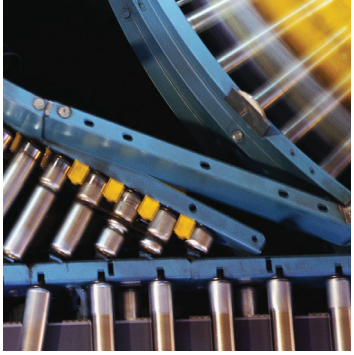
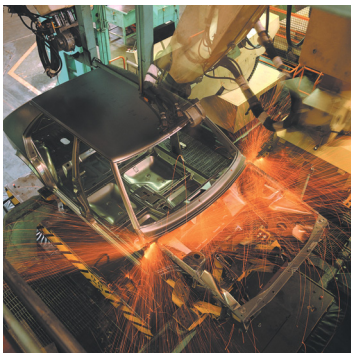




Global FRL and P3Y Series

Air Preparation Products

Catalog 0760P

Parker

ENGINEERING YOUR SUCCESS.

Warning, Offer of Sale

⚠ WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users h aving technical expertise. It is important that you analyze all aspects of your application including consequences of any failure, and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated on the separate page of this document entitled “Offer of Sale”.

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

RoHS COMPLIANT

DECLARATION OF COMPLIANCE (ROHS)

European Directive 2011/65/EU – RoHS (Restriction us of certain Hazardous Substances in electrical and electronic equipment), restricts the use of the 6 substances in the manufacture of specified electrical equipment.

Lead: Product containing lead and its compound (except for applications of lead as an alloying element by weight in steel up to 0.35%, in aluminium up to 0.4% and in copper alloys up to 4% and in circuit board solder) must not exceed 0.1% by weight

Mercury: The concentration level must not exceed 0.1% by volume

Cadmium: The concentration level must not exceed 0.01% by volume

Hexavalent Chromiou:

This is a corrosive protective finish used on our product line. Where this finish is utilized the Chromate solution is Hexavalent (Chrome 6) free.

Polybrominated Biphenyls (PBB):

The concentration level must not exceed 0.1% by weight. This substance is not know to be in any of our products.

Polybrominated Diphenyl Esters (PBDE):

The concentration level must not exceed 0.1% by weight. This substance is not know to be in any of our products.

CE

Global Air Preparation products supplied by Parker Hannifin have been designed and manufactured in accordance with "sound engineering practice", as defined by Article 3 of Pressure Equipment Directive 97/23/EC.

REACh Compliant

Global Air Preparation product range is in compliance with REACH to ensure continued compliance additions to the list of SVHC (Substance of Very High Concern) are reviewed periodically.

Global Air Preparation product range has been third party Shock & Vibration tested independently in accordance to EN 61373 : 1999, Category 2

Ex ATEX

Following Ignition Hazard Assessments performed on the non-electrical Global Air Preparation products they are in accordance with the requirements of EN 13463-1:2009, it was considered that the equipment does not contain its own source of ignition, and therefore is not within the scope of directive 94/9/EC.

The products can be used in a Group II Category 2 environment assuming that the ATEX Directive and the following conditions are complied with:

- Installation and maintenance of the product must be undertaken by qualified personnel.
- Do not mount the products in an area where impact may occur.
- Filters must be used to limit the introduction of particles and to capture particles generated in service.
- Supply air quality must be within ISO 8573-1:2010 Class 1.4.2.
- Maximum working temperature to be as stated on product label.
- WARNING – pulsating pressure and/or a closed circuit can generate heat.
- Deposits of dust on the product must not exceed 5mm thickness.
  Refer to technical file for surface areas of plastics. The unit must be earthed via the compressed air supply line.
- The unit must not come into contact with liquid solvents, acids or alkalis
  Refer to technical file for chemicals known to be incompatible. Product cleaning must be undertaken using a method complying with the specifications of the ATEX zone, preferably by using mild soap and water or antistatic products.
- Regulators, Filter Regulators:
  Do not use Regulators or Filter Regulators within systems that can create vibration within the Regulator / Filter Regulator unit.
- Solenoid Operated Valves:
  Are suitable for use in an ATEX environment, (Group II Category 2) providing ATEX approved solenoids are fitted.
- Technical file available on request.

ISO

Global Air Preparation product range has been designed and tested in accordance with ISO flow testing, envelope integrity, and catalog data presented.

- Filters – ISO 5782-1 & ISO 5782-2: 1997
- Regulators- ISO 6953-1 & ISO 6953-2: 2000
- Lubricators- ISO 6301-1 & ISO 6301-2: 2009

Parker's Modular Air Preparation System

Global.

Modular.

Performance you need,
wherever *you need it.*

Full featured particulate and coalescing filters, regulators, filter/regulators, and lubricators are available with a wide range of standard options to meet air preparation needs.

Parker's comprehensive Air Preparation System is available in four body sizes with different thread types to accommodate your requirements.

Individual units can easily be assembled into various combinations, utilizing patented modular lightweight body connectors.

www.parker.com

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

Global Comprehensive Offering

P31 Mini Series
1/4" ports
40mm body width

P32 Compact Series
1/4", 3/8" and 1/2"
60mm body width

P33 Standard Series
1/2" and 3/4"
73mm body width

Filters

- 5µ particulate, 1.0µ and 0.01µ coalescing, and adsorber available as standard
- Transparent or metal bowl with manual or auto float drains standard

Regulators

- Available as stand alone, common port and electronic proportional
- Both relieving and non-relieving versions available

Filter / Regulators

- Compact design for space savings
- Available with all the same standard options as the filters and regulators

Lubricators

- Proportional oil delivery over a wide range of air flows
- Fill under pressure

Combinations

- Compact design for space savings
- Easily assembled
- Many configurations available

Accessories

- Solenoid operated soft start, quick dump, and soft start/ quick dump valves
- Manifold blocks
- Ball style lockout / shutoff valve
- Repair kits, gauges, etc.

P3Y Comprehensive Offering

P3Y Series
3/4" and 1"
90mm body width

Filters

- 5µ particulate, 1.0µ and 0.01µ coalescing, and adsorber available as standard
- Polypropylene bowl with metal screw in bowl guard

Regulators

- Available as a stand alone high flow unit with a rolling diaphragm to extend life
- Optional key lock

Filter / Regulators

- Compact design for space savings
- Available with all the same standard options as the filters and regulators

Lubricators

- Proportional oil delivery over a wide range of air flows
- Fill under pressure

Combinations

- Compact design for space savings
- Easily assembled

Accessories

- Solenoid operated soft start, quick dump, and soft start/ quick dump valves
- Manifold blocks
- Ball style lockout / shutoff valve
- Repair kits, gauges, etc.

Air Preparation

P31 Mini Series

40mm body width

1/4" Ported

Flows up to:	scfm	(dm^3/s, ANR)
Filter	25	(12)
Coalescer	7.5	(3.6)
Regulator	68	(32)
Filter/Regulator	22	(10)
Lubricator	52	(25)

Features:

- Space saving integral gauge
- Manifold style regulators available
- OSHA compliant shut-off valves
- Soft-Start & Quick Dump valves
- Electronic Proportional Regulator

P32 Compact Series

60mm body width

1/4", 3/8", & 1/2" Ported

Flows up to:	scfm	(dm^3/s, ANR)
Filter	82	(39)
Coalescer	36	(17)
Regulator	165	(78)
Filter/Regulator	136	(64)
Lubricator	90	(42)

Features:

- Manifold style regulators available
- OSHA Compliant shut-off valves
- Soft-Start & Quick Dump valves
- Electronic Proportional Regulator

P33 Standard Series

73mm body width

1/2" & 3/4" Ported

Flows up to:	scfm	(dm^3/s, ANR)
Filter	85	(40)
Coalescer	72	(34)
Regulator	233	(111)
Filter/Regulator	230	(108)
Lubricator	150	(71)

Features:

- OSHA Compliant shut-off valves
- Soft-Start & Quick Dump valves (Utilizes P32 size only)
- Electronic proportional regulator (Utilizes P32 size only)

P3Y Large Series

90mm body width

3/4" and1" Ported

Flows up to:	scfm	(dm^3/s, ANR)
Filter	170	(80)
Coalescer	307	(150)
Regulator	550	(260)
Filter/Regulator	465	(220)
Lubricator	390	(184)

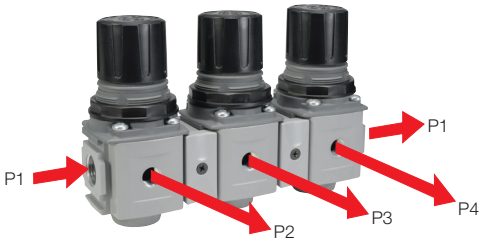
Features:

- OSHA Compliant shut-off valves
- Soft-Start & Quick Dump valves
- Electronic Proportional Regulator

Complete Pneumatic System

Common Port Manifold Regulators

- Multiple output pressures (P2, P3, P4, etc.) with common inlet (P1)
- Available in two sizes P31 and P32
- Balanced valve design for accurate pressure regulation
- Outlet pressure ports in front and rear of unit.
- Multiple spring ranges available



Electronic Proportional Regulator

- Electro-Pneumatic regulator
- Integrated systems control
- Accurate output pressure
- Micro parameter settings
- Selectable I/O parameters
- Quick, full flow exhaust
- LED display indicates output pressure
- No air consumption in steady state
- Multiple mounting options
- Protection to IP65

P31P Mini Series

P32P Compact Series

Semi Precision Regulator and Filter/Regulator

- Available in P32 compact series
- Fine adjustment sensitivity
- Good repeatability and minimal pressure drop
- Good flow capacity
- Light gray knob for easy identification

Optional Tamperproof Kits

- One facilitates the permanent tamperproofing of the Regulator and Filter/Regulator units
- Hinged black part clamps over control knob and is locked in place after sliding yellow cover over it
- Other allows for removable lockout/tagout tamperproofing
  - Four pad lock location holes tagout
  - Hinged locking clamp secures over existing knob via yellow cover which is slid over into place

Additional Options P32 Only (Consult factory for availability)

- T-Handle

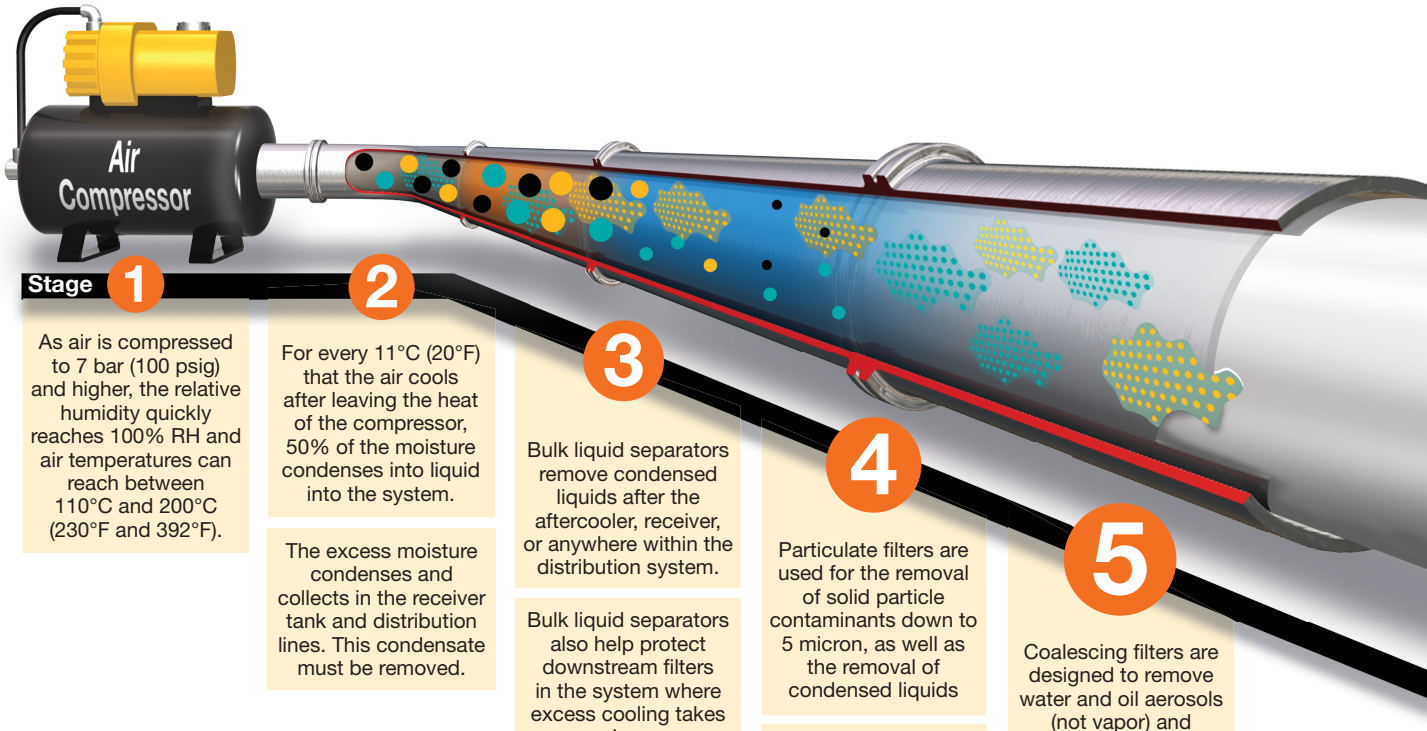
- Preset and Tamperproof

- Preset
- Pressure Limiter

Together we can power your application with clean, dry air

Fast cycle times, high product quality, and low downtime all require a clean, dry pneumatic system to function properly. Parker has what it takes to make sure pneumatic systems perform at their best.

Clean, dry pneumatic systems with Parker Air Preparation



As air is compressed to 7 bar (100 psig) and higher, the relative humidity quickly reaches 100% RH and air temperatures can reach between 110°C and 200°C (230°F and 392°F).

For every 11°C (20°F) that the air cools after leaving the heat of the compressor, 50% of the moisture condenses into liquid into the system.

The excess moisture condenses and collects in the receiver tank and distribution lines. This condensate must be removed.

Bulk liquid separators remove condensed liquids after the aftercooler, receiver, or anywhere within the distribution system.

Bulk liquid separators also help protect downstream filters in the system where excess cooling takes place.

Particulate filters are used for the removal of solid particle contaminants down to 5 micron, as well as the removal of condensed liquids

Note: Water and oil, in vapor form, pass through general purpose particulate filters.

This type of filter should be used as a prefilter for the coalescing (oil removal) filter.

Coalescing filters are designed to remove water and oil aerosols (not vapor) and particulate from air streams down to 0.01 micron in size.

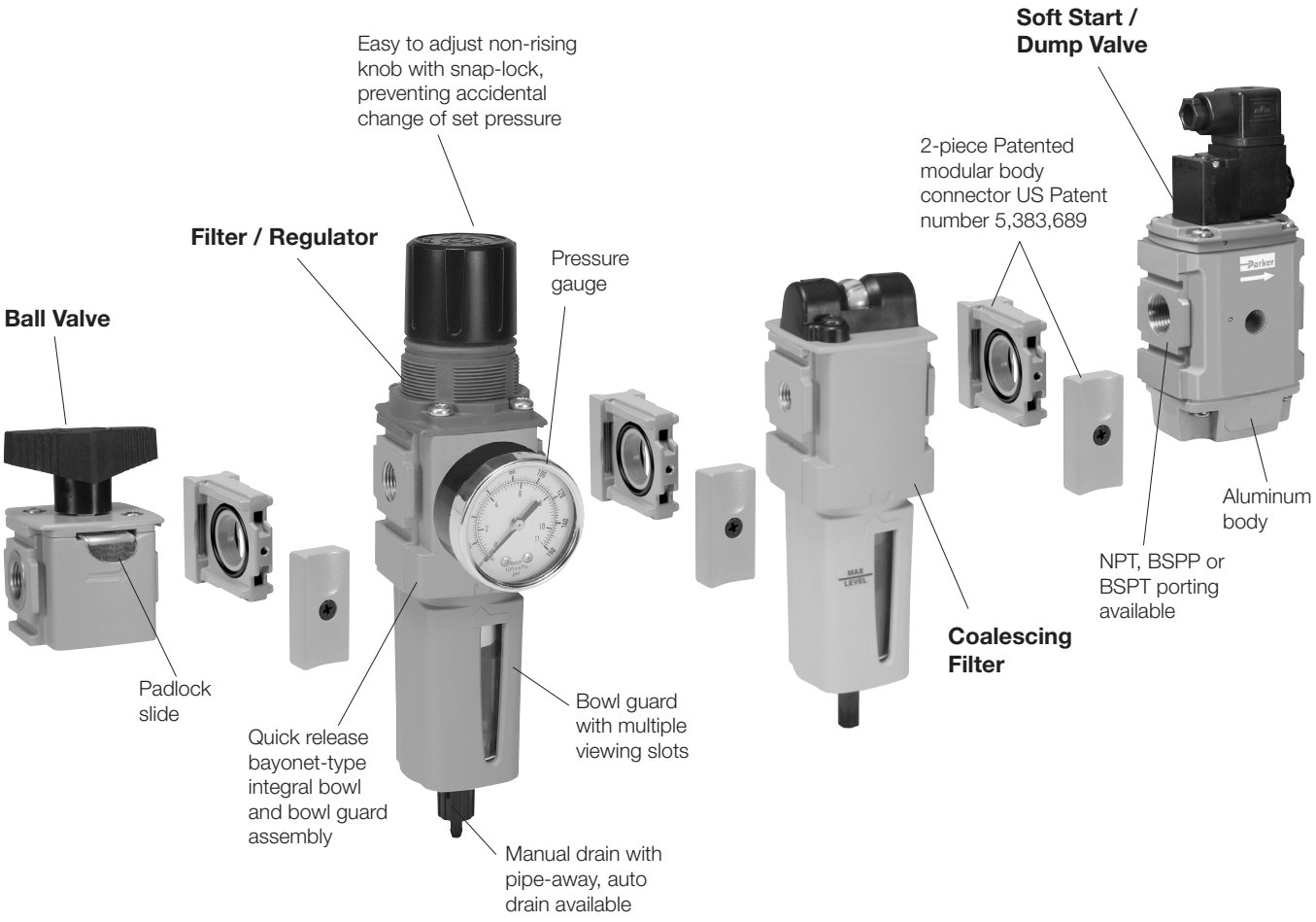
Installed in pairs, Particulate and Coalescing filters ensure a continuous supply of high quality air.

Key

- **Particulate**
- **Oil**
- **Water**
- **Oil Vapor**
- **Water Vapor**

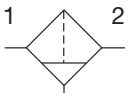
						
Stages	1 2	3	4	5	6	7
Function	**Air Compressor**	**Bulk Liquid Removal**	**Particulate Filtration**	**Coalescing Filtration**	**Air Dryers**	**Hydrocarbon Removal**
Application	All pneumatic systems	Basic pneumatic systems	Basic pneumatic systems	Systems requiring highest quality air.	Systems requiring air with reduced moisture content	Systems requiring highest quality air for critical applications
Description	Air leaving the compressor room at 93ºC (200ºF) releases 95% of its moisture into the piping system when it cools to 38ºC (100ºF)	Removes bulk liquid contamination and protects filters where excess cooling takes place in the distribution piping	Removes solid particulates down to 5 micron, and the separation of bulk contaminants.	Removes liquid aerosols and submicron particulates (not vapor) down to 0.01 micron.	Removes water vapor from air stream. Dew point reduced down to 4ºC (40ºF) (refrigeration) or -40ºC (-40ºF) (desiccant).	Removal of odors and trace vapors for critical applications.
Parker Global Air Preparation Solution	Customer supplied	P3TF Bulk Liquid Separator	P31, P32, P33, P3Y Particulate Filter	P31, P32, P33, P3Y Coalescing Filter	PRD Refrigeration Dryer, DAS & PTW Regenerative Desiccant Dryer	P31, P32, P33, P3Y Activated Carbon (Adsorber) Filter

A completely modular air preparation system

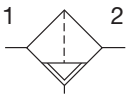


P31 Particulate Filter – Mini

- Integral 1/4" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- One hand operation for easy element cartridge removal
- Positive bayonet latch to ensure correct & safe fitting



Manual drain



Pulse drain

Port size	Description ‡	Part number
1/4"	Poly bowl, manual drain	**P31FB92EGMN**
1/4"	Poly bowl, pulse drain	**P31FB92EGBN**
1/4"	Metal bowl, manual drain	**P31FB92EMMN**
1/4"	Metal bowl, pulse drain	**P31FB92EMBN**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Supply pressure (max):	
Plastic bowl	150 psig (10 bar)
Metal bowl	250 psig (17 bar)
Operating temperature:	
Plastic bowl	14°F to 125°F (-10°C to 52°C)
Metal bowl	14°F to 150°F (-10°C to 65.5°C)
Standard filtration:	5 micron
Flow capacity*:	25 scfm (12 dm^3/s, ANR)
Useful retention†:	0.4 US oz. (12 cm^3)
Weight:	0.24 lb (0.11 kg)

* Inlet pressure 91.3 psig (6.3 bar). Pressure drop 4.9 psig (0.34 bar).
† Useful retention refers to volume below the quiet zone baffle.

Air quality:
Within ISO 8573-1: 1991 Class 3 (Particulates)
Within ISO 8573-1: 2001 Class 6 (Particulates)

Ordering information:

P31FB 9 2 E G M N

Basic series
Global modular mini particulate filter — P31FB

Thread type
BSPP 1
BSPT 2
NPT 9

Port size
1/4 2

Element
5µ Element E

Bowl type
G Poly bowl with bowl guard
M Metal bowl without sight gauge

Drain type
M Manual drain
B Pulse drain
X Flex drain

Mounting
N No bracket

☐ Most popular.

Material Specifications

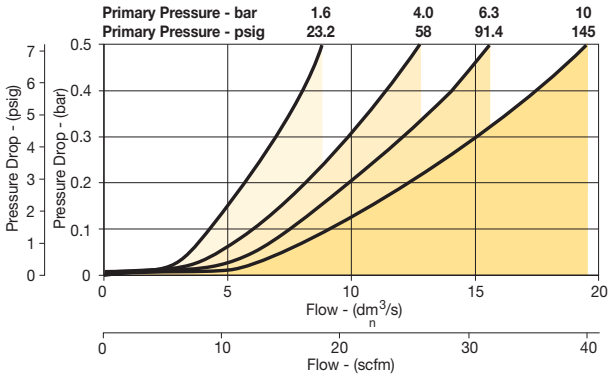
Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Bowl guard	Nylon
Element retainer	Acetal
Baffle	Acetal
Filter element	Sintered polyethylene
Seals	Nitrile

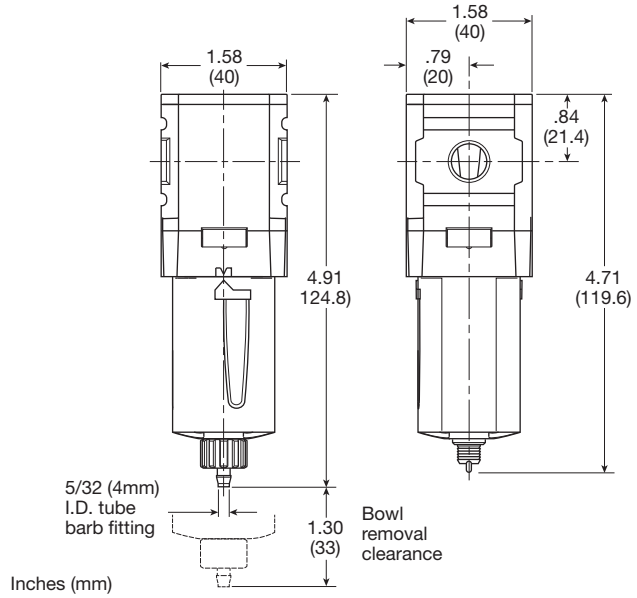
Repair and Service Kits

Plastic bowl / bowl guard, manual drain	**P31KB00BGM**
Metal bowl / w/o sight gauge, manual drain	**P31KB00BMM**
Plastic bowl / bowl guard, pulse drain	**P31KB00BGB**
Metal bowl / w/o sight gauge, pulse drain	**P31KB00BMB**
5µ particle filter element	**P31KA00ESE**
C-bracket (fits to body)	**P31KA00MW**
T-bracket with body connector	**P31KA00MT**
Body connector	**P31KA00CB**

Flow Charts

P31FB 1/4" Filter

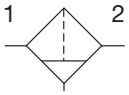




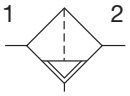
Manual Drain **Pulse Drain**

P32 Particulate Filter – Compact

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting



Manual drain



Auto drain

Port size	Description ‡	Part number
1/4"	Poly bowl, manual drain	**P32FB92EGMN**
1/4"	Poly bowl, auto drain	**P32FB92EGAN**
1/4"	Metal bowl, manual drain	**P32FB92ESMN**
1/4"	Metal bowl, auto drain	**P32FB92ESAN**
3/8"	Poly bowl, manual drain	**P32FB93EGMN**
3/8"	Poly bowl, auto drain	**P32FB93EGAN**
3/8"	Metal bowl, manual drain	**P32FB93ESMN**
3/8"	Metal bowl, auto drain	**P32FB93ESAN**
1/2"	Poly bowl, manual drain	**P32FB94EGMN**
1/2"	Poly bowl, auto drain	**P32FB94EGAN**
1/2"	Metal bowl, manual drain	**P32FB94ESMN**
1/2"	Metal bowl, auto drain	**P32FB94ESAN**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Supply pressure (max):		
Plastic bowl		150 psig (10 bar)
Metal bowl		250 psig (17 bar)
Operating temperature:		
Plastic bowl		-13°F to 125°F (-25°C to 52°C)
Metal bowl		-13°F to 150°F (-25°C to 65.5°C)
Standard filtration:		5 micron
Flow capacity*:	1/4	50 scfm (24 dm^3/s, ANR)
	3/8	78 scfm (37 dm^3/s, ANR)
	1/2	82 scfm (39 dm^3/s, ANR)
Useful retention†:		1.7 US oz. (51 cm^3)
Weight:		0.62 lb (0.28 kg)

* Inlet pressure 91.3 psig (6.3 bar). Pressure drop 4.9 psig (0.34 bar).
† Useful retention refers to volume below the quiet zone baffle.

Air quality:
Within ISO 8573-1: 1991 Class 3 (Particulates)
Within ISO 8573-1: 2001 Class 6 (Particulates)

Ordering Information:

P32FB 9 2 E G M N

Basic series	
Global modular compact particulate filter	P32FB

Thread type	
BSPP	1
BSPT	2
NPT	9

Port size	
1/4	2
3/8	3
1/2	4

Element	
5µ Element	E

Bowl type	
G	Poly bowl with bowl guard
M	Metal bowl without sight gauge
S	Metal bowl with sight gauge

Drain type	
M	Manual drain
A	Auto drain
X	Flex drain

Mounting	
N	No bracket

☐ Most popular.

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

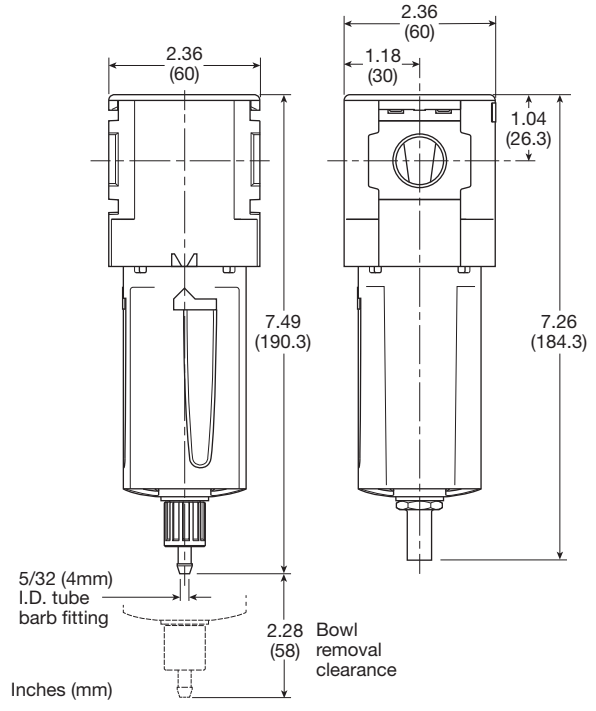
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Material Specifications

Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Bowl guard	Nylon
Deflector	Polypropylene
Element retainer / Baffle	Acetal
Filter element	Sintered polyethylene
Seals	Nitrile
Sight gauge	Nylon

Repair and Service Kits

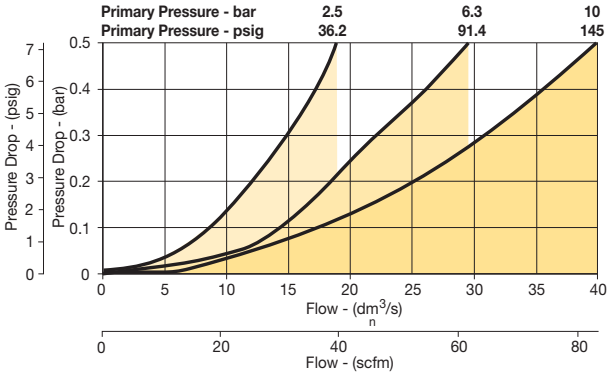
Plastic bowl / bowl guard, manual drain	**P32KB00BGM**
Metal bowl / sight gauge, manual drain	**P32KB00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P32KA00ESE**
L-bracket (fits to body)	**P32KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P32KA00MT**
Body connector	**P32KA00CB**



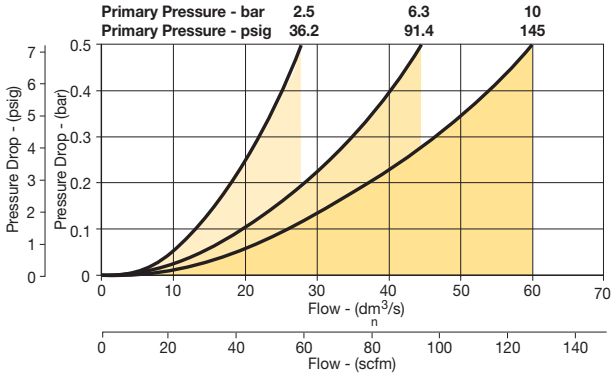
Manual Drain **Automatic Drain**

Flow Charts

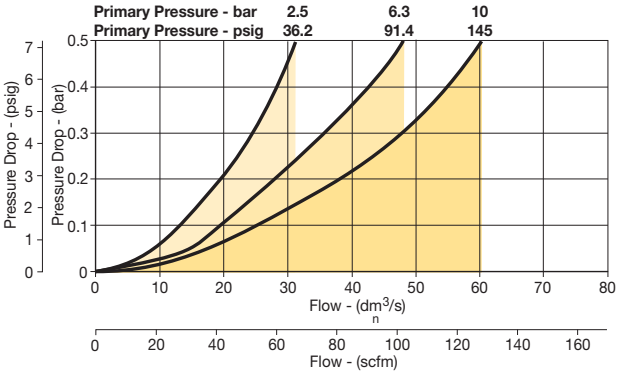
P32FB 1/4" Filter



P32FB 3/8" Filter

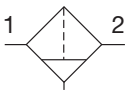


P32FB 1/2" Filter

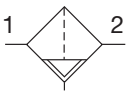


P33 Particulate Filter – Standard

- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting



Manual drain



Auto drain

Port size	Description ‡	Part number
1/2"	Poly bowl, manual drain	**P33FA94EGMN**
1/2"	Poly bowl, auto drain	**P33FA94EGAN**
1/2"	Metal bowl, manual drain	**P33FA94ESMN**
1/2"	Metal bowl, auto drain	**P33FA94ESAN**
3/4"	Poly bowl, manual drain	**P33FA96EGMN**
3/4"	Poly bowl, auto drain	**P33FA96EGAN**
3/4"	Metal bowl, manual drain	**P33FA96ESMN**
3/4"	Metal bowl, auto drain	**P33FA96ESAN**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Supply pressure (max):		
Plastic bowl		150 psig (10 bar)
Metal bowl		250 psig (17 bar)
Operating temperature:		
Plastic bowl		-13°F to 125°F (-25°C to 52°C)
Metal bowl		-13°F to 150°F (-25°C to 65.5°C)
Standard filtration:		5 micron
Flow capacity*:	1/2	85 scfm (40 dm^3/s, ANR)
	3/4	102 scfm (48 dm^3/s, ANR)
Useful retention†:		2.8 US oz. (85 cm^3)
Weight:		1.01 lb (0.46 kg)

* Inlet pressure 91.3 psig (6.3 bar). Pressure drop 4.9 psig (0.34 bar).
† Useful retention refers to volume below the quiet zone baffle.

Air quality:
Within ISO 8573-1: 1991 Class 3 (Particulates)
Within ISO 8573-1: 2001 Class 6 (Particulates)

Ordering Information:

P33FA 9 6 E G M N

Basic series
Global modular standard particulate filter — P33FA

Thread type
BSPP 1
BSPT 2
NPT 9

Port size
1/2 4
3/4 6

Element
5µ Element E

Bowl type
G Poly bowl with bowl guard
M Metal bowl without sight gauge
S Metal bowl with sight gauge

Drain type
M Manual drain
A Auto drain

Mounting
N No bracket

☐ Most popular.

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

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

Material Specifications

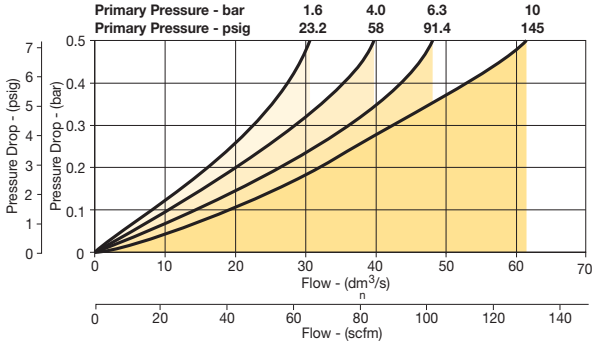
Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Bowl guard	Nylon
Deflector	Polypropylene
Element retainer / Baffle	Acetal
Filter element	Sintered polyethylene
Seals	Nitrile
Sight gauge	Nylon

Repair and Service Kits

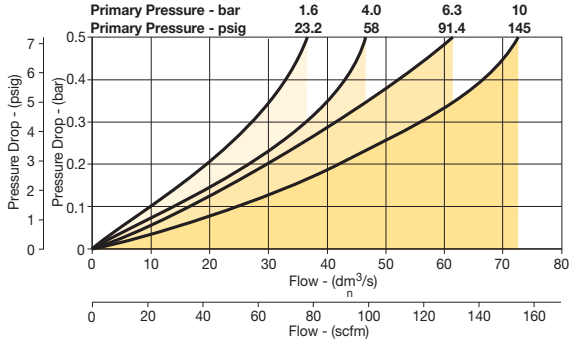
Plastic bowl / bowl guard, manual drain	**P33KA00BGM**
Metal bowl / sight gauge, manual drain	**P33KA00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P33KA00ESE**
L-bracket (fits to body)	**P33KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P33KA00MT**
Body connector	**P32KA00CB**

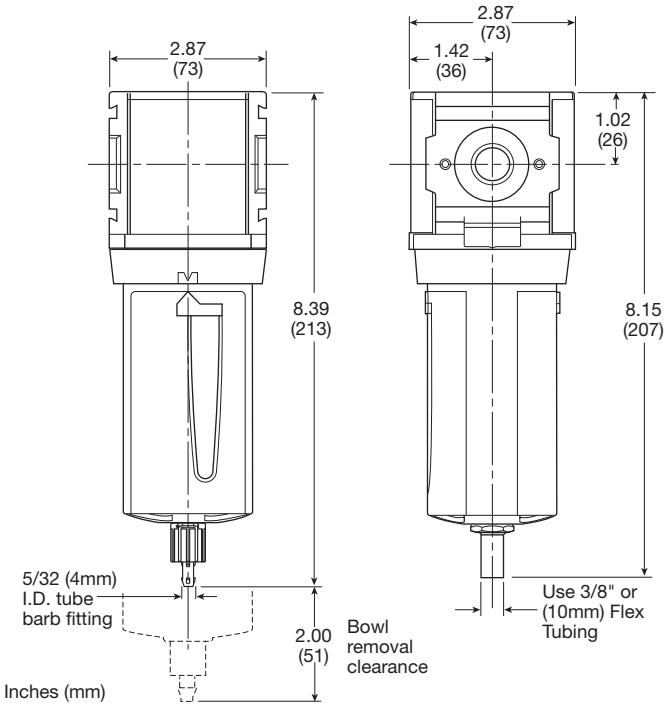
Flow Charts

P33FA 1/2" Filter



P33FA 3/4" Filter





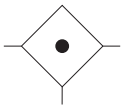
Manual Drain **Automatic Drain**

P31 Coalescing and Adsorber Filters – Mini

- Integral 1/4" ports (NPT, BSPP & BSPT)
- Removes liquid aerosols and sub micron particles
- Oil free air for critical applications, such as air gauging, pneumatic instrumentation and control
- Differential Pressure Indicator (DPI) standard on coalescing filters
- Positive bayonet latch to ensure correct and safe fitting
- Adsorbing activated carbon element removes oil vapors and most hydrocarbons

Note: To optimize the life of coalescing element, it is advisable to install a P31F pre-filter with a 5 micron element upstream of the coalescing filter.

To optimize the life of an Adsorber it is advisable to install a P31 Coalescing Filter upstream of the Adsorber. Adsorber element should be replaced approximately every 1000 hours of service.



Port size	Description ‡	Element	Part number
1/4"	Poly bowl, manual drain	0.01 micron	**P31FB92DGMN**
1/4'	Poly bowl, pulse drain	0.01 micron	**P31FB92DGBN**
1/4"	Metal bowl, manual drain	0.01 micron	**P31FB92DMMN**
1/4'	Metal bowl, pulse drain	0.01 micron	**P31FB92DMBN**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Supply pressure (max):	
Poly bowl	150 psig (10 bar)
Metal bowl w/ DPI	150 psig (10 bar)
Metal bowl w/o DPI	250 psig (17 bar)
Operating temperature:	
Plastic bowl	14°F to 125°F (-10°C to 52°C)
Metal bowl	14°F to 150°F (-10°C to 65.5°C)
Standard filtration:	1.0 and 0.01 micron
Adsorber	Max. oil carryover (ppm w/w) 0.003 @ 70°F (21°C)
Flow capacity*:	
1.0 micron coalescing	12 scfm (5.5 dm^3/s, ANR)
0.01 micron coalescing	7.5 scfm (3.6 dm^3/s, ANR)
Activated carbon adsorber	12.7 scfm (6 dm^3/s, ANR)
Useful retention†:	0.4 US oz. (12 cm^3)
Weight:	0.24 lb (0.11 kg)

* Inlet pressure 91.3 psig (6.3 bar). Pressure drop 3 psig (0.2 bar), saturated element.
† Useful retention refers to volume below the quiet zone baffle.

Ordering Information:

P31FB 9 2 D G M N

Basic series	
Global modular mini coalescing filter	P31FB

Thread type	
BSPP	1
BSPT	2
NPT	9

Port size	
1/4	2

Element	
0.01µ Element	C
0.01µ Element with DPI	D
1µ Element	9
1µ Element with DPI	Q
Adsorber	A

Bowl type	
G	Poly bowl with bowl guard
M	Metal bowl without sight gauge

Drain type	
B	Pulse drain
M	Manual drain
X	Flex drain

Mounting	
N	No bracket

☐ Most popular.

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

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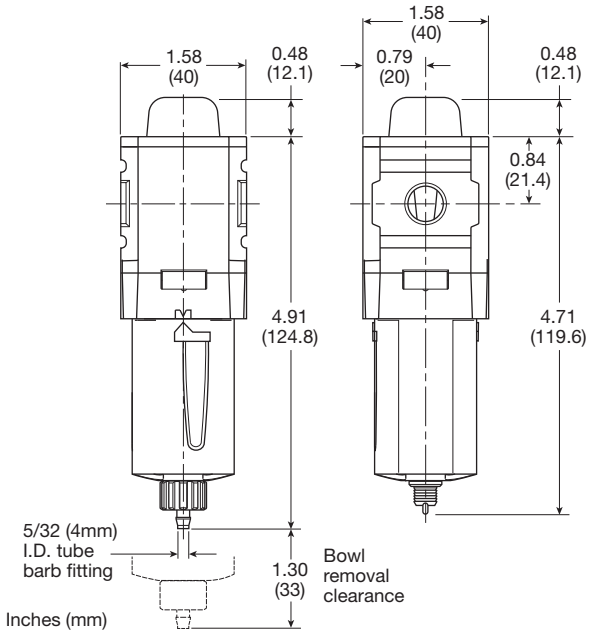
www.parker.com/pneumatics

Material Specifications

Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Filter element	Borosilicate cloth
Adsorber element	Activated carbon
Seals	Nitrile

Repair and Service Kits

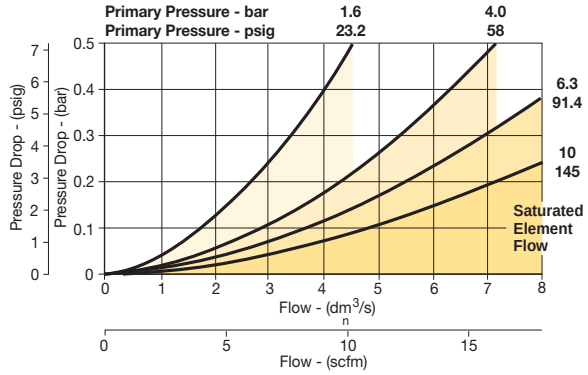
Plastic bowl / bowl guard, manual drain	**P31KB00BGM**
Metal bowl / w/o sight gauge ,manual drain	**P31KB00BMM**
Plastic bowl / bowl guard, pulse drain	**P31KB00BGB**
Metal bowl / w/o sight gauge, pulse drain	**P31KB00BMB**
1µ coalescing filter element	**P31KA00ES9**
0.01µ coalescing filter element	**P31KA00ESC**
Activated carbon adsorber filter element	**P31KA00ESA**
C-bracket (fits to body)	**P31KA00MW**
T-bracket with body connector	**P31KA00MT**
Body connector	**P31KA00CB**
Differential pressure indicator (replacement)	**P31KB00RQ**



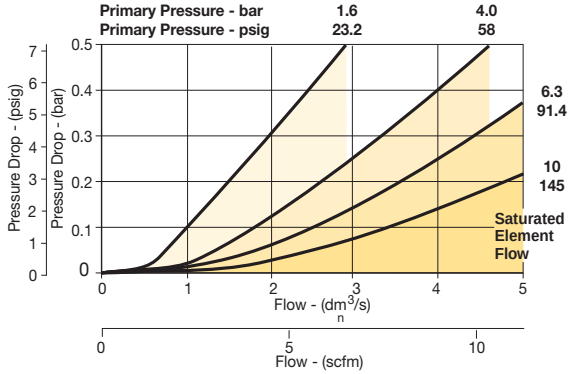
Manual Drain **Pulse Drain**

Flow Charts

P31FB - 1.0 micron flow



P31FB - 0.01 micron flow



P32 Coalescing and Adsorber Filters – Compact

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- Removes liquid aerosols and sub micron particles
- Oil free air for critical applications, such as air gauging, pneumatic instrumentation and control
- Differential Pressure Indicator (DPI) standard on Coalescing Filters
- Positive bayonet latch to ensure correct & safe fitting
- Adsorbing activated carbon element removes oil vapors and most hydrocarbons

Note: To optimize the life of coalescing element, it is advisable to install a P32F pre-filter with a 5 micron element upstream of the coalescing filter.
To optimize the life of an Adsorber it is advisable to install a P32 Coalescing Filter upstream of the Adsorber. Adsorber element should be replaced approximately every 1000 hours of service.

Port size	Description ‡	Element	Part number
1/4"	Poly bowl, manual drain	0.01 micron	**P32FB92DGMN**
1/4"	Poly bowl, auto drain	0.01 micron	**P32FB92DGAN**
1/4"	Metal bowl, manual drain	0.01 micron	**P32FB92DSMN**
1/4"	Metal bowl, auto drain	0.01 micron	**P32FB92DSAN**
3/8"	Poly bowl, manual drain	0.01 micron	**P32FB93DGMN**
3/8"	Poly bowl, auto drain	0.01 micron	**P32FB93DGAN**
3/8"	Metal bowl, manual drain	0.01 micron	**P32FB93DSMN**
3/8'	Metal bowl, auto drain	0.01 micron	**P32FB93DSAN**
1/2"	Poly bowl, manual drain	0.01 micron	**P32FB94DGMN**
1/2"	Poly bowl, auto drain	0.01 micron	**P32FB94DGAN**
1/2"	Metal bowl, manual drain	0.01 micron	**P32FB94DSMN**
1/2"	Metal bowl, auto drain	0.01 micron	**P32FB94DSAN**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Supply pressure (max):	
Poly bowl	150 psig (10 bar)
Metal bowl w/ DPI	150 psig (10 bar)
Metal bowl w/o DPI	250 psig (17 bar)
Operating temperature:	
Plastic bowl	-13°F to 125°F (-25°C to 52°C)
Metal bowl	-13°F to 150°F (-25°C to 65.5°C)
Standard filtration:	1.0 and 0.01 micron
Adsorber	Max. oil carryover (ppm w/w) 0.003 @ 70°F (21°C)
Flow capacity*:	
1.0 micron coalescing	53 scfm (25 dm^3/s, ANR)
0.01 micron coalescing	36 scfm (17 dm^3/s, ANR)
Activated carbon adsorber	85 scfm (40 dm^3/s, ANR)
Useful retention†:	1.7 US oz. (51 cm^3)
Weight:	0.71 lb (0.32 kg)

* Inlet pressure 91.3 psig (6.3 bar). Pressure drop 3 psig (0.2 bar), saturated element.
† Useful retention refers to volume below the quiet zone baffle.

Ordering Information:

P32FB 9 2 D G M N

Basic series

Global modular compact coalescing filter	P32FB

Thread type

BSPP	1
BSPT	2
NPT	9

Port size

1/4	2
3/8	3
1/2	4

Element

0.01µ Element	C
0.01µ Element with DPI	D
1µ Element	9
1µ Element with DPI	Q
Adsorber	A

Bowl type

G	Poly bowl with bowl guard
M	Metal bowl without sight gauge
S	Metal bowl with sight gauge

Drain type

M	Manual drain
A	Auto drain
X	Flex drain

Mounting

N	No bracket

☐ Most popular.

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

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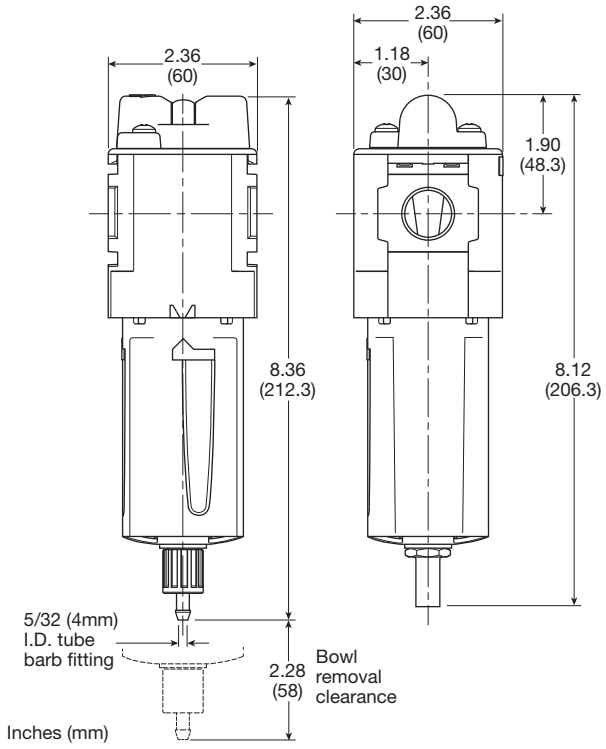
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Material Specifications

Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Filter element	Borosilicate cloth
Adsorber	Activated carbon
Seals	Nitrile
Sight gauge	Nylon

Repair and Service Kits

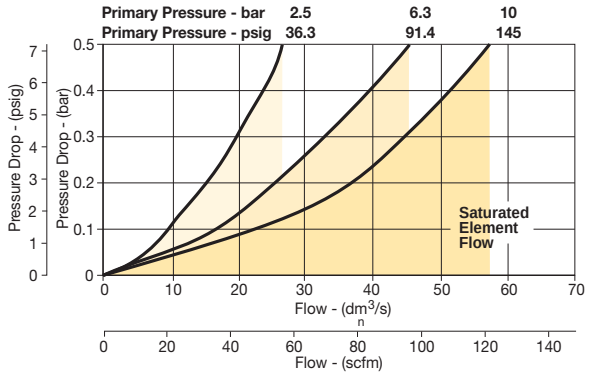
Plastic bowl / bowl guard, manual drain	**P32KB00BGM**
Metal bowl / sight gauge, manual drain	**P32KB00BSM**
Auto drain	**P32KA00DA**
1µ coalescing filter element	**P32KA00ES9**
0.01µ coalescing filter element	**P32KA00ESC**
Activated carbon adsorber filter element	**P32KA00ESA**
L-bracket (fits to body)	**P32KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P32KA00MT**
Body connector	**P32KA00CB**
Differential pressure indicator (replacement)	**P32KA00RQ**



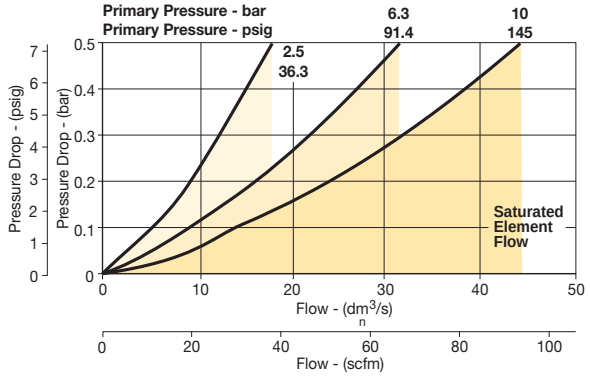
Manual Drain **Automatic Drain**

Flow Charts

P32FB - 1.0 micron flow



P32FB - 0.01 micron flow

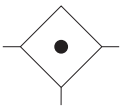


P33 Coalescing and Adsorber Filters – Standard

- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- Removes liquid aerosols and sub micron particles
- Oil free air for critical applications, such as air gauging, pneumatic instrumentation and control
- Differential Pressure Indicator (DPI) standard on Coalescing Filters
- Positive bayonet latch to ensure correct & safe fitting
- Adsorbing activated carbon element removes oil vapors and most hydrocarbons

Note: To optimize the life of coalescing element, it is advisable to install a P33F pre-filter with a 5 micron element upstream of the coalescing filter.

To optimize the life of an Adsorber it is advisable to install a P33 Coalescing Filter upstream of the Adsorber. Adsorber element should be replaced approximately every 1000 hours of service.



Port size	Description ‡	Element	Part number
1/2"	Poly bowl, manual drain	0.01 micron	**P33FA94DGMN**
1/2"	Poly bowl, auto drain	0.01 micron	**P33FA94DGAN**
1/2"	Metal bowl, manual drain	0.01 micron	**P33FA94DSMN**
1/2"	Metal bowl, auto drain	0.01 micron	**P33FA94DSAN**
3/4"	Poly bowl, manual drain	0.01 micron	**P33FA96DGMN**
3/4"	Poly bowl, auto drain	0.01 micron	**P33FA96DGAN**
3/4"	Metal bowl, manual drain	0.01 micron	**P33FA96DSMN**
3/4"	Metal bowl, auto drain	0.01 micron	**P33FA96DSAN**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Supply pressure (max):	
Poly bowl	150 psig (10 bar)
Metal bowl w/ DPI	150 psig (10 bar)
Metal bowl w/o DPI	250 psig (17 bar)
Operating temperature:	
Plastic bowl	-13°F to 125°F (-25°C to 52°C)
Metal bowl	-13°F to 150°F (-25°C to 65.6°C)
Standard filtration:	1.0 and 0.01 micron
Adsorber	Max. oil carryover (ppm w/w) 0.003 @ 70°F (21°C)
Flow capacity*:	
1.0 micron coalescing	68 scfm (32 dm^3/s, ANR)
0.01 micron coalescing	42 scfm (20 dm^3/s, ANR)
Activated carbon adsorber	72 scfm (34 dm^3/s, ANR)
Useful retention†:	2.8 US oz. (85 cm^3)
Weight:	1.10 lb (0.50 kg)

* Inlet pressure 91.3 psig (6.3 bar). Pressure drop 3 psig (0.2 bar), saturated element.
† Useful retention refers to volume below the quiet zone baffle.

Ordering information:

P33FA 9 6 D G M N

Basic series

Global modular standard coalescing filter	P33FA

Thread type

BSPP	1
BSPT	2
NPT	9

Port size

1/2	4
3/4	6

Element

0.01µ Element	C
0.01µ Element with DPI	D
1µ Element	9
1µ Element with DPI	Q
Adsorber	A

Bowl type

G	Poly bowl with bowl guard
M	Metal bowl without sight gauge
S	Metal bowl with sight gauge

Drain type

M	Manual drain
A	Auto drain

Mounting

N	No bracket

☐ Most popular.

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

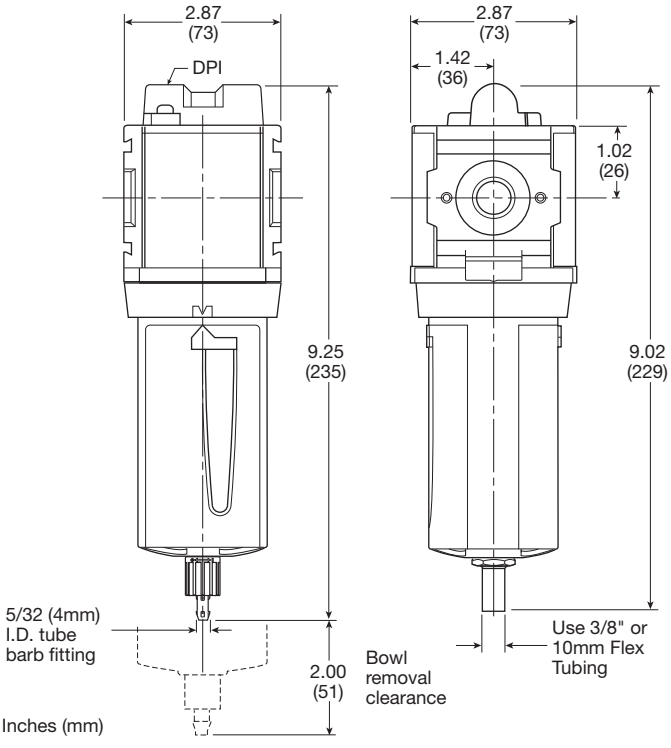
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Material Specifications

Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Filter element	Borosilicate cloth
Adsorber	Activated carbon
Seals	Nitrile
Sight gauge	Nylon

Repair and Service Kits

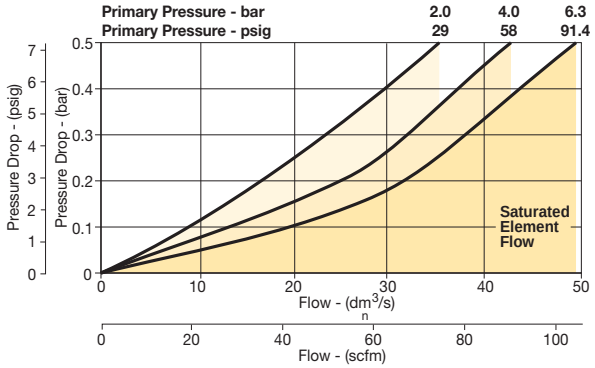
Plastic bowl / bowl guard, manual drain	**P33KA00BGM**
Metal bowl / sight gauge, manual drain	**P33KA00BSM**
Auto drain	**P32KA00DA**
1µ coalescing filter element	**P33KA00ES9**
0.01µ coalescing filter element	**P33KA00ESC**
Activated carbon adsorber filter element	**P33KA00ESA**
L-bracket (fits to body)	**P33KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P32KA00MT**
Body connector	**P32KA00CB**
Differential pressure indicator (replacement)	**P32KA00RQ**



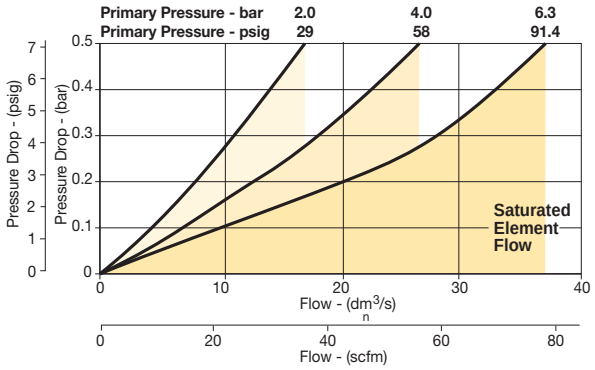
Manual Drain **Automatic Drain**

Flow Charts

P33FA - 1.0 micron flow

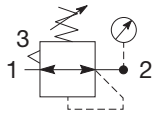


P33FA - 0.01 micron flow

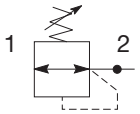


P31 Regulators – Mini

- Integral 1/4" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation.
- Relieving & non-relieving types
- Non-rising knob



Self relieving regulator with gauge



Non-relieving regulator

Port size	Description (relieving)	Gauge	Part number
1/4"	125 psig (8 bar)	None	**P31RB92BNNP**
1/4"	125 psig (8 bar)	Square	**P31RB92BN5P**

Operating information

Flow capacity*:	1/4	68 scfm (32 dm³/s, ANR)
Operating temperature†:		-4°F to 150°F (-20°C to 65.5°C)
Supply pressure (max):		300 psig (20 bar)
Adjusting range pressure:		30 psig (0-2 bar) 60 psig (0-4 bar) 125 psig (0-8 bar) 232 psig (0-16 bar)
Gauge port (2 each)**		1/8 BSPP, BSPT, NPT
Weight:		0.37 lb (0.17 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.
** Non-gauge option only.
† Units with square gauges: 5°F to 150°F (-15°C to 65.5°C)

Ordering Information:

P31RB 9 2 B N 5 P

Basic series

Global modular mini regulator	P31RB

Thread type

BSPP	1
BSPT	2
NPT	9

Port size

1/4	2

Relief

Relieving	B
Non-relieving	N
Reverse flow-relieving	R

Adjustment

N	Non-rising knob

Adjustment range

With square gauge		With round gauge	
psig	bar		
1 = 30*	V = 2*	Z	30 psig; 2 bar; 0.2 MPa
3 = 60	S = 4	M	60 psig; 4 bar; 0.4 MPa
5 = 125	T = 8	G	125 psig; 8 bar; 0.8 MPa
		J	232 psig; 16 bar; 1.6 MPa
		Without gauge	
		Y	30 psig; 2 bar; 0.2 MPa
		L	60 psig; 4 bar; 0.4 MPa
		N	125 psig; 8 bar; 0.8 MPa
		H	232 psig; 16 bar; 1.6 MPa

* Regulator comes with gauge respective to the adjustment range selected.

Mounting

P	Plastic panel mount nut

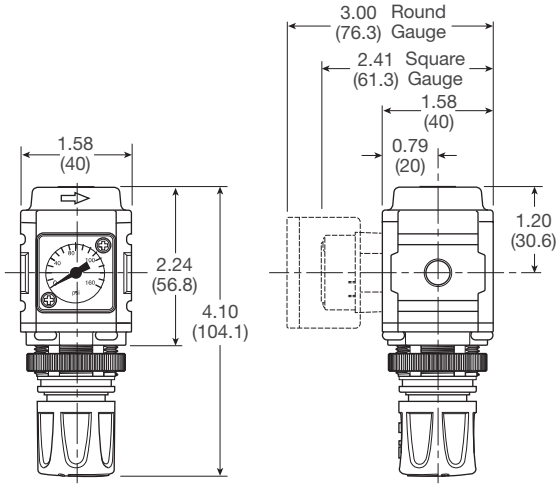
☐ Most popular.

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Bonnet	PBT
Diaphragm assembly	Brass / Nitrile
Valve assembly	Brass / Nitrile
Springs	Steel
Seals	Nitrile
Panel nut	Acetal

Repair and Service Kits

Diaphagm repair kit - relieving	**P31KB00RB**
Diaphagm repair kit - non-relieving	**P31KB00RC**
Panel mount nut - aluminum	**P31KA00MM**
Panel mount nut - plastic	**P31KA00MP**
Angle bracket (attaches via panel nut)	**P31KB00MR**
C-bracket (fits to body)	**P31KA00MW**
T-bracket with body connector	**P31KA00MT**
Body connector	**P31KA00CB**

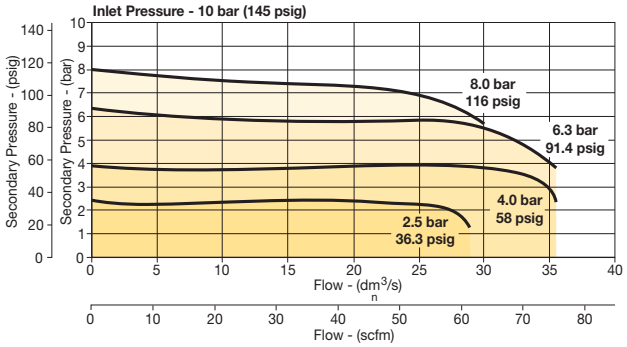


Inches (mm)

NOTE: 1.20 in. (30mm) hole required for panel nut mounting.

Flow Charts

P31RB 1/4" 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.

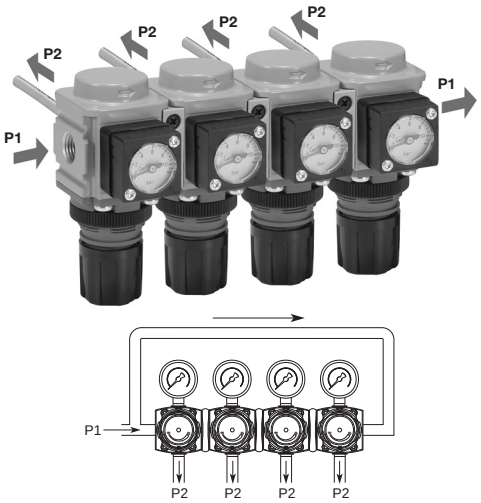
Gauges

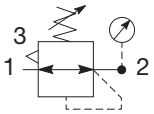
Square flush mount gauge	0-4 bar	**K4511SCR04B**
	0-11 bar	**K4511SCR11B**
	0-60 psig	**K4511SCR060**
	0-160 psig	**K4511SCR160**
Square with adapter kit	0-4 bar	**P6G-PR10040**
	0-11 bar	**P6G-PR10110**
	0-60 psig	**P6G-PR90060**
	0-160 psig	**P6G-PR90160**
1.00" Round 1/8" center back mount	0-60 psig / 0-4 bar	**K4510N18060**
	0-160 psig / 0-11 bar	**K4510N18160**
40mm Round 1/8" center back mount (Not for use with common port regulators)	0-30 psig / 0-2 bar	**K4515N18030**
	0-60 psig / 0-4 bar	**K4515N18060**
	0-160 psig / 0-11 bar	**K4515N18160**

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

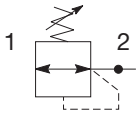
P31 Common P1 Regulators – Mini

- Manifold style regulator with line pressure on both sides
- Pressure output is at front or rear
- Inlet port 1/4" (NPT, BSPP & BSPT)
- Working port 1/8"
- Robust construction
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Relieving & non-relieving types
- Non-rising knob





Self relieving regulator with gauge



Non-relieving regulator

Port size	Description (relieving)	Gauge	Part number
1/4"	125 psig (8 bar)	None	**P31HB92BNNP**
1/4"	125 psig (8 bar)	Square	**P31HB92BN5P**

Operating information

Flow capacity*: 1/4	42 scfm (20 dm³/s, ANR)
Operating temperature:	-4°F to 150°F (-20°C to 65.5°C)
Supply pressure (max):	300 psig (20 bar)
Adjusting range pressure:	30 psig (0-2 bar) 60 psig (0-4 bar) 125 psig (0-8 bar) 232 psig (0-16 bar)
P1 port size (inlet/outlet)	1/4 NPT, BSPP, BSPT
P2 regulated ports (2 ea.)	1/8 NPT, BSPP, BSPT
Weight:	0.66 lb (0.30 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.

Ordering Information:

P31HB 9 2 B N 5 P

Basic series

Global modular mini common regulator	P31HB

Thread type

BSPP	1
BSPT	2
NPT	9

Port size †

1/4	2

† Working port 1/8".

Relief

Relieving	B
Non-relieving	N
Reverse flow-relieving	R

Adjustment

N	Non-rising knob

Mounting

P	Plastic panel mount nut

Adjustment range

With square gauge				With round gauge	
psig		bar			
1 = 30*		V = 2*		Z	30 psig; 2 bar; 0.2 MPa
3 = 60		S = 4		M	60 psig; 4 bar; 0.4 MPa
5 = 125		T = 8		G	125 psig; 8 bar; 0.8 MPa
				J	232 psig; 16 bar; 1.6 MPa
				Without gauge	
				Y	30 psig; 2 bar; 0.2 MPa
				L	60 psig; 4 bar; 0.4 MPa
				N	125 psig; 8 bar; 0.8 MPa
				H	232 psig; 16 bar; 1.6 MPa

* Regulator comes with gauge respective to the adjustment range selected.

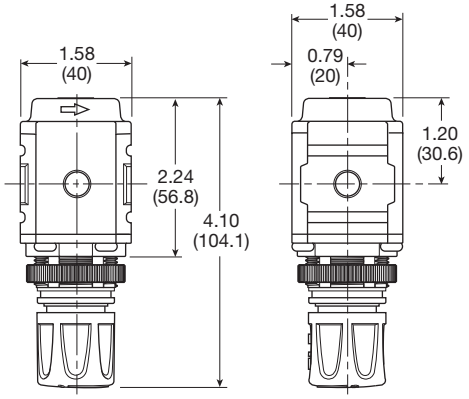
☐ Most popular.

Materials of Construction

Body	Aluminum
Adjustment knob	Acetal
Bonnet	Glass-filled PBT
Diaphragm assembly	Brass / Nitrile
Valve assembly	Brass / Nitrile

Repair and Service Kits

Diaphagm repair kit - relieving	**P31KB00RB**
Diaphagm repair kit - non-relieving	**P31KB00RC**
Panel mount nut - aluminum	**P31KA00MM**
Panel mount nut - plastic	**P31KA00MP**
Angle bracket (attaches via panel nut)	**P31KB00MR**
T-bracket with body connector	**P31KA00MT**
Body connector	**P31KA00CB**

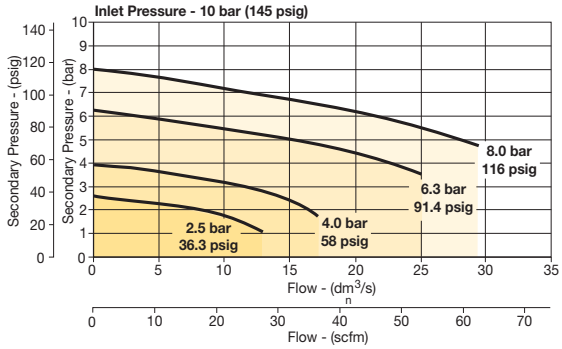


Inches (mm)

NOTE: 1.20 in. (30mm) hole required for panel nut mounting.

Flow Charts

P31HB 1/4" Common 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.

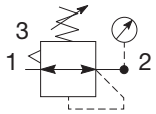
Gauges

Square with adapter kit	0-4 bar	**P6G-PR10040**
	0-11 bar	**P6G-PR10110**
	0-60 psig	**P6G-PR90060**
	0-160 psig	**P6G-PR90160**
1.00" round 1/8" center back mount	0-60 psig / 0-4 bar	**K4510N18060**
	0-160 psig / 0-11 bar	**K4510N18160**

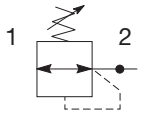
For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

P32 Regulators – Compact

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Relieving & non-relieving types
- Non-rising knob
- Available T-handle



Self relieving regulator with gauge



Non-relieving regulator

Port size	Description (relieving)	Gauge	Part number
1/4"	125 psig (8 bar)	None	**P32RB92BNNP**
1/4"	125 psig (8 bar)	Round	**P32RB92BNGP**
3/8"	125 psig (8 bar)	None	**P32RB93BNNP**
3/8"	125 psig (8 bar)	Round	**P32RB93BNGP**
1/2"	125 psig (8 bar)	None	**P32RB94BNNP**
1/2"	125 psig (8 bar)	Round	**P32RB94BNGP**

Operating information

Flow capacity*:	
1/4	148 scfm (70 dm³/s, ANR)
3/8, 1/2	165 scfm (78 dm³/s, ANR)
Operating temperature:	-13°F to 150°F (-25°C to 65.5°C)
Supply pressure (max):	300 psig (20 bar)
Adjusting range pressure:	30 psig (0-2 bar) 60 psig (0-4 bar) 125 psig (0-8 bar) 250 psig (0-17 bar)
Gauge port (2 each)	1/4 NPT, BSPP, BSPT
Weight:	0.90 lb (0.41 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.

Ordering Information:

P32RB 9 2 B N G P

Basic series

Global modular compact regulator	P32RB

Thread type

BSPP	1
BSPT	2
NPT	9

Port size

1/4	2
3/8	3
1/2	4

Relief

Relieving	B
Non-relieving	N

Adjustment

N	Non-rising knob
T	T-Handle

Mounting

P	Plastic panel mount nut

Adjustment range

With square gauge		With round gauge	
psig	bar		
1 = 30*	V = 2*	Z	30 psig; 2 bar; 0.2 MPa
3 = 60	S = 4	M	60 psig; 4 bar; 0.4 MPa
5 = 125	T = 8	G	125 psig; 8 bar; 0.8 MPa
		J	250 psig; 17 bar; 1.7 MPa
		Without gauge	
		Y	30 psig; 2 bar; 0.2 MPa
		L	60 psig; 4 bar; 0.4 MPa
		N	125 psig; 8 bar; 0.8 MPa
		H	250 psig; 17 bar; 1.7 MPa

* Regulator comes with gauge respective to the adjustment range selected.

☐ Most popular.

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Bonnet	Glass-filled nylon
Diaphragm assembly	Nitrile / Zinc
Valve assembly	Brass / Nitrile
Springs	Steel, stainless steel
Seals	Nitrile
Panel nut	Acetal

Repair and Service Kits

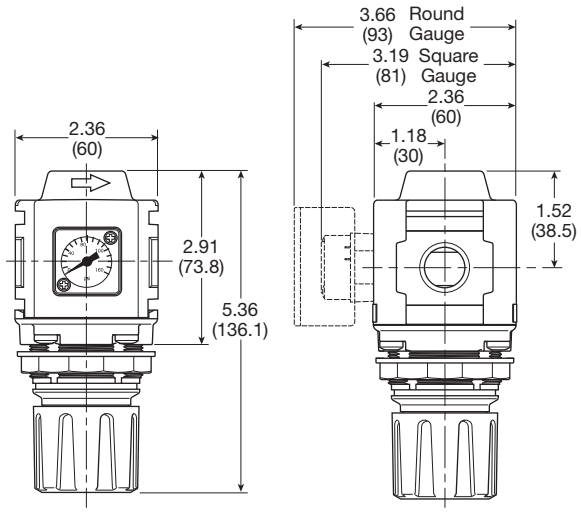
Diaphagm repair kit - relieving	**P32KB00RB**
Diaphagm repair kit - non-relieving	**P32KB00RC**
Panel mount nut - aluminum	**P32KA00MM**
Panel mount nut - plastic	**P32KA00MP**
Angle bracket (attaches via panel nut)	**P32KB00MR**
T-bracket with body connector	**P32KA00MT**
T-bracket	**P32KA00MB**
Body connector	**P32KA00CB**

⚠ 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.

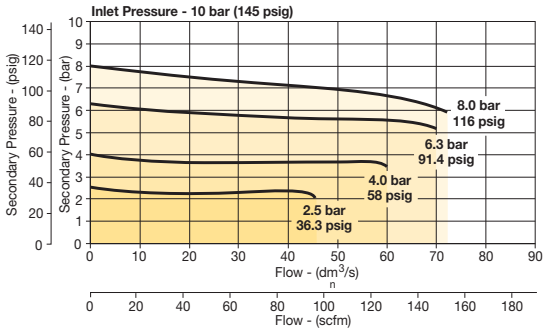


Inches (mm)

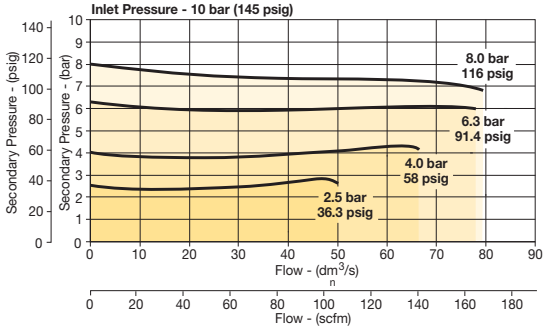
NOTE: 1.90 in. (48mm) hole required for panel nut mounting.

Flow Charts

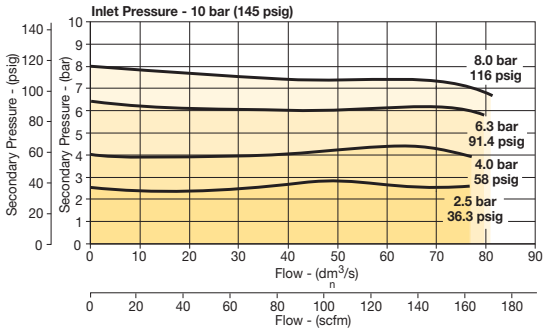
P32RB 1/4" Regulator



P32RB 3/8" Regulator



P32RB 1/2" Regulator



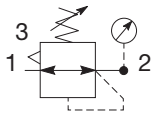
Gauges

Square flush mount gauge	0-4 bar	**K4511SCR04B**
	0-11 bar	**K4511SCR11B**
	0-60 psig	**K4511SCR060**
	0-160 psig	**K4511SCR160**
Square with adapter kit	0-4 bar	**P6G-PR10040**
	0-11 bar	**P6G-PR10110**
	0-60 psig	**P6G-PR90060**
	0-160 psig	**P6G-PR90160**
50mm (2") round 1/4" center back mount	0-30 psig / 0-2 bar	**K4520N14030**
	0-60 psig / 0-4 bar	**K4520N14060**
	0-160 psig / 0-11 bar	**K4520N14160**
	0-300 psig / 0-20 bar	**K4520N14300**

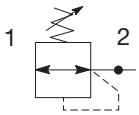
For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

P32 Semi-Precision Regulator – Compact

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Relieving & non-relieving types
- Non-rising knob



Self relieving regulator with gauge



Non-relieving regulator

Port size	Description (relieving)	Gauge	Part number
1/4"	125 psig (8 bar)	None	**P32RB92PNNP**
1/4"	125 psig (8 bar)	Round	**P32RB92PNGP**
3/8"	125 psig (8 bar)	None	**P32RB93PNNP**
3/8"	125 psig (8 bar)	Round	**P32RB93PNGP**
1/2"	125 psig (8 bar)	None	**P32RB94PNNP**
1/2"	125 psig (8 bar)	Round	**P32RB94PNGP**

Operating information

Flow capacity*: 1/4, 3/8, 1/2	53 scfm (25 dm^3/s, ANR)
Effect of supply pressure variation	0.6 psig (0.04 bar) for 25 psig (1.7 bar) change in P1
Operating temperature:	-13°F to 150°F (-25°C to 65.5°C)
Supply pressure (max):	300 psig (20 bar)
Adjusting range pressure:	0 to 30 psig (0 to 2 bar) 0 to 60 psig (0 to 4 bar) 0 to 125 psig (0 to 8 bar) 0 to 250 psig (0 to 17 bar)
Gauge port (2 each):	1/4 NPT, BSPP, BSPT
Weight:	0.90 lb (0.41 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.

Ordering Information:

P32RB 9 6 P N G P

Basic series

Global modular compact regulator	P32RB

Thread type

BSPP	1
BSPT	2
NPT	9

Port size

1/4	2
3/8	3
1/2	4

Relief

Semi-precision relieving	P
Semi-presicison non-relieving	T

Adjustment

N	Non-rising knob
T	T-Handle

Mounting

P	Plastic panel mount nut

Adjustment range

With square gauge		With round gauge	
psig	bar		
1 = 30*	V = 2*	Z	30 psig; 2 bar; 0.2 MPa
3 = 60	S = 4	M	60 psig; 4 bar; 0.4 MPa
5 = 125	T = 8	G	125 psig; 8 bar; 0.8 MPa
		J	250 psig; 17 bar; 1.7 MPa
		Without gauge	
		Y	30 psig; 2 bar; 0.2 MPa
		L	60 psig; 4 bar; 0.4 MPa
		N	125 psig; 8 bar; 0.8 MPa
		H	250 psig; 17 bar; 1.7 MPa

* Regulator comes with gauge respective to the adjustment range selected.

☐ Most popular.

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Bonnet	Glass-filled nylon
Diaphragm assembly	Nitrile / zinc
Valve assembly	Brass / nitrile
Springs	Steel, stainless steel
Seals	Nitrile
Panel nut	Acetal

Repair and Service Kits

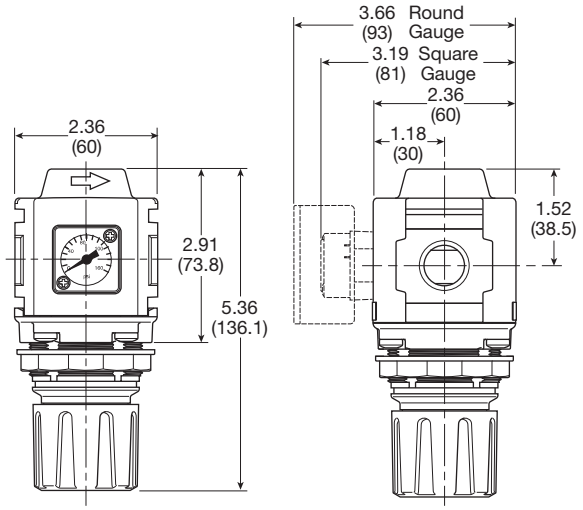
Diaphagm repair kit - relieving	**P32KB00RB**
Diaphagm repair kit - non-relieving	**P32KB00RC**
Panel mount nut - aluminum	**P32KA00MM**
Panel mount nut - plastic	**P32KA00MP**
Angle bracket (attaches via panel nut)	**P32KB00MR**
T-bracket with body connector	**P32KA00MT**
T-bracket	**P32KA00MB**
Body connector	**P32KA00CB**

⚠ 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.

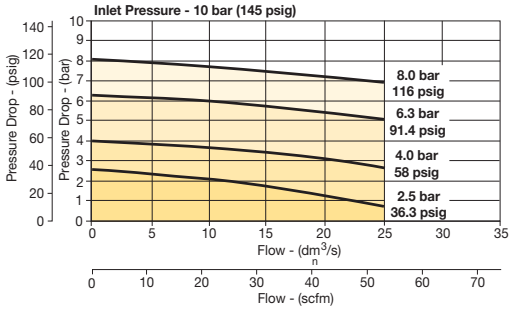


Inches (mm)

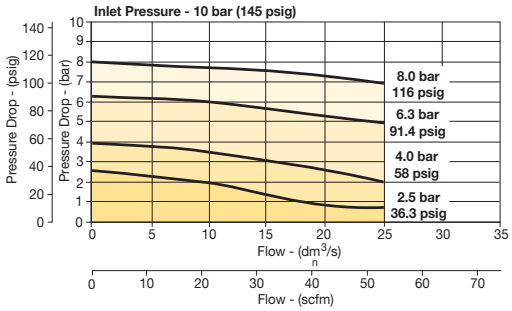
NOTE: 1.90 in. (48mm) hole required for panel nut mounting.

Flow Charts

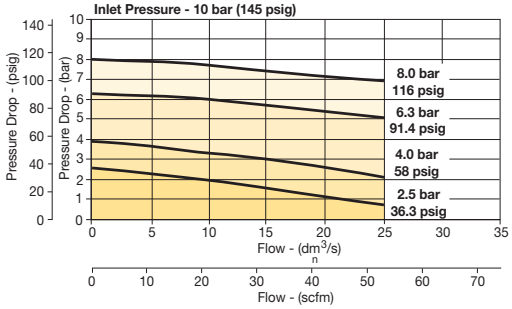
P32RB 1/4" Regulator



P32RB 3/8" Regulator



P32RB 1/2" Regulator



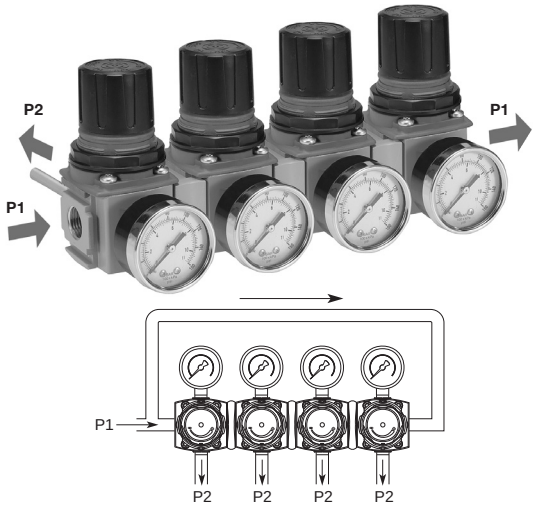
Gauges

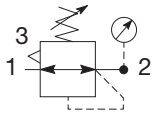
Square flush mount gauge	0-4 bar	**K4511SCR04B**
	0-11 bar	**K4511SCR11B**
	0-60 psig	**K4511SCR060**
	0-160 psig	**K4511SCR160**
Square with adapter kit	0-4 bar	**P6G-PR10040**
	0-11 bar	**P6G-PR10110**
	0-60 psig	**P6G-PR90060**
	0-160 psig	**P6G-PR90160**
50mm (2") round 1/4" center back mount	0-30 psig / 0-2 bar	**K4520N14030**
	0-60 psig / 0-4 bar	**K4520N14060**
	0-160 psig / 0-11 bar	**K4520N14160**
	0-300 psig / 0-20 bar	**K4520N14300**

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

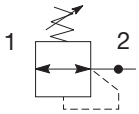
P32 Common - P1 Regulator – Compact

- Manifold style regulator with line pressure on both sides.
- Pressure output is at front or rear.
- Inlet ports 1/4", 3/8" or 1/2" (NPT, BSPP & BSPT)
- Working port 1/4"
- Robust construction
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Relieving & non-relieving types
- Non-rising knob





Self relieving regulator with gauge



Non-relieving regulator

Port size	Description (relieving)	Gauge	Part number
1/4"	125 psig (8 bar)	None	**P32HB92BNNP**
3/8"	125 psig (8 bar)	None	**P32HB93BNNP**
1/2"	125 psig (8 bar)	None	**P32HB94BNNP**

Operating information

Flow capacity*: 1/4, 3/8, 1/2	64 scfm (30 dm³/s, ANR)
Operating temperature:	-25°C to 65.5°C (-13°F to 150°F)
Supply pressure (max):	300 psig (20 bar)
Adjusting range pressure:	0 to 30 psig (0 to 2 bar) 0 to 60 psig (0 to 4 bar) 0 to 125 psig (0 to 8 bar) 0 to 232 psig (0 to 16 bar)
Gauge port (2 each):	1/4 NPT, BSPP, BSPT
Weight:	0.50 lb (1.10 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.

Ordering Information:

P32HB 9 2 B N N P

Basic series

Global modular compact regulator	P32HB

Thread type

BSPP	1
BSPT	2
NPT	9

Port size †

1/4	2
3/8	3
1/2	4

† Working port 1/4".

Relief

Relieving	B
Non-relieving	N

Adjustment

N	Non-rising knob
T	T-Handle

Adjustment range

With square gauge		With round gauge	
psig	bar		
1 = 30*	V = 2*	Z	30 psig; 2 bar; 0.2 MPa
3 = 60	S = 4	M	60 psig; 4 bar; 0.4 MPa
5 = 125	T = 8	G	125 psig; 8 bar; 0.8 MPa
		J	250 psig; 17 bar; 1.7 MPa
		Without gauge	
		Y	30 psig; 2 bar; 0.2 MPa
		L	60 psig; 4 bar; 0.4 MPa
		N	125 psig; 8 bar; 0.8 MPa
		H	250 psig; 17 bar; 1.7 MPa

* Regulator comes with gauge respective to the adjustment range selected.

Mounting

P	Plastic panel mount nut

☐ Most popular.

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

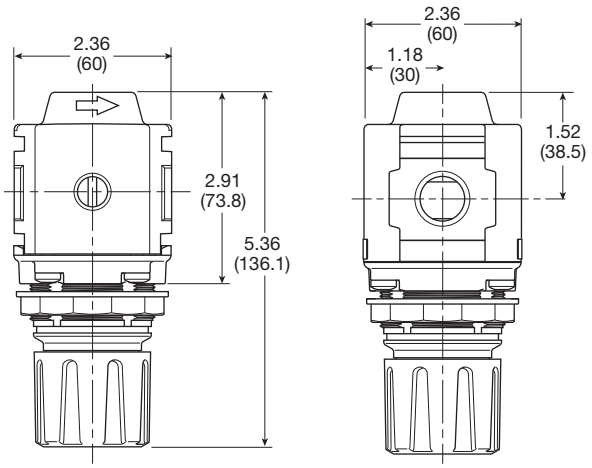
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Bonnet	Glass-filled nylon
Diaphragm assembly	Nitrile / zinc
Valve assembly	Brass / nitrile
Springs	Steel, stainless steel
Seals	Nitrile
Panel nut	Acetal

Repair and Service Kits

Diaphagm repair kit - relieving	**P32KB00RB**
Diaphagm repair kit - non-relieving	**P32KB00RC**
Panel mount nut - aluminum	**P32KA00MM**
Panel mount nut - plastic	**P32KA00MP**
Angle bracket (attaches via panel nut)	**P32KB00MR**
T-bracket with body connector	**P32KA00MT**
T-bracket	**P32KA00MB**
Body connector	**P32KA00CB**

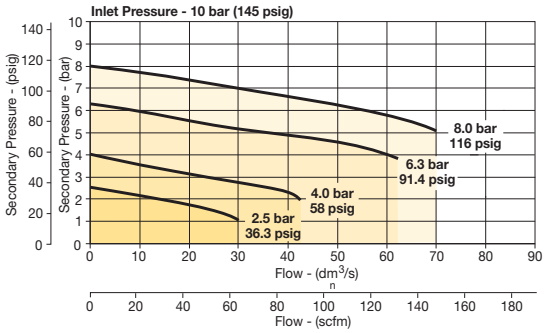


Inches (mm)

NOTE: 1.90 in. (48mm) hole required for panel nut mounting.

Flow Charts

P32HB Common Port 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.

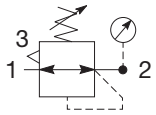
Gauges

Square flush mount gauge	0-4 bar	**K4511SCR04B**
	0-11 bar	**K4511SCR11B**
	0-60 psig	**K4511SCR060**
	0-160 psig	**K4511SCR160**
Square with adapter kit	0-4 bar	**P6G-PR10040**
	0-11 bar	**P6G-PR10110**
	0-60 psig	**P6G-PR90060**
	0-160 psig	**P6G-PR90160**
50mm (2") round 1/4" center back mount	0-30 psig / 0-2 bar	**K4520N14030**
	0-60 psig / 0-4 bar	**K4520N14060**
	0-160 psig / 0-11 bar	**K4520N14160**
	0-300 psig / 0-20 bar	**K4520N14300**

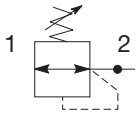
For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

P33 Regulators – Standard

- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Relieving & non-relieving types
- Non-rising knob



Self relieving regulator with gauge



Non-relieving regulator

Port size	Description (relieving)	Gauge	Part number
1/2"	125 psig (8 bar)	None	**P33RA94BNNP**
1/2"	125 psig (8 bar)	Round	**P33RA94BNGP**
3/4"	125 psig (8 bar)	None	**P33RA96BNNP**
3/4"	125 psig (8 bar)	Round	**P33RA96BNGP**

Operating information

Flow capacity*:	
1/2, 3/4	233 scfm (110 dm^3/s, ANR)
Operating temperature:	-13°F to 150°F (-25°C to 65.5°C)
Supply pressure (max):	300 psig (20 bar)
Adjusting range pressure:	0 to 30 psig (0 to 2 bar) 0 to 60 psig (0 to 4 bar) 0 to 125 psig (0 to 8 bar) 0 to 250 psig (0 to 17 bar)
Gauge port (2 each):	1/4 NPT, BSPP, BSPT
Weight:	1.37 lb (0.62 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.

Ordering Information:

P33RA 9 6 B N G P

Basic series

Global modular standard regulator	P33RA

Thread type

BSPP	1
BSPT	2
NPT	9

Port size

1/2	4
3/4	6

Relief

Relieving	B
Non-relieving	N
Reverse flow-relieving	R

Adjustment

Non-rising knob	N

Adjustment range

	With round gauge
Z	30 psig; 2 bar; 0.2 MPa
M	60 psig; 4 bar; 0.4 MPa
G	125 psig; 8 bar; 0.8 MPa
J	250 psig; 17 bar; 1.7 MPa
	Without gauge
Y	30 psig; 2 bar; 0.2 MPa
L	60 psig; 4 bar; 0.4 MPa
N	125 psig; 8 bar; 0.8 MPa
H	250 psig; 17 bar; 1.7 MPa

Mounting

P	Plastic panel mount nut

☐ Most popular.

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Body cap	ABS
Bonnet	Glass-filled nylon
Diaphragm assembly	Nitrile / zinc
Valve assembly	Brass / nitrile
Springs	Steel, stainless steel
Seals	Nitrile
Panel nut	Acetal

Repair and Service Kits

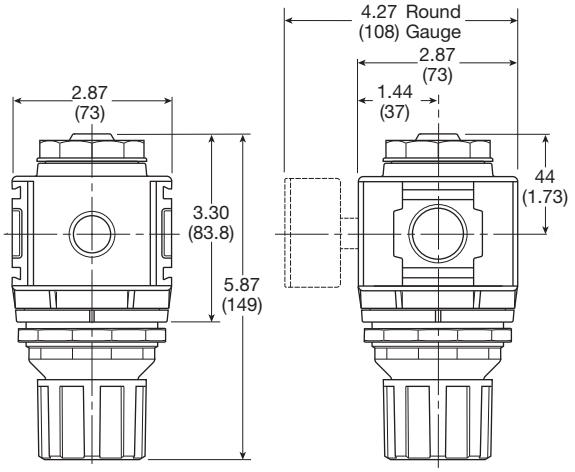
Diaphagm repair kit - relieving	**P33KA00RB**
Diaphagm repair kit - non-relieving	**P33KA00RC**
Panel mount nut - aluminum	**P33KA00MM**
Panel mount nut - plastic	**P33KA00MP**
Angle bracket (attaches via panel nut)	**P33KA00MR**
T-bracket with body connector	**P32KA00MT**
T-bracket	**P32KA00MB**
Body connector	**P32KA00CB**

⚠ 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.

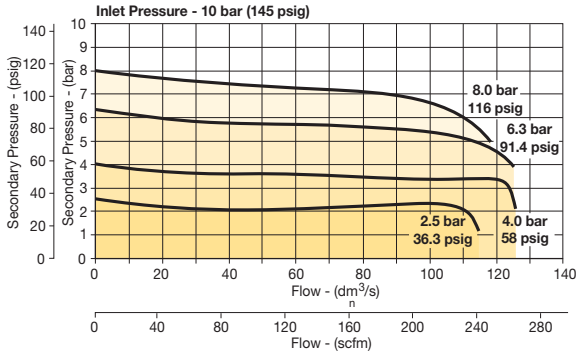


Inches (mm)

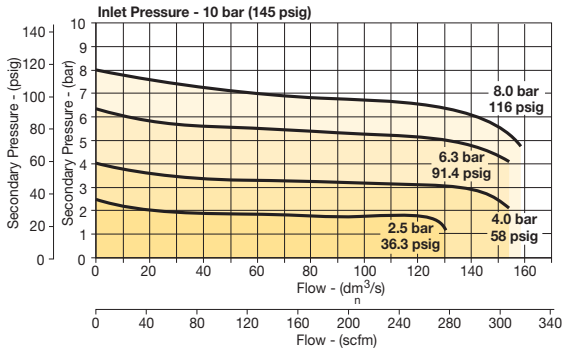
NOTE: 2.40 in. (61mm) hole required for panel nut mounting.

Flow Charts

P33RA 1/2" Regulator



P33RA 3/4" Regulator



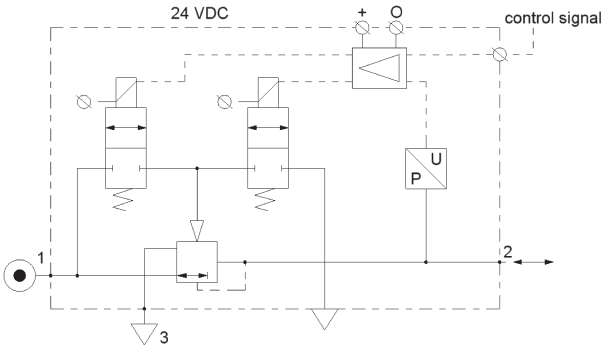
Gauges

50mm (2") round 1/4" center back mount	0-30 psig / 0-2 bar	**K4520N14030**
	0-60 psig / 0-4 bar	**K4520N14060**
	0-160 psig / 0-11 bar	**K4520N14160**
	0-300 psig / 0-20 bar	**K4520N14300**

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

P31P & P32P Proportional Regulators

- Very fast response times
- Accurate output pressure
- Parameter settings
- Selectable I/O parameters
- Quick, full flow exhaust
- LED display indicates output pressure
- No air consumption in steady state
- Multiple mounting options
- Protection to IP65



P31P Series
Bottom exhaust

P32P Series
Bottom exhaust

Port size	Description	Part number
1/4"	145 psig (0-10 bar), NC 0-10V	**P31PA92AD2VD1**
1/2"	145 psig (0-10 bar), NC 0-10V	**P32PA92AD2VD1**

Operating information

Flow capacity*:	P31P	40 scfm (19 dm³/s, ANR)
	P32P	120 scfm (57 dm³/s, ANR)
Temperature range:		32°F to 122°F (0°C to 50°C)
Supply pressure (max):		
2 bar unit		36.3 psig (2.5 bar)
10 bar unit		152 psig (10.5 bar)
Operating pressure (min):		P2 pressure + 7.3 psig (0.5 bar)
Working medium:		Compressed air or inert gasses, filtered to 40µ
Pressure range:		0 to 30 psig (0 to 2 bar) 0 to 145 psig (0 to 10 bar)
Weight:	P31P	0.64 lb (0.291 kg)
	P32P	1.42 lb (0.645 kg)

* Inlet pressure 91.3 psig (6.3 bar), inlet pressure and 4.9 psig (0.34 bar) pressure drop.

Ordering Information:

P31PA | **9** | **2** | **A** | **D** | **2** | **V** | **D** | **1** | ☐

Body size	
Global modular mini (1/4")	P31PA
Global modular compact (1/2")	P32PA

Thread type	
BSPP	1
BSPT	2
NPT	9

Port size	
Global modular mini (1/4")	2
Global modular compact (1/2")	4

Version	
Bottom ported exhaust (NC)	A
Bottom ported forced exhaust (NO)†	E

† When the supply voltage is lost the unit will automatically exhaust the regulated pressure to 0 bar (atmospheric pressure)

Pressure range	
Z	0 - 29 psig (0 - 2 bar)
D	0 - 145 psig (0 - 10 bar)

Power supply	
2	24 volts

Control signal	
V	0-10V‡

‡ Factory setting is 0-10 V control signal. 4-20 mA control signal available via parameter 4 on keypad.

Input connector	
1	M12 (4-pin)

Output signal	
D	Digital, PNP
P	PNP or 0-10V
N	NPN or 0-10V
M	4-20mA fixed

D) Digital PNP output only, no analog output selectable
P) Digital PNP and analogue 0-10V outputs selectable, by means of parameter 6. (Factory default 0-10V)
N) Digital NPN and analog 0-10 V outputs selectable by means of parameter 6. Factory default 0-10V)
M) Analog 4-20mA output only.
Note: On all analog outputs the F.S. value can be adjusted by means of parameter 8.

☐ Most popular.

Technical Information

Accuracy

+/- 1.0% of F.S.*

* Full scale (F.S.) - For 2 bar (29 psig) versions this will be 2 bar (29 psig), for the 10 bar (145 psig) version full scale will be 10 bar (145 psig).

Air consumption

No consumption in stable regulated situation.

Display

The regulator is provided with a digital display, indicating the output pressure, either in bar or psig.

The factory setting is as indicated on the label, can be changed through to software at all times (parameter 14)

Supply voltage

24 VDC +/- 10%

Power consumption

Max. 1.1W with unloaded signal outputs

Control signals

The electronic pressure regulator can be externally controlled through an analogue control signal of either 0-10V or 4-20mA. (parameter 4).

Output signals

As soon as the output pressure is within the signal band a signal is given of 24VDC, PNP Ri = 1 kOhm
Outside the signal band this connection is 0V.

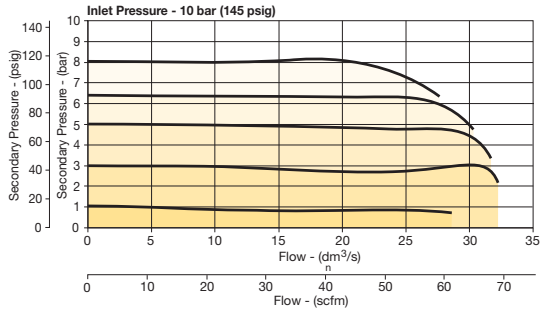
Connections

(In case of output signal (Option D)
Central M12 connector 4-pole
The electrical connections are as follows:

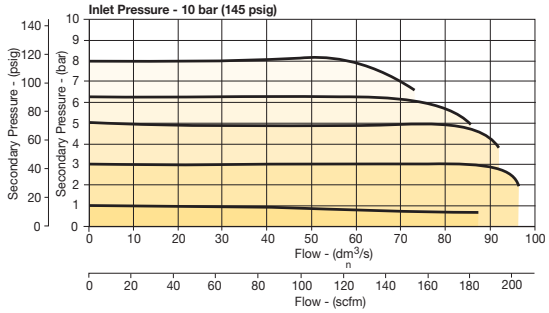
Pin No.		Function	Color
1	24 V	Supply	Brown
2	0 to 10 V	Control Signal Ri = 100k Ω	White
	4 to 20mA	Control Signal Ri = 500 Ω	
3	0 V (GND)	Supply	Blue
4	24 V	Alarm Output Signal	Black

Flow Charts

P31P Regulator 1/4" Ports



P32P Regulator 1/2" Ports



Degree of protection: IP65

EU conformity

CE: standard
EMC: according to directive 89/336/EEC
This pressure regulator is in accordance with:

EN 61000-6-1:2001 **EN 61000-6-2:2001**
EN 61000-6-3:2001 **EN 61000-6-4:2001**

Mounting position

Preferably vertical, with the cable gland on top.

Materials: P31P & P32P

Magnet core	Steel
Solenoid valve poppet	FPM
Solenoid valve housing	Techno polymer
Regulator body (P31P & P32P versions)	Aluminum
Regulator top housing	Nylon
Valve head	Brass & NBR
Remaining seals	NBR

How to change parameters – How to Videos available at www.parker.com/pneu/propreg

Pressing the Accept key “acc” for more than 3 seconds, will activate parameter change mode. The user can then select the parameters by pressing up or down key (display will show Pxx). When parameter number is correct, pressing accept again will enter parameter number (display will show parameter value).

Pressing the up or down key will change the parameter itself (display will flash indicating parameter editing mode). Pressing the accept key will accept the new parameter value (all digits will flash whilst being accepted).

After releasing all keys, the next parameter number will be presented on the display (you may step to the next parameter). When no key is pressed, after 3 seconds the display will show the actual output pressure.

When the unit is initially powered up allow approximately 10 seconds for the unit to “boot-up” before changing parameter settings.

Only parameter numbers 0, 4, 6, 8, 9, 14, 18, 19, 20, 12, 13 and 21 are accessible to edit. All other parameters are fixed.

Manual mode:
When keys DOWN and UP are pressed during startup, (connecting to the 24V power supply) manual mode is activated. This means that the user is able to in/decrease the output pressure of the regulator, by pressing the UP or DOWN key. During this action the display will blink, indicating that the manual mode is activated. After powering up again, the unit will revert back to normal mode.

Back to Factory Setting

After start up. (Power is on)
Entering this value in parameter 0 will store the calibrated factory data into the working parameters.
(Default calibration data is used)

Parameter Number 0 – Reset Back to Factory Settings

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P00	000. Flashing Decimal	003. Flashing Decimal	003 Flashing	P01
Description	Accesses changeable parameters.	Accesses parameter no. 0.	Displays current parameter value.	Edits parameter. 3 = standard factory settings. If other than 3, use Up or Down Arrow and accept 3	Accepts and saves new parameter setting.	Sequences to next parameter.

Set Control Signal

The unit is factory set for 0-10 V control signal. If 4-20 mA control signal is required, change parameter 4.

Parameter Number 4 – Set Control Signal in Volts or Milliamps

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P04	001. Flashing Decimal	000. Flashing Decimal	000 Flashing	P05
Description	Accesses changeable parameters.	Accesses parameter no. 4.	Displays current parameter value. 1 = V 0 = mA	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.

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Set Output Signal

Parameter 6 is used to set the type of output signal to your PLC.
This parameter is used as follows:

Output Signal option “0” = Digital Output – PNP
- Factory set at “0” Non Adjustable

Output Signal option “P” = Digital PNP or Analog 1-10V
- Factory set at “1” for Analog Signal
- Convert to Digital PNP by changing parameter to “0” setting

Output Signal option “N” = Digital NPN or Analog 1-10V
- Factory set at “1” Analog Signal
- Convert to Digital NPN by changing parameter to “0”

Output Signal option “M” = Analog 4-20 mA
- Factory set at “2” Non Adjustable

Parameter Number 6 – Set Output Signal

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P06	001. Flashing Decimal	###. Flashing Decimal (Value 0, 1 or 2)	###. Flashing	P07
Description	Accesses changeable parameters.	Accesses parameter no. 6.	Displays current parameter value. 1 = m factory default for P3H with analog options	Edits parameter. 0 = digital (NPN or PNP) 1 = analog 0..10V 2 = analog 4..20 mA	Accepts and saves new parameter setting.	Sequences to next parameter.

Adjust Span Analog Output Signal

Set value is a % of Full Analog range. As an example for a 0-10V output signal, the original factory setting of 100% will give you an adjustment of 0-10V. If you reset Parameter 8 to 50%, the new output range would be 0-5V or 50% of the full range.

In the event that the output signal is to low, in a certain application, you can adjust it by increasing Parameter 8 to a maximum value of 130% of scale.

Note that all values are nominal and that an actual measurement may be required to ensure signal strength.

Parameter Number 8 – Adjust Span Analog Output Signal

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P08	100. Flashing Decimal (For 2 bar versions value = 92)	###. Flashing Decimal (Value between 0 and 130)	###. Flashing	P09
Description	Accesses changeable parameters.	Accesses parameter no. 8.	Displays current parameter value.	Edits parameter.	Accepts and saves new parameter setting and implements the new analog signal span.	Sequences to next parameter.

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Adjust Digital Display

If necessary, adjustments can be made to the digital display when using an external pressure sensor.

Parameter Number 9 – Adjust Digital Display Value (Pressure Calibration)

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P09	###. Flashing Decimal	###. Flashing Decimal	### Flashing	P 10
Description	Accesses changeable parameters.	Accesses parameter no. 9.	Displays current digital display	Use up or down arrows and accept to adjust the display value if using an external pressure sensor.	Accepts and saves new parameter setting.	Sequences to next parameter.

Set Pressure Scale

Units with NPT port threads are supplied with a factory set psig pressure scale. Use parameter 14 to change scale to bar.

Parameter Number 14 – Set Pressure Scale in psig or bar

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P 14	001. Flashing Decimal	000. Flashing Decimal	000 Flashing	P 15
Description	Accesses changeable parameters.	Accesses parameter no. 14.	Displays current parameter value. 1 = psig 0 = bar 2 = MPa	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.

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Preset Minimum Pressure

If there is a need for a pre-set Minimum pressure, use parameter 18. (Note: preset pressure is affected by % P19.)

Parameter Number 18 – Set Minimum Preset Pressure

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P 18	000. Flashing Decimal	# # #. Flashing Decimal (value between 0 and 200)	# # # Flashing	P 19
Description	Accesses changeable parameters.	Accesses parameter no. 18.	Displays current parameter value. Incremental value is: 2 bar unit: x 2 mbar x % P19 10 bar unit: x 10 mbar x % P19	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.

Set Pressure Correction

Pressure correction allows the user to set a Maximum pressure as a percentage of secondary pressure F.S.

Example: If F.S. is 10 bar, set parameter 19 to 50 for Maximum preset pressure of 5 bar.

Pressure correction also affects the Minimum preset pressure in parameter 18.

Example: If F.S. is 10 bar and parameter 18 is set to a value of 100 (1 bar), and parameter 19 is set to 50%, then the actual Minimum preset pressure seen is 0.5 bar.

Parameter Number 19 – Set Maximum Preset Pressure

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P 19	100. Flashing Decimal	# # #. Flashing Decimal (value between 0 and 100)	# # # Flashing	P20
Description	Accesses changeable parameters.	Accesses parameter no. 19.	Displays current parameter value. Incremental value is: % of F.S.	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.

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Behavior Control

The regulation speed of the pressure regulator can be modified by means of one parameter. (P 20)
The value in this parameter has a range from 0-5. A higher value indicates slower regulation speed, but will be more stable.

Parameter Number 20 – Set Behavior Control

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P20	003. Flashing Decimal	# # #. Flashing Decimal (value between 0 and 5)	# # # Flashing	P21
Description	Accesses changeable parameters.	Accesses parameter no. 20.	Displays current parameter value.	Edits parameter 0 = custom set* 1 = fastest (narrow proportional band) 2 = fast 3 = normal 4 = slow 5 = slowest (proportional band is broad)	Accepts and saves new parameter setting.	Sequences to next parameter.

* When the value 0 is entered, you are able to create your own custom settings true parameters 12, 13 and 21.

Fine Settings
Set Proportional Band

Proportional band is used for setting the reaction sensitivity of the regulator. The displayed value is X 10 mbar and has a range between 50 (0.5 bar) and 250 (2.5 bar).

Parameter Number 12 – Set Proportional Band (P20 Must be Set to 0)

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P 12	100. Flashing Decimal	# # #. Flashing Decimal (value between 50 and 250)	# # # Flashing	P 13
Description	Accesses changeable parameters.	Accesses parameter no. 12.	Displays current parameter value. Incremental value is: x 10 mbar	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.

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Set Deadband

Deadband is the Minimum limit of accuracy at which the regulator is set for normal operation. The displayed value is X 10 mbar and has a range between 4 (40 mbar) and 40 (400 mbar).

Parameter Number 13 – Set Deadband (P20 Must be Set to 0)

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P 13	0 15. Flashing Decimal	# # #. Flashing Decimal (value between 4 and 40)	# # # Flashing	P 14
Description	Accesses changeable parameters.	Accesses parameter no. 13.	Displays current parameter value. Incremental value is x 10 mbar	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.

Proportional Effect

Parameter Number 21 – Set Proportional Effect (P20 Must be Set to 0)

Step	1	2	3	4	5	
Press	acc 3-6 seconds	▼ or ▲	acc	▼ or ▲	acc	
Until Display Reads	Pxx	P21	0 10. Flashing Decimal	# # #. Flashing Decimal (value between 5 and 100)	# # # Flashing	P22
Description	Accesses changeable parameters.	Accesses parameter no. 21.	Displays current parameter value.	Edits parameter. 5 = fastest regulation 100 = slowest regulation.	Accepts and saves new parameter setting.	Sequences to next parameter.

Parameter Number 39 – Displays Current Software Version

Step	1	2	3
Press	acc 3-6 seconds	▼ or ▲	acc
Until Display Reads	Pxx	P39	# # # Flashing Decimal
Description	Accesses changeable parameters.	Accesses parameter no. 39.	Displays current parameter value. XXX = current software version

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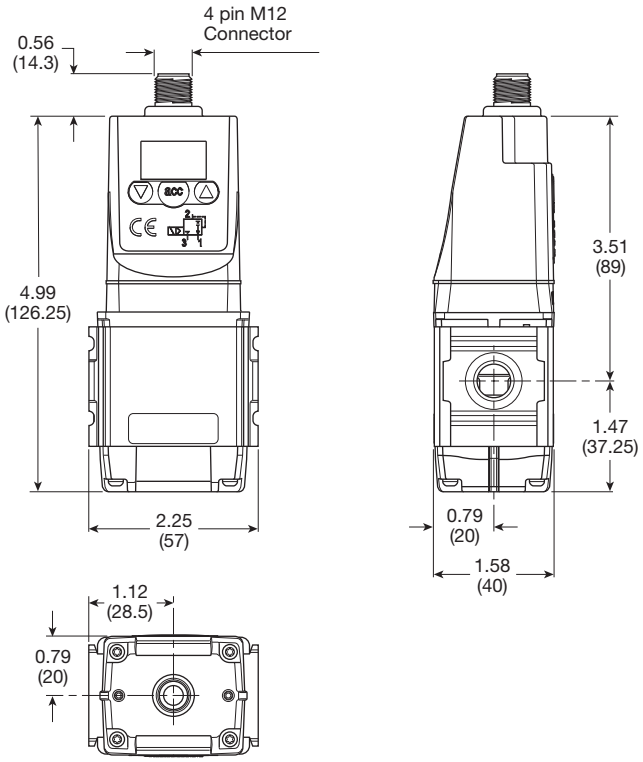
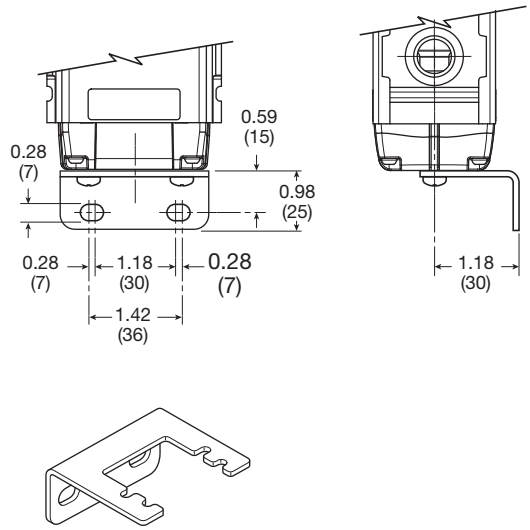
P31P

Dimensions inches (mm)



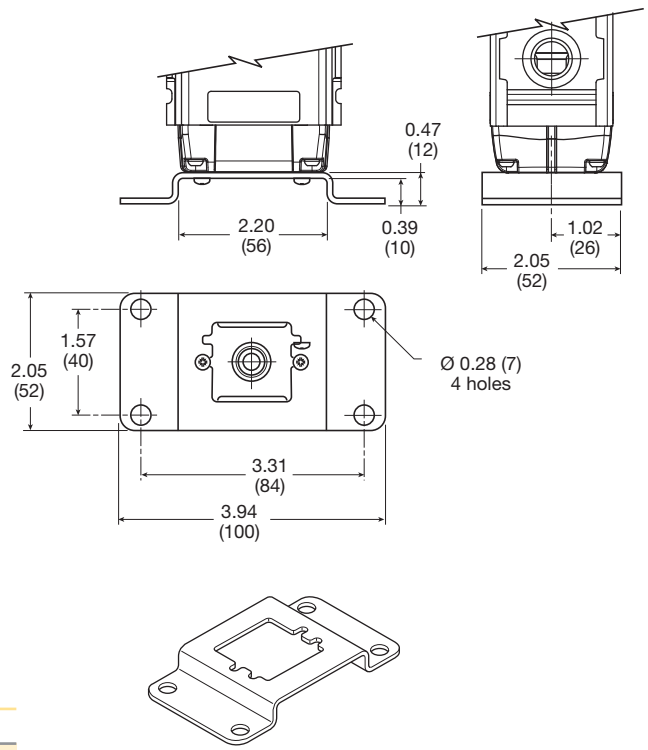
L-Bracket

P3HKA00ML



Foot Bracket

P3HKA00MC



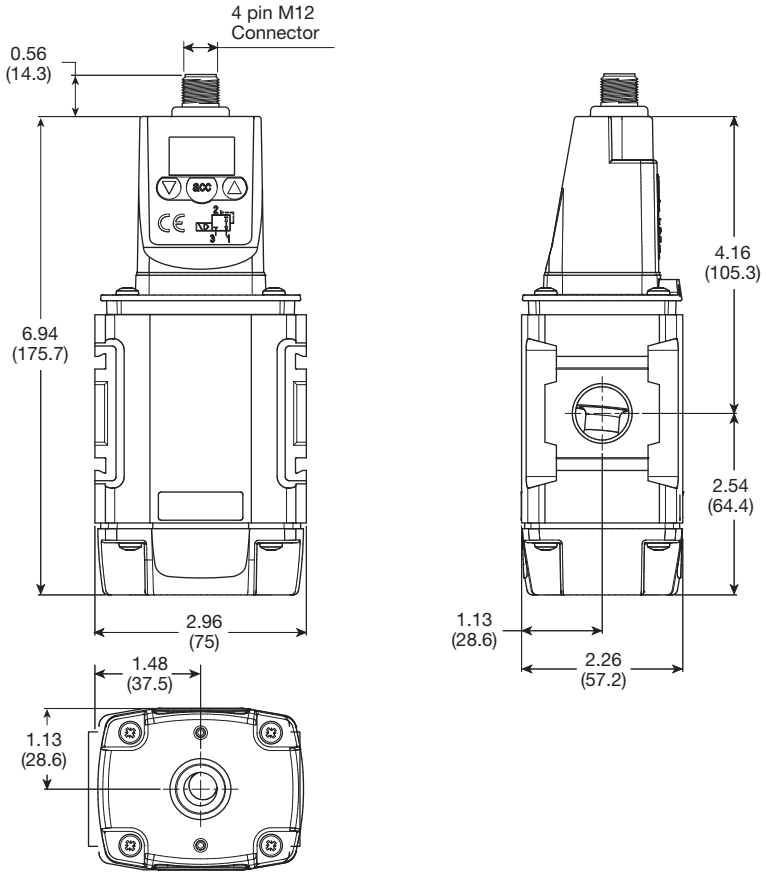
Cables

Description	Part number
2 mtr. cable with moulded straight M12x1 connector	**CB-M12-4P-2M**

Most popular.

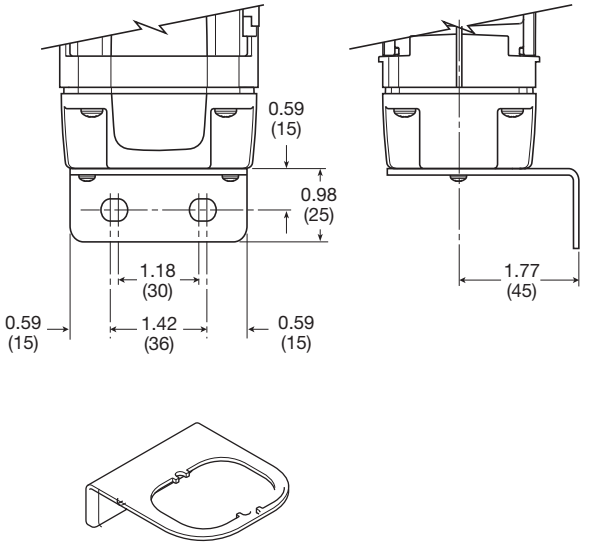
P32P

Dimensions inches (mm)



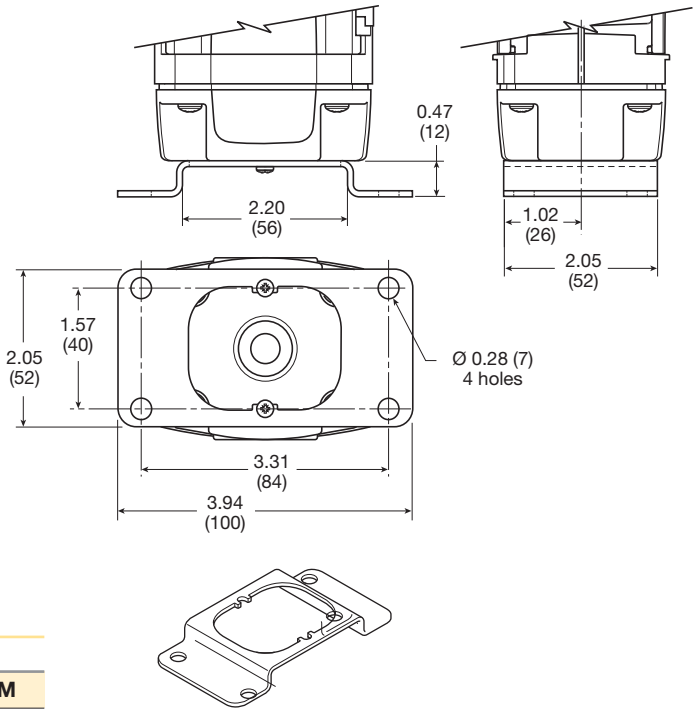
L-Bracket

P3KKA00ML



Foot Bracket

P3KKA00MC



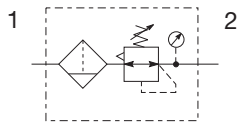
Cables

Description	Part number
2 mtr. cable with moulded straight M12x1 connector	**CB-M12-4P-2M**

Most popular.

P31 Filter / Regulators – Mini

- Integral 1/4" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation



Port size	Description (relieving)	Bowl / drain type ‡	Part number
1/4"	125 psig (8 bar)	Poly / manual	**P31EB92EGMBN5P**
1/4"	125 psig (8 bar)	Poly / pulse	**P31EB92EGBBN5P**
1/4"	125 psig (8 bar)	Metal / manual	**P31EB92EMMBN5P**
1/4"	125 psig (8 bar)	Metal / pulse	**P31EB92EMBBN5P**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Flow capacity*: 1/4	73 scfm (35 dm³/s, ANR)
Operating temperature‡:	
Plastic bowl	14°F to 125°F (-10°C to 52°C)
Metal bowl	14°F to 150°F (-10°C to 65.5°C)
Supply pressure (max):	
Plastic bowl	150 psig (10 bar)
Metal bowl	250 psig (17 bar)
Standard filtration	5 micron
Useful retention†:	0.4 US oz. (12 cm³)
Adjusting range pressure:	0 to 30 psig (0 to 2 bar) 0 to 60 psig (0 to 4 bar) 0 to 125 psig (0 to 8 bar) 0 to 250 psig (0 to 17 bar)
Gauge port (2 each)**:	1/8 NPT, BSPP, BSPT
Weight:	0.42 lb (0.19 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.
** Non-gauge option only.
‡ Units with square gauges: 5°F to 150°F (-15°C to 65.5°C)
† Useful retention refers to volume below the quiet zone baffle.

Air quality: Within ISO 8573-1: 1991 Class 3 (Particulates)
Within ISO 8573-1: 2001 Class 6 (Particulates)

Ordering Information:

P31EB 9 2 E G M B N 5 P

Basic series
Global modular mini filter / regulator — P31EB

Thread type
BSPP 1
BSPT 2
NPT 9

Port size
1/4 2

Element
5µ Element E

Bowl type
Poly bowl with bowl guard G
Metal bowl without sight gauge M

Drain type
Pulse drain B
Manual drain M
Flex drain X

Relief
B Relieving
N Non-relieving

Adjustment
N Non-rising knob

Mounting
P Plastic panel mount nut

Adjustment range

With square gauge		With round gauge	
psig	bar		
1 = 30*	V = 2*	Z	30 psig; 2 bar; 0.2 MPa
3 = 60	S = 4	M	60 psig; 4 bar; 0.4 MPa
5 = 125	T = 8	G	125 psig; 8 bar; 0.8 MPa
		J§	232 psig; 16 bar; 1.6 MPa

Without gauge	
Y	30 psig; 2 bar; 0.2 MPa
L	60 psig; 4 bar; 0.4 MPa
N	125 psig; 8 bar; 0.8 MPa
H§	232 psig; 16 bar; 1.6 MPa

* Regulator comes with gauge respective to the adjustment range selected.
§ Not available with poly bowl with bowl guard.

☐ Most popular.

Material Specifications

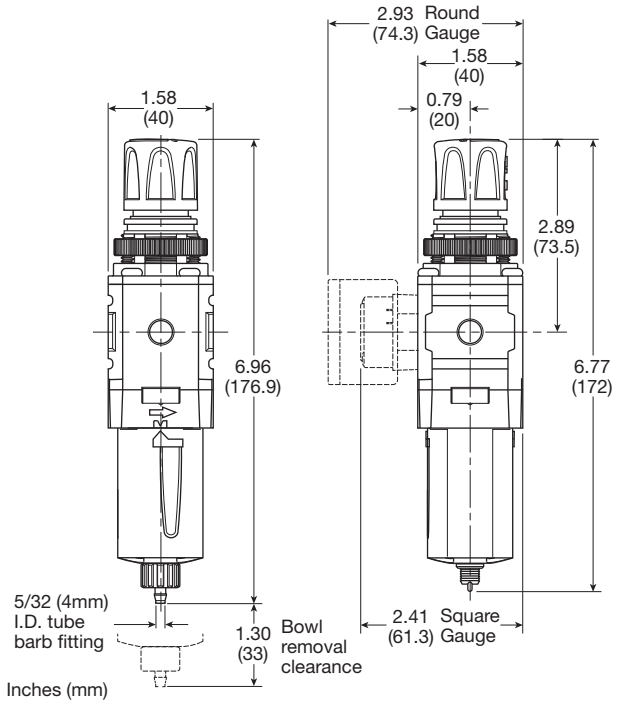
Body	Aluminum
Adjustment knob	Acetal
Body cap	ABS
Bonnet	PBT
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Bowl guard	Nylon
Filter element	Polyethylene
Seals	Nitrile
Springs	Steel
Valve assembly	Brass / Nitrile
Diaphragm assembly	Brass / Nitrile
Panel nut	Acetal

⚠ WARNING

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

CAUTION:

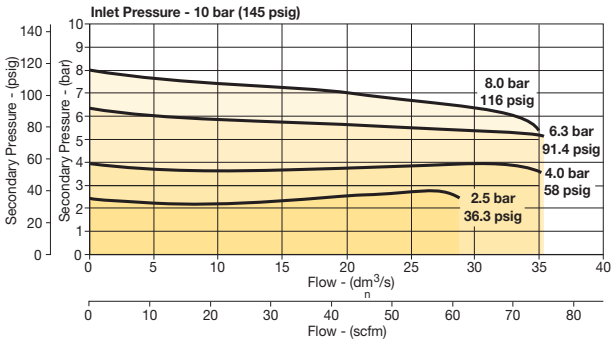
REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting 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.



Manual Drain **Pulse Drain**

Flow Charts

P31EB 1/4" Filter / Regulator



Repair and Service Kits

Plastic bowl / bowl guard manual drain	**P31KB00BGM**
Plastic bowl / bowl guard pulse drain	**P31KB00BGB**
Metal bowl / w/o sight gauge pulse drain	**P31KB00BMB**
5µ particle filter element	**P31KA00ESE**
Diaphagm repair kit - relieving	**P31KB00RB**
Diaphagm repair kit - non-relieving	**P31KB00RC**
Panel mount nut - aluminum	**P31KA00MM**
Panel mount nut - plastic	**P31KA00MP**
Angle bracket (attaches via panel nut)	**P31KB00MR**
C-bracket (fits to body)	**P31KA00MW**
T-bracket with body connector	**P31KA00MT**
Body connector	**P31KA00CB**

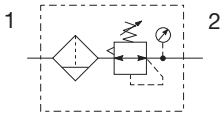
Gauges

Square flush mount gauge	0-4 bar	**K4511SCR04B**
	0-11 bar	**K4511SCR11B**
	0-60 psig	**K4511SCR060**
	0-160 psig	**K4511SCR160**

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

P32 Filter / Regulators – Compact

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation



Port size	Description (relieving)	Bowl / drain type ‡	Part number
1/4"	125 psig (8 bar)	Poly / manual	**P32EB92EGMBNGP**
1/4"	125 psig (8 bar)	Poly / auto	**P32EB92EGABNGP**
1/4"	125 psig (8 bar)	Metal / manual	**P32EB92ESMBNGP**
1/4"	125 psig (8 bar)	Metal / auto	**P32EB92ESABNGP**
3/8"	125 psig (8 bar)	Poly / manual	**P32EB93EGMBNGP**
3/8"	125 psig (8 bar)	Poly / auto	**P32EB93EGABNGP**
3/8"	125 psig (8 bar)	Metal / manual	**P32EB93ESMBNGP**
3/8"	125 psig (8 bar)	Metal / auto	**P32EB93ESABNGP**
1/2"	125 psig (8 bar)	Poly / manual	**P32EB94EGMBNGP**
1/2"	125 psig (8 bar)	Poly / auto	**P32EB94EGABNGP**
1/2"	125 psig (8 bar)	Metal / manual	**P32EB94ESMBNGP**
1/2"	125 psig (8 bar)	Metal / auto	**P32EB94ESABNGP**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Flow capacity*:	1/4	148 scfm (70 dm3/s, ANR)
	3/8	158 scfm (75 dm3/s, ANR)
	1/2	164 scfm (77 dm3/s, ANR)
Operating temperature:		
Plastic bowl		-13°F to 125°F (-25°C to 52°C)
Metal bowl		-13°F to 150°F (-25°C to 65.5°C)
Supply pressure (max):		
Plastic bowl		150 psig (10 bar)
Metal bowl		250 psig (17 bar)
Standard filtration:		5 micron
Useful retention†:		1.7 US oz. (51 cm^3)
Adjusting range pressure:		0 to 30 psig (0 to 2 bar) 0 to 60 psig (0 to 4 bar) 0 to 125 psig (0 to 8 bar) 0 to 250 psig (0 to 17 bar)
Gauge port (2 each):		1/4 NPT, BSPP, BSPT
Weight:		1.17 lb (0.53 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.
† Useful retention refers to volume below the quiet zone baffle.

Air quality: Within ISO 8573-1: 1991 Class 3 (Particulates)
Within ISO 8573-1: 2001 Class 6 (Particulates)

Ordering Information:

P32EB 9 2 E G M B N 5 P

Basic series
Global modular compact filter / regulator — P32EB

Thread type

BSPP	1
BSPT	2
NPT	9

Port size

1/4	2
3/8	3
1/2	4

Element
5µ Element — E

Bowl type

Poly bowl with bowl guard	G
Metal bowl without sight gauge	M
Metal bowl with sight gauge	S

Drain type

Manual drain	M
Auto drain	A
Flex drain	X

Relief

B	Relieving
N	Non-relieving

Adjustment

N	Non-rising knob
T	T-Handle

Adjustment range

With square gauge		With round gauge	
psig	bar		
1 = 30*	V = 2*	Z	30 psig; 2 bar; 0.2 MPa
3 = 60	S = 4	M	60 psig; 4 bar; 0.4 MPa
5 = 125	T = 8	G	125 psig; 8 bar; 0.8 MPa
		J§	250 psig; 17 bar; 1.7 MPa
		Without gauge	
		Y	30 psig; 2 bar; 0.2 MPa
		L	60 psig; 4 bar; 0.4 MPa
		N	125 psig; 8 bar; 0.8 MPa
		H§	250 psig; 17 bar; 1.7 MPa

* Regulator comes with gauge respective to the adjustment range selected.
§ Not available with poly bowl with bowl guard.

Mounting

P	Plastic panel mount nut

☐ Most popular.

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

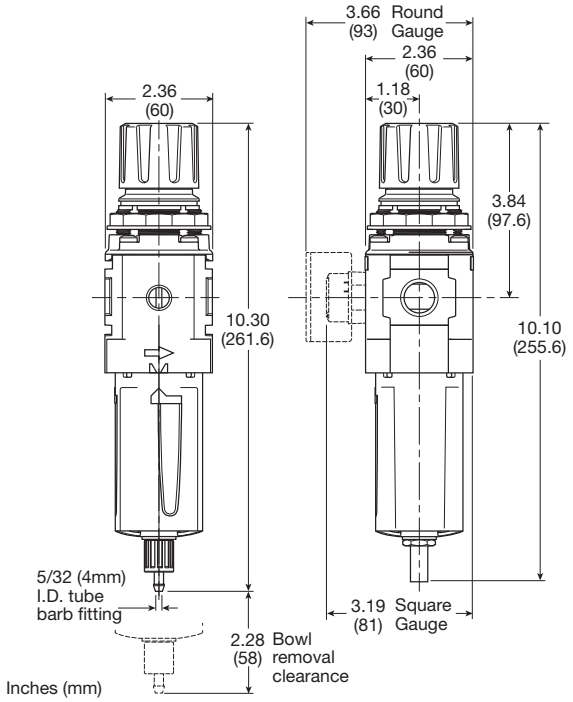
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Element retainer / baffle	Acetal
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Bowl guard	Nylon
Filter element	Sintered polyethylene
Seals	Nitrile
Springs	Steel, stainless steel
Valve assembly	Brass / nitrile
Diaphragm assembly	Nitrile / zinc
Panel nut	Acetal
Sight gauge	Nylon

Repair and Service Kits

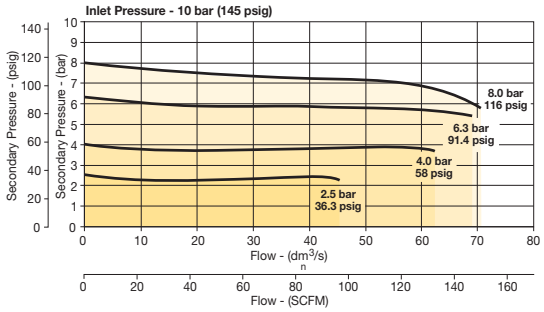
Plastic bowl / bowl guard manual drain	**P32KB00BGM**
Metal bowl / sight gauge manual drain	**P32KB00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P32KA00ESE**
Diaphagm repair kit - relieving	**P32KB00RB**
Diaphagm repair kit - non-relieving	**P32KB00RC**
Panel mount nut - aluminum	**P32KA00MM**
Panel mount nut - plastic	**P32KA00MP**
Angle bracket (fits to panel mount threads)	**P32KB00MR**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P32KA00MT**
Body connector	**P32KA00CB**



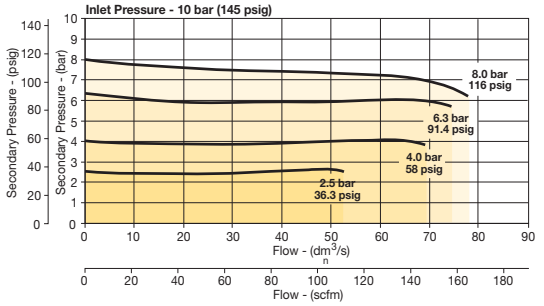
Manual Drain **Automatic Drain**

Flow Charts

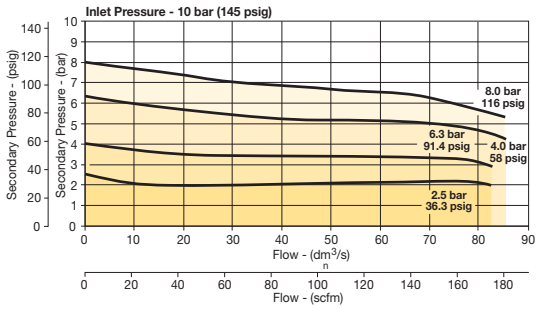
P32EB 1/4" Filter / Regulator



P32EB3/8" Filter/Regulator



P32EB 1/2" Filter/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.

Gauges

50mm (2") round 1/4" center back mount	0-30 psig / 0-2 bar	**K4520N14030**
	0-60 psig / 0-4 bar	**K4520N14060**
	0-160 psig / 0-11 bar	**K4520N14160**
	0-300 psig / 0-20 bar	**K4520N14300**

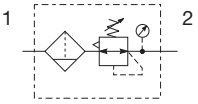
For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

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

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

P32 Semi-Precision Filter / Regulators – Compact

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation



Port size	Description / relieving	Bowl / drain type ‡	Part number
1/4"	125 psig (8 bar)	Poly / manual	**P32EB92EGMPNGP**
1/4"	125 psig (8 bar)	Poly / auto	**P32EB92EGAPNGP**
1/4"	125 psig (8 bar)	Metal / manual	**P32EB92ESMPNGP**
1/4"	125 psig (8 bar)	Metal / auto	**P32EB92ESAPNGP**
3/8"	125 psig (8 bar)	Poly / manual	**P32EB93EGMPNGP**
3/8"	125 psig (8 bar)	Poly / auto	**P32EB93EGAPNGP**
3/8"	125 psig (8 bar)	Metal / manual	**P32EB93ESMPNGP**
3/8"	125 psig (8 bar)	Metal / auto	**P32EB93ESAPNGP**
1/2"	125 psig (8 bar)	Poly / manual	**P32EB94EGMPNGP**
1/2"	125 psig (8 bar)	Poly / auto	**P32EB94EGAPNGP**
1/2"	125 psig (8 bar)	Metal / manual	**P32EB94ESMPNGP**
1/2"	125 psig (8 bar)	Metal / auto	**P32EB94ESAPNGP**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Flow capacity*: 1/4, 3/8, 1/2	75 scfm (35 dm³/s, ANR)
Effect of supply pressure variation	0.6 psig (0.04 bar) for 25 psig (1.7 bar) change in P1
Operating temperature:	
Plastic bowl	-13°F to 125°F (-25°C to 52°C)
Metal bowl	-13°F to 150°F (-25°C to 65.5°C)
Supply pressure (max):	
Plastic bowl	150 psig (10 bar)
Metal bowl	250 psig (17 bar)
Standard filtration:	5 micron
Useful retention†:	1.7 US oz. (51 cm³)
Adjusting range pressure:	0 to 30 psig (0 to 2 bar) 0 to 60 psig (0 to 4 bar) 0 to 125 psig (0 to 8 bar) 0 to 250 psig (0 to 17 bar)
Gauge port (2 each):	1/4 NPT, BSPP, BSPT
Weight:	0.53 lb (1.17 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.
† Useful retention refers to volume below the quiet zone baffle.

Air quality: Within ISO 8573-1: 1991 Class 3 (Particulates)
Within ISO 8573-1: 2001 Class 6 (Particulates)

Ordering Information:

P32EB 9 2 E G M P N G P

Basic series
Global modular compact filter / regulator — P32EB

Thread type
BSPP 1
BSPT 2
NPT 9

Port size
1/4 2
3/8 3
1/2 4

Element
5µ Element E

Bowl type
Poly bowl with bowl guard G
Metal bowl without sight gauge M
Metal bowl with sight gauge S

Drain type
Manual drain M
Auto drain A

Relief
P Semi-Precision Relieving
T Semi-Precision Non-relieving

Adjustment
N Non-rising knob
T T-Handle

Adjustment range

With square gauge		With round gauge	
psig	bar		
1 = 30*	V = 2*	Z	30 psig; 2 bar; 0.2 MPa
3 = 60	S = 4	M	60 psig; 4 bar; 0.4 MPa
5 = 125	T = 8	G	125 psig; 8 bar; 0.8 MPa
		J§	250 psig; 17 bar; 1.7 MPa
		Without gauge	
		Y	30 psig; 2 bar; 0.2 MPa
		L	60 psig; 4 bar; 0.4 MPa
		N	125 psig; 8 bar; 0.8 MPa
		H§	250 psig; 17 bar; 1.7 MPa

* Regulator comes with gauge respective to the adjustment range selected.
§ Not available with poly bowl with bowl guard.

Mounting
P Plastic panel mount nut

☐ Most popular.

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

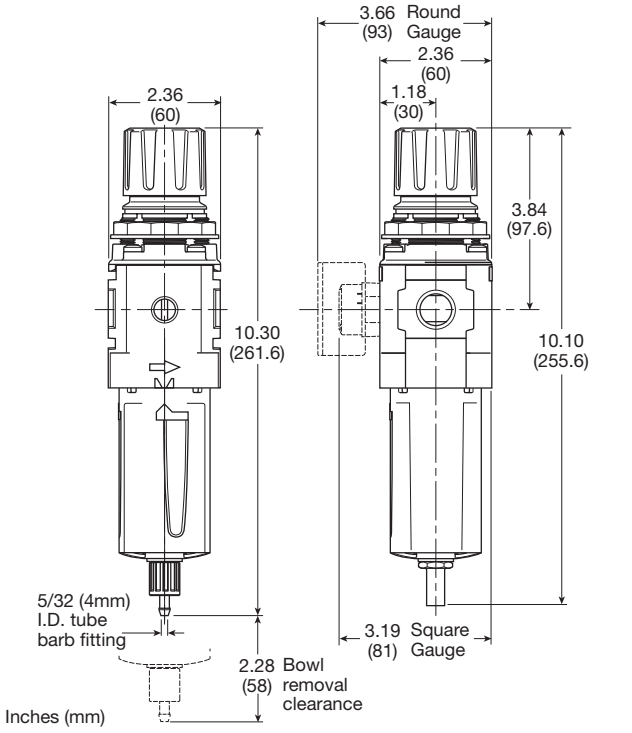
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Element retainer / baffle	Acetal
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Bowl guard	Nylon
Filter element	Sintered polyethylene
Seals	Nitrile
Springs	Steel, stainless steel
Valve assembly	Brass / nitrile
Diaphragm assembly	Nitrile / zinc
Panel nut	Acetal
Sight gauge	Nylon

Repair and Service Kits

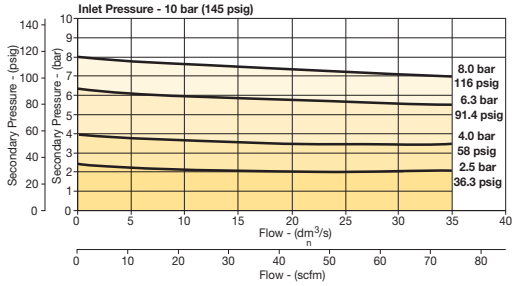
Plastic bowl / bowl guard manual drain	**P32KB00BGM**
Metal bowl / sight gauge manual drain	**P32KB00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P32KA00ESE**
Diaphagm repair kit - relieving	**P32KB00RB**
Diaphagm repair kit - non-relieving	**P32KB00RC**
Panel mount nut - aluminum	**P32KA00MM**
Panel mount nut - plastic	**P32KA00MP**
Angle bracket (fits to panel mount threads)	**P32KB00MR**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P32KA00MT**
Body connector	**P32KA00CB**



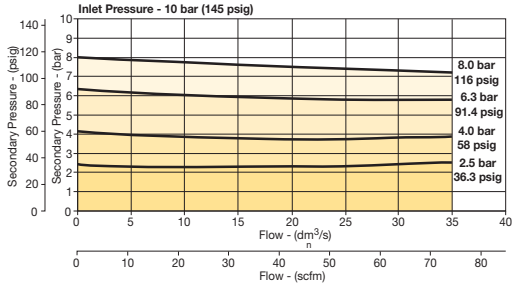
Manual Drain **Automatic Drain**

Flow Charts

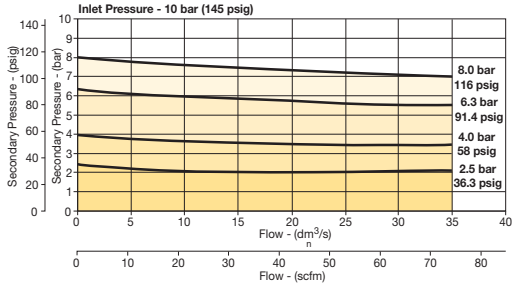
P32EB 1/4" Filter / Regulator



P32EB 3/8" Filter/Regulator



P32EB 1/2" Filter/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.

Gauges

50mm (2") round 1/4" center back mount	0-30 psig / 0-2 bar	**K4520N14030**
	0-60 psig / 0-4 bar	**K4520N14060**
	0-160 psig / 0-11 bar	**K4520N14160**
	0-300 psig / 0-20 bar	**K4520N14300**

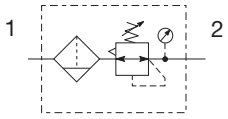
For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

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

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

P33 Filter / Regulators – Standard

- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting
- Secondary pressure ranges
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation



Port size	Description / relieving	Bowl / drain type ‡	Part number
1/2"	125 psig (8 bar)	Poly / manual	**P33EA94EGMBNGP**
1/2"	125 psig (8 bar)	Poly / auto	**P33EA94EGABNGP**
1/2"	125 psig (8 bar)	Metal / manual	**P33EA94ESMBNGP**
1/2"	125 psig (8 bar)	Metal / auto	**P33EA94ESABNGP**
3/4"	125 psig (8 bar)	Poly / manual	**P33EA96EGMBNGP**
3/4"	125 psig (8 bar)	Poly / auto	**P33EA96EGABNGP**
3/4"	125 psig (8 bar)	Metal / manual	**P33EA96ESMBNGP**
3/4"	125 psig (8 bar)	Metal / auto	**P33EA96ESABNGP**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Flow capacity*:	1/2	200 scfm (94 dm³/s, ANR)
	3/4	235 scfm (109 dm³/s, ANR)
Operating temperature:		
Plastic bowl		-13°F to 125°F (-25°C to 52°C)
Metal bowl		-13°F to 150°F (-25°C to 65.5°C)
Supply pressure (max):		
Plastic bowl		150 psig (10 bar)
Metal bowl		250 psig (17 bar)
Standard filtration:		5 micron
Useful retention†:		2.8 US oz. (85 cm³)
Adjusting range pressure:		0 to 30 psig (0 to 2 bar) 0 to 60 psig (0 to 4 bar) 0 to 125 psig (0 to 8 bar) 0 to 250 psig (0 to 17 bar)
Gauge port (2 each):		1/4 NPT, BSPP, BSPT
Weight:		1.87 psig (8 bar)

* Inlet pressure 145 psig (10 bar). Secondary pressure 91.3 psig (6.3 bar) and 14.5 psig (1 bar) pressure drop.
† Useful retention refers to volume below the quiet zone baffle.

Air quality: Within ISO 8573-1: 1991 Class 3 (Particulates)
Within ISO 8573-1: 2001 Class 6 (Particulates)

Ordering Information:

P33EA 9 6 E G M B N G P

Basic series
Global modular standard filter / regulator — P33EA

Thread type
BSPP 1
BSPT 2
NPT 9

Port size
1/2 4
3/4 6

Element
5µ Element E

Bowl type
Poly bowl with bowl guard G
Metal bowl without sight gauge M
Metal bowl with sight gauge S

Drain type
M Manual drain
A Auto drain

Relief
B Relieving
N Non-relieving

Adjustment
N Non-rising knob

Mounting
P Plastic panel mount nut

Adjustment range

	With round gauge
Z	30 psig; 2 bar; 0.2 MPa
M	60 psig; 4 bar; 0.4 MPa
G	125 psig; 8 bar; 0.8 MPa
J§	250 psig; 17 bar; 1.7 MPa
	Without gauge
Y	30 psig; 2 bar; 0.2 MPa
L	60 psig; 4 bar; 0.4 MPa
N	125 psig; 8 bar; 0.8 MPa
H§	250 psig; 17 bar; 1.7 MPa

§ Not available with poly bowl with bowl guard.

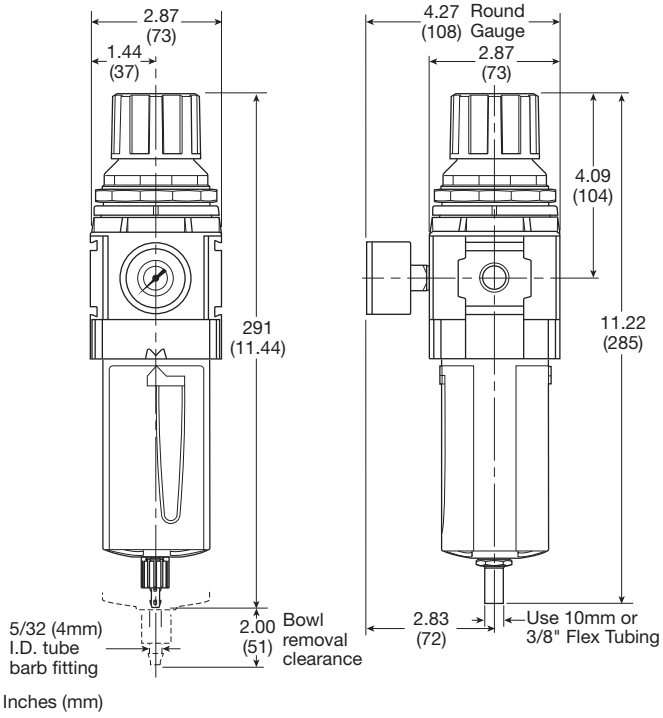
☐ Most popular.

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Body cap	ABS
Element retainer / baffle	Acetal
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Filter element	Sintered Polyethylene
Seals	Nitrile
Springs	Steel, stainless steel
Valve assembly	Brass / nitrile
Diaphragm assembly	Nitrile / zinc
Panel nut	Acetal
Sight gauge	Nylon

Repair and Service Kits

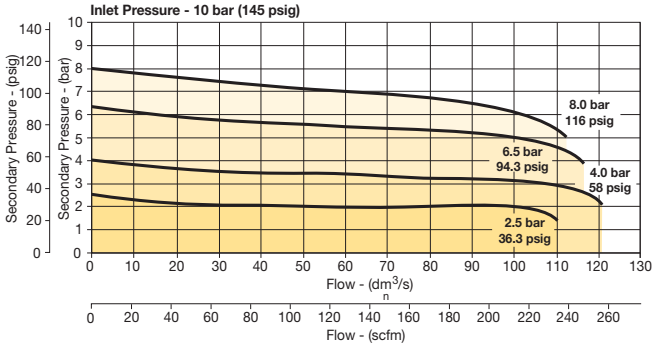
Plastic bowl / bowl guard, manual drain	**P33KA00BGM**
Metal bowl / sight gauge, manual drain	**P33KA00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P33KA00ESE**
Diaphagm repair kit - Relieving	**P33KA00RB**
Diaphagm repair kit - Non-relieving	**P33KA00RC**
Panel mount nut - Aluminum	**P33KA00MM**
Panel mount nut - Plastic	**P33KA00MP**
Angle bracket (fits to panel mount threads)	**P33KA00MR**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P32KA00MT**
Body connector	**P32KA00CB**



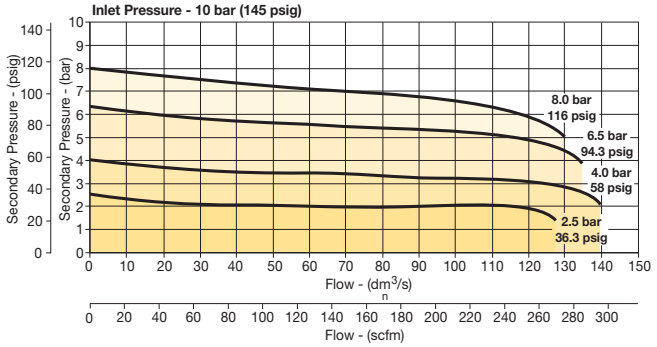
Manual Drain **Automatic Drain**

Flow Charts

P33EA 1/2" Filter / Regulator



P33EA 3/4" Filter/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.

Gauges

50mm (2") round 1/4" center back mount	0-30 psig / 0-2 bar	**K4520N14030**
	0-60 psig / 0-4 bar	**K4520N14060**
	0-160 psig / 0-11 bar	**K4520N14160**
	0-300 psig / 0-20 bar	**K4520N14300**

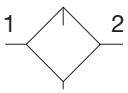
For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

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

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

P31 Lubricators – Mini

- Integral 1/4" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Proportional oil delivery over a wide range of air flows
- Finger tip ratchet control for precise oil drip rate adjustment



Lubricator
with drain

Port size	Description ‡	Part number
1/4"	Poly bowl - No drain	**P31LB92LGNN**
1/4"	Metal bowl - No drain	**P31LB92LMNN**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Flow capacity*:	
1/4	52 scfm (25 dm³/s, ANR)
Operating temperature:	
Plastic bowl	14°F to 125°F (-10°C to 52°C)
Metal bowl	14°F to 150°F (-10°C to 65.5°C)
Supply pressure (max):	
Plastic bowl	150 psig (10 bar)
Metal bowl	250 psig (17 bar)
Bowl capacity:	0.6 US oz. (18 cm³)
Weight:	0.29 lb (0.13 kg)

* Inlet pressure 91.3 psig (6.3 bar). Pressure drop 4.9 psig (0.34 bar).

Ordering Information:

P31LB 9 2 L G N N

Basic series	
Global modular mini lubricator	P31LB

Thread type	
BSPP	1
BSPT	2
NPT	9

Port size	
1/4	2

Lube type	
Oil mist standard sight dome	L

Bowl type	
G	Poly bowl with bowl guard
M	Metal bowl without sight gauge

Drain type	
N	No drain closed end

Mounting	
N	No bracket

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

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

Material Specifications

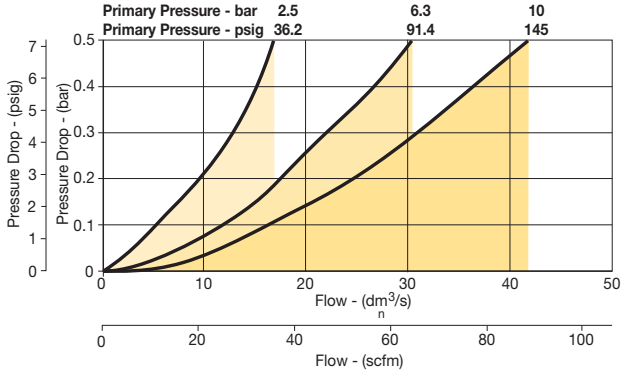
Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Seals	Nitrile
Sight dome	Polycarbonate
Suggested lubricant	ISO / ASTM VG32
Pick-up filter	Sintered bronze

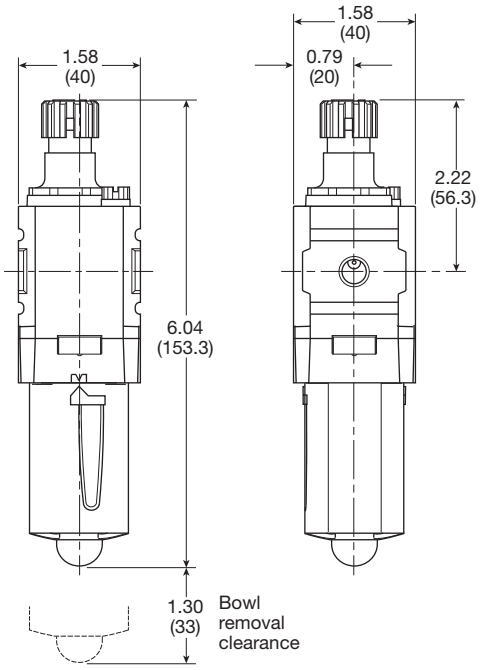
Repair and Service Kits

Plastic bowl / bowl guard no drain	**P31KB00BGN**
Metal bowl / w/o sight gauge no drain	**P31KB00BMN**
Drip control assembly	**P32KA00PG**
Fill plug	**P31KA00PL**
C-bracket (fits to body)	**P31KA00MW**
T-bracket with body connector	**P31KA00MT**
Body connector	**P31KA00CB**
Oil (1 quart)	**F442001**
Oil (1 galllon)	**F442002**
Oil (12 quart case)	**F442003**
Oil (4 gallon case)	**F442005**

Flow Charts

P31LB 1/4" Lubricator

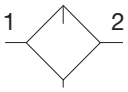




Inches (mm)

P32 Lubricators – Compact

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Proportional oil delivery over a wide range of air flows
- Finger tip ratchet control for precise oil drip rate adjustment
- Fill from top under system pressure



Lubricator
with drain

Port size	Description ‡	Part number
1/4"	Poly bowl - No drain	**P32LB92LGNN**
1/4"	Metal bowl - No drain	**P32LB92LSNN**
3/8"	Poly bowl - No drain	**P32LB93LGNN**
3/8"	Metal bowl - No drain	**P32LB93LSNN**
1/2"	Poly bowl - No drain	**P32LB94LGNN**
1/2"	Metal bowl - No drain	**P32LB94LSNN**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Flow capacity*:	
1/4	38 scfm (17 dm^3/s, ANR)
3/8	70 scfm (33 dm^3/s, ANR)
1/2	90 scfm (42 dm^3/s, ANR)
Operating temperature:	
Plastic bowl	14°F to 125°F (-10°C to 52°C)
Metal bowl	14°F to 150°F (-10°C to 65.5°C)
Supply pressure (max):	
Plastic bowl	150 psig (10 bar)
Metal bowl	250 psig (17 bar)
Bowl capacity:	4.09 US oz. (121 cm^3)
Weight:	0.68 lb (0.31 kg)

* Inlet pressure 91.3 psig (6.3 bar). Pressure drop 4.9 psig (0.34 bar).

Ordering Information:

P32LB 9 2 L G N N

Basic series
Global modular compact lubricator — P32LB

Thread type
BSPP 1
BSPT 2
NPT 9

Port size
1/4 2
3/8 3
1/2 4

Lube type
Oil mist standard sight dome — L

Bowl type
G Poly bowl with bowl guard
S Metal bowl with sight gauge

Drain type
N No drain closed end

Mounting
N No bracket

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.)

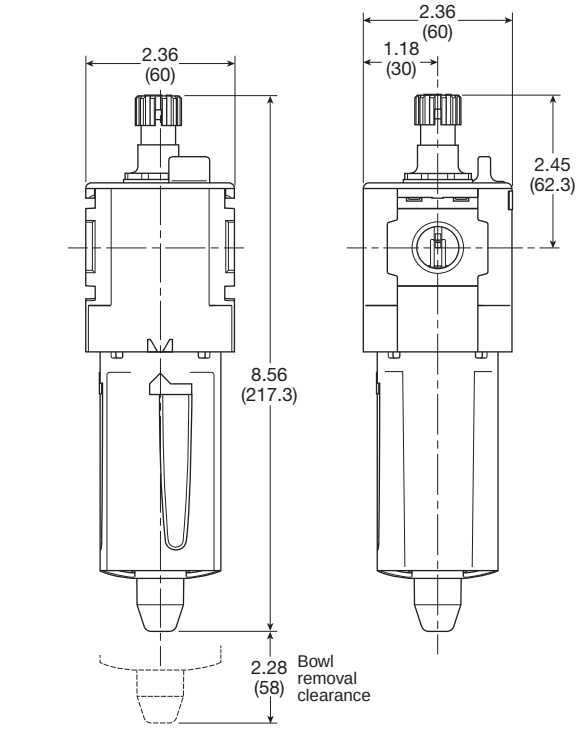
☐ Most popular.

Material Specifications

Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Seals	Nitrile
Sight dome	Polycarbonate
Sight gauge	Nylon
Suggested lubricant	ISO / ASTM VG32
Pick-up filter	Sintered bronze

Repair and Service Kits

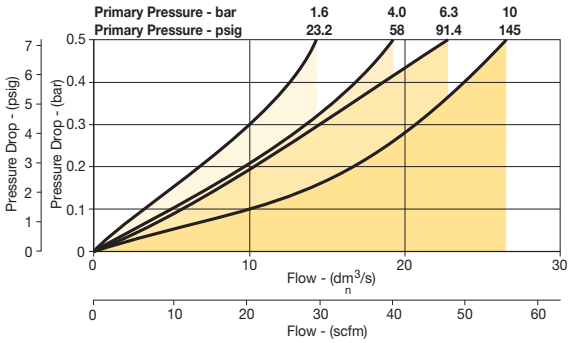
Plastic bowl / bowl guard no drain	**P32KB00BGN**
Metal bowl / w/o sight gauge no drain	**P32KB00BMN**
Metal bowl / Sight gauge no drain	**P32KB00BSN**
Drip control assembly	**P32KA00PG**
Fill plug	**P32KA00PL**
L-bracket (fits to body)	**P32KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P32KA00MT**
Body connector	**P32KA00CB**
Oil (1 quart)	**F442001**
Oil (1 galllon)	**F442002**
Oil (12 quart case)	**F442003**
Oil (4 gallon case)	**F442005**



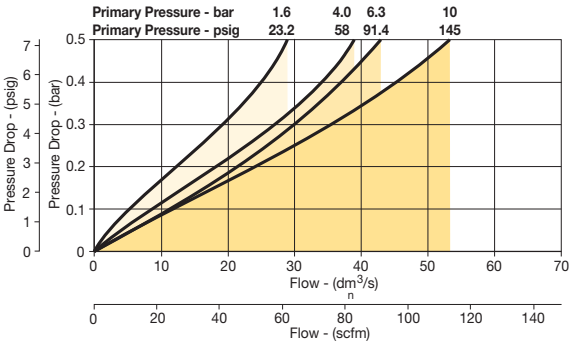
Inches (mm)

Flow Charts

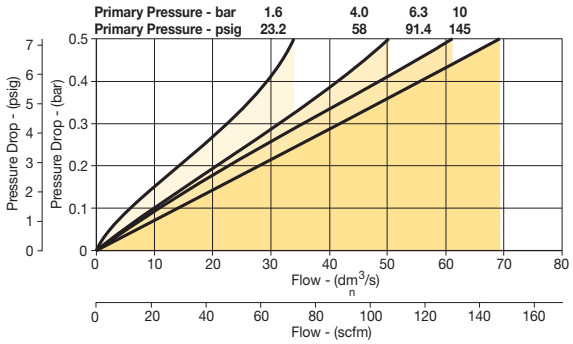
P32LB 1/4" Lubricator



P32LB 3/8" Lubricator

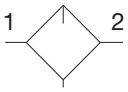


P32LB 1/2" Lubricator



P33 Lubricators – Standard

- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Proportional oil delivery over a wide range of air flows
- Finger tip ratchet control for precise oil drip rate adjustment
- Fill from top under system pressure



Lubricator
with drain

Port size	Description ‡	Part number
1/2"	Poly bowl - No drain	**P33LA94LGNN**
1/2"	Metal bowl - No drain	**P33LA94LSNN**
3/4"	Poly bowl - No drain	**P33LA96LGNN**
3/4"	Metal bowl - No drain	**P33LA96LSNN**

‡ For polycarbonate bowl, see caution in Engineering Section A.

Operating information

Flow capacity*:	
1/2	110 scfm (52 dm^3/s, ANR)
3/4	150 scfm (71 dm^3/s, ANR)
Operating temperature:	
Plastic bowl	14°F to 125°F (-10°C to 52°C)
Metal bowl	14°F to 150°F (-10°C to 65.5°C)
Supply pressure (max):	
Plastic bowl	150 psig (10 bar)
Metal bowl	250 psig (17 bar)
Bowl capacity:	6.1 US oz. (181 cm^3)
Weight:	1.04 lb (0.47 kg)

* Inlet pressure 91.3 psig (6.3 bar). Pressure drop 4.9 psig (0.34 bar).

Ordering Information:

P33LA 9 6 L G N N

Basic series
Global modular standard lubricator — P33LA

Thread type
BSPP 1
BSPT 2
NPT 9

Port size
1/2 4
3/4 6

Lube type
Oil mist standard sight dome — L

Bowl type
G Poly bowl with bowl guard
S Metal bowl with sight gauge

Drain type
N No drain closed end

Mounting
N No bracket

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

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

Material Specifications

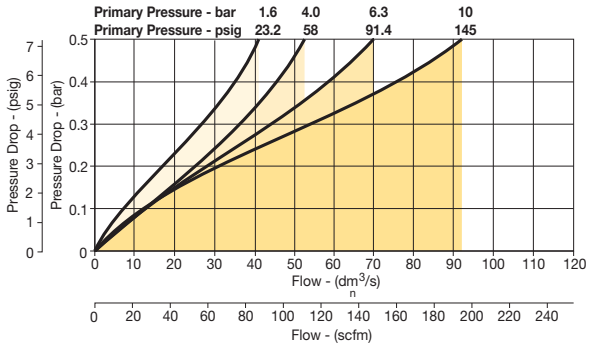
Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Seals	Nitrile
Sight dome	Polycarbonate
Sight gauge	Nylon
Suggested lubricant	ISO / ASTM VG32
Pick-up filter	Sintered bronze

Repair and Service Kits

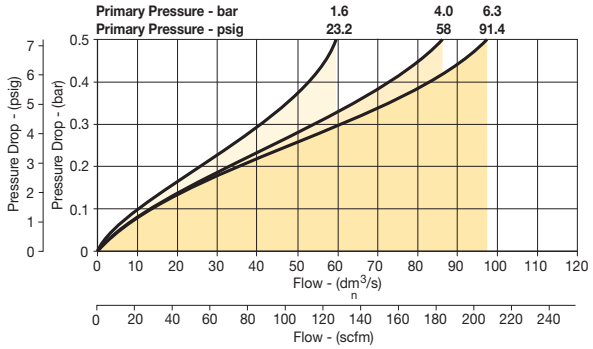
Plastic bowl / bowl guard no drain	**P33KA00BGN**
Metal bowl / w/o sight gauge no drain	**P33KA00BMN**
Metal bowl / sight gauge no drain	**P33KA00BSN**
Drip control assembly	**P32KA00PG**
Fill plug	**P32KA00PL**
L-bracket (fits to body)	**P33KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P32KA00MT**
Body connector	**P32KA00CB**
Oil (1 quart)	**F442001**
Oil (1 galllon)	**F442002**
Oil (12 quart case)	**F442003**
Oil (4 gallon case)	**F442005**

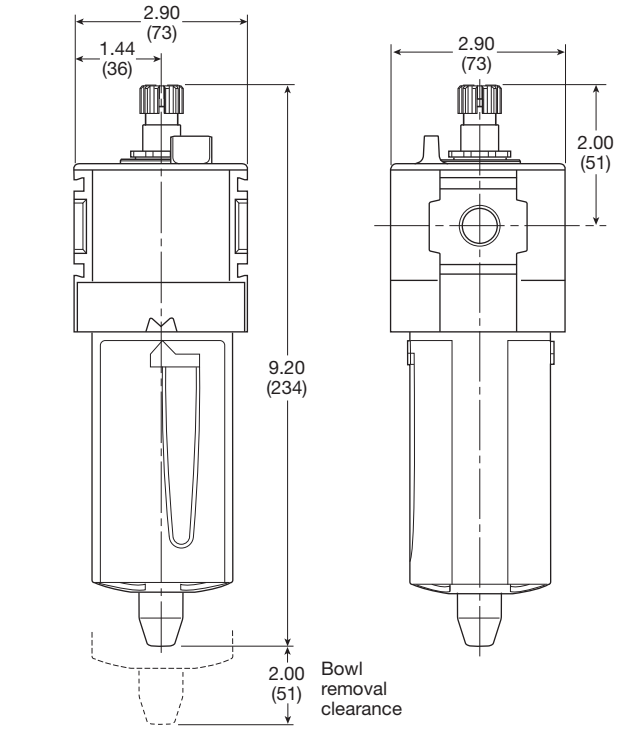
Flow Charts

P33LA 1/2" Lubricator



P33LA 3/4" Lubricator

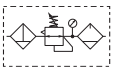




Inches (mm)

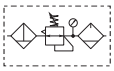
Popular Combinations: Inlet pressure 145 psig (10 bar), secondary pressure 91.3 psig (6.3 bar), 14.5 psig (1 bar) pressure drop.

Filter + Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



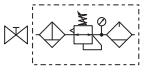
Port size	Flow	Manual drain	Pulse drain
1/4"	27 scfm (13 dm³/s, ANR)	**P31CB92GEMN5LNW**	**P31CB92GEBN5LNW**

Filter/Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



Port size	Flow	Manual drain	Pulse drain
1/4"	28 scfm (14 dm³/s, ANR)	**P31CA92GEMN5LNW**	**P31CA92GEBN5LNW**

Ball Valve + Filter + Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



Port size	Flow	Manual drain	Pulse drain
1/4"	27 scfm (13 dm³/s, ANR)	**P31QB92GEMN5LNW**	**P31QB92GEBN5LNW**

Ball Valve + Filter/Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets

Port size	Flow	Manual drain	Pulse drain
1/4"	28 scfm (14 dm³/s, ANR)	**P31QA92GEMN5LNW**	**P31QA92GEBN5LNW**

Filter / Regulator coding
(use with codes: A M)

Filter coding
(use with combo codes: B F G). **For multiple filters, repeat as needed.**

Regulator coding
(use with combo code: B)

Lubricator coding
(use with combo codes: A B)

Assembly configuration

P31 C B 9 2 G

Combination	
B/V + Combination	**Q**
Combination + B/V	**X**
Combination	**C**

B/V = Ball valve

Thread type	
BSPP	**1**
BSPT	**2**
NPT	**9**

Port size	
1/4	**2**

Combination type*			
F/R+L	**A**	F+Fc+Fa	**G**
F+R+L	**B**	F/R+Fc	**M**
F+Fc	**F**		

* Combination type
F = 5µ
Fc1 = 1µ
Fc = .01µ
Fa = Adsorber

Bowl type	
Poly bowl with bowl guard ‡	**G**
Metal bowl without sight gauge	**M**

Note: All bowl types are the same for each component

Example: If a "G" is specified for a F+L, both units would get a poly bowl with bowl guard.

‡ For polycarbonate bowl, see caution in Engineering Section A.

E M

Element	
5µ Element	**E**
0.01µ Element	**C**
1µ Element	**9**
Adsorber	**A**

Drain type	
Manual drain	**M**
Pulse drain	**B**

N 5

Relief / Adjustment	
Non-rising knob	**N**

Adjustment range	
With round gauge	
30 psig; 2 bar; 0.2 MPa	**Z**
60 psig; 4 bar; 0.4 MPa	**M**
125 psig; 8 bar; 0.8 MPa	**G**
232 psig; 16 bar; 1.6 MPa	**J**§
Without gauge	
30 psig; 2 bar; 0.2 MPa	**Y**
60 psig; 4 bar; 0.4 MPa	**L**
125 psig; 8 bar; 0.8 MPa	**N**
232 psig; 16 bar; 1.6 MPa	**H**§

With square gauge		
	psig	**bar**
	30* = **1**	2* = **V**
	60 = **3**	4 = **S**
	125 = **5**	8 = **T**

* Regulator comes with gauge respective to the adjustment range selected.

§ Not available with poly bowl with bowl guard.

L N

Lub type	
Oil mist standard sight dome	**L**

Drain type	
No drain; closed end	**N**

W

Mounting	
No bracket	**A**
Port blocks	**C***
Port blocks & wall brkt	**D***
Wall bracket	**W**

* For 3/8" Port Blocks please order separately. See Kits section.

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

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Pneumatic Division
Richland, Michigan
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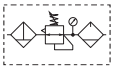
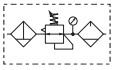
Popular Combinations: Inlet pressure 145 psig (10 bar), secondary pressure 91.3 psig (6.3 bar), 14.5 psig (1 bar) pressure drop.

Filter + Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



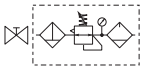
Port size	Flow	Manual drain	Auto drain
1/4"	42 scfm (20 dm³/s, ANR)	**P32CB92GEMNGLNW**	**P32CB92GEANGLNW**
3/8"	68 scfm (32 dm³/s, ANR)	**P32CB93GEMNGLNW**	**P32CB93GEANGLNW**
1/2"	85 scfm (40 dm³/s, ANR)	**P32CB94GEMNGLNW**	**P32CB94GEANGLNW**

Filter/Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



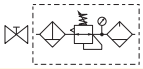
Port size	Flow	Manual drain	Auto drain
1/4"	45 scfm (22 dm³/s, ANR)	**P32CA92GEMNGLNW**	**P32CA92GEANGLNW**
3/8"	70 scfm (33 dm³/s, ANR)	**P32CA93GEMNGLNW**	**P32CA93GEANGLNW**
1/2"	90 scfm (43 dm³/s, ANR)	**P32CA94GEMNGLNW**	**P32CA94GEANGLNW**

Ball Valve + Filter + Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



Port size	Flow	Manual drain	Auto drain
1/4"	42 scfm (20 dm³/s, ANR)	**P32QB92GEMNGLNW**	**P32QB92GEANGLNW**
3/8"	68 scfm (32 dm³/s, ANR)	**P32QB93GEMNGLNW**	**P32QB93GEANGLNW**
1/2"	85 scfm (40 dm³/s, ANR)	**P32QB94GEMNGLNW**	**P32QB94GEANGLNW**

Ball Valve + Filter/Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



Port size	Flow	Manual drain	Auto drain
1/4"	45 scfm (22 dm³/s, ANR)	**P32QA92GEMNGLNW**	**P32QA92GEANGLNW**
3/8"	70 scfm (33 dm³/s, ANR)	**P32QA93GEMNGLNW**	**P32QA93GEANGLNW**
1/2"	90 scfm (43 dm³/s, ANR)	**P32QA94GEMNGLNW**	**P32QA94GEANGLNW**

Filter / Regulator coding
(use with codes: A M)

Filter coding
(use with combo codes: B F G). **For multiple filters, repeat as needed.**

Regulator coding
(use with combo code: B)

Lubricator coding
(use with combo codes: A B)

Assembly configuration

P32 C B 9 4 G

Combination	
B/V + Combination	Q
Combination + B/V	X
Combination	C

B/V = Ball valve

Thread type	
BSPP	1
BSPT	2
NPT	9

Port size	
1/4	2*
3/8	3
1/2	4

* Order combo Q or X: ball valve (BV) comes with 3/8 ports.

Combination type*			
F/R+L	A	F+Fc+Fa	G
F+R+L	B	F/R+Fc	M
F+Fc	F		

* Combination type
F = 5µ
Fc1 = 1µ
Fc = .01µ
Fa = Adsorber

‡ For polycarbonate bowl, see caution in Engineering Section A.

Bowl type	
Poly bowl with bowl guard ‡	G
Metal bowl without sight gauge	M*
Metal bowl with sight gauge	S

* Not available when using lubricator.
Note: All bowl types are the same for each component.

Example: If a "G" is specified for a F+L, both units would get a poly bowl with bowl guard.

E M

Element	
0.01µ Element	C
0.01µ Element with dpi	D*
5µ Element	E
5µ Element with dpi	F*
1µ Element	9
1µ Element with dpi	Q*
Adsorber	A

* Not available with F/R.

Drain type	
Auto drain	A
Manual drain	M

N G

Relief / Adjustment	
Non-rising knob relieving	N

Adjustment range	
With round gauge	
30 psig; 2 bar; 0.2 MPa	Z
60 psig; 4 bar; 0.4 MPa	M
125 psig; 8 bar; 0.8 MPa	G
250 psig; 17 bar; 1.7 MPa	J§
Without gauge	
30 psig; 2 bar; 0.2 MPa	Y
60 psig; 4 bar; 0.4 MPa	L
125 psig; 8 bar; 0.8 MPa	N
250 psig; 17 bar; 1.7 MPa	H§

With square gauge		
	psig	bar
30* = 1	2* = V	
60 = 3	4 = S	
125 = 5	8 = T	

* Regulator comes with gauge respective to the adjustment range selected.

§ Not available with poly bowl with bowl guard.

L N

Lub type	
Oil mist standard sight dome	L

Drain type	
No drain; closed end	N

W

Mounting	
No bracket	A
Port blocks	C
Port blocks & wall brkt	D
Wall bracket	W

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

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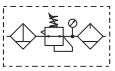
Richland, Michigan
www.parker.com/pneumatics

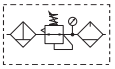
Popular Combinations: Inlet pressure 145 psig (10 bar), secondary pressure 91.3 psig (6.3 bar), 14.5 psig (1 bar) pressure drop.

Filter + Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



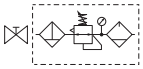
Port size	Flow	Manual drain	Auto drain
1/2"	90 scfm (43 dm³/s, ANR)	**P33CB94GEMNGLNW**	**P33CB94GEANGLNW**
3/4"	110 scfm (52 dm³/s, ANR)	**P33CB96GEMNGLNW**	**P33CB96GEANGLNW**

Filter/Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



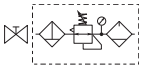
Port size	Flow	Manual drain	Auto drain
1/2"	110 scfm (52 dm³/s, ANR)	**P33CA94GEMNGLNW**	**P33CA94GEANGLNW**
3/4"	150 scfm (71 dm³/s, ANR)	**P33CA96GEMNGLNW**	**P33CA96GEANGLNW**

Ball Valve + Filter + Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



Port size	Flow	Manual drain	Auto drain
1/2"	90 scfm (43 dm³/s, ANR)	**P33QB94GEMNGLNW**	**P33QB94GEANGLNW**
3/4"	110 scfm (52 dm³/s, ANR)	**P33QB96GEMNGLNW**	**P33QB96GEANGLNW**

Ball Valve + Filter/Regulator + Lubricator Combinations, poly bowl
5 micron element, 116 psig (8 bar) regulator + gauge and wall mounting brackets



Port size	Flow	Manual drain	Auto drain
1/2"	110 scfm (52 dm³/s, ANR)	**P33QA94GEMNGLNW**	**P33QA94GEANGLNW**
3/4"	150 scfm (71 dm³/s, ANR)	**P33QA96GEMNGLNW**	**P33QA96GEANGLNW**

Filter / Regulator coding
(use with codes: A M)

Filter coding
(use with combo codes: B F G). **For multiple filters, repeat as needed.**

Regulator coding
(use with combo code: B)

Lubricator coding
(use with combo codes: A B)

Assembly configuration

P33 C B 9 6 G

Combination	
B/V + Combination	Q
Combination + B/V	X
Combination	C

B/V = Ball valve

Thread type	
BSPP	1
BSPT	2
NPT	9

Port size	
1/2	4
3/4	6

Combination type*			
F/R+L	A	F+Fc+Fa	G
F+R+L	B	F/R+Fc	M
F+Fc	F		

* Combination type
F = 5µ
Fc1 = 1µ
Fc = .01µ
Fa = Adsorber

Bowl type ‡	
Poly bowl with bowl guard	G
Metal bowl without sight gauge	M*
Metal bowl with sight gauge	S

‡ For polycarbonate bowl, see caution in Engineering Section A.

* Not available when using lubricator.
Note: All bowl types are the same for each component.
Example: If a "G" is specified for a F+L, both units would get a poly bowl with bowl guard.

E M

Element	
0.01µ Element	C
0.01µ Element with dpi	D*
5µ Element	E
5µ Element with dpi	F*
1µ Element	9
1µ Element with dpi	Q*
Adsorber	A

* Not available with F/R.

Drain type	
Auto drain	A
Manual drain	M

N G

Relief / Adjustment	
Non-rising knob relieving	N

Adjustment range	
With round gauge	
30 psig; 2 bar; 0.2 MPa	Z
60 psig; 4 bar; 0.4 MPa	M
125 psig; 8 bar; 0.8 MPa	G
250 psig; 17 bar; 1.7 MPa	J*
Without gauge	
30 psig; 2 bar; 0.2 MPa	Y
60 psig; 4 bar; 0.4 MPa	L
125 psig; 8 bar; 0.8 MPa	N
250 psig; 17 bar; 1.7 MPa	H*

* Not available with poly bowl with bowl guard.

L N

Lub type	
Oil mist standard sight dome	L

Drain type	
No drain; closed end	N

W

Mounting	
No bracket	A
Port blocks	C
Port blocks & wall brkt	D
Wall bracket	W

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

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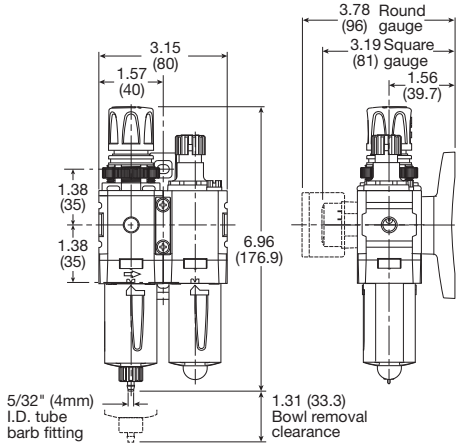
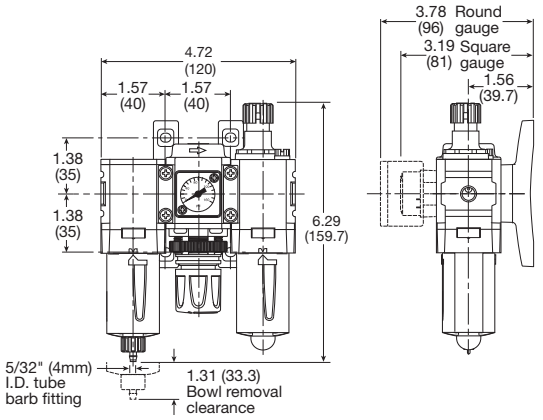
Popular Combination Dimensions

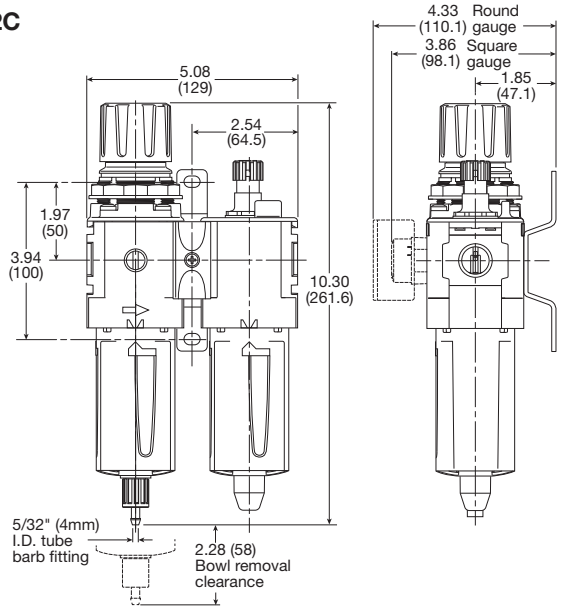
inches (mm)

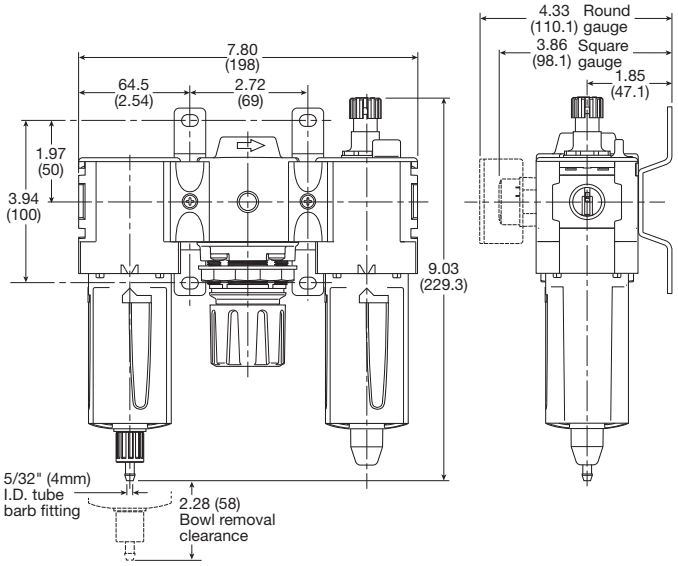
P31C



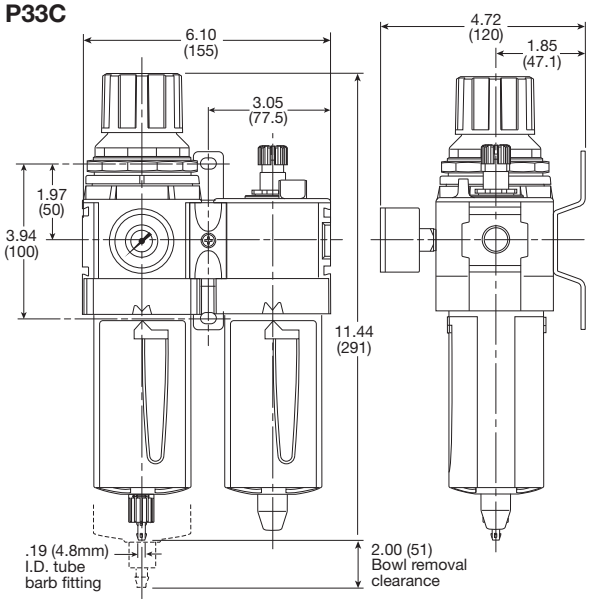


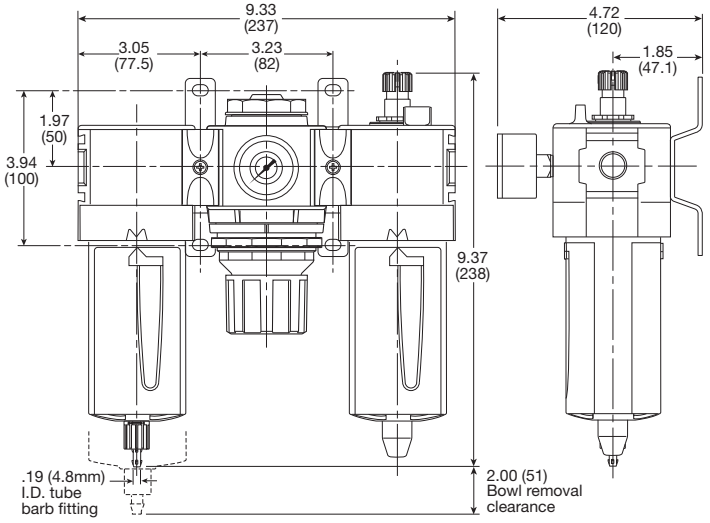
P32C





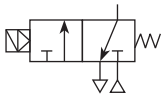
P33C





P31D & P32D Dump Valves

- Modular design with 1/4" or 1/2" integral ports (NPT, BSPP & BSPT)
- The 3-way, 2-position function automatically dumps downstream pressure on the loss of pilot signal
- Solenoid or air pilot options
- High flow & exhaust capability
- Silencer included



Remotely operated dump valves automatically shut off upstream pressure and exhaust the downstream pressure when the pilot pressure is released.

To maintain these units in the open position a pilot supply to the air pilot operated version or an electrical signal to the solenoid operated version must be maintained.

The valve will automatically dump when the holding signal is removed.

Port size	Description	Weight lbs (kg)	Part number
1/4"	120VAC Solenoid & cable plug	0.8 (0.37)	**P31DA92SGNC1FN**
1/4"	24VDC Solenoid & cable plug ‡	0.9 (0.41)	**P31DA92SGNC2CN**
1/4"	External air pilot operated	0.8 (0.37)	**P31DA92PPN**
1/2"	120VAC 30mm coil & cable plug incl. ‡	1.5 (0.69)	**P32DA94SCNA3GN**
1/2"	24VDC 30mm coil & cable plug incl. ‡	2.0 (0.91)	**P32DA94SCNA2CN**
1/2"	External air pilot operated ‡	1.9 (0.87)	**P32DA94PPN**

‡ Includes exhaust silencer

Operating information

Flow capacity*:	P31D	36 scfm (17 dm³/s, ANR)
	P32D	108 scfm (51 dm³/s, ANR)
Temperature range (max)†:		
Solenoid operated		14°F to 122°F (-10°C to 50°C)
Air pilot operated		-4°F to 176°F (-20°C to 80°C)
Pressure (max):		
Solenoid operated		150 psig (10 bar)
Air pilot operated		250 psig (17 bar)
Operating pressure (min):		44 psig (3 bar)
Fluid:		Compressed air
Ports:	Air pilot	1/8
	Exhaust	P31D - 1/4; P32D - 1/2
	Gauge	P31D - 1/8; P32D - 1/4

* Inlet pressure 91.3 psig (6.3 bar), inlet pressure and 14.5 psig (1 bar) pressure drop.

† Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C). Snap pressure: Full flow when downstream pressure reaches 50% of the inlet pressure.

Ordering Information:

P31DA 9 2 S G N — Solenoid type only: **C 2CN**

Body size

Dump valve (1/4")	P31DA
Dump valve (1/2")	P32DA

Thread type

BSPP	1
BSPT	2
NPT	9

Port size

Global modular mini (1/4")	2
Global modular compact (1/2")	4

Pilot type

P	External air pilot
S	Solenoid pilot

Actuator interface

G	15mm solenoid (P31 only)
C	30mm solenoid
P	Threaded air pilot

Solenoid type

C	15mm (P31 series only)
A	30mm CNOMO coil (P32 only)
D	30mm CNOMO coil (M12 connection) (P32 only)

Solenoid voltage

2CN	24VDC non locking manual overide
3GN	120VAC non locking manual overide
1FN	120VAC non locking manual override (P31 series only)

Note:
P32 unit used for both P32 & P33 series

☐ Most popular.

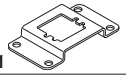
For inventory, lead times, and kit lookup, visit www.pdnplu.com

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

Material Specifications

Body	Aluminum
Body cover	Polyester
Seals	Nitrile NBR

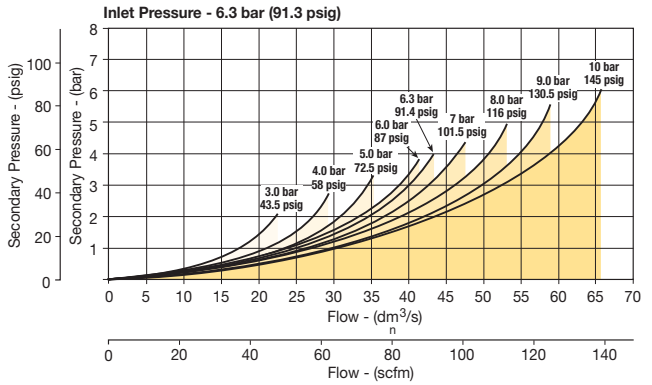
Mounting Brackets

	Description	Part number P31D
 P31	L-bracket mounting kit	**P3HKA00ML**
 P31	Foot bracket mounting kit	**P3HKA00MC**

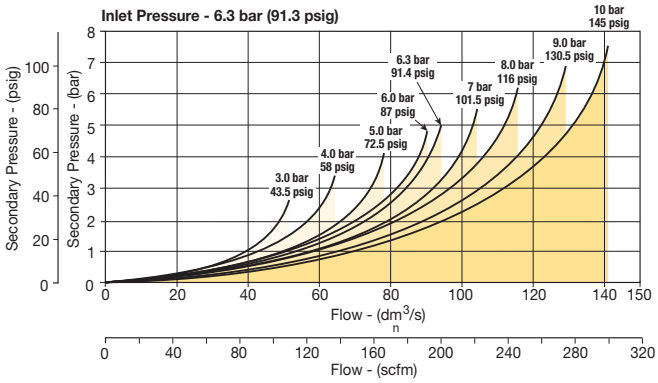
Note:
For solenoid operators and cable plugs (connectors) see page B79 and B80.

Flow Charts

P31DA 1/4" Remote Dump Valve

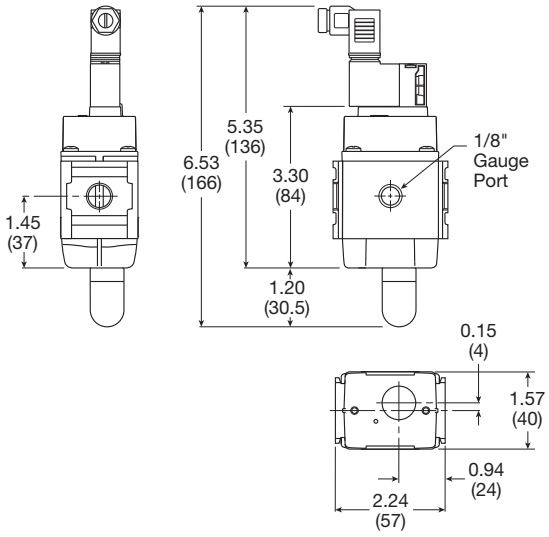


P32DA 1/2" Remote Dump Valve

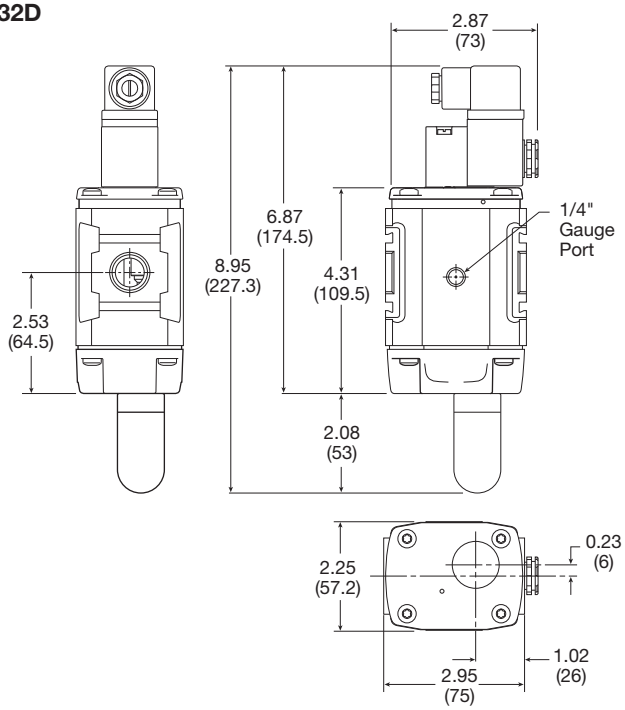


Dimensions inches (mm)

P31D



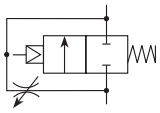
P32D

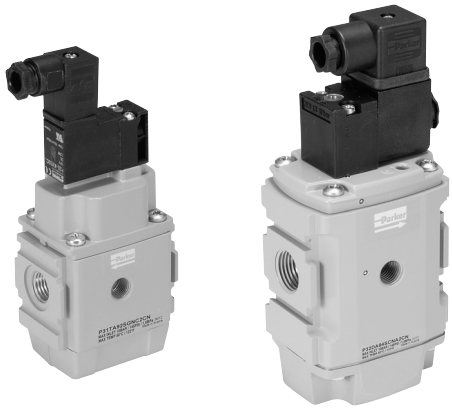


Most popular.

P31S & P32S Soft Start Valves

- Modular design with 1/4" or 1/2" integral ports (NPT, BSPP & BSPT)
- The 2-way, 2-position function provides for the safe introduction of pressure
- Adjustable slow start
- Solenoid or air pilot options
- High flow





Parker Global Series Soft Start Valves, provide for the safe introduction of pressure to machines or systems. Soft Start Valves, allow the pressure to gradually build to the set point before fully opening to deliver full flow at line pressure.

The controlled introduction of pressure can be an important safety factor and prevent damage to tooling when air pressure is introduced at machine or system start up.

Note: Soft Start Valves must be installed downstream of a 3/2 valve with exhaust capability

Port size	Description	Weight lbs (kg)	Part number
1/4"	120VAC Solenoid & cable plug	0.8 (0.37)	**P31SA92SGNC1FN**
1/4"	24VDC Solenoid & cable plug	0.9 (0.41)	**P31SA92SGNC2CN**
1/4"	Internal air pilot operated	0.8 (0.37)	**P31SA92Y0N**
1/4"	External air pilot (1/8" threaded)	0.8 (0.37)	**P31SA92PPN**
1/2"	120VAC 30mm coil & cable plug incl.	1.5 (0.87)	**P32SA94SCNA3GN**
1/2"	24VDC 30mm coil & cable plug	2.0 (0.90)	**P32SA94SCNA2CN**
1/2"	Internal air pilot operated	2.0 (0.90)	**P32SA94Y0N**
1/2"	External air pilot (1/8 threaded)	1.5 (0.87)	**P32SA94PPN**

Operating information

Flow capacity*:	P31S	36 scfm (17 dm³/s, ANR)
	P32S	101 scfm (48 dm³/s, ANR)
Temperature range (max)†:		
Solenoid operated		14°F to 122°F (-10°C to 50°C)
Air pilot operated		-4°F to 176°F (-20°C to 80°C)
Pressure (max):		
Solenoid operated		150 psig (10 bar)
Air pilot operated		250 psig (7 bar)
Operating pressure (min):		44 psig (3 bar)
Fluid:		Compressed air
Ports:	Air pilot	1/8
	Gauge	P31S - 1/8; P32S - 1/4

* Inlet pressure 91.3 psig (6.3 bar), inlet pressure and 14.5 psig (1 bar) pressure drop.

† Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C). Snap pressure: Full flow when downstream pressure reaches 50% of the inlet pressure.

Ordering Information:

P31SA 9 2 S G N — Solenoid type only: **C 2CN**

Body size	
Soft start	P31SA
Soft start	P32SA

Thread type	
BSPP	1
BSPT	2
NPT	9

Port size	
Global modular mini (1/4")	2
Global modular compact (1/2")	4

Note:
P32 unit used for both P32 & P33 series

Pilot type	
P	External air pilot
S	Solenoid pilot
Y	Internal air pilot

Actuator interface	
0	Internal pilot
G	15mm solenoid (P31 only)
C	30mm solenoid
P	Threaded air pilot

Solenoid type	
C	15mm (P31 series only)
A	30mm CNOMO coil (P32 only)
D	30mm CNOMO coil (M12 connection) (P32 only)

Solenoid voltage	
2CN	24VDC non locking manual overide
3GN	120VAC non locking manual overide
1FN	120VAC non locking manual override (P31 series only)

☐ Most popular.

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

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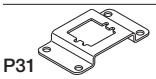
Material Specifications

Body	Aluminum
Body cover	Polyester
Seals	Nitrile NBR

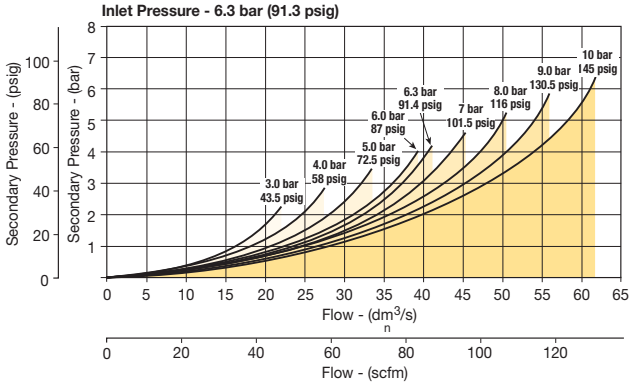
Mounting Brackets

	Description	Part number P31S
 P31	L-bracket mounting kit	**P3HKA00ML**
 P31	Foot bracket mounting kit	**P3HKA00MC**

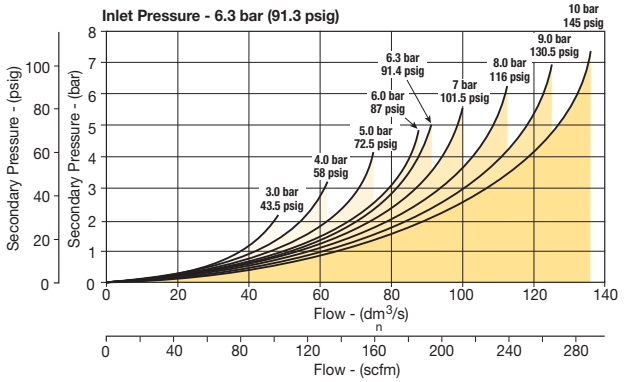
Note:
For solenoid operators and cable plugs (connectors) see page B79 and B80.

Flow Charts

P31SA 1/4" Soft Start Valve

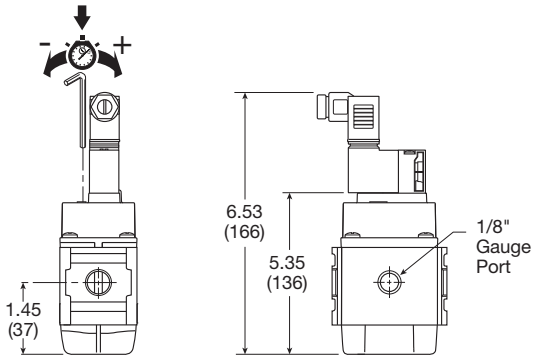


P32SA 1/2" Soft Start Valve

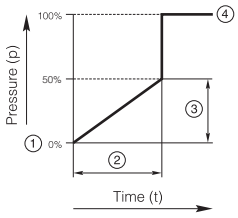


Dimensions inches (mm)

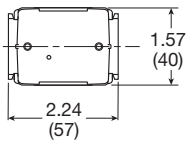
P31S



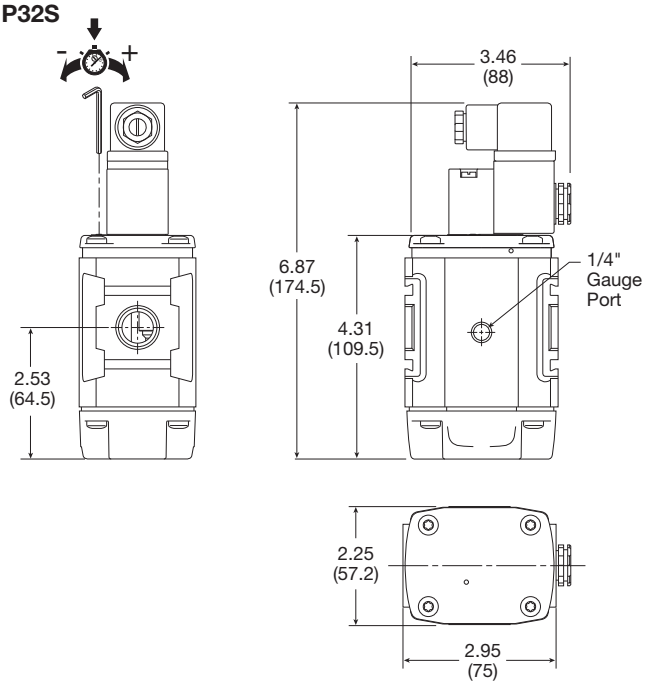
Soft Start Function:



① Start signal
② Switching time delay
③ Gradual pressure build up
④ Operating pressure p^2 (=p^1)

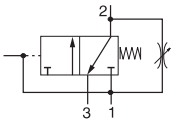


P32S



P31T & P32T Combined Soft Start / Dump Valves

- Modular design with 1/4" or 1/2" integral ports (NPT, BSPP & BSPT)
- Provides for the safe introduction of pressure
- The 3-way, 2-position function automatically dumps downstream pressure on the loss of pilot signal
- Adjustable slow start
- Solenoid or air pilot options
- High flow & exhaust capability
- Silencer included



Parker Global Series Combined Soft Start / Dump Valves, provide for the safe introduction of pressure to machines or systems. Soft Start / Dump Valves when set, allow the pressure to gradually build to the set point before fully opening to deliver full flow at line pressure.

The controlled introduction of pressure can be an important safety factor and prevent damage to tooling when air pressure is introduced at machine or system start up.

To maintain these units in the open position a pilot supply to the air pilot operated version or an electrical signal to the solenoid operated version must be maintained. The valve will automatically dump when the holding signal is removed.

Port size	Description	Weight lbs (kg)	Part number
1/4"	120VAC Solenoid & cable plug	0.8 (0.37)	**P31TA92SGNC1FN**
1/4"	24VDC Solenoid & cable plug	0.9 (0.41)	**P31TA92SGNC2CN**
1/4"	External air pilot operated	0.8 (0.37)	**P31TA92PPN**
1/2"	120VAC 30mm coil & cable plug incl.	1.9 (0.87)	**P32TA94SCNA3GN**
1/2"	24VDC 30mm coil & cable plug incl.	2.0 (0.91)	**P32TA94SCNA2CN**
1/2"	External air pilot operated	1.9 (0.87)	**P32TA94PPN**

Operating information

Flow capacity*:	P31T	36 scfm (17 dm³/s, ANR)
	P32T	108 scfm (51 dm³/s, ANR)
Temperature range (max)†:		
Solenoid operated		14°F to 122°F (-10°C to 50°C)
Air pilot operated		-4°F to 176°F (-20°C to 80°C)
Pressure (max):		
Solenoid operated		150 psig (10 bar)
Air pilot operated		250 psig (7 bar)
Operating pressure (min):		44 psig (3 bar)
Fluid:		Compressed air
Ports:	Air pilot	1/8
	Exhaust	P31T - 1/4; P32T - 1/2
	Gauge	P31T - 1/8; P32T - 1/4

* Inlet pressure 91.3 psig (6.3 bar), inlet pressure and 14.5 psig (1 bar) pressure drop.

† Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C). Snap pressure: Full flow when downstream pressure reaches 50% of the inlet pressure.

Ordering Information:

P31TA | **9** | **2** | **S** | **G** | **N** | **C** | **2CN**

Body size

Soft start / dump valve (1/4")	P31TA
Soft start / dump valve (1/2")	P32TA

Thread type

BSPP	1
BSPT	2
NPT	9

Port size

Global modular mini (1/4")	2
Global modular compact (1/2")	4

Pilot type

P	External air pilot
S	Solenoid pilot

Actuator interface

G	15mm solenoid (P31 only)
C	30mm solenoid
P	Threaded air pilot

Solenoid type only

Solenoid type

C	15mm (P31 series only)
A	30mm CNOMO coil (P32 only)
D	30mm CNOMO coil (M12 connection) (P32 only)

Solenoid voltage

2CN	24VDC non locking manual overide
3GN	120VAC non locking manual overide
1FN	120VAC non locking manual override (P31 series only)

Note:
P32 unit used for both P32 & P33 series

☐ Most popular.

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

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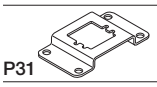
Material Specifications

Body	Aluminum
Body cover	Polyester
Seals	Nitrile NBR

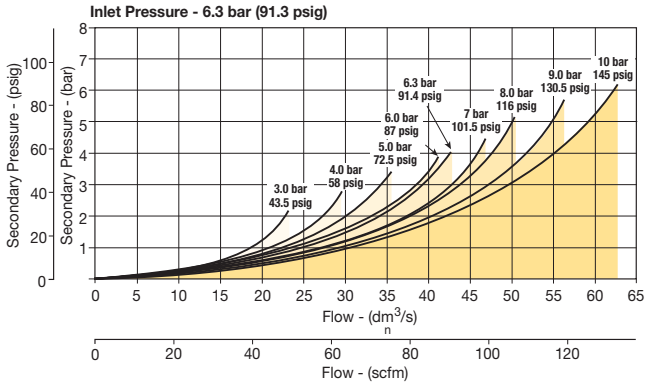
Mounting Brackets

	Description	Part number P31T
 P31	L-bracket mounting kit	**P3HKA00ML**
 P31	Foot bracket mounting kit	**P3HKA00MC**

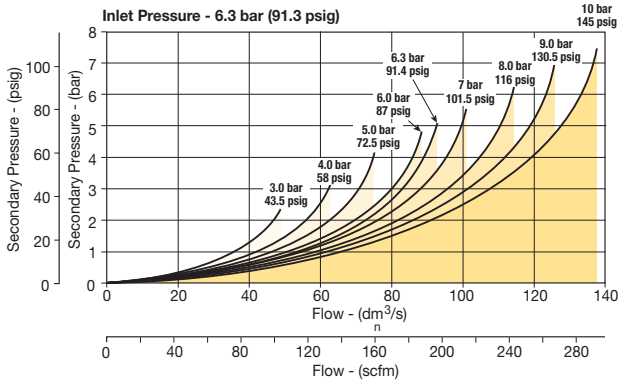
Note:
For solenoid operators and cable plugs (connectors) see page B79 and B80.

Flow Charts

P31TA 1/4" Soft Start & Dump Valve

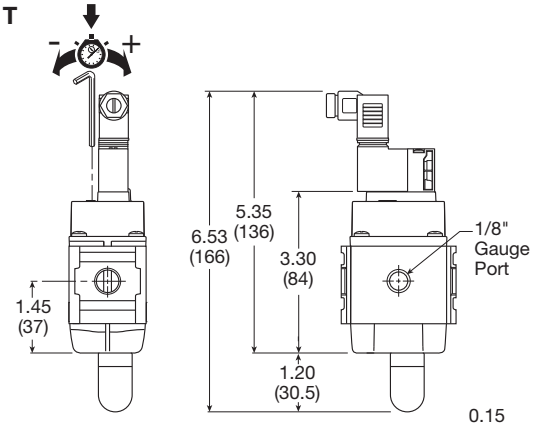


P32TA 1/2" Soft Start & Dump Valve

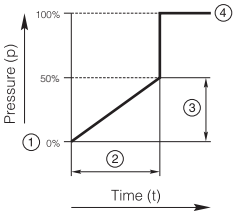


Dimensions inches (mm)

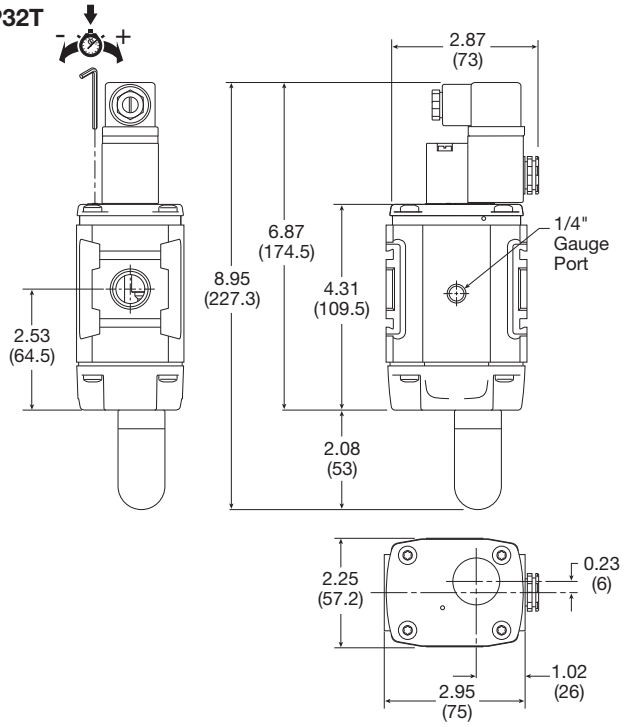
P31T



Soft Start Function:



P32T



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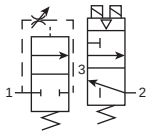
P33T Redundant Safety Exhaust Valve

- Proven control reliable technology with integrated soft start
- Soft start application of air to the system when energized; can be adjusted for slower or faster buildup of system pressure
- Rapid exhaust of downstream air when de-energized to remove stored energy and allow safe access
- Memory, monitoring, and air flow control functions are integrated into two identical valve elements. Valves lock-out if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.
- Reset can only be accomplished by the integrated electrical (solenoid) reset. Cannot be reset by removing and re-applying supply pressure.
- Basic 3/2 normally closed valve function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity.
- LED indicators of main solenoid operation, reset solenoid operation, and status indicator condition.
- Optional transducer for monitoring of downstream pressure in the system.
- Dual exhaust silencers included.
- Not for use with clutch / brake applications.
- For use in conjunction with a safety relay or safety PLC.



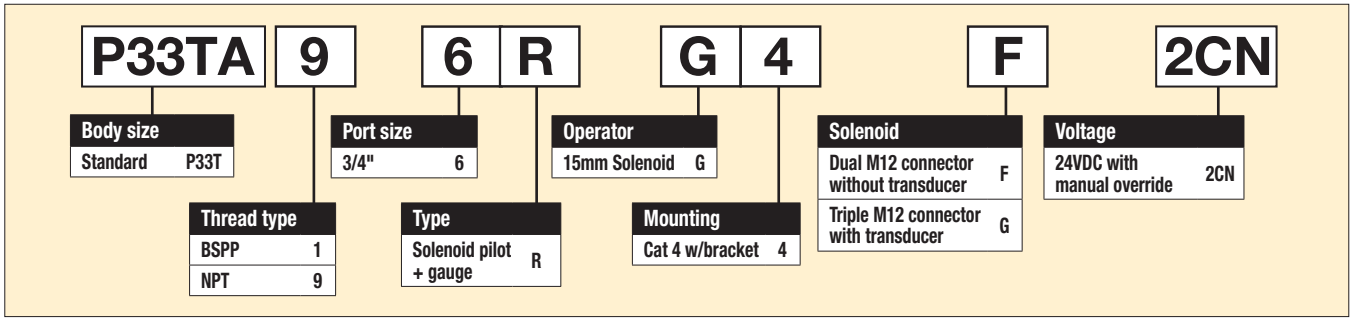
Port size			Cv		
Inlet	Outlet	Transducer	1 to 2	2 to 3	Part number*
3/4	3/4	w/o transducer	3.7	8.5	**P33TA96RG4F2CN**
3/4	3/4	w/ transducer	3.7	8.5	**P33TA96RG4G2CN**

* NPT port threads. For BSPP threads, replace "9" in the part number with a "1".

Operating information

Pilot Solenoids:	According to VDE 0580
Enclosure rating:	According to DIN 400 50 IP65
Connector socket:	According to DIN 43650 Form A Three solenoids, rated for continuous duty
Standard voltages:	24VDC
Power consumption (each solenoid), for primary & reset solenoids:	1.2 Watts on DC
Enclosure rating:	IP65, IEC 60529
Electrical connection:	M12, 5-pin
Ambient temperature:	15°F to 122°F (-10°C to 50°C)
Media temperature:	40°F to 175°F (4°C to 80°C)
Flow media:	Compressed Air, Filtered to Minimum 40 Micron
Inlet pressure:	30 to 150 psig (2 to 10 bar)
Monitoring:	Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Mounting orientation:	Vertically with pilot solenoids on top
Port threads:	3/4 NPT, 3/4 BSPP
Control reliable:	Category 4 (Cat 4); performance Level e (PLe) in accordance with Machine directive - EN ISO 13849-1 (Certification pending)
Weight:	16.1 lb (7.3 kg) w/o transducer 16.3 lb (7.4 kg) w/ transducer

Ordering Information:



☐ Most popular.

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

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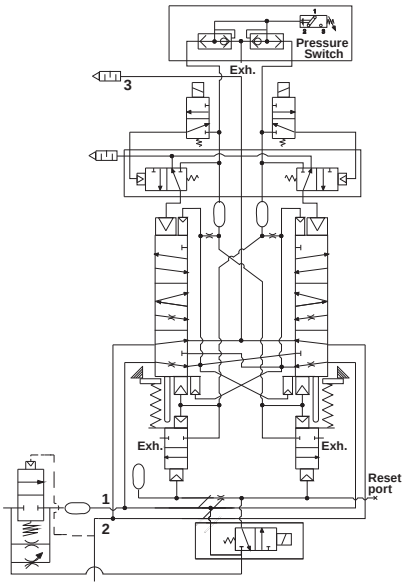
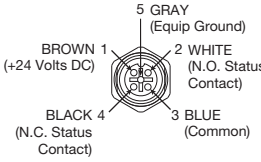


Repair and Service Kits

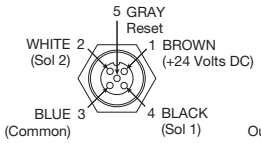
Black grill	**1834C05-001**
Body connector	**P32KA00CB**
M12, 5-pin female to flying lead cable, TPE; 6.6 ft (2 m)	**RKC 4.5T-2/S1587**
M12, 5-pin male to flying lead cable, TPE; 6.6 ft (2 m)	**RSC 4.5T-2/S1587**
1/2 NPT, port block kit	**P32KA94CP**
3/4 NPT, port block kit	**P32KA96CP**
1/2 BSPP, port block kit	**P32KA14CP**
3/4 BSPP, port block kit	**P32KA16CP**
1/2 BSPT, port block kit	**P32KA24CP**
3/4 BSPT, port block kit	**P32KA26CP**
Pressure switch	**1227A30-001**
Pressure transducer (optional)	**1232H30-001**
T-bracket w/ body connector	**P32KA00MT**
T-bracket (fits to body connector or port block)	**P32KA00MB**
Silencer(s) 3/4"	**5500A5013**
Solenoid (main & reset)	**1527B7916-001**
Square flush mounting gauge kit, 0-160 psig	**K4511SCR160**

Valve Wiring

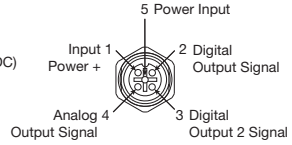
5-Pin "A" Code Female Connector (Feedback)



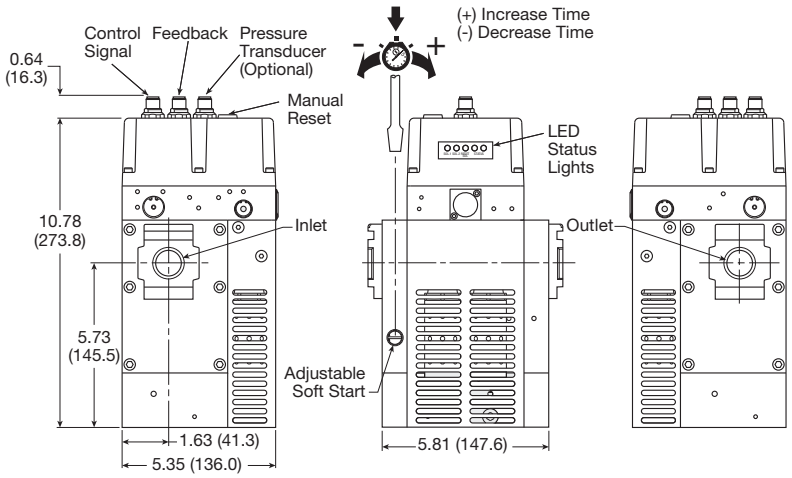
5-Pin "A" Code Male Connector (Control Signal)

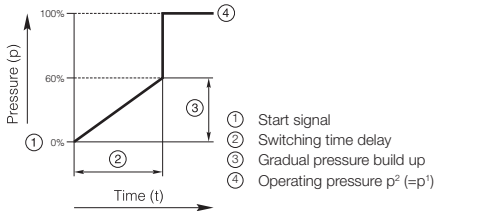


5-Pin "A" Code Female Connector (Digital Pressure Transducer Wiring (optional))

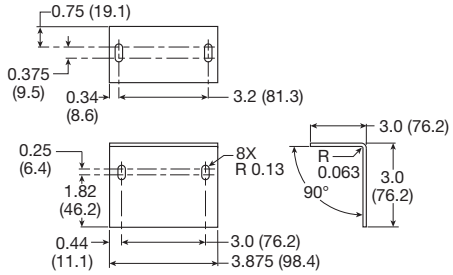


Dimensions inches (mm)





Angle Mounting Bracket

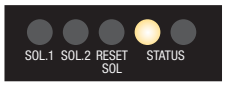


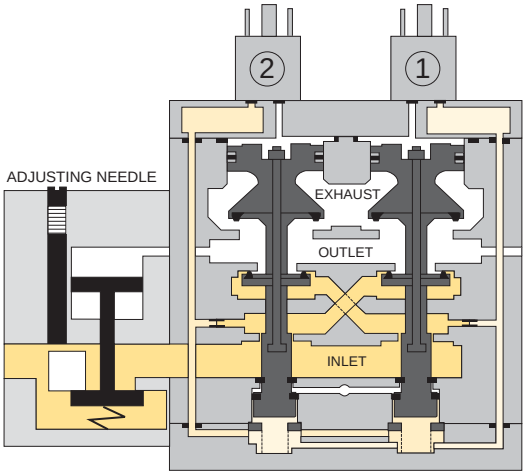
Note: Mounting bracket and installation screws included and required to install unit in the system.

Valve de-actuated (ready-to-run):

The flow of inlet air pressure to the inlet chamber of the main valve internals is restricted by a fixed orifice and an adjustable flow control as well as an air piloted 2-way normally closed poppet valve. The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply / timing chambers 1 and 2. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Reset adapter omitted for clarity.)

The green “Status” LED will be illuminated indicating the valve is operational.



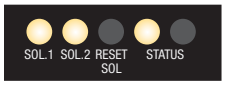


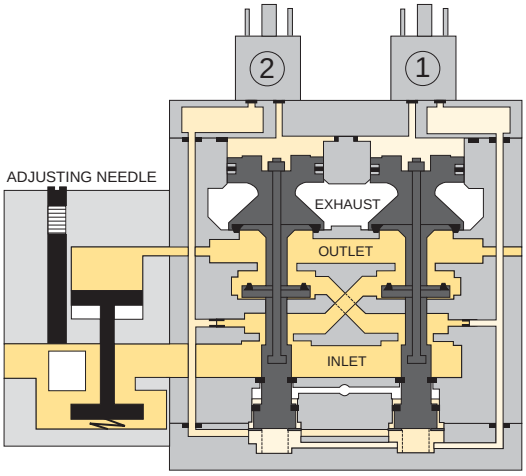
Valve actuated:

Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then pressurized at a rate allowed by the fixed orifice and the adjusted flow control. Once the air pressure in the outlet chamber reaches approximately 60% of inlet pressure, the air piloted 2-way normally closed poppet valve opens fully and the pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. The adjustable flow control will control the time it takes for the outlet air pressure to reach approximately 60% of inlet pressure.

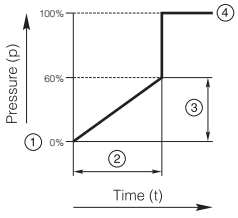
De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.

Solenoid 1, Solenoid 2 and the green “Status” LED’s will be illuminated indicating the valve is operating properly.





Soft start function:



① Start signal
② Switching time delay
③ Gradual pressure build up
④ Operating pressure p^2 (=p^1)

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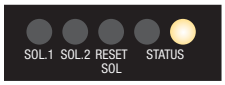
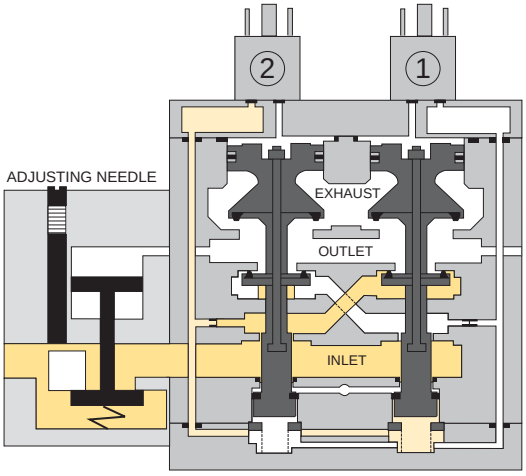
Valve fault and lock-out:

Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (side 2) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element.

Air pressure in the crossover acts on the differential of side 2 stem diameters creating a latching force. Side 1 is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position. Inlet air flow on side 1 into its crossover is restricted, and flows through the open inlet poppet on side 2, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.

The red “Status” LED will be illuminated indicating the valve in fault and lock-out must be reset





Valve reset (electrical or manual):

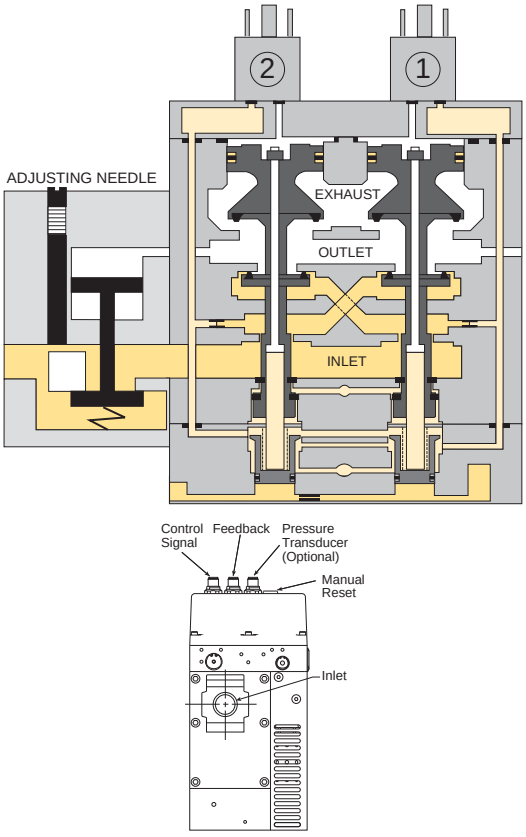
The reset procedure is as follows:

- Remove the electrical signals to the main coils
- Ensure there is air supplied to the valve
- Energize the reset solenoid for a minimum of 200 ms
- Allow a 200 ms delay after de-energizing the reset solenoid and re-energizing the main solenoids

The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied.

A remote reset signal must be applied to reset the valve. A momentary, remote electrical signal must be applied to the reset solenoid to apply pressure to the reset pistons in the valve. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset (Reset adapter added to illustration.). De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset air pressure is applied by a 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter in the top valve cover.

The green “Status” LED will be illuminated once the valve is reset.



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

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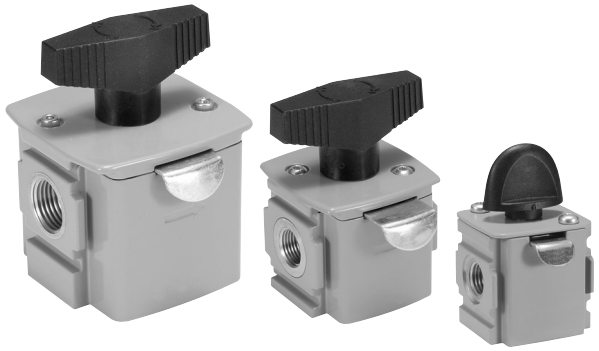
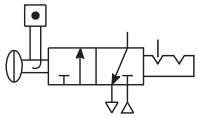
Ball Valve / Lockout Valve

The Ball / Lockout Valve shuts off downstream line pressure in the closed position with a 90° turn of the handle. In the closed position, inlet air pressure is blocked and downstream / system air is exhausted through a threaded port. To prevent unauthorized adjustment, the padlock slide may be assembled on either side. It is recommended that this slide is installed after final system assembly.

The Safety Lockout valves conform to OSHA #29 CFR part 1910 — control of hazardous energy source (lockout / tagout).

Note: This padlock slide is a permanent assembly and may not be removed later, any unauthorized tampering will void any warranty claims. The valve can only be locked in the closed position.





Ordering Information

Model type	Port size	Exhaust port	Thread type	Flow scfm (dm^3/s, ANR)	Modular ball valve flow from left to right
P31	1/4"	1/4"	NPT	42.4 (20)	**P31VB92LBNN**
P32	3/8"	1/4"	NPT	190.7 (90)	**P32VB93LBNN**
	1/2"	1/4"	NPT	258.5 (122)	**P32VB94LBNN**
P33	1/2"	1/2"	NPT	561.5 (265)	**P33VB94LBNN**
	3/4"	1/2"	NPT	678 (320)	**P33VB96LBNN**

* Lockout tab and muffler supplied with unit.

For thread type: BSPP **1**
BSPT **2**
NPT **9**

Operating information

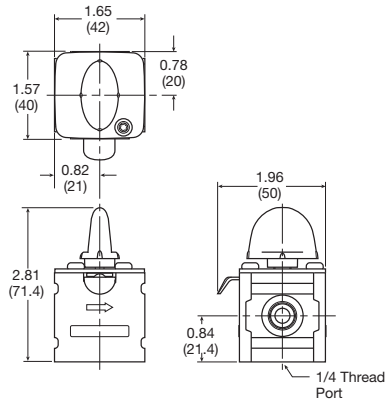
Operating temperature:		-40°C to 80°C (-40°F to 176°F)
Pressure supply (max):		250 psig (17 bar)
Port size: BSPP / BSPT / NPT		1/4, 3/8, 1/2, 3/4
Weight:	P31	0.33 lbs (0.15 kg)
	P32	0.79 lbs (0.36 kg)
	P33	1.21 lbs (0.55 kg)

Material Specifications

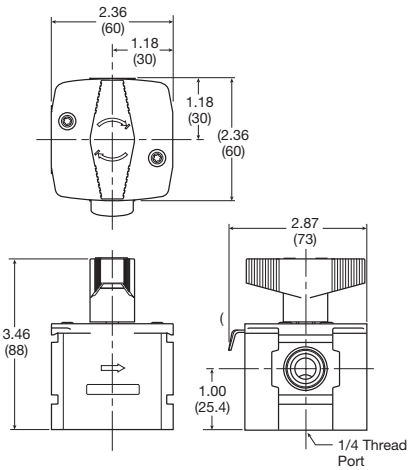
Body	Aluminum
Seals	PTFE
Ball	Stainless Steel
Lockout Tab	Zinc Plated Steel
Screw	Zinc Plated Steel

Dimensions inches (mm)

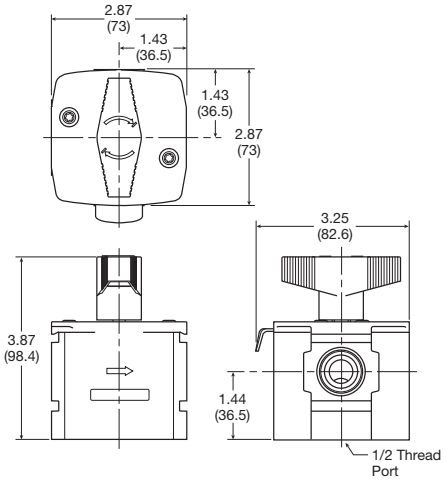
P31



P32



P33



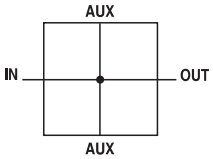
Most popular.

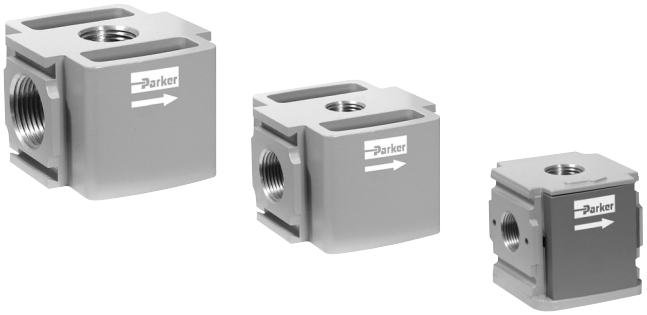
For inventory, lead times, and kit lookup, visit www.pdnplu.com

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

Manifold Blocks

- Available in 1/4" or 3/4" threaded inlet / outlet ports
- Two additional top and bottom auxiliary ports standard
- Can be mounted anywhere in the FRL system





Ordering Information

Model type	In / Out port size	Auxiliary port size top	Auxilliary port size bottom	Thread type	Part number
P31	1/4"	1/4"	1/4"	NPT	**P31MA92022N**
P32	1/2"	1/4"	1/2"	NPT	**P32MA94024N**
P33	3/4"	1/4"	1/2"	NPT	**P33MA96024N**

For thread type: BSPP **1**
BSPT **2**
NPT **9**

Operating information

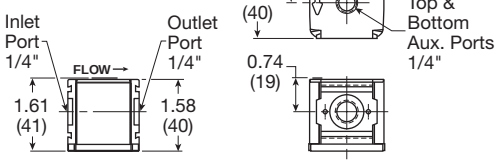
Operating temperature:		-40°F to 150°F (-40°C to 65.5°C)
Pressure supply (max):		300 psig (20.7 bar)
Weight:	P31	0.26 lbs (0.12 kg)
	P32	0.45 lbs (0.20 kg)
	P33	0.45 lbs (0.20 kg)

Material Specifications

Body	Aluminum

Dimensions inches (mm)

P31



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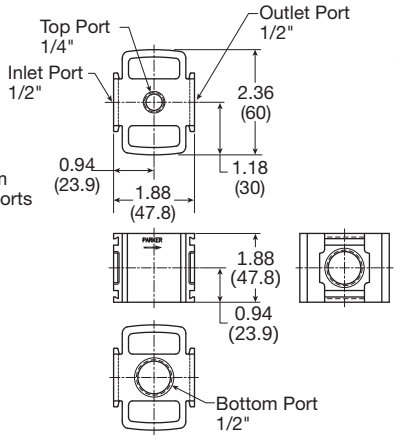

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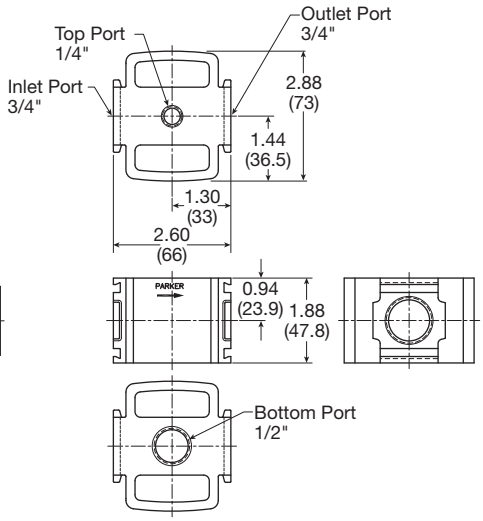
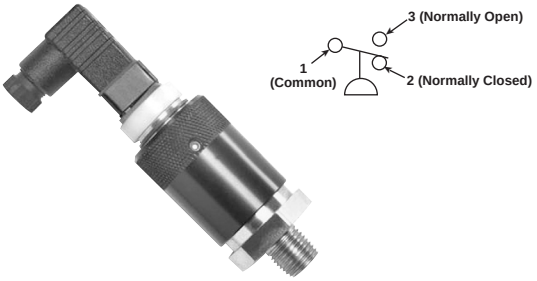


Most popular.

PPS1 Pressure Switch

- Long life elastomer diaphragm
- High quality snap action switch
- Field adjustable
- Compact design
- Easily customized
- Quick delivery
- NEMA 4, 13



Definitions and Terminology

Repeatability — Accuracy is the maximum allowable set point deviation of a single pressure or temperature switch under one given set of environmental and operational conditions.

Single Pole Double Throw (SPDT) Switching element — A SPDT switching element has one normally open, one normally closed and one common terminal. Three terminals mean that the switch can be wired with the circuit either normally open (NO), or normally closed (NC), or both.

Dead Band — The dead band, sometimes referred to as "differential" or "hysteresis", is the change in pressure between actuation and deactuation set points.

Operating information

Temperature range:	-40°F to 105°F (-40°C to 220°C)
Operating pressure range:	1, 2, 3 - 250 PSI (17.2 bar) 4 - 2000 PSI (137.9 bar)
Set point tolerance	±1 PSI or 5% (.07 bar)
Deadband	10 - 20% of set pressure
Current rating	3A @ 125 VAC 2A @ 30 VDC (Resistive)
Circuit form	SPDT Standard
Cycle life	1 Million

Ordering Information:

PPS1 - 1 C 3 - R HM

Thread	
1/4" NPT male	1
1/8" NPT male	2
1/4" BSPP male	17
1/8" BSPP male	18

Circuit	
SPDT	C

	Range*
1	3-10 PSI
2	6-30 PSI
3	20-120 PSI
4†	100-400 PSI

† Only available in 1/4" NPT

Set Point Direction	
R	Rising

Electrical Connection	
HM	DIN 9.4mm
WL	Wire leads 18"

* Factory setting for calibration purposes
Range 1 = 6 PSI
Range 2 = 18 PSI
Range 3 = 70 PSI
Range 4 = 250 PSI

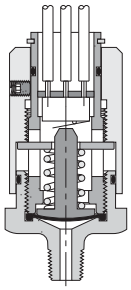
Note: Switch is field adjustable.

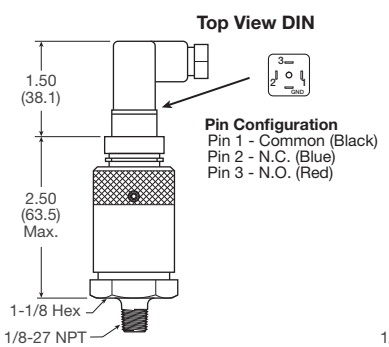
Material Specifications

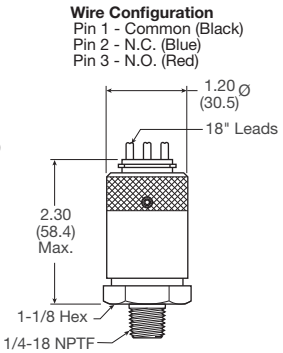
Adjustment knob	Anodized aluminum
Body	Brass
Diaphragm	Nitrile

Operation

The pressure switch monitors the air pressure in your pneumatic system. When the pressure in your system either drops below or exceeds the set point pressure, an electrical output is given.



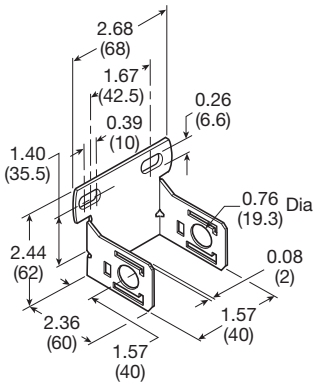




P31 Accessories

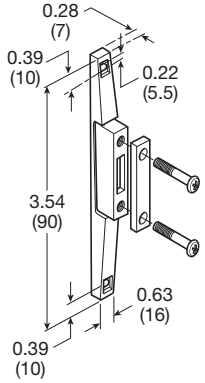
C-Bracket
(Fits to filter and lubricator body)

P31KA00MW



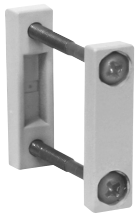
T-Bracket w/ Body Connector
(O-ring not shown)

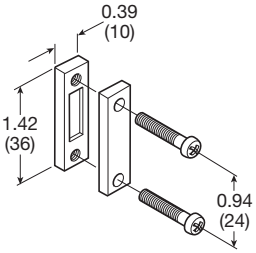
P31KA00MT



Body Connector
(O-ring not shown)

P31KA00CB





Port Block Kit
(O-ring not shown)

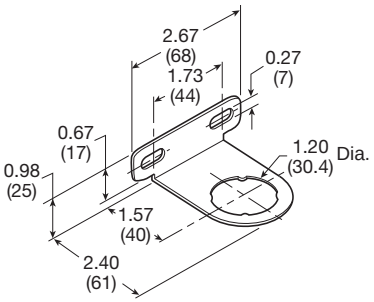
1/8 NPT **P31KA91CP**	1/8 BSPT **P31KA21CP**
1/4 NPT **P31KA92CP**	1/4 BSPT **P31KA22CP**
3/8 NPT **P31KA93CP**	3/8 BSPT **P31KA23CP**
1/8 BSPP **P31KA11CP**	
1/4 BSPP **P31KA12CP**	
3/8 BSPP **P31KA13CP**	

Port Block Kit w/ T-Bracket
(O-ring not shown)

1/8 NPT **P31KA91CN**	1/8 BSPT **P31KA21CN**
1/4 NPT **P31KA92CN**	1/4 BSPT **P31KA22CN**
3/8 NPT **P31KA93CN**	3/8 BSPT **P31KA23CN**
1/8 BSPP **P31KA11CN**	
1/4 BSPP **P31KA12CN**	
3/8 BSPP **P31KA13CN**	

Angle Bracket
(Fits to regulator and filter/regulator body)

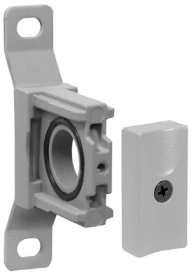
P31KB00MR

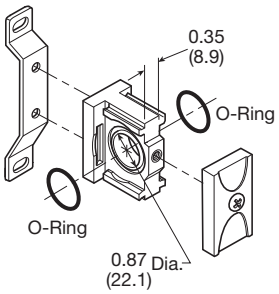


P32 Accessories

T-Bracket w/ Body Connector

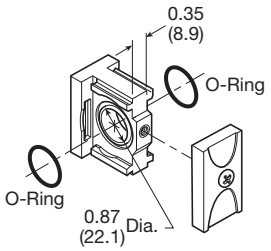
P32KA00MT





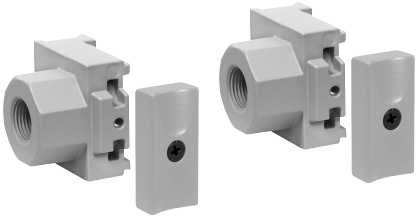
Body Connector

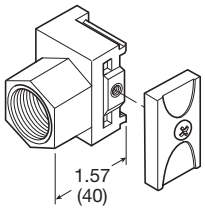
P32KA00CB



Port Block Kit

1/4 NPT.....	**P32KA92CP**
3/8 NPT.....	**P32KA93CP**
1/2 NPT.....	**P32KA94CP**
3/4 NPT.....	**P32KA96CP**
1/4 BSPP	**P32KA12CP**
3/8 BSPP	**P32KA13CP**
1/2 BSPP	**P32KA14CP**
3/4 BSPP	**P32KA16CP**
1/4 BSPT	**P32KA22CP**
3/8 BSPT	**P32KA23CP**
1/2 BSPT	**P32KA24CP**
3/4 BSPT	**P32KA26CP**

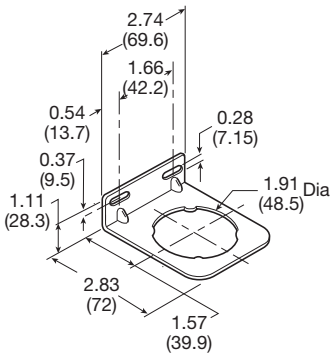




Angle Bracket

(Fits to regulator and filter/regulator bonnet)

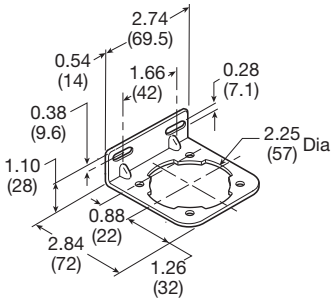
P32KB00MR



L-Bracket

(Fits to filter and lubricator body)

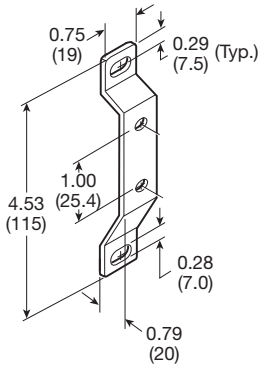
P32KA00ML



T-Bracket

(fits to body connector or port block)

P32KA00MB



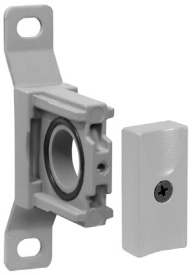
For inventory, lead times, and kit lookup, visit www.pdnplu.com

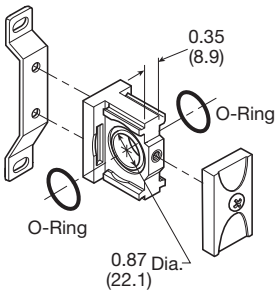
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

P33 Accessories

T-Bracket w/ Body Connector

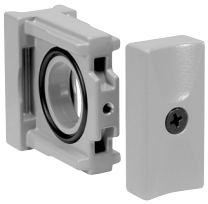
P32KA00MT

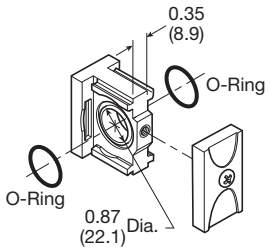




Body Connector

P32KA00CB





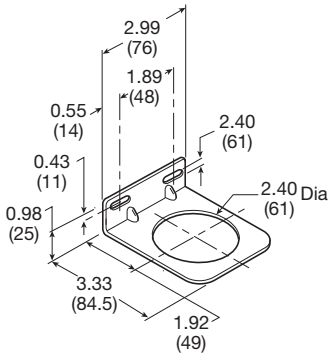
Port Block Kit

1/4 NPT.....	**P32KA92CP**
3/8 NPT.....	**P32KA93CP**
1/2 NPT.....	**P32KA94CP**
3/4 NPT.....	**P32KA96CP**
1/4 BSPP	**P32KA12CP**
3/8 BSPP	**P32KA13CP**
1/2 BSPP	**P32KA14CP**
3/4 BSPP	**P32KA16CP**
1/4 BSPT	**P32KA22CP**
3/8 BSPT	**P32KA23CP**
1/2 BSPT	**P32KA24CP**
3/4 BSPT	**P32KA26CP**

Angle Bracket

(Fits to regulator and filter/regulator bonnet)

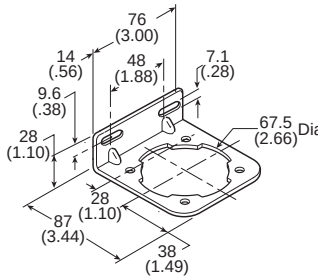
P33KA00MR



L-Bracket

(Fits to filter and lubricator body)

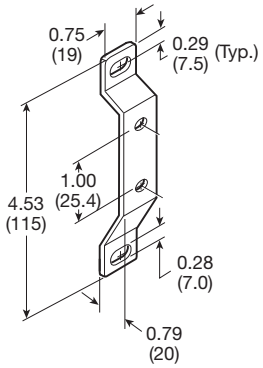
P33KA00ML



T-Bracket

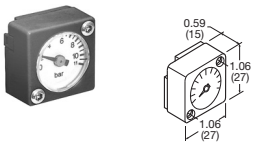
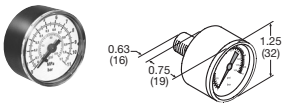
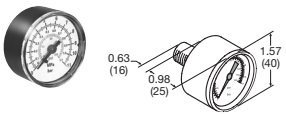
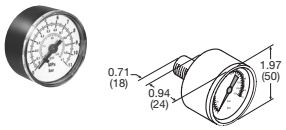
(fits to body connector or port block)

P32KA00MB



Series	Description	Part number	
P31 P32 P33	Panel Mount Nut (Plastic)	**P31KA00MP** **P32KA00MP** **P33KA00MP**	
P31 P32 P33	Panel Mount Nut (Aluminum)	**P31KA00MM** **P32KA00MM** **P33KA00MM**	
P31 P32 P33	5µ Element Kit	**P31KA00ESE** **P32KA00ESE** **P33KA00ESE**	
P31 P32 P33	1µ Element Kit	**P31KA00ES9** **P32KA00ES9** **P33KA00ES9**	
P31 P32 P33	0.01µ Element Kit	**P31KA00ESC** **P32KA00ESC** **P33KA00ESC**	
P31 P32 P33	Adsorber Element Kit	**P31KA00ESA** **P32KA00ESA** **P33KA00ESA**	
P32 / P33	Auto Drain Kit	**P32KA00DA**	
P31 P32 / P33	Differential Pressure Indicator Kit	**P31KB00RQ** **P32KA00RQ**	
P31 / P32 / P33	Drip Control Assembly Kit	**P32KA00PH**	
P31 P32 / P33	Fill Plug Kit	**P31KA00PL** **P32KA00PL**	
P31 P32 P33	Lubricator - Plastic Bowl w/ Bowl Guard No Drain	**P31KB00BGN** **P32KB00BGN** **P33KA00BGN**	

Series	Description	Part number	
P31 P32 P33	Lubricator - Metal Bowl w/o Sight Gauge No Drain	**P31KB00BMN** **P32KB00BMN** **P33KA00BMN**	
P32 P33	Lubricator - Metal Bowl w/ Sight Gauge No Drain	**P32KB00BSN** **P33KA00BSN**	
P31 P32 P33	Metal Bowl w/o Sight Gauge & Manual Drain	**P31KB00BMM** **P32KB00BMM** **P33KA00BMM**	
P31	Metal Bowl w/o Sight Gauge & Pulse Drain	**P31KB00BMB**	
P32 P33	Metal Bowl w/o Sight Gauge & Auto Drain	**P32KB00BMA** **P33KA00BMA**	
P32 P33	Metal Bowl w/ Sight Gauge & Manual Drain	**P32KB00BSM** **P33KA00BSM**	
P32 P33	Metal Bowl w/ Sight Gauge & Auto Drain	**P32KB00BSA** **P33KA00BSA**	
P31 P32 P33	Plastic Bowl w/ Bowl Guard & Manual Drain	**P31KB00BGM** **P32KB00BGM** **P33KA00BGM**	
P31	Plastic Bowl w/ Bowl Guard & Pulse Drain	**P31KB00BGB**	
P32 P33	Plastic Bowl w/ Bowl Guard & Auto Drain	**P32KB00BGA** **P33KA00BGA**	
P31 P32 P33	Regulator - Relieving Repair Kit	**P31KB00RB** **P32KB00RB** **P33KA00RB**	
P31 P32 P33	Regulator - Non-Relieving Repair Kit	**P31KB00RC** **P32KB00RC** **P33KA00RC**	

Series	Description	Connection		Part number	
P31 P32 P33	Regulator - Main Adjusting Spring 0-30 psig (0-2 bar) Kit			**P31KB00PR** **P32KB00PR** **P33KA00PR**	
P31 P32 P33	Regulator - Main Adjusting Spring 0-60 psig (0-4.1 bar) Kit			**P31KB00PS** **P32KB00PS** **P33KA00PS**	
P31 P32 P33	Regulator - Main Adjusting Spring 0-125 psig (0-8.6 bar) Kit			**P31KB00PT** **P32KB00PT** **P33KA00PT**	
P31 P32 P33	Regulator - Main Adjusting Spring 0-250 psig (0-17 bar) Kit			**P31KB00PV** **P32KB00PV** **P33KA00PV**	
P31	Square Flush Mounting Gauge Kit	0-60 psig 0-160 psig 0-4 bar 0-11 bar		**K4511SCR060** **K4511SCR160** **K4511SCR04B** **K4511SCR11B**	
P31 / P32	Square Mounting Gauge with Adapter Kit	0-60 psig 0-160 psig 0-4 bar 0-11 bar		**P6G-PR90060** **P6G-PR90160** **P6G-PR10040** **P6G-PR10110**	
P31	1" Round Gauge	0-60 psig / 0-4.1 bar 0-160 psig / 0-10 bar	1/8" 1/8"	**K4510N18060** **K4510N18160**	
P31	40mm Round Gauge	0-30 psig / 0-2 bar 0-60 psig / 0-4.1 bar 0-160 psig / 0-10 bar	1/8" 1/8" 1/8"	**K4515N18030** **K4515N18060** **K4515N18160**	
P32 / P33	50mm Round Gauge	0-30 psig / 0-2 bar 0-60 psig / 0-4.1 bar 0-160 psig / 0-10 bar 0-300 psig / 0-20 bar	1/4" 1/4" 1/4" 1/4"	**K4520N14030** **K4520N14060** **K4520N14160** **K4520N14300**	
P31 P32 / P33	Body Connector O-ring (Replacement kit) (Pack of 10)			**P31KA00CY** **P32KA00CY**	
P31 P32	Tamperproof Knob Kit			**P31KB00AT** **P32KB00AT**	
P31 P32	Tamperproof Lockable Kit			**P31KB00AL** **P32KB00AL**	

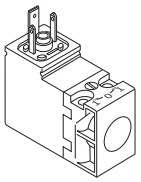
Solenoid Operators - CNOMO

Solenoid operators, coil combinations

	NC Normal Operator with 22 x 30 standard coil	NC Normal Operator with 30 x 30 standard coil
Working pressure	0 to 10 bar	0 to 10 bar
Ambient temperature	-10°C to 60°C *	-10°C to 60°C *
Power (DC)	4.8W	2.7W
Power (AC)	8.5VA	4.9VA
Voltage tolerance	+/-10%	+/-10%
Duty cycle	100%	100%
Insulation class	F	F
Electric connection	B Industrial	DIN 43650A
Protection	IP65	IP65
Approval		UL/CSA
Working media	All neutral media such as compressed air	

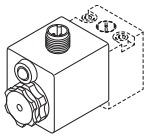
* Limited to 50°C if use with 100% duty cycle

P31 Series only - Solenoid coils 15mm NC



Voltage	Order code Override, blue, non-locking flush	Weight (Kg)
24VDC	**PS2982B49P**	0.038
115VAC 50Hz / 120VAC 60Hz	**PS2982B53P**	0.038

Solenoid Coils with M12 Connection



Voltage	Part number	Weight (Kg)
Direct current		
24VDC	**P2FC6449**	0.065

Transients

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavorable conditions, can amount to several hundred times the rated operating voltage. Normally, these transients do not cause problems, but to achieve the Maximum life of relays in the circuit (and particularly of transistors, thyristors and integrated circuits) it is desirable to provide protection by means of voltage-dependent resistors (varistors). All connectors/cable plugs EN175301-803 with LED's include this type of circuit protection.

Materials

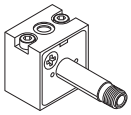
Pilot Valve

Body:	Polyamide
Armature tube:	Brass
Plunger & core:	Corrosion resistant Cr-Ni steel
Seals:	Fluorocarbon
Screws:	Stainless steel

Coil

Encapsulation material:	Thermoplastic as standard Duroplast for M12 connection

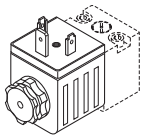
Spare Base Solenoid Pilot Operator CNOMO NC



Description	Part number non-lock manual override	Weight (Kg)
Standard Duty	**P2FP23N4B**	0.065
No Override	**P2FP23N4A**	0.065

Note: Solenoid pilot operators are fitted to the Global range. Order the above part numbers for spares. The operators are supplied with mounting screws and interface 'O' rings. Coils and connectors must be ordered separately.

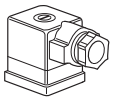
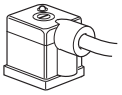
Solenoid Coils with DIN A or Industrial B Connection



Voltage	22mm x 30mm Part number B industrial standard	Weight (Kg)	30mm x 30mm Part number DIN 43650A standard	Weight (Kg)
Direct current				
24VDC	**P2FCB449**	0.093	**P2FCA449**	0.105
Alternative current				
110V 50Hz, 120V 60Hz	**P2FCB453**	0.093	**P2FCA453**	0.105

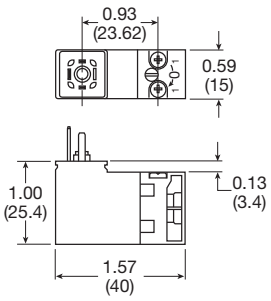
☐ Most popular.

Solenoid Connectors / Cable Plugs EN175301-803

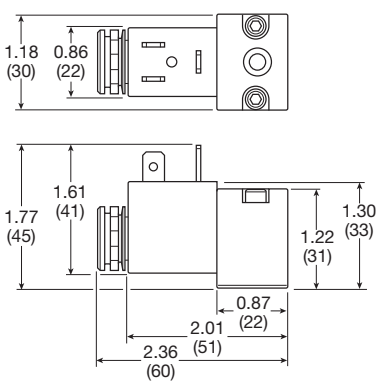
	Description	Part number 22mm Form B Industrial	Part number 30mm Form A DIN 43650A
With standard screw	Standard IP65 without flying lead	**PS2429BP**	**PS2028BP**
	With LED and protection 24VAC/DC	**PS243079BP**	**PS203279BP**
	With LED and protection 110VAC	**PS243083BP**	**PS203283BP**
With cable	Standard with 2m cable IP65	**PS2429JBP**	**PS2028JCP**
	24VAC/DC, 2m cable LED and protection IP65	**PS2430J79BP**	**PS2032J79CP**
	110VAC/DC, 2m cable LED and protection IP65	**PS2430J83BP**	**PS2032J83CP**

Solenoid coil dimensions inches (mm)

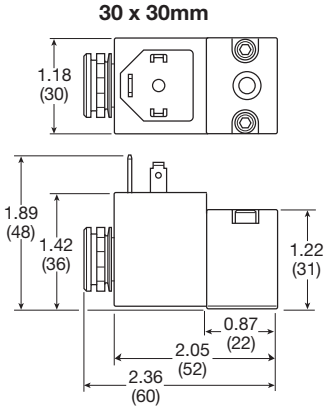
15mm



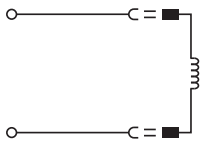
22 x 30mm

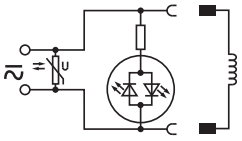


30 x 30mm



Electrical schematics

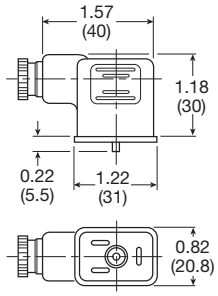




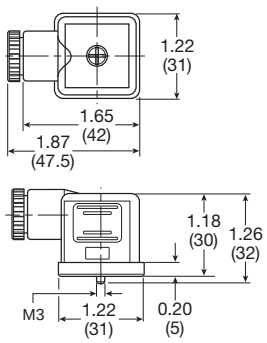
PS2028BP	**PS243079BP**	**PS203279BP**
PS2028JBP	**PS2430J79BP**	**PS2032J79CP**
PS2429BP	**PS243083BP**	**PS203283BP**
PS2429JBP	**PS2430J83BP**	**PS2032J83CP**
PS2932BP	**PS294679BP**	**PS294683BP**
PS2932JBP	**PS2946J79BP**	**PS2946J83BP**

Cable plug dimensions inches (mm)

22mm Form B Industrial Cable plugs	**PS2429BP**



30mm DIN 43650A Cable plugs	**PS2028BP**



Most popular.

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

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

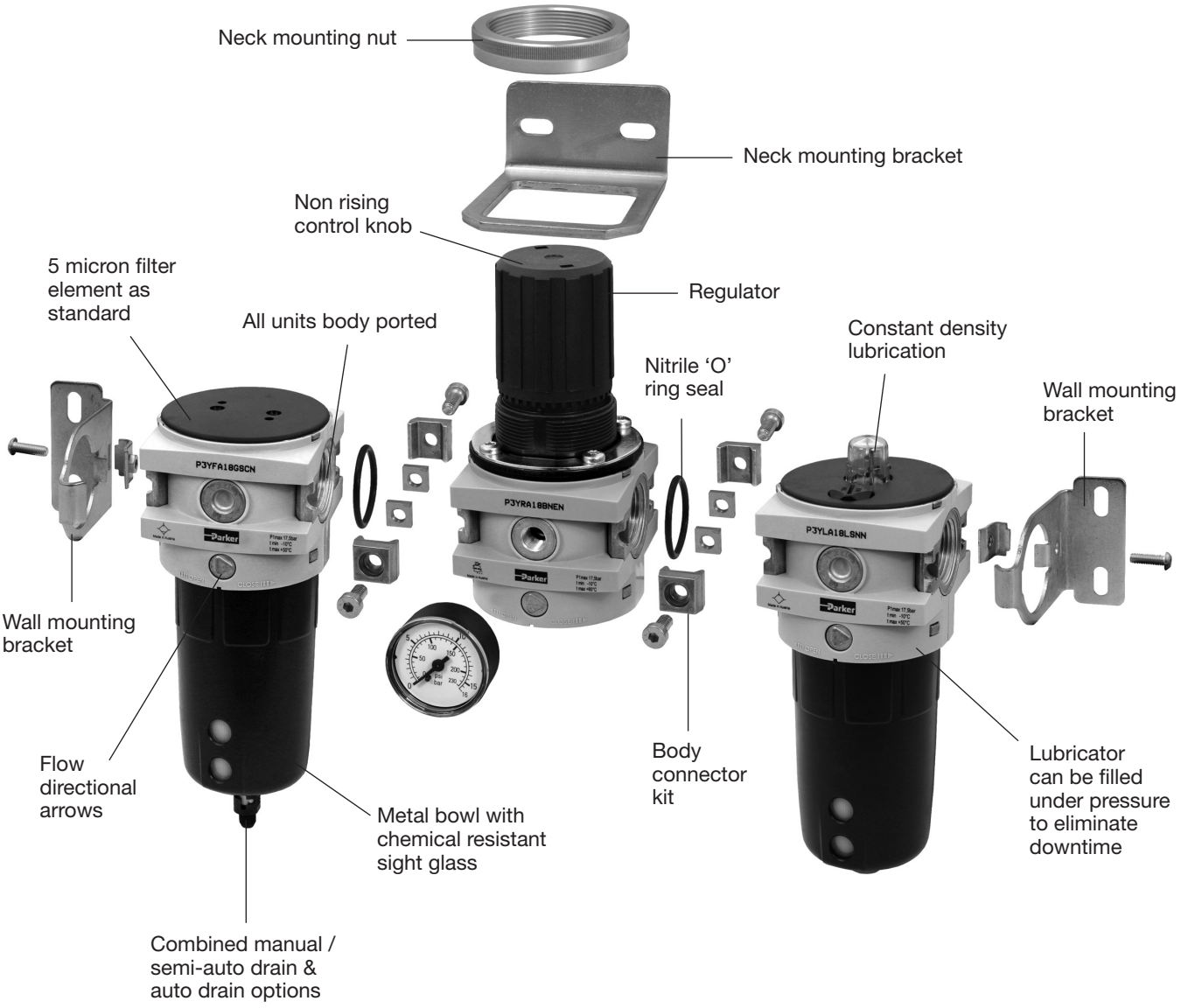
P3Y System

The P3Y system allows units to be connected together without the use of pipe connectors. This saves space, provides constant mounting centers, and maintains a modern aesthetically pleasing appearance.

The P3Y filters are specially designed to efficiently filter out rust, dirt, moisture and other impurities from compressed air lines. Operation is fully automatic with a minimum of pressure drop. Coalescing filters and adsorber filters for high purity air are also included in the P3Y series.

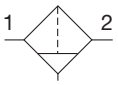
The P3Y regulators are designed to provide quick response and accurate pressure regulation for the most demanding hi-flow industrial applications.

The rolling diaphragm was designed for long trouble-free operation and will not rupture or tear under high cycle or demanding applications. The P3Y mist lubricators are designed to provide lubrication for many general purpose applications.

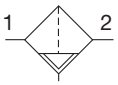


P3Y Particulate Filter

- Integral 3/4" or 1" ports (NPT & BSPP)
- High efficiency particulate element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminium construction
- Low temperature -40°C (-40°F) with combined manual / semi-auto drain as standard



Manual drain



Auto drain

Port size	Description	Part number
3/4"	Combined manual /semi-auto drain	**P3YFA96ESCN**
3/4"	Auto drain	**P3YFA96ESAN**
1"	Combined manual /semi auto drain	**P3YFA98ESCN**
1"	Auto drain	**P3YFA98ESAN**

Operating information

Supply pressure (max)*:		254 psig (17.5 bar)
Operating temperature:		
Auto drain		14°F to 140°F (-10°C to 60°C)
Combined drain		-40°F to 140°F (-40°C to 60°C)
Standard filtration		5 micron
Manual / semi-auto drain:		Closed at 11.6 psig (0.8 bar) G1/8 thread male
Auto drain bowl pressure:		Closed at 11.6 psig (0.8 bar)
Bowl capacity:		4.4 US oz. (130 cm^3)
Standard filtration:		5 micron
Flow capacity†:	3/4"	170 scfm (80.2 dm^3/s, ANR)
	1"	170 scfm (80.2 dm^3/s, ANR)
Fluid:		Compressed air
Weight:		1.98 lb (0.9 kg)

† Inlet pressure 91.4 psig (6.3 bar) inlet pressure and 7.3 psig (0.5 bar) pressure drop.

* Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C).

Air quality:
Within ISO 8573-1: 1991 Class 3 and 5 (Particulates)
Within ISO 8573-1: 2001 Class 6 and 7 (Particulates)

Ordering Information:

P3YFA **9** **6** **E** **SC** **N**

Basic series	
Filter	P3YFA

Thread type*	
BSPP	1
NPT	9

Port size	
3/4	6
1	8

Element	
E	5 micron

Drain type	
SC	Combined manual / semi-auto drain
SA	Auto drain

*** Note:** For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

☐ Most popular.

Material specifications

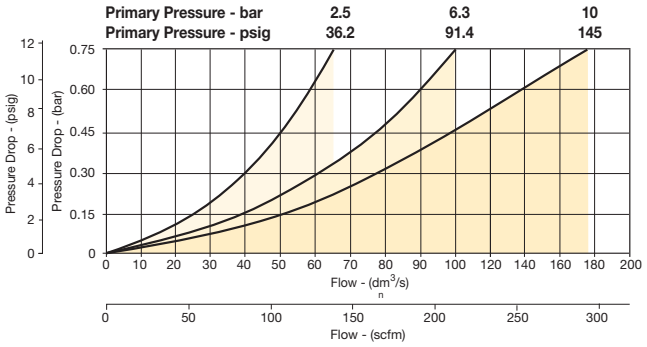
Body	Aluminium
Sight glass and bowl	Polypropylene
Body cover	ABS
Element	Sintered P.E.
Seals	Nitrile NBR
Manual / semi-auto drain	Acetal
Automatic drain	PA / Ø 10mm brass connection

Repair and Service Kits

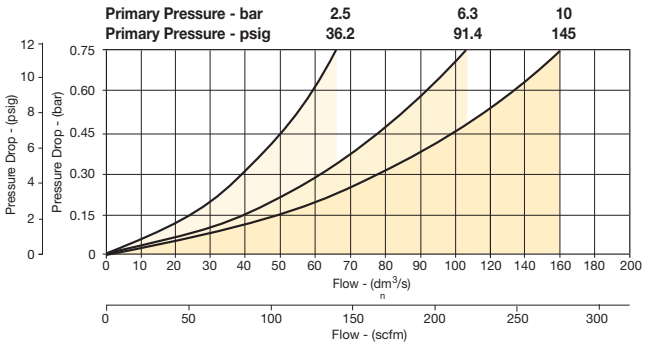
5 micron element kit	**P3YKA00ESE**
40 micron element kit	**P3YKA00ESG**
Bowl kit with combined manual / semi auto drain	**P3YKA00BSC**
Bowl kit with auto drain	**P3YKA00BSA**

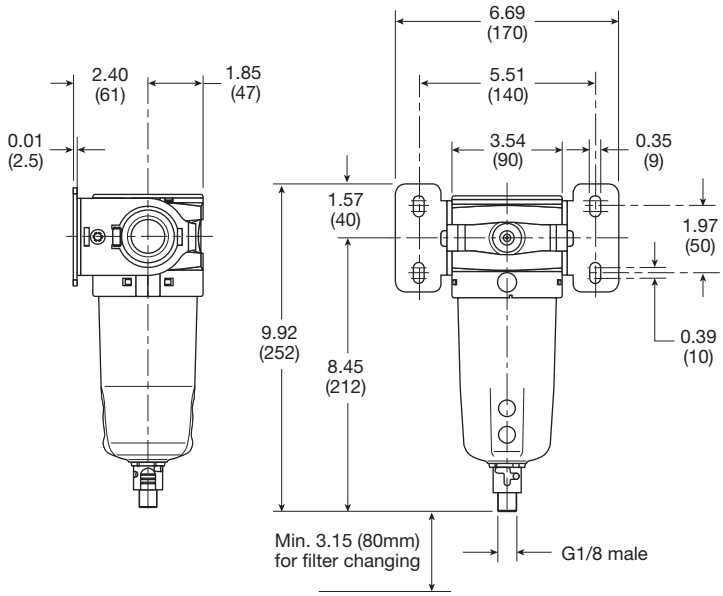
Flow characteristics

(3/4") Filter



(1") Filter





Inches (mm)

P3Y Coalescing Filter

- Extended high efficiency filter element provides greater filtration surface area.
- Integral 3/4" or 1" ports (BSPP & NPT)
- Removes liquid aerosols and sub micron particles
- Oil free air for critical applications, such as air gauging, pneumatic instrumentation and control
- Adsorber activated carbon element removes oil vapors and most hydrocarbons
- Robust but lightweight aluminum construction

Notes: To optimize the life of the coalescing element, it is advisable to install a P3YFA pre-filter with a 5 micron element upstream of the coalescing filter.

To optimize the life of the adsorber element, it is advisable to install a P3Y coalescing 0.01 micron filter upstream of the adsorber filter.

Port size	Description	Part number
3/4"	Coalescing filter 0.01 micron, combined manual / semi-auto drain	**P3YFA96DSCN**
3/4"	Coalescing filter 0.01 micron, auto drain	**P3YFA96DSAN**
1"	Coalescing filter 0.01 micron, combined manual / semi-auto drain	**P3YFA98DSCN**
1"	Coalescing filter 0.01 micron, auto drain	**P3YFA98DSAN**

Operating information

Supply pressure (max)*:		254 psig (17.5 bar)
Operating temperature:		14°F to 140°F (-10°C to 60°C)
Manual / auto drain:		Closed at 11.6 psig (0.8 bar) G1/8 thread male
Media specifications: Adsorber, max oil carryover		0.008 mg/m^3 (PPM w/w)
Bowl capacity:		4.4 US oz. (130 cm^3)
Standard filtration:		0.01 micron
Flow capacity†:	3/4" 1"	275 scfm (176.9 dm^3/s, ANR) 307 scfm (144.8 dm^3/s, ANR)
Fluid:		Compressed air
Weight:		3.5 lb (1.6 kg)

† Inlet pressure 91.4 psig (6.3 bar) inlet pressure and 7.3 psig (0.5 bar) pressure.

* Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C).

Ordering Information:

P3YFA | **9** | **6** | **D** | **SC** | **N**

Basic series	
Coalescing Filter	P3YFA

Thread type*	
BSPP	1
NPT	9

Port size	
3/4	6
1	8

Element	
D	0.01 micron element with DPI standard
C	0.01 micron element (without DPI optional)
A	Adsorber

Drain type	
SC	Combined manual / semi auto drain
SA	Auto drain

*** Note:** For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

☐ Most popular.

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

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

Material specifications

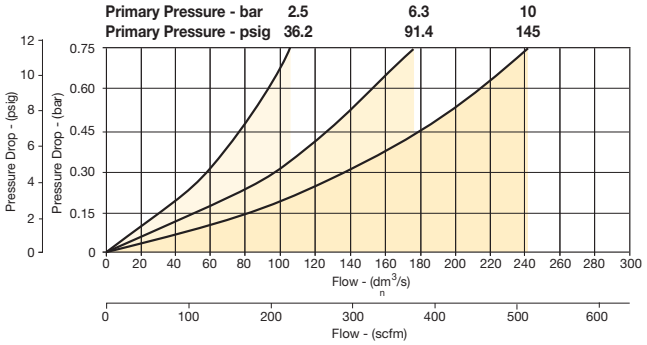
Body	Aluminium
Sight glass and bowl	Polypropylene
Filter cover	ABS
Coalescing element	Borosilicate & nano fibers
Top & bottom end cap (coalescing)	Aluminium
Adsorber element	Activated carbon
Top & bottom end cap (adsorber)	Glass filled nylon
Support cylinders	Grade 430 stainless steel
Support media	Polypropylene
Anti re-entrainment barrier	Polyester
Encapsulation	Epoxy resin / hardener
Seals	Nitrile NBR
Manual / semi-auto drain	Acetal
Auto drain	PA / Ø 10mm brass connection
Differential pressure indicator, body	Acetal
Differential pressure indicator, internal parts	Acetal
Differential pressure indicator, spring	Stainless steel
Differential pressure indicator, seals	Nitrile NBR
Differential pressure indicator, support plate	ABS
Differential pressure indicator, screws	Steel / zinc plated

Repair and Service Kits

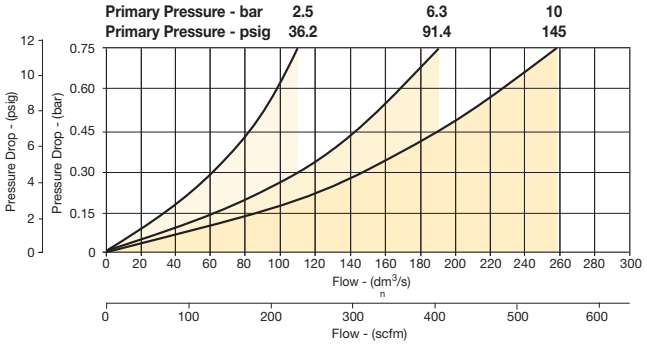
0.01 micron element kit	**P3YKA00ESC**
Adsorber element kit	**P3YKA00ESA**
Bowl kit with combined manual / semi auto drain	**P3YKA00BSC**
Bowl kit with auto drain	**P3YKA00BSA**
Differential pressure indicator kit	**P3YKA00RQ**

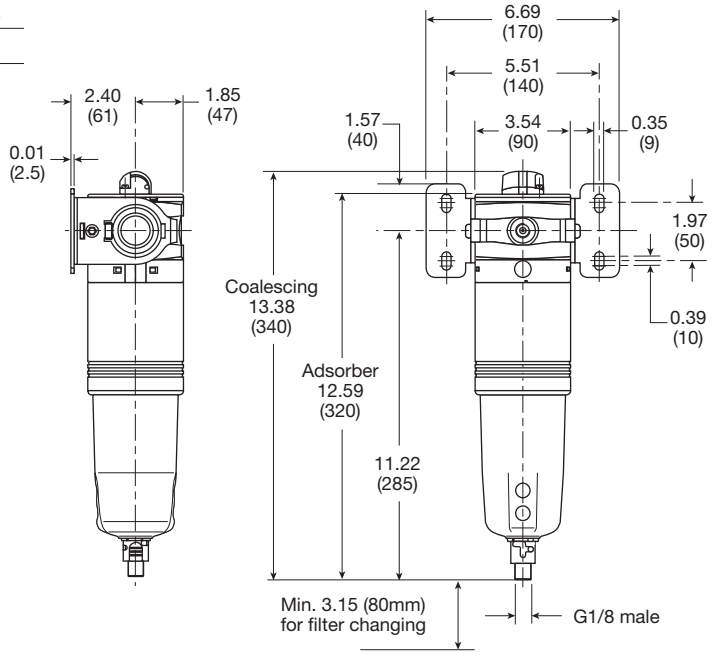
Flow characteristics

(3/4") 0.01 Micron Coalescing Filter Saturated



(1") 0.01 Micron Coalescing Filter Saturated

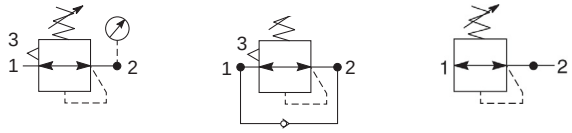




Inches (mm)

P3Y Regulators

- Integral 3/4" or 1" ports (BSPP and NPT)
- Robust but lightweight aluminium construction
- Secondary pressure ranges 12 and 16 bar
- Rolling diaphragm for extended life
- Secondary aspiration plus rolling diaphragm provides quick response and accurate pressure regulation
- Optional tamperproof regulator padlock
- Reverse flow / relieving option
- Low temperature -40°C (-40°F)



Self relieving regulator with gauge

Reverse flow relieving regulator

Non-relieving regulator

Port size	Description	Part number
3/4"	174 psig relieving	**P3YRA96BNEN**
3/4"	174 psig relieving + pressure gauge	**P3YRA96BNFN**
1"	174 psig relieving	**P3YRA98BNEN**
1"	174 psig relieving + pressure gauge	**P3YRA98BNFN**

Operating information

Supply pressure (max)*:		254 psig (17.5 bar)
Operating temperature:		-40°F to 140°F (-40°C to 60°C)
Flow capacity†:	3/4"	380 scfm (179.3 dm^3/s, ANR)
	1"	550 scfm (259.6 dm^3/s, ANR)
Fluid:		Compressed air
Gauge port (x2):		1/4"
Weight:		2.4 lb (1.08 kg)

† Inlet pressure 145 psig (10 bar) inlet pressure, 91.4 psig (6.3 bar) set pressure and 7.3 psig (0.5 bar) pressure drop.

* Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C).

Ordering information

P3YRA **9** **6** **B** **N** **E** **N**

Basic series	
Regulator	P3YRA

Thread type*	
BSPP	1
NPT	9

Port size	
3/4	6
1	8

Relief	
B	Relieving
R	Reverse flow / relieving

Lockable	
N	Standard
A†	Lockable

Adjustment range	
E	0 to 174 psi (0 to 12 bar), no gauge
H	0 to 232 psi (0 to 16 bar), no gauge
F	0 to 174 psi (0 to 12 bar), gauge
J	0 to 232 psi (0 to 16 bar), gauge

Notes:
* For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.
† Not field convertible.

☐ Most popular.

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

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

Material specifications

Body	Aluminium
Bonnet	Glass filled polyamide
Regulator cover	ABS
Control knob	Glass filled polyamide
Valve	Brass / NBR
Seals	Nitrile NBR
Screws	Steel / zinc plated

Repair and Service Kits

Angle bracket + metal lock ring	**P3YKA00MS**
Panel mounting nut	**P3YKA00MM**
Diaphragm kit (relieving type)	**P3YKA00RR**
Diaphragm kit (non-relieving type)	**P3YKA00RN**
0 to 160 psig (0 to 10 bar), gauge 1/4" port	**K4520N14160**
0 to 300 psig (0 to 20 bar), gauge 1/4" port	**K4520N14300**

⚠ WARNING

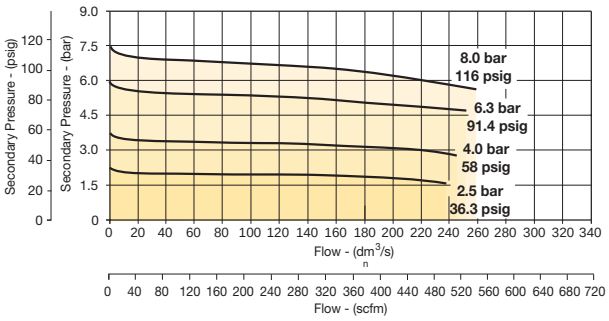
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

CAUTION:

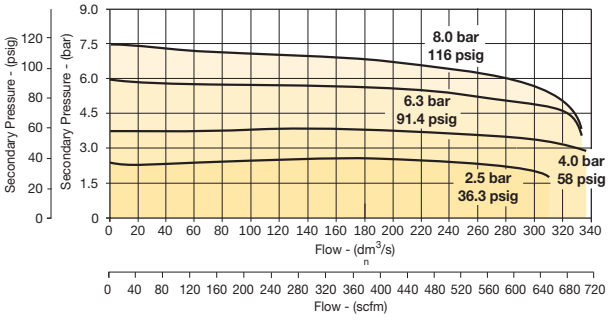
REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting 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.

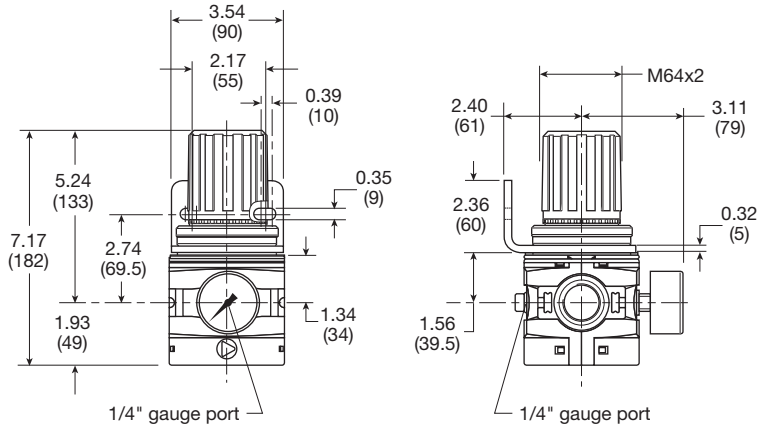
Flow characteristics

(3/4") Regulator



(1") Regulator





Inches (mm)

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

Parker Hannifin Corporation
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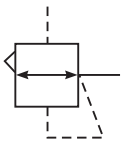
P3Y Pilot Operated Regulator

- Integral 3/4" or 1" ports (BSPP & NPT)
- Pilot controlled regulators can be mounted “out of reach” with pilot regulator installed in a convenient location
- Constant pilot bleed control for accurate pressure control
- Balanced poppet provides quick response
- High flow



Port size	Description	Part number
3/4"	Pilot operated regulator	**P3YRA96BPPN**
1"	Pilot operated regulator	**P3YRA98BPPN**

Operating information

Supply pressure (max):		254 psig (17.5 bar)
Operating temperature:		-40°F to 140°F (-40°C to 60°C)
Flow capacity†:	3/4"	550 scfm (259.6 dm^3/s, ANR)
	1"	550 scfm (259.6 dm^3/s, ANR)
Fluid:		Compressed air
Weight:		2.6 lb (1.2 kg)

† Inlet pressure 145 psig (10 bar) inlet pressure, 91.4 psig (6.3 bar) set pressure and 7.3 psig (0.5 bar) pressure drop.

Ordering information

P3YRA | **9** | **6** | **BPPN**

Basic series	
Pilot Operated Regulator	P3YRA

Thread type*	
BSPP	1
NPT	9

Port size	
3/4	6
1	8

*** Note:** For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

☐ Most popular.

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

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

Material specifications

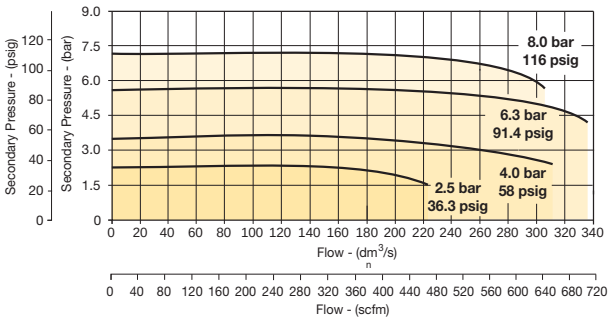
Body	Aluminium
Body cover	ABS
Valve	Brass / NBR composite
Pilot valve booster	Aluminum
Seals	Nitrile NBR
Screws	Zinc plated steel

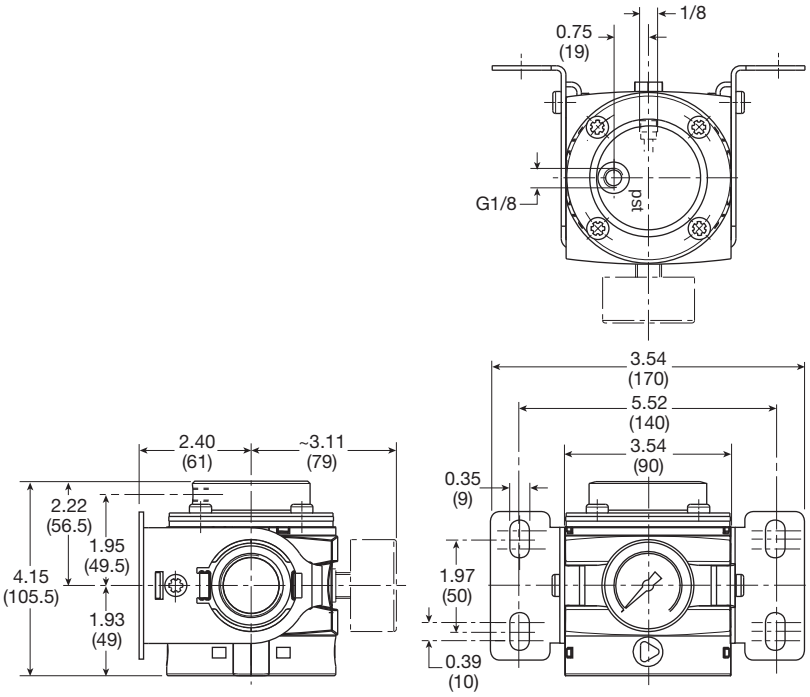
⚠ WARNING

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

Flow characteristics

3/4" and 1" Pilot Regulator





Inches (mm)

P3Y Proportional Pressure Regulator

- Integral 3/4" or 1" ports (BSPP & NPT)
- Accurate output pressure
- Very fast response times
- Robust but lightweight design

Port size	Description	Part number
3/4"	Normally closed, 0 - 10 bar (0 to 145 psig)	**P3YPA96BD2VA2A**
1"	Normally closed, 0 - 10 bar (0 to 145 psig)	**P3YPA98BD2VA2A**

Operating information

Operating pressure: Inlet pressure [1]:	P^1 min	14.5 psig (1 bar)
	P^1 max	232 psig (16 bar)
Operating pressure: Outlet pressure	P^2 min	2.9 psig (0.2 bar)
	P^2 max	145 psig (10 bar)
Operating temperature:		32°F to 122°F (0°C to 50°C)
Flow capacity†:		706 scfm (33.2 dm^3/s, ANR) l/min 20000 m^3/h 1200
Hysteresis:	P^2 max	< 1%
Repeatability:	P^2 max	< 0.5%
Sensitivity:	P^2 max	< 0.5%
Linearity:	P^2 max	< 1%
Nominal voltage:		U_n V DC 24 V = ± 10%
Residual ripple:		10%

Power consumption:	I_{Bmax}	0.15 A
Set value input:	Uw	V 0-10
	I	mA 0-20
		mA 4-20
Input resistance:	R_E	243 K Ω
Actual valve output:	Ux	0 - 10 V
Output current:	I_{Amax}	10 mA
Degree of protection:		IP65 to DIN 40050, EN 60529
Fluid:		Compressed air
Weight:		1.2 lb (2.7 kg)

[1]) $p^1 > p^2 + 10\%\ p^2$
[2]) at p^1 - 10 bar to p^2 - 6.3 bar

† Inlet pressure 91.4 psig (6.3 bar) inlet pressure and 7.3 psig (0.5 bar) pressure drop.

Ordering information

P3YPA **9** **6** **B** **D** **2** **A** **A** **2** **A**

Basic series
Proportional Pressure Regulator — P3YPA

Thread type*
BSPP 1
NPT 9

Port size
3/4 6
1 8

Version
Side exhaust, NC (Normally closed) B
Side exhaust, NO (Normally open) C

Pressure range
0-10 bar (0-145 psig) D

Power supply
2 24 volts

Control signal
A 4-20 mA
V 0-10 V

Output signal
A Analog 0-10 V

Input connector
2 M12 (5-pin)

*** Note:** For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

☐ Most popular.

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

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Richland, Michigan
www.parker.com/pneumatics

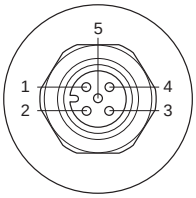
Material specifications

Housing	Aluminium
Pilot valve booster	Brass / NBR composite aluminium
Standard seals	NBR
Body cover screws	Steel / zinc plated

Cables

Type	Part number
M12, 5-pin female to flying lead cable, TPE; 2m (6.6 ft)	**RKC 4.5T-2/S1587**

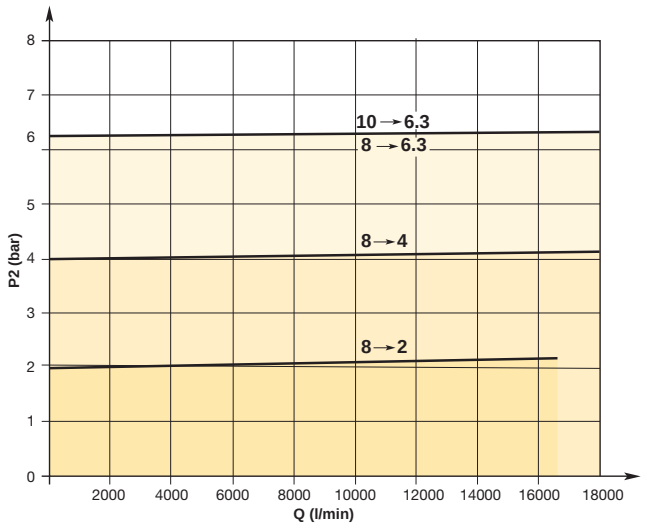
Connection diagram

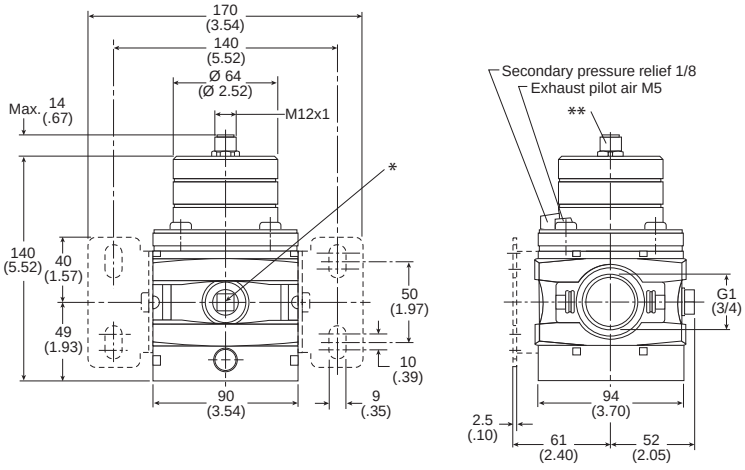


Connector M12 x 1

Pin No.		Function
1	24 V	Supply
2	0 V	Reference & mass capacity
3	0 - 10 V	Set value input
4	0 V	Signal
5	0 - 10 V	Analog output

Flow characteristics

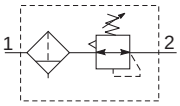


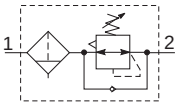


* Two opposite gauge ports 1/4, plug screw mounted
** Connection for 5-pin plug M12 x 1

P3Y Filter / Regulator

- Integral 3/4" or 1" ports (BSPP or NPT)
- High efficiency element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminium construction
- Secondary pressure ranges 12 and 16 bar
- Rolling diaphragm for extended life
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation.
- Reverse flow / relieving option
- Low temperature -40°C (-40°F) with combined manual / semi-auto drain as standard





Port size	Description (0 to 174 psi)	Part number
3/4"	Relieving, combined manual / semi-auto drain	**P3YEA96ESCBNEN**
3/4"	Relieving, auto drain	**P3YEA96ESABNEN**
3/4"	Relieving, gauge, combined manual / semi-auto drain	**P3YEA96ESCBNFN**
3/4"	Relieving, gauge, auto drain	**P3YEA96ESABNFN**
1"	Relieving, combined manual / semi-auto drain	**P3YEA98ESCBNEN**
1"	Relieving, auto drain	**P3YEA98ESABNEN**
1"	Relieving, gauge, combined manual / semi-auto drain	**P3YEA98ESCBNFN**
1"	Relieving, gauge, auto drain	**P3YEA98ESABNFN**

Operating information

Supply pressure (max)*:		254 psig (17.5 bar)
Operating temperature:		
Auto drain		14°F to 140°F (-10°C to 60°C)
Combined drain		-40°F to 140°F (-40°C to 60°C)
Standard filtration:		5 micron
Manual / semi-auto drain:		Closed at 11.6 psig (0.8 bar) G1/8 thread male
Auto drain bowl pressure:		Closed at 11.6 psig (0.8 bar)
Bowl capacity:		4.4 US oz. (130 cm^3)
Standard filtration:		5 micron
Flow capacity†:	3/4"	335 scfm (158.1 dm^3/s, ANR)
	1"	465 scfm (219.5 dm^3/s, ANR)
Fluid:		Compressed air
Gauge port (x2):		1/4"
Weight:		3.3 lb (1.5 kg)

† Inlet pressure 91.4 psig (6.3 bar) inlet pressure and 7.3 psig (0.5 bar) pressure drop.

* Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C).

Air quality:
Within ISO 8573-1: 1991 Class 3 and 5 (Particulates)
Within ISO 8573-1: 2001 Class 6 and 7 (Particulates)

Ordering information

P3YEA	9	6	E	SA	B	N	E	N

Basic series
Filter / Regulator P3YEA

Thread type*
BSPP 1
NPT 9

Port size
3/4 6
1 8

Element
E 5 micron

Drain type
SC Combined manual / semi-auto drain
SA Auto drain

Relief
B Relieving
R Reverse flow / relieving

Lockable
N Standard
A† Lockable

Adjustment range
E 0 to 174 psi (0 to 12 bar), no gauge
H 0 to 232 psi (0 to 16 bar), no gauge
F 0 to 174 psi (0 to 12 bar), gauge
J 0 to 232 psi (0 to 16 bar), gauge

Notes:
* For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.
† Not field convertible.

☐ Most popular.

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

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

Material specifications

Body	Aluminium
Sight glass and bowl	Polypropylene
Body cover	ABS
Element	Sintered polypropylene
Seals	Nitrile NBR
Manual / semi-auto drain	Acetal
Auto drain	PA / Ø 10mm brass connection
Bonnet	Glass filled polyamide
Control Knob	Glass filled polyamide
Valve	Brass / NBR
Screws	Steel / zinc plated

Repair and Service Kits

5 micron element kit	**P3YKA00ESE**
Bowl kit with combined manual/semi auto drain	**P3YKA00BSC**
Bowl kit with auto drain	**P3YKA00BSA**
Key lock kit	**P3XKA00AS**
Diaphragm kit (relieving type)	**P3YKA00RR**
Diaphragm kit (non-relieving type)	**P3YKA00RN**
Angle bracket + metal lock ring	**P3YKA00MS**
Panel mount nut	**P3YKA00MM**

⚠ WARNING

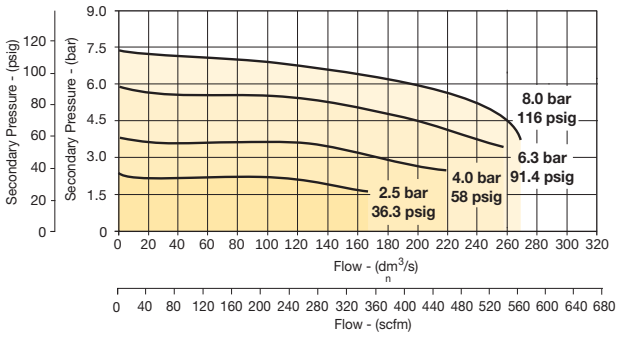
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

CAUTION:

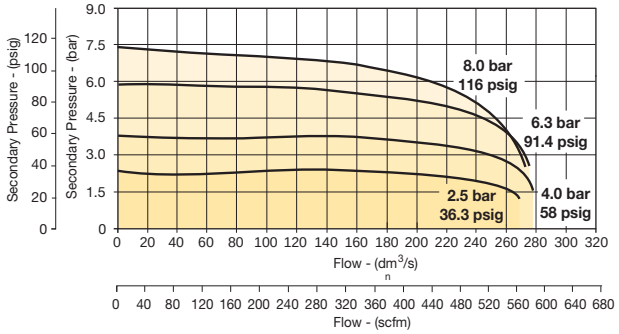
REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting 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.

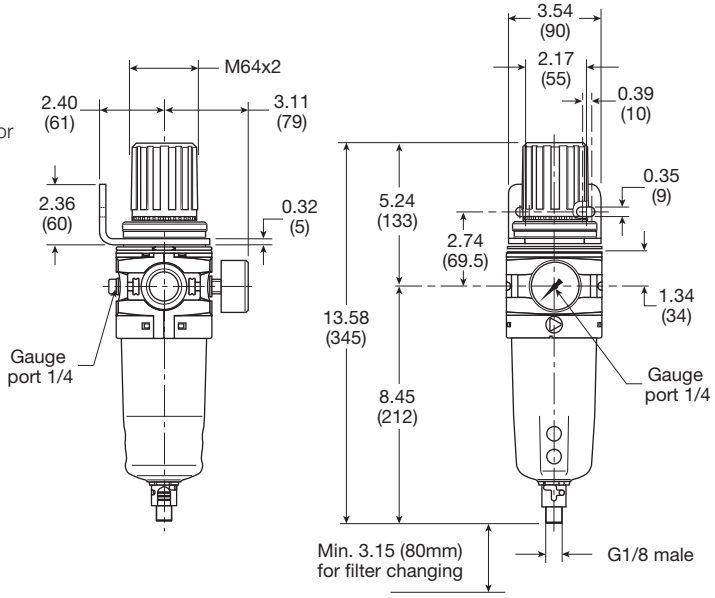
Flow characteristics

(3/4") 5 Micron Filter / Regulator



(1") 5 Micron Filter / Regulator

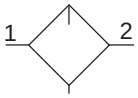




Inches (mm)

P3Y Lubricator

- Integral 3/4" or 1" ports (BSPP and NPT)
- Robust but lightweight aluminium construction
- Proportional oil delivery over a wide range of air flows
- Possible to fill under system pressure eliminating down time
- Large oil reservoir



Lubricator with drain

Port size	Description	Part number
3/4"	Oil mist, fill under pressure	**P3YLA96LSNN**
1"	Oil mist, fill under pressure	**P3YLA98LSNN**

Operating information

Supply pressure (max)*:		254 psig (17.5 bar)
Operating temperature*:		14°F to 140°F (-10°C to 60°C)
Flow capacity†:	3/4"	315 scfm (148.2 dm^3/s, ANR)
	1"	390 scfm (184.1 dm^3/s, ANR)
Fluid:		Compressed air
Weight:		1.8 lb (0.8 kg)

† Inlet pressure 91.4 psig (6.3 bar) inlet pressure and 7.3 psig (0.5 bar) pressure drop.

* Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C).

Low flow start point (lubrication pick-up): at 6.3 bar (91.4 psig) inlet pressure 0.5 dm^3/s (1.1 scfm).

Ordering information

P3YLA **9** **6** **LSNN**

Basic series	
Lubricator	P3YLA

Thread type*	
BSPP	1
NPT	9

Port size	
3/4	6
1	8

*** Note:** For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

☐ Most popular.

Material specifications

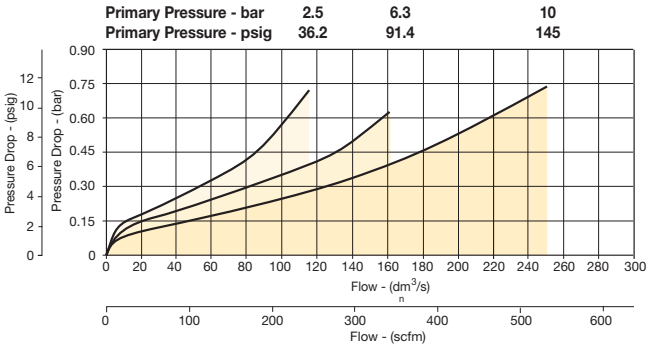
Body	Aluminium
Sight glass and bowl	Polypropylene
Sight dome	Polyamide
Lubricator cover	ABS
Top & bottom end cap	Glass filled nylon
Bayonet support	Nylon
Seals	Nitrile NBR

Repair and Service Kits

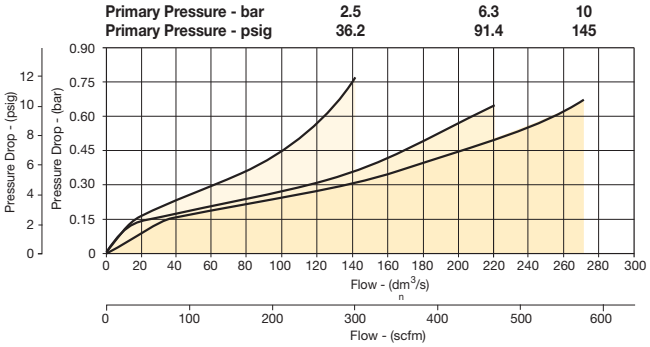
Bowl kit	**P3YKA00BSN**
Refill plug	**P3YKA00PL**
Oil (1 quart)	**F442001**
Oil (1 galllon)	**F442002**
Oil (12 quart case)	**F442003**
Oil (4 gallon case)	**F442005**

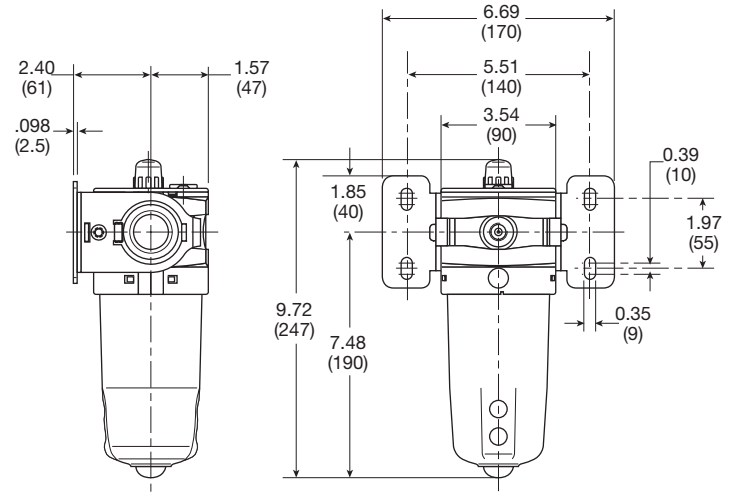
Flow characteristics

(3/4") Lubricator



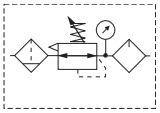
(1") Lubricator





Inches (mm)

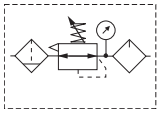
P3Y Combinations



Filter + Regulator + Lubricator Combinations
5 micron element, 12 bar (174 psig) regulator + gauge and wall mounting bracket

Port size	Flow‡ scfm	Weight lb (kg)	Combined manual / semi-auto drain†	Auto drain†
3/4"	170	7.3 (3.3)	**P3YCB96SECNFLNF**	**P3YCB96SEANFLNF**
1"	170	7.3 (3.3)	**P3YCB98SECNFLNF**	**P3YCB98SEANFLNF**

† **Standard part numbers shown in bold. For other models refer to Options chart below.**
‡ Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.4 psig) set pressure and 1 bar (14.5 psig) pressure drop.



Filter / Regulator + Lubricator Combinations
5 micron element, 12 bar (174 psig) regulator + gauge and wall mounting bracket

Port size	Flow‡ scfm	Weight lb (kg)	Combined manual / semi-auto drain†	Auto drain†
3/4"	315	6.2 (2.8)	**P3YCA96SECNFLNF**	**P3YCA96SEANFLNF**
1"	340	6.2 (2.8)	**P3YCA98SECNFLNF**	**P3YCA98SEANFLNF**

† **Standard part numbers shown in bold. For other models refer to Options chart below.**
‡ Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.4 psig) set pressure and 1 bar (14.5 psig) pressure drop.

Ordering Information:

P3YCA **9** **6** **SE** **C** **N** **F** **LNF**

Basic series	
Filter / Regulator + Lubricator	P3YCA
Filter + Regulator + Lubricator	P3YCB

Thread type*	
BSPP	1
NPT	9

Port size	
3/4	6
1	8

Drain type	
C	Combined manual / semi-auto drain
A	Auto drain

Adjustment range	
F	0-12 bar (0 to 174 psi) with gauge
J	0-16 bar (0 to 232 psi) with gauge

*** Note:** For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

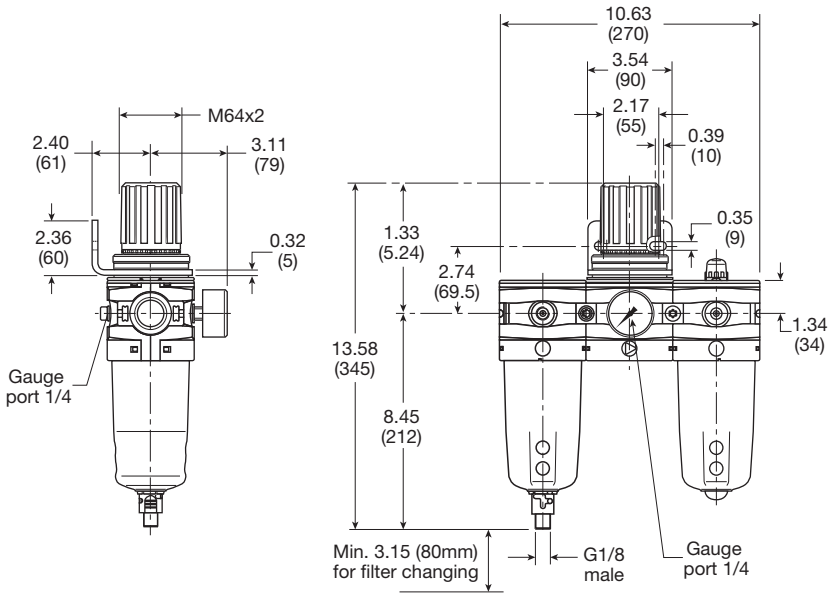
⚠ WARNING

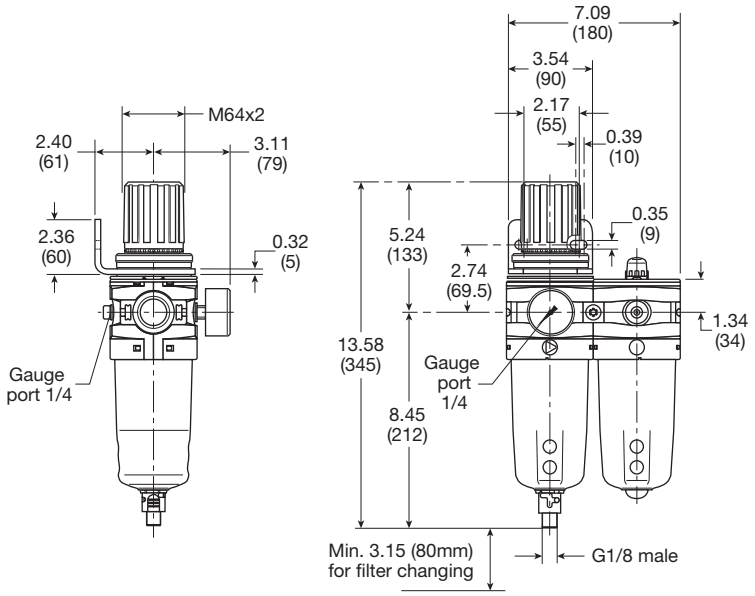
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

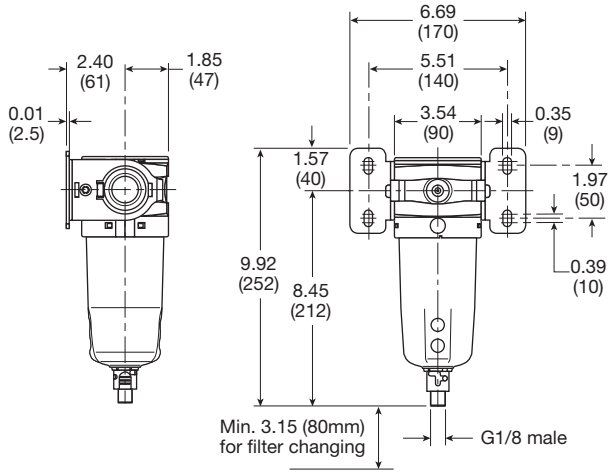
CAUTION:
REGULATOR PRESSURE ADJUSTMENT –
The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, 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.

P3Y Combinations







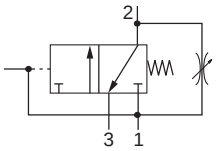
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

P3Y Combined Soft Start / Dump Valve

- Modular design with 3/4" & 1" integral ports (BSPP or NPT)
- Provides for the safe introduction of pressure
- Automatically dumps downstream pressure on the loss of pilot signal
- Adjustable slow start
- Solenoid or air pilot options
- High flow & exhaust capability

P3Y Series Combined Soft Start / Dump Valves, provide for the safe introduction of pressure to machines or systems. Soft Start / Dump Valves when set, allow the pressure to gradually build to the set point before fully opening to deliver full flow at line pressure.

The controlled introduction of pressure can be an important safety factor and prevent damage to tooling when air pressure is introduced at machine or system start up.



Port size	Description	Part number
3/4"	Air pilot operated	**P3YTA96PPN**
3/4"	24VDC 30mm coil	**P3YTA96SCNA2CN**
1"	Air pilot operated	**P3YTA98PPN**
1"	24VDC 30mm coil	**P3YTA98SCNA2CN**

Operating information

Operating pressure (max):		
30mm coil		232 psig (16 bar)
Operating pressure (min):		2.9 psig (0.2 bar)
Operating temperature*:		
Solenoid operated		14°F to 140°F (-10°C to 60°C)
Air pilot operated		14°F to 140°F (-10°C to 60°C)
Air pilot port:		1/8"
Exhaust port:		1"
Gauge port:		1/4"
Flow capacity†:	3/4"	371 scfm (175.1 dm^3/s, ANR)
	1"	424 scfm (200.1 dm^3/s, ANR)
Fluid:		Compressed air
Weight:	Air pilot	3.1 lb (1.4 kg)
	30mm coil	3.5 lb (1.6 kg)

† Inlet pressure 91.4 psig (6.3 bar) inlet pressure and 7.3 psig (0.5 bar) pressure drop.
* Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C).
Snap pressure: Full flow when downstream pressure reaches 50% of the inlet pressure.

Ordering information

P3YTA	9	6	P	C	N	A	2	C	N

Basic series

Soft Start / Dump Valve	P3YTA

Thread type*

BSPP	1
NPT	9

Port size

3/4	6
1	8

Pilot type

External air pilot	P
Solenoid pilot	S

Actuator interface

30mm operator	C
Threaded air pilot	P

Solenoid type only

Solenoid type

A	30mm CNOMO coil
D	30mm CNOMO coil (M12 connection)

Solenoid voltage

2CN	24VDC

*** Note:** For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

☐ Most popular.

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

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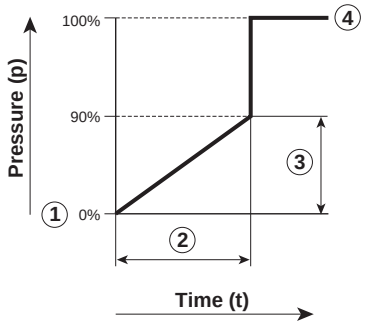
Material specifications

Body	Aluminium
Body cover	ABS
Valve	Brass / NBR composite
Pilot valve booster	Aluminum
Seals	Nitrile NBR

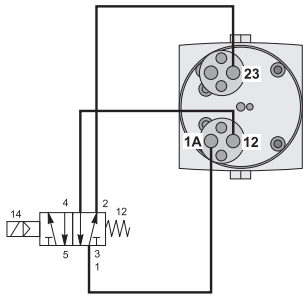
Note: For solenoid coil and cable plug options see solenoid operator pages.

Flow characteristics

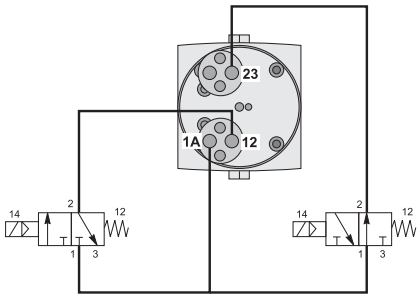


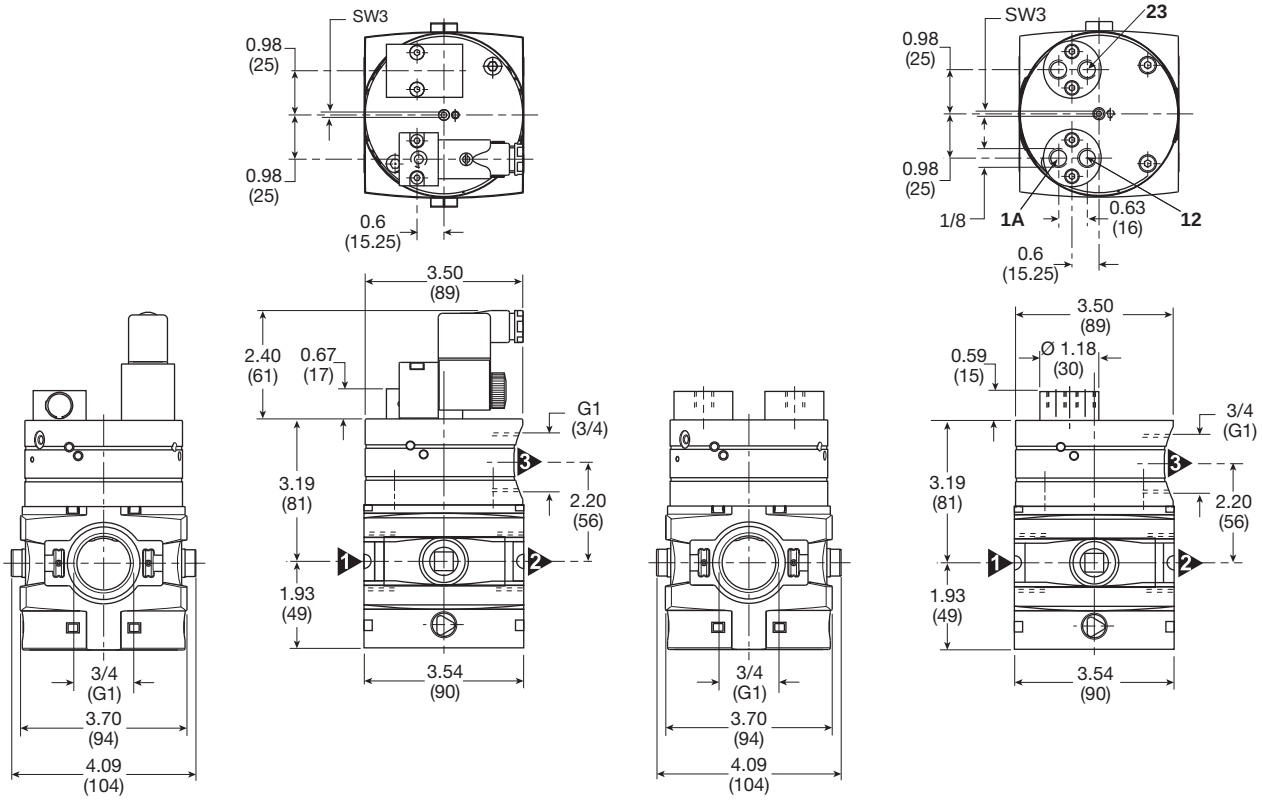
① Start signal
② Switching time delay
③ Gradual pressure build up
④ Operating pressure p^2 (= p^1)

Combined start / stop function



Combined start / stop function with acknowledgement





Inches (mm)

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

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Pneumatic Division
Richland, Michigan
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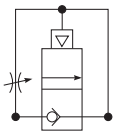
P3Y Soft Start Valve

- Integral 3/4" or 1" ports
- Smooth start-up of pneumatic system
- Air pilot operation
- Adjustable slow start
- High flow



Port size	Description	Part number
3/4"	Soft start valve	**P3YSA96Y0N**
1"	Soft start valve	**P3YSA98Y0N**

Material specifications

Body	Aluminium
Body cover	ABS
Valve	Brass / NBR composite
Pilot valve booster	Aluminum
Seals	Nitrile NBR

Operating information

Operating pressure (max):		254 psig (17.5 bar)
Operating pressure (min):		29 psig (2 bar)
Operating temperature*:		
Solenoid operated		14°F to 140°F (-10°C to 60°C)
Air pilot operated		14°F to 140°F (-10°C to 60°C)
Flow capacity†:	3/4"	324 scfm (152.9 dm³/s, ANR)
	1"	324 scfm (152.9 dm³/s, ANR)
Fluid:		Compressed air
Weight:		1.8 lb (0.8 kg)

† Inlet pressure 91.4 psig (6.3 bar) inlet pressure and 7.3 psig (0.5 bar) pressure drop.

* Air supply must be dry enough to avoid ice formation at temperatures below 35.6°F (2°C).

Snap pressure: Full flow when downstream pressure reaches 50% of the inlet pressure.

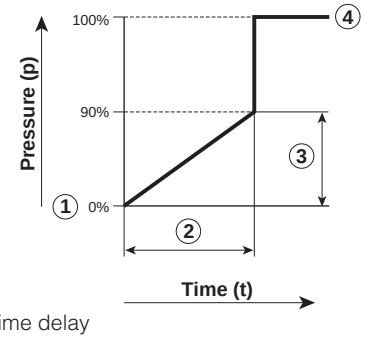
Ordering information

P3YSA 9 6 Y 0 N

Basic series		Thread type*		Port size	
Soft Start Valve	P3YSA	BSPP	1	3/4	6
		NPT	9	1	8

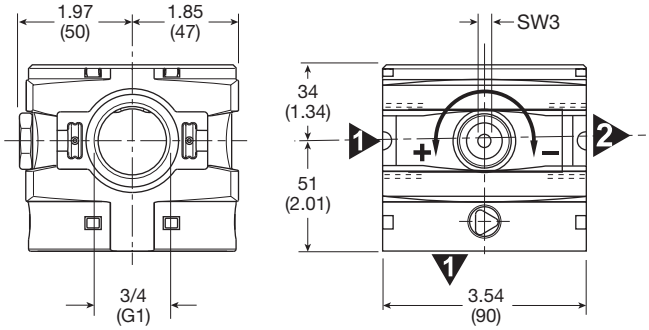
*** Note:** For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

Flow characteristics



① Start signal
② Switching time delay
③ Gradual pressure build up
④ Operating pressure p^2 (= p^1)

Most popular.



Inches (mm)

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

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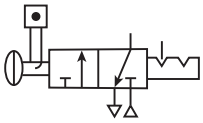
Richland, Michigan
www.parker.com/pneumatics

P3Y Modular Ball Valve

- Positive bubble tight shut-off
- 90° turn handle to prevent unauthorized adjustment
- Pad lockable (up to 6 times)
- When the inlet pressure is turned off the downstream vents through the exhaust port



Ball / Lockout Valve shuts off downstream line pressure in the closed position with a 90° turn of the handle. In the closed position, inlet air pressure is blocked and downstream / system air is exhausted through a threaded port. To prevent unauthorized adjustment, the padlock slide may be assembled on either side. It is recommended that this slide is installed after final system assembly.

The Safety Lockout valves conform to OSHA #29 CFR part 1910 – control of hazardous energy source (lockout / tagout).

Operating information

Operating pressure (max):		254 psig (17.5 bar)
Operating pressure (min):		29 psig (2 bar)
Operating temperature:		14°F to 140°F (-10°C to 60°C)
Flow capacity†:	3/4"	705.6 scfm (333 dm³/s, ANR)
	1"	705.6 scfm (333 dm³/s, ANR)
Weight:	3/4"	2.4 lb (1.1 kg)
	1"	2.4 lb (1.1 kg)

Ordering information

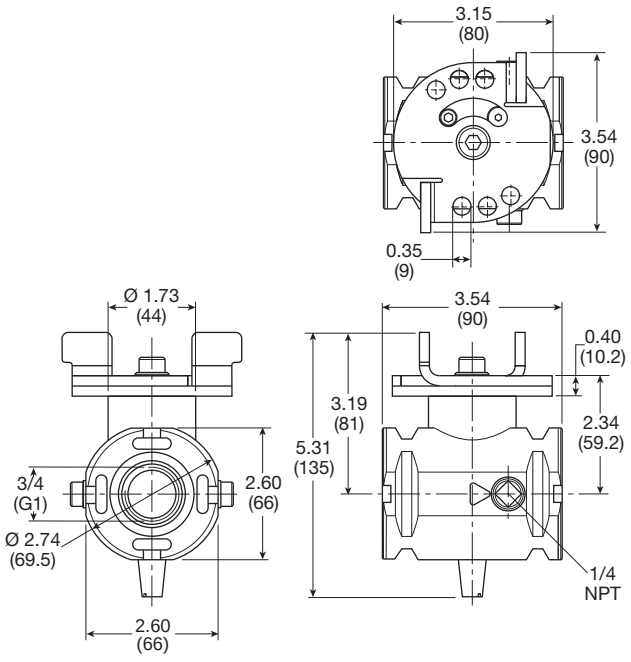
P3YVA	9	6	LBN

Basic series		Thread type*		Port size	
Modular Ball Valve	P3YVA	BSPP	1	3/4	6
		NPT	9	1	8

*** Note:** For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

Material Specifications

Body	Aluminium
Valve ball	Brass / nickle plated
Handle	Aluminum
Seals	Nitrile NBR
Exhaust silencer	Sintered bronze



Inches (mm)

Modular Manifold

P3Y Series Manifolds provide up to 4 extra outlet ports. They may be assembled at any position in a combination e.g. before the lubricator to provide oil free take off or at the end of a combination to provide extra outlet ports.

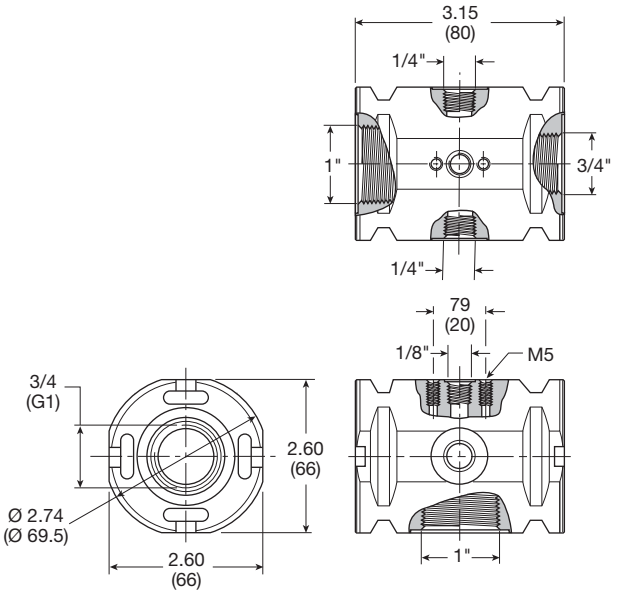
Thread type	Part number
BSPP	**P3YMA1V0N**
NPT	**P3YMA9V0N**

Port sizes

Inlet port	Top	Bottom	Front and Back
3/4"	1/8”	1”	1/4”
1"	1/8”	1”	1/4”

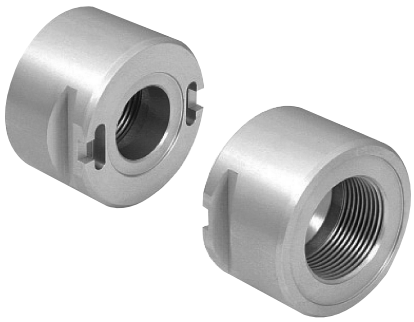
Material specifications

Body	Aluminium
Weight	0.7 kg (1.5 lb)



Inches (mm)

Optional Port Block Kits



- To change port sizes Port Block Kits are available, they are attached to any unit utilizing the connecting kit.
- Allows assemblies to be removed from a hard piped system.

Material specifications

Body	Aluminium
Weight	0.65 kg (1.43 lb)

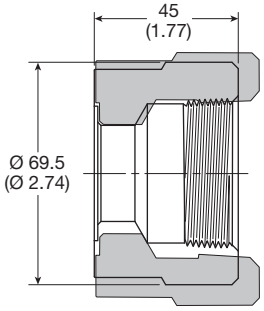
Ordering information

P3YKA | **9** | **B** | **CP**

Basic series	
Port Blocks	P3YKA

Thread type	
BSPP	1
NPT	9

Port size	
1-1/2	B



Inches (mm)

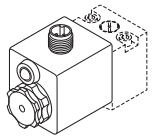
Solenoid Operators - CNOMO

Technical data -
Solenoid operators, coil combinations

	NC Normal Operator with 22 x 30 standard coil	NC Normal Operator with 30 x 30 standard coil
Working pressure	0 to 10 bar	0 to 10 bar
Ambient temperature	-10°C to 60°C *	-10°C to 60°C *
Power (DC)	4.8W	2.7W
Power (AC)	8.5VA	4.9VA
Voltage tolerance	+/-10%	+/-10%
Duty cycle	100%	100%
Insulation class	F	F
Electric connection	B Industrial	DIN 43650A
Protection	IP65	IP65
Approval		UL/CSA
Working media	All neutral media such as compressed air	

* Limited to 50°C if use with 100% duty cycle

Solenoid Coils with M12 Connection



Voltage	Part number	Weight (Kg)
Direct current		
24VDC	**P2FC6449**	0.065

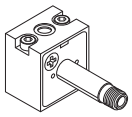
Transients

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavorable conditions, can amount to several hundred times the rated operating voltage. Normally, these transients do not cause problems, but to achieve the Maximum life of relays in the circuit (and particularly of transistors, thyristors and integrated circuits) it is desirable to provide protection by means of voltage-dependent resistors (varistors). All connectors/cable plugs EN175301-803 with LED's include this type of circuit protection.

Materials

Pilot Valve	
Body:	Polyamide
Armature tube:	Brass
Plunger & core:	Corrosion resistant Cr-Ni steel
Seals:	Fluorocarbon
Screws:	Stainless steel
Coil	
Encapsulation material:	Thermoplastic as standard Duroplast for M12 connection

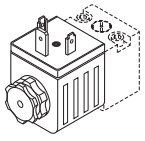
Spare Base Solenoid Pilot Operator CNOMO NC



Description	Part number	Weight (Kg)
Non-lock Manual Override	**P2FP23N4B**	0.065
No Override	**P2FP23N4A**	0.065

Note: Solenoid pilot operators are fitted to the Global range. Order the above part numbers for spares. The operators are supplied with mounting screws and interface 'O' rings. Coils and connectors must be ordered separately.

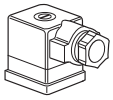
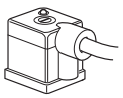
Solenoid Coils with DIN A or Industrial B Connection



Voltage	22mm x 30mm Part number B industrial standard	Weight (Kg)	30mm x 30mm Part number DIN 43650A standard	Weight (Kg)
Direct current				
24VDC	**P2FCB449**	0.093	**P2FCA449**	0.105
Alternative current				
110V 50Hz, 120V 60Hz	**P2FCB453**	0.093	**P2FCA453**	0.105

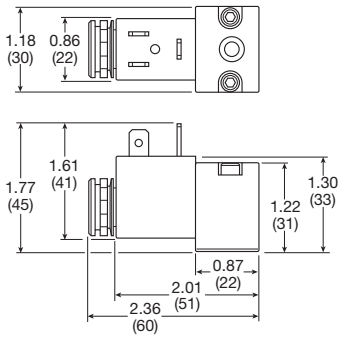
☐ Most popular.

Solenoid Connectors / Cable Plugs EN175301-803

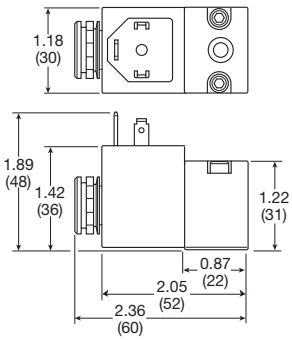
	Description	Part number 22mm Form B Industrial	Part number 30mm Form A DIN 43650A
With standard screw 	Standard IP65 without flying lead	**PS2429BP**	**PS2028BP**
	With LED and protection 24VAC/DC	**PS243079BP**	**PS203279BP**
	With LED and protection 110VAC	**PS243083BP**	**PS203283BP**
With cable 	Standard with 2m cable IP65	**PS2429JBP**	**PS2028JCP**
	24VAC/DC, 2m cable LED and protection IP65	**PS2430J79BP**	**PS2032J79CP**
	110VAC/DC, 2m cable LED and protection IP65	**PS2430J83BP**	**PS2032J83CP**

Solenoid coil dimensions mm (inches)

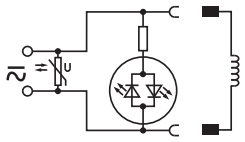
22 x 30mm



30 x 30mm



Electrical schematics

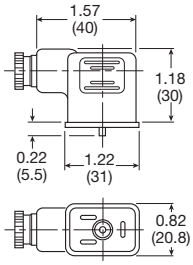


PS243079BP	**PS203279BP**
PS2430J79BP	**PS2032J79CP**
PS243083BP	**PS203283BP**
PS2430J83BP	**PS2032J83CP**
PS294679BP	**PS294683BP**
PS2946J79BP	**PS2946J83BP**

Cable plug dimensions mm (inches)

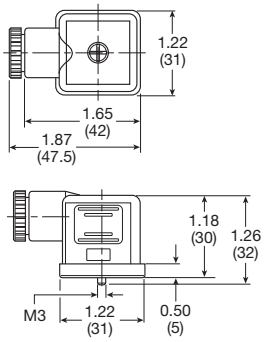
22mm Form B industrial cable plugs

PS2429BP



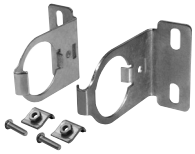
30mm DIN 43650A cable plugs

PS2028BP



Most popular.

Accessories

Description		Connection	Weight lb (kg)	Part number	
0.01 micron element kit				**P3YKA00ESC**	
5 micron element kit				**P3YKA00ESE**	
Adsorber element kit				**P3YKA00ESA**	
Angle bracket + metal lock ring				**P3YKA00MS**	
Bowl kit with combined manual / semi-auto drain				**P3YKA00BSC**	
Bowl kit with auto drain				**P3YKA00BSA**	
Bowl kit				**P3YKA00BSN**	
Connector o-ring kit	Qty: 5			**P3YKA08CY**	
Differential pressure indicator kit				**P3YKA00RQ**	
Diaphragm kit (relieving type)				**P3YKA00RR**	
Diaphragm kit (non-relieving type)				**P3YKA00RN**	
Key lock (replacement)				**P3XKA00AS**	
Lubricator oil	F442001 - 1 Qt.		2.03 (0.92)	**F442001**	
	F442002 - 1 Gal			**F442002**	
Neck mounting bracket kit			8.27 (3.75)	**P3YKA00MS**	
P3Y connecting kit			0.11 (0.05)	**P3YKA00CB**	
Panel mounting nut (Aluminium)			1.54 (0.70)	**P3YKA00MM**	
Pressure gauge	0 to 160 psig (0 to 10 bar)	1/4"	0.13 (0.06)	**K4520N14160**	
	0 to 300 psig (0 to 20 bar)	1/4"	0.13 (0.06)	**K4520N14300**	
Refill plug				**P3YKA00PL**	
Wall mounting brackets			0.44 (0.2)	**P3YKA00CW**	

Most popular.

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

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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, keytones, 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.

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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.

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5. 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. No other claims against Seller will be allowed unless asserted in writing within thirty (30) days after delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the defect 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.

6. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE 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, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, 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 OF THE PRODUCTS.**

7. User Responsibility. The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

8. Loss to Buyer's Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which 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 items 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. A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. 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 apparatus belonging to Seller which is utilized in the manufacture of the Products, even if such apparatus 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. Buyer's Obligation; Rights of Seller. To secure payment of all sums due or otherwise, Seller retains a security interest in all Products delivered to Buyer and this agreement 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. Improper Use and Indemnity. 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, patent, trademark or copyright 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 purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Products; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

12. Cancellations and Changes. Buyer may not cancel or modify or cancel 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 may change Product features, specifications, designs and availability.

13. Limitation on Assignment. Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

14. 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 (hereinafter "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.

15. Waiver and Severability. Failure to enforce any provision of this agreement 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 this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

16. Termination. Seller may terminate this agreement for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate this agreement, in writing, if Buyer: (a) breaches any provision of this agreement (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.

17. Governing Law. This agreement 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 this agreement.

18. 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 except as provided in this Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). 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 an allegation that a Product sold pursuant to this agreement infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and refund the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller is not liable for claims of infringement based on information provided by Buyer, or directed to Products delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any Product sold hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

19. Entire Agreement. This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged. The terms contained herein may not be modified unless in writing and signed by an authorized representative of Seller.

20. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards of care, including those of the United Kingdom, the United States of America, and the country or countries in which Buyer may operate, including without limitation the U. K. Bribery Act, the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act") and the U.S. Food Drug and Cosmetic Act ("FDCA"),each as currently amended, and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), and agrees to indemnify and hold harmless Seller from the consequences of any violation of such provisions by Buyer, its employees or agents. Buyer acknowledges that it is familiar with the provisions of the U. K. Bribery Act, the FCPA, the FDA, and the Anti-Kickback Act, and certifies that Buyer will adhere to the requirements thereof. In particular, Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly to any governmental official, any foreign political party or official thereof, any candidate for foreign political office, or any commercial entity or person, for the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller.

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