

CS

CODE AND SPECIFICATIONS SHEET

Differential Pressure Transmitter with Diaphragm Displacement Device

EDR-N7S



EDR-N7S is intelligent transmitter equipped with semiconductor sensors and micro processors.

STANDARD SPECIFICATIONS

Model EDR-N7S

Differential pressure range

Range Code	Measuring Span	Settable Range Limits
8000 H8000	0.8 to 80kPa	$-80 \leq \text{LRV} \leq 80\text{kPa}$, $-80 \leq \text{URV} \leq 80\text{kPa}$
40000 H40000	40 to 400kPa	$-400 \leq \text{LRV} \leq 400\text{kPa}$, $-400 \leq \text{URV} \leq 400\text{kPa}$
100000 H100000	100 to 1000kPa	$-1000 \leq \text{LRV} \leq 1000\text{kPa}$, $-1000 \leq \text{URV} \leq 1000\text{kPa}$

Note) URV is the input differential pressure to give 100% output (20mA DC)

LRV is the input differential pressure to give 0% output (4mA DC)

Output 4 to 20mA DC
Power supply voltage 11.4 to 42.0V DC
Allowable load resistance 600 Ω (at 24V DC power supply voltage)

Communication line condition

Power supply voltage 16.7 to 42.0V DC
Load resistance 250 Ω to 1.2k Ω
 (Refer to Fig. 1 for the relation between power supply voltage and load resistance)

Accuracy

Range Code	Accuracy	
8000 H8000	$\pm 0.2\%$	X is more than 8kPa
	$\pm [0.1 + (0.1 \times 8/X)]\%$	X is less than 8kPa
40000 H40000	$\pm 0.2\%$	
100000 H100000	$\pm 0.2\%$	

Note 1) Accuracy is percent value against X, and X is the largest value among absolute value of URV, LRV and measuring span. Unit is kPa.

Note 2) When square root output,
 if zero cut is specified,
 for output less than 1.1% : $\pm (\text{linear output accuracy} \times 45) \%$
 for output 1.1 to 50% : $\pm (\text{linear output accuracy} \times 50 / \text{square root output} \%) \%$
 for output more than 50% : same as linear output
 ※ Using DCR or the HART[®] communicator, it is possible to select whether output under zero cutting point equals to zero, or getting zero cutting point from arbitrary straight line.
 if zero cut is not specified,
 for output less than 20%, becomes the straight line between 0-20%.
 for output more then 20%, same as above case that zero cut is specified

Zero adjustment Externally adjustable within $\pm 100\%$ of measurement span

Accidental burn out Can select any one among burn up, burn down and without burn out.

Dead time Approx. 0.4sec

Damping time constant Adjustable from 0.2 to 102.4sec (0.1sec increment) electrically by DCR of the HART[®] communicator.
(Amplifier time constant)

Time constant of sensor body

Range Code	Time Constant (at 25°C)	
	Sensor Body	Per 1m of Capillary Tube
8000 H8000	Approx. 0.2s	Approx. 0.2s
40000 H40000	Approx. 0.1s	Approx. 0.1s
100000 H100000	Approx. 0.1s	Approx. 0.1s

• Transmitter time constant equals total sum of the above time constant of sensor body, capillary time constant, amplifier setting time constant and dead time

Storage -40 to 85°C

temperature limits

Operating humidity 5 to 100%RH

limits

Operating temperature limits

Ambient temperature -20 to 85°C
limits (-10 to 60°C for range code 100000)
Wetted parts -20 to 180°C
temperature limits

Working pressure limits Less than the maximum working pressure of flange.
(See Fig.2 when used under negative pressure.)

Site vibration Less than 29.4m/s² continuous vibration

Temperature effect (at -20 to 60°C)

Range Code	Temperature Effect	
8000 H8000	Zero shift $\pm[0.05+(0.5 \times T/50)]\%$	X is more than 32kPa
	$\pm[0.05+(0.35+0.15 \times 32/X) \times T/50]\%$	X is less than 32kPa
	Overall shift $\pm[0.05+(0.8 \times T/50)]\%$	X is more than 32kPa
40000 H40000	$\pm[0.05+(0.65+0.15 \times 32/X) \times T/50]\%$	X is less than 32kPa
	Zero shift $\pm[0.05+(0.5 \times T/50)]\%$	X is more than 160kPa
	$\pm[0.05+(0.35+0.15 \times 160/X) \times T/50]\%$	X is less than 160kPa
100000 H100000	Overall shift $\pm[0.05+(0.8 \times T/50)]\%$	X is more than 160kPa
	$\pm[0.05+(0.65+0.15 \times 160/X) \times T/50]\%$	X is less than 160kPa
	Zero shift $\pm[0.05+(0.5 \times T/50)]\%$	X is more than 400kPa
	$\pm[0.05+(0.35+0.15 \times 400/X) \times T/50]\%$	X is less than 400kPa
	Overall shift $\pm[0.05+(0.8 \times T/50)]\%$	X is more than 400kPa
	$\pm[0.05+(0.65+0.15 \times 400/X) \times T/50]\%$	X is less than 400kPa

Note) Temperature effect is percent value against X, X is the largest value among absolute value of URV, LRV and measuring span. Unit is kPa.

T is temperature variation width (°C).

Influence of temperature difference

Diameter	Influence Value		Length of Extension
	Temperature Difference of Contact Liquid ($\pm 10^{\circ}\text{C}$ variation)	Temperature Difference of Capillary (1m, 10°C variation)	
80A(3B)	$\pm 0.08\text{kPa}$	0.04kPa	E0
	$\pm 0.2\text{kPa}$	0.1kPa	E>0
100A(4B)	$\pm 0.08\text{kPa}$	0.04kPa	E0,E>0

Static pressure effect (at 25°C)

Range Code	Static Pressure Effect	
8000 H8000	Zero shift $\pm[0.05+(0.05 \times P/2.5)]\%$	X is more than 40kPa
	$\pm[0.05+(0.05 \times 40/X) \times P/2.5]\%$	X is less than 40kPa
	Overall shift $\pm[0.05+(1.95+0.1 \times 80/X) \times P/2.5]\%$	
40000 H40000	Zero shift $\pm[0.05+(0.05 \times P/2.5)]\%$	X is more than 200kPa
	$\pm[0.05+(0.05 \times 200/X) \times P/2.5]\%$	X is less than 200kPa
	Overall shift $\pm[0.05+(1.45+0.1 \times 400/X) \times P/2.5]\%$	
100000 H100000	Zero shift $\pm[0.05+(0.05 \times P/2.5)]\%$	X is more than 500kPa
	$\pm[0.05+(0.05 \times 500/X) \times P/2.5]\%$	X is less than 500kPa
	Overall shift $\pm[0.05+(1.45+0.1 \times 1000/X) \times P/2.5]\%$	

Note) Static pressure effect is percent value against X, X is the largest value among absolute value of URV, LRV and measuring span. Unit is kPa. P is static pressure, unit is MPa.

Overpressure effect $\pm 0.5\%$ (at 1.37MPa application)
(Zero shift) (at the maximum span)

Material

Diaphragm SUS316L
(Diaphragm material shall be selected considering corrosion resistance, hydrogen permeability, etc.)

Wetted parts other than diaphragm SUS316

Standard flange SUS304

Capillary tube SUS316 (polyethylene covered)

Amplifier case Aluminum alloy

Mounting plate SPCC (acid resistant coating)

U bolt SUS304

Filled liquid Silicone oil

Process connection JIS 10K 80A RF
(equivalent flange) wafer type
0mm (connection diameter 80A)

Flange extension length

Capillary tube length 5m

Electrical connection G1/2

Check terminal With output check terminal (output voltage 40 to 200mV DC)

Certifications Degree of protection JIS C 0920 IP67

Surge absorber Built-in transmitter
Surge capacity : 1,000A (8/20 μsec)
Impulse test voltage: 15,000V (1.2/50 μsec)

Finish Light gray amplifier case (acid resistant coating)

Weight Approx. 10kg

Installation On 2-inch pipe with U bolt.

Accessories 2-inch pipe mounting bracket and U-bolt.
Zero adjustment magnet.

ADDITIONAL SPECIFICATION

Communication method HART[®] protocol

Pressure measurement (Absolute pressure)

Output method Communication by the DCR or HART[®] communicator and display by built in indicator. Alternate display of differential pressure and pressure, arbitrary scale setting of pressure (-1,750 to 1,750 range) are available by the DCR or HART[®] communicator. Digital indicator distinguishes pressure from differential pressure displaying “P” behind numerical value. And analog output [1 to 5V] is possible by using EDB500M type exclusive distributor.

Measuring span 0.5 to 5MPa abs.

Accuracy	$\pm 0.2\%$	X is more than 1MPa
	$\pm 0.2 \times (1/X)\%$	X is less than 1MPa

Temperature effect		
	Zero shift	$\pm[0.05+(1.0 \times T/50)]\%$ X is more than 2MPa $\pm[0.05+(0.5+0.5 \times 2/X) \times T/50]\%$ X is less than 2MPa
Overall shift		
	$\pm[0.05+(2.5 \times T/50)]\%$ X is more than 2MPa $\pm[0.05+(2.0+0.5 \times 2/X) \times T/50]\%$ X is less than 2MPa	

Note) Accuracy and temperature effect are percent value against X, X is the largest value among absolute value of URV, LRV and measuring span. Unit is MPa. T is temperature variation width (°C).

Structure

TIIS Ex explosion proof type	Flameproof
	Exdo II CT4
	Exdo II CT4X
	Note) X is for operating condition (as below)
	With meter : Abnormality code is displayed on meter to alert warning, so it is no need to build external alarm display system.
	Without meter : it is necessary to build external alarm display system, output exceeds 21mA
	Ambient temperature limits : -20 to 55°C
	Wetted parts temperature limits: -20 to 100°C
	Electrical connection
	X-RCAC type pressure resistant packing fixture must be used for using pressure resistant oil filled explosion proof type products. (also applicable to use SXBM-16B made by Shimada Electric Co., Ltd.)
FM explosion proof type	Explosion proof CLI, DIV 1, GPS B, C&D Dust-ignition proof CL II / III, GPS E, F&G Temperature Code T4 NEMA 4X Ambient temperature limits : -40 to 60°C Wetted parts temperature limits: -40 to 120°C
Indicator	Digital indicator 4.5 figures display (0 to 100% scale standard) (Can set to arbitrary scale within the range of -17,500 to 17,500) Scale plates for various units to be stucked are supplied.
Flange standard	JIS 20K, ANSI 150, ANSI 300, JPI 150, JPI 300, etc. Connection diameter 80A(3B) (Extension length 0mm) 100A(4B) (Extension length > 0mm)
Flange extension length	50mm, 100mm, 150mm (The type only high pressure side has extension is also available)
Diaphragm cover (only for diameter 80 A (3B) without extension)	FEP diaphragm cover (pressure : more than atmospheric pressure, operating temperature : -10 to 120°C) Accuracy is added $\pm 0.5\%$ for cover fitted diaphragm.
Capillary tube length	1 to 10m (1m unit) (less than 40A (1.5B) extension type is not available for more than 6m tube)
Capillary taking out direction	Horizontal or vertical to diaphragm plane.

Wetted parts material

Diaphragm	Wetted Parts Other Than Diaphragm
SUS316L	SUS316L
Hastelloy C	Hastelloy C
Tantalum	Tantalum
SUS316L (with gold plate)	SUS316

Note) Tantalum is available only for 0m extension

※ Material shall be selected considering corrosion resistance.
In case hydrogen is present in measuring fluid, it is possible hydrogen transmission can be generated through diaphragm. If corrosion resistance is not so important, we recommend SUS316L or SUS316 with gold plating because hydrogen transmission value of these material is relatively low. (But it is difficult to prevent hydrogen transmission completely even if diaphragm of SUS316L with gold plating is applied)

Filled liquid

Fluorine oil	Wetted parts temperature limits : -20 to 120°C Specific gravity : 1.860 (at 20°C) (See Fig.6-4 for negative pressure) Specify also no-oil finish together for oxygen measurement
Silicone oil for sanitary use	Wetted parts temperature limits : -20 to 150°C Specific gravity : 0.965 (at 25°C) (See Fig.6-4 for negative pressure)
Propylene glycol	Wetted parts temperature limits : -20 to 150°C Specific gravity : 1.037 (at 25°C) (not possible to use at negative pressure)

Wetted parts finish Replace fitting

No oil finish or no-oil and no water finish
Metal fittings for renewal of old type Hitachi transmitter are supplied

Process fluid condition

High temperature type	Liquid contact temperature : -10 to 310°C Ambient temperature limits : -10 to 85°C Specific gravity of filled liquid : 1.065 (at 25°C) (Operating pressure is more than atmospheric pressure)
Low temperature type	Liquid contact temperature : -70 to 60°C Ambient temperature limits : -20 to 60°C Specific gravity of filled liquid : 0.873 (at 25°C) (See Fig.5 for negative pressure)
Vacuum type	Liquid contact temperature : -20 to 180°C Ambient temperature limits : -20 to 85°C Filled liquid is the same as standard specification (Workable pressure is different depending on temperature. Use after confirming Fig.2.)
High vacuum type	Liquid contact temperature : -10 to 310°C Ambient temperature limits: -10 to 85°C Specific gravity of filled liquid : 0.955 (at 25°C) but 1.065 at point parts. (Workable pressure is different depending on temperature. Use after confirming Fig.6)
High temperature and high vacuum type	Liquid contact temperature : 10 to 310°C Ambient temperature limits : -10 to 85°C Specific gravity of filled liquid : 0.955 (at 25°C) but 1.097 at point parts. Workable up to 0.0133kPa abs for negative pressure. (See Fig.7)

Density correction

Arithmetic processing function of density correction for measurement of liquefied gas level.

Standard installed correction table

Oxygen, Nitrogen, Argon, Butane, Carbon oxide and Propane

Above correction table is installed as standard, be able to select by the DCR or the HART® communicator.
(contact us when other than above is required)

SPECIFICATION FOR SMALL DIAMETER FLANGE CONNECTION TYPE

Range of differential pressure

Range Code	Measuring Span			Settable Range Limits
8000 H8000	Diameter		8 to 80kPa	$-80 \leq \text{LRV} \leq 80\text{kPa}$, $-80 \leq \text{URV} \leq 80\text{kPa}$
	25A(1B)			
	40A(1.5B)			
	Diameter	E0	2 to 80kPa	
	50A(2B)	E>0	8 to 80kPa	
40000 H40000	40 to 400kPa			$-400 \leq \text{LRV} \leq 400\text{kPa}$, $-400 \leq \text{URV} \leq 400\text{kPa}$
100000 H100000	100 to 1000kPa			$-1000 \leq \text{LRV} \leq 1000\text{kPa}$, $-1000 \leq \text{URV} \leq 1000\text{kPa}$

Accuracy

Diameter	Accuracy		Capillary Tube Length	Extension Length
25A (1B)	$\pm 1.0\%$ T is less than Ta°C		1 to 5m	E0 (not extensible)
	$\pm [1.0+0.045 \times (T-Ta)]\%$ T is more than Ta°C			
	$\pm 1.0\%$ T is less than Tb°C		6 to 10m	
	$\pm [1.0+0.045 \times (T-Tb)]\%$ T is more than Tb°C			
40A (1.5B)	$\pm 0.5\%$		1 to 10m	E0
	$\pm 1.0\%$ T is less than Ta°C		1 to 5m	E>0
	$\pm [1.0+0.045 \times (T-Ta)]\%$ T is more than Ta°C			
	$\pm 1.0\%$ T is less than Tb°C		6 to 10m	
	$\pm [1.0+0.045 \times (T-Tb)]\%$ T is more than Tb°C			
50A (2B)	Range code	$\pm 0.2\%$ X is less than 8kPa	1 to 10m	E0
	8000	$\pm [0.1+(0.1 \times 8/X)]\%$ X is more than 8kPa		
	Range code	$\pm 0.2\%$		
	40000			
	Range code	$\pm 0.2\%$		
	100000			
	$\pm 0.5\%$			E>0

T=Ambient temperature (°C)

The values of Ta and Tb are shown in the following Table.

	Wetted Parts Temperature (°C)				
	150 to 180	120 to 150	90 to 120	60 to 90	-40 to 60
Ta	15	25	40	50	60
Tb	5	15	30	40	45

Temperature effect (per ±10°C)

Diameter	Temperature Effect	Extension Length
25A(1B)	Standard specification × 3	E0
40A (1.5B)	Standard specification × 2	E0
	Standard specification × 3	E>0
50A (2B)	Same as standard specification	E0
	Standard specification × 2	E>0

Influence of temperature difference

Diameter	Influence Value		Length of Extension
	Temperature Difference of Contact Liquid (±10°C variation)	Temperature Difference of Capillary (1m, 10°C variation)	
25A(1B)	± 1.6kPa	1.3kPa	E0
40A (1.5B)	± 0.6kPa	0.4kPa	E0
	± 2.0kPa	1.3kPa	E>0
50A (2B)	± 0.2kPa	0.1kPa	E0
	± 0.8kPa	0.4kPa	E>0

Static pressure effect

Diameter	Static Pressure Effect	Extension Length
25A(1B)	Standard specification × 3	E0
40A (1.5B)	Standard specification × 2	E0
	Standard specification × 3	E>0
50A (2B)	Same as standard specification	E0
	Standard specification × 2	E>0

Time constant of sensor body

Range Code	Time Constant (at 25°C)	
	Sensor Body	Per 1m of Capillary Tube
8000 H8000	Approx. 0.2s	Approx. 1.6s
40000 H40000	Approx. 0.1s	Approx. 0.3s
100000 H100000	Approx. 0.1s	Approx. 0.3s

Operating temperature limits

Ambient temperature limits -10 to 60°C
(-20 to 85°C for diameter 50A (2B) E0)
Wetted parts temperature limits -20 to 180°C

Storage temperature limits

-10 to 60°C
JIS 10K,20K,30K,63K
ANSI 150,300

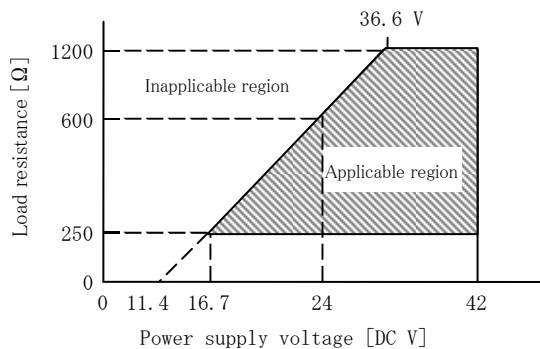
JPI 150, 300, etc.
Connection diameter 25A(1B), 40A(1.5B)
50A(2B), 80A(3B)

Flange extension length 0mm,50mm,100mm,150mm
(The type only high pressure side has extension is also available. For 25A(1B), only 0mm is available)

Diaphragm cover (only for diameter 50A (2B) without extension) FEP diaphragm cover (pressure : more than atmospheric pressure, operating temperature : -10 to 120°C)
added with ±0.8)
Accuracy is added ±0.8% for cover fitted diaphragm.

Process fluid condition

High temperature type	Liquid contact temperature : -10 to 310°C Ambient temperature limits : -10 to 85°C Specific gravity of filled liquid : 1.065 (at 25°C) (Operating pressure is more than atmospheric pressure)
Low temperature type	Liquid contact temperature : -70 to 60°C Ambient temperature limits : -20 to 60°C Specific gravity of filled liquid : 0.873 (at 25°C) (See Fig.5 for negative : pressure)
Vacuum type	Liquid contact temperature : -20 to 180°C Ambient temperature limits : -20 to 85°C Filled liquid is the same as standard specification (Workable pressure is different depending on temperature Use after confirming Fig.2)



A minimum load resistance of 250 Ω shall be required to communicate by connecting to communicator.

Fig.1 Supply voltage / load resistance property of transmitter

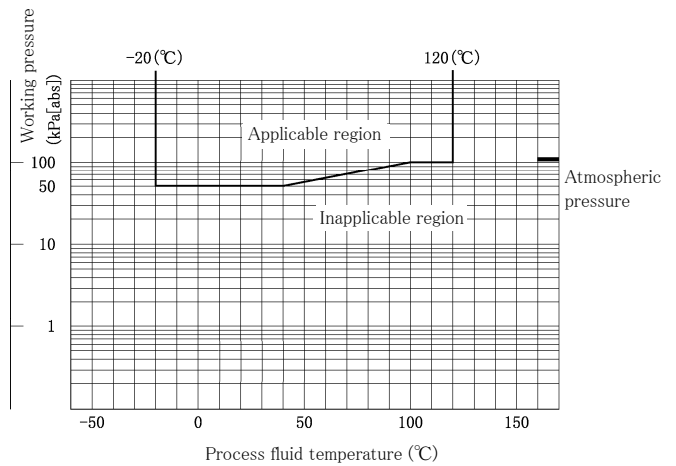


Fig.3 Working pressure and process fluid temperature (Filled liquid : Fluorine oil)

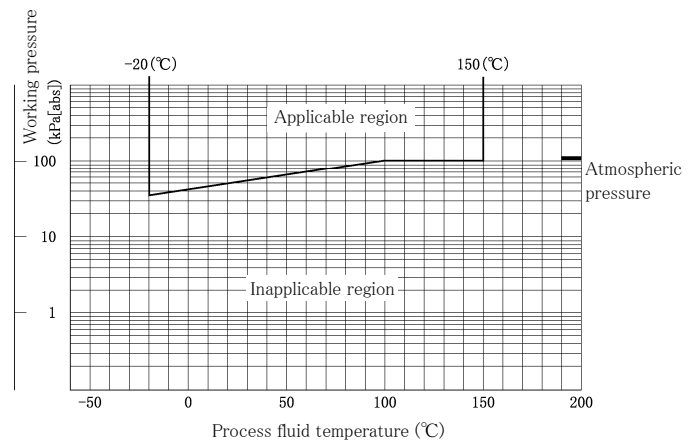


Fig.4 Working pressure and process fluid temperature (Filled liquid : Silicone oil for sanitary use)

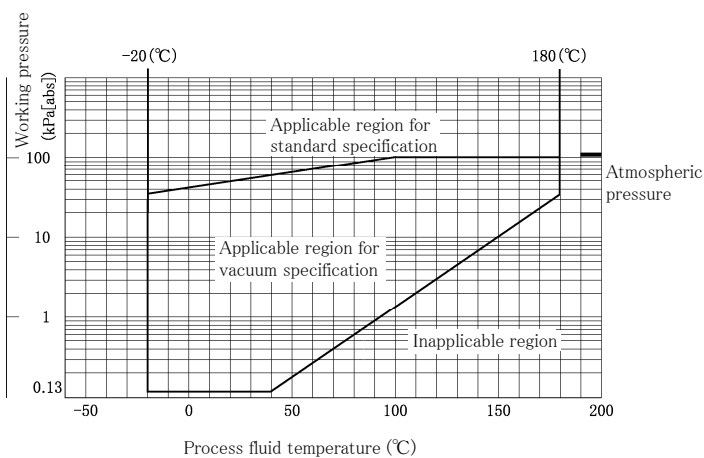


Fig.2 Working pressure and process fluid temperature (Specification for standard or vacuum type)

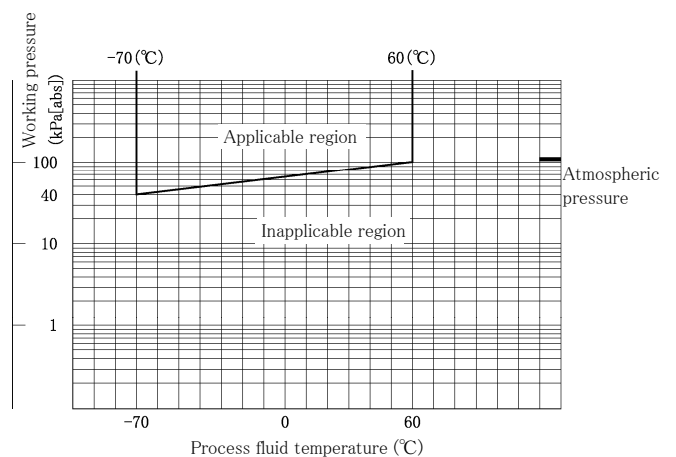


Fig.5 Working pressure and process fluid temperature (Specification for low temperature type)

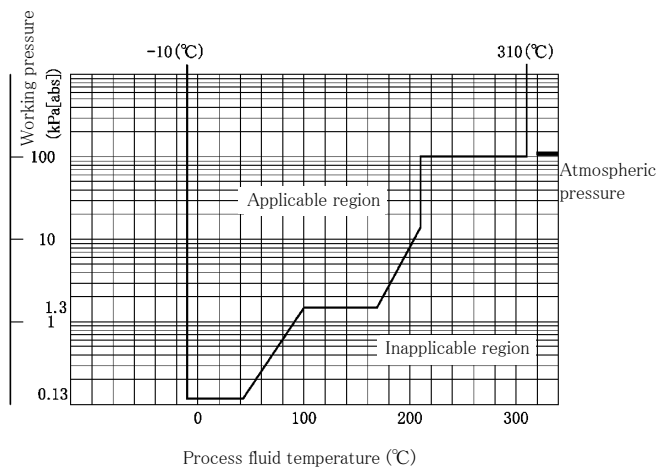


Fig.6 Working pressure and process fluid temperature
(Specification for high vacuum type)

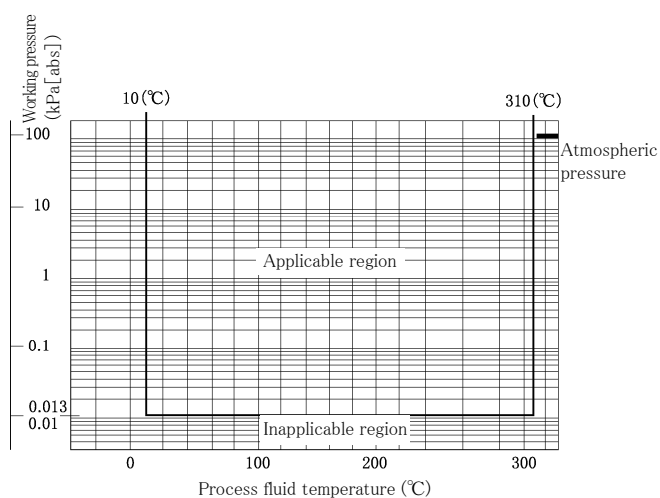


Fig.7 Working pressure and process fluid temperature
(Specification for high temperature and high vacuum type)

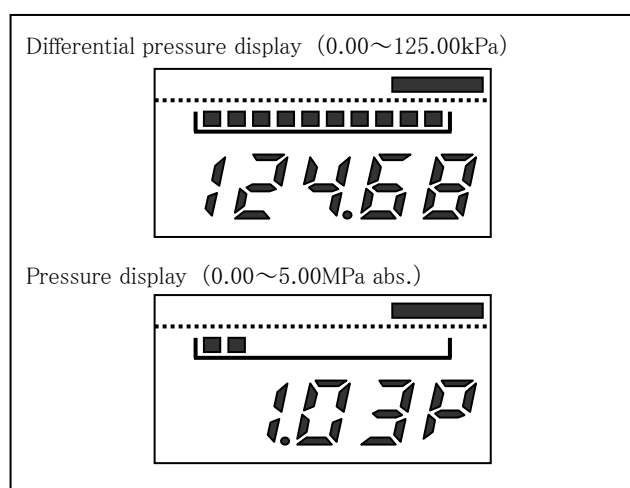
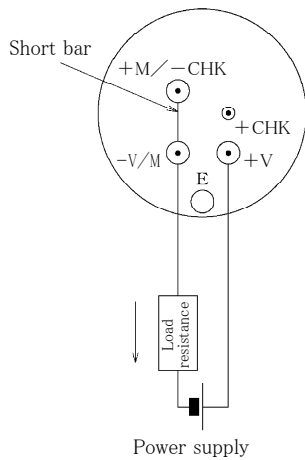


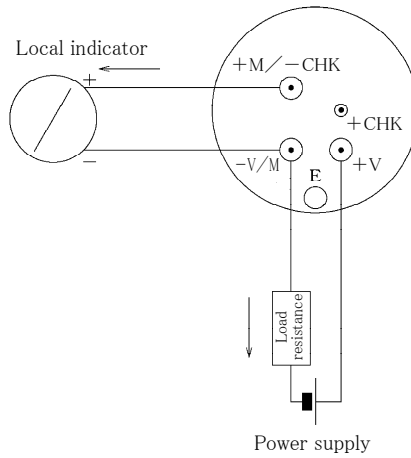
Fig.8 Alternate display of differential pressure and pressure

EXTERNAL CONNECTION

Without local indicator



With local indicator connected

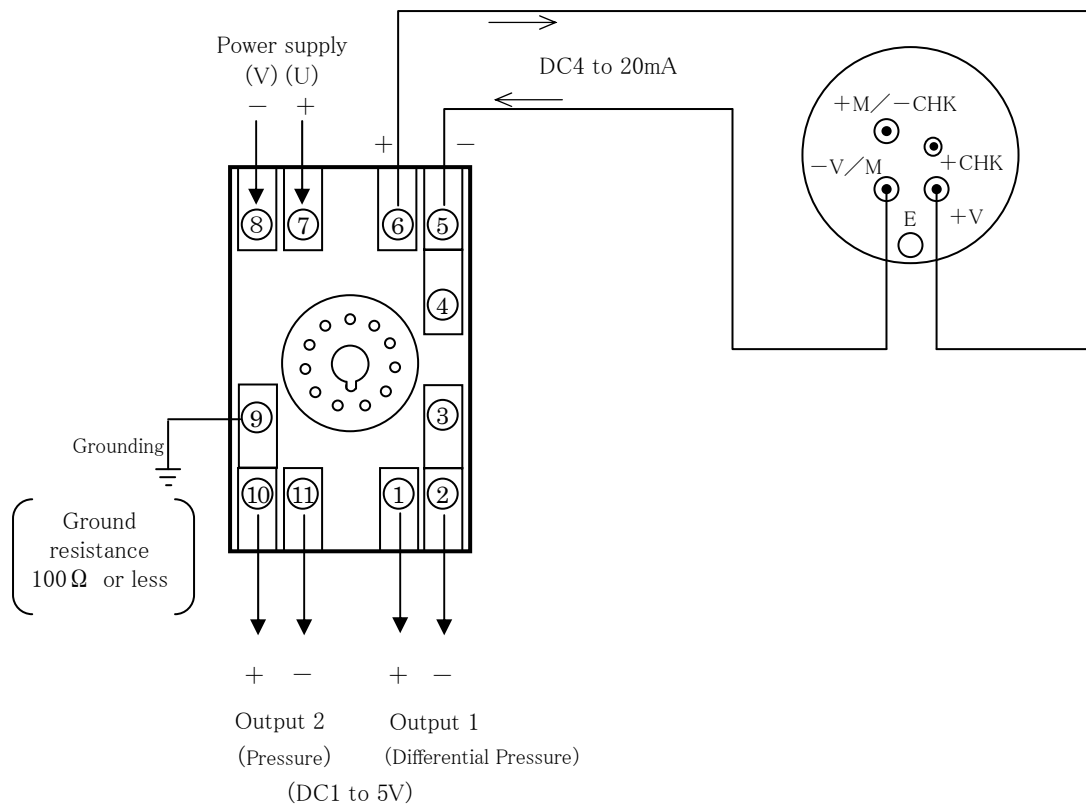


Notes:

- (1) Grounding shall be done according to class D grounding practice (grounding resistance less than $100\ \Omega$)
- (2) Grounding shall be done at one point either transmitter side or receiver instrument side, Give attention to avoid grounding at two points.
- (3) Grounding terminals on transmitter side are furnished inside of terminal box and outside of amplifier case.

●With EDB500M

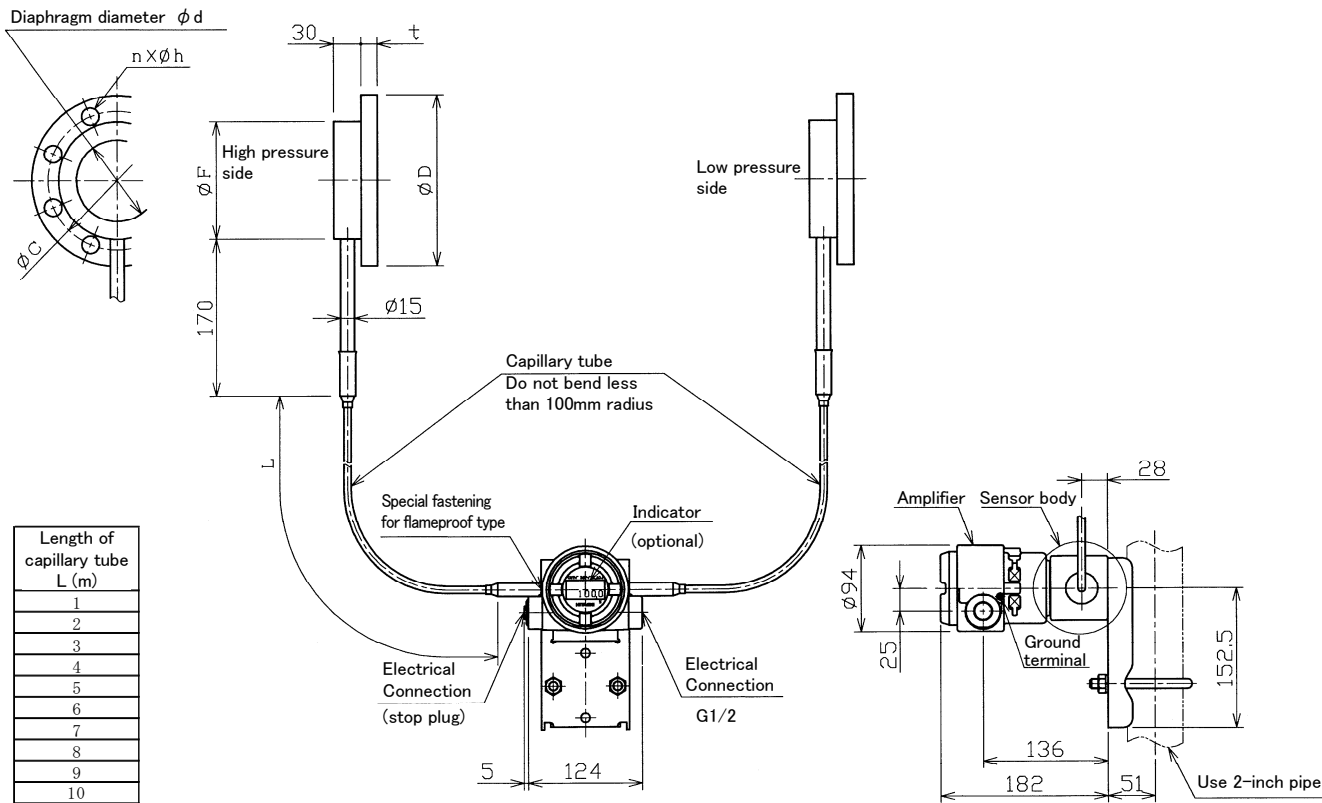
Converter : EDB500M type



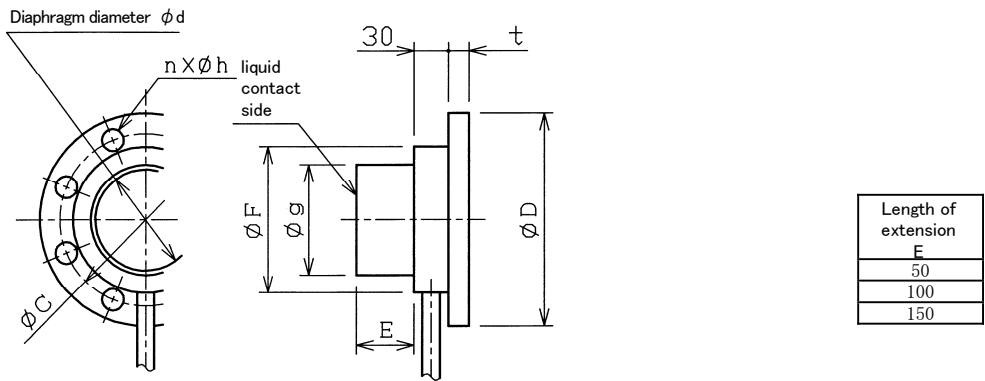
DIMENSIONS (Unit : mm)

Wafer type

● Without extension (E0)



● With extension (E50,E100,E150)



Wafer type

Without extension (E0)

Flange standard (equivalent flange)		φ D	φ F	φ d	φ C	n× φ h	t
JIS10K 80A RF <standard specification>		185	127	88	150	8×19	18
25A	JIS10K	125	63	30	90	4×19	14
	JIS20K	125	63	30	90	4×19	16
	JIS30K	130	63	30	95	4×19	20
	JIS40K	130	63	30	95	4×19	22
	JIS63K	140	63	30	100	4×23	27
40A	JIS10K	140	80	42	105	4×19	16
	JIS20K	140	80	42	105	4×19	18
	JIS30K	160	80	42	120	4×23	22
	JIS40K	160	80	42	120	4×23	24
	JIS63K	175	80	42	130	4×25	32
50A	JIS10K	155	98	64	120	4×19	16
	JIS20K	155	98	64	120	8×19	18
	JIS30K	165	98	64	130	8×19	22
	JIS40K	165	98	64	130	8×19	26
	JIS63K	185	98	64	145	8×23	34
80A	JIS20K	200	127	88	160	8×23	22
	JIS30K	210	127	88	170	8×23	28
	JIS40K	210	127	88	170	8×23	32
	JIS63K	230	127	88	185	8×25	40
	JIS10K	210	154	88	175	8×19	18
100A	JIS20K	225	154	88	185	8×23	24
	JIS30K	240	154	88	195	8×25	32
	JIS40K	250	154	88	205	8×25	36
	JIS63K	270	154	88	220	8×27	44
	JIS10K	210	154	88	175	8×19	18
25A (1B)	ANSI150	108	63	30	79.4	4×16	14.5
	ANSI300	124	63	30	88.9	4×20	17.5
	ANSI600	124	63	30	88.9	4×20	17.5
	ANSI900	149	63	30	101.6	4×26	29
	ANSI1500	149	63	30	101.6	4×26	29
40A (1.5B)	ANSI2500	159	63	30	107.9	4×26	35
	ANSI150	127	80	42	98.4	4×16	17.5
	ANSI300	156	80	42	114.3	4×23	21
	ANSI600	156	80	42	114.3	4×23	22.5
	ANSI900	178	80	42	123.8	4×29	32
50A (2B)	ANSI1500	178	80	42	123.8	4×29	32
	ANSI2500	203	80	42	146	4×32	44.5
	ANSI150	152	98	64	120.6	4×20	19.5
	ANSI300	165	98	64	127	8×20	22.5
	ANSI600	165	98	64	127	8×20	25.5
80A (3B)	ANSI900	216	98	64	165.1	8×26	38.5
	ANSI1500	216	98	64	165.1	8×26	38.5
	ANSI2500	235	98	64	171.4	8×29	51
	ANSI150	191	127	88	152.4	4×20	24
	ANSI300	210	127	88	168.3	8×23	29
100A (4B)	ANSI600	210	127	88	168.3	8×23	32
	ANSI900	241	127	88	190.5	8×26	38.5
	ANSI1500	267	127	88	203.2	8×32	48
	ANSI2500	305	127	88	228.6	8×35	67
	ANSI150	229	154	88	190.5	8×20	24
25A (1B)	ANSI300	254	154	88	200	8×23	32
	ANSI600	273	154	88	215.9	8×26	38.5
	ANSI900	292	154	88	235	8×32	44.5
	ANSI1500	311	154	88	241.3	8×35	54
	ANSI2500	356	154	88	273	8×42	76.5

※ JPI flange is the same size as ANSI flange.

※ φ d is for diaphragm material SUS316L.

With extension (E50,E100,E150)

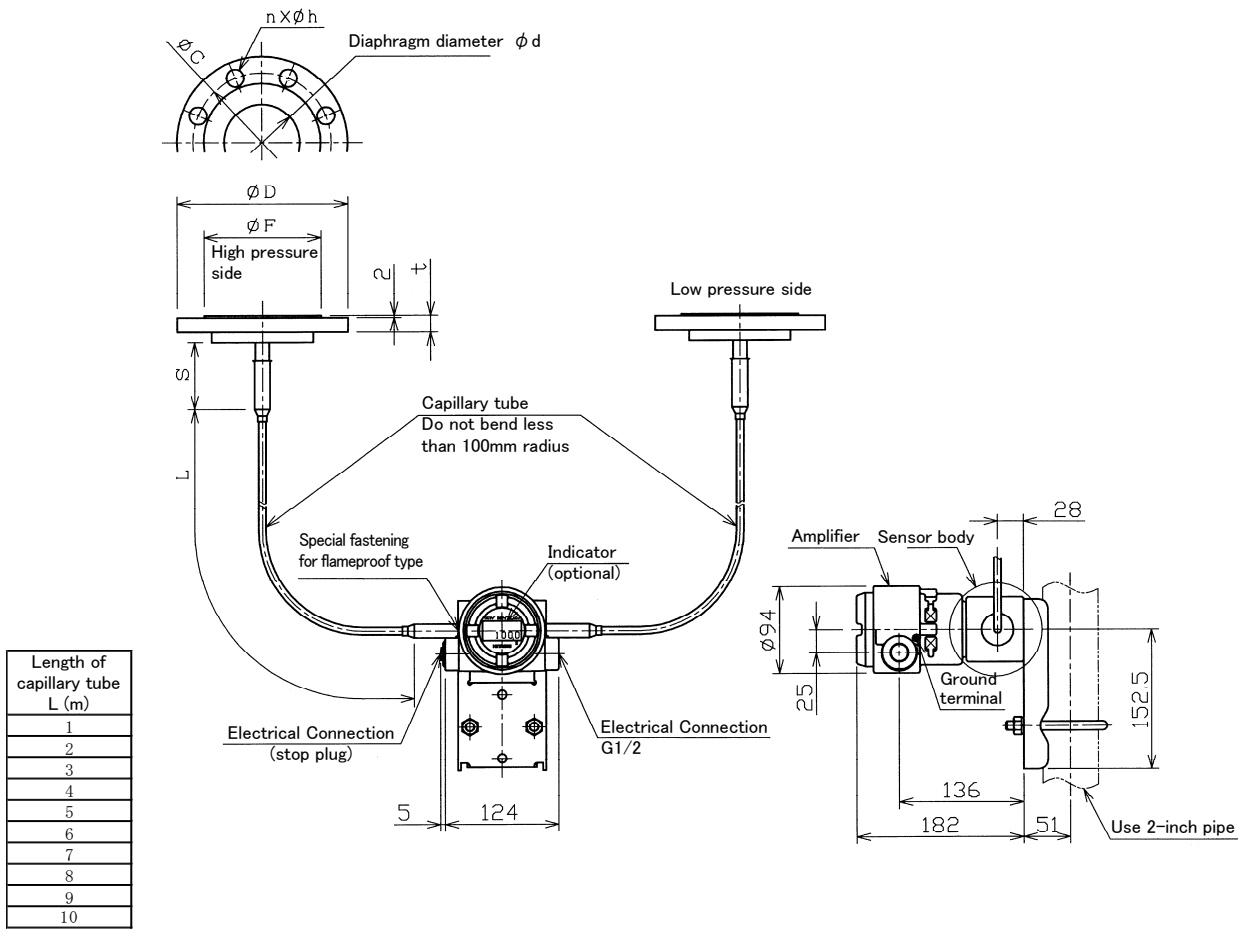
Flange standard (equivalent flange)		φ D	φ F	φ g	φ d	φ C	n× φ h	t
JIS10K 100A RF <standard specification>		210	154	96	88	175	8×19	18
40A	JIS10K	140	80	37	30	105	4×19	16
	JIS20K	140	80	37	30	105	4×19	18
	JIS30K	160	80	37	30	120	4×23	22
	JIS40K	160	80	37	30	120	4×23	24
	JIS63K	175	80	37	30	130	4×25	32
50A	JIS10K	155	98	48	42	120	4×19	16
	JIS20K	155	98	48	42	120	8×19	18
	JIS30K	165	98	48	42	130	8×19	22
	JIS40K	165	98	48	42	130	8×19	26
	JIS63K	185	98	48	42	145	8×23	34
80A	JIS10K	185	127	72	64	150	8×19	18
	JIS20K	200	127	72	64	160	8×23	22
	JIS30K	210	127	72	64	170	8×23	28
	JIS40K	210	127	72	64	170	8×23	32
	JIS63K	230	127	72	64	185	8×25	40
100A	JIS20K	225	154	96	88	185	8×23	24
	JIS30K	240	154	96	88	195	8×25	32
	JIS40K	250	154	96	88	205	8×25	36
	JIS63K	270	154	96	88	220	8×27	44
	JIS10K	210	154	96	88	175	8×19	18
40A (1.5B)	ANSI150	127	80	37	30	98.4	4×16	17.5
	ANSI300	156	80	37	30	114.3	4×23	21
	ANSI600	156	80	37	30	114.3	4×23	22.5
	ANSI900	178	80	37	30	123.8	4×29	32
	ANSI1500	178	80	37	30	123.8	4×29	32
50A (2B)	ANSI2500	203	80	37	30	146	4×32	44.5
	ANSI150	152	98	48	42	120.6	4×20	19.5
	ANSI300	165	98	48	42	127	8×20	22.5
	ANSI600	165	98	48	42	127	8×20	25.5
	ANSI900	216	98	48	42	165.1	8×26	38.5
80A (3B)	ANSI1500	216	98	48	42	165.1	8×26	38.5
	ANSI2500	235	98	48	42	171.4	8×29	51
	ANSI150	191	127	72	64	152.4	4×20	24
	ANSI300	210	127	72	64	168.3	8×23	29
	ANSI600	210	127	72	64	168.3	8×23	32
100A (4B)	ANSI900	241	127	72	64	190.5	8×26	38.5
	ANSI1500	267	127	72	64	203.2	8×32	48
	ANSI2500	305	127	72	64	228.6	8×35	67
	ANSI150	229	154	96	88	190.5	8×20	24
	ANSI300	254	154	96	88	200	8×23	32
25A (1B)	ANSI600	273	154	96	88	215.9	8×26	38.5
	ANSI900	292	154	96	88	235	8×32	44.5
	ANSI1500	311	154	96	88	241.3	8×35	54
	ANSI2500	356	154	96	88	273	8×42	76.5

※ JPI flange is the same size as ANSI flange.

※ φ d is for diaphragm material SUS316L.

Backside type

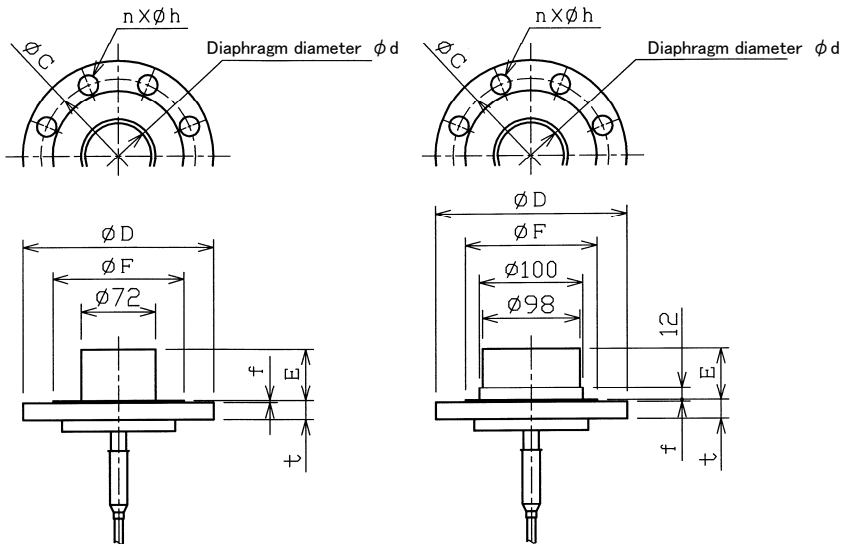
Without extension (E0)



With extension (E50,E100,E150)

80A (3B)

100A (4B)



Backside type

Without extension (E=0)

Flange standard (equivalent flange)		φ D	φ F	φ d	φ C	n × φ h	t	f
JIS10K 80A RF <standard specification>		185	127	88	150	8 × 19	18	2
50A	JIS10K	155	96	64	120	4 × 19	16	2
	JIS20K	155	96	64	120	8 × 19	18	2
	JIS30K	165	105	64	130	8 × 19	22	2
	JIS40K	165	105	64	130	8 × 19	26	2
	JIS63K	185	105	64	145	8 × 23	34	2
80A	JIS20K	200	127	88	160	8 × 23	22	2
	JIS30K	210	127	88	170	8 × 23	28	2
	JIS40K	210	127	88	170	8 × 23	32	2
	JIS63K	230	127	88	185	8 × 25	40	2
100A	JIS10K	210	151	88	175	8 × 19	18	2
	JIS20K	225	160	88	185	8 × 23	24	2
	JIS30K	240	160	88	195	8 × 25	32	2
	JIS40K	250	165	88	205	8 × 25	36	2
	JIS63K	270	165	88	220	8 × 27	44	2
50A (2B)	ANSI150	152	92	64	120.6	4 × 19	19.1	1.6
	ANSI300	165	92	64	127	8 × 19	22.4	1.6
	ANSI600	165	92	64	127	8 × 19	31.8	6.4
	ANSI900	216	92	64	165	8 × 26	44.5	6.4
	ANSI1500	216	92	64	165	8 × 26	44.5	6.4
80A (3B)	ANSI2500	235	92	64	171.4	8 × 29	58	6.4
	ANSI150	191	127	88	152.4	4 × 20	23.9	1.6
	ANSI300	210	127	88	168.1	8 × 23	28.5	1.6
	ANSI600	210	127	88	168.1	8 × 23	38.3	6.4
	ANSI900	241	127	88	190.5	8 × 26	44.5	6.4
100A (4B)	ANSI1500	267	127	88	203.2	8 × 32	54.2	6.4
	ANSI2500	305	127	88	228.6	8 × 35	73	6.4
	ANSI150	229	157	88	190.5	8 × 20	23.9	1.6
	ANSI300	254	157	88	200.2	8 × 23	31.8	1.6
	ANSI600	273	157	88	215.9	8 × 26	44.5	6.4
100A (4B)	ANSI900	292	157	88	235	8 × 32	50.9	6.4
	ANSI1500	311	157	88	241.3	8 × 35	60.4	6.4
	ANSI2500	356	157	88	273	8 × 42	82.6	6.4

※JPI flange is the same size as ANSI flange

※φ d is for diaphragm material SUS316L.

item	Code	S
Condition of liquid contact	no additional specification	70
	HT	170
	LT	120
	V	70

With extension (E > 0)

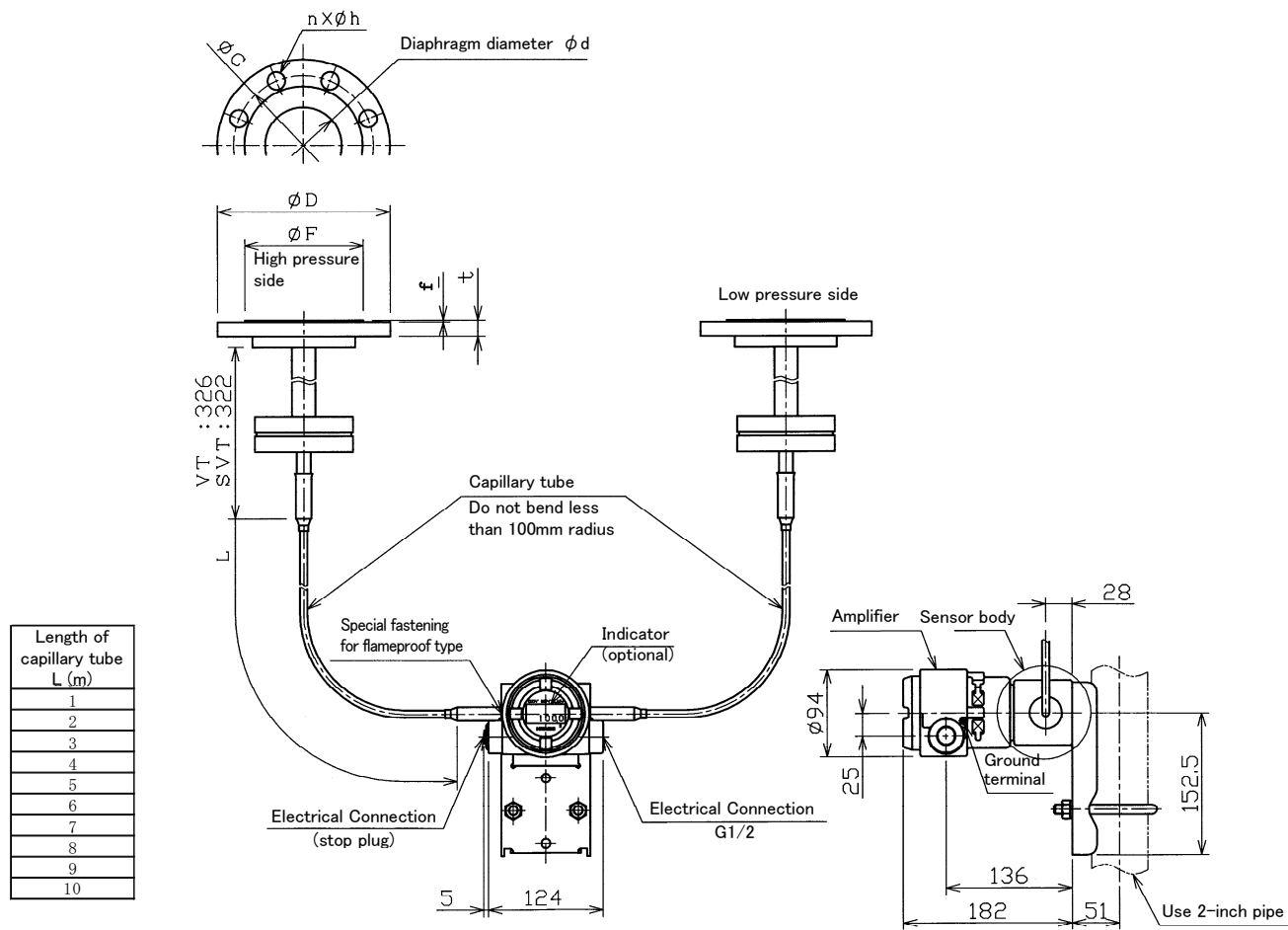
Flange standard (equivalent flange)		φ D	φ F	φ d	φ C	n × φ h	t	f
JIS10K 100A RF < standard specification >		210	151	88	175	8 × 19	18	2
80A	JIS10K	185	127	64	150	8 × 19	18	2
	JIS20K	200	127	64	160	8 × 23	22	2
	JIS30K	210	127	64	170	8 × 23	28	2
	JIS40K	210	127	64	170	8 × 23	32	2
	JIS63K	230	127	64	185	8 × 25	40	2
100A	JIS20K	225	160	88	185	8 × 23	24	2
	JIS30K	240	160	88	195	8 × 25	32	2
	JIS40K	250	165	88	205	8 × 25	36	2
	JIS63K	270	165	88	220	8 × 27	44	2
80A (3B)	ANSI150	191	127	64	152.4	4 × 20	23.9	1.6
	ANSI300	210	127	64	168.1	8 × 23	28.5	1.6
	ANSI600	210	127	64	168.1	8 × 23	38.3	6.4
	ANSI900	241	127	64	190.5	8 × 26	44.5	6.4
	ANSI1500	267	127	64	203.2	8 × 32	54.2	6.4
100A (4B)	ANSI2500	305	127	64	228.6	8 × 35	73	6.4
	ANSI150	229	157	88	190.5	8 × 20	23.9	1.6
	ANSI300	254	157	88	200.2	8 × 23	31.8	1.6
	ANSI600	273	157	88	215.9	8 × 26	44.5	6.4
	ANSI900	292	157	88	235	8 × 32	50.9	6.4
100A (4B)	ANSI1500	311	157	88	241.3	8 × 35	60.4	6.4
	ANSI2500	356	157	88	273	8 × 42	82.6	6.4

※JPI flange is the same size as ANSI flange

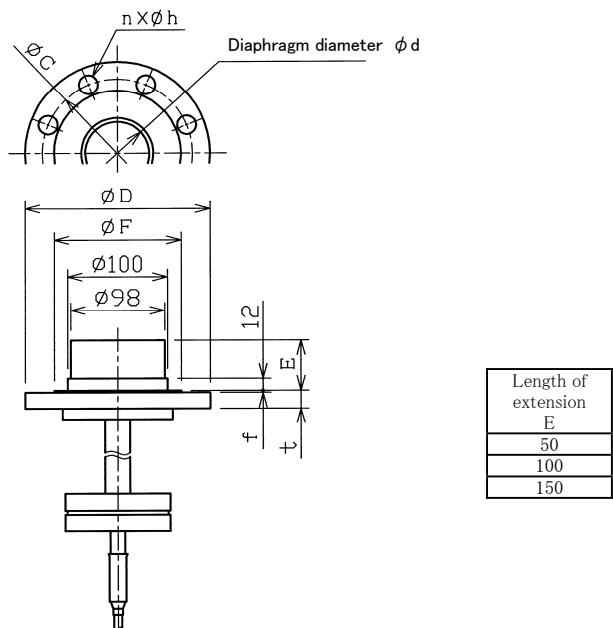
※φ d is for diaphragm material SUS316L.

VT, SVT type

Without extension (E0)



With extension (E50,E100,E150)



VT, SVT type

Without extension (E=0)

Flange standard (equivalent flange)		φ D	φ F	φ d	φ C	n× φ h	t	f
JIS10K 80A RF <standard specification>		185	127	88	150	8×19	18	2
80A	JIS20K	200	127	88	160	8×23	22	2
	JIS30K	210	127	88	170	8×23	28	2
	JIS40K	210	127	88	170	8×23	32	2
	JIS63K	230	127	88	185	8×25	40	2
100A	JIS10K	210	151	88	175	8×19	18	2
	JIS20K	225	160	88	185	8×23	24	2
	JIS30K	240	160	88	195	8×25	32	2
	JIS40K	250	165	88	205	8×25	36	2
80A (3B)	JIS63K	270	165	88	220	8×27	44	2
	ANSI150	191	127	88	152.4	4×20	23.9	1.6
	ANSI300	210	127	88	168.1	8×23	28.5	1.6
	ANSI600	210	127	88	168.1	8×23	38.3	6.4
100A (4B)	ANSI900	241	127	88	1905	8×26	44.5	6.4
	ANSI1500	267	127	88	203.2	8×32	54.2	6.4
	ANSI2500	305	127	88	228.6	8×35	73	6.4
	ANSI150	229	157	88	190.5	8×20	23.9	1.6
100A (4B)	ANSI300	254	157	88	200.2	8×23	31.8	1.6
	ANSI600	273	157	88	215.9	8×26	44.5	6.4
	ANSI900	292	157	88	235	8×32	50.9	6.4
	ANSI1500	311	157	88	241.3	8×35	60.4	6.4
100A (4B)	ANSI2500	356	157	88	273	8×42	82.6	6.4

※JPI flange is the same size as ANSI flange.

※φ d is for diaphragm material SUS316L

With extension (E>0)

Flange standard (equivalent flange)		φ D	φ F	φ d	φ C	n× φ h	t	f
JIS10K 100A RF <standard specification>		210	151	88	175	8×19	18	2
100A	JIS20K	225	160	88	185	8×23	24	2
	JIS30K	240	160	88	195	8×25	32	2
	JIS40K	250	165	88	205	8×25	36	2
	JIS63K	270	165	88	220	8×27	44	2
100A (4B)	ANSI150	229	157	88	190.5	8×20	23.9	1.6
	ANSI300	254	157	88	200.2	8×23	31.8	1.6
	ANSI600	273	157	88	215.9	8×26	44.5	6.4
	ANSI900	292	157	88	235	8×32	50.9	6.4
100A (4B)	ANSI1500	311	157	88	241.3	8×35	60.4	6.4
	ANSI2500	356	157	88	273	8×42	82.6	6.4

※JPI flange is the same size as ANSI flange.

※φ d is for diaphragm material SUS316L

CODE TABLES

No. Item	1	5	6	7	2~4,8~13	Description
Model	Range code	Flange standard	Flange extension	capillary length	Option code	
EDR-N7S						Water-proof, diaphragm material ; SUS316L, wetted parts other than diaphragm ; SUS316, without indicator.
	8000					
	40000					
	100000					
	H8000					
	H40000					HART® communication type
	H100000					
		80J10				Flange standard ; JIS 10K 80A RF wafer type equivalent flange
			E0			Flange extension length : 0mm
				5		Capillary tube length : 5m
					- □ - □	Select a necessary code alone among those in the optional code table below.

Option

No.	item	code	Description		
2	Adjustable range	C()	Enter adjustable range and unit in parenthesis		
		CDH()	Adjustable range and the unit are filled in parentheses at the pressure measurement on a high-pressure side.		
		CDL()	Adjustable range and the unit are filled in parentheses at the pressure measurement on a low-pressure side.		
3	Certification	XC	TIIS Explosion proof standard approval		
		FM	FM explosion proof approval		
4	Indicator	M	With Digital indicator		
		MJ()	Digital indicator and actual scale display Fill in () with scale and unit mark		
5	Flange standard	JIS	25J10	Flange standard JIS 10K 25A RF equivalent wafer type (only for E0)	
			25J20	Flange standard JIS 20K 25A RF equivalent wafer type (only for E0)	
			25J30	Flange standard JIS 30K 25A RF equivalent wafer type (only for E0)	
			25J40	Flange standard JIS 40K 25A RF equivalent wafer type (only for E0)	
			25J63	Flange standard JIS 63K 25A RF equivalent wafer type (only for E0)	
			40J10	Flange standard JIS 10K 40A RF equivalent wafer type	
			40J20	Flange standard JIS 20K 40A RF equivalent wafer type	
			40J30	Flange standard JIS 30K 40A RF equivalent wafer type	
			40J40	Flange standard JIS 40K 40A RF equivalent wafer type	
			40J63	Flange standard JIS 63K 40A RF equivalent wafer type	
			50J10	Flange standard JIS 10K 50A RF equivalent wafer type	
			50J20	Flange standard JIS 20K 50A RF equivalent wafer type	
			50J30	Flange standard JIS 30K 50A RF equivalent wafer type	
			50J40	Flange standard JIS 40K 50A RF equivalent wafer type	
			50J63	Flange standard JIS 63K 50A RF equivalent wafer type	
			80J20	Flange standard JIS 20K 80A RF equivalent wafer type	
			80J30	Flange standard JIS 30K 80A RF equivalent wafer type	
			80J40	Flange standard JIS 40K 80A RF equivalent wafer type	
			80J63	Flange standard JIS 63K 80A RF equivalent wafer type	
			100J10	Flange standard JIS 10K 100A RF equivalent wafer type	
			100J20	Flange standard JIS 20K 100A RF equivalent wafer type	
			100J30	Flange standard JIS 30K 100A RF equivalent wafer type	
			100J40	Flange standard JIS 40K 100A RF equivalent wafer type	
			100J63	Flange standard JIS 63K 100A RF equivalent wafer type	
			ANSI	25A150	Flange standard ANSI 150 1B RF equivalent wafer type (only for E0)
				25A300	Flange standard ANSI 300 1B RF equivalent wafer type (only for E0)
	25A400	Flange standard ANSI 400 1B RF equivalent wafer type (only for E0)			
	25A600	Flange standard ANSI 600 1B RF equivalent wafer type (only for E0)			
	25A900	Flange standard ANSI 900 1B RF equivalent wafer type (only for E0)			
	25A1500	Flange standard ANSI 1500 1B RF equivalent wafer type (only for E0)			
	25A2500	Flange standard ANSI 2500 1B RF equivalent wafer type (only for E0)			
	40A150	Flange standard ANSI 150 1.5B RF equivalent wafer type			
	40A300	Flange standard ANSI 300 1.5B RF equivalent wafer type			
	40A400	Flange standard ANSI 400 1.5B RF equivalent wafer type			
	40A600	Flange standard ANSI 600 1.5B RF equivalent wafer type			
	40A900	Flange standard ANSI 900 1.5B RF equivalent wafer type			
	40A1500	Flange standard ANSI 1500 1.5B RF equivalent wafer type			
	40A2500	Flange standard ANSI 2500 1.5B RF equivalent wafer type			
	50A150	Flange standard ANSI 150 2B RF equivalent wafer type			
	50A300	Flange standard ANSI 300 2B RF equivalent wafer type			
	50A400	Flange standard ANSI 400 2B RF equivalent wafer type			
	50A600	Flange standard ANSI 600 2B RF equivalent wafer type			
	50A900	Flange standard ANSI 900 2B RF equivalent wafer type			
	50A1500	Flange standard ANSI 1500 2B RF equivalent wafer type			
	50A2500	Flange standard ANSI 2500 2B RF equivalent wafer type			
	80A150	Flange standard ANSI 150 3B RF equivalent wafer type			
80A300	Flange standard ANSI 300 3B RF equivalent wafer type				
80A400	Flange standard ANSI 400 3B RF equivalent wafer type				
80A600	Flange standard ANSI 600 3B RF equivalent wafer type				
80A900	Flange standard ANSI 900 3B RF equivalent wafer type				
80A1500	Flange standard ANSI 1500 3B RF equivalent wafer type				
80A2500	Flange standard ANSI 2500 3B RF equivalent wafer type				
100A150	Flange standard ANSI 150 4B RF equivalent wafer type				
100A300	Flange standard ANSI 300 4B RF equivalent wafer type				
100A400	Flange standard ANSI 400 4B RF equivalent wafer type				
100A600	Flange standard ANSI 600 4B RF equivalent wafer type				
100A900	Flange standard ANSI 900 4B RF equivalent wafer type				
100A1500	Flange standard ANSI 1500 4B RF equivalent wafer type				
100A2500	Flange standard ANSI 2500 4B RF equivalent wafer type				

		JPI	25JP150	Flange standard JPI 150 1B RF equivalent wafer type (only for E0)
			25JP300	Flange standard JPI 300 1B RF equivalent wafer type (only for E0)
			25JP400	Flange standard JPI 400 1B RF equivalent wafer type (only for E0)
			25JP600	Flange standard JPI 600 1B RF equivalent wafer type (only for E0)
			25JP900	Flange standard JPI 900 1B RF equivalent wafer type (only for E0)
			25JP1500	Flange standard JPI 1500 1B RF equivalent wafer type (only for E0)
			25JP2500	Flange standard JPI 2500 1B RF equivalent wafer type (only for E0)
			40JP150	Flange standard JPI 150 1.5B RF equivalent wafer type
			40JP300	Flange standard JPI 300 1.5B RF equivalent wafer type
			40JP400	Flange standard JPI 400 1.5B RF equivalent wafer type
			40JP600	Flange standard JPI 600 1.5B RF equivalent wafer type
			40JP900	Flange standard JPI 900 1.5B RF equivalent wafer type
			40JP1500	Flange standard JPI 1500 1.5B RF equivalent wafer type
			40JP2500	Flange standard JPI 2500 1.5B RF equivalent wafer type
			50JP150	Flange standard JPI 150 2B RF equivalent wafer type
			50JP300	Flange standard JPI 300 2B RF equivalent wafer type
			50JP400	Flange standard JPI 400 2B RF equivalent wafer type
			50JP600	Flange standard JPI 600 2B RF equivalent wafer type
			50JP900	Flange standard JPI 900 2B RF equivalent wafer type
			50JP1500	Flange standard JPI 1500 2B RF equivalent wafer type
			50JP2500	Flange standard JPI 2500 2B RF equivalent wafer type
			80JP150	Flange standard JPI 150 3B RF equivalent wafer type
			80JP300	Flange standard JPI 300 3B RF equivalent wafer type
			80JP400	Flange standard JPI 400 3B RF equivalent wafer type
			80JP600	Flange standard JPI 600 3B RF equivalent wafer type
			80JP900	Flange standard JPI 900 3B RF equivalent wafer type
			80JP1500	Flange standard JPI 1500 3B RF equivalent wafer type
			80JP2500	Flange standard JPI 2500 3B RF equivalent wafer type
			100JP150	Flange standard JPI 150 4B RF equivalent wafer type
			100JP300	Flange standard JPI 300 4B RF equivalent wafer type
			100JP400	Flange standard JPI 400 4B RF equivalent wafer type
			100JP600	Flange standard JPI 600 4B RF equivalent wafer type
			100JP900	Flange standard JPI 900 4B RF equivalent wafer type
			100JP1500	Flange standard JPI 1500 4B RF equivalent wafer type
			100JP2500	Flange standard JPI 2500 4B RF equivalent wafer type
6	Flange extension length	E50	Extension length 50mm	
		E100	Extension length 100mm	
		E150	Extension length 150mm	
		EZ50	High pressure side extension length : 50mm, Low pressure side extension length : 0mm	
		EZ100	High pressure side extension length : 100mm, Low pressure side extension length : 0mm	
		EZ150	High pressure side extension length : 150mm, Low pressure side extension length : 0mm	
		E0TDS	Extension length 0mm with FEP diaphragm cover	
7	Capillary tube length	1	1m	
		2	2m	
		3	3m	
		4	4m	
		6	6m	
		7	7m	
		8	8m	
		9	9m	
		10	10m	
		1U	1m Back-drawn capillary type	
		2U	2m Back-drawn capillary type	
		3U	3m Back-drawn capillary type	
		4U	4m Back-drawn capillary type	
		5U	5m Back-drawn capillary type	
		6U	6m Back-drawn capillary type	
		7U	7m Back-drawn capillary type	
		8U	8m Back-drawn capillary type	
		9U	9m Back-drawn capillary type	
		10U	10m Back-drawn capillary type	
8	Material	316L	Diaphragm ; SUS316L, Other wetted parts ; SUS316L	
		HC	Diaphragm ; Hastelloy C, Other wetted parts ; Hastelloy C	
		TA	Diaphragm ; Tantalum, Other wetted parts ; Tantalum (only for E0)	
		AU316	Diaphragm ; SUS316L with gold plate , Other wetted parts ; SUS316	
9	Filled liquid	FO	Fluorine oil	
		100CS	Silicon oil for sanitary use	
		PG	Propylene glycol	
10	No oil	NL	No-oil finish	
		NLW	No-oil and dehydrating finish	
11	Process fluid conditions	HT	High temperature type	
		LT	Low temperature type	
		V	Vacuum type	
		VT	High temperature and vacuum type	
		SVT	High temperature and high vacuum type (Diaphragm material:Hastelloy C)	
12	Density correction	D()	Arithmetic processing function of density correction for measurement of liquefied gas level. It selects from Oxygen, Nitrogen, Argon, Butane, Carbon dioxide, and Propane and it fills it in parentheses.	
13	With temperature compensation function	SA	With temperature compensation function for capillary tube	

Note) Please select the material of the diaphragm in consideration of corrosion resistance.

Hastelloy C might generate the hydrogen permeation by the galvanizing steel pipe piping and the water quality, etc.,
And cause the output shift and the transformation of the diaphragm.

Please select small SUS316L of the hydrogen permeation when there is no problem in corrosion resistance.

- HART[®] is a registered trademark of the HART Communication Foundation.
- Be sure to read the User's Manual to ensure correct, safe use.
- Some specifications and design are subject to change with or without notice for improvement of quality and performance.