

Micro Differential Pressure Gage

NEW

Manostar Gage FR51A Panel installation compact type Micro Differential Pressure Gage

Utility model registration
No.2027772

RoHS compliant

- Compact and lightweight type
- Even when the pressure becomes excessive, the original mechanism avoid damage to moving parts.
- Small hysteresis is realized by the silicone rubber diaphragm
- The pointer is not fluctated by the original band-linked mechanism



FR51AHV
(horizontal scale type)



FR51AVV
(vertical scale type)



FR51ACV
(colored horizontal scale type)

<Example of main use field>

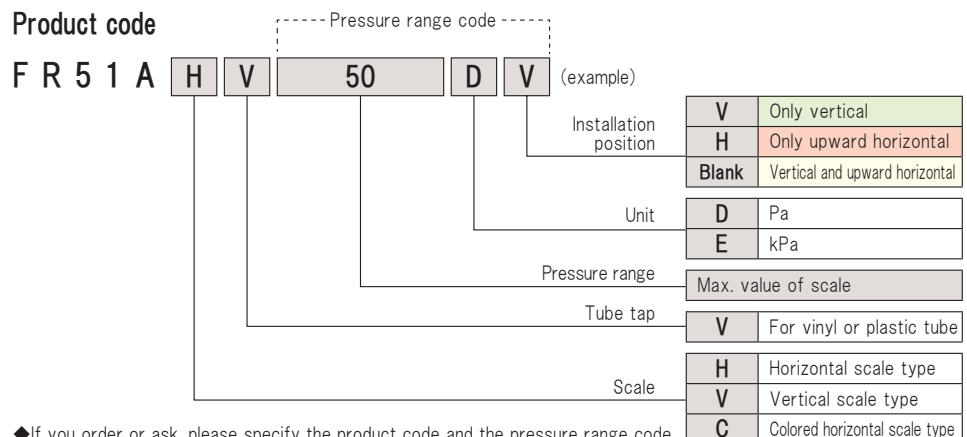
Manufacturing machine parts of semi-conductors
Measuring negative pressure in bag filter and differential pressure in air conditioners
Monitoring of pressure loss in filters
Production lines of precision machine
Air conditioning control system of factory

<Example of use>

Measuring inner pressure of indoor equipments
Detector of a pressure loss in an air filter
Detector of a pressure loss in a bag filter
Measuring of dynamic pressure in a ventilator and an exhauster
Measuring the inside pressure of clean rooms

* (refer to p.93)

Product code



◆ If you order or ask, please specify the product code and the pressure range code.

WO81

WO70

FR51A

MS30

MS61A

MS65

EB3C

EMD8

EMD7

EMT6

EMT1

EMTGPI

EMT1H

EMP5

EMA3

EMRT1

HWS15

Combination of Manosys

Accessories

Application

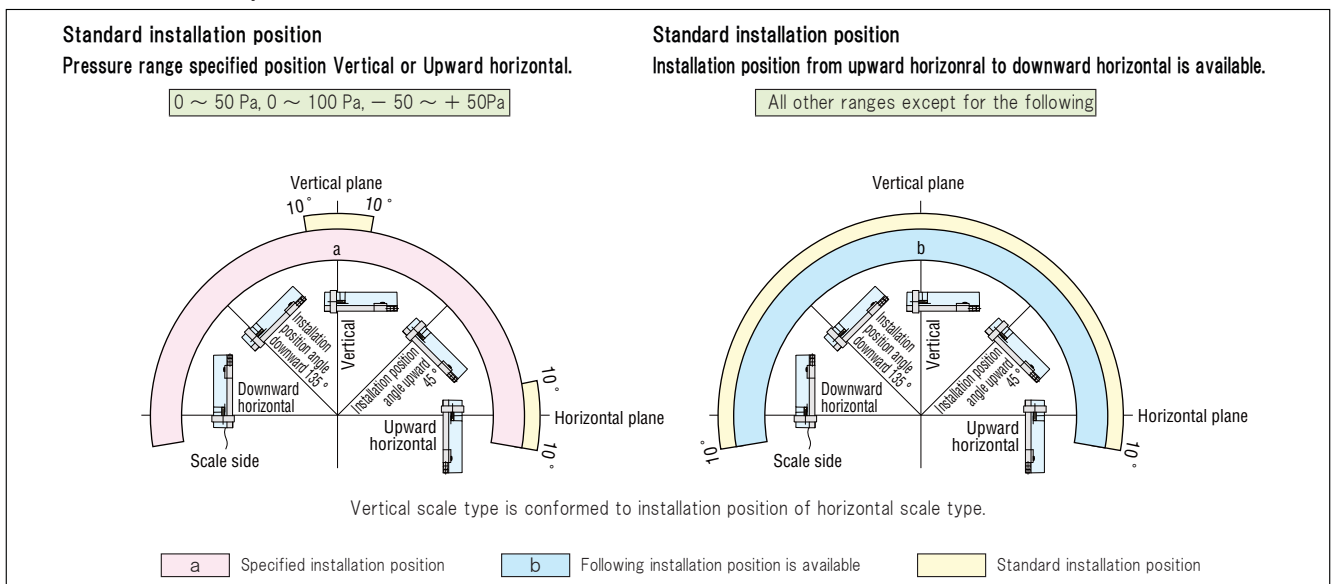
Cautions for use

Maintenance

Specification

| Types | Horizontal scale type | | Vertical scale type | | Colored horizontal scale type | |
|---|--|---|-----------------------------------|--|---|--|
| | FR51A H V | | FR51A V V | | FR51A C V | |
| Pressure units | Pa, kPa | | Material of the outer case | Acrylic resin and polycarbonate | | |
| Pressure measuring method | Measuring differential pressure | | Withstanding vibration | 5 to 10 Hz Amplitude : 10 mm, 10 to 50 Hz Acceleration : 39 m/s ² (each two hours on triaxial directions) | | |
| Pressure receiving element | Diaphragm | | Withstanding impact | 100 m/s ² (each six times on triaxial directions) | | |
| Gas to be measured | Air or non-corrosive gas (not liquid) | | Applicable piping | Vinyl, plastic tube or rubber tube (I.D. 4) | | |
| Shape of scale | Edgewise type (scale length : approximately 45 mm) | | The part of connector | Integrated formation (tube tap) | | |
| Medium and ambient temperature | - 10 to + 50 °C (no freezing) | | Tube tap polarity | The part of tube tap is marking "H" on high pressure side and "L" on low pressure side. | | |
| Ambient humidity | 90 % RH or less (no dewing) | | Mass | Approximately 90 g | | |
| Withstanding pressure of instrument body | 50 kPa (refer to p.104) | | | | | |
| Accessory | One set of installation nuts | | | | | |
| Pressure range codes | Pressure ranges | Standard installation positions (refer to following) | Accuracy (at 23 °C) | Material of pressure receiving element | Withstanding pressure of receiving element (refer to p.104) | |
| 50 DH | 0 ~ 50 Pa | Upward horizontal (fixed) | ± 2.5 % FS | Silicone rubber | 20 kPa | |
| 50 DV | | Vertical (fixed) | | | | |
| 100 DH | 0 ~ 100 Pa | Upward horizontal (fixed) | | | | |
| 100 DV | | Vertical (fixed) | | | | |
| 200 D | 0 ~ 200 Pa | Installation position from upward horizontal to downward horizontal is available. | | | | |
| 300 D | | | | | | |
| 500 D | | | | | | |
| 1000 D | | | | | | |
| 2 E | | | | | | |
| 3 E | 0 ~ 3 kPa | | | | | |
| 5 E | 0 ~ 5 kPa | | | | | |
| + - 50 DH | - 50 ~ + 50 Pa | Upward horizontal (fixed) | | | | |
| + - 50 DV | | Vertical (fixed) | | | | |
| + - 100 D | - 100 ~ + 100 Pa | Installation position from upward horizontal to downward horizontal is available. | | | | |

FR51A Installation position



- ◆ In ordering out of above mentioned installation position, please order us or our agency beforehand. It must be adjusted before the factory shipment.
- ◆ In case of ordering standard installation position, you do not specify installation position. Please specify pressure range code in the specification table.

- WO81
- WO70
- FR51A
- MS30
- MS61A
- MS65
- EB3C
- EMD8
- EMD7
- EMT6
- EMT1
- EMTGP1
- EMT1H
- EMP5
- EMA3
- EMRT1
- HWS15
- Combination of Manosys
- Accessories
- Application Cautions for use Maintenance

Micro Differential Pressure Gage

WO81

WO70

FR51A

MS30

MS61A

MS65

EB3C

EMD8

EMD7

EMT6

EMT1

EMTGPI

EMT1H

EMP5

EMA3

EMRT1

HWS15

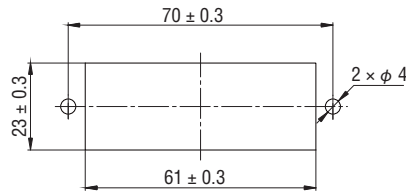
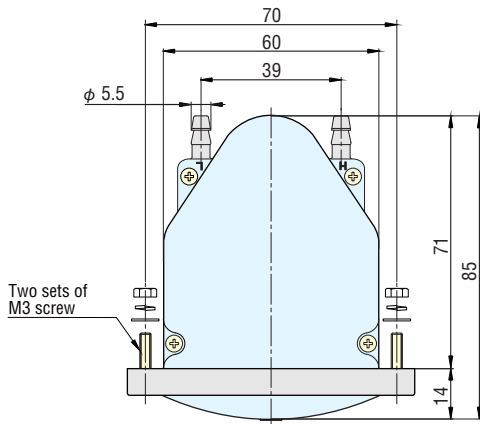
Combination of Manosys

Accessories

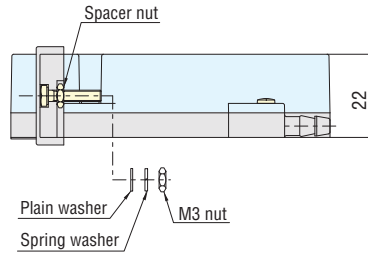
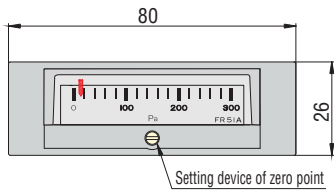
Application Cautions for use Maintenance

Outline drawing

FR51AHV(horizontal scale type)

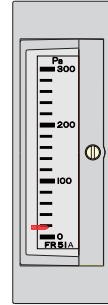


Max. thickness installed panel 4 mm
Panel cut size

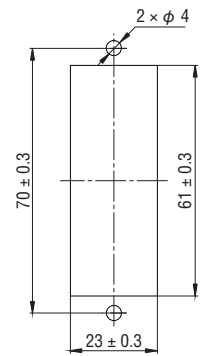


Caution If you install the instrument on the panel without spacer nut, the instrument body will be broken.

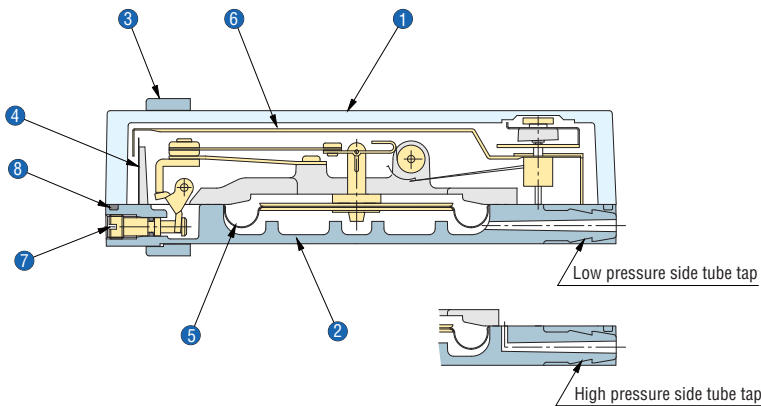
FR51AVV (vertical scale)



FR51AVV type outline size is same with FR51AHV type.



Main structure

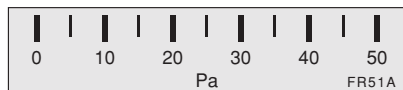


| No. | Name |
|-----|------------------------------|
| 1 | Clear cover |
| 2 | Base |
| 3 | Grille |
| 4 | Scale plate |
| 5 | Diaphragm |
| 6 | Pointer |
| 7 | Setting device of zero point |
| 8 | Cover packing |

Scale table of Manostar Gage FR51A model

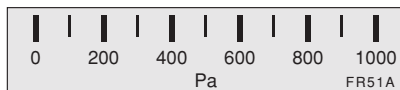
FR51AHV, CV(horizontal scale type)

Single pressure range

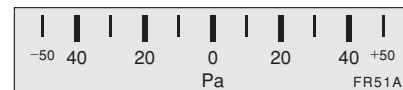


| Pressure range | Min. scale |
|----------------|------------|
| 0 ~ 50 Pa | 5 Pa |

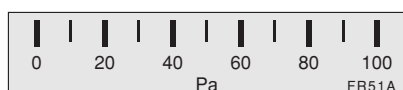
(actual size)



| Pressure range | Min. scale |
|----------------|------------|
| 0 ~ 1000 Pa | 100 Pa |



| Pressure range | Min. scale |
|----------------|------------|
| -50 ~ +50 Pa | 10 Pa |



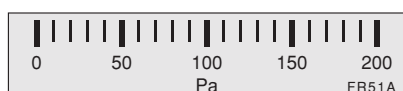
| Pressure range | Min. scale |
|----------------|------------|
| 0 ~ 100 Pa | 10 Pa |



| Pressure range | Min. scale |
|----------------|------------|
| 0 ~ 2 kPa | 0.1 kPa |



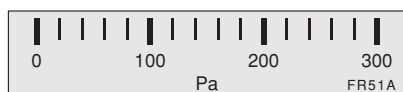
| Pressure range | Min. scale |
|----------------|------------|
| -100 ~ +100 Pa | 10 Pa |



| Pressure range | Min. scale |
|----------------|------------|
| 0 ~ 200 Pa | 10 Pa |



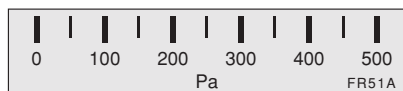
| Pressure range | Min. scale |
|----------------|------------|
| 0 ~ 3 kPa | 0.2 kPa |



| Pressure range | Min. scale |
|----------------|------------|
| 0 ~ 300 Pa | 20 Pa |

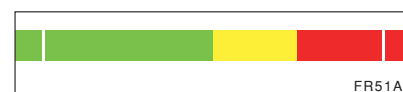


| Pressure range | Min. scale |
|----------------|------------|
| 0 ~ 5 kPa | 0.5 kPa |



| Pressure range | Min. scale |
|----------------|------------|
| 0 ~ 500 Pa | 50 Pa |

Colored horizontal scale

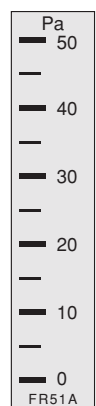


| Pressure range | Color |
|--------------------|---------------|
| All pressure range | Green |
| | Yellow |
| | Red |
| | 0 50%FS 75%FS |

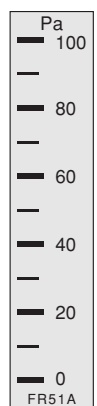
FR51AVV(vertical scale type)

Single pressure range

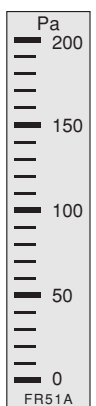
Zero point center range



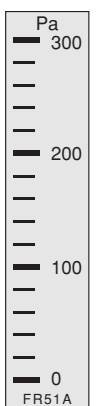
| Pressure range |
|----------------|
| 0 ~ 50 Pa |



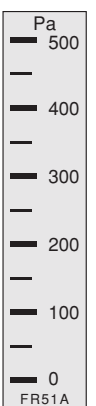
| Pressure range |
|----------------|
| 0 ~ 100 Pa |



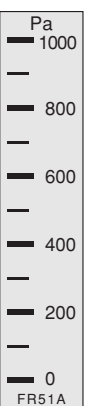
| Pressure range |
|----------------|
| 0 ~ 200 Pa |



| Pressure range |
|----------------|
| 0 ~ 300 Pa |



| Pressure range |
|----------------|
| 0 ~ 500 Pa |



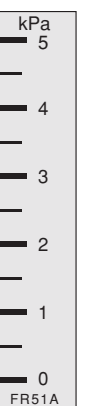
| Pressure range |
|----------------|
| 0 ~ 1000 Pa |



| Pressure range |
|----------------|
| 0 ~ 2 kPa |



| Pressure range |
|----------------|
| 0 ~ 3 kPa |



| Pressure range |
|----------------|
| 0 ~ 5 kPa |



| Pressure range |
|----------------|
| -50 ~ +50 Pa |



| Pressure range |
|----------------|
| -100 ~ +100 Pa |

WO81

WO70

FR51A

MS30

MS61A

MS65

EB3C

EMD8

EMD7

EMT6

EMT1

EMTGP1

EMT1H

EMP5

EMA3

EMRT1

HWS15

Combination of Manosys

Accessories

Application Cautions for use Maintenance

Product Warranty

Warranty Period

This product warranty is valid for one year from the date of delivery to a place specified by an ordering party who has transacted directly with Yamamoto Electric Works Co., Ltd.

Coverage

If a product breaks down due to a reason for which we are responsible during the warranty period and you return the product to us, we will either repair or replace the product free of charge.

This warranty does not cover:

- (1) Usage of the product under any inappropriate conditions or environment contrary to what is described in our product catalog, specifications or manual.
Handling or usage of the product other than as described in our product catalog, specifications or manual.
- (2) Breakdown due to a reason other than a fault within our product.
- (3) Any product that has been modified or repaired by a party other than us.
- (4) Any breakdown due to a reason that was not foreseeable based on scientific and technical standards applied at the time of shipment.
- (5) Any breakdown due to a reason not attributable to us such as a natural calamity or other disaster.

These terms of warranty represent our entire liability with respect to the product, and we shall have no liability for any other loss arising in connection with a breakdown of the product.

*This product warranty is only valid within Japan.

This document is a translation from the original Japanese version, and the original Japanese version has priority over this translation.

Be sure to refer to the original Japanese for the details of this warranty.



Caution

The Japanese original document shall always take precedence over the translated versions.

You should be sure to refer to the Japanese original document.

Sole Agent  **Manostar CO.,LTD.**

1-2-3, Nishishiriike-cho, Nagata-ku, Kobe,
Hyogo 653-0031 JAPAN
TEL. +81 (78) 621-7000 FAX. +81 (78) 621-7788

Manufacturer

 **Yamamoto Electric Works Co., Ltd.**

1-2-3, Nishishiriike-cho, Nagata-ku, Kobe,
Hyogo 653-0031 JAPAN
TEL. +81 (78) 631-6000 FAX. +81 (78) 631-6020