

MSA-TE Series Tubular Enclosures

For MINI-SCREEN[®] Sensors Mounted in Washdown Environments

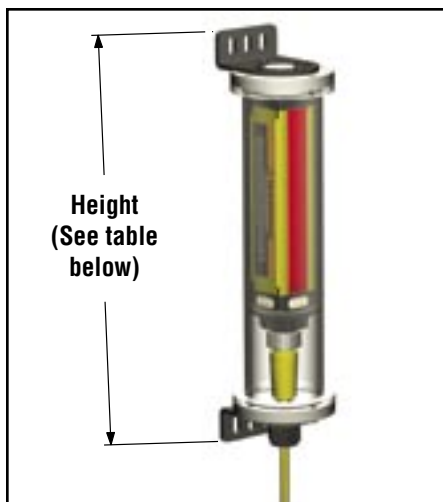


Figure 1. Assembled enclosure

Features

- FDA-grade polycarbonate tubing and acetal end caps
- Stainless steel mounting components
- Brackets and fasteners included
- Ideal for high-pressure washdown applications
- NEMA 4X, IP67
- 12 models available to accommodate MINI-SCREEN[®] sensors 4" to 48" long

Banner MSA-TE Series Tubular Enclosures are designed specifically for use with Banner MINI-SCREEN emitters and receivers. The enclosures are constructed of FDA-approved rugged polycarbonate tubing with FDA-approved acetal end caps. The enclosures are mounted with stainless steel mounting brackets and fasteners. The enclosures are available in 12 lengths.

Use of the enclosure affects the sensing range of the MINI-SCREEN used: when wired in pairs, range can be reduced by 50%. It is recommended to use MINI-SCREEN Long-Range sensors (MSXLE/R) in the tubular enclosure.

Figure 3 shows how the enclosure is assembled. Components are bagged together for easier assembly.



CAUTION... Reduced Sensing Range
Sensing Range is reduced 50% due to tubular construction.



WARNING...
Maintain Required Separation Distance

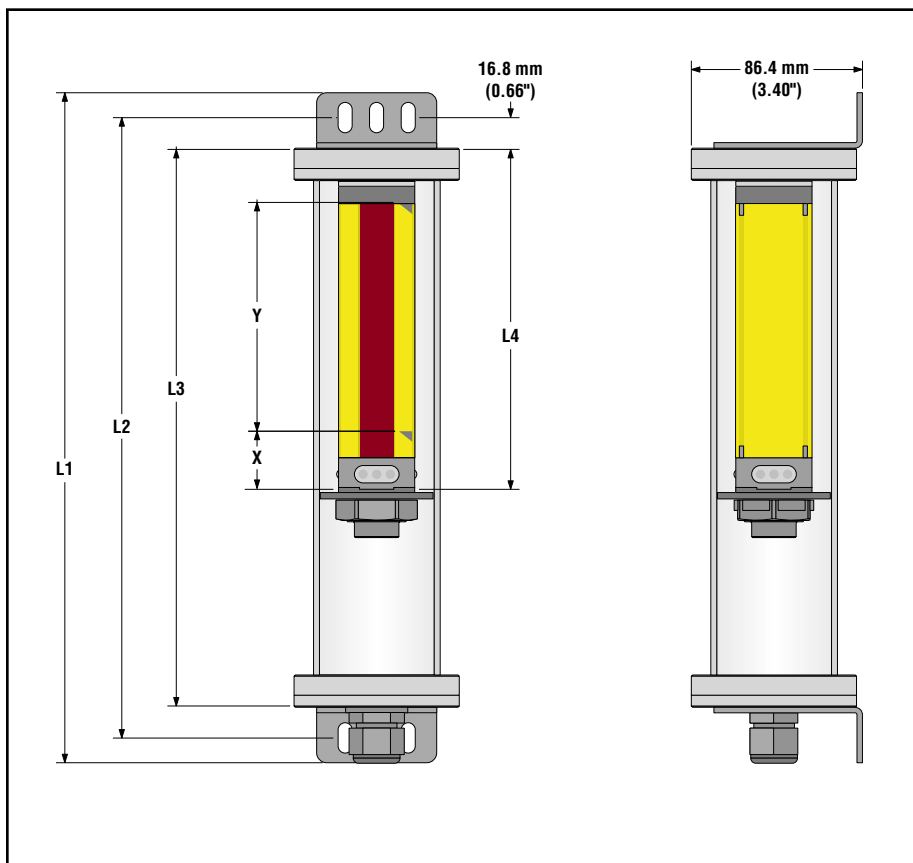
The light screen produced by the optical safety system sensors must be placed at a minimum safe distance from the dangerous motion of the machine being guarded. This necessary minimum distance is called the separation distance, and is discussed in Section 3 of the appropriate instruction manuals. Failure to calculate this distance correctly and to maintain minimum separation distance can result in serious injury.

Models

Enclosure Model	Enclosure Height (Figure 1)	For MINI-SCREEN Sensor Models
MSA-TE-4	338 mm (13.3")	MSXLE/R 4
MSA-TE-8	439 mm (17.3")	MSXLE/R 8
MSA-TE-12	541 mm (21.3")	MSXLE/R 12
MSA-TE-16	643 mm (25.3")	MSXLE/R 16
MSA-TE-20	744 mm (29.3")	MSXLE/R 20
MSA-TE-24	846 mm (33.3")	MSXLE/R 24
MSA-TE-28	947 mm (37.3")	MSXLE/R 28
MSA-TE-32	1049 mm (41.3")	MSXLE/R 32
MSA-TE-36	1151 mm (45.3")	MSXLE/R 36
MSA-TE-40	1252 mm (49.3")	MSXLE/R 40
MSA-TE-44	1354 mm (53.3")	MSXLE/R 44
MSA-TE-48	1455 mm (57.3")	MSXLE/R 48



MSA-TE Series Tubular Enclosures



Included with Each MSA-TE Series Tubular Enclosure	Quantity
Spacer	1
Top End Cap	1
Bottom End Cap	1
Polycarbonate Tube	1
O-Ring (#142)	2
Mounting Bracket	2
M4 Screw	2
M4 Lockwasher	2
#6-32 Screw	8
#6 Split Ring Lockwasher	8
#10-32 Screw	4
#10 Lockwasher	4

Figure 2. Enclosure/MINI-SCREEN dimensions

Model	L1	L2	L3	L4	X	Y
MSA-TE-4	338 mm (13.3")	312 mm (12.3")	279 mm (11.0")	170 mm (6.7")	28 mm (1.1")	114 mm (4.5")
MSA-TE-8	439 mm (17.3")	414 mm (16.3")	381 mm (15.0")	272 mm (10.7")	28 mm (1.1")	215 mm (8.5")
MSA-TE-12	541 mm (21.3")	516 mm (20.3")	483 mm (19.0")	373 mm (14.7")	30 mm (1.2")	305 mm (12")
MSA-TE-16	643 mm (25.3")	617 mm (24.3")	584 mm (23.0")	475 mm (18.7")	30 mm (1.2")	406 mm (16")
MSA-TE-20	744 mm (29.3")	719 mm (28.3")	686 mm (27.0")	577 mm (22.7")	30 mm (1.2")	508 mm (20")
MSA-TE-24	846 mm (33.3")	820 mm (32.3")	787 mm (31.0")	678 mm (26.7")	30 mm (1.2")	610 mm (24")
MSA-TE-28	947 mm (37.3")	922 mm (36.3")	889 mm (35.0")	780 mm (30.7")	33 mm (1.3")	711 mm (28")
MSA-TE-32	1049 mm (41.3")	1024 mm (40.3")	991 mm (39.0")	879 mm (34.6")	33 mm (1.3")	813 mm (32")
MSA-TE-36	1151 mm (45.3")	1125 mm (44.3")	1092 mm (43.0")	980 mm (38.6")	33 mm (1.3")	914 mm (36")
MSA-TE-40	1252 mm (49.3")	1227 mm (48.3")	1194 mm (47.0")	1082 mm (42.6")	33 mm (1.3")	1016 mm (40")
MSA-TE-44	1354 mm (53.3")	1328 mm (52.3")	1295 mm (51.0")	1184 mm (46.6")	33 mm (1.3")	1118 mm (44")
MSA-TE-48	1455 mm (57.3")	1430 mm (56.3")	1397 mm (55.0")	1285 mm (50.6")	33 mm (1.3")	1219 mm (48")

MSA-TE Series Tubular Enclosures

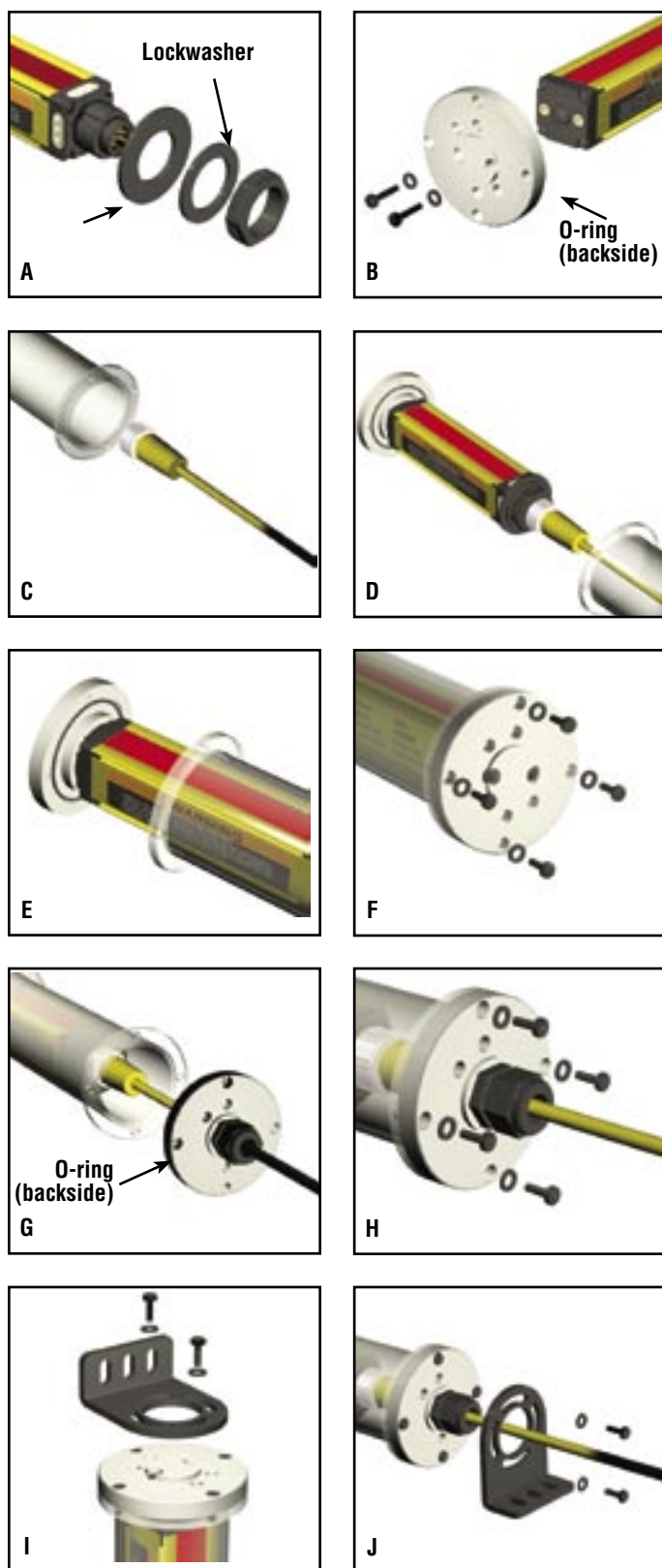


Figure 3. MSA-TE Series Tubular Enclosure assembly steps

Assembly Instructions

- A. Place spacer disk on the QD end of the MINI-SCREEN sensor, using the plastic mounting nut and lockwasher (supplied with MINI-SCREEN).
- B. Screw the top cap onto the non-QD end of the MINI-SCREEN using the two M4 screws and lockwashers (make sure o-ring is in place on top cap). Torque: 6 in-lbs max.
- C. Being careful not to scratch the tubular housing, slide the terminated end of the cordset into the labeled end of the clear tube and push it through, so it comes out the other end.
- D. Connect the cordset to the MINI-SCREEN.
- E. Slide the MINI-SCREEN into the clear tube until the top cap mates with the tube flange. Make sure the o-ring seals against the flat surface of the flange.
- F. Screw the top cap to the tube flange using four 6-32 screws and lockwashers. Torque: 15 in-lbs max.
- G. Slide the bottom end cap over the unterminated end of the cordset, making sure the o-ring is in place on the bottom cap.
- H. Screw the bottom cap to the tube flange, using four 6-32 screws and lockwashers. Make sure the o-ring seals against the flat surface of the flange. Torque: 15 in-lbs max. Tighten the strain relief nut over the cordset cable.
- I. Place the mounting bracket on the top cap and secure with two 10-32 screws and lockwashers. Torque: 50 in-lbs max.
- J. Place the mounting bracket over the cordset cable and to the bottom end cap; secure with two 10-32 screws and lockwashers. Torque: 50 in-lbs max.

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