

HYCONTROL



ROTARY PADDLE LEVEL SWITCHES
with 2 year warranty



HYCONTROL ROTARY PADDLE LEVEL SWITCH

2 YEAR WARRANTY on the motor assembly due to unique design features:-
 motor shuts off when paddle is impeded.
 triple shaft seal prevents dust ingress to housing.
 high specification motor ensures long life.

ADJUSTABLE SENSITIVITY settings for different materials.

REDUCED MAINTENANCE costs with '3 minute' motor replacement while still on the silo.

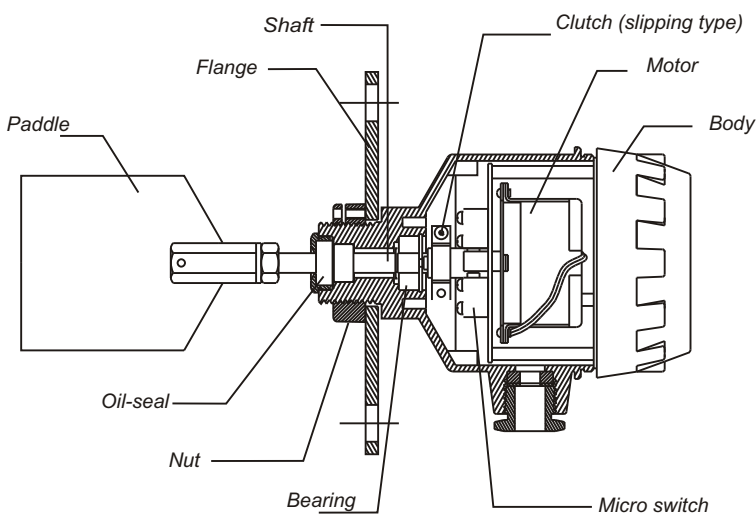
RUGGED CAST ALUMINIUM HOUSING for demanding environments.

CORROSION RESISTANT stainless steel paddle and shaft assembly.

HIGH TEMPERATURE versions available in all variety of models.

HAZARDOUS AREA certification options available with ATEX approval

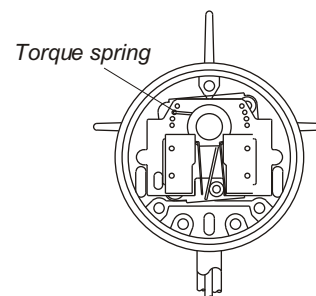
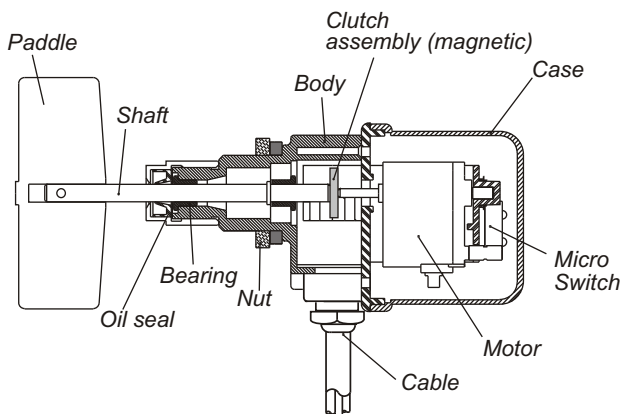
Robust paddle version RP10 series.



PRINCIPLE

The RP series operating principle is simple. A unit is usually located through the 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 the material surrounding the paddle, the motor will stall and cause the microswitch to change state and indicate an alarm or control condition

Mini paddle version RP80 series.



APPLICATIONS

Powders, plastics, granular products, grains, cement, sand, fillers, pigments, wood dust, particulate materials.

INTRODUCTION

OPERATING PRINCIPLE

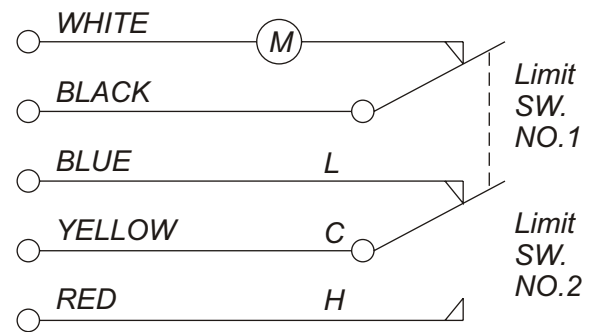
With no material touching the paddle the synchronous motor is turning and the switch circuit is through terminals C and L.

When material touches the paddle, the motor stops and the switch circuit is through C and H.

When the product falls away from the paddle, the motor starts turning again and the switch returns to C and L.

If the switch is to be used as a high alarm it is usual to wire the alarm circuit through terminals C and H.

If the switch is to be used as a low alarm it is usual to wire the alarm circuit through terminals C and L.

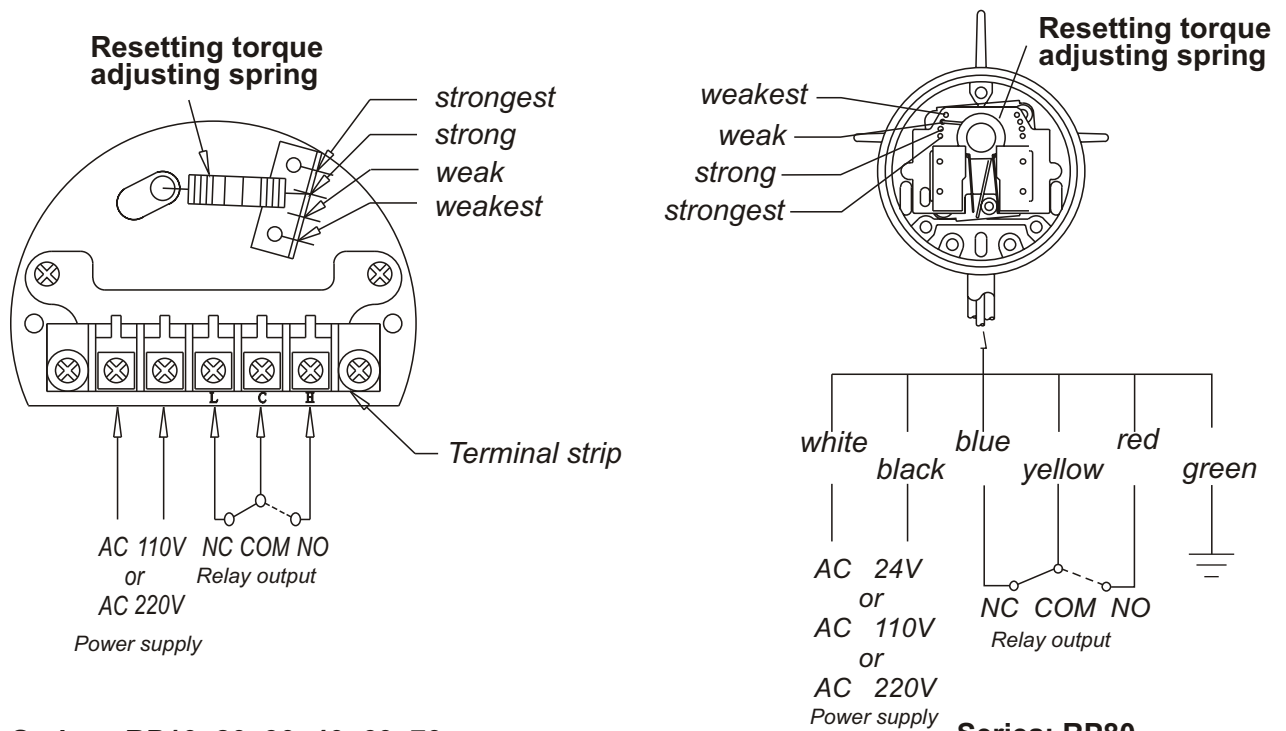


TORQUE ADJUSTING MECHANISM

The switch leaves the factory set at the weakest torque setting. The weakest setting is suitable for all materials, but is the most sensitive, so it is recommended that the torque setting be adjusted for each application.

In general terms the weakest setting should be used for the lightest powders and the strongest setting for the heaviest.

Adjustment is simply a matter of unhooking the torque adjustment spring from its current position and replacing it in its new position.



Series : RP10, 20, 30, 40, 60, 70

Series: RP80

STANDARD SPECIFICATION

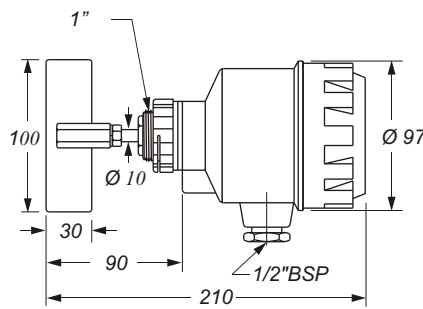
Power source : A-110VAC, B-220VAC, C-240VAC, 50/60Hz
Power consumption : 3W
Contact capacity : SPDT, 5A/250VAC
Rotary speed : 1 R.P.M.
Insulation test voltage : AC 1500Vx1minute

Torque : 0.5 ~1.0 kg-cm
Connection : 1"BSPP screw or flange
Protection : IP65 / Aluminium, Painted
Cable entry : 1/2"BSP fitted with cable gland
Specific gravity : 0.5g/cm³ (30Lb/ft³)

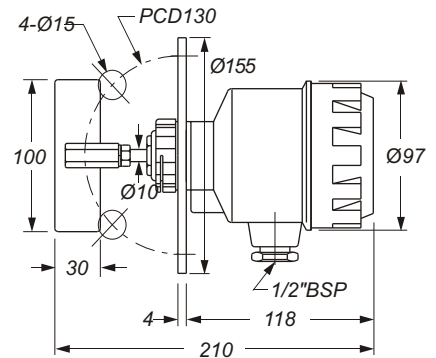
RP10A/B/C SCREW MOUNT

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

RP10A/B/C



RP11A/B/C



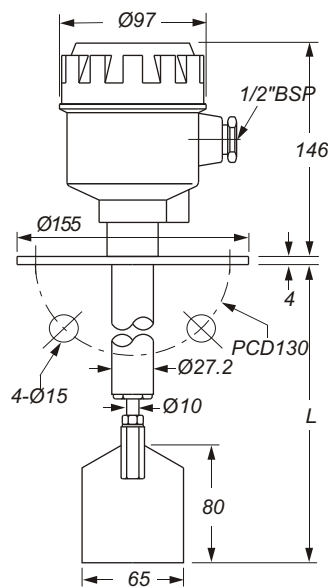
RP11A/B/C FLANGE MOUNT

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

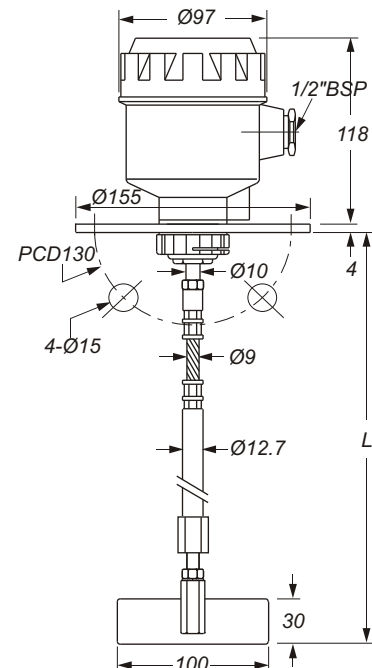
RP20A/B/C SHAFT PROTECTED

- Horizontal /Vertical mounting
- Temp. (-10°C ~ 70°C)
- Weight: 1.2 kg
- The whole section from flange to paddle are made of 304SS
- Standard Length (option):
 - L--250mm (2.2 kg)
 - L--500mm (2.5 kg)
 - L--750mm (2.8 kg)
- Special lengths are available; please contact the office.

RP20A/B/C



RP30A/B/C



RP30A/B/C SHAFT LENGTH ADJUSTABLE

- Vertical mounting
- Temp. (-10°C ~ 70°C)
- Standard Length (option):
 - L-- 500mm (2.5 kg)
 - L-- 1000mm (2.8 kg)
 - L-- 1500mm (3.0 kg)
- Special lengths are available; please contact the office.

STANDARD SPECIFICATION

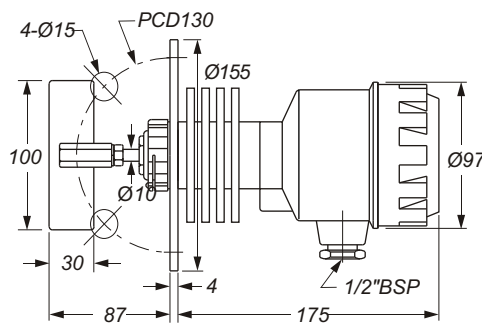
Power source : A-110VAC, B-220VAC, C-240VAC, 50/60Hz
Power consumption : 3W
Contact capacity : SPDT, 5A/250VAC
Rotary speed : 1 R.P.M.
Insulation test voltage : AC 1500Vx1minute

Torque : 0.5 ~1.0 kg-cm
Connection : 1"BSPP screw or flange
Protection/ material : IP65 / Aluminium,painted
Conduit : 1/2"BSP fitted with cable gland
Specific gravity : 0.5g/cm³ (30Lb/ft³)

RP40A/B/C HI-TEMP TYPE SCREW / FLANGE MOUNT

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

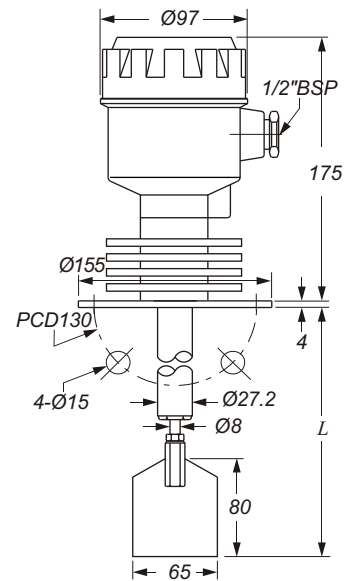
RP40A/B/C



RP41A/B/C HI-TEMP SHAFT PROTECTED

- Horizontal /Vertical mounting
- Temp. (Max.200°C)
- The whole section from flange to paddle is made of 304SS
- Standard Length (option):
 L--250mm (2.6 kg)
 L--500mm (2.9 kg)
 L--750mm (3.2 kg)
- Special lengths can be made to order; please contact the office.

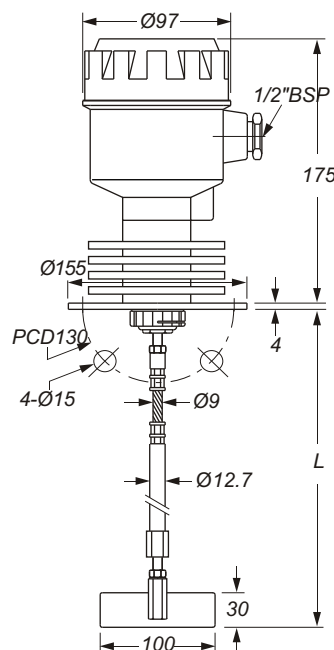
RP41A/B/C



RP46A/B/C

RP46A/B/C HI-TEMP SHAFT LENGTH ADJUSTABLE

- Vertical mounting
- Temp. (Max.200°C)
- Standard Length (option):
 L-- 500mm (3 kg)
 L-- 1000mm (3.3 kg)
 L-- 1500mm (3.5 kg)
- Special lengths can be made to order; please contact the office.



HAZARDOUS AREA SPECIFICATIONS

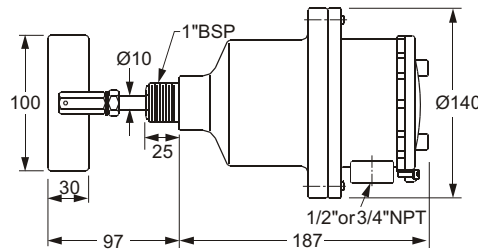
Power source : A-110VAC, B-220VAC, C-240VAC, 50/60Hz
Power consumption : 3W
Contact capacity : SPDT, 5A/250VAC
Rotary speed : 1 R.P.M.
Insulation test voltage : AC 1500Vx1minute
Torque : 0.5 ~1.0 kg-cm

Connection : 1"BSP screw or flange
Enclosure material : Aluminium Alloy
Enclosure Protection : Ex d IIB T4 / ATEX TBA**
Conduit : 1/2" or 3/4"NPT
Specific gravity : 0.5g/cm³ (30Lb/ft³)

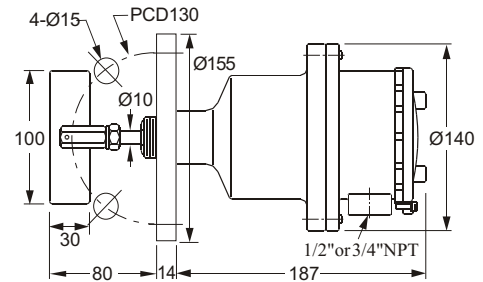
RP70A/B/C
SCREW MOUNT
ATEX CERTIFIED **

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

RP70A/B/C



RP71A/B/C



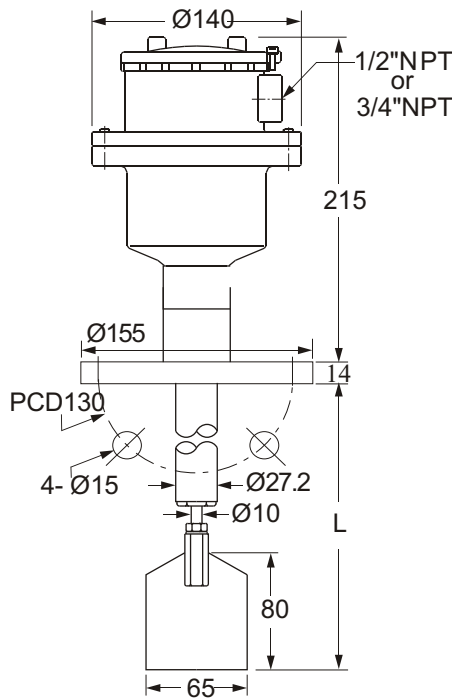
RP71A/B/C
FLANGE MOUNT
ATEX CERTIFIED**

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

RP72A/B/C
SHAFT PROTECTED
ATEX CERTIFIED**

- Horizontal / Vertical mounting
- Temp. (-10°C ~ 70°C)
- Standard Length (option):
 L-- 250mm
 L-- 500mm
 L-- 750mm
- Special lengths can be made to order; please contact the office.

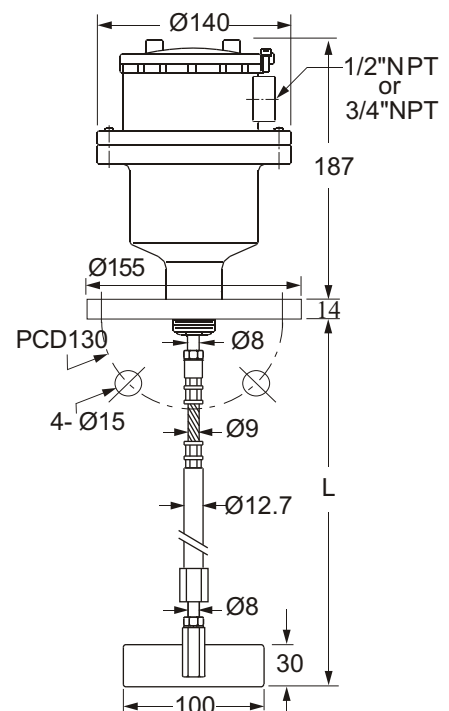
RP72A/B/C



RP73A/B/C

RP73A/B/C
SHAFT LENGTH ADJUSTABLE
ATEX CERTIFIED**

- Vertical mounting
- Temp. (-10°C ~ 70°C)
- Standard Length (option):
 L-- 450 ~650mm
 L-- 650 ~1000mm
 L-- 750 ~1200mm
- Special lengths can be made to order; please contact the office.



(**ATEX Certification - awaiting issue)

HAZARDOUS AREA SPECIFICATIONS

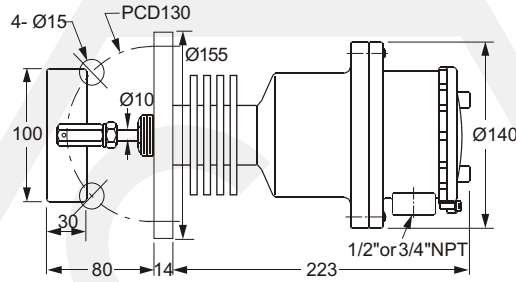
RP74A/B/C

HI-TEMP

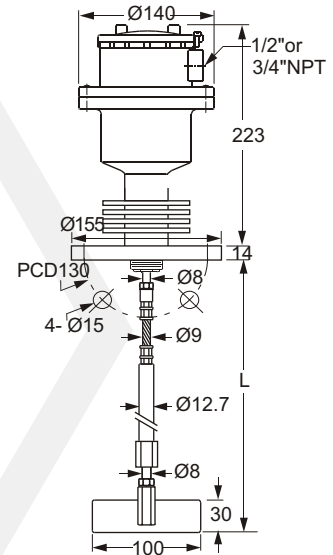
ATEX CERTIFIED**

- Horizontal mounting
- Temp. (Max.200°C)

RP74A/B/C



RP76A/B/C

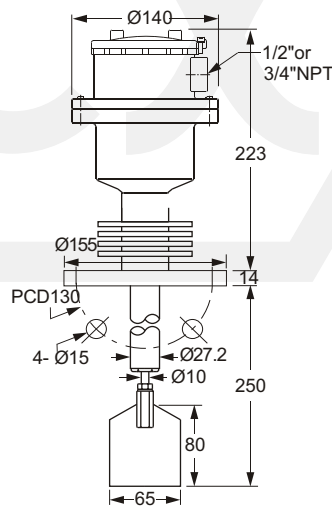


RP75A/B/C

HI-TEMP -TEMP
SHAFT PROTECTED
ATEX CERTIFIED**

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

RP75A/B/C



(**ATEX Certification - awaiting issue)

PADDLE SPECIFICATION FOR RP 10, 20, 30, 40, 70

	<p>(A) 100x30 (WxH), The minimum mounting hole diameter size Ø90mm.</p>		<p>(E) 50x30 (WxH), Suitable for high S.G.raw material.</p>
	<p>(B) 65x80 (WxH), Directly mounted into 2" fixed hole. (C) 65x120 (WxH), Directly mounted through a 2" BSP hole. (D) 80x80 (WxH)</p>		<p>(F) This is the most versatile blade and will pass through a 1" BSP hole. This is a popular option because of simple retrofit to existing tanks.</p>

MINI PADDLE RP80 SPECIFICATIONS

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

Power consumption : 1.5W

Contact capacity : AC 250V 3A

Rotary speed : 1 R.P.M.

Protection/ material : IP65 / Polycarbonate

Temp. : -20°C + 70°C

Cable length : 1 metre (Special lengths available)

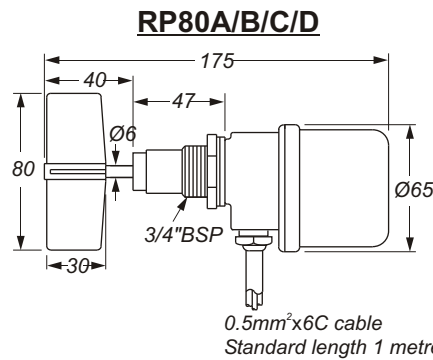
Torque : 30 ~100 kg-cm

Specific gravity : 0.3g/cm³ (20Lb/ft³)

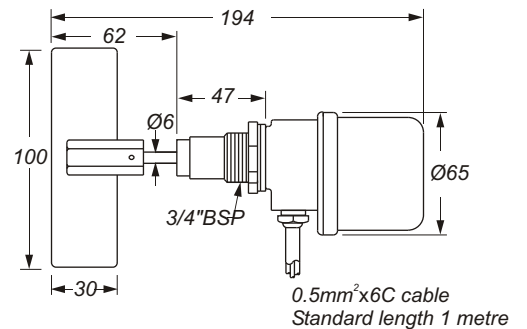
RP80A/B/C/D

CROSS-LIKE 4 BLADE PADDLE

- Horizontal mounting
- Weight : 0.42 kg



RP80 CRH

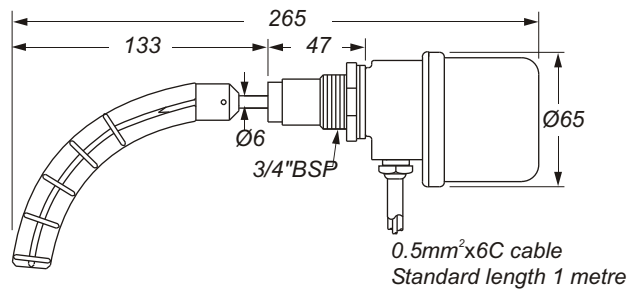


RP80 CRH

SCIMITAR TYPE PADDLE

- Horizontal mounting
- Weight : 0.42 kg

RP80 CRI

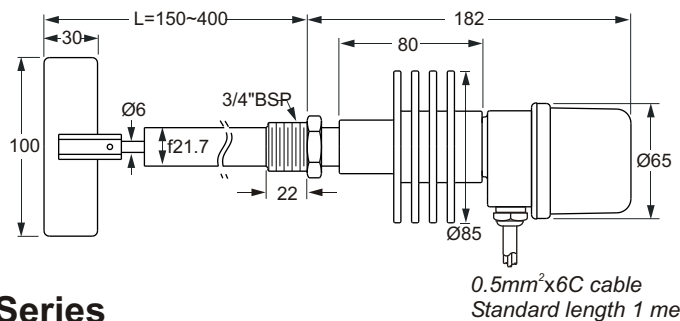


RP80 CRI

RECTANGLE 100 30 SS304 PADDLE

- Horizontal mounting
- Weight : 0.48 kg

RP84 CRI

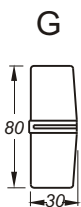


RP84 CRI

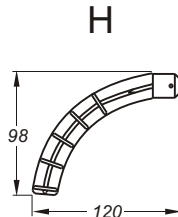
HI-TEMP TYPE SUS304 PADDLE

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

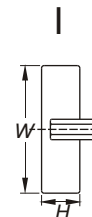
Paddle Specification for RP 80 Series



(G) Cross type paddle
material: polycarbonate



(H) Scimitar type paddle, directly inserted through 3/4" BSP hole diameter fixed hole. Material is polycarbonate

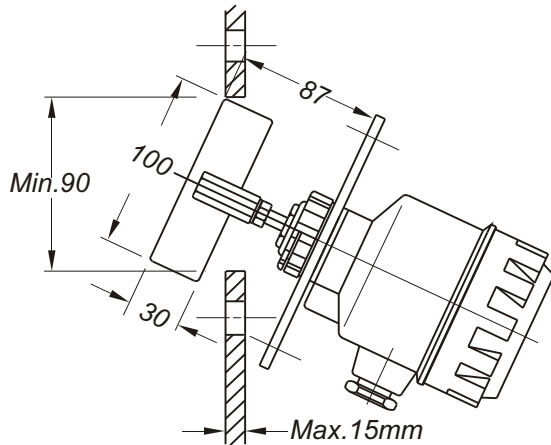


(I) 100x30 (WxH)
Material: 304SS

EXAMPLES OF MOUNTING

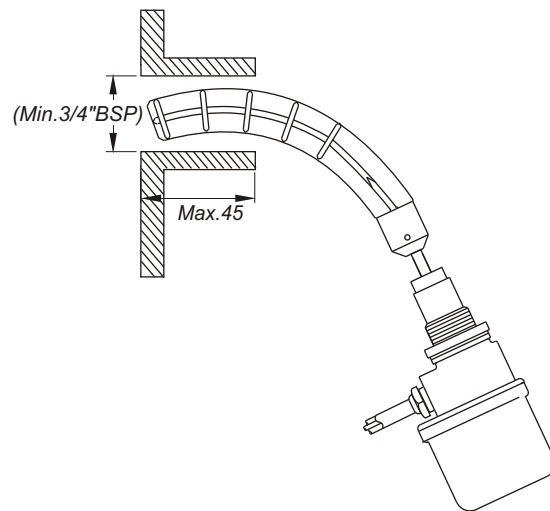
RP10A

Where the RP10A type paddle cannot be attached to the main shaft from inside the storage tank. A 90mm opening is required to allow the paddle to be fixed to the shaft prior to installation. Dimensions as shown below:



RP80 CRI

The scimitar paddle can be inserted through a 3/4" BSP inlet directly as shown on the drawing below.



TYPICAL PRODUCTS MEASURED

FOOD & CONSUMER PRODUCTS

Chocolate powder
Detergent
Nuts, crushed & whole, peanuts
Sugar
Salt pellets and table salt
Seeds & grains
Feed stuffs
Malts
Grains
Animal feed

SAND & MINERALS

Coal fines
Fluorspar
Iron carbide
Nickel powder
Resin coated sand
Silica, zircon & foundry sands
Sand, gravel & aggregates
Rocks
Cement
Clays
Sand / saw dust
Wood dust

PLASTICS & RESINS

Abs
Nylon pellets
Pet pellets
Polyethylene
Polypropylene

CHEMICALS

Limestone
Calcium chloride
Calcium fluoride
Sodium bicarbonate
Soda ash
Tri-calcium phosphate
Calcium dust

FERTILISER

Ammonium nitrate
Ammonium sulphate

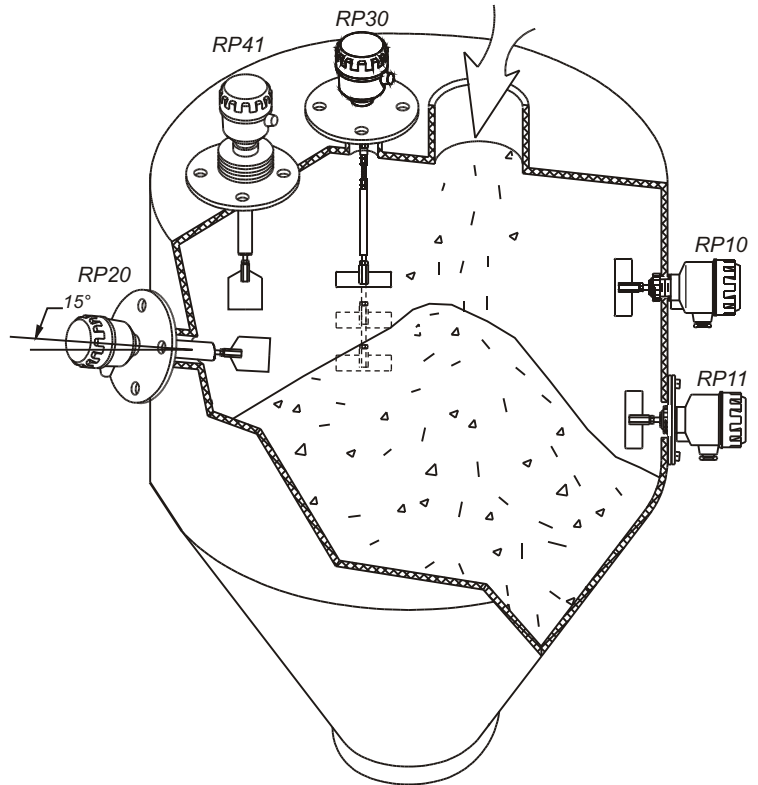
MISCELLANEOUS PRODUCTS

Activated carbon
Sludge pellets
Pharmaceutical tablets

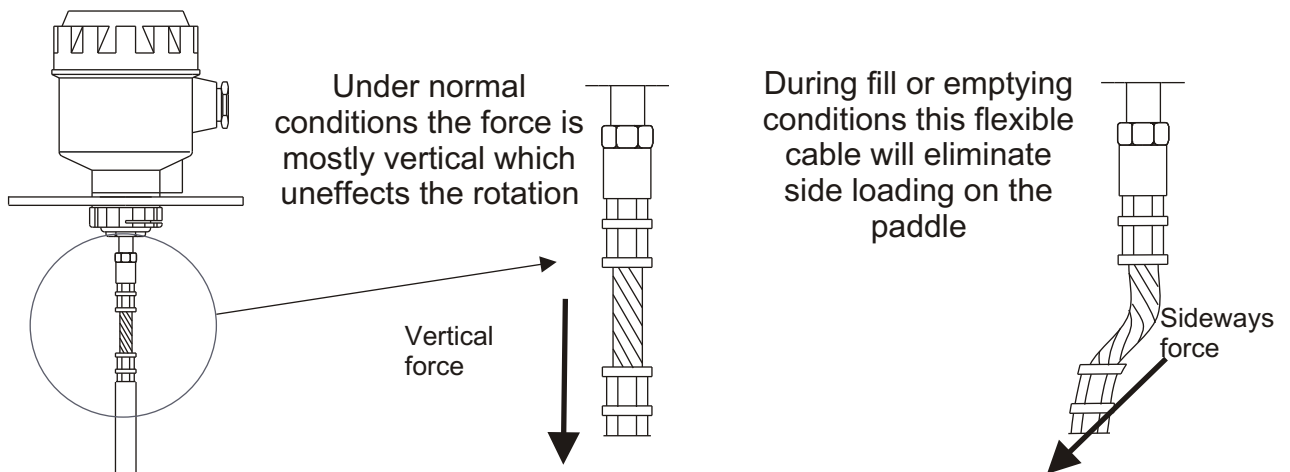
MOUNTING OPTIONS

INSTALLATION NOTES

1. Please incline side mounted paddle switches by 15°~20° for best performance as this limits product build up on the paddle shaft and paddle itself.
2. Please select RP40 series where tank internal operating temperatures are more than 60°C.
3. RP10~RP40 can be installed in a 1" BSP socket connection but please use the scimitar type paddle so it can be installed from outside of the vessel.
4. RP30, RP46 items are flexible with adjustable shaft length. Please state length required when ordering. This length is from the mounting connection to the end of the paddle blade. (see drawings)



ANTI-SIDE LOAD PROTECTION CABLE



The RP30,46 70 series are recommended for top mounted applications as they have a unique flexible coupling between the rod and the motor assembly. This design prevents damage to the extension rod and stops the premature wear on the motor and bearing. Side load conditions normally take place under filling or emptying conditions as the product either peaks or troughs as shown in the diagram above.

ORDER INFORMATION

RP

Model

- | | |
|-----------------------------------|---------------------------|
| 10 : Standard type | 60 : Cable wire type |
| 20 : Shaft protective tube type | 70 : Explosion Proof type |
| 30 : Shaft length adjustable type | 80 : Mini type |
| 40 : Hi-temp type | |

Voltage

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

Mounting

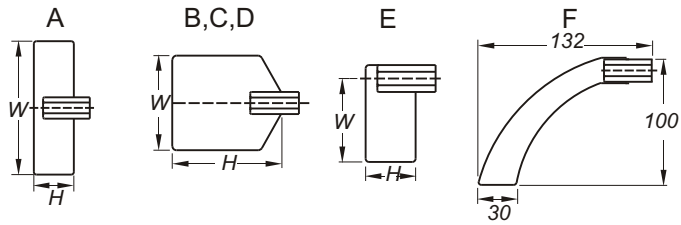
Size for flange or screw		Pressure range or other
C: 3/4"	I: 4"	M: JIS 5kg/cm ²
D: 1"	J: 5"	N: JIS 10kg/cm ²
E: 1-1/2"	K: 6"	O: ANSI 150 Lbs
F: 2"	S: Others	P: ANSI 300 Lbs
G: 2-1/2"	3: 1-1/4"	Q: PT
H: 3"		R: PF
		T: BSP
		S: Others

* RP10~RP70 series: The size of connecting screw is 1".

Paddle Shapes

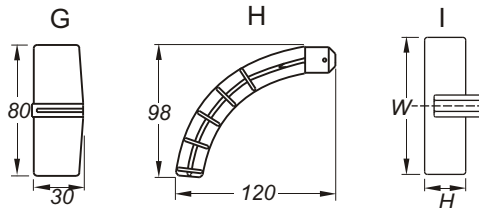
RP10~RP70

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



RP80 (Mini paddle type)

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



Length (mm)

- RP10~70 L: The distance from flange to paddle.
- The total length of the switch will have a tolerance of +/- 6mm.
- RP80 L: Length of electrical supply cable.

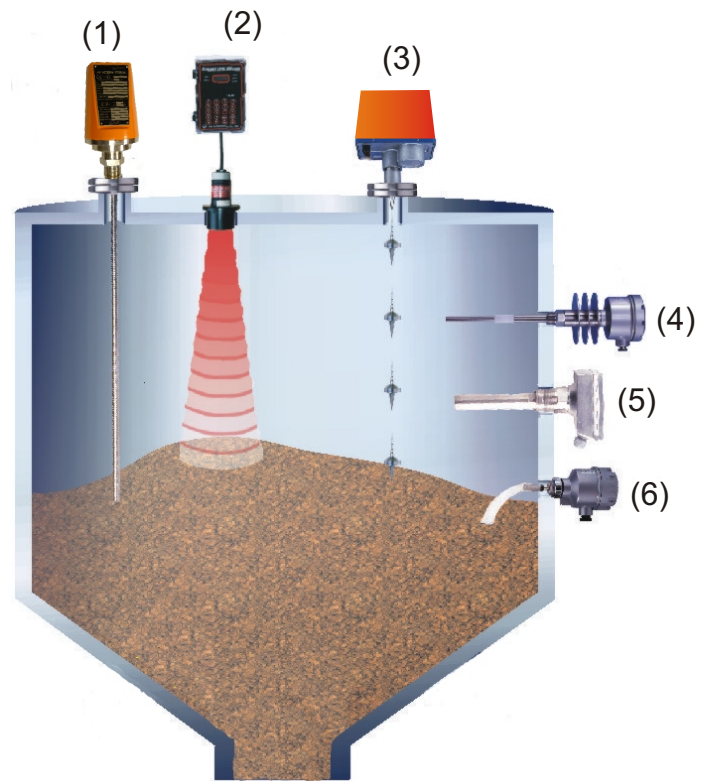
* Model selection notes

1. Select Voltage 24VAC, 110VAC, 220VAC or 240VAC, 50/60 Hz.
2. Side or Top mounting.
3. Identify the bulk density of product to select correct unit.
4. If vibrating motor is installed onto the tank wall, select Hycontrol's capacitive sensor ME40.
5. Ensure the rotary paddle size selected will enter into the flange inlet available.

HYCONTROL LEVEL TECHNOLOGIES

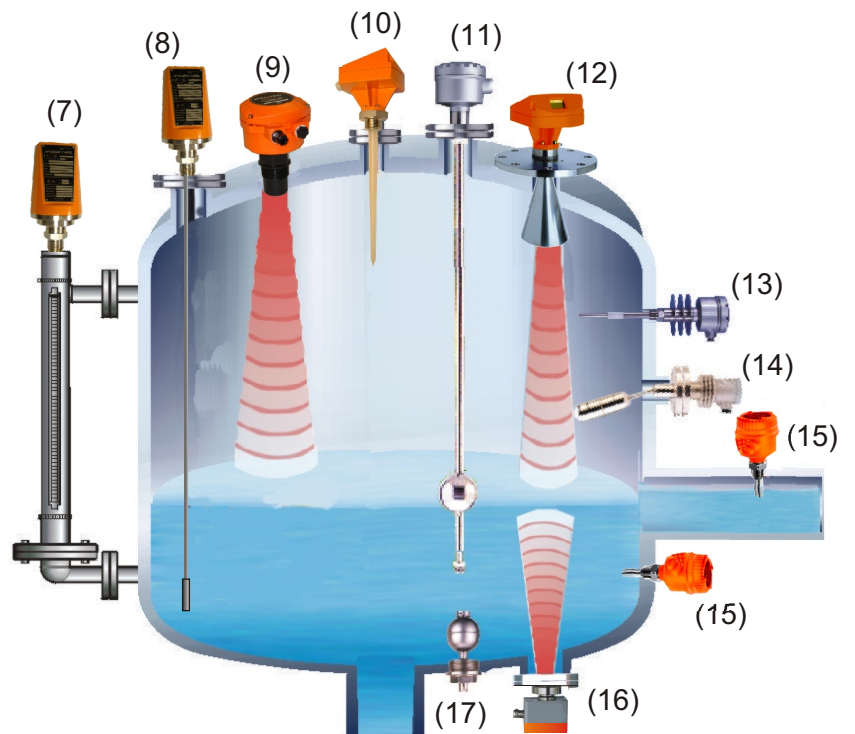
Level product range includes :-

- (1) TDR Radar for solids
- (2) Ultrasonic, 'through air'
- (3) Continuous 'servo' level indicator
- (4) Capacitance level switch
- (5) Vibrating probe level switch
- (6) Rotating paddle level switch
- (7) By-pass level indicator with radar
- (8) TDR Radar for liquids
- (9) 2 wire Ultrasonic transmitter
- (10) FMCW 2 wire 'wavestick' Radar
- (11) Magnetic Float switches
- (12) FMCW 'Horn' Radar 2 wire
- (13) Capacitance level switch
- (14) Side mounting 316 SS float switch
- (15) Vibrating fork level switch
- (16) Ultrasonics 'through wall'
- (17) Mini magnetic float level switch



SOLIDS

IF YOU ARE UNSURE WHICH TECHNOLOGY TO USE FOR YOUR APPLICATION PLEASE CONSULT HYCONTROL INSTRUMENT ENGINEERS FOR APPLICATION ADVICE OR A FREE SITE LEVEL SURVEY.



LIQUIDS

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