Air Preparation FRL's Accessories
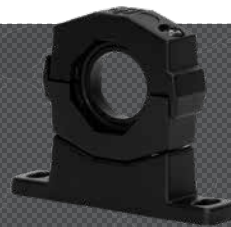
ROSS CONTROLS

## 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.


MINIATURE

MID-SIZE
FULL-SIZE
MD3™ & MD4™

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	2.38 (60)	1.00 (25)	1.50 (38)	–	–	2.06 (52)
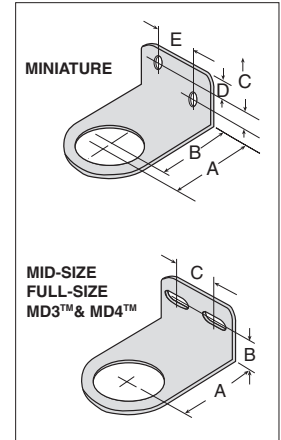
Modular Mounting Brackets
for Filters, Regulators, Lubricators, FRL's, or Clean Air Packages

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)
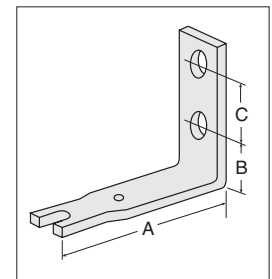
FRLs In-line Mounting Pipe Brackets

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	2.72 (28)	0.50 (13)	1.00 (25)
1/2	889K77	2.72 (28)	0.50 (13)	1.00 (25)
3/4	890K77	3.69 (94)	1.13 (29)	1.25 (32)
1	891K77	3.69 (94)	1.13 (29)	1.25 (32)
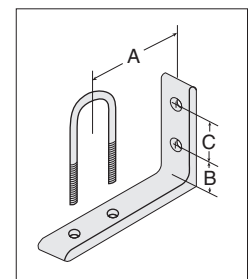
Bracket Assembly Kit for HIGH-RELIEF Pilot Operated Regulator

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	
Kit Number	R-A37-381

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.

Connector Kit

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

Kit Number	892K77

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

**Female Port Kits or
other port kits shown below**

**Connector
Kits 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 or Tubing Port
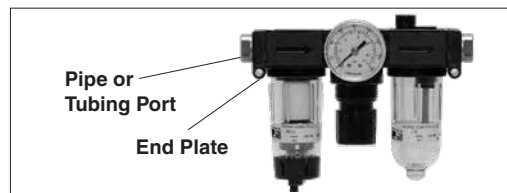
End Plate

Pipe Ports		
Port Size	Model Number	
1/8 NPTF	862K77	
1/4 NPTF	863K77	
1/8 BSPP	D864K77	
1/4 BSPP	D865K77	
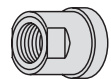
Pipe Ports		
Kit Description	Model Number	
END PLATE (1)	857K77	
Short Screw (2)	858K77	
Long Screw (2)	859K77	
Small O-Ring (for inlet or mating ports)	860K77	
Large O-Ring (for outlet or mating ports)	861K77	
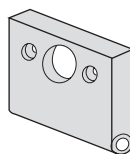
Tube Ports		
Port Size	Model Number	
1/4	866K77	
3/8	867K77	
4 mm	868K77	
6 mm	869K77	
8 mm	870K77	
10 mm	871K77	
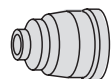
Dimensions: inches (mm)

MD3™ Series

15.61 (394.9)
13.85 (351.8)
0.88 (22.4)
4.01 (101.9)
3.28 (83.3)
3.28 (83.3)
3.28 (83.3)
4.05 (102.9)
3.00 (76.2)
2.21 (56.1)
3.05 (77.5)
1.79 (45.5)
0.20 (5.1)
6.42 (163.1)
6.02 (152.9)
1.50 (38.1)
Remove Clamp with 5/32 or 4 mm hex key
Mount with 1/4 or 6 mm bolt

MD4™ Series

16.9 (429.3)
15.14 (384.5)
0.88 (22.4)
4.01 (101.9)
3.71 (94.2)
3.71 (94.2)
3.71 (94.2)
0.88 (22.4)
4.05 (102.9)
3.00 (76.2)
2.19 (55.6)
3.24 (82.3)
1.79 (45.5)
0.20 (5.1)
7.56 (192.0)
7.36 (186.9)
1.50 (38.1)
Remove Clamp with 5/32 or 4 mm hex key
Mount with 1/4 or 6 mm bolt
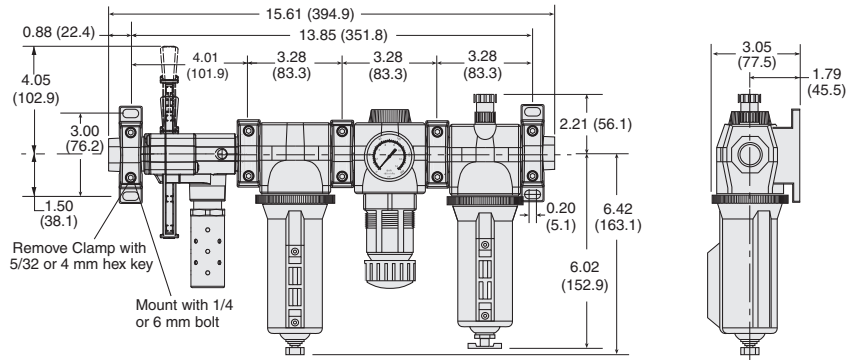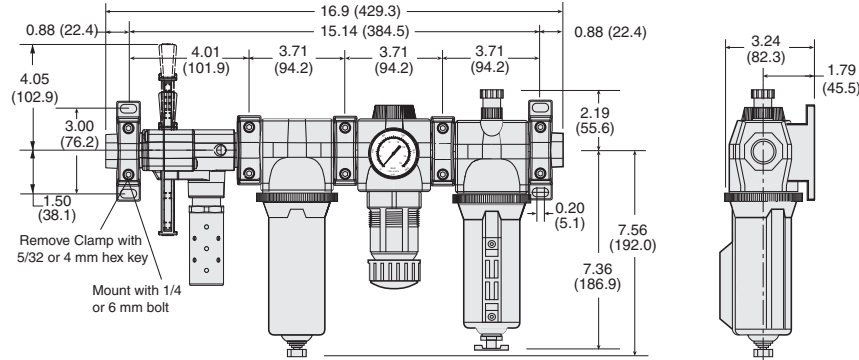
Mounting Brackets & Clamp for Module Connections

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		Pressure Range psig (bar)	Case Diameter inches (mm)		
		Thread					
		NPT	G				
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)		

Pressure Gauges (Center Back Mounting)

*Green shade between 40-70 psi (2.7-4.8 bar).
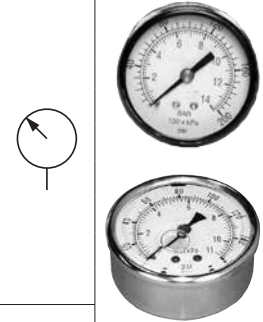
Differential Pressure Gauges

DIFFERENTIAL PRESSURE GAUGE TYPE/SERIES	Small Slide Gauge	Small Slide Gauge	Large Dual Face Gauge	Large Dual Face Gauge with Reed Switch (Normally Open)	Large Dual Face Gauge with Reed Switch (Normally Closed)
	R-A60F-28	R-K103-151	R-106-35	R-106-35E	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™	–	██	██	██	██

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

DIMENSIONS inches (mm)
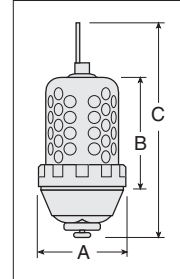
Pipe Size	Voltage	Model Number	
		NPTF Threads	**G Threads**
1/4	24 volts DC	R-DED-24V-2	R-DED-24V-2W
3/8	24 volts DC	R-DED-24V-3	R-DED-24V-3W
1/2	24 volts DC	R-DED-24V-4	R-DED-24V-4W
1/4	110-120 volts AC, 50/60 Hz	R-DED-115V-2	R-DED-115V-2W
3/8	110-120 volts AC, 50/60 Hz	R-DED-115V-3	R-DED-115V-3W
1/2	110-120 volts AC, 50/60 Hz	R-DED-115V-4	R-DED-115V-4W
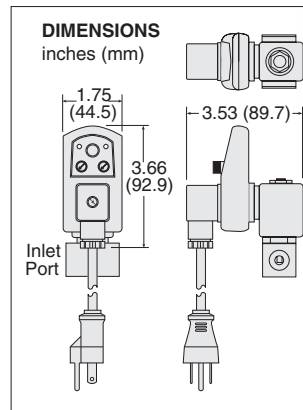
STANDARD SPECIFICATIONS (for electronically controlled drain)**:**

Drain Time	Adjustable 0.5 to 10 seconds	**Electrical Connection**	DIN 43650A, ISO 440/6952
Drain Interval	0.5 to 45 minutes	**Valve Type**	2/2 direct acting, normally closed
Current Consumption	Maximum 4 ma	**Valve Body**	Forged brass; 3/16-inch (4.8 mm) orifice
Temperature	Ambient: 35° to 130°F (2° to 54°C)	**Maximum Pressure**	230 psig (15.8 bar)
	Media: 35° to 190°F (2° to 88°C)		

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