**Quick Installation Guide**
00825-0100-4601, Rev AA
June 2014

# Guided Wave Radar with Rosemount® 9901 Chambers

## Mounting Instructions for XC option

ROSEMOUNT

EMERSON.
Process Management

## Contents

# Safety messages

Procedures and instructions in this document may require special precautions to ensure the safety of the personnel performing the operations. Information that raises potential safety issues is indicated by a warning symbol (⚠). Please refer to the following safety messages before performing an operation preceded by this symbol.

**⚠ WARNING**

**Failure to follow safe installation and service guidelines could result in death or serious injury**

- Read this manual before working with the product. For personal and system safety, and for optimum product performance, make sure you thoroughly understand the contents before installing or maintaining this product.
- Failure to follow these installation guidelines could result in death or serious injury.
- Make sure the transmitter is installed by qualified personnel and in accordance with applicable code of practice.
- Use the equipment only as specified in this QIG and the Reference Manual. Failure to do so may impair the protection provided by the equipment.
- Process leaks could result in death or serious injury.

## Safety considerations

It is the responsibility of the installer/user of this equipment to ensure:

- The product is installed and used by suitably trained personnel in accordance with all relevant Local and National regulations and codes.
- Safe working practices for the media and process concerned are followed during installation and maintenance.
- The materials of construction are suitable for the application.
- The pressure and temperature limits for this chamber are not exceeded, if necessary by the use of suitable safety accessories.
- The Pt and Ps limits for each attached instrument are not exceeded. Refer to the instrument manual for this data.
- All Rosemount supplied installation fixing bolts are used where applicable, and are only replaced by exact equivalents. On all other flanges, the correct quantity, size, and strength of bolts (clamp type) are used. All fasteners are evenly tightened to the correct torque. See Table 3 on page 9.
- Correct gaskets/seals are fitted and are compatible with the media and process.
- The product is protected from fire.
- The product is protected from impact.
- This product is not used as a support for other equipment or personnel.
- Regular inspection for corrosion and wear are carried out, both internal and external.
- This product is adequately supported.

# Prepare installation

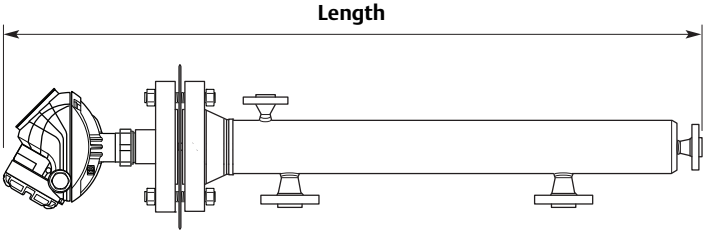
The GWR and the 9901 are checked, consolidated, and shipped together in one crate. The flange bolts are shipped only hand-tightened, and the gasket is not in place.

**Note**
Long rigid probes are shipped separately in order to reduce risk of transportation damage.

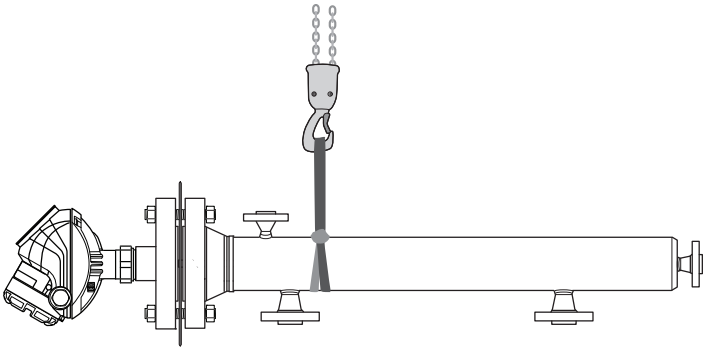
Prior to installation, perform the following procedure:

1. Ensure there is enough space to disassemble the transmitter from the chamber.

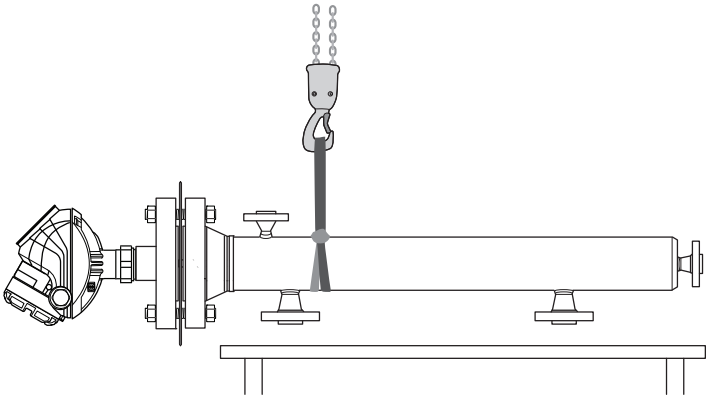
   Space requirement = Length x 2



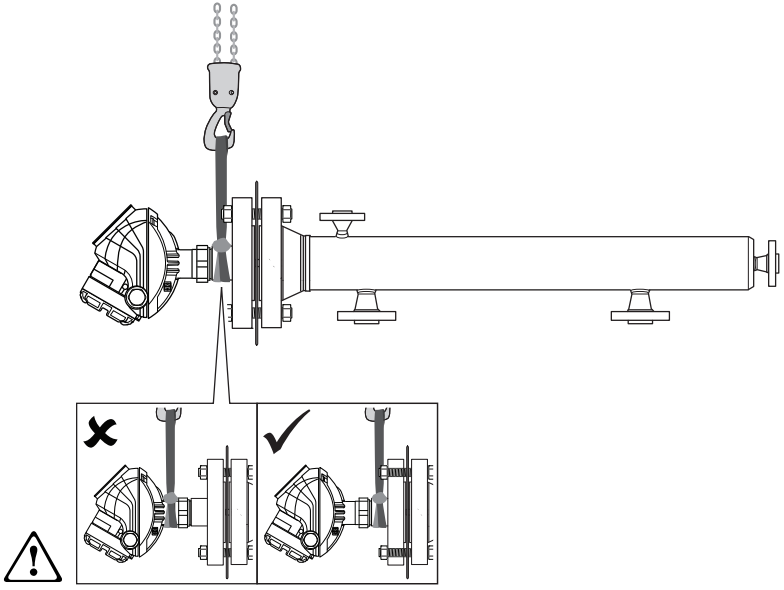

2. Carefully lift the unit out of the wooden box using a lifting device.



3. Place the unit on a work bench/fixture. To prevent damage during the disassemble, keep the flange surface protection at the inlets.

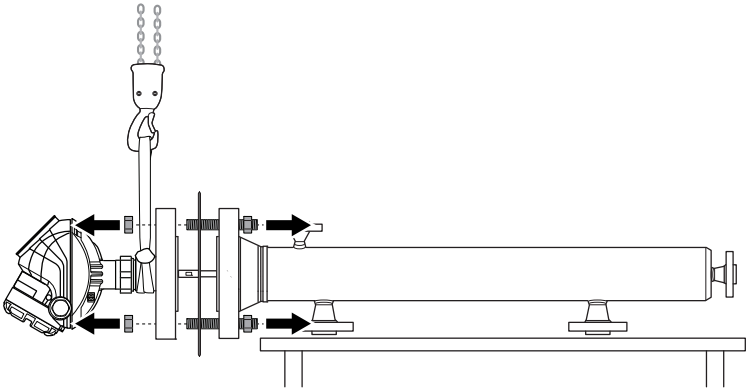


4. Tie a webbing sling around the flange seal. Attach it to the lifting device.

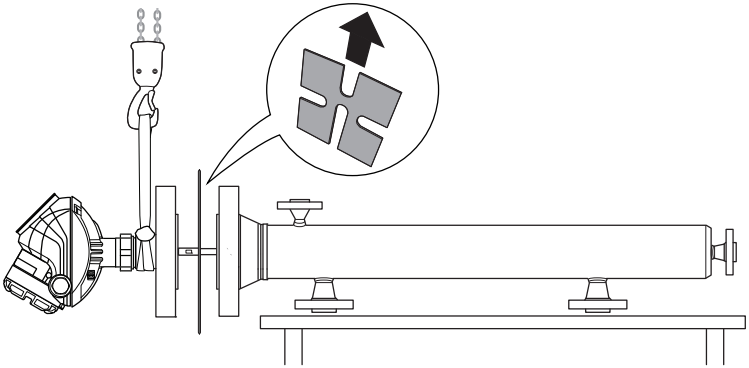


**Note**
Make sure the sling is not tied around the transmitter head.

5. Loosen the flange bolts.

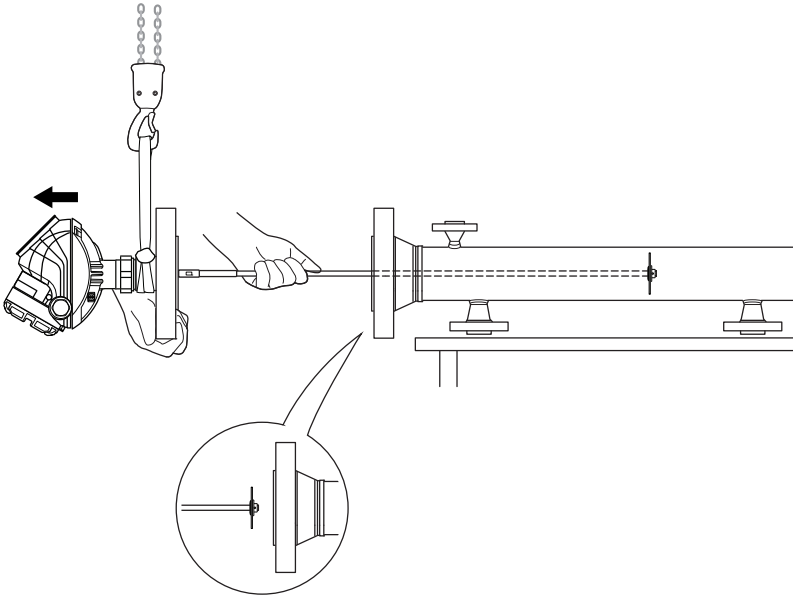


6. Remove the red cardboard spacer.



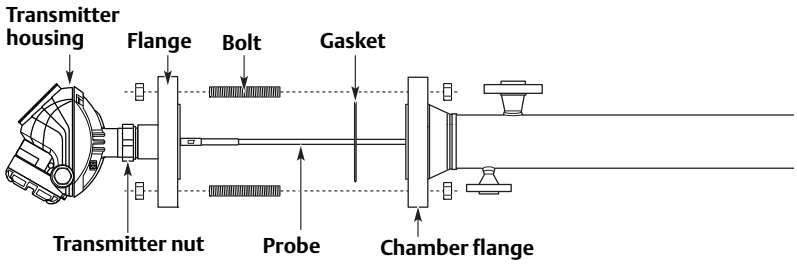
7. Pull the transmitter and probe carefully out from the chamber.

**Note**
At least two persons are needed to lift and move the transmitter and probe.
Do not bend the probe.



8. Proceed with "Mount the transmitter" on page 8.

# Mount the transmitter



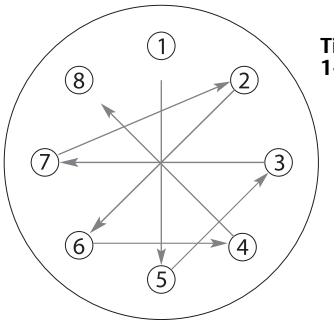

1. Define your Load values for each round in Table 1.

**Table 1. Torque increments**

| Step | Bolt torque (see Table 3) | Load value |
|---|---|---|
| Round 1 | 20% to 30% of Bolt torque | _____ (Nm) |
| Round 2 | 50% to 70% of Bolt torque | _____ (Nm) |
| Round 3 | 100% of Bolt torque | _____ (Nm) |

2. Place a gasket.
3. Insert the probe with flange into the chamber.
4. Apply appropriate lubricant to the bolts.
5. Hand-tighten the flange nuts (~10Nm).
6. Tighten the flange nuts gradually according to your Load values in Table 1. Use the tightening sequence in Figure 1.

**Figure 1. Tightening sequence for 8 bolts**




**Tightening sequence for 8 bolts:**
**1-5-3-7 → 2-6-4-8**

**Note**
Between each round, check flange gap around circumference for uniformity. If the gap is not reasonably uniform, adjust by selective tightening/loosening before proceeding.

7. Circular check; continue tightening the flange nuts on a circular clockwise pattern until no further nut rotation occurs at the Bolt torque value.
8. Loosen the transmitter nut that connects the transmitter housing to the probe and rotate the transmitter housing to the desired direction.
9. Tighten the transmitter nut.

## Bolting material and tightening torque

Table 3 specifies the tightening torques to be applied when mounting a Rosemount Guided Wave Radar onto a Rosemount 9901 Chamber using the supplied studbolts and nuts in Table 2.

### Table 2. Bolting materials

| Component | Carbon steel chamber | Stainless steel chamber |
|---|---|---|
| Stainless Studbolts | ASTM A193 B8MCI2 | ASTM A193 B8M CI2 |
| Stainless Nuts | ASTM A194 Grade 8M | ASTM A194 Grade 8M |

### Table 3. Bolt torques for ASME B16.5 flanges (instrument mounting flange)

| Flange rating | Bolt size | Bolt torque (in Nm)(1) | | |
|---|---|---|---|---|
| | | Fibre gasket | Ring type joint (2) | Spiral wound |
| 3" Class 150 | 5/8-in. UNC | 55 | | 75 |
| 4" Class 150 | 5/8-in. UNC | 50 | | 72 |
| 3" Class 300 | 3/4-in. UNC | 93 | | 94 |
| 4"Class 300 | 3/4-in. UNC | 105 | | 107 |
| 3" Class 600 | 3/4-in. UNC | 120 | 118 | 114 |
| 4"Class 600 | 7/8-in. UNC | 187 | 177 | 187 |
| 3" Class 900 | 7/8-in. UNC | 190 | 187 | 190 |
| 4"Class 900 | 1 1/8-in. UNC | 363 | 344 | 362 |
| 3" Class 1500 | 1 1/8-in. UNC | 378 | 378 | 378 |
| 4"Class 1500 | 1 1/4-in. UNC | | 479 | 479 |

*1) A friction coefficient of $\mu$=0.16 has been used for calculation of bolt torques.*
*2) The torque values are applicable to both soft iron and stainless steel rings.*

**Note**
For any other bolting or gasket, other tightening torques are needed.

# Product Recycling/Disposal

Recycling of equipment and packaging should be taken into consideration. The product and packaging should be disposed of in accordance with local and national legislation.

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