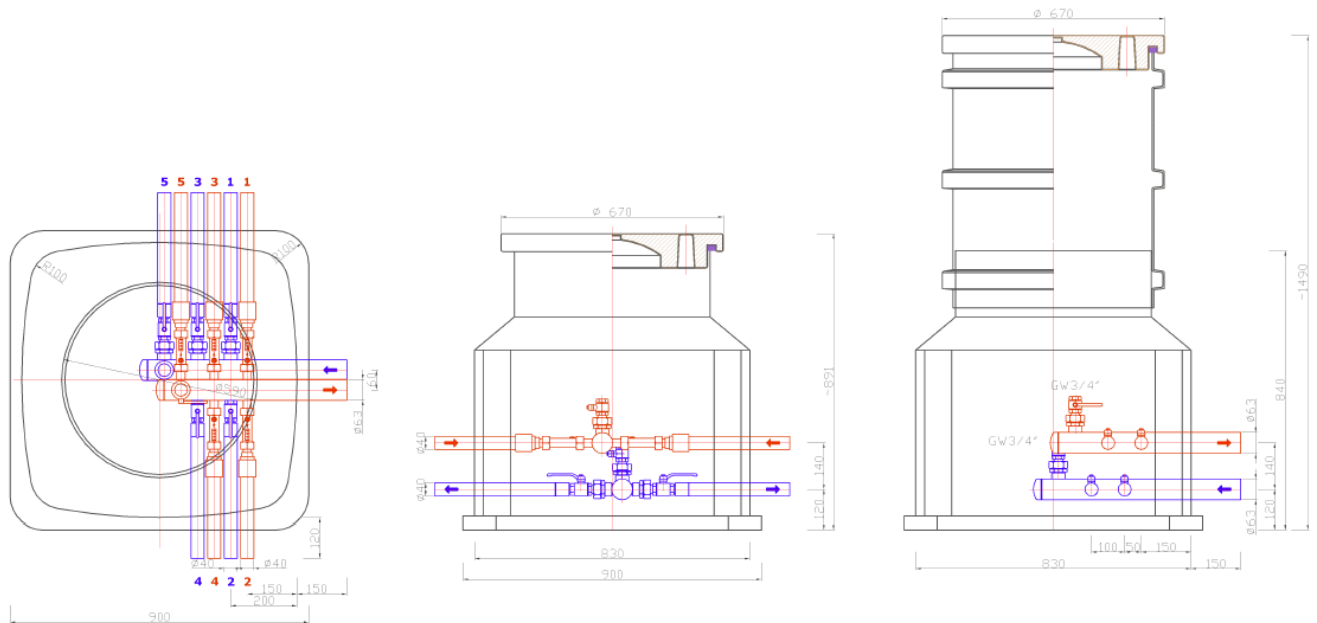


**Fig. 5. 6-way Terra MINI with flowmeters**

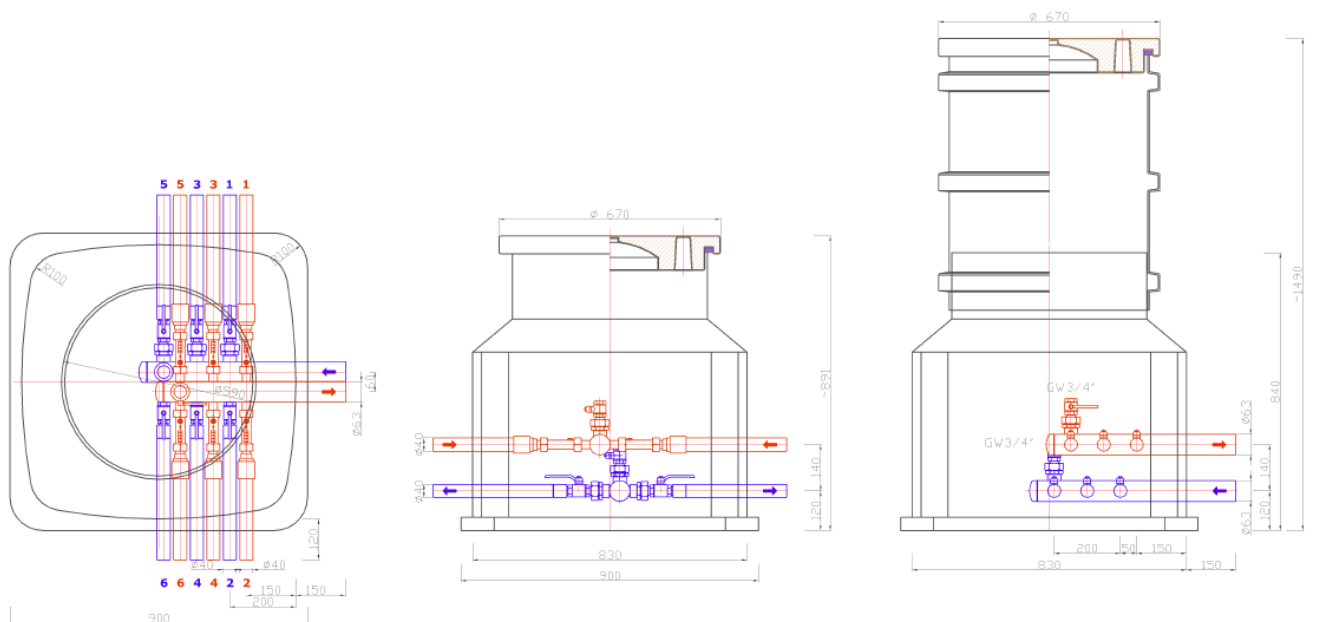


**Fig. 6. 2-way Terra OPTI with flowmeters**





**Fig. 9. 5-way Terra OPTI with flowmeters**



**Fig. 10. 6-way Terra OPTI with flowmeters**



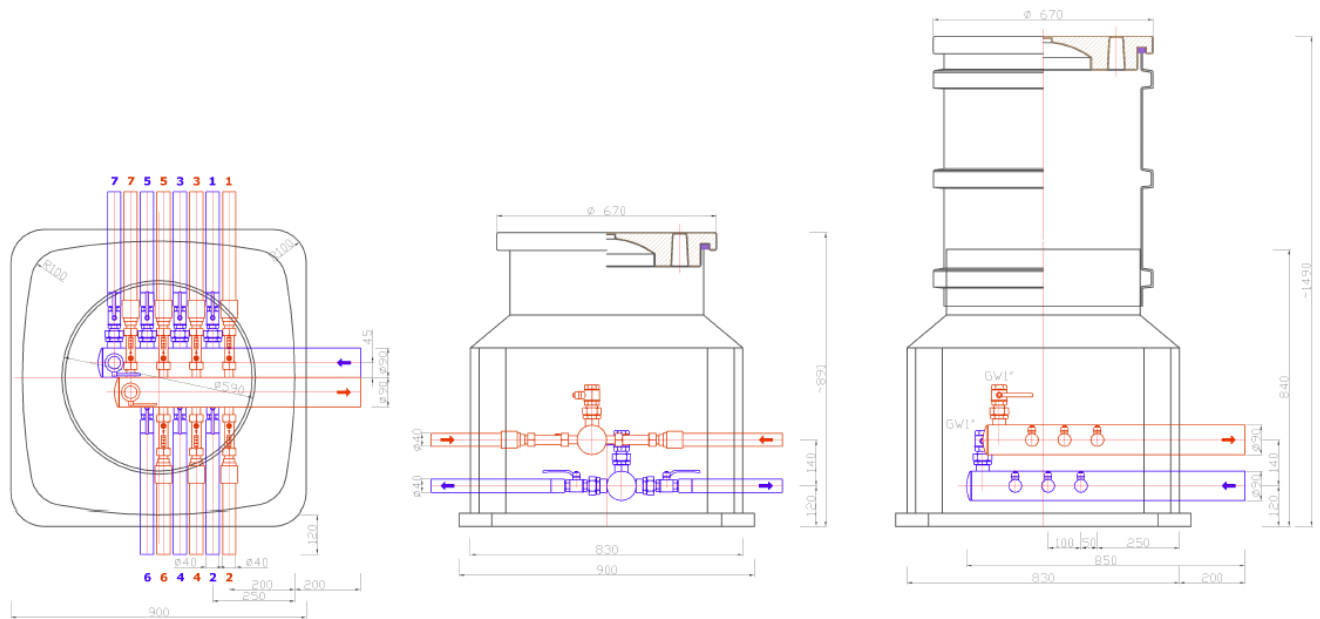


Fig. 11. 7-way Terra OPTI with flowmeters

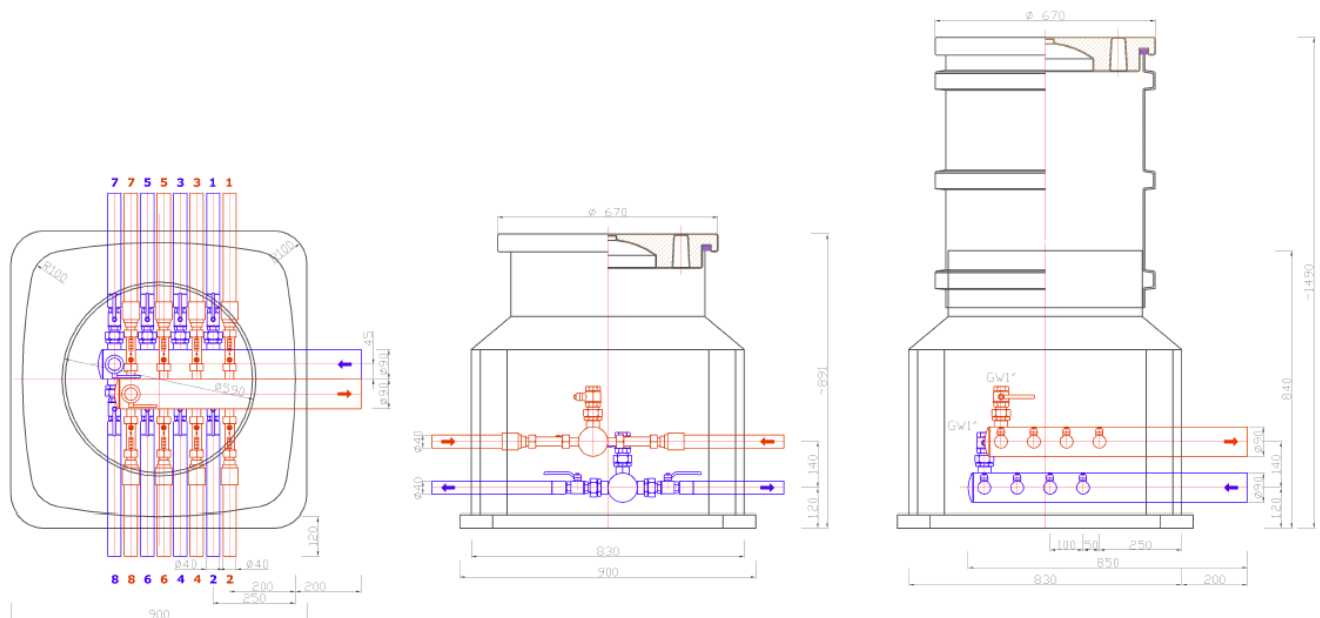
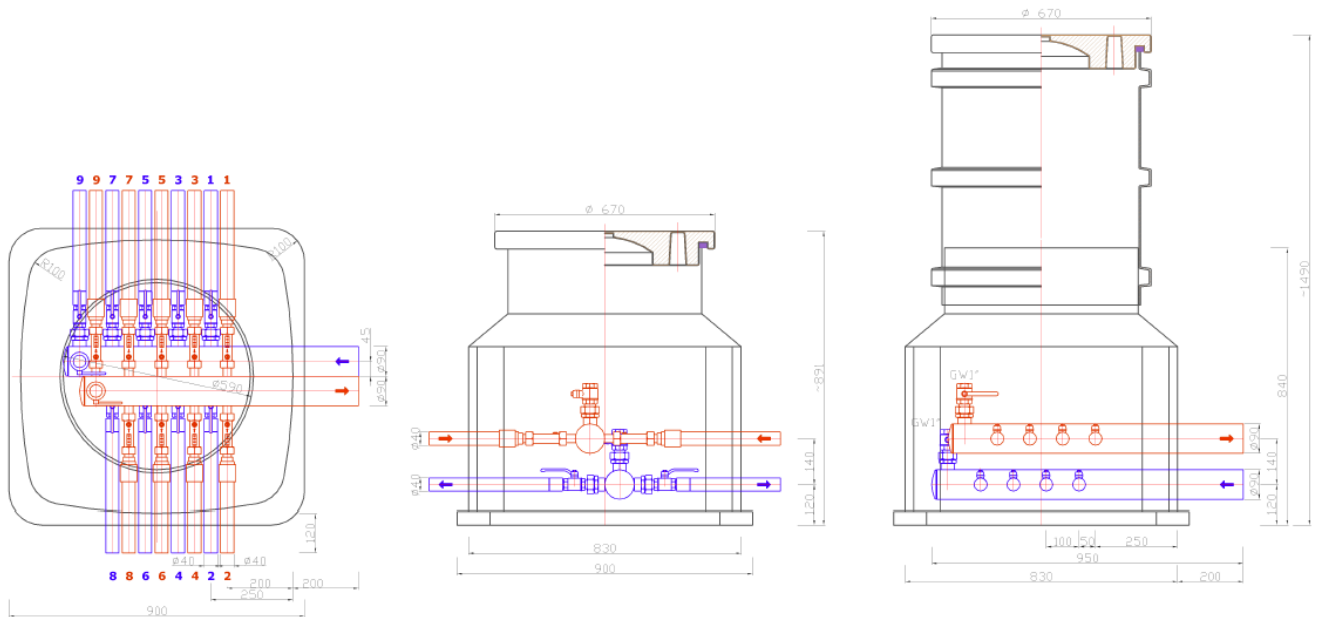
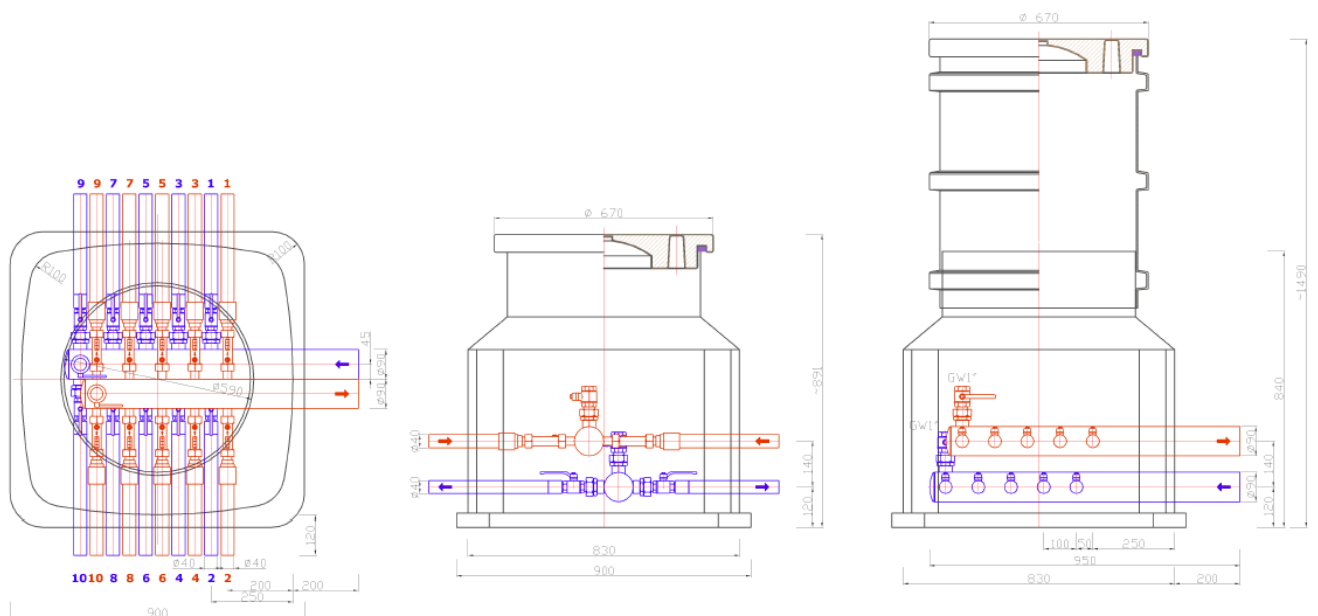


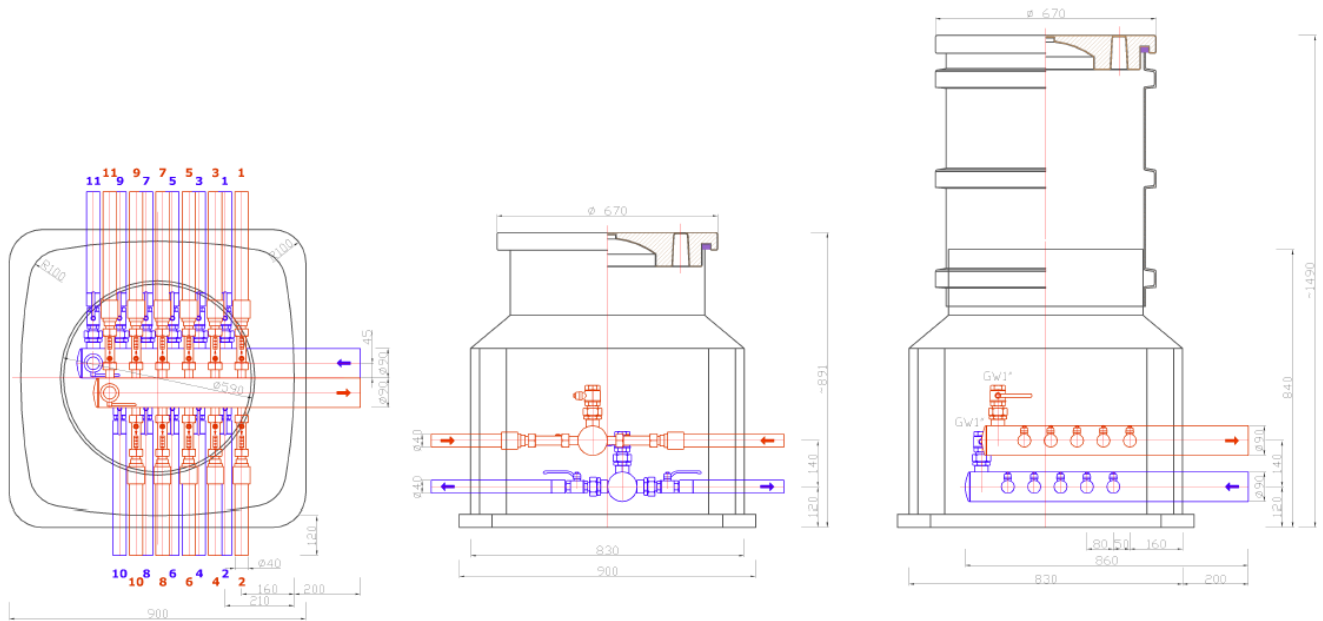
Fig. 12. 8-way Terra OPTI with flowmeters



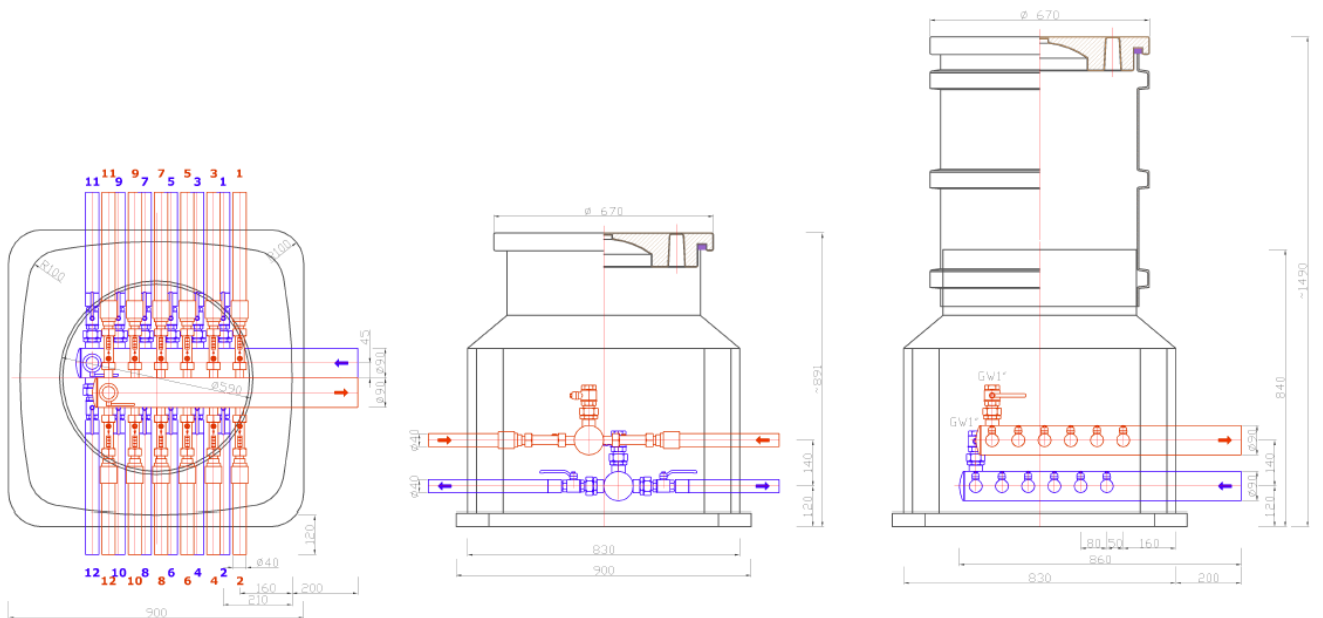
**Fig. 13. 9-way Terra OPTI with flowmeters**



**Fig. 14. 10-way Terra OPTI with flowmeters**



**Fig. 15. 11-way Terra OPTI with flowmeters**



**Fig. 16. 12-way Terra OPTI with flowmeters**

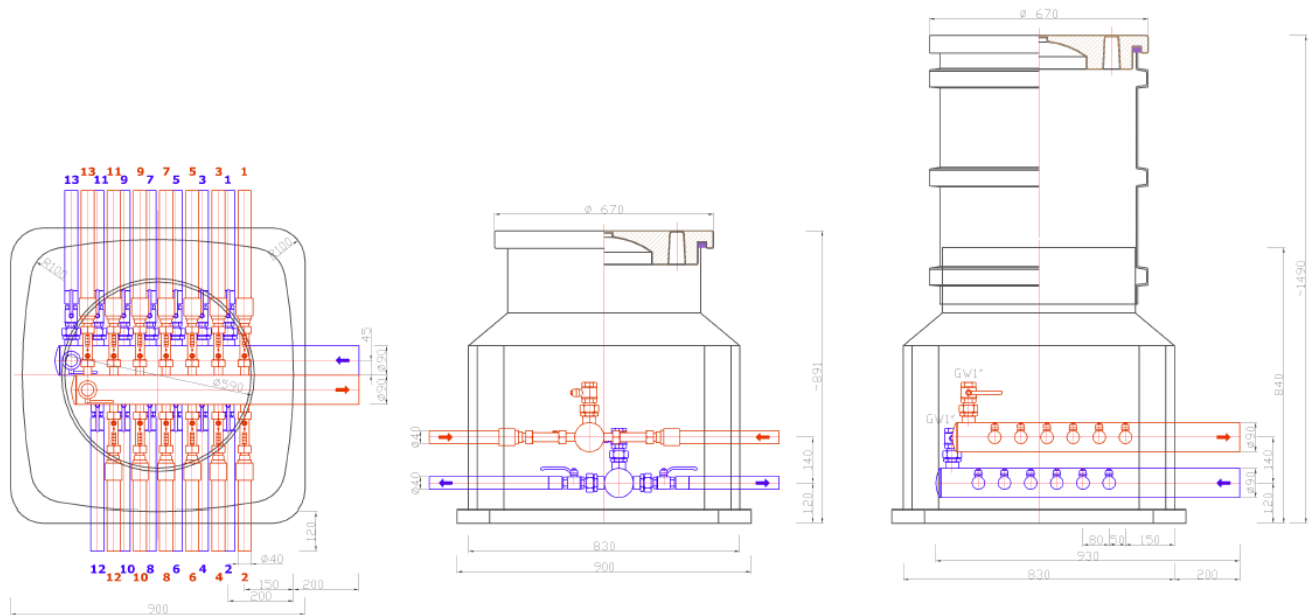


Fig. 17. 13-way Terra OPTI with flowmeters

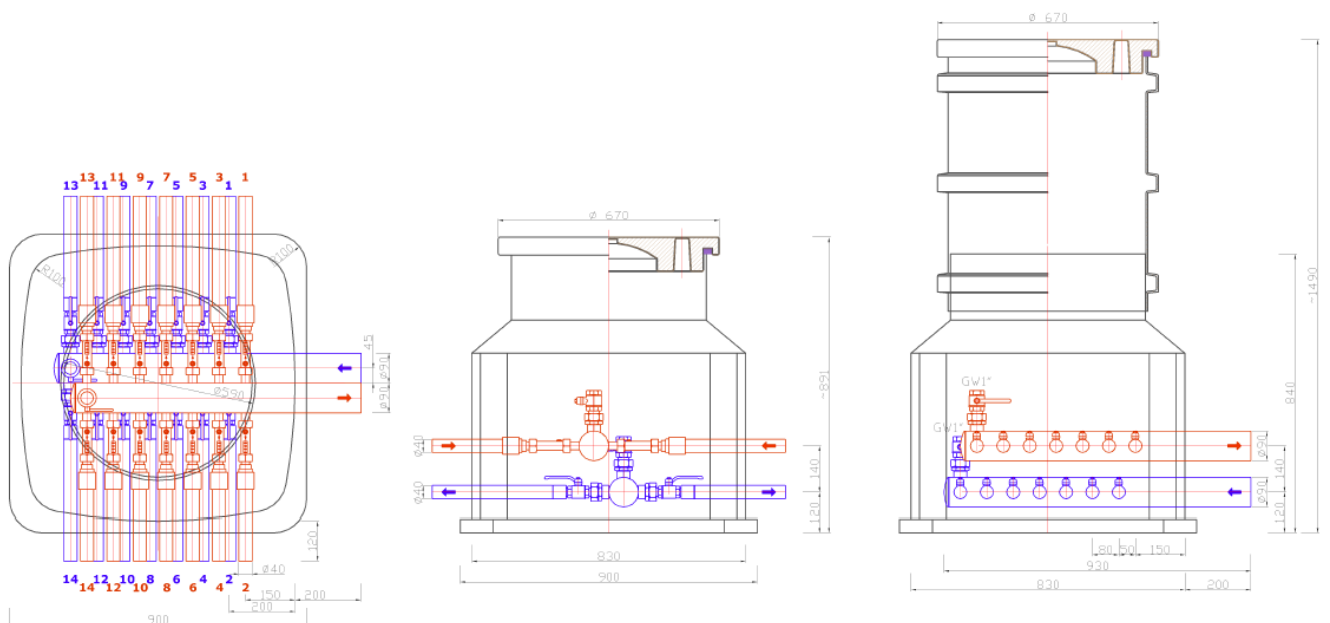


Fig. 18. 14-way Terra OPTI with flowmeters

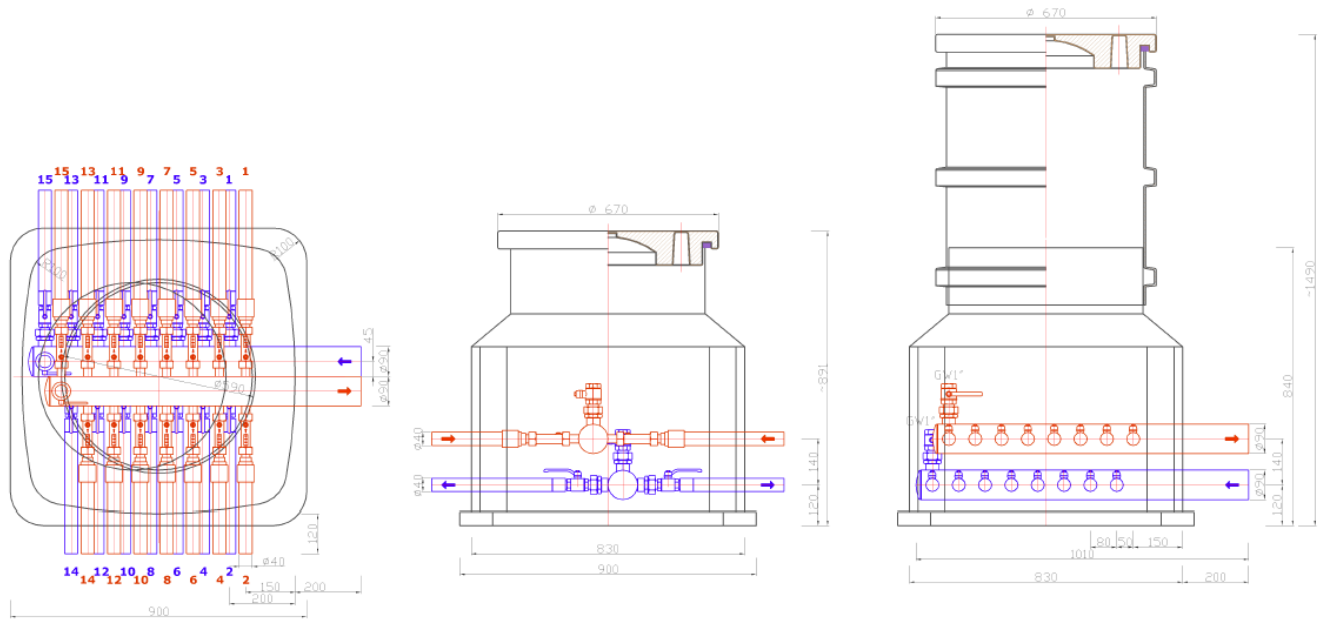


Fig. 19. 15-way Terra OPTI with flowmeters

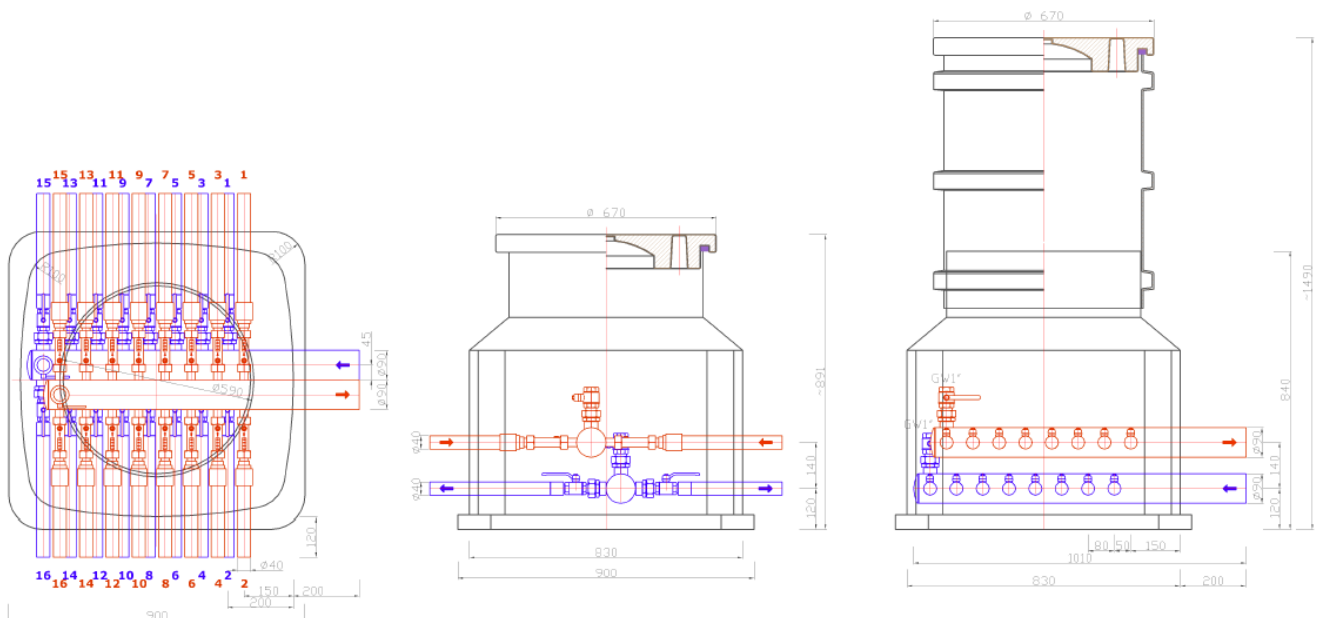


Fig. 20. 16-way Terra OPTI with flowmeters

### Construction of the product

Manifold chamber is watertight and all ground source loops together with main Flow & Return pipes passing through the box are sealed. PE cover (DN = 600 mm) is a standard equipment of the manifold chamber with pressure load of 10kN. A gasket ring is in-built into a cover in order to reduce or stop the ground waters and air from penetrating inside the body of the chamber. The chamber has been designed to guarantee access to basic regulatory and service activities while keeping manifold clean inside. PE cover is also offered with thermal insulation on request.

Manifold chamber shall be installed below the ground freezing depth. In order to adjust the chamber height to foundation level it is recommended to use extension part (product code: OZENADS0750) listed in pricelist accessories section. Extension height is adjustable within the range of 250-700mm by cutting away its useless piece. It is advised to use an extension gasket (product code: OZEUSZCZ0600) as well in order to provide a watertight connection between the chamber and its extension.

Terra PRO chambers and Terra UNI cascade chambers are delivered to the customer with a factory in-built extension pot. The maximum height of the complete set is in this case 195 cm and, at the customer's request, can be modified when placing an order to a minimum value of 160 cm.

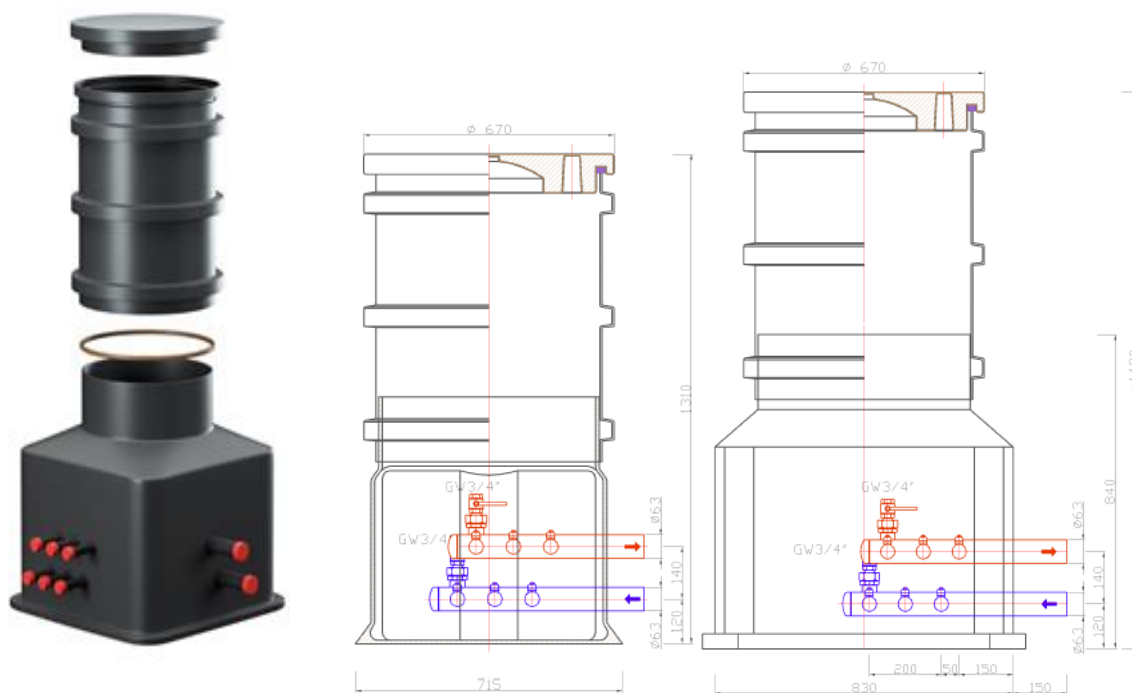


Fig. 21. Terra MINI (left side) and OPTI (right side) chamber with an extension pot

In case the manifold chamber is located in the road path or parking lot it is obligatory to adopt the product pressure load to designed requirements. Therefore one can select the right item from product list such as 400kN cast iron manhole (product code: OZEWLAZD0400) together with concrete load relief ring (product code: OZEPB1100610).

Detailed technical information on product assembly can be found in *Design and installation guidelines for PRAWTECH ground source system* on [www.prawtech.pl](http://www.prawtech.pl)

### **Configuration of sections and flow and return pipes of a manifold chamber**

All PRAWTECH manifold chambers are equipped as standard with 40mm ground source sections. The diameter of the flow and return pipes is 63 mm for chambers from 2 up to 6 sections (Terra MINI chamber), 90 mm for chambers in the range of 7-16 section (Terra OPTI chamber) and 110 mm for chambers in the range of 15-28 section (Terra PRO chamber).

The manifold sections are derived in two parallel levels, separately for supply and return. The axial distance between sections is in accordance with the technical drawings contained in the document.

#### **Please note**

**The custom configuration for Prawtech products is available. Each time the additional payment is defined by the manufacturer and depends on the scale and scope of individual applications.**

**All PRAWTECH multi-section manifolds are delivered to the customer after passing the pressure and flow tests in accordance with the internal quality control procedure.**