

CD21 · 25

Flameproof Type Pressure Gauge

Overview

This flameproof pressure gauge with contacts is used for hazardous area where there is the consideration of pressure media or atmosphere igniting or exploding. It is especially applicable when pressure indication is necessary at the job site for pressure measurement, alarm, and control applications.

Features

- Pressure indication featured with switch actuation is suitable for on-site pressure control.
- Since the case is made of die cast aluminum alloy, it is lightweight and rugged.
- Contacts setting adjustable by external adjustment knob.
- There is no effect on each indication and switch functions because the indication and switching sensing element are separated.

*To maximize performance, select full scale pressure range to indicate normal operating pressure 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 appropriate wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.



Specifications 1

Type of protection:

Flameproof d2G4

Media:

CD21 Gas or liquid
CD25 Gas

Installation environment:

Hazardous area Refer to flameproof explanation for more information.

Connection:

G1/2B, R1/2, 1/2NPT

*For other connections, please contact us.

Wetted parts:

General use (CD25 only)
Socket C3604BD
Bellows C5212R
Corrosion resistant
Socket SUS316
Bourdon tube (CD21) SUS316
Bellows (CD25) SUS316L

Pressure range:

CD21
20 to 100kPa (Receiver)
0 to 0.1 → 0 to 70MPa
-0.1 to 0 → -0.1 to 2MPa

CD25
0 to 5 → 0 to 70kPa

Operating temperature range:

-5 to 40°C (No freezing)

Indication accuracy:

±1.5%F.S. (Receiver range ±0.75%F.S.)

Setting accuracy:

±3%F.S.

Repeatability:

±1%F.S.

Temperature coefficient:

0.05%F.S./°C

Deadband:

Fixed. Within 6 to 15%F.S.
(Depends on the pressure range.)

Switch:

JIS C4505 Industrial microswitch

Number of contacts:

1 contact or 2 contacts

Setting system:

CD21 External adjustment system With setting dial
CD25 External adjustment system With setting dial

Method of leading external conductors and cable into a terminal box:

Conduit type or flameproof cable gland

Case material & finish:

AC7A · Gray wrinkle paint

Enclosure:



CD21 Outdoor type (IP54)
CD25 Indoor type

Weight:

CD21 Approx. 11kg
CD25 Approx. 15kg

Specifications 2

Pressure range and deadband:

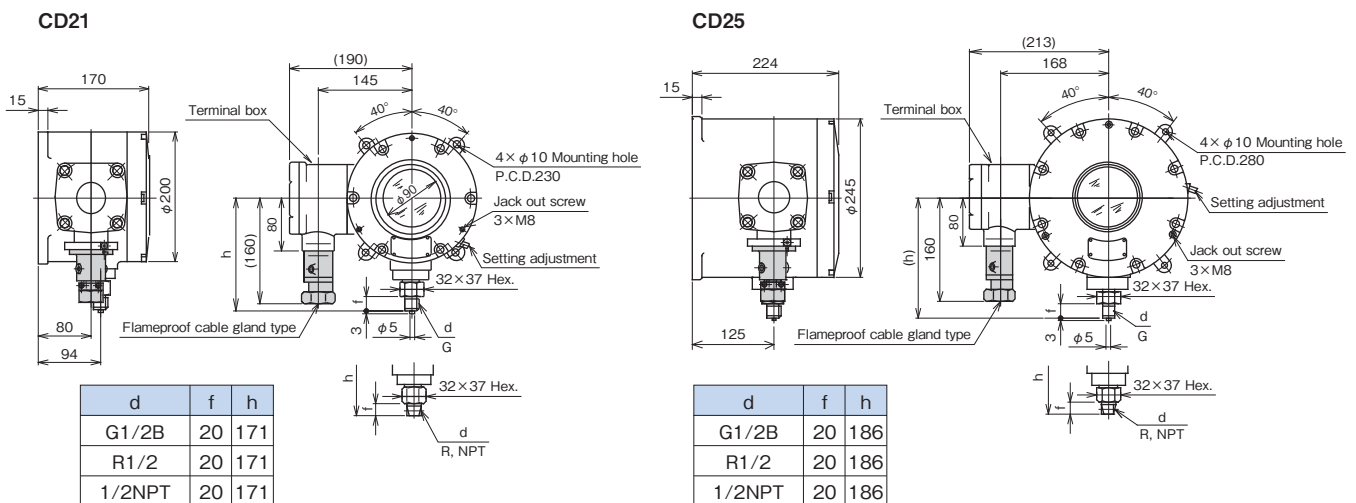
Model	Pressure range			Deadband Within %F.S.
	Vacuum MPa	Compound MPa, MPa	Pressure MPa	
CD21  Bourdon tube type	-0.1 to 0		20 to 100kPa 0 to 0.1	15
		-0.1 to 0 to 0.1	to 0.2	
		-0.1 to 0 to 0.2	to 0.3	10
		-0.1 to 0 to 0.3	to 0.4	
		-0.1 to 0 to 0.4	to 0.6	8
		-0.1 to 0 to 0.6	to 1.0	
		-0.1 to 0 to 1	to 1.5	6
		-0.1 to 0 to 1.5	to 2.0	
		-0.1 to 0 to 2	to 2.5	
			to 3.5	
			to 5.0	
			to 7.0	
			to 10	8
			to 15	
		to 25		
		to 35		
		to 50		
		to 70		
CD25  Bellows type			0 to 5kPa to 7	10
			to 10	
			to 15	
			to 20	
			to 30	8
			to 40	
			to 50	
			to 70	

Electrical characteristics:


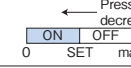
	Rating		Withstand voltage	Insulation resistance
	Resistance load	Inductive load		
250V AC	15A	15A	1500V AC Between terminals and case for 1 minute	500V DC 100MΩ or over Between terminals and case
125V AC	15A	15A		
125V DC	0.5A	0.05A		
30V DC	2A	1A		
· Inductive load: Power factor 0.4 or over (AC) Time constant 7ms or less (DC)				

Dimensions

Unit: mm



Type of contacts and wiring system


Type of contacts	Mark	Operation system and operation diagram	Connection terminal number	Setting pointer	Remarks
Upper limit type with one contact	H	* When pressure goes up and reaches at set point, switch operates and turn circuit ON. 	① - ②	Black pointer	ON · OFF switch action is reversed when ② - ③ is wired. (HR)
Lower limit type with one contact	L	* When pressure goes down and reaches at set point, switch operates and turn circuit ON. 	② - ③	Black pointer	ON · OFF switch action is reversed when ① - ② is wired. (LR)
Upper and lower limit type with two contacts	HL	Independently operates with combination of upper and lower limit.	① - ② ⑤ - ⑥	Black pointer Red pointer	
Upper limit type with two contacts	2H	Independently operates with combination of two upper limits.	① - ② ④ - ⑤	Black pointer Red pointer	
Lower limit type with two contacts	2L	Independently operates with combination of two lower limits.	② - ③ ⑤ - ⑥	Black pointer Red pointer	

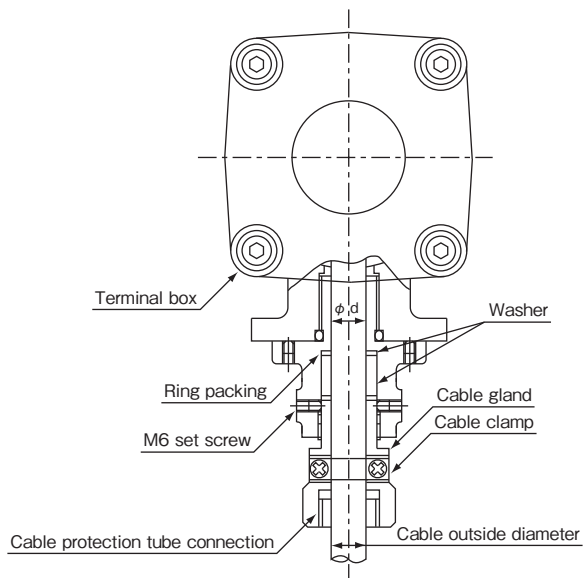
The setting pressure scale of the product represents each of the "*" points above. Therefore, when using the upper limit type as a lower limit type and the lower limit type as an upper limit type, consider the switch actuating point difference caused by deadband.

Method of leading external conductors and cable into a terminal box

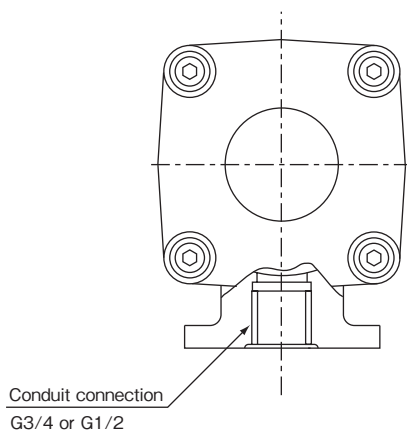
When wiring cable, select the flameproof cable gland type, and conduit flameproof threads type when metal conduit is wired with insulated electric wire.

Flameproof packing type

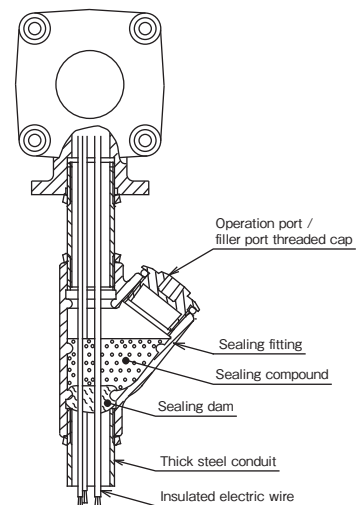
Gasket inner diameter (d) ϕ	Applicable cable outside diameter ϕ	Protection tube Connection
10.5	9.4	G 1/2 G 3/4
	9.9	
	10.1	
12	10.5	
	11.0	
	11.5	
14	11.9	 G 3/4 G 1
	12.0	
	12.5	
	12.6	
15.5	13.1	
	13.5	
	13.6	
	14.5	
16.5	15.6	



Conduit flameproof threads connection type



When performing conduit wiring, the terminal box and conduit connection section must be sealed as shown at the left.



Note) Use the 600V polyvinyl chloride insulated wire specified in JIS C 3307 or equivalent or better insulated electric wire as the conduit wiring. Do not use cable or cabtyre cable.

Flameproof

Flameproof construction:

Flameproof construction is a totally-enclosed construction such that even if an explosive gas explodes inside the container, the container will withstand the force of the explosion and there is no danger of ignition by external explosive gases. Our pressure switches manufactured under this policy are widely used in measurement, alarm, and pressure control in factories and business offices where inflammable gases or the vapor of inflammable liquids having a flash point of 40°C or less may exist.

Applicable range: d2G4

Flameproof construction: d

Explosion class: 2 (Minimum gap which permits flame propagation at a gap depth of 25mm is 0.4mm to 0.6mm)

Ignitability: G4 (Container with an ignition point of 135 to 200°C and its outside surface temperature rise limit is 70deg)

Hazardous areas: Zone 1 or Zone 2

Applicable industries: Petrochemical, chemical fiber, ethylene, ethanol, methanol, dielectric products manufacturing, liquefied gas, electric furnace, pharmaceuticals, paints, ammonium sulfate, soda, other measurement medium or industries in which there is the danger of explosion.

Classification of hazardous area:

Hazardous area	Description
Zone 0	Areas where a hazardous atmosphere is continuously present or present for a long period under ordinary circumstances
Zone 1	Areas where hazardous atmosphere is likely to occur under ordinary circumstances
Zone 2	Areas where hazardous atmosphere is likely to occur under abnormal circumstances

Type approval name and number

It is official approval number to represent that flameproof construction pressure switch conformed to flameproof standard.

It is national official approval which is examined and authorized by technology institution of industrial safety.

Type approval name:
MVSD

Type approval number:

Model number	Type approval name	Type approval number
CD21-□□3	MVSD	T 21936 (0.7MPa and under)
		T 21106 (1MPa and compound)
		T 21937 (1.5MPa and compound)
		T 21938 (2MPa and compound)
		T 21939 (2.5MPa and compound)
		T 21940 (3MPa, 3.5MPa)
		T 21941 (5MPa)
		T 21942 (7MPa)
		T 21943 (10MPa)
		T 21944 (15MPa)
		T 21945 (20MPa, 25MPa)
		T 21946 (30MPa, 35MPa)
		T 21947 (50MPa)
T 21948 (70MPa)		
CD25-□□1	MVSD	T21108
CD25-□□3		T21109

Notes

- There is a flame propagation to protection adapter to meet flameproof specifications. It may cause delay in response time where the process media includes viscosity.
- As setting scale on dial includes setting error, ensure the use of master gauge and reference pressure gauge to maintain accurate setting.

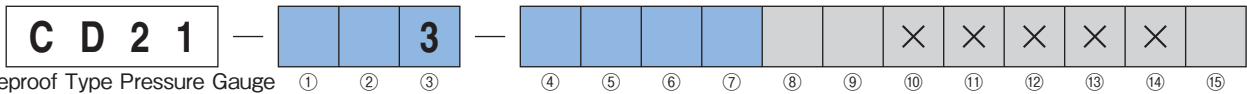
CD21・25

Flameproof Type Pressure Gauge

Model number configuration

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

Model



Flameproof Type Pressure Gauge
(Low pressure, medium pressure use)

Model number		Product specifications	Additional specifications (Optional)
① Type (Number of contacts, methods of leading external conductors and cable into a terminal box)	1	1 contact	Conduit type
	2	2 contacts	Conduit type
	3	1 contact	Flameproof cable gland type
	4	2 contacts	Flameproof cable gland type
② Connection	4	G1/2B	
	H	R1/2	
	M	1/2NPT	
		Others	
③ Wetted parts	3	SUS316	
④ Pressure range (MPa)	1	-0.1 to 0, 0.1, 0.2, 0.3, 0.4, 0.6, 1, 1.5, 2	
	2	20 to 100kPa (Receiver)	
	3	0 to 0.1, 0.2, 0.3, 0.4, 0.6, 1, 1.5, 2, 2.5, 3.5, -0.1 to 0	
	4	0 to 5, 7, 10, 15, 25, 35	
	5	0 to 50, 70	
⑤ Contacts	A	H : Upper limit type with one contact	
	B	L : Lower limit type with one contact	
	C	HL : Upper and lower limit type with two contacts	
	D	2H : Upper limit type with two contacts	
	E	2L : Lower limit type with two contacts	
		Others	
⑥ Switch	0	Standard type	
	1	Ultra high sensitivity type	
	3	Standard + Gold plated	
	4	Ultra high sensitivity type + Gold plated	
		Others	
⑦ Outlet for electric wire	B	Conduit G1/2	
	C	Conduit G3/4 (Standard)	
	カ	Flameproof cable gland G3/4×12 (Standard)	
	キ	Flameproof cable gland G3/4×10.5	
	ク	Flameproof cable gland G3/4×14	
		Others (With adapter)	
⑧ Treatment	0	Not required	
	1	Use no oil	
	2	Use no water	
	3	Use no oil & water (Up to 25MPa range)	
⑨ Additional specifications	0	Not required	
	1	Required (Specify required additional spec.) Case finish	
⑩ Documents	0	Not required	
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Mill test report Calibration test report (One-part one sheet) Inspection / Traceability certificate Attending inspection	

Please specify pressure range and unit of measure along with corresponding ordering code.

[Scope of manufacturing]
• Setting method: External adjustment, setting dial

* Specify code "X" to refer N/A

