

# Model Horizon

Horizontal Turbine Meters  
Sizes 1-1/2" through 10"

**Mueller** SYSTEMS

## NOTICE OF DISCONTINUATION, Effective October 2011

Mueller Systems has discontinued new sales of our Horizon meter line in an effort to introduce new metrology requested by our customer base. If you need an alternative meter to our Horizon horizontal turbine line, please take a look at the Hersey HbMAG electromagnetic meters or our MVR vertical turbine meters.

**Replacement component parts for the Horizon meters will continue to be available for the foreseeable future. As we deplete our existing stock of components, we will no longer offer these options for sale.** Check the exploded diagram and table in this data sheet for highlighted replacement components to keep your Horizon performing to new meter accuracy standards.

Thank you for using Hersey meters. We appreciate your continued business.

# Model Horizon

## Horizontal Turbine Meters

Sizes 1-1/2" and 2"

**Mueller** SYSTEMS

### Features

**APPLICATIONS:** For use in the measurement of potable water for applications where flow is consistently moderate to high. Designed for applications where accuracy is an essential part of maintaining revenue. The Horizon horizontal turbine meter is built to maintain accuracy over extended periods of use.

**CONFORMANCE TO STANDARDS:** Horizon turbine meters have some of the widest flow ranges of any turbine meters on the market. All Horizon series turbine meters meet or exceed the latest performance and accuracy standards of AWWA C701. Maximum continuous flow rates may be exceeded by as much as 25% for intermittent periods.

**CONSTRUCTION:** The Horizon consists of three basic parts; maincase; measuring insert; and register. Maincases are made of bronze. Measuring elements are thermoplastic with unique inlet and outlet straightening vanes.

To simplify maintenance, the Horizon is designed to allow quick, easy, in-line exchange of the measuring element without removing the maincase from the installation. Interchangeability of many parts within various sizes minimizes spare parts inventory and the Horizon comes standard with built-in strainer.

**REGISTER:** Permanently sealed register has a unique seal and heat-treated glass to eliminate dirt, moisture infiltration and lens fogging. An integral tamper-proof locking feature is provided to prevent tampering of the register and calibration vane. The totalizing register has a straight-reading odometer type display; 360° test circle with center sweep hand and a low flow (leak) detector. Standard gearing is used, making registers interchangeable by size. All Hersey Meter models have electronic meter reading systems available for increased reading efficiency (see Meter Reading Systems.)

**OPERATION:** Water flows straight through the measuring element where it turns a rotor at a rate in direct proportion to the quantity of water flowing through the meter. The straight-through design allows high volumes to flow with a minimum of head loss. Retro Thrust® design extends the life of the meter by dividing wear between two points: during low flow the tungsten carbide bearing in the rotor floats against a stainless steel shaft; during high flow a second tungsten carbide bearing gently moves back against another stainless steel shaft. During medium flow, the rotor floats between both tungsten carbide bearings with sapphire bushings providing radial support for the rotor.

**STRAINER & TEST PORT:** Standard Built-in Strainer. Test port is optional with spool piece.

**CONNECTIONS:** ANSI Class 150 Flanges. 1-1/2" NPT pipe threads on optional test outlet.



2" Horizontal Turbine Meter

Horizon

### Materials and Specifications

MODEL DESIGNATION	HORIZON
SIZES	1-1/2", 2"
STANDARDS	Manufactured and tested to meet or exceed all applicable parts of ANSI/AWWA C701 class II Standard.
SERVICE	Cold water measurement.
NORMAL OPERATING FLOW RANGE	See Chart on following page
ACCURACY	See Chart on following page
PRESSURE LOSS	See Chart on following page
MAXIMUM WORKING PRESSURE	175 PSI
TEMPERATURE RANGE	33°F to 100°F water temperature
MEASURING ELEMENT	Stainless Steel and Thermoplastic
REGISTER TYPE	Straight reading, permanently sealed, magnetic drive with low flow indicator. Remote Readings units optional.
MATERIALS	Maincase – bronze UNS 84400; Casing bolts – Stainless steel ANSI B18; Rotor – Thermoplastic; Rotor radial bearing – Sapphire; Rotor thrust bearings – tungsten carbide; Rotor bearing pivots – Stainless steel ANSI B18; Magnet - rare earth/ceramic; Register box and lid – Thermoplastic or optional bronze; Standard strainer – Stainless steel; Spool piece with test outlet - bronze.
INSTALLATION	Straight pipe requirements: Horizontal or Vertical 5x inlet pipe diameter 3x outlet pipe diameter
METER CONNECTIONS	1-1/2" – 2" ANSI Class 150
OPTIONS	AMR/AMI Reading Systems

### Meter Registration

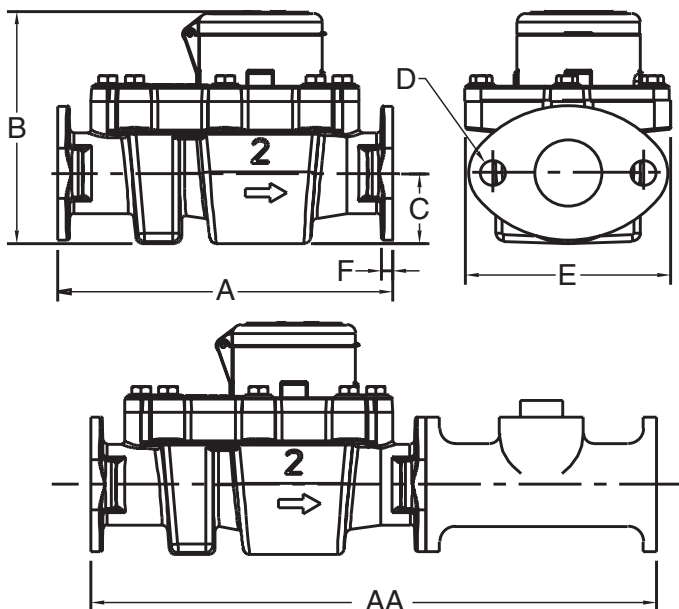
Meter Size	Initial Dial*	Capacity	Initial Dial*	Capacity
1-1/2"	100 Gallons	100 Million	10 Cubic Feet	10 Million
2"	100 Gallons	100 Million	10 Cubic Feet	10 Million

\*Registration equal to one full revolution of the sweep hand.

### Flow Characteristics

Meter Size	Typical Low Flow (95% Min.)	Typical Operating Range (100% $\pm$ 1.5%)	Maximum Continuous Operation	Maximum Intermittent Flow
1-1/2"	2 GPM	4 to 120 GPM	120 GPM	160 GPM
2"	2-1/2 GPM	4 to 160 GPM	160 GPM	200 GPM

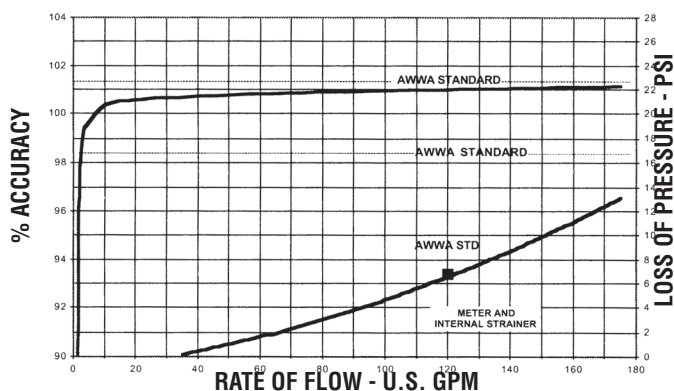
### Dimensions and Weights



Meter Size	1-1/2"	2"
<b>Dimension</b>		
A Compact Length	9	10
AA Standard Length	13	17
B Height	7-3/4	7-3/4
C Centerline	1-3/4	2-1/8
D Holes	3/4	3/4
E Width	6-1/8	6-1/8
F Flange	3/8	3/8
Net Weight Compact - LBS	22	23
Net Weight Standard - LBS	26.5	32

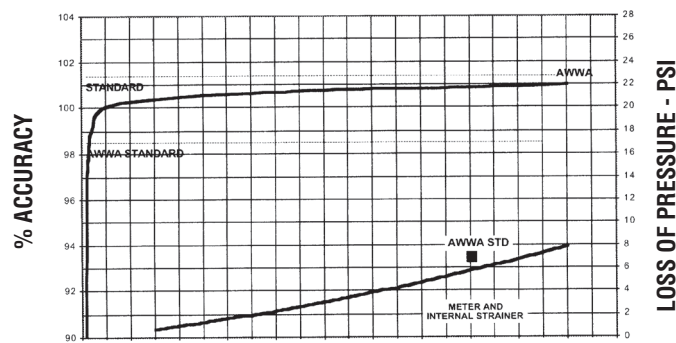
### Performance

#### 1-1/2" HORIZON



### Performance

#### 2" HORIZON



NOTE: Performance curves are typical only and NOT a guarantee of performance.

# Model Horizon

## Horizontal Turbine Meters

Sizes 3", 4", 6", 8", 10"

**Mueller** SYSTEMS

### Features

**APPLICATIONS:** For use in the measurement of potable water for applications where flow is consistently moderate to high. Designed for applications where accuracy is an essential part of maintaining revenue. The Horizon horizontal turbine meter is built to maintain accuracy over extended periods of use.

**CONFORMANCE TO STANDARDS:** Horizon turbine meters have some of the widest flow ranges of any turbine meters on the market. All Horizon series turbine meters meet or exceed the latest performance and accuracy standards of AWWA C701. Maximum continuous flow rates may be exceeded by as much as 25% for intermittent periods.

**CONSTRUCTION:** The Horizon consists of three basic parts; maincase; measuring insert; and register. Maincases are made of bronze. Measuring elements are thermoplastic with unique inlet and outlet straightening vanes.

To simplify maintenance, the Horizon is designed to allow quick, easy, in-line exchange of the measuring element without removing the maincase from the installation. Interchangeability of many parts within various sizes minimizes spare parts inventory. Built-in test ports are standard for ease of field testing.

**REGISTER:** Permanently sealed register has a unique seal and heat-treated glass to eliminate dirt, moisture infiltration and lens fogging. An integral tamper-proof locking feature is provided to resist tampering with the register or calibration vane. The totalizing register has a straight-reading odometer type display, a 360° test circle with center sweep hand and a low flow (leak) detector. Standard gearing is used, making registers interchangeable by size.

All Hersey Meter Models have electronic meter reading systems available for increased reading efficiency (see Meter Reading Systems.)

**OPERATION:** Water flows straight through the measuring element where it turns a rotor at a rate in direct proportion to the quantity of water flowing through the meter. The straight-through design allows high volumes to flow with a minimum of head loss. Retro Thrust® design extends the life of the meter by dividing wear between two points: during low flow the tungsten carbide bearing in the rotor floats against a stainless steel shaft; during high flow a second tungsten carbide bearing gently moves back against another stainless steel shaft. During medium flow, the rotor floats between both tungsten carbide bearings with sapphire bushings providing radial support for the rotor.

**STRAINER:** A separate optional strainer is recommended to protect the measuring element.

**CONNECTIONS:** ANSI Class 150 Flanges on 3" through 10" sizes; 2" NPT pipe threads on test outlet.



4" Horizontal Turbine Meter

Horizon

### Materials and Specifications

MODEL DESIGNATION	HORIZON
SIZES	3", 4", 6", 8", 10"
STANDARDS	Manufactured and tested to meet or exceed all applicable parts of ANSI/AWWA C701 class II Standard.
SERVICE	Cold water measurement with flow in one direction.
OPERATING FLOW RANGE	See Chart on following page
ACCURACY	See Chart on following page
PRESSURE LOSS	See Chart on following page
MAXIMUM WORKING PRESSURE	175 PSI
TEMPERATURE RANGE	33°F to 100°F water temperature
MEASURING ELEMENT	Stainless Steel and Thermoplastic
REGISTER TYPE	Straight reading, permanently sealed, magnetic drive with low flow indicator. Remote Readings units optional.
MATERIALS	Maincase – bronze UNSC84400; Casing bolts – Stainless steel ANSI B18; Rotor – Thermoplastic; Rotor radial bearing – Sapphire; Rotor thrust bearings – tungsten carbide; Rotor bearing pivots – Stainless steel ANSI B18; Magnet - rare earth/ceramic; Register box and lid – Thermoplastic or optional bronze.
INSTALLATION	Straight pipe requirements: Horizontal or Vertical 5x inlet pipe diameter 3x outlet pipe diameter
METER CONNECTIONS	3" – 10" ANSI Class 150
OPTIONS	AMR/AMI Reading Systems

## Meter Registration

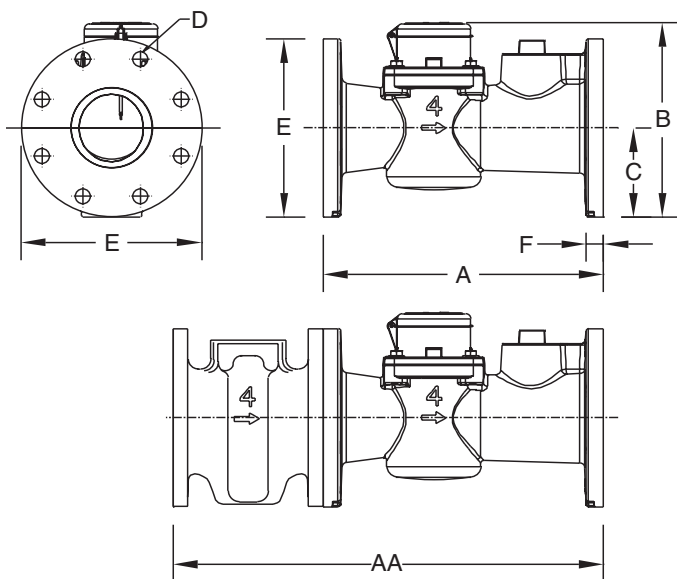
Meter Size	Initial Dial*	Capacity	Initial Dial*	Capacity
3"	100 Gallons	100 Million	10 Cubic Feet	10 Million
4"	100 Gallons	100 Million	10 Cubic Feet	10 Million
6"	1000 Gallons	1 Billion	100 Cubic Feet	100 Million
8"	1000 Gallons	1 Billion	100 Cubic Feet	100 Million
10"	1000 Gallons	1 Billion	100 Cubic Feet	100 Million

\*Registration equal to one full revolution of the sweep hand.

## Flow Characteristics

Meter Size	Typical Low Flow (95% Min.)	Typical Operating Range (100% $\pm$ 1.5%)	Maximum Continuous Operation	Maximum Intermittent Flow
3"	3 GPM	6 to 600 GPM	600 GPM	750 GPM
4"	4 GPM	8 to 1000 GPM	1000 GPM	1250 GPM
6"	9 GPM	15 to 2000 GPM	2000 GPM	2600 GPM
8"	18 GPM	30 to 3500 GPM	3500 GPM	4400 GPM
10"	30 GPM	40 to 5500 GPM	5500 GPM	7000 GPM

## Dimensions and Weights



Meter Size	3"	4"	6"	8"	10"
Dimension					
A	12"	14"	18"	20"	24"
AA	18"	21-1/2"	27"	30"	36"
B	10"	10-3/4"	13-1/2"	15-1/2"	18"
C	3-3/4"	4-1/2"	5-1/2"	6-3/4"	8"
D	3/4"	3/4"	7/8"	7/8"	1"
E	7-1/2"	9"	11"	13-1/2"	16"
F	3/4"	7/8"	7/8"	1-1/8"	1-3/16"
Net weight	38	50	100	130	210

Note: Length AA is with standard strainer. Weights are in pounds and are approximate.

# Model Horizon

Horizontal Turbine Meters

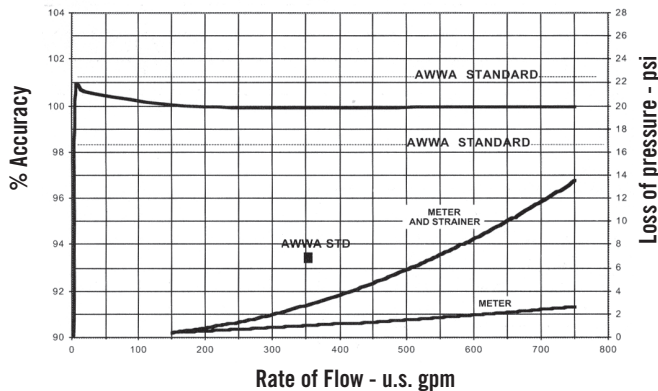
Sizes 3", 4", 6", 8", 10"

**Mueller** SYSTEMS

Horizon

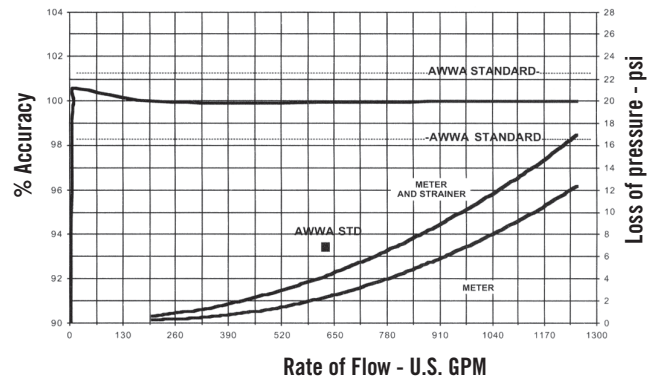
## Performance

3" Horizon

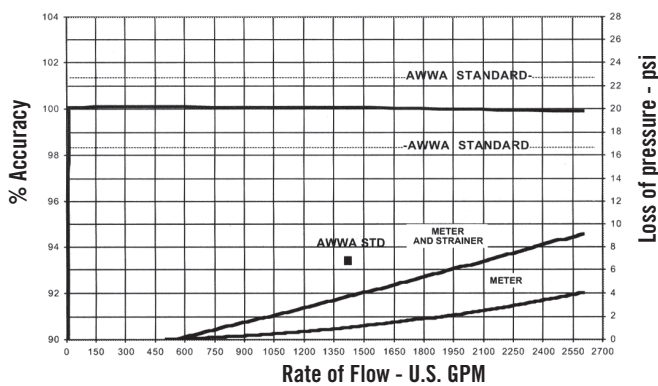


## Performance

4" Horizon

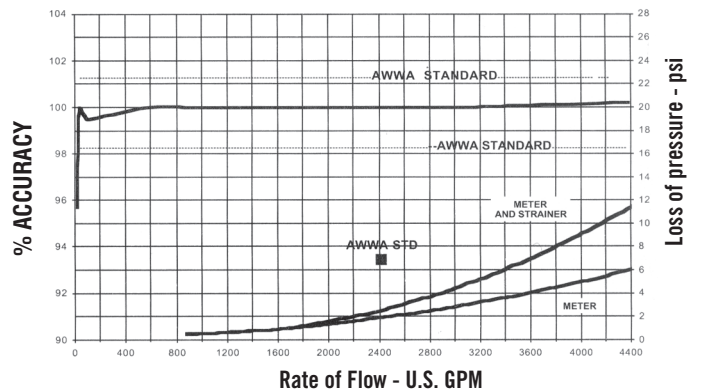


6" Horizon



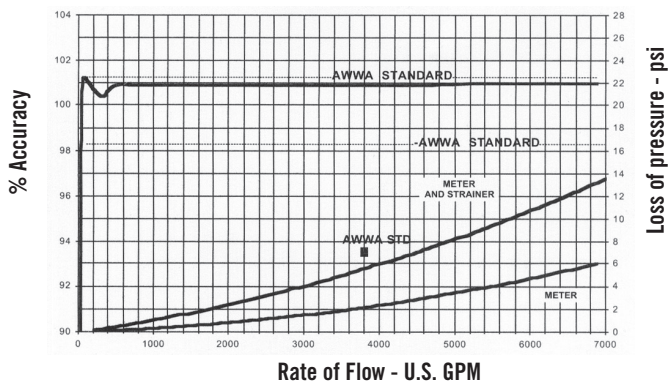
\*Performance curves are typical only and not a guarantee of performance

8" Horizon



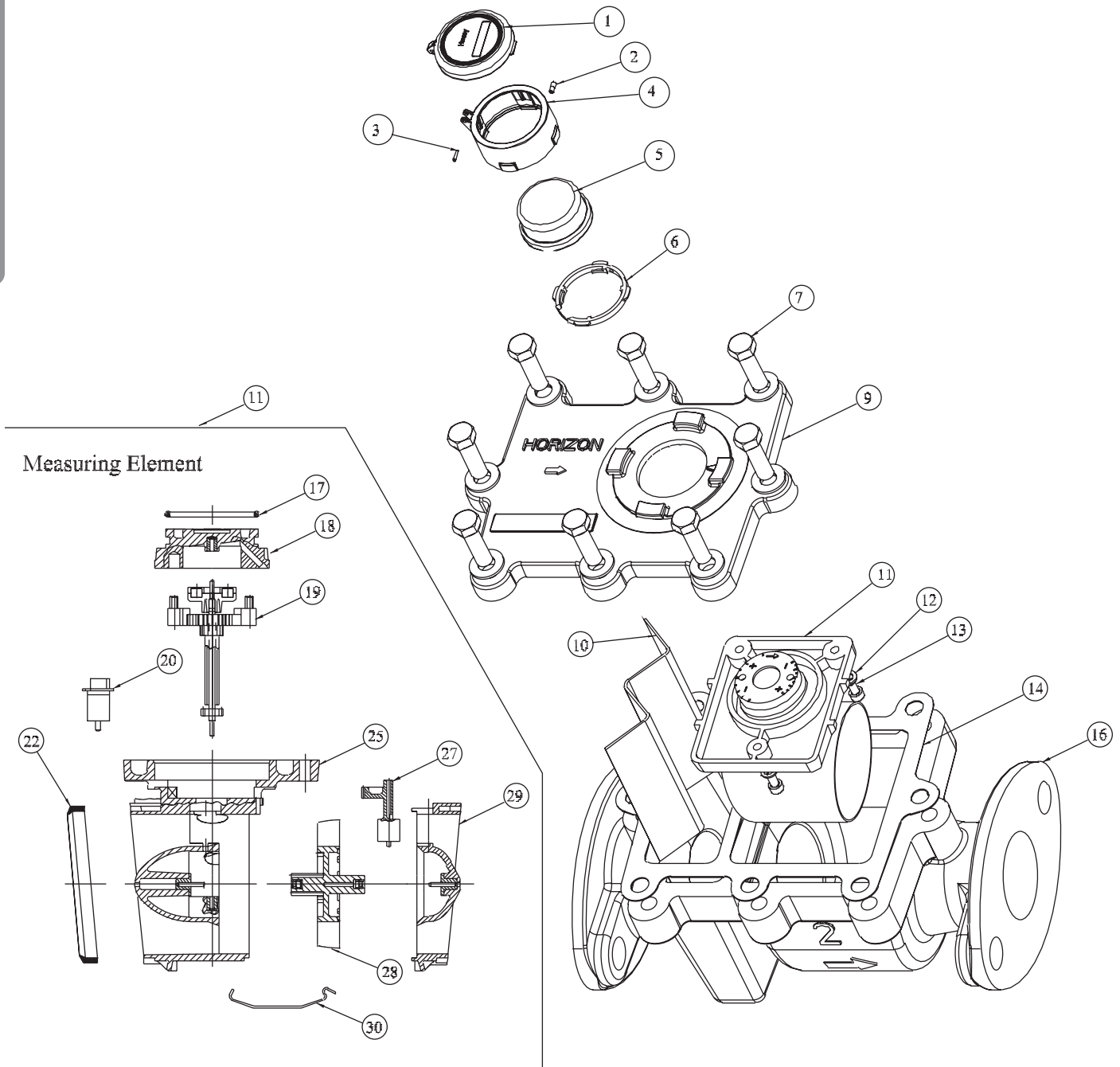
\*Performance curves are typical only and not a guarantee of performance

10" Horizon



\*Performance curves are typical only and not a guarantee of performance





# Model Horizon

## Horizontal Turbine Meters Parts

Sizes 1-1/2" and 2"



Horizon

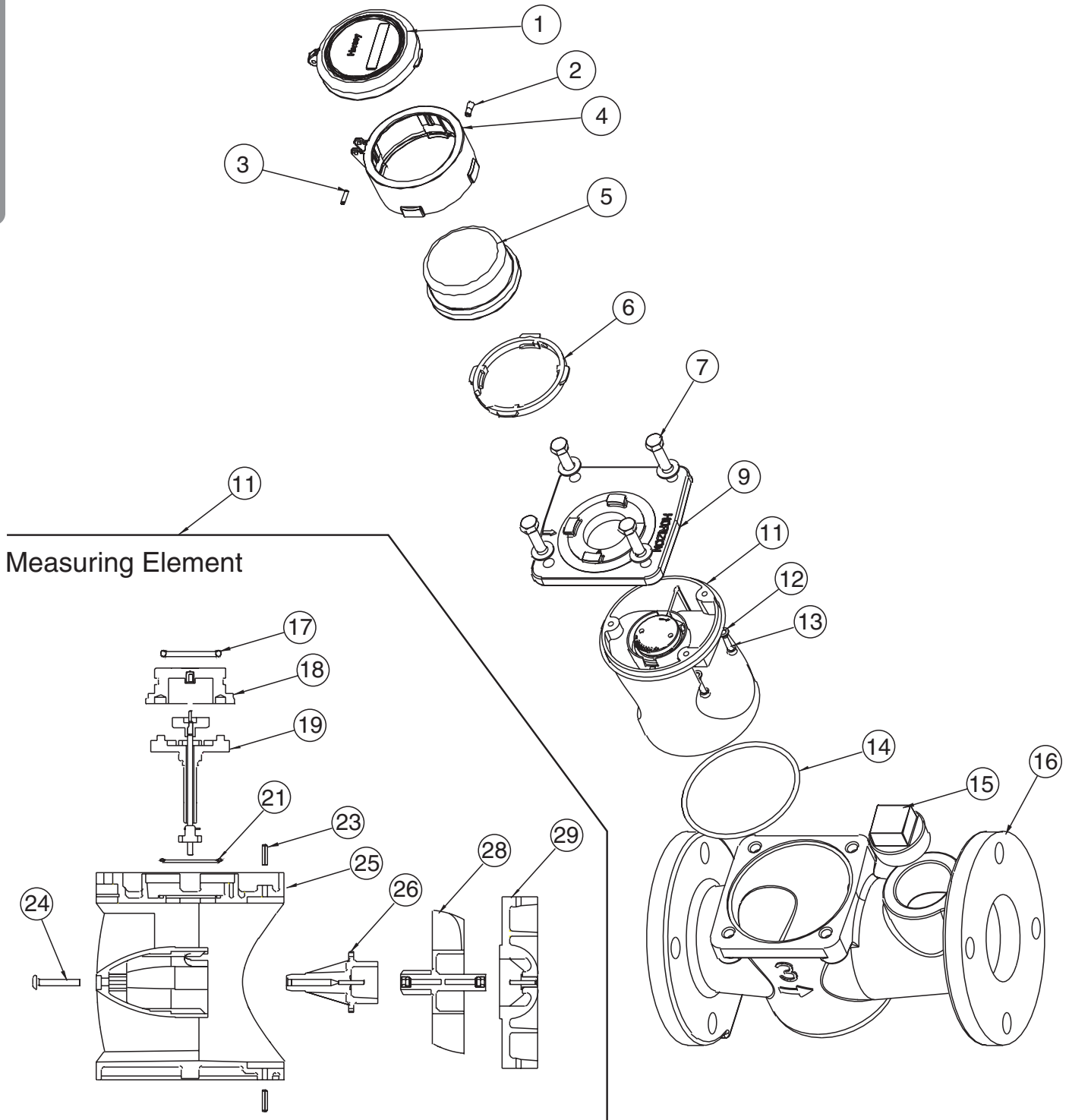
Ref. No.	Description	1-1/2" Model	2" Model
1	Register Box Lid (Plastic)	50381	50381
	(Brass)	50387	50387
2	Locking Pin (Blue Color Plastic)	A12658	A12658
	(Brass Color Plastic)	A126581	A126581
3	Lid Pin (Plastic)	AS41122	AS41122
	(Brass Color)	AS41123	AS41123
4	Register Housing Base (Plastic)	50380	50380
	(Bronze)	50386	50386
5	Visual Register (Gallon)	D34141	D34151
	(Cubic Feet)	D34142	D34152
	Translator Register* (Gallon)	D35671xxx	D35681xxx
	(Cubic Feet)	D35672xxx	D35682xxx
	Specify Electronic Reading Value 4, 5, or 6 Wheel		
5A	Spacer (not shown)	50382	50382
6	Register Housing Insert	C5770	C5770
7	Case Bolt	90065 (8)	90065 (8)
9	Top Case	D3401	D3401
10	Built-in Strainer	B8404	B8404
11	Complete Measuring Element	52600	52600
12	Measuring Element Washer	98155 (3)	98155 (3)
13	Measuring Element Screw	98476 (3)	98476 (3)
14	Case Gasket / O-Ring	52602	52602
15	Test Plug	59027	59009
16	Bottom Case	D3397	D3399
	Test Outlet / Spool with Plug	50783	50883

\*Call Mueller Systems Customer Service for appropriate Translator Register and AMR device part number.

## Model Horizon Parts: Measuring Element

Ref. No.	Description	1-1/2" Model	2" Model
17	Seal Plate O-Ring	98333	98333
18	Seal Plate	52612	52612
19	Magnet Assembly	52613	52613
20	Inlet Adjusting Vane	52614	52614
21	Magnet Assembly O-Ring		
22	Inlet Hub Seal Ring	52616	52616
23	Hub Assembly Spiral Pin		
24	Inlet Bearing Assembly Screw		
25	Inlet Hub Assembly	52615	52615
26	Inlet Bearing Assembly		
27	Outlet Adjust Vane	52618	52618
28	Rotor Assembly	52617	52617
29	Outlet Hub Assembly	52619	52619
30	Hub Assembly Retaining Clip	52620 (3)	52620 (3)
31	Drop In Measuring Element (CF)	52610	52630
	(GAL)	52621	52640





# Model Horizon

Horizontal Turbine Meters Parts

Sizes 3", 4", 6", 8", 10"

**Mueller** SYSTEMS

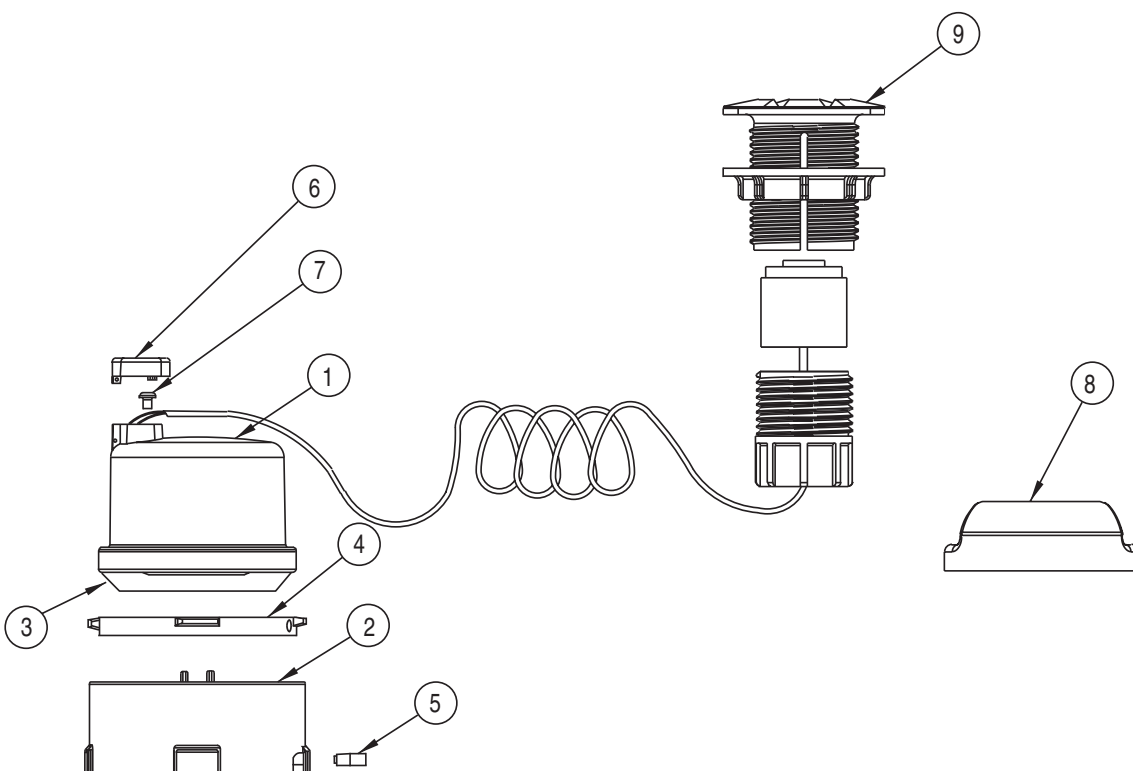
Horizon

Ref No.	Description	3" Model	4" Model	6" Model	8" Model	10" Model
1	Register Box Lid (Plastic)	50381	50381	50381	50381	50381
	(Brass)	50387	50387	50387	50387	50387
2	Locking Pin (Blue Color Plastic)	A12658	A12658	A12658	A12658	A12658
	(Brass Color Plastic)	A126581	A126581	A126581	A126581	A126581
3	Lid Pin (Plastic)	AS41122	AS41122	AS41122	AS41122	AS41122
	(Brass Color)	AS41123	AS41123	AS41123	AS41123	AS41123
4	Register Housing Base (Plastic)	50380	50380	50380	50380	50380
	(Bronze)	50386	50386	50386	50386	50386
5	Visual Register (Gallon) (Cubic Feet)	D33901	D33911	D34161	D34171	D34181
		D33902	D33912	D34162	D34172	D34182
		D35691xxx	D35701xxx	D35711xxx	D35721xxx	D35731xxx
		D35692xxx	D35702xxx	D35712xxx	D35722xxx	D35732xxx
5A	Spacer (not shown)	50382	50382	50382	50382	50382
6	Register Housing Insert	C5770	C5770	C5770	C5770	C5770
7	Case Bolt	90065 (8)	90065 (8)	90246 (8)	90246 (8)	90246 (8)
9	Top Case	D3389	D3389	D3407	D3407	D3407
10	Built-in Strainer					
11	Complete Measuring Element	54600	54600	56600	58600	59600
12	Measuring Element Washer	98155 (3)	98155 (3)	AS7561 (3)	AS7561 (3)	AS7561 (3)
13	Measuring Element Screw	98475 (3)	98475 (3)	98481 (3)	98481 (3)	98481 (3)
14	Case Gasket / O-Ring	54602	54602	98356	98356	98356
15	Test Plug	59010	59010	59010	59010	59010
16	Bottom Case	D3385	D3387	D3403	D3405	D3409
	Test Outlet / Spool with Plug					

\*Call Mueller Systems Customer Service for appropriate Translator Register and AMR device part number.

## Model Horizon Parts: Measuring Element

Ref. No.	Description	3" Model	4" Model	6" Model	8" Model	10" Model
17	Seal Plate O-Ring	98333	98333	98333	98333	98333
18	Seal Plate	54612	54612	54612	54612	54612
19	Magnet Assembly	54613	54613	56613	58613	59613
20	Inlet Adjusting Vane					
21	Magnet Assembly O-Ring	98334	98334	98334	98334	98334
22	Inlet Hub Seal Ring					
23	Hub Assembly Spiral Pin	98375 (2)	98375 (2)	98375 (2)	98375 (2)	98375 (2)
24	Inlet Bearing Assembly Screw	99935	99935	99935	99935	99935
25	Inlet Hub Assembly	54615	54615	58615	58615	58615
26	Inlet Bearing Assembly	54621	54621	58621	58621	58621
27	Outlet Adjust Vane					
28	Rotor Assembly	54617	54617	58617	58617	59617
29	Outlet Hub Assembly	54619	54619	58619	58619	58619
30	Hub Assembly Retaining Clip					
31	Drop In Measuring Element (CF) (GAL)	54610	54630	56610	58610	59610
		54620	54640	56620	58620	59620



Ref	Description	1-1/2" Horizon	2" Horizon	3" Horizon	3" HM	4" Horizon	6" Horizon	8" Horizon	10" Horizon
1	Translator Register Gallons* Cubic Feet* Specify Electronic Reading Value 4, 5, or 6 Wheel for 1-1/2" and 2" Translator Registers Only	D35671xxx D35672xxx	D35681xxx D35682xxx	D35691xxx D35692xxx	NA NA	D35701xxx D35702xxx	D35711xxx D35712xxx	D35721xxx D35722xxx	D35731xxx D35732xxx
2	Register Housing Base (Plastic)	50380	50380	50380	NA	50380	50380	50380	50380
3	Register Spacer	50382	50382	50382	NA	50382	50382	50382	50382
4	Register Housing Insert	C5770	C5770	C5770	NA	C5770	C5770	C5770	C5770
5	Register Locking Pin (Bronze Plastic)	A126581	A126581	A126581	NA	A126581	A126581	A126581	A126581
5	Register Locking Pin (Blue Color Plastic)	A12658	A12658	A12658	NA	A12658	A12658	A12658	A12658
6	Lens Terminal Cover	B8447	B8447	B8447	NA	B8447	B8447	B8447	B8447
7	Terminal Lug Screw	98197 (3)	98197 (3)	98197 (3)	NA	98197 (3)	98197 (3)	98197 (3)	98197 (3)
8	Wall Pad	T1234	T1234	T1234	NA	T1234	T1234	T1234	T1234
9	Pit Pad	T1240	T1240	T1240	NA	T1240	T1240	T1240	T1240
13	TrueRead (not shown)	C6551	C6551	C6551	NA	C6551	C6551	C6551	C6551
14	1,000' Spool of Wire	AS755	AS755	AS755	NA	AS755	AS755	AS755	AS755

\*Call Mueller Systems Customer Service for appropriate Translator Register and AMR device part number.