

## AIR PREPARATION UNITS

### FRCL MODULAR WITH METAL BOWL Series FRCLM1-MM

Cat No FRCLM1-MM - 01 - 01 - A

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

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

#### Features

- ❑ For higher pressure range above 10 bar
- ❑ 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 FRCLM14, FRCLM15 and FRCLM17 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
- ❑ Metal bowl- Aluminium
  - Bayonet type on FRCLM17 models
  - Direct mounting type on FRCLM13, FRCLM14, FRCLM15 models
- ❑ Good flow and regulating characteristics



#### Technical Specifications

| Model  | FRCLM13-MM   | FRCLM14-MM | FRCLM15-MM | FRCLM17-MM | FRCLM17-MM |
|--|--|------------|------------|------------|------------|
| Medium   | Compressed air                                       |            |            |            |            |
| Port size  | G1/4   | G3/8       | G1/2       | G3/4       | G1         |
| Pressure gauge port size                                     | G1/8   |            |            | G1/4       |            |
| Flow rate in lts / min @                                     | 500  | 1250       | 2800       | 3500       | 4000       |
| Max supply pressure in bar                                   | 20   |            |            |            |            |
| Regulating pressure range in bar #                           | 0.2 - 2, 0.2 - 4, 0.5 - 7, 0.5 - 10 (Standard)       |            |            |            |            |
| Ambient temperature  | -10° to +60° C                                       |            |            |            |            |
| Medium temperature   | +5° to 50° C   |            |            |            |            |
| Filtration in microns #                                      | 1, 5, 25, 40 (standard), 50, 100                     |            |            |            |            |
| Min operating flow in NI / min                               | 12   | 40         | 45         | 50         | 50         |
| Bowl capacity FRC in ml (at maximum condensate level)        | 9  | 64         | 90         | 165        | 165        |
| Bowl capacity Lubricator in ml (at maximum condensate level) | 20   | 100        | 200        | 200        | 200        |
| Recommended oil  | ISO VG 32 (Servo System 32)                          |            |            |            |            |
| Bowl material  | Aluminium  |            |            |            |            |
| Installation   | Vertical (as shown in the picture)                   |            |            |            |            |
| Materials of construction                                    | Aluminium, Bronze, Brass, Steel, Acetal, SS, Nitrile |            |            |            |            |
| Optional accessories *                                       | Pressure gauge                                       |            |            |            |            |
| Weight in Kg   | 0.64   | 1.27       | 2.56       | 4.28       | 4.17       |

@ Supply pressure 7 bar, Set pressure 6 bar, Pressure drop  $\Delta p = 1$  bar (For standard models).

# For details see " How to order ".

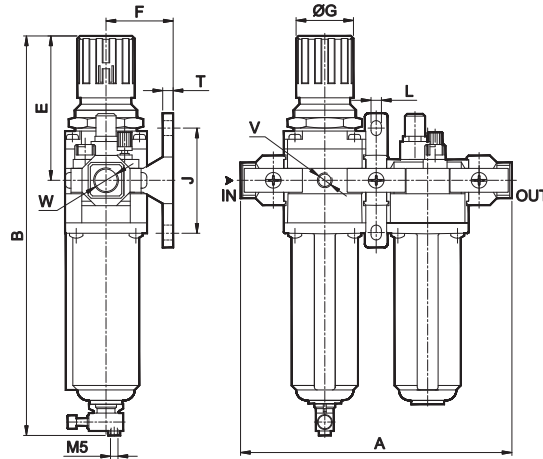
\* For details refer optional accessories Cat No APA - 01 - C

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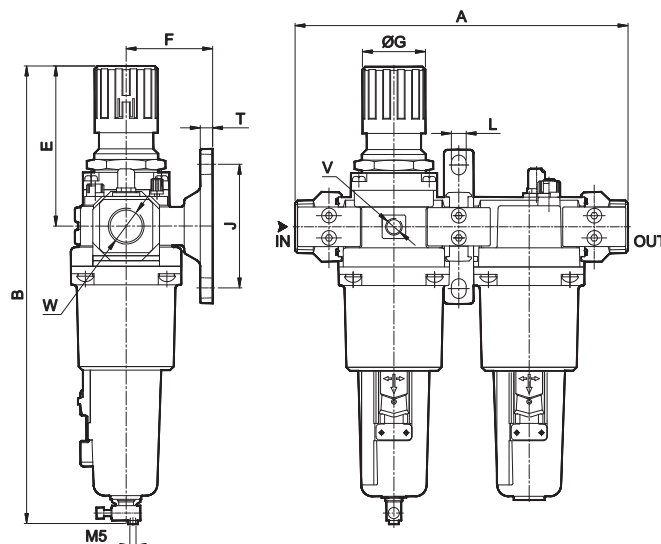
## FRCL MODULAR WITH METAL BOWL Series FRCLM1-MM

Cat No FRCLM1-MM - 01 - 01 - A

### Model FRCLM13-MM, FRCLM14-MM, FRCLM15-MM



### Model FRCLM17-MM



| Model      | W    | V    | A   | B   | E   | F  | GØ | J   | L  | T  |
|------------|------|------|-----|-----|-----|----|----|-----|----|----|
| FRCLM13-MM | G1/4 | G1/8 | 146 | 170 | 68  | 35 | 28 | 50  | 7  | 7  |
| FRCLM14-MM | G3/8 | G1/8 | 182 | 265 | 95  | 45 | 40 | 70  | 7  | 7  |
| FRCLM15-MM | G1/2 | G1/8 | 220 | 330 | 125 | 55 | 51 | 90  | 9  | 9  |
| FRCLM17-MM | G3/4 | G1/4 | 270 | 370 | 130 | 70 | 51 | 100 | 12 | 10 |
| FRCLM17-MM | G1   | G1/4 | 270 | 370 | 130 | 70 | 51 | 100 | 12 | 10 |

### 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.

### Pressure Setting

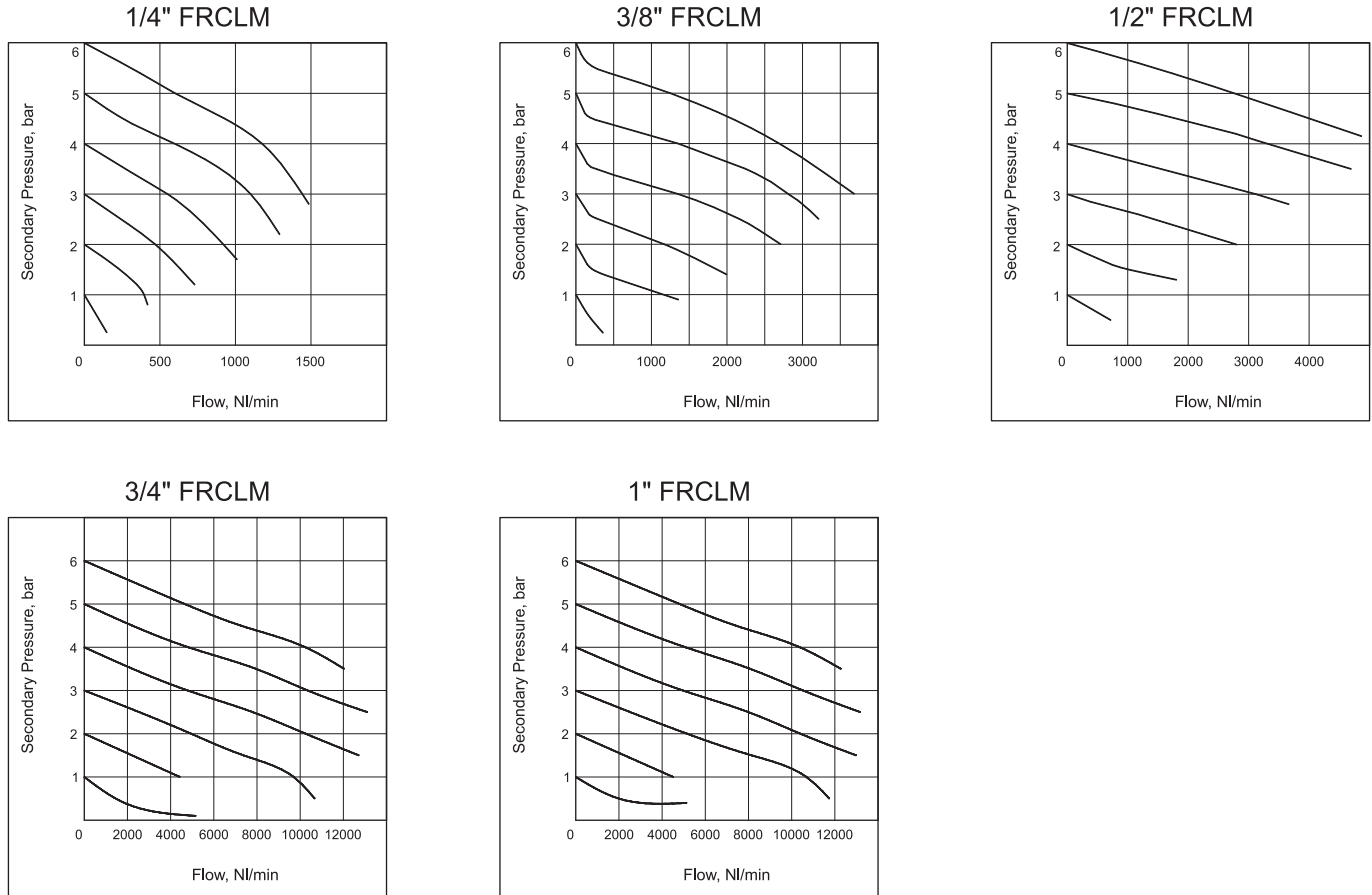
Pull the knob and adjust by turning the knob clockwise to increase the pressure. Push the knob back to its locked position. ( Turning the knob counter clockwise will reduce the pressure )

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### Flow Graphs



Flow graphs are for 40µm filtrations only

### How to order

|   |                         |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
|---|-------------------------|-----------------------|-------------------|--------------------------|------------|------|------------|------|------------|----|---|----------|-----|----------|-----|----------|------|----------|-----------------|----------|------|----------|-------|---|----------|-------------|----------|-------------|----------|-------------|----------|-------------------------|---|----------|-------------------------|-----------|----------------------|--|--|----------|-------------------------|
| <b>FRCLM1</b>   | <b>462</b>              | <b>3</b>              | <b>4</b>          | <b>M</b>                 | <b>M</b>   |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>Body &amp; Port size</b>   | <b>Filtration in µm</b> | <b>Pressure range</b> | <b>Metal bowl</b> | <b>Drain arrangement</b> |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td><b>361</b></td><td>G1/4</td></tr> <tr><td><b>462</b></td><td>G3/8</td></tr> <tr><td><b>563</b></td><td>G1/2</td></tr> <tr><td><b>764</b></td><td>G3/4</td></tr> <tr><td><b>765</b></td><td>G1</td></tr> </table> | <b>361</b>              | G1/4                  | <b>462</b>        | G3/8                     | <b>563</b> | G1/2 | <b>764</b> | G3/4 | <b>765</b> | G1 | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td><b>0</b></td><td>- 1</td></tr> <tr><td><b>1</b></td><td>- 5</td></tr> <tr><td><b>2</b></td><td>- 25</td></tr> <tr><td><b>3</b></td><td>- 40 (Standard)</td></tr> <tr><td><b>4</b></td><td>- 50</td></tr> <tr><td><b>5</b></td><td>- 100</td></tr> </table> | <b>0</b> | - 1 | <b>1</b> | - 5 | <b>2</b> | - 25 | <b>3</b> | - 40 (Standard) | <b>4</b> | - 50 | <b>5</b> | - 100 | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td><b>1</b></td><td>0.2 - 2 bar</td></tr> <tr><td><b>2</b></td><td>0.2 - 4 bar</td></tr> <tr><td><b>3</b></td><td>0.5 - 7 bar</td></tr> <tr><td><b>4</b></td><td>0.5 - 10 bar (Standard)</td></tr> </table> | <b>1</b> | 0.2 - 2 bar | <b>2</b> | 0.2 - 4 bar | <b>3</b> | 0.5 - 7 bar | <b>4</b> | 0.5 - 10 bar (Standard) | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td><b>M</b></td><td>Without level indicator</td></tr> <tr><td><b>L#</b></td><td>With level indicator</td></tr> </table> | <b>M</b> | Without level indicator | <b>L#</b> | With level indicator | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td><b>M</b></td><td>Manual drain (Standard)</td></tr> </table> |  | <b>M</b> | Manual drain (Standard) |
| <b>361</b>  | G1/4                    |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>462</b>  | G3/8                    |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>563</b>  | G1/2                    |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>764</b>  | G3/4                    |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>765</b>  | G1                      |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>0</b>  | - 1                     |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>1</b>  | - 5                     |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>2</b>  | - 25                    |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>3</b>  | - 40 (Standard)         |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>4</b>  | - 50                    |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>5</b>  | - 100                   |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>1</b>  | 0.2 - 2 bar             |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>2</b>  | 0.2 - 4 bar             |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>3</b>  | 0.5 - 7 bar             |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>4</b>  | 0.5 - 10 bar (Standard) |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>M</b>  | Without level indicator |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>L#</b>   | With level indicator    |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| <b>M</b>  | Manual drain (Standard) |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |
| # - Applicable for L14, L15, L17 models only.   |                         |                       |                   |                          |            |      |            |      |            |    |   |          |     |          |     |          |      |          |                 |          |      |          |       |   |          |             |          |             |          |             |          |                         |   |          |                         |           |                      |  |  |          |                         |

#### Ordering example:

Filter Regulator Combination and Lubricator Modular - 3/8 size ( with G3/8 port ) with 5µm Filter and pressure range 0.5 - 7 bar, Metal bowl without level indicator and Manual drain : Ordering No : **FRCLM 146213-MM**

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