

Micro Differential Pressure Gage

Manostar Gage W081

General purpose type

Micro Differential Pressure Gage

Utility model registration
No.823971

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

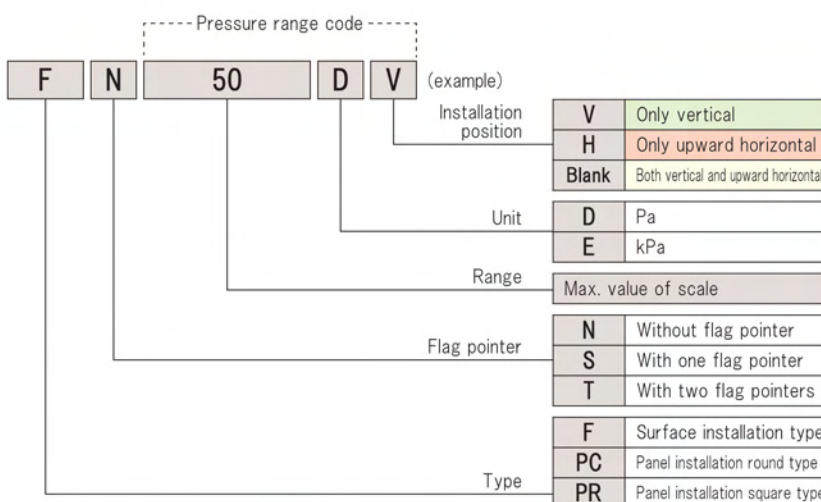
<Example of use>

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 O 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.



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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 <		

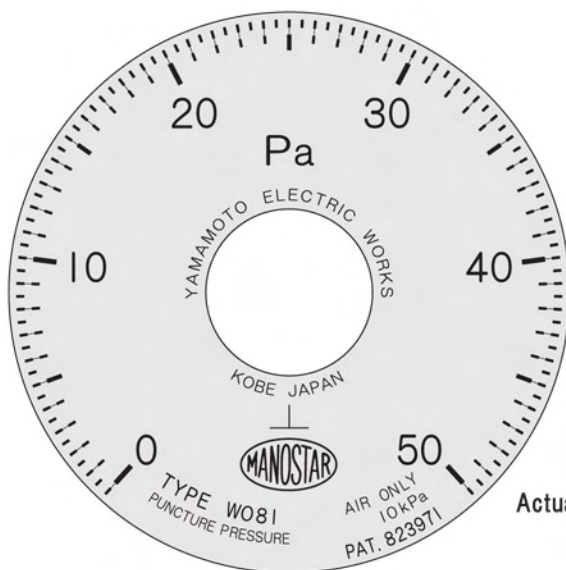


Micro Differential Pressure Gage

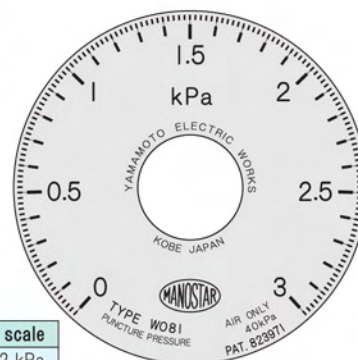
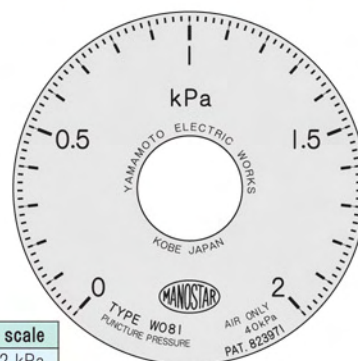
Scale table of Manostar Gage W081 model

Single pressure range

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

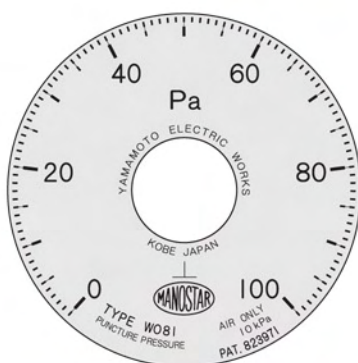


Pressure range	Min. scale
0 ~ 2 kPa	0.02 kPa
0 ~ 20 kPa	0.2 kPa



Installation position	Pressure range	Min. scale
Horizontal $\rightarrow$	0 ~ 50 Pa	0.5 Pa
Vertical $\downarrow$	0 ~ 50 Pa	0.5 Pa

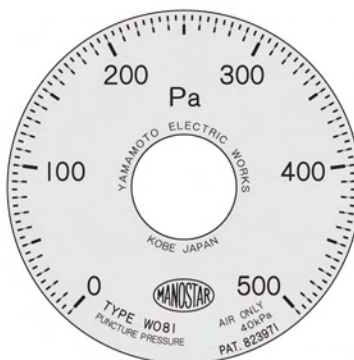
Pressure range	Min. scale
0 ~ 3 kPa	0.02 kPa
0 ~ 30 kPa	0.2 kPa



Installation position	Pressure range	Min. scale
Horizontal $\rightarrow$	0 ~ 100 Pa	1 Pa
Vertical $\downarrow$	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

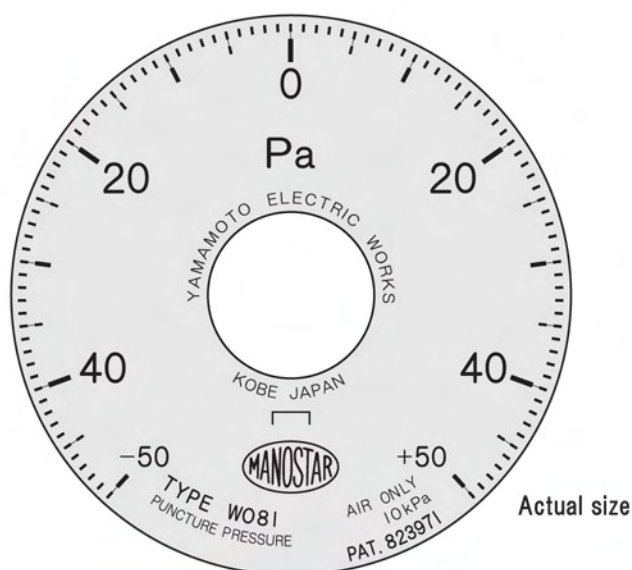
Pressure range	Min. scale
0 ~ 500 Pa	5 Pa

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



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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



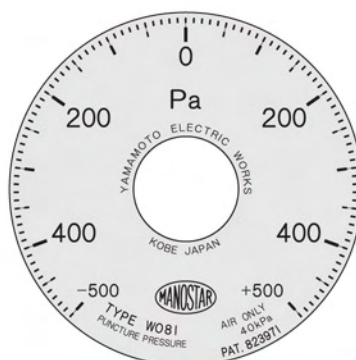
Pressure range	Min. scale
-300~+300 Pa	5 Pa



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



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Micro Differential Pressure Gage

Manostar Gage WO81 General purpose type Air volume and velocity meters



WO81FN

(surface installation type with non flag pointer)

Display unit

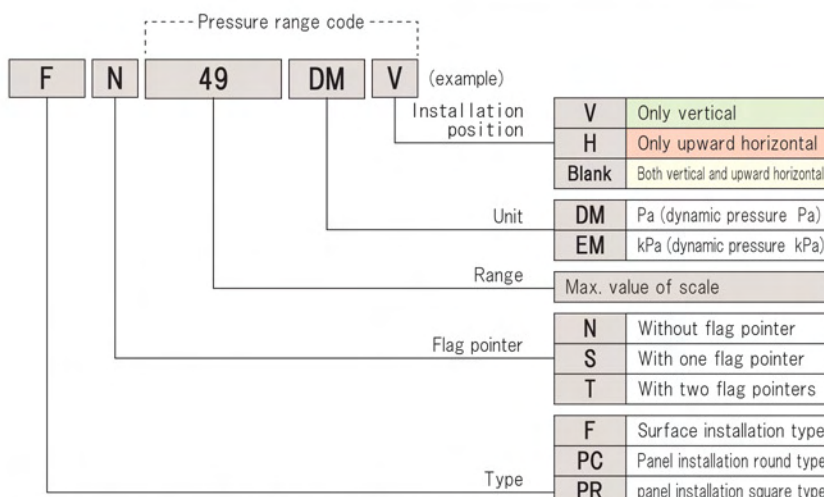
Air volume				Air velocity
m^3/h	$\text{m}^3/\text{h}(\text{nor})$	m^3/min	$\text{m}^3/\text{min}(\text{nor})$	m / s
$\text{m}^3/\text{h} \times 10$	$\text{m}^3/\text{h}(\text{nor}) \times 10$	$\text{m}^3/\text{min} \times 10$	$\text{m}^3/\text{min}(\text{nor}) \times 10$	
$\text{m}^3/\text{h} \times 1000$	$\text{m}^3/\text{h}(\text{nor}) \times 1000$	$\text{m}^3/\text{min} \times 1000$	$\text{m}^3/\text{min}(\text{nor}) \times 1000$	
$\text{m}^3/\text{h} \times 10000$	$\text{m}^3/\text{h}(\text{nor}) \times 10000$	$\text{m}^3/\text{min} \times 10000$	$\text{m}^3/\text{min}(\text{nor}) \times 10000$	

This and next page is introduction pages for air volume and velocity meter of WO81.

Refer to p.3, p.4 for low differential pressure gage of WO81.

Product code

W O 8 1



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

Data sheet for calculating air volume or velocity.

(Please inform us data sheet ① or ② for calculating air volume or velocity. Base on data sheet, we issue you specification of air volume or velocity scale.)

To make out the specification based on gas condition (temp, humidity, static pressure, density), size of the duct and medium flow rate. →①

To make out the scale specification based on the relationship between air volume (or velocity) and dynamic pressure.(If the detector is a orifice and so on.) →②

For calculating air volume or velocity ①	Gas to be measured data	Working regular air volume (velocity) value	Gas temperature °C	Gas density kg/m ³
		Max. air volume (velocity) value	Gas humidity % RH	* Air density is 1.200 kg/m ³ at normal state.
	Duct size	ID. () mm or square duct () mm × () mm		
	In case of mixed gas, please specify the density of mixed gas.			
For calculating air volume or velocity ②	Used pressure detector	☐ Total static pressure tube (Pitot tube) ☐ Total pressure tube + Static pressure tube ☐ Multi-pitot tube (corrected air volume coefficient)		
	Using condition	When air volume (velocity) value is at dynamic pressure Pa Max. air volume (velocity) is measured till ()		

◆ If you order the air volume and velocity meter, please tell us the data for calculating air volume and velocity.

◆ The max. value of air volume and velocity is rounding off to our printing scale.

◆ The max. pressure value correspond to the max. value of air volume (velocity) is written in scale plate.



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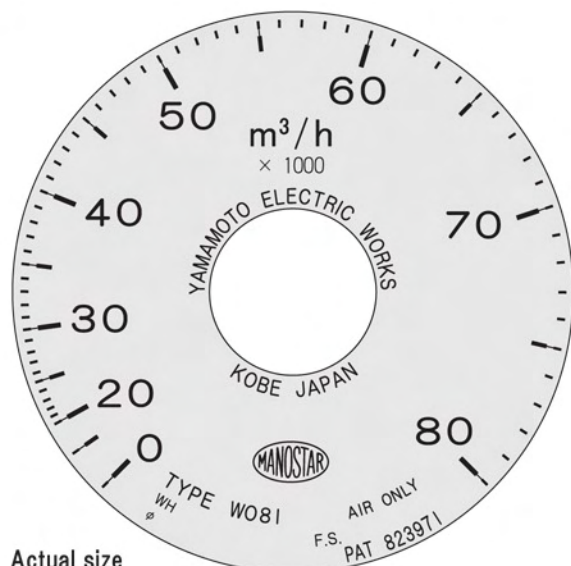
Specification

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	
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	Two flag pointers (red and green)	T	W081 F T	W081 PC T	W081 PR T	
units	Air volume and air velocity		Applicable piping	· 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.		
Pressure measuring method	Measuring differential pressure					
Pressure receiving element	Diaphragm		Piping connector polarity			
Gas to be measured	Air or non-corrosive gas (not liquid)					
Scale indicating angle	Approximately 270 ° Wide-angle indication		Mass	Approximately 270 g		
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	Air volume and air velocity range (example scale)	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)	
49 DMH	It is depend on specification of air velocity and air volume scale.	Upward horizontal (fixed)	± 5 % FS or less	Silicone rubber	10 kPa	
49 DMV		Vertical (fixed)				
70 DMH		Upward horizontal (fixed)				
70 DMV		Vertical (fixed)				
100 DMH		Upward horizontal (fixed)	± 2.5 % FS or less		40 kPa	
100 DMV		Vertical (fixed)				
130 DMH		Upward horizontal (fixed)				
130 DMV		Vertical (fixed)				
180 DMH		Upward horizontal (fixed)	± 1.5 % FS or less		150 kPa	
180 DMV		Vertical (fixed)				
250 DM		Installation position from upward horizontal to vertical is available.	± 1.5 % FS or less			
300 DM						
400 DM						
580 DM						
1000 DM						
1.8 EM			± 1.5 % FS or less			
3.2 EM						
4.5 EM						
8.5 EM						
10 EM						

(Note) [Number] : Rounding off, [Magnification] : $\times 10$, $\times 1000$, $\times 10000$, [Unit] : m^3/h , m^3/min , m^3/h (nor), m^3/min (nor), m/s

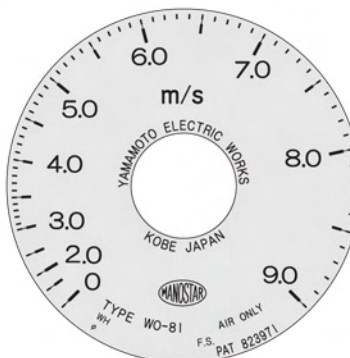
◆In ordering out of above mentioned installation position, please order us or our agency beforehand. It must be adjusted before the factory shipment.

Air volume or velocity range(example scale)



Actual size

Air volume scale



Air velocity scale



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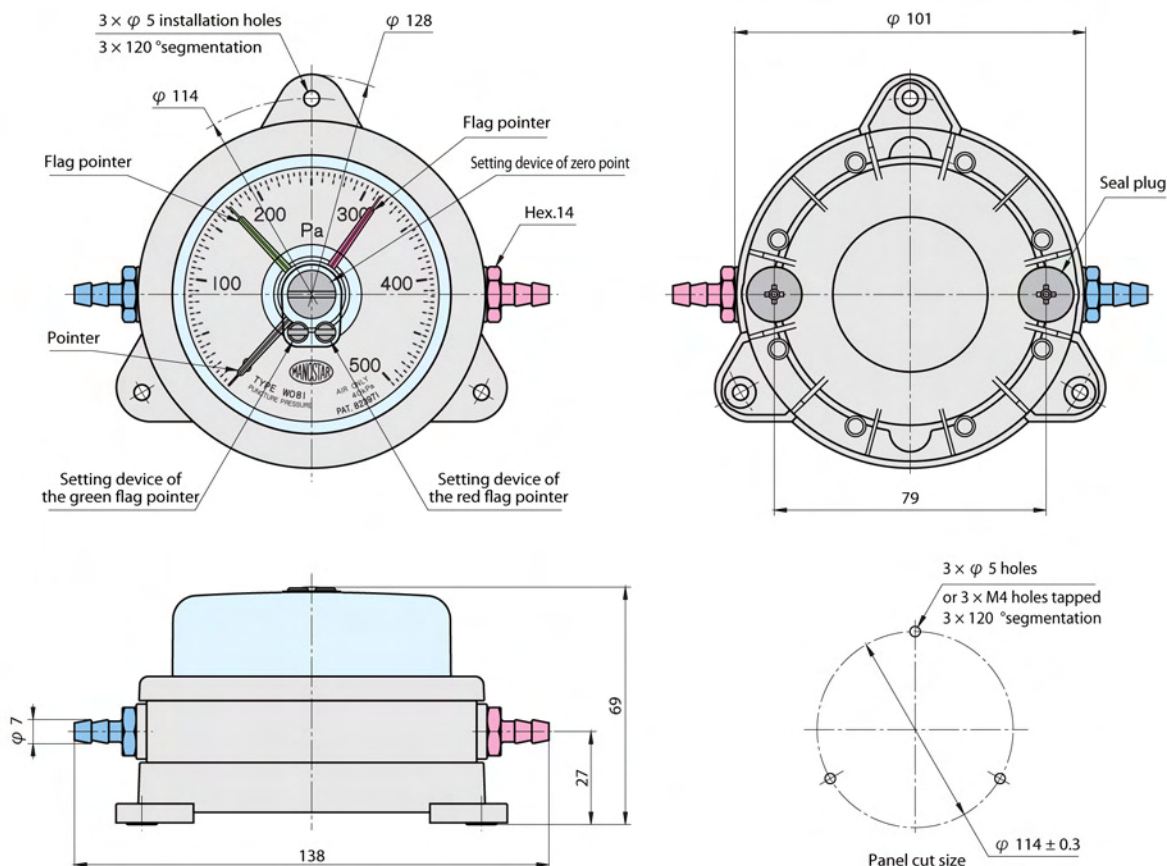
Micro Differential Pressure Gage

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.

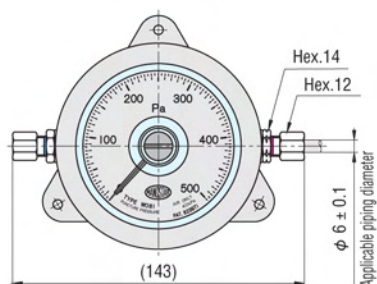
Do not apply excessive torque more than necessary, otherwise it will damage the instrument body.

(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.)

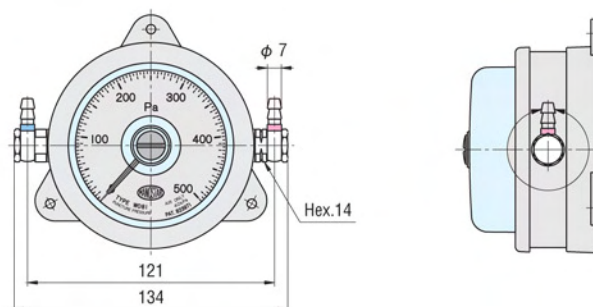
W081F Arrangement of the piping connectors

Side arrangement of piping connectors

MT connector for metal tube



VR rotary connector for vinyl or plastic tube



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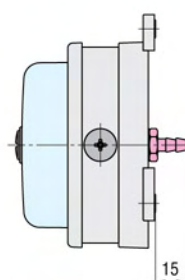
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Fax: (852) 2343 6078

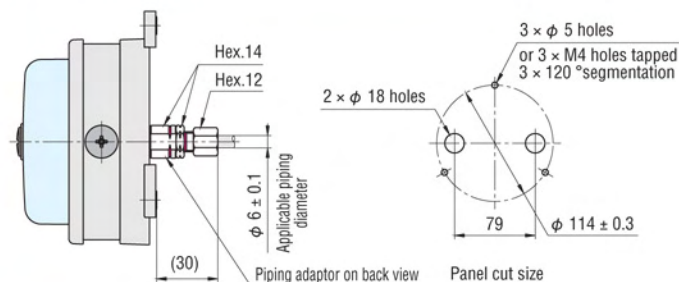
Website: www.qukointl.com

Rear arrangement of the piping connector

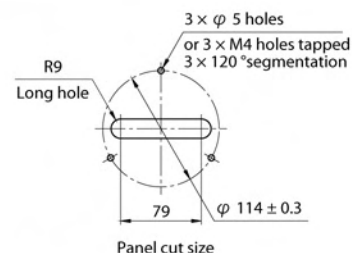
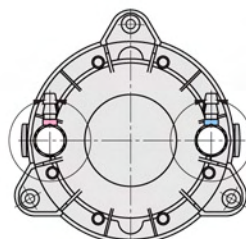
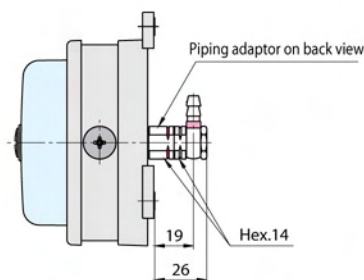
VT connector for vinyl or plastic tube



MT connector for metal tube



VR rotary connector for vinyl or plastic tube



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.)

To change arrangement of piping connectors of W081F

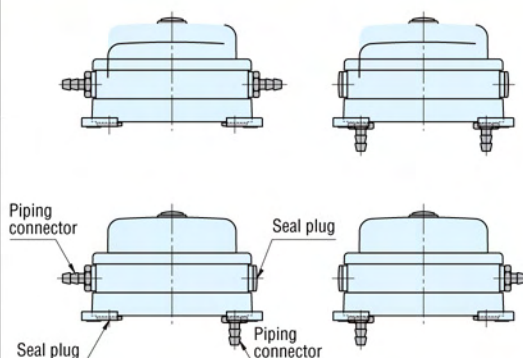
W081F have two piping connector ports on side and back view.
It is possible to four kinds of arrangement by combination of piping.



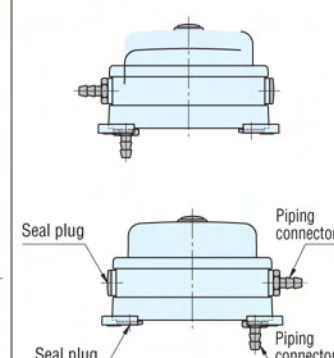
Caution

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.

Possible arrangement of piping connectors



Impossible arrangement of piping connectors



W081 Installation position

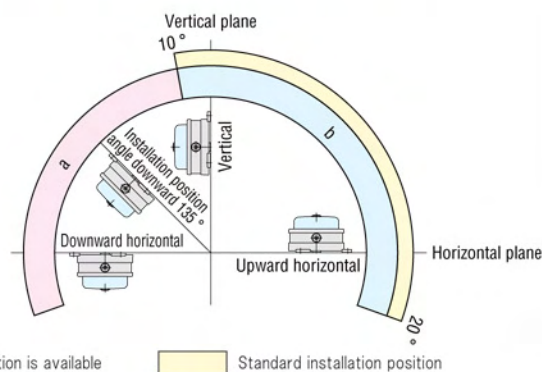
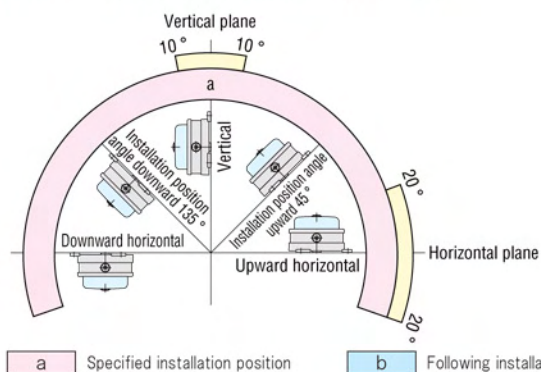
Pressure range specified vertical or upward horizontal that is standard installation position.

0 ~ 50 Pa, 0 ~ 100 Pa, - 50 ~ + 50 Pa

The gage that pressure range is from 0 ~ 50 Pa is impossible to install on downward horizontal.

Installation position from upward horizontal to vertical is available.

All other ranges except for the following



- ◆ 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.



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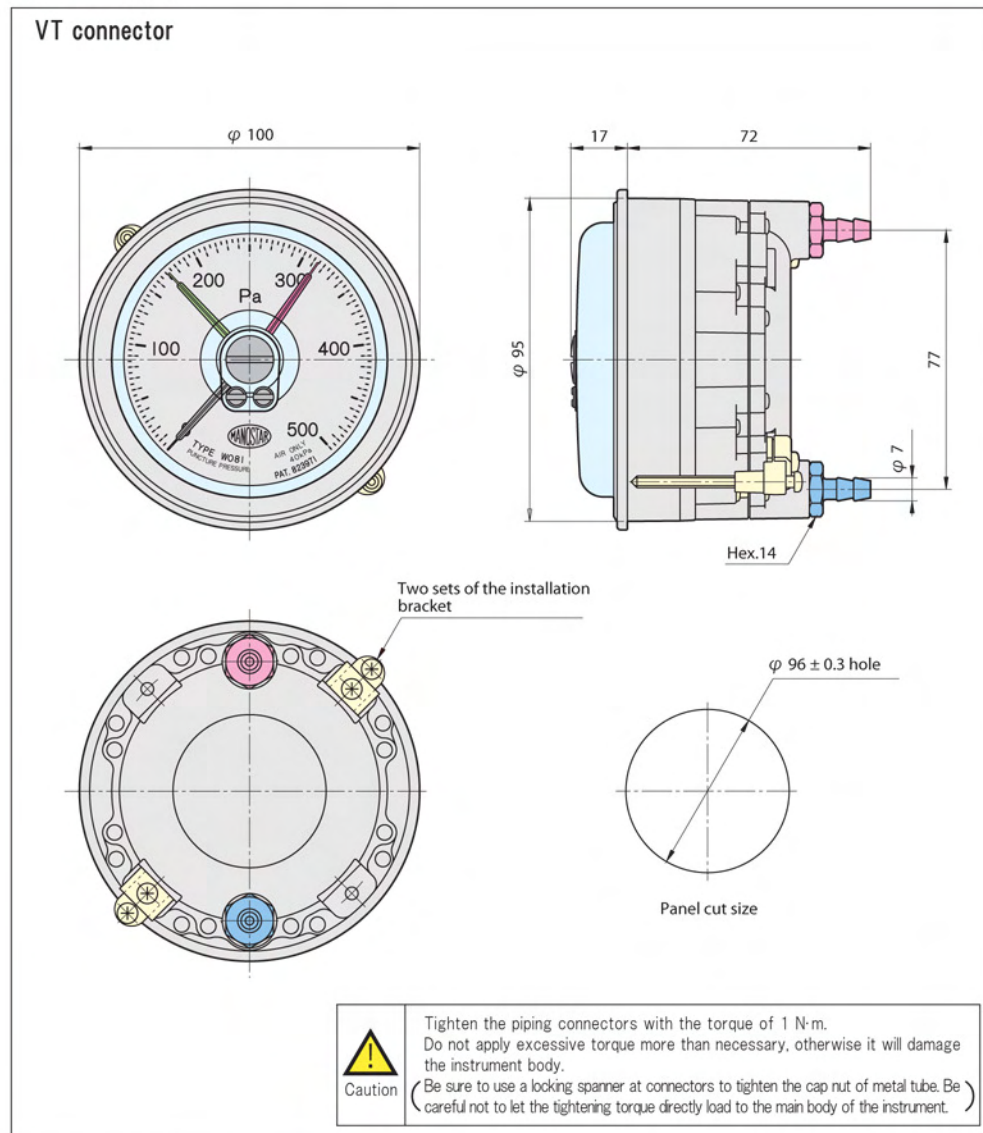
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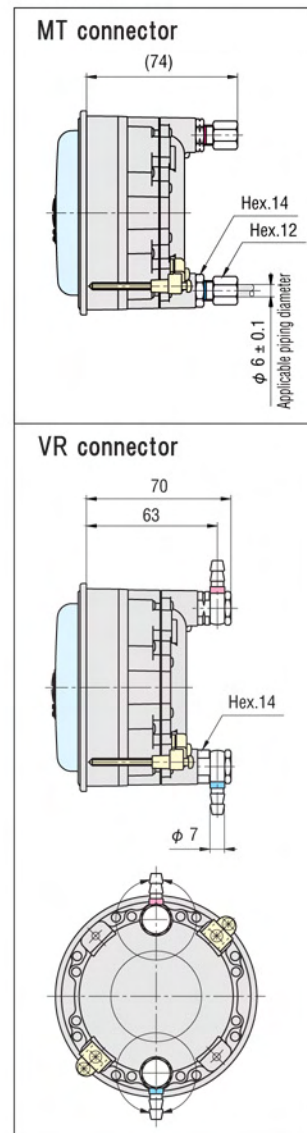
Micro Differential Pressure Gage

Manostar Gage W081PC

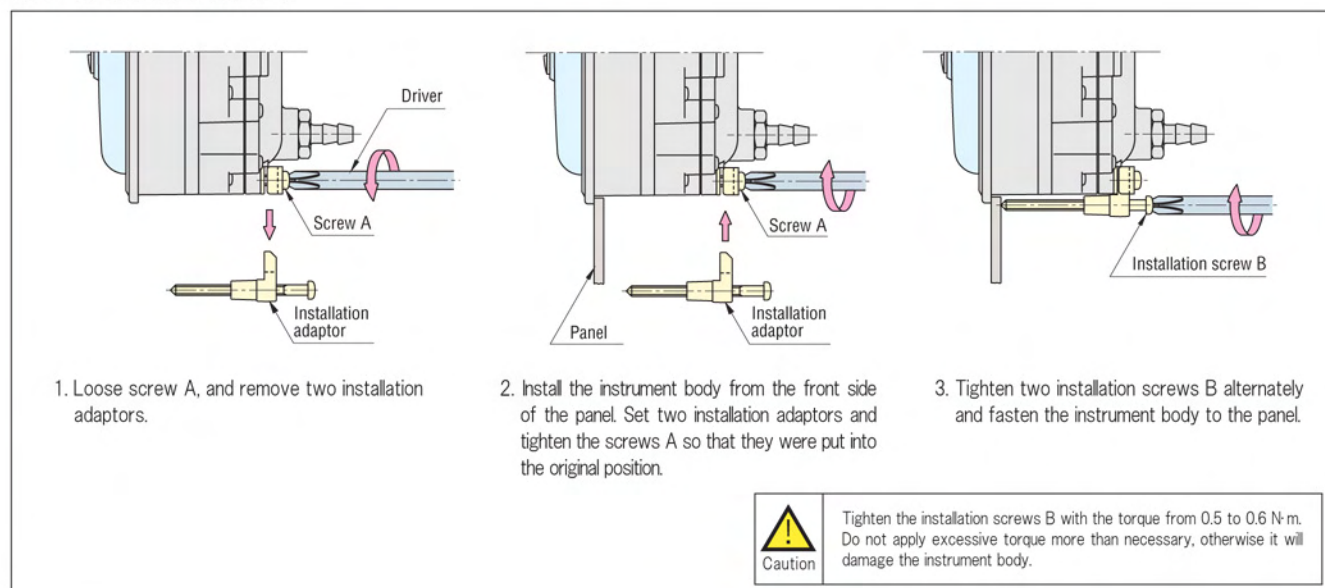
Outline drawing



Arrangement of piping connector (example)



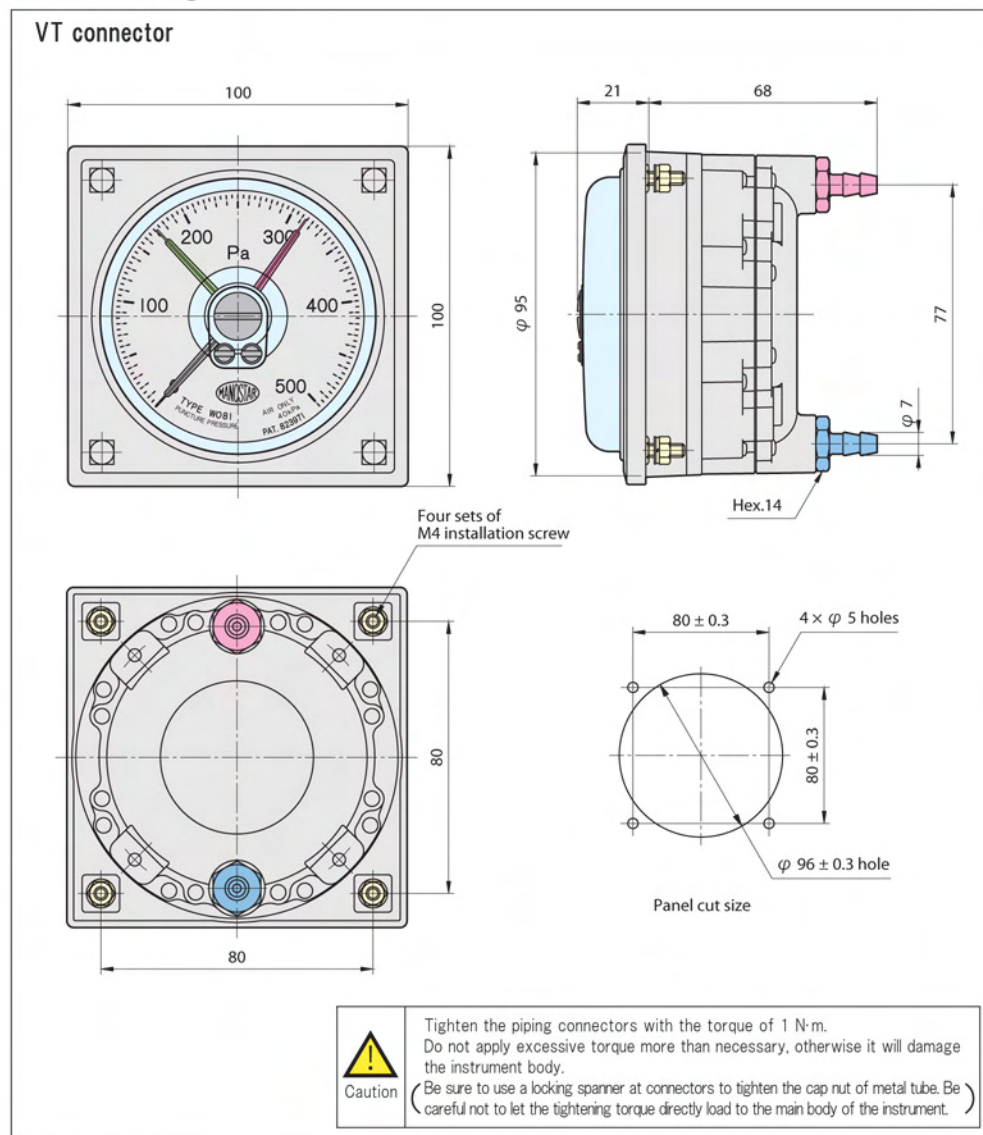
How to install W081PC



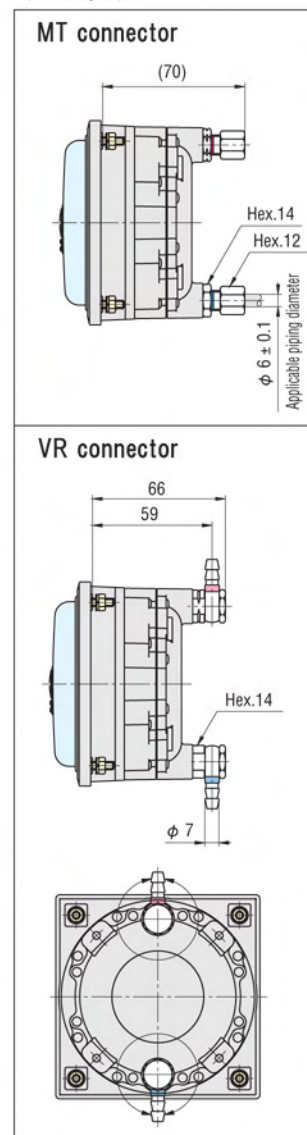
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Manostar Gage W081PR

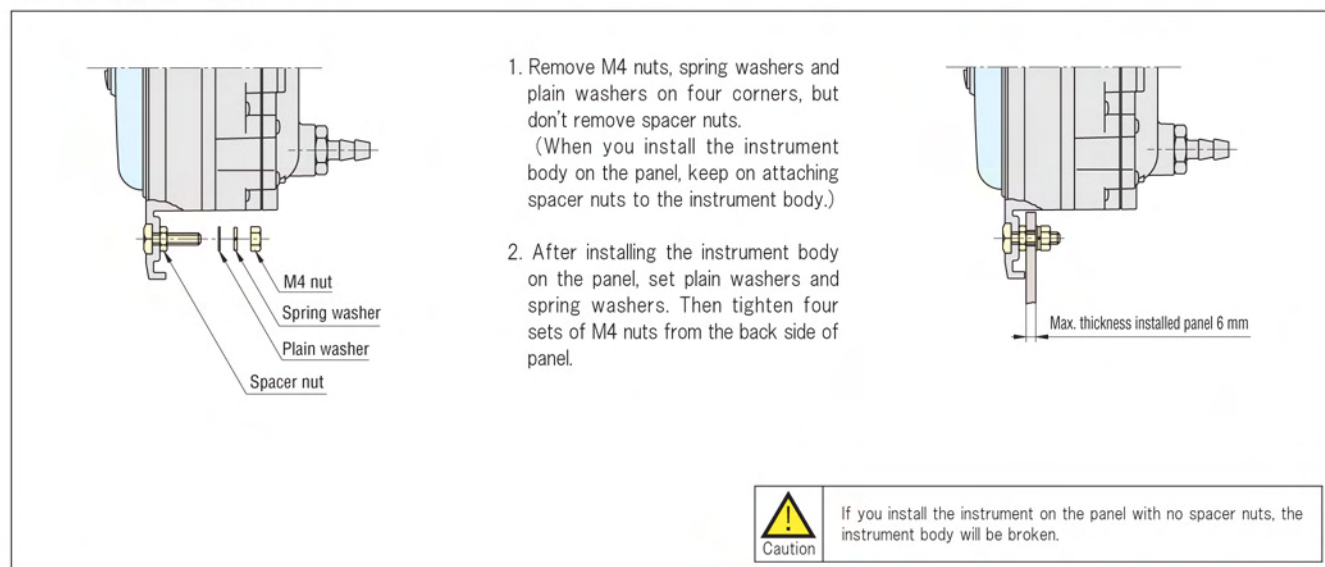
Outline drawing



Arrangement of piping connector (example)



How to install W081PR

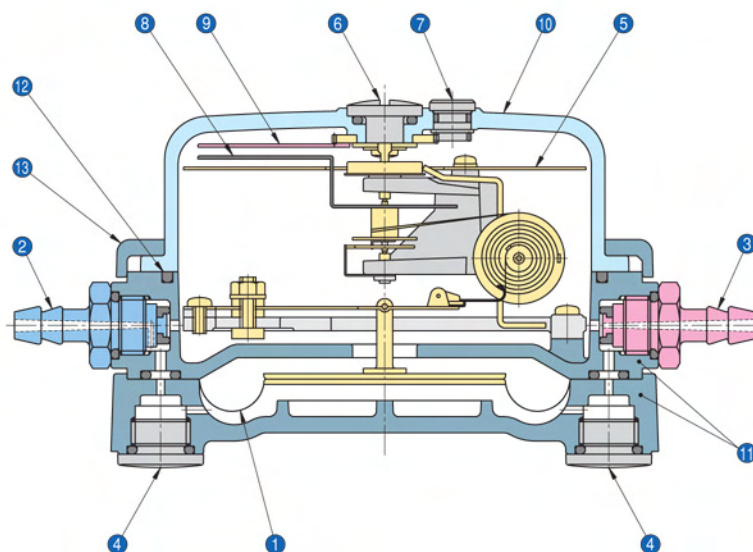


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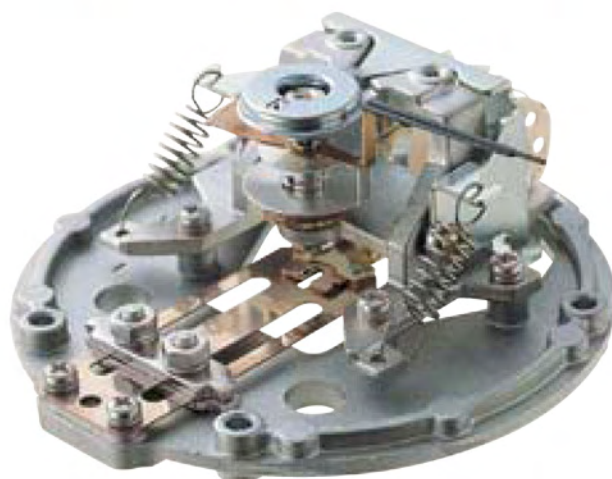
Micro Differential Pressure Gage

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

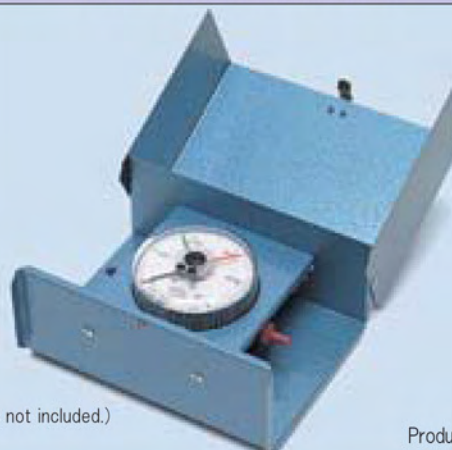
Installation bracket to set for W081 PC type



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



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Accessory for W081 RoHS compliant

VT connector	
High pressure side	Low pressure side
	
Product code KGA81VT-H-P	Product code KGA81VT-L-P

VT connector

To attach vinyl, plastic or rubber tube to the instrument body (spare parts)

PT connector	
High pressure side	Low pressure side
	
Product code KGA81PT-H	Product code KGA81PT-L

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).

MT connector	
High pressure side	Low pressure side
	
Product code KGA81MT-H	Product code KGA81MT-L

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.

MTW connector	
High pressure side	Low pressure side
	
Product code KGA81MTW-H-S	Product code KGA81MTW-L-S

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)

VR connector	
High pressure side	Low pressure side
	
Product code KGA81VR-H	Product code KGA81VR-L

VR connector

These connectors are rotary elbow type and can be connected to vinyl, plastic and rubber tube of I.D.6.

PR connector	
High pressure side	Low pressure side
	
Product code KGA81PR-H	Product code KGA81PR-L

PR connector NEW

The joint installed tube is push-in and rotary elbow type.

MR connector	
High pressure side	Low pressure side
	
Product code KGA81MR-H	Product code KGA81MR-L

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.

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

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.

Seal plug

Product code KGA81PLG

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



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