

Paddle Style Flow Switch

Series IF3

IF3 Series flow switches detect and confirm liquid flow, generally used in fields such as air conditioning, water supply equipment, etc.

- Piping sizes range from 3/4^B to 6^B.
- Wide range of applicable fluids.
Materials in contact with fluid: Copper alloy, Stainless steel
- Various enclosures (water proof).
Standard style, Drip proof style, Splash proof style.



How to Order

IF3 1 1 - N 10 - 1 1

Paddle Style Flow Switch
 Enclosure
 ON flow range
 Thread
 Seal material
 Metal material in contact with fluid
 Port size

0	Standard (Non water proof)
1	Drip proof
2	Splash proof

0	14 to 60 l/min
1	20 to 1500 l/min
3	36 to 2600 l/min

—	Rc(PT)
N	NPT

0	NBR
1	FPM

0	Copper alloy
1	SUS304

06	3/4
10	1

Note 1) IF3□0 is available for "06".
Note 2) IF3□1 and IF3□3 are available for "10".

Specifications

Fluid	Copper alloy	Water, Non corrosive liquid
	SUS304	Liquid compatible with stainless steel
Max. operating pressure	1MPa	
Proof pressure	1.75MPa	
Isolation	100MΩ (DC500)	
Voltage proof	1500V AC for one min.	
Contact	1ab	
Port size	3/4, 1	

Micro Switch Ratings

Voltage	Non inductive load (A)				Inductive load (A)			
	Resistance load		Light load		Inductive load		Motor load	
	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.
125V AC	15	15	4	2	10	10	4	2
250V AC	15	15	3	1.5	10	10	3	1.5
8V DC	15	15	3	1.5	15	15	5	2.5
14V DC	15	15	3	1.5	10	10	5	2.5
30V DC	6	6	3	1.5	5	5	5	2.5
125V DC	0.5	0.5	0.3	0.3	0.05	0.05	0.05	0.05
250V DC	0.25	0.25	0.2	0.2	0.03	0.03	0.03	0.03

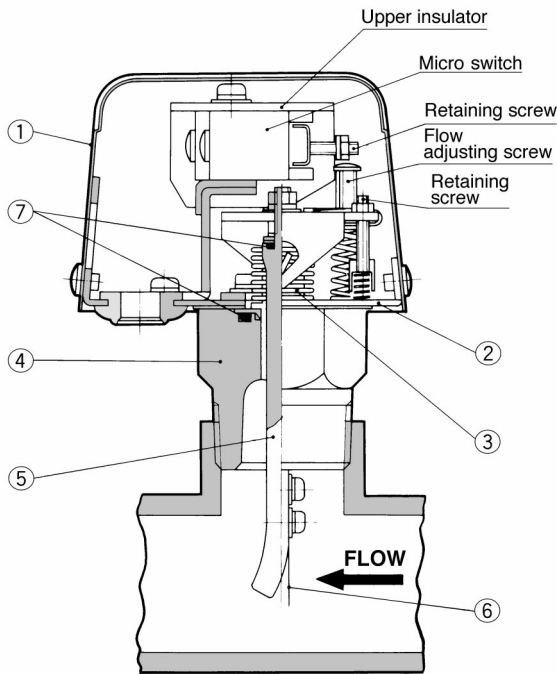
Paddle Style Flow Switch Series IF3

Fluid and Ambient Temperature Range

Fluid temperature	Corresponding ambient temperature ⁽¹⁾
70°C or less	70°C (70C°) or less
80°C	58°C (60C°) or less
90°C	47°C (50C°) or less
100°C	35°C (40C°) or less

Note 1) () For IF32□

Construction



Main parts list

No.	Description	Material		
		IF30□	IF31□	IF32□
①	Cover	SPCD	SPCD	ADC12
②	Mounting plate	SPCC	SUS304	SUS304
③	Bellows	PBP or SUS304		
④	Body	C3604B or SUS304		
⑤	Mobile bar	C2700W or SUSXM7		
⑥	Paddle	SUS304		
⑦	O ring	NBR or FPM		

Enclosure

Standard	Indoor applications away from moisture
Drip proof (JIS C0920)	Indoor or outdoor applications can tolerate water drip
Splash proof (JIS C0920)	Sealed construction can tolerate hosing or salt laden atmosphere

Flow Characteristics List

Fluid: Water, secondary pressure: 0MPa
Sealing thread depth: 9mm(3/4), 11mm(1)

Flow Switch	Mounting		Flow range (l/min)				ON-flow rate/setting (meter/sec.)
			Minimum		Maximum		
	Port size	Paddle size	ON flow	OFF flow min	ON flow	OFF flow min	
IF3□0-06	3/4	Long	14	7	38	33	0.66 to 1.79
	3/4	Middle	18	9	50	44	0.85 to 2.36
	3/4	Short	22	11	60	53	1.04 to 2.83
IF3□1-10	1	Short	20	10	60	55	0.56 to 1.67
	1 1/4	Short	34	17	100	90	0.57 to 1.67
	1 1/2	Short	52	26	160	140	0.63 to 1.95
	2	Middle	45	23	140	125	0.34 to 1.06
	2 1/2	Middle	90	45	280	250	0.41 to 1.29
	3	Middle	80	40	250	220	0.26 to 0.81
	4	Long	170	85	550	480	0.33 to 1.05
	5	Long	300	150	1,000	870	0.37 to 1.24
	6	Long	460	230	1,500	1,300	0.40 to 1.32
IF3□3-10	1	Short	36	18	110	100	1.00 to 3.05
	1 1/4	Short	54	27	160	140	0.90 to 2.67
	1 1/2	Short	90	45	270	230	1.10 to 3.29
	2	Middle	90	45	270	230	0.68 to 2.05
	2 1/2	Middle	160	80	500	420	0.74 to 2.30
	3	Long	160	80	500	420	0.52 to 1.63
	4	Long	320	160	1,000	800	0.61 to 1.91
	5	Long	560	280	1,800	1,450	0.69 to 2.23
	6	Long	800	400	2,600	2,000	0.70 to 2.28

ON-flow: Switch point at increase of flow.

OFF-flow: Switch point at decrease of flow.

· Maximum flow can be up to twice of ON-flow.

· Accurate operating flow depends on correct sealing depth and direction of flow.

PSE

ZSE4
ISE4

ZSE5
ISE5

ZSE6
ISE6

ZSE3
ISE3

GS

PS

ISA

ZSE1
ISE1

ZSE2
ISE2

ZSP

IS□

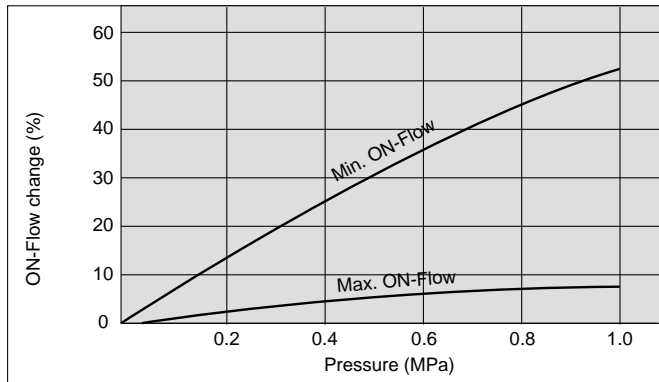
ZSM

PF□

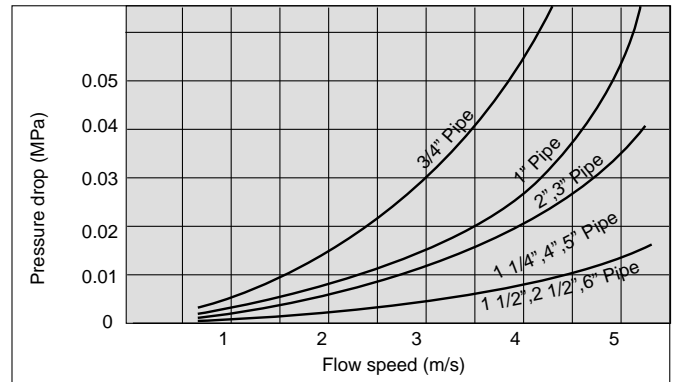
IF□

Series IF3

ON-Flow Change due to Pressure



Pressure Drop Curve



⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.3.15-1 and 3.15-2 for precautions on every series.

Mounting & Wiring

⚠ Caution

- Mount the switch on top of horizontal pipe so that fluid flow is in the direction of the arrow. Sealing depth should be $9\text{mm} \pm 1\text{mm}$ for 3/4" and $11\text{mm} \pm 1.2\text{mm}$ for 1".
- In terms of the direction of installation, this product can only be installed perpendicularly to the horizontal pipe.
- Provide a straight pipe portion that corresponds to approximately 5 times the bore of the pipe before and after the area of the pipe on which the product is installed, thus keeping the product as far away as possible from the elements that disturb the flow, such as elbows or valves.
- Three types of paddles, short, medium, and long, are provided with each model. Use one of them according to the pipe size and the set flow rate.
- Use pipe fittings that comply with JIS specifications.
For 3/4B to 3B, use commercially available union tees of different diameters.
For 4B to 6B, use a 1B socket that has been cut in half and welded.

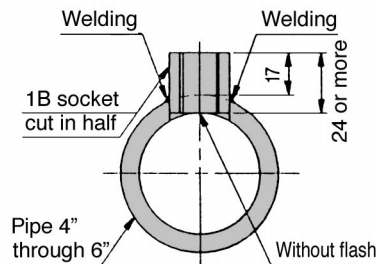
Applicable Fittings

For pipe fitting 3/4" through 3"

Piping B	Reducing Tees B
1	1 X 1 X 1
1 1/4	1 1/4 X 1 1/4 X 1
1 1/2	1 1/2 X 1 1/2 X 1
2	2 X 2 X 1
2 1/2	2 1/2 X 2 1/2 X 1
3	3 X 3 X 1

Reducing tees: JISB2301
Socket: JISB2302
Pipe: JISB3452

For pipe fitting 4" through 6"



- It cannot be used in case a water hammer or pulsation pressure is applied to the fluid.
- Wire the microswitch according to the symbols on the upper insulators. (They will be opposite the terminal symbols on the microswitch. The terminals are screw terminals.)

Internal wiring diagram



Symbol	Contact
C	COMMON
A	NORMALLY OPEN
B	NORMALLY CLOSED

Adjusting

⚠ Caution

- To adjust flow, remove grommet of the upper cover and rotate flow adjusting gear using the minus driver.
(clockwise rotation: increase of adjusting flow rate, counterclockwise rotation: decrease of adjusting flow rate)
- Flow rate % relation to the number of turns is shown in the table below. However, this is just a guide. For precise setting use a flow meter.

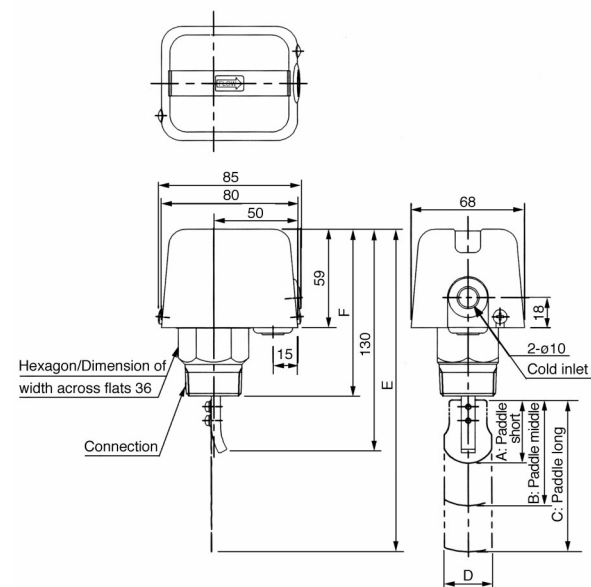
Number of turns	0	1	2	3	4	5	6	7	8	9	10	11	12
Contact ON-Flow (%)	30	40	50	59	68	74	80	85	89	93	96	98	100

- The flow rate setting point is set at the ON flow rate. Therefore, in the case of the 1a contact, the ON signal is output if fluid with a higher flow rate than the set flow rate has flowed. In the case of the 1b contact, the OFF signal is output when the flow rate has decreased. Refer to the flow rate characteristics table for details on the operation flow rate.
- Do not touch the two types of stop screws that are indicated on the construction diagram.
- To prevent the chattering that is associated with the fluctuation of the operating flow rate, set the difference between the set flow rate and the operating flow rate so that it is as large as possible.
- Use at or below the maximum operating pressure and maximum flow rate.
- Spare parts
Short, medium, and long paddles are provided as a 3 piece set with each model, so arrange them as indicated below. There is no compatibility between the paddle for a 3/4" connecting bore and for a 1" because their installation pitches differ.
Arrangement example:
Paddle set for IF300-06-00

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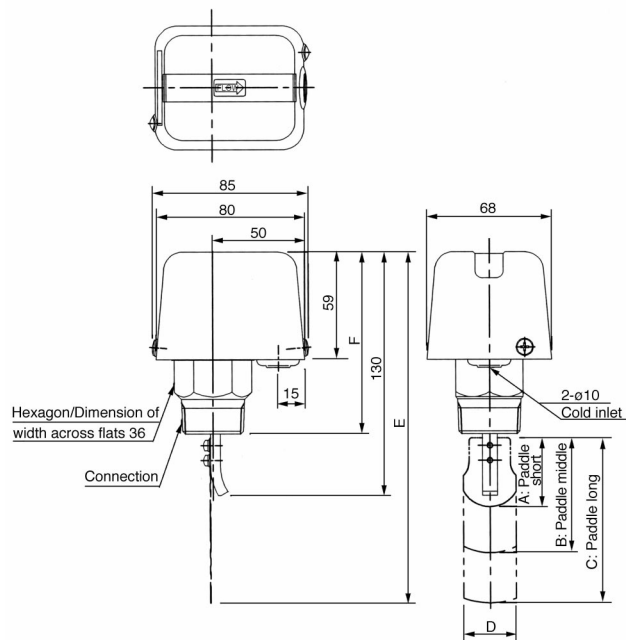
Dimensions

Standard style: 300/301/303



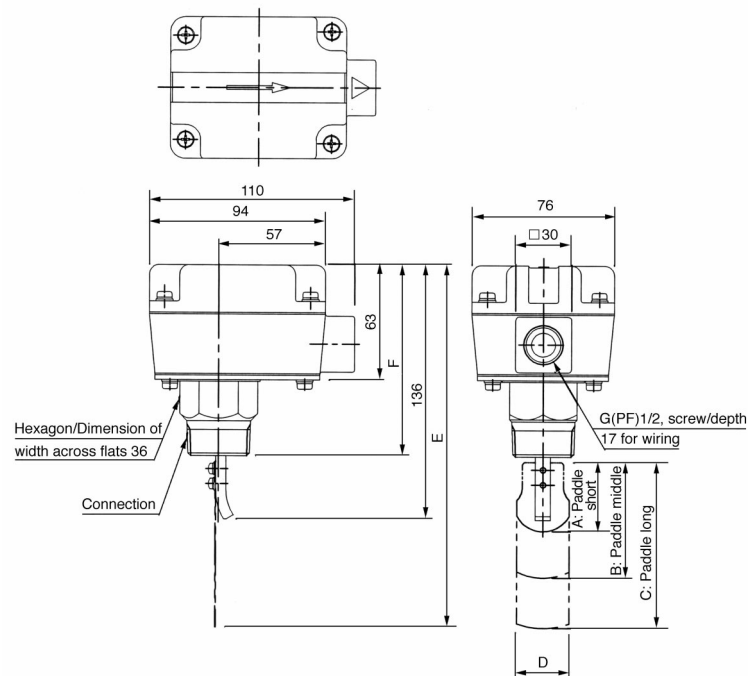
Model	Dimensions	Connection	A	B	C	D	E	F
IF300		3/4	28	31	34	22	137	101
IF301		1	37	62	89	28	188	98
IF303		1	29	39	56	28	155	98

Drip proof style: 310/311/313



Model	Dimension	Connection	A	B	C	D	E	F
IF310		3/4	28	31	34	22	137	101
IF311		1	37	62	89	28	188	98
IF313		1	29	39	56	28	155	98

Splash proof style: 320/321/323



Model	Dimension	Connection	A	B	C	D	E	F
IF320		3/4	28	31	34	22	143	107
IF321		1	37	62	89	28	194	104
IF323		1	29	39	56	28	161	104

PSE

ZSE4
ISE4

ZSE5
ISE5

ZSE6
ISE6

ZSE3
ISE3

GS

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ISA

ZSE1
ISE1

ZSE2
ISE2

ZSP

IS□

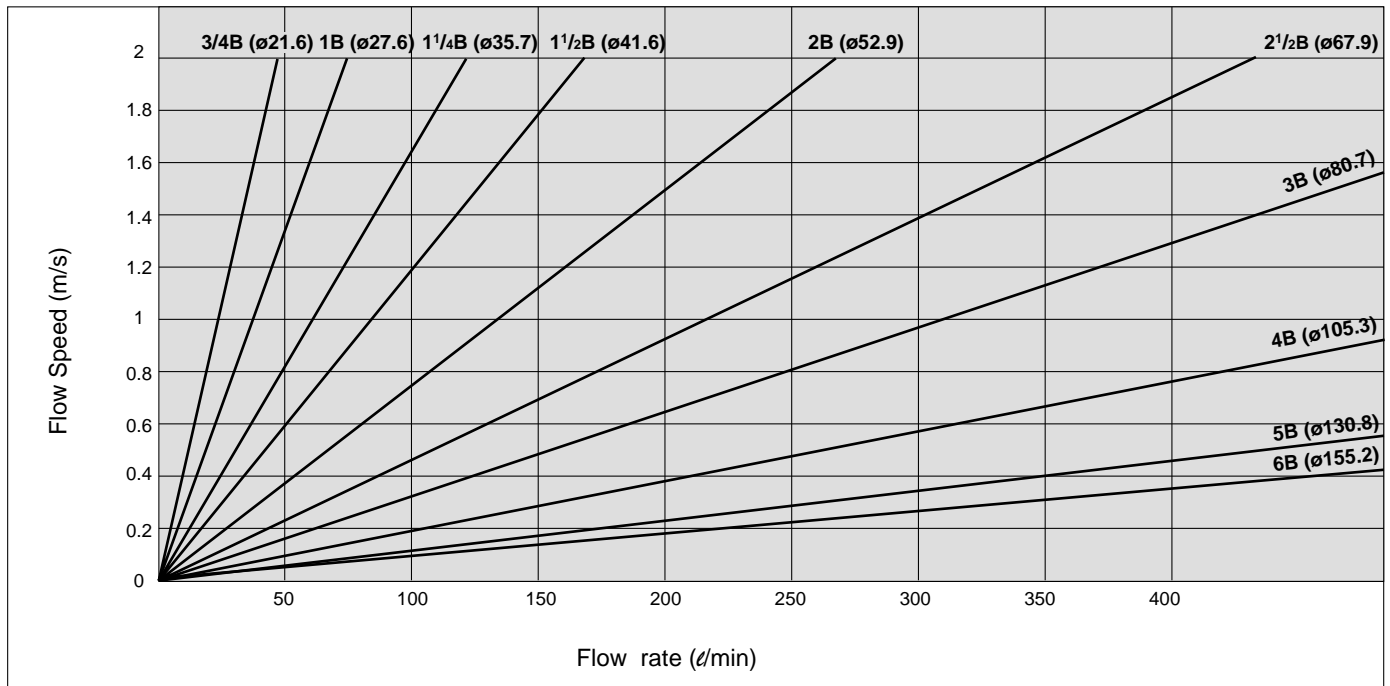
ZSM

PF□

IF□

Series IF3

Flow Speed



() : Gas pipe bore sizes