# 12 Series

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</table>
• Low Cost
• Lightweight
• Low Profile
• OEM Modification Available
• 1/8 or 1/4 NPT, G, or R Threads
• Diverter Block Available

• Compact Size
• Black Anodized Aluminum Heads
• Can Be Installed as Modular or Individual
• Variety of Bowls and Drains
• Shut-Off Available
F12B Series

Primary air filters are designed to separate liquid, water, rust, pipe scale, and debris from air lines. They should be installed upstream of the regulator and/or lubricator to prevent contamination from reaching other components.

Water is removed mechanically by the deflector which causes the air to move in a swirling motion. The condensed water droplets are then centrifugally impounded upon the ID of the bowl then fall down past the quiet zone baffle to the water sump. Dry air passes through the sintered element utilizing depth filtration and removes debris down to specified micron size.

Features

- 5 micron sintered elements standard
- Can be installed as modular or individual unit
- Includes screws and o-rings for modular connection
- Polycarbonate bowl standard

Specifications

<table>
<thead>
<tr>
<th>Bowl</th>
<th>Polycarbonate Bowl</th>
<th>Metal Bowl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range °F (°C)</td>
<td>40-120 (4-50)</td>
<td>40-120 (4-50)</td>
</tr>
<tr>
<td>Max. Pressure PSIG (BAR)</td>
<td>150 (10)</td>
<td>200 (14)</td>
</tr>
<tr>
<td>Weight lbs. (kg)</td>
<td>0.22 (0.10)</td>
<td>0.25 (0.11)</td>
</tr>
</tbody>
</table>

Flow Rates

![Flow Rates Graph](image)

How to Order

Model
F = Filter

Series
12 = 1.5 oz Bowl

Element
B = 5 Micron Element

Threads
- = NPTF
G = G Tap (BSPP)
R = PT (BSPT)

Options
B = Flexible Drain
J = External Pulse Drain
M = Metal Bowl
Q = Metal Manual Drain
R = Manual Lever Drain

Port Size
01 = 1/8
02 = 1/4
F12 Series

The coalescing filter is utilized when either clean air is required or longer component life is desired. This type of filter removes water and oil aerosols. It works differently than the particulate filter; dirty air enters the element from the center and passes through a field of glass fibers which cause the aerosols to form into droplets which are heavier than the surrounding air. The droplets grow larger as they pass through the element and gravity causes the oil drops to drain to the sump of the bowl. To maximize the life of a coalescing filter it should always be used after a 5 micron particulate filter or with the optional prefilter.

Features

- Cartridge element design
- Inner and outer support cores prevent element from crushing in either flow direction
- Can be installed as modular or individual unit
- Includes screws and o-rings for modular connection
- Polycarbonate bowl standard

Specifications

<table>
<thead>
<tr>
<th>Bowl</th>
<th>Polycarbonate Bowl</th>
<th>Metal Bowl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range °F (°C)</td>
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</tr>
<tr>
<td>Max. Pressure PSIG (BAR)</td>
<td>150 (10)</td>
<td>200 (14)</td>
</tr>
<tr>
<td>12 Series Weight lbs. (kg)</td>
<td>0.23 (0.10)</td>
<td>0.26 (0.12)</td>
</tr>
</tbody>
</table>

How to Order

Model
- F = Filter
- Series 12 = 1.5 oz Bowl
- Element
  - C = 0.7 Micron Coarse Coalescer
  - D = 0.3 Micron Fine Coalescer
  - E = 0.01 Micron Ultra Fine Coalescer
  - F = Vapor Adsorber
- Threads
  - = NPTF
  - G = G Tap (BSPP)
  - R = PT (BSPT)
- Options
  - B = Flexible Drain
  - D = 3 Micron Internal Prefilter
  - J = External Pulse Drain
  - M = Metal Bowl
  - Q = Metal Manual Drain
  - R = Manual Lever Drain

Port Size
- 01 = 1/8
- 02 = 1/4

Recommended Uses

C grade element, identified by its blue drain layer, is a coarse filter for large amounts of water, rust, pipe scale, and hydrocarbons. Excellent for environments that have severe contamination. Can be used for lubricated or ‘dry’ systems. Ideal for mainline filtration of plant air.

D grade element, identified by its green drain layer, is a fine filter for cylinder or valves - especially when the circuit is being run without lubrication (‘dry’). Excellent filter for desiccant or regenerative style dryers.

E grade element, identified by its red drain layer, is an ultra fine filter for oil-free instrumentation air, blow molding, food and drug packaging, electronics applications, and other applications requiring maximum contamination removal.

F grade element, identified by its white drain layer, is an adsorbing filter that utilizes activated carbon to deodorize compressed air. Typically it is used to protect worker environments, food and drug applications, and instrumentation for analytical instruments. Life expectancy is approximately 3 months at rated flow.

Prefilter Option - Suffix ‘D’
Models using the C, D, or E grade elements can be equipped with an optional 3 micron internal prefilter. The prefilter provides additional protection for the fine borosilicate fibers. For most applications, a separate 5 micron particulate filter is not required.
12 SERIES

Miniature Regulator

R12 Series

Regulators are used to reduce pressure to a required working pressure. They consist of a diaphragm which floats between a main spring (top) and a valve (bottom). By turning the adjustment handle clockwise, the main spring is forced onto the rubber diaphragm which, in turn, is pressed onto the valve stem. When the spring pressure becomes greater than the air pressure in the control chamber below the diaphragm, the valve is forced down and flow begins. As flow continues, the pressure begins to build and air, via the aspirator tube, fills the control chamber and forces the diaphragm upward. As forces balance, the small spring under the valve piston causes the valve to close. The cycle continues in a balanced process of reducing or increasing flow based upon the downstream pressure.

Features

- Locking adjustment knob
- Three different pressure ratings available
- Relieving or non-relieving models
- Can be installed as modular or individual unit
- Standard output pressure 0-125 PSIG

Piston Operator – Style ‘P’

The 12 Series is offered with an optional Piston Operator. A Piston Regulator will achieve extremely high cycle rates with limited wear.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range °F (°C)</td>
<td>40-120 (4-50)</td>
</tr>
<tr>
<td>Max. Pressure PSIG (BAR)</td>
<td>200 (14)</td>
</tr>
<tr>
<td>12 Series Weight lbs. (kg)</td>
<td>0.25 (0.11)</td>
</tr>
<tr>
<td>Body Material</td>
<td>Aluminum</td>
</tr>
</tbody>
</table>

Flow Rates – based on 100psi inlet

How to Order

Model
R = Regulator
Series
12
Style
R = Relieving
N = Non-Relieving
P = Piston Operator
Threads
- = NPTF
G = G Tap (BSPP)
R = PT (BSPT)

Options
G = Gauge
I = 0-25 PSIG Output
L = 0-60 PSIG Output
P = Panel Mount Nut
T = Tamper Resistant

Port Size
01 = 1/8
02 = 1/4

Dimensions: Inches (mm)
P12B Series

The integral part of the filter/regulator (‘piggyback’) is a two station component designed to filter and regulate compressed air when cost and space are of primary concern. As wet, dirty air enters, it immediately flows through the air deflector, causing the air to move in a swirling motion. After condensed water is centrifugally removed, air passes through the filter and into the regulator. The high pressure of the air is systematically reduced via the adjustment spring and valve and exits the housing as clean and dry air that is ready to work at the specified pressure.

Features
- 5 micron element standard
- Can be installed as individual or modular unit
- Non-rising knob
- Optional metal bowl
- Standard output pressure 0-125 PSIG

Specifications

<table>
<thead>
<tr>
<th>Bowl</th>
<th>Polycarbonate Bowl</th>
<th>Metal Bowl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range °F (°C)</td>
<td>40-120 (4-50)</td>
<td>40-120 (4-50)</td>
</tr>
<tr>
<td>Max. Pressure PSIG (BAR)</td>
<td>150 (10)</td>
<td>200 (14)</td>
</tr>
<tr>
<td>12 Series Weight lbs. (kg)</td>
<td>0.34 (0.15)</td>
<td>0.36 (0.16)</td>
</tr>
</tbody>
</table>

How to Order

Model
- P = Particulate/Regulator

Series
- 12 = 1.5 oz Bowl

Element
- B = 5 Micron Element

Threads
- NPTF
- G = G Tap (BSPP)
- R = PT (BSPT)

Options
- B = Flexible Drain
- G = Gauge
- I = 0-25 PSIG Output
- J = External Pulse Drain
- L = 0-60 PSIG Output
- M = Metal Bowl
- N = Non-Relieving
- P = Panel Mount Nut
- Q = Metal Manual Drain
- R = Manual Lever Drain
- T = Tamper Resistant

Flow Rates – based on 100psi inlet

Port Size
- D1 = 1/8
- D2 = 1/4

Note: To order a piston style filter/regulator, add "P" to the model number. (example: P12BP-02GIP)
C12 Series

The Coalescing Filter-Regulator is designed to provide superior filtration and regulation in one compact housing. It combines a multiple support cartridge style borosilicate glass element with a pilot balanced regulator to assure the maximum performance of downstream components. Available with four different element grade choices, the C Series Coalescing Filter-Regulator can be outfitted to attack and remove the exact type of contamination that is critical to a specific application.

Features

- Cartridge element design
- Inner/outer support cores prevent element from crushing in either flow direction
- Can be installed as individual or modular unit
- Four element grades available
- Non-rising knob

Specifications

<table>
<thead>
<tr>
<th>Bowl</th>
<th>Polycarbonate Bowl</th>
<th>Metal Bowl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range °F (°C)</td>
<td>40-120 (4-50)</td>
<td>40-120 (4-50)</td>
</tr>
<tr>
<td>Max. Pressure PSIG (BAR)</td>
<td>150 (10)</td>
<td>200 (14)</td>
</tr>
<tr>
<td>Weight lbs. (kg)</td>
<td>0.35 (0.37)</td>
<td>0.16 (0.17)</td>
</tr>
</tbody>
</table>

How to Order

Model

C = Coalescer/Regulator

Series

12 = 1.5 oz. Bowl

element

C = 0.7 Micron Coarse Coalescer
D = 0.3 Micron Fine Coalescer
E = 0.01 Micron Ultra Fine Coalescer
F = Vapor Adsorber

Threads

G = NPTF
R = PT (BSPT)

Note: All BSPP (G tap) and BSPT (R tap) models use BSPT gauge threads.

Options

B = Flexible Drain
D = 3 Micron, Internal Pleated Prefilter
G = Gauge
I = 0.25 PSIG Output
J = External Pulse Drain
L = 0.60 PSIG Output
M = Metal Bowl
N = Non-Relieving
P = Panel Mount Nut
Q = Metal Manual Drain
R = Manual Lever Drain
T = Tamper Resistant

Port Size

01 = 1/8
02 = 1/4

Note: To order a piston style filter/regulator add “P” to the model number. (example: C12DP-01DG)

Recommended Uses

Prefilter Option – Suffix ‘D’

Models using the C, D, or E grade elements can be equipped with an optional 3 micron internal prefilter. The prefilter provides additional protection for the fine borosilicate fibers. For most applications, a separate 5 micron particulate filter is not required.
L12L Series

Usually mounted third in the FRL Series, the lubricator is designed to inject oil aerosols into the airstream of a pneumatic circuit. As air flows from the regulator, some air is diverted from the main orifice to pressurize the bowl. This forces oil up the siphon tube past a flow check and into the integral valve/sight dome. The oil film then drops through the valve and into the atomization chamber at a rate that is automatically proportional to the air flow. This virtually eliminates the need for readjustment.

Features

- Lubrication to begin at less than 2 SCFM
- Tamper-resistant knob standard
- Optional metal bowl
- Can be mounted as individual or modular unit
- Button head fill optional
- Atomizing chamber develops longer life aerosols

Specifications

<table>
<thead>
<tr>
<th>Bowl</th>
<th>Polycarbonate Bowl</th>
<th>Metal (Zinc) Bowl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>40-120 (4-50)</td>
<td>40-120 (4-50)</td>
</tr>
<tr>
<td>Max. Pressure</td>
<td>150 (10)</td>
<td>200 (14)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.25 (0.11)</td>
<td>0.27 (0.12)</td>
</tr>
<tr>
<td>Body Material</td>
<td>Aluminum</td>
<td>Aluminum</td>
</tr>
</tbody>
</table>

How to Order

Model
L = Lubricator

Series
12 = 1.5 oz. Bowl

Style
L = Standard Lubricators

Threads
- = NPTF
G = G Tap (BSPP)
R = PT (BSPT)

Options
F = Button Head Fill
K = Drain On Bowl
M = Metal Bowl

Port Size
01 = 1/8
02 = 1/4

Flow Rates – based on 100psi inlet

Illustrations:
- ANSI SYMBOL
- L12L-02 pictured
- Flow Rates chart
- Dimensions: Inches (mm) chart

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.
**Shut-Off Valve**

**VS12 Series**

The 12 Series Shut-Off Valve is an easy and inexpensive way to add shut off capability to an FRL. The valve includes a lockout feature designed for a padlock to prevent unauthorized downstream pressurization during maintenance. The shut off valve is usually mounted first in the assembly.

Max. inlet pressure: 200 PSI (13.7 bar)

- Relieves downstream pressure when closed
- Lockout feature prevents unauthorized pressurization of system
- Can be mounted as individual or modular unit

<table>
<thead>
<tr>
<th>Series</th>
<th>NPTF</th>
<th>Model #</th>
<th>BSPT</th>
<th>Dimensions Inches (mm)</th>
<th>Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>VS12-01</td>
<td>VS12G01</td>
<td>VS12R01</td>
<td>A: 1.0 (25) B: 1.5 (38) C: 1.25 (32) D: 0.75 (19.0)</td>
<td>1/8</td>
</tr>
<tr>
<td>12</td>
<td>VS12-02</td>
<td>VS12G02</td>
<td>VS12R02</td>
<td>A: 1.0 (25) B: 1.5 (38) C: 1.25 (32) D: 0.75 (19.0)</td>
<td>1/4</td>
</tr>
<tr>
<td>12</td>
<td>VS12-01E*</td>
<td>VS12G01E*</td>
<td>VS12R01E*</td>
<td>A: 1.0 (25) B: 1.5 (38) C: 1.25 (32) D: 0.75 (19.0)</td>
<td>1/8</td>
</tr>
<tr>
<td>12</td>
<td>VS12-02E*</td>
<td>VS12G02E*</td>
<td>VS12R02E*</td>
<td>A: 1.0 (25) B: 1.5 (38) C: 1.25 (32) D: 0.75 (19.0)</td>
<td>1/4</td>
</tr>
</tbody>
</table>

*NOTE: When ordering the 12 Series Shut Off Valve as a stand-alone component, add the suffix ‘E’ to the model number.

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**Diverter Block**

**DK12 Series**

Designed to give FRLs total versatility, the diverter block mounts directly inline with the FRL combination. Additional components can then be manifold mounted in a compact manner that doesn’t cause excessive pressure drop. There are two available ports per unit; both are tapped for standard service.

Max. inlet pressure: 200 PSI (13.7 bar)

<table>
<thead>
<tr>
<th>Series</th>
<th>NPTF</th>
<th>Model #</th>
<th>Dimensions Inches (mm)</th>
<th>Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>DK12-02</td>
<td>DK12R02</td>
<td>A: 1.50 (38.0) B: 0.75 (19.0) C: 1.50 (38.0) D: 1/4</td>
<td>1/8 Tapped 1/4 NPTF In &amp; Out with two 1/8 NPTF branches</td>
</tr>
</tbody>
</table>
## Coalescing Filter & Filter/Regulator

### Element Replacement Kits
- **Filter & Filter-Reg**
  - **Kit #** | **Description**
  - **Series** | **EKF**
  - 12 Series | EKF12C 0.7 micron element (Kit # EKF12CD includes filter element and prefilter)
  - 12 Series | EKF12D 0.3 micron element (Kit # EKF12DD includes filter element and prefilter)
  - 12 Series | EKF12E 0.1 micron element (Kit # EKF12ED includes filter element and prefilter)
  - 12 Series | EKF12F adsorbing element

### Bowl Replacement Kits
- **Filter & Filter-Reg**
  - **Kit #** | **Description**
  - **Series** | **BKF**
  - 12 Series | BKF12 12 Series, polycarbonate bowl with guard (Kit # BKF12M includes bowl and o-ring)
  - 12 Series | BKF12C 12 Series, circle vision bowl
  - 12 Series | BKF12D 12 Series, external pulse drain (Kit # BKF12DM includes bowl and o-ring)

### Piston Repair Kits
- **Filter, U-cup seal, relief seal**
- **Kit #** | **Description**
- **Series** | **PMK**
- 12 Series | PMK12 12 Series, relief kit (Kit # PMK12N includes piston, metal manual drain)

### Bowl Replacement Kits
- **Lubricators**
- **Kit #** | **Description**
- **Series** | **BKL**
- 12 Series | BKL12 12 Series, polycarbonate bowl (Kit # BKL12M includes bowl and o-ring)

### Shut-Off Valve Repair Kits
- **Includes slide and 3 o-rings**
- **Kit #** | **Description**
- **Series** | **RKSV**
- 12 Series | RKSV12 12 Series, shut-off valve repair kit (Kit # RKSV12 includes slide and 3 o-rings)

### Screw & O-Ring Replacement Kits
- **Kit #** | **Description**
- **Series** | **KAVS**
- 12 Series | KAVS12-06 12 Series, inc. 2 81mm tie rods, 2 106mm tie rods, 4 nuts
- 12 Series | KAVS12-06 12 Series, inc. 20 81mm tie rods, 20 106mm tie rods, 40 nuts

### Replacement Adjustment Knob Kits
- **Filter & Filter-Reg**
- **Kit #** | **Description**
- **Series** | **RKR**
- 12 Series | RKR12R 12 Series, relieving kit (Kit # RKR12R includes 2 screws, 1 O-ring (M4 x 12mm))
- 12 Series | RKR12N 12 Series, non-relieving kit (Kit # RKR12N includes 2 screws, 50 O-rings (M4 x 12mm))

### Replacement Drain Kits
- **Kit #** | **Description**
- **Series** | **BKF**
- 12 Series | BKF02 0.2 micron element (Kit # BKF02 includes drain ass'ly)
- 12 Series | BKF02 0.2 micron element (Kit # BKF02 includes drain ass'ly)
- 12 Series | BKF02 0.2 micron element (Kit # BKF02 includes drain ass'ly)
- 12 Series | BKF02 0.2 micron element (Kit # BKF02 includes drain ass'ly)

### Replacement Adjustment Knob Kits
- **Kit #** | **Description**
- **Series** | **R1**
- 12 Series | R12-03 12 Series, adjustment knob (Kit # R12-03 includes adjustment knob and adjustment assembly)

### Shut-Off Valve Repair Kits
- **Kit #** | **Description**
- **Series** | **RKSV**
- 12 Series | RKSV12 12 Series, shut-off valve repair kit (Kit # RKSV12 includes adjustment knob and adjustment assembly)

### Mounting Bracket
- **Kit #** | **Description**
- **Series** | **PK**
- 12 Series | PK12 12 Series mounting bracket (Kit # PK12 includes adjustment knob and adjustment assembly)

### Particulate Filter & Filter/Regulator

### Filter Repair Kits
- **Kit #** | **Description**
- **Series** | **RKF**
- 12 Series | RKF12A 12 Series, 40 micron element (Kit # RKF12B includes filter element only)
- 12 Series | RKF12B 12 Series, 5 micron element

### FlexiBlok® Regulator

### Regulator Repair Kits
- **Kit #** | **Description**
- **Series** | **DKC**
- 12 Series | DKC12 12 Series, cage kit (Kit # DKC includes 2 screws, 1 O-ring)

### Diaphragm Repair Kits
- **Kit #** | **Description**
- **Series** | **HRK**
- 12 Series | HRK12R 12 Series, relieving kit (Kit # HRK12R includes 2 screws, 1 O-ring)
- 12 Series | HRK12N 12 Series, non-relieving kit (Kit # HRK12N includes 2 screws, 50 O-rings (M4 x 12mm))

### Piston Repair Kits
- **Kit #** | **Description**
- **Series** | **PMMK**
- 12 Series | PMMK12 12 Series, relief kit (Kit # PMMK12 includes 2 screws, 1 O-ring (M4 x 12mm))

### Shut-Off Valve Repair Kits
- **Kit #** | **Description**
- **Series** | **RKSV**
- 12 Series | RKSV12 12 Series, shut-off valve repair kit (Kit # RKSV12 includes 2 screws, 1 O-ring (M4 x 12mm))

### Mounting Bracket
- **Kit #** | **Description**
- **Series** | **PK**
- 12 Series | PK12 12 Series mounting bracket (Kit # PK12 includes 2 screws, 1 O-ring (M4 x 12mm))

### Screw & O-Ring Replacement Kits
- **Kit #** | **Description**
- **Series** | **KAVS**
- 12 Series | KAVS12-06 12 Series, inc. 2 81mm tie rods, 2 106mm tie rods, 4 nuts
- 12 Series | KAVS12-06 12 Series, inc. 20 81mm tie rods, 20 106mm tie rods, 40 nuts
- 12 Series | KGB12 12 Series bulk pack, inc. 100 screws, 50 O-rings (M4 x 12mm)