

# Flow Straightener and Straightening Vane Installation Guide

For use with Mc Propeller, Water Specialties, and McMag2000 flow meters

30125-39, Rev. 1.0  
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## About This Installation Guide

This installation guide is a supplement to the Installation, Operation and Maintenance manual supplied with the meter. It is intended to be a quick reference for the basic installation of a McSpaceSaver flow straightener, straightening vanes, or wafer vanes. For more detailed information concerning the external connections, external power, or pulse output, please refer to the flow meter's IOM manual, available at [www.mccrometer.com](http://www.mccrometer.com).



**WARNING!** Insure that the line is depressurized before beginning installation! Incorrect installation or removal of meters can result in serious injury or death. Read the instructions in this guide on the proper procedures carefully.

- Any person installing, inspecting, or maintaining a McCrometer flowmeter should have a working understanding of piping configurations and systems under pressure.
- Before adjusting or removing any meter, be certain the system has depressurized completely.
- Be careful when lifting meters. Meters can cause serious injury if lifted incorrectly or dropped.

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# Flow Straightener and Straightening Vane Installation Guide

## McSpaceSaver Installation with M0300 and M0300F Flow Meter

### Applies to:

Mc Propeller models M0300 and M0300F

Configuration	Upstream	Downstream
Without flow straightener	10	1
With flow straightener	1.5	1

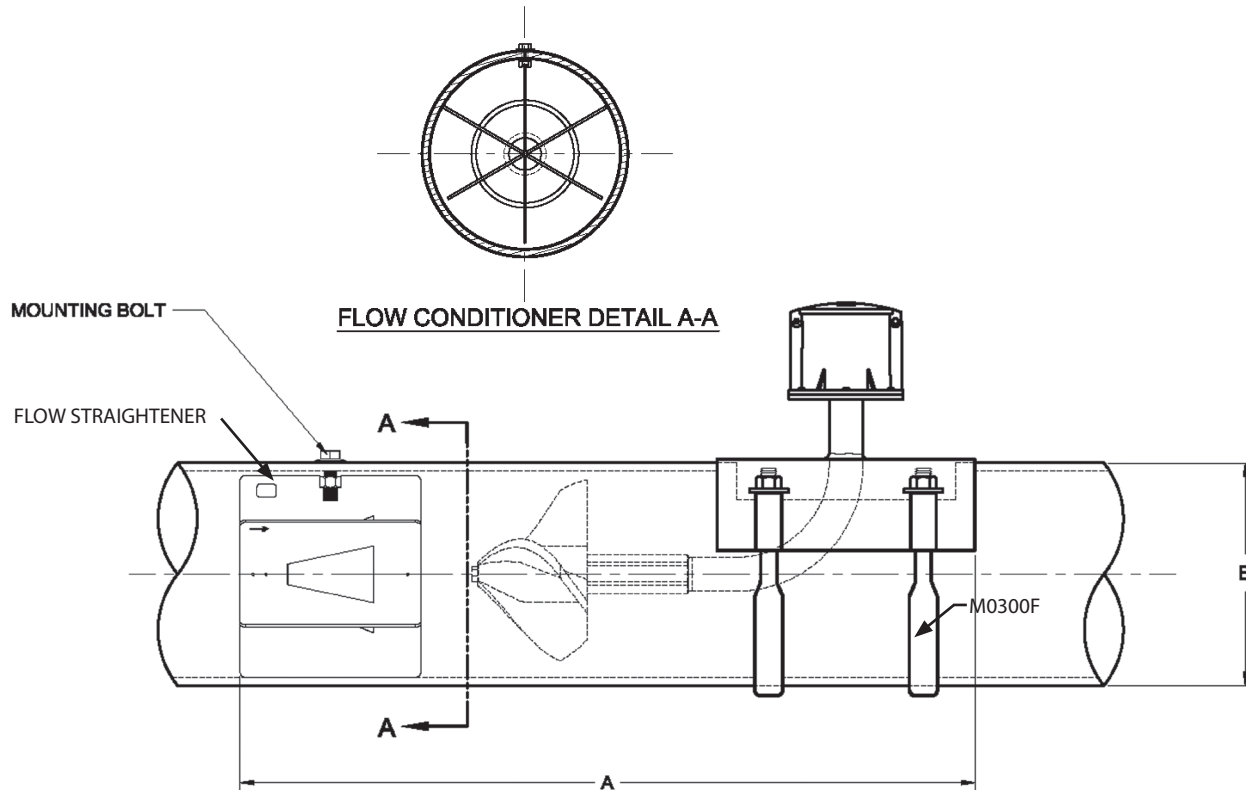
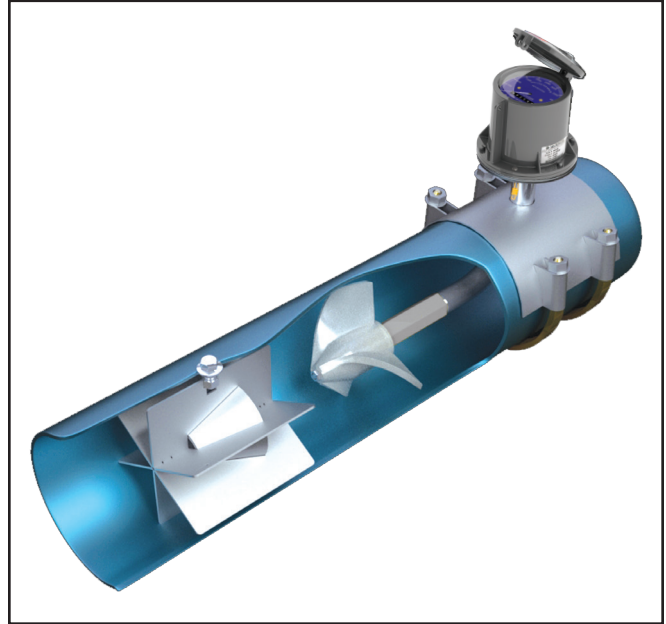
Standard installation is horizontal mount.

### For M0300F Installation:

Inserted into pipeline through rectangular hole and locked in place by a single 1/2 or 5/8 inch bolt. The M0300F flowmeter is designed to cover the rectangular hole used to install the flow straightener.

### For M0300 Installation:

Inserted into pipeline through open end of pipeline and locked in place by a single 1/2 or 5/8 inch bolt.



# Flow Straightener and Straightening Vane Installation Guide

## McSpaceSaver Installation for MF100 / MG100 / ML100 / M0300 Flow Meters

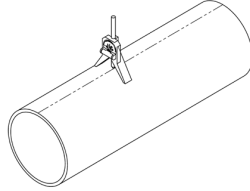
### Applies to:

Mc Propeller models MF100, MG100, ML100, M0300

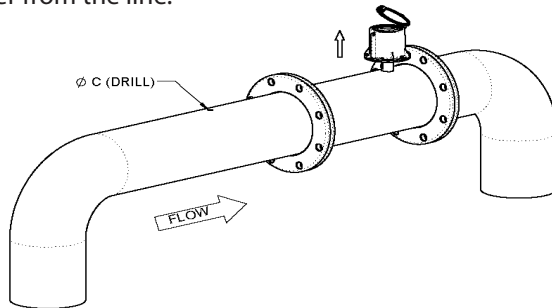
1. Relieve the pressure and drain the line prior to installation. Determine the location of the flow straightener on the outside of the pipe. The distance (A) between the bolt hole and the centerline of the ell is indicated on the table below. The centerline of the flow straightener must be parallel to the centerline of the pipe.

METER SIZE	A	B	C
6"	20 5/8	2 5/8	17/32
8"	22 3/4	3 1/2	17/32
10"	24 7/8	4 3/8	21/32
12"	27	5 1/4	21/32

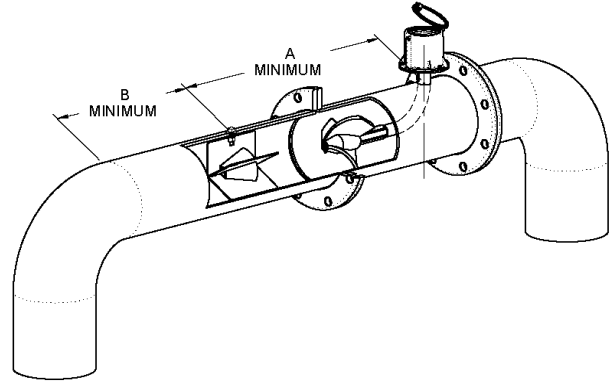
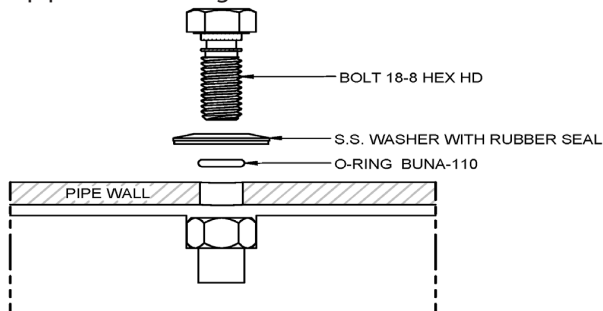
2. Establish the centerline of the pipe by a centering tool. Mark the pipe for the bolt location (see B dimension in the table above).



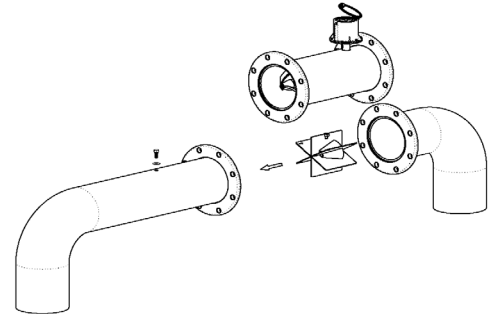
3. Drill a hole (see C dimension in the table). Remove the meter from the line.



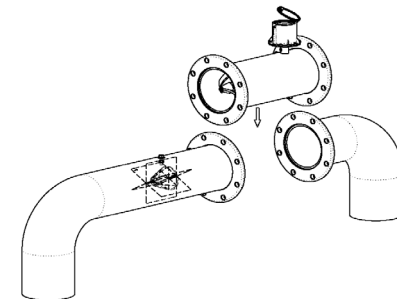
5. Secure the flow straightener with the bolt, washer and O-ring supplied with the flow straightener. Place sealing rubber washer and the O-ring under bolt against the outside of the pipe. Secure the bolt to hold the flow straightener to the pipe. Apply Loctite® anti-seize C5-A, or other appropriate lubricant, to the bolt prior to installation to ensure the bolt and nut do not seize up prior to creating an effective seal.



4. Insert the flow straightener into the pipe.



6. Reinstall the meter.



**NOTE:** It is advised the installer not use air guns or impact wrenches to tighten the bolt as it may damage the flowstraightener.

# Flow Straightener and Straightening Vane Installation Guide

## McSpaceSaver Installation for M0300 / M0300F Flow Meters

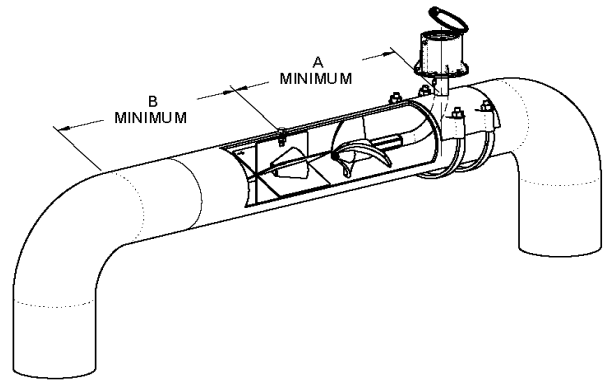
### Applies to:

Mc Propeller models M0300 and M0300F

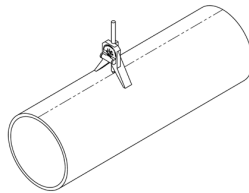
See the template supplied with the M0300F for flowmeter installation instructions.

1. Relieve the pressure and drain the line prior to installation. Determine the location of the flow straightener on the outside of the pipe. The distance (A) between the bolt hole and the centerline of the ell is indicated on the table below. The centerline of the flow straightener must be parallel to the centerline of the pipe.

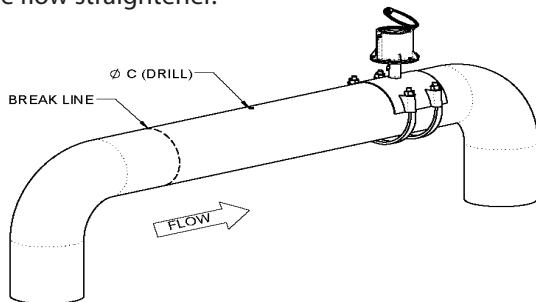
METER SIZE	A	B	C
6"	20 5/8	2 5/8	17/32
8"	22 3/4	3 1/2	17/32
10"	24 7/8	4 3/8	21/32
12"	27	5 1/4	21/32



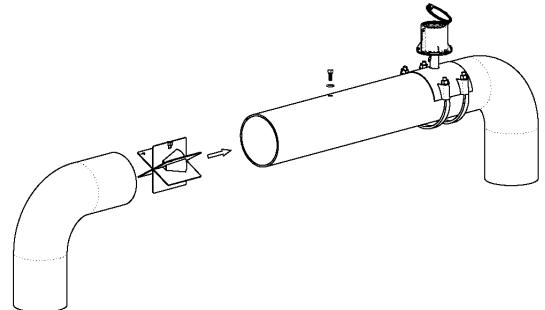
2. Establish the centerline of the pipe by a centering tool. Mark the pipe for the bolt location (see B dimension in the table above).



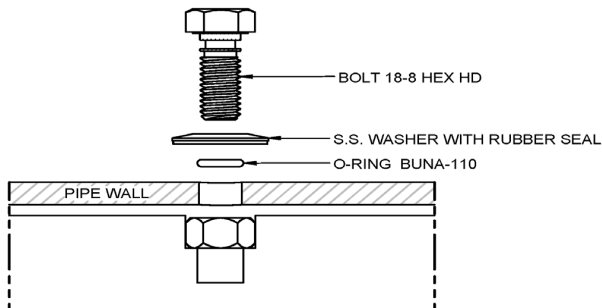
3. Drill a hole (see C dimension in the table). Break line at a flange or cut pipe in a portion near the installation location of the flow straightener.



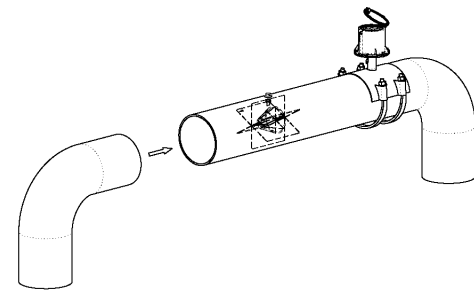
4. Insert the flow straightener into the pipe.



5. Secure the flow straightener with the bolt, washer and O-ring supplied with the flow straightener. Place sealing rubber washer and the o-ring under bolt against the outside of the pipe. Secure the bolt to hold the flow straightener to the pipe. Apply Loctite® anti-seize C5-A, or other appropriate lubricant, to the bolt prior to installation to ensure the bolt and nut do not seize up prior to creating an effective seal.



6. Close the line at the flange or repair the break.



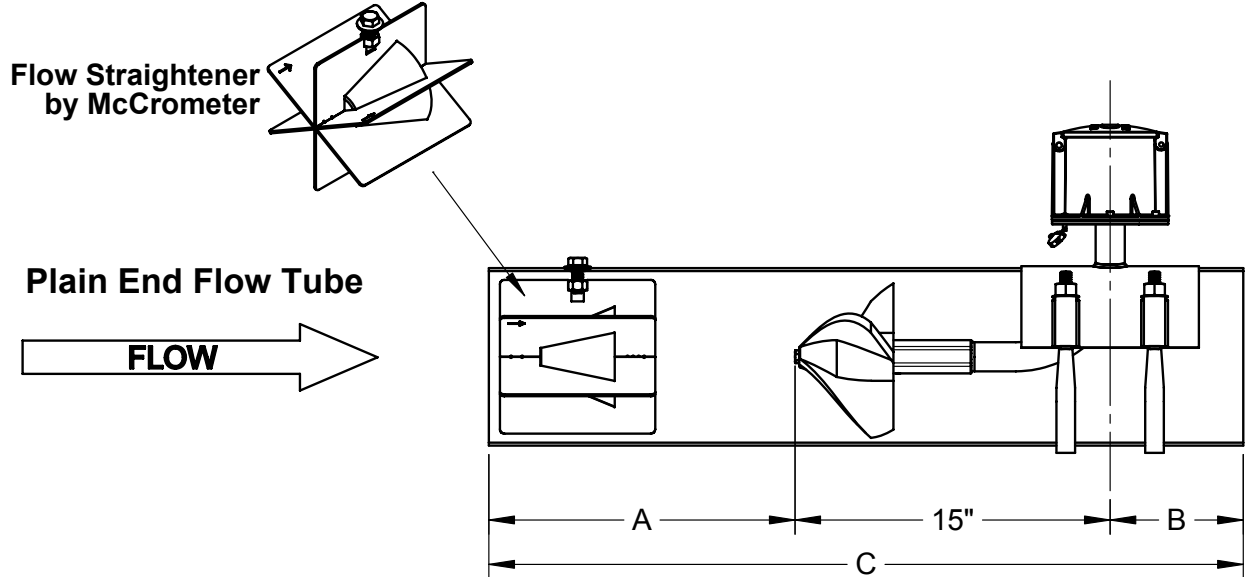
**NOTE:** It is advised the installer not use air guns or impact wrenches to tighten the bolt as it may damage the flow straightener.

# Flow Straightener and Straightening Vane Installation Guide

## McSpaceSaver Installation in Flow Tube in Forward Configuration

### Applies to:

Mc Propeller, Water Specialties, and McMag2000 flow meters

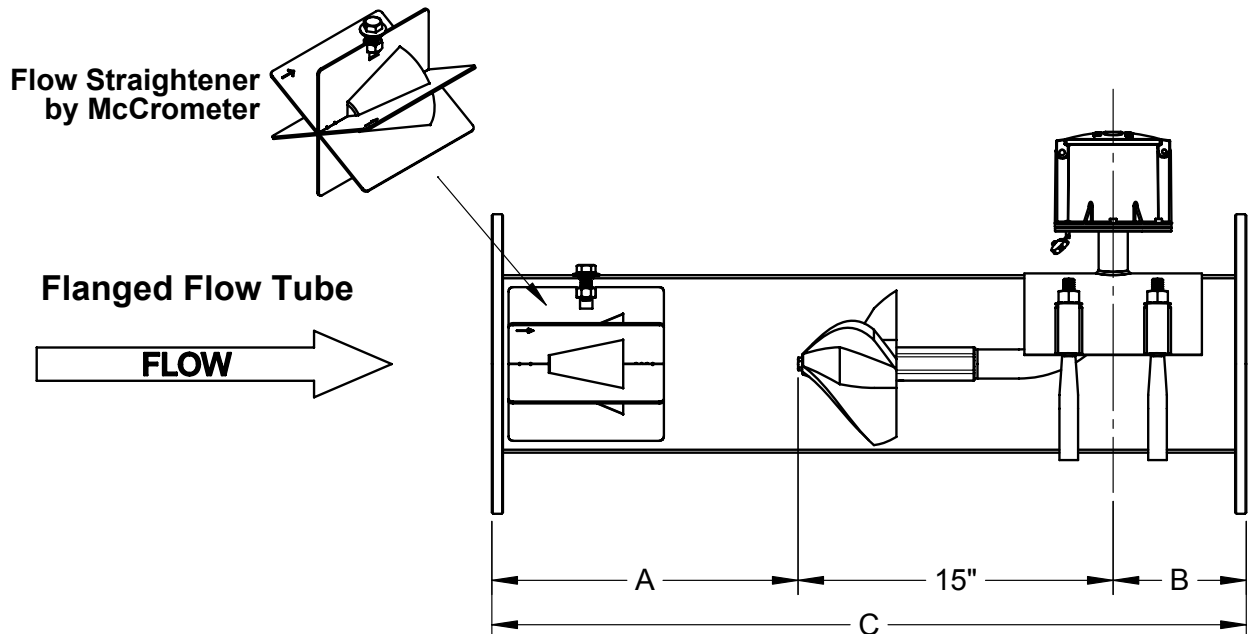


### Meter Tube Features

- Steel couplers can be welded to these tubes.
- Steel tubes are epoxy coated 10 Gauge.
- Tubes include total required lengths.
- Tubes can be fastened directly to check valves.
- Tubes can be Aluminum w/ couplers, flanges, or rolled ends.

Pipe Size	A	B	C
6	9	6	30
8	12	7	34
10	15	10	40
12	18	13	46

All dimensions are in inches



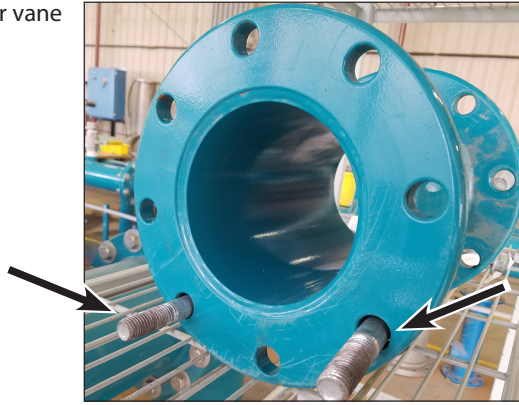
# Flow Straightener and Straightening Vane Installation Guide

## Wafer Vane Installation

### Applies to:

All tube flow meter models that accommodate a wafer vane

1. Insert bottom two bolts, which will hold up wafer vane during install.

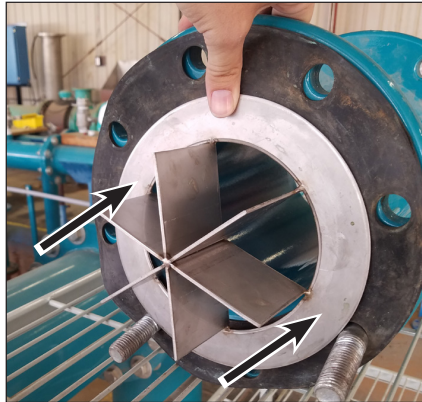


2. Install wafer vane between two gaskets. MAKE SURE VANES ARE POINTING AWAY FROM METER.

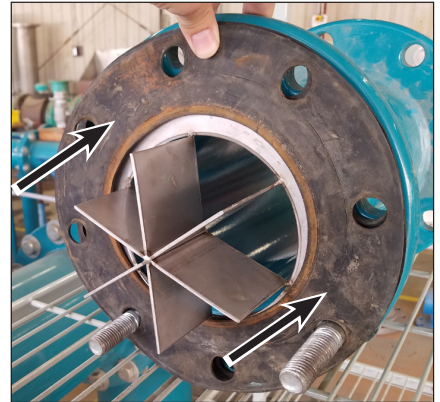
- a. Set gasket in place.



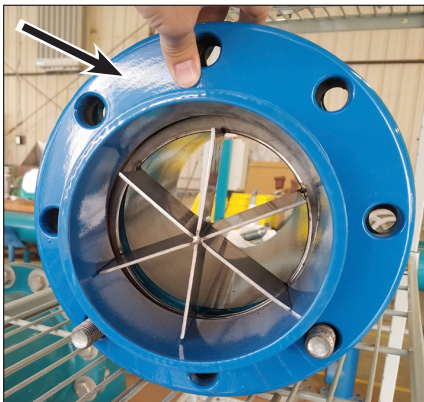
- b. Set the wafer vane against the gasket.



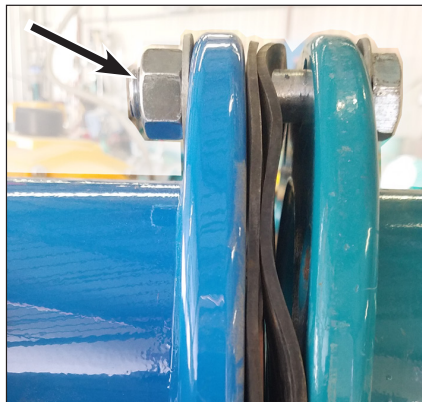
- c. Set the second gasket over the wafer vane.



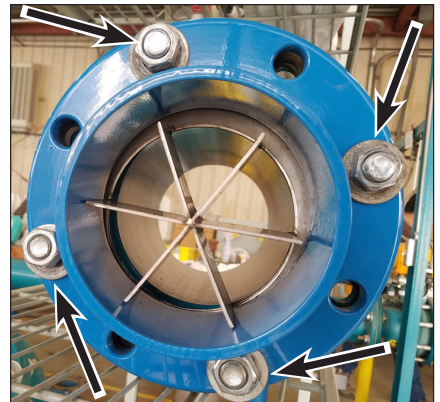
3. Bring flanges together around wafer vane and gaskets.



4. Put a nut on the bolt nearest the top of the flange; this will hold the flanges together during the rest of install.

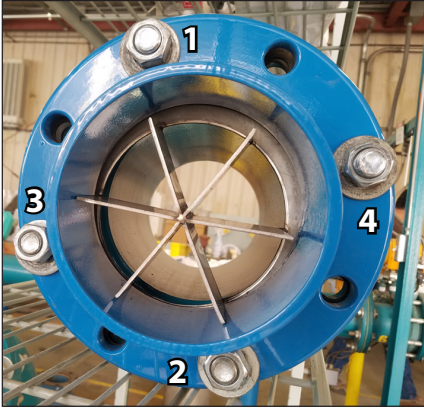


5. Install bolt sets on every other hole, and finger tighten all bolt sets.



## Flow Straightener and Straightening Vane Installation Guide

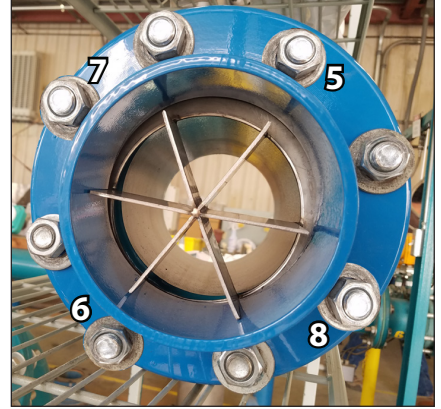
6. Using an impact drill, power drill, or wrenches, tighten all bolts in a star pattern.



Although the gaskets between the flanges may not look tight in the channel, they are tight against the metal farther into the flange.



7. Insert the remaining bolts sets and tighten them in a star pattern.

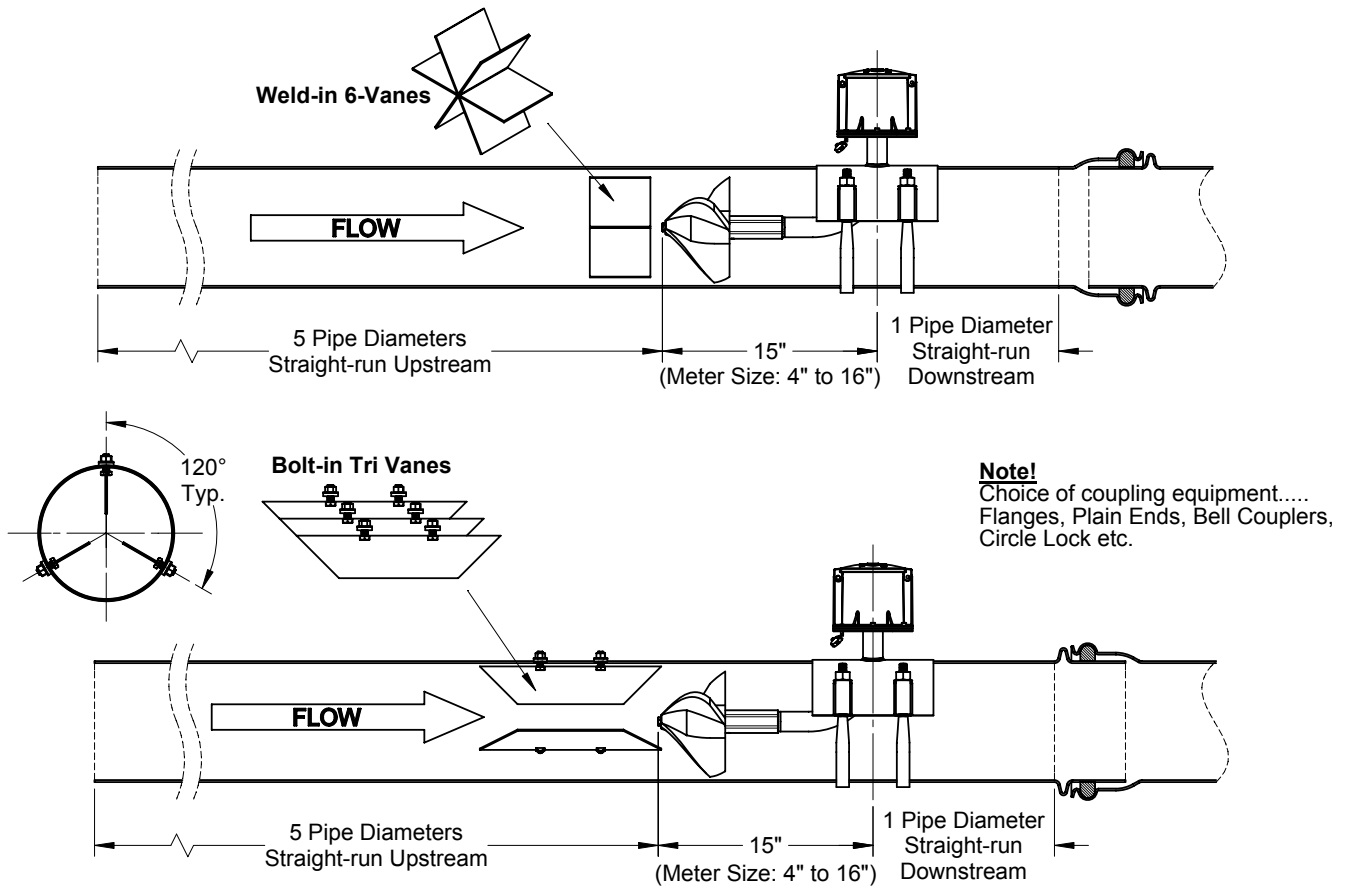


# Flow Straightener and Straightening Vane Installation Guide

## Wafer Vane and Straightening Vanes

### Applies to:

Forward meter installation in tubes with 5D upstream and 1D downstream

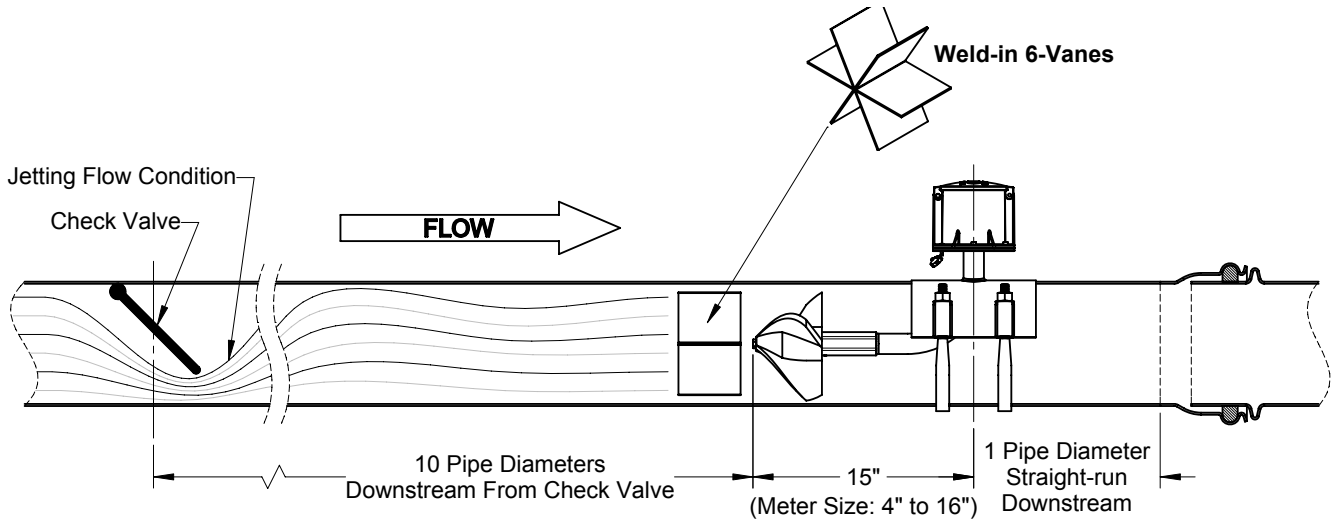


# Flow Straightener and Straightening Vane Installation Guide

## Weld-in Vane Installation 10D Downstream from Check Valve

### Applies to:

Tubes 10D downstream from check valve



### **Note!**

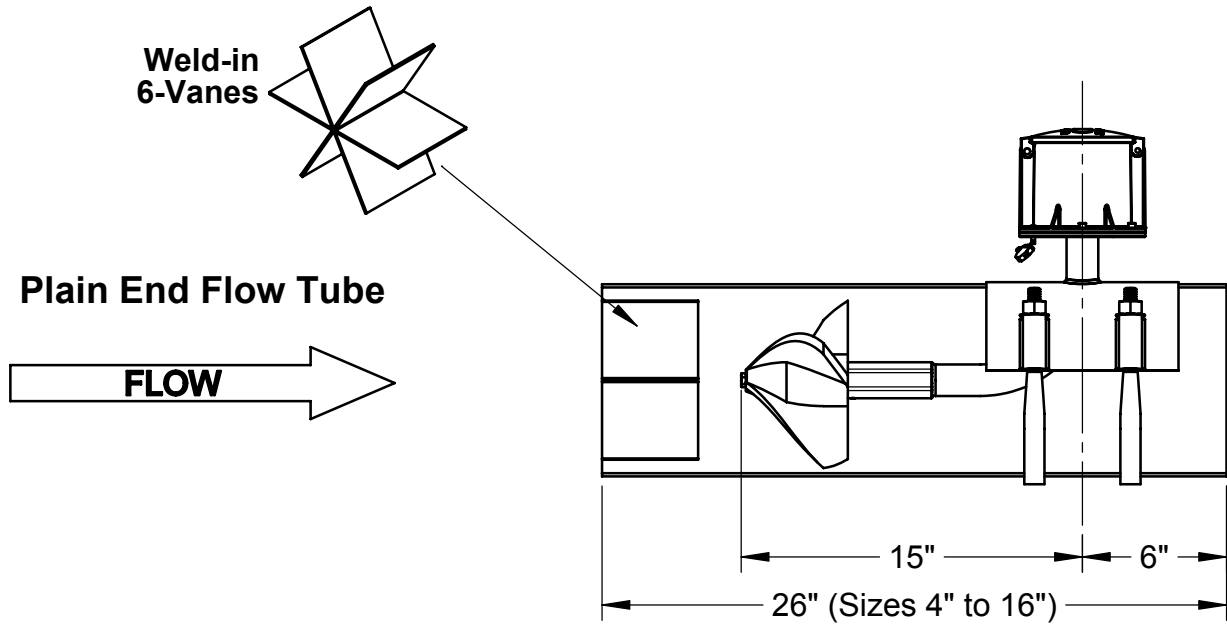
Choice of coupling equipment....  
Flanges, Plain Ends, Bell Couplers,  
Circle Lock etc.

# Flow Straightener and Straightening Vane Installation Guide

## Weld-in Vane Installation in 26" Steel Flow Tube in Forward Configuration

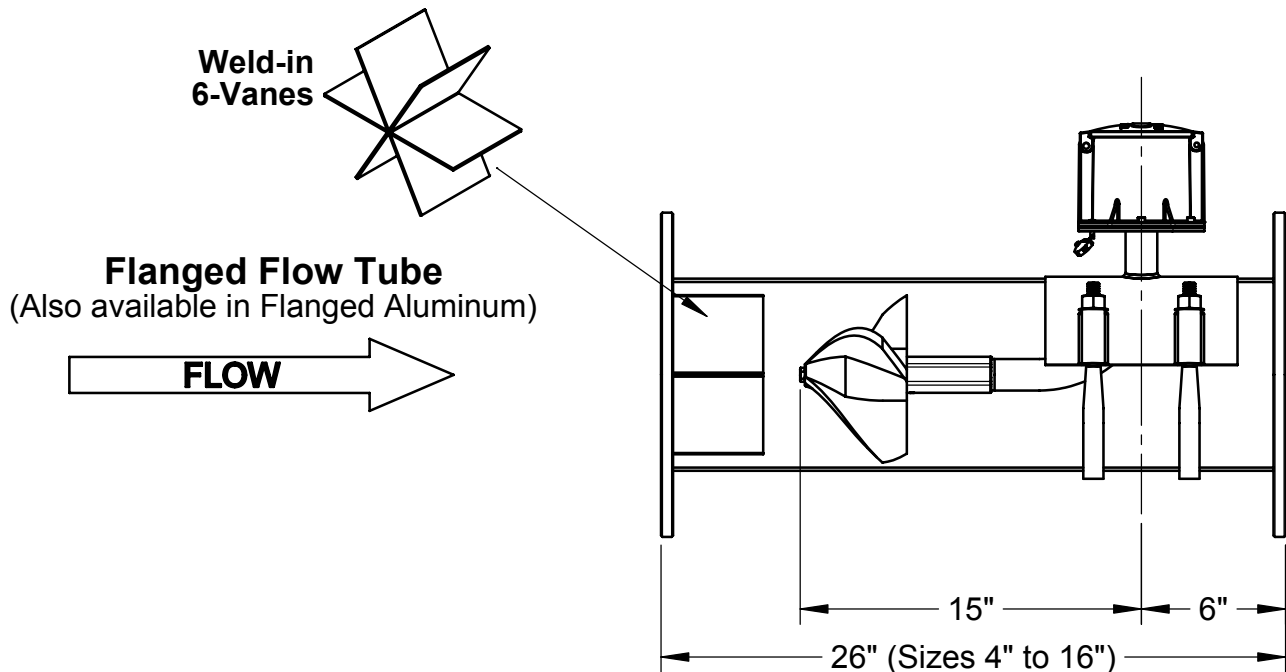
### Applies to:

26" flow tube meter models



### Notes!

- Steel couplers can be welded to these tubes.
- Steel tubes are epoxy coated 10 Gauge.

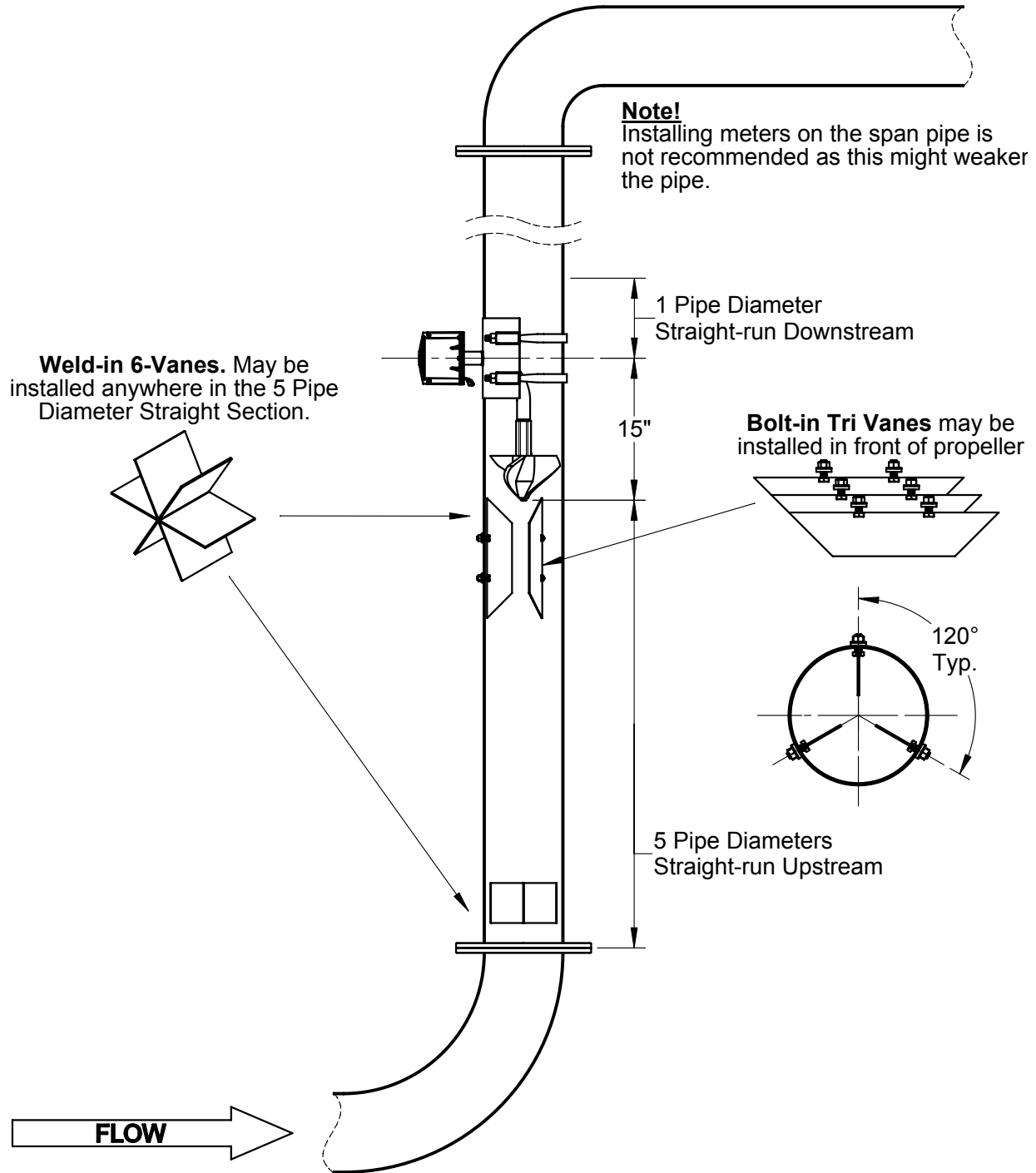


# Flow Straightener and Straightening Vane Installation Guide

## Weld-in Vanes and Bolt-In Vanes Installed in Pivot Riser

### Applies to:

Mc Propeller, Water Specialties, and McMag2000 flow meters



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