Dynasonics®
Ultrasonic Flow Meters

Transducers

Standard and High Temperature Transducers for Remote Standard and Large Pipes

INTRODUCTION

This document explains how to install standard and high temperature transducers on standard and large pipes for remote transmitters. The transducers can be installed on vertical or horizontal pipes.

The transducers are clamped on the outside of a closed pipe at a specific distance from each other.

Accessories

- 10 in. Scaled Mounting Rail Assembly (RZ only)
- 10 in. and 16 in. Scaled Mounting Track Assembly (NZ, WZ only)

⚠ WARNING

EQUIPMENT SHALL BE PROTECTED FROM UV LIGHT.

⚠ WARNING

EQUIPMENT TO BE PROTECTED FROM IMPACT.

⚠ WARNING

THIS EQUIPMENT INCLUDES EXTERNAL NON-METALLIC PARTS. THE USER SHALL THEREFORE ENSURE THAT THE EQUIPMENT IS NOT INSTALLED IN A LOCATION WHERE IT MAY BE SUBJECTED TO EXTERNAL CONDITIONS (SUCH AS HIGH-PRESSURE STEAM) WHICH MIGHT CAUSE A BUILD-UP OF ELECTROSTATIC CHARGES ON NON-CONDUCTING SURFACES. ADDITIONALLY, CLEANING OF THE EQUIPMENT SHOULD BE DONE ONLY WITH A DAMP CLOTH.

⚠ WARNING

DO NOT CONNECT OR DISCONNECT WHEN ENERGIZED.

SPECIFICATIONS

- Voltage: 30V
- Current: 0.375A
- Power: 3.15W

PRE-INSTALLATION REQUIREMENTS

NOTE: Protect all parts until installation is complete.

Program the Meter

Before installing the transducers, you must select the optimum transmission mode and enter the fluid and pipe properties into the ultrasonic flow meter. After entering this data, the transmitter calculates the proper transducer spacing.

For detailed programming instructions, see the user manual for your flow meter.

Select a Transducer Location

Select a location for the transducers on a section of pipe that has at least 10 pipe diameters upstream of the transducers and 5 pipe diameters downstream. See *"Figure 2: Piping configuration and transducer positioning" on page 2*.

For example, if a 2 in. pipe is being measured, the minimum upstream pipe in front of the transducer should be 20 in. and the minimum downstream pipe behind the transducer should be at least 10 in.

Pipe runs shorter than the minimums may sometimes be used, but with reduced accuracy. There is no way to determine how much accuracy is sacrificed without doing in-field testing.

For installations where the 10/5 pipe diameters rule cannot be followed, divide the total length of available straight pipe into thirds and mount the rail with 2/3 of the pipe upstream and 1/3 of the pipe downstream.

Badger Meter

IND-UM-02648-EN-10 (January 2026)

Installation Guide

A full pipe is absolutely essential for making accurate flow measurements. The flow meter cannot determine if the pipe is full or not. If the pipe is partially full, the meter will over-report the amount of flow by the percentage of the pipe that is not filled with liquid or may not detect any flow.

Install the mounting system in an area where the transducers will not be inadvertently bumped or disturbed.

Avoid installations on downward flowing pipes unless adequate downstream head pressure is present to overcome partial filling of—or cavitation in—the pipe.

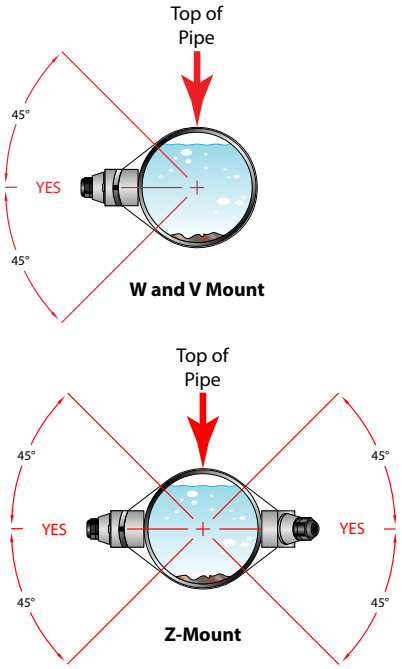


Figure 1: Transducer positioning for horizontal pipes

Piping Configurations and Transducer Positioning

Figure 2 shows the number of pipe diameters required downstream and upstream of the transducers for various piping configurations.

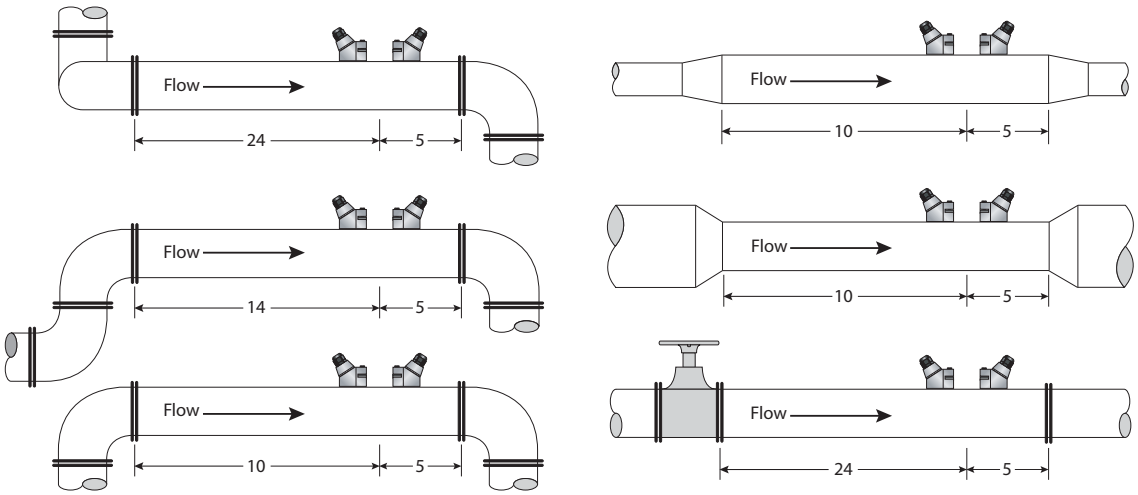


Figure 2: Piping configuration and transducer positioning

The system will provide repeatable measurements on piping systems that do *not* meet these pipe diameter requirements, but the accuracy of the readings may be influenced.

Partially-Filled Pipe Situations

In some locations, the process pipe may be momentarily only partially filled. Examples include: lack of back pressure, insufficient line pressure and gravity flow applications.

To eliminate these situations:

- Do not install the transducers at the highest point of the pipeline.
- Do not install the transducers in a vertical, downward flow section of pipe.
- Always position the ON/OFF valves on the downstream side of the transducers.

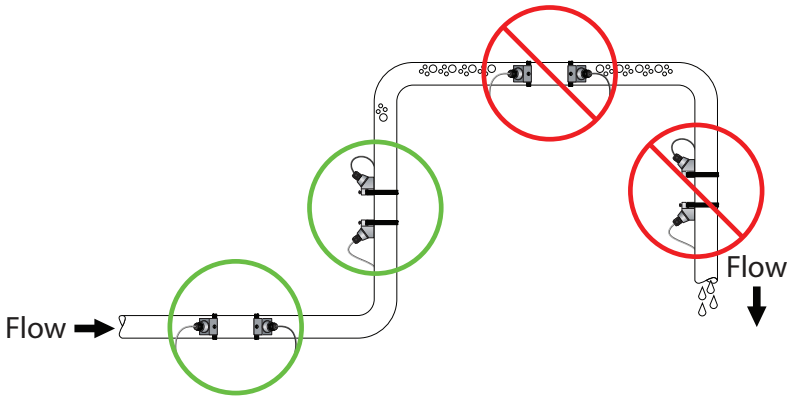
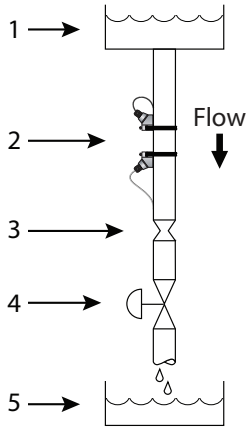


Figure 3: Transducer orientation



1	Supply Tank
2	Transducers
3	Pipe Restriction
4	Valve
5	Batching Tank

Figure 4: Transducer vertical mount, flow down

Pipe Material

Pipes must be good conductors of ultrasound and not block or scatter the signal. Most pipe materials will allow the signal to pass through. They include: stainless steel, PVC, CPVC, ABS, polypropylene, PVDF, copper, copper nickel, ductile iron and aluminum.

Wound fiberglass and concrete pipes typically trap air and are not suitable for these transducers. Some galvanized pipes may scatter the ultrasonic signal. Sometimes, relocating the transducers or mounting the transducers in a Z mode (1 transverse) will improve the signal strength.

Any liners in the pipe need to adhere to the the pipe walls. Total wall thickness and liner should not exceed 10 in. (254 mm). New mortar-lined ductile iron pipes may have air trapped in the lining initially. Letting the pipe soak will allow water to displace the air and allow the signal to pass through.

Paint with good adhesion to the pipe typically allows the ultrasonic signal to pass through. If there is blistering or peeling paint, sand the paint off before installing the transducers.

Test the signal strength before permanently installing the transducers.

Select a Mounting Configuration

The transducers can be mounted in these configurations:

- **W**-Mount where the sound traverses the pipe four times. This mounting method produces the best relative travel time values but the weakest signal strength. It is most often used for measuring low flows in pipes of sizes at the lower end of the transducer range.
- **V**-Mount where the sound traverses the pipe twice. **V**-Mount is a compromise between travel time and signal strength.
- **Z**-Mount where the transducers are mounted on opposite sides of the pipe and the sound crosses the pipe once. **Z**-Mount yields the best signal strength but the smallest relative travel time. It is most often used for measuring high flows in pipes of sizes at the larger end of the transducer range, or pipes with poor ultrasonic propagation due to pipe material or build up.

The selection of mounting method is based on pipe and liquid characteristics, which both affect how much signal is generated. The transmitter operates by alternately transmitting and receiving a frequency modulated burst of sound energy between the two transducers and measuring the time interval that it takes for sound to travel between the two transducers. The difference in the time interval measured is directly related to the velocity of the liquid in the pipe.

Selecting the proper transducer mounting configuration is an iterative process. Configurations may need to be modified for specific applications if such things as aeration, suspended solids, out-of-round piping or poor piping conditions are present.

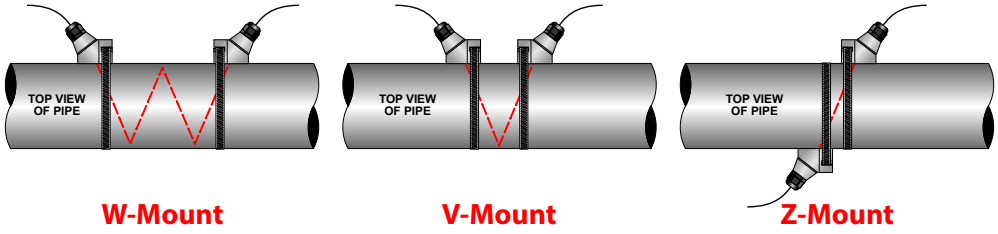


Figure 5: Transducer mounting configurations

Table 1 lists the recommended mounting based on the pipe size and material for potable water applications. Due to liners, fluid properties or other factors, you may find that a different mounting or transducer better suits your application. If the pipe has a cement or mortar lining, allow the fluid to saturate the liner for at least 2 weeks to dissipate any air trapped in the liner.

Nominal Pipe Size	Pipe Material	Transducer	Recommended Mounting
2.5–4 in. (65–100 mm)	Plastic (all types)	1 MHz transducers[1]	V-Mount or W-Mount
	Carbon Steel		
	Stainless Steel		
	Copper		
	Ductile Iron	1 MHz transducers[1]	V-Mount
4–8 in. (100–200 mm)	Plastic (all types)	1 MHz transducers[1]	V-Mount
	Carbon Steel		
	Stainless Steel		
	Copper		
	Ductile Iron		
8–12 in. (200–300 mm)	Plastic (all types)	1 MHz transducers[1] LZ, YZ large pipe	V-Mount or Z-Mount V-Mount
	Carbon Steel		
	Stainless Steel		
	Copper		
	Ductile Iron		
12–16 in. (300–400 mm)	Plastic (all types)	1 MHz transducers[1]	Z-Mount
		LZ, YZ large pipe	V-Mount or W-Mount
	Carbon Steel	1 MHz transducers[1]	Z-Mount
		LZ, YZ large pipe	V-Mount or W-Mount
	Stainless Steel	1 MHz transducers[1]	Z-Mount
		LZ, YZ large pipe	V-Mount or W-Mount
	Copper	1 MHz transducers[1]	Z-Mount
		LZ, YZ large pipe	V-Mount or W-Mount
	Ductile Iron	1 MHz transducers[1]	Z-Mount
		LZ, YZ large pipe	V-Mount
16–30 in. (400–750 mm)	Plastic (all types)	LZ, YZ large pipe	V-Mount
	Carbon Steel		
	Stainless Steel		
	Copper		
	Ductile Iron		
30–48 in. (750–1200 mm)	Plastic (all types)	LZ, YZ large pipe	Z-Mount
	Carbon Steel		
	Stainless Steel		
	Copper		
	Ductile Iron		

[1] 1 MHz transducers include: JZ, KZ (Easy Rails); NZ, WZ; RZ; HZ high temperature

Table 1: Transducer mounting configurations

Transducer Spacing

Spacing for V-Mount Medium Transducers (HZ, JZ, KZ, NZ, RZ, WZ) on ASME/ANSI Pipes with Potable Water

After the mounting path, fluid and pipe properties are entered into the transmitter, the transmitter calculates the proper transducer spacing. The table below lists the transducer spacing for common ASME/ANSI pipe sizes, materials and schedules.

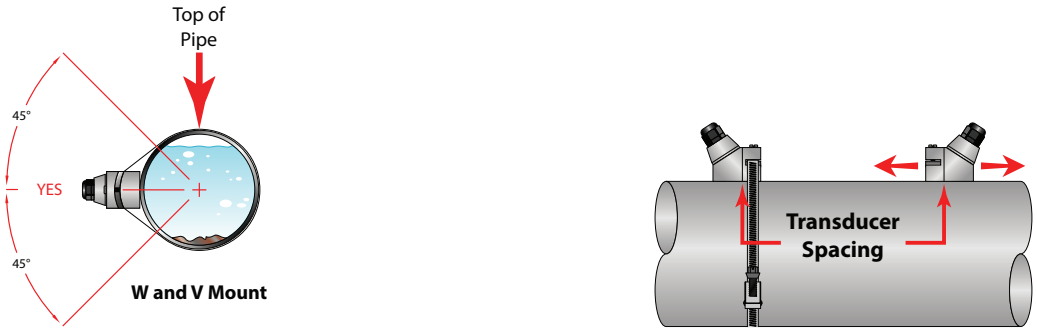


Figure 6: Transducer spacing

Pipe Size	Pipe Material	Schedule	Spacing
3 in.	CPVC or PVC	Schedule 40, Standard	2.83 in.
		Schedule 80	2.81 in.
	Carbon Steel	Schedule 40, Standard	3.07 in.
		Schedule 80	3.15 in.
	Stainless 316/316L	Schedule 40, Standard	3.10 in.
		Schedule 80	3.18 in.
	Stainless 304	Schedule 40, Standard	3.03 in.
		Schedule 80	3.10 in.
	Copper	Type K	2.53 in.
4 in.	CPVC or PVC	Schedule 40, Standard	3.52 in.
		Schedule 80	3.51 in.
	Carbon Steel	Schedule 40, Standard	3.79 in.
		Schedule 80	3.89 in.
	Stainless 316/316L	Schedule 40, Standard	3.81 in.
		Schedule 80	3.92 in.
	Stainless 304	Schedule 40, Standard	3.74 in.
		Schedule 80	3.83 in.
	Copper	Type K	3.22 in.
6 in.	CPVC or PVC	Schedule 40, Standard	5.19 in.
		Schedule 80	5.17 in.
	Carbon Steel	Schedule 40, Standard	5.50 in.
		Schedule 80	5.66 in.
	Stainless 316/316L	Schedule 40, Standard	5.53 in.
		Schedule 80	5.70 in.
	Stainless 304	Schedule 40, Standard	5.45 in.
		Schedule 80	5.58 in.
8 in.	CPVC or PVC	Schedule 40, Standard	7.00 in.
		Schedule 80	6.97 in.
	Carbon Steel	Schedule 40, Standard	7.37 in.
		Schedule 80	7.54 in.
	Stainless 316/316L	Schedule 40, Standard	7.40 in.
		Schedule 80	7.58 in.
	Stainless 304	Schedule 40, Standard	7.31 in.
		Schedule 80	7.45 in.
10 in.	CPVC or PVC	Schedule 40, Standard	8.43 in.
		Schedule 80	8.40 in.
	Carbon Steel	Schedule 40, Standard	8.84 in.
		Schedule 80	9.07 in.
	Stainless 316/316L	Schedule 40, Standard	8.88 in.
		Schedule 80	9.13 in.
	Stainless 304	Schedule 40, Standard	8.78 in.
		Schedule 80	8.97 in.

Table 2: Transducer spacing

Spacing for Z-Mount Large Transducers (LZ, YZ) on ASME/ANSI Pipes with Potable Water

Pipe Size	Pipe Material	Schedule	Spacing
12 in.	Carbon Steel	Schedule 40, Standard	5.94 in.
		Schedule 80	6.44 in.
	Stainless 316/316L	Schedule 40, Standard	5.98 in.
		Schedule 80	6.50 in.
	Stainless 304	Schedule 40, Standard	5.87 in.
		Schedule 80	6.32 in.
16 in.	Carbon Steel	Schedule 40, Standard	7.44 in.
		Schedule 80	7.99 in.
	Stainless 316/316L	Schedule 40, Standard	7.48 in.
		Schedule 80	8.06 in.
	Stainless 304	Schedule 40, Standard	7.35 in.
		Schedule 80	7.84 in.
20 in.	Carbon Steel	Schedule 40, Standard	9.24 in.
		Schedule 80	10.01 in.
	Stainless 316/316L	Schedule 40, Standard	9.30 in.
		Schedule 80	10.11 in.
	Stainless 304	Schedule 40, Standard	9.13 in.
		Schedule 80	9.83 in.
24 in.	Carbon Steel	Schedule 40, Standard	10.92 in.
		Schedule 80	11.76 in.
	Stainless 316/316L	Schedule 40, Standard	11.11 in.
		Schedule 80	12.09 in.
	Stainless 304	Schedule 40, Standard	10.92 in.
		Schedule 80	11.76 in.
30 in.	Carbon Steel	Schedule 40, Standard	13.61 in.
	Stainless 316/316L	Schedule 40, Standard	13.68 in.
	Stainless 304	Schedule 40, Standard	13.48 in.

Table 3: Transducer spacing

Examples of Remote Systems with Standard Pipes

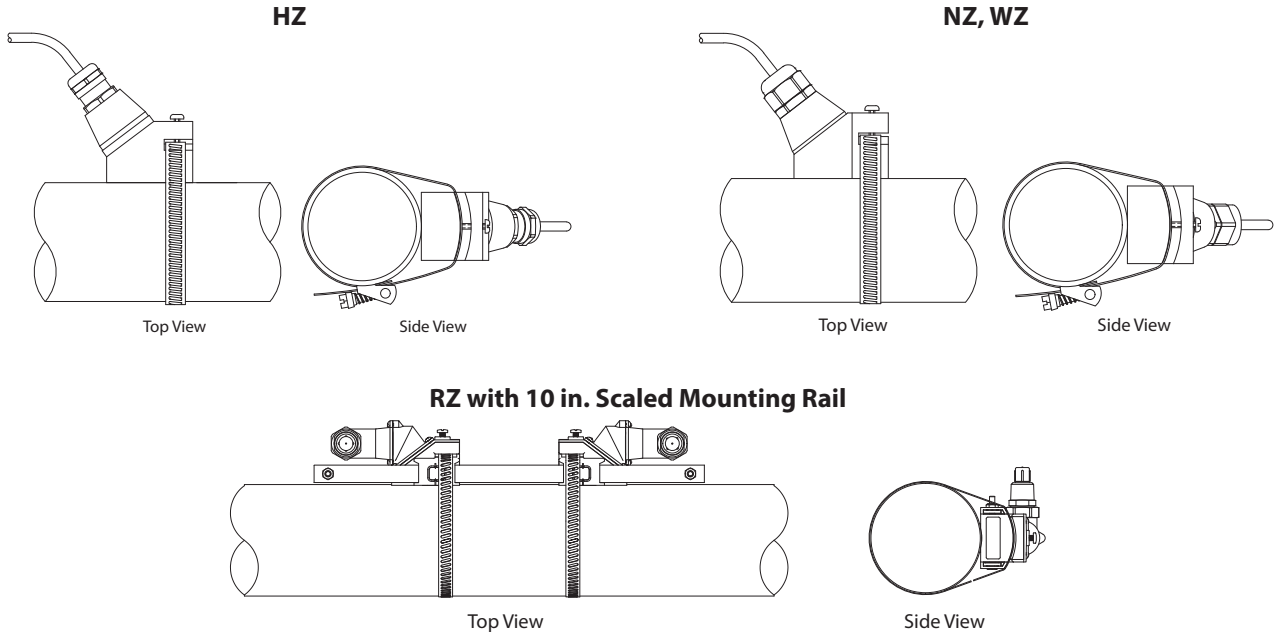


Figure 7: Standard pipe applications

Example of a Remote System with Large Pipes

LZ and YZ transducers may also be advantageous on pipes between 4–24 inches if there are less quantifiable complicating aspects, such as sludge, tuberculation, scale, rubber liners, plastic liners, thick mortar, gas bubbles, suspended solids, emulsions, or pipes that are partially buried where a **V**-Mount is required or desired.

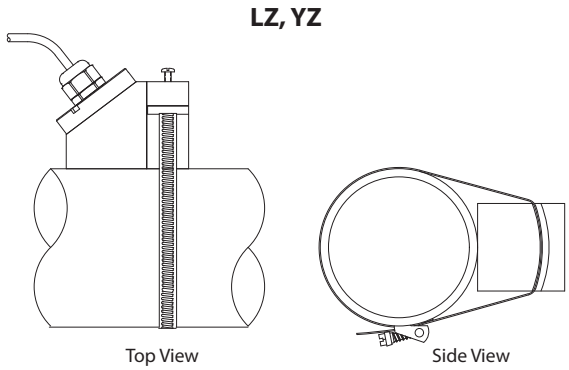


Figure 8: Large pipe application

INSTALLATION

Mount the Transducers onto the Pipe

V-Mount and W-Mount Configurations

After selecting a mounting location and determining the proper transducer spacing, mount the transducers onto the pipe:

1. Clean the surface of the pipe. If the pipe has external corrosion or dirt, wire brush, sand or grind the mounting location until it is smooth and clean. Paint and other coatings, if not flaked or bubbled, need not be removed. Plastic pipes typically do not require surface preparation other than soap and water cleaning.
2. Orient and space the transducers on the pipe to provide optimum reliability and performance. Measure the spacing between the transducers between the two alignment marks on the sides of the transducers. These marks are approximately 0.75 inches (19 mm) back from the nose of the RZ, NZ, YZ and HZ transducers, and 1.2 inches (30 mm) back from the nose of the LZ, YZ transducers. See *Figure 9*.

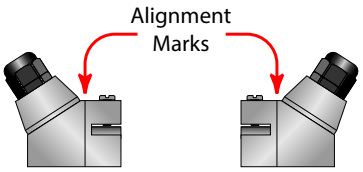


Figure 9: Transducer alignment marks

3. Place a single bead of couplant, approximately 1/2 inch (12 mm) thick, on the flat face of the transducer. See *Figure 10*. Couplant is provided with the transducers. Generally, a silicone-based grease is used as an acoustic couplant, but any good quality grease-like substance that is rated to not flow or shrink at the operating temperature of the pipe is typically acceptable.

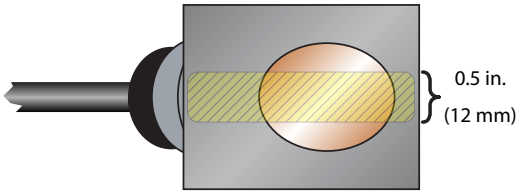


Figure 10: Application of couplant

Conditions	Couplant	Timeframe
Pipe surface temperature under 130 °F (55 °C), dry pipe	P.N. D002-2011-001 or D002-2011-008 Dow Corning 111 Grease	1 year
Pipe surface temperature under 350 °F (177 °C), dry or submerged, permanent mount	P.N. D002-2011-002 Dow Corning 732 multi-purpose sealant	Product life
Pipe surface temperature under 350 °F (177 °C), dry pipe	P.N. D002-2011-011 or D002-2011-012 Dow Corning 340 heat sink compound	Product life
Pipe surface temperature under 350 °F (177 °C), dry pipe, silicone not permitted	P.N. D002-2011-009 Molykote G-N; non-silicone	1 year
Pipe surface temperature under 120 °F (49 °C), dry pipe	P.N. D002-2011-014 Aquasonic 100 water soluble ultrasound transmission gel	Less than 4 hours

Timeframes are based on conditions where the transducers and couplant are not disturbed.

To check the condition of the couplant, monitor for any decreases in the signal strength and check for any physical changes to the couplant.

4. Place the upstream transducer in position on the pipe. Slide the strap into the arched groove on the end of the transducer. Wrap the strap around the pipe. Slide the free end of the strap into the end clip of the strap with the screw at 90 degrees to the strap. Pull the strap through until it loosely fits around the pipe. Rotate the screw so it is parallel to the strap and tighten the screw slightly to help hold the transducer onto the pipe. Verify that the transducer is true to the pipe and all air is expelled out of the gap between the transducer faces and the pipe as necessary. Tighten the strap screw to secure the transducer to the pipe.
5. Place the downstream transducer on the pipe at the calculated transducer spacing. See *Figure 11*. Apply firm hand pressure.
6. If the signal strength is too low, use an alternate transducer mounting configuration. If the mounting configuration was **V**-Mount, re-configure the transmitter for **W**-Mount, move the downstream transducer to the new spacing distance and repeat the mounting procedure.

NOTE: Mounting the high temperature transducers (HZ) is similar to mounting the RZ, NZ, WZ, LZ, and YZ transducers. High temperature installations require acoustic couplant that is rated not to flow at the operating temperature of the pipe surface.

7. Once the flow meter is set up and reading correctly, you can permanently secure the transducers to the pipe with non-drying, non-cracking silicone, such as Dow Corning 732 sealant.

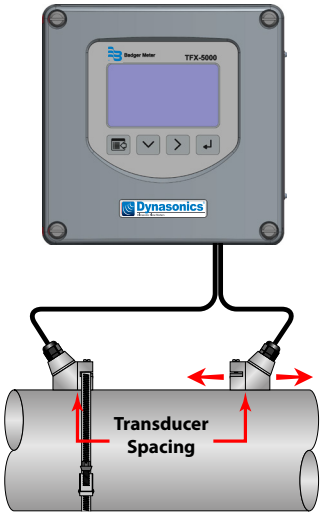


Figure 11: Transducer positioning

Mounting Rail System Installation for RZ Transducers

For remote flow RZ transducers with outside diameters between 2–10 inches (50–250 mm), the rail mounting kit aids in installation and positioning of the transducers. Transducers slide on the rails, which have measurement markings that are viewable through the sight opening.

Assemble the Transducers to the Rails

1. Slide the transducers onto the rails.

2. Position a spacer between the rails at each end. See *Figure 12 on page 9*.
3. Insert the long screws through the rails and spacers.
4. Secure the screws with nuts.

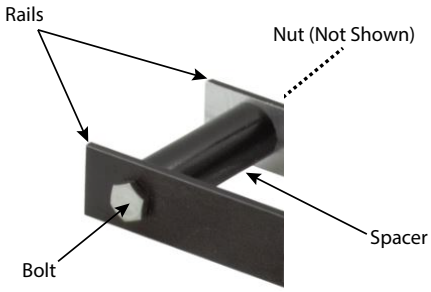


Figure 12: Secure rails to spacers

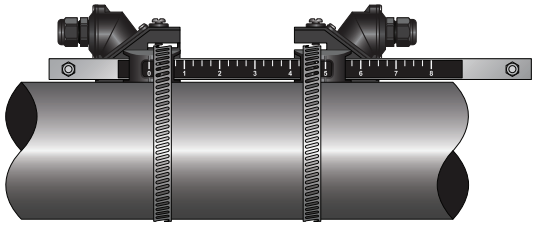


Figure 13: Mounting rail system for RZ transducers

Mount the Rail System to the Pipe

5. Place a single bead of couplant, approximately 1/2 inch (12 mm) thick, on the flat face of the transducers. See *Figure 10 on page 7*.
6. Install the rail system onto the side of the pipe and secure it with the stainless steel straps provided. Do not mount it on the top or bottom of the pipe. On vertical pipe, orientation is not critical. Check that the rail is parallel to the pipe and that all four mounting feet are touching the pipe.
   a. Slide the strap onto the arched groove on the end of the transducer.
   b. Wrap the strap around the pipe.
   c. Slide the free end of the strap into the end clip of the strap with the screw at 90 degrees to the strap. Pull the strap through until it loosely fits around the pipe.
   d. Rotate the screw so it is parallel to the strap and tighten the screw slightly to hold the transducers onto the pipe. Verify that the transducer is true to the pipe and and all air is expelled out of the gap between the transducer faces and the pipe as necessary. Tighten the strap screw to secure the transducers to the pipe.
7. Slide the two transducer clamp brackets toward the center mark on the mounting rail.
8. Place the first transducer at the zero point on the scale. Slide the clamp over the transducer. Adjust the clamp and transducer so the notch in the clamp aligns with the zero on the scale. See *Figure 14*.

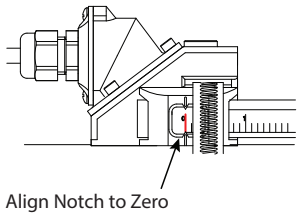


Figure 14: Align to zero

9. Secure the transducer with the thumbscrew. Check that the screw rests in the counter bore on the top of the transducer. (Excessive pressure is not required. Apply just enough pressure so that the couplant fills the gap between the pipe and transducer.)
10. Place the second transducer at the dimension derived in *"Program the Meter" on page 1*. Read the dimension on the mounting rail scale. Slide the transducer clamp over the transducer and secure it with the thumbscrew.

Mounting Track Installation for NZ, WZ Transducers

A convenient NZ, WZ transducer mounting track can be used for pipes that have outside diameters between 2–10 inches (50–250 mm). If the pipe is outside of that range, mount the transducers separately.

1. Install the mounting track on the side of the pipe with the stainless steel straps provided. Do not mount it on the top or bottom of the pipe. On vertical pipe, orientation is not critical. Check that the track is parallel to the pipe and that all four mounting feet are touching the pipe.
   a. Slide the strap onto the groove on the end of the mounting track.

b. Wrap the strap around the pipe.

c. Slide the free end of the strap into the end clip of the strap with the screw at 90 degrees to the strap. Pull the strap through until it loosely fits around the pipe.

d. Rotate the screw so it is parallel to the strap and tighten the screw slightly to hold the track onto the pipe. Verify that the track is true to the pipe and all air is expelled out of the gap between the transducer faces and the pipe as necessary. Tighten the strap screw to secure the track to the pipe.

2. Slide the two transducer clamp brackets toward the center mark on the mounting track.

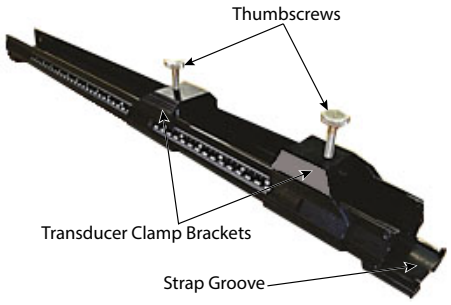


Figure 15: Mounting track system for NZ, WZ transducers

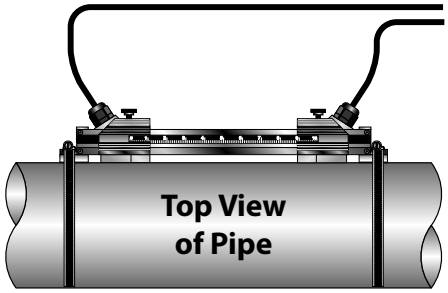


Figure 16: Mounting track system for NZ, WZ transducers

3. Place a single bead of couplant, approximately 1/2 inch (12 mm) thick, on the flat face of the transducers. See *Figure 10 on page 7*.
4. Place the first transducer in the mounting track near the zero point on the scale.
5. Slide the clamp bracket over the transducer. Adjust the clamp and transducer so the notch in the clamp aligns with the zero on the scale.
6. Secure the transducer with the thumbscrew. Check that the screw rests in the counter bore on the top of the transducer. (Excessive pressure is not required. Apply just enough pressure so that the couplant fills the gap between the pipe and transducer.)
7. Place the second transducer in the mounting track near the dimension derived in *"Program the Meter" on page 1*. Read the dimension on the mounting track scale. Slide the transducer clamp over the transducer and secure it with the thumbscrew.

Z-Mount Configuration

On horizontal pipes, when **Z**-Mount is required, mount the transducers 180 radial degrees from one another and at least 45 degrees from the top-dead-center and bottom-dead-center of the pipe. See *Figure 1 on page 2*.

Installation on larger pipes requires careful measurements of the linear and radial placement of the transducers. Failure to properly orient and place the transducers on the pipe may lead to weak signal strength and/or inaccurate readings. This section details a method for properly locating the transducers on larger pipes. This method requires a roll of paper such as freezer paper or wrapping paper, masking tape and a marking device.

1. Wrap the paper around the pipe as shown in *Figure 17*. Align the paper ends to within 0.25 in. (6 mm).

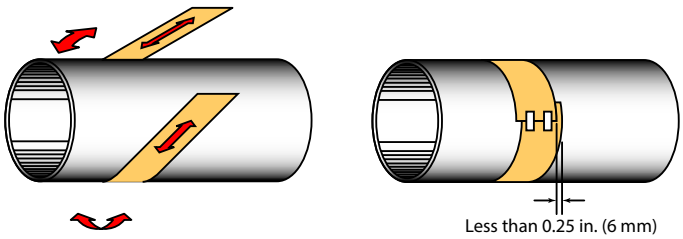


Figure 17: Paper template alignment

2. Mark the intersection of the two ends of the paper to indicate the circumference.
3. Remove the template and spread it out on a flat surface. See "A" in *Figure 18 on page 11*.
4. Fold the template in half, bisecting the circumference. See "B" in *Figure 18 on page 11*.
5. Crease the paper at the fold line. Mark the crease. See "C" in *Figure 18 on page 11*.

6. Place a mark on the pipe where one of the transducers will be located. See *Figure 1 on page 2* for acceptable radial orientations.
7. Wrap the template around the pipe again, placing the beginning of the paper and one corner in the location of the mark. Move to the other side of the pipe and mark the pipe at the ends of the crease. Measure from the end of the crease (directly across the pipe from the first transducer location) the dimension derived in *"Program the Meter" on page 1*. Mark this location on the pipe.

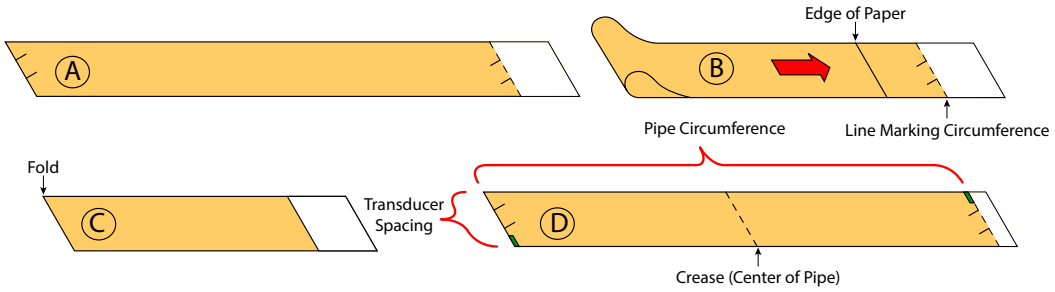


Figure 18: Bisecting the pipe circumference

8. The two marks on the pipe are now properly aligned and measured. If access to the bottom of the pipe prohibits wrapping the paper around the circumference, cut a piece of paper 1/2 the circumference of the pipe and lay it over the top of the pipe. The equation for the length of 1/2 the circumference is: 1/2 Circumference = Pipe O.D. × 1.57
9. Mark opposite corners of the paper on the pipe. Apply transducers to these two marks.

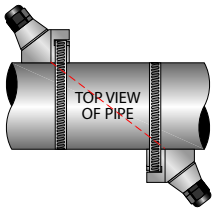


Figure 19: Z-Mount transducer placement

10. Place a single bead of couplant, approximately 1/2 inch (12 mm) thick, on the flat face of the transducer. See *Figure 10 on page 7*. Couplant is provided with the transducers. Generally, a silicone-based grease is used as an acoustic couplant, but any good quality grease-like substance that is rated to not flow or shrink at the operating temperature of the pipe is typically acceptable.
11. Place the downstream transducer on the pipe at the calculated transducer spacing. Using firm hand pressure, slowly move the transducer both towards and away from the upstream transducer while observing signal strength. Clamp the transducer at the position where the highest signal strength is observed. A signal strength between 5–98 is acceptable.
12. Place the upstream transducer in position and secure with a stainless steel straps provided. Place the straps in the arched groove on the end of the transducer. A screw is provided to help hold the transducer onto the strap. Verify that the transducer is true to the pipe and all air is expelled out of the gap between the transducer faces and the pipe as necessary. Tighten transducer strap securely. Larger pipes may require more than one strap to reach the circumference of the pipe.

Signal Strength

On certain pipes, a slight twist to the transducer may cause signal strength to rise to acceptable levels. Certain pipe and liquid characteristics may cause signal strength to rise to greater than 98. The problem with operating this transmitter with very high signal strength is that the signals may saturate the input amplifiers and cause erratic readings. Strategies for lowering signal strength would be changing the transducer mounting method to the next longest transmission path. For example, if there is excessive signal strength and the transducers are mounted in a **Z**-Mount, try changing to **V**-Mount or **W**-Mount. Finally, you can also move one transducer slightly off-line with the other transducer to lower the signal strength.