DemiMag DL Series Magnetic Flowmeters

0.75 to 1½"
(20 to 40 mm)

3-A Sanitary Approved
Authorization No. 1075

The DL Series DemiMags are sized from 3/4" - 1½" (20 - 40 mm) diameter. They are used with remote, patented Pulsed AC 4411e Transmitters.

The DemiMag features listed below are unmatched by other magmeters. Yearly maintenance/repair costs associated with metering pumps and positive displacement meters can be lowered as a result of this exceptional performance. DemiMags can meter expensive raw materials or additives with greater efficiency, thus improving plant profitability and product quality.

The DemiMag has an optional 3A clean-in-place certification for liquid food and beverage applications.

The DL DemiMag is Entela approved as standard supply to UL and CSA compliance for safety in ordinary locations, optionally to NEC and CSA standards for Class 1, Division 2 and ATEX Zone 2 explosive atmospheres.

DEMIMAG DL SERIES FEATURE	BENEFIT
Patented Pulsed AC coil excitation (high coil current and high pulsation frequency)	Produces a signal-to-noise ratio up to 3x higher than conventional AC magmeters and up to 50x higher than typical pulsed DC magmeters; fast response time achieves stable proportional control, even when measuring media that create high media noise.
Fast time constant of 0.030 seconds	Suitable for high speed batching applications and measuring pulsating flow created by diaphragm or piston style pumps.
Compatible with fluid conductivity ≥ 0.08 µS/cm	Standard design cost effectively measures fluids like alcohol, glycol, distilled water and cutting oil.
Low velocity range capability, down to 0 - 2 fps (0 - 0.6 m/s) Resolution to 0.02 fps (0.006 m/s)	Measures flows below 2 fps (0.6 m/s) with higher accuracy than other magmeters; prevents overdosing and underfeeding; suitable for paper additives, pilot plant and research applications.
Option for quick disconnect process connections	3A certified for food and dairy applications
Integral grounding	Simplifies installation, particularly in non-conductive pipes; eliminates the need for separate grounding rings or straps.
For use in explosive atmospheres	Entela approved to UL and CSA standards to Class 1, Div. 2 areas. Entela approved to ATEX standards to Zone 2 explosive atmospheres.

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ACCURACY (NOTE 1)

± 0.5% of rate for flows = 1.0 f/s (0.3 m/s)
± 0.005% f/s (0.0015 m/s) for flows < 1.0 f/s (0.30 m/s)

Note: For media such as ferric chloride, ferric sulphate (Odophos), high temperature paper mill liquors, lime mud or similar highly conductive media, flowmeter performance can be adversely affected. Please consult EMCO for these types of applications, otherwise performance guarantee is null and void.

MINIMUM STRAIGHT PIPING RUNS

All piping configurations	5D up and 2D down
Pump upstream	20D up and 5D down
Pump downstream	5D down

D = 1 diameter of straight length

NOMINAL DIAMETER

3/4" - 1½" (20 - 40 mm)

MEAN VELOCITY RANGES

Minimum: 0 to 2 f/s (0 to 0.6 m/s)
Maximum: 0 to 30 f/s (0 to 10 m/s)

COIL EXCITATION

Pulsed AC from remote 4411e Transmitters (see data sheet for details)

MEDIA CONDUCTIVITY (NOTE 2)

≥ 1.0 µS/cm standard
≥ 0.08 µS/cm optional
For deionized water applications, consult factory
For < 5 µS/cm an integral pre-amp is recommended

ENVIRONMENTAL PROTECTION

NEMA 6 & IP68 indefinitely submersible to 10 ft. w.c. (3 m w.c.)

CABLE TYPE

To 4411e transmitter: 4 separate 2-conductor cables, 18 gage (0.75 mm^2) twisted and shielded (Beldon 8760) 15 ft (5 m) supplied standard, longer lengths on request.

MAX. RECOMMENDED CABLE LENGTH

< 3 µS/cm	30 ft (9 m)
≥ 3 µS/cm	100 or 10 x C (90 m or 3 x C), whichever is less

C is conductivity in µS/cm (note 2)

MAX. TEMPERATURE AND PRESSURE

Kynar Flowtubes (note 5):
250 F (120°C) max temp @ 40 psig (3 bar g)
150 psig (10 bar g) max pressure @ 70°F (20°C)
316 stainless steel flowtubes:
300°F (150°C) max temp
150 psig (10 bar g) max pressure

WETTED PART MATERIALS

Process Connections: PVDF or 316 stainless steel (note 6).
Electrodes: 316 stainless steel, Hastelloy B, Hastelloy C, Titanium, Tantalum
Electrode Seals: Viton, Kalrez

LIMITED WARRANTY: 2 year standard against material defects and bad workmanship (not including media compatibility, erosion or abrasion or for media > 180° F (80° C)

DEMIMAGS IN EXPLOSIVE ATMOSPHERES

1. For Entela approval conforming to ATEX Zone 2 it is conditional that only a single IEC approved cable may pass through a single gland. These are supplied by Advanced Flow Technology Co. Only a remote 4411e Transmitter is available for this option, located in the safe area.

2 . For approval by Entela to CSA and NEC standards for use in a Class 1, Division 2 explosive atmosphere, it is a requirement that cable runs in conduit or Teck metal clad cable is used for the connection to a 4411e transmitter. Conduit connectors Appleton type UNY50NR-A are supplied. Only the 4411e is available for this option, located in the safe area.

NOTES

1. Accuracy is traceable to the US National Institute of Science and Technology (NIST). A NIST traceable calibration certificate is provided with each DemiMag.
2. The typical conductivity of drinking water is 200 to 600 µS/cm.
3. US Food and Drug Administration (FDA) approved for sanitary applications, number 21 CFR 117.2510.
4. 3-A approves for steam or caustic solution clean-in-place.
5. Maximum temperature based on water, and may be lower for other fluids based upon corrosion considerations (refer to manufacturer's recommendations).
6. PVDF versions have loose, non-wetted PVC flanges as standard, or fixed PVDF dependent on availability, 316 stainless steel versions have fixed stainless steel flanges.

DemiMag DL Ranges, Dimensions & Weights

Choose any range between minimum and maximum ranges as follows:

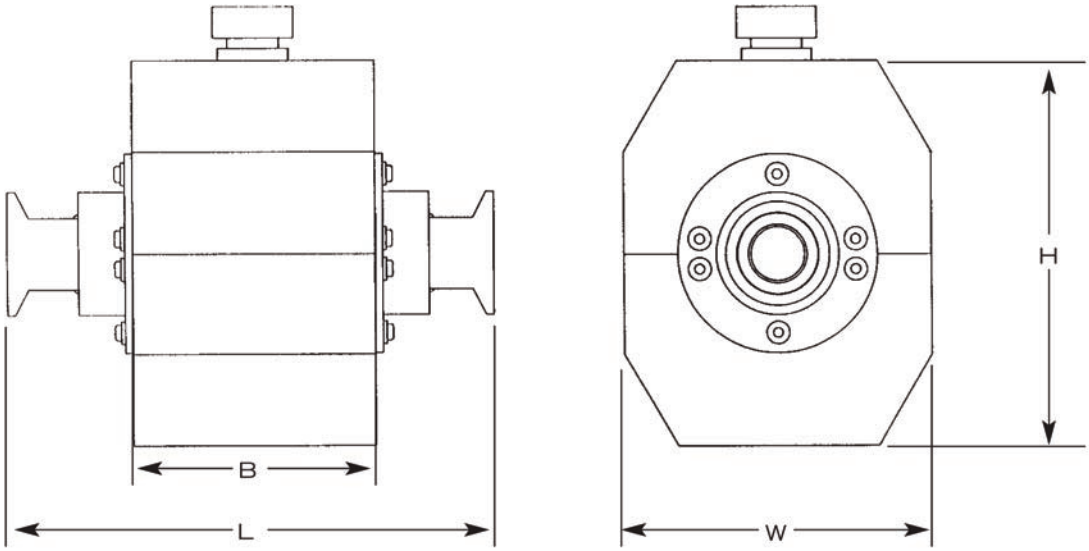
Nominal Flowtube Diameter D		Minimum Nominal Flow Rate to Obtain ± 0.5% of Rate Accuracy		Minimum Range 0 - 2 fps Nom. 0 - 0.6 m/s Nom.		Maximum Range 0 - 30 fps Nom. 0 - 10 m/s Nom.	
Inches	mm	GPM	LPH	GPM	LPH	GPM	M^3/H
.75	20	1.5	340	0 - 3.0	0 - 680	0 - 41	0 - 11
1	25	2.5	530	0 - 5.0	0 - 1070	0 - 73	0 - 18
1.5	40	5.5	1360	0 - 11	0 - 2710	0 - 165	0 - 45

NOTE: Accuracy is $\pm \frac{1.2D^2}{gpm}$ *% where nom. ØD is in inches.*

$\pm \frac{0.42D^2}{lph}$ *% where nom. ØD is in mm*

- OR - *± 0.5% of rate, whichever is greater*

DemiMag DL Dimensions & Weights



Part No.	Nom. Size	L	B	W	H	Weights (Flanged)	
						LB	KG
DL20	0.75" (20 mm)	7.87" (200 mm)	3.92" (100 mm)	5.00" (125 mm)	6.30" (160 mm)	13	6
DL25	1" (25 mm)	7.87" (200 mm)	3.92" (100 mm)	5.00" (125 mm)	6.30" (160 mm)	18	8
DL40	1.5" (40 mm)	7.87" (200 mm)	3.92" (100 mm)	5.50" (138 mm)	7.00" (175 mm)	26	12

DemiMag DL Ordering Code

DL 20 F T V T A N M N A

DL = DemiMag DL Flowtube

Nominal Size
20 = ¾ in. (20 mm)
25 = 1 in. (25 mm)
40 = 1½ in. (40 mm)
SP = Special (note 1)

Flowtube Materials (Wetted)
F = PVDF (note 2)
S = Special (note 1)

Electrode and Grounding Materials (Wetted)
T = 316 Stainless Steel
B = Hastelloy B
C = Hastelloy C
I = Titanium
A = Tantalum
S = Special (note 1)

Seal Materials (Wetted)
V = Viton
K = Kalrez
S = Special (note 1)

Connection Materials
T = 316 Stainless Steel (wetted). Flanges are fixed.
F = PVDF (wetted) with non-wetted rotary PVC or fixed PVDF flanges, depending on availability
S = Special (note 1)

Process Connections (see pressure limitations)
A = Flanged ANSI 150 RF
B = Flanged ANSI 300 RF
C = Flanged DIN/BS4504 PN 10-40
D = Flanged JIS 10K RF
E = Flanged BS/AS2129 Table D
F = Flanged BS/AS2129 Rable E
I = Tri-Clamp Sanitary Ends (note 2)
Used with Connection Materials: T
J = DIN 11851 Sanitary Ends (note 2)
Used with Connection Materials: T
S = Special (note 1)

Conductivity Rating
N = Conductivity ≥ 5 µS/cm
A = Conductivity ≥ 0.08 µS/cm, < 5 µS/cm
With integral pre-amp
S = Special (note 1)

Enclosure
M = Stainless Steel
W = Powder coated polyester carbon steel
L = Polished Stainless Steel
X = Entela approved to NEC and CSA, Class 1, Division 2, Groups C, D, rated T4 (note 3)
C = Entela approved to ATEX Zone 2 (note 3)
S = Special (note 1)

Cable Lengths
N = 15 feet (5 m) cables
E = Special with pre-amp

Transmitter Supply
A = 120V, 60 Hz
B = 230V, 50 Hz
C = 120V, 50 Hz
S = Special

NOTES
1. All special codes must be described fully after the ordering code.
2. Sanitary option with 3-A approval used with process connections code I or J. Mating connectors, seals, and clamps not included.
3. 4411e transmitter to be in safe area.

EMCO FLOW SYSTEMS

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