



MAXIMATIC® FILTER-REGULATOR-
LUBRICATORS 343 - 346

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MAXIMATIC® FILTER-REGULATOR-LUBRICATORS



Maximatic Filters, Regulators & Lubricators

Maximatic FRLs condition and prepare compressed air for use in fluid power systems. Pneumatic applications with properly conditioned air will operate longer, cost less and improve system efficiency. Clippard offers many different sizes from #10-32 to 1" NPT of Filter, Regulators, Lubricators and combination units. Their modular design and inter-connecting brackets provide flexibility and facilitates simple field installation and/or modification.

Filters. Filters capture solid particulate and remove water by "spinning" the air centrifugally. Water and larger particles are thrown against the side of the bowl where they condense and/or fall to the lower part of the bowl. Smaller particles are captured as the air flows through the filter element.

Regulators. Controlling pressure is an important requirement in all systems. Maximatic Regulators are adjustable from 7 to 125 psig. For applications requiring better resolution, 7 to 30 or 7 to 60 psig models with spring are available. The #10-32 size is a piston-style due to its small size, while the 1/8" to 1" are a diaphragm design.

Lubricators. Pneumatic actuators and valves perform better and last longer when properly lubricated. The bowl serves as a reservoir for the oil and supplies oil through the pick-up tube when pressurized. The amount of oil dispersed is controlled by an adjustable needle valve.

- Body Material:** Die Cast Aluminum
- Maximum Operating Pressure:** 150 psig
- Regulating Range:** 125 psig standard, 30 psig and 60 psig optional
- Regulator Type:** Relieving
- Filter Drain:** Semi-Automatic Differential or Optional Automatic Drain. When the air supply is below 7 psig, the semi-automatic drain will open.
- Bowl Material:** Polycarbonate standard up to 4Z model/size. Metal bowl standard on 4A and 5B models/sizes. Aluminum Cast with sight glass available.
- Bowl Guard:** Steel on models indicated
- Filtration:** 25 micron sintered brass filter standard, 5 micron optional
- Temperature Range:** 32 to 130°F

Ordering Guide

Type	Enter	Enter
FRL	.FRL	Filter F
Stacking FRL	.FRLS	Regulator R
Stacking Filter-Regulator	.FRS	Lubricator L

Body/Port Size	Enter	Enter
#10-32	.1N	3/8" NPT (High Flow)4W
1/8" NPT	.2P	1/2" NPT4Z
1/4" NPT (Standard Flow)	.2Q	3/4" NPT4A
1/4" NPT (High Flow)	.3Q	1" NPT5B
3/8" NPT (Standard Flow)	.3W	

Options	Automatic Drain (D)	Metal Bowl (M)	30 psig (P30)	5 Micron Filter (F5)
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This numbering schematic is shown for illustration purposes only. All possible configurations are not available—For standard models, see the products illustrated in this catalog.

Example: MM - -

MM - -

MAXIMATIC® FILTER-REGULATOR-LUBRICATORS



#10-32 through 1" NPT ports available

Large selection of convenient mounting hardware offered

All FRL components are a modular design which allow easy connection and disconnection of the components for simple installation and maintenance.

Pressure Gauge allows for easy viewing

Die Cast Aluminum Body

Easy-to-view sight glass standard on all metal bowls

Flow rates from 3 scfm to 280 scfm

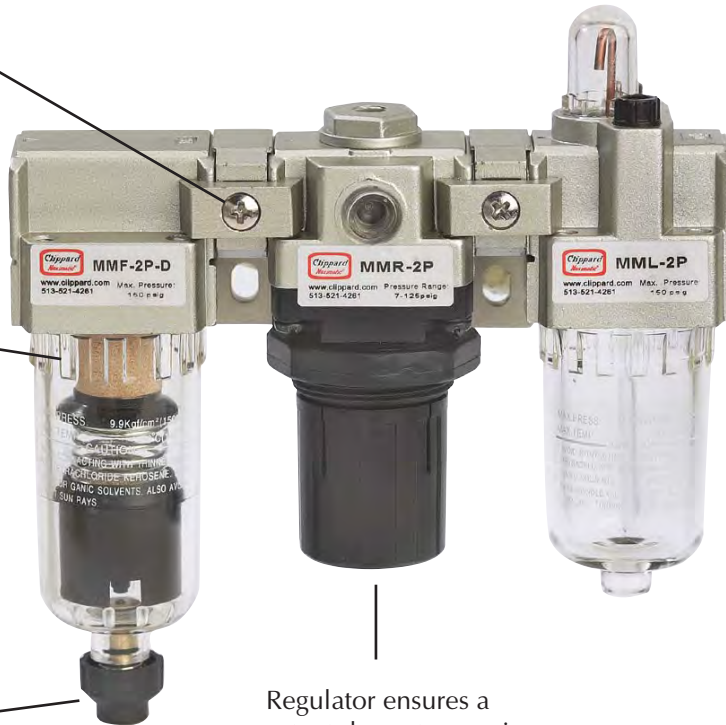
Lubricators increase component life by dispensing oil into the airline supply

25 micron filters standard, 5 micron optional

Filters prevent moisture and solid particulates from getting into compressed air lines

Manual, Semi-Automatic or Automatic Drain

Regulator ensures a constant downstream air line pressure



Bowl Shield

Polycarbonate bowls are standard on all filters and lubricators. Bowl shields are standard on MMF/MML 4A and 5B. An optional metal bowl is available for filters and lubricators.



Metal Bowl with Site Glass





MAXIMATIC® FILTER-REGULATOR-LUBRICATORS



MMFRL-2P-D
FRL with Polycarbonate Bowls
and Automatic Drain



MMFRL-3W
FRL with Bowl Shields
& Semi-Automatic Drain

Combination FRLs provide air filtration, regulation and lubrication in one unit for easy mounting and installation. Includes L brackets and gauge.

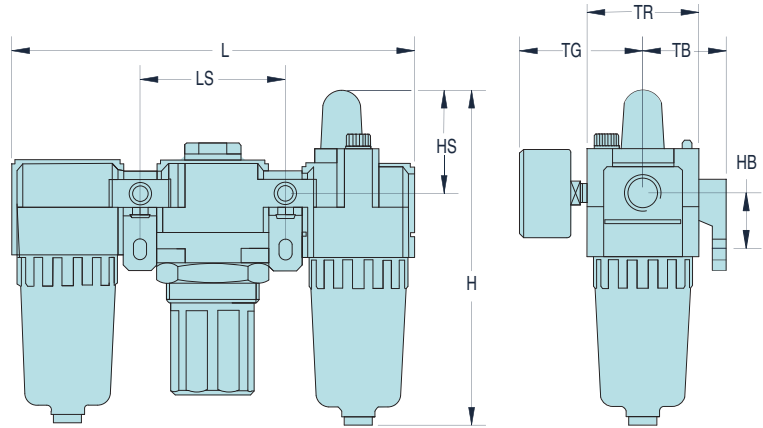
Bowl: Polycarbonate standard. Steel bowl shields provided on models indicated. Metal bowls with sight glasses also available, add "-M" to the Part Number.

Regulating Range: 7 to 100 psig on MMFRL-1N, 7 to 125 psig on all others. 30 and 60 psig ranges also available, add "-P30" or "-P60" to the end of the Part Number.

Drain: Semi-Automatic standard on MMFRLS-3 series. Manual standard on all others. Optional Automatic Drain available—add "-D" to the Part Number.

Drains not available on Lubricators.

Filtration: 25 micron filter standard. Add "-F5" to the end of the Part Number for an optional 5 micron filter.



Drawing shown with Polycarbonate Bowl without Shield or Auto Drain

Dim.	MMFRL-4Z					
	MMFRL-1	MMFRL-2	MMFRL-3	MMFRL-4W	MMFRL-4A	MMFRL-5B
H	3.33	4.92	6.16	7.54	7.60	10.69
HB	0.79	0.94	1.39	1.57	1.57	1.97
HS	1.00	1.50	1.50	1.61	1.61	1.89
L	3.58	5.51	7.13	9.37	9.96	11.81
LS	1.3	1.97	2.52	3.31	3.50	4.13
TB	0.98	1.18	1.61	1.97	1.97	2.75
TG	1.02	2.24	2.39	2.58	2.74	2.97
TR	0.98	1.57	2.09	2.76	2.76	3.54

Port	Gauge Port	Flow Rate	Manual Drain	Semi-Auto Drain	Automatic Drain	Standard Bowl*	Gauge
#10-32	1/16" NPT	3 scfm - 90 l/min	<u>MMFRL-1N</u>	-	<u>MMFRL-1N-D*</u>	Polycarbonate	PG-10-160J
1/8" NPT	1/8" NPT	18 scfm - 500 l/min	<u>MMFRL-2P</u>	-	<u>MMFRL-2P-D*</u>	Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	18 scfm - 500 l/min	<u>MMFRL-2Q</u>	-	<u>MMFRL-2Q-D*</u>	Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	70 scfm - 2,000 l/min	-	<u>MMFRL-3Q*</u>	<u>MMFRL-3Q-D*</u>	Poly with Shield	PG-15-160P
3/8" NPT	1/8" NPT	70 scfm - 2,000 l/min	-	<u>MMFRL-3W*</u>	<u>MMFRL-3W-D*</u>	Poly with Shield	PG-15-160P
3/8" NPT	1/4" NPT	140 scfm - 4,000 l/min	<u>MMFRL-4W</u>	-	<u>MMFRL-4W-D*</u>	Poly with Shield	PG-20-160Q
1/2" NPT	1/4" NPT	140 scfm - 4,000 l/min	<u>MMFRL-4Z</u>	-	<u>MMFRL-4Z-D*</u>	Poly with Shield	PG-20-160Q
3/4" NPT	1/4" NPT	160 scfm - 4,500 l/min	<u>MMFRL-4A-M</u>	-	<u>MMFRL-4A-M-D*</u>	Poly with Shield	PG-20-160Q
1" NPT	1/4" NPT	180 scfm - 5,000 l/min	<u>MMFRL-5A-M</u>	-	<u>MMFRL-5A-M-D*</u>	Poly with Shield	PG-20-160Q

* Add M to the end of the part number for Metal Bowl with Site Glass



MMFRLS-2Q-D
Stacking FRL with
Polycarbonate Bowls and
Automatic Drain

MMFRLS-3Q-D
Stacking FRL with Bowl
Shields and Automatic Drain



Stacking FRLs provide air filtration, regulation and lubrication in one unit for easy mounting and installation.

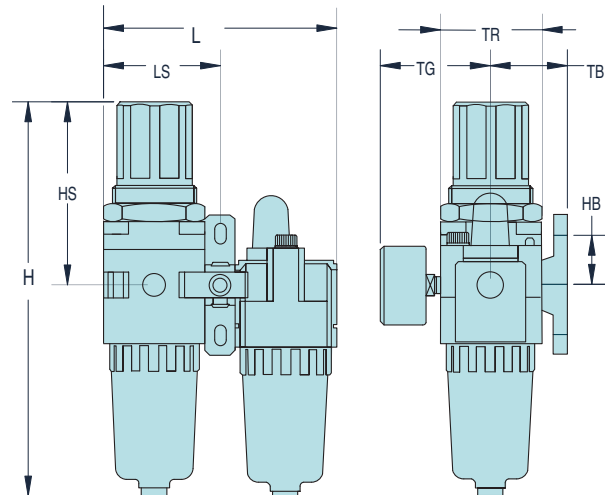
- Includes L bracket and gauge

Bowl: Polycarbonate standard. Steel shield provided on models indicated. Metal bowl with sight glass also available, add “-M” to the end of the Part Number.

Regulating Range: 7 to 100 psig on MMFRLS-1N, 7 to 125 psig on all others. 30 and 60 psig ranges also available, add “-P30” or “-P60” to the end of the Part Number.

Drain: Semi-Automatic standard on MMFRLS-3/4/5 series. Manual standard on all others. Optional Automatic Drain available—add “-D” to Part Number.

Filtration: 25 micron filter standard. Add “-F5” to the end of the Part Number for an optional 5 micron filter.



Drawing shown
without Shield
or Auto Drain

Dim.	MMFRLS-1N	MMFRLS-2	MMFRLS-3	MMFRLS-4Z			MMFRLS-5B
				MMFRLS-4W	MMFRLS-4A		
H	4.31	6.48	8.31	10.31	10.51	13.31	
HB	0.79	0.94	1.38	1.57	1.57	1.97	
HS	1.99	3.07	3.64	4.41	4.49	4.57	
L	2.28	3.54	4.61	6.06	6.46	7.68	
LS	1.14	1.77	2.30	3.03	3.23	3.84	
TB	0.98	1.18	1.61	1.97	1.97	2.75	
TG	1.02	2.24	2.39	2.58	2.74)	2.97	
TR	0.98	1.57	2.09	2.76	2.76	3.54	

Port	Gauge Port	Flow Rate	Manual Drain	Semi-Auto Drain	Automatic Drain	Standard Bowl*	Gauge
#10-32	1/8" NPT	3 scfm - 90 l/min	<u>MMFRLS-1N</u>	-	-	Polycarbonate	<u>PG-10-160J</u>
1/8" NPT	1/8" NPT	18 scfm - 500 l/min	<u>MMFRLS-2P</u>	-	-	Polycarbonate	<u>PG-15-160P</u>
1/4" NPT	1/8" NPT	18 scfm - 500 l/min	<u>MMFRLS-2Q</u>	-	-	Polycarbonate	<u>PG-15-160P</u>
1/4" NPT	1/8" NPT	60 scfm - 1,700 l/min	-	<u>MMFRLS-3Q*</u>	<u>MMFRLS-3Q-D*</u>	Poly with Shield	<u>PG-15-160P</u>
3/8" NPT	1/8" NPT	60 scfm - 1,700 l/min	-	<u>MMFRLS-3W*</u>	<u>MMFRLS-3W-D*</u>	Poly with Shield	<u>PG-15-160P</u>
3/8" NPT	1/4" NPT	105 scfm - 3,000 l/min	-	<u>MMFRLS-4W*</u>	<u>MMFRLS-4W-D*</u>	Poly with Shield	<u>PG-20-160Q</u>
1/2" NPT	1/4" NPT	105 scfm - 3,000 l/min	-	<u>MMFRLS-4Z*</u>	<u>MMFRLS-4Z-D*</u>	Poly with Shield	<u>PG-20-160Q</u>
3/4" NPT	1/4" NPT	140 scfm - 4,000 l/min	-	<u>MMFRLS-4A-M</u>	<u>MMFRLS-4A-DM</u>	Poly with Shield	<u>PG-20-160Q</u>
1" NPT	1/4" NPT	180 scfm - 5,000 l/min	-	<u>MMFRLS-5B-M</u>	<u>MMFRLS-5B-DM</u>	Poly with Shield	<u>PG-20-160Q</u>

* Add M to the end of the part number for Metal Bowl with Site Glass



MAXIMATIC® STACKING FILTER-REGULATORS



MMFRS-3Q
Stacking Filter-Regulator
with Bowl Shield &
Semi-Automatic Drain



MMFRS-2P
Stacking Filter-Regulator
with Polycarbonate Bowl
& Manual Drain



Stacking Filter-Regulator combinations provide air filtration and precise regulation in a single unit for easy mounting and installation where space is limited.

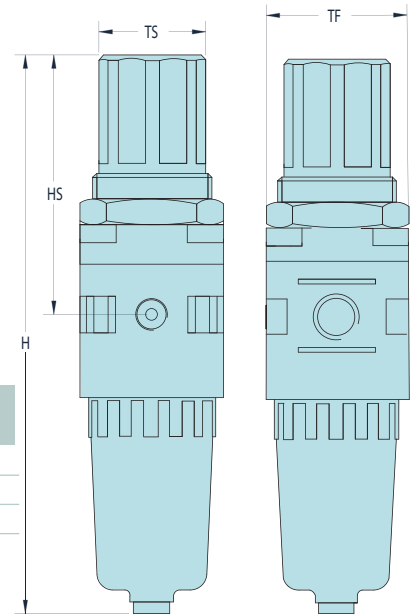
- Includes bracket and gauge (see Page 340 for dimensions).

Regulating Range: 7 to 100 psig on MMFRS-1N, 7 to 125 psig on all others. 30 and 60 psig ranges also available, add “-P30” or “-P60” to the end of the Part Number.

Bowl: Polycarbonate standard. Bowl shield provided on models indicated. Metal bowl with sight glass also available, add “-M” to the Part Number.

Differential Drain: Semi-Automatic standard on MMFRS-3/4/5 series; Manual standard on all other models. When supply pressure is below 7 psig on all MMFRS-3 and MMFRS-4 models without metal bowls, the standard drain will open. An optional Automatic Drain available—add “-D” to Part Number (not available with MMFRS-4A-M).

Filtration: 25 micron filter standard. Add “-F5” to the end of the Part Number for an optional 5 micron filter.



Dim.	MMFRS-1N	MMFRS-2Q	MMFRS-3W	MMFRS-3Q	MMFRS-4Z	MMFRS-4W	MMFRS-4A	MMFRS-5B
H	4.31	6.48	8.31	10.31	10.51	13.31		
HS	1.99	3.07	3.64	4.41	4.49	4.57		
TF	0.98	1.57	2.09	2.76	2.76	3.54		
TS	1.10	1.34	1.37	2.13	2.13	2.13		

Port	Gauge Port	Flow Rate	Manual Drain	Semi-Auto Drain	Automatic Drain	Standard Bowl	Gauge
#10-32	1/16" NPT	3 scfm - 90 l/min	MMFRS-1N	-	-	Polycarbonate	PG-10-160J
1/8" NPT	1/8" NPT	19 scfm - 550 l/min	MMFRS-2P	-	MMFRS-2P-D*	Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	19 scfm - 550 l/min	MMFRS-2Q	-	MMFRS-2Q-D*	Polycarbonate	PG-15-160P
1/4" NPT	1/8" NPT	70 scfm - 2,000 l/min	-	MMFRS-3Q*	MMFRS-3Q-D*	Poly with Shield	PG-15-160P
3/8" NPT	1/8" NPT	70 scfm - 2,000 l/min	-	MMFRS-3W*	MMFRS-3W-D*	Poly with Shield	PG-15-160P
3/8" NPT	1/4" NPT	140 scfm - 4,000 l/min	-	MMFRS-4W*	MMFRS-4W-D*	Poly with Shield	PG-20-160Q
1/2" NPT	1/4" NPT	140 scfm - 4,000 l/min	-	MMFRS-4Z*	MMFRS-4Z-D*	Poly with Shield	PG-20-160Q
3/4" NPT	1/4" NPT	160 scfm - 4,500 l/min	-	MMFRS-4A-M	-	Metal with Site Glass	PG-20-160Q
1" NPT	1/4" NPT	195 scfm - 5,000 l/min	-	MMFRS-5B-M	MMFRS-5B-D*	Metal with Site Glass	PG-20-160Q

* Add M to the end of the part number for Metal Bowl with Site Glass



Maximatic® filters remove moisture and contaminants, and provide air filtration through a 25 micron filter. Replacement 25 micron and 5 micron filters are available.

- Semi-automatic drain standard on MMFRLS-3/4/5 series. Manual drain standard on all others. Optional Automatic Drain available—add “-D” to Part Number.

Bowl: Polycarbonate standard. Cast steel bowl shield provided on models indicated. Metal bowl with sight glass also available, add “-M” to the end of the Part Number.

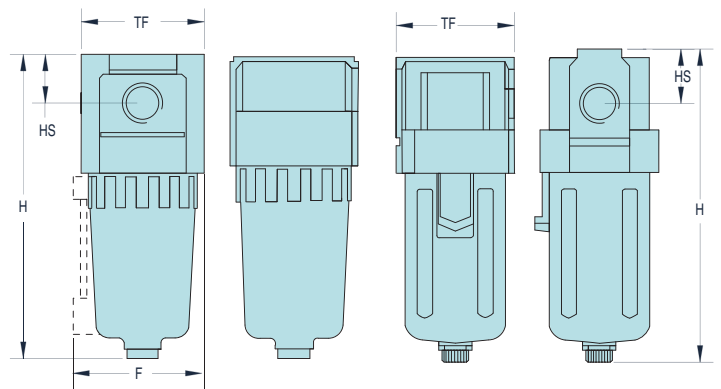
Filtration: 25 micron filter standard. Add “-F5” to Part Number for optional 5 micron filter.

Filter	F	H	HS	TF
MMF-1	--	2.60	0.28	0.98
MMF-2	1.81	3.84	0.43	1.57
MMF-3	2.26	5.22	0.55	2.09
MMF-4W/4Z	3.00	6.63	0.71	2.76
MMF-4A-M	3.00	6.79	0.79	2.76
MMF-5B-M	3.00	9.74	0.94	3.54

MAXIMUM
Value. →
→ Performance.

MMF-1 & MMF-2 Series

MMF-3 & MMF-4 Series



Port	Flow Rate	Manual Drain	Semi-Automatic Drain	Automatic Drain	Standard Bowl*
#10-32	4 scfm - 110 l/min	MMF-1N	-	-	Polycarbonate
1/8" NPT	26 scfm - 750 l/min	MMF-2P	-	MMF-2P-D*	Polycarbonate
1/4" NPT	26 scfm - 750 l/min	MMF-2Q	-	MMF-2Q-D*	Polycarbonate
1/4" NPT	70 scfm - 2,000 l/min	-	MMF-3Q*	MMF-3Q-D*	Poly with Steel Shield
3/8" NPT	70 scfm - 2,000 l/min	-	MMF-3W*	MMF-3W-D*	Poly with Steel Shield
3/8" NPT	140 scfm - 4,000 l/min	-	MMF-4W*	MMF-4W-D*	Poly with Steel Shield
1/2" NPT	140 scfm - 4,000 l/min	-	MMF-4Z*	MMF-4Z-D*	Poly with Steel Shield
3/4" NPT	210 scfm - 6,000 l/min	-	MMF-4A-M	MMF-4A-DM	Metal with Site Glass
1" NPT	245 scfm - 7,000 l/min	-	MMF-5B-M	MMF-5B-DM	Metal with Site Glass

* Add M to the end of the part number for Metal Bowl with Site Glass



MAXIMATIC® REGULATORS

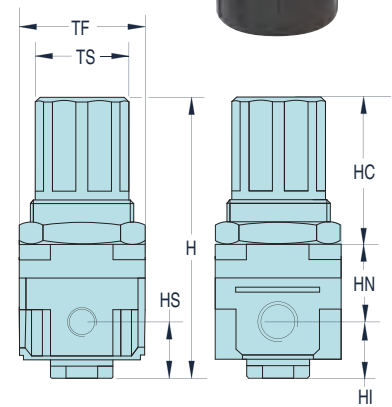
Maximatic® Regulators provide precise air regulation from 7 to 125 psig. The adjustment knob must be pulled out to adjust the pressure, preventing accidental adjustment. Maximum inlet pressure is 150 psig. Includes bracket and gauge.

Regulating Range: 7 to 100 psig standard on MMR-1N, and 7 to 125 psig on all others. 30 and 60 psig ranges also available, add "-P30" or "-P60" to the end of the Part Number.



Dim.	MMR-4Z					
	MMR-1	MMR-2	MMR-3	MMR-4W	MMR-4A	MMR-5
H	2.42	3.74	4.80	5.89	6.06	6.61
HS	0.43	0.67	1.38	1.48	1.59	1.89
HC	1.12	1.86	2.26	2.78	2.78	2.83
HN	0.75	1.00	1.30	1.44	1.44	1.87
HI	0.43	0.65	1.34	1.43	1.43	1.70
TF	0.98	1.57	2.09	2.76	2.76	3.54
TS	1.10	1.34	1.57	2.13	2.13	2.13

Part No.	Port	Gauge Port	Flow Rate		Gauge
<u>MMR-1N</u>	#10-32	1/16" NPT	4 scfm	100 l/min	PG-10-160J
<u>MMR-2P</u>	1/8" NPT	1/8" NPT	19 scfm	550 l/min	PG-15-160P
<u>MMR-2Q</u>	1/4" NPT	1/8" NPT	19 scfm	550 l/min	PG-15-160P
<u>MMR-3Q</u>	1/4" NPT	1/8" NPT	88 scfm	2,500 l/min	PG-15-160P
<u>MMR-3W</u>	3/8" NPT	1/8" NPT	88 scfm	2,500 l/min	PG-15-160P
<u>MMR-4W</u>	3/8" NPT	1/4" NPT	140 scfm	4,000 l/min	PG-20-160Q
<u>MMR-4Z</u>	1/2" NPT	1/4" NPT	140 scfm	4,000 l/min	PG-20-160Q
<u>MMR-4A</u>	3/4" NPT	1/4" NPT	210 scfm	6,000 l/min	PG-20-160Q
<u>MMR-5B</u>	1" NPT	1/4" NPT	280 scfm	8,000 l/min	PG-20-160Q



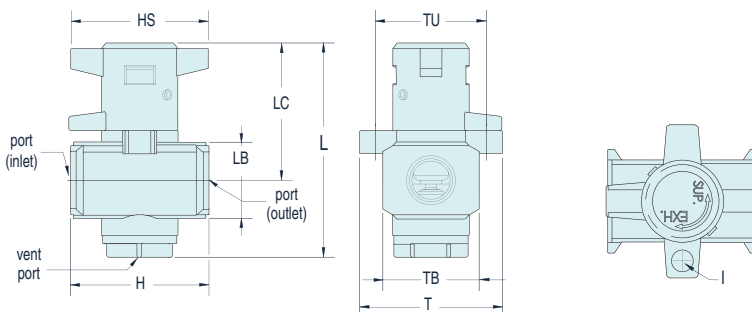
RELIEVING SHUT-OFF/LOCK OUT VALVES

Maximatic Shut-Off/Lock Out valves may be used in conjunction with Maximatic FRLs to provide a method of turning off the air supply. Cleaning or replacing filters, adding oil to the lubricator or other maintenance steps can be made without the air supply present. The valve can also be locked in the "off" position (lock not provided) to prevent accidental pressurizing.

Medium: Air
Input Pressure: 150 psig

Air Flow: See table below
Mounting: In-line

Material: Die Cast Aluminum



Dim.	MMSV-3QP	MMSV-3WQ	MMSV-3ZW
	L	2.44	3.07
H	1.58	2.09	2.76
TB	1.10	1.18	1.42
T	1.62	2.10	2.10
TU	1.26	1.63	1.63
LC	1.57	1.95	2.08
LB	0.87	1.10	1.42
HS	1.58	1.77	1.77
I	0.24	0.29	0.29

Part No.	Port	Vent Port	Air Flow (cfm) @ 100 psig	For Use with FRL, Filter-Regulator, Filter & Regulator Series:					
				<u>MMSV-3PP</u>	1/8" NPT	1/8" NPT	18	MMFRL-2	MMFRLS-2
<u>MMSV-3QP</u>	1/4" NPT	1/8" NPT	25	MMFRL-2	MMFRLS-2	MMFR-2	MMFRS-2	MMF-2	MMR-2
<u>MMSV-3QQ</u>	1/4" NPT	1/4" NPT	60	MMFRL-3	MMFRLS-3	MMFR-3	MMFRS-3	MMF-3	MMR-3
<u>MMSV-3WQ</u>	3/8" NPT	1/4" NPT	90	MMFRL-3	MMFRLS-3	MMFR-3	MMFRS-3	MMF-3	MMR-3
<u>MMSV-3WW</u>	3/8" NPT	3/8" NPT	120	MMFRL-4	MMFRLS-4	MMFR-4	MMFRS-4	MMF-4	MMR-4
<u>MMSV-3ZW</u>	1/2" NPT	3/8" NPT	180	MMFRL-4	MMFRLS-4	MMFR-4	MMFRS-4	MMF-4	MMR-4



MML-3W
Lubricator with
Bowl Shield



MML-2P
Lubricator with
Polycarbonate
Bowl



MML-2Q-M
Lubricator with
Metal Bowl

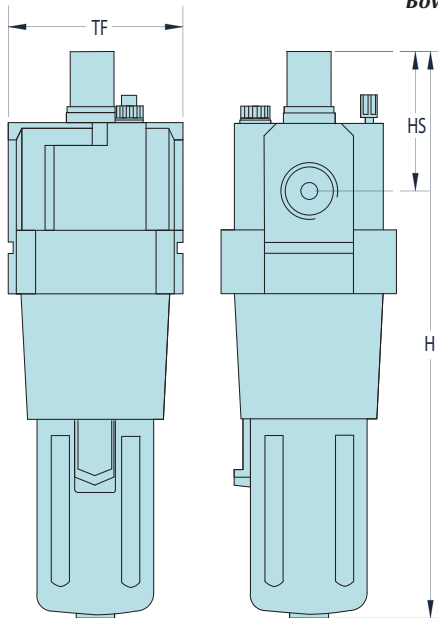
These inexpensive direct-flow lubricators provide lubrication to downstream valves and actuators

Bowl: Polycarbonate standard. Steel bowl shield provided on models as indicated. Metal bowl with sight glass also available, add "-M" to the Part Number.

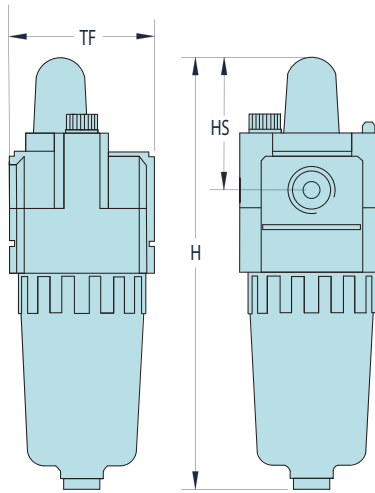


Mounting Hardware

For a complete offering of mounting hardware, spacers, replacement bowls and other accessories, see [pages 351 through 354](#).



MML-3, MML-4 & MML-5 Series



MML-1 & MML-2 Series

Lubricator Bowl Fluid Capacity

Model	Bowl #	Capacity
MML-2	27057-2	0.8 oz./24 ml (cc)
MML-3	27057-3	2.3 oz./68 ml (cc)
MML-4	27057-4	6.2 oz./183 ml (cc)

Lubricator Oil Drip Dome Kits

Includes glass dome, drip tube & o-ring.

MML-1	27037-1
MML-2	27037-2
MML-3/4/5	27037-3

Port	Flow Rate		Bowl			Dimensions		
	scfm	l/min	Polycarbonate Bowl	Poly Bowl with Shield	Metal Bowl	H	HS	TF
#10-32	3	90	MML-1N			3.21	1.00	0.98
1/8" NPT	28	800	MML-2P		MML-2P-M	4.80	1.50	1.57
1/4" NPT	28	800	MML-2Q		MML-2Q-M	4.80	1.50	1.57
1/4" NPT	60	1,700	-	MML-3Q	MML-3Q-M	5.59	1.50	2.09
3/8" NPT	60	1,700	-	MML-3W	MML-3W-M	5.59	1.50	2.09
3/8" NPT	180	5,000	-	MML-4W	MML-4W-M	6.97	1.61	2.76
1/2" NPT	180	5,000	-	MML-4Z	MML-4Z-M	6.97	1.61	2.76
3/4" NPT	220	6,300	-	MML-4A	MML-4A-M	6.97	1.54	2.76
1" NPT	245	7,000	-	MML-5B	MML-5B-M	0.00	1.77	3.54



BOWL OPTIONS



Polycarbonate



Polycarbonate with Bowl Shield



Metal with Site Glass (-M)

Filter Drain Options



Manual



Manual



Semi-Auto



Series 1 & 2



Automatic (-D)
Series 3, 4 & 5

Filter Replacement Bowls

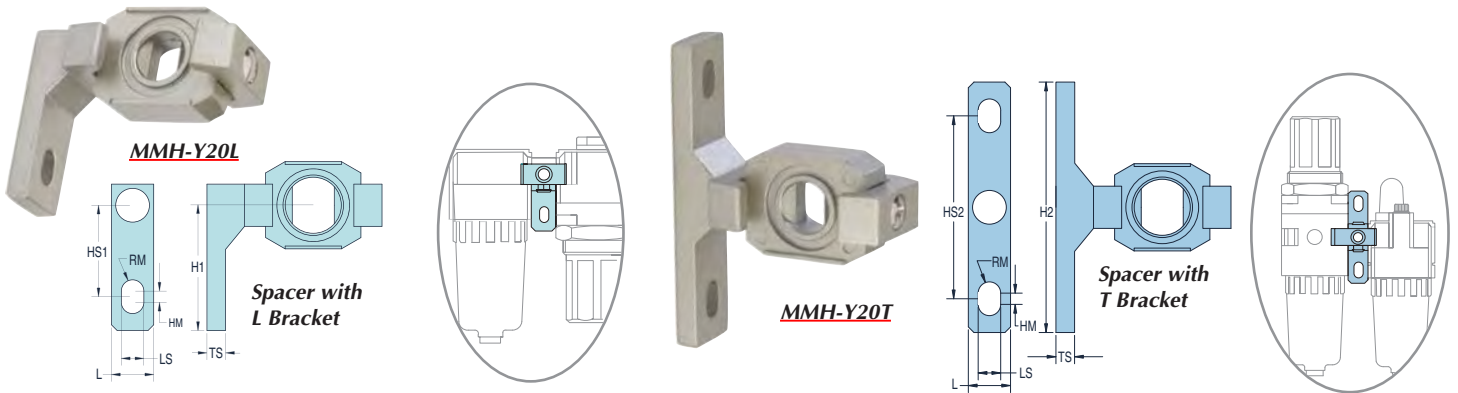
	Manual Drain	Semi-Auto Drain	Automatic Drain
Polycarbonate Bowl			
MMF-1 Series	27055-1	-	-
MMF-2 Series	27055-2	-	27055-2-A
MMF-3 Series	-	27055-3	-
MMF-4/5 Series	-	27055-4	-
Metal Bowl Shield			
MMF-3 Series	-	27070-3	27070-3A
MMF-4/5 Series	-	27070-4	-
Metal Bowl with Site Glass			
MMF-2 Series	27059-2	-	27059-2-A
MMF-3 Series	-	27059-3	27059-3-A
MMF-4/5 Series	-	27059-4	27059-4-A

Lubricator Replacement Bowls

	Polycarbonate	Bowl Shield	Metal Bowl*
MML-1 Series	27057-1	-	-
MML-2 Series	27057-2	-	27060-2
MML-3 Series	27057-3	27070-3	27060-3
MML-4/5 Series	27057-4	27070-4	27060-4

* All metal bowls come complete with a sight glass.





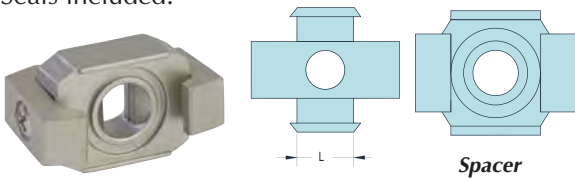
Mounting Hardware for Combination Units

To convert individual Filter, Regulator and Lubricators into combination units. Seals included.

FRL Series	Spacer with L Bracket	Spacer with T Bracket	Dim.	MMH-Y10L	MMH-Y20L	MMH-Y30L	MMH-Y40L	MMH-Y50L	MMH-Y60L
				MMH-Y10T	MMH-Y20T	MMH-Y30T	MMH-Y40T	MMH-Y50T	MMH-Y60T
FRL-1	MMH-Y10L	MMH-Y10T	H1	1.06	1.30	1.77	1.97	1.97	2.48
FRL-2	MMH-Y20L	MMH-Y20T	H2	2.13	2.60	3.54	3.94	3.94	4.96
FRL-3	MMH-Y30L	MMH-Y30T	L	0.47	0.59	0.63	0.87	0.87	0.91
FRL-4W/4Z	MMH-Y40L	MMH-Y40T	LS	0.18	0.22	0.28	0.35	0.35	0.47
FRL-4A	MMH-Y50L	MMH-Y50T	HM	0.12	0.12	0.16	0.16	0.16	0.16
FRL-5	MMH-Y60L	MMH-Y60T	TS	0.20	0.20	0.28	0.28	0.28	0.41
			RM	0.09	0.11	0.14	0.18	0.18	0.24
			HS1	0.79	0.94	1.38	1.57	1.57	1.97
			HS2	1.57	1.89	2.76	3.15	3.15	3.94

Spacers

To convert individual Filter, Regulator and Lubricators into combination units without mounting brackets. Seals included.



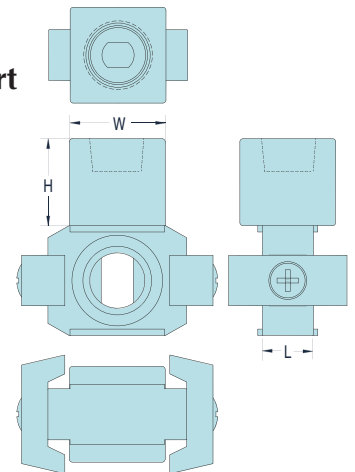
Series	Part No.	"L" Dimension
FRL-1	MMH-Y10	0.32
FRL-2	MMH-Y20	0.41
FRL-3	MMH-Y30	0.44
FRL-4W/4Z	MMH-Y40	0.55
FRL-4A	MMH-Y50	0.57
FRL-5	MMH-Y60	0.61

Spacers with Auxiliary Port

Provides parallel port between components.



MMH-Y21-N01



FRL Series	Spacer with Port	Spacer with L Bracket & Port	Spacer with T Bracket & Port	Dimension		
				L	H	W
FRL-2	MMH-Y21-N01 (1/8")	MMH-Y21L-N01 (1/8")	MMH-Y21T-N01 (1/8")	0.41	0.69	0.76
	MMH-Y21-N02 (1/4")	MMH-Y21L-N02 (1/4")	MMH-Y21T-N02 (1/4")	0.41	0.69	0.76
FRL-3	MMH-Y31-N01 (1/8")	MMH-Y31L-N01 (1/8")	MMH-Y31T-N01 (1/8")	0.44	0.64	0.75
	MMH-Y31-N02 (1/4")	MMH-Y31L-N02 (1/4")	MMH-Y31T-N02 (1/4")	0.44	0.64	0.75
FRL-4W/4Z	MMH-Y41-N02 (1/4")	MMH-Y41L-N02 (1/4")	MMH-Y41T-N02 (1/4")	0.55	0.71	0.94
	MMH-Y41-N03 (3/8")	MMH-Y41L-N03 (3/8")	MMH-Y41T-N03 (3/8")	0.55	0.71	0.94
FRL-5	MMH-Y61-N03 (3/8")	MMH-Y61L-N03 (3/8")	MMH-Y61T-N03 (3/8")	0.61	0.79	1.18
	MMH-Y61-N04 (1/2")	MMH-Y61L-N04 (1/2")	MMH-Y61T-N04 (1/2")	0.61	0.79	1.18

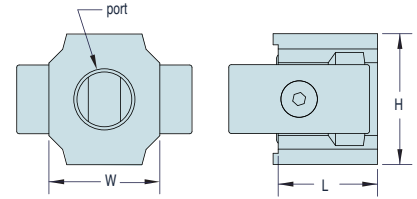


MAXIMATIC® MOUNTING HARDWARE & ACCESSORIES



NEW! Spacers with Quick Exhaust

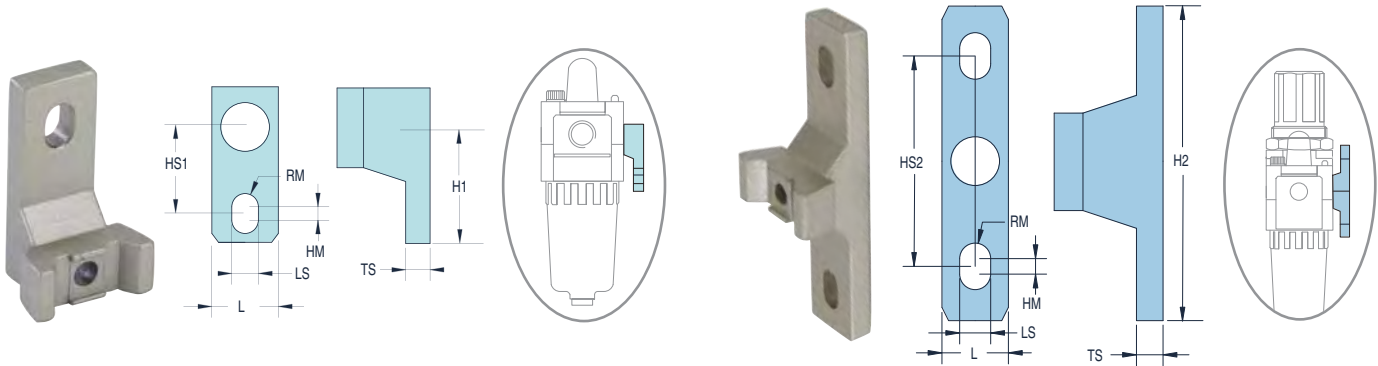
Threaded pipe adapters allow for a component to be quickly and easily removed from the airline for replacement or service. Adapters can be used to allow for different pipe diameters in the configuration.



FRL Series	Part No.	Port Size	L	Dimension	
				W	H
FRL-2	MMH-PA-2P	1/8" NPT	0.91	0.87	0.87
FRL-2	MMH-PA-2Q	1/4" NPT	0.91	0.87	0.87
FRL-2	MMH-PA-2W	3/8" NPT	0.91	0.87	0.87
FRL-3	MMH-PA-3Q	1/4" NPT	1.02	1.34	1.14
FRL-3	MMH-PA-3W	3/8" NPT	1.02	1.34	1.14
FRL-3	MMH-PA-3Z	1/2" NPT	1.02	1.34	1.14
FRL-4W/4Z	MMH-PA-4W	3/8" NPT	1.30	1.65	1.38
FRL-4W/4Z	MMH-PA-4Z	1/2" NPT	1.30	1.65	1.38
FRL-5	MMH-PA-5A	3/4" NPT	1.58	2.13	2.17
FRL-5	MMH-PA-5B	1" NPT	1.58	2.13	2.17

T & L Brackets

L brackets are included with the purchase of combination FRLs, to convert to T, use T bracket only. If no bracket is furnished, use T or L bracket with MMH-YXX spacer (ordered separately).



FRL Series	L Bracket Part No.	FRL Series	L Bracket Part No.
FRL-1	MMH-B110L	4W/4Z	MMH-B410L
FRL-2	MMH-B210L	4A	MMH-B510L
FRL-3	MMH-B310L	5	MMH-B610L

FRL Series	T Bracket Part No.	FRL Series	T Bracket Part No.
FRL-1	MMH-B110T	FRL-4W/4Z	MMH-B410T
FRL-2	MMH-B210T	FRL-4A	MMH-B510T
FRL-3	MMH-B310T	FRL-5	MMH-B610T

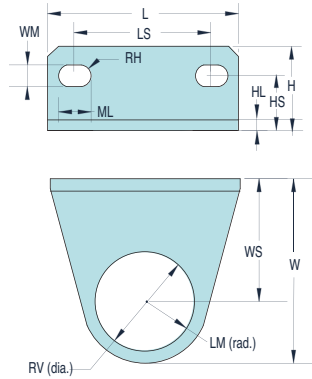
Dim.	MMH-B110T MMH-B110L	MMH-B210T MMH-B210L	MMH-B310T MMH-B310L	MMH-B410T MMH-B410L	MMH-B510T MMH-B510L	MMH-B610T MMH-B610L
H1	1.06	1.30	1.77	1.97	1.97	2.48
H2	2.13	2.60	3.54	3.94	3.94	4.96
L	0.47	0.59	0.63	0.87	0.87	0.91
LS	0.18	0.22	0.28	0.35	0.35	0.47
HM	0.12	0.12	0.16	0.16	0.16	0.16
TS	0.20	0.20	0.28	0.28	0.28	0.41
RM	0.09	0.11	0.14	0.18	0.18	0.24
HS1	0.79	0.94	1.38	1.57	1.57	1.97
HS2	1.57	1.89	2.76	3.15	3.15	3.94



Replacement Mounting Hardware for Regulators & Stacked Filter-Regulators

Brackets are included with the purchase of these components. Mounting screws not provided.

Regulator	Bracket Part No.
MMR-1N/MMFRS-1N	MMH-B120
MMR-2P/2Q	MMH-B220
MMFRS-2P/2Q	MMH-B220
MMR-3Q/3W	MMH-B320
MMFRS-3Q/3W	MMH-B320
MMR-4W/4Z/4A	MMH-B420
MMFRS-4W/4Z/4A	MMH-B420
MMR-5B	MMH-B420
MMFRS-5B	MMH-B420



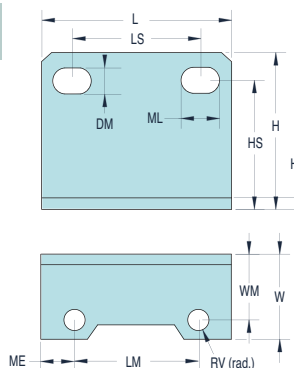
Dim.	MMH-B120	MMH-B220	MMH-B320	MMH-B420
L	1.57	2.17	2.09	2.76
LS	1.10	1.34	1.57	2.13
H	0.67	1.05	0.93	1.15
HS	0.43	0.75	0.55	0.71
W	1.49	1.97	2.52	3.12
WS	0.98	1.18	1.55	1.94
RV	0.81	1.32	1.67	2.07
LM	0.48	0.79	0.98	1.18
ML	0.26	0.60	0.31	0.41
WM	0.18	0.21	0.26	0.33
RH	0.09	0.11	0.13	0.17
HL	0.08	0.08	0.08	0.08



Mounting Hardware for Lubricators & Filters

No brackets are furnished with Lubricators or Filters. Comes with two screws to mount bracket to MMF/MML.

Filter/ Lubricator	Bkt. Mtg. Thread	Bracket Part No.
MMF-2P	M4	MMH-B240
MML-2P	M4	MMH-B240
MMF-3	M4	MMH-B340
MML-3	M4	MMH-B340
MMF-4Z/4W	M5	MMH-B440
MML-4Z/4W	M5	MMH-B440
MMF-4A	M5	MMH-B540
MML-4A	M5	MMH-B540
MMF-5	M6	MMH-B640
MML-5	M6	MMH-B640

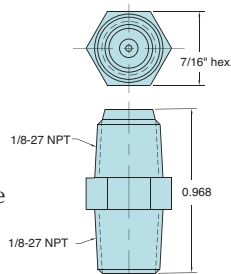


Dim.	MMH-B240	MMH-B340	MMH-B440	MMH-B540	MMH-B640
L	1.58	2.09	2.76	2.76	3.54
LS	1.06	1.59	2.12	2.13	2.60
DM	0.21	0.26	0.34	0.34	0.43
H	1.18	1.51	1.85	1.89	2.50
HS	0.95	1.24	1.49	1.53	2.03
W	0.74	0.95	1.22	1.24	1.69
RV	0.18	0.17	0.22	0.22	0.26
LM	1.03	1.39	1.85	1.79	2.37
ME	0.27	0.35	0.45	0.48	0.59
ML	0.33	0.32	0.41	0.41	5.12
WM	0.56	0.77	0.77	0.79	0.43
HL	0.08	0.08	0.87	0.09	0.13

1/8" NPT Filter



1/8" NPT hex nipple with 40 micron filter / strainer, can be used as a muffler.

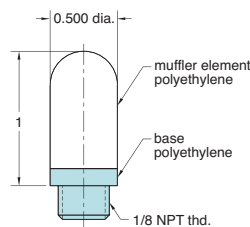


Part No.	Description
9002-01	1/8" NPT Filter

Muffler



The 3849-1 muffler is constructed of durable polyethylene with a 1/8" NPT male thread.



Part No.	Description
3849-1	Muffler

Filter Elements

All Maximatic filters come standard with a 25 micron sintered brass filter element and baffle, however 5 micron filters are also available. Add "-F5" to the end of the filter Part Number for 5 micron. Replacement filters with baffles are also offered below.

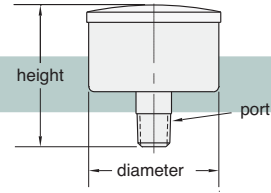
Filter Series	5 micron	25 micron
MMF-1	27021	27050
MMF-2	27022	27051
MMF-3	27023	27052
MMF-4	27024	27053
MMF-5	27025	27054



Gauge measures pneumatic system pressure. Stud mounted.



Pressure Gauges



Range: Scale reading up to 160 psig. See chart.

Construction: Steel case (nickel-plated on PG-101-NP). Plastic face. Dial shows two ranges; psig in black, bars in red. Built-in pressure snubber.

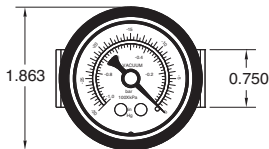
Ports: Connection located at rear is double threaded O.D. - male thread 1/8" NPT

Mounting: Stud mount using 1/8" NPT center stud

Part No.	Diameter	Height	Port (OD)	Range	
				psig	Bar
<u>PG-10-30J</u> *	1"	1.003"	1/16" NPT	0 to 30	0 to 2
<u>PG-10-60J</u> *	1"	1.003"	1/16" NPT	0 to 60	0 to 4
<u>PG-10-160J</u> *	1"	1.003"	1/16" NPT	0 to 160	0 to 11
<u>PG-15-30P</u>	1.5"	1.540"	1/8" NPT	0 to 30	0 to 2
<u>PG-15-60P</u>	1.5"	1.540"	1/8" NPT	0 to 60	0 to 4
<u>PG-101-BK</u> *	1.625"	1.670"	1/8" NPT	0 to 100	0 to 6.9
<u>PG-101-NP</u> *	1.625"	1.670"	1/8" NPT	0 to 100	0 to 6.9
<u>PG-15-160P</u>	1.5"	1.540"	1/8" NPT	0 to 160	0 to 11
<u>PG-20-30Q</u>	2"	1.680"	1/4" NPT	0 to 30	0 to 2
<u>PG-20-60Q</u>	2"	1.680"	1/4" NPT	0 to 60	0 to 4
<u>PG-20-160Q</u>	2"	1.680"	1/4" NPT	0 to 160	0 to 11

* I.D. - tapped for #10-32 fitting

Vacuum Gauge



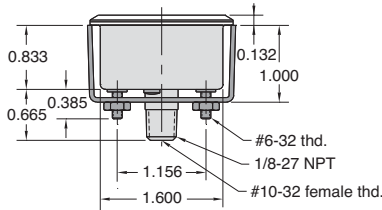
Gauge measures pneumatic vacuum pressure. Mounting bracket included.

Range: Scale reading from 0 to 30 in.Hg. and 0 to -1 bar

Construction: Nickel-plated steel case. Plastic face. Dial shows two ranges; Hg in black, bars in red. Built-in pressure snubber.

Ports: Connection located at rear is double threaded O.D. - male thread 1/8" NPT
I.D. - tapped for #10-32 fitting

Mounting: Stud mount using 1/8" NPT center stud or panel mount using the zinc plated steel bracket supplied.



Pressure Gauge



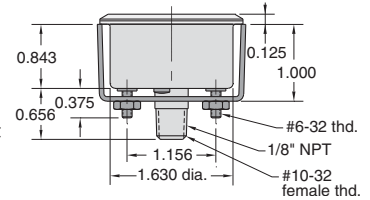
Gauge measures pneumatic system pressure. Mounting bracket included.

Input Pressure: Scale reading from 0 to 100 psig and 0 to 6.9 bar

Construction: Nickel-plated steel case. Plastic face. Dial shows two ranges; psig in black, bars in red. Built-in pressure snubber.

Ports: Connection located at rear is double threaded O.D. - male thread 1/8" NPT
I.D. - tapped for #10-32 fitting

Mounting: With zinc plated steel bracket supplied

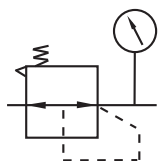


Part No.	Description
<u>VG-30</u>	Vacuum Gauge

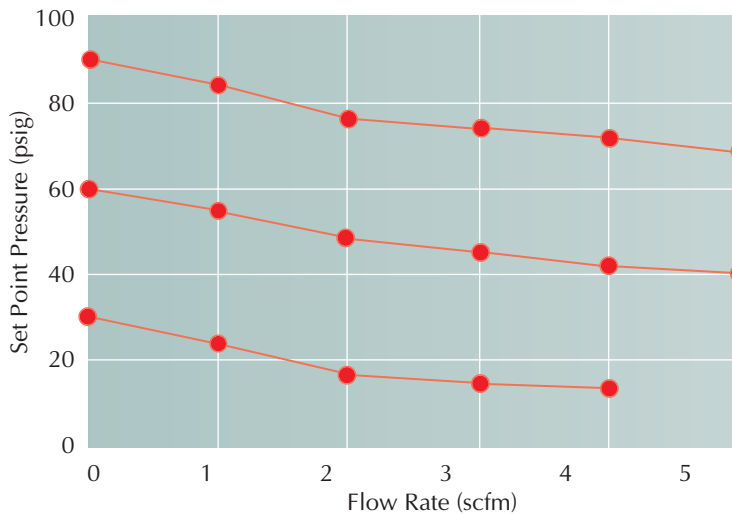
Part No.	Description
<u>PG-100</u>	Pressure Gauge

Flow Rate vs. Set Point Pressure @ 100 psig Supply Pressure

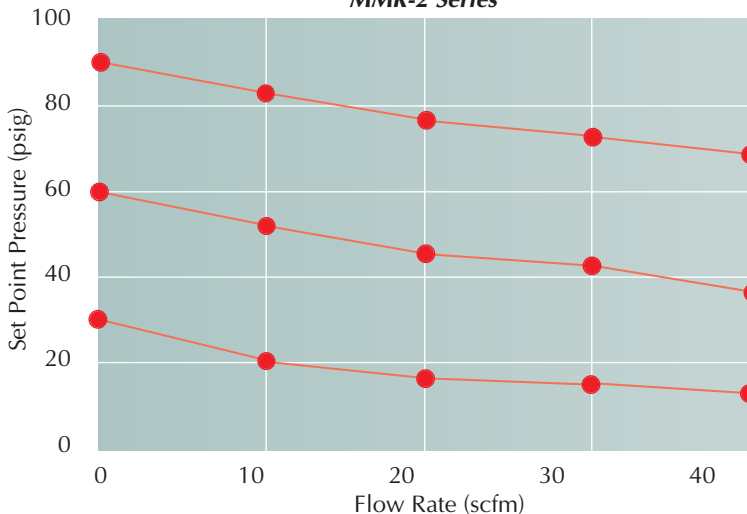
- Find the required flow rate in the graphs below.
- Determine the desired set point pressure.
- With a suggested pressure drop of <15 psig, determine which Regulator size provides the required flow rate.



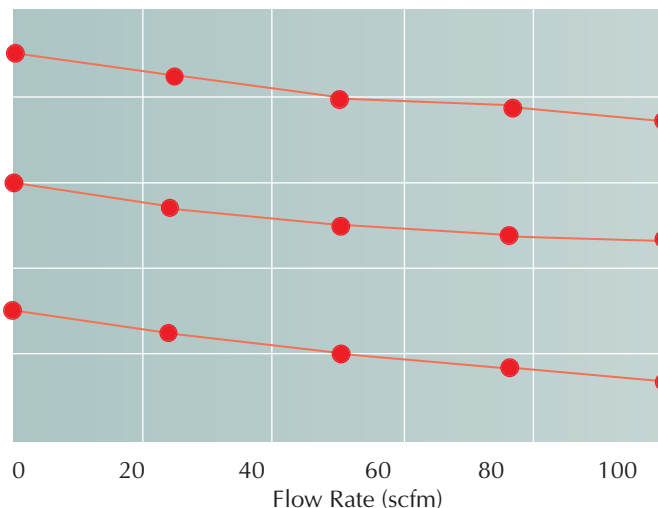
MMR-1 Series



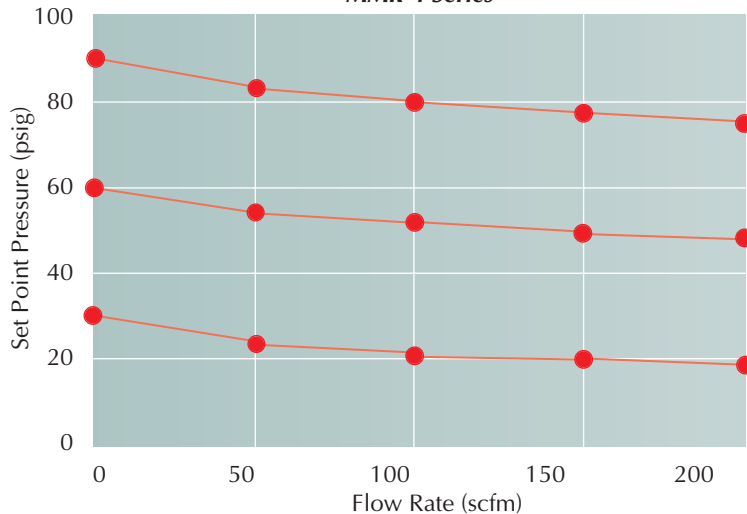
MMR-2 Series



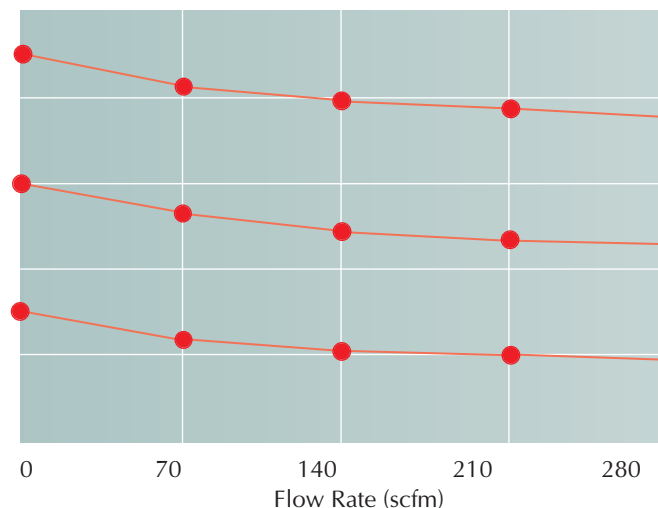
MMR-3 Series



MMR-4 Series



MMR-5 Series



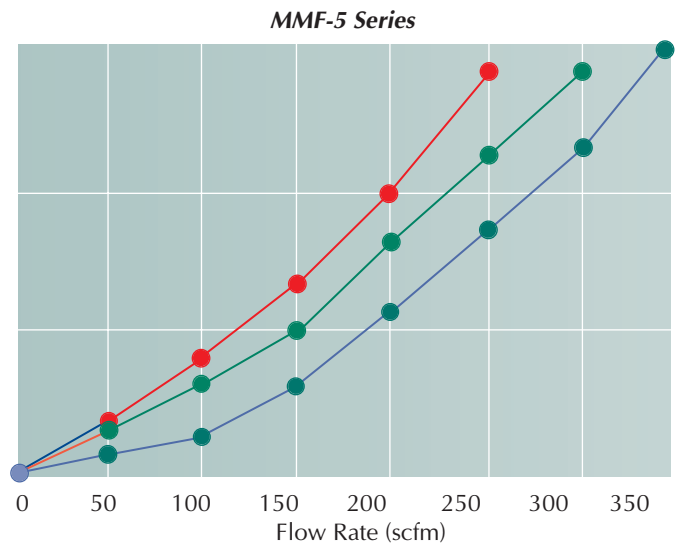
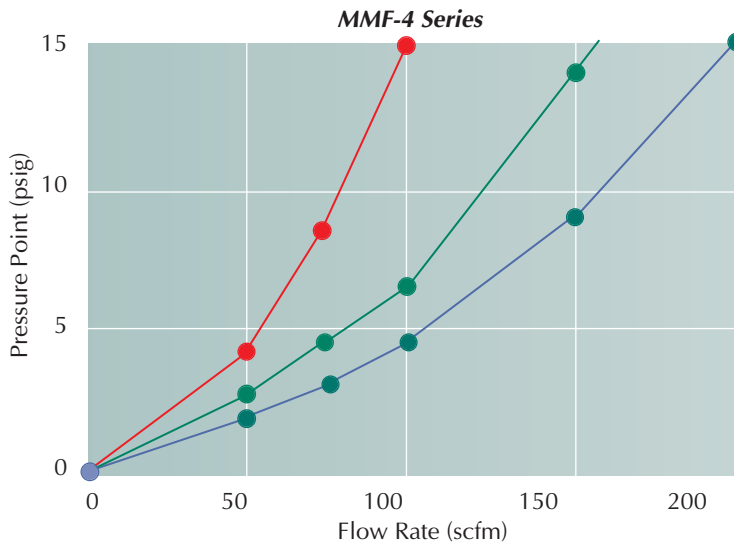
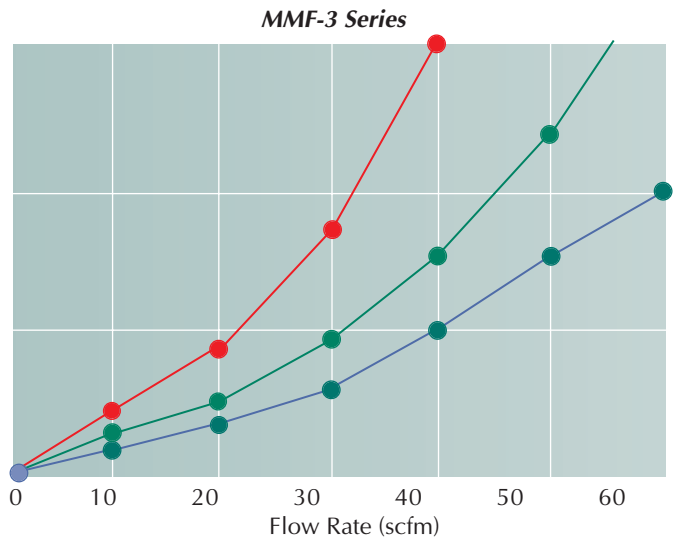
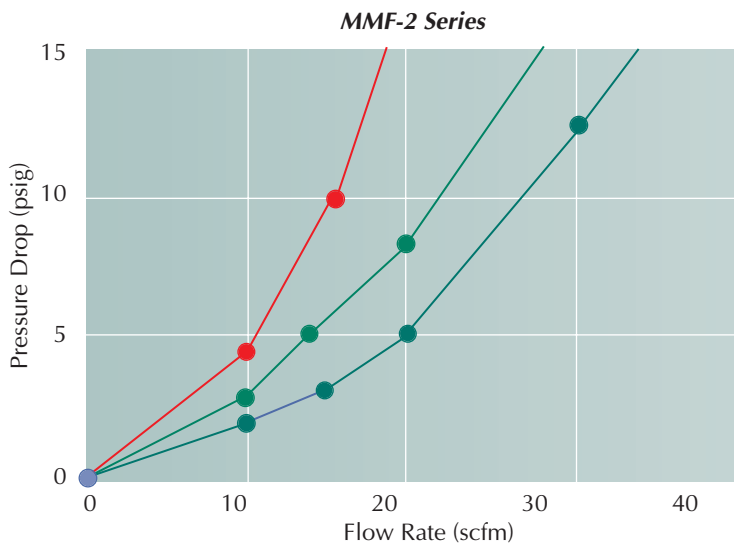
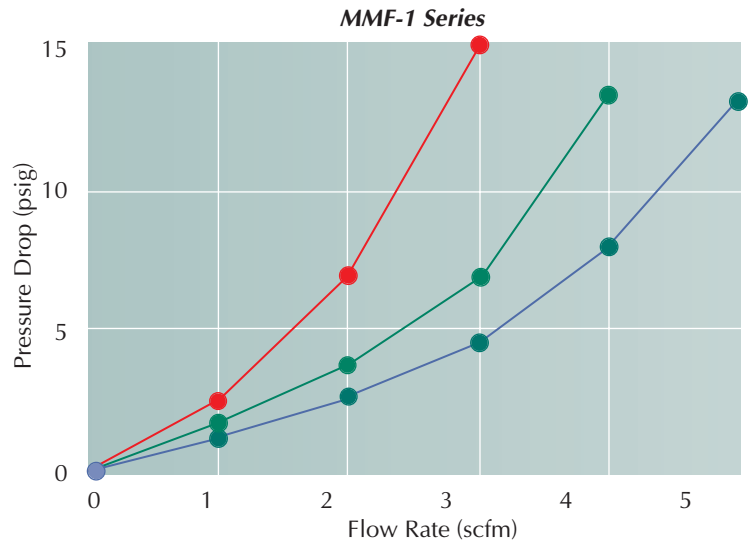
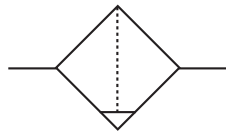


MAXIMATIC® FILTERS

Flow Rate vs. Set Pressure Drop @ 30, 60 & 90 psig Supply Pressure

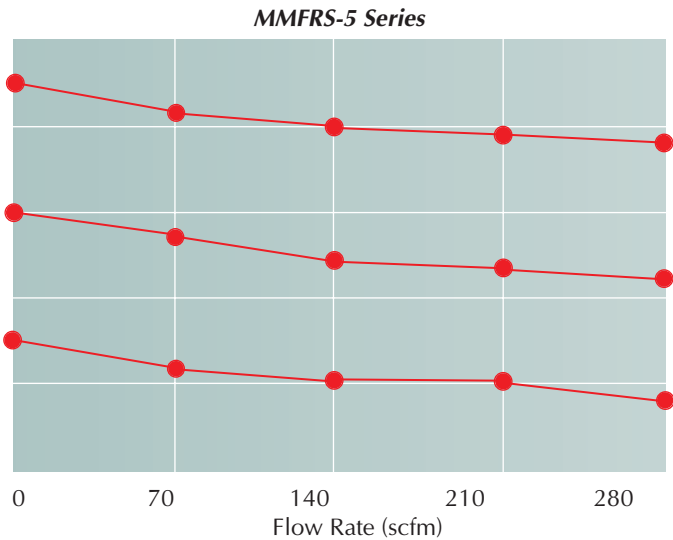
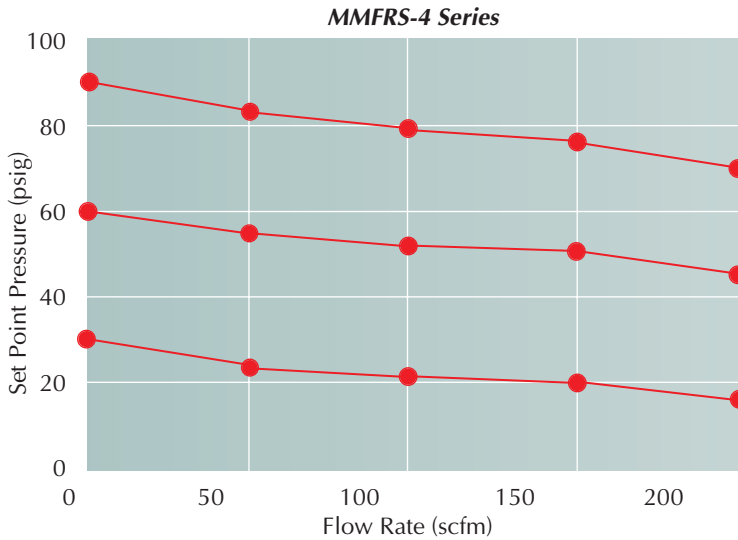
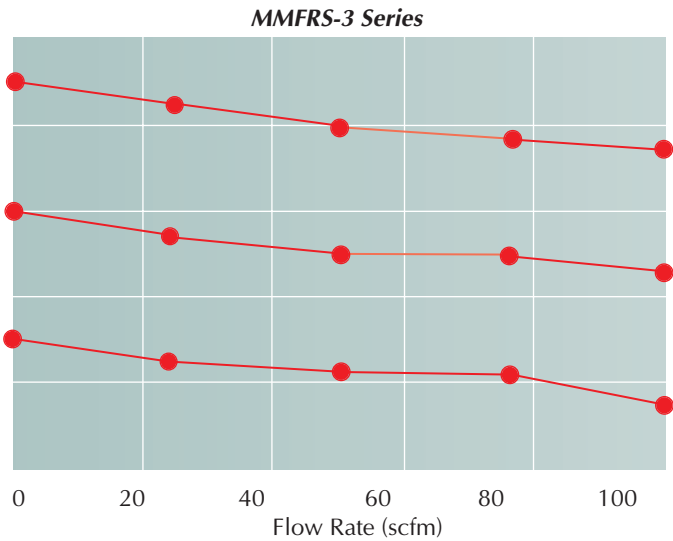
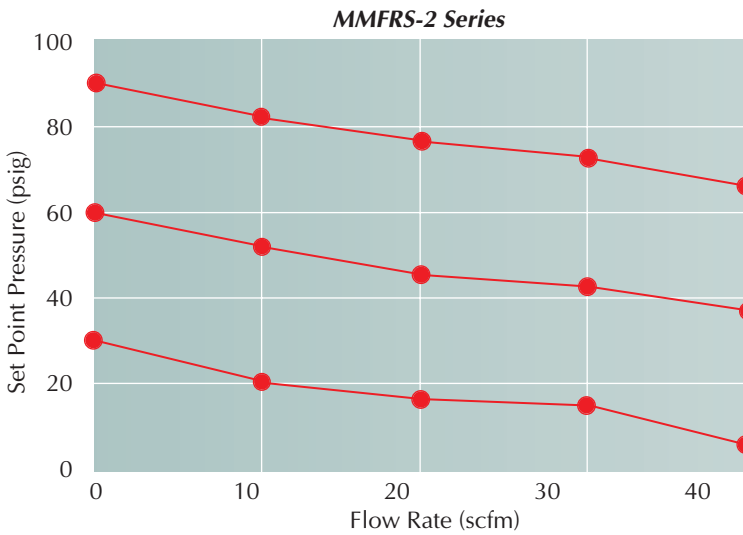
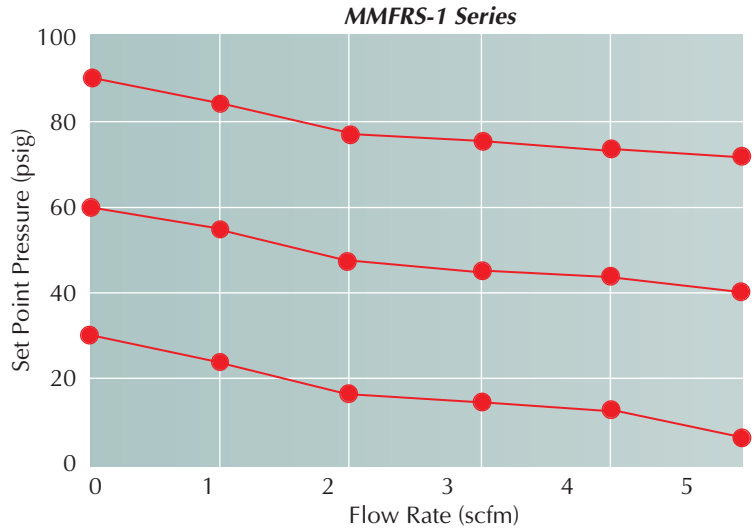
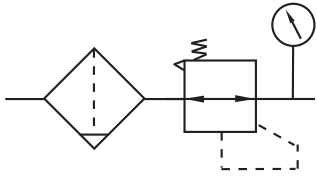


- Find the required flow rate in the graphs below.
- Determine the desired set point pressure.
- With a suggested pressure drop of <15 psig, determine which Filter size provides the required flow rate.



Flow Rate vs. Set Point Pressure @ 100 psig Supply Pressure

- Find the required flow rate in the graphs below.
- Determine the desired set point pressure.
- With a suggested pressure drop of <15 psig, determine which Filter-Regulator size provides the required flow rate.

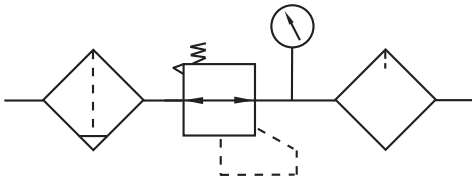




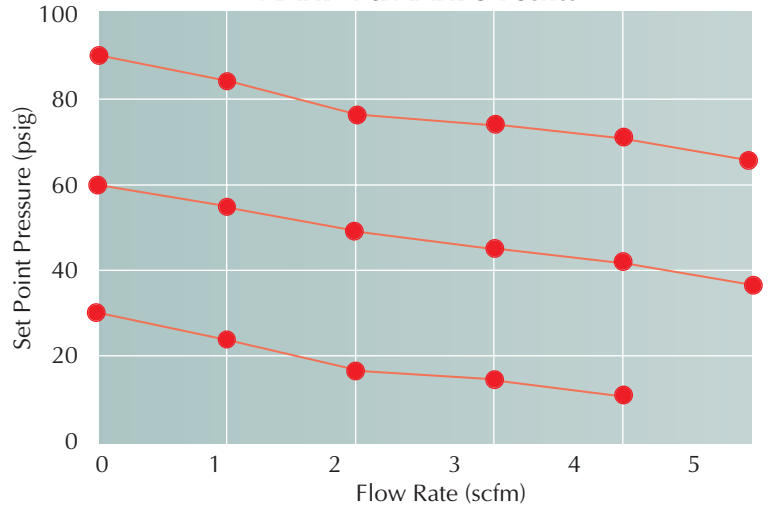
MAXIMATIC® FILTER-REGULATOR-LUBRICATORS

Flow Rate vs. Set Point Pressure @ 100 psig Supply Pressure

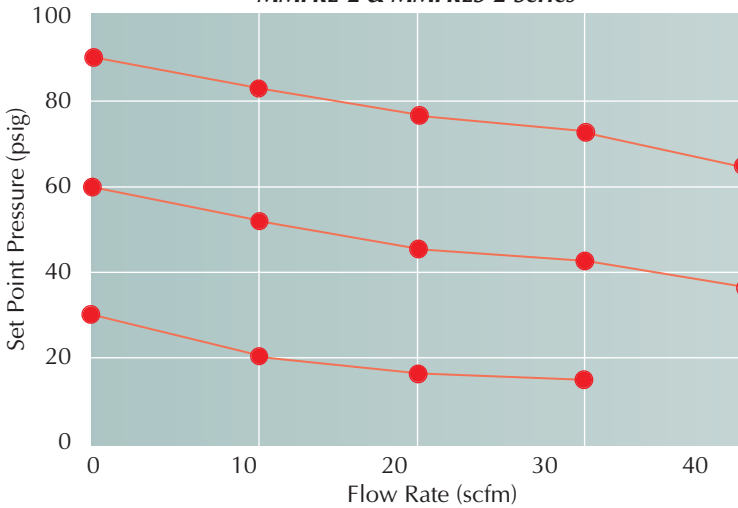
- Find the required flow rate in the graphs below.
- Determine the desired set point pressure.
- With a suggested pressure drop of <15 psig, determine which FRL size provides the required flow rate.



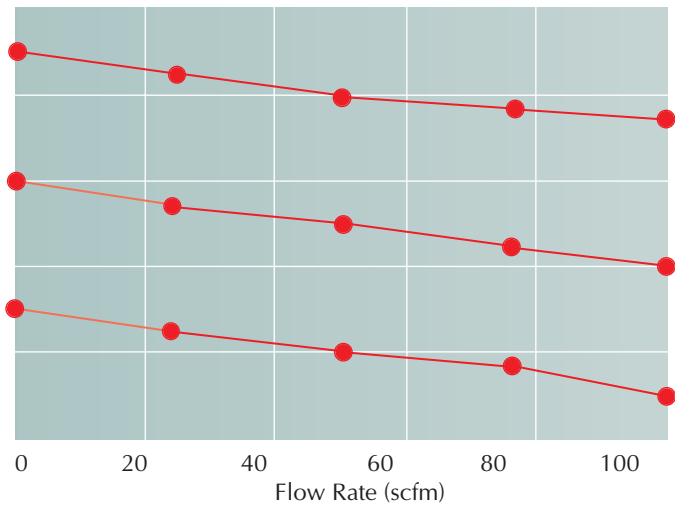
MMFRL-1 & MMFRLS-1 Series



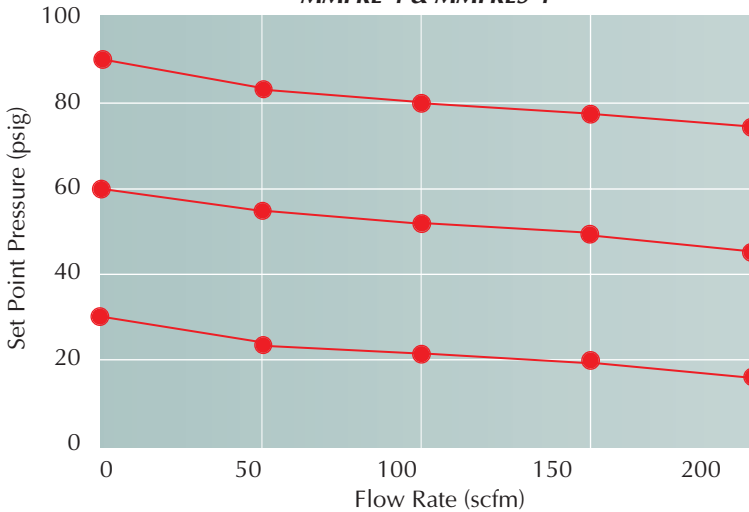
MMFRL-2 & MMFRLS-2 Series



MMFRL-3 & MMFRLS-3 Series



MMFRL-4 & MMFRLS-4



MMFRL-5 & MMFRLS-5 Series

