

Micro Differential Pressure Gage

Utility model registration
No.823971

Manostar Gage W081 General purpose type Micro Differential Pressure Gage

RoHS compliant

- Broad line-up of product
- Supporting the air volume scale and the air velocity scale (refer to p.7)
- Readable wide-angle scale (Angle of the pointer-rotation is 270°)
- It is easy to convert polarity enable by piping connector
- 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 fluctuated by the original band-linked mechanism.



W081FT

(surface installation type with two flag pointers)



W081FN

(surface installation type with non flag pointer)



W081PRS

(panel installation square type with one flag pointer)



W081PCT

(panel installation round type with two flag pointers)

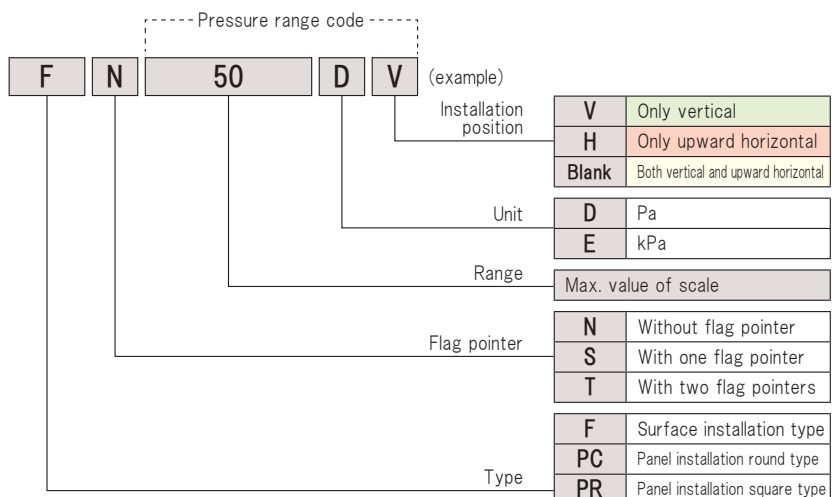
<Example of main use field>
 Nuclear facilities
 Air conditioning control system of the food factories
 Air conditioning control system of the high-rise buildings
 Hospital and medical facilities
 Production lines of the car and the semi-conductor
 Exhaust gas pressure control of coffee-roaster machines

<Example of use>
 Measuring the inside pressure of clean rooms
 Detection of the pressure loss of an air filter
 Measuring air volume and velocity in a ventilator and an exhauster.

*(refer to p.93)

Product code

W 0 8 1



- ◆If you order or ask, please specify the product code and the pressure range code.
- ◆Refer to p.7 for the instrument displayed the air volume and velocity scale.

- W081
- W070
- FR51A
- MS30
- MS61A
- MS65
- EB3C
- EMD8
- EMD7
- EMT6
- EMT1
- EMTGP1
- EMT1H
- EMP5
- EMA3
- EMRT1
- HWS15
- Combination of Manosys
- Accessories
- Application Cautions for use Maintenance

Specification

Types	Bodies		Surface installation type	Panel installation round type	Panel installation square type
	Flag pointers		F	PC	PR
	Non flag pointer	N	W081 F N	W081 PC N	W081 PR N
	One flag pointer (red)	S	W081 F S	W081 PC S	W081 PR S
	Two flag pointers (red and green)	T	W081 F T	W081 PC T	W081 PR T
Pressure units	Pa, kPa		Applicable piping Piping connector polarity Mass	<ul style="list-style-type: none"> · Vinyl, plastic or rubber tube (I.D. 6) ...The resinous piping connectors (installed) for vinyl or plastic tube. · Metal tube (O.D. 6 ± 0.1) ...Metal type piping connector (option) is needed. · Hard plastic tube (O.D. 6 × I.D. 4) ...Metal type piping connector (option) and inner sleeve set (XIN6 × 4) are needed.(refer to p.92) · The piping connector indicated red color is high pressure side and blue color is low pressure side. · Enabling to convert the polarity by changing piping connectors of high pressure side for low pressure side. Approximately 270 g	
Pressure measuring method	Measuring differential pressure				
Pressure receiving element	Diaphragm				
Gas to be measured	Air or non-corrosive gas (not liquid)				
Scale indicating angle	Approximately 270 ° Wide-angle indication				
Medium and ambient temperature	- 10 to + 50 °C (no freezing)				
Ambient humidity	90 % RH or less (no dewing)				
Withstanding pressure of instrument body	200 kPa (refer to p.104)				
Material of outer case	Polycarbonate and polyamide				
Withstanding impact	100 m/s ² (each 6 times on triaxial directions)				
Withstanding vibration	5 to 10 Hz Amplitude : 10 mm 10 to 50 Hz Acceleration : 39 m/s ² (each two hours on triaxial directions)				
Accessories	One set of screws for installation		Two sets of adaptors for installation (with main body)		One set of nuts for installation (with main body)
	W081F		W081PC		W081PR
Pressure range codes	Pressure ranges	Standard installation positions (refer to p.10)	Accuracies (at 20 °C)	Material of pressure receiving element	Withstanding pressures of receiving element (refer to p.104)
50 DH	0 ~ 50 Pa	Upward horizontal (fixed)	± 5 % FS	Silicone rubber	10 kPa
50 DV		Vertical (fixed)			
100 DH	0 ~ 100 Pa	Upward horizontal (fixed)	± 2.5 % FS		
100 DV		Vertical (fixed)			
200 D	0 ~ 200 Pa	Installation position from upward horizontal to vertical is available.	± 1.5 % FS		
300 D	0 ~ 300 Pa				
500 D	0 ~ 500 Pa				
1000 D	0 ~ 1000 Pa				
2 E	0 ~ 2 kPa				
3 E	0 ~ 3 kPa				
5 E	0 ~ 5 kPa				
10 E	0 ~ 10 kPa				
20 E	0 ~ 20 kPa				
30 E	0 ~ 30 kPa				
50 E	0 ~ 50 kPa				
100 E	0 ~ 100 kPa				
+ - 50 DH	- 50 ~ + 50 Pa	Upward horizontal (fixed)	± 2.5 % FS	150 kPa	
+ - 50 DV		Vertical (fixed)			
+ - 100 D	- 100 ~ + 100 Pa	Installation position from upward horizontal to vertical is available.	± 1.5 % FS		
+ - 200 D	- 200 ~ + 200 Pa				
+ - 300 D	- 300 ~ + 300 Pa				
+ - 500 D	- 500 ~ + 500 Pa				
+ - 1000 D	-1000 ~ +1000 Pa				
+ - 2 E	- 2 ~ + 2 kPa				
+ - 3 E	- 3 ~ + 3 kPa				

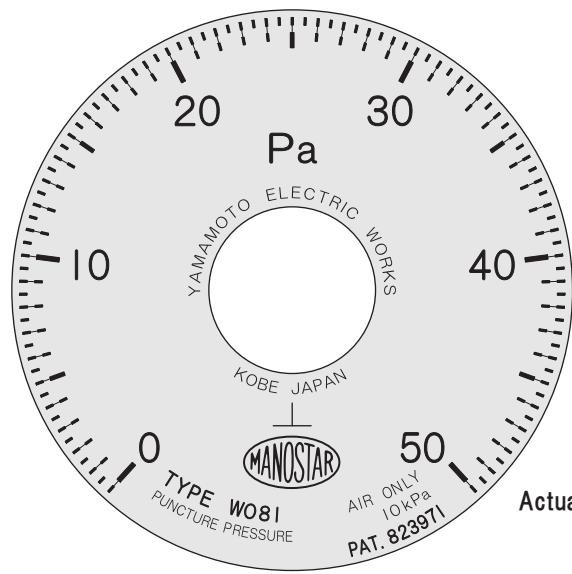
Micro Differential Pressure Gage

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Scale table of Manostar Gage W081 model

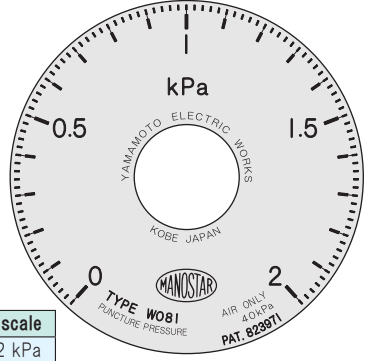
Single pressure range

◆ It is charged to print + or - sign on scale plate.

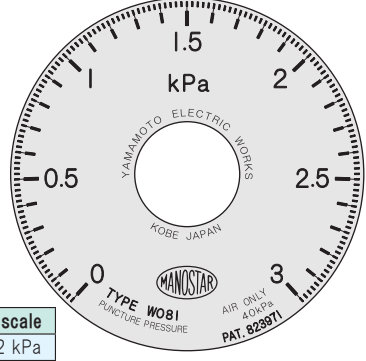


Actual size

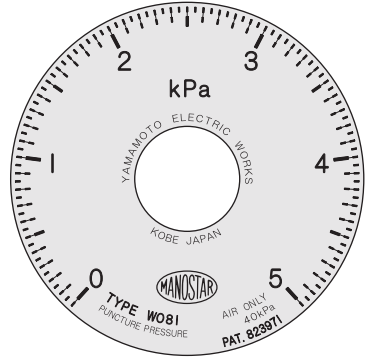
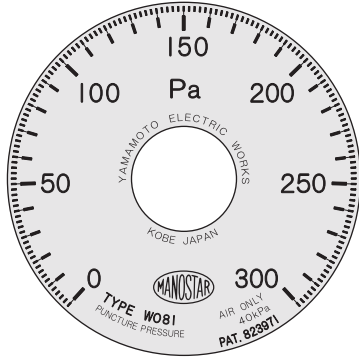
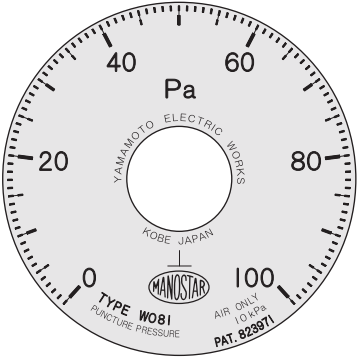
Installation position	Pressure range	Min. scale
Horizontal \square	0 ~ 50 Pa	0.5 Pa
Vertical \perp	0 ~ 50 Pa	0.5 Pa



Pressure range	Min. scale
0 ~ 2 kPa	0.02 kPa
0 ~ 20 kPa	0.2 kPa



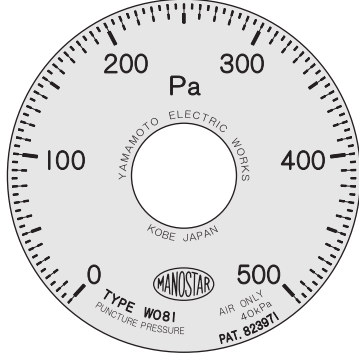
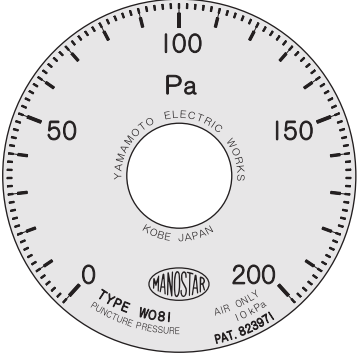
Pressure range	Min. scale
0 ~ 3 kPa	0.02 kPa
0 ~ 30 kPa	0.2 kPa



Installation position	Pressure range	Min. scale
Horizontal \square	0 ~ 100 Pa	1 Pa
Vertical \perp	0 ~ 100 Pa	1 Pa
	0 ~ 1000 Pa	10 Pa

Pressure range	Min. scale
0 ~ 300 Pa	2 Pa

Pressure range	Min. scale
0 ~ 5 kPa	0.05 kPa
0 ~ 50 kPa	0.5 kPa

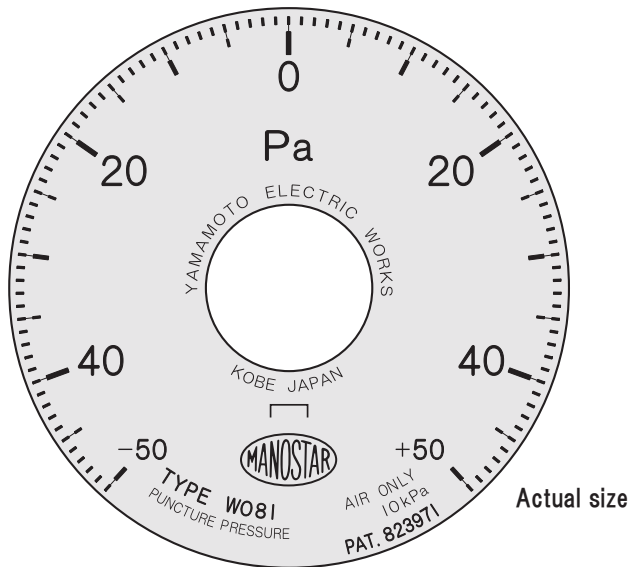


Pressure range	Min. scale
0 ~ 200 Pa	2 Pa

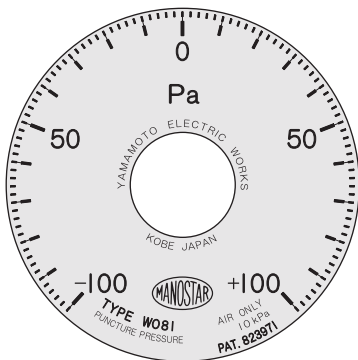
Pressure range	Min. scale
0 ~ 500 Pa	5 Pa

Pressure range	Min. scale
0 ~ 10 kPa	0.1 kPa
0 ~ 100 kPa	1 kPa

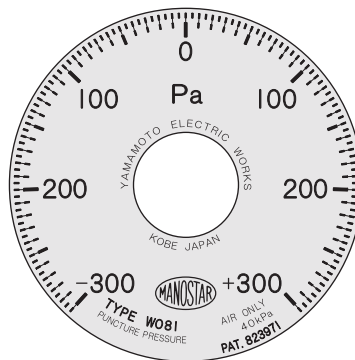
Zero point center range



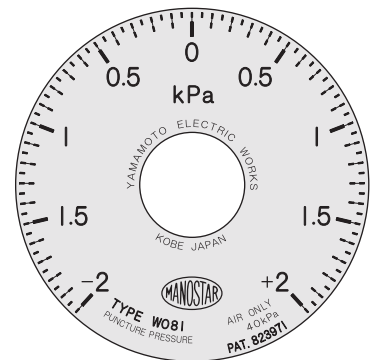
Installation position	Pressure range	Min. scale
Horizontal □	-50~+50 Pa	1 Pa
Vertical ⊥	-50~+50 Pa	1 Pa



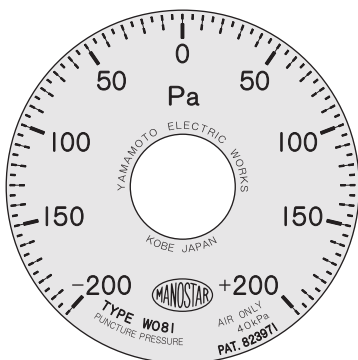
Pressure range	Min. scale
-100~+100 Pa	2 Pa
-1000~+1000 Pa	20 Pa



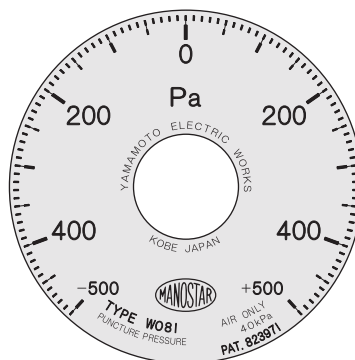
Pressure range	Min. scale
-300~+300 Pa	5 Pa



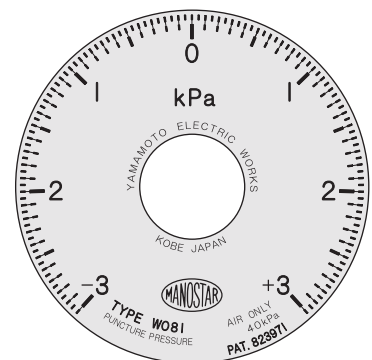
Pressure range	Min. scale
-2~+2 kPa	0.05 kPa



Pressure range	Min. scale
-200~+200 Pa	5 Pa



Pressure range	Min. scale
-500~+500 Pa	10 Pa



Pressure range	Min. scale
-3~+3 kPa	0.05 kPa

W081

W070

FR51A

MS30

MS61A

MS65

EB3C

EMD8

EMD7

EMT6

EMT1

EMTGPI

EMT1H

EMP5

EMA3

EMRT1

HWS15

Combination of Manosys

Accessories

Application Cautions for use Maintenance

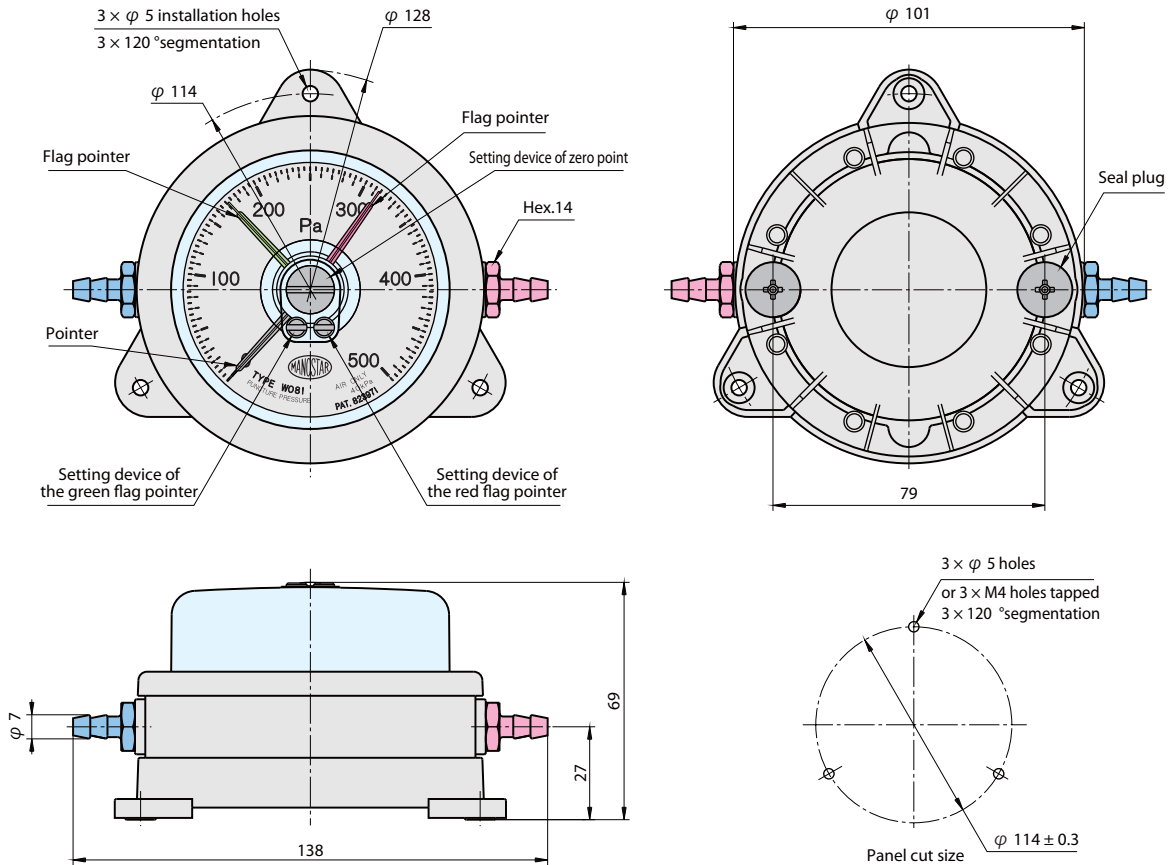
Micro Differential Pressure Gage

Manostar Gage W081F

Outline drawing

The piping connector installed on side view (in factory-setting)

VT connector for vinyl or plastic tube



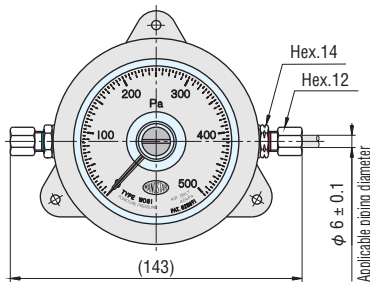
Caution

Tighten the piping connectors with the torque of 1 N · m.
 Tighten the seal plugs with the torque of 0.5 N · m.
 Do not apply excessive torque more than necessary, otherwise it will damage the instrument body.
 (Be sure to use a locking spanner at connectors to tighten the cap nut of metal tube. Be careful not to let the tightening torque directly load to the main body of the instrument.)

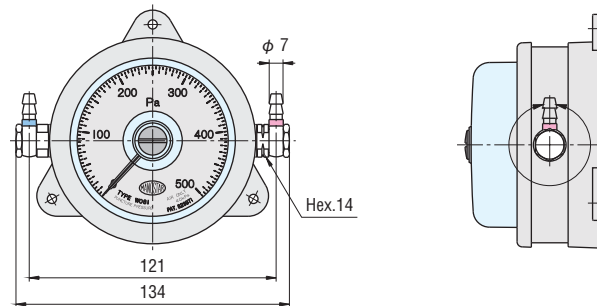
W081F Arrangement of the piping connectors

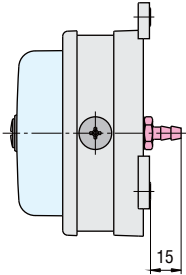
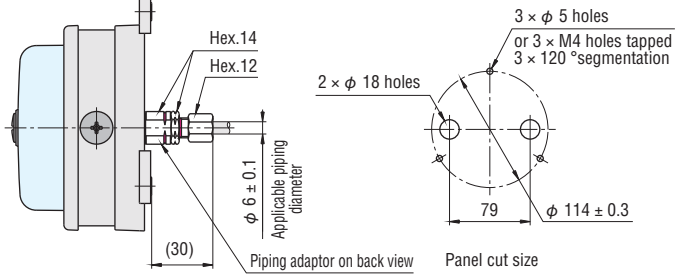
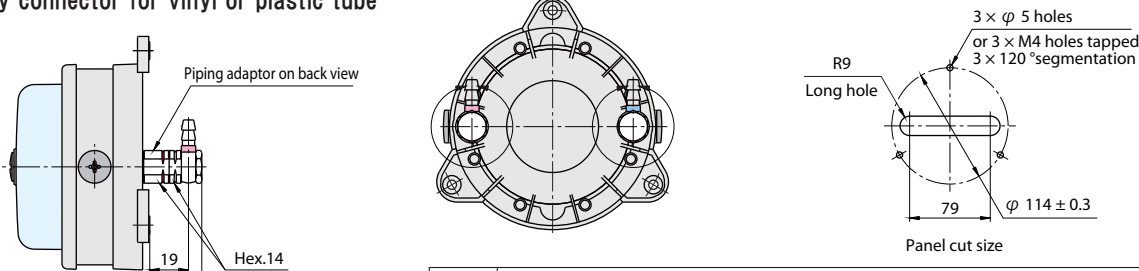

Side arrangement of piping connectors

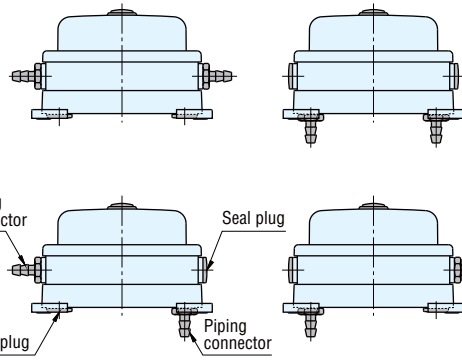
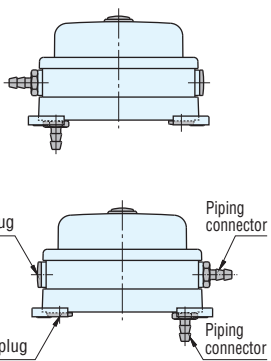

MT connector for metal tube



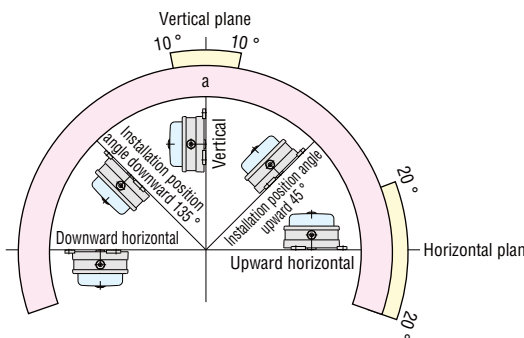
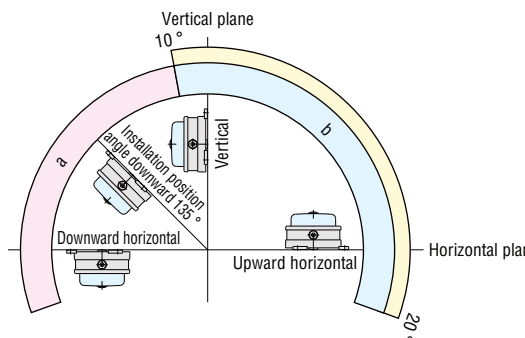
VR rotary connector for vinyl or plastic tube



Rear arrangement of the piping connector	
<p>VT connector for vinyl or plastic tube</p> 	<p>MT connector for metal tube</p> 
<p>VR rotary connector for vinyl or plastic tube</p> 	
<div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 10px;">  Caution </div> <div> <p>Tighten the piping connectors with the torque of 1 N·m. Tighten the seal plugs with the torque of 0.5 N·m. Do not apply excessive torque more than necessary, otherwise it will damage the instrument body. Be sure to use a locking spanner at connectors to tighten the cap nut of metal tube. Be careful not to let the tightening torque directly load to the main body of the instrument.</p> </div> </div>	

To change arrangement of piping connectors of W081F	Possible arrangement of piping connectors	Impossible arrangement of piping connectors
<p>W081F have two piping connector ports on side and back view. It is possible to four kinds of arrangement by combination of piping.</p>		
<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  Caution </div> <div> <ol style="list-style-type: none"> 1. Use set of piping connectors, which is set of a red connector on high pressure side and a blue connector on low pressure side. 2. Be careful that there is impossible arrangement as shown on the right figure. 3. With seal plugs, be sure to close the two piping connector ports where connectors are not attached. </div> </div>		

W081 Installation position

<p>Pressure range specified vertical or upward horizontal that is standard installation position.</p> <div style="border: 1px solid black; padding: 2px; text-align: center; background-color: #d9ead3;"> <p>0 ~ 50 Pa, 0 ~ 100 Pa, - 50 ~ + 50 Pa</p> </div> <p>The gage that pressure range is from 0 ~ 50 Pa is impossible to install on downward horizontal.</p>	<p>Installation position from upward horizontal to vertical is available.</p> <div style="border: 1px solid black; padding: 2px; text-align: center; background-color: #d9ead3;"> <p>All other ranges except for the following</p> </div>
	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; background-color: #d9ead3; padding: 2px 5px;">a</div> <div style="border: 1px solid black; background-color: #d9ead3; padding: 2px 5px;">b</div> <div style="border: 1px solid black; background-color: #d9ead3; padding: 2px 5px;">c</div> </div> <p style="font-size: small;"> Specified installation position Following installation position is available Standard installation position </p>	

- ◆ 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.

- W081
- WO70
- FR51A
- MS30
- MS61A
- MS65
- EB3C
- EMD8
- EMD7
- EMT6
- EMT1
- EMTGP1
- EMT1H
- EMP5
- EMA3
- EMRT1
- HWS15
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Micro Differential Pressure Gage

WO81

WO70

FR51A

MS30

MS61A

MS65

EB3C

EMD8

EMD7

EMT6

EMT1

EMTGPI

EMT1H

EMP5

EMA3

EMRT1

HWS15

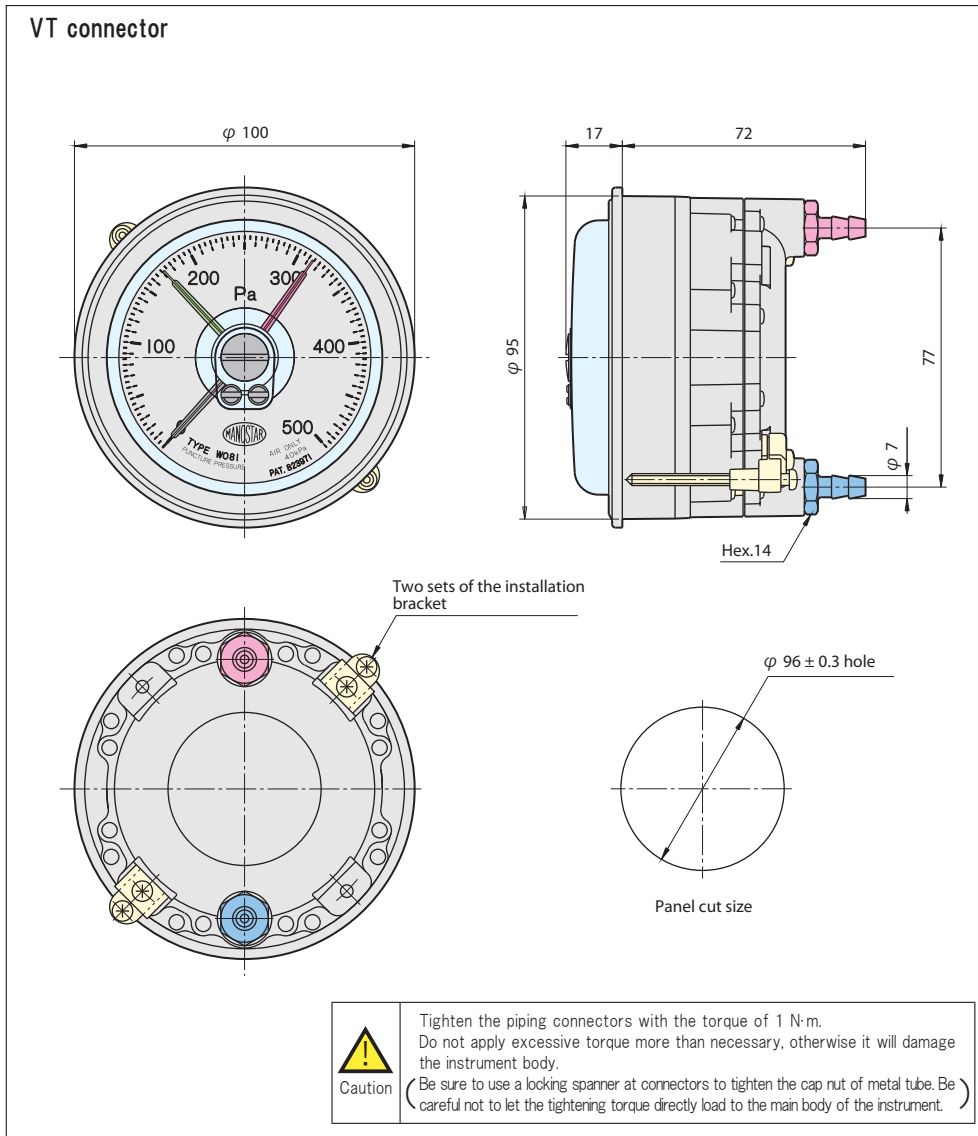
Combination of Manosys

Accessories

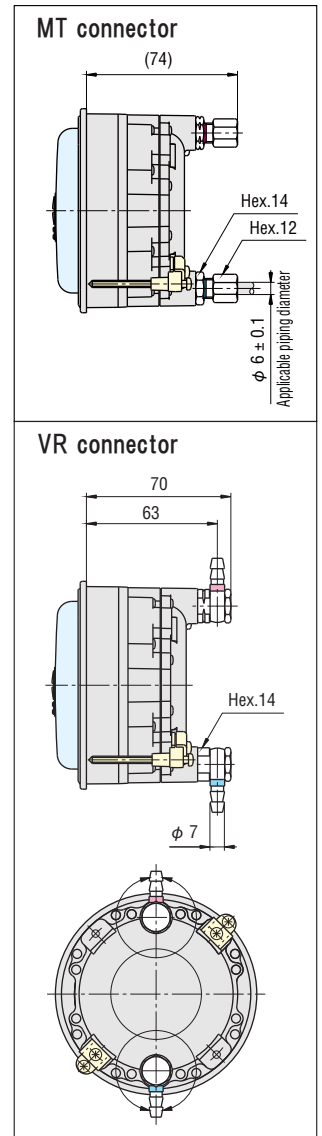
Application Cautions for use Maintenance

Manostar Gage WO81PC

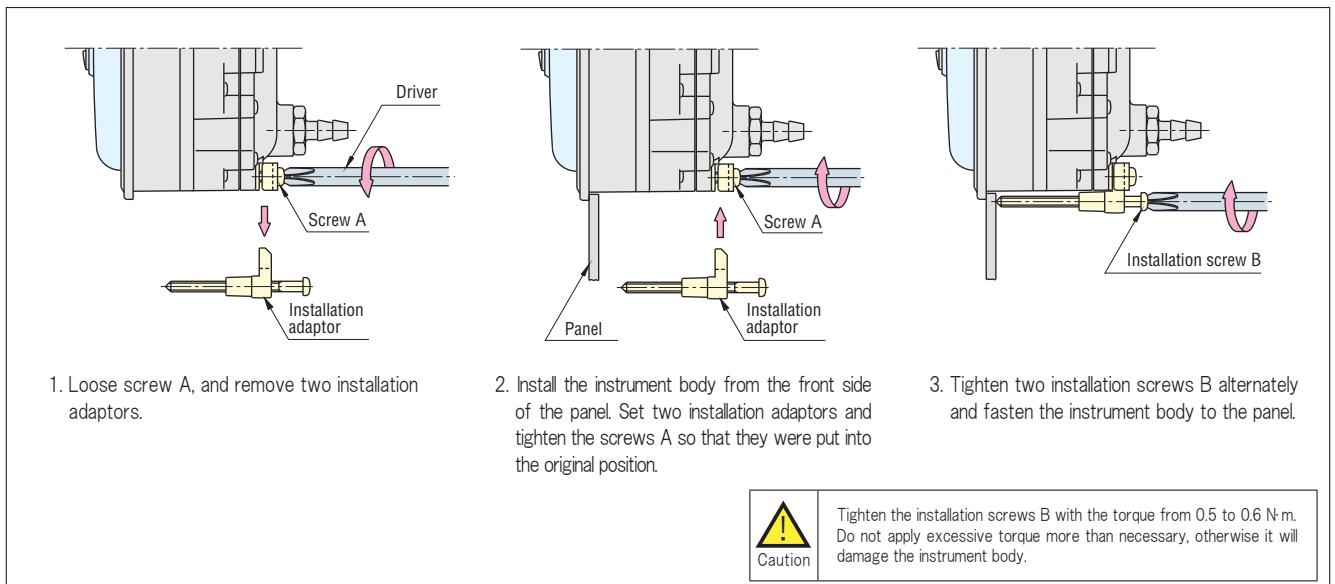
Outline drawing



Arrangement of piping connector (example)

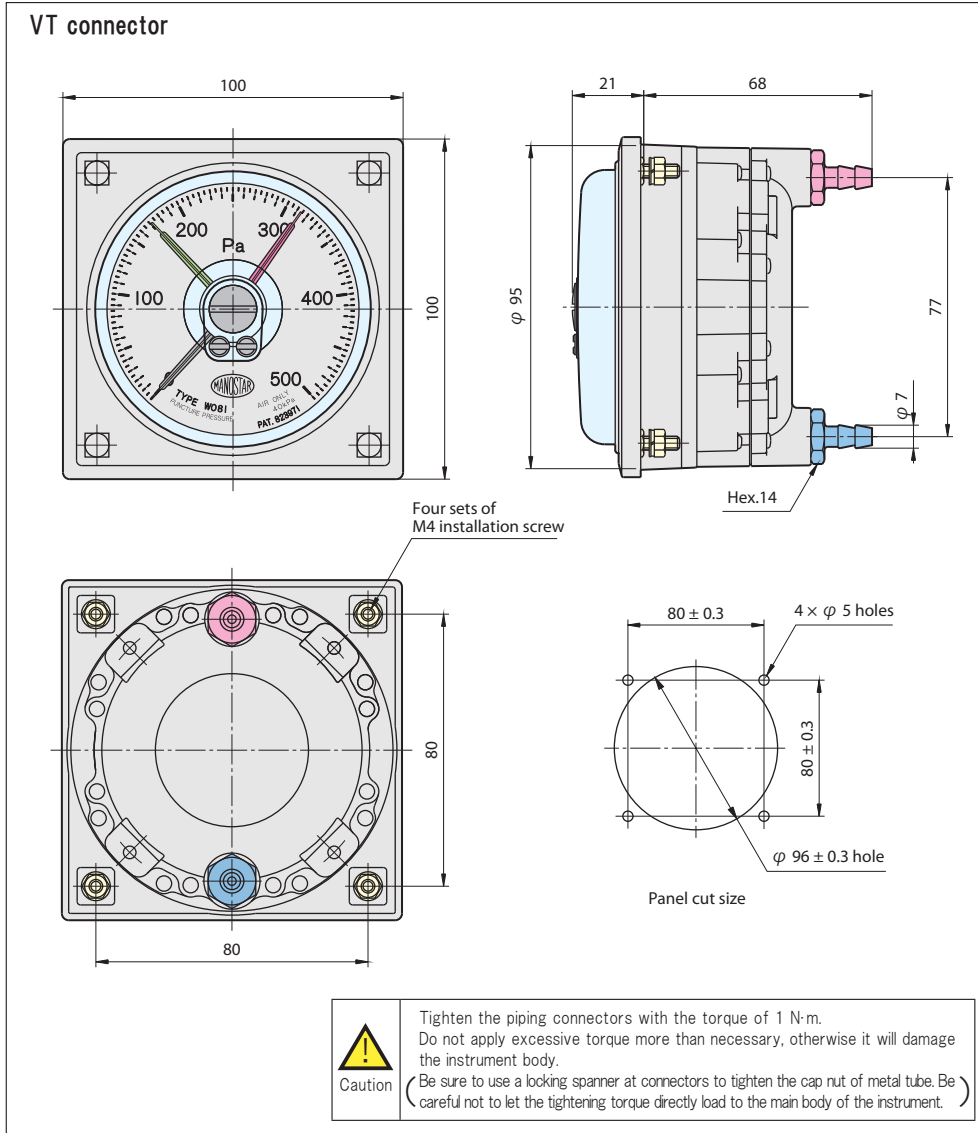


How to install WO81PC

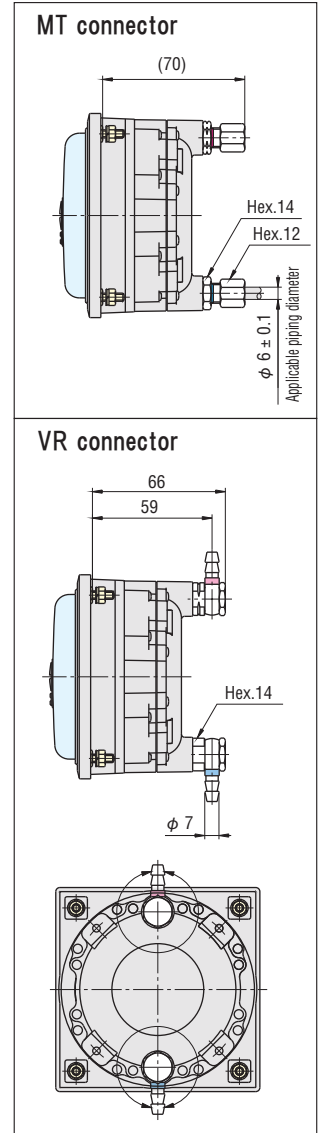


Manostar Gage W081PR

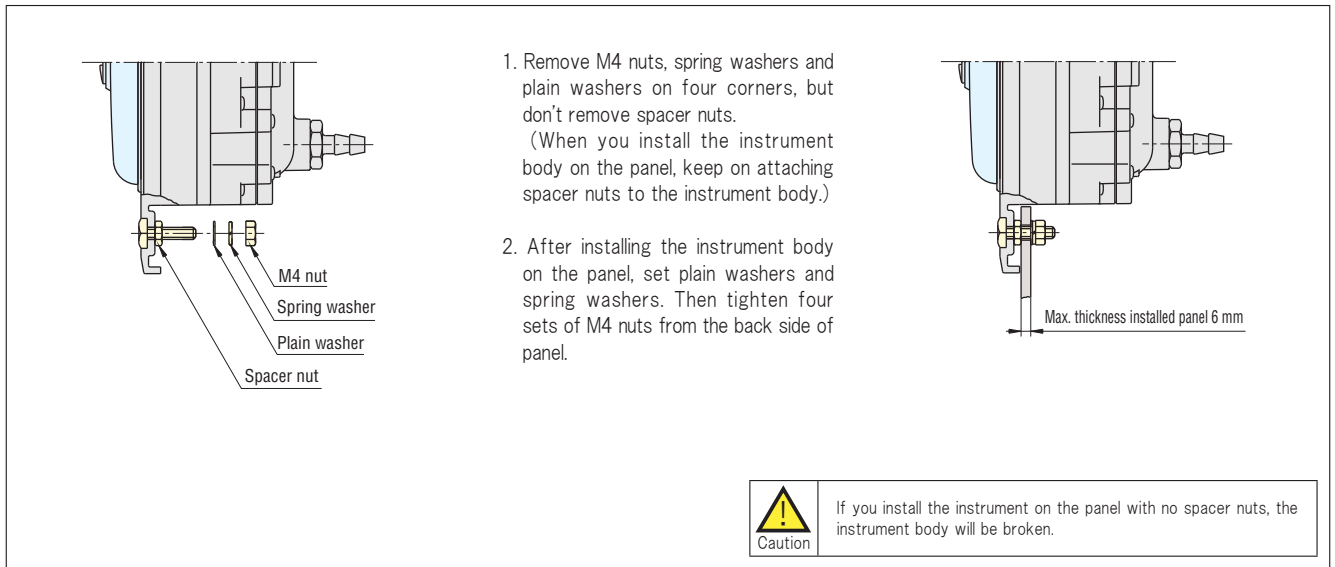
Outline drawing



Arrangement of piping connector (example)



How to install W081PR



W081

W070

FR51A

MS30

MS61A

MS65

EB3C

EMD8

EMD7

EMT6

EMT1

EMTGPI

EMT1H

EMP5

EMA3

EMRT1

HWS15

Combination of Manosys

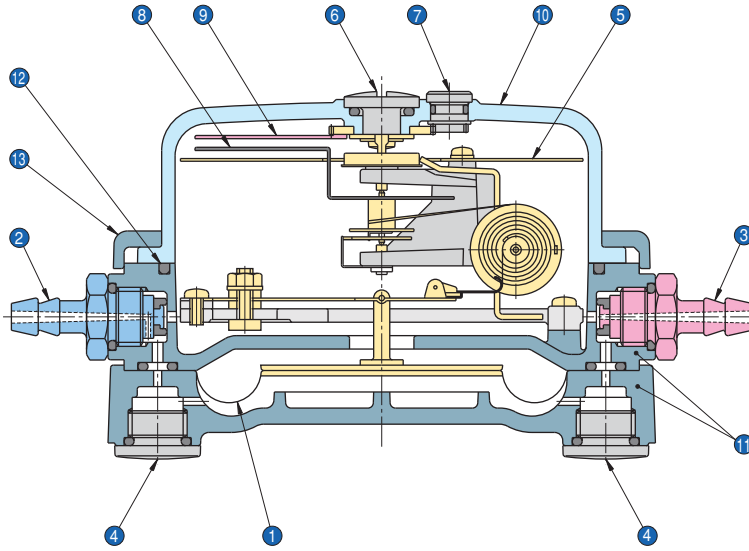
Accessories

Application Cautions for use Maintenance

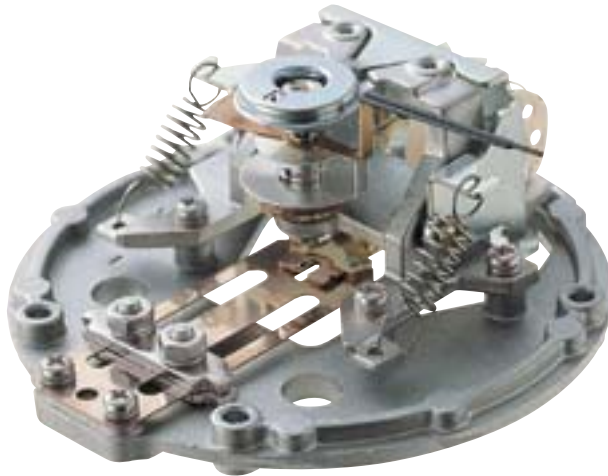
Micro Differential Pressure Gage

Manostar Gage W081

Main structure



No.	Name
1	Diaphragm
2	Low pressure side piping connector (blue)
3	High pressure side piping connector (red)
4	Seal plug
5	Scale plate
6	Setting device of zero point
7	Setting device of the flag pointer
8	Pointer
9	Flag pointer
10	Clear cover
11	Housing
12	Cover packing
13	Cover ring



Accessory for W081 RoHS compliant

Installation bracket to set for W081 PC type



The combination shown in the above photo is a set of the installation adaptor.
This set is intended for reserve. These two sets are attached to the body as standard accessory.

Product code TKA81PC

Portable box for W081 model



(The gage is not included.)

Product code PB-01

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



Accessory for W081 RoHS compliant



VT connector	
High pressure side 	Low pressure side 
Product code KGA81VT-H-P	Product code KGA81VT-L-P
<p>VT connector To attach vinyl, plastic or rubber tube to the instrument body (spare parts)</p>	



VR connector	
High pressure side 	Low pressure side 
Product code KGA81VR-H	Product code KGA81VR-L
<p>VR connector These connectors are rotary elbow type and can be connected to vinyl, plastic and rubber tube of I.D.6.</p>	



PT connector	
High pressure side 	Low pressure side 
Product code KGA81PT-H	Product code KGA81PT-L
<p>PT connector NEW The joint installed tube is push-in type. Use the optional tube (NT4-6, refer to p.88) or the applicable tube (JIS B8381-1).</p>	

PR connector	
High pressure side 	Low pressure side 
Product code KGA81PR-H	Product code KGA81PR-L
<p>PR connector NEW The joint installed tube is push-in and rotary elbow type.</p>	

MT connector	
High pressure side 	Low pressure side 
Product code KGA81MT-H	Product code KGA81MT-L
<p>MT connector (ring joint type) This connector can be connected to the metal tube made from copper, aluminum and so on (O.D. 6, the tolerance ± 0.1). In case of connecting with stainless tube, use MTW connector. When this connector is connected to hard plastic tube (O.D. 6, I.D. 4), remove the brass-made sleeve and use the resinous inner sleeve set (XIN6 $\times 4$, refer to p.88) that is the optional accessory.</p>	

MR connector	
High pressure side 	Low pressure side 
Product code KGA81MR-H	Product code KGA81MR-L
<p>MR connector This connector is rotary elbow type and can be connected to the metal tube (made from copper and aluminum and so on). Applicable piping material is the same as MT connector. When this connector is connected to hard plastic tube (O.D. 6, I.D. 4), remove brass-made sleeve and use the resinous inner sleeve set (XIN6 $\times 4$, refer to p.88) that is the optional accessory.</p>	

MTW connector	
High pressure side 	Low pressure side 
Product code KGA81MTW-H-S	Product code KGA81MTW-L-S
<p>MTW connector (double ring joint type) This connector can be connected to stainless tube (O.D. 6, the tolerance ± 0.1). This connector is made of stainless steel. (SUS316)</p>	

Piping adaptor on back view	
(for F type on back view) High pressure side 	(for F type on back view) Low pressure side 
Product code KGA81FBA-H	Product code KGA81FBA-L
<p>Piping adaptor on back view When you install MT, VR and MR connector (except for MTW connector) on back side port of W081F type, this adaptor is necessary to avoid interference with connectors and panel. It is also necessary as a spacer to use a locking spanner at this adaptor.</p>	

Seal plug

Product code KGA81PLG

* Because of quality improvement or any reason, some specifications are possibility of changing without notice.

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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.**

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