Torque Tube Replacement Guide

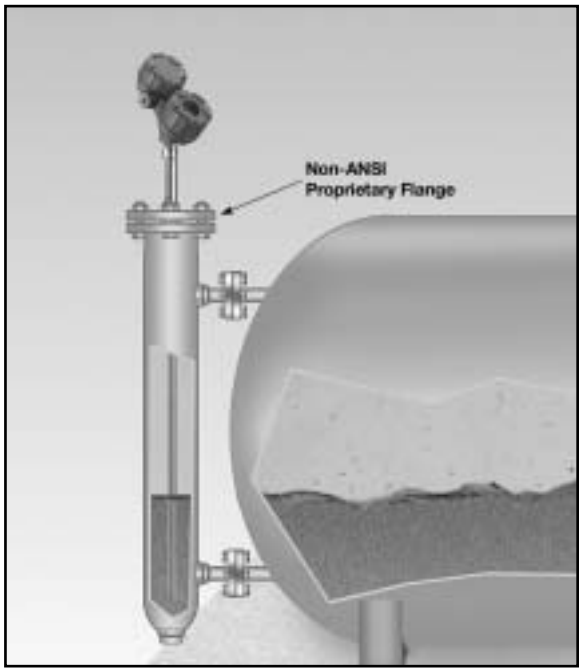
DESCRIPTION

Magnetrol's Torque Tube Chamber Flange options facilitate retrofitting Eclipse® Guided Wave Radar transmitters to torque tube chambers with Side/Side or Side/Bottom process connections. Eclipse features no moving parts to wear and lose tolerance over time. Unlike large, bulky and expensive torque tube transmitters, Eclipse is small, easy to handle/configure, and has an exceptionally low cost of ownership.

After removal of the torque tube topworks assembly (transmitter/controller), Eclipse Guided Wave Radar may then be installed in the existing chamber, through the use of the non-ANSI proprietary flange. Several models are available to suit the bolt circle, pattern, diameter, pressure class and material types of several major torque tube displacer transmitter manufacturers. Whether in steam drums, boiler feedwater heaters, preheaters, crackers, reactors, or other process applications, Eclipse has proven it can reliably and continuously measure and transmit accurate level information. See Sales Bulletin 57-101 for complete information.

FEATURES & BENEFITS

- Eclipse has no moving parts; nothing to wear or lose tolerance.
- Eclipse is not affected by changes in specific gravity or vapor density.
- No calibration necessary; can be configured in minutes on instrument bench.
- Eclipse twin rod and single rod probes are designed for use in viscous, dirty applications.
- Proprietary flanges available.
- Purchase of Eclipse is only slightly more than the cost to overhaul torque tubes.
- The flexibility of Eclipse allows for either the retrofit of existing chambers with "side-side" or "side-bottom" connection or the replacement of existing chambers in "top in–bottom/side out" flow through applications.



Eclipse Guided Wave Radar Transmitter

Typical Torque Tube Transmitter (with Side/Side process connections)

ECLIPSE PROBE MODEL NUMBER

BASIC ECLIPSE PROBE MODEL NUMBER

CONFIGURATION/STYLE

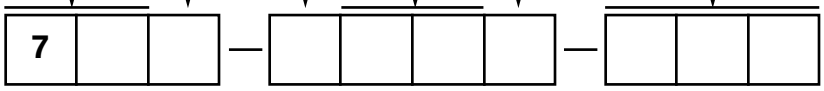
MATERIAL OF CONSTRUCTION

PROCESS CONNECTION SIZE/TYPE

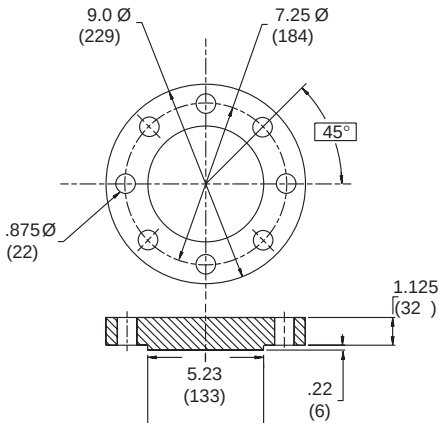
TT	Fisher® torque tube flange, carbon steel (249B)
TU	Fisher torque tube flange, 316 stainless steel (249C)
TV	Fisher torque tube flange, carbon steel with top hat (249B)
UT	Masoneilan® torque tube flange, carbon steel
UU	Masoneilan torque tube flange, 316 stainless steel
UV	Masoneilan torque tube flange, carbon steel with top hat
4R	2" 150# ANSI raised face carbon steel flange with top hat
4S	2" 300/600# ANSI raised face carbon steel flange with top hat
5R	3" 150# ANSI raised face carbon steel flange with top hat
5S	3" 300/600# ANSI raised face carbon steel flange with top hat

O-RINGS

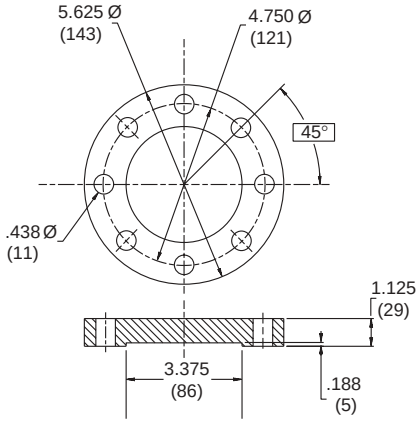
LENGTH



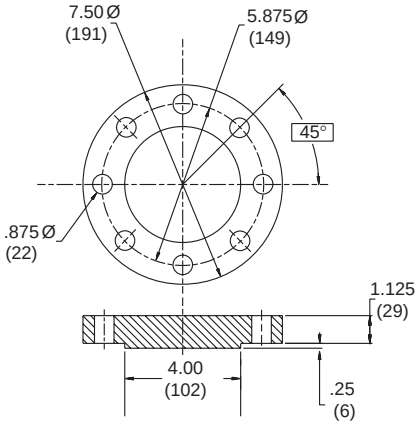
NON-ANSI FLANGES



Fisher 249B/259B (600 lb.), carbon steel



Fisher 249C (600 lb.), 316 stainless steel



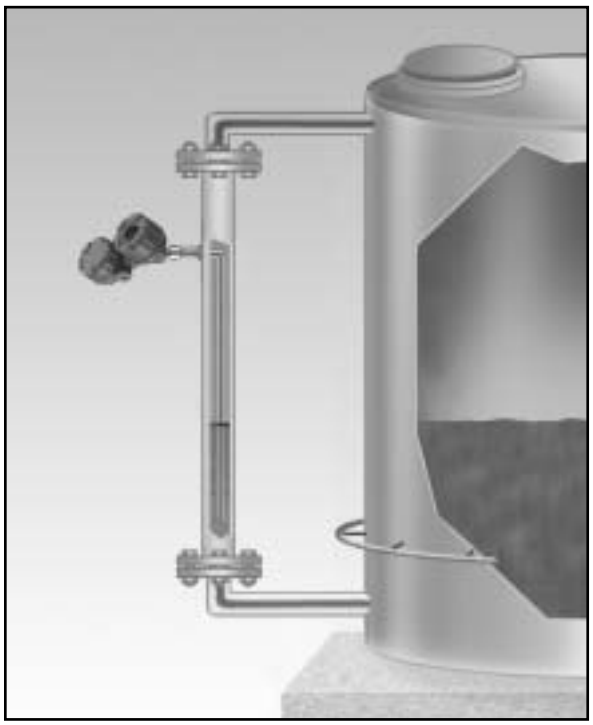
Masoneilan (600 lb.), carbon steel

Note: When attempting to mate to an existing torque tube transmitter cage flange, confirm flange dimensions above. Refer to sales bulletin 57-101 for more information.

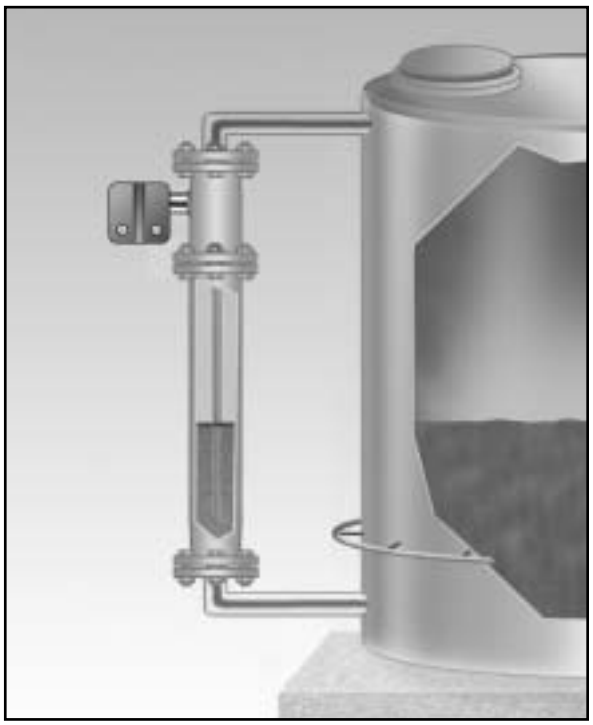
TOP IN/BOTTOM OUT

In addition to Magnetrol's Torque Tube Chamber Flange options, the Eclipse Model 705 transmitter and Model 7EK probe/chamber can also be used in replacing existing Top In/Bottom Out and Top In/Side Out torque tube installations.

After removal of the existing torque tube chamber assembly (transmitter, controller, and chamber), Eclipse Guided Wave Radar may then be installed directly in its place. Several models are available for some of the major torque tube displacer transmitter manufacturers. Because the Model 7EK probe/chamber mounting dimensions and measuring ranges match the original manufacturer's specification, no re-piping is necessary.



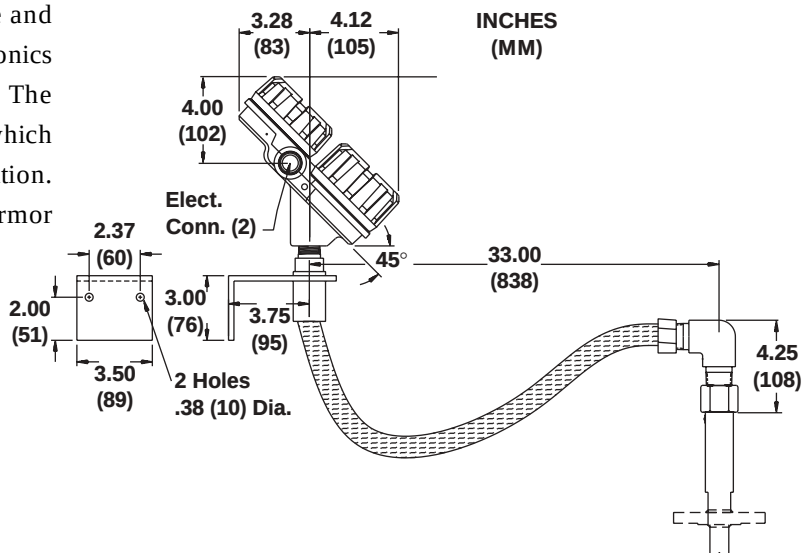
Eclipse Guided Wave Radar Transmitter in Top In/Bottom Out Configuration



Typical Torque Tube Transmitter in Top In/Bottom Out Configuration

REMOTE ASSEMBLY

The Local/Remote assembly is meant to be a simple and cost-effective way to remove the transmitter electronics and locate it a short distance away from the probe. The assembly allows a remote distance of 33" (84 cm) which offers a greater degree of flexibility during installation. It is supplied with a remote bracket and flexible armor as a complete assembly.



MODEL 7EK CHAMBER REPLACEMENT PROBE

CHAMBER REPLACEMENT MODEL NUMBER

7E	Eclipse Guided Wave Radar Probe, English unit of measure

CONFIGURATION STYLE

K	Chamber Replacement Probe

MATERIALS OF CONSTRUCTION

K	316/316L stainless steel (B31.1 construction)
L	Carbon steel (106 Grade B)
M	Carbon steel (B31.1 construction)

PROCESS CONNECTION SIZE/TYPE

31	1½" NPT
33	1½" 150# ANSI raised face flange
34	1½" 300# ANSI raised face flange
35	1½" 600# ANSI raised face flange
39	1½" Socket weld
41	2" NPT
43	2" 150# ANSI raised face flange
44	2" 300# ANSI raised face flange
45	2" 600# ANSI raised face flange
49	2" Socket weld

LEVEL RANGE

A	14 inch (356 mm)

Consult factory for other available configurations

PROCESS CONNECTION CONFIGURATION

0	Top In/Bottom Out
2	Top In/Bottom Out with sight glass connections

Consult factory for other available level ranges

TEMPERATURE RANGE

1	+600° F (+316° C)(dielectric constant ≥10)
2	+500° F (+260° C)(dielectric constant ≥1.4)

CHAMBER TYPE

1	Fisher 249B
2	Fisher 259B
3	Fisher 249

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Magnetrol

5300 Belmont Road • Downers Grove, Illinois 60515-4499 • 630-969-4000 • Fax 630-969-9489 • www.magnetrol.com
145 Jardin Drive, Units 1 & 2 • Concord, Ontario Canada L4K 1X7 • 905-738-9600 • Fax 905-738-1306
Heikenstraat 6 • B 9240 Zele, Belgium • 052 45.11.11 • Telex 25944 • Fax 052 45.09.93
Regent Business Ctr., Jubilee Rd. • Burgess Hill, Sussex RH15 9TL U.K. • 01444-871313 • Fax 01444-871317

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