

INSTRUCTION MANUAL

Pressure gauge

G49D・G59D-P70-P90-P94 Series



- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

Ver. 1

CKD Corporation

Safety precautions

When designing and manufacturing a device using CKD products, the manufacturer is obligated to manufacture a safe product by confirming safety of the system comprising the following items:

- Device mechanism
- Pneumatic or water control circuit
- Electric control that controls the above

It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely.

Observe warnings and precautions to ensure device safety.

Check that device safety is ensured, and manufacture a safe device.

WARNING

1. This product is designed and manufactured as a general industrial machine part
It must be handled by someone having sufficient knowledge and experience.
2. Use this product within its specifications.
Consult with CKD for details when using the product beyond the unique specification range, outdoors, or in the following conditions or environment: Additionally, the product must not be modified or machined.
 - ① Use for special applications requiring safety including nuclear energy, railroad, aviation, ship, vehicle, medical equipment, equipment or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits, or for safeguard.
 - ② Use for applications where life or assets could be adversely affected, and special safety measures are required.
3. Observe corporate standards and regulations, etc., related to the safety of device design and control, etc.
ISO4414, JIS B 8370 (pneumatic system rules)
JFPS2008(principles for pneumatic cylinder selection and use)
Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, body standards and regulations, etc.
4. Do not handle, pipe, or remove devices before confirming safety.
 - ① Inspect and service the machine and devices after confirming safety of the entire system related to this product.
 - ② Note that there may be hot or charged sections even after operation is stopped.
 - ③ When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Discharge any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
 - ④ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.
5. Observe warnings and cautions on the pages below to prevent accidents.

■ The safety cautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.



DANGER

: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, or when there is a high degree of emergency to a warning.



WARNING

: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.



CAUTION

: When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation. In any case, important information that must be observed is explained.

Precautions with regard to guarantee

● Guarantee period

The guarantee period of our product shall be one (1) year after it is delivered to the place specified by the customer.

● Guarantee coverage

If any failure for which CKD CORPORATION is recognized to be responsible occurs within the above warranty period, a substitute or necessary replacement parts shall be provided free of charge, or the product shall be repaired free of charge at the plant of CKD CORPORATION.

However, the guarantee excludes following cases:

- ① Defects resulting from operation under conditions beyond those stated in the catalogue or specifications.
- ② Failure resulting from malfunction of the equipment and/or machine manufactured by other companies.
- ③ Failure resulting from wrong use of the product.
- ④ Failure resulting from modification or repairing that CKD CORPORATION is not involved in.
Failure resulting from causes that could not be foreseen by the technology available at the time of delivery.
- ⑥ Failure resulting from disaster that CKD is not responsible of.

Guarantee stated here covers only the delivered products. Any other damage resulting from failure of the delivered products is not covered by this guarantee.

● Confirmation of product compatibility

Our customer shall be responsible of confirming compatibility of our product used in our customer's system, machinery or device.

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1. Unpacking

 WARNING	To prevent foreign matter from entering the product, unpack the product just before piping starts.
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- (1) Make sure that the model number indicated on the product matches with what you have ordered.
- (2) Check the exterior of the product for damage.

2. Installation

2.1 Installation Environment

 WARNING	a) Avoid installing this product where it is subject to ultraviolet rays. b) Prevent installation where the product is exposed to a direct sunlight. c) Avoid installation at places where there is excessive vibration or impact.
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(1) Avoid using this product under the following conditions.

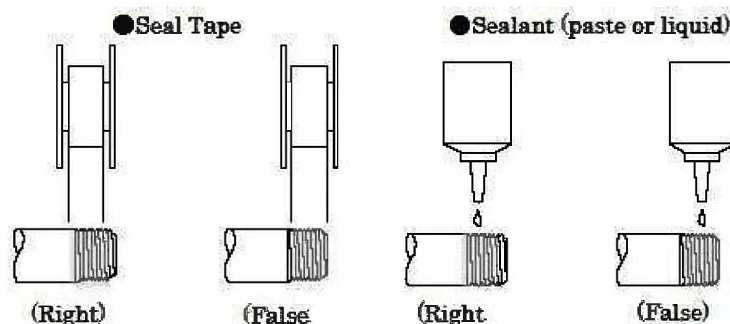
- Avoid using the product outside the range of 5 to 60°C.
- The air may be frozen.
- The water drop or coolant is splashed onto the product.
- The humidity is high and the temperature changes largely, causing dew condensation.
- Sea breeze or seawater is splashed onto the product.
- Avoid using the product in an atmosphere containing corrosive gas.
- Avoid using the product in a dusty atmosphere.
- Direct rays of the sun and wind and rain, water appear
- Do not expose the product to radiant heat if the product is installed near a heat source.

2. 2 Piping

 WARNING	a) Flush the air piping to be used sufficiently before connecting the regulator. If dust or sealant enters the product during piping work, this may cause the product to malfunction or operate incorrectly. b) Tighten pipes with the appropriate torque. Hold the square section of the gauge firmly during piping work. If the gauge hold that other than the square section, the gauge will be damaged. <table border="1" data-bbox="606 1422 973 1534"> <thead> <tr> <th colspan="2">Recommended value</th></tr> <tr> <th>Port thread</th><th>Tightening torque</th></tr> </thead> <tbody> <tr> <td>R1/8</td><td>3~5 N·m</td></tr> <tr> <td>R1/4</td><td>6~8 N·m</td></tr> </tbody> </table>	Recommended value		Port thread	Tightening torque	R1/8	3~5 N·m	R1/4	6~8 N·m
Recommended value									
Port thread	Tightening torque								
R1/8	3~5 N·m								
R1/4	6~8 N·m								

(2) Do not apply sealant or sealing tape for two pitches of thread from

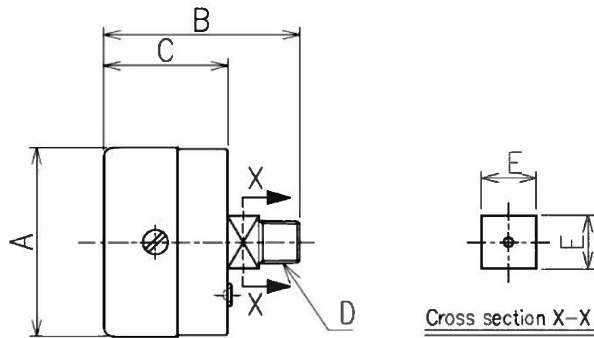
the tip of the pipe to avoid residual substances from falling into the piping system.



2. 3 Installation

(1) Mount vertically in respect to the ground so that the scale can be viewed straightforward.

(2) Dimensions



Model no.	A	B	C	D	E
G49D-6-P**-P70	$\phi 43$	43.5	27.5	R1/8	12
G59D-8-P**-P70	$\phi 52$	50	27	R1/4	14
G49D-6-P**-P90	$\phi 43$	43.5	27.5	R1/8	12
G49D-6-P**-P94	$\phi 43$	43.5	27.5	R1/8	12
G59D-8-P**-P90	$\phi 52$	50.5	26.5	R1/4	14
G59D-8-P**-P94	$\phi 52$	50.5	26.5	R1/4	14

3. Proper operation

3. 1 Caution for use



- a) Do not give the pressure more than max. (indicated by max. scale).
Otherwise, displacement of zero point of needle and deformation of Bourdon tube may be caused.
- b) Do not use the fluid which may corrode the material of contact part to liquid and gas. Otherwise, pressure element is broken or burst and released to outside, and finally, that damage human body and peripheral equipment.
- c) Repeated and sudden increases and decreases in pressure and pressure pulsation must be avoided because it could adversely affect pressure gauge life.
- c) If the gauge is dropped and given impact, its performance may lower.
Otherwise, displacement of zero point of needle and can cause the accuracy to drop.

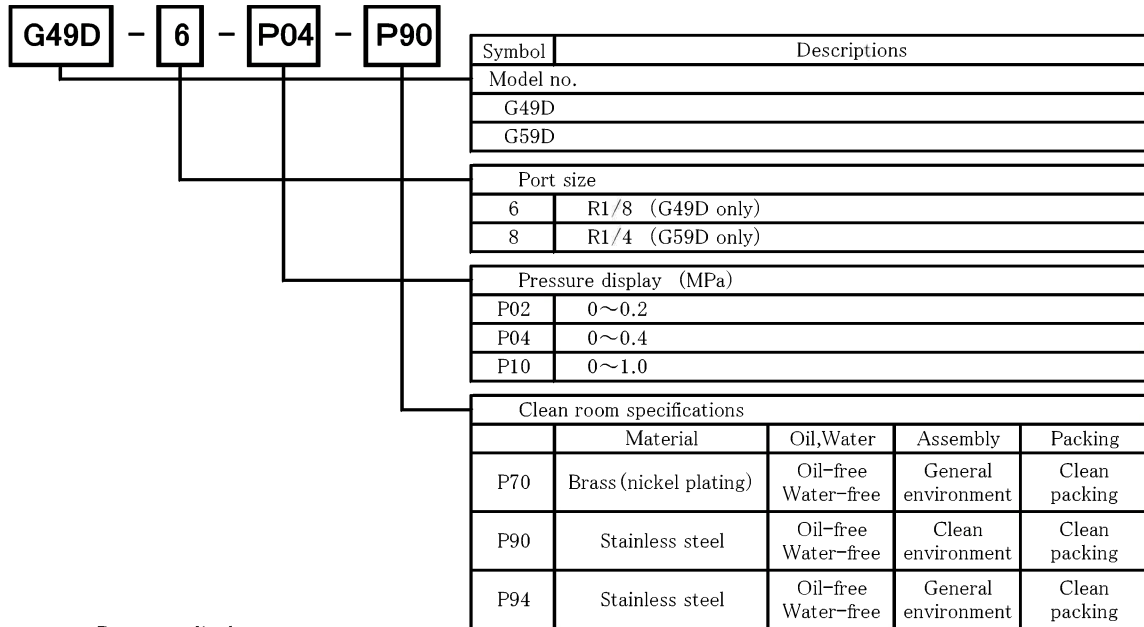
4. Product specifications and designation

4.1 Product specifications

Descriptions		G49D	G59D
Working fluid		Compressed air, N ₂	
Fluid temperature	℃	5～60	
Ambient temperature	℃	5～60	
Precision Note 1		Full scale ±3%	
Shape		DT type (rear side screw/stock section 4 square)	
Display section diameter		φ 43	φ 52
Material	Stock / Bourdon tube	P90, P94:Stainless steel P70:Brass	
	Housing	Steel sheet + chrome plating	P90, P94:Stainless steel P70:Steel sheet + chrome plating
	Lens	Glass	
Pressure range MPa		0～0.2 0～0.4 0～1.0	
Port size		R1/8	R1/4
Weight g		90	140

Note 1: The guaranteed display accuracy temperature is $20\pm15^{\circ}$ C.

4.2 Product designation



Pressure display



Pressure display: P02



Pressure display: P04



Pressure display: P10