



Air Preparation Products
General Industrial

| | |
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F602 Particulate Filters – Hi-Flow

- Excellent water removal efficiency
- For heavy duty applications with minimum pressure drop requirement
- Unique deflector plate that creates swirling of the air stream ensuring maximum water and dirt separation
- Large filter element surface guarantees low pressure drop and increased element life
- 40 micron filter element standard, 5 micron available
- Metal bowl with sight gauge standard
- Twist drain as standard, optional auto drain
- 3/4" & 1" port, NPT & BSPP



| Port size | Description | Part number |
|-----------|----------------------------------|-------------------|
| 3/4" | 16 oz. metal bowl / manual drain | F602-06WJ |
| 3/4" | 16 oz. metal bowl / auto drain | F602-06WJR |
| 3/4" | 32 oz. metal bowl / manual drain | F602-06EJ |
| 3/4" | 32 oz. metal bowl / auto drain | F602-06EJR |
| 1" | 16 oz. metal bowl / manual drain | F602-08WJ |
| 1" | 16 oz. metal bowl / auto drain | F602-08WJR |
| 1" | 32 oz. metal bowl / manual drain | F602-08EJ |
| 1" | 32 oz. metal bowl / auto drain | F602-08EJR |

Operating information

Supply pressure (max):

| | |
|------------------------------|-----------------------------------|
| Aluminum (E) | 0 to 300 psig (0 to 20.7 bar) |
| Zinc with gauge (W) | 0 to 250 psig (0 to 17.2 bar) |
| With internal auto drain [R] | 20 to 175 psig (1.14 to 11.9 bar) |
| With external auto drain [Q] | 0 to 250 psig (0 to 17.2 bar) |

Operating temperature:

| | |
|------------------------------|---------------------------------|
| Aluminum (E) | 40°F to 150°F (4.4°C to 65.6°C) |
| Zinc with gauge (W) | 40°F to 150°F (4.4°C to 65.6°C) |
| With internal auto drain [R] | 40°F to 125°F (4.4°C to 52°C) |
| With external auto drain [Q] | 40°F to 150°F (4.4°C to 65.6°C) |

Flow capacity†:

| | | |
|-----------|------|-----------------------------|
| High flow | 3/4" | 270 scfm (127.4 dm³/s, ANR) |
| | 1" | 300 scfm (141.5 dm³/s, ANR) |

Bowl capacity:

| | |
|---------------------|--------|
| Zinc with gauge (W) | 16 oz. |
| Aluminum (E) | 32 oz. |

| | | |
|---------|--------|------------------|
| Weight: | 16 oz. | 6.3 lb (2.86) |
| | 32 oz. | 7.0 lb (3.18 kg) |

† scfm = Standard cubic feet per minute at 90 psig inlet and 5 psig pressure drop.

() Bowl type, [] drain type.

Ordering information:

| | | | | | |
|-----------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------|------------|
| F602 | - | 06 | W | J | /** |
| Port Threads NPT - G BSPP G | | Port Size 3/4 inch 06 1 inch 08 | | Engineering Level /** Will be entered at factory | |
| Bowl 32 oz. Large capacity metal without sight gauge E 16 oz. Metal with sight gauge W | | Drains and Options Blank Manual twist drain Q External heavy duty auto drain R Internal auto drain U Semi-auto drain | | Element G 5 Micron J 40 Micron | |

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

Hi-Flow Particulate Filters

Material Specifications

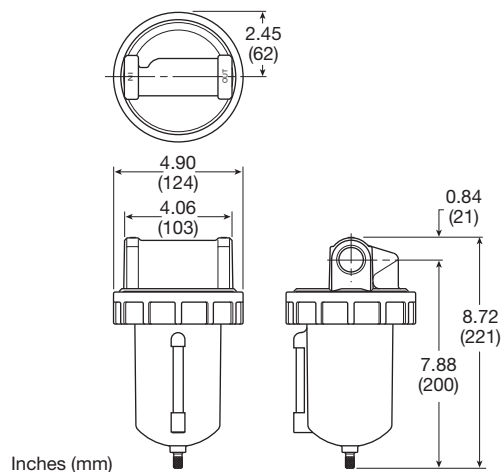
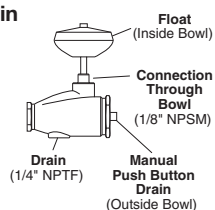
| | |
|-------------------------------------|---------------|
| Body | Zinc |
| Bowl (E) 32 oz. without sight gauge | Aluminum |
| Bowl (W) 16 oz. with sight gauge | Zinc |
| Manual twist drain & overnight | Brass |
| Drain housing "R" | Acetal |
| Drain housing "Q" | Bronze |
| Element | Polypropylene |
| Seals | Nitrile |
| Sight gauge | Nylon |

Repair and Service Kits

| | |
|------------------------------------------------------------------------------|------------------|
| Aluminum bowl (E) 32 oz. | BK603B |
| Zinc bowl with sight gauge (W) 16 oz. | BK605WB |
| External auto drain (E) 32 oz. | SA603D |
| External auto drain (W) 16 oz. | SA602D |
| Internal auto drain (All) | SA602MD |
| Manual drain (All) | SA600Y7-1 |
| Semi-auto "overnight" drain (drains automatically under zero pressure) | SA602A7 |
| 40 micron element (All) | EK602B |
| 5 micron element (All) | EK602VB |
| Mounting bracket, 3/4" Unit (pair or 2 kits pipe mounted brackets needed) | SA200AW57 |
| Mounting bracket, 1" Unit (pair or 2 kits pipe mounted brackets needed) | SA200CW57 |
| Deflector, baffle assembly, & retaining rod (E,W) | RK602B |
| External auto drain (All) | RK602D |
| Internal auto drain (All) | RK602MD |
| Metal bowl with sight gauge (W) 16 oz. | RKB605WB |

"Q" Option External Heavy Duty Auto Drain SA602D / SA603D

For heavy duty applications where the filter is being used to remove large volumes of liquid and/or particulate matter from the airstream, the external automatic drain ("Q" option) should be used.

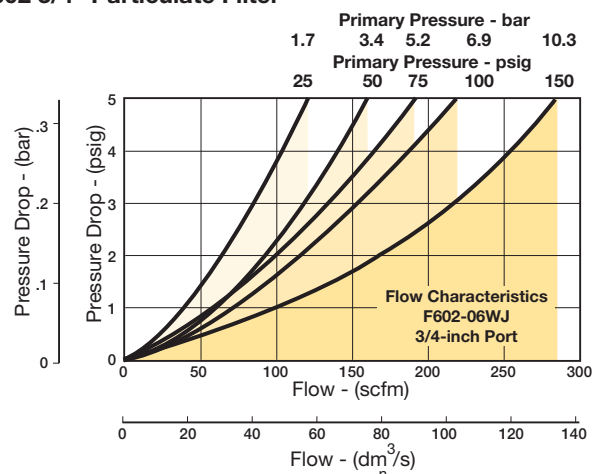


F602-06W, F602-08W (Hi-Flow)

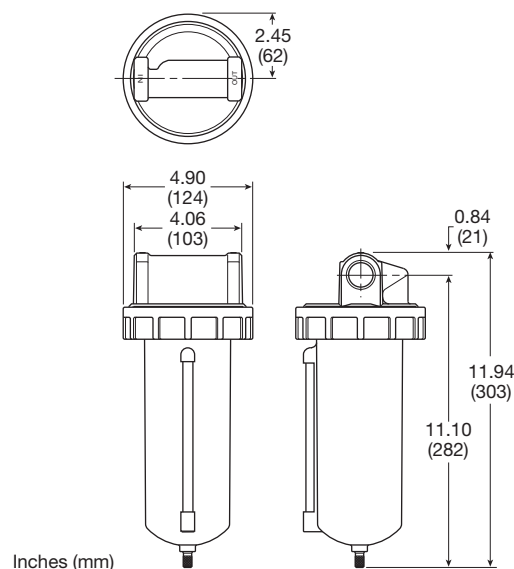
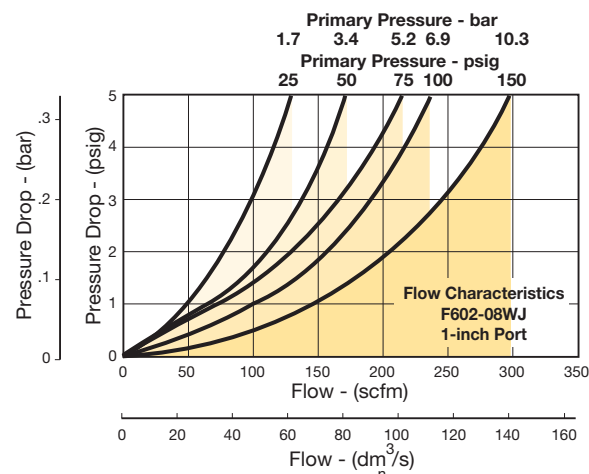
Air Preparation Products General Industrial

Flow Charts

F602 3/4" Particulate Filter



F602 1" Particulate Filter



F602-06E, F602-08E (Hi-Flow)



For inventory, lead time, and kit lookup, visit www.pdnplu.com

H3

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Richland, Michigan
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General Industrial
Products

H

Filters

Coalescers

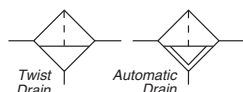
Regulators

Lubricators

Combinations

F602 Particulate Filters – Hi-Flow

- Excellent water removal efficiency
- For heavy duty applications with minimum pressure drop requirement
- Unique deflector plate that creates swirling of the air stream ensuring maximum water and dirt separation
- Large filter element surface guarantees low pressure drop and increased element life
- 40 micron filter element standard, 5 micron available
- Metal bowl with sight gauge standard
- Twist drain as standard, optional auto drain
- Large bowl capacity
- Optional high capacity bowl(s) available
- 1-1/2" port, NPT & BSPP



| Port size | Description | Part number |
|-----------|----------------------------------|-------------------|
| 1-1/2" | 16 oz. metal bowl / manual drain | F602-12WJ |
| 1-1/2" | 16 oz. metal bowl / auto drain | F602-12WJR |
| 1-1/2" | 32 oz. metal bowl / manual drain | F602-12EJ |
| 1-1/2" | 32 oz. metal bowl / auto drain | F602-12EJR |

Operating information

Supply pressure (max):

| | |
|------------------------------|-----------------------------------|
| Aluminum (E) | 0 to 300 psig (0 to 20.7 bar) |
| Zinc with gauge (W) | 0 to 250 psig (0 to 17.2 bar) |
| With internal auto drain [R] | 20 to 175 psig (1.14 to 11.9 bar) |
| With external auto drain [Q] | 0 to 250 psig (0 to 17.2 bar) |

Operating temperature:

| | |
|------------------------------|---------------------------------|
| Aluminum (E) | 40°F to 150°F (4.4°C to 65.6°C) |
| Zinc with gauge (W) | 40°F to 150°F (4.4°C to 65.6°C) |
| With internal auto drain [R] | 40°F to 125°F (4.4°C to 52°C) |
| With external auto drain [Q] | 40°F to 150°F (4.4°C to 65.6°C) |

Flow capacity†:

| | | |
|-----------|--------|-----------------------------|
| High flow | 1-1/2" | 450 scfm (212.4 dm³/s, ANR) |
|-----------|--------|-----------------------------|

Bowl capacity:

| | |
|---------------------|--------|
| Zinc with gauge (W) | 16 oz. |
| Aluminum (E) | 32 oz. |

| | | |
|---------|--------|------------------|
| Weight: | 16 oz. | 7.0 lb (3.18 kg) |
| | 32 oz. | 7.7 lb (3.49 kg) |

† scfm = Standard cubic feet per minute at 90 psig inlet and 5 psig pressure drop.

() Bowl type, [] drain type.

Ordering information:

F602 **-** **12** **W** **J** **/****

| | |
|---------------------|--------------------------------|
| Port Threads | Engineering Level |
| NPT | /** Will be entered at factory |
| G BSPP | |

| | |
|------------------|-----------|
| Port Size | 12 |
| 1-1/2 inch | |

| | |
|-------------------------------------------------|----------|
| Bowl | E |
| 32 oz. Large capacity metal without sight gauge | |
| 16 oz. Metal with sight gauge | W |

| |
|----------------------------------|
| Drains and Options |
| Blank Manual twist drain |
| Q External heavy duty auto drain |
| R Internal auto drain |
| U Semi-auto drain |

| |
|----------------|
| Element |
| G 5 Micron |
| J 40 Micron |

Most popular.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

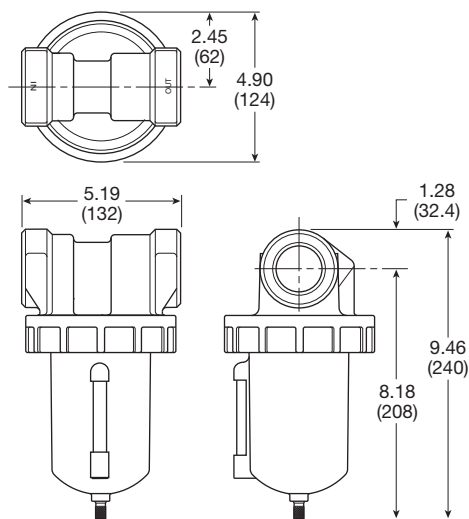
Hi-Flow Particulate Filters

Material Specifications

| | |
|-------------------------------------|---------------|
| Body | Zinc |
| Bowl (E) 32 oz. without sight gauge | Aluminum |
| Bowl (W) 16 oz. with sight gauge | Zinc |
| Manual twist drain & overnight | Brass |
| Drain housing "R" | Acetal |
| Drain housing "Q" | Bronze |
| Element | Polypropylene |
| Seals | Nitrile |
| Sight gauge | Nylon |

Repair and Service Kits

| | |
|--------------------------------------------------------------------------------|------------------|
| Aluminum bowl (E) 32 oz. | BK603B |
| Zinc bowl with sight gauge (W) 16 oz. | BK605WB |
| External auto drain (E) 32 oz. | SA603D |
| External auto drain (W) 16 oz. | SA602D |
| Internal auto drain (All) | SA602MD |
| Manual drain (All) | SA600Y7-1 |
| Semi-automatic "overnight" drain (drains automatically under zero pressure) | SA602A7 |
| 40 micron element (All) | EK602B |
| 5 micron element (All) | EK602VB |
| Deflector, baffle assembly, & retaining rod (All) | RK602C |
| External auto drain (All) | RK602D |
| Internal auto drain (All) | RK602MD |
| Metal bowl with sight gauge (W) 16 oz. | RKB605WB |

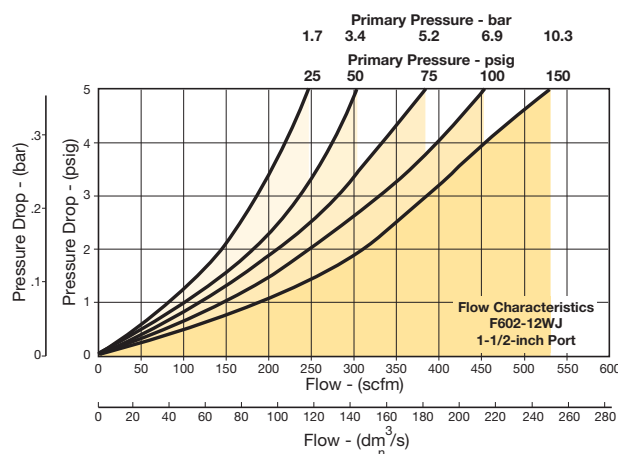


F602-12W (Hi-Flow)

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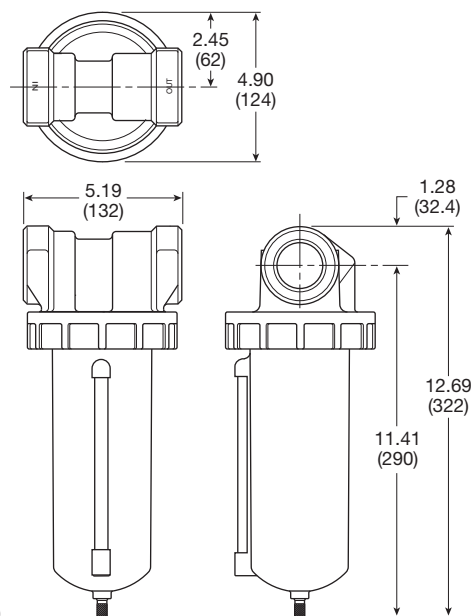
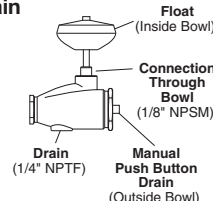
Flow Charts

F602 1-1/2" Particulate Filter



"Q" Option External Heavy Duty Auto Drain SA602D / SA603D

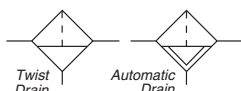
For heavy duty applications where the filter is being used to remove large volumes of liquid and/or particulate matter from the airstream, the external automatic drain ("Q" option) should be used.



F602-12E (Hi-Flow)

F602 Particulate Filters – Hi-Flow

- Excellent water removal efficiency
- For heavy duty applications with minimum pressure drop requirement.
- Unique deflector plate that creates swirling of the air stream ensuring maximum water and dirt separation.
- Large filter element surface guarantees low pressure drop and increased element life.
- 40 micron filter element standard.
- Metal bowl with sight gauge standard.
- Twist drain as standard, optional auto drain.
- Large bowl capacity.
- Optional high capacity bowl(s) available
- 2" port, NPT & BSPP



| Port size | Description | Part number |
|-----------|----------------------------------|-------------------|
| 2" | 16 oz. metal bowl / manual drain | F602-16WJ |
| 2" | 16 oz. metal bowl / auto drain | F602-16WJR |
| 2" | 32 oz. metal bowl / manual drain | F602-16EJ |
| 2" | 32 oz. metal bowl / auto drain | F602-16EJR |

Operating information

Supply pressure (max):

| | |
|------------------------------|-----------------------------------|
| Aluminum (E) | 0 to 300 psig (0 to 20.7 bar) |
| Zinc with gauge (W) | 0 to 250 psig (0 to 17.2 bar) |
| With internal auto drain [R] | 20 to 175 psig (1.14 to 11.9 bar) |
| With external auto drain [Q] | 0 to 250 psig (0 to 17.2 bar) |

Operating temperature:

| | |
|------------------------------|---------------------------------|
| Aluminum (E) | 40°F to 150°F (4.4°C to 65.6°C) |
| Zinc with gauge (W) | 40°F to 150°F (4.4°C to 65.6°C) |
| With internal auto drain [R] | 40°F to 125°F (4.4°C to 52°C) |
| With external auto drain [Q] | 40°F to 150°F (4.4°C to 65.6°C) |

Flow capacity†:

| | | |
|-----------|----|------------------------------|
| High flow | 2" | 1200 scfm (566.3 dm³/s, ANR) |
|-----------|----|------------------------------|

Bowl capacity:

| | |
|---------------------|--------|
| Zinc with gauge (W) | 16 oz. |
| Aluminum (E) | 32 oz. |

| | | |
|---------|--------|-------------------|
| Weight: | 16 oz. | 9.8 lb (4.45 kg) |
| | 32 oz. | 10.3 lb (4.67 kg) |

† scfm = Standard cubic feet per minute at 90 psig inlet and 5 psig pressure drop.

() Bowl type, [] drain type.

Ordering information:

| | | | | | |
|-----------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------|------------|
| F602 | - | 16 | W | J | /** |
| Port Threads NPT - G BSPP G | | Port Size 2 inch 16 | | Engineering Level /** Will be entered at factory | |
| Bowl 32 oz. Large capacity metal without sight gauge E 16 oz. Metal with sight gauge W | | Drains and Options Blank Manual twist drain Q External heavy duty auto drain R Internal auto drain U Semi-auto drain | | Element J 40 Micron | |

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

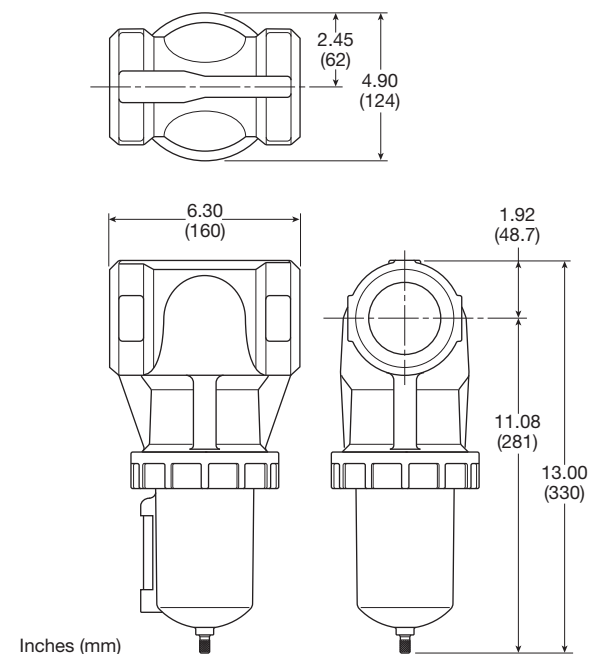
Hi-Flow Particulate Filters

Material Specifications

| | |
|-------------------------------------|---------------|
| Body | Aluminum |
| Bowl (E) 32 oz. without sight gauge | Aluminum |
| Bowl(W) 16 oz. with sight gauge | Zinc |
| Manual twist drain & overnight | Brass |
| Drain housing "R" | Acetal |
| Drain housing "Q" | Bronze |
| Element | Polypropylene |
| Seals | Buna N |
| Sight Gauge | Nylon |

Repair and Service Kits

| | |
|---------------------------------------------------------------------------|------------------|
| Aluminum bowl (E) 32 oz. | BK603B |
| Zinc bowl with sight gauge (W) 16 oz. | BK605WB |
| External auto drain (E) 32 oz. | SA603D |
| External auto drain (W) 16 oz. | SA602D |
| Internal auto drain (All) | SA602MD |
| Manual drain (All) | SA600Y7-1 |
| Semi-auto "overnight" drain (drains automatically under zero pressure) | SA602A7 |
| 40 micron element (All) | EK602G |
| Deflector, baffle assembly, & retaining rod (All) | RK602C |
| External auto drain (All) | RK602D |
| Internal auto drain (All) | RK602MD |
| Metal bowl with sight gauge (W) 16 oz. | RKB605WB |

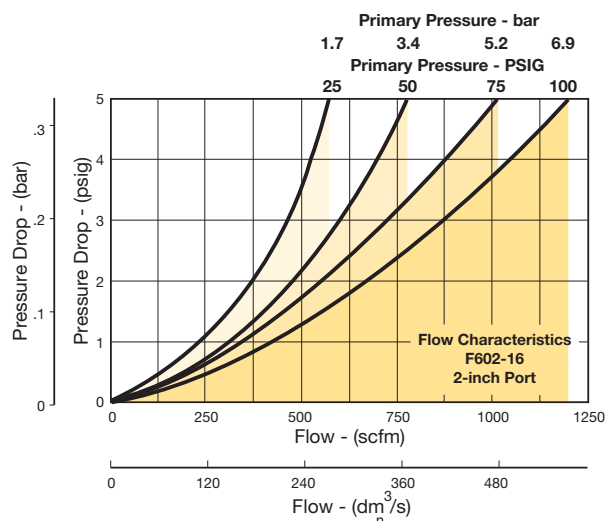


F602-16W (Hi-Flow)

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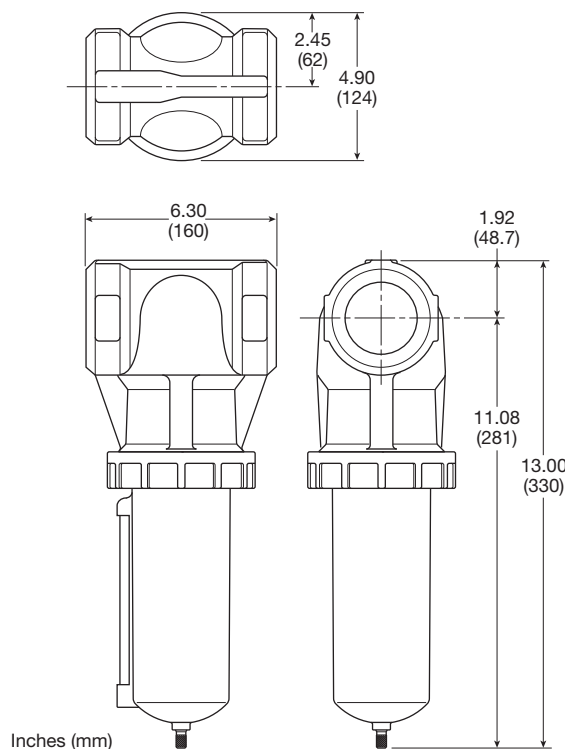
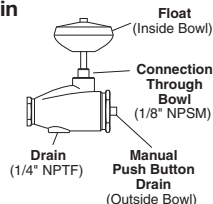
Flow Charts

F602 2" Particulate Filter



"Q" Option External Heavy Duty Auto Drain SA602D / SA603D

For heavy duty applications where the filter is being used to remove large volumes of liquid and/or particulate matter from the airstream, the external automatic drain ("Q" option) should be used.



F602-16E (Hi-Flow)



For inventory, lead time, and kit lookup, visit www.pdnplu.com

H7

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General Industrial
Products

H

Filters

Coalescers

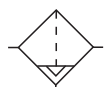
Regulators

Lubricators

Combinations

35F / 43F Particulate Filters – Hi-Flow

- Heavy-duty cast aluminum housings to withstand operating pressures up to 250 psig*
- Differential pressure indicator to eliminate the guesswork of element replacement
- Differential pressure gauge available, order separately, kit DP3-01-000
- Unique drain mounting plate design offers a trouble-free method for interchanging and installing external drains
- 1-1/2" & 2" (35F), 3" (43F) ports, NPT & BSPP



Auto Drain



| Port size | Description | Part number |
|-----------|-------------------------|-----------------|
| 1-1/2" | Metal bowl / auto drain | 35F77BAP |
| 2" | Metal bowl / auto drain | 35F87BAP |
| 3" | Metal bowl / auto drain | 43FN7BAP |

Operating information

Supply pressure (max):

With pressure gauge

without DPI*

with DPI

250 psig (17.2 bar)

150 psig (10.3 bar)

Operating temperature:

32°F to 150°F (0°C to 65.6°C)

Flow capacity†:

High flow

1-1/2"

2"

3"

1280 scfm (604.1 dm³/s, ANR)

1400 scfm (660.7 dm³/s, ANR)

2900 scfm (1368.6 dm³/s, ANR)

Bowl capacity:

35F

43F

13.9 oz.

17.2 oz.

Standard Filtration:

5 micron

Weight:

35F

43F

19.3 lb (8.7 kg)

32.8 lb (14.9 kg)

† scfm = Standard cubic feet per minute at 90 psig inlet and 5 psig pressure drop.

* Without differential pressure indicator, max supply pressure is 250 psig (17.2 bar).

Ordering information:

| | | | | | | |
|----------------------------------------------------------------------------|----------|----------------------------|----------|----------|----------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 35F | 7 | 7 | B | A | P | |
| Port Size 1-1/2 inch (35F) 7 2 inch (35F) 8 3 inch (43F) N | | | | | | Port Threads Blank NPT 1 BSPP |
| Bowl Metal without sight gauge, auto float drain | 7 | | | | | Options N Without differential pressure indicator P* With differential pressure indicator G** With differential pressure gauge |
| | | Element 5 Micron | B | | | Element A Current |

* Maximum pressure rating 150 psig (10.3 bar).
 ** Gauge ships loose

Most popular.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

H8

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Hi-Flow Particulate Filters

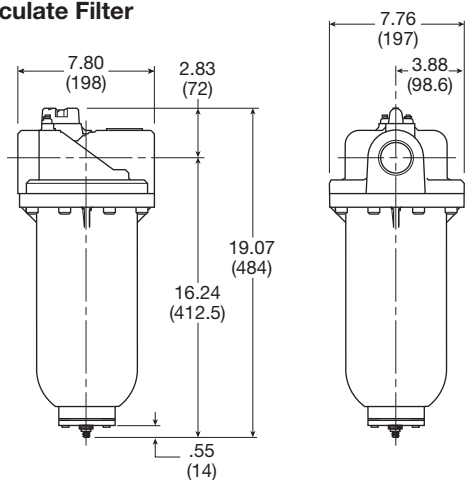
Material Specifications

| | |
|------------------|--------------|
| Baffle | Plated steel |
| Body | Aluminum |
| Bowls | Aluminum |
| Deflector | Plated steel |
| Element retainer | Plated steel |
| Filter element | Polyethylene |
| Seals | Fluorocarbon |
| Stud | Plated steel |

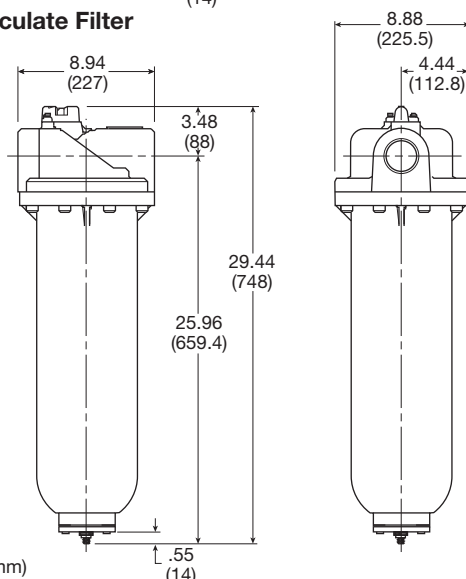
Repair and Service Kits

| | |
|--------------------------------------------------------------------|-------------------|
| Differential pressure indicator cap For pressures over 150 psig | GRP-95-022 |
| Differential pressure gauge | DP3-01-000 |
| Differential pressure indicator | DP2-02-001 |
| Auto drain, 1/8 NPT | GRP-95-981 |
| Drain plate kit, 1/2 NPT tapped drain port | GRP-95-393 |
| Element, 5 micron (35F) | FRP-95-505 |
| Element, 5 micron (43F) | FRP-95-508 |
| Manual drain kit with 1/2" drain plate | GRP-95-392 |

35F Particulate Filter



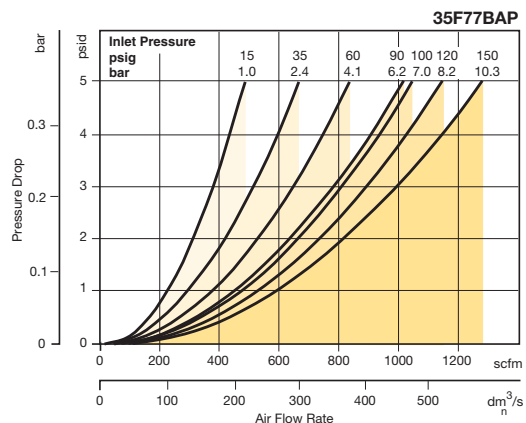
43F Particulate Filter



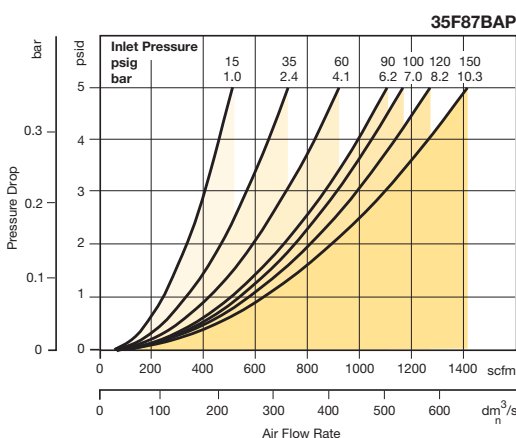
Air Preparation Products General Industrial

Flow Charts

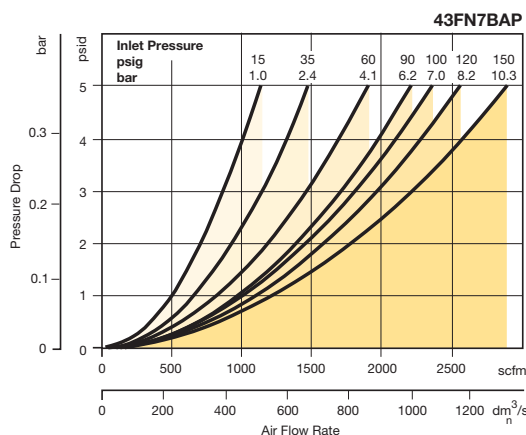
35F, 1-1/2" Particulate Filter



35F, 2" Particulate Filter



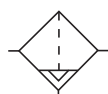
43F, 3" Particulate Filter



35F / 43F Coalescing Filters – Hi-Flow

- Heavy-duty cast aluminum housings to withstand operating pressures up to 250 psig*
- Differential pressure indicator to eliminate the guesswork of element replacement
- Differential pressure gauge available, order separately, kit DP3-01-000
- Unique drain mounting plate design offers a trouble-free method for interchanging and installing external drains
- High-flow filter elements: coalescing, 1 micron and 0.01 micron
- 1-1/2", 2", 3" ports (NPT, BSPP, BSPT)

* Without Differential Pressure Indicator – Max. supply pressure is 250 psig (20.1 bar).



Auto Drain

| Port size | Description | Part number |
|-----------|--------------------------|-----------------|
| 1-1/2" | 0.01 micron / auto float | 35F77EAP |
| 1-1/2" | 1.0 micron / auto float | 35F77HAP |
| 2" | 0.01 micron / auto float | 35F87EAP |
| 2" | 1.0 micron / auto float | 35F87HAP |
| 3" | 0.01 micron / auto float | 43FN7EAP |
| 3" | 1.0 micron / auto float | 43FN7HAP |



Operating information

Supply pressure (max):

| | |
|----------------------------------|---------------------|
| With pressure gauge without DPI* | 250 psig (17.2 bar) |
| with DPI | 150 psig (10.3 bar) |

Operating temperature: 32°F to 150°F (0°C to 65.6°C)

Flow capacity†:

| | | |
|-----------|--------------|----------------------------|
| High flow | (35F) 1-1/2" | 710 scfm (335 dm³/s, ANR) |
| | (35F) 2" | 710 scfm (335 dm³/s, ANR) |
| | (43F) 3" | 1770 scfm (835 dm³/s, ANR) |

Bowl capacity: 35F 13.9 oz.
43F 17.2 oz.

Standard Filtration: 0.01 & 1 micron

Weight: 35F 19.3 lb (8.7 kg)
43F 32.8 lb (14.9 kg)

† scfm = Standard cubic feet per minute at 90 psig inlet and 5 psig pressure drop.

* Filtration temperature of 70°F (21°C) @ 100 psig (6.9 bar) with typical compressor lubricating oil and protected by 0.01 micron filter.

Ordering information:

| | | | | | | |
|----------------------------------------------------------------------------|----------|--------------------------------------------------------------|----------|--------------------------------------------------------------------------------------------------------|----------|--|
| 35F | 7 | 7 | H | A | P | |
| Port Size 1-1/2 inch (35F) 7 2 inch (35F) 8 3 inch (43F) N | | Bowl Metal without sight gauge, auto float drain 7 | | Port Threads Blank NPT 1 BSPP 2 BSPT | | |
| | | Element 0.01 Micron E 1 Micron H | | Options N Without differential pressure indicator P* With differential pressure indicator | | |
| | | | | Engineering Level A Current | | |

* Maximum pressure rating 150 psig.

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H10

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Hi-Flow Coalescing Filters

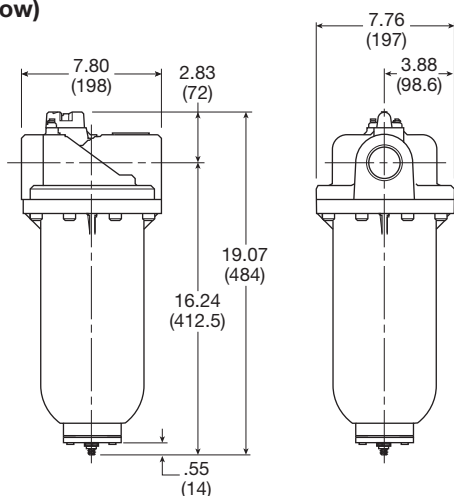
Material Specifications

| | |
|----------------|--------------------|
| Body | Aluminum |
| Bowls | Aluminum |
| Filter element | Borosilicate cloth |
| Seals | Fluorocarbon |
| Stud | Plated steel |

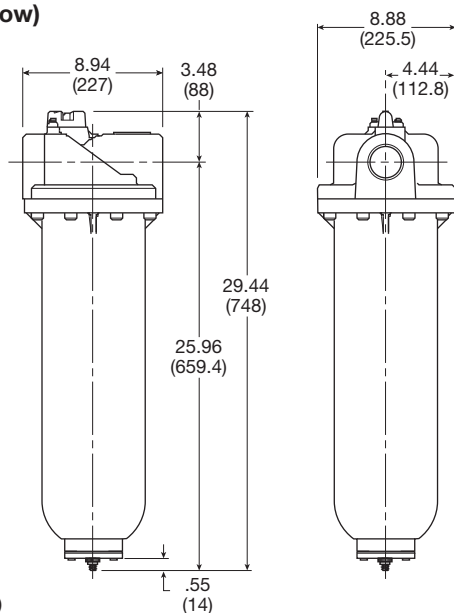
Repair and Service Kits

| | |
|-------------------------------------------------------------------|-------------------|
| Differential pressure indicator cap – for pressures over 150 psig | GRP-95-022 |
| Differential pressure indicator | DP2-02-001 |
| Drain, automatic, internal, fluorocarbon, 1/8 NPT | GRP-95-981 |
| Drain plate kit, 1/2 NPT tapped drain port | GRP-95-393 |
| 35F: 0.01 Micron element | MTP-95-502 |
| 35F: 1.0 Micron element | MSP-95-502 |
| 43F: 0.01 Micron element | MTP-95-562 |
| 43F: 1.0 Micron element | MSP-95-876 |
| Manual drain kit with 1/2" drain plate | GRP-95-392 |

35F (Hi-Flow)



43F (Hi-Flow)

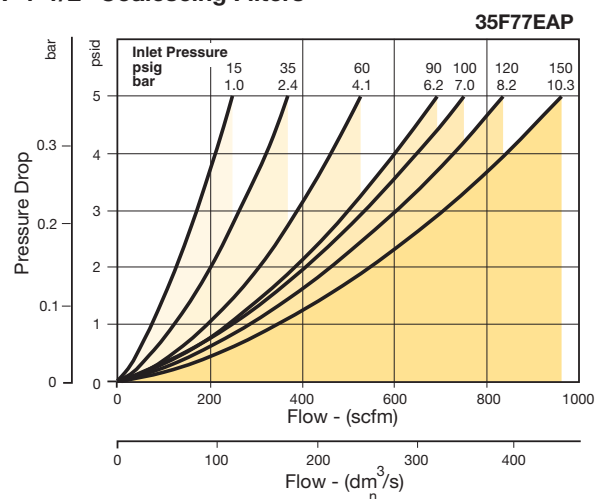


Inches (mm)

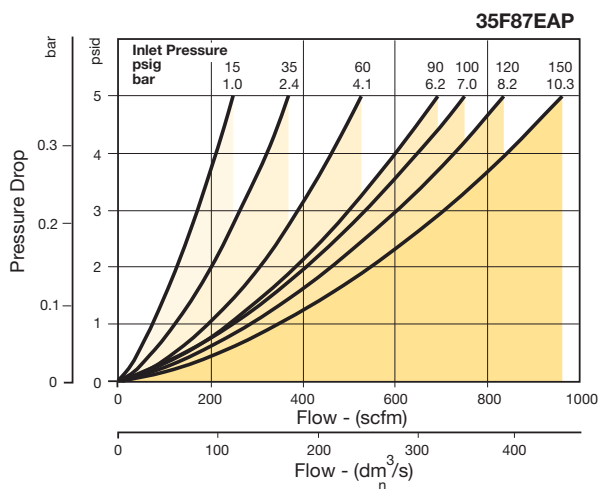
Air Preparation Products General Industrial

Flow Charts

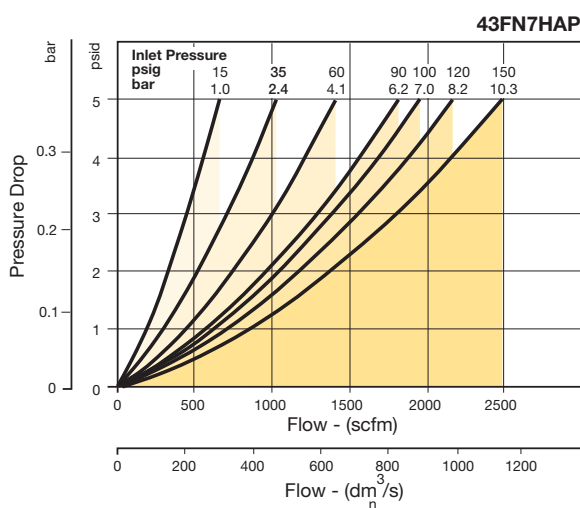
35F 1-1/2" Coalescing Filters



35F 2" Coalescing Filters



43F 3" Coalescing Filters



For inventory, lead time, and kit lookup, visit www.pdnplu.com

H11

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

General Industrial
Products

H

Filters

Coalescers

Regulators

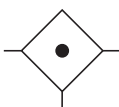
Lubricators

Combinations

F701 Coalescing Filters – Hi-Flow

- Removes liquid aerosols and sub-micron particles.
- Protects pneumatic systems from contamination that standard particulate filters will not catch.
- Two different grade elements available.
- Differential pressure indicator (pop-up) standard.
- Differential pressure gauge optional.
- High flow design
- 3/4", 1" ports (NPT, BSPP)

Note: All coalescing filters should be protected by a particulate filter (i.e., F602, or other) installed upstream.



| Port size | Description | Part number |
|-----------|--------------------------------------|-------------------|
| 3/4" | 32 oz. metal bowl, grade 6 element | F701-06E3P |
| 3/4" | 100 oz. metal bowl, grade 6 element | F701-06L3P |
| 3/4" | 32 oz. metal bowl, grade 10 element | F701-06E7P |
| 3/4" | 100 oz. metal bowl, grade 10 element | F701-06L7P |
| 1" | 32 oz. metal bowl, grade 6 element | F701-08E3P |
| 1" | 100 oz. metal bowl, grade 6 element | F701-08L3P |
| 1" | 32 oz. metal bowl, grade 10 element | F701-08E7P |
| 1" | 100 oz. metal bowl, grade 10 element | F701-08L7P |



Operating information

| | | |
|------------------------------|---------|-------------------------------|
| Supply pressure (max): | | |
| Manual drains | | 0 to 300 psig (0 to 20.7 bar) |
| Auto drains | | |
| "R" low pressure internal | | 175 psig (12.0 bar) |
| "T" High pressure internal | | 250 psig (17.2 bar) |
| "Q" external | | 250 psig (17.2 bar) |
| Operating pressure drop: | | |
| Normal | Dry | 2 psig (0.14 bar) |
| | Wet | 5 psig (0.34 bar) |
| Max recommended | | 10 psig (0.7 bar) |
| (Element should be replaced) | | |
| Minimum recommended flow: | | 20% nominal rating of element |
| Operating temperature (max): | | 32°F to 150°F (0°C to 65°C) |
| "R", "T", "Q" drains | | 125°F (52°C) |
| Flow capacity†: | | |
| Grade 6 | 32 oz* | 95 scfm (44.8 dm³/s, ANR) |
| (0.01 micron) | 100 oz* | 170 scfm (80 dm³/s, ANR) |
| Grade 10 | 32 oz* | 158 scfm (75 dm³/s, ANR) |
| (1.0 micron) | 100 oz* | 285 scfm (135 dm³/s, ANR) |
| Weight: | | |
| | 32 oz | 5.0 lb (2.3 kg) |
| | 100 oz | 8.0 lb (3.6 kg) |

† scfm = Standard cubic feet per minute at 90 psig inlet and 5 psig pressure drop.

* Dry media flow, for wet media flow information see table on next page.

Ordering information:

| F701 | — | 06 | W | 3 | | /** | | | | | | | | | | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|----------|--------------------|--------|-------|------------------------------------------------------------------------------------------------------------------------|---|-----------------------------------|-------------------|---------------------|-----|----------------------------------|
| <table><tr><th colspan="2">Port Threads</th></tr><tr><td>NPT</td><td>—</td></tr><tr><td>G BSPP</td><td>G</td></tr></table> | | Port Threads | | NPT | — | G BSPP | G | <table><tr><th colspan="2">Port Size</th></tr><tr><td>3/4 inch</td><td>06</td></tr><tr><td>1 inch</td><td>08</td></tr></table> | | Port Size | | 3/4 inch | 06 | 1 inch | 08 | <table><tr><th colspan="2">Engineering Level</th></tr><tr><td>/**</td><td>Will be entered at factory</td></tr></table> | | | Engineering Level | | /** | Will be entered at factory |
| Port Threads | | | | | | | | | | | | | | | | | | | | | | |
| NPT | — | | | | | | | | | | | | | | | | | | | | | |
| G BSPP | G | | | | | | | | | | | | | | | | | | | | | |
| Port Size | | | | | | | | | | | | | | | | | | | | | | |
| 3/4 inch | 06 | | | | | | | | | | | | | | | | | | | | | |
| 1 inch | 08 | | | | | | | | | | | | | | | | | | | | | |
| Engineering Level | | | | | | | | | | | | | | | | | | | | | | |
| /** | Will be entered at factory | | | | | | | | | | | | | | | | | | | | | |
| <table><tr><th colspan="2">Bowl</th></tr><tr><td>32 oz. Metal without sight gauge</td><td>E</td></tr><tr><td>100 oz. Metal without sight gauge</td><td>L</td></tr></table> | | | Bowl | | 32 oz. Metal without sight gauge | E | 100 oz. Metal without sight gauge | L | <table><tr><th colspan="2">Drains and Options</th></tr><tr><td>Blank</td><td>Manual twist drain</td></tr><tr><td>T</td><td>High pressure internal auto drain</td></tr><tr><td>Q*</td><td>External auto drain</td></tr><tr><td>R</td><td>Low pressure internal auto drain</td></tr></table> | | | | Drains and Options | | Blank | Manual twist drain | T | High pressure internal auto drain | Q* | External auto drain | R | Low pressure internal auto drain |
| Bowl | | | | | | | | | | | | | | | | | | | | | | |
| 32 oz. Metal without sight gauge | E | | | | | | | | | | | | | | | | | | | | | |
| 100 oz. Metal without sight gauge | L | | | | | | | | | | | | | | | | | | | | | |
| Drains and Options | | | | | | | | | | | | | | | | | | | | | | |
| Blank | Manual twist drain | | | | | | | | | | | | | | | | | | | | | |
| T | High pressure internal auto drain | | | | | | | | | | | | | | | | | | | | | |
| Q* | External auto drain | | | | | | | | | | | | | | | | | | | | | |
| R | Low pressure internal auto drain | | | | | | | | | | | | | | | | | | | | | |
| * Q option not available with bowl option L. | | | | | | | | | | | | | | | | | | | | | | |
| | | | | <table><tr><th colspan="2">Element</th></tr><tr><td>3</td><td>Grade 6</td></tr><tr><td>7</td><td>Grade 10</td></tr></table> | | | Element | | 3 | Grade 6 | 7 | Grade 10 | | | | | | | | | | |
| Element | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Grade 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | Grade 10 | | | | | | | | | | | | | | | | | | | | | |

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H12

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

Hi-Flow Coalescing Filters

Material Specifications

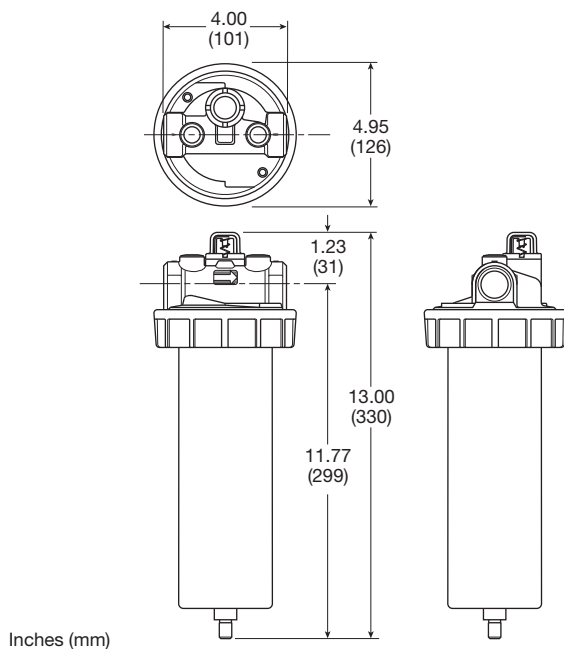
| | |
|-----------------------------------------------|----------------------------|
| Body & flange ring | Zinc |
| Metal bowl (E) (L) | Aluminum |
| Auto float drain, housing "R", "T" (internal) | Acetal |
| Auto float drain, housing "Q" (external) | Bronze |
| Auto float drain, manual twist drain | Brass |
| Seals & float | Buna N |
| Springs | Stainless steel |
| Element (media) | Borosilicate fibers & felt |
| Element end caps | Urethane |
| Seals | Buna N |

Repair and Service Kits

| | |
|-----------------------------------------------------------------------------------------------|---------------------|
| Bracket - 3/4 (pair of pipe mounted brackets) | SA200AW57 |
| Bracket - 1 (pair of pipe mounted brackets) | SA200CW57 |
| 32 oz bowl kit - 3/4, 1 inch (E) | BK603B |
| 32 oz bowl kit - 3/4, 1 inch (L) 100 oz. | BK603C |
| Differential pressure pop up Indicator repair kit (only works with originally equipped units) | RK701P |
| Differential pressure gauge (only works on units without pop-up indicator) | DP276-P |
| Internal automatic drain kit, high pressure (T) | SA702MD |
| Manual twist drain kit | SA600Y7-1 |
| Grade 6 element - 3/4, 1 Inch (E) 32 oz. | F701-C3-0773 |
| Grade 6 element - 3/4, 1 Inch (L) 100 oz. | F701-C3-0774 |
| Grade 10 element - 3/4, 1 Inch (E) 32 oz. | F701-C7-0773 |
| Grade 10 element - 3/4, 1 Inch (L) 100 oz. | F701-C7-0774 |

() = Bowl Type

F701 - 32 oz. bowl (Hi-Flow)

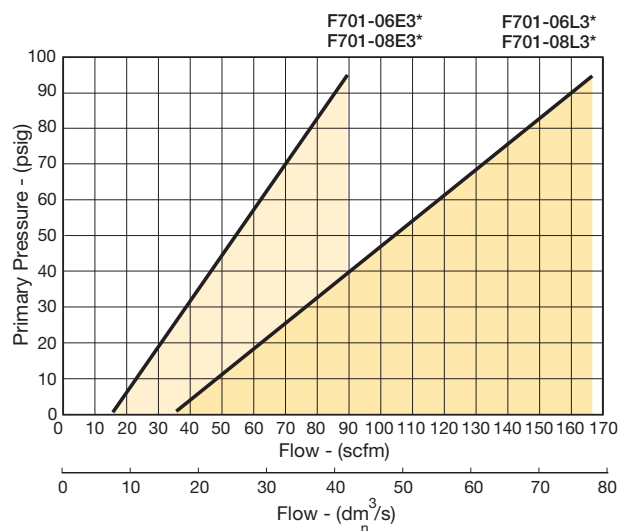


Inches (mm)

Air Preparation Products General Industrial

Flow Charts

F701 3/4" & 1" Coalescing Filter



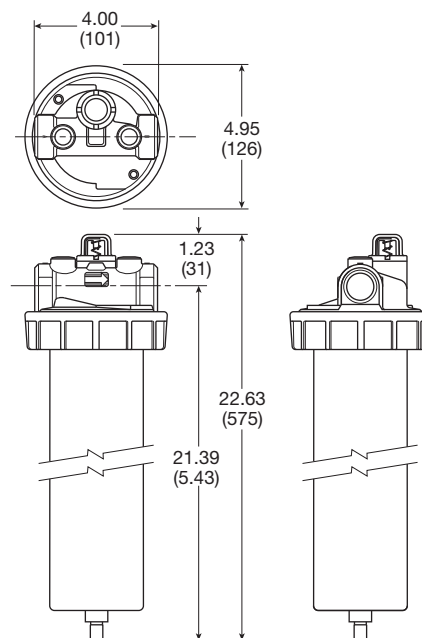
Media Specifications

| Grade | D.O.P. Coalescing efficiency 0.3 to 0.6 micron particles | Maximum oil carryover ¹ PPM w/w | Pressure drop (PSID) ² @ rated flow | |
|-------|-------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------|---------------------------------|
| | | | Media dry | Media Wet with 10-20 wt. oil |
| 6 | 99.97% | 0.008 | 1.0 | 2-3 |
| 10 | 95% | 0.85 | 0.5 | 0.5 |

¹ Tested per BCAS 860900 at 40 ppm inlet.² Add dry + wet for total pressure drop.

D.O.P. = Dioctylphthalate

F701 - 100 oz. bowl (Hi-Flow)



P3TF Series Flanged Coalescing Filters

- No tie rod element design
- Pleated element technology
- New high efficiency drainage layer
- Designed in accordance with ASME and CRN
- Connection sizes: 4" & 6" flange
- Acrylic polyurethane coating for corrosion protection



| Port size | Element type | Number of elements | Part number |
|-----------|--------------|--------------------|--------------------|
| 4" | 0.01 micron | 4 | P3TFAFFD2AN |
| 4" | 1.0 micron | 4 | P3TFAFFQ2AN |
| 6" | 0.01 micron | 6 | P3TFAFGD3AN |
| 6" | 1.0 micron | 6 | P3TFAFGQ3AN |

Operating information

| | |
|------------------------------------------------------------------------------------|--------------------------------|
| Supply pressure (max): | 232 psig (16 bar) |
| Operating temperature: | 35°F to 212°F (1.5°C to 100°C) |
| Flow capacity†: | 4" 2119 scfm (1000 dm³/s, ANR) |
| | 6" 4132 scfm (1950 dm³/s, ANR) |
| Standard Filtration: | 0.01 & 1 micron |
| † scfm = Standard cubic feet per minute at 90 psig inlet and 5 psig pressure drop. | |

Material Specifications

| | |
|-----------|--------------------|
| Body | Steel |
| Baffle | Plated steel |
| Deflector | Plated steel |
| Element | Borosilicate cloth |
| Seals | Fluorocarbon |
| Stud | Plated steel |

Repair and Service Kits

| | |
|---------------------------------------|----------------------|
| Dp gauge replacement kit | DPG-Kit |
| Drain kit - 1/2" NPT | HDF-120-NPT-A |
| 0.01 Micron element (4 or 6 required) | PSY1035002 |
| 1.0 Micron element (4 or 6 required) | PSY1035001 |

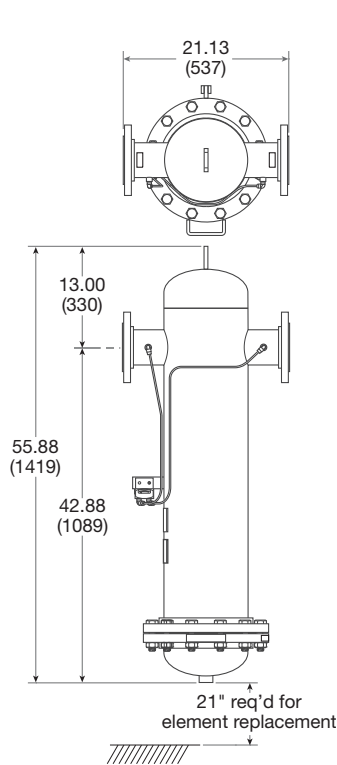
 Most popular.



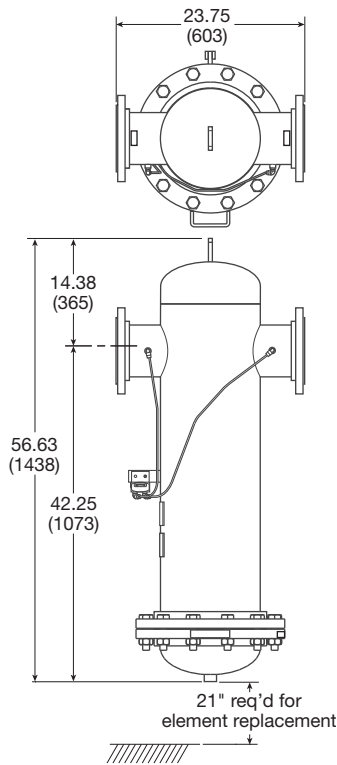
For inventory, lead times, and kit lookup, visit www.pdnplu.com

H14

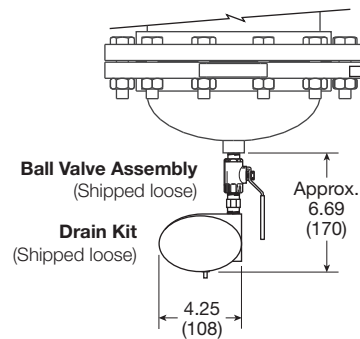
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics



P3TFAFFD2AN & P3TFAFFQ2AN

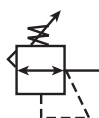


P3TFAFGD3AN & P3TFAFGQ3AN



R119 Regulators – Standard

- High flow performance featuring rugged design for the most demanding applications
- Ideal for those installations calling for constant pressure with wide variation in flow
- Diaphragm operated design with balanced poppet design for quick and accurate regulation
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Heavy duty tee handle adjustment
- Reverse flow version available
- Panel mount version available
- 1/4", 3/8", 1/2" ports (NPT, BSPP)



| Port size | Description (0-125 psig reduced pressure) | Part number |
|-----------|----------------------------------------------|------------------|
| 1/4" | Without gauge, relieving, NPT | R119-02C |
| 1/4" | With gauge, relieving, NPT | R119-02CG |
| 3/8" | Without gauge, relieving, NPT | R119-03C |
| 3/8" | With gauge, relieving, NPT | R119-03CG |
| 1/2" | Without gauge, relieving, NPT | R119-04C |
| 1/2" | With gauge, relieving, NPT | R119-04CG |

Operating information

| | |
|-------------------------|---------------------------------|
| Supply pressure (max): | 300 psig (0 to 20.7 bar) |
| Reduced pressure range: | 2 to 125 psig (0.15 to 8.5 bar) |
| Operating temperature: | 40°F to 125°F (4.4°C to 52°C) |
| Flow capacity†: | |
| High flow | 1/4" 100 scfm (47.2 dm³/s, ANR) |
| | 3/8" 110 scfm (51.9 dm³/s, ANR) |
| | 1/2" 150 scfm (70.8 dm³/s, ANR) |
| Gauge ports (2): | 1/4 inch |
| Weight: | 1/4" 1.8 lb (0.82 kg) |
| | 3/8" 1.8 lb (0.82 kg) |
| | 1/2" 3.2 lb (1.45 kg) |

† scfm = Standard cubic feet per minute at 100 psig inlet, 75 psig no flow secondary setting and 20 psig pressure drop.

Ordering information:

R119

| Port Threads | |
|--------------|---|
| NPT | - |
| G BSPP | G |

-

02

| Port Size | |
|-----------|----|
| 1/4 inch | 02 |
| 3/8 inch | 03 |
| 1/2 inch | 04 |

C

| Reduced Pressure Range | |
|------------------------|---|
| 0-25 psig | A |
| 0-60 psig | B |
| 0-125 psig | C |
| 0-250 psig | D |

/**

| Engineering Level | |
|-------------------|----------------------------|
| /** | Will be entered at Factory |

| Options | |
|---------|------------------------------------|
| Blank | None |
| G | Gauge |
| K† | Non-relieving |
| X64** | Fluorocarbon o-rings and diaphragm |
| X80* | Reverse flow |
| X7 | Brass bottom plug |

* Reverse flow for use downstream of control valves.
** Brass bottom plug standard with X64 option.
† Not available with 250 psig spring.

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H16

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Material Specifications

| | |
|--------------------------|--------|
| Adjusting screw, springs | Steel |
| Body, spring cage | Zinc |
| Bottom plug | Nylon |
| Innervale | Brass |
| Seals | Buna N |

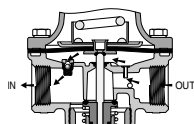
Repair and Service Kits

| | |
|---------------------------------------------------------------------|---------------------|
| 2" dial face 60 psig (0 to 4.1 bar), gauge | K4520N14060 |
| 2" dial face 160 psig (0 to 11.0 bar), gauge | K4520N14160 |
| 2" dial face 300 psig (0 to 20.7 bar), gauge | K4520N14300 |
| 1-3/4" digital round face 160 psig (0 to 11.0 bar), gauge | K4517N14160D |
| Mounting bracket, 1/4", 3/8" | SA15Y57 |
| Mounting bracket, 1/2" | 18A57 |
| Panel mount conversion kit, 1/4", 3/8" | 4202 |
| Panel mount conversion kit, 1/2" | 4204 |
| Non-relieving diaphragm, valve assembly (1/4", 3/8"; all psig) | RK118Y |
| Relieving diaphragm, valve assembly (1/4", 3/8"; all psig) | RK119Y |
| Non-Relieving diaphragm, valve assembly (1/2"; 25, 60, 125 psig) | RK118A |
| Relieving diaphragm, valve assembly (1/2"; 25, 60, 125 psig) | RK119A |
| Relieving diaphragm, valve assembly (1/2"; 250 psig) | RK119A250 |
| Spring cage & T-handle kit (1/4 & 3/8) | RKC119Y |
| Spring cage & insert only kit (1/2) | SAC18A3/BK |

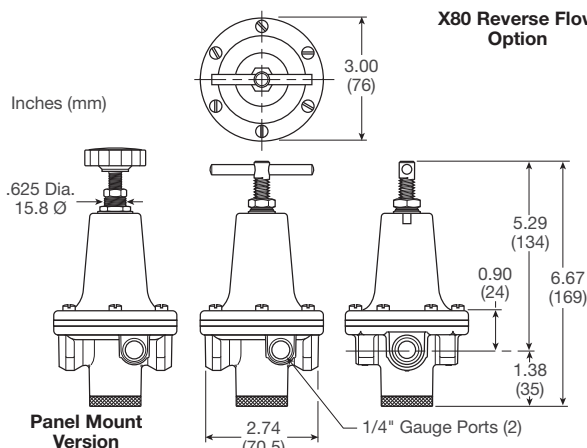
For fluorocarbon repair kits, add X64 to kit number suffix.

CAUTION:

REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.



X80 Reverse Flow Option

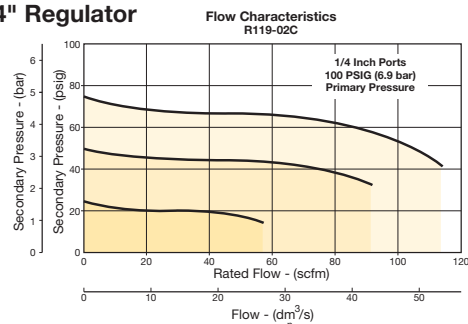


Air Preparation Products

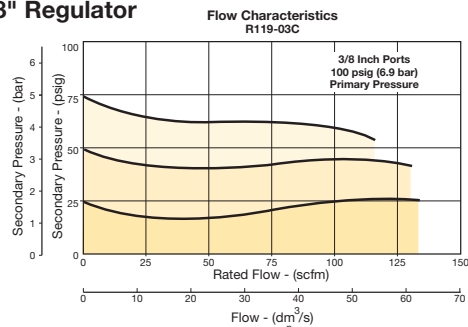
General Industrial

Flow Charts

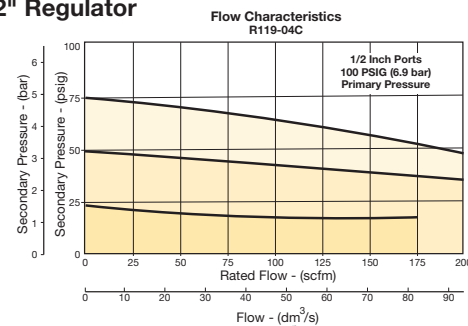
R119 1/4" Regulator



R119 3/8" Regulator



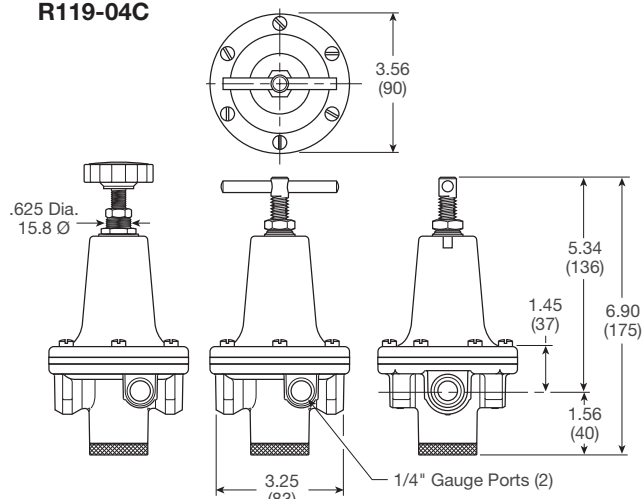
R119 1/2" Regulator



WARNING

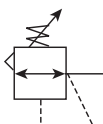
**Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.**

R119-04C



R119 Regulators – Hi-Flow

- High flow performance featuring rugged design for the most demanding applications
- Ideal for those installations calling for constant pressure with wide variation in flow
- Diaphragm operated design with balanced poppet design for quick and accurate regulation
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Heavy duty tee handle adjustment
- Reverse flow version available
- 3/4", 1", 1-1/2" ports (NPT, BSPP)



Operating information

| | |
|-------------------------|----------------------------------|
| Supply pressure (max): | 300 psig (0 to 20.7 bar) |
| Reduced pressure range: | 2 to 125 psig (0.15 to 8.5 bar) |
| Operating temperature: | 40°F to 125°F (4.4°C to 52°C) |
| Flow capacity†: | |
| High flow | 3/4" 300 scfm (141.6 dm³/s, ANR) |
| | 1" 400 scfm (188.8 dm³/s, ANR) |
| | 1-1/2" 500 scfm (236 dm³/s, ANR) |
| Gauge ports (2): | 1/4 inch |
| Weight: | |
| | 3/4" 6.2 lb (2.81 kg) |
| | 1" 6.2 lb (2.81 kg) |
| | 1-1/2" 7.2 lb (3.27 kg) |

† scfm = Standard cubic feet per minute at 100 psig inlet, 75 psig no flow secondary setting and 20 psig pressure drop.

| Port size | Description (0-125 psig reduced pressure) | Part number |
|-----------|----------------------------------------------|------------------|
| 3/4" | Without gauge, relieving, NPT | R119-06C |
| 3/4" | With gauge, relieving, NPT | R119-06CG |
| 1" | Without gauge, relieving, NPT | R119-08C |
| 1" | With gauge, relieving, NPT | R119-08CG |
| 1-1/2" | Without gauge, relieving, NPT | R119-12C |
| 1-1/2" | With gauge, relieving, NPT | R119-12CG |

Ordering information:

| | | | | | |
|------------------------------------------|----------|---------------------------------------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| R119 | - | 06 | C | | /** |
| Port Threads NPT - G BSPP G | | Port Size 3/4 inch 06 1 inch 08 1-1/2 inch 12 | | Engineering Level /** Will be entered at Factory | |
| | | Reduced Pressure Range 0-125 psig C 0-250 psig D | | Options Blank None G Gauge K Non-relieving X64** Fluorocarbon o-rings and diaphragm X80* Reverse flow X7 Brass Bottom Plug | |
| | | | | * Reverse flow for use downstream of control valves. ** Brass bottom plug standard with X64 option. | |

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H18

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

Material Specifications

| | |
|--------------------------|--------|
| Adjusting screw, springs | Steel |
| Body, spring cage | Zinc |
| Bottom plug | Nylon |
| Intervalve | Brass |
| Seals | Buna N |

Repair and Service Kits

| | |
|--------------------------------------------------------------|---------------------|
| 2" dial face 60 psig (0 to 4.1 bar), gauge | K4520N14060 |
| 2" dial face 160 psig (0 to 11.0 bar), gauge | K4520N14160 |
| 2" dial face 300 psig (0 to 20.7 bar), gauge | K4520N14300 |
| 1-3/4" digital round face 160 psig (0 to 11.0 bar), gauge | K4517N14160D |
| Mounting bracket kit | 18B57 |
| Non-relieving diaphragm, valve assembly (3/4", 1") | RK118B |
| Non-relieving diaphragm, valve assembly (1-1/2") | RK118D |
| Relieving diaphragm, valve assembly (3/4", 1") | RK119B |
| Relieving diaphragm, valve assembly (1-1/2") | RK119D |

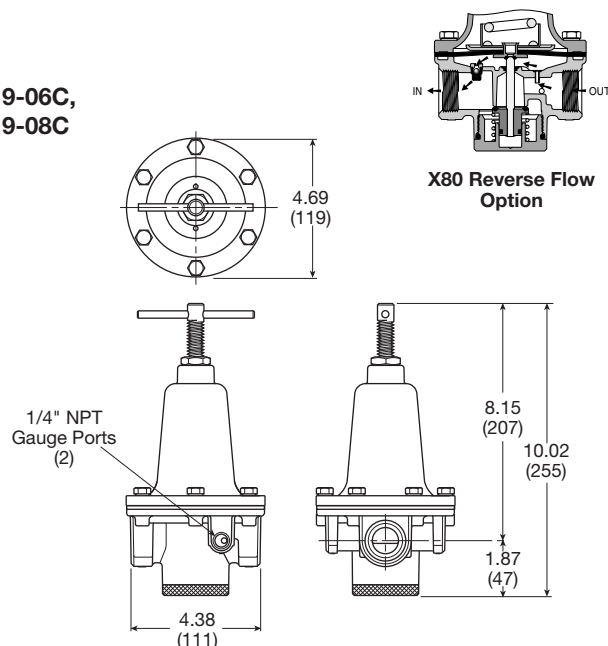
For Fluorocarbon Repair Kits, add X64 to kit number suffix.

**WARNING**

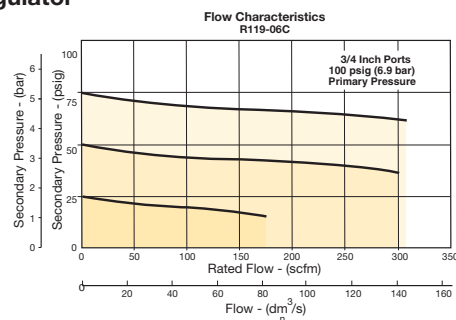
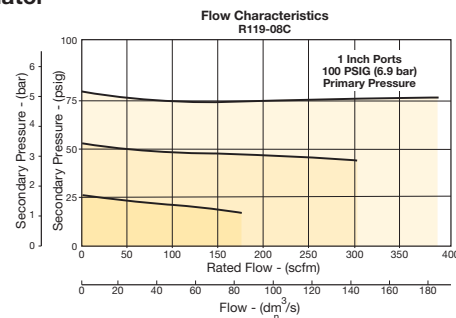
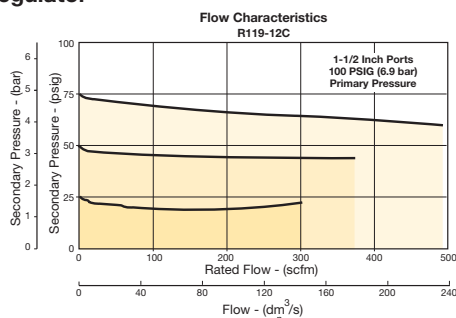
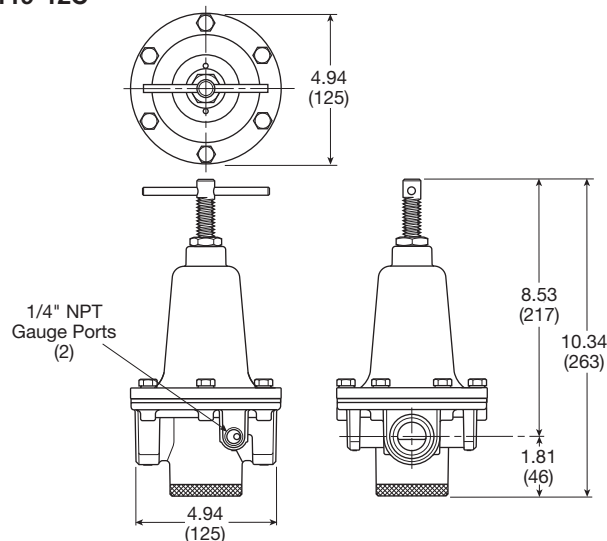
**Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.**

CAUTION:

REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

**R119-06C,
R119-08C**

Flow Charts

3/4" Regulator**1" Regulator****1-1/2" Regulator****R119-12C**

Inches (mm)



For inventory, lead time, and kit lookup, visit www.pdnplu.com

H19

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

General Industrial
Products

H

Filters

Coalescers

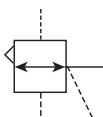
Regulators

Lubricators

Combinations

R119 – Pilot Operated Regulators

- Adapted for control by a remote or distant small pilot regulator. Ideal for maximum capacity requirements in applications where units are not readily accessible
- High flow performance featuring rugged design for the most demanding applications
- Ideal for those installations calling for constant pressure with wide variation in flow
- Diaphragm operated design with balanced poppet and constant bleed pilot for quick and accurate regulation.
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Reverse flow available
- 1/4", 3/8", 1/2" ports (NPT, BSPP)



| Port size | Description (0-125 psig reduced pressure) | Part number |
|-----------|----------------------------------------------|-----------------|
| 1/4" | Without gauge, relieving, NPT | R119-02J |
| 3/8" | Without gauge, relieving, NPT | R119-03J |
| 1/2" | Without gauge, relieving, NPT | R119-04J |

Operating information

| | |
|-------------------------|-------------------------------------------------------------------------------------------------------|
| Supply pressure (max): | 300 psig (0 to 20.7 bar) |
| Air consumption: | Constant bleed from air pilot chamber: approx. 0.17 scfm (10 scfh) |
| Operating temperature: | 40°F to 125°F (4.4°C to 52°C) |
| Pilot pressure: | 1/4", 3/8" thread - 1/8" 1/2" thread - 1/4" |
| Reduced pressure range: | Adjustable to within 5 to 7 psig (0.34 to 0.48 bar) of supply pressure |
| Flow capacity†: | |
| High flow | 1/4" 100 scfm (47.2 dm³/s, ANR) 3/8" 110 scfm (51.9 dm³/s, ANR) 1/2" 150 scfm (70.8 dm³/s, ANR) |
| Gauge ports (2): | 1/4 inch |
| Weight: | 1/4" 1.6 lb (0.73 kg) 3/8" 1.6 lb (0.73 kg) 1/2" 2.6 lb (1.18 kg) |

† scfm = Standard cubic feet per minute at 100 psig inlet, 75 psig no flow secondary setting and 20 psig pressure drop.

Ordering information:

R119

| Port Threads | |
|--------------|---|
| NPT | - |
| BSPP | G |

-

| Port Size | |
|-----------|----|
| 1/4 inch | 02 |
| 3/8 inch | 03 |
| 1/2 inch | 04 |

02

J

| Reduced Pressure Range | |
|------------------------|---|
| Air pilot operated | J |

/**

| Engineering Level | |
|-------------------|----------------------------|
| ** | Will be entered at Factory |

| Options | |
|---------|-------------------------------------------------|
| Blank | None |
| K | Non-relieving |
| X64* | Fluorocarbon o-rings and diaphragm |
| X71 | Non-bleed (for use with electronic controllers) |
| X7 | Brass bottom plug |

* Brass bottom plug standard with X64 option.

 Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H20

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Material Specifications

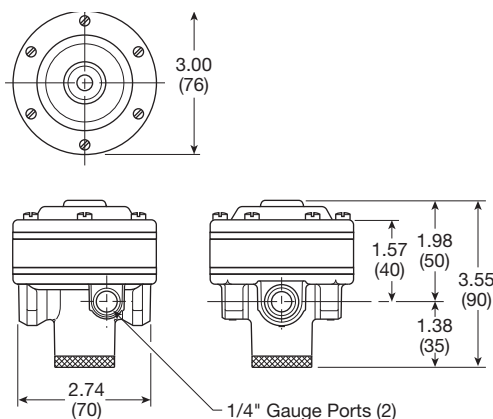
| | |
|-----------------------|--------|
| Body, ring, top plate | Zinc |
| Bottom plug | Nylon |
| Innervalue | Brass |
| Seals | Buna N |

Repair and Service Kits

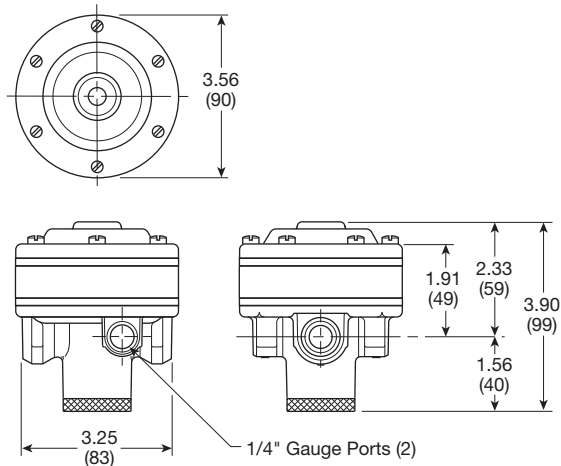
| | |
|--------------------------------------------------------------|---------------------|
| 2" dial face 60 psig (0 to 4.1 bar), gauge | K4520N14060 |
| 2" dial face 160 psig (0 to 11.0 bar), gauge | K4520N14160 |
| 2" dial face 300 psig (0 to 20.7 bar), gauge | K4520N14300 |
| 1-3/4" digital round face 160 psig (0 to 11.0 bar), gauge | K4517N14160D |
| Non-relieving diaphragm, valve assembly (1/2") | RK118X20A |
| Non-relieving diaphragm, valve assembly (1/4", 3/8") | RK118X20Y |
| Relieving diaphragm, valve assembly (1/2") | RK119X20A |
| Relieving diaphragm, valve assembly (1/4", 3/8") | RK119X20Y |

For fluorocarbon repair kits, add X64 to kit number suffix.
 For non-bleed pilot repair kits, add X71 to kit number suffix.

R119-02J, R119-03J



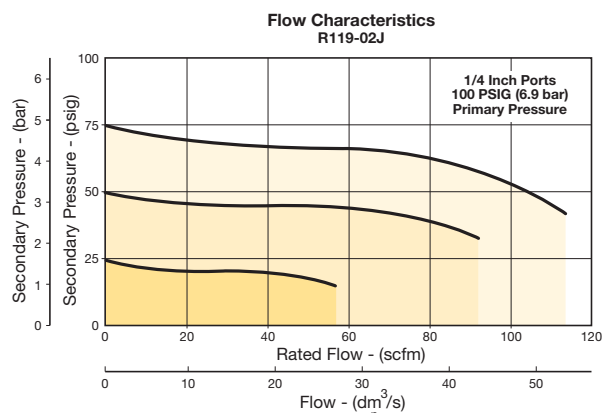
R119-04J



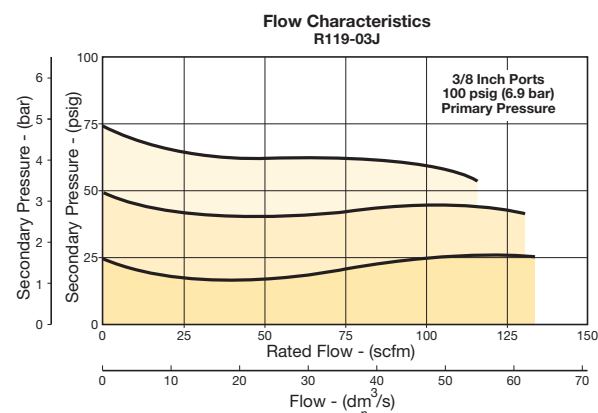
inches (mm)

Flow Charts

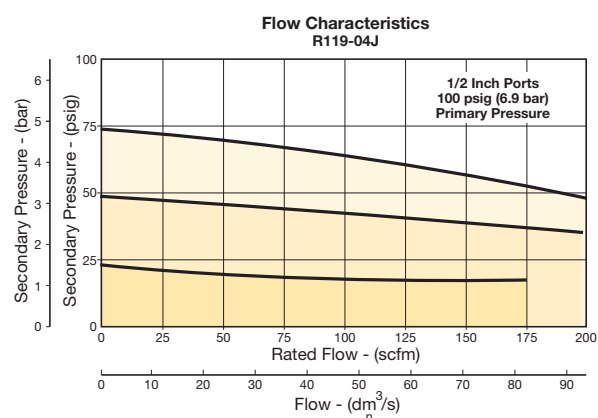
R119 1/4" Regulator



R119 3/8" Regulator



R119 1/2" Regulator

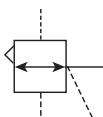


WARNING

**Product rupture can cause serious injury.
 Do not connect regulator to bottled gas.
 Do not exceed Maximum primary pressure rating.**

R119 Pilot Operated Regulators - Hi-Flow

- Adapted for control by a remote or distant small pilot regulator. Ideal for maximum capacity requirements in applications where units are not readily accessible
- High flow performance featuring rugged design for the most demanding applications
- Ideal for those installations calling for constant pressure with wide variation in flow
- Diaphragm operated design with balanced poppet and constant bleed pilot for quick and accurate regulation
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Reverse flow version available
- 3/4", 1", 1-1/2" ports (NPT, BSPP)



| Port size | Description (0-125 psig reduced pressure) | Part number |
|-----------|----------------------------------------------|-----------------|
| 3/4" | Without gauge, relieving, NPT | R119-06J |
| 1" | Without gauge, relieving, NPT | R119-08J |
| 1-1/2" | Without gauge, relieving, NPT | R119-12J |

Operating information

| | |
|-------------------------|--------------------------------------------------------------------------------------------------------|
| Supply pressure (max): | 300 psig (0 to 20.7 bar) |
| Air consumption: | Constant bleed from air pilot chamber: approx. 0.17 scfm (10 scfh) |
| Operating temperature: | 40°F to 125°F (4.4°C to 52°C) |
| Reduced pressure range: | Adjustable to within 5 to 7 psig (0.34 to 0.48 bar) of supply pressure |
| Flow capacity†: | |
| High flow | 3/4" 300 scfm (141.6 dm³/s, ANR) 1" 300 scfm (141.6 dm³/s, ANR) 1-1/2" 500 scfm (236 dm³/s, ANR) |
| Gauge ports (2): | 1/4 inch |
| Weight: | 3/4" 5.2 lb (2.36 kg) 1" 5.2 lb (2.36 kg) 1-1/2" 5.6 lb (2.54 kg) |

† scfm = Standard cubic feet per minute at 100 psig inlet, 75 psig no flow secondary setting and 20 psig pressure drop.

Ordering information:

| | | | | |
|----------------------------------------|----------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| R119 | - | 06 | J | /** |
| Port Threads NPT - BSPP G | | Port Size 3/4 inch 06 1 inch 08 1-1/2 inch 12 | | Engineering Level /** Will be entered at Factory |
| | | Reduced Pressure Range Air pilot operated J | Options Blank None K Non-relieving X64* Fluorocarbon o-rings and diaphragm X71 Non-bleed (for use with electronic controllers) X80 Reverse flow | |

* Brass bottom plug standard with X64 option.

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H22

Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

Hi-Flow Regulators

Material Specifications

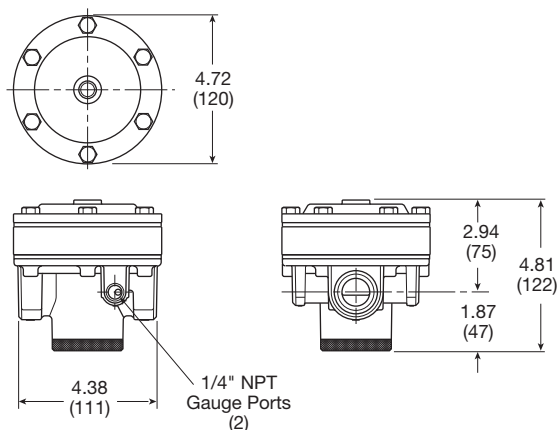
| | |
|-------------------------|--------|
| Body, ring, top plate | Zinc |
| Bottom plug, innervalue | Brass |
| Seals | Buna N |

Repair and Service Kits

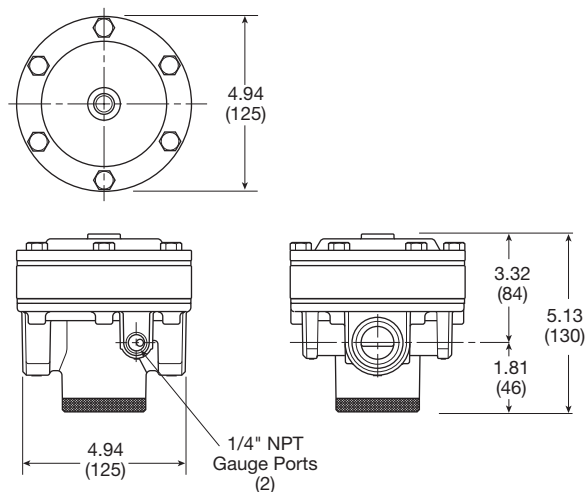
| | |
|--------------------------------------------------------------|---------------------|
| 2" dial face 60 psig (0 to 4.1 bar), gauge | K4520N14060 |
| 2" dial face 160 psig (0 to 11.0 bar), gauge | K4520N14160 |
| 2" dial face 300 psig (0 to 20.7 bar), gauge | K4520N14300 |
| 1-3/4" digital round face 160 psig (0 to 11.0 bar), gauge | K4517N14160D |
| Non-relieving diaphragm, valve assembly (3/4", 1") | RK118X20B |
| Non-relieving diaphragm, valve assembly (1-1/4", 1-1/2") | RK118X20D |
| Relieving diaphragm, valve assembly (3/4", 1") | RK119X20B |
| Relieving diaphragm, valve assembly (1-1/4", 1-1/2") | RK119X20D |

For Fluorocarbon Repair Kits, add X64 to Kit Number suffix.

R119-06J, R119-08J



R119-12J

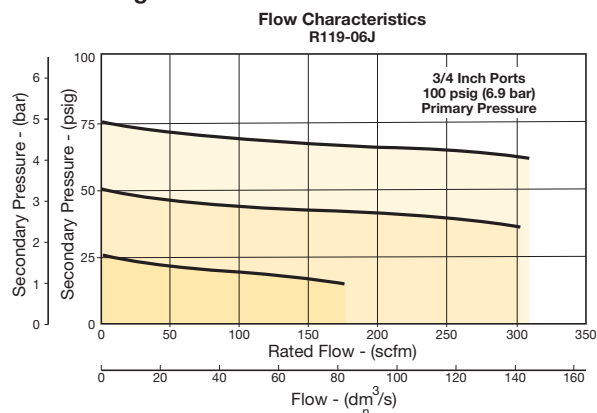


Inches (mm)

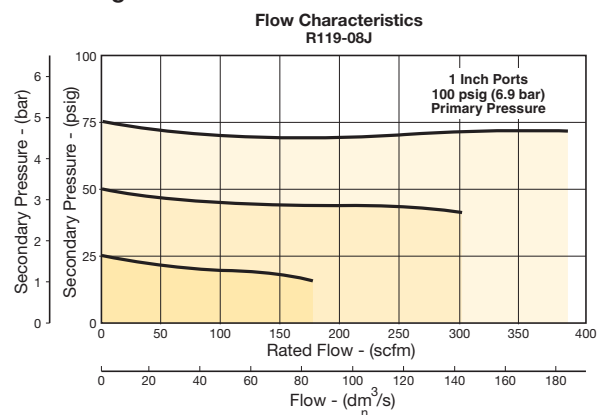
Air Preparation Products General Industrial

Flow Charts

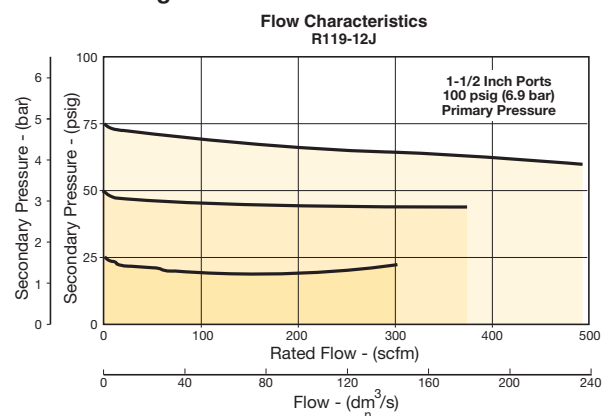
R119 3/4" Regulator



R119 1" Regulator



R119 1-1/2" Regulator

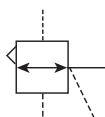


WARNING

Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

R119 Pilot Operated Regulators - Hi-Flow

- Adapted for control by a remote or distant small pilot regulator. Ideal for maximum capacity requirements in applications where units are not readily accessible
- High flow performance featuring rugged design for the most demanding applications
- Ideal for those installations calling for constant pressure with wide variation in flow
- Piston operated design with balanced poppet and dual constant bleed for quick and accurate regulation
- 2", 2-1/2" ports (NPT, BSPP)



| Port size | Description (0-125 psig reduced pressure) | Part number |
|-----------|----------------------------------------------|-----------------|
| 2" | Without gauge, relieving, NPT | R119-16J |
| 2-1/2" | Without gauge, relieving, NPT | R119-20J |

Operating information

| | |
|--------------------------------|---------------------------------------------------------------------------|
| Supply pressure (max): | 300 psig (0 to 20.7 bar) |
| Air consumption: | |
| Constant bleed from | Air pilot chamber: approx. 0.17 scfm (10 scfh) |
| | Reduced pressure: approx. 0.17 scfm (10 scfh) |
| Operating temperature: | 40°F to 120°F (4.4°C to 48.9°C) |
| Reduced pressure range: | Adjustable to within 5 to 7 psig (0.34 to 0.48 bar) of supply pressure |
| Flow capacity†: | |
| High flow | 2" 1800 scfm (850 dm³/s, ANR) |
| | 2-1/2" 1800 scfm (850 dm³/s, ANR) |
| Gauge ports (2): | |
| Can be used for full flow | 1/4 inch |
| High pressure outlet for pilot | 1/4 inch |
| Weight: | 15 lb (6.8 kg) |

† scfm = Standard cubic feet per minute at 100 psig inlet, 75 psig no flow secondary setting and 20 psig pressure drop.

Ordering information:

| | | | |
|---------------------|----------|-----------|-------------------------------|
| R119 | - | 16 | J |
| Port Threads | | | Reduced Pressure Range |
| NPT | - | | J Air pilot operated |
| BSPP | G | | |
| Port Size | | | |
| 2 inch | | 16 | |
| 2-1/2 inch | | 20 | |

NOTE: Non-relieving not available.

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H24

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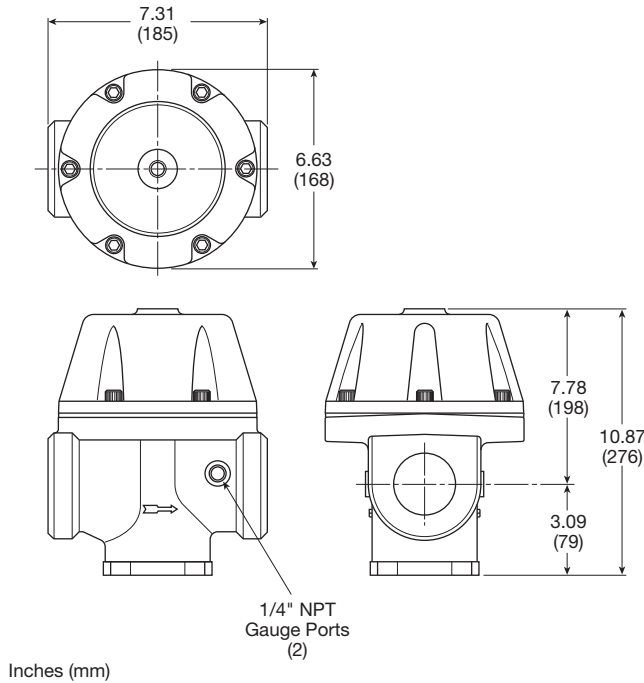
Material Specifications

| | |
|--------------|-------------------|
| Body, piston | Aluminum |
| Seals | Buna N |
| Innervolve | Brass & stainless |

Repair and Service Kits

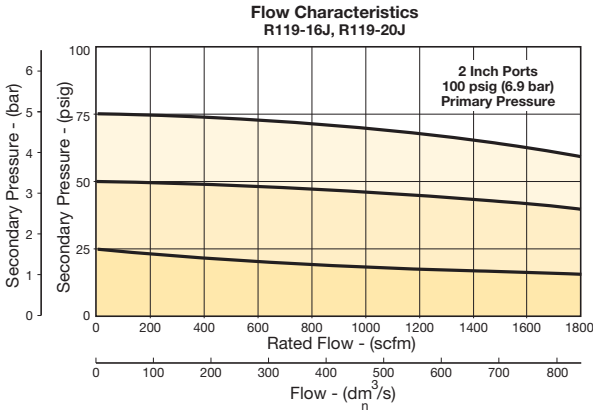
| | |
|--------------------------------------------------------------|---------------------|
| 2" dial face 60 psig (0 to 4.1 bar), gauge | K4520N14060 |
| 2" dial face 160 psig (0 to 11.0 bar), gauge | K4520N14160 |
| 2" dial face 300 psig (0 to 20.7 bar), gauge | K4520N14300 |
| 1-3/4" digital round face 160 psig (0 to 11.0 bar), gauge | K4517N14160D |
| Piston type regulation (2", 2-1/2") | RK119G |

R119-16J, R119-20J



Flow Charts

R119 2" Regulator

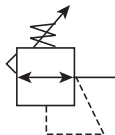


WARNING

**Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.**

09R Regulators – Hi-Flow

- Piston design for reduced downtime
- High flow
- Balanced poppet for quick and accurate regulation.
- Two full flow 1/4" gauge ports which can be used as additional outlets
- Self relieving piston standard
- 2" ports (NPT)



| Port size | Description | Part number |
|-----------|--------------------------|-----------------|
| 2" | Without gauge, relieving | 09R813BA |

Operating information

Supply pressure (max):

300 psig (0 to 20.7 bar)

Secondary pressure range:

10 to 125 psig (0.7 to 8.6 bar)
10 to 180 psig (0.7 to 12.4 bar)

Operating temperature:

32°F to 150°F (0°C to 65.6°C)

Flow capacity†:

High flow

1000 scfm (472 dm³/s, ANR)

Gauge ports (2):

1/4 inch
(can be used as additional full flow 1/4 inch outlet ports)

Weight:

10.82 lb (53 kg)

† scfm = Standard cubic feet per minute at 100 psig inlet, 90 psig no flow secondary setting and 10 psig pressure drop.

Ordering information:

09R

8

13

B

A

Port Threads

2 inch

8

Pressure Range

125 psig

13

180 psig

15

Engineering Level

A

Current

Relief

B

Relieving

M

Non-relieving

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

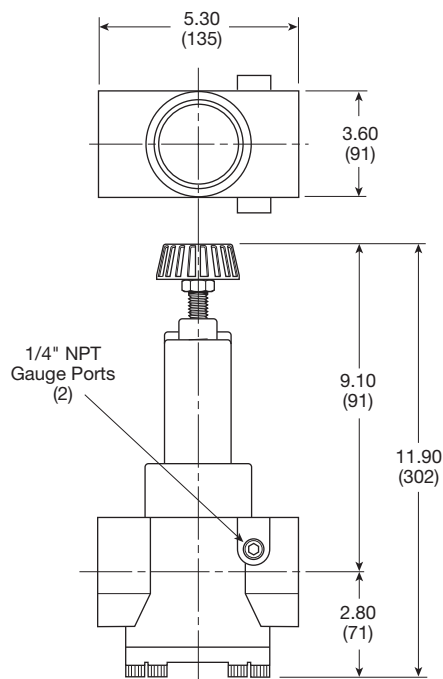
Hi-Flow Regulators

Material Specifications

| | |
|-----------------------------------------|------------|
| Adjusting stem & springs | Steel |
| Body | Zinc Alloy |
| Bonnet, piston stem, valve poppet & cap | Aluminum |
| Piston, cap | Plastic |
| Seals | Nitrile |

Repair and Service Kits

| | |
|--------------------------------------------------------------|---------------------|
| Body service kit | PS603P |
| 2" dial face 160 psig (0 to 11.0 bar), gauge | K4520N14160 |
| 2" dial face 300 psig (0 to 20.7 bar), gauge | K4520N14300 |
| 1-3/4" digital round face 160 psig (0 to 11.0 bar), gauge | K4517N14160D |
| Mounting bracket kit | PS605P |
| Non-relieving | PS604P |
| Relieving | PS626P |
| 0 to 125 psig spring | PS602P |
| 0 to 180 psig spring | PS627 |

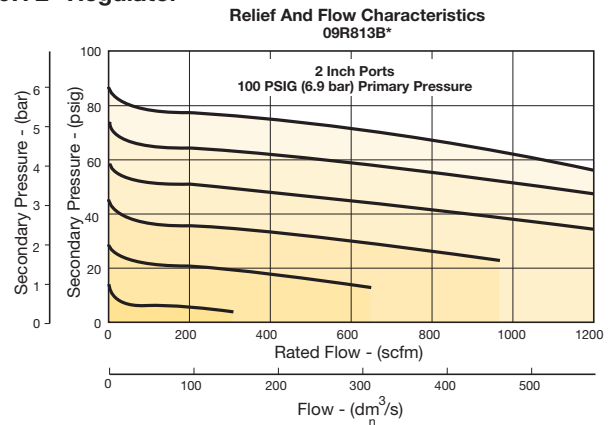


Inches (mm)

Air Preparation Products General Industrial

Flow Charts

09R 2" Regulator



WARNING

**Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.**

CAUTION:

REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

L606 Lubricators – Standard

- Metal bowl with sight gauge - standard
- Polycarbonate sight dome
- Bowl can be filled while air line is under pressure
- Proportional oil delivery over a wide range of air flows
- Large capacity bowl
- Optional high capacity bowl(s) available
- Precision needle valve assures repeatable oil delivery and provides simple adjustment of delivery rate
- 3/4", 1" ports, (NPT, BSPP)



| Port size | Description | Part number |
|-----------|---------------------------------------------|-----------------|
| 3/4" | 16 oz. bowl with sight gauge, drain | L606-06W |
| 1" | 16 oz. bowl with sight gauge, drain | L606-08W |
| 3/4" | 32 oz. bowl without sight gauge, with drain | L606-06E |
| 1" | 32 oz. bowl without sight gauge, with drain | L606-08E |
| 3/4" | 64 oz. bowl with sight gauge, no drain | L606-06G |
| 1" | 64 oz. bowl with sight gauge, no drain | L606-08G |

Operating information

Supply pressure (max):

| | |
|-------------------------|---------------------|
| Aluminum (E) | 300 psig (20.7 bar) |
| Aluminum with gauge (G) | 150 psig (10.2 bar) |
| Zinc with gauge (W) | 250 psig (17.2 bar) |

Operating temperature:

| | |
|-------------------------|---------------------------------|
| Aluminum (E) | 40°F to 150°F (4.4°C to 65.6°C) |
| Aluminum with gauge (G) | 40°F to 125°F (4.4°C to 52°C) |
| Zinc with gauge (W) | 40°F to 150°F (4.4°C to 65.6°C) |

Flow capacity†:

| | | |
|-----------|------|-----------------------------|
| High flow | 3/4" | 325 scfm (153.4 dm³/s, ANR) |
| | 1" | 350 scfm (165.2 dm³/s, ANR) |

Bowl capacity:

| | |
|-------------------------|--------|
| Aluminum (E) | 32 oz. |
| Aluminum with gauge (G) | 64 oz. |
| Zinc with gauge (W) | 16 oz. |

Weight:

| | |
|-----------|------------------|
| 16 oz (W) | 4.2 lb (1.91 kg) |
| 32 oz (E) | 5.5 lb (2.49 kg) |
| 64 oz (G) | 7.2 lb (3.27 kg) |

† scfm = Standard cubic feet per minute at 100 psig inlet and 5 psig pressure drop.

() Bowl type.

Ordering information:

L606

-

06

W

/ **

Port Threads

| | |
|------|---|
| NPT | - |
| BSPP | G |

Port Size

| | |
|----------|----|
| 3/4 inch | 06 |
| 1 inch | 08 |

Bowl

| | |
|------------------------------------------------------|---|
| 32 oz. Large capacity without sight gauge with drain | E |
| 64 oz. Large capacity with sight gauge | G |
| 16 oz. Metal with sight gauge with drain | W |

Engineering Level

/ ** Will be entered at Factory

Options

| | |
|-------|------------------------------------------------------------|
| Blank | None |
| H | Button head fill fitting |
| X9* | Manual twist drain (increases product length by 9/16 inch) |

* Standard with "E" & "W" bowl, optional with "G" bowl.

Suggested Lubricant **F442 Oil**

Petroleum based oil of 100 to 200 SUS viscosity at 100°F (38°C) and an aniline point greater than 200°F (93°C)

(DO NOT USE OILS WITH ADDITIVES, COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, DETERGENTS, OR SYNTHETIC OILS.)

 Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

H28

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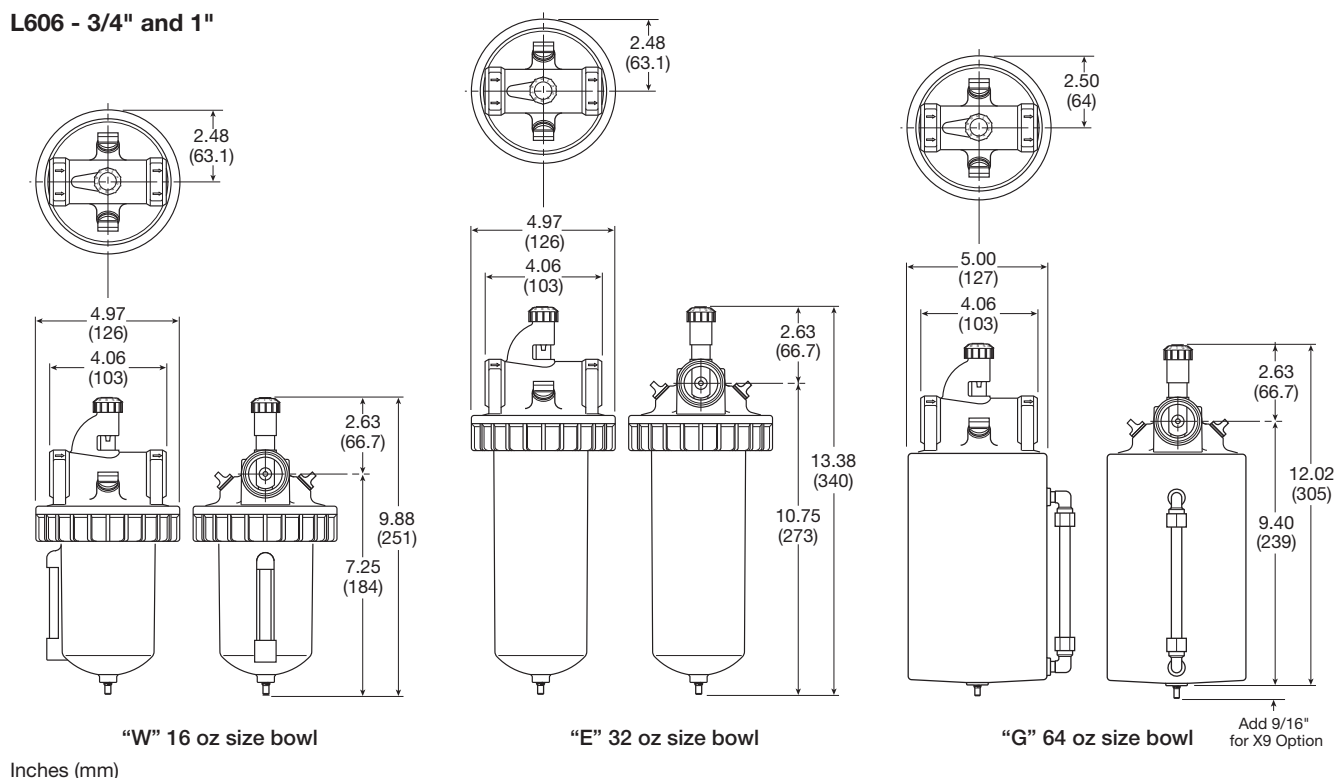
Material Specifications

| | |
|------------------|-----------------------------------------|
| Body | Zinc |
| Bowl, 32 oz. (E) | Aluminum |
| Bowl, 64 oz. (G) | Aluminum with polycarbonate sight gauge |
| Bowl, 16 oz. (W) | Zinc with nylon sight gauge |
| Seals | Buna N |

Repair and Service Kits

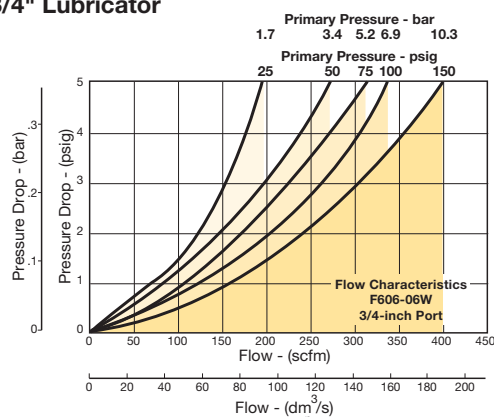
| | |
|------------------------------------------------------|-------------------|
| Adjusting knob | 606Y72 |
| Aluminum 32 oz bowl (E) | BK603B |
| Aluminum 64 oz bowl with sight gauge (G) | BK606X30B |
| Zinc 16 oz bowl with sight gauge (W) | BK609WB |
| Button head fill fitting (M14 male thread) | L606C14 |
| Dip tube kit | DTK606 |
| Drip spout kit | RK606SY |
| Mounting bracket, 3/4 Inch (2 required per unit) | SA200AW57 |
| Mounting bracket, 1 Inch units (2 required per unit) | SA200CW57 |
| Needle valve assembly (All) | RK606Y |
| Sight gauge bowl repair kit (W) | RKB605WB |
| Sight gauge bowl repair kit (G) | RKB606X30B |
| Oil (1 quart) | F442001 |
| Oil (1 gallon) | F442002 |
| Oil (12 quart case) | F442003 |
| Oil (4 gallon case) | F442005 |

L606 - 3/4" and 1"

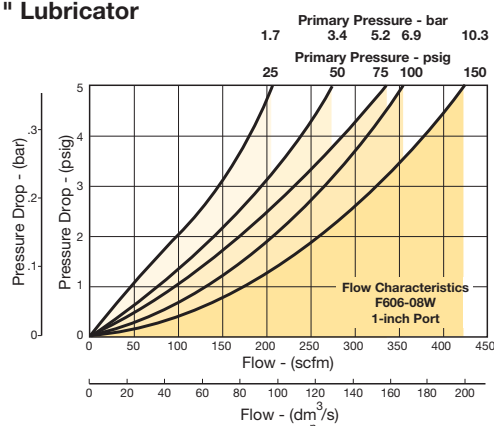


Flow Charts

L606 3/4" Lubricator



L606 1" Lubricator



L606 Lubricators – Standard

- Metal bowl with sight gauge - standard
- Polycarbonate sight dome
- Bowl can be filled while air line is under pressure
- Proportional oil delivery over a wide range of air flows
- Large capacity bowl
- Optional high capacity bowl(s) available
- Precision needle valve assures repeatable oil delivery and provides simple adjustment of delivery rate
- 1-1/2" ports (NPT, BSPP)



| Port size | Description | Part number |
|-----------|---------------------------------------------|-----------------|
| 1-1/2" | 16 oz. bowl with sight gauge, drain | L606-12W |
| 1-1/2" | 32 oz. bowl without sight gauge, with drain | L606-12E |
| 1-1/2" | 64 oz. bowl with sight gauge, no drain | L606-12G |

Operating information

Supply pressure (max):

| | |
|-------------------------|---------------------|
| Aluminum (E) | 300 psig (20.7 bar) |
| Aluminum with gauge (G) | 150 psig (10.2 bar) |
| Zinc with gauge (W) | 250 psig (17.2 bar) |

Operating temperature:

| | |
|-------------------------|---------------------------------|
| Aluminum (E) | 40°F to 150°F (4.4°C to 65.6°C) |
| Aluminum with gauge (G) | 40°F to 125°F (4.4°C to 52°C) |
| Zinc with gauge (W) | 40°F to 150°F (4.4°C to 65.6°C) |

Flow capacity†:

| | | |
|-----------|--------|-----------------------------|
| High flow | 1-1/2" | 400 scfm (188.8 dm³/s, ANR) |
|-----------|--------|-----------------------------|

Bowl capacity:

| | |
|-------------------------|--------|
| Aluminum (E) | 32 oz. |
| Aluminum with gauge (G) | 64 oz. |
| Zinc with gauge (W) | 16 oz. |

Weight:

| | |
|-------|-------------------|
| 16 oz | 7.5 lb (3.40 kg) |
| 32 oz | 8.3 lb (3.76 kg) |
| 64 oz | 10.0 lb (4.54 kg) |

† scfm = Standard cubic feet per minute at 100 psig inlet and 5 psig pressure drop.
 () Bowl type.

Ordering information:

| | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------|------------|
| L606 | - | 12 | W | | /** |
| Port Threads NPT - BSPP G | | Port Size 1-1/2 inch 12 | | Engineering Level /** Will be entered at Factory | |
| Bowl 32 oz. Large capacity without sight gauge with drain E 64 oz. Large capacity with sight gauge G 16 oz. Metal with sight gauge with drain W | | Options Blank None H Button head fill fitting X9* Manual twist drain (increases product length by 9/16 inch) | | | |

* Standard with "E" & "W" bowl, optional with "G" bowl.

Suggested Lubricant **F442 Oil**

Petroleum based oil of 100 to 200 SUS viscosity at 100°F (38°C) and an aniline point greater than 200°F (93°C)

(DO NOT USE OILS WITH ADDITIVES, COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, DETERGENTS, OR SYNTHETIC OILS.)

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

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Material Specifications

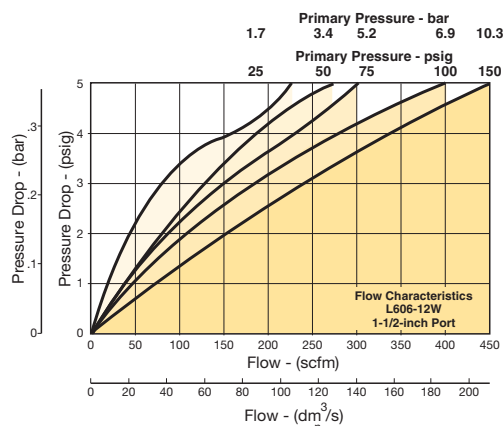
| | |
|-----------------|-----------------------------------------|
| Body | Zinc |
| 32 oz. bowl (E) | Aluminum |
| 64 oz. bowl (G) | Aluminum with polycarbonate sight gauge |
| 16 oz. bowl (W) | Zinc with nylon sight gauge |
| Seals | Buna N |

Repair and Service Kits

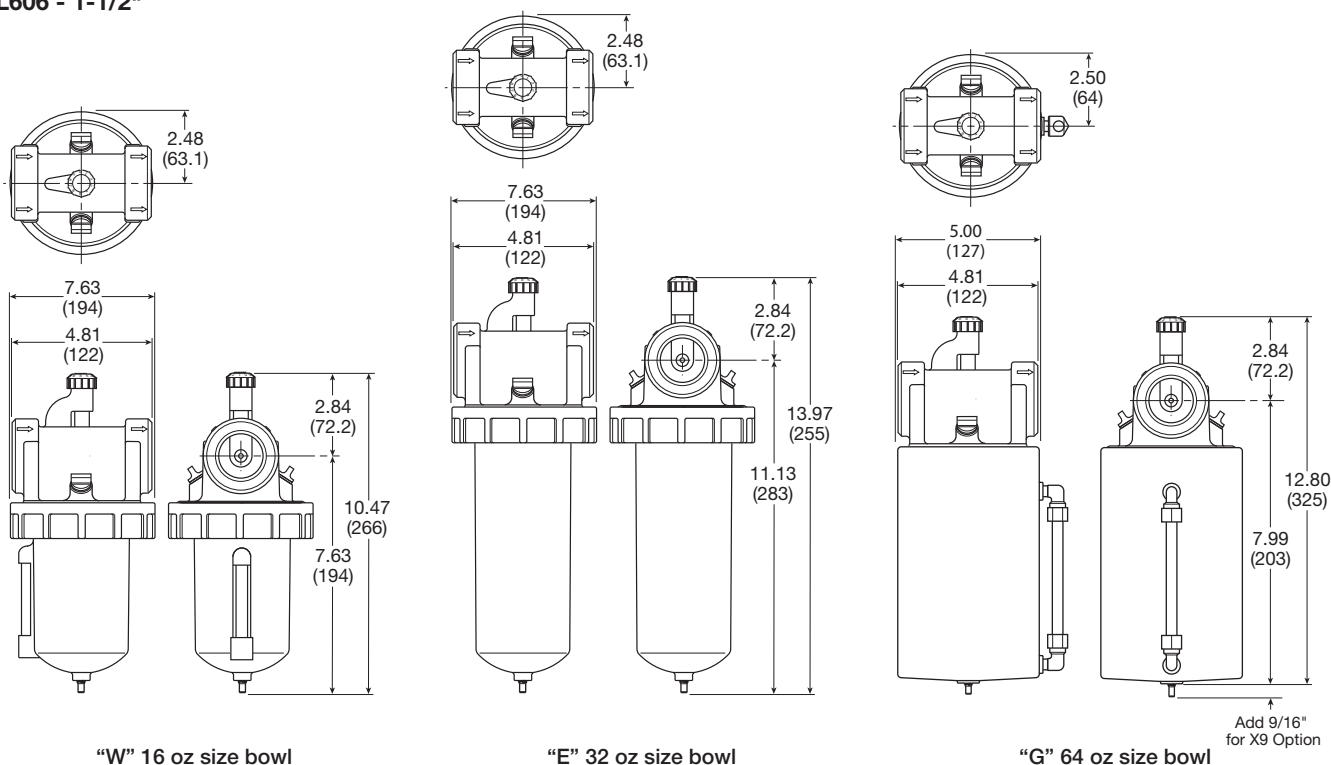
| | |
|--------------------------------------------|-------------------|
| Adjusting knob | 606Y72 |
| Aluminum 32 oz. bowl (E) | BK603B |
| Aluminum 64 oz. bowl with sight gauge (G) | BK606X30B |
| Zinc 16 oz. bowl with sight gauge (W) | BK609WB |
| Button head fill fitting (M14 male thread) | L606C14 |
| Dip tube kit | DTK606 |
| Drip spout kit | RK606SY |
| Needle valve assembly (All) | RK606Y |
| Sight gauge 16 oz. bowl repair kit (W) | RKB605WB |
| Sight gauge 64 oz. bowl repair kit (G) | RKB606X30B |
| Oil (1 quart) | F442001 |
| Oil (1 gallon) | F442002 |
| Oil (12 quart case) | F442003 |
| Oil (4 gallon case) | F442005 |

Flow Charts

L606 1-1/2" Lubricator



L606 - 1-1/2"



Inches (mm)



For inventory, lead time, and kit lookup, visit www.pdnplu.com

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Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

General Industrial
Products

H

Filters

Coalescers

Regulators

Lubricators

Combinations

09L Mist Lubricators – Hi-Flow

- Metal bowl with sight gauge and manual drain – standard
- Transparent sight dome for 360° visibility
- Bowl can be filled while air line is under pressure
- Proportional oil delivery over a wide range of air flows
- 2" ports (NPT)



| Port size | Description | Part number |
|-----------|----------------------------------|-------------|
| 2" | Metal bowl, sight gauge, 1 quart | 09L84BA |
| 2" | Metal bowl, sight gauge, 3 quart | 09L8PBA |

| Operating information | | | |
|------------------------------------------------------------------------------------|------|-----------------------------|--|
| Supply pressure (max): | | 150 psig (10.3 bar) | |
| Operating temperature: | | 32°F to 150°F (0°C to 66°C) | |
| Flow capacity†: | | | |
| High flow | 2" | 1000 scfm (472 dm³/s, ANR) | |
| Minimum flow | | 6.6 scfm at 100 psig | |
| Bowl capacity: | | 1 qt. (standard) | |
| Weight: | 1 qt | 10.2 lb (4.6 kg) | |
| | 3 qt | 13.7 lb (6.2 kg) | |
| † scfm = Standard cubic feet per minute at 90 psig inlet and 5 psig pressure drop. | | | |

Ordering information:

09L

Port Size

2 inch

8

8

4

Bowl Options

Metal bowl, 1 quart, sight gauge / manual drain

4

Metal bowl, 3 quart, sight gauge / manual drain

P

B

Options

B

Without tamperproof cap

A

Engineering Level

A

Current

Port Type

Blank

NPT

Suggested LubricantF442 Oil
Petroleum based oil of 100 to 200 SUS viscosity at 100°F (38°C) and an aniline point greater than 200°F (93°C)
(DO NOT USE OILS WITH ADDITIVES, COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, DETERGENTS, OR SYNTHETIC OILS.)

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

High-Flow Mist Lubricators

Material Specifications

| | |
|------|----------------------|
| Body | Zinc alloy, die cast |
|------|----------------------|

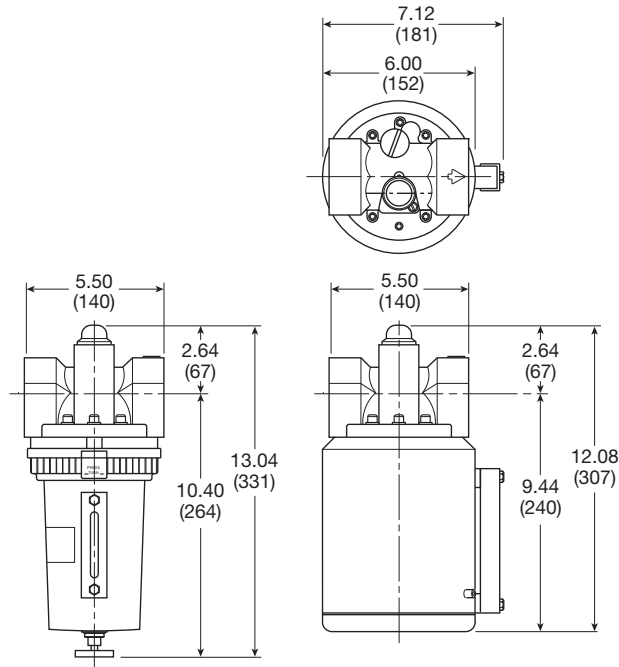
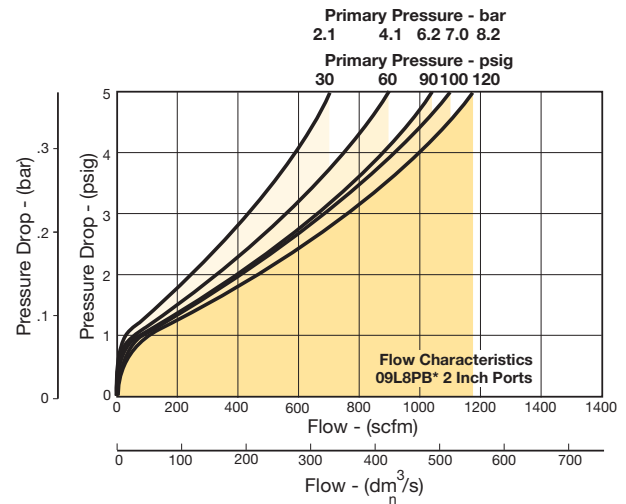
Repair and Service Kits

| | |
|------------------------------------------------|----------------|
| Fill cap kit | PS610P |
| Lubricator service kit | PS607P |
| Metal bowl, 1 quart, sight gauge / twist drain | PS612P |
| Sight dome kit | PS613P |
| Oil (1 quart) | F442001 |
| Oil (1 gallon) | F442002 |
| Oil (12 quart case) | F442003 |
| Oil (4 gallon case) | F442005 |

Air Preparation Products General Industrial

Flow Charts

09L 2" Lubricator



Inches (mm)

1 Quart

3 Quart

General Industrial
Products

H

Filters

Coalescers

Regulators

Lubricators

Combinations



For inventory, lead time, and kit
lookup, visit www.pdnplu.com

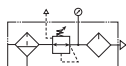
H33

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

C628 General Industrial Combinations – Standard

- 40 micron filter element
- Gauges included on combinations
- Manual twist drain
- Relieving regulator

C628 Standard Combinations



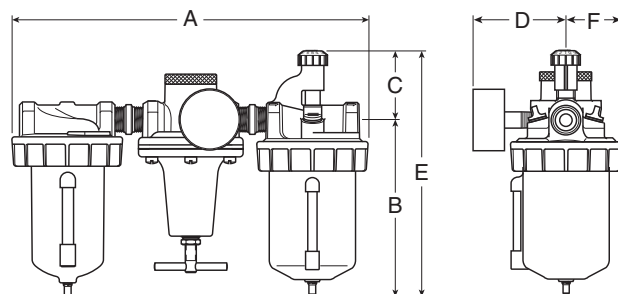
| Port size | Bowl type | Bowl capacity | Element type | Part number |
|-----------|-----------------------------|---------------|--------------|-----------------------|
| 3/4" | Metal / sight gauge | 16 oz | 40 micron | C628-06FRLWJCW |
| 3/4" | Metal / without sight gauge | 32 oz | 40 micron | C628-06FRLEJCE |
| 1" | Metal / sight gauge | 16 oz | 40 micron | C628-08FRLWJCW |
| 1" | Metal / without sight gauge | 32 oz | 40 micron | C628-08FRLEJCE |
| 1-1/2" | Metal / sight gauge | 16 oz | 40 micron | C628-12FRLWJCW |
| 1-1/2" | Metal / without sight gauge | 32 oz | 40 micron | C628-12FRLEJCE |

Ordering information:

| C628 | – | 06 | FRL | W | J | C | W | | | | | | | | | | | | |
|---------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------|--------|-----------------------------|---------------------------------------|----|---------------------------------------|---|-------------------------|---|-----------------------------------------|---|------------------------------|----|--------------------------------------------------------------------------|
| | | <table><tr><th colspan="2">Port Size</th></tr><tr><td>3/4 inch</td><td>06</td></tr><tr><td>1 inch</td><td>08</td></tr><tr><td>1-1/2 inch</td><td>12</td></tr></table> | Port Size | | 3/4 inch | 06 | 1 inch | 08 | 1-1/2 inch | 12 | | | | | | | | | |
| Port Size | | | | | | | | | | | | | | | | | | | |
| 3/4 inch | 06 | | | | | | | | | | | | | | | | | | |
| 1 inch | 08 | | | | | | | | | | | | | | | | | | |
| 1-1/2 inch | 12 | | | | | | | | | | | | | | | | | | |
| | | <table><tr><th colspan="2">Filter Bowl Options</th></tr><tr><td>32 oz. large capacity w/o sight gauge</td><td>E</td></tr><tr><td>16 oz. metal w/ sight gauge</td><td>W</td></tr></table> | | Filter Bowl Options | | 32 oz. large capacity w/o sight gauge | E | 16 oz. metal w/ sight gauge | W | | | | | | | | | | |
| Filter Bowl Options | | | | | | | | | | | | | | | | | | | |
| 32 oz. large capacity w/o sight gauge | E | | | | | | | | | | | | | | | | | | |
| 16 oz. metal w/ sight gauge | W | | | | | | | | | | | | | | | | | | |
| | | <table><tr><th colspan="2">Filter Element</th></tr><tr><td>5 Micron</td><td>G</td></tr><tr><td>40 Micron</td><td>J</td></tr></table> | | Filter Element | | 5 Micron | G | 40 Micron | J | | | | | | | | | | |
| Filter Element | | | | | | | | | | | | | | | | | | | |
| 5 Micron | G | | | | | | | | | | | | | | | | | | |
| 40 Micron | J | | | | | | | | | | | | | | | | | | |
| | | | | <table><tr><th colspan="2">Regulator Reduced Pressure Range</th></tr><tr><td>C</td><td>0 to 125 psig</td></tr><tr><td>D</td><td>0 to 250 psig</td></tr></table> | | Regulator Reduced Pressure Range | | C | 0 to 125 psig | D | 0 to 250 psig | | | | | | | | |
| Regulator Reduced Pressure Range | | | | | | | | | | | | | | | | | | | |
| C | 0 to 125 psig | | | | | | | | | | | | | | | | | | |
| D | 0 to 250 psig | | | | | | | | | | | | | | | | | | |
| | | | | <table><tr><th colspan="2">Lubricator Body Options</th></tr><tr><td>E</td><td>32 oz. large capacity w/o sight gauge</td></tr><tr><td>W</td><td>16 oz. metal w/ sight gauge</td></tr></table> | | Lubricator Body Options | | E | 32 oz. large capacity w/o sight gauge | W | 16 oz. metal w/ sight gauge | | | | | | | | |
| Lubricator Body Options | | | | | | | | | | | | | | | | | | | |
| E | 32 oz. large capacity w/o sight gauge | | | | | | | | | | | | | | | | | | |
| W | 16 oz. metal w/ sight gauge | | | | | | | | | | | | | | | | | | |
| | | | | <table><tr><th colspan="2">Drains and Options*</th></tr><tr><td>H</td><td>Button head fill fitting (lubricator)</td></tr><tr><td>K</td><td>Non-relieving regulator</td></tr><tr><td>Q</td><td>External heavy duty auto drain (filter)</td></tr><tr><td>R</td><td>Internal auto drain (filter)</td></tr><tr><td>X9</td><td>Manual twist drain on lubricator (increases product length by 9/16 inch)</td></tr></table> | | | | Drains and Options* | | H | Button head fill fitting (lubricator) | K | Non-relieving regulator | Q | External heavy duty auto drain (filter) | R | Internal auto drain (filter) | X9 | Manual twist drain on lubricator (increases product length by 9/16 inch) |
| Drains and Options* | | | | | | | | | | | | | | | | | | | |
| H | Button head fill fitting (lubricator) | | | | | | | | | | | | | | | | | | |
| K | Non-relieving regulator | | | | | | | | | | | | | | | | | | |
| Q | External heavy duty auto drain (filter) | | | | | | | | | | | | | | | | | | |
| R | Internal auto drain (filter) | | | | | | | | | | | | | | | | | | |
| X9 | Manual twist drain on lubricator (increases product length by 9/16 inch) | | | | | | | | | | | | | | | | | | |

* Filter comes standard with manual drain. Lubricator comes standard with

* Filter comes standard with manual drain, lubricator comes standard with no drain.



| A | B | C | D | E | F |
|-------------------------------|---------------|--------------|--------------|----------------|--------------|
| C628-06FRL, C628-08FRL | | | | | |
| 15.75 (400) | 7.75 (197) | 2.63 (67) | 3.52 (89) | 13.00 (330) | 2.48 (63) |
| C628-12FRL | | | | | |
| 16.50 (419) | 8.13 (206) | 2.84 (72) | 3.86 (98) | 14.13 (359) | 2.64 (67) |

Inches (mm), All dimensions nominal.

WARNING

Product rupture can cause serious injury.
 Do not connect regulator to bottled gas.
 Do not exceed maximum primary pressure rating.

CAUTION: REGULATOR PRESSURE ADJUSTMENT –

The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

Most popular.



For inventory, lead times, and kit lookup, visit www.pdnplu.com

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Parker Hannifin Corporation
 Pneumatic Division
 Richland, Michigan
www.parker.com/pneumatics

Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories



WARNING:

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

1. GENERAL INSTRUCTIONS

- 1.1. Scope:** This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters, Pressure Regulators, and Lubricators), Vacuum products and related accessory components.
- 1.2. Fail-Safe:** Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.
- 1.3 Relevant International Standards:** For a good guide to the application of a broad spectrum of pneumatic fluid power devices see: ISO 4414:1998, Pneumatic Fluid Power – General Rules Relating to Systems. See www.iso.org for ordering information.
- 1.4. Distribution:** Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Parker valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.
- 1.5. User Responsibility:** Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Parker and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:
 - Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
 - Assuring that all user's performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
 - Complying with all existing warning labels and / or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
 - Assuring compliance with all applicable government and industry standards.
- 1.6. Safety Devices:** Safety devices should not be removed, or defeated.
- 1.7. Warning Labels:** Warning labels should not be removed, painted over or otherwise obscured.
- 1.8. Additional Questions:** Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2. PRODUCT SELECTION INSTRUCTIONS

- 2.1. Flow Rate:** The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.
- 2.2. Pressure Rating:** Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.
- 2.3. Temperature Rating:** Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.
- 2.4. Environment:** Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.
- 2.5. Lubrication and Compressor Carryover:** Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.
- 2.6. Polycarbonate Bowls and Sight Glasses:** To avoid potential polycarbonate bowl failures:
 - Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
 - Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, ketones, esters or certain alcohols.
 - Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.

Part Number
Index

Safety Guide

Offer of Sale

Part Number Index,
Safety Guide, Offer of Sale



For inventory, lead times, and kit
lookup, visit www.pdnplu.com

O20

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Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

- 2.7. Chemical Compatibility:** For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5
- 2.8. Product Rupture:** Product rupture can cause death, serious personal injury, and property damage.
- Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
 - Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
 - Consult product labeling or product literature for pressure rating limitations.

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

- 3.1. Component Inspection:** Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.
- 3.2. Installation Instructions:** Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.
- 3.3. Air Supply:** The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

- 4.1. Maintenance:** Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.9.
- 4.2. Installation and Service Instructions:** Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.
- 4.3. Lockout / Tagout Procedures:** Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)
- 4.4. Visual Inspection:** Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
 - Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
 - Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
 - Any observed improper system or component function: Immediately shut down the system and correct malfunction.
 - Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

Caution: Leak detection solutions should be rinsed off after use.

- 4.5. Routine Maintenance Issues:**
- Remove excessive dirt, grime and clutter from work areas.
 - Make sure all required guards and shields are in place.
- 4.6. Functional Test:** Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.
- 4.7. Service or Replacement Intervals:** It is the user's responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:
- Previous performance experiences.
 - Government and / or industrial standards.
 - When failures could result in unacceptable down time, equipment damage or personal injury risk.
- 4.8. Servicing or Replacing of any Worn or Damaged Parts:** To avoid unpredictable system behavior that can cause death, personal injury and property damage:
- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
 - Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
 - Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
 - Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
 - After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
 - Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.
- 4.9. Putting Serviced System Back into Operation:** Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.



PARKER-HANNIFIN CORPORATION
OFFER OF SALE

1. Definitions. As used herein, the following terms have the meanings indicated.

| | |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Buyer: | means any customer receiving a Quote for Products from Seller. |
| Goods: | means any tangible part, system or component to be supplied by the Seller. |
| Products: | means the Goods, Services and/or Software as described in a Quote provided by the Seller. |
| Quote: | means the offer or proposal made by Seller to Buyer for the supply of Products. |
| Seller: | means Parker-Hannifin Corporation, including all divisions and businesses thereof. |
| Services: | means any services to be supplied by the Seller. |
| Software: | means any software related to the Products, whether embedded or separately downloaded. |
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2. Terms. All sales of Products by Seller are contingent upon, and will be governed by, these Terms and, these Terms are incorporated into any Quote provided by Seller to any Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic data interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms of purchase. No modification to these Terms will be binding on Seller unless agreed to in writing and signed by an authorized representative of Seller.

3. Price; Payment. The Products set forth in Seller's Quote are offered for sale at the prices indicated in Seller's Quote. Unless otherwise specifically stated in Seller's Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices at any time to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). All sales are contingent upon credit approval and payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

4. Shipment; Delivery; Title and Risk of Loss. All delivery dates are approximate. Seller is not responsible for damages resulting from any delay. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the shipment carrier at Seller's facility. Unless otherwise agreed, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyer's request beyond the respective indicated shipping date will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.

5. Warranty. The warranty related to the Products is as follows: (i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the completion of the Services by Seller; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer:

DISCLAIMER OF WARRANTY: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, NON-INFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED. BUYER AGREES AND ACKNOWLEDGES THAT UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".

6. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to the Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

7. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCT, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, NON-COMPLETION OF SERVICES, USE, LOSS OF USE OF, OR INABILITY TO USE THE PRODUCTS OR ANY PART THEREOF, LOSS OF DATA, IDENTITY, PRIVACY, OR CONFIDENTIALITY, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.

8. Loss to Buyer's Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which are or become Buyer's property, will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Special Tooling. Special Tooling includes but is not limited to tooling, jigs, fixtures and associated manufacturing equipment acquired or necessary to manufacture Products. A tooling charge may be imposed for any Special Tooling. Such Special Tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in Special Tooling belonging to Seller that is utilized in the manufacture of the Products, even if such Special Tooling has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property in its sole discretion at any time.

10. Security Interest. To secure payment of all sums due, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.

11. User Responsibility. The Buyer through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. The Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and other technical information provided with the Product. If Seller provides Product options based upon data or specifications provided by the Buyer, the Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event the Buyer is not the end-user, Buyer will ensure such end-user complies with this paragraph.

12. Use of Products; Indemnity by Buyer. Buyer shall comply with all instructions, guides and specifications provided by Seller with the Products. **Unauthorized Uses.** If Buyer uses or resells the Products for any uses prohibited in Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products provided by Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, tooling, equipment, plans, drawings, designs or specifications or other information or things furnished by Buyer; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing or tampering with the Products for any reason; or (e) Buyer's failure to comply with these Terms. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

13. Cancellations and Changes. Buyer may not cancel or modify any order for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller, at any time, may change Product features, specifications, designs and availability.

14. Limitation on Assignment. Buyer may not assign its rights or obligations without the prior written consent of Seller.

15. Force Majeure. Seller does not assume the risk and is not liable for delay or failure to perform any of Seller's obligations by reason of events or circumstances beyond its reasonable control ("Events of Force Majeure"). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

16. Waiver and Severability. Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of these Terms by legislation or other rule of law shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

17. Termination. Seller may terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms (b) appoints a trustee, receiver or custodian for all or any part of Buyer's property (c) files a petition for relief in bankruptcy on its own behalf, or one if filed by a third party (d) makes an assignment for the benefit of creditors; or (e) dissolves its business or liquidates all or a majority of its assets.

18. Ownership of Software. Seller retains ownership of all Software supplied to Buyer hereunder. In no event shall Buyer obtain any greater right in and to the Software than a right in the nature of a license limited to the use thereof and subject to compliance with any other terms provided with the Software.

19. Indemnity for Infringement of Intellectual Property Rights. Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on a third party claim that one or more of the Products sold hereunder infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by the Seller to the Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products sold hereunder is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products so as to render them non-infringing, or offer to accept return of the Products and refund the purchase price less a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer; or (ii) directed to any Products provided hereunder for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products provided hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for such claims of infringement of Intellectual Property Rights.

20. Governing Law. These Terms and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

21. Entire Agreement. These Terms, along with the terms set forth in the main body of any Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. In the event of a conflict between any term set forth in the main body of a Quote and these Terms, the terms set forth in the main body of the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. These Terms may not be modified unless in writing and signed by an authorized representative of Seller.

22. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer acknowledges that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Product from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws.