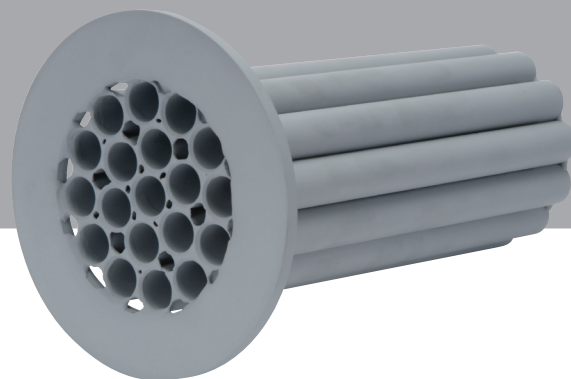


# Straightening Vanes



AGA Report #7 recommends installing Straightening Vanes upstream of gas turbine meters to reduce swirl in the pipeline.

## Straightening Vanes

Swirl is a condition where the gas velocity is not totally parallel to the axis of the pipe but has a spiral component (Figure 1). It may be caused by complex piping, control and/or shutoff valves, elbows or other fittings in the meter/regulator station.

Swirl in the direction of the rotor rotation will cause a turbine meter to over-register and vice-versa for swirl in the opposite direction of the rotor. Elster American Meter Straightening Vanes straighten the gas flow to a normal pattern, enabling accurate measurement by the downstream turbine meter.

Elster American Meter Straightening Vanes are fabricated from carbon steel in a variety of sizes for installation in either schedule 40 and schedule 80 pipe. They are produced in accordance with AGA and ASME recommendations.

## Straightening Vane Installation

Recommended turbine meter installation requires a minimum of 10 pipe diameters upstream with straightening vanes located five pipe diameters from the meter inlet (Figure 2). A length of five pipe diameters is recommended downstream of the meter.

Both inlet and outlet piping should be the same nominal size as the meter. A short-coupled installation as shown in Figure 3 may result in some degradation in meter accuracy and thus should only be used where space does not permit the recommended installation shown in Figure 2.

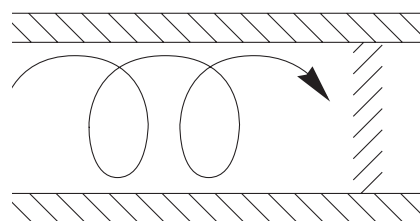


Figure 1 – Swirl



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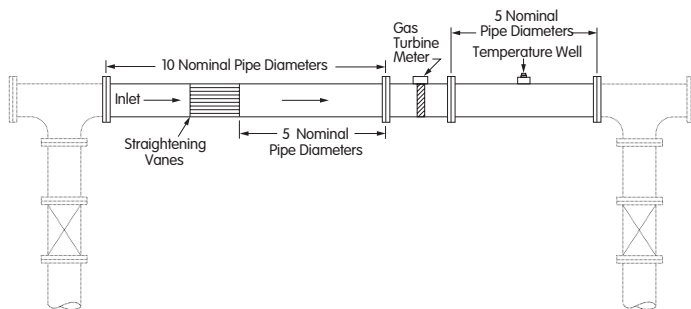


Figure 2 – Recommended Installation

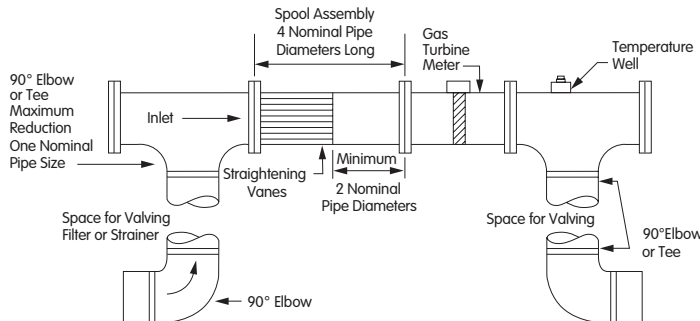
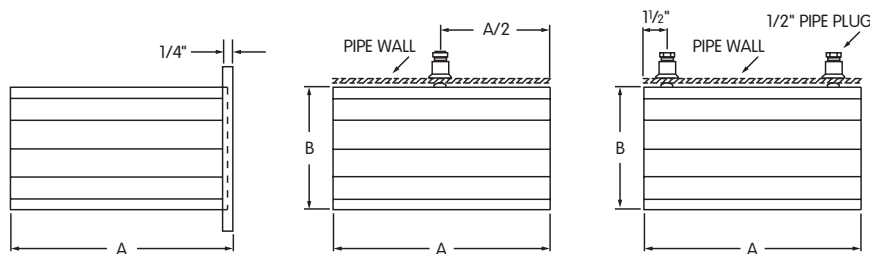


Figure 3 – Short-Coupled Installation of an In-Line Gas Turbine Meter (Minimum Lengths)

## Sizing and Ordering Specifications



NOTE: Ring Flange Model is same O.D. dimension as raised face of flange.

Part Number	Size	Pipe Schedule	Type	Flange O.D. (inches)	Pipe I.D. (inches)	Vane O.D. (inches)	Vane Length (inches)	App. Weight (lbs.)
74081P202 74081P504	3"	40	Line Flanged	NA 5.00	3.068	2.88	8.00	3 4
74081P514 74081P515	3"	80	Line Flanged	NA 5.00	2.900	2.75	8.00	3 4
74081P187 74081P505	4"	40	Line Flanged	NA 6.19	4.026	3.97	10.00	7 8
74081P516 74081P517	4"	80	Line Flanged	NA 6.19	3.826	3.75	10.00	7 8
74081P188 74081P329	6"	40	Line Flanged	NA 8.50	6.065	5.94	12.00	19 21
74081P518 74081P519	6"	80	Line Flanged	NA 8.50	5.761	5.62	12.00	19 21
74081P503 74081P501	8"	40	Line Flanged	NA 10.62	7.981	7.61	16.00	35 37
74081P520 74081P521	8"	80	Line Flanged	NA 10.62	7.625	7.47	16.00	35 37
74081P500 74081P506	12"	40	Line Flanged	NA 15.00	12.090	11.88	24.00	77 81
74081P522 74081P523	12"	80	Line Flanged	NA 15.00	11.374	11.25	24.00	77 81

## About Elster Group

Elster Group is the world's leading manufacturer and supplier of highly accurate, high quality, integrated metering and utilization solutions to the gas, electricity and water industries. In addition, through its subsidiary Ipsen International, it is the leading global manufacturer of high level thermo-chemical treatment equipment.

The group has over 8,500 staff, operations in 38 countries and serves over 115 markets around the world. Elster's high quality products and systems reflect the wealth of knowledge and experience gained from over 170 years of dedication to measuring precious resources and energy.

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