

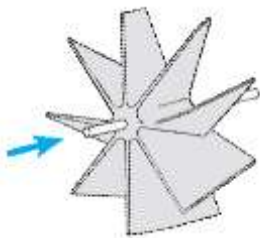
APPLICATIONS

The Challenger turbine meters are an ideal choice for the most challenging metering applications. These turbine meters are the defacto choice for consistent medium to high flow and immediate flow demand applications such as large-scale irrigation, high-rise building services and manufacturing. The Challenger is a compact, top-loading meter which can be adapted for almost any location, including vertical installations. While the Challenger meters do offer good low-flow capabilities, their primary application is for long-term performance and durability at high flowrates.



OPERATIONS

The Challenger meters utilize an innovative bearing design based on the proven Woltman turbine concept. A turbine is mounted on a shaft oriented parallel to the flow stream. The water forces the blades of the turbine to rotate the shaft in proportion to the velocity of the flow.



Due to the advanced bearing design, the meter maintains accuracy at almost any orientation, including vertical.

All Challenger turbine meters utilize innov8 registers. These sealed electronic registers provide a high resolution interface to the meter and have multiple cellular, AMR, AMI and SCADA outputs. All registers are attached with a robust tamper-resistant housing.

DESIGN FEATURES

- Light & compact with short length
- Wide accuracy range
- Horizontal or vertical installation
- Calibrate-able measuring chamber
- Field replaceable measuring chamber
- Outstanding long-term accuracy through hydraulic bearing relief
- Register head can be rotated 365° for easier reading
- Compatible with all Innov8 electronic registers
- AMI/AMR and SCADA outputs available

MATERIALS

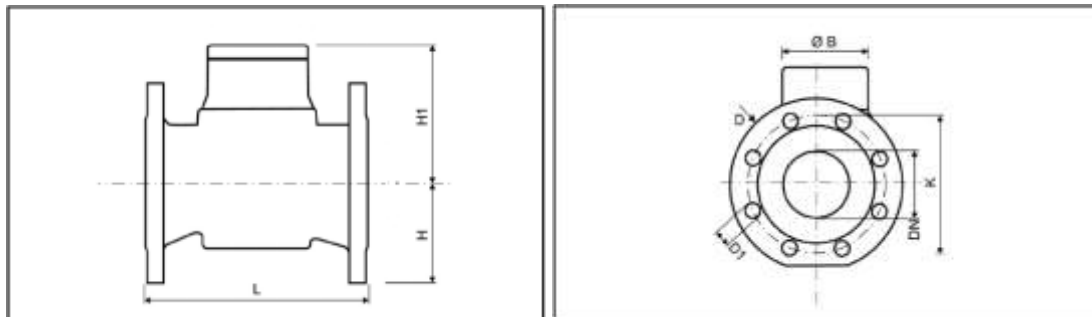
The Altair meters are designed and manufactured to meet or exceed AWWA C701 Class II standards design and performance specifications. All Models are maintained with NSF-61G lead-free certifications.

STANDARDS

AWWA C701 Class II

MECHANICAL SPECIFICATIONS

Challenger 2"	2-inch (50mm)	
Flanges	Round 4-bolt	Bolt Hole Diameter = 0.71" (18 mm)
Flange Diameter	6.5" (165 mm)	Pattern = 4.9" (125 mm)
Lay Length	7.87" (200 mm)	
Total Height	7.8" (198 mm)	Above Centerline = 4.85" (123 mm)
Weight	22.5lb (10.2 kg)	
Challenger 3"	3-inch (80mm)	
Flanges	Round 4-bolt	Bolt Hole Diameter = 0.71" (18 mm)
Flange Diameter	7.87" (200 mm)	Pattern = 6.3" (160 mm)
Lay Length	8.9" (225 mm)	
Total Height	9.6" (243 mm)	Above Centerline = 6.1" (154 mm)
Weight	28.7lb (13 kg)	
Challenger 4"	4-inch (100mm)	
Flanges	Round 8-bolt	Bolt Hole Diameter = 0.71" (18 mm)
Flange Diameter	8.66" (220 mm)	Pattern = 7.1" (180 mm)
Lay Length	9.8" (250 mm)	
Total Height	10.2" (259 mm)	Above Centerline = 6.1" (154 mm)
Weight	35.3lb (16 kg)	
Challenger 6" LF	6-inch (125mm)	
Flanges	Round 8-bolt	Bolt Hole Diameter = 0.87" (22 mm)
Flange Diameter	9.8" (250 mm)	Pattern = 9.5" (240 mm)
Lay Length	9.8" (250 mm)	
Total Height	10.6" (269 mm)	Above Centerline = 6.1" (154 mm)
Weight	47.4lb (21.5 kg)	
Challenger 6" HF	6-inch (150mm)	
Flanges	Round 8-bolt	Bolt Hole Diameter = 0.87" (22 mm)
Flange Diameter	11.2" (285 mm)	Pattern = 9.5" (240 mm)
Lay Length	11.8" (300 mm)	
Total Height	15" (380 mm)	Above Centerline = 9.65" (245 mm)
Weight	86lb (39 kg)	



MATERIALS

Body & Top-plate: Epoxy-coated Cast Iron
 Register Housing: Thermoplastic

MARKINGS

Engraved on Meter Body: NSF-61
 Direction of Flow Arrow

FLOW & PRESSURE SPECIFICATIONS

Challenger 2"

Operating Range (98.5 to 101.5%)	2.0 to 400 gpm	(0.45 to 91 m3/hr)
Low Flow (95% min)	1.5 gpm	(0.35 m3/hr)
Max Continuous Flow ¹	175 gpm	(40 m3/hr)
Max Intermittent Flow ²	400 gpm	(91 m3/hr)
Pressure Loss at Max Continuous	3.6 psi	(0.25 bar)
Max Operating Pressure	230 psi	(15.9 bar)
Max Operating Temperature	120 °F	(48.9 °C)

Challenger 3"

Operating Range (98.5 to 101.5%)	3.0 to 880 gpm	(0.68 to 200 m3/hr)
Low Flow (95% min)	2.0 gpm	(0.5 m3/hr)
Max Continuous Flow ¹	500 gpm	(110 m3/hr)
Max Intermittent Flow ²	880 gpm	(200 m3/hr)
Pressure Loss at Max Continuous	3.6 psi	(0.25 bar)
Max Operating Pressure	230 psi	(15.9 bar)
Max Operating Temperature	120 °F	(48.9 °C)

Challenger 4"

Operating Range (98.5 to 101.5%)	4.0 to 1320 gpm	(0.9 to 300 m3/hr)
Low Flow (95% min)	2.0 gpm	(0.45 m3/hr)
Max Continuous Flow ¹	700 gpm	(160 m3/hr)
Max Intermittent Flow ²	1320 gpm	(300 m3/hr)
Pressure Loss at Max Continuous	5.8 psi	(0.4 bar)
Max Operating Pressure	230 psi	(15.9 bar)
Max Operating Temperature	120 °F	(48.9 °C)

Challenger 6" LF

Operating Range (98.5 to 101.5%)	5.0 to 1540 gpm	(1.1 to 350 m3/hr)
Low Flow (95% min)	2.5 gpm	(0.57 m3/hr)
Max Continuous Flow ¹	700 gpm	(160 m3/hr)
Max Intermittent Flow ²	1540 gpm	(350 m3/hr)
Pressure Loss at Max Continuous	5.8 psi	(0.4 bar)
Max Operating Pressure	230 psi	(15.9 bar)
Max Operating Temperature	120 °F	(48.9 °C)

Challenger 6" HF

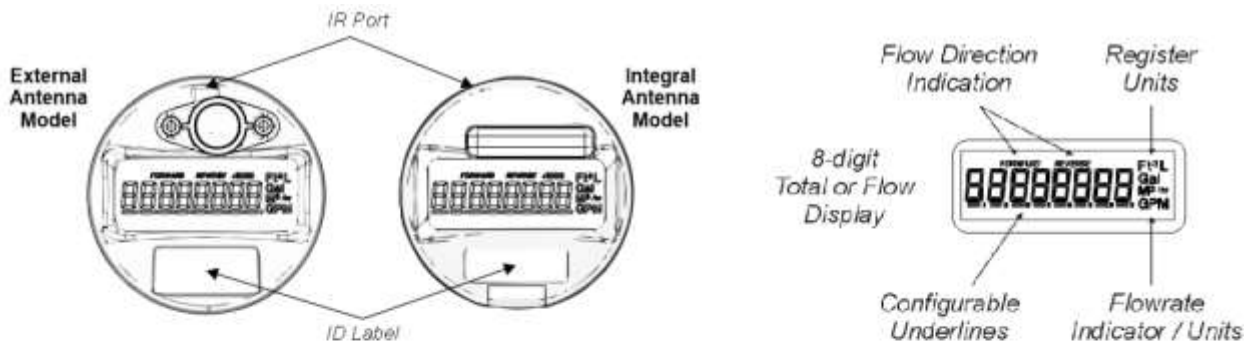
Operating Range (98.5 to 101.5%)	8.0 to 2100 gpm	(1.8 to 475 m3/hr)
Low Flow (95% min)	8.0 gpm	(1.8 m3/hr)
Max Continuous Flow ¹	1500 gpm	(340 m3/hr)
Max Intermittent Flow ²	2100 gpm	(475 m3/hr)
Pressure Loss at Max Continuous	5.8 psi	(0.4 bar)
Max Operating Pressure	230 psi	(15.9 bar)
Max Operating Temperature	120 °F	(48.9 °C)

Notes

- 1 Max Continuous defined by AWWA as flow rate which can be maintained 24 hrs/day x 7 days/week
- 2 Max Intermittent defined as flow rate which can be maintained 1 hr/day average

REGISTERS

The innov8 electronic register is the water industry’s new standard for register performance. The innov8 offers maximum resolution, a multitude of standard features, on-board datalogging and a variety of AMI, AMR and SCADA output options. The innov8 is designed for all environments and incorporates the largest battery available for utility applications. The innov8 can be deployed on any Metron water meter.



<p>USG Configuration 0.1 Gallon Resolution</p>	<p>USG - Residential Meters (x0.1)</p>	<p>USG Flowrate - All Meters (x0.01)</p>
<p>Ft3 Configuration 0.01 Ft3 Resolution</p>	<p>Ft3 - Residential Meters (x0.01)</p>	<p>Ft3 Flowrate - All Meters (x0.01)</p>
<p>m3 Configuration 0.001 m3 Resolution</p>	<p>m3 - Residential Meters (x0.001)</p>	<p>m3 Flowrate - All Meters (x0.001)</p>

WARRANTY

Please contact your Metron representative for formal warranty certifications.

LEGAL

Due to applicable regulations and product improvements, Metron-Farnier reserves the right to change the product specifications without notice.

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