

CD21·25 Explosion-Protected Construction Pressure Gauges



OUTLINE

These are explosion-protected pressure gauges with contacts used when there is the danger of the measured liquid or atmosphere igniting or exploding. They are especially applicable when pressure indication is necessary at the job site, and are used in pressure measurement, alarm, and control applications.

FEATURES

- These gauges combine an indicator with a switch, and are used when pressure indication is necessary at the job site.
- Since the case is made of die cast aluminum alloy, it is lightweight and rugged.
- Contacts setting position is changed by external adjustment knob.
- There is no mutual interference between functions because the indication and switching functions each have a dedicated pressure element.

* When selecting a pressure switch, select the pressure range over which the gauge will demonstrate top performance in a working pressure range within 30 to 65% of full scale. Also check whether the wetted parts material is suitable for the gas or fluid to be measured.

SPECIFICATION 1

Kind of explosion-proof construction:

Explosion-proof d2G4

Fluid:

CD21 Gas or liquid

CD25 Gas

Operating environment:

Hazardous area Refer to the explosion-proof item for more information.

Connection:

G1/2B(PF), R1/2(PT), 1/2NPT

* For other connections, please contact us.

Wetted parts materials:

General use (CD25 only)

Socket C3604BD

Bellows C5212R

Corrosion-proof use

Socket SUS316

Bourdon tube (CD21) SUS316

Bellows (CD25) SUS316L

Pressure range:

CD21

20~100 kPa (Receiver)

0~0.1→0~70 MPa

-0.1~0→-0.1~2 MPa

CD25

0~5→0~70 kPa

Operating temperature:

-5~40 °C (However, there shall be 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

Dead band:

Fixed. Within 6~15%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 scale

CD25 External adjustment system With setting scale

Method of leading external conductors

and cable into a terminal box:

Conduit type or flame-proof packing type

Case material & finish:

AC7A · Gray crystal paint

Case construction:

CD21 Outdoor type (IP54)

CD25 Indoor type

Weight:



CD21 Approx. 11 kg

CD25 Approx. 15 kg

CD21·25 Explosion-Protected Construction Pressure Gauges

SPECIFICATION 2

Pressure range and dead band:

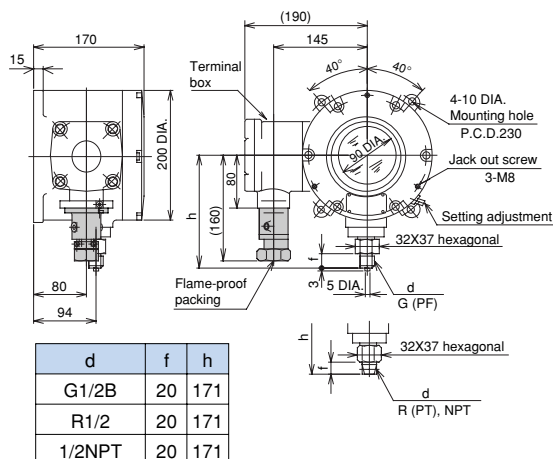
Model	Pressure range			Dead band within %F.S.
	Vacuum MPa	Compound MPa, MPa	Pressure MPa	
CD21  Bourdon tube type			20~100kPa	15
	-0.1~0		0~0.1	
		-0.1~0~0.1	~0.2	10
		-0.1~0~0.2	~0.3	
		-0.1~0~0.3	~0.4	8
		-0.1~0~0.4	~0.6	
		-0.1~0~0.6	~1.0	6
		-0.1~0~1	~1.5	
		-0.1~0~1.5	~2.0	
		-0.1~0~2	~2.5	
			~3.5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

Electrical characteristics:

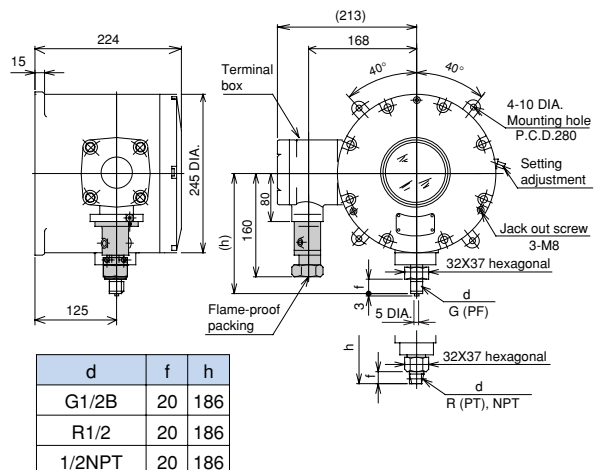
	Rating		Withstand voltage	Insulation resistance
	Resistance load	Inductive load		
250V AC	15 A	15 A	1500V AC Between terminals and case for 1 minute	500V DC 100MΩ or over Between terminals and case
125V AC	15 A	15 A		
125V DC	0.5 A	0.05 A		
30V DC	2 A	1 A		
· Inductive load: Power factor 0.4 or over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

DIMENSIONS

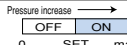
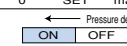
CD21



CD25



TYPE OF CONTACTS AND WIRING SYSTEM

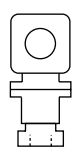
Type of contacts	Mark	Operation system and operation diagram	Connection terminal number	Setting pointer	Remarks
Upper limit type with one contact	H	* When the pressure rises to the set pressure, the contacts operate and turn ON the circuit. 	① — ②	Black pointer	Wiring ②—③ reverses ON and OFF at the set point. (HR)
Lower limit type with one contact	L	* When the pressure drops to the set pressure, the contacts operate and turn ON the circuit. 	② — ③	Black pointer	Wiring ①—② reverses ON and OFF at the set point. (LR)
Upper and lower limit type with two contacts	HL	Combines the upper limit type and lower limit type. Each type operates independently.	① — ② ⑤ — ⑥	Black pointer Red pointer	
Upper limit type with two contacts	2H	Combines two upper limit types. Each type operates independently.	① — ② ④ — ⑤	Black pointer Red pointer	
Lower limit type with two contacts	2L	Combines two lower limit types. Each type operates independently.	② — ③ ⑤ — ⑥	Black pointer Red pointer	

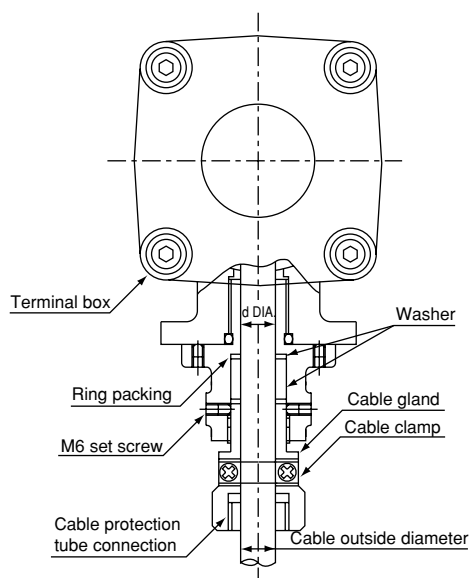
The setting pressure scale of the product represents each of the "*" points above. Therefore, when using the upper limit type as a lower limit type and the lower limit type as an upper limit type, correct the setting by the amount of the dead band.

METHOD OF LEADING EXTERNAL CONDUCTORS AND CABLE INTO A TERMINAL BOX

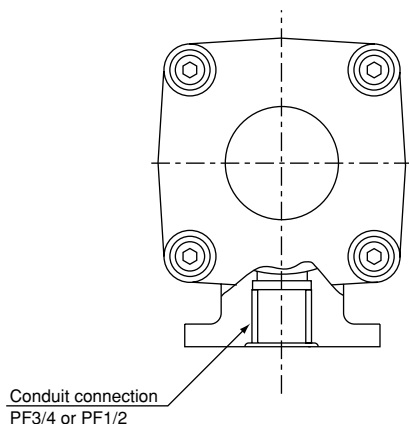
When wiring cable, select the flame-proof packing type and when performing metal conduit wiring with insulated electric wire, select the conduit flame-proof threads type.

Flame-proof packing type

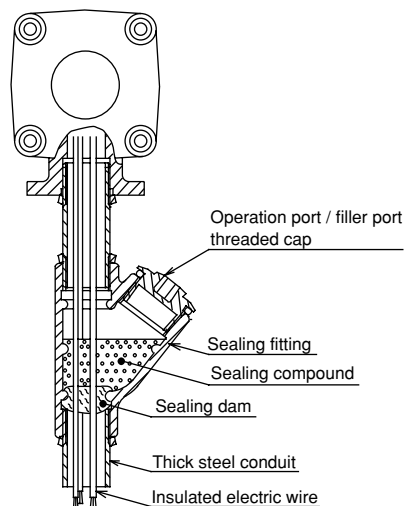
Gasket inside diameter (d) DIA.	Applicable cable outside diameter DIA.	Protection tube connection
10.5	9.4	PF 1/2 PF 3/4 
	9.9	
	10.1	
12	10.5	
	11.0	
	11.5	
14	11.9	
	12.0	
	12.5	
	12.6	
15.5	13.1	PF 3/4 PF 1
	13.5	
	13.6	
	14.5	
16.5	15.6	



Conduit flame-proof 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 cabletyre cable.

CD21·25 Explosion-Protected Construction Pressure Gauges

EXPLOSION-PROTECTED

Explosion-protected construction:

Explosion-protected 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.

Application range: d2G4

Explosion-protected 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 whose outside surface temperature rise limit is 70deg)
 Hazardous areas: Zone 1 or Zone 2
 Objective 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	Contents
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

This is the official approval number which shows that an explosion-protected construction pressure switch conforms to the explosion-proof standard.
 It is the national official approval which is tested and certified by the 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 or less)
		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	21108
CD25-□□3		21109

NOTES

- The pressure connection part of these pressure switches is equipped with a flame propagation prevention joint to satisfy explosion-proof performance. Therefore, pressure response may be slow, depending on the viscosity of the liquid being measured.
- The setting scale includes the setting error. For accurate adjustment, always compare against a master gauge and standard pressure gauge and set.

CD21·25 Explosion-Protected Construction Pressure Gauges

Model number configuration

For ordering, please specify the model number, each specs and range.

Model name

C D 2 1			3							×	×	×	×	×	
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮

Explosion-Protected Construction Pressure Gauges
(Low pressure, medium pressure use)

Model number		Selective spec.	Additional spec. (Option)
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	Flame-proof packing type
	4	2 contacts	Flame-proof packing type
② Connection	4	G1/2B	
	H	R1/2	
	M	1/2NPT	
③ Wetted parts materials	3	Corrosion-proof use	
(When ordering, please specify the range and units separately.) ④ Pressure range (MPa)	1	-0.1~0, 0.1, 0.2, 0.3, 0.4, 0.6, 1, 1.5, 2	
	2	20~100 kPa (Receiver)	
	3	0~0.1, 0.2, 0.3, 0.4, 0.6, 1, 1.5, 2, 2.5, 3.5	
	4	0~5, 7, 10, 15, 25, 35	
	5	0~50, 70	
⑤ Contact	A	H : Upper limit type with 1 contact	
	B	L : Lower limit type with 1 contact	
	C	HL : Upper and lower limit type with 2 contacts	
	D	2H : Upper limit type with 2 contacts	
	E	2L : Lower limit type with 2 contacts	
⑥ Switch	0	Standard	
	1	Ultra high sensitivity type	
	2	Magnetic blow-out basic type	
	3	Standard + gold plated	
	4	Ultra high sensitivity type + gold plated	
⑦ Outlet for electric wire	Conduit type		
	B	PF1/2 female	
	C	PF3/4 female (Standard)	
	Flame-proof packing type		
	力	PF1/2 female ×12	
	キ	PF3/4 female ×10.5	
コ	PF3/4 female ×14		
⑧ Treatment	0	Nil	
	1	Use no oil	
	2	Use no water	
	3	Use no oil & water (Up to 25MPa range)	
⑨ Other additional specifications	0	Nil	
	1	Required (Please specify the desired documents separately.) Coating specification	
⑮ Documents	0	Nil	
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), traceability certificate, attended inspection	

Manufacturing range

•Setting system: External adjustment system, With setting scale

Specify "X" if there is no specification item.

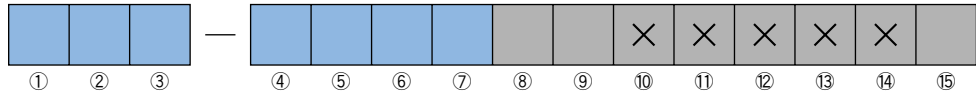
CD21·25 Explosion-Protected Construction Pressure Gauges

Model number configuration

For ordering, please specify the model number, each specs and range.

Model name

C D 2 5



Explosion-Protected Construction
Pressure Gauges
(For medium pressure)

Model number		Selective spec.	Additional spec. (Option)
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 Flame-proof packing type	
	4	2 contacts Flame-proof packing type	
② Connection	4	G1/2B	
	H	R1/2	
	M	1/2NPT	
③ Wetted parts materials	1	General use	
	3	Corrosion-proof use	
(When ordering, please specify the range and units separately.)	④ Pressure range (kPa)	1	0~5, 7, 10, 15, 20, 30, 40, 50
		2	0~70
⑤ Contact	A	H : Upper limit type with 1 contact	
	B	L : Lower limit type with 1 contact	
	C	HL : Upper and lower limit type with 2 contacts	
	D	2H : Upper limit type with 2 contacts	
	E	2L : Lower limit type with 2 contacts	
⑥ Switch	0	Standard	
	1	Ultra high sensitivity type	
	2	Magnetic blow-out basic type	
	3	Standard + gold plated	
	4	Ultra high sensitivity type + gold plated	
⑦ Outlet for electric wire	Conduit type		
	B	PF1/2 female	
	C	PF3/4 female (Standard)	
	Flame-proof packing type		
	カ	PF1/2 female ×12	
	キ	PF3/4 female ×10.5	
ク	PF3/4 female ×14		
⑧ Treatment	0	Nil	
	1	Use no oil	
	2	Use no water	
	3	Use no oil & water (Up to 25MPa range)	
⑨ Other additional specifications	0	Nil	
	1	Required (Please specify the desired documents separately.) Coating specification	
⑩ Documents	0	Nil	
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), traceability certificate, attended inspection	

Manufacturing range

·Setting system: External adjustment system, With setting scale

Specify "X" if there is no specification item.

The contents in the catalogue are subject to change without notice.

NAGANO KEIKI CO., LTD.

Gets ISO 9001, ISO 14001, ISO/TS 16949 Certification

HEAD OFFICE & : 1-30-4, HIGASHIMAGOME OHTA-KU, TOKYO, JAPAN.
OVERSEAS PHONE : +81-3-3776-5328
SALES DEPT FAX : +81-3-3776-5447
E-mail : overseas_sales_dept@naganokeiki.co.jp
URL http://www.naganokeiki.co.jp/

OVERSEAS PLANTS
OR AFFILIATES: U.S.A., KOREA, GERMANY, CHINA
OVERSEAS SALES NETWORK: AUSTRALIA, INDONESIA, KOREA,
MALAYSIA, PHILIPPINES, SINGAPORE,
TAIWAN, THAILAND, U.S.A.