

Flow switch

626 series



Function

The flow switch detects whether there is any flow in the piping and opens or closes an electrical contact. It is normally used in heating, air-conditioning, refrigeration, water treatment, additive pumping and process systems in general. By means of the flow switch it is possible: to control devices such as pumps, burners, compressors, refrigerators, motorized valves; to turn on indicator and alarm devices and regulate equipments for dosing water additives.

In heating systems, especially, the flow switch has the objective of switching the burner off in case of a lack of medium circulation within the water heater circuit. A lack of circulation would otherwise impair the operation of the temperature-sensitive safety and protection devices.



Product range

Code 626600 Flow switch
Code 626009 Set of paddles

size 1" M
for pipe diameters from 1" to 8"

Technical specifications

Materials

Body:	brass EN 12165 CW617N
Cover:	self-extinguishing polycarbonate
Microswitch protection casing:	self-extinguishing polycarbonate
Bellows rod and bellows:	stainless steel
Paddle for pipes:	stainless steel
Microswitch spring:	stainless steel
O-Ring seals:	EPDM

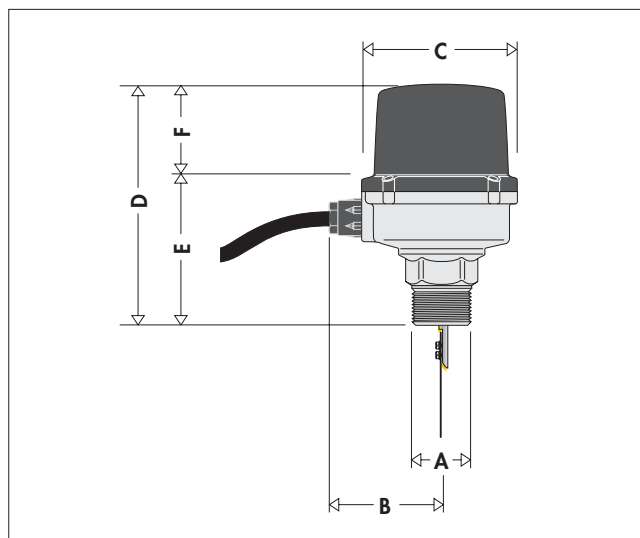
Performance

Medium:	drinking water and glycol solutions
Max. percentage of glycol:	50%
Max. working pressure:	10 bar
Medium temperature range:	-30-120°C
Max. ambient temperature:	55°C
Connection:	1" M
Pipe adjustability:	from 1" to 8"

Electric specifications

Voltage:	250 V
Current:	15 (5) A
Protection class:	IP 54
Mark:	CE

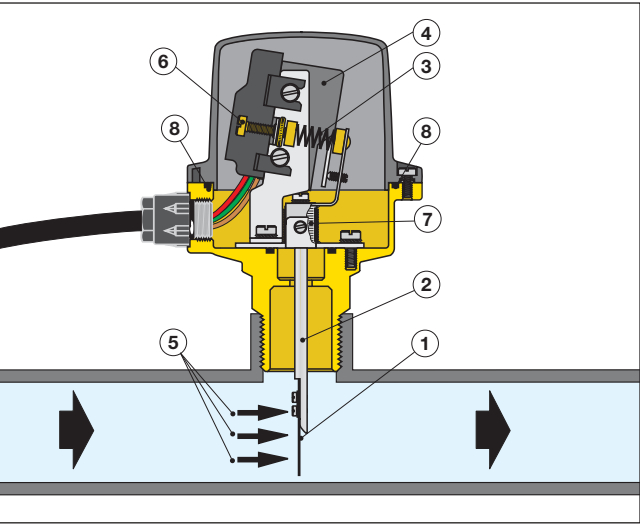
Dimensions



Code	A	B	C	D	E	F	Weight (Kg)
626600	1"	63	86,5	134,5	74	60,5	0,930

Operating principle

The flow switch is composed of a blade (1) integral with a control rod (2) connected, at the top, to an adjustable counter spring (3). The assembly, by turning around a pin under the action of the water flow, operates a microswitch contained in a protective casing (4). At rest, the counter spring keeps the microswitch contact open. When the increasing flow rate of the medium within the piping becomes equal or greater than the trip flow rate, the thrust (5) on the blade applied (1) by the flow overcomes the opposing force applied by the adjustable spring (3) thus making the microswitch contact close. With a decreasing flow rate, on reaching the trip flow rate values, the flow thrust on the blade is not enough to overcome the opposing force applied by the adjustable spring, so the blade returns to the rest position and the microswitch contact opens. The trip values for closing (increasing flow) and opening (decreasing flow) the microswitch contact can be modified by means of the adjusting screw (6).



Construction details

Electric component protection

A metal bellows (7) separates the electric and the hydraulic parts. Since this is the most stressed part that must prevent any contact between the medium and the electric components, it is made of stainless steel. Stainless steel is moreover used in the construction of other mechanical components as well so as to make them immune from corrosion.

Insulating protective cover

The O-Ring seal (8) between the body and the cover, with a protection class of IP 54, ensures operation in particularly damp and dusty places. The insulating protective casing (4) on the microswitch avoids the risk of accidental contact when calibrating. Both the microswitch protection and the cover are made of self-extinguishing V-0 class plastic.

Electric switchover contact

The electric switchover contact indistinctly permits turning on or off any electric device at the trip flow rate.

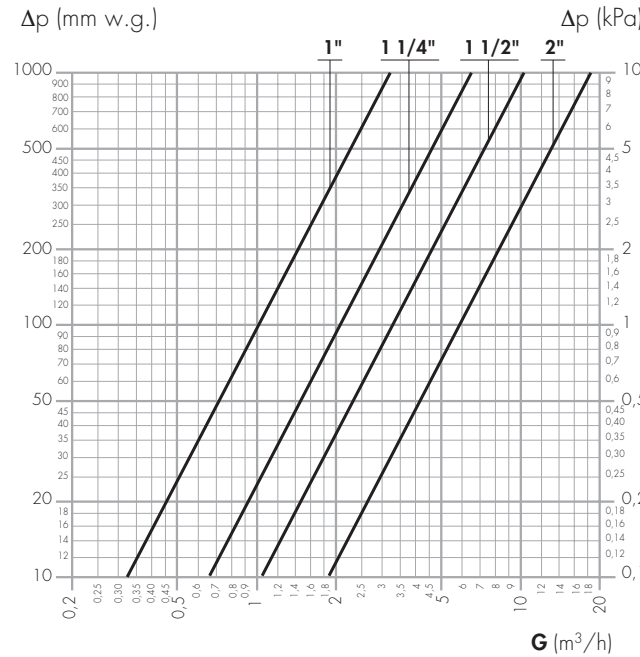
Setting screw

The setting screw (6) allows easy adjustment of the trip flow rate as desired.

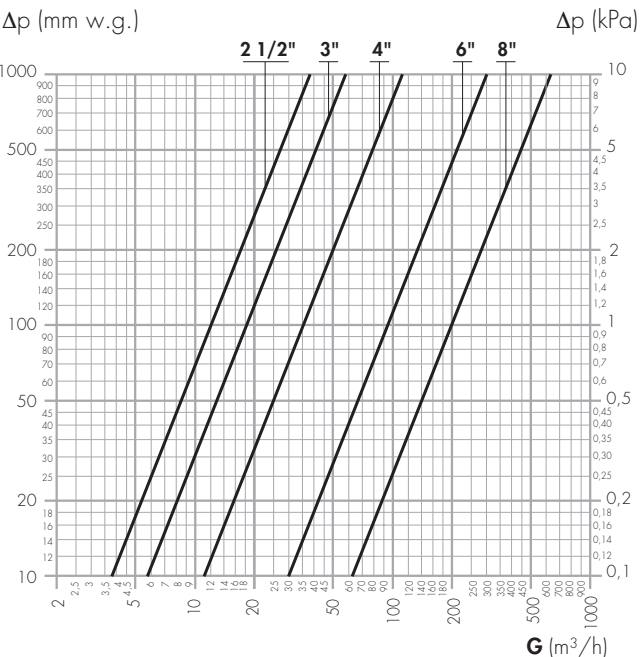
Certification

The water flow switch 626 series is made by Caleffi S.p.A. in compliance with the essential safety requirements of directive 89/336/EC and 72/23/EC of the European Parliament and Council of the European Union.

Hydraulic characteristics



Size	1"	1 1/4"	1 1/2"	2"
Kv* (m³/h)	10	21	32,5	58



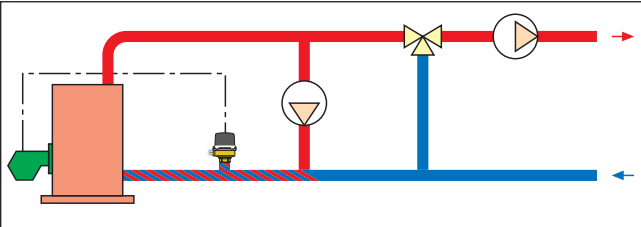
Size	2 1/2"	3"	4"	6"	8"
Kv* (m³/h)	120	180	350	950	1950

*The stated Kv values refer to the head loss within the pipes with diameters from 1" to 8" and standard length of 1 m, in which flow switches, equipped with a blade of adequate size, are installed.

Reference standards

In heating systems with a closed expansion tank, where circulation is ensured by motor pumps, the flow switch must be used to stop the heat supply to the generator when the pumps stop and there is no circulation.

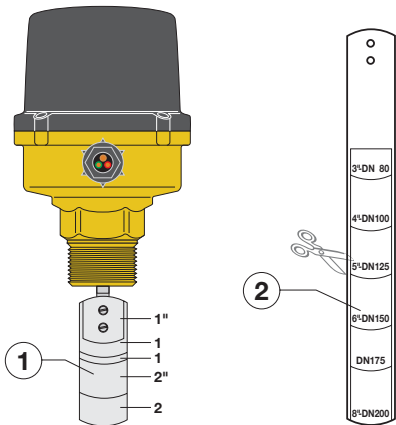
Water circulation is indeed essential for safety and temperature-sensitive protection devices such as thermostats, thermal discharge valves and fuel shut-off valves to work properly.



Installation

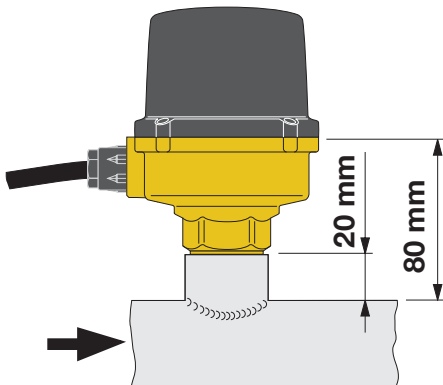
The unit is equipped with a set of blades (1), to be used for different pipe diameters, particularly sized to allow easy installation and minimal head losses.

For diameters equal to or greater than 3" (DN 80), it is necessary to add to the preassembled blades in increasing order the long blade (2) (supplied in the package), just cutting it to the size corresponding to the desired diameter.



The flow switch should preferably be installed on the pipe with the control rod upright, respecting the flow direction indicated by the arrow on the cover and on the body exterior.

For blade proper operation it is necessary to install the flow switch by respecting the distance shown on the drawing, using a sleeve welded for total passage.

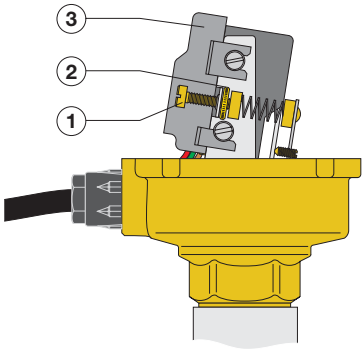


Setting

The setting is made by turning the screw (1) clockwise to close the contacts at higher flow rates or anticlockwise for lower values.

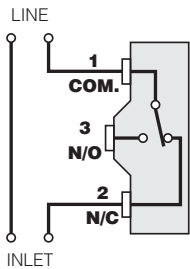
After making the adjustment, lock the setting screw with the ring nut (2).

The operator is protected against accidental contact with electrical parts of the flow switch by an insulating protective cover (3) on the microswitch.

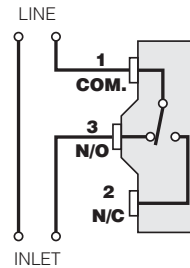


Outline of the microswitch connections:

Flow switch used to turn on a device with **no flow**



Flow switch used to turn on a device with **flow**



Trip flow rate (m³/h) for horizontal installation*

When the trip flow rate is reached or exceeded with an increasing flow, contacts 1 and 3 of the microswitch close, while contacts 1 and 2 open.

On the contrary, when the trip flow rate is reached with a decreasing flow, contacts 1 and 2 close.

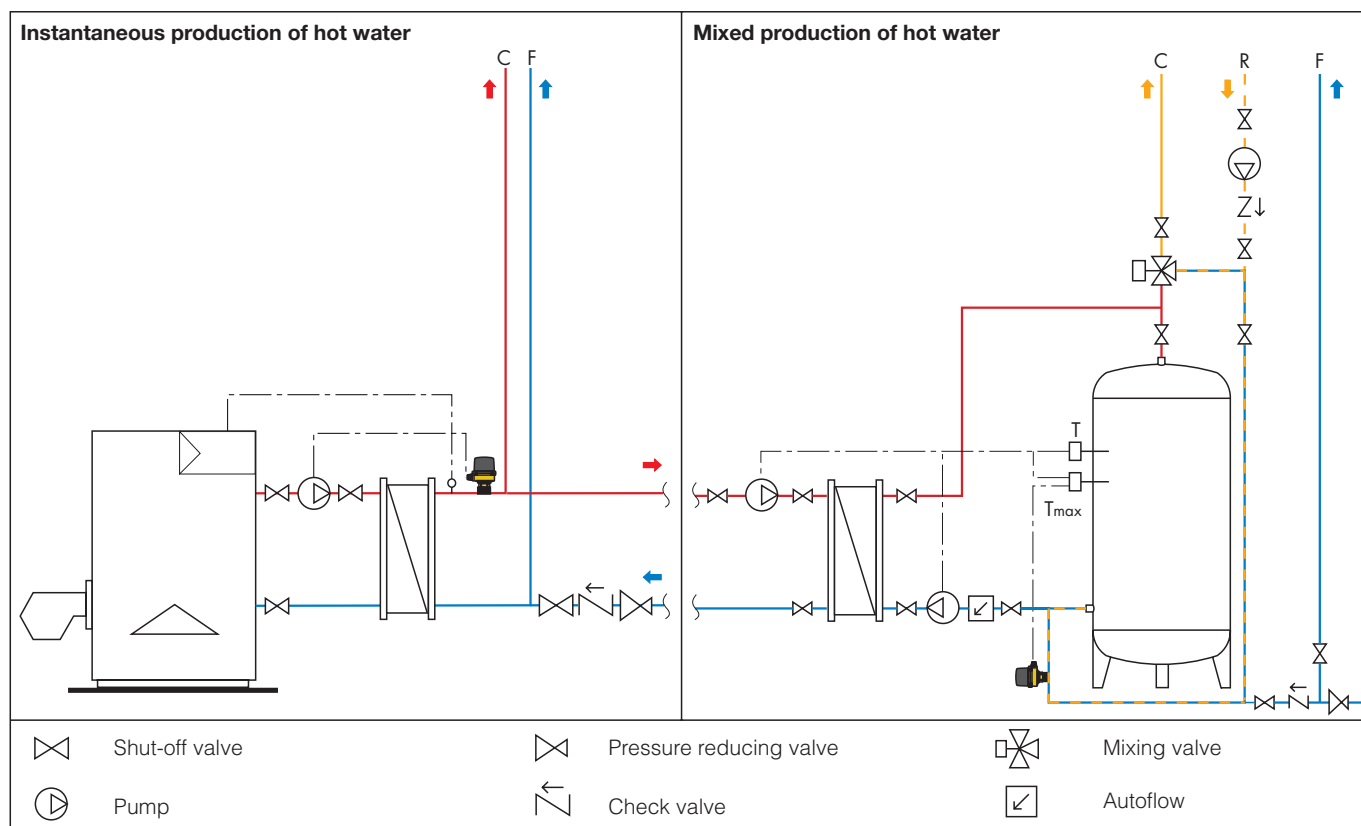
Diameter pipe		1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
FACTORY SETTING	with increasing flow	1,3	1,7	2,6	3	5	6,8	10	16,5	37
	with decreasing flow	0,9	1,25	1,9	2,2	3,7	5,2	8,5	14,5	33
MAXIMUM SETTING	with increasing flow	2,8	3,8	5,9	6,7	11,7	15,8	21,5	43	76
	with decreasing flow	2,7	3,7	5,8	6,6	11,5	15,6	21	36	70

*For vertical installations, it is necessary to use the setting screw (1) to identify the optimal trip point.

Application diagrams

Example of using the flow switch in a plumbing system

In systems for instantaneous hot water production with heat exchangers, the flow switch has the job of governing the pump and enabling water circulation in the exchanger primary circuit when required by the user.



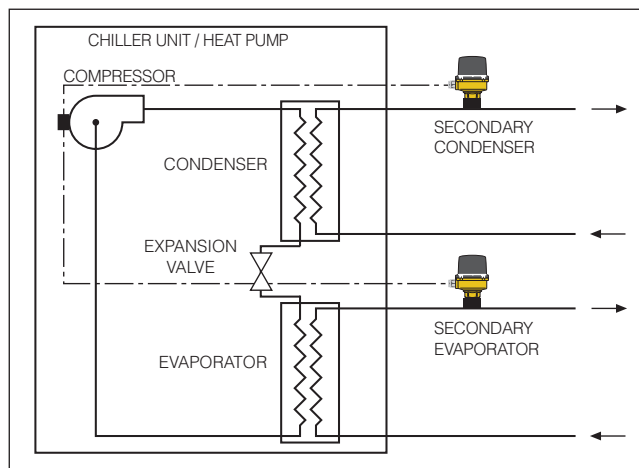
Example of flow switch use in a refrigerating system or heat pump

The flow switch is useful on machinery in general where water circulation is considered essential for the equipment to work properly.

A typical example is the chiller unit shown in the figure.

The two flow switches trip to stop the compressor from working if one of the following conditions occurs:

- insufficient or no flow of cooling water in the condenser (danger of overheating)
- insufficient or no flow of refrigerated water (danger of ice forming on the evaporator and liquid returning to the compressor suction side).



SPECIFICATION SUMMARIES

626 series

Flow switch. 1" M connection. CE certificate in accordance with directives 89/336 EC and 72/23 EC. Brass body. Self-extinguishing polycarbonate cover and microswitch protection casing. Stainless steel bellows and bellows rod, paddles for pipes and microswitch spring. EPDM O-Ring seals. Maximum working pressure 10 bar. Medium temperature range -30–120°C. Maximum ambient temperature 55°C. Medium drinking water and glycol solutions; Maximum percentage of glycol 50%. Voltage 250 V. Current 15 (5) A. Protection class IP 54. Pipes adjustability from 1" to 8".

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



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