

Automatic filling units



series 553



cert. n° 0003
ISO 9001

01025/05 GB

Replaces 01025/02 GB



Function

The automatic filling unit is a device consisting of a pressure reducing valve with compensating seat, an inlet strainer, a shut-off valve and a check valve.

It is installed in the water supply pipework in sealed heating systems and its main function is to maintain the system pressure stable at a set value, automatically topping up with water, as required.

After installation, during the filling or topping-up phase, feed will stop when the set pressure is reached.

Product range

Code 553040 Automatic filling units with pressure gauge connection _____ Size 1/2"
Code 553140 Automatic filling units with pressure gauge _____ Size 1/2"

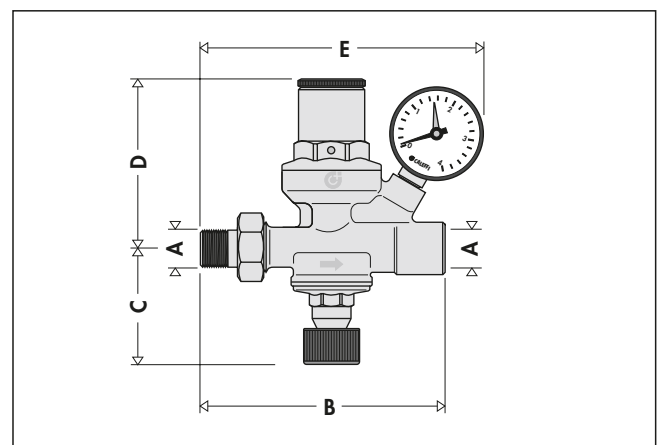
Technical specification

Materials: - body: brass EN 12165 CW617N
- cover: brass EN 12165 CW617N
- seals: NBR

Max. inlet pressure: 16 bar
Pressure setting range: 0,3 – 4 bar
Factory setting: 1,5 bar
Max. working temperature: 70°C
Pressure gauge scale: 0 – 4 bar

Connections: - inlet: 1/2" M with union tailpiece
- outlet: 1/2" F
- pressure gauge connection: 1/4" F

Dimensions



Code	A	B	C	D	E	Weight (kg)
553040	1/2"	122	61	87	-	0,85
553140	1/2"	122	61	87	149	0,95

Construction details

Components

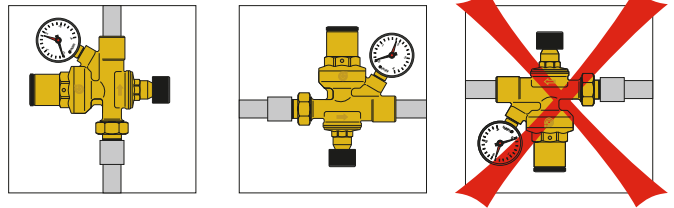
The valve body is made of hot forged brass. The re-inforced rubber control diaphragm is formed in a shape permitting deformation to take place without creating stresses. The only sealing element of the compensating piston is in the upper part of the device, ensuring that impurities cannot be deposited.

Manual / automatic opening

In the lower part of the unit, a manual shut-off valve is provided, which can close off the supply to the system. The automatic condition of operation is restored when the valve is re-opened. The pressure level in the system will gradually return to the set calibration value.

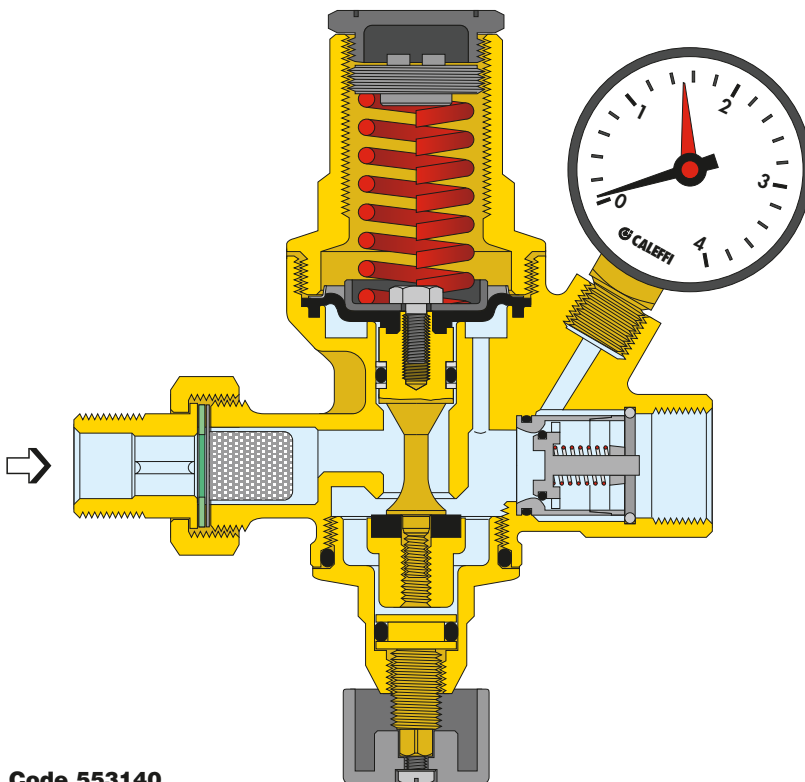
Installation

1. Automatic filling unit code 553040/140 can be installed in either horizontal or vertical position. It is, however, vital that the unit is not installed upside down.



The unit is adjusted by means of the regulator located inside the top cover: rotating it in a clockwise or anticlockwise direction increases or decreases the pressure at which the unit operates.

2. When the system is being commissioned, the unit is normally calibrated at a pressure no lower than the hydrostatic pressure plus 0,3 bar. The internal mechanism will automatically regulate the pressure by closing down the supply on reaching the set value.
3. The system fills slowly, as the amount of water entering is in direct proportion to the amount of air vented.
4. When the system is filled, the shut-off valve can be closed. In order to restore the automatic top-up condition, merely re-open the valve. The pressure in the system will gradually return to the set pressure.



Code 553140

SPECIFICATION SUMMARIES

Series 553

Automatic filling unit. 1/2" M with union tailpiece x 1/2" F threaded connection. Brass body and cover. Diaphragm and seals in NBR. Maximum working temperature 70°C. Maximum inlet pressure 16 bar. Pressure setting range 0,3 – 4 bar. Complete with pressure gauge, scale 0 – 4 bar (or pressure gauge connection), shut-off, strainer and check valve.

We reserve the right to change our products and their relevant technical data, contained in this publication, at any time and without prior notice.



Pre-adjustable filling units

series 553 - 573



cert. n° 0003
ISO 9001

01061/01 GB



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.

This product has the characteristic of being pre-adjustable, which means that it can be adjusted at the required pressure value before the system charging phase.

After installation, during the filling or topping-up phase, the water feed will stop when the set pressure is reached.

A pre-assembled version is also available, complete with upstream backflow preventer and shut-off valve.

Reference documentation

- Leaflet 01008 Backflow preventer, series 573

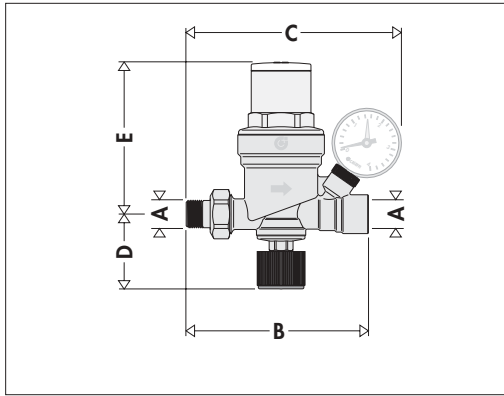
Product range

Code 553540 Filling unit with pressure gauge connection and pressure setting indicator _____ Size 1/2"
 Code 553640 Filling unit with pressure gauge and pressure setting indicator _____ Size 1/2"
 Code 573001 Charging unit with pressure gauge, complete with backflow preventer series 573 and shut-off valve _____ Size 1/2"

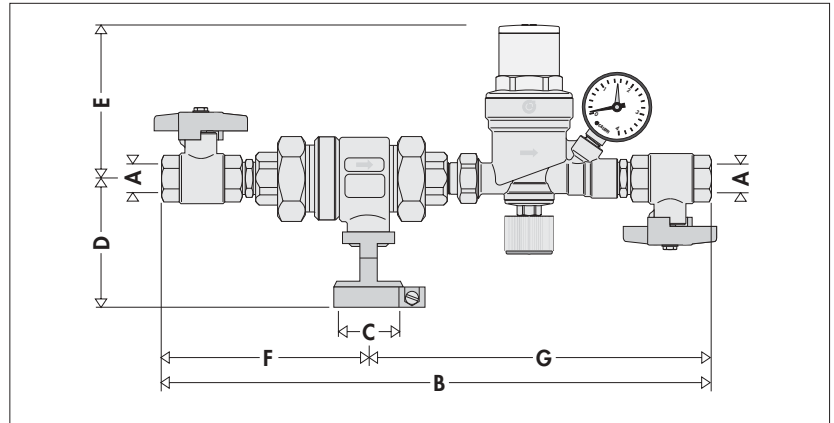
Technical specification

Code	553540 553640	573001
Materials (code 553540/640 only)		
- Body:	brass UNI EN 12165 CW617N	brass UNI EN 12165 CW617N
- Cover:	PA66 GF 30	PA66 GF 30
- Seals:	NBR	NBR
Performance		
- Max inlet pressure:	16 bar	10 bar
- Pressure setting range:	0,2÷4 bar	0,2÷4 bar
- Factory setting:	1,5 bar	1,5 bar
- Indicator accuracy:	±0,15 bar	±0,15 bar
- Max working temperature:	65°C	65°C
- Pressure gauge pressure range:	0÷4 bar	0÷4 bar
Connections		
- Inlet:	1/2" M with union tailpiece	1/2" F
- Outlet:	1/2" F	1/2" F

Dimensions



Code	A	B	C	D	E
553540	1/2"	122	-	50	101,5
553640	1/2"	122	152	50	101,5



Code	A	B	C	D	E	F	G
573001	1/2"	335	Ø 40	87	101,5	122	213

Construction details

Code 553540 and 553640 (registered model)

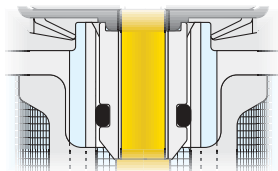
Pre-calibration

This model is equipped with a pressure setting indicator for the commissioning operation. The system charge pressure can be input by means of the adjusting screw, before the start of the system charging phase.



Anti-stick materials

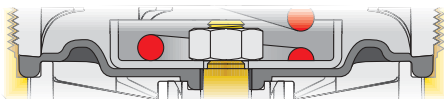
The central housing containing the moving parts and the internal compensating spindle are made of a low adhesion coefficient plastic. This material minimises the risk of formation of scale deposits, the main cause of malfunctions.



Diaphragm-seat seal

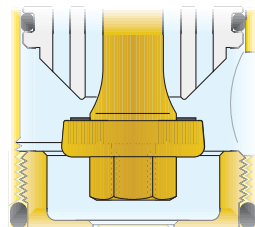
The useful working surface of the diaphragm is particularly large, in order to guarantee greater precision and sensitivity when working with minimum pressure differences.

This feature is also useful in that it gives greater power to the sliding of the spindle and overcomes friction.



In view of the low flow rates involved, the filling unit seat has been designed with the smallest possible diameter.

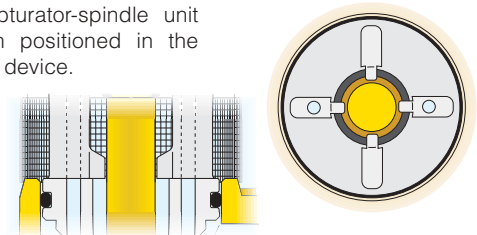
This factor, combined with the extended surface of the diaphragm, creates an optimum dimensional ratio for a piece of equipment which must maintain its operating characteristics unchanged over time.



Obturator guide

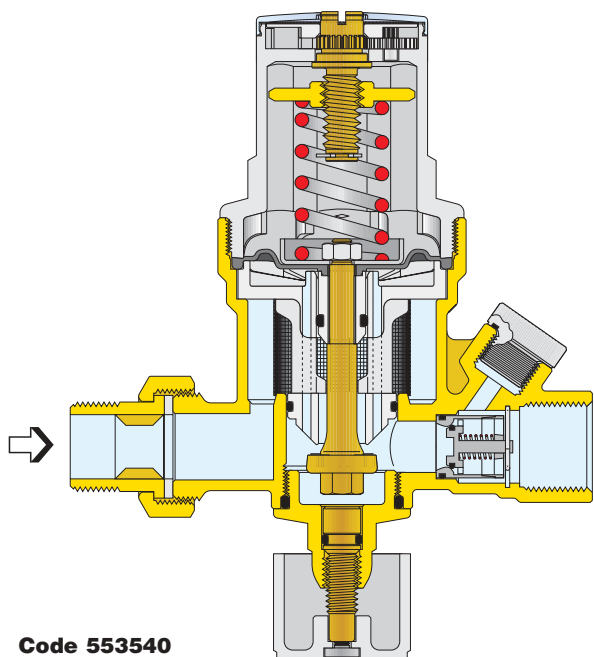
In order to reduce the frictional surfaces, the obturator-spindle unit guide has been positioned in the upper part of the device.

It consists of four spokes formed directly on the plastic central support.



Removable filter cartridge

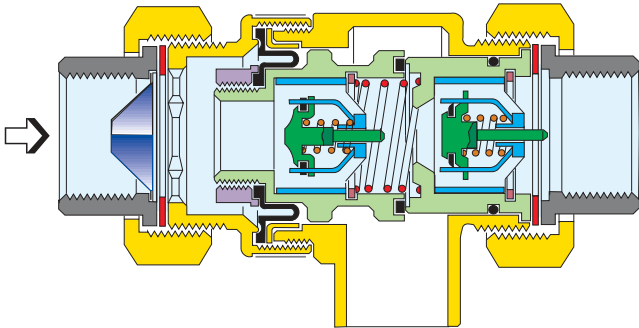
The cartridge containing the operating mechanisms, protected by a large surface area strainer, is removable. This makes it very easy and quick to carry out inspections, internal cleaning and even replacement of the cartridge itself.



Code 553540

• Code 573001

The filling unit is a device which is positioned between the heating system and the mains or internal water distribution system. In order to avoid backflow of the heating system water, which may be polluted and constitute a human health hazard, it is always advisable to install a pre-assembled kit with backflow preventer.



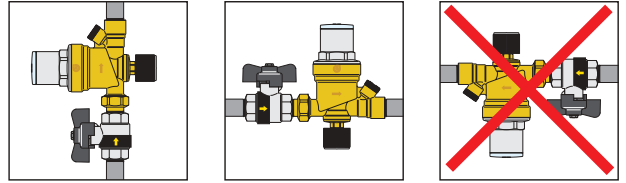
Series 573

Charging unit code 573001 consists of:

- Backflow preventer with non-controllable reduced pressure zones, series 573
- Filling unit, series 553
- Shut-off ball valve

Installation

1. Filling unit code 553540/640 can be installed in either horizontal or vertical position. It is, however, vital that the unit is not installed upside down.

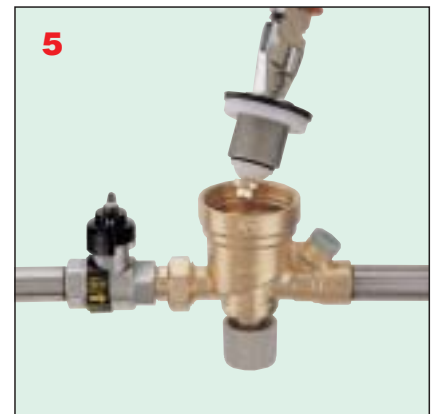
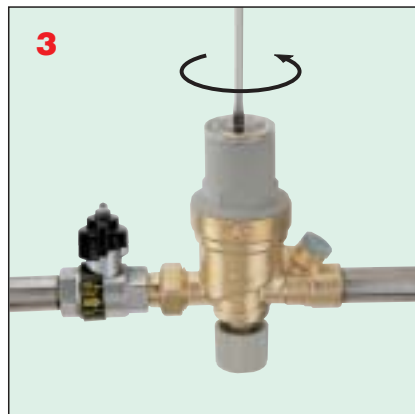
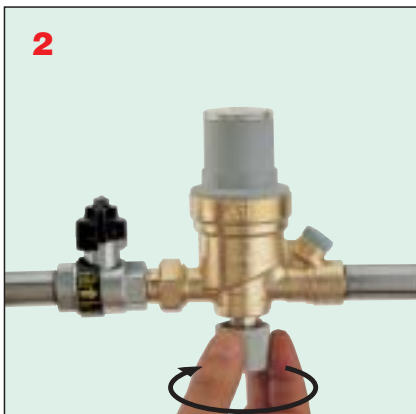


2. The special method of mechanical pre-adjustment with pressure setting indicator makes it possible to set the unit to the required value in the system before the beginning of the charging phase.
3. The unit is normally set at a pressure not less than that obtained by adding the hydrostatic pressure and 0,3 bar.
4. During charging, the internal mechanism will automatically regulate the pressure until it reaches the required value, **without the need to oversee the filling operation** itself. This prevents the system being charged to a higher pressure value than required.
5. Given the pre-calibrating function, the presence of the downstream pressure gauge is not essential.
6. When the system is filled, the shut-off valve can be closed. In order to restore the automatic top-up condition, merely re-open the valve. The pressure in the system will gradually return to the set pressure.

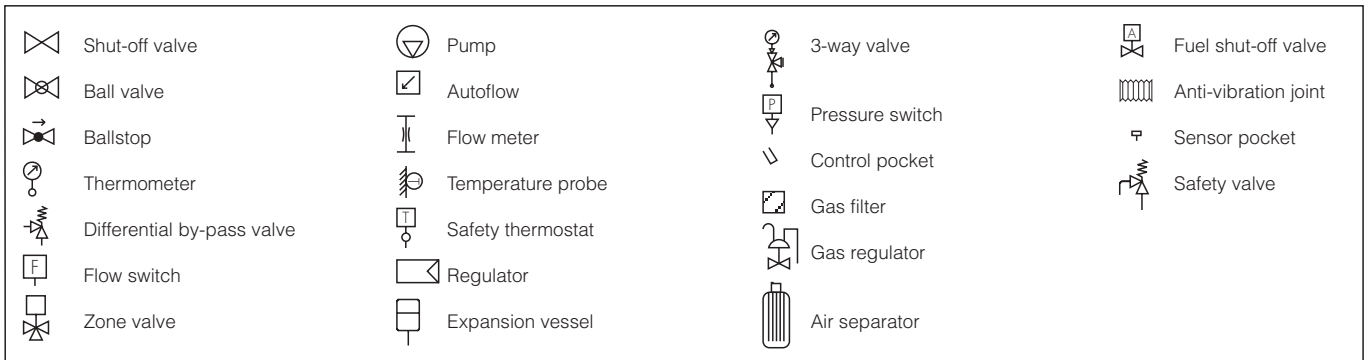
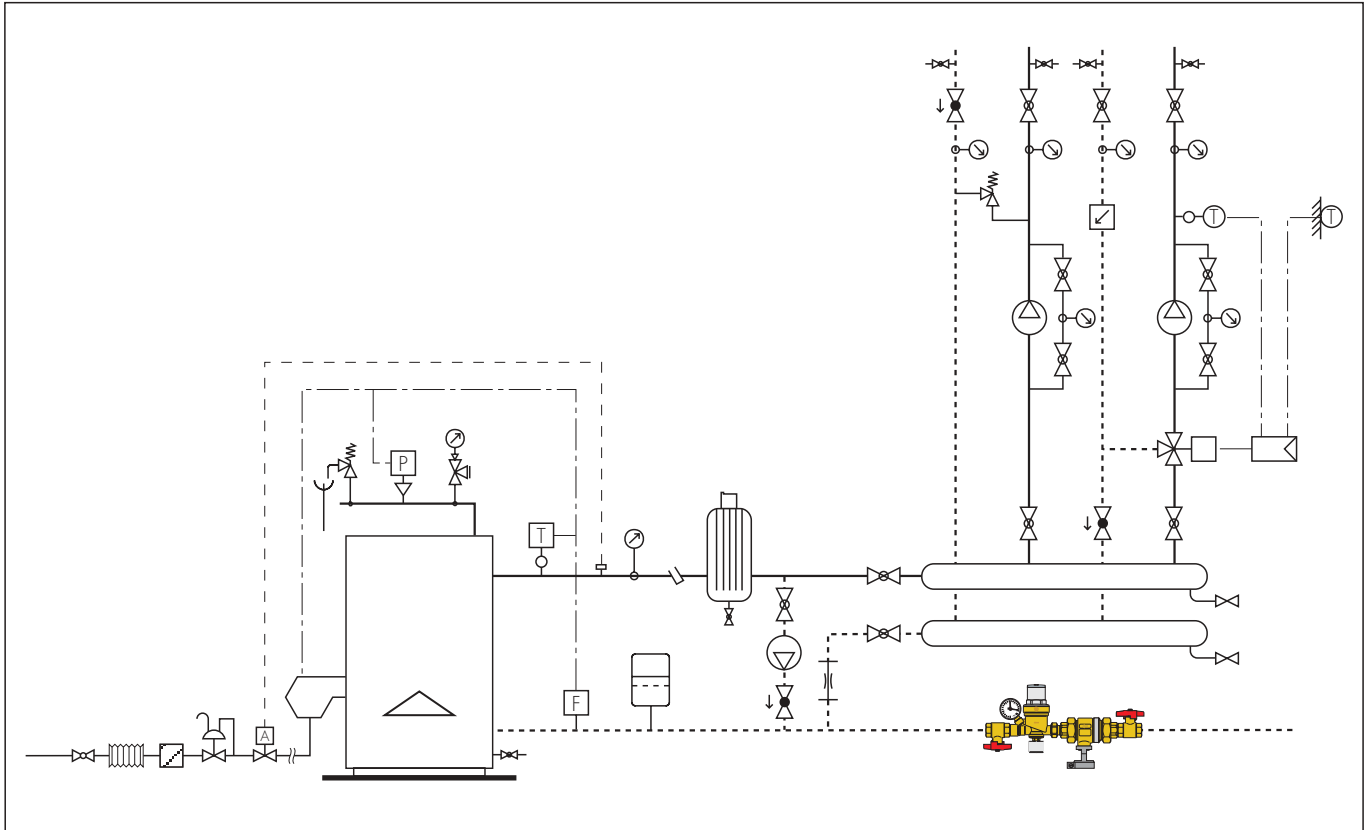
Maintenance

For cleaning, inspection or replacement of the entire cartridge, proceed as follows:

1. Isolate the unit.
2. Open the lower control knob.
3. Unscrew the adjusting screw until it stops.
4. Remove the upper cover.
5. Extract the cartridge using pliers.
6. The entire unit, after inspection, can be reassembled or replaced using a spare cartridge.
7. Re-adjust the equipment.



Application diagram



SPECIFICATION SUMMARIES

Code 553540 and 553640

Pre-adjustable filling unit. Threaded 1/2" F. Brass body. Nylon plastic cover. Sliding surfaces in anti-stick plastic. Diaphragm and seals in NBR. Cartridge removable for maintenance operations. Maximum working temperature 65°C. Maximum inlet pressure 16 bar. Setting range 0,2÷4 bar. Pressure indicator for pre-adjustment of device, accuracy $\pm 0,15$ bar. Complete with pressure gauge, scale 0÷4 bar (or pressure gauge connection), isolating valve, filter and check valve.

Code 573001

Charging unit with backflow preventer. 1/2" F connections. Maximum working temperature 65°C. Maximum working pressure 10 bar. Consisting of: pre-adjustable filling unit, brass body, nylon plastic cover, NBR seals, pressure setting range 0,2÷4 bar, complete with isolating valve, filter and check valve; backflow preventer with non-controllable reduced pressure zones, with DZR alloy body, NBR seals, complete with collar for fixing to discharge piping; shut-off ball valve with brass body, downstream pressure gauge 0÷4 bar.

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