Mueller SYSTEMS

Fire Service Meter with Bypass Sizes 3", 4", 6", 8", 10"

Features

APPLICATIONS: The Hersey[®] Meters FM³ fire service meter is designed for combined fire service and domestic water where a single supply line supports both fire and domestic or process needs. The meter may be utilized in automatic sprinkler systems and fire service, as a master meter for an entire water system, as a master meter for zoned systems, and for domestic or processed water where accuracy across a broad range of flows is critical. The FM³ meter eliminates the need for secondary service lines, saving time and reducing installation expenses and is compliant for all UL[®], FM Approved, NSF[®]-61 fire service meter applications.

CONSTRUCTION: Every Hersey FM³ meter is manufactured with epoxy coated ductile iron construction which eliminates additional gaskets and fasteners, reducing ongoing maintenance costs. The unique, Hersey strainer design protects the horizontal turbine meter measuring element in a unibody construction that reduces meter vault and installation costs due to its compact size and reduced weight while providing four times the inlet pipe diameter of strainer surface area. The unitized horizontal turbine measuring element is easily accessed through the top case of the meter and o-ring seals simplify field service. A Hersey EDCIV[™] detector check provides proven backflow protection with a spring loaded clapper assembly that is mounted to the top case of the check valve for ease of service. Bypasses consist of an appropriately sized positive displacement or residential fire line meter for low flow accuracy. Dual ball valves permit isolation of the meter and a swing check prevents backflow through the bypass. Stainless steel and bronze fasteners are used throughout the meter where required.

REGISTER: Separate mainline and bypass registers provide visibility of performance and field testing opportunity. The permanently sealed registers use proven magnetic drive design and the exclusive Hersey triple seal provides clarity and error free meter reading. Internal gears are self lubricating, molded plastic for minimal friction and a long service life. Standard visual read and electronic Translator[®] registers offer odometer wheels with a totalizing display, 360° degree test circle with center sweep hand and a low flow indicator. All Hersey FM³ models are available with electronic meter reading system components to meet any utility AMR/AMI requirement and all registers are protected by the unique Hersey locking pin which requires no special removal tools for field service.

OPERATION: During normal low flow operation, all water flows through the sensitive bypass meter for accurate registration. As flow and pressure loss through the bypass increases, the mainline clapper assembly automatically opens, permitting water to flow through the horizontal turbine measuring element and the bypass meter for accurate combined registration of all flows. The element employs Hersey's unique Retro-Thrust[®] feature to divide wear across multiple points, increasing accuracy, reducing friction and extending the life of the measuring element. Integral flow straightening vanes on the inlet and outlet sides of the measuring element contribute to the long term accuracy of the meter. As flow and pressure loss through the bypass meter decrease, the clapper assembly once again closes, redirecting all water through the bypass. Higher demand instances include master meter supply applications and fire suppression requirements.

INSTALLATION: Hersey FM³ meters are designed for horizontal installation with a minimum of five times the inlet pipe diameter of straight pipe prior to the meter and a minimum of three times the pipe diameter after the meter.

MAINTENANCE: All service components for the FM³ are unitized for easy replacement. Access to components is accomplished through the top side of the meter for full in-line service. Drop In Measuring Elements (DIMES) are available in pre-tested configurations which include a new measuring element, top case, register and o-ring for utilities that require quick field replacement. A calibration vane permits field adjustments to ensure accurate registration and extend the service life of the measuring element. The calibration vane is protected by the register and the locking pin for added security. For additional information regarding Mercov's unitied replacement entities placement.



4" x 1" FM³ with Residential Fire Meter

MODEL	FM ³ Fire Service Meter
SIZES	3" with 3/4" RFM bypass meter 4" with 1" RFM bypass meter 6" with 2" PD bypass meter 8" with 2" PD bypass meter 10" with 2" PD bypass meter
STANDARDS	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
INSTALLATION	Horizontal only with 5X pipe diameter of straight pipe (same size as meter) on inlet and 3X on outlet side of meter
OPERATING FLOW	V RANGE See Chart on the following page
ACCURACY	See Chart on the following page
PRESSURE LOSS	See Chart on the following page
MAXIMUM WORK	ING PRESSURE 175 PSI
WATER TEMPERA	ATURE RANGE 33°F to 100°F
MEASURING ELE Bypass: RFN Bypass: PD	MENT Mainline: Horizontal Turbine Element on all sizes AVertical Turbine Residential Fire Meter on 3" and 4" sizes AHigh Pressure Nutating Disc Meter on 6", 8" and 10" sizes
METER CONNEC	TIONS ANSI class 125 standard end flanges
OPTIONS	All AMR/AMI Reading Systems

Materials and Specifications

Fire Service Meter with Bypass Sizes 3", 4", 6", 8", 10"

ИЗ

FM³ with Bypass

Meter Registration

Meter Size	Initial Dial*	Capacity	Initial Dial*	Capacity
3"	100 Gallons	100 Million	10 Cubic Feet	10 Million
4"	100 Gallons	100 Million	10 Cubic Feet	10 Million
6"	1000 Gallons	1 Billion	100 Cubic Feet	100 Million
8"	1000 Gallons	1 Billion	100 Cubic Feet	100 Million
10"	1000 Gallons	1 Billion	100 Cubic Feet	100 Million

Flow Characteristics

Meter Size	Typical Low Flow (95% Min)	Typical Operating Range (100% ± 1.5%)	Maximum Continuous Operation	Maximum Intermittent Flow	
3"	1/2 GPM	6 to 600 GPM	600 GPM	750 GPM	
4"	3/4 GPM	8 to 1000 GPM	1000 GPM	1250 GPM	
6"	2 GPM	15 to 2000 GPM	2000 GPM	2600 GPM	
8"	2 GPM	30 to 3500 GPM	3500 GPM	4400 GPM	
10"	2 GPM	40 to 5500 GPM	5500 GPM	7000 GPM	

*Registration equal to one full revolution of the sweep hand.

Dimensions and Weights







Meter Size	3x3/4	4x1	6x2	8x2	10x2	
Dimension						
Α	33"	35"	45"	53"	68"	
В	23-5/8"	23-5/8"	33-11/32"	33"	39-17/32"	
C	16"	19"	24-1/4"	25-15/16"	31-7/16"	
D	6-3/8"	9-3/8"	11-1/2"	11-9/16"	14"	
E	15-5/8"	15-5/8"	22-11/32"	19-7/8"	22-29/32"	
Weight	220	250	590	890	1550	

NOTE: Weights are in pounds and are approximate.





Head Loss – 3" with 3/4" RFM Bypass



Accuracy – 3" with 3/4" RFM Bypass



NOTE: Performance curves are typical only and NOT a guarantee of performance.



Performance



Mueller SYSTEMS

Accuracy - 4" with 1" RFM Bypass



NOTE: Performance curves are typical only and NOT a guarantee of performance.

Head Loss - 8" with 2" PD Bypass



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FM³ with Bypass

Performance



NOTE: Performance curves are typical only and NOT a guarantee of performance.

Head Loss – 10 with 2" PD Bypass Meter



NOTE: Performance curves are typical only and NOT a guarantee of performance.

Performance







Accuracy - 10" with 2" PD Bypass Meter



NOTE: Performance curves are typical only and NOT a guarantee of performance.

FM



Mueller Systems

Fire Service Meter with Bypass Sizes 3", 4", 6", 8", 10"

FM3 WITH BYPASS EXPLODED ASSEMBLY (See parts listing, next page)



3" - 10" FM3 WITH BYPASS PARTS LIST (See exploded assembly diagram for reference)

#	DESCRIPTION	3" x 3/4" with RFM	4" x 1" with RFM	6" x 2" with HP PD	8" x 2" with HP PD	10" x 2" with HP PD
1	TEST PORT PLUG	59010PLA (3)	59010PLA (3)	59010PLA (3)	59010PLA (3)	59010PLA (3)
2	FM3 BODY	D3624	D3603	D3608	D3614	D3618
3	STRAINER SCREEN	B8634	C6628	C6615	C6614	C6616
4	STRAINER COVER O-RING	A13077	A13077	A13078	A13079	A13080
5	STRAINER COVER	C6620	C6620	D3616	D3610	D3620
6a	NAME TAG	A13054	A13054	A13054	A13054	A13054
6b	DRIVE SCREW	7199070109	7199070109	7199070109	7199070109 (2)	7199070109 (2)
7a	VENT SCREW	59003	59003	59003	59003	59003
7b	VENT SCREW WASHER	59073	59073	59073	59073	59073
8	EYE BOLT	AS7733 (2)	AS7733 (2)	AS7731 (2)	AS7732 (2)	AS7732 (2)
9	STRAINER COVER BOLT	90065 (12)	90065 (12)	90180 (20)	90243 (20)	90264 (24)
10	TRANSLATOR LID	B8638	B8638	B8638	B8638	B8638
10	VISUAL READ LID	50381	50381	50381	50381	50381
11	WIRE EXIT HOUSING	C6624	C6624	C6624	C6624	C6624
12	LID HINGE PIN	AS41122	AS41122	AS41122	AS41122	AS41122
13	TRANSLATOR REGISTER VISUAL READ REGISTER	D3655XXXX D3663X	D3656XXXX D3663X	D3657XXXX D3663X	D3658XXXX D3663X	D3659XXXX D3663X
14	REGISTER SPACER	50382	50382	50382	50382	50382
15	TRANSLATOR HOUSING BASE	C6637	C6637	C6637	C6637	C6637
16		Δ12658	A12658	A12658	A12658	A12658
17		C5770	C5770	C5770	C5770	C5770
18		90065 (6)	90065 (6)	90264 (8)	90264 (8)	90264 (8)
10		50005 (0) C6618	50005 (0) C6618	90204 (0) C6612	90204 (0) C6612	90204 (0) C6630
20		C6598	C6598	54700	54700	54700
20		54602	54602	B8657	B8657	B8636
21		96049NSF	960/9NISE	N/A	N/A	N/A
22		06062	900491431	06051	0605 1	06051
23		90002	90003	90000	90000	90000
24		90331 (2)	90331 (2)	90333 (2)	90333 (2)	90333 (2)
25		0603755 (2)	90056	90000	90000	9007G
20		9003733 (2)	9003733 (2)	90039 (2)	90039 (2)	90039 (2)
28		96010 (2)	96011 (2)	96012 (2)	96012 (2)	96012 (2)
20		96033 (2)	95062 (2)	N/A	N/A	N/A
302		95033 (2)	95058 (2)	N/A	N/A	N/A
30b		95038 (2)	95057 (2)	N/A	N/A	N/A
31	BYPASS METER	SEE REM SHEET	SEE REM SHEET			
32		96062	96063	96173	96174	96072
33		9605G	9605G	9605.1	9605.1	9609H
34		96092	96092	96094	96094	96094
35		9606E	9606E	9605.1	9605.1	96080
36	NIPPI F	96144	96144	96138	9619B	9617C
37	TEST PORT PLUG	59013 (3)	59013 (3)	59010PLA (3)	59010PLA (3)	59010PLA (3)
38	FLANGE CONNECTION BOLT	90256 (4)	90256 (8)	90308 (8)	90311 (8)	90365 (12)
39	ELANGE CONNECTION NUT	AS7633 (4)	AS7633 (8)	90335 (8)	90339 (8)	90356 (12)
40	ELANGE CONNECTION GASKET	023701011NSE	923701014NSE	923701015NISE	923701016NSE	923701017NSE
41		E20841	E200531	E20154	E20094	E20214
42		A\$7612	A\$7612	A\$7613	AS7614	A\$7615
43		F20843	F20843	F20153	F20093	F20213
44a		AS7621 (3)	AS7621 (3)	AS7622 (3)	AS7623 (3)	AS7623 (3)
44b		AS7651 (3)	AS7651 (3)	AS7653 (3)	AS7654 (3)	AS7654 (3)
45	EDCIV COVER	D3626	D3626	D3628	D3630	D3632
46		90241 (5)	90241 (5)	90264 (8)	AS4822799 (8)	AS4822055 (8)
47	EVEROLT	Δ\$7733	Δ\$7733	AS7731	ΔS7731 (2)	AS7731 (2)
48		59027NISE	59027NISE	590000195	590091(2)	590091(2)
-10		CALLMS		CALLMS	CALL M.S	CALLMS
49	(10-17) & (19-21)	CUSTOMER CARE	CUSTOMER CARE	CUSTOMER CARE	CUSTOMER CARE	CUSTOMER CARE