



Pressure Gauge

FB

Operation Manual

Surpass Industry Co., Ltd.

Read Before Use

- Before using this product, check the compatibility of the type of liquid to use and the wetted parts material in this product.
- All users are required to carefully read and understand this manual before operation of the product.
- Keep this manual in good condition and close at hand for quick reference whenever necessary.
- Use the product only as intended, and only as directed in this manual.
- Cautionary notes in this manual must be fully understood and complied with at all times.

About This Operation Manual

- The contents of this manual are subject to change without prior notice, due to improvements in product functionalities and / or performance.
- No part of this manual may be reproduced in any form or by any means.
- Although this manual has been prepared with all possible care, please do not hesitate to contact Surpass Industry about errors, omissions, or any other points of doubt.

Important Safety Instructions

<Symbols in This Operation Manual>

Warnings and cautionary notes are provided in this manual to ensure this product is used correctly and to prevent personal injury and property damage. The meanings of the WARNING and CAUTION symbols in this manual are as described below. Read and understand these notes before reading the rest of this manual.



WARNING

This symbol indicates warnings which, if not observed, may cause death or severe injury to the user.



CAUTION

This symbol indicates warnings which, if not observed, may physically impair the user or damage surrounding objects.

Warning Statements

WARNING

- Before using this product, check the compatibility of the type of liquid to use and the wetted parts material in this product.
- All users are required to carefully read and understand this manual before operation of the product.
- Keep this manual in good condition and close at hand for quick reference whenever necessary.
- Use the product only as intended, and only as directed in this manual.
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Product Description

<Applications>

- Semiconductor manufacturing equipment.
- Medicals related applications.
- Chemical industry related applications.

<Features>

- This product, which has the part in contact with fluids is made of excellent anti-corrosive fluorine resin, can be used to measure corrosive fluids such as various chemical fluids, as well as strong alkaline or acid fluids.
- Case, which is made of P.P, withstands difficult circumstances.
- The part in contact does not use any oil. It is manufactured with out a check process using water.
- Has a special double-layered structure designed to prevent gas permeability, providing anti-corrosive.

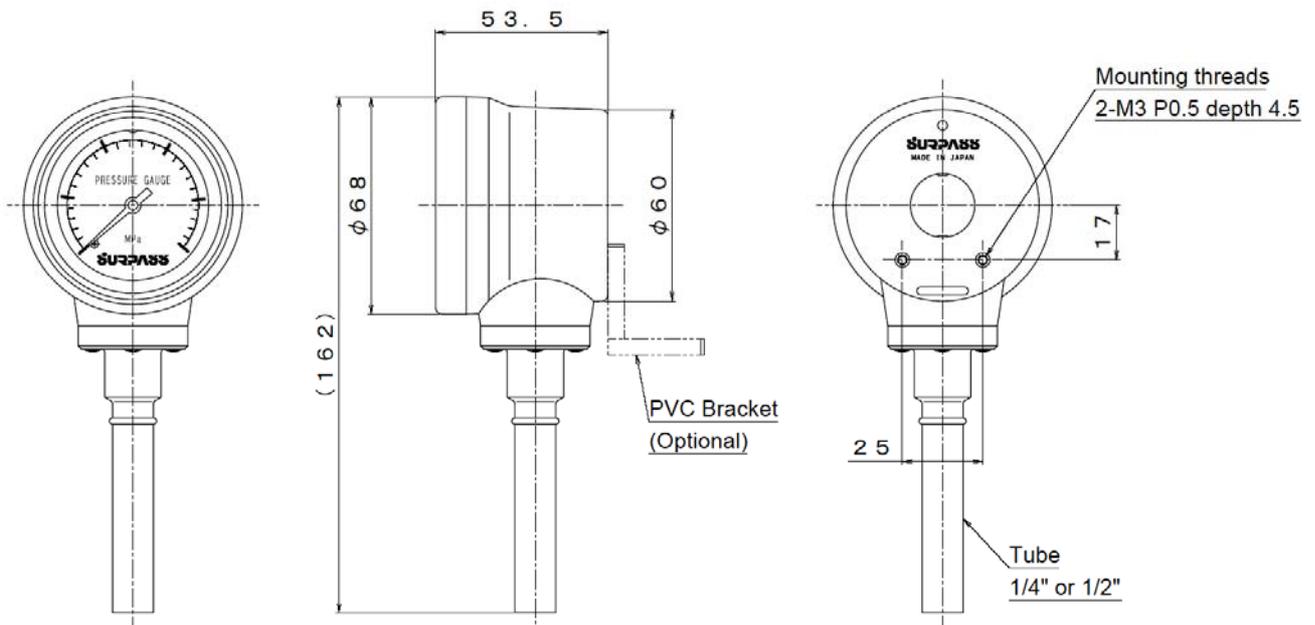
Specifications

Model	FB-03-□	FB-05-□	FB-07-□	FB-03-1/4-IOF4	FB-05-1/4-IOF4	FB-07-1/4-IOF4
Pressure Range	0 ~ 0.3MPa	0 ~ 0.5MPa	0 ~ 0.7MPa	0 ~ 0.3MPa	0 ~ 0.5MPa	0 ~ 0.7MPa
Withstanding Pressure	0.4MPa	0.6MPa	0.8MPa	0.4MPa	0.6MPa	0.8MPa
Wetted Parts	PTFE, PFA, Kalrez® O-ring			PTFE, PFA,PCTFE, Kalrez® O-ring		
Applicable Fluid	gas or Liquids					
Environmental Temperature Range	10 ~ 40°C (50°F ~ 104°F)					
Fluid Temperature Range	10 ~ 50°C (50°F ~ 122°F)					
Accuracy	±2%F.S. (For the pressure range of 0.05MPa both ends, the accuracy is ±3% F.S.) (For the pressure range of 0.1MPa both ends, the accuracy is ±3% F.S.(by 0.7 Model))					

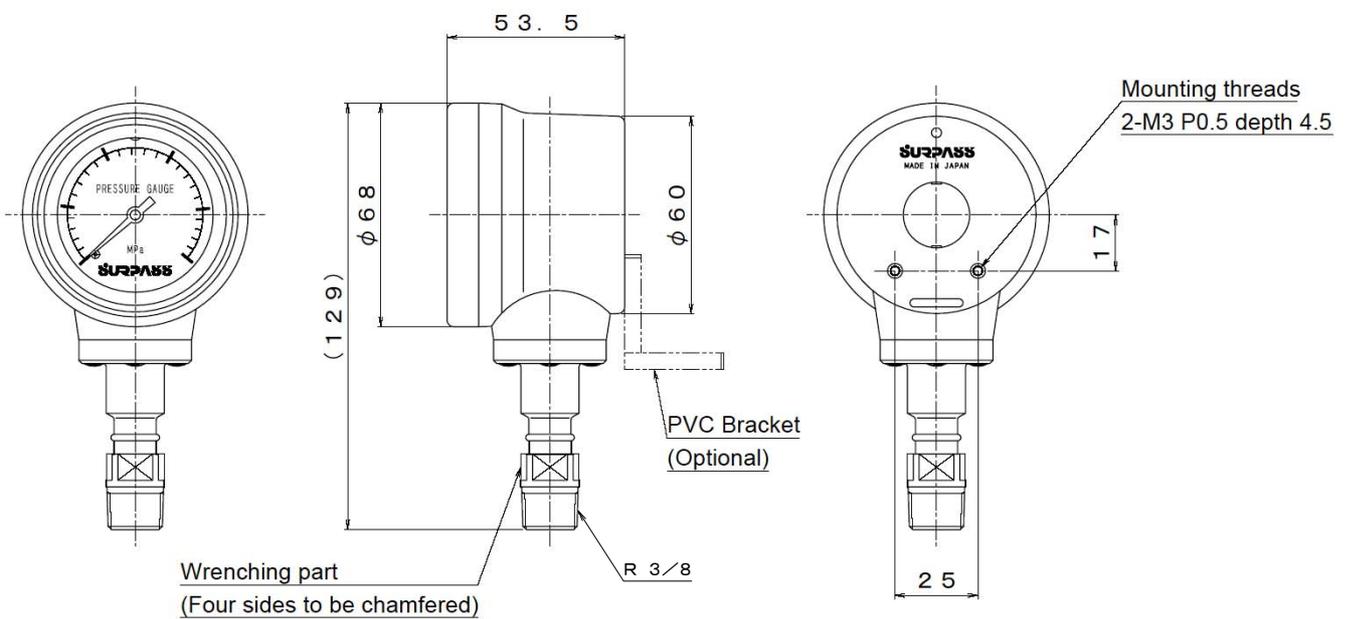
Kalrez® is registered trademarks of DuPont Performance Elastmers.

Outside Dimensions and Part Designations

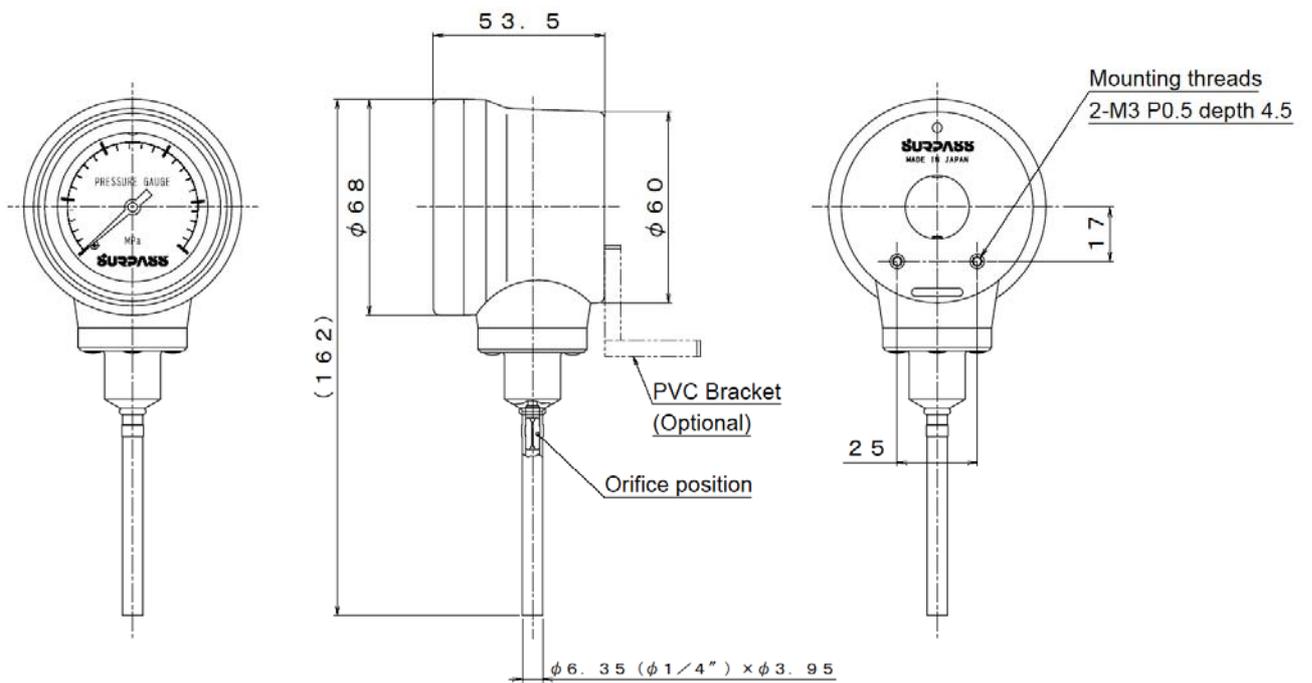
• FB-□-1/4, FB-□-1/2 [Unit : mm]



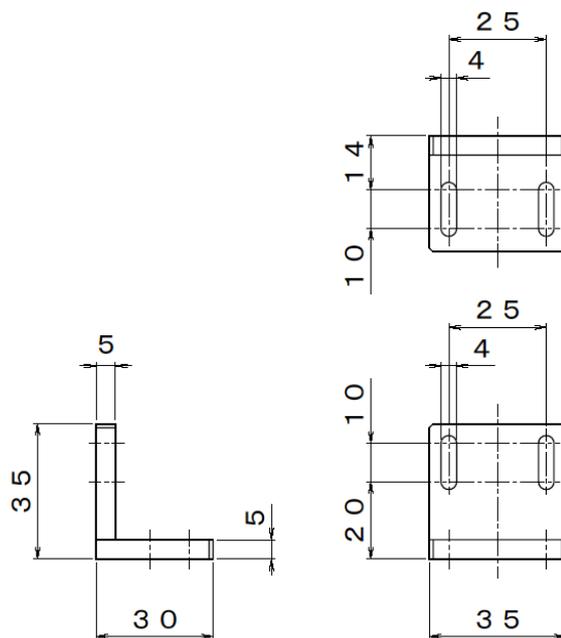
• FB-□-R3



• FB-□-1/4-IOF4



• PVC Bracket (Optional / Model : FB-B)



Tubing

When the connecting part of this product uses R3/8 male threads, connect the tube with a connector that uses Rc3/8 female threads. Before tightening the R male thread, wind the PTFE seal-tape around it four or five times. To prevent the connecting part from overpressure, tighten the threads by wrenching the wrenching part above the R thread positions.

When the connecting part is used for tubing, refer to a brochure or an instruction manual attached your connector. Also, when tightening the connector, wrench the connector wrenching part not to overpressure the connecting part.

If a connecting part of the main unit already has coupling formation, attach a coupling to the connecting part. For the attaching procedure, refer to the appropriate brochure or instruction manual provided by the manufacturer of your coupling.

If the main unit has the connecting part designed for a coupling, refer to a brochure or an instruction manual attached your connector. Also, when tightening the connector, wrench the connector wrenching part not to overpressure the connecting part.

WARNING

- For a pairing Rc female thread, use one that is made of the resin materials but the rigid materials such as metallic. Also, connect the tube without any moment to bend the joint portion.
- Follow the instructions provided by the manufacturer of your coupling to tighten a nut securely.
- Connect a coupling of the correct size according to the specifications of this product. Connecting a coupling of a wrong size may result in leakage.
- To prevent leakage from the connecting part, inspect it periodically. If any leakage detected, tighten the threads more firmly.
- This product is a precision machining device. Never decompose or alter it. Also, an impact from dropping may result in abnormal operation.
- This product is a precision machining device. Do not use this product in a place that could have vibration. Doing so may result in abnormal operation.
- Never tighten the connector by holding the instrument main body, which may cause to damage to instruments.
- This product is not waterproof.
- To use the product at high temperature, decrease the fluid temperature after (or along with) releasing the pressure from the pipe. Do not decrease the fluid temperature when the pipe is pressurized. Doing so may affect the performance of this product.
- This product is a precision machining device. Do not give any water hammer to this product. Doing so may result in abnormal operation.
- Do not use the product in a location where the specifications are not satisfied. Otherwise, the body or fittings damaged and the liquid leaks. It may cause injury.

CAUTION

- Whenever inspecting the pressure gauge, place it in an erecting state (perpendicular to the meter) that provides the normal setting condition.
- Whenever maintaining or replacing this product, set the pressure inside tubes to the atmospheric pressure before starting works.
- Be careful not to give any external impact on the pressure gauge.
- If a sudden pressure fluctuation such as water hammer occurs during fluids measurement, put in a damper (or that sort of things) between pressure gauge and the tubing.
- Do not measure fluids containing foreign substances that cause a failure of operation.

Cautions on Handling

1. Do not use the product for slurry liquids containing abrasive soap.
2. When pressurizing the pressure gauge, apply the pressure stepwise by opening the gauge cock slowly. Especially when pressurizing it for the first time, apply the pressure stepwise while confirming safe conditions.
3. Perform the periodic inspection one or more times every year.

※We provide the optional PVC Bracket. (Model : FB-B)

If you need it, please call us. (You can purchase this set additionally.)

Notes on Warranty

The warranty runs for one year after the day when Surpass Industry products are delivered from Surpass factory in Japan. In case Surpass Industry should agree in writing that the defects in performance or material were caused by faulty design or workmanship of Surpass Industry, replacement products will be supplied free of charge. This warranty shall not be applied to any defects caused by misuse, alteration, neglectful treatment, and neglect of our recommendations or instructions.

In addition, we are not be liable to any direct or consequential loss, damage, and personal injury due to an unauthorized usage in combination with other products and an improper usage outside of the specifications. Our product warranty shall be limited to replacement of product.

Replacement with expense to the purchaser shall be applied to the followings:

- Any defective products caused by usage that is not described in the Instruction Manual.
- Any defective products caused by neglectful treatment.
- Any defective products caused by decomposition, alteration, and improper adjustment or repair.
- Any defects of products caused by acts of God including natural disaster or fires.
- Consumables and accessories.

The logo for Surpass Industry Co., Ltd. features the word "SURPASS" in a bold, blue, sans-serif font. A small red dot is positioned above the letter "P".

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