

Fuel shut-off valve - I.S.P.E.S.L. approved

series 540



cert. n° 0003
ISO 9001

01074/03 GB



General

Series 540 (97°C) fuel shut-off valves are made by Caleffi S.p.A. in compliance with the essential safety requirements laid down by directive 97/23/CE of the European Parliament and the Council of the European Union for harmonisation of member states with regard to pressurised equipment.

Function

The Caleffi series 540 fuel shut-off valve is a fail-safe safety device with pre-set calibration. The valve, installed in the burner fuel supply pipework, shuts off the flow of fuel when the temperature of the heat-carrying fluid reaches the calibrated value of the sensor.

As this is a fail-safe device, in the case of damage to the sensor assembly, the fuel supply pipe is closed automatically.

This valve can be used with different types of gaseous fuels and is available in versions for superheated water.



I.S.P.E.S.L.

Product range

Series 540 Fuel shut-off valve with flanged connections _____ Sizes DN 65, DN 80, DN 100

Technical specification

Materials: - body: aluminium alloy
- spring: stainless steel
- seals: NBR

Flanged connections PN16: DN 65 - 80 - 100

Sensor pocket connection: 1/2" M

Calibration temperature: 97°C (+3 -3°C) I.S.P.E.S.L. approved

120°C (+0 -5°C) I.S.P.E.S.L. approved

140°C (+0 -5°C) supplied with declaration of conformity

160°C (+0 -5°C) supplied with declaration of conformity

180°C (+0 -5°C) supplied with declaration of conformity

Max temperature: - (sensor side): calibration temperature + 20%

- (valve side): 50°C

Average working temperature (using gas): 15°C

Max working pressure: - (sensor side): 12 bar

- (valve side) using gas: 50 kPa

Suitable for following fuels: methane, LPG

PED category: IV

Code completion (-)

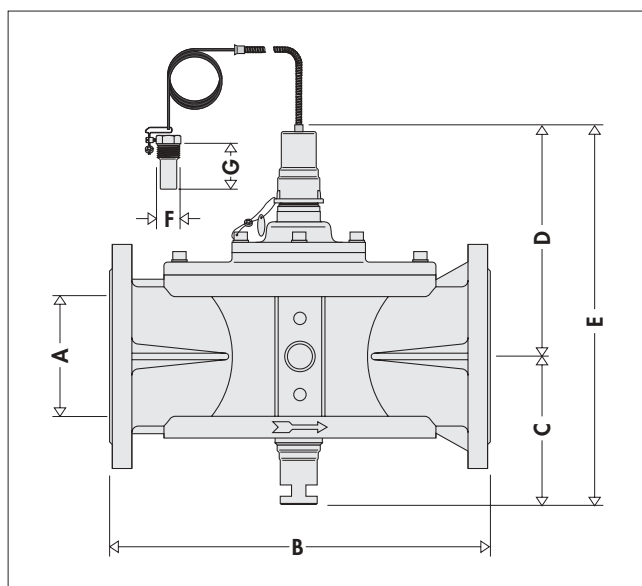
With 5 m capillary

0 → 97°C	2 → 120°C	4 → 140°C	6 → 160°C	8 → 180°C
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With 10 m capillary

1 → 97°C	3 → 120°C	5 → 140°C	7 → 160°C	9 → 180°C
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Dimensions

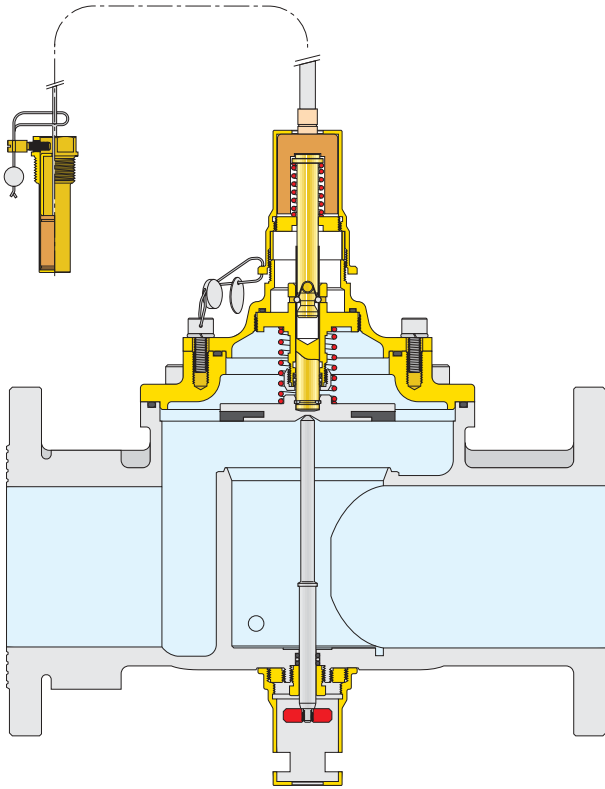


Length of connecting capillary tube 5 or 10 m

Code	A	B	C	D	E	F	G	Weight (kg)
54060. DN 65	310	112,5	225	337,5	1/2"	60	9,5	
54080. DN 80	310	112,5	225	337,5	1/2"	60	9,9	
54010. DN 100	350	157	214	371	1/2"	60	15,5	

Operating principle

If the calibrated temperature is reached, the vapour pressure sensitive element, with the change of state, causes the triggering of the actuator via the capillary tube and the flexible bellows. The intervention functions are restored by pressing the pushbutton positioned in the lower part of the valve and protected by a metal cover.



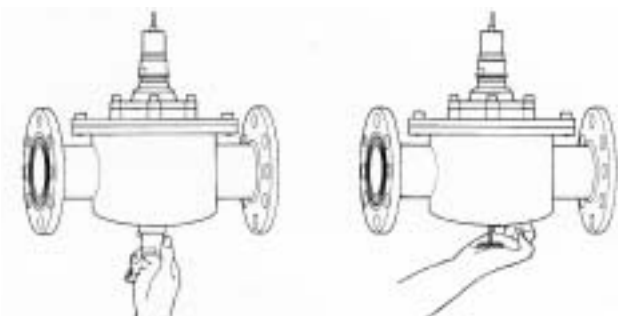
Constructional details

Reset

Should the shut-off device be activated, it has to be reset to its original status as follows:

- Wait until the water temperature falls to 10°C below the shut-off temperature (otherwise it will not be possible to reset the device).
- Unscrew the protective cap.
- Press the reset button.

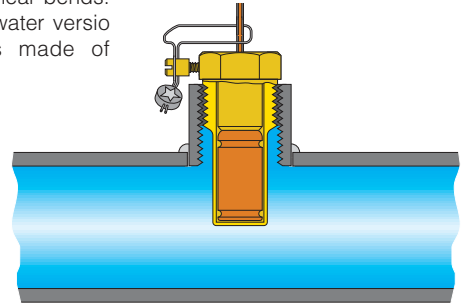
Series 540 valves are positive action (fail-safe) devices: if the sensor element is damaged or the capillary is broken, the positive action consists of an upward movement of the control unit, thus triggering the actuator, which in turn closes the valve. If this situation occurs, the valve must be replaced.



Sensor pocket

The compact dimensions of the pocket make it suitable even for small diameter pipework. In addition, its limited height means that it can be positioned vertically, avoiding difficult installation in the case of slopes or near bends.

The superheated water version of the pocket is made of stainless steel.

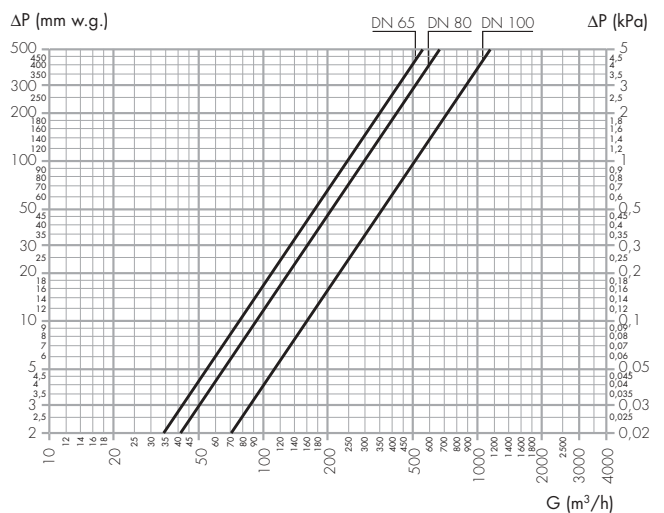


Fluid-dynamic characteristics

Methane at 15°C



LPG at 15°C



Guideline ratings of boilers (kW)

Series	Size	Methane	LPG
540	DN 65	900 - 1.900	1.700 - 2.300
540	DN 80	1.100 - 2.600	1.900 - 2.900
540	DN 100	1.900 - 4.500	3.400 - 4.600

Certification

CE mark

Series 540 (97°C) fuel shut-off valves meet the requirements of directive 97/23/CE for pressurised equipment (also referred to as the PED). They are therefore classified in Category IV and granted the CE mark.

ATTESTATO DI ESAME CE DEL TIPO
 N. 140502
 Serie di prodotti a cui si applica il presente certificato

PRODOTTORE
 CALEFFI S.p.A.
 28010 Fontaneto d'Agogna (NO) - S.S. 229
 Componenti per impianti idraulici

VALVOLA DI INTERCETTAZIONE DEL COMBUSTIBILE PER IMPIANTI AD ACQUA CALDA - VALVOLA DI OMOLOGAZIONE - SECONDO RACCOLTA-RP - SPECIFICAZIONI TECNICHE APPLICATIVE DEL DM 1/12/1975 E CIRCOLARE TECNICA I.S.P.E.S.L. DEL DM N. 6892 PROT. 8273 DEL 6/8/92

CERTIFICATO DI OMOLOGAZIONE VICI/25/98 del 23-10-1998
 Temperatura nominale di taratura: 97°C

AVVERTENZE
 La valvola è idonea solo se accompagnata dal verbale di taratura, che è la copia originale. In caso di smarrimento non è possibile ristampare duplicati. Il verbale va conservato unitamente al libretto di centrale per essere esibito in sede di verifica di impianto.

The bench calibration report is the document confirming the testing of each individual device included in the approved series. The test is carried out in the presence of an I.S.P.E.S.L. inspector who draws up the report after the test has been passed. The document gives the serial number of the valve, which is also to be found on the plate fixed to the valve body.

There is only one copy of the report and it is therefore vital for it to be kept with the valve.

CALEFFI S.p.A.
 28010 Fontaneto d'Agogna (NO) - S.S. 229
 Componenti per impianti idraulici

ISTITUTO SUPERIORE PREVENZIONE E SICUREZZA (I.S.P.E.S.L.)
 Dipartimento di Biella - Via Corridi, 7

VERBALE DI TARATURA AL BANCO DI VALVOLA PRESSO IL FABBRICANTE SECONDO RACCOLTA-RP - SPECIFICAZIONI TECNICHE APPLICATIVE DEL DM 1/12/1975
 FONTANETO D'AGOONA

Valvola di intercettazione del combustibile ad azione positiva, serie 540, DM 65, certificato I.S.P.E.S.L. n° VC/25/98 del 23-10-98.
 La verifica della taratura della valvola è stata eseguita al banco con acqua alla temperatura di 97,53 °C, campo di valori entro i quali è avvenuto l'intervento in chiusura del dispositivo di intercettazione.
 La temperatura di intervento riscontrata nel campo dei valori ammessi in tolleranza rientra nel valore nominale di taratura dichiarato rispetto al III della Raccolta-RP - Specificazioni Tecniche applicative del DM 1/12/1975.
 L'intervento della parti interessate è stata la posizione di taratura è realizzata mediante pirometria. A seguito del buon esito della verifica di taratura, per l'identificazione della valvola, vengono punzonati i seguenti dati:
 a) marchio I.S.P.E.S.L.
 b) numero della valvola.

CALEFFI S.p.A. - La Direzione Tecnica

Il Tecnico I.S.P.E.S.L.

I.S.P.E.S.L. mark

The fuel shut-off valve (in our case the valves calibrated to 97°C and 120°C) is a component which is "I.S.P.E.S.L. approved". Devices of this type are covered by the following types of document:

The approval certificate is the document issued by the I.S.P.E.S.L. which attests to the positive result of the tests carried out on the prototype sample and consequently certifies that the series in question has been approved.

The document is valid for five years. Every item of the series covered by the certificate, which is manufactured during the five years' validity period, is approved for an indefinite period.

The declaration of conformity, is the document issued by the manufacturer which confirms that the article in question was made in accordance with the reference standards for I.S.P.E.S.L. approval, but without having had a prototype sample approved. In practice, this is equivalent to a declaration of compliance (i.e. L. 46).

CERTIFICATO DI OMOLOGAZIONE "VICI/25/98"
 23/10/98

Atto di omologazione emesso dalla Direzione Provinciale di Fontaneto d'Agogna (NO) - S.S. 229 in data 23/10/98.

Il presente atto è stato emesso in seguito alle verifiche effettuate sul campione tipo, effettuato dal P.I. Giuseppe BELLINI INGEGNERE ed Esperto in Idraulica e Caldaie.

Il presente atto è stato emesso da S.E. Giuseppe BELLINI INGEGNERE ed Esperto in Idraulica e Caldaie presso l'Ufficio della Direzione Provinciale di Fontaneto d'Agogna (NO).

Accanto al presente documento di legge si trova una copia del verbale di taratura della valvola di intercettazione del combustibile, con i dati di taratura, che è la copia originale. In caso di smarrimento non è possibile ristampare duplicati. Il verbale va conservato unitamente al libretto di centrale per essere esibito in sede di verifica di impianto.

CALEFFI S.p.A.
 28010 Fontaneto d'Agogna (NO) - S.S. 229
 Componenti per impianti idraulici

CALEFFI S.p.A.
 Direzione Tecnica

DECLARAZIONE DI RISPONDEZZA

Il sottoscritto CALEFFI S.p.A., produttore di componenti per impianti idraulici, con sede in Fontaneto d'Agogna (NO) - Strada Statale 229

DECLARO:

- l'aver fatto della Legge di marzo 1982 n. 46 l'oggetto per la conformità degli impianti;
- l'aver fatto della Legge di marzo 1982 n. 46 l'oggetto per la conformità degli impianti;
- l'aver fatto della Legge di marzo 1982 n. 46 l'oggetto per la conformità degli impianti;

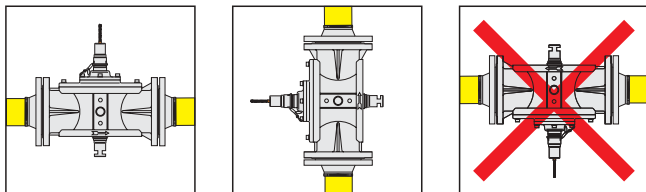
con la garanzia di omologazione del combustibile (VICI/25/98) emesso dal P.I. Giuseppe BELLINI INGEGNERE ed Esperto in Idraulica e Caldaie in data 23/10/98.

CALEFFI S.p.A.
 Direzione Tecnica

Installation

Before installing a fuel shut-off valve, correct sizing must be carried out by specialist technical personnel in accordance with the current legislation governing the specific applications. It shall not be used other than for its stated purpose. The fuel shut-off valve must be installed by competent technical personnel qualified in accordance with current legislation. The valve sensor must be installed at the top of the boiler or in the flow pipework within 0,5 m of the boiler, upstream of any other shut-off control.

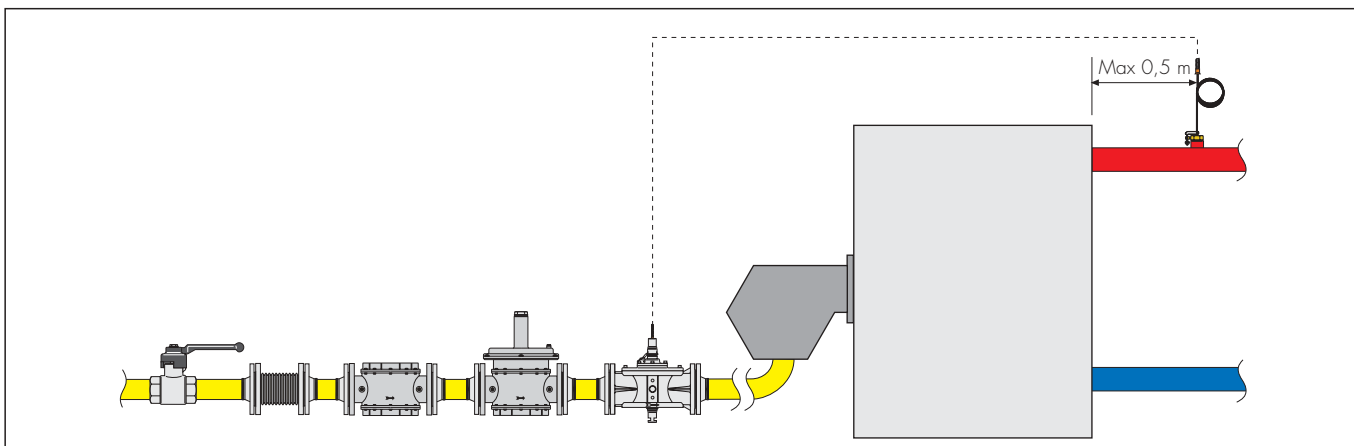
The valve is installed in the fuel supply pipework, in line with the flow direction indicated by the arrow, even if this is in the vertical position.



When installing the device, appropriate precautions must be taken to ensure that the capillary connecting the sensor to the valve does not become squashed or excessively bent.

In order to prevent tampering or accidental leaks of the sensor, the latter must be sealed in the pocket (the seal and the securing wire are included in the package).

Application diagram



References to I.S.P.E.S.L. standards

Series 540, calibration 97°C

Use: hot water systems (temperature < 100°C) - section "R" ed. 82 (R.2.A. 4)

The fuel shut-off valve is used in the following types of open vented system:

- Hot water heating system where the safety pipe runs downwards (R3A 1.14).
- Hot water heating system in existence on the date of the coming into force of D.M. 1-12-75, where the safety pipe, although having a minimum diameter greater than 18 mm, does not permit discharge into the atmosphere of the maximum quantity of steam which could be produced in relation to the capacity of the boiler (R3A 3.1).

It is not used in sealed systems:

- In secondary circuits in heat exchangers supplied with fluids at a temperature above 100°C with controls on the secondary or where automatic on/off control is not excluded.

In these cases a heat discharge (temperature relief) valve must be installed.

Series 540, calibration 120-140-160-180°C

Use: superheated water systems (temperature > 100°C) - section "H" ed. 82 (H.4. 4)

The fuel shut-off device must be used in all types of open and sealed systems except for those fired by solid fuel or with heat sources other than fire.

SPECIFICATION SUMMARIES

Series 540, calibrations 97 and 120°C

Manual reset fuel shut-off valve. I.S.P.E.S.L. approved. Bearing CE mark as per directive 97/23/CE (calibration 97°C). Positive action (fail-safe). Flanged connections DN 65 (from DN 65 to DN 100), PN 16. Body in aluminium. Sensor pocket connection 1/2" M. Stainless steel spring. Seals NBR. Capillary length 5 m (or 10 m). Maximum working temperature (valve side) 50°C. Maximum working temperature (sensor side) + 20% of calibrated temperature. Maximum working pressure (valve side) 50 kPa. Maximum working pressure (sensor side) 12 bar. Calibration 97°C (97 and 120°C).

Series 540, calibrations 140 - 160 and 180°C

Manual reset fuel shut-off valve. Supplied with declaration of conformity from the manufacturer. Positive action (fail-safe). Flanged connections DN 65 (from DN 65 to DN 100), PN 16. Body in aluminium. Sensor pocket connection 1/2" M. Stainless steel springs. Seals NBR. Capillary length 5 m (or 10 m). Maximum working temperature (valve side) 50°C. Maximum working temperature (sensor side) + 20% of calibrated temperature. Maximum working pressure (valve side) 50 kPa. Maximum working pressure (sensor side) 12 bar. Calibration 140°C (140 - 160 and 180°C).

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

