Temperature safety valve with automatic filling

544 series

BSI EN ISO 9001:2000 Cert. n° FM 21654
UNI EN ISO 9001:2000 Cert. n° 0003
01058/07 GB

Function

The dual effect temperature safety discharge valve is used to ensure safety in heating systems that use a fireboxes or stoves as a heat generator.
The device integrates in a single block a heat discharge valve and a filling valve that operate simultaneously controlled by a positive safety type remote sensor. The refilling, in case of valve intervention, ensures water circulation in the phase of fuel running out, thus protecting the integrity of the generator.

Product range

Code 544400 Temperature safety valve with automatic filling — Size 1/2"

Technical specifications

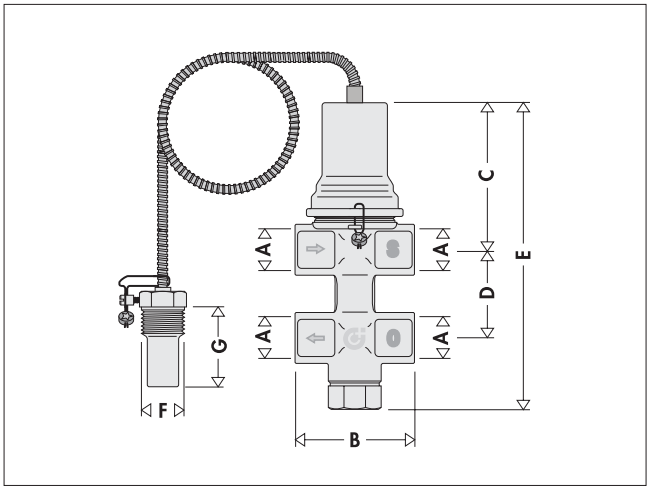
Materials:

Body:	brass EN 12165 CW617N, chrome plated
Pocket:	brass EN 12164 CW614N
Spring:	steel UNI 3823
Hydraulic seals:	EPDM

Performance:

Medium:	water, glycol solutions
Max. percentage of glycol:	30%
Max. working pressure:	6 bar
Set temperature:	100°C (+0°C/-5°C)
Temperature range:	5–110°C
Discharge flow rate at 1 bar Δp:	1600 l/h
Connections:	1/2" F
Probe connection:	1/2" M
Length of capillary:	1300 mm

Dimensions



Code	A	B	C	D	E	F	G	Weight (kg)
544400	1/2"	60	77	50	162	1/2"	43	1,32

Operating principle

When the setting temperature is reached, **(Fig.1)** the cold water inlet aperture is opened (passage from 4 to 3) and, simultaneously, the drain aperture is opened (passage from 1 to 2), until the temperature drops to below the trigger value and the inlet and drain close simultaneously. In the event of a malfunction in the sensitive element (5) (6), the valve will perform the same functions described above in a continuous manner.

The following are highlighted on the valve body **(Fig.2)**:
- arrow indicating the point of arrival of the generator pipes on the flow pipe (1) and connection to the safety drain marked with a letter “S” (2).
- arrow indicating delivery to the generator (3) and the mains water system inlet, marked with a letter “C” (4).

IMPORTANT: it is not possible to reverse the flows, the indications for filling and drain shown on the valve must be followed.

Fig.2

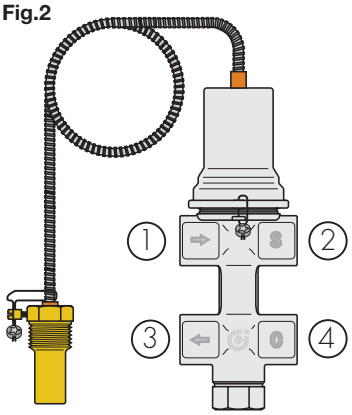
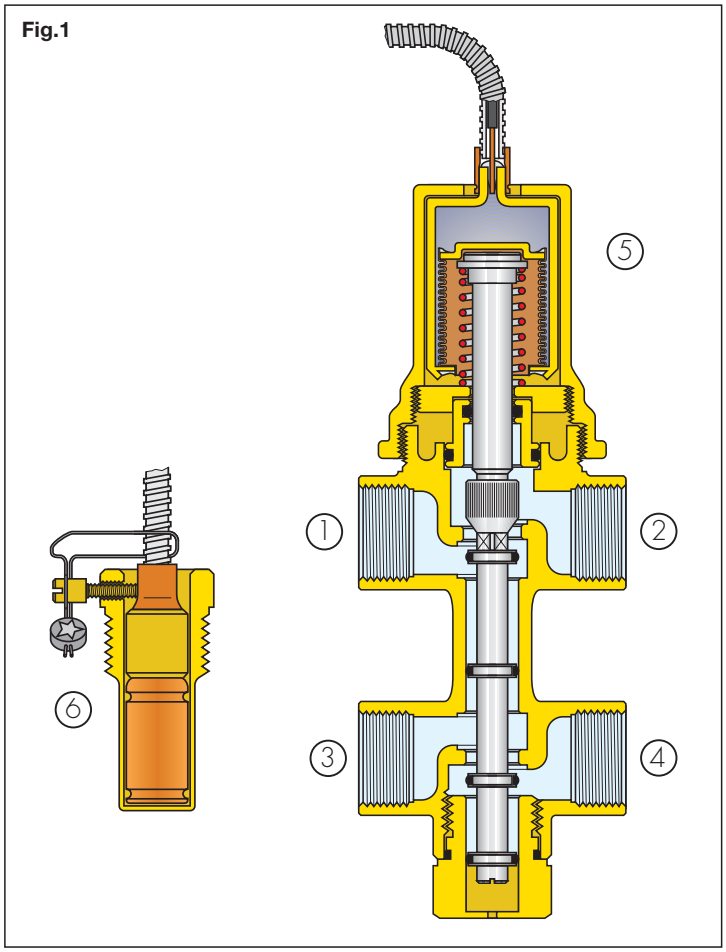


Fig.1

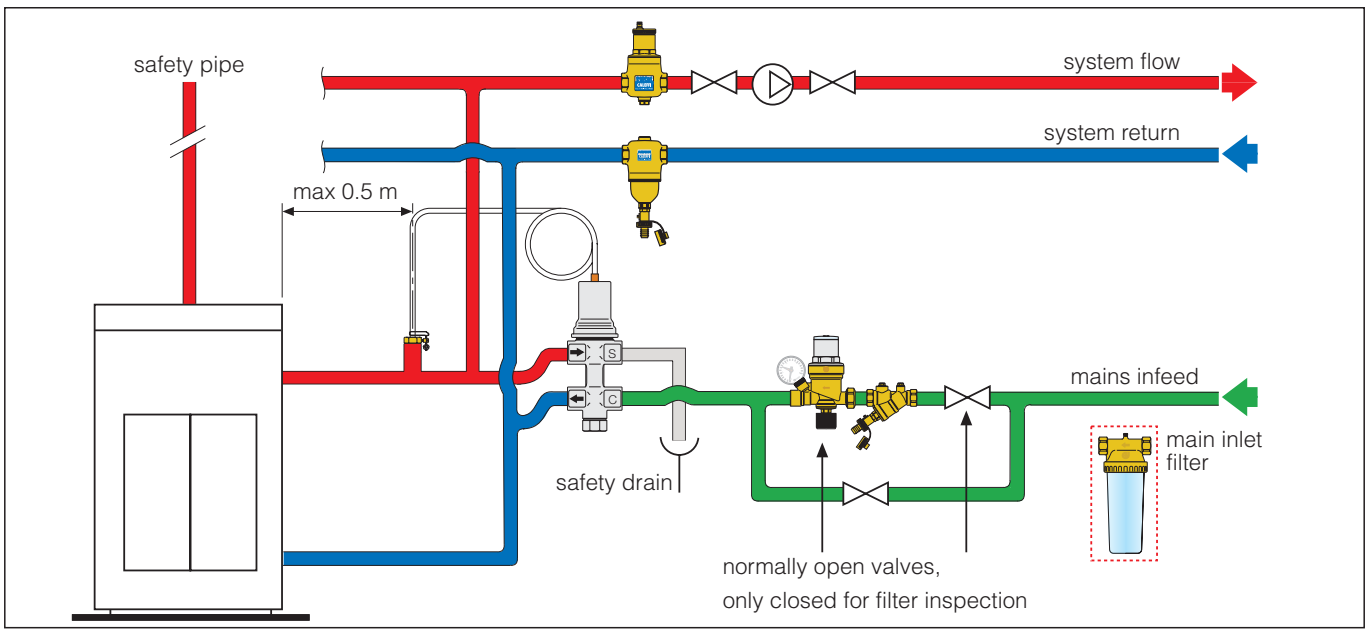


Installation

The valve can be fitted in any position, vertical, horizontal or upside down.
The temperature probe pocket (6), supplied together with the valve, must be fitted on the flow pipe at a distance lower than 0,5 m from the generator or at the highest point of the water heater and anyhow before the drain pipe. The pocket provided with the valve must be used.

In order to be able to control the inlet pressure better, it is advisable to have a charging unit (normally open) on the valve filler pipe, set at the system operating pressure. In the case of operation with an open vessel system, the entire system is charged directly through the pipe connected to the vessel.

In order to avoid any type of malfunction due to the presence of debris, it is advisable to install an inspectable Y strainer on the filling inlet. It is necessary to check periodically that the strainer is not dirty or blocked.
The installation of a low head loss strainer, fitted with devices to check the state of cleanliness, is recommended to enable functional testing during the work phase (e.g., pressure gauges upstream and downstream of the filtering element).



551 DISCAL

broch. 01060

Deaerator.
Brass body.
Female connections.
With drain.
Max. working pressure: 10 bar.
Max. discharge pressure: 10 bar.
Working temperature range: 0–110°C.
Patented.

Code	
551005	3/4”
551006	1”
551007	1 1/4”
551008	1 1/2”
551009	2”

Function

Air separators are used to remove continuously the air contained in the hydraulic circuits of heating and cooling systems. The air discharge capacity of these devices is very high. They are capable of removing automatically all the air present in the system down to micro-bubble level. The circulation of fully deaerated water allows systems to work under optimal conditions without any trouble of noise, corrosion, local overheating and mechanical damage.

5462 DIRTCAL

broch. 01137

Dirt separator.
Brass body.
Female connections.
Drain cock with hose connection.
Top connection with plug.
Max. working pressure: 10 bar.
Working temperature range: 0–110°C.
Particle separation rating: to 5 μm.
Patented.

Code	
546205	3/4”
546206	1”
546207	1 1/4”
546208	1 1/2”

Function

In heating and air conditioning systems, the circulation of water containing impurities may result in rapid wear and damage to components such as pumps and valves. It also causes blockages in the heat exchangers, heating elements and pipes, resulting in a lower thermal efficiency within the system. The dirt separator separates off these impurities, which are mainly made up of particles of sand and rust. The impurities are collected in a large collection chamber that requires low frequency cleaning operations, from which they can be removed even while the system is in operation. This device is capable of efficiently removing even the smallest particles, with extremely limited head loss.

553

broch. 01061

Pre-adjustable automatic filling unit, anti-scale, inspectionable with pressure setting indicator.
Complete with manual cock, strainer and check valve.
Max. inlet pressure: 16 bar.
Max. working temperature: 65°C.
Setting pressure range: 0,2–4 bar.

Code	
553540	1/2” with press. gauge conn.
553640	1/2” with press. gauge

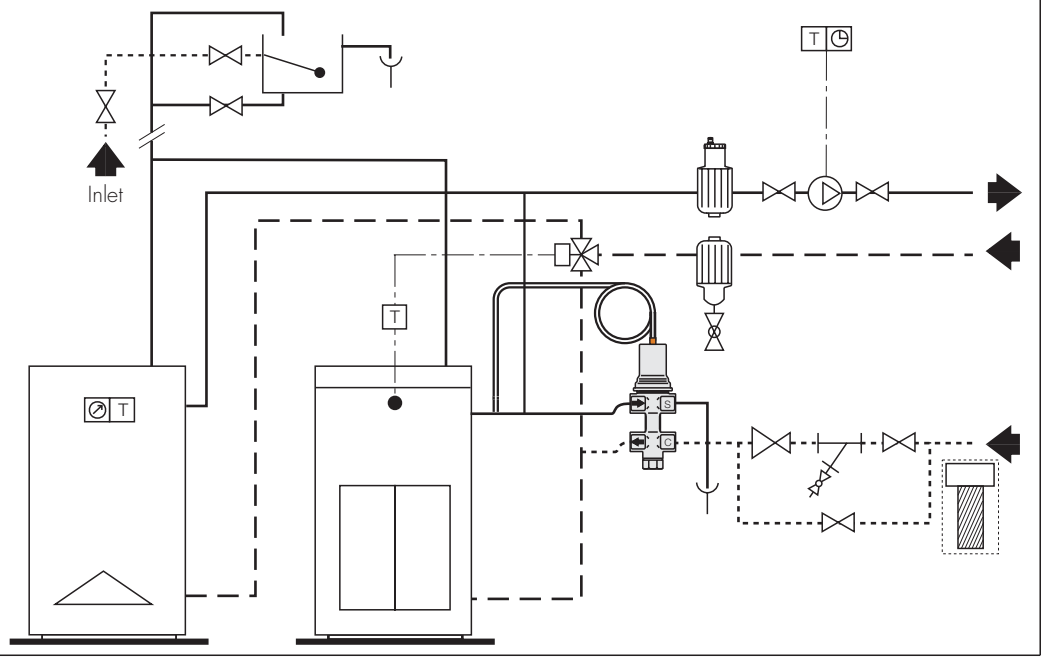
Function

The automatic filling unit is a device consisting of a pressure reducing valve with compensating seat, an inlet filter, a shut-off valve and a check valve.
It is installed on the water inlet piping in sealed heating systems, and its main function is to maintain the pressure of the system stable at a set value, automatically topping up with water as required. After installation, during the filling or topping-up phase, the water feed will stop when the set pressure is reached.

Application diagrams

SYSTEM WITH OPEN EXPANSION VESSEL

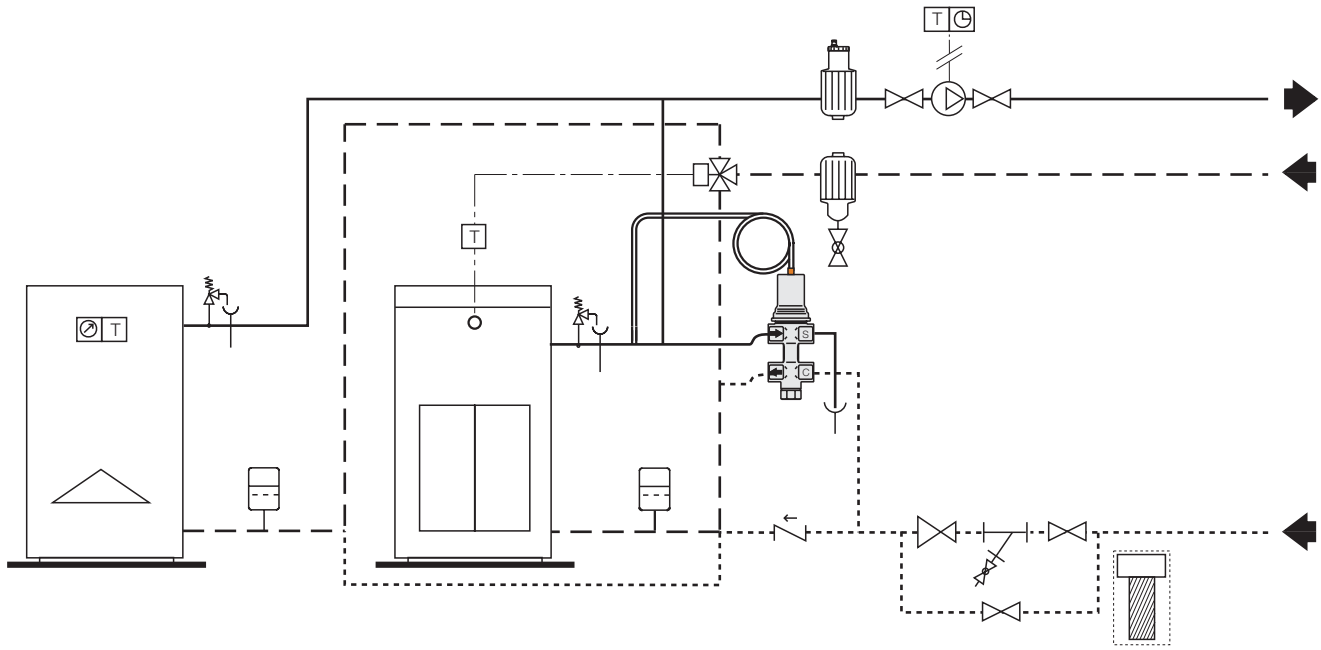
IMPORTANT: for overall power levels exceeding 35 kW the dimensions of the safety pipe must comply with current regulations.



- Expansion vessel
- Safety relief valve
- Pump
- Y-Strainer with drain
- 3-way zone valve
- Shut-off valve
- Sistem drain
- Filling group
- Thermostat
- Pressure gauge
- Thermostatic timer
- Deaerator
- Dirt separator
- Main inlet filter

SYSTEM WITH CLOSED EXPANSION VESSEL

IMPORTANT: This diagram may only be used only if it is allowed by national or local rules or regulations.
For overall power levels exceeding 35 kW it is necessary to have appropriate safety devices according to current regulations.



SPECIFICATION SUMMARIES

Code 544400

Temperature safety valve with automatic filling. Connections 1/2" F. Brass body. Chrome plated. Steel spring. EPDM seals. Maximum working pressure 6 bar. Maximum working temperature 110°C. Maximum discharge temperature 100°C (0°C/-5°C). Complete with remote probe with pocket. Connection 1/2" M. Length of capillary 1300 mm.

CALEFFI

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