

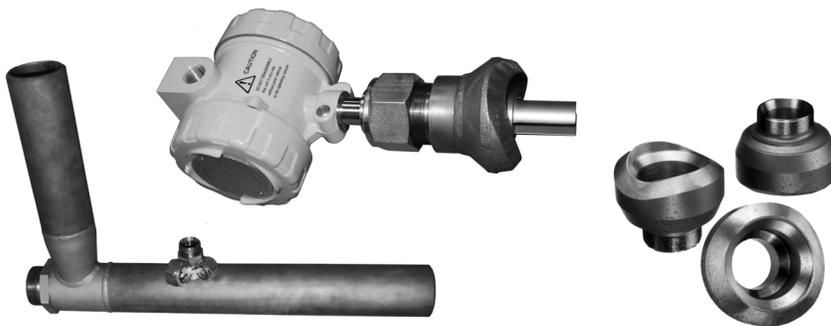
Product Data Sheet

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Micro Motion® Insertion Density and Viscosity Meter Accessories

Micro Motion® insertion density and viscosity meters are built to tackle the most demanding process and control applications. Rugged and reliable with very low maintenance, the fork density and viscosity meters are the industry standard for tank or pipeline applications where direct insertion is required.

In order to simplify the installation of these meters in specific applications, Micro Motion offers a number of accessories for mounting the meters in direct insertion, pipeline or slipstream/bypass configurations.



Superior installation flexibility

- Pipelines, tanks, spool-pieces, slipstream/bypass arrangements are all accommodated
- Common installation accessories for all fork density and viscosity meters
- Compliant with the widest range of temperature and pressure process conditions

Highest reliability and safety

- Optimized design – insensitive to vibration, flow, temperature and pressure variations.



Micro Motion® Insertion Density and Viscosity Meter Accessories

About the insertion density and viscosity meter accessories

The Micro Motion® vibrating fork meters for the measurement of density and viscosity are designed for installation in tanks, slipstream/bypass loops or in the process pipeline. The following installation accessories have been created to simplify the installation process:

- Flow-through chambers (2" and 3" nominal bore) for in-line or slipstream/bypass loops
- Weldolets (free-stream and recessed) for pipeline mounting
- Blanking plugs and configuration tools (ADView and ProLink II software applications)

Cone-seat fittings

The cone-seat fitting is the preferred method of connecting fork sensors into the process installation. Designed for compactness, low mass and high integrity sealing, they enable optimum performance in all application types.

The cone-seat fitting is based on the concept of a metal-to-metal seal, produced between dissimilar conical surfaces on the meter and accessory bodies. Reliable and leak resistant – even under rapid process temperature and pressure changes – the cone-seat fitting does not rely upon threads, gaskets or O-rings to produce a consistent seal.

Flange fittings

As flange fittings are still viewed as the industry standard for instrumentation sealing, the fork accessories have been designed so that a flange fitting between meter and accessory can also be accommodated. While the flange-fitting installation may not be as compact or low mass as the cone-seat fitting installation, the sealing mechanism chosen does not affect meter density performance.

Contact your local Micro Motion sales representative for further information on this installation.

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Flow-through chambers

About the flow-through chamber

Micro Motion designed the flow-through chamber accessory to be used with all fork density and viscosity meters. This accessory simplifies the installation of the meters in in-line and slipstream/bypass applications. The flow-through chamber has been designed to connect to nominal pipe bores between 1" (DN25) and 3" (DN80), with a number of available flange variants. This chamber conditions the flow of the product over the meter so that flow rates of up to 20 m³/hr (88 gal/min) at temperatures up to 200 °C (392 °F) can be reliably measured.

The flow-through chamber provides the greatest flexibility to process variations, and should be considered where temperature and pressure changes are significant and the possibility of entrained air exists.

Features

- Provides 1" to 3" pipe bore connection
- Can be used with fluid viscosities up to 1000 cP
- Can be used with line pressures up to 100 bar
- Can be used where line temperature is up to 200°C
- Provides connections to meters with a cone-seat or flange fitting

Pipeline weldolets

About the pipeline weldolets

Pipeline weldolets only can be used with meter installations that use a cone-seat fitting. The pipeline weldolets allow the meter to be installed directly into the side of pipes that have a 4" or greater diameter. Pipeline weldolets are available in two styles:

- Free stream – where the fork is fully exposed to the flow (free-stream meter calibration)
- Recessed – where the fork is fully withdrawn from the flow (2" schedule 40 calibration)

The following limits apply, depending on the pipeline weldolet installation:

- The velocity limits for free-stream installation are: > 0.3 to < 1.5 ft/s (> 0.1 to < 0.5 m/s)
- The velocity limits for recessed mounting are: > 1.5 to < 15 ft/s (> 0.5 to < 5.0 m/s)
- The maximum fluid viscosity for recessed mounting is: 200 cP

Pipe size should be increased or decreased to enable the velocity limits to be met. For example, where there are no intermediate ranges – such as for pipe lines with flow velocities 0.4 to 0.6 m/s – the pipe diameter must be increased so that a free-stream weldolet can be used, or decreased so that a recessed weldolet can be used. Be sure that the corresponding codes for the materials, the cone-seat fitting and the calibration are specified for the associated fork sensor.

Features

- Provides connections for 4" or greater pipelines
- Offers full-insertion or recessed mounting options
- Provides cone-seat fitting meter connections for optimum performance

Blanking plug

About the blanking plug

A blanking plug is used to close the meter entry point, if at any time you need to remove the meter and restore flowing conditions – such as for service or to flush the installation. The blanking plug is designed only for meter installations that use a cone-seat fitting.

Features

- Consists of a securing nut and a cone-seat fitting plug, which provides the same sealing integrity as the meter
- Can be used with any cone-seat version of the flow-through chamber and pipeline weldolet accessories

Diagnostic and configuration tools

ADView Software Tool Features

ADView is a PC-based configuration and diagnostics tool that runs on a Microsoft® Windows® platform, communicates with the density and viscosity meters through a standard serial port, and provides the following functionality:

- Setting up a serial link to communicate with the density and viscosity meters
- Configuring the density and viscosity meters
- Displaying data real-time or as a graph
- Logging data to a file
- Verifying correct operation of the system and diagnosing faults
- Loading and storing the Modbus register values
- Read/write to individual Modbus registers

ProLink II Software Tool Features

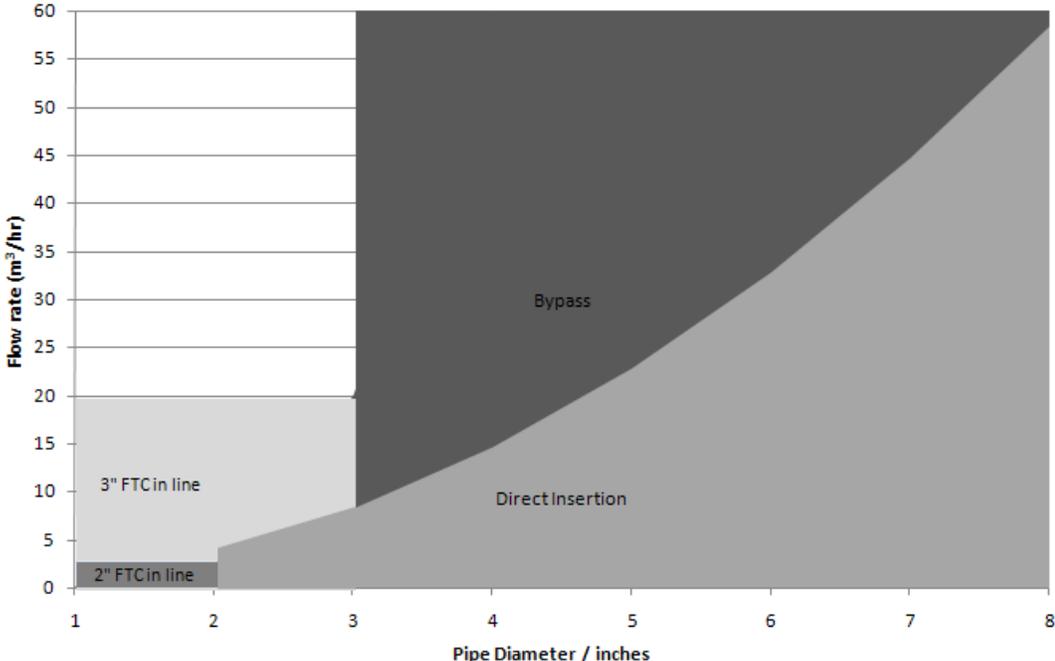
The ProLink II software tool (version 2.9 or later) can be used with the density and viscosity meters. ProLink II runs on a Microsoft Windows platform, communicates with the meters through a standard serial port or USB port, and provides the following functionality:

- Configuring the meter
- Viewing and logging process parameters
- Viewing meter diagnostics

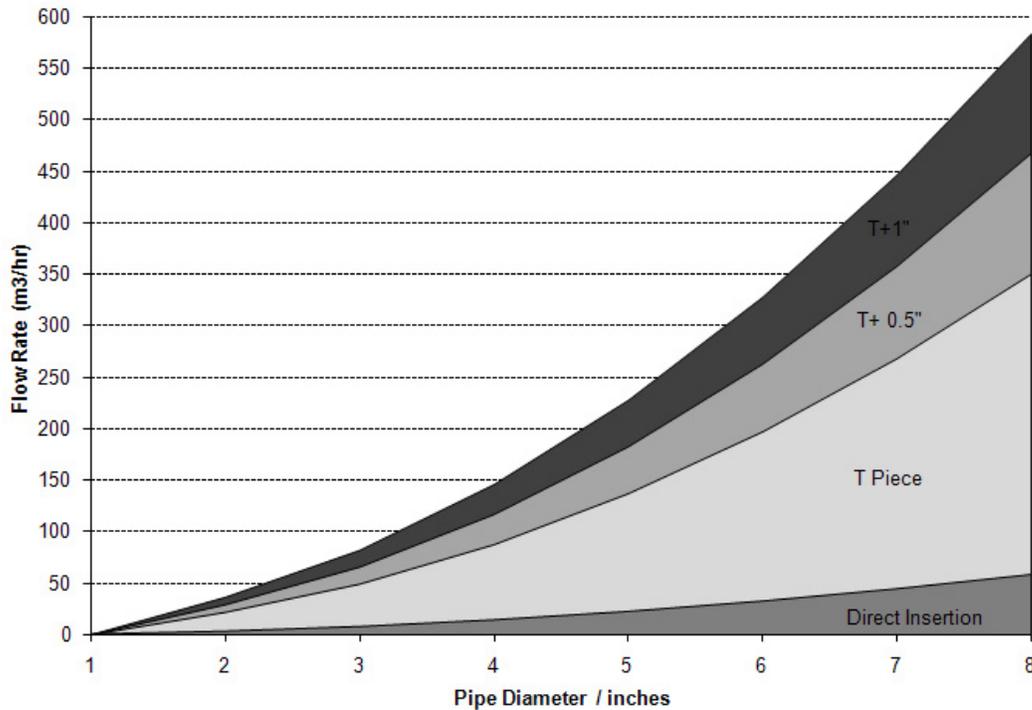
Installation practices and sizing

As a result of the superior installation flexibility of the Micro Motion fork density and viscosity meters, each accessory has been designed for a variety of application conditions. The following guides have been designed to help you choose the installation type and accessory for your application.

Flow rate versus pipe diameter limits – up to 264 gal/min (60 m³/hr)



Flow rate versus pipe diameter limits – 264 to 2640 gal/min (60 to 600 m³/hr)



Installation guide selector – fork meters

Installation type	Viscosity limit	Velocity / flow rate limits	
		7826 ⁽¹⁾ Density ±0.001g/cc	7827 / 7828 / 7829 Density ±0.001g/cc
Flow-through chamber with 2" meter bore (1" or 2" pipeline)	200 cP	1–10 gal/min (0.2–2.3 m ³ /hr)	1-10 gal/min (0.2–2.3 m ³ /hr)
Flow-through chamber with 3" meter bore (2" or 3" pipeline)	1000 cP	1–88 gal/min (0.2–19.9 m ³ /hr)	1-88 gal/min (0.2–19.9 m ³ /hr)
Direct insertion/free-stream weldolet ⁽²⁾	20,000 cP	<1.5 ft/s (<0.5 m/s)	<1.5 ft/s (<0.5 m/s)
'T' piece/recessed weldolet	200 cP	<10 ft/s (<3.0 m/s)	<10 ft/s (<3.0 m/s)
('T' piece or recessed weldolet) + 0.5" (10 mm)	200 cP	<13 ft/s (<4.0 m/s)	<13 ft/s (<4.0 m/s)
('T' piece or recessed weldolet) + 1" (20 mm)	200 cP	<16 ft/s (<5.0 m/s)	<16 ft/s (<5.0 m/s)

(1) Do not exceed the fluid viscosity limit of 500 cP for the 7826 meter.

(2) For direct-insertion tank installations, install meters at least 0.5 m away from any stirrer blades. Unstirred tanks are preferable. The long-stem meters, with a maximum length of 13 ft (4 m), are designed for top of tank insertion.

Ordering information – flow-through chambers

Model	Product description		
782791	Flow-through chamber for 7826/7828 and 7827/7829 vibrating fork meters		
Code	Inlet / Outlet Pipe size	Flow Range	Calibration Boundary
	Available with all flow-through chamber connection to 782x options		
A	1-inch (25 mm) sch 80	5 - 40 l/min	2-inch Schd 40
D	2-inch (50 mm) sch 80	5 - 40 l/min	2-inch Schd 40
	Available with flow-through chamber connection to 782x option N only		
B	1-inch (25 mm) sch 80	5 - 40 l/min	3-inch Schd 80
E	2-inch (50 mm) sch 80	5 - 300 l/min	3-inch Schd 80
G	3-inch (80 mm) sch 80	5 - 300 l/min	3-inch Schd 80
Z	ETO	ETO	refer to factory
Code	Materials		
A	316L Stainless Steel		
Z	ETO		
Code	Certification		
	Available with all flow-through chamber connection to 782x options		
B	None		
	Available with flow-through chamber connection to 782x option A & N only		
C	PED approved		
Code	Flow-through chamber connection to 782x		
	Available with Inlet / Outlet Pipe Sizes A & D only		
A	2-inch ANSI 150RF Flanges		
B ⁽¹⁾	2-inch ANSI 300RF Flanges - no certification		
C ⁽¹⁾	2-inch ANSI 600RF Flanges - no certification		
G ⁽¹⁾	EN1092 RF DN50/PN40 - no certification		
H ⁽¹⁾	EN1092 RF DN50/PN100 - no certification		
	Available with all Inlet / Outlet Pipe Sizes		
N	1.5-inch Cone Seat Compression Fitting		
Code	Process Connections		
	Available with all Inlet / Outlet Pipe Sizes A & B only		
A	1-inch ANSI 150RF Flanges		
B	1-inch ANSI 300RF Flanges		
C	1-inch ANSI 600RF Flanges		
G	EN1092 RF DN 25/PN40		
H	EN1092 RF DN 25/PN100		
	Available with all Inlet / Outlet Pipe Sizes D & E only		
J	2-inch ANSI 150RF Flanges		
L	2-inch ANSI 300RF Flanges		
N	2-inch ANSI 600RF Flanges		
R	EN1092 RF DN 50/PN40		
T	EN1092 RF DN 50/PN100		
	Available with all Inlet / Outlet Pipe Sizes G only		
K	3-inch ANSI 150RF Flanges		
M	3-inch ANSI 300RF Flanges		
Q	3-inch ANSI 600RF Flanges		
S	EN1092 RF DN 80/PN40		
U	EN1092 RF DN 80/PN100		
	Available with all Inlet / Outlet Pipe Sizes		
P	Weld prepared ends		
Z	ETO Flange		

(1) Only available if Certification letter is 'B'

Ordering information – flow-through chambers *continued*

Code	Temperature Port
A	None
B	Temperature Port 1/2" NPT fitting
Code	Future Option
A	None
Code	Traceability
A	None
X	Certificates of material traceability
Code	Factory Option
A	Standard
Z	ETO

Typical model number: 7827 91 DABCNAAAA

Ordering information – pipeline weldolets

Free-stream weldolets

Model	Product Description
782781	Free-stream weldolets
Code	Material
A	316L Stainless Steel
Z	ETO material
Code	To Fit Main Pipeline Diameters
A	4-inch Schedule 40 Nominal Bore
P	6-inch Schedule 40 Nominal Bore
B	8-inch Schedule 40 Nominal Bore
E	10-inch Schedule 40 Nominal Bore
Z	ETO Nominal Bore
Code	Traceability
A	None
X	Certificates of material traceability
Typical model number: 782781 A A A	

Recessed weldolets

Model	Product Description
782782	Recessed weldolets
Code	Material
A	316L Stainless Steel
P	Carbon Steel weldolet, Stainless Steel pocket
Z	ETO material
Code	To Fit Main Pipeline Diameters
A	4-inch Schedule 40 Nominal Bore
P	6-inch Schedule 40 Nominal Bore
B	8-inch Schedule 40 Nominal Bore
E	10-inch Schedule 40 Nominal Bore
Z	ETO Nominal Bore
Code	Recession Depth (defined by pipe flow velocity)
A	from 1.6 fps to 9.8 fps (0.5 m/s to 3 m/s)
B	from 6.6 fps to 13.1 fps (2 m/s to 4 m/s)
C	from 9.8 fps to 16.4 fps (3 m/s to 5 m/s)
D	from 13.1 fps to 19.7 fps (4 m/s to 6 m/s)
Z	ETO Depth
Code	Traceability
A	None
X	Certificates of material traceability
Typical model number: 782782 A A A A	

Ordering information – blanking plugs

Model	Product Description
782784	Accessories – blanking plugs
Code	Size
A	1/2-inch Plug and Ferrule
B	3/4-inch Plug and Ferrule
C	1 1/2-inch Plug (no Ferrule required)
Code	Material
A	316L Stainless Steel
Z	ETO material
Code	Traceability
A	None
X	Certificates of material traceability
Typical model number: 782784 A A A	

Micro Motion—The undisputed leader in flow and density measurement



World-leading Micro Motion measurement solutions from Emerson Process Management deliver what you need most:

Technology leadership

Micro Motion introduced the first reliable Coriolis meter in 1977. Since that time, our ongoing product development has enabled us to provide the highest performing measurement devices available.

Product breadth

From compact, drainable process control to high flow rate fiscal transfer—look no further than Micro Motion for the widest range of measurement solutions.

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Benefit from expert phone, field, and application service and support made possible by more than 750,000 meters installed worldwide and over 30 years of flow and density measurement experience.

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