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KOGANEI

ACCESSORIES GENERAL CATALOG

AIR TREATMENT, AUXILIARY, VACUUM,
AND FLUORORESIN PRODUCTS

SMALL-SIZED PRECISION REGULATORS CONTENTS

SMALL-SIZED PRECISION REGULATOR

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Caution

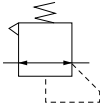
Before use, be sure to read the "Safety Precautions" on p. 49.

SMALL-SIZED PRECISION REGULATOR

PR100-F11



Symbol

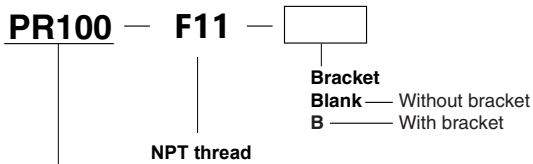


Specifications

Item	Model	PR100-F11
Media		Air
Port size	NPT	1/8
Sensitivity	MPa [psi.]	0.001 [0.15]
Pressure setting range	MPa [psi.]	0.02~0.5 [2.9~72.5]
Maximum operating pressure	MPa [psi.]	0.93 [135]
Proof pressure	MPa [psi.]	1.5 [218]
Operating temperature range (atmosphere and media)	°C [°F]	5~60 [41~140]
Air consumption ^{Note}	ℓ/min [ft ³ /min.] (ANR)	1.5 [0.053]
Lubrication		Not required
Mass	kg [lb.]	0.07 [0.15]
Materials		Aluminum

Note: Value when secondary air pressure is set to 0.5MPa [72.5psi].

Order Codes

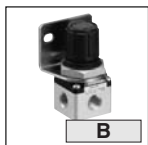


Small-sized precision regulator

Note: The pressure gauge with optional setting is JIS class 3.
 For situations requiring more precise pressure regulation, use a pressure gauge in or near the JIS class 1.5.
 For pressure gauge specifications and dimensions, see p.171.

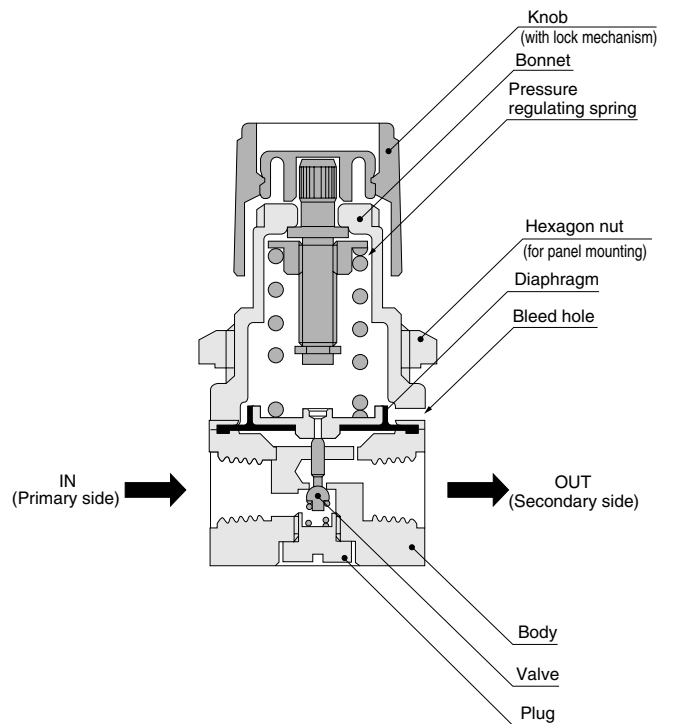
Options

With bracket

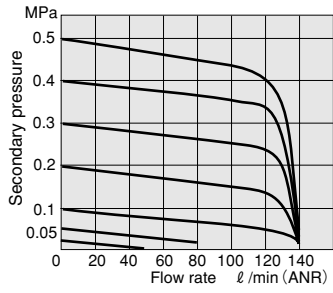


Bracket
 ● 8-10Z

Inner Construction

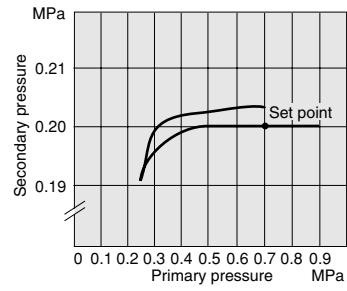


Flow Rate Characteristics



Remark: Graph shows flow rate characteristics when the primary pressure is fixed at 0.7MPa [102psi].

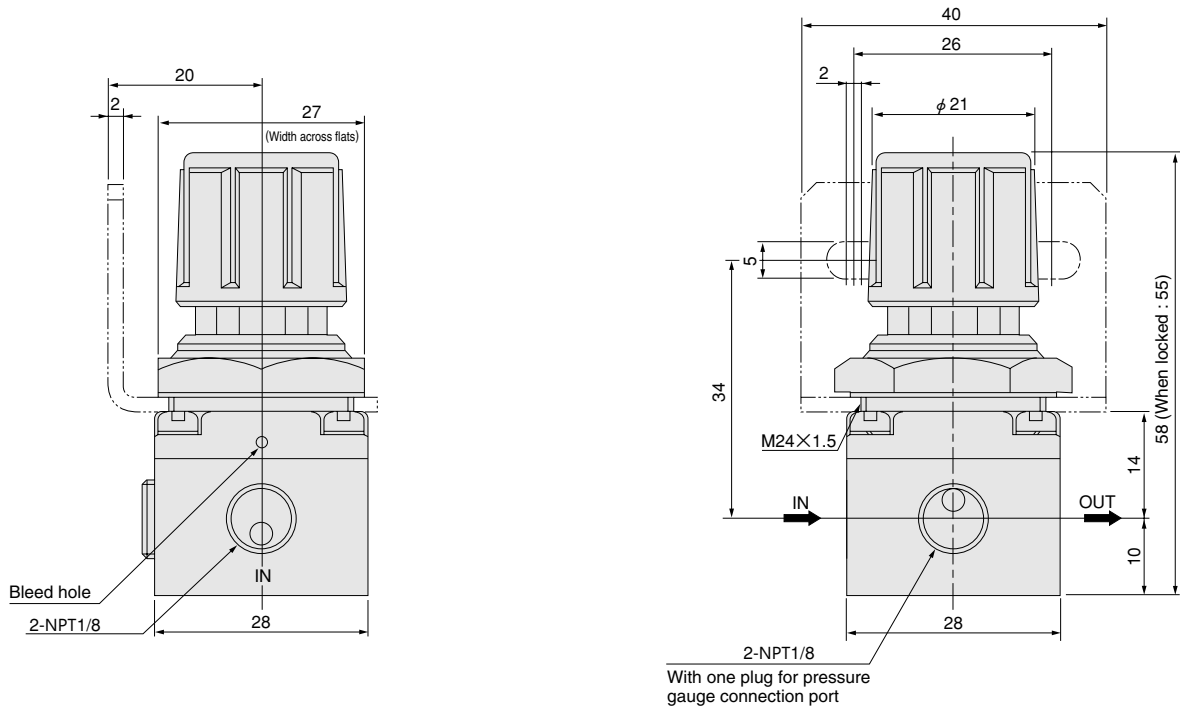
Pressure Characteristics



1MPa = 145psi. 1 l/min = 0.0353ft³/min.

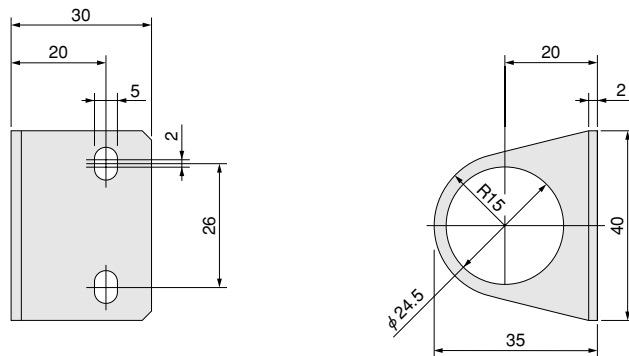
Dimensions (mm)

PR100



Remark: Mounting holes for installing PR100 on a panel are ϕ 24.5.

8-10Z



Handling Instructions and Precautions



Mounting and piping

1. If mounting the precision regulator as a single unit, use a bracket (optional). A ring nut for panel mounting can also be used. Mounting holes for mounting the precision regulator on a panel are $\phi 24.5$ [0.965in.].
2. For piping to the precision regulator, plumb the piping so that the air supply side connects to the IN port and the actuator side connects to the OUT port.



- Cautions:**
1. The regulator cannot be used with the IN port and the OUT port in the reversed positions.
 2. Avoid a mounting position that blocks the bleed hole. Blocking the bleed hole could prevent pressure regulating.



Pressure regulation

1. Perform pressure regulation by pulling out firmly on the knob. Rotating it to the right (clockwise) increases the pressure, and rotating to the left (counterclockwise) reduces the pressure. After regulating pressure, push the knob back into the body and lock it in place.



- Cautions:**
1. The precision regulator is a bleed type, which means that a slight amount of air constantly bleeds out from the bleed hole while the secondary side is under pressure regulation. This is a normal situation.
 2. The air bleed amount was adjusted at time of shipment from the Koganei. Absolutely never attempt to loosen the plug.



2. Avoid applications that involve setting a valve in the primary side of the precision regulator and repeatedly switching the primary pressure.



General precautions

1. Always thoroughly blow off (use compressed air) the piping before plumbing. Entering chips, sealing tape, rust, etc., generated during plumbing could result in air leaks or other defective operation.
2. Use air for the media. For the use of any other media, consult us. Use clean air that does not contain deteriorated compressor oil or other contaminants. Install an air filter (with filtration of a minimum $5\mu m$) close to a pressure reducing valve to eliminate any air line condensate or dust. Moreover, clean the air filter at regular intervals. The entering of condensates or other particles, etc., into the small-sized precision regulator could result in defective operation.
3. The product cannot be used when the media or the ambient atmosphere contains any of the substances listed below. Organic solvents, phosphate ester type hydraulic oil, sulphur dioxide, chlorine gas, or acids, etc.
4. If using in locations subject to dripping water, dripping oil, etc., or to large amounts of dust, use something to cover and protect the unit.

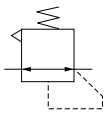
PRECISION REGULATOR

PR200-F11

- Single diaphragm type achieves high-precision pressure regulation in a compact size.
- Push lock type regulator knob for light, smooth pressure regulation.



Symbol



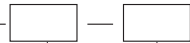
Specifications

Item	Model	PR200-F11
Media		Air
Port size	NPT	1/4
Sensitivity	MPa [psi.]	0.001 [0.15]
Pressure setting range	MPa [psi.]	0.005~0.25 [0.7~36]
Maximum operating pressure	MPa [psi.]	0.73 [106]
Proof pressure	MPa [psi.]	1.03 [149]
Operating temperature range (atmosphere and media)	°C [°F]	5~60 [41~140]
Air consumption ^{Note}	ℓ /min [ft ³ /min] (ANR)	5 [0.18]
Lubrication		Not required
Mass	kg [lb.]	0.29 [0.64]
Materials		Aluminum die-casting

Note: Values are at secondary air pressure 0.25MPa [36psi.].

Order Codes

PR200-F11



Bracket
Blank — No bracket
B — With bracket

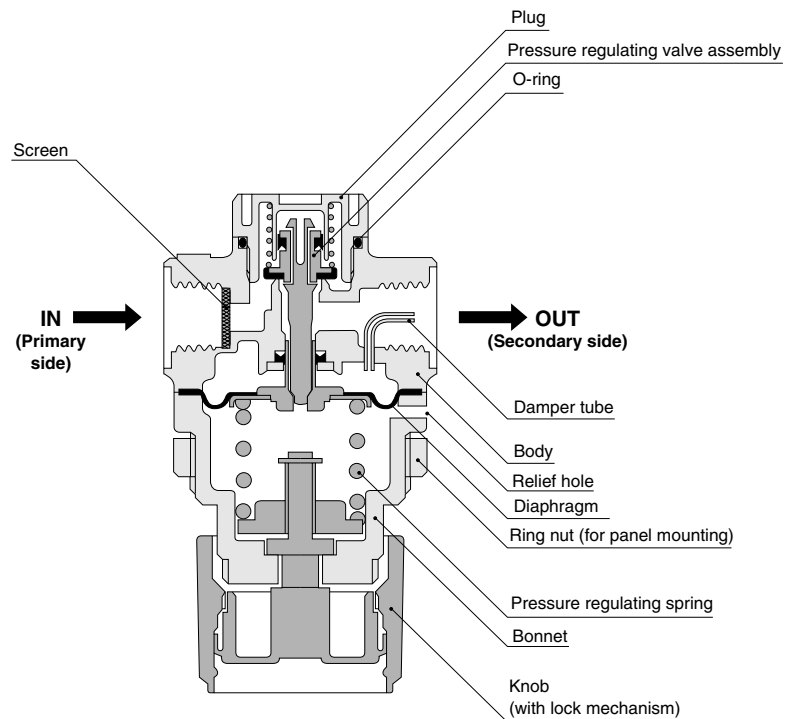
Pressure gauge specification

Blank — No pressure gauge
G3P — With small precision pressure gauge (0.3MPa [44psi.])^{Note 1}
G3PS — With small precision pressure gauge (with throttle valve) (0.3MPa [44psi.])
G3 — With pressure gauge^{Note 2} (0.3MPa [44psi.])

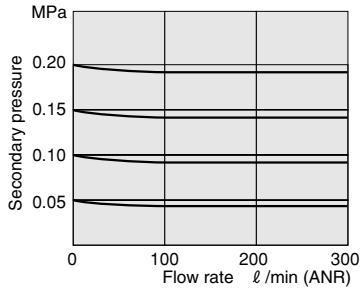
Precision regulator with NPT thread

- Notes: 1. For details about the **G3P** small precision pressure gauge, see p.174.
 2. For details about the **G3** pressure gauge, see p.172.
 3. For specifications and dimensions of the pressure gauge with electronic switches, see p.177~181.

Inner Construction



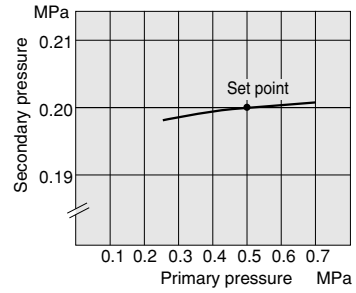
Flow Rate Characteristics



Remark: Graph shows flow rate characteristics when the primary pressure is fixed at 0.7MPa [102psi.].

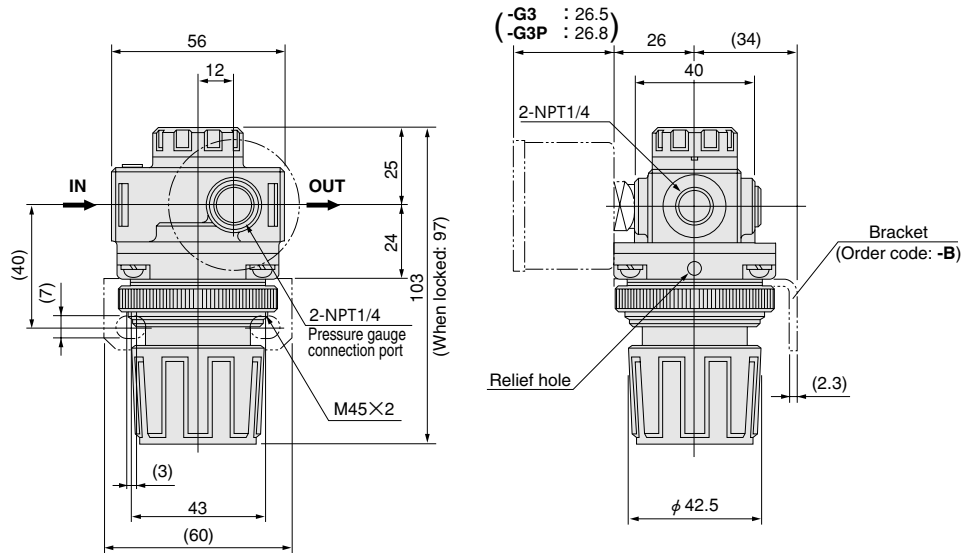
1MPa = 145psi. 1 l/min = 0.0353ft³/min.

Pressure Characteristics



Dimensions of Precision Regulator (mm)

PR200



Note: The mounting hole for attaching the regulator on a panel, etc. is $\phi 46$.
A panel thickness of 1.5~6mm is required for mounting. Use the ring nuts provided to mount.

BRACKETS

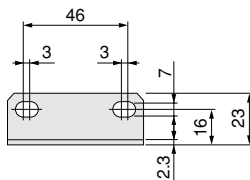
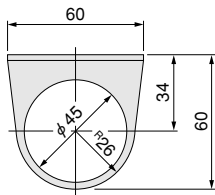


Bracket Models and Applicable Components

Components type		Bracket model	Remark
Precision regulator	PR200-F11	8-21Z	Body supporting type, optional

For Precision Regulator

8-21Z



Mass: 42g

Pressure regulation

Caution: Perform the setting while checking the primary pressure and secondary pressure gauge displays. Rotating the knob too far could cause damage to the internal parts. Be particularly careful not to rotate it too far during depressurization, since time is required for relief.

● Precision Regulator

Perform regulating pressure by pulling out the knob firmly. Rotating it to the right (clockwise direction) increases the pressure, and rotating to the left (counterclockwise direction) reduces the pressure. After regulating pressure, push the knob back into the body and lock it in place.



Remark: When regulating pressure, connect a pressure gauge of a class JIS 1.5 or equivalent to the Precision Regulator's pressure gauge connection port (NPT1/4).

- Cautions:**
1. To maintain accurate pressure adjustment conditions while locked, the Precision Regulator knob includes a free (neutral) state between the lock state and pressure adjustment state. To switch between the regulating pressure and lock states, pull the knob firmly out or push it in until a clicking sound shows that it has firmly arrived in the lock state or pressure adjustment state.
 2. The Precision Regulator is a bleed type, which means that a slight amount of air constantly bleeds out of the bleed hole while the secondary side is undergoing pressure adjustment. This is a normal situation.
 3. The internal pilot type uses a metal contact seal on the pilot regulator portion that causes it to bleed a slight amount of air. This is a normal situation.







General precautions

1. Always thoroughly blow off (use compressed air) the tubing before piping. Entering chips, sealing tape, rust, etc., generated during piping work could result in air leaks or other defective operation.
2. Use clean air for the media. Install an air filter (with filtration of a minimum $5\mu\text{m}$). For the use of any other media, consult us.
3. The product cannot be used when the media or the ambient atmosphere contains any of the substances listed below. Organic solvents, phosphorate acid ester type hydraulic oil, sulphur dioxide, chlorine gas, acids, or alkali.
4. If using in locations subject to dripping water, dripping oil, etc., or to large amounts of dust, use something to cover and protect the unit.

Before selecting and using the product, please read all the Safety Precautions carefully to ensure proper product use. The Safety Precautions shown below are to help you use the product safely and correctly, and to prevent injury or damage to you, other people, and assets beforehand. Follow the Safety Precautions for: ISO4414 (Pneumatic fluid power—Recommendations for the application of equipment to transmission and control systems), JIS B 8370 (Pneumatic system regulations)

The directions are ranked according to degree of potential danger or damage: “DANGER!”, “WARNING!”, “CAUTION!”, and “ATTENTION!”

 DANGER	Expresses situations that can be clearly predicted as dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
 WARNING	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
 CAUTION	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in light or semi-serious injury. It could also result in damage or destruction of assets.
 ATTENTION	While there is little chance of injury, this content refers to points that should be observed for appropriate use of the product.

- This product was designed and manufactured as parts for use in General Industrial Machinery.
- In the selection and handling of the equipment, the system designer or other person with fully adequate knowledge and experience should always read the Safety Precautions, Catalog, Owner’s Manual and other literature before commencing operation. Making mistakes in handling is dangerous.
- After reading the Owner’s Manual, Catalog, etc., always place them where they can be easily available for reference to users of this product.
- If transferring or lending the product to another person, always attach the Owner’s Manual, Catalog, etc., to the product where they are easily visible, to ensure that the new user can use the product safely and properly.
- The danger, warning, and caution items listed under these “Safety Precautions” do not cover all possible cases. Read the Catalog and Owner’s Manual carefully, and always keep safety first.

 **DANGER**

- Do not use the product for the purposes listed below:
 1. Medical equipment related to maintenance or management of human lives or bodies.
 2. Mechanical devices or equipment designed for the purpose of moving or transporting people.
 3. Critical safety components in mechanical devices.
 This product has not been planned or designed for purposes that require advanced stages of safety. It could cause injury to human life.
- Do not use the product in locations with or near dangerous substances such as flammable or ignitable substances. This product is not explosion-proof. It could ignite or burst into flames.
- When mounting the product and workpiece, always firmly support and secure them in place. Dropping or falling the product or improper operation could result in injury.
- Persons who use a pacemaker, etc., should keep a distance of at least 1 meter [3.28ft.] away from the product. There is a possibility that the pacemaker will malfunction due to the strong magnet built into the product.
- Never attempt to remodel the product. It could result in abnormal operation leading to injury, electric shock, fire, etc.
- Never attempt inappropriate disassembly, or assembly of the product relating to its basic inner construction, or to its performance or functions. It could result in injury, electric shock, fire, etc.
- Do not splash water on the product. Spraying it with water, washing it, or using it underwater could result in malfunction of the product leading to injury, electric shock, fire, etc.
- While the product is in operation, avoid touching it with your hands or otherwise approaching too close. In addition, do not make any adjustments to the interior or to the attached mechanisms (manual override, disconnection or connection of wiring connectors, adjustment of pressure switches, or disconnection of piping tubes or plugs, positioning of mounting products). Improper handling of the product could cause it to fall or operate abnormally, which could result in injury.

 **WARNING**

- Do not use the product in excess of its specification range. Such use could result in product breakdowns, function stop, damage, or drastically reduce the operating life.
- Before supplying air to the device and before starting operation, always conduct a safety check of the area of machine operation. Unintentional supply of air or electricity could possibly result in electric shock, or in injury caused by contact with moving parts.
- Do not touch the terminals and the miscellaneous switches, etc., while the device is powered on. There is a possibility of electric shock and abnormal operation.
- Do not throw the product into fire. The product could explode and/or release toxic gases.
- Do not sit on the product, place your foot on it, or place other objects on it. Accidents such as falling could result in injury. Dropping or toppling the product may result in injury, or it might also damage or break it, resulting in abnormal or erratic operation, runaway, etc.
- When conducting any kind of operation for the product, such as maintenance, inspection, repair, or replacement, always turn off the air supply completely and confirm that residual pressure inside the product or in piping connected to the product is zero before proceeding. In particular, be aware that residual air will still be in the air compressor or vacuum pump or air storage tank. The actuator could abruptly move if residual air pressure remains inside the piping, causing injury.
- In preparation for equipment shutdowns due to emergency stops, power blackouts, or other system problems, prepare safety circuit and equipment designs that prevent the occurrence of equipment damage or personal injury.
- Always release the lock on the locking type manual override before commencing normal operations. An unreleased lock could result in incorrect operation.
- Always shut OFF the power before wiring operations. Wiring with the power ON could result in electrical shocks.
- Always apply the stipulated amount of voltage to the solenoids. Applying the wrong voltage could result in failure to perform the intended function, and could damage or burn the product itself.
- Avoid scratching the cords for the sensor switch lead wires, etc. Letting the cords be subject to scratching, excessive bending, pulling, rolling up, or being placed under heavy objects or squeezed between two objects, may result in current leaks or defective continuity that lead

CAUTION

For Fluoresin Products, always read the Safety Precautions on p.819 and 866 carefully before use.

to fire, electric shock, or abnormal operation.

- Do not pull out or plug in the connectors while the power is ON. Also, do not put unnecessary stress on the connector. It could result in erratic equipment operation that could lead to personal injury, equipment breakdown, or electrical shock, etc.
- Always check the Catalog to ensure that the product wiring and piping is done correctly. Errors in wiring and piping could lead to abnormal operation of the actuators, etc.
- When mounting a solenoid valve or electro-pneumatic transducing regulator inside a control panel, or when supplying electrical power to such units over long periods of time, take heat radiation measures to ensure that temperatures surrounding the solenoid valve or electro-pneumatic transducing regulator remain within the specified ambient temperature range. If planning long periods of continuous energizing, consult us.
- In low frequency use (more than 30 days between uses), there is a possibility that contacting parts may have stuck together, resulting in equipment operation delays or sudden movements that could lead to personal injury. Run a test operation at a minimum operations frequency of 30 days between tests to confirm that movement is normal.
- Do not locate solenoid valves, electro-pneumatic transducing regulators, or the wiring for controlling such units near power lines carrying large electrical currents, or in areas subject to the generation of powerful magnetic fields or electrical surges. Such location could result in unintentional operations.
- Surge voltages and electromagnetic pulses could occur when solenoid valves and electro-pneumatic transducing regulators are being switched OFF, which could have an effect on the operations of surrounding equipment. Either use solenoids with surge suppression, or take protective measures against surges and electromagnetic pulses on electrical circuits.
- Do not use the product where ozone may be generated, such as near ocean beaches or other places subject to direct sunlight or mercury lamps. Ozone can cause rubber parts to deteriorate, which can lead to degraded performance and functions, or to equipment stoppages. (Excludes items where measures against ozone have been taken.)
- Do not use any media other than shown on the specifications. Use of non-specified media could lead to functional shutdown after a short period, to sudden performance drops, or to shorter operating life.
- In initial operations after the equipment has been idle for 48 hours or more, or has been in storage, there is a possibility that contacting parts may have stuck together, resulting in equipment operation delays or sudden movements. For these initial operations, always run a test operation before use to check that operating performance is normal.
- After wiring operations, always check to ensure that no wiring connection errors exist before turning ON the power.

CAUTION

- Do not use the product in locations that are subject to direct sunlight (ultraviolet rays), dust, salt, iron powder, high temperature, high humidity, or in the ambient atmospheres that include organic solvents, phosphate ester type hydraulic oil, sulphur dioxide, chlorine gas, acids, etc. It could lead to an early shutdown of some functions or a sudden degradation of performance, and result in a reduced operating life. For the materials used, see Major Parts and Materials.
- When installing the product, leave room for adequate working space around it. Failure to ensure adequate working space will make it more difficult to conduct daily inspections or maintenance, which could eventually lead to system shutdown or damage to the product.
- For mounting or transport of heavy products, use a lift, supporting tool, or several people, to provide firm support, and proceed with due caution to ensure personal safety.
- Always post an "operations in progress" sign for installations, adjustments, or other operations, to avoid unintentional supplying of air, electrical power, etc. Such accidental supplies may cause electric shock or sudden activation of the product that could result in physical injury.
- Do not bring floppy disks or magnetic media, etc., within 1 meter [3.28ft.] of the energized valves or electro-pneumatic transducing regulators. There is the possibility that the data on the floppy disks will be destroyed due to the magnetism of the magnet.
- Depending on the product, generation of leakage current on a control circuit could result in unintentional equipment motion. Take measures to ensure that the amount of current leaking into the control circuit does not exceed the leakage current limits allowed in the product specifications.

- For lubrication of sliding areas, use the specified lubricants. Use of the wrong lubricant could result in alteration or deterioration of the operating material's physical properties, or in degradation of its performance.
- Do not block the product's breathing holes. This will result in pressure changes due to changes in volume during operation. Blocking the breathing holes destroys the pressure balance, and could cause failure of the intended operation, equipment damage, or personal injury.
- The pressure used in vacuum equipment is vacuum (negative) pressure. Be careful to prevent positive pressure from intruding, which could cause damage to vacuum gauges and vacuum pumps. Moreover, supply of pressure greater than 0.2MPa [29psi.] for **VR100**, or 0.5MPa [73psi.] for **VR200** and **NVRA200**, could result in damage to the product.
- The properties of the lubrication oil can change if using in dry air where dew point temperatures is lower than -20°C [-4°F]. It could result in degraded performance or in functional shutdown.

ATTENTION

- When considering the possibility of using this product in situations or environments not specifically noted in the Catalog or Owner's Manual, or in applications where safety is an important requirement such as in an airplane facility, combustion equipment, leisure equipment, safety equipment, and other places where human life or assets may be greatly affected, take adequate safety precautions such as an application with enough margins for ratings and performance or fail-safe measure. Be sure to consult us about such applications.
- Always check the catalog and other reference materials for product wiring and plumbing setup.
- Use a protective cover, etc., to ensure that human bodies do not come into direct contact with the operating portion of mechanical devices, etc.
- Do not control in a way that would cause workpieces to fall during power failure. Take control measures so that they prevent the table or workpieces, etc., from falling during power failure or emergency stop of the mechanical devices.
- Install a muffler, etc., on the exhaust port. It is effective in reducing exhaust noise.
- After adjusting the pressure, lock the pressure regulating knob.
- When handling the product, wear protective gloves, safety glasses, safety shoes, etc., to keep safety.
- When the product can no longer be used, or is no longer necessary, dispose of it appropriately as industrial waste.
- Pneumatic equipment can exhibit degraded performance and function over its operating life. Always conduct daily inspections of the pneumatic equipment, and confirm that all requisite system functions are satisfied, to prevent accidents from happening.
- For inquiries about the product, contact your nearest Koganei sales office or Koganei overseas department. The address and telephone number is shown on the back cover of this catalog.

OTHERS

- Always observe the following items.
 1. When using this product in pneumatic systems, always use genuine KOGANEI parts or compatible parts (recommended parts). When conducting maintenance and repairs, always use genuine KOGANEI parts or compatible parts (recommended parts). Always observe the required methods.
 2. Do not attempt inappropriate disassembly or assembly of the product relating to basic configurations, or its performance or functions.

Koganei cannot be responsible if these items are not properly observed.