



aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



P3Y Series Air Preparation System

3/4" & 1" Body Ported

Catalog 0745-US



ENGINEERING YOUR SUCCESS.

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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".

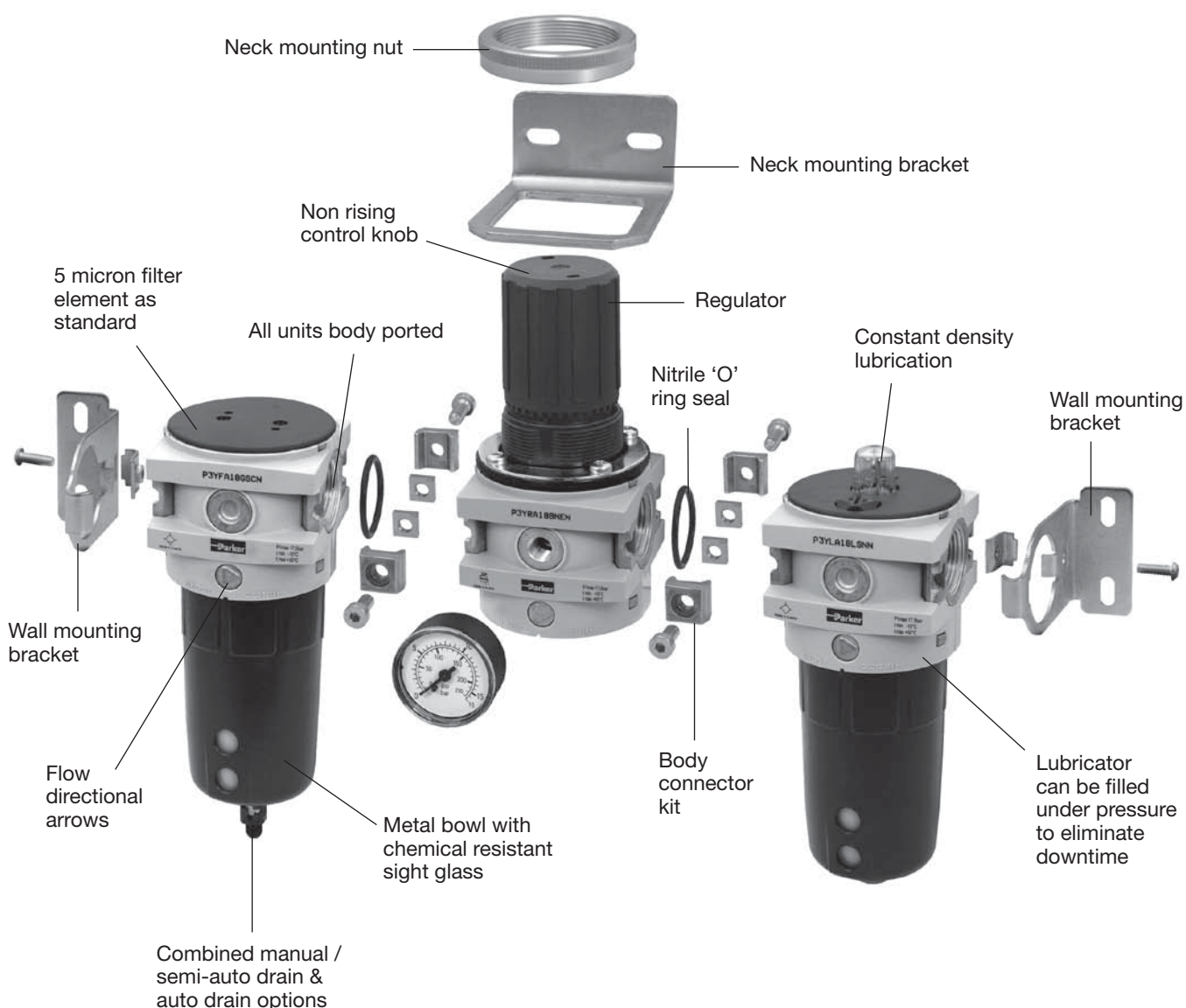
The System

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.

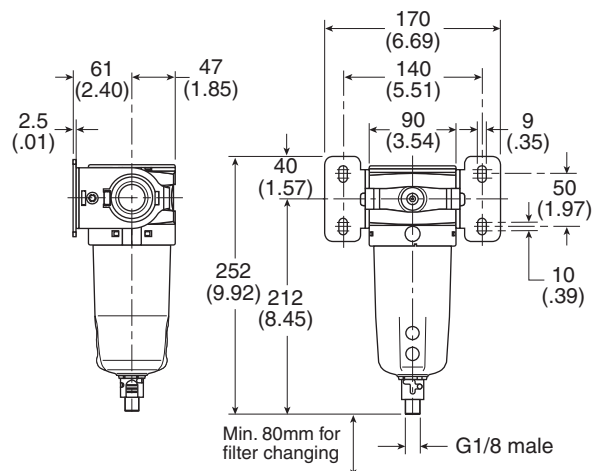
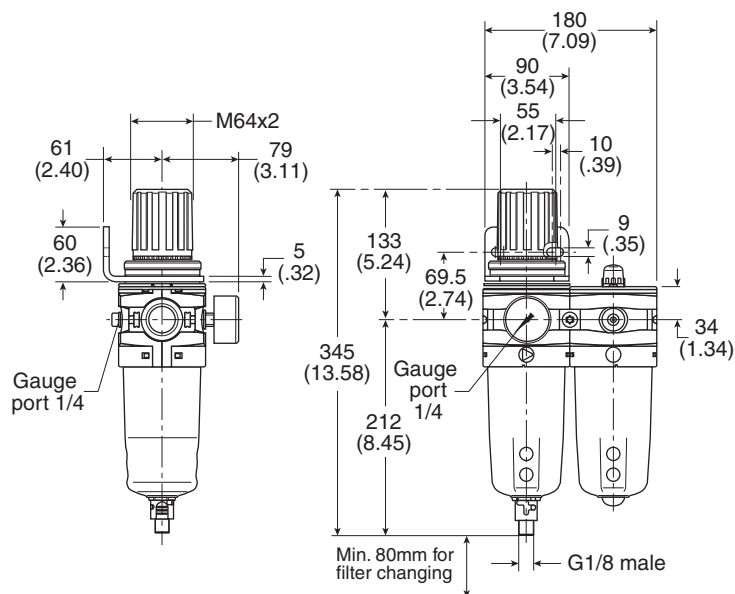
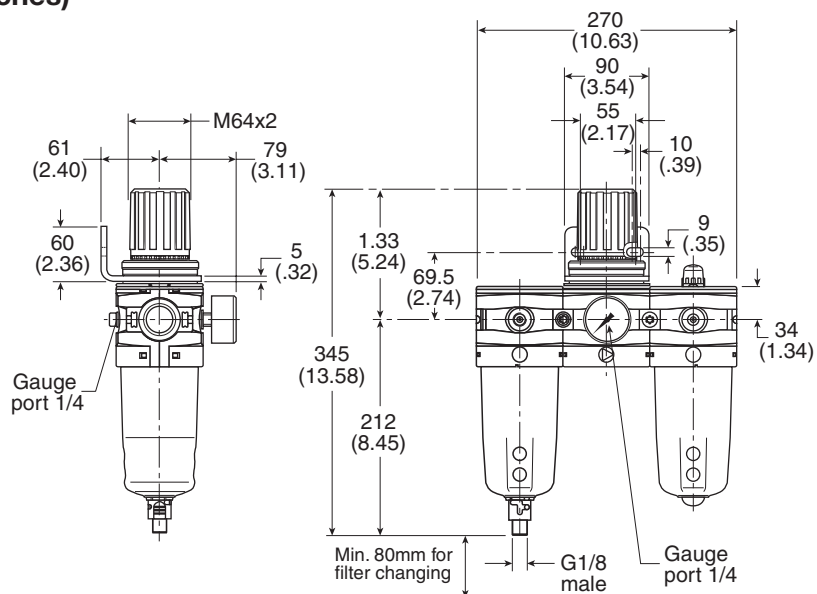
The rolling diaphragm was designed for long trouble-free operation and will not rupture or tear under high cycle or demanding applications. The P3Y mist lubricators are designed to provide lubrication for many general purpose applications.



Pneumatic Air Preparation Systems

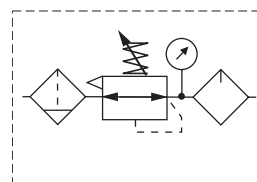
Recommended Wall Mountings

Dimensions mm (inches)



Filter + Regulator + Lubricator Combinations

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



Ordering information

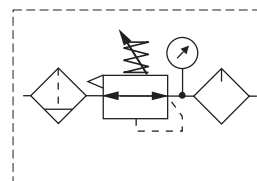
Port size	Flow [‡] scfm	Weight kg (lb)	Combined manual / semi-auto drain Part number [†]	Auto drain Part number [†]
3/4"	170	3.3 (7.3)	P3YCB96SECNFLNF	P3YCB96SEANFLNF
1"	170	3.3 (7.3)	P3YCB98SECNFLNF	P3YCB98SEANFLNF

† 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



Ordering information

Port size	Flow [‡] scfm	Weight kg (lb)	Combined manual / semi-auto drain Part number [†]	Auto drain Part number [†]
3/4"	315	2.8 (6.2)	P3YCA96SECNFLNF	P3YCA96SEANFLNF
1"	340	2.8 (6.2)	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.

Options

P3YCA		9	6	SE	C	N	F	LNF
Basic series		Thread type*	Port size		Drain type		Adjustment range	
Filter / Regulator + Lubricator	P3YCA	BSPP 1	3/4	6	C	Combined manual / semi-auto drain	F	0-12 bar (0 to 174 psi) with gauge
Filter + Regulator + Lubricator	P3YCB	NPT 9	1	8	A	Auto drain	J	0-16 bar (0 to 232 psi) with gauge

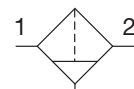
* Note: For 1-1/2" ported unit, please order P3YKA*BCP port block kit separately.

Bold items are most common.

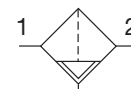
Particulate Filter - P3Y



Symbols



Manual drain



Auto drain

- 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

Options

P3YFA		9	6	E	SC	N
Basic series		Thread type*		Port size		Element
Filter	P3YFA	BSPP	1	3/4	6	E 5 micron
		NPT	9	1	8	
						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.
Bold items are most common.

Ordering information

Port size	Description	Flow [†] scfm	Max. bar (psig)	Min temp °C (°F)	Max temp °C (°F)	Bowl capacity cm ³ (oz)	Height mm (inches)	Width mm (inches)	Depth mm (inches)	Weight kg (lb)	Part number [†]
3/4"	Combined manual / semi-auto drain	170	17.5 (254)	-40 (-40)	60 (140)	130 (4.4)	244 (9.6)	90 (3.5)	94 (3.7)	0.9 (1.98)	P3YFA96ESCN
3/4"	Auto drain	170	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	244 (9.6)	90 (3.5)	94 (3.7)	0.9 (1.98)	P3YFA96ESAN
1"	Combined manual / semi auto drain	170	17.5 (254)	-40 (-40)	60 (140)	130 (4.4)	244 (9.6)	90 (3.5)	94 (3.7)	0.9 (1.98)	P3YFA98ESCN
1"	Auto drain	170	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	244 (9.6)	90 (3.5)	94 (3.7)	0.9 (1.98)	P3YFA98ESAN

[†] Standard part numbers shown in bold. For other models refer to Options chart above.

[‡] Flow with 6.3 bar (91.4 psig) inlet pressure and 0.5 (7.3 psig) pressure drop.

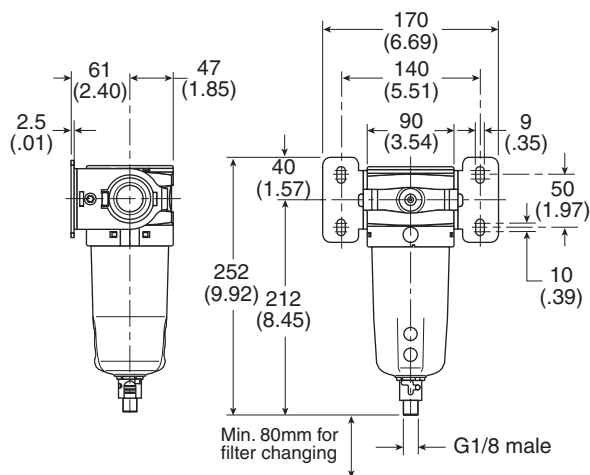
Specifications

Fluid	Compressed air
Maximum inlet pressure*	17.5 bar (254 psig)
Temperature range*:	
Auto drain	-10°C to 60°C (14°F to 140°F)
Combined drain	-40°C to 60°C (-40°F to 140°F)
Particle removal	5 micron
Air quality	Within ISO 8573-1: 1991 Class 3 and 5 (particulates) Within ISO 8573-1: 2001 Class 6 and 7 (particulates)
Typical flow 5 micron element 6.3 bar (91.4 psig) inlet pressure and 0.5 bar (7.3 psig) pressure drop	1" port 170 scfm
Manual / semi-auto drain	Closed at 0.8 bar (11.6 psig) G1/8 thread male
Auto drain bowl pressure to close drain	0.8 bar (11.6 psig)
Operating range	0.8 bar (11.6 psig) to 17.5 bar (254 psig)
Bowl capacity	130 cm ³ (4.4 US oz)

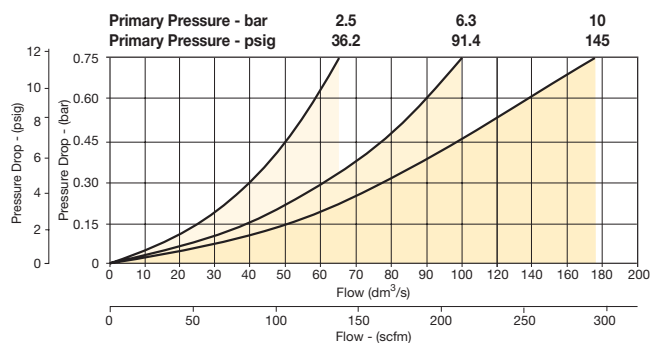
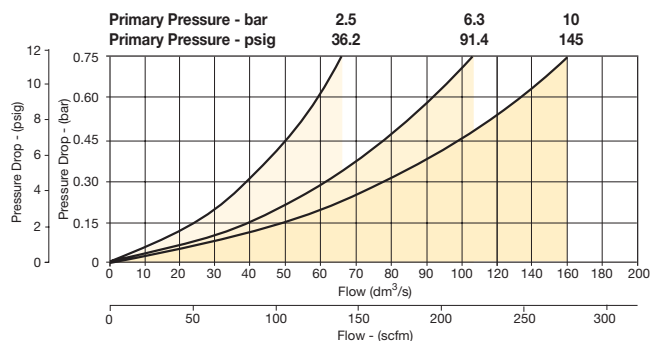
* Air supply must be dry enough to avoid ice formation at temperatures below 2°C (35.6°F).

Material specifications

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

Dimensions mm (inches)**Service kits**

Description	Part number
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**

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.

Options

Basic series		Thread type*		Port size		Element		Drain type	
Coalescing Filter	P3YFA	BSPP	1	3/4	6	D	0.01 micron element with DPI standard	SC	Combined manual / semi auto drain
		NPT	9	1	8	C	0.01 micron element (without DPI optional)	SA	Auto drain
						A	Adsorber		

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

Ordering information

Port size	Description	Flow† scfm	Max. bar (psig)	Min temp °C (°F)	Max temp °C (°F)	Bowl capacity cm³ (oz)	Height mm (inches)	Width mm (inches)	Depth mm (inches)	Weight kg (lb)	Part number†
3/4"	Coalescing filter 0.01 micron, combined manual / semi-auto drain	275	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	340 (13.4)	90 (3.5)	94 (3.7)	1.6 (3.5)	P3YFA96DSCN
3/4"	Coalescing filter 0.01 micron, auto drain	275	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	340 (13.4)	90 (3.5)	94 (3.7)	1.6 (3.5)	P3YFA96DSAN
1"	Coalescing filter 0.01 micron, combined manual / semi-auto drain	307	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	340 (13.4)	90 (3.5)	94 (3.7)	1.6 (3.5)	P3YFA98DSCN
1"	Coalescing filter 0.01 micron, auto drain	307	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	340 (13.4)	90 (3.5)	94 (3.7)	1.6 (3.5)	P3YFA98DSAN

† **Standard part numbers shown in bold. For other models refer to Options chart above.**

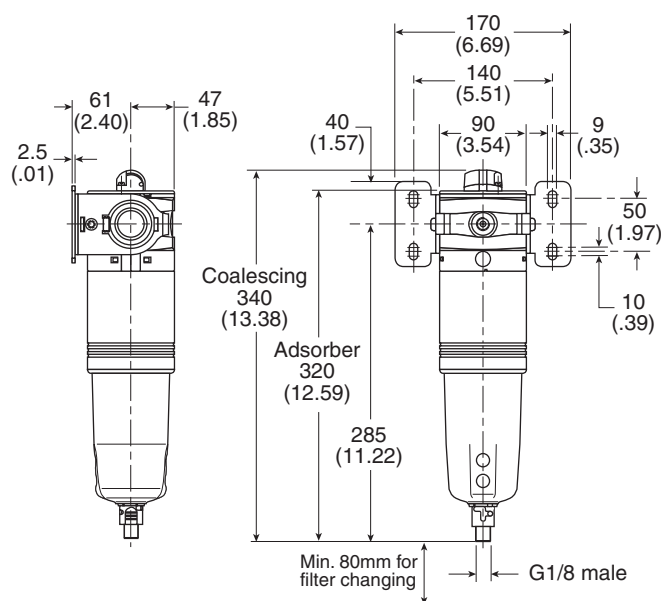
‡ Flow with 6.3 bar (91.4 psig) inlet pressure and 0.5 (7.3 psig) pressure drop.

Specifications

Fluid	Compressed air
Maximum inlet pressure*	17.5 bar (254 psig)
Temperature range*	-10°C to 60°C (14°F to 140°F)
Media specifications (Coalescer):	
Coalescing efficiency	99.97% (0.3 to 0.6 micron particles)
Max. oil carryover	0.008 mg/m ³
Typical flow element @	0.01 micron element
6.3 bar (91.4 psig) inlet pressure and	1" port
0.5 bar (7.3 psig) pressure drop	307 scfm
Media specifications (Adsorber):	
Max. oil carryover (PPM w/w)	0.008 mg/m ³
Manual / semi-auto drain	Closed at 0.8 bar (11.6 psig) G1/8 thread male
Auto drain bowl pressure to close drain	0.8 bar (11.6 psig)
Operating range	0.8 bar (11.6 psig) to
manual override facility	17.5 bar (254 psig)
Bowl capacity	130 cm ³ (4.4 US oz)

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

Dimensions mm (inches)



Service kits

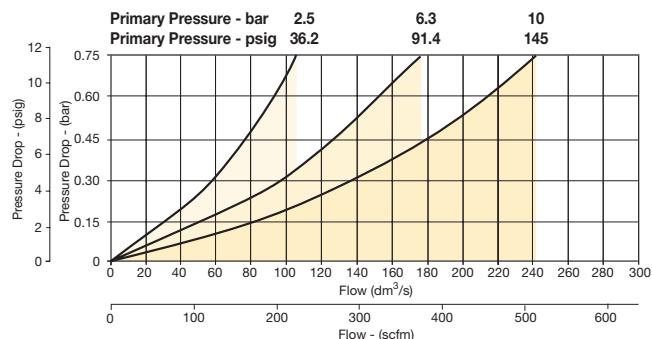
Description	Part number
0.01 micron element kit	P3YKA00ESC
Adsorber element kit	P3YKA00ESA
Bowl kit with combined manual / semi auto drain	P3YKA00BSC
Bowl kit with auto drain	P3YKA00BSA
Differential pressure indicator kit	P3YKA00RQ

Material specifications

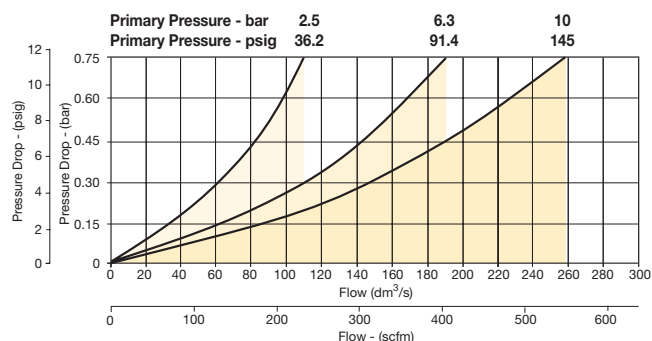
Body	Aluminium
Sight glass and bowl	Polypropylene
Filter cover	ABS
Coalescing element	Borosilicate & nano fibers
Top & bottom end cap (Coalescing)	Aluminium
Adsorber element	Activated carbon
Top & bottom end cap (Adsorber)	Glass filled nylon
Support cylinders	Grade 430 stainless steel
Support media	Polypropylene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

Flow characteristics

(3/4") 0.01 Micron Coalescing Filter Saturated



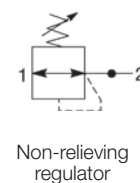
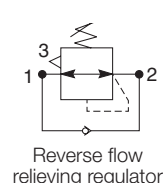
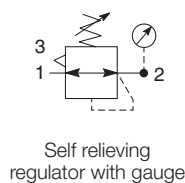
(1") 0.01 Micron Coalescing Filter Saturated



Regulator



Symbols



- 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)

Options

Basic series		Thread type*		Port size		Relief		Lockable		Adjustment range	
Regulator	P3YRA	BSPP	1	3/4	6	B	Relieving	N	Standard	E	0 - 12 bar (0 to 174 psi), no gauge
		NPT	9	1	8	R	Reverse flow / relieving	A†	Lockable	H	0 - 16 bar (0 to 232 psi), no gauge
										F	0 - 12 bar (0 to 174 psi), gauge
										J	0 - 16 bar (0 to 232 psi), gauge

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

Ordering information

Port size	Description	Flow‡ scfm	Max. bar (psig)	Min temp °C (°F)	Max temp °C (°F)	Height mm (inches)	Width mm (inches)	Depth mm (inches)	Weight kg (lb)	Part number†
3/4"	12 bar relieving	380	17.5 (254)	-40 (-40)	60 (140)	182 (7.2)	90 (3.5)	94 (3.7)	1.08 (2.4)	P3YRA96BNEN
3/4"	12 bar relieving + pressure gauge	380	17.5 (254)	-10 (14)	60 (140)	182 (7.2)	90 (3.5)	94 (3.7)	1.13 (2.5)	P3YRA96BNFN
1"	12 bar relieving	550	17.5 (254)	-40 (-40)	60 (140)	182 (7.2)	90 (3.5)	94 (3.7)	1.08 (2.4)	P3YRA98BNEN
1"	12 bar relieving + pressure gauge	550	17.5 (254)	-10 (14)	60 (140)	182 (7.2)	90 (3.5)	94 (3.7)	1.19 (2.6)	P3YRA98BNFN

† **Standard part numbers shown in bold. For other models refer to Options chart above.**

‡ Flow with 6.3 bar (91.4 psig) inlet pressure and 0.5 (7.3 psig) pressure drop.

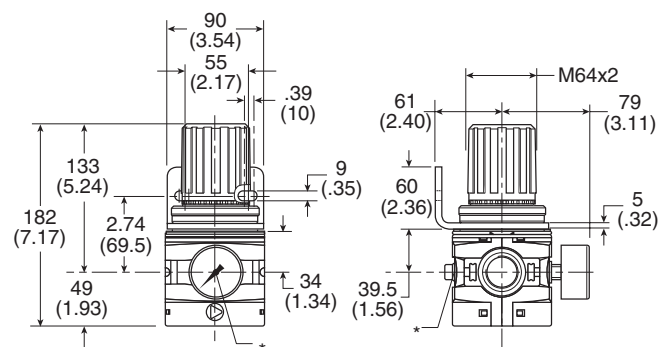
Specifications

Fluid	Compressed air
Maximum inlet pressure*	17.5 bar (254 psig)
Temperature range*	-40°C to 60°C (-40°F to 140°F)
Typical flow with 10 bar (145 psig) inlet pressure and 6.3 bar (91.4 psig) set pressure and 0.5 bar (7.3 psig) pressure drop	1" port 550 scfm
Gauge port (x 2)	1/4"

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

Material specifications

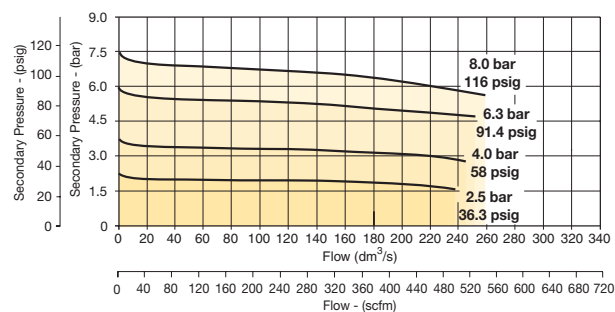
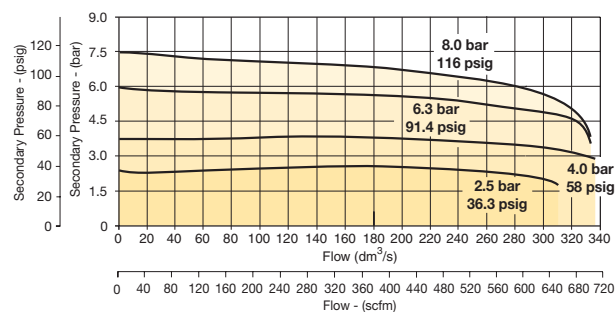
Body	Aluminium
Bonnet	Glass filled polyamide
Regulator cover	ABS
Control knob	Glass filled polyamide
Valve	Brass / NBR
Seals	Nitrile NBR
Screws	Steel / zinc plated

Dimensions mm (inches)

* 1/4" gauge port

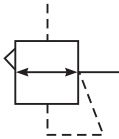
Service kits

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

Flow characteristics**(3/4") Regulator****(1") Regulator**

Pilot Operated Regulator

Symbol



- 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

Options

P3YRA

9

6

BPPN

Basic series	Thread type*	Port size
Pilot Operated Regulator	BSPP 1	3/4 6
	NPT 9	1 8

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

Ordering information

Port size	Description	Flow† scfm	Max. bar (psig)	Min temp °C (°F)	Max temp °C (°F)	Height mm (inches)	Width mm (inches)	Depth mm (inches)	Weight kg (lb)	Part number†
3/4"	Pilot operated regulator	550	17.5 (254)	-10 (14)	60 (140)	105.5 (4.15)	90 (3.54)	90 (3.54)	1.2 (2.6)	P3YRA96BPPN
1"	Pilot operated regulator	550	17.5 (254)	-10 (14)	60 (140)	105.5 (4.15)	90 (3.54)	90 (3.54)	1.2 (2.6)	P3YRA98BPPN

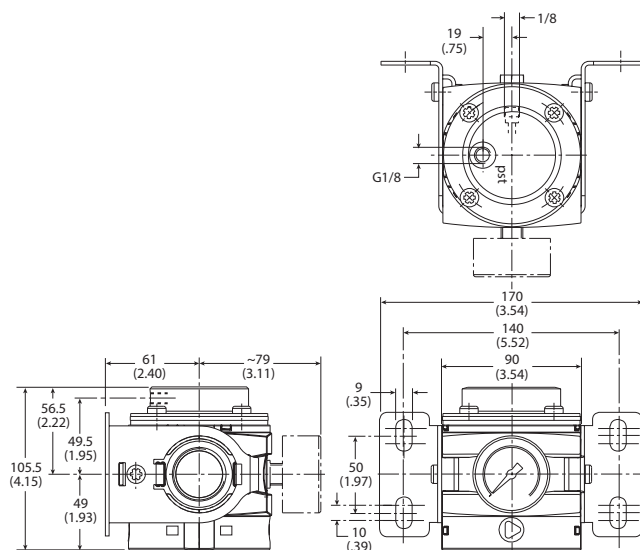
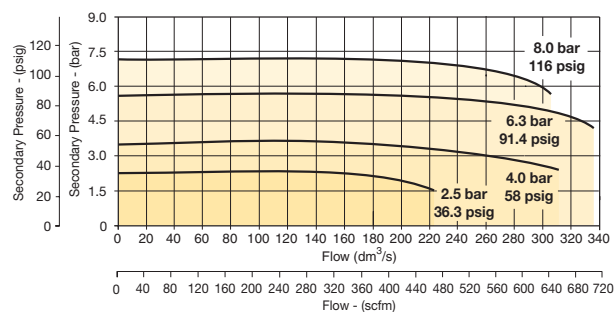
† Standard part numbers shown in bold. For other models refer to Options chart above.
‡ Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.4 psig) set pressure and 0.5 bar (7.3 psig) pressure drop.

Specifications

Fluid	Compressed air
Max. pressure air pilot operated	17.5 bar (254 psig)
Operating temperature	-10°C to 60°C (14°F to 140°F)
Weight	3/4" 1.2 kg (2.6 lb)
	1" 1.2 kg (2.6 lb)

Material specifications

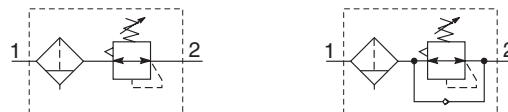
Body	Aluminium
Body cover	ABS
Valve	Brass / NBR composite
Pilot valve booster	Aluminum
Seals	Nitrile NBR
Screws	Zinc plated steel

Dimensions mm (inches)**Flow characteristics****3/4" and 1" Pilot Regulator**

Filter / Regulator



Symbols



- 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

Options

P3YEA		9	6	E	SA	B	N	E	N
Basic series		Thread type*		Drain type		Relief		Lockable	
Filter / Regulator P3YEA		BSPP 1		SC Combined manual / semi-auto drain		B Relieving		N Standard	
		NPT 9		SA Auto drain		R Reverse flow / relieving		A† Lockable	
		Port size		Element				Adjustment range	
		3/4 6		E 5 micron				E 0 - 12 bar (0 to 174 psi), no gauge	
		1 8						H 0 - 16 bar (0 to 232 psi), no gauge	
								F 0 - 12 bar (0 to 174 psi), gauge	
								J 0 - 16 bar (0 to 232 psi), gauge	

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

Bold items are most common.

Ordering information

Port size	Description	Flow‡ scfm	Max. bar (psig)	Min temp °C (°F)	Max temp °C (°F)	Bowl capacity cm³ (oz)	Height mm (inches)	Width mm (inches)	Depth mm (inches)	Weight kg (lb)	Part number†
3/4"	12 bar, relieving, combined manual / semi-auto drain	335	17.5 (254)	-40 (-40)	60 (140)	130 (4.4)	345 (13.5)	90 (3.5)	94 (3.7)	1.5 (3.3)	P3YEA96ESCBNEN
3/4"	12 bar, relieving, auto drain	335	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	345 (13.5)	90 (3.5)	94 (3.7)	1.5 (3.3)	P3YEA96ESABNEN
3/4"	12 bar, relieving, gauge, combined manual / semi-auto drain	335	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	345 (13.5)	90 (3.5)	94 (3.7)	1.5 (3.3)	P3YEA96ESCBNFN
3/4"	12 bar, relieving, gauge, auto drain	335	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	345 (13.5)	90 (3.5)	94 (3.7)	1.5 (3.3)	P3YEA96ESABNFN
1"	12 bar, relieving, combined manual / semi-auto drain	465	17.5 (254)	-40 (-40)	60 (140)	130 (4.4)	345 (13.5)	90 (3.5)	94 (3.7)	1.5 (3.3)	P3YEA98ESCBNEN
1"	12 bar, relieving, auto drain	465	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	345 (13.5)	90 (3.5)	94 (3.7)	1.5 (3.3)	P3YEA98ESABNEN
1"	12 bar, relieving, gauge, combined manual / semi-auto drain	465	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	345 (13.5)	90 (3.5)	94 (3.7)	1.5 (3.3)	P3YEA98ESCBNFN
1"	12 bar, relieving, gauge, auto drain	465	17.5 (254)	-10 (14)	60 (140)	130 (4.4)	345 (13.5)	90 (3.5)	94 (3.7)	1.5 (3.3)	P3YEA98ESABNFN

†Standard part numbers shown in bold. For other models refer to Options chart above.

‡Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.4 psig) set pressure and 0.5 bar (7.3 psig) pressure drop.

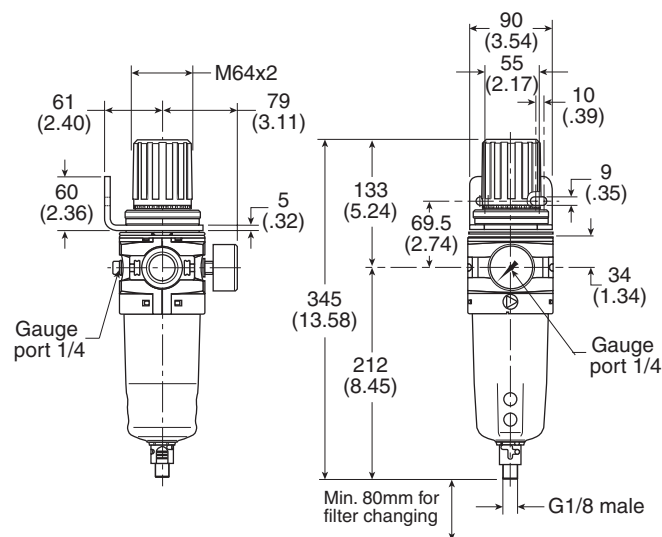
Lockable regulators will require key lock kit (opposite page).

Specifications

Fluid	Compressed air	
Maximum inlet pressure*	17.5 bar (254 psig)	
Temperature range*:		
Auto drain	-10°C to 60°C (14°F to 140°F)	
Combined drain	-40°C to 60°C (-40°F to 140°F)	
Particle removal	5 micron	
Air quality	Within ISO 8573-1: 1991 Class 3 and 5 (particulates)	
	Within ISO 8573-1: 2001 Class 6 and 7 (particulates)	
Typical flow with		
10 bar (145 psig) inlet pressure and	1" port	
6.3 bar (91.4 psig) set pressure and	465 scfm	
0.5 bar (7.3 psig) pressure drop		
Manual / semi-auto drain	Closed at 0.8 bar (11.6 psig)	
	1/8 thread	
Auto drain bowl pressure to close drain	0.8 bar (11.6 psig)	
Operating range manual	0.8 bar (11.6 psig) to	
override facility	17.5 bar (254 psig)	
Bowl capacity	130 cm³ (4.4 US oz)	
Gauge ports (x2)	1/4"	

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

Dimensions mm (inches)



Service kits

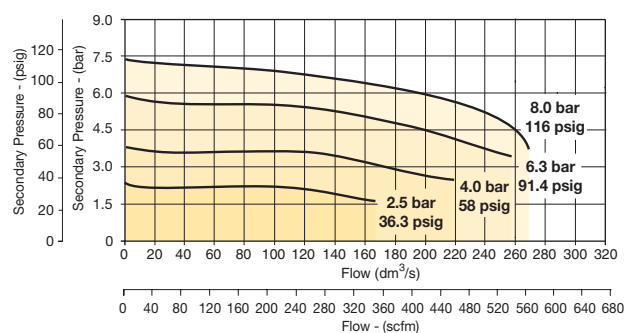
Description	Part number
5 micron element kit	P3YKA00ESE
Bowl kit with combined manual/semi auto drain	P3YKA00BSC
Bowl kit with auto drain	P3YKA00BSA
Key lock kit	P3XKA00AS
Diaphragm kit (relieving type)	P3YKA00RR
Diaphragm kit (non-relieving type)	P3YKA00RN
Angle bracket + metal lock ring	P3YKA00MS
Panel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

Material specifications

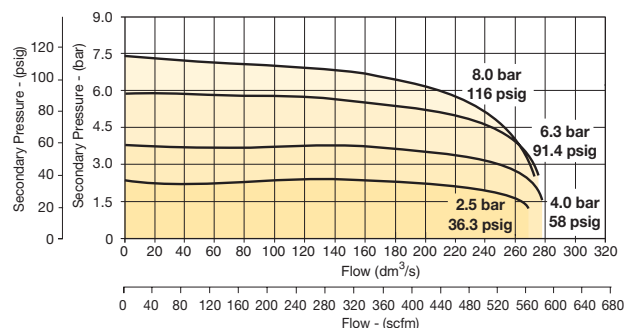
Body	Aluminium
Sight glass and bowl	Polypropylene
Body cover	ABS
Element	Sintered polypropylene
Seals	Nitrile NBR
Drains	Manual / semi-auto: Acetal
	Automatic: PA / Ø 10mm brass connection
Bonnet	Glass filled polyamide
Control Knob	Glass filled polyamide
Valve	Brass / NBR
Screws	Steel / zinc plated

Flow characteristics

(3/4") 5 Micron Filter / Regulator

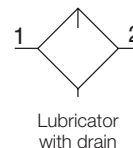


(1") 5 Micron Filter / Regulator



Lubricator

Symbol



- 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

Options

Basic series		Thread type*		Port size	
Lubricator	P3YLA	BSPP	1	3/4	6
		NPT	9	1	8

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

Ordering information

Port size	Description	Flow† scfm	Max. bar (psig)	Min temp °C (°F)	Max temp °C (°F)	Bowl capacity cm³ (oz)	Height mm (inches)	Width mm (inches)	Depth mm (inches)	Weight kg (lb)	Part number†
3/4"	Oil mist, fill under pressure	315	17.5 (254)	-10 (14)	60 (140)	500 (16.9)	247 (9.7)	90 (3.5)	94 (3.7)	0.8 (1.8)	P3YLA96LSNN
1"	Oil mist, fill under pressure	390	17.5 (254)	-10 (14)	60 (140)	500 (16.9)	247 (9.7)	90 (3.5)	94 (3.7)	0.8 (1.8)	P3YLA98LSNN

† Standard part numbers shown in bold. For other models refer to Options chart above.

‡ Flow with 6.3 bar (91.4 psig) inlet pressure and 0.5 (7.3 psig) pressure drop.

Specifications

Fluid	Compressed air
Maximum inlet pressure*	17.5 bar (254 psig)
Temperature range*	-10°C to 60°C (14°F to 140°F)

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

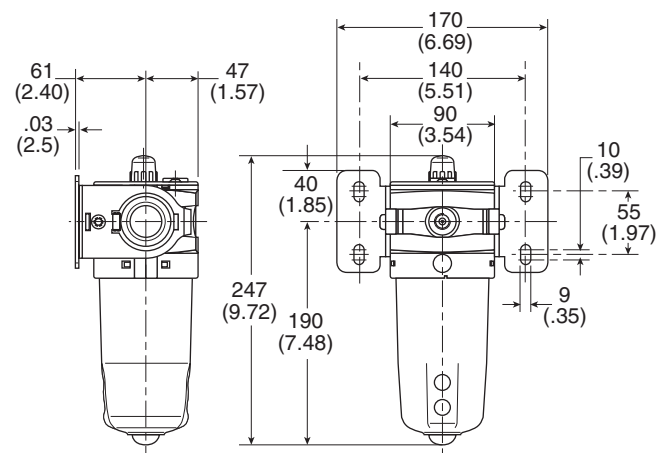
Low flow start point (lubrication pick-up): at 6.3 bar (91.4 psig) inlet pressure 0.5 dm³/s (1.1 scfm).

Typical flow with 6.3 (91.4 psig) bar inlet pressure and 0.7 bar (10.2 psig) pressure drop: 184 dm³/s (390 scfm).

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

Dimensions mm (inches)

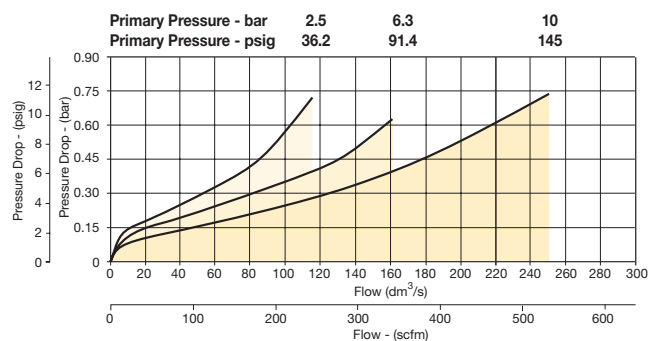


Service kits

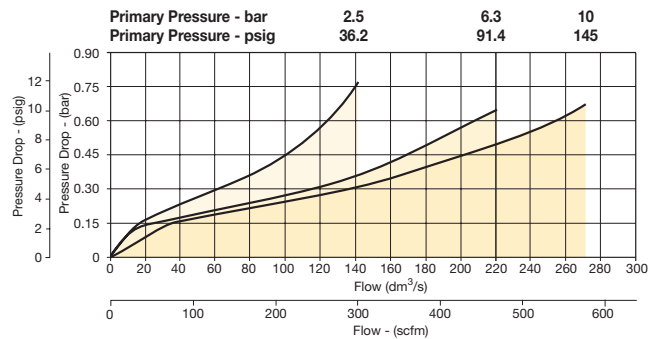
Description	Part number
Bowl kit	P3YKA00BSN
Refill plug	P3YKA00PL
Lubricator oil	P3YKA00PPBB

Flow characteristics

(3/4") Lubricator



(1") Lubricator



Proportional Pressure Regulator



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

Options

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

Basic series	Thread type*	Version	Control signal	Input connector
Proportional Pressure Regulator P3YPA	BSPP 1 NPT 9	Side exhaust, NC (Normally closed) B Side exhaust, NO (Normally open) C	A 4-20 mA V 0-10 V	2 M12 (5-pin)

Port size	Pressure range	Power supply	Output signal
3/4 6 1 8	0-10 bar (0-145 PSIG) D	2 24 volts	A Analog 0-10 V

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

Ordering information

Port size	Description	Control signal	Output signal	Outlet pressure	Weight kg (lb)	Part number†
3/4"	Normally closed	0 - 10 V	0 - 10 V	0 - 10 bar (0 to 145 psig)	1.2 (2.7)	P3YPA96BD2VA2A
1"	Normally closed	0 - 10 V	0 - 10 V	0 - 10 bar (0 to 145 psig)	1.2 (2.7)	P3YPA98BD2VA2A

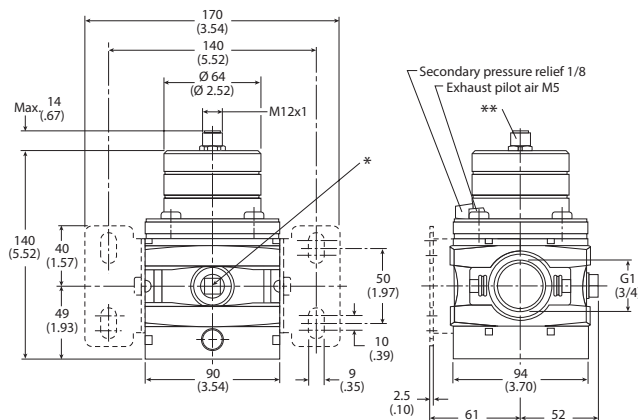
† Standard part numbers shown in bold. For other models refer to Options chart above.

Specifications

Operating pressure range	P ¹ min	1 bar (14.5 psig)	
Inlet pressure ¹	P ¹ max	16 bar (232 psig)	
Operating pressure range	P ² min	0.2 bar (2.9 psig)	
Outlet pressure	P ² max	10 bar (145 psig)	
Operating temperature	0°C to 50°C (32°F to 122°F)		
Maximum flow: 6.3 bar (91.4 psig) inlet pressure and 0.5 bar (7.3 psig) pressure drop	Q _n	l/min	20000
		m ³ /h	1200
		scfm	706
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 24V = ±10%		
Residual ripple	10%		
Power consumption	I _{Bmax}	0.15 A	
Set value input	U _w	V	0 - 10
		mA	0 - 20
		mA	4 - 20
Input resistance	R _E	243 K Ω	
Actual valve output	U _x	0 - 10 V	
Output current	I _{Amax}	10 mA	
Degree of protection	IP65 to DIN 40050, EN 60529		

$$^1) \quad p^1 > p^2 + 10\% p^2$$
$$^2) \text{ at } p^1 = 10 \text{ bar to } p^2 = 6.3 \text{ bar}$$

Dimensions mm (inches)



* Two opposite gauge ports 1/4", plug screw mounted

** Connection for 5-pin plug M12 x 1

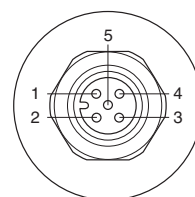
Material specifications

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

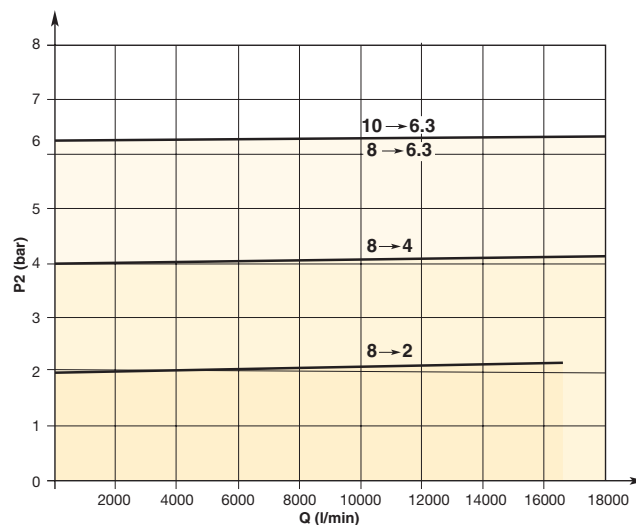
Connection diagram



Connector M12 x 1

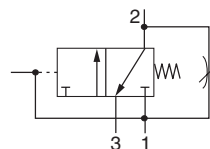
Pin No.		Function
1	24 V	Supply
2	0 V	Reference & mass capacity
3	0 - 10 V	Set value input
4	0 V	Signal
5	0 - 10 V	Analog output

Flow characteristics



Combined Soft Start / Dump Valve and
Remote Operated Dump Valve

Symbol



- 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.

Options

P3YTA		9	6	P	C	N	Solenoid type only	
Basic series		Thread type*		Pilot type			A	2CN
Soft Start / Dump Valve		BSPP 1		External air pilot P				
P3YTA		NPT 9		Solenoid pilot S				
							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.

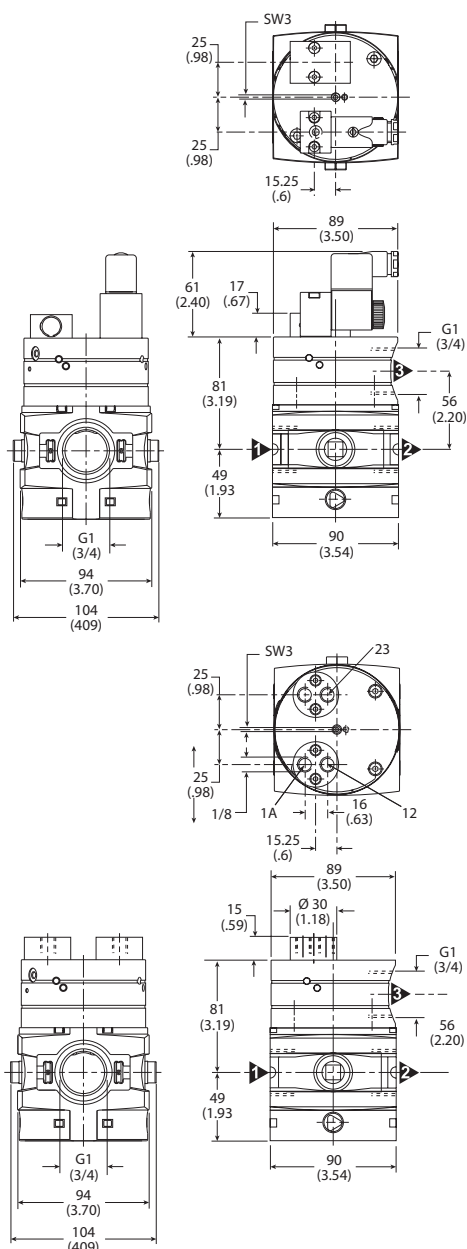
Bold items are most common.

Specifications

Fluid	Compressed air
Max. pressure solenoid operated 30mm coil	16 bar (232 psig)
Minimum operating pressure	2 bar (29 psig)
Temp. range* solenoid operated	-10°C to 60°C (14°F to 140°F)
Temp. range* air pilot operated	-10°C to 60°C (14°F to 140°F)
Air pilot port	1/8"
Exhaust port	1"
Gauge port	1/4"

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

Dimensions mm (inches)

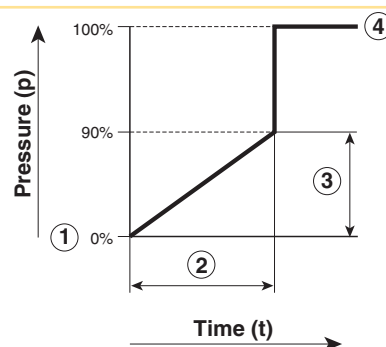


Material specifications

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

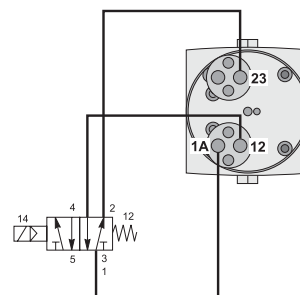
Note: For solenoid coil and cable plug options see page 24.

Flow characteristics

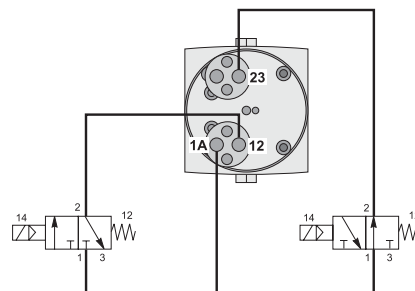


- Start signal
- Switching time delay
- Gradual pressure build up
- Operating pressure $p_2 (= p_1)$

Combined start / stop function



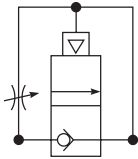
Combined start / stop function with acknowledgement



Soft Start Valve



Symbol



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

Options

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.
Bold items are most common.

Ordering information

Port size	Description	Flow scfm	Max. bar (psig)	Min temp °C (°F)	Max temp °C (°F)	Height mm (inches)	Width mm (inches)	Depth mm (inches)	Weight kg (lb)	Part number†
3/4"	Soft start valve	324	17.5 (254)	-10 (14)	60 (140)	85 (3.3)	90 (3.5)	97 (3.8)	.8 (1.8)	P3YSA96Y0N
1"	Soft start valve	324	17.5 (254)	-10 (14)	60 (140)	85 (3.3)	90 (3.5)	97 (3.8)	.8 (1.8)	P3YSA98Y0N

† Standard part numbers shown in bold. For other models refer to Options chart above.

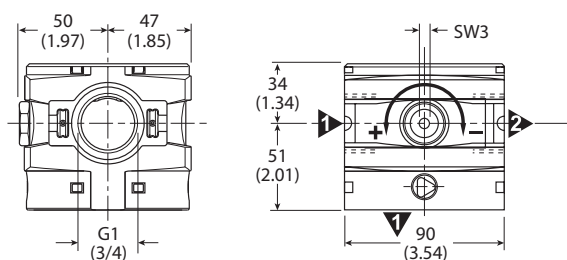
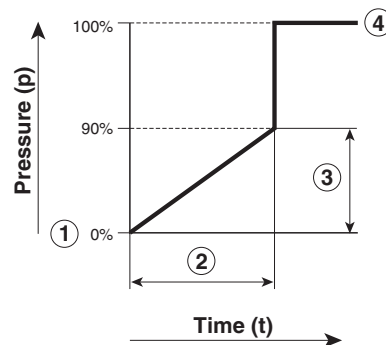
Specifications

Fluid	Compressed air
Max. pressure air pilot operated	17.5 bar (254 psig)
Minimum operating pressure	2 bar (29 psig)
Temp. range* solenoid operated	-10°C to 60°C (14°F to 140°F)
Temp. range* air pilot operated	-10°C to 60°C (14°F to 140°F)

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

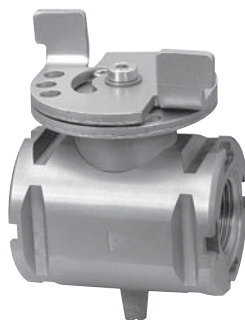
Material specifications

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

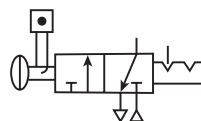
Dimensions mm (inches)**Flow characteristics**

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

Modular Ball Valve



Symbol



- 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).

Options

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.
Bold items are most common.

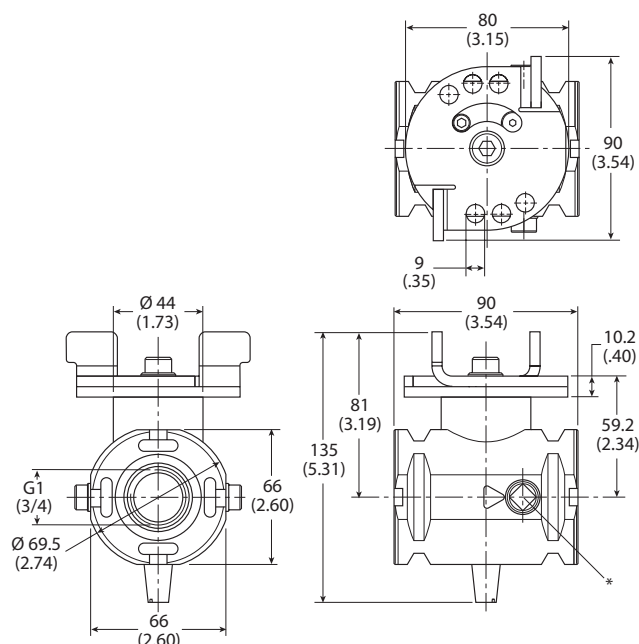
Specifications

Flow capacity	3/4"	333 dm³/s (705.6 scfm)
	1"	333 dm³/s (705.6 scfm)
Max. pressure air pilot operated	17.5 bar (254 psig)	
Operating temperature	-10°C to 60°C (14°F to 140°F)	
Weight	3/4"	1.1 kg (2.4 lb)
	1"	1.1 kg (2.4 lb)

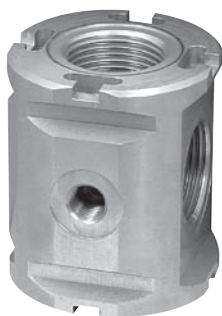
Material Specifications

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

Dimensions mm (inches)



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

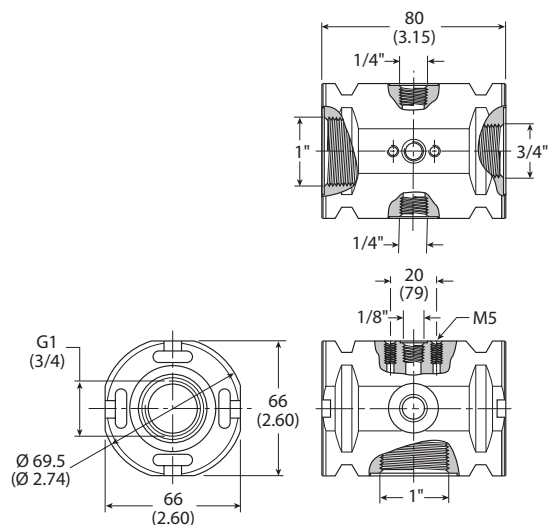
Port sizes

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

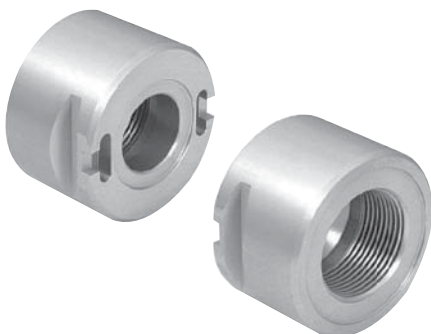
Material specifications

Body	Aluminium
Weight	0.7 kg (1.5 lb)

Dimensions mm (inches)



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)

Options:

P3YKA	9	B	CP
Basic series	Thread type	Port size	
Port Blocks P3YKA	BSPP 1	1-1/2 B	
	NPT 9		

Solenoid Operators - CNOMO

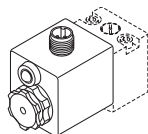
Technical data -

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.

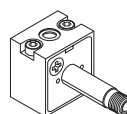
Materials

Pilot Valve

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

Coil

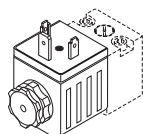
Encapsulation material:	Thermoplastic as standard Duroplast for M12 connection
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Spare Base Solenoid Pilot Operator
CNOMO NC

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

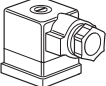
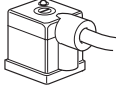
Note: Solenoid pilot operators are fitted to the Global range. Order the above part numbers for spares. The operators are supplied with mounting screws and interface 'O' rings. Coils and connectors must be ordered separately.

Solenoid Coils with DIN A or Industrial B Connection

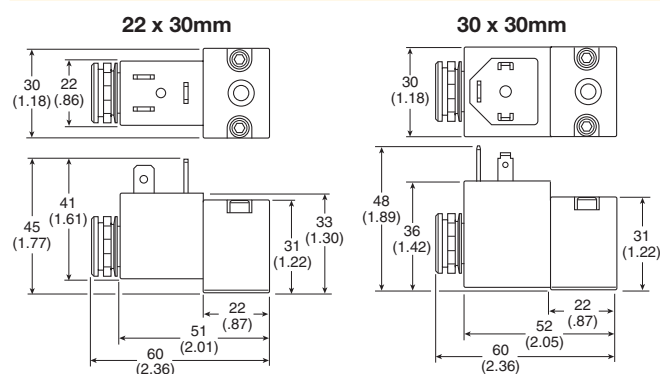


Voltage	22mm x 30mm Part number B industrial standard	Weight (Kg)	30mm x 30mm Part number DIN 43650A standard	Weight (Kg)
Direct current				
24VDC	P2FCB449	0.093	P2FCA449	0.105
Alternative current				
110V 50Hz, 120V 60Hz	P2FCB453	0.093	P2FCA453	0.105

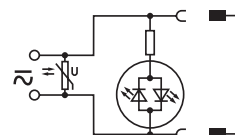
Solenoid Connectors / Cable Plugs EN175301-803

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



Electrical schematics

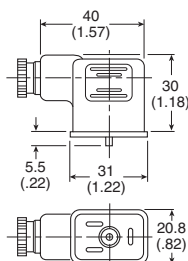


PS243079BP	PS203279BP
PS2430J79BP	PS2032J79CP
PS243083BP	PS203283BP
PS2430J83BP	PS2032J83CP
PS294679BP	PS294683BP
PS2946J79BP	PS2946J83BP

Cable plug dimensions mm (inches)

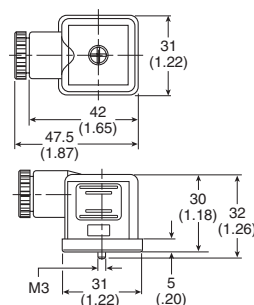
22mm Form B industrial cable plugs

PS2429BP

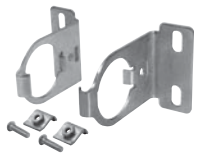


30mm DIN 43650A cable plugs

PS2028BP



Accessories

Description		Connection	Weight kg (lb)	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.		0.92 (2.03)	F442001	
	F442002 - 1 Gal			F442002	
Neck mounting bracket kit			3.75 (8.27)	P3YKA00MS	
P3Y connecting kit			0.05 (0.11)	P3YKA00CB	
Panel mounting nut (Aluminium)			0.70 (1.54)	P3YKA00MM	
Pressure gauge	0 to 10 bar (0 to 160 psig)	1/4"	0.06 (0.13)	K4520N14160	
	0 to 20 bar (0 to 300 psig)	1/4"	0.06 (0.13)	K4520N14300	
Refill plug				P3YKA00PL	
Wall mounting brackets			0.2 (0.44)	P3YKA00CW	

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 Gauges: To avoid potential polycarbonate bowl failures:
 - Do not locate polycarbonate bowls or sight gauges in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
 - Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, ketones, esters or certain alcohols.
 - Do not use polycarbonate bowls or sight gauges 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.

Pneumatic Air Preparation Systems

Offer of Sale

The goods, services or work (referred to as the "Products") offered by **Parker-Hannifin Corporation**, its subsidiaries, groups, divisions, and authorized distributors ("Seller") are offered for sale at prices indicated in the terms and conditions contained in this Offer of Sale. The offer to sell the Products and acceptance of Seller's offer by any customer ("Buyer") is contingent upon, and will be governed by all of the terms and conditions contained in this Offer of Sale. Buyer's order for any Products specified in Buyer's purchase document or Seller's offer, proposal or quote ("Quote") attached to the purchase order, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions. Seller's willingness to offer Products for sale or accept an order for Products is subject to the terms and conditions contained in this Offer of Sale or any newer version of the same, published by Seller electronically at www.parker.com/saleterms/. Seller objects to any contrary or additional terms or conditions of Buyer's order or any other document or other communication issued by Buyer.

2. Price; Payment. Prices stated on Seller's Quote are valid for thirty (30) days, except as explicitly otherwise stated therein, and do not include any sales, use, or other taxes or duties unless specifically stated. Seller reserves the right to modify prices to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). Payment is subject to credit approval and payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified by Seller's Credit Department). 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.

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

4. Warranty. Seller warrants that the Products sold hereunder shall be free from defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of normal use, whichever occurs first. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer: **DISCLAIMER OF WARRANTY: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS PROVIDED. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

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

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

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

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

9. Special Tooling. A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

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

11. Improper Use and Indemnity. Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs

(including attorney fees and defense costs), whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Products; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

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

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

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

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

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

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

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

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

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

05/14





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