

## PRINCIPLE

The SE series operating principle is simple. A 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 1 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)

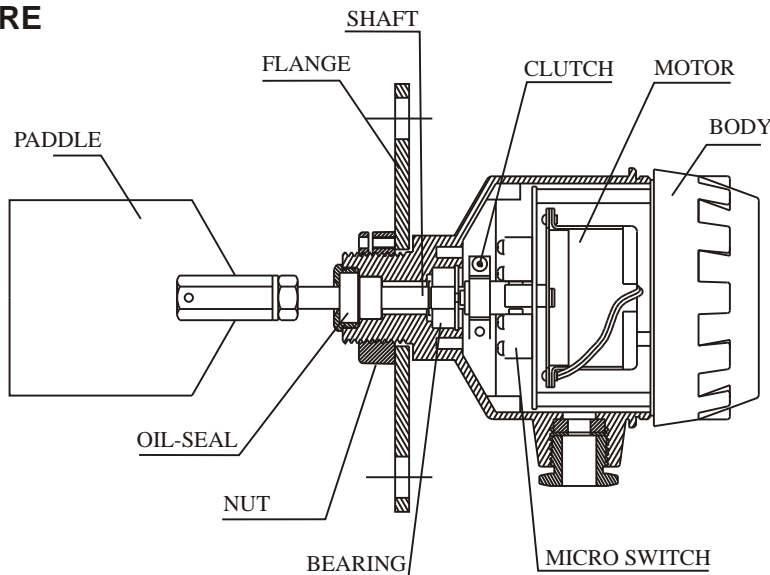
## APPLICATIONS

Suitable for powdery producing & processing industries such as plastic, chemical, medical, forage, cement and fertilizer powders.

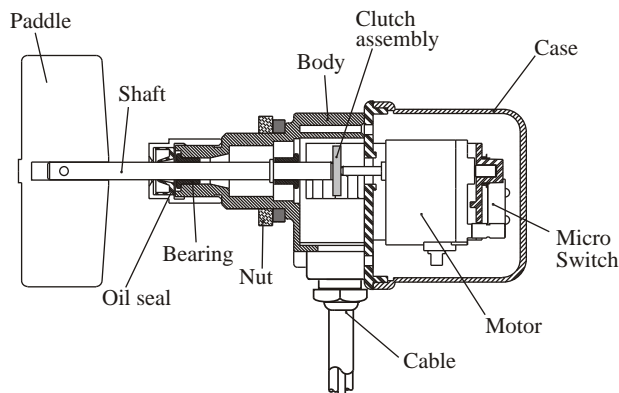
## FEATURES

- Airtight sealing device, outdoor application is available.
- Unique sealing ring design, it can perform good dust protection to avoid the dust permeate into housing body along with the shaft.
- The torque force is adjustable.
- The performance of torsion is stable and reliable.
- If the rotary paddle bears an extra overload, the motor will be appeared slide to prevent the inside mechanism damaged.
- It is rationally designed, the inside mechanisms are easily tore down for checking, maintenance and replacement. It doesn't necessary to remove the complete set from the tank.
- Very suitable for small tank and material of low density

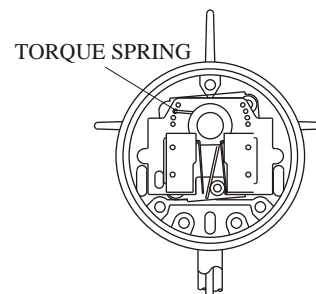
## STRUCTURE



STANDARD TYPE



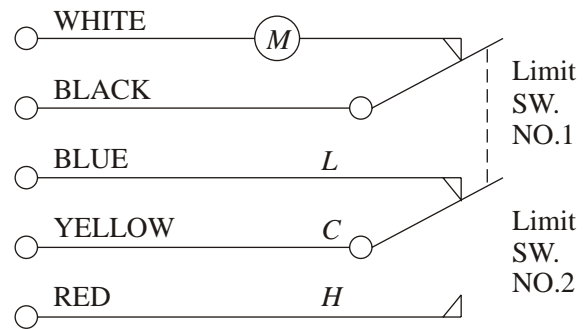
MINI TYPE



# WORKING PRINCIPLE & TORQUE ADJUSTING

## CONTROL SWITCH DEVICES WORKING PRINCIPLE

1. When the synchronous motor is turning. It means that material isn't touching the paddles, the (C.L) stands for "terminal point connected".
2. When material is touching the paddles, (C.L) stands for "cut-off", (C.H) stands for "connected" the synchronous motor's current is to be cut off.
3. When the material drops away from the paddles, the synchronous motor runs again and the terminal point is connected, (C.L) show that the cycle has begun again.

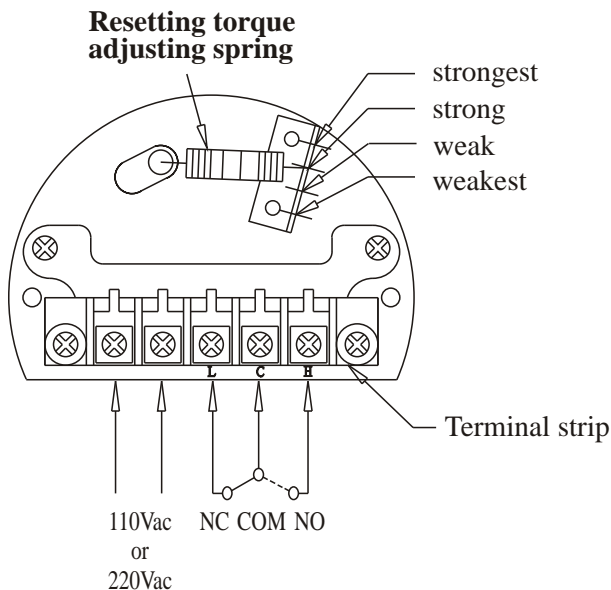


## TORQUE ADJUSTING MECHANISM

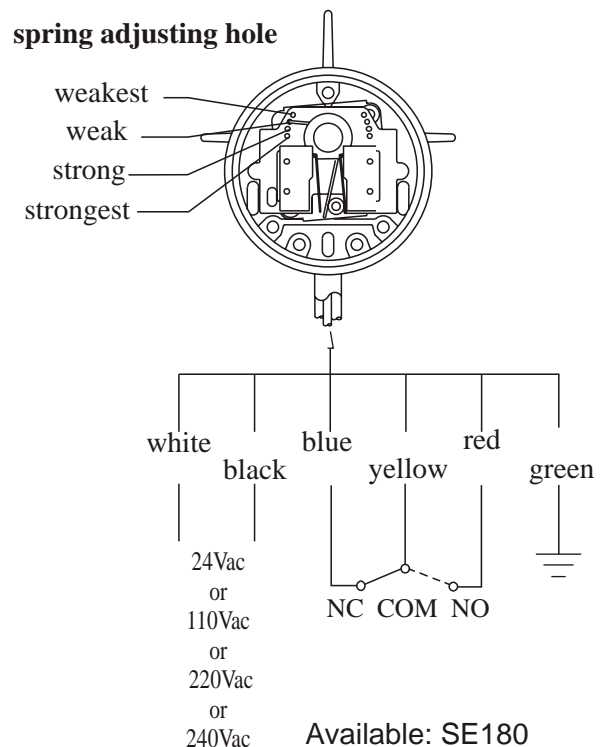
The torque spring is applied to adjust the shaft output torque force, which is set at "weak" position at factory side, it is adjustable as per customer side target measuring material S.G. (special gravity), if the measured material with higher S.G., please try to release it to more

stronger spring force position step until you found the proper orientation. The paddle sensitivity will be interacted by more weaker, otherwise, the low S.G. material will release torque spring to the weakest position, which will cause the paddle performance to be more sensitive.

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



Available: SE110, 120, 130, 140, 160, 170



Available: SE180

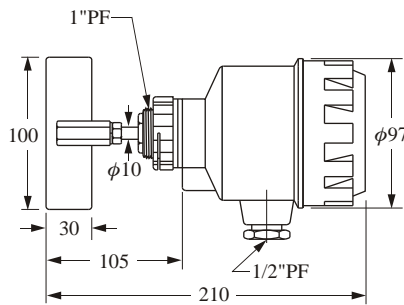
# STANDARD SPECIFICATION

- **Power source** : A-110Vac, B-220Vac, C-240Vac, 50/60Hz
- **Power consumption** : 3W
- **Contact capacity** : SPDT, 5A/250Vac
- **Rotary speed** : 1 R.P.M.
- **Insulation test voltage** : AC 1500V × 1minute
- **Torque** : 0.5 ~1.0 kg-cm
- **Connect** : 1"PF screw or JIS 2-1/2" × 5kg/cm<sup>2</sup> flange
- **Protection/ material** : IP65 / ADC-12
- **Conduit** : 1/2"PF
- **Specific gravity** : 0.5g/cm<sup>3</sup> (30Lb/ft<sup>3</sup>)

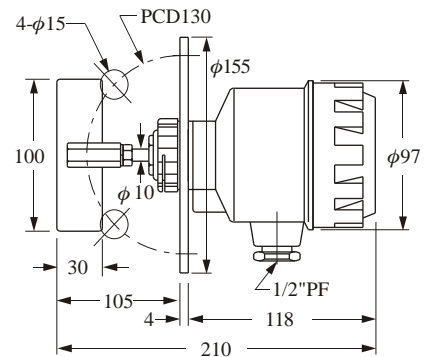
**Order No. SE110A/B/C**  
**Model No. RP10A/B/C**  
**SCREW TYPE**

- Horizontal mounting
- Temp. (-10°C ~ 70°C)
- Weight: 1.2 kg

**SE110A/B/C**



**SE111A/B/C**



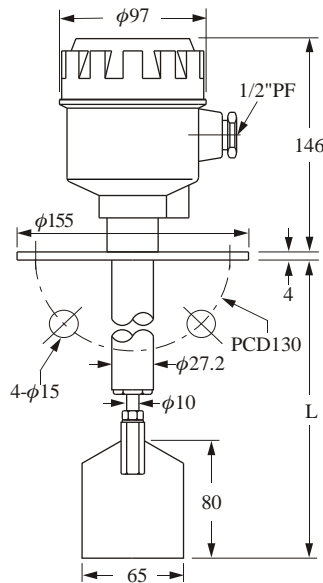
**Order No. SE111A/B/C**  
**Model No. RP11A/B/C**  
**FLANGE TYPE**

- Horizontal mounting
- Temp. (-10°C ~ 70°C)
- Weight: 1.7 kg

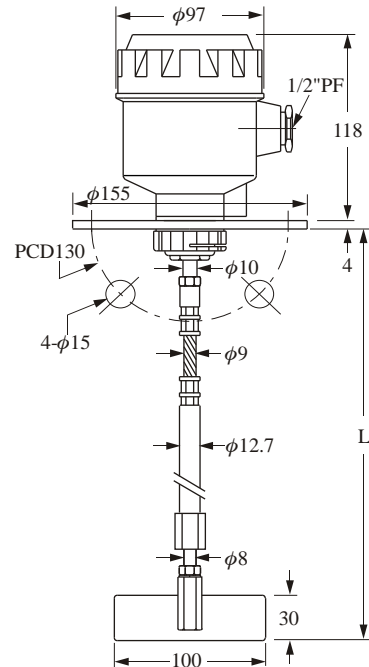
**Order No. SE120A/B/C**  
**Model No. RP20A/B/C**  
**SHAFT PROTECTIVE TUBE TYPE**

- Horizontal /Vertical mounting
- Temp. (-10°C ~ 70°C)
- Weight: 1.2 kg
- The whole section from flange to paddle are made of SUS 304
- Standard Length (option):  
 L--250mm (2.2 kg)  
 L--500mm (2.5 kg)  
 L--750mm (2.8 kg)
- Special length is made by order

**SE120A/B/C**



**SE130A/B/C**



**Order No. SE130A/B/C**  
**Model No. RP30A/B/C**  
**SHAFT LENGTH ADJUSTABLE TYPE**

- Vertical mounting
- Temp. (-10°C ~ 70°C)
- Standard Length (option):  
 L-- 460 ~650mm (2.5 kg)  
 L-- 660 ~1000mm (2.8 kg)  
 L-- 760 ~1200mm (3.0 kg)
- Special length is made by order

# STANDARD SPECIFICATION

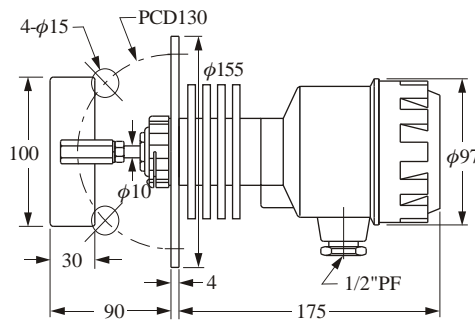
- Power source : A-110Vac, B-220Vac, C-240Vac, 50/60Hz
- Power consumption : 3W
- Contact capacity : SPDT, 5A/250Vac
- Rotary speed : 1 R.P.M.
- Insulation test voltage : AC 1500V × 1minute

- Torque : 0.5 ~1.0 kg-cm
- Connect : 1"PF screw or JIS 2-1/2" × 5kg/cm<sup>2</sup> flange
- Protection/ material : IP65 / ADC-12
- Conduit : 1/2"PF
- Specific gravity : 0.5g/cm<sup>3</sup> (30Lb/ft<sup>3</sup>)

## Order No. SE140A/B/C Model No. RP40A/B/C HI-TEMP TYPE

- Horizontal mounting
- Temp. (-10°C ~ 200°C)
- Weight: 2.1 kg

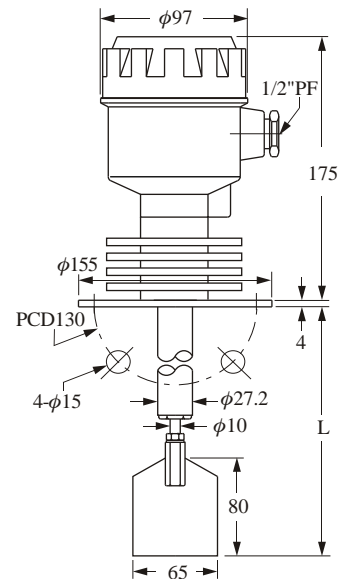
### SE140A/B/C



## Order No. SE141A/B/C Model No. RP41A/B/C HI-TEMP SHAFT PROTECTIVE TUBE TYPE

- Horizontal /Vertical mounting
- Temp. (-10°C ~ 200°C)
- The whole section from flange to paddle are made of SUS 304
- Standard Length (option):  
L--250mm (2.6 kg)  
L--500mm (2.9 kg)  
L--750mm (3.2 kg)
- Special length is made by order

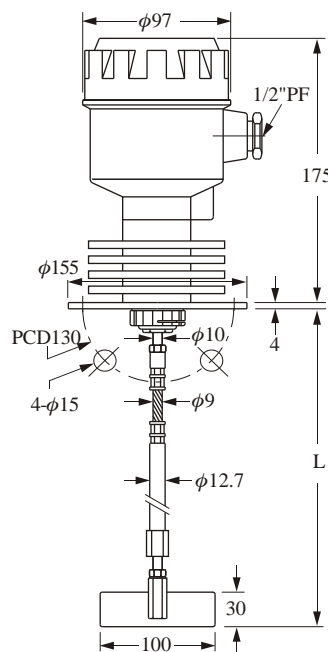
### SE141A/B/C



## Order No. SE146A/B/C Model No. RP46A/B/C HI-TEMP SHAFT LENGTH ADJUSTABLE TYPE

- Vertical mounting
- Temp. (-10°C ~ 200°C)
- Standard Length (option):  
L-- 460 ~650mm (3 kg)  
L-- 660 ~1000mm (3.3 kg)  
L-- 760 ~1200mm (3.5 kg)
- Special length is made by order

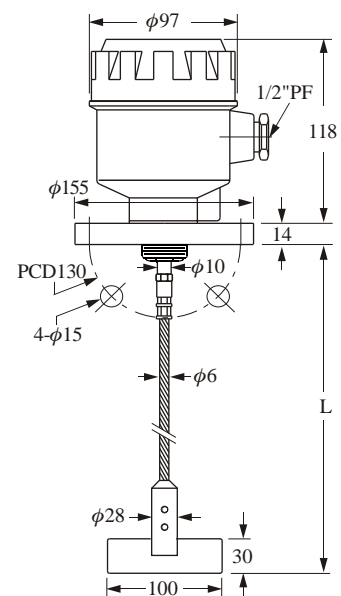
### SE146A/B/C



## Order No. SE160A/B/C Model No. RP60A/B/C CABLE WIRE TYPE

- Vertical mounting
- Temp. (-10°C ~ 70°C)
- Standard Length (option):  
L-- 450mm (2.5 kg)  
L-- 650mm (2.8 kg)  
L-- 750mm (3 kg)
- Special length is made by order

### SE160A/B/C

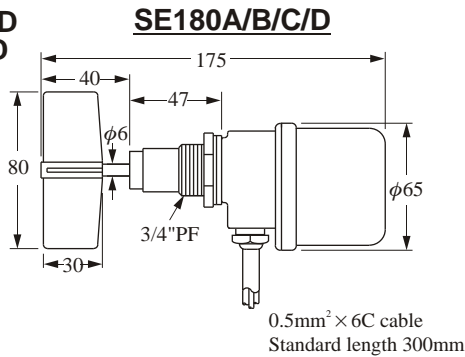


# STANDARD SPECIFICATION

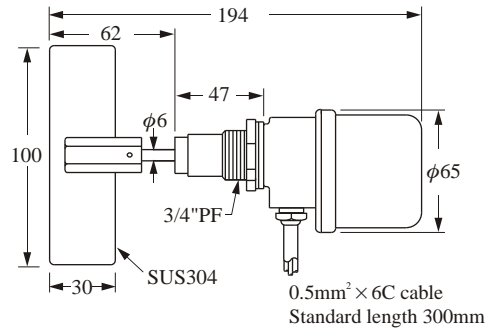
- Power source : A-110Vac, B-220Vac, C-240Vac, D-24Vac 50/60Hz
- Power consumption : 1.5W
- Contact capacity : 3A/250Vac
- Rotary speed : 1 R.P.M.
- Protection/ material : IP65 / PC
- Temp. : -10°C ~ 70°C
- Cable length : 30cm (available for custom length)
- Torque : 30 ~100 kg-cm
- Specific gravity : 0.3g/cm<sup>3</sup> (20Lb/ft<sup>3</sup>)

**Order No. SE180A/B/C/D**  
**Model No. RP80A/B/C/D**  
 CROSS-LIKE 4  
 BLADE PADDLE

- Horizontal mounting
- Weight : 0.42 kg



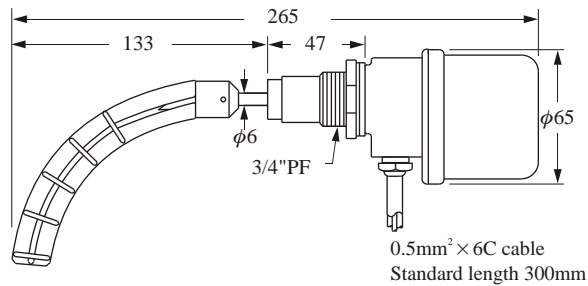
**SE180□CRI**



**Order No. SE180□CRI**  
**Model No. RP80□CRI**  
 RECTANGLE 100×30  
 SUS304 PADDLE

- Horizontal mounting
- Weight : 0.48 kg

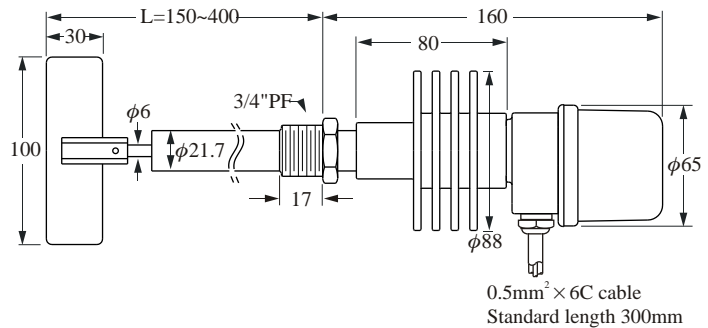
**SE180□CRH**



**Order No. SE180□CRH**  
**Model No. RP80□CRH**  
 SCIMITAR TYPE  
 PADDLE

- Horizontal mounting
- Weight : 0.42 kg

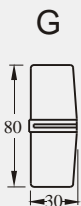
**SE184□CRI**



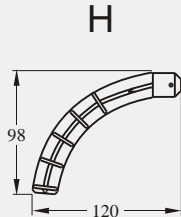
**Order No. SE184□CRI**  
**Model No. RP84□CRI**  
 HI-TEMP TYPE  
 SUS304 PADDLE

- Horizontal / Vertical mounting
- Temp. Max: 200°C

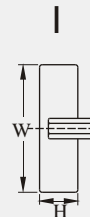
## ■ Paddle Introduction (Mini)



(G) Cross type paddle  
 material: PC



(H) Scimitar type paddle, directly  
 screwed through 3/4" diameter  
 fixed hole. Material: PC



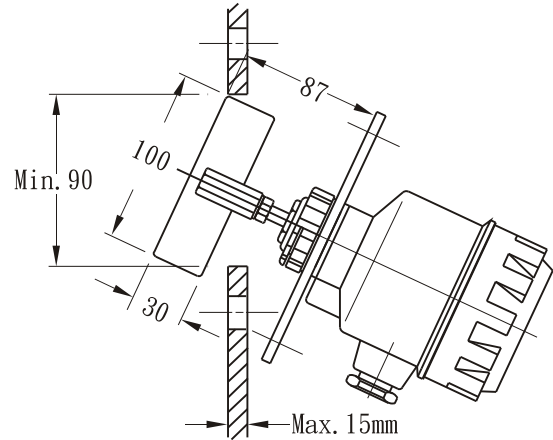
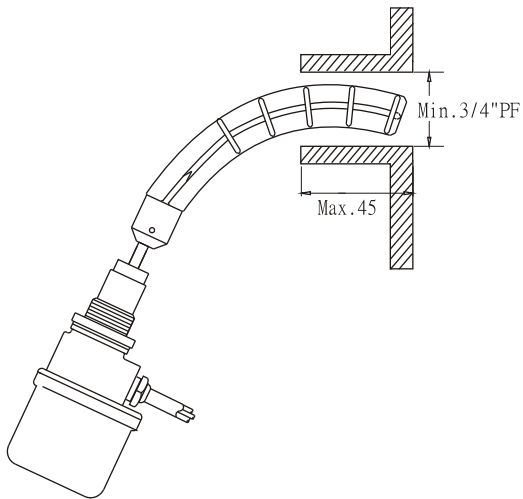
(I) 100x30 (WxH)  
 Material: SUS304

# EXAMPLES OF MOUNTING

## EXAMPLES OF MOUNTING TO TANK

Where the SE110A type paddle cannot be attached to the main shaft from inside the storage tank. The paddle can be set on the main shaft when the distance from the flange face to the tip of paddle is more than 90mm, the relative dimensions being as illustrated right.

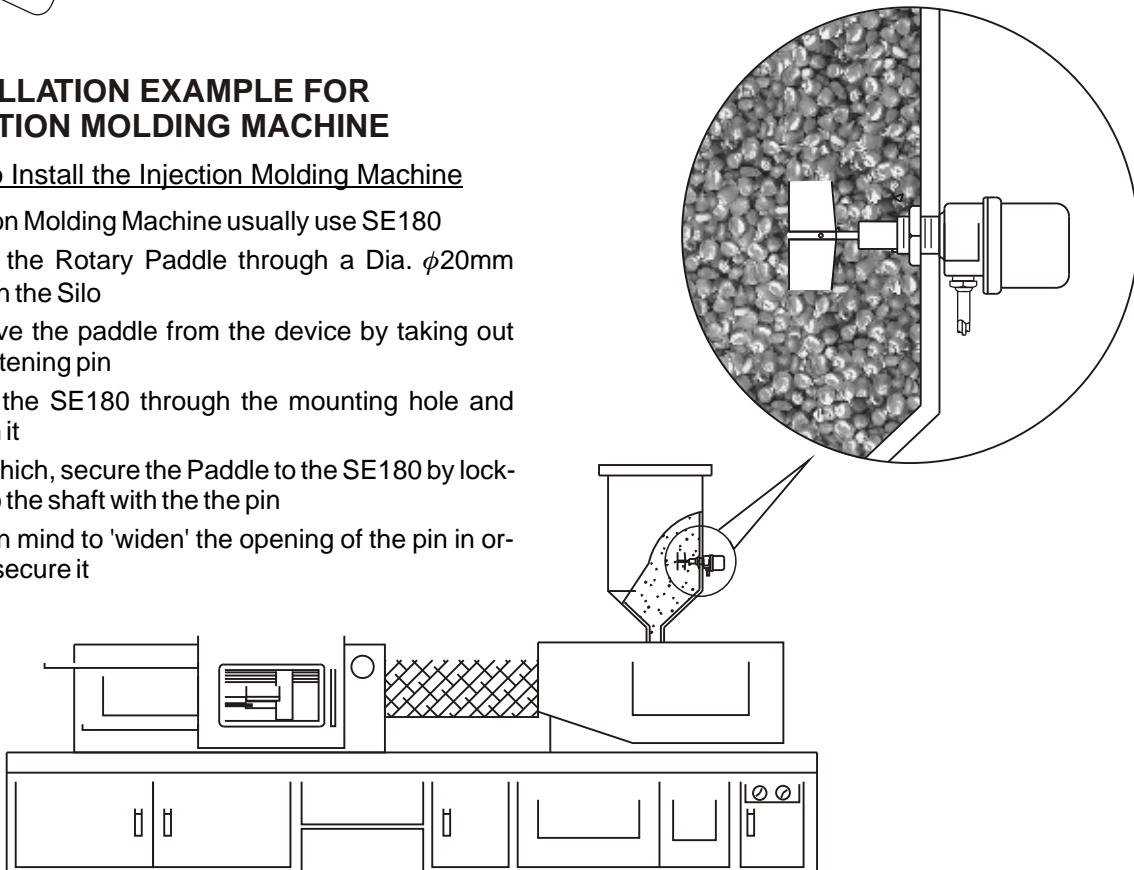
The scimitar paddle penetrate through 3/4"PF inlet directly like illustrated drawing, then screw tightly.



## INSTALLATION EXAMPLE FOR INJECTION MOLDING MACHINE

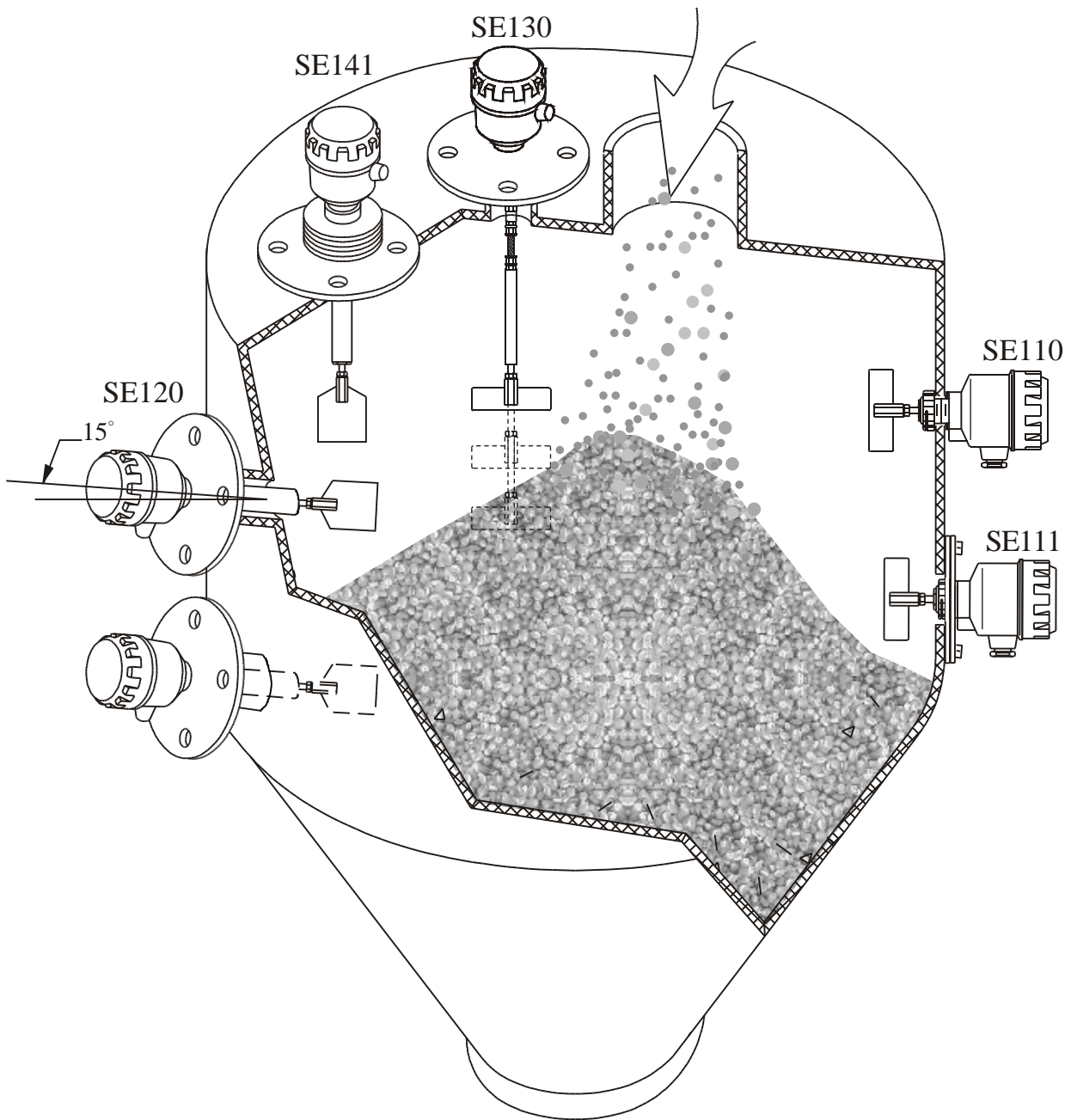
### Steps to Install the Injection Molding Machine

- Injection Molding Machine usually use SE180
- Install the Rotary Paddle through a Dia.  $\phi 20$ mm Hole on the Silo
- Remove the paddle from the device by taking out the fastening pin
- Insert the SE180 through the mounting hole and tighten it
- After which, secure the Paddle to the SE180 by locking it to the shaft with the the pin
- Keep in mind to 'widen' the opening of the pin in order to secure it



## EXAMPLE

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### INSTALLATION NOTICES

1. Please side mount the sensor by inclined  $15^{\circ}$ ~ $20^{\circ}$  to decrease the material inflowing impact.
2. For High Temperature application whereby the temperature inside the tank is more than  $70^{\circ}\text{C}$   
Please use SE14□ Series.
3. SE110~SE140 on 1" connection pipe inlet, please apply scimitar type to screw directly.
4. SE130, SE146 family items are with flexible and extensible shaft.
5. Please ensure that the Cable Gland point downwards and the nut must be fastened to secure the device.



# ORDER INFORMATION

Order No. SE1   
 Model No. RP

**ORDER NO.**

- : Standard type
- : Shaft protective tube type
- : Shaft length adjustable type
- : Hi-temp type
- : Cable wire type
- : Mini type

**VOLTAGE**

A : 110Vac B : 220Vac C : 240Vac D : 24Vac 50/60HZ

**MOUNTING**

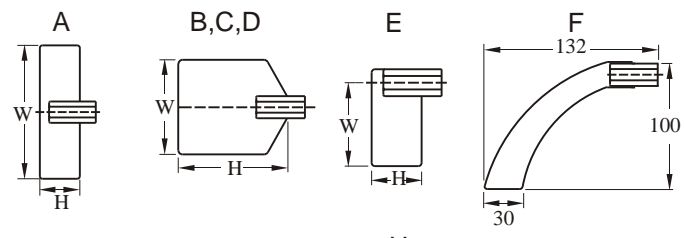
Size for flange or screw		Pressure range or other
C: 3/4"	I: 4"	M: 5kg/cm <sup>2</sup> N: 10kg/cm <sup>2</sup> O: 150 Lbs P: 300 Lbs Q: PT R: PF T: BSP U: NPT S: Others
D: 1"	J: 5"	
E: 1-1/2"	K: 6"	
F: 2"	S: Others	
G: 2-1/2"	3: 1-1/4"	
H: 3"		

\* SE110~SE160 series:  
 The size of connecting screw is 1".

**PADDLE SHAPES**

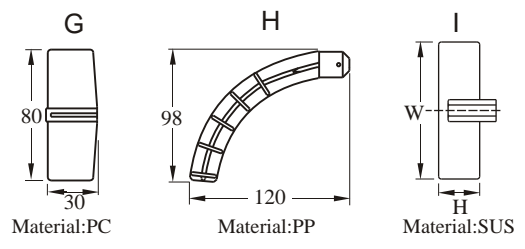
SE110~SE160

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



SE180 (Mini paddle type)

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



**LENGTH (mm)**

SE110~160 L: The distance from flange to paddle.  
 SE180 L: Length of cable.  
 The total length of item will be allowed a tolerance to ± 6mm.

**\* Order Notice**

1. Please make sure the Voltage 24Vac, 110Vac, 220Vac or 240Vac, 50/60 Hz.
2. Please make sure the side or top mounting.
3. Please make sure the material specific gravity (S.G.) value.
4. Please make sure whether any bridge block or vibrating motor installed onto the tank wall.  
 Please try to apply our item SA140 capacitance level sensor.
5. Please make sure the rotary paddle size is available to enter into the flange inlet.



# ENCLOSURE EXPLOSION PROOF

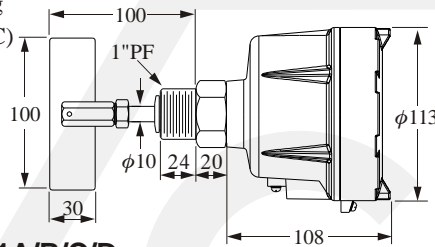
NEPSI PROOF No. GYJ03347 Ex d IIB T3~T6  
 PTB PROOF No. 05 ATEX 1029 Ex II 2G EEx d IIB T3~T6  
 Ex II 2D IP65 T3~T6

- Power source : A-110Vac, B-220Vac, C-240Vac, 50/60Hz
- Power consumption : 3W
- Contact capacity : SPDT, 3A/250Vac
- Rotary speed : 1 R.P.M.
- Insulation test voltage : AC 1500V x 1minute
- Torque : 0.5 ~1.0 kg-cm

- Connect : 1" PF screw or flange 1"~6"  
2-1/2" x 5kg/cm<sup>2</sup> (std.)
- Enclosure material : AL Alloy, ADC-12
- Enclosure Protection : Ex d IIB T4~T6
- Conduit : 1/2" (std.) or 3/4" NPT
- Specific gravity : 0.5g/cm<sup>3</sup> (30Lb/ft<sup>3</sup>)

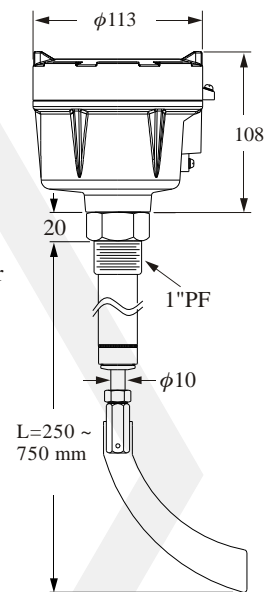
**Order No. SE170A/B/C/D**  
**Model No. RP70A/B/C/D**  
 EXPLOSION PROOF  
 SCREW TYPE

- Horizontal mounting
- Temp. (-10°C ~ 70°C)



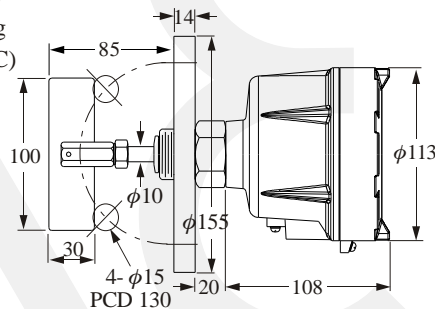
**Order No. SE172A/B/C/D**  
**Model No. RP72A/B/C/D**  
 EXPLOSION PROOF  
 SHAFT PROTECTIVE  
 TUBE TYPE

- Horizontal /Vertical mounting
- Temp. (-10°C ~ 70°C)
- Standard Length (option):  
L-- 250mm  
L-- 500mm  
L-- 750mm
- Special length is made by order



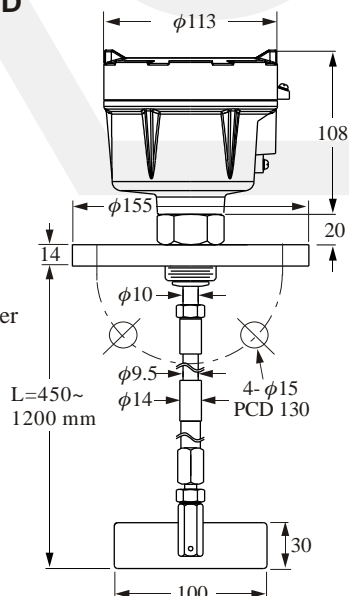
**Order No. SE171A/B/C/D**  
**Model No. RP71A/B/C/D**  
 EXPLOSION PROOF  
 FLANGE TYPE

- Horizontal mounting
- Temp. (-10°C ~ 70°C)



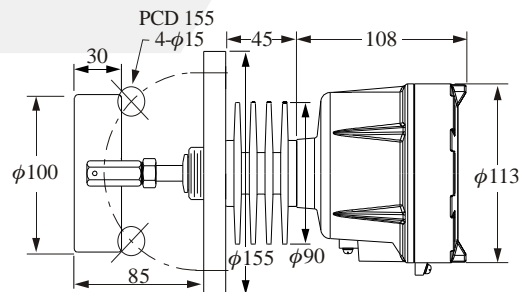
**Order No. SE173A/B/C/D**  
**Model No. RP73A/B/C/D**  
 EXPLOSION PROOF  
 SHAFT LENGTH  
 ADJUSTABLE TYPE

- Vertical mounting
- Temp. (-10°C ~ 70°C)
- Standard Length (option):  
L-- 450 ~650mm  
L-- 660 ~1000mm  
L-- 760 ~1200mm
- Special length is made by order



**Order No. SE174A/B/C/D**  
**Model No. RP74A/B/C/D**  
 EXPLOSION PROOF  
 HI-TEMP TYPE

- Horizontal mounting
- Temp. (-10°C ~ 200°C)



# ENCLOSURE EXPLOSION PROOF

NEPSI PROOF No. GYJ03347 Ex d IIB T3~T6  
 PTB PROOF No. 05 ATEX 1029 Ex II 2G EEx d IIB T3~T6  
 Ex II 2D IP65 T3~T6

**Order No. SE175A/B/C/D**  
**Model No. RP75A/B/C/D**  
 EXPLOSION PROOF  
 HI-TEMP SHAFT  
 PROTECTIVE TUBE TYPE

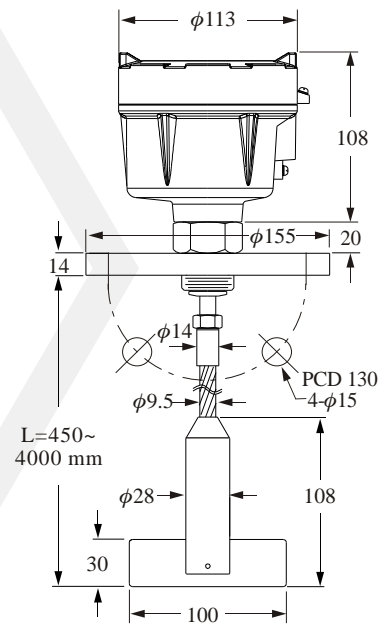
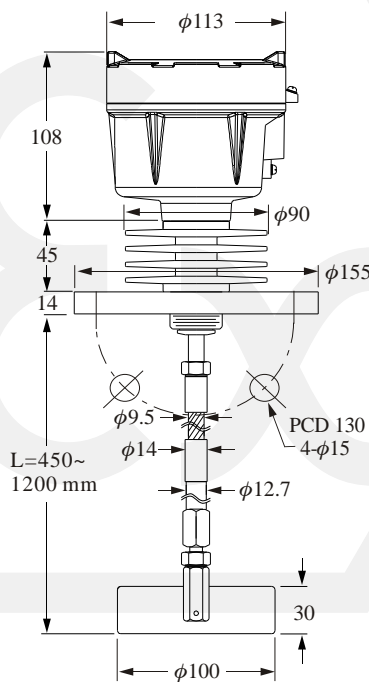
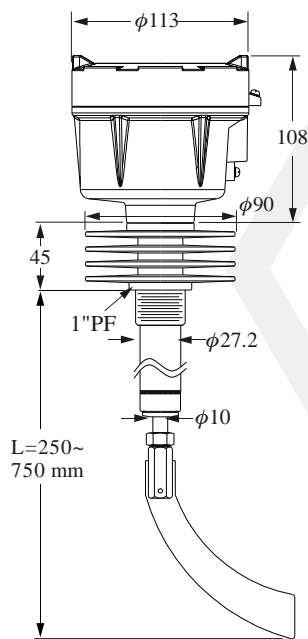
- Horizontal /Vertical mounting
- Temp. (-10°C ~ 200°C)
- Special length is made by order

**Order No. SE176A/B/C/D**  
**Model No. RP76A/B/C/D**  
 EXPLOSION PROOF  
 HI-TEMP SHAFT LENGTH  
 ADJUSTABLE TYPE

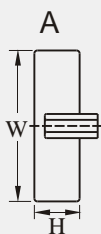
- Vertical mounting
- Temp. (-10°C ~ 200°C)
- Special length is made by order

**Order No. SE177A/B/C/D**  
**Model No. RP77A/B/C/D**  
 EXPLOSION PROOF  
 CABLE WIRE TYPE

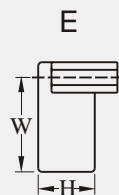
- Vertical mounting
- Temp. (-10°C ~ 200°C)
- Special length is made by order



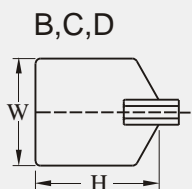
## ■ Paddle Introduction (Big)



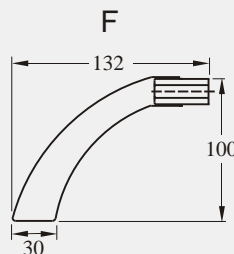
(A) 100x30 (WxH), Min. fixed hole diameter size φ90mm.



(E) 50x30 (WxH), Suitable for high S.G. raw material, application by small size paddle to decrease the material flowing impact directly.



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



(F) Scimitar type paddle, Directly screwed through 1" diameter fixed hole, It is more easy to be mounted dispense with labor of tank cut-out.

# ORDER INFORMATION

Order No. SE1            
 Model No. RP

**ORDER NO.** \_\_\_\_\_

- |  |  |
|--|--|
| 70 : RP70 Screw type                   | 74 : RP74 Hi-temp type                         |
| 71 : RP71 Flange type                  | 75 : RP75 Hi-temp shaft protective tube type   |
| 72 : RP72 Shaft protective tube type   | 76 : RP76 Hi-temp shaft length adjustable type |
| 73 : RP73 Shaft length adjustable type | 77 : RP77 Cable wire type                      |

**VOLTAGE** \_\_\_\_\_

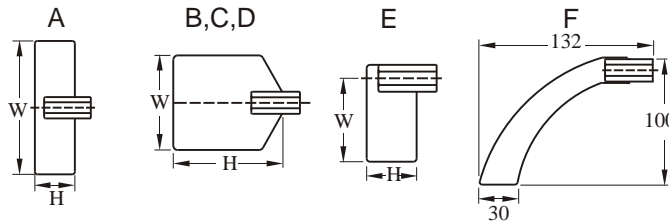
A : 110Vac B : 220Vac C : 240Vac D : 24Vac 50/60HZ

**MOUNTING** \_\_\_\_\_

Size for flange or screw		Pressure range or other
C: 3/4"	I: 4"	M: 5kg/cm <sup>2</sup>
D: 1"	J: 5"	N: 10kg/cm <sup>2</sup>
E: 1-1/2"	K: 6"	O: 150 Lbs
F: 2"	S: Others	P: 300 Lbs
G: 2-1/2"	3: 1-1/4"	Q: PT
H: 3"		R: PF
		T: BSP
		U: NPT
		S: Others

**PADDLE SHAPES** \_\_\_\_\_

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



**LENGTH (mm)** \_\_\_\_\_

The total length of item will be allowed a tolerance to 6mm.

**\* Order Notice**

1. Please make sure the Voltage 24Vac, 110Vac, 220Vac or 240Vac, 50/60 Hz.
2. Please make sure the side or top mounting.
3. Please make sure the material specific gravity (S.G.) value.
4. Please make sure whether any bridge block or vibrating motor installed onto the tank wall.  
Please try to apply our item SA140 capacity sensor.
5. Please make sure the rotary paddle size is available to enter into the flange inlet.