MARSH BELLOFRAM®
Group of Companies

AIR PREPARATION UNITS
FRL MODULAR Series FRLM1

Cat No FRLM1 - 01 - C

FILTER - REGULATOR - LUBRICATOR, MODULAR - 1/4, 3/8, 1/2, 3/4, 1"

Individual Filter, Regulator & Lubricator units easily removable / mountable without disturbing the pipe line

Features

❑ Modular type for easy and fast maintenance.

❑ Suitable for wall mounting.

❑ Filter   - Bronze filtering element.
  - Separator and shield for efficient moisture separation.
  - Press type manual drain for easy operation

❑ Regulator   - Diaphragm operated, relieving type.
  - Pressure compensated by balanced poppet.
  - Flow compensated (with venturi) in models FRLM14, FRLM15 and FRLM17 for faster response.
  - Non raising ' Press to lock ' adjusting knob for locking at any set pressure.

❑ Lubricator - Fog / Mist type Lubricator.
  - Fine adjustment of lubrication.
  - Lubrication proportional to flow.

❑ Steel bowl guard, bayonet type on FRLM14 ,FRLM15 & FRLM17 models and threaded type on FRLM13 model.

❑ Good flow and regulating characteristics.

Technical Specifications

Model	FRLM 13	FRLM 14	FRLM 15	FRLM 17	FRLM 17
Medium			Compressed air		
Port size	G1/4	G3/8	G1/2	G3/4	G1
Pressure gauge port size	G1/8	G1/8	G1/8	G1/4	G1/4
Flow rate $^{@}$ (lts / min)	500	2000	3500	3500	5000
Maximum supply pressure (bar)			10		
Regulating pressure range $^{#}$ (bar)		0.2 - 2, 0.2 - 4, 0.5 - 7, 0.5 - 10 (Standard)			
Ambient / Medium temperature			5° - 50° C		
Filteration $^{#}$ (µm)		1, 5, 25, 40 (standard), 50, 100			
Min operating flow (lts / min)	12	40	45	50	50
Bowl capacity Filter (ml) (at maximum condensate level)	9	32	44	165	165
Bowl capacity Lubricator (ml) (at maximum condensate level)	20	57	152	200	200
Recommended oil			ISO VG 32 (Servo System 32)		
Bowl material			Polycarbonate		
Installation		Any position for Regulator. Vertical for Filter and Lubricator			
Materials of construction		Aluminium, Bronze, Brass, Steel, Acetal, Polycarbonate, SS, Nitrile			
Optional accessories *			Pressure gauge		
Weight (Kg)	0.72	1.38	2.65	4.93	4.87

@   Supply pressure 7 bar , Set pressure 6 bar , Pressure drop **Δ** p = 1bar (For standard models)
#   For details see " How to order "
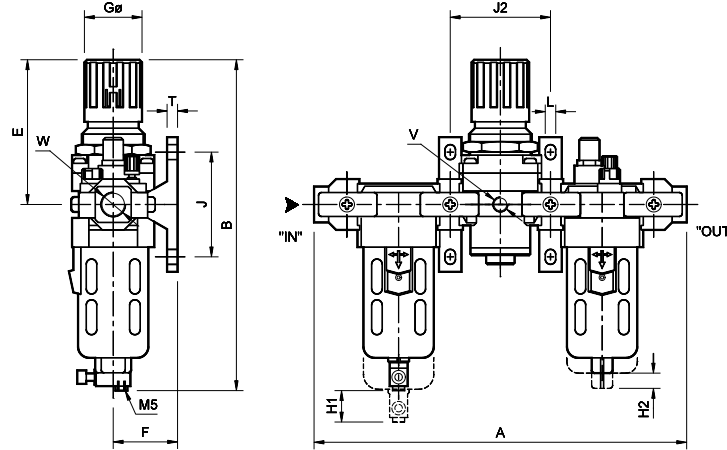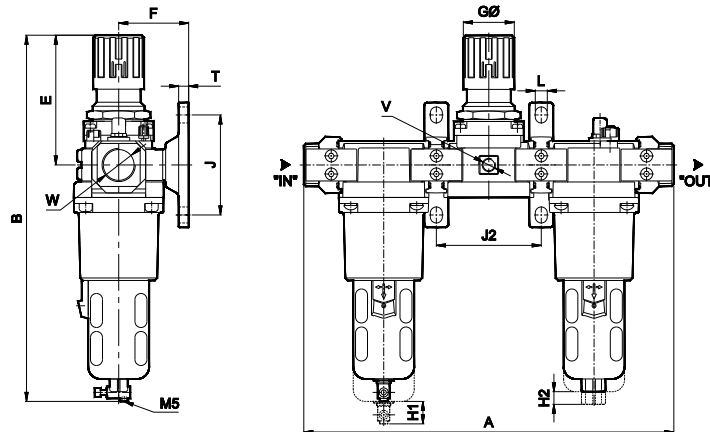*   For details refer optional accessories Cat No APA - 01 - C

![Marsh Bellofram Group of Companies logo]

AIR PREPARATION UNITS

FRL MODULAR Series FRLM 1

Cat No FRLM1 - 01 - C

Model FRLM1361, FRLM1462, FRLM1563

Model FRLM1764, FRLM1765

Model	W	V	A	B	E	F	GØ	J	L	T	H1	H2	J2
FRLM 13	G1/4	G1/8	200	170	68	35	28	50	7	7	50	35	52
FRLM 14	G3/8	G1/8	250	220	95	45	40	70	7	7	55	45	69
FRLM 15	G1/2	G1/8	305	280	125	55	51	90	9	9	80	45	86
FRLM 17	G3/4	G1/4	370	366	130	70	51	100	12	10	80	45	105
FRLM 17	G1	G1/4	370	366	130	70	51	100	12	10	80	45	105

Precautions

1. Note the direction of flow before installation and connect piping accordingly.
2. Flush pipings for dirt, dust, rust and other foreign particles.
3. Install in clean atmosphere.
4. Nipples of taper threads (R) to be used with teflon tape. Ensure teflon tape doesnot enter the unit during tightening.
   Nipples of straight threads (G) to be used with sealing washer.
5. Polycarbonate bowls may get damaged and possibly fail if exposed to synthetic oils, thinner, solvents, trichloroethylene, kerosene or other aromatic hydrocarbons.
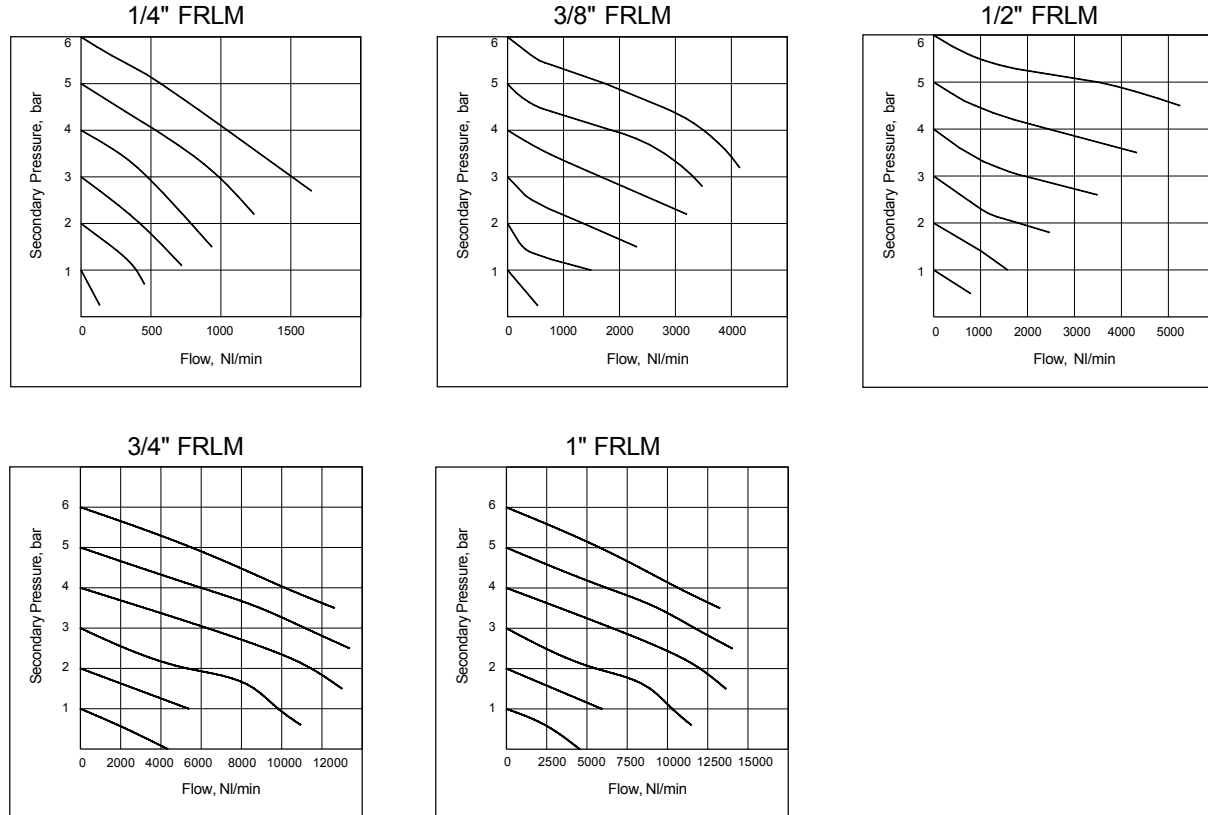
Pressure Setting

Pull the knob and adjust by turning the knob clockwise to increase the pressure. Push the knob back to its locked position.
(Turning the knob counter clockwise will reduce the pressure)

AIR PREPARATION UNITS

FRL MODULAR Series FRLM 1

Cat No FRLM1 - 01 - C

Flow Graphs

1/4" FRLM

3/8" FRLM

1/2" FRLM

3/4" FRLM

1" FRLM

Flow graphs are for 40μm filterations only

How to order

FRLM1 ○○○ ○ ○ / MB

Body & Port size	
361	G1/4
462	G3/8
563	G1/2
764	G3/4
765	G1

Filteration in μm	
0	- 1
1	- 5
2	- 25
3	- 40 (Standard)
4	- 50
5	- 100

Pressure range	
1	0.2 - 2 bar
2	0.2 - 4 bar
3	0.5 - 7 bar
4	0.5 - 10 bar (Standard)

Ordering example : Filter Regulator Lubricator Modular - 3/8 (with G3/8 port size) with 5μm Filter and pressure range 0.5 - 7 bar: Ordering No: FRLM 146213/MB

If ordered as 3/8 FRLM, our standard model FRLM 146234/MB, with 40μm Filter and pressure range 0.5 - 10 bar will be supplied.

Subject to change
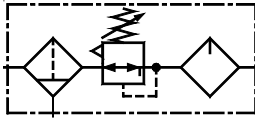
AIR PREPARATION UNITS
FRL MODULAR Series FRLM1

Cat No FRLM1...W - 01 - C

FILTER - REGULATOR - LUBRICATOR, MODULAR - 1/4, 3/8, 1/2, 3/4, 1"

Without piping adaptor and spacer

Model   FRLM1.../W

Features

❑   Modular type for easy and fast maintenance.

❑   Suitable for wall mounting.

❑   Filter   - Bronze filtering element.

          - Separator and shield for efficient moisture separation.

          - Press type manual drain for easy operation

❑   Regulator - Diaphragm operated, relieving type.

          - Pressure compensated by balanced poppet.

          - Flow compensated (with venturi) in models FRLM14, FRLM15 and FRLM17 for faster response.

          - Non raising ' Press to lock ' adjusting knob for locking at any set pressure.

Model   FRLM1.../S

❑   Lubricator - Fog / Mist type Lubricator.

          - Fine adjustment of lubrication.

          - Lubrication proportional to flow.

❑   Steel bowl guard, bayonet type on FRLM14, FRLM15 & FRLM17 models and threaded type on FRLM13 model.

❑   Good flow and regulating characteristics.

Technical Specifications

Model		FRLM13…/W FRLM13…/S	FRLM14…/W FRLM14…/S	FRLM15…/W FRLM15…/S	FRLM17…/W FRLM17…/S	FRLM17…/W FRLM17…/S
Medium		Compressed air				
Port size		G1/4	G3/8	G1/2	G3/4	G1
Pressure gauge port size		G1/8	G1/8	G1/8	G1/4	G1/4
Flow rate @ (lts / min)		500	2000	3500	3500	5000
Maximum supply pressure (bar)		10				
Regulating pressure range # (bar)		0.2 - 2, 0.2 - 4, 0.5 - 7, 0.5 - 10 (Standard)				
Ambient / Medium temperature		5° - 50° C				
Filteration # (µm)		1, 5, 25, 40 (standard), 50, 100				
Min operating flow (lts / min)		12	40	45	50	50
Bowl capacity Filter (ml) (at maximum condensate level)		9	32	44	165	165
Bowl capacity Lubricator (ml) (at maximum condensate level)		20	57	152	200	200
Recommended oil		ISO VG 32 (Servo System 32)				
Bowl material		Polycarbonate				
Installation		Any position for Regulator. Vertical for Filter and Lubricator				
Materials of construction		Aluminium, Bronze, Brass, Steel, Acetal, Polycarbonate, SS, Nitrile				
Optional accessories *		Pressure gauge				
Weight (Kg)	FRLM1…/W	0.63 Kg	1.23 Kg	2.39 Kg	4.47	4.45
	FRLM1…/S	0.60 Kg	1.18 Kg	2.30 Kg	4.17	4.05

@   Supply pressure 7 bar , Set pressure 6 bar , Pressure drop Δ p = 1bar (For standard models)
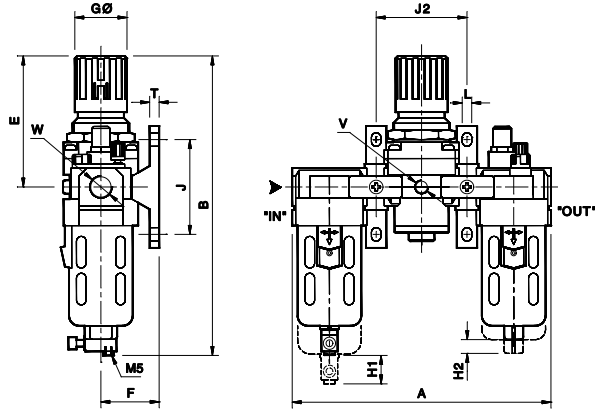#   For details see " How to order "
★   For details refer optional accessories Cat No. APA - 01
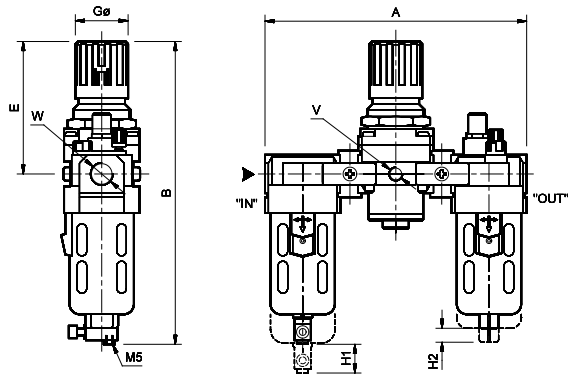
AIR PREPARATION UNITS
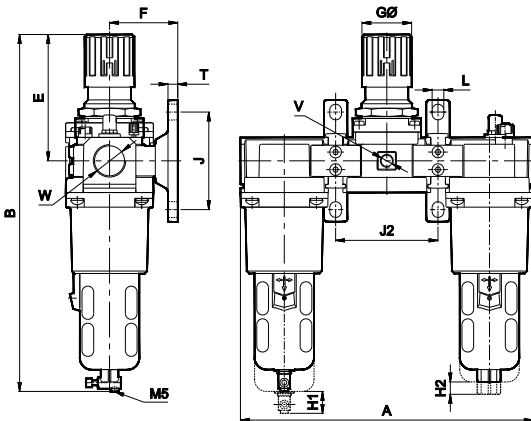
FRL MODULAR Series FRLM1
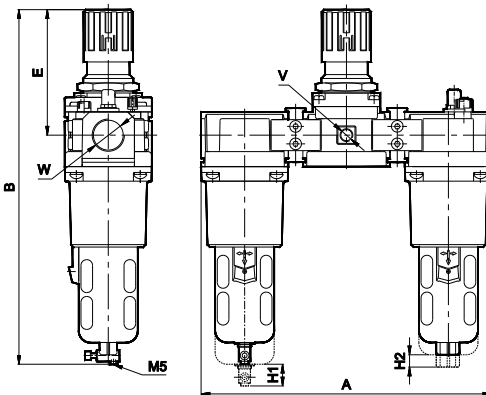
Cat No FRLM1...W - 01 - C

Model FRLM13, 14, 15.../ W

Model FRLM13, 14, 15.../S

Model FRLM17.../ W

Model FRLM17.../S

Model	W	V	A	B	E	F	GØ	J	L	T	H1	H2	J2
FRLM13…/W	G1/4	G1/8	146	170	68	35	28	50	7	7	50	35	52
FRLM14…/W	G3/8	G1/8	192	220	95	45	40	70	7	7	55	45	69
FRLM15…/W	G1/2	G1/8	241	280	125	55	51	90	9	9	80	45	86
FRLM17…/W	G3/4	G1/4	300	366	130	70	51	100	12	10	80	45	105
FRLM17…/W	G1	G1/4	300	366	130	70	51	100	12	10	80	45	105

Model	W	V	A	B	E	GØ	H1	H2
FRLM13…/S	G1/4	G1/8	146	170	68	28	50	35
FRLM14…/S	G3/8	G1/8	192	220	95	40	55	45
FRLM15…/S	G1/2	G1/8	241	280	125	51	80	45
FRLM17…/S	G3/4	G1/4	300	366	130	51	80	45
FRLM17…/S	G1	G1/4	300	366	130	51	80	45

Precautions

1. Note the direction of flow before installation and connect piping accordingly.
2. Flush pipings for dirt, dust, rust and other foreign particles.
3. Install in clean atmosphere.
4. Nipples of taper threads (R) to be used with teflon tape. Ensure teflon tape doesnot enter the unit during tightening.
   Nipples of straight threads (G) to be used with sealing washer.
5. Polycarbonate bowls may get damaged and possibly fail if exposed to synthetic oils, thinner, solvents, trichloroethylene, kerosene or other aromatic hydrocarbons.
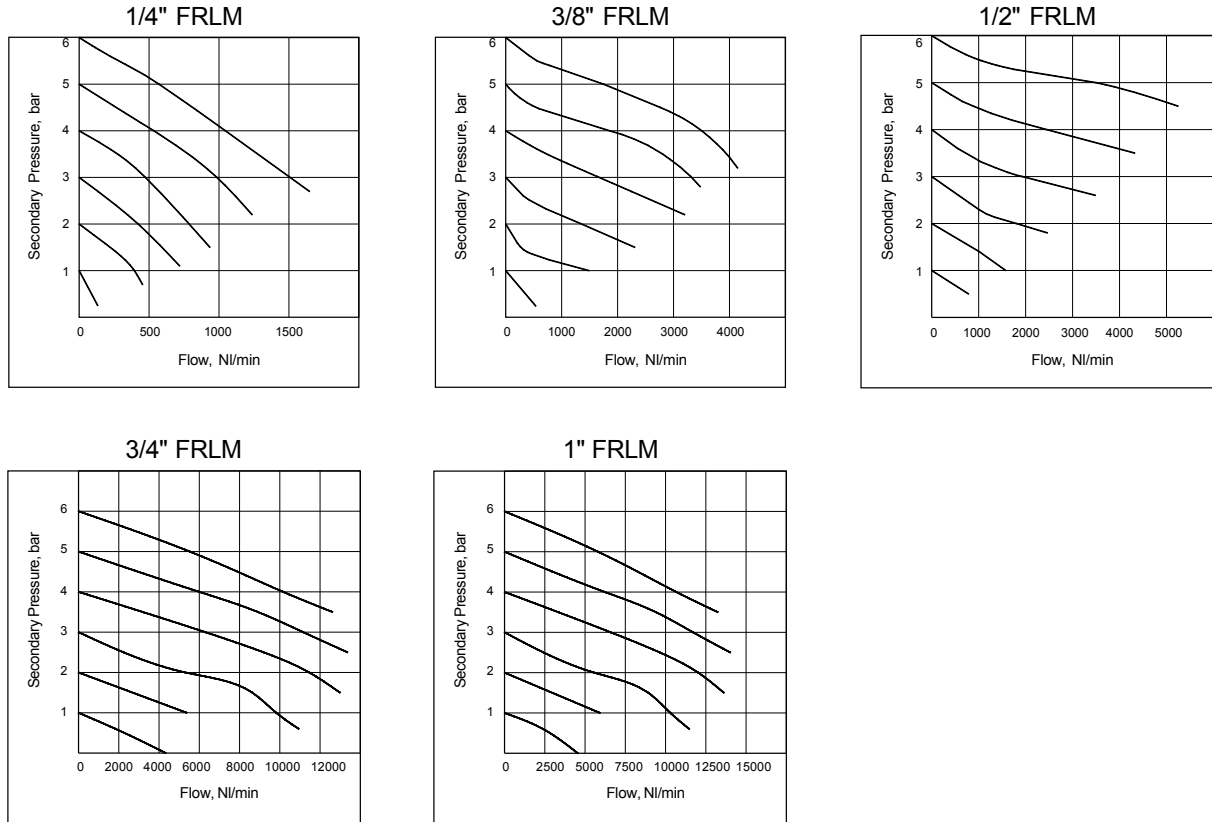
Pressure Setting

Pull the knob and adjust by turning the knob clockwise to increase the pressure.Push the knob back to its locked position.
(Turning the knob counter clockwise will reduce the pressure)

AIR PREPARATION UNITS

FRL MODULAR Series FRLM1
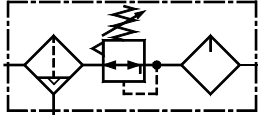
Cat No FRLM1...W - 01 - C

Flow Graphs

1/4" FRLM

3/8" FRLM

1/2" FRLM

3/4" FRLM

1" FRLM

Flow graphs are for 40µm filterations only

How to order

FRLM1 ○○○ ○ ○ / ○ / MB

Body & Port size		Filteration in µm		Pressure range		Mounting	
361	G1/4	**0**	- 1	**1**	0.2 - 2 bar	**W**	Wall mounting bracket
462	G3/8	**1**	- 5	**2**	0.2 - 4 bar	**S**	Spacer
563	G1/2	**2**	- 25	**3**	0.5 - 7 bar		
764	G3/4	**3**	- 40 (Standard)	**4**	0.5 - 10 bar (Standard)		
765	G1	**4**	- 50				
		5	- 100				

Ordering example : Filter Regulator Lubricator Modular - 3/8 (with G3/8 port size) and wall mounting bracket, with 5µm Filter and pressure range 0.5 - 7 bar: Ordering No : FRLM146213/W/MB

AIR PREPARATION UNITS

FRL MODULAR Series FRLM1A

Cat No FRLM1A - 01 - A

FRL MODULAR WITH INTERNAL AUTODRAIN - 3/8, 1/2, 3/4, 1"

Individual Filter - Regulator combination & Lubricator units easily removable / mountable without disturbing the pipe line

Features

- ❏ Modular type for easy and fast maintenance
- ❏ Suitable for wall mounting
- ❏ Filter   - Bronze filtering element
    - Separator and shield for efficient moisture separation
  - Internal Autodrain - Float type, no electrical connections required.
    - Manual drain is also provided / possible.
    - Provision for drain tube connection, to take the condensate away from the unit, to keep the working area clean.
- ❏ Regulator   - Diaphragm operated, relieving type
    - Pressure compensated by balanced poppet
    - Flow compensated (with venturi) for faster response.
    - Non raising 'Press to lock' adjusting knob for locking at any set pressure
- ❏ Lubricator   - Fog / Mist type Lubricator
    - Fine adjustment of lubrication
    - Lubrication proportional to flow
- ❏ Steel bowl guard, bayonet type on FRLM14, FRLM15 & FRLM17 models
- ❏ Good flow and regulating characteristics

Technical Specifications

Model	FRLM14…A	FRLM15…A	FRLM17…A	FRLM17…A
Medium	Compressed air			
Port size	G3/8	G1/2	G3/4	G1
Pressure gauge port size	G1/8	G1/8	G1/4	G1/4
Flow rate @ (lts / min)	2000	3500	3500	5000
Operating pressure (bar)	2 - 10			
Regulating pressure range # (bar)	0.2 - 2, 0.2 - 4, 0.5 - 7, 0.5 - 10 (Standard)			
Ambient / Medium temperature	5° - 50° C			
Filteration # (µm)	1, 5, 25, 40 (standard), 50, 100			
Min operating flow (lts / min)	40	45	50	50
Bowl capacity Filter (ml) (at maximum condensate level)	32	44	165	165
Bowl capacity Lubricator (ml) (at maximum condensate level)	57	152	200	200
Recommended oil	ISO VG 32 (Servo System 32)			
Bowl material	Polycarbonate			
Installation	Any position for Regulator. Vertical for Filter and Lubricator			
Materials of construction	Aluminium, Bronze, Brass, Steel, Acetal, Polycarbonate, SS, Nitrile			
Optional accessories *	Pressure gauge			
Weight (Kg)	1.58	2.84	4.93	4.87

@   Supply pressure 7 bar , Set pressure 6 bar , Pressure drop Δ p = 1bar (For standard models)
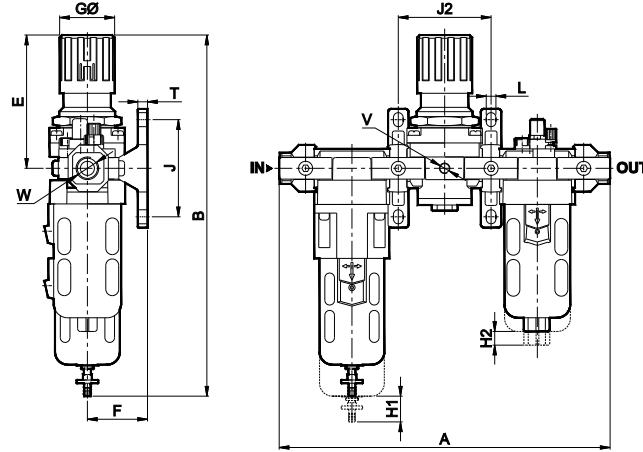\#   For details see " How to order "
✱   For details refer optional accessories Cat No APA - 01 - C

AIR PREPARATION UNITS
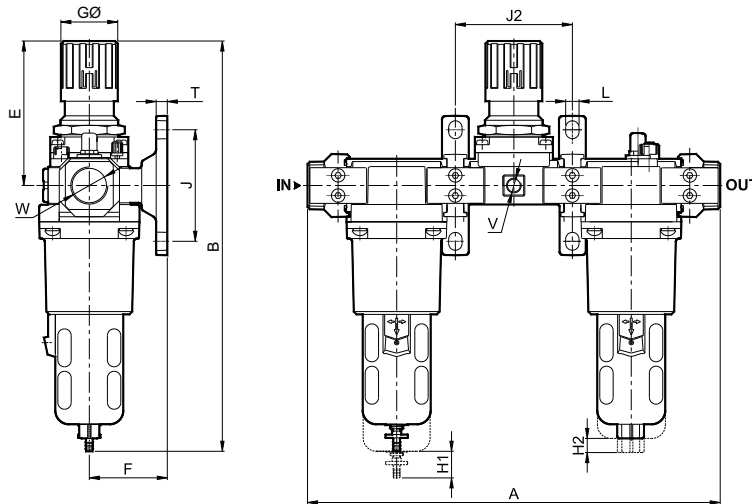## FRL MODULAR Series FRLM1A

Cat No FRLM1A - 01 - A

Model FRLM14...A, FRLM15...A

Model FRLM17...A

Model	W	V	A	B	E	F	GØ	J	L	T	J2	H1	H2
FRLM14…A	G3/8	G1/8	250	272	95	45	40	70	7	7	69	55	45
FRLM15…A	G1/2	G1/8	305	335	125	55	51	90	9	9	86	80	45
FRLM17…A	G3/4	G1/4	370	368	130	70	51	100	12	10	105	80	45
FRLM17…A	G1	G1/4	370	368	130	70	51	100	12	10	105	80	45

Precautions

1. Note the direction of flow before installation and connect piping accordingly.
2. Flush pipings for dirt, dust, rust and other foreign particles.
3. Install in clean atmosphere.
4. Nipples of taper threads (R) to be used with teflon tape. Ensure teflon tape doesnot enter the unit during tightening.
   Nipples of straight threads (G) to be used with sealing washer.
5. Polycarbonate bowls may get damaged and possibly fail if exposed to synthetic oils, thinner, solvents, trichloroethylene, kerosene or other aromatic hydrocarbons.
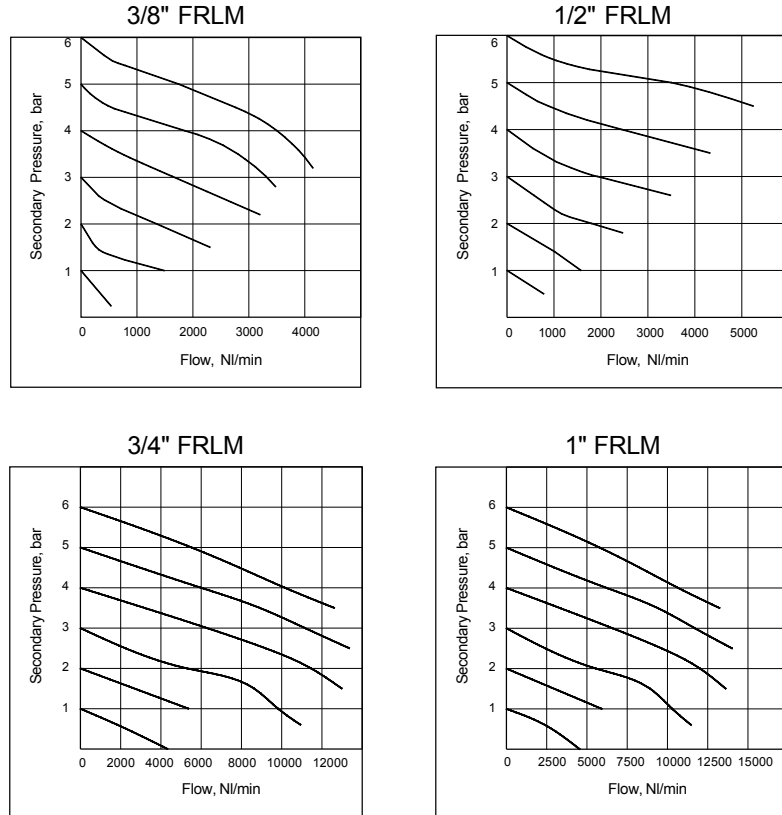
Pressure Setting

Pull the knob and adjust by turning the knob clockwise to increase the pressure. Push the knob back to its locked position.
(Turning the knob counter clockwise will reduce the pressure)
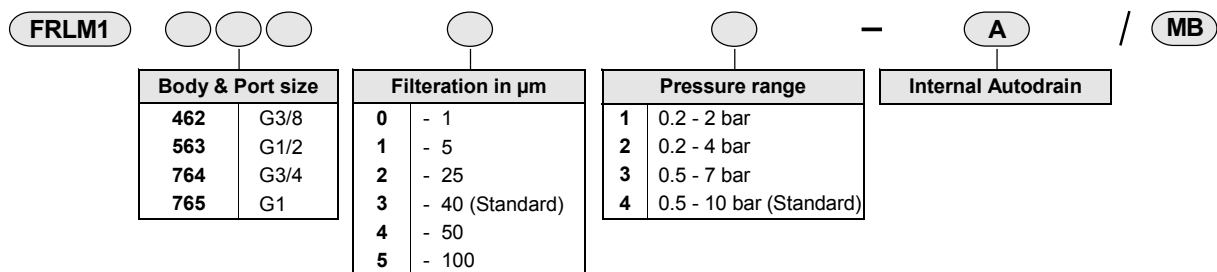
AIR PREPARATION UNITS
FRL MODULAR Series FRLM1A

Cat No FRLM1A - 01 - A

Flow Graphs

3/8" FRLM

1/2" FRLM

3/4" FRLM

1" FRLM

Flow graphs are for 40µm filterations only

How to order

FRLM1 ○○○ ○ ○ — A / MB

Body & Port size	
462	G3/8
563	G1/2
764	G3/4
765	G1

Filteration in µm	
0	- 1
1	- 5
2	- 25
3	- 40 (Standard)
4	- 50
5	- 100

Pressure range	
1	0.2 - 2 bar
2	0.2 - 4 bar
3	0.5 - 7 bar
4	0.5 - 10 bar (Standard)

Internal Autodrain

Ordering example : Filter Regulator Lubricator Modular - 3/8 (with G3/8 port size) with 5µm Filter and pressure range 0.5 - 7 bar with Internal Autodrain: Ordering No: FRLM146213-A/MB

If ordered as 3/8 FRLM with Internal Autodrain, our standard model FRLM146234-A/MB, with 40µm Filter and pressure range 0.5 - 10 with Internal Autodrain will be supplied.

Subject to change