Data Sheet
D-FMP-10DX3111A_2

Field^{IT}

Electro-Magnetic Flowmeters

MAG-X®

Series 10DX3111A (14" - 24")

- Flowmeter system with a remote microprocessor signal converter. (Available in sizes 14 -24”)
- Available with ANSI flanges.
- Typical flowrate measurement is independent of viscosity, density, and temperature.
- Standard NEMA 4X IP67 enclosure rating for 1/2” - 12” models. Optional IP68 fully submersible.
- Produced in an ISO 9001 certified facility.
- The Series 3000 magnetic flowmeter maintains the 1.5 length to diameter ratio.
- System accuracies of ±1/2% of rate
- Optional remote communications via RS-232C, RS-485, or HART® Protocol.

Magnetic Flowmeters
MAG-X Series 3000

SERIES 3000 MAGNETIC FLOWMETER MAG-X® (Sizes 14" to 24")

The Series 10DX3111A (14" - 24") Magnetic Flowmeter is a DC-type volumetric, liquid flow rate detector. The coils of the magnetic flowmeter are excited with pulsed DC current in order to establish a magnetic field. As a conductive liquid passes through the magnetic field, an electrical voltage is induced in the liquid which is directly proportional to its velocity. This induced voltage is sensed by the electrodes and sent to the converter which digitally processes the signal and converts it into analog and digital output signals.

Engineering Specifications

Minimum Liquid Conductivity: 5 µS/cm.

Temperature Limits:

Process: -15°F (-25°C) to
302°F (150°C) for TEFLON® 14" sizes
190°F (88°C) for Neoprene & Polyurethane
170°F (77°C) for Linatex, Rubber

Ambient:
-15°F (-26°C) to 140°F (60°C) for all liners.

Enclosure Classification:

Standard: NEMA 4X

Optional: Accidental submergence (IP67) in water up to 30 feet (9 meters) deep for up to 48 hours.

Optional: Continuous submergence (IP68) in water up to 30 feet (9 meters).

Certifications:

FM Approved-Non Incendive for Class I, Div. 2, Gp A, B, C, & D. Electrodes intrinsically safe for Cl I, Div.1, Gp A, B, C, & D: Outdoor Hazardous Locations. Dust-Ignition proof Class II, Div. 1, Gp. E, F, & G. Suitable for Class III, Div. 1

Accuracy: For system accuracy information, see specification sheet of appropriate signal converter.

Connections:

Process Flanges: ANSI Class 150 or 300, DIN PN 6, 10, 16, 25, & 40, and AWWA Class B & D.

Electrical Connection: 1/2" NPT

Vibration Immunity: 1.5 g @ 10 - 150 Hz

Materials of Construction

Meter Spool: Carbon Steel

Flanges: Carbon Steel

Liners:
TEFLON® PTFE: Linatex, Neoprene, Polyurethane

Electrode Material: 316 SST, Hastelloy® C, Titanium, Tantalum, Platinum/Iridium.

Housing & Connection Box: Cast Aluminum

Liner Protectors & Grounding Rings:
316 Stainless Steel or Hastelloy® C

Approximate Shipping Weights

Table 1

Size		ANSI Cl 150	
Inch	(mm)	lb	kg
14	(350)	325	147
16	(400)	440	200
18	(450)	475	215
20	(500)	625	283
24	(600)	850	385

The above listed weights are approximate for estimating purposes.

Pressure Limits

Table 2

NEOPRENE & POLYURETHANE						TEFLON			
SIZE		@ 100°F (38°C)		@ 190°F (88°C)		@ 100°F (38°C)		@ 302°F (150°C)	
Inch	(mm)	psig	(MPa)	psig	(MPa)	psig	(MPa)	psig	(MPa)
14	(350)	275	(1.90)	240	(1.65)	250	(1.72)	210	(1.45)
16	(400)	275	(1.90)	240	(1.65)	225	(1.55)	210	(1.45)
18	(450)	205	(1.41)	195	(1.34)	165	(1.14)	150	(1.03)
20	(500)	225	(1.55)	210	(1.45)	185	(1.28)	170	(1.17)
24	(600)	220	(1.52)	205	(1.41)	195	(1.34)	180	(1.24)

NOTE: All pressures listed in Table 2 are for primaries with ANSI Class 150, carbon steel process connections.

Model Number Designation for the 10DX3111

Model Number 10DX3111 — A E _ _ _ 1 _ _ _ _ _ _

Design Level
- 50XM1000 Converter ..... A

Meter Lay Length
- 10D1419 & 10D1465 ..... E

Liner
- Polyurethane ..... D
- TEFLON® PTFE ..... E
- Neoprene L
- Linatex ..... P

Size
- 14" (350mm) 21
- 16" (400mm) 22
- 18" (450mm) 35
- 20" (500mm) 23
- 24" (600mm) 24

Flange Connection
- ANSI 150 ..... P

Flange Material
- Carbon Steel 1

Protector Plate (Teflon Liner Only)
- None (not available) ..... A

Electrode Design
- Flush 2
- Bullet Nose 3
- Slurry Service - (Must Select, Electrode only) 7

Electrode Material
- 316 Stainless Steel ..... B
- Hastelloy® C ..... D
- Titanium ..... E
- Tantalum, Teflon only ..... F
- Platinum - Iridium, Teflon only ..... H

Certification
- FM Approved - Nonincendive for Cl I, Div. 2, Gps A, B, C, & D:
  Electrodes Intrinsically Safe for Cl I, Div, 1, Gps A, B, C, & D:
  Outdoor Hazardous Locations, NEMA 4X.
  Dust-Ignition proof Cl II, Div, 1, Gps E, F, & G: Suitable for CL III, Div 1;
  Accidental Submergence: 30 ft (9m) water / 48 hrs ..... K

Enclosure Classification
- Accidental Submergence, IP67 2
- Continuous Submergence, IP68 5
- Accidental Submergence, IP67 to 33 ft. for 48 hrs. and Potted Terminal Box (Level 9 Protection) (Cable Permanently Installed) 9

Process Temperature Range
- TEFLON® PTFE < 266°F (130°C) (not available with continuous submergence) 1
- Linatex <170°F (77°C) 3
- Neoprene or Polyurethane <190°F (88°C) 4
- TEFLON® PTFE < 302°F (150°C) (not available with continuous submergence) 5

Model Number Designation for the 10DX3111

Model Number 10DX3111 A E _ _ _ _ _ _ _ _ _ _ _

Process Temperature Range
- TEFLON® PTFE < 266°F (130°C) (not available with continuous submergence) .. 1
- Linatex <170°F (77°C) .. 3
- Neoprene or Polyurethane <190°F (88°C) .. 4
- TEFLON® PTFE < 302°F (150°C) (not available with continuous submergence) .. 5

Line/Excitation Frequency
- 50 Hz / 6-1/4 Hz .. 1
- 50 Hz / 12-1/2 Hz .. 2
- 60 Hz / 7-1/2 Hz .. 3
- 60 Hz / 15 Hz .. 4

Customer Information Language - English .. 2

Remote Signal Converter Type
- 50XM1000 .. 1
- Not Specified .. X

Permanently Installed Signal Cable
(for enclosure Class 5 & 9 only)
- Cable Length - 50 ft. .. 0 5
- Cable Length - 100 ft. .. 1 0
- Not Required .. XX

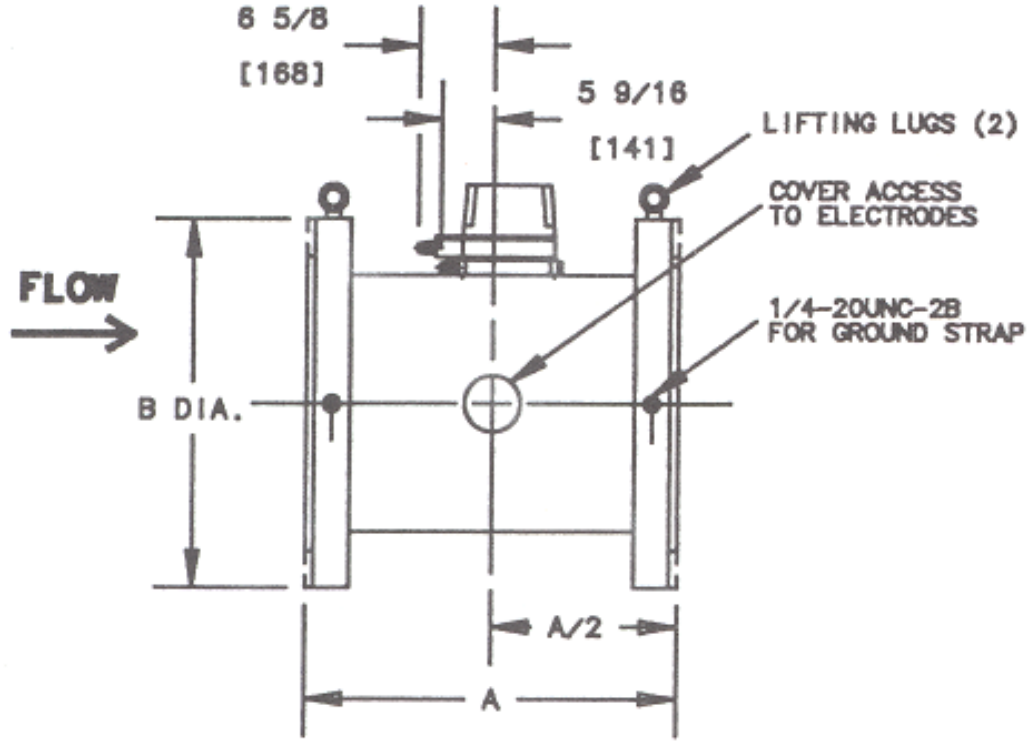
Instruction Manual *(One copy supplied with order at no charge)* .. PN243792

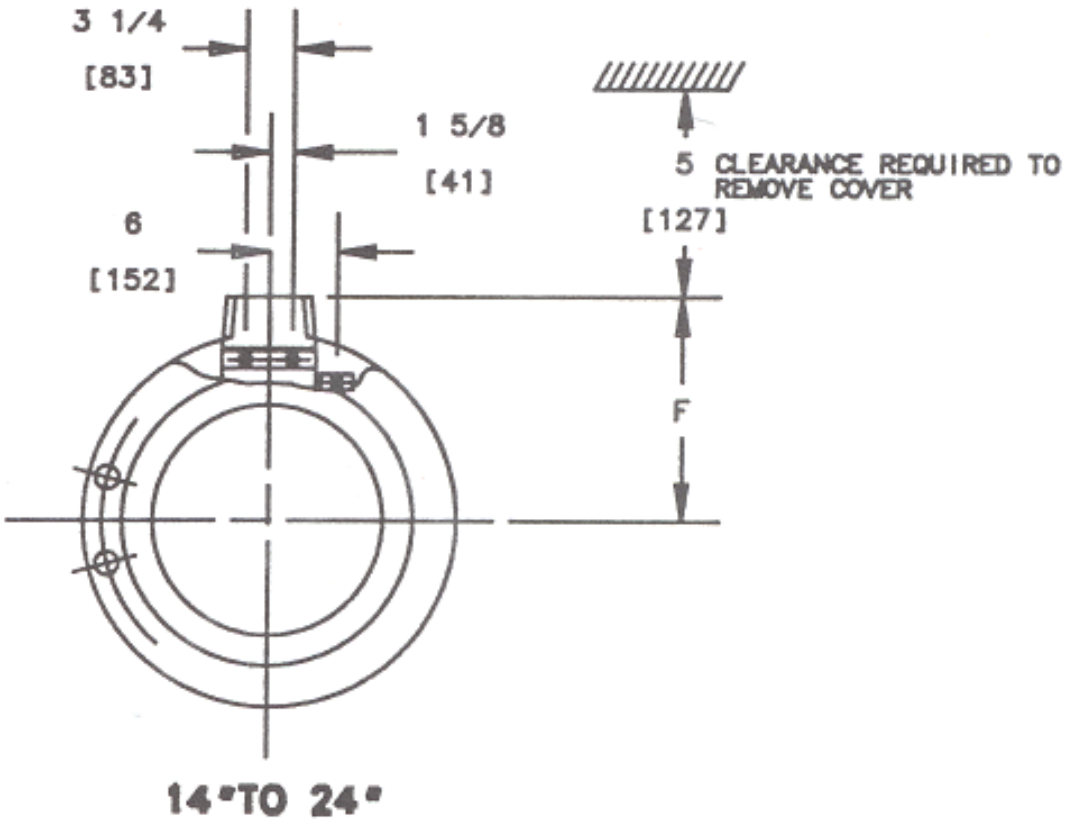
Options and Accessories: See Price List 10D9000

INSTALLATION DIMENSIONS

SIZE		A		B		F	
Inch	mm	Inch	mm	Inch	mm	Inch	mm
14	350	21	533	21	533	14-1/8	359
16	400	24	610	23-1/2	597	15-1/8	384
18	450	27	686	25	635	16-1/8	410
20	500	30	762	27-1/2	699	17-1/8	435
24	600	36	914	32	813	19-1/8	486

Installation Dimensions





Capacity

Table 4

Size		Typical Flow Ranges 0 to Value Tabulated			
		Minimum* Span Setting		Meter Capacity & Maximum** Span Setting	
Inch	mm	GPM	M^3Hr	GPM	M^3/Hr
14	350	730	165	14,529	3,300
16	400	1,000	225	19,813	4,500
18	450	1,350	300	26,417	6,000
20	500	1,450	330	29,059	6,600
24	600	2,150	480	42,268	9,600

NOTE:
Flow Velocity (ft/s) = Operating GPM x 32.81/Meter Capacity

* Typical Minimum Range = 2% of Meter Capacity
** Typical Maximum Range = 100% of Meter Capacity

For systems including the 50XM Converter, the minimum range is 2% of Meter Capacity.

Notes

ABB has Sales & Customer Support expertise in over 100 countries worldwide

www.abb.com

The Company's policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

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