Original Roto-Bin-Dicator®

VERSATILE ENOUGH TO BECOME YOUR GLOBAL STANDARD

The Roto-Bin-Dicator is the most universal of all level sensing technologies and is the most popular level switch used in dry bulk materials. The Roto-Bin-Dicator is a rotating paddle type, bulk material level sensor offered with a wide variety of paddle options for unequaled application versatility. It is easy to install and requires no special tools or calibration.

FEATURES AND BENEFITS

- A simple, mechanical mechanism means no calibration is required for quick installation
- Long-lasting, sealed motor keeps maintenance and replacement costs low
- Extensive Paddle Options to adapt to a variety of applications
- Frame designed to enable connection flexibility
  - Imperial or Metric conduit entry options
  - Process Fitting can be made to fit any connection

SPECIFICATIONS

FUNCTIONAL	
Power Requirements	24/120/240 VAC; 50/60 Hz, 24 VDC
Power Consumption	5 watts
Motor	1 rpm
Fail-Safe Circuitry	Low level fail safe
Switch Rating	General Purpose: SPDT 20A @ 125/250/480 VAC.
Process Temperature	-20° to 302° F (-29° to 150° C) Standard Up to 500° F (Up to 260° C) with Extension 3 and Lag
PHYSICAL	
Drive Shaft Assembly	Precision machined shaft with two shielded ball bearings
Shaft Seal	Teflon®/Viton® Lipseal rated 1/2 micron @ 30 psi (2.1 kg/cm^2) @ 400° F (204° C)
Housing and Cover	Type 4X/IP66 polyester coated aluminum casting
Mounting Plate	8" outside diameter with 1 1/4" NPT pipe threaded coupling; standard polyester coated mild steel; optional 304 stainless steel; H-19 Half Coupling; H-192 Full Coupling
Conduit Entry	3/4" NPT or M20 x 1.5
Rigid Shaft and Paddle	Metal parts of all designs are 316 stainless steel
Flex Shaft	Available in neoprene, 155° F (68° C) or silicone, 400° F (204° C) coatings
Shipping Weight	Aluminum housing 10 lbs (4.5 kg) Stainless steel housing 16 lbs (7.3 kg)

NOTE. Consult Factory where the housing temperature will be above 200° F (93° C). Shaft extensions and guards are available in galvanized or 316 SS. The Roto-Bin-Dicator® is also available with the Super-Safe-Plus option.

ROTO-BIN-DICATOR - ORIGINAL - PART ONE

COMPLETE CONFIGURATION

POWER PACK OPTIONS

_____ – _____ _____ _____ _____ _____ _____ _____ – _____ – _____

Process Fitting
X1 = Aluminum Frame Neck, NPT 1-1/4"
X2 = 304 Stainless Steel Frame Neck, NPT 1-1/4" (Note 12)
C2 = 316 Stainless Steel NPT 1-1/4
D2 = 316 Stainless Steel NPT 1-1/2"
E2 = 316 Stainless Steel BSP Tapered R 1-1/4"
F2 = 316 Stainless Steel BSP Tapered R 1-1/2"
J2 = 316 Stainless Steel BSP Straight G 1-1/4" (Note 11)
K2 = 316 Stainless Steel BSP Straight G 1-1/2" (Note 11)
M2 = 316 Stainless Steel Tri-Clamp 1-1/2" (Note 13)
N2 = 316 Stainless Steel Tri-Clamp 2" (Note 13)

Housing Finish
A = Powder Coated Aluminum
B = 304 stainless steel (Notes 2, 3, 12)
C = Epoxy Painted Aluminum
D = Electroless Nickel Plated Aluminum (Note 2)

Model (Note 1)

Ordinary Location
Standard Roto-Bin-Dicator
R-H = 120 VAC, 1SPDT
RA-H = 120 VAC, 2SPDT
RB-H = 240 VAC, 1SPDT
RC-H = 240 VAC, 2SPDT
RD-H = 24 VDC, 1SPDT
RE-H = 24 VDC, 2SPDT
RF-H = 24 VAC, 1SPDT
RG-H = 24 VAC, 2SPDT
R-HM = 120 VAC, 1SPDT, Metric
RA-HM = 120 VAC, 2SPDT, Metric
RB-HM = 240 VAC, 1SPDT, Metric
RC-HM = 240 VAC, 2SPDT, Metric
RD-HM = 24 VDC, 1SPDT, Metric
RE-HM = 24 VDC, 2SPDT, Metric
RF-HM = 24 VAC, 1SPDT, Metric
RG-HM = 24 VAC, 2SPDT, Metric

Note 1. For PowerPack ordering: for powder coated aluminum and 1-1/4 in. NPT order by model number only.

Hazardous Location
Standard Roto-Bin-Dicator
RX-H = 120 VAC, 1SPDT
RXA-H = 120 VAC, 2SPDT
RXB-H = 240 VAC, 1SPDT
RXC-H = 240 VAC, 2SPDT
RXD-H = 24 VDC, 1SPDT
RXE-H = 24 VDC, 2SPDT
RXF-H = 24 VAC, 1SPDT
RXG-H = 24 VAC, 2SPDT
RX-HM = 120 VAC, 1SPDT, Metric with ATEX and IEC approvals
RXA-H M= 120 VAC, 2SPDT, Metric with ATEX and IEC approvals
RXB-HM = 240 VAC, 1SPDT, Metric with ATEX and IEC approvals
RXC-HM = 240 VAC, 2SPDT, Metric with ATEX and IEC approvals
RXD-HM = 24 VDC, 1SPDT, Metric with ATEX and IEC approvals
RXE-HM = 24 VDC, 2SPDT, Metric with ATEX and IEC approvals
RXF-HM = 24 VAC, 1SPDT, Metric with ATEX and IEC approvals
RXG-HM = 24 VAC, 2SPDT, Metric with ATEX and IEC approvals

Note 14: For Hazardous Location models that require extended ambient temperature -40° to 113°F (-40° to 45°C), add suffix 'T' to model number.
Example: RX-HT

ROTO-BIN-DICATOR - ORIGINAL - PART TWO

COMPLETE CONFIGURATION

POWER PACK

_____ – ____ – ____

Lag Length (Note 10)
Custom Lengths - 1 in. increments

Extension Length (Note 6, 9)
Extension 1
Extension 2 (Note 5)
Extension 3: Standard Lengths - 6 in. increments
Extension 3: Custom Lengths

Lag (Note 8)
A = None
B = 316 Stainless Steel - 6 in. Length
C = 316 Stainless Steel - 12 in. Length
D = 316 Stainless Steel - 18 in. Length
E = 316 Stainless Steel - 24 in. Length
F = 316 Stainless Steel Custom Length

Extension
0 = None
1 = 316 Stainless Steel Shaft (Note 4)
2 = 316 Stainless Steel Shaft with Guard (Note 4 and 6)
3 = 316 Stainless Steel Shaft with Guard & Lip Seal, (Notes 6, 7)

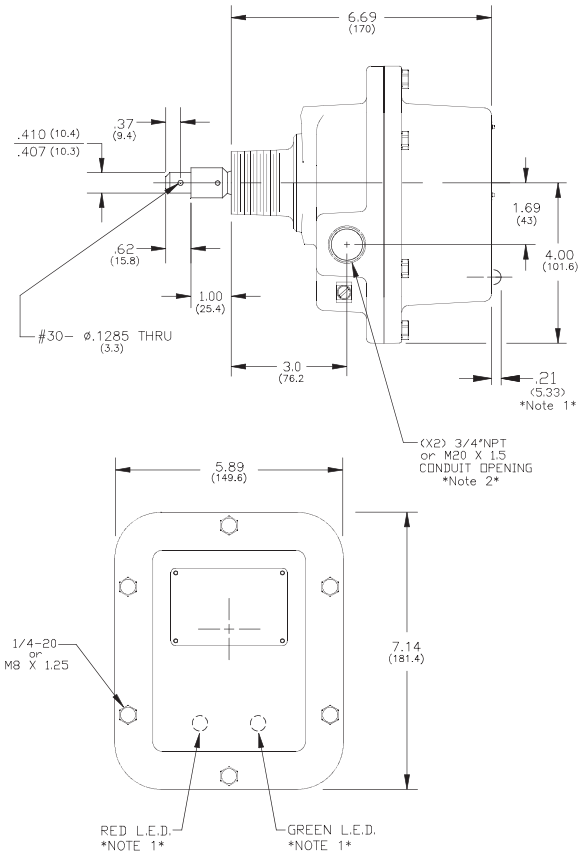
Shaft Coupling
A = None
B = Neoprene 3" Flexible Shaft; 170 ° F (77 ° C)Max Temp (H-36)
C = Molded Silicone 3" Flexible Shaft; 400° F (204° C) Max Temp (H-365)

Paddles
A = Standard 4-vane paddle - 1-1/2" x 5" (H-370) (Note 5)
B = Large 4-vane paddle - 2" x 7" (H-371) (Note 5)
C = Collapsible 2-vane SS paddle (H-380)
D = Single vane paddle, curved (H-379)
E = Single vane paddle with 30° cut - 1" x 2-7/8" (H-372A)
F = Multi-Flex, stainless steel - 1-1/2" x 17" (H-374) (Note 5)
G = Multi-Flex, solid neoprene - 1-1/2" x 24" (H-373) (Note 5)
H = None

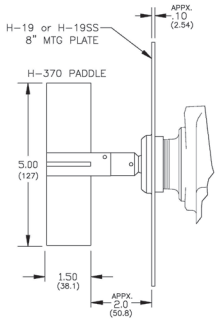
Mounting Plate (Note 4)
0 = None
1 = 304 Stainless Steel 8" Mounting plate - Top Mounting, Full Coupling (H-192SS)
2 = 304 Stainless Steel 8" Mounting plate - Side Mounting, Half Coupling (H-19SS)
3 = Powder Coated Steel 8" Mounting Plate - Top Mounting, Full Coupling (H-192)
4 = Powder Coated Steel 8" Mounting Plate - Side Mounting, Half Coupling (H-19)

Notes:
2. Hazardous location approval not available with stainless steel Housing Finish or electroless nickel plated aluminum Housing Finish.
3. Function Test FOB not available with stainless steel Housing Finish
4. For Mounting Plates Process Fitting must be X1, X2, or C2. Extensions 1 and 2 must use Mounting Plate 1 or 3 (Top Mounted)
5. Mounting plate is required.
6. Shaft guard length will be 2 in. (5 cm) shorter than extension length unless otherwise noted
7. Process Fitting cannot be X1 or X2 and maximum length is 36 in. (91 cm) and if used with Extension, the maximum total length is 48 in. (122 cm)
8. Lag not available with process fitting X1 or X2, and if used with Extension, the maximum total length is 48 in. (122 cm)
9. Maximum extension length is 180 in. (4.6 m), minimum length is 3 in. (7.6 cm); leave blank if not used.
10. Maximum lag length is 24 inches, minimum length 1 in. (2.5 cm); leave blank if not used
11. EPDM Flat gasket is included for Process Fittings with straight threads.
12. X2 Process Fitting and Stainless Steel Housing Finish can only be ordered together.
13. M2 and N2 Process Fitting only available with C, D, E, F and G Paddles.

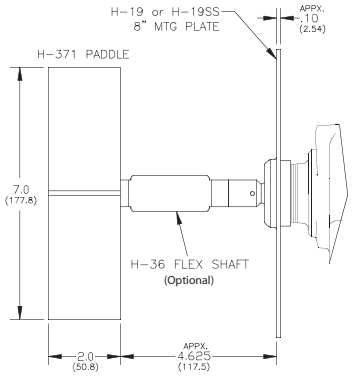
Housing Dimensions



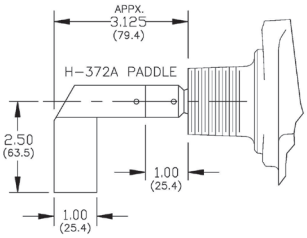
Standard 4-Vane Paddle



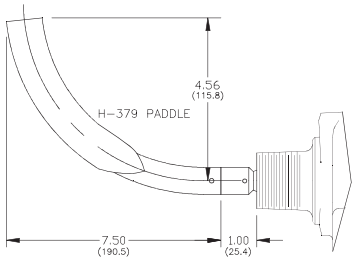
Large 4-Vane Paddle



Single Vane Paddle 30º Cut



Single Vane Paddle Curved



AGENCY APPROVALS

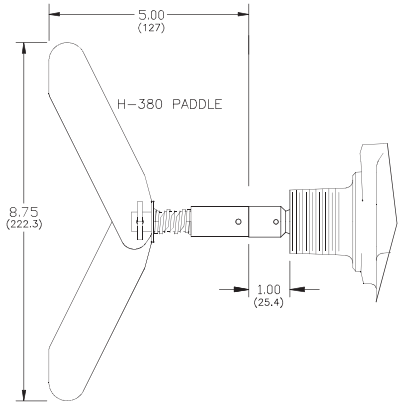
UL (US and Canada)

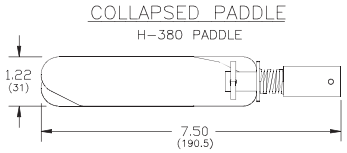
- Ordinary Location, Type 4X; IP66
- Hazardous Locations, Type 4X
  Explosion Proof, Class I, Div 1, Groups C, D
  Dust Ignition Proof, Class II, Div 1, Groups E, F, G

CE

- Electromagnetic Compatibility Directive
- Low Voltage Directive

Collapsible Paddle





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LAR180010 Rev. M

Roto-Bin-Dicator® PRO

ACTIVELY PROTECTING VALUABLE INVENTORY

The Roto-Bin-Dicator® PRO is a paddlewheel type level device that outperforms others in its class. This simple device monitors the level of dry bulk material and indicates when there has been a change. The fail-safe PRO model is unique in that it comes standard with functional diagnostics that detect a unit fault even when the paddle is buried in material; unlike other paddlewheel devices.

The PRO provides added reliability by employing redundant methods of detection. These methods monitor shaft rotation as well as motor behavior, making it more reliable with regards to not missing a reading or creating a false positive.

FEATURES AND BENEFITS

- **Diagnostics** – While the paddle is in or out of material self-checks are performed to detect unit faults which are differentiated and alerted through LED flash codes
- **High/Low Level Failsafe** – user selectable
- **Motor Pause** – optional setting, motor function will pause after a prolonged period of time where no change in material state is detected, saving power and extending the life of the unit
- **Time Delay** – delay the activation and deactivation of the alarm relay
- **Sensitivity Adjustments** - motor torque can be adjusted +/- 30% to match materials of varying bulk densities
- **Test FOB** – check the functionality of the unit without removing the cover and while the paddle is in or out of material
- **Universal Input Power** provides flexibility to match power availability
- **Fault Option** - optional setting, critical faults trigger an alarm, eliminates need to jumper relays to obtain genuine fail-safe operation
- **Unique Frame Design** to enable connection flexibility
  - Imperial or Metric conduit thread options
  - Process Fitting can be made to fit any connection
  - Extension and lag configurations available for added shaft length or high temperature applications

DETECT & DIFFERENTIATE FAULTS

FUNCTIONAL DIAGNOSTICS	
Supply Voltage Fault	The power supply voltage is too low.
Motor Not Connected	The motor has become disconnected from the power supply.
Electronics Temperature Range	The electronic boards have gone outside the accepted temperature range.
Motor Failure	The motor has stopped functioning normally.
Gear Train Failure	Internal rotation mechanics are bound.
Electronics Fault	Communication error between the LED (top) and power supply (bottom) electronic boards.

ROTO-BIN-DICATOR PRO - PART ONE

COMPLETE CONFIGURATION

POWER PACK OPTIONS

PRO-A – _____ _____ _____ _____ _____ _____ _____ – _____ – _____

Shaft Coupling
A = None
B = Neoprene 3" Flexible Shaft; 170° F (77 ° C) Max Temp (H-36)
C = Molded Silicone 3" Flexible Shaft; 400° F (204° C) Max Temp (H-365)

Paddles
A = Standard 4-vane paddle - 1-1/2" x 5" (H-370) (Note 5)
B = Large 4-vane paddle - 2" x 7" (H-371) (Note 5)
C = Collapsible 2-vane SS paddle (H-380)
D = Single vane paddle, curved (H-379)
E = Single vane paddle with 30° cut - 1" x 2-7/8" (H-372A)
F = Multi-Flex, stainless steel - 1-1/2" x 17" (H-374) (Note 5)
G = Multi-Flex, solid neoprene - 1-1/2" x 24" (H-373) (Note 5)
H = None

Mounting Plate (Note 4)
0 = None
1 = 304 Stainless Steel 8" Mounting plate - Top Mounting, Full Coupling (H-192SS)
2 = 304 Stainless Steel 8" Mounting plate - Side Mounting, Half Coupling (H-19SS)
3= Powder Coated Steel 8" Mounting Plate - Top Mounting, Full Coupling (H-192)
4 = Powder Coated Steel 8" Mounting Plate - Side Mounting, Half Coupling (H-19)

Process Fitting
X1 = Aluminum Frame Neck, NPT 1-1/4"
X2 = 304 Stainless Steel Frame Neck, NPT 1-1/4" (Note 12)
C2 = 316 Stainless Steel NPT 1-1/4
D2 = 316 Stainless Steel NPT 1-1/2"
E2 = 316 Stainless Steel BSP Tapered R 1-1/4"
F2 = 316 Stainless Steel BSP Tapered R 1-1/2"
J2 = 316 Stainless Steel BSP Straight G 1-1/4" (Note 11)
K2 = 316 Stainless Steel BSP Straight G 1-1/2" (Note 11)
M2 = 316 Stainless Steel Tri-Clamp 1-1/2" (Note 13)
N2 = 316 Stainless Steel Tri-Clamp 2" (Note 13)

Housing Finish
A = Powder Coated Aluminum
B = 304 stainless steel (Notes 2, 3, 12)
C = Epoxy Painted Aluminum
D = Electroless Nickel Plated Aluminum (Note 2)

Base Unit
G = 3/4" NPT Conduit Entry with Ordinary Location Approval
GM = M20 x 1.5" Conduit Entry with Ordinary Location Approval
X = 3/4" NPT Conduit Entry with Hazardous Location Approval (Note 2)
XM = M20 x 1.5" Conduit Entry with Hazardous Location Approval (Note 2)
XT = 3/4" NPT Conduit Entry with Hazardous Location Approval - Extended Temperature Range (Note 2, 14)
XMT = M20 x 1.5" Conduit Entry with Hazardous Location Approval - Extended Temperature Range (Note 2, 14)

Model (Note 1)
Roto-Bin-Dicator PRO

ROTO-BIN-DICATOR PRO - PART TWO

COMPLETE CONFIGURATION

POWER PACK

_ _

Lag Length (Note 10)
Custom Lengths - 1 in. increments

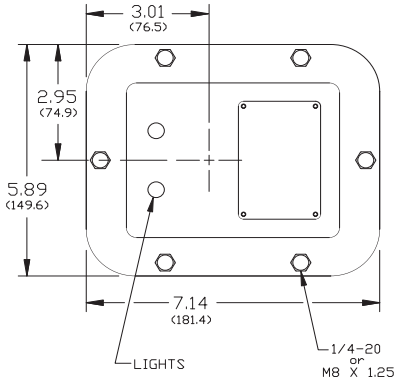
Extension Length (Note 6, 9)
Extension 1
Extension 2 (Note 5)
Extension 3: Standard Lengths - 6 in. increments
Extension 3: Custom Lengths

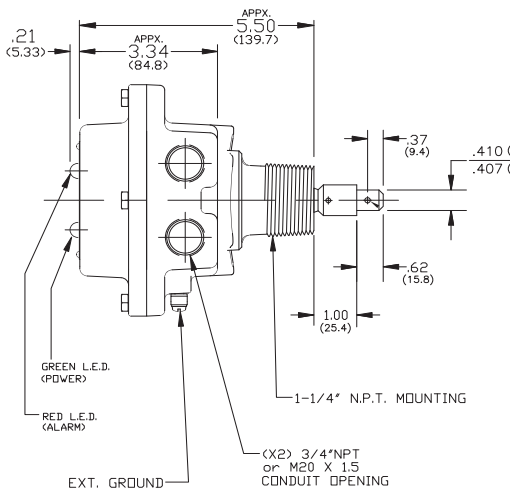
Lag (Note 8)
A = None
B = 316 Stainless Steel - 6 in. Length
C = 316 Stainless Steel - 12 in. Length
D = 316 Stainless Steel - 18 in. Length
E = 316 Stainless Steel - 24 in. Length
F = 316 Stainless Steel Custom Length

Extension
0 = None
1 = 316 Stainless Steel Shaft (Note 4)
2 = 316 Stainless Steel Shaft with Guard (Note 4, 6)
3 = 316 Stainless Steel Shaft with Guard & Lip Seal (Notes 6, 7)

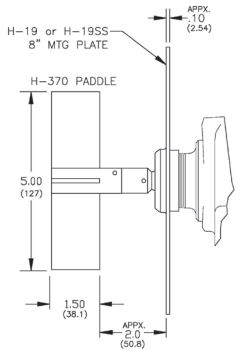
Notes:
1. For PowerPack ordering, stop the part number after the Process Fitting selection.
2. Hazardous location approval not available with stainless steel Housing Finish or electroless nickel plated aluminum Housing Finish
3. Function Test FOB not available with stainless steel Housing Finish
4. For Mounting Plates Process Fitting must be X1, X2, or C2. Extensions 1 and 2 must use Mounting Plate 1 or 3 (Top Mounted)
5. Mounting plate is required.
6. Shaft guard length will be 2 in. (5 cm) shorter than extension length unless otherwise noted
7. Process Fitting cannot be X1 or X2 and maximum length is 36 in. (91 cm) and if used with Extension, the maximum total length is 48 in. (122 cm)
8. Lag not available with process fitting X1 or X2, and if used with Extension, the maximum total length is 48 in. (122 cm)
9. Maximum extension length is 180 in. (4.6 m), minimum length is 3 in. (7.6 cm); leave blank if not used.
10. Maximum lag length is 24 inches, minimum length 1 in. (2.5 cm); leave blank if not used
11. EPDM Flat gasket is included for Process Fittings with straight threads.
12. X2 Process Fitting and Stainless Steel Housing Finish can only be ordered together.
13. M2 and N2 Process Fitting only available with C, D, E, F and G Paddles.
14. Extended ambient temperature range is -40º to 140 ºF (-40º to 60º C).

Housing Dimensions





Standard 4-Vane Paddle

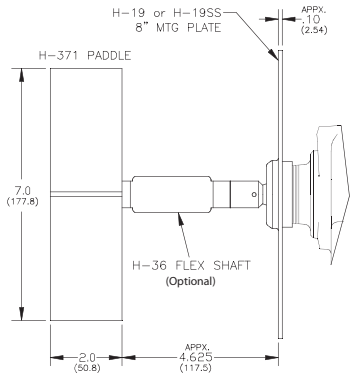


Roto-Bin-Dicator® PRO

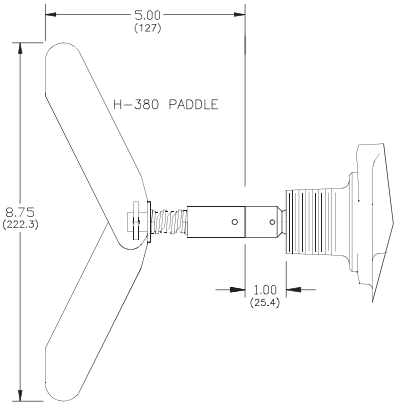
SPECIFICATIONS

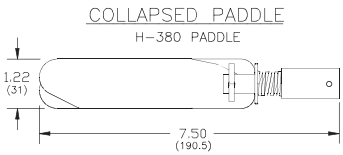
FUNCTIONAL	
Operating Power	Universal, 120-240 VAC, 50/60 Hz or 24-48 VDC
Power Consumption	3 watts (1.8 watts in Pause Mode)
Ambient Temperature	Ordinary Location: -40º to 158º F (-40º to 70º C) Hazardous Location: -4º to 140º F (-20º to 60º C) Hazadrous Location, Extended: -40º to 140º F (-40º to 60º C)
Process Temperature	-20º to 302º F (-29º to 150º C) Standard Up to 500º F (Up to 260º C) with Extension 3 and Lag
Outputs	Main Relay: 8A DPDT @ 240 VAC or 30 VDC (resistive) Auxiliary Relay: 0.46A SPDT @ 150 VAC or 30 VDC
PERFORMANCE	
Time Delay	Field Selectable; up to 25 seconds
Fail Safe	Field Selectable; high/low level
Sensitivity	Minimum 3.4 lbs/ft^3 (54 kg/m^3); Field Adjustable; Paddle Dependent
Diagnostics	LED Indicators with blink codes; see IOM for code interpretation
PHYSICAL	
Enclosure Material	Aluminum, Epoxy Coated Aluminum, Stainless Steel or Electroless Nickel Plated Aluminum
Dual Conduit Entry	3/4" NPT or M20 x 1.5
Mounting Plate Material	Mild Steel or 304 Stainless Steel
Rigid Shaft and Paddle	Metal parts of all designs are 316 stainless steel
Flex Shaft	Available in neoprene, 155º F (68º C) or silicone, 400º F (204º C) coatings
Shipping Weight	Aluminum housing 10 lbs (4.5 kg) Stainless steel housing 16 lbs (7.3 kg)

Large 4-Vane Paddle



Collapsible Paddle





AGENCY APPROVALS

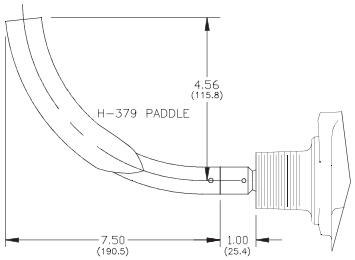
UL (US and Canada)

- Ordinary Location, Type 4X; IP66
- Hazardous Locations, Type 4X
  Explosion Proof, Class I, Div 1, Groups C, D
  Dust Ignition Proof, Class II, Div 1, Groups E, F, G

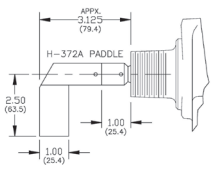
CE

- Electromagnetic Compatibility Directive
- Low Voltage Directive

Single Vane Paddle Curved



Single Vane Paddle 30º Cut



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