文書 No. AC※-OMF0047-B

SMC®

Operation Manual

PRODUCT NAME

AIR COMBINATION

MODEL/ Series

AC10 (A, B) -※
AC20 (A, B, C, D) -※
AC25 (B, C) -※
AC30 (A, B, C, D) -※
AC40 (A, B, C, D) -※
AC50 (A, B) -※
AC55 (B) -※
AC60 (A, B) -※

SMC Corporation

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AIR COMBINATION
Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage.
These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger."
They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC), Japan Industrial Standards (JIS)*1) and other safety regulations*2).

*1) ISO 4414: Pneumatic fluid power -- General rules relating to systems
ISO 4413: Hydraulic fluid power -- General rules relating to systems
IEC 60204-1: Safety of machinery -- Electrical equipment of machines (Part 1: General requirements)
ISO 10218-1992: Manipulating industrial robots -- Safety
JIS B 8370: General rules for pneumatic equipment.
JIS B 8361: General rules for hydraulic equipment.
JIS B 9960-1: Safety of machinery -- Electrical equipment for machines. (Part 1: General requirements)
JIS B 8433-1993: Manipulating industrial robots - Safety. etc.

*2) Labor Safety and Sanitation Law, etc.

Caution Operator error could result in injury or equipment damage.

Warning Operator error could result in serious injury or loss of life.

Danger In extreme conditions, there is a possibility of serious injury or loss of life.

⚠Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results.

The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product.

This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly.

The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.

When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.

Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1) Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

2) Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.

3) An application which could have negative effects on people, property, or animals requiring special safety analysis.

4) Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

AIR COMBINATION
Safety Instructions

⚠ Caution

The product is provided for use in manufacturing industries.
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

The warranty period of the product is 1 year in service or 1.5 years after the product is delivered. Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

Compliance Requirements

When the product is exported, strictly follow the laws required by the Ministry of Economy, Trade and Industry (Foreign Exchange and Foreign Trade Control Law).

Design

⚠ Warning

○Air combination

① If any leakage isn't permitted due to ambient environment or fluid other than air is used, contact SMC.

② External parts including the bonnet(material:polyacetal), bowl, the sight dome(material:polycarbonate) are made of resin. Organic solvents including, thinner, acetone, alcohol, ethylene chloride, chemicals including sulphuric acid, nitrate and hydrochloric acid, cutting oil, synthetic oil, estel-base compressor oil, alkali, kerosene, gasoline, lock material of screw are harmful. Don't use the product where containing those.

③ Protect from ultra violet ray and radiation heat by shield.

④ If output over setting pressure may cause damage and operating failure of the machine and equipment installed outlet side, be sure to place safety device.

⚠ Caution

○Regulator and Filter-regulator

① Air consumption from release port is 0.1L／min(ANR) or less.

Selection

⚠ Warning

○Air combination

① Mineral grease used for internal sliding surface and packing may leak to the outlet. Please contact SMC if this is a problem.

○Regulator and Filter-regulator

① Residual pressure(outlet pressure) is not released even if releasing inlet pressure. Select the regulator with counter flow function. Without the function, residual pressure may not be eliminated.

② Long absence of operation or operation with outlet circuit sealed or balance circuit may cause pressure fluctuation in outlet set pressure. Please consult SMC if this is a problem.

③ Set pressure of outlet pressure shall be 85% or less of inlet pressure. Pressure over 85% makes operation susceptible to flow and inlet pressure which lead to cause unstable operation.

④ Maximum set pressure range in the spec. has margin. Pressure set may be higher than the maximum value.

⑤ If regulator is used with circuit which require high exhaust sensitivity or set precision, please consult SMC.

○Lubricator

① The use at high frequency such as the use in press machine may damage internal components and cause operating failure of the equipments installed to outlet side.

② Small air consumption may prevent the oil from dropping. Decide the size which can flow the air necessary to drop required amount of oil.

③ Do not supply the air from outlet side (reverse air flow). Otherwise, internal components may be damaged.

④ If piping is branched at inlet side, the oil may flow back. Avoid the reverse flow by install check valve (AKM series) to inlet side.

Installation・Adjustment

⚠ Warning

○Air combination

① Connect the air combination ensuring the direction of "IN" and "OUT" for air direction or an arrow. Wrong connection lead to cause malfunction.

② Install vertically so that outlet of drain would turned downward. Use with the outlet of drain turned lateral or upward causes malfunction.

③ Make a space to provide easy access at the bottom when replacing element or draining. For dimensions of the space, refer to Outside dimensions.

○Regulator and Filter-regulator

① Operate the pressure adjusting handle manually. Tools may break the handle.Please lock the handle after adjusting pressure.

② Adjust the pressure ensuring inlet pressure and outlet pressure. Excessive rotation may cause internal parts.

③ Outlet pressure might change if uses for a long time.Please confirm set pressure regularly.

○Lurbricator

① Oil amount adjusting valve of AL20 to 60 shall be operated manually.Anticlockwise rotation increases the drop amount and clockwise rotation decreases the drop amount. Operation with tool may damage the oil amount adjusting valve. Three turns from full closed condition makes the valve open fully and need no more turn.

⚠ Caution

○Air combination

① Don't drop nor apply impact during transportation or installation. gauge. These lead to cause precision failure of pressure.

② Don't install where highly humid or temperature is high. Outside range of specifications can cause damage of product and mulfunction.

○Regulator and Filter-regulator

① Adjust pressure incrementally. Pressure may become lower than set pressure if adjusted by decreasing the value. Rotate the handle clockwise to raise the set pressure. Counterclockwise, reduce the pressure.

② Outlet pressure may rise if eliminate the inlet pressure after pressure setting and supply pressure again. The pressure becomes close to the set pressure after air is consumed in outlet.

③ For the product with the pressure gauge, don't apply pressure over the maximum scale of the pressure gauge in order to protect the gauge.

Piping

⚠ Warning

○Air combination

① Flash or clean piping before piping to eliminate swarf, cutting oil, solid foreign material. Remaining of these lead to cause malfunction.

② When screw in piping or fitting, avoid entering of chips and sealing materials from piping screws into the inside of equipment. Or malfunction is led to occur. When use sealing tapes, leave 1.5～2 threads of a screw and starts taping.

③ Hold the female screw side and screw in piping with recommended tightening torque. Insufficient tightening torque lead to cause loose piping or sealing failure. Excessive torque may lead to cause screw breakage. Tightening without holding female screw side applies excessive force to the piping bracket which lead to cause breakage.

Recommended tightening torque Unit:N・m

Screw	M5	1／8	1／4	3／8	1／2	3／4	1
Torque	*1	7～9	12～14	22～24	28～30	28～30	36～38

*1:After tightening fitting, tighten approx. 1/6 more by using tool.

④ Don't apply any torsional moment, or bending moment except the weight of this product itself. External pipings need its support separately. Hard piping like steel tube is susceptible to excessive moment load or vibration. Insert the flexible tube to cancel the influence.

⚠ Caution

OLubricator

① Avoid rising piping and branch of the piping at outlet pressure side. Otherwise, lubricating failure may be caused.

Air source

⚠ Warning

OAir combination

① Use clean air. Compressed air containing chemicals, organic solvent, synthetic oil or corrosive gas may lead to cause breakage of parts or malfunction.

② Air containing much drain lead to cause malfunction. Install the air drier or the after-cooler before the air combination.

Maintenance

⚠ Warning

OAir combination

① Maintenance or check should be done by following the procedure in the operation manual. Incorrect handling of the product may cause breakage or malfunction of the equipment or device.

② Perform periodical check to find crack, flaw or other deterioration on resin bowl. If any of them is seen, as malfunction is caused, replace with new bowl or metal bowl.

OAir filter, Lubricator, Filter-regulator and Mist separator

① Check the dirt of resin bowl periodically. If any dirt is seen, replace with new bowl. And if removing off the dirt by washing instead of replacement, never use washing material other than neutral detergent. Otherwise, the bowl is damaged.

② Open and close drain cock manually. Open and close by a too may damage the drain cock

③ Replace the element two years after starting to use it or before pressure drop of 0.1MPa or more is seen. Continuity of the use after the replacement period may damage the element.

⚠ Caution

ORegulator and Filter-regulator

① For First-aid for setting failure or leakage, check the internal valve sliding surface or the valve seat before giving first-aid treatment.

OAir filter, Filter-regulator and Mist separator

① Drain the bowl by opening drain cock before the drain level in the bowl reaches baffle plate.

OLubricator

① Check the dripping amount once a day. Dripping failure will cause a trouble of lubricated objects.

② Use clean oil to avoid dripping failure.

2. APPLICATION

This instrument aims at eliminating excess saturated water of the air line and solid foreign material, pressure controlling and lubrica compressed oil to operate pneumatic actuator or solenoid valve smoothly. And model section is done with consideration of optimum each application.

3. SPECIFICATIONS

Model	AC10*	AC20*	AC25*	AC30*	AC40*	AC40*-06	AC50*	AC55*	AC60*	Applicable model
Port size	M5	1/8,1/4	1/4,3/8		1/4,3/8,1/2	3/4	3/4,1	1	1	All model
Fluid	Air									All model
Proof pressure	1.5MPa									All model
Max. operating pressure	1.0MPa									All model
Set pressure range	0.05～0.7MPa	0.05～0.85MPa								All model
Note1) Gauge port size	Note2) 1/16	1/8			1/4					All model
Relieving pressure	—	Note3) Set pressure plus 0.05MPa {When relieving flow is 0.1L/min(ANR)}								All model
Ambient and fluid temperature	-5～60℃(Should be no freezing)									All model
Filtration/Air filter	5μm									All model
Filtration/Mist separator	0.3μm(Filtration efficiency 99.9%)									AC*0C,D
Oil mist density on the secondary side	Note4) Max. 1.0mg/m^3(≒0.8ppm)									AC*0C,D
Recommended oil	Turbine oil class 1(ISO VG32)									AC*0,A
Construction/Regulator	Relieving style									All model
Material of bowl	Polycarbonate									All model
Material of sight dome	Polycarbonate									AC*0,A

Note1) Square embedded pressure gauge (AC20～60) and without pressure gauge mounting threads.
Note2) Use bush(part no. 131368) when connecting pressure gauge port size R1/8 to R1/16.
Note3) Except AC10.
Note4) When oil mist density of the compressor exhaust is 30mg/m^3(ANR).

Weight (Kg)

*:Symbol / Model	Nil (AC10～60)	A (AC10A～60A)	B (AC10B～60B)	C (AC20C～40C-06)	D (AC20D～40D-06)
AC10*	0.26	0.20	0.16	—	—
AC20*	0.75	0.59	0.51	0.74	0.57
AC25*	0.88	—	0.55	0.88	—
AC30*	0.97	0.75	0.63	0.95	0.74
AC40*	1.78	1.41	1.12	1.76	1.38
AC40*-06	1.85	1.46	1.16	1.83	1.43
AC50*	3.73	3.33	2.44	—	—
AC55*	3.81	—	2.45	—	—
AC60*	3.90	3.40	2.54	—	—

4. SERIESMAP AND COMBINATION OF EQUIPMENT

×:None applicable model

*:Symbol / Model	Nil (AC10～60)	A (AC10A～60A)	B (AC10B～60B)	C (AC20C～40C-06)	D (AC20D～40D-06)
AC10*	AF10+AR10+AL10	AW10+AL10	AF10+AR10	×	×
AC20*	AF20+AR20+AL20	AW20+AL20	AF20+AR20	AF20+AFM20+AR20	AW20+AFM20
AC25*	AF30+AR25+AL30	×	AF30+AR25	AF30+AFM30+AR25	×
AC30*	AF30+AR30+AL30	AW30+AL30	AF30+AR30	AF30+AFM30+AR30	AW30+AFM30
AC40*	AF40+AR40+AL40	AW40+AL40	AF40+AR40	AF40+AFM40+AR40	AW40+AFM40
AC40*-06	AF40-06+AR40-06+AL40-06	AW40-06+AL40-06	AF40-06+AR40-06	AF40-06+AFM40-06+AR40-06	AW40-06+AFM40-06
AC50*	AF50+AR50+AL50	AW60+AL50	AF50+AR50	×	×
AC55*	AF60+AR50+AL60	×	AF60+AR50	×	×
AC60*	AF60+AR60+AL60	AW60+AL60	AF60+AR60	×	×

5. HOW TO ORDER

AC 30 A – F 03 DE – ST – 12R

Air combination

Body size

10
20
25
30
40
50
55
60

Combination of equipment

Symbol	Combination of equipment				
	Air filter	Regulator	Lubricator	Filter regulator	Mist separator
Nil	①	②	③	—	—
A	—	—	②	①	—
B	①	②	—	—	—
C	①	③	—	—	②
D	—	—	—	①	②
X	Other combinations (as special order)				

Note1) Numbers in ○. Indicacate order of construction of equipment form left hand side (the upper stream side) from a view of front side.

Thread

Nil	Meter thread (M5)
	Rc
Note2) N	NPT
Note3) F	G

Note2) Drain guide (Bore size): NPT1/4
(Applicable AC25□～60□).
Auto drain exhaust port size: With Φ3/8"
one-touch fitting (Applicable AC25□～60□).

Note3) Drain guide: G1/4
(Applicable AC25□～60□).

Port size

Symbol	Port size	Body size							
		10	20	25	30	40	50	55	60
M5	M5×0.8	●	–	–	–	–	–	–	–
01	1/8	–	●	–	–	–	–	–	–
02	1/4	–	●	●	●	●	–	–	–
03	3/8	–	–	●	●	●	–	–	–
04	1/2	–	–	–	–	●	–	–	–
06	3/4	–	–	–	–	●	●	–	–
10	1	–	–	–	–	–	●	●	●

Accessories (Options)

Symbol	Description	Applicable model
Note4) Nil	—	—
C	With float auto drain (N.C.)	AC10□～60□
D	With float auto drain (N.O.)	AC25□～60□
E	Square embedded pressure gauge (With limit indicator)	AC20□～60□
Note4) G	Circular pressure gauge (Without limit indicator)	AC10□
	Circular pressure gauge (With limit indicator)	AC20□～60□
Note4) M	Circular pressure gauge (With color zone)	AC20□～60□
E1	Output: NPN output/ Electrical entry: Wiring bottom entry	AC20□～60□
E2	Output: NPN output/ Electrical entry: Wiring top entry	AC20□～60□
E3	Output: PNP output/ Electrical entry: Wiring bottom entry	AC20□～60□
E4	Output: PNP output/ Electrical entry: Wiring top entry	AC20□～60□

Note4) Pressure gauge mounting screws:
AC10□·····1/16, AC20□～30□·····1/8,
AC40□～60□·····1/4.
Pressure gauge is not mounted to AC and just pacakged together.

Option specifications

Symbol	Description	Applicable model
Note8) 1	Setting pressure 0.02～0.2MPa	AC10□～60□
2	Metal bowl	AC10□～60□
3	Lubricator with drain cock	AC10□～60□
6	Material of bowl & sight dome: Nylon	AC10□～60□
8	Metal bowl with level gauge	AC25□～60□
C	Bowl guard	AC20□
Note9) J	Filter bowl with drain guide Rc 1/4	AC25□～60□
N	Non－relieving style	AC10□～60□
R	Flow direction: From right to left	AC10□～60□
W	Drain cock with barb fitting For φ6×φ4 nylon.	AC25□～60□
Note10) Z	Unit indicated on nameplate, warning label, pressure gauge: PSI・° F	AC10□～60□
Note11) ZA	Digital pressure swith: With unit conversion function	AC20□～60□

When specifying more then one option, indicate symbols numerically and alphabetically.

Note8) Only the adjusting spring is differen from the standard model.

Note9) Without valve function.

Note10) Thread: M5, NPT.

Note11) For options:E1,E2,E3,E4.This product is for overseas use only according to the new Measurement Law (The SI unit is provided for use in Japan.)

Attachments

Symbol	Description	Mounting location of attachments	Applicable model	Air Intermediate output port size
Nil	None	—	—	—
K	Check valve	AF+AR+[K]+AL	AC20～40	AC20□:1/8 AC25□:1/4
		AW+[K]+AL	AC20A～40A	AC30□:1/4 AC40□:3/8
S	Pressure switch	AF+AR+[S]+AL	AC20～60	–
		AW+[S]+AL	AC20A～40A	
		AF+[S]+AR	AC20B～60B	
		AF+AFM+[S]+AR	AC20C～40C	
		AW+[S]+AFM	AC20D～40D	
T	T type spacer	AF+[T]+AR+AL	AC10～60	AC10□:M5×0.8 AC20□:1/8 AC25□:1/4
		AF+[T]+AR	AC10B～60B	AC30□:1/4 AC40□:3/8 AC50□:3/8
		AF+AFM+[T]+AR	AC20C～40C	AC55□:1/2 AC60□:1/2
V	Residual pressure exhaust 3 port valve	AF+AR+AL+[V]	AC20～50	–
		AW+AL+[V]	AC20A～50A	
		AF+AR+[V]	AC20B～50B	
		AF+AFM+AR+[V]	AC20C～40C	
		AW+AFM+[V]	AC20D～40D	
Note8) V1	Residual pressure exhaust 3 port valve	[V]+AF+AR□K	AC20B～50B	–
		[V]+AF+AFM+AR□K	AC20C～40C	
		[V]+AW□K+AFM	AC20D～40D	

Note5) If indicating more than one symbol, place the desired symbols alphabetically.

Note6) For piping adapter , prepare pressure switch with piping adapter and cross spacer separately.

Note7) Consult SMC if using pressure switch and T type spacer simultaneously.

Note8) The regulator and filter regulator are equipped with a backflow function in this configuration.Additionally,for safety purposes,please check that the pressure in the outlet side is turned to the atmospheric pressure once the pressure in the outlet side is exhausted,by using a pressure gauge,etc.

6. ATTACHMENTS／ACCESSORIES(OPTIONS) PART NUMBER

Demarcation	Description \ Model			Attachments／Accessories(Options) part number								
				For AC10*	For AC20*	For AC25*	For AC30*	For AC40*	For AC40*-06	For AC50*	For AC55*	For AC60*
Options	Note1) Gauge	1.0MPa	Note2) Square	—	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS
			Circular	G27-10-R1	G36-10-01	G36-10-01	G36-10-01	G46-10-02	G46-10-02	G46-10-02	G46-10-02	G46-10-02
		0.2MPa	Note2) Square	—	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS
			Circular	Note3) G27-10-R1	G36-2-01	G36-2-01	G36-2-01	G46-2-02	G46-2-02	G46-2-02	G46-2-02	G46-2-02
	Note4) Float style auto drain		N. O.	—	—	AD38	AD38	AD48	AD48	AD48	AD48	AD48
			N. C.	AD17	AD27	AD37	AD37	AD47	AD47	AD47	AD47	AD47
Attachments	Spacer			Y100	Y200	Y300	Y300	Y400	Y500	Y600	Y600	Y600
	Spacer with bracket			Y100T	Y200T	Y300T	Y300T	Y400T	Y500T	Y600T	Y600T	Y600T
	Note5,Note6) Check valve			—	AKM2000-01～(02)	AKM3000-(01)～02	AKM3000-(01)～02	AKM4000-(02)～03	—	—	—	—
	Note6) Pressure switch			—	IS1000M-20	IS1000M-30	IS1000M-30	IS1000M-40	IS1000M-50	IS1000M-60	IS1000M-60	IS1000M-60
	Note5,Note6) T type spacer			Y110-M5	Y210-01～(02)	Y310-(01)～02	Y310-(01)～02	Y410-(02)～03	Y510-(02)～03	Y610-03～(04)	Y610-(03)～04	Y610-(03)～04
	Note6) Residual pressure exhaust 3 port valve			—	VHS20-01～02	VHS30-02～03	VHS30-02～03	VHS40-02～04	VHS40-06	VHS50-06～10	—	—
	Note6) Piping adapter			E100-M5	E200-01～03	E300-02～04	E300-02～04	E400-02～06	E500-06	E600-06～10	E600-06～10	E600-06～10
	Note6) Pressure switch with piping adapter			—	IS1000E-2001～03	IS1000E-3002～04	IS1000E-3002～04	IS1000E-4002～06	—	—	—	—
	Note6) Cross spacer			Y14-M5	Y24-01～02	Y34-01～02	Y34-01～02	Y44-02～03	Y54-03～04	—	—	—

Note1) Contact SMC for NPT connecting thread (Circular only) and pressure gauge with unit: PSI, °F.

Note2) With O ring (1 piece) and Mounting screws (2 pcs).

Note3) For 1.0MPa pressure gauge only.

Note4) Min. operating pressure: 0.1MPa(N.O.)、0.15MPa(N.C.). Contact SMC for unit: PSI, ° F.

Note5) Standard bore size for air combination is indicated without ( ).

Note6) For modular connection, prepare spacer separately.

7. TROUBLESHOOTING

O Air combination (Connection part)

Trouble		Possible cause	Remedy	Subjected model
Demarcation	Phenomenon			
Leak	Connection part has a leak.	1. Damaged packing.	1. Replace the packing.	All model
		2. Looseness of bolt for connecting retainer.	2. Tighten additionally with specified torque. (See 9. How to replace "assembly procedure for the torque".)	

O For each component, refer to its opeation manual.

8. SPARE PARTS LIST

O Air combination (AC junction)

Description	Spare parts part number			
	AC10*	AC20*	AC25*	AC30*
①O ring (2 pcs)	Y100P-060AS	—	—	—
②Packing	—	Y200P-061S	Y300P-060S	Y300P-060S

Description	Spare parts part number			
	AC40*	AC40*-06	AC50*	AC55*
①O ring (2 pcs)	—	—	—	—
②Packing	Y400P-060AS	Y500P-060S	Y600P-060S	Y600P-060S

Description	Spare parts part number
	AC60*
①O ring (2 pcs)	—
②Packing	Y600P-060S

O For spare parts of each component, refer to its opeation manual or catalogue.

9. HOW TO REPLACE

⚠ **Warning**

Before replacement, ensure that the regulator is not pressurized.

Rotate the pressure adjusting handle of regulator to zero.

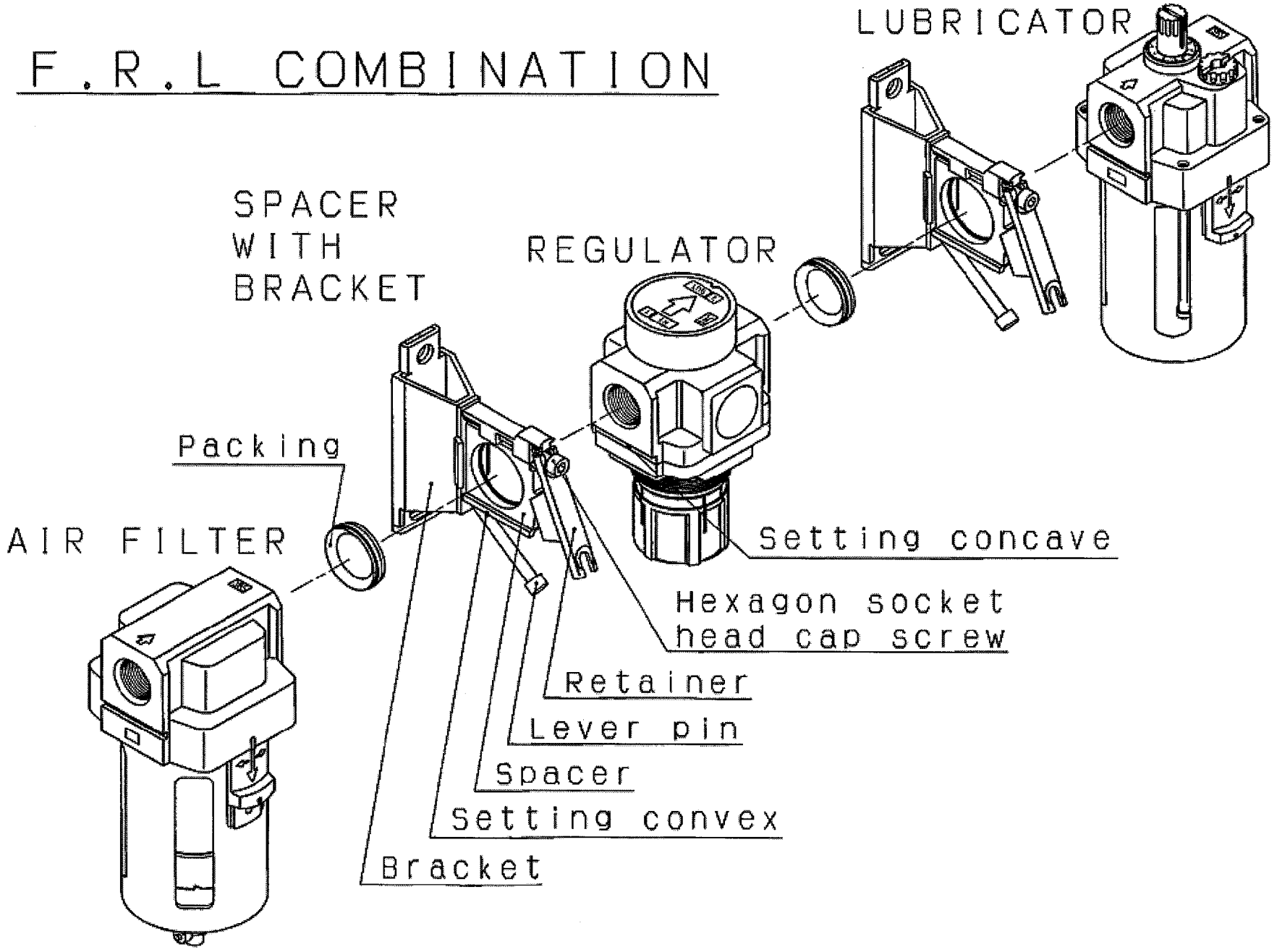
After replacement, ensure that specified function is satisfied and external leakage is not found before starting operation.

○ Air combination

Model: AC10＊～60＊			
Process	Procedure	Tools	Check item
Disassembly	① Remove pipings connected to the component to be replaced as necessary.		
	② Loosen hexagon socket head bolts. Insert hexagon wrench into the hole of the hexagon socket head screw and rotate counterclockwise until it comes to stopper position.	Hexagon wrench Nominal: AC10,20: 2.5 AC25,30: 3 AC40,40-06: 4 AC50,55,60: 5	—
	③ Hold the component to be replaced by hand.	—	—
	④ Move lever pin down and make retainer spring up.	—	—
	⑤ Remove the component.	—	—
Assembly	⑥ Mount the spacer to the components. Engage setting concave of the components with setting convex of the spacer. At this time, mind the direction of IN and OUT.	—	—
	⑦ hand, and move lever pin up to hang it on the retainer.	—	—
	⑧ Tighten hexagon socket head bolt. Insert Hexagon wrench into the hole of hexagon socket head screw and rotate clockwise. See check item for tightening torque.	Hexagon wrench Nominal: AC10,20: 2.5 AC25,30: 3 AC40,40-06: 4 AC50,55,60: 5	Tightening torque: AC10,20: 0.6±0.1N・m AC25,30: 1.5±0.1N・m AC40,40-06: 3.0±0.1N・m AC50,55,60: 5.0±0.1N・m

○ For each component, refer to its opeation manual.

F.R.L COMBINATION



How to connection new module

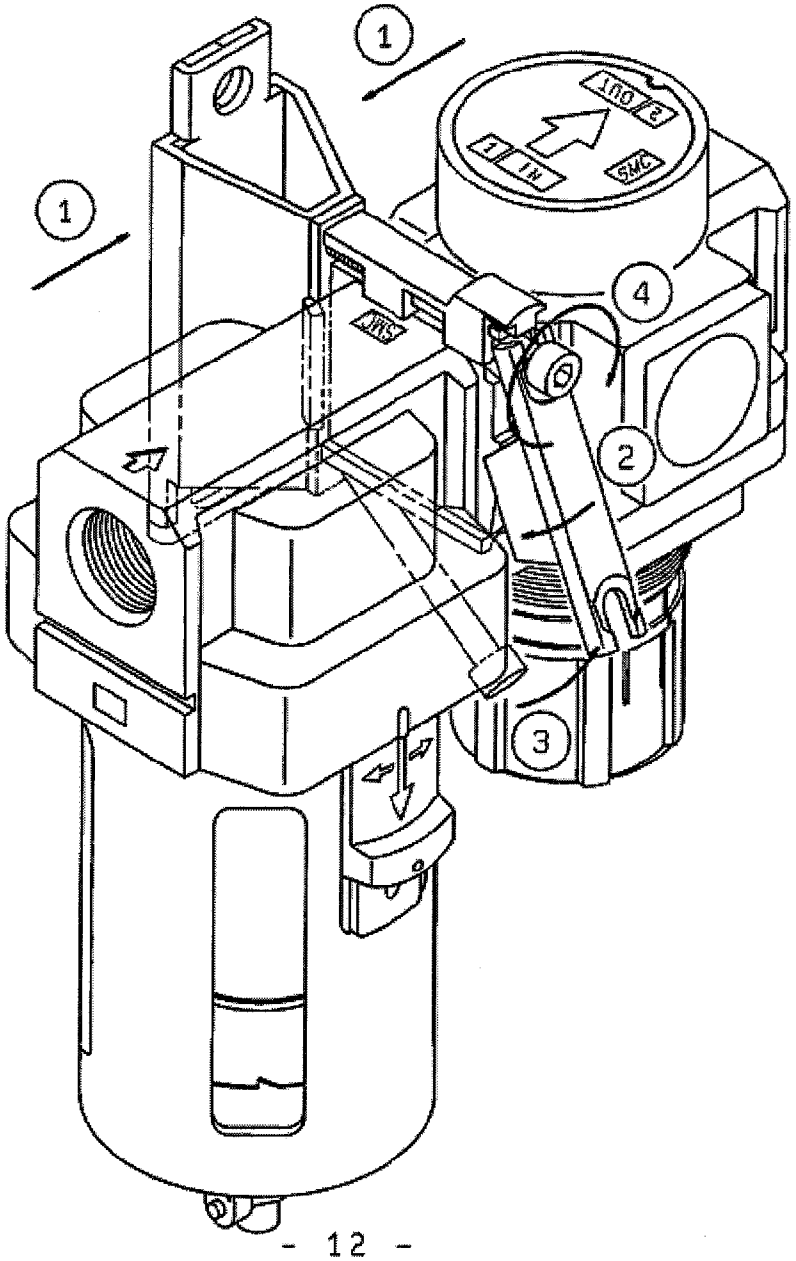
① Mount the product(F,R or L) to the interface of spacer with bracket.

② Push the retainer to the product.

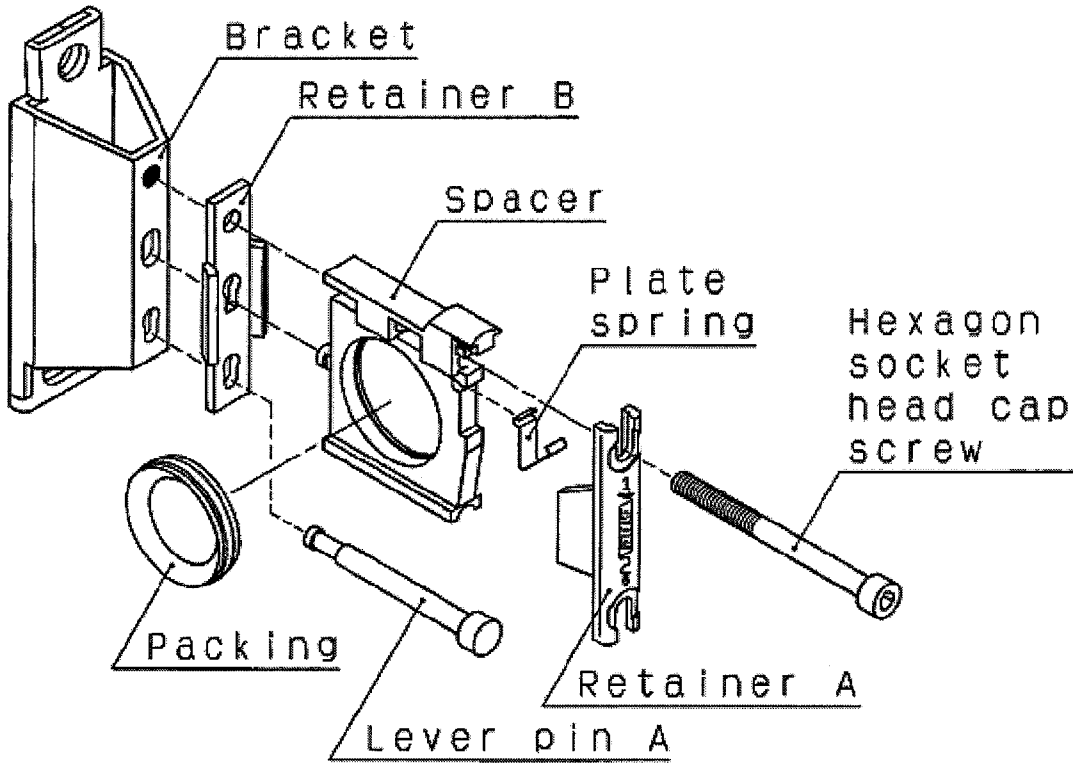
③ Hang the lever pin on the retainer.

④ Tighten the screw on the retainer.

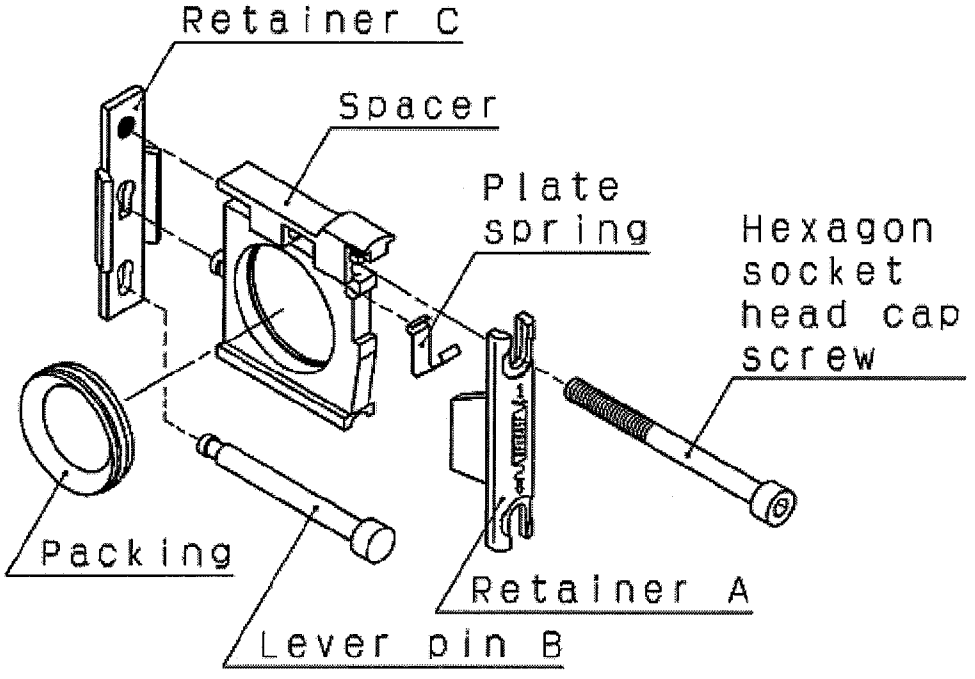
(Step 3 is to fix the product to the module completely.)



SPACER ASSEMBLY WITH BRACKET



SPACER ASSEMBLY



10. DIMENSIONS

For the part indicated by each symbol (A~U), refer to page 16 ~ 20.

(1)AC10~60

Model	Port size	Standard														Accessory(Option)			
						Bracket mounting dimension										Pressure gauge			Auto drain
		A	B	C	D	E	F	G	H	J	K	L	φL	M	N	P	Q	T	B
AC10	M5×0.8	87	85	26	35	28	31	25	20	27	7	4.5	4.5	2.8	40	26	—	0	104
AC20	1/8•1/4	126	123	36	60	41.5	43	30	24	33	12	5.5	5.5	3.2	50	65	29.5	Note1) 2	141
AC25	1/4•3/8	167	153	38	80	55	57	41	35	—	14	7	7	4	71	64	28.5	0	194
AC30	1/4•3/8	167	153	38	80	55	57	41	35	—	14	7	7	4	71	66	30.5	3.5	194
AC40	1/4•3/8•1/2	220	187	40	110	72.5	75	50	40	—	18	9	9	4	88	74	35	3.5	226
AC40-06	3/4	235	187	38	110	77.5	80	50	40	—	18	9	9	4.6	88	74	35	3	226
AC50	3/4•1	282	264	43	110	93	96	70	50	—	20	11	11	6.4	115	84	44.5	3.3	303
AC55	1	292	279	45	110	98	96	70	50	—	20	11	11	6.4	117.5	84	44.5	3.3	318
AC60	1	297	280	46	110	98	101	70	50	—	20	11	11	6.4	117.5	84	44.5	3.3	318

Model	Note2) Semi-standard			
	Barb fitting	Drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC10	—	—	85	—
AC20	—	—	123	—
AC25	161	160	166	186
AC30	161	160	166	186
AC40	195	194	200	220
AC40-06	195	194	200	220
AC50	272	271	276	296
AC55	287	286	292	312
AC60	288	287	293	313

Note1) Pressure gauge mounting position is above piping center for AC20 only.

Note2) For semi-standard (with barb fitting, drain guide, metal bowl or level gauge), differnet body length (B dimension) is adopted.

(2)AC10A~60A

Model	Port size	Standard													Accessory(Option)			
						Bracket mounting dimension									Pressure gauge			Auto drain
		A	B	C	D	E	F	G	H	J	K	φK	L	M	N	P	Q	B
AC10A	M5×0.8	56	108	48	35	28	25	20	27	7	4.5	4.5	2.8	40	26	—	0	126
AC20A	1/8•1/4	83	160	73	60	41.5	30	24	33	12	5.5	5.5	3.2	50	63	27	5	177
AC30A	1/4•3/8	110	201	86	80	55	41	35	—	14	7	7	4	71	66	30.5	3.5	242
AC40A	1/4•3/8•1/2	145	239	92	110	72.5	50	40	—	18	9	9	4	88	76	38.5	1.5	278
AC40A-06	3/4	155	242	93	110	77.5	50	40	—	18	9	9	4.6	88	76	38.5	1.2	278
AC50A	3/4•1	191	409	175	110	98	70	50	—	20	11	11	6.4	-	84	44.5	3.2	448
AC60A	1	196	409	175	110	98	70	50	—	20	11	11	6.4	-	84	44.5	3.2	448

Model	Note1) Semi-standard			
	Barb fitting	Drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC10A	—	—	107	—
AC20A	—	—	160	—
AC30A	209	208	214	234
AC40A	247	246	251	272
AC40A-06	250	249	255	275
AC50A	417	416	422	442
AC60A	417	416	422	442

Note1) For semi-standard (with barb fitting, drain guide, metal bowl or level gauge), differnet body length (B dimension) is adopted.

(3)AC10B~60B

Model	Port size	Standard														Accessory(Option)			
						Bracket mounting dimension										Pressure gauge			Auto drain
		A	B	C	D	E	F	G	H	J	K	φK	L	M	N	P	Q	T	B
AC10B	M5×0.8	56	71	11	25	25	28	20	27	7	4.5	4.5	2.8	40	13.5	26	—	0	89
AC20B	1/8•1/4	83	114	26.5	40	30	41.5	24	33	12	5.5	5.5	3.2	50	2.5	65	29.5	Note1) 2	132
AC25B	1/4•3/8	110	143	28	50	41	55	35	—	14	7	7	4	71	13	64	28.5	0	184
AC30B	1/4•3/8	110	146	31	50	41	55	35	—	14	7	7	4	71	10	66	30.5	3.5	187
AC40B	1/4•3/8•1/2	145	183	36	75	50	72.5	40	—	18	9	9	4	88	12	74	35	3.5	222
AC40B-06	3/4	155	185	36	75	50	77.5	40	—	18	9	9	4.6	88	12	74	35	3	224
AC50B	3/4•1	186	264	43	20	70	93	50	—	20	11	11	6.4	115	16	84	44.5	3.3	303
AC55B	1	191	277	43	20	70	98	50	—	20	11	11	6.4	117.5	16	84	44.5	3.3	316
AC60B	1	196	280	46	20	70	98	50	—	20	11	11	6.4	117.5	13	84	44.5	3.3	319

Model	Note2) Semi-standard			
	Barb fitting	Drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC10B	—	—	70	—
AC20B	—	—	114	—
AC25B	151	150	156	176
AC30B	154	153	159	179
AC40B	191	190	196	216
AC40B-06	193	192	198	218
AC50B	272	271	277	297
AC55B	285	284	290	310
AC60B	288	287	293	313

Note1) Pressure gauge mounting position is above piping center for AC20B only.

Note2) For semi-standard(with barb fitting, drain guide, metal bowl or level gauge), different body length(B dimension) is adopted.

(4)AC10C~40C

Model	Port size	Standard															Accessory(Option)			
		Bracket mounting dimension															Pressure gauge			Auto drain
		A	B	C	D	E	F	G	H	J	K	L	φL	M	N	P	Q	T	U	B
AC20C	1/8・1/4	126	114	26.5	45	41.5	43	30	24	33	12	5.5	5.5	3.2	50	2.5	65	29.5	Note1) 2	132
AC25C	1/4・3/8	167	143	28	50	55	57	41	35	—	14	7	7	4	71	13	64	28.5	0	184
AC30C	1/4・3/8	167	146	31	50	55	57	41	35	—	14	7	7	4	71	10	66	30.5	3.5	187
AC40C	1/4・3/8・1/2	220	183	36	75	72.5	75	50	40	—	18	9	9	4	88	12	74	35	3.5	222
AC40C-06	3/4	235	185	36	75	77.5	80	50	40	—	18	9	9	4.6	88	12	74	35	3	224

Model	Note2) Semi-standard			
	Barb fitting	Drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC20C	—	—	114	—
AC25C	151	150	156	176
AC30C	154	153	159	179
AC40C	191	190	196	216
AC40C-06	193	192	198	218

Note1) Pressure gauge mounting position is above piping center for AC20C only.

Note2) For semi-standard(with barb fitting, drain guide, metal bowl or level gauge), different body length (B dimension) is adopted.

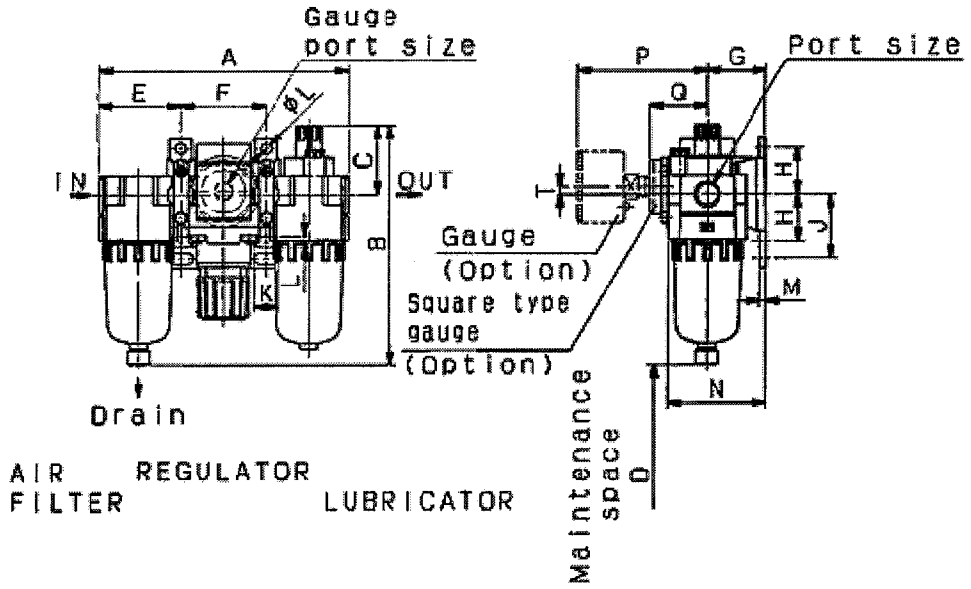
(5)AC10D~40D

Model	Port size	Standard													Accessory(Option)			
		Bracket mounting dimension													Pressure gauge			Auto drain
		A	B	C	D	E	F	G	H	J	K	φK	L	M	N	P	Q	B
AC20D	1/8・1/4	83	160	73	45	41.5	30	24	33	12	5.5	5.5	3.2	50	63	27	5	177
AC30D	1/4・3/8	110	201	86	55	55	41	35	—	14	7	7	4	71	66	30.5	3.5	242
AC40D	1/4・3/8・1/2	145	239	92	80	72.5	50	40	—	18	9	9	4	88	76	38.5	1.5	278
AC40D-06	3/4	155	242	93	80	77.5	50	40	—	18	9	9	4.6	88	76	38.5	1.2	278

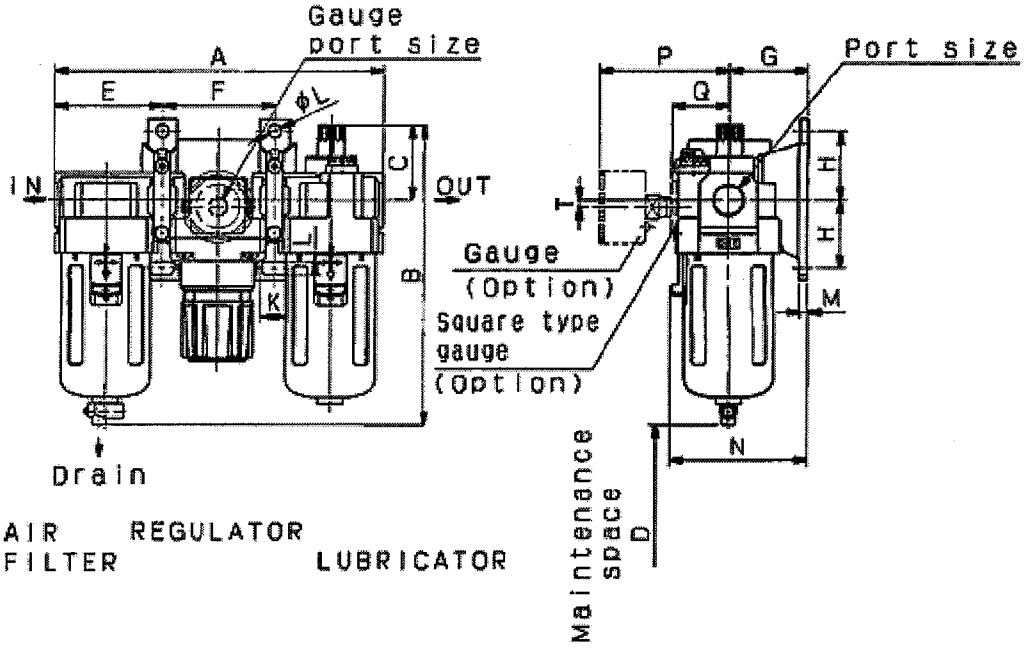
Model	Note1) Semi-standard			
	Barb fitting	Drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AC20D	—	—	160	—
AC30D	209	208	214	234
AC40D	247	246	251	272
AC40D-06	250	249	255	275

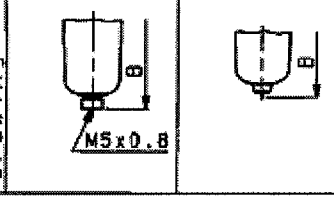
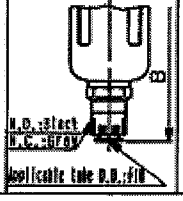
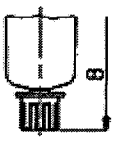
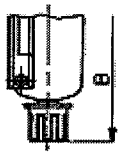
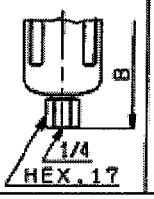
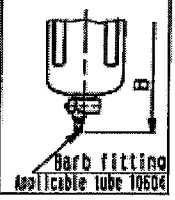
Note1) For semi-standard(with barb fitting, drain guide, metal bowl or level gauge), different body length(B dimension) is adopted.

AC10・20

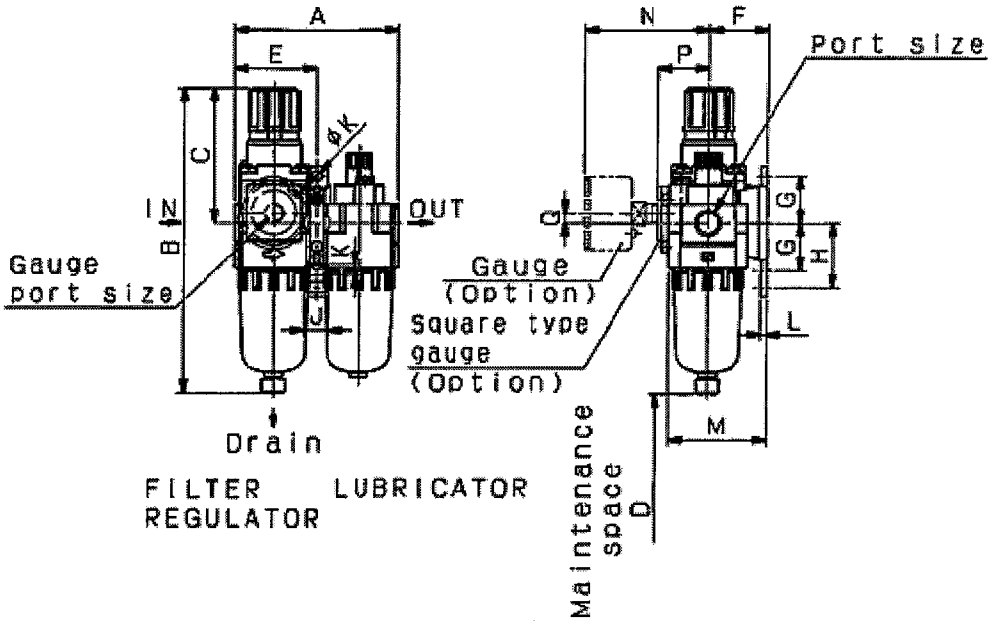


AC25・30・40・50・55・60

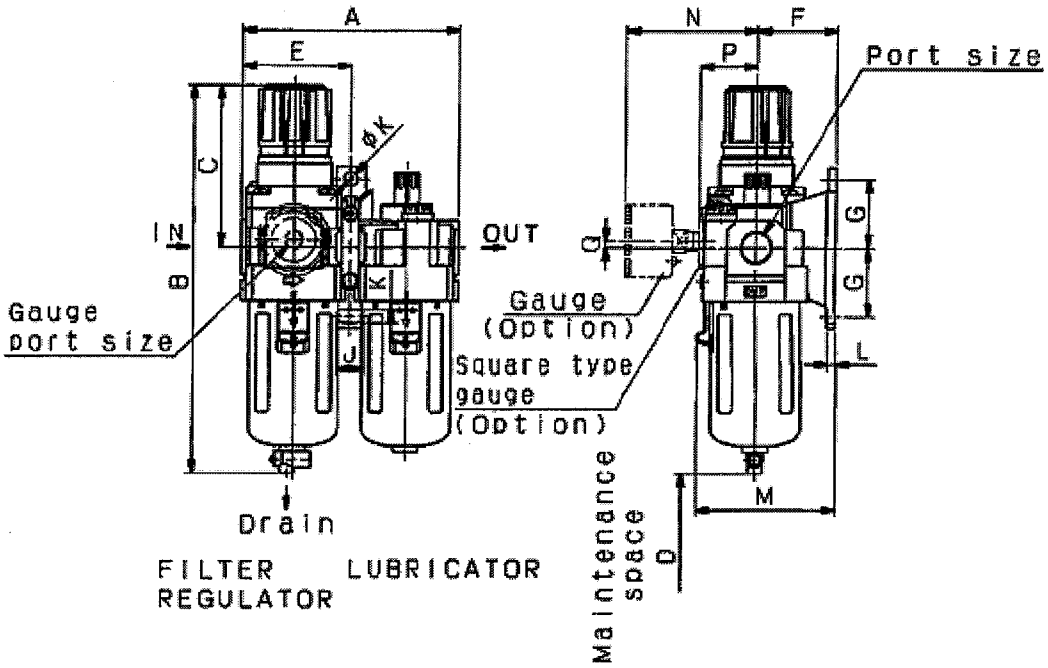


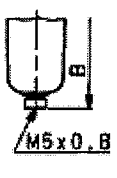
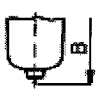
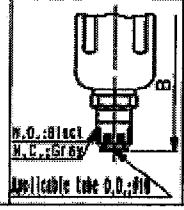
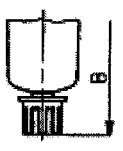
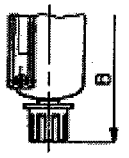
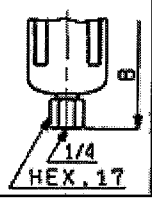
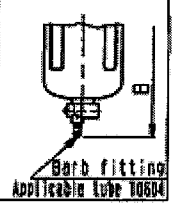
Applicable model	AC10, AC20		AC25, AC30, AC40, AC40-06, AC50, AC55, AC60				
Option	Auto drain (N.C.)	Metal bowl	Auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	Drain guide	Drain cock/ Barb fitting
External appearance drawing							

AC10A・20A

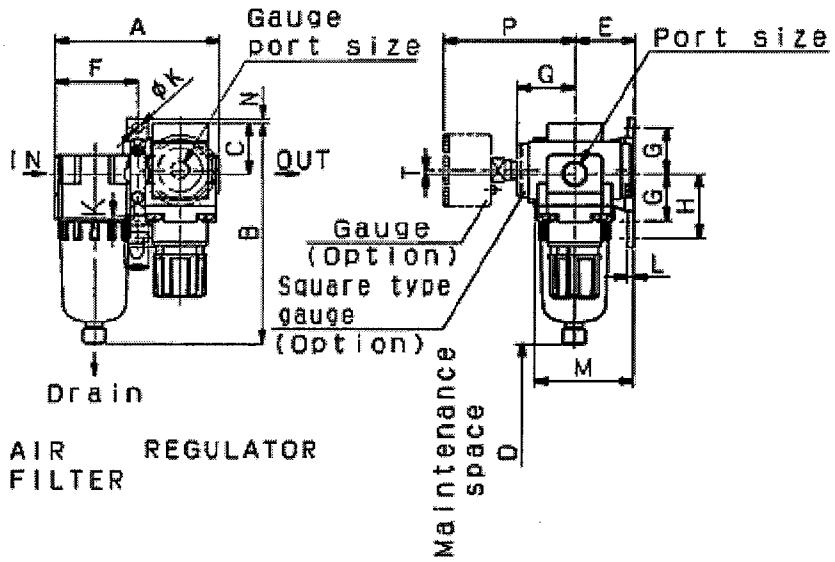


AC30A・40A・50A・60A

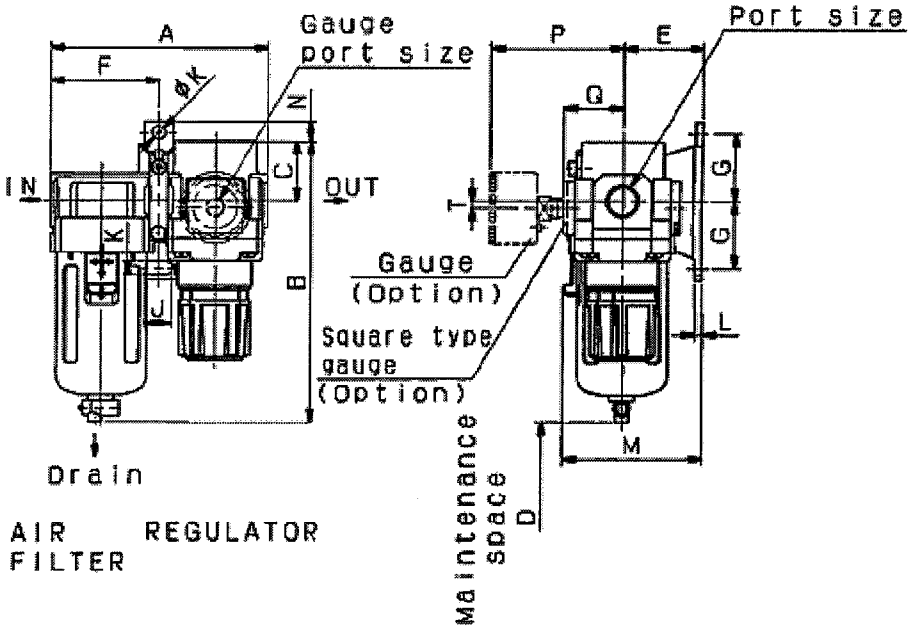


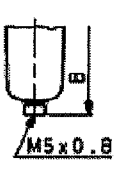
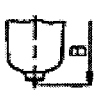
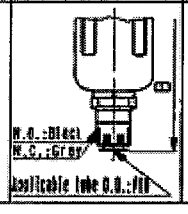
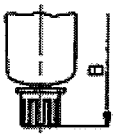
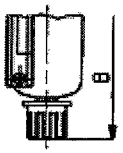
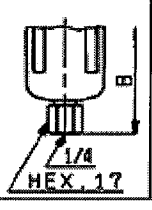
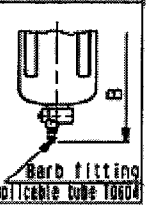
Applicable model	AC10A. AC20A		AC30A. AC40A, AC40A-06, AC50A, AC60A				
Option	Auto drain (N.C.)	Metal bowl	Auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	Drain guide	Drain cock/ Barb fitting
External appearance drawing							

AC10B・20B

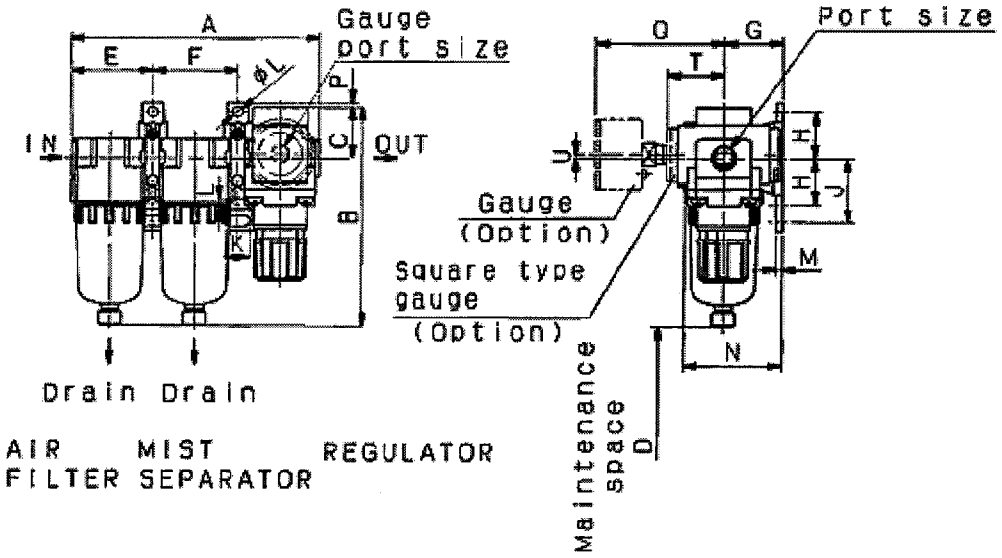


AC25B・30B・40B・50B・55B・60B

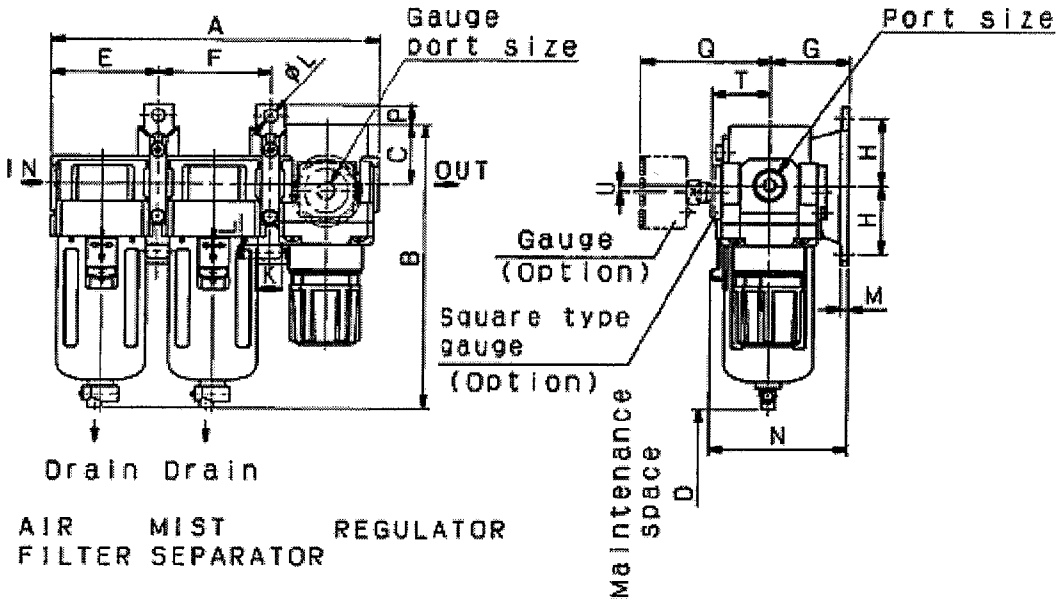


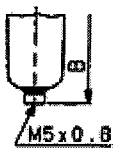
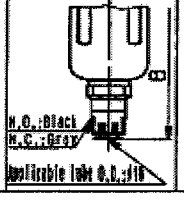
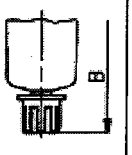
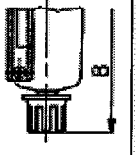
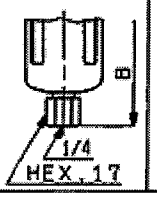
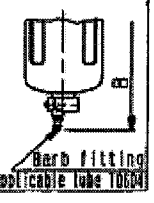
Applicable model	AC10B, AC20B		AC25B, AC30B, AC40B, AC40B-06, AC50B, AC55B, AC60B				
Option	Auto drain (N.C.)	Metal bowl	Auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	Drain guide	Drain cock/ Barb fitting
External appearance drawing							

AC20C

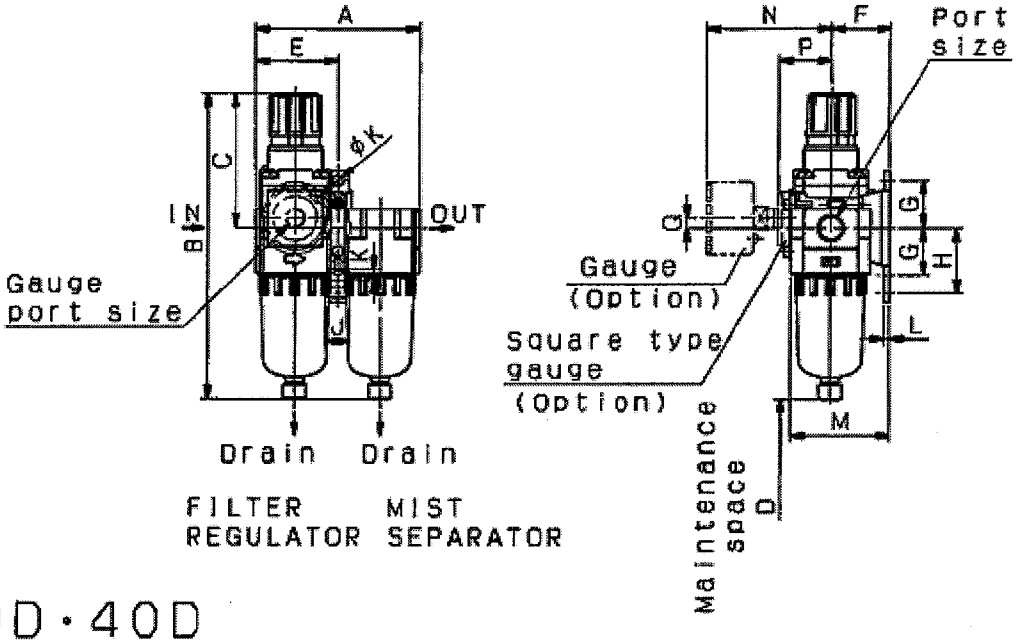


AC25C・30C・40C

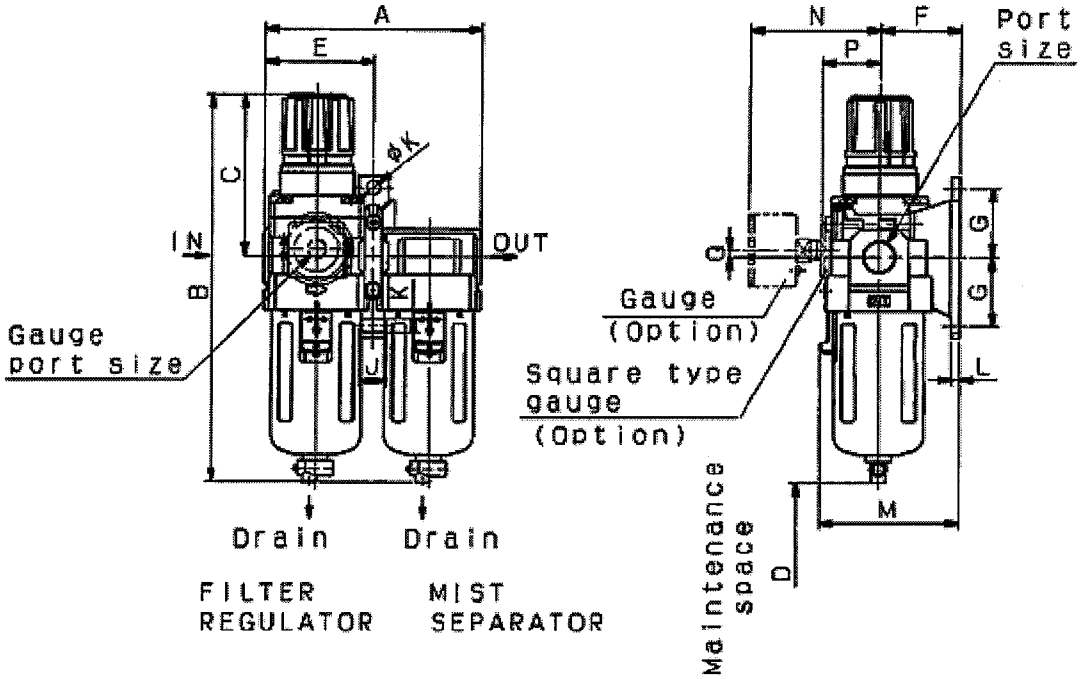


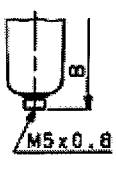
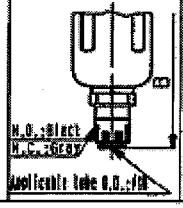
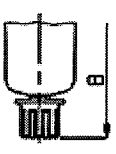
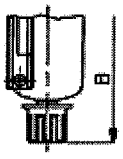
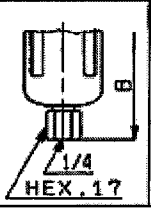
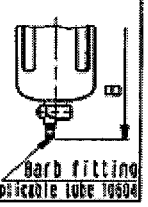
Applicable model	AC20C		AC25C, AC30C, AC40C, AC40C-06				
Option	Auto drain (N.C.)	Metal bowl	Auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	Drain guide	Drain cock/ Barb fitting
External appearance drawing							

AC20D



AC30D・40D



Applicable model	AC20D		AC30D, AC40D, AC40D-06				
Option	Auto drain (N.C.)	Metal bowl	Auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	Drain guide	Drain cock/ Barb fitting
External appearance drawing							

Revision history	
B edition	• AC50A and AC60A addition. • Option M and E1~E4 addition. • Attachment V1 addition.

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