

# ARO®

## ARO-FLO SERIES

FILTERS, REGULATORS AND LUBRICATORS



# ARO-Flo Series

For more than 100 years, Ingersoll Rand ARO® has been an industry leader in the design and manufacture of compressors, pneumatic tools, and air preparation equipment. Clean air is a key ingredient that enables effective and efficient operation of tools, equipment, and machinery in almost every industry. As such, the use of air preparation devices, such as filters, regulators, and lubricators (FRLs) is an excellent means of keeping your air supply in top condition, as well as enabling your tools and equipment to operate at their peak performance. The ARO-Flo Series FRLs continue the tradition of offering premium products for your operation, and also raises the bar in the industry for safety, flow performance, and modularity.

## Safety:

Providing safe tools and equipment is our top priority. ARO-Flo Series FRLs are designed with integrated safety features such as locking bowls and clear multilingual markings. Accessories such as lockout valves, check valves, and soft-start valves allow the air supply to be safely managed and controlled.

Ingersoll Rand attests that ARO-Flo Series of filters, regulators, lubricators (1000, 1500, 2000, 3000 Series) and select accessories are out of scope for ATEX Directive 94/9/EEC or 2014/34/EU. The products listed in the form IRITS-1215-197 certificate can be used in group II, category 2 environment; Gas and Dust with temperature a T6 (Ex II 2GD T6) if all conditions set up in the Instruction Manual are meet. Instruction Manuals and certificate regarding ATEX Declaration can be found at [AROZONE.COM](http://AROZONE.COM)



**Performance:** ARO-Flo Series FRLs set the standard for flow performance. Simply put, air flows better through ARO-Flo filters, regulators, and lubricators than almost any other other air filtration device. This means less air is choked during the air preparation process, and your equipment can perform at its peak performance.

**Modularity:** All ARO-Flo accessories are designed to integrate with each other within each size range. From pipe adapters to T-brackets, your complete FRL assembly and its individual components can be easily, safely, and quickly assembled or disassembled with a minimum of tools — no fuss or complications, even with fixed piping.

# Best in class

The following regulators were put through head-to-head tests to determine how they compare with the new ARO-Flo Series.

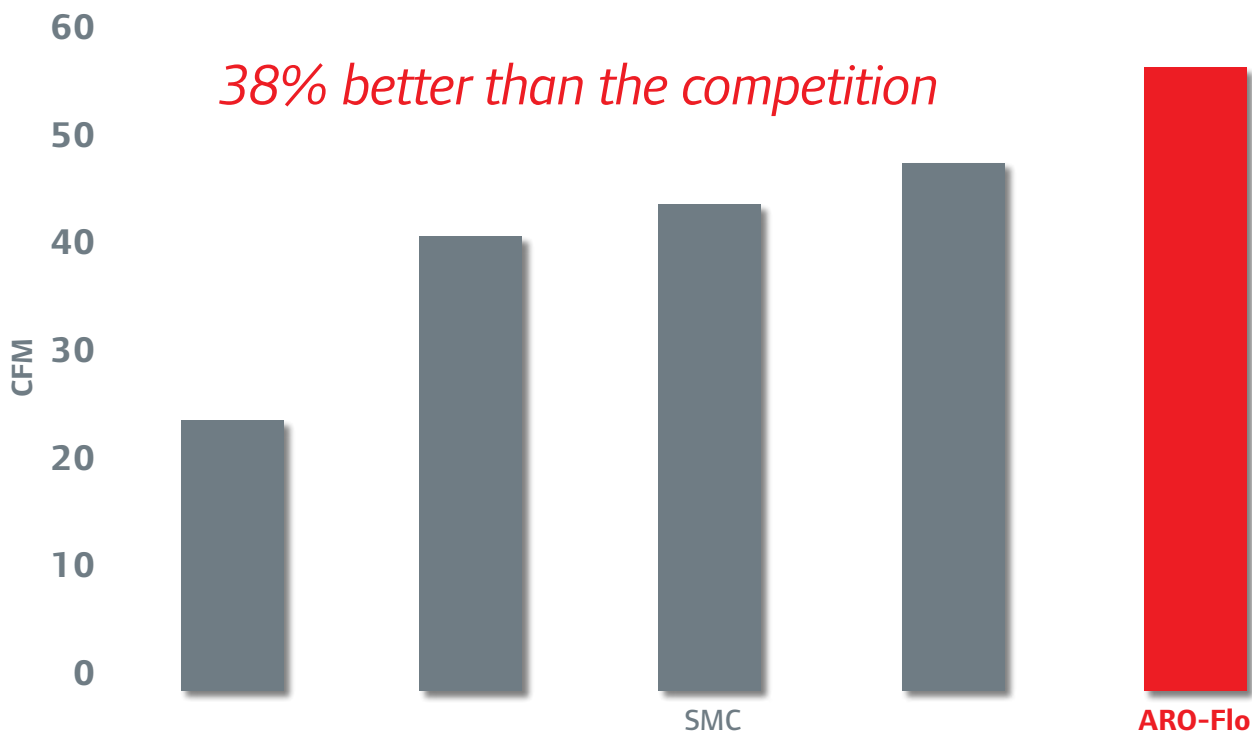
Manufacturer	Model Number	Flow Rate
Parker	14R118F	27 cfm
Wilkerson®	R08-02-F0G0	44 cfm
SMC®	AR20-N02E-Z	48 cfm
Norgren	R72G-2AK-RMG	51 cfm
<b>ARO-Flo</b>	<b>R37121-620</b>	<b>59 cfm</b>

How did we do? On average, the ARO-Flo 1/4" 1000 Series regulator flowed 38 percent better than the competition. All regulators were tested under the same conditions, and all units were new — right out of the box.



R37121-620

## 1/4" Regulator — Flow Test



Test parameters: 100 psi inlet pressure, 90 psi set pressure, and 33 psi drop

This is not the largest 1/4" regulator in the ARO-Flo Series, but rather the smallest. How did we do it? We designed the ARO-Flo Series from the ground up to allow air to pass through the units with a minimum of flow loss. The bottom line: If you want superior flow in your application, you can't miss with the new ARO-Flo Series.

# Features and benefits

By utilizing a modular lockout valve the user can close off the downstream air supply for maintenance and pressure isolation. Units are threaded for direct plumbing or can be installed in the modular arrangement.

Optional filter life indicator works off of pressure differential to show a visible alert when the filter needs replacement.

A T-bracket wall mount is standard on all combo units.

The settable gauge fan is a visual reference that allows the user to display the specific pressure range that is needed for their application.



Use of modular threaded pipe adapters allow for ease of service by allowing a unit to be quickly removed from the air line. Adapters can be used to pipe different thread sizes in the plumbing setup.

The ARO® soft-start valve allows system pressure to build gradually, protecting downstream equipment and creating a safer start-up condition.

A panel nut is standard on all individual ARO-Flo regulators and piggybacks. Must be ordered separately on combination units.

## Spares and Accessories

See our accessories catalog or go to our Web site for the complete selection of accessories for your application.



Refurb kits  
104302



Mounting brackets  
104409



Replacement parts  
104338



Pressure switch  
104415



The pressure switch is typically threaded into a manifold port block, and allows the sensing of high or low pressure thresholds set by the user.

The oil drip rate is controlled by adjusting the sight dome adjustment screw in a clockwise or counter-clockwise direction.

The auto-fill option is standard on all ARO-Flo lubricators. Lubricating oil can be added while lubricators are under pressure.



The ARO-Flo check valve is typically installed downstream of the regulator. It is used to help prevent downstream pressure from moving upstream of the valve in the event of upstream pressure loss.

The positive locking thumb switch engages with an audible click, and visually aligns to the locking symbols.

Optional tamper kit installs in seconds and prevents adjustment of the regulated pressure.

The installation of a manifold port block enables design flexibility by allowing clean, regulated air to be diverted to other applications.



Gauges  
104334

Manifold block kit  
104413-3-2

Lubricating oil  
29665

Accessories

1000 Series



### 1000 Series

1/8" and 1/4" Ports

**Max flow:** 59 scfm  
**Series size:** Miniature  
**Page:** 8

1500 Series



### 1500 Series

1/4" and 3/8" Ports

**Max flow:** 113 scfm  
**Series size:** Compact  
**Page:** 18

2000 Series



### 2000 Series

3/8", 1/2", and 3/4" Ports

**Max flow:** 222 scfm  
**Series size:** Standard  
**Page:** 28

3000 Series



### 3000 Series

3/4" and 1" Ports

**Max flow:** 368 scfm  
**Series size:** Heavy-Duty  
**Page:** 38

Super-Duty Series



### Super-Duty Series

1", 1-1/4", 1-1/2", 2" and 3" Ports

**Max flow:** 1,770 scfm

Specialty Items



### Specialty Items

1/8", 1/4", 3/8", 1/2", and 3/4" Ports

**Specialty line**  
**Page:** 56

# Overview

## Filters

ARO-Flo compressed air filters are designed to remove airborne solid and liquid contaminants. Filters can be ordered with different elements, including coalescing models which are capable of removing oil aerosols and particles down to 0.3 micron. Standard filters are sold with 5-micron elements; 40-micron elements can be purchased and installed separately.



## Regulators

Air line regulators provide controlled, consistent air pressure as required for specific pneumatic equipment connected to the air system. All ARO-Flo regulators are offered with a standard adjustment range of 0 – 140 psig (0 – 9.6 barg). Alternative spring ranges are offered for easy conversion to suit different requirements. Non-relieving regulators are offered for applications where the venting of downstream overpressure is undesirable.



## Lubricators

ARO-Flo mist-type lubricators help ensure that pneumatic devices receive the required lubrication to maintain peak performance, reduce wear, and prolong service life. They are designed to provide the correct amount of oil required for most general applications in a pneumatic system, delivering a constant ratio of oil to air flow. Precise oil feed adjustment sets the proper oil drip rate. Lubricators should be installed close to the downstream application to ensure effective distribution of oil.



## Piggyback Filters / Regulators

Filter-regulators, or “piggybacks,” combine the functions of both a filter and regulator. Piggybacks are compact and most effective when space is a constraint. Piggybacks can be ordered with different filter elements and can be modified with different springs, depending on the filtration and air regulating requirements.



## Combinations

Filters, regulators, lubricators, and piggybacks can be combined together to form combinations. They are typically strung together in the F+R+L arrangement (three-piece combo) and F/R+L (two-piece combo) arrangement, although other configurations are also used depending on application needs. ARO-Flo combination FRLs are easily assembled using modular spacer kits. Panel nuts not included with units. Must be ordered separately.



# Selection

When selecting an FRL or individual filter, regulator and lubricator units, the air consumption of the tools or equipment to be serviced should be correlated with the flow capacity of the FRL. **ARO® Filters, Regulators and Lubricators are designed to flow in excess of that indicated in the maximum recommended flow table shown below.** This table gives recommended flows for pipe sizes at listed pressures and should be used as a guide in sizing piping and equipment for compressed air systems.

## Maximum recommended air flow (scfm) thru ANSI standard weight Schedule 40 pipe

Applied Pressure PSIG	Nominal Standard Pipe Size — Inches										
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
5	0.5	1.2	2.7	4.9	6.6	13	27	40	80	135	240
10	0.8	1.7	3.9	7.7	11.0	21	44	64	125	200	370
20	1.3	3.0	6.6	13.0	18.5	35	75	110	215	350	600
40	2.5	5.5	12.0	23.0	34.0	62	135	200	385	640	1100
60	3.5	8.0	18.0	34.0	50.0	93	195	290	560	900	1600
80	4.7	10.5	23.0	44.0	65.0	120	255	380	720	1200	2100
100	5.8	13.0	29.0	54.0	80.0	150	315	470	900	1450	2600
150	8.6	20.0	41.0	80.0	115	220	460	680	1350	2200	3900
200	11.5	26.0	58.0	108.0	155.0	290	620	910	1750	2800	5000
250	14.5	33.0	73.0	135.0	200	370	770	1150	2200	3500	6100

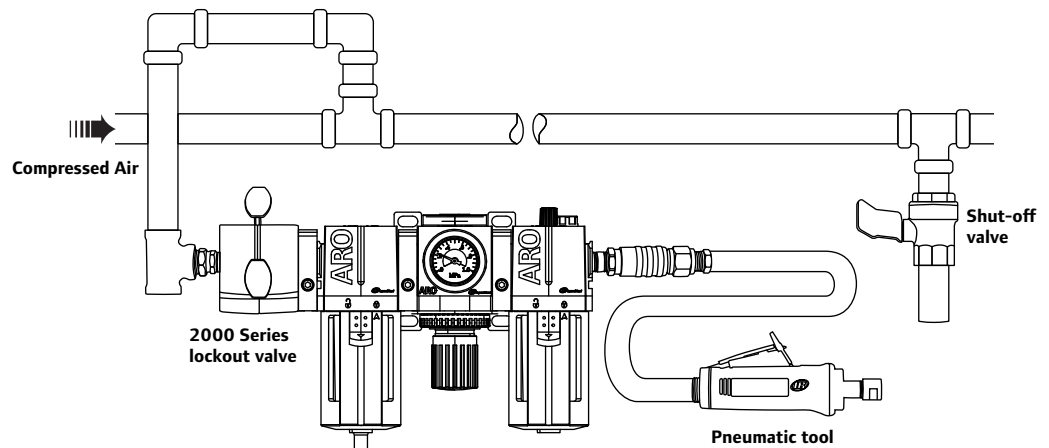
The flow values in the chart above are based upon a pressure drop ( $\Delta P$ ) as set forth in the following

Pressure Drop ( $\Delta P$ ) per 100 ft. of Pipe	Pipe Size — Inches
10% of Applied Pressure	1/8, 1/4, 3/8, 1/2
5% of Applied Pressure	3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3

# Installation

The filter, regulator and lubricator should be installed in the order shown in the illustration below. If a coalescing filter is required, it should be installed downstream from a standard filter. Individual take-off lines to the FRL and air tool or equipment should be from the top of the compressed air line. Make sure that air flow markings are followed for proper flow direction through the FRL units.

To trap and expel water, sludge and other contaminants which may collect on the bottom of the air line, a drip leg drain should be used. Drip leg drains should be installed at low points in the piping system and at the far end

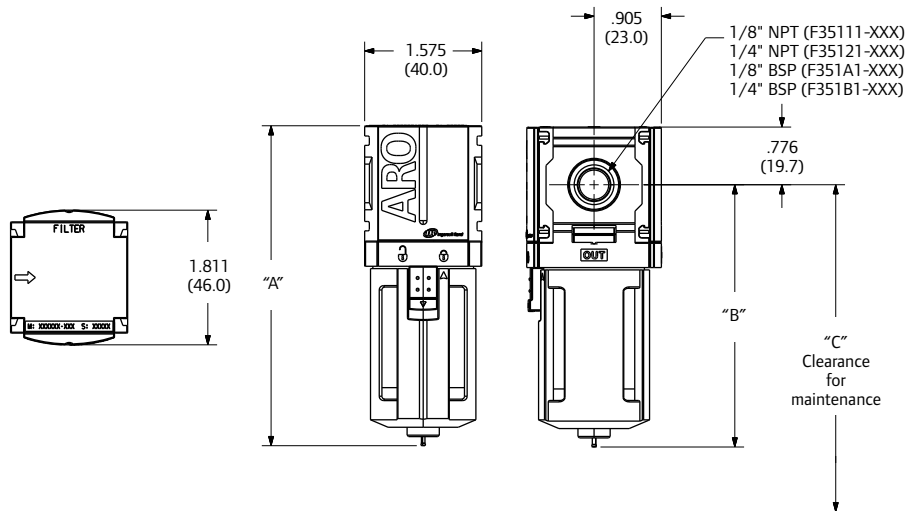


# 1000 Series filters

1000 Series

Technical data		
Polycarbonate bowl	Polycarbonate	
Polycarbonate bowl guard	Nylon	
Metal bowl	Aluminum	
Filter body	Aluminum	
Manual drain	Brass + nitrile	
Auto drain	Acetal	
Standard filter	Polyethylene	
Coalescing filter	HEPA paper + felt	
Seals	Nitrile	
Filter baffle	Acetal	
	POLYCARBONATE BOWL	METAL BOWL
Max inlet pressure (psi)	150	250
Temperature range (F)	23 – 125	23 – 175
Bowl cap — manual drain (oz)	0.5	0.4
Bowl cap — auto drain (oz)	0.7	0.7
Bowl cap — coal manual drain	0.3	
Bowl cap — coal auto drain	0.5	
*Flow capacity — 1/8" port	38 scfm	
*Flow capacity — 1/4" port	49 scfm	

\*Inlet pressure 90 psi (6.2 bar) with 10 psi drop (0.7 bar)



MODELS	A (MM)	B (MM)	C (MM)	BOWL OPTION	DRAIN OPTION
F351X1-XX0	4.303 (109.3)	3.528 (89.6)	5.102 (129.6)	N/A	MANUAL
F351X1-X01	5.016 (127.4)	4.240 (107.7)	5.815 (147.7)	POLYCARBONATE W/ GUARD	AUTOMATIC
F351X1-X21	4.992 (126.8)	4.217 (107.1)	5.791 (147.1)	METAL	AUTOMATIC

### How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size	Base model					
1/8"	- F351	1	1	X	X	X
1/4"	- F351	2	1	X	X	X

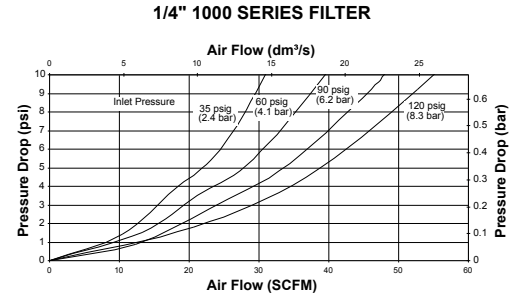
**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

<b>Thread type</b>	<b>Filter element</b>	<b>Bowl option</b>	<b>Drain option</b>
<b>1</b> 1/8" NPT	<b>3</b> 0.3-Micron coalescing	<b>0</b> Polycarbonate w/ guard	<b>0</b> Manual
<b>2</b> 1/4" NPT	<b>4</b> 5 micron	<b>2</b> Metal	<b>1</b> Automatic
<b>A</b> 1/8" BSP			
<b>B</b> 1/4" BSP			

### Popular configurations

Port size NPT	Filter type	Bowl cap (oz)	Element (microns)	Model
<b>MANUAL DRAIN • METAL BOWL</b>				
1/8"	Coalescing	0.3	0.3	F35111-320
1/8"	Standard	0.4	5	F35111-420
1/4"	Coalescing	0.3	0.3	F35121-320
1/4"	Standard	0.4	5	F35121-420
<b>MANUAL DRAIN • POLYCARBONATE BOWL W/ GUARD</b>				
1/8"	Coalescing	0.3	0.3	F35111-300
1/8"	Standard	0.5	5	F35111-400
1/4"	Coalescing	0.3	0.3	F35121-300
1/4"	Standard	0.5	5	F35121-400
<b>AUTO DRAIN • METAL BOWL</b>				
1/8"	Coalescing	0.5	0.3	F35111-321
1/8"	Standard	0.7	5	F35111-421
1/4"	Coalescing	0.5	0.3	F35121-321
1/4"	Standard	0.7	5	F35121-421
<b>AUTO DRAIN • POLYCARBONATE BOWL W/ GUARD</b>				
1/8"	Coalescing	0.5	0.3	F35111-301
1/8"	Standard	0.7	5	F35111-401
1/4"	Coalescing	0.5	0.3	F35121-301
1/4"	Standard	0.7	5	F35121-401

### 1/4" Pressure drop test



See page 81 for additional flow charts

### Replacement parts

MODEL	DESCRIPTION
104293	Replacement auto drain*
104294	Replacement manual drain
104295	5-Micron element
104296	40-Micron element
104297	0.3-Micron element
104298	Poly bowl, manual drain
104299	Poly bowl, auto drain
104300	Metal bowl, manual drain
104301	Metal bowl, auto drain
104468	Filter bowl service kit (O-ring)
104459	Coalescing filter bowl, manual drain
104460	Coalescing filter bowl, auto drain

\* Replacement auto drains can only be used with auto drain bowls.

### Accessories

See page 65 for details

MODEL	DESCRIPTION
104390-1	1/8" NPT lockout valve
104390-2	1/4" NPT lockout valve
104394	Modular clamp
104474-1	1/8" NPT pipe adapter
104474-2	1/4" NPT pipe adapter
104477-1	1/8" Check valve
104477-2	1/4" Check valve
104399	T-type wall mount
104407	C-type wall mount
104411-1-1	1/8" x 1/8" Manifold block
104411-2-2	1/4" x 1/4" Manifold block

# 1000 Series regulators

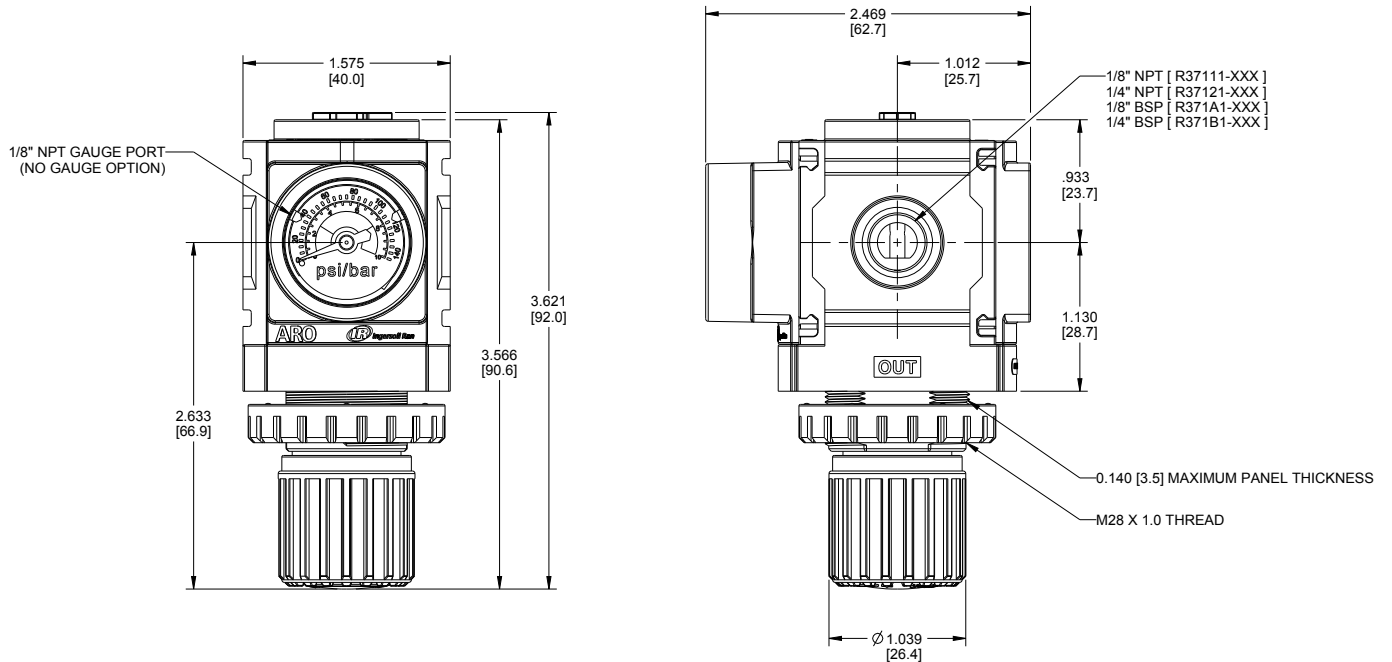
1/8" and 1/4" Ports

Technical data	
Diaphragm	Nitrile + acetal
Regulator body	Aluminum
Regulator valve	Brass + nitrile
Regulator springs	Steel
Gauge cover	Nylon + polycarbonate
Regulator knob	Acetal
O-rings	Nitrile
Max inlet pressure (psi)	250
Temperature range (F)	23 - 140
Spring range options (psi)	0 - 30
	0 - 60
	0 - 140
Gauge port	1/8"
Flow capacity — 1/8" port*	45 scfm
Flow capacity — 1/4" port*	59 scfm

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3



Panel nut comes standard on all individual regulator units





### How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size	Base model				
1/8"	- R371 1 1 - X X X				
1/4"	- R371 2 1 - X X X				

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

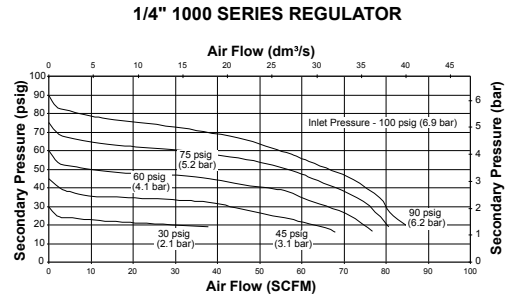
<b>Thread type</b>	<b>Pressure range PSIG</b>	<b>Relieving option</b>	<b>Control option</b>
1 1/8" NPT	1 0 - 140 (no gauge)	0 Relieving	0 Standard knob
2 1/4" NPT	2 0 - 60 (no gauge)	2 Non-relieving	
A 1/8" BSP	4 0 - 30 (no gauge)		
B 1/4" BSP	6 0 - 140 w/ flush-mount		

### Popular configurations

Port size NPT	Pressure range psi	Gauge	Model
<b>RELIEVING • STANDARD KNOB CONTROL</b>			
1/8"	0 - 30	No gauge	R37111-400
1/8"	0 - 60	No gauge	R37111-200
1/8"	0 - 140	No gauge	R37111-100
1/8"	0 - 140	Flush-mount gauge	R37111-600
1/4"	0 - 30	No gauge	R37121-400
1/4"	0 - 60	No gauge	R37121-200
1/4"	0 - 140	No gauge	R37121-100
1/4"	0 - 140	Flush-mount gauge	R37121-600
<b>NON-RELIEVING • STANDARD KNOB CONTROL</b>			
1/8"	0 - 30	No gauge	R37111-420
1/8"	0 - 60	No gauge	R37111-220
1/8"	0 - 140	No gauge	R37111-120
1/8"	0 - 140	Flush-mount gauge	R37111-620
1/4"	0 - 30	No gauge	R37121-420
1/4"	0 - 60	No gauge	R37121-220
1/4"	0 - 140	No gauge	R37121-120
1/4"	0 - 140	Flush-mount gauge	R37121-620

Adjustment range can exceed spring rating on 0-30 psi and 0-60 psi regulators. The working range of the adjustment knob is designed to permit outlet pressures beyond the spring ratings in the 0-30psi and 0-60psi models. The adjustment knob is not designed to be a pressure limiting device. Limiting devices may be obtained only by special design. For optimal performance, regulators should not be set to ranges outside the specified spring range.

### 1/4" Pressure drop test



See page 81 for additional flow charts

### Replacement parts

MODEL	DESCRIPTION
104302	Regulator service kit (relieving)
104303	Regulator service kit (non-relieving)
104304	Tamper kit
104305	0 - 30 psi Spring
104306	0 - 60 psi Spring
104307	0 - 140 psi Spring
104310	0 - 140 psi Gauge flush mount

### Accessories

See page 65 for details

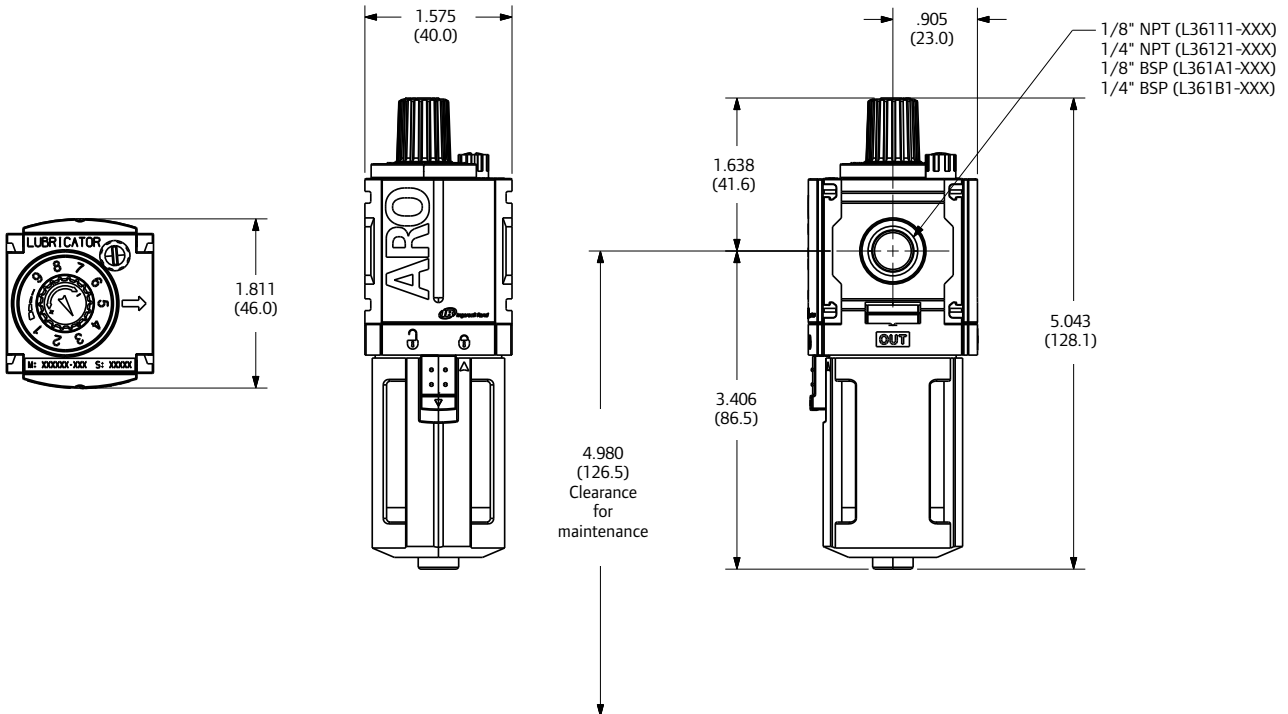
MODEL	DESCRIPTION
104390-1	1/8" NPT lockout valve
104390-2	1/4" NPT lockout valve
104394	Modular clamp
104474-1	1/8" NPT pipe adapter
104474-2	1/4" NPT pipe adapter
104477-1	1/8" Check valve
104477-2	1/4" Check valve
104399	T-type wall mount
104403	L-type wall mount
104407	C-type wall mount
104411-1-1	1/8" x 1/8" Manifold block
104411-2-2	1/4" x 1/4" Manifold block
104416	Panel nut
104467	Gauge port block

# 1000 Series Lubricators

1/8" and 1/4" Ports

Technical data		
Lubricator body	Aluminum	
Lubricator sight dome	Nylon	
Lubricator inlet tube	Urethane	
Seals	Nitrile	
	POLYCARBONATE BOWL	METAL BOWL
Max inlet pressure (psi)	150	250
Temperature range (F)	23 - 125	23 - 175
Bowl capacity (oz)	0.6	0.7
Flow capacity — 1/8" Port*	32 scfm	
Flow capacity — 1/4" Port*	51 scfm	

\*Inlet pressure 90 psi (6.2 bar) with 7 psi drop (0.5 bar)



### How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size	Base model					
1/8"	- L361	1	1	- X	X	X
1/4"	- L361	2	1	- X	X	X

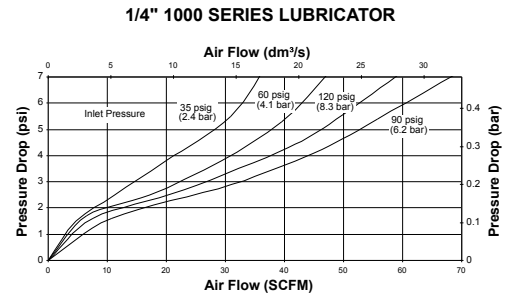
**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

<b>Thread type</b>	<b>Adjustment option</b>	<b>Bowl option</b>	<b>Fill option</b>
1 1/8" NPT	1 Standard	0 Polycarbonate w/ guard	0 Standard
2 1/4" NPT		2 Metal	
A 1/8" BSP			
B 1/4" BSP			

### Popular configurations

Port size	Adjustment option	Bowl cap (oz)	Fill option	Model
<b>METAL BOWL</b>				
1/8"	Standard	0.7	Standard	L36111-120
1/4"	Standard	0.7	Standard	L36121-120
<b>POLYCARBONATE BOWL W/ GUARD</b>				
1/8"	Standard	0.6	Standard	L36111-100
1/4"	Standard	0.6	Standard	L36121-100

### 1/4" Pressure drop test



See page 81 for additional flow charts

### Replacement parts

MODEL	DESCRIPTION
104311	Polycarbonate bowl w/ guard
104312	Metal bowl
104313	Lubricator bowl service kit
104314	Sight dome repair kit

### Accessories

See page 65 for details

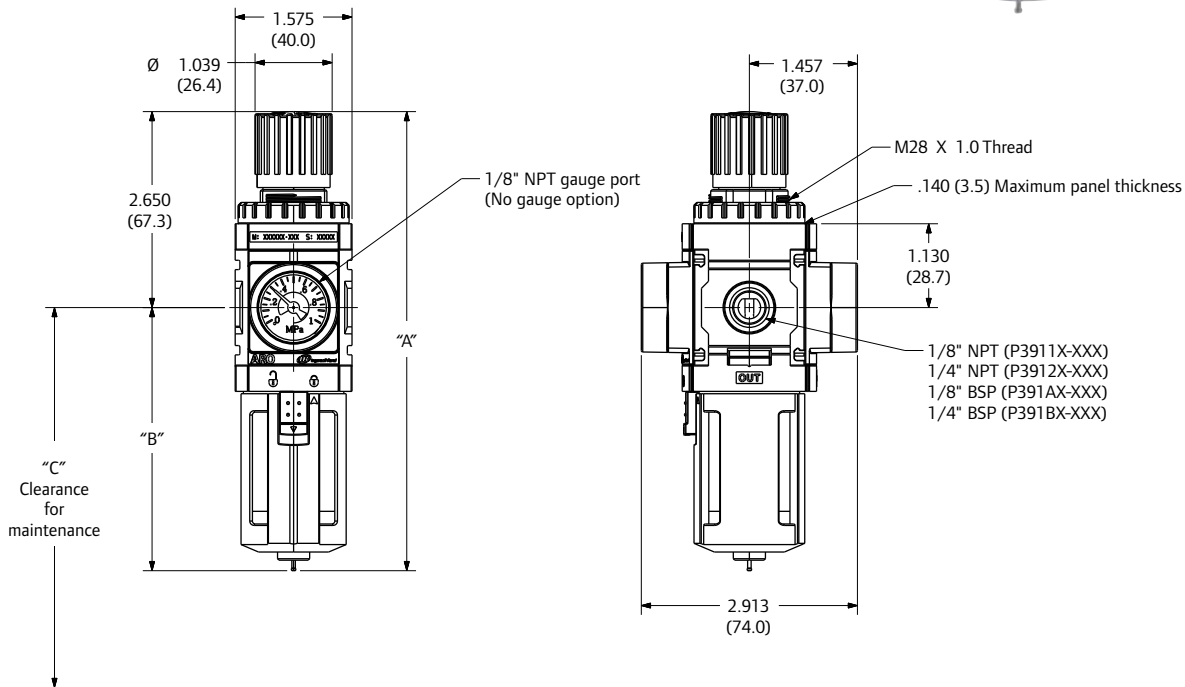
MODEL	DESCRIPTION
104390-1	1/8" NPT lockout valve
104390-2	1/4" NPT lockout valve
104394	Modular clamp
104474-1	1/8" NPT pipe adapter
104474-2	1/4" NPT pipe adapter
104477-1	1/8" Check valve
104477-2	1/4" Check valve
104399	T-type wall mount
104407	C-type wall mount
104411-1-1	1/8" x 1/8" Manifold block
104411-2-2	1/4" x 1/4" Manifold block

# 1000 Series piggyback filters / regulators

1/8" and 1/4" Ports

Technical data		
	POLYCARBONATE BOWL	METAL BOWL
Max inlet pressure (psi)	150	250
Temperature range (F)	23 – 125	23 – 175
Spring range options (psi)	0 – 30	
	0 – 60	
	0 – 140	
Bowl cap — manual drain (oz)	0.5	0.4
Bowl cap — auto drain (oz)	0.7	0.7
Gauge port	1/8"	
Flow capacity — 1/8" port*	43 scfm	
Flow capacity — 1/4" port*	47 scfm	

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3 bar)



MODELS	A (MM)	B (MM)	C (MM)	DRAIN OPTION
P391XX-XX0	6.197 (157.4)	3.547 (90.1)	5.122 (130.1)	MANUAL
P391XX-XX4	6.890 (175.0)	4.240 (107.7)	5.815 (147.7)	AUTOMATIC

### How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size: **1/8"**  
 Base model: **- P391 1 X - X**

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

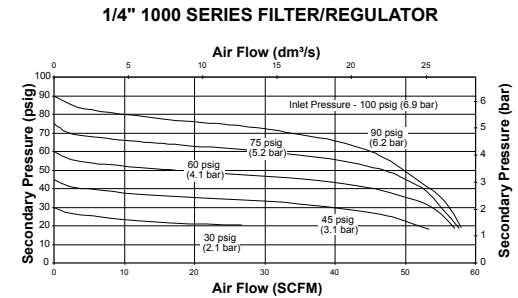
<p><b>Filter element</b></p> <p><b>4</b> 5-Micron</p> <p><b>Thread type</b></p> <p><b>1</b> 1/8" NPT  <b>2</b> 1/4" NPT  <b>A</b> 1/8" BSP  <b>B</b> 1/4" BSP</p>	<p><b>Pressure range PSIG</b></p> <p><b>1</b> 0 – 140 (no gauge)  <b>2</b> 0 – 60 (no gauge)  <b>4</b> 0 – 30 (no gauge)  <b>6</b> 0 – 140 w/ flush-mount gauge</p>	<p><b>Relieving bowl option</b></p> <p><b>0</b> Relieving / poly w/ guard  <b>2</b> Relieving /</p>	<p><b>Control / drain option</b></p> <p><b>0</b> Standard knob / manual  <b>4</b> Standard knob / automatic</p>
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### Popular configurations

Port size NPT	Drain	Spring range psi	w/ Gauge	Model
<b>5 MICRON • POLYCARBONATE BOWL • RELIEVING</b>				
1/8"	Manual	0 – 140	No	P39114-100
1/8"	Manual	0 – 60	No	P39114-200
1/8"	Manual	0 – 30	No	P39114-400
1/8"	Manual	0 – 140	Yes	P39114-600
1/8"	Auto	0 – 60	No	P39114-204
1/4"	Manual	0 – 140	No	P39124-100
1/4"	Manual	0 – 60	No	P39124-200
1/4"	Manual	0 – 30	No	P39124-400
1/4"	Manual	0 – 140	Yes	P39124-600
1/4"	Auto	0 – 140	No	P39124-104
1/4"	Auto	0 – 60	No	P39124-204
1/4"	Auto	0 – 30	No	P39124-404
1/4"	Auto	0 – 140	Yes	P39124-604
<b>5 MICRON • METAL BOWL • RELIEVING</b>				
1/8"	Auto	0 – 60	Yes	P39114-624
1/4"	Manual	0 – 140	No	P39124-120
1/4"	Manual	0 – 140	Yes	P39124-620
1/4"	Auto	0 – 140	No	P39124-124

Adjustment range can exceed spring rating on 0-30 psi and 0-60 psi regulators. The working range of the adjustment knob is designed to permit outlet pressures beyond the spring ratings in the 0-30psi and 0-60psi models. The adjustment knob is not designed to be a pressure limiting device. Limiting devices may be obtained only by special design. For optimal performance, regulators should not be set to ranges outside the specified spring range.

### 1/4" Pressure drop test



See page 81 for additional flow charts

### Replacement parts

MODEL	DESCRIPTION
104293	Replacement auto drain*
104294	Replacement manual drain
104295	5-Micron element
104296	40-Micron element
104298	Poly bowl, manual drain
104299	Poly bowl, auto drain
104300	Metal bowl, manual drain
104301	Metal bowl, auto drain
104468	Filter bowl service kit (O-ring)
104217	Regulator service kit (relieving)
104548	Regulator service kit (non-relieving)
104304	Tamper kit
104305	0 – 30 psi Spring
104306	0 – 60 psi Spring
104307	0 – 140 psi Spring
104310	0 – 140 psi Gauge flush mount
104416	Panel Nut

\* Replacement auto drains can only be used with auto drain bowls.

# 1000 Series combinations

1/8" and 1/4" Ports

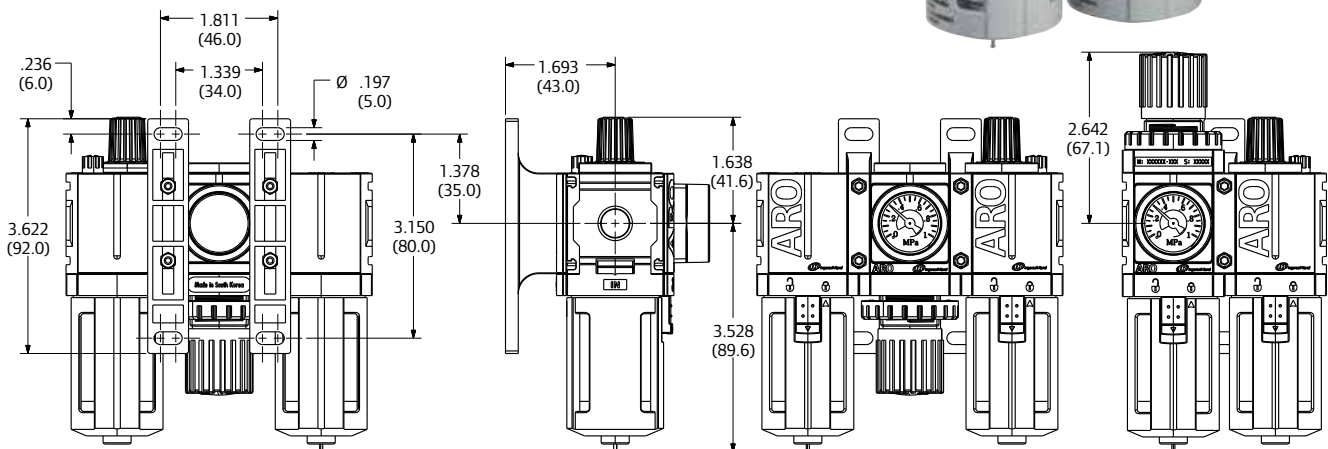
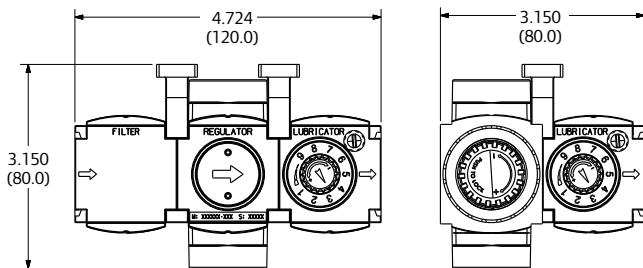
1000 Series

Technical data		
	POLYCARBONATE BOWL	METAL BOWL
Max inlet pressure (psi)	150	250
Temperature range (F)	23 - 125	23 - 175
Spring range options (psi)	0 - 140	
Filter element	5 micron	
Filter bowl cap — manual drain (oz)	0.5	0.4
Filter bowl cap — auto drain (oz)	0.7	0.7
Lubricator bowl capacity (oz)	0.6	0.7
Gauge port	1/8"	
Flow capacity — 1/8" - 2 unit*	36 scfm	
Flow capacity — 1/4" - 2 unit*	44 scfm	
Flow capacity — 1/8" - 3 unit*	34 scfm	
Flow capacity — 1/4" - 3 unit*	46 scfm	

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3 bar)



Photos shown with optional panel nut. If required, order 104416 panel nut separately.





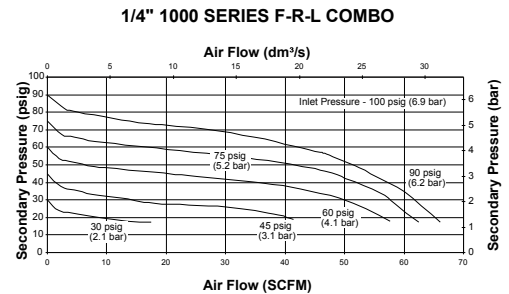
**F + R + L Combinations**

Port size NPT	Filter	Components Regulator	Lubricator	Model
<b>MANUAL DRAIN • METAL BOWL • RELIEVING • W/ GAUGE</b>				
1/8"	F35111-420	R37111-600	L36111-120	C38111-820
1/4"	F35121-420	R37121-600	L36121-120	C38121-820
<b>MANUAL DRAIN • POLYCARBONATE BOWL • RELIEVING • W/ GAUGE</b>				
1/8"	F35111-400	R37111-600	L36111-100	C38111-800
1/4"	F35121-400	R37121-600	L36121-100	C38121-800
<b>AUTO DRAIN • METAL BOWL • RELIEVING • W/ GAUGE</b>				
1/4"	F35121-421	R37121-600	L36121-120	C38121-821
<b>AUTO DRAIN • POLYCARBONATE BOWL • RELIEVING • W/ GAUGE</b>				
1/4"	F35121-401	R37121-600	L36121-100	C38121-801

**F/R + L Combinations**

Port size NPT	Filter-Regulator	Components Lubricator	Model
<b>MANUAL DRAIN • METAL BOWL • RELIEVING • W/ GAUGE</b>			
1/8"	P39114-620	L36111-120	C38111-620
1/4"	P39124-620	L36121-120	C38121-620
<b>MANUAL DRAIN • POLYCARBONATE BOWL • RELIEVING • W/ GAUGE</b>			
1/8"	P39114-600	L36111-100	C38111-600
1/4"	P39124-600	L36121-100	C38121-600
<b>AUTO DRAIN • METAL BOWL • RELIEVING • W/ GAUGE</b>			
1/4"	P39124-624	L36121-120	C38121-621
<b>AUTO DRAIN • POLYCARBONATE BOWL • RELIEVING • W/ GAUGE</b>			
1/4"	P39124-604	L36121-100	C38121-601

**Note:** Other combinations may be assembled by purchasing the individual components separately. Modular connector kits are required to connect the individual units together.

**1/4" Pressure drop test**

See page 81 for additional flow charts

**Replacement parts**

MODEL	DESCRIPTION
104293	Replacement auto drain*
104294	Replacement manual drain
104295	5-Micron element
104296	40-Micron element
104297	0.3-Micron element
104298	Poly bowl, manual drain
104299	Poly bowl, auto drain
104300	Metal bowl, manual drain
104301	Metal bowl, auto drain
104468	Filter bowl service kit (O-ring)
104459	Coalescing filter bowl, manual drain
104460	Coalescing filter bowl, auto drain
104302	Regulator service kit (relieving)
104303	Regulator service kit (non-relieving)
104304	Tamper kit
104305	0 – 30 psi Spring
104306	0 – 60 psi Spring
104307	0 – 140 psi Spring
104310	0 – 140 psi Gauge flush mount
104311	Polycarbonate bowl w/ guard
104312	Metal bowl
104313	Lubricator bowl service kit
104314	Sight dome repair kit
104416	Panel Nut

\* Replacement auto drains can only be used with auto drain bowls.

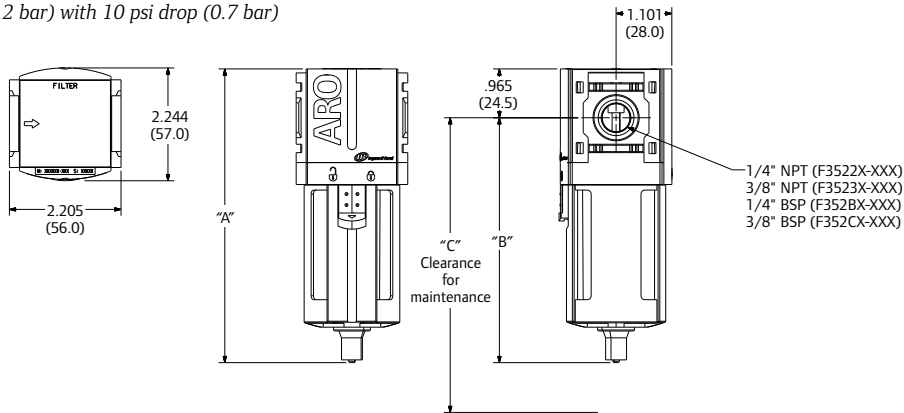
# 1500 Series filters

1500 Series

Technical data		
Polycarbonate bowl	Polycarbonate	
Polycarbonate bowl guard	Nylon	
Metal bowl	Aluminum	
Metal bowl sight glass	Nylon	
Filter body	Aluminum	
Manual drain	Brass + nitrile	
Auto drain	Acetal	
Standard filter	Polyethylene	
Coalescing filter	HEPA paper + felt	
Seals	Nitrile	
Filter baffle	Acetal	
	POLYCARBONATE BOWL	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	150	250
Temperature range (F)	23 – 125	23 – 175
Bowl cap — manual drain (oz)	1.3	1.3
Bowl cap — auto drain (oz)	1.0	1.0
Bowl cap — coal manual drain	1.2	
Bowl cap — coal auto drain	1.0	
Flow capacity — 1/4" port*	73 scfm	
Flow capacity — 3/8" port*	107 scfm	



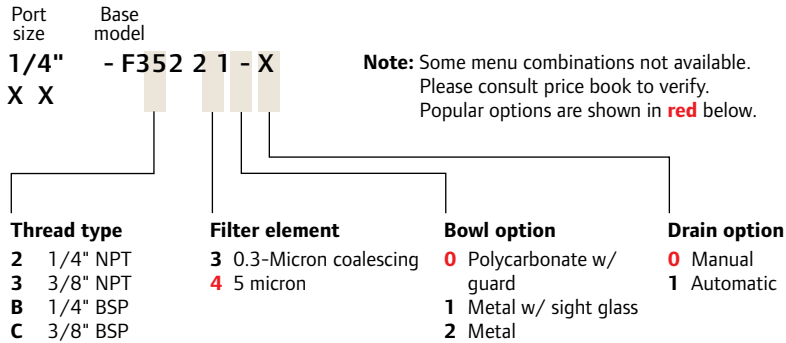
\*Inlet pressure 90 psi (6.2 bar) with 10 psi drop (0.7 bar)



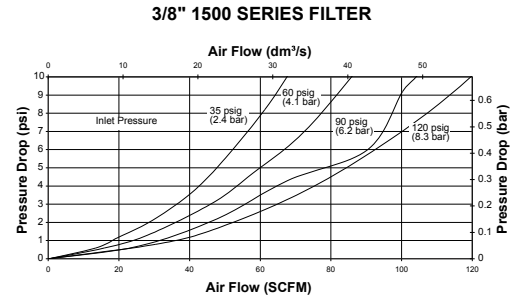
MODEL	A (MM)	B (MM)	C (MM)	BOWL	DRAIN
F352XX-X00	6.161 (156.5)	5.197 (132.0)	7.197 (182.8)	POLYCARBONATE	MANUAL
F352XX-X01	7.028 (178.5)	6.063 (154.0)	8.063 (204.8)	POLYCARBONATE	AUTOMATIC
F352XX-X10	6.161 (156.5)	5.197 (132.0)	7.072 (179.6)	METAL W/ SIGHT GLASS	MANUAL
F352XX-X11	7.028 (178.5)	6.063 (154.0)	7.938 (201.6)	METAL W/ SIGHT GLASS	AUTOMATIC
F352XX-X20	6.161 (156.5)	5.197 (132.0)	7.072 (179.6)	METAL	MANUAL
F352XX-X21	7.028 (178.5)	6.063 (154.0)	7.938 (201.6)	METAL	AUTOMATIC

## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.



## 3/8" Pressure drop test



See page 81 for additional flow charts

## Popular configurations

Port size NPT	Filter type	Bowl cap (oz)	Element (microns)	Model
<b>MANUAL DRAIN • POLYCARBONATE BOWL W/ GUARD</b>				
1/4"	Coalescing	1.2	0.3	F35221-300
1/4"	Standard	1.3	5	F35221-400
3/8"	Coalescing	1.2	0.3	F35231-300
3/8"	Standard	1.3	5	F35231-400
<b>MANUAL DRAIN • METAL BOWL</b>				
1/4"	Coalescing	1.2	0.3	F35221-320
1/4"	Standard	1.3	5	F35221-420
3/8"	Coalescing	1.2	0.3	F35231-320
3/8"	Standard	1.3	5	F35231-420
<b>MANUAL DRAIN • METAL BOWL W/ SIGHT GLASS</b>				
1/4"	Coalescing	1.2	0.3	F35221-310
1/4"	Standard	1.3	5	F35221-410
3/8"	Coalescing	1.2	0.3	F35231-310
3/8"	Standard	1.3	5	F35231-410
<b>AUTO DRAIN • POLYCARBONATE BOWL W/ GUARD</b>				
1/4"	Coalescing	1.0	0.3	F35221-301
1/4"	Standard	1.0	5	F35221-401
3/8"	Coalescing	1.0	0.3	F35231-301
3/8"	Standard	1.0	5	F35231-401
<b>AUTO DRAIN • METAL BOWL W/ SIGHT GLASS</b>				
1/4"	Coalescing	1.0	0.3	F35221-311
1/4"	Standard	1.0	5	F35221-411
3/8"	Coalescing	1.0	0.3	F35231-311
3/8"	Standard	1.0	5	F35231-411

## Replacement parts

MODEL	DESCRIPTION
104315	Replacement auto drain*
104316	Replacement manual drain
104422	5-Micron element
104423	40-Micron element
104424	0.3-Micron element
104425	Poly bowl, manual drain
104426	Poly bowl, auto drain
104427	Metal bowl w/ sight glass, manual drain
104428	Metal bowl w/ sight glass, auto drain
104481	Metal bowl, manual drain
104482	Metal bowl, auto drain
104429	Filter bowl service kit (O-ring)

\* Replacement auto drains can only be used with auto drain bowls. See page 65 for details

## Accessories

MODEL	DESCRIPTION
104391-2	1/4" NPT lock-out valve
104391-3	3/8" NPT lock-out valve
104395	Modular clamp
104475-2	1/4" NPT pipe adapter
104475-3	3/8" NPT pipe adapter
104478-2	1/4" Check valve
104478-3	3/8" Check valve
104400	T-type wall mount
104408	C-type wall mount
104412-3-1	3/8" x 1/8" Manifold block
104412-3-2	3/8" x 1/4" Manifold block

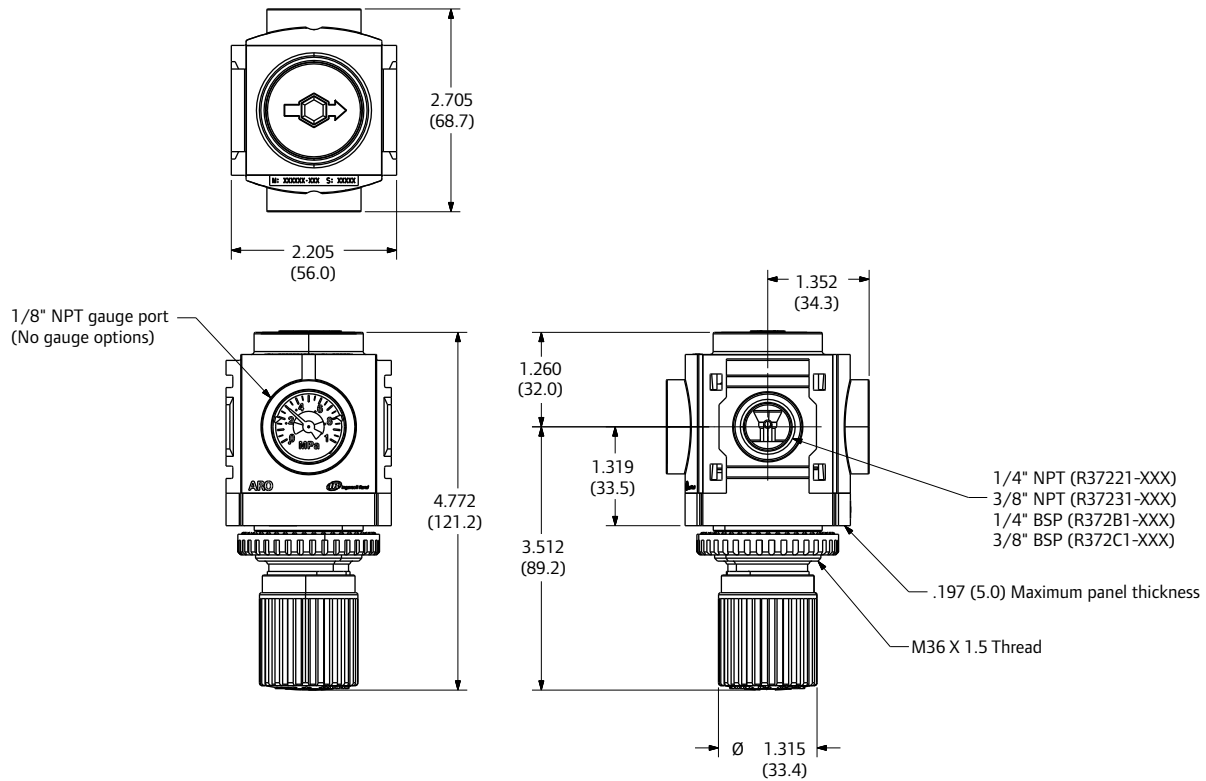
# 1500 Series regulators

1/4" and 3/8" Ports

1500 Series

Technical data	
Diaphragm	Nitrile + nylon
Regulator body	Aluminum
Regulator valve	Nitrile + nylon
Regulator springs	Steel
Gauge cover	Nylon + polycarbonate
Regulator knob	Acetal
O-rings	Nitrile
Max inlet pressure (psi)	250
Temperature range (F)	23 - 140
Spring range options (psi)	0 - 30
	0 - 60
	0 - 140
Gauge port	1/8"
*Flow capacity — 1/4" port	86 scfm
*Flow capacity — 3/8" port	113 scfm

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3



## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size	Base model				
1/4"	- R372 2 1	- X X X			
3/8"	- R372 3 1	- X X X			
			<b>Note:</b> Some menu combinations not available. Please consult price book to verify. Popular options are shown in <b>red</b> below.		
<b>Thread type</b>	<b>Pressure range PSIG</b>	<b>Relieving option</b>	<b>Control option</b>		
2 1/4" NPT	1 0 – 140 (no gauge)	0 Relieving	0 Standard knob		
3 3/8" NPT	2 0 – 60 (no gauge)	2 Non-relieving			
B 1/4" BSP	4 0 – 30 (no gauge)				
C 3/8" BSP	6 0 – 140 w/ flush-mount				

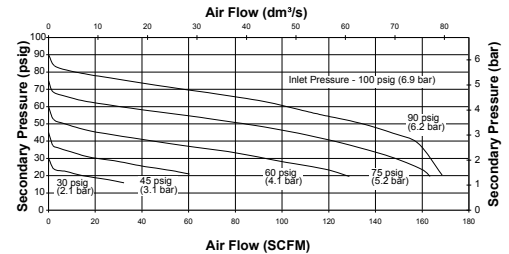
## Popular configurations

Port size NPT	Pressure range psi	Gauge	Model
<b>RELIEVING • STANDARD KNOB CONTROL</b>			
1/4"	0 – 30	No gauge	R37221-400
1/4"	0 – 60	No gauge	R37221-200
1/4"	0 – 140	No gauge	R37221-100
1/4"	0 – 140	Flush-mount gauge	R37221-600
3/8"	0 – 30	No gauge	R37231-400
3/8"	0 – 60	No gauge	R37231-200
3/8"	0 – 140	No gauge	R37231-100
3/8"	0 – 140	Flush-mount gauge	R37231-600
<b>NON-RELIEVING • STANDARD KNOB CONTROL</b>			
1/4"	0 – 30	No gauge	R37221-420
1/4"	0 – 60	No gauge	R37221-220
1/4"	0 – 140	No gauge	R37221-120
1/4"	0 – 140	Flush-mount gauge	R37221-620
3/8"	0 – 30	No gauge	R37231-420
3/8"	0 – 60	No gauge	R37231-220
3/8"	0 – 140	No gauge	R37231-120
3/8"	0 – 140	Flush-mount gauge	R37231-620

Adjustment range can exceed spring rating on 0-30 psi and 0-60 psi regulators. The working range of the adjustment knob is designed to permit outlet pressures beyond the spring ratings in the 0-30psi and 0-60psi models. The adjustment knob is not designed to be a pressure limiting device. Limiting devices may be obtained only by special design. For optimal performance, regulators should not be set to ranges outside the specified spring range.

## 3/8" Pressure drop test

### 3/8" 1500 SERIES REGULATOR



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104430	Regulator service kit (relieving)
104431	Regulator service kit (non-relieving)
104432	Tamper kit
104433	0 – 30 psi Spring
104434	0 – 60 psi Spring
104435	0 – 140 psi Spring
104310	0 – 140 psi Gauge flush mount

## Accessories

See page 65 for details

MODEL	DESCRIPTION
104391-2	1/4" NPT lockout valve
104391-3	3/8" NPT lockout valve
104395	Modular clamp
104475-2	1/4" NPT pipe adapter
104475-3	3/8" NPT pipe adapter
104478-2	1/4" Check valve
104478-3	3/8" Check valve
104400	T-type wall mount
104404	L-type wall mount
104408	C-type wall mount
104412-3-1	3/8" x 1/8" Manifold block
104412-3-2	3/8" x 1/4" Manifold block
104417	Panel nut
104467	Gauge port block

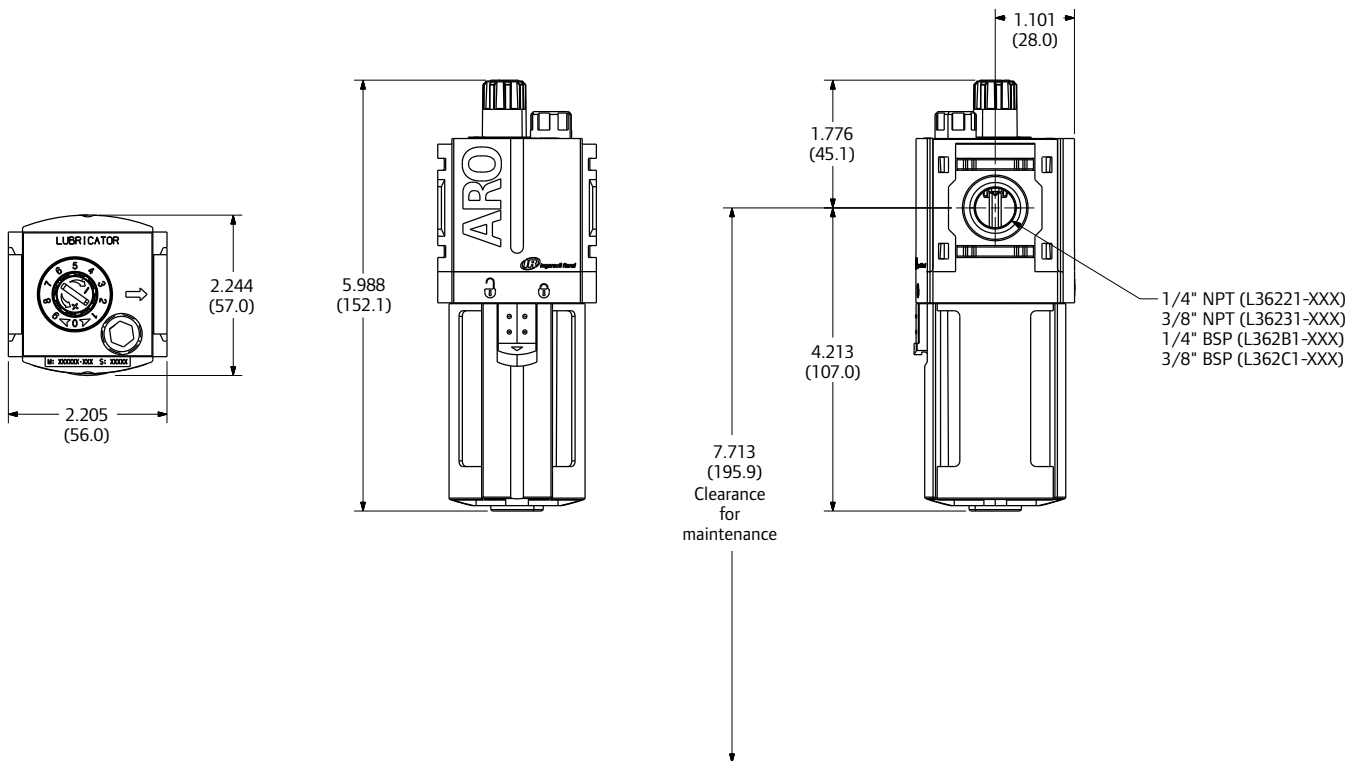
# 1500 Series Lubricators

1/4" and 3/8" Ports

1500 Series

Technical data		
Lubricator body	Aluminum	
Lubricator sight dome	Nylon	
Lubricator inlet tube	Urethane	
Seals	Nitrile	
	POLYCARBONATE BOWL	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	150	250
Temperature range (F)	23 – 125	23 – 175
Bowl capacity (oz)	1.9	1.5
Flow capacity — 1/4" port*	51 scfm	
Flow capacity — 3/8" port*	105 scfm	

\*Inlet pressure 90 psi (6.2 bar) with 7 psi drop (0.5 bar)





## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size	Base model							
1/4"	- L362	2	1	- X	X	X		
3/8"	- L362	3	1	- X	X	X		

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

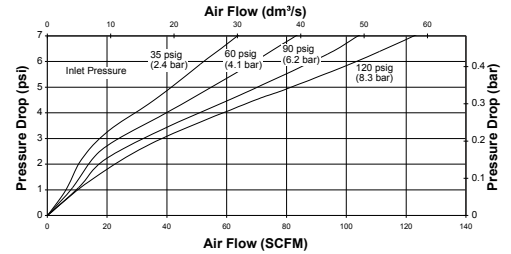
<b>Thread type</b>	<b>Adjustment option</b>	<b>Bowl option</b>	<b>Fill option</b>
<b>2</b> 1/4" NPT	<b>1</b> Standard	<b>0</b> Polycarbonate w/ guard	<b>0</b> Standard
<b>3</b> 3/8" NPT		<b>1</b> Metal w/ sight glass	
<b>B</b> 1/4" BSP		<b>2</b> Metal	
<b>C</b> 3/8" BSP			

## Popular configurations

Port size NPT	Adjustment option	Bowl cap (oz)	Fill option	Model
<b>METAL BOWL</b>				
1/4"	Standard	1.5	Standard	L36221-120
3/8"	Standard	1.5	Standard	L36231-120
<b>METAL BOWL W/ SIGHT GLASS</b>				
1/4"	Standard	1.5	Standard	L36221-110
3/8"	Standard	1.5	Standard	L36231-110
<b>POLYCARBONATE BOWL W/ GUARD</b>				
1/4"	Standard	1.9	Standard	L36221-100
3/8"	Standard	1.9	Standard	L36231-100

## 3/8" Pressure drop test

3/8" 1500 SERIES LUBRICATOR



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104439	Polycarbonate bowl w/ guard
104440	Metal bowl w/ sight glass
104483	Metal bowl
104441	Lubricator bowl service kit
104442	Sight dome repair kit

## Accessories

See page 65 for details

MODEL	DESCRIPTION
104391-2	1/4" NPT lockout valve
104391-3	3/8" NPT lockout valve
104395	Modular clamp
104475-2	1/4" NPT pipe adapter
104475-3	3/8" NPT pipe adapter
104478-2	1/4" Check valve
104478-3	3/8" Check valve
104400	T-type wall mount
104408	C-type wall mount
104412-3-1	3/8" x 1/8" Manifold block
104412-3-2	3/8" x 1/4" Manifold block

# 1500 Series piggyback filters / regulators

1/4" and 3/8" Ports

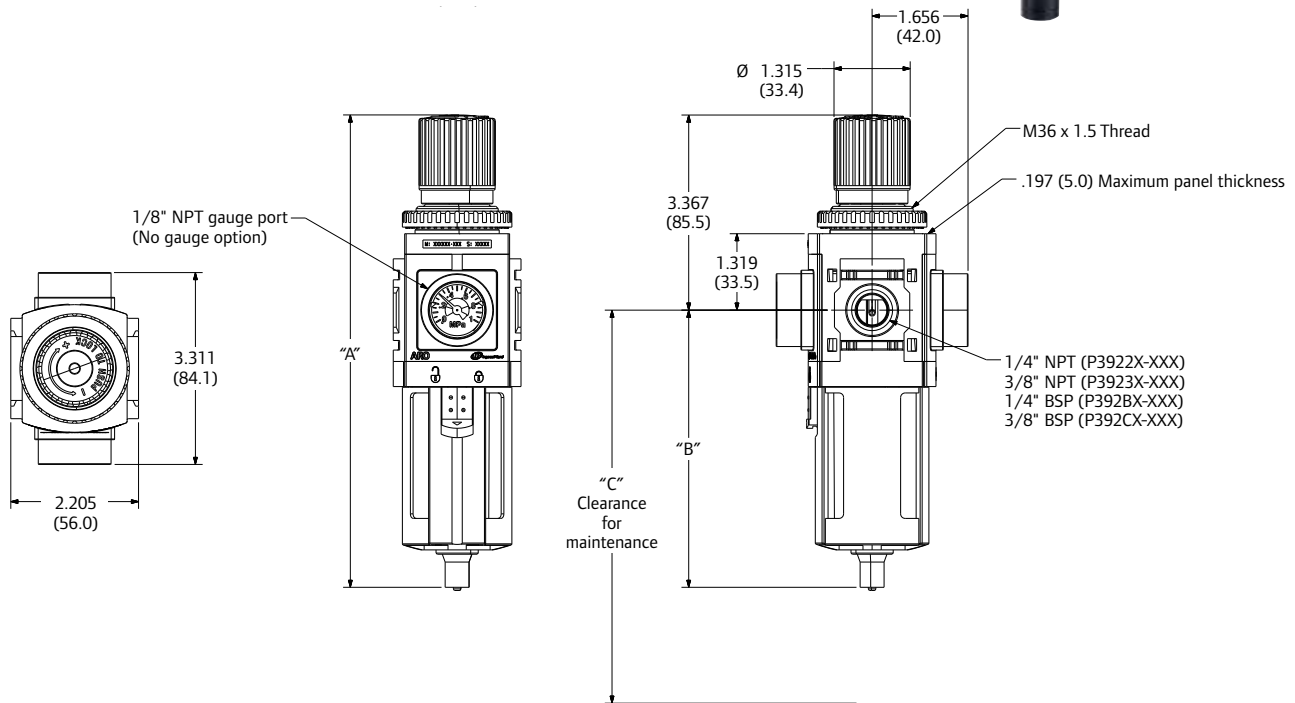
1500 Series

Technical data		
	POLYCARBONATE BOWL	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	150	250
Temperature range (F)	23 - 125	23 - 175
Spring range options (psi)	0 - 30	
	0 - 60	
	0 - 140	
Bowl cap — manual drain (oz)	1.3	1.3
Bowl cap — auto drain (oz)	1.0	1.0
Bowl cap — coal manual drain	1.2	
Bowl cap — coal auto drain	1.0	
Gauge port	1/8"	
Flow capacity — 1/4" port*	72 scfm	
Flow capacity — 3/8" port*	90 scfm	

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3 bar)



Panel nut comes standard on all individual piggyback units



MODEL	A (MM)	B (MM)	C (MM)	DRAIN
P392XX-XX0	8.150 (207.0)	4.783 (121.5)	6.783 (172.3)	MANUAL
P392XX-XX4	9.016 (229.0)	5.650 (143.5)	7.650 (194.3)	AUTOMATIC

## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size: **1/4"**  
Base model: **- P392 2 X - X**

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

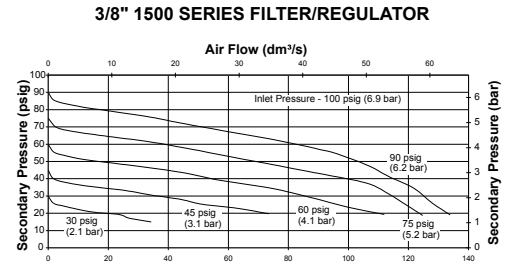
<p><b>Filter element</b></p> <p><b>3</b> 0.3-Micron coalescing</p> <p><b>4</b> 5-Micron</p> <p><b>Thread type</b></p> <p><b>2</b> 1/4" NPT</p> <p><b>3</b> 3/8" NPT</p> <p><b>B</b> 1/4" BSP</p> <p><b>C</b> 3/8" BSP</p>	<p><b>Pressure range PSIG</b></p> <p><b>1</b> 0 – 140 (no gauge)</p> <p><b>2</b> 0 – 60 (no gauge)</p> <p><b>4</b> 0 – 30 (no gauge)</p> <p><b>6</b> 0 – 140 w/ flush-mount gauge</p>	<p><b>Relieving bowl option</b></p> <p><b>0</b> Relieving / poly w/ guard</p> <p><b>1</b> Relieving / metal w/ sight glass</p> <p><b>2</b> Relieving / metal</p>	<p><b>Control / drain option</b></p> <p><b>0</b> Standard knob / manual</p> <p><b>4</b> Standard knob / automatic</p>
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## Popular configurations

Port size NPT	Drain	Spring range psi	w/ Gauge	Model
<b>5 MICRON • POLYCARBONATE BOWL • RELIEVING</b>				
1/4"	Manual	0 – 140	No	P39224-100
1/4"	Manual	0 – 140	Yes	P39224-600
1/4"	Auto	0 – 140	No	P39224-104
1/4"	Auto	0 – 140	Yes	P39224-604
3/8"	Manual	0 – 140	No	P39234-100
3/8"	Manual	0 – 140	Yes	P39234-600
3/8"	Auto	0 – 140	No	P39234-104
3/8"	Auto	0 – 140	Yes	P39234-604
<b>5 MICRON • METAL BOWL W/ SIGHT GLASS • RELIEVING</b>				
1/4"	Manual	0 – 140	No	P39224-110
1/4"	Manual	0 – 60	No	P39224-210
1/4"	Manual	0 – 140	Yes	P39224-610
1/4"	Auto	0 – 140	No	P39224-114
3/8"	Manual	0 – 140	No	P39234-110
3/8"	Manual	0 – 140	Yes	P39234-610
<b>5 MICRON • METAL BOWL • RELIEVING</b>				
1/4"	Manual	0 – 140	Yes	P39224-620

Adjustment range can exceed spring rating on 0-30 psi and 0-60 psi regulators. The working range of the adjustment knob is designed to permit outlet pressures beyond the spring ratings in the 0-30psi and 0-60psi models. The adjustment knob is not designed to be a pressure limiting device. Limiting devices may be obtained only by special design. For optimal performance, regulators should not be set to ranges outside the specified spring range.

## 3/8" Pressure drop test



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104315	Replacement auto drain*
104316	Replacement manual drain
104424	0.3-Micron element
104422	5-Micron element
104423	40-Micron element
104425	Poly bowl, manual drain
104426	Poly bowl, auto drain
104427	Metal bowl w/ sight glass, manual drain
104428	Metal bowl w/ sight glass, auto drain
104481	Metal bowl, manual drain
104482	Metal bowl, auto drain
104429	Filter bowl service kit (O-ring)
104547	Regulator service kit (relieving)
104218	Regulator service kit (non-relieving)
104432	Tamper kit
104433	0 – 30 psi Spring
104434	0 – 60 psi Spring
104435	0 – 140 psi Spring
104310	0 – 140 psi Gauge flush mount
104417	Panel Nut

\* Replacement auto drains can only be used with auto drain bowls.

# 1500 Series combinations

1/4" and 3/8" Ports

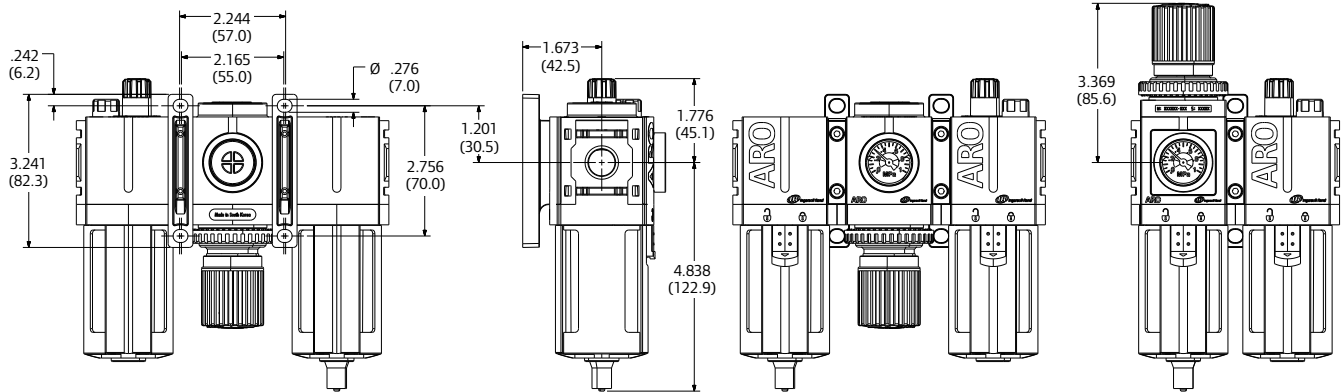
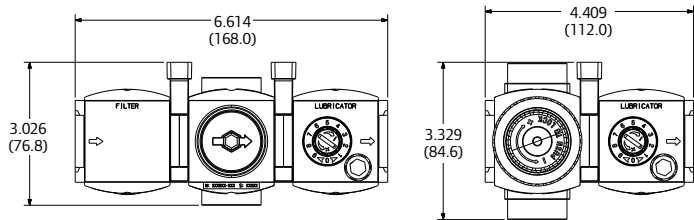
1500 Series

Technical data		
	POLYCARBONATE BOWL	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	150	250
Temperature range (F)	23 – 125	23 – 175
Spring range options (psi)	0 – 140	
Filter element	5 micron	
Filter bowl cap — manual drain (oz)	1.3	1.3
Filter bowl cap — auto drain (oz)	1.0	1.0
Lubricator bowl capacity (oz)	1.9	1.5
Gauge port	1/8"	
Flow capacity — 1/4" - 2 unit*	58 scfm	
Flow capacity — 3/8" - 2 unit*	71 scfm	
Flow capacity — 1/4" - 3 unit*	61 scfm	
Flow capacity — 3/8" - 3 unit*	85 scfm	

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3 bar)



Photos shown with optional panel nut. If required, order 104417 panel nut separately.



### F + R + L Combinations

Port size NPT	Filter	Components Regulator	Lubricator	Model
<b>MANUAL DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>				
1/4"	F35221-410	R37221-600	L36221-110	C38221-810
3/8"	F35231-410	R37231-600	L36231-110	C38231-810
<b>MANUAL DRAIN • POLYCARBONATE BOWL W/ GUARD • RELIEVING • W/</b>				
1/4"	F35221-400	R37221-600	L36221-100	C38221-800
3/8"	F35231-400	R37231-600	L36231-100	C38231-800
<b>AUTO DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>				
1/4"	F35221-411	R37221-600	L36221-110	C38221-811
3/8"	F35231-411	R37231-600	L36231-110	C38231-811
<b>AUTO DRAIN • POLYCARBONATE BOWL W/ GUARD • RELIEVING • W/ GAUGE</b>				
1/4"	F35221-401	R37221-600	L36221-100	C38221-801
3/8"	F35231-401	R37231-600	L36231-100	C38231-801

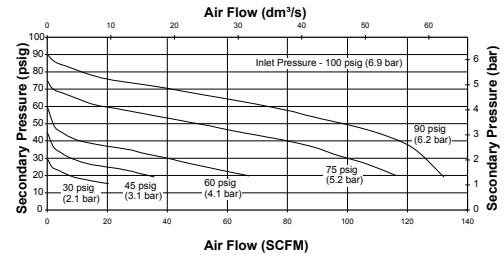
### F/R + L Combinations

Port size NPT	Filter-regulator	Components Lubricator	Model
<b>MANUAL DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>			
1/4"	P39224-610	L36221-110	C38221-610
3/8"	P39234-610	L36231-110	C38231-610
<b>MANUAL DRAIN • POLYCARBONATE BOWL W/ GUARD • RELIEVING • W/</b>			
1/4"	P39224-600	L36221-100	C38221-600
3/8"	P39234-600	L36231-100	C38231-600
<b>AUTO DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>			
1/4"	P39224-614	L36221-110	C38221-611
3/8"	P39234-614	L36231-110	C38231-611
<b>AUTO DRAIN • POLYCARBONATE BOWL W/ GUARD • RELIEVING • W/ GAUGE</b>			
1/4"	P39224-604	L36221-100	C38221-601
3/8"	P39234-604	L36231-100	C38231-601

~~Note: Other combinations may be assembled by purchasing the individual components separately. Modular connector kits are required to connect the individual units together.~~

### 3/8" Pressure drop test

3/8" 1500 SERIES F-R-L COMBO



See page 81 for additional flow charts

### Replacement parts

MODEL	DESCRIPTION
104315	Replacement auto drain*
104316	Replacement manual drain
104422	5-Micron element
104423	40-Micron element
104424	0.3-Micron element
104425	Poly bowl, manual drain
104426	Poly bowl, auto drain
104427	Metal bowl w/ sight glass, manual drain
104428	Metal bowl w/ sight glass, auto drain
104481	Metal bowl, manual drain
104482	Metal bowl, auto drain
104429	Filter bowl service kit (O-ring)
104430	Regulator service kit (relieving)
104431	Regulator service kit (non-relieving)
104432	Tamper kit
104433	0 - 30 psi Spring
104434	0 - 60 psi Spring
104435	0 - 140 psi Spring
104439	Polycarbonate bowl w/ guard
104440	Metal bowl w/ sight glass
104483	Metal bowl
104441	Lubricator bowl service kit
104442	Sight dome repair kit
104310	0 - 140 psi Gauge flush mount
104417	Panel Nut

\* Replacement auto drains can only be used with auto drain bowls

# 2000 Series filters

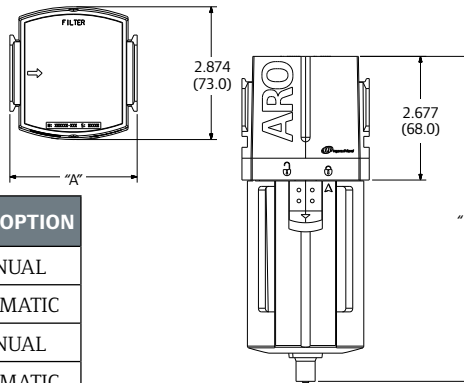
2000 Series

Technical data		
Polycarbonate bowl	Polycarbonate	
Polycarbonate bowl guard	Nylon	
Metal bowl	Aluminum	
Metal bowl sight glass	Nylon	
Filter body	Aluminum	
Manual drain	Brass + nitrile	
Auto drain	Acetal	
Standard filter	Polyethylene	
Coalescing filter	HEPA paper + felt	
Seals	Nitrile	
Filter baffle	Acetal	
	POLYCARBONATE BOWL	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	150	250
Temperature range (F)	23 – 125	23 – 175
Bowl cap — manual drain (oz)	1.9	2.4
Bowl cap — auto drain (oz)	2.3	2.8
Flow capacity — 3/8" port*	156 scfm	
Flow capacity — 1/2" port*	197 scfm	
Flow capacity — 3/4" port*	216 scfm	

\*Inlet pressure 90 psi (6.2 bar) with 10 psi drop (0.7 bar)

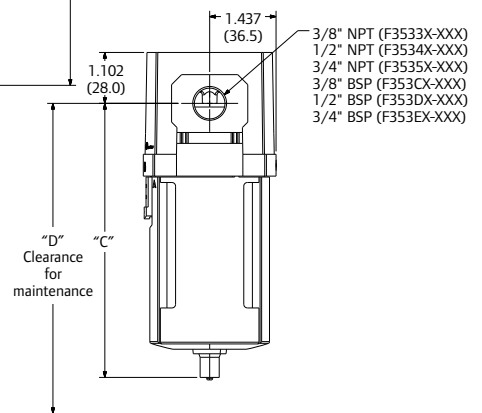


MODEL	A (MM)	PORT SIZE
F3533X-XXX	2.756 (70.0)	3/8" NPT
F3534X-XXX	2.756 (70.0)	1/2" NPT
F3535X-XXX	2.992 (76.0)	3/4" NPT



MODEL	B (MM)	SERVICE INDICATOR	DRAIN OPTION
F353X1-XX0	7.047 (179)	NONE	MANUAL
F353X1-XX1	7.913 (201)	NONE	AUTOMATIC
F353X2-XX0	7.717 (196)	MECHANICAL	MANUAL
F353X2-XX1	8.583 (218)	MECHANICAL	AUTOMATIC

MODEL	C (MM)	D (MM)	BOWL OPTION	DRAIN OPTION
F353XX-X00	5.945 (151)	8.945 (227)	POLYCARBONATE	MANUAL
F353XX-X10	5.945 (151)	8.445 (215)	METAL W/ SIGHT GLASS	MANUAL
F353XX-X20	5.945 (151)	8.445 (215)	METAL	MANUAL
F353XX-X01	6.811 (173)	9.811 (249)	POLYCARBONATE	AUTOMATIC
F353XX-X11	6.811 (173)	9.311 (236)	METAL W/ SIGHT GLASS	AUTOMATIC
F353XX-X21	6.811 (173)	9.311 (236)	METAL	AUTOMATIC



## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size Base model

**3/8" - F353 3 X - X**  
**X X**  
**1/2" - F353 4 X - X**

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

**Thread type**

<b>3</b>	3/8" NPT
<b>4</b>	1/2" NPT
<b>5<sup>†</sup></b>	3/4" NPT
<b>D</b>	3/8" BSP
<b>C</b>	1/2" BSP
<b>E<sup>†</sup></b>	3/4" BSP

**Service indicator**

<b>1</b>	None
<b>2</b>	Mechanical (standard w/ coalescing)

**Filter element**

<b>3</b>	0.3-Micron coalescing
<b>4</b>	5-Micron

**Bowl option**

<b>0</b>	Polycarbonate w/ guard
<b>1</b>	Metal w/ sight glass
<b>2</b>	Metal

**Drain option**

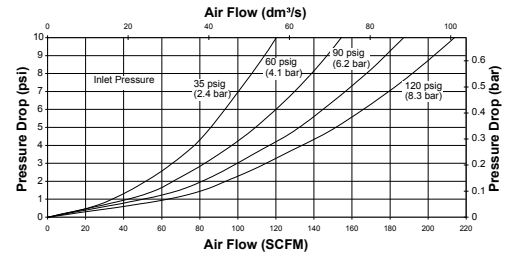
<b>0</b>	Manual
<b>1</b>	Automatic

## Popular configurations

Port size NPT	Filter type	Element (microns)	Bowl cap (oz)	Service indicator	Model
<b>MANUAL DRAIN • POLYCARBONATE BOWL W/ GUARD</b>					
3/8"	Standard	5	1.9	None	F35331-400
3/8"	Coalescing	0.3	1.9	Mechanical	F35332-300
1/2"	Standard	5	1.9	None	F35341-400
1/2"	Coalescing	0.3	1.9	Mechanical	F35342-300
3/4" <sup>†</sup>	Standard	5	1.9	None	F35351-400
<b>MANUAL DRAIN • METAL BOWL</b>					
3/8"	Standard	5	2.4	None	F35331-420
3/8"	Coalescing	0.3	2.4	Mechanical	F35332-320
1/2"	Standard	5	2.4	None	F35341-420
1/2"	Coalescing	0.3	2.4	Mechanical	F35342-320
<b>MANUAL DRAIN • METAL BOWL W/ SIGHT GLASS</b>					
3/8"	Standard	5	2.4	None	F35331-410
3/8"	Coalescing	0.3	2.4	Mechanical	F35332-310
1/2"	Standard	5	2.4	None	F35341-410
1/2"	Coalescing	0.3	2.4	Mechanical	F35342-310
3/4" <sup>†</sup>	Standard	5	2.4	None	F35351-410
<b>AUTO DRAIN • POLYCARBONATE BOWL W/ GUARD</b>					
3/8"	Standard	5	2.3	None	F35331-401
3/8"	Coalescing	0.3	2.3	Mechanical	F35332-301
1/2"	Standard	5	2.3	None	F35341-401
1/2"	Coalescing	0.3	2.3	Mechanical	F35342-301
3/4" <sup>†</sup>	Standard	5	2.3	None	F35351-401
<b>AUTO DRAIN • METAL BOWL W/ SIGHT GLASS</b>					
3/8"	Standard	5	2.8	None	F35331-411
3/8"	Coalescing	0.3	2.8	Mechanical	F35332-311
1/2"	Standard	5	2.8	None	F35341-411
1/2"	Coalescing	0.3	2.8	Mechanical	F35342-311
3/4" <sup>†</sup>	Standard	5	2.8	None	F35351-411

## 1/2" Pressure drop test

1/2" 2000 SERIES FILTER



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104315	Replacement auto drain*
104316	Replacement manual drain
104317	5-Micron element
104318	40-Micron element
104319	0.3-Micron element
104320	Poly bowl, manual drain
104321	Poly bowl, auto drain
104322	Metal bowl, manual drain
104323	Metal bowl, auto drain
104324	Metal bowl, sight glass, auto drain
104325	Metal bowl, sight glass, manual drain
104326	Filter bowl service kit

\* Replacement auto drains can only be used with auto drain bowls.

## Accessories

See page 65 for details

MODEL	DESCRIPTION
104392-3	3/8" NPT lock-out valve
104392-4	1/2" NPT lock-out valve
104396	Modular clamp
104398-3	3/8" NPT pipe adapter
104398-4	1/2" NPT pipe adapter
104479-3	3/8" Check valve
104479-4	1/2" Check valve
104401	T-type wall mount
104409	C-type wall mount
104413-3-3	3/8" x 3/8" Manifold block
104413-4-3	1/2" x 3/8" Manifold block

<sup>†</sup> For Series 2000 with 3/4" threads, use modular clamp 104397 or T-type wall mount bracket/spacer 104402



# 2000 Series regulators

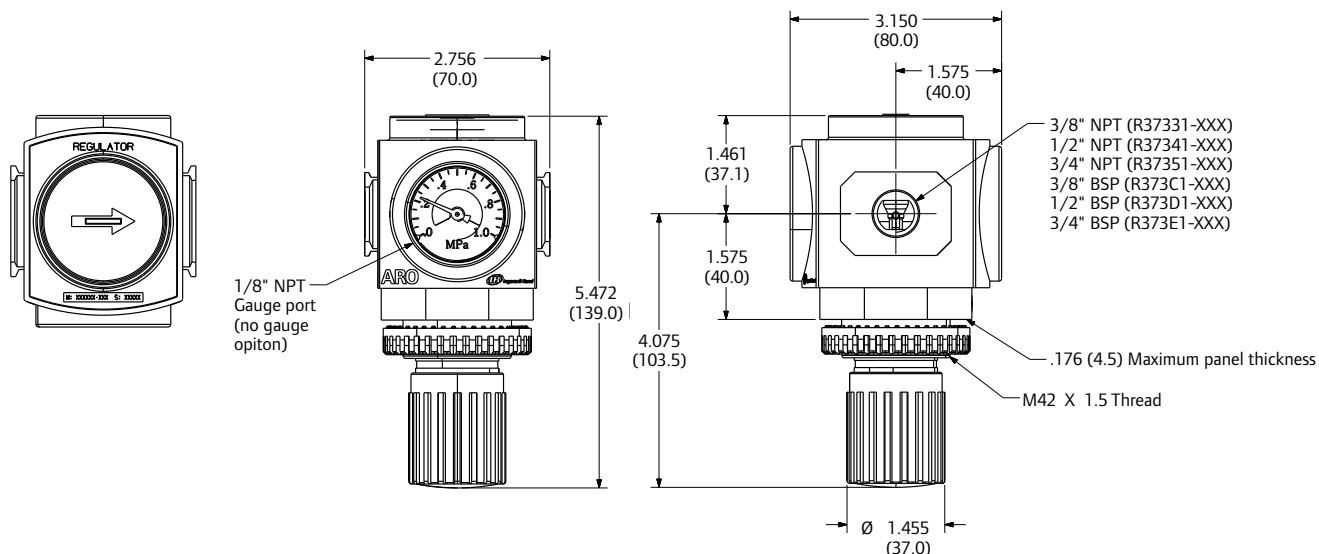
3/8", 1/2", and 3/4" Ports

Technical data	
Diaphragm	Nitrile + nylon
Regulator body	Aluminum
Regulator valve	Nitrile + nylon
Regulator springs	Steel
Gauge cover	Nylon + polycarbonate
Regulator knob	Acetal
O-rings	Nitrile
Max inlet pressure (psi)	250
Temperature range (F)	23 - 140
Spring range options (psi)	0 - 30
	0 - 60
	0 - 140
	0 - 200
Gauge port	1/8"
Flow capacity — 3/8" port*	179 scfm
Flow capacity — 1/2" port*	210 scfm
Flow capacity — 3/4" port*	210 scfm



Panel nut comes standard on all individual regulator units

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3



2000 Series

## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size	Base model					
3/8"	- R373	3	1	- X	X	
X						
1/2"	- R373	4	1	- X	X	
X						
<b>Thread type</b>		<b>Pressure range PSIG</b>		<b>Relieving option</b>		<b>Control option</b>
3 3/8" NPT		1 0 – 140 (no gauge)		0 Relieving		0 Standard knob
4 1/2" NPT		2 0 – 60 (no gauge)		2 Non-relieving		
5† 3/4" NPT		3 10 – 200 (no gauge)				
C 3/8" BSP		4 0 – 30 (no gauge)				
D 1/2" BSP		6 0 – 140 w/ flush-mount				
E† 3/4" BSP						

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in red below.

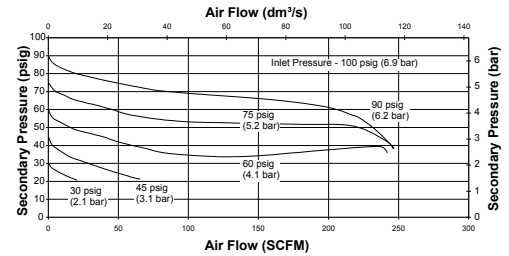
## Popular configurations

Port size NPT	Pressure range psi	Gauge	Model
<b>RELIEVING • STANDARD KNOB CONTROL</b>			
3/8"	0 – 30	No gauge	R37331-400
3/8"	0 – 60	No gauge	R37331-200
3/8"	0 – 140	No gauge	R37331-100
3/8"	0 – 140	Flush-mount gauge	R37331-600
3/8"	10 – 200	No gauge	R37331-300
1/2"	0 – 30	No gauge	R37341-400
1/2"	0 – 60	No gauge	R37341-200
1/2"	0 – 140	No gauge	R37341-100
1/2"	0 – 140	Flush-mount gauge	R37341-600
1/2"	10 – 200	No gauge	R37341-300
3/4"†	0 – 30	No gauge	R37351-400
3/4"†	0 – 60	No gauge	R37351-200
3/4"†	0 – 140	No gauge	R37351-100
3/4"†	0 – 140	Flush-mount gauge	R37351-600
3/4"†	10 – 200	No gauge	R37351-300
<b>NON-RELIEVING • STANDARD KNOB CONTROL</b>			
3/8"	0 – 30	No gauge	R37331-420
3/8"	0 – 60	No gauge	R37331-220
3/8"	0 – 140	No gauge	R37331-120
3/8"	0 – 140	Flush-mount gauge	R37331-620
3/8"	10 – 200	No gauge	R37331-320
1/2"	0 – 30	No gauge	R37341-420
1/2"	0 – 60	No gauge	R37341-220
1/2"	0 – 140	No gauge	R37341-120
1/2"	0 – 140	Flush-mount gauge	R37341-620
1/2"	10 – 200	No gauge	R37341-320
3/4"†	0 – 140	Flush-mount gauge	R37351-620
3/4"†	10 – 200	No gauge	R37351-320

† For Series 2000 with 3/4" threads, use modular clamp 104397 or T-type wall mount bracket/spacer 104402

## 1/2" Pressure drop test

1/2" 2000 SERIES REGULATOR



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104327	Regulator service kit (relieving)
104328	Regulator service kit (non-relieving)
104329	Tamper kit
104330	0 – 60 psi Spring
104331	0 – 140 psi Spring
104332	10 – 200 psi Spring
104334	0 – 140 psi Gauge flush mount
104533	0 – 30 psi Spring

## Accessories

See page 65 for details

MODEL	DESCRIPTION
104392-3	3/8" NPT lock-out valve
104392-4	1/2" NPT lock-out valve
104396	Modular clamp
104398-3	3/8" NPT pipe adapter
104398-4	1/2" NPT pipe adapter
104479-3	3/8" Check valve
104479-4	1/2" Check valve
104401	T-type wall mount
104405	L-type wall mount
104409	C-type wall mount
104413-3-3	3/8" x 3/8" Manifold block
104413-4-3	1/2" x 3/8" Manifold block
104418	Panel nut
104469	Gauge port block
104415	Pressure switch

Adjustment range can exceed spring rating on 0-30 psi and 0-60 psi regulators. The working range of the adjustment knob is designed to permit outlet pressures beyond the spring ratings in the 0-30psi and 0-60psi models. The adjustment knob is not designed to be a pressure limiting device. Limiting devices may be obtained only by special design. For optimal performance, regulators should not be set to ranges outside the specified spring range.

# 2000 Series Lubricators

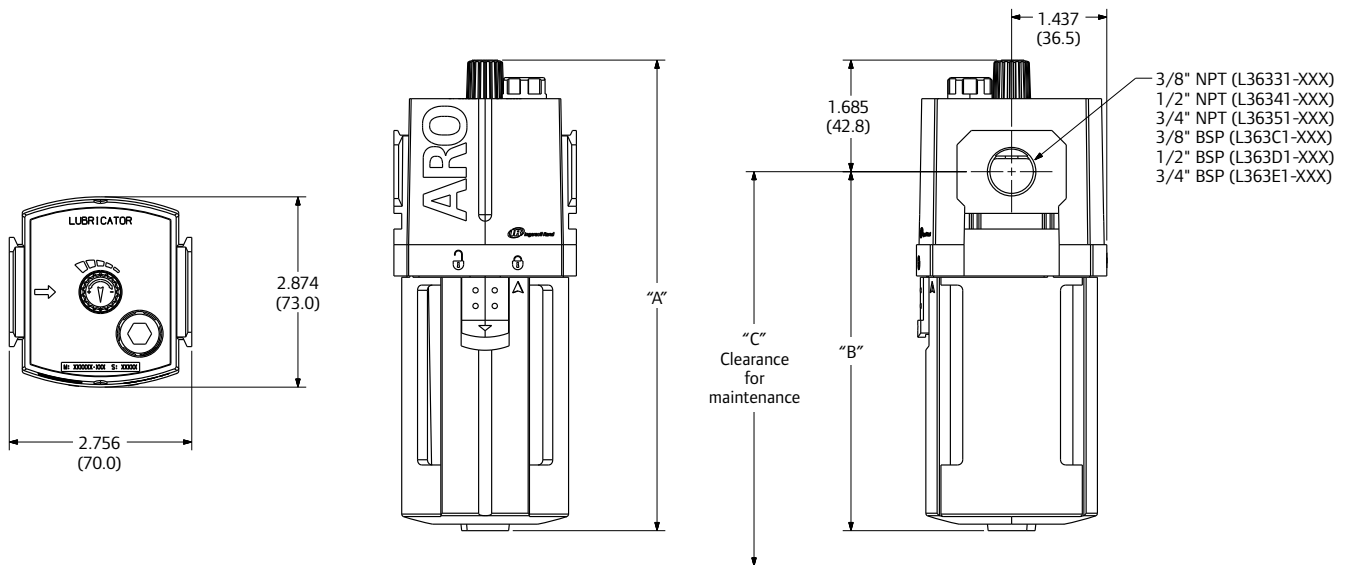
3/8", 1/2", and 3/4" Ports

Technical data		
Lubricator body	Aluminum	
Lubricator sight dome	Nylon	
Lubricator inlet tube	Urethane	
Seals	Nitrile	
	POLYCARBONATE BOWL	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	150	250
Temperature range (F)	23 – 125	23 – 175
Bowl capacity (oz)	4.3	3.7
Flow capacity — 3/8" port*	85 scfm	
Flow capacity — 1/2" port*	156 scfm	
Flow capacity — 3/4" port*	222 scfm	

\*Inlet pressure 90 psi (6.2 bar) with 7 psi drop (0.5 bar)



2000 Series



MODEL	A (MM)	B (MM)	C (MM)	BOWL OPTION
L363X1-X0X	7.087 (180.0)	5.402 (137.2)	9.402 (238.8)	POLYCARBONATE
L363X1-X1X	7.165 (182.0)	5.480 (139.2)	8.980 (228.1)	METAL W/ SIGHT GLASS
L363X1-X2X	7.165 (182.0)	5.480 (139.2)	8.980 (228.1)	METAL

## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size	Base model			
3/8"	- L363 3 1 - X X			
X				
1/2"	- L363 4 1 - X X			
X				

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

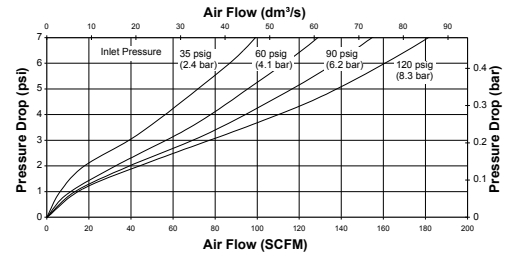
<b>Thread type</b>	<b>Adjustment option</b>	<b>Bowl option</b>	<b>Fill option</b>
<b>3</b> 3/8" NPT	<b>1</b> Standard	<b>0</b> Polycarbonate	<b>0</b> Standard
<b>4</b> 1/2" NPT		<b>1</b> Metal w/ sight glass	
<b>5<sup>†</sup></b> 3/4" NPT		<b>2</b> Metal	
<b>C</b> 3/8" BSP			
<b>D</b> 1/2" BSP			
<b>E<sup>†</sup></b> 3/4" BSP			

## Popular configurations

Port size NPT	Adjustment option	Bowl cap (oz)	Fill option	Model
<b>METAL BOWL</b>				
3/8"	Standard	3.7	Standard	L36331-120
1/2"	Standard	3.7	Standard	L36341-120
3/4" <sup>†</sup>	Standard	3.7	Standard	L36351-120
<b>METAL BOWL W/ SIGHT GLASS</b>				
3/8"	Standard	3.7	Standard	L36331-110
1/2"	Standard	3.7	Standard	L36341-110
3/4" <sup>†</sup>	Standard	3.7	Standard	L36351-110
<b>POLYCARBONATE BOWL W/ GUARD</b>				
3/8"	Standard	4.3	Standard	L36331-100
1/2"	Standard	4.3	Standard	L36341-100
3/4" <sup>†</sup>	Standard	4.3	Standard	L36351-100

## 1/2" Pressure drop test

1/2" 2000 SERIES LUBRICATOR



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104336	Polycarbonate bowl w/ guard
104337	Metal bowl
104338	Metal bowl w/ sight glass
104339	Lubricator bowl service kit
104470	Sight dome repair kit

## Accessories

See page 65 for details

MODEL	DESCRIPTION
104392-3	3/8" NPT lockout valve
104392-4	1/2" NPT lockout valve
104396	Modular clamp
104398-3	3/8" NPT pipe adapter
104398-4	1/2" NPT pipe adapter
104479-3	3/8" Check valve
104479-4	1/2" Check valve
104401	T-type wall mount
104409	C-type wall mount
104413-3-3	3/8" x 3/8" Manifold block
104413-4-3	1/2" x 3/8" Manifold block

<sup>†</sup> For Series 2000 with 3/4" threads, use modular clamp 104397 or T-type wall mount bracket/spacer 104402

# 2000 Series piggyback filters / regulators

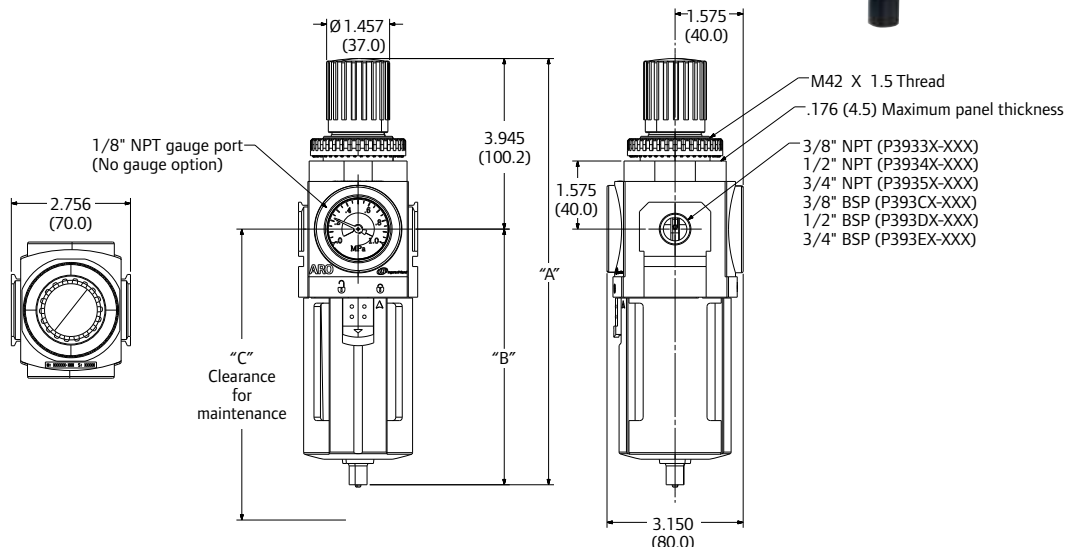
3/8", 1/2", and 3/4" Ports

Technical data		
	POLYCARBONATE BOWL	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	150	250
Temperature range (F)	23 - 125	23 - 175
Spring range options (psi)	0 - 30	
	0 - 60	
	0 - 140	
	0 - 200	
Bowl cap — manual drain (oz)	1.9	2.4
Bowl cap — auto drain (oz)	2.3	2.8
Gauge port	1/8"	
Flow capacity — 3/8" port*	132 scfm	
Flow capacity — 1/2" port*	172 scfm	
Flow capacity — 3/4" port*	173 scfm	

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3 bar)



Panel nut comes standard on all individual piggyback units



MODEL	A (MM)	B (MM)	C (MM)	BOWL OPTION	DRAIN OPTION
P393XX-X00	9.961 (253.0)	6.016 (152.8)	9.016 (229.0)	POLY W/ GUARD	MANUAL
P393XX-X10	10.039 (225.0)	6.094 (154.8)	8.594 (218.3)	METAL W/ SIGHT GLASS	MANUAL
P393XX-X20	10.039 (225.0)	6.094 (154.8)	8.594 (218.3)	METAL	MANUAL
P393XX-X04	10.787 (274.0)	6.843 (173.8)	9.843 (250.0)	POLY W/GUARD	AUTOMATIC
P393XX-X14	10.866 (276.0)	6.921 (175.8)	9.421 (239.3)	METAL W/ SIGHT GLASS	AUTOMATIC
P393XX-X24	10.866 (276.0)	6.921 (175.8)	9.421 (239.3)	METAL	AUTOMATIC

## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size	Base model			
3/8"	- P393 3	X	X	
X X				
1/2"	- P393 4	X	X	

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

<b>Filter element</b>	<b>Pressure range PSIG</b>	<b>Relieving bowl option</b>	<b>Control / drain option</b>
<b>3</b> 0.3-Micron coalescing	<b>1</b> 0 – 140 (no gauge)	<b>0</b> Relieving / poly w/ guard	<b>0</b> Standard knob / manual
<b>4</b> 5-Micron	<b>2</b> 0 – 60 (no gauge)	<b>1</b> Relieving / metal w/ sight glass	<b>4</b> Standard knob / automatic
<b>Thread type</b>	<b>3</b> 10 – 175 (no gauge)		
<b>3</b> 3/8" NPT	<b>4</b> 0 – 30 (no gauge)		
<b>4</b> 1/2" NPT	<b>6</b> 0 – 140 w/ flush-mount		
<b>5<sup>†</sup></b> 3/4" NPT			
<b>C</b> 3/8" BSP			
<b>D</b> 1/2" BSP			
<b>E</b> 3/4" BSP			

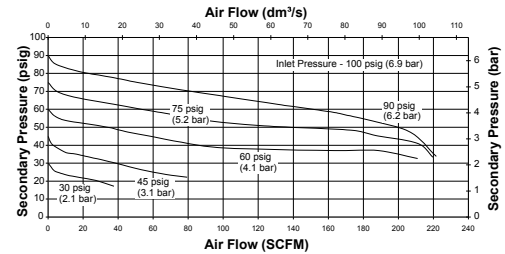
## Popular configurations

Port size NPT	Drain	Spring range psi	w/ Gauge	Model
<b>5 MICRON • POLYCARBONATE BOWL • RELIEVING</b>				
3/8"	Manual	0 – 140	No	P39334-100
3/8"	Manual	0 – 140	Yes	P39334-600
3/8"	Auto	0 – 140	No	P39334-104
3/8"	Auto	0 – 140	Yes	P39334-604
1/2"	Manual	0 – 140	No	P39344-100
1/2"	Manual	0 – 140	Yes	P39344-600
1/2"	Auto	0 – 140	No	P39344-104
1/2"	Auto	0 – 140	Yes	P39344-604
3/4" <sup>†</sup>	Manual	0 – 140	No	P39354-100
3/4" <sup>†</sup>	Manual	0 – 140	Yes	P39354-600
<b>5 MICRON • METAL BOWL W/ SIGHT GLASS • RELIEVING</b>				
3/8"	Manual	0 – 140	No	P39334-110
3/8"	Manual	0 – 140	Yes	P39334-610
3/8"	Auto	0 – 140	No	P39334-114
3/8"	Auto	0 – 140	Yes	P39334-614
1/2"	Manual	0 – 140	No	P39344-110
1/2"	Manual	0 – 140	Yes	P39344-610
1/2"	Auto	0 – 140	No	P39344-114
1/2"	Auto	0 – 140	Yes	P39344-614
3/4" <sup>†</sup>	Manual	0 – 140	No	P39354-110
3/4" <sup>†</sup>	Manual	0 – 140	Yes	P39354-610

Adjustment range can exceed spring rating on 0-30 psi and 0-60 psi regulators. The working range of the adjustment knob is designed to permit outlet pressures beyond the spring ratings in the 0-30psi and 0-60psi models. The adjustment knob is not designed to be a pressure limiting device. Limiting devices may be obtained only by special design. For optimal performance, regulators should not be set to ranges outside the specified spring range.

## 1/2" Pressure drop test

1/2" 2000 SERIES FILTER/REGULATOR



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104315	Replacement auto drain*
104316	Replacement manual drain
104317	5-Micron element
104318	40-Micron element
104363	0.3-Micron element
104320	Poly bowl, manual drain
104321	Poly bowl, auto drain
104322	Metal bowl, manual drain
104323	Metal bowl, auto drain
104324	Metal bowl, sight glass, auto
104325	Metal bowl, sight glass, man.
104326	Filter bowl service kit
104544	Regulator service kit (relieving)
104219	Regulator service kit (non-relieving)
104329	Tamper kit
104330	0 – 60 psi Spring
104331	0 – 140 psi Spring
104332	10 – 200 psi Spring
104334	0 – 140 psi Gauge flush mount
104418	Panel Nut
104533	0 – 30 psi Spring

\* Replacement auto drains can only be used with auto drain bowls.

<sup>†</sup> For Series 2000 with 3/4" threads, use modular clamp 104397 or T-type wall mount bracket/spacer 104402

# 2000 Series combinations

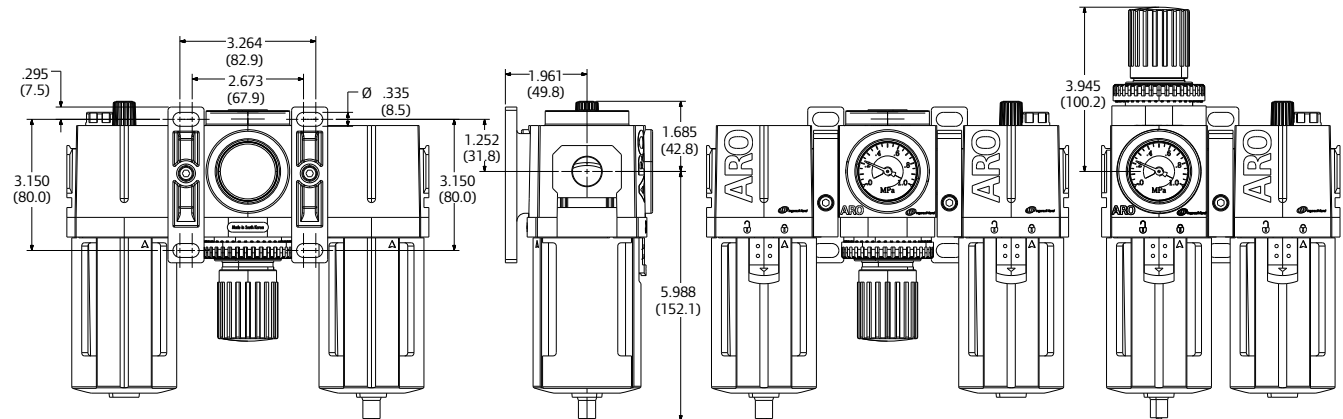
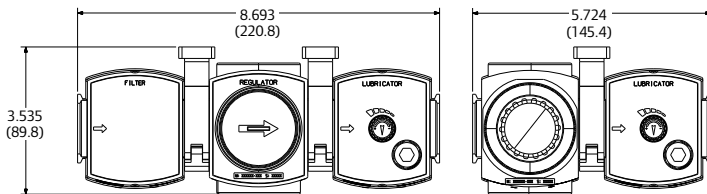
3/8", 1/2", and 3/4" Ports

Technical data		
	POLYCARBONATE BOWL	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	150	250
Temperature range (F)	23 - 125	23 - 175
Spring range options (psi)	0 - 140	
Filter element	5 micron	
Filter bowl cap — manual drain (oz)	1.9	2.4
Filter bowl cap — auto drain (oz)	2.3	2.8
Lubricator bowl capacity (oz)	4.3	3.7
Gauge port	1/8"	
Flow capacity — 3/8" - 2 unit*	96 scfm	
Flow capacity — 1/2" - 2 unit*	120 scfm	
Flow capacity — 3/4" - 2 unit*	142 scfm	
Flow capacity — 3/8" - 3 unit*	99 scfm	
Flow capacity — 1/2" - 3 unit*	150 scfm	
Flow capacity — 3/4" - 3 unit*	171 scfm	

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3 bar)



Photos shown with optional panel nut. If required, order 104418 panel nut separately.





## F + R + L Combinations

Port size NPT	Filter	Components Regulator	Lubricator	Model
<b>MANUAL DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>				
3/8"	F35331-410	R37331-600	L36331-110	C38331-810
1/2"	F35341-410	R37341-600	L36341-110	C38341-810
3/4" †	F35351-410	R37351-600	L36351-110	C38351-810
<b>MANUAL DRAIN • POLYCARBONATE BOWL W/ GUARD • RELIEVING • W/</b>				
3/8"	F35331-400	R37331-600	L36331-100	C38331-800
1/2"	F35341-400	R37341-600	L36341-100	C38341-800
3/4" †	F35351-400	R37351-600	L36351-100	C38351-800
<b>AUTO DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>				
3/8"	F35331-411	R37331-600	L36331-110	C38331-811
1/2"	F35341-411	R37341-600	L36341-110	C38341-811
3/4" †	F35351-411	R37351-600	L36351-110	C38351-811
<b>AUTO DRAIN • POLYCARBONATE BOWL W/ GUARD • RELIEVING • W/ GAUGE</b>				
3/8"	F35331-401	R37331-600	L36331-100	C38331-801
1/2"	F35341-401	R37341-600	L36341-100	C38341-801
3/4" †	F35351-401	R37351-600	L36351-100	C38351-801

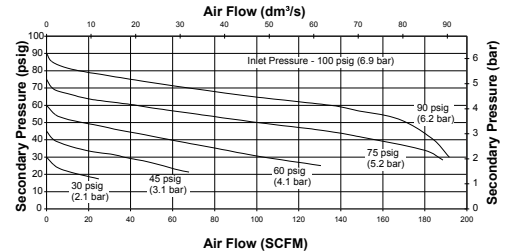
## F/R + L Combinations

Port size NPT	Filter-regulator	Components Lubricator	Model
<b>MANUAL DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>			
3/8"	P39334-610	L36331-110	C38331-610
1/2"	P39344-610	L36341-110	C38341-610
3/4" †	P39354-610	L36351-110	C38351-610
<b>MANUAL DRAIN • POLYCARBONATE BOWL W/ GUARD • RELIEVING • W/</b>			
3/8"	P39334-600	L36331-100	C38331-600
1/2"	P39344-600	L36341-100	C38341-600
3/4" †	P39354-600	L36351-100	C38351-600
<b>AUTO DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>			
3/8"	P39334-614	L36331-110	C38331-611
1/2"	P39344-614	L36341-110	C38341-611
3/4" †	P39354-614	L36351-110	C38351-611
<b>AUTO DRAIN • POLYCARBONATE BOWL W/ GUARD • RELIEVING • W/ GAUGE</b>			
3/8"	P39334-604	L36331-100	C38331-601
1/2"	P39344-604	L36341-100	C38341-601
3/4" †	P39354-604	L36351-100	C38351-601

Note: Other combinations may be assembled by purchasing the individual components separately. Modular connector kits are required to connect the individual units together.

## 1/2" Pressure drop test

1/2" 2000 SERIES F-R-L COMBO



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104315	Replacement auto drain*
104316	Replacement manual drain
104317	5-Micron element
104318	40-Micron element
104319	0.3-Micron filter element
104363	0.3-Micron piggyback element
104320	Poly bowl, manual drain
104321	Poly bowl, auto drain
104322	Metal bowl, manual drain
104323	Metal bowl, auto drain
104324	Metal bowl, sight glass, auto
104325	Metal bowl, sight glass, man.
104326	Filter bowl service kit
104327	Regulator service kit (relieving)
104328	Regulator service kit (non-relieving)
104329	Tamper kit
104330	0 – 60 psi Spring
104331	0 – 140 psi Spring
104332	10 – 200 psi Spring
104334	0 – 140 psi Gauge flush mount
104336	Polycarbonate bowl w/ guard
104337	Metal bowl
104338	Metal bowl w/ sight glass
104339	Lubricator bowl service kit
104470	Sight dome repair kit
104418	Panel Nut

\* Replacement auto drains can only be used with auto drain bowls.

† For Series 2000 with 3/4" threads, use modular clamp 104397 or T-type wall mount bracket/spacer 104402

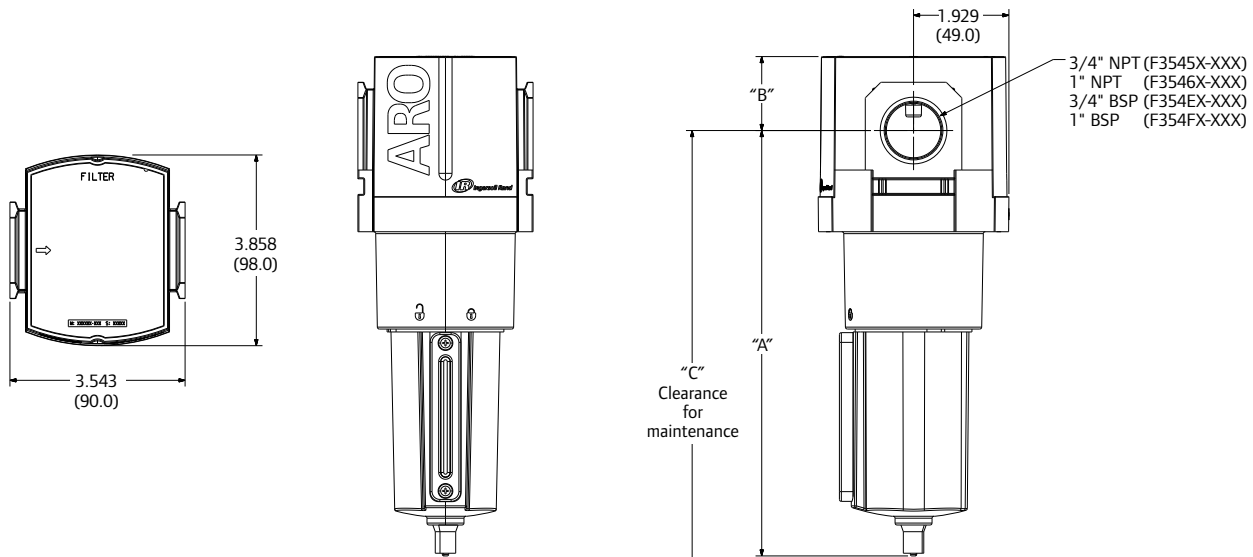
# 3000 Series filters

Technical data	
Metal bowl	Aluminum
Metal bowl sight glass	Nylon
Filter body	Aluminum
Manual drain	Brass + nitrile
Auto drain	Acetal
Standard filter	Polyethylene
Coalescing filter	HEPA paper + felt
Seals	Nitrile
Filter baffle	Acetal
	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	250
Temperature range (F)	23 – 175
Bowl cap — manual drain (oz)	5.3
Bowl cap — auto drain (oz)	5.9
Bowl cap — coal manual drain	4.7
Bowl cap — coal auto drain	5.2
Flow capacity — 3/4" port*	288 scfm
Flow capacity — 1" port*	353 scfm

\*Inlet pressure 90 psi (6.2 bar) with 10 psi drop (0.7 bar)



3000 Series

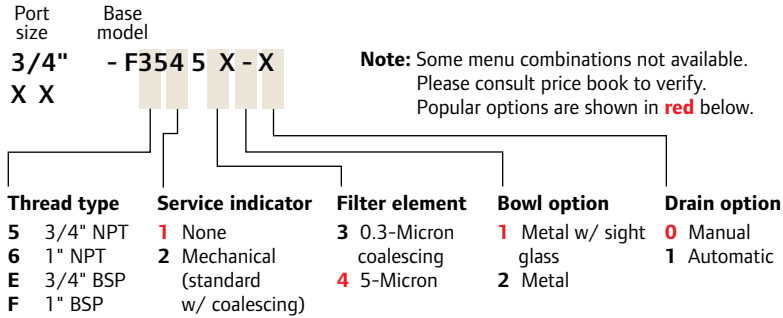


MODEL	A (MM)	C (MM)	DRAIN
F354XX-XX0	8.429 (214.1)	10.929 (277.6)	MANUAL
F354XX-XX1	9.315 (236.6)	11.815 (300.1)	AUTOMATIC

MODEL	B (MM)	SERVICE INDICATOR
F354X1-XXX	1.496 (38.0)	NONE
F354X2-XXX	2.165 (55.0)	MECHANICAL

## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

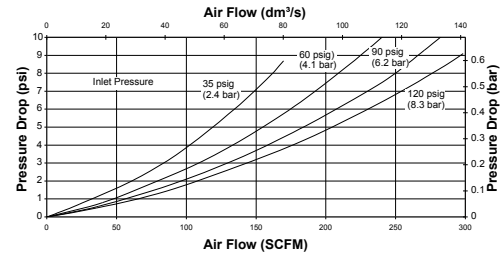


## Popular configurations

Port size NPT	Filter type	Element (microns)	Bowl cap (oz)	Service indicator	Model
<b>MANUAL DRAIN • METAL BOWL</b>					
3/4"	Coalescing	0.3	4.7	Mechanical	F35452-320
3/4"	Standard	5	5.3	None	F35451-420
3/4"	Standard	5	5.3	Mechanical	F35452-420
1"	Coalescing	0.3	4.7	Mechanical	F35462-320
1"	Standard	5	5.3	None	F35461-420
1"	Standard	5	5.3	Mechanical	F35462-420
<b>MANUAL DRAIN • METAL BOWL W/ SIGHT GLASS</b>					
3/4"	Coalescing	0.3	4.7	Mechanical	F35452-310
3/4"	Standard	5	5.3	None	F35451-410
3/4"	Standard	5	5.3	Mechanical	F35452-410
1"	Coalescing	0.3	4.7	Mechanical	F35462-310
1"	Standard	5	5.3	None	F35461-410
1"	Standard	5	5.3	Mechanical	F35462-410
<b>AUTO DRAIN • METAL BOWL</b>					
3/4"	Coalescing	0.3	5.2	Mechanical	F35452-321
3/4"	Standard	5	5.9	None	F35451-421
3/4"	Standard	5	5.9	Mechanical	F35452-421
1"	Coalescing	0.3	5.2	Mechanical	F35462-321
1"	Standard	5	5.9	None	F35461-421
1"	Standard	5	5.9	Mechanical	F35462-421
<b>AUTO DRAIN • METAL BOWL W/ SIGHT GLASS</b>					
3/4"	Coalescing	0.3	5.2	Mechanical	F35452-311
3/4"	Standard	5	5.9	None	F35451-411
3/4"	Standard	5	5.9	Mechanical	F35452-411
1"	Coalescing	0.3	5.2	Mechanical	F35462-311
1"	Standard	5	5.9	None	F35461-411
1"	Standard	5	5.9	Mechanical	F35462-411

## 3/4" Pressure drop test

3/4" 3000 SERIES FILTER



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104445	5-Micron element
104446	40-Micron element
104447	0.3-Micron element
104450	Metal bowl w/ sight glass, man
104451	Metal bowl w/ sight glass, auto
104452	Filter bowl service kit
104315	Replacement auto drain*
104316	Replacement manual drain
104322	Metal bowl, manual drain
104323	Metal bowl, auto drain

\* Replacement auto drains can only be used with auto drain bowls.

## Accessories

See page 65 for details

MODEL	DESCRIPTION
104393-5	3/4" NPT lockout valve
104393-6	1" NPT lockout valve
104397	Modular clamp
104476-5	3/4" NPT pipe adapter
104476-6	1" NPT pipe adapter
104402	T-type wall mount
104406	L-type wall mount
104410	C-type wall mount

# 3000 Series regulators

3/4" and 1" Ports

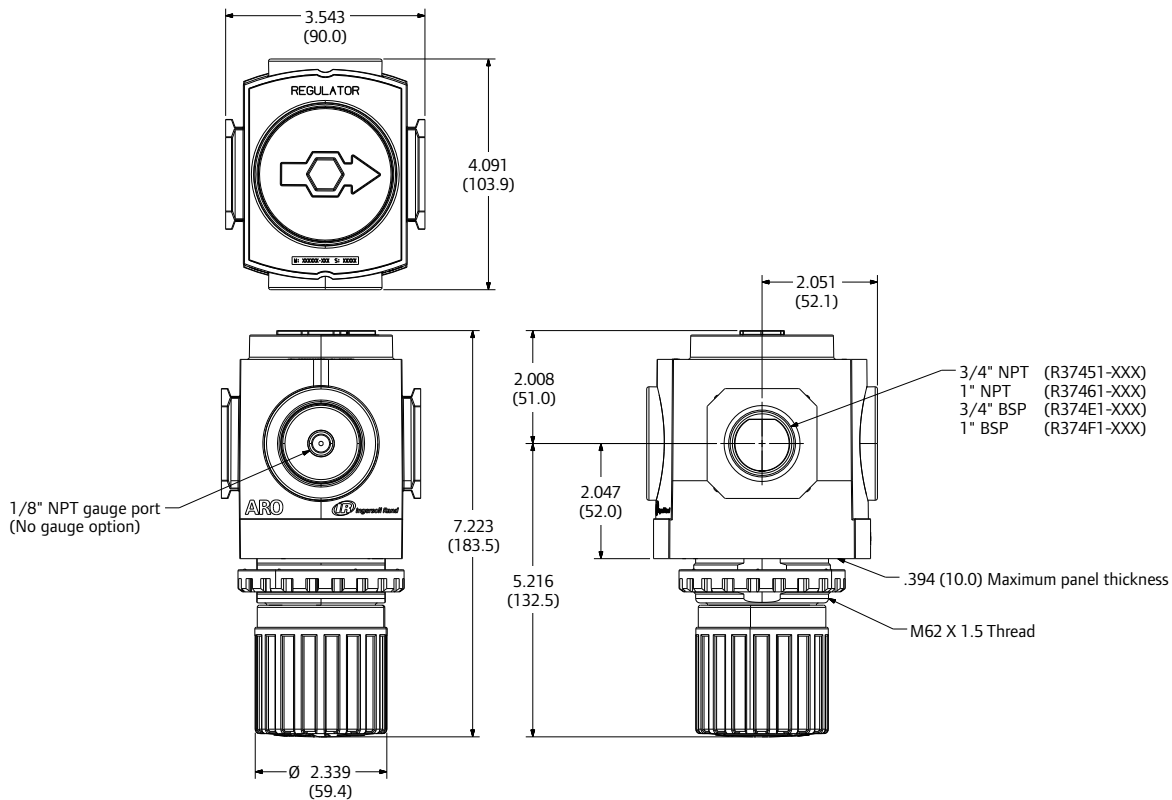
Technical data	
Diaphragm	Nitrile + nylon
Regulator body	Aluminum
Regulator valve	Nitrile + nylon
Regulator springs	Steel
Gauge cover	Nylon + polycarbonate
Regulator knob	Acetal
O-rings	Nitrile
Max inlet pressure (psi)	250
Temperature range (F)	23 – 140
Spring range options (psi)	0 – 30
	0 – 60
	0 – 140
	10 – 200
Gauge port	1/8"
Flow capacity — 3/4" port*	290 scfm
Flow capacity — 1" port*	290 scfm

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3 bar)



Panel nut comes standard on all individual regulator units

3000 Series



## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size: **3/4"**  
Base model: **- R374 5 1 - X X**

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

Thread type	Pressure range PSIG	Relieving option	Control option
<b>5</b> 3/4" NPT	<b>1</b> 0 – 140 (no gauge)	<b>0</b> Relieving	<b>0</b> Standard knob
<b>6</b> 1" NPT	<b>2</b> 0 – 60 (no gauge)	<b>2</b> Non-relieving	
<b>E</b> 3/4" BSP	<b>3</b> 10 – 200 (no gauge)		
<b>F</b> 1" BSP	<b>4</b> 0 – 30 (no gauge)		
	<b>6</b> 0 – 140 w/ flush-mount gauge		

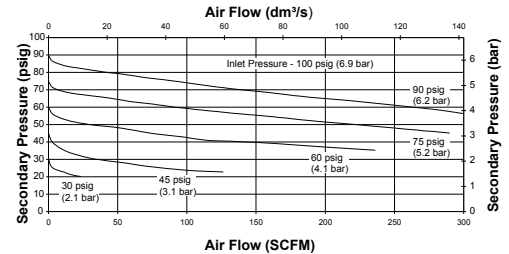
## Popular configurations

Port size NPT	Pressure range psi	Gauge	Model
<b>RELIEVING • STANDARD KNOB CONTROL</b>			
3/4"	0 – 30	No gauge	R37451-400
3/4"	0 – 60	No gauge	R37451-200
3/4"	0 – 140	No gauge	R37451-100
3/4"	0 – 140	Flush-mount gauge	R37451-600
3/4"	10 – 200	No gauge	R37451-300
1"	0 – 30	No gauge	R37461-400
1"	0 – 60	No gauge	R37461-200
1"	0 – 140	No gauge	R37461-100
1"	0 – 140	Flush-mount gauge	R37461-600
1"	10 – 200	No gauge	R37461-300
<b>NON-RELIEVING • STANDARD KNOB CONTROL</b>			
3/4"	0 – 30	No gauge	R37451-420
3/4"	0 – 60	No gauge	R37451-220
3/4"	0 – 140	No gauge	R37451-120
3/4"	0 – 140	Flush-mount gauge	R37451-620
3/4"	10 – 200	No gauge	R37451-320
1"	0 – 30	No gauge	R37461-420
1"	0 – 60	No gauge	R37461-220
1"	0 – 140	No gauge	R37461-120
1"	0 – 140	Flush-mount gauge	R37461-620
1"	10 – 200	No gauge	R37461-320

Adjustment range can exceed spring rating on 0-30 psi and 0-60 psi regulators. The working range of the adjustment knob is designed to permit outlet pressures beyond the spring ratings in the 0-30psi and 0-60psi models. The adjustment knob is not designed to be a pressure limiting device. Limiting devices may be obtained only by special design. For optimal performance, regulators should not be set to ranges outside the specified spring range.

## 3/4" Pressure drop test

### 3/4" 3000 SERIES REGULATOR



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104453	Regulator service kit (relieving)
104454	Regulator service kit (non-relieving)
104455	Tamper kit
104456	0 – 60 psi Spring
104457	0 – 140 psi Spring
104458	10 – 200 psi Spring
104334	0 – 140 psi Gauge flush mount

## Accessories

See page 65 for details

MODEL	DESCRIPTION
104393-5	3/4" NPT lockout valve
104393-6	1" NPT lockout valve
104397	Modular clamp
104476-5	3/4" NPT pipe adapter
104476-6	1" NPT pipe adapter
104402	T-type wall mount
104406	L-type wall mount
104410	C-type wall mount
104419	Panel nut
104469	Gauge port block

# 3000 Series Lubricators

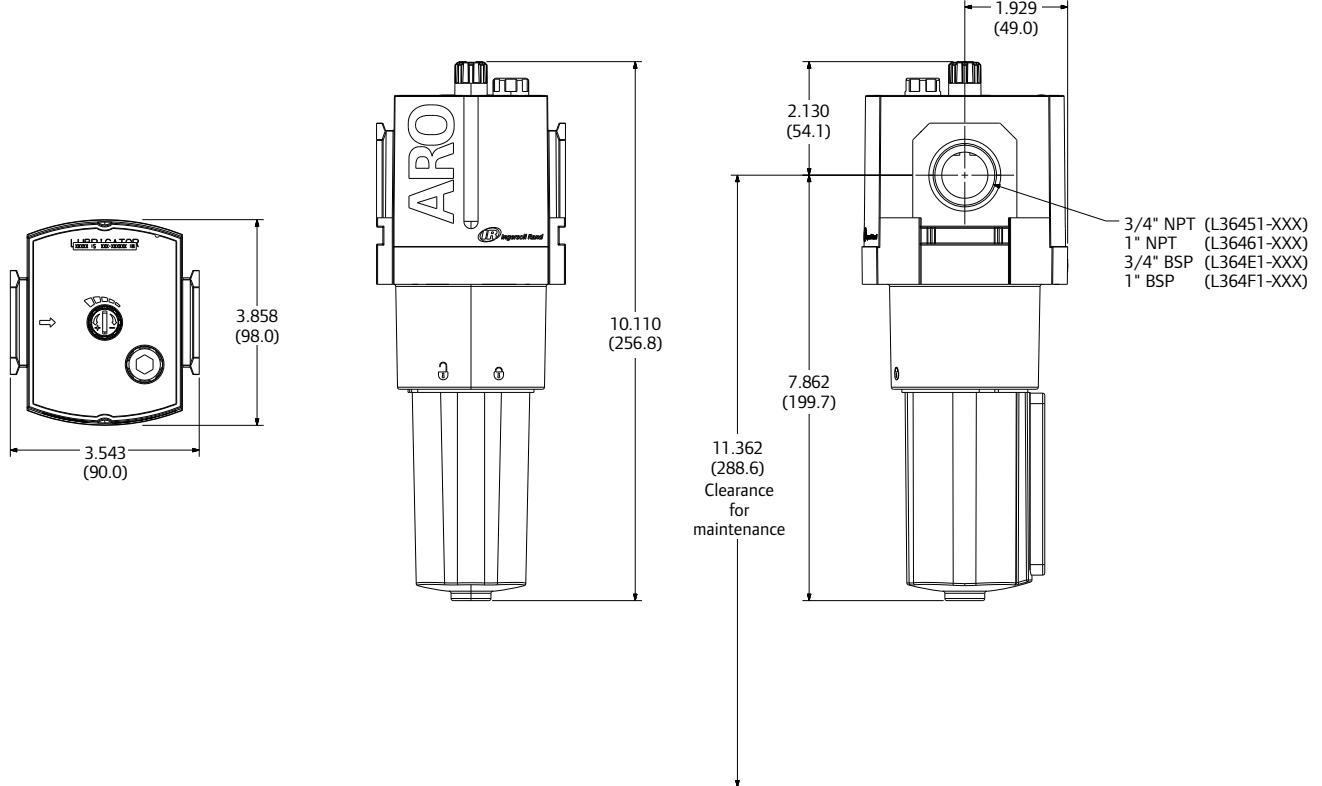
3/4" and 1" Ports

Technical data	
Lubricator body	Aluminum
Lubricator sight dome	Nylon
Lubricator inlet tube	Urethane
Seals	Nitrile
	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	250
Temperature range (F)	23 – 175
Bowl capacity (oz)	3.7
Flow capacity — 3/4" port*	330 scfm
Flow capacity — 1" port*	330 scfm

\*Inlet pressure 90 psi (6.2 bar) with 7 psi drop (0.5 bar)



3000 Series



## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size: **3/4"**  
 Base model: **- L364 5 1 - X X**

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

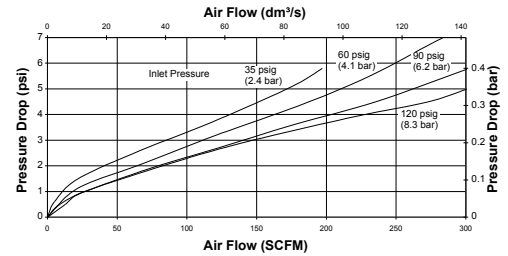
<b>Thread type</b>	<b>Adjustment option</b>	<b>Bowl option</b>	<b>Fill option</b>
<b>5</b> 3/4" NPT	<b>1</b> Standard	<b>1</b> Metal w/ sight glass	<b>0</b> Standard
<b>6</b> 1" NPT		<b>2</b> Metal	
<b>E</b> 3/4" BSP			
<b>F</b> 1" BSP			

## Popular configurations

Port size NPT	Adjustment option	Bowl cap (oz)	Fill option	Model
<b>METAL BOWL</b>				
3/4"	Standard	3.7	Standard	L36451-120
1"	Standard	3.7	Standard	L36461-120
<b>METAL BOWL W/ SIGHT GLASS</b>				
3/4"	Standard	3.7	Standard	L36451-110
1"	Standard	3.7	Standard	L36461-110

## 3/4" Pressure drop test

3/4" 3000 SERIES LUBRICATOR



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104465	Lubricator bowl service kit
104466	Sight dome repair kit
104337	Metal bowl
104338	Metal bowl w/ sight glass

## Accessories

See page 65 for details

MODEL	DESCRIPTION
104393-5	3/4" NPT lockout valve
104393-6	1" NPT lockout valve
104397	Modular clamp
104476-5	3/4" NPT pipe adapter
104476-6	1" NPT pipe adapter
104402	T-type wall mount
104406	L-type wall mount
104410	C-type wall mount

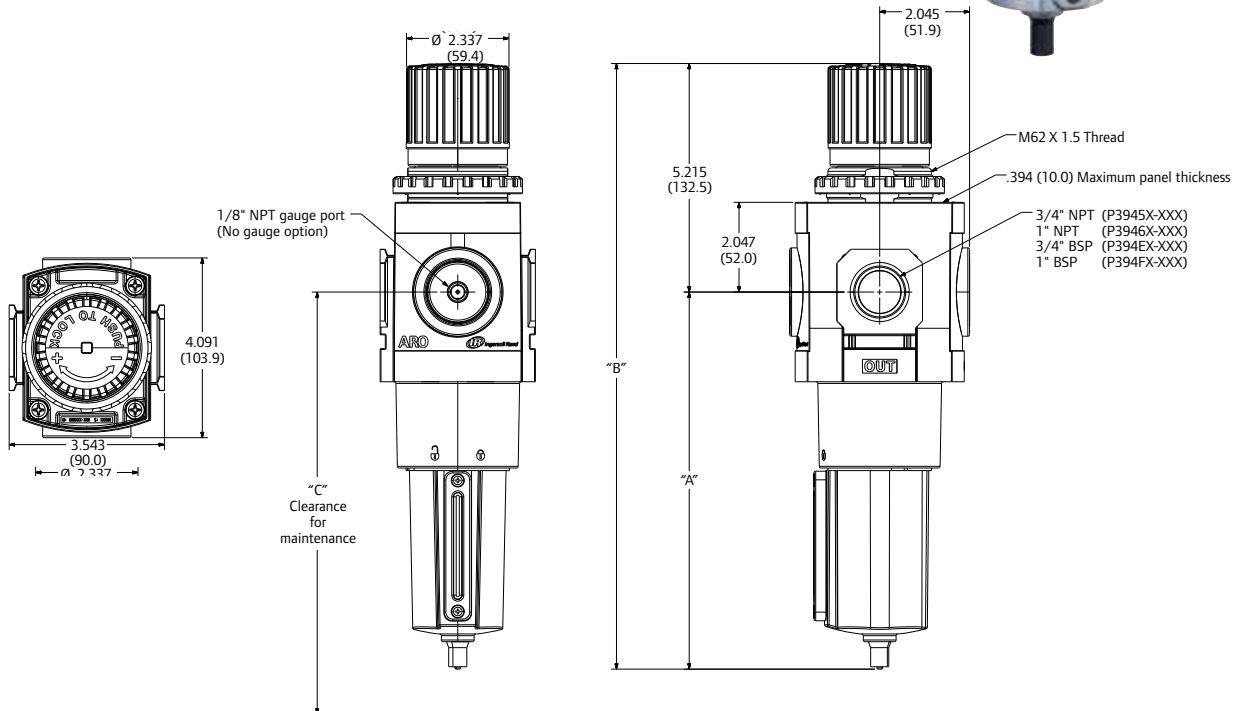


# 3000 Series piggyback filters / regulators

3/4" and 1" Ports

Technical data	
	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	250
Temperature range (F)	23 – 175
Spring range options (psi)	0 – 30
	0 – 60
	0 – 140
	10 – 175
Bowl cap — manual drain (oz)	5.3
Bowl cap — auto drain (oz)	5.9
Gauge port	1/8"
Flow capacity — 3/4" port*	236 scfm
Flow capacity — 1" port*	250 scfm

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3 bar)



MODEL	A (MM)	B (MM)	C (MM)	DRAIN
P394XX-XX0	8.425 (214.0)	13.642 (346.5)	10.925 (277.5)	MANUAL
P394XX-XX4	9.472 (240.6)	14.689 (373.1)	11.972 (304.1)	AUTOMATIC

3000 Series

## How to order

To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size: **3/4"**  
Base model: **- P3945 X - X**

**Note:** Some menu combinations not available. Please consult price book to verify. Popular options are shown in **red** below.

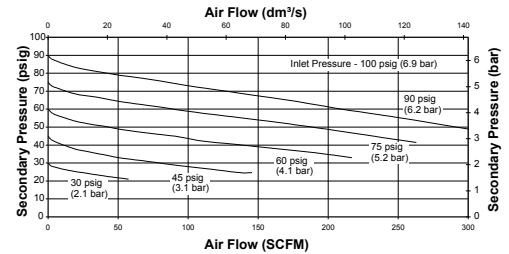
<p><b>Filter element</b></p> <p><b>4</b> 5-Micron</p> <p><b>Thread type</b></p> <p><b>5</b> 3/4" NPT <b>6</b> 1" NPT <b>E</b> 3/4" BSP <b>F</b> 1" BSP</p>	<p><b>Pressure range PSIG</b></p> <p><b>1</b> 0 – 140 (no gauge) <b>2</b> 0 – 60 (no gauge) <b>3</b> 10 – 175 (no gauge) <b>4</b> 0 – 30 (no gauge) <b>6</b> 0 – 140 w/ flush-mount gauge</p>	<p><b>Relieving bowl option</b></p> <p><b>1</b> Relieving / metal w/ sight glass</p>	<p><b>Control / drain option</b></p> <p><b>0</b> Standard knob / manual <b>4</b> Standard knob / automatic</p>
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## Popular configurations

Port size NPT	Drain	Spring range psi	w/ Gauge	Model
<b>5 MICRON • METAL BOWL W/ SIGHT GLASS • RELIEVING</b>				
3/4"	Manual	0 – 140	Yes	P39454-610
3/4"	Auto	0 – 140	Yes	P39454-614
1"	Manual	0 – 140	Yes	P39464-610
1"	Auto	0 – 140	Yes	P39464-614

## 3/4" Pressure drop test

3/4" 3000 SERIES FILTER/REGULATOR



See page 81 for additional flow charts

## Replacement parts

MODEL	DESCRIPTION
104445	5-Micron element
104446	40-Micron element
104450	Metal bowl w/ sight glass, man.
104451	Metal bowl w/ sight glass, auto
104452	Filter bowl service kit
104541	Regulator service kit (relieving)
104280	Regulator service kit (non-relieving)
104455	Tamper kit
104456	0 – 60 psi Spring
104457	0 – 140 psi Spring
104458	10 – 200 psi Spring
104315	Replacement auto drain*
104316	Replacement manual drain
104322	Metal bowl, manual drain
104323	Metal bowl, auto drain
104334	0 – 140 psi Gauge flush mount
104337	Metal bowl
104338	Metal bowl w/ sight glass
104419	Panel Nut

\* Replacement auto drains can only be used with auto drain bowls.

# 3000 Series combinations

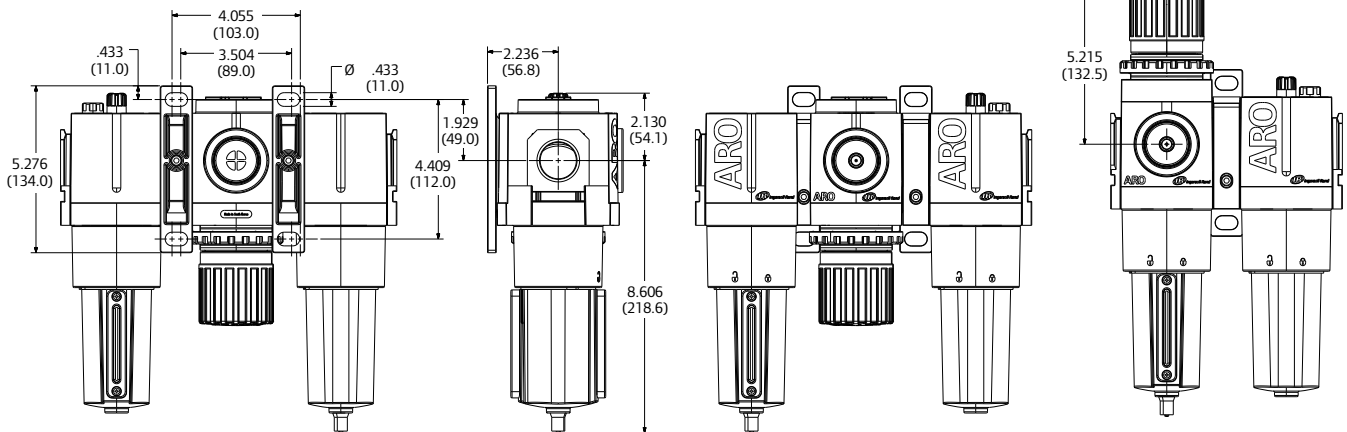
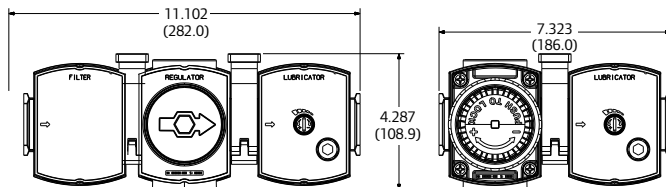
3/4" and 1" Ports

Technical data	
	METAL / METAL W/ SIGHT GLASS
Max inlet pressure (psi)	250
Temperature range (F)	23 - 175
Spring range options (psi)	0 - 200
Filter element	5 micron
Filter bowl cap — manual drain (oz)	5.3
Filter bowl cap — auto drain (oz)	5.9
Lubricator bowl capacity (oz)	3.2
Gauge port	1/8"
Flow capacity — 3/4" - 2 unit*	201 scfm
Flow capacity — 1" - 2 unit*	208 scfm
Flow capacity — 3/4" - 3 unit*	199 scfm
Flow capacity — 1" - 3 unit*	215 scfm

\*Inlet pressure 100 psi (6.9 bar), 90 psi set (6.2 bar), with 33 psi drop (2.3 bar)



Photos shown with optional panel nut. If required, order 104419 panel nut separately.



3000 Series

### F + R + L Combinations

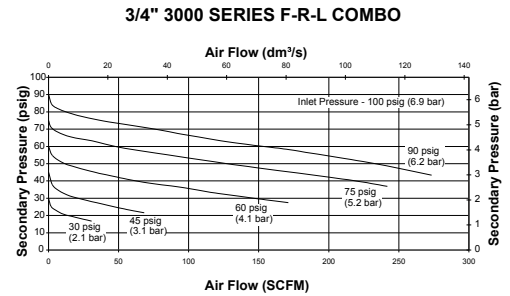
Port size NPT	Filter	Components Regulator	Lubricator	Model
<b>MANUAL DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>				
3/4"	F35451-410	R37451-600	L36451-110	C38451-810
1"	F35461-410	R37461-600	L36461-110	C38461-810
<b>AUTO DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>				
3/4"	F35451-411	R37451-600	L36451-110	C38451-811
1"	F35461-411	R37461-600	L36461-110	C38461-811

### F/R + L Combinations

Port size NPT	Filter-regulator	Components Lubricator	Model
<b>MANUAL DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>			
3/4"	P39454-610	L36451-110	C38451-610
1"	P39464-610	L36461-110	C38461-610
<b>AUTO DRAIN • METAL BOWL W/ SIGHT GLASS • RELIEVING • W/ GAUGE</b>			
3/4"	P39454-614	L36451-110	C38451-611
1"	P39464-614	L36461-110	C38461-611

**Note:** Other combinations may be assembled by purchasing the individual components separately. Modular connector kits are required to connect the individual units together.

### 3/4" Pressure drop test



See page 81 for additional flow charts

### Replacement parts

MODEL	DESCRIPTION
104445	5-Micron element
104446	40-Micron element
104447	0.3-Micron element
104450	Metal bowl w/ sight glass, man.
104451	Metal bowl w/ sight glass, auto
104452	Filter bowl service kit
104461	Coalescing filter bowl, manual drain
104462	Coalescing filter bowl, auto drain
104453	Regulator service kit (relieving)
104454	Regulator service kit (non-relieving)
104455	Tamper kit
104456	0 – 60 psi Spring
104457	0 – 140 psi Spring
104458	10 – 200 psi Spring
104465	Lubricator bowl service kit
104466	Sight dome repair kit
104315	Replacement auto drain*
104316	Replacement manual drain
104322	Metal bowl, manual drain
104323	Metal bowl, auto drain
104334	0 – 140 psi Gauge flush mount
104337	Metal bowl
104338	Metal bowl w/ sight glass
104419	Panel Nut

\* Replacement auto drains can only be used with auto drain bowls.

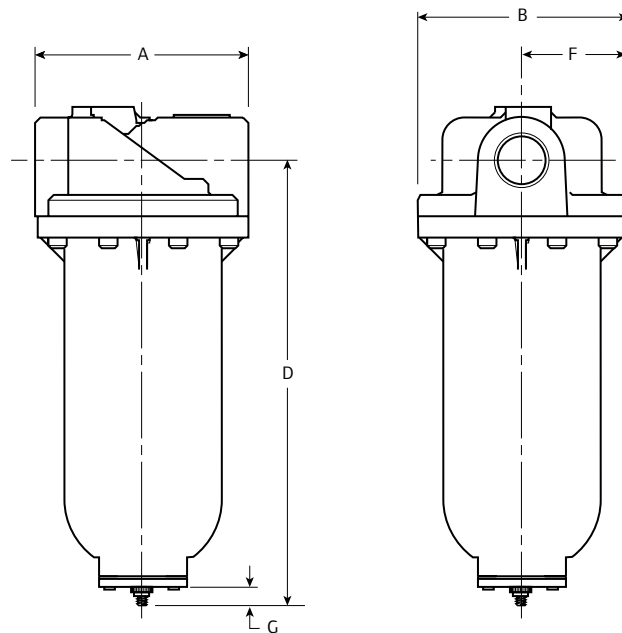
# Super-duty series standard filters

1", 1-1/2" and 2" Ports

Technical data	
<b>Flow capacity*</b>	1" — 323 cfm (152 dm <sup>3</sup> /s) 1-1/2" — 1,280 cfm (604 dm <sup>3</sup> /s) 2" — 1,400 cfm (660 dm <sup>3</sup> /s)
<b>Operating temperature</b>	32° – 150° F (0° – 65.5° C)
<b>Max supply pressure</b>	300 psig (20.7 bar)
<b>Standard filtration</b>	5 micron
<b>Useful retention†</b>	1" = 11.5 oz (.34 liters) 2" = 27 oz (.8 liters)

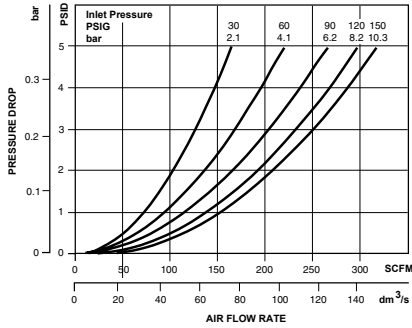
\*Inlet pressure of 150 psig (10.3 bar). Pressure drop of 5 psig (0.3 bar).

†Useful retention refers to volume below the quiet zone baffle.

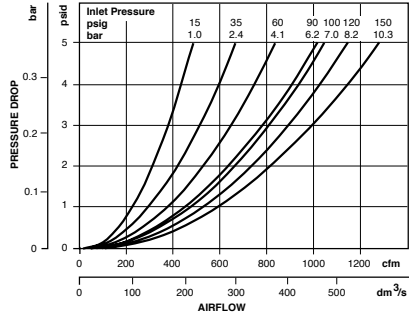


Models	A	B	D	F	G
1-1/2" - 2" - Manual Drain	7.80" (198 mm)	7.76" (197 mm)	16.24" (412.5 mm)	3.88" (98.6 mm)	0.55" (14 mm)

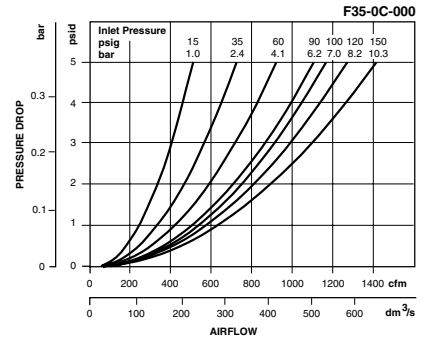
### 1" Pressure drop test



### 1-1/2" Pressure drop test



### 2" Pressure drop test



Port size NPT	Element (microns)	Weight lb (kg)	Model
<b>MANUAL DRAIN • METAL BOWL</b>			
1"	5	5.5 (2.5)	F35561-410
1-1/2"	5	19.3 (8.7)	F35581-410
2"	5	19.3 (8.7)	F35591-410
<b>AUTO DRAIN • METAL BOWL</b>			
1"	5	5.5 (2.5)	F35561-411
1-1/2"	5	19.3 (8.7)	F35581-411
2"	5	19.3 (8.7)	F35591-411

### Replacement parts

SIZE	DESCRIPTION	MODEL
1" Size	5-Micron element	104506
1" Size	Bowl kit	104507
All sizes	Auto drain	104508
All sizes	Manual drain	104509
1-1/2" - 2" Sizes	5-Micron element	104510
All sizes	Pressure differential indicator	104511
All sizes	Manual override drain for auto drain	104513

# Super-duty series coalescing filters

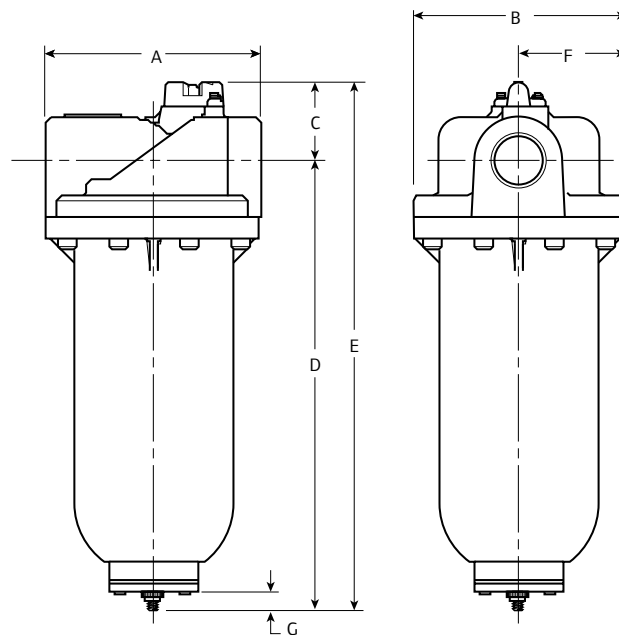
1", 1-1/2", 2" and 3" Ports

Technical data	
<b>Flow capacity*</b>	1 — 419 cfm (197 dm <sup>3</sup> /s) 1-1/2" — 710 cfm (335 dm <sup>3</sup> /s) 2" — 860 cfm (335 dm <sup>3</sup> /s) 3" — 1770 cfm (800 dm <sup>3</sup> /s)
<b>Operating temperature</b>	32° – 150° F (0° – 65.5° C)
<b>Maximum supply pressure</b>	With pressure indicator — 150 psig (10.3 bar)
<b>Standard filtration</b>	0.01-Micron**
<b>Useful retention†</b>	1" = 22 oz (.65 liters) 2" = 32 oz (.95 liters) 3" = 50.7 oz (1.5 liters)

\*Inlet pressure 150 psig (10.3 bar). Pressure drop of 3 psig (0.2 bar).

\*\*Filtration temperature of 70° F (21° C) @ 100 psig (6.9 bar) with typical compressor lubricating oil and protected by Type "C" filter.

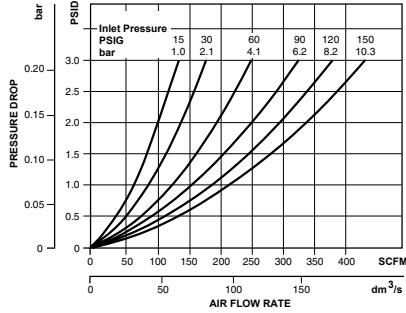
†Useful retention refers to volume below the quiet zone baffle.



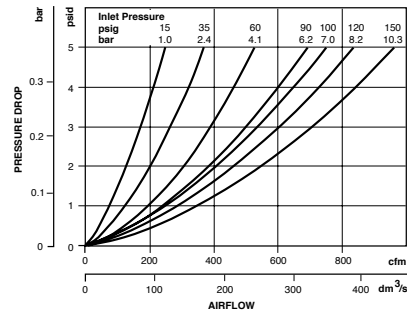
Models	A	B	C	D	E	F	G
1-1/2" - 2" - Manual Drain	7.80" (198 mm)	7.75" (197 mm)	2.83" (72 mm)	16.24" (412.5 mm)	19.07" (484 mm)	3.88" (98.6 mm)	0.55" (14 mm)
1-1/2" - 2" - Auto Drain	7.80" (198 mm)	7.75" (197 mm)	2.83" (72 mm)	15.69" (398.5 mm)	18.52" (470 mm)	3.88" (98.6 mm)	0.55" (14 mm)



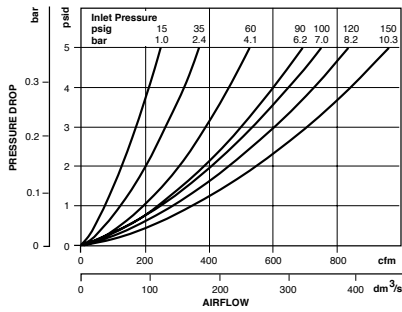
### 1" Pressure drop test



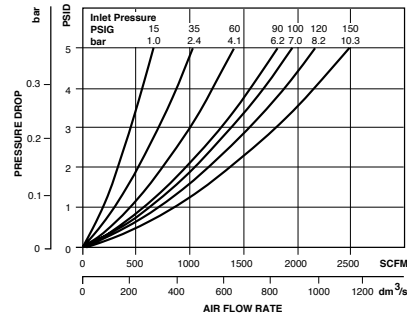
### 1-1/2" Pressure drop test



### 2" Pressure drop test



### 3" Pressure drop test



Port size NPT	Element (microns)	Weight lb (kg)	Model
<b>MANUAL DRAIN • METAL BOWL</b>			
1"	.01	13.0 (5.9)	F35561-310
1-1/2"	.01	19.3 (8.7)	F35581-310
2"	.01	19.3 (8.7)	F35591-310
3"	.01	32.8 (14.9)	F35501-310
<b>AUTO DRAIN • METAL BOWL</b>			
1"	.01	13.0 (5.9)	F35561-311
1-1/2"	.01	19.3 (8.7)	F35581-311
2"	.01	19.3 (8.7)	F35591-311
3"	.01	32.8 (14.9)	F35501-311

### Replacement parts

SIZE	DESCRIPTION	MODEL
All sizes	Pressure differential indicator	104511
All sizes	Manual override drain for auto	104513
1"	.01-Micron element	104514
1-1/2" - 2" Sizes	.01-Micron element	104515
3" Size	.01-Micron element	104516

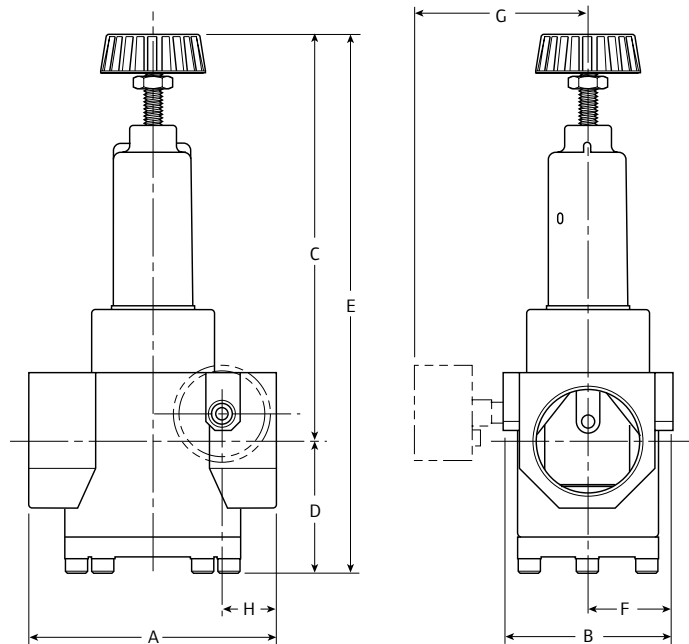
# Super-duty series regulators

1", 1-1/4", 1-1/2" and 2" Ports

Technical data	
<b>Flow capacity</b>	1" — 500 cfm (236 dm <sup>3</sup> /s) 1-1/4" — 800 cfm (377 dm <sup>3</sup> /s)* 1-1/2", 2" — 1,200 cfm (566 dm <sup>3</sup> /s)**
<b>Operating temperature</b>	32° – 150° F (0° – 65.5° C)
<b>Max supply pressure</b>	300 psig (20.7 bar)
<b>Adjusting range</b>	0 – 125 psig (0 – 8.6 bar) 0 – 180 psig (0 – 12.4 bar)
<b>Pressure</b>	0 – 180 psig (0 – 12.4 bar)
<b>Gauge port (2 each)</b>	NPT / BSPT-Rc — 1/4"

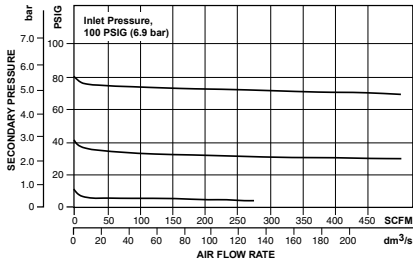
\*Inlet pressure of 100 psig (6.9 bar). Secondary pressure of 80 psig (5.5 bar).

\*\*Inlet pressure of 100 psig (6.9 bar). Secondary pressure of 85 psig (5.9 bar).

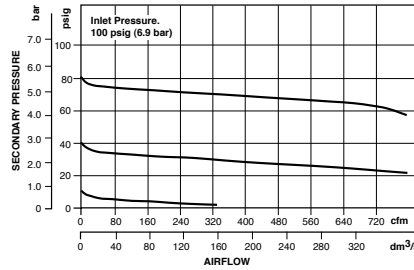


Models	A	B	C	D	E	F	G	H
1", 1-1/4" No Gauge	4.29" (109 mm)	2.62" (66.5 mm)	8.62" (218.9 mm)	1.69" (43 mm)	10.31" (262 mm)	1.31" (33.3 mm)	-	1.23" (31.2 mm)

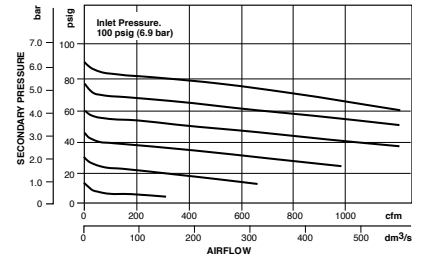
### 1" Pressure drop test



### 1-1/4" Pressure drop test

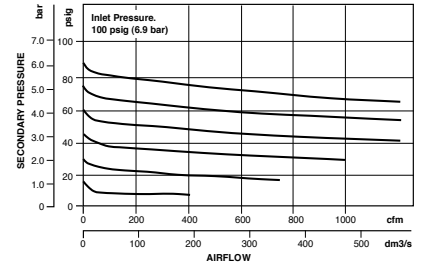


### 1-1/2" Pressure drop test



Port size NPT	Pressure range psi	Weight lb (kg)	Model
<b>RELIEVING • NO GAUGE</b>			
1"	0 – 125	6.0 (2.7)	R37561-100
1"	0 – 180	6.0 (2.7)	R37561-300
1-1/2"	0 – 125	10.8 (4.9)	R37581-100
1-1/2"	0 – 180	10.8 (4.9)	R37581-300
2"	0 – 125	10.8 (4.9)	R37591-100
2"	0 – 180	10.8 (4.9)	R37591-300

### 2" Pressure drop test



### Replacement parts

SIZE	DESCRIPTION	MODEL
1" Size	Wall mount pipe clamp	104512
All sizes	Relieving piston kit	104518
1", 1-1/4" Sizes	1", 1-1/4" Valve assembly kit	104519
1-1/2", 2" Sizes	1-1/2", 2" Valve assembly kit	104520
1/4" Gauge Port	Gauge, 0-160, 2" dia., steel / glass	104502
1/4" Gauge Port	Gauge, 0-160, 2" dia., plastic / poly	104504
1/4" Gauge Port	Gauge, 0-250, 2" dia., steel / glass	104503
1/4" Gauge Port	Gauge, 0-250, 2" dia., plastic / poly	104505

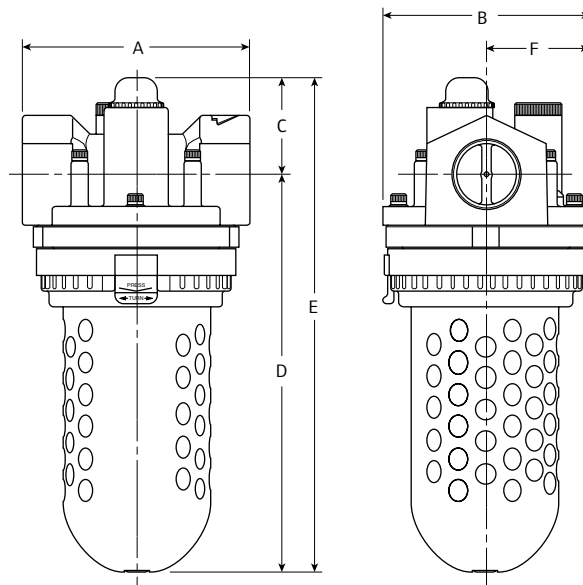
# Super-duty series lubricators

1", 1-1/2" and 2" Ports

Technical data	
<b>Flow capacity</b>	1 — 374 cfm (176 dm <sup>3</sup> /s) 1-1/2" — 927 cfm (437 dm <sup>3</sup> /s)* 2" — 1,186 cfm (560 dm <sup>3</sup> /s)*
<b>Operating temperature</b>	Plastic bowl — 32° – 125° F (0° – 52° C) Metal bowl (L50) — 32° – 150° F (0° – 65.5° C)
<b>Max supply pressure</b>	Plastic bowl — 150 psig (10.3 bar) Metal bowl (L50) — 200 psig (13.8 bar)
<b>Min flow for lubrication</b>	1 cfm @ 100 psig
<b>Useful retention**</b>	26 oz (769 cm <sup>3</sup> )

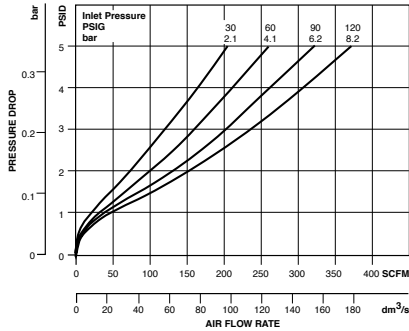
\*Inlet pressure of 120 psig (8.3 bar). Pressure drop of 5 psid (0.3 bar).

\*\*Useful retention refers to usable volume.

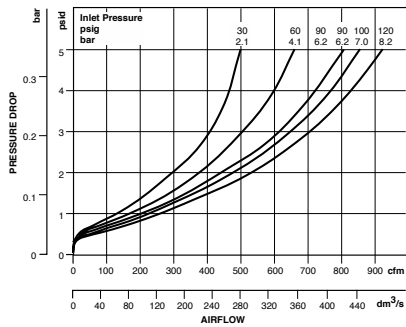


Models	A	B	C	D	E	F
1" - Poly Bowl	4.63" (117 mm)	4.79" (122 mm)	1.98" (50 mm)	8.36" (212 mm)	10.34" (263 mm)	2.40" (61 mm)
1" - Metal Bowl w/ Sight Gauge	4.63" (117 mm)	4.79" (122 mm)	1.98" (50 mm)	8.90" (226 mm)	10.90" (277 mm)	2.40" (61 mm)
1-1/2"	5.50" (140 mm)	5.00" (127 mm)	2.28" (58 mm)	9.33" (237 mm)	11.60" (295 mm)	2.41" (61.2 mm)
2"	5.50" (140 mm)	5.00" (127 mm)	2.60" (66 mm)	9.64" (245 mm)	12.24" (311 mm)	2.41" (61.2 mm)

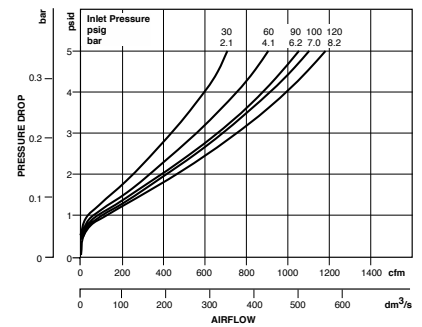
### 1" Pressure drop test



### 1-1/2" Pressure drop test



### 2" Pressure drop test



Port size NPT	Weight lb (kg)	Model
<b>METAL BOWL W/ SIGHT GAUGE</b>		
1"	5.6 (2.5)	L36561-110
1-1/2"	9.4 (4.3)	L36581-110
2"	10.2 (4.6)	L36591-110
<b>POLYCARBONATE BOWL W/ GUARD</b>		
1"	5.6 (2.5)	L36561-100
1-1/2"	9.4 (4.3)	L36581-100
2"	10.2 (4.6)	L36591-100

### Replacement parts

SIZE	DESCRIPTION	MODEL
1", 2" Sizes	Replacement poly bowl w/ guard, manual drain	104525
1" Size	Force fill adapter	104526
All Sizes	Sight dome kit	104527
All Sizes	Siphon tube and bronze filter	104528
1-1/2" - 2" Size	Force fill adapter	104530

# Liquidator™ Filters

Ingersoll Rand Liquidator™ filters extract large volumes of liquid contaminants, foreign particles, and condensation from air lines to deliver clean dry air to all of your operations. With Liquidator filters protecting your lines, you'll increase productivity, increase tool life, and cut maintenance costs.

You can depend on Ingersoll Rand Liquidator filters to deliver clean, dry air to all of your operations. Liquidator filters are designed to extract large volumes of liquid contaminants, foreign particles, and condensation in air lines. They are ideal for critical applications in paint and body shops, food processing and packaging, hospital and dental equipment, process controls, printing plants, electronics clean rooms, sandblasting, and air tool operations.

## Features

- Two-stage filtration cartridges remove 99% of liquid contaminants. One micron filter element removes 99% of all dirt particles one micron or larger.
- Quick release bowls enable easy cartridge replacement.
- Automatic float drain with manual override.
- Clear polycarbonate bowl with metal guard provides quick inspection.

## Benefits

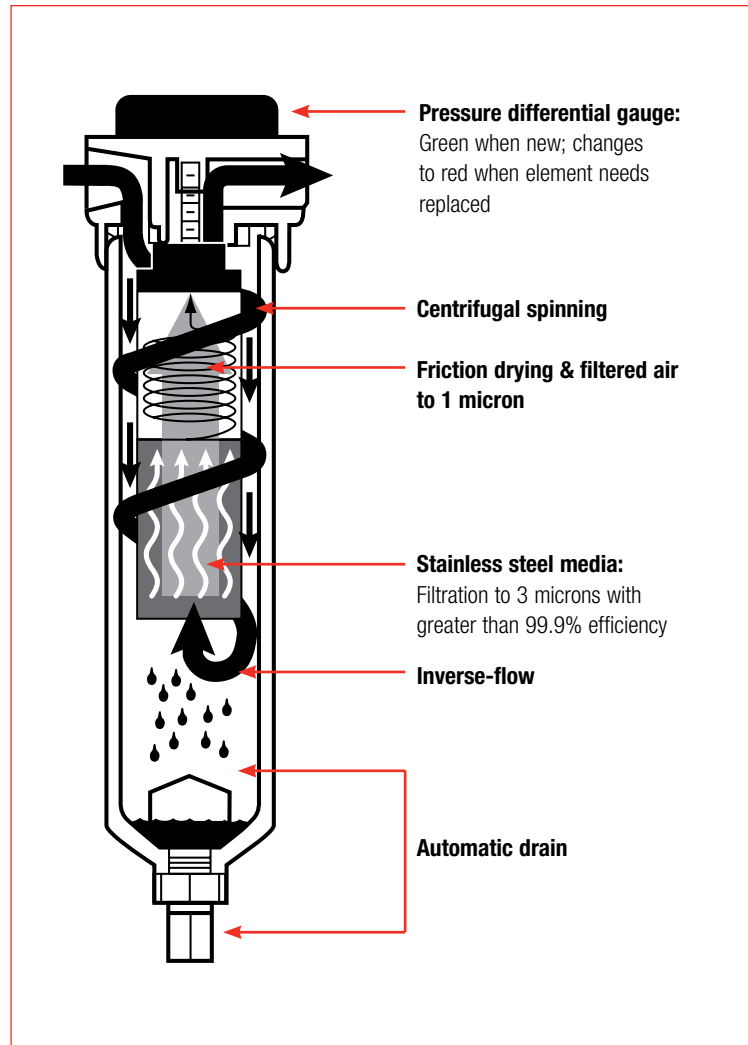
- Reduce product damage caused by liquid contaminants.
- Increase productivity.
- Increase tool life.
- Cut maintenance costs.

## Sizing

The Liquidator requires a flow equal to or greater than 1/3 its rated cfm for efficient operation. Size accordingly. The filter should be within 50 feet of the application.

## Maximum working pressures

- 150 psig with polycarbonate bowl.
- 200 psig with metal bowl.



## Stacked Liquidators — Solutions to Air Line Contaminants

- Air quality safe enough for your most demanding applications.
- Instrument air quality as clean as 0.01 micron.
- Air-logic dewpoint suppressed desiccant drier system without the hassles.

### Stacked Liquidators with Polycarbonate Bowls



8844-W1-035

Part Number	Inlet Size NPT	Description	cfm
<b>STACKED LIQUIDATORS WITH POLYCARBONATE BOWLS</b>			
8842-W1-020	1/4"	Stacked Liquidator, indicator, & automatic drain	20
8843-W1-035	3/8"	Stacked Liquidator, indicator, & automatic drain	35
8844-W1-035	1/2"	Stacked Liquidator, indicator, & automatic drain	35
8844-W1-060	1/2"	Stacked Liquidator, indicator, & automatic drain	60
8844-W1-090	1/2"	Stacked Liquidator, indicator, & automatic drain	90
8846-W1-090	3/4"	Stacked Liquidator, indicator, & automatic drain	90
8848-W1-150	1"	Stacked Liquidator, indicator, & automatic drain	150

### Stacked Liquidators with Metal Bowls



8844-W1-M60

Part Number	Inlet Size NPT	Description	cfm
<b>STACKED LIQUIDATORS WITH METAL BOWLS</b>			
8844-W1-M60	1/2"	Stacked Liquidator, indicator, & automatic drain	60
8846-W1-M90	3/4"	Stacked Liquidator, indicator, & automatic drain	90
8848-W1-M150	1"	Stacked Liquidator, indicator, & automatic drain	150
8830-W1-000	1-1/4"	Stacked Liquidator & automatic drain	400
8852-W1-M300	1-1/2"	Stacked Liquidator, indicator, & automatic drain	300
8832-W1-000	1-1/2"	Stacked Liquidator & automatic drain	400
8854-W1-M300	2"	Stacked Liquidator, indicator, & automatic drain	300
8834-W1-000	2"	Stacked Liquidator & automatic drain	700

Part Number	Inlet Size NPT	Description	cfm
<b>SIDE-BY-SIDE LIQUIDATORS</b>			
8828-W2-M00	1"	Side-by-side Liquidators, metal bowl & automatic drain	175

Part Number	Inlet Size ASA	Description	cfm
<b>ASA FLANGE LIQUIDATORS</b>			
8836-W1-M2500	3"	Flanged main line separator filter	2,500

# Liquidator™ Filters

## Desiccant Driers and Prep Station



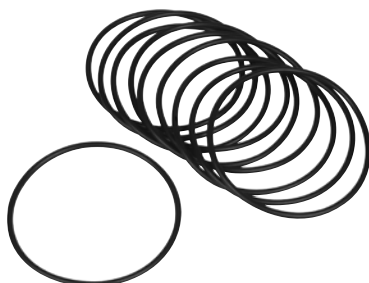
PDS-2000

Part Number	Inlet Size NPT	Description	cfm
<b>DESICCANT DRIERS AND PREP STATION</b>			
PDS-2000	1/2"	Paint booth desiccant drier system with 1/4" regulator & gauge	25
EAD-6000	1/2"	Prep station air drier with 1/4" regulator & gauge	60

Used With Series	Part Number			Coalescing Element	Desiccant Cartridge
	First Stage	Second Stage	First & Second Stage		
<b>REPLACEMENT CARTRIDGES AND ELEMENTS</b>					
8823	N/A	N/A	N/A	N/A	N/A
8824	8824-6	8824-16	N/A	N/A	N/A
8826	8826-7	8826-17	N/A	N/A	N/A
8828	8826-8	8826-18	N/A	N/A	N/A
8830, 8832	8828-9	8828-19	N/A	N/A	N/A
8842-W1-035 / 8843-W1-035 / 8844-W1-035	N/A	N/A	8842-035	N/A	N/A
8844-W1-060 / EAD-6000	N/A	N/A	N/A	N/A	N/A
8844-W1-090 / 8846-W1-090	N/A	N/A	8846-090	N/A	N/A
8848-W1-150	N/A	N/A	8848-150	N/A	N/A
PDS-2000	N/A	N/A	8844-460	N/A	8844-DES*
EAD-6000	N/A	N/A	N/A	8844-060C	N/A

\*Available in package of six — order 8844-DES-6.

## Repair Kit Bowl O-rings



GRP-95-257

Used With Series	Part Number	
	First Stage	Second Stage
<b>REPAIR KIT BOWL O-RINGS</b>		
8822-U2-009	GRP-95-264	GRP-95-264
8822-W2-009	GRP-95-009	GRP-95-264
8822-W2-020	GRP-95-009	GRP-95-009
8822-W2-000, 8823, 8824	GRP-95-257	GRP-95-257
8826, 8828	GRP-95-256	GRP-95-256
8830, 8832, 8834	GRP-95-289	N/A
8842-W1-035 / 8843-W1-035 / 8844-W1-035 / 8844-W1-060 /	GRP-95-257	N/A
8844-W1-090 / 8846-W1-090 / 8848-W1-150 / M90-M150	GRP-95-256	N/A

Specialty Items



## Replacement Polycarbonate Bowls



Used With Series	First Stage			Second Stage	
	Part Number	Capacity oz.	Drain Type	Part Number	Capacity oz.
<b>REPLACEMENT POLYCARBONATE BOWLS</b>					
8822-U2-009	GRP-95-856**	1	Umbrella	GRP-95-856**	1
8822-W2-009	FRP-95-017**	5	Automatic	GRP-95-856**	1
8822-W2-020	FRP-95-017**	5	Automatic	GRP-95-856**	1
8822-W2-000, 8823-W2-000, 8824-W2-000	N/A	N/A	Automatic	FRP-95-831	11
8826-W2-000, 8828-W2-000	MRP-95-941	40	Automatic	FRP-95-832	25
8842-W1-035, 8843-W1-035, 8844-W1-035	FRP-95-772	18	N/A	N/A	N/A
8844-W1-060, 8846-W1-090, 8848-W1-150	MRP-95-941	40	N/A	N/A	N/A
X01-04-000 Automatic Drain Unit	XRP-95-746**	32	Automatic	N/A	N/A

\*\*Order drain and guard separately; other units listed are furnished with drain and guard.

## Drain Kits



Used With Series	Complete Auto Drain Unit		Replacement Drain Kits	
	Polycarbonate	Metal	Automatic	Manual
<b>DRAIN KITS</b>				
8822-U2-009	N/A	N/A	N/A	N/A
8822-W2-009, 020	N/A	N/A	XRP-95-978	N/A
8822-W2-000, 8823, 8824, 8826, 8828	N/A	N/A	XRP-95-978	FRP-95-610
8830, 8832, 8834	X01-04-000	X01-04-M00	XRP-96-244	N/A
Schraeder Check Valve Kit	N/A	N/A	N/A	N/A

# Brass regulators

1/8" and 1/4" Ports

Technical data	
Max inlet pressure	250 psig (17 bar)
Max adjusted pressure	125 psig (8.6 bar)
Operating temperature	0° to 150°F (-18° to 65°C)
Weight	1/8" = 0.75 lb (345 g) 1/4" = 0.67 lb (306 g)
Air flow*	1/8" = 13 scfm 1/4" = 13 scfm
Water flow**	1/8" = 1.75 gpm 1/4" = 2.0 gpm

\*Air flow is at 125 PSIG (8.6 bar) inlet and 100 PSIG (6.9 bar outlet).  
\*\*Water flow is at 60 PSIG (4.1 bar) inlet and 40 PSIG (2.8 bar outlet).

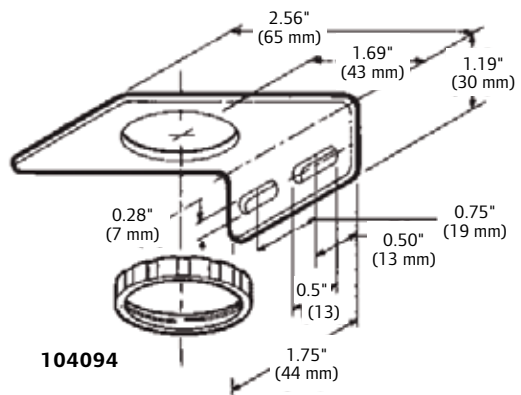
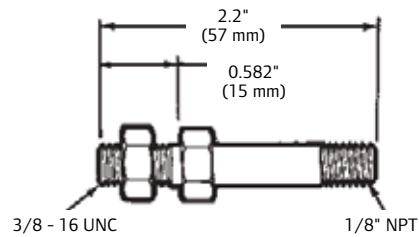
**Warning:** These regulators are designed for use in industrial compressed air or water systems only. Never use these regulators where pressure or temperature can exceed the rated operating conditions. See SPECIFICATIONS.



Stud mount  
P/N



Mounting  
bracket  
P/N 29668



## Features

### For accurate, low-cost control of air and water flow

- **Corrosion protection** — Brass body with internal stainless steel valve spring provides corrosion protection against regulated fluids
- **Accurate, reliable control** — Non-rising, locking adjustment knob maintains the desired setting
- **Mounting flexibility** — Panel mounting nut is part of the regulator and is included at no additional cost. Industry standard 1-3/16" - 18 threaded spring housing enables easy panel mounting (max. panel thickness is 3/16"). Available mounting bracket and stud mount provide a choice of wall mountings. Compact size is ideal for installations where space is limited
- **Durability** — Brass construction makes this regulator the perfect choice for your most rugged and demanding air and water applications

Port size NPT	Gauge port NPT	Model
<b>RELIEVING</b>		
1/8"	1/8"	B27112-000
1/4"	1/8"	B27122-000
<b>RELIEVING 0 – 50 PSI</b>		
1/4"	1/8"	B27122-100
<b>NONRELIEVING</b>		
1/4"	1/8"	B27122-020

## Applications

Medical and dental equipment
Beverage dispensing equipment
Lawn irrigation systems
Water purification systems
Car wash equipment
Miniature pneumatic plumbing circuits

## Accessories

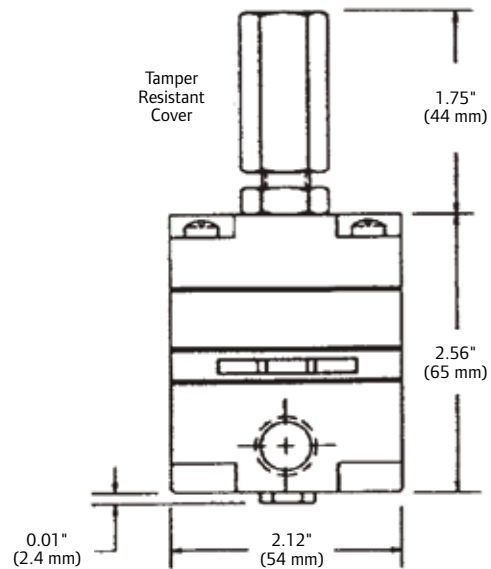
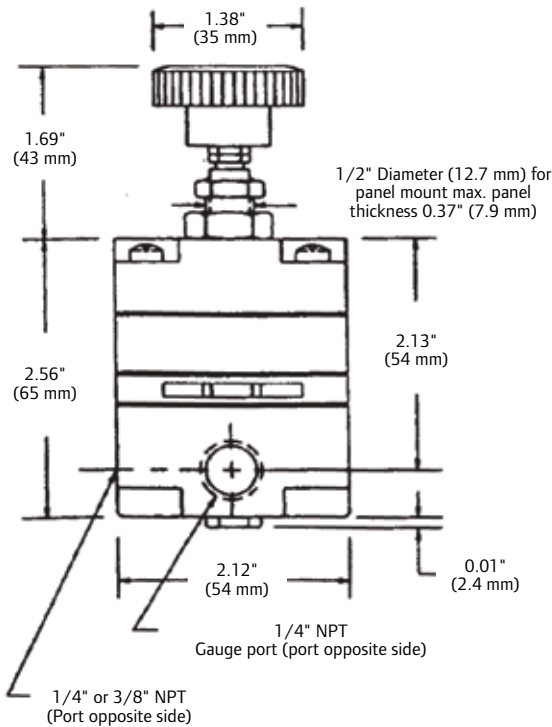
MODEL	DESCRIPTION
29850	Gauge* 0 – 160 psig (0 – 11 bar)
29668	Mounting bracket
104094	Panel mounting nut (included with regulator)
104039	Stud mounting

\*Gauge has polycarbonate lens.

# Precision / air regulators

1/4" and 3/8" Ports

Technical data	
<b>Body</b>	Zinc die-cast
<b>Diaphragm</b>	Buna N
<b>Metering capsule</b>	Stainless steel
<b>Knob</b>	Phenolic plastic
<b>Flow capacity</b>	14 scfm (25 m <sup>3</sup> /hr)
<b>Exhaust capacity</b>	Up to 10 scfm (17 m <sup>3</sup> /hr)
<b>Sensitivity</b>	0.125" (3.2 mm) water column
<b>Total air consumption</b>	6 scfh (.17 m <sup>3</sup> /hr)
<b>Pilot bleed rate</b>	0.08 scfm (0.15 m <sup>3</sup> /hr)
<b>Supply pressure variation</b>	Less than 0.005 PSIG (0.03 kpa) @ 25 psig variance
<b>Maximum supply pressure</b>	150 psig (1050 kpa) A filter with 5-Micron element should be installed ahead of unit
<b>Operating temperature range</b>	20° to 150°F (-7° to 66°C)



Specialty Items

## Features

Precision / air regulators are high precision, multi-stage pressure regulators. The highest degrees of regulation and repeatability are achievable by reacting to downstream pressure fluctuations as small as 0.01 psig (0.07 kPa) above set pressure. Action occurs as downstream pressure is piloted to the control chamber to act on a finely tuned, stainless steel measuring capsule. **A continuous bleed of less than 0.08 scfm (0.15 m<sup>3</sup>/hr) works on the pilot diaphragm causing appropriate movement of the supply valve or the relief valve.** Movements as small as .0001" (.0025 mm) will cause the main valve to correct to the proper position. Relief flows of up to 10 scfm can be achieved on the high relief model (-100 models). Exhaust is achieved through the exhaust vents located in the side of the body.

- The precision / air regulator controls output pressure with an accuracy of 0.1 percent, and has very low sensitivity to changes in supply pressure and flow
- The regulator has been designed to eliminate the need for any readjustment of the regulated pressure after long "down time." At start-up, the regulated pressure will return to its output setting
- The regulated pressure is held constant over substantial changes in flow due to the high-gain pneumatic servoamplifier. Particularly good from dead-end to 12 scfm (203.4 m<sup>3</sup>/hr.)
- The unit may be installed in any position. It can be panel mounted or supported by in-line plumbing

## How to order

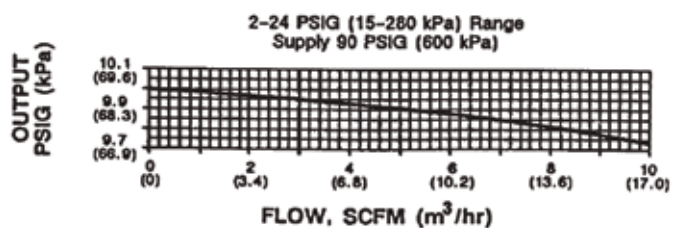
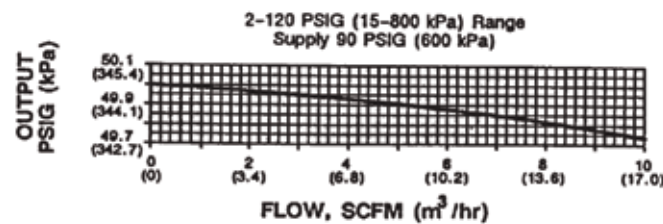
To configure the desired part number, use the chart below to select the port size, thread type, and configuration options.

Port size      Base model  
**1/4"      - PR4021 - X X**  
**X**

**Note:** Some menu combinations not available. Please consult price book to verify.

<b>Pressure range PSIG</b>	<b>Relieving bowl option</b>	<b>Control / drain option</b>
1 2 - 120 (no gauge)	0 Relieving	0 Standard knob
2 2 - 60 (no gauge)		3 Tamper resistant cover
3 2 - 25 (no gauge)		

Port size NPT	Models spring range			Weight lb (kg)
	Flow 2 - 120 psig (0.4 - 8.6 bar)	2 - 60 psig (0.4 - 4.1 bar)	2 - 25 psig (0.4 - 1.7 bar)	
1/4"	PR4021-100	PR4021-200	PR4021-300	1.4 (0.64)
3/8"	PR4031-100	PR4031-200	PR4031-300	1.4 (0.64)

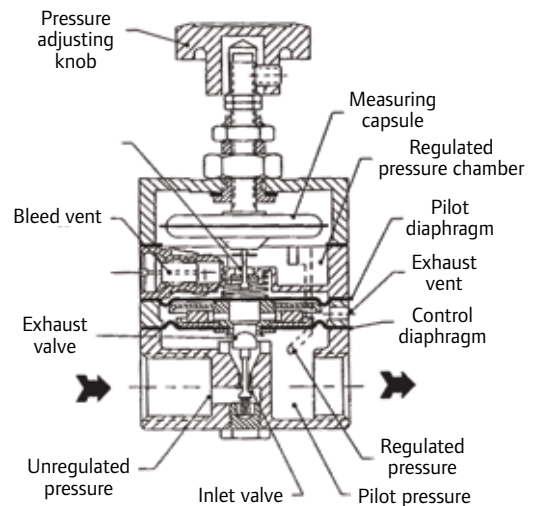
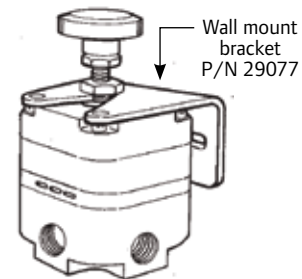


## Applications

- Air gauging
- Gas mixing
- Web tensioning
- Roll loading
- Air hoists

## Accessories

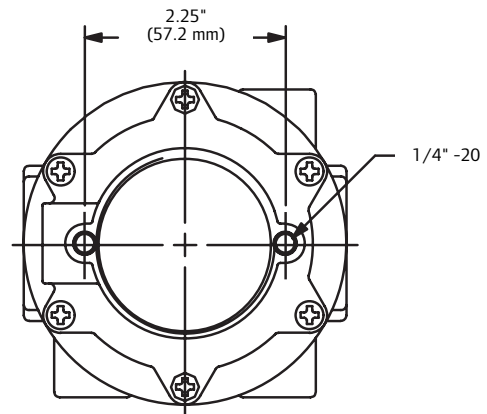
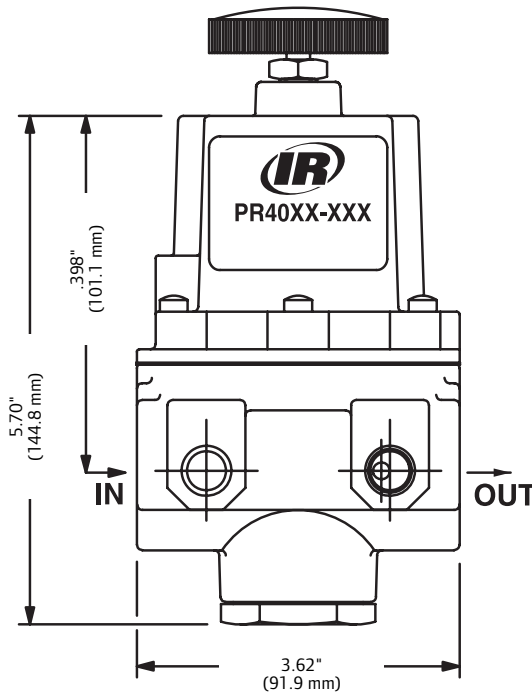
MODEL	DESCRIPTION
100207-1	2 - 25 lb or 2 - 60 lb spring range
100207-2	2 - 120 lb spring range



# High-flow precision regulators

3/8", 1/2", and 3/4" Ports

Technical data	
<b>Materials of construction</b>	Body — die cast zinc Bonnet — die cast aluminum alloy Knob — phenolic plastic, plated steel Diaphragms — nitrile elastomers
<b>Temperature range</b>	-20° to 180° F (-29° to 82° C)
<b>Maximum pressure</b>	400 psig (27.6 bar)
<b>Media</b>	Compressed air
<b>Gauge ports</b>	1/4 - 18 NPTF
<b>Flow @ 100 psig supply</b>	200 scfm (11.4 bar), see charts
<b>Weight</b>	Approx. 5 lb (2.3 kg)
<b>Effect of supply pressure on regulated pressure</b>	Less than ±0.35 psig (0.02 bar) for a supply variation of 100 psig (6.9 bar)



Specialty Items

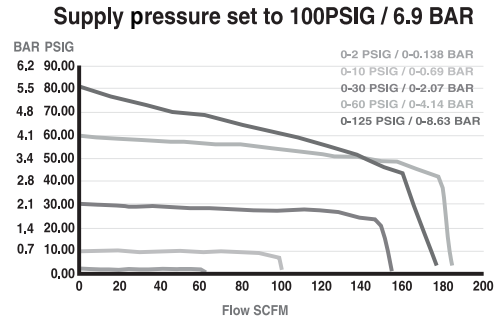
## Features

- Flow rates of up to 200 scfm
- The ARO® high-flow precision regulator is a direct acting, diaphragm-operated regulator. Once set to a desired output pressure, the regulator maintains the setting permanently
- Available in 3/8", 1/2", and 3/4" NPT
- Rugged die-cast zinc and aluminum housings are pressure tested for safe operation and can handle harsh and abusive environments

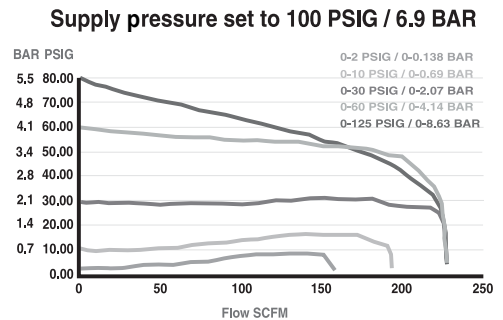
The ARO® high-flow precision regulator is designed for applications that require large flow capability and accurate pressure control. With low droop, high accuracy, fine adjustment control, these units are excellent in material handling and conveyor applications. The use of a rolling diaphragm provides excellent sensitivity and improved accuracy while a balance pintle minimizes output pressure changes caused by fluctuations in the supply pressure. With a maximum supply pressure of 400 psig (22.7 bar) and output ranges up to 125 psig (8.6 bar) flow rates of 200 scfm can be achieved.

Model	Description	Pressure range
PR4033-200	3/8" NPT regulator	0 – 60 psig
PR4033-300	3/8" NPT regulator	0 – 30 psig
PR4044-200	1/2" NPT regulator	0 – 60 psig
PR4044-300	1/2" NPT regulator	0 – 30 psig
PR4055-200	3/4" NPT regulator	0 – 60 psig
PR4055-300	3/4" NPT regulator	0 – 30 psig
104270	Repair kit (includes diaphragm assembly and pintle assembly)	
104271	Mounting bracket	

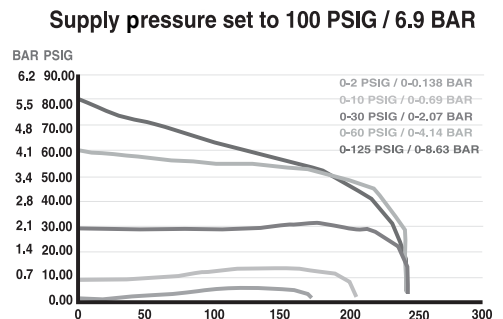
## 3/8" Pressure drop test



## 1/2" Pressure drop test

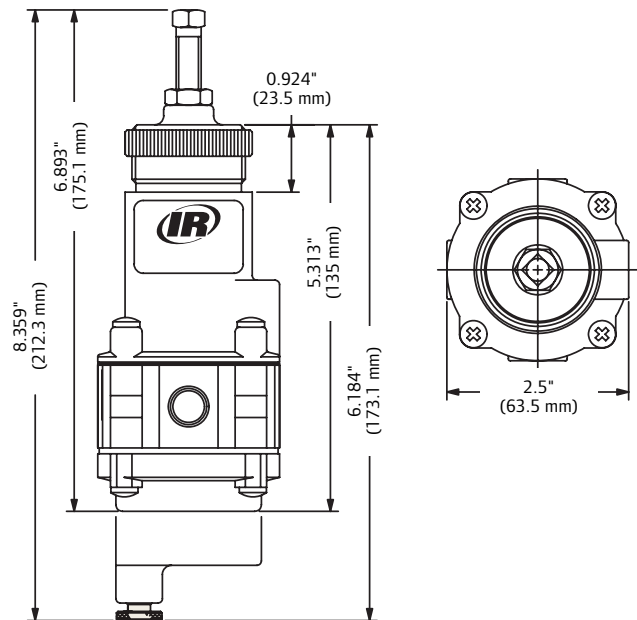
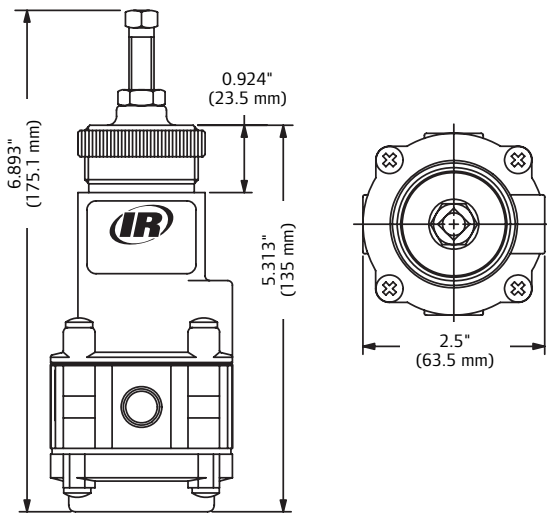


## 3/4" Pressure drop test



# Stainless-steel precision regulators and filter / regula-

Technical data	
PFRSX1-X00 / PRSSX1-X00	
Materials of construction	316 stainless
Seals	Fluorocarbon
Filter elements	5-Micron (for use with PFRSX1-X00 units only)
Temperature range	-20° to 180° F (-29° to 82° C)
Maximum pressure	250 psig (17.2 bar)
Media	Compressed air
Gauge ports	1/4-18 NPTF
Flow @ 100 psig (6.9 bar) Supply 20 psig (1.4 bar) Outlet	20 scfm (566 lpm)



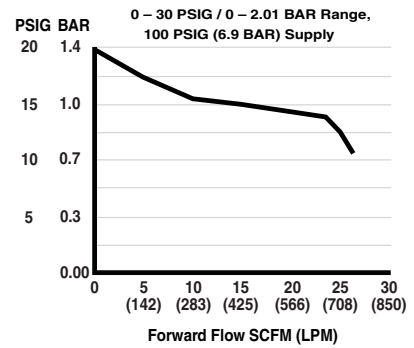


## Features

- Stainless-steel construction is ideal for corrosive environments and sour gas
- Excellent repeatability
- Tapped vent for exhaust gas capture
- Once set to a desired pressure, the ARO® 316 stainless steel regulator will permanently maintain their settings through the use of a convoluted diaphragm. This diaphragm provides constant adjustment to downstream pressure drop, and downstream pressure increase
- 1/4" and 3/8" NPT
- Panel mount nut standard

This precision regulator line is designed for service with a wide variety of corrosive gases and environments. Its corrosive resistant materials are compatible with sour gas and for use in offshore environments. Applications include: petrochemical processing, chemical plants, food processing and packaging, and paper / pulp mills. The regulator operates in pressure ranges up to 150 psig (10.3 bar). The filter on the filter / regulator unit has a built-in dripwell which traps water, oil, and other contaminants. The contaminants are easily flushed out via a convenient manual drain. The 5-micron filter element is made of 316 stainless and is easily removed for cleaning.

## Pressure drop test



Model	Description	Pressure range
PRSS21-200	1/4" NPT regulator	0 – 60 psig
PRSS21-400	1/4" NPT regulator	0 – 30 psig
PRSS21-500	1/4" NPT regulator	0 – 100 psig
PRSS21-600	1/4" NPT regulator	2 – 150 psig
PRSS31-200	3/8" NPT regulator	0 – 60 psig
PRSS31-400	3/8" NPT regulator	0 – 30 psig
PRSS31-500	3/8" NPT regulator	0 – 100 psig
PRSS31-600	3/8" NPT regulator	2 – 150 psig
PFRS21-200	1/4" NPT filter/regulator	0 – 60 psig
PFRS21-400	1/4" NPT filter/regulator	0 – 30 psig
PFRS21-500	1/4" NPT filter/regulator	0 – 100 psig
PFRS21-600	1/4" NPT filter/regulator	2 – 150 psig
PFRS31-200	3/8" NPT filter/regulator	0 – 60 psig
PFRS31-400	3/8" NPT filter/regulator	0 – 30 psig
PFRS31-500	3/8" NPT filter/regulator	0 – 100 psig
PFRS31-600	3/8" NPT filter/regulator	2 – 150 psig
104267	316 Stainless steel mounting bracket	
104268	5 Micron filter element	
104269	40 Micron filter element	

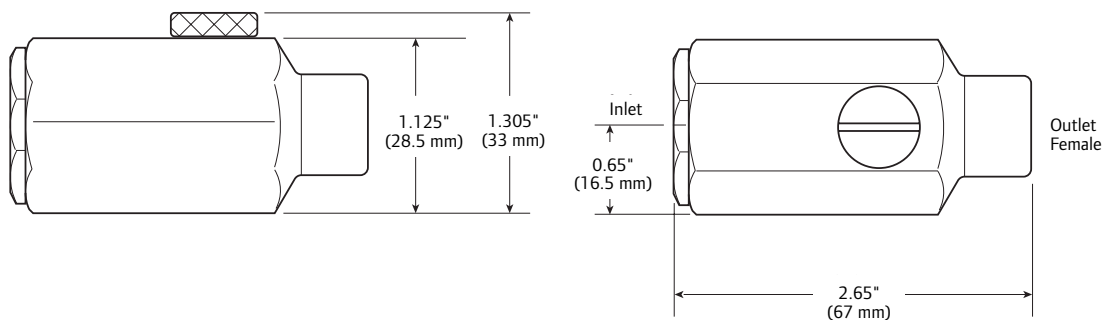
# Inline Series Lubricators

1/4", 3/8", 1/2", and 3/4" Ports

Technical data	
Flow capacity*	1/4" — 36.0 cfm (17.0 dm <sup>3</sup> /s)
Flow capacity*	3/8" — 38.1 cfm (18.0 dm <sup>3</sup> /s)
Operating temperature	32° – 150° F (0° – 65.5° C)
Max supply pressure	200 psig (13.8 bar)
Useful retention**	0.25 oz (7.4 cm <sup>3</sup> )
Port size	NPT / BSPT-Rc — 1/4", 3/8"
Weight	0.2 lb (0.1 kg)

\*Inlet pressure of 150 psig (10.3 bar). Pressure drop of 5 psid (0.3 bar).

\*\*Useful retention refers to usable volume.

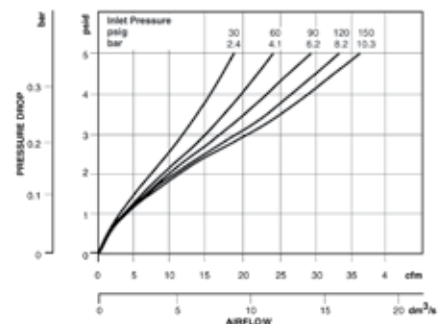


## Features

Inline lubricators assure proper lubrication for small pneumatic hand tools. These inline lubricators put the oil source right at the tool. Oil capacity is 1/4 oz. (1 ml); enough to last through an average eight-hour shift. This lubricator requires cyclical or intermittent airflow for proper operation, and consequently works best when installed at the tool inlet or on a short hose near the tool. The L01 cannot be filled under pressure.

Port size NPT	Airflow cfm	Bowl size (oz)	Weight lb	Model Number
<b>INLINE LUBRICATORS</b>				
1/4"	36	0.25	0.2	L01-02-000
3/8"	38.1	0.25	0.2	L01-03-000
1/2"	30	3	0.875	3LUB8
3/4"	45	5	1.5	6LUB12
3/4"	80	8	2	8LUB12

## Pressure drop test



# Accessories

## Modular threaded lockout valve

Meets OSHA regulation 1910.147. This valve provides a safety lockout to prevent accidental machine start-up. When the slider is shifted into the lockout position, inlet air is blocked and downstream air is exhausted to atmosphere. The slider contains a hole that enables the user to attach a lock to the unit, preventing accidental shifting. The lockout valve is modular and can be connected via the modular clamp spacers, or threaded pipe. Order modular clamps separately.



104390-



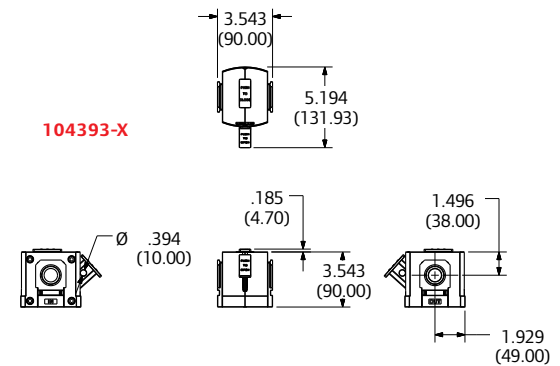
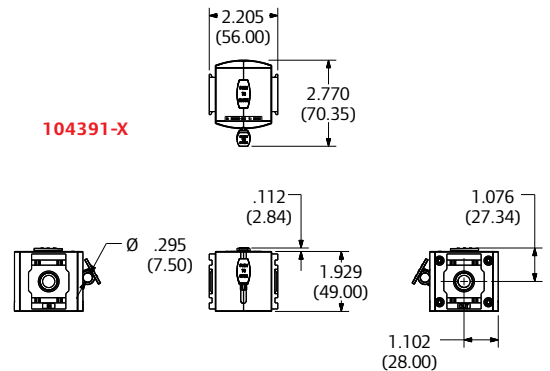
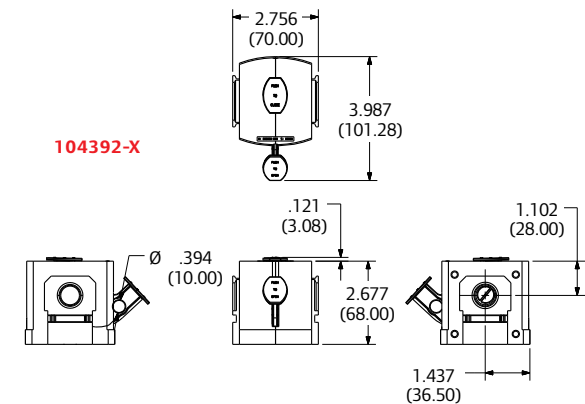
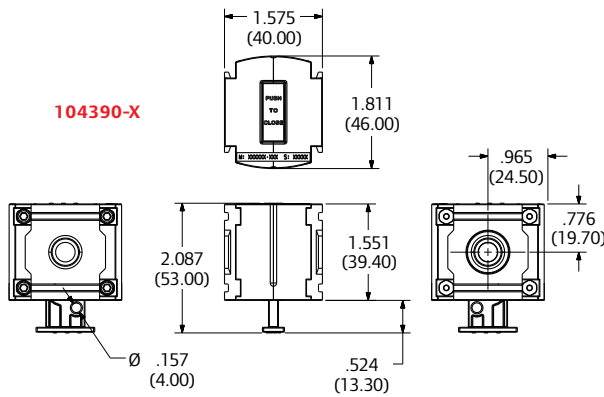
104391-



104392-



104393-



Model number	Size	Material	Port size	Description
104390-1	1000 Series	Body: aluminum	1/8" - NPT	Lockout valve
104390-2			1/4" - NPT	
104390-A			1/8" - BSP	
104390-B			1/4" - BSP	
104391-2	1500 Series		1/4" - NPT	
104391-3			3/8" - NPT	
104391-B			1/4" - BSP	
104391-C			3/8" - BSP	
104392-3	2000 Series		3/8" - NPT	
104392-4			1/2" - NPT	
104392-C		3/8" - BSP		
104392-D		1/2" - BSP		
104393-5	3000 Series	Lockout switch: acetal	3/4" - NPT	
104393-6			1" - NPT	
104393-E			3/4" - BSP	
104393-F			1" - BSP	

# Accessories

## Modular check valve

The modular check valve is used to prevent downstream pressure loss. Acting as a one-way directional flow valve, this device is generally installed downstream of the regulator. The modular check valve is connected via modular clamps. Order modular clamps separately.



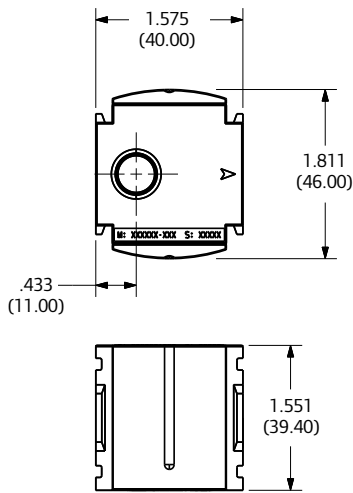
104478-2



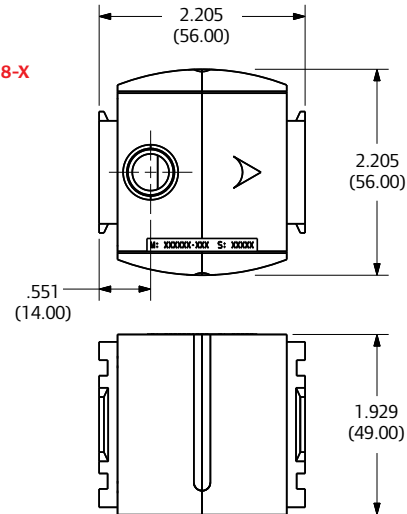
104479-3

Model number	Size	Material	Port size	Top port (NPT)	Description
104477-1	1000 Series	Body: aluminum Seals: nitrile	1/4"	1/8"	Check valve
104477-2			1/4"	1/4"	
104478-1	1500 Series		3/8"	1/8"	
104478-2			3/8"	1/4"	
104479-2	2000 Series		1/2"	1/4"	
104479-3			1/2"	3/8"	

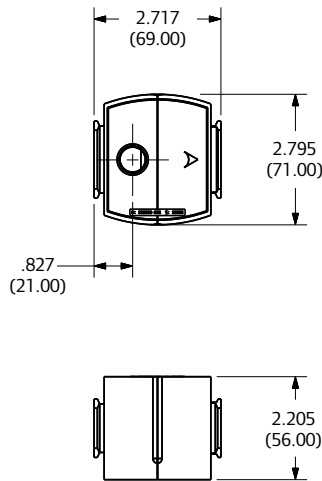
104477-X



104478-X



104479-X

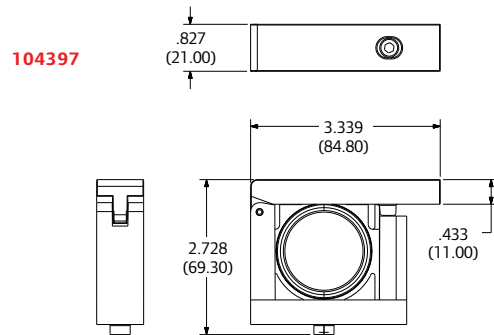
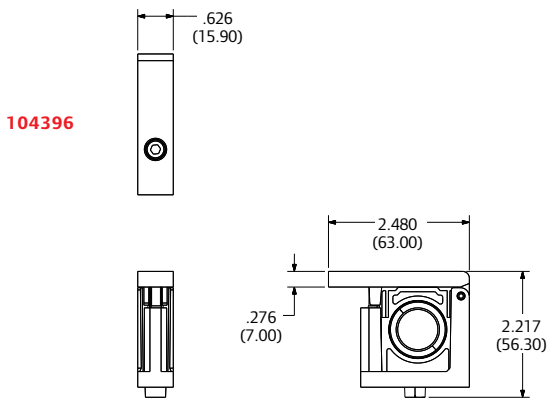
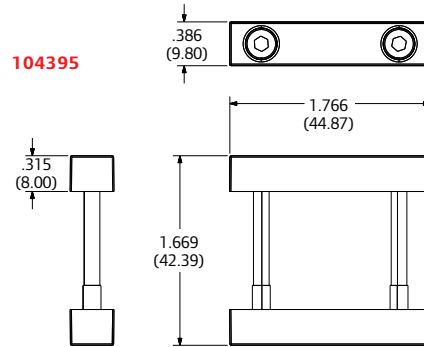
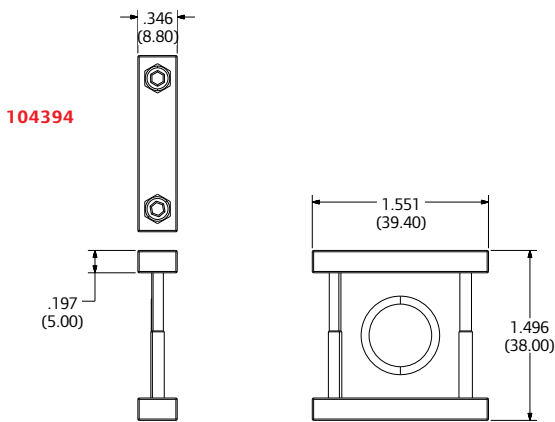


### Modular clamp / spacer kit

Modular clamps are used to connect any two modular FRL units or accessories together. The kit includes both a front and a back clamp, along with the connecting bolt(s). The steel bolts are metric hex head.

Model number	Size	Material	Description
104394	1000 Series	Nylon	Modular / clamp spacer kit
104395	1500 Series	Aluminum	
104396*	2000 Series	Aluminum + zinc	
104397	3000 Series	Aluminum	

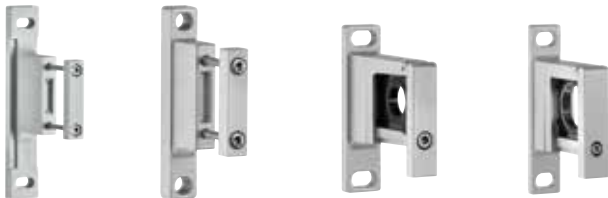
\* For 2000 Series with 3/4" threads use modular clamp 104397 on page 71



# Accessories

## T-bracket

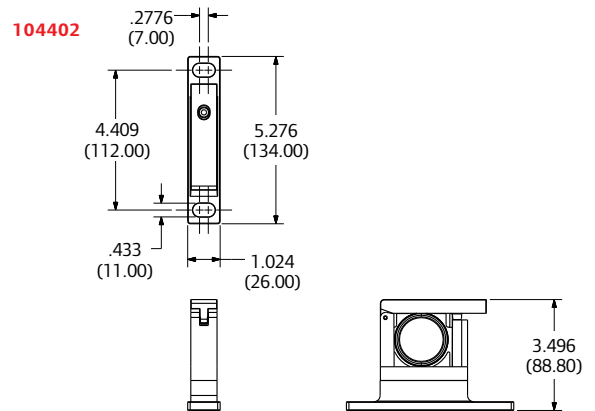
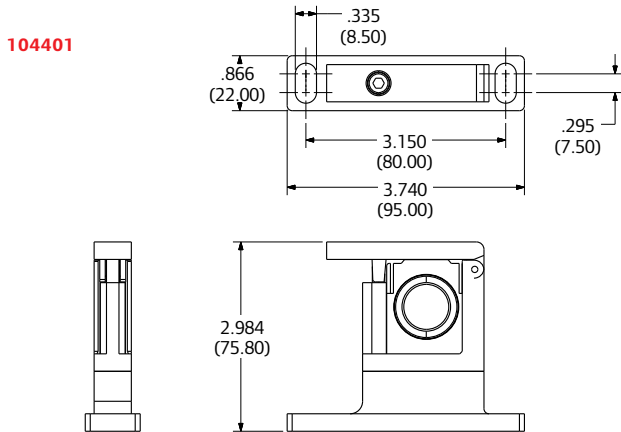
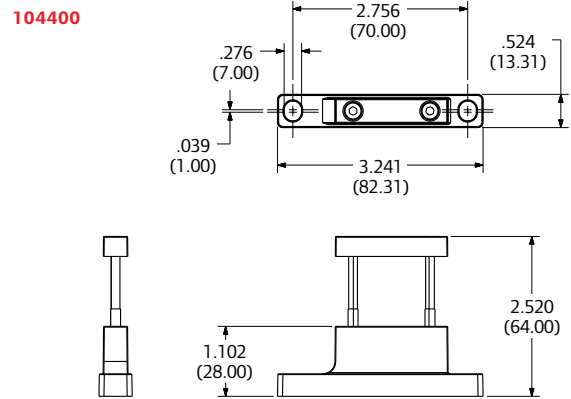
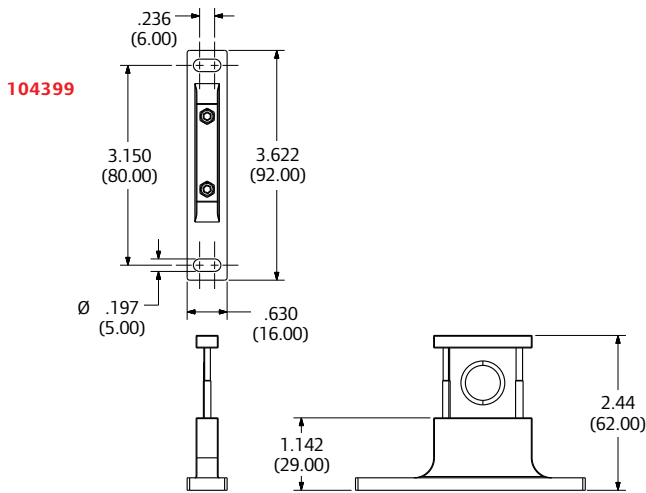
T-brackets provide an excellent solution for wall-mounting your FRL unit. They can be used for single or combination configurations in the modular arrangement. T-type brackets give good wall-to-unit clearance for installing fittings or other connections. Kit includes bracket, modular clamp, and bolt(s).



104399      104400      104401      104402

Model number	Size	Material	Description
104399	1000 Series	Nylon	T-type wall mounts
104400	1500 Series	Nylon	
104401*	2000 Series	Aluminum	
104402	3000 Series	Aluminum	

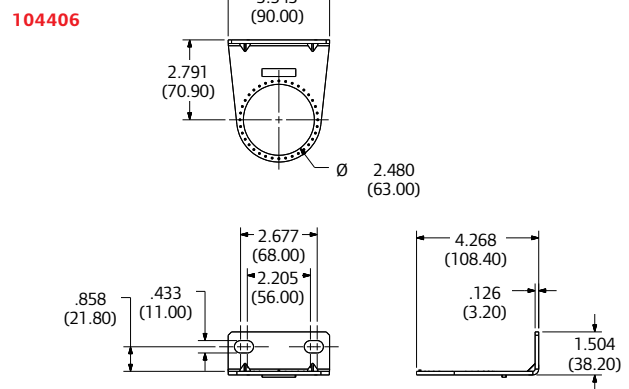
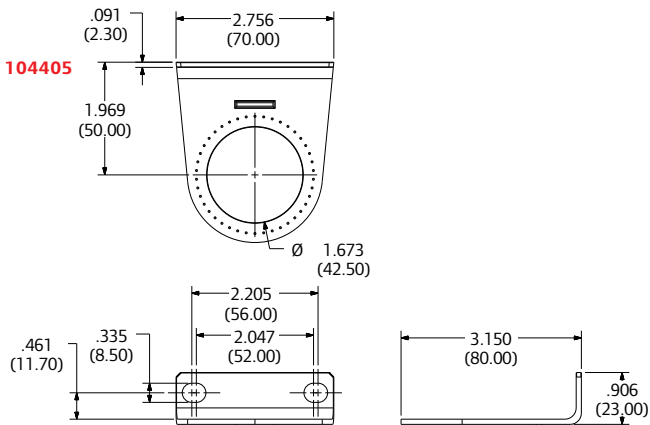
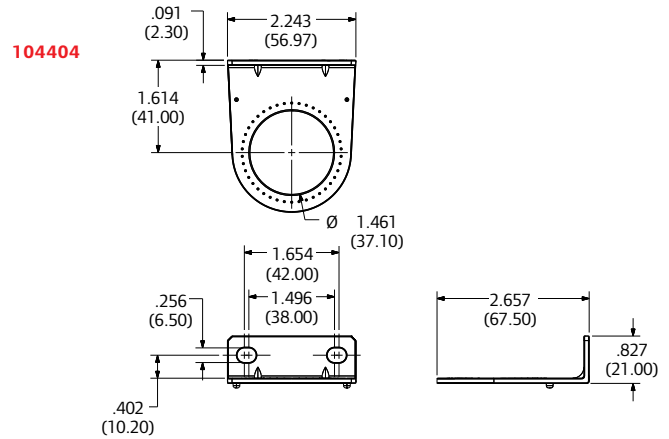
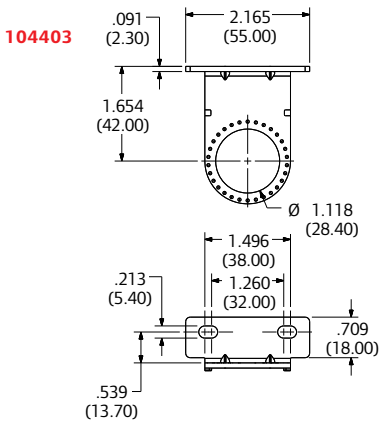
\* For 2000 Series with 3/4" threads use T-Type wall mount bracket/spacer 104402 on page 72



## L-bracket

L-brackets are designed to allow the user to mount a regulator or piggyback unit to a wall or flat surface. A panel nut should be used to keep the unit in place. Panel nuts are included as standard equipment on all ARO-Flo regulators and piggybacks, and replacements can be ordered separately.

Model number	Size	Material	Description
104403	1000 Series	Steel	L-type wall bracket
104404	1500 Series		
104405	2000 Series		
104406	3000 Series		



# Accessories

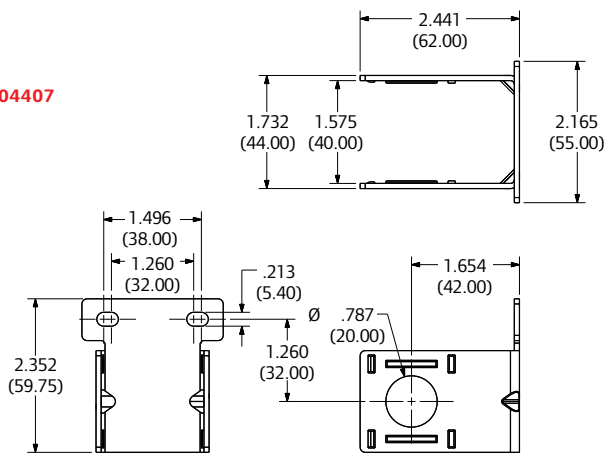
## C-bracket

C-brackets are designed to hold either a single filter or single lubricator unit. The bracket has two holes to allow for the unit to be bolted to a wall or other flat surface. Mounting hardware not included.

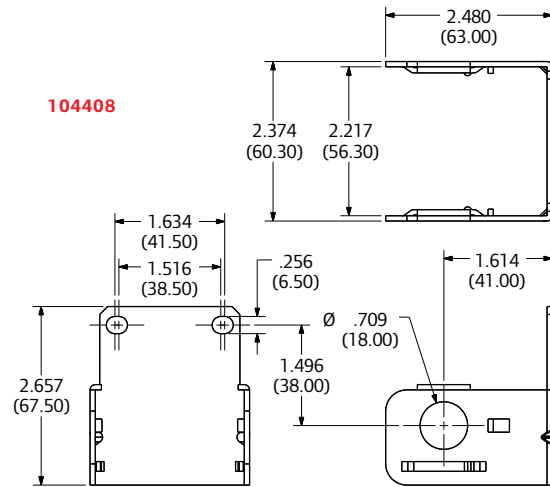


Model number	Size	Material	Description
104407	1000 Series	Steel	C-type wall bracket
104408	1500 Series		
104409	2000 Series		
104410	3000 Series		

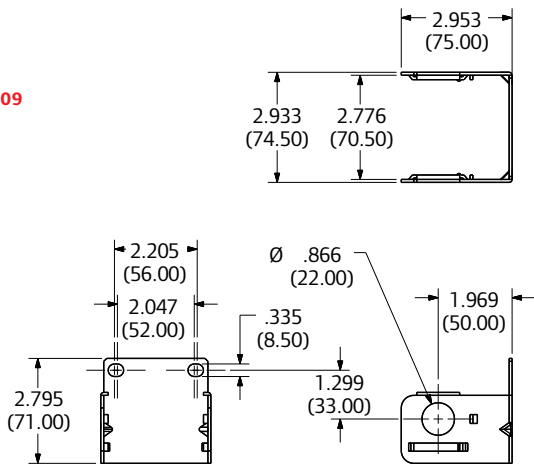
104407



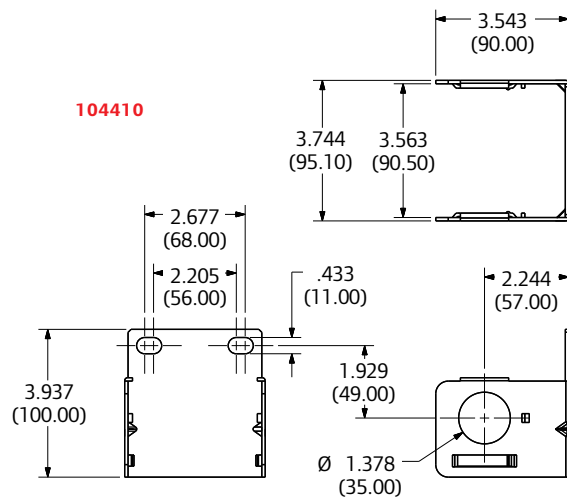
104408



104409



104410



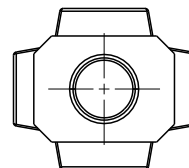
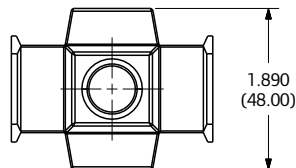
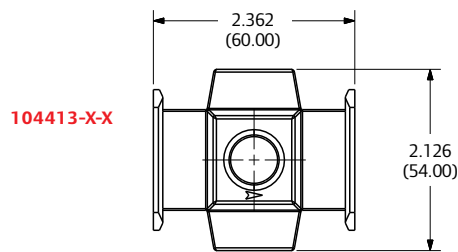
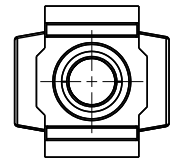
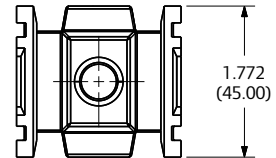
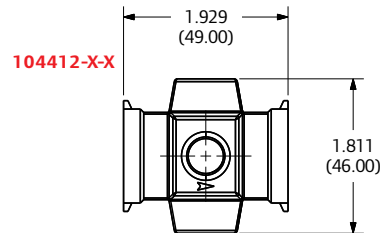
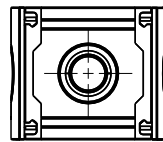
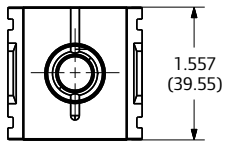
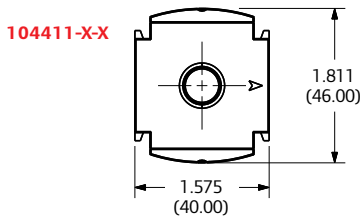


### Modular threaded manifold block kit

Using the modular manifold block is an excellent way to provide circuit design flexibility. Normally installed downstream of the regulator, the manifold block allows clean, regulated air to be sent to signal or other equipment. The manifold blocks are offered in different port configurations to suit different application needs. Use modular clamps to attach to other components or threaded pipe. Order modular clamps separately.



Model number	Size	Material	Port size	Description
104411-1-1	1000 Series	Body: aluminum	1/8" x 1/8"	Manifold block kit
104411-2-2			1/4" x 1/4"	
104412-2-1	1500 Series		1/4" x 1/8"	
104412-2-2			1/4" x 1/4"	
104412-3-1			3/8" x 1/8"	
104412-3-2	2000 Series		3/8" x 1/4"	
104413-3-2			3/8" x 1/4"	
104413-3-3			3/8" x 3/8"	
104413-4-2			1/2" x 1/4"	
104413-4-3			1/2" x 3/8"	



# Accessories

## Modular threaded pipe adapter

Pipe adapter blocks allow single or multiple units to be plumbed to an air system in the modular arrangement. They allow for ease of service when removing a unit from the line, and can also allow for different pipe diameters to be used in the plumbing setup. Kit includes two pipe adapters. Order modular clamps separately.



104474-1



104475-2



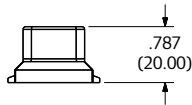
104398-3



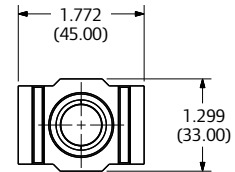
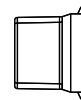
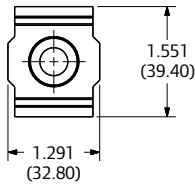
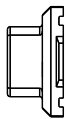
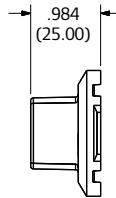
104476-5

Model number	Size	Material	Port size	Description
104474-1	1000 Series	Body: aluminum	1/8" - NPT	Modular (threaded) pipe adapter
104474-2			1/4" - NPT	
104474-A			1/8" - BSP	
104474-B			1/4" - BSP	
104475-2	1500 Series		1/4" - NPT	
104475-3			3/8" - NPT	
104475-B			1/4" - BSP	
104475-C			3/8" - BSP	
104398-3	2000 Series		3/8" - NPT	
104398-4			1/2" - NPT	
104398-C			3/8" - BSP	
104398-D			1/2" - BSP	
104476-5	3000 Series		3/4" - NPT	
104476-6			1" - NPT	
104476-E			3/4" - BSP	
104476-F			1" - BSP	

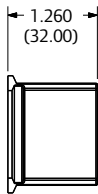
104474-X



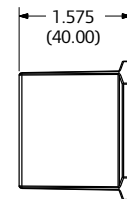
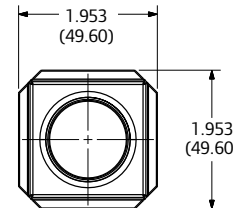
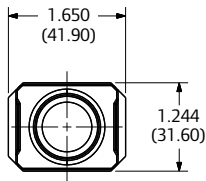
104475-X



104398-X



104476-X



### Pressure switch

The use of a pressure switch allows for the sensing of high- or low-pressure thresholds. The switch is designed to be used with the modular manifold block. The pressure switch is offered in 1/8" NPT.

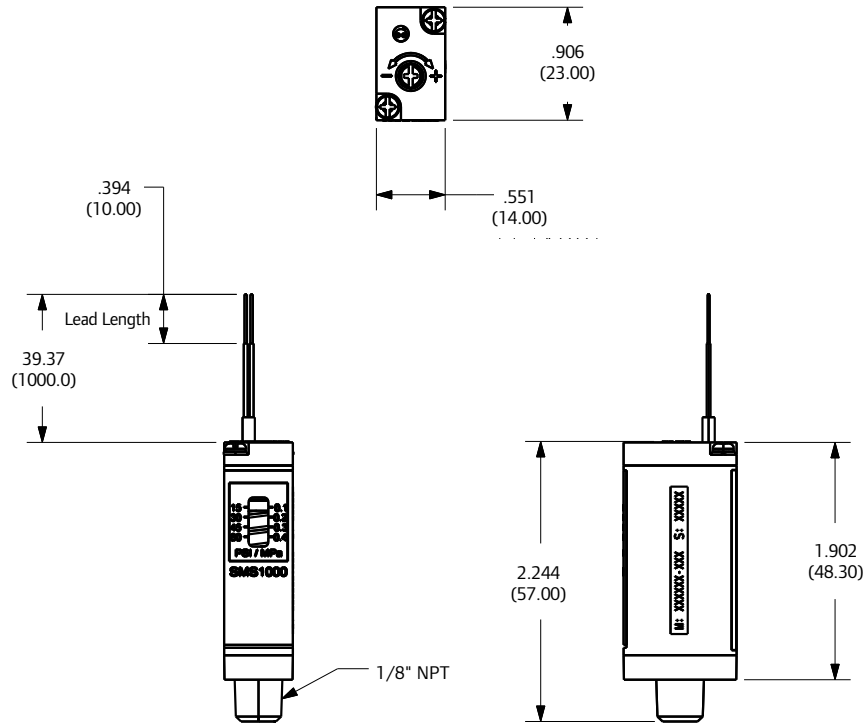
- Load voltage: DC 24
- Load current range: 5 ~ 40mA (DC 24V)
- Ambient and fluid temperature: -5° to 60°C (Non-freezing)
- Wiring: 2 wire

The switch complys with IEC (International Electrotechnical Commission) and has an IP67 rating.



104415

Model number	Port size	Material	Description
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# Accessories

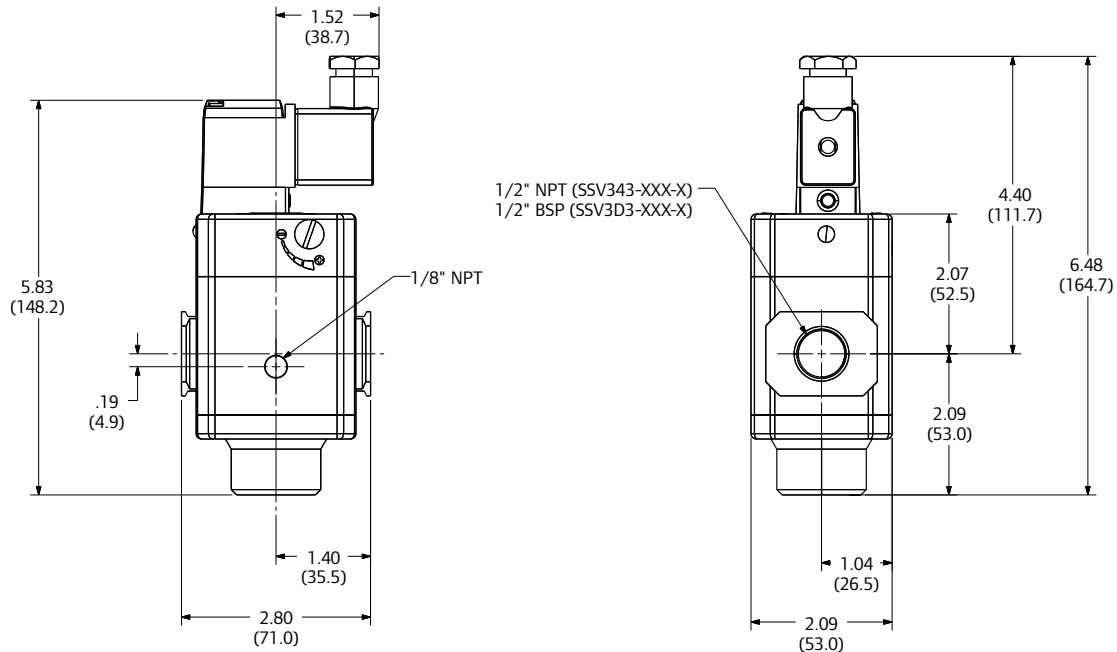
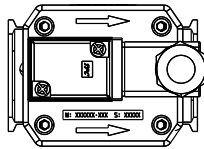
## Soft start valve

Machine system start-up and the related air surge can both damage and reduce the operating efficiency of its pneumatic components. Over time, the air surge on components takes an even heavier toll on the machine's overall productivity and on your maintenance schedule. The ARO® Soft-Start Valve eliminates the surge at start-up to help protect your system.



Model number	Description
SSV343-024-D	1/2" NPT, 24 DC
SSV343-120-A	1/2" NPT, 120 AC
SSV3D3-024-D	1/2" BSP, 24 DC
SSV3D3-120-A	1/2" BSP, 120 AC

Technical data			
<b>Size</b>	2000 Series, 1/2" port size	<b>Voltage allowance</b>	-15% ~ +10%
<b>Operating pressure range</b>	44 – 130 psi (3 – 9 bar)	<b>Power consumption (AC) inrush</b>	5.6VA (50Hz), 5.0VA (60Hz)
<b>Gauge Port</b>	1/8"	<b>Power consumption (AC) holding</b>	3.3VA (50Hz), 2.3VA (60Hz)
<b>Max fluid and ambient temperature</b>	122F (50C)	<b>Power consumption (DC)</b>	1.8W / 2W (with lamp)
<b>Effective orifice size</b>	P->A = .098 sq in (63 mm <sup>2</sup> ), A->R = .068 sq in (44 mm <sup>2</sup> )	<b>Electrical connection</b>	Din connector
<b>Voltage options</b>	120AC, 24DC	<b>Manual override</b>	Locking



### Add-on gauges

Model	Port	Range (psi)	Size	Case	Lens
104491	1/8"	0 - 45	1.5"	Plastic	Polycarbonate
104488	1/8"	0 - 45	1.5"	Steel	Glass
104498	1/8"	0 - 45	2"	Plastic	Polycarbonate
104494	1/8"	0 - 45	2"	Steel	Glass
104492	1/8"	0 - 75	1.5"	Plastic	Polycarbonate
104489	1/8"	0 - 75	1.5"	Steel	Glass
104499	1/8"	0 - 75	2"	Plastic	Polycarbonate
104495	1/8"	0 - 75	2"	Steel	Glass
104493	1/8"	0 - 160	1.5"	Plastic	Polycarbonate
104490	1/8"	0 - 160	1.5"	Steel	Glass
104500	1/8"	0 - 160	2"	Plastic	Polycarbonate
104496	1/8"	0 - 160	2"	Steel	Glass
104504	1/4"	0 - 160	2"	Plastic	Polycarbonate
104502	1/4"	0 - 160	2"	Steel	Glass
104501	1/8"	0 - 250	2"	Plastic	Polycarbonate
104497	1/8"	0 - 250	2"	Steel	Glass
104505	1/4"	0 - 250	2"	Plastic	Polycarbonate
104503	1/4"	0 - 250	2"	Steel	Glass



104494



104495



104502



104503

# Accessories

## Gauges and port blocks

In the absence of the standard integral gauge, a gauge port block can be used with a screw-in aftermarket gauge. All regulators, piggybacks, and combo units ordered without a gauge will come with a gauge port block supplied as standard. All port blocks are 1/8" NPT.



Model number	Size	Material	Description
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## Lubricating oil

ARO® lubricating oil is recommended for use with pneumatic power tools, motors, valves, cylinders, and hoists. It is specially formulated for use in air line lubricators. Proper, regular lubrication helps ensure longer, trouble-free operation by reducing wear; saves power, and cuts equipment maintenance costs.

ARO® lubricating oil is available in 1-quart containers, and may be ordered by specifying part number 29665 (1-quart container).

- Viscosity:** 100-200 S.S.U. @ 100°F (38°C) min. aniline point of 200°F (93°C)
- Class:** II Lubricant
- Approx. SAE No:** Light SAE 10, non-detergent



29665

## Air tool oils

Model	Description	Size
63Z4	#63 oil for cyclone wick lubrication	4 oz
10Z4	Class 1 #10 oils for use with percussive, assembly, and impact wrenches	4 oz
10G	Class 1 #10 oils for use with percussive, assembly, and impact wrenches	1 gal
10P	Class 1 #10 oils for use with percussive, assembly, and impact wrenches	1 pt
10G55	Class 1 #10 oils for use with percussive, assembly, and impact wrenches	55 gal
10GW	Class 1 #10 oil / antifreeze for use with percussive, assembly, and impact wrenches	1 gal
50P	Class II lubricant, #50 oil for use with grinders, impact wrenches, hoists, and winches	1 pt
50G	Class II lubricant, #50 oil for use with grinders, impact wrenches, hoists, and winches	1 gal
62 1 Gal	Class II #62 oil for hoist and winch gear boxes	1 gal



10G

10P

## Panel nut

The panel nut allows the user to attach the regulator or piggyback unit to a panel or L-bracket. Panel nuts are included as standard on all ARO-Flo Series regulators and piggybacks.



104416

104417

104418

104419

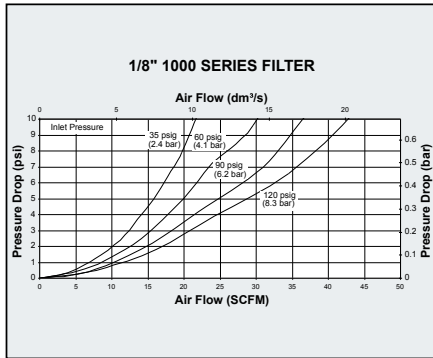
Model number	Size	Material	Description
104416	1000 Series	Nylon	Panel nut
104417	1500 Series		
104418	2000 Series		
104419	3000 Series		

# Flow charts

## Filters

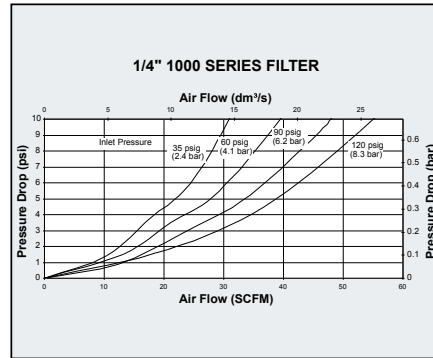
### 1000 Series

1/8" Pressure drop test



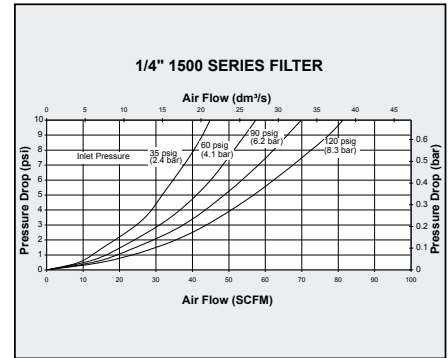
### 1000 Series

1/4" Pressure drop test



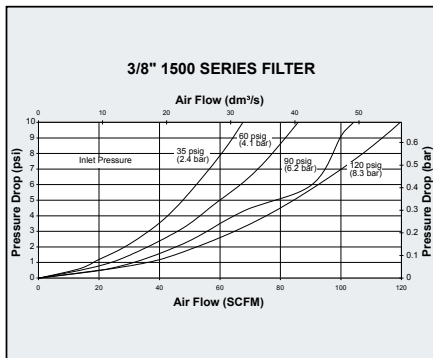
### 1500 Series

1/4" Pressure drop test



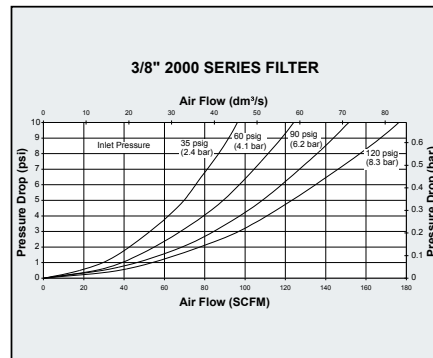
### 1500 Series

3/8" Pressure drop test



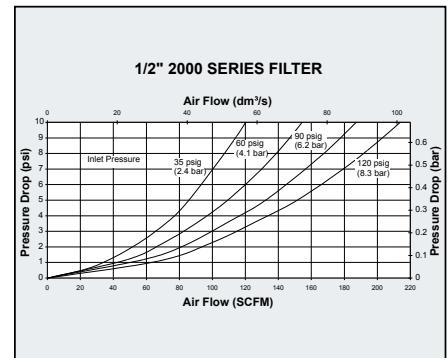
### 2000 Series

3/8" Pressure drop test



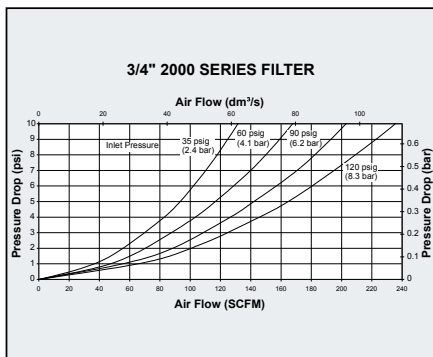
### 2000 Series

1/2" Pressure drop test



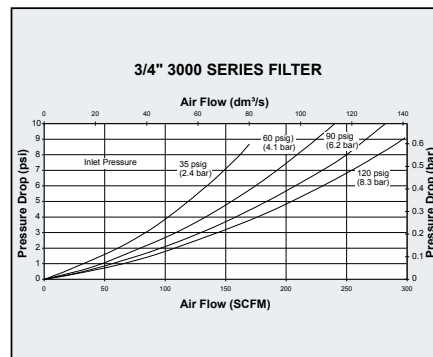
### 2000 Series

3/4" Pressure drop test



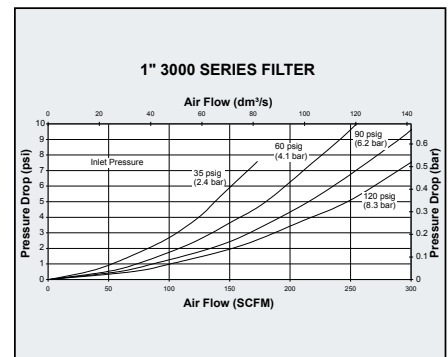
### 3000 Series

3/4" Pressure drop test



### 3000 Series

1" Pressure drop test

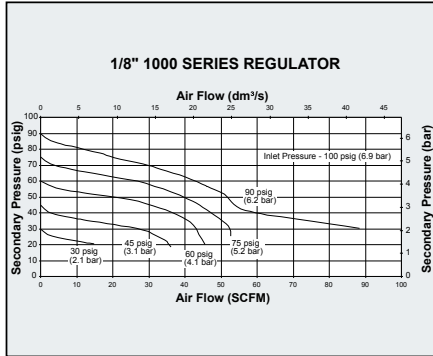


# Flow charts

## Regulators

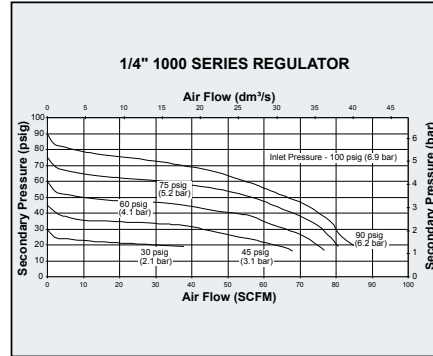
### 1000 Series

1/8" Pressure drop test



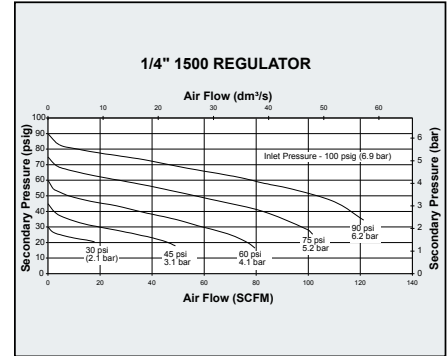
### 1000 Series

1/4" Pressure drop test



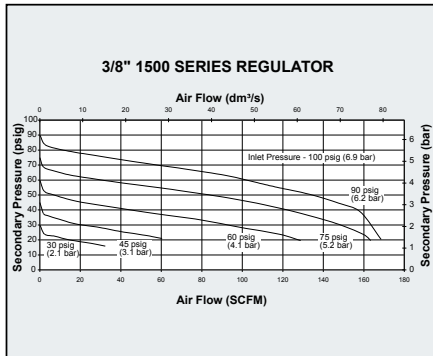
### 1500 Series

1/4" Pressure drop test



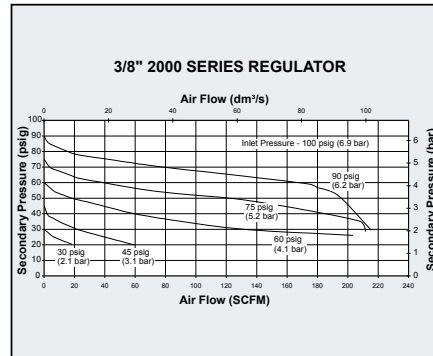
### 1500 Series

3/8" Pressure drop test



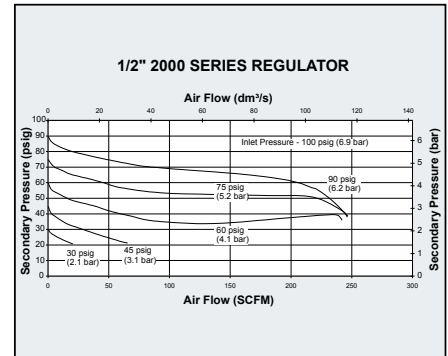
### 2000 Series

3/8" Pressure drop test



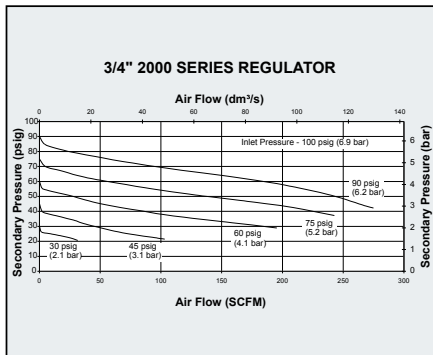
### 2000 Series

1/2" Pressure drop test



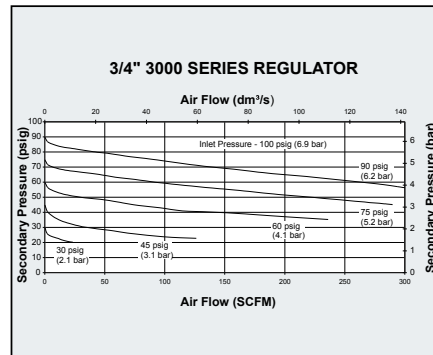
### 2000 Series

3/4" Pressure drop test



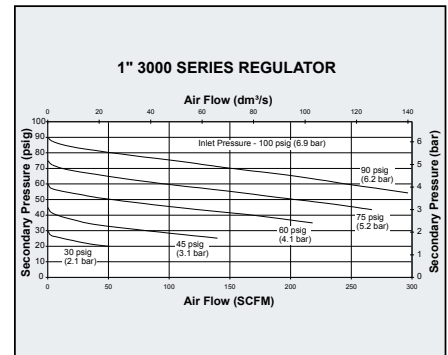
### 3000 Series

3/4" Pressure drop test



### 3000 Series

1" Pressure drop test

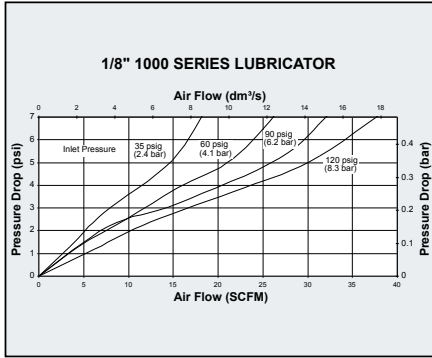




# Lubricators

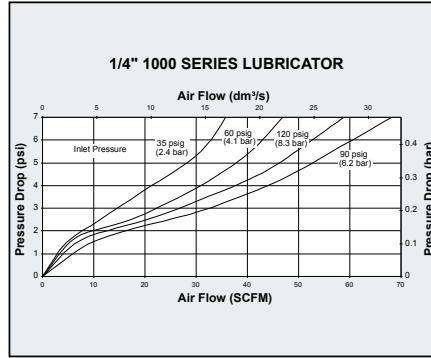
## 1000 Series

1/8" Pressure drop test



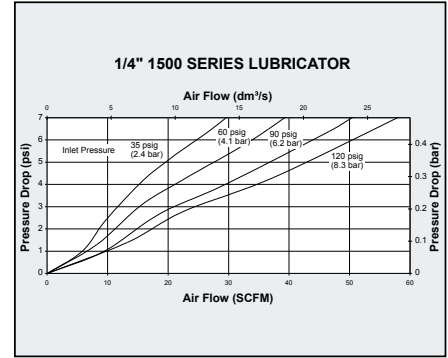
## 1000 Series

1/4" Pressure drop test



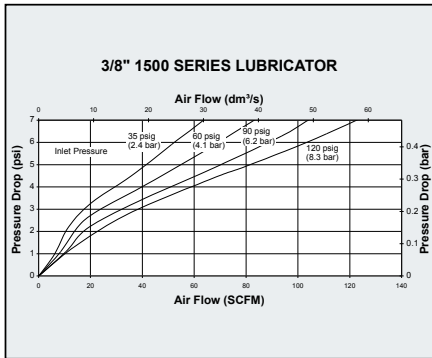
## 1500 Series

1/4" Pressure drop test



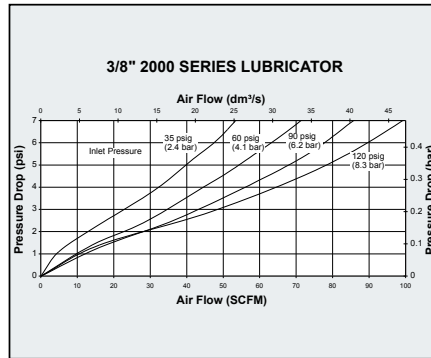
## 1500 Series

3/8" Pressure drop test



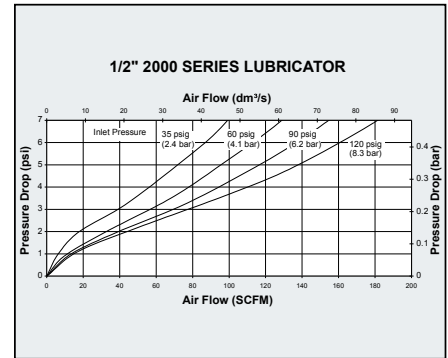
## 2000 Series

3/8" Pressure drop test



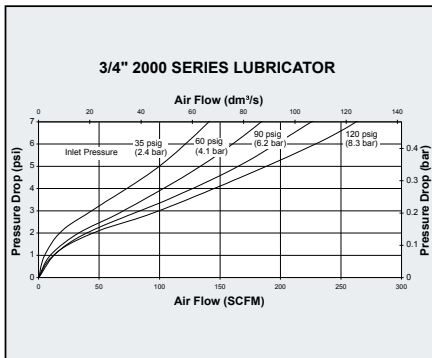
## 2000 Series

1/2" Pressure drop test



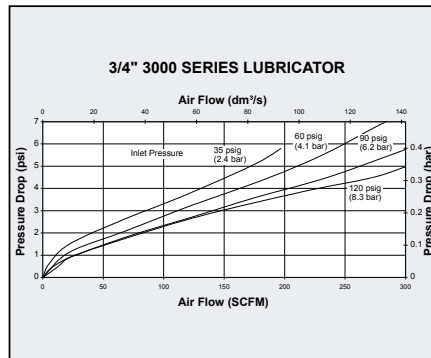
## 2000 Series

3/4" Pressure drop test



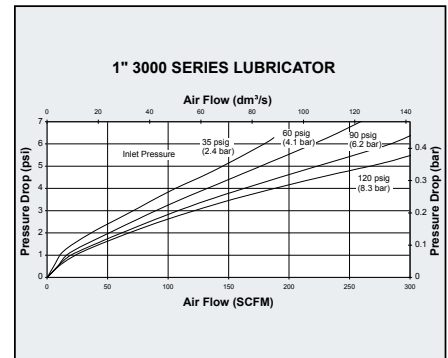
## 3000 Series

3/4" Pressure drop test



## 3000 Series

1" Pressure drop test

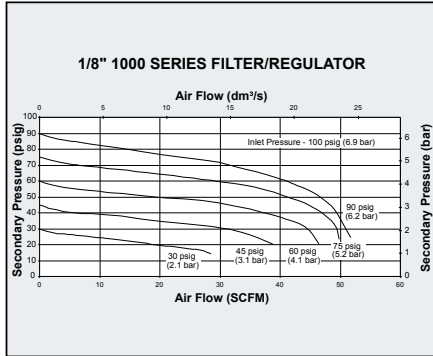


# Flow charts

## Piggyback Filters / Regulators

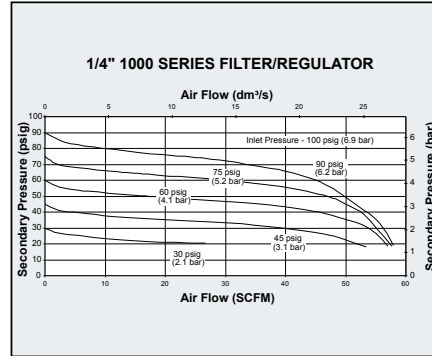
### 1000 Series

1/8" Pressure drop test



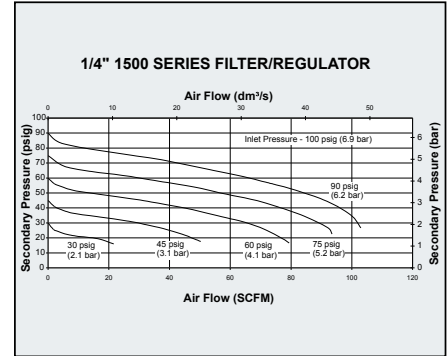
### 1000 Series

1/4" Pressure drop test



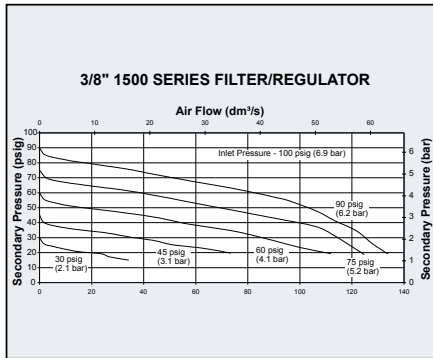
### 1500 Series

1/4" Pressure drop test



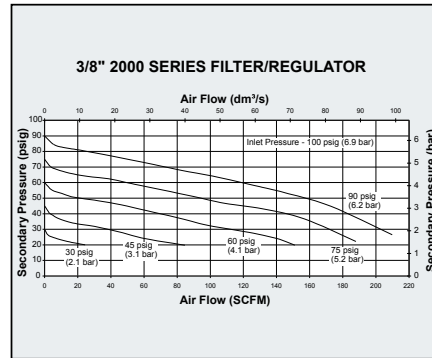
### 1500 Series

3/8" Pressure drop test



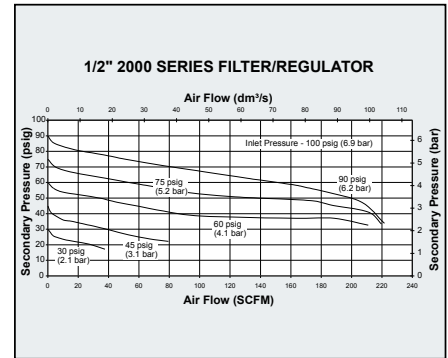
### 2000 Series

3/8" Pressure drop test



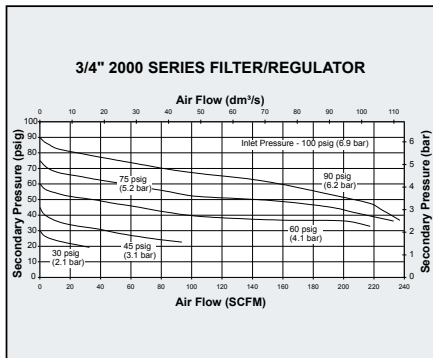
### 2000 Series

1/2" Pressure drop test



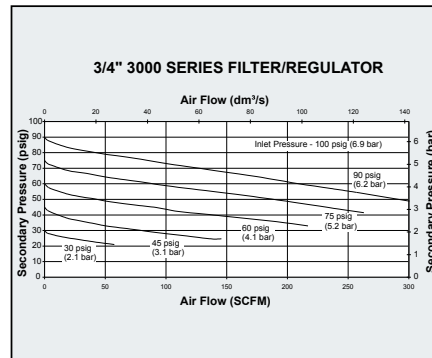
### 2000 Series

3/4" Pressure drop test



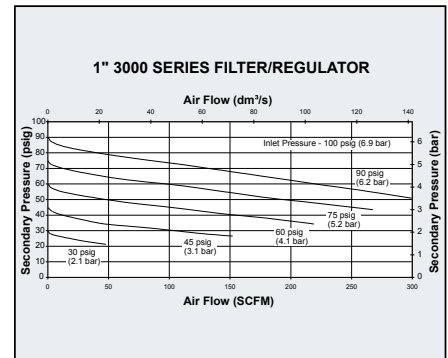
### 3000 Series

3/4" Pressure drop test



### 3000 Series

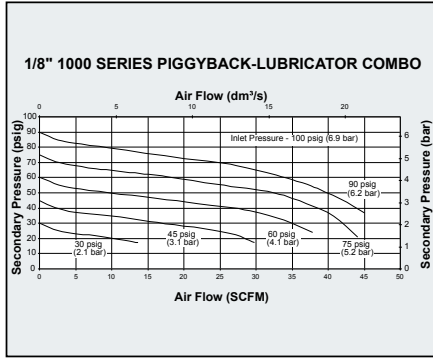
1" Pressure drop test



# Combinations

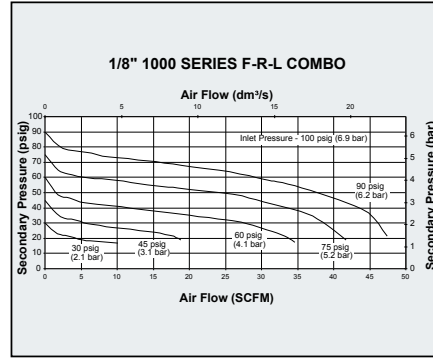
## 1000 Series

1/8" Pressure drop test



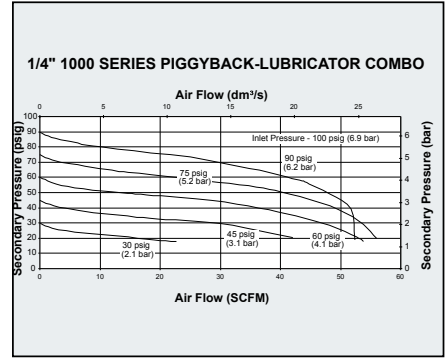
## 1000 Series

1/8" Pressure drop test



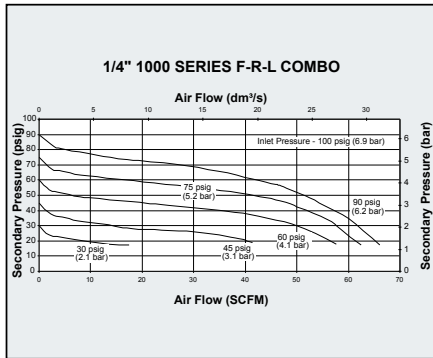
## 1000 Series

1/4" Pressure drop test



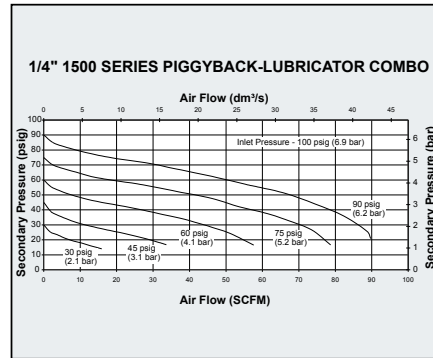
## 1000 Series

1/4" Pressure drop test



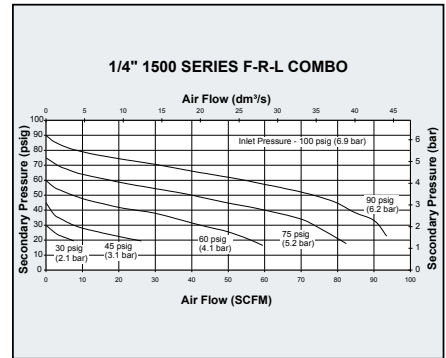
## 1500 Series

1/4" Pressure drop test



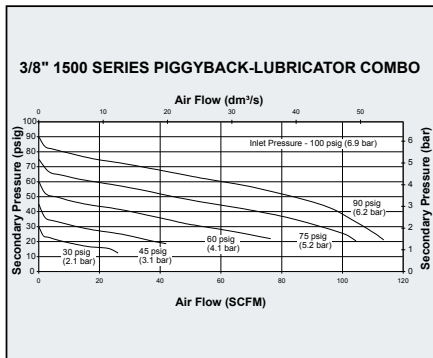
## 1500 Series

1/4" Pressure drop test



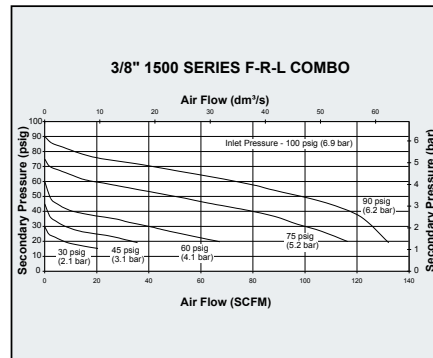
## 1500 Series

3/8" Pressure drop test



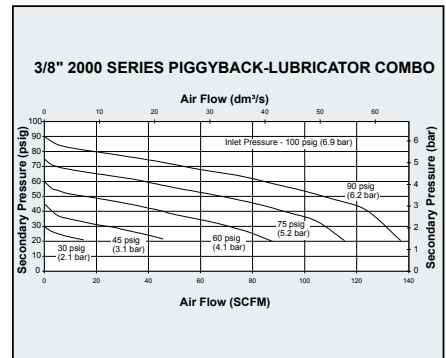
## 1500 Series

3/8" Pressure drop test



## 2000 Series

3/8" Pressure drop test

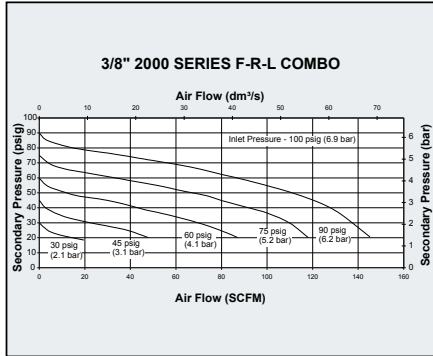


# Flow charts

## Combinations

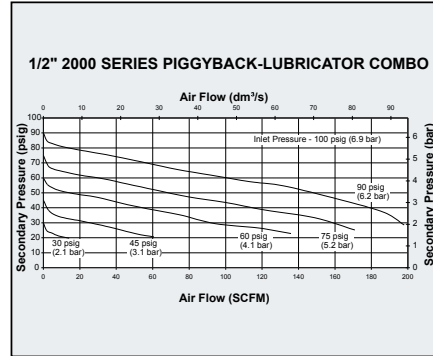
### 2000 Series

3/8" Pressure drop test



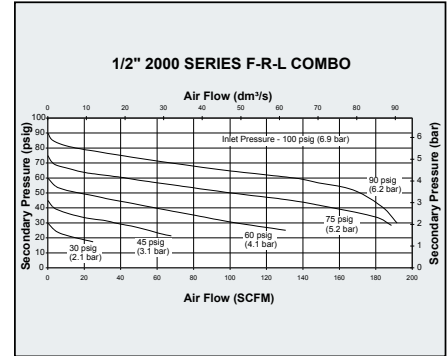
### 2000 Series

1/2" Pressure drop test



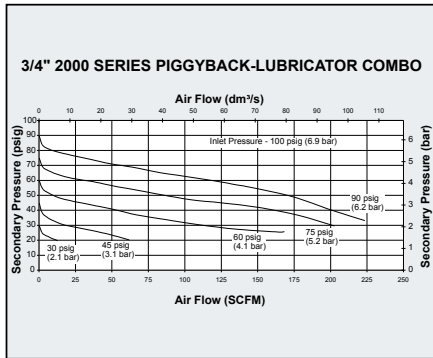
### 2000 Series

1/2" Pressure drop test



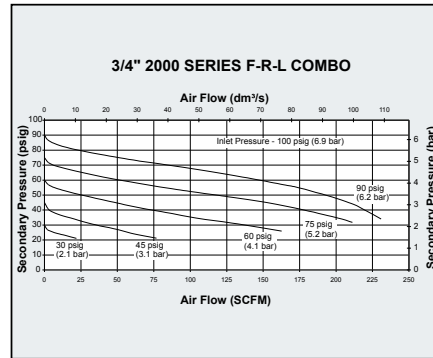
### 2000 Series

3/4" Pressure drop test



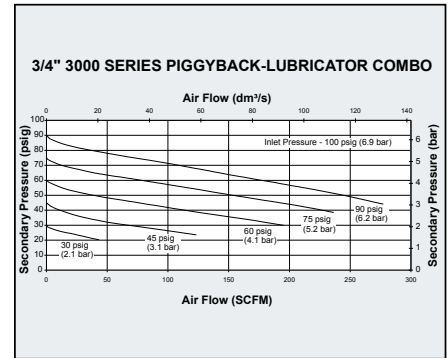
### 2000 Series

3/4" Pressure drop test



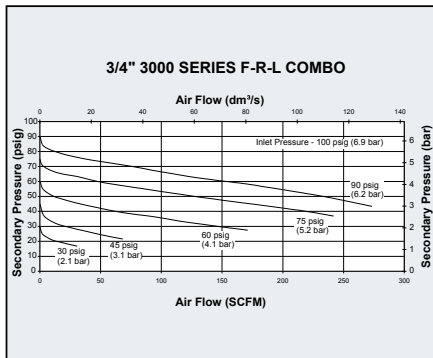
### 3000 Series

3/4" Pressure drop test



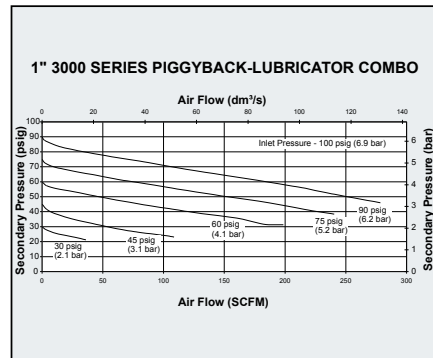
### 3000 Series

3/4" Pressure drop test



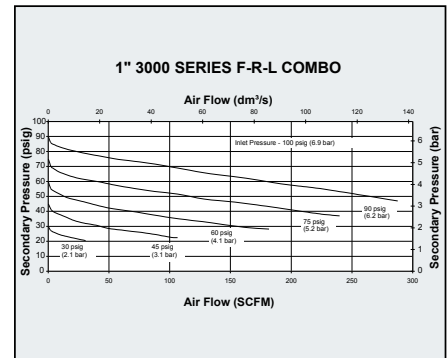
### 3000 Series

1" Pressure drop test



### 3000 Series

1" Pressure drop test



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GRP-XX-XXX	Liquidator Parts	58, 59
MRP-XX-XXX	Liquidator Parts	58, 59

# Warranty

Ingersoll Rand Company warrants to the original use purchaser of the Ingersoll Rand Air Systems Components depicted in this catalog that Ingersoll Rand will repair or replace, free of charges, including return shipping costs within the continental United States of America, any such product which under normal use and service proves defective in material or workmanship, as determined by Ingersoll Rand inspection, twenty-four months from date of purchase, provided the claimed defective product, or part thereof, is promptly returned to the Ingersoll Rand Service Repair Center or a factory-authorized service repair center, with transportation charges prepaid.

If Ingersoll Rand inspection discloses no defect in material or workmanship, repair or replacement and return will be made at customary charges.

**THE FOREGOING WARRANTY SUPERSEDES, VOIDS AND IS IN LIEU OF ALL OR ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND NO WARRANTY OR MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE IS INTENDED OR MADE. The sole obligation of Ingersoll Rand and the original use purchaser's sole remedy is as stated above and in no event shall Ingersoll Rand be liable for any special, direct, indirect, incidental, consequential, or other damages or expenses of any nature including, without limitation, loss of profits or production time incurred by the original use purchaser or any other party.**

## Compatible Lubricants

Although air line lubrication is not required for most ARO® 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. We recommend ARO® Lubricative Oil P/N 29665, it is specially formulated for use with pneumatic power tools, motors, valves, cylinders and hoists.

## Cautions of the Use of Polycarbonate Plastic Bowls

*Use Only with Compressed Air.* Filters and lubricators with polycarbonate plastic 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 plastic bowl or result in a combustible condition or hazardous leakage. Before using with a fluid other than air, or for non-industrial applications, or for life support systems. Consult the factory. 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 plastic bowl. Avoid Harmful Substances. Some compressor oils, chemical cleaners, solvents, paints, and fumes will attack plastic 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 plastic bowl which is crazed, cracked, or deteriorated.

## Substances HARMFUL to Polycarbonate Plastic Bowls

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

## Trade Names of Substances HARMFUL to Polycarbonate Plastic 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 • Houstsafe 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 and Erol 495 & 500 oils • Titon • Vibra-tite • Zerex

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For more than 85 years, ARO® pumps and fluid products have helped drive innovation and create new standards for how the world gets work done. Over the years, we have applied our knowledge of our customers' industries and the demands placed on productivity and quality to consistently deliver products that increase productivity and minimize the costs associated with transferring, extruding, and applying a wide range of fluids, from low- to high-viscosity.

When you purchase an ARO® product, you can be confident that you are getting industry-proven dependability, versatility, and value. No matter what your product, process, or location, we offer the products, accessories, and a worldwide distribution and service network prepared to keep your process in motion.

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