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Specification

PREX 3000 Vector Involute Type Pneumatic Differential Pressure Transmitters

Model KDP 71/72
(Remote Seal Diaphragm Type)

Introduction

The PREX3000 instruments are pneumatic type transmitters which employ a combination of vector balance mechanism and involute mechanism. The instruments are featured by high resistance against adverse environments, high turn-down ratio, high accuracy, and ease of maintenance.

Standard Specifications

Item	Specifications
Measuring range (continuously adjustable)	KDP 71: 0–25 to 0–500 kPa {0–2,500 to 0–50,000 mmH₂O} KDP 72: 0–2.5 to 0–53.9 kPa {0–250 to 0–5,500 mmH₂O}
Process connection	Flange connection (both HP and LP side) Flush diaphragm type; 80 mm-JIS 10K, 30K (RF) equivalent flange 3″-ANSI 150, 300 (RF) equivalent flange Extended diaphragm type; 100 mm-JIS 10K, 30K (RF) equivalent flange 4″-ANSI 150, 300 (RF) equivalent flange
Capillary tube length	2, 3, or 5 m
Sp. gr. of liquid fill	0.935 at 25°C
Air supply connection	Rc 1/4 or 1/4 NPT internal thread
Air supply pressure	140±14 kPa {1.4±0.14 kgf/cm²}
Output	20–100 kPa {0.2–1.0 kgf/cm²}
External load	ID 4 mm × Length 3 m+20 cm³ or over
Air supply capacity	20Nℓ/minute or over, with 6.7 kPa {50 mmHg} change
Air consumption	5Nℓ/minute or less (when balanced at output 100%)
Accuracy	KDP 71: ±0.5% FS (for spans 0–50 to 0–500 kPa {0–5,000 to 0–50,000 mmH₂O}) ±1.0% FS (for spans 0–25 to 0–less than 50 kPa {0–2,500 to 0–Less than 5,000 mmH₂O}) KDP 72: ±0.5% FS (for spans 0–5 to 0–53.9 kPa {0–500 to 0–5,500 H₂O}) ±1.0% FS (for spans 0–2.5 to 0–less than 5 kPa {0–250 to 0–Less than 500 mmH₂O})
Dead band	0.1% FS
Working pressure	−50 kPa {−0.5 kgf/cm²} to maximum flange rated pressure. [Refer to Fig. 1, 6]
Operating temperature	Meter body (process fluid): −40 to +120°C Transmitter (ambient): −30 to +80°C [Refer to Fig. 1]
Operating humidity	10 to 90% RH
Overload protection	Up to maximum flange rated pressure in either direction.
Construction	Dustproof and waterproof, meets IEC IP54, NEMA Type 3R, JIS F8001 Class 3 splashproof, JIS C0920 rainproof
Materials	Center body: SUS304 Flange: Carbon steel (SF45A), SUS304 Wetted parts: SUS316 (diaphragm: SUS316L), SUS316L, Monel, Tantalum Capillary tube: SUS316 Armored tube: SUS304 Transmitter case: Aluminium alloy
Finish	Acryl baking finish Color: Light beige (munsell 4Y7.2/1.3)
Mounting	Directly flange mounted to process flange. (transmitter body is mounted on vertical or horizontal 2 inch pipe)
Weight	Approx. 17.5 kg (80 mm-JIS 10K flange, add 0.8 kg for air-set)

Optional Specifications

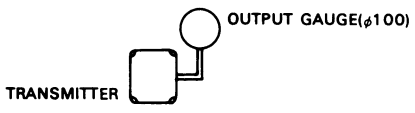
Item	Specifications
(1) Suppression and elevation	(unit: kPa {mmH_2O})

Model No.	Span	Suppression (max.)	Elevation (max.)
KDP 71	25 to 500{2,500–50,000}	500{50,000}	475{47,500}
KDP 72	2.5 to 53.9{250–5,500}	53.9{5,500}	51.4{5,250}

(note: elevation+span≦maximum span, suppression≦maximum span)

Item	Specifications
(2) Air-set (filter and pressure regulator)	Primary pressure: 200 to 990 kPa {2–9.9 kgf/cm²} Secondary pressure: 140kPa {1.4 kgf/cm²} Filter mesh diameter: 5 microns Connections: Rc 1/4 or 1/4 NPT internal thread

Optional Semi-standard Specifications

Item	Specifications
(1) For vacuum use (Y23)	Y169, Y182 and Y183 are not available for Y23. [Refer to Fig. 3, 6]
(2) High temperature use (Y62)	Fluid temperature: −10 to +280°C (+180°C . . . when monel or tantalum element) Ambient temperature: −10 to +80°C Liquid fill: Special silicone oil (specific gravity: 1.07 at 25°C) [Refer to Fig. 4, 6] Y169, Y182 and Y183 are not available with Y62.
(3) For vacuum use and high temperature (Y23 plus Y62)	Y169, Y182 and Y183 are not available for Y23 plus Y62. [Refer to Fig. 5, 6]
(4) Corrosion-resistant and silver finish (Y138)	Corrosion resistant (acryl baking) finish (Y138A): Resistant against corrosive gases. Corrosionproof (epoxy baking) finish (Y138B): Resistant against corrosive liquids. Silver-normal (acryl baking) finish (Y138C): To prevent temperature rise of instrument caused by direct sunlight or radiation from other source of heat. Silver-corrosion-resistant (acryl baking) finish (Y138D): To prevent temperature rise the same as above, plus resistance against corrosive gases. (note: silver finish is not applicable for alkaline gases.)
(5) Damping adjustment (Y169) (continuously adjustable)	Time constant: KDP71 Minimum 0.5 sec. or less Maximum 10 sec. or over KDP72 Minimum 8.0 sec. or less Maximum 50 sec. or over (when capillary tube length is 5 m.)
(6) For oxygen measurement (Y182)	Measuring element material: SUS316 or SUS316L Liquid fill: Fluorine oil (specific gravity: 1.915 at 25°C) Operating temperature (fluid and ambient temperature): −10 to +60°C Wetted parts treatment: Treated for degreasing [Refer to Fig. 2, 6]
(7) For chlorine gas measurement (Y183)	Measuring element material: Tantalum Liquid fill: Fluorine oil (specific gravity: 1.915 at 25°C) Operating temperature (fluid and ambient temperature): −10 to +80°C Wetted parts treatment: Treated for degreasing [Refer to Fig. 2, 6]
(8) Output pressure gauge (Y185)	Pressure gauge (100 mm diameter) 
(9) High vibration resistant type (Y188)	High vibration resistant type with dashpot.

Model Number Table

Ex: KDP72-112210200A1-5, 7

Basic Model No.	Flange Mat'l		Wetted Parts Mat'l		Flange Rating	Capillary Tube Length	Length of Extended Part of Flange	Air Piping Connections	Pressure unit / Output	Options	Description
	HP	LP	HP	LP							
KDP 71											0–25 to 0–500 kPa{0–2,500 to 0–50,000 mmH_2O}
KDP 72											0–2.5 to 0–53.9 kPa{0–250 to 0–5,500 mmH_2O}
	–1										Carbon steel (SF45A)
	–7										SUS304
		1									Carbon steel (SF45A)
		7									SUS304
			2								SUS316 (diaphragm: SUS316L)
			3								Monel (excluding extended diaphragm type)
			4								Tantalum (excluding extended diaphragm type)
			8								SUS316L
				2							SUS316 (diaphragm: SUS316L)
				3							Monel (excluding extended diaphragm type)
				4							Tantalum (excluding extended diaphragm type)
				8							SUS316L
					1						Flush diaphragm type 80mm-JIS10K (RF) equiv. flange
					2						Flush diaphragm type 80mm-JIS30K (RF) equiv. flange
					3						Flush diaphragm type 3″-ANSI150 (RF) equiv. flange
					4						Flush diaphragm type 3″-ANSI300 (RF) equiv. flange
					5						Extended diaphragm type 100mm-JIS10K (RF) equiv. flange
					6						Extended diaphragm type 100mm-JIS30K (RF) equiv. flange
					7						Extended diaphragm type 4″-ANSI150 (RF) equiv. flange
					8						Extended diaphragm type 4″-ANSI300 (RF) equiv. flange
						02					ℓ=2 m
						03					ℓ=3 m
						05					ℓ=5 m
							00				Flush diaphragm type
							10				L=100 mm (extended diaphragm type)
							15				L=150 mm (extended diaphragm type)
								A			Rc 1/4 internal thread
								B			1/4 NPT internal thread
									1		**kgf/cm² (or mmH_2O) / 0.2 to 1.0 kgf/cm²**
									2		**PSI / 3 to 15 PSI**
									3		**bar / 0.2 to 1.0 bar**
									4		**Pa / 20 to 100 kPa**
									8		**Pa / 19.6 to 98.1 kPa (equality to 0.2 to 1.0 kgf/cm²)**
										–X	No option
										–5	Elevation
										–6	Suppression
										–7	Air-set

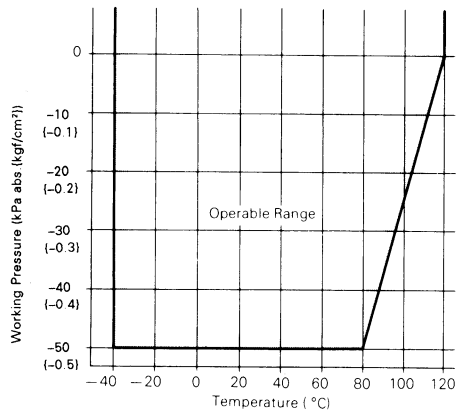


Fig. 1 Working Pressure and Temperature of Wetted Parts

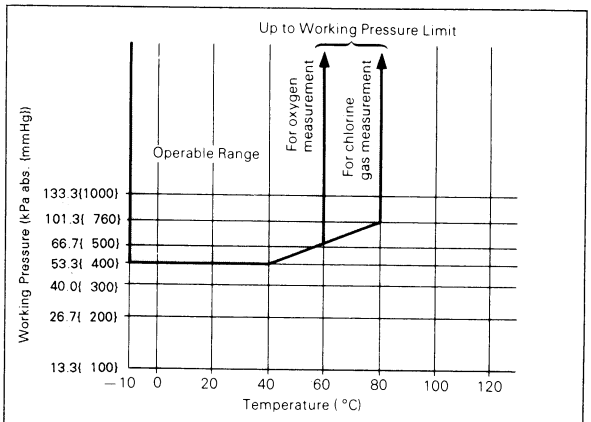


Fig. 2 Working Pressure and Temperature of Wetted Parts for Oxygen or Chlorine Gas Measurement

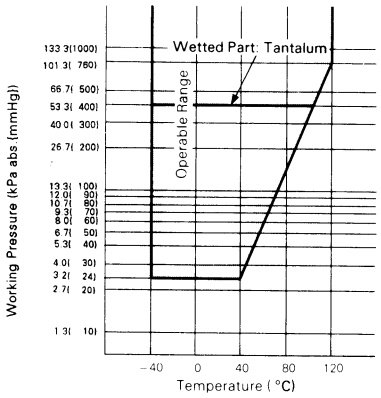


Fig. 3 Working Pressure and Temperature of Wetted Parts for Vacuum Use

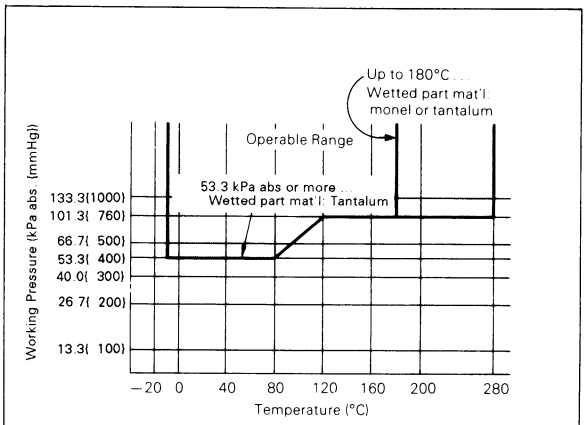


Fig. 4 Working Pressure and Temperature of Wetted Parts for High Temperature Use

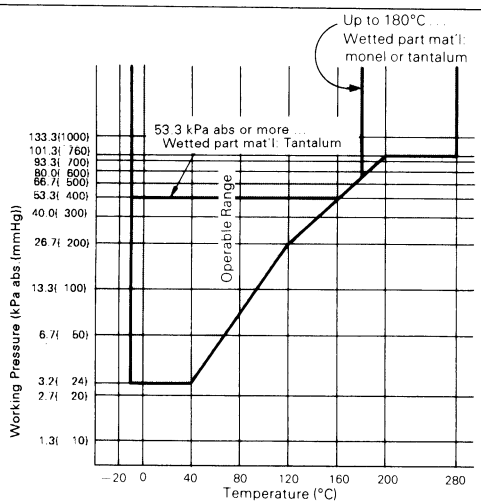
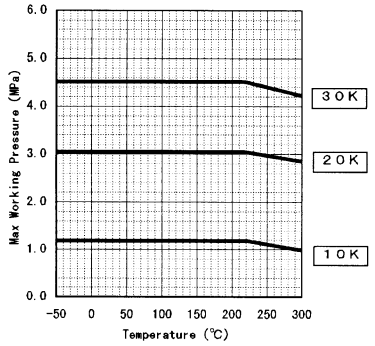
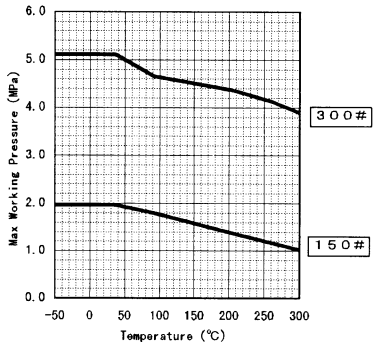
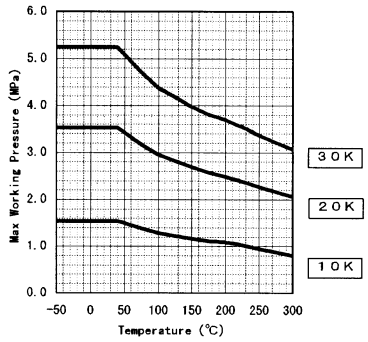
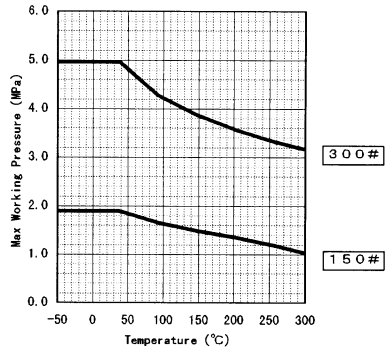
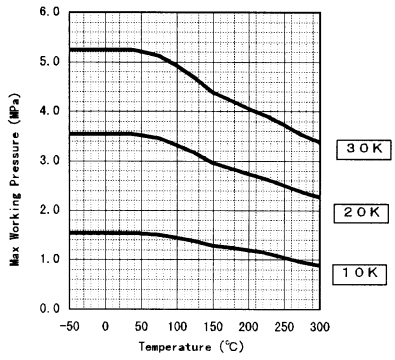
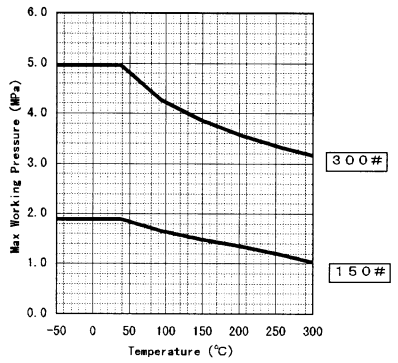
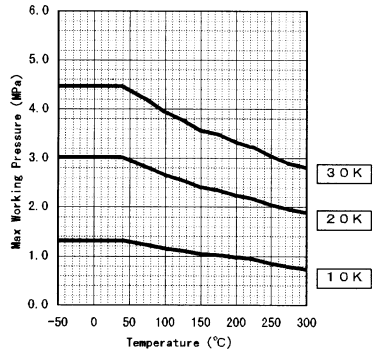
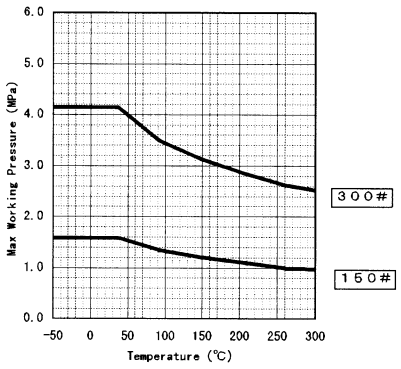


Fig. 5 Working Pressure and Temperature of Wetted Parts for High Temperature-Vacuum Use

Fig6. Max Working Pressure

Note1. Max Working Pressure depends on flange rating , flange materials and operating temperature. Please refer to the following data.
Operating range of temperature depends on specification of transmitters
Note2. In cace of remote sealed type (KKP75,KFKB□□-75), Max Working Pressure depends on the smaller value of either 1.05MPa or following data.

	JIS	JPI/ANSI
Carbon steel		
SUS304		
SUS316		
SUS316L		

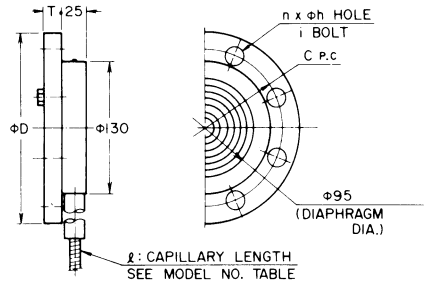
Dimensions

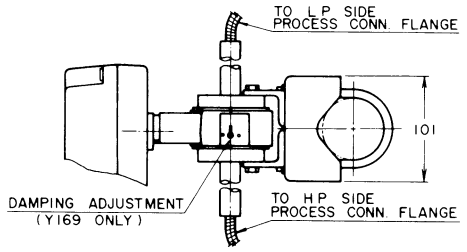
Flush Diaphragm Type

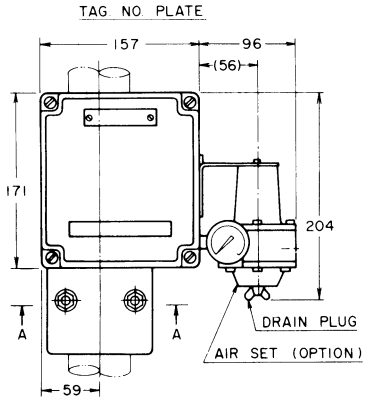
Flange Dimensions

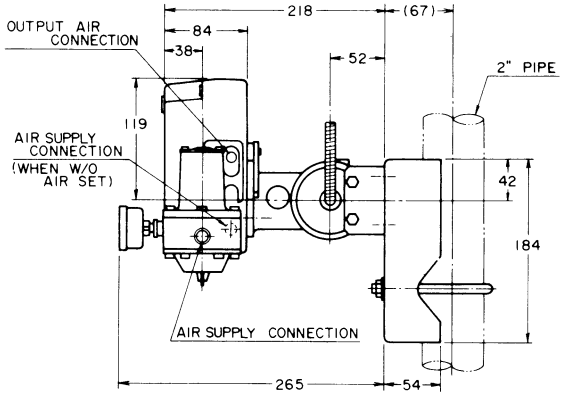
(Unit: mm)

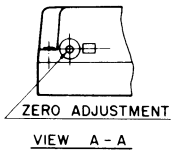
ITEM	FLANGE RATING	D	T	C	n	h	i BOLT
1	80 mm JIS 10K RF	185	18	150	8	19	M16
2	80 mm JIS 30K RF	210	28	170	8	23	M20
3	3" ANSI 150 RF	191	24	152.4	4	19	5/8
4	3" ANSI 300 RF	210	29	168.3	8	22	3/4
A	3" JPI 150 RF	191	24	152.4	4	19	5/8
B	3" JPI 300 RF	210	29	168.3	8	22	3/4







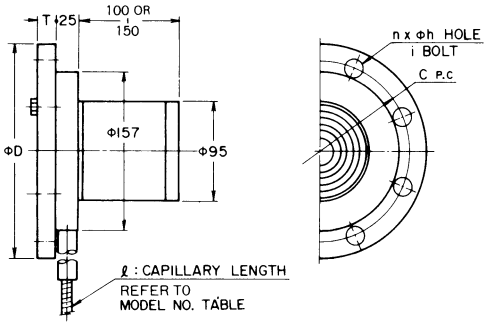


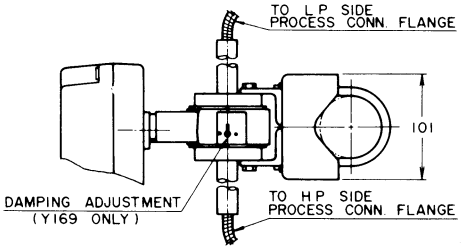


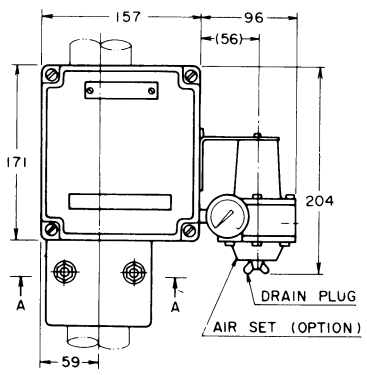
Extended Diaphragm Type

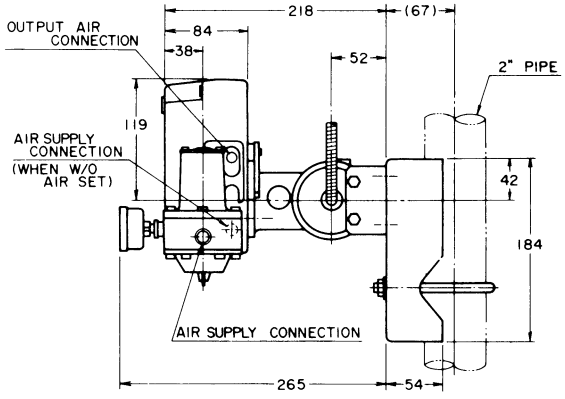
Flange Dimensions

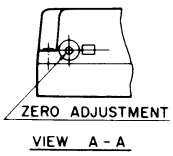
ITEM	FLANGE RATING	D	T	C	n	h	i BOLT
5	100 mm JIS 10K RF	210	18	175	8	19	M16
6	100 mm JIS 30K RF	240	32	195	8	25	M22
7	4" ANSI 150 RF	229	24	190.5	8	19	5/8
8	4" ANSI 300 RF	254	32	200	8	22	3/4
C	4" JPI 150 RF	229	24	190.5	8	19	5/8
D	4" JPI 300 RF	254	32	200	8	22	3/4











Ordering Information

When ordering, please specify:

1) Model No.
2) Measuring range
   Note) PREX3000 Transmitter covers a wide measuring range. At a span close to the minimum range point, however, the instrument exhibits particular characteristics. When operating the instrument at this span, refer to Instrumentation Data Sheet ID2-522-002.
3) Optional specification
4) Optional semi-standard specification
   Note) For any combination of two or more Y-specification items, please consult your Yamatake agent.

Reference instruction manual ...
OM2-5220-0000/
OM2-5220-1100

Specifications are subject to change without notice.

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Rev. 7: Dec.1998