

# PREX 3000 Vector Involute Type Pneumatic Differential Pressure Transmitters

## Model KDP 33

(Standard Type for Low Differential Pressure)



### 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.

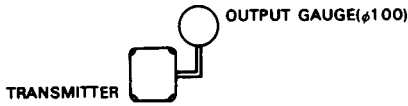
### Standard Specifications

Item	Specifications
Measuring range (continuously adjustable)	0–0.5 to 0–6kPa {0–50 to 0–600 mmH <sub>2</sub> O}
Process connection	Rc 1/2 or 1/2 NPT internal thread
Air supply connection	Rc 1/4 or 1/4 NPT internal thread
Air supply pressure	140±14 kPa {1.4±0.14 kgf/cm <sup>2</sup> }
Output	20–100 kPa {0.2–1.0 kgf/cm <sup>2</sup> }
External load	ID 4 mm × Length 3 m + 20 cm <sup>3</sup> or over
Air supply capacity	20 NL/minute or over, with 6.7 kPa {50 mmH <sub>2</sub> O} change
Air consumption	5 NL/minute or less (when balanced at output 100%)
Accuracy	±0.5% FS (for spans 0–1 to 0–6 kPa {0–100 to 0–600 mmH <sub>2</sub> O}) ±1.0% FS (for span 0–0.5 to 0–less than 1 kPa {0–50 to 0–Less than 100 mmH <sub>2</sub> O})
Dead band	0.1% FS
Working pressure	–50 kPa to +3.5 MPa {–0.5 to +35 kgf/cm <sup>2</sup> } (differs by material of cover) [Refer to Fig. 1.]
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 3.5 MPa {35 kgf/cm <sup>2</sup> } 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 Wetted parts of center body: SUS316 (diaphragm: SUS316L), SUS316L, Monel, Tantalum Meter body cover (differential pressure chambers): Carbon steel (SF45A), SUS316, Monel, PVC (reinforced with SUS304 plates, working pressure range: –10 kPa to + 1 MPa {0.1 to +10 kgf/cm <sup>2</sup> } ) operating temperature range: 0 to 50°C Wetted parts gasket: Teflon Transmitter case: Aluminium alloy
Finish	Acryl baking finish Color: Light beige (munsell 4Y7.2/1.3)
Mounting	On vertical 2-inch pipe
Weight	Approx. 14.6 kg (add 0.8 kg for air-set)

## Optional Specifications

Item	Specifications		
<b>(1) Suppression and elevation</b>	(unit: kPa {mmH <sub>2</sub> O})		
	Span	Suppression (max.)	Elevation (max.)
	0.5 to 6 {50-600}	6 {600}	5.5 {550}
<small>(Note: elevation+span ≤ maximum span, suppression ≤ maximum span)</small>			
<b>(2) Air-set (filter and pressure regulator)</b>	Primary pressure:	200 to 990 kPa {2-9.9 kgf/cm <sup>2</sup> }	
	Secondary pressure:	140 kPa {1.4 kgf/cm <sup>2</sup> }	
	Filter mesh diameter:	5 microns	
	Connections:	Rc1/4 or 1/4NPT internal thread	

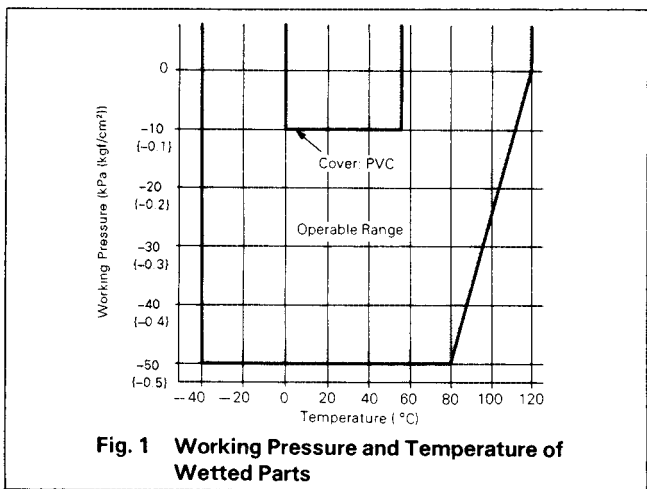
## Optional Semi-standard Specifications

Item	Specifications	
<b>(1) For vacuum use (Y23)</b>	Y169, Y182 and Y183 are not available for Y23.	[Refer to Fig. 3]
<b>(2) Steam block (Y29) (excluding PVC covers and monel covers)</b>	Maximum working pressure: 5 MPa {50 kgf/cm <sup>2</sup> } Maximum operating temperature: 250°C (except meter body whose temperature must not exceed 120°C) Steam piping connections: Rc1/4 or 1/4 NPT internal thread Material of block: Carbon steel (SF45A)	
<b>(3) SUS304 bolts for meter body clamping (Y66)</b>	Maximum working pressure: Carbon steel, SUS16, or Monel cover: 2.5 MPa {25 kgf/cm <sup>2</sup> } PVC cover: 1 MPa {10 kgf/cm <sup>2</sup> }	
<b>(4) Corrosion-resistant and silver finish (Y138)</b>	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.)	
<b>(5) Damping adjustment (Y169) (continuously adjustable)</b>	Time constant: Minimum 3 sec. or less, Maximum 15 sec. or over	
<b>(6) For oxygen measurement (Y182)</b>	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 <span style="float: right;">[Refer to Fig. 2]</span>	
<b>(7) For chlorine gas measurement (Y183)</b>	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 <span style="float: right;">[Refer to Fig. 2]</span>	
<b>(8) Output pressure gauge (Y185)</b>	Pressure gauge (100 mm diameter) <div style="text-align: center; margin-top: 10px;">  </div>	
<b>(9) High vibration resistant type (Y188)</b>	High vibration resistant type with dashpot	

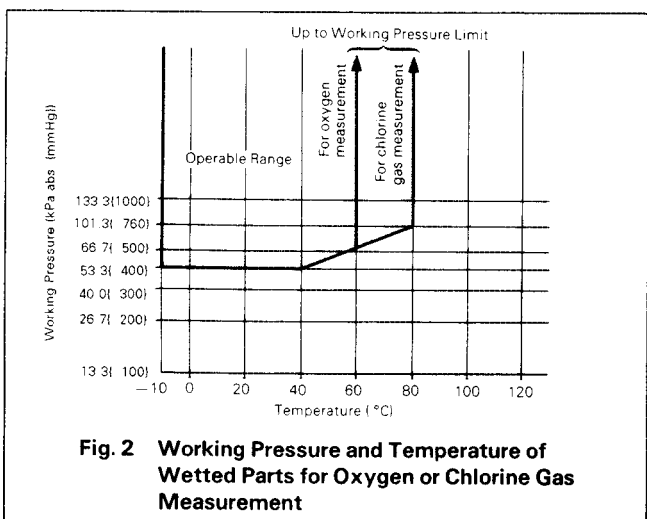
**Model Number Table**

Ex: KDP33-2222A1-5, 7

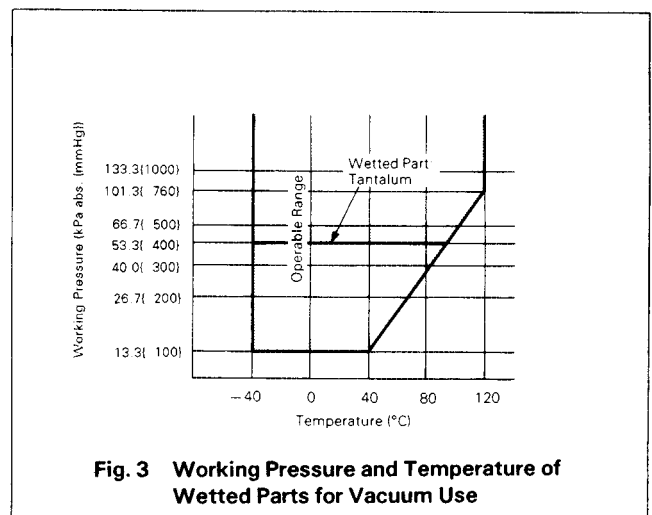
Base Model No.	Cover Mat'l		Wetted Parts Mat'l		Air Piping Connections	Pressure unit / Output	Options	Description
	HP	LP	HP	LP				
KDP 33								0-0.5 to 0-6kPa {0-50 to 0-600 mmH <sub>2</sub> O}
	-1							Carbon steel (SF45A)
	-2							SUS316
	-3							Monel
	-5							PVC
			1					Carbon steel (SF45A)
			2					SUS316
			3					Monel
			5					PVC
				2				SUS316 (diaphragm: SUS316L)
				3				Monel
				4				Tantalum
				8				SUS316L
					2			SUS316 (diaphragm: SUS136L)
					3			Monel
					4			Tantalum
					8			SUS316L
						A		Rc 1/4 internal thread
						B		1/4 NPT internal therad
							1	kgf/cm <sup>2</sup> (or mmH <sub>2</sub> O) / 0.2 to 1.0 kgf/cm <sup>2</sup>
							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/cm <sup>2</sup> )	
						- x	No option	
						-5	Elevation	
						-6	Suppression	
						-7	Air-set	



**Fig. 1 Working Pressure and Temperature of Wetted Parts**

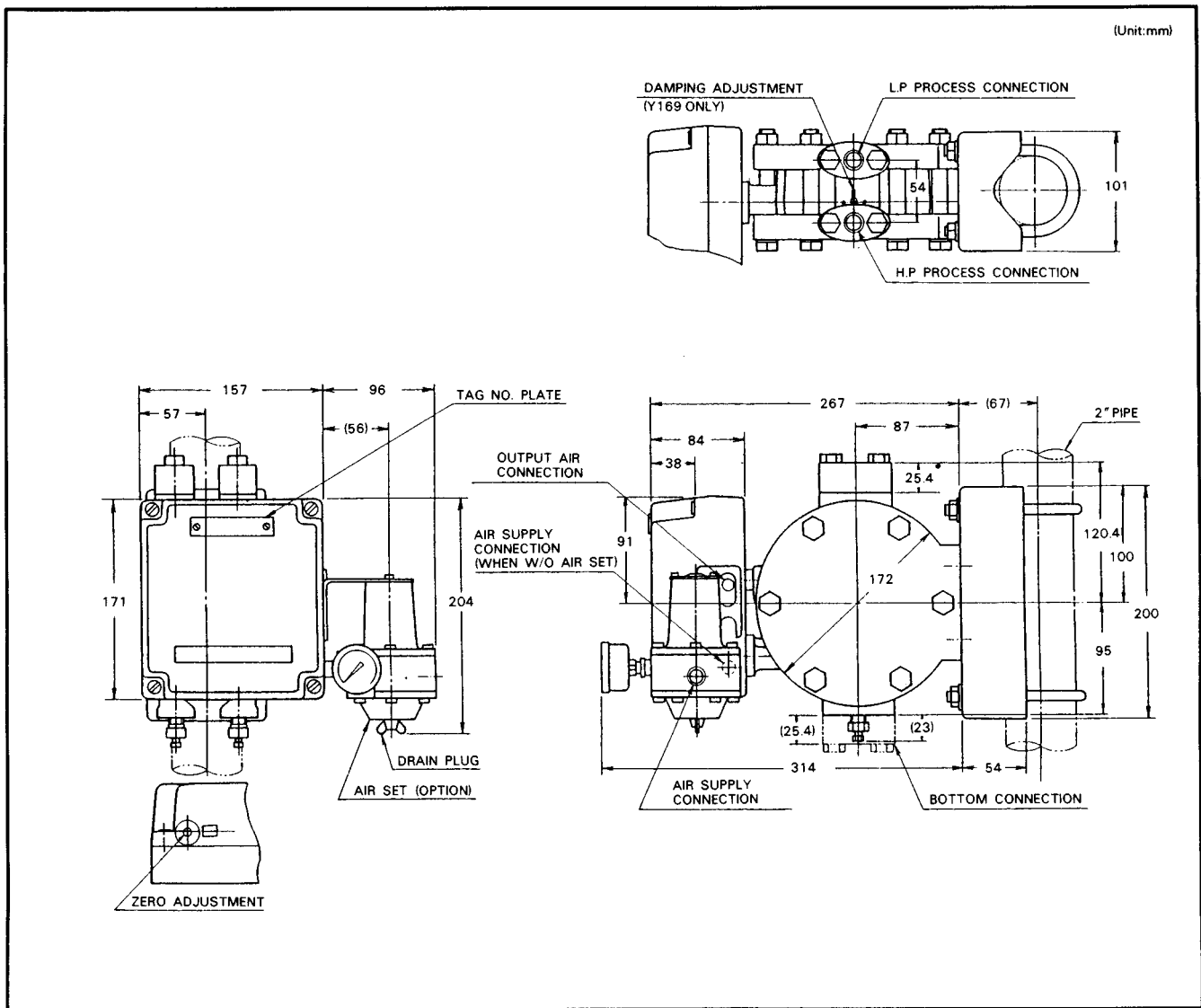


**Fig. 2 Working Pressure and Temperature of Wetted Parts for Oxygen or Chlorine Gas Measurement**



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

## Dimensions



### 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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