

## RECORDALL® NUTATING DISC METERS RCDL NUTATING DISC



### DESCRIPTION

The **Badger Meter Recordall Model Nutating Disc Series** meters meet or exceed the most recent revision of AWWA Standard C700 and are available in a lead-free bronze alloy. The meters comply with the lead-free provisions of the Safe Drinking Water Act, are certified to NSF/ANSI Standards 61 and 372 (Trade Designation: M25-LL) and carry the NSF-61 mark on the housing. All components of the lead-free bronze alloy meter (housing, measuring element, seals, and so on) comprise the certified system.

**Operation:** Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves freely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register or encoder face.

**Operating Performance:** The **Recordall Nutating Disc Series** meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ± 1.5%), and maximum continuous operation flow rates as specifically stated in AWWA Standard C700.

**Construction:** **Recordall Nutating Disc Series** meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: meter housing, measuring chamber, and permanently sealed register. The water meter is available in a lead-free bronze alloy with externally-threaded spuds. A corrosion-resistant engineered polymer material is used for the measuring chamber.

**Connections:** Tailpieces/Unions for installations of meters on various pipe types and sizes, including misaligned pipes, are available as an option.



**RCDL Disc Meters  
w/ RTR Pulse Register**

### APPLICATION

Used in submetering and billing residential, commercial and industrial services where flow is in one direction only.

Potable cold & hot water

- **HVAC**
- **Boilers**
- **NSF/ANSI Standards 61 and 372 Certified**
- **One year warranty**
- **Submetering & billing**

SPECIFICATIONS					
MODEL					
	M25 (1/2")	M35 (3/4")	M70 (1")	M120 (1.5")	M170 (2")
<b>Typical Operating Range (100% ± 1.5%)</b>	0.5-25 gpm (0.11-5.7 m <sup>3</sup> /hr)	0.75-35 gpm (0.17-7.9 m <sup>3</sup> /hr)	1.25-70 gpm (0.28-16 m <sup>3</sup> /hr)	2.5-120 gpm (0.57-27 m <sup>3</sup> /hr)	2.5-170 gpm (0.57-39 m <sup>3</sup> /hr)
<b>Maximum Continuous Operation</b>	15 gpm (3.4 m <sup>3</sup> /hr)	25 gpm (5.7 m <sup>3</sup> /hr)	50 gpm (11.3 m <sup>3</sup> /hr)	80 gpm (18 m <sup>3</sup> /hr)	100 gpm (23 m <sup>3</sup> /hr)
<b>Pressure Loss at Maximum Continuous Operation</b>	3.5 psi at 15 gpm (0.24 bar at 3.4 m <sup>3</sup> /hr)	5.0 psi at 25 gpm (0.37 bar at 5.7 m <sup>3</sup> /hr)	6.5 psi at 50 gpm (0.45 bar at 11.3 m <sup>3</sup> /hr)	4.8 psi at 80 gpm (0.33 bar at 18 m <sup>3</sup> /hr)	3.3 psi at 100 gpm (0.23 bar at 23 m <sup>3</sup> /hr)
<b>Operating Temperature</b>	-40 to 120°F (-40 to 49°C)				
<b>Maximum Operating Pressure</b>	150 psi (10 bar)				
<b>Measuring Element</b>	Nutating disc, positive displacement				
<b>Meter Connections</b>	1/2 MPT with Connectors	3/4 MPT with Connectors	1" MPT with Connectors	1 1/2" MPT with Connectors	2" MPT with Connectors
<b>Transmitter / Register</b>	Straight reading, permanently sealed, magnetic drive				
<b>Power Source</b>	External				
<b>Maximum Switching</b>	≤30V DC @ 1 mA @ 77°F (25°C)				
<b>Operating Temperature Range</b>	-40° to 120°F (-40° to 49°C)				
<b>Unit of Measure</b>	1 GPP	1 GPP	1 GPP	10 GPP	10 GPP
<b>Gallons Per Pulse Liters Per Pulse</b>	3.79 LPP	3.79 LPP	3.79 LPP	3.79 LPP	3.79 LPP

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### DIMENSIONS

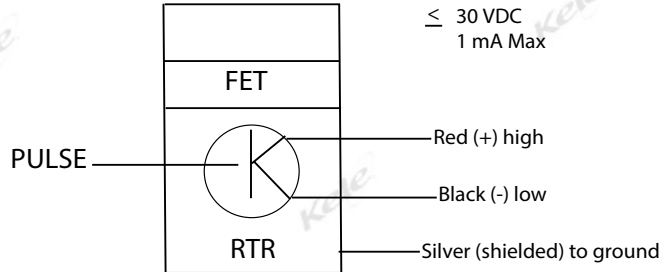
Meter Size	Meter Model (GPM)	A Laying Length	B Height Reg.	C Centerline Base	Width	Approx. Shipping Weight
1/2" (15 mm)	25	7-1/2" (190 mm)	4-15/16" (125 mm)	1-11/16" (42 mm)	4-1/4" (108 mm)	4-1/2 lb (2 kg)
3/4" (20 mm)	35	7-1/2" (190 mm)	5-1/4" (133 mm)	1-5/8" (41 mm)	5" (127 mm)	5-1/2 lb (2.5 kg)
1" (25 mm)	70	10-3/4" (273 mm)	6-1/2" (165 mm)	2-5/16" (59 mm)	7-3/4" (197 mm)	11-1/2 lb (5.2 kg)
1-1/2" (40 mm)	120 EL Hex 120 EL, TP	12-5/8" (321 mm)	7" (178 mm)	2-3/8" (60 mm)	8-3/4" (222 mm)	19 lb (8.6 kg)
2" (50 mm)	170 EL Hex 170 EL, TP	15-1/4" (387 mm)	8" (203 mm)	2-7/8" (73 mm)	9-1/2" (241 mm)	30 lb (13.6 kg)

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**MEASUREMENT RESOLUTION:** The minimum electronic resolution of the RTR is as noted below. To verify the correct resolution for your application, contact your Badger Meter regional sales office.

Polarity MUST be observed when connecting the RTR to the remote module. Badger Meter wiring standards use the black conductor as the negative (-) conductor, and the red as the positive (+) conductor.

RECORDALL Disc Series	Size	Resolution Gallons Per Pulse	Resolution Cubic Feet (ft <sup>3</sup> )	Resolution Cubic Meters (m <sup>3</sup> )
M25	5/8"	1	0.1	0.01
M35	3/4"	1	0.1	0.01
M70	1"	1	0.1	0.01
M120	1-1/2"	10	1	0.1
M170	2"	10	1	0.1



HR-LCD 4-20 mA

Pulse and Analog Output Resister

### ORDERING INFORMATION

MODEL	DESCRIPTION (Size Housing)
M25	625 1/2" pipe Note: Choose "A" or "X" for connection option below
M35	751 3/4" pipe Note: Choose "B" or "X" for connection option below
M70	100 1" pipe Note: Choose "C" or "X" for connection option below
M120	150 1 1/2" pipe Note: Choose "D" or "X" for connection option below
M170	200 2" pipe Note: Choose "E" or "X" for connection option below

HOUSING	
L	Lead free bronze
CHAMBER	
N	Noryl (120F max)
L	LCP (250F max, corrosion resistant)
THRUST ROLLER	
S	Stainless steel
CONNECTIONS (UNION FLANGE MNPT)	
A	Bronze 1/2" pipe mnpt
B	Bronze 3/4" pipe mnpt
C	Bronze 1" pipe mnpt
D	Bronze 1 1/2" pipe mnpt
E	Bronze 2" pipe mnpt
X	None
TRANSMITTERS (Select Only One)	
TS	Scaled meter mounted pulse transmitter w/register-RTR piezo, 25ft cable
RA	Meter mounted mechanical register - RCDL non resettable totalizer, 120f max
RJ	Meter mounted electronic register - ER-420 scaleable rate/flow pulse and counter flow 4-20 mA
HS	Meter mounted register/transmitter LCD 4-20mA scaled/unscaled 10ft cable
XX	Meter only
UNIT OF MEASURE	
GA	Gallons
LT	Litres

M25 625 L N S A RJ GA Example: M25625LNSARJGA 625 1/2" pipe, lead free bronze, noryl (120F max), stainless steel, bronze 1/2" pipe mnpt, meter mounted electronic register - ER-420 scaleable rate/flow counter 4-20 mA, gallons.