WATER FLOW INDICATOR

MODEL: SD-WFDJM SERIES

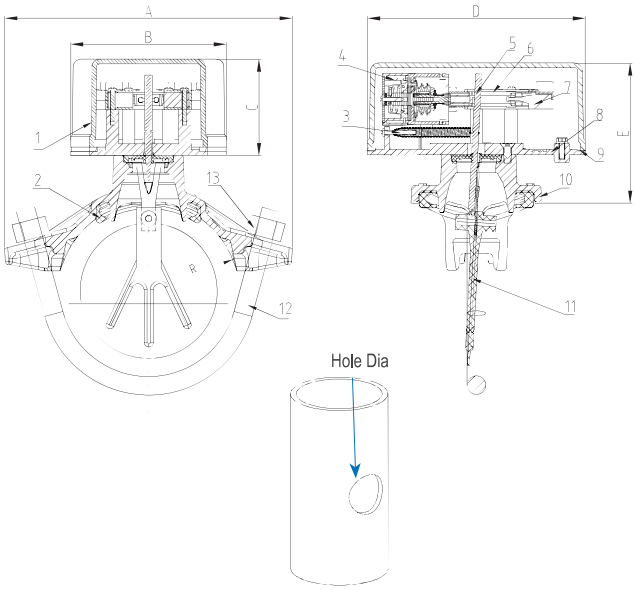
PRODUCT REVIEW

The SHIELD water flow indicator is an important part of the automatic sprinkler system, usually installed in the main pipe or branch pipe of the pipe system. When the vane detects the water flow, the water flow signal will be converted to electrical signal,and then switch on the alarm system or start the fire pump directly, at the same time, the fire zone will be indicated.

PRODUCT FEATURE

- Adjustable delay function: Adjust with rotating switch, accurate adjustable time within 0~90 seconds, high reliability.
- Air delay device with miniature bearing: Time consistency and reliability are assured
- Adjustable spring design: Convenient sensitivity adjustment, easy maintenance.
- Double micro switch design: One end can be used to operate the central control room, and the other end can be used to connect the alarm apparatus.
- Surface treatment: Red epoxy coating, high corrosion resistance performance

DESIGN AND DIMENSIONS



MATERIAL SPECIFICATION

Size	2"-10" (DN50 - DN250)
Max. Working Pressure	363 Psi/365 Psi
Flow Sensitivity Range	15-37.5L/MIN
Temperature Range	0-68°
Fluid	Water
Contact Rating	125/250VAC 5A 24/30VDC 3A

MATERIAL SPECIFICATION

Part No.	Description	Material
1	Cover	ASTM B85-96 383.0E
2	Rubber Gasket	EPDM
3	Spring	SS304
4	Air Delay Device	PC GV3410R
5	Stem Sealing Gasket	SS304+NBR
6	Connecting Rod	POM 500P
7	Micro-Switch	PC GV3410R
8	Connection Plate	ASTM B85-96 383.0E
9	Connection Plate Seal	NBR
10	Saddle	ASTM A536
11	Vane	PTFE
12	U-Bolts	Carbon Steel Zinc Plated
13	Nuts	Carbon Steel Zinc Plated

DIMENSION

Nominal Dimension	Size	Dimensions(mm)						
DN	*Inch*	*R*	*A*	*B*	*C*	*D*	*E*	*Hole Dia.*
50	2"	60.3	116	100	63	140	83.5	30
65	2 1/2"	73.0	120	100	63	140	83.5	30
65	2 1/2"	76.1	122	100	63	140	83.5	30
80	3"	88.9	145	100	63	140	94.0	51
100	4"	114.3	185	100	63	140	94.5	51
125	5"	139.7	212	100	63	140	94.5	51
125	5"	141.3	212	100	63	140	94.5	51
150	6"	165.1	254	100	63	140	95.0	51
150	6"	168.3	254	100	63	140	95.0	51
200	8"	219.1	298	100	63	140	95.0	51
250	10"	273.0	381	100	63	140	97.5	70

INSTALLATION & APPLICATION

1. PIPE SIZE

Product Size	Nominal Pipe Size		Nominal Pipe O.D.	Pipe Wall Thickness *(mm)*			Hole Dia
	Inch	*mm*	*(mm)*	*ASME B36.1 Sch 10*	*ASME B36.1 Sch 40*	*BS1387*	*(mm)*
60	2"	50	60.3	2.77	3.91	3.6	32
73	2½"	--	73.0	3.05	5.16	--	32
76	--	65	76.1	--	--	3.6	32
89	3	80	88.9	3.05	5.49	4.0	51
114	4	100	114.3	3.05	6.02	4.5	51
140	--	125	139.7	--	--	5.0	51
141	5	--	141.3	3.4	6.55	--	51
165	--	165	165.1	--	--	--	51
168	6	150	168.3	3.4	7.11	5.0	51
219	8	200	219.1	3.76	8.18	6.3	51
273	10	250	273.0	4.19	9.17	--	70

2. CAUTION

- Please read the instructions carefully before installation, any damage caused by improper installation will not be liable for the manufacturer.
- Before installation, check the nominal diameter, nominal pressure, temperature range and fluid of the water flow indicator, do not install if the technical parameter of the water flow indicator don't match the requirement of the pipe system.
- Installation must be performed by qualified personnel and in accordance with all national and local codes and ordinances.
- The water flow indicator can be mounted on horizontal or vertical pipe. On horizontal pipe it should be on the top of the pipe or the side of the pipe, do not at the bottom of the pipe. On vertical pipe it should be mounted on the pipe which the water flow is upward.
- The pipe length before and after the water flow indicator must be no less than 5 times the pipe diameter, and choose the correct water flow indicator according to the pipe nominal diameter technical parameter table.
- The water flow direction must be same as the arrow direction, must not be installed in opposite direction.
- Leave enough space for easy installation and maintenance.
- Turn off electrical power before installation or maintenance, otherwise will cause serious injury or casualties.
- Do not use in inflammable and explosive environment, otherwise will cause serious injury or casualties.

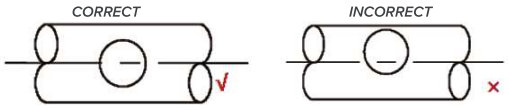
3. INSTALLATION

- **HOLE CUTTING**

- Hole Cutting Size

Size	Hole Cutting Size *(mm)*
60/73/76	32(±2)
89/114/140/141/165/168/219	51(±2)
273	70(±2)

- Hole position: Hole must be drilled perpendicular to the pipe and vertically centered, otherwise, the vane will conflict the inside pipe and water flow indicator cannot start. The surrounding part around the hole must be smooth, no sunken or bulge.



***CAUTION:** Remove all the materials in the pipe, otherwise, the pipe can be blocked.*

- **GRINDING**

Deburrs to make the hole edge smooth.

***CAUTION:** Clean the pipe after grinding, no other material inside or outside of the pipe.*

- **INSTALLATION**

i. Select the correct water flow indicator corresponding to the pipe diameter.

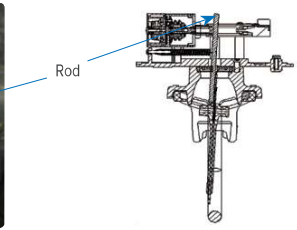
ii. Check the direction of the water flow, make sure the arrow direction on the saddle same as the water flow direction.

***CAUTION:** The arrow direction must be same as the water flow direction, otherwise, the water flow indicator cannot start and function properly.*

iii. Roll the vane,insert the vane into the hole, press the locating slot into the hole, make sure the rubber gasket must be in the locating slot.

***CAUTION:** When installed horizontally, the water flow indicator should be at the top of the pipe or side of the pipe, not at the bottom of the pipe.*

- **FASTEN THE BOLTS**

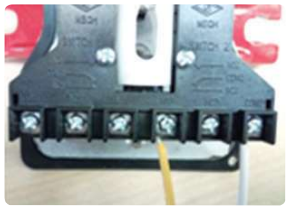


i. Mount the U-bolts, fasten the nuts alternately, keep the sealing surface between saddle and pipe evenly.

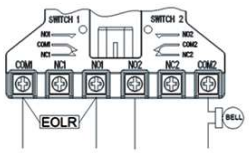
ii. Switch the rod to verify if the vane can be active or not. If the vane acts slowly, perform above steps again.

***CAUTION:** Do not exert force to the signal part when fastening, otherwise, the signal part will be damaged*

- **WIRING**



Typical electrical connection:



The SHIELD water flow indicator has two switches, one can be used to operate a central control station, proprietary or remote signaling unit, while the other contact is used to operate a local audible or visual annunciator.

***CAUTION:** Cut off the power source when wiring, an uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, not exposed outside.*

Cover the shell, fasten the bolts.

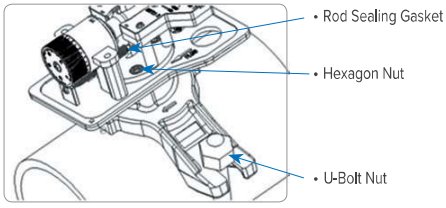
4. ADJUSTMENT

- **DELAY FUNCTION ADJUSTMENT**
  - i. The original set time is 30 seconds, if need to adjust the time, rotate the rotary knob to make sure the arrow direct to the scale, increase time with clockwise rotating, and reduce the time by anticlockwise rotating.
  - ii. The unit of the scale is second, the accuracy is 50%.

***CAUTION:** When installed horizontally, the water flow indicator should be at the top of the pipe or side of the pipe, not at the bottom of the pipe.*

5. OPERATION TEST

- **System full of water, check if there's leakage around the water flow indicator, verify the leakage position.**
  - i. Leakage between the connecting plate and the saddle open the cover, fasten the hexagon nuts.
  - ii. Leakage between the saddle and pipe fasten the u-bolts alternately, make sure the sealing surface is even and uniform.
  - iii. Leakage from the rod sealing gasket contact the customer service agent to replace the rod sealing gasket. If leakage found except for a, b, and c, drain the water in the system, remove the saddle, check if there's other material or inclusion under the sealing gasket, make sure the pipe should be no defects of bulge or sunken, then install again.



- **ADJUSTMENT OF DELAY TIME**
  Ajust the rotary knob, if delay time is not as desired, to increase time with clockwise rotating, and reduce the time by anticlockwise rotating.

6. REMOVAL

- **System full of water, check if there's leakage around the water flow indicator, verify the leakage position.**
  - i. Turn off electrical power, drain the water of the pipe.
  - ii. Loosen the two nuts to remove the U-bolts.
  - iii. Lift the saddle far enough to get your fingers under it. With your fingers, roll the vane so it will fit through the hole while continuing to lift the water flow indicator.

***CAUTION:** Inspect and make sure the vane lifts from the pipe, otherwise will block the pipe.*

MAINTENANCE & SERVICE

- Quarterly Inspection
  - i. Inspection requirement: appearance and marking inspection, function of the start and reset of the water flow indicator; accuracy of signal delivery.
  - ii. Inspection operation: check the appearance of the water flow indicator; open the test & drain assembly and test valve of the floor, and verify the signal action of the water flow indicator from the fire control equipment; close the test & drain assembly and test valve, and verify the signal reset of the water flow indicator from the fire control equipment.
- When the water flow indicator is damaged from fire or other causes, replace for a new one immediately.
- The retard and switch assembly are easily replaceable at field. Contact the sales agent if there is problem with any parts.

TRANSPORTATION AND STORAGE

- During transportation, take care to prevent violent vibration, throwing, collision, etc., and with proper protection from rain or chemical erosion.
- When receiving the water flow indicators, check and confirm if there's damage during transportation, and put them on the ground carefully.
- The water flow indicator should be stored in a clean, dry, well-ventilated place with non-corrosive environment.