

Installation Hardware Instructions

Hot Tap Installation Kit for Welded Steel Pipe

For F-3500 Series Insertion Electromagnetic Flow Meters



For Use With Kits: INSTL2, INSTL6, INSTL31

This kit can be installed on a pressurized pipe. A hot tap drilling machine is used to create a one inch opening in the pipe wall. Once installed, this kit allows for insertion and removal of the flow meter without a system shutdown.

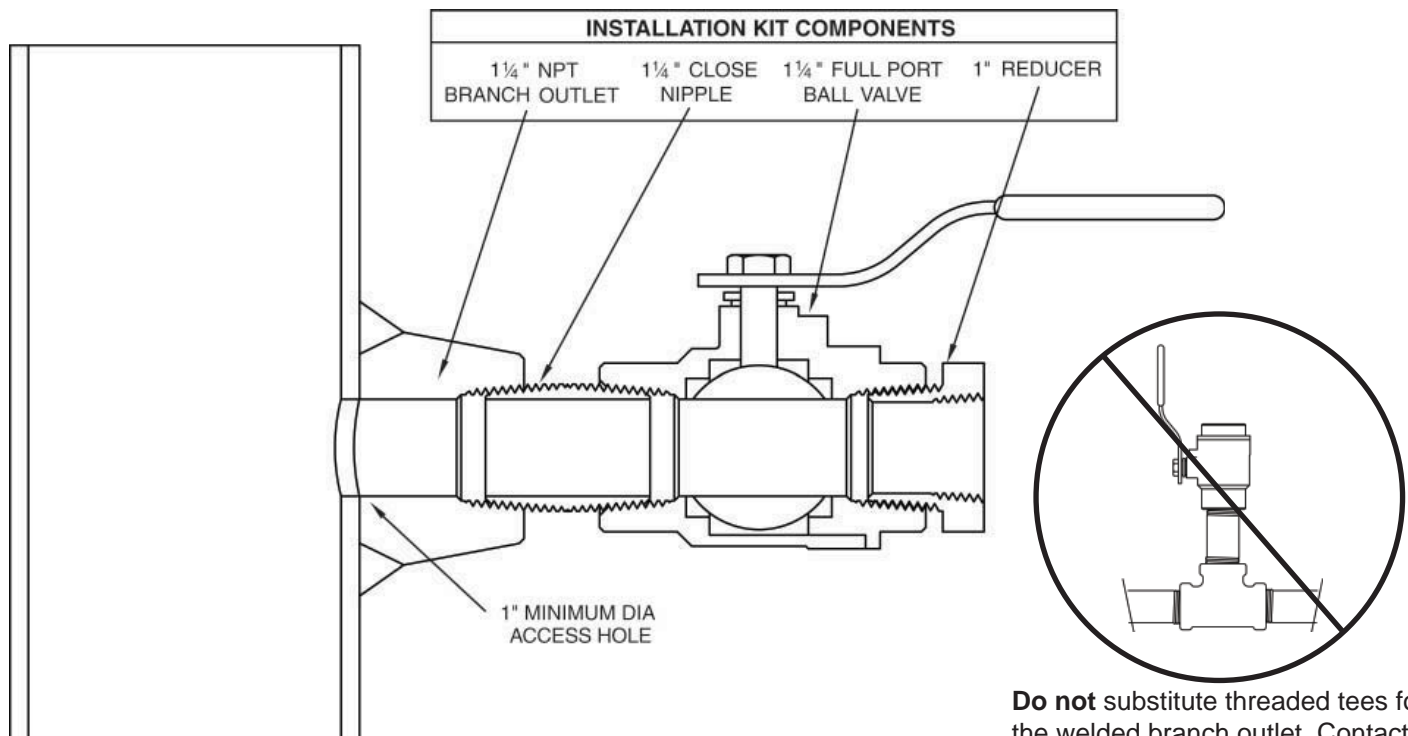
Directions:

1. Identify an appropriate location for the flow meter (see pages 2-3).
2. Weld the branch outlet onto the pipe.
3. Install the close nipple and ball valve as shown below; use a paste type thread sealant or use Teflon® tape.
4. Use a hot tap drilling machine with a 1" hole saw to drill the access hole.
5. Remove the drill; then flush all debris out of the valve.
6. Use the 1" reducer provided in this kit when installing the flow meter

Important Note

ONICON Insertion flow meters are precision measuring devices that must be installed according to the instructions contained in this document in order to maintain their accuracy and reliability. Failure to follow these instructions will result in erratic operation and reduced accuracy.

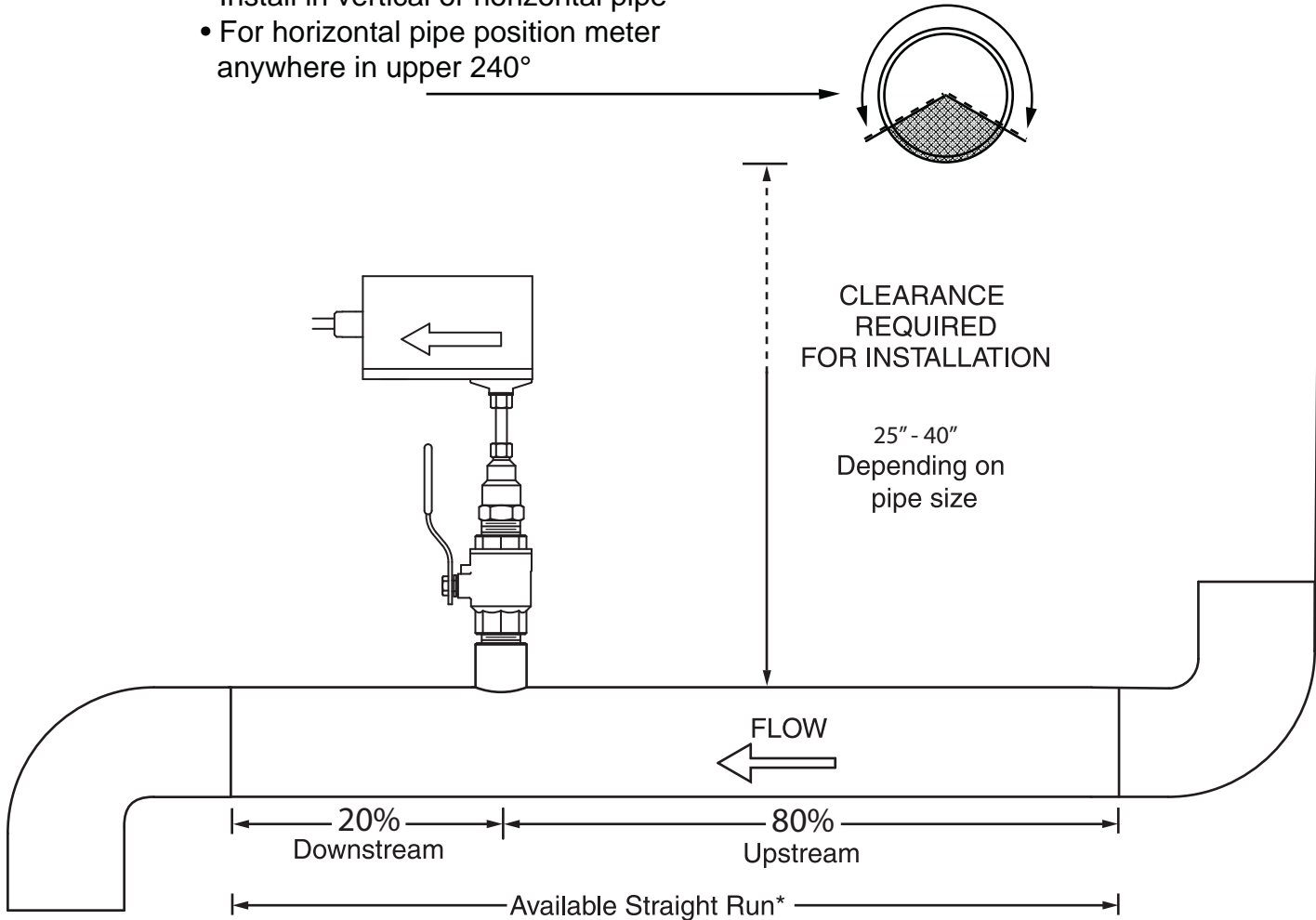
NOTE: Before installing the flow meter, read the entire installation manual.



Do not substitute threaded tees for the welded branch outlet. Contact ONICON if you need installation hardware for threaded pipe.

FLOW METER SITE SELECTION GENERAL GUIDELINES

- For 3" and larger diameter pipes
- Install in vertical or horizontal pipe
- For horizontal pipe position meter anywhere in upper 240°



*See following page for straight run requirements.

EVALUATING UPSTREAM PIPING CONDITIONS

| | |
|---------------------------|-------------------------------|
| Better ↑ ↓ Worse | Straight Pipe |
| | Single Bend |
| | Pipe Reduction or Enlargement |
| | Outflowing Tees |
| | Multiple Bends in Same Plane |
| | Multiple Bends Out of Plane |
| | Inflowing Tees |
| | Control Valve |

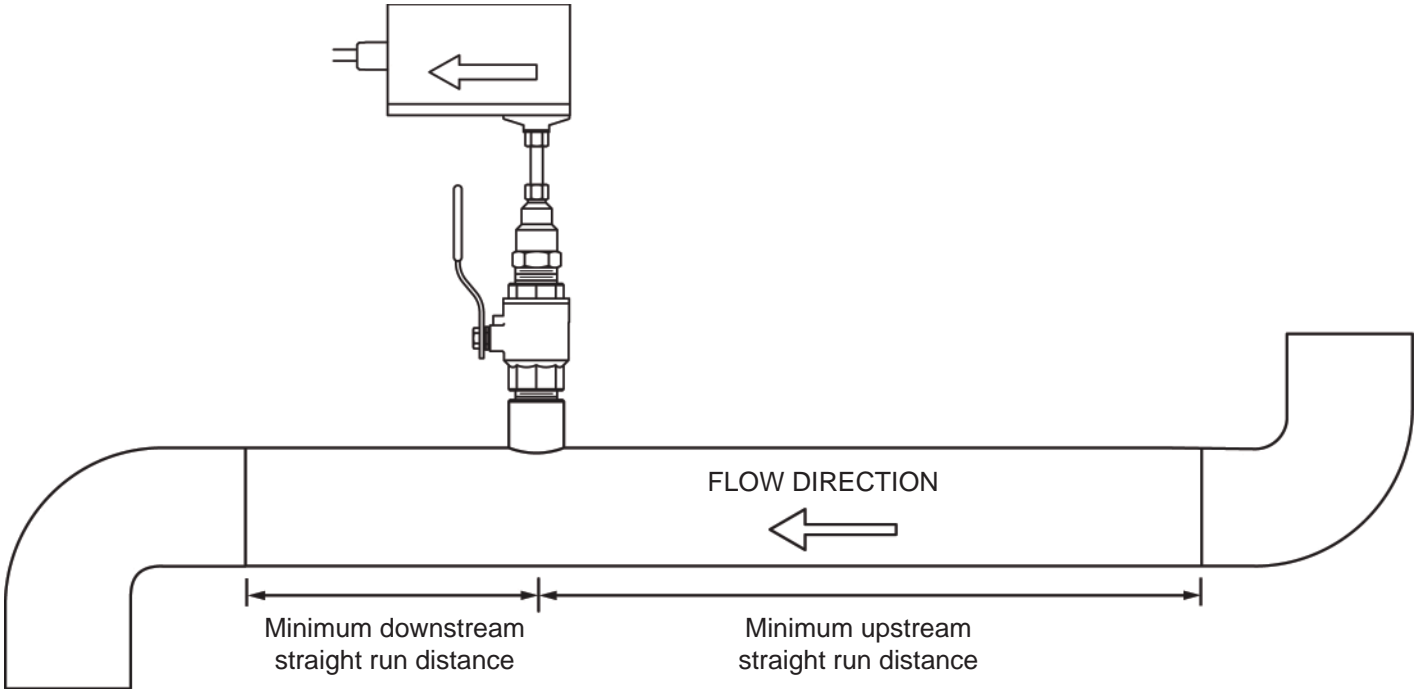
How to determine the available straight pipe diameters:

For each application, locate the longest straight, unobstructed section of pipe (no bends, tees, valves, other insertion probes, size transitions). The longest straight pipe run in inches divided by nominal pipe size in inches equals "diameters of straight pipe." For closed loop applications, consider both the supply and return lines as possible locations.

STRAIGHT RUN REQUIREMENTS FOR INSERTION ELECTROMAGNETIC FLOW METERS

GENERAL PRACTICES:

1. For best results, install the flow meter in a straight run of pipe, free of bends, tees, valves, transitions and obstructions.
2. Straight run requirements vary based on the nature of the upstream obstruction. See the table below for guidelines in determining upstream straight run requirements based on the nature of the obstruction.
3. If there is insufficient straight run, allow 80% of the run upstream and 20% of the run downstream. If the total length of straight run is less than 70% of the recommended distance, performance may seriously degrade, and consideration should be given to changing to the series F-3000 In-line Electromagnetic flow meter.



| Upstream obstruction | Straight run required upstream of meter location | Straight run required downstream of meter location |
|---|--|--|
| Single bend preceded by ≥ 9 diameters of straight pipe | 10 Diameters | 5 Diameters |
| Pipe size reduction / expansion in straight pipe run | 10 Diameters | 5 Diameters |
| Single bend preceded by ≤ 9 diameters of straight pipe | 15 Diameters | 5 Diameters |
| Outflowing tee / Pump outflow | 20 Diameters | 5 Diameters |
| Multiple bends out of plane | 30 Diameters | 5 Diameters |
| Modulating valve | 30 Diameters | 5 Diameters |

IMPORTANT NOTE

Always use the maximum available straight run. When more than the minimum required straight run is available place the meter such that the excess straight run is upstream of the meter location.