



TPC FRL SYSTEM

FILTER, REGULATOR
LUBRICATOR, COMBINATION

Solution Innovation

GTEK AUTOMATION

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Standard Combinations

Combination Unit				Air Filter				Coalescing Filter				Air Regulator				Piggyback		Lubricator			
																					
PC2	PC3	PC4	PC5	PF2	PF3	PF4	PF5	PFH2	PFH3	PFH4	PFH5	PR2	PR3	PR4	PR5	PPH3	PPH4	PL2	PL3	PL4	PL5
1/8	1/4	3/8	3/4	1/8	1/4	3/8	3/4	1/8	1/4	3/8	3/4	1/8	1/4	3/8	3/4	1/4	3/8	1/8	1/4	3/8	3/4
1/4	3/8	1/2	1	1/4	3/8	1/2	1	1/4	3/8	1/2	1	1/4	3/8	1/2	1	3/8	1/2	1/4	3/8	1/2	1

		Standard Combinations																						
		PC2	PC3	PC4	PC5	PF2	PF3	PF4	PF5	PFH2	PFH3	PFH4	PFH5	PR2	PR3	PR4	PR5	PPH3	PPH4	PL2	PL3	PL4	PL5	
Units	Air Filter	○	○	○	○	○	○	○	○															
	Coalescing Filter	○	○	○	○					○	○	○	○											
	Air Regulator	○	○	○	○									○	○	○	○							
	Lubricator	○	○	○	○															○	○	○	○	
	Piggyback	○	○	○	○													○	○					
Accessories	Lock Out Valve	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Soft Start Valve	-	-	○	-	-	-	○	-	-	-	○	-	-	-	○	-	-	○	-	-	○	-	
	Pressure Switch	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Check Valve	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Modular Manifold Block	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Modular Adapter Kit	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Options	Drain	○	○	○	○	○	○	○	○	○	○	○	○	-	-	-	-	○	○	-	-	-	-	
	Filtration	0.3 micron Filtration	○	○	○	○	×	×	×	×	○	○	○	○	-	-	-	-	○	○	-	-	-	-
		0.01 micron Filtration	○	○	○	○	×	×	×	×	○	○	○	○	-	-	-	-	○	○	-	-	-	-
		5 micron Filtration	○	○	○	○	○	○	○	○	-	-	-	-	-	-	-	-	○	○	-	-	-	-
		20 micron Filtration	○	○	○	○	○	○	○	○	-	-	-	-	-	-	-	-	○	○	-	-	-	-
		40 micron Filtration	○	○	○	○	○	○	○	○	-	-	-	-	-	-	-	-	○	○	-	-	-	-
	Relief	Relief type	○	○	○	○	-	-	-	-	-	-	-	-	○	○	○	○	○	○	-	-	-	-
		Non-Relief type	○	○	○	○	-	-	-	-	-	-	-	-	○	○	○	○	○	○	-	-	-	-
	Pressure	Pressure Range(0-30psi)	○	○	○	○	-	-	-	-	-	-	-	-	○	○	○	○	○	○	-	-	-	-
		Pressure Range(0-60psi)	○	○	○	○	-	-	-	-	-	-	-	-	○	○	○	○	○	○	-	-	-	-
		Pressure Range(0-125psi)	○	○	○	○	-	-	-	-	-	-	-	-	○	○	○	○	○	○	-	-	-	-
Built-In check valve		○	○	○	○	-	-	-	-	-	-	-	-	○	○	○	○	○	○	-	-	-	-	
	Tamper Resistant Kit	○	○	○	○	-	-	-	-	-	-	-	-	○	○	○	○	○	○	-	-	-	-	

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■ Features

There is an optional filter life indicator which allows the user to see when a element needs replacing.

When using the modular lockout valve, the user is able to shut off the stream of air supply for pressure isolation and maintenance. All units are threaded for direct mounting or they can be configured in the modular arrangement.

The integral pressure gauge allows the user to set the gauge fan to a specific pressure range for their application needs.

"T-Bracket" wall brackets are standard on all combination units.



The use of modular pipe adapters are used to combine different thread sizes in the combination set-up. The use of these adapters allows for ease of service and use, by letting any unit to be removed from the combination unit.

On all piggyback's and regulators, a panel nut is option.

PC2 Series



1/8" AND 1/4"

PC3 Series

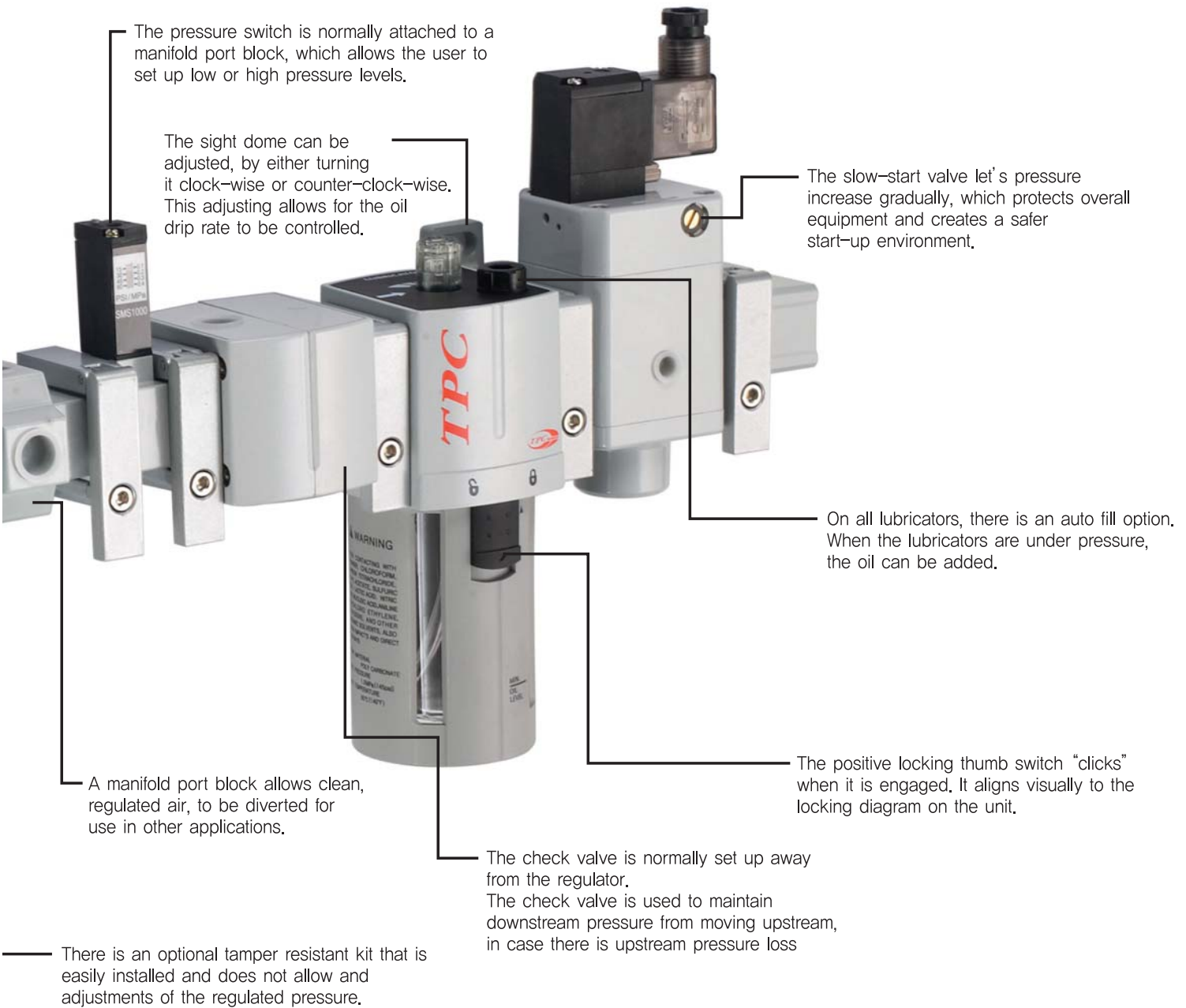


1/4" AND 3/8"

PC4 Series



3/8" AND 1/2"



PC5 Series



3/4" AND 1"

PFH Series



1/8", 1/4", 3/8"
1/2", 3/4" AND 1"

PPH Series



1/4", 3/8" AND 1/2"

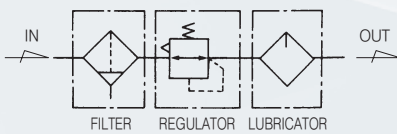
PC2 Series

Combinations 1/8" and 1/4"

Combination Unit



Symbol



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure	Standard	0.05 ~ 1.0(7~140psi)
range (MPa)	Made to order specifications	0.05~0.2(7~30psi), 0.05~0.4(7~60psi)
Ambient and fluid temperature (°C)	-5 ~ 60(23~140°F) (Non-freezing)	
Flow capacity ※	1/8"	1,000(35scfm)
(Nℓ/min)	1/4"	1,300(46scfm)
Filtration (μm)	5	
Construction	Relieving style	
Recommended oil	ISO VG32 (Turbine oil 1 class)	
Port size for pressure gauge (Rc (PT), NPT)	1/8"	
Weight (kg)	0.49(1.08lb)	

※ Test conditions : Supply pressure 0.7Mpa(100psi), Set pressure 0.6Mpa(90psi)

How to order

PC 2 A — * 02 D G — * — C1M1Z

Series
(Combination Units)

Components

Blank	Filter-Regulator-Lubricator
A	Piggyback-Lubricator
B	Filter-Regulator
C	Filter-Coalescing Filter(0,3)-Regulator
D	Piggyback-Coalescing Filter(0,3)
E	Filter-Coalescing Filter(0,01)-Regulator
F	Piggyback-Coalescing Filter(0,01)

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

01	1/8
02	1/4

Drain Options

Note1)

Blank	Manual Push Drain
D	Auto Drain (N.O Type)
D2	Auto Drain (Piping exhaust)
D5	Manual Drain (Piping exhaust)

Note1) Min.operating pressure is 0,15MPa (20psi) for Auto Drain (N.O Type)

Pressure Gauge

Symbol	Description	Pressure range
Blank	None	
G	Integral pressure gauge (W/Limit Indicator)	1,0MPa(140psi)
P	Pressure gauge	1,0MPa(140psi)
P2	Pressure gauge	0,2MPa(30psi)
P4	Pressure gauge	0,4MPa(60psi)

Accessories

Symbol	Port size	Description	Applicable series
C1	1/8"	Check Valve	PC2~PC3
C2	1/4"		PC2~PC4
C3	3/8"		PC4
M1	1/8"	Modular Manifold Block Kit	PC2~PC3
M2	1/4"		PC2~PC4
M3	3/8"		PC4
V	-	Lock-out Valve	PC2~PC5
W	-	Modular pipe adapter Kit	PC2~PC5
Z	-	Pressure Switch	PC2~PC5

※ Refer to page 62 for how to attach bracket & how to combine the accessories

※ When specifying more than one symbol, indicate them alphabetically Ex) CIMIZ

Other Options

Blank	Set at 0 to 1,0 MPa, 5μm(140psi) (Standard)			
2	Set at 0 to 0,2 MPa(30psi)	K	Built-in Check Valve	Note2)
4	Set at 0 to 0,4 MPa(60psi)	R	Flow direction : Right → Left	
E	Non-relieving type	T	Tamper Resistant Kit	Note2,3)
J2	Filter element - 20μm	U	Regulator (Top mounted)	
J4	Filter element - 40μm	XC16	Copper-free	

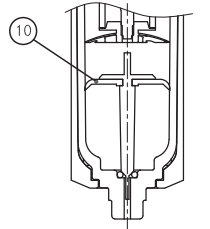
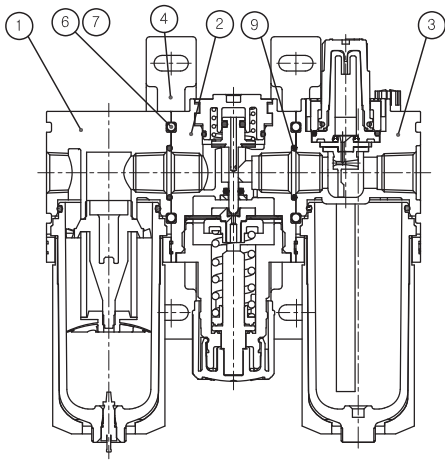
Note2) Refer to page 85 for Built-in Check valve, Tamper resistant kit.

Note3) Separately packed, Not assembled.

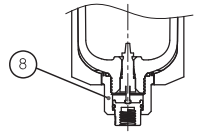
※ If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK

※ Over Max. pressure value can be set.

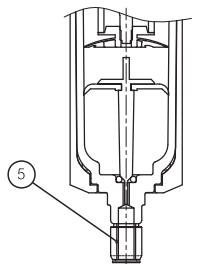
Construction



Auto-Drain Standard Type



Manual-Drain Piping Type



Auto-Drain Piping Type

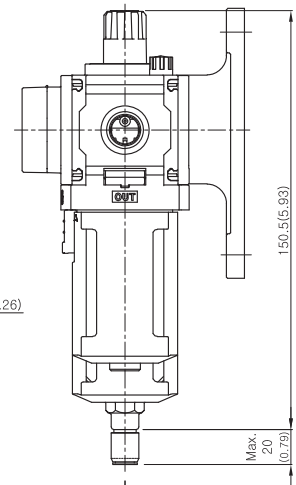
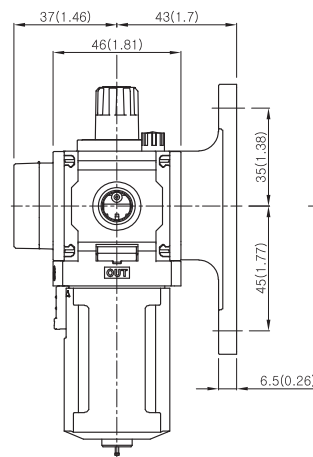
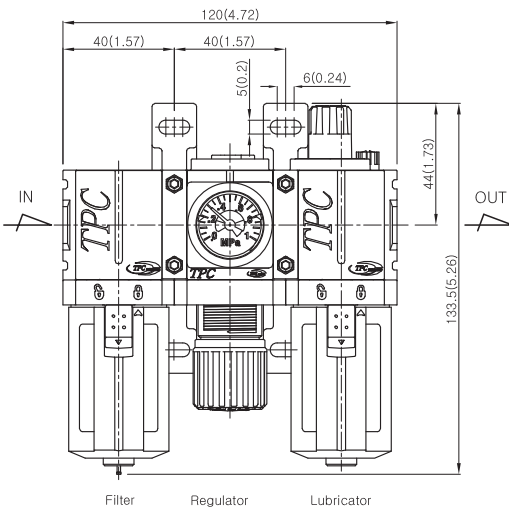
Main Parts / Parts List

No.	Description	Material	Remarks
①	Filter ass'y	-	
②	Regulator ass'y	-	
③	Lubricator ass'y	-	
④	Bracket ass'y	-	
⑤	Fitting	-	
⑥	Connecting screw	Carbon steel	
⑦	Connecting nut	Carbon steel	
⑧	Manual-drain pipe Ass'y	-	

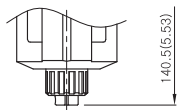
Replacement Parts / Parts List

No.	Description	Material	Part No.
⑨	Combination O-ring	NBR	AN015-01
⑩	Auto-drain ass'y	-	PF2-26A002-01

PC2 Dimensions



Auto-Drain Type



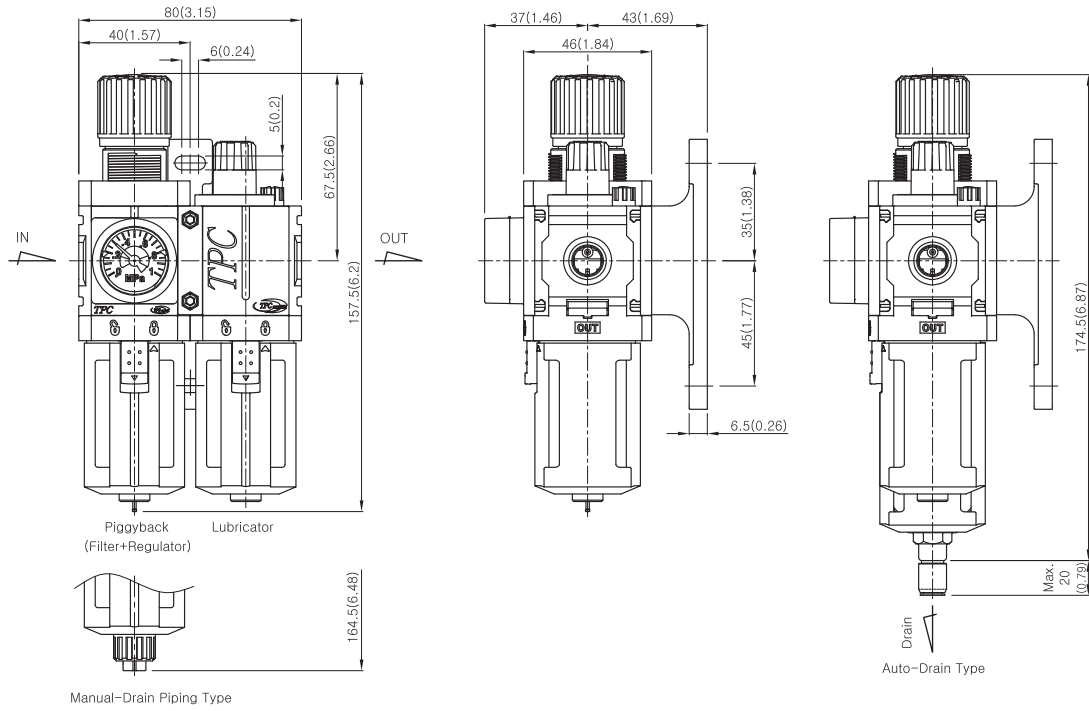
Manual-Drain Piping Type

PC2 Series

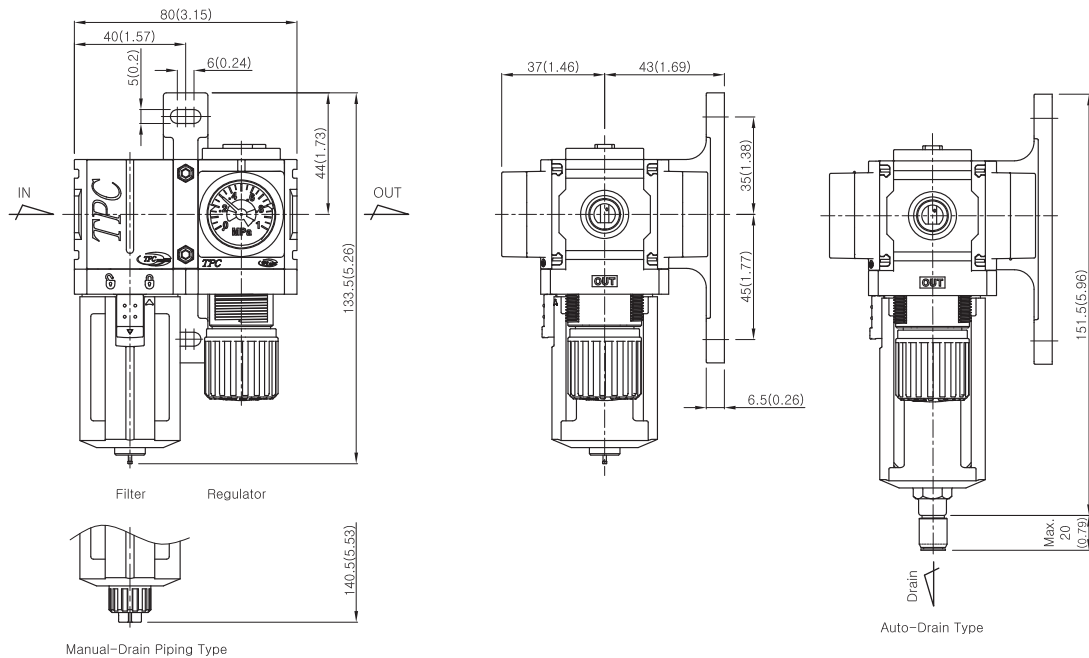
Combinations 1/8" and 1/4"

Combination Unit

PC2A Dimensions

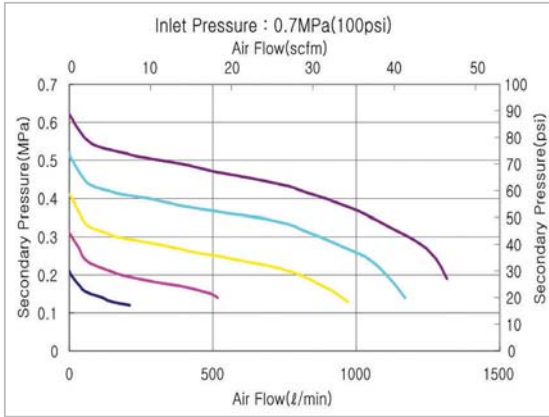


PC2B Dimensions

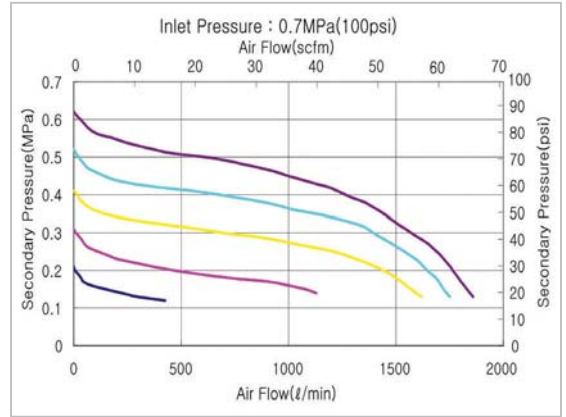


■ PC2 Series Flow Characteristics

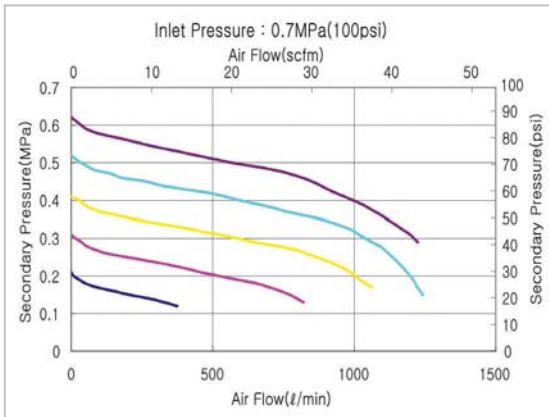
▶ 1/8" PC2



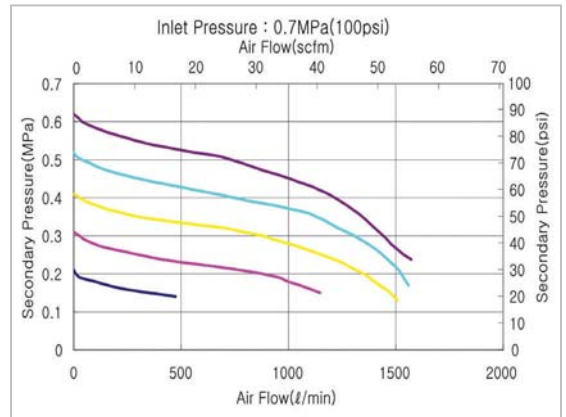
▶ 1/4" PC2



▶ 1/8" PC2A



▶ 1/4" PC2A



PC3 Series

Combinations 1/4" and 3/8"

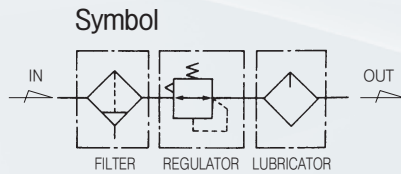
Combination Unit



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05 ~ 0.2(7~30psi)
		0.05 ~ 0.4(7~60psi)
		0.05 ~ 1.2(7~170psi)
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow capacity ※ (Nℓ /min)	1/4"	1,700(60scfm)
	3/8"	2,400(85scfm)
Filtration (μm)	5	
Construction	Relieving style	
Recommended oil	ISO VG32 (Turbine oil 1 class)	
Port size for pressure gauge (Rc (PT), NPT)	1/8"	
Weight (kg)	0.99(1.08lb)	

※ Test conditions : Supply pressure 0.7 MPa(100psi), Set pressure 0.6 MPa(90psi)



How to order

PC 3 A — * 03 D G — * — C1M1Z

Series
(Combination Units)

Components

Blank	Filter-Regulator-Lubricator
A	Piggyback-Lubricator
B	Filter-Regulator
C	Filter-Coalescing Filter(0,3)-Regulator
D	Piggyback-Coalescing Filter(0,3)
E	Filter-Coalescing Filter(0,01)-Regulator
F	Piggyback-Coalescing Filter(0,01)

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

02	1/4
03	3/8

Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

Note1)

Note1) Min.operating pressure is 0,15MPa (20psi) for Auto Drain (N.O Type)

Pressure Gauge

Symbol	Description	Pressure range
Blank	None	
G	Integral pressure gauge (W/Limit Indicator)	1.0MPa(140psi)
P	Pressure gauge	1.0MPa(140psi)
P2	Pressure gauge	0.2MPa(30psi)
P4	Pressure gauge	0.4MPa(60psi)

Accessories

Symbol	Port size	Description	Applicable series
C1	1/8"	Check Valve	PC2~PC3
C2	1/4"		PC2~PC4
C3	3/8"		PC4
M1	1/8"	Modular Manifold Block Kit	PC2~PC3
M2	1/4"		PC2~PC4
M3	3/8"		PC4
V	-	Lock-out Valve	PC2~PC5
W	-	Modular pipe adapter Kit	PC2~PC5
Z	-	Pressure Switch	PC2~PC5

*Refer to page 62 for how to attach bracket & how to combine the accessories

*When specifying more than one symbol, indicate them alphabetically Ex) CIMIZ

Other Options

Blank	Set at 0 to 1.0 MPa(140psi), 5μm (Standard)		
2	Set at 0 to 0.2 MPa(30psi)	K	Built-in Check Valve
4	Set at 0 to 0.4 MPa(60psi)	R	Flow direction : Right → Left
12	Set at 0 to 1.2 MPa(170psi)	T	Tamper Resistant Kit
E	Non-relieving type	U	Regulator (Top mounted)
J2	Filter element - 20μm	XC16	Copper-free
J4	Filter element - 40μm		

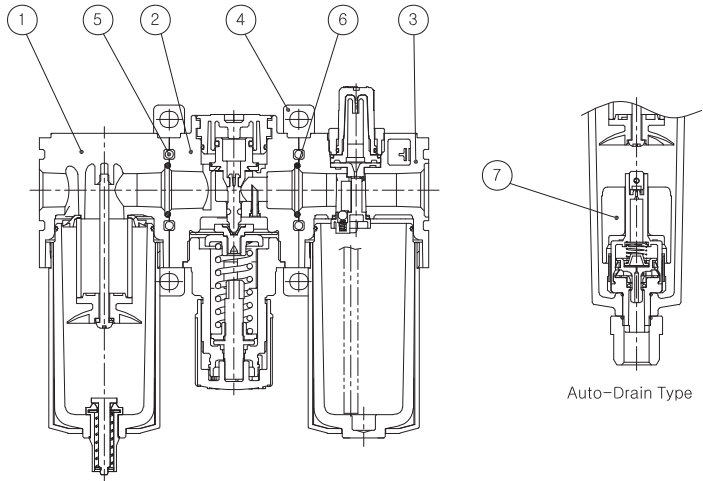
Note2) Refer to page 85 for Built-in Check valve, Tamper resistant kit.

Note3) Separately packed, Not assembled.

*If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK

*Over Max. pressure value can be set.

Construction



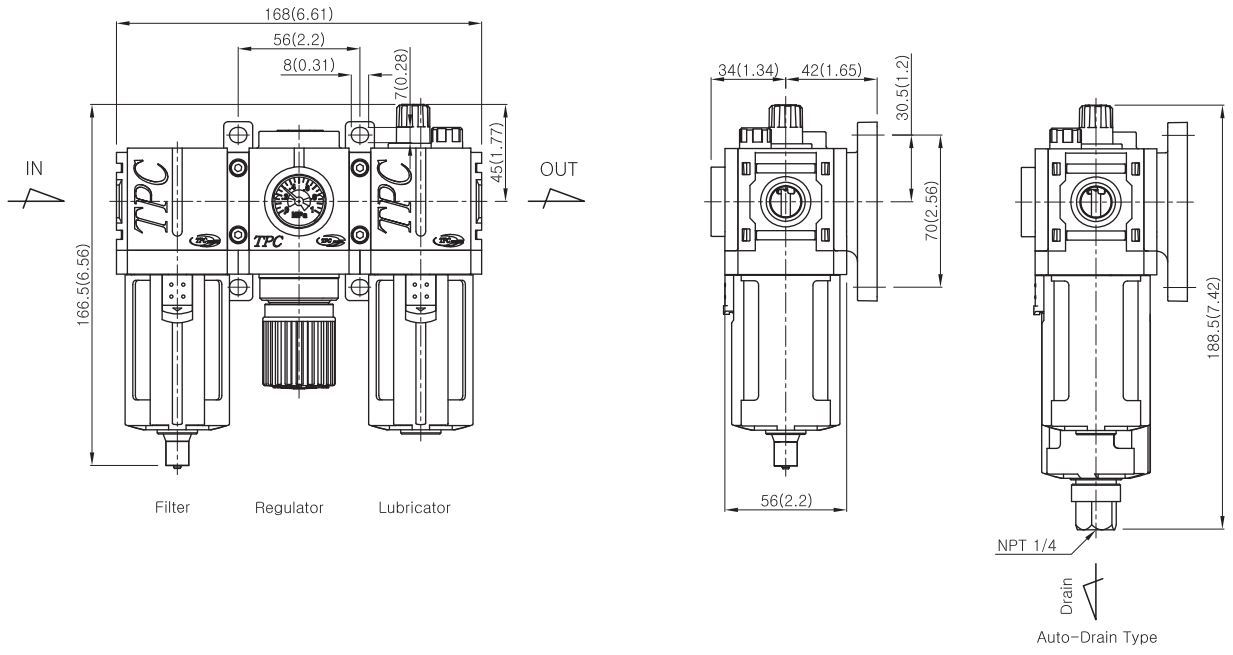
Main Parts / Parts List

No.	Description	Material	Remarks
①	Filter ass'y	-	
②	Regulator ass'y	-	
③	Lubricator ass'y	-	
④	Bracket ass'y	Aluminum	
⑤	Connecting screw	Carbon steel	

Replacement Parts / Parts List

No.	Description	Material	Part No.
⑥	Combination O-ring	NBR	TAR4000-07-6001
⑦	Auto-drain ass'y	-	TAF3000-04A-6008

PC3 Dimensions

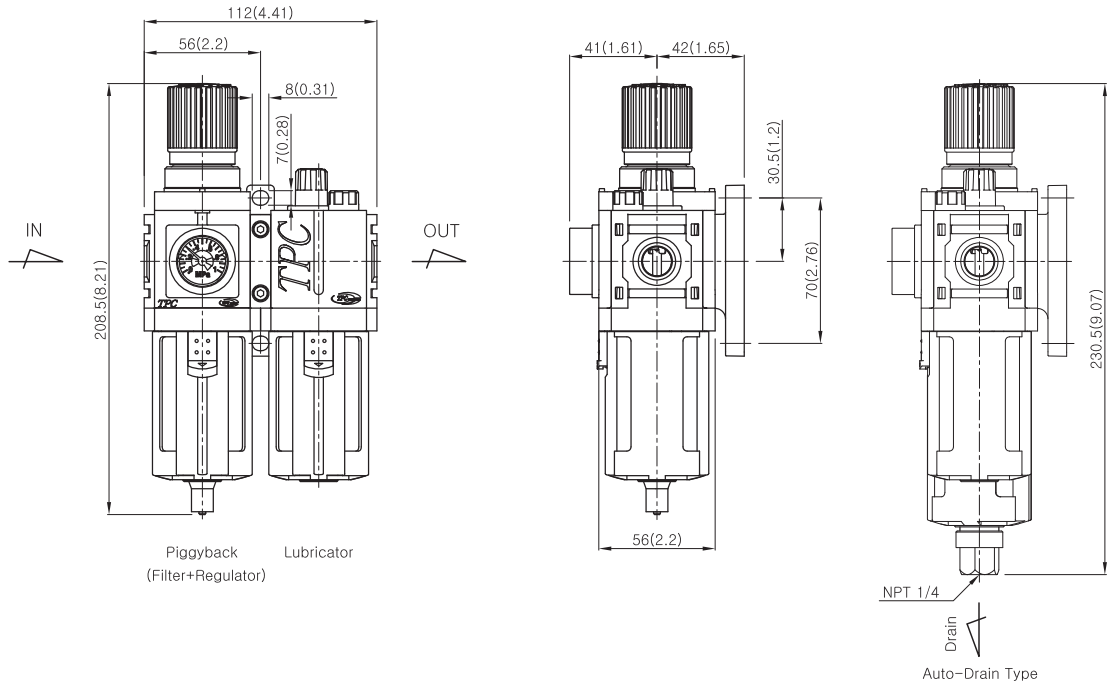


PC3 Series

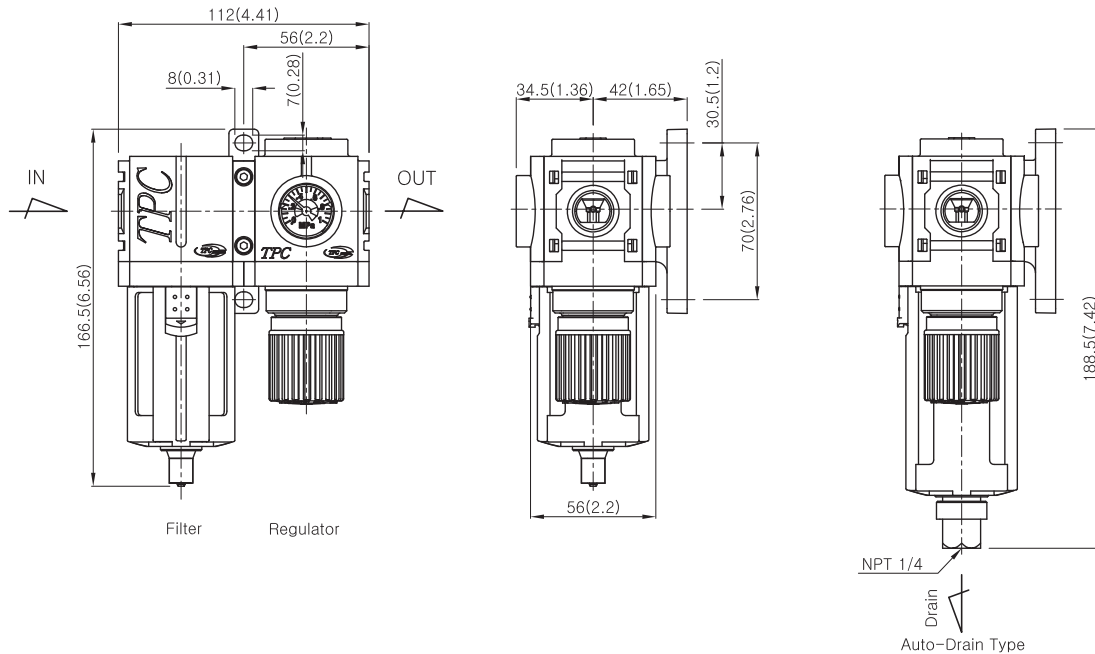
Combinations 1/4" and 3/8"

Combination Unit

PC3A Dimensions

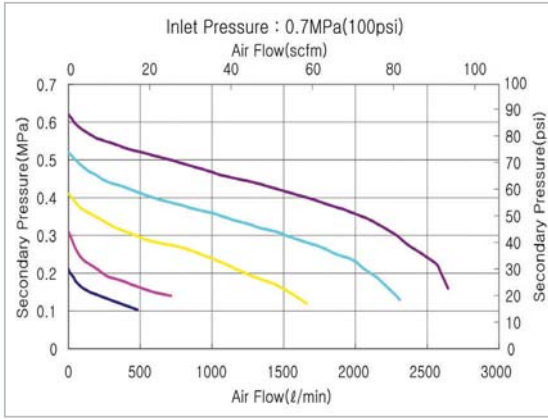


PC3B Dimensions

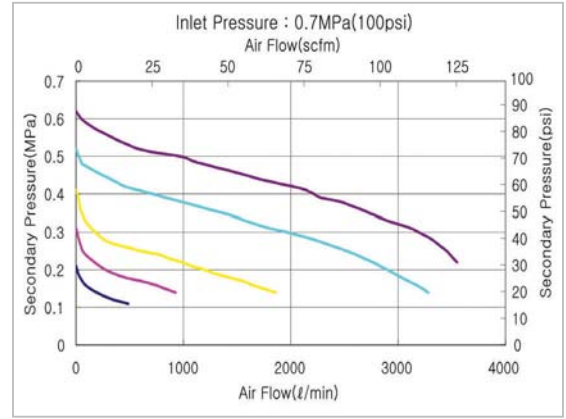


■ PC3 Series Flow Characteristics

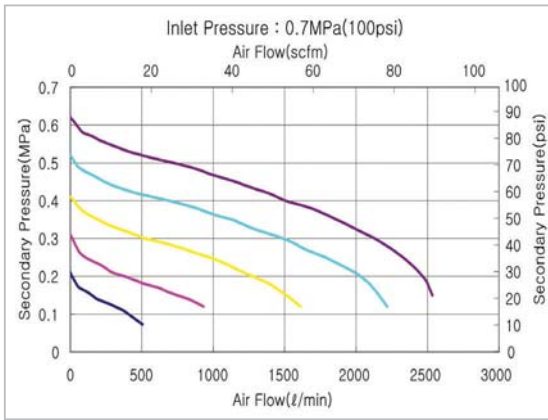
► 1/4" PC3



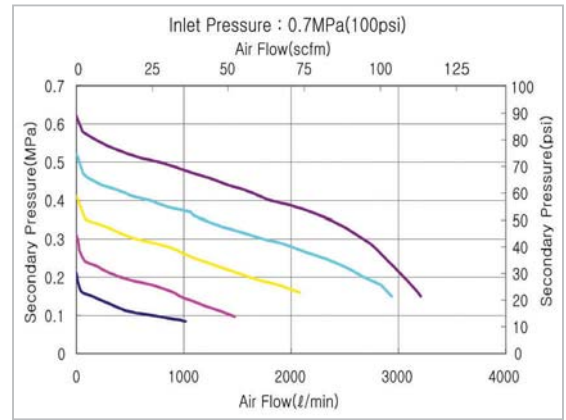
► 3/8" PC3



► 1/4" PC3A



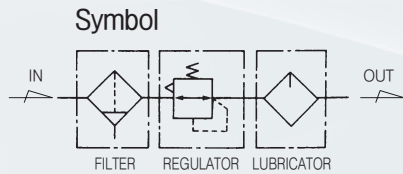
► 3/8" PC3A



PC4 Series

Combinations 3/8" and 1/2"

Combination Unit



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05 ~ 0.2(7~30psi) 0.05 ~ 0.4(7~60psi) 0.05 ~ 1.5(7~200psi)
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow capacity ※ (Nℓ /min)	3/8"	2,800(99scfm)
	1/2"	4,300(152scfm)
Filtration (μm)	5	
Construction	Relieving style	
Recommended oil	ISO VG32 (Turbine oil 1 class)	
Port size for pressure gauge (Rc (PT), NPT)	1/8"	
Weight (kg)	1.88(4.14lb)	

※ Test conditions : Supply pressure 0.7 MPa(100psi), Set pressure 0.6 MPa(90psi)

How to order

PC 4 A — * 04 D G — * — C3M3Z

Series
(Combination Units)

Components

Blank	Filter-Regulator-Lubricator
A	Piggyback-Lubricator
B	Filter-Regulator
C	Filter-Coalescing Filter(0,3)-Regulator
D	Piggyback-Coalescing Filter(0,3)
E	Filter-Coalescing Filter(0,01)-Regulator
F	Piggyback-Coalescing Filter(0,01)

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

03	3/8"
04	1/2"

Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

Note1)

Note1) Min.operating pressure is 0,15MPa (20psi) for Auto Drain (N.O Type)

Pressure Gauge

Symbol	Description	Pressure range
Blank	None	
G	Integral pressure gauge (W/Limit Indicator)	1,0MPa(140psi)
P	Pressure gauge	1,0MPa(140psi)
P2	Pressure gauge	0,2MPa(30psi)
P4	Pressure gauge	0,4MPa(60psi)

Accessories

Symbol	Port size	Description	Applicable series
C1	1/8"	Check Valve	PC2~PC3
C2	1/4"		PC2~PC4
C3	3/8"		PC4
M1	1/8"	Modular Manifold Block Kit	PC2~PC3
M2	1/4"		PC2~PC4
M3	3/8"		PC4
S	-	Slow Start Valve	PC4
V	-	Lock-out Valve	PC2~PC5
W	-	Modular pipe adapter Kit	PC2~PC5
Z	-	Pressure Switch	PC2~PC5

* Refer to page 62 for how to attach bracket & how to combine the accessories
* When specifying more than one symbol, indicate them alphabetically Ex) C3M3Z

Other Options

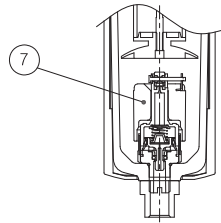
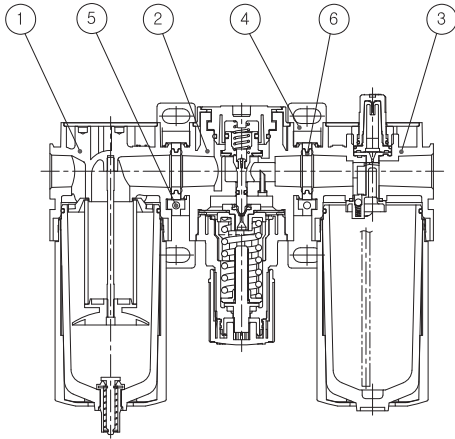
Blank	Set at 0 to 1,0 MPa(140psi), 5μm (Standard)		
2	Set at 0 to 0,2 MPa(30psi)	K	Built-in Check Valve
4	Set at 0 to 0,4 MPa(60psi)	L	Life Indicator
15	Set at 0 to 1,5 MPa(200psi)	R	Flow direction : Right → Left
E	Non-relieving type	T	Tamper Resistant Kit
J2	Filter element - 20μm	U	Regulator (Top mounted)
J4	Filter element - 40μm	XC16	Copper-free

Note2) Refer to page 85 for Built-in Check valve, Tamper resistant kit, Note3) Separately packed, Not assembled.

* If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK

* Over Max. pressure value can be set.

Construction



Auto-Drain Type

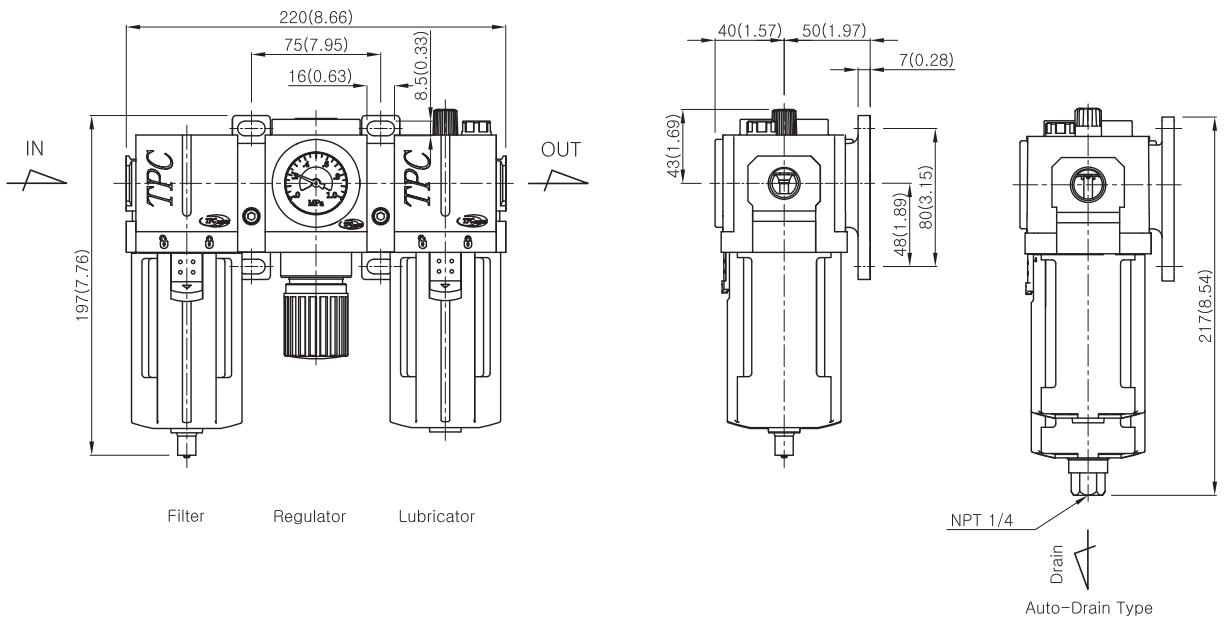
Main Parts / Parts List

No.	Description	Material	Remarks
①	Filter ass'y	-	
②	Regulator ass'y	-	
③	Lubricator ass'y	-	
④	Bracket ass'y	Aluminum	
⑤	Connecting screw	Carbon steel	

Replacement Parts / Parts List

No.	Description	Material	Part No.
⑥	Spacer O-ring	NBR	PC4A-04-001-01
⑦	Auto-drain ass'y	-	TAF3000-04A-6008

PC4 Dimensions

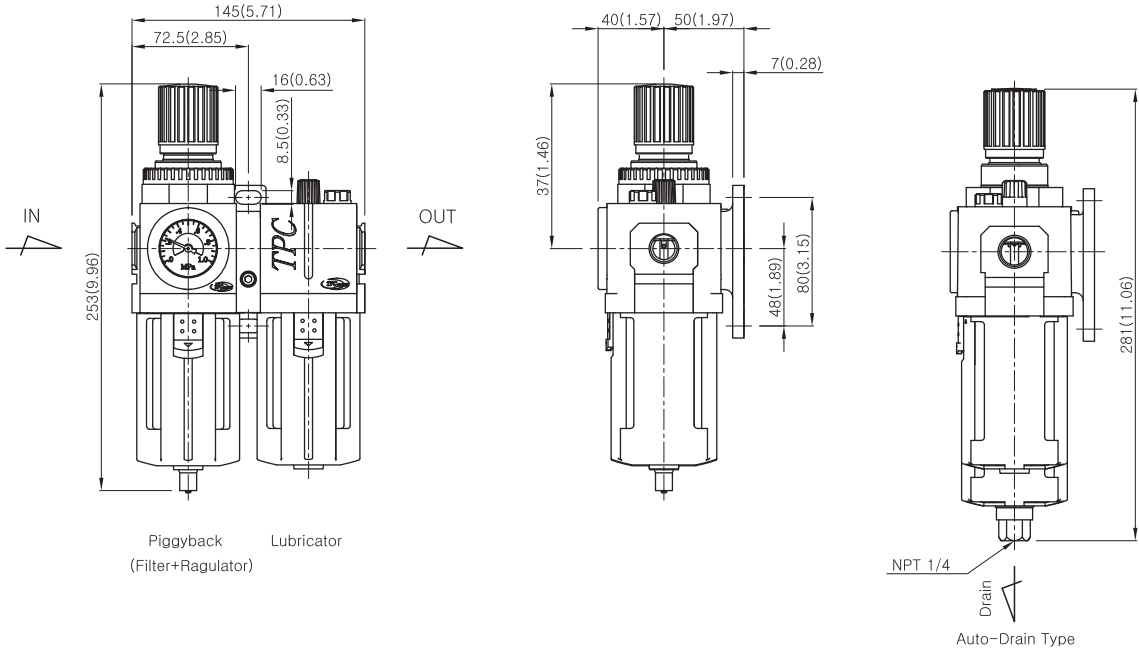


PC4 Series

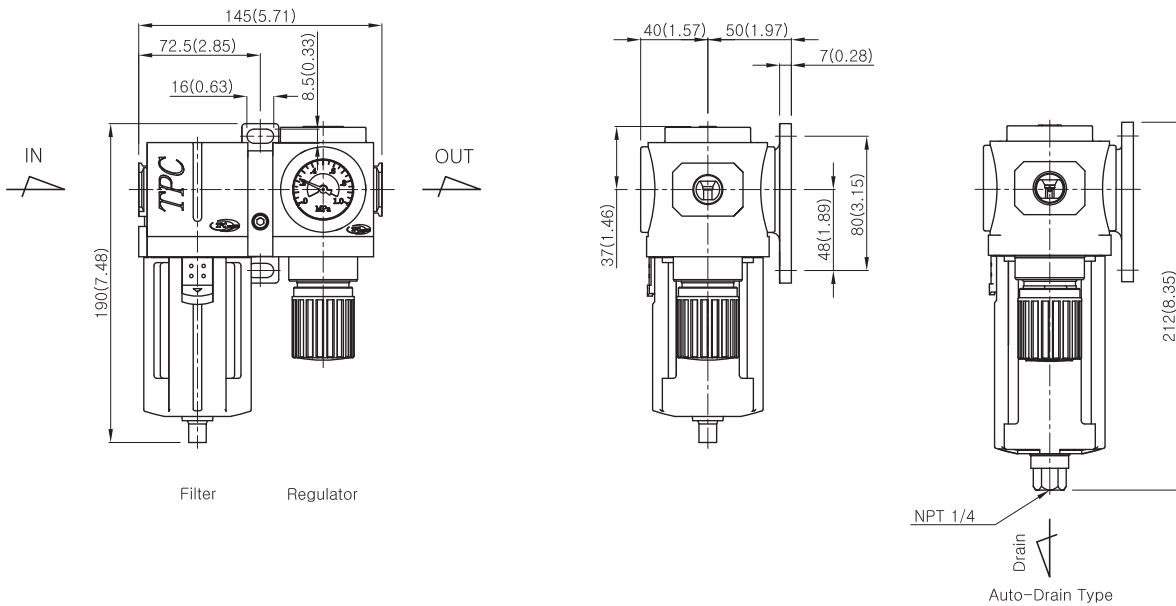
Combinations 3/8" and 1/2"

Combination Unit

PC4A Dimensions

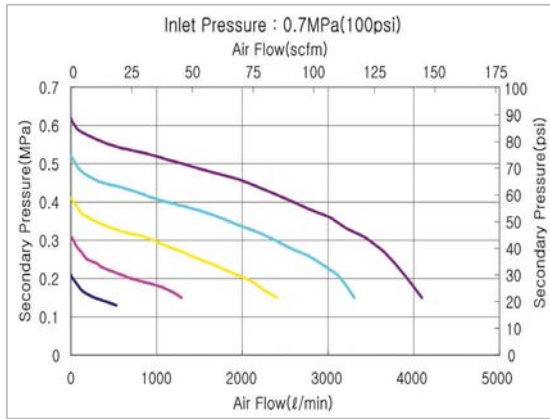


PC4B Dimensions

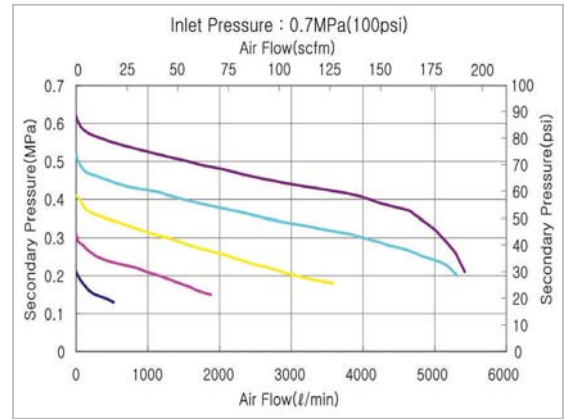


■ PC4 Series Flow Characteristics

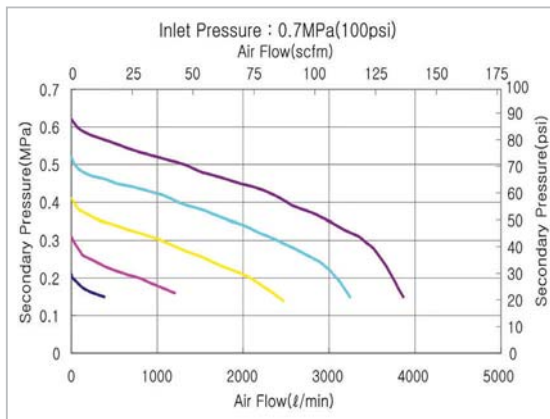
► 3/8" PC4



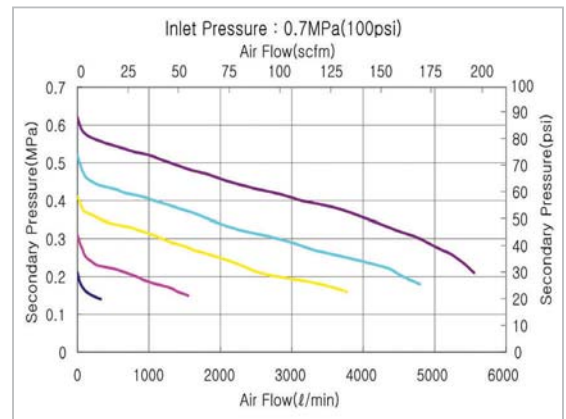
► 1/2" PC4



► 3/8" PC4A



► 1/2" PC4A



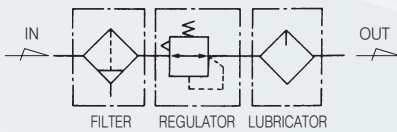
PC5 Series

Combinations 3/4" and 1"

Combination Unit



Symbol



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05 ~ 0.2(7~30psi)
		0.05 ~ 0.4(7~60psi)
Ambient and fluid temperature (°C)		-5~60(23~140°F) (Non-freezing)
Flow capacity ※ (Nℓ /min)	1/4"	5,700(201scfm)
	3/8"	6,100(215scfm)
Filtration (μm)	5	
Construction	Relieving style	
Recommended oil	ISO VG32 (Turbine oil 1 class)	
Port size for pressure gauge (Rc (PT), NPT)	1/8"	
Weight (kg)	4.06(8.95lb)	

※ Test conditions : Supply pressure 0.7 MPa(100psi), Set pressure 0.6 MPa(90psi)

How to order

PC 5 A — * 10 D G — * — VWZ

Series
(Combination Units)

Components

Blank	Filter-Regulator-Lubricator
A	Piggyback-Lubricator
B	Filter-Regulator
C	Filter-Coalescing Filter(0,3)-Regulator
D	Piggyback-Coalescing Filter(0,3)
E	Filter-Coalescing Filter(0,01)-Regulator
F	Piggyback-Coalescing Filter(0,01)

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

06	3/4
10	1

Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

Note1) Min.operating pressure is 0,15MPa (20psi) for Auto Drain (N.O Type)

Pressure Gauge

Symbol	Description	Pressure range
Blank	None	
G	Integral pressure gauge (W/Limit Indicator)	1.0MPa(140psi)
P	Pressure gauge	1.0MPa(140psi)
P2	Pressure gauge	0.2MPa(30psi)
P4	Pressure gauge	0.4MPa(60psi)

Accessories

Symbol	Port size	Description	Applicable series
C1	1/8"	Check Valve	PC2~PC3
C2	1/4"		PC2~PC4
C3	3/8"		PC4
M1	1/8"	Modular Manifold Block Kit	PC2~PC3
M2	1/4"		PC2~PC4
M3	3/8"		PC4
V	-	Lock-out Valve	PC2~PC5
W	-	Modular pipe adapter Kit	PC2~PC5
Z	-	Pressure Switch	PC2~PC5

* Refer to page 62 for how to attach bracket & how to combine the accessories
* When specifying more than one symbol, indicate them alphabetically Ex) VWZ

Other Options

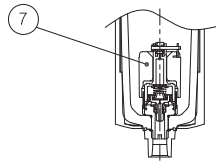
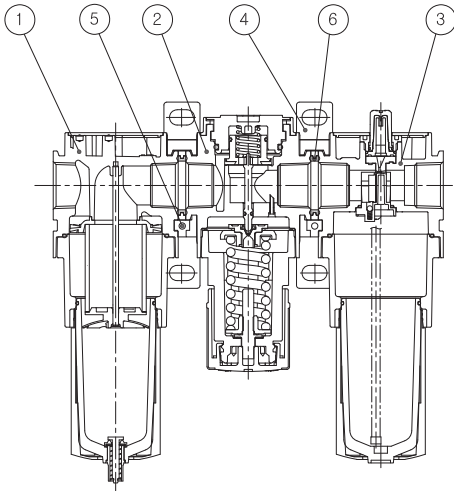
Blank	Set at 0 to 1.0 MPa(140psi), 5μm (Standard)		
2	Set at 0 to 0.2 MPa(30psi)	K	Built-in Check Valve
4	Set at 0 to 0.4 MPa(60psi)	L	Life Indicator
15	Set at 0 to 1.5 MPa(200psi)	R	Flow direction : Right → Left
E	Non-relieving type	T	Tamper Resistant Kit
J2	Filter element - 20μm	U	Regulator (Top mounted)
J4	Filter element - 40μm	XC16	Copper-free

Note2) Refer to page 85 for Built-in Check valve, Tamper resistant kit.
Note3) Separately packed, Not assembled.

* If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK

* Over Max. pressure value can be set.

■ Construction



Auto-Drain Type

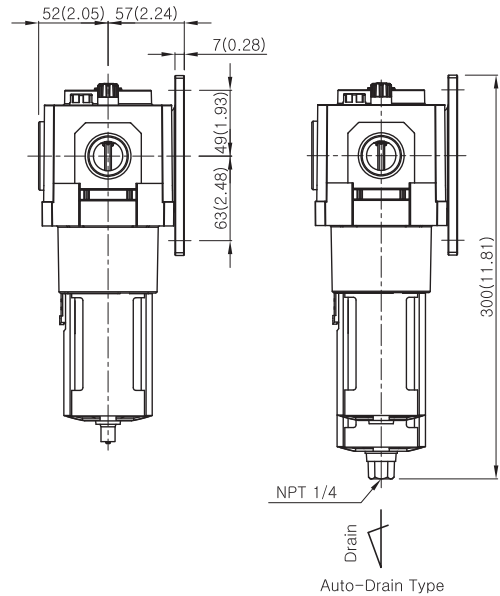
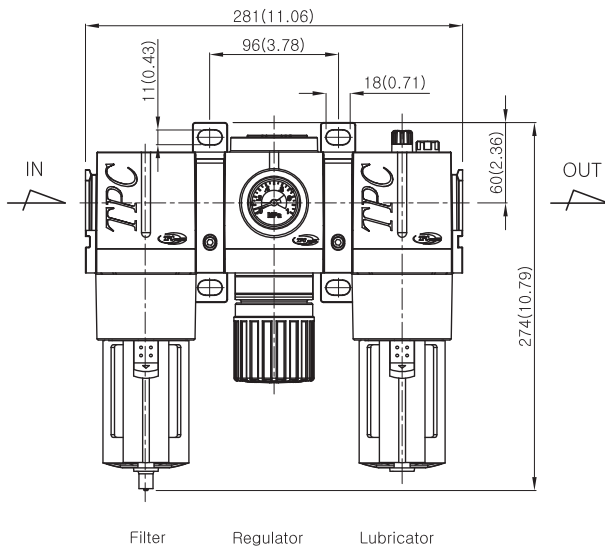
Main Parts / Parts List

No.	Description	Material	Remarks
①	Filter ass'y	-	
②	Regulator ass'y	-	
③	Lubricator ass'y	-	
④	Bracket ass'y	Aluminum	
⑤	Connecting screw	Carbon steel	

Replacement Parts / Parts List

No.	Description	Material	Part No.
⑥	Spacer O-ring	NBR	PC5-04-001-01
⑦	Auto-drain ass'y	-	TAF3000-04A-6008

■ Dimensions



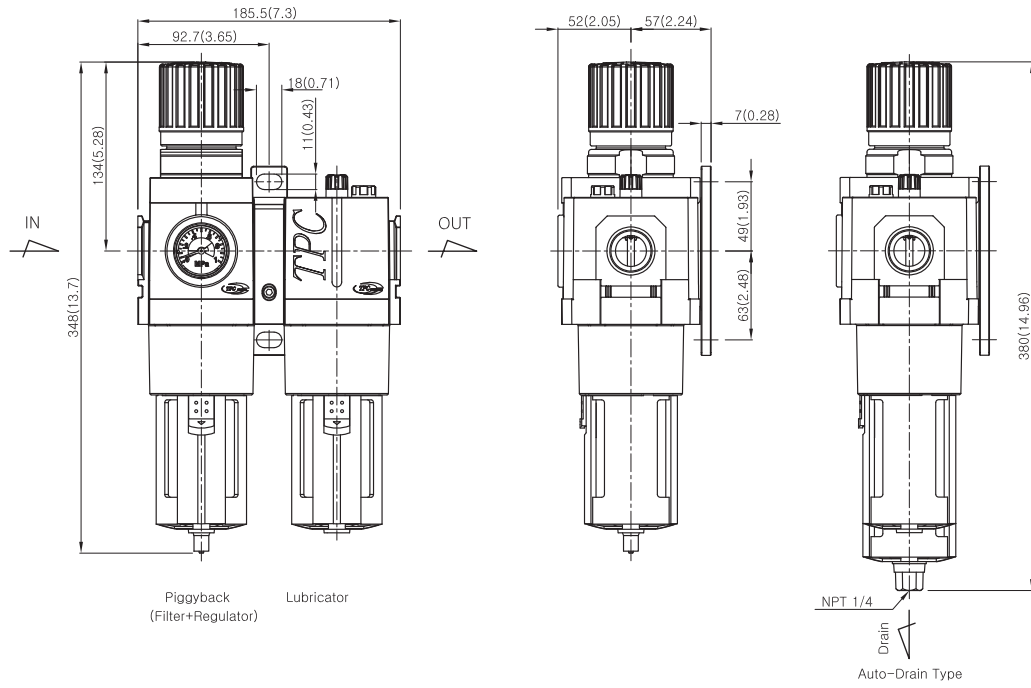
Auto-Drain Type

PC5 Series

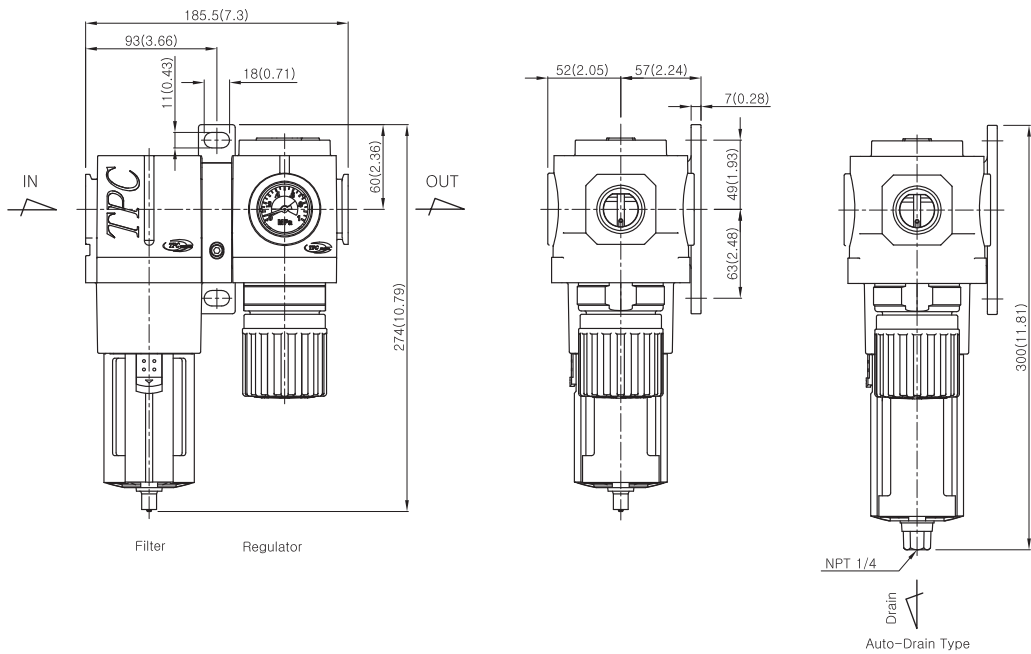
Combinations 3/4" and 1"

Combination Unit

PC5A Dimensions

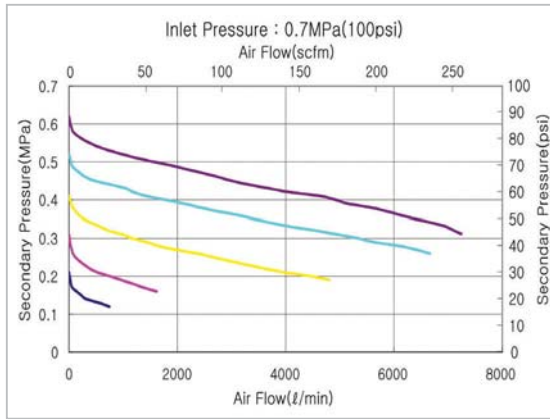


PC5B Dimensions

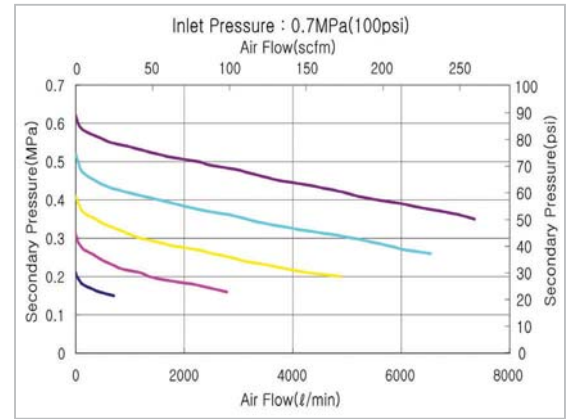


■ PC5 Series Flow Characteristics

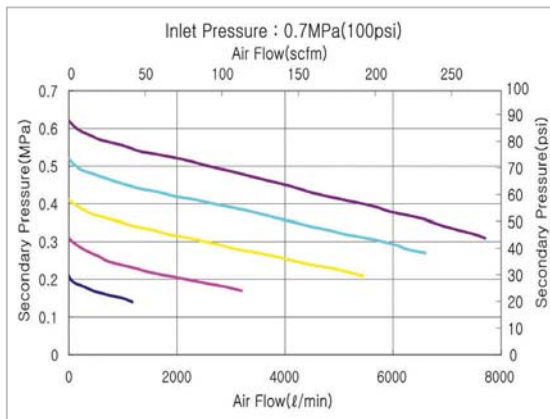
► 3/4" PC5



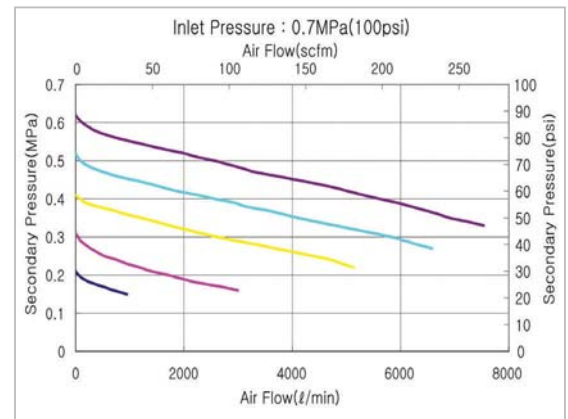
► 1" PC5



► 3/4" PC5A

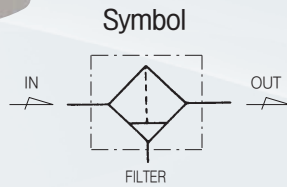


► 1" PC5A



PF2 Series Air Filter 1/8" and 1/4"

Air Filter



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Ambient and fluid temperature (°C)	-5 ~ 60(23~140°F) (Non-freezing)	
Flow rate * (Nℓ/min)	1/8"	1,100(39scfm)
	1/4"	1,400(50scfm)
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Filtration (μm)	5	
Drain capacity (cm ³)	Manual drain : 15(0.51oz)	
	Auto drain : 21(0.71oz)	
Weight (kg)	0.14(0.31lb)	

* Test conditions : Supply pressure 0.6MPa(90psi), Pressure drop 0.07MPa(10psi)

How to order

PF 2 — * 02 B D — *

Series (Filter Units) — PF 2

Thread — *

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size — 02

01	1/8
02	1/4

Other Options — *

Blank	Filter element - 5μm (Standard)		
J2	Filter element - 20μm	R	Flow direction: Right → Left
J4	Filter element - 40μm	XC16	Copper-free

* When specifying more than one symbol, indicate them alphabetically
Ex) J2R

Drain Options — B D

Blank	Manual Push Drain	
D	Auto Drain (N.O Type)	Note1)
D2	Auto Drain (Piping exhaust)	
D5	Manual Drain (Piping exhaust)	

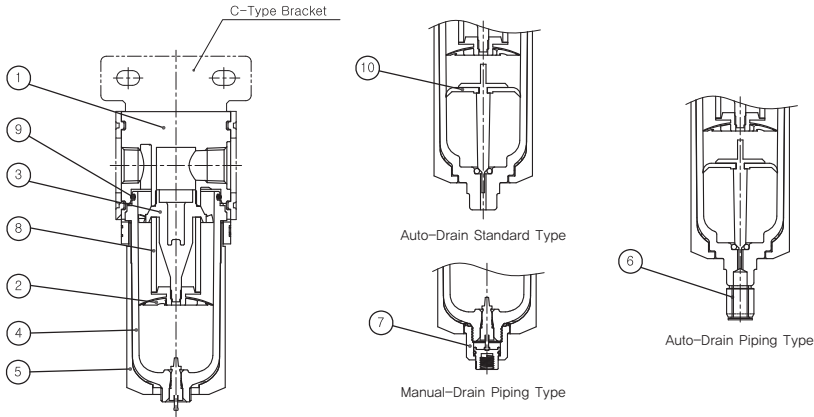
Note1) Min. operating pressure is 0.15MPa(20psi) for Auto Drain (N.O Type)

Bracket Options — *

Blank	None	
B	Bracket	Note2)

Note2) Separately packed, Not assembled.

Construction



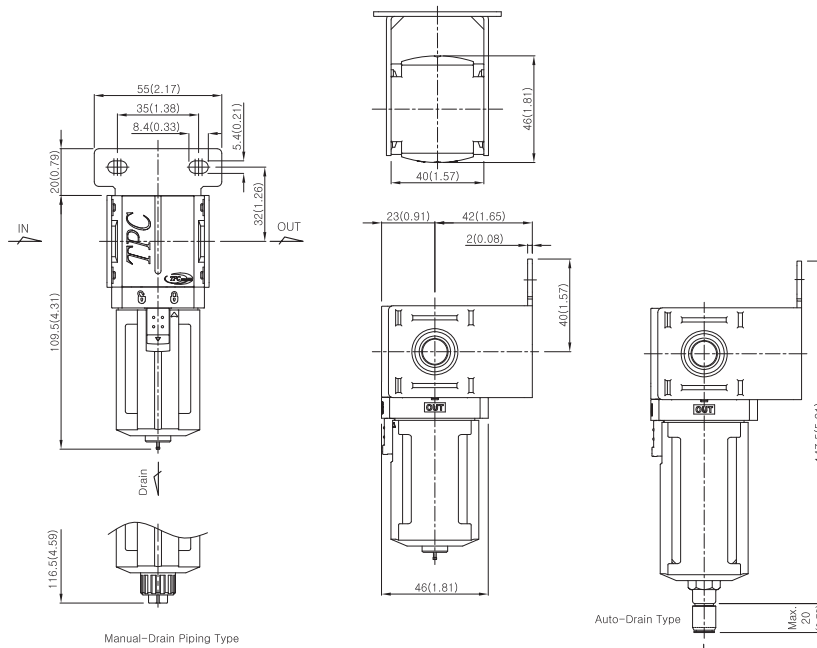
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Baffle	Acetal	
③	Deflector	Nylon	
④	Bowl	Polycarbonate	
⑤	Bowl guard	Nylon	
⑥	Fitting	-	
⑦	Manual drain piping ass'y	-	

Replacement Parts / Parts List

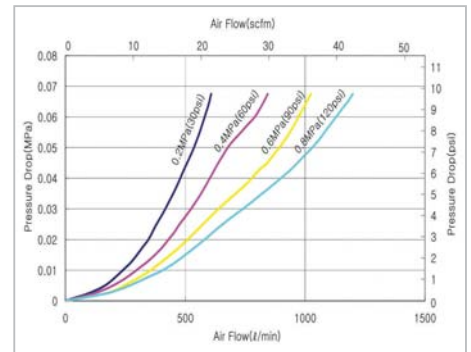
No.	Description	Material	Part No.
⑧	Filter element	Polyethelene	PF2-24-005-01
⑨	Bowl o-ring	NBR	DX2R-53-3000
⑩	Auto drain ass'y	-	PF2-26A002-01

Dimensions

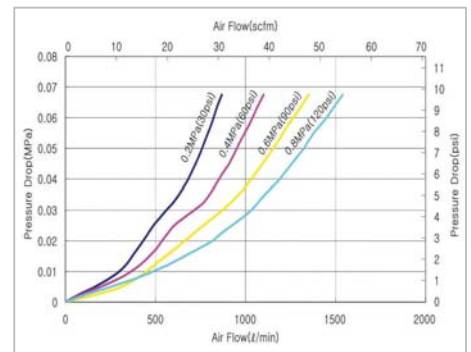


Flow Characteristics

▶ 1/8" PF2



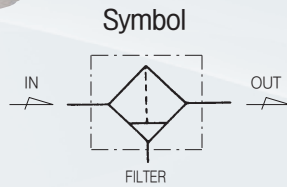
▶ 1/4" PF2



PF3 Series

Air Filter 1/4" and 3/8"

Air Filter

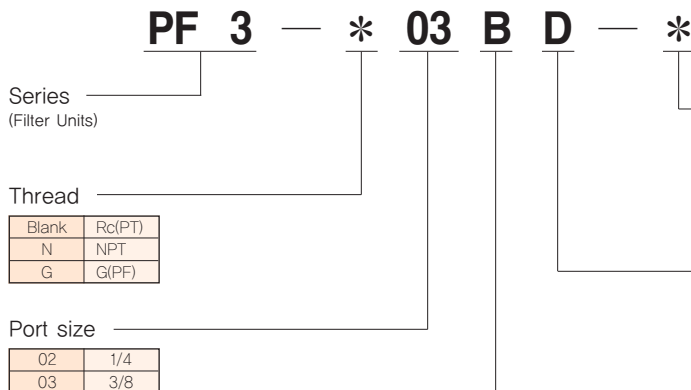


Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Ambient and fluid temperature (°C)	-5 ~ 60(23~140° F) (No freezing)	
Flow rate * (Nℓ /min)	1/4 "	2,100(74scfm)
	1/8 "	3,100(109scfm)
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Filtration (μm)	5	
Drain capacity (cm ³)	Manual drain : 38(1.28oz)	
	Auto drain : 30(1.01oz)	
Weight (kg)	0.24(0.53lb)	

* Test conditions : Supply pressure 0.6MPa(90psi), Pressure drop 0.07MPa(10psi)

How to order



Other Options

Blank	Filter element - 5μm	R	Flow direction : Right → Left
J2	Filter element - 20μm	XC16	Copper-free
J4	Filter element - 40μm		

* When specifying more than one symbol, indicate them alphabetically
Ex) J2R

Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

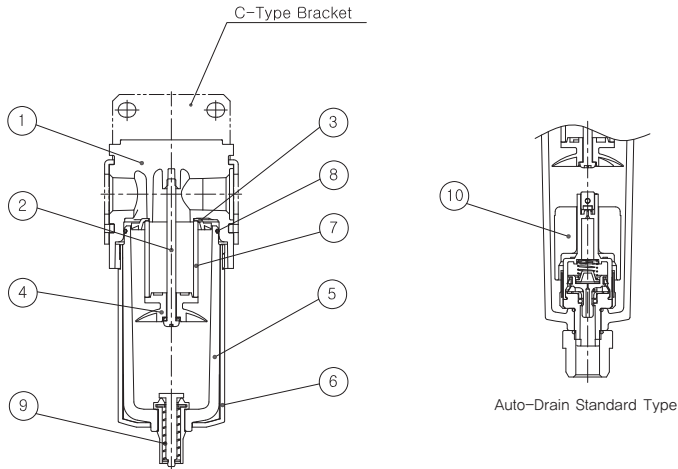
Note1) Min. operating pressure for Auto drain (N.O Type) : 0.15MPa(20psi)

Bracket Options

Blank	None
B	Bracket

Note2) Separately packed,
Not assembled.

Construction



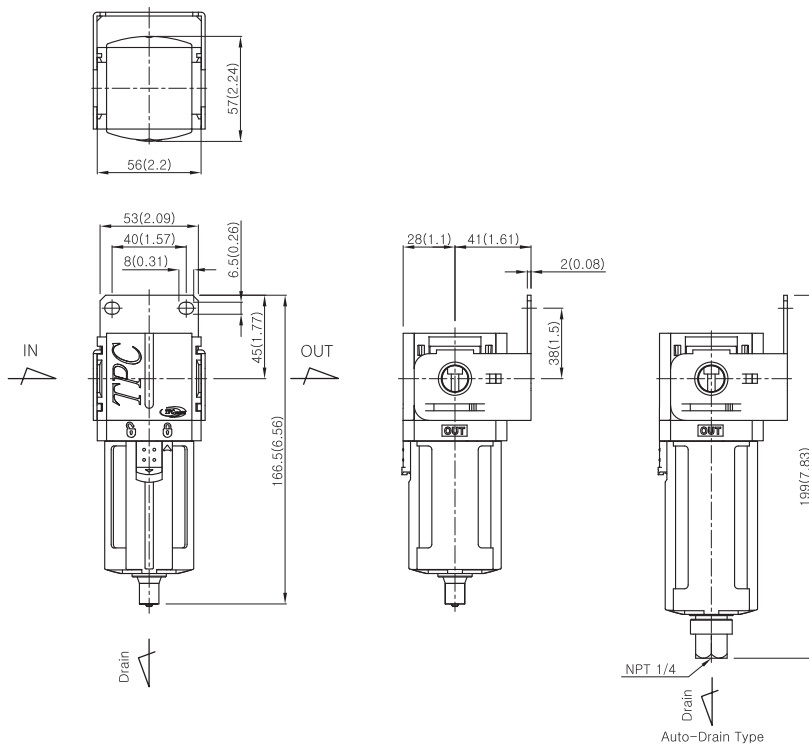
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Baffle screw	Rolled steel	
③	Deflector	Nylon	
④	Baffle	Acetal	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	

Replacement Parts / Parts List

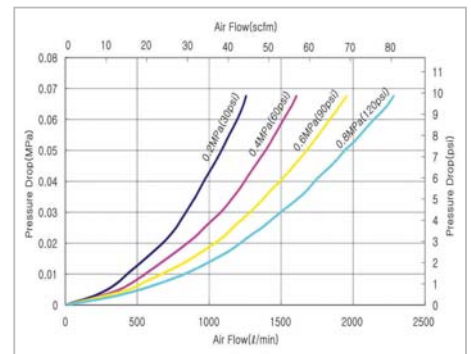
No.	Description	Material	Part No.
⑦	Filter element	Polyethylene	PF3-24-005-01
⑧	Bowl o-ring	NBR	PL3-04-001-01
⑨	Drain ass'y	-	TAF3000-10A-6004
⑩	Auto drain ass'y	-	TAF3000-04A-6008

Dimensions

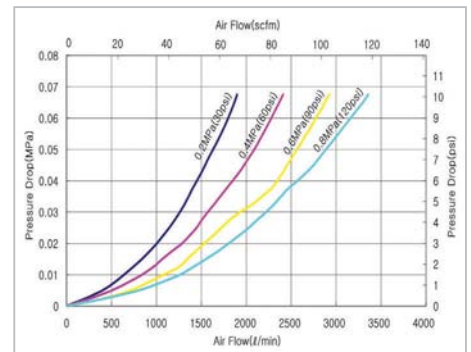


Flow Characteristics

► 1/4" PF3



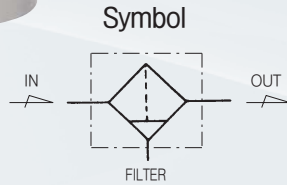
► 3/8" PF3



PF4 Series

Air Filter 3/8" and 1/2"

Air Filter

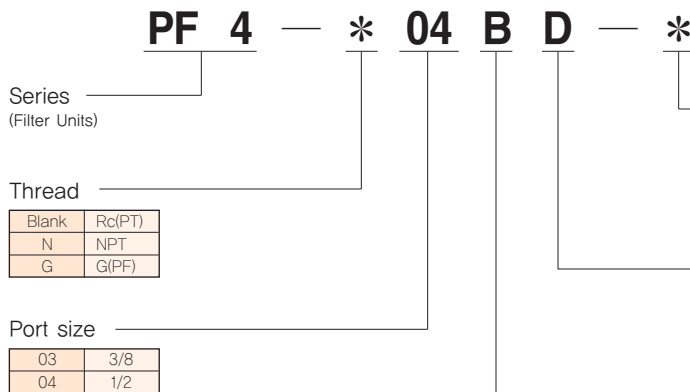


Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Ambient and fluid temperature (°C)	-5 ~ 60(23~140°F) (No freezing)	
Flow rate * (Nℓ /min)	3/8"	4,500(159scfm)
	1/2"	5,600(198scfm)
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Filtration (μm)	5	
Drain capacity (cm ³)	Manual drain : 56(1.89oz)	
	Auto drain : 68(2.3oz)	
Weight (kg)	0.5(1.1lb)	

* Test conditions : Supply pressure 0.6MPa(90psi), Pressure drop 0.07MPa(10psi)

How to order



Other Options

Blank	Filter element - 5μm	L	Life Indicator
J2	Filter element - 20μm	R	Flow direction : Right → Left
J4	Filter element - 40μm	XC16	Copper-free

* When specifying more than one symbol, indicate them alphabetically Ex) J2R

Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

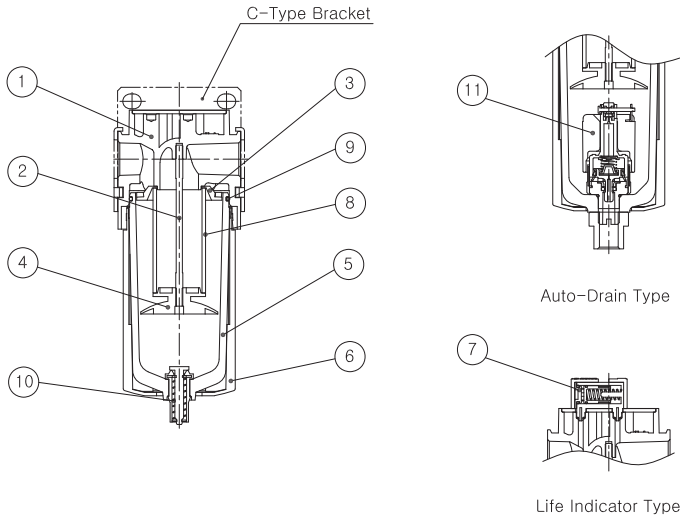
Note1) Min. operating pressure for Auto drain (N.O Type) : 0.15MPa(20psi)

Bracket Options

Blank	None
B	Bracket

Note2) Separately packed, Not assembled.

Construction



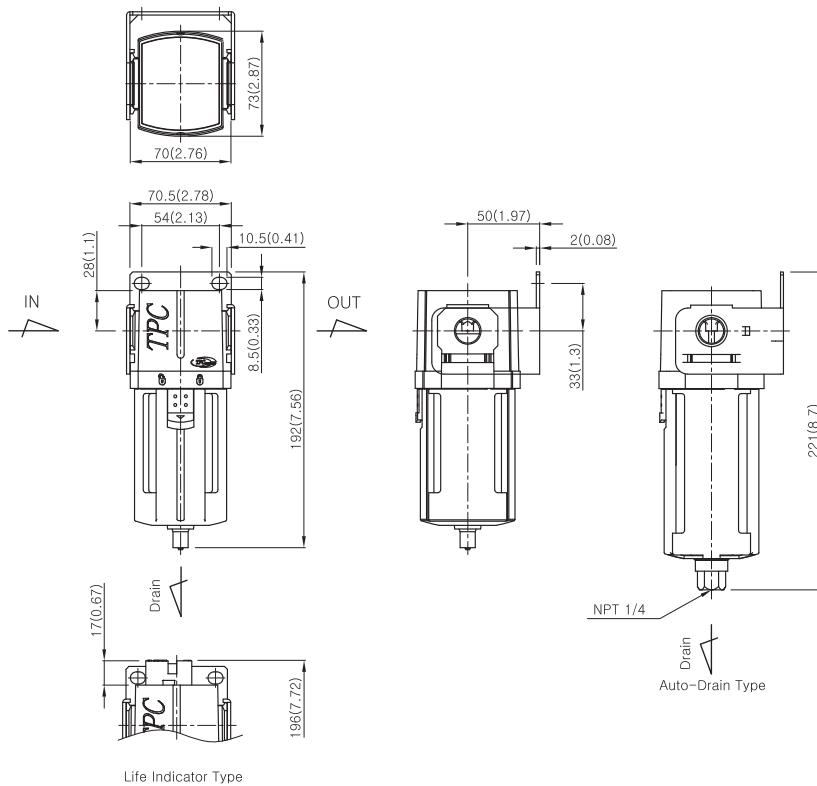
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Baffle screw	Rolled steel	
③	Deflector	Nylon	
④	Baffle	Acetal	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	
⑦	Life indicator	-	Option

Replacement Parts / Parts List

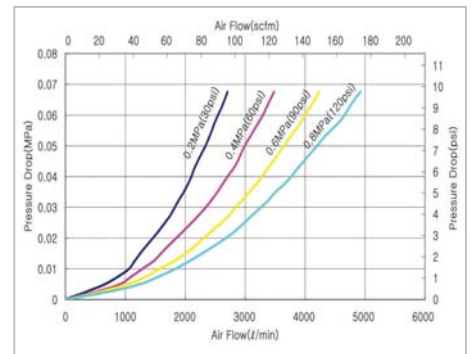
No.	Description	Material	Part No.
⑧	Filter element	Polyethylene	PF4-24-005-01
⑨	Bowl o-ring	NBR	TAF4000-08-6000
⑩	Drain ass'y	-	TAF3000-10A-6004
⑪	Auto drain ass'y	-	TAF3000-04A-6008

Dimensions

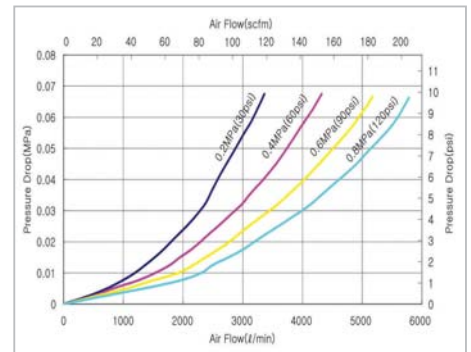


Flow Characteristics

► 3/8" PF4

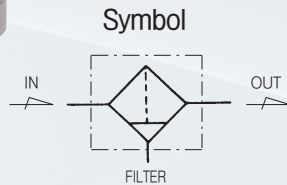


► 1/2" PF4



PF5 Series Air Filter 3/4" and 1"

Air Filter

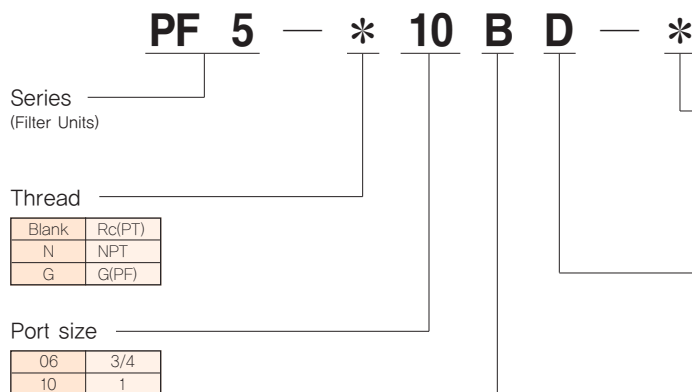


Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Ambient and fluid temperature (°C)	-5 ~ 60(23~140°F) (Non-freezing)	
Flow rate * (Nℓ/min)	3/4"	8,200(290scfm)
	1"	9,600(339scfm)
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Filtration (μm)	5	
Drain capacity (cm ³)	Manual drain : 156(5.27oz)	
	Auto drain : 174(5.88oz)	
Weight (kg)	1.10(2.43lb)	

* Test conditions : Supply pressure 0.6MPa(90psi), Pressure drop 0.07MPa(10psi)

How to order



Other Options

Blank	Filter element - 5μm	L	Life Indicator
J2	Filter element - 20μm	R	Flow direction : Right → Left
J4	Filter element - 40μm	XC16	Copper-free

*When specifying more than one symbol, indicate them alphabetically Ex) J2R

Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

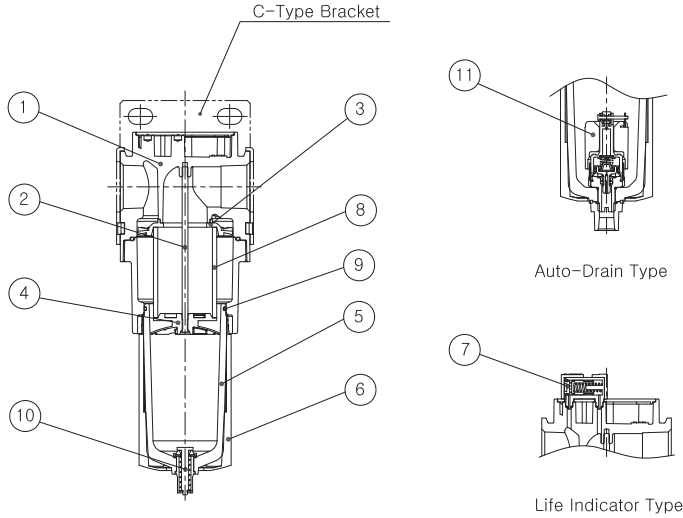
Note1) Min. operating pressure for Auto drain (N.O Type) : 0.15MPa(20psi)

Bracket Options

Blank	None
B	Bracket

Note2) Separately packed, Not assembled.

Construction



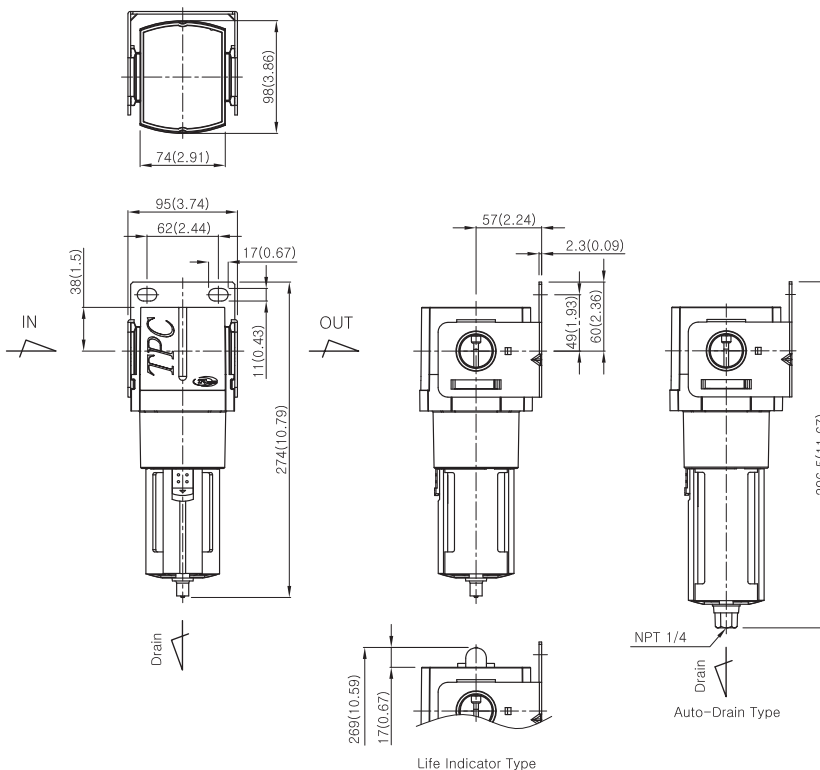
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Baffle screw	Rolled steel	
③	Deflector	Nylon	
④	Baffle	Acetal	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	
⑦	Life indicator	-	Option

Replacement Parts / Parts List

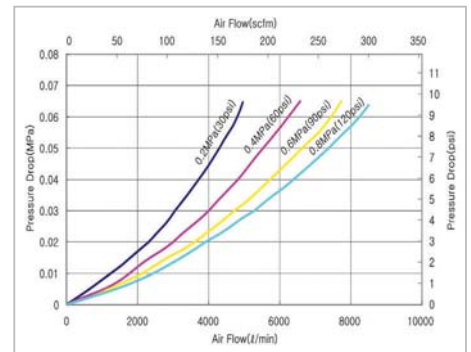
No.	Description	Material	Part No.
⑧	Filter element	Polyethylene	PF5-24-005-01
⑨	Bowl O-ring	NBR	TAF4000-08-6000
⑩	Drain ass'y	-	TAF3000-10A-6004
⑪	Auto drain ass'y	-	TAF3000-04A-6008

Dimensions

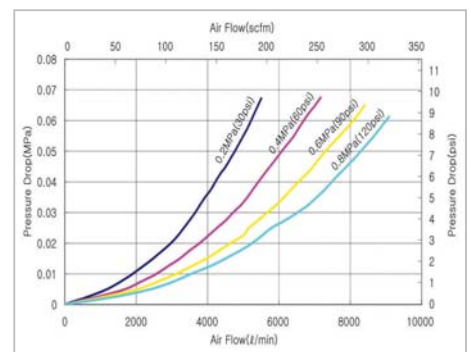


Flow Characteristics

▶ 3/4" PF5



▶ 1" PF5



PFH/PFU Series

Coalescing Filter 1/8", 1/4", 3/8", 1/2", 3/4" and 1"

Coalescing Filter

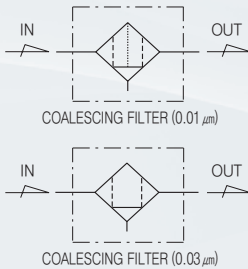


Standard Specifications

Description	PFH/PFU2	PFH/PFU3	PFH/PFU4	PFH/PFU5
Max. operating pressure (MPa)	1.0(140psi)			
Proof pressure (MPa)	1.5(200psi)			
Ambient and fluid temperature (°C)	-5 ~ 60(23~140°F) (Non-freezing)			
Flow rate * (Nℓ/min)	1/8" 200 1/4" (7scfm)	1/4" 450 3/8" (16scfm)	3/8" 1100 1/2" (39scfm)	3/4" 1100 1" (39scfm)
Bowl material	Polycarbonate			
Bowl guard material	Nylon			
Filtration (μm)	PFH : 0.3, PFU : 0.01			
Drain capacity (cm ³)	Manual	15(0.51oz)	38(1.28oz)	56(1.89oz)
	Auto	21(0.71oz)	30(1.01oz)	68(2.3oz)
Weight(kg)	0.14(0.31oz)	0.24(0.53oz)	0.5(1.1oz)	1.1(2.43oz)

* Test conditions : Supply pressure 0.6MPa(90psi), Pressure drop 0.07MPa(10psi)

Symbol



How to order

PFH 4 — * 04 B D — *

Coalescing Filter

PFH	Filtration 0.3μm
PFU	Filtration 0.01μm

Series

2	PC2 Series	4	PC4 Series
3	PC3 Series	5	PC5 Series

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

01	1/8	PC2 Series
02	1/4	PC2,3 Series
03	3/8	PC3,4 Series
04	1/2	PC4 Series
06	3/4	PC5 Series
10	1	PC5 Series

Accessories

Symbol	Description	Applicable series
L	Life Indicator	PC4~5 Series
R	Flow direction : Right→Left	PC2~5 Series
XC16	Copper-free	PC2~5 Series

*When specifying more than one symbol, indicate them alphabetically Ex) LRXC16

Drain Options

Symbol	Description	Applicable series
Blank	Manual Push Drain	PC2~PC5
D	Auto Drain (N,O Type)	PC2~PC5
D2	Auto Drain (piping exhaust)	PC2
D5	Manual Drain (piping exhaust)	PC2

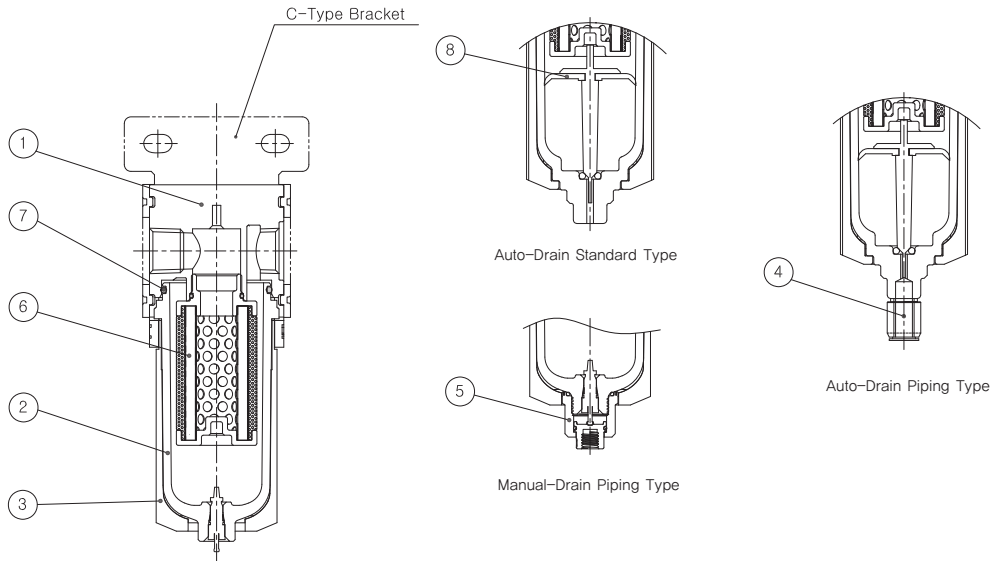
Note1) Min.operating pressure is 0.15MPa(20psi) for Auto Drain (N,O Type)

Bracket Option

Blank	None
B	Bracket

Note2) Separately packed, Not assembled.

PFH2 Construction



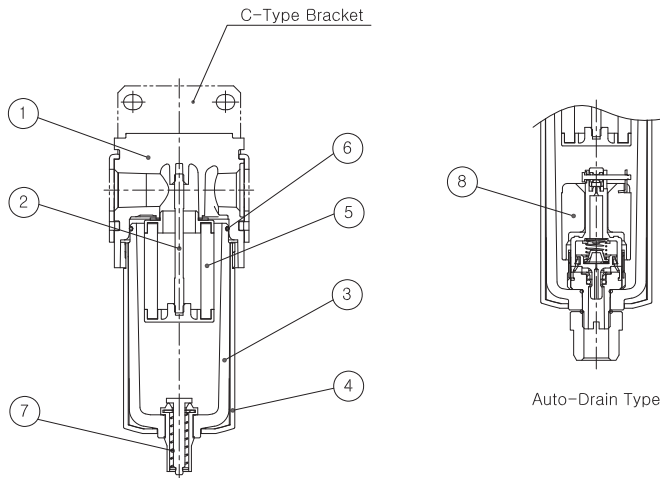
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bowl	Polycarbonate	
③	Bowl guard	Nylon	
④	Fitting	-	
⑤	Manual drain piping ass'y	-	

Replacement Parts / Parts List

No.	Description	Material	Part No.
⑥	Coalescing filter element ass'y	-	PFH2-24A030-01
⑦	Bowl o-ring	NBR	DX2R-53-3000
⑧	Auto drain ass'y	-	PF2-26A002-01

PFH3 Construction



Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Baffle shaft	Rolled steel	
③	Bowl	Polycarbonate	
④	Bowl guard	Nylon	

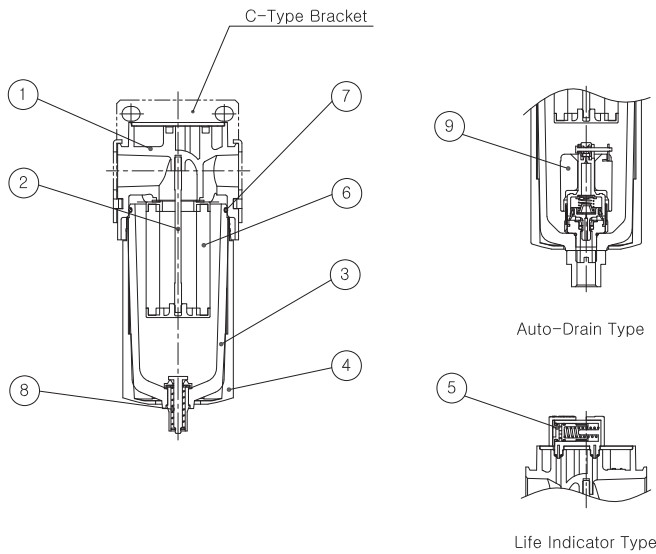
Replacement Parts / Parts List

No.	Description	Material	Part No.
⑤	Coalescing filter element ass'y	-	PFH3000-005A-6081
⑥	Bowl o-ring	NBR	PL3-04-001-01
⑦	Drain ass'y	-	TAF3000-10A-6004
⑧	Auto drain ass'y	-	TAF3000-04A-6008

PFH2~PFH5 Series

Coalescing Filter 1/8", 1/4", 3/8", 1/2", 3/4" and 1"

PFH4 Construction



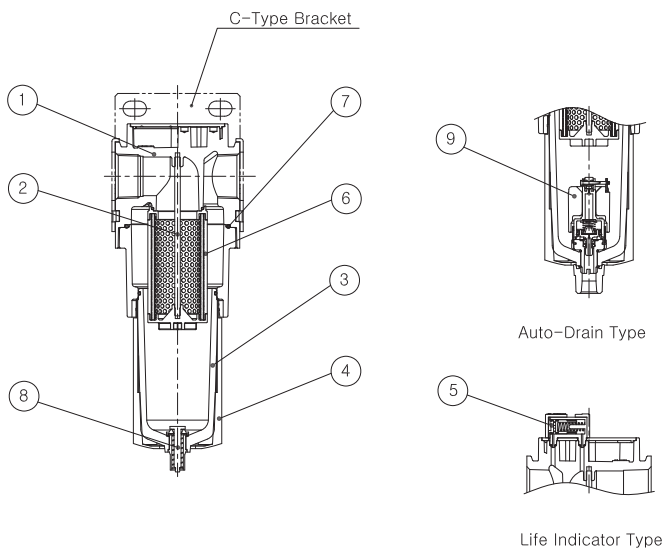
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Baffle shaft	Rolled steel	
③	Bowl	Polycarbonate	
④	Bowl guard	Nylon	
⑤	Life indicator	—	Option

Replacement Parts / Parts List

No.	Description	Material	Part No.
⑥	Coalescing filter element ass'y	—	PFH4000-005A-6083
⑦	Bowl o-ring	NBR	TAF4000-08-6000
⑧	Drain ass'y	—	TAF3000-10A-6004
⑨	Auto drain ass'y	—	TAF3000-04A-6008

PFH5 Construction



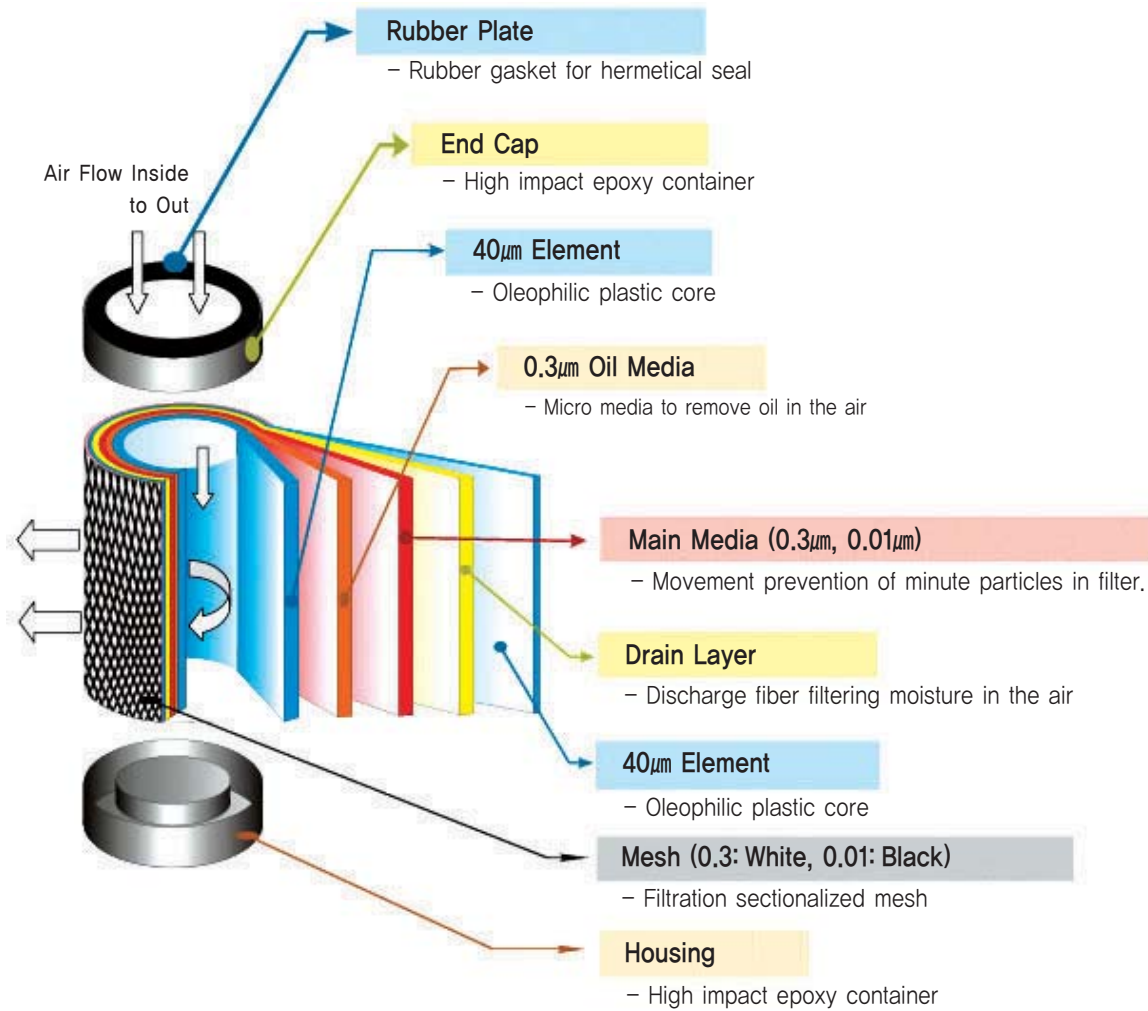
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Baffle shaft	Rolled steel	
③	Bowl	Polycarbonate	
④	Bowl guard	Nylon	
⑤	Life indicator	—	Option

Replacement Parts / Parts List

No.	Description	Material	Part No.
⑥	Coalescing filter element ass'y	—	PFH5-24A030-01
⑦	Bowl o-ring	NBR	TAF4000-08-6000
⑧	Drain ass'y	—	TAF3000-10A-6004
⑨	Auto drain ass'y	—	TAF3000-04A-6008

Construction of Coalescing Filter Element



Media Characteristics

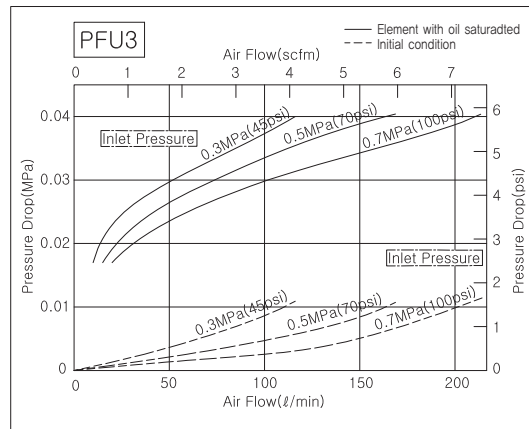
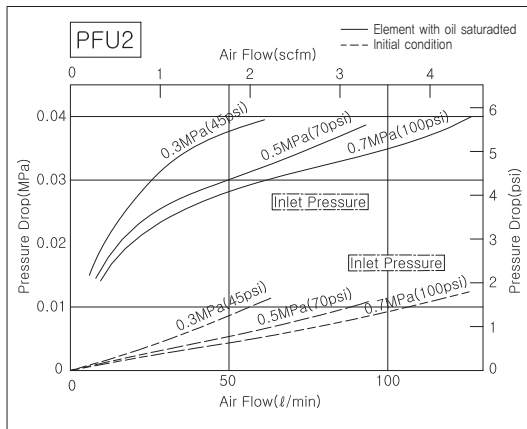
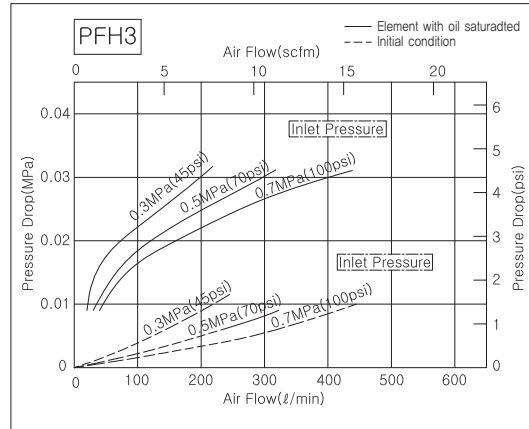
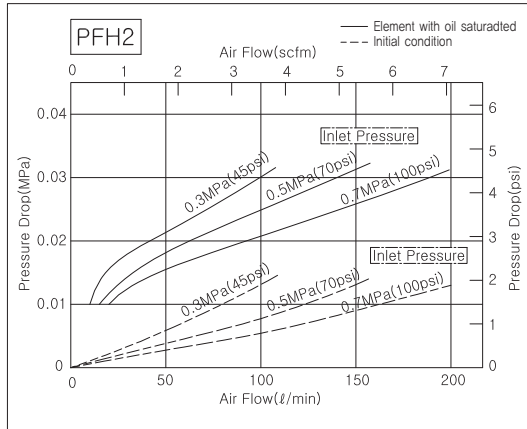
NO	Grade	D.O.P. efficiency 0.3 to 0.6µm	Oil content	Color
1	0.01 µm	99.99%	0.01ppm	White
2	0.3 µm	99.97%	0.05ppm	Black

PFH2~PFH5 Series

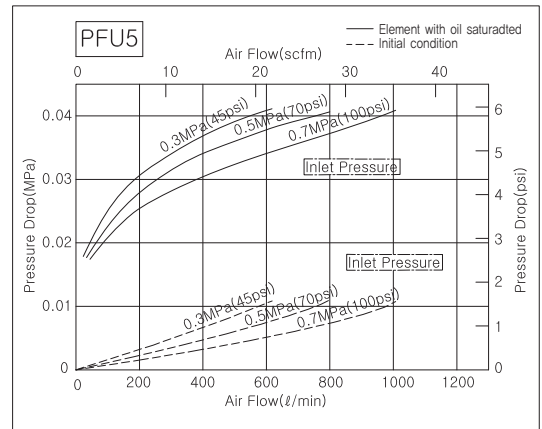
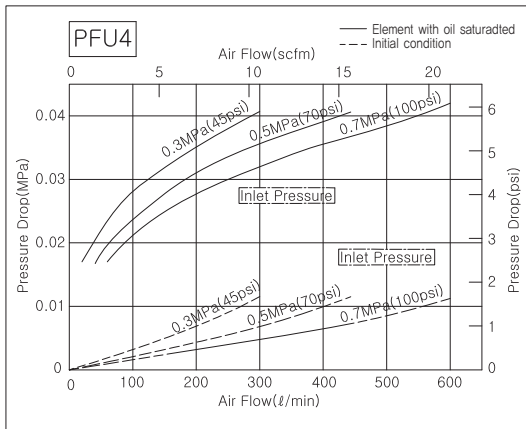
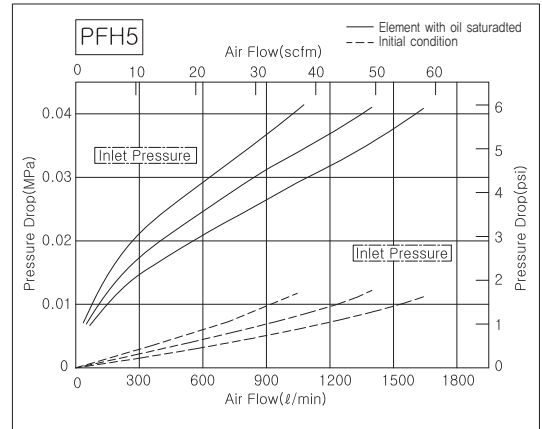
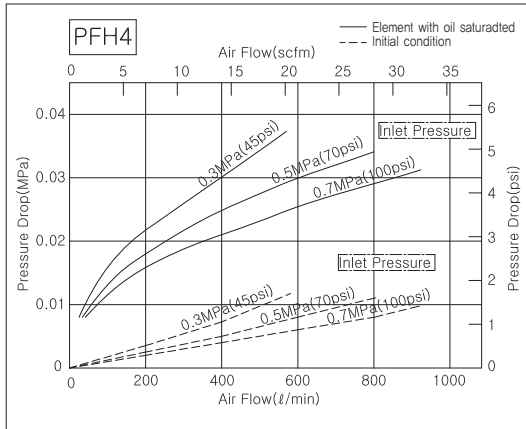
Coalescing Filter 1/8", 1/4", 3/8", 1/2", 3/4" and 1"

Flow Characteristics

Coalescing Filter

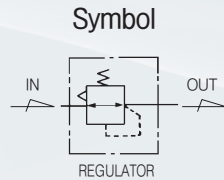


■ Flow Characteristics



PR2 Series Air Regulators 1/8" and 1/4"

Air Regulators

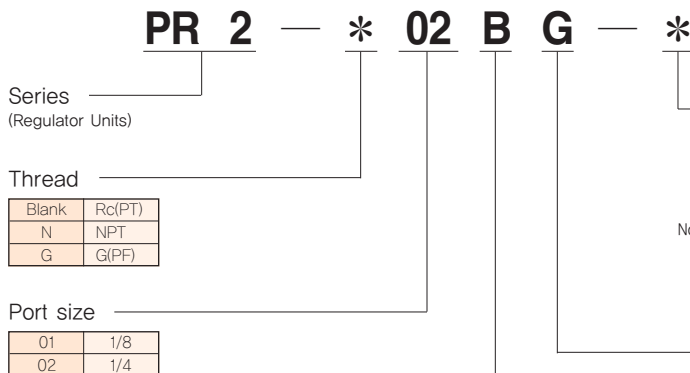


Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05 ~ 0.2(7~30psi)
		0.05 ~ 0.4(7~60psi)
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow capacity ※ (Nℓ /min)	1/8 "	1,300(46scfm)
	1/4 "	1,700(60scfm)
Construction	Relieving style	
Port size for pressure gauge (Rc (PT), NPT)	1/8 "	
Weight (kg)	0.18(0.4lb)	

※ Test conditions : Supply pressure 0.7 MPa(100psi), Set pressure 0.6 MPa(90psi)

How to order



Other Options

Blank	Set at 0 to 1.0 MPa(140psi), Standard		
2	Set at 0 to 0.2 MPa(30psi)	R	Flow direction : Right → Left
4	Set at 0 to 0.4 MPa(60psi)	T	Tamper Resistant Kit
E	Non-relieving type	XC16	Copper-free
K	Built-in Check Valve		

Note1,2)

Note1)

Note1) Refer to page 85 for Built-in Check valve, Tamper resistant kit.
 *If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK
 *Over Max. pressure value can be set.

Pressure Gauge

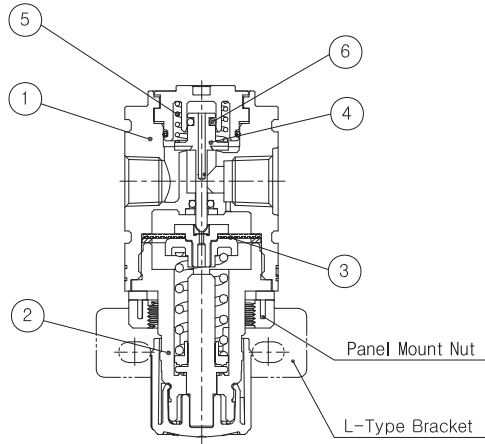
Symbol	Description	Pressure range
Blank	No-gauge	
G	Integral pressure gauge (W/Limit Indicator)	1.0MPa(140psi)
P	Pressure gauge	1.0MPa(140psi)
P2	Pressure gauge	0.2MPa(30psi)
P4	Pressure gauge	0.4MPa(60psi)

Bracket Options

Blank	None	
B	Bracket + Panel nut	Note2)
B1	Panel nut	

Note2) Separately packed, Not assembled.

Construction



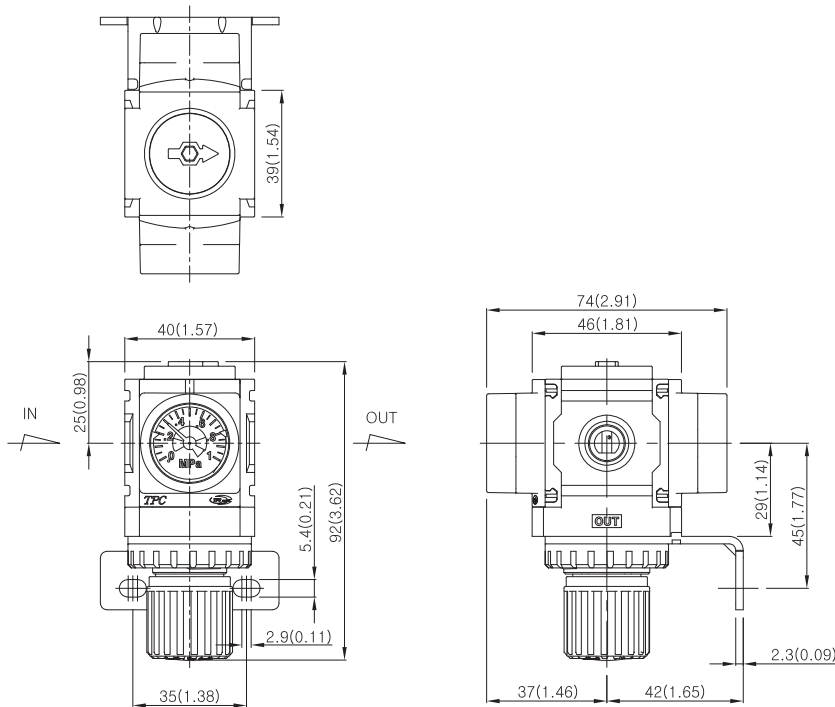
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Nylon	

Replacement Parts / Parts List

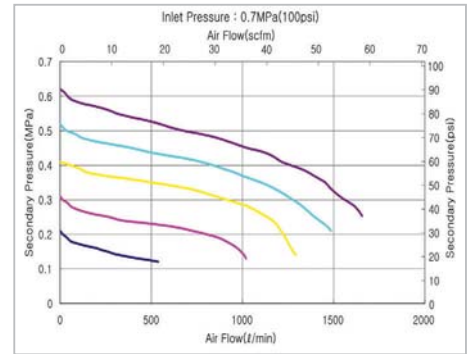
No.	Description	Material	Part No.
③	Diaphragm Ass'y	Nylon+NBR	PR2-11A001-01
④	Valve Ass'y	Brass+NBR	PR2-08-001-01
⑤	Valve Spring	Stainless steel	PR2-14-001-01
⑥	Valve O-ring	NBR	P4-01

Dimensions

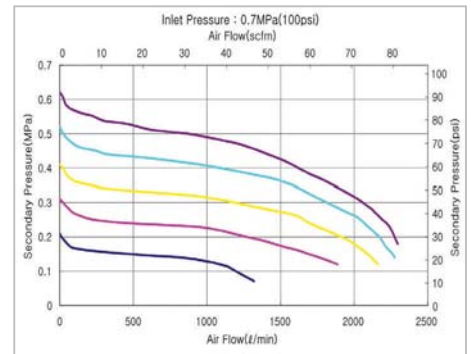


Flow Characteristics

▶ 1/8" PR2



▶ 1/4" PR2



PR3 Series Air Regulators 1/4" and 3/8"

Air Regulators

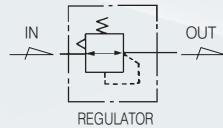


Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05 ~ 0.2(7~30psi) 0.05 ~ 0.4(7~60psi) 0.05 ~ 1.2(7~170psi)
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow capacity ※ (Nℓ /min)	1/4"	2,500(88scfm)
	3/8"	3,200(113scfm)
Construction	Relieving style	
Port size for pressure gauge (Rc (PT), NPT)	1/8"	
Weight (kg)	0.32(0.71lb)	

※ Test conditions : Supply pressure 0.7 MPa(100psi), Set pressure 0.6 MPa(90psi)

Symbol



How to order

PR 3 — * 03 B G — *

Series
(Regulator Units)

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

02	1/4
03	3/8

Other Options

Blank	Set at 0 to 1.0 MPa(140psi), Standard		
2	Set at 0 to 0.2 MPa(30psi)	K	Built-in Check Valve
4	Set at 0 to 0.4 MPa(60psi)	R	Flow direction : Right → Left
12	Set at 0 to 1.2 MPa(170psi)	T	Tamper Resistant Kit
E	Non-relieving type	XC16	Copper-free

Note1)

Note1,2)

Note1) Refer to page 85 for Built-in Check valve, Tamper resistant kit.

*If ordering more than one option, indicate symbols numerically then

alphabetically Ex) 2EK

*Over Max. pressure value can be set.

Pressure Gauge

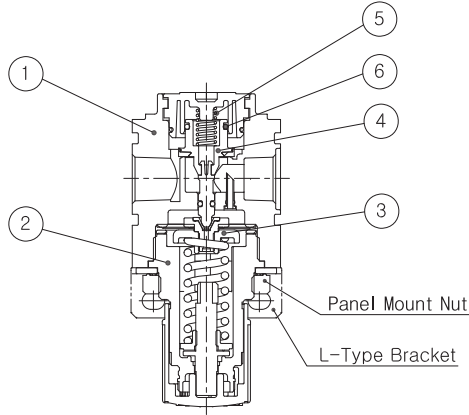
Symbol	Description	Pressure range
Blank	None	
G	Integral pressure gauge (W/Limit Indicator)	1.0MPa(140psi)
P	Pressure gauge	1.0MPa(140psi)
P2	Pressure gauge	0.2MPa(30psi)
P4	Pressure gauge	0.4MPa(60psi)

Bracket Options

Blank	None	
B	Bracket + Panel nut	Note2)
B1	Panel nut	

Note2) Separately packed, Not assembled.

Construction



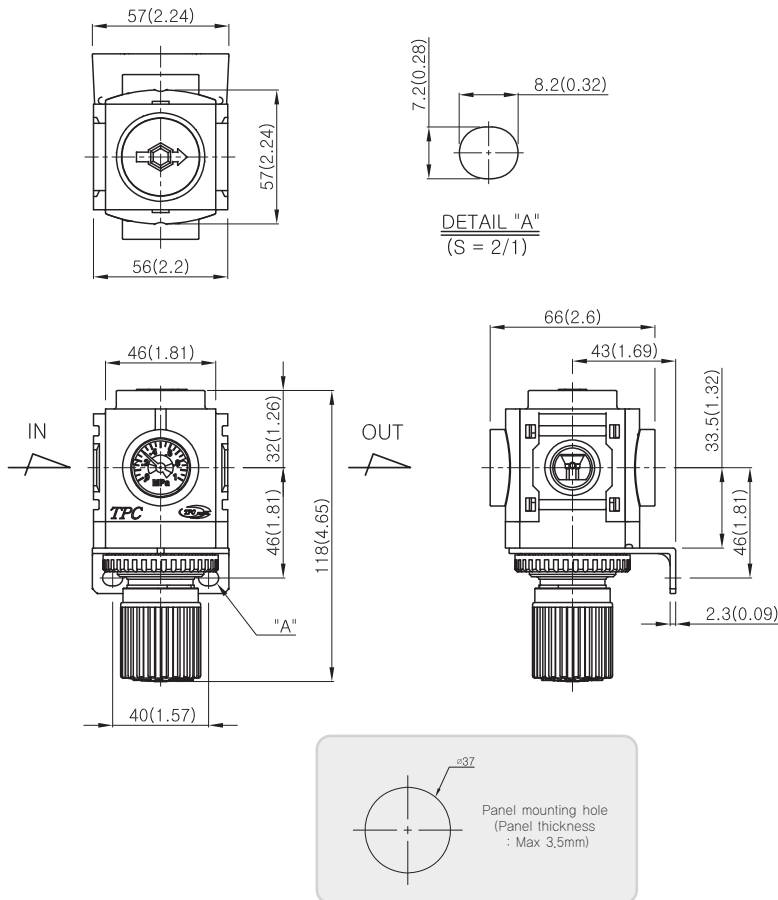
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Nylon	

Replacement Parts / Parts List

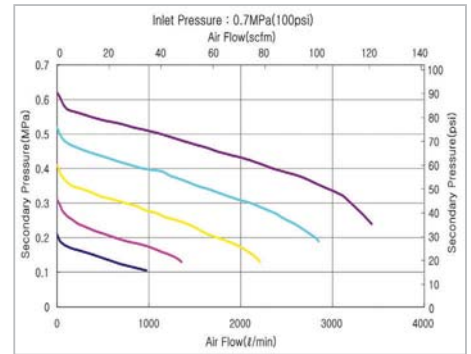
No.	Description	Material	Part No.
③	Diaphragm Ass'y	Nylon+NBR	PR3-11A001-01
④	Valve Ass'y	Nylon+NBR	PR4-08A001-01
⑤	Valve Spring	Stainless steel	PR3-14-001-01
⑥	Valve O-ring	NBR	PR3-04-001-01

Dimensions

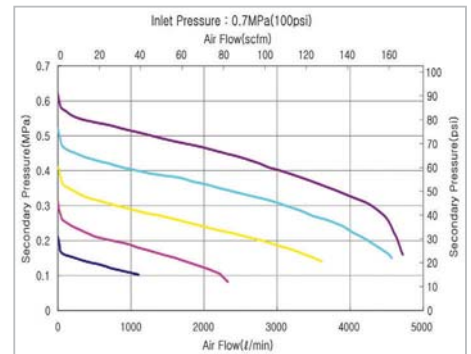


Flow Characteristics

► 1/4" PR3

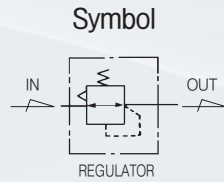


► 3/8" PR3



PR4 Series Air Regulators 3/8" and 1/2"

Air Regulators



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05~1.0(7~140psi)
	Made to order specifications	0.05~0.2(7~30psi) 0.05~0.4(7~60psi) 0.05~1.5(7~200psi)
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow capacity ※ (N l /min)	3/8 "	5,100(180scfm)
	1/2 "	7,700(272scfm)
Construction	Relieving style	
Port size for pressure gauge (Rc (PT), NPT)	1/8 "	
Weight (kg)	0.56(1.23lb)	

※ Test conditions : Supply pressure 0.7 MPa(100psi), Set pressure 0.6 MPa(90psi)

How to order

PR 4 — * 04 B G — *

Series
(Regulator Units)

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

03	3/8
04	1/2

Bracket Options

Blank	None
B	Bracket + Panel nut
B1	Panel nut

Note2)

Note2) Separately packed, Not assembled.

Other Options

Blank	Set at 0 to 1.0 MPa(140psi), Standard		
2	Set at 0 to 0.2 MPa(30psi)	K	Built-in Check Valve
4	Set at 0 to 0.4 MPa(60psi)	R	Flow direction : Right → Left
15	Set at 0 to 1.5 MPa(200psi)	T	Tamper Resistant Kit
E	Non-relieving type	XC16	Copper-free

Note1)

Note1,2)

Note1) Refer to page 85 for Built-in Check valve, Tamper resistant kit.

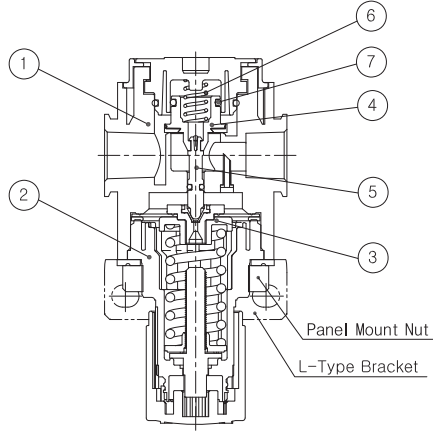
※ If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK

※ Over Max. pressure value can be set.

Pressure Gauge

Symbol	Description	Pressure range
Blank	None	
G	Integral pressure gauge (W/Limit Indicator)	1.0MPa(140psi)
P	Pressure gauge	1.0MPa(140psi)
P2	Pressure gauge	0.2MPa(30psi)
P4	Pressure gauge	0.4MPa(60psi)

Construction



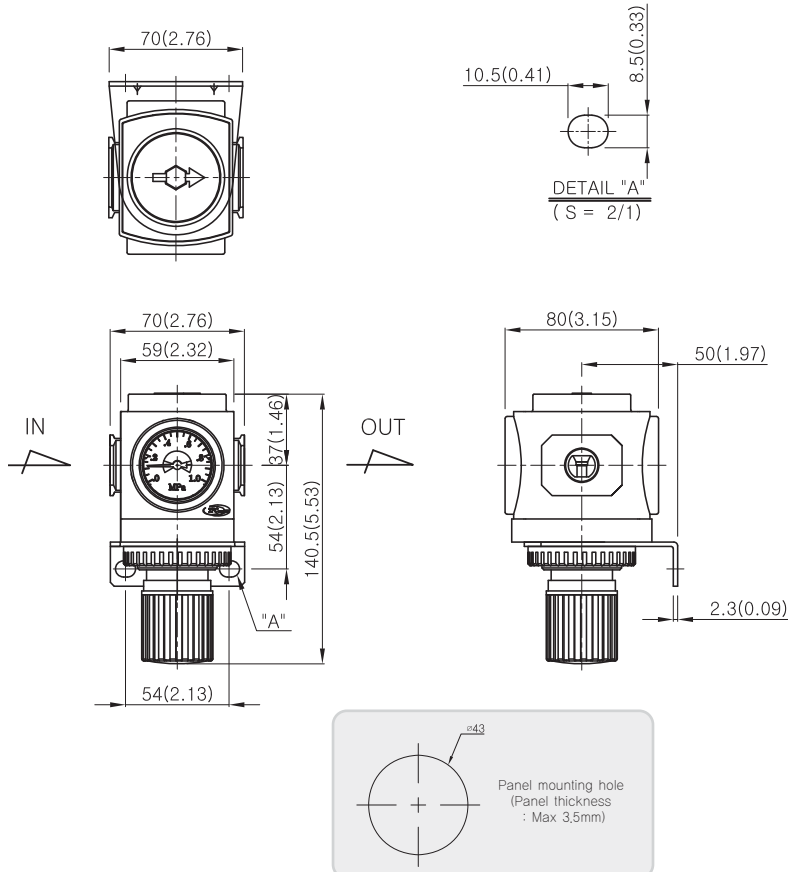
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Nylon	

Replacement Parts / Parts List

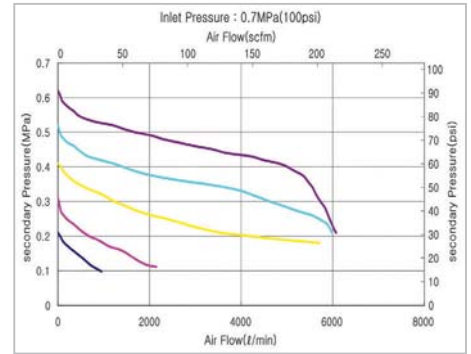
No.	Description	Material	Part No.
③	Diaphragm Ass'y	Nylon+NBR	PR4-11A001-01
④	Valve Ass'y	Nylon+NBR	PR4-08A001-01
⑤	Valve Stem	Nylon	PR4-09-001-01
⑥	Valve Spring	Stainless steel	PR4-14-001-01
⑦	Valve O-ring	NBR	P15-01

Dimensions

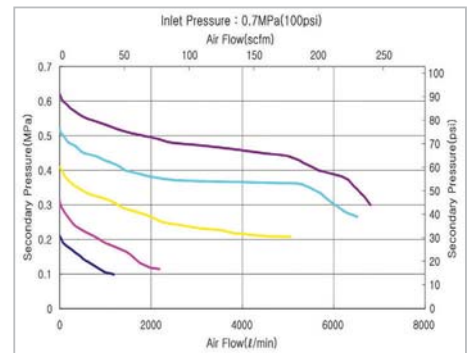


Flow Characteristics

► 3/8" PR4



► 1/2" PR4



PR5 Series Air Regulators 3/4" and 1"

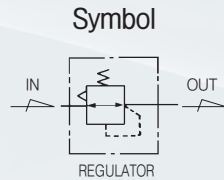
Air Regulators



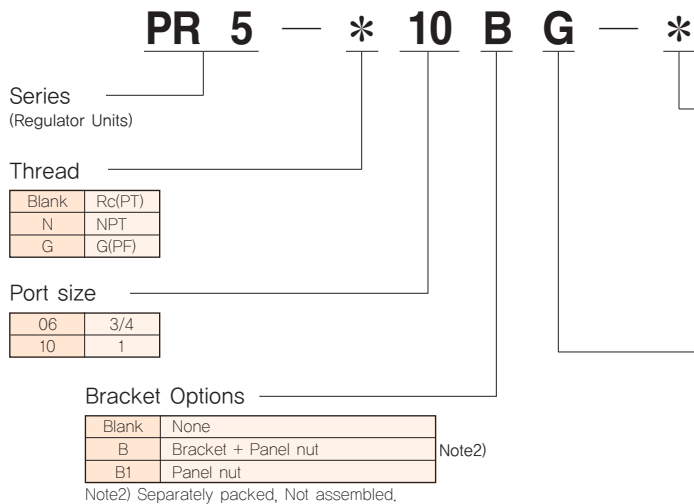
Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05 ~ 0.2(7~30psi) 0.05 ~ 0.4(7~60psi) 0.05 ~ 1.5(7~200psi)
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow capacity ※ (Nℓ /min)	3/4"	8,200(290scfm)
	1"	8,300(293scfm)
Construction	Relieving style	
Port size for pressure gauge (Rc (PT), NPT)	1/8"	
Weight (kg)	1.46(3.22lb)	

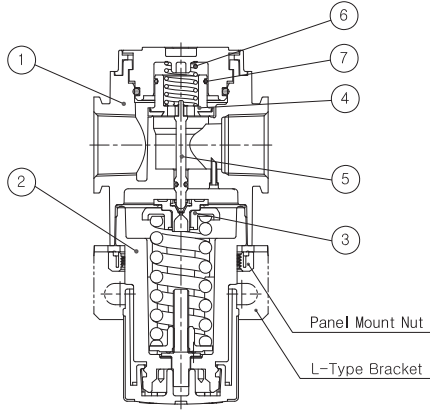
※ Test conditions : Supply pressure 0.7 MPa(100psi), Set pressure 0.6 MPa(90psi)



How to order



Construction



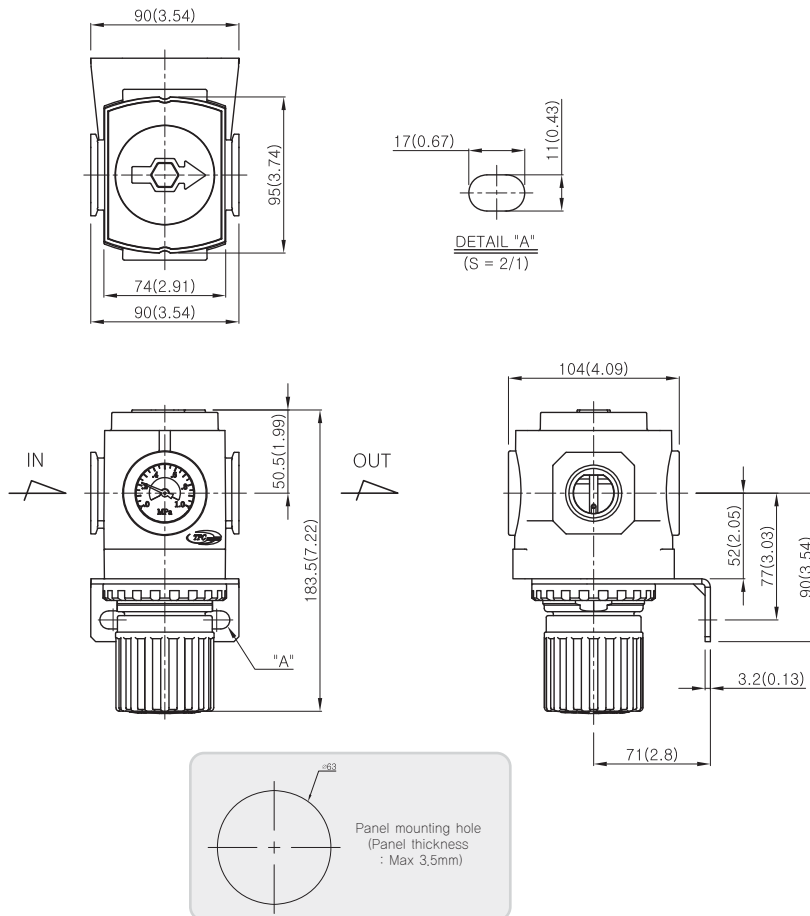
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Aluminum	

Replacement Parts / Parts List

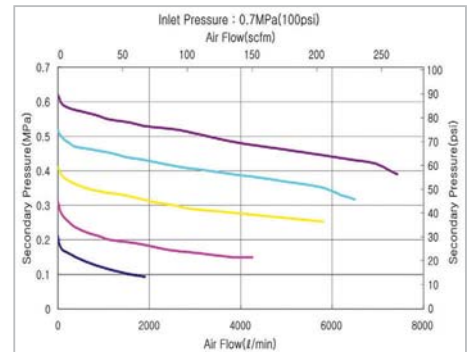
No.	Description	Material	Part No.
③	Diaphragm Ass'y	Aluminum+NBR	PR5-11A001-01
④	Valve Ass'y	Nylon+NBR	PR5-08A001-01
⑤	Valve Stem	Brass	PR5-09-001-01
⑥	Valve Spring	Stainless steel	PR5-14-001-01
⑦	Valve O-ring	NBR	S24-01

Dimensions

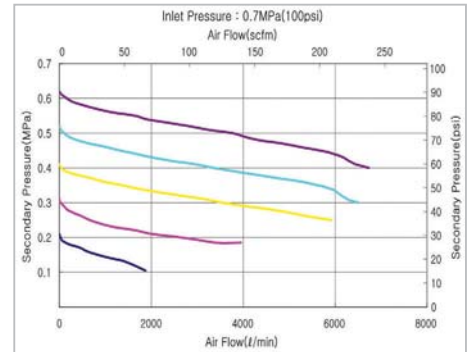


Flow Characteristics

► 3/4" PR5

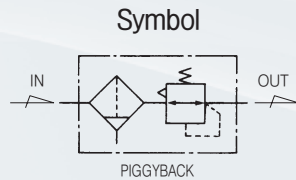


► 1" PR5



PP2 Series Piggyback Filter/Regulator 1/8" and 1/4"

Piggyback Filter/Regulator



Standard Specifications

Fluid	Air	
Max.operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05~0.2(7~30psi), 0.05~0.4(7~60psi)
Ambient and fluid temperature (°C)	-5~60(23~140°Fpsi) (Non-freezing)	
Flow capacity ※ (Nℓ/min)	1/8"	1,200(42scfm)
	1/4"	1,300(46scfm)
Filtration (μm)	Standard : 5	
Construction	Relieving style	
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Drain capacity (cm ³)	Manual drain : 15(0.51oz)	
	Auto drain : 20(0.68oz)	
Weight (kg)	0.23(0.5lb)	

※ Test conditions : Supply pressure 0.7Mpa(100psi), Set pressure 0.6Mpa(90psi)

How to order

PP 2 — * 02 B D G — *

Series (Piggyback Unit) — PP 2

Thread — *

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size — 02

01	1/8
02	1/4

Bracket Options — B D

Blank	None
B	Bracket + Panel nut
B1	Panel nut

Note2) Separately packed, Not assembled.

Other Options — G *

Other Options

Blank	Set at 0 to 1.0 MPa(140psi), 5μm (Standard)		
2	Set at 0 to 0.2 MPa(30psi)	K	Built-in Check Valve
4	Set at 0 to 0.4 MPa(60psi)	R	Flow direction : Right → Left
E	Non-relieving type	T	Tamper Resistant Kit
J2	Filter element - 20μm	XC16	Copper-free
J4	Filter element - 40μm		

Note1) Refer to page 85 for Built-in Check valve, Tamper resistant kit.
 * If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK
 * Over Max. pressure value can be set.

Pressure Gauge

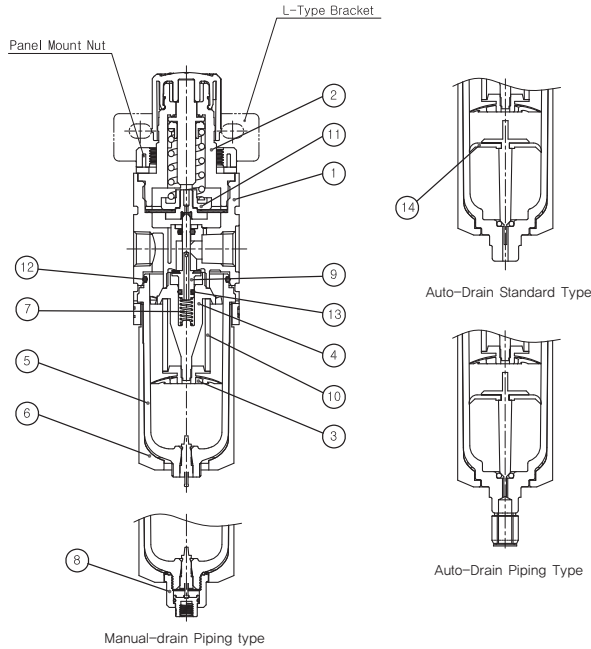
Symbol	Description	Pressure range
Blank	No-gauge	
G	Integral pressure gauge (W/Limit Indicator)	1.0MPa(140psi)
P	Pressure gauge	1.0MPa(140psi)
P2	Pressure gauge	0.2MPa(30psi)
P4	Pressure gauge	0.4MPa(60psi)

Drain Options

Blank	Manual Push Drain	
D	Auto Drain (N.O. Type)	Note3)
D2	Auto Drain (Piping exhaust)	
D5	Manual Drain (Piping exhaust)	

Note3) Min.operating pressure is 0.15MPa (20psi) for Auto Drain (N.O. Type)

Construction



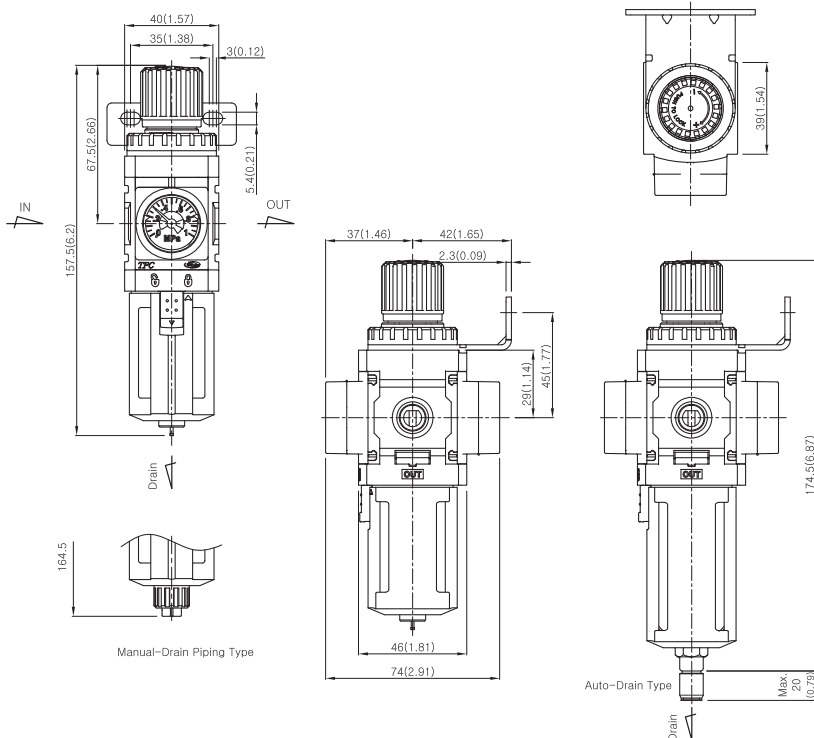
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Nylon	
③	Baffle	Acetal	
④	Deflector	Nylon	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	
⑦	Valve Spring	Stainless steel	
⑧	Manual-drain pipe Ass'y		

Replacement Parts / Parts List

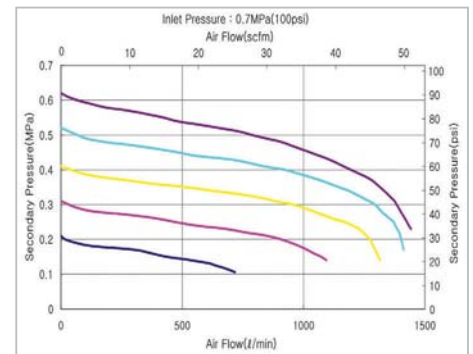
No.	Description	Material	Part No.
⑨	Valve ass'y	Brass+NBR	PP2-08-001-01
⑩	Filter element	Polyethylene	PF2-24-005-01
⑪	Diaphragm ass'y	Nylon+NBR	PR2-11A001-01
⑫	Bowl O-ring	NBR	DX2R-53-3000
⑬	Valve O-ring	NBR	S4-01
⑭	Auto-drain ass'y	-	PF2-26A002-01

Dimensions

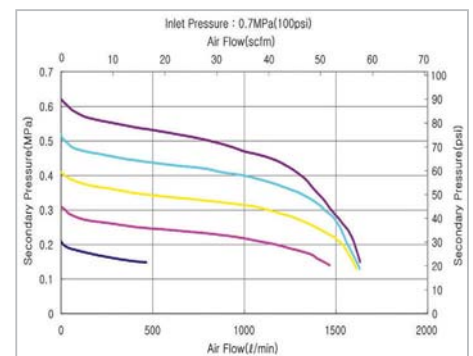


Flow Characteristics

▶ 1/8" PP2

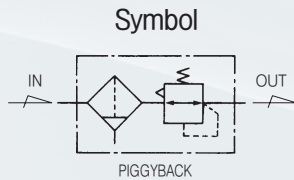


▶ 1/4" PP2



PP3 Series Piggyback Filter/Regulator 1/4" and 3/8"

Piggyback Filter/Regulator



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05 ~ 0.2(7~30psi)
		0.05 ~ 0.4(7~60psi)
		0.05 ~ 1.2(7~170psi)
Ambient and fluid temperature (°C)	-5 ~ 60(23~140°F) (Non-freezing)	
Flow capacity ※ (Nℓ/min)	1/4"	2,100(74scfm)
	3/8"	2,600(92scfm)
Filtration (μm)	5	
Construction	Relieving style	
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Drain capacity (cm ³)	Manual drain:38(1.28oz), Auto drain:30(1.01oz)	
Weight (kg)	0.49(1.08lb)	

※ Test conditions : Supply pressure 0.7Mpa(100psi), Set pressure 0.6Mpa(90psi)

How to order

PP 3 — * 03 B D G — *

Series (Piggyback Unit) — PP 3

Thread — *

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size — 03

02	1/4
03	3/8

Bracket Options — B D

Blank	None
B	Bracket + Panel nut
B1	Panel nut

Note2) Separately packed, Not assembled.

Other Options

Blank	Set at 0 to 1,0 MPa(140psi), 5μm (Standard)		
2	Set at 0 to 0,2 MPa(30psi)	J4	Filter element - 40μm
4	Set at 0 to 0,4 MPa(60psi)	K	Built-in Check Valve
12	Set at 0 to 1,2 MPa(170psi)	R	Flow direction : Right → Left
E	Non-relieving type	T	Tamper Resistant Kit
J2	Filter element - 20μm	XC16	Copper-free

Note1)

Note1,2)

Note1) Refer to page 85 for Built-in Check valve, Tamper resistant kit.
 *If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK
 *Over Max. pressure value can be set.

Pressure Gauge

Symbol	Description	Pressure range
Blank	None	
G	Integral pressure gauge (W/Limit Indicator)	1,0MPa(140psi)
P	Pressure gauge	1,0MPa(140psi)
P2	Pressure gauge	0,2MPa(30psi)
P4	Pressure gauge	0,4MPa(60psi)

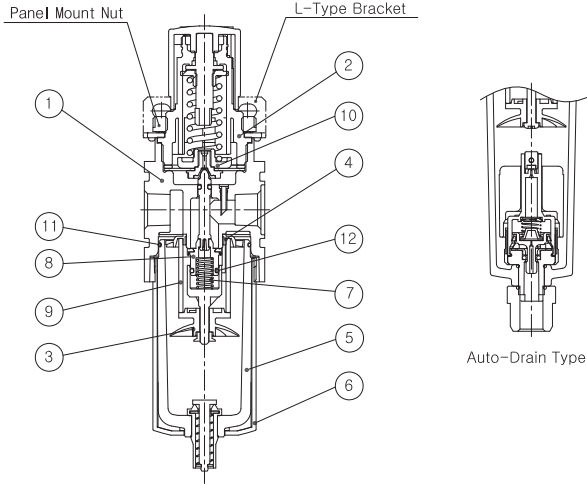
Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

Note3)

Note3) Min. operating pressure is 0,15MPa(20psi) for Auto Drain (N.O Type)

Construction



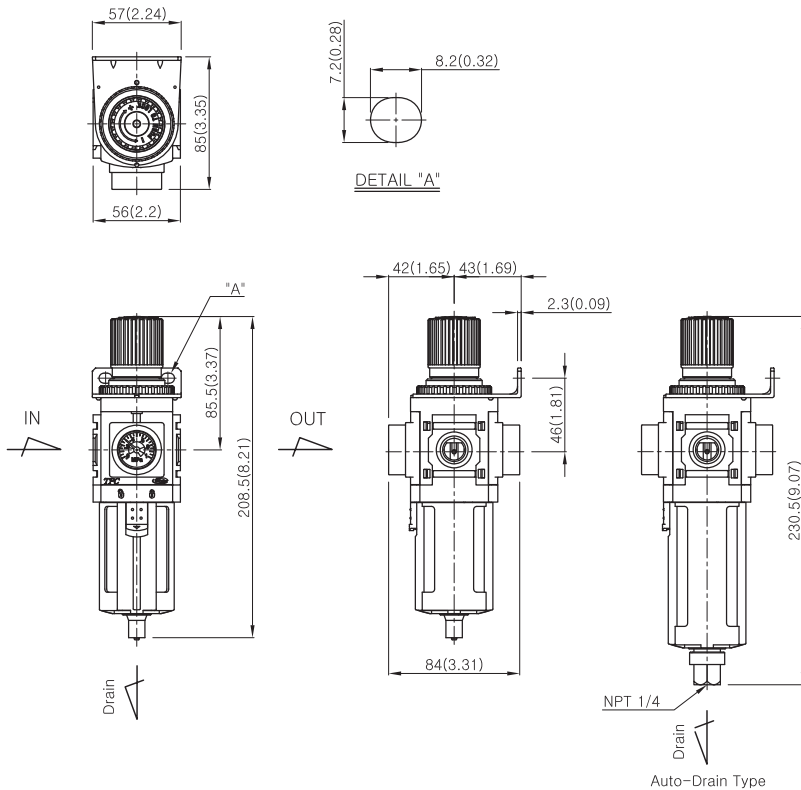
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Nylon	
③	Baffle	Acetal	
④	Deflector	Nylon	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	
⑦	Valve Spring	Stainless steel	

Replacement Parts / Parts List

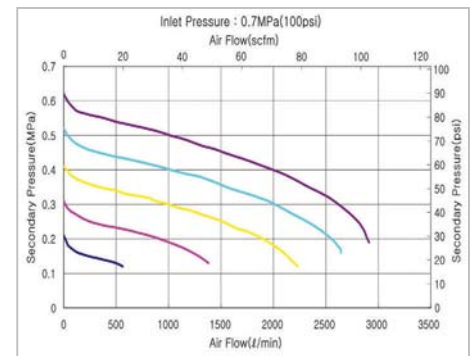
No.	Description	Material	Part No.
⑧	Valve ass'y	Nylon+NBR	PP3-08A001-01
⑨	Filter element	Polyethylene	PF3-24-005-01
⑩	Diaphragm ass'y	Nylon+NBR	PR3-11A001-01
⑪	Bowl O-ring	NBR	PL3-04-001
⑫	Valve O-ring	NBR	P10-01

Dimensions

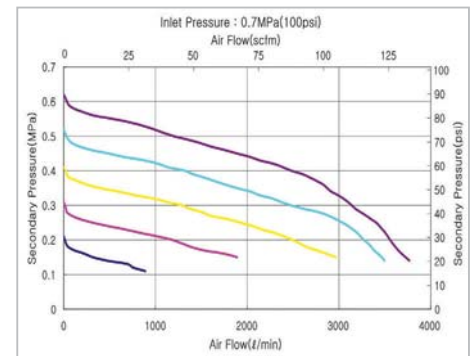


Flow Characteristics

▶ 1/4" PP3

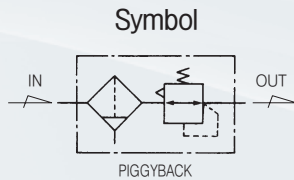


▶ 3/8" PP3



PP4 Series Piggyback Filter/Regulator 3/8" and 1/2"

Piggyback Filter/Regulator



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05 ~ 0.2(7~30psi)
		0.05 ~ 0.4(7~60psi)
		0.05 ~ 1.5(7~200psi)
Ambient and fluid temperature (°C)	-5 ~ 60(23~140°F) (Non-freezing)	
Flow capacity ※ (Nℓ/min)	3/8"	3,800(134scfm)
	1/2"	4,700(166scfm)
Filtration (μm)	5	
Construction	Relieving style	
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Drain capacity (cm ³)	Manual drain:56(1.89oz), Auto drain:68(2.3oz)	
Weight (kg)	0.74(1.63lb)	

※ Test conditions : Supply pressure 0.7Mpa(100psi), Set pressure 0.6Mpa(90psi)

How to order

PP 4 — * 04 B D G — *

Series
(Piggyback Unit)

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

03	3/8
04	1/2

Bracket Options

Blank	None
B	Bracket + Panel nut
B1	Panel nut

Note2) Separately packed, Not assembled.

Other Options

Blank	Set at 0 to 1,0 MPa(140psi), 5μm (Standard)		
2	Set at 0 to 0,2 MPa(30psi)	J4	Filter element - 40μm
4	Set at 0 to 0,4 MPa(60psi)	K	Built-in Check Valve
15	Set at 0 to 1,5 MPa(200psi)	R	Flow direction : Right → Left
E	Non-relieving type	T	Tamper Resistant Kit
J2	Filter element - 20μm	XC16	Copper-free

Note1)

Note1,2)

Note1) Refer to page 85 for Built-in Check valve, Tamper resistant kit.
*If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK

*Over Max. pressure value can be set.

Pressure Gauge

Symbol	Description	Pressure range
Blank	None	
G	Integral pressure gauge (W/Limit Indicator)	1,0MPa(140psi)
P	Pressure gauge	1,0MPa(140psi)
P2	Pressure gauge	0,2MPa(30psi)
P4	Pressure gauge	0,4MPa(60psi)

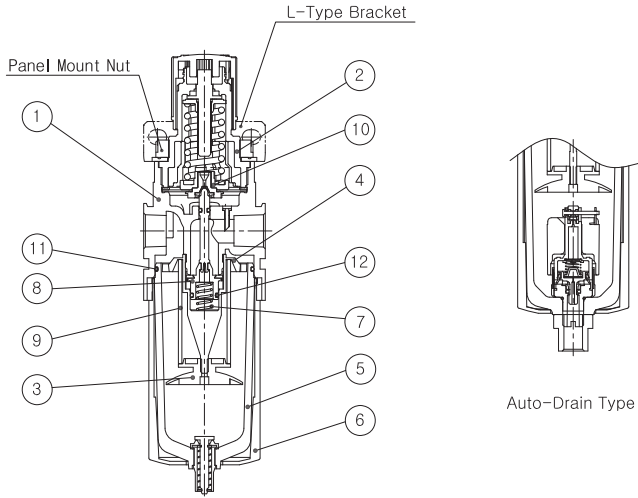
Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

Note3)

Note1) Min. operating pressure is 0,15MPa (20psi) for Auto Drain (N.O Type)

Construction



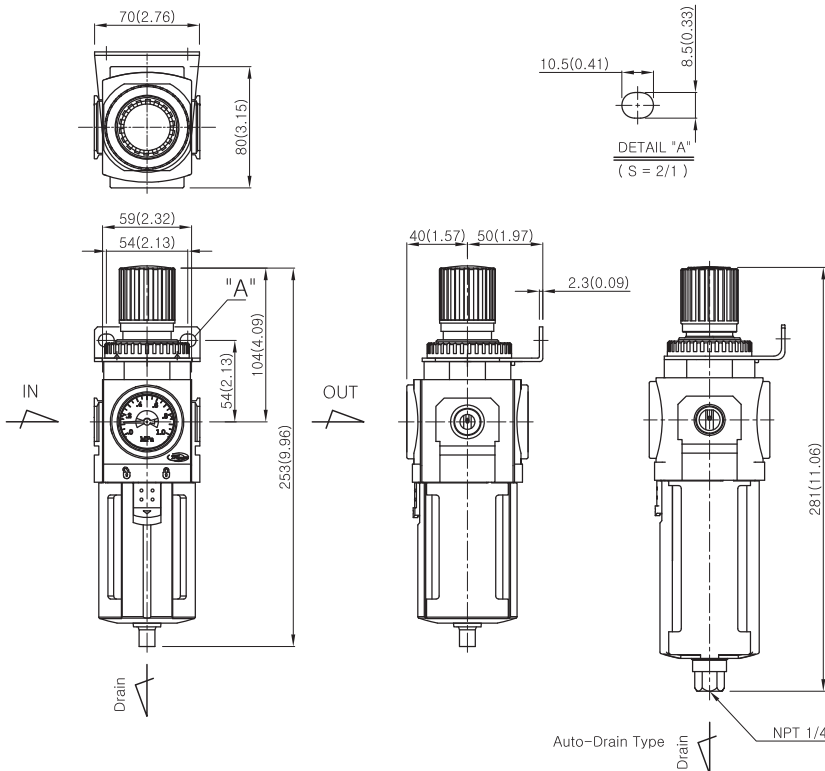
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Nylon	
③	Baffle	Acetal	
④	Deflector	Acetal	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	
⑦	Valve Spring	Stainless steel	

Replacement Parts / Parts List

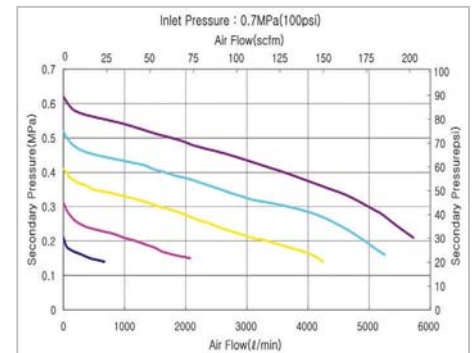
No.	Description	Material	Part No.
⑧	Valve ass'y	Nylon+NBR	PP4-08A001-01
⑨	Filter element	Polyethylene	PF4-24-005-01
⑩	Diaphragm ass'y	Nylon+NBR	PR4-11A001-01
⑪	Bowl O-ring	NBR	TAF4000-08-6000
⑫	Valve O-ring	NBR	PR3-04-001-01

Dimensions

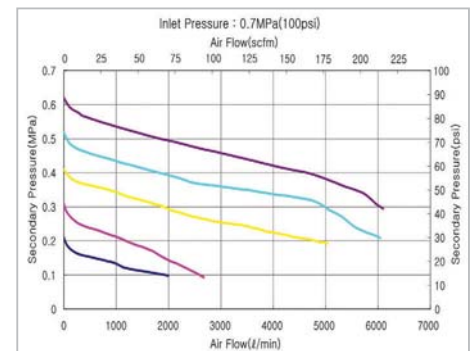


Flow Characteristics

▶ 3/8" PP4

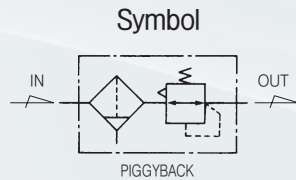


▶ 1/2" PP4



PP5 Series Piggyback Filter/Regulator 3/4" and 1"

Piggyback Filter/Regulator



Standard Specifications

Fluid	Air	
Max.operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure range (MPa)	Standard	0.05 ~ 1.0(7~140psi)
	Made to order specifications	0.05 ~ 0.2(7~30psi)
		0.04 ~ 0.4(7~60psi)
		0.05 ~ 1.5(7~200psi)
Ambient and fluid temperature (°C)	-5 ~ 60(23~140°F) (Non-freezing)	
Flow capacity ※ (Nℓ/min)	3/4"	9,400(332scfm)
	1"	9,900(350scfm)
Filtration (μm)	5	
Construction	Relieving style	
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Drain capacity (cm ³)	Manual drain:156(5.27oz), Auto drain:174(5.88oz)	
Weight (kg)	2.39(5.27lb)	

※ Test conditions : Supply pressure 0.7 MPa(100psi), Set pressure 0.6 MPa(90psi)

How to order

PP 5 — * 10 B D G — *

Series (Piggyback Unit)

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

06	3/4
10	1

Bracket Options

Blank	None
B	Bracket + Panel nut
B1	Panel nut

Note2) Separately packed, Not assembled.

Other Options

Blank	Set at 0 to 1.0 MPa(140psi), 5μm (Standard)		
2	Set at 0 to 0.2 MPa(30psi)	J4	Filter element - 40μm
4	Set at 0 to 0.4 MPa(60psi)	K	Built-in Check Valve
15	Set at 0 to 1.5 MPa(200psi)	R	Flow direction : Right → Left
E	Non-relieving type	T	Tamper Resistant Kit
J2	Filter element - 20μm	XC16	Copper-free

Note1)

Note1,2)

Note1) Refer to page 85 for Built-in Check valve, Tamper resistant kit.
 *If ordering more than one option, indicate symbols numerically then alphabetically Ex) 2EK
 *Over Max. pressure value can be set.

Pressure Gauge

Symbol	Description	Pressure range
Blank	No-gauge	
G	Integral pressure gauge (W/Limit Indicator)	1.0MPa(140psi)
P	Pressure gauge	1.0MPa(140psi)
P2	Pressure gauge	0.2MPa(30psi)
P4	Pressure gauge	0.4MPa(60psi)

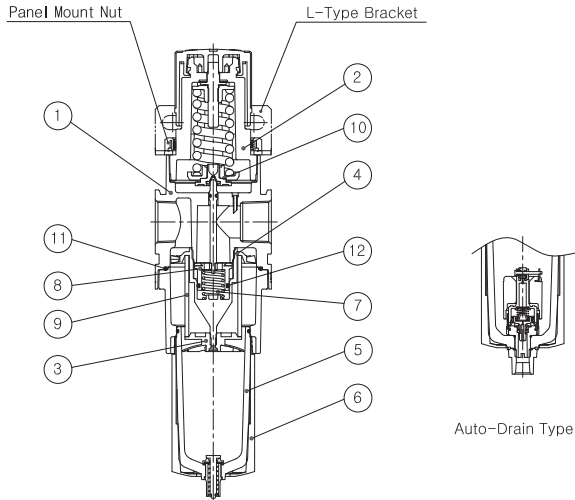
Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

Note3)

Note3) Min.operating pressure is 0.15MPa (20psi) for Auto Drain (N.O Type)

Construction



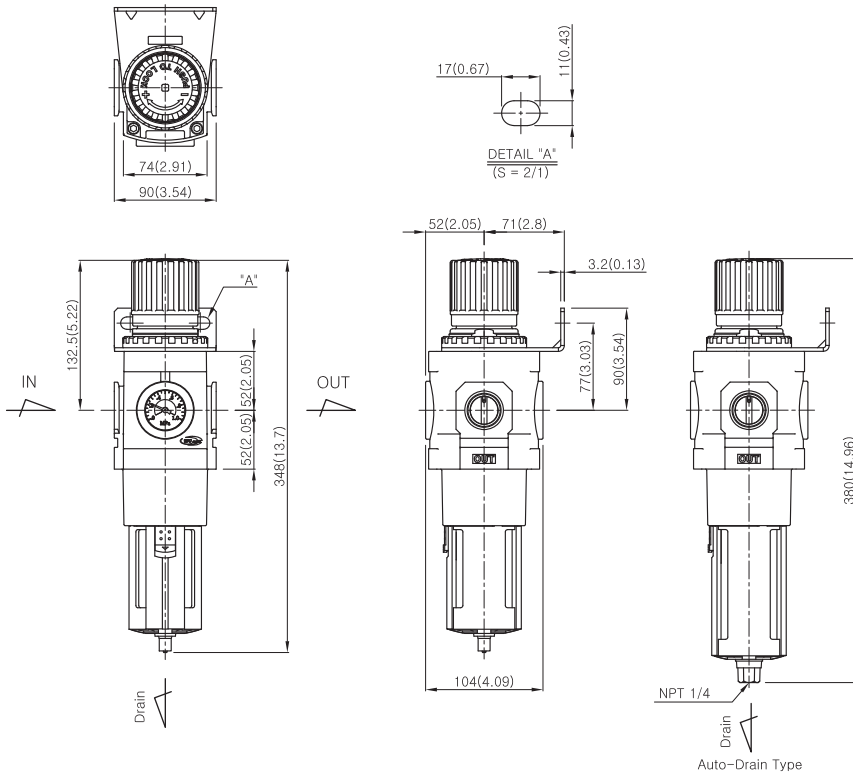
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Aluminum	
③	Baffle	Acetal	
④	Deflector	Nylon	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	
⑦	Valve Spring	Stainless steel	

Replacement Parts / Parts List

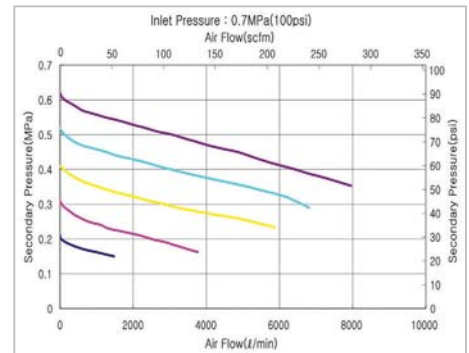
No.	Description	Material	Part No.
⑧	Valve ass'y	Brass+NBR	PP5-08A001-01
⑨	Filter element	Polyethylene	PF5-24-005-01
⑩	Diaphragm ass'y	Aluminum+NBR	PR5-11A001-01
⑪	Bowl O-ring	NBR	TAF4000-08-6000
⑫	Valve O-ring	NBR	P21-01

Dimensions

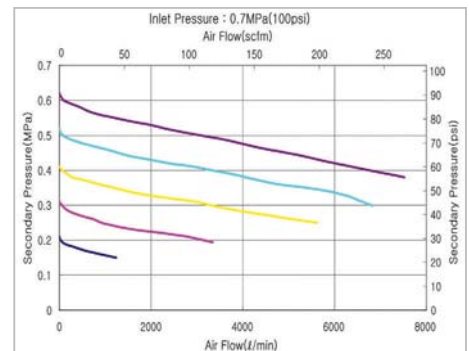


Flow Characteristics

▶ 3/4" PP5



▶ 1" PP5



PPH/PPU Series

Piggyback Coalescing Filter/Regulator 1/4", 3/8" and 1/2"

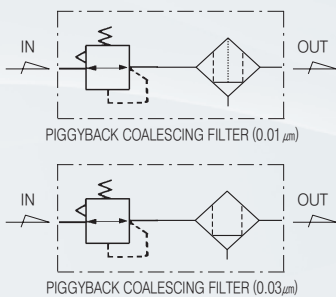


Standard Specifications

Series	PPH/PPU3	PPH/PPU4
Max.operating pressure (MPa)	1 (140psi)	
Proof pressure (MPa)	1.5(200psi)	
Set pressure	0.05 ~ 1.0(7~140psi)	
range (MPa)	Standard	Made to order specifications
	0.05~1.2(7~170psi)	0.05~1.5(7~200psi)
Ambient and fluid temperature (°C)	-5 ~ 60(23~140°F) (Non-freezing)	
Flow capacity (Nℓ/min) ※	1/4" and 3/8" -300(11scfm)	3/8" and 1/2" -800(28scfm)
Filtration (μm)	PPH : 0.3, PPU : 0.01	
Construction	Relieving style	
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Drain	Manual	56(1.89oz)
capacity (cm ³)	Auto	30(1.01oz)
Weight (kg)	0.49(1.08lb)	0.74(1.63lb)

※ Test conditions : Supply pressure 0.7Mpa(100psi), Set pressure 0.6Mpa(90psi)

Symbol



Piggyback Coalescing Filter/Regulator

How to order

PPH 4 — * 04 B D G — *

Piggyback Coalescing Filter

PPH	Filter (Filtration 0.3μm)
PPU	Filter (Filtration 0.01μm)

Series

3	PC3 Series
4	PC4 Series

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

02	1/4	PC3 Series
03	3/8	PC3, 4 Series
04	1/2	PC4 Series

Bracket Options

Blank	None
B	Bracket + Panel nut
B1	Panel nut

Note2) Separately packed, Not assembled.

Other Options

Blank	Set at 0 to 1.0 MPa(140psi)
12	Set at 0 to 1.2 MPa(170psi), F3 Series
15	Set at 0 to 1.5 MPa(200psi), F4 Series
E	Non-relieving type
R	Flow direction : Right → Left
T	Tamper Resistant Kit
XC16	Copper-free

Note1,2)

Note1) Refer to page 85 for Tamper resistant kit.
 * If ordering more than one option, indicate symbols numerically then alphabetically Ex) 12RT
 * Over Max. pressure value can be set.

Pressure Gauge

Symbol	Description	Pressure range
Blank	None	
G	Integral pressure gauge (W/Limit Indicator)	1.0MPa(140psi)
P	Pressure gauge	1.0MPa(140psi)
P2	Pressure gauge	0.2MPa(30psi)
P4	Pressure gauge	0.4MPa(60psi)

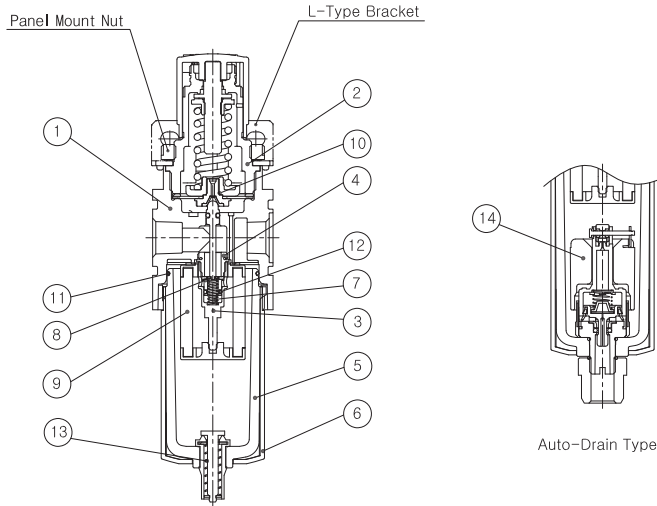
Drain Options

Blank	Manual Push Drain
D	Auto Drain (N.O Type)

Note3)

Note3) Min.operating pressure is 0.15MPa (20psi) for Auto Drain (N.O Type)

PPH3/PPU3 Construction



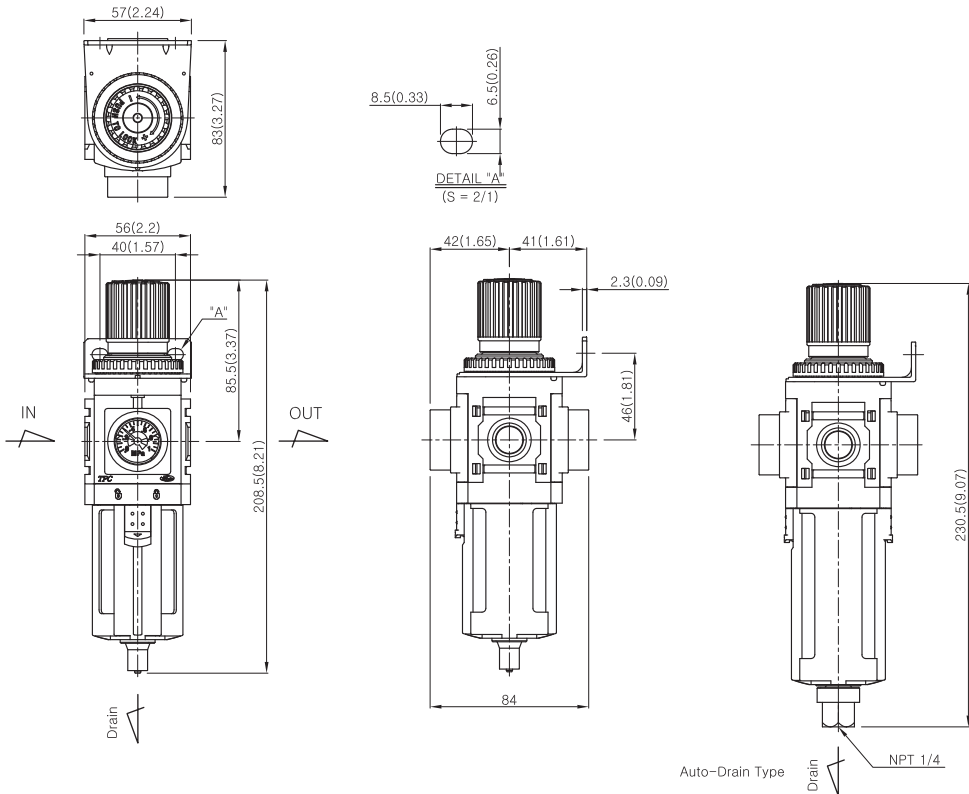
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Nylon	
③	Valve guide	Aluminum	
④	Insert	Aluminum	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	
⑦	Valve Spring	Stainless steel	

Replacement Parts / Parts List

No.	Description	Material	Part No.
⑧	Valve ass'y	Brass+NBR	PPH3-08A001-01
⑨	Coalescing filter ass'y	-	PFH3000-005A-6081
⑩	Diaphragm ass'y	Nylon+NBR	PR3-11A001-01
⑪	Bowl O-ring	NBR	PL3-04-001-01
⑫	Valve O-ring	NBR	S6-01
⑬	Drain ass'y	-	TAF3000-10A-6004
⑭	Auto-drain ass'y	-	TAF3000-01A-6008

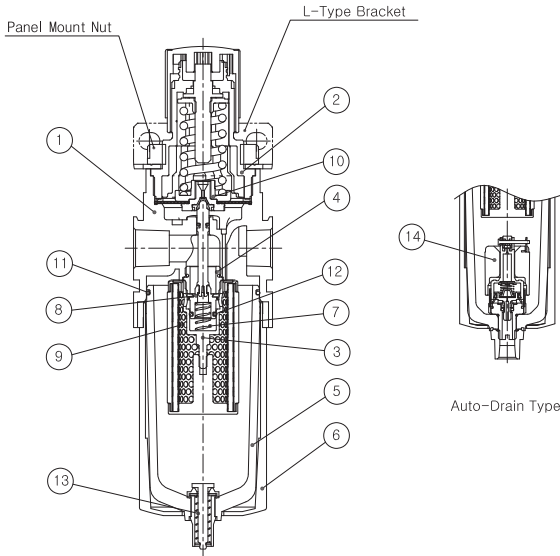
PPH3/PPU3 Dimensions



PPH/PPU Series

Piggyback Coalescing Filter/Regulator 1/4", 3/8" and 1/2"

PPH4/PPU4 Construction



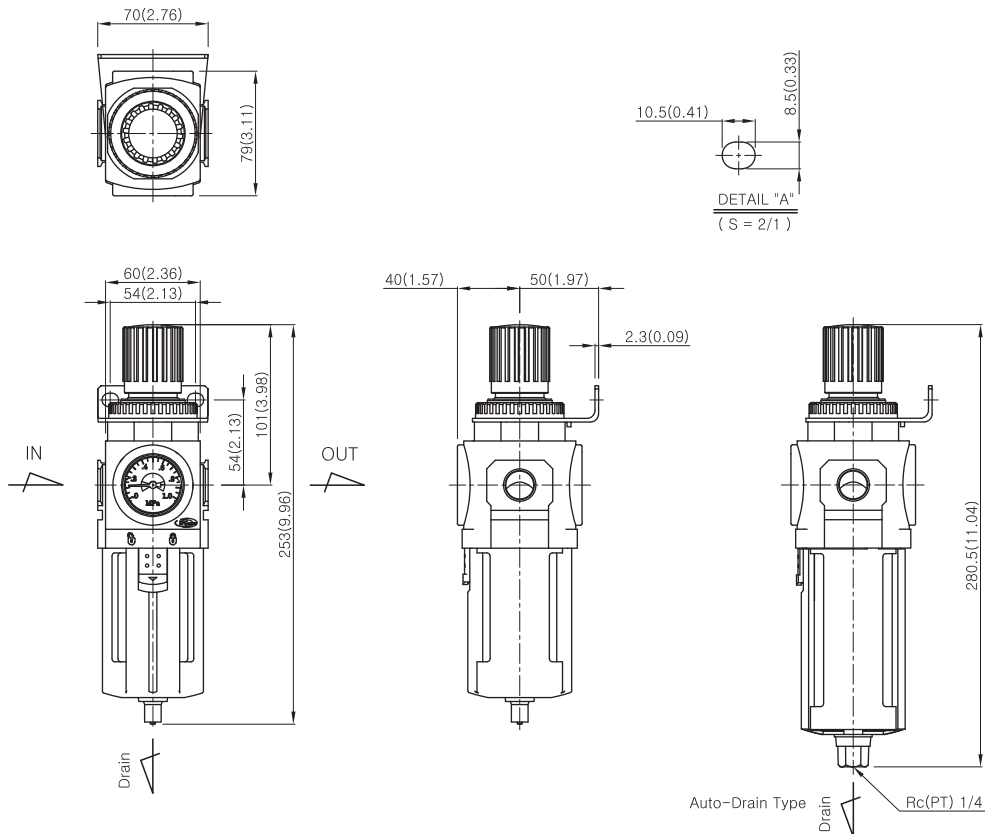
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Bonnet	Nylon	
③	Valve guide	Aluminum	
④	Insert	Aluminum	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	
⑦	Valve Spring	Stainless steel	

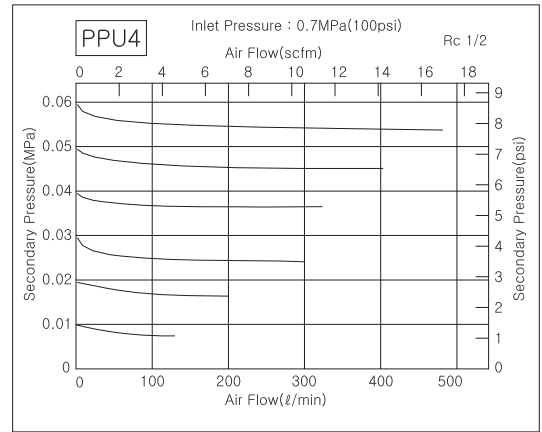
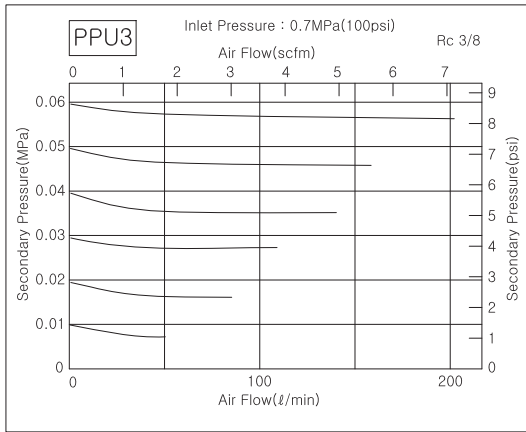
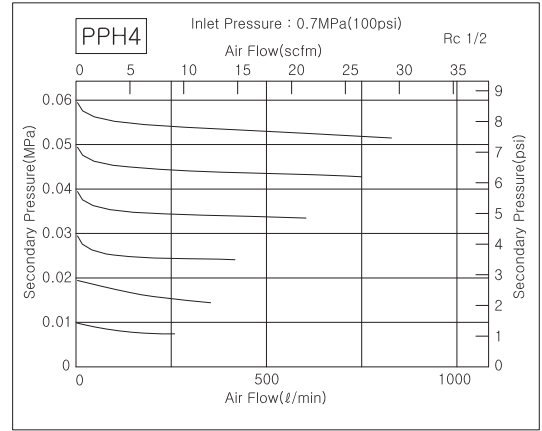
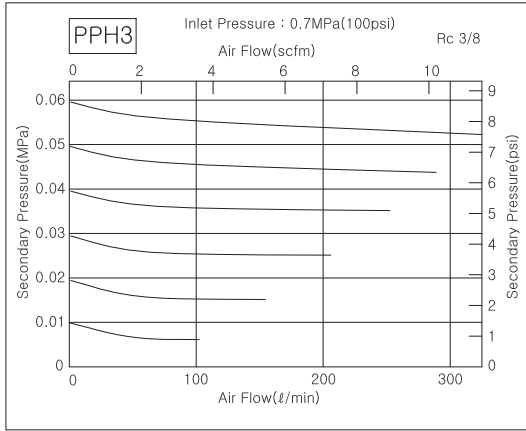
Replacement Parts / Parts List

No.	Description	Material	Part No.
⑧	Valve ass'y	Nylon+NBR	PP3-08A001-01
⑨	Coalescing filter ass'y	-	PPH4-24A030-01
⑩	Diaphragm ass'y	Nylon+NBR	PR4-11A001-01
⑪	Bowl O-ring	NBR	TAF4000-08-6000
⑫	Valve O-ring	NBR	P10-01
⑬	Drain ass'y	-	TAF3000-10A-6004
⑭	Auto-drain ass'y	-	TAF3000-01A-6008

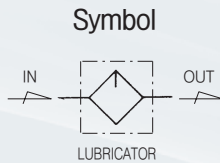
PPH4/PPU4 Dimensions



■ Flow Characteristics



PL2 Series Lubricator 1/8" and 1/4"



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Min operating flow (Nℓ /min)	15(0.5scfm)(1/4")	
Bowl capacity (cm ³)	18(0.61oz)	
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow capacity (Nℓ /min) ※	1/8"	900(32scfm)
	1/4"	1,600(57scfm)
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Recommended oil	ISO VG32 (Turbine oil 1 class)	
Weight (kg)	0.14(0.31lb)	

※ Test conditions : Supply pressure 0.6 MPa(90psi), Number of drop-0.05 MPa(7psi)

Lubricator

How to order

PL 2 — * 02 B — *

Series (Lubricator Units) —————

Thread —————

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size —————

01	1/8
02	1/4

Other Options

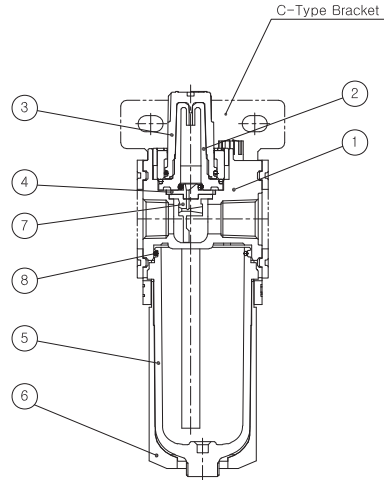
R	Flow direction : Right → Left
XC16	Copper-free

Bracket Options

Blank	None
B	Bracket

Note1) Separately packed, Not assembled.

Construction



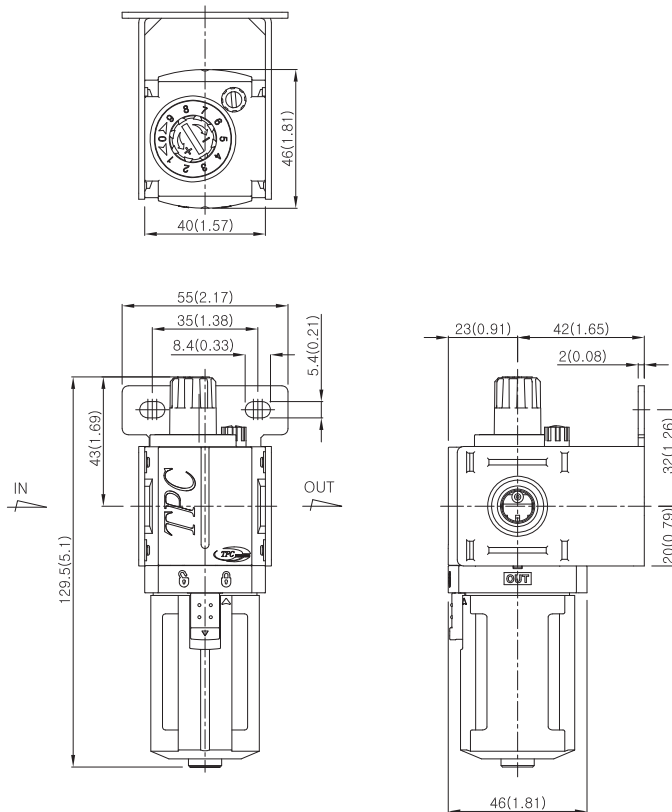
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Inner sight dome	Nylon (clear)	
③	Outer sight dome	Nylon (clear)	
④	Damper plate	Acetal	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	

Replacement Parts / Parts List

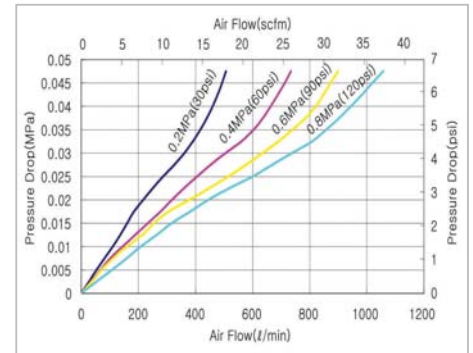
No.	Description	Material	Part No.
⑦	Damper	NBR	PL2-34-001-01
⑧	Bowl O-ring	NBR	DX2R-53-3000

Dimensions

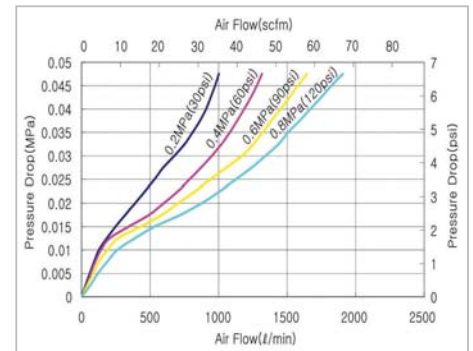


Flow Characteristics

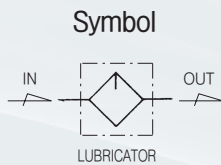
▶ 1/8" PL2



▶ 1/4" PL2



PL3 Series Lubricator 1/4" and 3/8"



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Min operating flow (Nℓ /min)	40(1.4scfm) (3/8")	
Bowl capacity (cm ³)	56(1.89oz)	
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow capacity (Nℓ /min) ※	1/4"	2,100(74scfm)
	3/8"	3,100(109scfm)
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Recommended oil	ISO VG32 (Turbine oil 1 class)	
Weight (kg)	0.26(0.57lb)	

※ Test conditions : Supply pressure 0.6 MPa(90psi), Pressure drop 0.05 MPa(7psi)

Lubricator

How to order

PL 3 — ***** **03 B** — *****

Series (Lubricator Units)

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Port size

02	1/4
03	3/8

Other Options

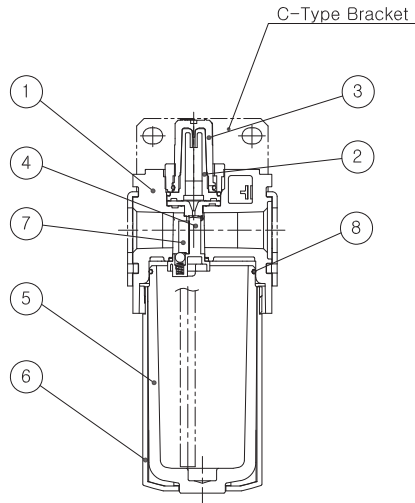
R	Flow direction : Right → Left
XC16	Copper-free

Bracket Options

Blank	None
B	Bracket

Note1) Separately packed, Not assembled.

Construction



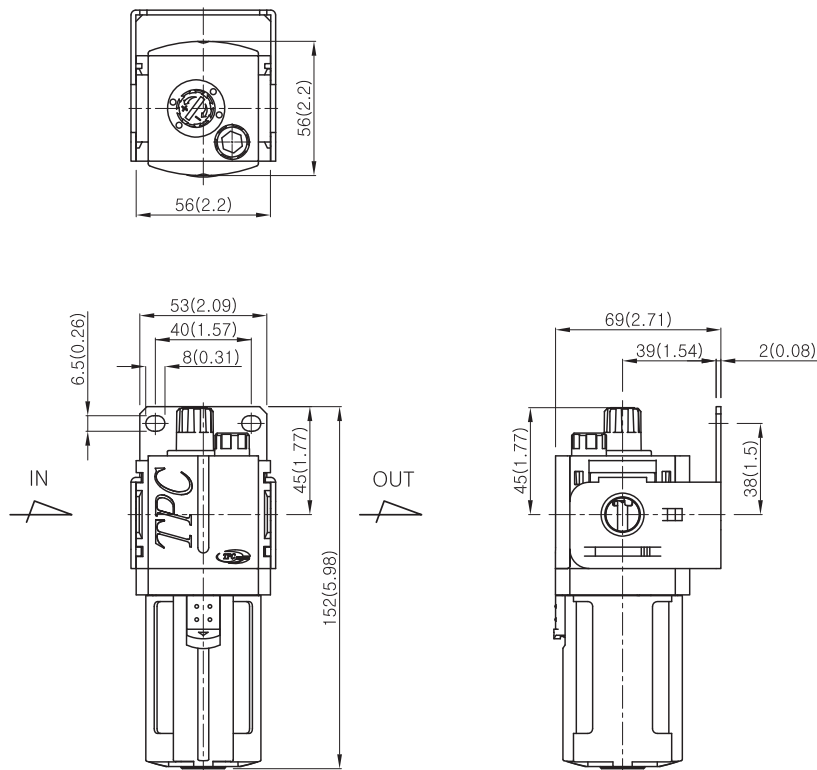
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Inner sight dome	Nylon (transparent)	
③	Outer sight dome	Nylon (transparent)	
④	Damper plate	Acetal	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	

Replacement Parts / Parts List

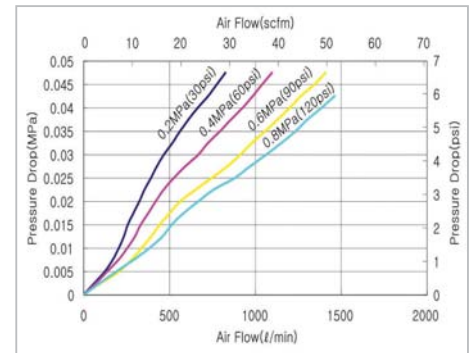
No.	Description	Material	Part No.
⑦	Damper	NBR	PL3-34-001-01
⑧	Bowl O-ring	NBR	PL3-04-001-01

Dimensions

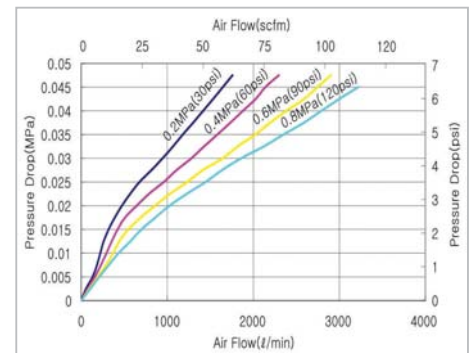


Flow Characteristics

► 1/4" PL3



► 3/8" PL3



PL4 Series Lubricator 3/8" and 1/2"



Symbol



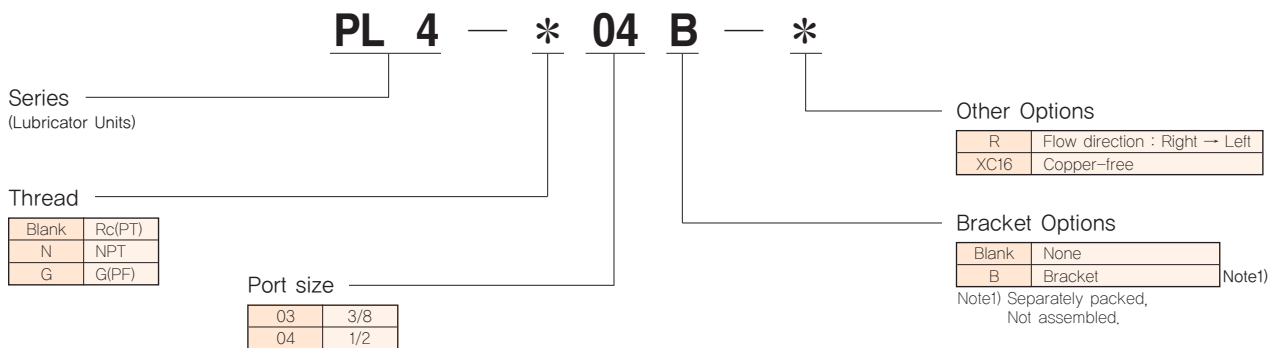
Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Min operating flow (Nℓ /min)	50(1.8scfm) (1/2")	
Bowl capacity (cm ³)	127(4.29oz)	
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow capacity (Nℓ /min) ※	3/8"	2,400(85scfm)
	1/2"	4,500(159scfm)
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Recommended oil	ISO VG32 (Turbine oil 1 class)	
Weight (kg)	0.54(1.19lb)	

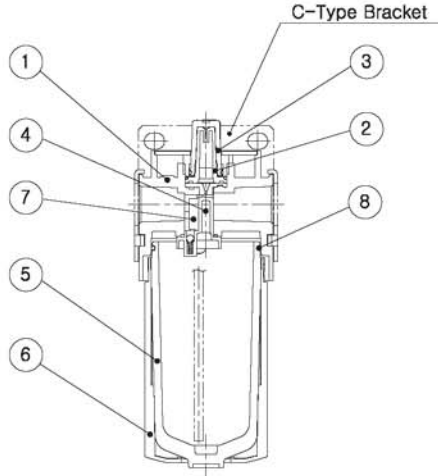
※ Test conditions : Supply pressure 0.6 MPa(90psi), Pressure drop 0.05 MPa(7psi)

Lubricator

How to order



■ Construction



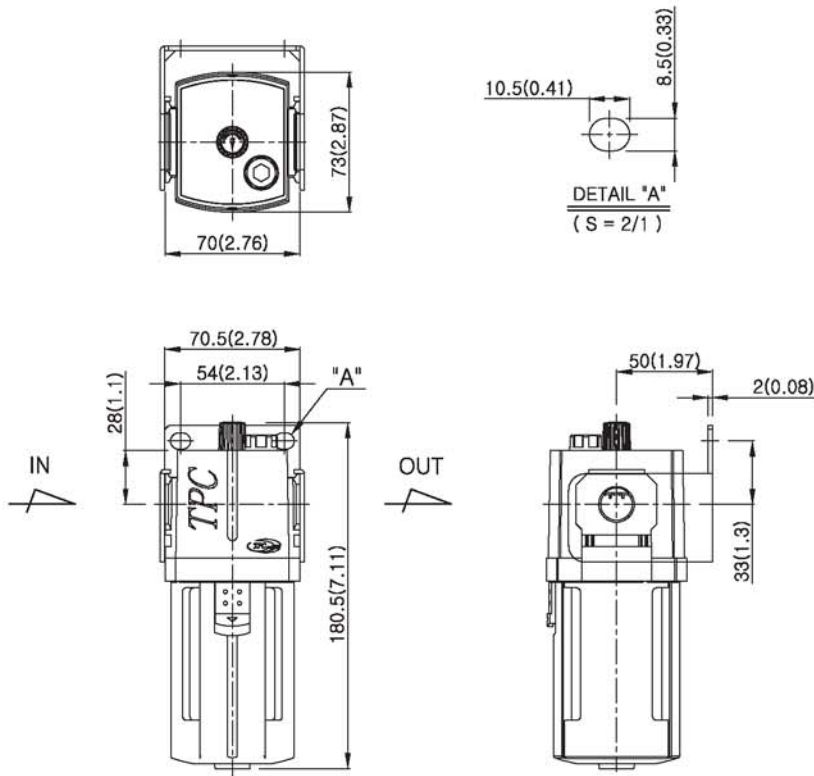
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Inner sight dome	Nylon (transparent)	
③	Outer sight dome	Nylon (transparent)	
④	Damper plate	Acetal	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	

Replacement Parts / Parts List

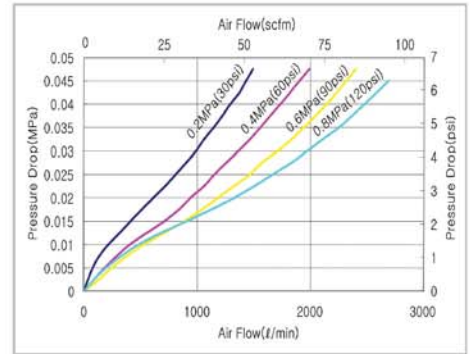
No.	Description	Material	Part No.
⑦	Damper	NBR	PL4000-14-6100-01
⑧	Bowl O-ring	NBR	TAF4000-08-6000

■ Dimensions

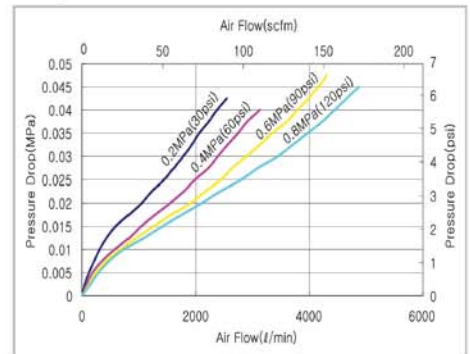


■ Flow Characteristics

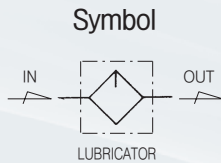
▶ 3/8" PL4



▶ 1/2" PL4



PL5 Series Lubricator 3/4" and 1"



Standard Specifications

Fluid	Air	
Max. operating pressure (MPa)	1.0(140psi)	
Proof pressure (MPa)	1.5(200psi)	
Min operating flow (Nℓ /min)	150(5.3scfm) (1")	
Bowl capacity (cm ³)	109(3.69oz)	
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)	
Flow rate ※ (Nℓ /min)	3/4"	9,400(332scfm)
	1"	9,900(350scfm)
Bowl material	Polycarbonate	
Bowl guard material	Nylon	
Recommended oil	ISO VG32 (Turbine oil 1 class)	
Weight (kg)	1.08(2.38lb)	

※ Test conditions : Supply pressure 0.6 MPa(90psi), Pressure drop 0.05 MPa(7psi)

Lubricator

How to order

PL 5 — * 10 B — *

Series (Lubricator Units) — **PL 5**

Thread — *** 10**

Port size — **10**

Other Options — **B — ***

R	Flow direction: Right → Left
XC16	Copper-free

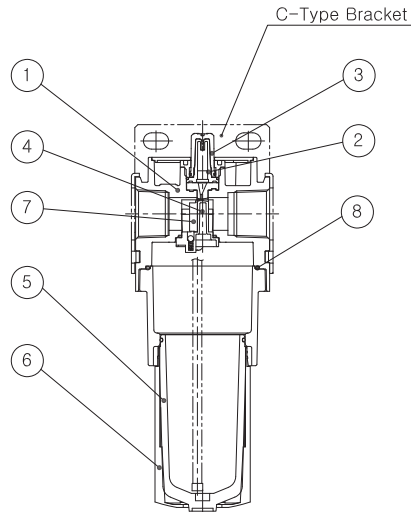
Bracket Options

Blank	None
B	Bracket

Note1)

Note2) Separately packed, Not assembled.

Construction



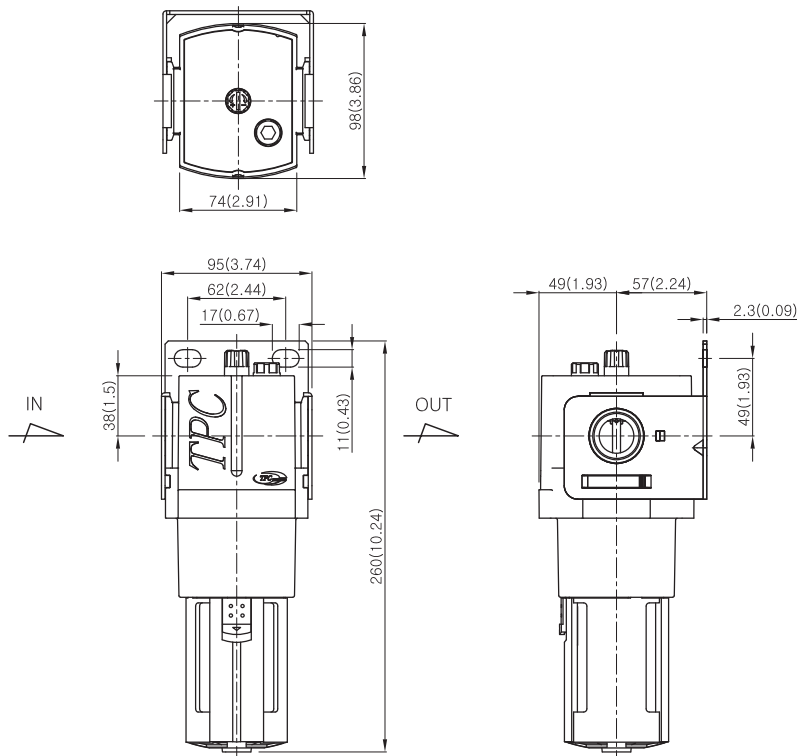
Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	Inner sight dome	Nylon (transparent)	
③	Outer sight dome	Nylon (transparent)	
④	Damper plate	Acetal	
⑤	Bowl	Polycarbonate	
⑥	Bowl guard	Nylon	

Replacement Parts / Parts List

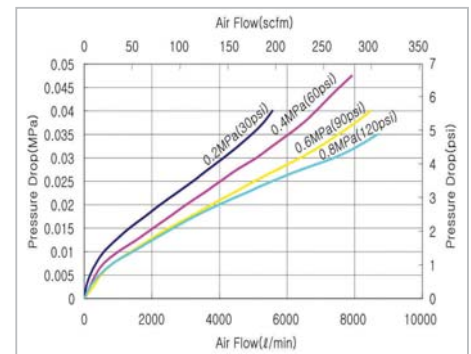
No.	Description	Material	Part No.
⑦	Damper	NBR	PL5-34-001-01
⑧	Bowl O-ring	NBR	TAF4000-08-6000

Dimensions

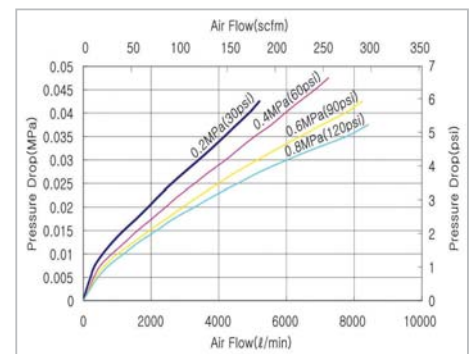


Flow Characteristics

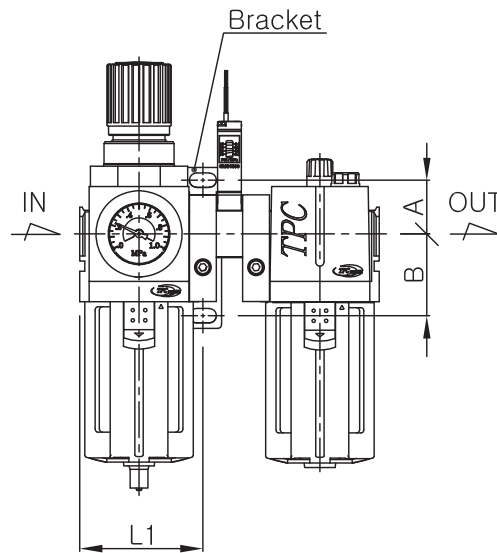
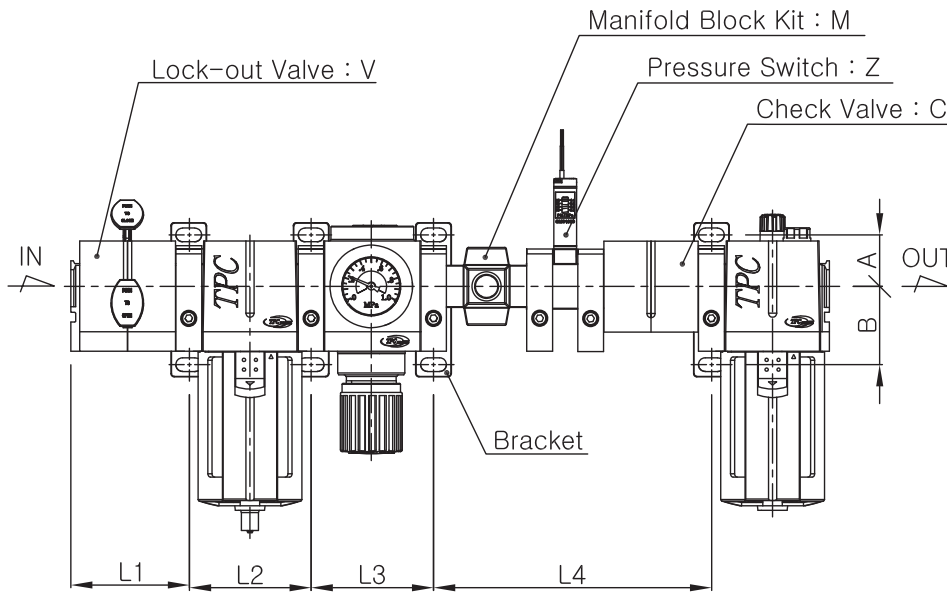
▶ 3/4" PL5



▶ 1" PL5



The mounting position of bracket (PC2~PC5 Series)



Attachment Type	C			M			V			Z			CM			CV				CZ			MV			
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L4	L1	L2	L3	L1	L2	L3	L4
PC2	40	40	40	40	40	40	40	40	40	40	40	12	40	40	80	40	40	40	40	40	40	52	40	40	40	40
PC3	56	56	56	56	56	49	56	56	56	56	56	13	56	56	105	56	56	56	56	56	56	69	56	56	56	49
PC4	72.7	75.4	74.4	72.7	75.4	65.4	72.7	75.4	75.4	72.7	75.4	31.4	72.7	75.4	139.8	72.7	75.4	75.4	74.4	72.7	75.4	105.8	72.7	75.4	75.4	65.4
PC5	-	-	-	-	-	-	92.7	95.4	95.4	92.7	95.4	36.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment Type	MZ			VZ				CMV				CMZ			CVZ				MVZ				CMVZ			
	L1	L2	L3	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4
PC2	40	40	52	40	40	40	12	40	40	40	80	40	40	92	40	40	40	52	40	40	40	52	40	40	40	92
PC3	56	56	62	56	56	56	13	56	56	56	105	56	56	118	56	56	56	69	56	56	56	62	56	56	56	118
PC4	72.7	75.4	96.8	72.7	75.4	75.4	31.4	72.7	75.4	75.4	139.8	72.7	75.4	171.2	72.7	75.4	75.4	105.8	72.7	75.4	75.4	96.8	72.7	75.4	75.4	171.2
PC5	-	-	-	92.7	95.4	95.4	36.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Attachment Type	C		V		Z		CV			CZ		VZ		CVZ		
	L1	L2	L1	L2	L1	L2	L1	L2	L3	L1	L2	L1	L2	L1	L2	L3
PC2A	40	40	40	40	40	40	40	40	40	40	52	40	40	40	40	52
PC3A	56	56	56	56	56	56	56	56	56	56	69	56	56	56	56	69
PC4A	72.7	74.4	72.7	75.4	72.7	75.4	74.4	72.7	105.8	72.7	75.4	72.7	75.4	105.8	-	-
PC5A	-	-	92.7	95.4	92.7	-	-	-	-	-	92.7	95.4	-	-	-	-

Attachment Type	M		V		Z		MV			MZ		VZ			MVZ				
	L1	L2	L1	L2	L1	L2	L1	L2	L3	L1	L2	L1	L2	L3	L1	L2	L3		
PC2B	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40		
PC3B	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56		
PC4B	72.7	75.4	72.7	75.4	72.7	75.4	72.7	75.4	75.4	72.7	75.4	72.7	75.4	75.4	72.7	75.4	75.4		
PC5B	-	-	92.7	95.4	92.7	95.4	-	-	-	-	92.7	95.4	95.4	-	-	-	-	-	-

L1 : from inlet to the mounting hole of 1st bracket
 L2 : from the mounting hole of 1st bracket to 2nd bracket's
 L3 : from the mounting hole of 2nd bracket to 3rd bracket's
 L4 : from the mounting hole of 3rd bracket to 4th bracket's
 For the size of A and B, please refer to the dimensions.

The mounting position of bracket

Modular Lock Out Valve

This valve provides a safety lockout to prevent accidental machine start-up. When the slider is shifted into the lockout position, inlet air is blocked and downstream air is exhausted to the atmosphere.

□ PLV2



□ PLV3



□ PLV4



□ PLV5



■ Standard Specifications

Specifications	PLV2	PLV3	PLV4	PLV5
Port size RC(PT), NPT, G(PF)	1/8", 1/4"	1/4", 3/8"	3/8", 1/2"	3/4", 1"
Type of exhaust	Silencer exhaust			
Proof pressure (MPa)	1.5(200psi)			
Max. operating pressure (MPa)	1.0(140psi)			
Regulating range (MPa)	0.05 ~ 1.0(7~140psi)			
Ambient and media temperature (°C)	-5 ~ 60(23~140°F)			
Weight (kg)	0.1(0.22lb)	0.24(0.53lb)	0.38(0.84lb)	0.88(1.94lb)

Modular Lock Out Valve

■ How to order

PLV 4 — * 04 — *

Series
(Lock-out V/V)

Type of series

2	PC2 Series	4	PC4 Series
3	PC3 Series	5	PC5 Series

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Option

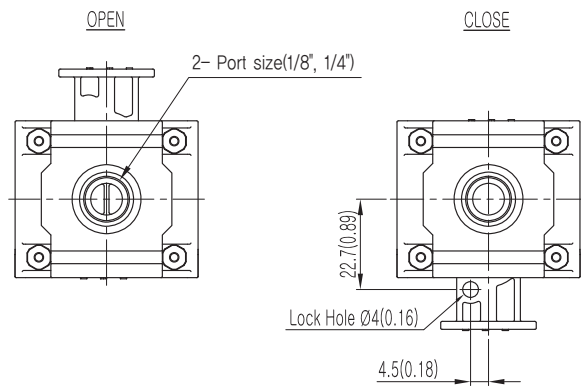
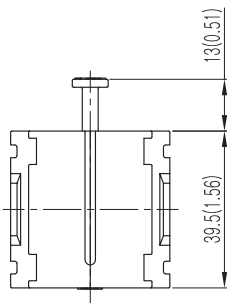
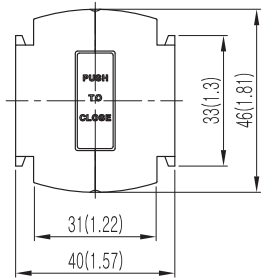
Blank	None
B	Clamp spacer kit

Note1) Separately packed, Not assembled.

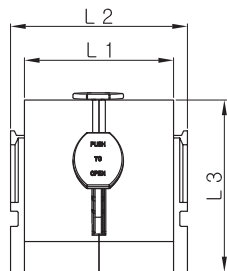
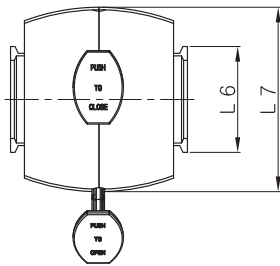
Port size

01	1/8	PC2 Series
02	1/4	PC2, 3 Series
03	3/8	PC3, 4 Series
04	1/2	PC4 Series
06	3/4	PC5 Series
10	1	PC5 Series

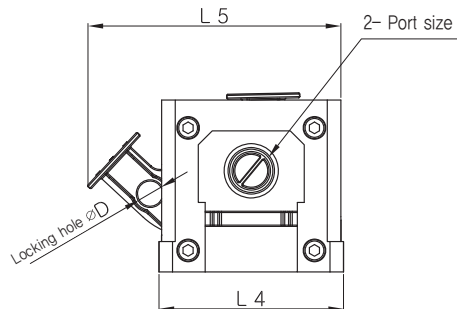
PLV2 Dimensions



PLV3, 4, 5 Dimensions



Series	Port size Rc(PT), NPT, G(PF)	Main dimensions							D	Remarks
		L 1	L 2	L 3	L 4	L 5	L 6	L 7		
PLV3	1/4, 3/8	46 (1.81)	56 (2.2)	49 (1.93)	56 (2.2)	70.2 (2.76)	33 (1.3)	56 (2.2)	7.5 (0.3)	
PLV4	3/8, 1/2	59 (2.32)	70 (2.76)	68 (2.68)	73 (2.87)	100 (3.94)	41.9 (1.65)	71 (2.8)	10 (0.39)	
PLV5	3/4, 1	74 (2.91)	89 (3.5)	90 (3.54)	98 (3.86)	131.9 (5.19)	49.6 (1.95)	98 (3.86)	10 (0.39)	



Modular Check Valve

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

□ PCV2



□ PCV4



□ PCV3



■ Standard Specifications

Specifications	PCV2	PCV3	PCV4
Port size (no threads)	1/4" Hole	3/8" Hole	1/2" Hole
Top port size Rc(PT), NPT, G(PF)	1/8", 1/4"	1/8", 1/4"	1/4", 3/8"
Max. flow capacity (Nℓ /min)	1,200 (42scfm)	3,500 (124scfm)	5,000 (177scfm)
Weight (kg)	0.01(0.02lb)	0.23(0.51lb)	0.43(0.95lb)

■ How to order

PCV 4 — 04 — * 03 B

Series (Check V/V)

Type of series

2	PC2 Series
3	PC3 Series
4	PC4 Series

Port size

02	1/4	PC2 Series
03	3/8	PC3 Series
04	1/2	PC4 Series

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Options

Blank	None
B	Clamp spacer kit
R	Flow direction : Right → Left

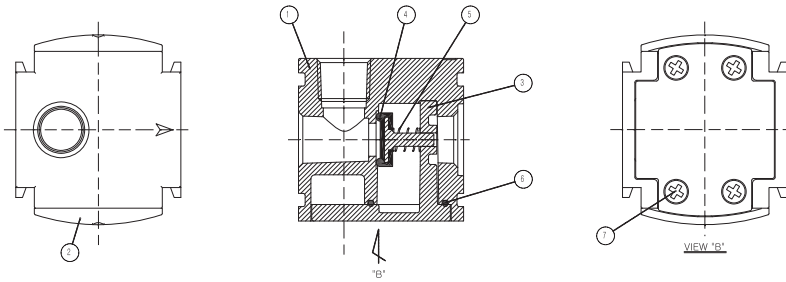
Note1)

Note2) Separately packed, Not assembled.

Top port size

01	1/8	PC2, 3 Series
02	1/4	PC2, 3, 4 Series
03	3/8	PC4 Series

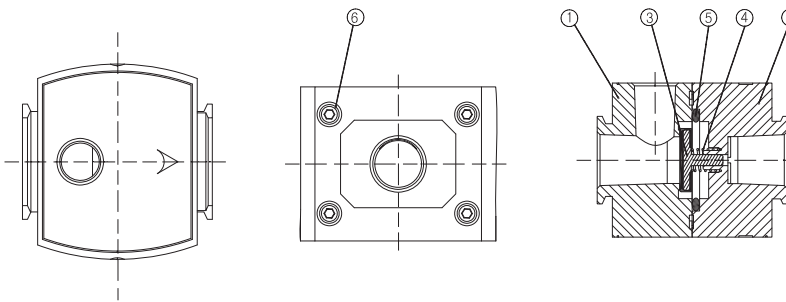
■ PCV2 Construction



Main part list

No.	Description	Material	Remarks
①	Body	Aluminum	
②	F-body cover	Nylon	
③	Body cover	Aluminum	
④	Valve assembly	Brass+NBR	
⑤	Spring	Stainless steel	
⑥	Gasket of body cover	NBR	
⑦	Bolt of cover	Rolled steel	

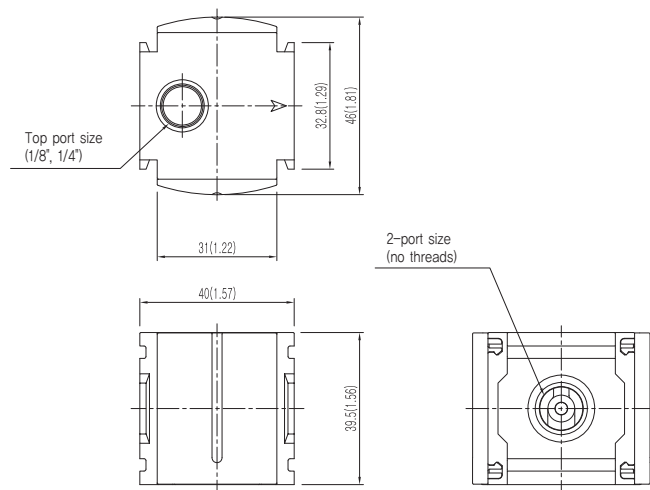
■ PCV3, 4 Construction



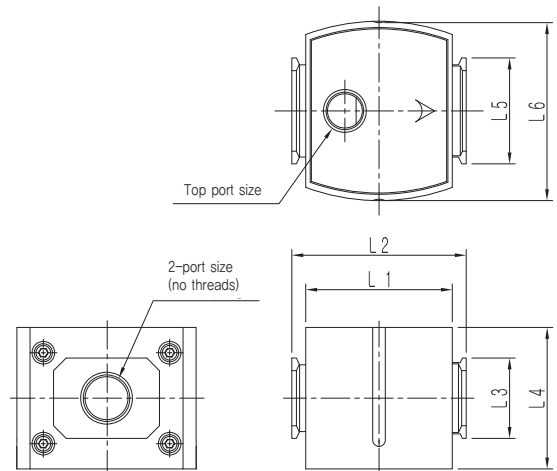
Main part list

No.	Description	Material	Remarks
①	Body R	Aluminum	
②	Body L	Aluminum	
③	Valve assembly	Brass+NBR	
④	Return spring	Stainless steel	
⑤	Gasket	NBR	
⑥	Wrench bolt	Rolled steel	

■ PCV2 Dimensions



■ PCV3, 4 Dimensions



Series	Main dimensions								Remarks
	port size (no threads)	Top port size R(PT),NPT,G(PF)	L 1	L 2	L 3	L 4	L 5	L 6	
PCV3	3/8"	1/8, 1/4	46 (1.81)	56 (2.2)	45 (1.77)	49 (1.93)	33 (1.3)	56 (2.2)	
PCV4	1/2"	1/4, 3/8	58 (2.28)	69 (2.72)	31.8 (1.25)	56 (2.2)	41.9 (1.65)	71 (2.8)	

Modular Manifold Block

□ MB2



■ Standard Specifications

Specifications	MB2	MB3	MB4
Port size Rc(PT), NPT, G(PF)	1/4"	1/4", 3/8"	3/8", 1/2"
Top port size Rc(PT), NPT, G(PF)	1/8", 1/4"	1/8", 1/4"	1/4", 3/8"
Weight (kg)	0.09(0.2lb)	0.14(0.31lb)	0.17(0.37lb)

□ MB3

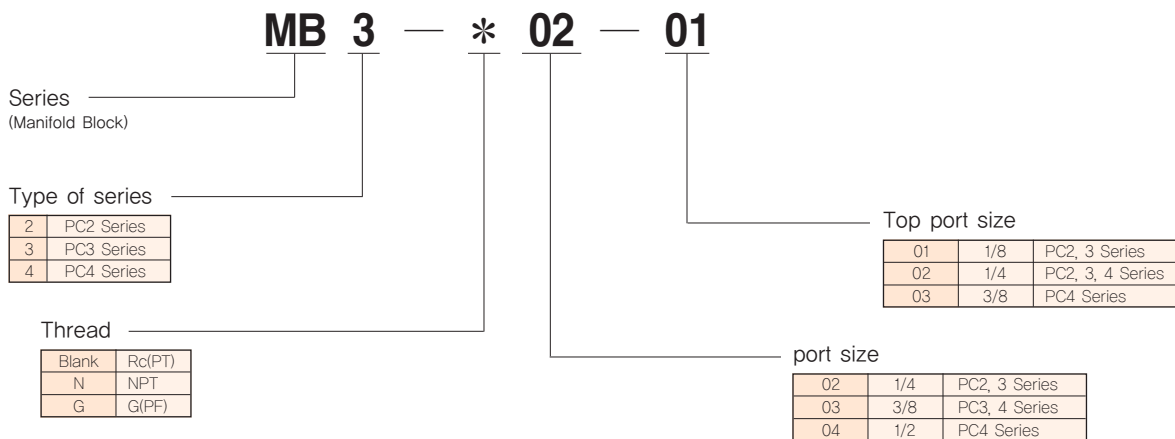


□ MB4

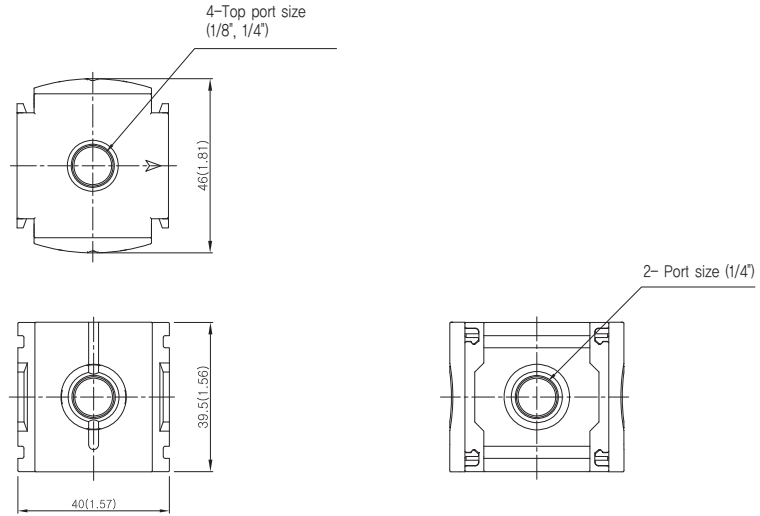


Modular Manifold Block

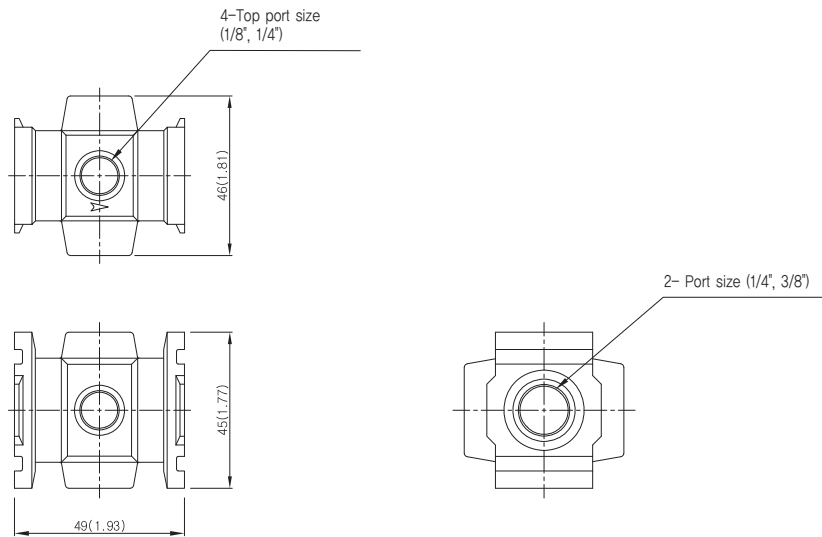
■ How to order



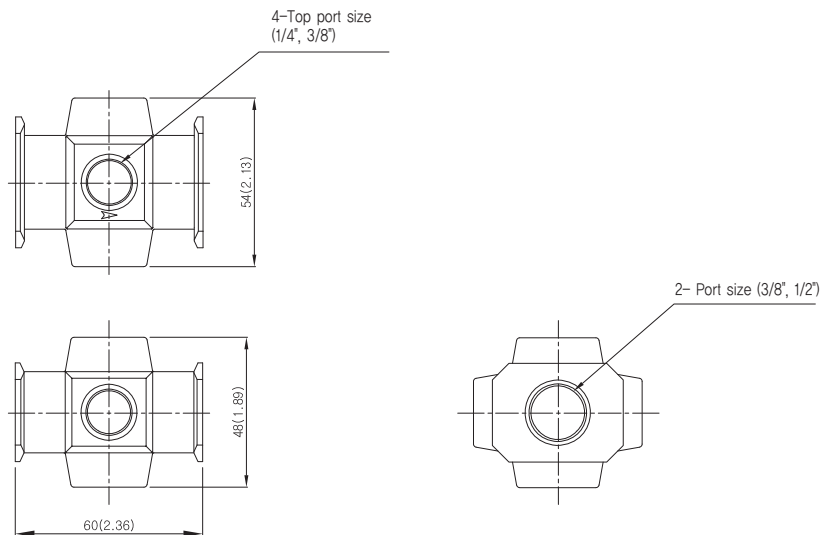
■ MB2 Dimensions



■ MB3 Dimensions



■ MB4 Dimensions



Modular Pipe Adapter

Standard Specifications

Specifications	PA2	PA3	PA4	PA5
Port size	1/8", 1/4"	1/4", 3/8"	3/8", 1/2"	3/4", 1"
Rc(PT), NPT, G(PF)	3/8"	1/2"	3/4"	
Weight (kg)	0.03(0.07lb)	0.04(0.09lb)	0.07(0.15lb)	0.13(0.29lb)

□ PA2



□ PA3



□ PA4



□ PA5



How to order

PA 3 — * 02 — R

Series
(Pipe Adapter)

Type of series

2	PC2 Series
3	PC3 Series
4	PC4 Series
5	PC5 Series

Thread

Blank	Rc(PT)
N	NPT
G	G(PF)

Options

Blank	for left side	PC2,3,4,5 Series
R	for right side	PC2,3 Series

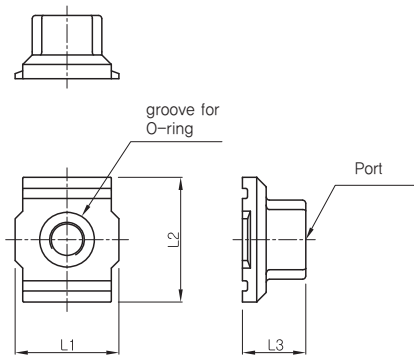
* PC4 & PC5: C compatible with both right and left side.

Port size

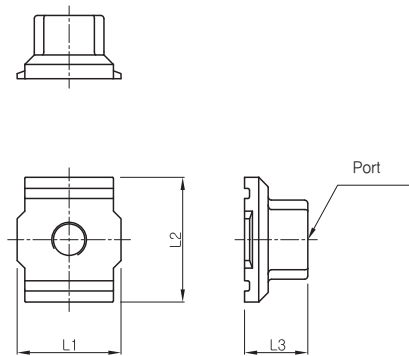
01	1/8	PC2 Series
02	1/4	PC2, 3 Series
03	3/8	PC2, 3, 4 Series
04	1/2	PC3, 4 Series
06	3/4	PC4, 5 Series
10	1	PC5 Series

■ PA2, 3 Dimensions

(For left side)



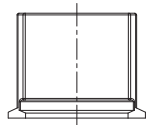
(For right side)



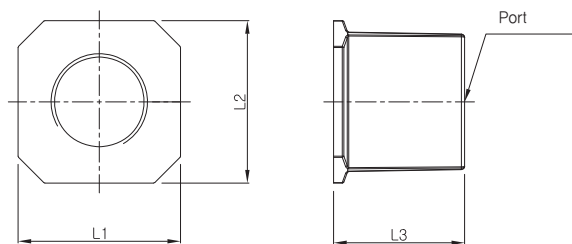
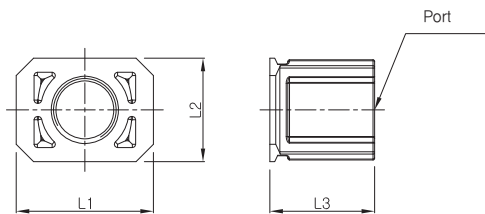
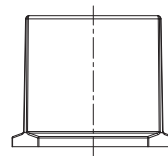
Series	Main dimensions			
	Port size Rc(PT),NPT,G(PF)	L1	L2	L3
PA2	1/8, 1/4, 3/8	32.8 (1.29)	39.4 (1.55)	20 (0.79)
PA3	1/4, 3/8, 1/2	33 (1.3)	45 (1.77)	25 (0.98)

■ PA4, 5 Dimensions

(PA4)

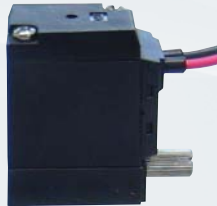


(PA5)



Series	Main dimensions			
	Port size Rc(PT),NPT,G(PF)	L1	L2	L3
PA4	3/8, 1/2, 3/4	41.9 (1.65)	31.6 (1.24)	32 (1.26)
PA5	3/4, 1	49.6 (1.95)	49.6 (1.95)	40 (1.57)

Slow-Start Valve



<Grommet type>



<Din type>

Standard Specifications

Fluid	Air	
Operating pressure range	0.3~1.0 MPa(44~140psi) (3~10 kgf/cm ²)	
Max fluid and ambient temperature	Max 50°C(122°F)	
Allowable voltage	-15 ~ +10 % of rated voltage	
Max. operating frequency	2 positions	5 c/s
	3 positions	3 c/s
Min. operating frequency	1 time per 30 days(based on KS B6356)	
Lubrication	Non lube	
Impact / Vibration resistance	30G / 5G (8.3~200 Hz)	
Protection structure	Dust proof	
Position of installation	No restriction (horizontal, vertical)	
Manual operation	Non Locking	
Lead wire	Grommet, Din terminal	
Voltage	24V DC, 12V DC	
Effective cross section (Cv)	Over 63 mm ² (3.5) (0.098 in ²)	
Power consumption (AC)	Inrush	5.6 VA(50 Hz), 5.0 VA(60 Hz)
	Holding	3.3 VA(50 Hz), 2.3 VA(60 Hz)
Power consumption (DC)	1.8W / 2W(Lamp)	

How to order

SSV 4 — 5 DZ * — * 04 *

Series
(Slow-Start Valve)

F4 Series

Voltage

1	AC110V (50/60Hz)
2	AC220V (50/60Hz)
3	AC120V (50/60Hz)
4	AC240V (50/60Hz)
5	DC24V
6	DC12V
7	DC6V
8	AC24V (50/60Hz)
9	DC100V

Pressure gauge

Blank	None
P	With pressure gauge

Threads

Blank	Rc (PT)
N	NPT
G	G (PF)

Manual override

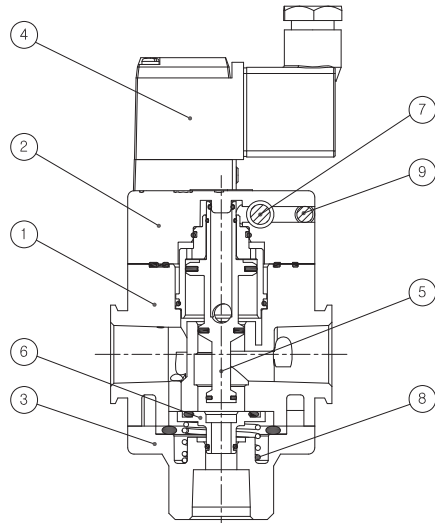
Blank	Non-locking push type
C	Locking(Rotation type)

Electrical entry

G	Grommet type	Note1)
DZ	Din type connector attached (with indicator light/surge voltage suppressor)	
N	Din connector type (No connector included)	

Note1) The grommet has direct coupling type lead wire, but without indicator light.

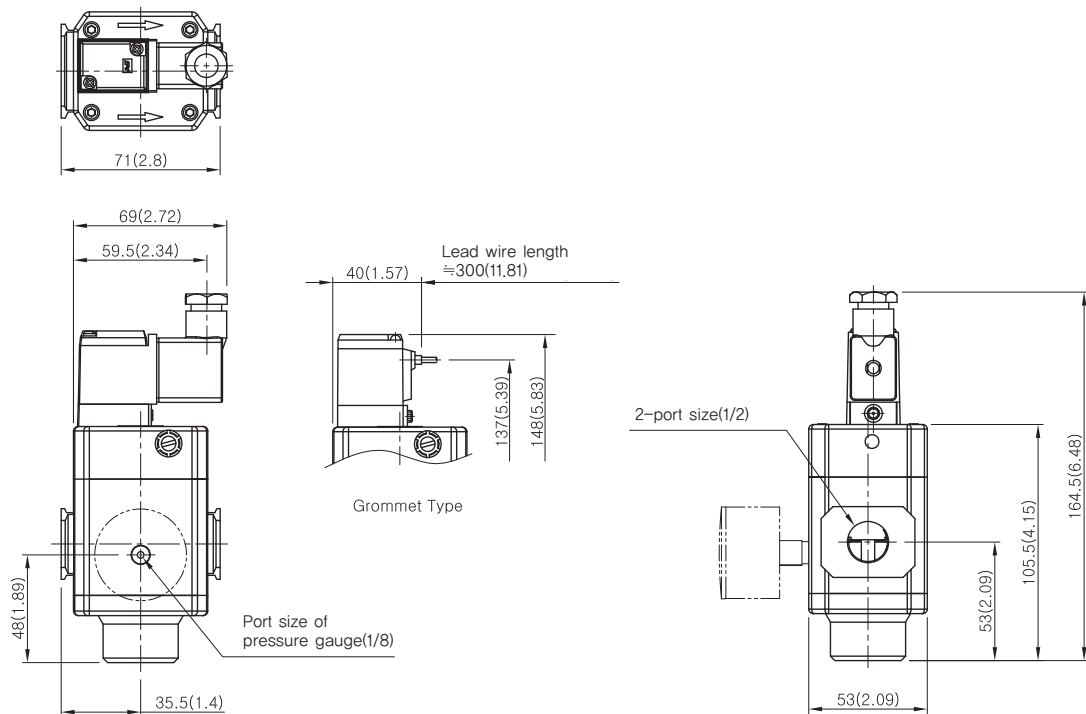
Construction



Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Aluminum	
②	T-Cover	Aluminum	
③	B-Cover	Aluminum	
④	Pilot ass'y	-	
⑤	Piston	Aluminum	
⑥	Poppet	Brass	
⑦	Needle	Brass	
⑧	Poppet Spring	Stainless steel	
⑨	Steel ball	Stainless steel	

Dimensions



Pressure Switch



Standard Specifications

Fluid	Air
Ambient and fluid temperature (°C)	-5 ~60(23~140°F) (Non-freezing)
Operating pressure range (MPa)	0.1 ~ 0.4(15~60psi)
Proof pressure (MPa)	1.0(140psi)
Max. pressure (MPa)	0.7(100psi)
Hysteresis (MPa)	0.16(24psi)
Scale variation (MPa)	±0.05(7psi)
Repeatability (MPa)	±0.05(7psi)
Contact	1a
Lead wire length	1m(39.75in) standard (grommet type)
Port size R(PT), NPT	1/8"
Weight (kg)	0.042(0.09lb)

Auto-switch specification

Applied model	W8H	
Voltage	DC24V	AC110V
Electric current	5~40mA	5~20mA

How to order

SMS 1000 — R1 — 1 L

Series
(Pressure Switch)

Type of port

R1	R(PT) 1/8 Bracket
N1	NPT 1/8 Bracket
S2	PC2 series Adapter
S3	PC3 series Adapter
S4	PC4 series Adapter
S5	PC5 series Adapter

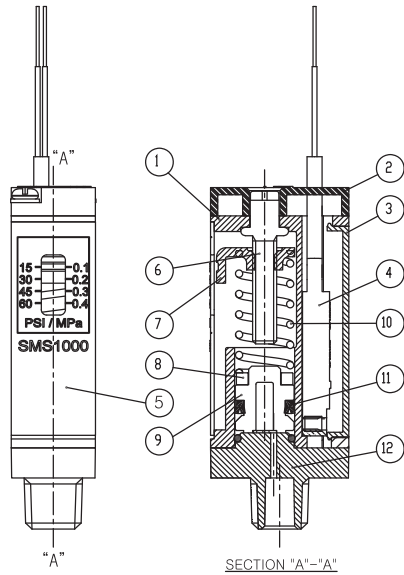
Lead wire length

Blank	1m(39.37in) (standard)
L	3m(118.11in)
Z	5m(196.85in)

Voltage

1	AC110V
5	DC24V

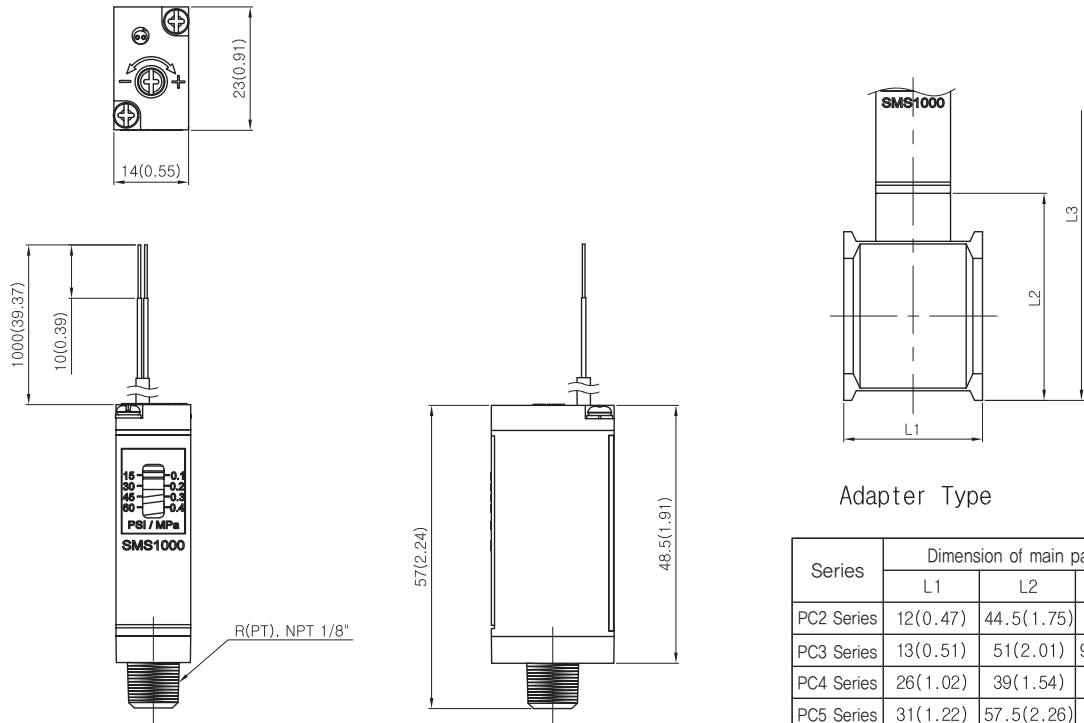
Construction



Main Parts / Parts List

No.	Description	Material	Remarks
①	Body	Nylon	
②	Top cover	Resin	
③	Body back cover	Resin	
④	Auto switch ass'y	-	
⑤	Name plate	Resin	
⑥	Adjustment screw	Rolled steel	
⑦	Pointer	Rolled steel	
⑧	Magnet	Rare earth magnet	
⑨	Piston	Polyacetal	
⑩	Spring	SUS304	
⑪	Miniseal Y type	NBR	
⑫	PT fittings	Zinc die cast	

Dimensions



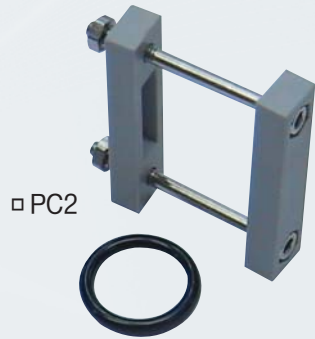
Bracket Type

Adapter Type

Series	Dimension of main parts			Remarks
	L1	L2	L3	
PC2 Series	12(0.47)	44.5(1.75)	88(3.46)	
PC3 Series	13(0.51)	51(2.01)	94.5(3.72)	
PC4 Series	26(1.02)	39(1.54)	82(3.23)	
PC5 Series	31(1.22)	57.5(2.26)	101(3.98)	

Accessories

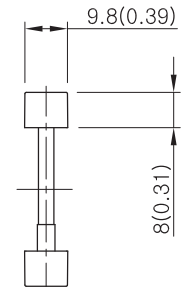
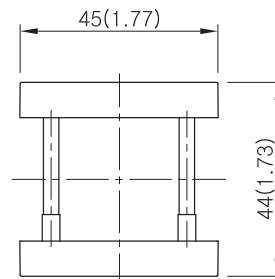
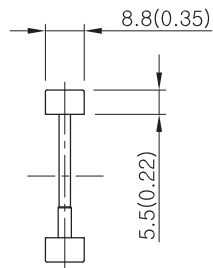
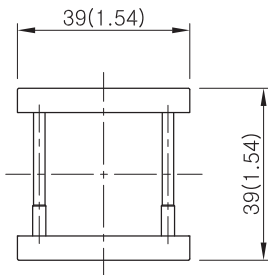
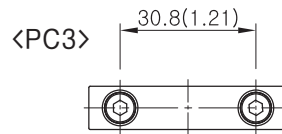
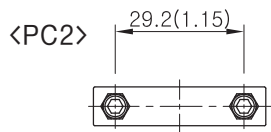
Modular Clamp Spacer kit



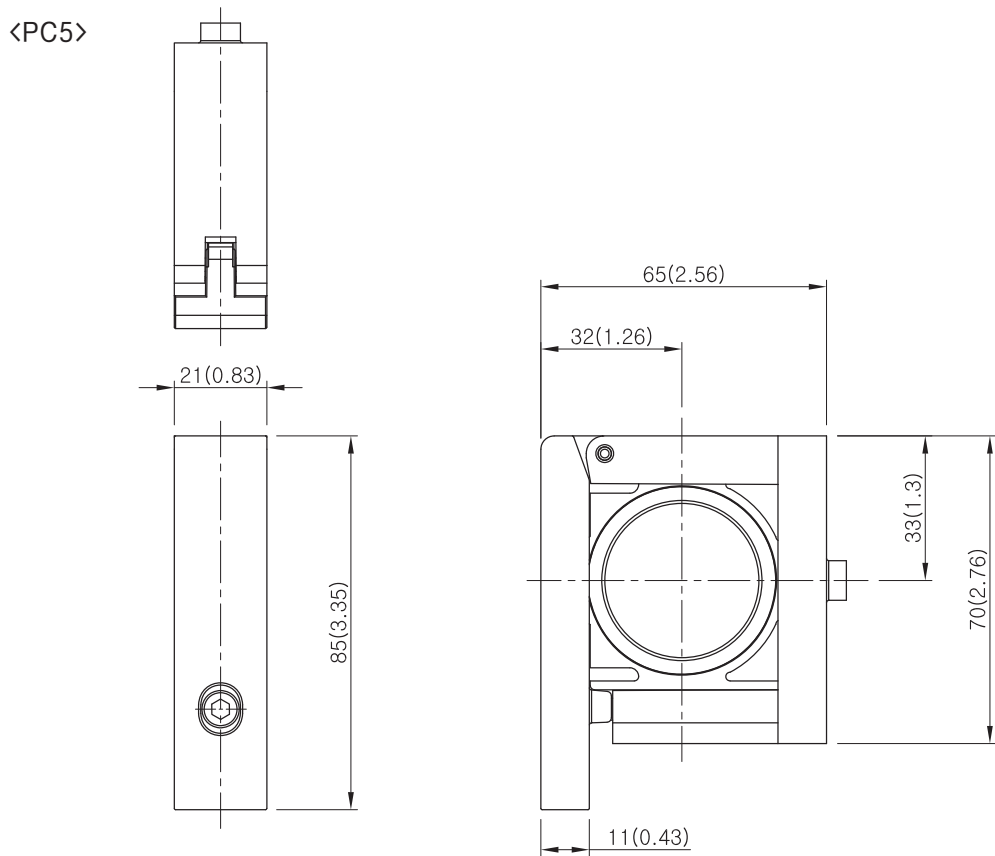
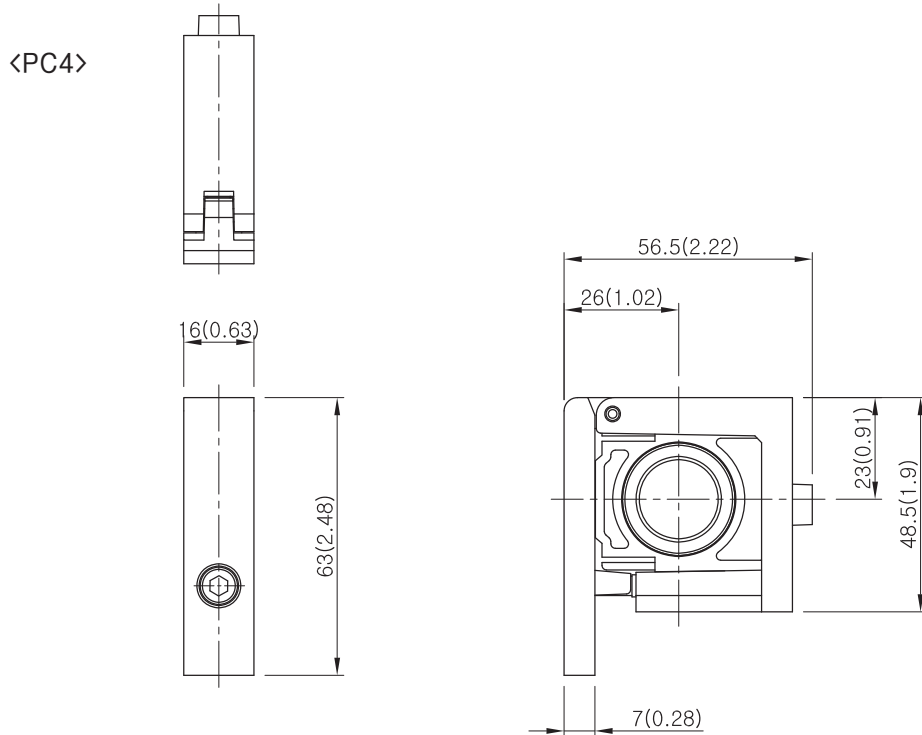
Standard Specifications

Specifications	PC2	PC3	PC4	PC5
Item number	PC2A-33A002	PC3A-33A002	PC4A-33A002	PC5A-33A002
Material	Nylon	Aluminum	Aluminum+Zinc	Aluminum

Dimensions



■ Dimensions



Accessories

T-Bracket assembly

Standard Specifications

Specifications	PC2	PC3	PC4	PC5
Item number	PC2A-33A002	PC3A-33A002	PC4A-33A002	PC5A-33A002
Material	Nylon	Aluminum	Aluminum+Zinc	Aluminum



□ PC2



□ PC3



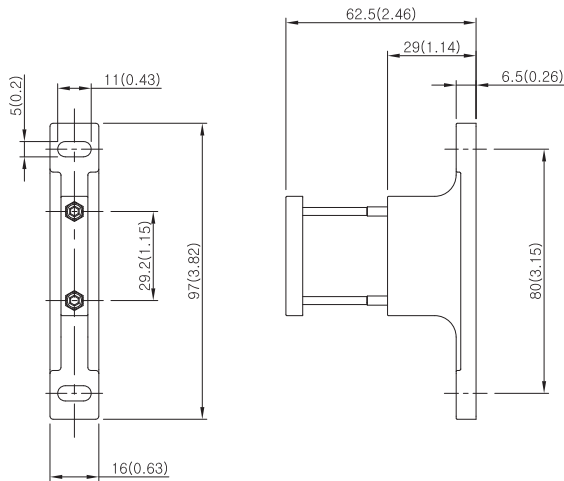
□ PC4



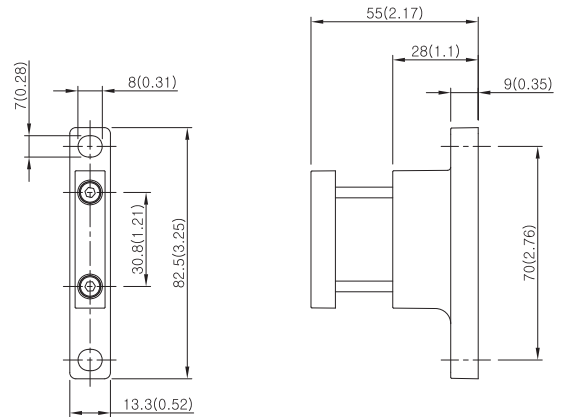
□ PC5

Dimensions

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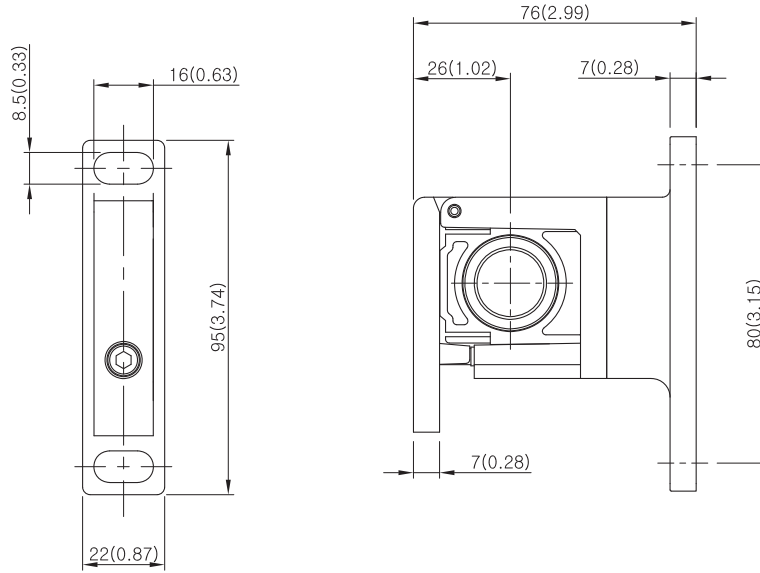


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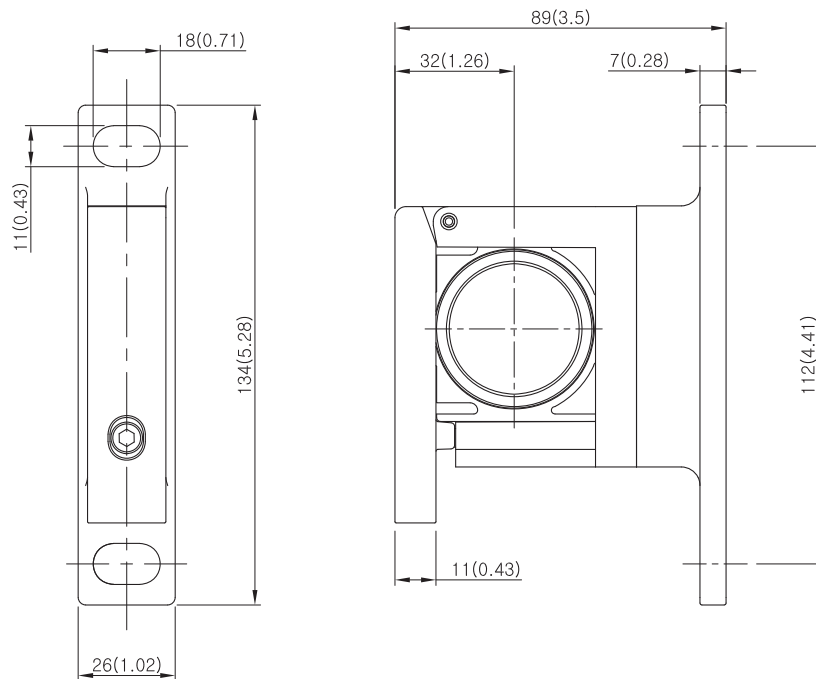


■ Dimensions

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Accessories

L-Bracket unit



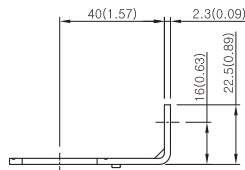
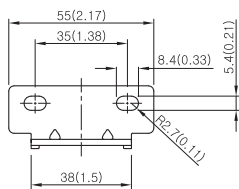
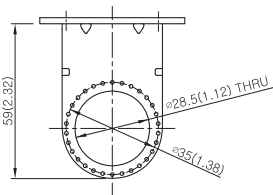
Standard Specifications

Specifications	PC2	PC3	PC4	PC5
Item number	PR2-33-001-01	PR3-33-001-01	PR4-33-001-01	PR5-33-001-01
Material	Rolled steel	Rolled steel	Rolled steel	Rolled steel

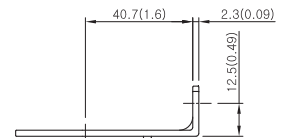
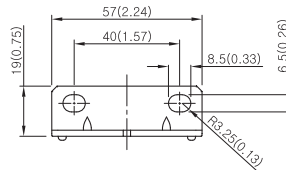
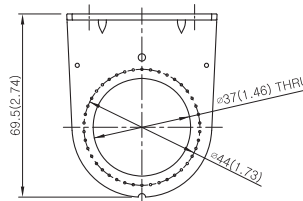


Dimensions

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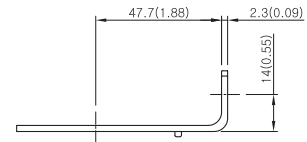
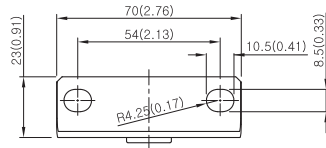
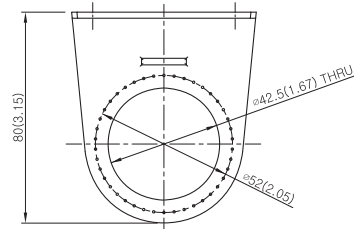


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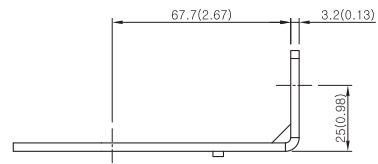
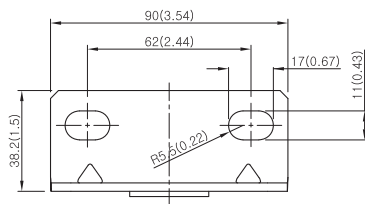
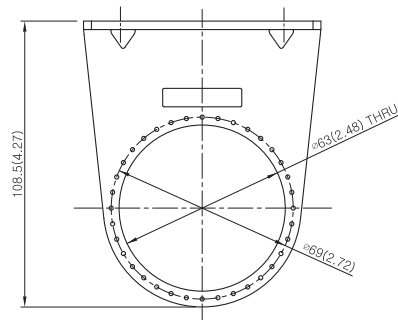


■ Dimensions

<PC4>



<PC5>



Accessories

C-Bracket unit



□ PC2



□ PC3



□ PC4



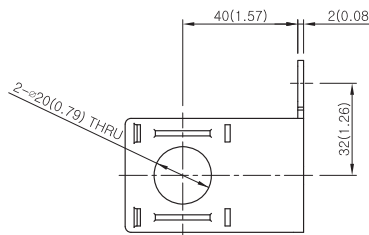
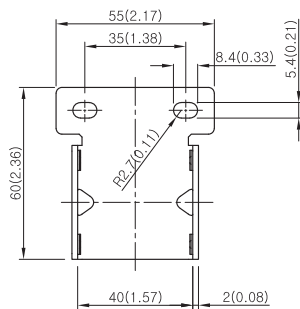
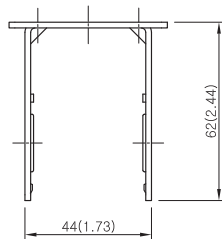
□ PC5

■ Standard Specifications

Specifications	PC2	PC3	PC4	PC5
Item number	PF2-33-001-01	PF3-33-001-01	PF4-33-001-01	PF5-33-001-01
Material	Rolled steel	Rolled steel	Rolled steel	Rolled steel

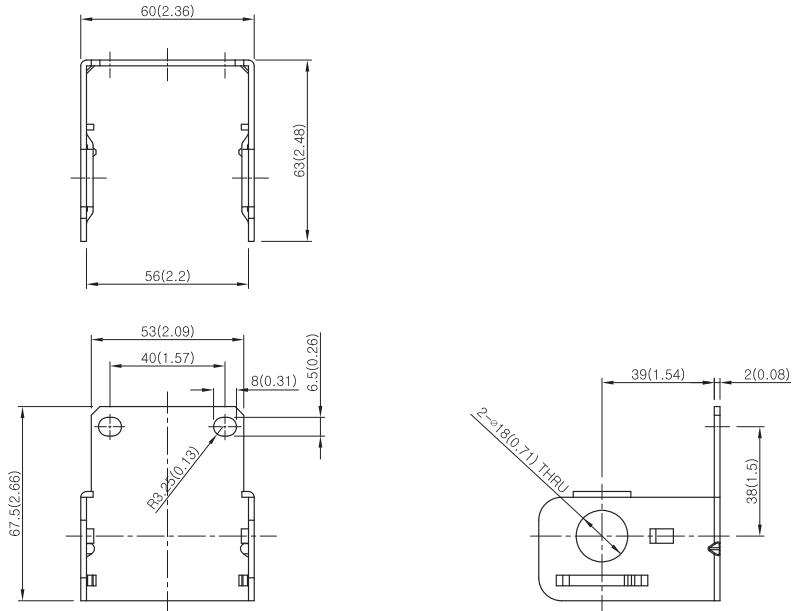
■ Dimensions

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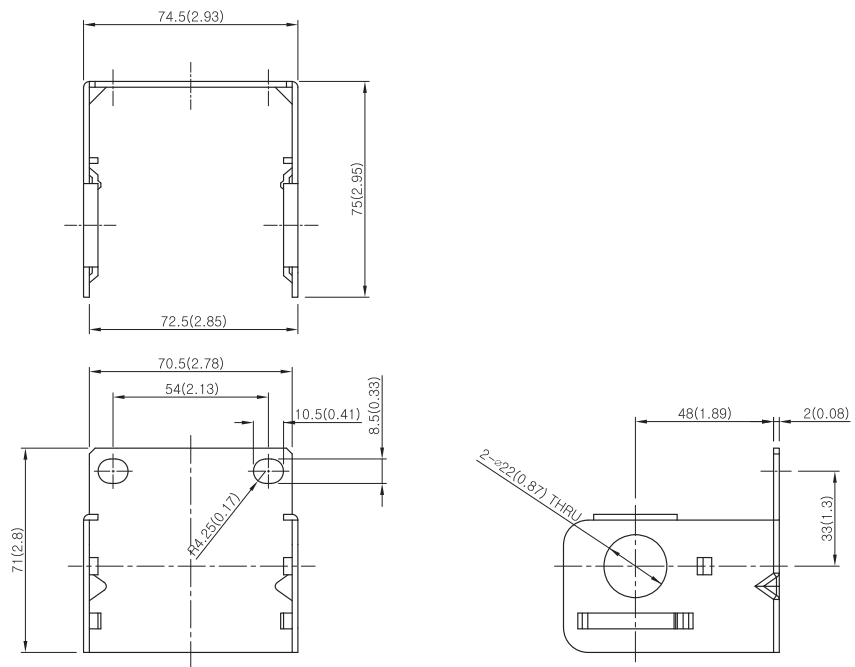


■ Dimensions

<PC3>



<PC4>

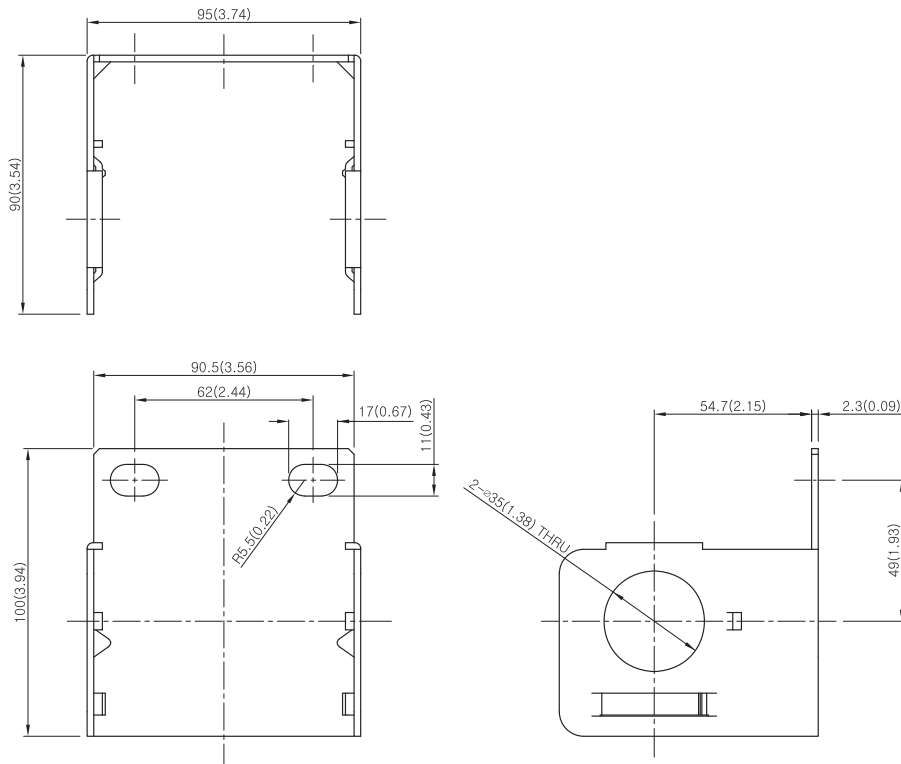


Accessories

C-Bracket unit

■ Dimensions

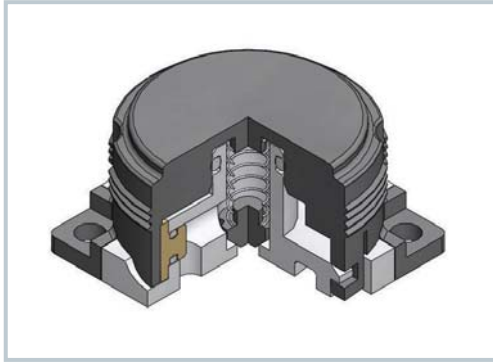
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Option

Built-in Check Valve, Tamper Resistant Kit

Built-In Check Valve

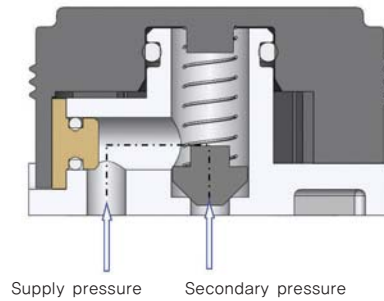


Built-In Check Valve exhausts pressure which is the minimum upstream pressure at which the valve will operate and prevents a counter flow of the fluid.

Specifications

Fluid	Air
Ambient and fluid temperature (°C)	-5~60(23~140°F) (Non-freezing)
Operating pressure range (MPa)	under 0.15(20psi)
Applicable standard	PC2-5 series

Construction



Tamper Resistant Kit

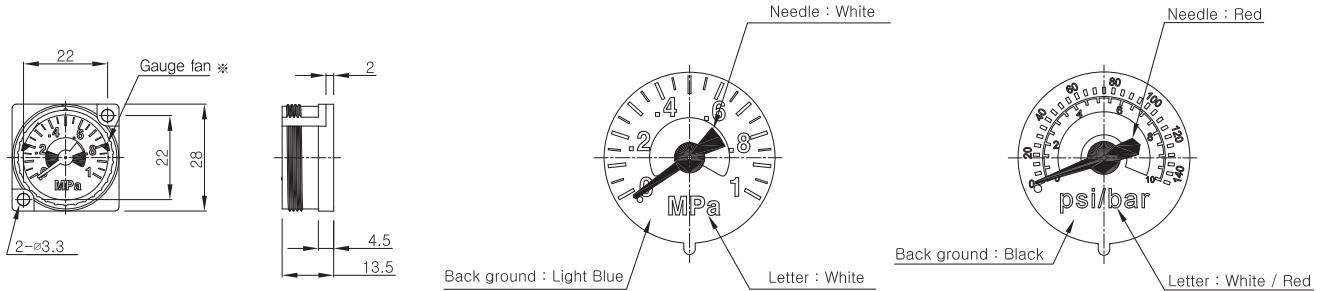


It helps prevent unauthorized adjustment to the pressure setting.

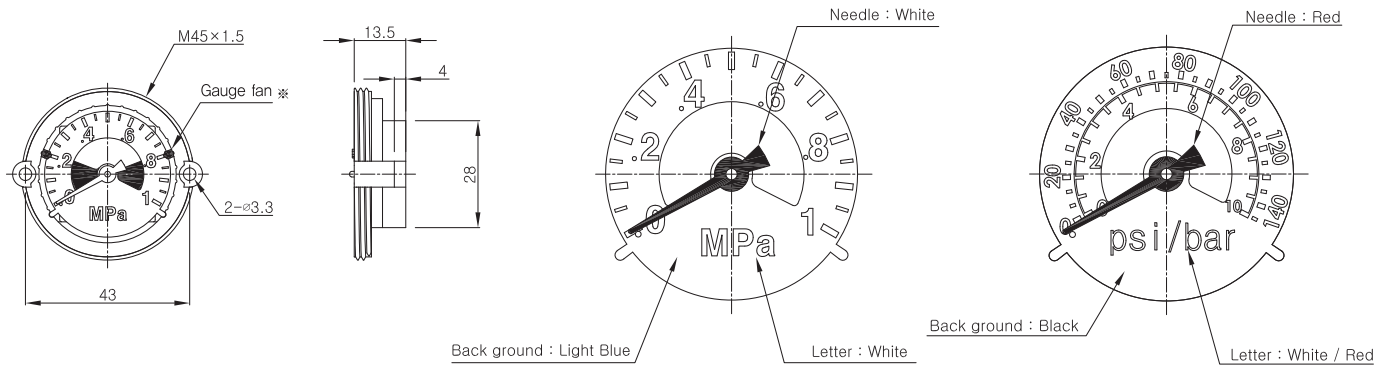


Option Pressure Gauge

Integral pressure gauge(φ24)



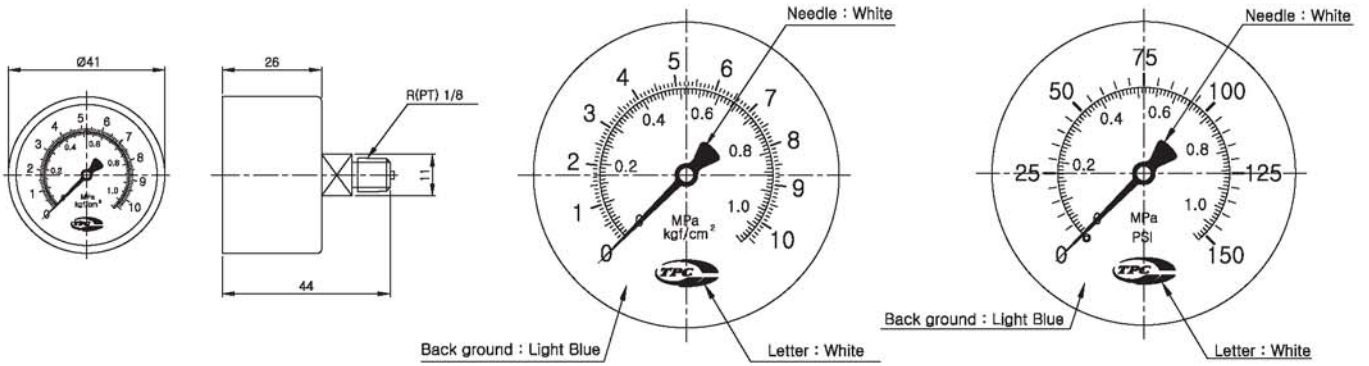
Integral pressure gauge(φ36)



※ The settable gauge fan for the regulator and piggyback regulator contains a visual reference that allows the user to display specific pressure ranges that is needed for certain applications.

Gauge	Pressure range	Applicable standard	Remarks
Integral pressure gauge(φ24)	Max 1.0 (140 psi)	PC2, 3 series	Not sold separately
Integral pressure gauge(φ36)		PC4, 5 series	

Pressure gauge



Item no	Pressure range(MPa)	Applicable standard	Remarks
PR2-49-002-01	Max 0.2(30psi)	PC2~PC5 series	Sold separately
PR2-49-004-01	Max 0.4(60psi)		
PR2-49-010	Max 1.0(140psi)		

Precautions

Products Precautions for Slow Start Valve

■ Manual operation

[Lock C type]

Turn manual button on the pilot valve coil side clockwise (to digit "0") using a screwdriver
Manual operation shall be released if the button is turned counterclockwise (to digit "1")

[Non-Lock Push]

Press manual button on the pilot valve coil side using device such as driver. It immediately returns to automatic after releasing the manual button.

■ Piping line

- 1) The arrow "→" indicates the flow direction of the compressed air.
No. 1 (P) port inlet is on the opposite direction of the arrow and
No. 2 (A) port outlet is on the arrow direction.
No. 3 (R) port exhaust is on the vertical direction to the arrow direction.
- 2) Check No. 1 (P) port which is the inlet of the compressed air and connect it.
Air leakage shall occur if air is supplied from other port.
- 2) Connect this product to the outlet of the F.R.L, if F.R.L. combination set is needed.
- 3) Connect lubricator to the inlet of this product if connection of lubricator is needed.
If lubricator is connected to the outlet, oil shall flow back to the exhaust.

■ Use environment

- 1) Take actions against freezing if this product is used at low temperature.
- 2) Attach silencer to No. 3(R) port if the product is used in dusty area or valve switchover noise is serious.

■ Wiring and use precautions

- 1) Be care of safety of operation of driving device when electronic valve or driving device is connected to the outlet of the product.
- 2) Consult us if electronic valve is continuously used. Otherwise the capacity of electronic valve shall deteriorate and other peripherals shall be badly affected due to the over heat of coil and resulting temperature increase.
- 3) When electronic valve is used on the secondary side of this product, use electronic valve after confirming that the outlet pressure equals to the inlet pressure through pressure gauge.
- 4) If pressure remained at outlet (port No. 2), low speed air supply function does not work even though the pilot valve operates.



General Terms and conditions of sales America

I. GENERAL SCOPE OF ORDER

Your purchase order is accepted subject to the following terms and conditions. These terms and conditions constitute the entire agreement between the parties with respect to the transaction covered by it ("Agreement"). No modification or waiver of any of the terms and conditions contained herein shall be effective unless agreed to in writing by an officer of TPC Pneumatics. ("Seller"). THIS ACCEPTANCE MAY CONTAIN ADDITIONAL OR DIFFERENT TERMS FROM THOSE CONTAINED IN YOUR PURCHASE ORDER OR WRITTEN OFFER; IF SO, THIS ACCEPTANCE IS EXPRESSLY CONDITIONAL ON YOUR ASSENT TO THE ADDITIONAL OR DIFFERENT TERMS. YOUR ACCEPTANCE OF THE GOODS OR EQUIPMENT SUPPLIED HEREUNDER SHALL CONSTITUTE ACCEPTANCE OF THE ADDITIONAL OR DIFFERENT TERMS.

II. PRICES AND TAXES

All prices are F.O.B. point of shipment, as designated by Seller, unless otherwise stated. Stated prices apply only to the specific quantities and delivery scheduled shown and do not include any applicable federal, state or local taxes, duties or assessments. Applicable taxes and assessments will be included at the time of invoice and paid by Buyer.

III. CANCELLATIONS AND CHANGES

Buyer shall not have any right to cancel orders or make changes in the drawings, specifications, quantities, and/or other descriptions as to any Goods of Equipment covered by this Agreement except as expressly agreed to in writing, by Seller. A cancellation or changed order shall be a material breach of the contract entitling Seller to all remedies available at law.

IV. FORCE MAJEURE

In the event either party is unable to fully perform its obligations due to labor disputes, labor or material shortages, forces of nature, or other circumstances beyond its control, that party shall be relieved of its obligations to the extent it is unable to perform, provided timely written notice thereof is given to the other party. A change in Governmental regulations after an order is placed shall not constitute a force majeure event. Under no circumstances, however, shall Buyer be relieved of the obligation to pay for Goods and Equipment shipped or manufactured pursuant to Buyer's purchase order prior to the date Seller receives such notice. Buyer further agrees to reimburse Seller for any and all costs incurred by Seller in terminating or suspending this agreement including but not limited to engineering costs, costs of material ordered for the Goods or Equipment, disposal costs for such material, storage fees, cancellation costs and reasonable attorneys' fees and damages incurred by Seller in canceling, its orders. Buyer further agrees to hold Seller harmless from and indemnify Seller for any commitments made by Seller prior to the date Seller receives such notice.

V. SHIPMENT AND DELIVERY

All delivery dates are estimates only. Seller's only obligation with respect to delivery dates shall be to use reasonable efforts to meet same. Title and risk of loss shall pass to Buyer at the F.O.B. point. Unless otherwise agreed in writing, Buyer shall be responsible for all transportation and shipping costs from the F.O.B. point. Seller will ship using appropriate means, and shall not be liable for any delays, breakage, loss or damage after having made delivery in good order to the carrier. All claims for loss or damage in transit are to be made by Buyer directly to the carrier. Notwithstanding,

buyer agrees that it will inspect the Goods or Equipment within five (5) days of receipt, and shall notify Seller of any claim for loss or damage made to the carrier days from the date of invoice. No discount is allowed for earlier payments. Installation delays caused by the Buyer for any reason shall not constitute grounds for withholding final payment to Seller. Seller reserves the right to alter or suspend credit terms, require C.O.D. or advance payment, whenever Seller has reasonable doubt as to Buyer's credit worthiness. If Buyer becomes delinquent in payment or refuses to accept C.O.D. shipment, Seller shall have the right, in addition to any other right it may have to cancel any order of Buyer's, withhold further deliveries, declare all unpaid amounts for goods and equipment previously delivered immediately due and payable, and defer and/or condition shipment, installation or other assistance. Any amounts more than thirty (30) days past due will be subject to an interest charge of 1 1/2% per month. All costs and expenses incurred by Seller as a result of non-payment or delinquent payment by Buyer, including collection costs, interest, and reasonable attorney's fees, shall be paid by Buyer.

VII. WARRANTY

This product is warranted by TPC Pneumatics, Santa Fe Springs, California to be its intended purpose and free from defects in material and workmanship for one year from the date of Buyer's purchase. This warranty is limited to repairing or replacing, free of charge, defective products. Buyer will notify TPC Pneumatics or an authorized dealer of TPC Pneumatics in writing within the warranty period, within fifteen (15) days of discovery of any alleged defect, and will permit TPC Pneumatics or its representatives to make such investigation, examination, and tests as TPC Pneumatics deems appropriate. If requested by TPC Pneumatics Buyer will return the alleged defective product to TPC Pneumatics factory at Santa Fe Springs, CA, freight prepaid, for examination and testing. If TPC Pneumatics determines that the product is defective, TPC Pneumatics will repair or replace the ITEM F.O.B manufacturer's factory. If Buyer modifies the products or uses any attachment to the product not specifically authorized or supplied by TPC Pneumatics then all warranties whatsoever shall be void. This warranty does not cover any defect, malfunction or failure caused by or resulting from improper or unauthorized service, maintenance, installation, repair or use not within the working specifications for which this product was designed, or from abuse, neglect, tampering with, opening, accident or any other cause beyond the control of the TPC Pneumatics. This warranty is made only to the original purchaser, and is effective only upon presentation of evidence of date of purchase. THIS WARRANT IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ALL SUCH WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED BY SELLER. The repair or replacement of defective products as provided herein is the sole and exclusive remedy provided hereunder and Seller will not be liable for any further losses, damages, or expenses, including incidental or consequential damages, directly or indirectly arising from the sales or use of this product.

VIII. FIRE/EXPLOSION PROOF DESIGN

The equipment delivered hereunder will not be fire or explosion proof unless Buyer has specifically requested same as part of its written specifications and then only to the extent expressly specified by Buyer. Buyer agrees to indemnify and hold harmless Seller, its affiliated companies, officers, directors and employees

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with respect to any and all claims for bodily injury, property damage or economic loss, including reasonable attorney's fees and expenses, incurred as a result of any claims, including claims by Buyer's employees, arising out of a fire or explosion involving the Equipment, provided that Seller complied with Buyers Seller will maintain special tooling in accordance with its usual practice. To the extent practicable, special tooling shall be identified by appropriate markings. Unless otherwise stated herein, prices for special tooling do not include transportation costs, storage beyond completion of the order, or costs of marking or packaging. Buyer shall pick up and remove all special tooling, within 30 days after completion of the order. If buyer fails to do so Seller may dispose of such in any manner it deems appropriate without any liability therefore. Buyer shall be liable for all storage and disposal costs incurred by Seller. Seller shall have a lien on the special tooling to secure all outstanding obligations of Buyer.

X. PATENTS-TRADEMARKS

Warranty shall not apply with respect to claims for patent infringement to the extent that any Goods or Equipment purchased hereunder are (1) manufactured to the Buyer's specifications, (2) used in combination with goods or equipment not purchased from Seller in a manner which infringes a patent covering the combination, or (3) used in a manner not reasonably anticipated by Seller. Seller's obligation hereunder is conditioned upon the Buyer giving Seller prompt written notice of any infringement claim and cooperating fully with respect to the defense of such claim. In addition, upon Seller's request, Buyer shall turn over to Seller control of the settlement and/or litigation of such claim. In the event an infringement claim is asserted with respect to Goods or Equipment purchased hereunder, Seller may at its option replace or modify such Goods or Equipment to no longer infringe upon patent claim.

XI. GOVERNMENT CONTRACTS

If the Goods or Equipment are purchased under a government contract or sub - contract, Buyer shall promptly notify Seller in writing, of those provisions of any Government procurement laws and regulations which are required to be included in the contract covering the Goods or Equipment ordered. If such provisions substantially increase Seller's costs or liability, Seller shall have the right to terminate this contract and Buyer agrees to pay Seller all costs, but no profits, incurred by Seller or, at Seller's option, Buyer shall pay Seller such additional costs as part of this purchase order.

XII. LIMITATIONS OF REMEDIES

Seller shall not be liable for any incidental, consequential, special or punitive damages arising from the sale or use of any Goods or Equipment purchased hereunder or its performance or failure to perform any of its obligations to which these terms and condition apply whether the claims be in contract or tort, including negligence or strict liability. Buyer's sale and exclusive remedy after acceptance of the Goods or Equipment shall be the remedy available under the warranty provisions.

XIII. MISCELLANEOUS

The rights and liabilities of the parties with respect to any transaction covered by these terms and conditions shall be in accordance with the laws of the State of California. The United Nations Convention on Contracts for the International Sale of Goods shall not apply. The invalidity of any part of these terms and

conditions shall not affect the validity of the remaining provision. Buyer's rights and obligations hereunder may not be assigned without the prior written consent of Seller. All claims against Seller must be made within one (1) year of the date the first Goods or Equipment are delivered hereunder. In addition to the rights and remedies set forth herein, Seller reserves all other rights and remedies it may have under applicable law. No waiver of any of Seller's rights or remedies shall be effective unless made in writing by an officer of Seller.

XV. RESERVATION OF SECURITY INTEREST

Buyer grants to Seller a purchase money security interest in the Goods or Equipment supplied hereunder. Failure of Buyer to make any payment when due shall entitle Seller, in its sole discretion, to declare all obligations of Buyer immediately due and payable; in such event Seller shall have all the rights and remedies of a secured party under applicable law. Buyer agrees to execute upon request such documents which may be deemed necessary or appropriate by Seller to create, perfect and maintain the perfection of its security interest under applicable law. Buyer hereby appoints Seller as its attorney to sign and file a financial statement and such other documents as Seller deems necessary to create, file, perfect and maintain the protection of its security interest. Buyer shall not pledge or otherwise encumber the Goods or Equipment prior to making full payment or all amounts due hereunder and prior to moving such goods shall notify Seller of the new location for such Goods or Equipment.

XVI. BUYER'S OBLIGATION: PRODUCT SAFETY

Buyer shall regularly train employees in the safe use of the Goods or Equipment, shall maintain the Goods or Equipment in good working order with all safety devices installed and in operable condition. Buyer agrees to add, at Seller's cost, such additional warnings and safety devices as Seller requests, and to forward such notices or requests to any purchaser from Buyer. Buyer agrees to release and defend Seller from and against all claims, actions or suits by third parties, including Buyer's employees seeking recovery for damages or injury caused in whole or in part by Buyers breach of this provision; Buyer shall indemnify Seller for all liability, costs and damages incurred by it including reasonable attorney's fees caused by or arising out of, in whole or in part, Buyer's breach of this provision.

XVII. ARBITRATION

The parties agree to submit all disputes between them arising out of or related to this Agreement or the breach, alleged breach or interpretation thereof to binding arbitration. With thirty (30) days after either party has notified the other in writing that it is submitting a dispute to arbitration, one arbitrator shall be chosen under the rules of the American Arbitration Association ("AAA") pertaining to commercial disputes. The ensuing arbitration shall be held in Los Angeles, California. The arbitration shall be conducted according to the Commercial Arbitration Rules of the AAA except that the AAA shall not have authority to make any award for damages excluded herein. ANY AND ALL DISPUTES SHALL BE SUBMITTED TO ARBITRATION HEREUNDER WITHIN ONE (1) YEAR FROM THE DATE THEY FIRST AROSE OR BE FOREVER BARRED. The arbitration award shall be by a written decision and shall be final and binding. The decision of the arbitrators may be entered and enforced by any court or competent jurisdiction.

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I. GENERAL SCOPE OF ORDER

Your purchase order is accepted subject to the following terms and conditions. These terms and conditions constitute the entire agreement between the parties with respect to the transaction covered by it ("Agreement"). No modification or waiver of any of the terms and conditions contained herein shall be effective unless agreed to in writing by an officer of Tanhay Corporation. ("Seller"). THIS ACCEPTANCE MAY CONTAIN ADDITIONAL OR DIFFERENT TERMS FROM THOSE CONTAINED IN YOUR PURCHASE ORDER OR WRITTEN OFFER; IF SO, THIS ACCEPTANCE IS EXPRESSLY CONDITIONAL ON YOUR ASSENT TO THE ADDITIONAL OR DIFFERENT TERMS. YOUR ACCEPTANCE OF THE GOODS OR EQUIPMENT SUPPLIED HEREUNDER SHALL CONSTITUTE ACCEPTANCE OF THE ADDITIONAL OR DIFFERENT TERMS.

II. PRICES AND TAXES

All prices are F.O.B. point of shipment, as designated by Seller, unless otherwise stated. Stated prices apply only to the specific quantities and delivery scheduled shown and do not include any applicable federal, state or local taxes, duties or assessments. Applicable taxes and assessments will be included at the time of invoice and paid by Buyer.

III. CANCELLATIONS AND CHANGES

Buyer shall not have any right to cancel orders or make changes in the drawings, specifications, quantities, and/or other descriptions as to any Goods of Equipment covered by this Agreement except as expressly agreed to in writing, by Seller. A cancellation or changed order shall be a material breach of the contract entitling Seller to all remedies available at law.

IV. FORCE MAJEURE

In the event either party is unable to fully perform its obligations due to labor disputes, labor or material shortages, forces of nature, or other circumstances beyond its control, that party shall be relieved of its obligations to the extent it is unable to perform, provided timely written notice thereof is given to the other party. A change in Governmental regulations after an order is placed shall not constitute a force majeure event. Under no circumstances, however, shall Buyer be relieved of the obligation to pay for Goods and Equipment shipped or manufactured pursuant to Buyer's purchase order prior to the date Seller receives such notice. Buyer further agrees to reimburse Seller for any and all costs incurred by Seller in terminating or suspending this agreement including but not limited to engineering costs, costs of material ordered for the Goods or Equipment, disposal costs for such material, storage fees, cancellation costs and reasonable attorneys' fees and damages incurred by Seller in canceling, its orders. Buyer further agrees to hold Seller harmless from and indemnify Seller for any commitments made by Seller prior to the date Seller receives such notice.

V. SHIPMENT AND DELIVERY

All delivery dates are estimates only. Seller's only obligation with respect to delivery dates shall be to use reasonable efforts to meet same. Title and risk of loss shall pass to Buyer at the F.O.B. point. Unless otherwise agreed in writing, Buyer shall be responsible for all transportation and shipping costs from the F.O.B. point. Seller will ship using appropriate means, and shall not be liable for any delays, breakage, loss or damage after having made delivery in good order to the carrier. All claims for loss or damage in transit are to be made by Buyer directly to the carrier. Notwithstanding, buyer agrees that it

will inspect the Goods or Equipment within five (5) days of receipt, and shall notify Seller of any claim for loss or damage made to the carrier days from the date of invoice. No discount is allowed for earlier payments. Installation delays caused by the Buyer for any reason shall not constitute grounds for withholding final payment to Seller. Seller reserves the right to alter or suspend credit terms, require C.O.D. or advance payment, whenever Seller has reasonable doubt as to Buyer's credit worthiness. If Buyer becomes delinquent in payment or refuses to accept C.O.D. shipment, Seller shall have the right, in addition to any other right it may have to cancel any order of Buyer's, withhold further deliveries, declare all unpaid amounts for goods and equipment previously delivered immediately due and payable, and defer and/or condition shipment, installation or other assistance. Any amounts more than thirty (30) days past due will be subject to an interest charge of 1 1/2% per month. All costs and expenses incurred by Seller as a result of non-payment or delinquent payment by Buyer, including collection costs, interest, and reasonable attorney's fees, shall be paid by Buyer.

VII. WARRANTY

This product is warranted by Tanhay Corporation, Seoul, Korea to be its intended purpose and free from defects in material and workmanship for one year from the date of Buyer's purchase. This warranty is limited to repairing or replacing, free of charge, defective products. Buyer will notify Tanhay Corporation or an authorized dealer of Tanhay Corporation in writing within the warranty period, within fifteen (15) days of discovery of any alleged defect, and will permit Tanhay Corporation or its representatives to make such investigation, examination, and tests as Tanhay Corporation deems appropriate. If requested by Tanhay Corporation Buyer will return the alleged defective product to Tanhay Corporation at Seoul, Korea, freight prepaid, for examination and testing. If Tanhay Corporation determines that the product is defective, Tanhay Corporation will repair or replace the ITEM F.O.B manufacturer's factory. If Buyer modifies the products or uses any attachment to the product not specifically authorized or supplied by Tanhay Corporation then all warranties whatsoever shall be void. This warranty does not cover any defect, malfunction or failure caused by or resulting from improper or unauthorized service, maintenance, installation, repair or use not within the working specifications for which this product was designed, or from abuse, neglect, tampering with, opening, accident or any other cause beyond the control of the Tanhay Corporation. This warranty is made only to the original purchaser, and is effective only upon presentation of evidence of date of purchase. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ALL SUCH WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED BY SELLER. The repair or replacement of defective products as provided herein is the sole and exclusive remedy provided hereunder and Seller will not be liable for any further losses, damages, or expenses, including incidental or consequential damages, directly or indirectly arising from the sales or use of this product.

VIII. FIRE/EXPLOSION PROOF DESIGN

The equipment delivered hereunder will not be fire or explosion proof unless Buyer has specifically requested same as part of its written specifications and then only to the extent expressly specified by Buyer. Buyer agrees to indemnify and hold harmless Seller, its affiliated companies, officers, directors and employees with respect to any and all claims for bodily injury, property damage or economic loss, including reasonable attorney's fees and expenses, incurred as

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a result of any claims, including claims by Buyer's employees, arising out of a fire or explosion involving the Equipment, provided that Seller complied with Buyers Seller will maintain special tooling in accordance with its usual practice. To the extent practicable, special tooling shall be identified by appropriate markings. Unless otherwise stated herein, prices for special tooling do not include transportation costs, storage beyond completion of the order, or costs of marking or packaging. Buyer shall pick up and remove all special tooling, within 30 days after completion of the order. If buyer fails to do so Seller may dispose of such in any manner it deems appropriate without any liability therefore. Buyer shall be liable for all storage and disposal costs incurred by Seller. Seller shall have a lien on the special tooling to secure all outstanding obligations of Buyer.

X. PATENTS-TRADEMARKS

Warranty shall not apply with respect to claims for patent infringement to the extent that any Goods or Equipment purchased hereunder are (1) manufactured to the Buyer's specifications, (2) used in combination with goods or equipment not purchased from Seller in a manner which infringes a patent covering the combination, or (3) used in a manner not reasonably anticipated by Seller. Seller's obligation hereunder is conditioned upon the Buyer giving Seller prompt written notice of any infringement claim and cooperating fully with respect to the defense of such claim. In addition, upon Seller's request, Buyer shall turn over to Seller control of the settlement and/or litigation of such claim. In the event an infringement claim is asserted with respect to Goods or Equipment purchased hereunder, Seller may at its option replace or modify such Goods or Equipment to no longer infringe upon patent claim.

XI. GOVERNMENT CONTRACTS

If the Goods or Equipment are purchased under a government contract or sub – contract, Buyer shall promptly notify Seller in writing, of those provisions of any Government procurement laws and regulations which are required to be included in the contract covering the Goods or Equipment ordered. If such provisions substantially increase Seller's costs or liability, Seller shall have the right to terminate this contract and Buyer agrees to pay Seller all costs, but no profits, incurred by Seller or, at Seller's option, Buyer shall pay Seller such additional costs as part of this purchase order.

XII. LIMITATIONS OF REMEDIES

Seller shall not be liable for any incidental, consequential, special or punitive damages arising from the sale or use of any Goods or Equipment purchased hereunder or its performance or failure to perform any of its obligations to which these terms and condition apply whether the claims be in contract or tort, including negligence or strict liability. Buyer's sale and exclusive remedy after acceptance of the Goods or Equipment shall be the remedy available under the warranty provisions.

XIII. MISCELLANEOUS

The rights and liabilities of the parties with respect to any transaction covered by these terms and conditions shall be in accordance with the laws of Korea. The United Nations Convention on Contracts for the International Sale of Goods shall not apply. The invalidity of any part of these terms and conditions shall not affect the validity of the remaining provision. Buyer's rights and obligations hereunder may not be assigned without the prior written consent of Seller. All claims against Seller must be made within one (1) year of the date the first Goods or Equipment are delivered hereunder. In addition to the rights and remedies set forth herein, Seller reserves all other rights and

remedies it may have under applicable law. No waiver of any of Seller's rights or remedies shall be effective unless made in writing by an officer of Seller.

XV. RESERVATION OF SECURITY INTEREST

Buyer grants to Seller a purchase money security interest in the Goods or Equipment supplied hereunder. Failure of Buyer to make any payment when due shall entitle Seller, in its sole discretion, to declare all obligations of Buyer immediately due and payable; in such event Seller shall have all the rights and remedies of a secured party under applicable law. Buyer agrees to execute upon request such documents which may be deemed necessary or appropriate by Seller to create, perfect and maintain the perfection of its security interest under applicable law. Buyer hereby appoints Seller as its attorney to sign and file a financial statement and such other documents as Seller deems necessary to create, file, perfect and maintain the protection of its security interest. Buyer shall not pledge or otherwise encumber the Goods or Equipment prior to making full payment or all amounts due hereunder and prior to moving such goods shall notify Seller of the new location for such Goods or Equipment.

XVI. BUYER'S OBLIGATION: PRODUCT SAFETY

Buyer shall regularly train employees in the safe use of the Goods or Equipment, shall maintain the Goods or Equipment in good working order with all safety devices installed and in operable condition. Buyer agrees to add, at Seller's cost, such additional warnings and safety devices as Seller requests, and to forward such notices or requests to any purchaser from Buyer. Buyer agrees to release and defend Seller from and against all claims, actions or suits by third parties, including Buyer's employees seeking recovery for damages or injury caused in whole or in part by Buyers breach of this provision; Buyer shall indemnify Seller for all liability, costs and damages incurred by it including reasonable attorney's fees caused by or arising out of, in whole or in part, Buyer's breach of this provision.

XVII. ARBITRATION

The parties agree to submit all disputes between them arising out of or related to this Agreement or the breach, alleged breach or interpretation thereof to binding arbitration. With thirty (30) days after either party has notified the other in writing that it is submitting a dispute to arbitration, one arbitrator shall be chosen under the rules of the Korean Commercial Arbitration ("KCA") pertaining to commercial disputes. The ensuing arbitration shall be held in Seoul, Korea. The arbitration shall be conducted according to the Commercial Arbitration Rules of the KCA except that the KCA shall not have authority to make any award for damages excluded herein. ANY AND ALL DISPUTES SHALL BE SUBMITTED TO ARBITRATION HEREUNDER WITHIN ONE (1) YEAR FROM THE DATE THEY FIRST AROSE OR BE FOREVER BARRED. The arbitration award shall be by a written decision and shall be final and binding. The decision of the arbitrators may be entered and enforced by any court or competent jurisdiction.