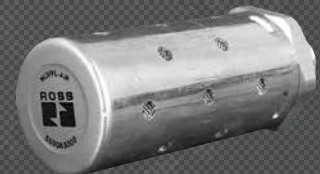
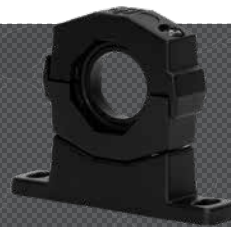




# AIR PREPARATION FRL's ACCESSORIES

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**ROSS CONTROLS**



CONTENT	Page
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Modular Assembly Components	G6.4
Clamp, Brackets, End Ports & Port Blocks	G6.5
Pressure Gauges	G6.6
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Replacements Filter Elements	G6.8



### Mounting Screws for BANTAM Models

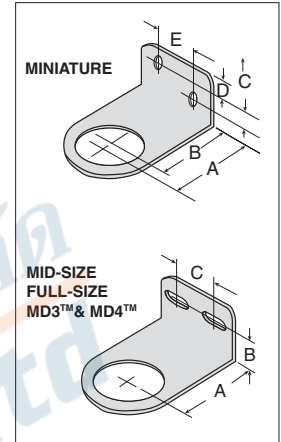
Usage Models	Kit Number
BANTAM	859K77

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.

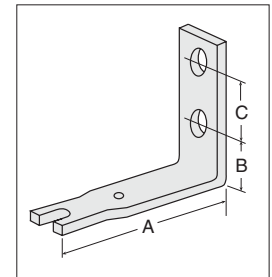
Usage Models	Model Number			Dimensions inches (mm)					Panel Mounting Hole Diameter
	Kit	Bracket	Panel Nut	A	B	C	D	E	
MINIATURE	873K77	872K77	874K77	1.375 (35)	1.125 (29)	0.31 (8)	0.31 (8)	0.69 (17)	1.19 (30)
MID-SIZE	876K77	875K77	877K77	2.38 (60)	1.00 (25)	1.50 (38)	-	-	1.56 (40)
MD3™	R-A127-11	-	R-127-11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

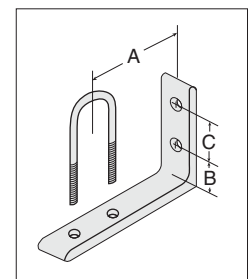
Usage Models	Kit Number	Dimensions inches (mm)			
		A	B	C	D
MID-SIZE & FULL-SIZE	915K77	3.0 (76)	0.88 (22)	1.00 (25)	1.20 (31)



### 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 1 1/4 inch ports can be mounted to a vertical surface using a bracket assembly kit.

Kit Number	R-A37-381
------------	-----------



# Modular Assembly Components

## MID-SIZE, FULL-SIZE & BANTAM Series

### 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.

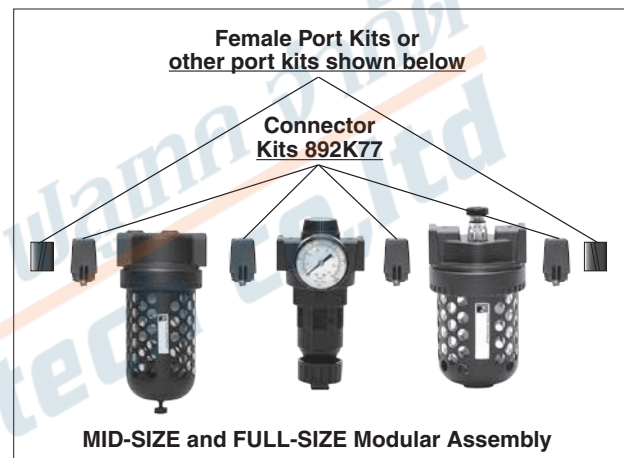
Port Size	Model Number	
	NPTF Threads	G Threads
1/4	893K77	D893K77
3/8	894K77	D894K77
1/2	895K77	D895K77
3/4	896K77	D896K77



#### Connector Kit

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

Kit Number	892K77
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### BANTAM Units

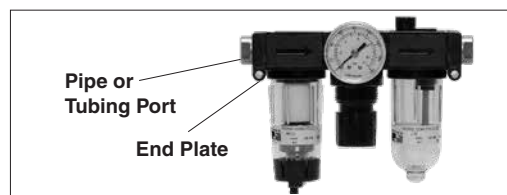
BANTAM modular units use end plates secured with screws to hold the pipe or tubing ports (see below), and also to serve as mounting brackets. Short screws are used to secure the end plates when a single BANTAM unit is used. If two or more units are combined, long screws extend through an end plate and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

Screw kits required are as follows:

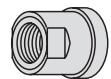
Single Unit: Two short screw kits.

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

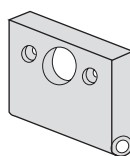
Three-Unit Combination: Two long screw kits.



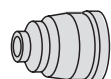
Pipe Ports	
Port Size	Model Number
1/8 NPTF	862K77
1/4 NPTF	863K77
1/8 BSPP	D864K77
1/4 BSPP	D865K77



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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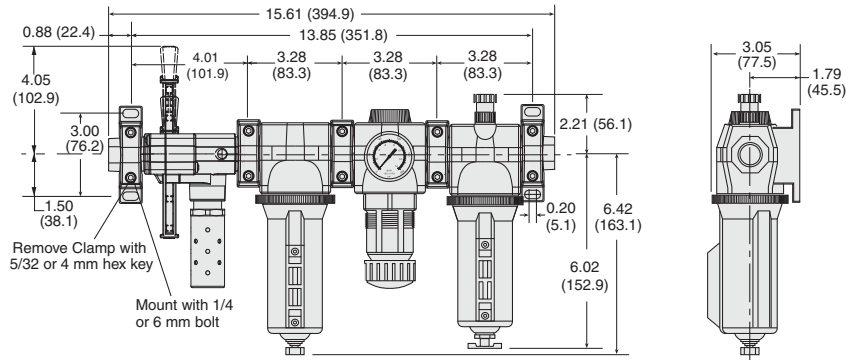
# Modular Assemblies

## Accessories: Clamp, Brackets, End Ports & Port Blocks

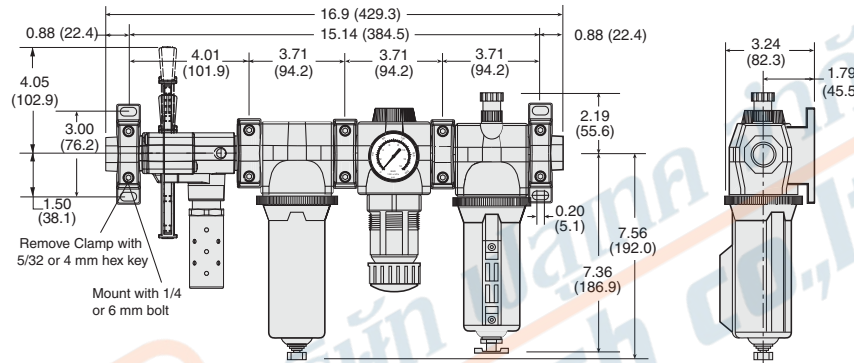
## MD Series

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:

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



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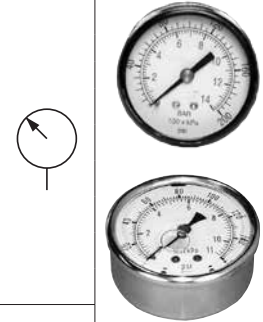
845/3-4 Thepharak RD., T.Thepharak, A.Muang, Samutprakarn 10270 THAILAND  
Tel. 0 2384 6060, Fax 0 2384 5701, Email : sales@flutech.co.th, www.flutech.co.th



Analog Pressure Gauges

Pressure Gauges (Center Back Mounting)	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)

\*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
<b>FILTERS</b>					
BANTAM	-	-	-	-	-
MINIATURE	-	-	-	-	-
MID-SIZE	-	-	-	-	-
MD3™		-	-	-	-
FULL-SIZE	-	-	-	-	-
MD4™	-				
HIGH-CAPACITY	-	-	-	-	-
<b>COALESCING FILTERS</b>					
BANTAM	-	-	-	-	-
MINIATURE	-	-	-	-	-
MID-SIZE		-	-	-	-
FULL-SIZE	-				
MD3™		-	-	-	-
MD4™	-				
HIGH-CAPACITY	-				
<b>OIL VAPOR REMOVAL (ADSORBING) FILTERS</b>					
MD3™	-	-	-	-	-
MD4™	-	-	-	-	-
<b>CLEAN AIR PACKAGES</b>					
MD3™		-	-	-	-
MD4™	-				

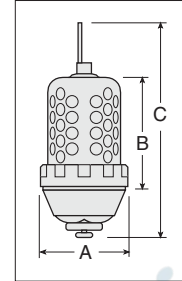


### External Automatic Drains

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

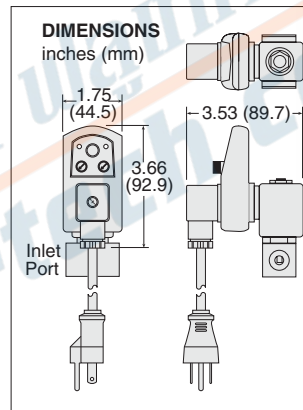
\*Use 1/4 size with FULL-SIZE, HIGH-CAPACITY, MD3™ & MD4™ filters.  
Use kit 1076K77 to convert standard bowl to accept auto drain unit.  
\*\*Available for FULL-SIZE filters only. Polycarbonate bowl includes metal bowl guard.

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

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) Media: 35° to 190°F (2° to 88°C)	Maximum Pressure	230 psig (15.8 bar)

### Silencers

Port Size	Thread Type	Model Number*		Avg. Cv	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.



# Replacements Filter Elements

## FRL's Series

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™	Standard	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	
HIGH-CAPACITY Flow to 840 scfm	Extended	0.01-µm	Borosilicate-glass-fiber	R-A106-24LE8		
		0.3-µm	Borosilicate-glass-fiber	953K77		
Oil Vapor Removal Filters	MD3™	Standard	-	Borosilicate-glass-fiber	R-A60F-29E9	
			-	Borosilicate-glass-fiber	R-A60F-32E9	
	MD4™	Standard	-	Borosilicate-glass-fiber	R-A115-117E9	
			-	Borosilicate-glass-fiber	R-A115-118E9	
Silencers Reclassifiers	Port Size 1/2 Port Size 3/4, 1	Standard	20-µm	Sintered Bronze	940K77	
			100-µm	Sintered Bronze	981K77	