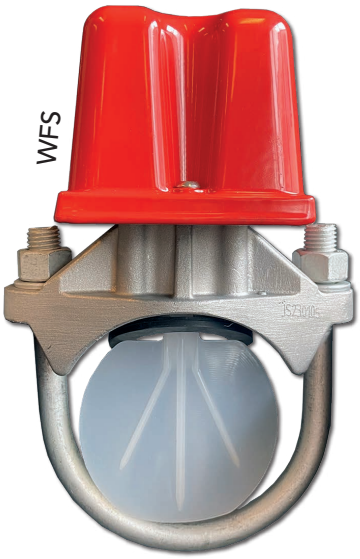
TECHNICAL DATASHEET

WATERFLOW SWITCH | TYPE WFS & WFST

Size range WFS: 2" - 8"
Size range WFST: 1" - 2"

FM APPROVED



The Profit waterflow switches, type WFS & WFST, are used for the detection of a water flow in fire sprinkler piping systems. The switch type WFS can be applied in the full range pipes schedule 10 through 40.

Characteristics

- Type WFS is only suitable for wet systems on pipes schedule 10 to schedule 40.
- Type WFST is only suitable for wet systems on tees according to EN 10242 / Table 8.
- All parts have corrosion resistant finishes.
- Indoor and outdoor use.
- Two conduit entrances.
- Both models WFS and WFST have two synchronised switches (SPDT contacts model).
- Tamper resistant cover screws (tool included).
- Protection class: IP55.

Working temperature

0°C to 49°C.

Maximum flowrate

5,5 m / sec.

Working pressure

- UL / FM: 3,10 MPa / 31,0 bar / 450 psi.
- CE: 1,60 MPa / 16,0 bar / 232 psi.

Flow sensitivity

- UL / FM: 15 – 37 l/min (4-10 GPM).
- CE: 30 - 54 l/min.

Contact ratings

8A at 125 / 250 V AC;
3A at 24 V DC;
2,5A at 30 V DC.

Approvals

- FM approved to FM standard 1042/1043.
- UL listed 346.
- CE certified (EN 12259-5).

General description

Water flow in the pipe deflects a vane, which will trigger a switch when the flow rate exceeds 37,8 l/min, after a specified delay period. The delay is controlled by an adjustable mechanical delay mechanism.

Material specifications

- Aluminum die cast cover, red painted.
- Aluminum die cast base.
- Saddle:
  WFS: aluminum.
  WFST: bronze.
- A set of 2 SPDT switches with the following contact ratings:
  - 8 Amps at 125 / 250 V AC.
  - 2.5 Amps at 30 V DC.

Installation instructions (also included in the packaging)

1. WFS

NOTE: Do not leave the cover off for an extended period of time.

1. These devices may be mounted on horizontal or vertical pipe. On horizontal pipe they shall be installed on the top side of the pipe where they will be accessible. Be sure there is adequate clearance for installation and removal. See Fig.1 for mounting dimensions.
2. The device should not be installed within 15 cm of a fitting which change the direction of the water flow or within 60cm of a valve or drain.
3. Drain the system and drill a hole in the pipe. And be sure the hole is perpendicular to the center of the pipe, as show in Fig.2. If the hole is off center, the vane will bind against the inside wall of the pipe. Use a hole saw in a slow speed drill to cut a hole of the proper diameter, as show in Table 2.
4. Remove burrs and sharp edges from the hole. Clean and remove all scale and foreign matter from the inside of the pipe for a distance equal to the pipe diameter on either side of the hole. Clean the outside of the pipe to remove dirt, metal chips, and cutting lubricant.
5. Roll the vane so that it may be inserted into the hole; do not bend or crease it. Seat the gasket against the saddle and mount the detector into the pipe. Insert the vane so that the arrow on the saddle points in the direction of the water flow. The bushing should fit inside the hole in the pipe.
6. Install the U-bolt and tighten nuts alternately to ensure a uniform seal (see Table 2 for torque values).

Fig.1 Mounting dimensions

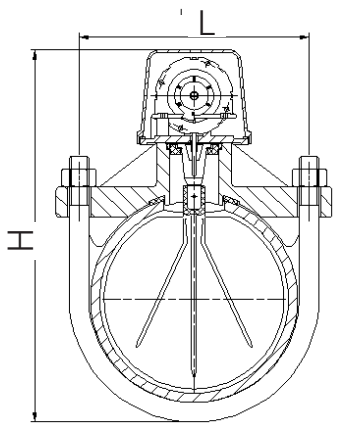
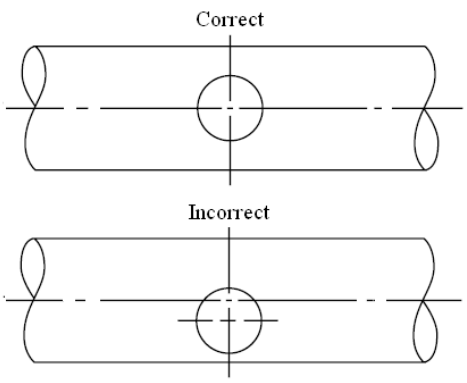


Fig.2 Mounting hole location



7. The vane must not rub the inside of the pipe or bind in any way. If the vane binds, remove the detector and correct the cause before proceeding.
8. Ensure that the direction of arrow on the saddle point should be consistent with the direction of the water flow. See Fig.3.

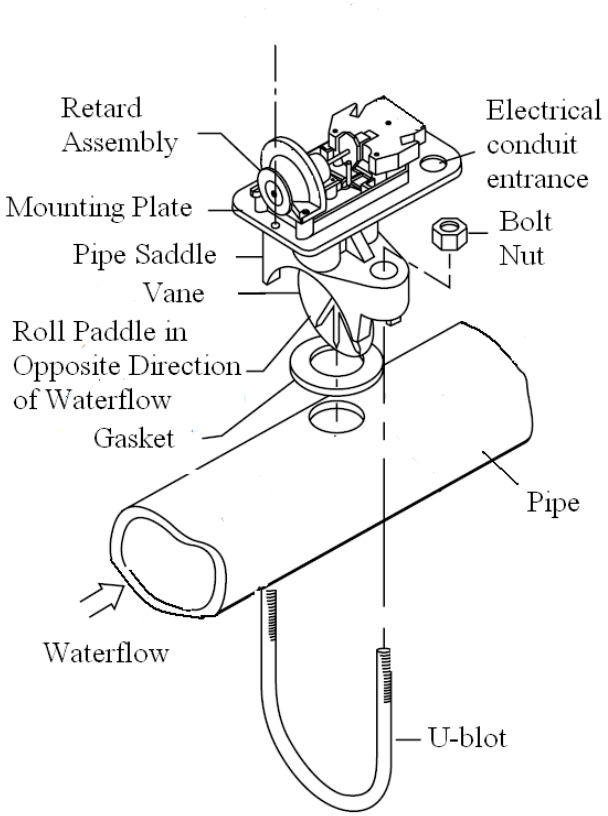
NOTE: Remove burrs from edge of hole. Clean out scale and foreign matter from inside wall of pipe.

Table 2 Main dimensions (A) (B)

Nominal Pipe Size		Pipe Size OD.		Pipe wall thickness				L	H	Hole cut size	U-bolt Nuts torque
				Schedule10		Schedule40					
mm	in	mm	in	mm	in	mm	in	mm	mm		
DN50	2	60.3	2.375	2.77	0.109	3.91	0.154	84	188	32+1	40-50
DN65	2.5	73.0 / 76.1	2.875	3.05	0.12	5.16	0.203	92	200		
DN80	3	88.9	3.500	3.05	0.12	5.49	0.216	104	220		
DN100	4	114.3	4.500	3.05	1.12	6.02	0.237	133	245		
DN125	5	139.7 / 141.3	5.563	3.40	0.134	6.55	0.258	160	272	51+1	70-95
DN150	6	168.3	6.625	3.40	0.134	7.11	0.280	187	298		
DN200	8	219.1	8.625	3.76	0.148	8.18	0.322	240	350		

(This torque is only for normal use. The type test torque is recommended to be appropriately increased).

Fig.3 Assembly diagram



Installation instructions (also included in the packaging)

2. WFST

NOTE: Do not leave cover off for an extended period of time.

1. These devices may be mounted on horizontal or vertical pipe. On horizontal pipe they shall be installed on the top side of the pipe where they are accessible. Be sure there is adequate clearance for installation and removal. See Fig.4 for mounting dimensions.
2. The device should not be installed within 15 cm of a fitting which change the direction of the water flow or within 60 cm of a valve or drain.
3. Thread water flow detectors are designed to fit only the appropriate tee fittings (EN 10242/Table 8) as shown in Fig.5.
4. You find four vanes in the packing that correspondent with the correct T-size (indicated 1", 1¼", 1½", 2"). Choose the correct vane corresponding with the pipe diameter, slide the sleeve of the vane over the stem of the flow switch until the end, and tighten it with the included crosshead screw that is mounted into the stem. THIS WATERFLOW DETECTOR CAN NOT WORK WITHOUT THE CORRECT VANE INSTALLED.
5. Slide the 8 mm thick rubber ring over the vane and thread (1" BSPT) that will be inserted into the Tee fitting. Apply thread-sealant on the 1" thread (the rubber ring is not supposed to be used as sealing). Carefully bend the vane in the opposite direction of the waterflow and screw the device into the Tee fitting, without hereby compressing the rubber ring more than half-turn; the rubber ring is only indicative to prevent that the vane will collide with the Tee bottom inside. Properly orient the switch in direction of water flow as indicated by the arrow on the cover.
6. The vane must not collide with the inside of the TEE or get stuck in any way. The stem should move freely when operated by hand.

Fig.4 Mounting dimensions

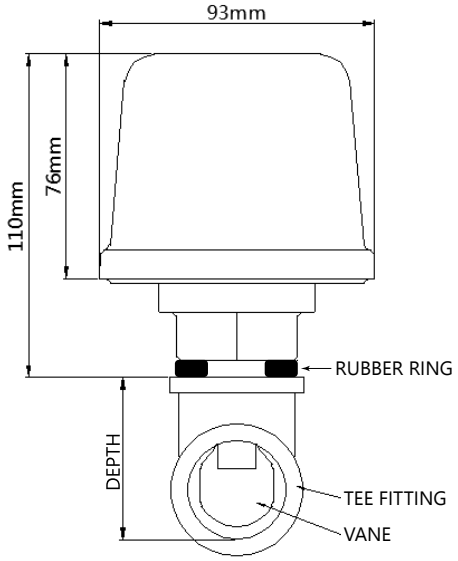
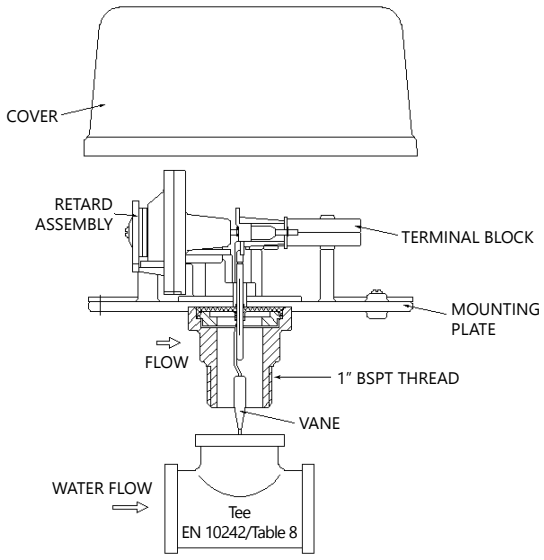


Fig.5 Assembly diagram



7. If the vane is stuck, remove the detector and correct the cause before proceeding.

NOTE: The depth to the inside bottom of the tee should have the following dimensions.

Approximate (minimum) depth requirement	
Tee Size	**Threaded/mm**
1"×1"×1"	54
1¼"×1¼"×1"	62.5
1½"×1½"×1"	69
2"×2"×1"	82

Wiring

WFS & WFST

1. All models have two SPDT switches, one can be used to operate a central station, while the other contact is used to operate a local audible or visual annunciator. Switch contacts COM and NO are closed when water is flowing and open when it is not. Connect the switches, as shown in Fig.6, depending on the application. The electrical contact resistance shall not exceed 0.2Ω. And the insulation resistance shall not less than 20MΩ.
2. A ground screw is provided with all water flow detectors. See Fig.7. When grounding is required, clamp wire with screw in hole located between conduit entrance holes.
3. Use delivered cable gland PG16 to ensure IP55-class and strain relief of the cables. The total thickness of the cables can be 10-14mm to ensure a correct sealing. Remove the knock out plug from the desired conduit entry. Place screwdriver at inside edge of knockouts, not in the centre.

Fig.6 Typical electrical connections

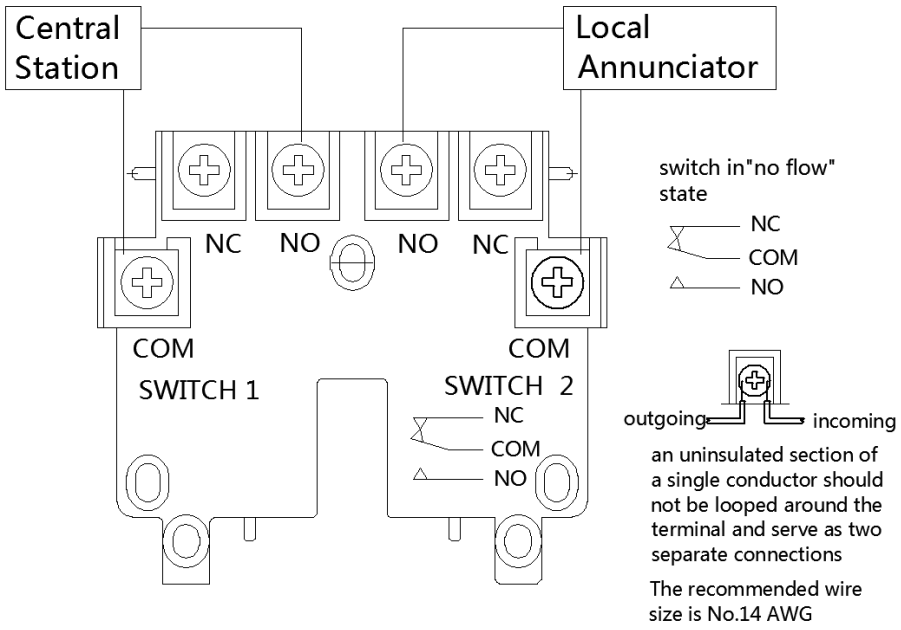
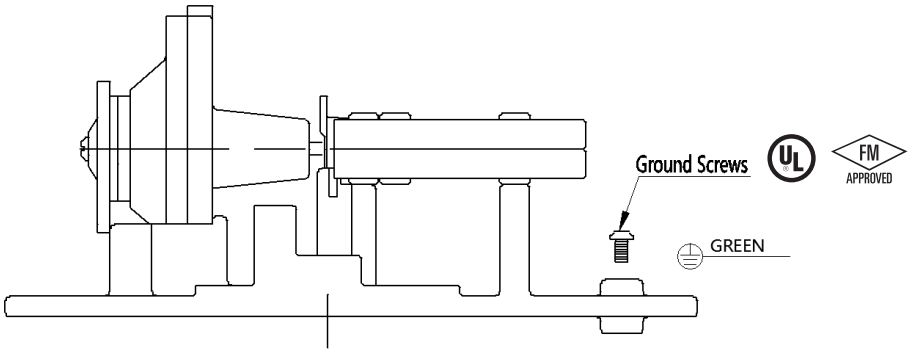


Fig.7 Ground screw



Retard adjustment

WFS & WFST

The delay can be adjusted by rotating the retard adjustment knob from 0 to max setting. To adjust the setting, turn the adjustment knob clockwise to increase the delay, counterclockwise to decrease it. The time delay should be set at the minimum required to prevent false alarms. Max retard time does not exceed 30s.

GENERAL INFO

- Installers should be trained or experienced to install and understand the product.
- Read and understand all technical datasheets and installation instructions before attempting to install, remove or adjust any Profit piping products.
- Depressurise and drain the sprinkler installation system before attempting to install, remove or adjust any Profit piping products.
- Never work on piping systems that are pressurised and / or filled with water.
- Piping Logistics reserves the right to change specifications, designs and / or standard equipment without notice and without incurring in any obligations.
- Use the necessary Personal Protection Equipment (PPE) to avoid personal injury (helmet, safety shoes and goggles, Profit gloves).

Failure to follow these instructions could result in death or serious injury and property damage.

We advise to always store our products in closed and dry environments, the products do not need any specific maintenance once installed on an aboveground sprinkler installation.

REVISION TABLE

Date	△	Notes
05/03/2024	A	Page 3 - Adjustments made in the pipe size OD. in mm of the DN65 & DN125.
05/03/2024	B	Page 3 - Adjustment in the hole cut size of the DN65.