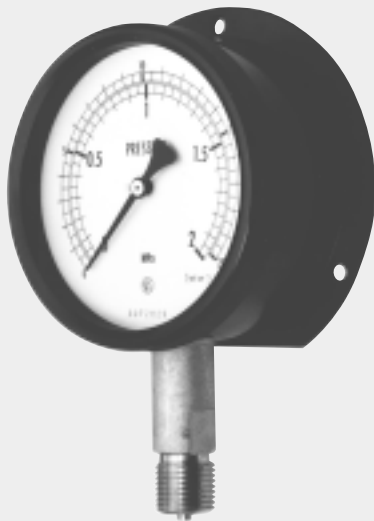


# Process Industrial Pressure Gauges



This product is produced based on quality system of the International Organization for Standardization

## OUTLINE

This is pressure gauge of the construction which introduces elastic deformation of Bourdon tube (movement) into pointer. The handling is easy, because construction is simple. It is possible to measure wide pressure range, and it is used in a wide field.

## FEATURES

- By using sealed case, it can be used even in the rain or dew condition. (Equivalent to JIS C 0920, Drip-proof, Type II)
- This pressure gauge is provided with wider pressure measuring ranges. When anticorrosion is required, we are pleased to comply with such requirements.
- \* In case of selecting pressure gauge, choose the pressure range which can be used in between 30 ~ 65% of full scale, so that the gauge can give its full capacity.
- \* Also should be confirmed whether the wetted parts material is suitable for the fluid or not. For oxygen service, please order us "USE NO OIL".
- \* For acetylene service, please order us "USE NO OIL" with corrosion-proof.

## SPECIFICATION 1

### Fluid:

Gas or liquid

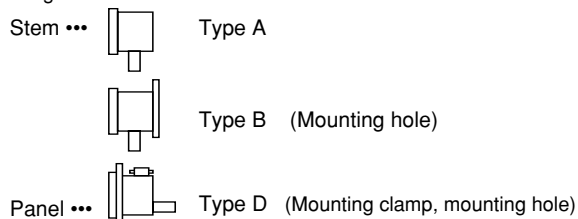
### Case construction: Seal type

Sealed construction which is equivalent to JIS C 0920, drip-proof, type II but not sealed completely.

### Size:

60 DIA. (Model: BA□□), 75 DIA. (Model: BC□□)  
 100 DIA. (Model: BE□□), 150 DIA. (Model: BG□□)  
 200 DIA. (Model: BJ□□), 300DIA. (Model: BL□□)

### Mounting:



\* Brass case is available as option.

### Connection:

G1/4B (PF), G3/8B (PF), G1/2B (PF), 1/2NPT  
 R1/4 (PT), R3/8 (PT), R1/2 (PT), 1/4NPT, 3/8NPT  
 For other connections, please contact us.

### Wetted parts:

Wetted parts means generally Bourdon tube and socket, and these parts contact with fluid (gas or liquid) directly.

Purpose	Socket	Bourdon tube
General use	YBsC3, C3604BD 316 st.st. or SCS14 (Depending on pressure range)	C3872T or 316 st.st. (Depending on pressure range, performance)
Ammonia use Corrosion-proof use	316 st.st. or SCS14	316 st.st.

### Pressure range:

0 ~ 30kPa → 0 ~ 100MPa (0 ~ 0.3 → 0 ~ 1000kgf/cm<sup>2</sup>)  
 -0.1 ~ 0 → -0.1 ~ 2MPa  
 (76cmHg ~ 0kgf/cm<sup>2</sup> → 76cmHg ~ 20kgf/cm<sup>2</sup>)

\* About detail, refer to the table of minimum graduation in SPECIFICATION 4

### Accuracy:

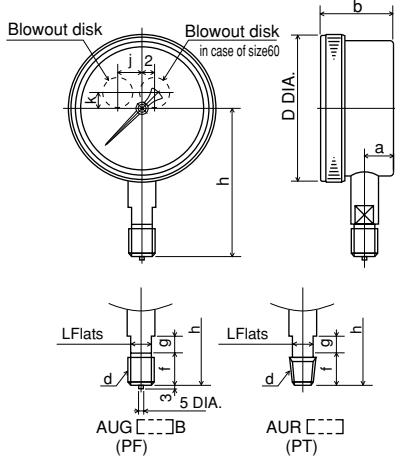
±1.5% F.S.

# SPECIFICATION 2

Mounting • Dimensions: (Unit:mm)

## Stem

Type A ••• Socket is mounted on pipe directly. (Stem mounting)



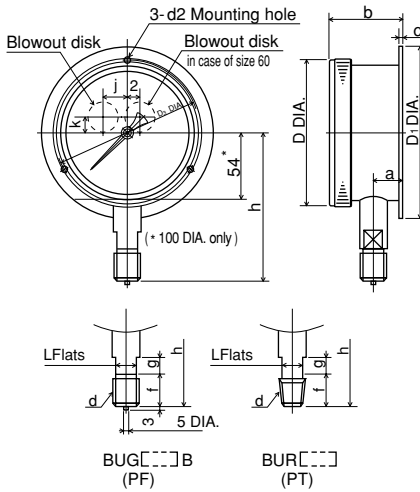
Size	Shape of connection	Case						Connection				Type No.
		d	D	a	b	j	k	f	g	L	h	
60	U G1/4B R1/4	70	11.5	32	—	8	16	10	12	58	BA10-1□□	
		84 (86)	16.5	41 (41.5)	15	10	18	12	14	70		
75	U G3/8B R3/8	109	22	52.5 (54)	20	10	18	15	14	108	BE10-1□□ BE12-1□□	
		110	(23)	(54)	20	10						20
100	U G3/8B R3/8	159	25	59 (59.5)	20	10	18	15	14	123	BG10-1□□ BG12-1□□	
		(162)		(59.5)	20	10						20

( ) Dimension of plastic case

Weight:

Size	Weight (g)
60	Approx. 300
75	500
100	800
150	1600
200	2400
300	4600

TypeB ••• Fixed the back flange on panel by screw. (Surface mounting)

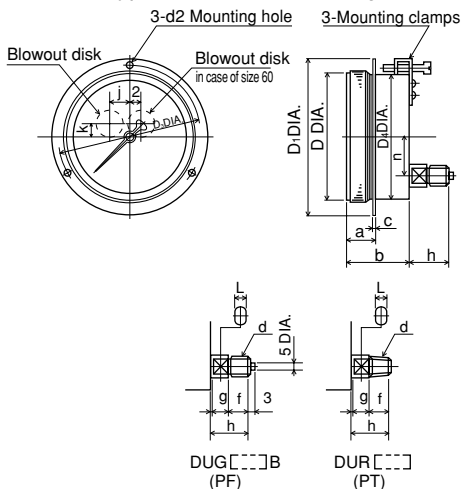


Size	Shape of connection	Case						Connection				Type No.			
		d	D	D <sub>1</sub>	D <sub>3</sub>	a	b	c	d <sub>2</sub>	j	k		f	g	L
60	U G1/4B R1/4	70	80	72	11.5	32	2	4.5	—	8	16	10	12	58	BA10-2□□ BC12-2□□
		84 (86)	98	88	16.5	41 (41.5)	2 (4)	4.5	15	10	18	12	14	70	
100	U G3/8B R3/8	109	128	115	22 (23)	52.5 (54)	2.5 (4)	5.5	20	10	18	15	14	108	BE10-2□□ BE12-2□□
		110			20	10	20	15	17	110					
150	U G3/8B R3/8	159	178	165	25	59 (59.5)	2.5 (4.5)	5.5	20	10	18	15	14	123	BG10-2□□ BG12-2□□
		(162)			20	10	20	15	17	125					
200	U G1/2B R1/2	210	235	220	25	60	2.5	5.5	20	10	20	15	17	152	BJ10-2□□
300	U G1/2B R1/2	312	340	323	28	73	3.5	5.5	0	0	20	15	17	205	BL10-2□□

( ) Dimension of plastic case

## Panel

TypeD ••• Panel mounting with screw or clamp.

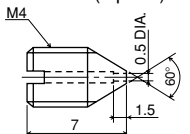


Size	Shape of connection	Case										Connection				Type No.		
		D	D <sub>1</sub>	D <sub>3</sub>	D <sub>4</sub>	a	b	c	d <sub>2</sub>	n	j	k	f	g	L		h	
60	U G1/4B R1/4	70	80	72	64	14	32	2	*	3.3	20	—	8	16	10	12	28	BA15-□□□
75	U G3/8B R3/8	84	98	88	77	18	40.5	2	*	3.3	25	15	10	18	12	14	30	BC15-□□□
		109	128	119	102 (104)	17.5 (20.5)	45 (46.5)	2.5 (4)	5.5	35	20	10	18	12	14	30	BE15-□□□ BE17-□□□	
100	U G3/8B R3/8	110												20	12	17	32 (31)	
		159	178	169	152	21.5	61	2.5	5.5	55	20	10	18	12	14	30	BG15-□□□	
150	U G1/2B R1/2	210	235	220	203	28	63	3	5.5	55	20	10	20	12	17	32	BJ15-□□□	
		312	340	323	304	30.5	64	3.5	5.5	55	0	35	20	12	17	32	BL15-□□□	

( ) Dimension of plastic case

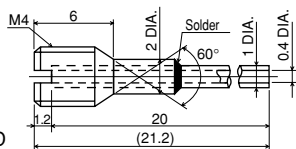
\* For M3 screw.

## Throttle (Option)



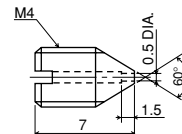
FS10-011

Material:  
C3604BD



FS10-081

(With pipe)  
Material: C3604BD  
(Pipe: C1100T)



Corrosion-Proof:  
FS10-013  
Material: 316 st. st.

## SPECIFICATION 3

### Specifications & additional spec.

#### Blowout disk:

When an emergency, Bourdon tube exploded, it open up internal pressure from blowout disk, and blowout disk prevents puncture of window.

note: To keep normal function, please take a space behind of gauge at least 10mm when installing. Don't process or stop up the blowout disk.

#### Movement:

In accordance with application, we can supply different movement as option. (St.st. movement, vibration-proof movement, etc.)

#### Pointer:

In addition to standard type, zero adjustable pointer is also available. If maximum pointer or setting pointer is required, please choose from selection spec.

#### Window:

In addition to standard glass, special material glass, such as tempered glass, non-glare glass are also available.

#### Function:

Standard, Steam use (M), Heat-proof (H), Vibration-proof (V)  
Steam use & Vibration-proof (MV), Heat-proof • Vibration proof (HV)

\* Division of application is based on JISB7505 Bourdon gauge.

#### Treatment:

Use no oil / Use no water \*\*\* We proceed to manufacture not to or water on the wetted parts.

#### Option

Case color \*\*\* In case of non-standard color, please specify.

Accuracy 1% \*\*\* Available for range 0.1MPa or over with 100 DIA., 150 DIA., 200DIA.

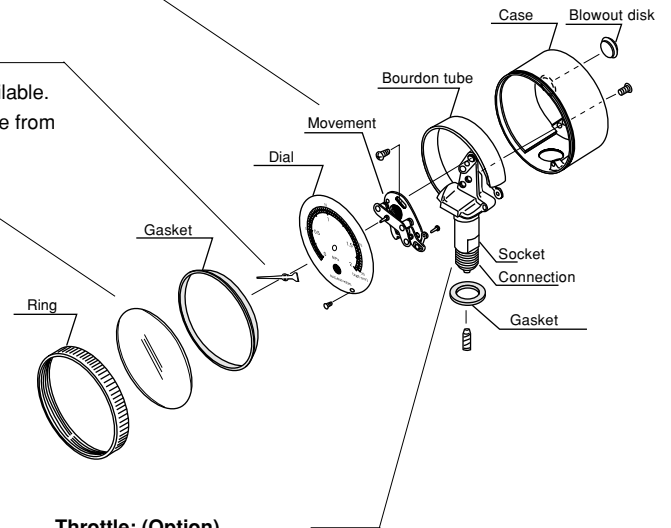
#### Connecting:

We have three kinds of method to connect the wetted parts.

Soldering \*\*\* For brass series material.

Silver soldering \*\*\* For brass series material and stainless steel material.

TIG welding \*\*\* For welding between stainless steel material.



#### Throttle: (Option)

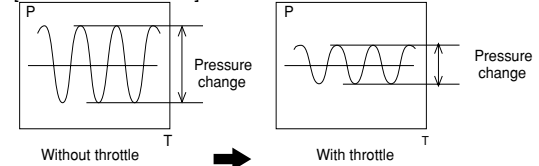
For reducing pulsating pressure, throttle is put on the inlet port. Select it from next model.

FS10-011, FS10-081 (with pipe),  
corrosion-proof use FS10-013

#### Pulsating pressure:

Caused by pump characteristic of pressure generator, and it is the general term of top and bottom drift of pressure and is very harmful to Pressure Gauge.

[THROTTLE EFFECT]



## CASE MATERIAL

Case color (Standard color)	Mounting • Type		Type		Size						
					60 DIA.	75 DIA.	100 DIA.	150 DIA.	200 DIA.	300 DIA.	
Black color	Stem	Type A	Metal (Aluminum alloy)	AC7A	○	—	—	—	—	—	
		Type B			○	—	—	—	—	○	
		Panel			Type D(Mounting clamps)	○	○	—	○	○	○
					Type D(Mounting hole)	○	○	—	○	○	○
	Stem	Type A		ADC12	—	○	○	○	—	—	—
		Type B			—	○	○	○	—	—	
		Panel			Type D(Mounting clamps)	—	—	○	—	—	—
					Type D(Mounting hole)	—	—	○	—	—	—
Black color	Stem	Type A	Plastic	Bakelite	—	○	○	○	—	—	
		Type B			—	○	○	○	—	—	
	Panel	Type D(Mounting hole)			—	—	○	—	—	—	

## SPECIFICATION 4

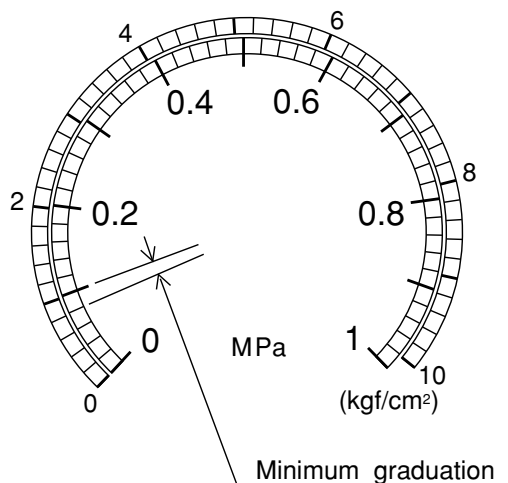
### Minimum graduation:

Scale divisions are different according to range and dial size. Minimum graduations are shown in the following table.

Pressure range MPa (kgf/cm <sup>2</sup> )	Size				
	60 DIA.	75 DIA.	100 • 150 DIA.	200 DIA.	300 DIA.
0 ~ 30kPa (0.3)	————	————	1 (0.01)	————	————
40kPa (0.4)	————	————	1 (0.01)	1 (0.01)	————
0.05 (0.5)	————	————	0.001 (0.01)	0.001 (0.01)	————
0.08 (0.8)	————	————	0.002 (0.02)	0.002 (0.02)	————
0.1 (1)	0.005 (0.05)	0.005 (0.05)	0.002 (0.02)	0.002 (0.02)	0.002 (0.02)
0.2 (2)	0.01 (0.1)	0.01 (0.1)	0.005 (0.05)	0.005 (0.05)	0.005 (0.05)
0.3 (3)	0.01 (0.1)	0.01 (0.1)	0.01 (0.1)	0.01 (0.1)	0.01 (0.1)
0.4 (4)	0.02 (0.2)	0.02 (0.2)	0.01 (0.1)	0.01 (0.1)	0.01 (0.1)
0.6 (6)	0.02 (0.2)	0.02 (0.2)	0.02 (0.2)	0.02 (0.2)	0.02 (0.2)
1 (10)	0.05 (0.5)	0.05 (0.5)	0.02 (0.2)	0.02 (0.2)	0.02 (0.2)
1.5 (15)	0.05 (0.5)	0.05 (0.5)	0.05 (0.5)	0.05 (0.5)	0.05 (0.5)
2 (20)	0.1 (1)	0.1 (1)	0.05 (0.5)	0.05 (0.5)	0.05 (0.5)
2.5 (25)	0.1 (1)	0.1 (1)	0.05 (0.5)	0.05 (0.5)	0.05 (0.5)
3.5 (35)	0.1 (1)	0.1 (1)	0.1 (1)	0.1 (1)	0.1 (1)
5 (50)	0.2 (2)	0.2 (2)	0.1 (1)	0.1 (1)	0.1 (1)
7 (70)	0.2 (2)	0.2 (2)	0.2 (2)	0.2 (2)	0.2 (2)
10 (100)	0.5 (5)	0.5 (5)	0.2 (2)	0.2 (2)	0.2 (2)
15 (150)	0.5 (5)	0.5 (5)	0.5 (5)	0.5 (5)	0.5 (5)
25 (250)	1 (10)	1 (10)	0.5 (5)	0.5 (5)	0.5 (5)
35 (350)	————	1 (10)	1 (10)	1 (10)	————
50 (500)	————	2 (20)	1 (10)	1 (10)	————
70 (700)	————	————	2 (20)	2 (20)	————
100 (1000)	————	————	2 (20)	2 (20)	————
-0.1 ~ 0 (76cmHg ~ 0)	0.005 (5)	0.005 (5)	0.002 (2)	0.002 (2)	0.002 (2)
0.1 (76cmHg ~ 1)	0.01 (5 ~ 0.1)	0.01 (5 ~ 0.1)	0.005 (5 ~ 0.05)	0.005 (5 ~ 0.05)	0.005 (5 ~ 0.05)
0.2 (76cmHg ~ 2)	0.01 (10 ~ 0.1)	0.01 (10 ~ 0.1)	0.01 (5 ~ 0.1)	0.01 (5 ~ 0.1)	0.01 (5 ~ 0.1)
0.3 (76cmHg ~ 3)	0.02 (10 ~ 0.2)	0.02 (10 ~ 0.2)	0.01 (10 ~ 0.1)	0.01 (10 ~ 0.1)	0.01 (10 ~ 0.1)
0.4 (76cmHg ~ 4)	0.02 (10 ~ 0.2)	0.02 (10 ~ 0.2)	0.01 (10 ~ 0.1)	0.01 (10 ~ 0.1)	0.01 (10 ~ 0.1)
0.6 (76cmHg ~ 6)	0.02 (10 ~ 0.2)	0.02 (10 ~ 0.2)	0.02 (10 ~ 0.2)	0.02 (10 ~ 0.2)	0.02 (10 ~ 0.2)
1 (76cmHg ~ 10)	0.05 (50 ~ 0.5)	0.05 (50 ~ 0.5)	0.02 (50 ~ 0.2)	0.02 (50 ~ 0.2)	0.02 (50 ~ 0.2)
1.5 (76cmHg ~ 15)	0.05 (76 ~ 0.5)	0.05 (76 ~ 0.5)	0.05 (50 ~ 0.5)	0.05 (50 ~ 0.5)	0.05 (50 ~ 0.5)
2 (76cmHg ~ 20)	0.1 (76 ~ 1)	0.1 (76 ~ 1)	0.05 (50 ~ 0.5)	0.05 (50 ~ 0.5)	0.05 (50 ~ 0.5)
2.5 (76cmHg ~ 25)	0.1 (76 ~ 1)	0.1 (76 ~ 1)	0.05 (76 ~ 0.5)	0.05 (76 ~ 0.5)	0.05 (76 ~ 0.5)
3.5 (76cmHg ~ 35)	0.1 (76 ~ 1)	0.1 (76 ~ 1)	0.1 (76 ~ 1)	0.1 (76 ~ 1)	0.1 (76 ~ 1)

### Example of scale

size 10 • 150



### Option for scale

Capacity scale, dual scale, printed words or colored circle, etc. are available as option.

# Type No. constitution

Please specify Type No., each specification and range, when ordering.

Note: For this Model, there is no applicable item for the figures X, but please specify X when ordering.

## Process industry pressure gauge

Product size	Type	Material of case	Stem					
Metal case	1 0 Stem • metal	1 TypeA	Aluminum alloy	But, 200DIA. stem, metal type A (aluminum alloy)BJ10-1□□□ is not manufacturing.				
		2 TypeB (Mounting hole)	Aluminum alloy					
		2	Stem • plastic		1 TypeA	Phenol resin		
					2 TypeB (Mounting hole)	Phenol resin		
					Plastic case	1 2	2 TypeD (Mounting hole)	Phenol resin

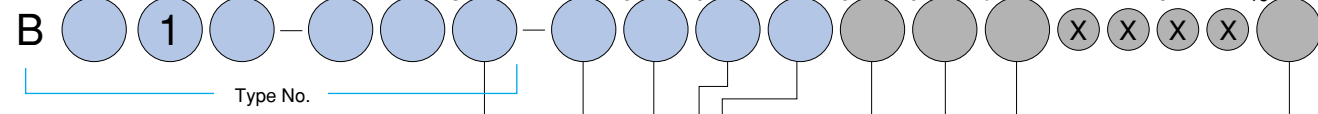
Product size	Type	Material of case	Panel				
Metal case	1 5 Panel • material	1 TypeD (Mounting clamps)	Aluminum alloy				
		2 TypeD (Mounting hole)	Aluminum alloy				
		2	Panel • plastic	2 TypeD (Mounting hole)	Phenol resin		
				2 TypeD (Mounting hole)	Phenol resin		
				Plastic case	1 7	2 TypeD (Mounting hole)	Phenol resin

Size	DIA.
A	60 DIA.
C	75 DIA.
E	100 DIA.
G	150 DIA.
J	200 DIA.
L	300 DIA.

Mounting • material 1 Frame • material

Possible or not	BA10*15	BC10*15	BA12	BE10*15	BE12*17	BG10*15	BA12	BJ10*15	BL10*15
2	G1/4B	○	○	—	—	—	—	—	—
3	G3/8B	—	—	○	○	○	○	○	○
4	G1/2B	—	—	○	○	○	○	○	○
6	1/2NPT	—	—	○	○	○	○	○	○
7	R 1/4	○	○	—	—	—	—	—	—
8	R 3/8	—	○	○	○	○	○	○	○
9	R 1/2	—	—	○	○	○	○	○	○
K	1/4NPT	—	—	○	○	—	—	—	—
L	3/8NPT	—	—	○	○	—	—	—	—

## Process industry pressure gauge



9 Throttle

0 Nil

1 General use FS10-011

Corrosion-proof use FS10-013

3 FS10-081 (With pipe)

10 Other additional spec.

0 Nil

1 Please specify your requirement. Dial scale specified, Case color required, Movement required, Accuracy 1%

8 Treatment

0 Nil

1 Use no oil

2 Use no water

3 Use no oil-water

15 Document

0 Nil

1 Please specify your requirement. Drawing one sheet, instruction manual, inspection procedure, mill sheet, test report, witness inspection

## 3 Connection material

Purpose	Socket	Bourdon tube	Type of joint
1 General use (Not available for 50MPa or over.)	Pressure range 35MPa or below: YBSc3 But BA10only C3604BD Pressure range 35MPa or over : 316 st.st. or SCS14*	Pressure range 3.5MPa or below : 316 st.st. • General type, vibration-proof type C6872T • Steam use • corrosion-proof type, heat-proof type, Steam use • vibration-proof type, Heat-proof • vibration-proof type:316 st.st. Pressure range above 3.5MPa : 316 st.st.	Soldering for between brass Silver soldering for brass and 316 st.st. Tig-welding for between 316 st.st.
2 Ammonia use	316 st.st. or SCS14*	316 st.st.	Tig-welding
3 Corrosion-proof use	316 st.st. or SCS14*	316 st.st.	Tig-welding

\* 316st.st. is BA10 only.

## 4 Pressure range When ordering, please specify pressure range & unit.

Pressure range MPa	Pressure range availability for each model.							
	BA10 BA15	BC10*15 BC12	BE10	BE12*15 BE17	BG10	BG12 BG17	BJ10 BJ15	BJ10 BJ15
1 0 ~ 30kPa	—	—	○	—	○	—	—	—
0 ~ 40kPa, 0 ~ 0.05, 0.08	—	—	○	—	○	—	—	—
2 -0.1 ~ 0.1, 0.2, 0.3, 0.4, 0.6	○	○	○	○	○	○	○	○
-0.1 ~ 1, 1.5, 2, 2.5, 3.5	○	○	○	○	○	○	○	○
3 -0.1 ~ 0, 0 ~ 0.1, 0.2, 0.3, 0.4	○	○	○	○	○	○	○	○
0 ~ 0.6, 1, 1.5, 2, 2.5, 3.5	○	○	○	○	○	○	○	○
4 0 ~ 5, 7, 10	○	○	○	○	○	○	○	○
5 0 ~ 15, 25	○	○	○	○	○	○	○	○
0 ~ 35	—	—	—	—	—	—	—	—
6 0 ~ 50	—	—	—	—	—	—	—	—
0 ~ 70	—	—	—	—	—	—	—	—
7 0 ~ 100	—	—	—	—	—	—	—	—

## 7 Window

0 Standard	○	○	○	○
2 Tempered glass	○	○	Impossible BL1□	—
3 Non-glare treatment glass	○	○	Impossible BL1□	—
6 Non-frost coat treatment glass	○	○	Impossible BJ1□, BL1□	—

## 6 Pointer

0 Standard	○	○	○	○
1 Zero adjustable (Micro meter type)	○	○	Impossible BA1□	—
2 Zero adjustable (Spring type)	○	○	—	—
5 Max pointer	○	○	Impossible BA1□	—
6 Set pointer	○	○	Impossible BA1□	—

## 5 Function

	BA1□ BC1□	BE1□ BG1□	BJ1□	BL1□
0 Standard	○	○	○	○
1 M: Steam use	○	○	○	—
2 H: Heat-proof type	—	○	—	—
3 V: Vibration-proof type	○	○	—	—
4 MV: Steam use+ vibration-proof type	○	○	—	—
5 HV: Heat-proof+ vibration-proof type	—	○	—	—