

- Stainless Steel Clad Exterior designed to withstand the chemical washdowns.
- Wafer and Tri-clamp Configurations
- Available Pharmaceutical Design to meet the Strictest Sanitary Requirements: continuous meter bore and service free connection adaptor.
- 3A Sanitary Design
- +1.0% of Rate Standard Accuracy
- Sized 3/8" to 4"
- PFA or PTFE Teflon® liners
- Compatible With Remote, AC, Microprocessor Based Converter: 50SM1000



**Series DS21
Sanitary Magnetic Flowmeter**

Series DS21 SANITARY MAGNETIC FLOWMETER

The Series DS21 Magnetic Flowmeter Primary is an AC excited type specifically designed for sanitary applications. Utilizing AC excitation, this primary is suitable as a component of the Fill-Mag® System or for applications requiring: fast response time, piston pump driven fluids or fluids with high solids content.

The flowmeter primary is available as a remote configuration and compatible with the 50SM1000 Converter. Completely clad in stainless steel, the flowtube is designed to resist caustic washdowns.

Engineering Specifications

Minimum Fluid Conductivity: 20µS/cm.

Temperature Limits:

<u>Process:</u>	-40°F (-40°C) to 266°F (130°C)
<u>Ambient:</u>	-13°F (-25°C) to 140°F (60°C)
<u>Storage:</u>	-13°F (-25°C) to 158°F (70°C)
<u>CIP:</u>	302°F (150°C) for a maximum of 60 minutes with an ambient temperature of 77°F (25°C)

Pressure Limits:

580 psig (40 bar) @ 68°F (20°C) (Wafer)
435 psig (30 bar) @ 266°F (130°C) (Wafer)
145 psig (10 bar) @ 266°F (130°C) (Tri-clamp)

Vacuum Limits:

PFA Teflon®: 0 psia (0 bar) @ 266°F (130°C)
PTFE Teflon®: 3.9 psia @ 68°F (20°C)

Enclosure Classification: NEMA 4X and accidental submergence in water up to 33 feet for up to 48 hours (IP67).

Vibration Immunity: 1.5g for 10-150 Hz

System Accuracy: Refer to specification sheets for 50ES7000 or 50SM1000 converters.

Electrical Connections: 1/2" NPT conduit seals.

Recommended Velocities: For optimum performance, the magnetic flowmeter primary should be sized so that the nominal fluid flow rate falls between 10% and 40% of the maximums listed in Table 1 (4 to 15 ft/s velocity).

Materials of Construction

Meter Spool: 304 Stainless Steel

Liners: Teflon® PFA, Teflon® PTFE

Electrodes: 316 Stainless Steel

Housing & Connection Box: 304 Stainless Steel

Tri-Clamp Process Connections: 304 Stainless Steel

TABLE 2 - WEIGHT TABLE

SIZE		WEIGHT			
		WAFER DESIGN		TRI-CLAMP DESIGN	
INCH	MM	LB	KG	LB	KG
3/8"	10	N/A	N/A	4.4	2.0
1/2"	15	3.5	1.5	4.4	2.0
1"	25	4.5	2.0	6.2	2.8
1-1/2"	40	6.5	3.0	9.7	4.4
2"	50	9	4.0	11.5	5.2
3"	80	14	6.5	20.0	8.9
4"	100	19	8.5	25.5	11.6

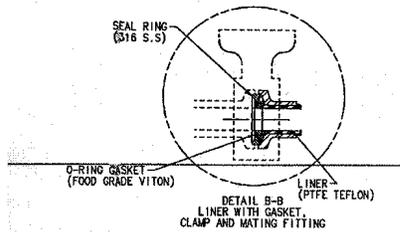
TABLE 1 - CAPACITY TABLE

SIZE			FLOW RANGES (0 TO VALUE TABULATED)			
			MINIMUM		MAXIMUM	
INCH	MM	METER CAPACITY GPM	GPM	L/MIN	GPM	L/MIN
3/8"	10	11.9	0.60	2.25	11.8	45.0
1/2"	15	26.4	1.33	5	26.4	100
1"	25	52.8	2.65	10	52.8	200
1-1/2"	40	158.5	7.93	30	158	600
			GPM	M³/HR	GPM	M³/HR
2"	50	264.4	13.3	3	264	60
3"	80	792.5	39.7	9	792	180
4"	100	1056.7	52.9	12	1056	240

- Notes: 1. Flow Velocity (ft/s) = (Operating GPM x 32.81 ft/s) / Meter Capacity
 2. Meter Capacity = Operating Flow at 10 m/s (32.81 ft/s)

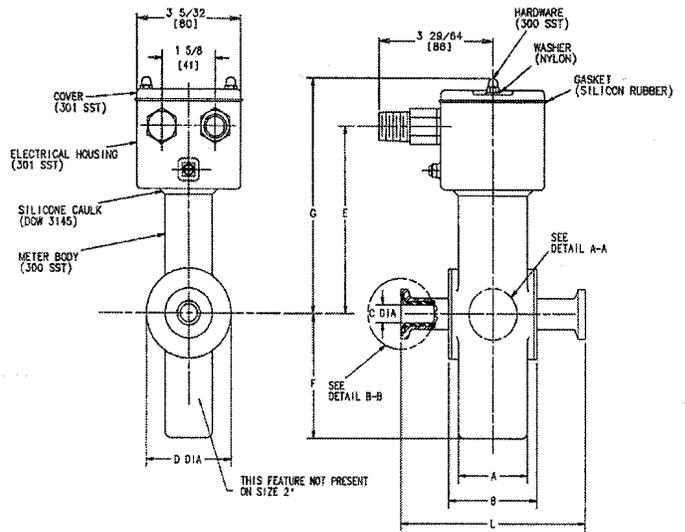
MAG-X® is a registered trademark of ABB Automation Inc.
 Teflon® is a registered trademark of E.I. DuPont de Nemours & Co.
 Hastelloy® is a registered trademark of Haynes International, Inc.

Dimensional Drawings

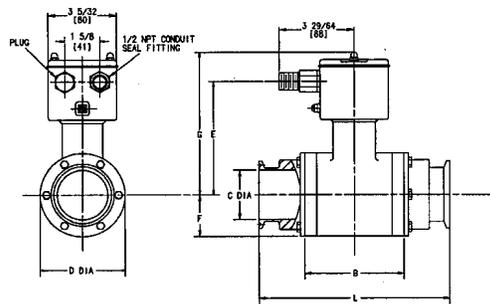


- NOTES
- 1) ALL DIMENSIONS ARE IN INCHES. DIMENSIONS IN BRACKETS [] ARE IN MILLIMETERS (mm).
 - 2) DIMENSIONS ARE GUARANTEED ONLY IF THIS PRINT IS CERTIFIED.
 - 3) THIS DRAWING IS A THIRD ANGLE PROJECTION AS SHOWN.
 - 4) FLOW MUST BE IN SAME DIRECTION AS FLOW ARROW.
 - 5) METER MUST BE COMPLETELY FILLED WITH LIQUID TO INSURE ACCURACY.
 - 6) ALL DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES OF $\pm 1/8$ (3).

METER SIZE	A	B	C DIA	D DIA	E	F	G	L
3/8 [10]	1-15/32 [37]	1-55/64 [47]	.357 [91]	1-25/32 [45]	4-1/4 [108]	2-7/16 [62]	5-3/16 [135]	3.855 [98]
1 [25]	2-1/8 [54]	2-9/16 [65]	.850 [22]	2-1/2 [64]	4-11/16 [119]	2-7/8 [73]	5-3/4 [146]	4.564 [116]
1-1/2 [40]	2-5/8 [67]	3-1/16 [78]	1.360 [35]	3-7/32 [82]	5-1/32 [128]	3-7/32 [82]	6-1/8 [155]	5.071 [129]
2 [50]	—	3-19/32 [91]	1.861 [47]	3-15/16 [100]	5-11/32 [136]	1-31/32 [50]	6-13/32 [163]	5.588 [142]

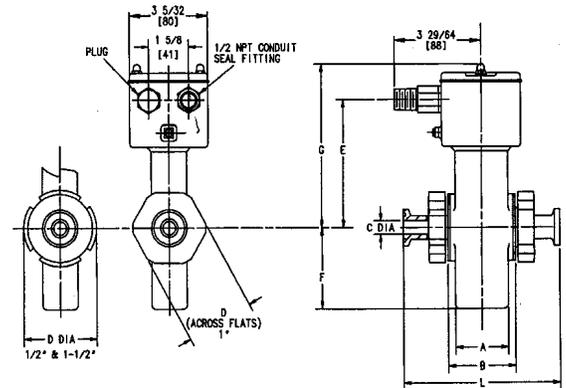


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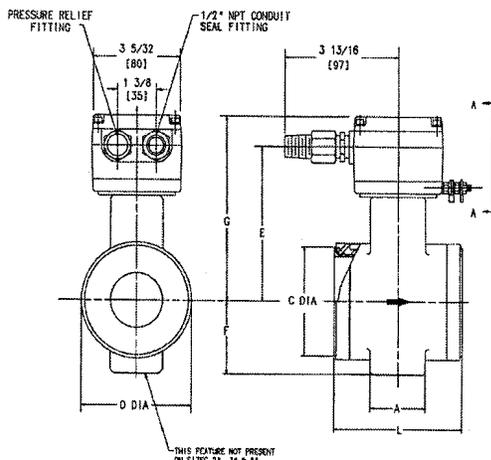
SIZES 2* - 4*

METER SIZE	A	B	C DIA	D	E	F	G	L
1/2 [15]	1-15/32 [37]	2 [51]	.375 [10]	1-23/32 [44]	4-1/4 [108]	2-7/16 [62]	5-3/16 [135]	6.444 [164]
1 [25]	2-1/8 [54]	2-5/8 [67]	.856 [22]	2-13/16 [78]	4-11/16 [118]	2-7/8 [73]	5-3/4 [146]	7.583 [193]
1-1/2 [40]	2-5/8 [67]	3-5/32 [80]	1.356 [35]	3-1/16 [78]	5-1/32 [128]	3-7/32 [82]	6-1/8 [155]	8.449 [215]
2 [50]	—	5-1/32 [128]	1.865 [47]	3-15/16 [100]	5-11/32 [136]	1-31/32 [50]	6-13/32 [163]	8.403 [213]
3 [80]	—	4-1/2 [114]	2.856 [73]	5-1/4 [133]	6-3/16 [157]	2-5/8 [66.5]	7-1/4 [184]	9.094 [231]
4 [100]	—	5-21/32 [144]	3.810 [97]	6-5/16 [150]	6-15/16 [176]	3-5/32 [80]	8 [203]	10.248 [266]



SIZES 1/2* - 1-1/2*

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THIS FEATURE NOT PRESENT ON SIZES 2*, 3* & 4*

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METER SIZE	A	C DIA	D DIA	E	F	G	L
1/2 [15]	1-15/32 [37]	1-5/8 [42]	1-25/32 [45]	3-11/32 [85]	2-7/16 [62]	4-3/8 [111]	2-11/16 [88]
1 [25]	2-1/8 [54]	2-5/16 [59]	2-15/32 [63]	4-1/16 [108]	2-7/8 [73]	5-1/8 [130]	3-17/32 [90]
1-1/2 [40]	2-5/8 [67]	3-1/32 [77]	3-7/32 [82]	4-13/16 [122]	3-7/32 [82]	5-27/32 [148]	4-1/16 [103]
2 [50]	—	3-3/4 [95]	3-15/16 [133]	5-1/4 [133]	1-31/32 [50]	6-1/4 [159]	4-5/8 [117]
3 [80]	—	5-1/32 [128]	5-1/4 [133]	6-1/32 [153]	2-5/8 [66.5]	7-1/32 [180]	4-1/16 [103]
4 [100]	—	6-3/32 [155]	6-5/16 [160]	6-13/16 [173]	3-5/32 [80]	7-27/32 [199]	5-1/4 [133]

Model Number Designation

DS21

	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Process Connection															
Wafer	W														
U.S. Tri-Clamp	X														
U.S. Tri-Clamp (Pharmaceutical)	Y														
Liner Material															
PFA Teflon® (Wafer and U.S. Tri-clamp only)	P														
PTFE Teflon® (Pharmaceutical only)	T														
Meter Size															
■ 3/8" (DN10) (Pharmaceutical Design Only)						10									
1/2" (DN15) (Not available in Pharmaceutical Design)						15									
1" (DN25)						25									
1-1/2" (DN40)						40									
2" (DN50)						50									
3" (DN80)						80									
4" (DN100)						1H									
Electrode Material															
316 STT							S								
Pressure Rating															
ANSI Class 150 (Wafer only)								P							
145 psi Max. Pressure (Tri-clamp and Pharmaceutical versions only)								C							
Process Connection Material															
None (Wafer only)															0
304 sst (Tri-clamp and Pharmaceutical versions only)															6
Design															
3A Construction - Drawn SST connection box															C
3 piece SST terminal box (Wafer or Pharmaceutical only)															W
Converter / Fluid Temperature Range															
Standard [$\leq 266^{\circ}\text{F}$ (130°C)]									S						
Certifications															
None															A
3A Construction (must use Drawn SST connection box)															S
Enclosure Classification															
Accidental Submergence: IEC 529, IP67, NEMA 4X (33 feet of water for 48 hours)															2
Identification Tag - English															
															E
Design Level															
															A
Gasket Material															
PTFE (Wafer version only)															A
Food Grade O-Ring (Tri-clamp Versions only)															B
Electrode Design															
Standard															1
Excitation Frequency															
50 HZ															1
60 HZ, Standard															3

■ U. S. Tri-clamp connections for 3/8" and 1/2" meters are identical



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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