

Safety Notice & Common Caution

Please read this safety notice carefully, pay attention to safety item while using this product, in order to prevent injury to human body and damage of property; thus, there are divided into three classes of "Danger", "Warning", and "Caution" according to the extend of prevention.

Danger Obviously situated at "Danger" state, may cause casualty if not avoided; take special safety protection and management to prevent the occurrence of "Danger".

Warning Condition of operation is situated at "Danger" state, may cause casualty if not avoided; take special safety protection and management to prevent the occurrence of "Danger".

Caution Condition of operation is situated at "Danger" state, may cause minor or moderate injury and damage of property if not avoided; take safety protection and management.

- For safety protection and prevention of accident, please understand the condition of application and know the design, installation, procedure of usage and essential safety condition before using this product.
- Please use within the specification and requirement of this product; application beyond the specification may cause hazard. In case of special condition of application, take the confirmation of safety into account and then use it; in case of doubt in reading this information and related data, contact us before using.
- It is hazardous in error assemble and operation of compressed air and its accessories; so, while selecting the product, the related personnel of design, assemble, operating and service should possess sufficient knowledge and experience, and follow normal operating procedure, in order to maintain safe operation and good effect.
- The safety notice is made according to ISO 4414; pneumatic fluid power and JIS B 8370 general requirement of air system.

This product suitable for application in general industrial equipment; adhere to the following caution while designing, assembling, using and maintenance.

Danger

- 1.Please never use in following application:
 - Use in operation, delivering and management of the appliance for the purpose of human life and body.
 - Use in operation which rise obvious "Danger" and safety concern to human life and body.
 - Special for safety purpose, situation with impact of safety to human life and body.
- 2.Confirmation of safety shall avoid the following conditions which cause safety impact to human and damage of equipment.
 - Operation of machine, device should note to the drop of driven object or race at the rotation radius and operation range cause injury of human and damage of equipment.
 - Operation of machine, device should note the air supply source and poor power supply and interruption and cause injury of human and damage of equipment.
 - When restarting the machine, device may cause object flying out and cause injury of human and damage of equipment.

Warning

- 1.Please never use in following situation:
 - In outdoor dusty condition.
 - Avoid chemical, corrosive and inflammable gas; avoid sea water, high temperature place in surrounding.
 - Exceed the condition in the specification of the product.
 - In the place tend to receive rigorous shock impact, which affect the quality and stability of the product.
- 2.Please don't make any modification or disassembly to the structure,function of the product.
- 3.Shut off the power switch and air source properly before service and maintenance, avoid consequent hazard and damage of product.
- 4.Avoid consequent hazard and damage of product while assembling and operation.

Caution

- 1.Pay attention to the cleanliness of the pipeline while laying the pipe,avoid dust,dirt and leak proof tape been sucked into the pipeline,affect the operation performance of the product.
- 2.There are itemized cautions for various product,please contact our sale personnel if any doubt arouse.

Safety Notice & Caution For F.R.L.

Please read this safety notice carefully before using and pay attention to the safety caution of this product.

Caution for design, selection

Warning

- PC transparent cup of the filter, lubricator and the see through oil dripping device of lubricator are made of PC plastic material, no synthetic oil,organic solvent, chemical, cutting oil, volatile gas is allowed to use in order to avoid destruction of material and affect safety of application.
- The plastic panel of the pressure gauge for regulator is not suitable for spraying with organic solvent, please avoid possible panel damage of the regulator.

Caution

- Avoid the place with impact or rigorous vibration when designing the device; avoid to be mounted outdoor and the environment presence with chemical and corrosive air.

Caution for assembling

Warning

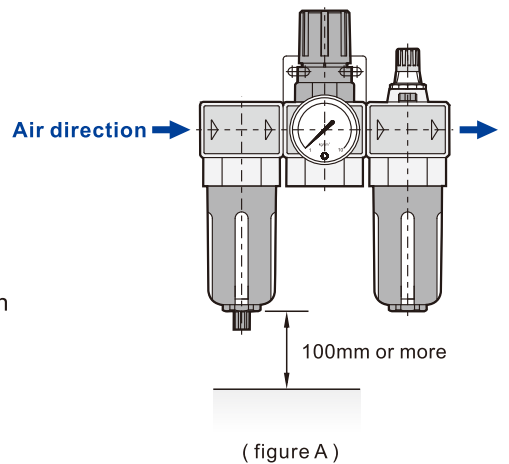
- Pay attention to the direction of the air source while installing,never used in reversed air direction
- Use spanner to tighten the pressure gauge while installing,never tighten with your hand holding the casing of the pressure gauge to avoid damage of the pressure gauge.
- Follow the torque in table below while laying the pipe (tighten the connector), never exceed the range of application to avoid damage of product.

Torque chart for piping

Size	Appropriate turning torque N·m (kgf·cm)
M5	1.5 ~ 2 (15 ~ 20)
Rc (PT) 1/8"	7 ~ 9 (70 ~ 90)
Rc (PT) 1/4"	12 ~ 14 (120 ~ 140)
Rc (PT) 3/8"	22 ~ 24 (220 ~ 240)
Rc (PT) 1/2"	28 ~ 30 (280 ~ 300)
Rc (PT) 3/4"	28 ~ 30 (280 ~ 300)
Rc (PT) 1"	36 ~ 38 (360 ~ 380)

- Filter and lubricator should be mounted with correct direction (Bottom of cup downward as illustrated in figure A) to ensure the function of the product while using.
- Prevent debris and leak proof tape residue from entering the pipe while laying, if the connector is locked by using anoxic glue, avoid excessive amount fluid glue flowing in the body, which may cause jammed and poor movement.

• Bottom of cup downward



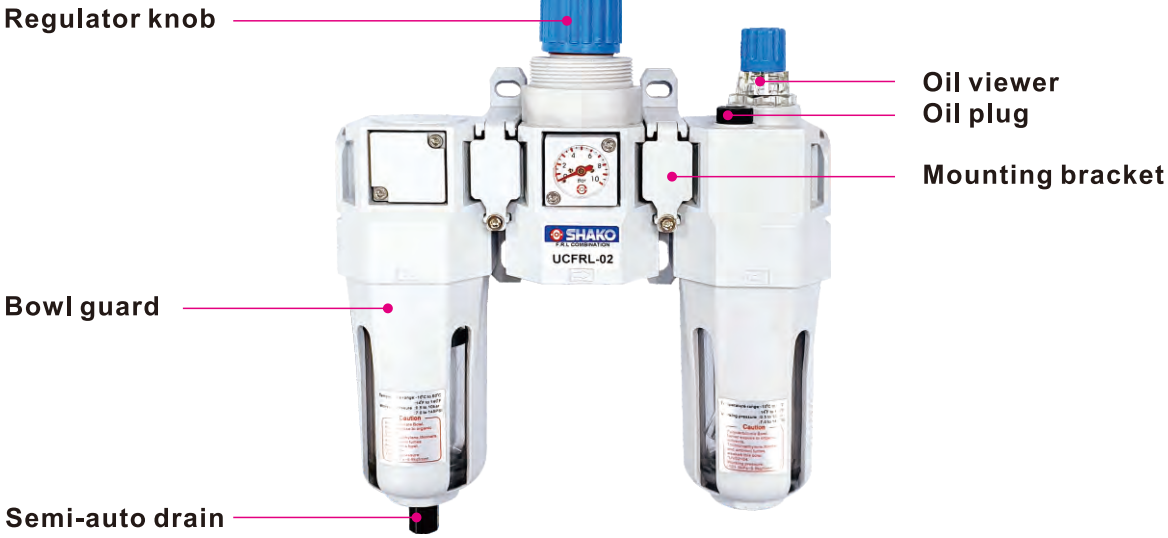
Caution for application

Warning

- Don't remove the PC cup while running to avoid hazard; the PC cup should be locked in position and then air supply is allowed.
- Caution for draining device:
 - (1)Manual drain,drain by pulling sleeve downwardly, pushing back sleeve to lock. Don't use spanner and pliers to hold to avoid damage.
 - (2)Semi-auto drain, drain when pressure is under 0.5kgf/cm².
 - (3)Automatic float drain,drain automatically when full water in filter bowl make float rise.
 - (4)Care for the cleanliness of air and PC cup, avoid clogged by debris and dirt causing poor function of draining device and leakage.
- Turn oil adjusting knob by hand while operating, do not use spanner, pliers tool to prevent damage and affect safe operation.
- ISO-VG32 Lubricator oil or equivalent is highly recommended.
- The lubricator oils out of above standard is easy to cause poor performance for lubricator.



- The setting range of outlet pressure should be under or equal to 85% of inlet pressure to achieve better pressure setting and regulation.
- The regulator knob must be pulled up before turning, increase pressure by turning clockwise and decrease pressure by turning counter-clockwise. Press regulator knob after operation.
- The density of filter element is 5µm and 40µm, the pipeline should maintain dry air, prevent excessive debris causing clogging and insufficient flow.



Pressure regulating

Pull up regulator knob and turn it clockwise to increase pressure. Pull up regulator knob and turn it counter-clockwise to decrease pressure.

Adjusting oil spray

Turn oil adjusting knob clockwise to decrease oil spray. Turn oil adjusting knob counter-clockwise to increase oil spray.

The way to fill oil

Open oil plug, fill oil directly without cut off air supply. ISO VG32 lubricator oil is highly recommended.
*For(UCL02-04)

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Turn oil adjusting knob clockwise to decrease oil spray. Turn oil adjusting knob counter-clockwise to increase oil spray.

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How to use sleeve valve

Pull backward to stop air and release residual air pressure. Push forward to open air line.

Caution for service and maintenance



- Confirm the air line and power in close position before doing maintenance to avoid individual injury and product damage.



- Use hexagonal spanner to assemble and disassemble filter element, other improper tools and wrong ways to break down the product will cause poor performance and unsafety.
- Replace the element of the filter while it is clogged or poor performance to avoid blockage and insufficient flow.
- The PC cup of the filter and lubricator are suitable to wipe by cotton paper or wash with pure warm water and neutral household detergent, avoid to use chemical for cup damage
- After service and maintenance, please check if all parts are tightened and positioned properly, and confirm other accessories are safe without problems, then it is available to turn on air supply.

Pressure regulating

Pull up regulator knob and turn it clockwise to increase pressure. Pull up regulator knob and turn it counter-clockwise to decrease pressure.

Semi-auto drain

The water drain automatically when air pressure in filter bowl is below 0.5kgf/cm². You can also pull down and turn clockwise the semi-auto drain to stop drain.

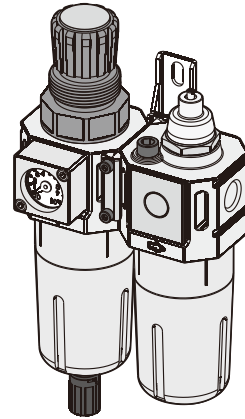
Bowl & Bowl guard

Turn counter-clockwise to take apart the bowl and the bowl guard. High quality material provides product long-life and easy maintenance.

Operation & Installation

■ FRL600C

- 1.The product can be installed by mounting bracket or purchasing lock nut as optional accessory for panel mounting in any direction.
- 2.The miniature design is for space saving especially for installation in a limited room.
- 3.Install anti-acid & alkali bowl to increase capability of chemical corrosion resistance.



■ UFR/L-02,03,04

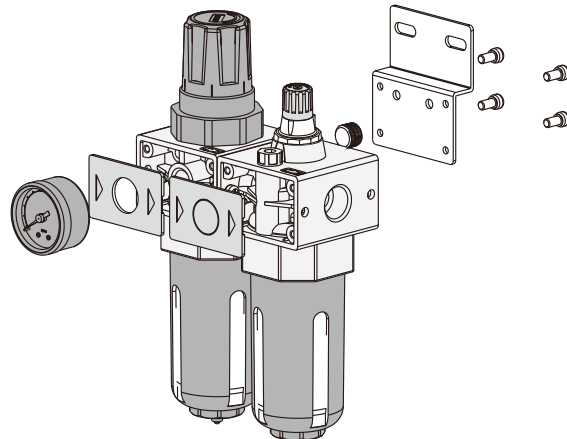
Installation

Open rear blue plate on FRL body, and screw mounting bracket (the accessory of FRL) on the rear body tightly. (See attached drawing)

Operation

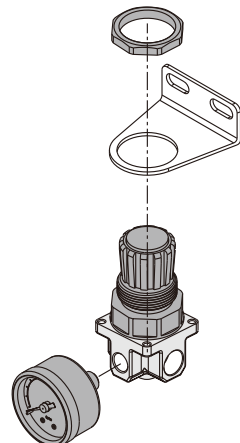
(A)Filter/Regulator

- 1.Automatic exhaust as standard type.
- 2.Piston plus balance spring construction can offer better pressure control.
- 3.Turn regulator knob clockwise to increase air pressure, turn regulator knob counter-clockwise to decrease air pressure.
- 4.High quality filter possesses 5 micron sintered bronze elements
- 5.The water collected in filter bowl can be easily removed by semi-auto drain.



(B)Lubricator

After compressed air goes through regulator, the air pressure gets into lubricator bowl and draw lubricator oil into oil pipe. The oil adjusting knob on top of oil viewer is used to adjust flow of oil dropped, then the oil drop into sprayer and mix with compressed air.



■ R200

- 1.Minature regulator is able to be installed with pressure gauge and mounting bracket, panel nut is optional for panel mounting.
- 2.Minature regulator offers more accurate pressure regulating, please pull up regulator knob and turn it clockwise for pressure setting.

Operation/Cautions

A.Regulator

Pull up regulator knob and turn it clockwise to increase air pressure, turn it counter-clockwise to decrease air pressure. Push regulator knob back to lock the knob.

B.Lubricator

- 1.Open oil plug to fill lubricator oil.
- 2.Please turn off air supply if lubricator bowl is taken off for oil refill.
- 3.ISO VG32 lubricator oil is highly recommended, it is able to lubricate pneumatic components in system, reduce damaged rate, also extend life of operation.

C.Filter

- 1.Semi-auto drain (standard): Drain automatically when air pressure below 0.5kgf/cm².
- 2.Manual drain (Optional): Use hand to remove water anytime.
- 3.Automatic drain: Drain automatically when full water in filter bowl makes float rise.
- 4.If air pressure drop too much from inlet to outlet, please clean or change filter element to ensure the filter running well.

Spacer block installation

When there is no need to use lubricator in working environments, it is available to install spacer block on FRL combination.

- 1.Connect spacer block with fitting and tube as attached drawing shown.
- 2.Open blue beauty plate as attached drawing shown.
- 3.Use screw driver to take apart filter regulator and lubricator, and lock spacer block between filter regulator and lubricator.

