ROSS®

PRODUCT INFORMATION

INTEGRATED FILTER/REGULATORS

AIR PREPARATION

ROSS CONTROLS

INTEGRATED FILTER/REGULATORS – KEY FEATURES

- Filter and Pressure Regulator combined into a single module to provide the compactness needed where space is limited
- All sizes have essentially the same operating characteristics as their corresponding individual filters and regulators
- All Filter/Regulator include internal automatic filter drain or manual drain options
- Pressure gauge included
- Regulator function is self relieving, and includes front and rear gauge ports
- 5-, 20-, 40-micron filter elements available (see table below)
- Metal or high strength polycarbonate bowl
- Modular or in-line mounting
- MD3™ and MD4™ series can be modularly connected to a L-O-X® Lockout Valve
- Stainless steel Filter/Regulator and L-O-X® Lockout Valve combination available

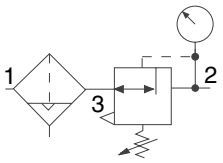
INTEGRATED FILTER/REGULATOR TYPE/SERIES	AVAILABLE PORT SIZES					FLOW	FILTRATION			BOWLS & DRAINS OPTIONS				REGULATOR TYPE		OPTIONS		Page
	1/8	1/4	3/8	1/2	3/4	MAX FLOW (scfm)	5 µ	20 µ	40 µ	POLYCARBONATE BOWL	METAL BOWL	AUTOMATIC DRAIN	MANUAL DRAIN	PISTON	DIAPHRAGM	SELF RELIEVING	NON RELIEVING	
BANTAM	■	■				24	■			■	■	■	■	■	■	■	■	G3.3
MINIATURE	■	■				24	■			■	■	■	■	■	■	■	■	G3.4
MID-SIZE		■	■	■		105				■	■	■	■	■		■	■	G3.5
MD3™		■	■	■		110	■	■	■	■	■	■	■		■	■	■	G3.6
FULL-SIZE		■	■	■	■	180	■			■	■	■	■		■	■	■	G3.7
MD4™			■	■	■	230	■		■	■	■	■	■		■	■	■	G3.8
STAINLESS STEEL with L-O-X® LOCKOUT VALVE																		
		■		■	■													G3.9

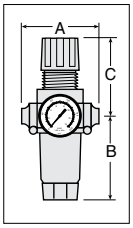
Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

Port Size	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
	Model Number	Model Number	Model Number	Model Number
With THREADED PORTS - Piston Type Regulator:				
1/8 NPTF	5D01C0110	5D01C0210	5D01C0310	5D01C0410
1/8 G	C5D01C0110	C5D01C0210	C5D01C0310	C5D01C0410
1/4 NPTF	5D02C0110	5D02C0210	5D02C0310	5D02C0410
1/4 G	C5D02C0110	C5D02C0210	C5D02C0310	C5D02C0410
With Quick-Connect TUBE FITTINGS - Piston Type Regulator:				
1/4	5D03C0110	5D03C0210	5D03C0310	5D03C0410
3/8	5D04C0110	5D04C0210	5D04C0310	5D04C0410
4mm	5D05C0110	5D05C0210	5D05C0310	5D05C0410
6mm	5D06C0110	5D06C0210	5D06C0310	5D06C0410
8mm	5D07C0110	5D07C0210	5D07C0310	5D07C0410
10mm	5D08C0110	5D08C0210	5D08C0310	5D08C0410
With Quick-Connect TUBE FITTINGS - Diaphragm Type Regulator:				
1/4	5D03C0120	5D03C0220	5D03C0320	5D03C0410
3/8	5D04C0120	5D04C0220	5D04C0320	5D04C0420
4mm	5D05C0120	5D05C0220	5D05C0320	5D05C0420
6mm	5D06C0120	5D06C0220	5D06C0320	5D06C0420
8mm	5D07C0120	5D07C0220	5D07C0320	5D07C0420
10mm	5D08C0120	5D08C0220	5D08C0320	5D08C0420

ISO Symbol
Filter/Regulator

Automatic Drain
Self-relieving



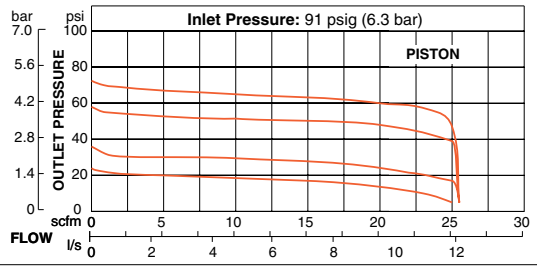


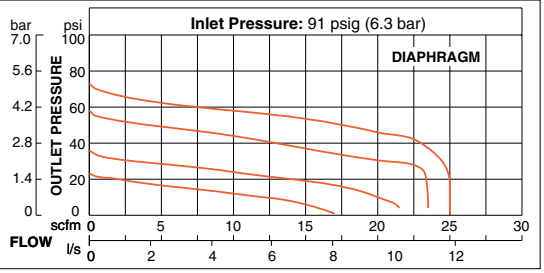
Port Size	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
		A	B**	C	Depth †	
No Port	2-oz (60-ml)	1.7 (43)	3.6 (92)	2.6 (67)	1.8 (45)	0.31 (0.15)
1/8, 1/4 (NPTF or G)	2-oz (60-ml)	3.0 (76)	3.6 (92)	2.6 (67)	1.8 (45)	0.53 (0.24)
Models below have quick-connect tube fittings.						
1/4, 4, 6 mm	2-oz (60-ml)	3.4 (86)	3.6 (92)	2.6 (67)	1.8 (45)	0.51 (0.23)
3/8, 10 mm	2-oz (60-ml)	3.9 (99)	3.6 (92)	2.6 (67)	1.8 (45)	0.51 (0.23)
8 mm	2-oz (60-ml)	3.1 (79)	3.6 (92)	2.6 (67)	1.8 (45)	0.51 (0.23)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97). † Less gauge.

REPLACEMENT FILTER ELEMENTS		
Element Rating	**Element Material**	**Model Number**
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3

FLOW CHARTS





Pressure Gauge included. Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston
Temperature	**Ambient/Media:** **Polycarbonate Bowl:** 40° to 125°F (4° to 52°C) **Metal Bowl:** 40° to 150°F (4° to 66°C)
Fluid Media	Compressed air
Operating Pressure	**Automatic Drain Models** **Polycarbonate Bowl:** Up to 150 psig (up to 10 bar) **Metal Bowl:** Up to 200 psig (up to 14 bar)
	Manual Drain Models **Polycarbonate Bowl:** 0 to 150 psig (0 to 10 bar) **Metal Bowl:** 0 to 200 psig (0 to 14 bar)

Outlet Pressure	Adjustable up to 100 psig (7 bar).
Pressure Gauge	0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear
Panel Mounting	1-3/16 inch (30 mm) hole required
Construction Material	**Filter Element:** 5-micron rated polyethylene
	Body: Acetal
	Bowl: Polycarbonate or Aluminum
	Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

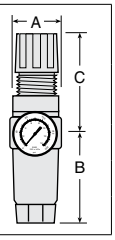
Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
with Piston Type Regulator					
1/8	NPTF	5321C1032	5322C1031	5321C1002	5322C1001
	G	C5321C1032	C5322C1031	C5321C1002	C5322C1001
1/4	NPTF	5321C2032	5322C2031	5321C2002	5322C2001
	G	C5321C2032	C5322C2031	C5321C2002	C5322C2001
with Diaphragm Type Regulator					
1/8	NPTF	5321C1042	5322C1041	5321C1022	5322C1021
	G	C5321C1042	C5322C1041	C5321C1022	C5322C1021
1/4	NPTF	5321C2042	5322C2041	5321C2022	5322C2021
	G	C5321C2042	C5322C2041	C5321C2022	C5322C2021

G3

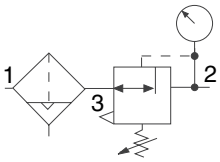
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	1.6 (41)	3.6 (92)	2.6 (65)	1.6 (41)	0.53 (0.24)
	Aluminum	2-oz (60-ml)	1.6 (41)	4.3 (109)	2.6 (65)	1.6 (41)	0.53 (0.24)

† Less gauge.



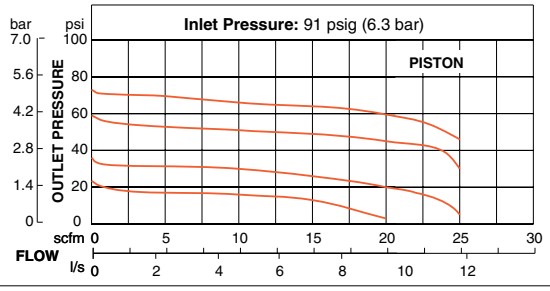
ISO Symbol
Filter/Regulator

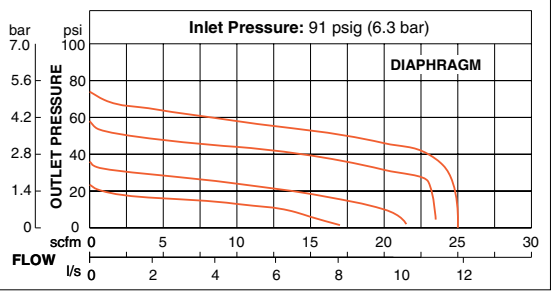
Automatic Drain
Self-relieving



REPLACEMENT FILTER ELEMENTS		
Element Rating	**Element Material**	**Model Number**
5-µm - Standard	Polyethylene	933K77
5-µm - Optional	Sintered Bronze	R-KA130-27E5
20-µm - Optional	Sintered Bronze	R-KA130-27E4
40-µm - Optional	Sintered Bronze	R-KA130-27E3

FLOW CHARTS





G

Pressure Gauge included.

Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston
Temperature	**Ambient/Media:** **Polycarbonate Bowl:** 40° to 125°F (4° to 52°C) **Metal Bowl:** 40° to 150°F (4° to 66°C)
Fluid Media	Compressed air
Operating Pressure	**Automatic Drain Models** **Polycarbonate Bowl:** Up to 150 psig (up to 10 bar) **Metal Bowl:** Up to 200 psig (up to 14 bar)
	Manual Drain Models **Polycarbonate Bowl:** 0 to 150 psig (0 to 10 bar) **Metal Bowl:** 0 to 200 psig (0 to 14 bar)

Outlet Pressure	Adjustable up to 100 psig (7 bar).
Pressure Gauge	0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear
Panel Mounting	1-3/16 inch (30 mm) hole required
Filter Drain	Internal automatic drain or manual drain
Construction Material	**Filter Element:** 5-micron rated polyethylene
	Body: Aluminum
	Dome: Acetal
	Knob: Acetal
	Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

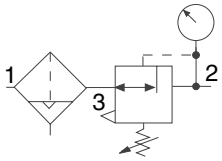
Port Sizes: 1/4, 3/8 & 1/2 – Flow to 105 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/4	NPTF	5321B2052	5322B2051	5321B2062	5322B2061
	G	C5321B2052	C5322B2051	C5321B2062	C5322B2061
3/8	NPTF	5321B3052	5322B3051	5321B3062	5322B3061
	G	C5321B3052	C5322B3051	C5321B3062	C5322B3061
1/2	NPTF	5321B4052	5322B4051	5321B4062	5322B4061
	G	C5321B4052	C5322B4051	C5321B4062	C5322B4061

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B**	C***	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	2.7 (67)	4.6 (116)	3.3 (83)	2.4 (60)	1.44 (0.65)
	Zinc	4-oz (120-ml)	2.7 (67)	4.9 (123)	3.3 (83)	2.4 (60)	1.50 (0.68)

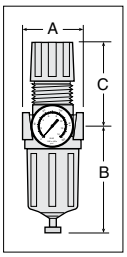
** Bowl removal clearance: add 3.1 (79). *** Dome removal clearance: add 0.63 (16).
† Less gauge.

ISO Symbol
Filter/Regulator
Automatic Drain
Self-relieving

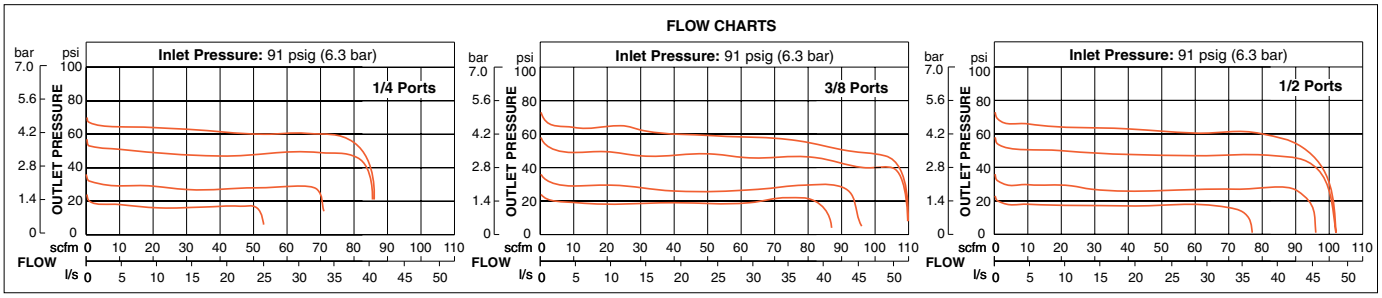


G3

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	936K77
5-µm - Optional	Sintered Bronze	R-KA60F-03E5
20-µm - Optional	Sintered Bronze	R-KA60F-03E4
40-µm - Optional	Sintered Bronze	R-KA60F-03E3



FLOW CHARTS



G

Pressure Gauge included.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston
Temperature	**Ambient/Media:** **Polycarbonate Bowl:** 40° to 125°F (4° to 52°C) **Metal Bowl:** 40° to 175°F (4° to 80°C)
Fluid Media	Compressed air
Operating Pressure	**Automatic Drain Models** **Polycarbonate Bowl:** Up to 150 psig (up to 10 bar) **Metal Bowl:** Up to 200 psig (up to 14 bar)
	Manual Drain Models **Polycarbonate Bowl:** 0 to 150 psig (0 to 10 bar) **Metal Bowl:** 0 to 200 psig (0 to 14 bar)

Outlet Pressure	Adjustable up to 100 psig (7 bar).
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Panel Mounting	1-9/16 inch (40 mm) hole required
Filter Drain	Internal automatic drain or manual drain
Construction Material	**Filter Element:** 5-micron rated polyethylene
	Body: Zinc
	Bowl: Polycarbonate with zinc shatterguard, or zinc bowl.
	Dome: Acetal
	Knob: Acetal
	Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 110 scfm

Choose your options (in red) to configure your model number.

MD3	53P	B	M	C	2	A	A	1

BOWL MATERIAL/SIZE

Polycarbonate Bowl 5.1-oz (151-ml)	**53P**
Metal Bowl 6-oz (177-ml)	53M

FILTER ELEMENT TYPE

40-µm Sintered Bronze	A
5-µm Polyethylene	**B**
5-µm Sintered Bronze	E
20-µm Sintered Bronze	F

BOWL DRAIN

Manual Drain	**M**
Float Drain	F
Less Drain Fitting (1/4 NPT female instead)	L

PIPE SIZE

1/4 NPTF	**2**
3/8 NPTF	3
1/2 NPTF	4
1/4 G	B
3/8 G	C
1/2 G	D

ADJUSTMENT RANGE

0-200 psig (0-14 bar)*	**A**
0-150 psig (0-10 bar)	B
0-100 psig (0-6.9 bar)	C
0-50 psig (0-3.4 bar)	D
Reverse Flow 0-200 psig (0-14 bar)*	F
Reverse Flow 0-150 psig (0-10.3 bar)	G
Reverse Flow 0-100 psig (0-6.9 bar)	H
Reverse Flow 0-50 psig (0-3.4 bar)	J

*Must be ordered with metal bowl.

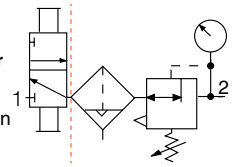
LOCKOUT VALVE

L-O-X® on outlet side	**1**
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Without Valve - Leave Blank	

GAUGE

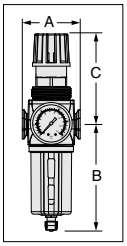
Without Gauge	**A**
Gauge 0-200 psig (0-14 bar)	B
Gauge 0-60 psig (0-4 bar)	C
Without Gauge, with Panel Mount Nut	D
Gauge 0-200 psig (0-13 bar), with Panel Mount Nut	E
Gauge 0-60 psig (0-4 bar), with Panel Mount Nut	F

ISO Symbol
Filter/Regulator with Lockout
Automatic Drain
Self-relieving



Bowl Type	Dimensions inches (mm)				Weight lb (kg)
	A	B*	C	Depth	
Polycarbonate	3.0 (76.2)	5.54 (140.6)	4.68 (119)	2.51 (63.8)	1.98 (0.90)
Metal	3.0 (76.2)	6.42 (163.1)	4.68 (119)	2.76 (70.1)	2.17 (0.99)

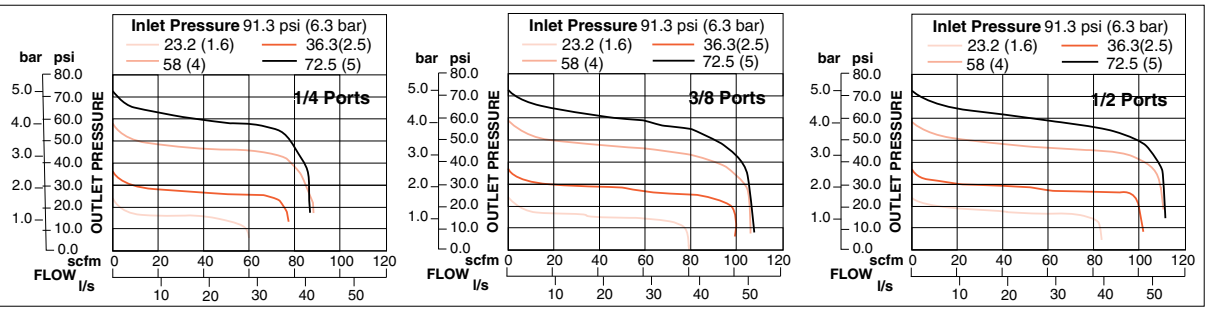
Lockout: With the lockout valve, add 2.3 (58) to dimension A.
* Bowl (standard) removal clearance: add 3.1 (79)
* Bowl (extended) removal clearance: add 6.1 (155)
Dimensions above reflect less gauge.



REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	R-A60F-03PE5
5-µm - Optional	Sintered Bronze	R-A60F-03E5
20-µm - Optional	Sintered Bronze	R-A60F-03E4
40-µm - Optional	Sintered Bronze	R-A60F-03E3

FLOW CHARTS



Options: External Bowl Drains, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Sintered Regulator – Diaphragm
Temperature	**Ambient/Media:** **Polycarbonate Bowl:** 40° to 125°F (4° to 52°C) **Metal Bowl:** 40° to 175°F (4° to 80°C)
Fluid Media	Compressed air
Operating Pressure	**Automatic Drain Models** **Polycarbonate Bowl:** 30 to 150 psig (2 to 10 bar) **Metal Bowl:** 30 to 200 psig (2 to 14 bar) **Manual Drain Models** **Polycarbonate Bowl:** 0 to 150 psig (0 to 10 bar) **Metal Bowl:** 0 to 250 psig (0 to 17 bar)
Outlet Pressure	Adjustable up to 200 psig (14 bar)
Pressure Adjustment	**Locking Key:** Removable

Pressure Gauge	0 to 200 psig (0 to14 bar) or 0 to 60 psig (0 to 4 bar); 1/4-NPT gauge ports front and rear
Panel Mounting	2-1/16 inch (52 mm) hole required
Filter Drain	Float drain or manual drain
Construction Material	**Filter Element:** 5-micron rated polyethylene, 5-, 20-, 40-micron rated sintered bronze
	Body: Zinc
	Bowl: Polycarbonate with nylon shatterguard, or aluminum bowl with clear nylon sight glass
	Dome: Nylon
	Seals: Nitrile
	Valve: Brass

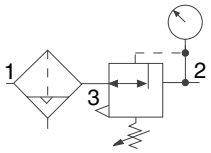
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 180 scfm

Port Size	Port Threads	Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
		Model Number	Model Number	Model Number	Model Number
1/4	NPTF	5321B2072	5322B2071	5321B2012	5322B2011
	G	C5321B2072	C5322B2071	C5321B2012	C5322B2011
3/8	NPTF	5321B3072	5322B3071	5321B3012	5322B3011
	G	C5321B3072	C5322B3071	C5321B3012	C5322B3011
1/2	NPTF	5321B4072	5322B4071	5321B4012	5322B4011
	G	C5321B4072	C5322B4071	C5321B4012	C5322B4011
3/4	NPTF	5321B5072	5322B5071	5321B5012	5322B5011
	G	C5321B5072	C5322B5071	C5321B5012	C5322B5011

ISO Symbol
Filter/Regulator

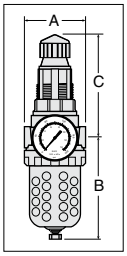
Automatic Drain
Self-relieving



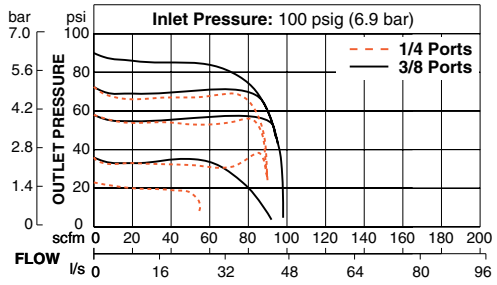
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B**	C***	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	3.5 (89)	5.8 (146)	5.8 (146)	3.5 (89)	2.50 (1.15)
	Zinc	8-oz (240-ml)	3.5 (89)	6.4 (163)	5.8 (146)	3.5 (89)	2.55 (1.17)

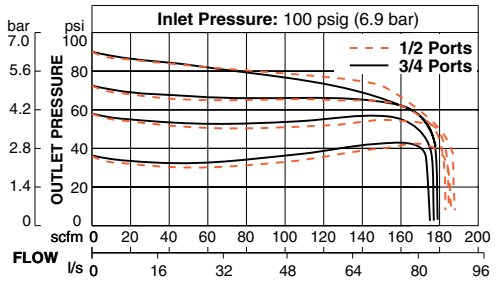
** Bowl removal clearance: add 3.1 (79). *** Dome removal clearance: add 0.63 (16). † Less gauge.

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Model Number
5-µm - Standard	Polyethylene	939K77
5-µm - Optional	Sintered Bronze	R-KA103-03E5
20-µm - Optional	Sintered Bronze	R-KA103-03E4
40-µm - Optional	Sintered Bronze	R-KA103-03E3



FLOW CHARTS





Pressure Gauge included.
Options: External Automatic Drain, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-4.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Filter – Fiber Regulator – Piston
Temperature	**Ambient/Media:** **Polycarbonate Bowl:** 40° to 125°F (4° to 52°C) **Metal Bowl:** 40° to 175°F (4° to 80°C)
Fluid Media	Compressed air
Operating Pressure	**Automatic Drain Models** **Polycarbonate Bowl:** Up to 150 psig (up to 10 bar) **Metal Bowl:** Up to 200 psig (up to 14 bar) **Manual Drain Models** **Polycarbonate Bowl:** 0 to 150 psig (0 to 10 bar) **Metal Bowl:** 0 to 200 psig (0 to 14 bar)
Outlet Pressure	Adjustable up to 125 psig (9 bar).

Pressure Adjustment	**Locking Key:** Removable
Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Panel Mounting	2-1/16 inch (52 mm) hole required
Filter Drain	Automatic drain or manual drain
Construction Material	**Filter Element:** 5-micron rated polyethylene
	Body: Zinc
	Bowl: Polycarbonate with steel shatterguard, or zinc bowl with clear nylon sight glass
	Dome: Nylon
	Knob: Acetal
	Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 230 scfm

Choose your options (in red) to configure your model number.

MD4	53P	B	A	B	3	B	B	1

BOWL MATERIAL/SIZE	
Polycarbonate Bowl 9-oz (266-ml)	**53P**
Metal Bowl 9-oz (266-ml)	53M

FILTER ELEMENT TYPE	
40-µm Sintered Bronze	**A**
5-µm Polyethylene	B

BOWL DRAIN	
Auto Drain	**A**
Manual Drain	M

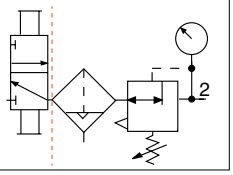
PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

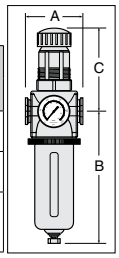
ADJUSTMENT RANGE	
0-175 psig (0-12 bar)*	**A**
0-125 psig (0-8.6 bar)	B
0-50 psig (0-3.4 bar)	C
0-20 psig (0-1.4 bar)	D
Reverse Flow 0-175 psig (0-12 bar)*	F
Reverse Flow 0-125 psig (0-8.6 bar)	G
Reverse Flow 0-50 psig (0-3.4 bar)	H
Reverse Flow 0-20 psig (0-1.4 bar)	J
*Must be ordered with metal bowl.	

GAUGE*	
Without Gauge	**A**
Gauge 0-200 psig (0-14 bar)	B
Gauge 0-60 psig (0-4 bar)	C
Without Gauge, with Panel Mount Nut	D
Gauge 0-200 psig (0-14 bar), with Panel Mount Nut	E
Gauge 0-60 psig (0-4 bar), with Panel Mount Nut	F
*1/4 NPT gauge ports front and rear.	

LOCKOUT VALVE	
L-O-X® on outlet side	**1**
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Without Valve - Leave Blank	

ISO Symbol
Filter/Regulator with Lockout
Automatic Drain
Self-relieving



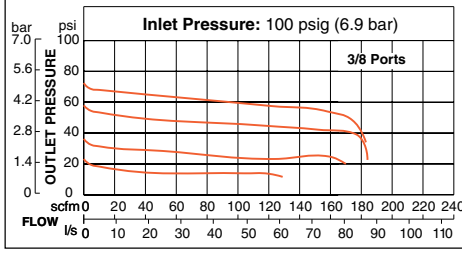


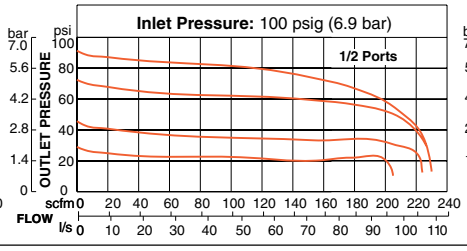
Port Size	Bowl Type	Dimensions inches (mm) A	B*	C**	Depth †	Weight † lb (kg)
3/8, 1/2, 3/4	Polycarbonate	3.5 (88)	7.7 (195)	5.4 (137)	2.9 (73)	3.69 (1.68)
	Aluminum	3.5 (88)	7.6 (193)	5.4 (137)	2.9 (73)	3.69 (1.68)

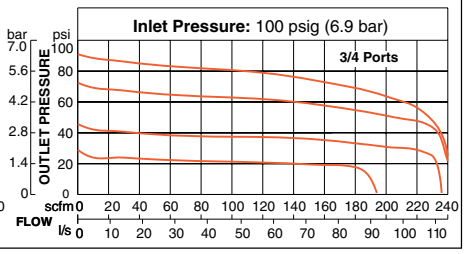
* Bowl removal clearance: add 3.1 (79).
** Dome removal clearance: add 0.63 (16). † Less gauge.

REPLACEMENT FILTER ELEMENTS*		
Element Rating	**Element Material**	**Element Number**
5-µm - Standard	Polyethylene	R-A115-106PE5
40-µm - Standard	Sintered Bronze	R-A115-106E3
5-µm - Optional	Sintered Bronze	R-A115-106E5
20-µm - Optional	Sintered Bronze	R-A115-106E4

FLOW CHARTS







Options: External Bowl Drains, refer to page G6.7.
Accessories ordered separately, refer to page G6.3-5.

STANDARD SPECIFICATIONS (for units on this page):

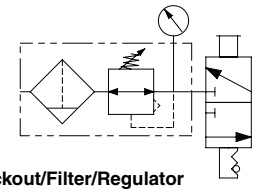
Construction Design	Filter – Fiber Regulator – Piston
Temperature	**Ambient/Media:** **Polycarbonate Bowl:** 40° to 125°F (4° to 52°C) **Metal Bowl:** 40° to 175°F (4° to 80°C)
Fluid Media	Compressed air
Operating Pressure	**Automatic Drain Models** **Polycarbonate Bowl:** Up to 150 psig (up to 10 bar) **Metal Bowl:** Up to 200 psig (up to 14 bar)
	Manual Drain Models **Polycarbonate Bowl:** 0 to 150 psig (0 to 10 bar) **Metal Bowl:** 0 to 200 psig (0 to 14 bar)
Outlet Pressure	Adjustable up to 125 psig (9 bar).
Pressure Adjustment	**Locking Key:** Removable

Pressure Gauge	0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear
Panel Mounting	2.05 inch (52.1 mm) hole required
Filter Drain	Automatic or manual
Construction Material	**Filter Element:** 5-micron rated polyethylene, or 40-micron rated sintered bronze
	Body: Zinc
	Bowl: Polycarbonate with steel shatterguard, or aluminum bowl with clear nylon sight glass
	Bonnet: Nylon; aluminum with optional 0 to 175 psig (0 to 12 bar) spring
	Cap Color: Black
	Seals: Nitrile
	Valve: Brass

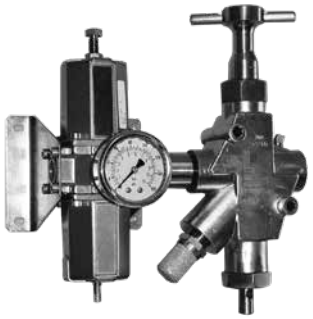
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 1/2, 3/4 & 1 – Flow to 17 scfm

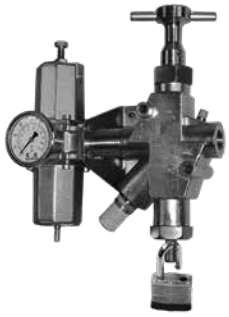
Port Size		Model Number	C_v	
1-2	3		1-2	2-3
1/4	1/4	RC010-13	2.14	2.08
1/2	1/2	RC011-13	4.4	6.24
3/4	1	RC012-13	5.0	17.0
1	1	RC013-13	8.0	17.0



Lockout/Filter/Regulator ISO Symbol
Lockout, Manual Drain, Self-relieving



Port Size		Avg. C_v		Dimensions (inches/mm)		
1-2	3	1-2	2-3	Length	Width	Depth
1/4	1/4	2.14	2.08	8.9 (226.1)	7.65 (194.4)	5.86 (149)
1/2	1/2	4.4	6.24	10.24 (260)	8.98 (228)	5.94 (151)
3/4	1	5.0	17.0	15.75 (400)	12.24 (311)	6.49 (165)
1	1	8.0	17.0	15.75 (400)	12.24 (311)	6.49 (165)

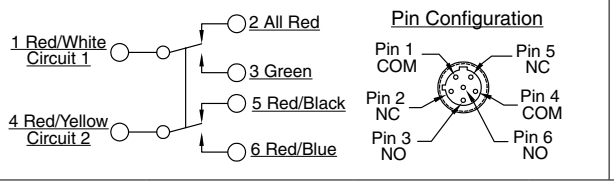


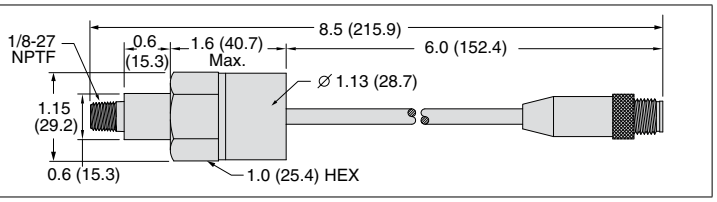
G3

ACCESSORIES

Stainless Steel Pressure Switch

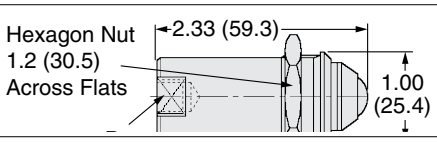
Inlet Port Size	Model Number	Weight lb (kg)
1/8	1162A30	0.23 (.01)





Stainless Steel Visual Indicator

Inlet Port Size	Model Number	Weight lb (kg)
1/8	1155H30	0.22 (0.1)



G

* NPT threads. For G threads, consult ROSS.

STANDARD SPECIFICATIONS (for units on this page):

Construction Design	Poppet, 316 Stainless Steel
Mounting Type	In-line
Temperature	**Ambient/Media:** 30° to 175°F (-1° to 80°C)
	Note: For lower temperature ratings, consult ROSS.
Flow Media	Filtered air

Operating Pressure	0 to 300 psig (0 to 21 bar)
	Secondary Pressure: 7 to 174 psig (0.5 to 12 bar)
Construction Material	**Seals:** Fluorocarbon (Viton)
Lock Hole Diameter	**Port sizes 1/4 thru 2:** 0.34 inch (8.64 mm)
Length of Hole	**Port sizes 1/4:** 0.44 in (11.17 mm) **Port sizes 1/2:** 0.47 in (11.93 mm)

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

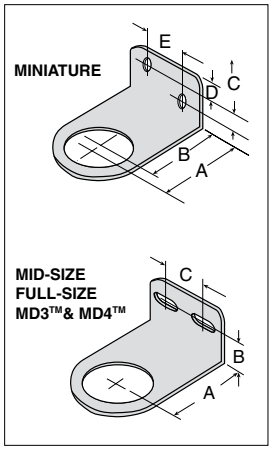
Mounting Screws for BANTAM Models

Usage Models	Kit Number
BANTAM	859K77

BANTAM models mounts with long screws that extend through end plates.

Mounting Brackets for Regulators and Integrated Filter/Regulators

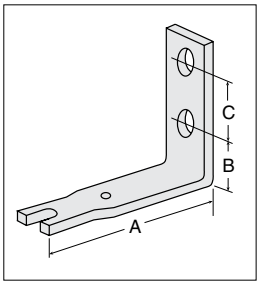
Regulators and integrated filter/regulators can be mounted to a surface with a bracket that attaches to the regulator. Brackets and mounting panel nuts can be ordered separately or in a kit which includes both bracket and mounting panel nut.



Usage Models	Model Number			Dimensions inches (mm)					
	Kit	Bracket	Panel Nut	A	B	C	D	E	Panel Mounting Hole Diameter
MINIATURE	873K77	872K77	874K77	1.375 (35)	1.125 (29)	0.31 (8)	0.31 (8)	0.69 (17)	1.19 (30)
MID-SIZE	876K77	875K77	877K77	2.38 (60)	1.00 (25)	1.50 (38)	–	–	1.56 (40)
MD3™	R-A127-11	–	R-127-11	2.38 (60)	1.00 (25)	1.50 (38)	–	–	2.06 (52)
FULL-SIZE, MD4™	879K77	878K77	880K77						

Modular Mounting Brackets for Filters, Regulators, Lubricators, FRL's, or Clean Air Packages

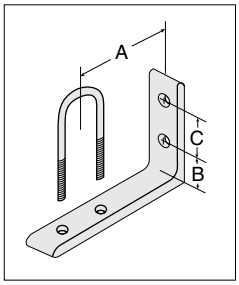
Two L-shaped metal brackets as shown at the right can be used for wall mounting of modular FRLs or Clean Air Packages. A single bracket can be used to mount individual filters or lubricators. Kits include two brackets and four screws for attaching the brackets to the modules.



Usage Models	Kit Number	Dimensions inches (mm)			
		A	B	C	D
MID-SIZE & FULL-SIZE	915K77	3.0 (76)	0.88 (22)	1.00 (25)	1.20 (31)

FRLs In-line Mounting Pipe Brackets

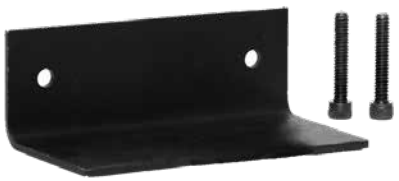
Two pipe brackets can be used for wall mounting of FRLs assemblies that use pipe nipples to join the components. The bracket kits listed below include two sets of brackets.



Nipple Size	Kit Number	Dimensions inches (mm)		
		A	B	C
1/4	887K77	2.72 (28)	0.50 (13)	1.00 (25)
3/8	888K77			
1/2	889K77			
3/4	890K77	3.69 (94)	1.13 (29)	1.25 (32)
1	891K77			

Bracket Assembly Kit for HIGH-RELIEF Pilot Operated Regulator

High-Relief Pilot Operated Regulator with 1/4- thru 1¼ inch ports can be mounted to a vertical surface using a bracket assembly kit.



Kit Number	R-A37-381

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

MID-SIZE and FULL-SIZE Units

The modular designs of the MID-SIZE and FULL-SIZE series offer maximum flexibility in customizing FRLs assemblies. As shown at the right, connector kits are required to interconnect units. Various port kits (shown below) can be used to connect the assemblies to the inlet and outlet piping. Note that all FRLs components have threaded ports so that conventional pipe fittings may be used where desired.

Female Port Block

Used to connect to piping at inlet or outlet.

Port Size	Model Number	
	NPTF Threads	G Threads
1/4	897K77	D897K77
3/8	898K77	D898K77
1/2	899K77	D899K77
3/4	900K77	D900K77

Male Port Block

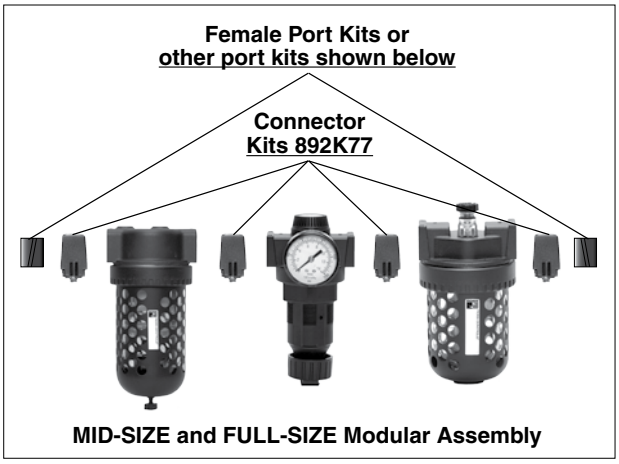
Used to connect modular to non-modular units.

Port Size	Model Number	
	NPTF Threads	G Threads
1/4	893K77	D893K77
3/8	894K77	D894K77
1/2	895K77	D895K77
3/4	896K77	D896K77

Connector Kit

Used to connect units to one another as well as to any of the ports shown on this page.

Kit Number	892K77



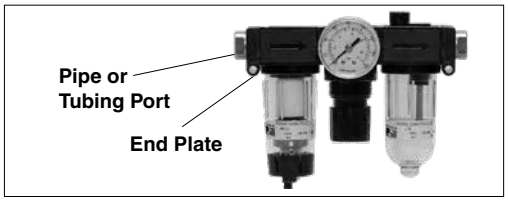
MID-SIZE and FULL-SIZE Modular Assembly

BANTAM Units

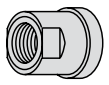
BANTAM modular units use end plates secured with screws to hold the pipe or tubing ports (see below), and also to serve as mounting brackets. Short screws are used to secure the end plates when a single BANTAM unit is used. If two or more units are combined, long screws extend through an end plate and thread into the next unit.

Screw kits required are as follows:

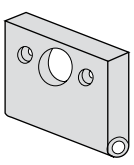
Single Unit: Two short screw kits.
Two-Unit Combination: One each short screw kit and long screw kit.
Three-Unit Combination: Two long screw kits.



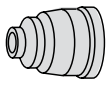
Pipe Ports	
Port Size	Model Number
1/8 NPTF	862K77
1/4 NPTF	863K77
1/8 BSPP	D864K77
1/4 BSPP	D865K77



Pipe Ports	
Kit Description	Model Number
END PLATE (1)	857K77
Short Screw (2)	858K77
Long Screw (2)	859K77
Small O-Ring (for inlet or mating ports)	860K77
Large O-Ring (for outlet or mating ports)	861K77



Tube Ports	
Port Size	Model Number
1/4	866K77
3/8	867K77
4 mm	868K77
6 mm	869K77
8 mm	870K77
10 mm	871K77



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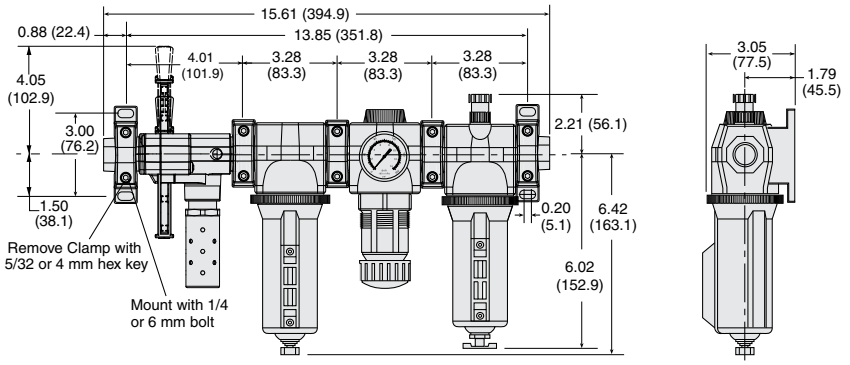
G6

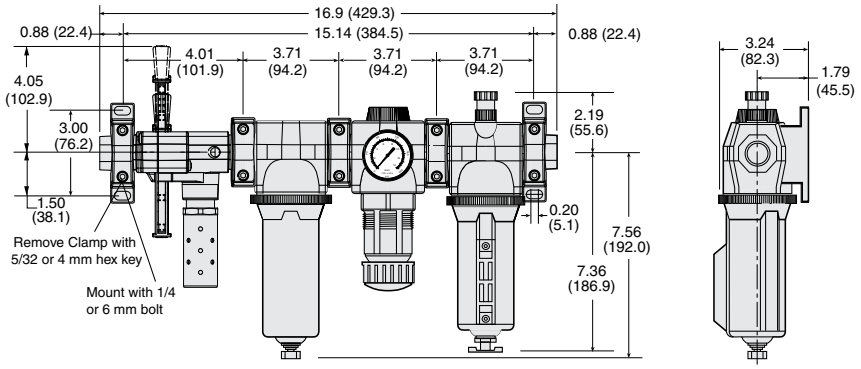
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Dimensions: inches (mm)

MD3™ Series



MD4™ Series



Mounting Brackets & Clamp for Module Connections

Two brackets are normally used to mount an FRL to a vertical surface. The mounting bracket attaches to the module connecting clamp (see above) with a single screw. Each bracket then employs two bolts (1/4" or 6mm) to connect the assembly to the mounting surface.
Specially designed clamps provide a quick and easy assembly or disassembly of MD3™ modules. Two Allen-Head bolts quickly tighten or loosen the clamp using a 5/32 or 4mm hex key. The clamp contains a plate carrying two O-rings to provide positive sealing between modules.

Bracket, Screw, and Clamp

Module Connecting Clamp

Mounting Bracket

Mounting Brackets & Clamp for Module Connections	
Description	**Model Number**
Bracket and Screw	R-A118-103
Module Connecting Clamp	R-A118-105
Bracket, Screw, and Clamp	R-A118-105M

Male and Female End Ports

Either male or female end ports can be attached to threaded inlet and outlet lines. This allows all modules of an FRL assembly to be removed easily and quickly without having to unthread the end modules. The end ports are attached to the modules with clamps (see at left). End ports can be included in an assembled FRL or ordered separately by the following model numbers:

End Ports				
Type	**Port Size**	**Model Number**		
		NPTF Threads	**G Threads**	
Female	1/4	R-118-100-2	R-118-100-2W	
	3/8	R-118-100-3	R-118-100-3W	
	1/2	R-118-100-4	R-118-100-4W	
	3/4	R-118-100-6	R-118-100-6W	
Male	1/4	R-118-109-2F	R-118-109-2FW	
	3/8	R-118-109-3F	R-118-109-3FW	
	1/2	R-118-109-4F	R-118-109-4FW	
	3/4	R-118-109-6F	R-118-109-6FW	

Extra Port Blocks

An extra port block can be placed between modules to provide two auxiliary 1/4 NPTF ports. Its mounting position can be rotated to obtain the most convenient operating orientation. If only one auxiliary port is to be used, the unused port must be closed with a pipe plug. (The inlet and outlet are not threaded.)

Port Size	Model Number	
	NPTF Threads	**G Threads**
1/4	R-118-106-2	R-118-106-2W
3/8	R-118-106-3	R-118-106-3W
1/2	R-118-106-4	R-118-106-4W

Analog Pressure Gauges

	Type/Material	Port Size	Model Number Thread NPT	Model Number Thread G	Pressure Range psig (bar)	Case Diameter inches (mm)
Pressure Gauges (Center Back Mounting)	Standard Aluminum	1/8	5400A1002	D5400A1002	0-160 (0-11)	1.7 (43)
		1/4	5400A2010	D5400A2010	0-60 (0-4)	2.0 (51)
		1/4	5400A2011	D5400A2011	0-200 (0-14)	2.0 (51)
		1/4	5400A2012	D5400A2012	0-300 (0-20)	2.0 (51)
	Liquid Filled Stainless Steel	1/4	5400A2014	D5400A2014	0-160 (0-11)	2.5 (64)
		1/4	5400A2015*	D5400A2015*	0-160 (0-11)	2.0 (51)
	*Green shade between 40-70 psi (2.7-4.8 bar).					

Differential Pressure Gauges

DIFFERENTIAL PRESSURE GAUGE TYPE/SERIES	Small Slide Gauge R-A60F-28	Small Slide Gauge R-K103-151	Large Dual Face Gauge R-106-35	Large Dual Face Gauge with Reed Switch (Normally Open) R-106-35E	Large Dual Face Gauge with Reed Switch (Normally Closed) R-106-35EC
					
FILTERS					
BANTAM	–	–	–	–	–
MINIATURE	–	–	–	–	–
MID-SIZE	–	–	–	–	–
MD3™		–	–	–	–
FULL-SIZE	–	–	–	–	–
MD4™	–				
HIGH-CAPACITY	–	–	–	–	–
COALESCING FILTERS					
BANTAM	–	–	–	–	–
MINIATURE	–	–	–	–	–
MID-SIZE		–	–	–	–
FULL-SIZE	–				
MD3™		–	–	–	–
MD4™	–				
HIGH-CAPACITY	–				
OIL VAPOR REMOVAL (ADSORBING) FILTERS					
MD3™	–	–	–	–	–
MD4™	–	–	–	–	–
CLEAN AIR PACKAGES					
MD3™		–	–	–	–
MD4™	–				

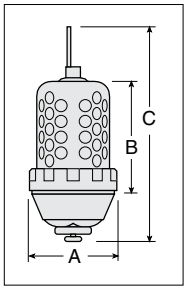
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

External Automatic Drains

Pipe Size	Model Number*	
	Polycarbonate Bowl**	Metal Bowl
1/8	5057B1001	5058B1001
1/4*	5057B2001	5058B2001

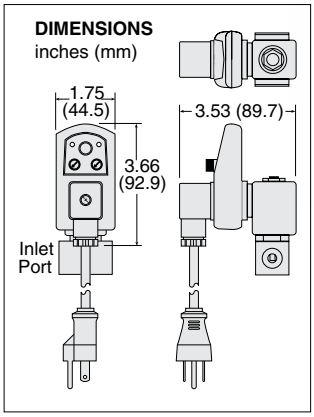
*Use 1/4 size with FULL-SIZE, HIGH-CAPACITY, MD3™ & MD4™ filters.
Use kit 1076K77 to convert standard bowl to accept auto drain unit.
**Available for FULL-SIZE filters only. Polycarbonate bowl includes metal bowl guard.

Port Size	Dimensions inches (mm)			Weight lb (kg)
	A	B	C	
1/8, 1/4	3.5 (89)	4.2 (107)	8.3 (211)	2.6 (1.2)



Electronically Controlled Drain

Pipe Size	Voltage	Model Number	
		NPTF Threads	G Threads
1/4	24 volts DC	R-DED-24V-2	R-DED-24V-2W
3/8	24 volts DC	R-DED-24V-3	R-DED-24V-3W
1/2	24 volts DC	R-DED-24V-4	R-DED-24V-4W
1/4	110-120 volts AC, 50/60 Hz	R-DED-115V-2	R-DED-115V-2W
3/8	110-120 volts AC, 50/60 Hz	R-DED-115V-3	R-DED-115V-3W
1/2	110-120 volts AC, 50/60 Hz	R-DED-115V-4	R-DED-115V-4W



STANDARD SPECIFICATIONS (for electronically controlled drain):

Drain Time	Adjustable 0.5 to 10 seconds
Drain Interval	0.5 to 45 minutes
Current Consumption	Maximum 4 ma
Temperature	**Ambient:** 35° to 130°F (2° to 54°C)
	Media: 35° to 190°F (2° to 88°C)

Electrical Connection	DIN 43650A, ISO 440/6952
Valve Type	2/2 direct acting, normally closed
Valve Body	Forged brass; 3/16-inch (4.8 mm) orifice
Maximum Pressure	230 psig (15.8 bar)

Silencers

Port Size	Thread Type	Model Number*		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	R/Rp Threads		Width	Length	
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)

Flow Media: Filtered air.
Pressure Range: 0 to 290 psig (0 to 20 bar) maximum.

Category	Series	Bowl Type	Element Rating	Element Material	Model Number
Filters	Bantam & Miniature	Standard	5-µm	Polyethylene	933K77
			5-µm	Sintered Bronze	R-KA130-27E5
			20-µm	Sintered Bronze	R-KA130-27E4
			40-µm	Sintered Bronze	R-KA130-27E3
	MID-SIZE	Standard	5-µm	Polyethylene	936K77
	MD3™	Standard	5-µm	Polyethylene	R-A60F-03PE5
			5-µm	Sintered Bronze	R-A60F-03E5
			20-µm	Sintered Bronze	R-A60F-03E4
			40-µm	Sintered Bronze	R-A60F-03E3
	FULL-SIZE	Standard	5-µm	Polyethylene	939K77
			5-µm	Sintered Bronze	R-KA103-03E5
			20-µm	Sintered Bronze	R-KA103-03E4
			40-µm	Sintered Bronze	R-KA103-03E3
	MD4™	Standard	5-µm	Polyethylene	R-A115-106PE5
			5-µm	Sintered Bronze	R-A115-106E5
			20-µm	Sintered Bronze	R-A115-106E4
			40-µm	Polyethylene	R-A115-106PE3
	HIGH-CAPACITY Flow to 275 scfm	Standard	5-µm	Polyethylene	1010K77
			5-µm	Sintered Bronze	R-KA109-03E5
			20-µm	Sintered Bronze	R-KA109-03E4
			40-µm	Sintered Bronze	R-KA109-03E3
	HIGH-CAPACITY Flow to 660 scfm	Standard	5-µm	Sintered Bronze	1656K77
			40-µm	Sintered Bronze	R-A114-106E3
	HIGH-CAPACITY Flow to 1000 scfm	Standard	5-µm	Sintered Bronze	942K77
			40-µm	Sintered Bronze	944K77
Coalescing Filters	Bantam & Miniature	Standard	0.3-µm	Borosilicate-glass-fiber	945K77
			0.01-µm	Borosilicate-glass-fiber	R-A-10F-16E8
	MID-SIZE	Standard	0.3-µm	Borosilicate-glass-fiber	R-A60F-29
		Extended	0.3-µm	Borosilicate-glass-fiber	R-A60F-32
		Standard	0.01-µm	Borosilicate-glass-fiber	R-A60F-29E8
		Extended	0.01-µm	Borosilicate-glass-fiber	R-A60F-32E8
	MD3™	Polycarbonate	0.3-µm	Borosilicate-glass-fiber	R-A60F-23
		Metal	0.3-µm	Borosilicate-glass-fiber	R-A60F-29
		Extended Metal	0.3-µm	Borosilicate-glass-fiber	R-A60F-32
		Polycarbonate	0.01-µm	Borosilicate-glass-fiber	R-A60F-23E8
		Metal	0.01-µm	Borosilicate-glass-fiber	R-A60F-29E8
		Extended Metal	0.01-µm	Borosilicate-glass-fiber	R-A60F-32E8
	FULL-SIZE	Standard	0.3-µm	Borosilicate-glass-fiber	947K77
		Extended	0.3-µm	Borosilicate-glass-fiber	R-A103-160L
		Standard	0.01-µm	Borosilicate-glass-fiber	948K77
		Extended	0.01-µm	Borosilicate-glass-fiber	R-A103-160LE8
	MD4™	Standard	0.3-µm	Borosilicate-glass-fiber	R-A115-117
		Extended	0.3-µm	Borosilicate-glass-fiber	R-A115-118
		Standard	0.01-µm	Borosilicate-glass-fiber	R-A115-117E8
		Extended	0.01-µm	Borosilicate-glass-fiber	R-A115-118E8
	HIGH-CAPACITY Flow to 220 scfm	Standard	0.3-µm	Borosilicate-glass-fiber	949K77
			0.01-µm	Borosilicate-glass-fiber	R-A109-106E8
	HIGH-CAPACITY Flow to 295 & 450 scfm	Standard	0.3-µm	Borosilicate-glass-fiber	R-A114-112
		Extended	0.3-µm	Borosilicate-glass-fiber	R-A114-113
		Standard	0.01-µm	Borosilicate-glass-fiber	R-A114-112E8
		Extended	0.01-µm	Borosilicate-glass-fiber	R-A114-113E8
	HIGH-CAPACITY Flow to 465 scfm	Standard	0.3-µm	Borosilicate-glass-fiber	952K77
		Extended	0.3-µm	Borosilicate-glass-fiber	953K77
		Standard	0.01-µm	Borosilicate-glass-fiber	R-A106-24E8
		Extended	0.01-µm	Borosilicate-glass-fiber	R-A106-24LE8
	HIGH-CAPACITY Flow to 840 scfm	Extended	0.3-µm	Borosilicate-glass-fiber	953K77
			0.01-µm	Borosilicate-glass-fiber	R-A106-24E8
Oil Vapor Removal Filters	MD3™	Standard	–	Borosilicate-glass-fiber	R-A60F-29E9
		Extended	–	Borosilicate-glass-fiber	R-A60F-32E9
	MD4™	Standard	–	Borosilicate-glass-fiber	R-A115-117E9
		Extended	–	Borosilicate-glass-fiber	R-A115-118E9
Silencers Reclassifiers	Port Size 1/2	Standard	20-µm	Sintered Bronze	940K77
	Port Size 3/4, 1		100-µm	Sintered Bronze	981K77

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Lubricants, Polycarbonate Bowl Cautions

Compatible Lubricants

Although air line lubrication is not required for most ROSS valves, other mechanisms in the system may need such lubrication. When a lubricator is used, it should be supplied only with oils which are compatible with the materials used in the valves for seals and poppets. Generally speaking, these are petroleum base oils with oxidation inhibitors, and aniline point between 180°F (82°C) and 220°F (104°C) and an ISO 32, or lighter, viscosity. Oils with phosphate type additives, such as zinc dithiophosphate, must be avoided because they can harm polyurethane valve components.
The best oils to use in pneumatic systems are those specifically compounded for air line lubricator service.

Cautions on the Use of Polycarbonate Bowls

Use Only with Compressed Air. Filters and lubricators with polycarbonate bowls are specifically designed for compressed air service, and their use with any other fluid (liquid or gas) is a misapplication. The use with or injection of certain hazardous fluids in the system (e.g., alcohol or liquefied petroleum gas) could be harmful to the polycarbonate bowl or result in a combustible condition or hazardous leakage. Before using with a fluid other than air, or for nonindustrial applications, or for life support systems, consult ROSS.
Use Metal Bowl Guard When Supplied. A metal bowl guard is supplied with all but the smallest bowls, and must always be used to minimize danger from fragmentation in the event of failure of a polycarbonate bowl.
Avoid Harmful Substances. Some compressor oils, chemical cleaners, solvents, paints, and fumes will attack polycarbonate bowls and can cause bowl failure. Do not use with or near these materials. When a bowl becomes dirty, replace the bowl or wipe it with a clean dry cloth. Immediately replace any polycarbonate bowl which is crazed, cracked, or deteriorated.

Substances HARMFUL to Polycarbonate Bowls

Acetaldehyde
Acetic acid
Acetone
Acrylonitrile
Ammonia
Ammonium fluoride
Ammonium hydroxide
Ammonium sulfide
Anaerobic adhesives & sealants
Antifreeze
Benzene
Benzoic acid
Benzyl alcohol
Brake fluids
Bromobenzene
Butyric acid
Carbolic acid
Carbon disulfide
Carbon tetrachloride
Caustic potash solution
Caustic soda solution
Chlorobenzene
Chloroform
Cresol
Cyclohexanol
Cyclohexanone
Cyclohexene
Dimethyl formamide
Dioxane
Ethane tetrachloride
Ethyl acetate
Ethyl ether
Ethylamine
Ethylene chlorohydrin
Ethylene dichloride
Ethylene glycol
Formic acid
Freon (refrigerant & propellant)
Gasoline (high aromatic)
Hydrazine
Hydrochloric acid
Lacquer thinner
Methyl alcohol
Methylene chloride
Methylene salicylate
Milk of lime (CaOH)
Nitric acid
Nitrobenzene
Nitrocellulose lacquer
Phenol
Phosphorous hydroxyl chloride
Phosphorous trichloride
Propionic acid
Pyridine
Sodium hydroxide
Sodium sulfide
Styrene
Sulfuric acid
Sulfural chloride
Tetrahydronaphthalene
Thiophene
Toluene
Turpentine
Xylene
Perchlorethylene

Trade Names of Substances HARMFUL to Polycarbonate Bowls

• Atlas Perma-Guard • Buna N • Cellulube #150 & #220 • Crylex #5 cement • Eastman 910 • Garlock 98403 (polyurethane) • Haskel 568-023 • Hilgard Company's hil phene • Houghton & Co. oil 1120, 1130, 1055 • Houtosafe 1000 • Kano Kroil • Keystone penetrating oil #2 • Loctite 271, 290, 601 • Loctite Teflon sealant • Marvel Mystery Oil • Minn. Rubber 366Y • National Compound N11 Nylock VC-3 • Parco 1306 Neoprene • Permabond 910 • Petron PD287 • Prestone • Pydraul AC • Sears Regular Motor Oil • Sinclair oil "Lily White" • Stauffer Chemical FYRQUEL 150 • Stillman SR 269-75 (polyurethane) • Stillman SR 513-70 (neoprene) • Tannergas • Telar • Tenneco anderol 495 & 500 oils • Titon • Vibra-tite • Zerex

CAUTIONS, WARNINGS And STANDARD WARRANTY

ROSS OPERATING VALVE, ROSS CONTROLS®, ROSS DECCO®, and AUTOMATIC VALVE INDUSTRIAL, collectively the "ROSS Group".

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure all sources of energy are turned off, the entire pneumatic system is shut down and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).

2. All ROSS Group Products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any product can be tampered with and/or need servicing after installation, persons responsible for the safety of others or the care of equipment must check ROSS Group Products on a regular basis and perform all necessary maintenance to ensure safe operating conditions.

3. All applicable instructions should be read and complied with before using any fluid power system to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use. If you have any questions, call your nearest ROSS Group location.

4. Each ROSS Group Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Group Products.

WARNINGS: Failure to follow these instructions can result in personal injury and/or property damage.

FILTRATION and LUBRICATION

1. Dirt, scale, moisture, etc., are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. The ROSS Group recommends a filter with a 5-micron rating for normal applications.

2. All standard ROSS Group filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition and hazardous leakage. Immediately replace crazed, cracked, or deteriorated bowls.

3. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum base oils with oxidation inhibitors, an aniline point between 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks personal injury, and/or damage to property.

WARNINGS: Failure to follow these instructions can result in personal injury and/or property damage.

AVOID INTAKE/EXHAUST RESTRICTION

1. Do not restrict air flow in the supply line. To do so could reduce the pressure of the supply air below minimum requirements for the valve and thereby causing erratic action.

2. Do not restrict a valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.

WARNINGS: Failure to follow these instructions can result in personal injury and/or property damage.

SAFETY APPLICATIONS

1. Mechanical Power Presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.

2. Safety exhaust (dump) valves without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All safety exhaust valve installations should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.

3. Per specifications and regulations, the ROSS L-O-X® and L-O-X® with EEZ-ON®, N06 and N16 Series operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

WARNINGS: Failure to follow these instructions can result in personal injury and/or property damage.

STANDARD WARRANTY

All products sold by the ROSS Group are warranted for a one-year period [with the exception of Filters, Regulators and Lubricators ("FRLs") which are warranted for a period of seven (7) years] from the date of purchase. All products are, during their respective warranty periods, warranted to be free of defects in material and workmanship. The ROSS Group's obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Group has determined, in its sole discretion, are defective. All warranties become void if a product has been subject to misuse, misapplication, improper maintenance, modification or tampering. Products for which warranty protection is sought must be returned to the ROSS Group freight prepaid.

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There are ROSS Distributors Throughout the World

To meet your requirements across the globe, ROSS distributors are located throughout the world. Through ROSS or its distributors, guidance is available for the selection of ROSS products, both for those using pneumatic components for the first time and those designing complex systems.

Other literature is available for engineering, maintenance, and service requirements.

If you need products or specifications not shown in this catalog, please visit ROSS' website, contact ROSS or your ROSS distributor. The ROSS Support Team will be happy to assist you in selecting the best product for your application.

For a current list of countries and local distributors, visit ROSS' at rosscontrols.com.

