

# Magnetic Float Operated Pivoted Level Switch 'FPS'

**Techtrol**

SINCE 1984

It is an economical, maintenance free and reliable device used for high, low or intermediate point level switching. It is ideal for tanks with inaccessible tops or bottoms and where insertion depths of top mounted models are exceeded.



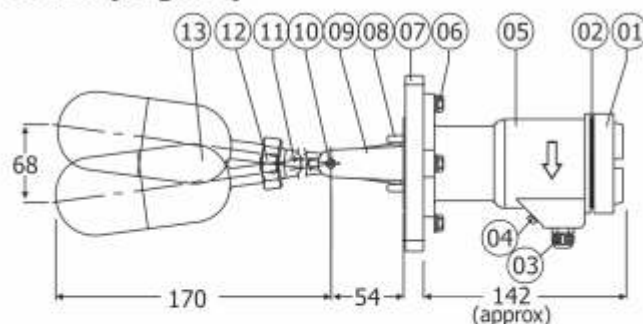
## Construction & Operation :

Compact & rugged construction consisting of a free moving pivoted float assembly and a switch enclosure in non magnetic material to achieve undisturbed magnetic flux. It employs dual magnets, one carried by the float arm and other by the contact carriers housed in the switch enclosure. A change in liquid level brings the like poles of dual magnets opposite to each other and resulting repulsion force ensures a changeover of contacts with snap action. The magnetic transmission is glandless, leaving no scope for leakages from vessel into switch housing. These switches are manufactured in various materials, enclosures & special features to suit broad range of media / applications. They are designed to provide high repeatability and to minimise effects of shock, vibration & pressure.

## Installation :

Mounted internally or externally through a chamber. External mounting is resorted to, where space is a limiting factor or mechanical devices like stirrers operate within the tank. Besides, in applications like boilers, reaction kettles etc., with external mounting, isolating is possible for regular servicing. The switch is normally side-mounted, however for applications like slurry, top installation is preferred. The switch can be wired directly " to make or break electrical circuits" , of burners, heaters, motor-pumps, alarms and other such electrically operated devices.

## Finish (Regular)



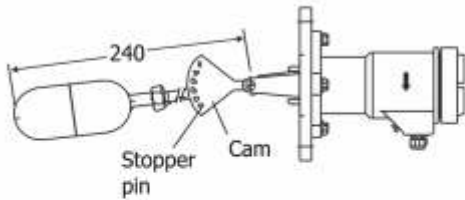
01) Terminal cap	05) Enclosure	09) Bracket
02) Gasket	06) Bolts	10) Pivot pin
03) Conduit conn	07) Process conn	11) Trim
04) Earthing screw	08) Stopper	12) Float lock nut
		13) Float

## Specifications:

Installation	: Normally side / top for special applications.
Enclosure	: Cast Al, WP-IP 66 or Ex-proof to Gr IIA & IIB or IIC.
Conduit connection	: Polyamide- PG 11 (WP), Brass- 1/2" NPT (Ex-Proof).
Float	: SS304 / SS316 / PP / SS304 with PVDF coated.
Min Sp. Gr.	: 0.6 depending upon float material and dimensions.
Process Connections	: Flanged or Screwed.
Switch Type	: Micro switch (SPDT / DPDT, 150°C or 250°C).
Switching Capacity	: 5A, 250V AC.
Switching Differential	: Fixed (15±5mm). Adjustable between 40 & 300mm depending upon float, trim length & cam positioning.
Repeatability	: ±1mm.
Accuracy	: ±2mm.
Load / Insulation	: Resistive / 150 megaohms at 500 V DC.
Max Temp.	: Upto 250°C and high temp. model upto 350°C.
Max Pressure	: Upto 20 Kg / cm <sup>2</sup> at ambient temp. (contact factory for pressure more than 20 Kg / cm <sup>2</sup> ).
Finish	: Regular / Sanitary.
Special features	: 1) Adjustable differential. 2) L / Z cranked trims. 3) High temp. construction with Radiating fins.

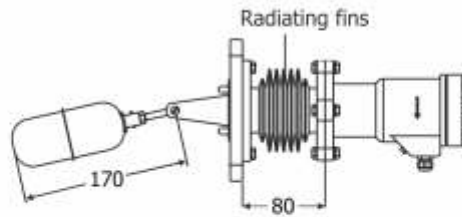
**CE certified option available as per 73/23/EEP for W.P. enclosure only**

## Special Features :



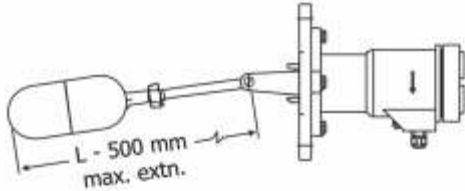
### A- Adjustable differential :

Adjustable differential by locating float trim at various fixed angles with the help of cam & stopper pin.

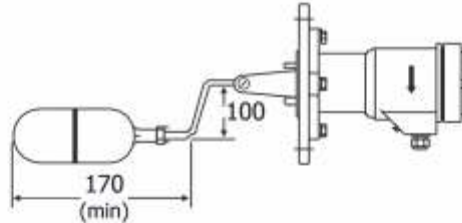


### R - High-temp construction

High-temp construction with radiating fins

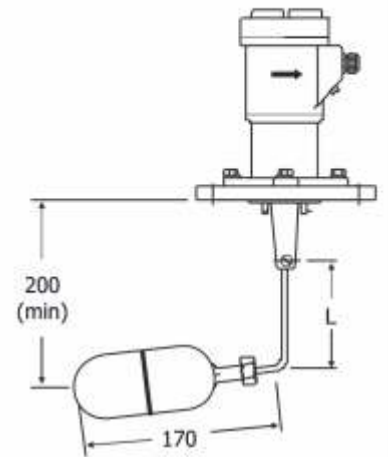


### X- Extended trim with side mtg



### Z- Cranked trim with side mtg.

'Z' Cranked trim for slurry applications.



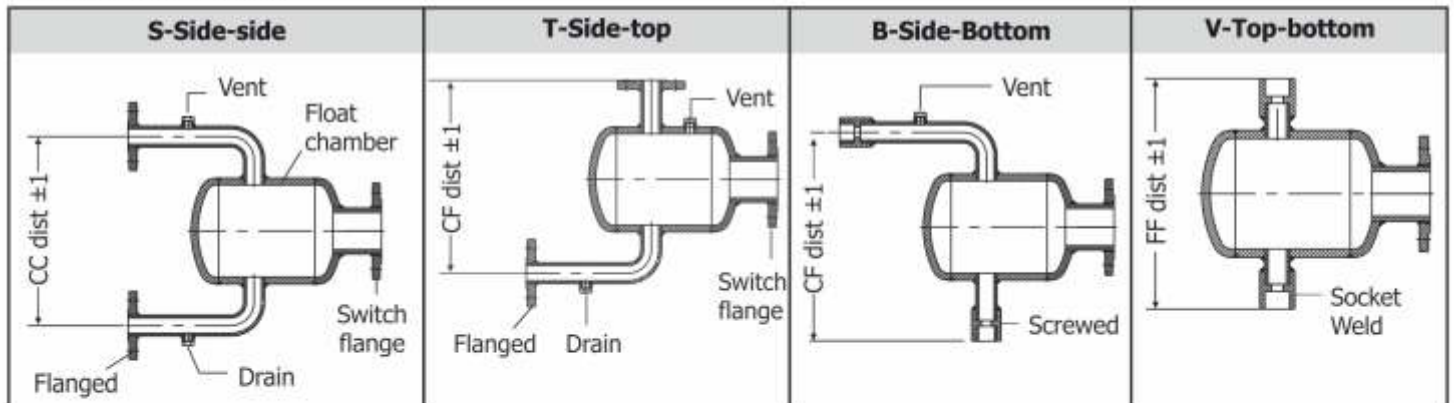
### L- Cranked trim with mtg.

'L' cranked trim for slurry application

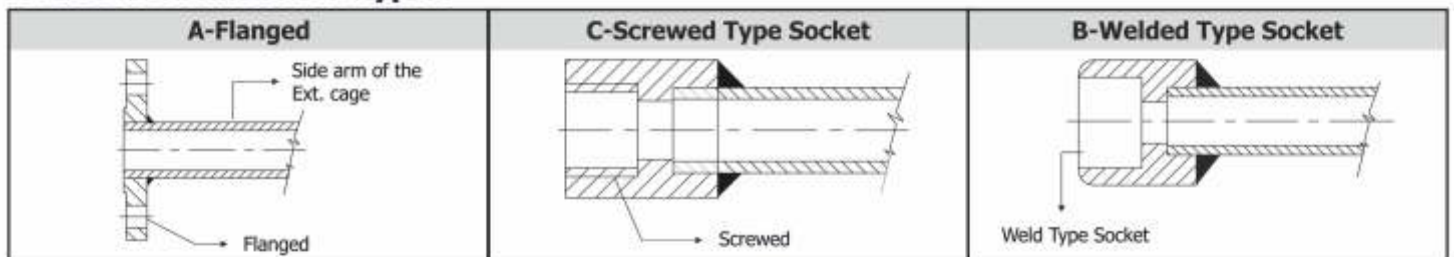
**C-External Cage :** A wide range of external cages are available in various MOC's (CS,SS304,SS316), Mountings and Process connections for use in tanks where,

- 1) Space is a limiting factor.
- 2) Mechanical devices like stirrer operate within it.

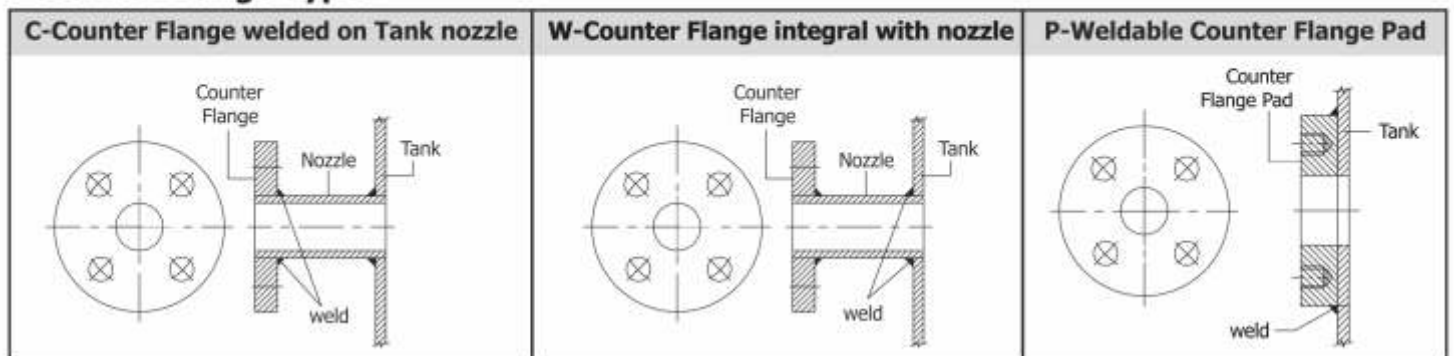
## Mounting Types



## Process Connection Types



## Counter Flange Types





**Model Identification No.- 'FPS'**

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**Enclosure**

- Cast Al weatherproof as per IP-66 — J
- Cast Al ex-proof for Gr. IIA & IIB — E
- Cast Al ex-proof for Gr. IIC — F
- Non-std. — O

**MOC (Float/Process connection)**

- SS304 — N
- SS316 — S
- PP (with Ø50 float) — P
- SS304 PVDF coated — T
- Non-std. — O

**Float x Process connection combine**

- Ø50mm x 120 OD. x 92 PCD flange — 1
- Ø60mm x 120 OD. x 92 PCD flange — 2
- Ø50mm x 2" NB, BS-10 T 'D' flange — 3
- Ø60mm x 2½" NB, BS-10 T 'D' flange — 4
- Ø75mm x 3" NB, BS-10 T 'D' flange — 5
- Non-std — O

**Switch type x Capacity (5A, 250V AC)**

- Micro (SPDT)-150°C — 1
- Micro (DPDT)-150°C — 2
- Micro (SPDT)-250°C (350°C For High temp const) — 3
- Micro (DPDT)-250°C (350°C For High temp const) — 4
- Non-std — O

**Finish**

- Regular — R
- Sanitary — S

**Sp. Features**

- Adjustable differential (for regular finish only) — A
- Cranked trim with top mtg. — L
- Extended trim with side mtg. — X
- Cranked trim with side mtg. — Z
- High-temp construction (for regular finish only) — T
- High-temp construction with radiating fins — R
- Non - std — O
- None — W

**Accessories**

- None — W
- External cage — C
- Counter flange with nuts / bolts & gasket — F
- In-situ test device — T
- Non-std — O

**External Cage MOC**

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- CS — M
- CS (A106) — C
- SS304 — N
- SS316 — S
- Others — O

**Process Conn**

- 25NB Flanged — 1
- 40NB Flanged — 2
- 1" BSP (F) Screwed Socket — 3
- 1" Weldable Socket — 4
- Non-std — O

**Mounting**

- Side X Side — S
- Side X Top — T
- Side X Bottom — B
- Top X Bottom — V
- Others — O

**Vent & Drain**

- ½" Plugs — 1
- ½" Plug X ½" Valve — 2
- ½" Valve X ½" Valve — 3
- Others — O

**Counter Flange MOC**

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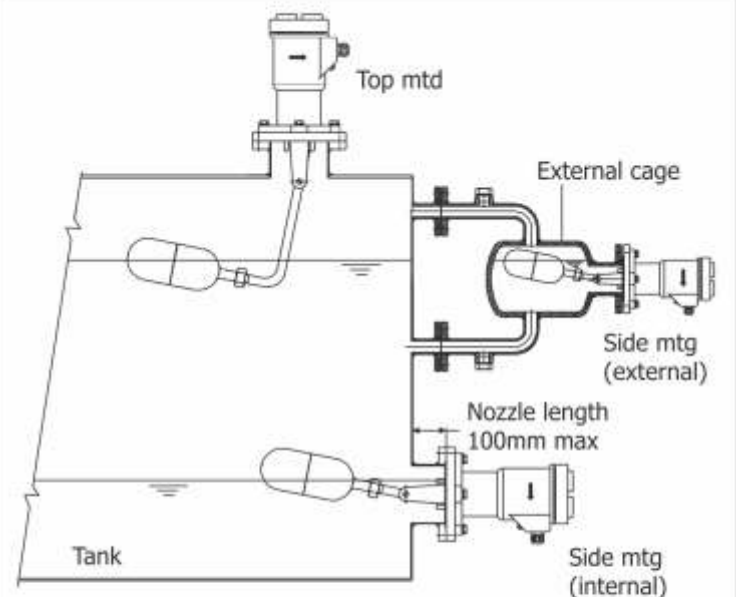
- CS — M
- SS304 — N
- SS316 — S
- Others — O

**Counter Flange Type**

- Counter Flange welded on Tank nozzle — C
- Counter flange integral with nozzle — W
- Welded Counter flange Pad — P

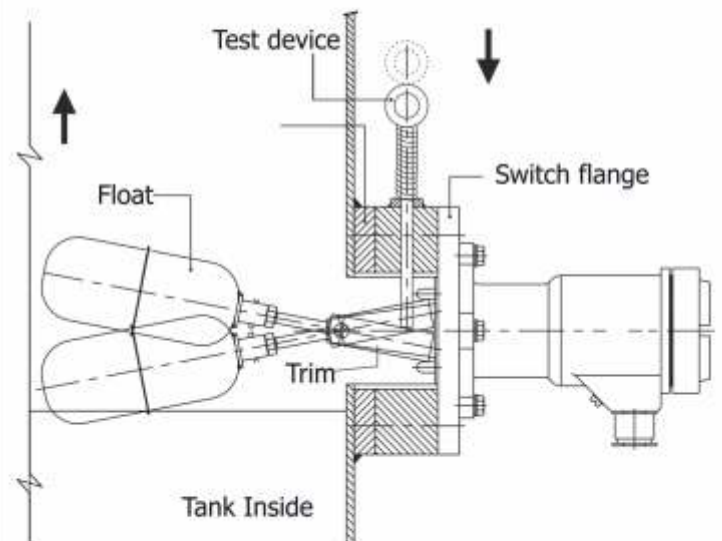
**Installation :**

**Fig. 4**



**In situ Test Device - T :**

It is supplied as an accessory to Magnetic Switch (FPS) to facilitate mechanical testing of electrical circuit. As such operations are checked without carrying out the emptying / filling cycle.



**Termination for SPDT and DPDT Switch :**



**Ordering information :**

Specify Liquid, Sp Gr., Viscosity and Optg. Temp. & Pressure. For Sp. features: Specify " L " for extended trim (max 500 mm)

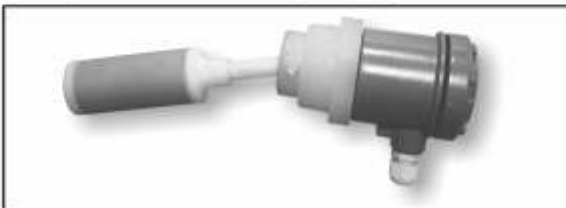
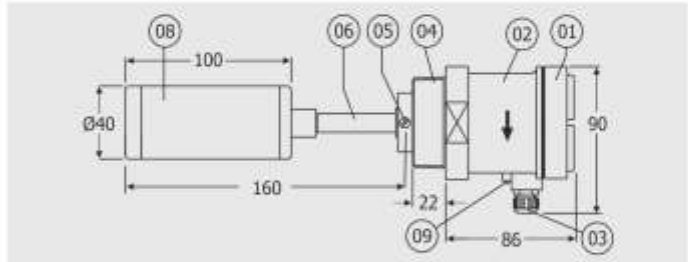
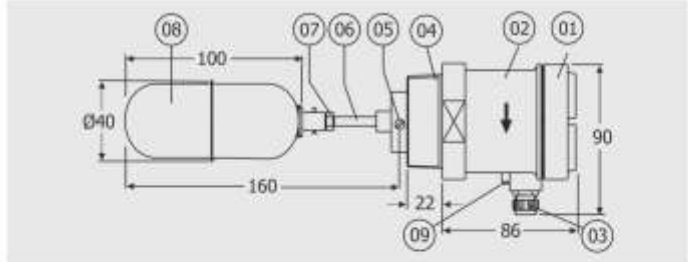
# OTHER STANDARD MODELS

## Screwed Float Pivoted Switch 'SFPS'



### Specifications

MOC : SS 316  
 Enclosure : Cast Al, WP  
 Process Connection : Screwed, 1-1/2" BSP(M)  
 Switch type : Micro switch (SPDT)  
 Switching capacity : 5A, 250 VAC  
 Max temp : upto 100°C  
 Max pressure : upto 10 Kg / cm<sup>2</sup>



### Specifications

MOC : PP  
 Enclosure : Cast Al, WP  
 Process Connection : Screwed, 1-1/2" BSP(M)  
 Switch type : Micro switch (SPDT)  
 Switching capacity : 5A, 250 VAC  
 Max temp : upto 70°C  
 Max pressure : upto 2 Kg / cm<sup>2</sup>

### Model identification No:

SFPS -

#### MOC (Float x Process conn)

SS304 \_\_\_\_\_ N  
 SS316 \_\_\_\_\_ S  
 PP \_\_\_\_\_ P

#### Float x Process Connection combine

Ø40 x 1-1/2" BSP (M) \_\_\_\_\_ 1  
 Ø50 x 2" BSP (M) \_\_\_\_\_ 2  
 Others \_\_\_\_\_ 0

#### Accessories

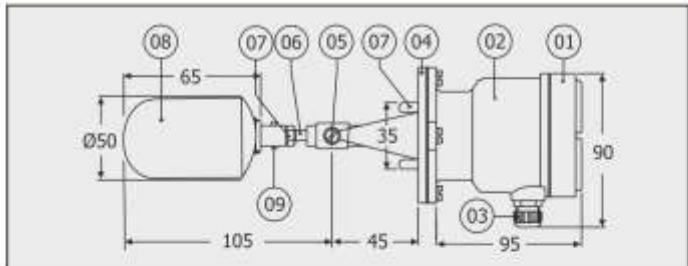
None \_\_\_\_\_ W  
 Extnal cage \_\_\_\_\_ C  
 Mtg Socket \_\_\_\_\_ F

## Compact Float Pivoted Switch 'CFPS'



### Specifications

MOC : SS 316  
 Enclosure : Cast Al, WP  
 Process Connection : SQ 80 x 82.5 PCD flange  
 Switch type : Airbreak (SPDT)  
 Switching capacity : 5A, 250 VAC  
 Max temp : upto 150°C  
 Max pressure : upto 10 Kg / cm<sup>2</sup>



### Model identification No:

CFPS -

#### MOC (Float x Process conn)

SS316 \_\_\_\_\_ S  
 Others \_\_\_\_\_ O

#### Float x Process Connection combine

Ø50 x Sq 80 x 82.5 PCD \_\_\_\_\_ 1  
 Others \_\_\_\_\_ O

### TERMINOLOGY

- |                 |                 |              |                   |                   |
|-----------------|-----------------|--------------|-------------------|-------------------|
| 1) Terminal cap | 3) Conduit conn | 5) Pivot pin | 7) Float Lock nut | 9) Earthing screw |
| 2) Enclosure    | 4) Process conn | 6) Trim      | 8) Float          |                   |

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R A T E D

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