

PREX3000 Vector Involute Type Pneumatic Pressure Transmitters Model KKP 71 / 72 / 73 / 74 / 75 / 76 (Remote Seal Diaphragm Type)



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)	KKP 71: 0-5 to 0-70 MPa {0-50 to 0-700 kgf/cm ² } KKP 74: 0-0.175 to 0-3.5 MPa {0-1.75 to 0-35 kgf/cm ² } KKP 72: 0-1.25 to 0-25 MPa {0-12.5 to 0-250 kgf/cm ² } KKP 75: 0-0.035 to 0-686 MPa {0-0.35 to 0-7 kgf/cm ² } KKP 73: 0-0.35 to 0-7 MPa {0-3.5 to 0-70 kgf/cm ² } KKP 76: 0-0.01 to 0-0.196 MPa {0-0.1 to 0-2 kgf/cm ² }

**Working pressure,
Overload protection
(refer to Fig. 1, 6)**

(unit: MPa {kgf/cm²})

Model No.	Working pressure range (up to 120°C)	Overload protection	
		Up to 120°C	Normal temperature
KKP 71	-0.05 to 70 {-0.5 to +700}	70 {700}	
KKP 72	-0.05 to 30 {-0.5 to +300}	32 {320}	
KKP 73	-0.05 to 10.5 {-0.5 to +105}	14 {140}	
KKP 74	-0.05 to 5.25 {-0.5 to +52.5}	7 {70}	
	-0.05 to 5.1 {-0.5 to +51}	5.1 {51}	
	-0.05 to 3.82 {-0.5 to +37}	3.82 {37}	4.96 {50}
KKP 75	-0.05 to 1.05 {-0.5 to +10.5}	1.4 {14}	
KKP 76	-0.05 to 0.3 {-0.5 to +3}	0.4 {4}	

Process connection

Model No.	Con- nec- tion	Screw con.		Flange connection									
		G 1 1/2 (φ 34 button diaphragm)	2" (RF) Wafer	Flush diaphragm type				Extended diaphragm type					
				80 mm- JIS10K	80 mm- JIS30K	3"-ANSI 150	3"-ANSI 300	100 mm- JIS10K	100 mm- JIS30K	4"-ANSI 150	4"-ANSI 300		
KKP 71		○											
KKP 72		○	○										
KKP 73			○										
KKP 74			○		○		○			○			○
KKP 75				○		○		○	○		○	○	
KKP 76				○		○		○	○		○	○	

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, Dead band


Model No.	KKP 71		KKP 72		KKP 73		KKP 74		KKP 75		KKP 76	
Span (MPa {kgf/cm ² })	5 (50) to less than 10 (100)	10 (100) or over	1.25 (12.5) to less than 2.5 (25)	2.5 (25) or over	0.35 (3.5) to less than 0.7 (7)	0.7 (7) or over	0.175 (1.75) to less than 0.35(3.5)	0.35 (3.5) or over	0.035 (0.35) to less than 0.07(0.7)	0.07 (0.7) or over	0.01 (0.1) to less than 0.02(0.2)	0.02 (0.2) or over
Accuracy (%FS)	±1	±0.5	±1	±0.5	±1	±0.5	±1	±0.5	±1	±0.5	±1	±0.5
Dead band (%FS)	0.1		0.1		0.1		0.1		0.1		0.1	

Item	Specifications
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
Construction	Dustproof and waterproof, meets IEC IP54, NEMA Type 3R, JIS F8001 Class 3 splashproof, JIS C0920 rainproof
Materials	Flange: Carbon steel (SF45A), SUS304 Wetted parts: SUS316 (diaphragm: SUS316L), SUS316L, Monel, Tantalum 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.)
Net weight	Approx. 12.5 kg with 80 mm-JIS10K flange (add 0.8 kg for air-set).

Optional Specifications

Item	Specifications																																														
(1) Suppression and elevation	(unit: MPa {kgf/cm ² })																																														
	<table border="1"> <thead> <tr> <th rowspan="2">Model No.</th> <th rowspan="2">Span</th> <th rowspan="2">Sup- pression (max.)</th> <th>Spring A</th> <th>Spring B</th> <th rowspan="2">Working Pressure (max.) (up to 120°C)</th> </tr> <tr> <th>Elevation (max.)</th> <th>High Elevation</th> </tr> </thead> <tbody> <tr> <td>KKP 71</td> <td>5 to 70 {50 to 70}</td> <td rowspan="7">-0.05 {-0.5}</td> <td>65 {650}</td> <td>---</td> <td>70 {700}</td> </tr> <tr> <td>KKP 72</td> <td>1.25 to 25 {12.5 to 250}</td> <td>22.5 {225}</td> <td>22.5 to 28.75 {225 to 287.5}</td> <td>30 {300}</td> </tr> <tr> <td>KKP 73</td> <td>0.35 to 7 {3.5 to 70}</td> <td>6 {60}</td> <td>6 to 10.15 {60 to 101.5}</td> <td>10.5 {105}</td> </tr> <tr> <td rowspan="3">KKP 74</td> <td>2"-ANSI Wafer</td> <td rowspan="3">0.175 to 3.5 {1.75 to 35}</td> <td rowspan="3">3 {30}</td> <td>3 to 5.075 {30 to 50.75}</td> <td>5.25 {52.5}</td> </tr> <tr> <td>80, 100m -JIS 30K</td> <td>3 to 4.925 {30 to 49.25}</td> <td>4.51 {46.0} (Carbon steel) 4.12 {42.0} (SUS304)</td> </tr> <tr> <td>3", 4" -ANSI 300</td> <td>3 to 3.525 {30 to 35.25}</td> <td>3.82 {37}</td> </tr> <tr> <td>KKP 75</td> <td>0.035 to 0.686 {0.35 to 7}</td> <td>0.6 {6}</td> <td>0.6 to 1.015 {6 to 10.15}</td> <td>1.05 {10.5}</td> </tr> <tr> <td>KKP 76</td> <td>0.01 to 0.196 {0.1 to 2}</td> <td>0.18 {1.8}</td> <td>0.18 to 0.29 {1.8 to 2.9}</td> <td>0.3 {3}</td> </tr> </tbody> </table> <p>(note: elevation+span ≤ maximum operating pressure)</p>	Model No.	Span	Sup- pression (max.)	Spring A	Spring B	Working Pressure (max.) (up to 120°C)	Elevation (max.)	High Elevation	KKP 71	5 to 70 {50 to 70}	-0.05 {-0.5}	65 {650}	---	70 {700}	KKP 72	1.25 to 25 {12.5 to 250}	22.5 {225}	22.5 to 28.75 {225 to 287.5}	30 {300}	KKP 73	0.35 to 7 {3.5 to 70}	6 {60}	6 to 10.15 {60 to 101.5}	10.5 {105}	KKP 74	2"-ANSI Wafer	0.175 to 3.5 {1.75 to 35}	3 {30}	3 to 5.075 {30 to 50.75}	5.25 {52.5}	80, 100m -JIS 30K	3 to 4.925 {30 to 49.25}	4.51 {46.0} (Carbon steel) 4.12 {42.0} (SUS304)	3", 4" -ANSI 300	3 to 3.525 {30 to 35.25}	3.82 {37}	KKP 75	0.035 to 0.686 {0.35 to 7}	0.6 {6}	0.6 to 1.015 {6 to 10.15}	1.05 {10.5}	KKP 76	0.01 to 0.196 {0.1 to 2}	0.18 {1.8}	0.18 to 0.29 {1.8 to 2.9}	0.3 {3}
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(2) Air-set (filter and pressure regulator)	Primary pressure: 200 to 990 kPa(2 to 9.9 kgf/cm ²) Secondary pressure: 140 kPa (1.4 kgf/cm ²) Filter mesh diameter: 5 microns Connections: Rc1/4 or 1/4NPT 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)	Operating temperature: Fluid -10 to +280°C (monel, tantalum ... up to 180°C) Ambient -10 to +80°C Liquid fill: Fluorine oil (sp. gr. 1.07 at 25°C) [refer to Fig. 4, 6]
(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) 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]
(6) For chlorine gas measurement (Y183) (applicable to KKP74/75/76 type)	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]
(7) Output pressure gauge (Y185)	Pressure gauge (100 mm diameter)  OUTPUT GAUGE(φ100)
(8) High vibration resistant type (Y188)	High vibration resistant type with dashpot.

Model Number Table

Ex: KKP72-22010200A1-5, 7

Basic Model No.	Flange or Screw Mat'l	Wetted Parts Mat'l	Flange or Screw Rating	Capillary Tube Length	Length of Extended Part of Flange	Air Piping Connections	Pressure unit / Output	Options	Description	
KKP 7									Remote seal diaphragm type	
	1								0-5 to 0-70 MPa (0-50 to 0-700 kgf/cm ²)	
	2								0-1.25 to 0-25 MPa (0-12.5 to 0-250 kgf/cm ²)	
	3								0-0.35 to 0-7 MPa (0-3.5 to 0-70 kgf/cm ²)	
	4								0-0.175 to 0-3.5 MPa (0-1.75 to 0-35 kgf/cm ²)	
	5								0-0.035 to 0-0.686 MPa (0-0.35 to 0-7 kgf/cm ²)	
	6								0-0.01 to 0-0.196 MPa (0-0.1 to 0-2 kgf/cm ²)	
	-1								Carbon steel (SF 45A) [excluding button diaphragm and wafer type]	
	-2								SUS316 [excluding button diaphragm and flange type]	
	-7								SUS304 [excluding wafer type]	
	-8								SUS316L [excluding button diaphragm and flange type]	
		2								SUS316 [diaphragm: SUS316L]
		3								Monel [excluding extended diaphragm type.
		4								Tantalum button diaphragm and wafer type]
		8								SUS316L
				01						Flush diaphragm type 80 mm-JIS10K (RF) equiv. flange
				02						Flush diaphragm type 80 mm-JIS30K (RF) equiv. flange
				03						Flush diaphragm type 3"-ANSI 150 (RF) equiv. flange
				04						Flush diaphragm type 3"-ANSI 300 (RF) equiv. flange
				05						Extended diaphragm type 100 mm-JIS10K (RF) equiv. flange
				06						Extended diaphragm type 100 mm-JIS30K (RF) equiv. flange
			07						Extended diaphragm type 4"-ANSI 150 (RF) equiv. flange	
			08						Extended diaphragm type 4"-ANSI 300 (RF) equiv. flange	
			09						2"-ANSI 1500 (RF) equiv. wafer	
			11						G 1 1/2 external thread (button diaphragm type)	
				02					ℓ=2 m	
				03					ℓ=3 m	
				05					ℓ=5 m	
					00				Available for flush diaphragm, button diaphragm and wafer 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/cm ² (or mmH ₂ O) / 0.2 to 1.0 kgf/cm ²	
							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 ²)	
								-X	No option	
								-5	Elevation or High elevation	
								-6	Suppression	
								-7	Air-set	

Note)
When ordering "Y" options, please write as:
KKP72Y-22010200A1-5, 7 (Y □).

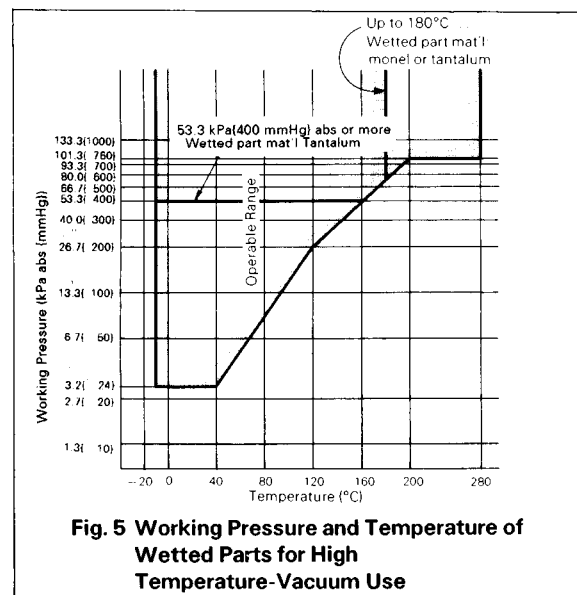
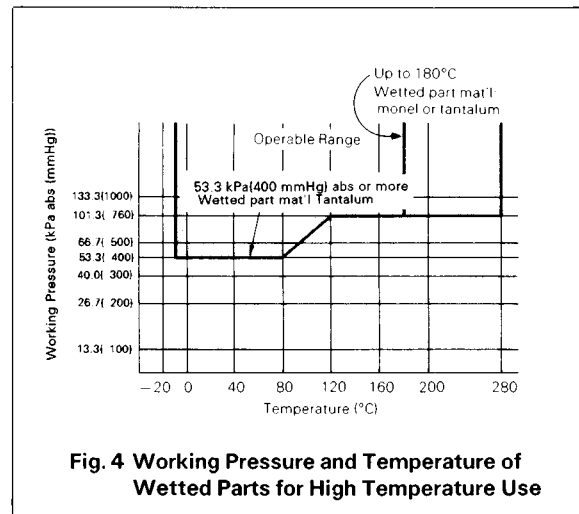
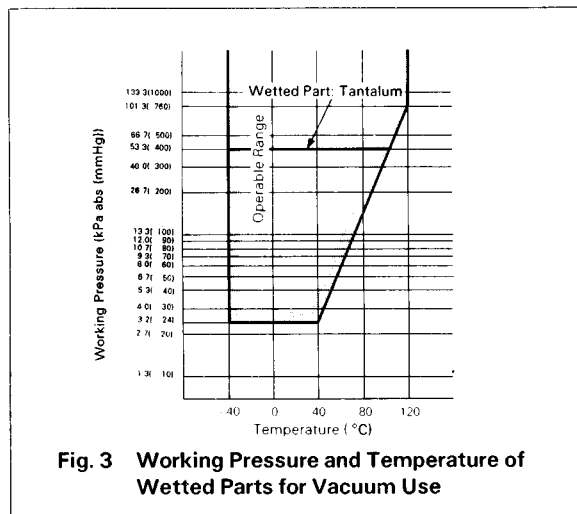
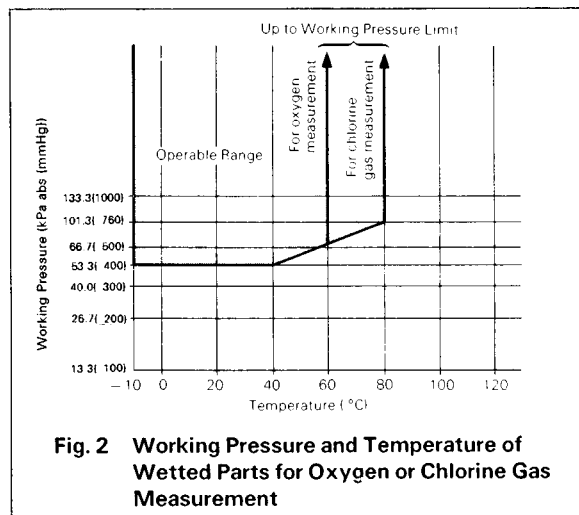
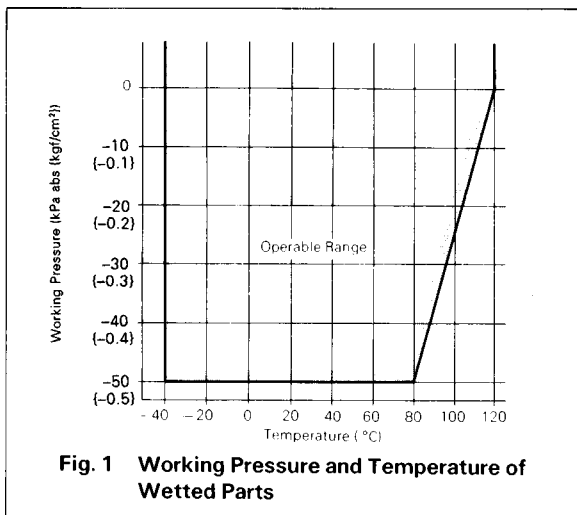
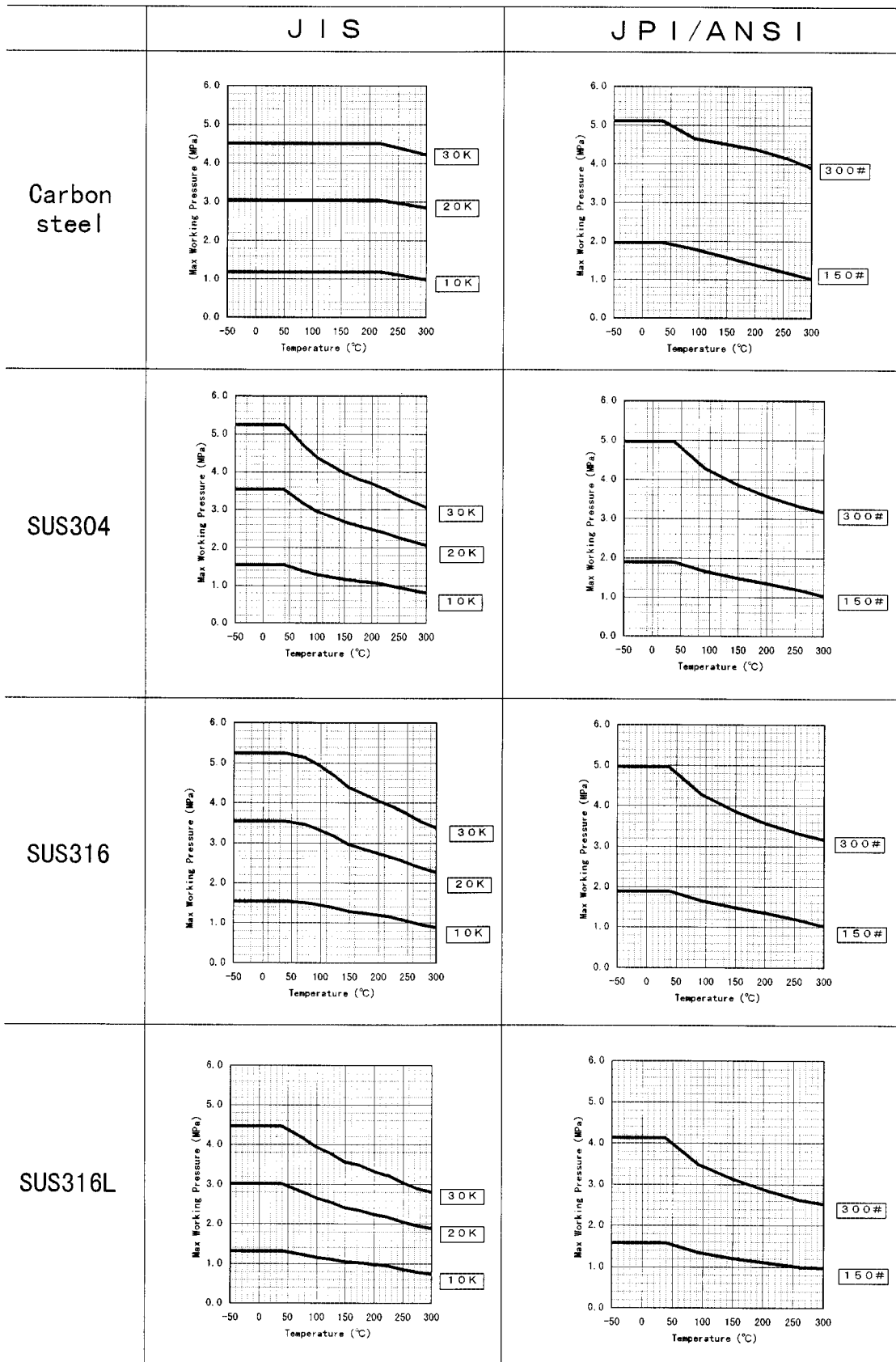


Fig6. Max Working Pressure

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 case of remote sealed type (KKP75,KFKB□□-75), Max Working Pressure depends on the smaller value of either 1.05MPa or following data.



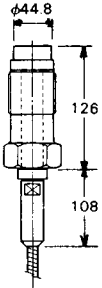
Dimensions

(Unit:mm)

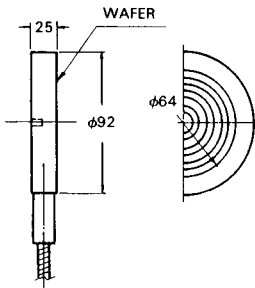
Flange Dimensions

ITEM	FLANGE RATING	D	T	C	n	h	i BOLT
01	80 mm JIS 10 K RF	185	18	150	8	19	M16
02	80 mm JIS 30 K RF	210	28	170	8	23	M20
03, 0A	3" ANSI/150 RF	191	24	152.4	4	19	5/8
04, 0B	3" JPI/300 RF	210	29	168.3	8	22	3/4
05	100 mm JIS 10 K RF	210	18	175	8	19	M16
06	100 mm JIS 30 K RF	240	32	195	8	25	M22
07, 0C	4" ANSI/150 RF	229	24	190.5	8	19	5/8
08, 0D	4" JPI/300 RF	254	32	200	8	22	3/4

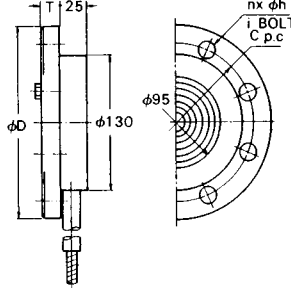
Button Diaphragm



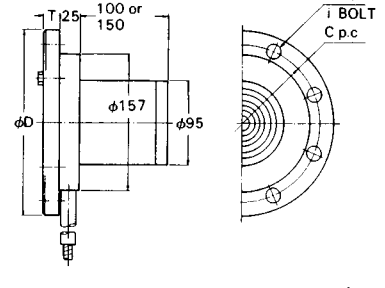
Wafer



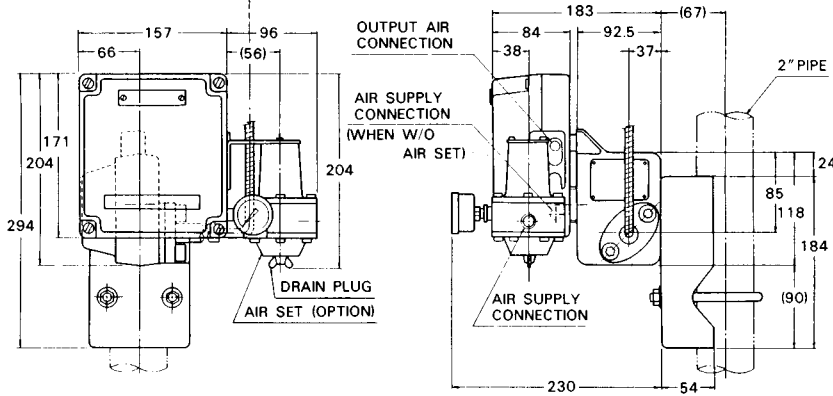
Flush Diaphragm



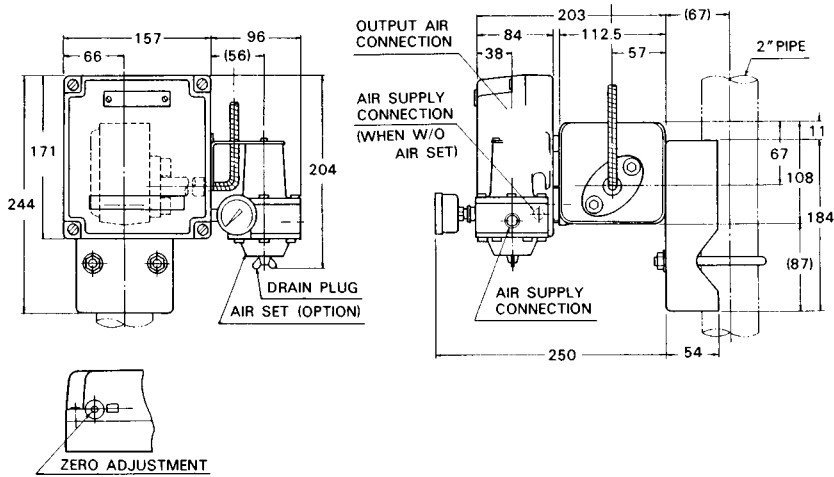
Extended Diaphragm



KKP71/72/73/74



KKP75/76



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.

YAMATAKE

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Yamatake (Thailand) Co., Ltd.	: Thailand	66-2-210-0900~7
Yamatake Philippines, Inc.	: Philippines	63-2-817-6452
PT. Yamatake Berca Indonesia	: Indonesia	62-21-230-5537/5539
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YCV Corporation	: U.S.A.	1-602-548-1800

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