ULTIMHEAT

JPC

6

FLOW SWITCHES

AND COMBINATION CONTROLS

The professional solution: an extended, rational, and consistent range of products

Technical catalogue for R&D department

Edition 28/05/2012

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In case of dispute on any of the herein below terms, we will consider ourselves as completely free from any contract related to the execution of any pending order.
If some specific conditions are stated by the buyer, these conditions will be considered by us as a formal acceptance only after our written consent.

ORDER: we will commit only on orders for which an order acknowledgement has been issued. The sale is regarded executed at the date of order acceptance by JPC.
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Any manufactured product being subjected of a prototype or a pre-serie accepted by the customer will be regarded as in compliance with the customer's specifications.
No goods can be returned without JPC's written consent. In this case, a credit note valuable on a further purchase order will be issued only if the goods are returned in the original delivery conditions. All manufactured goods made upon a specific order cannot be either returned or be subjected to a credit note.

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The buyer must ensure of the good conditions of the delivered goods and he must make, within the legal terms, all necessary reserves and legal actions in order to preserve his rights against the carrier.
Regarding the conformity and visible quality of delivered goods related to an order, the buyer must send his eventual written claim within an 8 days legal notice from the collection date. Claims will be taken into account only if the goods are kept in the consignment conditions.
For manufacturing reasons, we reserve the right of delivering plus or minus 10 percent of the ordered quantities.

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The invoices less than € 150 Excl. tax, the first order and the files not accepted by our factoring company are resolvable cash on order.
No discount for pre-payment is accepted.
Whatever the mean of payment, we reserve the ability of cancelling or postponing any blanket or purchase order, invoicing any related charges and to ask for an immediate payment of all pending invoices and all implemented collection charges until total settlement has been completed.
In no way, payments due to JPC can be postponed or be subjected to either deduction nor compensation unless JPC's express written consent.
We reserve the right to require an agreed guarantee of the customer's execution of commitments, even during the execution of a blanket or purchase order.
Any refuse from the customer will open JPC's right to partial or total order cancellation.
Any payment to JPC will apply to due amounts whatever the cause, starting with the oldest due amounts.

RETENTION OF PROPERTY: our goods are sold with a retention of property.: according to the terms of the 1980/05/12 Law and the 1985/01/25 Law (amended 1994/06/10), the Seller shall keep the ownership of the Products until the full payment of the agreed price is made including any other payments outstanding, if any, from the Purchaser to the Seller. However, the Purchaser shall bear the risk of the loss, damages, harms, deterioration or destruction of the sold Products since such Products are at the disposal of the Purchaser and he must have subscribed any related insurance.
In the event of payment delayed by the Purchaser and 8 days after receipt of a registered reminder letter remained unfruitful, the contract shall be regarded as executed. In such an event, JPC will reserve the right to take back the goods and all related settlements by the Purchaser will not be refunded and regarded as damages, without any restitution or compensation claim from the Purchaser related to an eventual resell.
To prevail over the aforesaid clause and in the event of collective judicial proceedings, JPC will notify its such express will to the Purchaser or to its official representative, by registered letter, to have the goods returned.

PROPERTY OF TOOLS: the tools that have been fully settled to JPC are the customer's property. They remain at his entire disposal at JPC's facility if the end product is made by JPC, or in the sub-contractor's French or Foreign facility if the product is sub-contracted or imported.
Unless otherwise written consent from the Purchaser, all tools unused for more than 2 years will be considered as abandoned and will be destroyed. Storage charges can be invoiced if the customer wishes to keep unused tools.
Tools for which a partial amount has been invoiced to the Purchaser remain the property of JPC. The tools are made to fit the manufacturing equipment, Norms or Standards in force at JPC's or at its sub-contractors. Unless otherwise specified, their lifetimes are equal to 3 years life according to the annual quantities provided by the Purchaser during original negotiation or on the original order. In the meantime, all maintenance and repairs charges shall be borne by JPC. For additional quantities than provided, all maintenance and repairs charges shall be borne by the Purchaser.

WARRANTY: goods manufactured by JPC are covered by a 1 year warranty coming into force at the delivery date.
For all imported good, our warranty period is limited to the manufacturer's warranty. We cannot be held as responsible for any manufacturing ascertained default on goods re-sold as are. We forward the claims on delivered goods and apply the eventual warranty clauses after agreement receipt from our constituents.
To benefit the warranty, The Purchaser must send a written claim to JPC, providing all ascertained defaults and give JPC all means to ascertain and bring corrective actions.
Packing, freight, return, carriage, un-assembly and re-assembly charges shall be borne by the Purchaser.

LIABILITY LIMITATIONS: the buyer must ensure that the use of the purchased products complies with Norms and Rules into force, whatever the advices or recommendations shown in the seller's documents. De facto, he resigns all claims against the Seller. No request for compensations for direct or indirect damages or loss is receivable.
JPC's liability is strictly limited to the aforesaid obligations.

APPROPRIATE COURT – APPLICABLE LAWS: all sales by JPC are subjected to French Laws including the 1980 Vienna Convention on International Sales. Any controversy, dispute or claim arising out of or related to this contract or breach thereof shall be settled by arbitration of The Tribunal de Commerce Court held in Meaux, 77, France.

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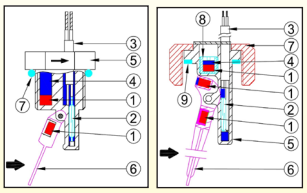
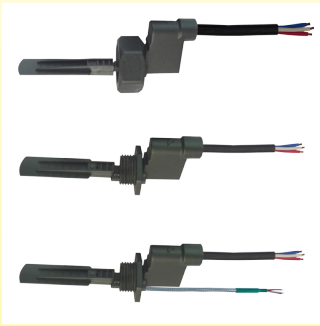
RCS Meaux 302 236 641 00049 – APE 2651B - FR10 302 236 641

Summary

Flow switches



Paddle types, microswitch contact



Paddle types, reed switch contact

Because of permanent improvement of our products, drawings, descriptions, features used on these data sheets are for guidance only and can be modified without prior advice

Summary

Flap type, in line mounting

Piston type

Accessories

Lists and tables

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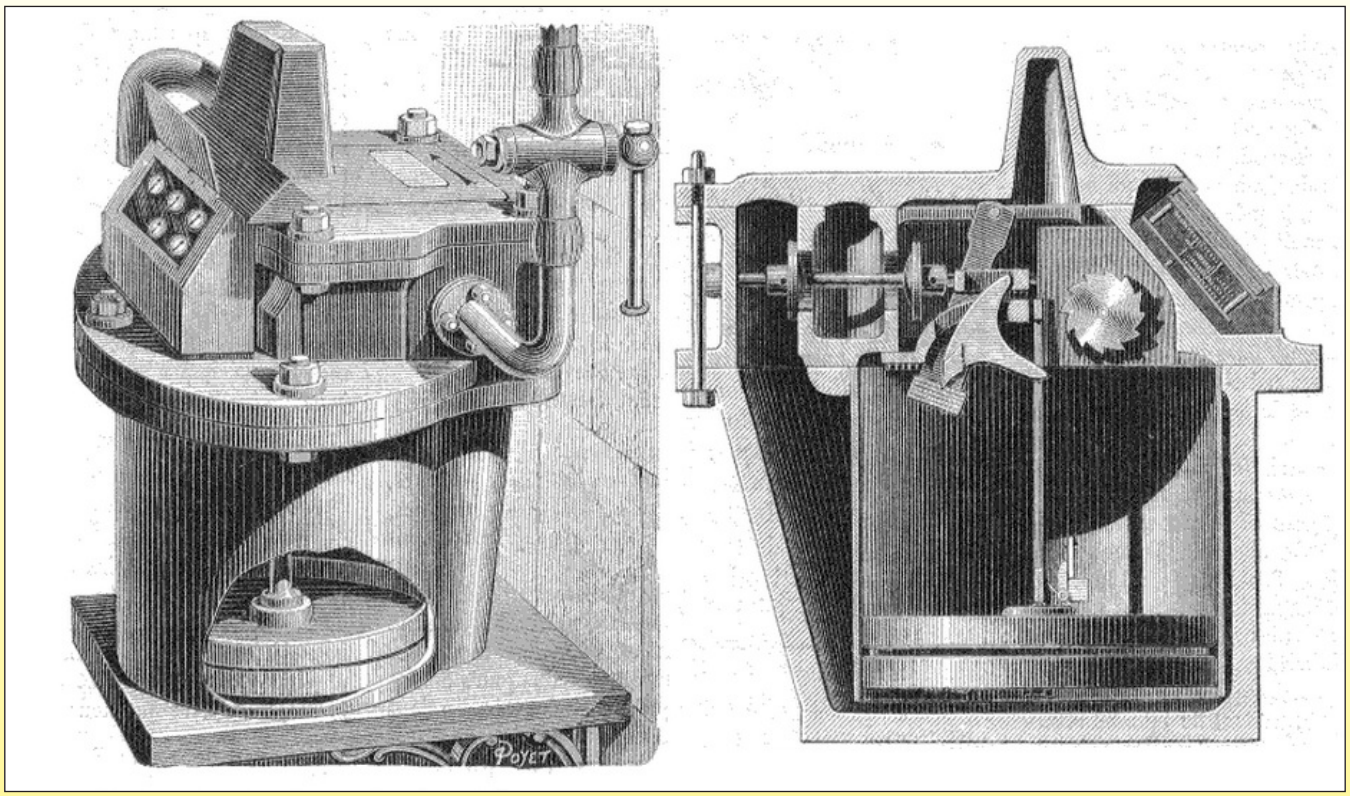
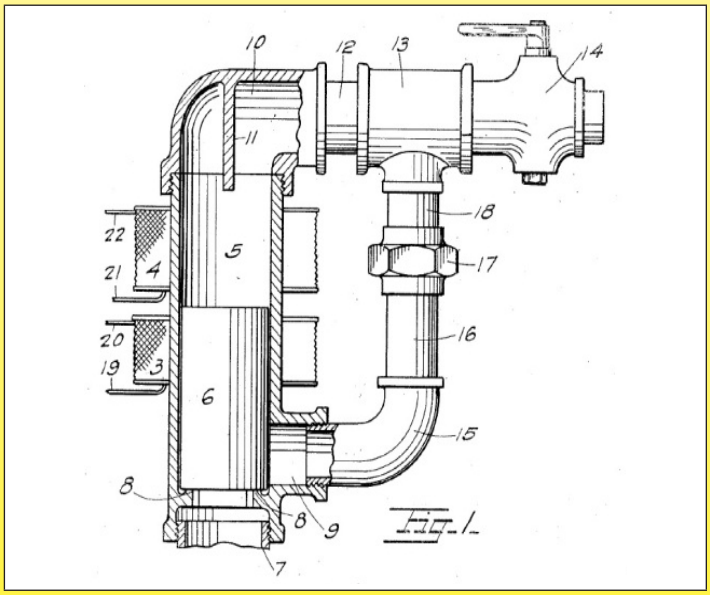
Flow switches historical and technical foreword

In antiquity, the flow measurement was one of the first means of time measurement. But it was not until the steam engines development and the need to control their water supply, that measuring devices were developed. The gas and potable water distribution network development, brought the city of Paris to mandate individual water meters in January 1881. These meters were operated by a piston system, whereas in England and Belgium, pioneer countries in this field, turbine systems were chosen.

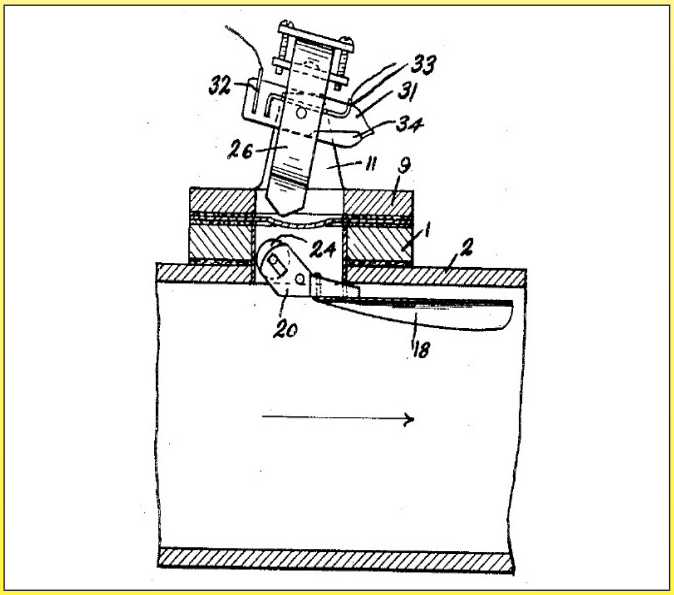


1881, in the Paris first water meters, the measurement is performed by a piston (Jacquet's system)

The development of electric and gas instant water heaters in the 1920/1930 brought the necessity of a security system to avoid heating when there is no flow. The use of paddles operating a switch had a major issue: avoid the leaks of the passage through the wall between the water circulating and the electrical switch. Gasket and were not efficient and wre reducing the flow measurement sensitivity, especially for small dimension appliances. The first flow switch using a piston, without connection passage between water and electrical section , appears to be the Walker type, where the metallic piston displacement is measured by two electromagnetic coils located outside the pipe.



1930 Walker magnetic flow sensor for water heater: the metal piston (6) moves between two magnetic coils (3 and 4) US Patent 1962795.



In 1931, the first paddle switch with a magnetic action is invented by Louis E. Richmond (US Patent 1888737). A paddle with a metallic roller actuates a balanced magnet with a mercury switch located outside.

It was not until 1936 and the reed switch invention by the American engineer W. B. Ellwood of the Bell Telephone Laboratories (U.S. Patent 3,310,863) that freed paddle, piston or turbine flow sensors from gaskets and seals and allowed them to miniaturize.
The reed switches are now used in thousands of different applications, and the annual world production is counted in hundreds of millions of pieces.

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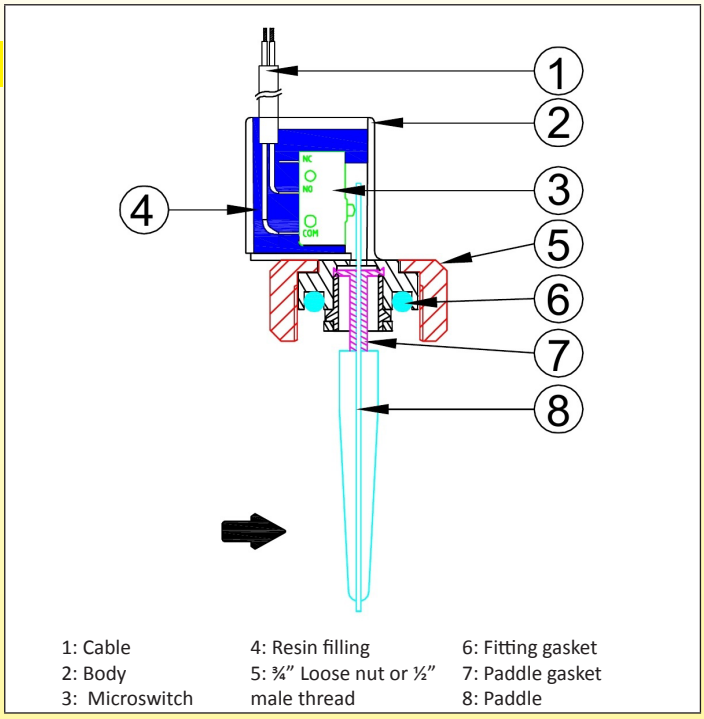
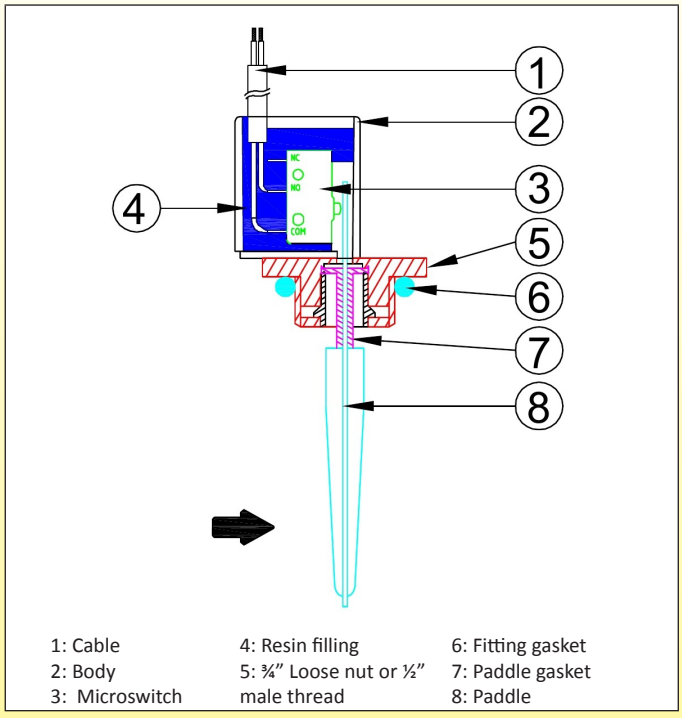
Operation

Paddle and micro-switch types

In the "in line" types, only a part of the flow, function of the ratio between the pipe section and the paddle surface actuates the flow switch



1: Cable
2: Body
3: Microswitch
4: Resin filling
5: ¾" Loose nut or ½" male thread
6: Fitting gasket
7: Paddle gasket
8: Paddle



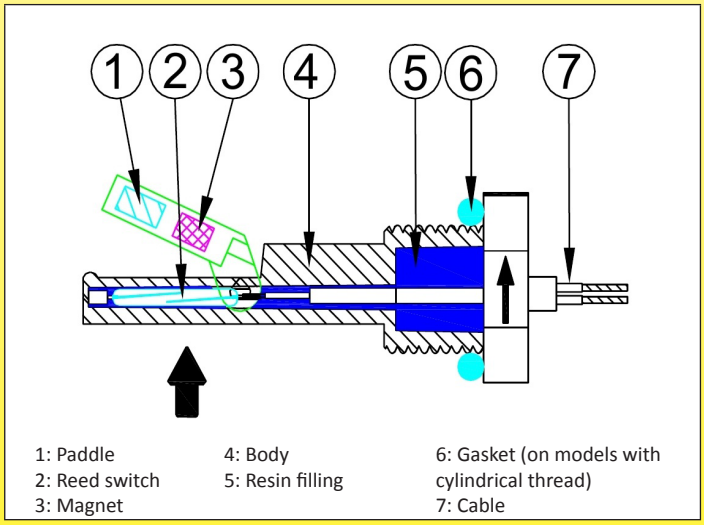
1: Cable
2: Body
3: Microswitch
4: Resin filling
5: ¾" Loose nut or ½" male thread
6: Fitting gasket
7: Paddle gasket
8: Paddle

Operating Principle

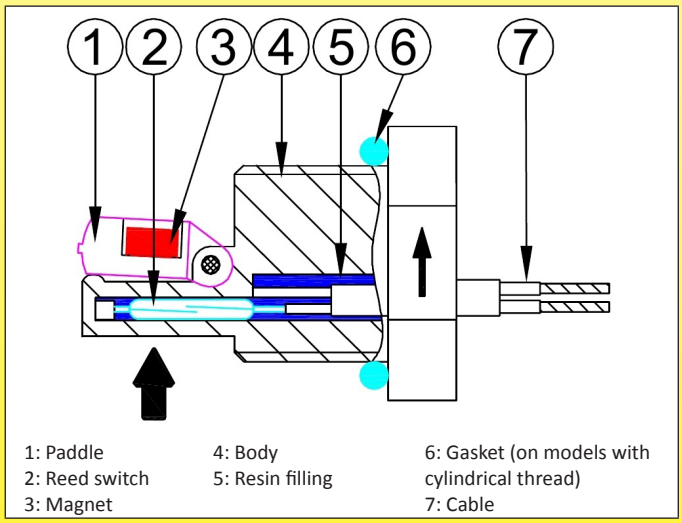
In the paddle and switch flowswitches, the paddle is pushed by the water flow and actuates a microswitch. The seal between the paddle and the electric part is made by a Santoprene elastomeric gasket. Set point calibration value is given mainly by the paddle length and its the surface, the microswitch actuating force , the pipe diameter. As in all paddle flow switches, due to the weight of the paddle, the setting will vary slightly according to the mounting position (horizontal or vertical, and in the latter case, flow inlet direction from top to bottom or from bottom to top).
During assembly it is important to check that the paddle is correctly oriented in the flow direction and that no friction or obstacle hinders its movement. Therefore it is better to focus on devices with ¾" union nut mounting , or clips and O-ring assembly (type Ultimheat Snap-in), which allow easy aorientation djustment , unlike models with fixed thread.
The temperature and pressure withstanding values, as well as resistance to chemical products are limited by the paddle gasket material.
These models have the advantage of high electrical rating, and do not contain magnets, allowing them for use with liquids that may contain magnetic particles.
In the ½" fixed thread types, it is possible to include a built-in temperature sensor: NTC, thermocouple, or Pt100, thus allowing the liquid temperature measurement.

Paddle and reed switch types, gravity back-force

In the "in line" types, only a part of the flow, function of the ratio between the pipe section and the paddle surface actuates the flow switch



1: Paddle
2: Reed switch
3: Magnet
4: Body
5: Resin filling
6: Gasket (on models with cylindrical thread)
7: Cable



1: Paddle
2: Reed switch
3: Magnet
4: Body
5: Resin filling
6: Gasket (on models with cylindrical thread)
7: Cable

Operating Principle

In the gravity pull-back paddle flow switches, when the upstream flow pushes against the paddle, the paddle swings away. This changes the position of the magnet in relation to the reed contact and thus activates the contact. As soon as the flow decreases or is interrupted, the paddle moves back to its starting position, and reed switch comes back to its starting contact position. The force necessary to push the paddle is provided by the magnets repelling each other. Our fixed setting paddle switches use only two magnets, and our adjustable setting types have one extra magnet use for repelling force adjustment. This system has no communication or gasket between the paddle and the electrical part. No metal parts are in contact with the liquid, with the exception of some models with a titanium axis. Therefore they are particularly suitable for applications on aggressive liquids, swimming pool water, sea water, or chloration or bromisation equipment. Most models can be used on pipes from 20 to 100 mm diameter, by using an adapted length paddle. Set point calibration value is given mainly by the paddle length and surface, the diameter of the pipe, and, in adjustable versions by the position of the magnet position adjusting screw. As in all paddle flow switch range, due to the weight of the paddle,the setting will vary slightly according to the mounting position (horizontal or vertical, and in the latter case, flow inlet direction from top to bottom or from bottom to top)
During assembly it is important to check that the paddle is correctly oriented in the flow direction and that no friction or obstacle hinders its movement. As the paddle is magnetic, the circuit must be free of all magnetic particles. The low electrical ratings of the reed switches limit their use in pilot circuits or electronic circuits.

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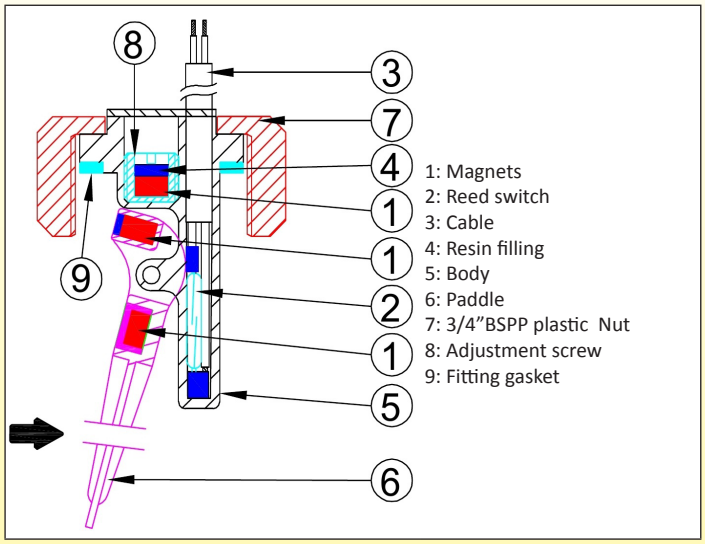
Flow switches historical and technical foreword

Paddle and reed switch types, magnetic pull-force, slim design

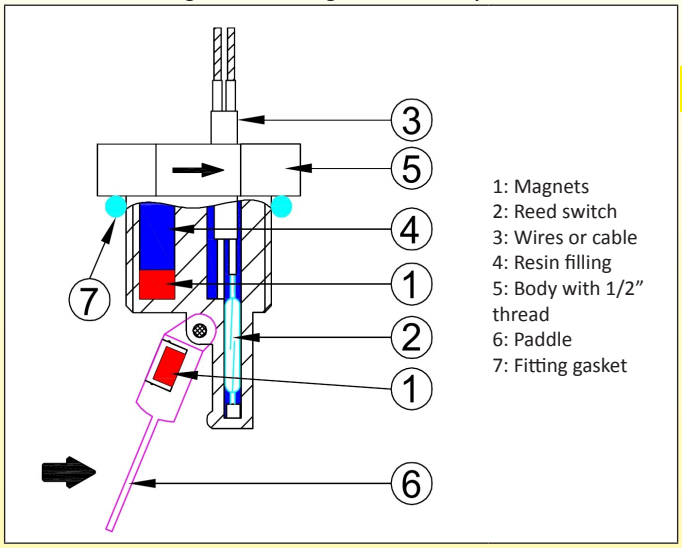
In the paddle types, only a part of the flow, function of the ratio between the pipe section and the paddle surface, actuates the flow switch

3 magnets, factory adjustable set point type, smallest external foot print



1: Magnets
2: Reed switch
3: Cable
4: Resin filling
5: Body
6: Paddle
7: 3/4"BSPP plastic Nut
8: Adjustment screw
9: Fitting gasket

2 magnets fixed setting, the lowest foot print



1: Magnets
2: Reed switch
3: Wires or cable
4: Resin filling
5: Body with 1/2" thread
6: Paddle
7: Fitting gasket

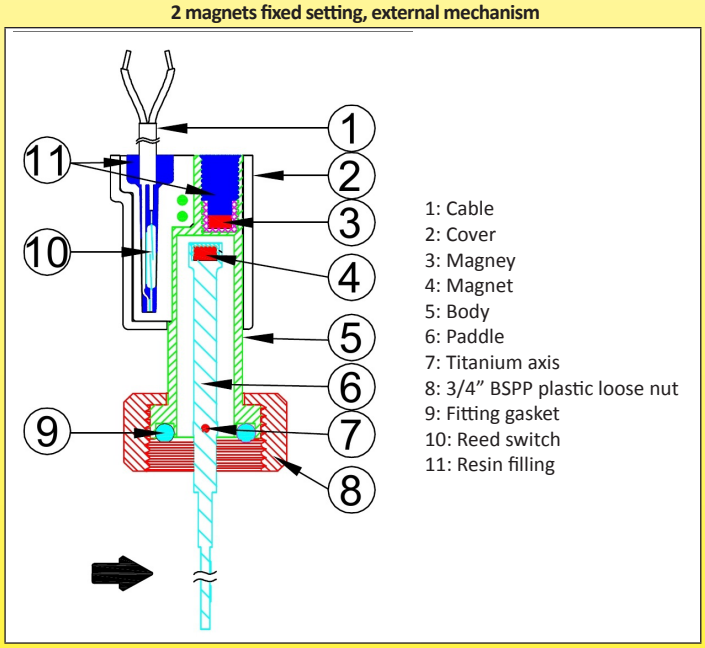
Operating Principle

In the paddle and reed switch types, with magnetic pull-force and slim design, the flow pushes against the paddle, the paddle swings away and the reed switch contact closes. As soon as the flow decrease or is interrupted, the paddle is pulled back by the magnet to its starting position, and reed switch contact opens. The fixed setting paddle switches with slim design use only two magnets, but the adjustable setting types have one extra magnet used for force adjustment. This system has no communication or gasket between the paddle and the electrical part. No metal parts are in contact with the liquid, with the exception of some models with a titanium axis. Therefore they are particularly suitable for applications on aggressive liquids, swimming pool water, sea water, or chloration or bromisation equipment. Most models can be used on pipes from 20 to 100 mm diameter, by using an adapted length paddle. Set point calibration value is given mainly by the paddle length and surface, the diameter of the pipe, and, in adjustable versions by the position of the adjusting screw. As in all paddle flow switch range, due to the weight of the paddle, the setting will vary slightly according to the mounting position (horizontal or vertical, and in the latter case, flow inlet direction from top to bottom or from bottom to top)
During assembly it is important to check that the paddle is correctly oriented in the flow direction and that no friction or obstacle hinders its movement. Therefore it is better to focus on devices with ¾" union nut mounting, or clips and O-ring assembly (type Ultimheat Snap-in), which allow easy orientation adjustment, unlike models with fixed thread. As the paddle is magnetic, the circuit must be free of all magnetic particles. The low power ratings of the reed switches limit their use in pilot or electronic circuits

Paddle and reed switch types, magnetic back-force, long design

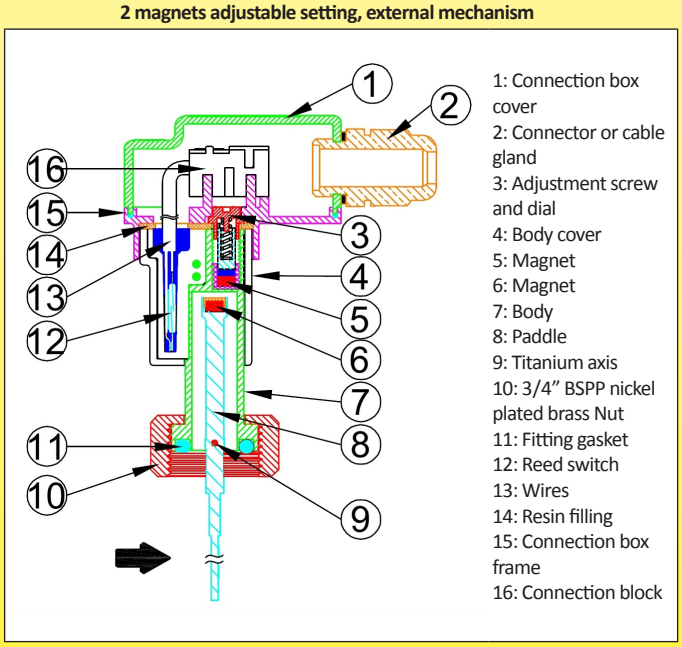
In the paddle types, only a part of the flow, function of the ratio between the pipe section and the paddle surface, actuates the flow switch

2 magnets fixed setting, external mechanism



1: Cable
2: Cover
3: Magney
4: Magnet
5: Body
6: Paddle
7: Titanium axis
8: 3/4" BSPP plastic loose nut
9: Fitting gasket
10: Reed switch
11: Resin filling

2 magnets adjustable setting, external mechanism



1: Connection box cover
2: Connector or cable gland
3: Adjustment screw and dial
4: Body cover
5: Magnet
6: Magnet
7: Body
8: Paddle
9: Titanium axis
10: 3/4" BSPP nickel plated brass Nut
11: Fitting gasket
12: Reed switch
13: Wires
14: Resin filling
15: Connection box frame
16: Connection block

Operating Principle

In the paddle and reed switch types, with magnetic pull-force and long design, the flow pushes against the paddle, the paddle swings away and the reed switch contact closes. As soon as the flow decreases or is interrupted, the paddle is pulled back by the magnet to its starting position, and reed switch contact opens. This system has no communication or gasket between the paddle and the electrical part. No metal parts are in contact with the liquid, with the exception of some models with a titanium axis. Therefore they are particularly suitable for applications on aggressive liquids, swimming pool water, sea water, or chloration or bromisation equipment. Most models can be used on pipes from 20 to 100 mm diameter, by using an adapted paddle length. Set point calibration value is given mainly by the paddle length and surface, the diameter of the pipe, and, in adjustable versions, by the position of the adjusting screw. As in all paddle flow switch range, due to the weight of the paddle,the setting will vary slightly according to the mounting position (horizontal or vertical, and in the latter case, flow inlet direction from top to bottom or from bottom to top)
During assembly it is important to check that the paddle is correctly oriented in the flow direction and that no friction or obstacle hinders its movement. As the paddle is magnetic, the circuit must be free of all magnetic particles. The low power ratings of the reed switches limit their use in pilot or electronic circuits

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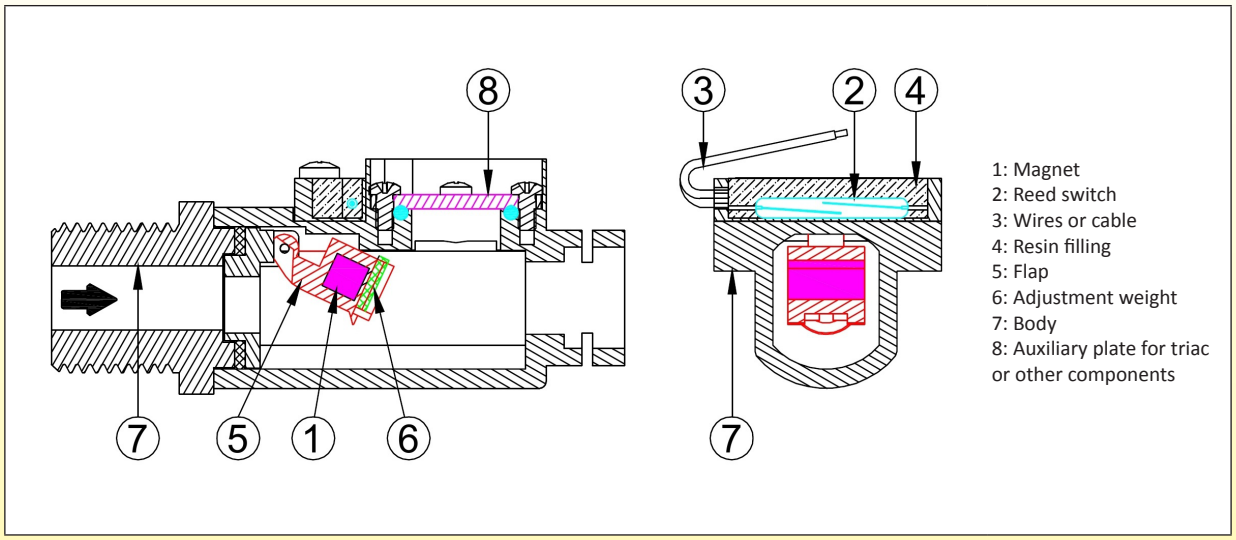
Flow switches historical and technical foreword

Hinged flap and reed switch type

In the hinged flap types, 100% of the flow goes through the flow switch

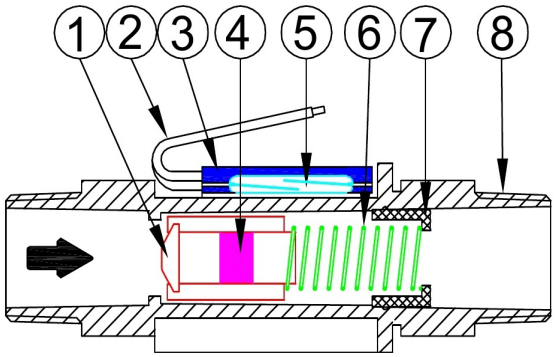


1: Magnet
2: Reed switch
3: Wires or cable
4: Resin filling
5: Flap
6: Adjustment weight
7: Body
8: Auxiliary plate for triac or other components

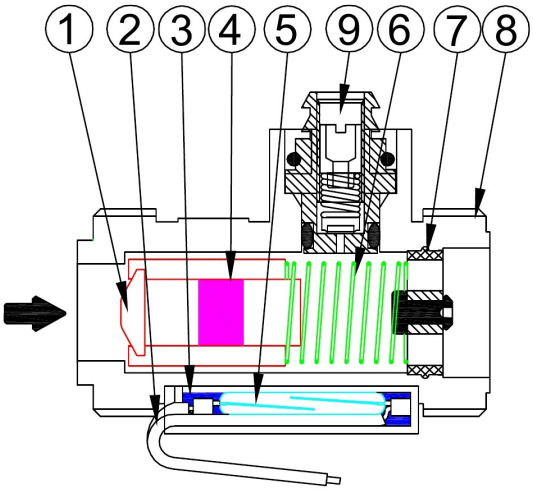
Operating Principle
In "In line" flap reed flow switches, the hinged flap is moved by the water flow and closes a reed switch contact. There is no sealing problem between the liquid and electrical side, because both are completely separated. When the flow stops or decreases, the magnetic flap returns to its original position by its own weight (vertical position and bottom water inlet are required). The detection set point value is given by a variable mass lodged in the flap. This solution is suitable for small diameter pipes and wall mounting instant water heaters. As the flap is magnetized, the circuit must be free of all magnetic particles. These devices include a location for mounting an auxiliary system: water cooled triac heat exchanger, pressure switch, disc thermostat or temperature sensor. The low power ratings of the reed switches limit their use in pilot or electronic circuits.

Piston and reed switch types

Piston type flow switches place a piston directly in 100% of the flow path



1: Wires
2: Piston
3: Resin filling
4: Magnet
5: Reed switch
6: Spring
7: Clips
8: Body
9: Overpressure valve (Option)



1: Wires
2: Piston
3: Resin filling
4: Magnet
5: Reed switch
6: Spring
7: Clips
8: Body
9: Overpressure valve (Option)

Operating Principle
Inside "in line" piston and reed type flow switch, the piston, when displaced by the pressure differential from fluid flow, magnetically actuates a reed switch. There is no sealing problem between the liquid and electrical part because both are completely separated. When the flow stops or decreases, the magnetic piston comes back to its original position by its own weight (vertical installation, water inlet downside), or by a spring (vertical, water inlet upside). The detection set point value is given mainly by the piston shape, its mass and eventually by the spring pull back force. This solution is suitable for small diameter pipes. The piston being magnetized, the circuit must be free of all magnetic particles. The low power ratings of the reed switches limit their use in pilot or electronic circuits.

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Flow switches historical and technical foreword

Description of the different parts

The electrical contact system: reed switch or micro-switch.

A certain force is required to actuate the electrical contact device. It can range from a few tenths of grams for systems with reed contacts with a power rating of 10 to 20VA (0.5Amp), to 50 grams for snap action micro-switches with a 5Amp 250V rating
In general, the force required to operate an electrical contact increases with its electrical rating, and the power available on the detector depends on the paddle, piston or flap characteristics Most flow switches in this catalog use reed switches because they are used for detection level in low voltage and low current electronic circuits. This makes possible to design compact devices.

Reed switches

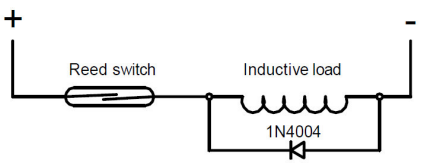
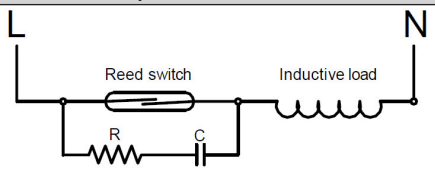
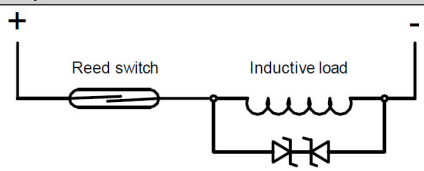
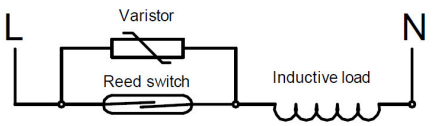
Reed switches are small glass bulbs with a flexible reed strip contact with a breaking capacity of 10 to 70VA, which has the particularity to close in the presence of a magnetic field. These glass bulbs are sealed and filled with argon or under vacuum, therefore they are protected from oxidation

Reed switch applications in flow switches

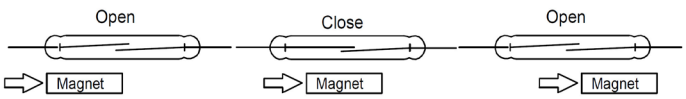
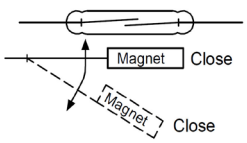
Suitable	Not suitable
Computer circuits	Small electrical motors , including small DC motors
Programmable logic controller (PLC's) circuits	Power contactor coil circuits (Unless protected by an arc suppression circuit)
Small relays	Solenoid valves (Unless protected by an arc suppression circuit)
Solid state relay (SSR) trigger circuits	Incandescent lamps

Reed switches contact protection

Switching no load or loads where the voltage is less than 5 Volts @ 10 mA or less, the contacts undergo little or no wear and life times in excess of billions of operations are expected. In the 10 Volt range, higher contact wear will take place. Switching 10 Volts @ 10 mA, life times of 50 million to 200 million operations can be expected.
When switching inductive loads such as relays, solenoids and transformers, reed switch contacts require protection in order to insure long, dependable life. When current is interrupted, the inductance or electrical inertia of the load generates a large high frequency voltage, which appears across the switch contacts. If the voltage is large enough, it can break down the medium in the gap between them, making a conductive path. This phenomenon is called arcing. Arcing can cause the contacts to burn, weld together or stick .The purpose of protection circuits is to prevent arcing, by shorting this voltage through an alternate path

DC load contact protection circuit with diode	AC load contact protection circuit with R/C circuit
	
A 1N4004 diode is connected cathode-to-positive .The diode does not conduct when the load is energized, but conducts and shorts out the peak transient generated voltage when the switch opens. A resistor can be added in series with the diode.	A resistor (R) and capacitor (C) are connected in parallel with the switch. The capacitor has high impedance at 50/ 60 hertz, and is essentially a short circuit to high frequencies of generated voltages. Capacitor value: $C = I^2/10$ Resistor value (E= power supply voltage): $R = E / (10.I^{(I+50/E)})$
DC load protection contact with Back to Back Zener diode	**AC load protection contact with Varistor**
	
The peak transient voltage that occurs when the switch opens is decreased to a value equal to the back to back Zener diode voltage. The Zener diode should be sized for a voltage somewhat higher than the circuit source voltage	The varistor resistance decreases sharply when voltage reaches its trigger value, and shorts out the peak transient generated voltage when the switch opens. Varistor should be sized for a voltage somewhat higher than the circuit source voltage

Magnet displacement and reed switch operation in flow switches

Piston types	Paddle and flap types
	
When magnet located inside the piston arrives at the center of the reed switch, the contact closes. Therefore, piston movement is limited to achieve requested operation mode.	A magnet is located inside the paddle or inside the flap. When it arrives near the reed switch, the contact closes.

Snap action switches

On snap action switches, contact opening speed is around 1m per second. The contact spacing reaches the distance to extinguish the arcing in less than 1/1000 sec. Therefore there is no radio interference, and the contact does not deteriorate. Mechanically, this type of contact, also called "energy storing contact" is much more complicated, expensive, and does not allow such a great control than reed switches.
The snap action microswitch is particularly suitable for devices operating at 240 or 400 V and when high electrical rating is required

Microswitches vs reed switches in flowswitches

Disadvantages	Advantages
Microswitches are more expensive than reed switches	Microswitches have higher electrical ratings, in 110VAC and 230VAC
Microswitches have a higher operating force, so they need larger paddles	Microswitches are easily made with SPNC, SPNO or change over contacts
Micro-switches have large differential travels, providing large flow differentials between contact opening and close	Snap action contact switches generate very low EMC

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Flow switches historical and technical foreword

Magnets (In reed switch devices)

Selecting a magnet for a flow switch application must take into account the characteristics of the liquid in which it will be immersed, of the temperature at which it will be subjected, of its corrosion resistance, of the magnetic field required to operate the switch and its distance to the reed switches. Ferrite magnets have a good resistance to corrosion, but a very low magnetic power. Neodymium -Iron-Boron magnets contain 60-75% iron (amount is dependent on grade) and are therefore prone to corrosion, but a very big magnetic power. So these magnets are nickel plated and plastic overmolded.
Both these magnets have a good temperature resistance up to 100°C

Electrical wiring

For reed switch systems, the most common electrical connection is by wires or cable. Given the low electrical rating of reed switches, conductor cross section is generally less than or equal to 0.5 mm ². If there is no thermal stress or environmental conditions, wires and cables are PVC insulated. Silicone insulation, FEP and Teflon are not recommended because they do not provide hermetic sealing with resin filling and may let water or moisture inside the product.
Tabs or connector outputs are recommended for large quantities.

Resin filling (For reed switch types)

The resin filling provides two functions
- *Mechanically securing the reed in the body,* and provide its resistance to tearing (Standards impose a tearing resistance equal to or greater than 10N)
- *Main electrical insulation of the electrical contact and wiring.* This requires a UL94-VO resin. In some customer applications the insulation class I is insufficient, and the contact system must receive and additional insulation to comply to the requirements of insulation class II

Mechanical stop of measuring device

The mechanical displacement of the piston or paddle must be limited to remain within the limits of the magnet position detection by the reed switch.

Mechanism body and mounting system

Choice of material:
The body of the mechanism provides several functions:
- *Device protection against electric shock, water ingress, pressure value, and chemicals.*
Plastics used for the body are always UL94-VO rated
- *The use in potable water systems:*
Models intended for use in drinking water are made of plastic and metal parts in contact with water that meets the specifications of the WRC (Water Research Council)
- *The flow switch mounting:*
This mounting can be secured by NPT or BSPT (Tapered) threads, or BSPP cylindrical threads or metric threads. Tapered threads require sealing on the threads, and the cylindrical threads require sealing by a flat gasket or O-ring

Ingress protection

On flow switches using a magnetic mechanism, liquids containing magnetic particles such as iron filings must be avoided, because these particles will accumulate on the magnet. It is possible to use a magnetic trap upstream if it is not possible to avoid magnetic flow switches in the final application

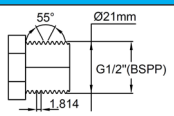
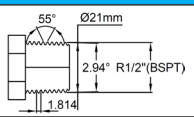
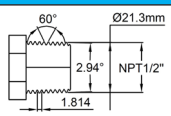
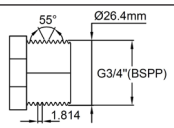
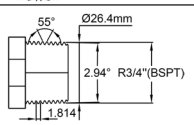
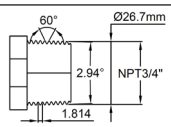
External environment protection

This protection can have several functions:
- Ingress protection against attacks from the outside environment (rain, dust, shock). Most of our flow switches have their electrical components potted inside an electrical insulation and waterproof resin. Some of them can also be provided with waterproof protection box
- Protection against the conditions in which the product will be installed in its application.
In most cases, level switches will be integrated by an OEM into a machine or equipment. Then it is this machine or equipment that will ensure protection against water, dust, shock and other contaminants.
- *Protection against gas and dust explosive atmospheres:* flow switches were not initially designed for use in these environments and therefore may not meet the applicable standards in this field of application.
Overmolded reed switches do not have potential sources of ignition. On special request, they can be subjected to an ignition hazard assessment according to DIN EN 13463-1: 2002. They could be, therefore, not subject to directive 94/9/EC, and used as a simple electrical device for connection to a certified intrinsically safe circuit in accordance with DIN EN 60079-11: 2007.

Compliance with the European directive 2006-42 (Machinery directive):

These flow switches are not a safety component as described in this directive. Their operational safety is only guaranteed when they are used for flow monitoring of liquids, inside the limits given by their data sheets and instruction manual.

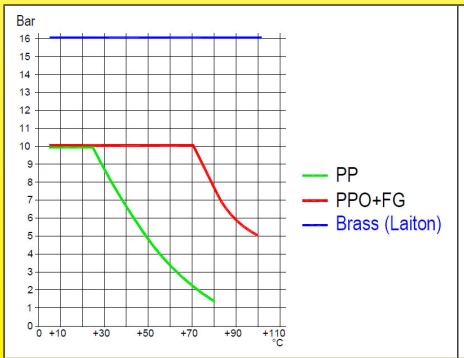
Threads and threaded pipe connections

	G	R	NPT
1/2			
3/4			

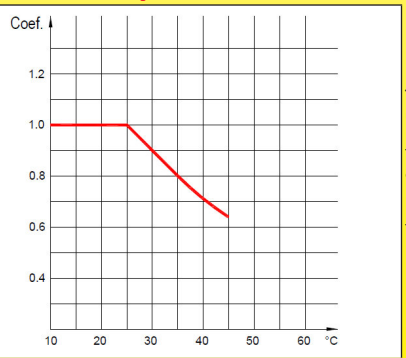
The correspondences between the threads, and they may have different names in different countries and often it is difficult to understand catalogs and plans.
The threads used in flow sensors can be:
- ½" NPT: tapered thread, American standard ANSI B1-20-1
- ½" BSPT: tapered thread, meet ISO-7-1, DIN2999, BS21, often called "conical gas thread" or "conical gas", but they may also be described in documents under the abbreviation "Rp", "R" and in France "conical 15-21" (for ½"), and "conical 20-27" (for the ¾")
- ½" BSPP and ¾" BSPP: cylindrical thread, described in ISO 228, DIN259, often called "cylindrical gas thread" or "BSP", as described on the documents under the abbreviation "G", and in France "cylindrical 15-21" (for ½"), and "cylindrical 20-27" (for the ¾").
Male cylindrical threads are mounted in cylindrical female thread, with a flat gasket or an O-ring seal on a flat seal seat.
The tapered male threads are mounted in cylindrical female threads with a sealant on the pitch.

In tapered threads, there is a strong resemblance between BSPT and NPT in sizes ½" and ¾". For these dimensions only, they have the same pitch, diameters very close, and a slight pitch angle difference (55° and 60°), and this explains why in some cases, and for plastic threads, ½" NPT male will fit quite correctly in a BSPP female thread.

PN and temperature resistance



Maximum operating pressure correction on flow switches upon their body material



Maximum operating pressure correction coefficient against temperature on PVC tubes (From EN 1452-2)

The Nominal pressure (PN) is the pressure which is often used in the design of a pipeline. This value is expressed in bar, as the pressure at the temperature of 25 ° C for which the equipment is able to withstand pressure without failure and with adequate security during a given time. At 25 ° C the nominal pressure corresponds to the maximum operating pressure (PFA). This pressure varies with temperature and the characteristics of the material used, so great care must be taken when this concept is used. The main standard is EN 1452-2 for drinking water supply pipes in PVC. This standard provides the correction coefficient of the maximum operating pressure between 20 and 45 ° C for PVC.

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Paddle flow switches

(Micro-switch types)

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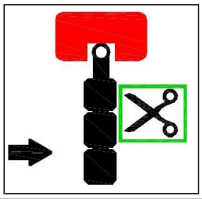
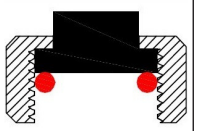
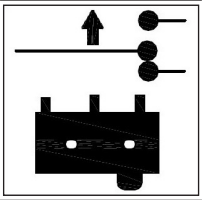
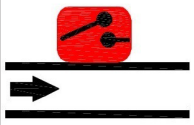
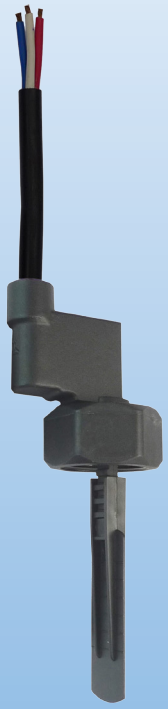
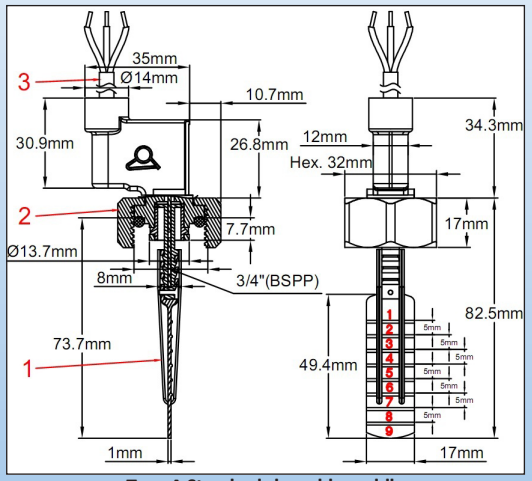
Paddle flow switches, micro-switch contact, 3/4" BSPP union nut
Type: R1B

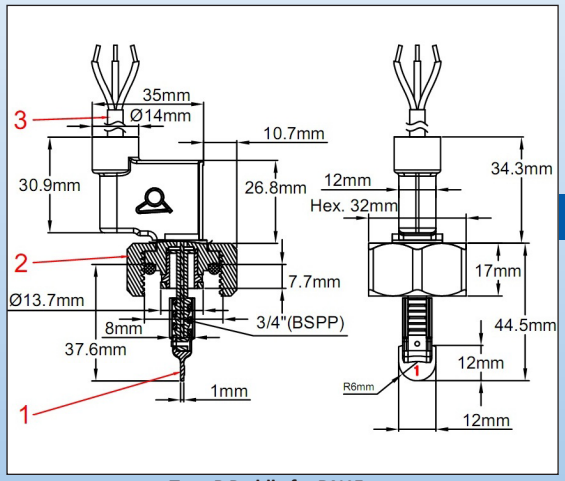
Size and pressure	Flow sensing: Cleavable paddle	Mounting: ¾" BSPP Union nut	Contact: Microswitch	Electrical rating	Mounting position	Type
PN10 DN≥15				5A 250V~		R1B





Type A Standard cleavable paddle

1: Paddle **2:** Body **3:** Cable

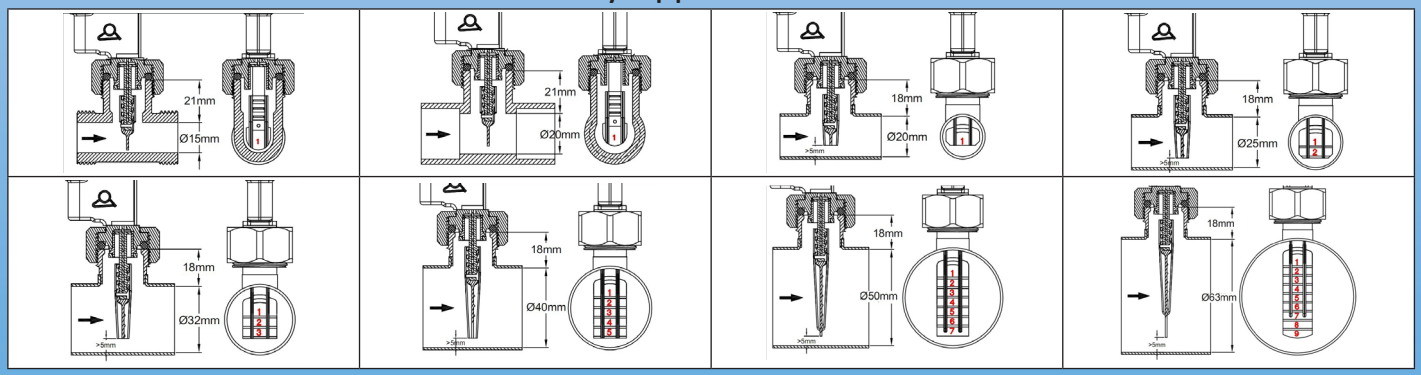


Type B Paddle for DN15 tee

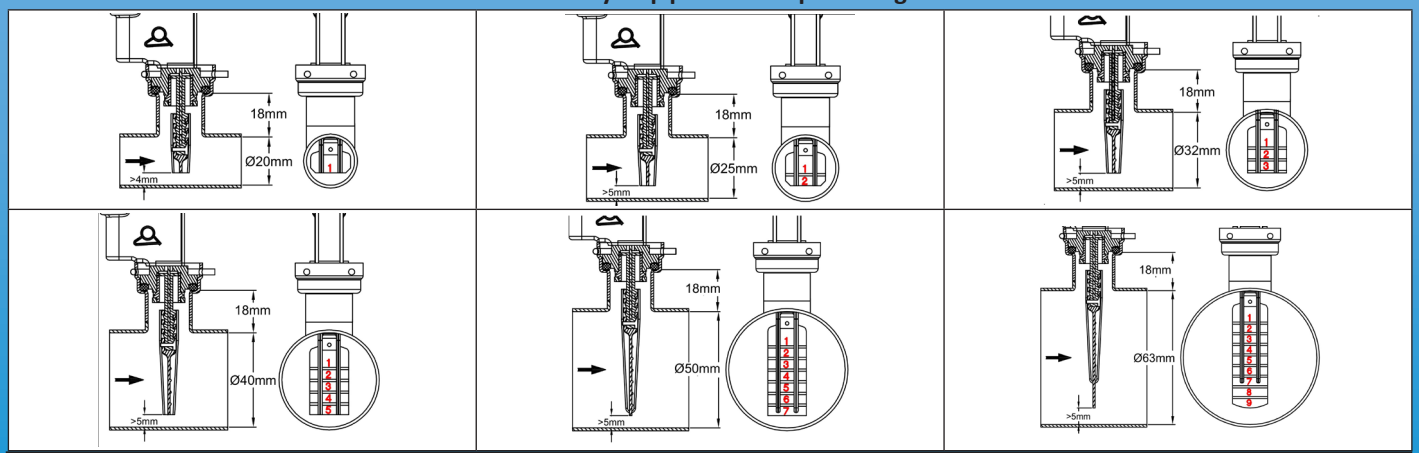
1: Paddle **2:** Body **3:** Cable

Main uses: Water flow detection on water pipes
Functional principle: Balanced paddle, perpendicular to the main flow, actuating a micro- switch. Flexible elastomeric gasket between paddle and electric switch
Main housing material: PPO, fiber glass reinforced, usable with potable water.
Paddle material: Polypropylene, resistant to ozone and water disinfection products
Paddle gasket: Santoprene, resistant to ozone and water disinfection products
Electrical rating: 5A resistive, 230V AC
Electric contact type: SPDT, open or close by flow rise
Liquids compatibility: For use with clean water and liquids without chemical incompatibility with PPO and Santoprene
Nominal pressure at 20°C: 1MPa (PN10)

Assembly on pipes with ¾" union nut



Assembly on pipes with snap-in fitting



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Paddle flow switches, micro-switch contact, 3/4" BSPP union nut
Type: R1B

Average Flow detection values vs pipe I.D. and paddle length (Liters/min)

Paddle length	Pipe ID (mm)***													
	15***		20		25		32		40		50		63	
	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open
1	8.3	7,2	16,3	11,6	37	36	77	68	157	128	260	202	598	412
1+2					24	18	53	50	108	97	183	160	421	327
1+2+3							43	38	88	82	168	140	386	286
1+2+3+4									70	68	130	118	299	241
1~5									52	50	110	98	253	200
1~6											90	88	217	170
1~7											78	77	178	158
1~8													150	135
1~9													135	122

* Close by flow rise (L/min) of contact open at no flow position ** Open by flow decrease (L/min) of contact open at no flow position. Average values for indication only. Standard tolerances ±30% *** With3/4 DN15 brass tee (see accesories) and type B non cleavable paddle

Nominal diameter: Can be used on 20 to 63 mm internal diameter pipes
The paddle is cleavable and can be cut at various lengths upon pipe diameter. There are cutting lines numbered 1 to 9 every 5mm.
Recommended mounting position: Vertical, with paddle downside. Other positions are possible with a change in the calibration value related to the paddle weight. .
Water pipe connection: Supplied with a fiber glass reinforced PA66G3/4"(BSPP) union nut and NBR gasket. Must be used on a BSPP3/4 male fitting perpendicular to the main pipe.
Recommended torque: 7Nm.
Version for snap-in mounting (see accessories) has no nut
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 3 x 0.75 mm² cable, PVC insulation, T80°, style H05VVF.
Installation instructions:
- Check carefully the paddle orientation: The arrow on housing must be exactly parallel to the pipe
- A 5 mm minimum gap must be respected between end of the paddle and tube wall opposite to the 3/4" fitting.
- We recommend the use of nozzles of length less than or equal to 18mm between the gasket seat and the inside of the tube and with an inner diameter greater than or equal to 14mm, to avoid blocking of the paddle.

Accessories: 3/4" PVC saddles forDN40 to DN100 (OD) PVC pipes, and other fittings: see last section of this catalogue
Options:
- Cable with connector or terminals, other cable length, nickel plated brass nut.

Main references

	Cable length		
	500mm	1m	2m
Type A cleavable paddle, 3/4" nut	R1BH05073M33N050	R1BH05073M33N100	R1BH05073M33N200
Type A cleavable paddle, snap-in mounting	R1BH05073S13N050	R1BH05073S13N100	R1BH05073S13N200
Type B non-cleavable paddle for DN15 x ¾ Tee, 3/4" nut	R1BH01235M33N050	R1BH01235M33N100	R1BH01235M33N200

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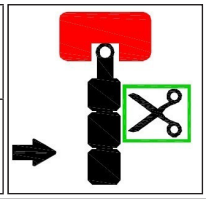
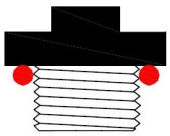
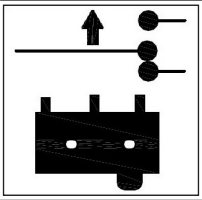
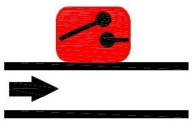
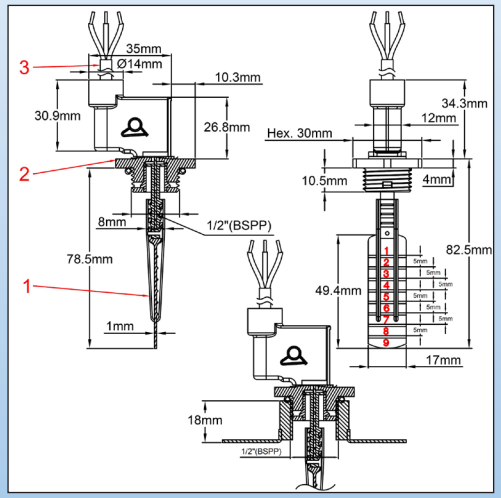
Paddle flow switches, micro-switch contact, 1/2" BSPP male thread
Type: R1D

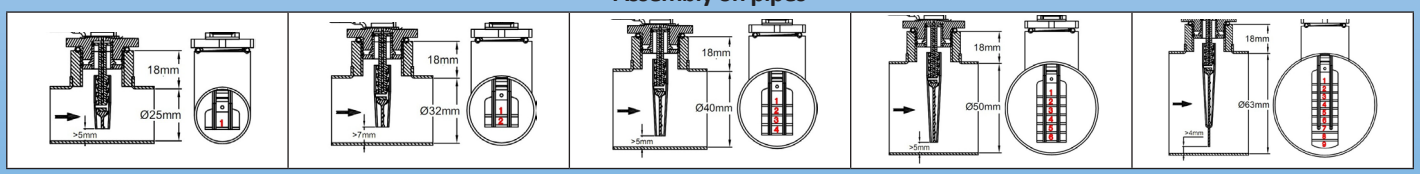
Size and pressure	Flow sensing: Cleavable paddle	Mounting: 1/2" BSPP thread	Contact: Microswitch	Electrical rating	Mounting position	Type
PN10 DN≥25				5A 250V~		R1D



1: Paddle 2: Body 3: Cable

Main uses: Water flow detection on water pipes
Functional principle: Balanced paddle, perpendicular to the main flow, actuating a micro- switch. Flexible elastomeric gasket between paddle and electric switch
Main housing material: PPO, fiber glass reinforced, usable with potable water.
Paddle material: Polypropylene, resistant to ozone and water disinfection products
Paddle gasket: Santoprene, resistant to ozone and water disinfection products
Electrical rating: 5A resistive, 230V AC
Electric contact type: SPDT, open or close by flow rise
Liquids compatibility: For use with clean water and liquids without chemical incompatibility with PPO and Santoprene
Nominal pressure at 20°C: 1MPa (PN10)

Assembly on pipes



Average Flow detection values vs pipe I.D. and paddle length (Liters/min)

Paddle length	Pipe ID (mm)											
	20		25		32		40		50		63	
	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open
1			34	32	67	63	123	113	225	200	506	424
1+2			23	19	50	48	98	93	173	153	389	324
1+2+3					40	38	76	73	143	128	321	271
1+2+3+4							61	58	110	106	220	200
1~5							49	46	89	84	200	178
1~6									73	68	165	150
1~7									62	58	152	138
1~8											133	123
1~9											113	108

* Close by flow rise (L/min) of contact open at no flow position ** Open by flow decrease (L/min) of contact open at no flow position. Average values for indication only. Standard tolerances±30%

Nominal diameter: Can be used on 32 to 63 mm internal diameter pipes
The paddle is cleavable and can be cut at various lengths upon pipe diameter. There are cutting lines numbered 1 to 9 every 5mm.
Recommended mounting position: Vertical, with paddle downside. Other positions are possible with a change in the calibration value related to the paddle weight. .
Water pipe connection: Male thread 1/2"(BSPP) and NBR gasket. Must be used on a BSPP ½"female fitting perpendicular to the main pipe.
Recommended torque: 7Nm
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 3 x 0.75 mm² cable, PVC insulation, style H05VVF.
Installation instructions:
- Check carefully the paddle orientation: The arrow on housing must be exactly parallel to the pipe
- A 5 mm minimum gap must be respected between end of the paddle and tube wall opposite to the 3/4" fitting.
- We recommend the use of nozzles of length less than or equal to 18mm between the gasket seat and the inside of the tube and with an inner diameter greater than or equal to 20mm, to avoid blocking of the paddle.

Accessories: 1/2" female PVC saddles forDN40 to DN100 (OD) PVC pipes, and other fittings: see last section of this catalogue
Options: cable with connector or terminals, other cable length, paddle type B (see type R1B)

Main references

	Cable length		
	500mm	1m	2m
Reference	R1DH05079F43N050	R1DH05079F43N100	R1DH05079F43N200

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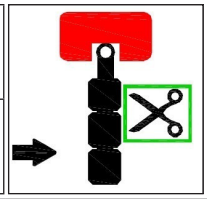
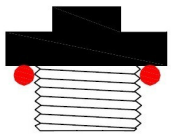
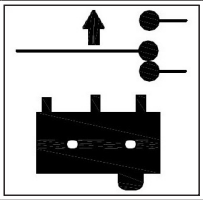
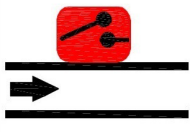
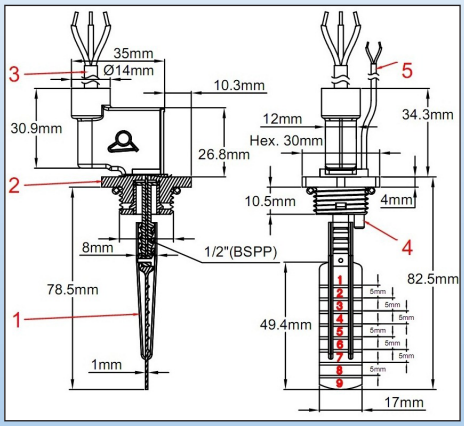
Paddle flow switches, micro-switch contact, 1/2" BSPP male thread, and Pt100 temperature sensor, Type: R1Q

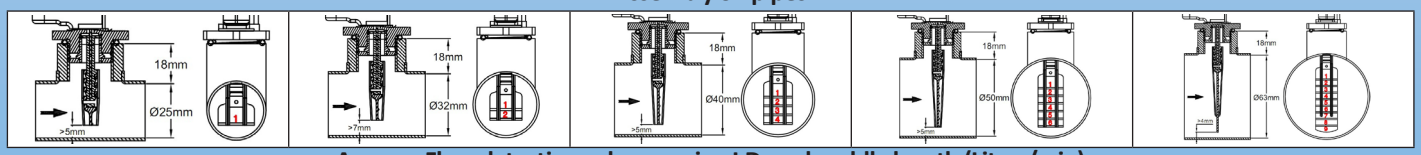
Size and pressure	Flow sensing: Cleavable paddle	Mounting: 1/2" BSPP thread	Contact: Microswitch	Electrical rating	Mounting position	Type
PN10 DN≥25				5A 250V~		R1Q



1: Paddle
2: Body
3: Cable
4: temperature sensor
5: temperature sensor cable

Main uses: Water flow detection on water pipes , with simultaneous water temperature measurement
Functional principle: Balanced paddle, perpendicular to the main flow, actuating a micro- switch. Flexible elastomeric gasket between paddle and electric switch. Temperature measurement is made by a plastic pocket located under the ½" thread
Main housing material: PPO, fiber glass reinforced, usable with potable water.
Paddle material: Polypropylene, resistant to ozone and water disinfection products
Paddle gasket: Santoprene, resistant to ozone and water disinfection products
Electrical rating: 5A resistive, 230V AC
Electric contact type: SPDT, open or close by flow rise
Liquids compatibility: For use with clean water and liquids without chemical incompatibility with PPO and Santoprene
Nominal pressure at 20°C: 1MPa (PN10)

Assembly on pipes



Average Flow detection values vs pipe I.D. and paddle length (Liters/min)

Paddle length	Pipe ID (mm)											
	20		25		32		40		50		63	
	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open
1			34	32	67	63	123	113	225	200	506	424
1+2			23	19	50	48	98	93	173	153	389	324
1+2+3					40	38	76	73	143	128	321	271
1+2+3+4							61	58	110	106	220	200
1~5							49	46	89	84	200	178
1~6									73	68	165	150
1~7									62	58	152	138
1~8											133	123
1~9											113	108

* Close by flow rise (L/min) of contact open at no flow position ** Open by flow decrease (L/min) of contact open at no flow position. Average values for indication only. Standard tolerances±30%

Nominal diameter: Can be used on 32 to 63 mm internal diameter pipes
The paddle is cleavable and can be cut at various lengths upon pipe diameter. There are cutting lines numbered 1 to 9 every 5mm.
Recommended mounting position: Vertical, with paddle downside. Other positions are possible with a change in the calibration value related to the paddle weight. .
Water pipe connection: Male thread 1/2"(BSPP) and NBR gasket. Must be used on a BSPP ½" female fitting perpendicular to the main pipe.
Recommended torque: 7Nm
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection:
Flow switch contact: 3 x 0.75 mm² cable, PVC insulation, style H05VVF.
- Pt100 temperature sensor: 3x0.22mm² cable, nickel plated braided FEP insulation
Flow and temperature connection cables length is the same
Installation instructions:
- Check carefully the paddle orientation: The arrow on housing must be exactly parallel to the pipe
- A5 mm minimum gap must be respected between end of the paddle and tube wall opposite to the 3/4" fitting.
- We recommend the use of nozzles of length less than or equal to 18mm between the gasket seat and the inside of the tube and with an inner diameter greater than or equal to 20mm, to avoid blocking of the pallet
Accessories: 1/2" female PVC saddles forDN40 to DN100 (OD) PVC pipes, and other fittings: see last section of this catalogue
Options: cable with connector or terminals, other cable length, paddle type B (see type R1B)

Main references

	Cable length		
	500mm	1m	2m
Reference	R1QH05079F43N050	R1QH05079F43N100	R1QH05079F43N200

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Paddle flow switches

(Reed switch types)

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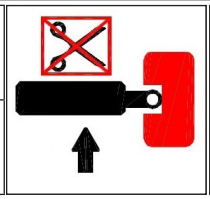
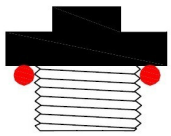
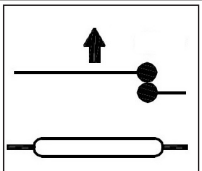
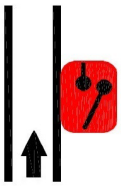
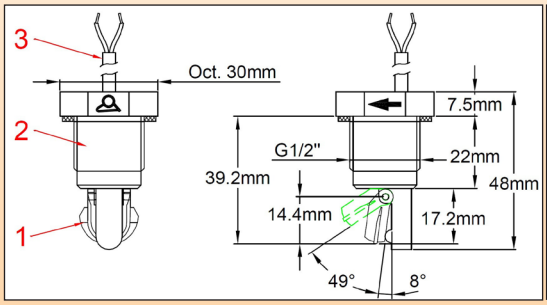
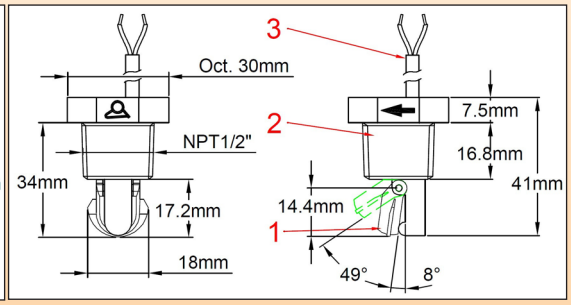
Paddle flow switches, reed switch contact, 1/2" male thread
Types: R1L and R1G

Pressure and size	Flow sensing: Gravity pull back paddle	Mounting: 1/2" male thread	Contact: Reed switch, Open on flow rise	Electrical rating	Mounting position	Type
PN10 DN≥25				≤1A ≤70W ≤250V~		R1L (BSPP) R1G (NPT)



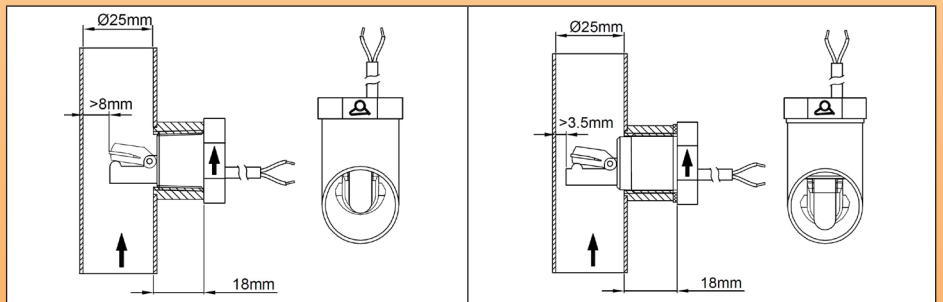
R1L (1/2"BSPP)



R1G (1/2"NPT)

Main uses: The most simple and price effective flow switch of the range. Used for water flow detection on small size water pipes. CONTACT OPENS BY FLOW RISE.
Functional principle:
Balanced magnetic paddle mounted perpendicular to the flow and activating a reed switch through the wall. The return of the paddle is by gravity, without spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for corrosive water pools and spas and salination chlorination and bromination systems. Not to be used for water containing magnetic particles or high viscosity liquids, which block the movement of the paddle.
Main housing material: Polypropylene, resistant to ozone and water disinfection products, usable with potable water.
Paddle: Polypropylene, 18mm width
Paddle shaft: Titanium, providing an outstanding corrosion resistance, and improved mechanical live
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally close, open by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with polypropylene
Nominal pressure at 20°C: 1MPa (PN10)

Mounting configurations



R1G minimum pipe diameter | R1L minimum pipe diameter

Average Flow detection values vs pipe I.D. and paddle length (Liters/min)

Paddle length	25		32		40		50		63	
	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open
1	12,7	10,8	17	13,5	28	23	46	42	93	83

** Open by flow rise (L/min) of contact close at no flow position * Close by flow decrease (L/min) of contact close at no flow position. Average values for indication only. Standard tolerances ±30%

Nominal diameter: Usually used on 25 to 32 mm internal diameter pipes. The paddle is not cleavable.
Mandatory mounting position: On vertical pipes, with horizontal flow switch axis, and paddle upside. Upstream flow only.
Water pipe connection: On female ½" fitting.
On the type with BSPP thread, a NBR gasket is supplied with the product. On the type with NPT thread, thread sealant must be used. Recommended torque: 7Nm
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 (0.2mm²) cable, PVC insulation, T80°, style UL2464.
Installation instructions:
- Check carefully the paddle orientation: The arrow on housing must be exactly parallel to the pipe
- A 5 mm minimum gap must be respected between end of the paddle and tube wall opposite to the fitting.
- We recommend the use of nozzles of length less than or equal to 18mm between the gasket seat and the inside of the tube and with an inner diameter greater than or equal to 20 mm, to avoid blocking of the paddle.

Accessories: 1/2" PVC saddles for DN40 to DN100 (OD) PVC pipes, and other fittings: see last section of this catalogue
Options: cable with connector or terminals, other cable length

Main references

Thread	Cable length		
	500mm	1m	2m
½" BSPP	R1L611536F45P050	R1L611536F45P100	R1L611536F45P200
½" NPT	R1G611534F25P050	R1G611534F25P100	R1G611534F25P200

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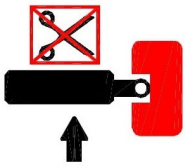
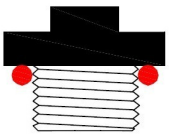
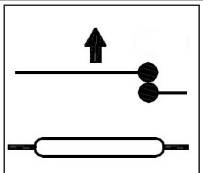
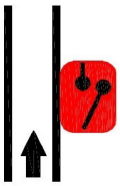
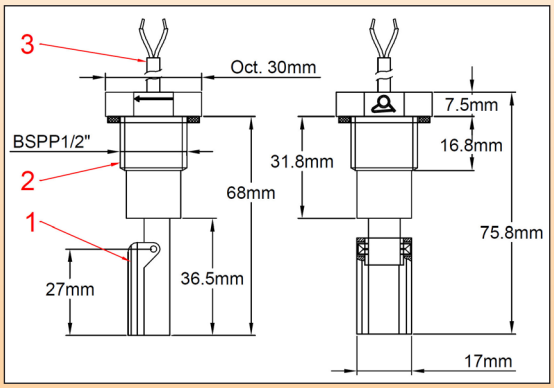
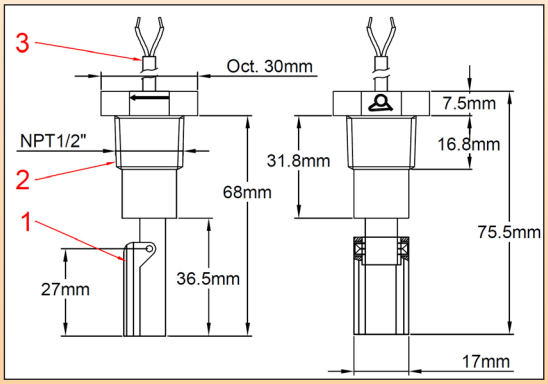
Paddle flow switches, reed switch contact, 1/2" male thread, extended paddle arm, Types: R1Y and R1E

Pressure and size	Flow sensing: Gravity pull back paddle	Mounting: 1/2" male thread	Contact: Reed switch, Open on flow rise	Electrical rating	Mounting position	Type
PN10 DN63				≤1A ≤70W ≤250V~		R1Y (BSPP) R1E (NPT)



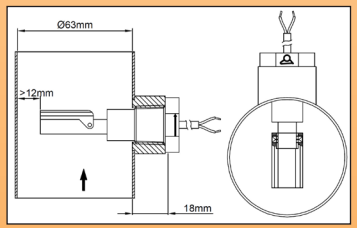
R1Y (1/2"BSPP)



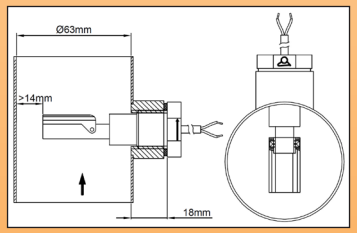
R1E (1/2"NPT)

Main uses: Cost effective simple flow switch developed for swimming pool application. For water flow detection on vertical dia. 63 mm water pipes, upstream flow.
Functional principle:
Balanced magnetic paddle mounted perpendicular to the flow and activating a reed switch through the wall. The return of the paddle is by gravity, without spring. No seal or liquid can pass between the piping system and the electrical contact. No metal parts (shaft, spring) in contact with the liquid. Suitable for corrosive water pools and spas and salination chlorination and bromination systems. Not to be used for water containing magnetic particles or high viscosity liquids, which block the movement of the paddle.
Main housing material: Polypropylene, resistant to ozone and water disinfection products, usable with potable water.
Paddle: Polypropylene, 17 mm width
Paddle shaft: Polypropylene
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally close, open by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with polypropylene
Nominal pressure at 20°C: 1MPa (PN10)

Mounting configurations



R1Y



R1E

Average Flow detection values

Paddle length	Pipe ID (mm)											
	20		25		32		40		50		63	
	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open
1											33	38

** **Open by flow rise (L/min) of contact close at no flow position** * **Close by flow decrease (L/min) of contact close at no flow position. Average values for indication only. Standard tolerances ±30%**

Nominal diameter: Can be used on 55 to 63 mm internal diameter pipes.
The paddle is not cleavable.
Mandatory mounting position: On vertical pipes, with horizontal flow switch axis, and paddle upside. Upstream flow only.
Water pipe connection: On female ½" fitting.
On the type with BSPP thread, a NBR gasket is supplied with the product. On the type with NPT thread, thread sealant must be used. Recommended torque: 7 Nm
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 (0.2mm²) cable, PVC insulation, T80°, style UL2464.
Installation instructions:
- Check carefully the paddle orientation: The arrow on housing must be exactly parallel to the pipe
- A 5 mm minimum gap must be respected between end of the paddle and tube wall opposite to the fitting.
- We recommend the use of nozzles of length less than or equal to 18mm between the gasket seat and the inside of the tube and with an inner diameter greater than or equal to 20 mm, to avoid blocking of the paddle.

Accessories: 1/2" PVC saddles for DN40 to DN100 (OD) PVC pipes, and other fittings: see last section of this catalogue
Options: cable with connector or terminals, other cable length

Main references

Thread	Cable length		
	500mm	1m	2m
½"BSPP	R1Y622768F45P050	R1Y622768F45P100	R1Y622768F45P200
½"NPT	R1E622768F25P050	R1E622768F25P100	R1E622768F25P200

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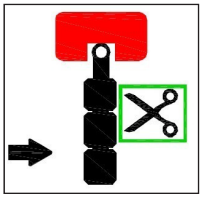
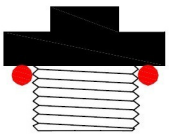
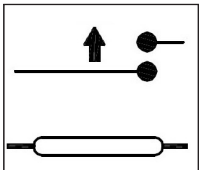
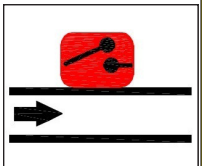
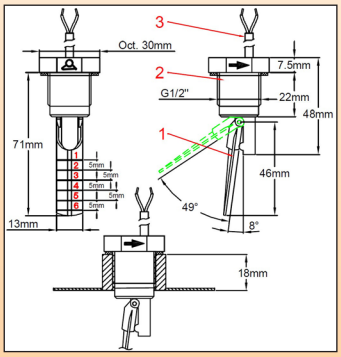
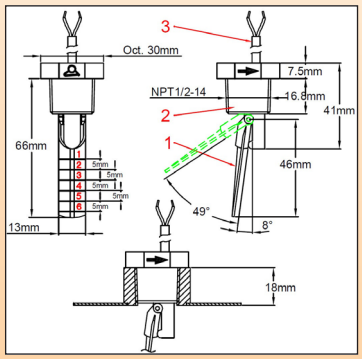
Paddle flow switches, reed switch contact, 1/2" male thread, long paddle, Types: R1S and R1F

Pressure and size	Flow sensing: Cleavable magnetic pull back paddle	Mounting: 1/2" male thread	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN≥25				≤1A ≤70W ≤250V~		R1S (BSPP) R1F (NPT)



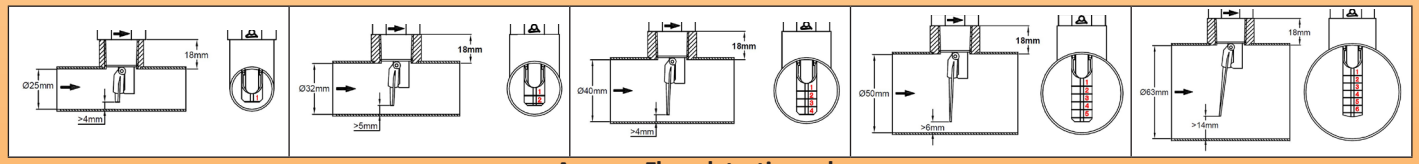
1: Paddle 2: Body 3: Cable
R1S (1/2"BSPP)



1: Paddle 2: Body 3: Cable
R1F (1/2"NPT)

Main uses: The most simple flow switch with magnetic pull-back. Recommended mounting position is on horizontal pipes, but can be mounted in any position. For water flow detection on dia. 25 to 63 mm water pipes.
Functional principle:
Balanced magnetic paddle mounted perpendicular to the flow and activating a reed switch through the wall. The return of the paddle is by made by magnetic action, without spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for corrosive water pools and spas and salination chlorination and bromination systems. Must not to be used for water containing magnetic particles or high viscosity liquids, which block the movement of the paddle.
Adjustment: Can be adjusted by cleaving the paddle
Main housing material: Polypropylene, resistant to ozone and water disinfection products, usable with potable water.
Paddle: Polypropylene, 13 mm width
Paddle shaft: Titanium, providing an outstanding corrosion resistance, and improved mechanical live
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with polypropylene and titanium
Nominal pressure at 20°C: 1MPa (PN10)

Mounting configurations



Average Flow detection values

Paddle length	Pipe ID (mm)											
	20		25 Not suitable for R1S (BSPP)		32		40		50		63	
	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open
1			26	6	38	15	79	30	127	58	172	108
1+2					28	11	63	18	83	37	143	73
1+2+3					20	7	49	10	63	27	105	53
1+2+3+4							19	7	57	22	93	47
1~5									48	15	72	31
1~6									48	9	66	23

* Close by flow rise (L/min) of contact open at no flow position ** Open by flow decrease (L/min) of contact open at no flow position. Average values for indication only. Standard tolerances±30%

Nominal diameter: Can be used on 25 to 63 mm internal diameter pipes.
The paddle is cleavable and can be cut at various lengths upon pipe diameter. There are cutting lines numbered 1 to 6 every 5mm.
Recommended mounting position: On horizontal pipes. Mounting in other positions slightly modify the calibration
Water pipe connection: On female ½" fitting. On the type with BSPP thread, a NBR gasket is supplied with the product. On the type with NPT thread, thread sealant must be used.
Recommended torque: 7 Nm
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 (0.2mm²) cable, PVC insulation, T80°, style UL2464.
Installation instructions:
- Check carefully the paddle orientation: The arrow on housing must be exactly parallel to the pipe
- A 5 mm minimum gap must be respected between end of the paddle and tube wall opposite to the fitting.
- We recommend the use of nozzles of length less than or equal to 18mm between the gasket seat and the inside of the tube and with an inner diameter greater than or equal to 20 mm, to avoid blocking of the paddle.

Accessories: 1/2" PVC saddles for DN40 to DN100 (OD) PVC pipes, and other fittings: see last section of this catalogue
Options: cable with connector or terminals, other cable length

Main references

Thread	Cable length		
	500mm	1m	2m
½"BSPP	R1S6D4771F45P050	R1S6D4771F45P100	R1S6D4771F45P200
½"NPT	R1F6D4766F25P050	R1F6D4766F25P100	R1F6D4766F25P200

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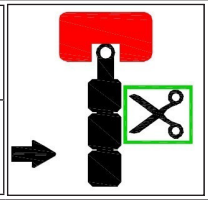
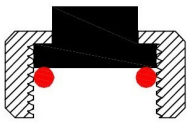
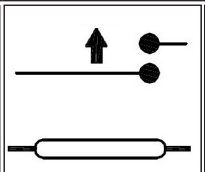
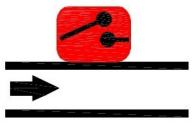
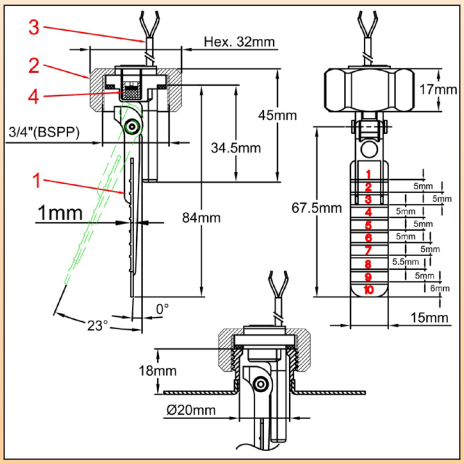
Paddle flow switches, reed switch contact, 3/4"union nut, slim design
Type: R1P

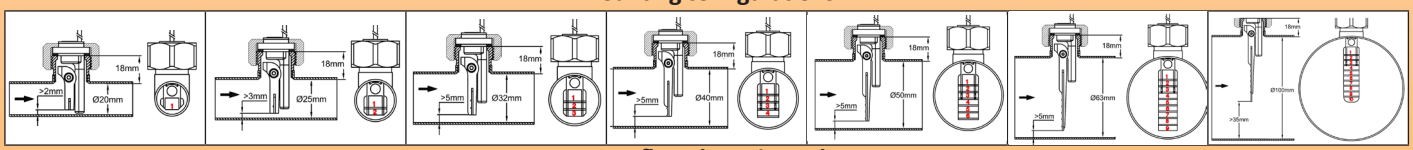
Pressure and size	Flow sensing: Cleavable magnetic pull back paddle	Mounting: ¾" BSPP plastic union nut	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN≥20				≤1A ≤70W ≤250V~		R1P



1: Cleavable paddle
2: 3/4" BSPP plastic union nut
3: Connection cable
4: Adjustment screw

Main uses: The most simple flow switch with magnetic pull-back. Recommended mounting position is on horizontal pipes, but can be mounted in any position. For water flow detection on dia. 25 to 100 mm water pipes
Functional principle:
Balanced magnetic paddle mounted perpendicular to the flow and activating a reed switch through the wall. The return of the paddle is by made by magnetic action, without spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for corrosive water pools and spas and salination chlorination and bromination systems. Must not to be used for water containing magnetic particles or high viscosity liquids, which block the movement of the paddle.
Adjustment: there are 2 adjustment ways on this model
- By cleaving the paddle
- By means of the adjustment screw located under the protective cover. This setting must be carried out only by professional, qualified and trained personnel, as a too low setting can produce an insufficient pull-back force and malfunction. This adjustment is designed for single use and can be sealed.
Main housing material: Polypropylene, resistant to ozone and water disinfection products, usable with potable water.
Union nut material: High mechanical strength fiber glass reinforced PA66.
The type without nut is designed for snap-in assembly on plastic and stainless steel fittings. (See last section of this catalogue)
Paddle: Polypropylene, 15 mm width
Paddle shaft: Titanium, providing an outstanding corrosion resistance, and improved mechanical live
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with polypropylene and titanium
Nominal pressure at 20°C: 1MPa (PN10)

Mounting configurations



Average flow detection values

Paddle length	Pipe ID (mm)													
	20		25		32		40		50		63		100	
	*Close	**Ouverture	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open
1	(2,5) 3,7 (5.3)	(2,1) 3,3 (4,8)	(5,8) 7,7 (16)	(4,7)7,2 (14)	(13) 18 (27)	(11) 16 (25)	(23) 28 (53)	(20) 25 (43)	(49) 65 (78)	(35) 53 (65)	(113) 138 (237)	(75) 93 (142)	(217) 258 (420)	(187) 217 (330)
1+2					(8,1) 11 (19)	(6,5)10 (18)	(18) 21(35)	(16) 18 (32)	(30) 37 (65)	(26) 33 (53)	(63) 95 (175)	(52) 78 (100)	(158) 208 (350)	(140) 183 (280)
1~3					(5,7) 9 (16)	(4,8) 8 (14)	(13) 16 (28)	(10) 13 (25)	(21) 28 (42)	(18) 25 (30)	(47) 70(125)	(37) 52 (92)	(123)157 (262)	(109) 135 (237)
1~4							(7,2)13 (22)	(5)10 (19)	(17) 22 (35)	(14) 19 (32)	(38) 48 (87)	(32 38 (67)	(108) 130 (223)	(93) 108 (197)
1~5									(13) 18 (28)	(4,6) 15 (26)	(28) 40 (62)	(25) 33 (50)	(83) 98 (183)	(73) 87 (163)
1~6									(9,2) 15 (24)	(7,8) 12 (22)	(21) 30 (53)	(18) 25 (43)	(73) 80 (150)	(63) 73 (137)
1~7									(7,1) 11 (23)	(5,4) 8 (18)	(17) 22 (41)	(13) 18 (37)	(58) 73 (130)	(53) 68 (120)
1~8											(13) 19 (35)	(10) 14 (32)	(49) 63 (98)	(43) 55 (88)
1~9											(10) 15 (28)	(7) 12 (25)	(43) 56 (90)	(38) 48 (85)
1~10													(42) 48 (84)	(37) 42 (73)

* Close by flow rise (L/min) of contact open at no flow position ** Open by flow decrease (L/min) of contact open at no flow position. Average values for indication only. Standard tolerances±30%
Values upon (low span end) , middle span and (high span end) calibration.

Nominal diameter: Can be used on 25 to 100 mm internal diameter pipes
The paddle is cleavable and can be cut at various lengths upon pipe diameter. There are cutting lines numbered 1 to 10 every 5mm.
Recommended mounting position: On horizontal pipes. Mounting in other positions slightly modify the calibration
Water pipe connection: On male 3/4" fitting. NBR gasket is supplied with the product. Recommended torque: 7Nm
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 (0.2mm²) cable, PVC insulation, T80°, style UL2464.
Installation instructions:
- Check carefully the paddle orientation: The arrow on housing must be exactly parallel to the pipe
- A 5 mm minimum gap must be respected between end of the paddle and tube wall opposite to the fitting.
- We recommend the use of nozzles of length less than or equal to 18mm between the gasket seat and the inside of the tube and with an inner diameter greater than or equal to 20 mm, to avoid blocking of the paddle.
Accessories: 3/4" male PVC saddles for DN40 to DN100 (OD) PVC pipes, and other fittings: see last section of this catalogue
Options: cable with connector or terminals, other cable length, nickel plated ¾" BSPP union nut

Main references

Calibration	Mounting	Cable length		
		500mm	1m	2m
Low span end (1gr)	¾" BSPP Union nut	R1P616884G35P050	R1P616884G35P100	R1P616884G35P200
Low span end (1gr)	No nut, for snap-in mounting	R1P616884S15P050	R1P616884S15P100	R1P616884S15P200
Middle span (2grs)	¾" BSPP Union nut	R1P626884G35P050	R1P626884G35P100	R1P626884G35P200
Middle span (2 grs)	No nut, for snap-in mounting	R1P626884S15P050	R1P626884S15P100	R1P626884S15P200
High span end (4grs)	¾" BSPP Union nut	R1P646884G35P050	R1P646884G35P100	R1P646884G35P200
High span end (4grs)	No nut, for snap-in mounting	R1P646884S15P050	R1P646884S15P100	R1P646884S15P200

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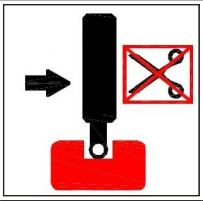
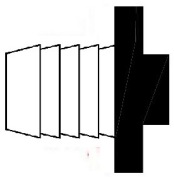
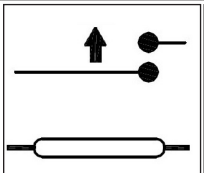
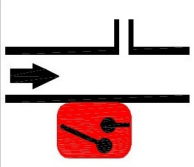
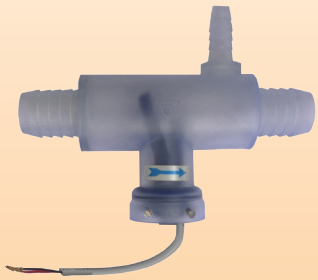
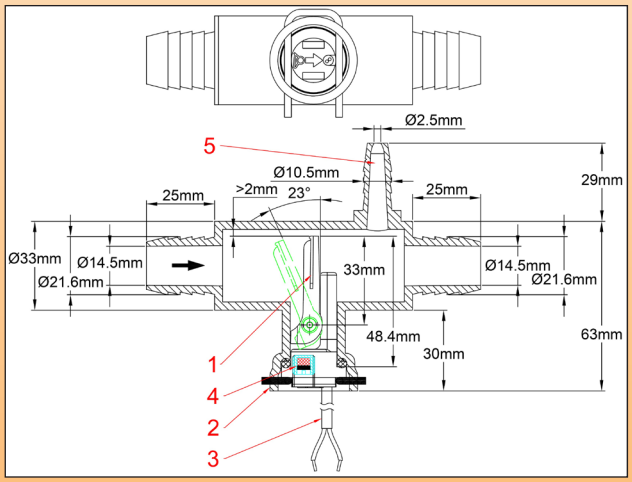
Paddle flow switches, reed switch contact, inside barbed tee for 1”soft tube, Type: R1Q

Pressure and size	Flow sensing: Magnetic pull back paddle	Mounting: 1” barbed for soft tube	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN3 DN20				≤1A ≤70W ≤250V~		R1Q





1: Paddle
2: Snap-on mounting
3: Connection cable
4: Adjustment screw
5: Air bleed outlet

Main uses: Tee equipped with paddle flow switch, for spas and swimming pools applications, mounting on 1” (20 to 21mm ID) soft PVC tubes, adjustable setting.
Used on water circulation circuits to detect the passage of water or filter clogging and avoid dry running. Recommended mounting position is on horizontal pipes, but can be mounted in any position allowing an efficient air bleed.
Functional principle: Balanced magnetic pallet mounted perpendicular to the flow and activating a reed switch through the wall. The return of the pallet is by made by magnetic action, without spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for corrosive water pools and spas and salination chlorination and bromination systems. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the pallet.
Adjustment: By means of the adjustment screw located under the protective cover. This setting must be carried out only by professional, qualified and trained personnel, as a too low setting can produce an insufficient pull-back force and malfunction. This adjustment is designed for single use and can be sealed.
Main housing material: Polypropylene, resistant to ozone and water disinfection products, usable with potable water.
Tee material: PVC
Paddle: Polypropylene, 15 mm width
Paddle shaft: Titanium, providing an outstanding corrosion resistance, and improved mechanical live
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with polypropylene and titanium
Nominal pressure at 20°C: 0.3MPa (PN3)

Average flow detection values (Liters/min)

Calibration	*Close	**Open
Low span end (1gr)	4,3	3,7
Middle span (2grs)	5,7	4,8
High span end (4grs)	7,4	6,9

* Close by flow rise (L/min) of contact open at no flow position ** Open by flow decrease (L/min) of contact open at no flow position. Average values for indication only. Standard tolerances ±30%

Liquids temperature range: 5 to 45°C
Ambient temperature range: 5 to 45°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 (0.2mm²) cable, PVC insulation, T80°, style UL2464.
Installation instructions: Water circuit in spas and pools can contain air bubbles, it is important to prevent them stagnate in the unit of measure and originate false flow measurement. Therefore the air bleeding orifice must be located above and connected
Options: cable with connector or terminals, other cable length.

References

Calibration	Cable length			
	500mm	1m	2m	3m
Low span end (1gr)	R1Q613348S15P050	R1Q613348S15P100	R1Q623348S15P200	R1Q613348S15P300
Middle span (2 grs)	R1Q623348S15P050	R1Q623348S15P100	R1Q623348S15P200	R1Q623348S15P300
High span end (4grs)	R1Q643348S15P050	R1Q643348S15P100	R1Q643348S15P200	R1Q643348S15P300

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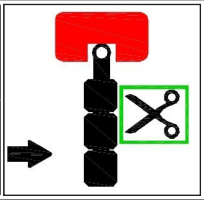
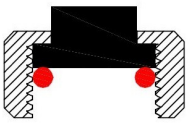
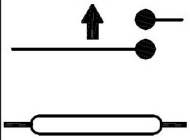
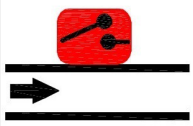
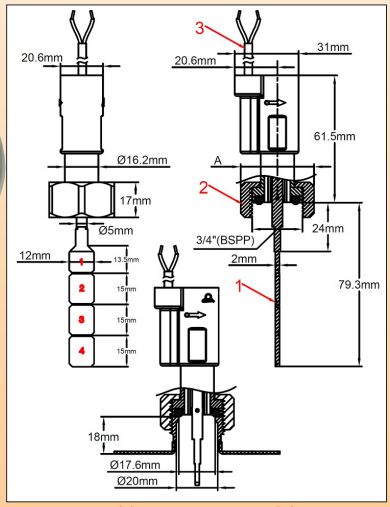
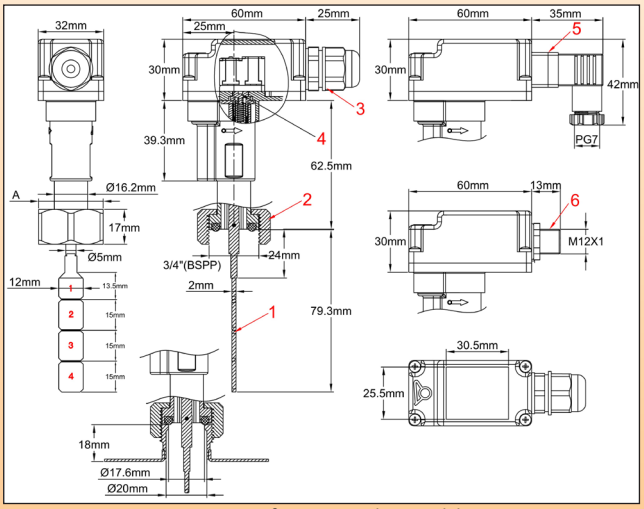
Paddle flow switches, reed switch contact, external body
Type: R1X

Size and pressure	Flow sensing: Cleavable paddle	Mounting: ¾" BSPP Union nut	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN≥15				≤1A ≤70W ≤250V~		R1X



Cable connection model

1: Paddle
2: Plastic body and plastic ¾" BSPP union nut
3: Cable



Waterproof connection box model

1: Paddle
2: Plastic body and plastic ¾" BSPP union nut
3: Connection box
4: Adjustment screw
5: EN17530-803-A (DIN43650-A) connector (Option)
6: IEC947-5-2, M12x1, 4 terminals connector (Option)

Main uses: General application in flow detection. . Recommended mounting position is on horizontal pipes, but can be mounted in any position. For water flow detection on dia. 15 to 100 mm water pipes
Functional principle:
Balanced magnetic paddle mounted perpendicular to the flow and activating a reed switch through the wall. The return of the paddle is by made by magnetic action, without spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for corrosive water pools and spas and salination chlorination and bromination systems. Must not to be used for water containing magnetic particles or high viscosity liquids, which block the movement of the paddle.
Adjustment:
- By cleaving the paddle
- Fine adjustment by screw driver on internal dial (on models with connection box only)
Paddle shaft: Titanium, providing an outstanding corrosion resistance, and improved mechanical live. Suitable for corrosive water pools and spas and salination chlorination and bromination systems
Main housing material: PPO, fiber glass reinforced for improved pressure resistance, usable with potable water.
Paddle: PPO, 12 mm width, can be cleaved into 4 sections numbered 1 to 4 for pipe diameter adjustment
Pipe mounting: Fiber glass reinforced union nut,¾" BSPP, mounting on ¾" BSPP male fitting with gasket. Recommended torque: 7±1 Nm
Gasket: NBR
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO and titanium
Nominal pressure at 20°C: 1MPa (PN10)
Liquids temperature range: 5 to 100°C
Ambient temperature range: 5 to 80°C
Ingress protection: IP65
Calibration tolerances: +/-15% (on paddle operating force at end of paddle 1)
Electrical connection:
4 possible models:
- 2 x AWG24 (0.2mm²) cable, PVC insulation, T80°, style UL2464.
- Waterproof connection box with 2.5mm² connection block, M16x1.5 cable gland
- Waterproof connection box with EN17530-803-A (DIN43650-A) connector (MOQ apply for this model)
- Waterproof connection box with IEC947-5-2, M12x1, 4 terminals connector(MOQ apply for this model)
Installation instructions:
- Check carefully the paddle orientation: The arrow on housing must be exactly parallel to the pipe
- A 5 mm minimum gap must be respected between end of the paddle and tube wall opposite to the fitting.
- We recommend the use of nozzles of length less than or equal to 18mm between the gasket seat and the inside of the tube and with an inner diameter greater than or equal to 13.5 mm, to avoid blocking of the paddle.
Accessories: 3/4" male PVC saddles for DN40 to DN100 (OD) PVC pipes, and other fittings: see last section of this catalogue
Options(MOQ apply): cable with connector or terminals, other cable length, nickel plated ¾" BSPP union nut
Important notice: In the case of plastic pipes (PVC, PE), the DN (nominal diameter) corresponds to the outside diameter and wall thickness is variable depending on the application. This must be taken into account to avoid blocking the paddle. In the case of metal pipes, the inner diameter corresponds to the DN. Flow values data are for tubes whose internal diameter corresponds to DN.

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Paddle flow switches, reed switch contact, external body
Type: R1X

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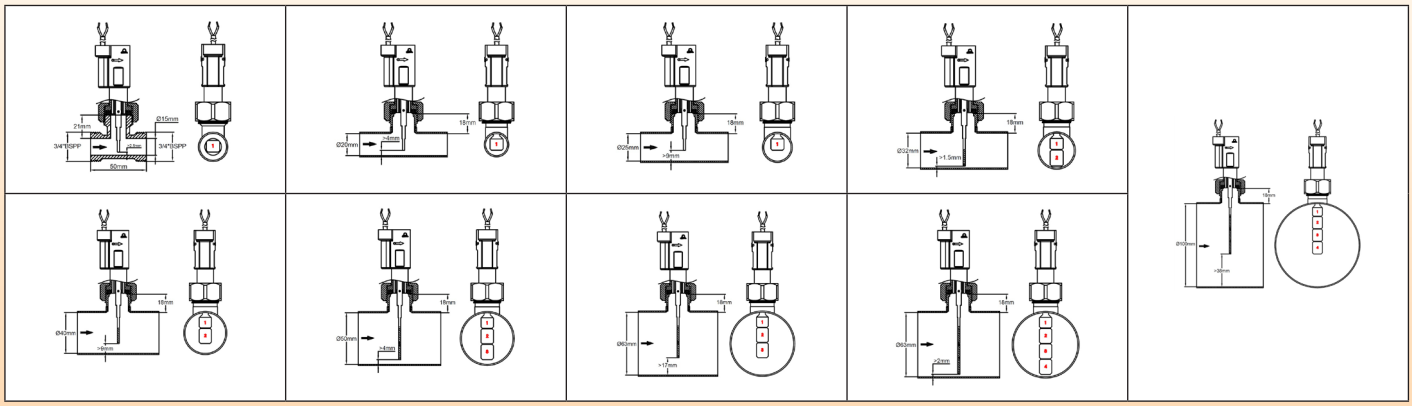
Pipe mounting configurations



Average flow detection values (Liters/min)

Paddle length	Pipe ID (mm)															
	15		20		25		32		40		50		63		100	
	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open
1-m	2,7	2,3	4,8	4,5	13	11	22	20	38	35	67	47	167	112	472	317
1-H	4,3	3,3	7,3	6,5	18	17	29	27	53	48	83	72	218	142	616	401
1-M	5,5	3,2	14	12	25	22	38	35	67	60	132	108	262	202	740	571
1+2-m									20	18	37	32	68	52	192	155
1+2-H									30	28	53	43	88	72	248	203
1+2-M									40	37	67	63	123	115	347	324
1~3-m											22	20	37	33	125	108
1~3-H											34	32	63	50	176	165
1~3-M											46	43	77	73	233	217
1~4-m													27	24	88	72
1~4-H													43	40	140	132
1~4-M													58	55	180	167

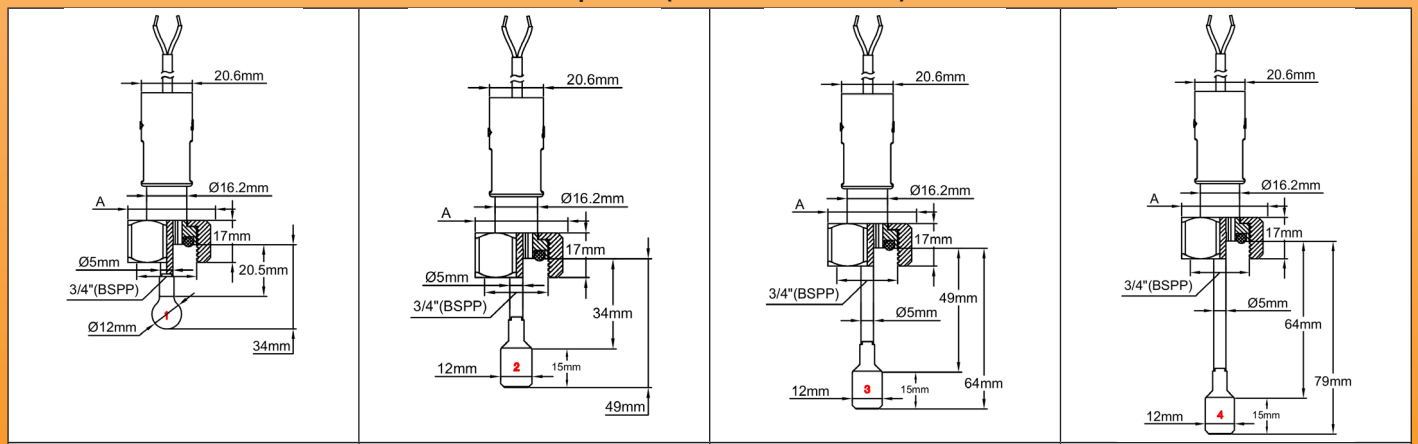
m= calibration at min span
H= calibration at Half span
M= calibration at Max span

* Close by flow rise (L/min) of contact open at no flow position
** Open by flow decrease (L/min) of contact open at no flow position. Average values for indication only. Standard tolerances ±15%

Main references (With type A cleavable paddle)

Calibration (Calibration force ±15%, measured at end of paddle N°1)	500 mm cable	2 mm cable	3 mm cable	Waterproof connection box with M16x1.5 cable gland	Waterproof connection box with 4 pins, M12x1 IEC947-5-2 connector	Waterproof connection box with DIN 43650-A connector
Low span end: 3gr	R1X636680G35N050	R1X636680G35N200	R1X636680G35N300	R1X636680G35N00C	R1X636680G35N00L	R1X636680G35N00D
Middle span:7gr	R1X676680G35N050	R1X676680G35N200	R1X676680G35N300	R1X676680G35N00C	R1X676680G35N00L	R1X676680G35N00D
High span end:14 gr	R1X6E6680G35N050	R1X6E6680G35N200	R1X6E6680G35N300	R1X6E6680G35N00C	R1X6E6680G35N00L	R1X6E6680G35N00D

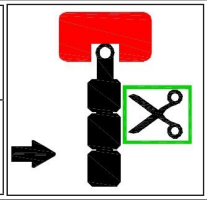
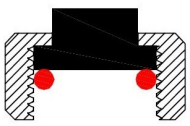
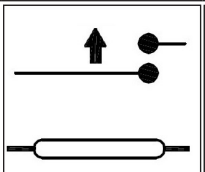
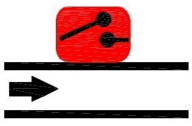
Other paddles (Non cleavable models)

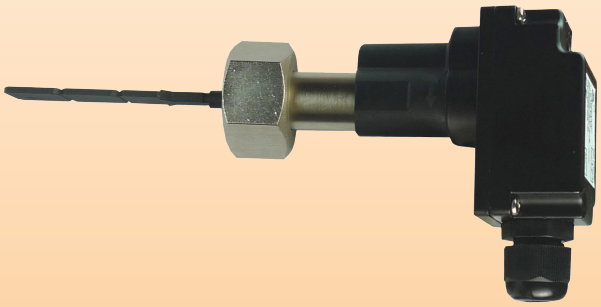


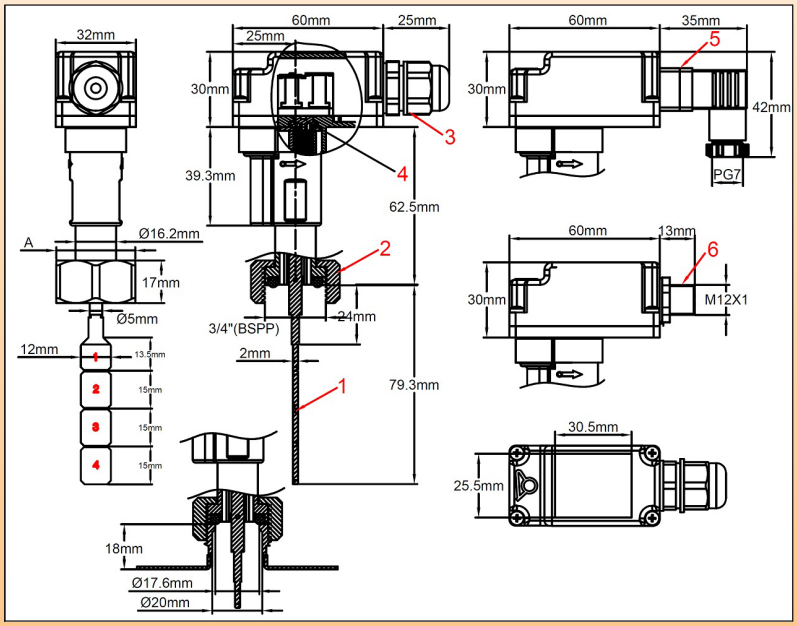
Paddle type B	Paddle type C	Paddle type D	Paddle type E
Replace 6680 in reference by 1234	Replace 6680 in reference by 1549	Replace 6680 in reference by 1564	Replace 6680 in reference by 1579

Consult us for flow detection values with these paddles. OEM paddles can be made on order (MOQ apply)

Paddle flow switches, reed switch contact, external brass body
Type: R1V

Size and pressure	Flow sensing: Cleavable paddle	Mounting: ¾" BSPP brass union nut	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN25 DN≥15				≤1A ≤70W ≤250V~		R1V





Main uses: General application in flow detection. . Recommended mounting position is on horizontal pipes, but can be mounted in any position. For liquids flow detection on dia. 15 to 100 mm pipes. Body and union nut in brass for improved mechanical strength and pressure resistance. Connection box with terminal block or connectors, and detection point adjustment screw

Functional principle: Balanced magnetic paddle mounted perpendicular to the flow and activating a reed switch through the wall. The return of the paddle is by made by magnetic action, without spring. No seal or liquid can pass between the piping system and the electrical contact. Usable for industrial applications in non-corrosive liquids. Must not to be used for liquids containing magnetic particles or high viscosity liquids, which block the movement of the pallet.

Adjustment:
- By cleaving the paddle
- Fine adjustment by screw driver on internal dial

Paddle shaft: Titanium, providing an outstanding corrosion resistance, and improved mechanical live

Main housing material: Brass

Paddle: Polypropylene, 15 mm width, with 4 sections, numbered 1 to 4, can be cleaved for adjustment to pipe size

Pipe mounting: Nickel plated brass union nut,¾ BSPP, mounting on ¾ BSPP male thread with gasket. **Recommended torque:** 10±1 Nm

Gasket: NBR

Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads

Electric contact type: Normally open, closes by flow rise

Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with brass, PPO and titanium

Nominal pressure at 20°C: 2,5 MPa (PN25)

Liquids temperature range: 5 to 100°C (Do not withstand water freezing inside pipe)

Ambient temperature range: 5 to 80°C

Ingress protection: IP65

Calibration tolerances: +/-15% (on paddle operating force at end of paddle 1)

Electrical connection:

Standard:

IP64 connection box, with screw terminal connection block, M16x1.5 ISO cable gland

Options:
- Connection box with EN17530-803-A (DIN43650-A) connector
- Connection box with IEC947-5-2 M12x1 4 pins connector

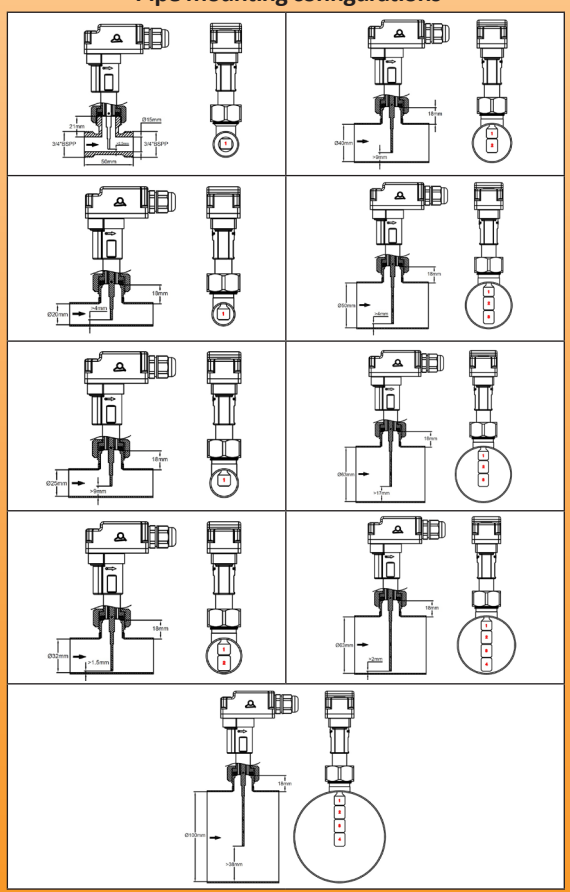
Installation instructions:
- Check carefully the paddle orientation: The arrow on housing must be exactly parallel to the pipe
- A 5 mm minimum gap must be respected between end of the paddle and tube wall opposite to the fitting.
- We recommend the use of nozzles of length less than or equal to 18 mm between the gasket seat and the inside of the tube and with an inner diameter greater than or equal to 13.5 mm, to avoid blocking of the paddle.

Accessories: 3/4" male PVC saddles for DN40 to DN100 (OD) PVC pipes, and other fittings: see last section of this catalogue

Important notice: In the case of plastic pipes (PVC, PE), the DN (nominal diameter) corresponds to the outside diameter and wall thickness is variable depending on the application. This must be taken into account to avoid blocking the paddle. In the case of metal pipes, the inner diameter corresponds to the DN. Flow values data are for tubes whose internal diameter corresponds to DN.

1. Paddle
2. ¾" BSPP Brass union nut and brass body
3. Connection box
4. Adjustment screw
5. EN17530-803-A (DIN43650-A) connector (Option)
6. IEC947-5-2, M12x1,4 terminals connector (Option)

Pipe mounting configurations



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Average flow detection values (Liters/min)

Paddle length	Pipe ID (mm)															
	15		20		25		32		40		50		63		100	
	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open	*Close	**Open
1-m	2,7	2,3	4,8	4,5	13	11	22	20	38	35	67	47	167	112	472	317
1-H	4,3	3,3	7,3	6,5	18	17	29	27	53	48	83	72	218	142	616	401
1-M	5,5	3,2	14	12	25	22	38	35	67	60	132	108	262	202	740	571
1+2-m									20	18	37	32	68	52	192	155
1+2-H									30	28	53	43	88	72	248	203
1+2-M									40	37	67	63	123	115	347	324
1~3-m											22	20	37	33	125	108
1~3-H											34	32	63	50	176	165
1~3-M											46	43	77	73	233	217
1~4-m													27	24	88	72
1~4-H													43	40	140	132
1~4-M													58	55	180	167

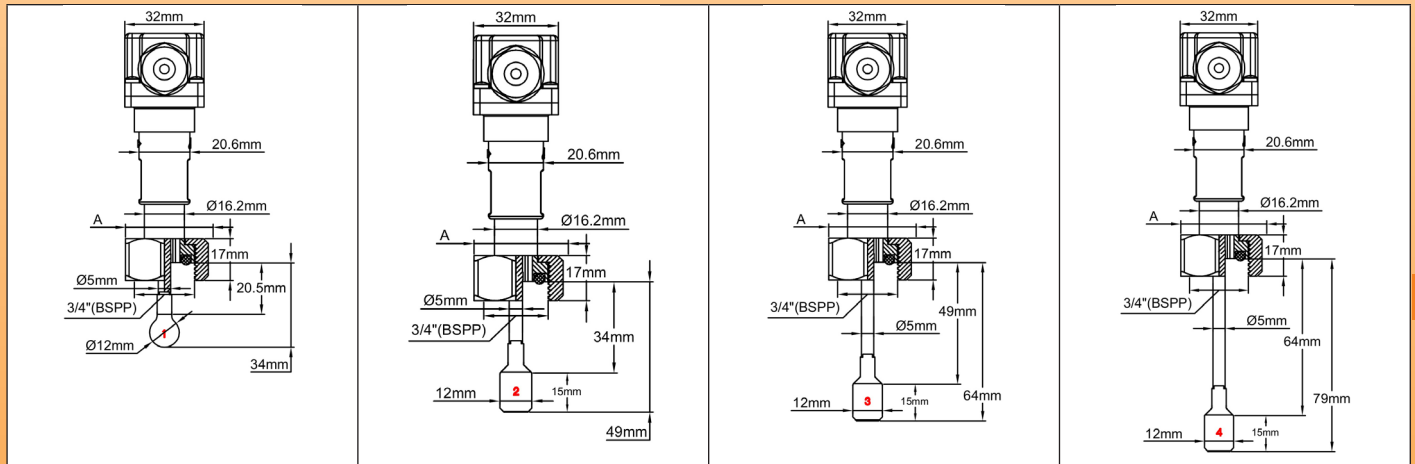
m= calibration at min span
H= calibration at Half span
M= calibration at Max span

* Close by flow rise (L/min) of contact open at no flow position
** Open by flow decrease (L/min) of contact open at no flow position. Average values for indication only. Standard tolerances ±15%

Main references (With type A cleavable paddle)

Calibration (Calibration force ±15%, measured at end of paddle N°1)	Waterproof connection box with M16x1.5 cable gland	Waterproof connection box with 4 pins, M12x1 IEC947-5-2 connector	Waterproof connection box with DIN 43650-A connector
Low span end: 3gr	R1V636680G35N00C	R1V636680G35N00L	R1V636680G35N00D
Middle span:7gr	R1V676680G35N00C	R1V676680G35N00L	R1V676680G35N00D
High span end:14 gr	R1V6E6680G35N00C	R1V6E6680G35N00L	R1V6E6680G35N00D

Other paddles (Non cleavable models)



Paddle type B	Paddle type C	Paddle type D	Paddle type E
Replace 6680 in reference by 1234	Replace 6680 in reference by 1549	Replace 6680 in reference by 1564	Replace 6680 in reference by 1579

Consult us for flow detection values with these paddles. OEM paddles can be made on order (MOQ apply)

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Flap flow switches

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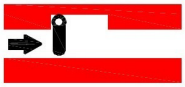
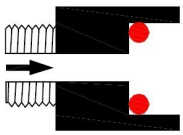
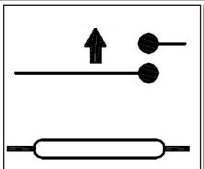
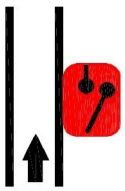
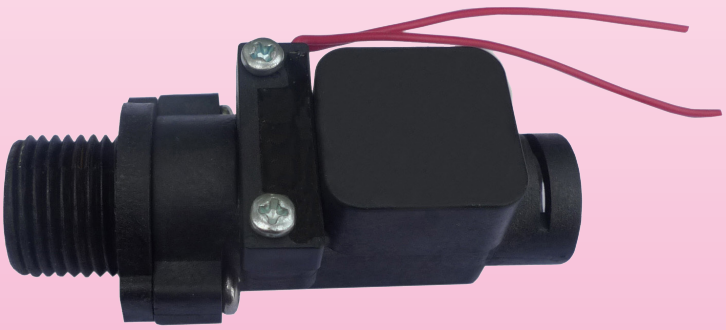
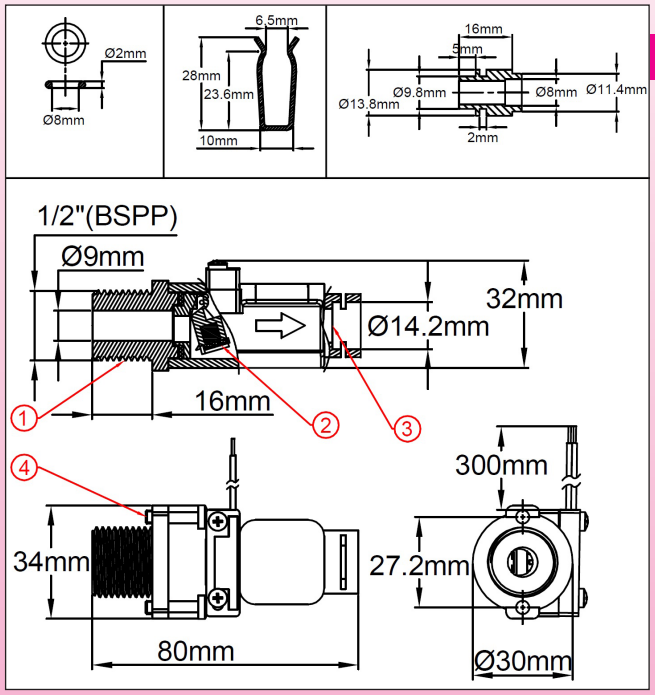
Flap flow switches, reed switch contact, 1/2" BSPP male thread, Type: R20

Pressure and size	Flow sensing: Magnetic flap	Mounting: 1/2" male thread and snap-in dia. 8mm	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN8				≤1A ≤70W ≤250V~		R20





1: Water Inlet thread
2: Flow detection flap
3: Water outlet
4: Anti rotation lugs

Main applications: Product developed for miniature instantaneous water heaters for showers. The mobile flap system provides compactness. Water inlet is done directly by the ½" BSPP male thread. Mandatory vertical mounting, with water inlet from the bottom. Connection to internal copper piping DN8 and DN10 with quick coupling
Functional principle:
Magnetic flap mounted perpendicular to the flow and activating a reed switch through the wall. The return of the flap is by made by gravity, without spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the flap.
Adjustment: Can be factory set by adjusting the counterweight mounted in the flap
Body material: PPO compatible with drinking water.
Flap: PPO
Paddle shaft: stainless steel
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO and stainless steel
Nominal pressure at 20°C: 1MPa (PN10)
Flow detection set point factory setting limits:
Close by flow rise: 1.8 to 3 L/min
Open by flow decrease: About 0.4 to 0.5L/min lower than close value
Nominal diameter: DN8-DN10
Mandatory mounting position: on vertical pipes, upstream flow
Water pipe connection:
- Water inlet: on male ½" fitting with gasket with 2 anti-rotation lugs. recommended torque 5N.m
- Water outlet: fast-on connection with O-ring and clips on DN8 or DN10 copper tubes with brazed or welded brass termination.
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 wires (0.2mm²), PVC insulation, T80°, standard length 300 mm.
Accessories: brass terminations for brazing or soldering on other pipe diameters : see last section of this catalogue
Options (MOQ apply): cable with connector or terminals, other cable length, other calibration values.
Important note: Standard copper tube diameters for building applications (Water and gas) are given by the EN1057 standard, which defines the nominal diameter (DN) as the inside diameter. Copper tubes for applications in air conditioning and refrigeration are described in EN 12735-1 and those for vacuum and medical gases are described in EN 13348. The EN127357 standard defines the copper tubes for refrigeration with diameters in inches.
Copper tubes are often described in France by the outside diameter followed by the thickness in mm.

Main references (with 300 mm wires)

Outlet for copper tube dia. 10 x 8 mm			Outlet for copper tube dia. 12 x 10 mm		
References	Close on flow rise (L/min)	Open on flow decrease (L/min)	References	Close on flow rise (L/min)	Open on flow decrease (L/min)
R20B670200000430	2 ±0.2	1,6±0.2	R20B680200000430	2 ±0.2	1,6±0.2
R20B670250000430	2,5±0.25	2±0.25	R20B680250000430	2,5±0.25	2±0.25
R20B670300000430	3±0.3	2,5±0.3	R20B680300000430	3±0.3	2,5±0.3

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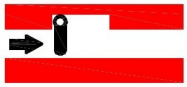
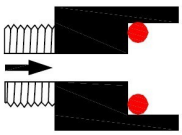
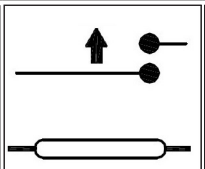
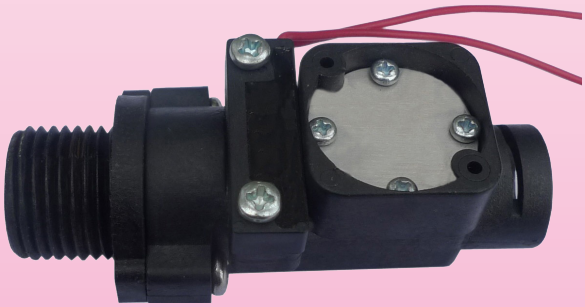
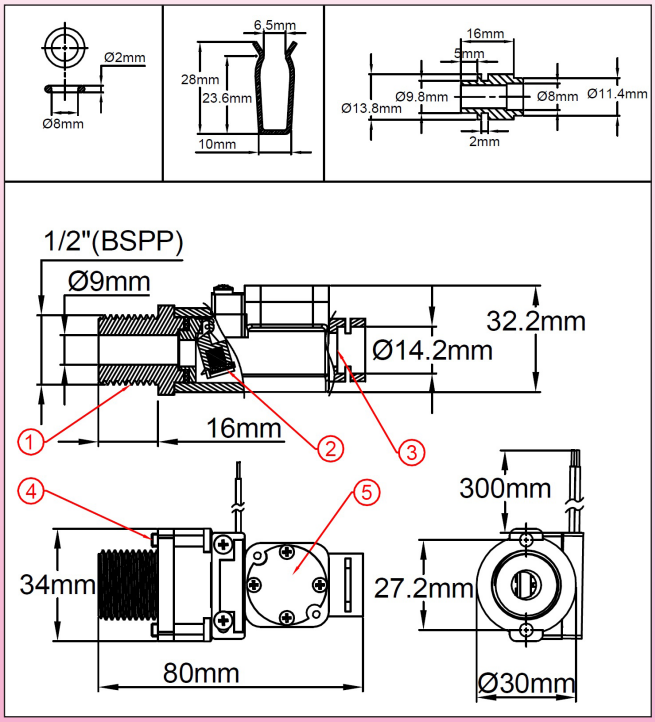
Flap flow switches, reed switch contact, 1/2" BSPP male thread, with triac cooler, Type: R21

Pressure and size	Flow sensing: Magnetic flap	Mounting: 1/2" male thread and snap-in dia. 8 mm	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN8				≤1A ≤70W ≤250V~		R21





1: Water Inlet thread
2: Flow detection flap
3: Water outlet
4: Anti rotation lugs
5: Aluminum cooler plate for triac

Main applications: Product developed for miniature instantaneous water heaters for showers. The mobile flap system provides compactness. Water inlet is done directly by the ½" BSPP male thread. Mandatory vertical mounting, with water inlet from the bottom. Connection to internal copper piping DN8 and DN10 with quick coupling. A built in aluminum heat exchanger, in contact with the cold water input is provided to cool a triac.
Functional principle:
Magnetic flap mounted perpendicular to the flow and activating a reed switch through the wall. The return of the flap is by made by gravity, without spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the flap.
Adjustment: Can be factory set by adjusting the counterweight mounted in the flap
Body material: PPO compatible with drinking water.
Flap: PPO
Paddle shaft: stainless steel
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO and stainless steel
Nominal pressure at 20°C: 1MPa (PN10)
Flow detection set point factory setting limits:
Close by flow rise: 1.8 to 3 L/min
Open by flow decrease: About 0.4 to 0.5L/min lower than close value
Nominal diameter: DN8-DN10
Mandatory mounting position: on vertical pipes, upstream flow
Water pipe connection:
- Water inlet: on male ½" fitting with gasket with 2 anti-rotation lugs. recommended torque 5N.m
- Water outlet: fast-on connection with O-ring and clips on DN8 or DN10 copper tubes with brazed or welded brass termination.
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 wires (0.2mm²), PVC insulation, T80°, standard length 300 mm.
Accessories: brass terminations for brazing or soldering on other pipe diameters : see last section of this catalogue
Options (MOQ apply): cable with connector or terminals, other cable length, other calibration values.
Important note: Standard copper tube diameters for building applications (Water and gas) are given by the EN1057 standard, which defines the nominal diameter (DN) as the inside diameter. Copper tubes for applications in air conditioning and refrigeration are described in EN 12735-1 and those for vacuum and medical gases are described in EN 13348. The EN127357 standard defines the copper tubes for refrigeration with diameters in inches.
Copper tubes are often described in France by the outside diameter followed by the thickness in mm.

Main references (with 300 mm wires)

Outlet for copper tube dia. 10 x 8 mm			Outlet for copper tube dia. 12 x 10 mm		
References	Close on flow rise (L/min)	Open on flow decrease (L/min)	References	Close on flow rise (L/min)	Open on flow decrease (L/min)
R21B670200000430	2 ±0.2	1,6±0.2	R21B680200000430	2 ±0.2	1,6±0.2
R21B670250000430	2,5±0.25	2±0.25	R21B680250000430	2,5±0.25	2±0.25
R21B670300000430	3±0.3	2,5±0.3	R21B680300000430	3±0.3	2,5±0.3

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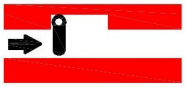
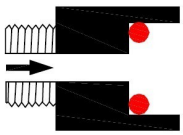
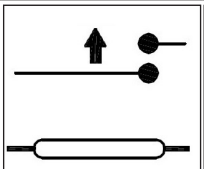
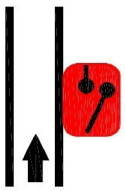
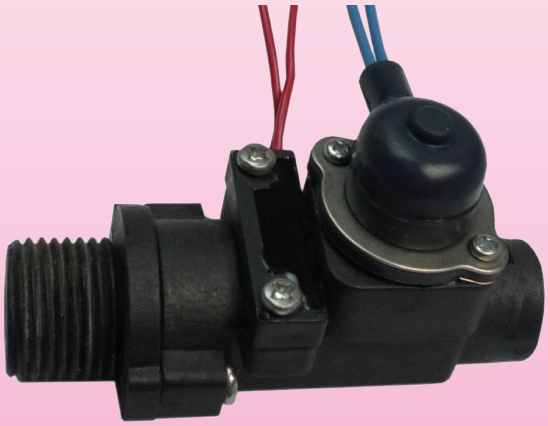
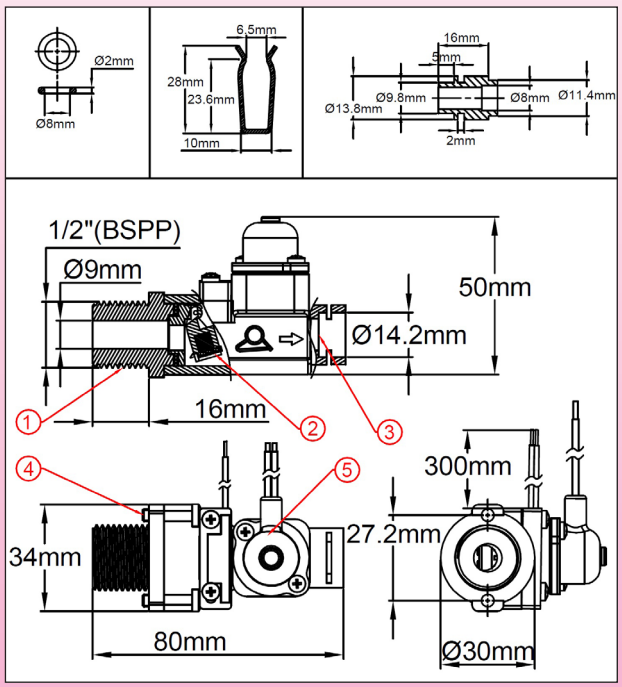
Flap flow switches, reed switch contact, 1/2" BSPP male thread, with water input temperature control, Type: R22

Pressure and size	Flow sensing: Magnetic flap	Mounting: 1/2" male thread and snap-in dia. 8 mm	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN8				≤1A ≤70W ≤250V~		R22





1: Water Inlet thread
2: Flow detection flap
3: Water outlet
4: Anti rotation lugs
5: Water input thermostat

Main applications: Product developed for miniature instantaneous water heaters for showers in circuits where the water can be preheated by solar energy equipment or heat pump. The mobile flap system provides compactness. Water inlet is done directly by the ½" BSPP male thread. Mandatory vertical mounting, with water inlet from the bottom. Connection to internal copper piping DN8 and DN10 with quick coupling. A built in disc thermostat, in contact with the cold water input, will automatically stop water heating when the water input is higher than 50°C
Functional principle:
Magnetic flap mounted perpendicular to the flow and activating a reed switch through the wall. The return of the flap is by made by gravity, without spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the flap.
Adjustment: Can be factory set by adjusting the counterweight mounted in the flap
Body material: PPO compatible with drinking water.
Flap: PPO
Paddle shaft: stainless steel
Flow detection switch electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Flow detection electrical contact type: Normally open, closes by flow rise
Characteristics of the water inlet thermostat:
16A 250V disc thermostat, switches off the electrical heater when the inlet temperature exceeds 50°C ±3° C. Switch on when the inlet temperature drops below 42° C ±4° C.
Electrical connection protected by silicone cap, protection, two 1.5mm ² wires output, T80°C PVC insulation, 300 mm standard length.
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO and stainless steel
Nominal pressure at 20°C: 1MPa (PN10)
Flow detection set point factory setting limits:
Close by flow rise: 1.8 to 3 L/min
Open by flow decrease: About 0.4 to 0.5L/min lower than close value
Nominal diameter: DN8-DN10
Mandatory mounting position: on vertical pipes, upstream flow
Water pipe connection:
- Water inlet: on male ½" fitting with gasket with 2 anti-rotation lugs. recommended torque 5N.m
- Water outlet: fast-on connection with O-ring and clips on DN8 or DN10 copper tubes with brazed or welded brass termination.
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 wires (0.2mm²), PVC insulation, T80°, standard length 300 mm.
Accessories: brass terminations for brazing or soldering on other pipe diameters : see last section of this catalogue
Options (MOQ apply): cable with connector or terminals, other cable length, other flow or temperature calibration values.
Important note: Standard copper tube diameters for building applications (Water and gas) are given by the EN1057 standard, which defines the nominal diameter (DN) as the inside diameter. Copper tubes for applications in air conditioning and refrigeration are described in EN 12735-1 and those for vacuum and medical gases are described in EN 13348. The EN127357 standard defines the copper tubes for refrigeration with diameters in inches.
Copper tubes are often described in France by the outside diameter followed by the thickness in mm.

Main references (with 300 mm wires)

Outlet for copper tube dia. 10 x 8 mm			Outlet for copper tube dia. 12 x 10 mm		
References	Close on flow rise (L/min)	Open on flow decrease (L/min)	References	Close on flow rise (L/min)	Open on flow decrease (L/min)
R22B670200500430	2 ±0.2	1,6±0.2	R22B680200500430	2 ±0.2	1,6±0.2
R22B670250500430	2,5±0.25	2±0.25	R22B680250500430	2,5±0.25	2±0.25
R22B67030500430	3±0.3	2,5±0.3	R22B680300500430	3±0.3	2,5±0.3

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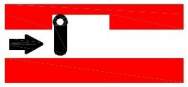
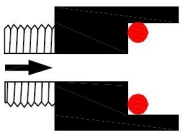
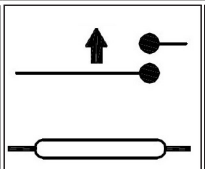
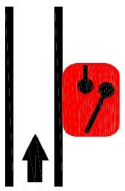
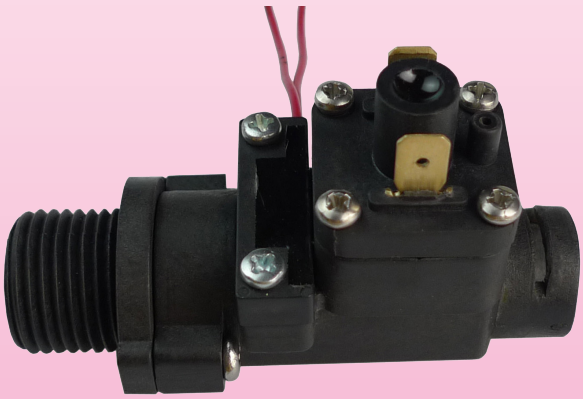
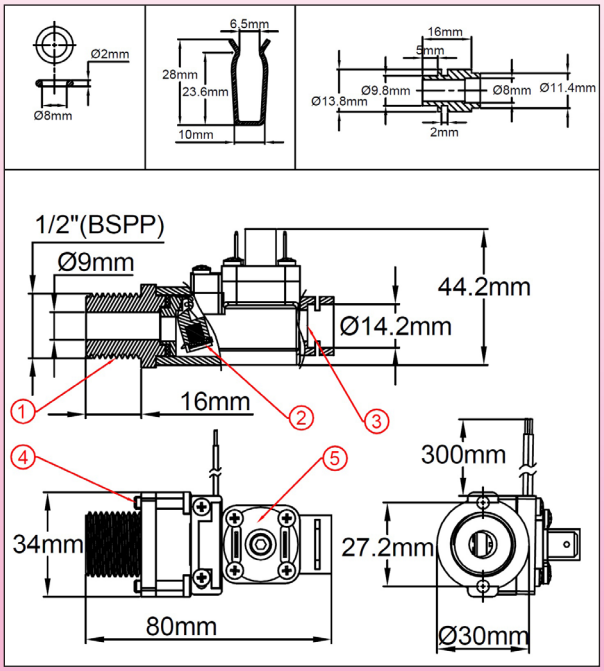
Flap flow switches, reed switch contact, 1/2" BSPP male thread, with water input pressure control, Type: R23

Pressure and size	Flow sensing: Magnetic flap	Mounting: 1/2" male thread and snap-in dia. 8 mm	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN8				≤1A ≤70W ≤250V~		R23





1: Water Inlet thread
2: Flow detection flap
3: Water outlet
4: Anti rotation lugs
5: Water input pressure switch

Main applications: Product developed for miniature instantaneous water heaters for showers in circuits where the water input pressure can be variable. The mobile flap system provides compactness. Water inlet is done directly by the ½ " BSPP male thread. Mandatory vertical mounting, with water inlet from the bottom. Connection to internal copper piping DN8 and DN10 with quick coupling. A built in pressure switch will automatically stop water heating when the water input pressure is lower than 800 millibar.
Functional principle:
Magnetic flap mounted perpendicular to the flow and activating a reed switch through the wall. The return of the flap is by made by gravity, without spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the flap.
Adjustment: Can be factory set by adjusting the counterweight mounted in the flap
Body material: PPO compatible with drinking water.
Flap: PPO
Paddle shaft: stainless steel
Flow detection switch electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Flow detection electrical contact type: Normally open, closes by flow rise
Characteristics of the water inlet pressure switch:
1A 250V pressure switch, switches off the electrical heater when the inlet pressure decreases below 800 millibars, and switches on when the pressure is higher than this value. Electrical connection by two 6.3 x 0.8 mm fast on terminals.
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO, stainless steel, and NBR pressure switch membrane
Nominal pressure at 20°C: 1MPa (PN10)
Flow detection set point factory setting limits:
Close by flow rise: 1.8 to 3 L/min
Open by flow decrease: About 0.4 to 0.5L/min lower than close value
Nominal diameter: DN8-DN10
Mandatory mounting position: on vertical pipes, upstream flow
Water pipe connection:
- Water inlet: on male ½" fitting with gasket with 2 anti-rotation lugs. recommended torque 5N.m
- Water outlet: fast-on connection with O-ring and clips on DN8 or DN10 copper tubes with brazed or welded brass termination.
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 wires (0.2 mm²), PVC insulation, T80°, standard length 300 mm.
Accessories: brass terminations for brazing or soldering on other pipe diameters : see last section of this catalogue
Options (MOQ apply): cable with connector or terminals, other cable length, other flow or temperature calibration values.
Important note: Standard copper tube diameters for building applications (Water and gas) are given by the EN1057 standard, which defines the nominal diameter (DN) as the inside diameter. Copper tubes for applications in air conditioning and refrigeration are described in EN 12735-1 and those for vacuum and medical gases are described in EN 13348. The EN127357 standard defines the copper tubes for refrigeration with diameters in inches.
Copper tubes are often described in France by the outside diameter followed by the thickness in mm.

Main references (with 300 mm wires)

Outlet for copper tube dia. 10 x 8 mm			Outlet for copper tube dia. 12 x 10 mm		
References	Close on flow rise (L/min)	Open on flow decrease (L/min)	References	Close on flow rise (L/min)	Open on flow decrease (L/min)
R23B670208000430	2 ±0.2	1,6±0.2	R23B6802008000430	2 ±0.2	1,6±0.2
R23B670258000430	2,5±0.25	2±0.25	R23B680258000430	2,5±0.25	2±0.25
R23B670308000430	3±0.3	2,5±0.3	R23B680380000430	3±0.3	2,5±0.3

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Piston flow switches

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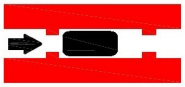
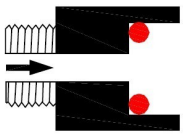
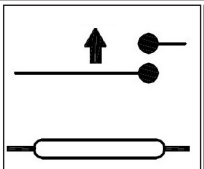
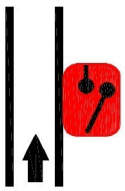
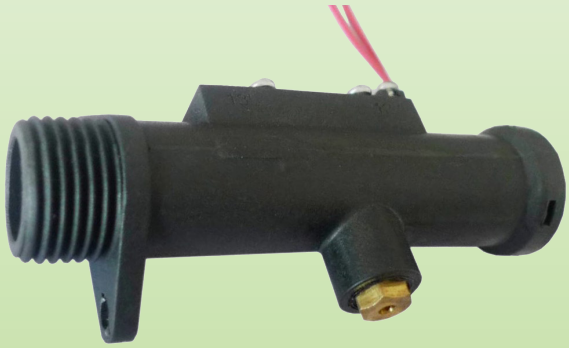
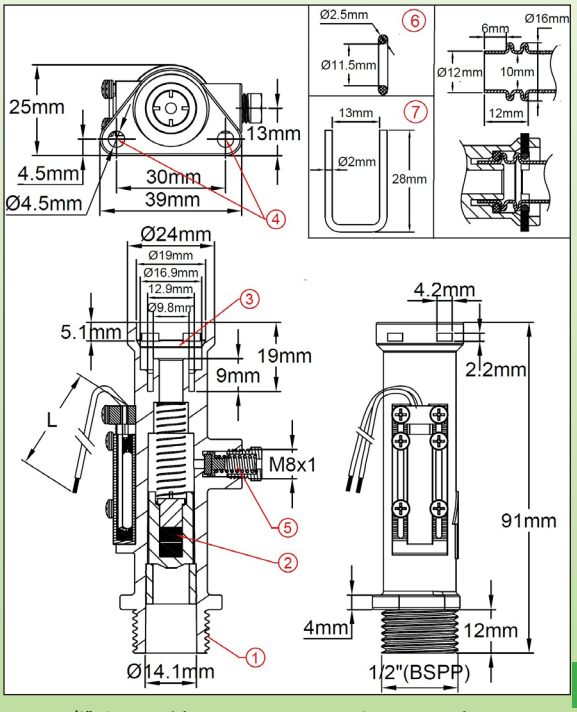
Piston flow switches, reed switch contact, 1/2" BSPP male thread, and snap-on connection for DN10 or 12.7 OD copper tube, Type: R3F

Pressure and size	Flow sensing: Magnetic piston	Mounting: 1/2" male thread and snap-in dia. 10 mm	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN10				≤1A ≤70W ≤250V~		R3F





1: 1/2" BSPP Water inlet
2: Flow detection piston
3: DN10 Water outlet
4: Mounting bracket
5: Over pressure valve
6: O-ring
7: Snap-on spring

Main applications: Product developed for electrical or gas instantaneous water heaters. Water inlet is done directly by the ½" BSPP male thread. Mandatory vertical mounting, with water inlet from the bottom. Connection to internal copper piping DN10 with quick coupling. Built-in overpressure valve
Functional principle: Magnetic piston mounted in line with the flow and activating a reed switch through the wall. The return of the piston is by made by spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the piston.
Adjustment: Can be factory set by adjusting the spring force and/ or changing the piston diameter
Body material: PPO compatible with drinking water.
Piston: PPO
Spring: 304 stainless steel
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO and stainless steel
Nominal pressure at 20°C: 1MPa (PN10)
Flow detection set point factory setting limits:
Close by flow rise: 4 to 12 L/min
Open by flow decrease: About 0.4 to 0.5L/min lower than close value
Nominal diameter: DN8-DN10
Mandatory mounting position: on vertical pipes, upstream flow
Water pipe connection:
- Water inlet: on male ½" fitting with gasket with 2 anti-rotation lugs. recommended torque 5N.m
- Water outlet: fast-on connection with O-ring and clips on DN10 beaded copper tubes. OD 12 to 12.7 mm
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Overpressure valve calibration value: 1.5 MPa +0.5, -0
Ingress protection: IP65
Electrical connection: 2 x AWG24 wires (0.2 mm²), PVC insulation, T80°, standard length 300 mm.
Options (MOQ apply): cable with connector or terminals, other cable length, other calibration values.On request it is possible to produce these models with upside water inlet
Important note: Standard copper tube diameters for building applications (Water and gas) are given by the EN1057 standard, which defines the nominal diameter (DN) as the inside diameter. Copper tubes for applications in air conditioning and refrigeration are described in EN 12735-1 and those for vacuum and medical gases are described in EN 13348. The EN127357 standard defines the copper tubes for refrigeration with diameters in inches.
Copper tubes are often described in France by the outside diameter followed by the thickness in mm.

Main references (with 300 mm wires)

References	Close on flow rise (L/min)	Open on flow decrease (L/min)
R3FA670400150330	4 ±0.2	1,6±0.2
R3FA670600150330	6±0.25	2±0.25
R3FA670800150330	8±0.3	2,5±0.3

Other calibration on request

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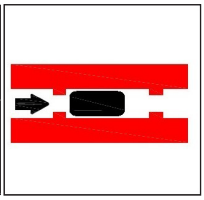
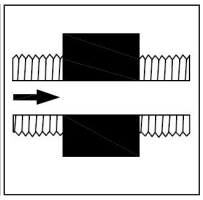
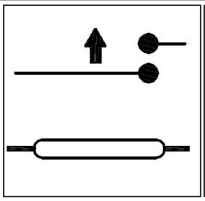
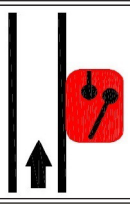
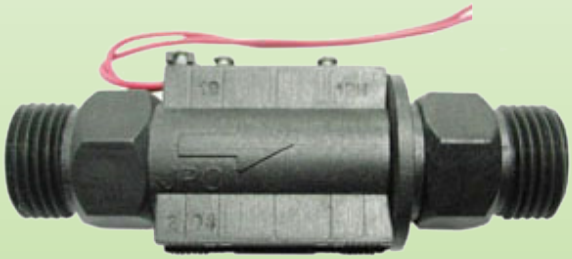
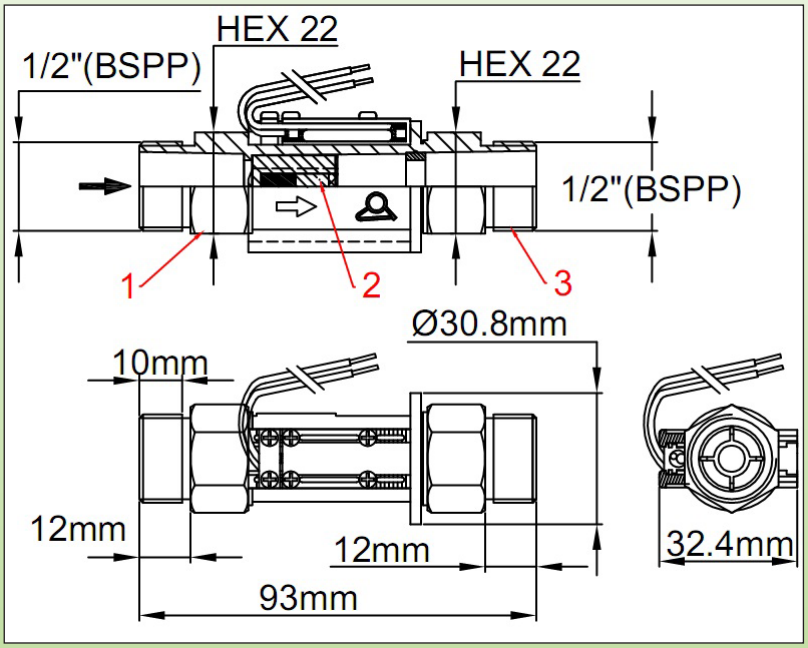
Piston flow switches, reed switch contact, inlet and outlet 1/2" BSPP male, Type: R35

Pressure and size	Flow sensing: Magnetic piston	Mounting: 1/2" male inlet and outlet	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN15				≤1A ≤70W ≤250V~		R35





1: 1/2" BSPP Water inlet 2: Flow detection piston 3: 1/2" BSPPWater outlet

Main applications: Product developed for electrical or gas instantaneous water heaters. ½ " BSPP male water inlet and outlet. Mandatory vertical mounting, with water inlet from the bottom.
Functional principle: Magnetic piston mounted in line with the flow and activating a reed switch through the wall. The return of the piston is by made by gravity. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the piston.
Adjustment: Can be factory set by adjusting the piston diameter and piston weight
Body material: PPO compatible with drinking water.
Piston: PPO
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO
Nominal pressure at 20°C: 1MPa (PN10)
Flow detection set point factory setting limits:
Close by flow rise: 1 to 12 L/min
Open by flow decrease: About 0.4 to 0.5L/min lower than close value
Nominal diameter: DN15
Mandatory mounting position: on vertical pipes, upstream flow
Water pipe connection: Water inlet and outlet: ½" BSPP male fitting (Needs gasket)
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 wires (0.2mm²), PVC insulation, T80°, standard length 300 mm.
Options (MOQ apply):
- Wires with connector or terminals,
- Other wire lengths,
- Other calibration values
- Two contacts
- Upside water inlet,(by adding an internal stainless steel piston spring)

Main references (with 300 mm wires)

References	Close on flow rise (L/min)	Open on flow decrease (L/min)
R35B600100000330	1±0,2	0,7±0,2
R35B600150000330	1,5±0,2	1,2±0,2
R35B600180000330	1,8±0,2	1,4±0,2
R35B600300000330	3±0,3	2.6±0,3

Other calibration on request

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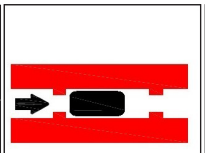
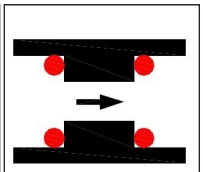
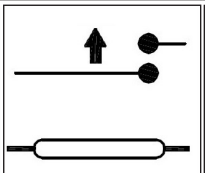
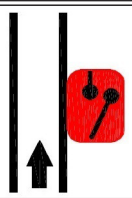
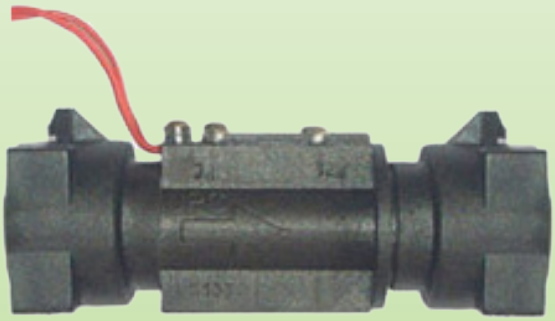
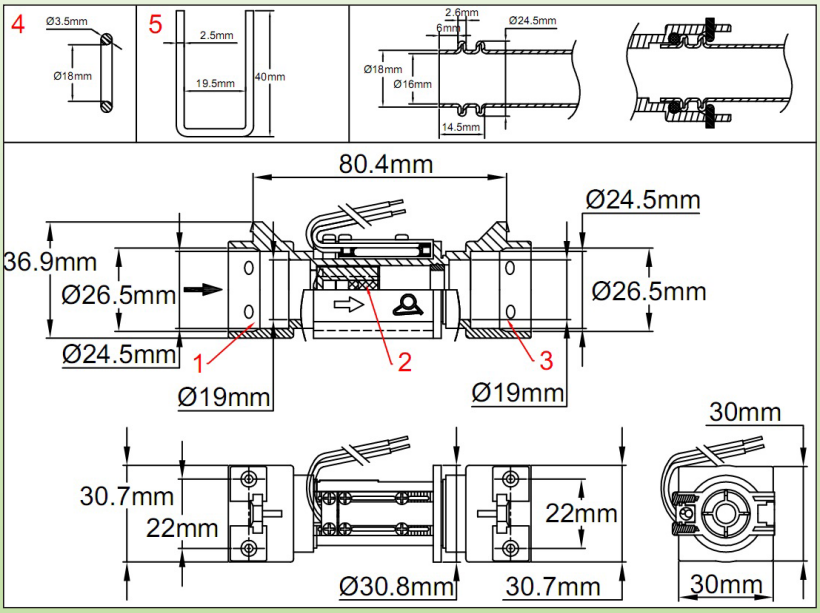
Piston flow switches, reed switch contact, snap in inlet and outlet for copper tube, Type: R34

Pressure and size	Flow sensing: Magnetic piston	Mounting: Fast on inlet and outlet	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN15				≤1A ≤70W ≤250V~		R34





1: Snap-in water inlet
2: Flow detection piston
3: Snap-in wateroutlet
4: O-ring
5: Snap in spring

Main applications: Product developed for electrical or gas instantaneous water heaters. Snap in water inlet and outlet for copper tubes. Mandatory vertical mounting, with water inlet from the bottom.
Functional principle: Magnetic piston mounted in line with the flow and activating a reed switch through the wall. The return of the piston is by made by gravity. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the piston.
Adjustment: Can be factory set by adjusting the piston diameter and piston weight
Body material: PPO compatible with drinking water.
Piston: PPO
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO Nominal pressure at 20°C: 1MPa (PN10)
Flow detection set point factory setting limits:
Close by flow rise: 1 to 12 L/min
Open by flow decrease: About 0.4 to 0.5L/min lower than close value
Nominal diameter: DN15
Mandatory mounting position: on vertical pipes, upstream flow
Water pipe connection: Fast-on connection with O-ring and clips on DN20 beaded copper tubes.OD 18 mm
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Ingress protection: IP65
Electrical connection: 2 x AWG24 wires (0.2mm²), PVC insulation, T80°, standard length 300 mm.
Options (MOQ apply):
- Wires with connector or terminals,
- Other wire lengths,
- Other calibration values
- Two contacts
- Upside water inlet,(by adding an internal stainless steel piston spring)

Main references (with 300 mm wires)

References	Close on flow rise (L/min)	Open on flow decrease (L/min)
R34B610100000330	1±0,2	0,7±0,2
R34B610150000330	1,5±0,2	1,2±0,2
R34B610180000330	1,8±0,2	1,4±0,2
R34B610300000330	3±0,3	2.6±0,3

Other calibration on request

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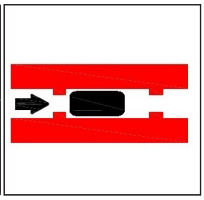
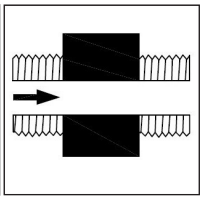
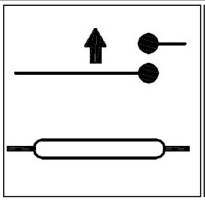
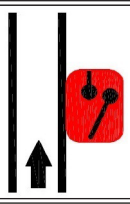
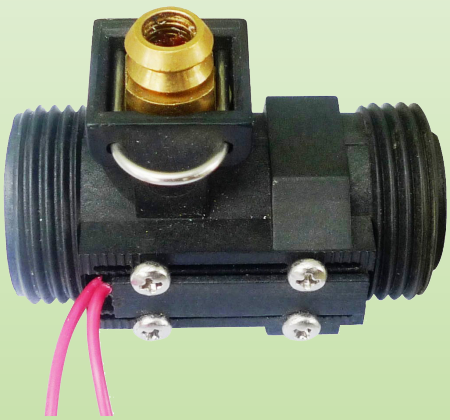
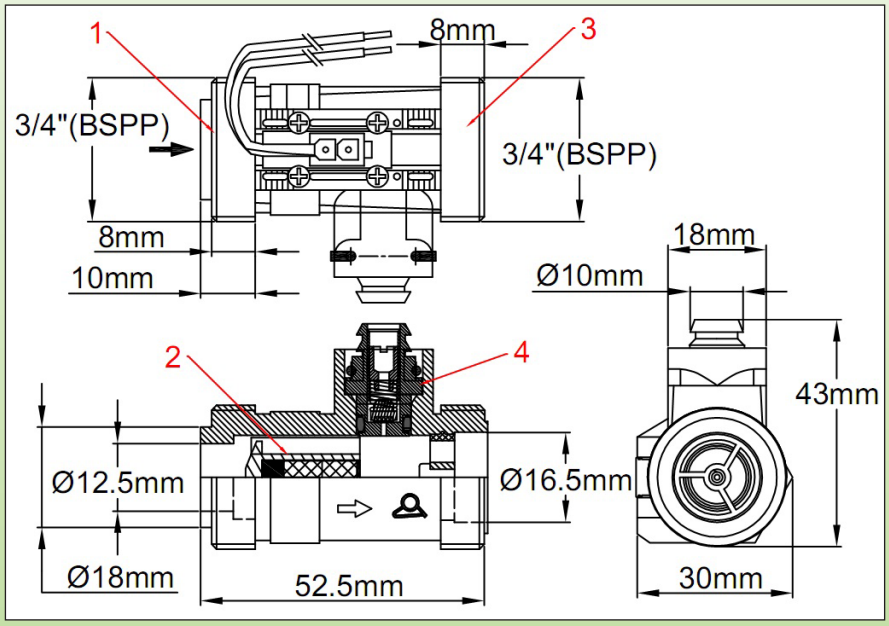
Piston flow switches, reed switch contact, inlet and outlet 3/4" BSPP male, Type: R36

Pressure and size	Flow sensing: Magnetic piston	Mounting: 3/4" male inlet and outlet	Contact: Reed switch, close on flow rise	Electrical rating	Mounting position	Type
PN10 DN20				≤1A ≤70W ≤250V~		R36





1: 3/4" BSPP Water inlet
2: Flow detection piston
3: 3/4" BSPPWater outlet
4: Over-pressure valve

Main applications: Product developed for electrical or gas instantaneous water heaters. 3/4 " BSPP male water inlet and outlet. Mandatory vertical mounting, with water inlet from the bottom. Built-in over-pressure valve
Functional principle: Magnetic piston mounted in line with the flow and activating a reed switch through the wall. The return of the piston is by made by gravity. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the piston.
Adjustment: Can be factory set by adjusting the piston diameter and piston weight
Body material: PPO compatible with drinking water.
Piston: PPO
Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads
Electric contact type: Normally open, closes by flow rise
Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO Nominal pressure at 20°C: 1MPa (PN10)
Flow detection set point factory setting limits:
Close by flow rise: 2,4 to 8 L/min
Open by flow decrease: About 0.4 to 0.5L/min lower than close value
Nominal diameter: DN20
Mandatory mounting position: on vertical pipes, upstream flow
Water pipe connection: Water inlet and outlet: 3/4" BSPP male fitting (Needs gasket). Recommended torque: 7N.m
Liquids temperature range: 5 to 80°C
Ambient temperature range: 5 to 50°C
Overpressure valve calibration value: 1.5 MPa +0.5, -0
Ingress protection: IP65
Electrical connection: 2 x AWG24 wires (0.2mm²), PVC insulation, T80°, standard length 300 mm.
Options (MOQ apply):
- Wires with connector or terminals,
- Other wire lengths,
- Other calibration values
- Upside water inlet,(by adding an internal stainless steel piston spring)

Main references (with 300 mm wires)

References	Close on flow rise (L/min)	Open on flow decrease (L/min)
R36B630240150330	2,4±0,3	1,8±0,3
R36B630300150330	3±0,3	2.6±0,3
R36B630350150330	3,5±0,3	2.9±0,3

Other calibration on request

Because of permanent improvement of our products, drawings, descriptions, features used on these data sheets are for guidance only and can be modified without prior advice

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Accessories
For flow switches

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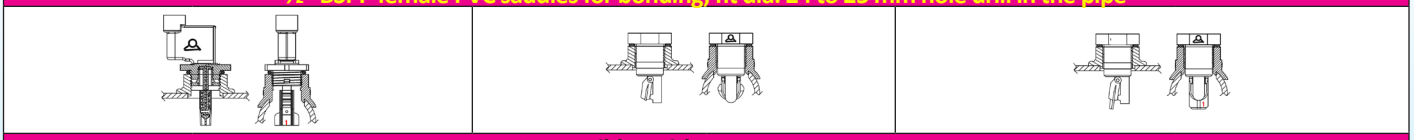
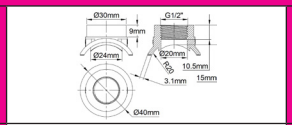
Accessories for paddle switches

½" BSPP female PVC saddles for bonding, fit dia. 24 to 25 mm hole drill in the pipe

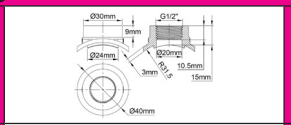


Compatibles with R1D, R1R, R1L, R1S



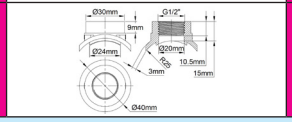
For pipe dia. 40 mm O.D.

Reference
6R1SF1240



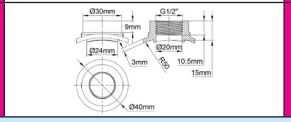
For pipe dia. 63mm O.D.

Reference
6R1SF1263



For pipe dia. 50 mm O.D.

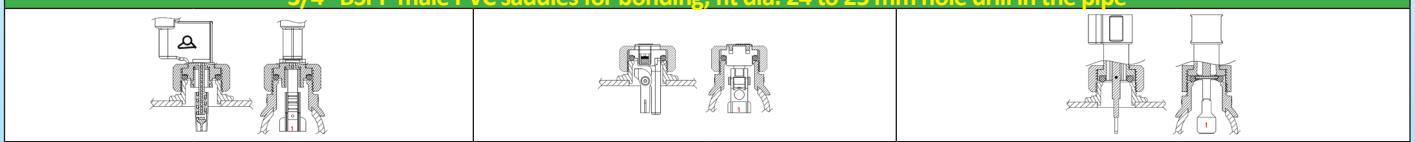
Reference
6R1SF1250



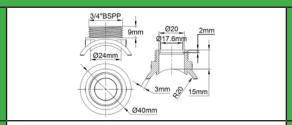
For pipe dia. 100 mm O.D.

Reference
6R1SF12100

3/4" BSPP male PVC saddles for bonding, fit dia. 24 to 25 mm hole drill in the pipe

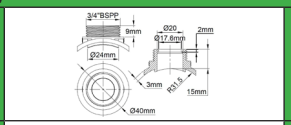


Compatibles with R1B, R1P, R1X, R1V



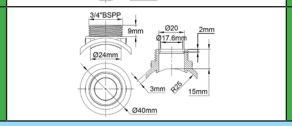
For pipe dia. 40 mm O.D.

Reference
6R1SM3440



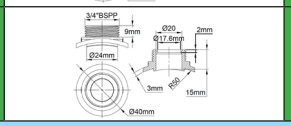
For pipe dia. 63mm O.D.

Reference
6R1SM3463



For pipe dia. 50 mm O.D.

Reference
6R1SM3450

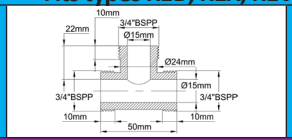


For pipe dia. 100 mm O.D.

Reference
6R1SM34100

Tees

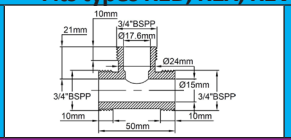
Fits types R1D, R1X, R1V



¾" BSPP male PVC Tee for bonding on DN25 PVC pipe

Reference
6R1TP3425

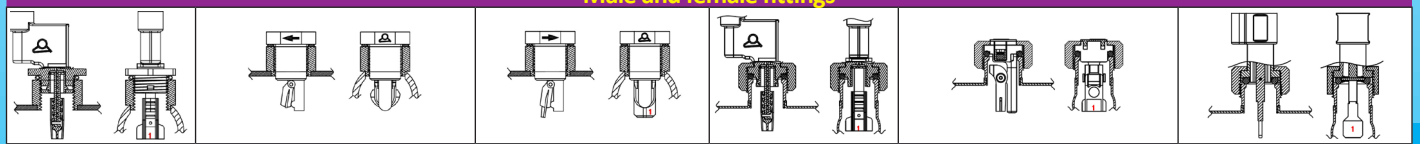
Fits types R1D, R1X, R1V



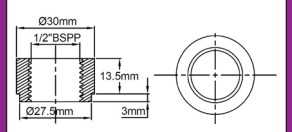
¾" BSPP male Tee, brass, DN15-PN25

Reference
6R1TB3434

Male and female fittings



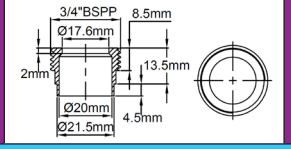
Fits R1D, R1R, R1L, R1S



1/2" BSPP female fitting, 304L stainless steel, for welding on 27.6mm hole

Reference
6R1P1213S

Fits types R1D, R1X, R1V



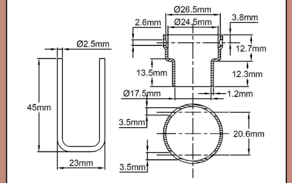
¾" BSPP male fitting, for brazing on ID 15 mm tube

Reference in Brass
6R1P3419B

Reference in 304L
6R1P3419S

Other fittings

Fits R1B and R1P

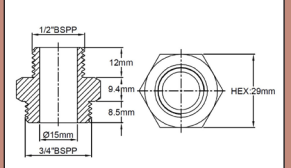


DN15 Snap-in fitting, stainless steel for welding, or copper for brazing (includes spring).

Reference in copper
6R1S1525C

Reference in 304L
6R1S1525S

Fits R1X and R1V



¾" BSPP x ½" BSPP Conversion fitting, brass

Reference
6R1C1234B

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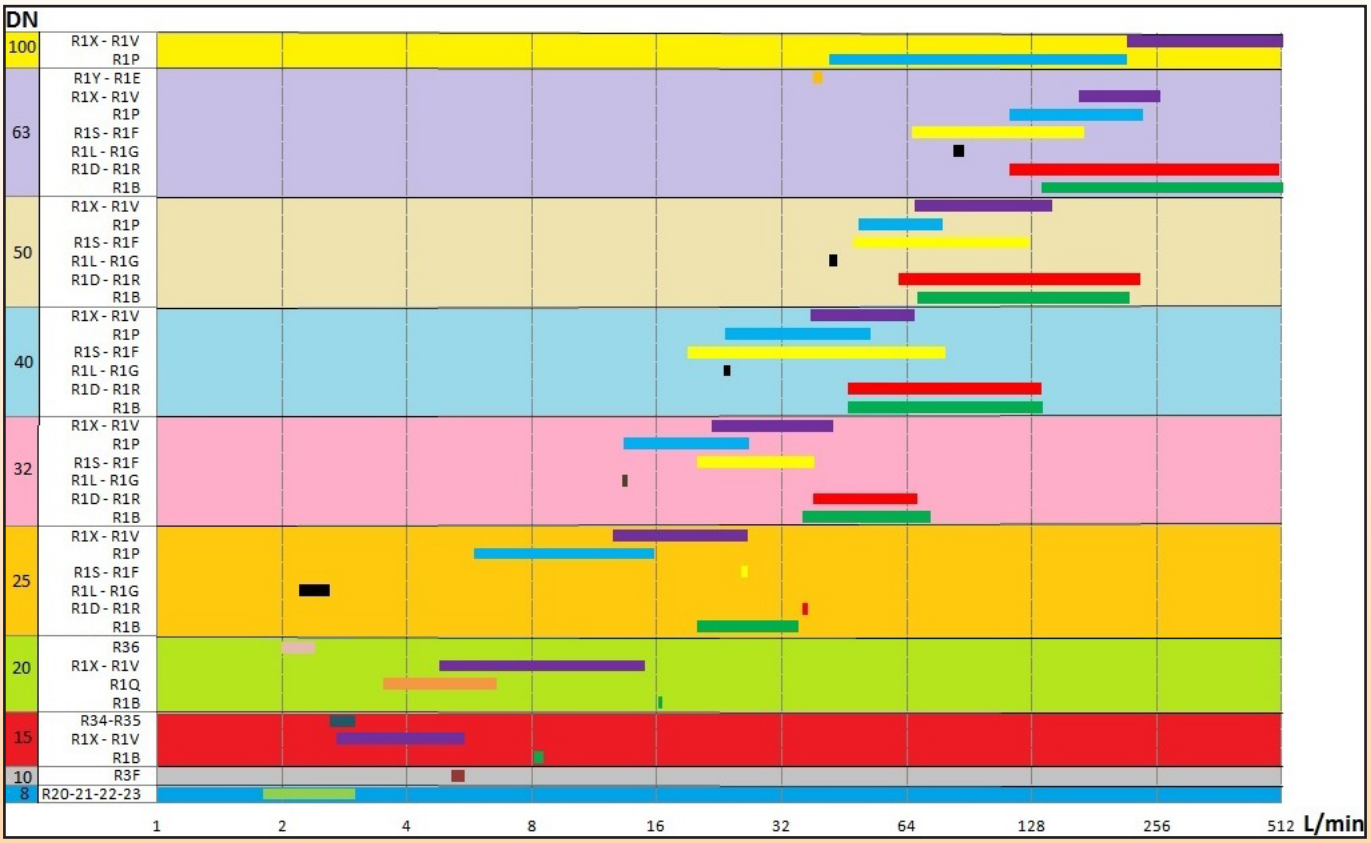
Flow switches detection limits versus flow and pipe diameter



Conversion table

Liter /min and liter/hour into US gallon/min and US gallon/ hour

L/Min	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9
L/h	6	12	18	24	30	36	42	48	54
US Gal/mn	0,026	0,053	0,079	0,106	0,132	0,159	0,185	0,211	0,238
US Gal/h	1,59	3,17	4,76	6,34	7,93	9,51	11,10	12,68	14,27

L/Min	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0
L/h	60	90	120	150	180	210	240	270	300
US Gal/min	0,26	0,40	0,53	0,66	0,79	0,92	1,06	1,19	1,32
US Gal/h	15,85	23,78	31,70	39,63	47,56	55,48	63,41	71,33	79,26

L/Min	5,5	6,0	6,5	7,0	7,5	8,0	8,5	9,0	9,5
L/h	330	360	390	420	450	480	510	540	570
US Gal/min	1,45	1,59	1,72	1,85	1,98	2,11	2,25	2,38	2,51
US Gal/h	87,2	95,1	103,0	111,0	118,9	126,8	134,7	142,7	150,6

L/Min	10	12,5	15,0	17,5	20	22,5	25,0	27,5	30
L/h	600	750	900	1050	1200	1350	1500	1650	1800
US Gal/min	2,64	3,30	3,96	4,62	5,28	5,94	6,61	7,27	7,93
US Gal/h	158,5	198,2	237,8	277,4	317,0	356,7	396,3	435,9	475,6

L/Min	32,5	35,0	37,5	40	42,5	45	47,5	50	100
L/h	1950	2100	2250	2400	2550	2700	2850	3000	6000
US Gal/min	8,59	9,25	9,91	10,57	11,23	11,89	12,55	13,21	26,42
US Gal/h	515	555	594	634	674	713	753	793	1585

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References list

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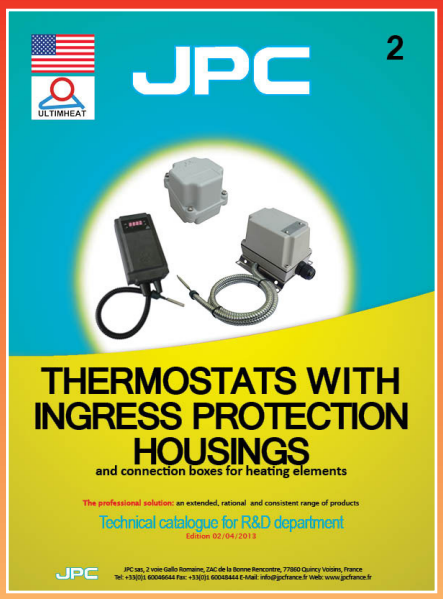

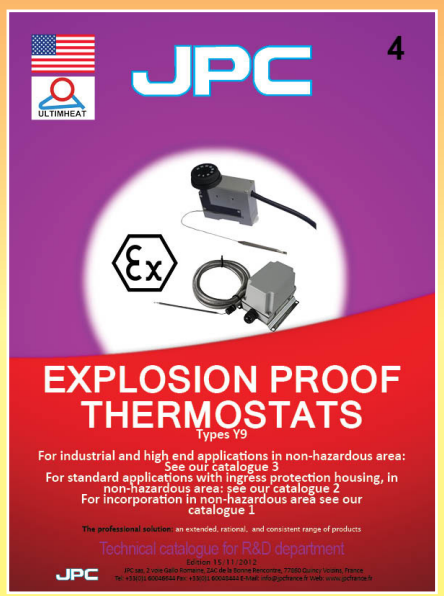

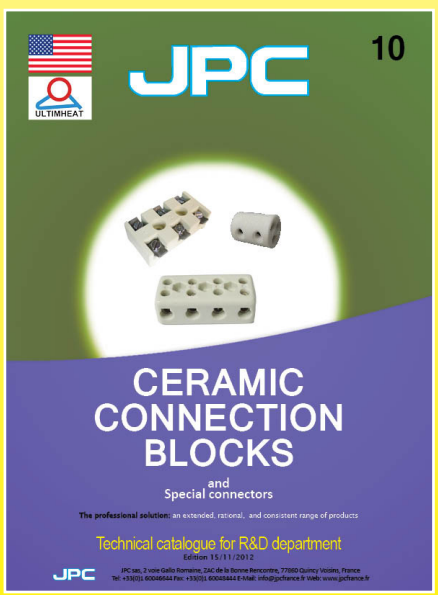

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