Isco Product Data

ADFM® Hot Tap Velocity Profiler for Closed Pipes

The ADFM Hot Tap Flow Meter provides precise and accurate flow rate measurement in full and pressurized pipe applications where the pipe ID is 18" (460 mm) or greater. The Hot Tap can be used in the difficult hydraulic conditions often found in force mains, siphons, process lines, and other full-pipe applications.

The ADFM Hot Tap is a variant of the standard, open channel ADFM flow monitoring system. The Hot Tap combines the widely used ADFM pulse Doppler velocity profiling technology with a unique sensor assembly suitable for insertion into full, operating pipes.

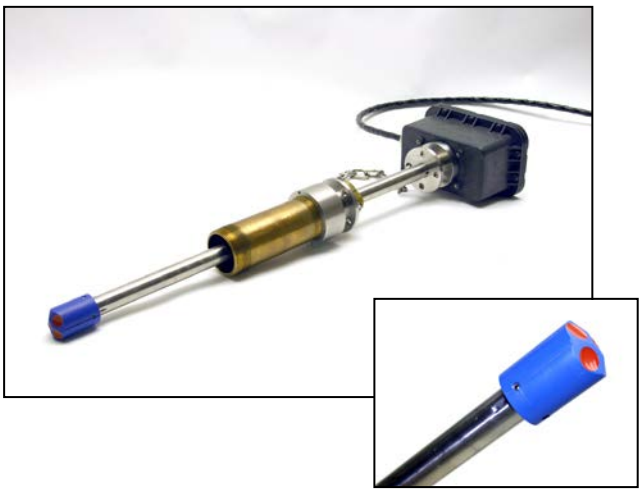
The Hot Tap's velocity profiling technology enables accurate flow rate measurement without the usual lengthy upstream and downstream straight-line conditions required by other technologies. It measures flow rate to within ±2% of actual flow rate in closed pipes, even in difficult applications such as installations near bends, short straight runs, near pumps, etc.

Installation is accomplished by inserting the sensor into an industry standard two-inch NPT tap through the pipe wall. Installation is straight-forward and quick, providing easy access to the sensor for routine inspection and maintenance when needed. The Hot Tap is constructed of robust materials insuring years of worry-free operation.

The Hot Tap sensor uses standard ADFM electronics for data processing, collection, and storage. For customers already familiar with the standard ADFM system, operating the Hot Tap system will be intuitively easy. All standard ADFM software, communication, and interface equipment are available for the Hot Tap.

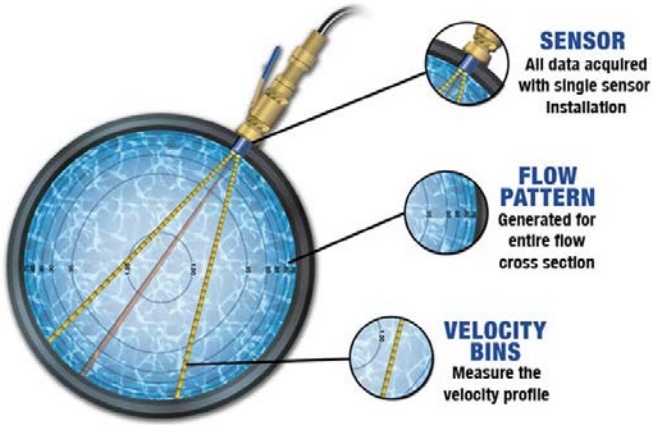
Applications

- Wastewater collection systems
- Combined sewer systems and outfalls
- Wastewater treatment facilities
- Irrigation canals and channels
- Industrial process and discharges
- Stormwater conveyance and outfalls



Standard Features

- Pulse Doppler velocity profiling technology
- Quad-redundant velocity sensors in a single, compact housing
- Data quality verification information (signal strength and correlation)
- In-situ calibration never required
- Rugged, long lasting construction
- Real-time data output
- Industry standard communications protocol interfaces (optional)
- Secondary pressure depth sensor (optional)



Specifications

ADFM® Hot Tap Velocity Profiler	
Measurement Performance	
Flow Accuracy:	2% of reading
Velocity	
Maximum Velocity:	±30.0 ft/s (± 9 m/s)
Velocity Bin Size:	2 to 12 inches (50 to 300 mm) user selectable
Vertical Profiling Range:	9 to 108 in (230 mm to 2.7m) nominal, for particle concentrations of 50-1000 ppm
Pipe ID:	18 to 108 inches (460 mm to 2.7 m)
Accuracy:	1% of reading ± 0.01 ft/s (3.0 mm/s)
Acoustic Frequency	
Frequency:	1.23 MHz
Physical	
Electronics unit	
Electronic Unit Configurations:	Cylindrical canister or wall-mount box
Operating Temperature:	-15 to 125º F (-26 to 52º C)
Storage Temperature:	-65 to 160º F (-54 to 71º C)
Packaging:	NEMA 6P (IP 68) for canister NEMA 4X for box
Dimensions:	Canister - 28.5x10 in. (724 x 254 mm) Box - 17.5x14.8x6.7 in (445x375x170 mm)
Weight:	Canister Housing 36 lbs (16 kg) Box Housing 24 lbs (11 kg)
ADFM Hot Tap Insertion Sensor	
Operating Temperature:	23 to 95º F (-5 to 35º C)
Housing Material:	Plastic transducer assembly on corrosion resistant stainless steel stem
Static Pressure:	200 psi nominal, for 200 – 300 psi contact the factory.
Dimensions[1]:	1.375 in (35 mm) diameter with standard stem length of 24 in (610 mm); fits 2 in (50 mm) NPT standard tap
Weight (including 50 ft cable):	15 lbs (6.8 kg)
Packaging:	IP68
Sensor Signal Cable	
Operating Temperature:	-40 to 125º F (-40 to 52º C)
Material:	Polyethylene jacket
Length:	50 ft (15 m) std. Optional 100 ft length (30 m) available.
Minimum Bend Radius:	6 in (150 mm)
Outer Diameter:	0.5 in (13 mm) nominal

[1] Custom stem and cable lengths available. Contact the factory for more information.

Data Management	
ADFM Hot Tap Data Types	
Q, V, D:	Discharge, average velocity, depth
Velocity:	Velocity profile data (relative to acoustic beam directions) per beam and bin
Echo Intensity:	Echo intensity data (relative backscatter intensity) per beam and bin
Data Quality:	Profile data quality indicators (Correlation magnitude, % - Good) per beam and bin
Temperature:	Transducer temperature output range 20 to 125º F (-7 to 52º C)
Sound Speed:	One output for speed of sound data
Leader:	Output of general leader information (time, data, record number, etc.)
Data Storage and I/O	
Data Storage Capacity:	32 MB std. (300,000 measurements); up to 440 MB optional
Data I/O Interface:	RS-232 standard. Multiple industry-standard analog and digital protocols optionally available.
Data Transfer Rate:	Configurable to 57,600 bps
Power	
Internal Battery Voltage:	24 VDC nominal
Internal Battery Capacity:	26 Ah at 75º F (24º C) – Alkaline. Battery life 22 weeks at 15 minute sampling interval
External DC:	12 - 36 VDC; 10 VDC absolute minimum; 36 VDC absolute maximum
Software	
Flowlink 5.1 for data retrieval and analysis	

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