Panew Company Limited

Manufacturing Capabilities and Quality Assurance

Testing Capability

Hydro Testing
Burst Testing
Spring Rate Testing
Deflection Testing
Fatigue Testing
Finite Element Analysis
Material Analysis

Manufacturing Capability

Panew Company Limited was established in 1989.

Manufacturing Floor Area :	20000 m^2
Bridge Crane Capacity :	20 ton
Max. Hook Height :	5 m
Automatic Welding of Bellows L-line :	0.1 ~ mm

Welding Qualifications : GTAW , FCAW , SMAW , PAW

Bellows Forming

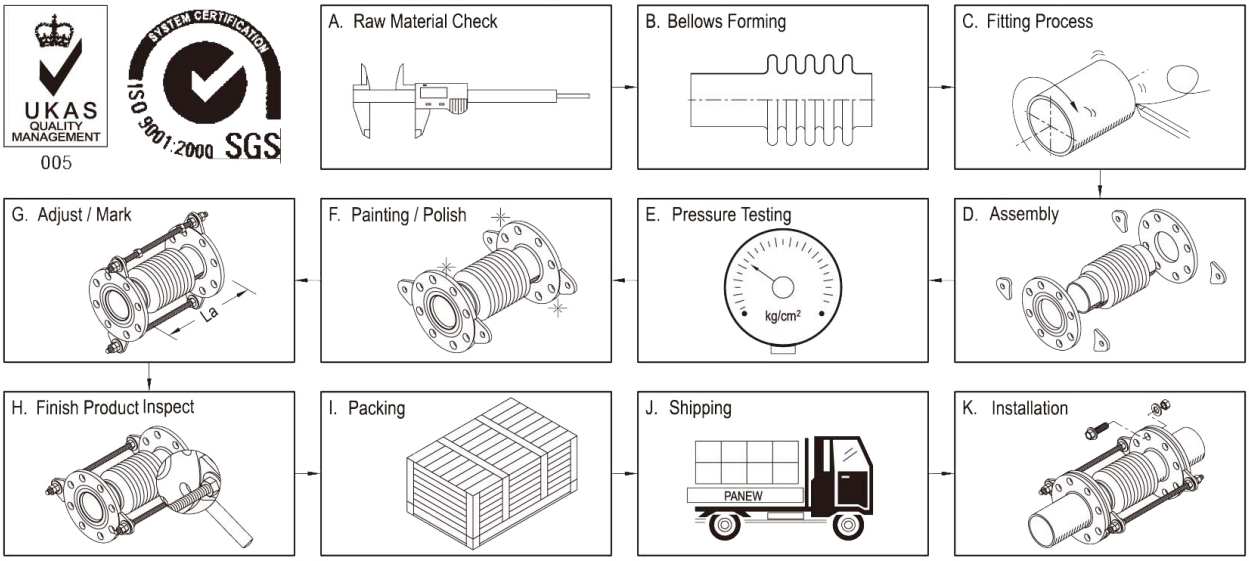
1. Elastomeric Forming :	~ Φ 12"	4. Roll Forming :	Max. Size Φ 7m
2. Expanding Mandrel Forming :	Φ 5" ~ Φ 16"	5. Disc-Welded Forming	
3. Hydraulic Forming :	Φ 1" ~ Φ 3m	6. Press-Brake Forming :	U-shape, V-shpae and □ -shape

Quality Assurance

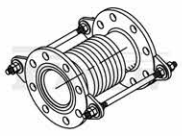
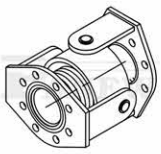
Panew's Quality Assurance system has been certified to ISO 9001 and each product must be passed 100% pressure test before delivery.

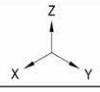
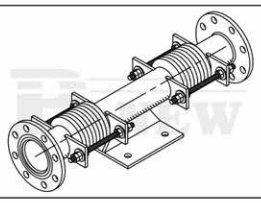
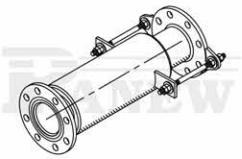
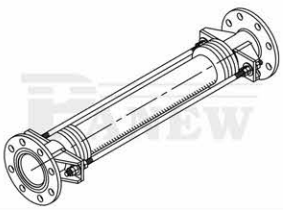
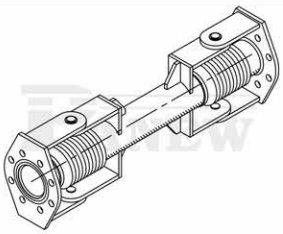
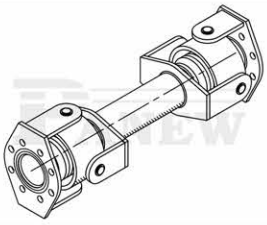
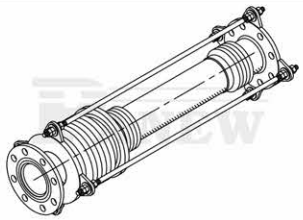
UKAS QUALITY MANAGEMENT 005

SYSTEM CERTIFICATION ISO 9001:2000 SGS



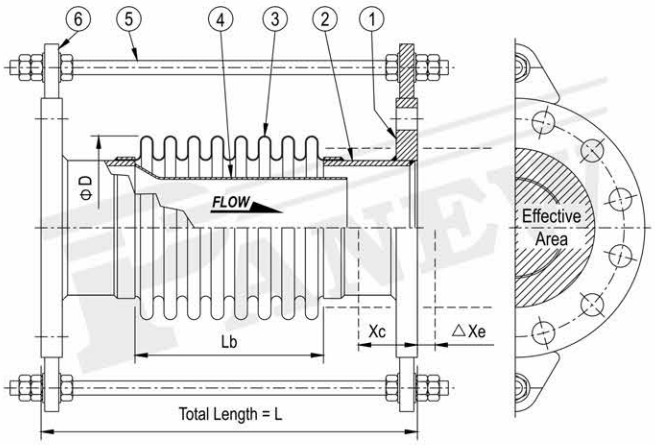
FUNCTION COMPARISON FOR PRODUCTS MODELS

Model No. Figure	☐ P-3000 	☐ P-5600 	☐ P-5700 
△X (mm)	25 ~ 65	---	---
△Y (mm)	---	---	---
△Z (mm)	---	---	---
△Θ (deg.)	---	10 ~ 20	10 ~ 20
Pressure Thrust Force Applied.	■ Yes. Pressure Thrust Force applied. ※ Main Anchor Required	☐ No Pressure Thrust Force applied. ※ Intermediate Anchor Required	☐ No Pressure Thrust Force applied. ※ Intermediate Anchor Required

Product Model No. / Figure 	△X (mm)	△Y (mm)	△Z (mm)	△Θ (deg.)	Config.	Pressure Thrust Force Applied
☐ P-3600 	70 ~ 130	---	---	---	Horizontal	■ Yes ※ Main Anchor Required
☐ P-3800 	55 ~ 130	---	---	---	Vertical Horizontal	■ Yes ※ Main Anchor Required
☐ P-5000 	5 ~ 10	☐ 50 STD. ☐ 150 Max.	50 ~ 150	---	Vertical Horizontal	☐ No
☐ P-5640 	---	200	---	10 ~ 20	Vertical Horizontal	☐ No
☐ P-5800 	---	200	---	10 ~ 20	Vertical Horizontal	☐ No
☐ P-8300 	~ 100	~ 150	~ 150	~ 5	Vertical Horizontal	☐ No

P-3000

AXIAL / SINGLE EXPANSION JOINT



※ Construction

Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	End Pipe	SGP/SS-400	SUS-304/316
3.	Bellows	SUS-304	SUS-316
4.	Sleeve	SUS-304	SUS-316
5.	Shipping Rod	SS-400	SUS-304
6.	Lug	SS-400	SUS-304

Flange Standard : JIS-10K
Other standard flanges are available , like ANSI, DIN, BS ⋯etc.

Our products are designed and manufactured according to EJMA. The Max. life cycles of our products exceed 1000 cycles.

□ P-3000 Specification

N.D.		Total Length (L)		Bellows Specification				Axial Movement		working pressure	Weight/pc (JIS-10K)
				Eff. Length	O.D.	Eff. Area	Spring Rate	Extension	Compression		
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	cm^2	kg/mm	△ Xe(mm)	△ Xc(mm)	kg/cm^2	kg/pc
32	1-1/4	200	8	88	59.2	20.3	10.0	5	25	10	4.8
40	1-1/2	250	10	96	65.7	25.8	10.3	5	30	10	5.2
50	2	300	12	120	81.2	39.3	12.7	5	35	10	6.5
65	2-1/2	300	12	120	97.2	59.0	15.6	5	35	10	8.7
80	3	300	12	120	113.7	80.4	13.2	10	40	10	9.1
100	4	300	12	132	139.7	127.1	15.0	10	40	10	11.0
125	5	300	12	144	165.7	184.3	16.4	10	45	10	14.9
150	6	350	14	165	196.7	257.6	18.9	10	50	10	20.9
200	8	350	14	180	247.7	423.1	22.0	10	50	10	27.3
250	10	400	16	200	305.7	646.5	39.5	10	55	10	39.1
300	12	400	16	200	355.5	890.4	46.4	10	55	10	44.4
350	14	400	16	200	399.0	1123.4	43.3	10	60	10	59.4
400	16	400	16	200	458.7	1470.5	61.8	10	60	10	84.2
450	18	400	16	210	500.0	1727.6	45.3	10	70	10	98.1
500	20	400	16	210	551.0	2123.7	49.9	10	70	10	111.7
550	22	400	16	210	602.0	2558.9	93.4	10	65	10	136.0
600	24	400	16	210	653.0	3036.6	101.9	10	65	10	144.3
650	26	500	20	280	724.0	3658.4	92.2	10	80	10	177.4
700	28	500	20	280	775.0	4225.6	99.3	10	80	10	196.8
750	30	500	20	280	825.0	4821.3	107.3	10	80	10	230.5
800	32	500	20	280	876.0	5469.4	114.4	10	80	10	241.7
850	34	500	20	280	926.0	6144.5	121.3	10	80	10	254.7
900	36	500	20	280	970.0	6771.0	127.4	10	80	10	302.7
950	38	500	20	280	1020.0	7497.0	134.2	10	80	10	325.6
1000	40	500	20	280	1070.0	8308.0	141.3	10	80	10	354.5
1050	42	500	20	250	1140.0	9305.7	108.6	10	80	10	400.1
1100	44	500	20	250	1192.0	10216.0	113.8	10	80	10	416.8
1150	46	500	20	250	1242.0	11131.4	118.8	10	80	10	458.9
1200	48	500	20	250	1293.0	12105.5	123.9	10	80	10	492.6
1250	50	500	20	250	1344.0	13090.0	129.0	10	80	10	516.0
1300	52	500	20	250	1394.0	14155.3	134.0	10	80	10	541.0
1350	54	500	20	250	1445.0	15251.2	139.1	10	80	10	606.0

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

The unit weight of the products tabulated above are based on JIS-10K flanges. If you need more information, please feel free to contact us any time.

P-3200

AXIAL / SINGLE EXPANSION JOINT

☐ P-3200 Specification

N.D.		Total Length (L)		Bellows Specification				Axial Movement		working pressure	Weight/pc (JIS-16K)
				Eff. Length	O.D.	Eff. Area	Spring Rate	Extension	Compression		
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	cm^2	kg/mm	Δ Xe(mm)	Δ Xc(mm)	kg/cm^2	kg/pc
32	1-1/4	200	8	88	59.2	20.0	19.7	5	30	16	4.9
40	1-1/2	250	10	96	65.7	25.4	20.3	5	30	16	5.4
50	2	300	12	120	81.4	38.7	25.0	5	35	16	6.5
65	2-1/2	300	12	120	97.2	58.4	30.8	5	35	16	8.8
80	3	300	12	120	113.7	79.6	26.0	10	40	16	11.3
100	4	300	12	132	139.7	126.1	29.6	10	45	16	14.6
125	5	300	12	144	165.7	183.1	32.6	10	45	16	19.9
150	6	350	14	165	196.7	255.9	37.5	10	50	16	27.6
200	8	350	14	180	247.7	420.9	43.8	10	55	16	37.6
250	10	400	16	200	305.7	643.6	57.0	10	60	16	55.7
300	12	400	16	200	355.5	887.1	66.2	10	60	16	68.1
350	14	400	16	200	399.0	1119.7	61.8	10	65	16	90.7
400	16	400	16	200	458.7	1464.9	93.6	10	65	16	135.3
450	18	400	16	210	500.0	1720.2	90.1	10	70	16	164.7
500	20	400	16	210	551.0	2115.6	99.3	10	70	16	192.2
550	22	400	16	210	602.0	2551.8	109.1	10	70	16	223.1
600	24	400	16	210	653.0	3028.8	119.0	10	70	16	244.4

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

The unit weight of the products tabulated above are based on JIS-16K flanges. If you need more information, please feel free to contact us any time.

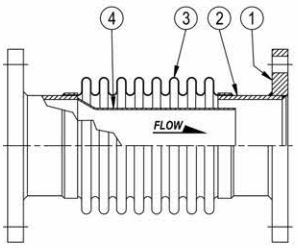
☐ Profile specifications of other types

※ Construction

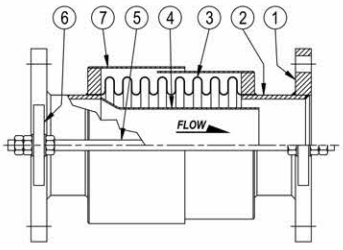
Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	End Pipe	SGP/SS-400	SUS-304/316
3.	Bellows	SUS-304	SUS-316
4.	Sleeve	SUS-304	SUS-316
5.	Shipping Rod	SS-400	SUS-304
6.	Lug	SS-400	SUS-304
7.	Cover	SS-400	SUS-304

Model No. Instruction :

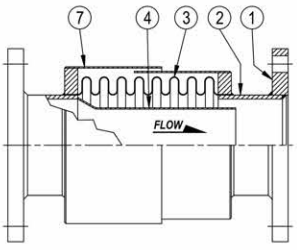
P - 3 X X X
- X X X: 0. Flange C.S. Material / 5. Flange S.S. Material
- X X: as figures below
- 3: 0 : 10 kg/cm^2 / 2 : 16 kg/cm^2
- P: Axial Expansion Joint
- Panew Company



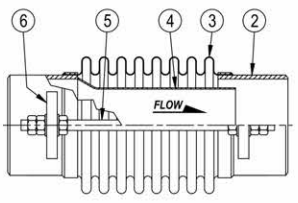
☐ P-3010 ☐ P-3210



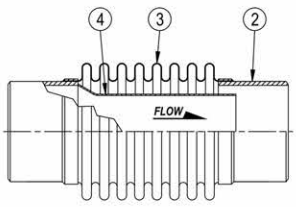
☐ P-3020 ☐ P-3220



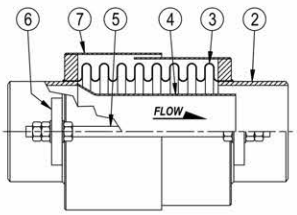
☐ P-3030 ☐ P-3230



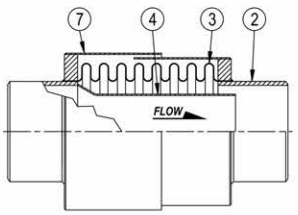
☐ P-3050 ☐ P-3250



☐ P-3060 ☐ P-3260



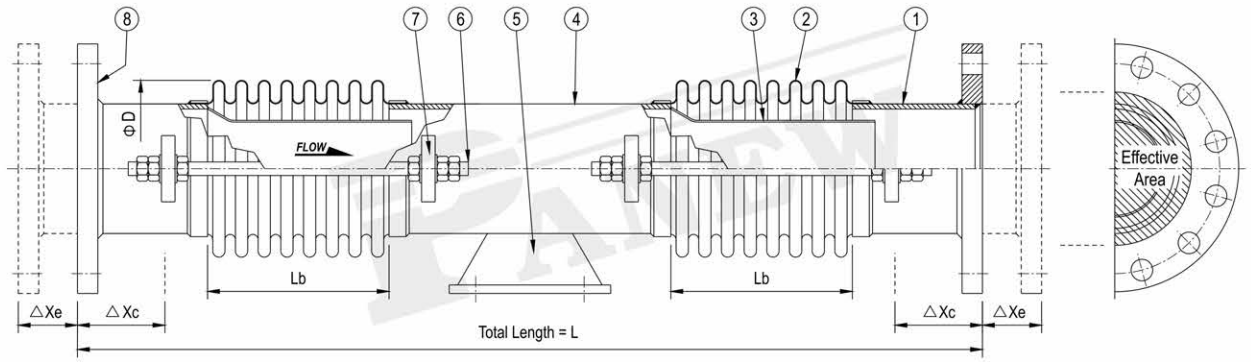
☐ P-3070 ☐ P-3270



☐ P-3080 ☐ P-3280

P-3600

DUAL TYPE EXPANSION JOINT



※ Main. Construction

Item	Parts	Std. Material	Option Material
1.	End Pipe	SGP/SS-400	SUS-304/316
2.	Bellows	SUS-304	SUS-316
3.	Sleeve	SUS-304	SUS-316
4.	Mid. Pipe	SGP/SS-400	SUS-304/316
5.	Anchor Base	SS-400	SUS-304

Other special materials are available.

※ Optional Fittings

Item	Parts	Std. Material	Option Material
6.	Shipping Rod	SS-400	SUS-304
7.	Lug	SS-400	SUS-304
8.	Flange	SS-400	SUS-304/316

Our products are designed and manufactured according to EJMA. The Max. life cycles of our products exceed 1000 cycles.

☐ P-3600 Specification

N.D.		Total Length (L)		Bellows Specification				Axial Movement		working pressure	Weight/pc (JIS-10K)
				Eff. Length	O.D.	Eff. Area	Spring Rate	Extension	Compression		
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	cm^2	kg/mm	△ Xe(mm)	△ Xc(mm)	kg/cm^2	kg/pc
50	2	600	24	120	81.2	39.3	12.7	5	35	10	8.1
65	2-1/2	600	24	120	97.2	59.0	15.6	5	35	10	11.0
80	3	650	26	120	113.7	80.4	13.2	10	40	10	12.5
100	4	650	26	132	139.7	127.1	15.0	10	40	10	15.8
125	5	750	30	144	165.7	184.3	16.4	10	45	10	21.1
150	6	850	34	165	196.7	257.6	18.9	10	50	10	39.3
200	8	850	34	180	247.7	423.1	22.0	10	50	10	45.3
250	10	1000	40	220	305.7	646.5	39.5	10	55	10	72.2
300	12	1000	40	220	355.5	890.4	46.4	10	55	10	86.0
350	14	1000	40	200	399.0	1123.4	43.3	10	60	10	110.4
400	16	1000	40	200	458.7	1470.5	61.8	10	60	10	142.1

☐ P-3620 Specification

N.D.		Total Length (L)		Bellows Specification				Axial Movement		working pressure	Weight/pc (JIS-16K)
				Eff. Length	O.D.	Eff. Area	Spring Rate	Extension	Compression		
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	cm^2	kg/mm	△ Xe(mm)	△ Xc(mm)	kg/cm^2	kg/pc
50	2	600	24	120	81.2	38.7	25.0	5	35	20	8.5
65	2-1/2	600	24	120	97.2	58.4	30.8	5	35	20	12.3
80	3	650	26	120	113.7	79.6	26.0	10	40	20	16.5
100	4	650	26	132	139.7	126.1	29.6	10	45	20	21.8
125	5	750	30	144	165.7	183.1	32.6	10	45	20	32.9
150	6	850	34	165	196.7	255.9	37.5	10	50	20	46.1
200	8	850	34	180	247.7	420.9	43.8	10	55	20	63.8
250	10	1000	40	220	305.7	643.6	57.0	10	60	20	103.7
300	12	1000	40	220	355.5	887.1	66.2	10	60	16	130.4
350	14	1000	40	200	399.0	1119.7	61.8	10	65	16	169.4
400	16	1000	40	200	458.7	1464.9	93.6	10	65	16	222.9

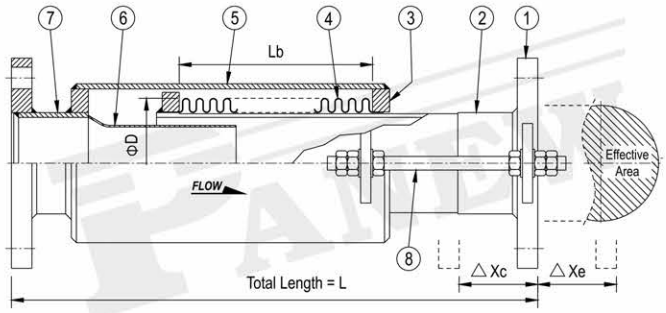
The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

The unit weight of the products tabulated above are based on JIS flanges. If you need more information, please feel free to contact us any time.

P-3800

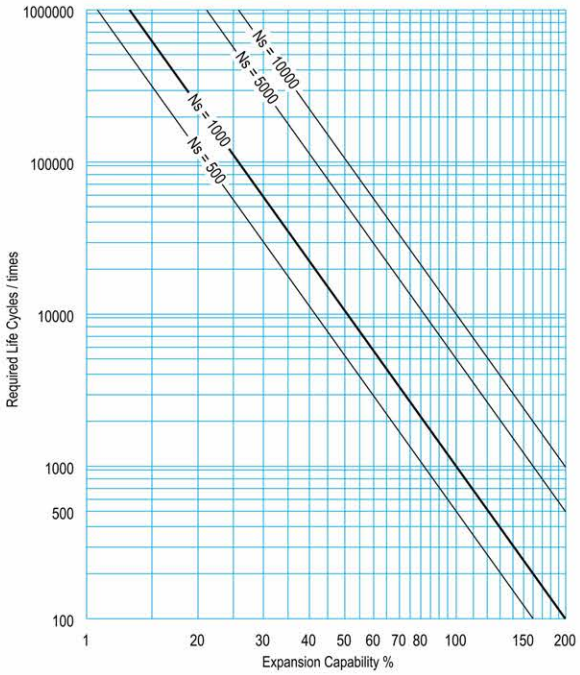
EXTERIOR PRESSURIZED EXPANSION JOINT



Expansion Capability % :

$$Ec = Nf = 3.4\sqrt{\frac{Ns}{Nr}}$$

Ec : Expansion Capability %
Nf : Life Factor
Nr : Required Life Cycles
Ns : Nominal Life Cycles



※ Construction

Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	Sleeve Pipe	STPG/SS-400	SUS-304/316
3.	Ring Plate	SS-400	SUS-304/316
4.	Bellows	SUS-304	SUS-316
5.	Cover Pipe	STPG/SS-400	SUS-304/316
6.	Sleeve	SUS-304	SUS-316
7.	End Pipe	STPG/SS-400	SUS-304/316
8.	Shipping Rod	SS-400	SUS-304

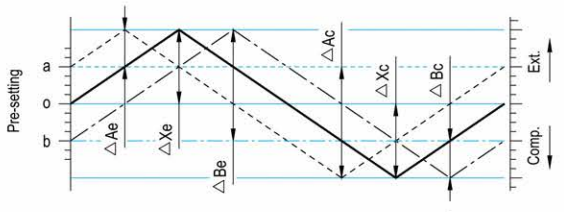
Flange Standard : JIS-10K
Other standard flanges are available, like ANSI , DIN , BS ...etc.

Our products are designed and manufactured according to EJMA. The Max. life cycles of our products exceed 1000 cycles with the max. movement.

The axial movements tabulated below are based on the free length of the product, you can also pre-exten or pre-compress the total length to get a proper axial movement absorbtion.

nomenclature :

a : pre-ext. movement
Ae : allowable extension
Ac : allowable compression
b : pre-comp. movement
Be : allowable extension
Bc : allowable compression



☐ P-3800 Specification

N.D.		Total Length (L)		Bellows Specification				Axial Movement		working pressure	Weight/pc (JIS-10K)
				Eff. Length	O.D.	Eff. Area	Spring Rate	Extension	Compression		
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	cm^2	kg/mm	△ Xe(mm)	△ Xc(mm)	kg/cm^2	kg/pc
32	1-1/4	600	24	248	59.2	20.3	3.6	55	55	20	10.3
40	1-1/2	600	24	272	65.7	25.8	3.6	60	60	20	11.0
50	2	600	24	260	81.2	39.3	5.9	60	60	20	14.4
65	2-1/2	700	28	340	97.2	59.0	5.5	75	75	20	21.0
80	3	700	28	312	113.7	80.4	5.1	80	80	10	21.5
100	4	700	28	312	139.7	127.1	6.3	80	80	10	27.5
125	5	700	28	312	165.7	184.3	7.6	80	80	10	31.8
150	6	900	36	375	196.7	257.6	8.3	100	100	10	52.5
200	8	900	36	405	247.7	423.1	9.8	100	100	10	75.3
250	10	900	36	420	305.7	646.5	15.7	100	100	10	120.9
300	12	900	36	420	355.5	890.4	18.4	100	100	10	141.5
350	14	1000	40	460	399.0	1123.4	18.8	110	110	10	166.8
400	16	1100	44	475	458.7	1470.5	26.0	120	120	10	199.7
450	18	1100	44	420	500.0	1727.6	22.9	130	130	10	258.4
500	20	1100	44	420	551.0	2123.7	25.4	130	130	10	295.8
550	22	1200	48	510	602.0	2558.9	38.9	130	130	10	355.4
600	24	1200	48	510	653.0	3036.6	42.5	130	130	10	383.3

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

The unit weight of the products tabulated above are based on JIS-10K flanges. If you need more information, please feel free to contact us any time.

P-3820

EXTERIOR PRESSURIZED EXPANSION JOINT

☐ P-3820 Specification

N.D.		Total Length (L)		Bellows Specification				Axial Movement		working pressure	Weight/pc (JIS-16K)
				Eff. Length	O.D.	Eff. Area	Spring Rate	Extension	Compression		
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	cm^2	kg/mm	Δ Xe(mm)	Δ Xc(mm)	kg/cm^2	kg/pc
32	1-1/4	600	24	248	59.2	20	7.1	55	55	40	10.7
40	1-1/2	600	24	272	65.7	25.4	7.3	60	60	40	11.6
50	2	600	24	260	81.4	38.7	11.7	60	60	40	14.8
65	2-1/2	700	28	340	97.2	58.4	11.0	75	75	40	22.8
80	3	700	28	312	113.7	79.6	10.1	80	80	20	25.6
100	4	700	28	312	139.7	126.1	12.6	80	80	20	31.5
125	5	700	28	312	165.7	183.1	15.1	80	80	20	36.9
150	6	900	36	375	196.7	255.9	16.6	100	100	20	65.8
200	8	900	36	405	247.7	420.9	19.6	100	100	20	95.0
250	10	900	36	400	305.7	643.6	23.8	100	100	20	149.0
300	12	900	36	400	355.5	887.1	28.0	100	100	16	180.2
350	14	1000	40	400	399.0	1119.7	29.4	110	110	16	219.5
400	16	1100	44	450	458.7	1464.9	41.8	120	120	16	283.6
450	18	1100	44	420	500.0	1720.2	45.8	130	130	16	365.1
500	20	1100	44	420	551.0	2115.6	51.2	130	130	16	421.0
550	22	1200	48	420	602.0	2551.8	55.3	130	130	16	484.4
600	24	1200	48	420	653.0	3028.8	60.4	130	130	16	529.5

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

The unit weight of the products tabulated above are based on JIS-16K flanges. If you need more information, please feel free to contact us any time.

☐ Profile specifications of other types

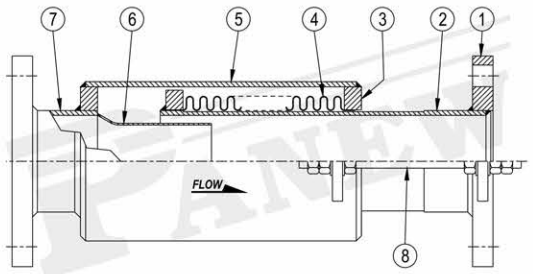
※ Construction

Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	Sleeve Pipe	STPG/SS-400	SUS-304/316
3.	Ring Plate	SS-400	SUS-304/316
4.	Bellows	SUS-304	SUS-316
5.	Cover Pipe	STPG/SS-400	SUS-304/316
6.	Sleeve	SUS-304	SUS-316
7.	End Pipe	STPG/SS-400	SUS-304/316
8.	Rods	SS-400	SUS-304/316

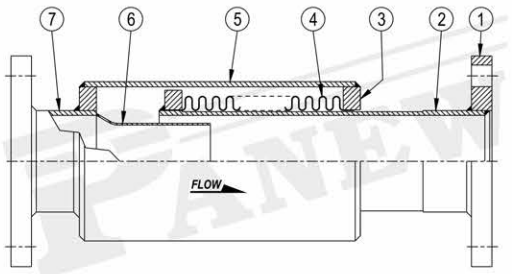
Model No. Instruction :

P - 3 8 X X

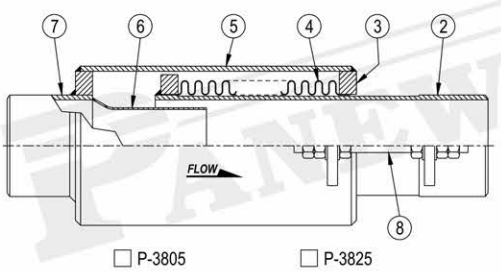
- P: Panew Company
- 38: Exterior Pressurized Exp. Joint
- X: 0 : 10 kg/cm^2 / 1 ply; 2 : 16 kg/cm^2 / 2 ply
- X:
  0. Flanged Ends with Shipping Rods
  1. Flanged Ends without Rods
  2. Flanged Ends with Tie Rods
  5. Welded Ends with Shipping Rods
  6. Welded Ends without Rods
  7. Welded Ends with Tie Rods



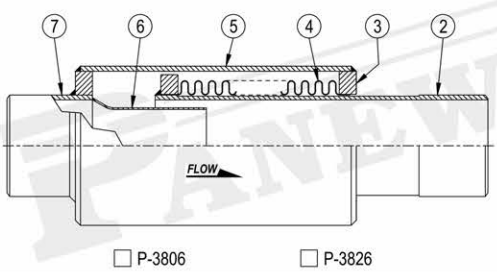
☐ P-3800 ☐ P-3820



☐ P-3801 ☐ P-3821



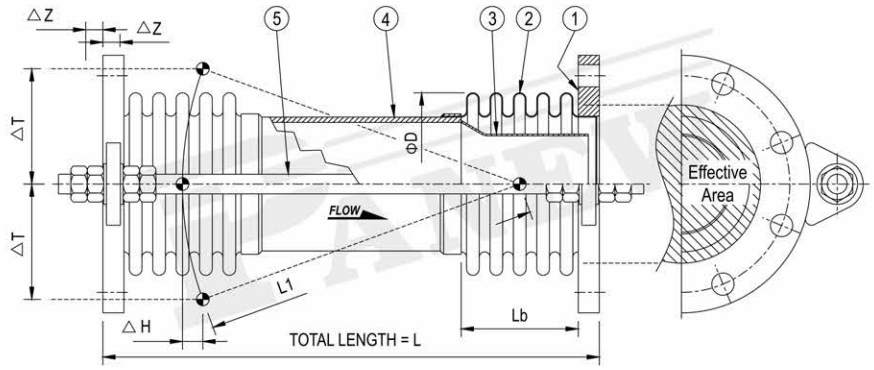
☐ P-3805 ☐ P-3825

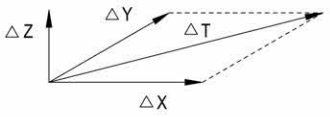


☐ P-3806 ☐ P-3826

P-5000

UNIVERSAL TYPE EXPANSION JOINT





Lateral deflection for three plane "Z" bend

$$\triangle T = \sqrt{\triangle X^2 + \triangle Y^2}$$

Arch height

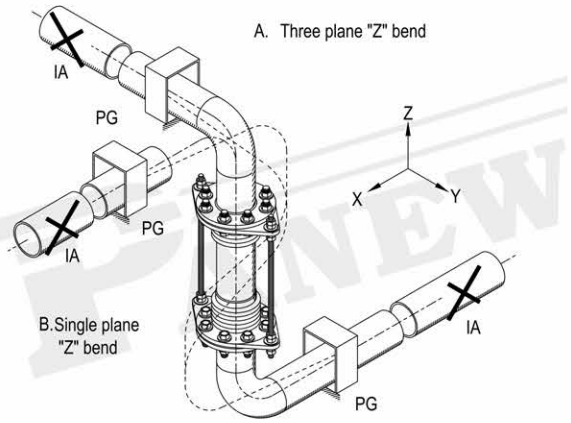
$$\triangle H = L1 - \sqrt{L1^2 - \triangle T^2}$$

※ Construction

Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	Bellows	SUS-304	SUS-316
3.	Sleeve	SUS-304	SUS-316
4.	Mid. Pipe	SGP/SS-400	SUS-304/316
5.	Tie Rod	SS-400	SUS-304

Flange Standard : JIS-10K
Other standard flanges are available, like ANSI , DIN , BS ...etc.

Our products are designed and manufactured according to EJMA. The Max. life cycles of our products exceed 1000 cycles.



□ P-5000 Specification

N.D.		Total Length (L)		Bellows Specification				Axial Movement		working pressure	Weight/pc (JIS-10K)
				Eff. Length	O.D.	Eff. Area	Spring Rate	Axial	Lateral		
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	cm^2	kg/mm	△Z(mm)	△T(mm)	kg/cm^2	kg/pc
40	1-1/2	500	20	32	65.7	25.8	0.1	± 5	± 50	10	6.5
50	2	500	20	40	81.2	39.3	0.3	± 5	± 50	10	7.8
65	2-1/2	500	20	40	97.2	59.0	0.5	± 5	± 50	10	10.1
80	3	500	20	48	113.7	80.4	0.5	± 5	± 50	10	10.7
100	4	500	20	48	139.7	127.1	1.0	± 5	± 50	10	13.5
125	5	600	24	60	165.7	184.3	0.9	± 5	± 50	10	21.3
150	6	600	24	75	196.7	257.6	1.5	± 5	± 50	10	26.6
200	8	700	28	75	247.7	423.1	2.1	± 5	± 50	10	40.4
250	10	700	28	100	305.7	646.5	5.9	± 5	± 50	10	57.3
300	12	1100	44	100	355.5	890.4	9.2	± 5	± 50	10	107.7
350	14	1200	48	100	399.0	1123.4	7.8	± 5	± 50	10	134.7
400	16	1200	48	125	458.7	1470.5	11.5	± 5	± 50	10	179.0
450	18	1300	52	120	500.0	1727.6	8.0	± 5	± 50	10	206.8
500	20	1300	52	120	551.0	2123.7	12.1	± 5	± 50	10	252.7
550	22	1400	56	120	602.0	2558.9	20.9	± 5	± 50	10	312.5
600	24	1400	56	120	653.0	3036.6	30.0	± 5	± 50	10	349.0

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

The unit weight of the products tabulated above are based on JIS-10K flanges. If you need more information, please feel free to contact us any time.

P-5200

UNIVERSAL TYPE EXPANSION JOINT

☐ P-5200 Specification

N.D.		Total Length (L)		Bellows Specification				Axial Movement		working pressure	Weight/pc (JIS-16K)
				Eff. Length	O.D.	Eff. Area	Spring Rate	Axial	Lateral		
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	cm^2	kg/mm	ΔZ(mm)	ΔT(mm)	kg/cm^2	kg/pc
40	1-1/2	500	20	32	65.7	25.4	0.3	±5	±50	16	6.7
50	2	500	20	40	81.2	38.7	0.5	±5	±50	16	7.7
65	2-1/2	500	20	40	97.2	58.4	1.0	±5	±50	16	11.0
80	3	500	20	48	113.7	79.6	1.0	±5	±50	16	13.9
100	4	500	20	48	139.7	126.1	2.0	±5	±50	16	19.7
125	5	600	24	60	165.7	183.1	1.9	±5	±50	16	28.5
150	6	600	24	75	196.7	255.9	3.0	±5	±50	16	39.2
200	8	700	28	75	247.7	420.9	4.3	±5	±50	16	59.4
250	10	700	28	100	305.7	643.6	8.7	±5	±50	16	85.1
300	12	1100	44	100	355.5	887.1	13.1	±5	±50	16	178.2
350	14	1200	48	100	399.0	1119.7	10.1	±5	±50	16	220.5
400	16	1200	48	125	458.7	1464.9	20.3	±5	±50	16	267.8
450	18	1300	52	120	500.0	1720.2	21.1	±5	±50	16	319.7
500	20	1300	52	120	551.0	2115.6	32.4	±5	±50	16	389.2
550	22	1400	56	120	602.0	2551.8	35.6	±5	±50	16	458.0
600	24	1400	56	120	653.0	3028.8	49.2	±5	±50	16	501.3

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

The unit weight of the products tabulated above are based on JIS-16K flanges. If you need more information, please feel free to contact us any time.

☐ Profile specifications of other types

※ Construction

Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	End Pipe	SGP/SS-400	SUS-304/316
3.	Bellows	SUS-304	SUS-316
4.	Sleeve	SUS-304	SUS-316
5.	Mid. Pipe	SGP/SS-400	SUS-304/316
6.	Tie Rod	SS-400	SUS-304
7.	Cover	SS-400	SUS-304

Model No. Instruction :

P - 5 0 X X

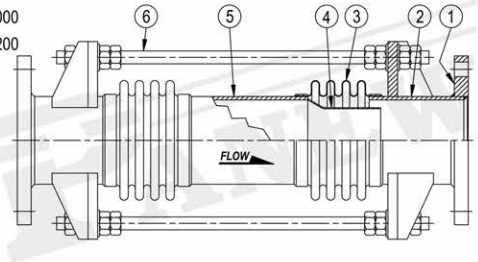
5 2

- 5 2 → Universal Type Exp. Joint /10 kg/cm^2
- 5 0 → Universal Type Exp. Joint /16 kg/cm^2
- P → Panew Company

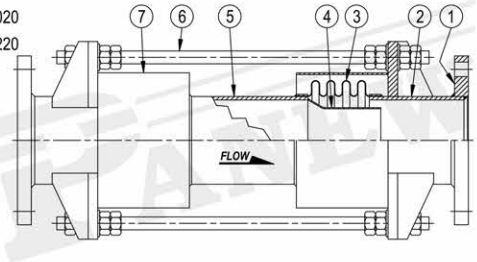
Ends material :
0. SS-400/A-105 1. A-105 2. SB-410 4. other C.S.
5. SUS-304/304L 6. SUS-316/316L 9. other S.S.

Construction Profile :
0. Flanged Ends / Rods + Sleeve
1. Flanged Ends / Sleeve
2. Flanged Ends / Rods + Sleeve + Cover
4. Flanged Ends / Special Design
5. Welded Ends / Rods + Sleeve
6. Welded Ends / Sleeve
7. Welded Ends / Rods + Sleeve + Cover
9. Welded Ends / Special Design

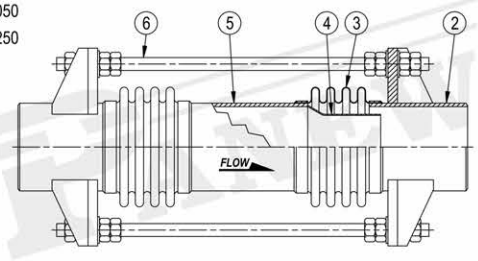
☐ P-5000
☐ P-5200



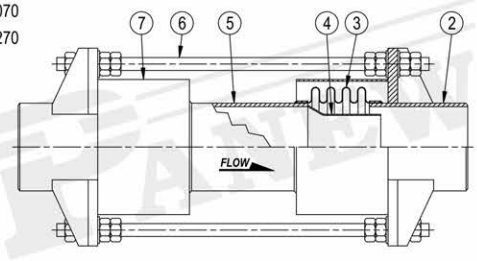
☐ P-5020
☐ P-5220



☐ P-5050
☐ P-5250

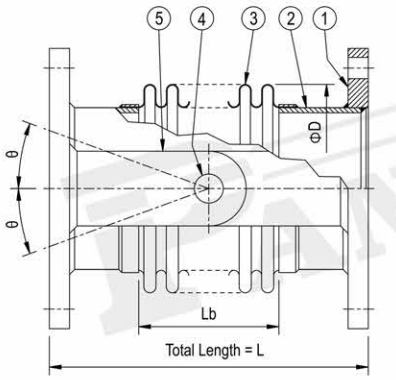


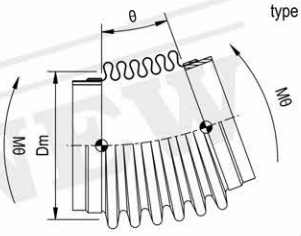
☐ P-5070
☐ P-5270



P-5600

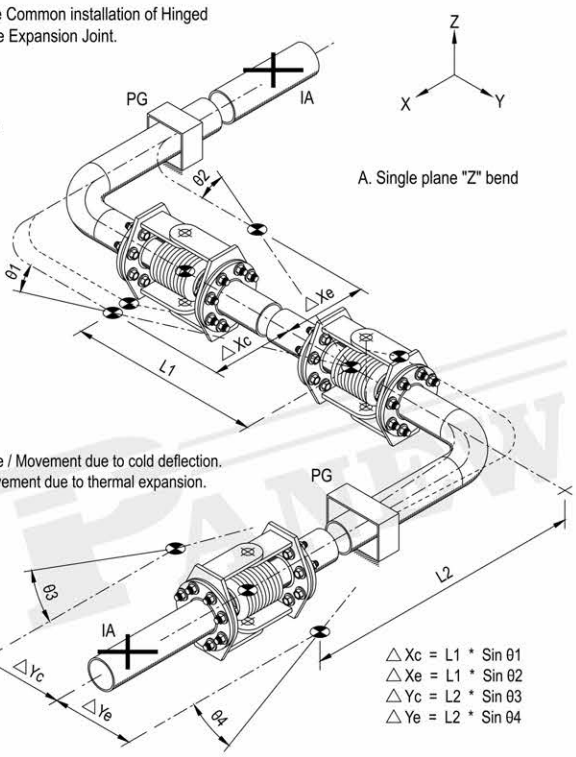
HINGED TYPE EXPANSION JOINT





$M\theta = Kx * (Dm / 1200)^2 * \triangle\theta * \pi$
$= K\theta * \triangle\theta$

The Common installation of Hinged type Expansion Joint.



※ CONSTRUCTION

Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	End Pipe	SGP/SS-400	SUS-304/316
3.	Bellows	SUS-304	SUS-316
4.	Hinged Pin	SS-400	SUS-304
5.	Hinged Arm	SS-400	SUS-304

@ Flange Standard : JIS-10K
Other standard flanges are available, like ANSI , DIN , BS ...etc.

@ Our products are designed and manufactured according to EJMA. The Max. life cycles of our products exceed 1000 cycles.

☐ P-5600 Specification

∗ The unit weight below is just for reference.

N.D.		Total Length (L)		Bellows Specification					Angular Rotation	working pressure	Weight/pc (JIS-10K)
				Eff. Length	Φ O.D.	Eff. Diameter	Spring Rate Kx	Spring Rate Kθ			
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	Φ Dm (mm)	kg/mm	kg*m/degree	Δ θ (degree)	kg/cm^2	kg/pc
32	1-1/4	200	8	56	59.2	50.8	15.8	0.1	20	10	5.9
40	1-1/2	200	8	56	65.7	57.3	17.7	0.1	20	10	6.2
50	2	200	8	70	81.2	70.7	21.8	0.2	20	10	7.6
65	2-1/2	250	10	90	97.2	86.7	20.9	0.3	19	10	10.6
80	3	250	10	96	113.7	101.2	16.5	0.4	19	10	10.9
100	4	250	10	96	139.7	127.2	20.6	0.7	15	10	13.4
125	5	250	10	108	165.7	153.2	21.9	1.1	13	10	19.6
150	6	250	10	105	196.7	181.1	29.7	2.1	13	10	26.0
200	8	300	12	150	247.7	232.1	26.4	3.1	12	10	32.6
250	10	350	14	220	305.7	286.9	39.5	7.1	12	10	51.1
300	12	350	14	220	355.5	336.7	46.4	11.5	11	10	56.0
350	14	350	14	200	399.0	378.2	43.3	13.5	10	10	73.1
400	16	400	16	200	458.7	432.7	61.8	25.3	10	10	105.0
450	18	400	16	210	500.0	469.0	45.3	21.7	10	10	127.6
500	20	400	16	210	551.0	520.0	50.4	29.7	10	10	144.6
550	22	400	16	210	602.0	570.8	66.4	47.2	10	10	183.5
600	24	400	16	210	653.0	621.8	72.4	61.0	8	10	195.4
650	26	500	20	280	724.0	682.5	93.2	94.7	10	10	232.1
700	28	500	20	280	775.0	733.5	100.3	117.7	9	10	262.0
750	30	500	20	280	825.0	783.5	107.3	143.7	9	10	315.1
800	32	500	20	280	876.0	834.5	114.4	173.8	8	10	330.6
850	34	500	20	280	926.0	884.5	121.3	207.1	8	10	349.3
900	36	500	20	280	970.0	928.5	127.4	239.7	7	9.5	404.3
950	38	500	20	280	1020.0	978.5	134.4	280.7	7	9	443.7
1000	40	500	20	280	1070.0	1028.5	141.3	326.0	7	8.5	485.2

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

The unit weight of the products tabulated above are based on JIS-10K flanges. If you need more information, please feel free to contact us any time.

P-5620

HINGED TYPE EXPANSION JOINT

☐ P-5620 Specification

＊The unit weight below is just for reference.

N.D.		Total Length (L)		Bellows Specification					Angular Rotation	working pressure	Weight/pc (JIS-16K)
				Eff. Length	Φ O.D.	Eff. Diameter	Spring Rate Kx	Spring Rate Kθ			
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	Φ Dm (mm)	kg/mm	kg*m/degree	Δ θ (degree)	kg/cm^2	kg/pc
32	1-1/4	200	8	56	59.2	50.4	30.9	0.2	20	20	6.0
40	1-1/2	200	8	56	65.7	56.9	34.7	0.2	20	20	6.4
50	2	200	8	70	81.2	70.2	42.8	0.5	20	20	7.2
65	2-1/2	250	10	90	97.2	86.2	41.1	0.7	19	20	10.5
80	3	250	10	96	113.7	100.7	32.6	0.7	19	20	14.5
100	4	250	10	96	139.7	126.7	40.7	1.4	15	20	19.3
125	5	250	10	108	165.7	152.7	43.4	2.2	13	20	27.5
150	6	250	10	105	196.7	180.5	58.9	4.2	13	20	36.1
200	8	300	12	150	247.7	231.5	52.5	6.1	12	20	47.8
250	10	350	14	220	305.7	286.3	57.0	10.2	13	16	77.2
300	12	350	14	220	355.5	336.1	66.2	16.3	12	16	93.4
350	14	350	14	200	399.0	377.6	61.8	19.2	11	16	131.1
400	16	400	16	200	458.7	431.9	93.6	38.1	11	16	186.2
450	18	400	16	210	500.0	468.0	90.1	43.1	12	16	233.6
500	20	400	16	210	551.0	519.0	99.3	58.4	11	16	273.6
550	22	400	16	210	602.0	570.0	109.1	77.3	10	16	323.8
600	24	400	16	210	653.0	621.0	119.0	100.1	9	16	357.3

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

The unit weight of the products tabulated above are based on JIS-16K flanges. If you need more information, please feel free to contact us any time.

☐ Profile specifications of other types

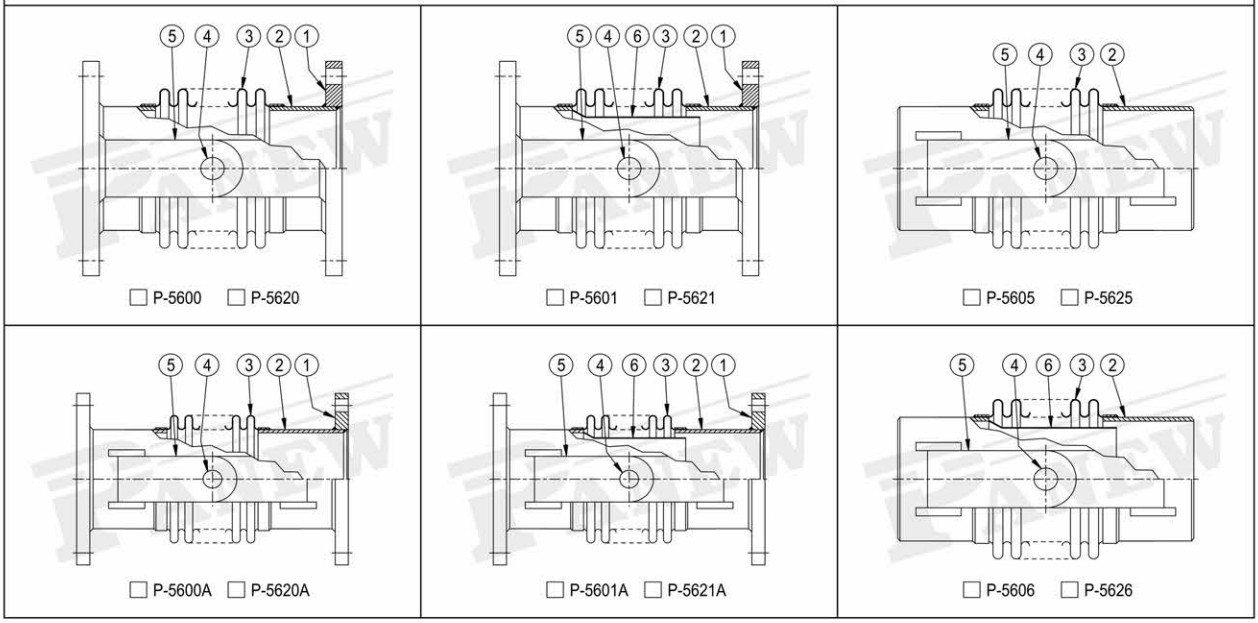
※Construction

Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	End Pipe	SGP/SS-400	SUS-304/316
3.	Bellows	SUS-304	SUS-316
4.	Hinged Pin	SS-400	SUS-304
5.	Hinged Arm	SS-400	SUS-304
6.	Sleeve	SUS-304	SUS-316

Model No. Instruction :

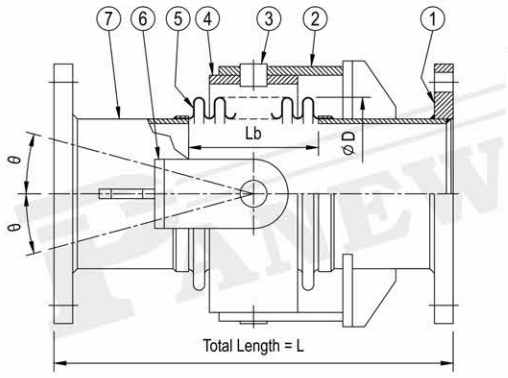
P - 5 6 X X

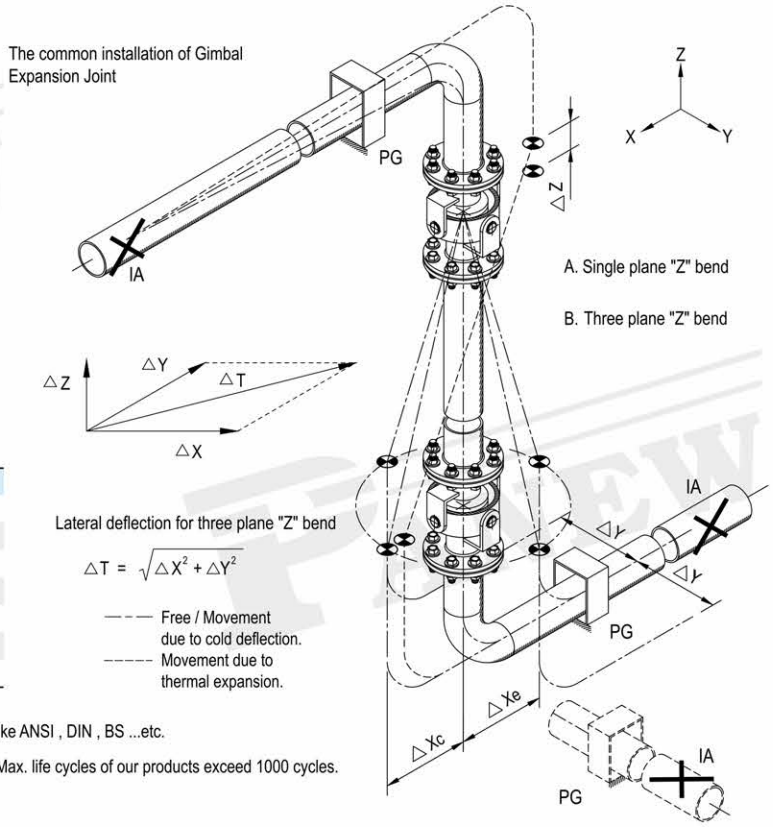
- P — Panew Company
- 56 — Hinged Type Exp. Joint
- X — 0 : 10 kg/cm^2 / 2 : 16 kg/cm^2
- X —
  - 0. Flanged Ends without Sleeve
  - 1. Flanged Ends with Sleeve
  - 2. Flanged Ends with Sleeve & Cover
  - 5. Welded Ends without Sleeve
  - 6. Welded Ends with Sleeve



P-5700

GIMBAL / SINGLE TYPE EXPANSION JOINT





※Construction

Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	Holding Arm	SS-400	SUS-304
3.	Pin	SS-400	SUS-304
4.	Gimbal Ring	SS-400	SUS-304
5.	Bellows	SUS-304	SUS-316
6.	Brackets	SS-400	SUS-304
7.	End Pipe	SGP/SS-400	SUS-304/316

Lateral deflection for three plane "Z" bend

$$\triangle T = \sqrt{\triangle X^2 + \triangle Y^2}$$

——— Free / Movement due to cold deflection.
- - - - - Movement due to thermal expansion.

The standard Flange is based on JIS-10K, other flanges are available, like ANSI , DIN , BS ...etc.

Our products are designed and manufactured according to EJMA. The Max. life cycles of our products exceed 1000 cycles.

☐ P-5700 Specification

＊The unit weight below is just for reference.

N.D.		Total Length (L)		Bellows Specification					Angular Rotation	working pressure	Weight/pc (JIS-10K)
				Eff. Length	Φ O.D.	Eff. Diameter	Spring Rate Kx	Spring Rate Kθ			
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	Φ Dm (mm)	kg/mm	kg*m/degree	△ θ (degree)	kg/cm^2	kg/pc
50	2	300	12	70	81.2	70.7	21.8	0.2	20	10	10.6
65	2-1/2	300	12	90	97.2	86.7	20.9	0.3	19	10	13.6
80	3	350	14	96	113.7	101.2	16.5	0.4	19	10	14.4
100	4	350	14	96	139.7	127.2	20.6	0.7	15	10	17.7
125	5	400	16	108	165.7	153.2	21.9	1.1	13	10	26.7
150	6	400	16	105	196.7	181.1	29.7	2.1	13	10	35.5
200	8	450	18	150	247.7	232.1	26.4	3.1	12	10	44.8
250	10	550	22	220	305.7	286.9	39.5	7.1	12	10	71.8
300	12	550	22	220	355.5	336.7	46.4	11.5	11	10	79.6
350	14	550	22	220	399.0	378.2	43.3	13.5	10	10	102.5
400	16	550	22	220	458.7	432.7	61.8	25.3	10	10	140.5

☐ P-5720 Specification

＊Weight is based on JIS-16K

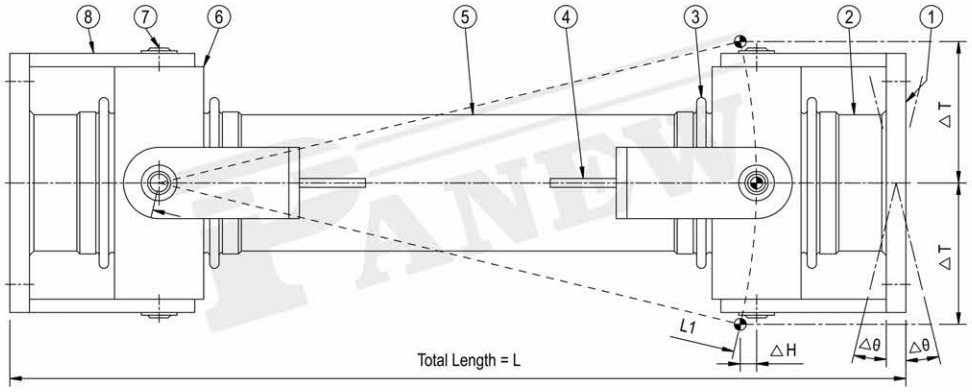
50	2	300	12	70	81.2	70.2	42.8	0.5	20	20	11.0＊
65	2-1/2	300	12	90	97.2	86.2	41.1	0.7	19	20	14.0＊
80	3	350	14	96	113.7	100.7	32.6	0.7	19	20	19.0＊
100	4	350	14	96	139.7	126.7	40.7	1.4	15	20	25.4＊
125	5	400	16	108	165.7	152.7	43.4	2.2	13	20	37.4＊
150	6	400	16	105	196.7	180.5	58.9	4.2	13	20	58.9＊
200	8	450	18	150	247.7	231.5	52.5	6.1	12	20	63.5＊
250	10	550	22	220	305.7	286.3	57.0	10.2	13	16	107.4＊
300	12	550	22	220	355.5	336.1	66.2	16.3	12	16	131.1＊
350	14	550	22	220	399.0	377.6	61.8	19.2	11	16	181.5＊
400	16	550	22	220	458.7	431.9	93.6	38.1	11	16	247.2＊

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

P-5800

GIMBAL / UNIVERSAL TYPE EXPANSION JOINT



Arch height

$$\triangle H = L1 - \sqrt{L1^2 - \triangle T^2}$$

Free / Movement due to cold deflection.

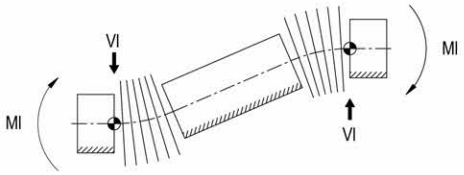
Movement due to thermal expansion.

Construction

Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	End Pipe	SGP/SS-400	SUS-304/316
3.	Bellows	SUS-304	SUS-316
4.	Brackets	SS-400	SUS-304
5.	Mid. Pipe	SGP/SS-400	SUS-304/316
6.	Gimbal Ring	SS-400	SUS-304
7.	Pin	SS-400	SUS-304
8.	Holding Arm	SS-400	SUS-304

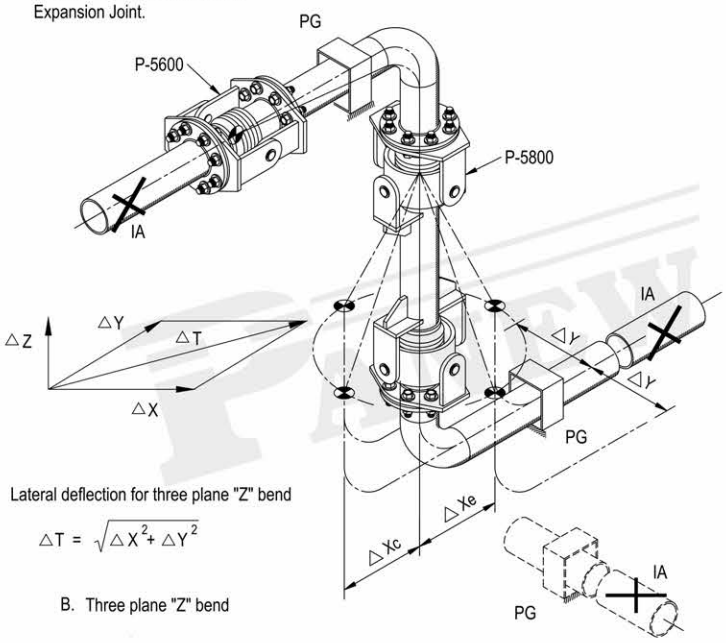
The standard Flange is based on JIS-10K, other flanges are available, like ANSI , DIN , BS ...etc.

Our products are designed and manufactured according to EJMA. The Max. life cycles of our products exceed 1000 cycles.



The common installation of the Expansion Joint.

A. Single plane "Z" bend



Lateral deflection for three plane "Z" bend

$$\triangle T = \sqrt{\triangle X^2 + \triangle Y^2}$$

B. Three plane "Z" bend

☐ P-5800 Specification

∗ The unit weight below is just for reference.

N.D.		Total Length (L)		Bellows Specification					Lateral Deflection	working pressure	Weight/pc (JIS-10K)
				Eff. Length	Φ O.D.	Eff. Diameter	Spring Rate $K_{lateral}$	Spring Rate K θ			
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	Φ Dm (mm)	kg/mm	kg*m/degree	Δ T(mm)	kg/cm²	kg/pc
50	2	900	36	70	81.2	70.7	0.1	0.2	200	10	16.8
65	2-1/2	900	36	90	97.2	86.7	0.1	0.3	200	10	17.3
80	3	1000	40	96	113.7	101.2	0.1	0.2	200	10	25.7
100	4	1100	44	96	139.7	127.2	0.1	0.4	200	10	33.5
125	5	1250	50	108	165.7	153.2	0.2	0.6	200	10	50.1
150	6	1250	50	105	196.7	181.1	0.3	0.9	200	10	65.9
200	8	1400	56	150	247.7	232.1	0.5	2.2	200	10	90.5
250	10	1500	60	220	305.7	286.9	0.9	3.6	200	10	134.1
300	12	1600	64	220	355.5	336.7	1.2	5.8	200	10	157.5
350	14	1700	68	200	399.0	378.2	1.1	6.7	200	10	211.5
400	16	1800	72	200	458.7	432.7	2.0	12.7	200	10	284.1
450	18	1900	76	210	500.0	469.0	1.8	11.3	200	10	347.0
500	20	1900	76	210	551.0	520.0	2.5	15.6	200	10	391.8
550	22	2000	80	210	602.0	570.8	4.6	33.6	200	10	488.9
600	24	2200	88	210	653.0	621.8	4.9	43.7	200	10	547.9

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.

The working pressure tabulated above is based on 100°C. The maximum operating pressure is 1.5 times the working pressure tabulated above.

P-5820

GIMBAL / UNIVERSAL TYPE EXPANSION JOINT

☐ P-5820 Specification

＊The unit weight below is just for reference.

N.D.		Total Length (L)		Bellows Specification					Lateral Deflection	working pressure	Weight/pc (JIS-16K)
				Eff. Length	Φ O.D.	Eff. Diameter	Spring Rate $K_{lateral}$	Spring Rate $K\theta$			
mm	inch	mm	inch	Lb (mm)	Φ D (mm)	Φ Dm (mm)	kg/mm	kg*m/degree	Δ T(mm)	kg/cm^2	kg/pc
125	5	1250	50	108	165.7	152.7	0.3	1.1	200	20	70.1
150	6	1250	50	105	196.7	180.5	0.6	2.1	200	20	92.0
200	8	1400	56	150	247.7	231.5	1.0	4.5	200	20	130.0
250	10	1500	60	220	305.7	286.3	1.4	5.2	200	16	199.3
300	12	1600	64	220	355.5	336.1	1.9	8.3	200	16	254.1
350	14	1700	68	200	399.0	377.6	2.0	9.6	200	16	351.8
400	16	1800	72	200	458.7	431.9	3.3	19.3	200	16	482.6
450	18	1900	76	210	500.0	468.0	3.3	22.6	200	16	604.8
500	20	1900	76	210	551.0	519.0	5.0	31.0	200	16	699.4
550	22	2000	80	210	602.0	570.0	5.3	39.1	200	16	830.4
600	24	2200	88	210	653.0	621.0	6.0	50.8	200	16	949.4

The size, working pressure, total length, and movement tabulated above is the standard specification. We can also deliver products against your requests.
The working pressure tabulated above is based on 100°C.The maximum operating pressure is 1.5 times the working pressure tabulated above.

☐ Profile specifications of other types

※ Construction

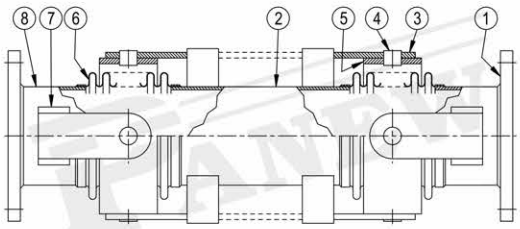
Item	Parts	Std. Material	Option Material
1.	Flange	SS-400	SUS-304/316
2.	Mid. Pipe	SGP/SS-400	SUS-304/316
3.	Holding Arm	SS-400	SUS-304
4.	Pin	SS-400	SUS-304
5.	Gimbal Ring	SS-400	SUS-304
6.	Bellows	SUS-304	SUS-316
7.	Brackets	SS-400	SUS-304
8.	End Pipe	SGP/SS-400	SUS-304/316
9.	Sleeve	SUS-304	SUS-316

Model No. Instruction :

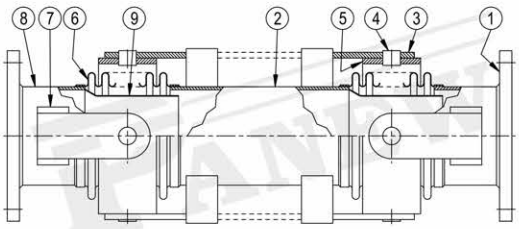
P - 5 8 X X

- X: 0 : 10 kg/cm^2 / 2 : 16 kg/cm^2
- 58: Gimbal / Universal Type Exp. Joint
- P: Panew Company

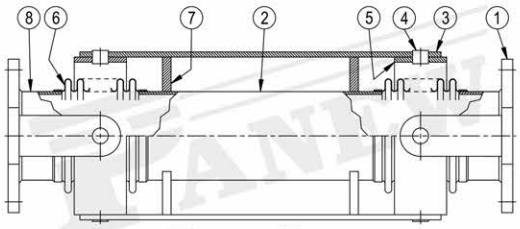
- 0. Flanged Ends without Sleeve / Type I
- 1. Flanged Ends with Sleeve / Type I
- 2. Flanged Ends without Sleeve / Type II
- 3. Flanged Ends with Sleeve / Type II
- 5. Welded Ends without Sleeve
- 6. Welded Ends with Sleeve



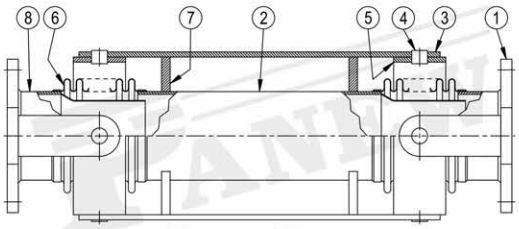
☐ P-5800 ☐ P-5820



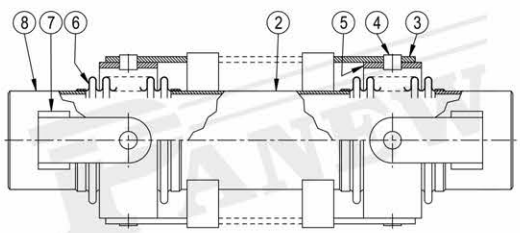
☐ P-5801 ☐ P-5821



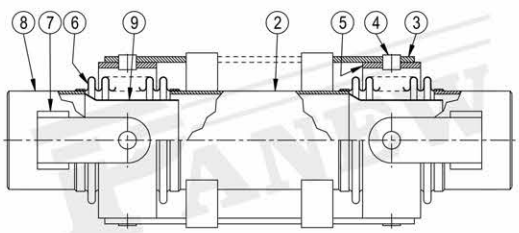
☐ P-5802 ☐ P-5822



☐ P-5803 ☐ P-5823



☐ P-5805 ☐ P-5825



☐ P-5806 ☐ P-5826

P-6000

RECTANGULAR TYPE EXPANSION JOINT

※ Model No. Instruction :

P - 6 X X X S
- P — Panew Company
- 6 — Rectangular Type Exp. Joint
- X — A. Bellows Profile
- X — B. Corner Type
- X — C. Ends Type
- S — D. Exp. Joint Type

Remarks :

A. Bellows Profile
0 : U-shape 1 : V-shape 2 : ⎍- shape 3 : other type

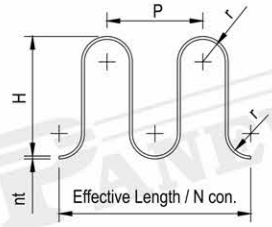
B. Corner Type
0 : Round Corner 1 : Single Miter Corner 2 : Double Miter Corner
3 : Camera Corner 4 : other type

C. Ends Type
0 : Bellows only 1 : Profile I 2 : Profile II 3 : Profile III
4 : Profile IV 5 : Profile V 6 : Other Profile

D. Exp. Joint Type
S : Single Type U : Universal Type

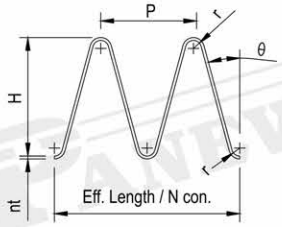
A. Bellows Profile

☐ U-shape



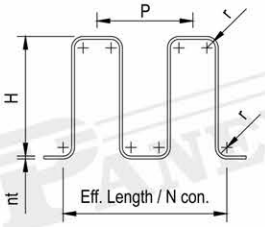
P , H = 50 ~ 150 mm
nt ⩽ 2.5 mm
r = P / 4

☐ V-shape



P = 50 ~ 100 mm
H ⩾ 1.5 x P
nt ⩽ 2.5 mm
r ⩾ 3 mm

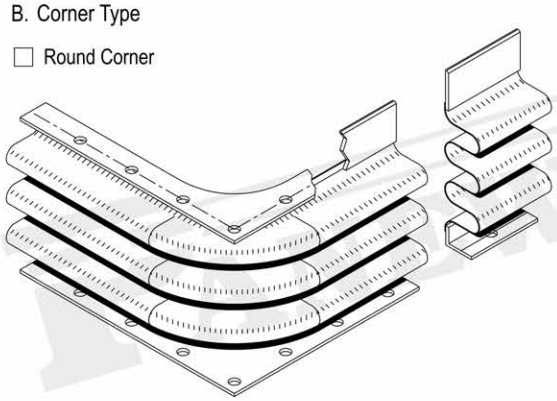
☐ ⎍- shape



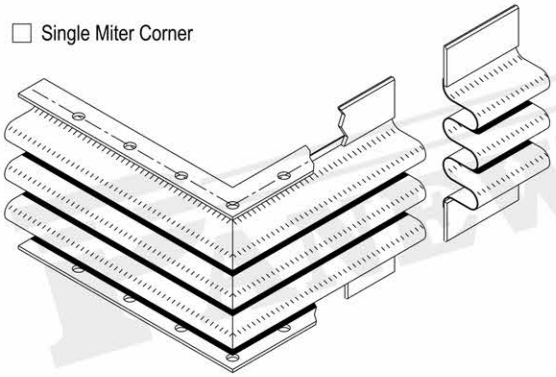
P = 100 ~ 250 mm
H = 100 ~ 300 mm
nt ⩽ 2.5 mm
r ⩾ 3 mm

B. Corner Type

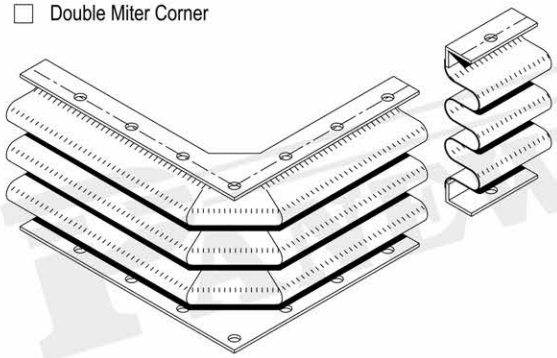
☐ Round Corner



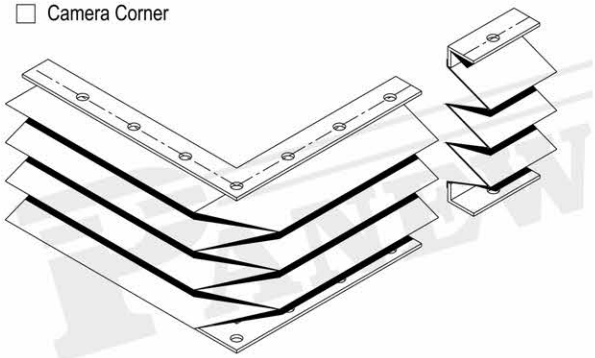
☐ Single Miter Corner



☐ Double Miter Corner



☐ Camera Corner



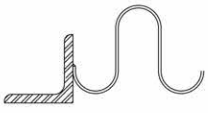
C. Ends Type

☐ profile I

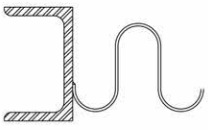
☐ profile II

☐ profile III

☐ profile IV



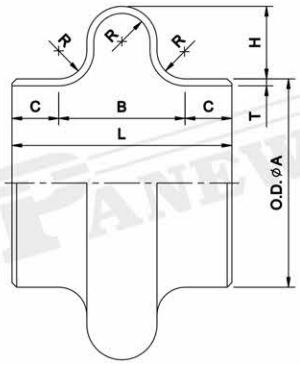
☐ profile V



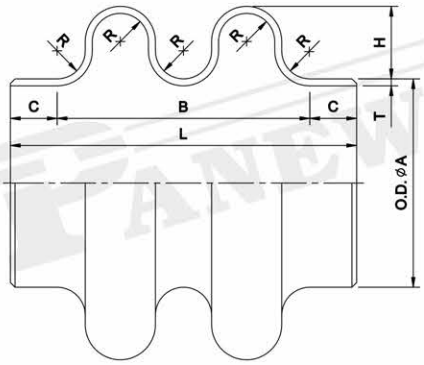
P-7300HE

Bellows used for thermal Expansion on Heat Exchanger

☐ Single Convolution



☐ Double Convolution



☐ Remarks

1. The dimensions tabulated below are recommended. We can manufacture products according to your request.
2. SUS-304/304L, 316/316L, 321 …
   Alloy-600, 625, 800, 825 …
   Hastelloy-C276, C-22, B-3 …
   A-516 Gr.70, A-285 Gr.C, SS-400 …
3. The theoretical spring rates tabulated below are for material SUS-304 only (at room temp.). Please contact us for more information.

☐ P-7300HE Specification

※ Hmax. is not available for carbon steel material.

N.D.		Product Profile										Spring Rate / Hmin.			
		ΦA	B		C	H		R	T	L		Kx / Axial		KΘ / Angular	
			1 con.	2 con.		min.	max.			1 con.	2 con.	1con.	2con.	1con.	2con.
mm	inch	mm	mm		mm	mm		mm	mm	mm		kg/mm		kg-m/deg.	
80	3	89.1	54	108	30	27	---	12	3	114	168	4294	2147	120	60
100	4	114.3	54	108	30	27	33	12	3	114	168	4282	2141	179	89
125	5	138.9	78	156	30	39	40	18	3	138	216	3304	1652	221	110
150	6	165.2	86	172	30	43	48	20	3	146	232	3062	1531	281	141
			92	184	30	46	48	20	6	152	244	9587	4793	440	881
200	8	216.3	106	212	30	53	58	25	3	166	272	2606	1303	403	202
			116	232	30	58	62	25	8	176	292	13526	6763	2093	1046
250	10	267.4	126	252	30	63	68	30	3	186	312	2391	1196	559	280
			136	272	30	68	73	30	8	196	332	11883	5942	2779	1389
		273.1	126	252	30	63	69	30	3	186	312	2366	1183	573	286
			136	272	30	68	74	30	8	196	332	11907	5953	2882	1441
300	12	318.5	126	252	30	63	72	30	3	186	312	2271	1136	710	355
			138	276	30	69	78	30	9	198	336	15101	7550	4720	2360
		323.8	166	332	30	83	90	40	3	226	392	1961	981	698	349
			178	356	30	89	93	40	9	238	416	12082	6041	4298	2149
350	14	355.6	126	252	30	63	72	30	3	186	312	2269	1135	855	428
			144	288	30	72	81	30	12	204	348	27454	13727	10345	5173
400	16	406.4	126	252	30	63	83	30	3	186	312	2299	1149	1091	545
			144	288	30	72	92	30	12	204	348	29852	14926	14167	7083
450	18	457.2	126	252	30	63	93	30	3	186	312	2224	1112	1298	649
			150	300	30	75	104	30	15	210	360	51524	25762	30069	15034
500	20	508.0	126	252	30	63	102	30	3	186	312	2211	1105	1556	778
			152	304	30	76	102	30	16	212	364	64557	32279	45439	22720
550	22	558.8	186	372	30	93	110	45	3	246	432	1834	917	1684	842
			212	424	30	106	110	45	16	272	484	33324	16662	30603	15302
600	24	609.6	206	412	30	103	120	50	3	266	472	1655	827	1833	917
			232	464	30	116	120	50	16	292	524	29783	14892	32718	16359

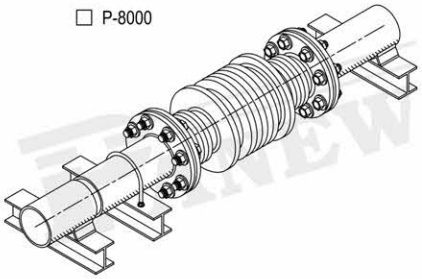
Product Profile							
ΦA	B	C	H		R	T	L
	1 con.		min.	max.			1 con.
mm	mm	mm	mm		mm	mm	mm
306	126	30	63	69	30	3	186
	136	30	68	75	30	8	196
424	186	30	93	105	45	3	246
	204	30	102	115	45	12	264
468	126	30	63	95	30	3	186
	150	30	75	95	30	15	210
475	186	30	93	105	45	3	246
	210	30	105	115	45	15	270
518	186	30	93	105	45	3	246
	212	30	106	115	45	16	272
532	186	30	93	105	45	3	246
	212	30	106	115	45	16	272
596	186	30	93	115	45	3	246
	212	30	106	120	45	16	272

Product Profile							
ΦA	B	C	H		R	T	L
	1 con.		min.	max.			1 con.
mm	mm	mm	mm		mm	mm	mm
608	186	30	93	105	45	3	246
	212	30	106	120	45	16	272
668	206	30	103	115	50	3	266
	232	30	116	133	50	16	292
724	206	30	103	120	50	3	266
	230	30	115	130	50	15	290
780	206	30	103	125	50	3	266
	228	30	114	135	50	14	288
822	206	30	103	130	50	3	266
	224	30	112	135	50	12	284
918	266	30	133	27	65	3	326
	280	30	140	36	65	10	340
1418	186	30	93	27	45	3	246
	196	30	98	36	45	8	256

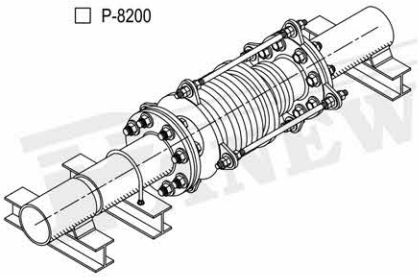
P-8000

PRESSURE BALANCED TYPE EXPANSION JOINT

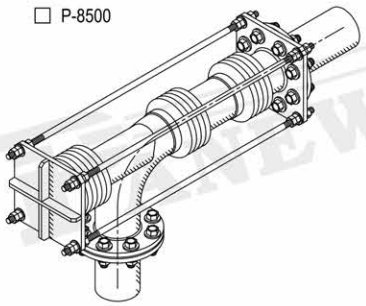
☐ P-8000



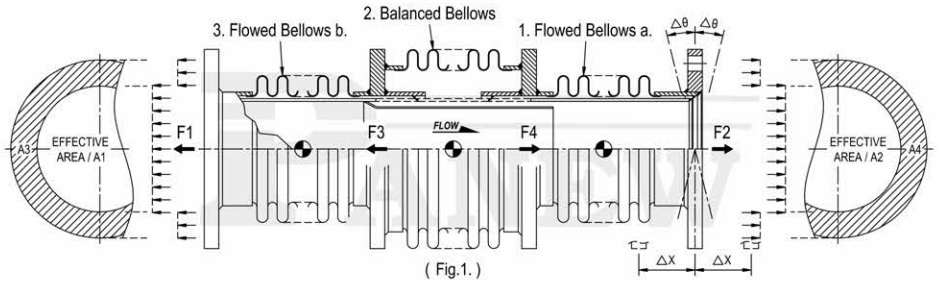
☐ P-8200



☐ P-8500



☐ P-8000 / In-Line Single Pressure Balanced Exp. Joint



(Fig.1.)

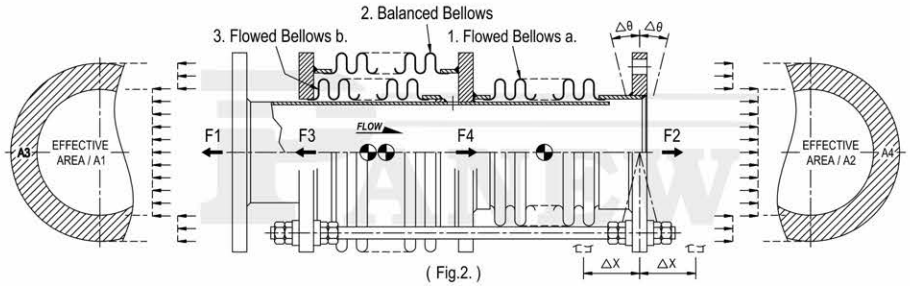
Pressure Balance

P * A1 = P * A4
F1 = F4
P * A2 = P * A3
F2 = F3
→ F1 = F2

Spring Rate / Spring Force

Kxt = Kx1 + Kx2 + Kx3
Fxt = Kxt *△X

☐ P-8200 / In-Line Single Pressure Balanced Exp. Joint



(Fig.2.)

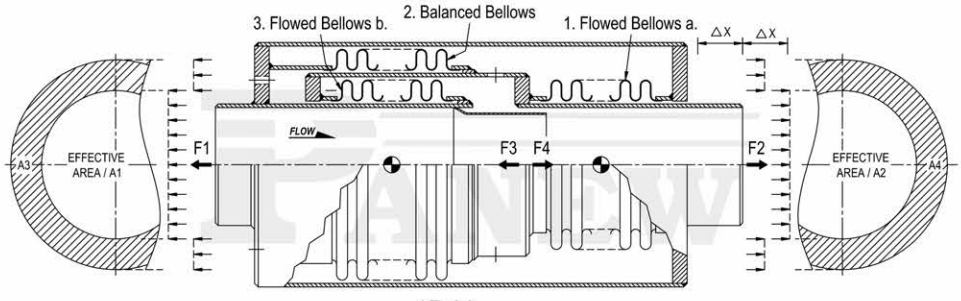
Pressure Balance

P * A1 = P * A4
F1 = F4
P * A2 = P * A3
F2 = F3
→ F1 = F2

Spring Rate / Spring Force

Kxt = Kx1 + Kx2 + Kx3
Fxt = Kxt *△X

☐ P-8400 / Exterior Pressurized Pressure Balanced Exp. Joint



(Fig.3.)

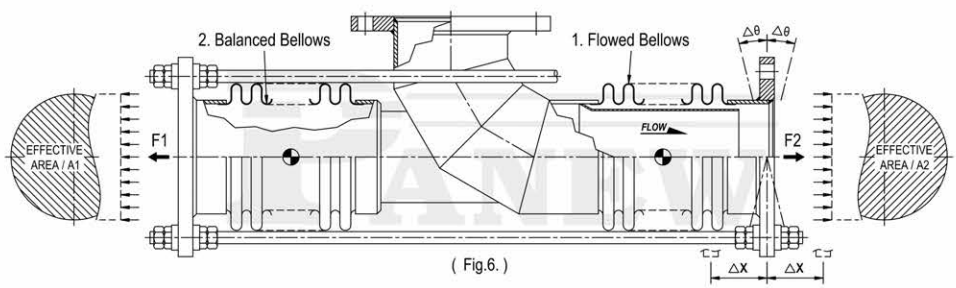
Pressure Balance

P * A1 = P * A4
F1 = F4
P * A2 = P * A3
F2 = F3
→ F1 = F2

Spring Rate / Spring Force

Kxt = Kx1 + Kx2 + Kx3
Fxt = Kxt * △X

☐ P-8500 / L-type Single Pressure Balanced Exp. Joint



(Fig.6.)

Pressure Balance

P * A1 = P * A2
→ F1 = F2

Spring Rate / Spring Force

Kxt = Kx1 + Kx2
Fxt = Kxt * △X

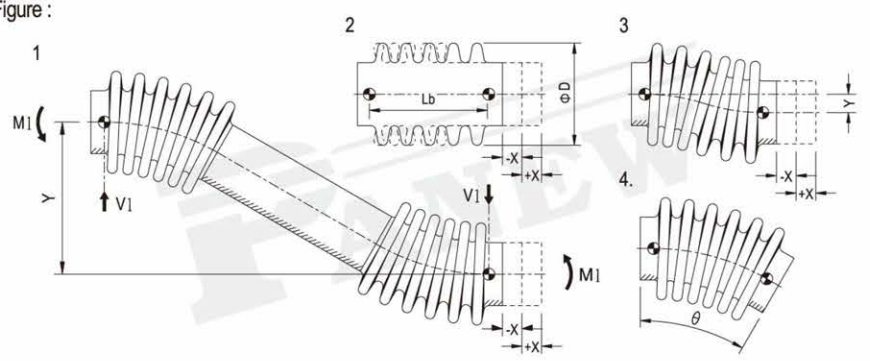
Specification Sheet

☐ P-3000 series ☐ P-5000 series ☐ P-6000 series ☐ P-8000 series

Customer :	Date :	Inquiry No. :
Project :	Sales :	

No.	Specification of the Product		By Buyer Condition	By Manufacturer ☑ Yes/No Y	N	Clarification	By Buyer Quality Assurance Requirement
1	Item No.						21. Paint thickness check
*2	Quantity						☐ 1st layer_____ μm
*3	Nominal Size						☐ 2nd layer_____ μm
*4a	Dim. Limitations	Overall length					☐ 3rd layer_____ μm
4b		Max. O.D.					☐ 4th layer_____ μm
5	Type specification						☐ Total thick._____ μm
*6	Connection specification						
*7a	Fluid information	Medium					
7b		Velocity (m/s)					22. NDE
7c		Flow direction					☐ RT / Bellows Long-Seam
8a	Pressure kg/cm^2	Design					☐ RT / Pipe Long-Seam
*8b		Operating					☐ PT / Bellows Long Seam
8c		Testing					☐ PT / Bellows Attached-Seam
9a	Temperature (°C)	Design					☐ PT / Pipe Long-Seam
*9b		Operating					☐ PT / Pipe Attached-Seam
9c		max./min.					
10a	Movement (mm)	Axial Comp.					23. Spring Rate check
10b		Axial Ext.					☐ Axial (kg/mm)
10c		Lateral					☐ Lateral (kg/mm)
10d		Angular					☐ Angular (kg*m/deg.)
11	Fatigue Life (cycles)						
12a	Spring Rate	Axial (kg/mm)					24. Movement check
12b		Lateral (kg/mm)					☐ Max. Axial movement
12c		Angular (kg*m/deg.)					☐ Max. Lateral movement
13a	Allowable End Loading	Bending Moment (kg*m)					☐ Max. Angular movement
13b		Axial Force (kg)					☐ Combined movements
13c		Lateral Force (kg)					
*14a	Materials of Construction	Bellows					25. Fatigue life check
14b		Sleeve					☐ Max. Axial movement
14c		Cover					☐ Max. Lateral movement
*14d		End Pipe					☐ Max. Angular movement
*14e		Connection					☐ Combined movements
15a	Rods	Tie Rod					
15b		Limit Rod					Remarks :
15c		Shipping Rod					#1 :
16	Horiz. / Vert. installed						
17	Bellows annealing						#2 :
18	Polishment process						
19	Cleanness process						#3 :
20	Name Plate						

Figure :



Nomenclature :

1. "＊" : necessary conditions
2. "-", "No", "N/A" : not required
3. "Yes", "√" : required
4. "#1", "#2" : as Remarks
5. Lb : Bellows / Effective Length
6. Vl : Lateral Force
7. Ml : Bending Moment