

WORKING PRINCIPLE

The vibrating probe level switch operates by using two piezoelectric elements built on vibration kit inside the tube. One piezoelectric element receives pulse signal from PCB and causes the tube to vibrate, and the vibration transmits to the other in order to output electric signal, which will be sent to PCB. When the vibration of the tube is paused by the risen material, PCB can not have the vibration signal from the piezoelectric element. Therefore relay actuates on.

Fail-safe is equipped to prevent malfunction caused by power shortage.

Vibrating probe level switch provides reliable & trouble-free level sensing for bulk solids. With simple mounting and calibration, and high stability of working principle, it can withstand high lateral loads, and it will not be affected by material built-up and static electricity.

FEATURE

- Sturdy and durable design. No calibration needed.
- No fear for accumulated material on sensor.
- High / Low fail safe modes offer safety and reliability.
- Adjustable sensitivity can be set according to different density of material.

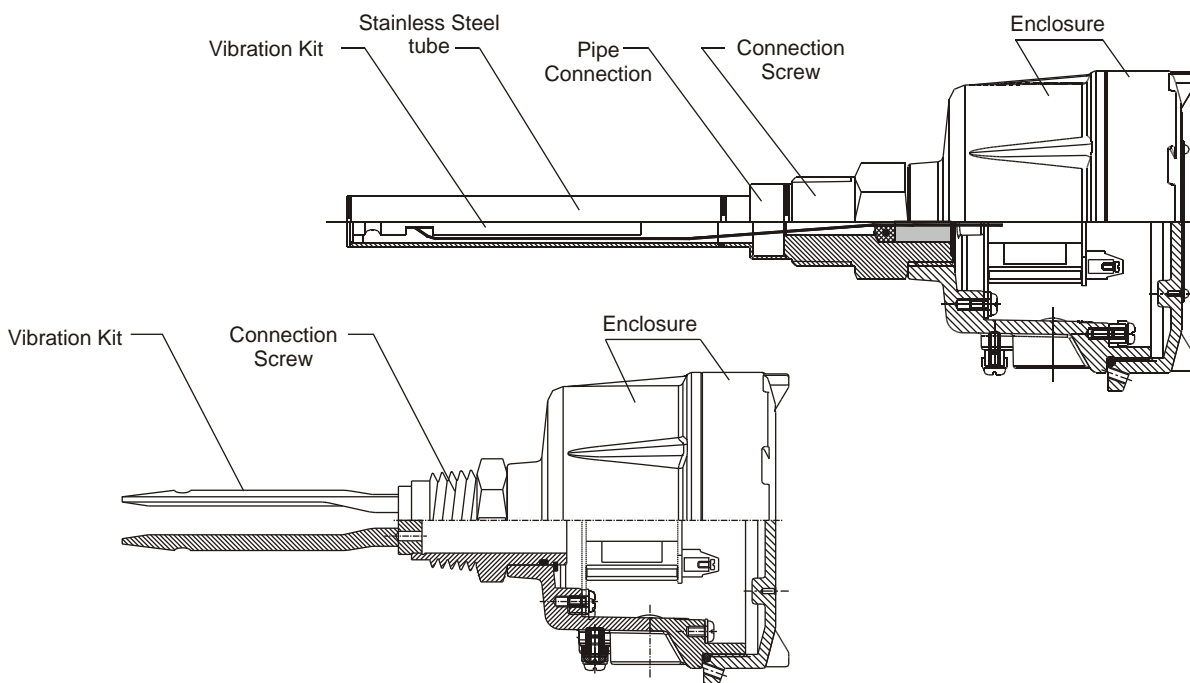
APPLICATION

- Powder materials, Powdered coffee, Dry milk, Chocolate, Powdered coal, Dry Bulk, Sugar, Salt, Wheat, Grains, Glass material, Plastic pellet, Cement
- Sludge level detection in waste water

The SC(MV) series detects the min. and max of level in bins, silos and hoppers, filled with powdered materials. The following list shows some of these materials.

- | | |
|---------------------------|-----------------------|
| • Powdered milk | • Peanuts |
| • Frozen potato chips | • Tobacco |
| • Beans | • Wood shavings |
| • Sugar | • Chalk |
| • Sweets | • Stearin chips |
| • Coffee beans | • Powdered cellulose |
| • Coffee ground | • Glass finely ground |
| • Coffee Powder | • Granular plastics |
| • Tea (leaf) | • Gravel |
| • Salt | • Powdered clay |
| • Flour (in a flour mill) | • Polystyrene powder |
| • Foundry sand | • Styrofoam |
| • Spices | • Soda |
| • Animal food | • Soot dry |
| • Pellets | |

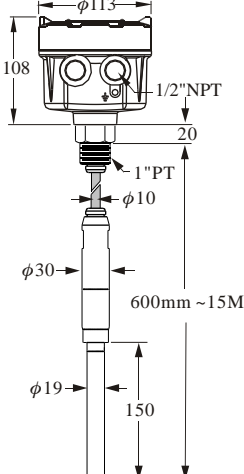
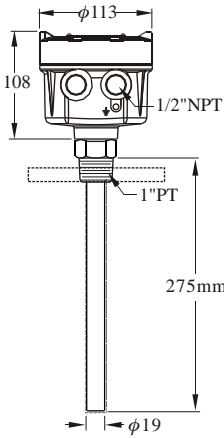
CONSTRUCTURE



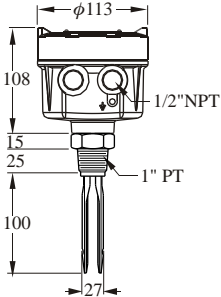
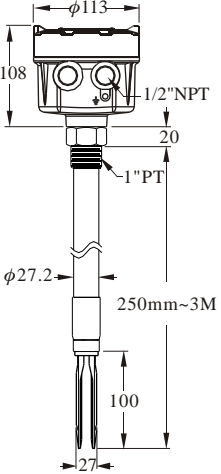
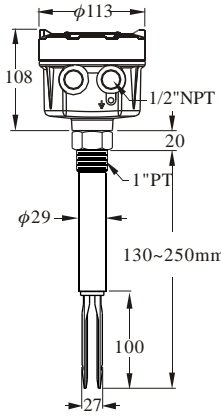
SPECIFICATION

Dimensions (Unit:mm)			
Order No.	SC2100	SC2110	SC2120
Model No.	MV10/11 [Standard Type]	MV21 [Solid Extension Type]	MV20 [Solid Extension Type]
Level Sensor Housing	Aluminum / IP65		
Probe Construction	SUS 304 / 316		
Mounting	1"PT		
Conduit	1/2"NPT × 2		
Max. Vertical load on rod.	177in.Lbs(20Nm)		
Operating Pressure.	Vacuum~150PSI (10BAR)		
Power Supply	20~250, 50/60Hz Vac/ Vdc		
Power Consumption	15VA (Max.)		
Operating Temp. In Ambient Air	-10°C~60°C		
Operating Temp. In Bin	-10°C~80°C		
Signal Output	Relay, SPDT, 5A/250Vac /PNP/NPN(MOSFET)400mA/60 Vac/ Vdc		
Medium density	Solid: 0.32g/cm ³		
Time Delay	0.6~1 Sec. / Operate;2~5 Secretary / Reset		
Remote-test	Yes		
Vibrating Frequency.	395~405HZ		
Selectable Fail-safe	Hi./ Lo.		
Selectable Sensitivity	Hi./ Mid. / Lo.		

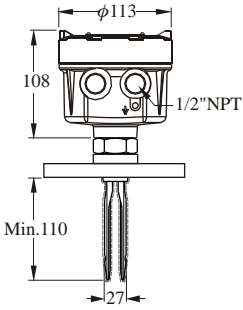
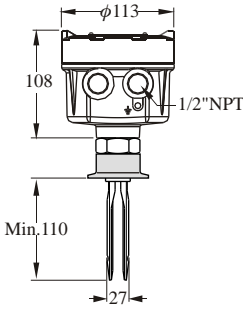
SPECIFICATION

Dimensions (Unit:mm)		
Order No.	SC2300	SC2500
Model No.	MV30 [Cable Extension Type]	MV50 [Corrosion-Proof]
Level Sensor Housing	Aluminum / IP65	
Probe Construction	SUS 304 / 316	SUS 304/316 Coating TEFLON
Mounting	1"PT	Flange 1"(min.)
Conduit	1/2"NPT × 2	
Max. Vertical load on rod.	177in.Lbs(20Nm)	
Operating Pressure.	Vacuum~150PSI (10BAR)	Vacuum~150PSI (10BAR)
Power Supply	20~250, 50/60Hz Vac/ Vdc	
Power Consumption	15VA (Max.)	
Operating Temp. In Ambient Air	-10°C~60°C	
Operating Temp. In Bin	-10°C~80°C	-10°C~80°C
Signal Output	Relay, SPDT, 5A/250Vac /PNP/NPN(MOSFET)400mA/60 Vac/ Vdc	
Medium density	Solid: 0.32g/cm ³	
Time Delay	0.6~1 Sec. / Operate;2~5 Secretary / Reset	
Remote-test	Yes	
Vibrating Frequency.	395~405HZ	
Selectable Fail-safe	Hi./ Lo.	
Selectable Sensitivity	Hi./ Mid. / Lo.	

SPECIFICATION

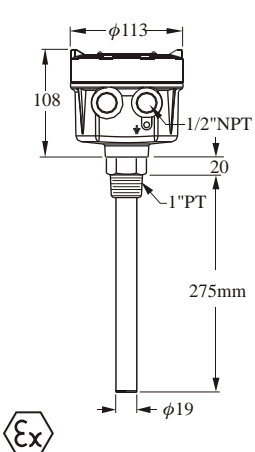
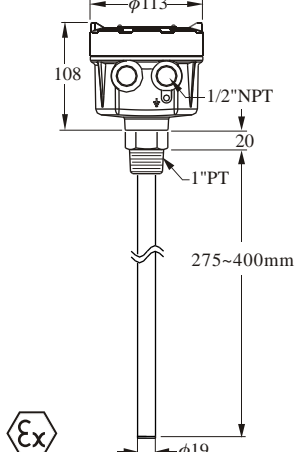
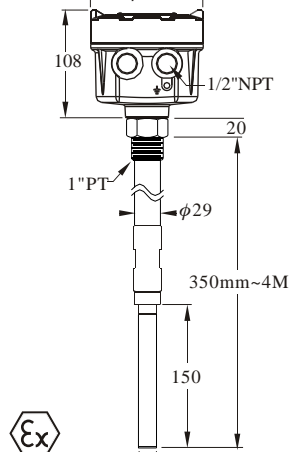
<p>Dimensions (Unit:mm)</p>			
Order No.	SC1400	SC1410	SC1420
Model No.	MV40 【 Tuning Fork Standard 】	MV41 【 Tuning Fork Extension 】	MV42 【 Tuning Fork Extension 】
Level Sensor Housing	Aluminum / IP65		
Probe Construction	SUS 304 / 316		
Mounting	1"PT		
Conduit	1/2"NPT × 2		
Max. Vertical load on rod.	177in.Lbs(20Nm)		
Operating Pressure.	Vacuum~600PSI (40BAR)		
Power Supply	20~250Vac, 20~60Vdc		
Power Consumption	2.2VA (Max.)		
Operating Temp. In Ambient Air	-10°C~60°C		
Operating Temp. In Bin	-10°C~130°C	-10°C~130°C	
Signal Output	Relay, SPDT, 2A/250Vac Max.		
Medium density	Solid: 0.23g/cm ³ , Liquid: 0.8g/cm ³		
Time Delay	0.6 Sec. / Operate;1~3 Secretary / Reset		
Vibrating Frequency.	355~365HZ		
Selectable Fail-safe	Hi./ Lo.		
Selectable Sensitivity	Hi./ Lo.		

SPECIFICATION

Dimensions (Unit:mm)		
Order No.	SC1540	SC1600
Model No.	MV54 [Corrosion-Proof Type]	MV60 [Sanitary Type]
Level Sensor Housing	Aluminum / IP65	
Probe Construction	SUS 304/316 Coating TEFLON	SUS 304 / 316
Mounting	Flange 1"(min.)	2" Sanitary
Conduit	1/2"NPT × 2	
Max. Vertical load on rod.	177in.Lbs(20Nm)	
Operating Pressure.	Vacuum~600PSI (40BAR)	
Power Supply	20~250Vac, 20~60Vdc	
Power Consumption	2.2VA (Max.)	
Operating Temp. In Ambient Air	-10°C~60°C	
Operating Temp. In Bin	-10°C~130°C	
Signal Output	Relay, SPDT, 2A/250Vac Max.	
Medium density	Solid: 0.23g/cm ³ , Liquid: 0.8g/cm ³	
Time Delay	0.6 Sec. / Operate;1~3 Secretary / Reset	
Vibrating Frequency.	355~365HZ	
Selectable Fail-safe	Hi./ Lo.	
Selectable Sensitivity	Hi./ Lo.	

SPECIFICATION

NEPSI PROOF NO. GYJ03350 Ex d IIB T3~T6
 PTB PROOF NO. 05 ATEX 1026 Ex II 2G EEx d IIB T3~T6
 Ex II 2D IP65 T3~T6

Dimensions (Unit:mm)			
Order No.	SC1700	SC1701	SC1710
Model No.	MV70 [Standard Type]	MV70 [Extension Type]	MV71 [Shaft Extension]
Level Sensor Housing	Aluminum / EEx d IIB T3~T6		
Probe Construction	SUS 304 / 316		
Mounting	Screw: 1"PT or PF, Flange: 1"~6"JIS / DIN / ANSI		
Conduit	1/2"NPT×2		
Max. Vertical load on rod.	177in.Lbs(20Nm)		
Operating Pressure.	Vacuum~150PSI (10BAR)		
Power Supply	110/220Vac±10% 50/60Hz		
Power Consumption	2W (Max.)		
Operating Temp. In Ambient Air	-10°C~60°C		
Operating Temp. In Bin	-10°C~80°C		
Signal Output	Relay, SPDT , 5A/250Vac Max.		
Medium density	Solid: 0.32g/cm ³		
Time Delay	0.6 Sec. / Operate;2~5 Secretary / Reset		
Vibrating Frequency.	360~370HZ		
Selectable Fail-safe	Hi./ Lo.		
Selectable Sensitivity	Hi./ Mid. / Lo.		

SPECIFICATION

NEPSI PROOF NO. GYJ06233 Ex d IIB T3~T6

Dimensions (Unit:mm)		
Order No.	SC1740	SC1741
Model No.	MV74 [Tuning Fork Standard]	MV74 [Tuning Fork Extension]
Level Sensor Housing	Aluminum / EEX d IIB T3~T6	
Probe Construction	SUS 304 / 316	
Mounting	Screw: 1"PT or PF, Flange: 1"~6"JIS / DIN / ANSI	
Conduit	1/2"NPT × 2	
Max. Vertical load on rod.	177in.Lbs(20Nm)	
Operating Pressure.	Vacuum~600PSI (40BAR)	
Power Supply	120~250Vac, 20~60Vdc	
Power Consumption	2.2VA (Max.)	
Operating Temp. In Ambient Air	-10°C~60°C	
Operating Temp. In Bin	-10°C~130°C	
Signal Output	Relay, SPDT, 2A/250Vac Max.	
Medium density	Solid: 0.23g/cm ³ , Liquid: 0.8g/cm ³	
Time Delay	0.6 Sec. / Operate;1~3 Secretary / Reset	
Vibrating Frequency.	355~365HZ	
Selectable Fail-safe	Hi./ Lo.	
Selectable Sensitivity	Hi./ Lo.	

ORDER INFORMATION

SC () ()

ORDER NO. _____

- SC2100: MV10/11 Standard Type
- SC2110/2120: MV20/21 Solid Extension Type
- SC2300: MV30 Cable Extension Type
- SC2500: MV50 Corrosion-proof Type
- SC1400: MV40 Tuning Fork Standard Type
- SC1410/1420: MV41/42 Tuning Fork Extension Type
- SC1540: MV54 Tuning Fork Corrosion-proof Type
- SC1600: MV60 Sanitary Type
- SC1700/1701: MV70 Explosion-Proof Standard /Extension Type
- SC1710: Mv71 Explosion-Proof Shaft extension Type
- SC1740: Mv74 Explosion-Proof Tuning Fork Standard Type
- SC1741: Mv74 Explosion-Proof Tuning Fork Extension Type

POWER & OUTPUT MODULE _____

R: Relay O/P N: PNP/NPN (for SC2 Series)

MATERIAL _____

0: SUS304 6: SUS316 P: PTFE

CONNECTION _____

D---1"(25A)	M---5kg/cm ²	W---PN 10
E---1-1/2"(40A)	N---10kg/cm ²	X---PN 16
F---2"(50A)	O---150 Lbs	Y---PN 25
G---2-1/2"(65A)	P---300 Lbs	Z---PN 40
H---3"(80A)	Q---PT	S---others
I---4"(100A)	R---PF(G)	9---Sanitary
J---5"(125A)	T---BSP	
K---6"(150A)	U---NPT	
S---others		

LENGTH (L) (UNIT: cm) _____

- 0500: 50cm(01~50)
- 1000: 100cm(51~100)
- 1500: 150cm(101~150) ※ 50cm per Unit

BEFORE YOU ORDER

1. Please affirm the voltage.
2. Please affirm the mounting positions.
3. Please affirm the material specific gravity (S.G.) value.
4. Please affirm whether any bridge block or vibrating motor are attached onto the silo wall.

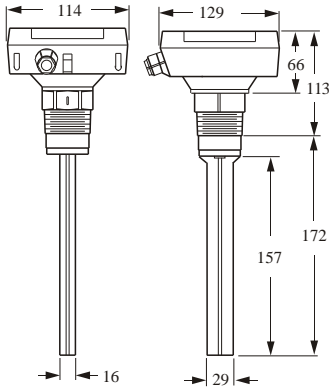
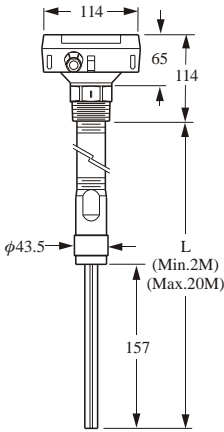
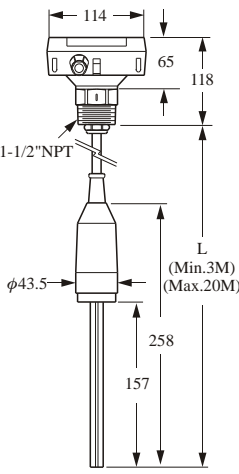
Tolerance of the total product length is ± 5mm

Characteristics, specifications and dimensions are subject to change without notice.

Please contact your nearest distributing office for further information.

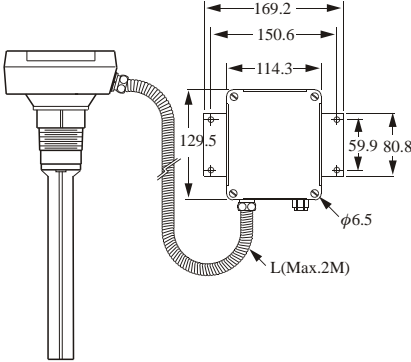
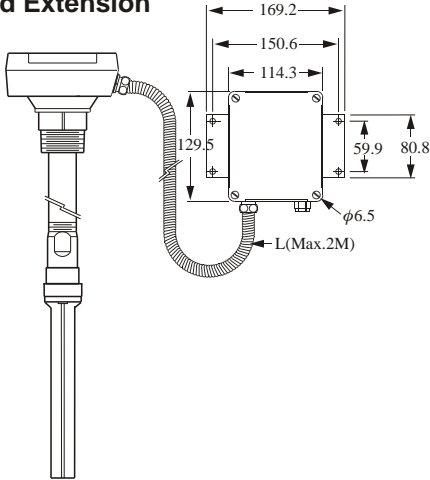
SPECIFICATION

LIGHT SPECIFIC GRAVITY TYPE

DIMENSIONS (Unit:mm)	Standard Type 	Standard W/solid Extension 	Standard W/cable Extension 
Model	ZVL20C	ZVL20E	ZVL20W
Level Sensor Housing	NEMA4,12 / IP65 Die Cast Aluminum	NEMA4,12 / IP65 Die Cast Aluminum	NEMA4,12 / IP65 Die Cast Aluminum
Probe Construction	SUS304	SUS304	SUS304
Mounting	1-1/2"NPT	1-1/2"NPT	1-1/2"NPT
Power Entry	M20x1.5	M20x1.5	M20x1.5
Power Supply	20~250 Vac/Vdc	20~250 Vac/Vdc	20~250 Vac/Vdc
Power Consumption	3VA (MAX.)	3VA (MAX.)	3VA (MAX.)
Min. Material Density Sensed	1.87Lbs.Cu.Ft. (0.03g/cm ³)	1.87Lbs.Cu.Ft. (0.03g/cm ³)	1.87Lbs.Cu.Ft. (0.03g/cm ³)
Operating Temp. In Ambient Air	-22°F ~ 140°F -30°C ~ 60°C	-22°F ~ 140°F -30°C ~ 60°C	-22°F ~ 140°F -30°C ~ 60°C
Operating Temp. In Bin	-22°F ~ 176°F -30°C ~ 80°C	-22°F ~ 176°F -30°C ~ 80°C	-22°F ~ 176°F -30°C ~ 80°C
Operating Pressure.	Vacuum ~150 PSI (10BAR)	Vacuum ~150 PSI (10BAR)	Vacuum ~150 PSI (10BAR)
Relay Output	SPDT 5A/250Vac Max.	SPDT 5A/250Vac Max.	SPDT 5A/250Vac Max.
Time Delay	1 Sec. / Operate 2~5 Secretary / Reset	1 Sec. / Operate 2~5 Secretary / Reset	1 Sec. / Operate 2~5 Secretary / Reset
Extension Material/length	N/A	SUS 304/12Ft. (365.76cm)	Polyurethane Sheath Steel Reinforced 20Ft.(609.60cm)
Vibrating Frequency.	285 Hz	285 Hz	285 Hz
Selectable Fail-safe	HI./ LO.	HI./ LO.	HI./ LO.
Selectable Sensitivity	HI./ LO.	HI./ LO.	HI./ LO.

SPECIFICATION

LIGHT SPECIFIC GRAVITY TYPE

DIMENSIONS (Unit:mm)	Hi-temp/Remote Electronics 	Hi-temp/Remote Electronics/ solid Extension 
Model	ZVL20R	ZVL20S
Level Sensor Housing	NEMA4,12 / IP65 Die Cast Aluminum	NEMA4,12 / IP65 Die Cast Aluminum
Probe Construction	SUS304	SUS304
Mounting	1-1/2"NPT	1-1/2"NPT
Power Entry	M20x1.5	M20x1.5
Power Supply	20~250 Vac/Vdc	20~250 Vac/Vdc
Power Consumption	3VA (MAX.)	3VA (MAX.)
Min. Material Density Sensed	1.87lbs.Cu.Ft. (0.03g/cm ³)	1.87lbs.Cu.Ft. (0.03g/cm ³)
Operating Temp. In Ambient Air	-22°F ~ 140°F -30°C ~ 60°C	-22°F ~ 140°F -30°C ~ 60°C
Operating Temp. In Bin	-22°F ~ 248°F -30°C ~ 120°C	-22°F ~ 248°F -30°C ~ 120°C
Operating Pressure.	Vacuum ~150 PSI (10BAR)	Vacuum ~150 PSI (10BAR)
Relay Output	SPDT 5A/250VAC Max.	SPDT 5A/250VAC Max.
Time Delay	1 Sec. / Operate 2~5 Secretary / Reset	1 Sec. / Operate 2~5 Secretary / Reset
Extension	6Ft.	6Ft.
Vibrating Frequency.	285 Hz	285 Hz
Selectable Fail-safe	HI./ LO.	HI./ LO.
Selectable Sensitivity	HI./ LO.	HI./ LO.

ORDER INFORMATION

ZVL

ORDER NO. _____

- ZVL20C: Standard
- ZVL20E: Standard W/Solid Extension
- ZVL20W: Standard W/Cable Extension
- ZVL20R: Hi-temp/Remote Electronics
- ZVL20S : Hi-temp/Remote Electronics/Solid Extension

CONNECTION _____

- | | | |
|-----------------|--------------------------|-----------|
| C---3/4"(20A) | M---5kg/cm ² | W---PN 10 |
| D---1"(25A) | N---10kg/cm ² | X---PN 16 |
| E---1-1/2"(40A) | O---150 Lbs | Y---PN 25 |
| F---2"(50A) | P---300 Lbs | Z---PN 40 |
| G---2-1/2"(65A) | Q---PT | |
| H---3"(80A) | R---PF(G) | |
| I ---4"(100A) | T ---BSP | |
| J ---5"(125A) | U---NPT | |
| K---6"(150A) | S---other | |
| S---other | | |

LENGTH (L) (UNIT: Cm) _____

BEFORE YOU ORDER

1. Please affirm the Voltage.
2. Please affirm the mounting positions.
3. Please affirm the material specific gravity (S.G.) value.
4. Please affirm whether any bridge block or vibrating motor are attached onto the silo wall.

Tolerance of the total product length is ± 5 mm

Characteristics, specifications and dimensions are subject to change without notice.

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