Installation Hardware Instructions
Hot Tap Installation Kit for Welded Steel Pipe
For F-1000 Series & F-3500 Series Insertion Flow Meters

For Use With Kits: INSTL0002-FMH, INSTL02DW-FMH, INSTL0006-FMH, INSTL0031-FMH INSTL5001-FMH, INSTL5002-FMH, INSTL5003-FMH

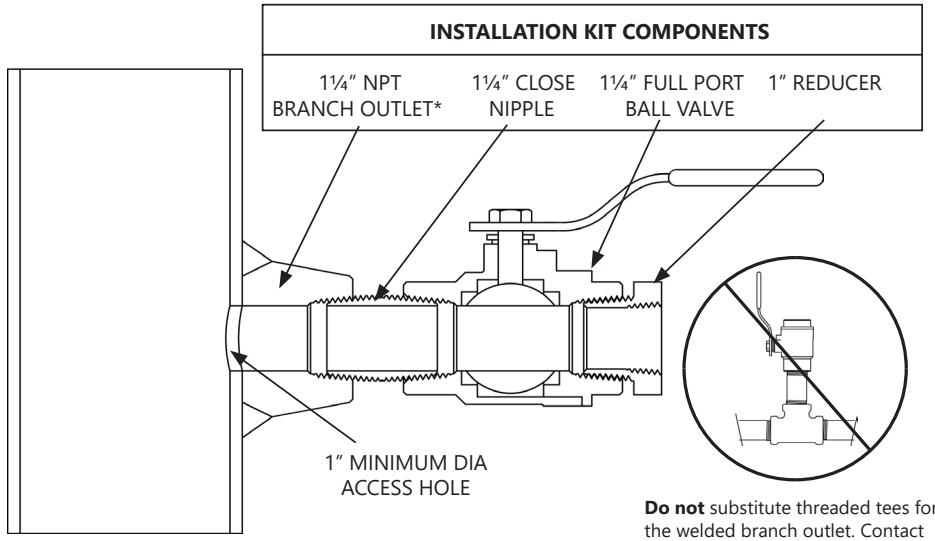
This kit can be installed on a pressurized pipe. A hot tap drilling machine is used to create a one inch opening in the pipe wall. Once installed, this kit allows for insertion and removal of the flow meter without a system shutdown. If needed, this kit can also be installed as a dry tap, see "Dry Tap Installation Instructions".

Directions:

1. Identify an appropriate location for the flow meter.
2. Weld or fuse 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. **DO NOT** use Teflon® tape for F-1100 & F-1200 Series.
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.

* Customer supplied fusion outlet for HDPE/PPR pipes

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Hot Tap Installation Kit for Applications Requiring Pipe Saddles

For F-1000 & F-3500 Series Insertion Flow Meters

For Use With Kits: INSTL019A-FMH, INSTL019B-FMH, INSTL0021-FMH, INSTL0022-FMH

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. If needed, this kit can also be installed as a dry tap, see "Dry Tap Installation Instructions".

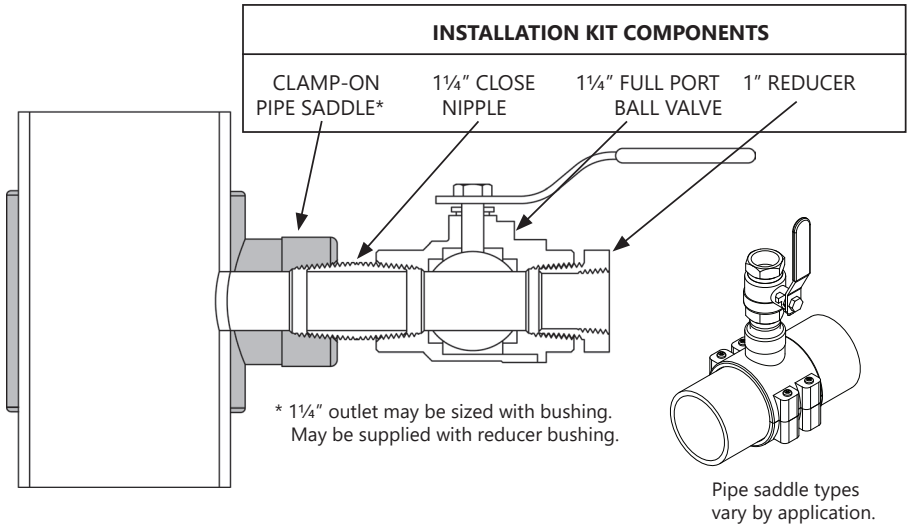
Directions:

1. Identify an appropriate location for the flow meter.
2. Clamp the saddle onto the pipe; refer to manufacturer's instructions.
3. Install the close nipple and ball valve as shown below. Use a paste type thread sealant or use Teflon® tape. DO NOT use Teflon® tape for F-1100 & F-1200 Series.
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.



IMPORTANT NOTE

ONICON provides pipe saddles to facilitate the installation of our flow meters. These saddles are purchased from leading manufacturers who provide quality products. Separate installation instructions accompany the saddle. Please follow these instructions when installing the saddle. Pay particular attention to bolt torque specifications and temperature/pressure limits.

Flow Meter Site Selection General Guidelines

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.

F-1100 & F-1200 Series Insertion Turbine Flow Meters

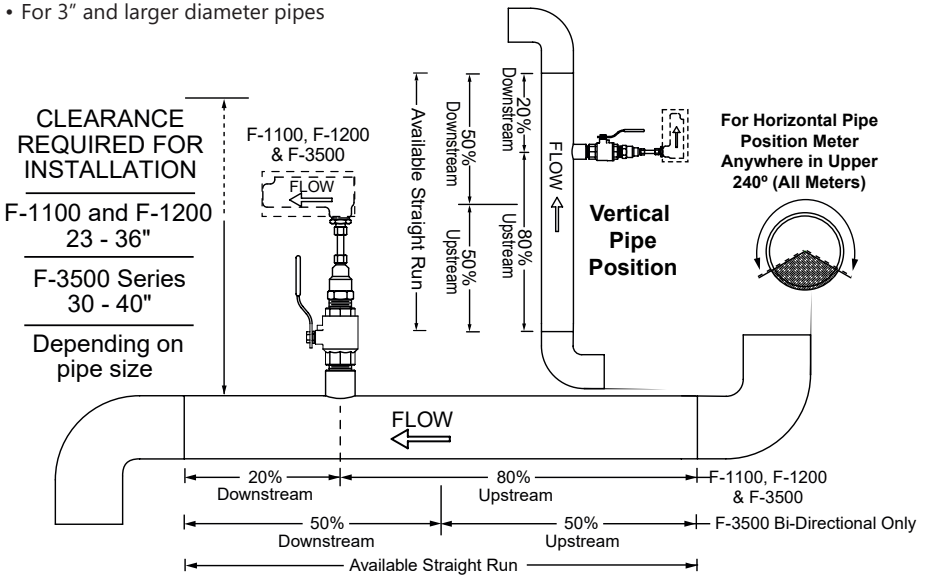
- Install in vertical or horizontal pipe

F-3500 Series Insertion Electromagnetic Flow Meters

- Install in vertical or horizontal pipe
- Standard Configuration: 3" & larger diameter pipes
- Small Pipe Configuration: 1¼ - 2½" diameter pipes

F-3500 Series Insertion Electromagnetic Flow Meters (Bi-directional)

- Acceptable to install in vertical pipe
- For 3" and larger diameter pipes



Evaluating Upstream Piping Conditions

Better
- Straight Pipe
- Single Bend
- Pipe Reduction or Enlargement
- Outflowing Tees
- Multiple Bends in Same Plane
- Multiple Bends Out of Plane
- Inflowing Tees

Worse
- Control Valves

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 Flow Meters

- For best results, install the flow meter in a straight run of pipe, free of bends, tees, valves, transitions, and obstructions.
- Straight run requirements vary based on the nature of the upstream obstruction. Longer straight runs may be required in applications where the meter is placed downstream from devices which cause unusual flow profile disruption or swirl, for example, modulating valves or two elbows in close proximity and out of plane, etc. Please note that depending upon specific location details, more or less straight run may be required to produce a satisfactory flow profile.

Meters	Upstream	Downstream
F-1100	20D	5D
F-1200	10D	5D
F-3500	10D	5D
F-3500 Bi-Directional	10D	10D

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