

NUMATICS®

12 Series

Miniature FRLs



www.numatics.com

12 Series

Features and Benefits	3
Particulate Filter	4
Coalescing Filter	5
Regulator	6
Particulate Filter/Regulator	7
Coalescing Filter/Regulator	8
Lubricator	9
Shut-Off Valve	10
Diverter Block	10
Replacement Parts and Kits	11



- 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.

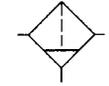
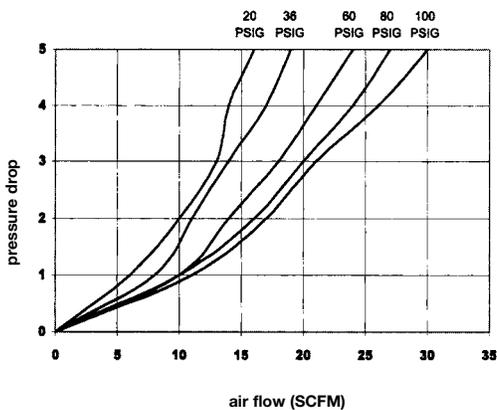
Features

- 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

Bowl	Polycarbonate Bowl	Metal Bowl
Temperature Range °F (°C)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	150 (10)	200 (14)
Weight lbs. (kg)	0.22 (0.10)	0.25 (0.11)

Flow Rates

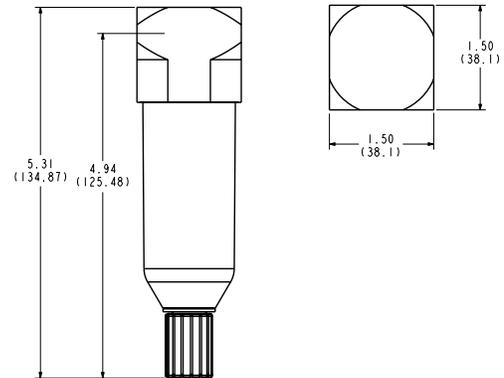


ANSI SYMBOL



F12B-02 pictured

Dimensions: Inches (mm)



How to Order

F 12 B - 01 JM

Model F = Filter	Options B = Flexible Drain J = External Pulse Drain M = Metal Bowl Q = Metal Manual Drain R = Manual Lever Drain
Series 12 = 1.5 oz Bowl	Port Size 01 = 1/8 02 = 1/4
Element B = 5 Micron Element	
Threads - = NPTF G = G Tap (BSPP) R = PT (BSPT)	

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.

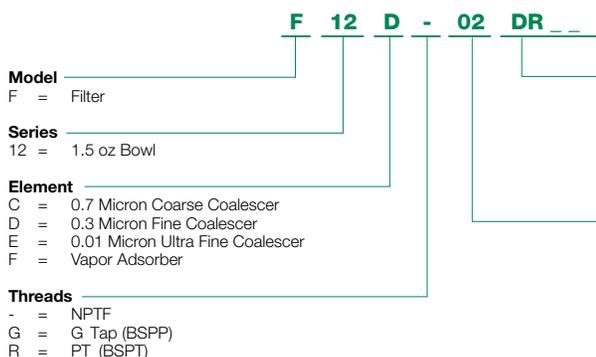
Features

- 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

Bowl	Polycarbonate Bowl	Metal Bowl
Temperature Range °F (°C)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	150 (10)	200 (14)
12 Series Weight lbs. (kg)	0.23 (0.10)	0.26 (0.12)

How to Order



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.

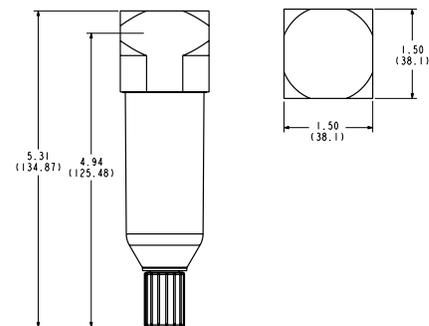


ANSI SYMBOL

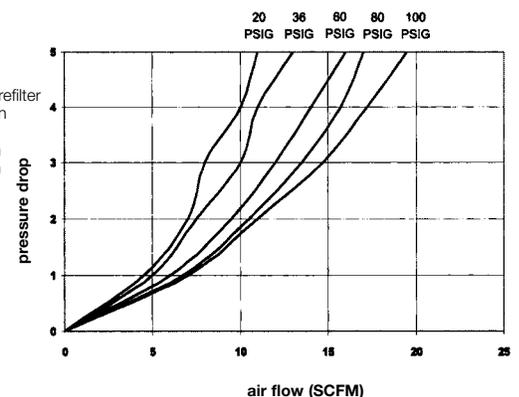


F12D-02 pictured

Dimensions: Inches (mm)

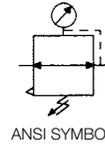


Flow Rates



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.



R12R-02 pictured

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

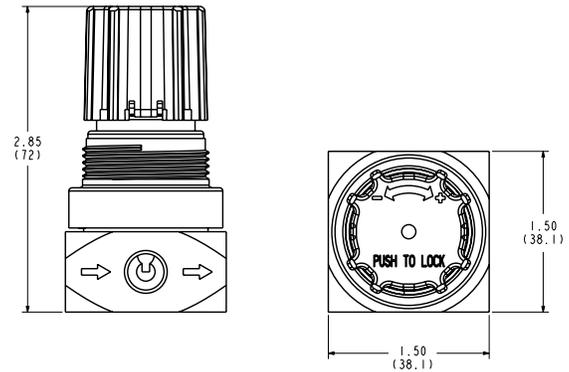
Piston Operator – Style ‘P’

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

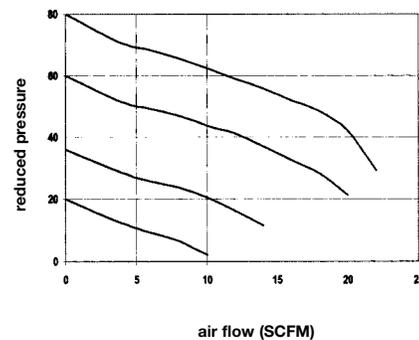
Specifications

Temperature Range °F (°C)	40-120 (4-50)
Max. Pressure PSIG (BAR)	200 (14)
12 Series Weight lbs. (kg)	0.25 (0.11)
Body Material	Aluminum

Dimensions: Inches (mm)



Flow Rates – based on 100psi inlet



How to Order

R 12 R - 01 GT _ _

<p>Model R = Regulator</p> <p>Series 12</p> <p>Style R = Relieving N = Non-Relieving P = Piston Operator</p> <p>Threads - = NPTF G = G Tap (BSPP) R = PT (BSPT)</p>	<p>Options G = Gauge I = 0-25 PSIG Output L = 0-60 PSIG Output P = Panel Mount Nut T = Tamper Resistant</p> <p>Port Size 01 = 1/8 02 = 1/4</p>
---	--

P12B Series

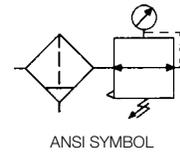
The integral part of the filter/regulator ('piggyback') is a two station component designed to filter and regulate compressed air when cost and space are of primary concern. As wet, dirty air enters, it immediately flows through the air deflector, causing the air to move in a swirling motion. After condensed 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

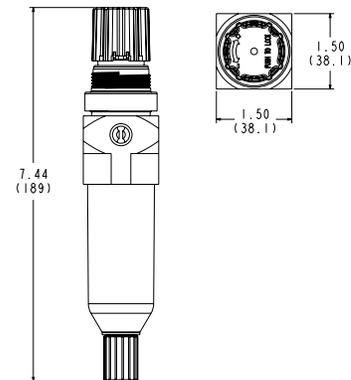
Specifications

Bowl	Polycarbonate Bowl	Metal Bowl
Temperature Range °F (°C)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	150 (10)	200 (14)
12 Series Weight lbs. (kg)	0.34 (0.15)	0.36 (0.16)

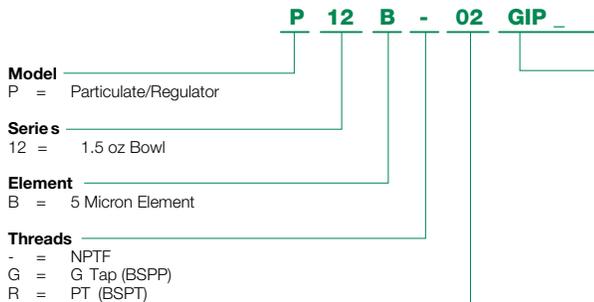


P12B-02 pictured

Dimensions: Inches (mm)



How to Order

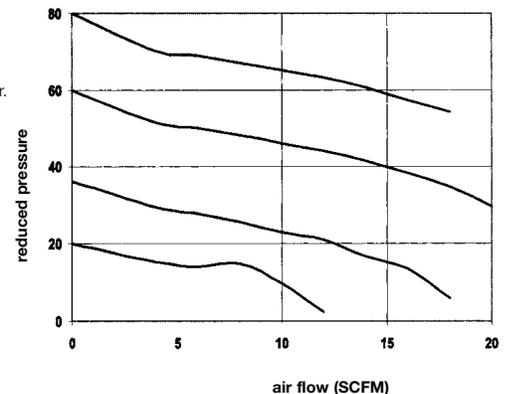


- Options**
- B = Flexible Drain
 - G = Gauge
 - I = 0-25 PSIG Output
 - J = External Pulse Drain
 - L = 0-60 PSIG Output
 - M = Metal Bowl
 - N = Non-Relieving
 - P = Panel Mount Nut
 - Q = Metal Manual Drain
 - R = Manual Lever Drain
 - T = Tamper Resistant

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

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

Flow Rates – based on 100psi inlet



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

Bowl	Polycarbonate Bowl	Metal Bowl
Temperature Range °F (°C)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	150 (10)	200 (14)
Weight lbs. (kg)	0.35 (0.37)	0.16 (0.17)

How to Order

Model C 12 D - 01 DG _ _

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

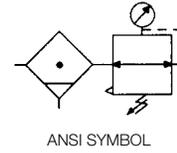
Threads
- = NPTF
G = G Tap (BSPP)
R = PT (BSPT)

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

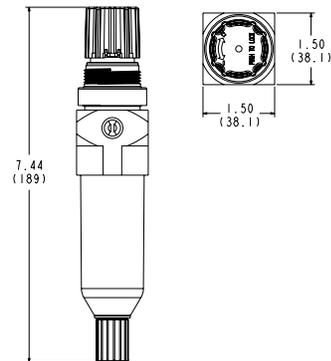
Note: All BSPP (G tap) and BSPT (R tap) models use BSPT gauge threads.

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

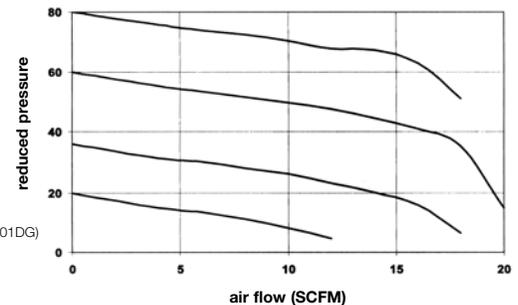


C12D-02 pictured

Dimensions: Inches (mm)



Flow Rates – based on 100psi inlet



Recommended Uses

Prefilter Option – Suffix 'D'

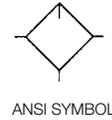
Models using the C, D, or E grade elements can be equipped with an optional 3 micron internal prefilter. The prefilter provides additional protection for the fine borosilicate fibers. For most applications, a separate 5 micron particulate filter is not required.

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

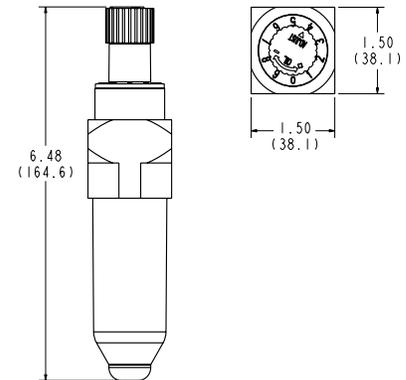


L12L-02 pictured

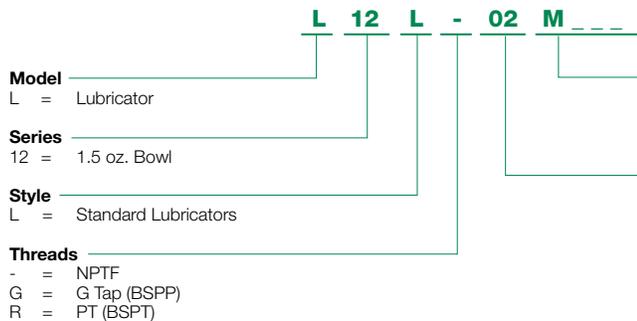
Specifications

Bowl	Polycarbonate Bowl	Metal (Zinc) Bowl
Temperature Range °F (°C)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	150 (10)	200 (14)
Weight lbs. (kg)	0.25 (0.11)	0.27 (0.12)
Body Material	Aluminum	Aluminum

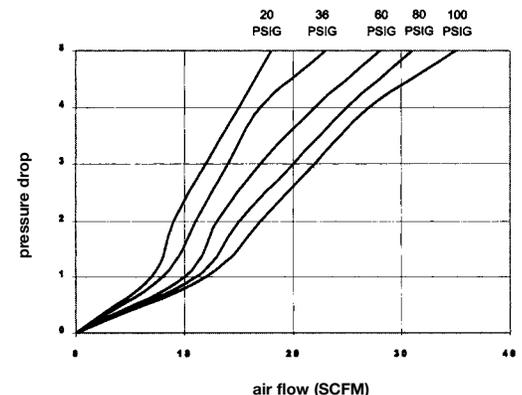
Dimensions: Inches (mm)



How to Order



Flow Rates – based on 100psi inlet



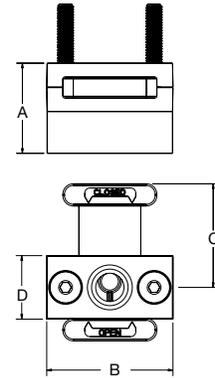
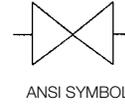
Shut-Off Valve

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



Series	NPTF	Model #S BSPP	BSPT	Dimensions Inches (mm)				Ports
				A	B	C	D	
12	VS12-01	VS12G01	VS12R01	1.0 (25)	1.5 (38)	1.25 (32)	0.75 (19.0)	1/8
12	VS12-02	VS12G02	VS12R02	1.0 (25)	1.5 (38)	1.25 (32)	0.75 (19.0)	1/4
12	VS12-01E*	VS12G01E*	VS12R01E*	1.0 (25)	1.5 (38)	1.25 (32)	0.75 (19.0)	1/8
12	VS12-02E*	VS12G02E*	VS12R02E*	1.0 (25)	1.5 (38)	1.25 (32)	0.75 (19.0)	1/4

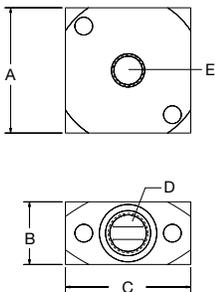
*NOTE: When ordering the 12 Series Shut Off Valve as a stand-alone component, add the suffix 'E' to the model number.

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)



Series	NPTF	Model #S BSPP	Dimensions Inches (mm)					Ports
			A	B	C	D	E	
12	DK12-02	DK12R02	1.50 (38.0)	0.75 (19.0)	1.50 (38.0)	1/4	1/8	Tapped 1/4 NPTF In & Out with two 1/8 NPTF branches

Coalescing Filter & Filter/Regulator

Element Replacement Kits Filter & Filter-Reg	
includes filter element and seal	
Kit #	Description
12 Series	
EKF12C	12 Series, 0.7 micron element
EKF12CD	12 Series, 0.7 micron element with prefilter
EKF12D	12 Series, 0.3 micron element
EKF12DD	12 Series, 0.3 micron element with prefilter
EKF12E	12 Series, 0.1 micron element
EKF12ED	12 Series, 0.1 micron element with prefilter
EKF12F	12 Series, adsorbing element

Bowl Replacement Kits Filter & Filter-Reg	
includes bowl and o-ring	
Kit #	Description
12 Series	
BKF12	12 Series, polycarbonate bowl with guard
BKF12M	12 Series, metal bowl
BKF12C	12 Series, Circle vision bowl
To order the bowl replacement kit with a drain, specify the drain suffix in the kit number (keeping suffixes in alphabetical order). For example, to order an flexible drain with a BKF12 kit, order as BKF12B . To order an external pulse drain with a BKF12M kit, order as BKF12JM . Drain suffixes are as follows: B=flexible drain, J=external pulse drain, Q=metal manual drain, R=manual lever drain.	

Bowl Replacement Kits Lubricators	
includes bowl and o-ring	
Kit #	Description
12 Series	
BKL12	12 Series, polycarbonate bowl
BKL12M	12 Series, metal bowl
To order the bowl replacement kit with a drain or buttonhead fill, specify the appropriate suffix in the kit number (keeping suffixes in alphabetical order). For example, to order a drain with a BKL12 kit, order as BKL12K . To order a buttonhead fill with a BKL12M kit, order as BKL12FM . Drain suffixes are as follows: F=buttonhead fill, K=drain.	

Replacement Drain Kits	
Kit #	Description
BKF02	flexible drain (includes drain ass'y)
DKF02	standard drain (inc. drain ass'y)
JKF02	external pulse drain (inc. drain, bushing, clip, o-ring)
QKF02	metal manual drain (inc. drain, bushing, clip, o-ring)
RKF02	manual lever drain (inc. drain, bushing, clip, o-ring)

Particulate Filter & Filter/Regulator

Element Replacement Kits Filter & Filter-Reg	
includes filter element only	
Kit #	Description
EKF12A	12 Series 40 micron element
EKF12B	12 Series, 5 micron element

Filter Repair Kits	
includes Turbo-Flo, element retainer, quiet zone baffle, deflector retainer	
Kit #	Description
RKF12B	12 Series, 5 micron element

FLEXIBLOK® Regulator

Regulator Repair Kits Filter/Regulators	
includes bonnet and adjusting knob	
Kit #	Description
RKC12	12 Series, cage kit

Diaphragm Repair Kits	
includes diaphragm and inner valve	
Kit #	Description
RKR12R	12 Series, relieving kit
RKR12N	12 Series, non-relieving kit

Piston Repair Kits	
includes piston, U-cup seal, relief seal	
Kit #	Description
PKR12R	12 Series, relieving kit
PKR12N	12 Series, non-relieving kit

Replacement Adjustment Knob Kits	
includes adjustment knob only	
Kit #	Description
R12-03	12 Series, adjustment knob

FLEXIBLOK® Lubricator

Lubricator Dome Repair Kits	
includes adjustment knob and adjustment assembly	
Kit #	Description
RKL12T	12 Series, lub. dome repair kit

Replacement Adjustment Knob Kits	
includes adjustment knob only	
Kit #	Description
L32-06	12 Series, adjustment knob

Shut-Off Valve Repair Kits	
includes slide and 2 o-rings	
Kit #	Description
RKSV12	12 Series, shut-off valve repair kit

Mounting Bracket	
includes bracket and panel nut	
Kit #	Description
PK12	12 Series mounting bracket

Screw & O-Ring Replacement Kits	
Kit #	Description
KAVS12-06	12 Series, inc. 2 81mm tie rods, 2 106mm tie rods, 4 nuts
BKAVS12-06	12 Series, inc. 20 81mm tie rods, 20 106mm tie rods, 40 nuts
KG12	12 Series, inc. 2 screws, 1 o-ring (M4 x 12mm)
KGB12	12 Series bulk pack, inc. 100 screws, 50 o-rings (M4 x 12mm)



World Class Supplier of Pneumatic Components



World Headquarters

USA Numatics, Incorporated

46280 Dylan Drive
Novi, Michigan 48377

P: 248-596-3200
F: 248-596-3201

Canada Numatics, Ltd

P: 519-758-2700
F: 519-758-5540

México - Ascomatica SA de CV

P: 52 55 58 09 56 40 (DF y Area metropolitana)
P: 01 800 000 ASCO (2726) (Interior de la República)
F: 52 55 58 09 56 60

Brazil Ascoval Ind.e Comercio Ltda

P: (55) 11-4208-1700
F: (55) 11-4195-3970