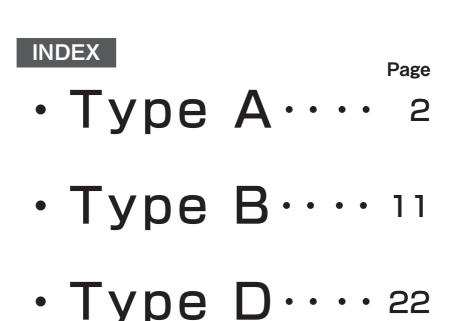
# Process Industrial Pressure Gauges

## 2015/11



# **B\_1\_ Process 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

- •Can be used under rain, frost, etc. conditions by adoption of sealed case. (JIS C 09220 IP43 equivalent)
- •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.

#### List of products



Size	Mounting	Model number
φ60		BA10-1
φ75		BC10-1
φ100		BE10-1
φ150		BG10-1

Connection: Refer to the document JIS pipe thread in

\*For other connections, please contact us.

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

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

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,

technical sheet.

0 to  $40kPa \rightarrow 0$  to 100MPa-0.1 to  $0MPa \rightarrow -0.1$  to 2.5MPa

JIS1.6 (JIS accuracy class)

in Specification 4

Pressure range:

φ150.)

Accuracy:

#### Specification 1

#### Fluid:

Gas, liquid

#### Case construction: Seal type

Sealed construction which is equivalent to JIS C 0920, IP43 but not sealed completely.

#### 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 CAC203	C6872 or SUS316 (Varies depending on required pressure range and additional specon performance.)
Ammonia use	SUS316*	
Corrosion-proof use	or SCS14	SUS316
₩PA10 (a		

\*BA10 (φ60) only

Case

Case finish: Black (Standard color)

Case material: Metal case ..... Aluminium alloy

Plastic case ..... Bakelite

Protection: IP43

#### 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

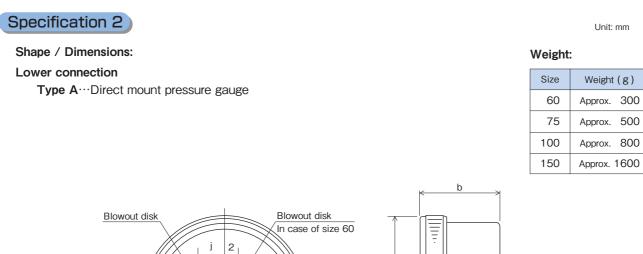
Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.

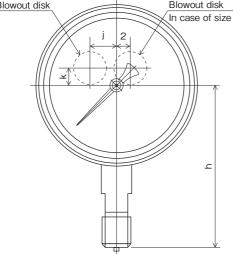


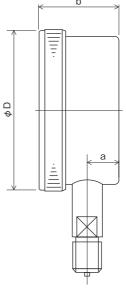
\*Please select "Use no oil" to use gauge on oxygen service.
\*Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.

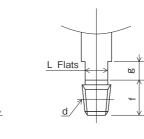
#### Process Industrial Pressure Gauge (Type A / Lower Connection)

Ē









AUR[]]

$\backslash$		Shape / Connection			Са	ase /	Dime	ensio	ns			Model number
Size		d	D	а	b	j	k	f	g	L	h	
60	U	G1/4B, R1/4	70	11.5	32	_	8	16	10	12	58	BA10-1
75		G1/4B, R1/4	84	16 5	41	15	10	16	12	12	68	BC10-1
/5	U	G3/8B, R3/8	(86)	16.5	(41.5)	15	10	18	12	14	70	BC12-1
		1/4NPT						16	15	14	106	
100	U	G3/8B, R3/8, 3/8NPT	109	(23)	52.5 (54)	20	10	18	15	14	108	BE10-1
		G1/2B, R1/2, 1/2NPT		(				20	15	17	110	BE12-1
150		G3/8B, R3/8	159	25	59	20	10	18	15	14	123	BG10-1
150	U	G1/2B, R1/2, 1/2NPT	(162)	25	(59.5)	20	10	20	15	17	125	BG12-1

AUG[]]B

L Flats

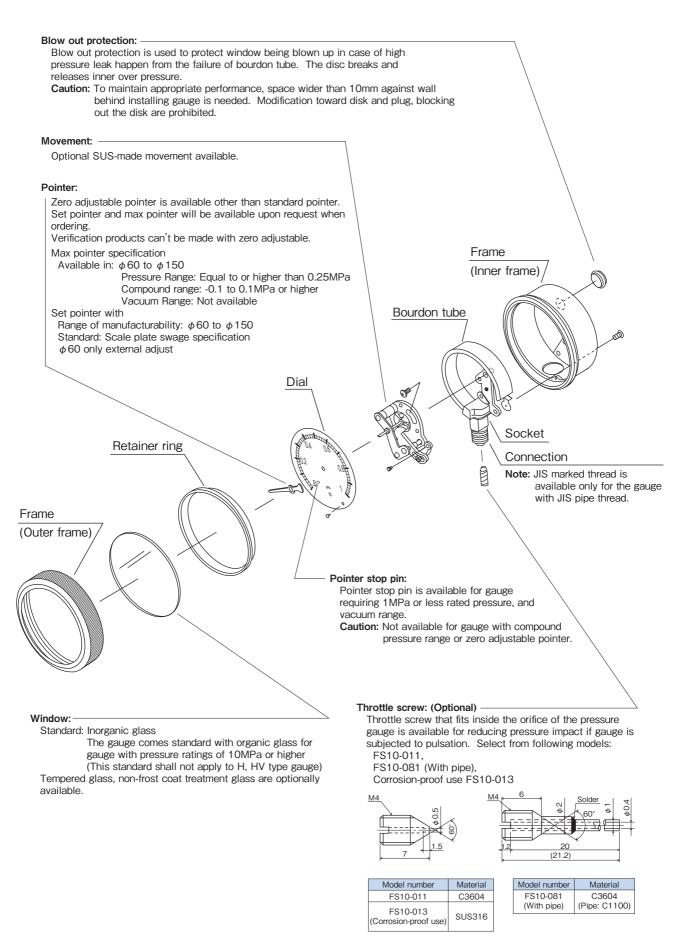
C

۵Ø

ო \_\_\_\_\_\_

() Dimension of plastic case

#### Specifications & additional spec.:



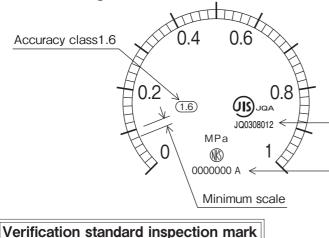
#### Minimum scale value:

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

				Size / Acc	uracy class	
	Pressure (MF	-	φ60	φ75	φ100,	φ150
	(IVIF	-a)	1.6	1.6	1.6	1.0
	0 to	40kPa	-	—	1	—
	to	0.06	_	_	0.001	-
	to	0.1	0.002	0.002	0.002	0.002
	to	0.16	0.005	0.005	0.005	0.002
	to	0.25	0.005	0.005	0.005	0.005
	to	0.4	0.01	0.01	0.01	0.005
	to	0.6	0.01	0.01	0.01	0.01
	to	1	0.02	0.02	0.02	0.02
Pressure	to	1.6	0.05	0.05	0.05	0.02
range	to	2.5	0.05	0.05	0.05	0.05
	to	4	0.1	0.1	0.1	0.05
	to	6	0.1	0.1	0.1	0.1
	to	10	0.2	0.2	0.2	0.2
	to	16	0.5	0.5	0.5	0.2
	to	25	0.5	0.5	0.5	0.5
	to	40	_	1	1	0.5
	to	60	_	_	1	1
	to	100	_	_	2	2
Vacuum range	-0.1 to	0	0.002	0.002	0.002	0.002
	-0.1 to	0.1	0.005	0.005	0.005	0.002
	to	0.16	0.005	0.005	0.005	0.005
	to	0.25	0.01	0.01	0.01	0.005
Compound	to	0.4	0.01	0.01	0.01	0.01
range	to	0.6	0.02	0.02	0.02	0.01
	to	1	0.02	0.02	0.02	0.02
	to	1.6	0.05	0.05	0.05	0.02
	to	2.5	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



#### -----

**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.

#### **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.

#### Type Approval Number:

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

Designated Manufacturing Business Operator Number: 272001

#### \$\$\phi 60 Process Industrial Pressure Gauge

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

	Model																		
В	A 1	0		1											×	×	$\times$	J	
ess Industrial P	ressure	Gauges	] s (φ60	) ()	2	3		(4)	(5)	6	7	(8)	9	(10)	(1)	(12)	(13)	(14)	
Model	numbe	Cauges (\$ 60)       ①       ②       ③       ①       ③       ①       ③       ③       ①       ③       ④       ③       ③       ④       ③       ④       ③       ④       ③       ④       ③       ④       ③       ④       ④       ③       ④       ④       ⑤       ⑦       ①       ④       ④       ⑤       ③       ●       <																	
	① Mour	nting		1	Lowe	er conn	ection			-						,			
		2			2	G1/-	4B												
		Conn	ection	l	7	R1/	4												
							ers*1												
			- ×																
					S														
			mate			3	Corro					05.0	4 0 0 4	4 4 0	0.5.0				
Please	specify	annlica	hla														a		
	B A I O       -       1         trial Pressure Gauges (\$\phi 60)       ①         Addel number         ①       ①         ①       ①         ①       ①         ①       ①         ②       Connection         ③       Wetted parts material         Please specify applicable ange code as well as pressure range and engineering unit.       -         Please specify applicable ange code as well as pressure range and engineering unit.       -         Please specify applicable ange code as well as pressure range and engineering unit.       -         Please specify applicable ange code as well as pressure range and engineering unit.       -         Please specify applicable ange code as well as pressure range and engineering unit.       -         Please specify applicable ange code as well as pressure range and engineering unit.       -         Please specify applicable ange code as well as pressure range and engineering unit.       -         Please specify applicable ange code as well as pressure range and engineering unit.       -         Please specify applicable ange code as well as pressure range and engineering unit.       -         Please specify applicable ange code as well as pressure range and engineering unit.       -         I use       Connecting pat       For the gauge with precof 4MPa or higher: SUS316	_			nge	-													
				-					)										
engine					5			dard											
	eering unit.					-	ormance	ź				e							
											-	vpe							
									D	MV: S	Steam ι	Jse & \	/ibratior	n-proof	type				
						L	(6)			0	Stand	dard							
							-	er		2 Zero adjustable (Spring type) Verification standard inspection mark can't be supplied with this spec								cifica	
																lied with	this spe	cifica	
										6						i't be supp	lied with	this spe	cifica
								7			0	Stan	dard In	organic	; glass *	¢3			
							Glass			1	Orga	nic glas	S						
											-								
											6			at treat	tment g	lass			
								L											
									~			-	-						
3Wetted parts									Treat	ment			-		<b>)</b> r				
Purpose 1 General use			the gau																
	0000	of 2	2.5MPa	or lower:	100000.010		brass par	ts I				0			water				
				proof type							tle scre	w			)-011 o	r FS10	-013 C	orrosion-	-proof
							for brass												
				& Vibrati	on-proof	type				(10)			0						
	Vibration-proc -Steam use, Steam use & For the gauge of 4MPa or hi			ige with p higher:	ressure ra	atings				Other		onal	1	(Pleas Verifi	e specify cation s	standar	d inspe	ction r	marl
2 Ammonia use 3 Corrosion-proof use	SUS316	6		SUS31	6		Tig-wel	ding			6		J						
44 110	Image of the second							ا من مالد م		15			0	Nil					
*1 JIS marked	thread i	able or	ny tor th	ne gaug	e with	JIS pipe	e thread		-	ment				iired					
*2 Max pointe	r specific	cation												(Pleas	e specify				

\*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

\*4 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire \* Specify by code "X" if there is no applicable specification.

Submission drawings, instruction manual,

inspection procedure, mill sheet,

inspection / traceability certificate,

test report (1 pc 1 copy),

## Process Industrial Pressure Gauge (Type A / Lower Connection)

#### \$\$\phi 75 Process Industrial Pressure Gauge

Model number configuration Please specify the model number, each specs and the range for ordering. Model 1 1 В С J Х Х  $\times$ Process Industrial Pressure Gauges ( $\phi$ 75) (1) 2 3 (4) (5) (6) 7 (8) (9) (10) (11) (12) (13) (14) (15) Additional spec. (Option) Model number Selective spec. 0 Lower connection Metal case Model 2 Lower connection Plastic case 1 Type A 1 Mounting 2 G1/4B 2 3 G3/8B Connection 7 R1/4 8 R3/8 Others \* 1 1 General use 40MPa is cannot be manufactured 3 Wetted parts 2 SUS Ammonia use material 3 Corrosion-proof use SUS -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound 2 4 Please specify applicable -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Pressure range 3 range code as well as (MPa) 4 0 to 4, 6, 10 pressure range and 5 0 to 16, 25 engineering unit. 6 0 to 40 Corrosion-proof use 0 Standard (5) Performance А M: Steam use С V: Vibration-proof type D MV: Steam use & Vibration-proof type 0 Standard (6) Pointer Zero adjustable (Micro meter type) 1 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. 0 Standard Inorganic glass \* 3 1 Glass 1 Organic glass 2 Tempered glass 3 Non-glare treatment glass 6 Non-frost coat treatment glass Others 3Wetted parts material 0 Nil Connecting part Bourdon tube Connecting method Purpose (8) For the gauge with pressure ratings of 2.5MPa or lower: •General type, General use CAC203 Soldered for Treatment 1 Use no oil brass parts combination 2 Use no water Vibration-proof type 3 Use no oil & water C6872 Silver soldered Not available for brass and SUS316 0 Nil for gauge requiring (9) Steam use Steam use & Vibration-proof type combination Throttle screw FS10-011 or FS10-013 Corrosion-proof use 1 over SUS316 25MPa 3 FS10-081 (With pipe) For the gauge with pressure ratings of 4MPa or higher: SUS316 0 Nil (10) Other additional 1 Required (Please specify the desired documents separately.) spec. Ammonia use Verification standard inspection mark, SCS14 SUS316 Tig-welding Corrosion-proof dial scale \*4, case color, movement USE J JIS specification (14) \*1 JIS marked thread is available only for the gauge with JIS pipe thread. Class \*2 Max pointer specification 0 Nil Range of manufacturability: Pressure gauges; 0.25MPa or higher Compound; -0.1 to 0.1 MPa or higher 1 Required (15) (Please specify the desired documents separately.) Vacuum; Cannot be manufactured Document Submission drawings, instruction manual, Set pointer with inspection procedure, mill sheet, Scale plate swage specification test report (1 pc 1 copy), \*3 The gauge comes standard with organic glass for gauge with pressure inspection / traceability certificate, 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.



Process Industrial Pressure Gauge (Type A / Lower Connection)

### 

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

ΒE																	
	1		1		_								×	×	$\times$	J	
strial Pres	sure Gauge	_ s(φ10	00) ①	2 3	)	4	(5)	6	7	8	9	10	11	(12)	13	14	(15)
Model nu						Sele	ective s	spec.		Add	ditional	spec.	(Optio	n)			
	0	Low	er conne	ection Meta	al case			-1					( =  = = =	,			
Model	2																
	~		1	Туре А													
L				3 G	3/8B				(	9	R1/2						
		nection	1						ł			*1					
				6 1/	2NPT * 1					L	3/8NPT	*1					
				8 R	3/8						Others*	1					
		3		1	Gene	eral use		4(	)MPa c	or high	er is car	nnot be	manuf	actured			
			ted parts	s Z	Amm	nonia us	e										
		mate	erial	3	Corr	osion-pr	oof use	e Sl	JS								
				4						L*2(	100MPa	a is car	not be	manufa	ctured)		
Please so	ecify applic	able		~	range						4 0 6	1 1 6	25 (	Compour	nd		
range coo	le as well a			(MPa)													
	-					-				0.10,	0.20, 0.	.4, 0.0,	1, 1.0,	2.0			
engineerir	ng unit.					-			,								
						-					Corrosio	n-proof	f uso			(1) (1) (1) (1) (1) (1) (1) (1)	
												-					
						1			hard					am usa	& Vibra	tion_nro	of two
						~	-			20							
					normanic	C											
									-		tupo	Acculac	CCURACY: JIST.0 (0. HVIPA OF HIGHE)*				
s material										-	type						
					u 🗸	tor					able (Mic	oro mot	or type)				
CAC203			ure ratings	Soldered for brass parts	FOIL	ILEI		1						n't be supp	blied with	this spec	ificatio
	<ul> <li>General type,</li> <li>Vibration proc</li> </ul>	ftuno		combination				2	Zero	adjust	able (Spi	ring typ	e)				
\ \									Ver	rificatior	on standard inspection mark can't be supplied with this spe						
	<ul> <li>Steam use.</li> </ul>							5									
	Heat-proof typ		roof turno	combination								inspectior	n mark ca	n't be supp	blied with	this spec	ificatio
/	Heat-proof &	Vibration-p						6									ificatio
	:	SUS316														moutio	
			ure ratings				2		-			-	-		HV sn	ecificat	ion
						Giùo	0						availar		, 110 00	comou	
					_								nt ølass				
f SCS14	5	US316							6		-frost co		-				
				Tig-welding						Oth				51000			
SCS16	S	US316L			_	L				0	Nil						
							8 Treat	tment		1	-	no oil					
		o oply f	for the g	auge with u	IS pipe th	nread.				2		no wat	er				
rked thread	d is availabl									L _							
rked thread		e only i								3	Use	3 Use no oil & water					
								9			Use 0	no oil 8 Nil	k water				
cting part: erification	SCS16 standard	inspec						9 Throt	tle scre	3	_	Nil		FS10-01	3 Corros	ion-proof	use *
cting part: erification	SCS16	inspec						$\sim$	tle scre	3	0	Nil FS10	)-011 or	FS10-01 With pi		ion-proof	use *
cting part: erification unnot be a	SCS16 standard attached to	inspec						Throt	tle scre	3	0	Nil FS10	)-011 or			ion-proof	use *
cting part: erification unnot be a pointer spec	SCS16 standard attached to	inspec JIS1.	0 prod	uct.				Throt	tle scre	3 ew	0 1 3	Nil FS10 FS1	0-011 or 0-081 (			ion-proof	use;
cting part: erification unnot be a pointer spec	SCS16 standard attached to	inspec JIS1.	0 produ	uct. ges; 0.25M				Throt	r additio	3 ew	0 1 3 0	Nil FS10 FS1 Nil Requ (Pleas	0-011 or 0-081 ( uired se specify	With pi	oe) ed docum	ents sepa	arately
cting part: erification unnot be a pointer spec	SCS16 standard attached to	inspec JIS1. y: Press Com	0 produ sure gau pound; -	uct.	1Pa or hig	gher		Throt 10 Other	r additio	3 ew	0 1 3 0	Nil FS10 FS1 Nil Requ (Pleas Verif	0-011 or 0-081 ( uired se specify fication	With pip the desire standar	ed docum d inspe	ents sepa	arately ark,
cting part: erification annot be a pointer spec ge of manu	SCS16 standard attached to	inspec JIS1. y: Press Com Vacu	0 produ sure gau pound; -	uct. ges; 0.25M 0.1 to 0.1M	1Pa or hig	gher		Throt 10 Other	r additio	3 ew	0 1 3 0	Nil FS10 FS10 Nil Requ (Pleas Verif dial	0-011 or 0-081 ( uired se specify fication	With pip the desiring standar 7, case	ed docum d inspe	ents sepa	arately ark,
cting part: prification nnot be a pinter spec ge of manu inter with le plate sw	SCS16 standard attached to ification ificaturabilit	inspec JIS1. y: Press Com Vacu cation	0 prode sure gau pound; - ium; Car	uct. ges; 0.25M 0.1 to 0.1M nnot be mai	1Pa or hig nufactured	sher d		Throt 10 Other spec.	r additio	3 ew	0 1 3 0 1	Nil FS10 FS10 Nil Requ (Pleas Verif dial	0-011 or 0-081 ( uired se specify fication scale*	With pip the desiring standar 7, case	ed docum d inspe	ents sepa	arately ark,
cting part: rification unnot be a pointer spec ge of manu- inter with le plate sw uge comes s of 10MPa	SCS16 standard attached to ification ufacturabilit rage specific s standard v a or higher	inspec JIS1. y: Press Com Vacu cation	0 produ sure gau pound; - ium; Car anic glas	uct. ges; 0.25M 0.1 to 0.1M nnot be man	1Pa or hig nufactured	sher d		Throt (1) Other spec. (4) Class	r additio	3 ew	0 1 3 0 1 1 J	Nil FS10 FS10 Nil Requ (Pleas Verif dial JIS s	)-011 or 0-081 ( uired se specify fication scale* specifica	With pip the desiring standar 7, case	ed docum d inspe	ents sepa	arately ark,
cting part: rification unnot be a pointer spec ge of manu- inter with le plate sw uge comes s of 10MPa	SCS16 standard attached to ification ufacturabilit rage specific s standard v	inspec JIS1. y: Press Com Vacu cation	0 produ sure gau pound; - ium; Car anic glas	uct. ges; 0.25M 0.1 to 0.1M nnot be man	1Pa or hig nufactured	sher d		Throt 10 Other spec.	r additio	3 ew	0 1 3 0 1 J	Nil FS10 FS11 Nil Requ (Pleas Verif dial JIS s Nil Requ (Pleas	0-011 or 0 0-081 ( uired se specify fication scale * specifics uired se specify	With pip the desire standar 7, case ation	ed docum d inspe color, r	ents sepa ction m noveme ents sepa	arately ark, ent
cting part: prification nnot be a binter spec ge of manu- inter with le plate sw uge comes s of 10MPa standard sh	SCS16 standard attached to ification ufacturabilit rage specific s standard v a or higher	inspec o JIS1. y: Press Com Vacu cation vith orga	0 produ sure gau pound; - juum; Car anic gla kHV type	uct. ges; 0.25M 0.1 to 0.1M nnot be man	1Pa or hig nufactured	sher d		Throt (10) Other spec. (14) Class (15)	r additio	3 ew	0 1 3 0 1 1 J	Nil FS10 FS11 Nil Requ (Pleas Verif dial JIS s Nil Requ (Pleas Subr	0-011 or 0-081 ( uired se specify fication scale * specific: uired se specify nission	With pip the desire standar 7, case ation the desire drawing	ed docum d inspe color, r ed docum s, instru	ents sepa ction m noveme ents sepa uction n	arately iark, ent
cting part: prification nnot be a pinter spec ge of manu- inter with le plate sw uge comes s of 10MPa standard sh wetted part	SCS16 standard tttached to ification ufacturabilit rage specific standard v a or higher nall not app	inspec JIS1. y: Press Com Vacu cation yith organism y to H& s SUS3	0 produ sure gau pound; - jum; Car anic gla kHV type 316,	uct. ges; 0.25M 0.1 to 0.1M nnot be mai ss for gauge e gauge).	1Pa or hig nufactured	sher d		Throt (10) Other spec. (14) Class (15)	r additio	3 ew	0 1 3 0 1 1 J	Nil FS10 FS11 Nil Requ (Pleas Verif dial JIS s Nil Requ (Pleas Subr inspo	-011 or 0-081 ( uired se specify fication scale * specific specify nission ection p	With pip the desire standar 7, case ation the desire drawing	ed docum d inspe color, r ed docum s, instru re, mill	ents sepa ction m noveme ents sepa uction n	arately ark, ent
cting part: rification unnot be a pointer spec ge of manu- inter with le plate sw uge comes s of 10MPa standard sh wetted pari- aterial is S	SCS16 standard attached to ification ifacturabilit rage specific s standard v a or higher hall not appi s material i	y: Press Com Vacu cation vith org y to H& s SUS3 ith FS1	0 produ sure gau pound; - ium; Car anic gla kHV type 816, 0-014).	uct. ges; 0.25M 0.1 to 0.1M nnot be man ss for gauge e gauge).	1Pa or high	sher d		Throt (10) Other spec. (14) Class (15)	r additio	3 ew	0 1 3 0 1 1 J	Nil FS10 FS11 Nil Requ (Pleas Verif dial JIS s Nil Requ (Pleas Subr inspo	-011 or 0-081 ( uired se specify fication scale * specification specification specification specification se specify nission ection p report ( ection /	With pip the desir standar 7, case ation the desir drawing procedur 1 pc 1 d	ed docum d inspe color, r ed docum s, instru- e, mill copy), pility ce	ents sepa ction m noveme ents sepa uction m sheet,	arately ark, ent
	Please sp range cod pressure r engineerin s material Connecting par CAC203	The set of the se	The set of the se	Image: Stress of the second	Image: Second	Image: Strategy of the strategy	Image: State of the second state of	Image: Supersonal system of the system of	Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as pressure range and engineering unit.     Image: Strategy applicable range code as well as	Image: Connection       1       Type A         Image: Connection       3       G3/8B       1         Image: Connection       6       1/2NPT * 1       1         Image: Code as well as pressure range and engineering unit.       1       General use       40MPa c         Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       1       0 to 40kPa, 0 to 0.1, 0.16, 0         Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering unit.       Image: Code as well as pressure range and engineering end as pressure range and engineering as well as pressure range and engineering with pressure range and engineering as pressure range and as prespecific as pressure range and engineering as well as pressure ra	Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Performance       Image: Standard Performance         Image: Standard Performance       Image: Standard Performance       Image: Standard Per	Image: constraint of the parts in a terrial       1       Type A         Image: constraint of the parts in a terrial       3       G3/88       9       R1/2         Image: constraint of the parts in a terrial       3       G3/88       9       R1/2         Image: constraint of the parts in a terrial       1       General use       40MPa or higher is car         Image: constraint of the parts in a terrial       1       General use       40MPa or higher is car         Image: cond as well as pressure range and engineering unit.       1       O to 40kPa, 0 to 0.06       Pressure range (MPa)         Image: cond as well as pressure range indering unit.       Image: cond as well as pressure range (MPa)       1       0 to 40kPa, 0 to 0.06         Image: cond as well as pressure range indering unit.       Image: cond as well as pressure range (MPa)       1       0 to 40kPa, 0 to 0.06         Image: cond as well as pressure range indering unit.       Image: cond as well as pressure range (MPa)       1       0 to 40, 6.0       Corrosice         Image: cond as well as pressure range indering unit.       Image: cond as well as pressure range indering unit.       Image: cond as well as pressure range indering unit.       Image: cond as well as pressure range indering unit.       Image: cond as well as pressure range indering unit.       Image: cond as well as pressure range indering unit.       Image: cond as well as pressure range indering unit.	Image: state rial       Im	Image: Standard Max and Standard Max and Standard Max and Standard Standard Inspection mark calculation standarely inspection mark calculation standard Inspection ma	Image of the second	Image: Connection for the gauge with pressure range of lengineering unit.       1       Type A         Image: Connection for the gauge with pressure range of lengineering unit.       3       G3/8B       9       R1/2         Image: Connection for the gauge with pressure range of lengineering unit.       3       G3/8B       9       R1/2         Image: Connection for the gauge with pressure range of lengineering unit.       1       General use down and the corrosion use SUS316L *2 (100MPa is cannot be manufactured)         Image: Connection for the gauge with pressure range of lengineering unit.       0       1       0 to 40kPa, 0 to 0.06         Image: Connection for the gauge with pressure range of lengineering unit.       0       Standard       D       MV: Steam use & Vibra         Image: Connection for the gauge with pressure range of lengineering unit.       Image: Connection for the gauge with pressure range of lengineering unit.       Image: Connection for the gauge with pressure range of lengineering unit.       Image: Connection for the gauge with pressure range of lengineering unit.       Image: Connection for the gauge with pressure range of lengineering unit.       Image: Connection for the gauge with pressure range of lengineering unit.       Image: Connection for the gauge with pressure range of lengineering unit.       Image: Connection for the gauge with pressure range of lengineering unit.       Image: Connection for the gauge with pressure range of lengineering unit.       Image: Connection for the gauge with pressure range of lengineering unit.       Image	Image: Connection       Im

\$\$\phi 150 Process Industrial Pressure Gauge

Model number configuration ) Please specify the model number, each specs and the range for ordering. Model G 1 В 1 J Х Х  $\times$ Process Industrial Pressure Gauges ( $\phi$  150) (1) 2 3 (4) (5) (6) 7 (8) (9) (10) (11) (12) (13) (14) (15) Additional spec. (Option) Model number Selective spec. 0 Lower connection Metal case 2 Model Lower connection Plastic case Type A 1 Mounting G3/8B R3/8 3 8 2 Connection 4 G1/2B 9 R1/2 6 1/2NPT\*1 Others \* 1 General use 40MPa or higher is cannot be manufactured 3 Wetted parts 2 Ammonia use SUS material 3 Corrosion-proof use SUS 0 to 40kPa, 0 to 0.06 (4) Please specify applicable Pressure range 2 -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound range code as well as (MPa) -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 3 pressure range and 0 to 4, 6, 10 4 engineering unit. 5 0 to 16, 25 6 0 to 40, 60 Corrosion-proof use 7 0 to 100 Corrosion-proof use 0 Standard (5) А M: Steam use Performance В H:Heat-proof type С V: Vibration-proof type D MV: Steam use & Vibration-proof type HV: Heat-proof & vibration-proof type F Accuracy: JIS1.0 (0.1MPa or higher)\*2 3 0 Standard (6) Pointer 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. 3Wetted parts material Standard Inorganic glass\*4 0  $\overline{\mathbf{7}}$ Purpose Connecting part Bourdon tube Connecting method Organic glass Not available in H, HV specification. Glass 1 General use CAC203 For the gauge with pressure ratings Soldered fo 2 Tempered glass of 2.5MPa or lower: brass parts General type, combination З Non-glare treatment glass Vibration-proof type Not available C6872 Silver soldered 6 Non-frost coat treatment glass for brass and SUS316 for gauge Steam use Others requiring Heat-proof type Steam use & Vibration-proof type, Heat-proof & Vibration-proof type SUS316 over combination 0 Nil (8) 25MPa Treatment 1 Use no oil For the gauge with pressure ratings 2 Use no water of 4MPa or higher: SUS316 3 Use no oil & water Ammonia use 0 Nil 9 Corrosion-proo SCS14 SUS316 Tig-welding Throttle screw FS10-011 or FS10-013 Corrosion-proof use USE 3 FS10-081 (With pipe) \*1 JIS marked thread is available only for the gauge with JIS pipe thread. 0 Nil (10) Other additional Required 1 \*2 Verification standard inspection mark (Please specify the desired documents separately.) spec. Verification standard inspection mark, dial scale \*5, case color, movement cannot be attached to JIS1.0 product \*3 Max pointer specification J JIS specification (14) Range of manufacturability: Pressure gauges; 0.25MPa or higher Class Compound; -0.1 to 0.1MPa or higher 0 Nil Vacuum; Cannot be manufactured Set pointer with Required (15) 1 (Please specify the desired documents separately.) Scale plate swage specification Document Submission drawings, instruction manual, \*4 The gauge comes standard with organic glass for gauge with pressure inspection procedure, mill sheet, ratings of 10MPa or higher test report (1 pc 1 copy), inspection / traceability certificate, (This standard shall not apply to H&HV type gauge). attended inspection \*5 Customized dial: Capacity scale, dual scale, tag number, \* Specify by code "X" if there is no applicable specification. characters, colored circle, colored wire

# **B\_1\_ Process 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

- •Can be used under rain, frost, etc. conditions by adoption of sealed case. (JIS C 09220 IP43 equivalent)
- •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.

### List of products



Size	Mounting	Model number	Size	Mounting	Model number
φ60		BA10-2	φ150		BG10-2□□ BG12-2□□
φ75		BC10-2	φ200		BJ10-2□□
φ100		BE10-2	φ300		BL10-2□□

\*  $\phi$  300 is not available for JIS mark.

#### Fluid:

Gas, liquid

#### Case construction: Seal type

Sealed construction which is equivalent to JIS C 0920, IP43 but not sealed completely.

#### 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).

Connecting part	Bourdon tube
C3604 * <sup>1</sup> or CAC203	C6872 or SUS316 (Varies depending on required pressure range and additional specon performance.)
SUS316*2	
or SCS14	SUS316
	C3604*1 or CAC203 SUS316*2 or

\*1 BA10 (φ60) only \*2 BA10 (φ60), BL10 (φ300): SUS316

Case

Case finish: Black (Standard color)

Case material: Metal case ..... Aluminium alloy

Plastic case ..... Bakelite

Protection: IP43

#### 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.



\*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.

Connection: Refer to the document JIS pipe thread in 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) \*¢300 is JIS1.6 equivalent.

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.)

#### Process Industrial Pressure Gauge (Type B / Lower Connection)

ī

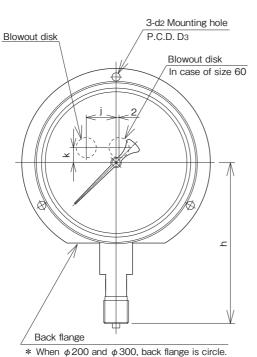
Specification 2

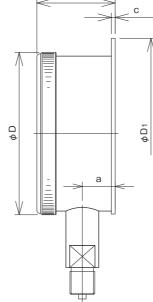
Unit: mm

Shape / Dimensions:

#### Lower connection

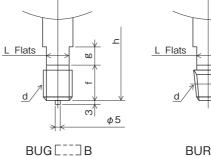
Type B...Back flange is fastened to panel by screw.





h

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





ЪD

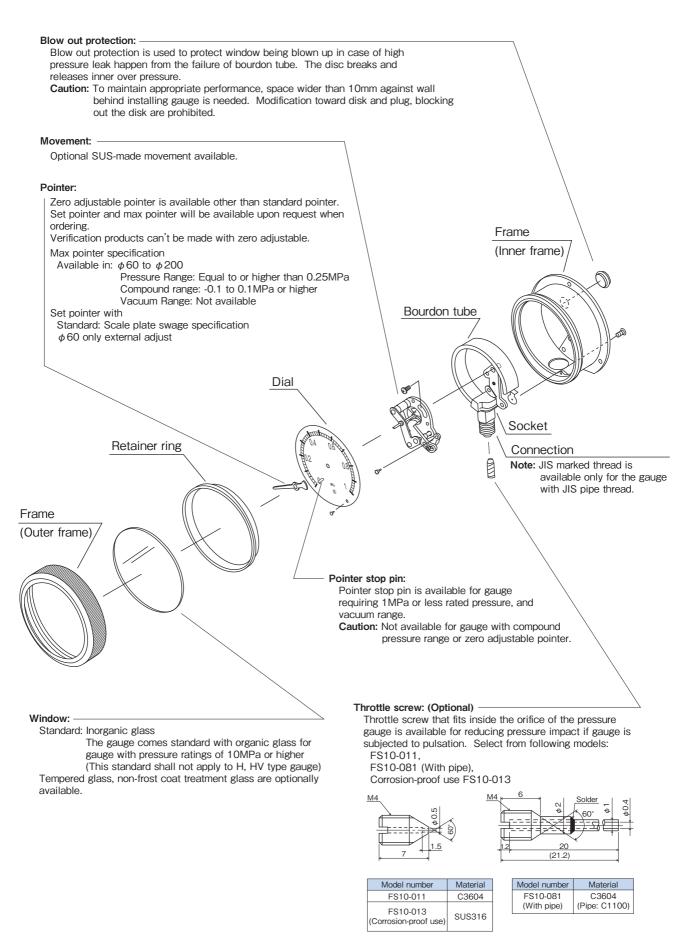
BUR

		Shape / Connection					Ca	ase /	Dime	ensio	ns					Model number
Size		d	D	D <sub>1</sub>	D <sub>3</sub>	а	b	С	d <sub>2</sub>	j	k	f	g	L	h	
60	U	G1/4B, R1/4	70	80	72	11.5	32	2	4.5	—	8	16	10	12	58	BA10-2
75	U	G1/4B, R1/4	84	98	00	16 5	41	2	4 5	15	10	16	12	12	68	BC10-2
/5	U	G3/8B, R3/8	(86)	90	88	16.5	(41.5)	(4)	4.5	15	10	18	12	14	70	BC12-2
		1/4NPT										16	15	14	106	
100	U	G3/8B, R3/8, 3/8NPT	109	128	115	22 (23)	52.5 (54)	2.5 (4)	5.5	20	10	18	15	14	108	
		G1/2B, R1/2, 1/2NPT	(110)			(20)	(01)	( ')				20	15	17	110	BE12-2
150	U	G3/8B, R3/8	159	170	105	05	59	2.5		00	10	18	15	14	123	BG10-2
150	0	G1/2B, R1/2, 1/2NPT	(162)	178	165	25	(59.5)	(4.5)	5.5	20	10	20	15	17	125	BG12-2
200	U	G1/2B, R1/2, 1/2NPT	210	235	220	24	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

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

#### Specifications & additional spec.:



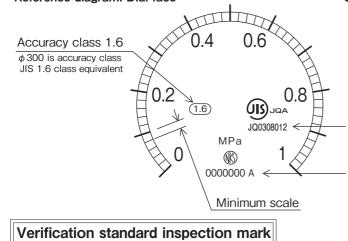
#### Minimum scale value:

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

$\smallsetminus$						Size / Ac	curacy cla	SS	
	Pressur	e range Pa)	φ60	φ75	φ100,	φ150	φ2	200	φ 300
	(111)	ra)	1.6	1.6	1.6	1.0	1.6	1.0	JIS1.6 equivalent
	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	0.002	0.002
	to	0.16	0.005	0.005	0.005	0.002	0.005	0.002	0.005
	to	0.25	0.005	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	0.01
	to	0.6	0.01	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	0.02
Pressure	to	1.6	0.05	0.05	0.05	0.02	0.05	0.02	0.05
range	to	2.5	0.05	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	0.1
	to	6	0.1	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	0.2
	to	16	0.5	0.5	0.5	0.2	0.5	0.2	0.5
	to	25	0.5	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	0.002
	-0.1 to	0.1	0.005	0.005	0.005	0.002	0.005	0.002	0.005
	to	0.16	0.005	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	0.01
Compound	to	0.4	0.01	0.01	0.01	0.01	0.01	0.01	0.01
range	to	0.6	0.02	0.02	0.02	0.01	0.02	0.01	0.02
	to	1	0.02	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	0.05
	to	2.5	0.05	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



## 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  $\phi$ 200,  $\phi$ 300 product has not received the type approval.)

#### **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.  $*\phi$ 300 is not available for JIS mark.

The month of manufacture is provided with alphabets printed next to serial number. (A: January to L: December) \*Excluding  $\phi$  300.

Test report and related document show serial number only to tie to manufactured gauge.

#### Type Approval Number:

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

Designated Manufacturing Business Operator Number: 272001

#### \$\$\phi 60 Process Industrial Pressure Gauge

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

N	lodel																	
B A	1 (	) —	2			_								×	×	×	J	
ess Industrial Pre	essure Gau	 uges (φ6	i0) ①	2	3		4	5	6	7	8	9	10	11	(12)	13	14	
		0 ()	, _			7	Sele	Image: Sective spec.         Additional spec. (Option)           3 (Mounting hole) Metal case           a           a           se           SUS           -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5           0 to 16, 25           0 to 4, 6, 10           0 to 16, 25           0 Standard           A           M: Steam use           C           V: Vibration-proof type           D           MV: Steam use & Vibration-proof type           D           MV: Steam use & Vibration standard inspection mark can't be supplied with this sp           6           Set pointer *2           Verification standard inspection mark can't be supplied with this sp           6           Set pointer retreatment glass           1         Organic glass           2         Tereader glass           3         Non-glare treatment glass           6         Non-frost coat treatment glass           7         Nil           Treatment         1           10         Use no oil           2         Use no oil & water           3         Use no oil & water           3         Use no oil &										
	1 Mounting	g	2	Lowe	er conn	nection				le) Met					,			
	(2	?)		2	G1/	4B												
	-		n	7	R1/	/4												
					Othe	ers*1												
		3			1	Gene	eral use											
				6	2													
		mai	enai		3	Corro	· · ·											
Disease		liaabla	1	(4)												d		
						nge					0.16, (	).25, 0.	4, 0.6,	1, 1.6,	2.5			
pressure	e range and				,					J								
enginee	rıng unit.		J				3			dard								
						ormance	2	-			e							
						ormanoc						vpe						
								-					n-proof	type				
						6				-			1	-71				
					Selective spec.       Additional spectrum         ar connection       Type B (Mounting hole)       Metal case         G1/4B       R1/4       Image: Subsection of the section of t			't be supp	lied with	this spe	cific							
									5				nspectior	mark can	't be supp	lied with	this spe	
									6				(i)       (i)       (i)       (i)         (ii)       (i)       (i)       (i)       (i)         (iii)       (ii)       (iii)       (iii)       (iii)         (iii)       (iii)       (iii)       (iii)       (iii)         (iii)       (iii)       (iii)       (iii)       (iii)         (iii)       (iii)       (iii)       (iii)       (iii)         (iii)       (iiii)       (iiii)       (iiii)       (iiii)         (iii)       (iii)       (iii)       (iii)       (iii)         (iii)       (iii)       (iii)					
							(7)			0	Stan	(a)       (b)       (c)       (c)       (c)         Additional spec. (Option)       I       I       I       I         I case       I						
					Image: Construction of the supplet with this supplet the supplet with this supplet with this supplet with this supplet supp													
	dustrial Pressure Gauges ( \$ 60) ①       ②       ③       ③       ③       ③       ③       ④       ④       ④       ④       ●			3	Non-	glare tre	eatmen	t glass										
		6	Non-	frost co	at trea	tment g	lass											
3Wetted parts m	aterial		PEO         C <thc< th="">         C         <thc< th=""> <thc< th=""></thc<></thc<></thc<>															
Purpose C 1 General use	ustrial Pressure Gauges (\$\$60) ①       ②       ③         Model number       ①       ②       ③         ①       ①       ②       ○       ③         ②       ②       ○       ⑦       ⑦       ③         ②       ②       ○       ○       ⑦       ⑦       ⑦       ⑦       ⑦       ⑦       ③         ③       ⑦       ②       ○       ○       ⑦										-							
	00004	of 2.5MPa	or lower:	20001010		brass par	ts				5							
	A 1 0       -       2	tle scre	w			)-011 n	r FS10	-013 0	orrosion-	pror								
						for brass				Top         Image: Constraint of the second sec								
			e & Vibrati		type				(10)			0					this specifica this specifica this specifica this specifica this specifica	
	A       1       0       —       2         IPressure Gauges (\$\phi 60)       ①         el number       2         Mounting       2         Mounting       2         ©       Connection         asse specify applicable te code as well as sure range and neering unit.	uge with pi or higher:	essure ra	atings				Othe		onal	1	(Pleas Verifi	e specify cation s	standar	d inspe	ction r	mai	
2 Ammonia use									(14)			J		(i)     (ii)     (iii)     (iii)     (iiii)     (iiiii)     (iiii)     (iii)     (i				-
3 Corrosion-proof use	Lastrial Pressure Gauges (φ60) ①         Model number         ①         ②         Øunting         ②         Connection         ③         Wetted par material         Please specify applicable range code as well as pressure range and engineering unit.         Please specify applicable ral use         Connection part         Bourdon of 2.5MPa or lower: -General type, Vibration-proof type C6872         Steam use, Steam use, Steam use, Steam use, Steam use, Steam use, Steam use, Steam use, Stussi         Inia use ion-proof       SUS316       SUS3	16 Tig-welding			ding		~	5										
المعمولية ال	brood in -	ollob -	nlu fra d		·····	110	a three :		(15)			0	Nil					
			niy tor th	e gaug	e with	JIS DID	e thread	I.	-	iment			Requ		the desire	ed docum	ents sep	) Jara

Range of manufacturability: Pressure gauges; 0.25MPa or higher Compound; -0.1 to 0.1 MPa 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

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

attended inspection  $\ast$  Specify by code "X" if there is no applicable specification.

inspection procedure, mill sheet,

inspection / traceability certificate,

test report (1 pc 1 copy),

\$\$\phi 75 Process Industrial Pressure Gauge

Model number configuration Please specify the model number, each specs and the range for ordering. Model С 1 2 В J Х Х  $\times$ Process Industrial Pressure Gauges ( $\phi$ 75) (1) 2 3 (4) (5) (6) 7 (8) (9) (10) (11) (12) (13) (14) (15) Additional spec. (Option) Model number Selective spec. 0 Lower connection Metal case Model 2 Lower connection Plastic case 2 Type B (Mounting hole) 1 Mounting 2 G1/4B 2 3 G3/8B Connection 7 R1/4 8 R3/8 Others \* 1 1 General use 40MPa is cannot be manufactured 3 Wetted parts 2 SUS Ammonia use material 3 Corrosion-proof use SUS -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound 2 4 Please specify applicable -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Pressure range 3 range code as well as (MPa) 4 0 to 4, 6, 10 pressure range and 5 0 to 16, 25 engineering unit. 6 0 to 40 Corrosion-proof use 0 Standard (5) Performance А M: Steam use С V: Vibration-proof type MV: Steam use & Vibration-proof type D 0 Standard (6) Pointer Zero adjustable (Micro meter type) 1 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. 0 Standard Inorganic glass \* 3 1 Glass 1 Organic glass 2 Tempered glass 3 Non-glare treatment glass 6 Non-frost coat treatment glass Others 3Wetted parts material 0 Nil Connecting part Bourdon tube Purpose Connecting method (8) For the gauge with pressure ratings of 2.5MPa or lower: •General type, General use CAC203 Soldered for Treatment 1 Use no oil brass parts combination 2 Use no water Vibration-proof type 3 Use no oil & water C6872 Silver soldered Not available for brass and SUS316 0 Nil for gauge requiring (9) Steam use FS10-011 or FS10-013 Corrosion-proof use Steam use & Vibration-proof type combination Throttle screw 1 over SUS316 25MPa 3 FS10-081 (With pipe) For the gauge with pressure ratings of 4MPa or higher: SUS316 0 Nil (10) Other additional 1 Required (Please specify the desired documents separately.) spec. Ammonia use Verification standard inspection mark, SCS14 SUS316 Tig-welding Corrosion-proof dial scale \*4, case color, movement \*1 JIS marked thread is available only for the gauge with JIS pipe thread. J JIS specification (14) Class \*2 Max pointer specification Range of manufacturability: Pressure gauges; 0.25MPa or higher 0 Nil Compound; -0.1 to 0.1MPa or higher 1 Required (15) Vacuum; Cannot be manufactured (Please specify the desired documents separately.) Document Set pointer with Submission drawings, instruction manual, Scale plate swage specification inspection procedure, mill sheet, test report (1 pc 1 copy), \*3 The gauge comes standard with organic glass for gauge with pressure inspection / traceability certificate, ratings of 10MPa or higher attended inspection

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

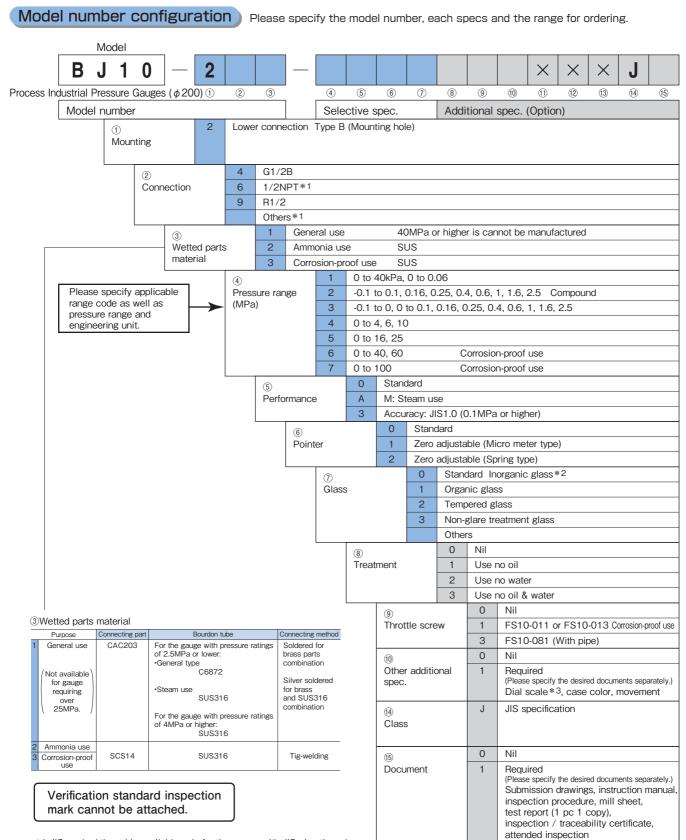
\* Specify by code "X" if there is no applicable specification.

## $\phi$ 100 Process Industrial Pressure Gauge

Г	N	odel		1				1													
	ΒΕ	1		—	2			—								$ \times $	$ \times $	$ \times $	J		
cess Ind	ustrial Pre	ssure	Gauges	s (φ10	0) ①	2	3	•	4	5	6	7	8	9	10	11	(12)	13	(14)	(	
	Model n	umbe							Sele	ctive s	spec.		Add	itional	spec.	(Optio	n)				
	Model		0				Metal c Plastic														
Initial         Image: Constraint of the second						SCLIOIT	Flastic	Case													
L		1	_	<u> </u>	2	Туре	B (Mou	unting h	nole)												
		Mour	nting																		
			(2)			3 4 6	G3/8	3B				9	9 F	81/2							
				nection			G1/2	2B				I	≺ 1	/4NPT	*1						
							-	IPT*1						3/8NPT							
						8	R3/8		eral use		40	)MPa c		Others* er is car		manufa	actured				
				3 Wette	ed parts	5	2		onia us	e		JS				manan					
				mate	rial		3		osion-pro			JS	S S316L*2 (100MPa is cannot be manufactured)								
							4	Anti-o	corrosio		Sl 40kPa,			00MPa	is car	nnot be	manufa	ctured)			
r	Please s	pecify	applica	able		4 Pres	sure rar	nge	2					4, 0.6,	1, 1.6.	2.5 C	compou	nd			
	range co pressure			F	$\rightarrow$	(MPa)			3					0.25, 0.							
L	engineer	-							4		4, 6, 10	)									
									5 6		16, 25 40, 60		(	Corrosio	n-proo	fuse					
									7	0 to <sup>-</sup>				Corrosio	-						
							5			0	Stand					MV: Ste					
							Perfc	ormance	9	A B		eam us at-proo			-	HV: Hea Accurac	-		-		
										C		bration		ype	0	Accurac	y. 0101.0	0.11		BIICI	
Purpose	ts material Connecting	art	Bour	rdon tube		Connectin	g method	6			0	Stan	dard								
General use		For t	the gauge w 5MPa or lo		re ratings	Soldered brass pa		Point	er		1			ble (Mic standard i			n't be sup	olied with	this spec	cifica	
		•Gen	neral type, ration-proof			combina					2	Zero	o adjustable (Spring type) /erification standard inspection mark can't be supplied with this								
Not available	e		CE	6872		for brass					5		rification pointer		nspectio	n mark car	n't be sup	olied with	this spec	cifica	
for gauge requiring		Hea	am use, at-proof type			and SUS316 combination									I inspection mark can't be supplied with this specific					cifica	
over 25MPa.	/	Steam use & Vibration-proof type, Heat-proof & Vibration-proof type SUS316									6		pointer * 4 erification standard inspection mark can't be sup					olied with	this spec	cifica	
		For the gauge v			re ratinge				7			0		Standard Inorganic glass*5							
			MPa or high		10 10(11)50					6		1	-	nic glas		t availat	ole in H	, HV sp	ecifica	atior	
Ammonia us	0											2		pered g glare tr	glass reatment glass						
orrosion-pro use			SL	US316		Tig-we	Iding					6		n-frost coat treatment glass							
nti-corrosio use	n SCS16		SU	JS316L		115 110	iidii iB						Othe		 						
	1					1				⑧ Treat	eatment		0	Nil Use i	no oil						
1 JIS ma	arked threa	ad is a	vailable	only fo	or the g	auge w	/ith JIS	pipe th	read.				2	Use	no wat	er					
2 Conne	ecting part	SCS	16										3	_		& water					
*3 V	/erificatio	n star	ndard i	nspec	tion m	ark	)				9 Throt	tle scre	ew	0	Nil FS10	)-011 or I	FS10-01	3 Corros	ion-proo	of us	
С	annot be	attac	hed to	JIS1.	0 prod	uct.	J							3		0-081 (			,		
4 Max n	ointer spe	cificati	ion								(1) Other			0	Nil	vine -l					
	nge of mai										Other spec.	additio	onal	1	(Plea	uired se specify					
																fication scale *					
Compound; -0.1 to 0.1MPa or higher Vacuum; Cannot be manufactured Set pointer with Scale plate sware specification											(14)			J	JIS	specifica	ation				
	Scale plate swage specification										Class	\$									
Sca	The gauge comes standard with organic glas ratings of 10MPa or higher							nui pres	ssure		(15)			0	Nil	lired					
Sca 5 The g rating	gs of 10MF		0			e gauge).									Required (Please specify the desired documents separately						
Sca 5 The g rating			0	/ to H&	HV type	ie gauge).					Docu	ment			Cile						
Sca 5 The ga rating (This 6 When	standard sta	shall n rts ma	ot apply	SUS3	16L,						Docu	ment			insp	mission ection p	drawing procedu	s, instru re, mill	uction r	man	
Sca 5 The ga rating (This 6 When the m	standard s	shall n rts ma SUS31	ot apply aterial is 16L (Wit	SUS3 th FS10	16L, 0-014).						Docu	iment			insp test insp	nission	drawing procedu 1 pc 1 tracea	s, instru re, mill copy), bility ce	uction r sheet,	man	

Model number configuration ) Please specify the model number, each specs and the range for ordering. Model G 1 2 В X J Х Х Process Industrial Pressure Gauges ( $\phi$  150) (1) 2 3 (4) (5) (6) 7 (8) (9) (10) (11) (12) (13) (14) (15) Additional spec. (Option) Model number Selective spec. 0 Lower connection Metal case 2 Model Lower connection Plastic case Type B (Mounting hole) 2 1 Mounting G3/8B R3/8 3 8 2 Connection 4 G1/2B 9 R1/2 6 1/2NPT\*1 Others \* 1 General use 40MPa or higher is cannot be manufactured 3 Wetted parts 2 Ammonia use SUS material 3 Corrosion-proof use SUS 0 to 40kPa, 0 to 0.06 (4) Please specify applicable Pressure range 2 -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound range code as well as (MPa) -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 3 pressure range and 0 to 4, 6, 10 4 engineering unit. 5 0 to 16, 25 6 0 to 40, 60 Corrosion-proof use 7 0 to 100 Corrosion-proof use 0 Standard (5) А M: Steam use Performance В H:Heat-proof type С V: Vibration-proof type D MV: Steam use & Vibration-proof type F HV: Heat-proof & vibration-proof type Accuracy: JIS1.0 (0.1MPa or higher)\*2 3 0 Standard (6) Pointer 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. ③Wetted parts material Standard Inorganic glass\*4 0 (7)Purpose Connecting par Bourdon tube Connecting method Organic glass Not available in H, HV specification. Glass 1 General use CAC203 For the gauge with pressure ratings Soldered fo of 2.5MPa or lower brass parts 2 Tempered glass General type combination Vibration-proof type З Non-glare treatment glass Not available C6872 Silver soldered 6 Non-frost coat treatment glass for gauge requiring •Steam use, Heat-proof type for brase and SUS316 Others Steam use & Vibration-proof type, combination ove 0 Nil Heat-proof & Vibration-proof type SUS316 25MPa (8) Treatment 1 Use no oil For the gauge with pressure ratings of 4MPa or higher: SUS316 2 Use no water З Use no oil & water Ammonia use 0 Nil SCS14 SUS316 Tig-welding (9) Corrosion-proof Throttle screw FS10-011 or FS10-013 Corrosion-proof use 3 FS10-081 (With pipe) \*1 JIS marked thread is available only for the gauge with JIS pipe thread. 0 Nil (10) \*2 Verification standard inspection mark Other additional Required 1 (Please specify the desired documents separately.) cannot be attached to JIS1.0 product. spec. Verification standard inspection mark, dial scale \*5, case color, movement \*3 Max pointer specification J JIS specification Range of manufacturability: Pressure gauges; 0.25MPa or higher (14) Compound: -0.1 to 0.1MPa or higher Class Vacuum: Cannot be manufactured 0 Nil Set pointer with Required (15) 1 Scale plate swage specification (Please specify the desired documents separately.) Document Submission drawings, instruction manual, \*4 The gauge comes standard with organic glass for gauge with pressure inspection procedure, mill sheet, ratings of 10MPa or higher test report (1 pc 1 copy), inspection / traceability certificate, (This standard shall not apply to H&HV type gauge). attended inspection \*5 Customized dial: Capacity scale, dual scale, tag number. \* Specify by code "X" if there is no applicable specification. characters colored circle colored wire

\$\$\phi 200 Process Industrial Pressure Gauge



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

\*2 The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher

\*3 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire

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

**\$\$ 300 Process Industrial Pressure Gauge** Not available for JIS mark

Model number configuration Please specify the model number, each specs and the range for ordering. Model L 1 2 0 J Β 0 Х Х Х Process Industrial Pressure Gauges ( $\phi$  300) (1) 2 3 (4) (5) (6) 7 (8) (9) (10) (11) (12) (13) (14) (15) Model number Additional spec. (Option) Selective spec. 2 Lower connection Type B (Mounting hole) (1) Mounting 4 G1/2B (2) Connection 9 R1/2 General use 1 3 Wetted parts 2 Ammonia use SUS material Corrosion-proof use SUS 3 2 -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound 4 Please specify applicable Pressure range 3 -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 range code as well as (MPa) 4 0 to 4, 6, 10 pressure range and 5 0 to 16, 25 engineering unit. 0 Standard (5) Performance 0 Standard (6) 2 Zero adjustable (Spring type) Pointer Standard Inorganic glass \* 1 0  $\overline{(7)}$ Glass Organic glass Nil 0 (8) Treatment Use no oil 1 2 Use no water 3 Use no oil & water 0 Nil (9) FS10-011 or FS10-013 Corrosion-proof use Throttle screw 1 FS10-081 (With pipe) 3 0 Nil (10) Other additional Required 1 (Please specify the desired documents separately.) spec. Dial scale \*2, case color, movement J JIS1.6 equivalent\*3 (14) Class 0 Nil (15) Document 1 Required 3Wetted parts material (Please specify the desired documents separately.) Purpose Connecting part Bourdon tube Connecting method Submission drawings, instruction manual, General use CAC203 Silver soldering inspection procedure, mill sheet, SUS316 Ammonia use SUS316 Tig-welding test report (1 pc 1 copy), Corrosion-proof use inspection / traceability certificate, attended inspection

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

Verification standard inspection mark cannot be attached.

- \*1 The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher
- \*2 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire

\*3  $\phi$ 300 is not available for JIS mark.

# **B\_1 Process 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

- •Can be used under rain, frost, etc. conditions by adoption of sealed case. (JIS C 09220 IP43 equivalent)
- •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

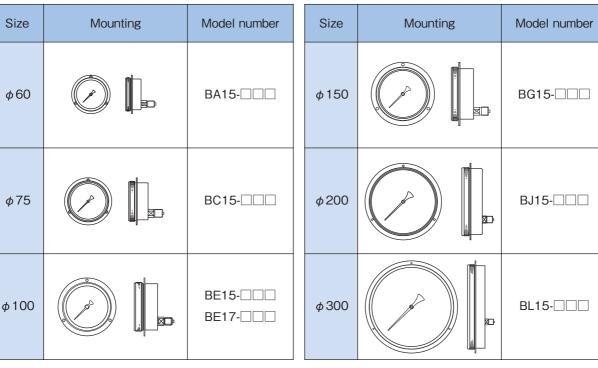
The maximum operating pressure should not exceed two-thirds of the full-scale range.

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.

### List of products



\* φ 300 is not available for JIS mark.



Connection: Refer to the document JIS pipe thread in

\*For other connections, please contact us.

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

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

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,

technical sheet.

0 to  $40kPa \rightarrow 0$  to 100MPa-0.1 to  $0MPa \rightarrow -0.1$  to 2.5MPa

JIS1.6 (JIS accuracy class) \*¢300 is JIS1.6 equivalent.

in Specification 4

φ150, φ200.)

Pressure range:

Accuracy:

#### Specification 1

#### Fluid:

Gas, liquid

#### Case construction: Seal type

Sealed construction which is equivalent to JIS C 0920, IP43 but not sealed completely.

#### 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	CAC203	C6872 or SUS316 (Varies depending on required pressure range and additional specon performance.)
Ammonia use		
Corrosion-proof use	SCS14	SUS316

#### Case

Case finish: Black (Standard color)

Case material: Metal case ..... Aluminium alloy

Plastic case ..... Bakelite

Protection: IP43

#### 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 -

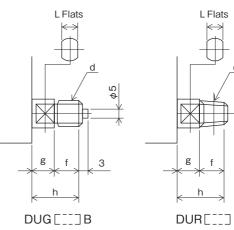
\*Please select "Use no oil" to use gauge on oxygen service.
\*Please select "Use no oil" and "Corrosion-proof" type to use gauge on acetylene service.

#### Process Industrial Pressure Gauge (Type D / Back Connection)

ī



#### Shape / Dimensions: Weight: **Back connection** Size Weight (g) Type D...Panel mounting by screw or clamp. 60 Approx. 300 75 Approx. 500 100 Approx. 800 150 Approx. 1600 3-d2 Mounting hole 3- Mounting clamp (Possible to process on request) (Possible to process on request) 200 Approx. 2400 300 Approx. 4600 Blowout disk Blowout disk -¢ In case of size 60 Ξ 2 φD3 φD1 Οφ φ D4



h

2

а

С

$\backslash$	Panel		Shape						С	ase /	Dime	ensior	าร						Model
Size	cut size		d	D	D <sub>1</sub>	D <sub>3</sub>	D <sub>4</sub>	а	b	С	d <sub>2</sub>	n	j	k	f	g	L	h	number
60	65	U	G1/4B, R1/4	70	80	72	64	14	32	2	3.3*	20	-	8	16	10	12	28	BA15-
75	78	U	G1/4B, R1/4	84	98	88	77	18	40.5	2	3.3 <sup>*</sup>	25	15	10	16	12	12	28	BC15-
75	10	0	G3/8B, R3/8	04	90	00	11	10	40.5	2	3.3	25	15	10	18	12	14	30	
			1/4NPT												16	10	12	28	
100	103 (105)	U	G3/8B, R3/8, 3/8NPT	109	128	119		17.5 (20.5)		2.5 (4)	5.5	35	20	10	18	12	14	30	BE15-
	. ,		G1/2B, R1/2, 1/2NPT	(110)			(101)	(20.0)	(10.0)	( .)					20	12	17	32 (29)	
150	154	U	G3/8B, R3/8		178	160	150	21.5		0.5			00	10	18	12	14	30	
150	154	0	G1/2B, R1/2, 1/2NPT	159	170	109	152	21.5	61	2.5	5.5	55	20	10	20	12	17	32 (31)	BG15-
200	205	U	G1/2B, R1/2, 1/2NPT	210	235	220	203	28	63	3	5.5	55	20	10	20	12	17	32	BJ15-
300	306	U	G1/2B, R1/2	312	340	323	304	30.5	64	3.5	5.5	55	0	35	20	12	17	32	BL15-

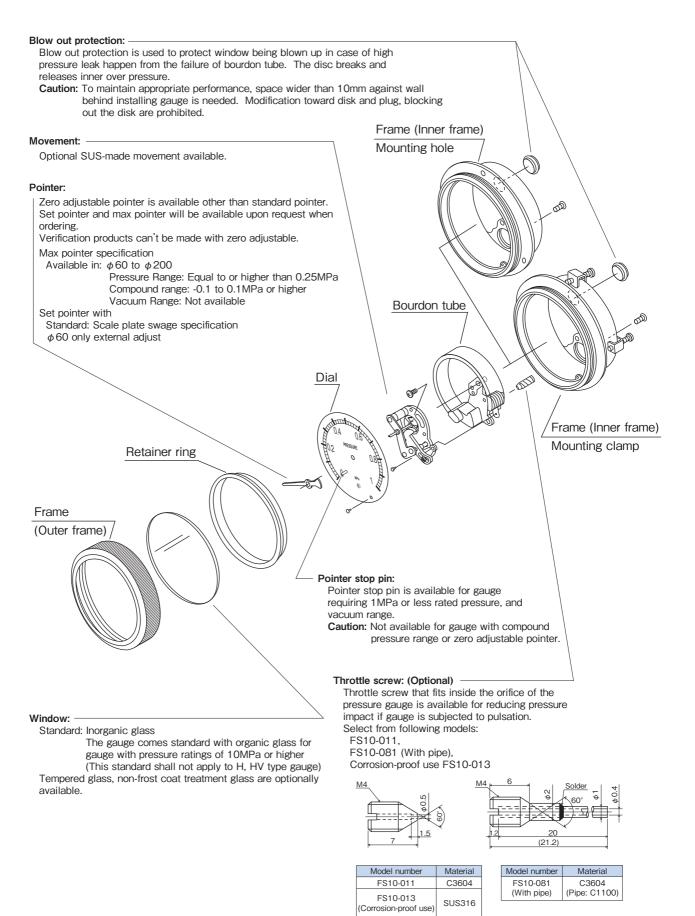
() Dimension of plastic case

\* For M3 flat head screw

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

Unit: mm

#### Specifications & additional spec.:



#### Minimum scale value:

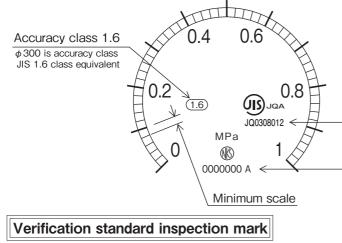
The minimum number of minor scale for each pressure range is shown in the following table.

$\smallsetminus$						Size / Ac	curacy cla	SS	
	Pressur (Mi	0	φ60	φ75	φ100,	φ150	φ2	200	φ 300
	(IVII	-a)	1.6	1.6	1.6	1.0	1.6	1.0	JIS1.6 equivalent
	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	0.002	0.002
	to	0.16	0.005	0.005	0.005	0.002	0.005	0.002	0.005
	to	0.25	0.005	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	0.01
	to	0.6	0.01	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	0.02
Pressure	to	1.6	0.05	0.05	0.05	0.02	0.05	0.02	0.05
range	to	2.5	0.05	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	0.1
	to	6	0.1	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	0.2
	to	16	0.5	0.5	0.5	0.2	0.5	0.2	0.5
	to	25	0.5	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 <sup>-</sup>	100	_	_	2	2	2	2	_
Vacuum range	-0.1 to	0	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	-0.1 to	0.1	0.005	0.005	0.005	0.002	0.005	0.002	0.005
	to	0.16	0.005	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	0.01
Compound	to	0.4	0.01	0.01	0.01	0.01	0.01	0.01	0.01
range	to	0.6	0.02	0.02	0.02	0.01	0.02	0.01	0.02
	to	1	0.02	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	0.05
	to	2.5	0.05	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



#### 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  $\phi$ 200,  $\phi$ 300 product has not received the type approval.)

#### **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.  $*\phi$ 300 is not available for JIS mark.

The month of manufacture is provided with alphabets printed next to serial number. (A: January to L: December) \*Excluding  $\phi$  300.

Test report and related document show serial number only to tie to manufactured gauge.

#### Type Approval Number:

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

Designated Manufacturing Business Operator Number: 272001

#### 

		Model																		
[	В	A 1	5	7-	-											$\times$	$\times$	$\times$	J	
ess Ind	lustrial P	ressure	Gau	 zes (φ6	50) (1)	2	3		(4)	5	6	7)	(8)	9	10	(1)	(12)	(13)	(14)	-
Γ		numbei			, _			]	Sele	ctive s	spec.	_	Add	itional	spec.	(Optio	n)	-	-	
L					1	Back	conne	ection T				np) Me			0000.	(000.0	)			-
		1 Mour	nting		2			ction T		-	-									
						2	G1/4	40												
			2	nnectio	n	7	B1/													
								rs*1												
							1		ral use											
				③ We	tted parts	S	2	-	onia us		SI	JS								-
					terial	5	3		sion-pr											
						(4)	-		2		to 0.1, (		.25. 0.	4. 0.6.	1. 1.6.	2.5 C	ompoun	nd		-
[	Please	specify	appli	icable	1		sure ra	nge	3		to 0, 0 i		-							-
	-	code as		as	$\rightarrow$	(MPa		-	4		4, 6, 10		-							-
		re range ering uni							5		16, 25									-
<sup>L</sup>	0.0	<u> </u>			-		(5)			0	Stand	dard								
								ormance	;	Α	M: St	eam us	se							-
										С	V: Vik	oration	proof t	ype						
										D	MV: \$	Steam	use & \	/ibratio	n-proof	type				
								6			0	Stan	dard							
								Point	er		2			able (Sp						
															nspection	mark car	nt be supp	olied with	this spec	
											5		pointer		nspection	mark car	n't be supr	olied with	this spec	cifi
											6	Set p	ointer	(Externa	al adjus	st)*2		olied with		ecifica
									7			0		dard In	-					
									Glass	6		1	Orga	nic glas	s					
												2	Tem	pered g	ass					
												3	Non-	glare tre	eatmen	t glass				
												6	Non-	frost co	at trea	tment g	lass			
													Othe	rs						
										8			0	Nil						
3 Wette	ed parts	material								Treat	ment		1	Use i	no oil					
Pur	pose	Connecting	part		Bourdon to	ube	(	Connecting	method				2	Use i	no wate	er				
1 Gen	eral use	CAC20			auge with pr a or lower:	ressure ra		Soldered brass part					3		no oil 8	water				
			· ·	General t				combinati			9	п.		0	Nil	0.01.1		010.5		
				, ibration	C6872			Silver sol	dered		Ihrot	tle scre	W	1				-013 C	orrosion-	oro
				Steam us				for brass and SUS						3		J-U81 (	With pi	oe)		
				Steam us	e & Vibrati SUS31		type	combinati	on		(1) Others			0	Nil	in a d				
				For the ga of 4MPa o	auge with p or higher: SUS31		atings				spec.	additio	onai	1	Required (Please specify the desired documents se Verification standard inspection dial scale * 4, case color, movem					na
3 Corros	ionia use sion-proof use	SCS14			SUS31	6		Tig-wel	ding		(1) Class	\$		J		pecifica				
±1 IIC	marked	throad :	0.000	ailabla a	nly for th		no with	IIS nine	throad	4	(15)			0	Nil					-
7 I JIS	o marked	unead l	s ava	anabie C	niy ior (n	ie gaug	Se will)	and hibe	; u reac	<i>.</i>	-	ment		1						-
	S marked thread is available only for the gauge with JIS pipe th ax pointer specification Range of manufacturability: Pressure gauges; 0.25MPa or high Compound; -0.1 to 0.1MPa or high								highor		Document 1 Required (Please specify the des Submission drawin inspection proced									

Set pointer with External adjust

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

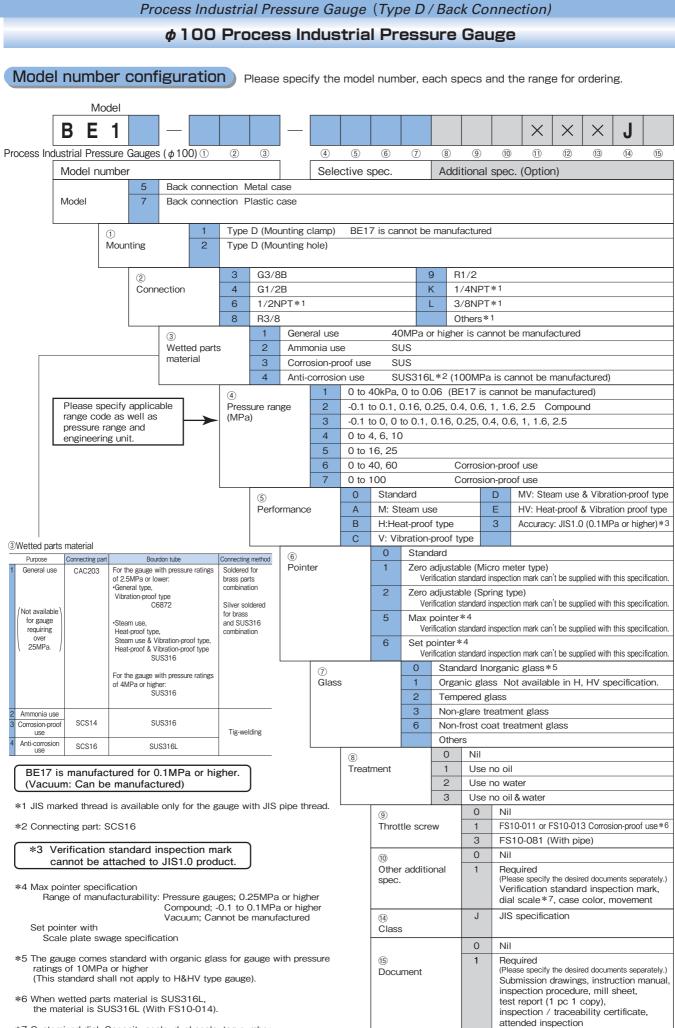
\*4 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire \* Specify by code "X" if there is no applicable specification.

### \$\$\phi 75 Process Industrial Pressure Gauge

						1														
															$ \times$	×	J			
		iges (φ	75) ①	2	3	1	4	5	6	7	8	9	10	11	(12)	(13)	14			
Model	Please specify applicable range code as well as pressure range and engineering unit.         ted parts material <sup>2urpose</sup> Connecting part of 2.5MPa         * General use or gauge requiring over 25MPa.       CAC203 CAC203         * Steam use steam use of 4.MPa or scient straige         * Sussi16 or use       SUS316 or SCS14							ctive s				ditional spec. (Option)								
	-	r	1				Type D Type D	-	-											
	IVIOUITUITE	5	2	Dack	COLINE		уре D	(IVIOULITI	ing hole		al Case									
	0	)		2	G1/4	4B	В													
	-		n	3	G3/8	3B														
				7	R1/4															
				8	R3/8 Other															
					0the		eral use		40	)MPa io	canno	nt he m	anufac	tured						
			etted parts	6	2		ionia us	e	40MPa is cannot be manufactured SUS											
			iterial		3	-	osion-pr			JS										
			-	(4)			2	-0.1 t	-0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound											
	range code as well as pressure range and			Press (MPa	ure rar	nge	3		-		0.16, 0	0.25, 0	4, 0.6,	1, 1.6,	2.5					
pressu	e range and						4		o 4, 6, 10 o 16, 25											
engine	FILLE ULLIL.						6	0 to 4												
					(5)			0	Stand	dard				-						
					-	ormance	Э	А	M: St	eam us	e									
								С		oration-										
				l		-		D	MV: S	Steam u Stand		/ibratio	n-proof	type						
						6 Point	er		1			ble (Mic	cro mete	er type)						
														mark car	i't be sup	olied with	this spec	cific		
									2				ring type	e) i mark car	't he sun	olied with	this sner	cific		
									5		pointer									
													nspectior	mark car	i't be sup	blied with	this spec	cific		
									6		ointer *		nspectior	mark car	n't be sup	olied with	this spec	cific		
							(7)			0	Stan	dard Ind	organic	glass*	3			_		
							Glass	6		1		nic gla								
										2	-	pered g		+						
										6			eatmen	tment g	lass					
3Wattad parts (	natorial										Othe									
Purpose	Connecting part		Bourdon tu	ibe		onnecting		8			0	Nil								
1 General use	CAC203	of 2.5MP		essure rat		Soldered brass par		Treat	ment		1		no oil							
			-proof type			combinat					2		no wate no oil &							
(Not available)			C6872			Silver sol for brass					3	0se	Nil	water						
requiring			se & Vibratio			and SUS combinat			9 Throt	tle scre	w	1		D-011 c	r FS10	-013 C	orrosion-	proc		
over 25MPa.		_	SUS31									3	-	)-081 (						
			or higher:		tings				10			0	Nil							
2 Ammonia uso	011004.0		SUS31	0					Other spec.	additio	onal	1	Requ (Pleas	iired e specify	the desir	ed docum	ients sep	bara		
3 Corrosion-proof	or		SUS316	6		Tig-wel	lding						Verif	cation scale * 4	standar	d inspe	ction n	nar		
									(14)			J		pecifica	-	55101, 11				
			, וסו נווכ	99996		Pipo			Class	3			0.0 5	2001100						
			essure ga	uges: 0	).25MF	Pa or hi	gher					0	Nil							
		C	Compound	; -0.1 to	o 0.1N	IPa or h	nigher		(15)			1	Requ		46-2 C	l -1		_		
		v	/acuum; C	J JOI II IDv	be mar	uractur	eu		Docu	ment				e specify						
Set pointer v	vith												Subri	IISSION (	arawing	s, instru	LCTION I	Id		
	vith e swage spe		n										inspe	ection p ection p	rocedu	re, mill		ııdl		

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

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



\*7 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire

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

#### *φ*150 Process Industrial Pressure Gauge

#### Model number configuration Please specify the model number, each specs and the range for ordering. Model G 1 5 В X J Х Х Process Industrial Pressure Gauges ( $\phi$ 150) (1) 2 3 (4) (5) (6) 7 (8) (9) (10) (11) (12) (13) (14) (15) Additional spec. (Option) Model number Selective spec. 1 Back connection Type D (Mounting clamp) Metal case 1 2 Mounting Back connection Type D (Mounting hole) Metal case 3 G3/8B 8 B3/8 (2) 4 Connection G1/2B 9 R1/2 6 1/2NPT\*1 Others \* 1 40MPa or higher is cannot be manufactured 1 General use 3 2 Wetted parts SUS Ammonia use material 3 Corrosion-proof use SUS 0 to 40kPa, 0 to 0.06 (4) Please specify applicable Pressure range 2 -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound range code as well as (MPa) 3 -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 pressure range and 4 0 to 4, 6, 10 engineering unit. 5 0 to 16.25 0 to 40, 60 6 Corrosion-proof use 0 to 100 7 Corrosion-proof use 0 Standard (5) Performance А M: Steam use В H: Heat-proof type С V: Vibration-proof type D MV: Steam use & Vibration-proof type E HV: Heat-proof & Vibration-proof type Accuracy: JIS1.0 (0.1MPa or higher)\*2 3 0 Standard (6) Pointer Zero adjustable (Micro meter type) 1 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. ③Wetted parts material 0 Standard Inorganic glass\*4 Connecting method Bourdon tube Connecting par (7)Purpose For the gauge with pressure ratings of 2.5MPa or lower: General use CAC203 Soldered fo Glass 1 Organic glass Not available in H, HV specification. brass parts 2 •General type, Vibration-proof type combination Tempered glass З Non-glare treatment glass Not available Silver soldered C6872 for gauge requiring Steam use, Heat-proof type, 6 Non-frost coat treatment glass and SUS316 Others Steam use & Vibration-proof type. combination over Heat-proof & Vibration-proof type SUS316 25MPa 0 Nil (8) For the gauge with pressure ratings Treatment 1 Use no oil of 4MPa a or higher: SUS316 2 Use no water 3 Use no oil & water Ammonia use SCS14 SUS316 Tig-welding Corrosion-proo 0 Nil USE (9) FS10-011 or FS10-013 Corrosion-proof use Throttle screw 1 3 FS10-081 (With pipe) \*1 JIS marked thread is available only for the gauge with JIS pipe thread. 0 Nil (10) Other additional 1 Required \*2 Verification standard inspection mark (Please specify the desired documents separately.) spec cannot be attached to JIS1.0 product. Verification standard inspection mark, dial scale \*5, case color, movement \*3 Max pointer specification J JIS specification (14) Range of manufacturability: Pressure gauges; 0.25MPa or higher Class Compound; -0.1 to 0.1 MPa or higher Vacuum: Cannot be manufactured 0 Nil Set pointer with 1 Required (15) Scale plate swage specification (Please specify the desired documents separately.) Document Submission drawings, instruction manual, \*4 The gauge comes standard with organic glass for gauge with pressure inspection procedure, mill sheet, ratings of 10MPa or higher test report (1 pc 1 copy), (This standard shall not apply to H&HV type gauge). inspection / traceability certificate, attended inspection \*5 Customized dial: Capacity scale, dual scale, tag number,

characters, colored circle, colored wire

#### *¢*200 Process Industrial Pressure Gauge

#### Model number configuration Please specify the model number, each specs and the range for ordering. Model 5 J 1 Β J Х Х $\times$ Process Industrial Pressure Gauges ( $\phi 200$ ) (1) 2 3 (4) (5) (6) 7 (8) (9) (10) (11) (12) (13) (14) (15) Additional spec. (Option) Model number Selective spec. 1 Back connection Type D (Mounting clamp) 1 Mounting 2 Back connection Type D (Mounting hole) 4 G1/2B (2) Connection 6 1/2NPT\*1 9 R1/2 Others \* 1 40MPa or higher is cannot be manufactured General use 3 Wetted parts 2 Ammonia use SUS material 3 Corrosion-proof use SUS 0 to 40kPa, 0 to 0.06 4 Please specify applicable Pressure range 2 -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound range code as well as (MPa) 3 -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 pressure range and 4 0 to 4, 6, 10 engineering unit. 5 0 to 16, 25 6 0 to 40, 60 Corrosion-proof use 0 to 100 Corrosion-proof use 7 0 Standard (5) M: Steam use Performance A 3 Accuracy: JIS1.0 (0.1MPa or higher) 0 Standard (6) Zero adjustable (Micro meter type) Pointer 1 2 Zero adjustable (Spring type) Standard Inorganic glass\*2 0 $\overline{(7)}$ Glass Organic glass 1 2 Tempered glass 3 Non-glare treatment glass Others 0 Nil 8 Treatment 1 Use no oil 2 Use no water 3 Use no oil & water 0 Nil () ③Wetted parts material FS10-011 or FS10-013 Corrosion-proof use Throttle screw 1 Bourdon tube Connecting method Purpose Connecting part 3 FS10-081 (With pipe) For the gauge with pressure ratings of 2.5MPa or lower: General use CAC203 Soldered for of 2.5IVIF a . •General type C6872 brass parts 0 Nil (10) combination Other additional 1 Required Not available Silver soldered spec. (Please specify the desired documents separately.) for gauge Steam use for brass and SUS316 requiring Dial scale \*3, case color, movement SUS316 over 25MPa J JIS specification combination 14 For the gauge with pressure ratings of 4MPa or higher: Class SUS316 Ammonia use 0 Nil (15) SUS316 Corrosion-proof SCS14 Tig-welding Document Required USE 1 (Please specify the desired documents separately.) Submission drawings, instruction manual Verification standard inspection inspection procedure, mill sheet, mark cannot be attached. test report (1 pc 1 copy), inspection / traceability certificate, attended inspection

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

\*2 The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher

\*3 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire \* Specify by code "X" if there is no applicable specification.

**\$\$ 300 Process Industrial Pressure Gauge** Not available for JIS mark

#### Model number configuration Please specify the model number, each specs and the range for ordering. Model L 1 5 J Β 0 Х Х Х Process Industrial Pressure Gauges ( $\phi$ 300) (1) 2 3 (4) (5) (6) 7 (8) (9) (10) (11) (12) (13) (14) (15) Model number Additional spec. (Option) Selective spec. 1 Back connection Type D (Mounting clamp) (1) Mounting 2 Back connection Type D (Mounting hole) 4 G1/2B (2) Connection 9 R1/2 General use 1 3 Wetted parts 2 Ammonia use SUS material Corrosion-proof use SUS 3 2 -0.1 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound 4 Please specify applicable Pressure range 3 -0.1 to 0, 0 to 0.1, 0.16, 0.25, 0.4, 0.6, 1, 1.6, 2.5 range code as well as (MPa) 4 0 to 4, 6, 10 pressure range and 5 0 to 16, 25 engineering unit. 0 Standard (5) Performance 0 Standard (6) 2 Zero adjustable (Spring type) Pointer Standard Inorganic glass \* 1 0 $\overline{(7)}$ Glass Organic glass Nil 0 (8) Treatment Use no oil 1 2 Use no water 3 Use no oil & water 0 Nil (9) FS10-011 or FS10-013 Corrosion-proof use Throttle screw 1 FS10-081 (With pipe) 3 0 Nil (10) Other additional Required 1 (Please specify the desired documents separately.) spec. Dial scale \*2, case color, movement J JIS1.6 equivalent\*3 (14) Class 0 Nil (15) Document 1 Required 3Wetted parts material (Please specify the desired documents separately.) Purpose Connecting part Bourdon tube Connecting method Submission drawings, instruction manual, General use CAC203 Silver soldering inspection procedure, mill sheet, SUS316 Ammonia use SCS14 Tig-welding test report (1 pc 1 copy), Corrosion-proof use inspection / traceability certificate, attended inspection

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

Verification standard inspection mark cannot be attached.

- \*1 The gauge comes standard with organic glass for gauge with pressure ratings of 10MPa or higher
- \*2 Customized dial: Capacity scale, dual scale, tag number, characters, colored circle, colored wire

\*3 φ300 is not available for JIS mark.