



MC PRODUCTS
TECHNICAL MANUAL
SENSOR SPECIFICATIONS
INSTALLATION INSTRUCTIONS

**** SENSORS MANUAL ****

**** topics ****

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**** SERIES 500 SENSOR SPECIFICATIONS****

SENSOR TYPE	CABLE LENGTH	MALE CONNECTOR	FLANGE DIAMETER
TOP MOUNT	1 ft.	GRAY DEUTSCH 6 PIN CONNECTOR (MALE) DT04-6P	2.5"
RIGHT ANGLE SIDE MOUNT	1 ft.	GRAY DEUTSCH 6 PIN CONNECTOR (MALE) DT04-6P	3.00"
FILL TOWER SLIP OUT	1 ft.	GRAY DEUTSCH 6 PIN CONNECTOR (MALE)DT04-6P	N/A

**** SERIES 2000 SENSOR SPECIFICATIONS****

SENSOR TYPE	CABLE LENGTH	MALE CONNECTOR	FLANGE DIAMETER	LENGTH
TOP MOUNT 4 BOLT	1 ft.	GRAY DEUTSCH 4 PIN CONNECTOR (MALE) DT04-4P	2.5"	CUSTOM SIZED
TOP MOUNT 6 BOLT GEM	1 ft.	GRAY DEUTSCH 4 PIN CONNECTOR (MALE) DT04-4P	4.5"	CUSTOM SIZED
SIDE MOUNT	1 ft.	GRAY DEUTSCH 4 PIN CONNECTOR (MALE) DT04-4P	2.5"	6"



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**** TOP MOUNT SENSOR INSTALLATION & DIMENSIONS****

STEP1

NOTE BEFORE DRILLING!! DETERMINE CLEAREST ACCESS TO THE LOWEST POINT IN THE TANK. LOCATE SENSOR AWAY FROM TANK FILL AND SUMP. CONSIDER EASE OF SERVICE ACCESS TO SENSOR LATER. DRILL A 1 1/2" (38mm) HOLE IN THE TOP OF THE WATER TANK

STEP2

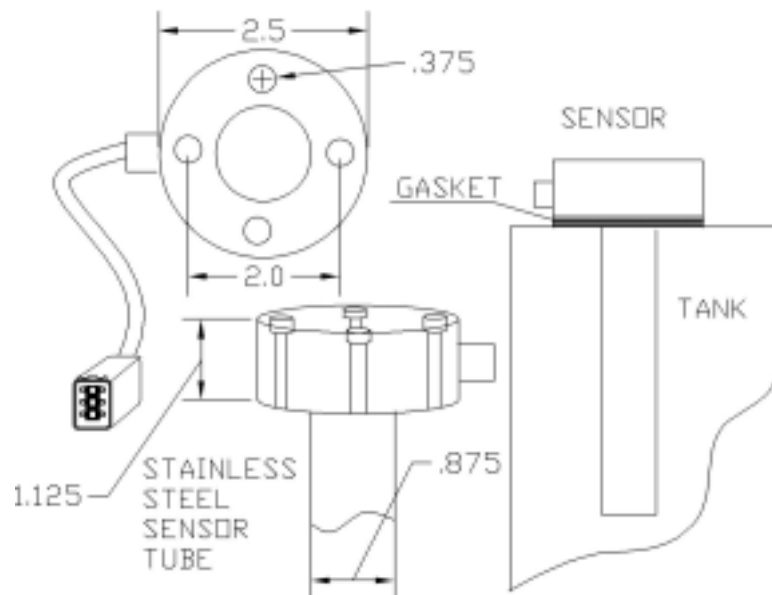
INSERT SENSOR THROUGH THE HOLE IN THE TOP OF THE TANK. USE THE FLANGE AS A TEMPLATE TO MARK THE 4 MOUNTING HOLES THEN DRILL PILOT HOLES FOR THE SCREWS.

STEP3

INSTALL SUPPLIED GASKET BETWEEN THE FLANGE AND TANK. MAKE SURE SENSOR CABLE IS POINTING OUT TOWARD THE CONTROL CABLE CONNECTOR. USE SUPPLIED SCREWS TO MOUNT FLANGE TO TANK.

STEP4

CONNECT THE 1 ft. SENSOR CABLE TO THE CONTROL CABLE. ROUTE THE CONTROL CABLE TOWARD THE MONITOR CABLE AND CONNECT.



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**** RIGHT ANGLE MOUNT SENSOR INSTALLATION & DIMENSIONS****

STEP1

NOTE BEFORE DRILLING!! LOCATE SENSOR AWAY FROM TANK FILL AND SUMP. CONSIDER EASE OF SERVICE ACCESS TO SENSOR.
MEASURE 3" FROM THE TOP OF THE TANK AND DRILL A 1 1/2" (38mm) HOLE IN THE SIDE OF THE TANK.

STEP2

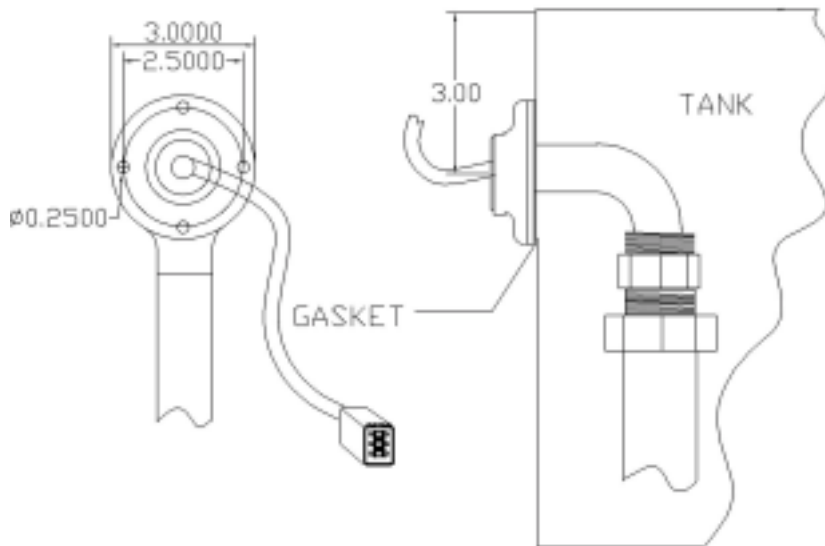
INSERT THE SENSOR THROUGH THE HOLE. USE THE FLANGE AS A TEMPLATE TO MARK THE LOCATION OF THE FOUR MOUNTING SCREWS AND DRILL PILOT HOLES TO ACCEPT THE SUPPLIED SCREWS.

STEP 3

INSERT SUPPLIED GASKET BETWEEN THE FLANGE AND THE TANK. SECURE THE FLANGE TO THE TANK USING THE SUPPLIED SCREWS.

STEP 4

CONNECT THE 1 ft. SENSOR CABLE TO THE CONTROL CABLE. ROUTE THE CONTROL CABLE TOWARD THE MONITOR CABLE.



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**** FILL TOWER SENSOR MOUNTING INSTALLATION INSTRUCTIONS****

STEP 1----- **FOR NEW TRUCKS:** HAVE THE TANK MANUFACTURER INSTALL A BRACKET ON THE INSIDE WALL OF THE FILL TOWER AS SHOWN ON THE NEXT PAGE. THIS BRACKET SHOULD HAVE A 1" TIPT FEMALE TO ACCEPT THE SLIP FITTING. DIMENSIONS OF THE BRACKET SHOULD BE 2 ½" x 4" WITH A 1" THREADED HOLE. THE HOLE IN THE BRACKET SHOULD BE 3" AWAY FROM THE TOWER WALL. GO TO STEP 3.

STEP 2----- **FOR FIELD INSTALLATIONS:** INSTALL A BRACKET ON THE INSIDE WALL OF THE FILL TOWER AS SHOWN ON THE NEXT PAGE. THE HORIZONTAL PART OF THE BRACKET MUST HAVE A 1" TIPT THREADED HOLE TO ACCEPT THE SUPPLIED SLIP FITTING. THE 1" THREADED HOLE IN THE BRACKET SHOULD BE 3" FROM THE TOWER WALL.

STEP 3----- SCREW THE SUPPLIED 1" SLIP FITTING INTO THE 1" THREADED HOLE IN YOUR BRACKET. SLIDE THE SENSOR INTO THE TOP OF THE SLIP FITTING.

STEP 4----- DRILL A 1" HOLE THROUGH THE WALL OF THE FILL TOWER TO ALLOW THE SENSOR CONNECTION TO BE OUTSIDE OF THE FILL TOWER.

STEP 5----- CONNECT THE SENSOR CABLE TO THE CONTROL CABLE OUTSIDE THE FILL TOWER. MAKE SURE THE CONNECTOR IS SECURE.

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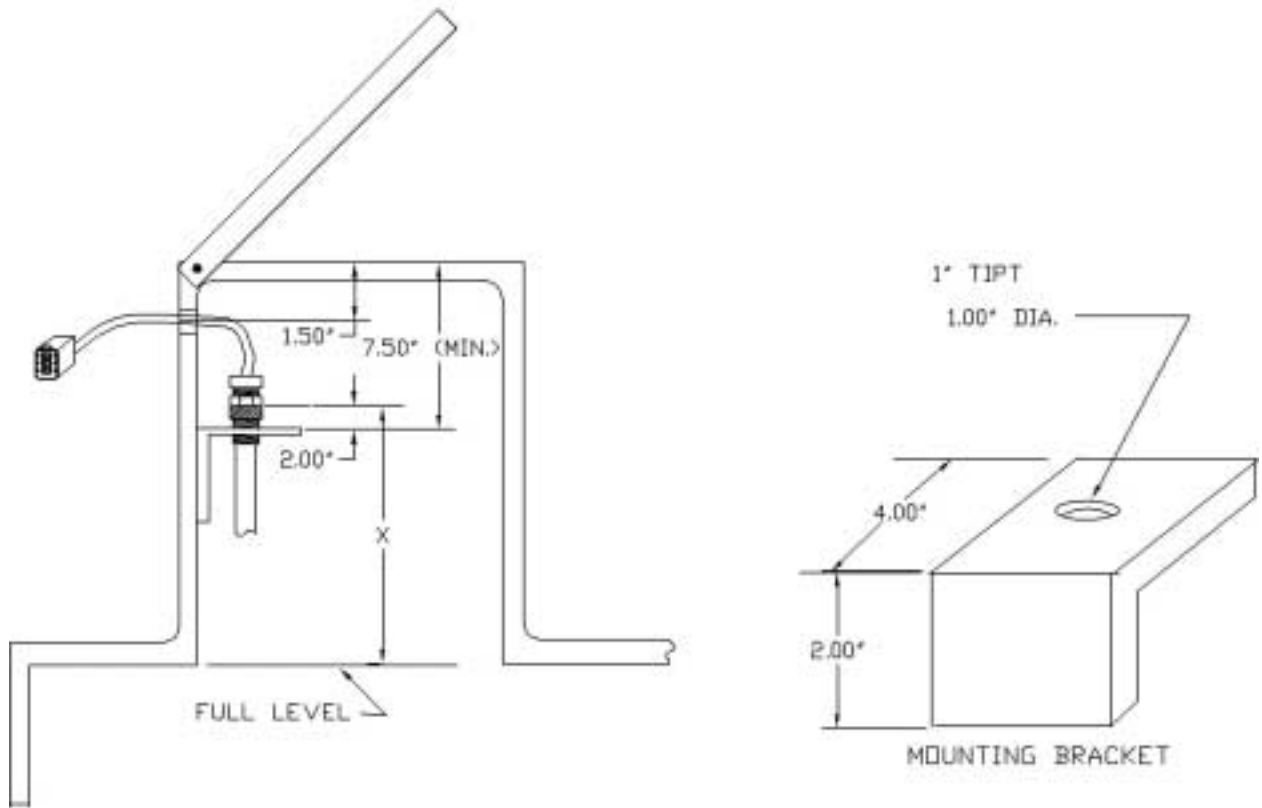


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**** FILL TOWER PICTORIALS****

NOTE:

WHEN ORDERING SENSOR, WE REQUIRE THE DISTANCE FROM THE TOP OF THE SLIP FITTING TO THE TOP OF THE TANK OR WATER LEVEL.



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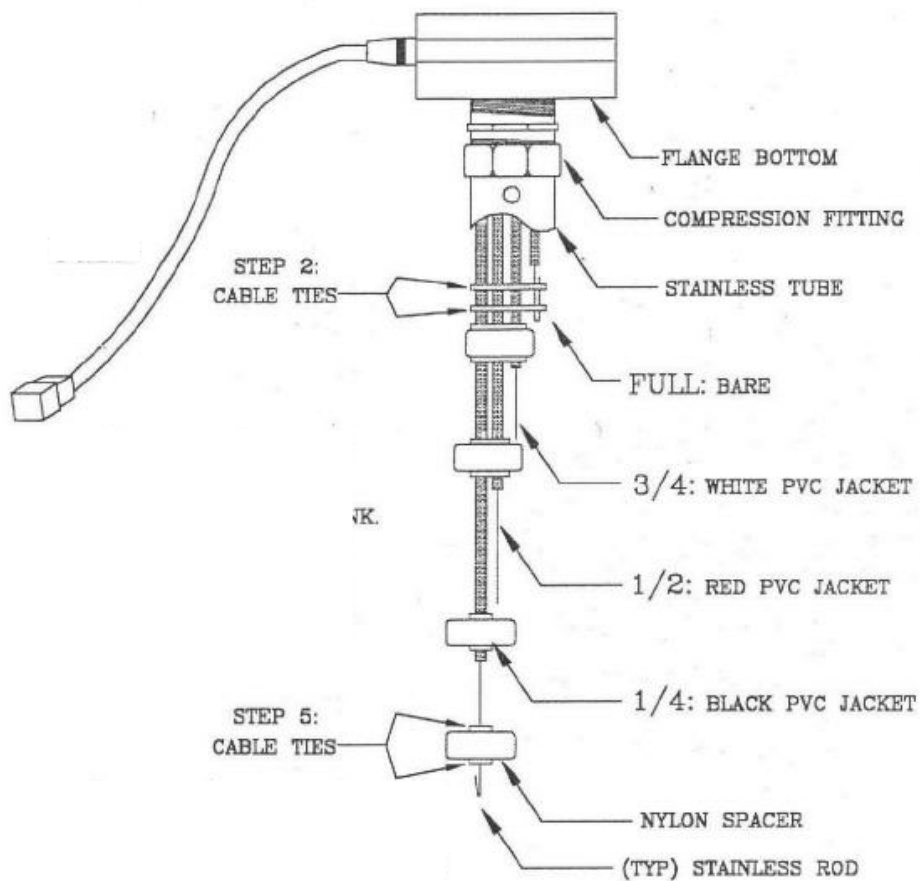
**** SENSOR FIELD SIZING INSTRUCTIONS****
(FOR SQUARE, RECTANGULAR TANKS)

- STEP1** USING THE SUPPLIED FIELD SIZING CHART, ON PAGE 9, DETERMINE THE PVC JACKET COLOR CODES AND PROBE LENGTHS FOR EACH PROBE REQUIRED FOR YOUR TANK. FULL (BARE), ¾ LEVEL (WHITE), ½ (RED), & ¼ (BLACK).
- STEP2** ADD TANK TOP THICKNESS TO EACH PROBE. THEN CUT THE PROBES TO THE CORRECT LENGTHS FOR YOUR TANK. **FULL (BARE) LEVEL, ¾ LEVEL (WHITE), ½ LEVEL (RED), ¼ LEVEL (BLACK).**
- STEP3** BEND THE FULL PROBE (BARE), (**180°**) BACK, TOWARD THE BRASS COMPRESSION FITTING. REFER TO THE PICTORIAL ON PAGE 8. **NOTE: FOR CYLINDRICAL TANKS, ONLY BEND BACK 6"!** USING THE SUPPLIED CABLE TIES, PLACE ONE TIE AT THE TOP OF THE FULL PROBE AND ONE TIE AT THE BOTTOM OF THE FULL PROBE MAKING SURE TO INCLUDE ALL REMAINING PROBES IN THE BUNDLE.
IMPORTANT NOTE: PLACE THE BAND PORTION OF THE CABLE TIE ON THE FULL PROBE ENSURING THAT THE CLIP PORTION OF THE TIE SITS ON THE PVC JACKET OF THE REMAINING PROBES.
- STEP4** PLACE ONE SPACER, EACH, AT THE END OF THE ½ (RED) AND THE ¾ (WHITE) PROBE ENSURING THAT ALL REMAINING PROBES SIT INSIDE THE SPACER. SECURE WITH A CABLE TIE ABOVE AND BELOW EACH SPACER. REFER TO APPENDIX C FOR A PICTORIAL. **NOTE: FOR TANK DEPTHS LESS THAN 13", OMIT USING THE SPACER AT THE END OF THE ¾ (WHITE) PROBE.**
- STEP5** STRIP AWAY THE PVC JACKET AT THE ENDS OF THE PROBE EXPOSING ¾" OF BARE WIRE FOR TANKS WITH DEPTHS LESS THAN 13" AND STRIP 1" FOR TANKS GREATER THAN 13" DEPTHS.
- STEP6** SLIDE A SPACER OVER THE PVC JACKET (1/4 LEVEL) AND SECURE WITH A CABLE TIE ABOVE AND BELOW THE SPACER. THE CABLE TIE SHOULD SIT ON THE BLACK PVC JACKET.
- STEP7** BEND BACK THE END OF THE ¼ PROBE (BLACK PVC JACKET) ½" TO FORM A LOOP. LOOK AT THE PICTORIAL ON PAGE 8.
- STEP8** AT THE END WITHOUT THE VENT HOLE, CUT THE STAINLESS STEEL TUBE! THE SAME LENGTH AS THE ¼ (BLACK PVC JACKET) PROBE AS INDICATED IN THE FIELD SIZING CHART ON PAGE 9.
- STEP 9** CLEAN AND DE-BURR THE NEWLY CUT END OF THE TUBE.



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- STEP 10** INSERT THE END OF THE TUBE WITH THE VENT HOLE, INTO THE COMPRESSION FITTING AND TIGHTEN SECURELY.
- STEP 11** SECURE THE SENSOR FLANGE TO THE TANK USING THE SUPPLIED SCREWS.
- STEP 12** CONNECT SENSOR CABLE TO CONTROL CABLE



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FIELD SIZING CHART FOR SQUARE & RECTANGULAR TANKS ONLY

1.) TOP MOUNT SENSORS: Add the thickness of the top of the tank to each probe length. 2.) FILL TOWER SENSORS: (See sensor instruction manual page 5.) 3.) FOR CYLINDRICAL & IRREGULAR TANKS, CALL MC PRODUCTS (800) 843-6465.

TANK DEPTH	PROBE LENGTHS *Allowances included for 1/4 and full probe bend				TANK DEPTH	PROBE LENGTHS*Allowances included for 1/4 and full probe bend			
	BARE (Full)	WHITE (3/4)	RED (1/2)	BLACK (1/4)		BARE (Full)	WHITE (3/4)	RED (1/2)	BLACK (1/4)
10"	5"	3 5/8"	5 3/8"	8 1/8"	35.5"	7 3/4"	9"	17 7/8"	27 1/4"
10.5"	5"	3 3/4"	5 5/8"	8 1/2"	36"	7 3/4"	9 1/8"	18 1/8"	27 5/8"
11"	5"	3 7/8"	5 7/8"	8 7/8"	36.5"	7 3/4"	9 1/4"	18 3/8"	28"
11.5"	5"	4"	6 1/8"	9 1/4"	37"	7 3/4"	9 3/8"	18 5/8"	28 3/8"
12"	5"	4 1/8"	6 3/8"	9 5/8"	37.5"	7 3/4"	9 1/2"	18 7/8"	28 3/4"
12.5"	5"	4 1/4"	6 5/8"	10"	38"	7 3/4"	9 5/8"	19 1/8"	29 1/8"
13"	5"	3 7/8"	6 5/8"	10 3/8"	38.5"	7 3/4"	9 3/4"	19 3/8"	29 1/2"
13.5"	5"	4 1/2"	7 1/8"	10 3/4"	39"	7 3/4"	9 7/8"	19 5/8"	29 7/8"
14"	5"	4 1/8"	7 1/8"	11 1/8"	39.5"	7 3/4"	10"	19 7/8"	30 1/4"
14.5"	5"	4 1/2"	7 3/8"	11 1/2"	40"	7 3/4"	10 1/8"	20 1/8"	30 5/8"
15"	5"	4 1/2"	7 5/8"	11 7/8"	40.5"	7 3/4"	10 1/4"	20 3/8"	31"
15.5"	5"	4 5/8"	7 7/8"	12 1/4"	41"	7 3/4"	10 3/8"	20 5/8"	31 3/8"
16"	5"	4 1/2"	8 1/8"	12 5/8"	41.5"	7 3/4"	10 1/2"	20 7/8"	31 3/4"
16.5"	5"	4 1/4"	8 3/8"	13"	42"	7 3/4"	10 5/8"	21 1/8"	32 1/8"
17"	5"	4 3/8"	8 5/8"	13 3/8"	42.5"	7 3/4"	10 3/4"	21 3/8"	32 1/2"
17.5"	5"	4 1/2"	8 7/8"	13 3/4"	43"	7 3/4"	10 7/8"	21 5/8"	32 7/8"
18"	5"	4 5/8"	9 1/8"	14 1/8"	43.5"	7 3/4"	11"	21 7/8"	33 1/4"
18.5"	5"	4 3/4"	9 3/8"	14 1/2"	44"	7 3/4"	11 1/8"	22 1/8"	33 5/8"
19"	5 1/4"	4 7/8"	9 5/8"	14 7/8"	44.5"	7 3/4"	11 1/4"	22 3/8"	34"
19.5"	5 1/2"	5"	9 7/8"	15 1/4"	45"	7 3/4"	11 3/8"	22 5/8"	34 3/8"
20"	5 3/4"	5 1/8"	10 1/8"	15 5/8"	45.5"	7 3/4"	11 1/2"	22 7/8"	34 3/4"
20.5"	6"	5 1/4"	10 3/8"	16"	46"	7 3/4"	11 5/8"	23 1/8"	35 1/8"
21"	6 1/4"	5 3/8"	10 5/8"	16 3/8"	46.5"	7 3/4"	11 3/4"	23 3/8"	35 1/2"
21.5"	6 1/2"	5 1/2"	10 7/8"	16 3/4"	47"	7 3/4"	11 7/8"	23 5/8"	35 7/8"
22"	6 3/4"	5 5/8"	11 1/8"	17 1/8"	47.5"	7 3/4"	12"	23 7/8"	36 1/4"
22.5"	7"	5 3/4"	11 3/8"	17 1/2"	48"	7 3/4"	12 1/8"	24 1/8"	36 5/8"
23"	7 1/4"	5 7/8"	11 5/8"	17 7/8"	48.5"	7 3/4"	12 1/4"	24 3/8"	37"
23.5"	7 1/2"	6"	11 7/8"	18 1/4"	49"	7 3/4"	12 3/8"	24 5/8"	37 3/8"
24"	7 3/4"	6 1/8"	12 1/8"	18 5/8"	49.5"	7 3/4"	12 1/2"	24 7/8"	37 3/4"
24.5"	7 3/4"	6 1/4"	12 3/8"	19"	50"	7 3/4"	12 5/8"	25 1/8"	38 1/8"
25"	7 3/4"	6 3/8"	12 5/8"	19 3/8"	50.5"	7 3/4"	12 3/4"	25 3/8"	38 1/2"
25.5"	7 3/4"	6 1/2"	12 7/8"	19 3/4"	51"	7 3/4"	12 7/8"	25 5/8"	38 7/8"
26"	7 3/4"	6 5/8"	13 1/8"	20 1/8"	51.5"	8 3/4"	13"	25 7/8"	39 1/4"
26.5"	7 3/4"	6 3/4"	13 3/8"	20 1/2"	52"	8 3/4"	13 1/8"	26 1/8"	39 5/8"
27"	7 3/4"	6 7/8"	13 5/8"	20 7/8"	52.5"	8 3/4"	13 1/4"	26 3/8"	40"
27.5"	7 3/4"	7"	13 7/8"	21 1/4"	53"	8 3/4"	13 3/8"	26 5/8"	40 3/8"
28"	7 3/4"	7 1/8"	14 1/8"	21 5/8"	53.5"	8 3/4"	13 1/2"	26 7/8"	40 3/4"
28.5"	7 3/4"	7 1/4"	14 3/8"	22"	54"	8 3/4"	13 5/8"	27 1/8"	41 1/8"
29"	7 3/4"	7 3/8"	14 5/8"	22 3/8"	54.5"	8 3/4"	13 3/4"	27 3/8"	41 1/2"
29.5"	7 3/4"	7 1/2"	14 7/8"	22 3/4"	55"	8 3/4"	13 7/8"	27 5/8"	41 7/8"
30"	7 3/4"	7 5/8"	15 1/8"	23 1/8"	55.5"	8 3/4"	14"	27 7/8"	42 1/4"
30.5"	7 3/4"	7 3/4"	15 3/8"	23 1/2"	56"	8 3/4"	14 1/8"	28 1/8"	42 5/8"
31"	7 3/4"	7 7/8"	15 5/8"	23 7/8"	56.5"	8 3/4"	14 1/4"	28 3/8"	43"
31.5"	7 3/4"	8"	15 7/8"	24 1/4"	57"	8 3/4"	14 3/8"	28 5/8"	43 3/8"
32"	7 3/4"	8 1/8"	16 1/8"	24 5/8"	57.5"	8 3/4"	14 1/2"	28 7/8"	43 3/4"
32.5"	7 3/4"	8 1/4"	16 3/8"	25"	58"	8 3/4"	14 5/8"	29 1/8"	44 1/8"
33"	7 3/4"	8 3/8"	16 5/8"	25 3/8"	58.5"	8 3/4"	14 3/4"	29 3/8"	44 1/2"
33.5"	7 3/4"	8 1/2"	16 7/8"	25 3/4"	59"	8 3/4"	14 7/8"	29 5/8"	44 7/8"
34"	7 3/4"	8 5/8"	17 1/8"	26 1/8"	59.5"	8 3/4"	15"	29 7/8"	45 1/4"
34.5"	7 3/4"	8 3/4"	17 3/8"	26 1/2"	60"	8 3/4"	15 1/8"	30 1/8"	45 5/8"
35"	7 3/4"	8 7/8"	17 5/8"	26 7/8"					



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**** TOP & SIDE MOUNT SENSOR INSTALLATION AND
DIMENSIONS**
(4-BOLT)**

NOTE BEFORE DRILLING!! DETERMINE CLEAREST ACCESS TO THE LOWEST SECTION IN THE TANK. LOCATE SENSOR AWAY FROM TANK FILL AND SUMP. CONSIDER EASE OF SERVICE ACCESS TO SENSOR. **THE END CAP OF THE SENSOR SHOULD BE AT LEAST 1 1/2"-2" OFF THE BOTTOM OF THE TANK.**

STEP 1 DRILL A 1 1/2" (38 mm) HOLE IN THE TOP OF THE TANK. INSERT THE SENSOR THROUGH THE HOLE IN THE TANK.

STEP 2 USE THE FLANGE AS A TEMPLATE TO MARK 4 MOUNTING HOLES THEN DRILL PILOT HOLES (3/16" DIAMETER) FOR THE SUPPLIED SCREWS.

STEP 3 INSTALL THE SUPPLIED GASKET BETWEEN THE FLANGE AND THE TANK. MAKE SURE THE SENSOR CABLE IS POINTING OUT TOWARD THE CONTROL CABLE CONNECTOR. USE SUPPLIED SCREWS TO MOUNT THE FLANGE TO THE TANK

STEP 4 CONNECT THE 1ft. SENSOR CABLE TO THE CONTROL CABLE. ROUTE THE CONTROL CABLE TOWARD THE MONITOR CABLE AND CONNECT

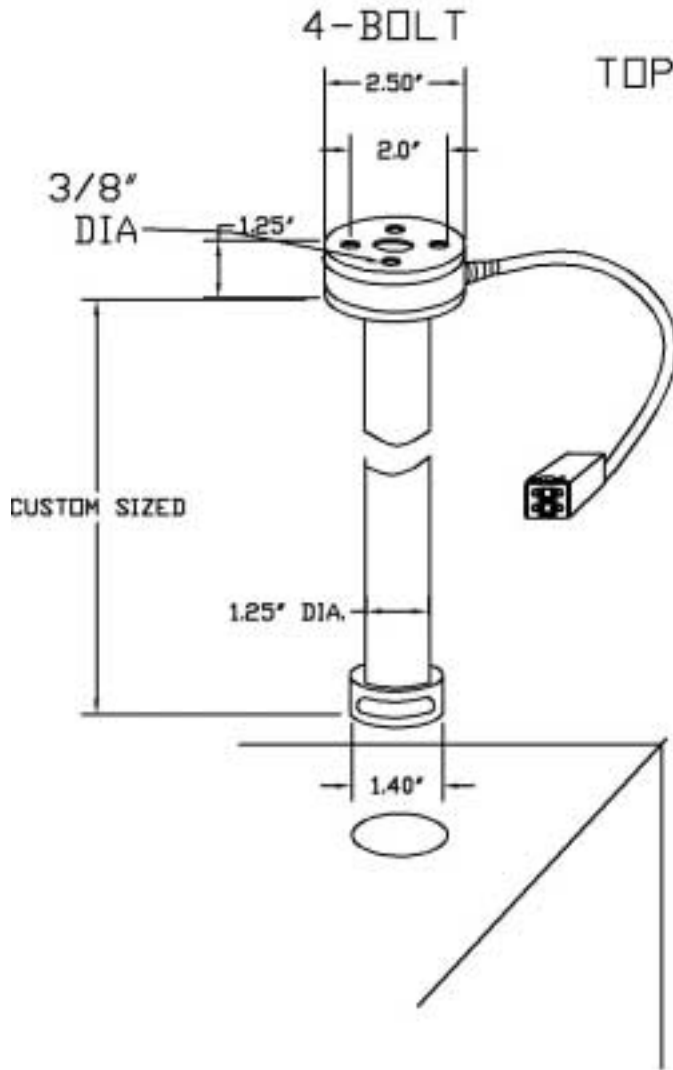
REFER TO PAGE 11 FOR SENSOR DIMENSIONS

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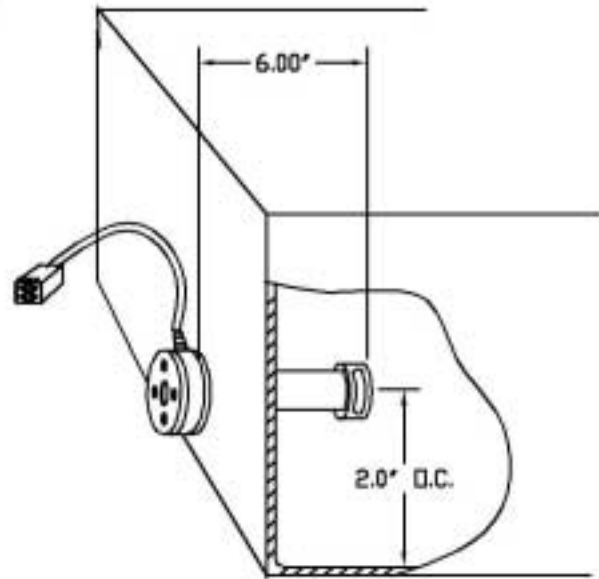


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TOP AND SIDE MOUNT PVC SENSOR



ALL SIDE MOUNT DIMENSIONS ARE THE SAME AS TOP MOUNT EXCEPT LENGTH OF SENSOR



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Cylindrical tank probe length worksheet

Read all the field sizing instruction steps thoroughly before cutting the probes.

Print and fill out probe length work sheet on this page.

- Enter the inside diameter of your cylindrical tank , in inches, in the blank titled : **“Tank Diameter”** for each of four probes.
- If the sensor is being mounted above the top of the tank, enter the distance, in inches, in the blank titled: **“Offset”** for each of four probes.
- Enter your tank top thickness, in inches, in the blank titled: **“Tank top thickness”** for each of four probes. Be sure that this measurement was not included in the diameter above.
- After performing the calculations, enter the results on this worksheet. You are now ready to cut the probes. Remember...measure twice and cut once!
- The full and ¼ probes require additional lengths to complete the field sizing operation. These have been accounted for in the below calculations.
- Follow the steps 1 through 12 on page 7 to complete the assemble of the sensor.

Full probe (bare)

Tank diameter _____ x .186 = _____

Offset (mounting height
above tank-in inches) = _____

Tank top thickness = _____

Constant assembly offset = **6”**

+ _____

“cut length” = _____

½ probe level (red pvc jacket)

Tank diameter _____ x .500 = _____

Offset (mounting height
above tank-in inches) = _____

Tank top thickness = _____

+ _____

“cut length” = _____

¾” probe level (white pvc jacket)

Tank diameter _____ x .333 = _____

Offset (mounting height
above tank-in inches) = _____

Tank top thickness = _____

+ _____

“cut length” = _____

¼ probe level (black pvc jacket)

Tank diameter _____ x .670 = _____

Offset (mounting height
above tank-in inches) = _____

Tank top thickness = _____

Constant assembly offset = **½”**

+ _____

“cut length” = _____