PDS873 remote pressure transmitter



PDS873 remote pressure transmitter is mainly used to measure the pressure, and convert the measured value into 4-20mA d.c. current (superimposed with HART communication), PROFIBUS-PA communication signal, FF communication signal, Ethernet-APL communication signal and AutBus communication signal for output to achieve remove setting, monitoring and other functions through communication devices.

◆ Performance specification

Span ratio

Max. span ratio r (r=max. span/actual range)=30:1

Long-term stability

δ≤±0.1%FS/10 years

Span of transmitter

Span code	PDS873G gauge pressure type			PDS873A absolute pressure type		
	Minimum span	Maximum span	Measuring range	Minimum span	Maximum span	Measuring range
B	5.0 kPa	100 kPa	-100~100 kPa	5.0 kPa	25 kPa	0~25 kPa(A)
C	20 kPa	400 kPa	-100~400 kPa	10 kPa	130 kPa	0~130 kPa(A)
D	150 kPa	3 MPa	-0.1~3 MPa	25 kPa	500 kPa	0~500 kPa(A)
E	0.6 MPa	20 MPa	-0.1~20 MPa	0.15 MPa	3 MPa	0~3 MPa(A)
F	2.0 MPa	40 MPa	-0.1~40 MPa	1.0 MPa	20 MPa	0~20 MPa(A)

Note: HC-276 diaphragm is not recommended when the span is less than 10kPa and the flange size is less than or equal to DN50.

The long term working pressure of PDS873G gauge pressure type (except PDS873A absolute pressure type) shall not be lower than 50kPa (ABS).

Reference accuracy δ

PDS873G gauge pressure span code	PDS873A absolute pressure span code	Accuracy δ
B, C, D, E and F	B, C, D, E and F	δ≤±0.1% δ≤± (0.04+0.012 $\frac{\text{Maximum span}}{\text{Selected span}}$) %, span ratio>5:1

Impact of temperature

δ≤± (0.06r+0.35) %/28°C, -52°C~+120°C (body). Refer to the selected sealed liquid of remote pressure transmitter for the minimum temperature

Limit of over pressure

Not higher than the nominal flange pressure and not higher than 1.5 times the maximum span of the transmitter.

◆Model

Model No.	Scode	Remarks
PDS873	-	Single flange pressure transmitter
Type	G A	Gauge pressure type Absolute pressure type
Communication protocol	H P F A B	HART (7) communication (Note 1) PROFIBUS-PA (3.02) field bus communication FF (6.1.1) field bus communication Ethernet-APL communication(Note 2) AutBus communication
Liquid sealed in diaphragm capsule	-1 -3	Silicone oil Fluorine oil： -52°~+150°

Measuring range		G gauge pressure type		A absolute pressure type	
		Span	Measuring range	Span	Measuring range
	B	5.0~100kPa	-100~100kPa	5.0~25kPa(A)	0~25kPa(A)
	C	20~400kPa	-100~400kPa	10~130kPa(A)	0~130kPa(A)
	D	0.15~3MPa	-0.1~3MPa	25~500kPa(A)	0~500kPa(A)
	E	0.6~20MPa	-0.1~20MPa	0.15~3.0MPa(A)	0~3.0MPa(A)
	F	2.0~40MPa	-0.1~40MPa	1.0~20MPa(A)	0~20MPa(A)

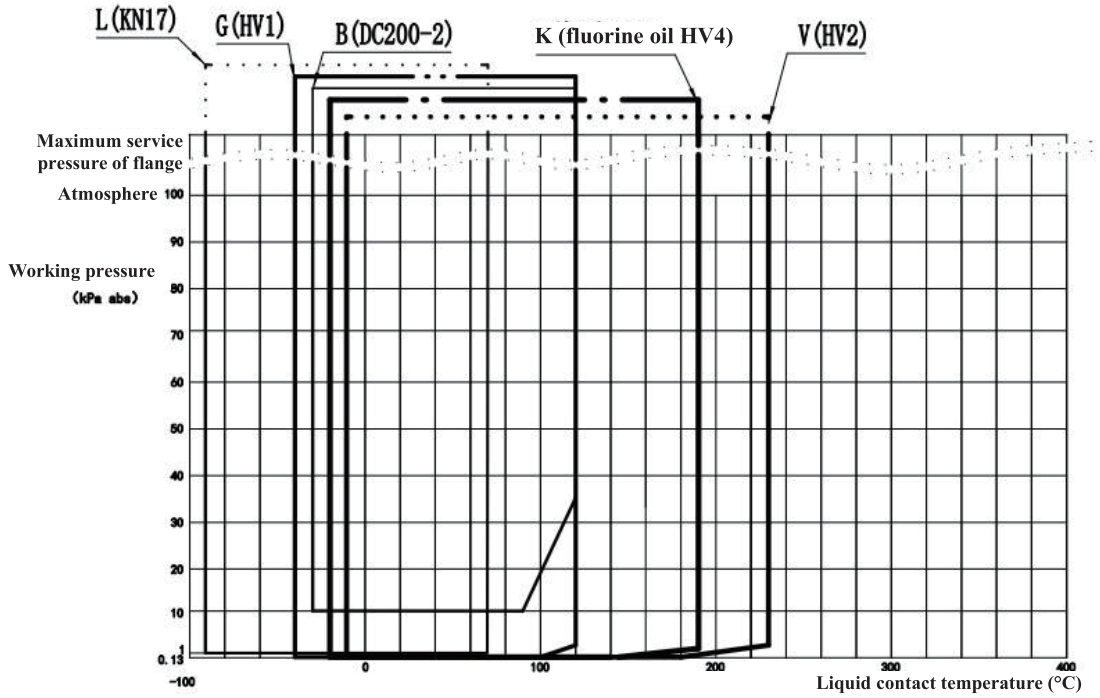
Explosion-proof			HART	PA and FF	APL	Autbus
	A	Non explosion-proof type	Applicable	Applicable	Applicable	Applicable
	B	NEPSI: Intrinsic safety type Ex ia IIC T4 Ga	Applicable	Applicable	-	-
	C	NEPSI: Intrinsic safety type Ex ia IIC T6 Ga	Applicable	-	-	-
	D	NEPSI: Flameproof type Ex db IIC T4/T6 Gb NEPSI: Dust explosion proof Ex tb IIIC T85°C Db NEPSI:“n” explosion-proof type Ex ec IIC T6 Gc	Applicable	Applicable	Applicable	-
	G	ATEX: Intrinsic safety type Ex II 1 G Ex ia IIC T4 Ga ATEX: Flameproof type Ex II 1/2 G Ex db IIC T6...T4 Ga/Gb	Applicable	-	-	-
	J	IECEx: Intrinsic safety type Ex ia IIC T4 Ga IECEx: Flameproof type Ex db IIC T6...T4 Ga/Gb	Applicable	-	-	-
	P	EAC: Intrinsic safety type 0 Ex ia IIC T4/T6 Ga X EAC: Flameproof type 0/1Ex d IIC TT6 Ga /Gb X EAC: Dust explosion proof Ex tb IIIC T80° C Db X	Applicable	-	-	-

Housing (Note 3)		Material	Electrical interface
	1	Aluminium	1/2 NPT female thread, two electrical interfaces
	2	Aluminium	M20×1.5 female thread, two electrical interfaces
	3	Stainless steel	1/2 NPT female thread, two electrical interfaces
	4	Stainless steel	M20×1.5 female thread, two electrical interfaces
Display head (Note 4)	N	Without display	
	D	LCD display	
	E	Multi-functional LCD head (only applicable to HART7)	

Installation bracket		Type	Material
	A	Horizontal (I type) mounting bracket	Q235
	B	Horizontal (I type) mounting bracket	304
	E	Horizontal (I type) mounting bracket	316
	C	Vertical (L-shaped) bracket (applicable to pipe in horizontal installation)	Q235
	D	Vertical (L-shaped) bracket (applicable to pipe in horizontal installation)	304
	F	Vertical (L-shaped) bracket (applicable to pipe in horizontal installation)	316
	N	Without installation bracket	
Flange type	-P	Plane face flange	
	-T	Boss flange	
Capillary length	-□□ (00m~15m)	When the length is 0m, the pressure must be less than 10MPa and the medium temperature must be less than 205°C (Note 5)	

Liquid sealed remote pressure transmitter	G gauge pressure type	A B C F L H M N S(Note 6)	Sealed liquid DC200-1 silicone oil DC200-2 silicone oil DC704 high temperature silicone oil Fluorine oil KN17 low temperature oil KN3.2 ultra-high temperature oil Ultra-high temperature II silicone oil Ultra-high temperature III silicone oil Syltherm 800 silicone oil	Liquid contact temperature -10°C~250°C -40°C~205°C -10°C~315°C -52°C~150°C -90°C~120°C -20°C~400°C 0°C~380°C -10°C~360°C -40°C~316°C	Density 0.96g/cm^3 0.94g/cm^3 0.94g/cm^3 1.87g/cm^3 0.914g/cm^3 1.07g/cm^3 1.1g/cm^3 1.1g/cm^3 0.93g/cm^3
Liquid sealed remote pressure transmitter	A absolute pressure type	B L G W K	Sealed liquid DC200-2 silicone oil KN17 low temperature oil HV1 HV2 Fluorine oil HV4	Liquid contact temperature -30°C~120°C (Note 7) -90°C~70°C -40°C~120°C -10°C~230°C -20°C~190°C	Density 0.94g/cm^3 0.914g/cm^3 0.96g/cm^3 1.09g/cm^3 1.83g/cm^3
Flange size (Note 8)		-1 -2 -3 -4	P plane face flange DN 25 (1 inch embedded) DN 50 (2 inch) DN 80 (3 inch) DN 100 (4 inch)	T boss flange —— DN50 (2 inch) DN80 (3 inch) DN100 (4 inch)	Insertion diameter —— 48mm 71mm 96mm
Protrusion length of diaphragm		0 2 4 6 8 9	X_2=0mm (select this option for P plane face flange) X_2=50mm X_2=100mm X_2=150mm X_2=200mm X_2=250mm		
Material of flange diaphragm		S H T M G N K R	316L HC-276 Tantalum Monel 316L gold plated Nickel Urea class EN 1.4466 Titanium		
Material of inserted cylinder		F S H M K D	No inserted cylinder (select this option for P plane face flange) 316L HC-276 Monel Urea class 316L 2205 dual-phase steel		
Flange sealing type		1 2 3 4	RF face RJ ring joint face M FM		
Flange standard (Note 9)		-A -B -C -L -P -R -D -E -F -K -M	Standard ANSI 150 ANSI 300 ANSI 600 ANSI 900 ANSI1500 (indicate the inserting diameter when ordering) ANSI2500 (indicate the inserting diameter when ordering) DIN PN 10/16 DIN PN 25/40 DIN PN 64 DIN PN 100 DIN PN 160		Pressure 2.0MPa 5.0MPa 11MPa 15MPa 26MPa 40MPa 1.6MPa 4.0MPa 6.4MPa 10MPa 16MPa
Material of flange		A B C D	S25C 304 316 316L		
Cleaning of measuring part		A B	Conventional Degreasing treatment		
Additional options		/××	Refer to the additional options table		

◆ **PDS873A Temperature and pressure curve of absolute pressure type filling liquid**



Vacuum and temperature curves of filling liquid

◆Additional options

Item	Remarks	Code (note 10)
High-end smart diagnosis	It includes the functions of detecting the blockage of pressure guide pipe, measuring the liquid contact temperature, recording events with time cut, capturing and recording process variable anomalies and forecasting and enabling health management	A10
suppressing the fluctuation	For the output of transient micro pressure fluctuation signals, an advanced composite digital filtering algorithm is adopted, which dynamically adjusts the filtering coefficients to achieve fast dynamic response of pressure signals and stable and reliable output	A11
Additional certification	EU SIL CE V&V Russian SIL Commonwealth of Independent States EAC020	C01 C02 C03 C04 C05
APL communication method	HART-IP PROFINET	AH AP
Structural form	High temperature direct-coupled type (applicable to capillary 0m at the H side with range of medium temperature 205°C~250°C)	G01
Protection treatment (Note 11)	Corrosion grade C4: Moderate salt spray or moderately corrosive industrial areas (seaside or industrial zone) Corrosion grade C5-M: High humidity and high salt spray areas (seaside and sea) Corrosion grade C5-I: High humidity and severe corrosion area	P10 P11 P12
Flush ring	Material / Thread / X: If X is 1, it means 1 flush hole; If X is 2, it means 2 flush holes 304 / 1/4 NPT+plug 316L / 1/4 NPT+plug 304 / 1/2 NPT+plug 316L / 1/2 NPT+plug	 G30X G31X G32X G33X

Anti-corrosion coating	Teflon diaphragm (only applicable to DN50 and DN80 plane face flange and working pressure ≥0kPa) PTFE coating (only applicable to 316L and HC-276, and only for weakly corrosive media under negative pressure) PFA coating (only applicable to 316L and HC-276, and working pressure ≥0kPa)		G40 G41 G42
Diaphragm processing	Gold plating inside the flange diaphragm		J01
Companion flange	Type	Material	
	WN hubbed butt welding	S25C 304 316 316L	F50 G50 H50 K50
	PL plate-type flat welding	S25C 304 316 316L	F52 G52 H52 K52
	SO hubbed flat welding	S25C 304 316 316L	F53 G53 H53 K53
	TH thread flange	S25C 304 316 316L	F54 G54 H54 K54
Mounting accessories of flange	Carbon steel bolt+spiral wound gasket Carbon steel bolt + tetrafluoroethylene Carbon steel bolt+octagonal gasket Stainless steel bolt+spiral wound gasket Stainless steel bolt+polytetrafluoroethylene Stainless steel bolt+octagonal gasket (Note: the material of stainless steel is 304 by default)		G56 G57 H56 G58 G59 H58
Electrical connector	Specification and dimension	Material	
	M20×1.5 electrical connector + 1 sealing plug	Plastic	G60
	1/2 NPT electrical connector + 1 sealing plug	Plastic	G61
	M20×1.5 one sealing plug	304	G62
	M20×1.5 sealing plug（EAC）	316L	G63
	1/2 NPT sealing plug（EAC）	316L	G64
	M20×1.5 flameproof electrical plug + one sealing plug	316	G70
	1/2NPT flameproof electrical connector + 1 sealing plug	316	G71
	1/2 NPT one sealing plug	304	G72
	1/2 NPT one sealing plug	316	G73
	M20×1.5 one sealing plug	316	G74
	M20×1.5 flameproof electrical plug + one sealing plug (ATEX\IECEx)	316	G75
	1/2NPT flameproof electrical connector + 1 sealing plug (ATEX\IECEx)	316	G76
	M20×1.5 flameproof electrical plug + one sealing plug (EAC)	316L	G77
	1/2NPT flameproof electrical connector + 1 sealing plug (EAC)	316L	G78
Lightning prevention	Lightning prevention terminal board		F20
Lithium battery	The content of copper and zinc on the surface of medium contact parts is ≤0.5%, and the content of copper and zinc on the surface of other exposed parts is ≤1%.		LD
Quality assurance system	Comply with the Company's nuclear quality assurance system (if this option is not selected, it will conform to the ISO9001 by default).		NP
Alarm	Alarm current: 22.8mA (if this option is not selected, the alarm current is 3.6mA by default).		A1
Document	Delivery and acceptance document (Note 12)		D1
Language	English (product manual, packing list, product note and main nameplate are all in English) Russian (product manual, packing list, product note and main nameplate are all in Russian) French (product manual, packing list, product note and main nameplate are all in French)		L01 L02 L03

	PV Unit	Code	PV Unit	Code
Display unit	%	U01	ftH_2O	U29
	mA	U20	mbar	U30
	Pa	U21	bar	U31
	kPa	U22	psi	U32
	MPa	U23	mmHg	U33
	gf/cm^2	U24	inHg	U34
	kgf/cm^2	U25	Torr	U35
	mmH_2O	U26	Atm	U36
	mH_2O	U27	$i4H_2O$ (inches of water 4°C)	U37
	inH_2O	U28	$m4H_2O$ (millimeter of water 4°C)	U38

Special reminder

※: In case of any special ordering requirements, please mark "Z" after order code, and add text description.

Note 1: If Hart 6 is selected, Z shall be added for description. For SIL (functional safety) type, only Hart7 is supported.

Note 2: To select Ethernet APL Ethernet communication, you need to choose the specific APL communication method, as shown in the additional options.

Note 3: Flameproof electrical connector must be selected for flameproof transmitter, referring to additional options.

Note 4: The default display is pressure value, and the other display modes are described in "Additional Options".

Note 5: When the length is 0 m, the pressure must be less than 10 MPa, the flange standard shall not be L, P, R, M, and the process temperature shall be less than 205°C. At 205°C~250°C, G01 nearby might be selected (filling oil A).

Note 6: It shall not be used in the vacuum state. There is a limit to the minimum static pressure limit, please consult us for details.

Note 7: When the operating temperature is ≤90°C, the minimum operating pressure shall be 10kPa(abs); When 80°C< operating temperature ≤120°C, the operating pressure shall not be less than 50 kPa (abs).

Note 8: When filling oil B is used for PDS873P built in and DN50 plane face flange, PDS873T DN80 boss flange, the capillary shall be ≤10 m; if other oil is used as the filling liquid, the capillary shall be≤8 m.
The capillary of PDS873T DN50 boss flange shall be ≤3m. Please consult for special length.

Note 9: Serial numbers A, B, C, L, P, and R are adapted to American systems in HG20615-2009~HG20635-2009 and GB/T9112-2000~GB/T9131-2000. Serial numbers D, E, F, K and M are adapted to European system in HG20592-2009~HG20614-2009 and GB/T9112-2000~GB/T9131-2000.

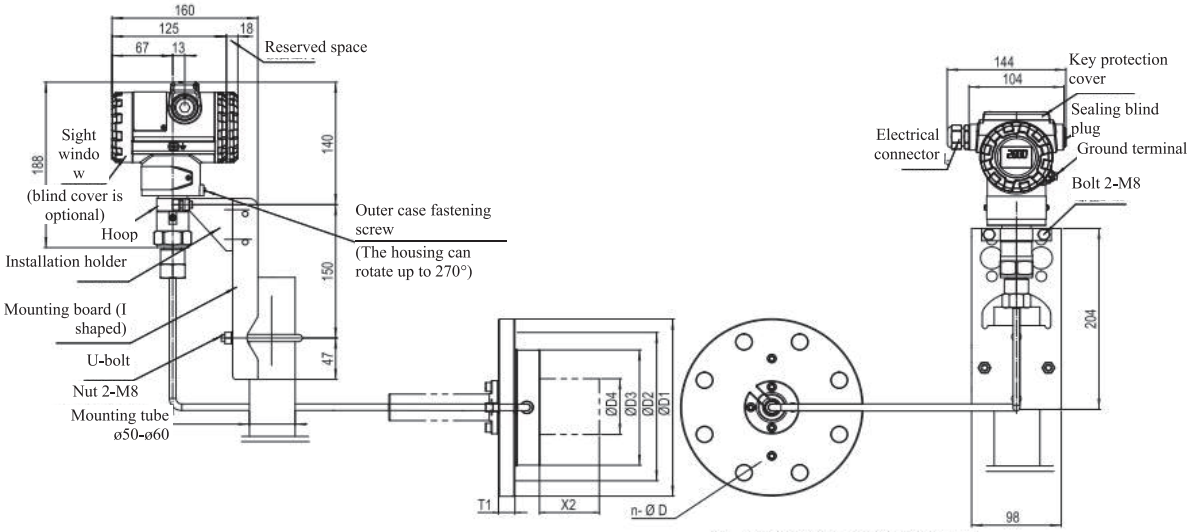
Note 10: The options shall be separated with a "/", for example "/P10/G61/F20".

Note 11: If the housings in P11 and P12 are selected, please choose 1 or 2.

Note 12: It refers to the common materials provided by the manufacturer for inspection of products received except the standard delivery materials (such as original qualification certificate, instructions, and packing list), and a detailed list shall be provided when ordering. In case of third-party test report or other special requirements, it will be quoted separately.

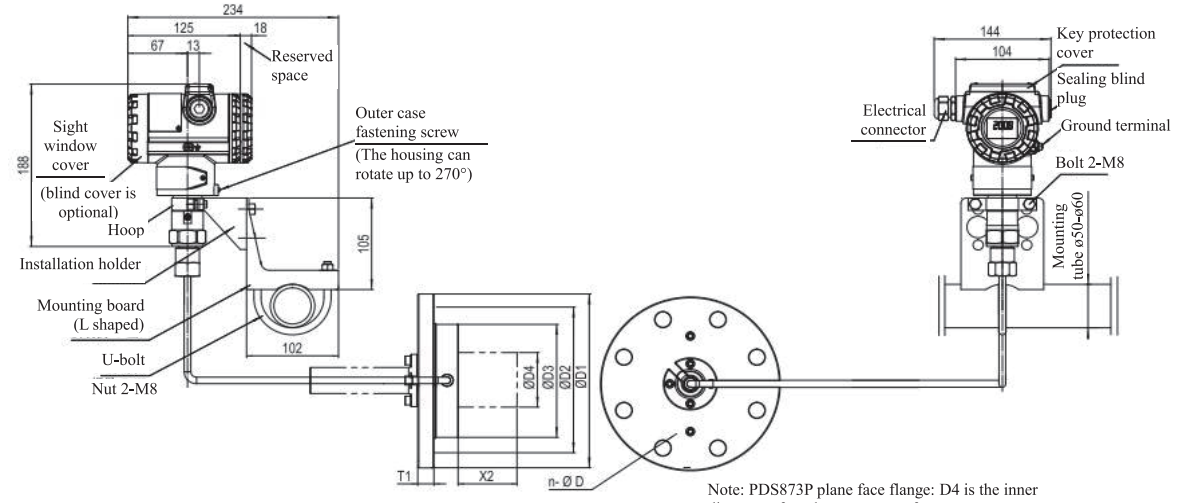
◆Overall and installation size of PDS873

Unit: mm



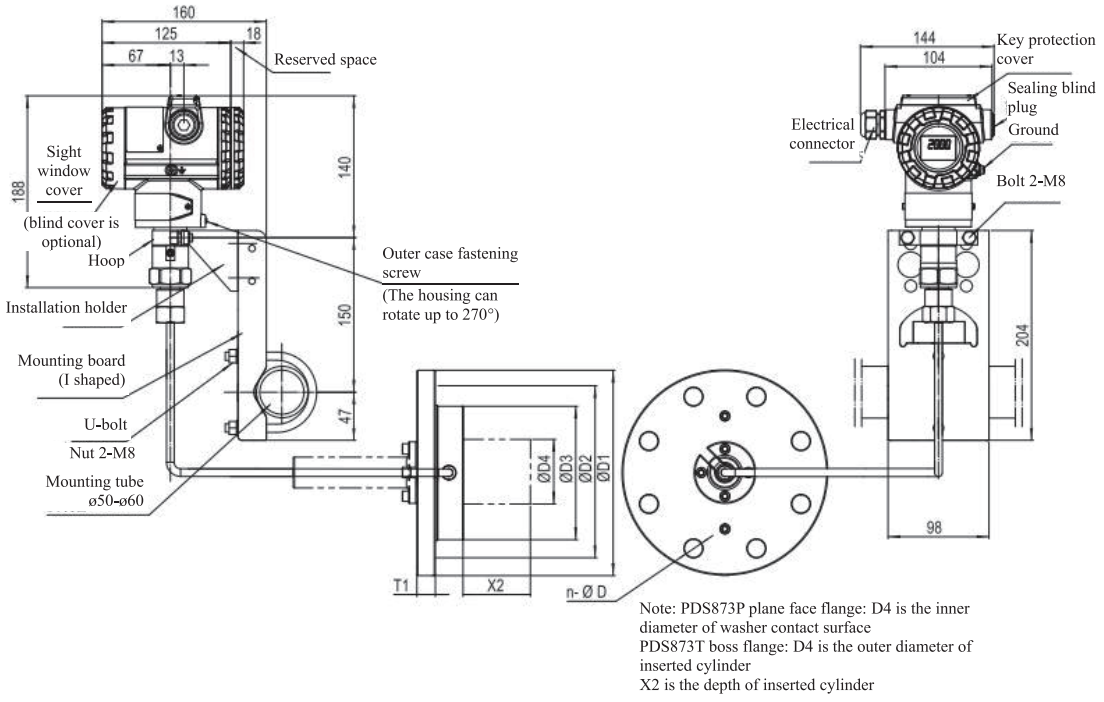
Note: PDS873P plane face flange: D4 is the inner diameter of washer contact surface
PDS873T boss flange: D4 is the outer diameter of inserted cylinder
X2 is the depth of inserted cylinder

Horizontal piping mounting type (vertical mounting pipe)

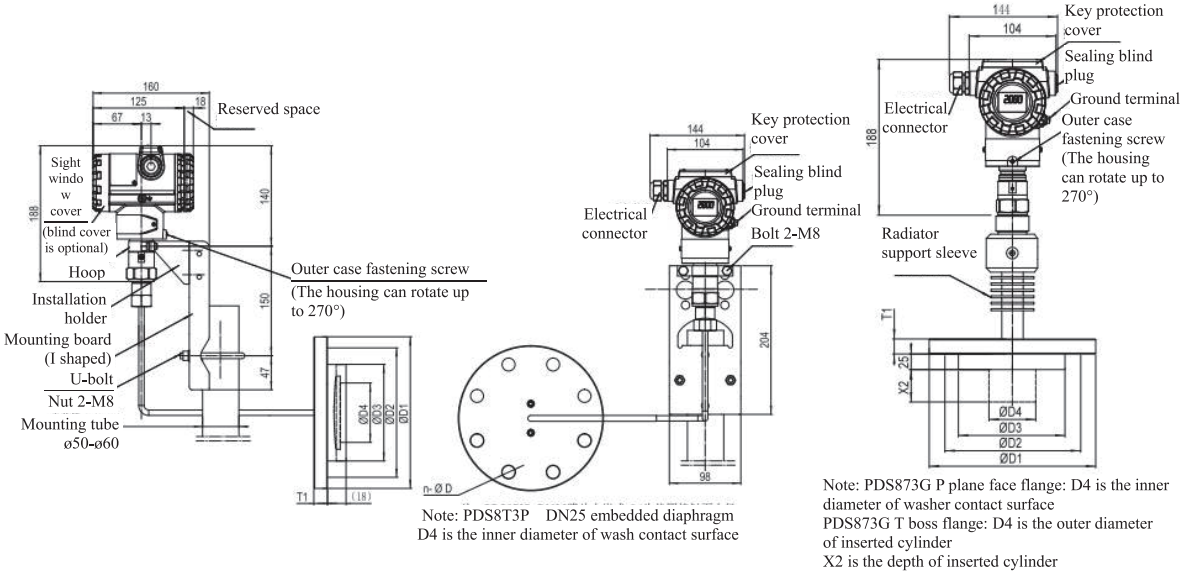


Note: PDS873P plane face flange: D4 is the inner diameter of washer contact surface
PDS873T boss flange: D4 is the outer diameter of inserted cylinder
X2 is the depth of inserted cylinder

Horizontal piping mounting type (horizontal mounting pipe)



Horizontal piping mounting type (horizontal mounting pipe)



Horizontal piping mounting type (vertical mounting pipe)

PDS873G High temperature direct-coupled

Note: D4 is the inner diameter of washer contact surface or the outer diameter of inserted cylinder.

The insertion depth of X2 can be selected from 50mm, 100mm, 150mm, 200mm and 250mm, or be customized according to the working conditions at site.

Unit: mm

Size of plane face flange DN25 (embedded)

Flange standard	D1	D2	D3	D4	T1	Bolt number n	Bolt hole diameter d
ANSI 150	110	79.4	66	34	12.7	4	16
ANSI 300	125	88.9	66	34	15.9	4	18
ANSI 600	125	88.9	66	34	17.5	4	18
ANSI 900	150	101.6	66	34	28.6	4	26
DIN PN10/16	115	85	66	34	18	4	14
DIN PN25/40	115	85	66	34	18	4	14
DIN PN64/100	140	100	66	34	24	4	18

Size specification of plane face flange DN50

Flange standard	D1	D2	D3	D4	T1	Bolt number n	Bolt hole diameter d
ANSI 150	150	120.7	100	61	19.5	4	18
ANSI 300	165	127	100	61	22.7	8	18
ANSI 600	165	127	100	61	32.4	8	18
ANSI 900	215	165.1	100	61	45.1	8	26
ANSI 1500	215	165.1	100	61	45.1	8	26
ANSI 2500	235	171.4	100	61	57.9	8	30
DIN PN10/16	165	125	100	61	18	4	18
DIN PN25/40	165	125	100	61	20	4	18
DIN PN64	180	135	100	61	26	4	22
DIN PN100	195	145	100	61	28	4	26
DIN PN160	195	145	100	61	30	4	26

Size specification of plane face flange DN80

Flange standard	D1	D2	D3	D4	T1	Bolt number n	Bolt hole diameter d
ANSI 150	190	152.4	130	89	24.3	4	18
ANSI 300	210	168.3	130	89	29	8	22
ANSI 600	210	168.3	130	89	38.8	8	22
ANSI 900	240	190.5	130	89	45.1	8	26
ANSI 1500	265	203.2	130	89	54.7	8	33
ANSI 2500	305	228.6	130	89	73.7	8	36
DIN PN10/16	200	160	130	89	20	8	18
DIN PN25/40	200	160	130	89	24	8	18
DIN PN64	215	170	130	89	28	8	22
DIN PN100	230	180	130	89	32	8	26
DIN PN160	230	180	130	89	36	8	26

Size specification of plane face flange DN100

Flange standard	D1	D2	D3	D4	T1	Bolt number n	Bolt hole diameter d
ANSI 150	230	190.5	155	115	24.3	8	18
ANSI 300	255	200	155	115	32.2	8	22
ANSI 600	275	215.9	155	115	45.1	8	26
ANSI 900	290	235	155	115	51.5	8	33
ANSI 1500	310	241.3	155	115	61.0	8	36
ANSI 2500	355	273	155	115	83.2	8	42
DIN PN10/16	220	180	155	115	20	8	18
DIN PN25/40	235	190	155	115	24	8	22
DIN PN64	250	200	155	115	30	8	26
DIN PN100	265	210	155	115	36	8	30
DIN PN160	265	210	155	115	40	8	30

Unit: mm

Size specification of boss flange DN50

Flange standard	D1	D2	D3	D4	T1	Bolt number n	Bolt hole diameter d
ANSI 150	150	120.7	100	48	19.5	4	18
ANSI 300	165	127	100	48	22.7	8	18
ANSI 600	165	127	100	48	32.4	8	18
ANSI 900	215	165.1	100	48	45.1	8	26
ANSI 1500	215	165.1	100	48	45.1	8	26
ANSI 2500	235	171.4	100	48	57.9	8	30
DIN PN10/16	165	125	100	48	18	4	18
DIN PN25/40	165	125	100	48	20	4	18
DIN PN64	180	135	100	48	26	4	22
DIN PN100	195	145	100	48	28	4	26
DIN PN160	195	145	100	48	30	4	26

Size specification of boss flange DN80

Flange standard	D1	D2	D3	D4	T1	Bolt number n	Bolt hole diameter d
ANSI 150	190	152.4	130	71	24.3	4	18
ANSI 300	210	168.3	130	71	29	8	22
ANSI 600	210	168.3	130	71	38.8	8	22
ANSI 900	240	190.5	130	71	45.1	8	26
ANSI 1500	265	203.2	130	71	54.7	8	33
ANSI 2500	305	228.6	130	71	73.7	8	36
DIN PN10/16	200	160	130	71	20	8	18
DIN PN25/40	200	160	130	71	24	8	18
DIN PN64	215	170	130	71	28	8	22
DIN PN100	230	180	130	71	32	8	26
DIN PN160	230	180	130	71	36	8	26

Size specification of boss flange DN100

Flange standard	D1	D2	D3	D4	T1	Bolt number n	Bolt hole diameter d
ANSI 150	230	190.5	155	96	24.3	8	18
ANSI 300	255	200	155	96	32.2	8	22
ANSI 600	275	215.9	155	96	45.1	8	26
ANSI 900	290	235	155	96	51.5	8	33
ANSI 1500	310	241.3	155	96	61.0	8	36
ANSI 2500	355	273	155	96	83.2	8	42
DIN PN10/16	220	180	155	96	20	8	18
DIN PN25/40	235	190	155	96	24	8	22
DIN PN64	250	200	155	96	30	8	26
DIN PN100	265	210	155	96	36	8	30
DIN PN160	265	210	155	96	40	8	30