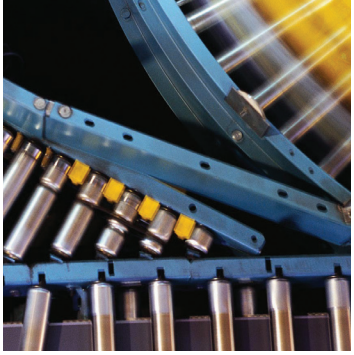
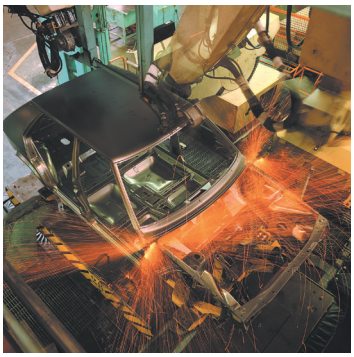




Global FRL and P3Y Series

Air Preparation Products

Catalog 0760P-1

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 having 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".

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

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

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	73	(34)
Filter/Regulator	74	(35)
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	164	(77)
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	102	(48)
Coalescer	42	(20)
Regulator	233	(110)
Filter/Regulator	235	(109)
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" and 1" 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)

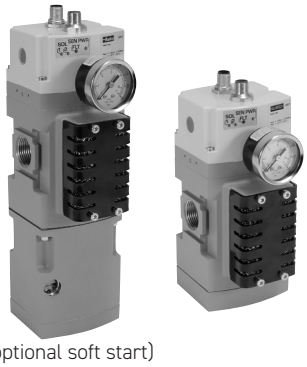
Features:

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

Complete Pneumatic System

Safety Exhaust Valve

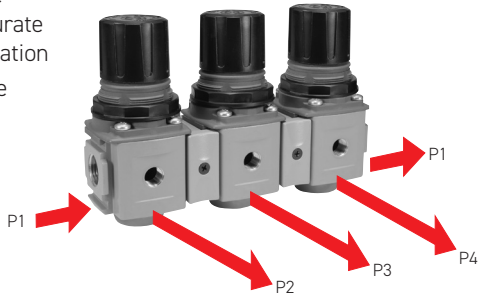
- External monitoring provides a cost and space saving advantage
- Solid state pressure sensors provide accurate, fast fault detection
- Quick visual LED indicators on the front of the valve
- Safety exhaust outlet is no-maintenance and non-clog by design
- Suitable for stand alone use or modular mounting to P32 or P33 FRL assembly



(optional soft start)

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

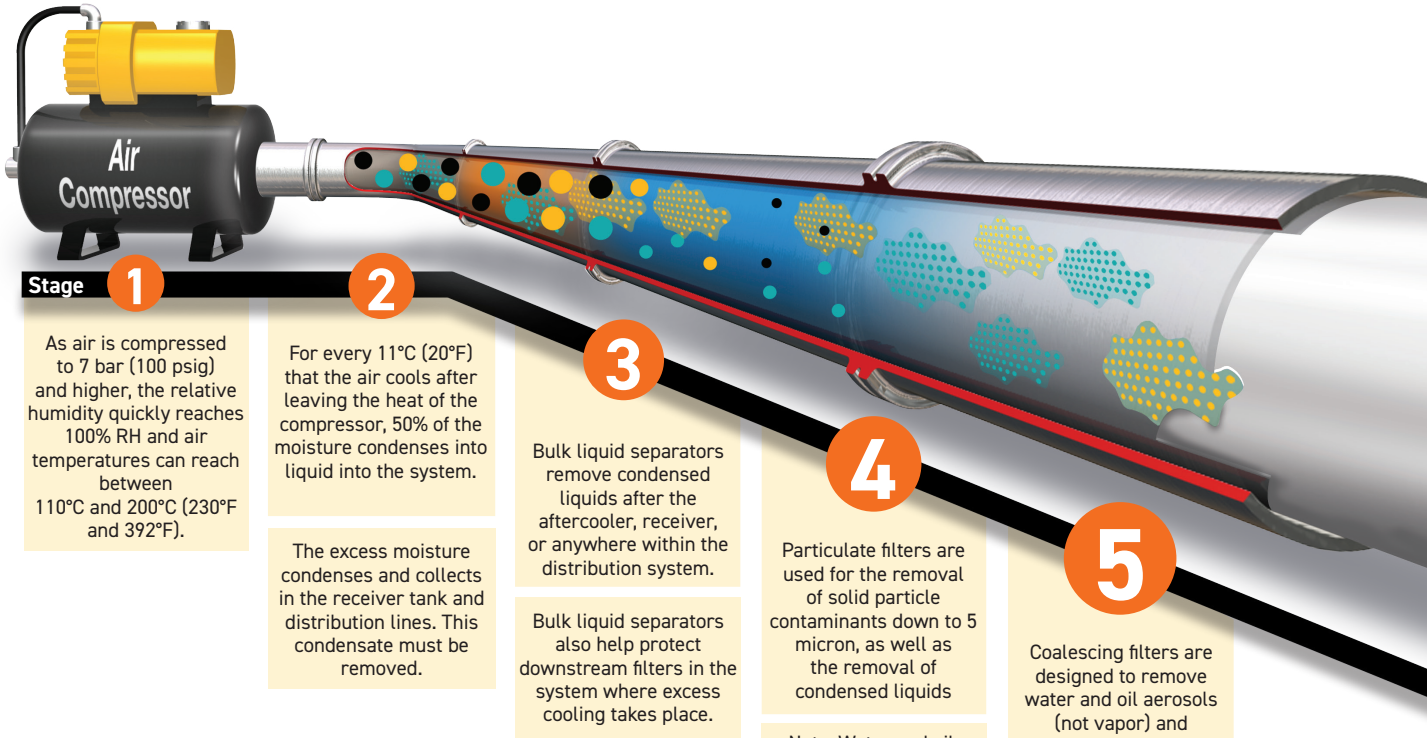
- Preset and Tamperproof

- 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



Stage 1

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).

Stage 2

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.

Stage 3

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.

Stage 4

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.

Stage 5

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

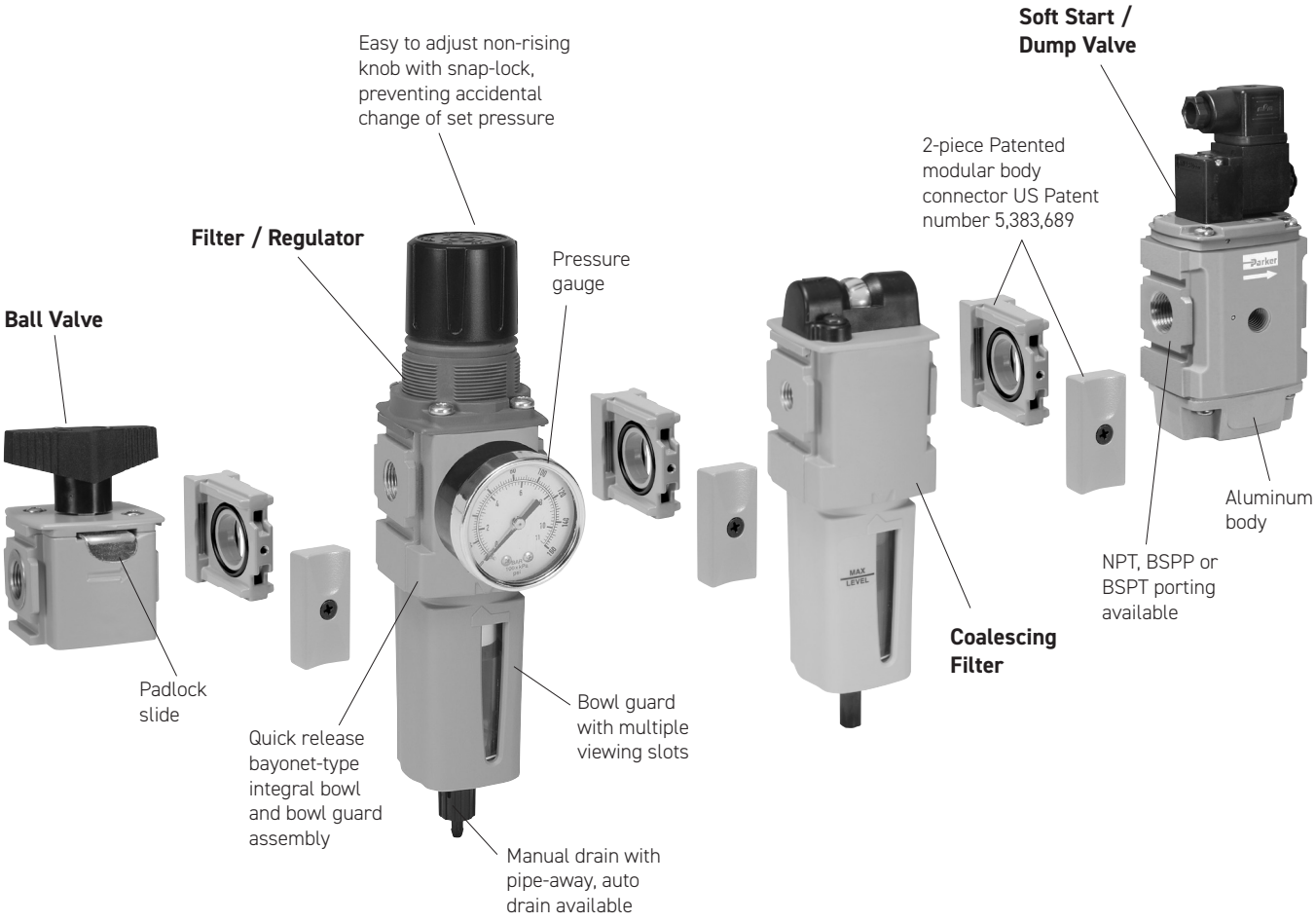
Installed in pairs, Particulate and Coalescing filters ensure a continuous supply of high quality air.

Key

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

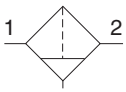
						
Stages	1 2	3	4	5	6	7
Function	**Air Compressor**	**Bulk Liquid Removal**	**Particulate Filtration**	**Coalescing Filtration**	**Air Dryers**	**Hydrocarbon Removal**
Application	All pneumatic systems	Basic pneumatic systems	Basic pneumatic systems	Systems requiring highest quality air.	Systems requiring air with reduced moisture content	Systems requiring highest quality air for critical applications
Description	Air leaving the compressor room at 93°C (200°F) releases 95% of its moisture into the piping system when it cools to 38°C (100°F)	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 4°C (40°F) (refrigeration) or -40°C (-40°F) (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	Refrigeration Dryer, TW Regenerative Desiccant Dryer	P31, P32, P33, P3Y Activated Carbon (Adsorber) Filter

A completely modular air preparation system

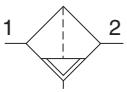


P31 Particulate Filter – Mini

- 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

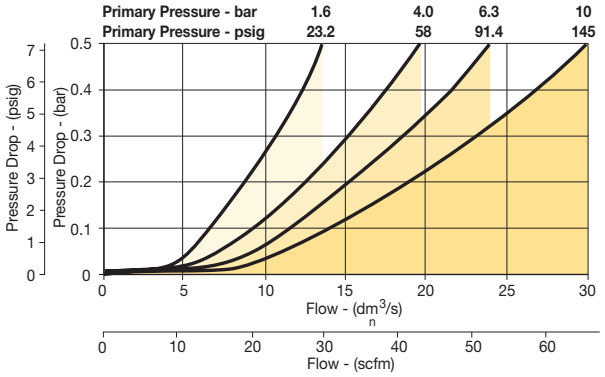
Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Bowl guard	Nylon
Element retainer	Acetal
Baffle	Acetal
Filter element	Sintered polyethylene
Seals	Nitrile

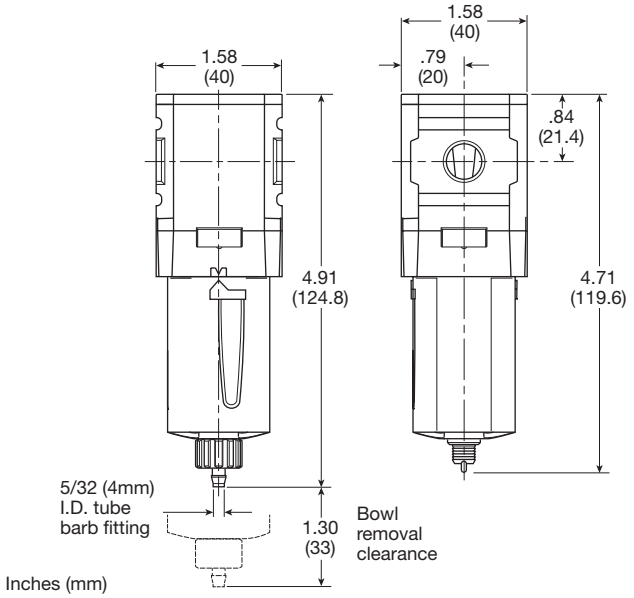
Repair and Service Kits

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

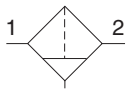




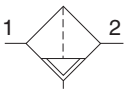
Manual Drain **Pulse Drain**

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

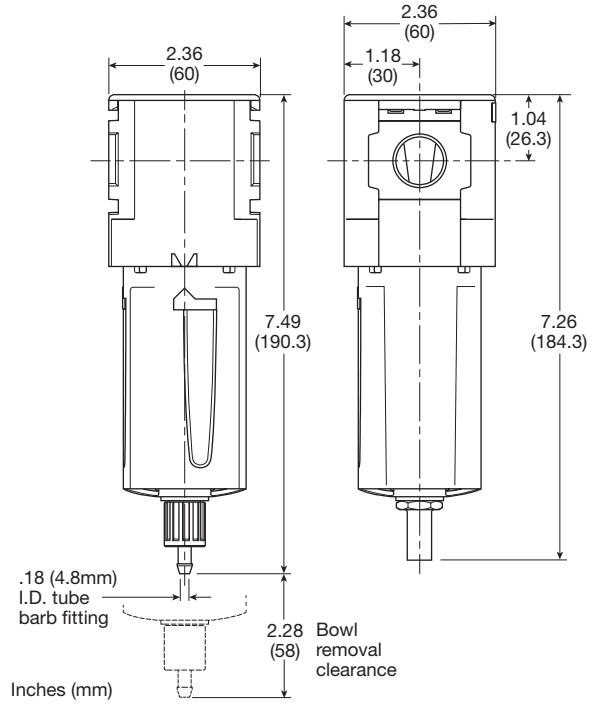
☐ Most popular.

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

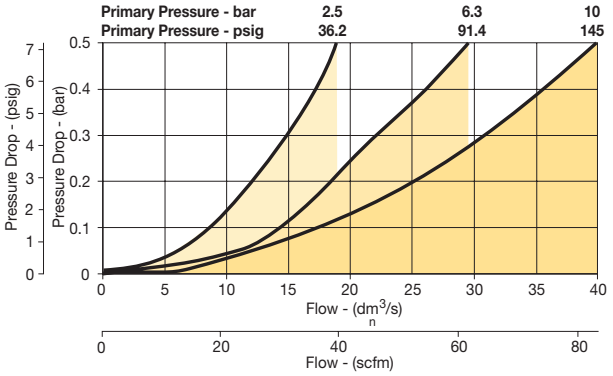
Plastic bowl / bowl guard, manual drain	**P32KB00BGM**
Metal bowl / sight gauge, manual drain	**P32KB00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P32KA00ESE**
L-bracket (fits to body)	**P32KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P32KA00MT**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



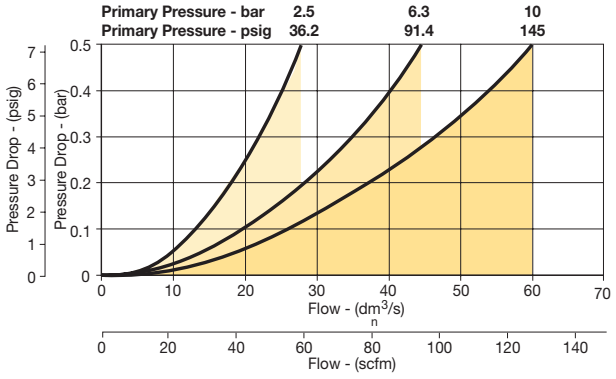
Manual Drain **Automatic Drain**

Flow Charts

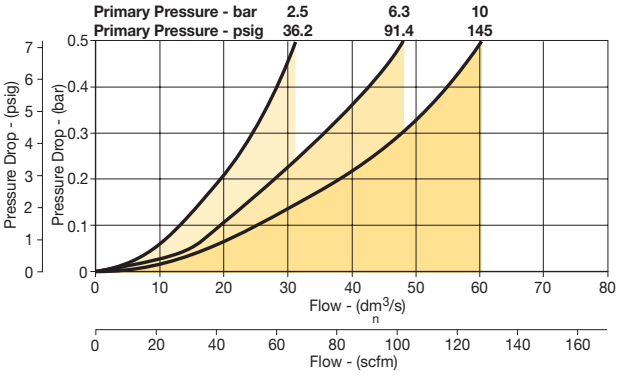
P32FB 1/4" Filter



P32FB 3/8" Filter

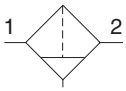


P32FB 1/2" Filter

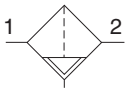


P33 Particulate Filter – Standard

- 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.

Material Specifications

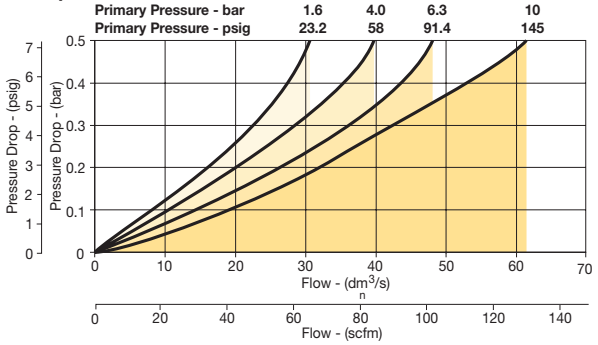
Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Bowl guard	Nylon
Deflector	Polypropylene
Element retainer / Baffle	Acetal
Filter element	Sintered polyethylene
Seals	Nitrile
Sight gauge	Nylon

Repair and Service Kits

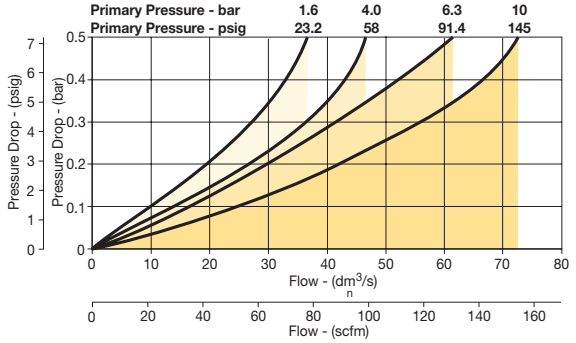
Plastic bowl / bowl guard, manual drain	**P33KA00BGM**
Metal bowl / sight gauge, manual drain	**P33KA00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P33KA00ESE**
L-bracket (fits to body)	**P33KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket with body connector	**P33KA00MT**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

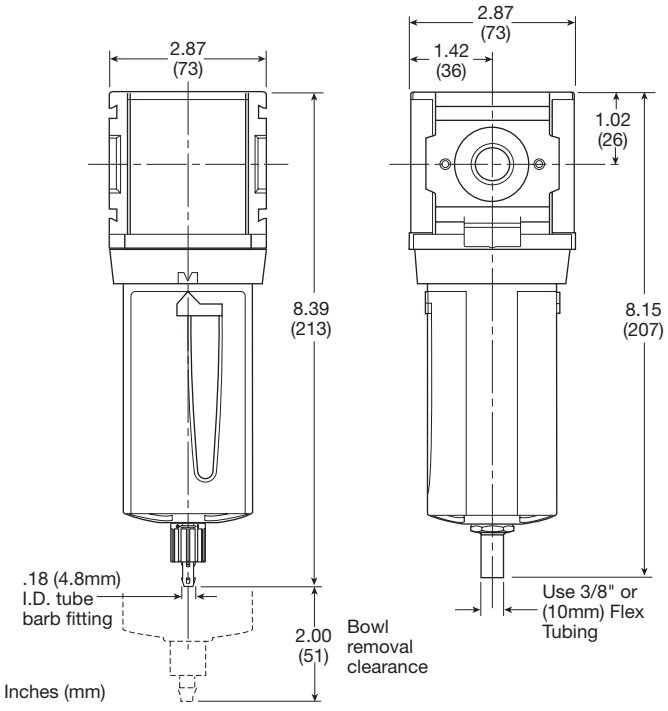
Flow Charts

P33FA 1/2" Filter



P33FA 3/4" Filter





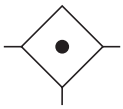
Manual Drain **Automatic Drain**

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

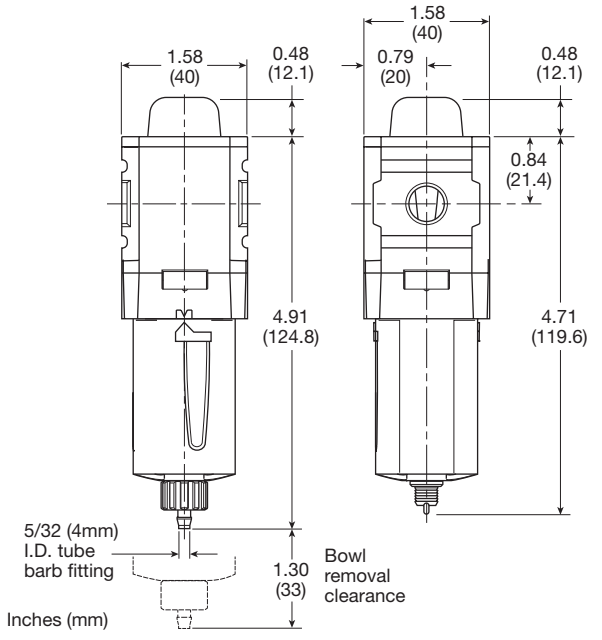
☐ Most popular.

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

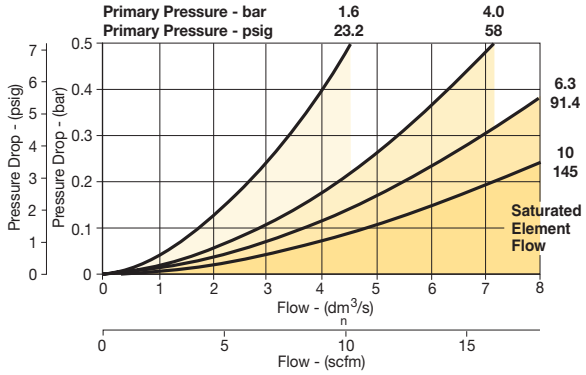
Plastic bowl / bowl guard, manual drain	**P31KB00BGM**
Metal bowl / w/o sight gauge ,manual drain	**P31KB00BMM**
Plastic bowl / bowl guard, pulse drain	**P31KB00BGB**
Metal bowl / w/o sight gauge, pulse drain	**P31KB00BMB**
1µ coalescing filter element	**P31KA00ES9**
0.01µ coalescing filter element	**P31KA00ESC**
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**



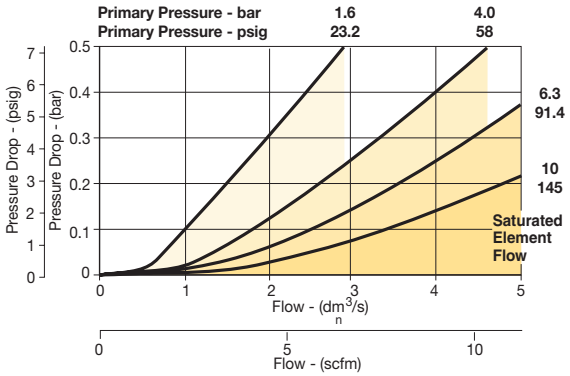
Manual Drain **Pulse Drain**

Flow Charts

P31FB - 1.0 micron flow



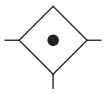
P31FB - 0.01 micron flow



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

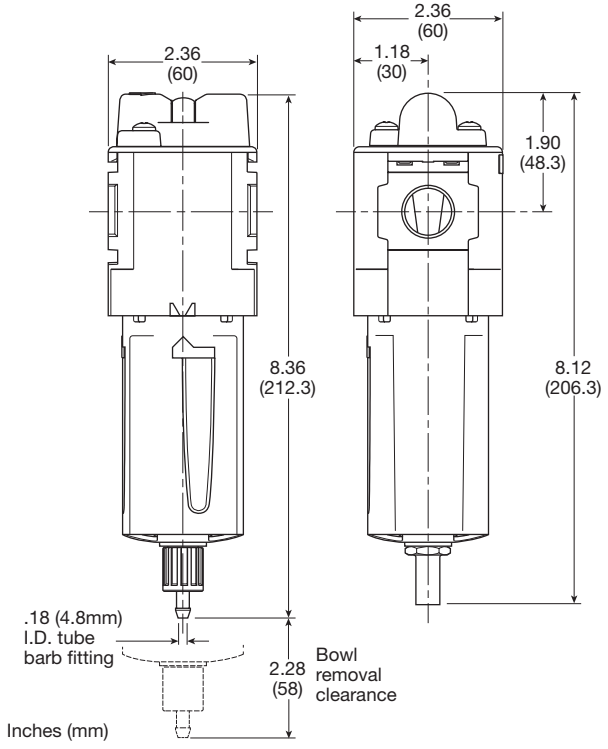
☐ Most popular.

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

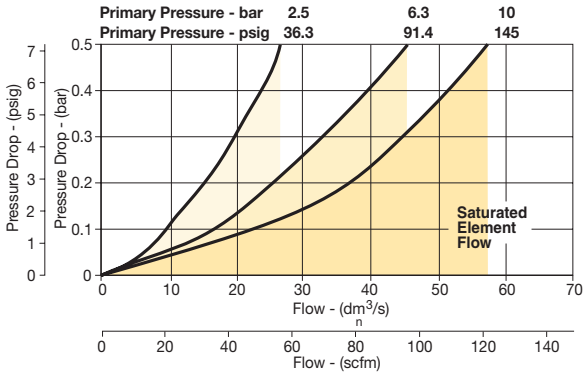
Plastic bowl / bowl guard, manual drain	**P32KB00BGM**
Metal bowl / sight gauge, manual drain	**P32KB00BSM**
Auto drain	**P32KA00DA**
1µ coalescing filter element	**P32KA00ES9**
0.01µ coalescing filter element	**P32KA00ESC**
Activated carbon adsorber filter element	**P32KA00ESA**
L-bracket (fits to body)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



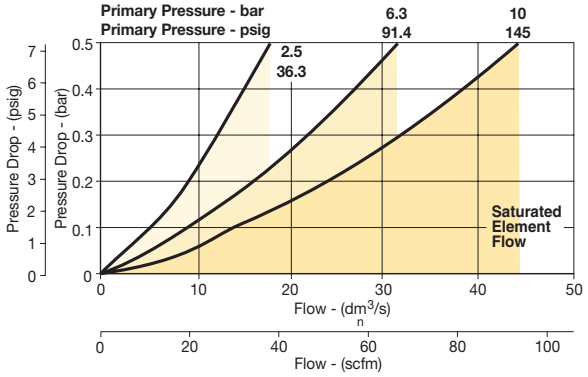
Manual Drain **Automatic Drain**

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

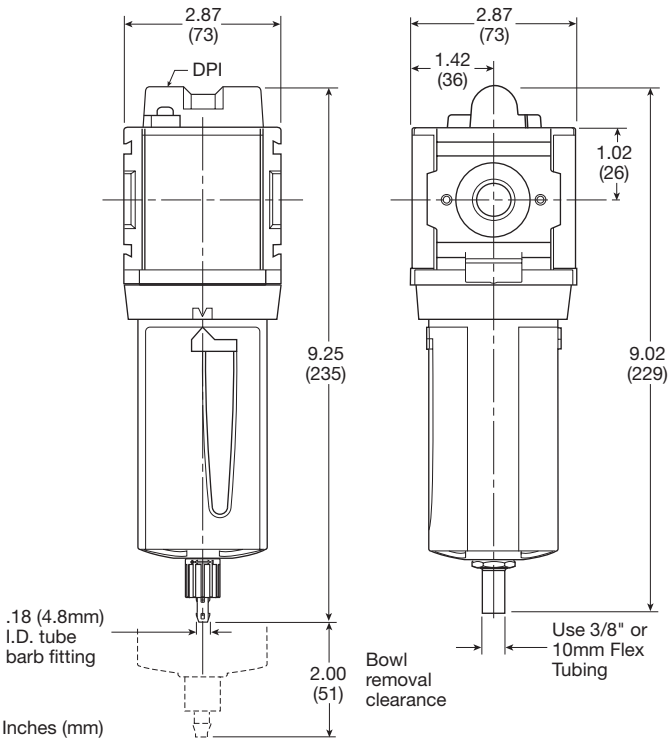
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

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

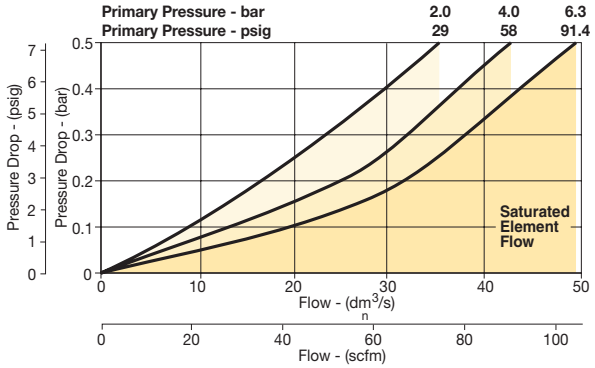
Plastic bowl / bowl guard, manual drain	**P33KA00BGM**
Metal bowl / sight gauge, manual drain	**P33KA00BSM**
Auto drain	**P32KA00DA**
1µ coalescing filter element	**P33KA00ES9**
0.01µ coalescing filter element	**P33KA00ESC**
Activated carbon adsorber filter element	**P33KA00ESA**
L-bracket (fits to body)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



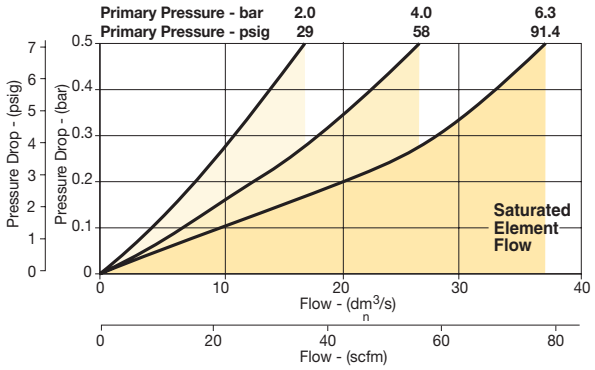
Manual Drain **Automatic Drain**

Flow Charts

P33FA - 1.0 micron flow

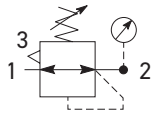


P33FA - 0.01 micron flow

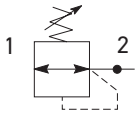


P31 Regulators – Mini

- 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)	Square	**P31RB92BN5P**

Operating Information

Flow capacity*:	1/4	73 scfm (34 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)
Weight:		0.37 lb (0.17 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 100 psig (6.9 bar) and 14.5 psig (1 bar) pressure drop.
† Units with square gauges: 5°F to 150°F (-15°C to 65.5°C)

Gauge supplied with every part. Gauge can be installed on the front or back of the regulator. If no gauge is installed, both seal screws must be installed.

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		
psig	bar	MPa
1 = 30*	V = 2*	2 = 0.2*
3 = 60	S = 4	4 = 0.4
5 = 125	T = 8	6 = 0.8
7 = 232	W = 16	8 = 1.6

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

Mounting

P	Plastic Panel Mount Nut

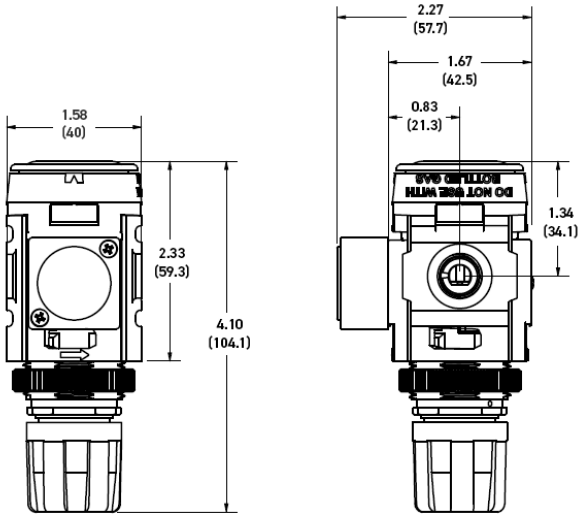
☐ Most popular.

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Bonnet	Glass-filled nlyon
Diaphragm assembly	Stainless steel/Nitrile
Valve assembly	Acetal/Nitrile
Springs	Steel
Seals	Nitrile
Panel nut	Acetal
Bottom Cap	Glass-filled nylon

Repair and Service Kits

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**



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

WARNING

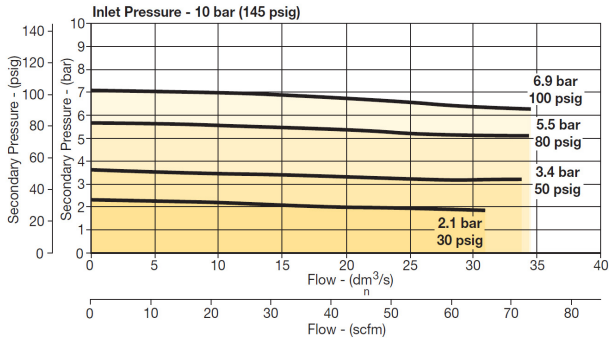
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

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 Charts

P31RB 1/4" Regulator



Gauges (*see note below)

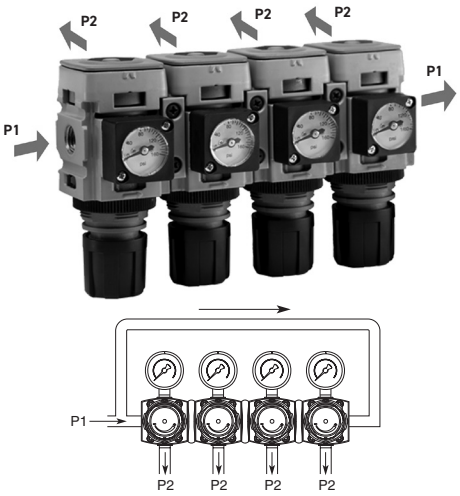
Square flush mount gauge	0-60 psig	**P31KA060XB**
	0-160 psig	**P31KA160XB**
	0-290 psig	**P31KA290XB**
	0-4 bar	**P31KA04BXB**
	0-11 bar	**P31KA11BXB**
	0-20 bar	**P31KA20BXB**
	0-0.4 MPa	**P31KA04MXB**
	0-1.1 MPa	**P31KA11MXB**
	0-2.0 MPa	**P31KA20MXB**
Square flush mount gauge	0-4 bar	**K4511SCR04B**
	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 / 1-4 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 / 0-11bar	**K4515N18160**

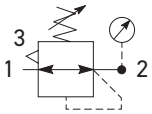
For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

***For P31 Regulators with date code after November 2023 (4423 Date Code), please use these part numbers when ordering a replacement gauge.**

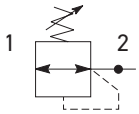
P31 Common P1 Regulators – Mini

- 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)	Square	**P31HB92BN5P**

Operating Information

Flow capacity*:	
1/4	64 scfm (31 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 100 psig (6.9 bar) and 14.5 psig (1 bar) pressure drop.

Gauge supplied with every part. Gauge can be installed on the front or back of the regulator. If no gauge is installed, both seal screws must be installed.

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		
psig	Bar	MPa
1 = 30*	V = 2*	2 = 0.2*
3 = 60	S = 4	4 = 0.4
5 = 125	T = 8	6 = 0.8
7 = 232	W = 16	8 = 1.6

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

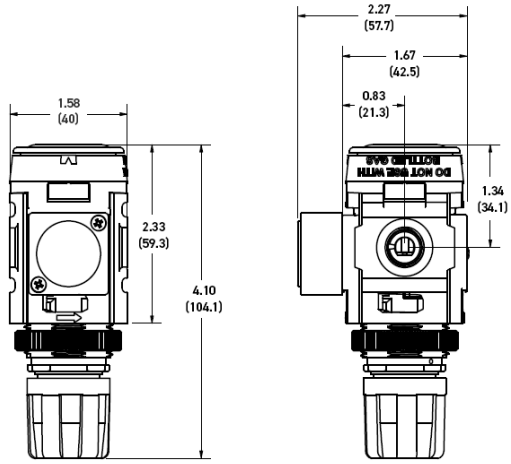
☐ Most popular.

Materials of Construction

Body	Aluminum
Adjustment knob	Acetal
Bonnet	Glass-filled nylon
Diaphragm assembly	Stainless steel/Nitrile
Valve assembly	Acetal/Nitrile
Bottom cap	Glass-filled nylon

Repair and Service Kits

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**



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

⚠ WARNING

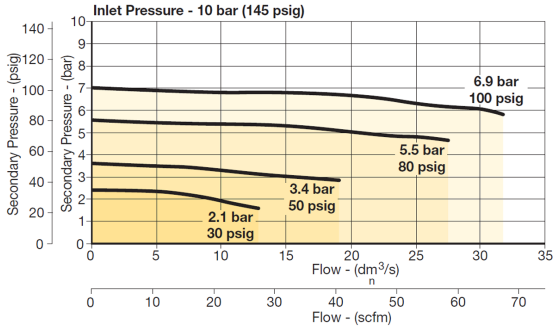
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

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 Charts

P31HB 1/4" Common Regulator



Gauges (*see note below)

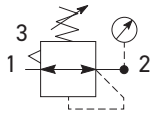
Square flush mount gauge	0-60 psig	**P31KA060XB**
	0-160 psig	**P31KA160XB**
	0-290 psig	**P31KA290XB**
	0-4 bar	**P31KA04BXB**
	0-11 bar	**P31KA11BXB**
	0-20 bar	**P31KA20BXB**
	0-0.4 MPa	**P31KA04MXB**
	0-1.1 MPa	**P31KA11MXB**
	0-2.0 MPa	**P31KA20MXB**
Square flush mount gauge	0-4 bar	**K4511SCR04B**
	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 / 1-4 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 / 0-11bar	**K4515N18160**

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

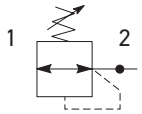
***For P31 Regulators with date code after November 2023 (4423 Date Code), please use these part numbers when ordering a replacement gauge.**

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
- Regulator will reverse flow as standard
- 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 dm^3/s, ANR)
3/8, 1/2	165 scfm (78 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:	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

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.

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

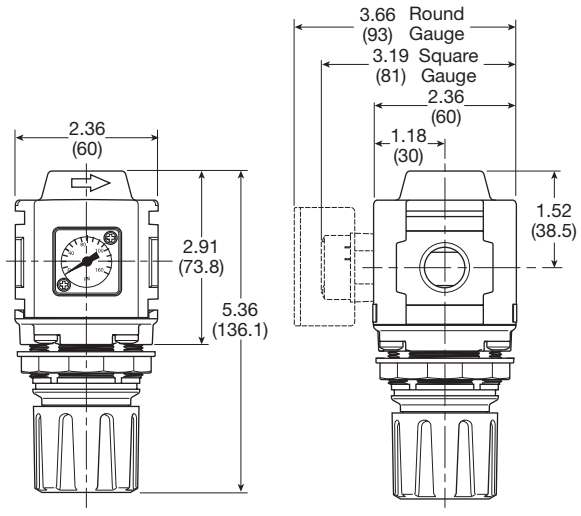
Diaphragm repair kit - relieving	**P32KB00RB**
Diaphragm repair kit - non-relieving	**P32KB00RC**
Panel mount nut - aluminum	**P32KA00MM**
Panel mount nut - plastic	**P32KA00MP**
Angle bracket (attaches via panel nut)	**P32KB00MR**
T-bracket with body connector	**P32KA00MT**
T-bracket	**P32KA00MB**
Body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

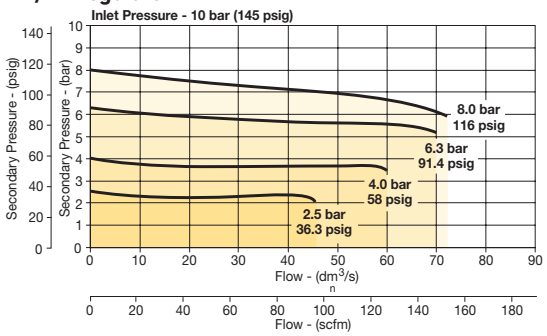


Inches (mm)

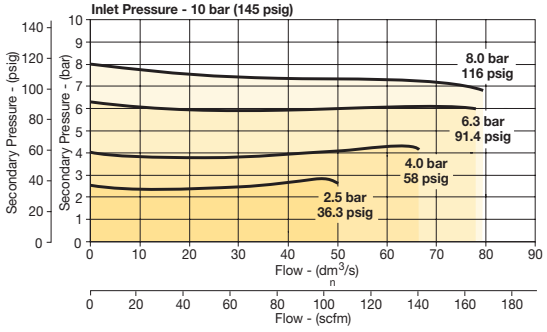
NOTE: 1.90 in. (48mm) hole required for panel nut mounting.

Flow Charts

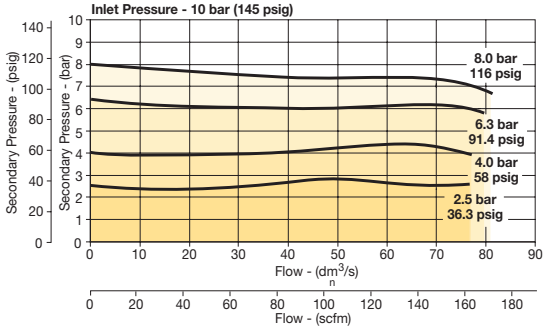
P32RB 1/4" Regulator



P32RB 3/8" Regulator



P32RB 1/2" Regulator



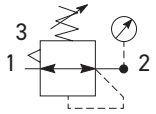
Gauges

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**

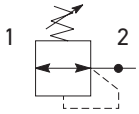
For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

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
- Regulator will reverse flow as standard
- 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 2 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-Precision Non-Relieving	T

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.

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

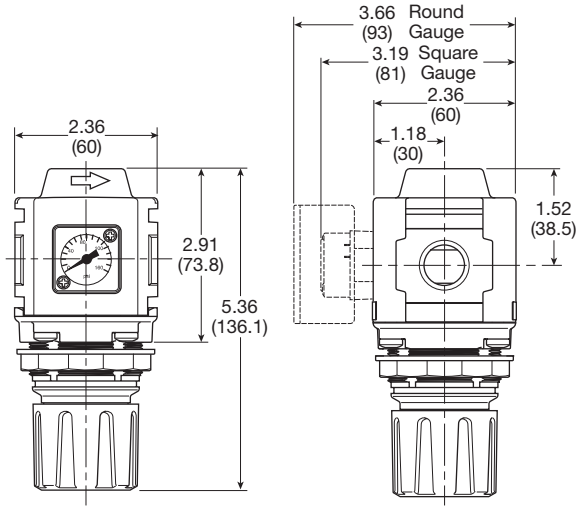
Diaphragm repair kit - relieving	**P32KB00RB**
Diaphragm repair kit - non-relieving	**P32KB00RC**
Panel mount nut - aluminum	**P32KA00MM**
Panel mount nut - plastic	**P32KA00MP**
Angle bracket (attaches via panel nut)	**P32KB00MR**
T-bracket with body connector	**P32KA00MT**
T-bracket	**P32KA00MB**
Body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

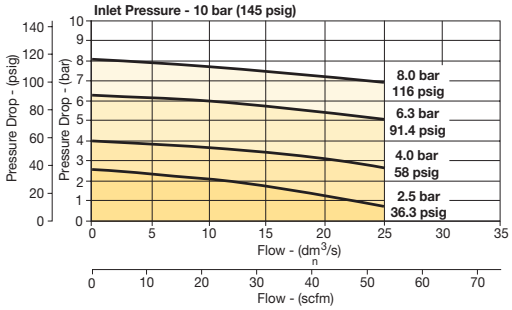


Inches (mm)

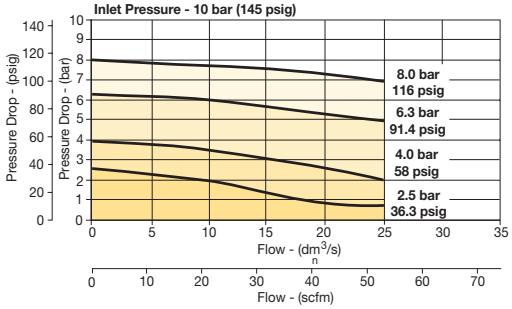
NOTE: 1.90 in. (48mm) hole required for panel nut mounting.

Flow Charts

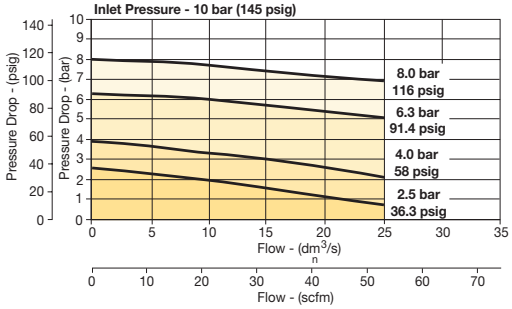
P32RB 1/4" Regulator



P32RB 3/8" Regulator



P32RB 1/2" Regulator



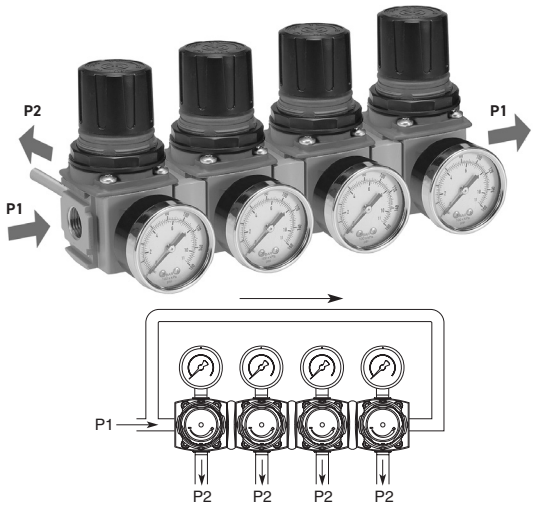
Gauges

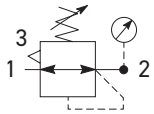
Square flush mount gauge	0-4 bar	**K4511SCR04B**
	0-11 bar	**K4511SCR11B**
	0-60 psig	**K4511SCR060**
	0-160 psig	**K4511SCR160**
Square with adapter kit	0-4 bar	**P6G-PR10040**
	0-11 bar	**P6G-PR10110**
	0-60 psig	**P6G-PR90060**
	0-160 psig	**P6G-PR90160**
50mm (2") round 1/4" center back mount	0-30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

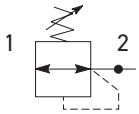
P32 Common - P1 Regulator – Compact

- 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
- Regulator will reverse flow as standard
- 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 (0.23 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

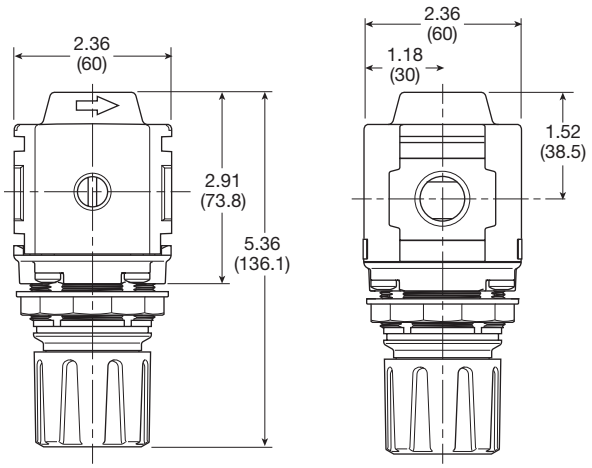
☐ Most popular.

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

Diaphragm repair kit - relieving	**P32KB00RB**
Diaphragm 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**

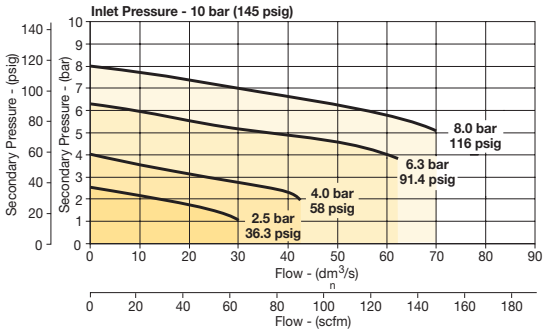


Inches (mm)

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.

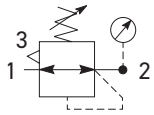
Gauges

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**

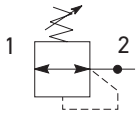
For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

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

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

☐ 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

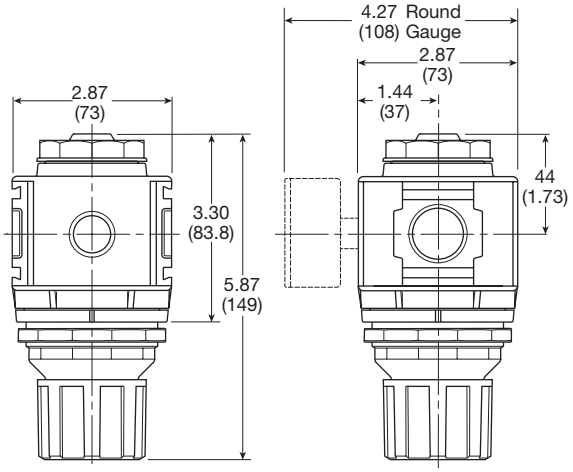
Diaphragm repair kit - relieving	**P33KA00RB**
Diaphragm repair kit - non-relieving	**P33KA00RC**
Panel mount nut - aluminum	**P33KA00MM**
Panel mount nut - plastic	**P33KA00MP**
Angle bracket (attaches via panel nut)	**P33KA00MR**
T-bracket with body connector	**P32KA00MT**
T-bracket	**P32KA00MB**
Body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

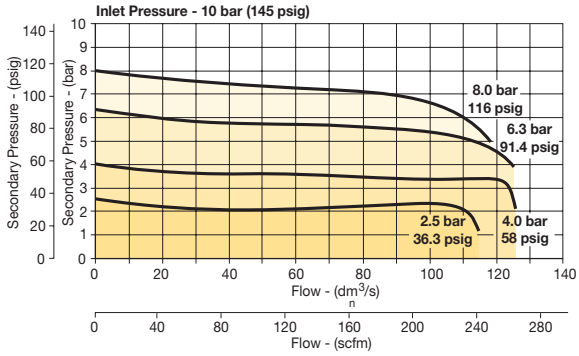


Inches (mm)

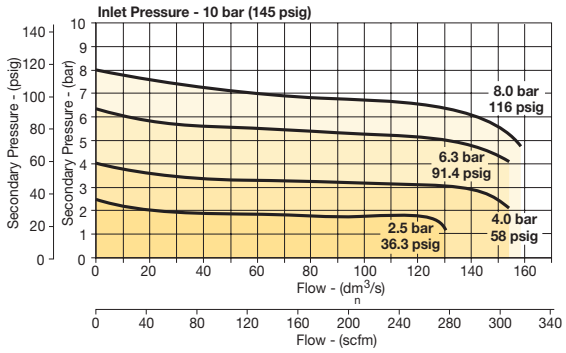
NOTE: 2.40 in. (61mm) hole required for panel nut mounting.

Flow Charts

P33RA 1/2" Regulator



P33RA 3/4" Regulator



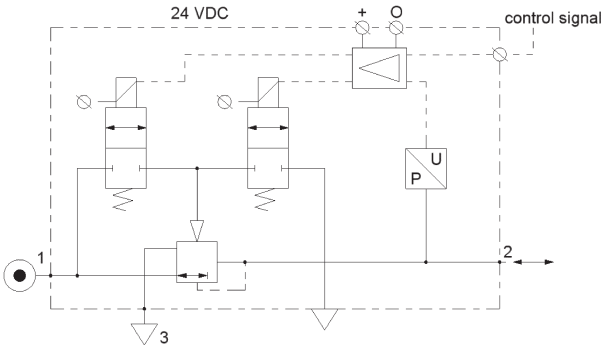
Gauges

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	**P31PA92AD2VD1A**
1/2"	145 psig (0-10 bar), NC 0-10V	**P32PA94AD2VD1A**

Operating Information

Flow capacity*:	P31P	40 scfm (19 dm^3/s, ANR)
	P32P	120 scfm (57 dm^3/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** | **A**

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.

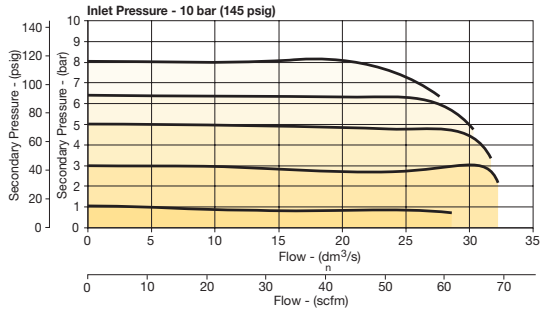
Connections

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

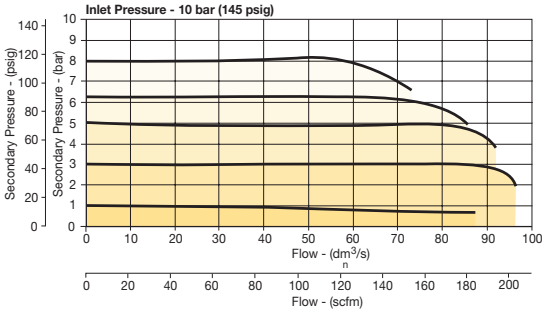
Pin No.		Function	Color
1	24 V	Supply	Brown
2	0 to 10 V	Control Signal Ri = 100k Ω	White
	4 to 20mA	Control Signal Ri = 500 Ω	
3	0 V (GND)	Supply & Set Point Ground	Blue
4	24 V	Alarm Output Signal	Black

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.

How to Videos at www.parker.com/pneu/propreg

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Richland, Michigan
www.parker.com/pneumatics

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 (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.

How to Videos at www.parker.com/pneu/propreg

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

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.

How to Videos at www.parker.com/pneu/propreg

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.

How to Videos at www.parker.com/pneu/propreg

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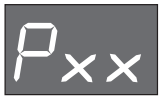
Behavior Control

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			 Flashing Decimal	 Flashing Decimal (value between 0 and 5)	 Flashing	
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			 Flashing Decimal	 Flashing Decimal (value between 50 and 250)	 Flashing	
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.

How to Videos at www.parker.com/pneu/propreg

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 (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

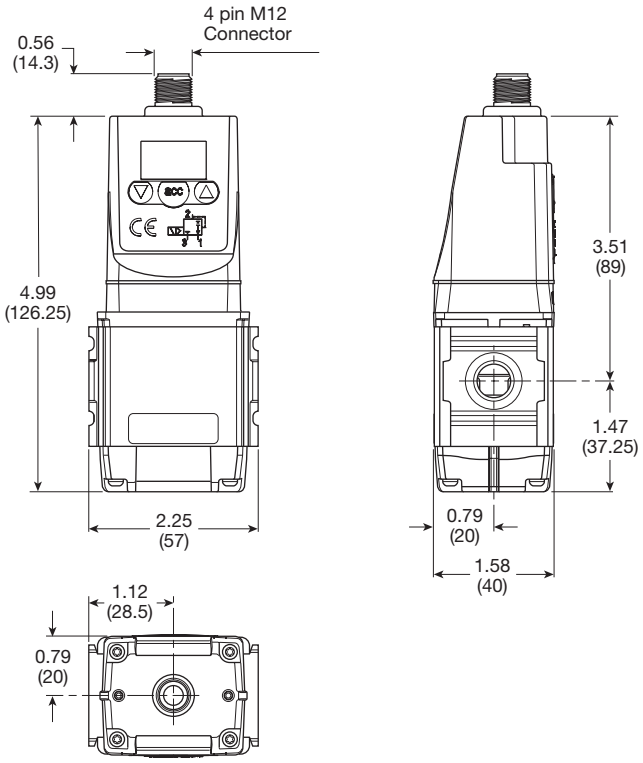
Step	1	2	3
Press	acc 3-6 seconds	▼ or ▲	acc
Until Display Reads	Pxx	P39	# # # Flashing Decimal
Description	Accesses changeable parameters.	Accesses parameter no. 39.	Displays current parameter value. XXX = current software version

How to Videos at www.parker.com/pneu/propreg

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

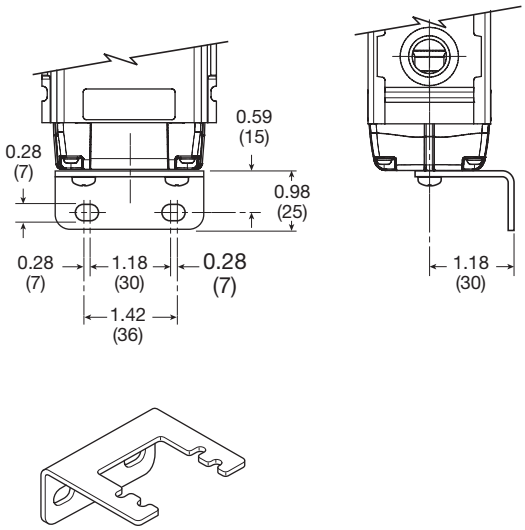
P31P

Dimensions inches (mm)



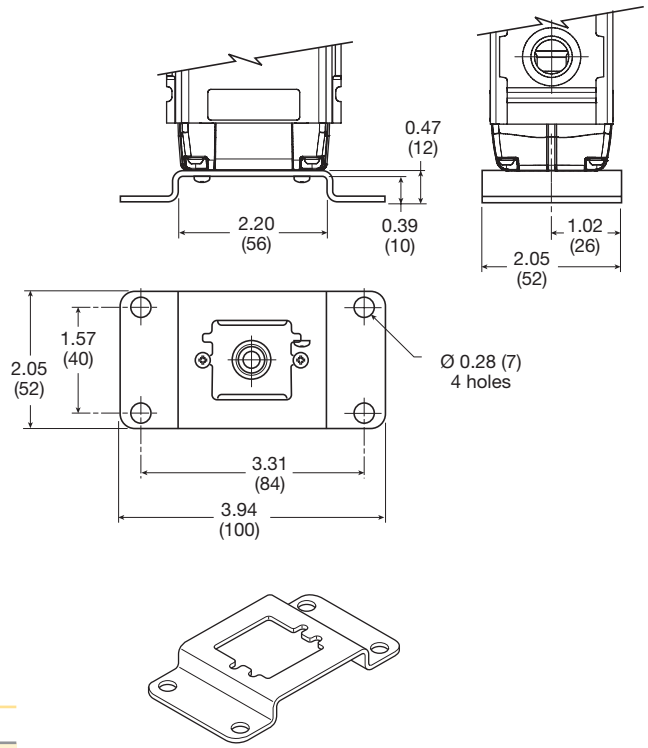
L-Bracket

P3HKA00ML



Foot Bracket

P3HKA00MC



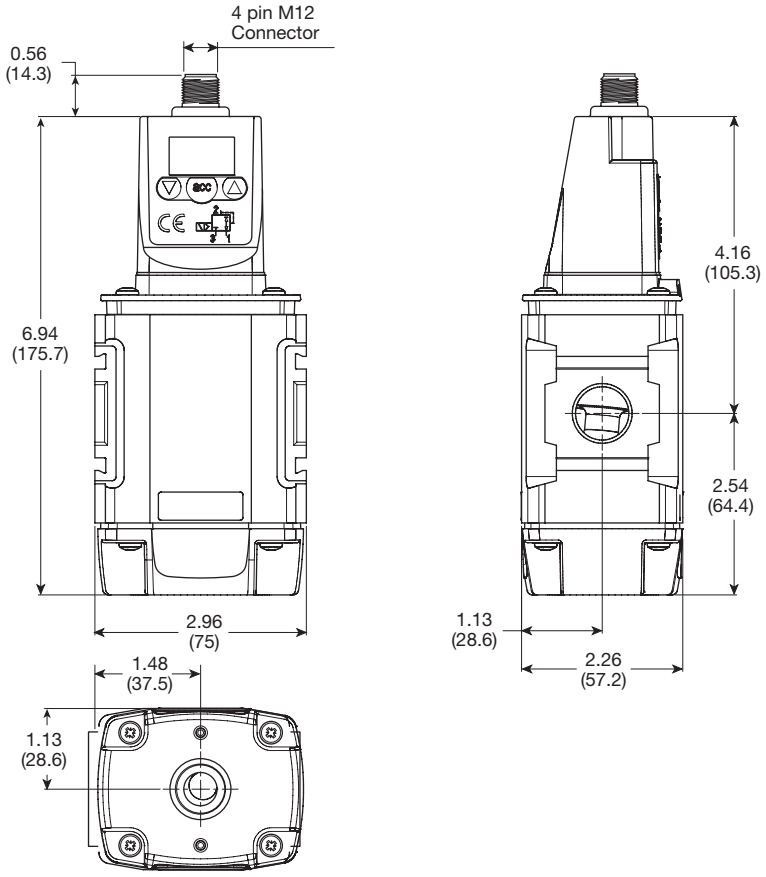
Cables

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

☐ Most popular.

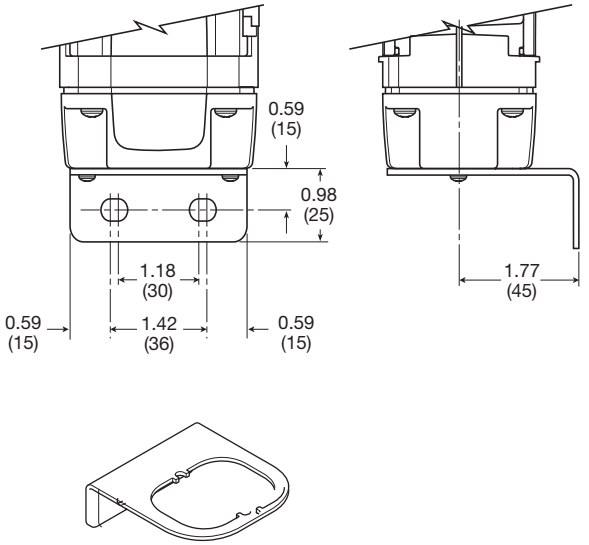
P32P

Dimensions inches (mm)



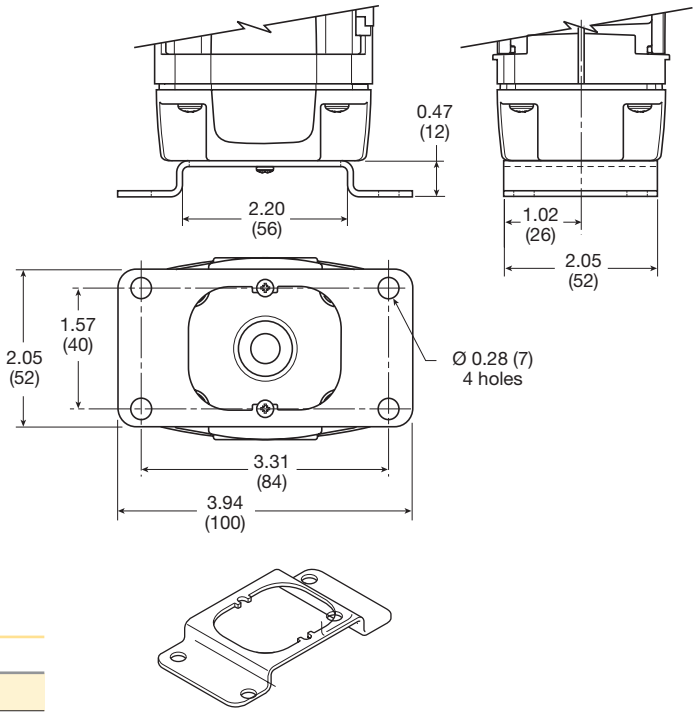
L-Bracket

P3KKA00ML



Foot Bracket

P3KKA00MC



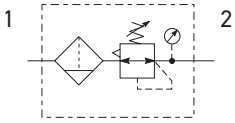
Cables

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)
Weight:		0.42 lb (0.19 kg)

* Inlet pressure 145 psig (10 bar). Secondary pressure 100 psig (6.9 bar) and 14.5 psig (1 bar) pressure drop.
‡ 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.

Gauge supplied with every part. Gauge can be installed on the front or back of the regulator. If no gauge is installed, both seal screws must be installed.

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

Relief
B — Relieving
N — Non-Relieving

Adjustment
N — Non-Rising Knob

Mounting
P — Plastic Panel Mount Nut

Adjustment Range

With Square Gauge		
psig	Bar	MPa
1 = 30*	V = 2*	2 = 0.2*
3 = 60	S = 4	4 = 0.4
5 = 125	T = 8	6 = 0.8
7§ = 232	W§ = 16	8§ = 1.6

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

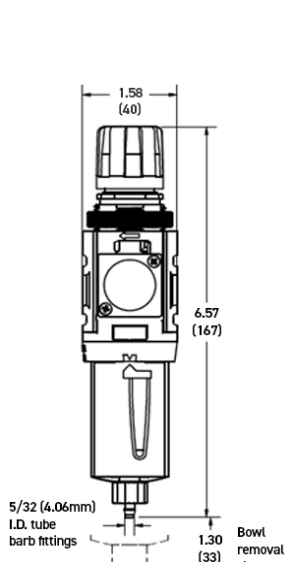
☐ Most popular.

Material Specifications

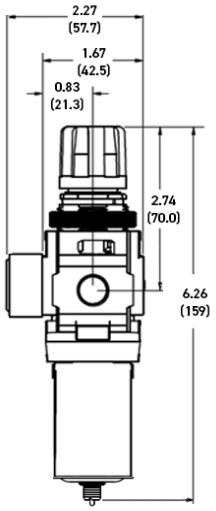
Body	Aluminum
Adjustment knob	Acetal
Bonnet	Glass-filled nylon
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Bowl guard	Nylon
Filter element	Polyethylene
Seals	Nitrile
Springs	Steel
Valve assembly	Acetal/Nitrile
Diaphragm assembly	Stainless steel/Nitrile
Panel nut	Acetal

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**
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**



Manual Drain



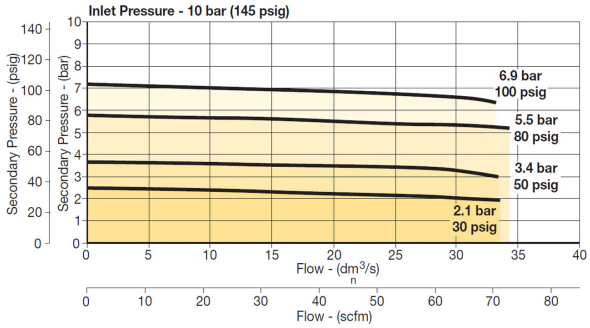
Pulse Drain

⚠ WARNING

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

Flow Charts

P31EB 1/4" Filter / Regulator



Gauges (*see note below)

Square flush mount gauge	0-60 psig	**P31KA060XB**
	0-160 psig	**P31KA160XB**
	0-290 psig	**P31KA290XB**
	0-4 bar	**P31KA04BXB**
	0-11 bar	**P31KA11BXB**
	0-20 bar	**P31KA20BXB**
	0-0.4 MPa	**P31KA04MXB**
	0-1.1 MPa	**P31KA11MXB**
	0-2.0 MPa	**P31KA20MXB**
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 / 1-4 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 / 0-11bar	**K4515N18160**
	0-60 psig	**P31KA060XB**

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

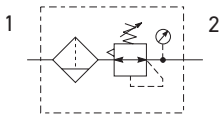
***For P31 Regulators with date code after November 2023 (4423 Date Code), please use these part numbers when ordering a replacement gauge.**

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.

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

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.
§ Not available with poly bowl with bowl guard.

☐ Most popular.

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

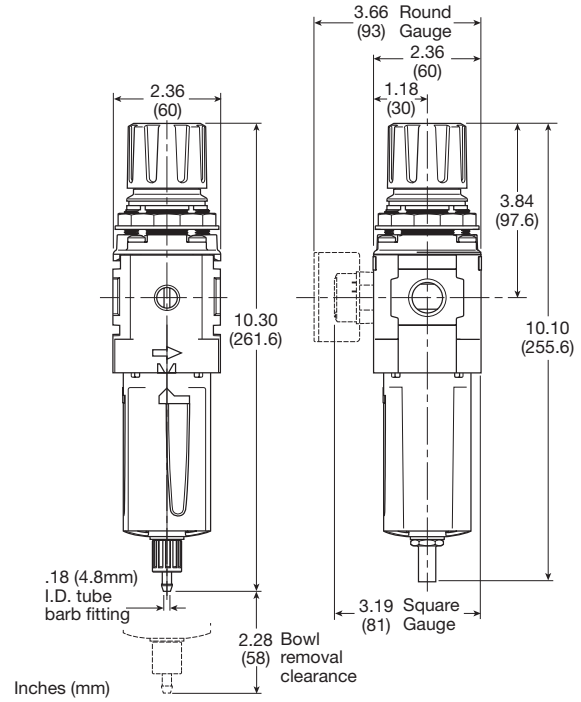
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

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

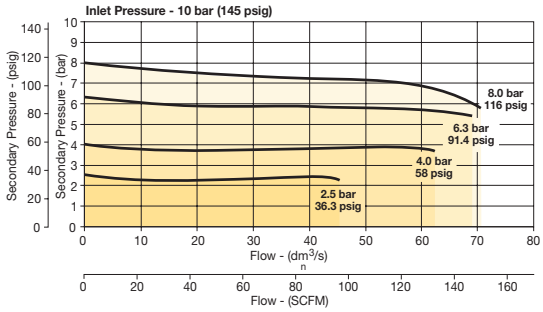
Plastic bowl / bowl guard manual drain	**P32KB00BGM**
Metal bowl / sight gauge manual drain	**P32KB00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P32KA00ESE**
Diaphragm repair kit - relieving	**P32KB00RB**
Diaphragm repair kit - non-relieving	**P32KB00RC**
Panel mount nut - aluminum	**P32KA00MM**
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**



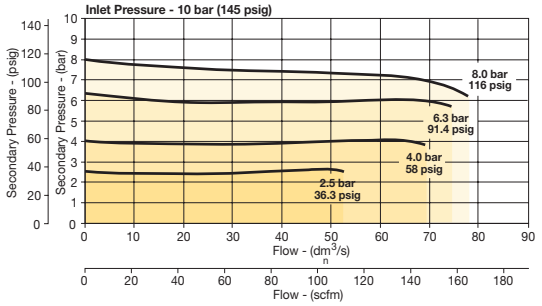
Manual Drain **Automatic Drain**

Flow Charts

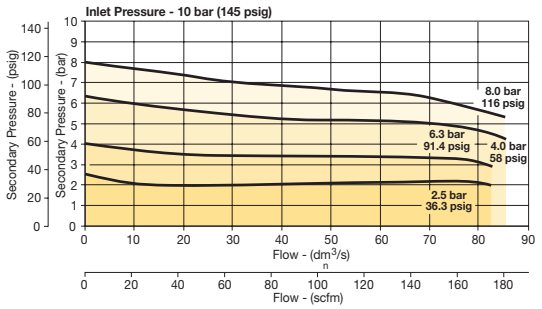
P32EB 1/4" Filter / Regulator



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.

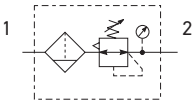
Gauges

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.

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:	1.17 lbs (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 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

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.
§ Not available with poly bowl with bowl guard.

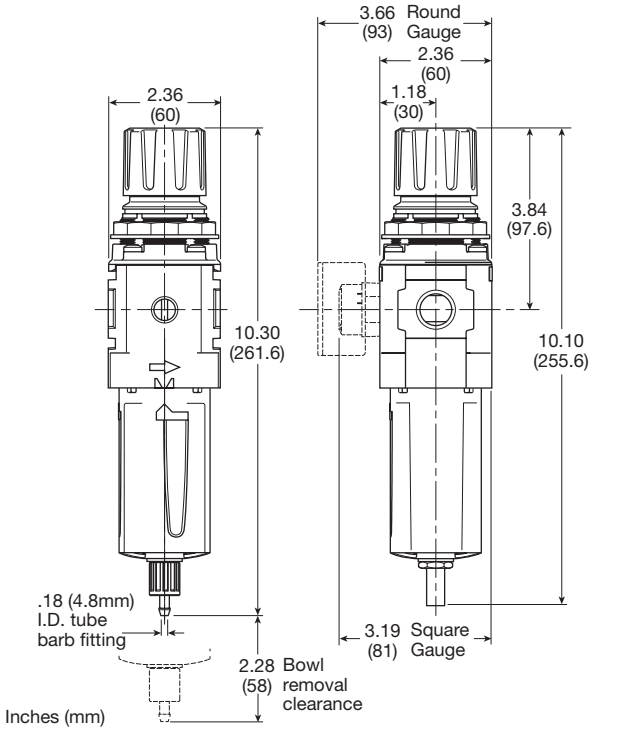
☐ Most popular.

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

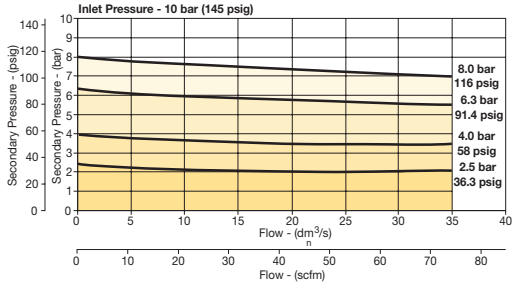
Plastic bowl / bowl guard manual drain	**P32KB00BGM**
Metal bowl / sight gauge manual drain	**P32KB00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P32KA00ESE**
Diaphragm repair kit - relieving	**P32KB00RB**
Diaphragm repair kit - non-relieving	**P32KB00RC**
Panel mount nut - aluminum	**P32KA00MM**
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**



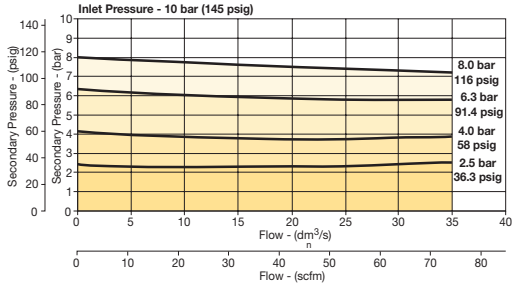
Manual Drain **Automatic Drain**

Flow Charts

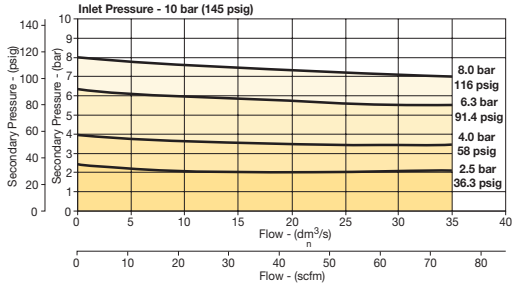
P32EB 1/4" Filter / Regulator



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.

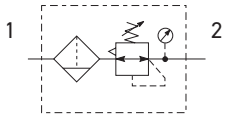
Gauges

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.

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 lb. (0.85 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:

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

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.

Mounting
P Plastic Panel Mount Nut

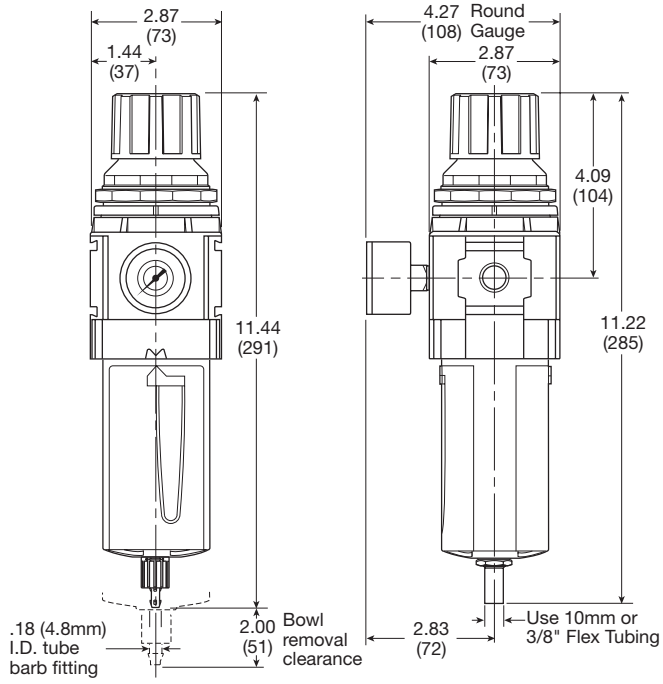
☐ Most popular.

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

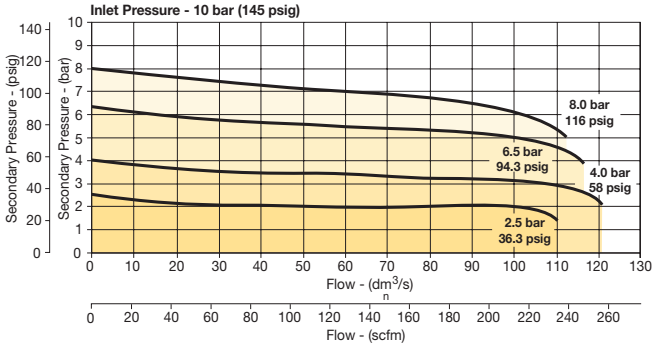
Plastic bowl / bowl guard, manual drain	**P33KA00BGM**
Metal bowl / sight gauge, manual drain	**P33KA00BSM**
Auto drain	**P32KA00DA**
5µ particle filter element	**P33KA00ESE**
Diaphragm repair kit - Relieving	**P33KA00RB**
Diaphragm repair kit - Non-relieving	**P33KA00RC**
Panel mount nut - Aluminum	**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**



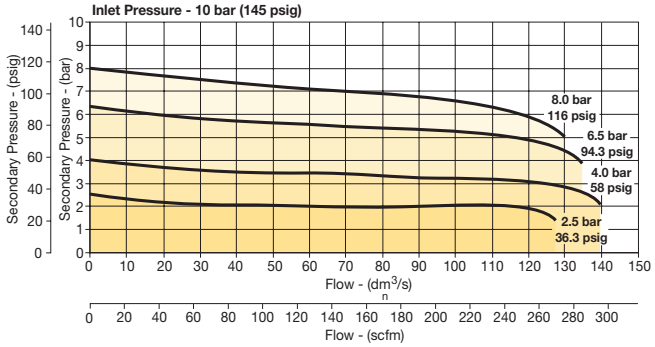
Manual Drain **Automatic Drain**

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.

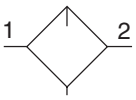
Gauges

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.

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 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:	0.6 US oz. (18 cm^3)
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.

Material Specifications

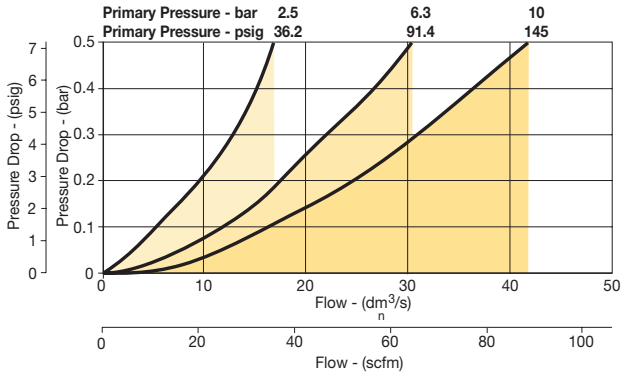
Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Seals	Nitrile
Sight dome	Polycarbonate
Suggested lubricant	ISO / ASTM VG32
Pick-up filter	Sintered bronze

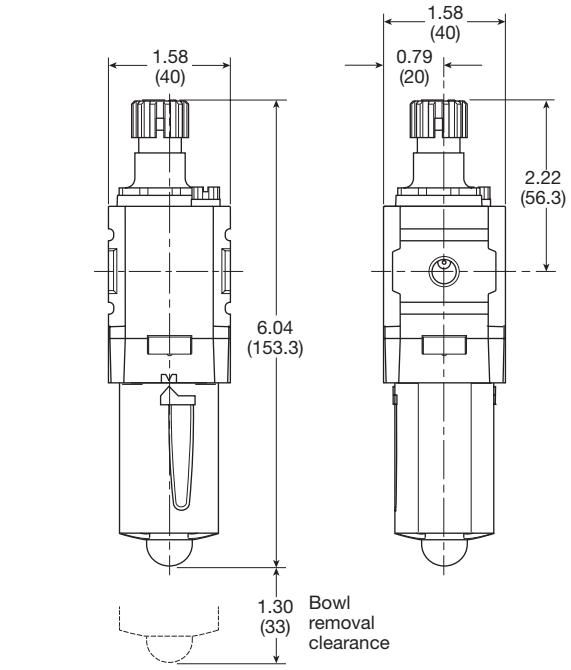
Repair and Service Kits

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

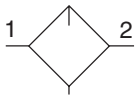




Inches (mm)

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.)

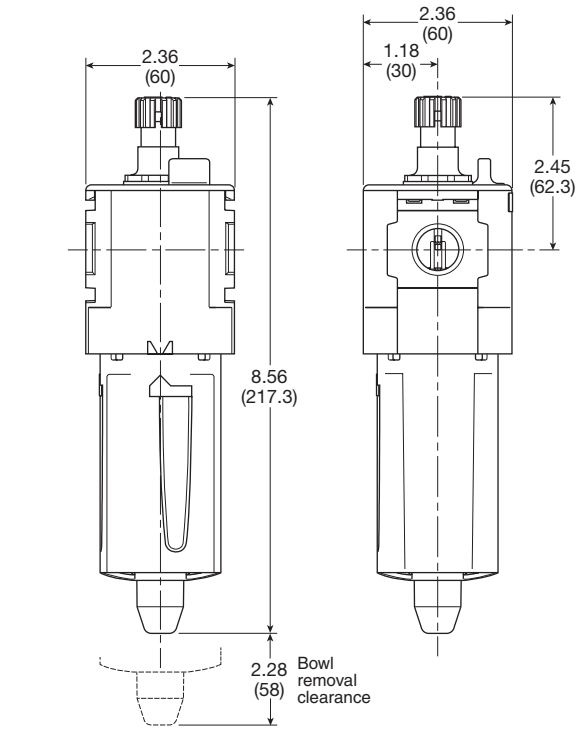
☐ Most popular.

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

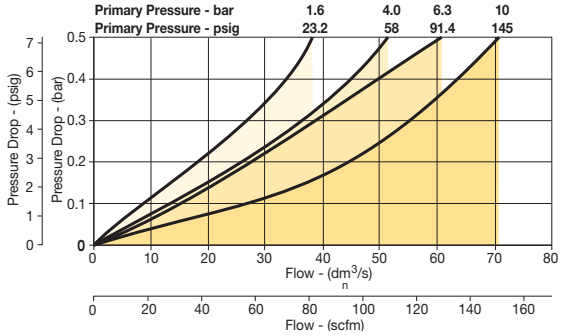
Plastic bowl / bowl guard no drain	**P32KB00BGN**
Metal bowl / w/o sight gauge no drain	**P32KB00BMN**
Metal bowl / Sight gauge no drain	**P32KB00BSN**
Drip control assembly	**P32KA00PG**
Fill plug	**P32KA00PL**
L-bracket (fits to body)	**P32KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket 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**



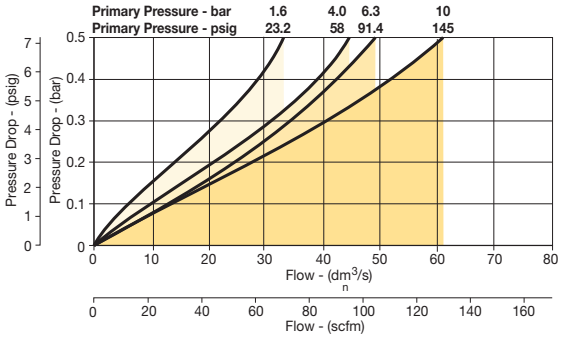
Inches (mm)

Flow Charts

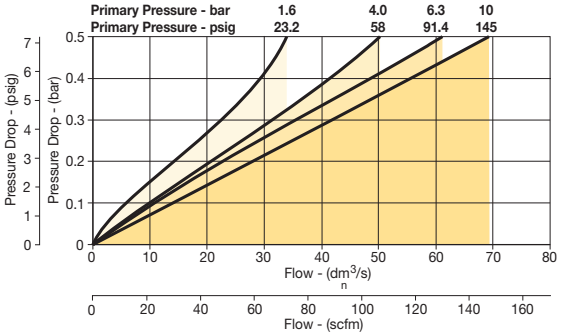
P32LB 1/4" Lubricator



P32LB 3/8" Lubricator

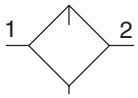


P32LB 1/2" Lubricator



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.

Material Specifications

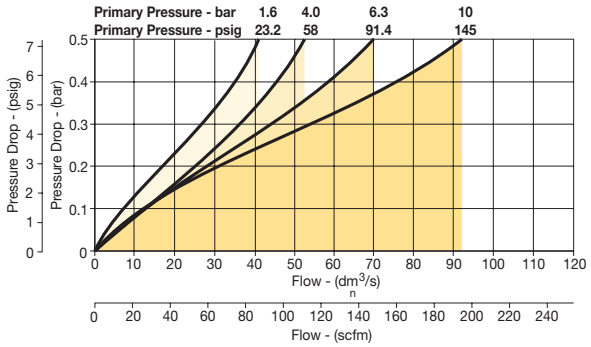
Body	Aluminum
Body cap	ABS
Plastic bowl	Polycarbonate
Metal bowl	Aluminum
Seals	Nitrile
Sight dome	Polycarbonate
Sight gauge	Nylon
Suggested lubricant	ISO / ASTM VG32
Pick-up filter	Sintered bronze

Repair and Service Kits

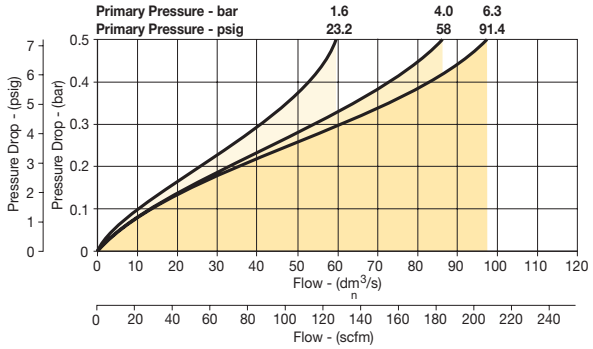
Plastic bowl / bowl guard no drain	**P33KA00BGN**
Metal bowl / w/o sight gauge no drain	**P33KA00BMN**
Metal bowl / sight gauge no drain	**P33KA00BSN**
Drip control assembly	**P32KA00PG**
Fill plug	**P32KA00PL**
L-bracket (fits to body)	**P33KA00ML**
T-bracket (fits to body connector)	**P32KA00MB**
T-bracket 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**

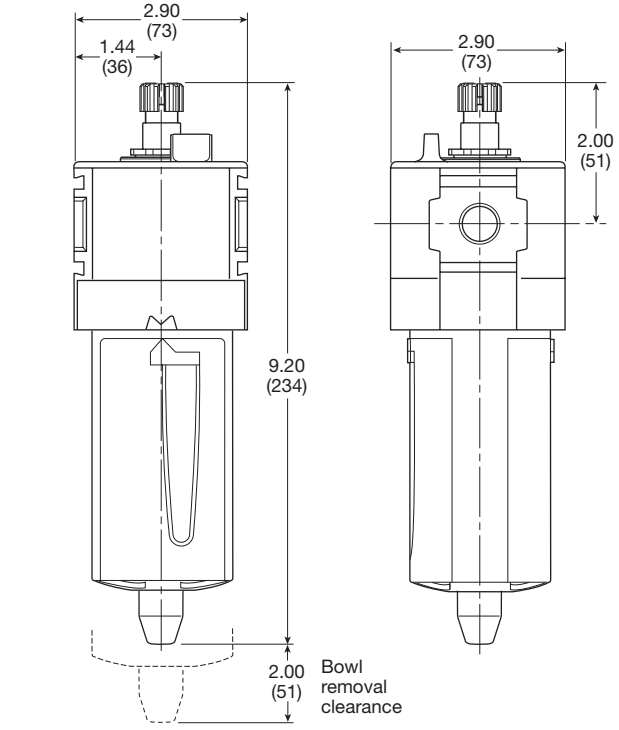
Flow Charts

P33LA 1/2" Lubricator



P33LA 3/4" Lubricator

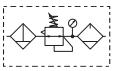




Inches (mm)

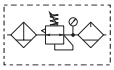
Popular Combinations: Inlet pressure 145 psig (10 bar), secondary pressure 100 psig (6.9 bar), 14.5 psig (1 bar) pressure drop.

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



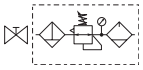
Port Size	Flow	Manual Drain	Pulse Drain
1/4"	27 scfm (13 dm³/s, ANR)	**P31CB92GEMN5LNW**	**P31CB92GEBN5LNW**

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)

P31	C	B	9	2	G	E	M	N	5	L	N	W
	Combination		**Thread Type**	**Port Size**		**Element**		**Relief / Adjustment**		**Lub Type**		**Mounting**
	B/V + Combination **Q**		BSPP **1**	1/4 **2**		5µ Element **E**		Non-Rising Knob **N**		Oil Mist Standard Sight Dome **L**		No Bracket **A**
	Combination + B/V **X**		BSPT **2**			0.01µ Element **C**						Port Blocks* **C**
	Combination **C**		NPT **9**			1µ Element **9**				**Drain Type**		Port Blocks & Wall Brkt* **D**
	B/V = Ball valve					Adsorber **A**				No Drain; Closed End **N**		Wall Bracket **W**
		Combination Type*				**Drain Type**		**Adjustment Range**				* For 3/8" Port Blocks please order separately. See Kits section.
		F+R+L **A** F+Fc+Fa **G**				Manual Drain **M**		**With Square Gauge**				
		F+R+L **B** F/R+Fc **M**				Pulse Drain **B**		**Psig:**				
		F+Fc **F**						30 psig* **1**				
								60 psig **3**				
								125 psig **5**				
								232 psig§ **7**				

Bar:		MPa:	
2 Bar*	**V**	0.2 MPa*	**2**
4 Bar	**S**	0.4 MPa	**4**
8 Bar	**T**	0.8 MPa	**6**
16 Bar§	**W**	0.8 MPa§	**8**

* 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.

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

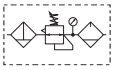
§ Not available with poly bowl with bowl guard.

Gauge supplied with every part. Gauge can be installed on the front or back of the regulator. If no gauge is installed, both seal screws must be installed.

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

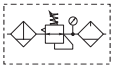
Popular Combinations: Inlet pressure 145 psig (10 bar), secondary pressure 91.3 psig (6.3 bar), 14.5 psig (1 bar) pressure drop.

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



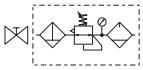
Port Size	Flow	Manual Drain	Auto Drain
1/4"	42 scfm (20 dm³/s, ANR)	**P32CB92GEMNGLNW**	**P32CB92GEANGLNW**
3/8"	68 scfm (32 dm³/s, ANR)	**P32CB93GEMNGLNW**	**P32CB93GEANGLNW**
1/2"	85 scfm (40 dm³/s, ANR)	**P32CB94GEMNGLNW**	**P32CB94GEANGLNW**

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



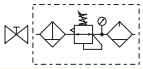
Port Size	Flow	Manual Drain	Auto Drain
1/4"	45 scfm (22 dm³/s, ANR)	**P32CA92GEMNGLNW**	**P32CA92GEANGLNW**
3/8"	70 scfm (33 dm³/s, ANR)	**P32CA93GEMNGLNW**	**P32CA93GEANGLNW**
1/2"	90 scfm (43 dm³/s, ANR)	**P32CA94GEMNGLNW**	**P32CA94GEANGLNW**

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	E	M	N	G	L	N	W

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.

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

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		With Square Gauge		
		psig	bar	
30 psig; 2 bar; 0.2 MPa	Y			
60 psig; 4 bar; 0.4 MPa	L	30* = 1	2* = V	
125 psig; 8 bar; 0.8 MPa	N	60 = 3	4 = S	
250 psig; 17 bar; 1.7 MPa§	H	125 = 5	8 = T	

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

§ Not available with poly bowl with bowl guard.

Lub Type

Oil Mist Standard Sight Dome	L

Drain Type

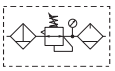
No Drain; Closed End	N

Mounting

No Bracket	A
Port Blocks	C
Port Blocks & Wall Brkt	D
Wall Bracket	W

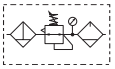
Popular Combinations: Inlet pressure 145 psig (10 bar), secondary pressure 91.3 psig (6.3 bar), 14.5 psig (1 bar) pressure drop.

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



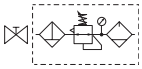
Port Size	Flow	Manual Drain	Auto Drain
1/2"	90 scfm (43 dm³/s, ANR)	**P33CB94GEMNGLNW**	**P33CB94GEANGLNW**
3/4"	110 scfm (52 dm³/s, ANR)	**P33CB96GEMNGLNW**	**P33CB96GEANGLNW**

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



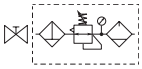
Port Size	Flow	Manual Drain	Auto Drain
1/2"	110 scfm (52 dm³/s, ANR)	**P33CA94GEMNGLNW**	**P33CA94GEANGLNW**
3/4"	150 scfm (71 dm³/s, ANR)	**P33CA96GEMNGLNW**	**P33CA96GEANGLNW**

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 | E M | N G | L N | W

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.

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

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.

Lub Type

Oil Mist Standard Sight Dome	L

Drain Type

No Drain; Closed End	N

Mounting

No Bracket	A
Port Blocks	C
Port Blocks & Wall Brkt	D
Wall Bracket	W

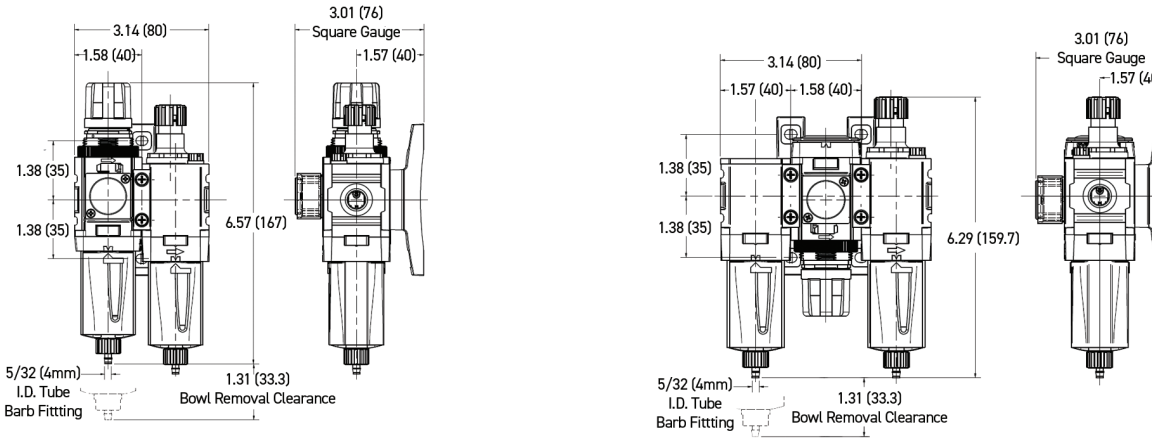
For inventory, lead times, and kit lookup, visit www.pdnplu.com

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

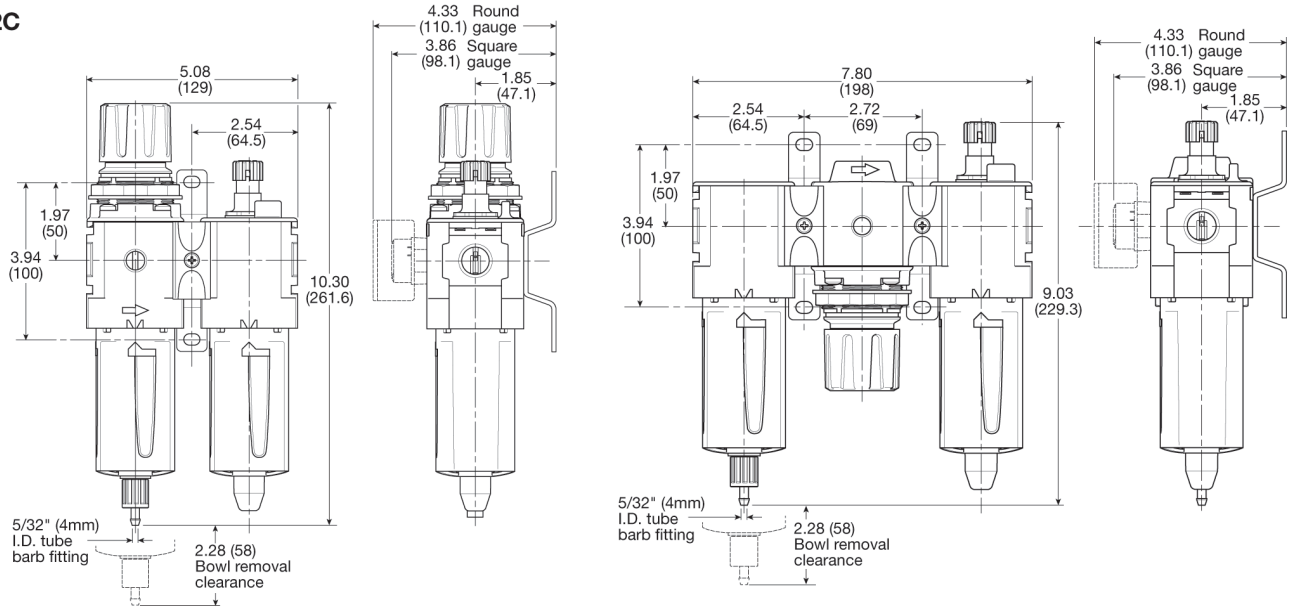
Popular Combination Dimensions

inches (mm)

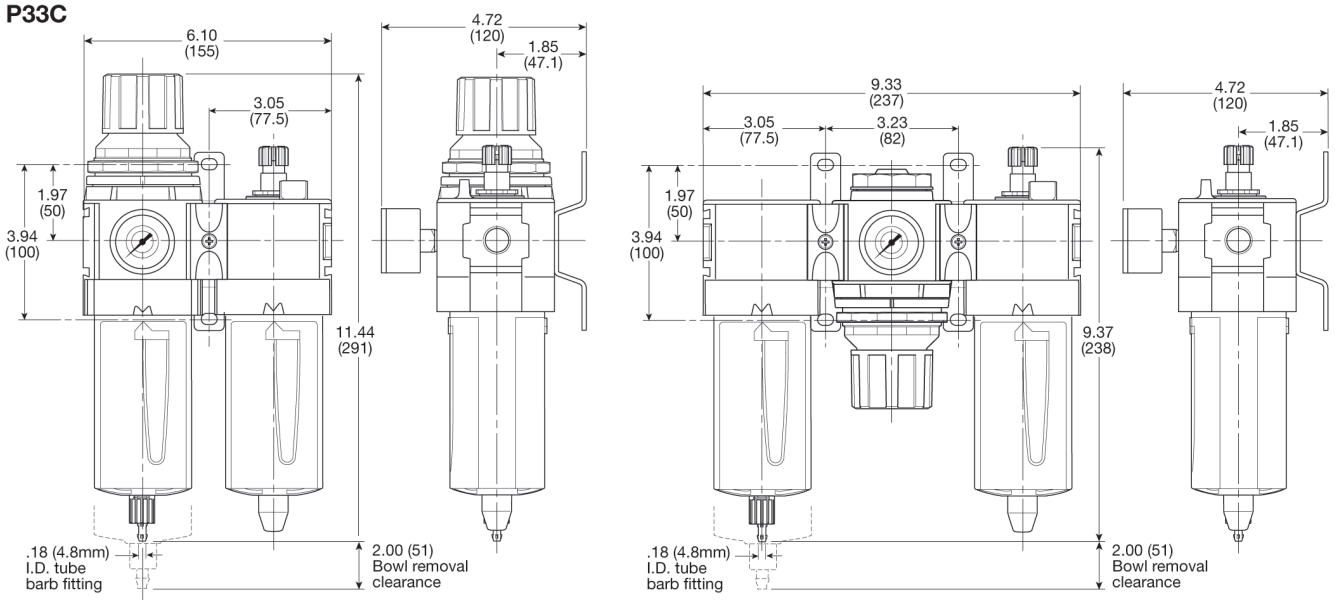
P31C



P32C

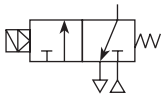


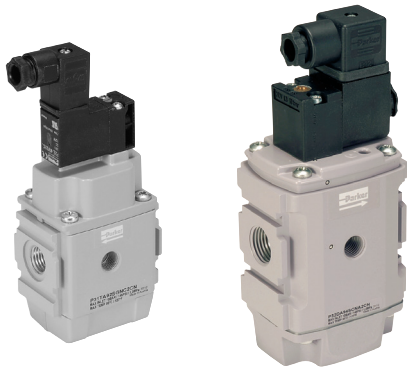
P33C



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** | **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 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 Override
3GN	120VAC Non Locking Manual Override
1FN	120VAC Non Locking Manual Override (P31 series only)

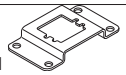
Note:
P32 unit used for both P32 & P33 series

☐ Most popular.

Material Specifications

Body	Aluminum
Body cover	Polyester
Seals	Nitrile NBR

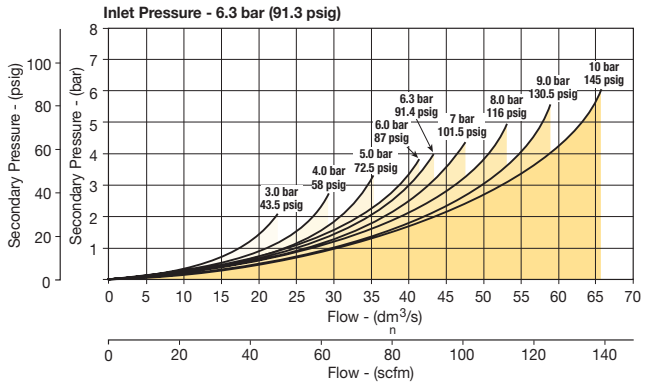
Mounting Brackets

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

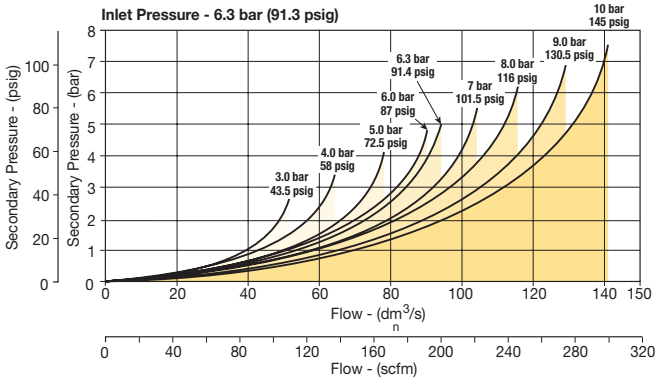
Note:
For solenoid operators and cable plugs (connectors) see pages 87 and 88.

Flow Charts

P31DA 1/4" Remote Dump Valve

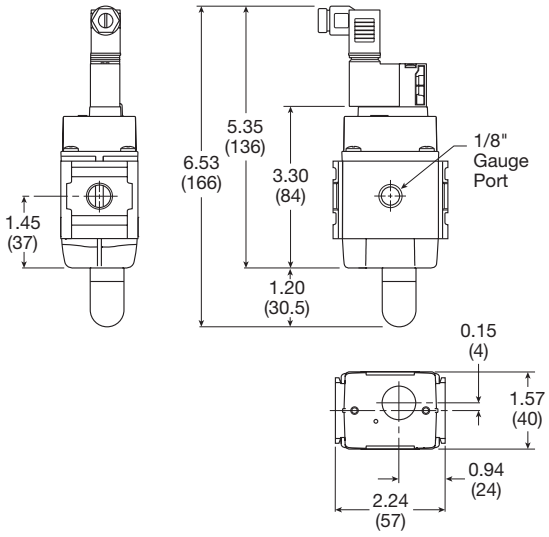


P32DA 1/2" Remote Dump Valve

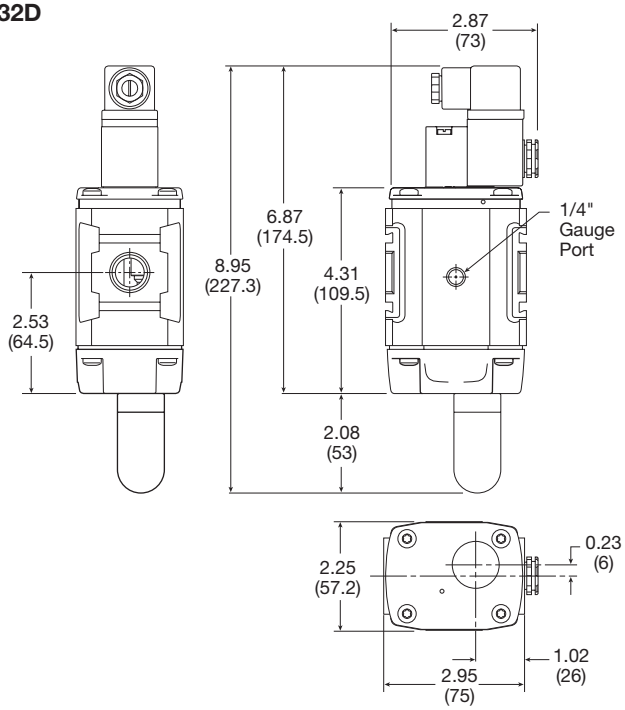


Dimensions inches (mm)

P31D



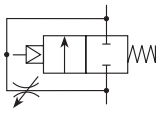
P32D

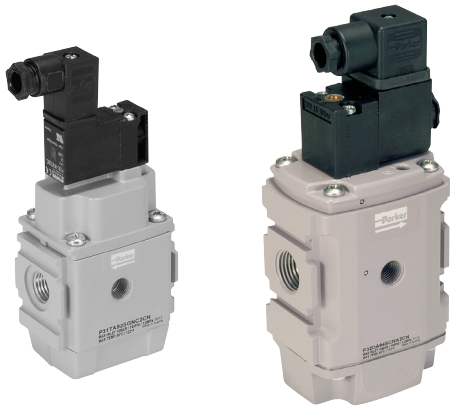


Most popular.

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 (17 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

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 Override
3GN	120VAC Non Locking Manual Override
1FN	120VAC Non Locking Manual Override (P31 series only)

Note:
P32 unit used for both P32 & P33 series

☐ Most popular.

Material Specifications

Body	Aluminum
Body cover	Polyester
Seals	Nitrile NBR

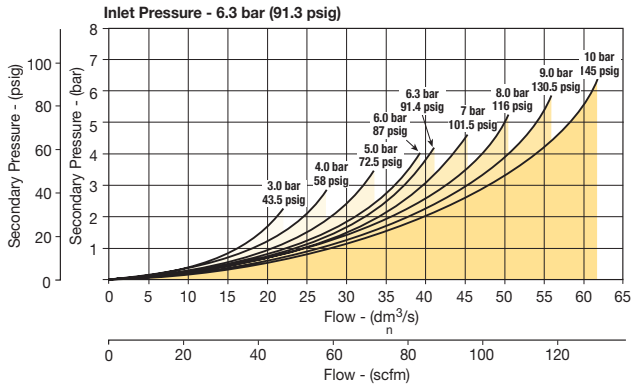
Service Kits

P31S	L-bracket mounting kit	**P3HKA00ML**
	Foot bracket mounting kit	**P3HKA00MC**
P32S	L-bracket mounting kit	**P3KKA00ML**
	Foot bracket mounting kit	**P3KKA00MC**

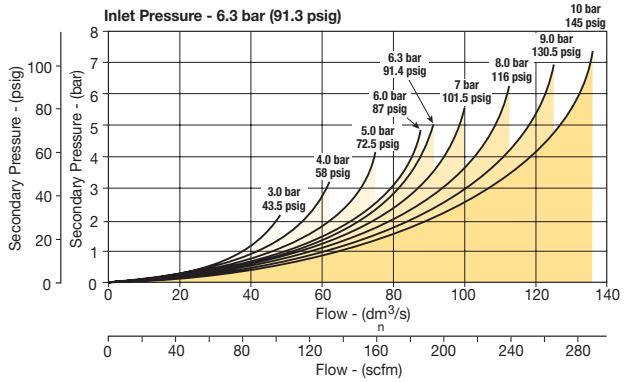
Note:
For solenoid operators and cable plugs (connectors) see pages 87 and 88.

Flow Charts

P31SA 1/4" Soft Start Valve

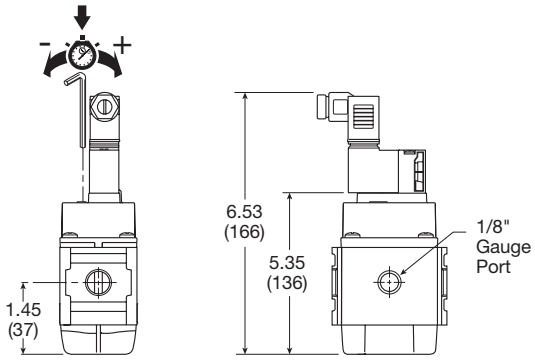


P32SA 1/2" Soft Start Valve

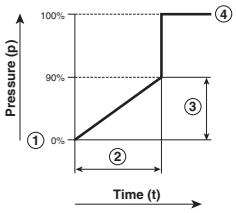


Dimensions inches (mm)

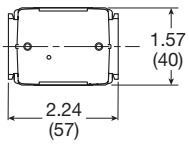
P31S



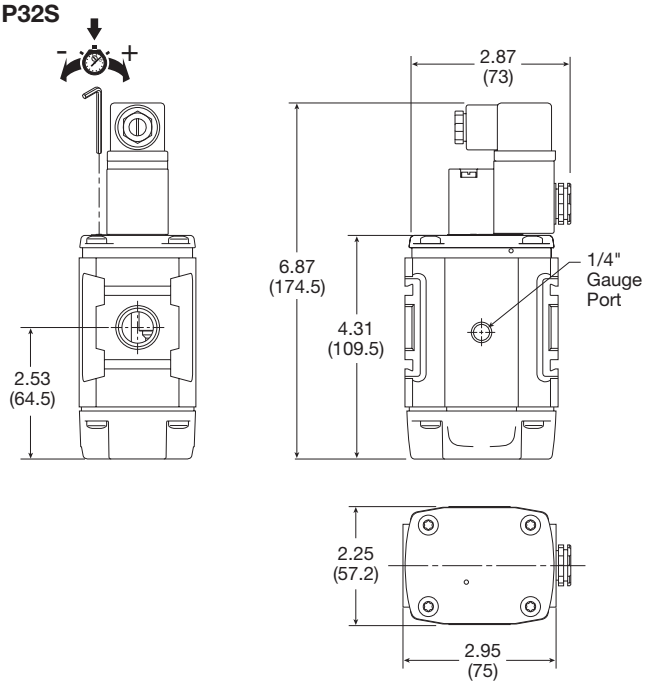
Soft Start Function:



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

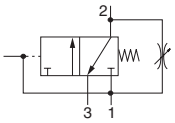


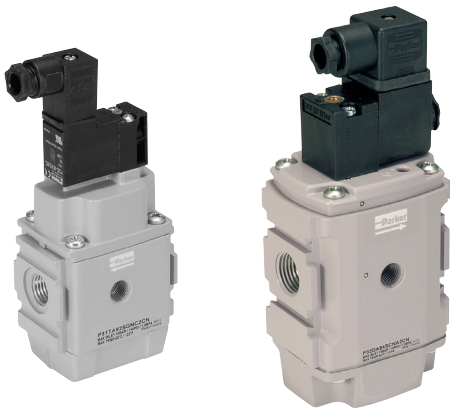
P32S



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	97 scfm (46 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	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 Override
3GN	120VAC Non Locking Manual Override
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

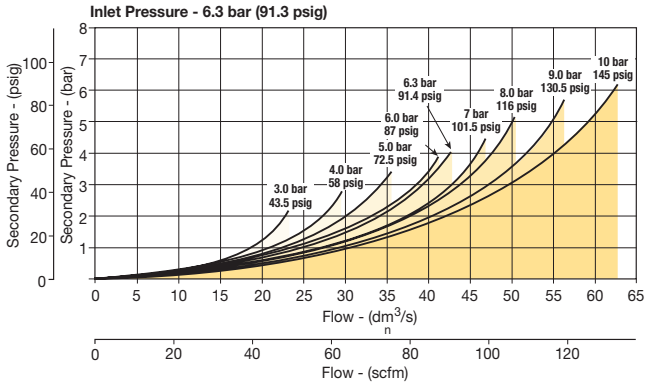
Service Kits

P31T	L-bracket mounting kit	**P3HKA00ML**
	Foot bracket mounting kit	**P3HKA00MC**
P32T	L-bracket mounting kit	**P3KKA00ML**
	Foot bracket mounting kit	**P3KKA00MC**

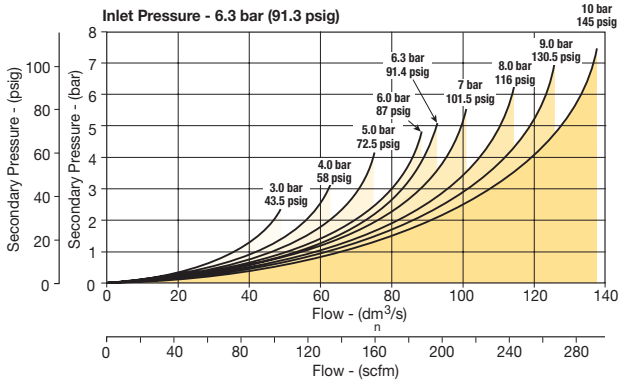
Note:
For solenoid operators and cable plugs (connectors) see pages 87 and 88.

Flow Charts

P31TA 1/4" Soft Start & Dump Valve

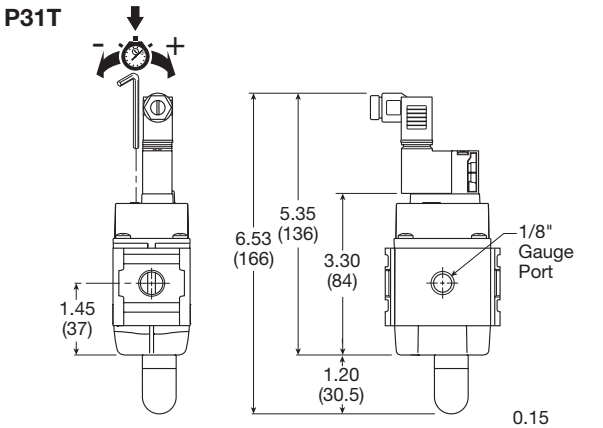


P32TA 1/2" Soft Start & Dump Valve

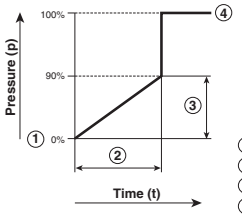


Dimensions inches (mm)

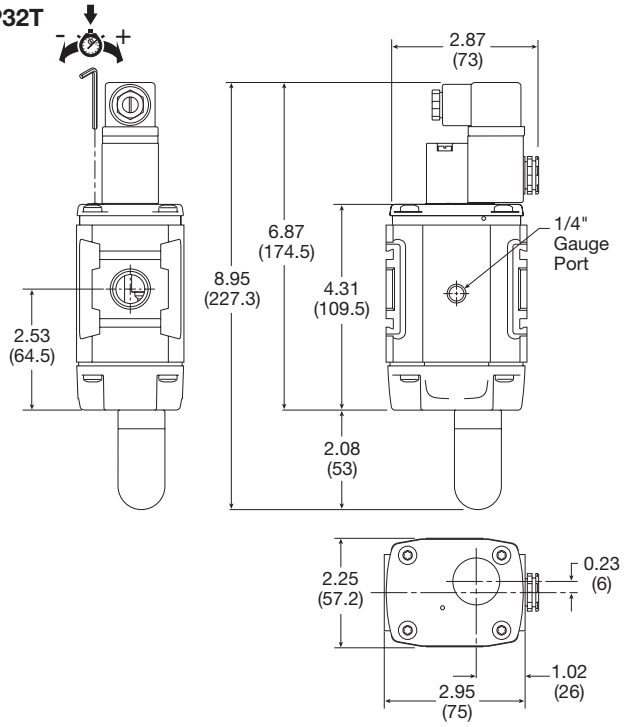
P31T



Soft Start Function:

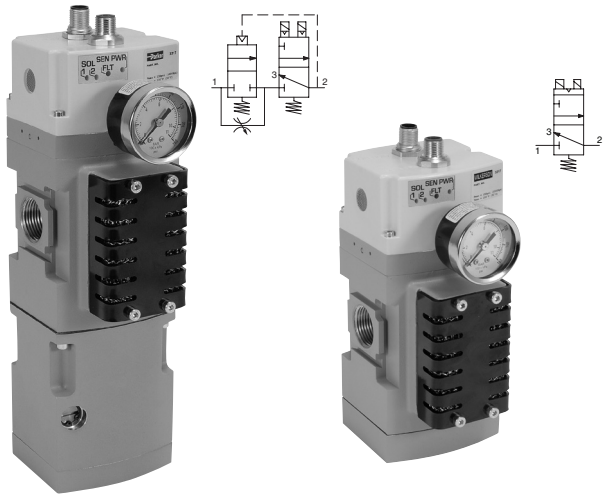


P32T



P33D & P33T Safety Exhaust Valves

- Easy electrical interface with M12 connectors to safety circuit
- External monitoring provides a cost and space saving advantage
- Solid state pressure sensors provide accurate, fast fault detection
- Quick visual LED indicators on the front of the valve
- Superior seated seal design for longer life
- Safety exhaust outlet is no-maintenance and non-clog by design
- Suitable for stand alone use or modular mounting to P32 or P33 FRL assembly
- High B10 life value
- Fast exhaust times allow for smaller machine footprint



(optional soft start)

Operating Information

Operating pressure:	30 to 150 PSIG (2 to 10 bar)
Minimum operating pressure:	30 PSIG (2 bar)
Ambient temperature:	40° to 120°F (4° to 50°C)
Recommended filtration:	40µ
Operating medium:	Compressed air
Ingress protection class:	IP65
B10 (mio):	10 million switching cycles
B10 d (mio):	20 million switching cycles
Allowable discordance:	150ms
Flow media:	Compresses air to ISO 8573-1 Class 7:4:4
Weight lbs (kg):	6.5 (2.9) with soft start 4.2 (1.9) without soft start

The soft start opens to full flow at approximately 60% of input pressure.

Ordering Information:

P3	3	T	B	1	6	A	B	E	N

Series

Standard	P3

Global

Standard	3

Type

Safety Redundant (no soft start)	D
Safety Redundant (c/w soft start)	T

Design

Current	B

Thread Type

BSPP	1
NPT	9

Port Size

3/4" [1]	6

Output for Solenoid, M12 Connector Pin

2 & 4, Common 3	A
3 & 4	C
2 & 4	D

Output for Sensors, M12 Connector Pin

1 & 2, 1 & 4, Common 3	A
1 & 2, 5 & 4, Common 3	B
5 & 2, 1 & 4, Common 3	C

Sensor Monitoring

External	E

Gauge [2]

No Gauge	N
Dial Gauge [3] (standard)	G
Digital Gauge [3]	D
MPS-P34 Pressure Sensor	M

Notes:
1. For 1/2" connections use 1/2" port blocks on standard 3/4" housing.
2. Safety valve supplied with 1/8" gauge port in either BSPP or NPT threads as specified for ports. Gauges shipped loose.
3. Dial or digital gauge not available on BSPP version.

Note: Mounting hardware and port blocks are sold separately.

☐ Most popular.

General Technical Data

Valve type	Externally monitored, redundant, dual poppet
Soft start	Optional
Valve function	3/2 way, normally closed
Housing material	Cast aluminum
Seals	NBR
Fasteners	Stainless steel / brass
Silencer	Steel, non clog safety design

Electrical Specifications

Operating voltage	24V DC
Electrical connection	Two M12 connectors
Switching time 1-2 (ms)	23.3
Switching time 2-3 (ms)	42.7
Duty cycle (%)	100%
Operating voltage (DC)	21.6 to 26.4
Nominal power	
per solenoid coil at 24V DC (W) +/- 10%	1.2 W
per pressure sensor at 24V DC	1.2 W

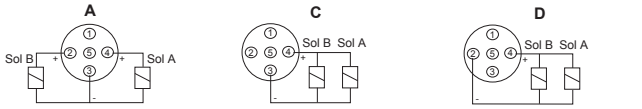
In accordance with EN ISO 13849-1 this safety valve is suitable for use up to Category 4, Ple, sil 3. Certified to cCSAus and bears the CE mark.

A product Integration Guide is available to help connect your logic controller to the Parker Safety Exhaust Valve under the Product Support tab at www.parker.com/pdn/safetyvalve

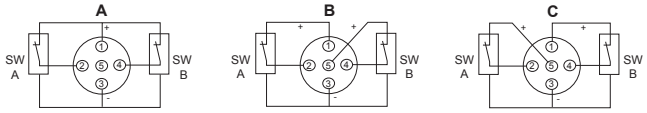
Mounting Hardware

Body Connector		**P32KA00CB**
T-Bracket w / Body Connector		**P32KA00MT**
T-Bracket (fits to body connector or port block)		**P32KA00MB**
Port Block Kits (includes two)	1/2" NPT	**P32KA94CP**
	1/2" BSPT	**P32KA24CP**
	1/2" BSPP	**P32KA14CP**
	3/4" NPT	**P32KA96CP**
	3/4" BSPT	**P32KA26CP**
	3/4" BSPP	**P32KA16CP**

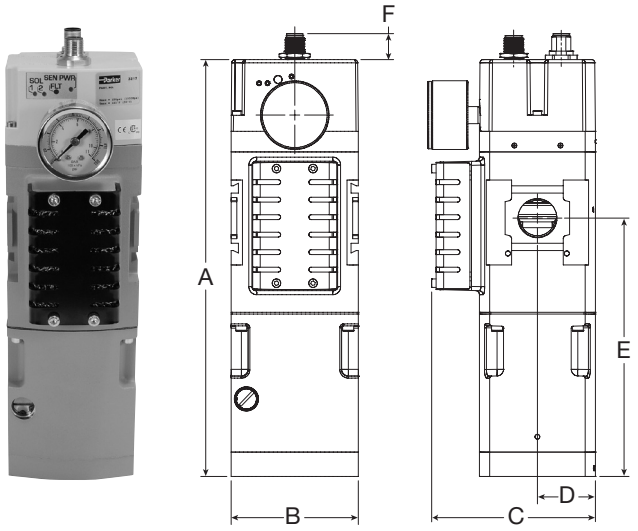
Solenoid M12 Pinouts



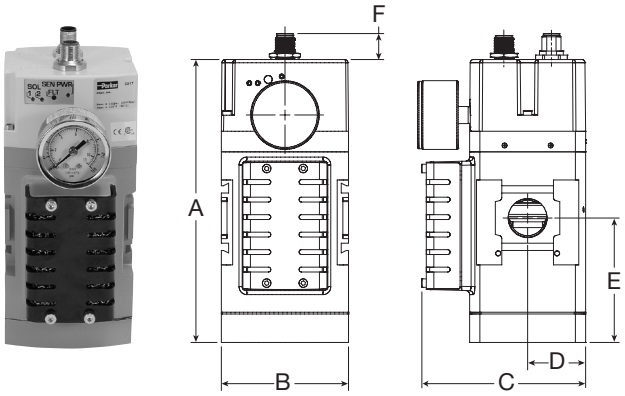
Pressure Sensor M12 Pinouts



Externally Monitored (with Soft Start)



Externally Monitored (No Soft Start)



Dimensions inches (mm)

	Ports	Standard nominal flow rate 1 → 2 L/min (SCFM)*	Standard nominal flow rate 2 → 3 L/min (SCFM)*	A	B	C	D	E	F
Externally Monitored with soft start	3/4"	4,100 (145)	7,500 (265)	10.31 (261.9)	3.15 (80)	4.30 (109.3)	1.44 (36.5)	6.39 (162.3)	0.64 (16.3)
Externally Monitored no soft start	3/4"	4,300 (152)	7,500 (265)	7.03 (178.7)	3.15 (80)	4.30 (109.3)	1.44 (36.5)	3.11 (79.0)	0.64 (16.3)

* Standard nominal flow rate is based on 6 bar input pressure with ΔP = 1 bar

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

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

Safety Exhaust Valve Function

When applications demand a safe environment you can count on safety valves from Parker Hannifin. The P33 family of safety exhaust valves are 3/2 normally closed valves designed to rapidly exhaust compressed air in the event of a fault condition and to provided monitored coverage ensuring safe function. The P33 is available in two distinct styles, internally* or externally monitored. The valve is suitable for use up to Category 4, performance level e. Monitoring is achieved externally via a two channel system connected to a safety interface device. Both valves are available with an adjustable soft start and high flow exhaust to shut your equipment down faster when needed. LED's provide clear status of main solenoid operation, sensor power and fault condition for quick visual reference.

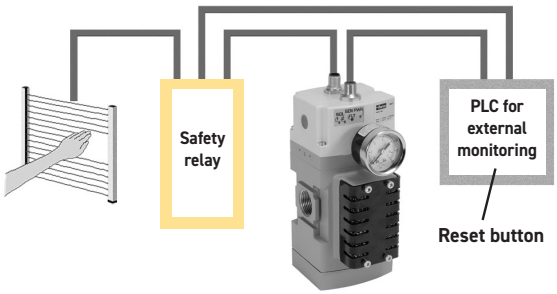
Externally Monitored Valve, Faults and Resets

The externally monitored valve has the monitoring done via a PLC or relay which offers a size and cost advantage over internally monitored valves. The integration of a safety interface into the PLC or relay will help determined the achievable category and performance level of the control system. Customers are required to provide the logic function via the safety device. The valve will lock-out to the "safe state" if asynchronous movement of the valve elements occur which will be detected by solid state pressure sensors. To achieve the proper safety rating, the safety PLC or relay must monitor the solid state pressure sensors to ensure they are not in different states for more than 150ms. If the sensors are in different states for longer than 150ms then the programming logic must shut off power to the solenoids and consider it a fault condition. If during operation the externally monitored P33 enters a fault condition the valve will shut off. A separate reset signal must be incorporated into the logic sequence to avoid automatic restart of the valve. The safety exhaust valves are not for use with clutch or brake applications and are designed for use in conjunction with a safety relay or safety PLC for safe monitoring and fault detection.

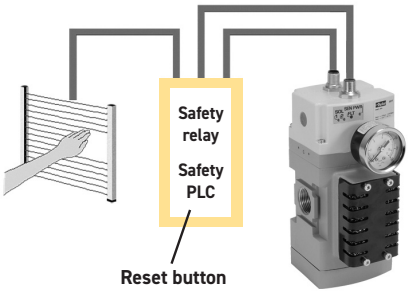
Achieving Desired Performance Level **

The category and performance level (PLr) needed for your machine is determined by a risk assessment of the machinery design and application based on EN ISO 13849-1. The Parker P33 safety valve is designed for those applications requiring a PL of d or e. Please note these levels require other aspects of the system to meet these requirements. As a guide: you can achieve a Cat 4 PL e system by integrating monitoring via a programmable safety rated device. Because the P33 is a mechanical fail-safe device, the monitoring could also be done via a standard PLC and still attain as high as a PL d rating.

Cat 3, PL d

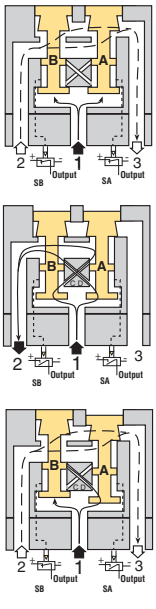


Cat 4, PL e



* For information on internally monitored safety valves reference Bulletin 0700-B13.

** An integration guide is available to provide further information on connecting the safety valve product to achieve the desired performance level. Please consult Parker and the standard EN ISO 13849-1 for more information.



Conditions at Start

The Safety exhaust valve starts with inlet 1 closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pressure signals at both sensors SA and SB are exhausted and contacts 1 and 2 of sensors SA and SB are connected. The normally closed sensors both provide voltage feedback signals to the external monitoring system.

Normal Operation

During normal operation the two solenoids are simultaneously energized which actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Sensing pressure signals go to each pressure sensor and become equal to inlet pressure. Both sensors contacts open and no voltage signals are provided to the external monitoring system. This indicates that both sides of the valve actuated as expected.

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A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2% of inlet pressure. Full sensing air pressure from side A goes to sensor SA, and a reduced pressure goes to sensor SB. This full pressure signal causes SA to open. Sensor SB, with a reduced pressure signal, does not open. An external monitoring system can detect the malfunction by monitoring the outputs of the SA and SB sensors. The external monitor system must then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.

Machinery Directive - Overview

The Machinery Directives' goal is to protect people and the environment from accidents caused from all types of machinery. Based on the standard EN 13849 [safety of machines; safety-related parts of control systems] these standards build the procedure to assess safety-related control systems.

Required Performance Level (PLr) based on a risk assessment are now commonly used to determine the safety level required for the controls system, for the application of machinery.

Performance Level (PL) based on the original B, 1,2,3,4 safety categories, diagnostic capabilities, Mean time to dangerous failure (MTTFd), and common cause failure (CCF), define safety levels of a given safety function. This ensures that safety is not just focused on component reliability, but instead introduces common sense safety principles such as redundancy, diversity, and fail-safe behavior of safety related control parts.

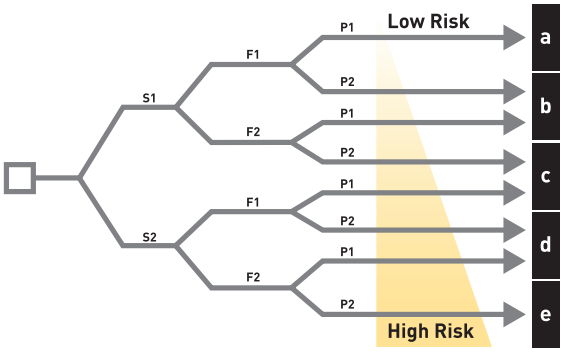
The new EN 13849 standards of the Machinery Directive dictates the machine is safe when the Performance Level of the safety control circuit is equal to or greater than the Required Performance Level of the application. When determining the required performance level, the greater the risk, the higher the requirements of the control system.

$$PLr < PL$$

$$=$$

Determining PLr According to EN 13849-1

The level of each hazardous situation is classified in five Performance levels from a to e. With PL a the control functions contribution to risk reduction is low, while at PL e it is high. The risk graph above can be used as a guideline to determine the required performance level PLr for safety function.



Risk Parameters

(S) Severity of injury

- **S1 Slight (normally reversible injury)**
- **S2 Serious (normally irreversible injury, or death)**

(F) Frequency and / or duration of exposure to hazard

- **F1 Seldom to less often and / or brief**
- **F2 Frequent to continuous and / or long**

(P) Possibility of avoiding the hazard

- **P1 Possibility of avoiding the hazard**
- **P2 Scarcely ever possible**

Determining PL According to EN 13849-1

Determining the $MTTF_d$ = Mean Time To Dangerous Failure

Determining the PL = Performance Level

a									$10^{-5} \le PFH_d < 10^{-4}$
b								1	$3 \times 10^{-6} \le PFH_d < 10^{-5}$
c									$10^{-6} \le PFH_d < 3 \times 10^{-6}$
d								2	$10^{-7} \le PFH_d < 10^{-6}$
e								3	$10^{-8} \le PFH_d < 10^{-7}$
	DC < 60% None	DC < 60% None	60% ≤ DC < 90% Low	90% ≤ DC < 99% Medium	60% ≤ DC < 90% Low	90% ≤ DC < 99% Medium	99% ≤ DC High		
	Cat. B	Cat. 1	Cat. 2		Cat. 3		Cat. 4		
	CCF not relevant		CCF ≥ 65%						

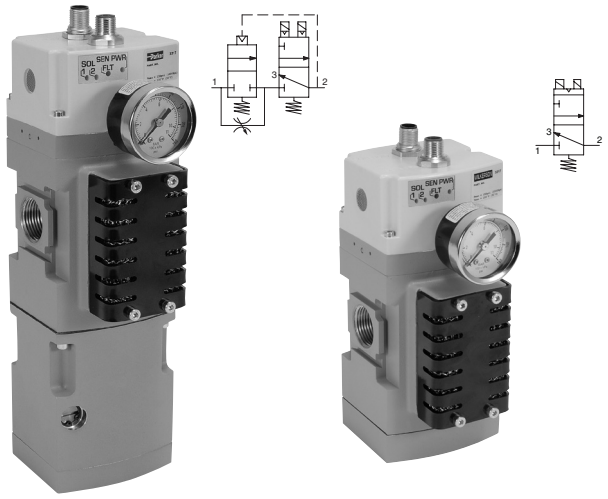
Determining the SIL = Safety Integrity Level

Categories Defined by EN 13849-1

Category	Summary
Category B	When a fault occurs it can lead to the loss of the safety function.
Category 1	Same that Category B, but loss of the safety function is less likely thanks to a good MTTFd of each channel.
Category 2	System behavior allow that the occurrence of a fault can lead to the loss of the safety function between the checks; the loss of the safety function is detected by the check.
Category 3	A single fault in any of safety related parts does not lead to the loss of the safety function. Whenever reasonably possible the single fault shall be detected at or before the next demand upon the safety function. (Means redundancy)
Category 4	Same as Category 3, but if detection of single fault is not possible on or before the next demand upon the safety, an accumulation of these undetected faults shall not lead to the loss of the safety function. (Means redundancy & check)

P33D & P33T Safety Exhaust Valves

- Easy electrical interface with M12 connectors to safety circuit
- External monitoring provides a cost and space saving advantage
- Solid state pressure sensors provide accurate, fast fault detection
- Quick visual LED indicators on the front of the valve
- Superior seated seal design for longer life
- Safety exhaust outlet is no-maintenance and non-clog by design
- Suitable for stand alone use or modular mounting to P32 or P33 FRL assembly
- High B10 life value
- Fast exhaust times allow for smaller machine footprint



(optional soft start)

Operating information

Operating pressure:	30 to 150 PSIG (2 to 10 bar)
Minimum operating pressure:	30 PSIG (2 bar)
Ambient temperature:	40° to 120°F (4° to 50°C)
Recommended filtration:	40µ
Operating medium:	Compressed air
Ingress protection class:	IP65
B10 (mio):	10 million switching cycles
B10 d (mio):	20 million switching cycles
Allowable discordance:	150ms
Flow media:	Compresses air to ISO 8573-1 Class 7:4:4
Weight lbs (kg):	6.5 (2.9) with soft start 4.2 (1.9) without soft start

The soft start opens to full flow at approximately 60% of input pressure.

Ordering Information:

P3	3	T	B	1	6	A	B	E	N

Series

Standard	P3

Global

Standard	3

Type

Safety Redundant (no soft start)	D
Safety Redundant (c/w soft start)	T

Design

Current	B

Thread Type

BSPP	1
NPT	9

Port Size

3/4" [1]	6

Output for Solenoid, M12 Connector Pin

2 & 4, Common 3	A
3 & 4	C
2 & 4	D

Output for Sensors, M12 Connector Pin

1 & 2, 1 & 4, Common 3	A
1 & 2, 5 & 4, Common 3	B
5 & 2, 1 & 4, Common 3	C

Sensor Monitoring

External	E

Gauge [2]

No Gauge	N
Dial Gauge [3] (standard)	G
Digital Gauge [3]	D
MPS-P34 Pressure Sensor	M

Notes:
1. For 1/2" connections use 1/2" port blocks on standard 3/4" housing.
2. Safety valve supplied with 1/8" gauge port in either BSPP or NPT threads as specified for ports. Gauges shipped loose.
3. Dial or digital gauge not available on BSPP version.

Note: Mounting hardware and port blocks are sold separately.

☐ Most popular.

General Technical Data

Valve type	Externally monitored, redundant, dual poppet
Soft start	Optional
Valve function	3/2 way, normally closed
Housing material	Cast aluminum
Seals	NBR
Fasteners	Stainless steel / brass
Silencer	Steel, non clog safety design

Electrical Specifications

Operating voltage 24V DC	
Electrical connection Two M12 connectors	
Switching time 1-2 (ms)	23.3
Switching time 2-3 (ms)	42.7
Duty cycle (%)	100%
Operating voltage (DC)	21.6 to 26.4
Nominal power	
per solenoid coil at 24V DC (W) +/- 10%	1.2 W
per pressure sensor at 24V DC	1.2 W

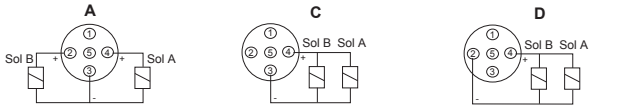
In accordance with EN ISO 13849-1 this safety valve is suitable for use up to Category 4, Ple, sil 3. Certified to cCSAus and bears the CE mark.

A product Integration Guide is available to help connect your logic controller to the Parker Safety Exhaust Valve under the Product Support tab at www.parker.com/pdn/safetyvalve

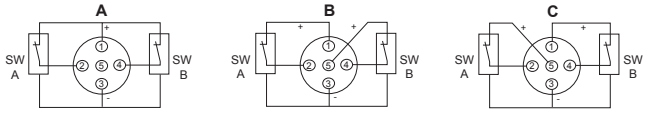
Mounting Hardware

Body Connector		**P32KA00CB**
T-Bracket w / Body Connector		**P32KA00MT**
T-Bracket (fits to body connector or port block)		**P32KA00MB**
Port Block Kits (includes two)	1/2" NPT	**P32KA94CP**
	1/2" BSPT	**P32KA24CP**
	1/2" BSPP	**P32KA14CP**
	3/4" NPT	**P32KA96CP**
	3/4" BSPT	**P32KA26CP**
	3/4" BSPP	**P32KA16CP**

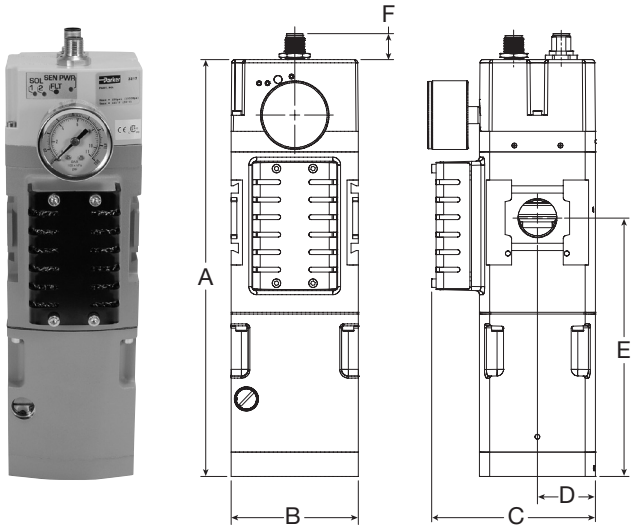
Solenoid M12 Pinouts



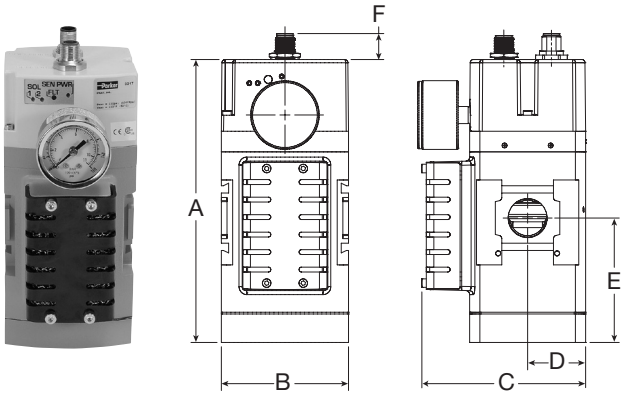
Pressure Sensor M12 Pinouts



Externally Monitored (with Soft Start)



Externally Monitored (No Soft Start)



Dimensions inches (mm)

	Ports	Standard nominal flow rate 1 → 2 L/min (SCFM)*	Standard nominal flow rate 2 → 3 L/min (SCFM)*	A	B	C	D	E	F
Externally Monitored with soft start	3/4"	4,100 (145)	7,500 (265)	10.31 (261.9)	3.15 (80)	4.30 (109.3)	1.44 (36.5)	6.39 (162.3)	0.64 (16.3)
Externally Monitored no soft start	3/4"	4,300 (152)	7,500 (265)	7.03 (178.7)	3.15 (80)	4.30 (109.3)	1.44 (36.5)	3.11 (79.0)	0.64 (16.3)

* Standard nominal flow rate is based on 6 bar input pressure with ΔP = 1 bar

Safety Exhaust Valve Function

When applications demand a safe environment you can count on safety valves from Parker Hannifin. The P33 family of safety exhaust valves are 3/2 normally closed valves designed to rapidly exhaust compressed air in the event of a fault condition and to provided monitored coverage ensuring safe function. The P33 is available in two distinct styles, internally* or externally monitored. The valve is suitable for use up to Category 4, performance level e. Monitoring is achieved externally via a two channel system connected to a safety interface device. Both valves are available with an adjustable soft start and high flow exhaust to shut your equipment down faster when needed. LED's provide clear status of main solenoid operation, sensor power and fault condition for quick visual reference.

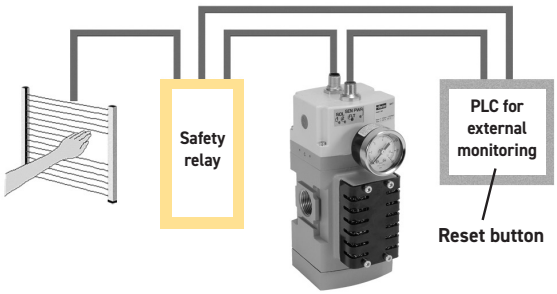
Externally Monitored Valve, Faults and Resets

The externally monitored valve has the monitoring done via a PLC or relay which offers a size and cost advantage over internally monitored valves. The integration of a safety interface into the PLC or relay will help determined the achievable category and performance level of the control system. Customers are required to provide the logic function via the safety device. The valve will lock-out to the "safe state" if asynchronous movement of the valve elements occur which will be detected by solid state pressure sensors. To achieve the proper safety rating, the safety PLC or relay must monitor the solid state pressure sensors to ensure they are not in different states for more than 150ms. If the sensors are in different states for longer than 150ms then the programming logic must shut off power to the solenoids and consider it a fault condition. If during operation the externally monitored P33 enters a fault condition the valve will shut off. A separate reset signal must be incorporated into the logic sequence to avoid automatic restart of the valve. The safety exhaust valves are not for use with clutch or brake applications and are designed for use in conjunction with a safety relay or safety PLC for safe monitoring and fault detection.

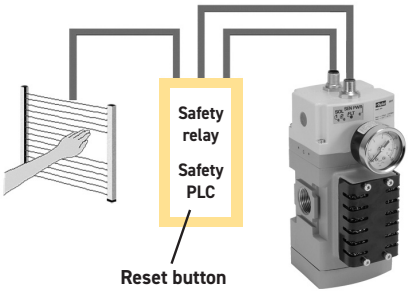
Achieving Desired Performance Level **

The category and performance level (PLr) needed for your machine is determined by a risk assessment of the machinery design and application based on EN ISO 13849-1. The Parker P33 safety valve is designed for those applications requiring a PL of d or e. Please note these levels require other aspects of the system to meet these requirements. As a guide: you can achieve a Cat 4 PL e system by integrating monitoring via a programmable safety rated device. Because the P33 is a mechanical fail-safe device, the monitoring could also be done via a standard PLC and still attain as high as a PL d rating.

Cat 3, PL d

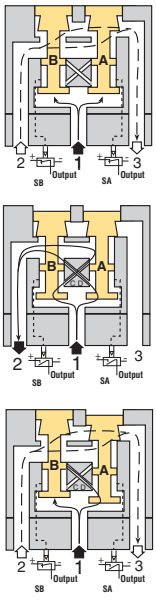


Cat 4, PL e



* For information on internally monitored safety valves reference Bulletin 0700-B13.

** An integration guide is available to provide further information on connecting the safety valve product to achieve the desired performance level. Please consult Parker and the standard EN ISO 13849-1 for more information.



Conditions at Start

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A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2% of inlet pressure. Full sensing air pressure from side A goes to sensor SA, and a reduced pressure goes to sensor SB. This full pressure signal causes SA to open. Sensor SB, with a reduced pressure signal, does not open. An external monitoring system can detect the malfunction by monitoring the outputs of the SA and SB sensors. The external monitor system must then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.

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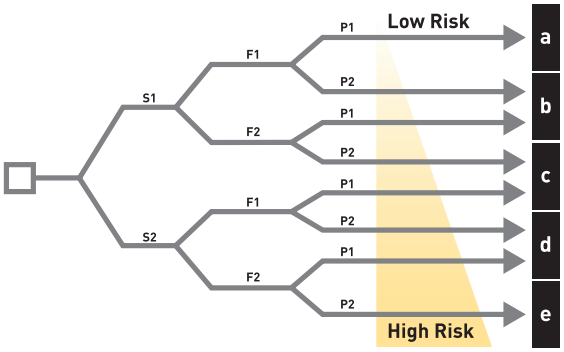

Risk Parameters

(S) Severity of injury

- **S1 Slight (normally reversible injury)**
- **S2 Serious (normally irreversible injury, or death)**

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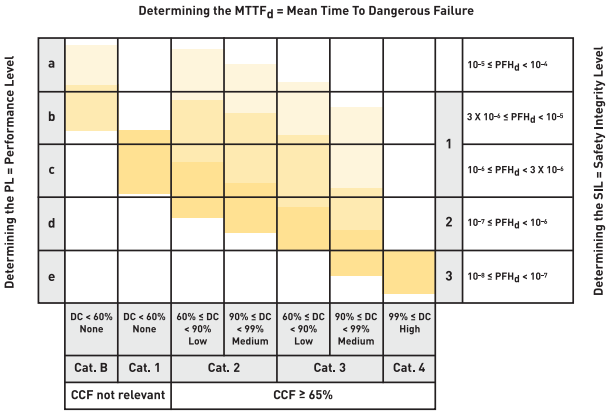
Determining PL According to EN 13849-1



Categories Defined by EN 13849-1

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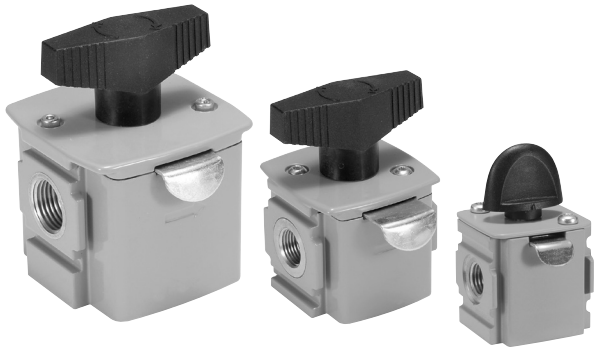
Category 4	Same as Category 3, but if detection of single fault is not possible on or before the next demand upon the safety, an accumulation of these undetected faults shall not lead to the loss of the safety function. (Means redundancy & check)

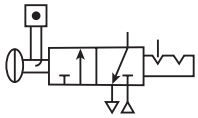
Ball Valve / Lockout Valve

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

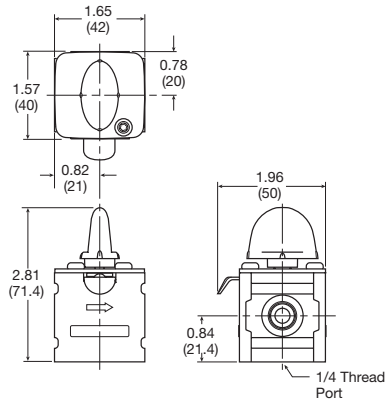
Operating temperature:		-40°C to 80°C (-40°F to 176°F)
Pressure supply (max):		250 psig (17 bar)
Port size: BSPP / BSPT / NPT		1/4, 3/8, 1/2, 3/4
Weight:	P31	0.33 lbs (0.15 kg)
	P32	0.79 lbs (0.36 kg)
	P33	1.21 lbs (0.55 kg)

Material Specifications

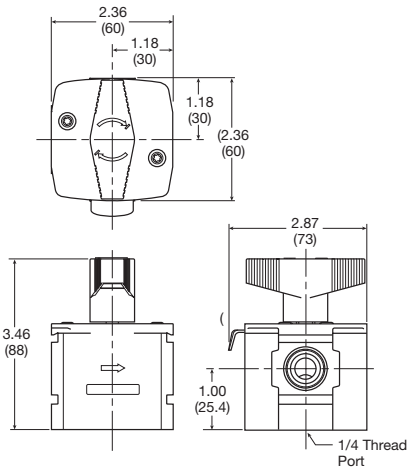
Body	Aluminum
Seals	PTFE
Ball	Stainless Steel
Lockout Tab	Zinc Plated Steel
Screw	Zinc Plated Steel

Dimensions inches (mm)

P31



P32



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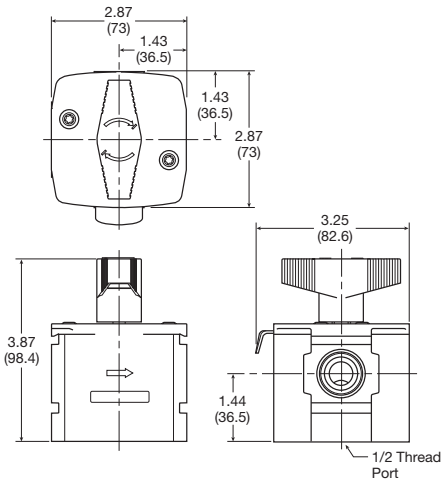


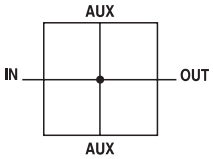
Most popular.

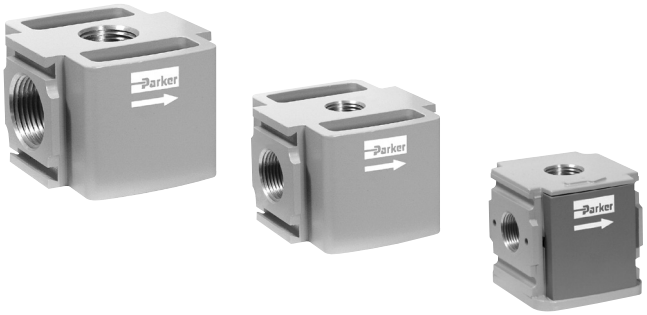
For inventory, lead times, and kit lookup, visit www.pdnplu.com

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

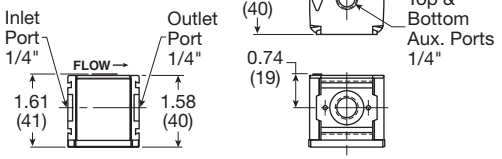
Operating temperature:		-40°F to 150°F (-40°C to 65.5°C)
Pressure supply (max):		300 psig (20.7 bar)
Weight:	P31	0.26 lbs (0.12 kg)
	P32	0.45 lbs (0.20 kg)
	P33	0.45 lbs (0.20 kg)

Material Specifications

Body	Aluminum

Dimensions inches (mm)

P31



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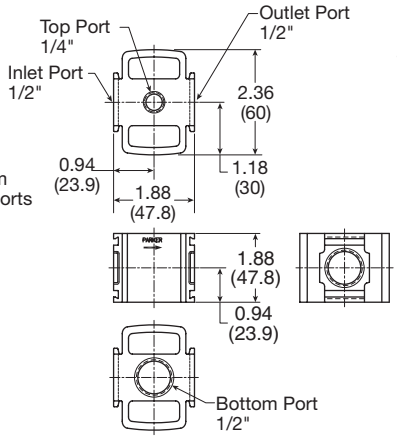

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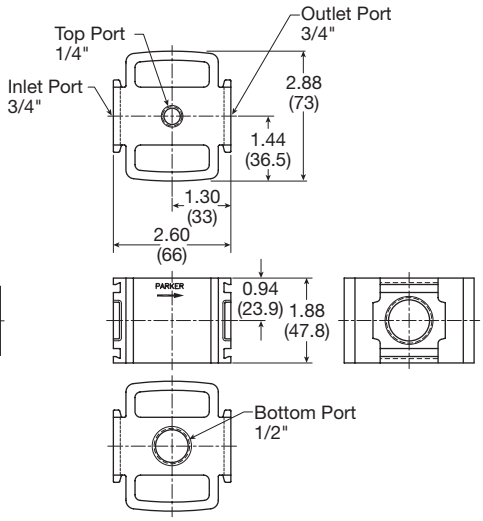
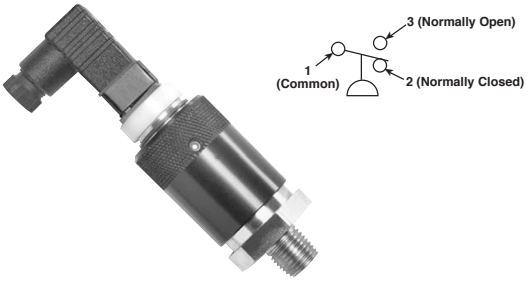


Most popular.

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

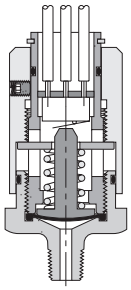
Note: Switch is field adjustable.

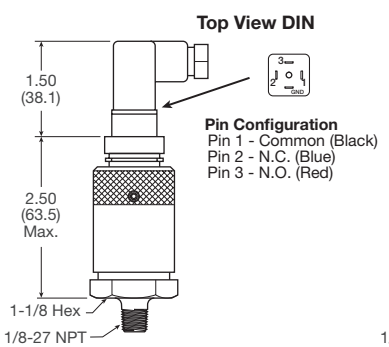
Material Specifications

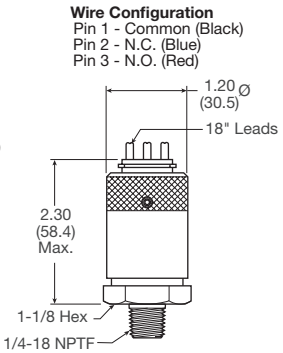
Adjustment knob	Anodized aluminum
Body	Brass
Diaphragm	Nitrile

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.



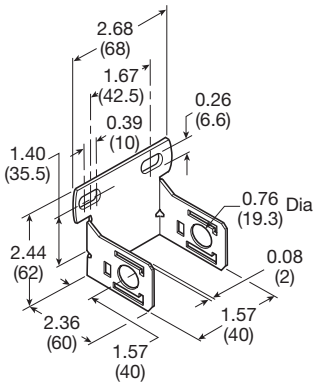




P31 Accessories

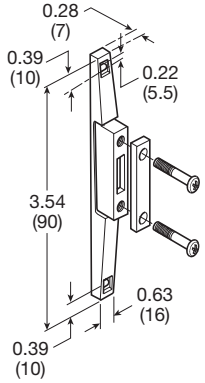
C-Bracket
(Fits to filter and lubricator body)

P31KA00MW



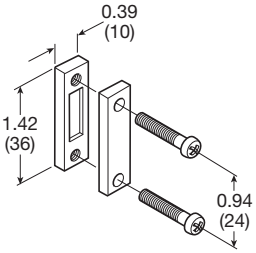
T-Bracket w/ Body Connector
(O-ring not shown)

P31KA00MT



Body Connector
(O-ring not shown)

P31KA00CB



Port Block Kit
(O-ring not shown)

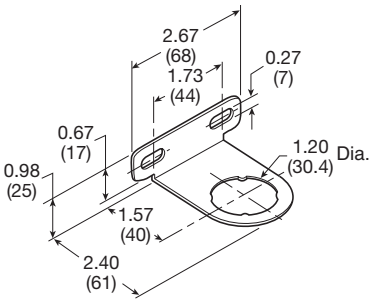
1/8 NPT	**P31KA91CP**
1/4 NPT	**P31KA92CP**
3/8 NPT	**P31KA93CP**
1/8 BSPP	**P31KA11CP**
1/4 BSPP	**P31KA12CP**
3/8 BSPP	**P31KA13CP**
1/8 BSPT	**P31KA21CP**
1/4 BSPT	**P31KA22CP**
3/8 BSPT	**P31KA23CP**

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

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

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

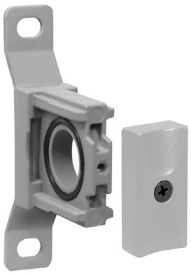
P31KB00MR

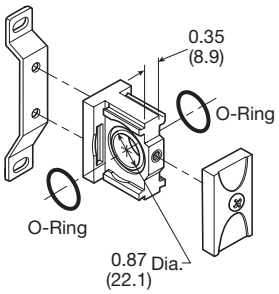


P32 Accessories

T-Bracket w/ Body Connector

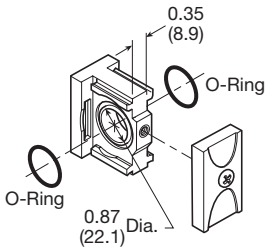
P32KA00MT





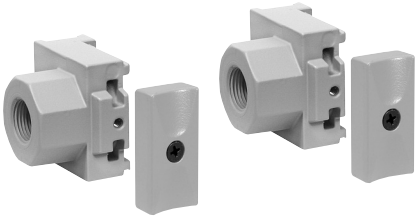
Body Connector

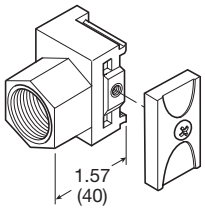
P32KA00CB



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**

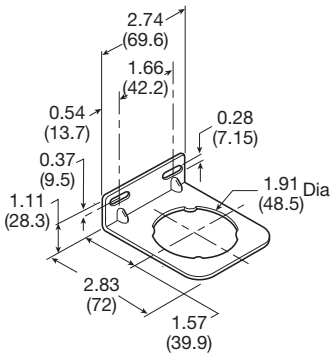




Angle Bracket

(Fits to regulator and filter/regulator bonnet)

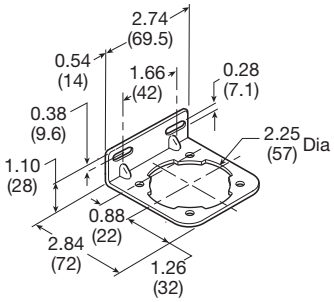
P32KB00MR



L-Bracket

(Fits to filter and lubricator body)

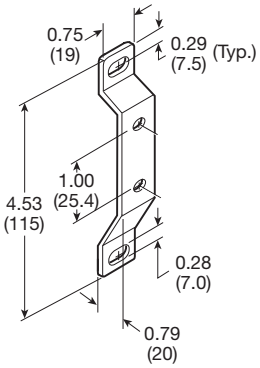
P32KA00ML



T-Bracket

(fits to body connector or port block)

P32KA00MB



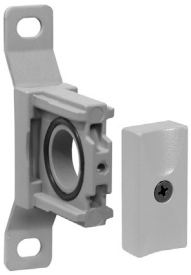
For inventory, lead times, and kit lookup, visit www.pdnplu.com

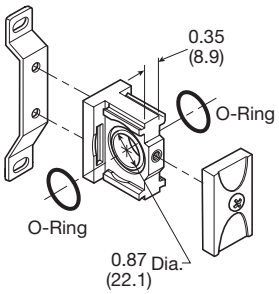
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

P33 Accessories

T-Bracket w/ Body Connector

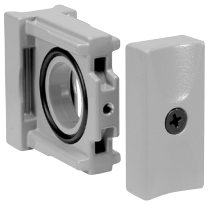
P32KA00MT

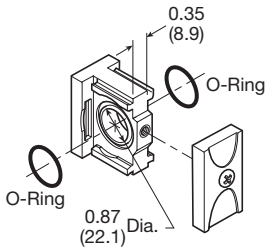




Body Connector

P32KA00CB





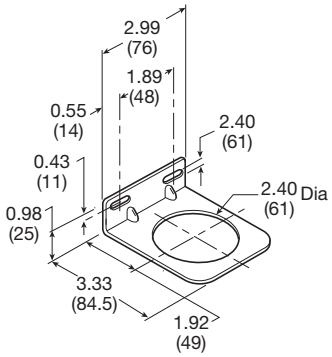
Port Block Kit

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)

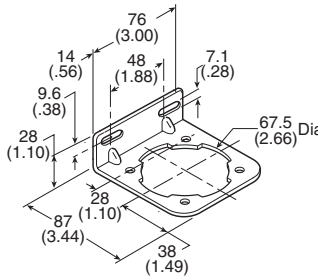
P33KA00MR



L-Bracket

(Fits to filter and lubricator body)

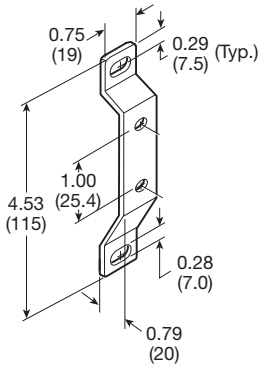
P33KA00ML



T-Bracket

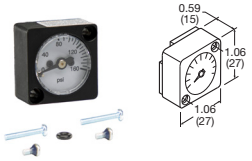
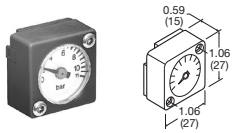
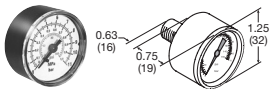
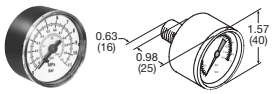
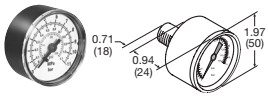
(fits to body connector or port block)

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**	
P32 P33	Regulator - Relieving Repair Kit	**P32KB00RB** **P33KA00RB**	
P32 P33	Regulator - Non-Relieving Repair Kit	**P32KB00RC** **P33KA00RC**	

Series	Description	Connection		Part Number	
P32 P33	Regulator - Main Adjusting Spring 0-30 psig (0-2 bar) Kit			**P32KB00PR** **P33KA00PR**	
P32 P33	Regulator - Main Adjusting Spring 0-60 psig (0-4.1 bar) Kit			**P32KB00PS** **P33KA00PS**	
P32 P33	Regulator - Main Adjusting Spring 0-125 psig (0-8.6 bar) Kit			**P32KB00PT** **P33KA00PT**	
P32 P33	Regulator - Main Adjusting Spring 0-250 psig (0-17 bar) Kit			**P32KB00PV** **P33KA00PV**	
P31	Square Guage	0-60 psig 0-160 psig 0-290 psig 0-4 bar 0-11 bar 0-20 bar 0-0.4 MPa 0-1.1 MPa 0-2.0 MPa		**P31KA060XB** **P31KA160XB** **P31KA290XB** **P31KA04BXB** **P31KA11BXB** **P31KA20BXB** **P31KA04MXB** **P31KA11MXB** **P31KA20MXB**	
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			**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

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

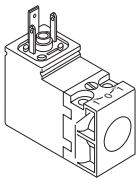
Pilot Valve

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

Coil

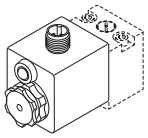
Encapsulation material:	Thermoplastic as standard Duroplast for M12 connection

P31 Series only - Solenoid coils 15mm NC



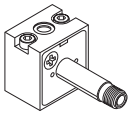
Voltage	**Order code Override, blue, Non-Locking Flush**	**Weight (kg)**
24VDC	**PS2982B49P**	0.038
115VAC 50Hz / 120VAC 60Hz	**PS2982B53P**	0.038

Solenoid Coils with M12 Connection



Voltage	**Part Number**	**Weight (kg)**
Direct current		
24VDC	**P2FC6449**	0.065

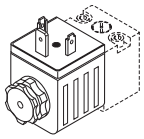
Spare Base Solenoid Pilot Operator CNOMO NC



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.

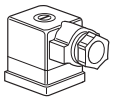
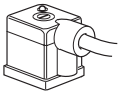
Solenoid Coils with DIN A or Industrial B Connection



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

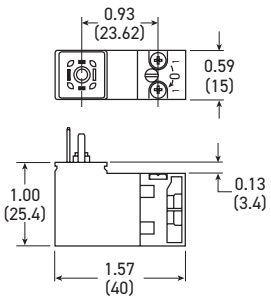
☐ Most popular.

Solenoid Connectors / Cable Plugs EN175301-803

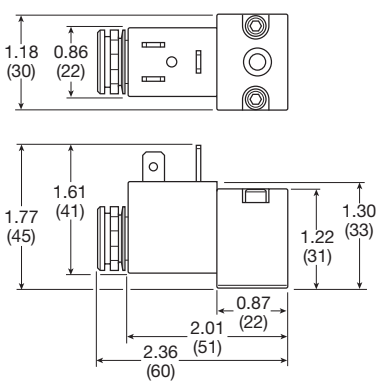
	Description	Part Number 22mm Form B Industrial	Part Number 30mm Form A DIN 43650A
With standard screw 	Standard IP65 without flying lead	**PS2429BP**	**PS2028BP**
	With LED and protection 24VAC/DC	**PS243079BP**	**PS203279BP**
	With LED and protection 110VAC	**PS243083BP**	**PS203283BP**
With cable 	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)

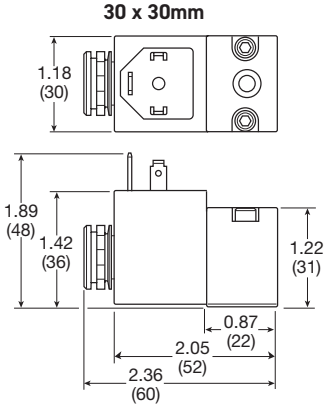
15mm



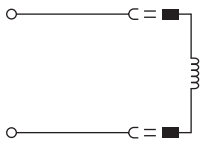
22 x 30mm

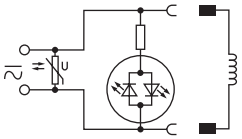


30 x 30mm



Electrical Schematics

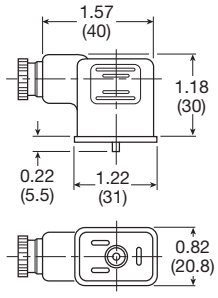




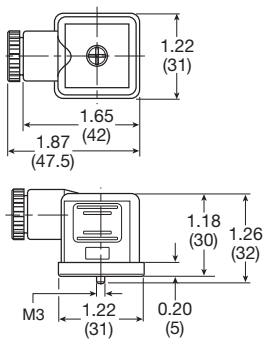
PS2028BP	**PS243079BP**	**PS203279BP**
PS2028JBP	**PS2430J79BP**	**PS2032J79CP**
PS2429BP	**PS243083BP**	**PS203283BP**
PS2429JBP	**PS2430J83BP**	**PS2032J83CP**
PS2932BP	**PS294679BP**	**PS294683BP**
PS2932JBP	**PS2946J79BP**	**PS2946J83BP**

Cable Plug Dimensions inches (mm)

22mm Form B Industrial Cable plugs	PS2429BP



30mm DIN 43650A Cable plugs	PS2028BP



Most popular.

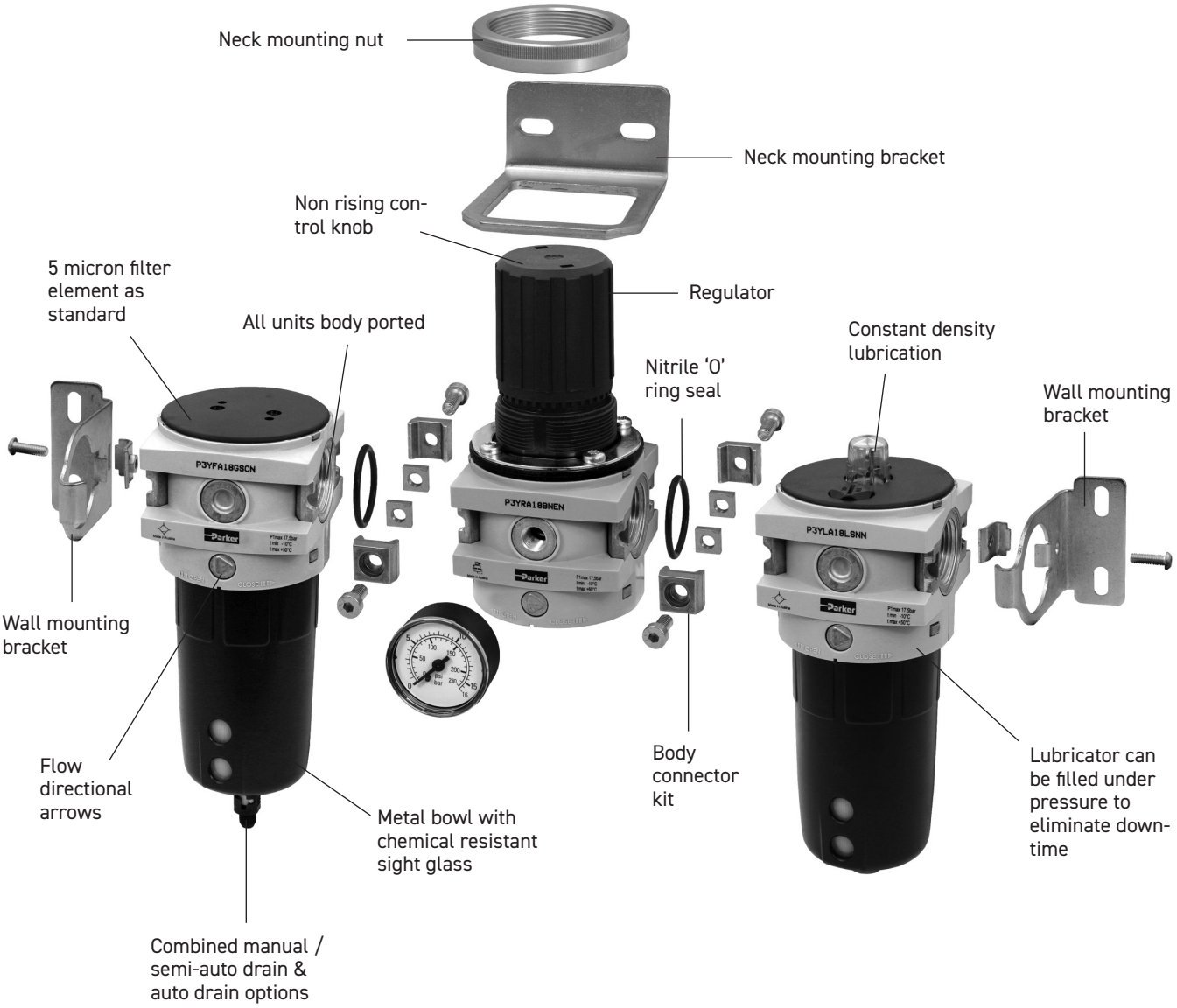
P3Y System

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.

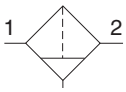
The P3Y regulators are designed to provide quick response and accurate pressure regulation for the most demanding hi-flow industrial applications.

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

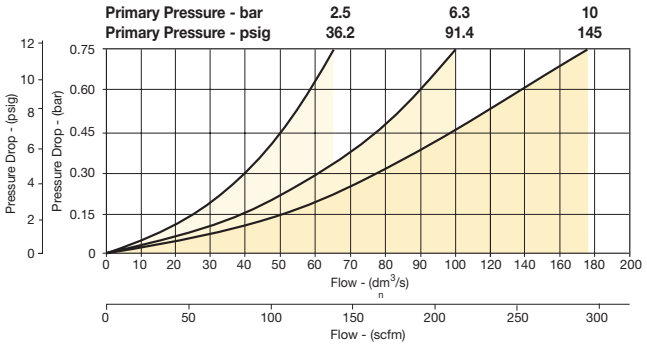
Body	Aluminium
Sight glass and bowl	Polypropylene
Body cover	ABS
Element	Sintered P.E.
Seals	Nitrile NBR
Manual / semi-auto drain	Acetal
Automatic drain	PA / Ø 10mm brass connection

Repair and Service Kits

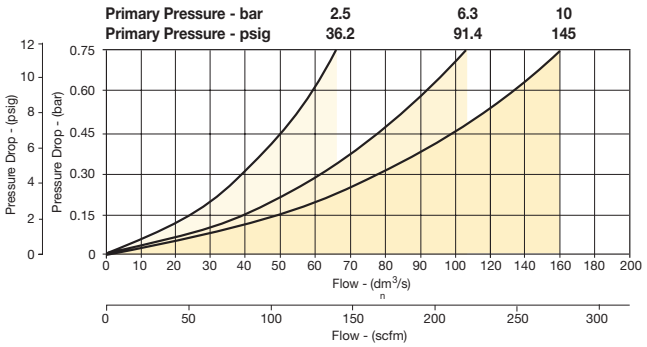
5 micron element kit	**P3YKA00ESE**
40 micron element kit	**P3YKA00ESG**
Bowl kit with combined manual / semi auto drain	**P3YKA00BSC**
Bowl kit with auto drain	**P3YKA00BSA**

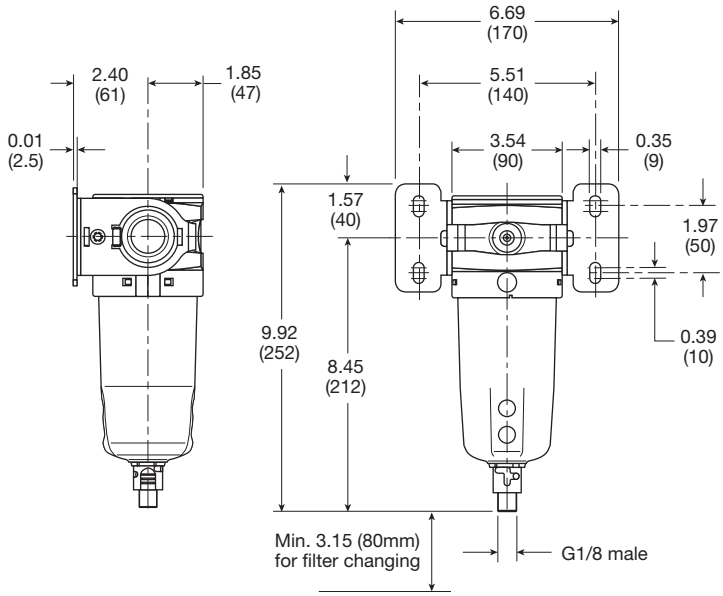
Flow Characteristics

(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
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

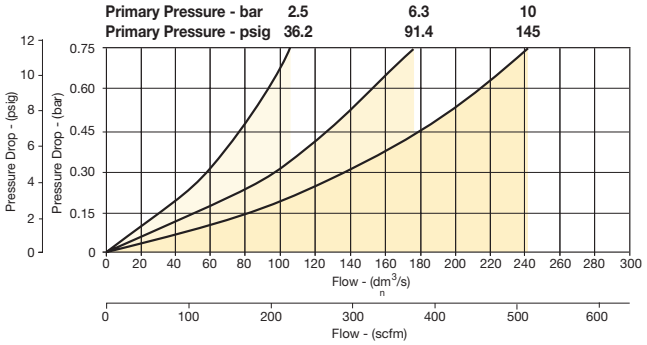
Body	Aluminium
Sight glass and bowl Polypropylene	
Filter cover	ABS
Coalescing element	Borosilicate & nano fibers
Top & bottom end cap (coalescing)	Aluminium
Adsorber element	Activated carbon
Top & bottom end cap (adsorber)	Glass filled nylon
Support cylinders	Grade 430 stainless steel
Support media	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

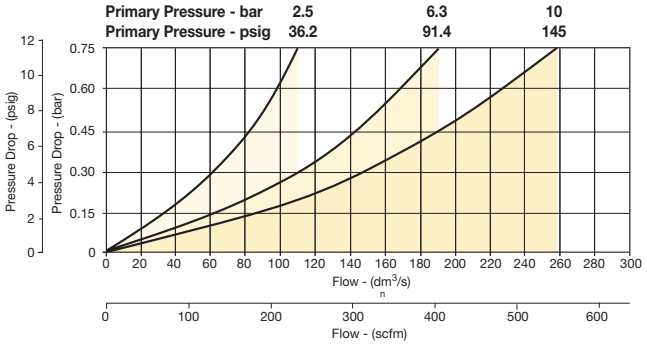
0.01 micron element kit	**P3YKA00ESC**
Adsorber element kit **P3YKA00ESA**	
Bowl kit with combined manual / semi auto drain	**P3YKA00BSC**
Bowl kit with auto drain	**P3YKA00BSA**
Differential pressure indicator kit	**P3YKA00RQ**

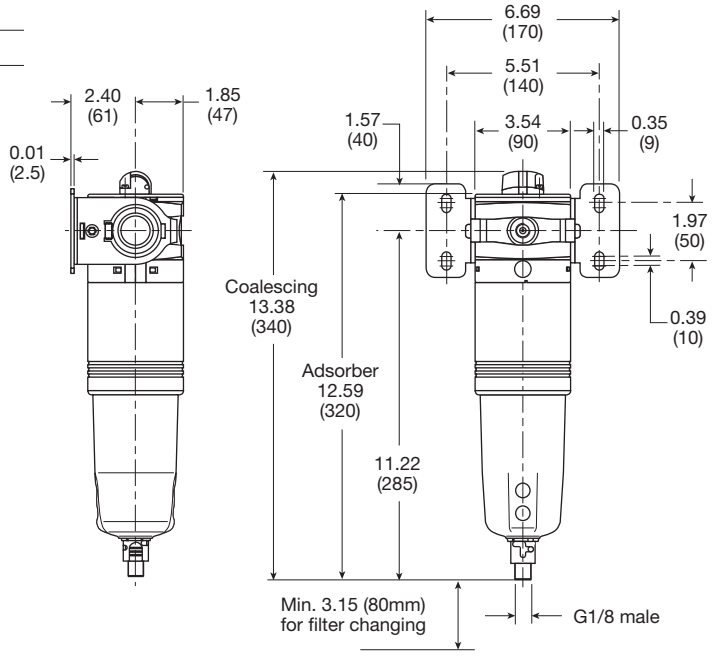
Flow Characteristics

(3/4") 0.01 Micron Coalescing Filter Saturated



(1") 0.01 Micron Coalescing Filter Saturated

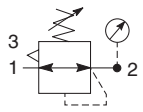




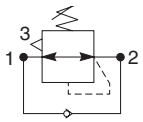
Inches (mm)

P3Y Regulators

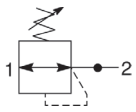
- Integral 3/4" or 1" ports (BSPP and NPT)
- Robust but lightweight aluminium construction
- Secondary pressure ranges 12 and 16 bar
- Rolling diaphragm for extended life
- Secondary aspiration plus rolling diaphragm provides quick response and accurate pressure regulation
- Optional tamperproof regulator 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.

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

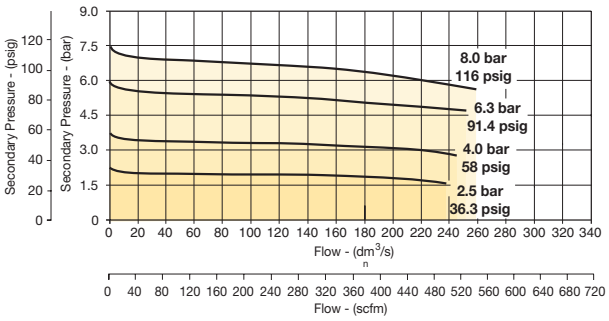
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

CAUTION:

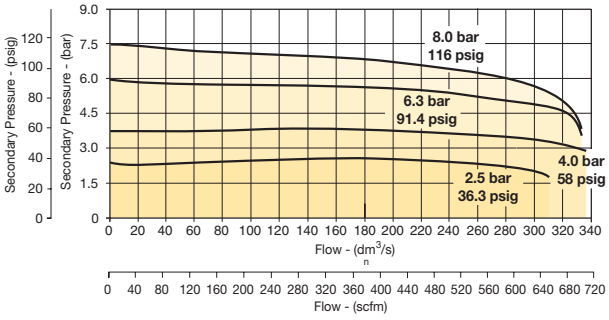
REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting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

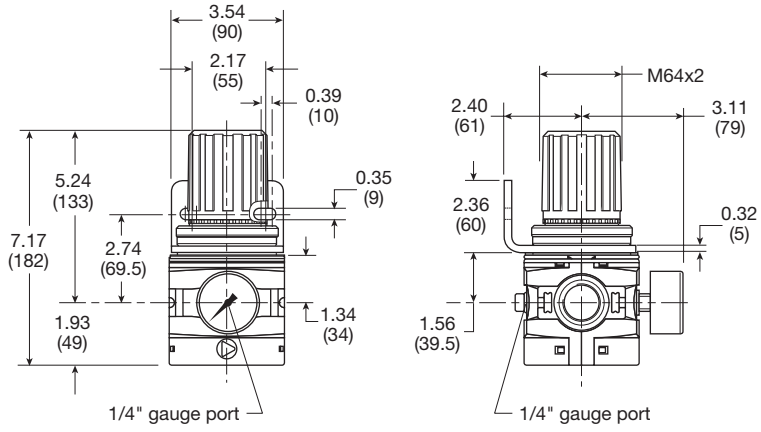
Flow Characteristics

(3/4") Regulator



(1") Regulator





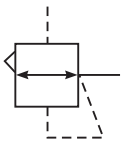
Inches (mm)

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

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

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.

Material Specifications

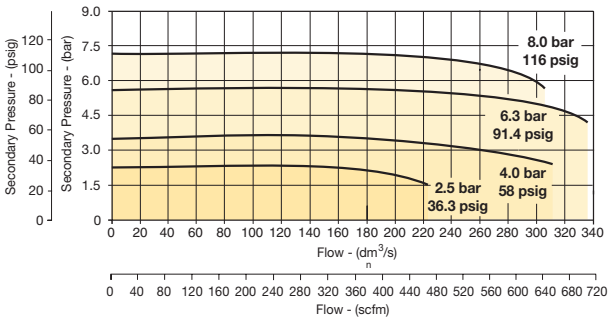
Body	Aluminium
Body cover	ABS
Valve	Brass / NBR composite
Pilot valve booster	Aluminum
Seals	Nitrile NBR
Screws	Zinc plated steel

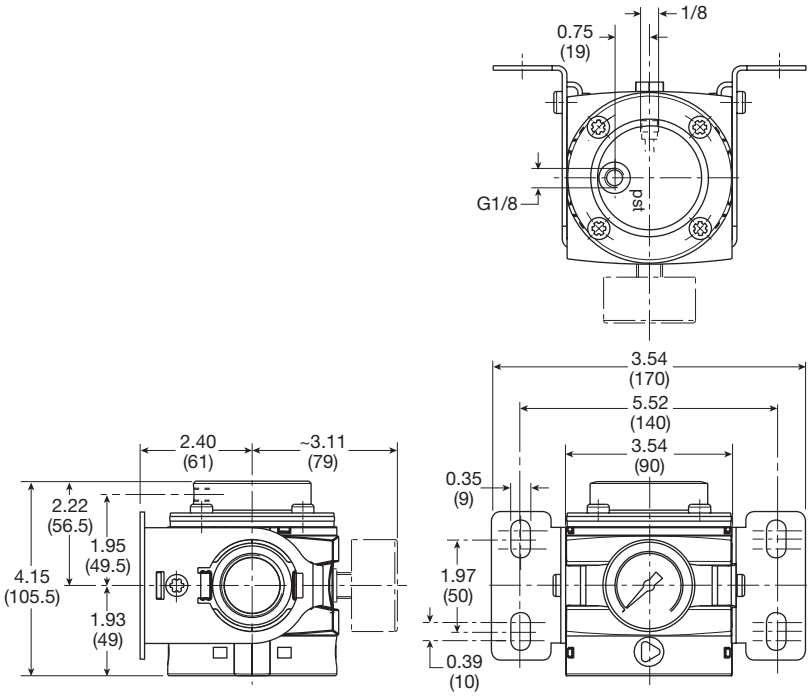
⚠ WARNING

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 (332 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.

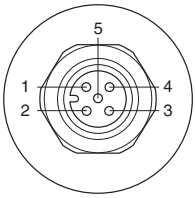
Material Specifications

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**

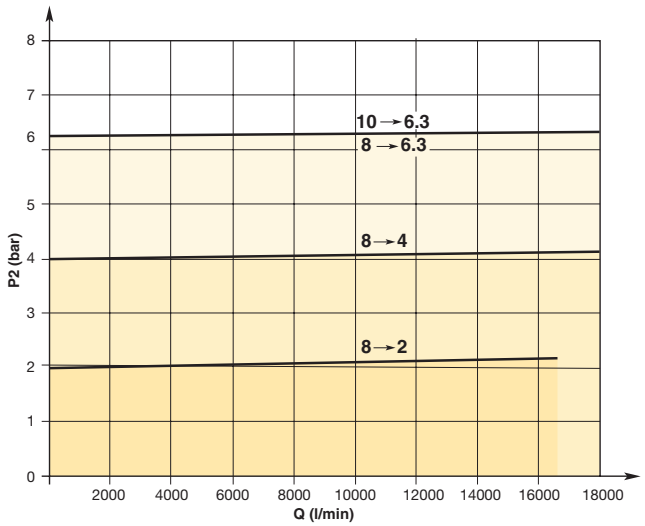
Connection Diagram

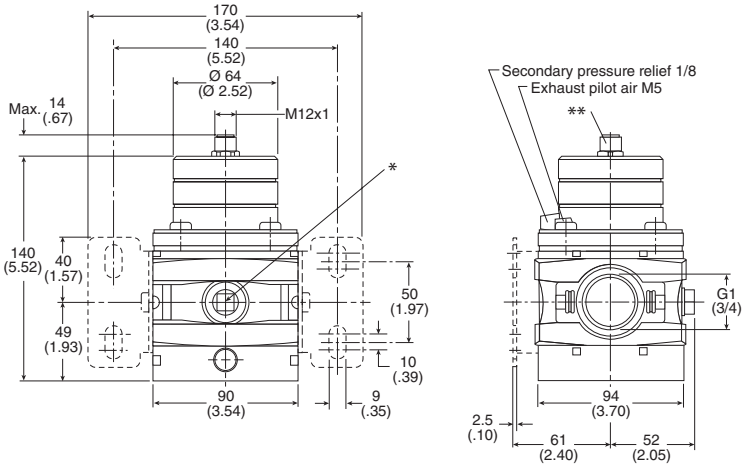


Connector M12 x 1

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

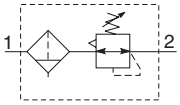


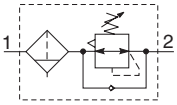


* Two opposite gauge ports 1/4, plug screw mounted
** Connection for 5-pin plug M12 x 1

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.

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

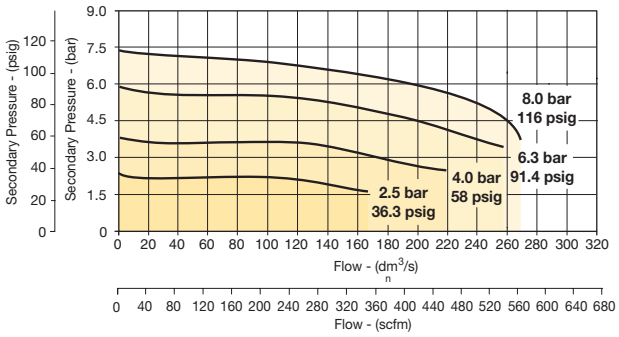
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

CAUTION:

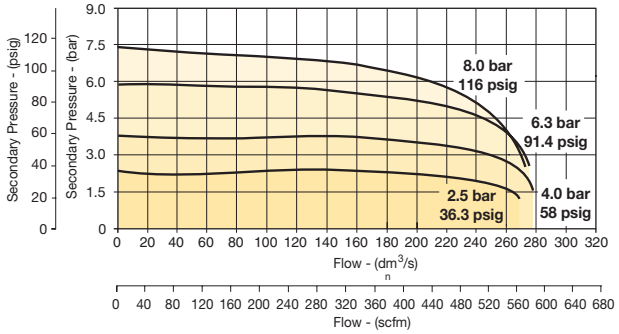
REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting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

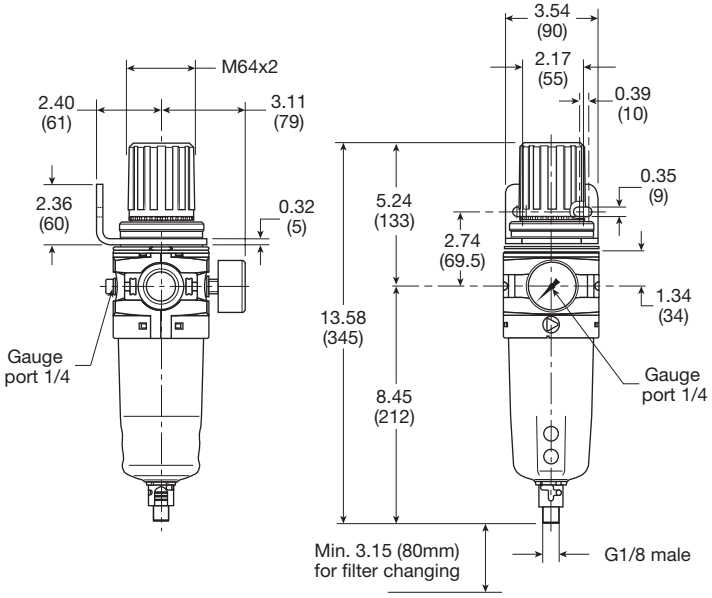
Flow Characteristics

(3/4") 5 Micron Filter / Regulator



(1") 5 Micron Filter / Regulator





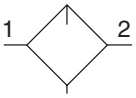
Inches (mm)

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

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

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

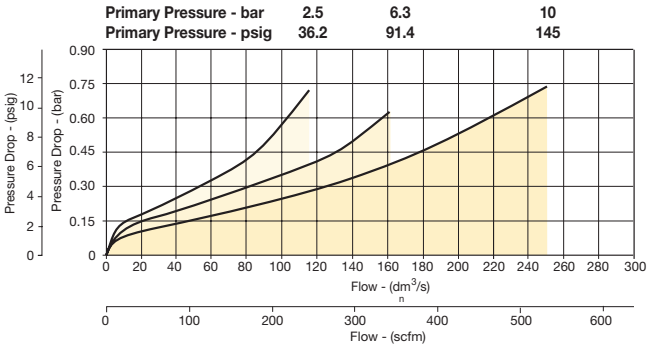
Body	Aluminium
Sight glass and bowl	Polypropylene
Sight dome	Polyamide
Lubricator cover	ABS
Top & bottom end cap	Glass filled nylon
Bayonet support	Nylon
Seals	Nitrile NBR

Repair and Service Kits

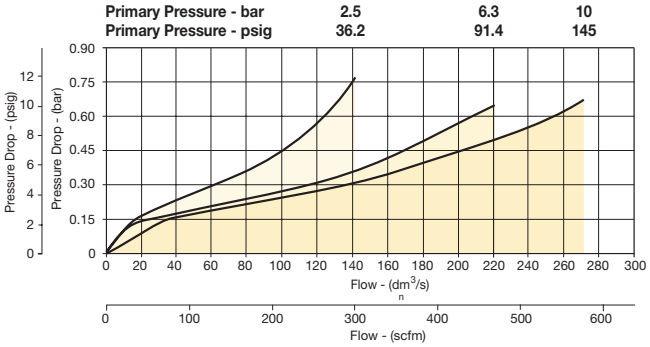
Bowl kit	**P3YKA00BSN**
Refill plug	**P3YKA00PL**
Oil (1 quart)	**F442001**
Oil (1 galllon)	**F442002**
Oil (12 quart case)	**F442003**
Oil (4 gallon case)	**F442005**

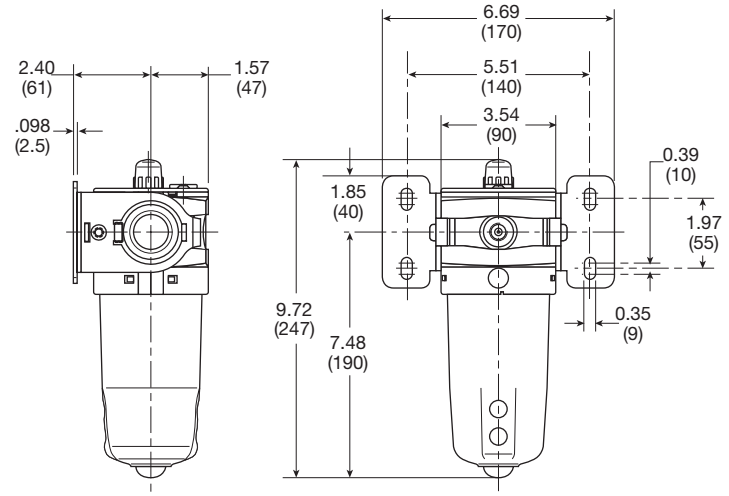
Flow Characteristics

(3/4") Lubricator



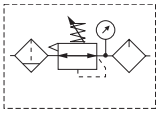
(1") Lubricator





Inches (mm)

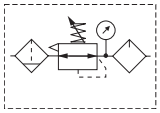
P3Y Combinations



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.

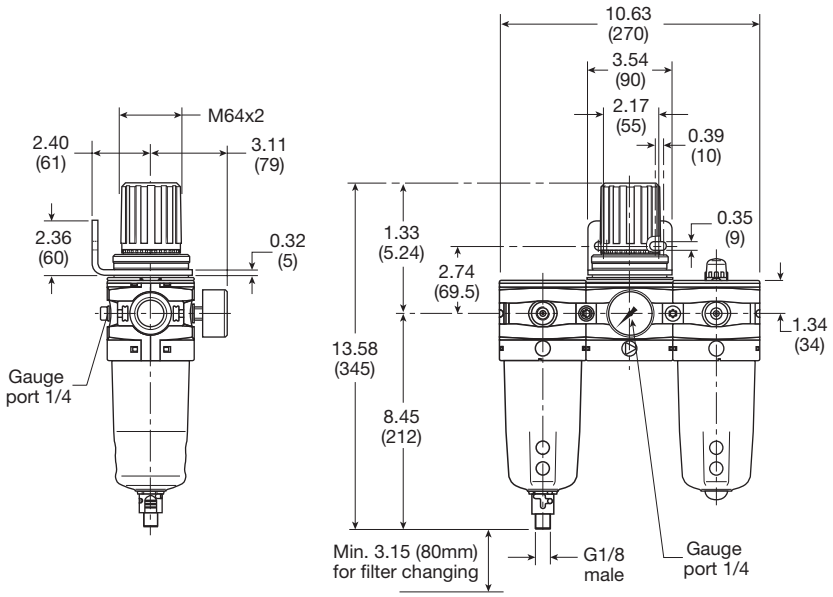
⚠ WARNING

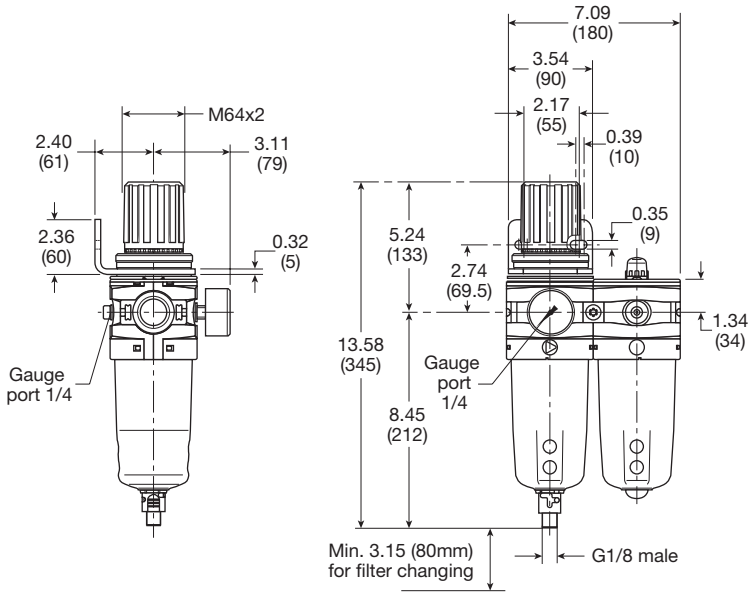
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

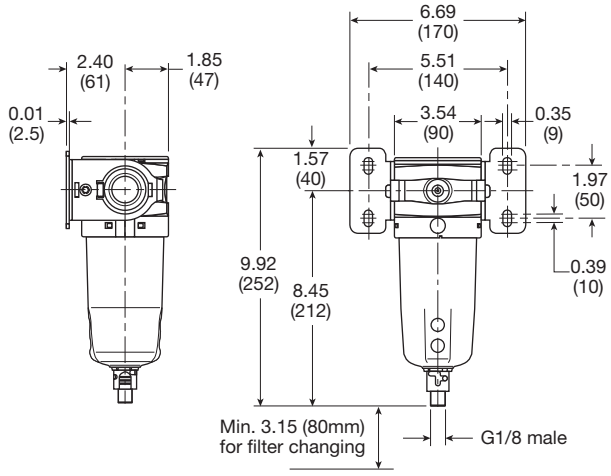
CAUTION:
REGULATOR PRESSURE ADJUSTMENT –
The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators,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







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

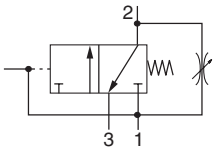
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

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:	NPT	3/4"
	BSPP	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 Voltage

2CN	24VDC

Solenoid Type

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

*** 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

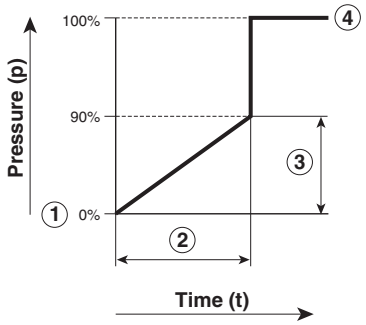
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Material Specifications

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

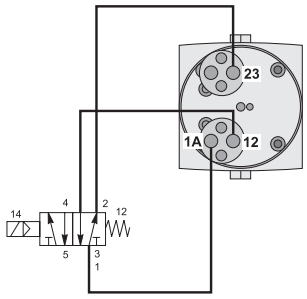
Note: For solenoid coil and cable plug options see solenoid operator pages.

Flow Characteristics

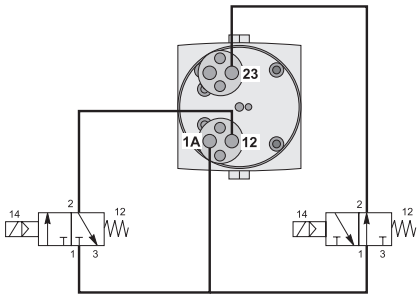


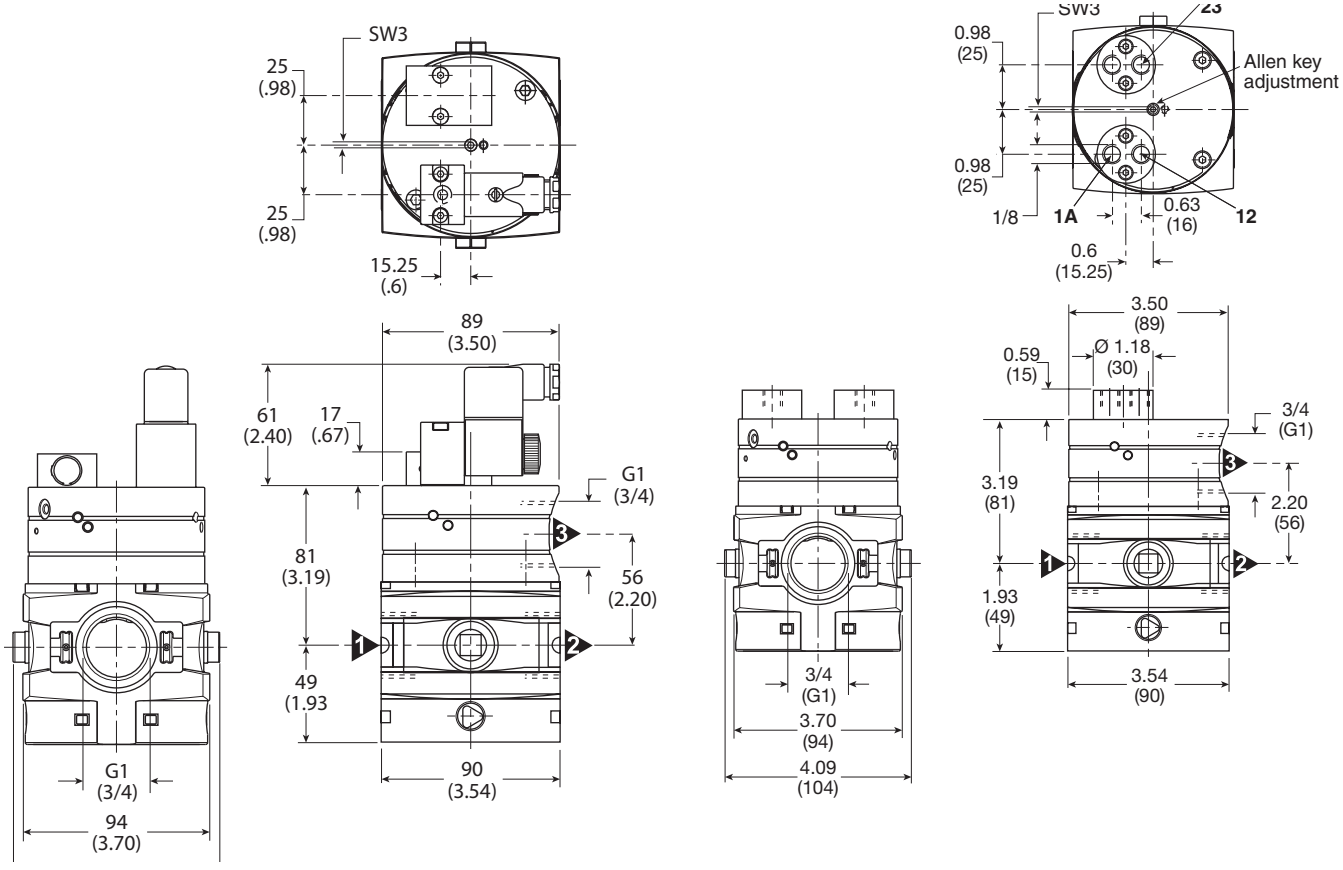
(1) Start signal
(2) Switching time delay
(3) Gradual pressure build up
(4) Operating pressure p^2 (= p^1)

Combined start / stop function



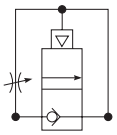
Combined start / stop function with acknowledgement





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**

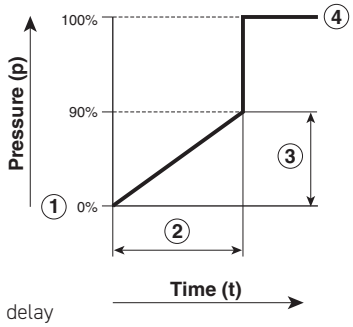
Basic Series	
Soft Start Valve	P3YSA

Thread Type*	
BSPP	1
NPT	9

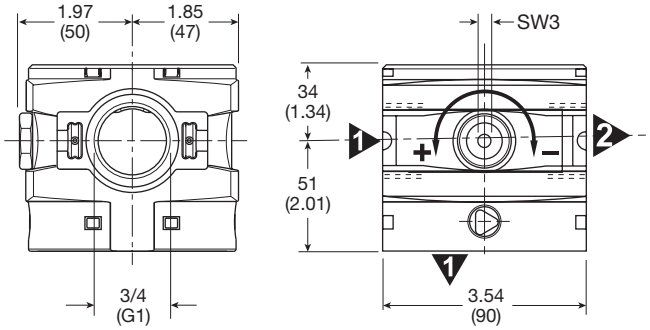
Port Size	
3/4	6
1	8

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

Flow Characteristics



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

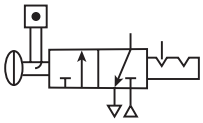


Inches (mm)

Most popular.

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 dm^3/s, ANR)
	1"	705.6 scfm (333 dm^3/s, ANR)
Weight:	3/4"	2.4 lb (1.1 kg)
	1"	2.4 lb (1.1 kg)

Ordering Information

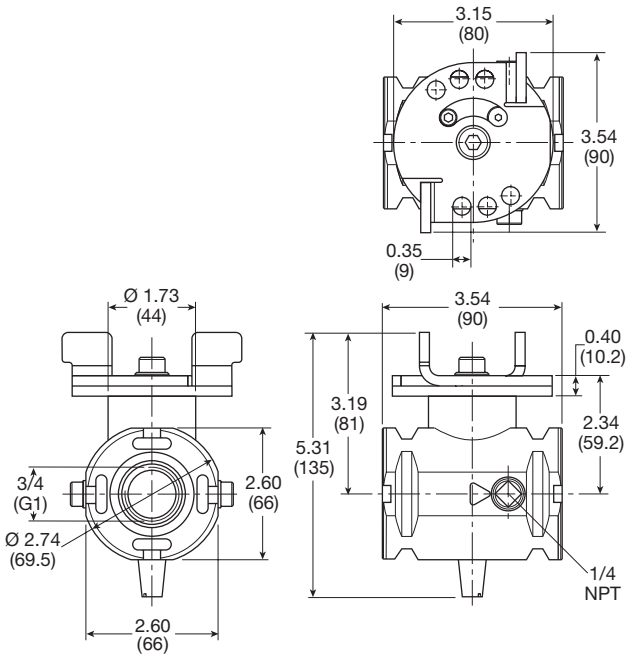
P3YVA	9	6	LBN

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.

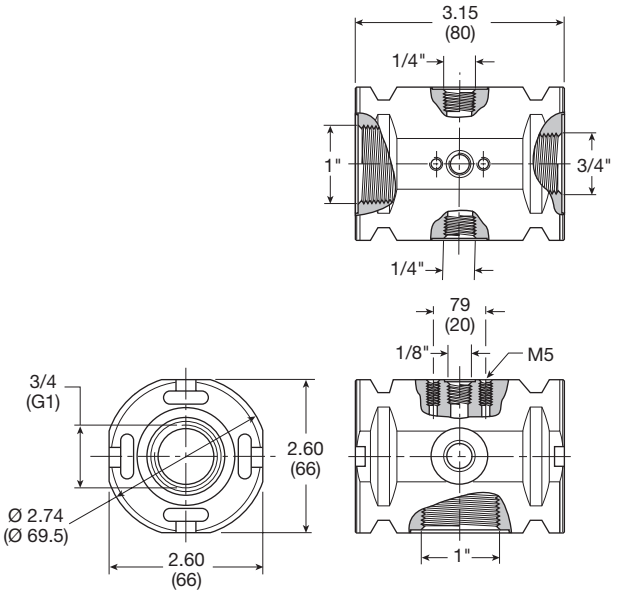
Thread Type	Part Number
BSPP	**P3YMA1V0N**
NPT	**P3YMA9V0N**

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)

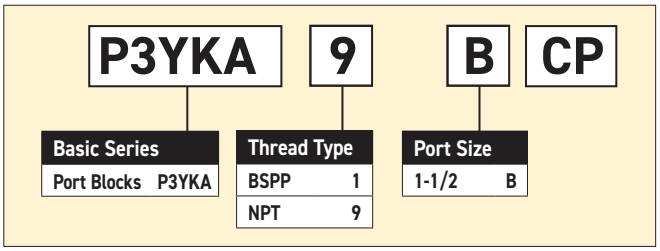
Optional Port Block Kits

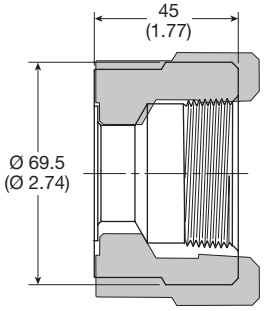
- To change port sizes Port Block Kits are available, they are attached to any unit utilizing the connecting kit.
- Allows assemblies to be removed from a hard piped system.

Material Specifications

Body	Aluminium
Weight	0.65 kg (1.43 lb)

Ordering Information





Inches (mm)

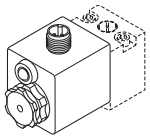
Solenoid Operators - CNOMO

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

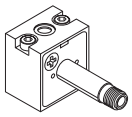
Transients

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

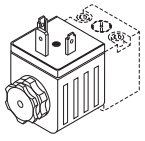
Spare Base Solenoid Pilot Operator CNOMO NC



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.

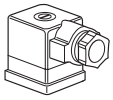
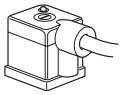
Solenoid Coils with DIN A or Industrial B Connection



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

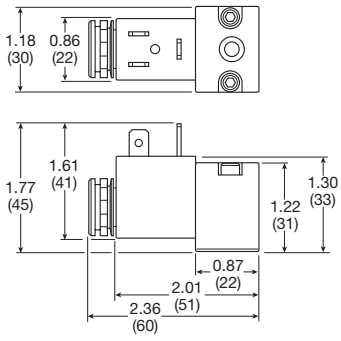
☐ Most popular.

Solenoid Connectors / Cable Plugs EN175301-803

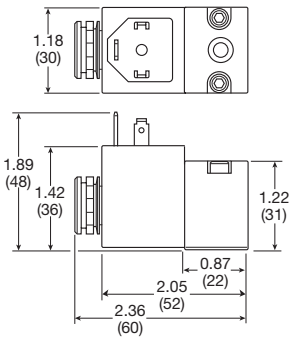
	Description	Part Number 22mm Form B Industrial	Part Number 30mm Form A DIN 43650A
With standard screw 	Standard IP65 without flying lead	**PS2429BP**	**PS2028BP**
	With LED and protection 24VAC/DC	**PS243079BP**	**PS203279BP**
	With LED and protection 110VAC	**PS243083BP**	**PS203283BP**
With cable 	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)

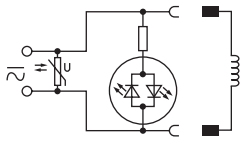
22 x 30mm



30 x 30mm



Electrical Schematics

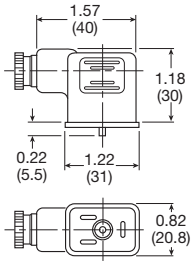


PS243079BP	**PS203279BP**
PS2430J79BP	**PS2032J79CP**
PS243083BP	**PS203283BP**
PS2430J83BP	**PS2032J83CP**
PS294679BP	**PS294683BP**
PS2946J79BP	**PS2946J83BP**

Cable Plug Dimensions mm (inches)

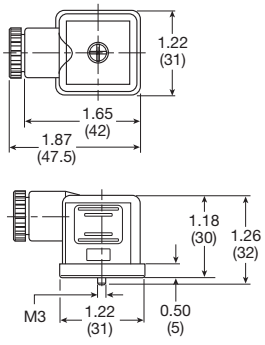
22mm Form B industrial cable plugs

PS2429BP

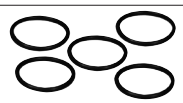
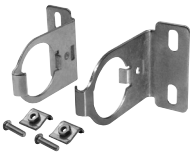


30mm DIN 43650A cable plugs

PS2028BP



Most popular.

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.

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.

2.7. Chemical Compatibility: For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5

2.8. Product Rupture: Product rupture can cause death, serious personal injury, and property damage.

- Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
- Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
- Consult product labeling or product literature for pressure rating limitations.

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1. Component Inspection: Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.

3.2. Installation Instructions: Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.

3.3. Air Supply: The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1. Maintenance: Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.9.

4.2. Installation and Service Instructions: Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.

4.3. Lockout / Tagout Procedures: Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)

4.4. Visual Inspection: Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:

- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
- Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
- Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
- Any observed improper system or component function: Immediately shut down the system and correct malfunction.
- Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

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

4.5. Routine Maintenance Issues:

- Remove excessive dirt, grime and clutter from work areas.
- Make sure all required guards and shields are in place.

4.6. Functional Test: Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

4.7. Service or Replacement Intervals: It is the user's responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:

- Previous performance experiences.
- Government and / or industrial standards.
- When failures could result in unacceptable down time, equipment damage or personal injury risk.

4.8. Servicing or Replacing of any Worn or Damaged Parts: To avoid unpredictable system behavior that can cause death, personal injury and property damage:

- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
- Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
- Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

4.9. Putting Serviced System Back into Operation: Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.

PARKER-HANNIFIN CORPORATION
OFFER OF SALE

1. **Definitions**. As used herein, the following terms have the meanings indicated.
"Buyer" means any customer receiving a Quote for Products.
"Buyer's Property" means any tools, patterns, plans, drawings, designs, specifications materials, equipment, or information furnished by Buyer, or which are or become Buyer's property.
"Confidential Information" means any technical, commercial, or other proprietary information of Seller, including, without limitation, pricing, technical drawings or prints and/or part lists, which has been or will be disclosed, delivered, or made available, whether directly or indirectly, to Buyer.
"Goods" means any tangible part, system or component to be supplied by Seller.
"Intellectual Property Rights" means any patents, trademarks, copyrights, trade dress, trade secrets or similar rights.
"Products" means the Goods, Services and/or Software as described in a Quote.
"Quote" means the offer or proposal made by Seller to Buyer for the supply of Products.
"Seller" means Parker-Hannifin Corporation, including all divisions, subsidiaries and businesses selling Products under these Terms.
"Seller's IP" means patents, trademarks, copyrights, or other intellectual property rights relating to the Products, including without limitation, names, designs, images, drawings, models, software, templates, information, any improvements or creations or other intellectual property developed prior to or during the relationship contemplated herein.
"Services" means any services to be provided by Seller.
"Software" means any software related to the Goods, whether embedded or separately downloaded.
"Special Tooling" means equipment acquired by Seller or otherwise owned by Seller necessary to manufacture Goods, including but not limited to tools, jigs, and fixtures.
"Terms" means the terms and conditions of this Offer of Sale.

2. Terms. All sales of Products by Seller will be governed by, and are expressly conditioned upon Buyer's assent to, these Terms. These Terms are incorporated into any Quote provided by Seller to Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic data interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms or conditions of purchase. Any Quote made by Seller to Buyer shall be considered a firm and definite offer and shall not be deemed to be otherwise despite any language on the face of the Quote. Seller reserves all rights to accept or reject any purported acceptance by Buyer to Seller's Quote if such purported acceptance attempts to vary the terms of the Quote. If Seller ships Products after Buyer issues an acceptance to the Quote, any additional or different terms proposed by Buyer will not become part of the parties' business relationship unless agreed to in a writing that is signed by an authorized representative of Seller, excluding email correspondence. If the transaction proceeds without such agreement on the part of Seller, the business relationship will be governed solely by these Terms and the specific terms in Seller's Quote.

3. Price; Payment. The Products set forth in the Quote are offered for sale at the prices indicated in the Quote. Unless otherwise specifically stated in the Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices for any reason and at any time by giving ten (10) days prior written notice. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2020). All sales are contingent upon credit approval and full payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Under any circumstances, Buyer may not withhold or suspend payment of any amounts due and payable as a deduction, set-off or recoupment of any amount, claim or dispute with Seller. Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law. Seller reserves the right to require advance payment or provision of securities for first and subsequent deliveries if there is any doubt, in Seller's sole determination, regarding the Buyer's creditworthiness or for other business reasons. If the requested advance payment or securities are not provided to Seller's satisfaction, Seller reserves the right to suspend performance or reject the purchase order, in whole or in part, without prejudice to Seller's other rights or remedies, including the right to full compensation. Seller may revoke or shorten any payment periods previously granted in Seller's sole determination. The rights and remedies herein reserved to Seller are cumulative and in addition to any other or further rights and remedies available at law or in equity. No waiver by Seller of any breach by Buyer of any provision of these terms will constitute a waiver by Seller of any other breach of such provision.

4. Shipment; Delivery; Title and Risk of Loss. All delivery dates are approximate, and Seller is not responsible for damages or additional costs resulting from any delay. All deliveries are subject to our ability to procure materials from our suppliers. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the carrier at Seller's facility. Unless otherwise agreed prior to shipment and for domestic delivery locations only, Seller will select and arrange, at Buyer's sole expense, the carrier and means of delivery. When Seller selects and arranges the carrier and means of delivery, freight and insurance costs for shipment to the designated delivery location will be prepaid by Seller and added as a separate line item to the invoice. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions. Buyer shall not return or repackage any Products without the prior written authorization from Seller, and any return shall be at the sole cost and expense of Buyer.

5. Warranty. The warranty for the Products is as follows:
(i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the date of completion of the Services; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer: **EXEMPTION CLAUSE; DISCLAIMER OF WARRANTY, CONDITIONS, REPRESENTATIONS: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY, CONDITION, AND REPRESENTATION, PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, CONDITIONS, AND REPRESENTATIONS, WHETHER STATUTORY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE RELATING TO DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED, UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER, THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH-RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".**

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

7. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCTS, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING ANY LOSS OF REVENUE OR PROFITS, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.

8. Confidential Information. Buyer acknowledges and agrees that Confidential Information has been and will be received in confidence and will remain the property of Seller. Buyer further agrees that it will not use Seller's Confidential Information for any purpose other than for the benefit of Seller and shall return all such Confidential Information to Seller within thirty (30) days upon request.

9. Loss to Buyer's Property. Buyer's Property will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products manufactured using Buyer's Property.

Also, Seller shall not be responsible for any loss or damage to Buyer's Property while it is in Seller's possession or control.

10. Special Tooling. Seller may impose a tooling charge for any Special Tooling. Special Tooling shall be and remain Seller's property. In no event will Buyer acquire any interest in the Special Tooling, even if such Special Tooling has been specially converted or adapted for manufacture of Goods for Buyer 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 owned by Seller in its sole determination at any time.

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

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

13. Use of Products, Indemnity by Buyer. Buyer shall comply with all instructions, guides and specifications provided by Seller with the Quote or the Products. If Buyer uses or resells the Products in any way prohibited by Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Further, Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, arising out of or in connection with: (a) improper selection, design, specification, application, or any misuse of Products; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of Buyer's Property; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing, tampering with or repackaging the Products; or (e) Buyer's failure to comply with these Terms, including any legal or administrative proceedings, collection efforts, or other actions arising from or relating to such failure to comply. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

14. Cancellations and Changes. Buyer may not cancel or modify, including but not limited to movement of delivery dates for the Products, 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 and any additional expense. Seller, at any time, may change features, specifications, designs and availability of Products.

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

16. Force Majeure. Seller is not liable for delay or failure to perform any of its obligations by reason of any events or circumstances beyond its reasonable control. Such circumstances include without limitation: accidents, labor disputes or stoppages, government acts or orders, acts of nature, pandemics, epidemics, other widespread illness, or public health emergency, cyber related disruptions, cyber-attacks, ransomware sabotage, delays or failures in delivery from carriers or suppliers, shortages of materials, sudden increases in the price of raw material or components, shutdowns or slowdowns affecting the supply of raw materials or components, or the transportation thereof, oil shortages or oil price increases, energy crisis, energy or fuel interruption, war (whether declared or not) or the serious threat of same, riots, rebellions, acts of terrorism, embargoes, fire or any reason whether similar to the foregoing or otherwise. Seller will resume performance as soon as practicable after the event of force majeure has been removed. All delivery dates affected by an event of force majeure shall be tolled for the duration of such event of force majeure and rescheduled for mutually agreed dates as soon as practicable after the event of force majeure ceases to exist. The right to allocate capacity is in the Seller's sole discretion. An event of force majeure shall not include financial distress, insolvency, bankruptcy, or other similar conditions affecting one of the parties, affiliates and/or subcontractors. An event of force majeure in the meaning of these Terms means any circumstances beyond Seller's control that permanently or temporarily hinders performance, even where that circumstance was already foreseen. Buyer shall not be entitled to cancel any orders following its claim of an event of force majeure.

17. Waiver and Severability. Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice either party's right to enforce that provision in the future. Invalidation of any provision of these Terms shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

18. Duration. Unless otherwise stated in the Quote, any agreement governed by or arising from these Terms shall: (a) be for an initial duration of one (1) year; and (b) shall automatically renew for successive one-year terms unless terminated by Buyer with at least 180-days written notice to Seller or if Seller terminates the agreement pursuant to Section 19 of these Terms.

19. Termination. Seller may, without liability to Buyer, terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms, (b) becomes or is deemed insolvent, (c) appoints or has appointed a trustee, receiver or custodian for all or any part of Buyer's property,(d) files a petition for relief in bankruptcy on its own behalf, or one is filed against Buyer by a third party, (e) makes an assignment for the benefit of creditors; or (f) dissolves its business or liquidates all or a majority of its assets.

20. Ownership of Rights. Buyer agrees that (a) Seller (and/or its affiliates) owns or is the valid licensee of Seller's IP and (b) the furnishing of information, related documents or other materials by Seller to Buyer does not grant or transfer any ownership interest or license in or to Seller's IP to Buyer, unless expressly agreed in writing. Without limiting the foregoing, Seller retains ownership of all Software supplied to Buyer. In no event shall Buyer obtain any greater right in and to the Software than a right in a license limited to the use thereof and subject to compliance with any other terms provided with the Software. Buyer further agrees that it will not, directly or through intermediaries, reverse engineer, decompile, or disassemble any Software (including firmware) comprising or contained within a Product, except and only to the extent that such activity may be expressly permitted, either by applicable law or, in the case of open source software, the applicable open source license.

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

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

23. Entire Agreement. These Terms, along with the terms set forth in the Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale and purchase. In the event of a conflict between any term set forth in the Quote and these Terms, the terms set forth in the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with

respect to the subject matter shall have no effect. No modification to these Terms will be binding on Seller unless agreed to in a writing that is signed by an authorized representative of Seller, excluding email correspondence, 'clickwrap' or other purported electronic assent to different or additional terms. Sections 2-25 of these Terms shall survive termination or cancellation of any agreement governed by or arising from these Terms.

24. No 'Wrap' Agreements/No Authority to Bind. Seller's clicking any buttons or any similar action, such as clicking "I Agree" or "Confirm," to utilize Buyer's software or webpage for the placement of orders, is NOT an agreement to Buyer's Terms and Conditions. **NO EMPLOYEE, AGENT OR REPRESENTATIVE OF SELLER HAS THE AUTHORITY TO BIND SELLER BY THE ACT OF CLICKING ANY BUTTON OR SIMILAR ACTION ON BUYER'S WEBSITE OR PORTAL.**

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

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Parker Hannifin Corporation
Pneumatic Division
8676 E. M89
Richland, MI 49083 USA
Tel: 269 629 5000
Applications Engineering: pdn.technical@support.parker.com
Customer Support: pdn.support@support.parker.com
Website: www.parker.com/pneumatics