

JIS correspondence

# General Industrial Pressure Gauges

A□20, A□10, A□15

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2015/11

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# A\_20 ( $\phi 75$ , $\phi 100$ )

## General Industrial Pressure Gauges

### (Type A / Lower connection)

#### Outline

The bourdon tube pressure gauge is offered and made in accordance with JIS B 7505-1: 2015. The gauge is easy to handle with its structured simplicity with elastic measuring element (bourdon tube) into a deflection caused by applied pressure change transmitted to a rotary geared movement carrying pointer. It is applicable to variety of applications offering wide varieties of pressure ranges.

#### Features

- 7-digits part number will be printed under NKS trademark on dial.
- Verification standard inspection mark (Type Approval) can be attached (Depending on size, precision and pressure range).
- Available in many standard pressure ranges and can accommodate demand for use with corrosive media.

\* To maximize performance, select full scale pressure range as normal operating pressure range which comes to conditions below:

For constant pressure

The maximum operating pressure should not exceed three-quarters of the full-scale range.

For fluctuating pressure

The maximum operating pressure should not exceed two-thirds of the full-scale range.

Select proper wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.

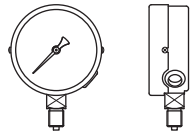
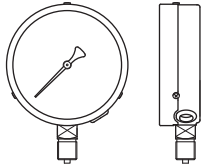
\* Please select "Use no oil" to use gauge on oxygen service.

Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.



Select sealed type pressure gauge for applications where enough resistant to rain and dew is required.

#### List of products

Size	Mounting	Model number
$\phi 75$		AC20-1□□
$\phi 100$		AE20-1□□

\*  $\phi 60$ ,  $\phi 150$  is A□10. Please refer to P9.

## Specification 1

**Fluid:**

Gas, liquid

**Wetted parts material:**

Wetted parts generally consist of bourdon tube and socket. These parts are exposed to or in direct contact with the medium under pressure (Gas, liquid).

Purpose	Connecting part	Bourdon tube
General use	C3604 or C3771 *	C6872 (2.5MPa or lower) SUS316 (4MPa or higher) (Varies depending on required pressure range and additional spec on performance.)
Ammonia use	SUS316	SUS316
Corrosion-proof use		

\* Connection: G1/2B or R1/2

**Connection:** Refer to the document JIS pipe thread in technical sheet.

G1/4B, G3/8B, G1/2B, R1/4, R3/8, R1/2

**Pressure range:**

0 to 0.1MPa → 0 to 60MPa

-0.1 to 0MPa → -0.1 to 2.5MPa

\*For details, refer to the minimum scale value table in Specification 4

**Accuracy:**

JIS1.6 (JIS accuracy class)

## Case

**Case finish:** Black (Standard color)

**Case material:** Inner frame/Outer frame ... SECC

**Protection:** IP32

## Treatment of wetted parts (Option)

Use no oil, use no water gauge can be made upon request.

### Use no oil

Oil used in manufacturing the gauges had been flushed out & no oil residue remained inside its wetted parts.

### Use no water

Water used in manufacturing the gauges had been flushed out & no water residue remained inside its wetted parts.

### Use no oil & water

Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.



### Caution

\*Please select "Use no oil" to use gauge on oxygen service.

\*Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.

Unit: mm

### Specification 2

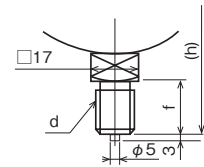
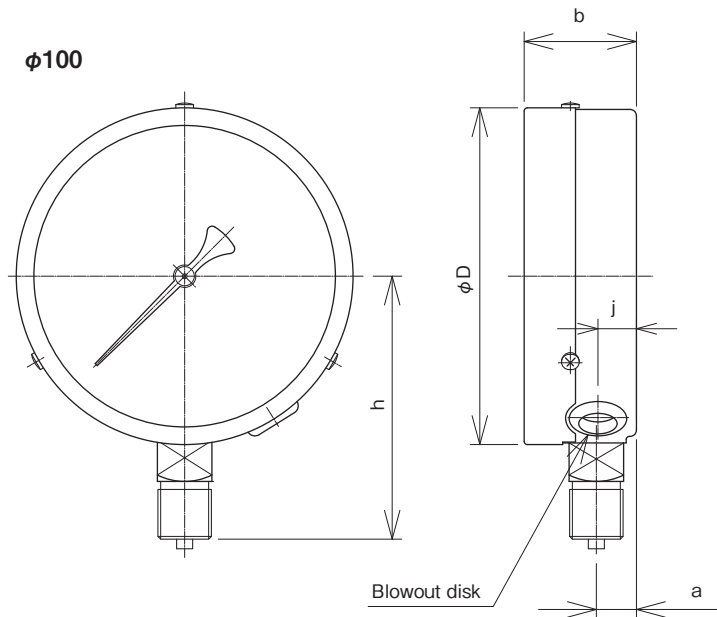
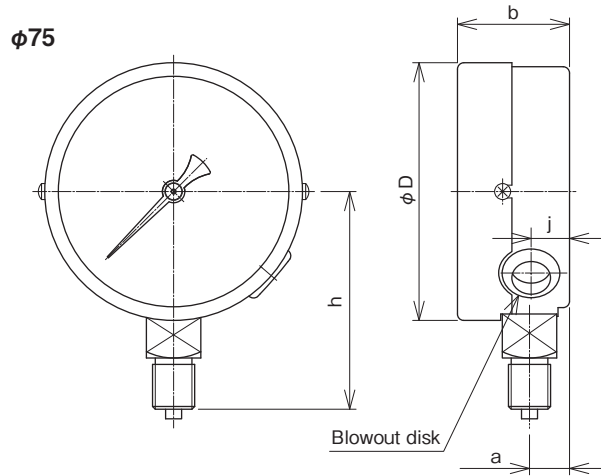
Shape / Dimensions:

Lower connection

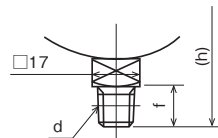
Type A...Direct mount pressure gauge

Weight:

Size	Weight
75	Approx. 300g
100	Approx. 400g



ATG [ ] B

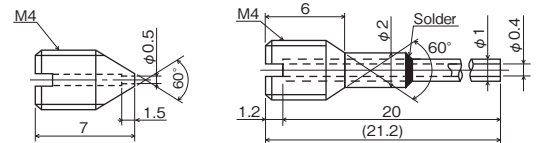
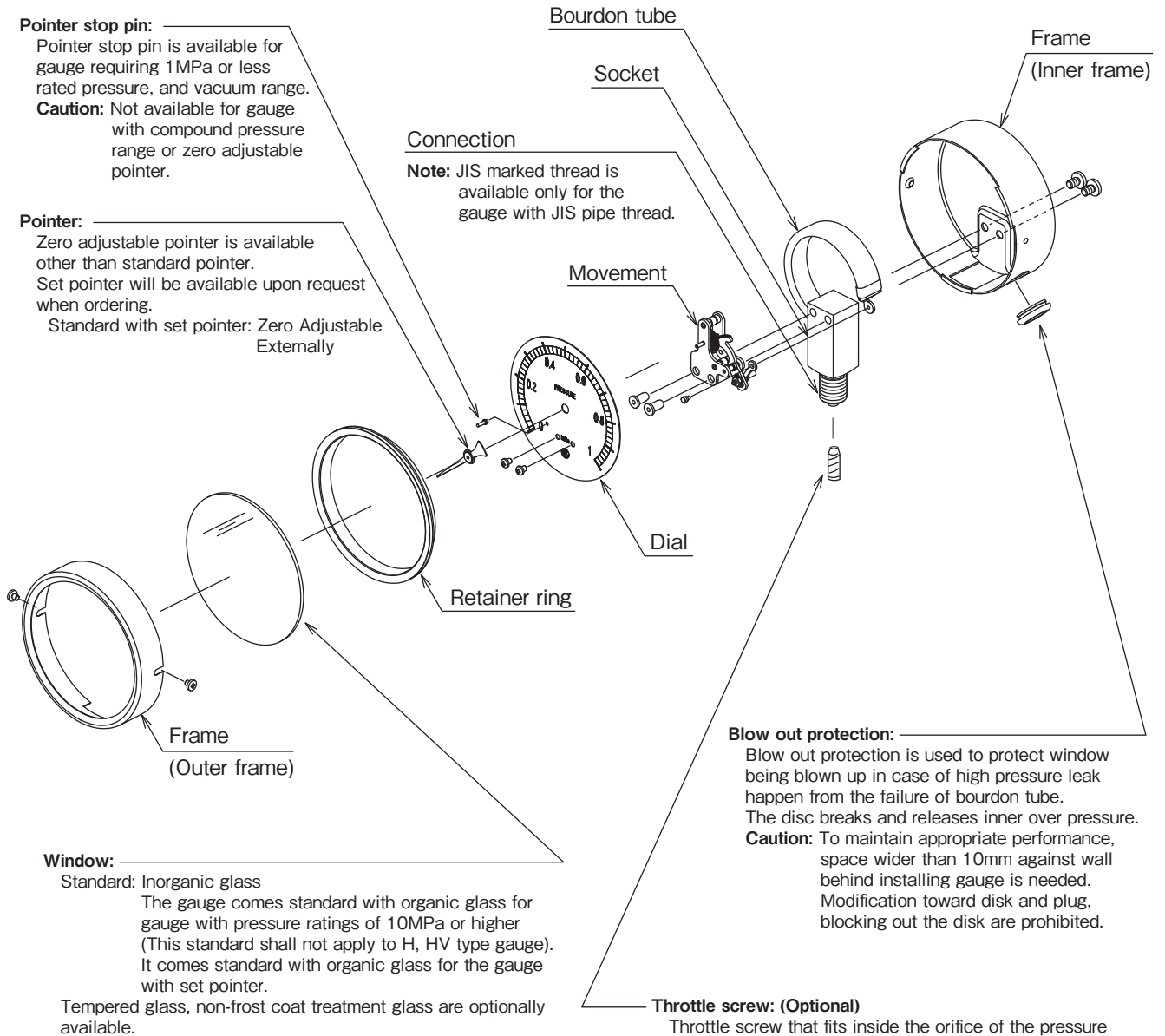


ATR [ ]

Size	Shape / Connection		Case / Dimensions					Model number	
	d		D	a	b	j	f		h
75	T	G1/4B, R1/4	80.5	12.5	35	12	16	68	AC20-1□□
		G3/8B, R3/8					18	70	
100	T	G3/8B, R3/8	105.5	12.5	35	12	18	82	AE20-1□□
		G1/2B, R1/2		15			20	88	

### Specification 3

#### Specifications & additional spec.:



Model number	Material
FS10-011	C3604
FS10-013 (Corrosion-proof use)	SUS316

Model number	Material
FS10-081 (With pipe)	C3604 (Pipe: C1100)

### Specification 4

#### Minimum scale value:

The minimum number of minor scale for each pressure range is shown in the following table.

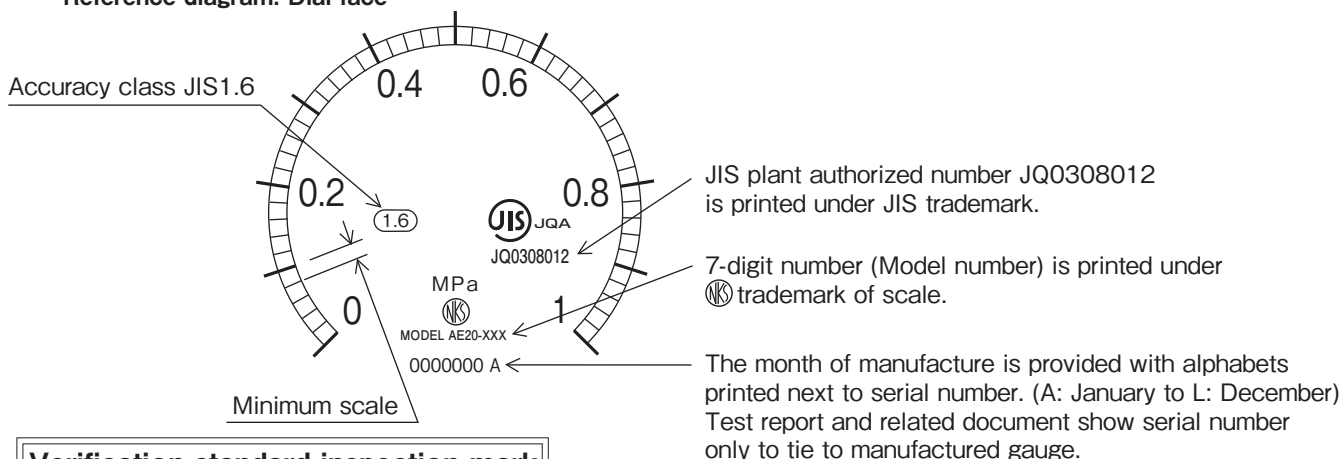
	Pressure range (MPa)	Size / Accuracy class	
		φ 75	φ 100
		JIS1.6	
Pressure range	0 to 0.1	0.002	
	to 0.16	0.005	
	to 0.25	0.005	
	to 0.4	0.01	
	to 0.6	0.01	
	to 1	0.02	
	to 1.6	0.05	
	to 2.5	0.05	
	to 4	0.1	
	to 6	0.1	
	to 10	0.2	
	to 16	0.5	
	to 25	0.5	
	to 40	1	
	to 60	—	1
Vacuum range	-0.1 to 0	0.002	
Compound range	-0.1 to 0.1	0.005	
	to 0.16	0.005	
	to 0.25	0.01	
	to 0.4	0.01	
	to 0.6	0.02	
	to 1	0.02	
	to 1.6	0.05	
	to 2.5	0.05	

\* Gauge with 40MPa or higher range is made by corrosion-proof type.  
 \* Blue colored cell implies the gauge obtained type approval.

#### Customized Dial:

Customized dial with tag number, characters, and colored dial can be made upon request.

#### Reference diagram: Dial face



#### Verification standard inspection mark

##### Requirement of verification standard inspection mark:

The pressure gauges with the pressure ranges and sizes in the blue frame in the specification 4 have obtained type approval, and the verification standard inspection mark printed for those approved products instead of the conventional verification mark is.

##### Type Approval Number:

Bourdon tube made of brass  
 (Pressure range 0 to 0.1MPa → 0 to 2.5MPa): X131  
 Bourdon tube made of SUS  
 (Pressure range 0 to 0.1MPa → 0 to 25MPa): X132

##### Designated Manufacturing Business Operator Number:

272001



### φ 100 General Industrial Pressure Gauges

#### Model number configuration

Please specify the model number, each specs and the range for ordering.

Model

**A E 2 0**

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General Industrial Pressure Gauges (φ 100) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

Model number	Selective spec.	Additional spec. (Option)
① Mounting	1 Lower connection Type A	
② Connection	3 G3/8B	
	4 G1/2B	
	8 R3/8	
	9 R1/2	
③ Wetted parts material	1 General use 40MPa and over is cannot be manufactured	
	2 Ammonia use SUS	
	3 Corrosion-proof use SUS	
④ Pressure range (MPa)	2 -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound	
	3 -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5	
	4 0 to 4, 6, 10	
	5 0 to 16, 25	
	6 0 to 40, 60 Corrosion-proof use	
	⑤ Performance	0 Standard
	A M: Steam use	
	B H: Heat-proof type	
	C V: Vibration-proof type	
	D MV: Steam use & Vibration-proof type	
	E HV: Heat-proof & Vibration-proof type	
⑥ Pointer	0 Standard	
	2 Zero adjustable (Spring type) Verification standard inspection mark can't be supplied with this specification.	
	6 Set pointer *2 Verification standard inspection mark can't be supplied with this specification.	
	B Zero adjustable (Spring type) + Set pointer *2 Verification standard inspection mark can't be supplied with this specification.	
⑦ Glass	0 Standard Inorganic glass *3	
	1 Organic glass Not available in H, HV specification.	
	2 Tempered glass	
	6 Non-frost coat treatment glass	
⑧ Treatment	0 Nil	
	1 Use no oil	
	2 Use no water	
	3 Use no oil & water	
⑨ Throttle screw	0 Nil	
	1 FS10-011 or FS10-013 Corrosion-proof use	
	3 FS10-081 (With pipe) (General use)	
⑩ Other additional spec.	0 Nil	
	1 Required (Please specify the desired documents separately.) Verification standard inspection mark, dial scale*4, case color	
⑭ Class	J JIS specification	
⑮ Document	0 Nil	
	1 Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), inspection / traceability certificate, attended inspection	

Please specify applicable range code as well as pressure range and engineering unit.

③ Wetted parts material

Purpose	Connecting part	Bourdon tube	Connecting method
1 General use  (Not available for gauge requiring over 25MPa.)	C3604 or C3771 *1	For the gauge with pressure ratings of 2.5MPa or lower: •General type, Vibration-proof type C6872  •Steam use, Heat-proof type, Steam use & Vibration-proof type, Heat-proof & Vibration-proof type SUS316  For the gauge with pressure ratings of 4MPa or higher: SUS316	Soldered for brass parts combination  Silver soldered for brass and SUS316 combination
2 Ammonia use	SUS316	SUS316	Tig-welding
3 Corrosion-proof use	SUS316	SUS316	Tig-welding

\*1 Connection: G1/2B or R1/2

\*2 Set pointer with External adjust (Not available in ammonia use, H, HV specification.)

\*3 The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher, and with set pointer (This standard shall not apply to H&HV type gauge).

\*4 Customized dial with tag number, characters, and colored dial can be made upon request.

\* Specify by code "X" if there is no applicable specification.



# A\_10 ( $\phi 60$ , $\phi 150$ )

## General Industrial Pressure Gauges

### (Type A / Lower connection)

#### Outline

The bourdon tube pressure gauge is offered and made in accordance with JIS B 7505-1: 2015. The gauge is easy to handle with its structured simplicity with elastic measuring element (bourdon tube) into a deflection caused by applied pressure change transmitted to a rotary geared movement carrying pointer. It is applicable to variety of applications offering wide varieties of pressure ranges.

#### Features

- Verification standard inspection mark (Type Approval) can be attached (Depending on size, precision and pressure range).
- Available in many standard pressure ranges and can accommodate demand for use with corrosive media.

\* To maximize performance, select full scale pressure range as normal operating pressure range which comes to conditions below:

For constant pressure

The maximum operating pressure should not exceed three-quarters of the full-scale range.

For fluctuating pressure

The maximum operating pressure should not exceed two-thirds of the full-scale range.

Select proper wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.

\* Please select "Use no oil" to use gauge on oxygen service.

Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.



Select sealed type pressure gauge for applications where enough resistant to rain and dew is required.

#### List of products

Size	Mounting	Model number
$\phi 60$		AA10-1□□
$\phi 150$		AG10-1□□

\* Please refer to A□20 for  $\phi 75$  and  $\phi 100$ .

### Specification 1

**Fluid:**  
Gas, liquid

**Wetted part material:**  
Wetted parts generally consist of bourdon tube and socket.  
These parts are exposed to or in direct contact with the medium under pressure (Gas, liquid).

Purpose	Connecting part	Bourdon tube
General use	C3604* or CAC203	C6872 or SUS316 (Varies depending on required pressure range and additional spec on performance.)
Ammonia use	SUS316*	SUS316
Corrosion-proof use	or SCS14	

\* AA10 (φ60) only

**Connection:** Refer to the document JIS pipe thread in the technical sheet.  
G1/4B, G3/8B, G1/2B, R1/4, R3/8, R1/2, Others  
\*For other connections, please contact us.

**Pressure range:**  
0 to 40kPa → 0 to 100MPa  
-0.1 to 0MPa → -0.1 to 2.5MPa  
\*For details, refer to the minimum scale value table in Specification 4

**Accuracy:**  
JIS1.6 (JIS accuracy class)  
Upon request, JIS1.0 product can be manufactured.  
(JIS1.0 is available for gauge requiring 1MPa or higher pressure range with nominal size of φ150.)

### Specification 2

Unit: mm

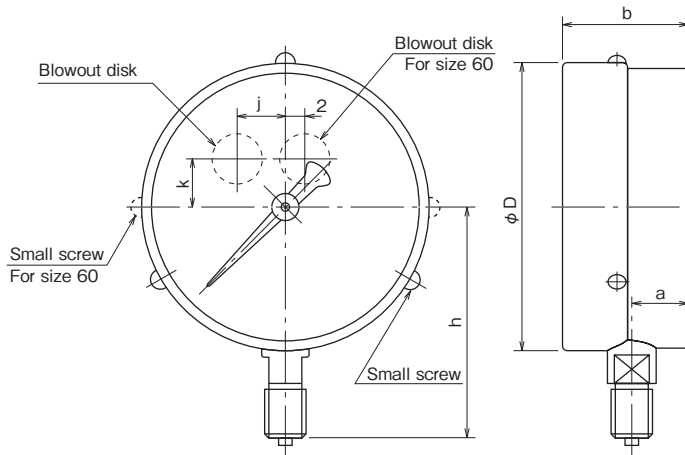
**Shape/Dimensions:**

**Lower connection**

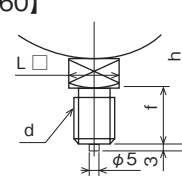
**Type A**...Direct mount pressure gauge

**Weight:**

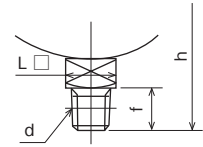
Size	Weight
60	Approx. 200g
150	Approx. 900g



**[φ60]**

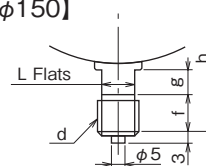


ATG [ ] B

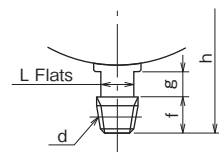


ATR [ ]

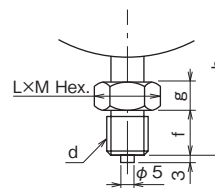
**[φ150]**



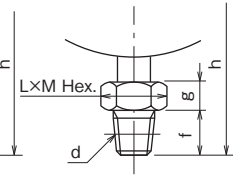
AUG [ ] B



AUR [ ]



ASG [ ] B



ASR [ ]

Size	Shape		Case / Dimensions									Model number	
		d	D	a	b	j	k	f	g	L	M		h
60	T	G1/4B, R1/4	65	11.5	32	—	8	16	—	17	—	58	AA10-1□□
150	U	G3/8B, R3/8	153	20	50	20	10	18	12	14	—	110	AG10-1□□
	S	G1/2B, R1/2, 1/2NPT		(30)	(60)			20	12	24	27.7	125	

\* ( ) is 0.09MPa and under.

### Specification 3

#### Specifications & additional spec.:

##### Blow out protection:

Blow out protection is used to protect window being blown up in case of high pressure leak happen from the failure of bourdon tube. The disc breaks and releases inner over pressure.

**Caution:** To maintain appropriate performance, space wider than 10mm against wall behind installing gauge is needed. Modification toward disk and plug, blocking out the disk are prohibited.

##### Movement:

Optional SUS-made movement available.

##### Pointer:

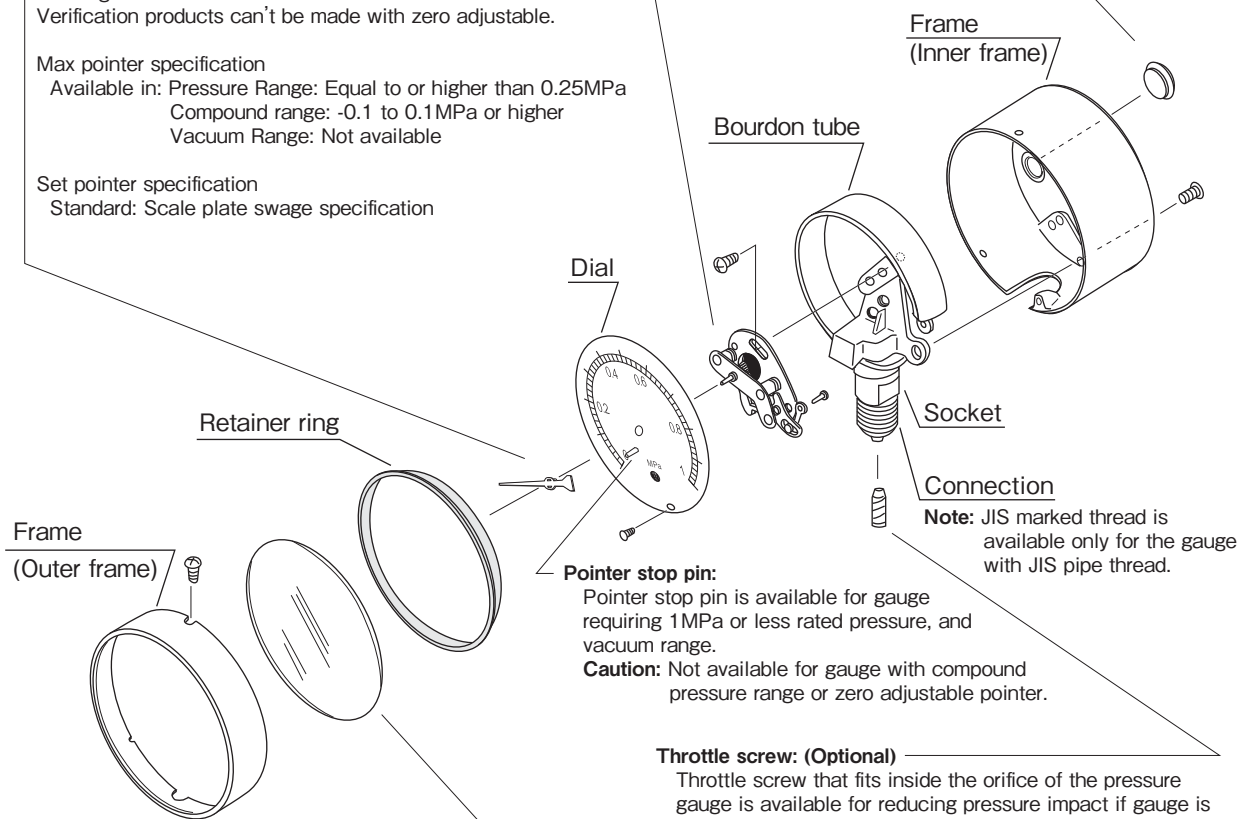
Zero adjustable pointer is available other than standard pointer. Set pointer and max pointer will be available upon request when ordering. Verification products can't be made with zero adjustable.

##### Max pointer specification

Available in: Pressure Range: Equal to or higher than 0.25MPa  
Compound range: -0.1 to 0.1MPa or higher  
Vacuum Range: Not available

##### Set pointer specification

Standard: Scale plate swage specification



##### Pointer stop pin:

Pointer stop pin is available for gauge requiring 1MPa or less rated pressure, and vacuum range.

**Caution:** Not available for gauge with compound pressure range or zero adjustable pointer.

##### Throttle screw: (Optional)

Throttle screw that fits inside the orifice of the pressure gauge is available for reducing pressure impact if gauge is subjected to pulsation. Select from following models:

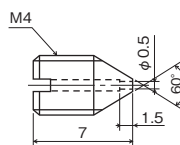
FS10-011,  
FS10-081 (With pipe),  
Corrosion-proof use FS10-013

##### Window:

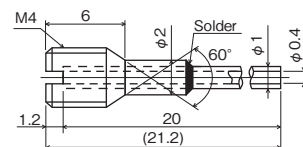
Standard: Inorganic glass

The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher (This standard shall not apply to H, HV type gauge)

Tempered glass, non-frost coat treatment glass are optionally available.



Model number	Material
FS10-011	C3604
FS10-013 (Corrosion-proof use)	SUS316



Model number	Material
FS10-081 (With pipe)	C3604 (Pipe: C1100)

### Case

**Case finish:** Black (Standard color)

**Case material:** Inner frame... Aluminum alloy

Outer frame... SECC

**Protection:** IP32

### Specification 4

#### Minimum scale value:

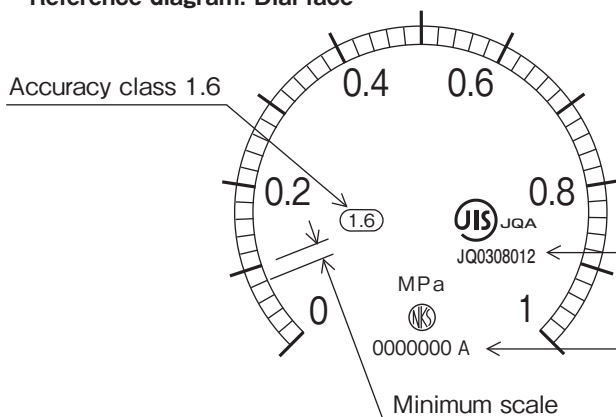
The minimum number of minor scale for each pressure range is shown in the following table.

	Pressure range (MPa)	Size / Accuracy class		
		φ 60	φ 150	
			JIS1.6	JIS1.6
Pressure range	0 to 40kPa	—	1	—
	to 0.06	—	0.001	—
	to 0.1	0.002	0.002	0.002
	to 0.16	0.005	0.005	0.002
	to 0.25	0.005	0.005	0.005
	to 0.4	0.01	0.01	0.005
	to 0.6	0.01	0.01	0.01
	to 1	0.02	0.02	0.02
	to 1.6	0.05	0.05	0.02
	to 2.5	0.05	0.05	0.05
	to 4	0.1	0.1	0.05
	to 6	0.1	0.1	0.1
	to 10	0.2	0.2	0.2
	to 16	0.5	0.5	0.2
	to 25	0.5	0.5	0.5
	to 40	—	1	0.5
	to 60	—	1	1
	to 100	—	2	2
Vacuum range	-0.1 to 0	0.002	0.002	0.002
Compound range	-0.1 to 0.1	0.005	0.005	0.002
	to 0.16	0.005	0.005	0.005
	to 0.25	0.01	0.01	0.005
	to 0.4	0.01	0.01	0.01
	to 0.6	0.02	0.02	0.01
	to 1	0.02	0.02	0.02
	to 2.5	0.05	0.05	0.05

\* Gauge with 40MPa or higher range is made by corrosion-proof type.

\*  Blue colored cell implies the gauge obtained type approval.

#### Reference diagram: Dial face



#### Customized Dial:

Customized dial with capacity scale, double scale (Pressure and other than pressure), tag number, characters, and colored dial can be made upon request.

JIS plant authorized number JQ0308012 is printed under JIS trademark.

The month of manufacture is provided with alphabets printed next to serial number. (A: January to L: December) Test report and related document show serial number only to tie to manufactured gauge.

#### Verification standard inspection mark

##### Requirement of verification standard inspection mark:

The pressure gauges with the pressure ranges and sizes in the blue frame in the specification 4 have obtained type approval, and the verification standard inspection mark printed for those approved products instead of the conventional verification mark is.

##### Type Approval Number:

Bourdon tube made of brass  
(Pressure range 0 to 0.06MPa → 0 to 2.5MPa): X951  
Bourdon tube made of SUS  
(Pressure range 0 to 0.06MPa → 0 to 100MPa): X9618

Designated Manufacturing Business Operator Number:  
272001





# A\_20 (φ75, φ100)

## General Industrial Pressure Gauges (Type B / Lower connection)

### Outline

The bourdon tube pressure gauge is offered and made in accordance with JIS B 7505-1: 2015. The gauge is easy to handle with its structured simplicity with elastic measuring element (bourdon tube) into a deflection caused by applied pressure change transmitted to a rotary geared movement carrying pointer. It is applicable to variety of applications offering wide varieties of pressure ranges.

### Features

- 7-digits part number will be printed under NKS trademark on dial.
- Verification standard inspection mark (Type Approval) can be attached (Depending on size, precision and pressure range).
- Available in many standard pressure ranges and can accommodate demand for use with corrosive media.

\* To maximize performance, select full scale pressure range as normal operating pressure range which comes to conditions below:

For constant pressure

The maximum operating pressure should not exceed three-quarters of the full-scale range.

For fluctuating pressure

The maximum operating pressure should not exceed two-thirds of the full-scale range.

Select proper wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.

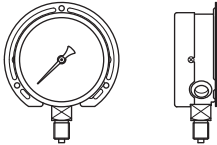
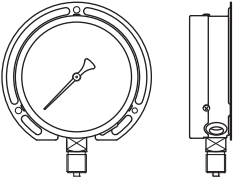
\* Please select "Use no oil" to use gauge on oxygen service.

Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.



Select sealed type pressure gauge for applications where enough resistant to rain and dew is required.

### List of products

Size	Mounting	Model number
φ 75		AC20-2□□
φ 100		AE20-2□□

\* φ 60, φ 150 and φ 200 is A□10. Please refer to P22.

## Specification 1

**Fluid:**

Gas, liquid

**Wetted parts material:**

Wetted parts generally consist of bourdon tube and socket. These parts are exposed to or in direct contact with the medium under pressure (Gas, liquid).

Purpose	Connecting part	Bourdon tube
General use	C3604 or C3771 *	C6872 (2.5MPa or lower) SUS316 (4MPa or higher) (Varies depending on required pressure range and additional spec on performance.)
Ammonia use	SUS316	SUS316
Corrosion-proof use		

\* Connection: G1/2B or R1/2

**Connection:** Refer to the document JIS pipe thread in technical sheet.

G1/4B, G3/8B, G1/2B, R1/4, R3/8, R1/2

**Pressure range:**

0 to 0.1MPa → 0 to 60MPa

-0.1 to 0MPa → -0.1 to 2.5MPa

\*For details, refer to the minimum scale value table in Specification 4

**Accuracy:**

JIS1.6 (JIS accuracy class)

## Case

**Case finish:** Black (Standard color)

**Case material:** Inner frame/Outer frame ... SECC

**Protection:** IP32

## Treatment of wetted parts (Option)

Use no oil, use no water gauge can be made upon request.

### Use no oil

Oil used in manufacturing the gauges had been flushed out & no oil residue remained inside its wetted parts.

### Use no water

Water used in manufacturing the gauges had been flushed out & no water residue remained inside its wetted parts.

### Use no oil & water

Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.



### Caution

\*Please select "Use no oil" to use gauge on oxygen service.

\*Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.



Unit: mm

### Specification 2

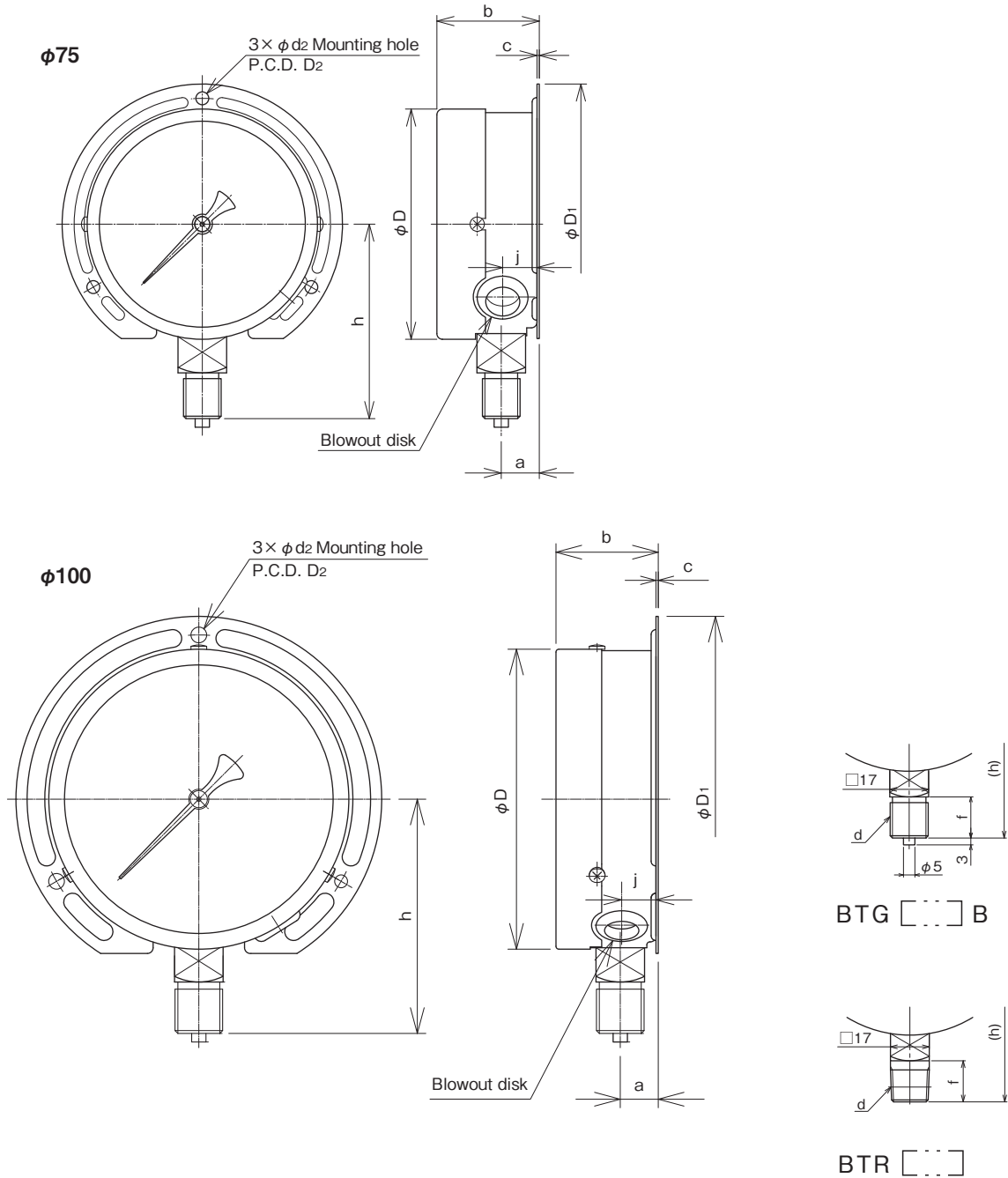
Shape / Dimensions:

Lower connection

Type B...Back flange is fastened to panel by screw.

Weight:

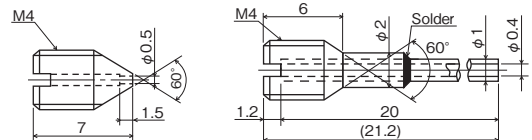
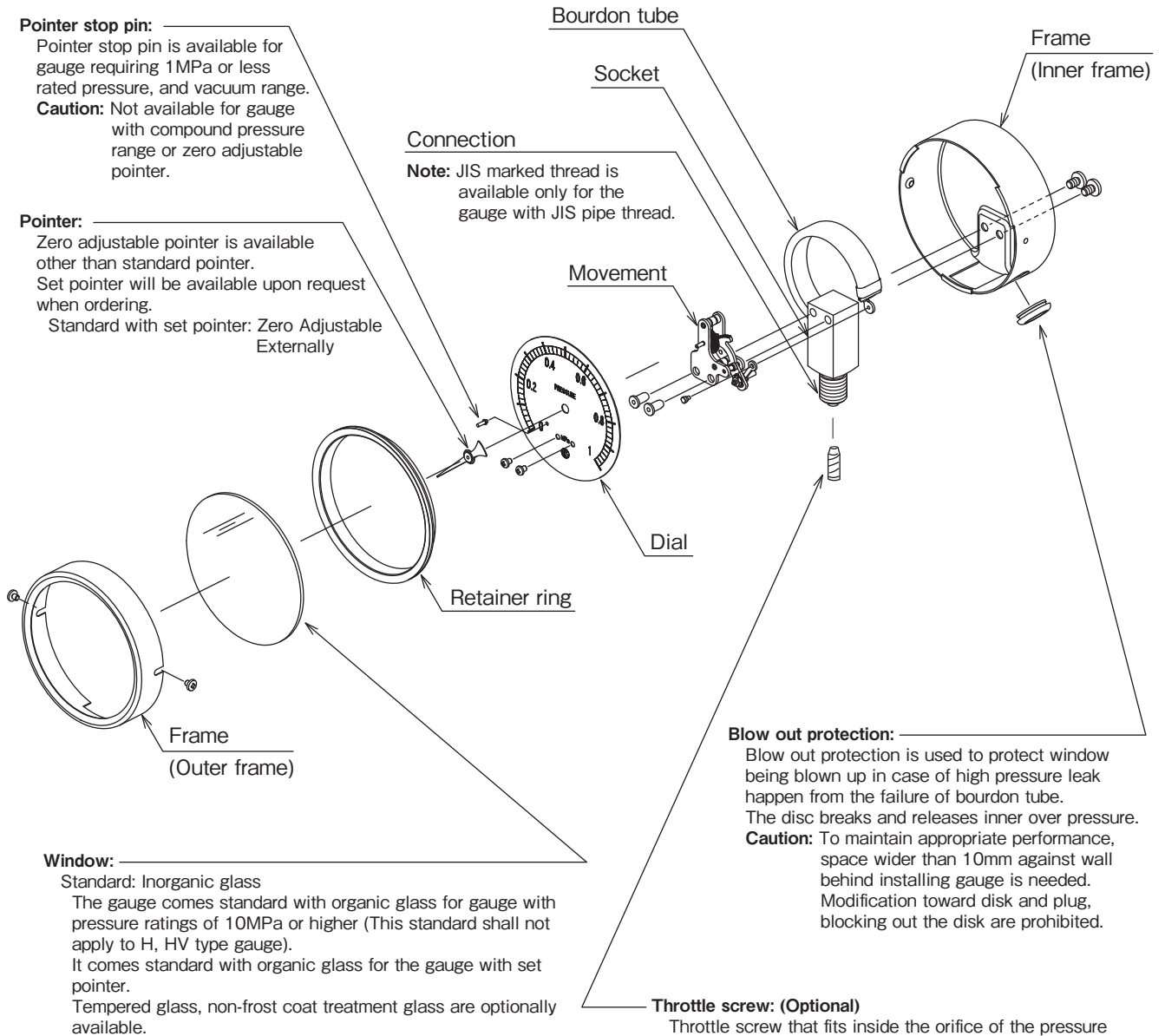
Size	Weight
75	Approx. 300g
100	Approx. 400g



Size	Shape / Connection		Case / Dimensions									Model number	
	d		D	D <sub>1</sub>	D <sub>2</sub>	a	b	c	d <sub>2</sub>	j	f		h
75	T	G1/4B, R1/4	80.5	98	88	13.5	36	0.8	4.5	12	16	68	AC20-2□□
		G3/8B, R3/8									18	70	
100	T	G3/8B, R3/8	105.5	128	115	13.5	36	0.8	5.5	12	18	82	AE20-2□□
		G1/2B, R1/2				16					20	88	

### Specification 3

#### Specifications & additional spec.:



Model number	Material
FS10-011	C3604
FS10-013 (Corrosion-proof use)	SUS316

Model number	Material
FS10-081 (With pipe)	C3604 (Pipe: C1100)

### Specification 4

#### Minimum scale value:

The minimum number of minor scale for each pressure range is shown in the following table.

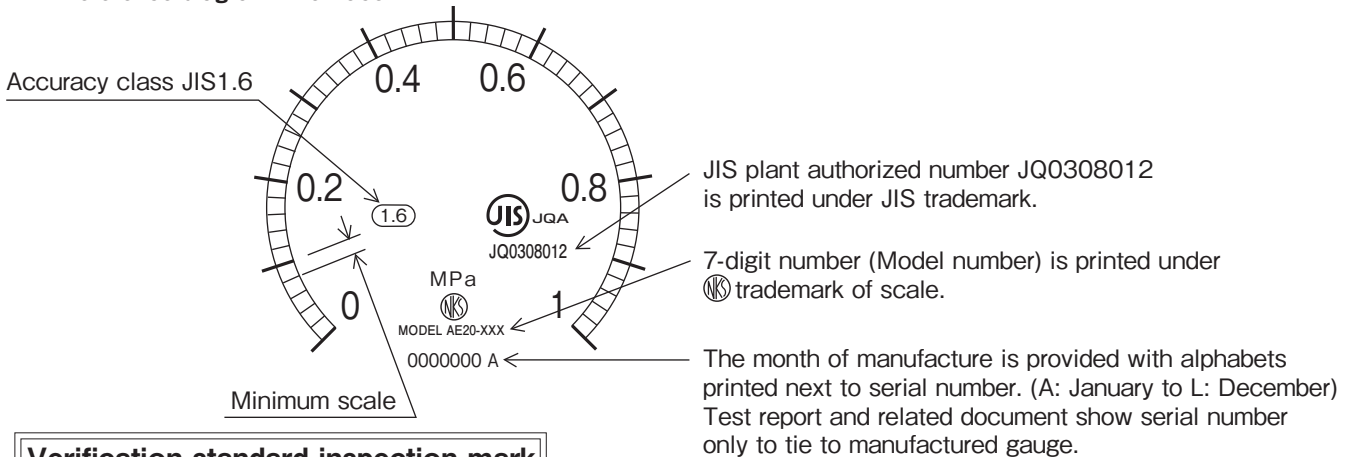
	Pressure range (MPa)	Size / Accuracy class	
		φ 75	φ 100
		JIS1.6	
Pressure range	0 to 0.1	0.002	
	to 0.16	0.005	
	to 0.25	0.005	
	to 0.4	0.01	
	to 0.6	0.01	
	to 1	0.02	
	to 1.6	0.05	
	to 2.5	0.05	
	to 4	0.1	
	to 6	0.1	
	to 10	0.2	
	to 16	0.5	
	to 25	0.5	
	to 40	1	
Vacuum range	-0.1 to 0	0.002	
Compound range	-0.1 to 0.1	0.005	
	to 0.16	0.005	
	to 0.25	0.01	
	to 0.4	0.01	
	to 0.6	0.02	
	to 1	0.02	
	to 1.6	0.05	
	to 2.5	0.05	

\* Gauge with 40MPa or higher range is made by corrosion-proof type.  
 \* Blue colored cell implies the gauge obtained type approval.

#### Customized Dial:

Customized dial with tag number, characters, and colored dial can be made upon request.

#### Reference diagram: Dial face



#### Verification standard inspection mark

##### Requirement of verification standard inspection mark:

The pressure gauges with the pressure ranges and sizes in the blue frame in the specification 4 have obtained type approval, and the verification standard inspection mark printed for those approved products instead of the conventional verification mark is.

##### Type Approval Number:

Bourdon tube made of brass  
 (Pressure range 0 to 0.1MPa → 0 to 2.5MPa): X131  
 Bourdon tube made of SUS  
 (Pressure range 0 to 0.1MPa → 0 to 25MPa): X132

##### Designated Manufacturing Business Operator Number:

272001





# A\_10 ( $\phi 60$ , $\phi 150$ , $\phi 200$ )

## General Industrial Pressure Gauges

### (Type B / Lower connection)

#### Outline

The bourdon tube pressure gauge is offered and made in accordance with JIS B 7505-1: 2015. The gauge is easy to handle with its structured simplicity with elastic measuring element (bourdon tube) into a deflection caused by applied pressure change transmitted to a rotary geared movement carrying pointer. It is applicable to variety of applications offering wide varieties of pressure ranges.

#### Features

- Verification standard inspection mark (Type Approval) can be attached (Depending on size, precision and pressure range).
- Available in many standard pressure ranges and can accommodate demand for use with corrosive media.

\* To maximize performance, select full scale pressure range as normal operating pressure range which comes to conditions below:

For constant pressure

The maximum operating pressure should not exceed three-quarters of the full-scale range.

For fluctuating pressure

The maximum operating pressure should not exceed two-thirds of the full-scale range.

Select proper wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.

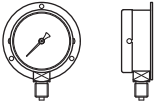
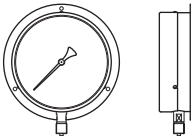
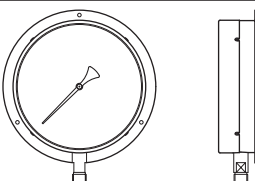
\* Please select "Use no oil" to use gauge on oxygen service.

Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.



Select sealed type pressure gauge for applications where enough resistant to rain and dew is required.

#### List of products

Size	Mounting	Model number
$\phi 60$		AA10-2□□
$\phi 150$		AG10-2□□
$\phi 200$		AJ10-2□□

\* Please refer to A□20 for  $\phi 75$  and  $\phi 100$ .

### Specification 1

**Fluid:**  
Gas, liquid

**Wetted part material:**  
Wetted parts generally consist of bourdon tube and socket.  
These parts are exposed to or in direct contact with the medium under pressure (Gas, liquid).

Purpose	Connecting part	Bourdon tube
General use	C3604* or CAC203	C6872 or SUS316 (Varies depending on required pressure range and additional spec on performance.)
Ammonia use	SUS316*	SUS316
Corrosion-proof use	or SCS14	

\* AA10 (φ60) only

**Connection:** Refer to the document JIS pipe thread in the technical sheet.  
G1/4B, G3/8B, G1/2B, R1/4, R3/8, R1/2, Others  
\*For other connections, please contact us.

**Pressure range:**  
0 to 40kPa → 0 to 100MPa  
-0.1 to 0MPa → -0.1 to 2.5MPa  
\*For details, refer to the minimum scale value table in Specification 4

**Accuracy:**  
JIS1.6 (JIS accuracy class)  
Upon request, JIS1.0 product can be manufactured.  
(JIS1.0 is available for gauge requiring 1MPa or higher pressure range with nominal size of φ150, φ200.)

### Specification 2

Unit: mm

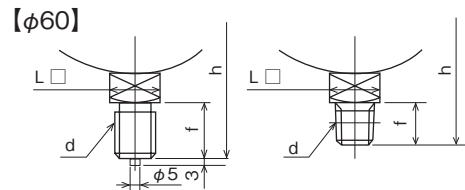
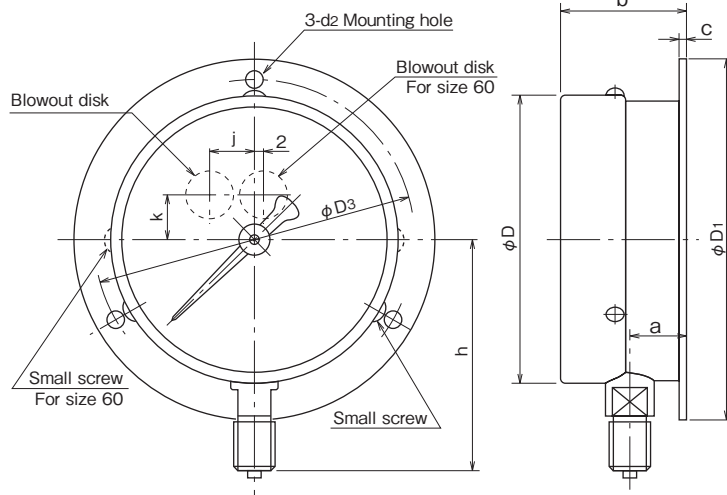
**Shape/Dimensions:**

**Lower connection**

**Type B**...Back flange is fastened to panel by screw.

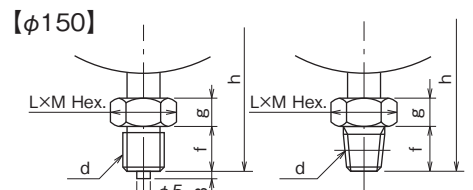
**Weight:**

Size	Weight
60	Approx. 200g
150	Approx. 900g
200	Approx. 1200g



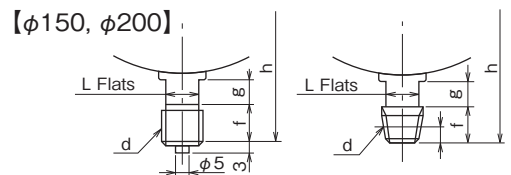
BTG [ ] B

BTR [ ]



BSG [ ] B

BSR [ ]



BUG [ ] B

BUR [ ]

Size	Shape	d	Case / Dimensions													Model number	
			D	D <sub>1</sub>	D <sub>3</sub>	a	b	c	d <sub>2</sub>	j	k	f	g	L	M		h
60	T	G1/4B, R1/4	65	80	72	11.5	32	2	4.5	—	8	16	—	17	—	58	AA10-2□□
150	U	G3/8B, R3/8	153	178	165	20	50	2.5	5.5	20	10	18	12	14	—	110	AG10-2□□
	S	G1/2B, R1/2, 1/2NPT				(30)	(60)										
200	U	G1/2B, R1/2	204	235	220	24	58.5	2.5	5.5	20	10	20	15	17	—	152	AJ10-2□□

\* For surface mounting, please provide a 25mm dia hole in the wall for blowout disk.  
\* ( ) is 0.09MPa and under.

### Specification 3

#### Specifications & additional spec.:

##### Blow out protection:

Blow out protection is used to protect window being blown up in case of high pressure leak happen from the failure of bourdon tube. The disc breaks and releases inner over pressure.

**Caution:** To maintain appropriate performance, space wider than 10mm against wall behind installing gauge is needed. Modification toward disk and plug, blocking out the disk are prohibited.

##### Movement:

Optional SUS-made movement available.

##### Pointer:

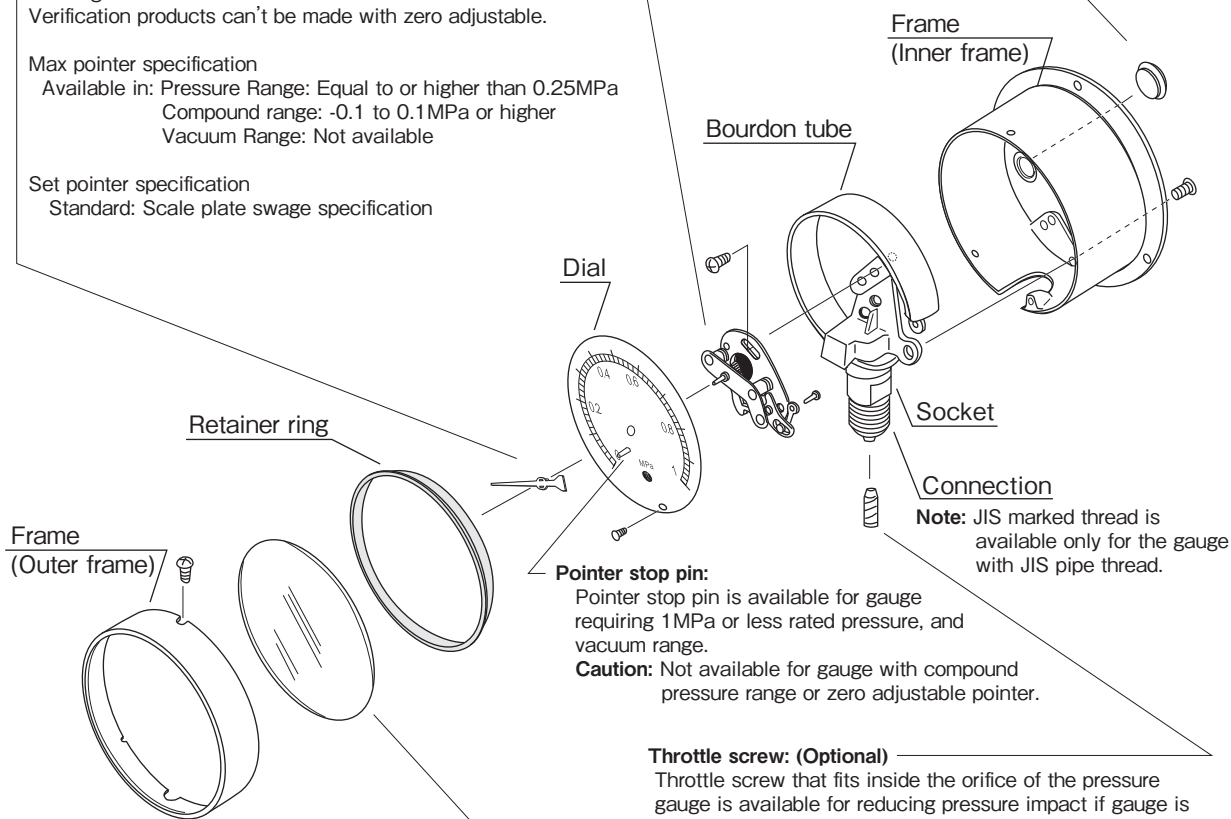
Zero adjustable pointer is available other than standard pointer. Set pointer and max pointer will be available upon request when ordering. Verification products can't be made with zero adjustable.

##### Max pointer specification

Available in: Pressure Range: Equal to or higher than 0.25MPa  
Compound range: -0.1 to 0.1MPa or higher  
Vacuum Range: Not available

##### Set pointer specification

Standard: Scale plate swage specification



##### Pointer stop pin:

Pointer stop pin is available for gauge requiring 1MPa or less rated pressure, and vacuum range.

**Caution:** Not available for gauge with compound pressure range or zero adjustable pointer.

##### Throttle screw: (Optional)

Throttle screw that fits inside the orifice of the pressure gauge is available for reducing pressure impact if gauge is subjected to pulsation. Select from following models:

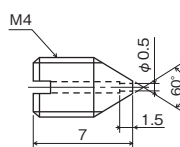
FS10-011,  
FS10-081 (With pipe),  
Corrosion-proof use FS10-013

##### Window:

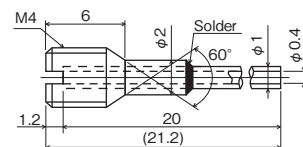
Standard: Inorganic glass

The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher (This standard shall not apply to H, HV type gauge)

Tempered glass, non-frost coat treatment glass are optionally available.



Model number	Material
FS10-011	C3604
FS10-013 (Corrosion-proof use)	SUS316



Model number	Material
FS10-081 (With pipe)	C3604 (Pipe: C1100)

### Case

**Case finish:** Black (Standard color)

**Case material:** Inner frame... Aluminum alloy

Outer frame... SECC

**Protection:** IP32



### Specification 4

#### Minimum scale value:

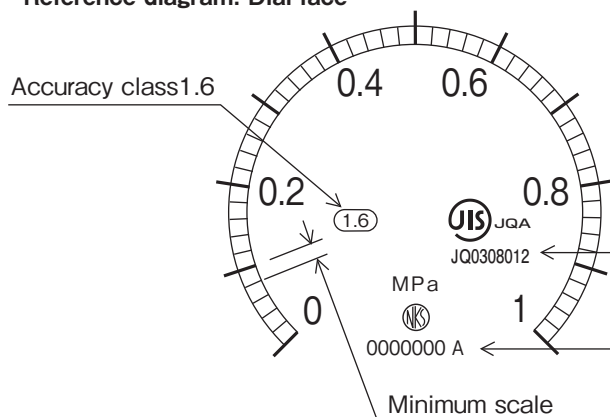
The minimum number of minor scale for each pressure range is shown in the following table.

	Pressure range (MPa)	Size / Accuracy class				
		φ 60	φ 150		φ 200	
		JIS1.6	JIS1.6	JIS1.0	JIS1.6	JIS1.0
Pressure range	0 to 40kPa	—	1	—	1	—
	to 0.06	—	0.001	—	0.001	—
	to 0.1	0.002	0.002	0.002	0.002	0.002
	to 0.16	0.005	0.005	0.002	0.005	0.002
	to 0.25	0.005	0.005	0.005	0.005	0.005
	to 0.4	0.01	0.01	0.005	0.01	0.005
	to 0.6	0.01	0.01	0.01	0.01	0.01
	to 1	0.02	0.02	0.02	0.02	0.02
	to 1.6	0.05	0.05	0.02	0.05	0.02
	to 2.5	0.05	0.05	0.05	0.05	0.05
	to 4	0.1	0.1	0.05	0.1	0.05
	to 6	0.1	0.1	0.1	0.1	0.1
	to 10	0.2	0.2	0.2	0.2	0.2
	to 16	0.5	0.5	0.2	0.5	0.2
	to 25	0.5	0.5	0.5	0.5	0.5
	to 40	—	1	0.5	1	0.5
	to 60	—	1	1	1	1
to 100	—	2	2	2	2	
Vacuum range	-0.1 to 0	0.002	0.002	0.002	0.002	0.002
Compound range	-0.1 to 0.1	0.005	0.005	0.002	0.005	0.002
	to 0.16	0.005	0.005	0.005	0.005	0.005
	to 0.25	0.01	0.01	0.005	0.01	0.005
	to 0.4	0.01	0.01	0.01	0.01	0.01
	to 0.6	0.02	0.02	0.01	0.02	0.01
	to 1	0.02	0.02	0.02	0.02	0.02
	to 2.5	0.05	0.05	0.05	0.05	0.05

\* Gauge with 40MPa or higher range is made by corrosion-proof type.

\*   Blue colored cell implies the gauge obtained type approval.

#### Reference diagram: Dial face



#### Customized Dial:

Customized dial with capacity scale, double scale (Pressure and other than pressure), tag number, characters, and colored dial can be made upon request.

JIS plant authorized number JQ0308012 is printed under JIS trademark.

The month of manufacture is provided with alphabets printed next to serial number. (A: January to L: December) Test report and related document show serial number only to tie to manufactured gauge.

#### Verification standard inspection mark

##### Requirement of verification standard inspection mark:

The pressure gauges with the pressure ranges and sizes in the blue frame in the specification 4 have obtained type approval, and the verification standard inspection mark printed for those approved products instead of the conventional verification mark is.

(Not possible to support because that φ 200 product has not received the type approval.)

##### Type Approval Number:

Bourdon tube made of brass  
(Pressure range 0 to 0.06MPa → 0 to 2.5MPa): X951  
Bourdon tube made of SUS  
(Pressure range 0 to 0.06MPa → 0 to 100MPa): X9618

Designated Manufacturing Business Operator Number:  
272001



### φ 150 General Industrial Pressure Gauges

#### Model number configuration

Please specify the model number, each specs and the range for ordering.

Model

**A G 1 0**

—

**2**

—

X X X **J**

General Industrial Pressure Gauges (φ 150) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

Model number	Selective spec.	Additional spec. (Option)
① Mounting	2 Lower connection Type B (Lower connection)	
② Connection	3 G3/8B	
	4 G1/2B	
	6 1/2NPT * 1	
	8 R3/8	
	9 R1/2	
	Others* 1	
③ Wetted parts material	1 General use 40MPa cannot be manufactured	
	2 Ammonia use SUS	
	3 Corrosion-proof use SUS	
④ Pressure range (MPa)	1 0 to 40kPa, 0 to 0.06	
	2 -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound	
	3 -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5	
	4 0 to 4, 6, 10	
	5 0 to 16, 25	
	6 0 to 40, 60	Corrosion-proof use
	7 0 to 100	Corrosion-proof use
⑤ Function	0 Standard	
	A M: Steam use	
	B H: Seat-proof type	
	C V: Heat-proof type	
	D MV: Steam use & Vibration-proof type	
	E HV: Heat-proof & Vibration proof type	
	3 Accuracy: (0.1MPa or higher)*2	
⑥ Pointer	0 Standard	
	1 Zero adjustable (Micro meter type) Verification standard inspection mark can't be supplied with this specification.	
	2 Zero adjustable (Spring type) Verification standard inspection mark can't be supplied with this specification.	
	5 Max pointer *3 Verification standard inspection mark can't be supplied with this specification.	
	6 Set pointer *3 Verification standard inspection mark can't be supplied with this specification.	
⑦ Glass	0 Standard Inorganic glass *4	
	1 Organic glass Not available in H, HV specification.	
	2 Tempered glass	
	3 Non-glare treatment glass	
	6 Non-frost coat treatment glass	
	Others	
⑧ Treatment	0 Nil	
	1 Use no oil	
	2 Use no water	
	3 Use no oil & water	
⑨ Throttle screw	0 Nil	
	1 FS10-011 or FS10-013 Corrosion-proof use	
	3 FS10-081 (With pipe)	
⑩ Other additional spec.	0 Nil	
	1 Required (Please specify the desired documents separately.) Verification standard inspection mark, dial scale*5, case color	
⑭ Class	J	JIS specification
⑮ Document	0 Nil	
	1 Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), inspection / traceability certificate, attended inspection	

Please specify applicable range code as well as pressure range and engineering unit.

Purpose	Connecting part	Bourdon tube	Connecting method
1 General use  (Not available for gauge requiring over 25MPa.)	CAC203	For the gauge with pressure ratings of 2.5MPa or lower: •General type, Vibration-proof type C6872  •Steam use, Heat-proof type, Steam use & Vibration-proof type, Heat-proof & Vibration-proof type SUS316 For the gauge with pressure ratings of 4MPa or higher: SUS316	Soldered for brass parts combination  Silver soldered for brass and SUS316 combination
2 Ammonia use	SCS14	SUS316	Tig-welding
3 Corrosion-proof use			

\*1 JIS marked thread is available only for the gauge with JIS pipe thread.

**\*2 Verification standard inspection mark cannot be attached to JIS1.0 product.**

\*3 Max pointer specification  
Range of manufacturability: Pressure gauges; 0.25MPa or higher  
Compound; -0.1 to 0.1MPa or higher  
Vacuum; Cannot be manufactured  
  
Set pointer with  
Scale plate swage specification

\*4 The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher  
(This standard shall not apply to H&HV type gauge).

\*5 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire

\* Specify by code "X" if there is no applicable specification.



# A\_20 (φ75, φ100)

## General Industrial Pressure Gauges (Type C / Lower connection)

### Outline

The gauge is easy to handle with its structured simplicity with elastic measuring element (bourdon tube) into a deflection caused by applied pressure change transmitted to a rotary geared movement carrying pointer. It is applicable to variety of applications offering wide varieties of pressure ranges.

### Features

- 7-digits part number will be printed under NKS trademark on dial.
- Verification standard inspection mark (Type Approval) can be attached (Depending on size, precision and pressure range).
- Available in many standard pressure ranges and can accommodate demand for use with corrosive media.
- Smaller design of flange than type B gauge provides excellent space efficiency for its installation.

\* To maximize performance, select full scale pressure range as normal operating pressure range which comes to conditions below:

For constant pressure

The maximum operating pressure should not exceed three-quarters of the full-scale range.

For fluctuating pressure

The maximum operating pressure should not exceed two-thirds of the full-scale range.

Select proper wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.

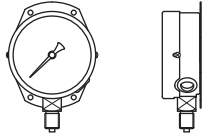
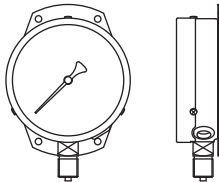
\* Please select "Use no oil" to use gauge on oxygen service.

Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.



Not available for JIS mark.

### List of products

Size	Mounting	Model number
φ 75		AC20-8□□
φ 100		AE20-8□□

\* φ 60 is AA 10. Please refer to P36.

## Specification 1

**Fluid:**

Gas, liquid

**Wetted parts material:**

Wetted parts generally consist of bourdon tube and socket. These parts are exposed to or in direct contact with the medium under pressure (Gas, liquid).

Purpose	Connecting part	Bourdon tube
General use	C3604 or C3771 *	C6872 (2.5MPa or lower) SUS316 (4MPa or higher) (Varies depending on required pressure range and additional spec on performance.)
Ammonia use	SUS316	SUS316
Corrosion-proof use		

\* Connection: G1/2B or R1/2

**Connection:** Refer to the document JIS pipe thread in technical sheet.

G1/4B, G3/8B, G1/2B, R1/4, R3/8, R1/2

**Pressure range:**

0 to 0.1MPa → 0 to 60MPa

-0.1 to 0MPa → -0.1 to 2.5MPa

\*For details, refer to the minimum scale value table in Specification 4

**Accuracy:**

JIS1.6 (JIS accuracy class)

## Case

**Case finish:** Black (Standard color)

**Case material:** Inner frame/Outer frame ... SECC

**Protection:** IP32

## Treatment of wetted parts (Option)

Use no oil, use no water gauge can be made upon request.

### Use no oil

Oil used in manufacturing the gauges had been flushed out & no oil residue remained inside its wetted parts.

### Use no water

Water used in manufacturing the gauges had been flushed out & no water residue remained inside its wetted parts.

### Use no oil & water

Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.



### Caution

\*Please select "Use no oil" to use gauge on oxygen service.

\*Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.

Unit: mm

### Specification 2

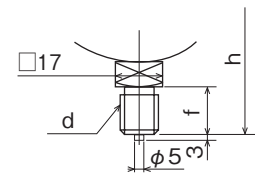
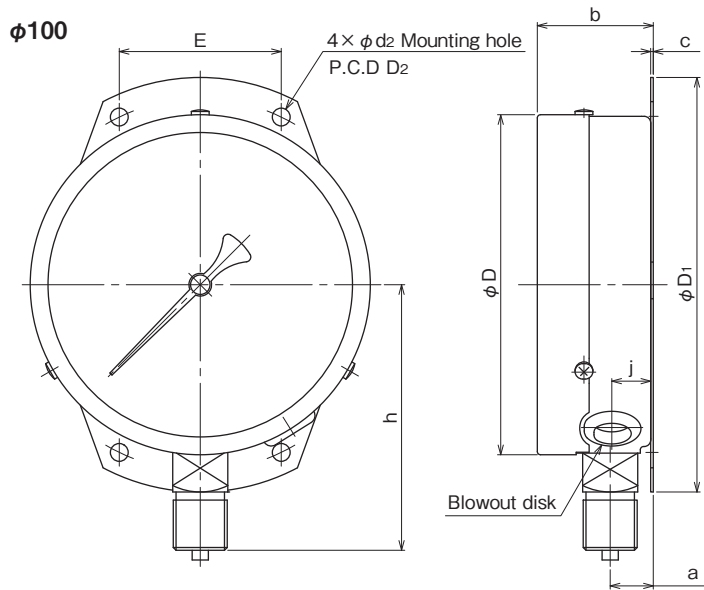
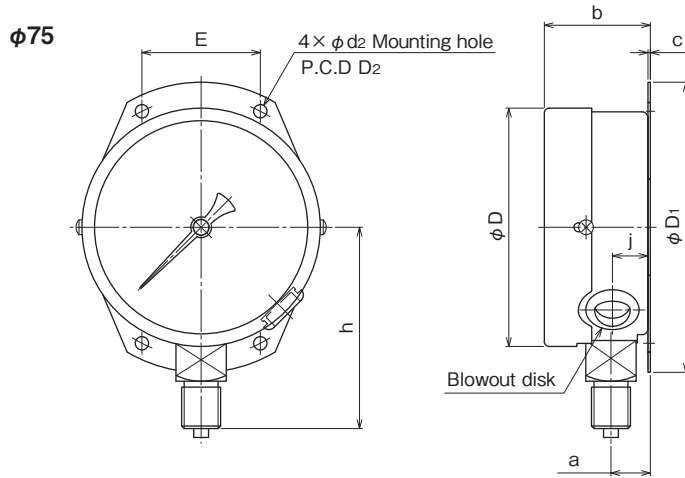
Shape / Dimensions:

Lower connection

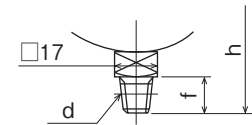
Type C... Back flange is fastened to panel by screw.

Weight:

Size	Weight
75	Approx. 300g
100	Approx. 400g



CTG□□B

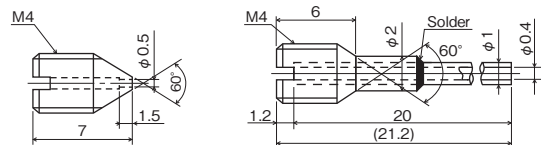
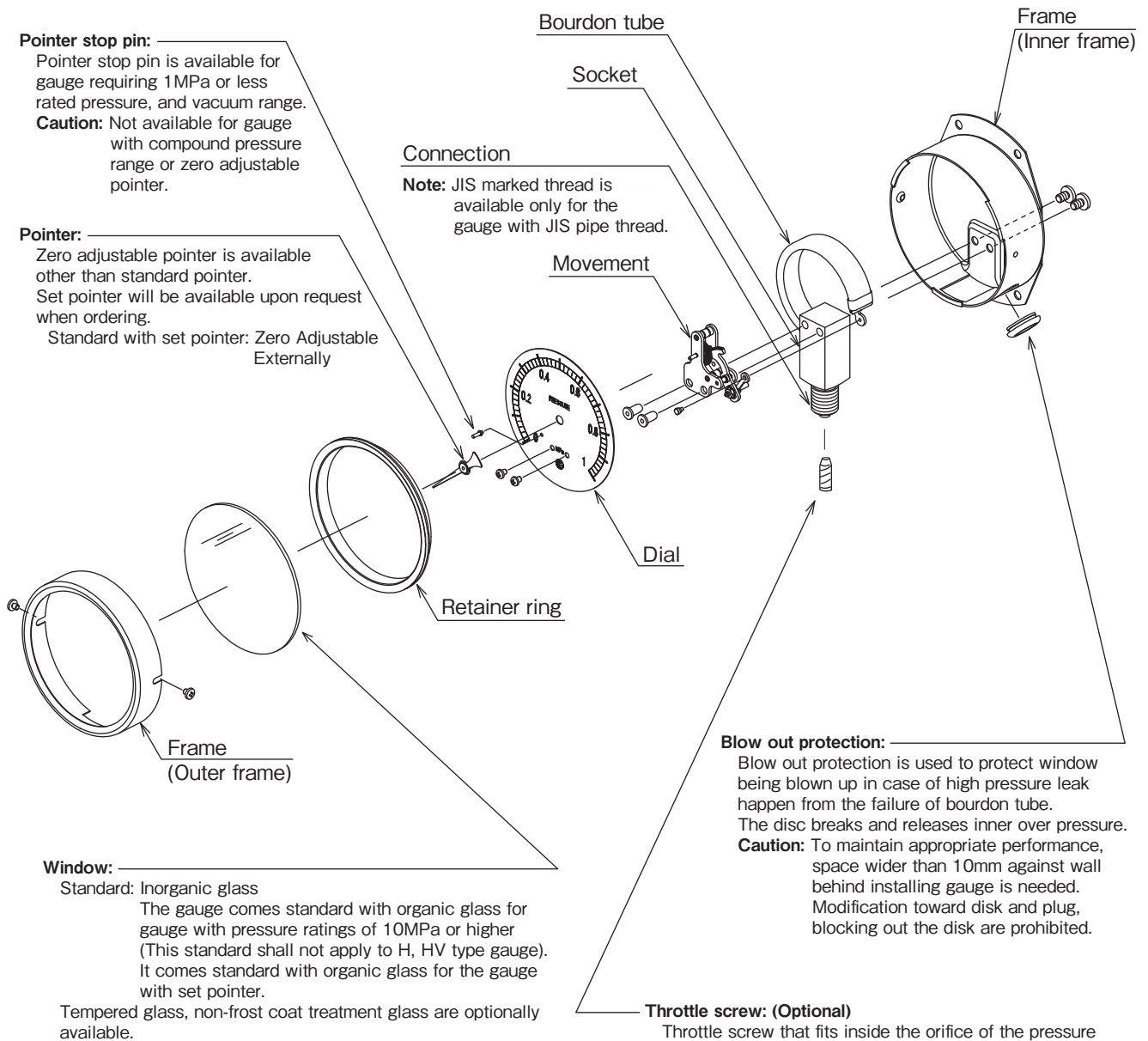


CTR□□

Size	Shape / Connection		Case / Dimensions										Model number	
	d		D	D <sub>1</sub>	D <sub>2</sub>	E	a	b	c	d <sub>2</sub>	j	f		h
75	T	G1/4B, R1/4	80.5	98	88	40	13.5	36	0.8	4.5	12	16	68	AC20-8□□
		G3/8B, R3/8										18	70	
100	T	G3/8B, R3/8	105.5	128	115	50	13.5	36	0.8	5.5	12	18	82	AE20-8□□
		G1/2B, R1/2					16					20	88	

### Specification 3

#### Specifications & additional spec.:



Model number	Material
FS10-011	C3604
FS10-013 (Corrosion-proof use)	SUS316

Model number	Material
FS10-081 (With pipe)	C3604 (Pipe: C1100)



### Specification 4

#### Minimum scale value:

The minimum number of minor scale for each pressure range is shown in the following table.

	Pressure range (MPa)	Size / Accuracy class	
		φ 75	φ 100
		JIS1.6	
Pressure range	0 to 0.1	0.002	
	to 0.16	0.005	
	to 0.25	0.005	
	to 0.4	0.01	
	to 0.6	0.01	
	to 1	0.02	
	to 1.6	0.05	
	to 2.5	0.05	
	to 4	0.1	
	to 6	0.1	
	to 10	0.2	
	to 16	0.5	
	to 25	0.5	
	to 40	1	
	to 60	—	1
Vacuum range	-0.1 to 0	0.002	
Compound range	-0.1 to 0.1	0.005	
	to 0.16	0.005	
	to 0.25	0.01	
	to 0.4	0.01	
	to 0.6	0.02	
	to 1	0.02	
	to 1.6	0.05	
	to 2.5	0.05	

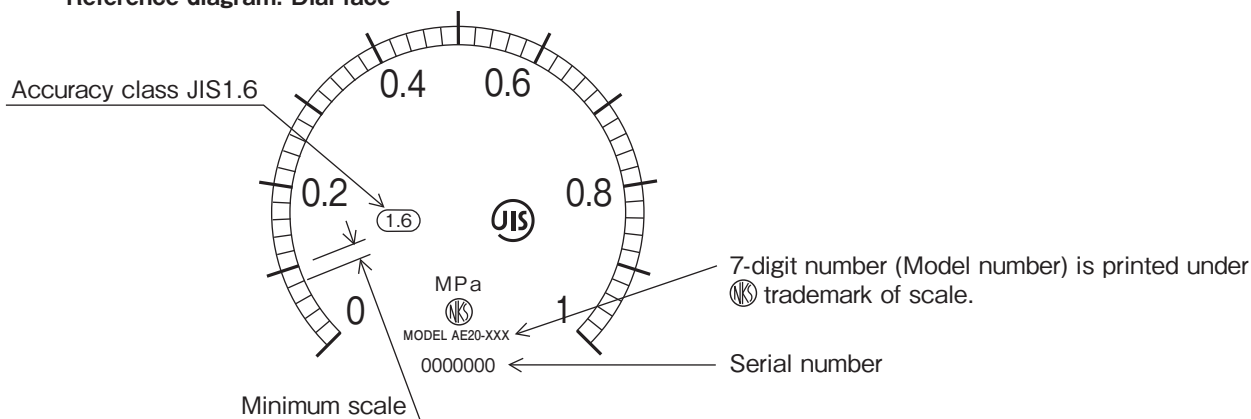
\* Gauge with 40MPa or higher range is made by corrosion-proof type.

\*  Blue colored cell implies the gauge obtained type approval. φ60 is not obtained type approval.

#### Customized Dial:

Customized dial with tag number, characters, and colored dial can be made upon request.

#### Reference diagram: Dial face



#### Verification standard inspection mark

##### Requirement of verification standard inspection mark:

The pressure gauges with the pressure ranges and sizes in the blue frame in the specification 4 have obtained type approval, and the verification standard inspection mark printed for those approved products instead of the conventional verification mark is.

##### Type Approval Number:

Bourdon tube made of brass  
 (Pressure range 0 to 0.1MPa → 0 to 2.5MPa): X131  
 Bourdon tube made of SUS  
 (Pressure range 0 to 0.1MPa → 0 to 25MPa): X132

##### Designated Manufacturing Business Operator Number:

272001





# AA10 ( $\phi 60$ )

## General Industrial Pressure Gauges

### (Type C / Lower connection)

#### Outline

The gauge is easy to handle with its structured simplicity with elastic measuring element (bourdon tube) into a deflection caused by applied pressure change transmitted to a rotary geared movement carrying pointer. It is applicable to variety of applications offering wide varieties of pressure ranges.

#### Features

- Verification standard inspection mark (Type Approval) can be attached (Depending on size, precision and pressure range).
- Available in many standard pressure ranges and can accommodate demand for use with corrosive media.

\* To maximize performance, select full scale pressure range as normal operating pressure range which comes to conditions below:

For constant pressure

The maximum operating pressure should not exceed three-quarters of the full-scale range.

For fluctuating pressure

The maximum operating pressure should not exceed two-thirds of the full-scale range.

Select proper wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.

\* Please select "Use no oil" to use gauge on oxygen service.

Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.



Not available for JIS mark.

#### List of products

Size	Mounting	Model number
$\phi 60$		AA10-8□□

\* Please refer to A□□20 for  $\phi 75$  and  $\phi 100$ .

### Specification 1

**Fluid:**

Gas, liquid

**Wetted part material:**

Wetted parts generally consist of bourdon tube and socket. These parts are exposed to or in direct contact with the medium under pressure (Gas, liquid).

Purpose	Connecting part	Bourdon tube
General use	C3604	C6872 (2.5MPa or lower) SUS316 (4MPa or higher) (Varies depending on required pressure range and additional spec on performance.)
Ammonia use	SUS316	SUS316
Corrosion-proof use		

**Connection:** Refer to the document JIS pipe thread in technical sheet.

G1/4B, R1/4

\*For other connections, please contact us.

**Pressure range:**

0 to 40kPa → 0 to 25MPa

-0.1 to 0MPa → -0.1 to 2.5MPa

\*For details, refer to the minimum graduation table in Specification 4

**Accuracy:**

JIS1.6 (JIS accuracy class)

### Specification 2

Unit: mm

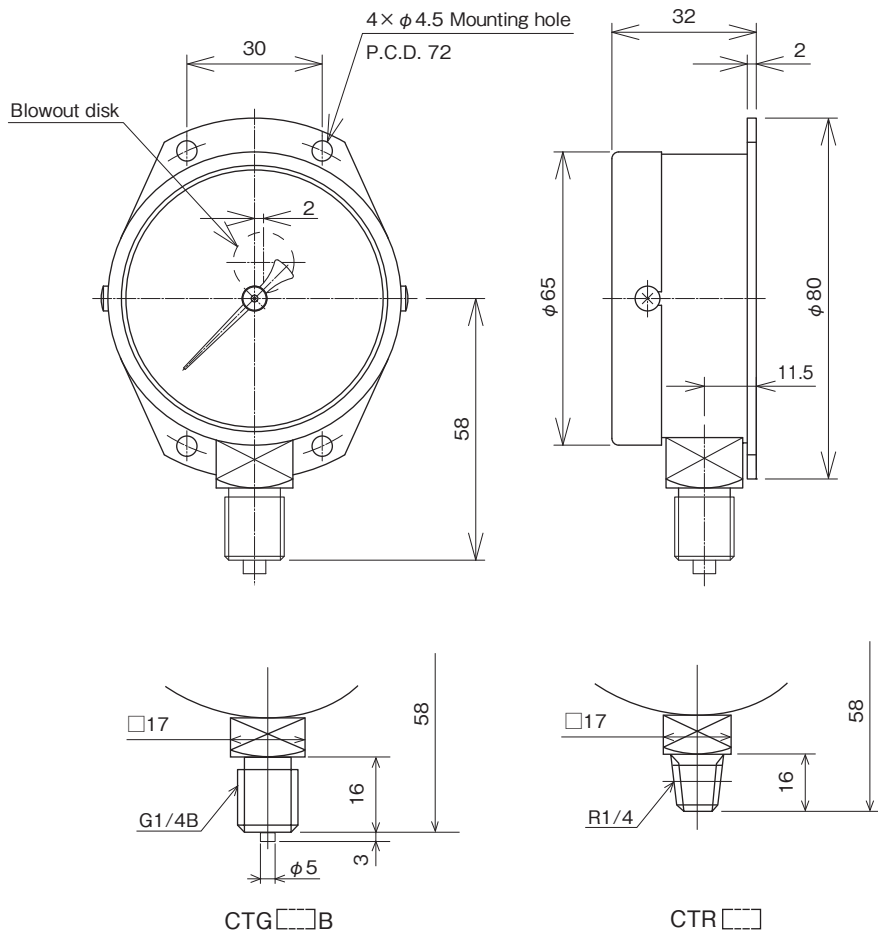
**Shape/Dimensions:**

**Lower connection**

**Type C** ∙ ∙ Back flange is fastened to panel by screw.

**Weight:**

Size	Weight
60	Approx. 200g



\*For surface mounting, please provide a 25mm dia hole in the wall for blowout disk.

### Specification 3

#### Specifications & additional spec.:

##### Blow out protection:

Blow out protection is used to protect window being blown up in case of high pressure leak happen from the failure of bourdon tube. The disc breaks and releases inner over pressure.

**Caution:** To maintain appropriate performance, space wider than 10mm against wall behind installing gauge is needed. Modification toward disk and plug, blocking out the disk are prohibited.

##### Movement:

Optional SUS-made movement available.

##### Pointer:

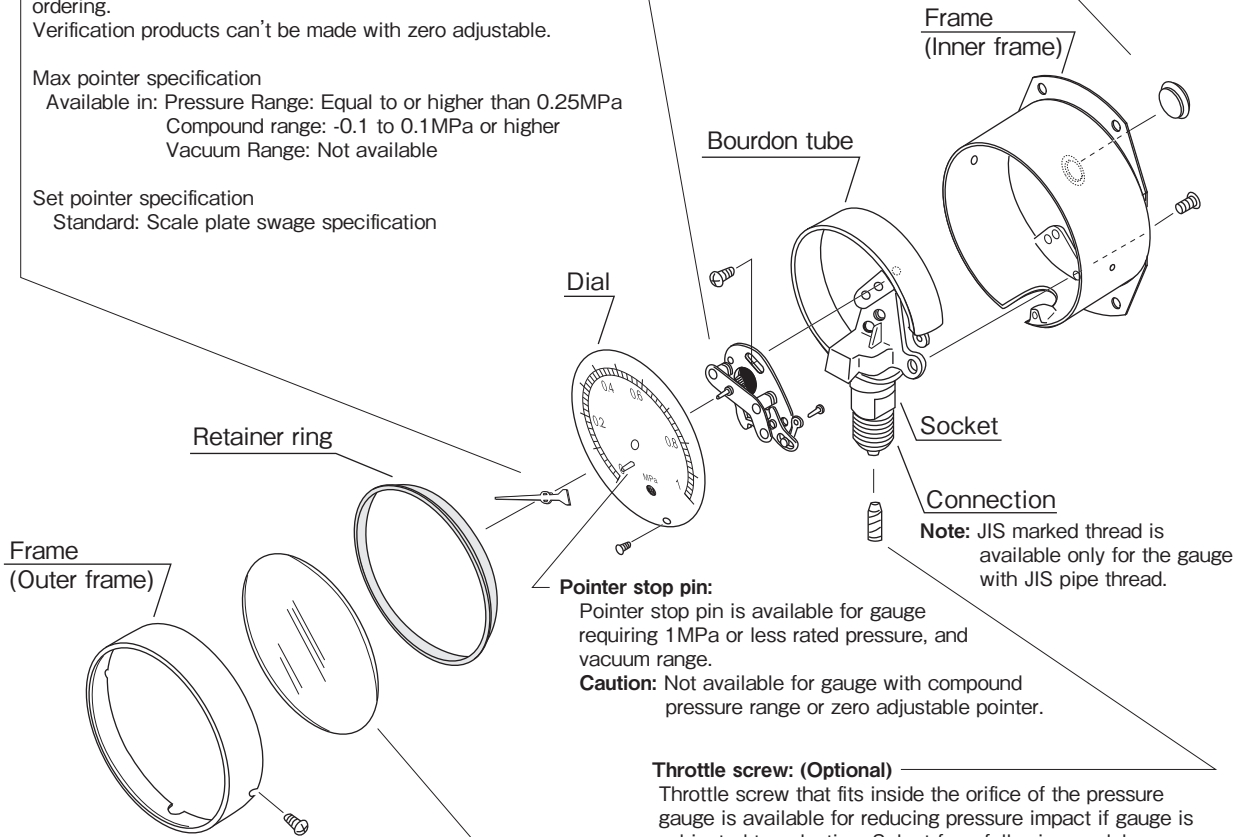
Zero adjustable pointer is available other than standard pointer. Set pointer and max pointer will be available upon request when ordering. Verification products can't be made with zero adjustable.

##### Max pointer specification

Available in: Pressure Range: Equal to or higher than 0.25MPa  
Compound range: -0.1 to 0.1MPa or higher  
Vacuum Range: Not available

##### Set pointer specification

Standard: Scale plate swage specification



##### Pointer stop pin:

Pointer stop pin is available for gauge requiring 1MPa or less rated pressure, and vacuum range.

**Caution:** Not available for gauge with compound pressure range or zero adjustable pointer.

##### Throttle screw: (Optional)

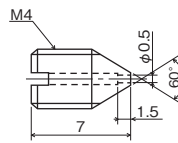
Throttle screw that fits inside the orifice of the pressure gauge is available for reducing pressure impact if gauge is subjected to pulsation. Select from following models: FS10-011, FS10-081 (With pipe), Corrosion-proof use FS10-013

##### Window:

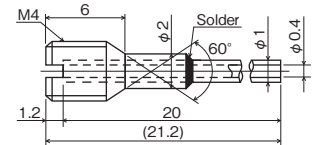
Standard: Inorganic glass

The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher (This standard shall not apply to H, HV type gauge)

Tempered glass, non-frost coat treatment glass are optionally available.



Model number	Material
FS10-011	C3604
FS10-013 (Corrosion-proof use)	SUS316



Model number	Material
FS10-081 (With pipe)	C3604 (Pipe: C1100)

### Case

**Case finish:** Black (Standard color)

**Case material:** Inner frame... Aluminum alloy

Outer frame... SECC

**Protection:** IP32

### Specification 4

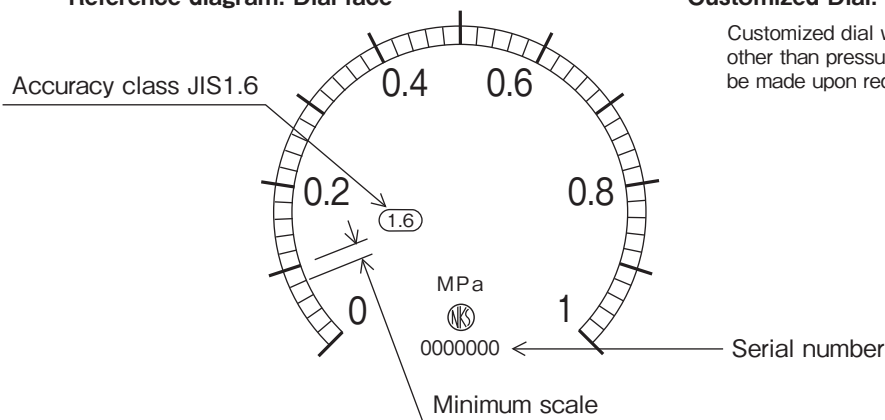
#### Minimum scale value:

The minimum number of minor scale for each pressure range is shown in the following table.

	Pressure range (MPa)	Size / Accuracy class	
		φ 60	
		1.6	
Pressure range	0 to 0.1	0.002	
	to 0.16	0.005	
	to 0.25	0.005	
	to 0.4	0.01	
	to 0.6	0.01	
	to 1	0.02	
	to 1.6	0.05	
	to 2.5	0.05	
	to 4	0.1	
	to 6	0.1	
	to 10	0.2	
	to 16	0.5	
	to 25	0.5	
Vacuum range	-0.1 to 0	0.002	
Compound range	-0.1 to 0.1	0.005	
	to 0.16	0.005	
	to 0.25	0.01	
	to 0.4	0.01	
	to 0.6	0.02	
	to 1	0.02	
	to 1.6	0.05	
	to 2.5	0.05	

\*  Blue colored cell implies the gauge obtained type approval.

#### Reference diagram: Dial face



#### Customized Dial:

Customized dial with capacity scale, double scale (Pressure and other than pressure), tag number, characters, and colored dial can be made upon request.

#### Verification standard inspection mark

##### Requirement of verification standard inspection mark:

The pressure gauges with the pressure ranges and sizes in the blue frame in the specification 4 have obtained type approval, and the verification standard inspection mark printed for those approved products instead of the conventional verification mark is.

##### Type Approval Number:

Bourdon tube made of brass  
 (Pressure range 0 to 0.1MPa → 0 to 2.5MPa): X951  
 Bourdon tube made of SUS  
 (Pressure range 0 to 0.1MPa → 0 to 2.5MPa): X9618

##### Designated Manufacturing Business Operator Number:

272001

### φ60 General Industrial Pressure Gauges

#### Model number configuration

Please specify the model number, each specs and the range for ordering.

Model

**AA10** — **8** — [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

General Industrial Pressure Gauges (φ60) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

Model number		Selective spec.		Additional spec. (Option)	
① Mounting	8	Lower connection Type C			
② Connection	2	G1/4B			
	7	R1/4			
		Others*1			
③ Wetted parts material	1	General use			
	2	Ammonia use SUS			
	3	Corrosion-proof use SUS			
④ Pressure range (MPa)	2	-0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound			
	3	-0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5			
	4	0 to 4, 6, 10			
	5	0 to 16, 25			
		Others*1			
⑤ Performance	0	Standard			
	A	M: Steam use			
	C	V: Vibration-proof type			
	D	MV: Steam use & Vibration-proof type			
⑥ Pointer	0	Standard			
	2	Zero adjustable (Spring type) Verification standard inspection mark can't be supplied with this specification.			
	5	Max pointer*2 Verification standard inspection mark can't be supplied with this specification.			
	6	Set pointer*2 Verification standard inspection mark can't be supplied with this specification.			
		Others*1			
⑦ Glass	0	Standard Inorganic glass*3			
	1	Organic glass			
	2	Tempered glass			
	3	Non-glare treatment glass			
	6	Non-frost coat treatment glass			
		Others			
⑧ Treatment	0	Nil			
	1	Use no oil			
	2	Use no water			
	3	Use no oil & water			
⑨ Throttle screw	0	Nil			
	1	FS10-011 or FS10-013 Corrosion-proof use			
	3	FS10-081 (With pipe)			
⑩ Other additional spec.	0	Nil			
	1	Required (Please specify the desired documents separately.) Verification standard inspection mark, dial scale*4, case color			
⑭ Class	J	JIS1.6*5			
⑮ Document	0	Nil			
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), inspection / traceability certificate, attended inspection			

Please specify applicable range code as well as pressure range and engineering unit.

③Wetted parts material

Purpose	Connecting part	Bourdon tube	Connecting method
1 General use	C3604	For the gauge with pressure ratings of 2.5MPa or lower: •General type, Vibration-proof type C6872  •Steam use, Steam use & Vibration-proof type SUS316  For the gauge with pressure ratings of 4MPa or higher: SUS316	Soldered for brass parts combination  Silver soldered for brass and SUS316 combination
2 Ammonia use	SUS316	SUS316	Tig-welding
3 Corrosion-proof use	SUS316	SUS316	Tig-welding

\*1 JIS marked thread is available only for the gauge with JIS pipe thread.

\*2 Max pointer specification  
Range of manufacturability: Pressure gauges; 0.25MPa or higher  
Compound; -0.1 to 0.1MPa or higher  
Vacuum; Cannot be manufactured

Set pointer with  
External adjust

\*3 The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher, and with set pointer.

\*4 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire

\*5 Not available for JIS mark.

\* Specify by code "X" if there is no applicable specification.



# A\_15

## General Industrial Pressure Gauges (Type D / Back connection)

### Outline

The bourdon tube pressure gauge is offered and made in accordance with JIS B 7505-1: 2015. The gauge is easy to handle with its structured simplicity with elastic measuring element (bourdon tube) into a deflection caused by applied pressure change transmitted to a rotary geared movement carrying pointer. It is applicable to variety of applications offering wide varieties of pressure ranges.

### Features

- Verification standard inspection mark (Type Approval) can be attached (Depending on size, precision and pressure range).
- Available in many standard pressure ranges and can accommodate demand for use with corrosive media.

\* To maximize performance, select full scale pressure range as normal operating pressure range which comes to conditions below:

For constant pressure

The maximum operating pressure should not exceed three-quarters of the full-scale range.

For fluctuating pressure

The maximum operating pressure should not exceed two-thirds of the full-scale range.

Select proper wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.

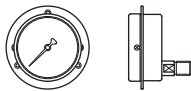
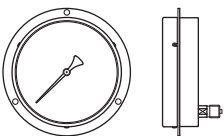
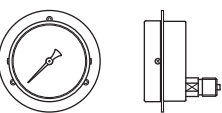
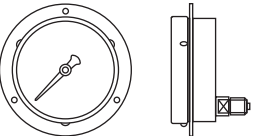
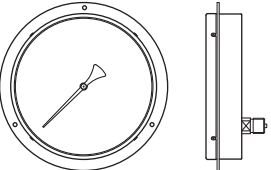
\* Please select "Use no oil" to use gauge on oxygen service.

Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.



Select sealed type pressure gauge for applications where enough resistant to rain and dew is required.

### List of products

Size	Mounting	Model number	Size	Mounting	Model number
φ 60		AA15-□□□	φ 150		AG15-□□□
φ 75		AC15-□□□			
φ 100		AE15-□□□	φ 200		AJ15-□□□

## Specification 1

**Fluid:**

Gas, liquid

**Wetted part material:**

Wetted parts generally consist of bourdon tube and socket. These parts are exposed to or in direct contact with the medium under pressure (Gas, liquid).

Purpose	Connecting part	Bourdon tube
General use	CAC203	C6872 or SUS316 (Varies depending on required pressure range and additional spec on performance.)
Ammonia use	SUS316*	SUS316
Corrosion-proof use	or SCS14	

\*SUS316 for the gauge with 0 to 40kPa with  $\phi$ 75 nominal size.  
SUS316 for the gauge with 0 to 0.06MPa with  $\phi$ 75 nominal size.

**Connection:** Refer to the document JIS pipe thread in the technical sheet.

G1/4B, G3/8B, G1/2B, R1/4, R3/8, R1/2, Others  
\*For other connections, please contact us.

**Pressure range:**

0 to 40kPa → 0 to 100MPa

-0.1 to 0MPa → -0.1 to 2.5MPa

\*For details, refer to the minimum scale value table in Specification 4

**Accuracy:**

JIS1.6 (JIS accuracy class)

Upon request, JIS1.0 product can be manufactured. (JIS1.0 is available for gauge requiring 1MPa or higher pressure range with nominal size of  $\phi$ 100,  $\phi$ 150,  $\phi$ 200.)

## Case

**Case finish:** Black (Standard color)

**Case material:** Inner frame ... Aluminum alloy

Outer frame ... SECC

**Protection:** IP32

## Treatment of wetted parts (Option)

Use no oil, use no water gauge can be made upon request.

### Use no oil

Oil used in manufacturing the gauges had been flushed out & no oil residue remained inside its wetted parts.

### Use no water

Water used in manufacturing the gauges had been flushed out & no water residue remained inside its wetted parts.

### Use no oil & water

Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.



### Caution

\*Please select "Use no oil" to use gauge on oxygen service.

\*Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.

Unit: mm

### Specification 2

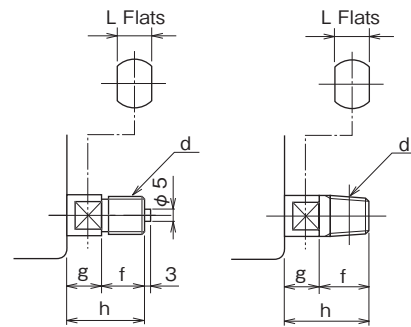
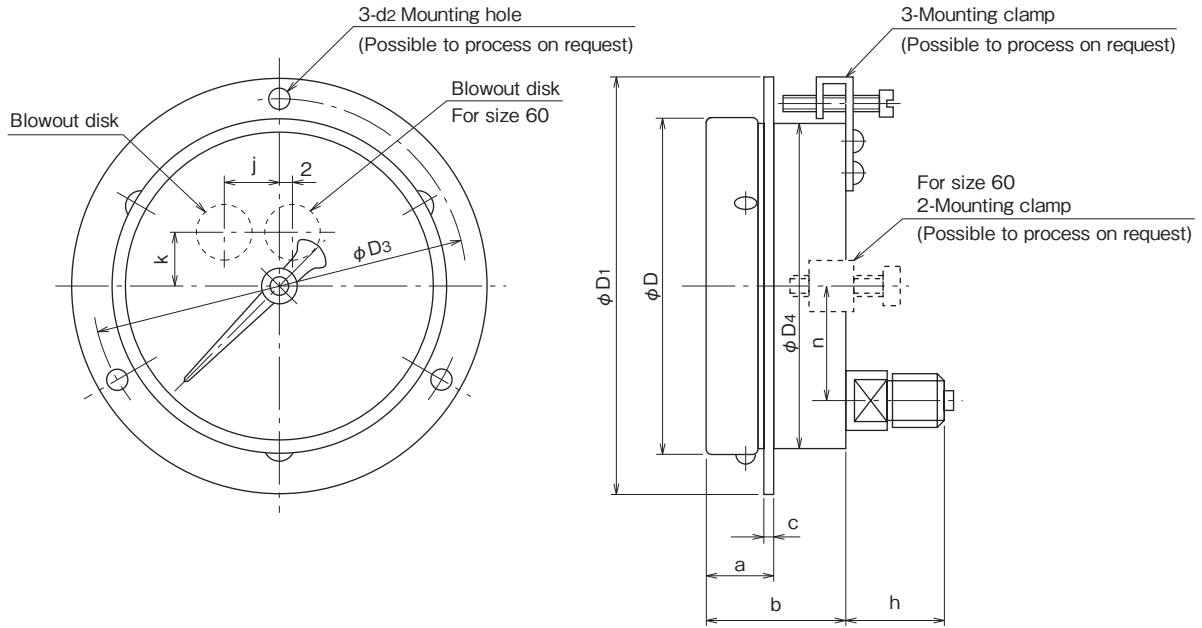
#### Shape / Dimensions:

#### Back connection

Type D...Panel mounting by screw or clamp.

#### Weight:

Size	Weight
60	Approx. 200g
75	Approx. 400g
100	Approx. 600g
150	Approx. 900g
200	Approx. 1200g



DUG□□B

DUR□□

Size	Panel cut size	Shape / Connection	Case / Dimensions															Model number
			d	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	
60	65	U G1/4B, R1/4	65	80	72	64	14	32	2	4.5	20	—	8	16	10	12	28	AA15-□□□
75	78	U G1/4B, R1/4	78	98	88	77	18.5	40 (49)	2	4.5	25	15	10	16	10	12	28	AC15-□□□
		U G3/8B, R3/8												18	12	14	30	
100	103	U G3/8B, R3/8	103	128	115	102	21	45 (52)	2.5	5.5	35	20	10	18	12	14	30	AE15-□□□
		U G1/2B, R1/2, 1/2NPT												20	12	17	32	
150	154	U G3/8B, R3/8	153	178	165	152	24	50 (61)	2.5	5.5	55	20	10	18	12	14	30	AG15-□□□
		U G1/2B, R1/2, 1/2NPT												20	12	17	32	
200	205	U G1/2B, R1/2	204	235	220	203	18.5	50 (61.5)	3	5.5	55	20	10	20	12	17	32	AJ15-□□□

\*( ) is 0.09MPa and under.

### Specification 3

#### Specifications & additional spec.:

##### Blow out protection:

Blow out protection is used to protect window being blown up in case of high pressure leak happen from the failure of bourdon tube. The disc breaks and releases inner over pressure.

**Caution:** To maintain appropriate performance, space wider than 10mm against wall behind installing gauge is needed. Modification toward disk and plug, blocking out the disk are prohibited.

##### Movement:

Optional SUS-made movement available.

##### Pointer:

Zero adjustable pointer is available other than standard pointer. Set pointer and max pointer will be available upon request when ordering.

Max pointer specification

Available in:  $\phi 60$  to  $\phi 200$

Pressure Range: Equal to or higher than 0.25MPa

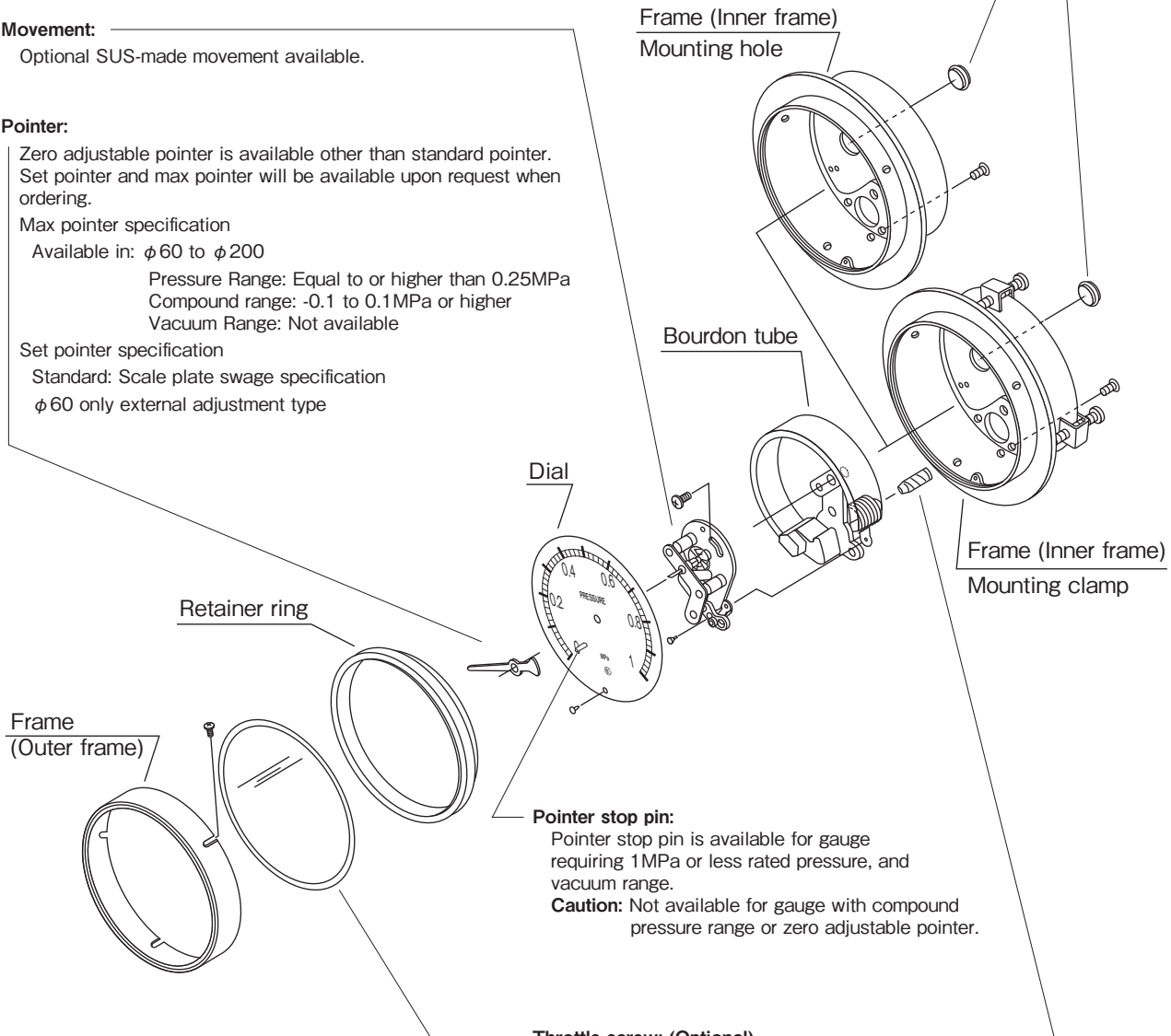
Compound range: -0.1 to 0.1MPa or higher

Vacuum Range: Not available

Set pointer specification

Standard: Scale plate swage specification

$\phi 60$  only external adjustment type



##### Pointer stop pin:

Pointer stop pin is available for gauge requiring 1MPa or less rated pressure, and vacuum range.

**Caution:** Not available for gauge with compound pressure range or zero adjustable pointer.

##### Throttle screw: (Optional)

Throttle screw that fits inside the orifice of the pressure gauge is available for reducing pressure impact if gauge is subjected to pulsation. Select from following models:

FS10-011,

FS10-081 (With pipe),

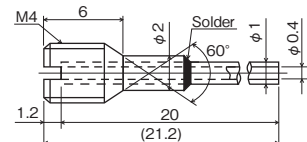
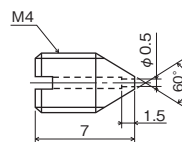
Corrosion-proof use FS10-013

##### Window:

Standard: Inorganic glass

The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher (This standard shall not apply to H, HV type gauge)

Tempered glass, non-frost coat treatment glass are optionally available.



Model number	Material
FS10-011	C3604
FS10-013 (Corrosion-proof use)	SUS316

Model number	Material
FS10-081 (With pipe)	C3604 (Pipe: C1100)

### Specification 4

#### Minimum scale value:

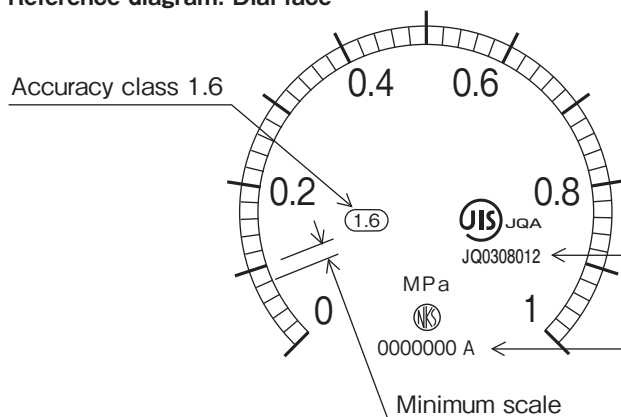
The minimum number of minor scale for each pressure range is shown in the following table.

	Pressure range (MPa)	Size / Accuracy class					
		φ 60	φ 75	φ 100 / 150		φ 200	
		1.6	1.6	1.6	1.0	1.6	1.0
Pressure range	0 to 40kPa	—	1	1	—	1	—
	to 0.06	—	0.001	0.001	—	0.001	—
	to 0.1	0.002	0.002	0.002	0.002	0.002	0.002
	to 0.16	0.005	0.005	0.005	0.002	0.005	0.002
	to 0.25	0.005	0.005	0.005	0.005	0.005	0.005
	to 0.4	0.01	0.01	0.01	0.005	0.01	0.005
	to 0.6	0.01	0.01	0.01	0.01	0.01	0.01
	to 1	0.02	0.02	0.02	0.02	0.02	0.02
	to 1.6	0.05	0.05	0.05	0.02	0.05	0.02
	to 2.5	0.05	0.05	0.05	0.05	0.05	0.05
	to 4	0.1	0.1	0.1	0.05	0.1	0.05
	to 6	0.1	0.1	0.1	0.1	0.1	0.1
	to 10	0.2	0.2	0.2	0.2	0.2	0.2
	to 16	0.5	0.5	0.5	0.2	0.5	0.2
	to 25	0.5	0.5	0.5	0.5	0.5	0.5
	to 40	—	1	1	0.5	1	0.5
to 60	—	—	1	1	1	1	
to 100	—	—	2	2	2	2	
Vacuum range	-0.1 to 0	0.002	0.002	0.002	0.002	0.002	0.002
Compound range	-0.1 to 0.1	0.005	0.005	0.005	0.002	0.005	0.002
	to 0.16	0.005	0.005	0.005	0.005	0.005	0.005
	to 0.25	0.01	0.01	0.01	0.005	0.01	0.005
	to 0.4	0.01	0.01	0.01	0.01	0.01	0.01
	to 0.6	0.02	0.02	0.02	0.01	0.02	0.01
	to 1	0.02	0.02	0.02	0.02	0.02	0.02
	to 1.6	0.05	0.05	0.05	0.02	0.05	0.02
to 2.5	0.05	0.05	0.05	0.05	0.05	0.05	

\* Gauge with 40MPa or higher range is made by corrosion-proof type.

\*   Blue colored cell implies the gauge obtained type approval.

#### Reference diagram: Dial face



#### Customized Dial:

Customized dial with tag number, characters, and colored dial can be made upon request.

JIS plant authorized number JQ0308012 is printed under JIS trademark.

The month of manufacture is provided with alphabets printed next to serial number. (A: January to L: December) Test report and related document show serial number only to tie to manufactured gauge.

#### Verification standard inspection mark

##### Requirement of verification standard inspection mark:

The pressure gauges with the pressure ranges and sizes in the blue frame in the specification 4 have obtained type approval, and the verification standard inspection mark printed for those approved products instead of the conventional verification mark is.

(Not possible to support because that φ 200 product has not received the type approval.)

##### Type Approval Number:

Bourdon tube made of brass  
(Pressure range 0 to 0.06MPa → 0 to 2.5MPa): X951  
Bourdon tube made of SUS  
(Pressure range 0 to 0.06MPa → 0 to 100MPa): X9618

Designated Manufacturing Business Operator Number:  
272001



### φ75 General Industrial Pressure Gauges

#### Model number configuration

Please specify the model number, each specs and the range for ordering.

Model  
**A C 1 5** — [ ] — [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

General Industrial Pressure Gauges (φ75) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

Model number		Selective spec.		Additional spec. (Option)	
① Mounting	1	Back connection Type D (Mounting clamp)			
	2	Back connection Type D (Mounting hole)			
② Connection	2	G1/4B			
	3	G3/8B			
	7	R1/4			
	8	R3/8			
		Others*1			
③ Wetted parts material	1	General use	40MPa or higher is cannot be manufactured		
	2	Ammonia use	SUS		
	3	Corrosion-proof use	SUS		
④ Pressure range (MPa)	1	0 to 40kPa, 0.06			
	2	-0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound			
	3	-0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5			
	4	0 to 4, 6, 10			
	5	0 to 16, 25			
	6	0 to 40 Corrosion-proof use			
⑤ Performance	0	Standard			
	A	M: Steam use			
	C	V: Vibration-proof type			
	D	MV: Steam use & Vibration-proof type			
⑥ Pointer	0	Standard			
	1	Zero adjustable (Micro meter type) Verification standard inspection mark can't be supplied with this specification.			
	2	Zero adjustable (Spring type) Verification standard inspection mark can't be supplied with this specification.			
	5	Max pointer*2 Verification standard inspection mark can't be supplied with this specification.			
	6	Set pointer*2 Verification standard inspection mark can't be supplied with this specification.			
⑦ Glass	0	Standard Inorganic glass*3			
	1	Organic glass			
	2	Tempered glass			
	3	Non-glare treatment glass			
	6	Non-frost coat treatment glass			
		Others			
⑧ Treatment	0	Nil			
	1	Use no oil			
	2	Use no water			
	3	Use no oil & water			
⑨ Throttle screw	0	Nil			
	1	FS10-011 or FS10-013 Corrosion-proof use			
	3	FS10-081 (With pipe)			
⑩ Other additional spec.	0	Nil			
	1	Required (Please specify the desired documents separately.) Verification standard inspection mark, dial scale*4, case color			
⑭ Class	J	JIS specification			
⑮ Document	0	Nil			
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), inspection / traceability certificate, attended inspection			

Please specify applicable range code as well as pressure range and engineering unit.

③ Wetted parts material	Purpose	Connecting part	Bourdon tube	Connecting method
1	General use	CAC203	For the gauge with pressure ratings of 2.5MPa or lower: •General type, Vibration-proof type C6872  •Steam use, Steam use & Vibration-proof type SUS316  For the gauge with pressure ratings of 4MPa or higher: SUS316	Soldered for brass parts combination  Silver soldered for brass and SUS316 combination
	Ammonia use	SUS316* or SCS14	SUS316	Tig-welding
	Corrosion-proof use			

\* Pressure range 0 to 40kPa, 0 to 0.06MPa is SUS316

\*1 JIS marked thread is available only for the gauge with JIS pipe thread.

\*2 Max pointer specification  
Range of manufacturability: Pressure gauges; 0.25MPa or higher  
Compound; -0.1 to 0.1MPa or higher  
Vacuum; Cannot be manufactured  
Set pointer with  
Scale plate swage specification

\*3 The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher

\*4 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire

\* Specify by code "X" if there is no applicable specification.

### φ 100 General Industrial Pressure Gauges

#### Model number configuration

Please specify the model number, each specs and the range for ordering.

Model: **A E 1 5** — [ ] [ ] [ ] — [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

General Industrial Pressure Gauges (φ 100) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

Model number	Selective spec.	Additional spec. (Option)
① Mounting	1 Back connection Type D (Mounting clamp) 2 Back connection Type D (Mounting hole)	
② Connection	3 G3/8B 4 G1/2B 6 1/2NPT * 1	8 R3/8 9 R1/2 Others * 1
③ Wetted parts material	1 General use 40MPa or higher is cannot be manufactured 2 Ammonia use SUS 3 Corrosion-proof use SUS	
④ Pressure range (MPa)	1 0 to 40kPa, 0 to 0.06 2 -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound 3 -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 4 0 to 4, 6, 10 5 0 to 16, 25 6 0 to 40, 60 Corrosion-proof use 7 0 to 100 Corrosion-proof use	
⑤ Performance	0 Standard A M: Steam use B H: Heat-proof type C V: Vibration-proof type D MV: Steam use & Vibration-proof type E HV: Heat-proof & Vibration-proof type 3 Accuracy: JIS1.0 (0.1MPa or higher) * 2	
⑥ Pointer	0 Standard 1 Zero adjustable (Micro meter type) 2 Zero adjustable (Spring type) 5 Max pointer * 3 6 Set pointer * 3	
⑦ Glass	0 Standard Inorganic glass * 4 1 Organic glass Not available in H, HV specification. 2 Tempered glass 3 Non-glare treatment glass 6 Non-frost coat treatment glass Others	
⑧ Treatment	0 Nil 1 Use no oil 2 Use no water 3 Use no oil & water	
⑨ Throttle screw	0 Nil 1 FS10-011 or FS10-013 Corrosion-proof use 3 FS10-081 (With pipe)	
⑩ Other additional spec.	0 Nil 1 Required (Please specify the desired documents separately.) Verification standard inspection mark, dial scale * 5, case color	
⑭ Class	J JIS specification	
⑮ Document	0 Nil 1 Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), inspection / traceability certificate, attended inspection	

Please specify applicable range code as well as pressure range and engineering unit.

③ Wetted parts material

Purpose	Connecting part	Bourdon tube	Connecting method
1 General use (Not available for gauge requiring over 25MPa.)	CAC203	For the gauge with pressure ratings of 2.5MPa or lower •General type, Vibration-proof type C6872 •Steam use, Heat-proof type, Steam use & Vibration-proof type, Heat-proof & Vibration-proof type SUS316 For the gauge with pressure ratings of 4MPa or higher SUS316	Soldered for brass parts combinations Silver Soldered for brass and SUS316 combinations
2 Ammonia use 3 Corrosion-proof use	SCS14	SUS316	Tig-welding

\* 1 JIS marked thread is available only for the gauge with JIS pipe thread.

**\* 2 Verification standard inspection mark cannot be attached to JIS1.0 product.**

\* 3 Max pointer specification  
Range of manufacturability: Pressure gauges; 0.25MPa or higher  
Compound; -0.1 to 0.1MPa or higher  
Vacuum; Cannot be manufactured  
Set pointer with  
Scale plate swage specification

\* 4 The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher  
(This standard shall not apply to H&HV type gauge).

\* 5 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire

\* Specify by code "X" if there is no applicable specification.





