

# VIC/A Series

Fuel shut-off valve

## Technical Data Sheet



## Description

The fuel shut-off valve is a positive action, bench-calibrated safety device. Mounted on the fuel line to the burner, its purpose is to shut off and disallow any further supply of fuel to the burner, thereby avoiding the risk that the temperature in the flow circuit of the system could rise to boiling point.



### VIC/A

Fuel shut-off valves. Compatible with natural gas, town gas, LPG, diesel and fuel oil. Positive action with manual reset. Capillary length 6m. Aluminium body, stainless steel springs. NBR seals. 1/2”M sensor sheath connection.

Type	Part Number	DN	Weight (kg)
VIC/A12	006.0150.000	1/2”	1.00
VIC/A34	006.0151.000	3/4”	1.41
VIC/A100	006.0152.000	1”	1.37
VIC/A114	006.0153.000	1.1/4”	1.94
VIC/A112	006.0154.000	1.1/2”	1.86
VIC/A200	006.0155.000	2”	2.48
VIC/A212	006.0156.100	65	8.18
VIC/A300	006.0157.100	80	8.67
VIC/A400	006.0158.000	100	10.96

#### Technical specifications

Calibration temperature	96 °C
Shut-off tolerance	± 3 °C
Resetting temperature	≤ 87 °C
Maximum ambient temperature	70 °C
Bulb operating temperature*	0 ÷ 130 °C
Maximum valve pressure	1 bar
Maximum pocket pressure	7 bar
Capillary length	6 m
Threaded valve connections	UNI EN 10226-1
Flanged valve connections	PN 16 EN 1092-4

\*N.B. Be careful that the bulb is not exposed to temperatures below 0 °C as this would result in irreparable damage.

#### Materials

Body and cover	Aluminium
Other main parts	Brass
Body and cover seals	O-Ring
Springs and balls	Steel
Seals and O-rings	Nitrile rubber - NBR
Sensitive element	Copper
Bulb pocket	Brass

## Approvals

INAIL approved and calibrated - ATEX 2014/34/EU type tested - Compliant with Pressure Equipment Directive 2014/68/EU.

**Approval certificate:** issued by INAIL after conducting all prescribed tests and checks on valve prototypes. The certification is valid for five years (every valve manufactured during the five year term of validity retains type approval for an unlimited period).

**Calibration report:** document certifying that the item was bench-calibrated in the presence of an INAIL technician, who stamps and signs the report for every single valve. In addition, the document bears the serial number that also appears on the aluminium data plate secured and sealed to the body of the valve (one copy only of the report is provided; the document is placed in the packaging and must be kept with extreme care).

**PED Certificate of Compliance:** issued by a notified body after conducting the inspections and tests required for certifying compliance of the product with the requirements of European Directive 2014/68/EU on pressure equipment. Fuel shut-off valves, being defined as "safety accessories", are classified under category IV.

**"ATEX" compliance:** according to Directive 2014/34/EU, these valves are classified as appliances falling within group II, category 2G - 2D and as such, suitable for installation in the following zones (UNI-EN 1127-1 standard, annex B): zone 1 and 2, atmosphere containing a mixture with air of flammable substances in the form of gas, vapour or mist; zone 21 and 22, atmosphere containing combustible dust.

INAIL approved and calibrated.



## Application

The fuel shut-off valve is a positive action, bench-calibrated safety device. Mounted on the fuel line to the burner, its purpose is to shut off and disallow any further supply of fuel to the burner, thereby avoiding the risk that the temperature in the flow circuit could rise to boiling point. Being a positive action device, in the event of a fault affecting the sensitive element, or failure of the capillary, the valve closes automatically and cannot be reset (the fact that the fuel supply has been shut off does not always guarantee conditions of safety, given that the thermal inertia accumulated by the generator could still cause the temperature to rise above boiling point).

## Operation

The heat-sensitive assembly (11-13) is filled with a mixture of water and alcohol, combined in percentages such as to bring about an increase in volume at a temperature of 96°C. Under normal operating conditions, that is to say as long as the water temperature remains below the set point, the valve disc is held in the open position by the action of the balls (10). As the water temperature rises, the liquid contained in the sensitive element expands, increasing in volume and forcing the bellows (13) to extend. As a result, the actuator piston (14) shifts axially to the point of freeing the balls (10), which in turn release the cam (6), causing the valve disc (2) to move away from its normally open position and assume the closed position, thereby cutting off the flow of fuel to the burner. The movement of the valve disc is not gradual, accompanying the rise in temperature, but instantaneous, occurring once the critical temperature has been reached.

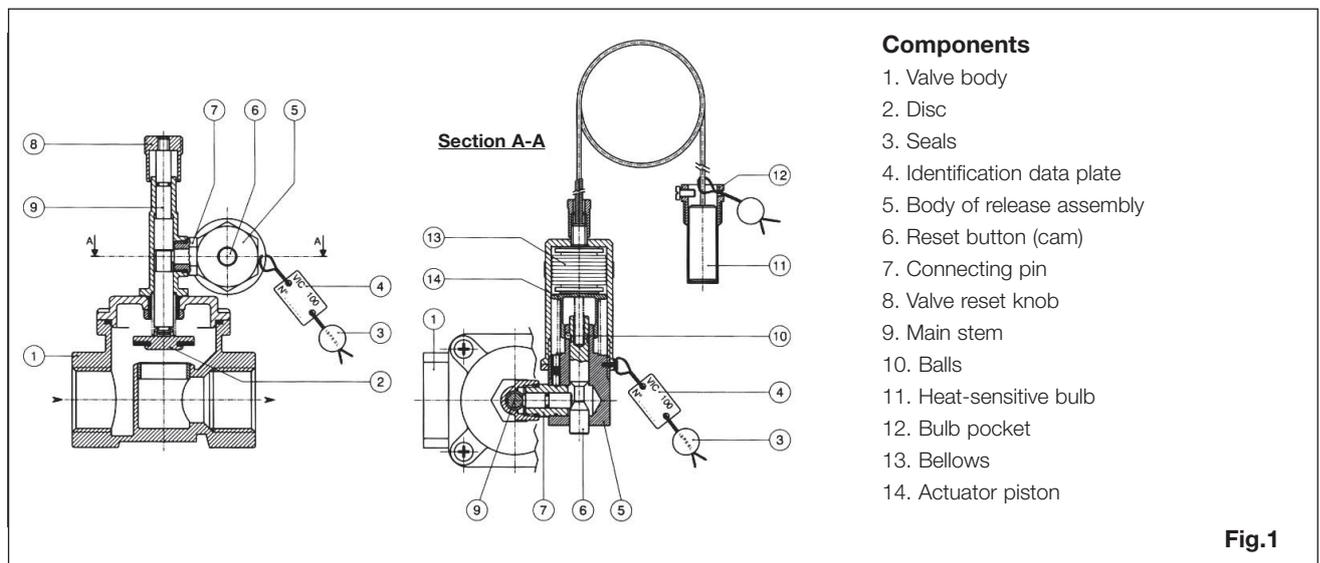
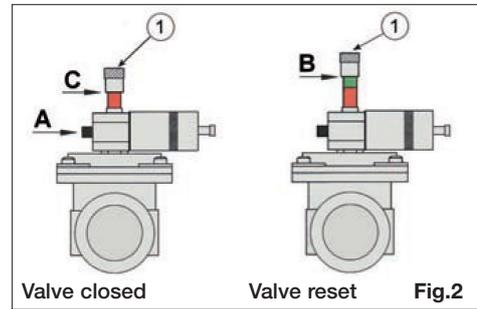


Fig.1

## Resetting procedure

During normal operation, the green coloured band under the reset knob (1) at the top of the valve remains visible; whereas in the shut-off configuration, the knob (1) will come down onto the red band and the green can no longer be seen. If the shut-off valve has cut in as a result of temperature limits in the system being exceeded, normal operating conditions can be restored by way of the following procedure.

1. Wait until the system temperature falls to approximately 10°C below the cut-in temperature of the valve (it will not be possible to reset the valve at any temperature value higher than this same level).
2. Lift the knob (1) on the valve to position B, and hold.
3. Depress the reset button A fully.
4. Release the knob (1); at this point the green band should be visible.



In the case of the 1/2" valve, there is no need to depress button A, since the valve resets itself automatically when the knob (1) is lifted.

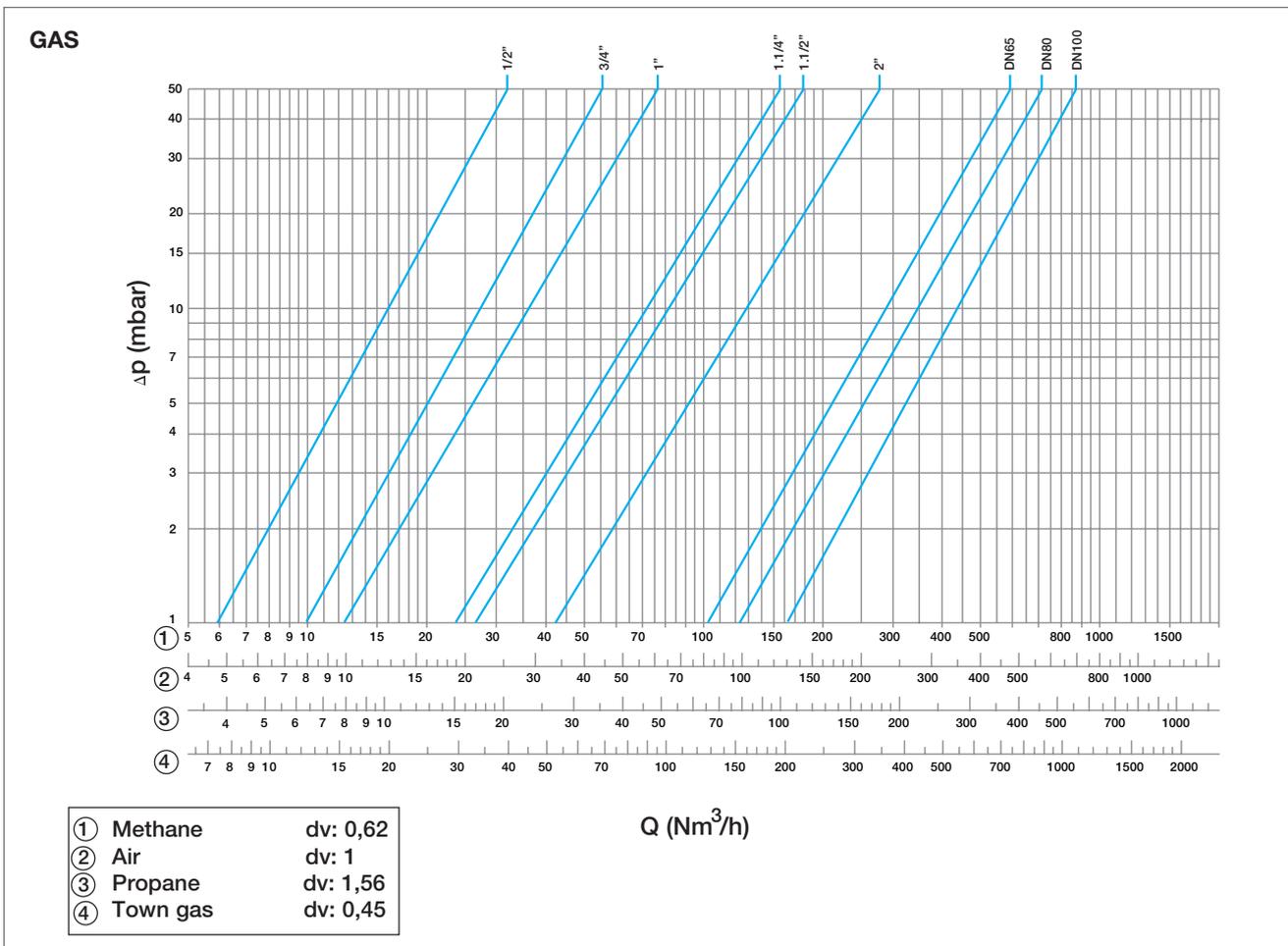
### IMPORTANT

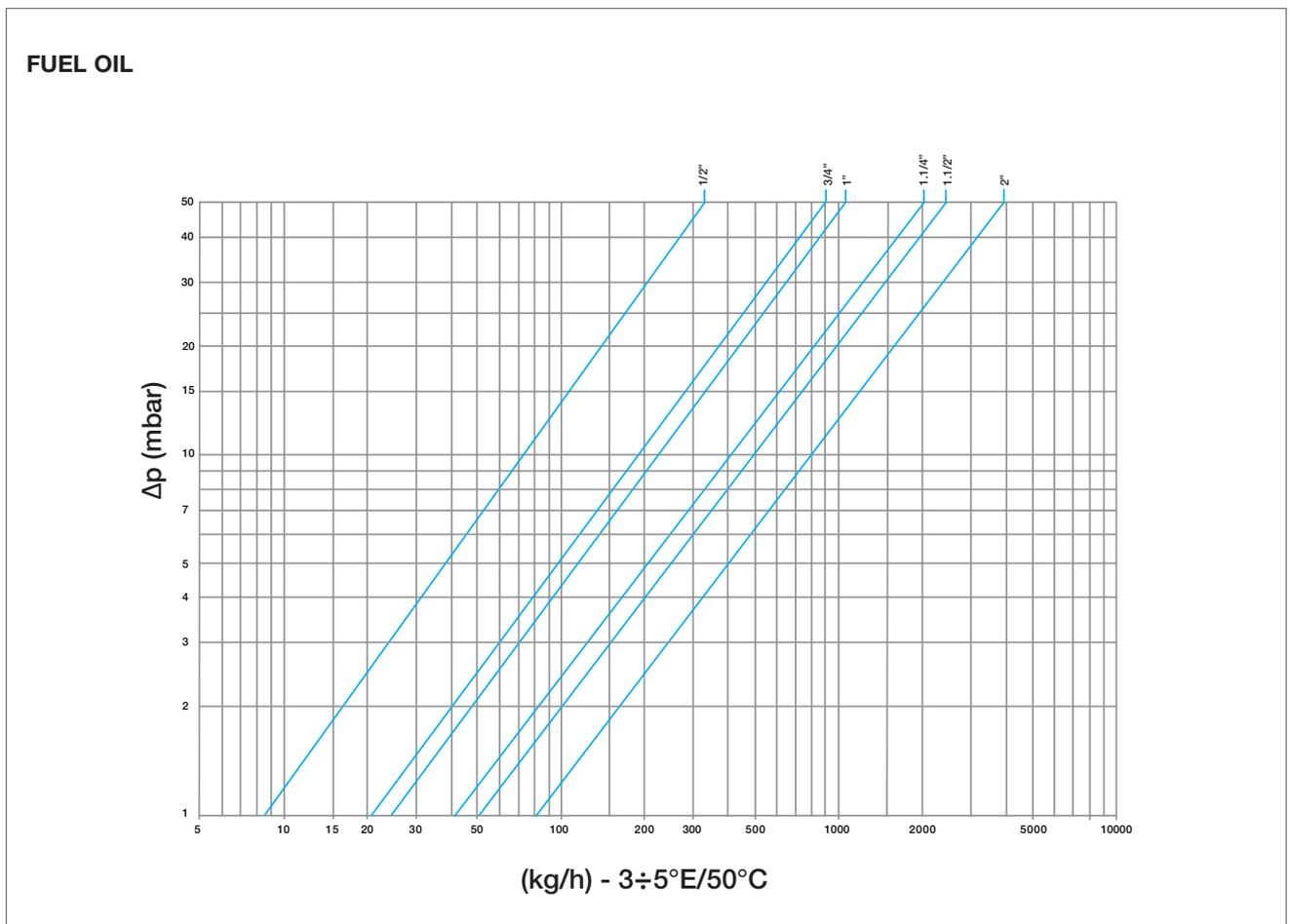
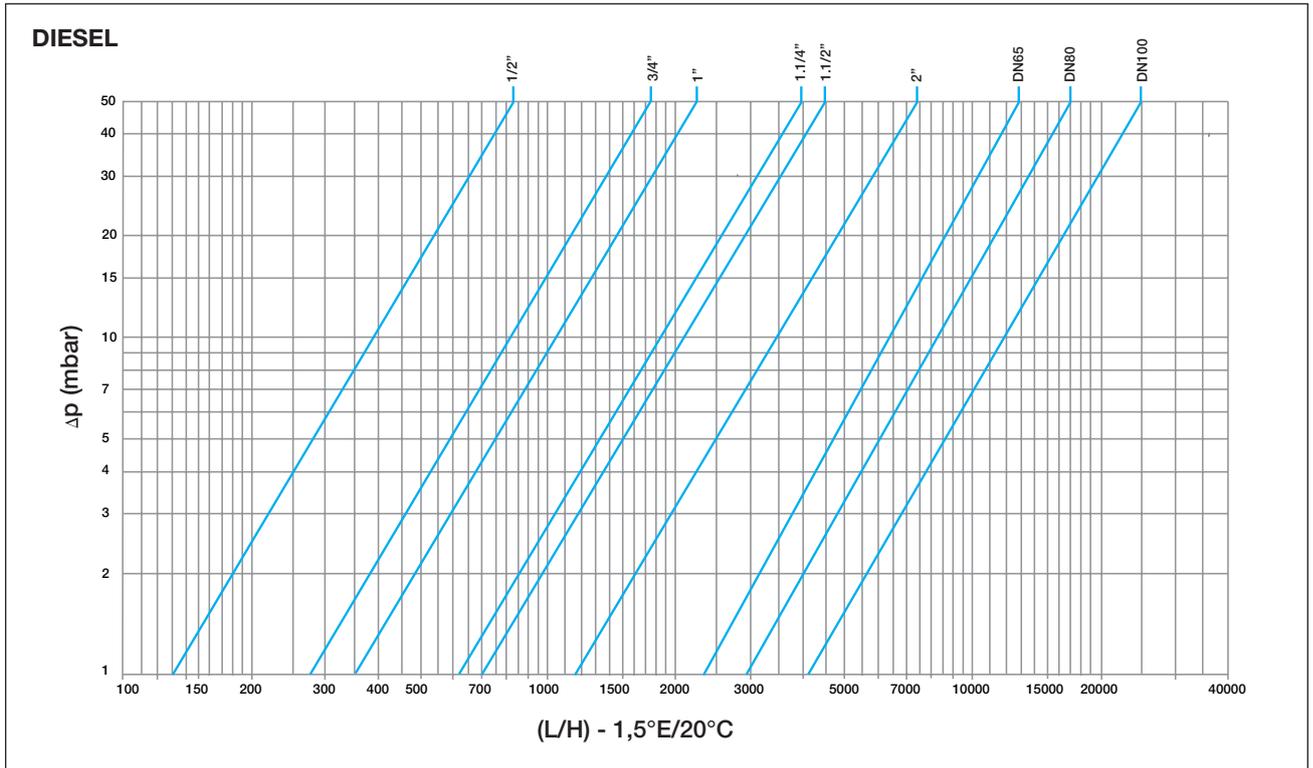
Before carrying out the reset procedure, be certain to establish the causes that have led to the abnormal rise in temperature of the generator, resulting in activation and closure of the fuel shut-off valve.

### STATUTORY REFERENCES (Ministerial Decree of 1.12.75 - "R" Regulations, ed. 2009)

According to the provisions of "R" regulations - 2009 edition, technical specifications implementing Title II of Italian Ministerial Decree 1/12/75, pursuant to art. 26 of this same decree concerning "central heating systems using pressurized hot water at a temperature not exceeding 110 °C and maximum overall rated power of the space heaters (or maximum overall heat output of the space heaters) greater than 35 kW", the use of fuel shut-off valves is required in the following cases: systems with closed expansion vessel (Heading R.3.B., point 1., indent b); systems with closed expansion vessel and heat exchangers on the primary circuit conveying fluids at a temperature exceeding 110 °C (Heading R.3.D., point 2.2.1., indent g); - systems with modular heat generators (Heading R.3.F.).

## Chart





N.B. The values shown in the graphs are to be regarded as indicative, serving simply to provide a quick reference guide for selection of the valve model to utilize.

## Installation

It is recommended that the following directions be followed with care during installation of the fuel shut-off valve:

- The sensitive element of the valve (bulb), with the relative pocket, must be immersed in the stream of fluid exiting the generator at a distance of no more than 1 metre from the generator, and upstream of any other shut-off device (Fig. 4).
- Maximize contact between the bulb of the sensitive element and the pocket by filling with a diathermal fluid (e.g. diathermal oil or glycol).
- The excess length of the capillary should be coiled at a point near the valve body. Take care to ensure the capillary is not pinched or bent with unnecessary force.
- The fuel shut-off valve can be installed on horizontal and vertical pipelines; in the case of installation on a horizontal pipeline, avoid positioning the reset knob of the valve in such a way that it is directed downwards.
- The valve body is fitted to the fuel supply pipeline at a point between the filter unit and the burner. Use the proper tools for installation purposes, avoiding any exertion of force or leverage on the sleeve of the valve.
- It is absolutely forbidden to turn or bend the body of the valve release assembly (part 5, fig. 1).
- Observe the flow direction as indicated by the arrow stamped on the valve body.
- Check that all pressure, temperature parameters etc. are as specified.
- Avoid installing the valve in contact with plastered walls, as the body is made of aluminium.
- The valve must be protected from weathering agents.
- Do not impede or in any way obstruct the movement of the valve reset knob, otherwise complete closure might not be guaranteed in the event of an emergency.
- It is advisable to include suitable pressure measurement ports, positioned upstream and downstream of fuel shut-off valves (advice relating only to threaded valves, as flanged models are equipped as standard with pressure ports).

All installation and maintenance operations must be entrusted exclusively to skilled fitters.

### Installation diagram

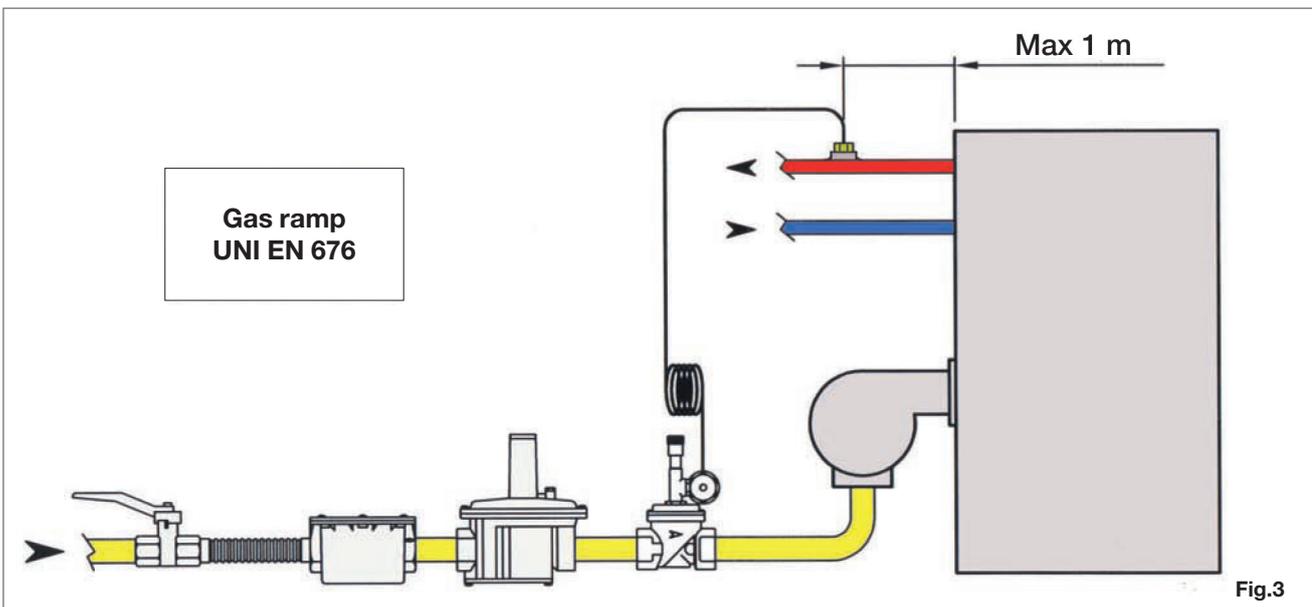


Fig.3

### Pocket

The pocket, which houses the heat-sensitive bulb, is made of billet-machined brass, so there are no weldments at the joints between the tube and the threaded fitting. Thanks to its compact dimensions, it can be fitted even to pipelines of particularly small diameter. Moreover, the minimal height of the pocket eliminates certain issues with installation (near to bends or using angled sleeves), since the item can be mounted vertically to pipelines of every diameter.

To prevent the bulb slipping out of its pocket, secure the bulb to the pocket by tightening the relative clamp screw (A) and seal the entire assembly using the spiral-wound wire provided with the valve; this serves also to discourage tampering with the product by unauthorized persons.

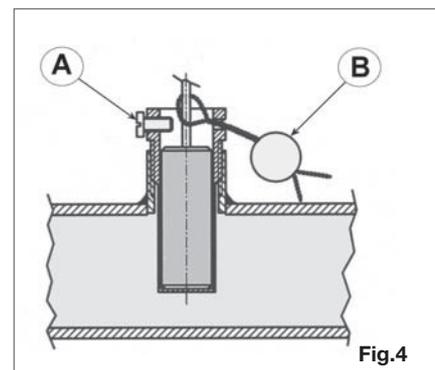
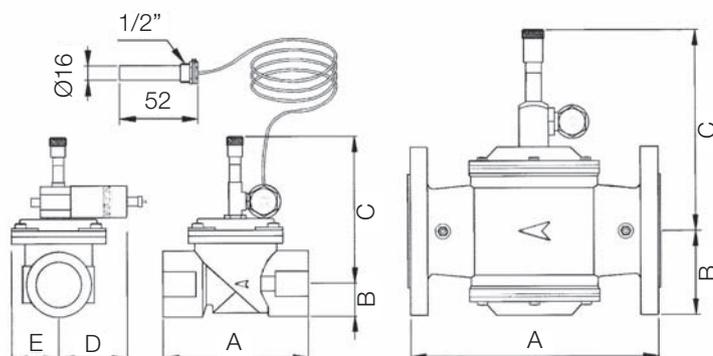


Fig.4

## Overall dimensions (mm)

### VIC/A



Mod.	THREADED						FLANGED		
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	DN65	DN80	DN100
A	76	96	96	154	154	173	300	300	360
B	15	25	25	31	31	39	95	95	105
C	118	139	139	168	168	169	219	219	227
D	90	85	85	85	85	85	-	-	-
E	25	35	35	52	52	64	-	-	-

## Specification text

### VIC/A Series

**VIC/A Series** fuel shut-off valve – WATTS brand – compatible with natural gas, town gas, LPG, diesel and fuel oil. Positive action, manual reset. Capillary length 6 m. Aluminium body, stainless steel springs. NBR seals. 1/2" M sensor sheath connection. Calibration temperature:  $96 \pm 3^\circ\text{C}$ . Maximum operating pressure: 1 bar. Flanged model connections. PN16 EN 1092-4.

**INAIL approved and calibrated Type approved to ATEX 2014/34/EU. Compliant with: PED 2014/68/EU.**



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