

# Magnetoflow® Mag Meter

## Model Magnetoflow® Flanged

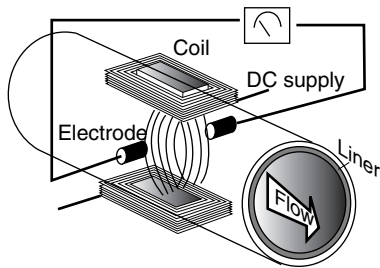
# Technical Brief

### GENERAL

Badger's Magnetoflow line is the result of 35 years of research and field use in electromagnetic flow meters. Based on Faraday's law of induction, these meters can measure almost any liquid, slurry or paste that has a minimum of electrical conductivity. Designed, developed and manufactured under the strictest quality standards, the Magnetoflow meter ranks among the best in the market. It's sophisticated, processor based signal conversion represents the state of the art in the industry with accuracies of 0.25% or better. The wide selection of liner and electrode materials insures maximum compatibility and minimum maintenance over a long operating period.

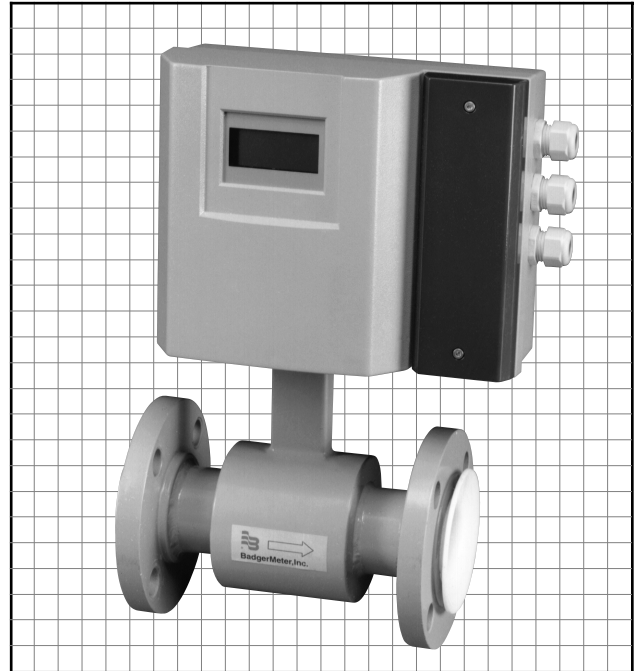
### OPERATION

The flow meter is basically a stainless steel tube lined with a nonconductive material. Outside the tube two DC powered electromagnetic coils are positioned diametrically opposing each other. Perpendicular to these coils, two electrodes are inserted into the flow tube. When the coils are energized, a magnetic field is created across the whole diameter of the pipe. When a conductive fluid flows through this magnetic field, a voltage is induced across the electrodes. This voltage is directly proportional to the average flow velocity of the fluid and is picked up by the two electrodes. This induced voltage is then amplified and processed digitally by the converter to produce a very accurate analog or digital signal. The signal can then be used to indicate flow rate, totalization or to communicate to remote sensors and controllers. The main advantages of this technology are that with no parts in the flow stream, there is no pressure loss, the accuracy is not affected by temperature, pressure, viscosity, density or flow profile and with no moving parts there is practically no maintenance required.



### APPLICATION

Because of its inherent advantages over other more conventional technologies, this meter can be used in the majority of industrial flow applications. Whether the fluid is water or something highly corrosive, very viscous, contains



**Magnetoflow Flanged**

solids or requires special handling, this meter will be able to accurately measure it. Today Magnetoflow meters are successfully being used in most industries including food and beverage, pharmaceutical, water and waste water, chemical, pulp and paper, and mining.

### FEATURES

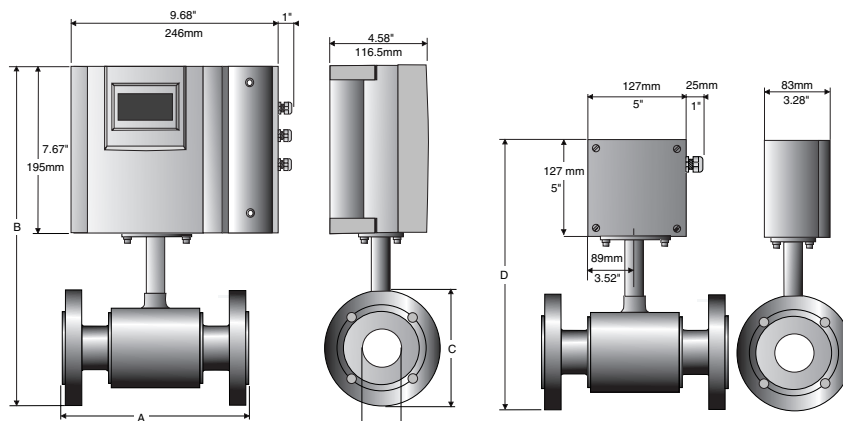
- 0.25% accuracy independent of fluid viscosity, density and temperature
- Unaffected by fluids containing solids
- Pulsed DC magnetic field for zero point stability
- No pressure loss for low operational costs
- Long life corrosion resistant liners
- Calibrated in state of the art facilities
- Integral and remote signal converter availability
- Optional grounding electrode
- Measurement largely independent of flow profile
- Measures fluids with as low as 0.5 micromhos/cm conductivity



**BadgerMeter, Inc.**

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Meter with Primo™ converter

Meter with junction box for remote Primo™ converter

Size	A		B		C		D		Est. Weight with Primo		Flow Range			
											GPM		LPM	
Inch mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Lbs	Kg	Min	Max	Min	Max
1/4 6	6.7	170	14.0	356	3.5	89	11.4	288	12	5.5	0.015	5	0.06	19
5/16 8	6.7	170	14.0	356	3.5	89	11.4	288	12	5.5	0.023	7.9	0.1	30
3/8 10	6.7	170	14.0	356	3.5	89	11.4	288	12	5.5	0.034	11.4	0.13	43
1/2 15	6.7	170	14.0	356	3.5	89	11.4	288	12	5.5	0.06	20	0.23	76
3/4 20	6.7	170	14.2	361	3.9	99	11.5	293	15	6.5	0.13	45.4	0.52	171
1 25	8.9	225	14.4	366	4.3	108	11.7	298	20	9.0	0.24	80	0.92	305
1 1/4 32	8.9	225	15.2	386	4.6	117	12.5	318	22	10.0	0.4	126	1.45	477
1 1/2 40	8.9	225	15.4	390	5.0	127	12.7	322	23	10.5	0.6	181	2.1	687
2 50	8.9	225	15.9	403	6.0	152	13.2	335	28	12.5	1.0	323	3.7	1223
2 1/2 65	11.0	279	17.1	434	7.0	178	14.4	366	54	24.5	1.5	504	5.8	1910
3 80	11.0	279	17.3	440	7.5	191	14.7	372	56	25.5	2.2	727	8.3	2751
4 100	11.0	279	18.4	466	9.0	229	15.7	398	58	26.5	4.0	1292	14.8	4892
5 125	15.8	400	19.6	498	10.0	254	16.9	430	60	27.0	6.0	2019	23.2	7643
6 150	15.8	400	20.6	524	11.0	279	17.9	456	62	28.0	9.0	2908	33.4	11000
8 200	15.7	400	22.5	572	13.5	343	20.4	518	88	40.0	16	5170	59.3	19568
10 250	19.7	500	26.8	681	16.0	406	24.1	613	180	82.0	25.0	8078	92.6	30500
12 300	19.7	500	28.9	734	19.0	483	26.2	666	209	95.0	35.0	11632	133	44000
14 350	23.6	600	30.8	782	21.0	533	28.2	716	260	118	48	15834	182	59927
16 400	23.6	600	33.7	856	23.5	597	31.0	788	308	140	63.0	20680	237	78272
18 450	23.6	600	35.0	890	25.0	635	32.4	822	287	130	76.0	25200	288	95392
20 500	23.6	600	38.2	969	27.5	699	35.5	901	495	225	98.0	32313	370	122300
22 550	23.6	600	39.6	1005	29.5	749	36.9	937	441	200	115	37660	435	142558
24 600	23.6	600	42.2	1071	32.0	813	39.5	1003	554	252	141	46531	533	176100
28 700	23.6	600	46.2	1173	36.5	927	44.0	1118	650	295	192	63334	726	239708
30 750	31.5	800	48.3	1228	38.0	965	45.7	1161	704	320	240	70000	908	265000
32 800	31.5	800	52.2	1325	41.4	1015	49.5	1257	770	350	250	82722	948	313000
36 900	31.5	800	55.3	1405	46.0	1168	54.1	1374	850	386	317	104696	1200	396253
40 1000	31.5	800	60.0	1525	50.2	1230	57.4	1457	924	420	391	129254	1482	489000
42 1050	36.0	915	66.0	1675	53.0	1346	63.4	1610	1100	500	431	142241	1631	538382
48 1200	39.4	1000	69.9	1775	59.4	1455	67.2	1707	1210	550	564	186126	2134	704000
54 1400	39.4	1000	78.5	1995	68.4	1675	75.9	1927	1364	620	767	253338	2905	958835

## SPECIFICATIONS

**Flow Range:** 0.1 - 33 fps (0.03-10 m/s)

**Sizes:** 1/4" to 54" (15 to 1400 mm)

**Min. Conductivity:** ≥ 0.5 micromhos/cm

### Accuracy:

± 0.25% accuracy of rate from 1-33 fps.

± 0.5% accuracy of rate from .1-1 fps.

**Electrode Materials:** Standard: Alloy C

Optional: 316 Stainless Steel,  
Gold/Platinum Plated, Tantalum,  
Platinum/Rhodium

**Liner Material:** PTFE up to 24",  
Soft and Hard Rubber from 1" to 54",  
Halar from 1" to 40"

### Fluid Temperature:

With Remote Converter:

PTFE & Halar 311°F, (155°C)

Rubber 178°F, (80°C)

With Meter Mounted Converter:

PTFE & Halar 212°F, (100°C)

Rubber 178°F, (80°C)

**Pressure Limits:** 150 psi (10Bar)

optional 300psi (20Bar)

**Coil Power:** Pulsed DC

**Ambient Temperature:** -4°F to 122°F,  
(-20°C to 50°C)

**Pipe Spool Material :** 316 Stainless Steel

**Meter Housing Material:** Carbon Steel  
welded

**Flanges:** Carbon Steel - Standard (ANSI  
B16.5 Class 150 RF)

316 Stainless Steel - Optional

**Meter Enclosure Classification:** Nema 4

**Junction Box Enclosure Protection:**

(For Remote Converter Option)

Powder coated die-cast aluminum, Nema 4

**Cable Entries:** 1/2" NPT Cord Grip



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Due to continuous research, product improvements  
and enhancements, Badger Meter reserves the right to  
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