



Série Détecteur à palette rotative
SE Rotary Padle Level Switch



www.direct-mesure.fr

INTRODUCTION

WORKING PRINCIPLE

The purpose of the rotary paddle level switch is to detect the presence of solid/powdery material in most kinds of tanks, bins and containers.

The unit is usually located through a bin wall at the top, middle or low level of a bin. During normal operation (no material present) a synchronous motor rotates the paddle at RPM. When this paddle rotation is impeded by material, surrounding the paddle, motor will stall and cause the Micro-switch to change state (indicating an alarm or control).

FEATURES

Rugged sealing ring prevents dust from infiltrating the housing body along the shaft.

Adjustable torque.

If the rotary paddle encounters overloading, the motor will automatically shut down the motor to prevent damage to the inner mechanisms and extend motor life.

Very suitable for small tanks and low density materials

Adjustable and extendible shaft models available

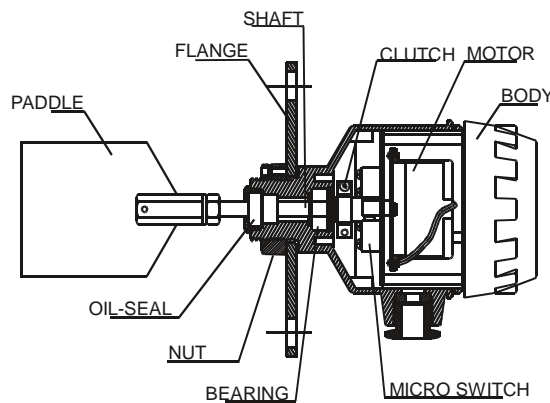
A wide variety of paddles are available

APPLICATIONS

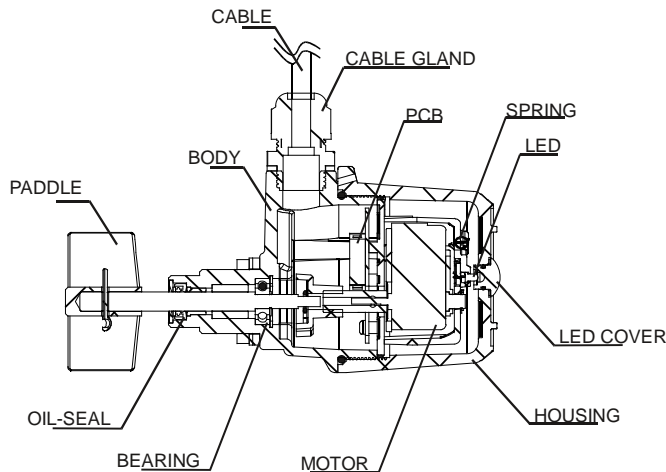
- Plastics and synthetics
- Chemicals and fertilizer
- Pharmaceuticals
- Food and beverage,
- Agriculture and fodder mills/depots
- Cement as well as ceramics
- Power plants
- Various incinerators

BENEFITS

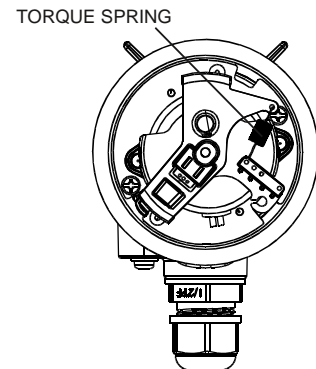
STRUCTURE



STANDARD TYPE SE1



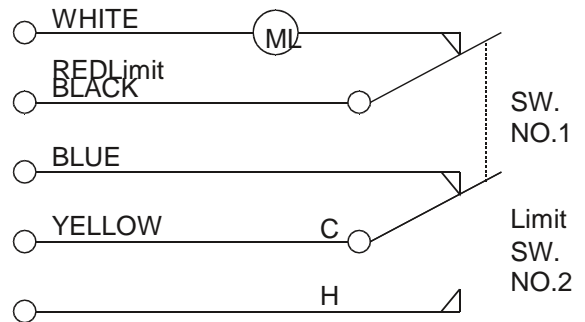
MINI TYPE SE3



WORKING PRINCIPLE & TORQUE ADJUSTING

CONTROL SWITCH WORKING PRINCIPLE

1. A synchronous turning motor indicates the tank or container's material isn't obstructing the paddles, C & L [COM & NC] are connected.
2. When the material is obstructing the paddles, C&L [COM & NC] are disconnected, C&H [COM & NO] are connected and the motor's current is cut off.
3. When the material drops away from the paddles and the motor starts again C & L [COM & NC] connect and the cycle has begun once again.



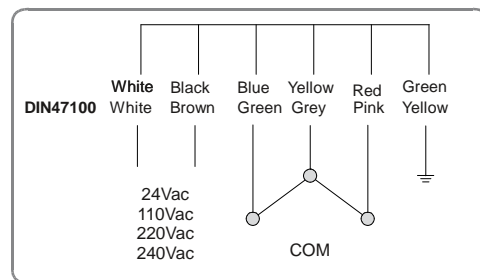
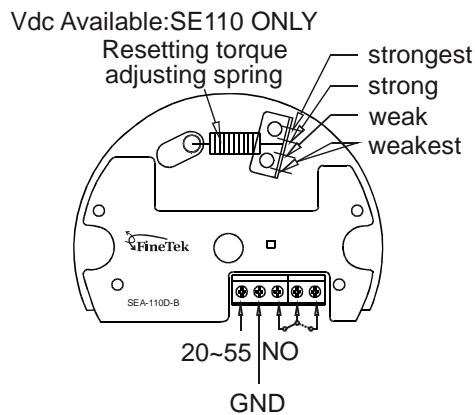
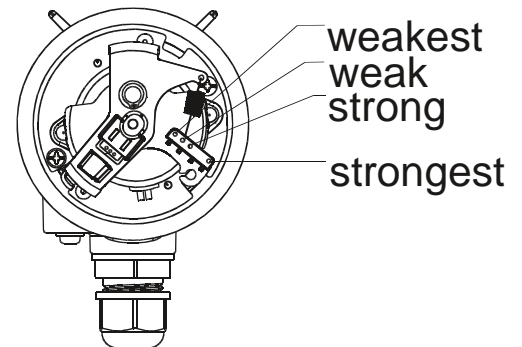
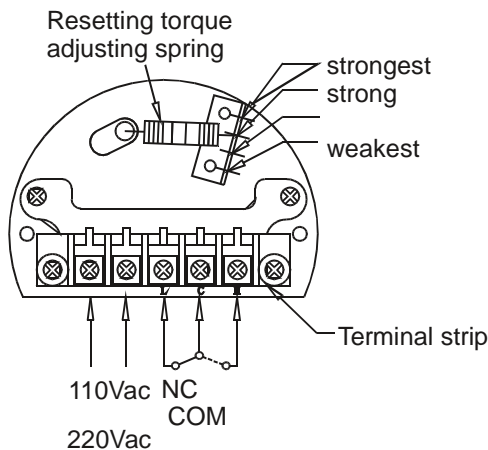
TORQUE ADJUSTING MECHANISM AND WIRING

The torque spring is applied to adjust the shaft output torque. Default settings are "weak" and can be adjusted to the customer's target based on the tank contents and S.G. (special gravity) of the material.

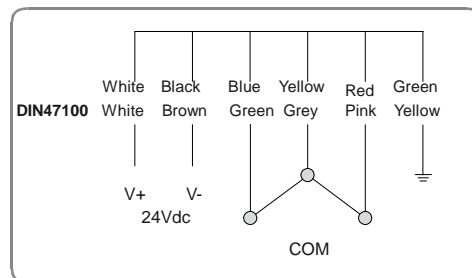
Higher S.G. materials require stronger torque settings. Start with high settings and slowly release the torque force until the appropriate setting is found.

Do not tamper with the spring as it may cause the Rotary Paddle to malfunction.

Spring adjusting hole



AC type



DC type

Available:SE3

STANDARD TYPE

- 50/60Hz
(D)24Vac,
- Contact capacity : SPDT, 5A/250Vac
 - Rotary speed : 1 R.P.M.
 - Insulation test voltage : 2500V

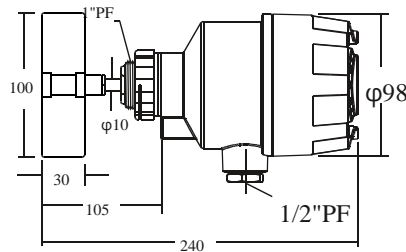
- Connection : 1"PF screw or JIS 2-1/2"H5kg/cm²flange
- Protection/ material : IP65 / ADC-12
- Conduit : 1/2"PF
- Material density : 0.5 g/cm³

SCREW MODEL

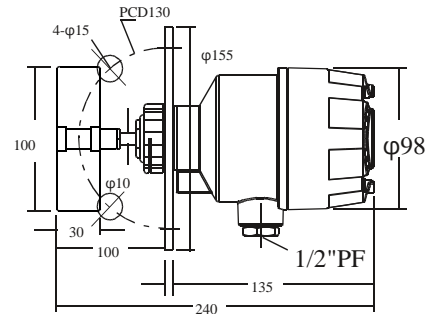
SE110 Series

- Horizontal mounting
-
- Weight: 1.2 kg

SE110 Series



SE111 Series



FLANGE MODEL

SE111Series

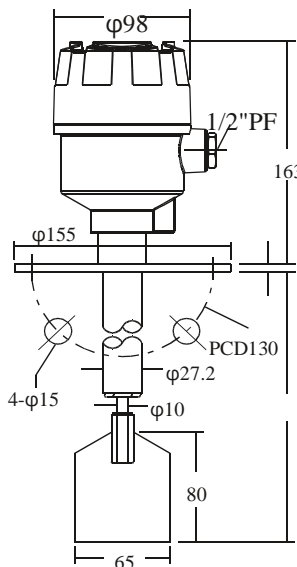
- Horizontal mounting
-
- Weight: 1.7 kg

SHAFT PROTECTIVE TUBE MODEL

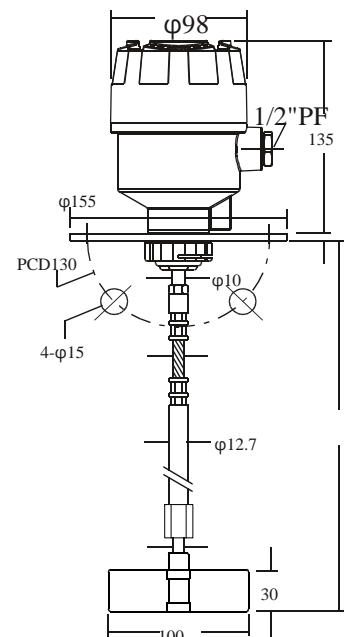
SE120 Series

- Horizontal /Vertical mounting
-
- Weight: 1.2 kg
-

SE120 Series



SE130 Series



Standard Length:

- L--500mm (2.5 kg)
- L--750mm (2.8 kg)

- Customized lengths available

SHAFT LENGTH ADJUSTABLE MODEL

SE130 Series

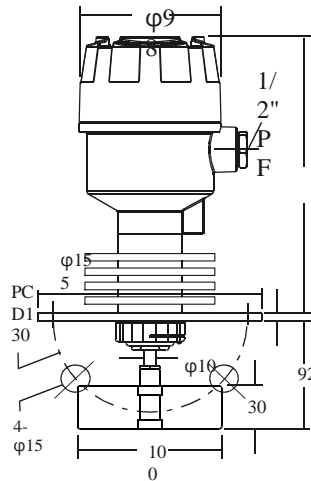
- Vertical mounting
-
- Standard Length:
 - L-- 460~630mm (2.5 kg)
 - L-- 650~1000mm (2.8 kg)
 - L-- 760~1200mm (3.0 kg)
- Customized lengths available

STANDARD TYPE

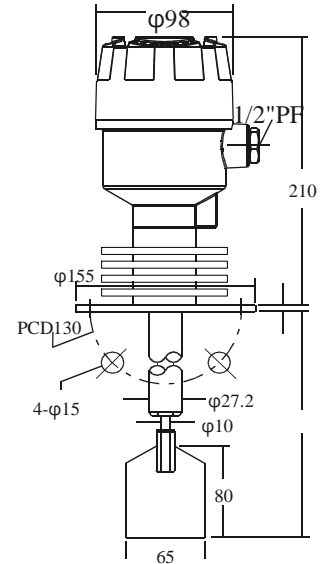
HI-TEMP TYPE SE140A/B/C/D

- Horizontal mounting
- Weight: 2.1 kg

SE140A/B/C/D Series



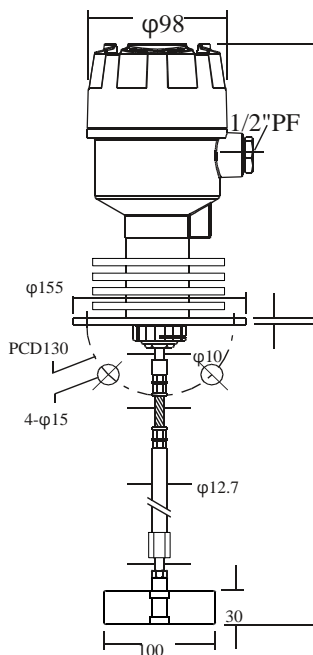
SE141A/B/C/D Series



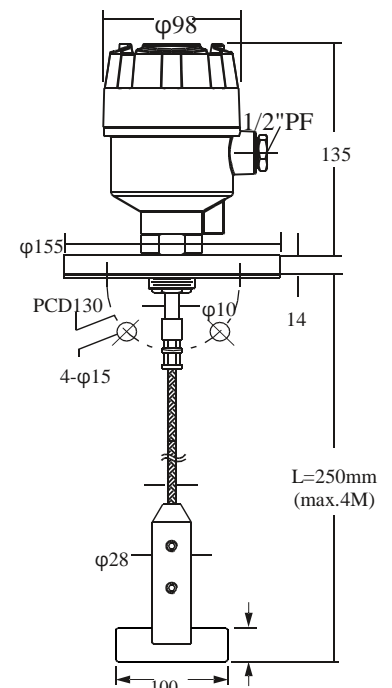
HI-TEMP TYPE PROTECTIVE TUBE TYPE SE141A/B/C/D/E

- Horizontal /Vertical mounting
- Standard Length (option):
L--250mm (2.6 kg)
L--500mm (2.9 kg)
L--750mm (3.2 kg)
- Special length is made by order

SE146A/B/C/D/E Series



SE160A/B/C/D/E Series



HI-TEMP SHAFT LENGTH ADJUSTABLE TYPE SE146A/B/C/D/E

- Vertical mounting
- Standard Length (option):
L- 450~630mm (3 kg)
L- 650~1000mm (3.3 kg)
L- 760~1200mm (3.5 kg)
- Special length is made by order

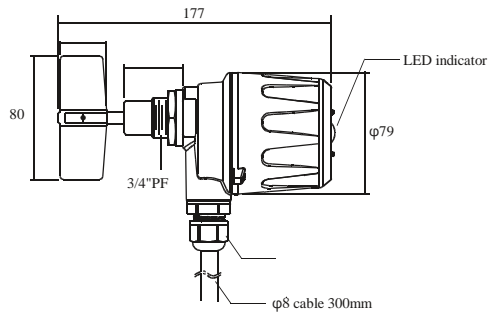
CABLE WIRE TYPE SE160A/B/C/D/E

- Vertical mounting
- Standard Length (option):
L-- 450mm (2.5 kg)
L-- 650mm (2.8 kg)
L-- 750mm (3 kg)
- Special length is made by order

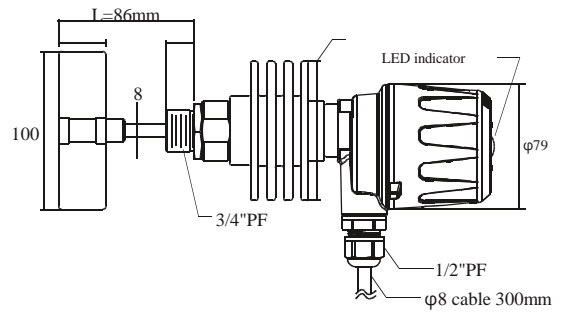
MINI TYPE (SE38X série)

- Power source : (A)110Vac,(B)220Vac,(C)240Vac, (D)24Vac, 50/60Hz
- Power consumption : 1.5W
- Contact capacity : 5A/250Vac, 5A/30Vac
- Rotary speed : R.P.M.
- IP rating : IP65
- Housing material : Aluminum alloy
- Cable length : 30cm (available for custom length)
- Material density : 0.3
- Display status : Green(Working), Red(Stopped)

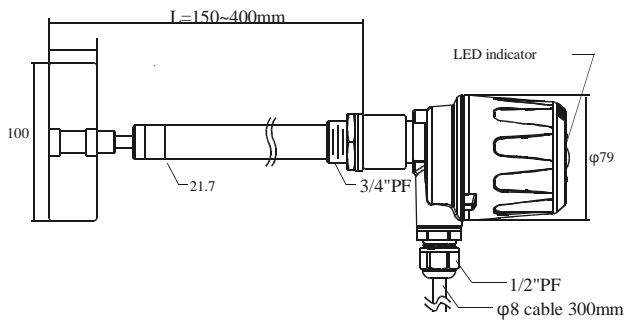
- Operation temperature: -40BC ~ 85BX



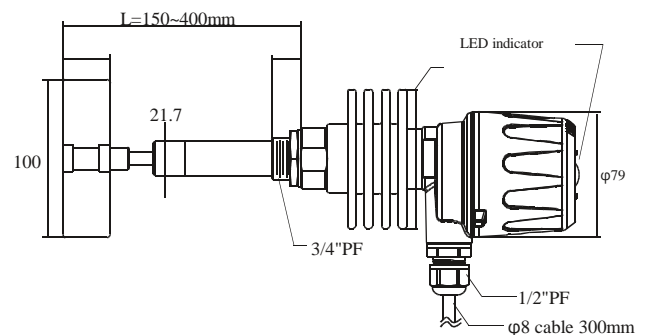
- Operation temperature: -40BC ~ 200°C



- Paddle material: SUS304



- Operation temperature: -40BC ~ 200°C



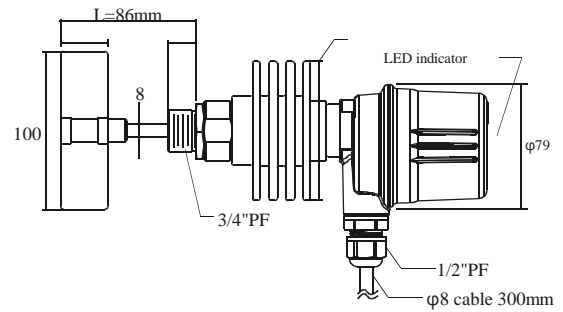
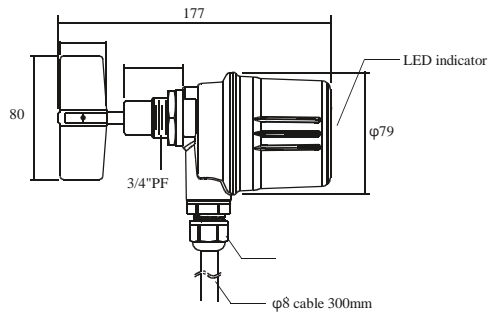
Housing cover code:
0: Aluminum cover
1: Aluminum cover with LED lamp

MINI TYPE(Plastic cover)

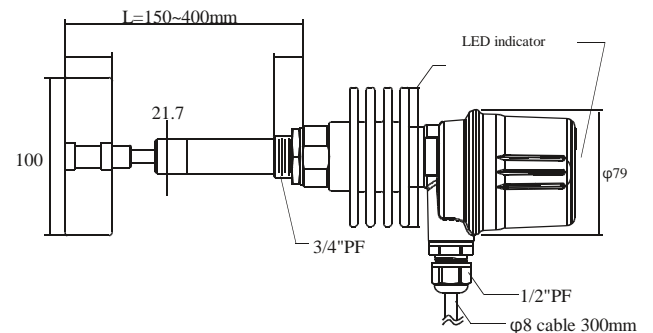
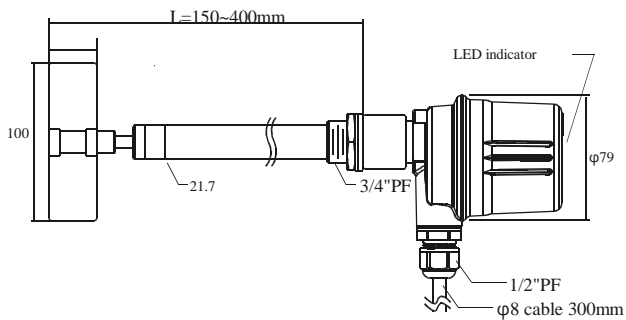
- Power source : (A)110Vac,(B)220Vac,(C)240Vac, (D)24Vac, 50/60Hz,(E)24Vdc
- Power consumption : 1.5W
- Contact capacity : 5A/250Vac, 5A/30Vac
- Rotary speed : R.P.M.
- IP rating : IP65
- Housing material : Plastic cover
- Cable length : 30cm (available for custom length)
- Material density : 0.3
- Display status : Green(Working), Red(Stopped)

HIGH TEMPERATURE TYPE SE3□24 Series

- Operation temperature: -40BC ~ 85BX



- Operation temperature: -40BC ~ 200BX
- Paddle material: SUS304



MOUNTING EXAMPLES

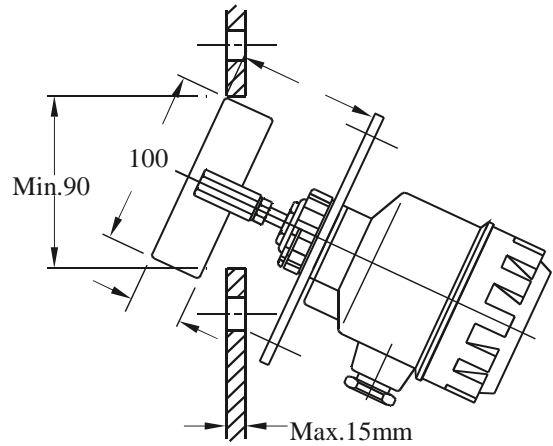
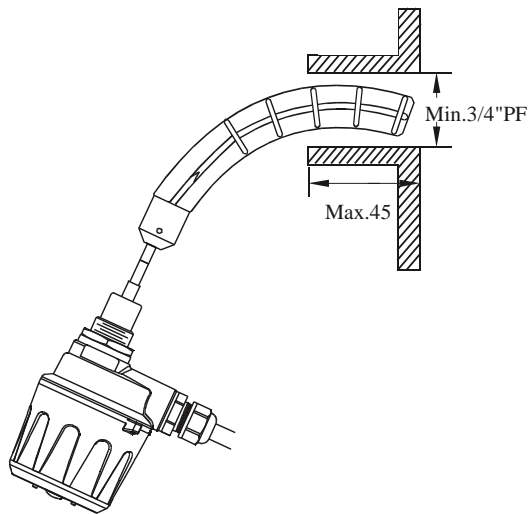
Regular models such as the SE11 should be installed directly on the tank side.

Mount at a 35° angle the blade through the tank opening or hole sliding the blade in first.

* The SE170 series minimum hole size should be 95mm in diameter.

The scimitar model is directly installed on the tank wall method as shown below.

(Assuming an arc-shaped tank with a 3/4" connection) and then screwing it tight.



INJECTION MOLDING MACHINES

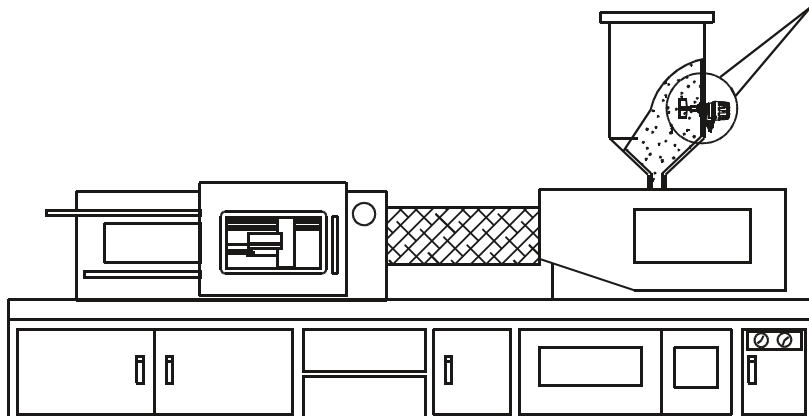
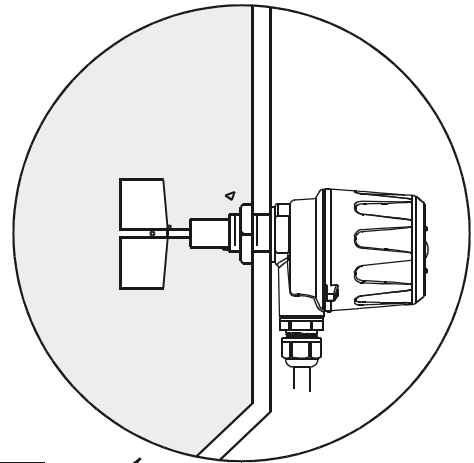
Injection Molding Machine usually require the SE38. Install the Rotary Paddle through a 20mm diameter hole on the tank/silo.

Remove the paddle from the device by taking out the fastening pin.

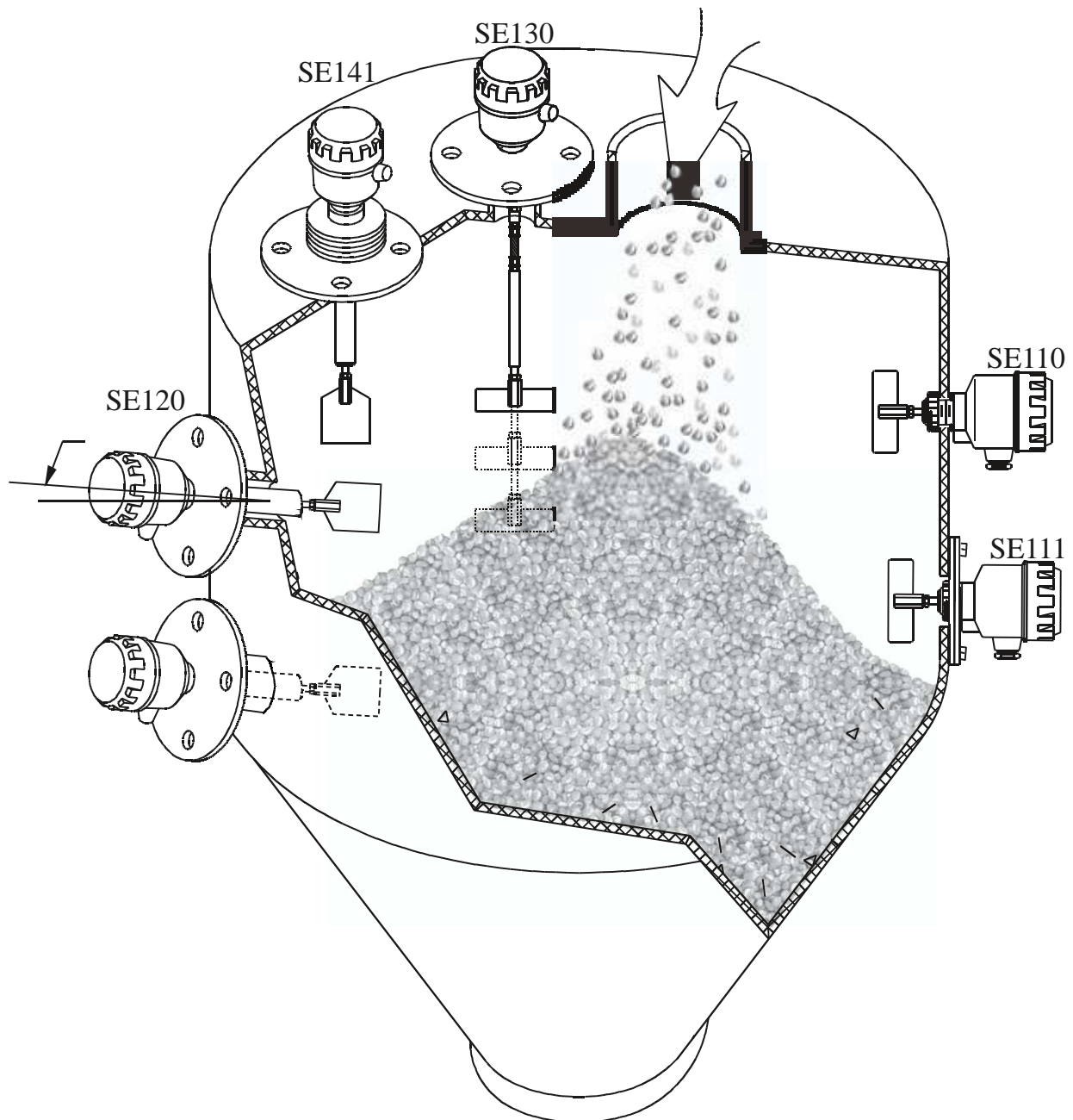
Insert the SE38 through the mounting hole and tighten it.

After which, secure the Paddle to the SE38 by locking it to the shaft with the pin.

Keep in mind to 'widen' the opening of the pin in order to secure it.



INSTALLATION NOTICES EXEMPLES



1. Side mount the sensor at a downward angle of 15° ~ 20° to decrease the material inflow impact.
2. For high temperature application (more than 70°C), please use the SE14□ Series.
3. For SE110~SE140 using a 1" inlet, please apply the scimitar model and screw directly.
4. For SE130, SE146 series have flexible and extendible shafts.
5. Please ensure the lead wire enters the housing from the bottom and the nuts are fastened to secure the device.

HOW TO ORDER (SE1XX série)

SE 1 ()

MODEL NO

11[]: Standard model
120: Shaft protective tube model
130: Shaft length adjustable model
14[]: Hi-temp model
160: Cable wire model
28[]: Mini model

VOLTAGE

A: 110Vac B220Vac C240Vac D24Vac
E: 24Vdc 50/60Hz

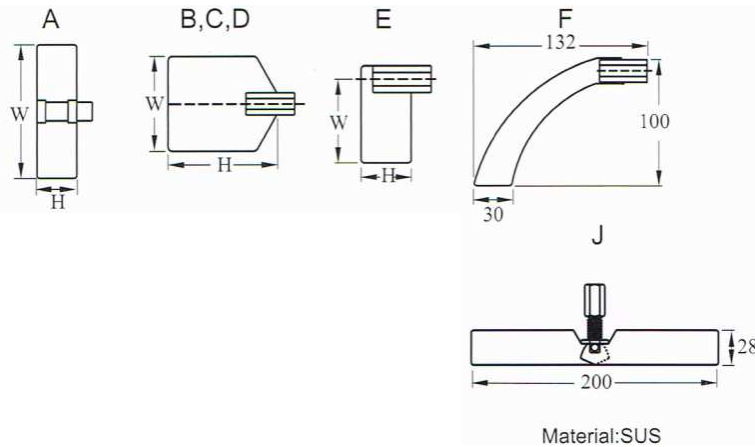
MOUNTING

Size for flange or screw	
D: 1"	J: 5"
E: 1-1/2"	K: 6"
F: 2"	S: Others
G: 2-1/2"	3: 1-1/4"
H: 3"	

Specification	
M: 5kg/cm ²	Z: PN40
N: 10kg/cm ²	Q:
O: 150 Lbs	R: PF (G)
P: 300 Lbs	T:
W: PN10	U: NPT
X: PN16	S: Others
Y:	

PADDLE SHAPES

A: 100x30 (WxH)
B: 65x80 (WxH)
C: 65x120 (WxH)
D: 80x80 (WxH)
E: 50x30 (WxH)
F: Scimitar
J: 200x28 (WxH)
S: others - : None



LENGTH (mm)

0500: below 500mm
1000: 501~1000mm
1500: 1001~1500mm

⋮

* Note

1. Check the voltage 24Vac, 110Vac, 220Vac or 240Vac, 50/60 Hz.
2. Check the side or top mounting.
3. Check the material specific gravity (S.G.) value.
4. If blockages are frequent or vibrating motors are installed onto the tank wall, our SA140 capacitance level sensor is more suitable.
5. Check whether the rotary paddle can fit through the flange inlet or from the inside of the tank

HOW TO ORDER (SE3XX série)

SE3 **8** ()

Enclosure Cover

- 0: Aluminum cover
- 1: Aluminum cover with LED lamp

MODEL

- 0: Standard
- 2: Shaft protective tube
- 4: High temperature
- 5: High temperature shaft protective tube

SUPPLY VOLTAGE

- A: 110Vac, 50/60Hz
- B: 220Vac, 50/60Hz
- C: 240Vac, 50/60Hz
- D: 24Vac, 50/60Hz

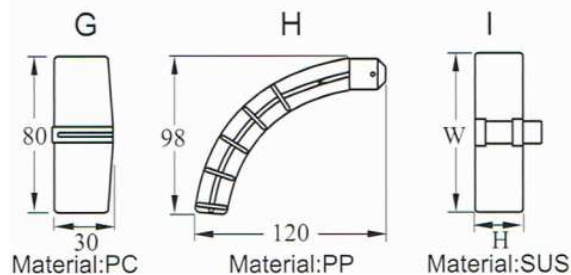
CONNECTION

Size for flange or screw	
C: 3/4"	I : 4"
D: 1"	J : 5"
E: 1-1/2"	K: 6"
F: 2"	S: Others
G: 2-1/2"	3: 1-1/4"
H: 3"	

Pressure range or other
M: 5kg/cm ²
N: 10kg/cm ²
O: 150 Lbs
P: 300 Lbs
Q: PT
R: PF (G)
T: BSP
U: NPT
S: Others

PADDLE SHAPE

- G : Cross paddle
- H : Scimitar paddle
- I : 100x30 (WxH)



CABLE LENGTH (mm)

- ※500mm per unit
- ※Standard length 300mm

⋮

EXPLOSION PROOF MODEL



Ex II 2D Ex tb IIIC T85BC~T200BC Db IP65

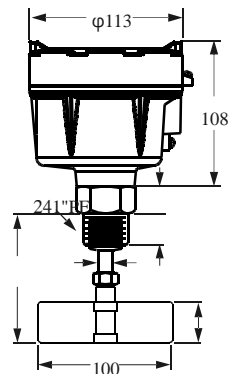
- Power source : (A)110Vac, (B)220Vac, (C)240Vac
(D)24Vac, 50/60Hz

- Connect : 1"PF screw or flange 1"~6"
2²-1/2"H5kg/cm (std.)

- Conduit : 1/2" (std.) or 3/4"NPT
- Material density : 0.5 g/cm³

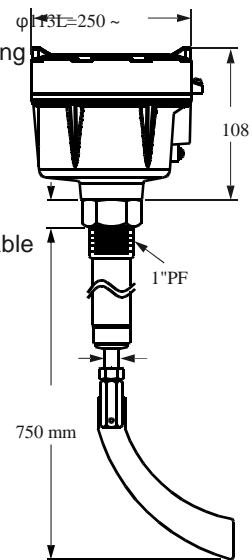
EXPLOSION PROOF CONNECTION MODEL SE170 series

- Horizontal mounting



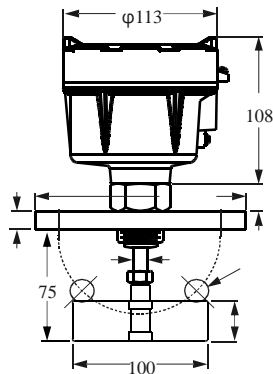
EXPLOSION PROOF SHAFT PROTECTION MODEL SE172 series

- Horizontal /Vertical mounting
- Standard Length (option):
L-- 250mm
L-- 500mm
L-- 750mm
- Customized lengths available



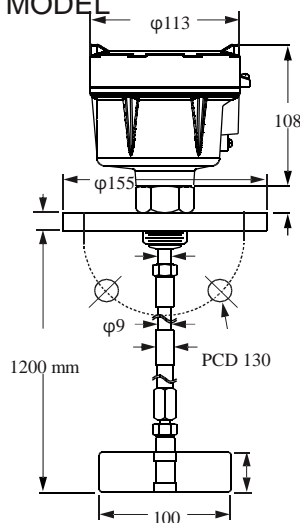
EXPLOSION PROOF FLANGE MODEL SE171 series

- Horizontal mounting



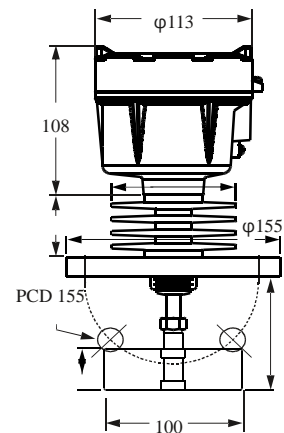
EXPLOSION PROOF ADJUSTABLE SHAFT MODEL SE173 series

- Vertical mounting
- Standard Length (option):
L-- 450 ~630mm
L-- 650 ~1000mm
L-- 760 ~1200mm
- Special length is made by order



EXPLOSION PROOF HI-TEMP MODEL SE174 series

- Horizontal mounting



EXPLOSION PROOF MODEL

05 ATEX 1029 ⓈI 2G Ex d IIB T6~T3 Gb
ⓈII 2D Ex tb IIIC T85BC~T200BC Db IP65

EXPLOSION PROOF HI-TEMP SHAFT PROTECTIVE TUBE MODEL SE175

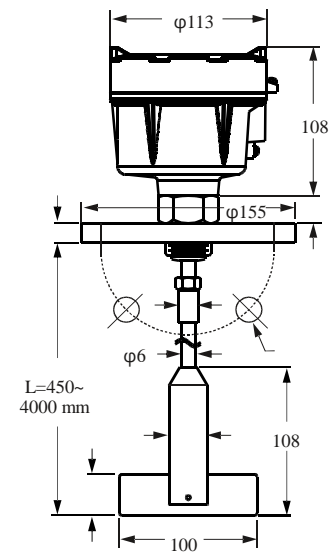
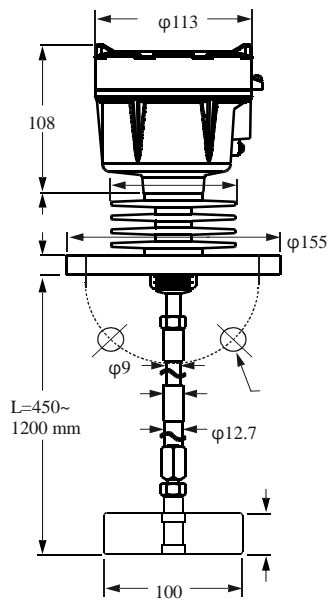
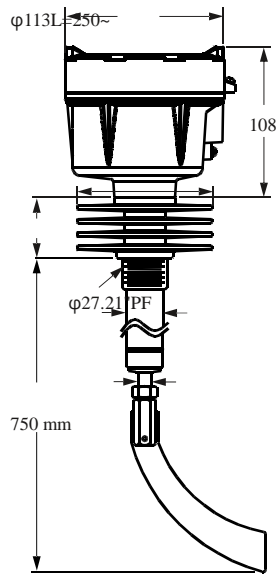
- Horizontal /Vertical mounting
-
- Special length is made by order

EXPLOSION PROOF HI-TEMP ADJUSTABLE SHAFT MODEL SE176

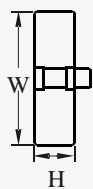
- Vertical mounting
-
- Special length is made by order

EXPLOSION PROOF CABLE WIRE MODEL SE177

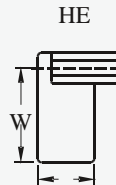
- Vertical mounting
-
- Special length is made by order



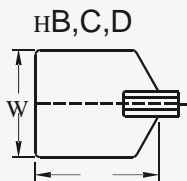
A ■ Paddle Introduction



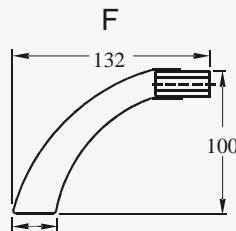
(A) xH)
diameter size φ90mm.



(E) 50x30 (WxH), Suitable for high S.G. raw materials. Use a small size paddle to decrease the impact of material falling directly on paddle.



(B) 65x80 (WxH), Directly mounted into 2" fixed hole.
(C) 65x120 (WxH), Directly mounted into 2" fixed hole.
(D) 80x80 (WxH)



(F) Scimiter model paddle, Screw tightly on the 1" diameter fixed hole, It is easier to mount and dismount.

HOW TO ORDER (SE17X série)

SE1 ()

MODEL NO

70: Screw model
71: Flange model
72: Shaft protective tube model
73: Shaft length adjustable model
74: Hi-temp model
75: Hi-temp shaft protective tube model
76: Hi-temp shaft length adjustable model
77: Cable wire model

VOLTAGE

A : 110Vac B : 220Vac C : 240Vac D : 24Vac

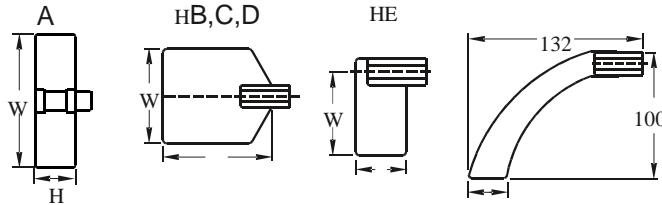
MOUNTING

Size for flange or screw	
D: 1"	
G: 2-1/2"	K: 6"
H: 3"	S: Others 3: 1-1/4"

Specification	
5kg/cm ²	Z : PN40
N: 10kg/cm ²	Q:
O: 150 Lbs	R: PF (G)
P: 300 Lbs	T: B
W: PN10	U: NPT
X: PN16	S: Others
Y:	

PADDLE SHAPES

A : 100x30 (WxH)
B : 65x80 (WxH)
C : 65x120 (WxH)
D : 80x80 (WxH)
E : 50x30 (WxH)
F : Scimitar
S : Others



LENGTH (mm)

0500: below 500mm
1000: 501~1000mm
1500: 1001~1500mm

※ 500mm per Unit

※ The total length of item will be allowed a margin of error of 6mm.

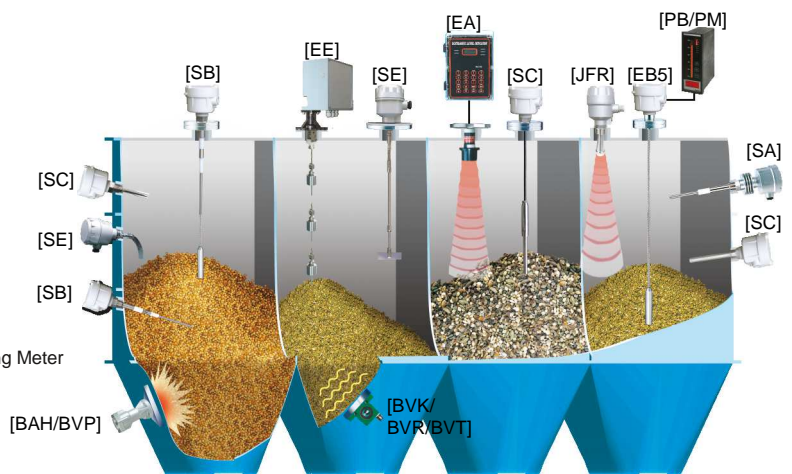
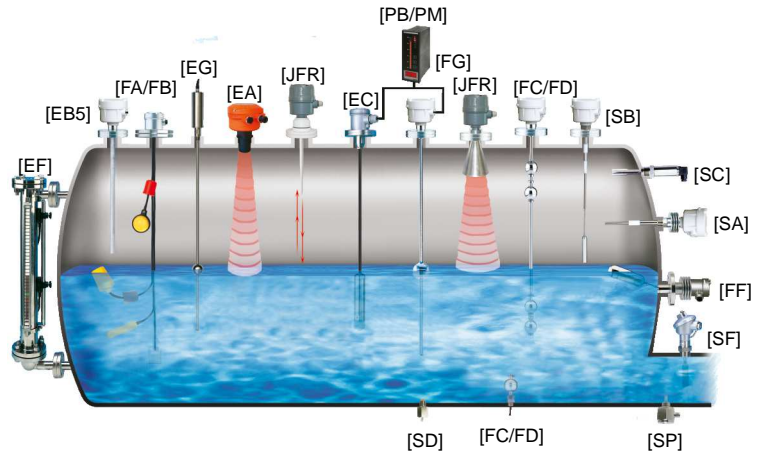
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* Note

1. Check the voltage 24Vac, 110Vac, 220Vac, 240Vac, 50/60 Hz.
2. Check the side or top mounting.
3. Check the material specific gravity (S.G.) value.
4. If blockages are frequent or vibrating motors are installed onto the tank wall, our SA140 capacitance level sensor is more suitable.
5. Check whether the rotary paddle can fit through the flange inlet or from the inside of the tank

EXAMPLES-OF-TANK-MOUNTING

- [FC/FD] Mini Float/Magnetic Float Level Switch
- [FG] Magnetic Float Level Transmitter
- [FF] Side Mounting Float Switch
- [FA/FB] Cable Float Level Switch
- [SP] Thermal Dispersion Flow Switch
- [SF] Paddle Flow Switch
- [SD] Optical Level Switch
- [SE] Rotary Paddle Level Switch
- [SA] Capacitance Level Switch
- [EC] Pressure Level Transmitter
- [SC] Vibrating Probe Level Switch
- [SC] Tuning Fork Level Switch
- [EB5] RF-Capacitance Level Transmitter
- [SB] RF-Capacitance / Admittance Level Switch
- [EG] Magnetostrictive Level Transmitter
- [EF] By-Pass Level Transmitter
- [MEF] Mini By-Pass Level Transmitter
- [EA] Ultrasonic Level Transmitter
- [JFR] FMCW Radar Level Transmitter
- [EE] Electromechanical Level Measuring System
- [ED] Speed Monitor
- [SRT/SRS] Conveyer Belt Misalignment Switch & Safety Cable Pull Switch
- [PB/PM] Microprocessor Based Bargraphic Display Scaling Meter
- [BRD/AE] Valve and Controller for Dust Collector System
- [BAS/BAH/BVP] Air Hammer
- [BVK/BVR/BVT] Pneumatic Vibrator



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