

Quick Installation Guide

00825-0100-4830, Rev AA

January 2004

Rosemount 415 Fire Pump

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- Step 1: Location and Orientation
- Step 2: Drill Holes into Pipe
- Step 3: Weld Mounting Hardware
- Step 4: Insert the Annubar



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Process Management

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IMPORTANT NOTICE

This installation guide provides basic guidelines for Rosemount Eagle Eye Fire Pump. It does not provide instructions for configuration, diagnostics, maintenance, service, troubleshooting, Explosion-proof, Flame-Proof, or intrinsically safe (I.S.) installations. Refer to the Rosemount Eagle Eye Series Product Data Sheet (document number 00813-0100-4830) or the Eagle Eye QIG (document number 00825-0100-4833) for more information. These documents are also available electronically on www.rosemount.com.

WARNING

Process leaks may cause harm or result in death. To avoid process leaks, only use gaskets designed to seal with the corresponding flange and o-rings to seal process connections. Flowing medium may cause the 485 Annubar assembly to become hot and could result in burns.

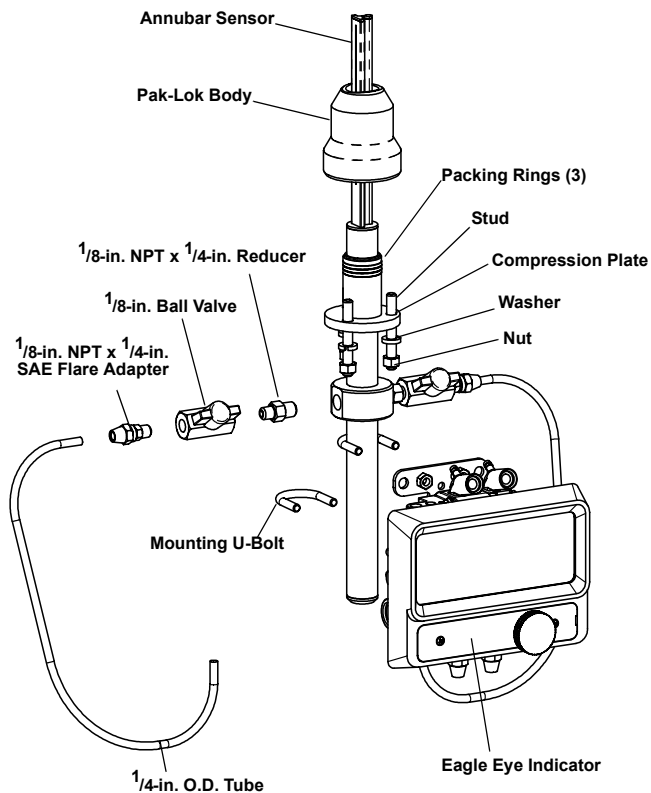
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EXPLODED VIEW



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STEP 1: LOCATION AND ORIENTATION

Correct orientation and straight run requirements must be met for accurate and repeatable flow measurements. Refer to Table 1 for minimum pipe diameter distances from upstream disturbances.

Table 1. Straight Run Requirements

	Upstream Dimensions					Downstream Dimensions	
	Without Vanes		With Vanes				
	In Plane A	Out of Plane A	A'	C	C'		
1		8	10	—	—	—	4
	—	—	8	4	4	4	
2		11	16	—	—	—	4
	—	—	8	4	4	4	
3		23	28	—	—	—	4
	—	—	8	4	4	4	

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STEP 1 CONTINUED...

	Upstream Dimensions					Downstream Dimensions	
	Without Vanes		With Vanes				
	In Plane A	Out of Plane A	A'	C	C'		
4		12	12	—	—	—	4
		—	—	8	4	4	4
5		18	18	—	—	—	4
		—	—	8	4	4	4
6		30	30	—	—	—	4
		—	—	8	4	4	4

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STEP 1 CONTINUED...

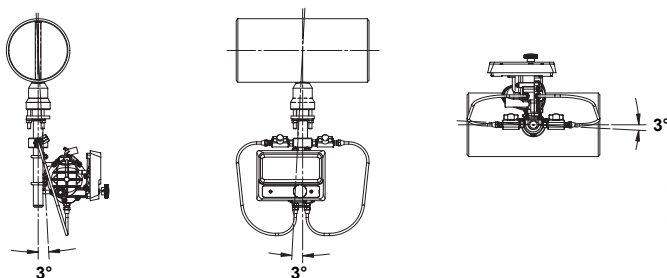
NOTE

- “In Plane A” means the bar is in the same plane as the elbow. “Out of Plane A” means the bar is perpendicular to the plane of the elbow.
- If proper lengths of straight run are not available, position the mounting such that 80% of the run is upstream and 20% is downstream.
- Use straightening vanes to reduce the required straight run length.
- Row 6 in Table 1 applies to gate, globe, plug, and other throttling valves that are partially opened, as well as control valves.

Misalignment

The 415 Fire Pump Annubar installation allows for a maximum misalignment of 3°.

Figure 1. Misalignment



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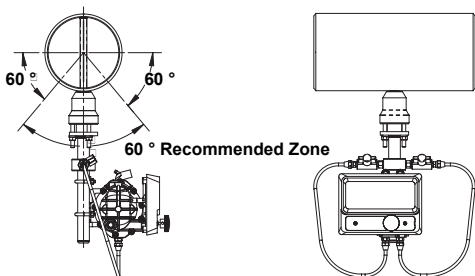
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STEP 1 CONTINUED...

Orientation

For proper venting and draining, the sensor should be located in the bottom half of the pipe.

Figure 2. Orientation



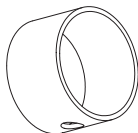
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STEP 2: DRILL HOLES INTO PIPE

1. Determine the sensor size based on the probe width (see Table 2).
2. Depressurize and drain the pipe.
3. Select the location to drill the hole.
4. Determine the diameter of the hole to be drilled according to the specifications in Table 2. Drill the mounting hole into the pipe with a hole saw or drill. **DO NOT TORCH CUT THE HOLE.**

Table 2. Sensor Size / Hole Diameter Chart

Sensor Width	Sensor Size	Hole Diameter	
0.590-in. (14.99 mm)	1	$\frac{3}{4}$ -in. (20 mm)	+ $\frac{1}{32}$ -in (1 mm) - 0.00
1.060-in. (26.92 mm)	2	$1\frac{5}{16}$ -in. (35 mm)	+ $\frac{1}{16}$ -in. (1 mm) - 0.00



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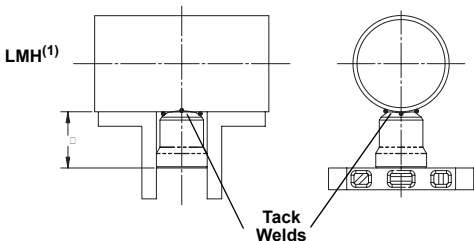
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STEP 3: WELD MOUNTING HARDWARE

1. Center the 415 Fire Pump Pak-Lok body over the mounting hole, gap $\frac{1}{16}$ -in. (1.5 mm), and place four $\frac{1}{4}$ -in. (6-mm) tack welds at 90° increments.
2. Check alignment of the 415 Fire Pump Pak-Lok body both parallel and perpendicular to the axis of flow (see Figure 3). If alignment of mounting is within tolerances, finish weld per local codes. If alignment is outside of specified tolerance make adjustments prior to finish weld.
3. To avoid serious burns, allow the mounting hardware to cool before continuing.

Figure 3. Alignment



- (1) LMH values are as follows:
Sensor Size 1: 2.89-in. (73 mm)
Sensor Size 2: 3.92-in. (100 mm)

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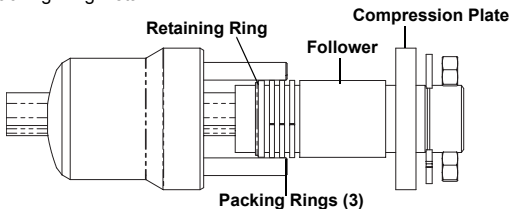
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STEP 4: INSERT THE ANNUBAR

1. Thread studs into the 415 Fire Pump Annubar assembly.
2. To ensure that the flowmeter contacts the opposite side wall, mark the tip of the sensor with a marker.
3. Insert the flowmeter into the 415 Fire Pump Annubar body until the sensor tip contacts the pipe wall, rotating the flowmeter back and forth.
4. Remove the flowmeter.
5. Verify that the sensor tip made contact with the pipe wall by ensuring that some of the marker has been rubbed off. If the tip did not touch the wall, verify pipe dimensions and the height of mounting body from the outer diameter of the pipe and re-insert.
6. Align the flow arrow on the head with the direction of flow. Re-insert the flow meter into the 415 Fire Pump Annubar body and install the first packing ring on the sensor between the retaining ring and the packing follower. Take care not to damage the split packing rings.
7. Push the packing ring into the 415 Fire Pump Annubar body and against the weld retaining ring. Repeat this process for the two remaining rings, alternating the location of the packing ring split by 180°.

Figure 4. Packing Ring Detail



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STEP 4 CONTINUED...

8. Tighten the nuts onto the studs:
 - a. Place the included split-ring lock washer between each of the nuts and the compression plate. Give each nut one half turn in succession until the split-ring lock washer is flat between the nut and the compression plate. Torque is as follows.

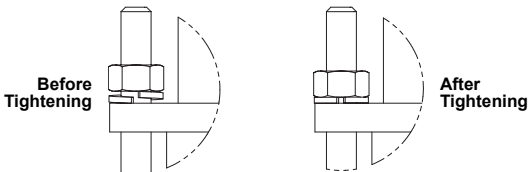
Sensor Size	Torque	Maximum Torque
1	40-in. / lb	60-in. / lb
2	100-in. / lb	360-in. / lb

- b. Inspect the unit for leakage. If any exists, tighten the nuts in one-quarter turn increments until there is no leakage.

NOTE

On sensor size (1), failure to use the split-ring Lock washers, improper washer orientation, or over-tightening the nuts may result in flowmeter damage.

Figure 5. Split-Ring Lock Washer Orientation



NOTE

The 415 Fire Pump Annubar sealing mechanisms generate significant force at the point where the sensor contacts the opposite pipe wall. Caution needs to be exercised on thin-walled piping (ANSI Sch 10 and lower) to avoid damage to the pipe.

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APPROVAL

Eagle Eye Fire Pump systems

Approved by Factory Mutual

The Eagle Eye Indicator

See the Eagle Eye Indicator Quick Installation Guide (document number 00825-0100-4833).

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