Pneumatic components (F.R.L. unit (Compact))

To Use This Product Safely

Be sure to read this before use.
For general pneumatic components precautions, Intro 27 for details.

Individual Precautions : F.R.L. unit (Separated)

Design / Selection

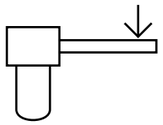
1. Common

Warning

■ Air Filters, lubricator plastic bowl, lubricator drip window, and pressure gauge lens. Material is polycarbonate. It cannot be used in environments containing synthetic oil, organic solvents, chemicals, cutting oil, screw locking agent, leakage detection solutions, or hot water, etc., or where these substances may come in contact with the product. Refer to P. 612 for details on plastic bowl chemical resistance.

■ Piping Load Torque
Do not apply piping load or torque to the body and piping parts.

	Rc1/8, Rc1/4
Max. Torque N·m	15



CAUTION

■ High moisture levels
Install the air dryer and drain separator before the air filter. If there is a lot of moisture from the compressor, hot and highly humid air could shorten the device's life or result in corrosion.

■ Ultra dry air
Rubber parts for the regulator could deteriorate quickly, so use of a fluoro rubber valve assembly is recommended. Contact CKD when required.

■ Water-lubricated compressor circuit
Be careful not to mix chlorine-based substances into the compressed air.

■ Piston drain "D"
- Set the Operating pressure to 0.1 MPa or more.
- Do not use this device on equipment that experiences impacts.
- Automatic discharge used for intermittent flow. Drainage is not discharged under Operating conditions where air flows constantly.

2. Filter

Warning

■ The miniature (A1019, B7019, A3019) bowl does not have a bowl guard.

CAUTION

■ Do not select using the port size.

■ Use a pre-filter before the Micro-mist separator filter/micro-naught type. Use a filter (5 μm) or submicron filter as the pre-filter. Provide a guard on the device, etc., for safety.

3. Regulator, F.R. unit

Warning

■ Output pressure exceeding the Regulators' set pressure could result in damage or faulty operation of the secondary side devices. Be sure to install a safety device.

■ The Regulators cannot process residual pressure (release secondary pressure) when the primary pressure is released. Use a regulator with a check valve when residual pressure must be processed.

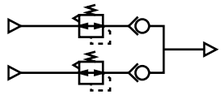
■ As the Regulators may not always be usable when used with a secondary side sealed circuit or balance circuit, consult with CKD.

CAUTION

■ The setting range for the Regulators' secondary pressure should be within 85 % of that of the primary side.

■ After setting pressure, do not release primary pressure or depressurize.

■ When using Regulators in parallel as below, do not use the OUT side as a closed circuit. If a closed circuit is required, install a check valve on the OUT side of each regulator.



■ For miniature types (B2019, 2419, B6061, B7019), turning the knob in the L direction from the set pressure 0 activates the stopper and the knob does not turn. Note that if torque is forcibly applied in the L direction, the knob may lock and become inoperable.

CAUTION

■ Vibrations may occur depending on the usage and piping conditions.
Lower the primary pressure if vibrations occur. Select the proper size as pulsation can occur easily if the flow rate is extremely small in respect to the max. flow rate.

4. Lubricator

Warning

■ Do not use as lubrication for air motor or bearings. Lubrication may not be possible when used very frequently, such as in a press machine.

CAUTION

■ If the Operating air quantity is low for the lubricator, oil may not drip. Check the min. air quantity required for dripping oil.

■ Check that the bowl is not pressurized before supplying oil. Check that the oil level in the bowl is between the upper and lower limits.

5. Relief valve

CAUTION

■ When using released to the atmosphere, restrict the pressure before releasing.

6. Regulator, F.R. unit

CAUTION

■ Note that for B7019, B2019, 2419 and B6061, if the knob is forcibly rotated in the L direction, it may lock.

For precautions regarding mounting, installation, adjustment, operation, and maintenance, please refer to the CKD Components Product Site(https://www.ckd.co.jp/kiki/en/) → 'model No.' → Instruction Manual.

About Chemical Resistance of Plastics

1. Lubricator

⚠Warning

- Use Class 1 turbine oil (no additives) ISO VG32 for the lubricator. Other oils could cause breakage or improper operation.
- Periodically replenish oil in the lubricator bowl so that it does not drop below the lower limit.
- The chemical resistance of plastic parts is shown below.
- Avoid using products in an atmosphere where chemicals are contained in compressed air or atmosphere, or where they could adhere to parts.
- Use in the above state could lead to bowl damage and accidents.
- Avoid using with these chemicals or in an atmosphere containing these chemicals.
- A metal bowl is available if these chemicals must be used.

Chemical resistance of plastic bowl/body

Use a metal bowl in an atmosphere containing the following chemicals. Also, since some inspection liquids, sealants, and adhesives contain the following chemical components, please confirm when selecting.

Type of Chemical	Classification of Chemical	Main Chemical Products	General Usage Examples	Polycarbonate Bowl	Nylon Bowl	Nylon body
Inorganic Chemicals	Acid	Hydrochloric acid, sulfuric acid, hydrofluoric acid, phosphoric acid, chromic acid, etc.	Metal pickling solutions / Acidic degreasing solutions Coating treatment solution, etc.	x	x	x
	Alkaline	Alkalis such as caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, sodium carbonate	Alkaline degreasing solution for metals Water-soluble cutting fluid, leak detection agent	x	○	○
	Inorganic Salts	Sodium sulfide, sodium nitrate, potassium dichromate, sodium sulfate, etc.		x	○	○
Organic Chemicals	Aromatic Hydrocarbons	Benzene, toluene, xylene, ethylbenzene, styrene, etc.	Contained in paint thinner (benzene, toluene, xylene)	x	x	x
	Chlorinated Aliphatic Hydrocarbons	Methyl chloride, Ethylene chloride, Methylene chloride, Acetylene chloride, Chloroform, Trichlene, Perchlorethylene, Carbon tetrachloride	Organic solvent-based washing solution for metals (trichlene, perchlene, carbon tetrachloride, etc.)	x	○	○
	Chlorinated Aromatic Hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Pesticides	x	○	○
	Petroleum Components	Solvent naphtha, gasoline, kerosene		x	○	○
	Alcohol	Methyl alcohol, ethyl alcohol, cyclohexanol, benzyl alcohol	Used as an antifreeze agent Leak detection agent	x	x	x
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	x	x	x
	Ether	Methyl ether, methyl ethyl ether, ethyl ether	Additive for brake fluid	x	○	○
	Ketone	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		x	x	x
	Carboxylic Acid	Formic acid, acetic acid, butyric acid, acrylic acid, oxalic acid, phthalic acid, etc.	Dyes/oxalic acid for aluminum processing, phthalic acid for paint base and leakage detection agents	x	x	x
	Ester	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic coolant, rust preventing agent additive plasticizer for synthetic resin	x	○	○
	Oxyacid	Glycolic acid, lactic acid, malic acid, citric acid, tartaric acid		x	x	x
	Nitro Compound	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		x	○	○
	Amine	Methylamine, dimethylamine, ethylamine, aniline, acetanilide, etc.	Additive of brake oil	x	x	x
	Nitrile	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	x	○	○

○ : Usable x : Not available (Plastic will become damaged.)

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