

# INDIRECTLY HEATED STORAGE WATER TANKS

## 160 – 500 L

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# INSTRUCTION FOR USE AND MAINTENANCE

READ THE INSTRUCTION BEFORE INSTALLING  
DEVICE AND PUT IT INTO OPERATION!  
KEEP CAREFULLY THIS DOCUMENT!

GB

## STORAGE TANKS WITH INDIRECT HEATING AND ONE HEAT EXCHANGER:

8S 160Z | 9S 160 | 9S 200 | 12S 300 | 11S 400  
15S 500 | 17S 300 | 17S 400 | 23S 500

## BUFFERS FOR DOMESTIC HOT WATER:

200 | 300 | 400 | 500

## STORAGE TANKS WITH INDIRECT HEATING AND TWO HEAT EXCHANGERS:

6/4 S2 160 | 7/5 S2 200 | 10/7 S2 300 | 11/5 S2 400 | 15/7 S2 500  
2x4/2x9 S2 200 | 2x5/2x12 S2 300 | 2x6/2x13 S2 500

Dear Clients,

The instruction manual and the technical description are prepared in order to acquaint you with the product and the conditions of proper installation and usage. Read them carefully and follow them.

The observance of the instructions contained herein is in the interest of the buyer and represents one of the warranty conditions, outlined in the warranty card. The non-observance of the instruction can be reason of losing warranty!

• This manual is an integral part of the appliance. It must be kept with care and must follow the appliance if the latter is transferred to another owner or user and/or to another installation.

• Read the instruction and tips very carefully. They will help you secure a safe installation, use and maintenance of your appliance.

• The installation is at the buyer's expense and must be carried out by a professional technical person from the sector in accordance with instructions in the manual.

## I. INTENDED USE

The appliance is intended to supply domestic hot (potable) water to households equipped with a piping system working at pressure below 8 bar (0,8 MPa).

The content of chlorides in the water should be below 250 mg / l, and its electrical conductivity to be in the range of 100  $\mu\text{S}/\text{cm}$  to 2000  $\mu\text{S}/\text{cm}$ . The heat exchangers must be installed to the closed heating systems with pressures up to 0,6 MPa (6 bar). Heat carrier must be circulating water or a mixture thereof with propylene glycol and anticorrosion additives!

The appliance is intended for work in closed, heated premises (above 4°C).

 **IMPORTANT!** See section *Warranty condition!*

## II. DESCRIPTION AND TECHNICAL DATA

Depending on the storage tank model, it can has one or two built-in heat exchangers (serpentine). The connections to the appliance should be made following the marked outlets and inlets, described below: **T** - for temperature indicator (the indicator is included in the kit of the appliance). **TS1**, **TS2**, **TS3** - for mounting temperature sensors (each heat exchanger can be controlled by temperature). If the storage tank is equipped with one heat exchanger there will be only one outlet "**TS1**" available. **EE (HE)** – for electrical heating element - positioned in the middle of the appliance. Follow the technical data for choosing the proper power of the heating element.

**FLANGE** /near the bottom/ for servicing and cleaning - it can be used for mounting an electrical heating element too. **R** - for hot water recirculation systems. The technical data are given in *Table 1*. The dimensions and description of the connections are given in *Table 2* and *Table 3*, respectively.

 **ATTENTION:** The electrical heating element should be approved from the producer of the high capacity water heater. Otherwise the producer does not follow any warranty conditions and it is not responsible for any abnormal work of the appliance.

## III. MOUNTING AND CONNECTION

 **ATTENTION!** Qualified technicians must perform all technical and electrical assembly works.

### III.a. INSTALLATION

Storage tanks are delivered on an individual transport pallet. If the high capacity water heaters are used in premises with low humidity and flat floor you can leave the pallet as it is mount on the appliance, otherwise – please follow the described steps bellow (*Fig. 7*):

- Put the appliance in horizontal position;
  - Unscrew the three bolts which hold the pallet to the water heater;
  - Mount the adjustable feet directly to the appliance,\*
  - Put the storage tank in vertical position and adjust the level using the feet.
- \* If the adjustment feet are delivered in separate parts you can assemble them as follow (*Fig. 8*):
- put the part 1 on bolt 2 which is unscrewed from the pallet
  - put the washer 3 which is removed from the pallet
  - Screw on the nuts 4 which are delivered with the appliances

 **ATTENTION!** In order to prevent injury to user and/or third persons in the event of faults in the system for providing hot water, the appliance must be mounted in premises outfitted with floor hydro insulation (or) plumbing drainage.

### III.b. CONNECTING THE SYSTEM TO THE MAIN WATER SUPPLY NETWORK

 **IMPORTANT!** Connecting the waterheater to the main water supply network should be fulfilled in compliance with a project created by a hvac designer! A Presence of WRITTEN DOCUMENT for additional components is required for warranty recognition! Only qualified technicians must install this device!

Compliance with the following standards and directives is mandatory:

1. Local legislation.
2. EN 806 – Specifications for installations inside buildings conveying water for human consumption.
3. EN 1717 – Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow
4. EN 12975 – Thermal solar systems and components - Solar collectors.
5. EN 12897 – Water supply – specification for indirectly heated unvented (closed) storage water heaters

Compliance with the following standards and regulations is recommended too:

- DIN 4753 1-3-6-8 – Water heaters, water heating installations and storage water heaters for drinking water.
- DIN 1988 – Codes of practice for drinking water installations.
- DIN 4708 – Central heat-water-installations.
- DVGW
  - Technical rule W 551 – Drinking water heating and drinking water piping systems - Technical measures to reduce Legionella growth - Design, construction, operation and rehabilitation of drinking water installations.
  - Technical rule W 553 – Dimensioning of circulation-systems in central drinking water heating systems.

Installation of the device with one heat exchanger should be done in accordance with *Fig.11*. Installation of the storage tank with two heat exchangers should be done in accordance with *Fig.10*. Models without heat exchangers – the same as for models with one or two heat exchangers. Parallel installation acc. to *Fig.12*.

**OBLIGATORY elements of installations are:**

1. Inlet pipe.
2. Main water tap.
3. Pressure regulator. When pressure in the mains is over 6 bars it is required. In this case, the set pressure is according to the calculations of the designer, but should not be higher than 0.5 MPa! When pressure in the mains is under 6 bar, its presence is strongly recommended. In all cases the presence of a pressure regulator set at 0.4 MPa is important for the proper functioning of your device!
4. Non-return valve. Its type should be defined by HVAC designer according to the local and European laws, standards and technical norms.
5. Safety valve. Use only safety valves inside supplied kit. For schemes different than 9, 10, 11 or 12, safety valve must be defined by HVAC designer and have to be in accordance with the local and European laws, standards and technical norms. (Pnr = 0.8 MPa; EN 1489:2000). Valve dimensions acc. to *Table.4*.

 **IMPORTANT:** Between the storage tank and safety valve there must not be any kind of stop valves or taps!

 **IMPORTANT:** The presence of other old/ safety valves may lead to a breakdown of your appliance and they must be removed.

6. Safety valve drainage pipe. Must be implemented in accordance with the local and European laws, standards and technical norms. It must have sufficient slope for water runoff. Both ends should be open to the atmosphere and to be secured against frost. Take safety measures against burning when safety valve is open!. *Fig.13 a, b, c*.

## 7. Water heater drainage.

8. Drainage tap.

9. Hose.

10. Expansion vessel. In the storage tank there is no volume to accommodate the expansion of water due to its heating. The presence of the expansion vessel is obligatory in order not to lose water through the pressure relief valve! Its volume and type must be defined by HVAC designer and have to be in accordance with the system technical requirements, local and European laws, standards and technical norms. Its installation shall be carried out by a qualified technician in accordance with its operating instructions. Reference data on the volume of expansion vessel could be found in **Table 5**.

In order that you do not use the circulation outlet "R" and the outlets for the temperature sensors "TS1", "TS2" and "TS3" as well as the outlet for the heating element "EE" is necessary to put an end caps before filling the water heater with water.

For models without heat exchanger – outlet marked with "AV" is intended for connection of air vent device which allows removing the air from the water tank. For long-lived service, it is advisory always to remove completely the air from the tank!

**TO FILL UP THE STORAGE TANK** is necessary to open the most distant tap, used for supplying hot water in the installation (of the mixing-faucet) and the tap (2) for supplying cold water near it. When the water heater is full, from the cold water tap will continuously run water.

**IN THE EVENT YOU MUST EMPTY THE STORAGE TANK**, first you must cut off its power supplies if any. The inflow of water from the water mains must first be terminated (tap 2) and the most distant hot water tap of the mixing-faucet must be opened. Open the drainage tap (8) for full emptying of water tank!

**IMPORTANT! All of the above mentioned rules for tank connection to water mains are in relation of your safety! They comply with european and local regulations and are obligatory!**

**Manufacturer assumes no responsibility for problems resulting from incorrect assembly of the unit to the water supply net and because of using components with unknown origin, not with compliance to the local and european standards!**

## III.c. CONNECTING THE SERPENTINES (HEAT EXCHANGERS) WITH HEATING INSTALLATION USING ALTERNATIVE AND RENEWABLE SOURCES

**ATTENTION! Qualified P&P specialist and technicians must perform all assembly works for connection to the heat sources.**

The connection of the serpentines (heat exchangers) with the heating installation should be done considering the marked outlets and inlets as described below:

IS1 (MS) – Inlet of heat exchanger 1

OS1 (ES) – Outlet of heat exchanger 1

IS2 (M) – Inlet of heat exchanger 2

OS2 (E) - Outlet of heat exchanger 2

Make sure that the system is empty of air. The presence of air may cost incorrect work of the boiler.

Maximum temperature of the heat transfer fluid: 110°C. Maximum pressure of the heat transfer fluid: 0.6MPa!

A safety valve ((11) - **Fig. 10, 11, 12**) inline coil heat exchanger have to be fit according to HVAC designer requirements but its adjustment must not be higher than  $P_{nr} = 0.6\text{MPa}$ . (EN 1489:2000)

An expansion vessel according to HVAC Designer requirements must be installed!

It is recommended an installation of non-return valve (4). By this way, when the external heat source is not working, your device will be preserved by thermosyphon fluid circulation and associated heat loss from the tank!

**IMPORTANT! Manufacturer assumes no responsibility for problems resulting from incorrect assembly of the heat exchangers to the additional heat sources!**

## III.d. CONNECTING BUFFERS FOR DOMESTIC HOT WATER. EXAMPLES.

The buffers for DHW are intended for domestic hot water accumulation with its subsequent usage when there is a peak in the consumption!

As an example is shown **Fig.14** for buffers.

**ATTENTION! Connecting buffers DHW to the main water supply is shown on Fig.14. Explanation could be found in p.III.b**

## IV. PROTECTION AGAINST CORROSION - MAGNESIUM ANODE

The magnesium anode protects the water tank's inner surface from corrosion. The anode element is an element undergoing wear and is subject to periodic replacement.

In view of the long-term and accident free use of your water heater, the manufacturer recommends periodic inspections of the magnesium anode's condition by a qualified technician and replacement whenever required, and this could be performed during the appliance's technical preventive maintenance. (once per two years). For replacements, please contact the authorized service stations!

## V. OPERATING MODE

Before using the water heater make sure that the appliance is connected with the heating installation in correct way and is filled with water.

## VI. IMPORTANT RULES (WARANTY CONDITIONS)

**IMPORTANT! Non observance of below described rules leads to warranty fault and the produser bear no more responsibilities for you appliance!**

- The use of the appliance for any purpose other than that it is intended is prohibited. (p.I)
- Do not use the storage tank if it is not filled with water.
- The installation and maintenance must be carried out by a professional from the sector in accordance with manufacturer's instructions. (p.III a b c d)
- The appliance must only be installed in premises with normal fire resistance.
- There should be a siphon connected to a plumbing drainage. The premises should be protected from freezing and the temperature should never be lower than 4°C.
- When connecting copper pipes to the inlets and outlets, use an intermediate dielectric connection. Otherwise there is a risk of contact corrosion that can occurs on the connection fittings!
- During use (water heating mode), the dripping of water from the safety return-valve's drainage opening is normal. The same must be left open to the atmosphere.
- In order to secure the water heater's safe operation, the safety return-valve must undergo regular cleaning and inspections for normal functioning /the valve must not be obstructed/, and for the regions with highly calcareous water it must be cleaned from the accumulated lime scale. This service is not provided under warranty maintenance.
- If the probability exists for the premise's temperature to fall below 0°C, the storage tank must be drained via raising the safety return-valve's lever. If upon turning the valve's knob when the water tank is full, water do not start running from the valve's drainage opening, this is a signal of malfunction and the appliance's use must be discontinued.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- It is necessary to maintenance the water heater regarding the described rules, to change duly the anode protector and to clean the limestone also after the warranty period. It is necessary to keep the rules for preventive maintenance, replacement of magnesium anode protector and cleaning even after guarantee period. (p.IV)

**IMPORTANT! Usage of this device at temperature and pressure level above prescribed leads to waranty violation!**

- **This device is intendet for heating of potable water in liquid state. using different fluids in different states leads to waranty violation!**
- **Device's heat exchangers are intended for use with circulating clean water and mixture of it and Propylene (Ethylene) GLYCOL at liquid state. The presence of anticorrosion additives is obligatory. Using different fluids in different states leads to waranty violation!**

## VII. PERIODIC MAINTENANCE

At normal use of the appliance, under the influence of high temperature, lime scaleis deposited upon the heating element's surface. The manufacturer recommends preventive maintenance of your appliance every two years by an authorized service center or service base. This protective maintenance must include cleaning and inspection of the anode protector, which shall be replace with a new one if need arises. Each preventive maintenance of the said type must be entered in the appliance's warranty card and must outline date of performing the preventive maintenance, name of person and company performing the preventive maintenance, and signature.

**Sign a contract for service and inspection with an authorized repair specialist. It is recommended conducting maintenance once per year or two depending on water quality.**

**THE MANUFACTURER DOES NOT BARE THE RESPONSIBILITY FOR ALL CONSEQUENCES CAUSED BY NOT OBEYING THE INSTRUCTIONS, GIVEN HEREBY.**

## VIII. INSTRUCTIONS FOR ENVIRONMENTAL PROTECTION



Old appliances contain valuable materials and because of this should not be disposed with other products. To protect the environment we kindly ask you to surrender them in approved centers only!

GB



Tab/e 2b

G 3/4"

Biegumtac 12 • Powiat z węzownicą 12 • Outlet hot water • Wchód gorąca woda • lesire apa calda • Salida de agua caliente • Água Quente de

**Protective anode 1 • Защитен анод 1 • Anod de protección 1 • Ânodo de protecção 1 • Izhodna topla voda • Εξόδος ζεστού νερού • Wypływ gorącej wody**

Zадній анода 1. Автодіод пристрію 2. Анода діоду моніторингу 3. Анода діоду проточного 4. Анода діоду дистанційного

2 • Schulz anode 2 • Защитен анод 2 • Захисний анод 2 • Захисний анод 2 • Anode protectrice 2 • Защитна анода 2 • Avóðrjo protostáč 2 • Anoda ochronna 2

Горчични апостол - јасник је анод - лико је рибоче - лико је рибљача - лико је рибљака  
Šuštanade - Защитник анод - Захисни анод - Захијни анод • Anode protectrice • Защитна анода  
•Anode прозекторка • Anoda охропона

Дренаж · Drainage · Drenaj · Drenaje · Drenagem · Entwässerung · Drenāža · Drenaz  
En. Hidranteen · Electric heating element · Resistencia eléctrica · Resistenza calentadora  
Aquecedor elétrico · Elektrische Erhitzer · En. Hairepaeen · En. Härpääv  
Elektrini ohja · Chauffage électrique · Elektriskt element/terziv

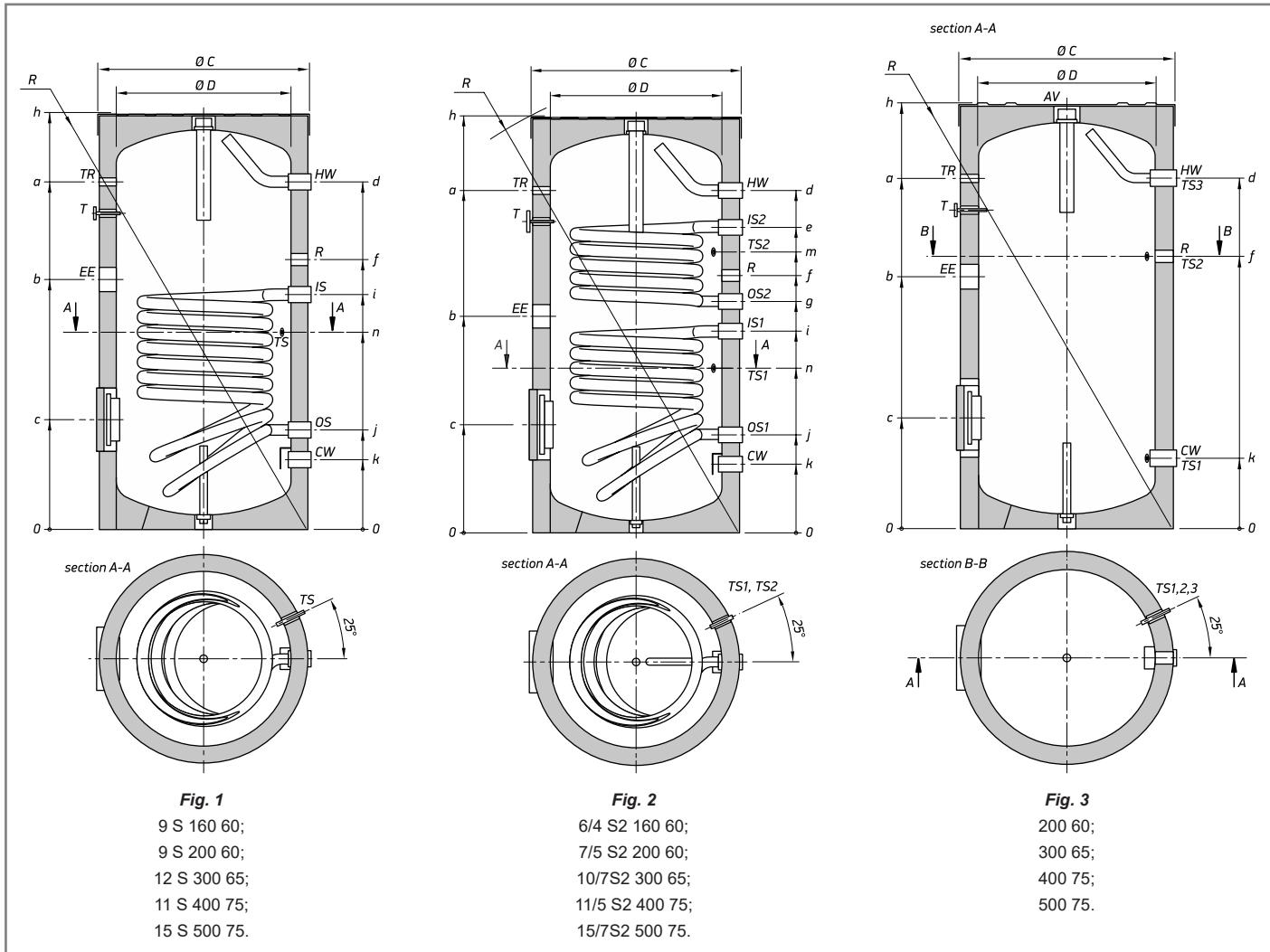
Table 3

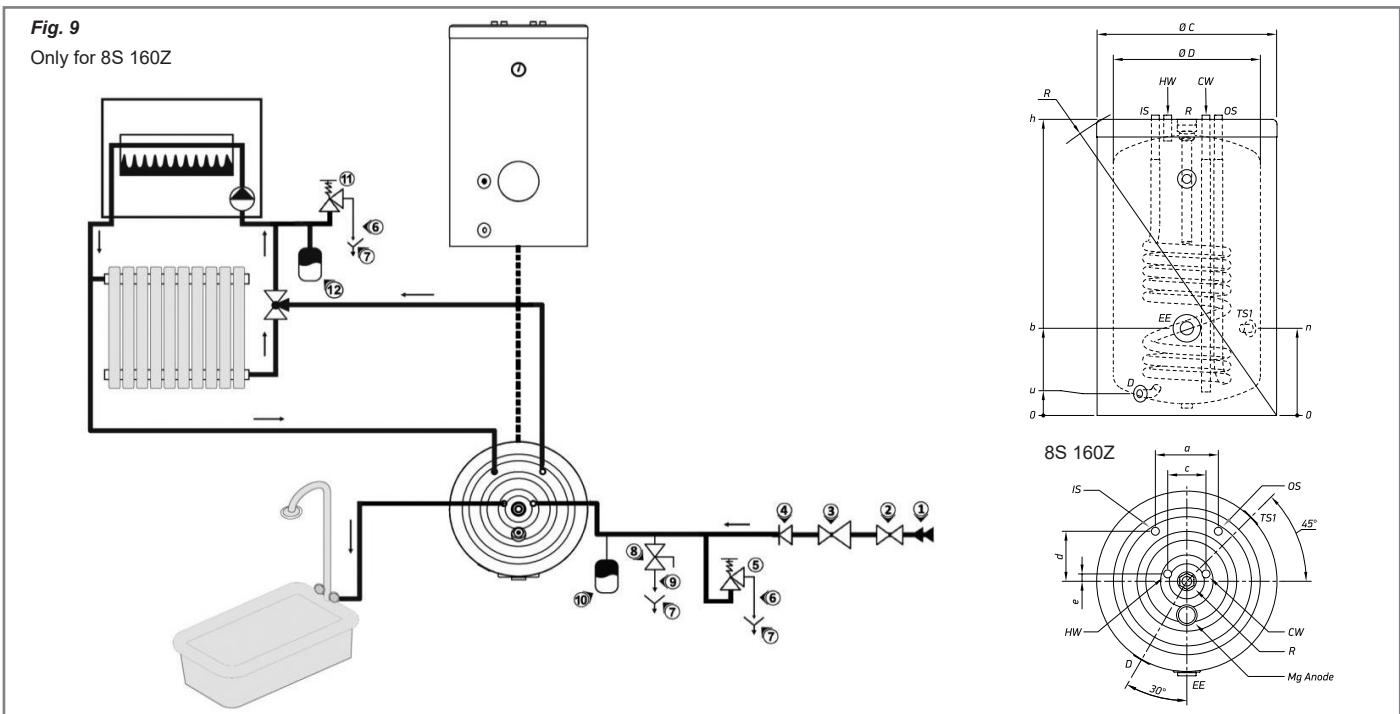
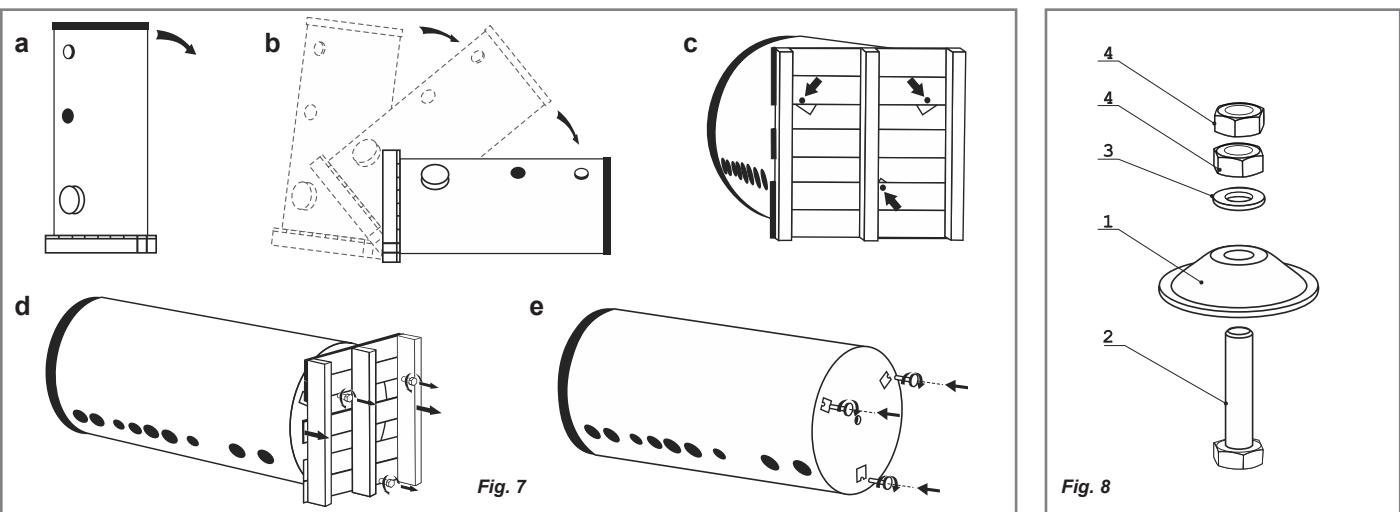
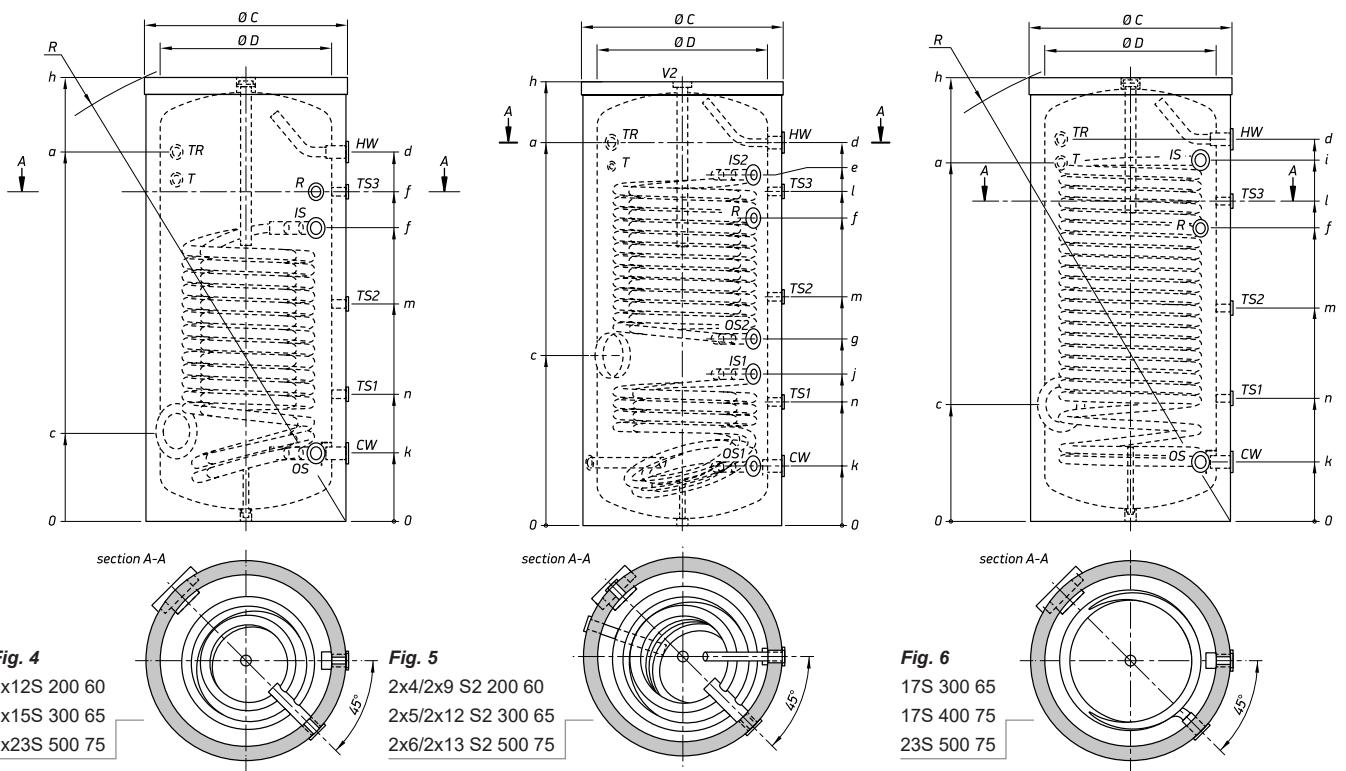
Table 4

Water heater volume. • Обем на бойлера. • Volumul de încălzire a apei. • Volumen delcalentador de agua. • Volume do termoacumulador. • Volumen des Boilers. • Объем бойлера. • Об'єм бойлера. • Volumen bojler. • Volume du chauffe-eau. • Volumen bojlerja. • Όγκος δοχείου. • Objętość ogrzewacza wody	200 ltrs	300 ltrs	400 ltrs	500 ltrs
Valve Size inlet, at least. • Клапан - размер на входа. • Intrare Valve Dimensiune, cel puțin. • Válvula-tamaño de entrada. • Válvula-tamano de entrada. • Ventilgröße am Eingang. • Клапан - размер на входе. • Клапан - розмір на вході. • Sigurnosni ventil ulazna velicina, barem. • Taille d'entrée de la valve. • Vhod velikost ventila, vsaj. • Μέγεθος βαλβίδας εισόδου, ελάχιστο. • Rozmiar zaworu na wejściu, co najmniej	DN15 (R1/2)	DN20 (R3/4)		
Flow diameter at least. • Минимален диаметър на проходното му сечение. • Debit diametru de cel putin. • Diámetro mínimo de la sección de paso. • Minimaler Durchgangsschnittes. • Минимальный диаметр проходного сечения. • Мінімальний діаметр його прохідного перерізу. • Protok promjer najmanje. • Diamètre du flux. • Premer pretoka vsa Διάμετρος ροής, ελάχιστη. • Średnica przepływu, co najmniej	Ø12 mm	Ø14 mm		
Maximum heating power. • Максимална мощност на нагряване на бойлера. • Putere maximă de încălzire. • Potencia máxima de calentamiento. • Potência máxima de aquecimento do termoacumulador. • Maximale Leistung der Erwärmung des Boilers. • Максимальная мощность нагрева бойлера. • Максимальна потужність нагріву бойлера. • Maksimalna snaga grijanja. • Puissance de chaleur maximale. • Najveća ogrevalna moć. • Μέγιστη ισχύς θέρμανσης. • Maksymalna moc grzewcza	75 kW	150 kW		

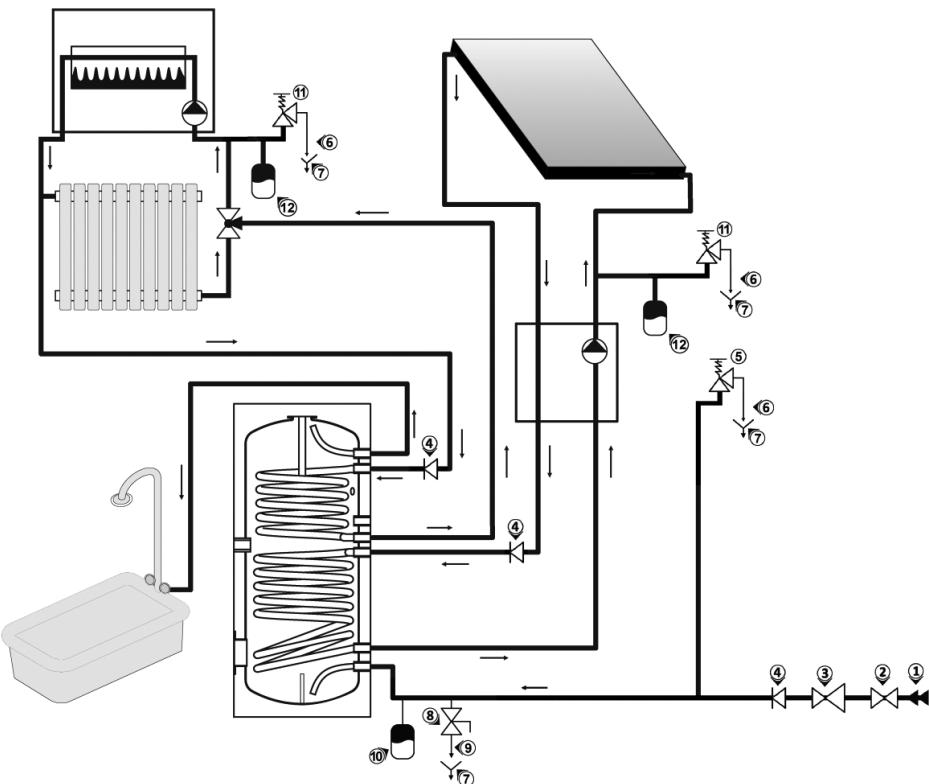
Table 5

Water heater volume. Volumen del calentador de agua. Объем бойлера. Обем на бойлера. Volume do termoacumulador. Об'єм бойлера. Volumul de încălzire a apei. Volumen des Warmwasserspeicher. Volumen bojler. Volume du chauffe-eau Volumen bojlerja Όγκος δοχείου Objętość ogrzewacza wody	Pressure at cold water inlet. Presión del agua fría. Давление холодной воды. Напягане на студената вода. Pressão da água fria. Тиск холодної води. Presiunea de apă rece. Druck des Kaltwassers. Tlak na hladno dotokom vode. Pression d'entrée de l'eau froide. Tlak pri vstupu v hladno vodo Πίεση στην είσοδο κρύου νερού Ciśnienie na wejściu zimnej wody	Minimum expansion vessel USEFUL VOLUME in liters at water heater temperature. Mínimo VOLUMEN ÚTIL del vaso de expansión en Litros a temperatura del calentador de agua. Минимальный ПОЛЕЗНЫЙ ОБЪЕМ расширительного сосуда в литрах при температуре бойлера. Минимален ПОЛЕЗЕН ОБЕМ на разширителният съд в литри при температура на бойлера. VOLUME ÚTIL mínimo do recipiente de expansão em litros e a temperatura do termoacumulador. Мінімальний КОРІСНИЙ ОБ'ЄМ розширювального бака в літрах при температурі бойлера. Vas de expansie VOLUM UTIL la temperatura de încălzire a apei, în litri minimum. Minimales NUTZVOLUMEN des Ausdehnungsgefäßes in Litern bei der Temperatur des Boilers. Minimalna ekspanzjnska posuda KORISNI VOLUMEN u liters na temperaturi bojler. Volume minimum du vase d'expansion en litres du chauffe eau: Minimalna uporabna prostornina ekspanzjnske posode v filtrih pri temperaturi grelnika vode Ελάχιστο οφέλιμος όγκος στο δοχείο διαστολής στο Θερμοκρασία λέβητα: Minimalna objętość naczynia wzbiorczo/wyrownawczego w litrach przy temperaturze
200 ltrs	ltrs	(CW),bar
	3	7
	4	8
300 ltrs	5	12
	3	10
	4	13
400 ltrs	5	18
	3	13
	4	17
500 ltrs	5	23
	3	17
	4	21
	5	29
		10°C - 60°C
		10°C - 70°C

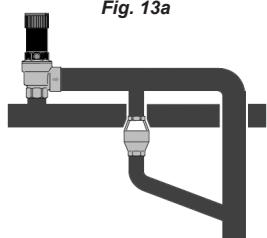




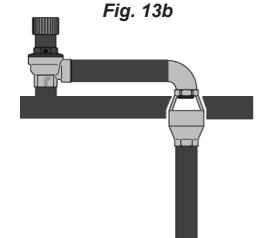
*Fig. 10*



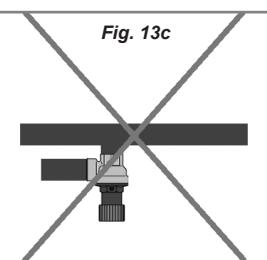
*Fig. 13a*



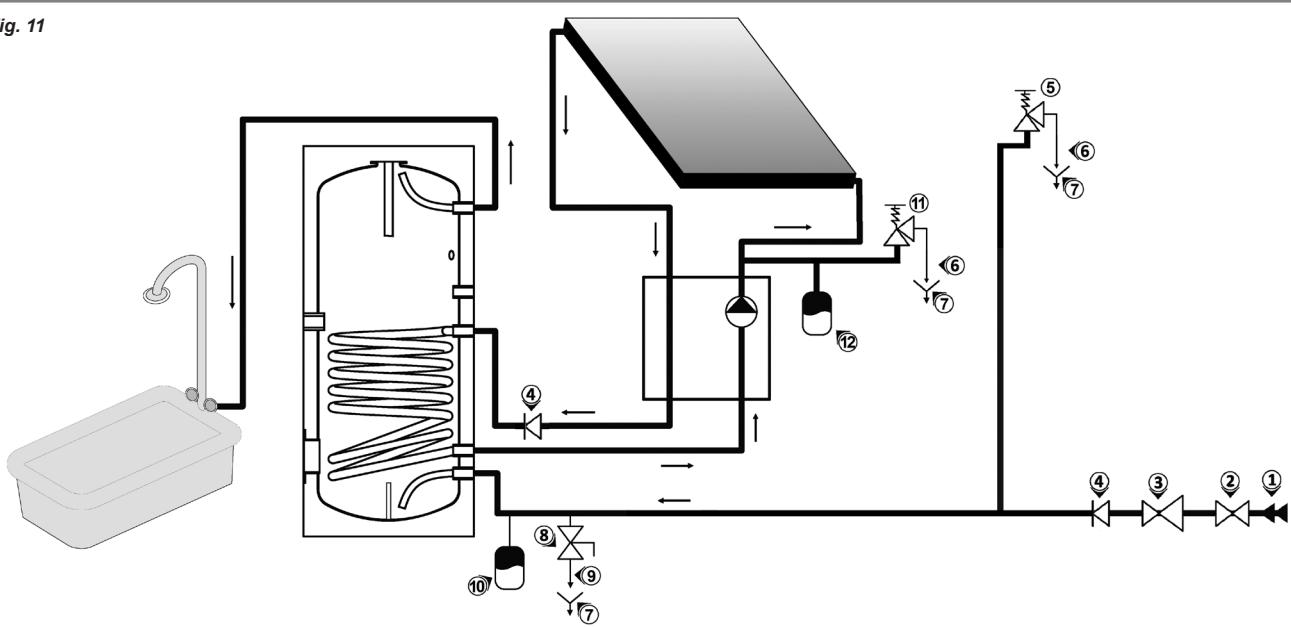
*Fig. 13b*



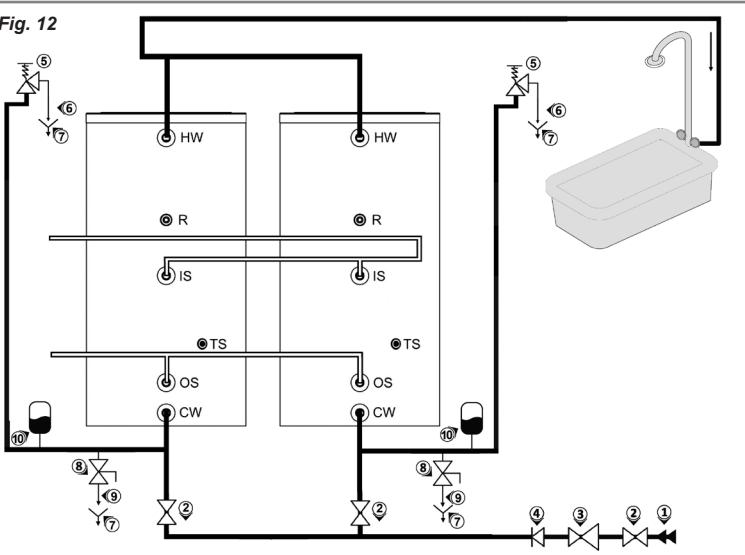
*Fig. 13c*



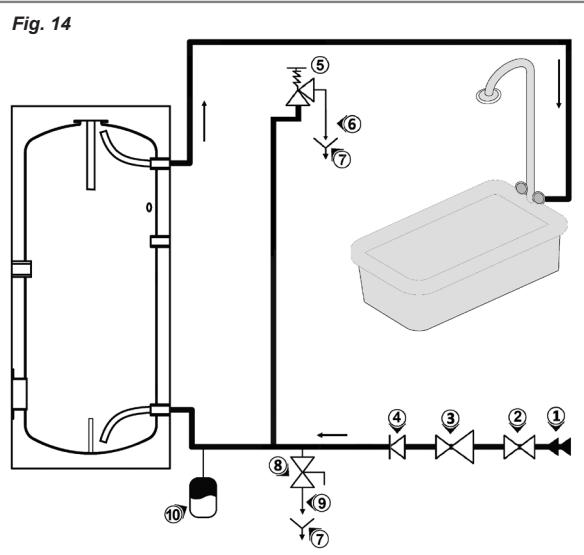
*Fig. 11*

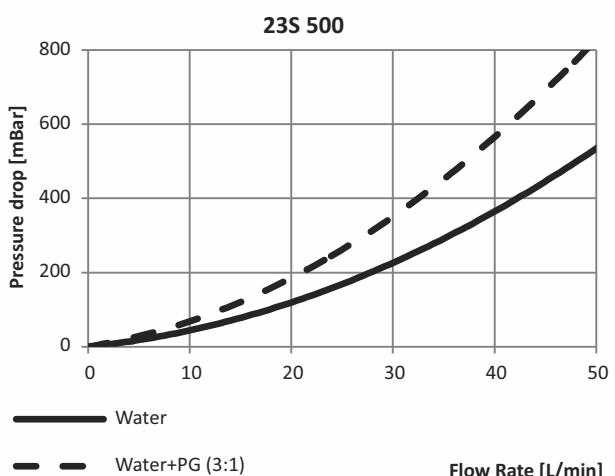
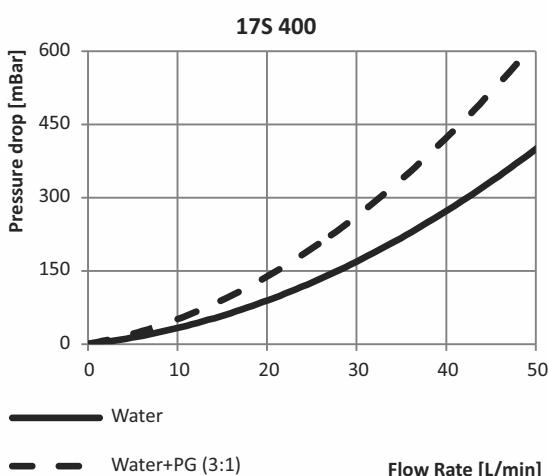
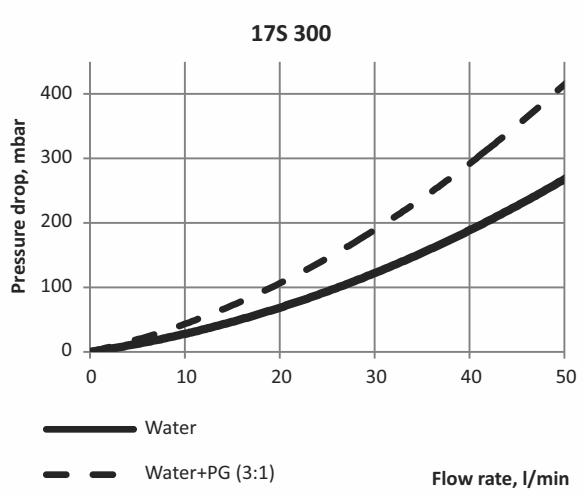
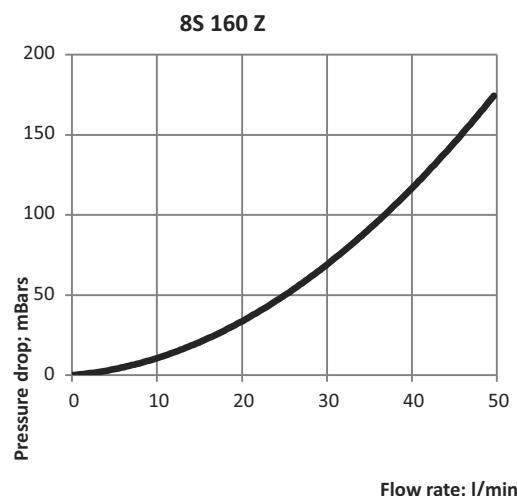
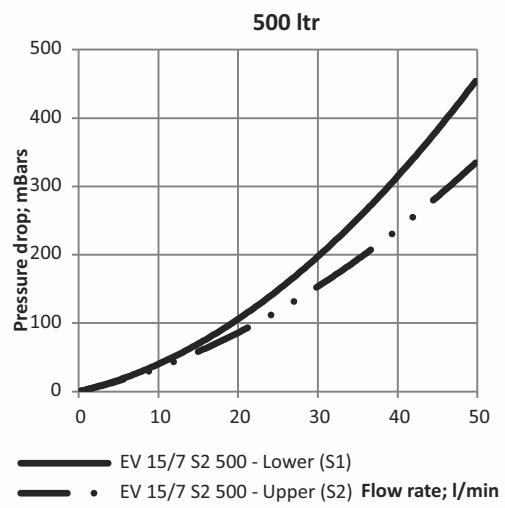
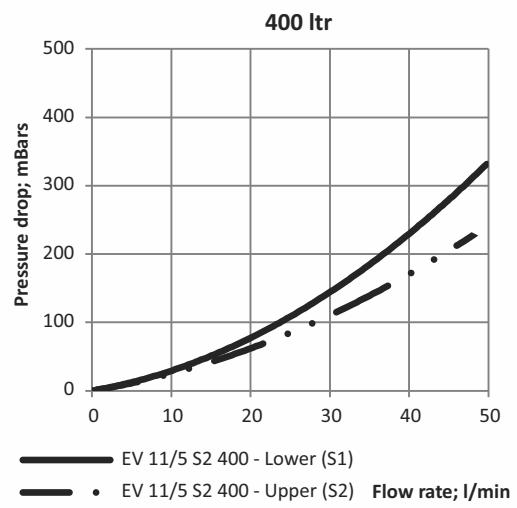
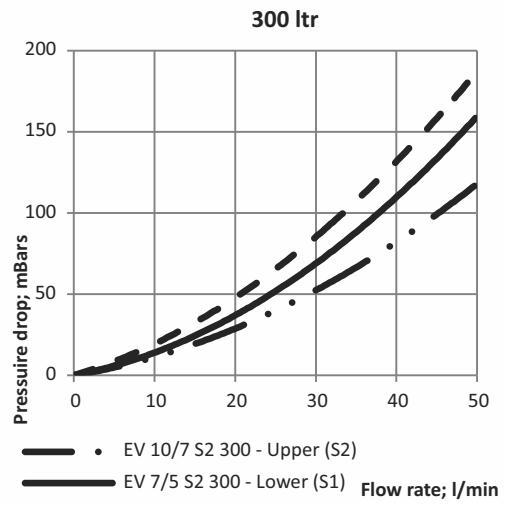
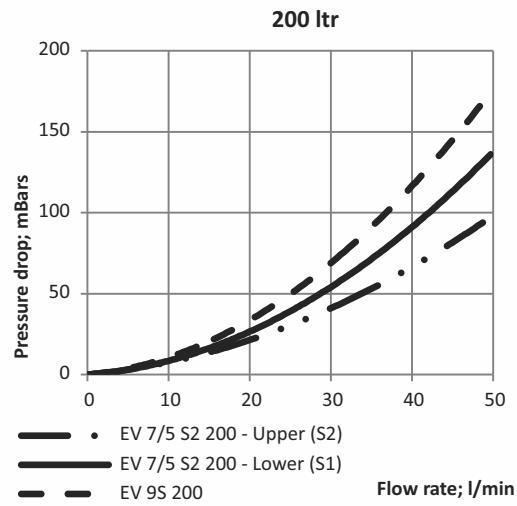


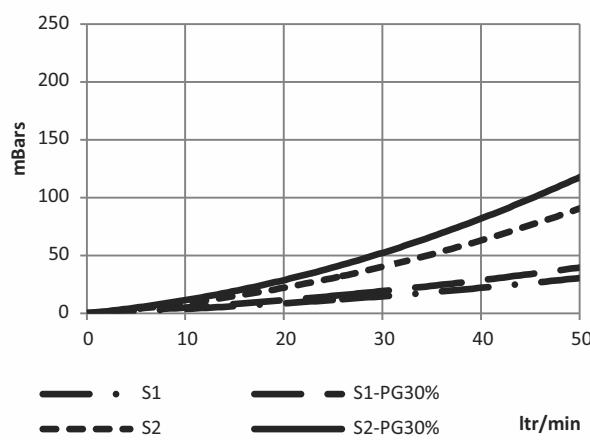
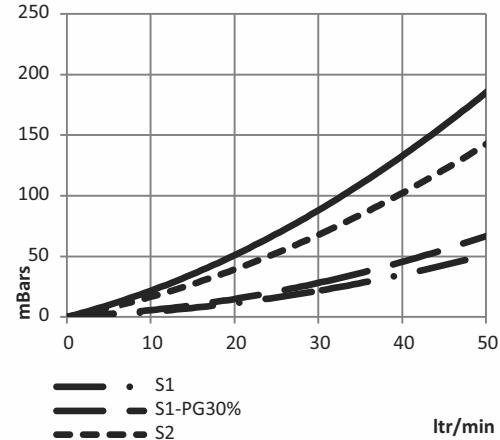
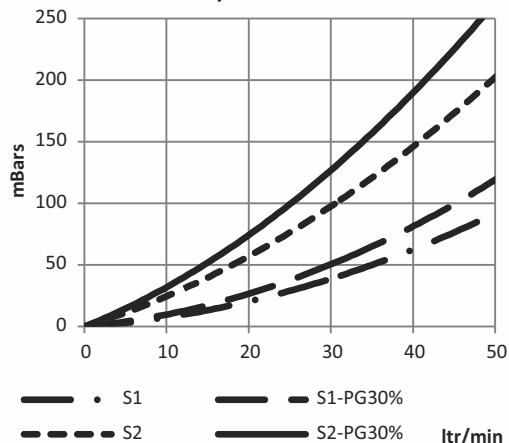
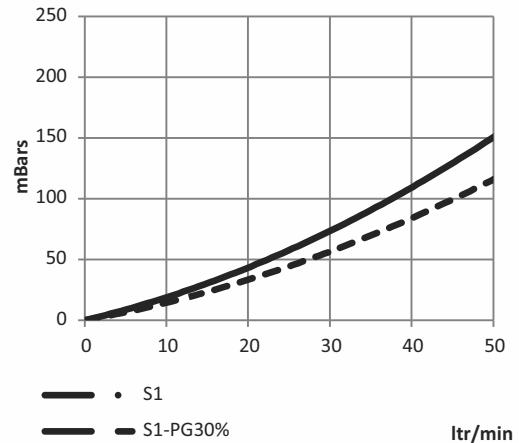
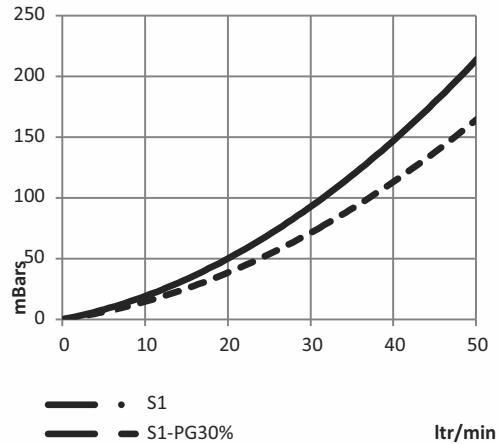
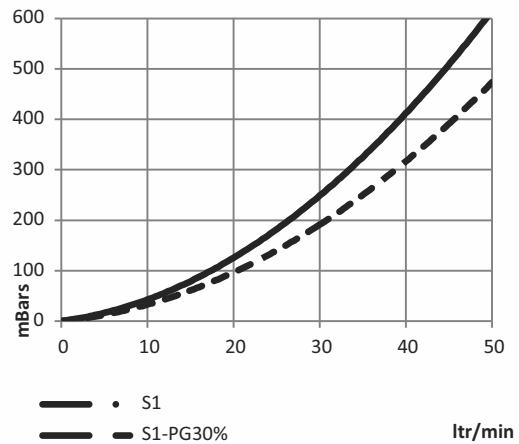
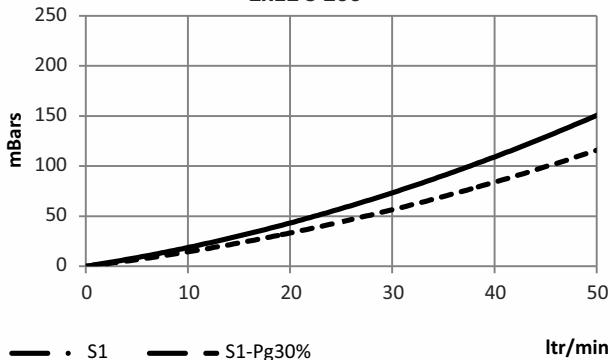
*Fig. 12*



*Fig. 14*





**2x4/2x9 S2 200****2x5/2x12 S2 300****2x6/2x13 S2 500****2x12 S 200****2x15 S 300****2x23 S 500****2x12 S 200****2x15 S 300**