Basic Pad

Flat Type

ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP□ 02 U N – □	p. 32	p. 115 p. 117	From p. 121
With adapter	ZP□ T 02 U N – A5 – □	From p. 33	p. 115 p. 117	From p. 121
With buffer	ZP T 02 U N J 6 – B3 – A8	From p. 43	p. 116 p. 118	From p. 124

∗ Pad unit's sales unit: 10 pcs. (Pad diameter: ø20 mm or less)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

●Flat type

❶ Adapter (Lock ring) material

Nil	Brass
S∗1	Stainless steel (Stainless steel 304)

∗1 Only applicable to the pad unit (with lock ring) and the pad with adapter (Vacuum inlet direction: Vertical (Option "T"))

❷ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❸ Pad diameter

02	ø2	**16**	ø16
04	ø4	**20**	ø20
06	ø6	**25**	ø25
08	ø8	**32**	ø32
10	ø10	**40**	ø40
13	ø13	**50**	ø50

❹ Material

N	NBR
S	Silicone rubber∗1 ∗2
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

∗1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

∗2 Uses a material compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

❺ Buffer specification

J	Rotating
K	Non-rotating
JN∗1	Rotating (Without buffer plate)
KN∗1	Non-rotating (Without buffer plate)

∗1 Only for pad diameters ø2 to ø8

❻ Buffer stroke

Stroke [mm]	Pad diameter [mm]											
	ø2	ø4	ø6	ø8	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50
6	●	●	●	●	—	—	—	—	—	—	—	—
10	●	●	●	●	●	●	●	●	●	●	●	●
15	●	●	●	●	—	—	—	—	—	—	—	—
20	—	—	—	—	●	●	●	●	●	●	●	●
25	●	●	●	●	—	—	—	—	—	—	—	—
30	—	—	—	—	●	●	●	●	●	●	●	●
40	—	—	—	—	●	●	●	●	●	●	—	—
50	—	—	—	—	●	●	●	●	●	●	●	●

With adapter

❼ Vacuum inlet

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]			
			ø2 to ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**A5**	M5 x 0.8	○∗1	—	—	—
	AS5		—	○∗1	○∗1	—
	A6	M6 x 1	○∗1	—	—	—
	AS6		—	○∗1	○∗1	○∗1
	AG01	G1/8	—	○∗1	○∗1	—
	AG02	G1/4	—	—	—	○∗1
Female thread	**Nil**	M3 x 0.5	—	○ (❻Connection thread: A5/A6)	○ (❻Connection thread: A6)	○ (❻Connection thread: A6)
		M5 x 0.8	—	—	○ (❻Connection thread: A8)	○ (❻Connection thread: A8)
	B4	M4 x 0.7	○∗1	—	—	—
	B5	M5 x 0.8	○∗1	○∗1	○∗1	—
	B6	M6 x 1	—	○∗1	○∗1	○∗1
	B8	M8 x 1.25	—	—	○∗1	○∗1
	BG01	G1/8	—	○∗1	○∗1	—
	BG02	G1/4	—	—	—	○∗1
	B01	Rc1/8	—	○∗1	○∗1	○∗1
	N01∗4	NPT1/8	—	○∗1	○∗1	○∗1
	T01∗4	NPTF1/8	—	○∗1	○∗1	○∗1
One-touch fitting	**04**	ø4	●	●	●	—
	06	ø6	●	●	●	●
	08	ø8	—	—	●	●
Barb fitting	**N4**	For ø4 nylon tubing∗2	△	△	△	—
	N6	For ø6 nylon tubing∗2	△	△	△	△
	U4	For ø4 soft tubing∗3	△	△	△	—
	U6	For ø6 soft tubing∗3	△	△	△	△

∗1 Use the connection thread. ∗2 Nylon tube piping ∗3 Soft nylon/Polyurethane tube piping ∗4 Not compatible with stainless steel materials

❽ Connection thread

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]			
			ø2 to ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread∗1	**A5**	M5 x 0.8	●△	○∗2●△	—	—
	A6	M6 x 1	●△	○∗2●△	○∗2●△	○∗2●△
	A8	M8 x 1	—	—	○∗2●△	○∗2●△
Female thread	**B4**	M4 x 0.7	●△	—	—	—
	B5	M5 x 0.8	●△	●△	●△	—
	B6	M6 x 1	—	●△	●△	●△
	B8	M8 x 1.25	—	—	●△	●△

∗1 The mounting nut is shipped together with the product (unassembled). ∗2 ○: ZP□T/Vertical comes with a vacuum inlet (female thread).

With buffer

❼ Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]			
			ø2 to ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	**B3**	M3 x 0.5	○	—	—	—
	B5	M5 x 0.8	○	○	○	○
	B01	Rc1/8	—	—	—	○
	N01	NPT1/8	—	—	—	○
	T01	NPTF1/8	—	—	—	○
One-touch fitting	**04**	ø4	○●	○●	○●	—
	06	ø6	○●	○●	○●	○●
	08	ø8	—	—	●	○●
Barb fitting	**N4**	For ø4 nylon tubing∗1	○△	△	△	—
	N6	For ø6 nylon tubing∗1	△	○△	○△	○△
	U4	For ø4 soft tubing∗2	○△	△	△	—
	U6	For ø6 soft tubing∗2	△	○△	○△	○△

∗1 Nylon tube piping ∗2 Soft nylon/Polyurethane tube piping

❽ Connection thread

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]			
			ø2 to ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread∗1	**A8**	M8 x 1	○●△	—	—	—
	A10	M10 x 1	—	○●△	○●△	—
	A14	M14 x 1	—	—	—	○●△

∗1 The mounting nut, buffer plate, and ○: ZPT/Vertical buffer are shipped together with the product (unassembled).

❾ Lock ring

Symbol	Pad diameter [mm]	
	ø2 to ø8	ø10 to ø50
Nil	None∗1	With lock ring
X19		Without lock ring

∗1 The lock ring cannot be used for pad diameters ø2 to ø8.

Lock ring unit

Part no.	Pad diameter [mm]
ZP□L1	ø10 to ø16
ZP□L2	ø20 to ø32
ZP□L3	ø40, ø50

□: Nil/Brass S/Stainless steel

∗ The pad unit lock ring is shipped together with the product (unassembled).

Basic Pad

Flat Type with Ribs

ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP□ 10 C N – □	p. 51	p. 117	From p. 121
With adapter	ZP□ T 10 C N – A5 – □	From p. 51	p. 117	From p. 121
With buffer	ZP T 10 C N J 10 – B5 – A10	From p. 57	p. 118	From p. 124

∗ Pad unit's sales unit: 10 pcs. (Pad diameter: ø20 mm or less)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

● Flat type with ribs

❶ Adapter (Lock ring) material

Nil	Brass
S∗1	Stainless steel (Stainless steel 304)

∗1 Only applicable to the pad unit (with lock ring) and the pad with adapter (Vacuum inlet direction: Vertical (Option "T"))

❷ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❸ Pad diameter

10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50

❹ Material

N	NBR
S	Silicone rubber∗1 ∗2
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

∗1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

∗2 Uses a material compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/ Packaging" of the Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

❺ Buffer specification

J	Rotating
K	Non-rotating

❻ Buffer stroke

Stroke [mm]	Pad diameter [mm]							
	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50
10	●	●	●	●	●	●	●	●
20	●	●	●	●	●	●	●	●
30	●	●	●	●	●	●	●	●
40	●	●	●	●	●	●	—	—
50	●	●	●	●	●	●	●	●

With adapter

❼ Vacuum inlet

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**AS5**	M5 x 0.8	○∗4	○∗4	—
	AS6	M6 x 1	○∗4	○∗4	○∗4
	AG01	G1/8	○∗4	○∗4	—
	AG02	G1/4	—	—	○∗4
Female thread	**Nil**	M3 x 0.5	○ (❽Connection thread: A5/A6)	○ (❽Connection thread: A6)	○ (❽Connection thread: A6)
		M5 x 0.8	—	○ (❽Connection thread: A8)	○ (❽Connection thread: A8)
	B5	M5 x 0.8	○∗4	○∗4	—
	B6	M6 x 1	○∗4	○∗4	○∗4
	B8	M8 x 1.25	—	○∗4	○∗4
	BG01	G1/8	○∗4	○∗4	—
	BG02	G1/4	—	—	○∗4
	B01	Rc1/8	○∗4	○∗4	○∗4
	N01∗3	NPT1/8	○∗4	○∗4	○∗4
	T01∗3	NPTF1/8	○∗4	○∗4	○∗4
One-touch fitting	**04**	ø4	●	●	—
	06	ø6	●	●	●
	08	ø8	—	●	●
Barb fitting	**N4**	For ø4 nylon tubing∗1	△	△	—
	N6	For ø6 nylon tubing∗1	△	△	△
	U4	For ø4 soft tubing∗2	△	△	—
	U6	For ø6 soft tubing∗2	△	△	△

∗1 Nylon tube piping ∗2 Soft nylon/Polyurethane tube piping
∗3 Not compatible with stainless steel materials ∗4 Use the connection thread.

❽ Connection thread

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread∗1	**A5**	M5 x 0.8	○∗2●△	—	—
	A6	M6 x 1	○∗2●△	○∗2●△	○∗2●△
	A8	M8 x 1	—	○∗2●△	○∗2●△
Female thread	**B5**	M5 x 0.8	●△	●△	—
	B6	M6 x 1	●△	●△	●△
	B8	M8 x 1.25	—	●△	●△

∗1 The mounting nut is shipped together with the product (unassembled). ∗2 ○: ZP□T/Vertical comes with a vacuum inlet (female thread).

With buffer

❼ Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	**B5**	M5 x 0.8	○	○	○
	B01	Rc1/8	—	—	○
	N01	NPT1/8	—	—	○
	T01	NPTF1/8	—	—	○
One-touch fitting	**04**	ø4	○●	○●	—
	06	ø6	○●	○●	○●
	08	ø8	—	●	○●
Barb fitting	**N4**	For ø4 nylon tubing∗1	△	△	—
	N6	For ø6 nylon tubing∗1	○△	○△	○△
	U4	For ø4 soft tubing∗2	△	△	—
	U6	For ø6 soft tubing∗2	○△	○△	○△

∗1 Nylon tube piping
∗2 Soft nylon/Polyurethane tube piping

❽ Connection thread

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread∗1	**A10**	M10 x 1	○●△	○●△	—
	A14	M14 x 1	—	—	○●△

∗1 The mounting nut and ○: ZPT/Vertical buffer are shipped together with the product (unassembled).

❾ Lock ring

Symbol	Pad diameter
	All sizes
Nil	With lock ring
X19	Without lock ring

Lock ring unit

Part no.	Pad diameter [mm]
ZP□L1	ø10 to ø16
ZP□L2	ø20 to ø32
ZP□L3	ø40, ø50

□: Nil/Brass S/Stainless steel

∗ The pad unit lock ring is shipped together with the product (unassembled).

Basic Pad
Flat Type Ball Joint Type
ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP 10 F N	p. 62	p. 119	From p. 127
With adapter	ZP T 10 F N – B5 – A8	From p. 62	p. 119	From p. 127
With buffer	ZP T 10 F N J 10 – B5 – A10	From p. 65	p. 120	From p. 129

∗ Pad unit's sales unit: 10 pcs. (Pad diameter: ø20 mm or less only)

❶ ❷ ❸ ❹ ❺ ❻ ❼

●Ball joint type

❶ Vacuum inlet direction

T	Vertical
R	Lateral (With One-touch fitting)

❷ Pad diameter

10	ø10
13	ø13
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50

❺ Buffer stroke

Stroke [mm]	Pad diameter [mm]	
	ø10 to ø16	ø20 to ø50
10	●	●
20	●	●
30	●	●
40	●	—
50	●	●

❸ Material

N	NBR
S	Silicone rubber∗1 ∗2
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

❹ Buffer specification

J	Rotating
K	Non-rotating

∗1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

∗2 Uses a material compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

With adapter

❻ Vacuum inlet/ ❼ Connection thread

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting)

❻ Vacuum inlet			❼ Connection thread			Pad diameter [mm]		
Type	Symbol	Size	Type	Symbol	Size	ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	B5	M5 x 0.8	Male thread	A8	M8 x 1	○	—	—
				A10	M10 x 1	—	○	—
				A14	M14 x 1	—	—	○
—	Nil	—∗1	Female thread	B5	M5 x 0.8	○	○	—
				B8	M8 x 1.25	—	○	○
				B01	Rc1/8	—	○	○
				N01	NPT1/8	—	○	○
				T01	NPTF1/8	—	○	○
One-touch fitting	04	ø4		B5	M5 x 0.8	●	—	—
	06	ø6				●	●	●
				B8	M8 x 1.25	—	●	●
	08	ø8		B5	M5 x 0.8	—	●	●
				B8	M8 x 1.25	—	●	●

∗1 Use the connection thread.

With buffer

❻ Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting)

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	B5	M5 x 0.8	○	—	—
	B01	Rc1/8	—	○	○
	N01	NPT1/8	—	○	○
	T01	NPTF1/8	—	○	○
One-touch fitting	04	ø4	○●	—	—
	06	ø6	○●	○●	○●
	08	ø8	—	○●	○●

❼ Connection thread ○: ZPT/Vertical ●: ZPR/Lateral

Type	Symbol	Size	Pad diameter [mm]		
			ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	A10	M10 x 1	○●	—	—
	A14	M14 x 1	—	○●	○●

Lock ring unit

Part no.	Pad diameter [mm]
ZPLF	ø40, ø50

∗ The following parts are shipped together with the product (unassembled).
- Mounting nut for the types with an adapter or a buffer
- Buffer for the type with a buffer (Vacuum inlet: Vertical)

Basic Pad

Bellows Type

ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP□ 06 B N – □	p. 68	p. 115 p. 117	From p. 121
With adapter	ZP□ T 06 B N – A5 – □	From p. 69	p. 115 p. 117	From p. 121
With buffer	ZP T 06 B N J 6 – B3 – A8	From p. 79	p. 116 p. 118	From p. 124

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

Bellows type

❶ Adapter (Lock ring) material

Nil	Brass
S∗1	Stainless steel (Stainless steel 304)

∗1 Only applicable to the pad unit (with lock ring) and the pad with adapter (Vacuum inlet direction: Vertical (Option "T"))

❷ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❸ Pad diameter

06	ø6	**20**	ø20
08	ø8	**25**	ø25
10	ø10	**32**	ø32
13	ø13	**40**	ø40
16	ø16	**50**	ø50

❹ Material

N	NBR
S	Silicone rubber∗1 ∗2
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

∗1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

∗2 Uses a material compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

❺ Buffer specification

J	Rotating
K	Non-rotating
JN∗1	Rotating (Without buffer plate)
KN∗1	Non-rotating (Without buffer plate)

∗1 Only for pad diameters ø6 and ø8

❻ Buffer stroke

Stroke [mm]	Pad diameter [mm] ø6	ø8	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50
6	●	●	—	—	—	—	—	—	—	—
10	●	●	●	●	●	●	●	●	●	●
15	●	●	—	—	—	—	—	—	—	—
20	—	—	●	●	●	●	●	●	●	●
25	●	●	—	—	—	—	—	—	—	—
30	—	—	●	●	●	●	●	●	●	●
40	—	—	●	●	●	●	●	●	—	—
50	—	—	●	●	●	●	●	●	●	●

With adapter

❼ Vacuum inlet

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm] ø6, ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread	**A5**	M5 x 0.8	○∗1	—	—	—
	AS5		—	○∗1	○∗1	—
	A6	M6 x 1	○∗1	—	—	—
	AS6		—	○∗1	○∗1	○∗1
	AG01	G1/8	—	○∗1	○∗1	—
	AG02	G1/4	—	—	—	○∗1
Female thread	**Nil**	M3 x 0.5	—	○ (❽Connection thread: A5/A6)	○ (❽Connection thread: A6)	○ (❽Connection thread: A6)
		M5 x 0.8	—	—	○ (❽Connection thread: A8)	○ (❽Connection thread: A8)
	B4	M4 x 0.7	○∗1	—	—	—
	B5	M5 x 0.8	○∗1	○∗1	○∗1	—
	B6	M6 x 1	—	○∗1	○∗1	○∗1
	B8	M8 x 1.25	—	—	○∗1	○∗1
	BG01	G1/8	—	○∗1	○∗1	—
	BG02	G1/4	—	—	—	○∗1
	B01	Rc1/8	—	○∗1	○∗1	○∗1
	N01∗4	NPT1/8	—	○∗1	○∗1	○∗1
	T01∗4	NPTF1/8	—	○∗1	○∗1	○∗1
One-touch fitting	**04**	ø4	●	●	●	—
	06	ø6	●	●	●	●
	08	ø8	—	—	●	●
Barb fitting	**N4**	For ø4 nylon tubing∗2	△	△	△	—
	N6	For ø6 nylon tubing∗2	△	△	△	△
	U4	For ø4 soft tubing∗3	△	△	△	—
	U6	For ø6 soft tubing∗3	△	△	△	△

∗1 Use the connection thread. ∗2 Nylon tube piping ∗3 Soft nylon/Polyurethane tube piping
∗4 Not compatible with stainless steel materials

❽ Connection thread

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm] ø6, ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread∗1	**A5**	M5 x 0.8	●△	○∗2●△	—	—
	A6	M6 x 1	●△	○∗2●△	○∗2●△	○∗2●△
	A8	M8 x 1	—	—	○∗2●△	○∗2●△
Female thread	**B4**	M4 x 0.7	●△	—	—	—
	B5	M5 x 0.8	●△	●△	●△	—
	B6	M6 x 1	—	●△	●△	●△
	B8	M8 x 1.25	—	—	●△	●△

∗1 The mounting nut is shipped together with the product (unassembled). ∗2 ○: ZP□T/Vertical comes with a vacuum inlet (female thread).

With buffer

❼ Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm] ø6, ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Female thread	**B3**	M3 x 0.5	○	—	—	—
	B5	M5 x 0.8	○	○	○	○
	B01	Rc1/8	—	—	—	○
	N01	NPT1/8	—	—	—	○
	T01	NPTF1/8	—	—	—	○
One-touch fitting	**04**	ø4	○●	○●	○●	—
	06	ø6	○●	○●	○●	○●
	08	ø8	—	—	●	○●
Barb fitting	**N4**	For ø4 nylon tubing∗1	○△	△	△	—
	N6	For ø6 nylon tubing∗1	△	○△	○△	○△
	U4	For ø4 soft tubing∗2	○△	△	△	—
	U6	For ø6 soft tubing∗2	△	○△	○△	○△

∗1 Nylon tube piping ∗2 Soft nylon/Polyurethane tube piping

❽ Connection thread

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm] ø6, ø8	ø10 to ø16	ø20 to ø32	ø40, ø50
Male thread∗1	**A8**	M8 x 1	○●△	—	—	—
	A10	M10 x 1	—	○●△	○●△	—
	A14	M14 x 1	—	—	—	○●△

∗1 The mounting nut, buffer plate, and ○: ZPT/Vertical buffer are shipped together with the product (unassembled).

❾ Lock ring

Symbol	Pad diameter [mm] ø6, ø8	ø10 to ø50
Nil	None∗1	With lock ring
X19		Without lock ring

∗1 The lock ring cannot be used for pad diameters ø6 and ø8.

Lock ring unit

Part no.	Pad diameter [mm]
ZP□L1	ø10 to ø16
ZP□L2	ø20 to ø32
ZP□L3	ø40, ø50

□: Nil/Brass S/Stainless steel

∗ The pad unit lock ring is shipped together with the product (unassembled).

Basic Pad

Thin Flat Type

ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP 10 UT N	p. 87	p. 115	From p. 121
With adapter	ZP ❶ T ❷ 10 ❸ UT ❹ N – A5 ❼ – ❽	From p. 87	p. 115	From p. 121
With buffer	ZP T 10 UT N ❹ J ❺ 6 ❻ – B3 ❼ – A8 ❽	From p. 92	p. 116	From p. 124

∗ Pad unit's sales unit: 10 pcs.

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

• Thin flat type

❶ Adapter material

Nil	Brass
S∗1	Stainless steel (Stainless steel 304)

∗1 Only applicable to the pad with adapter (Vacuum inlet direction: Vertical (Option "T"))

❷ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❸ Pad diameter

10	ø10
13	ø13
16	ø16

❹ Material

N	NBR
S	Silicone rubber∗1 ∗2
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

∗1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

∗2 Uses a material compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

❺ Buffer specification

J	Rotating
K	Non-rotating
JN	Rotating (Without buffer plate)
KN	Non-rotating (Without buffer plate)

❻ Buffer stroke

Stroke [mm]	Pad diameter
	All sizes
6	●
10	●
15	●
25	●

With adapter

❼ Vacuum inlet

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Male thread	**A5**	M5 x 0.8	○
	A6	M6 x 1	○
Female thread	**B4**	M4 x 0.7	○
	B5	M5 x 0.8	○
One-touch fitting	**04**	ø4	●
	06	ø6	●
Barb fitting	**N4**	For ø4 nylon tubing	△
	N6	For ø6 nylon tubing	△
	U4	For ø4 soft tubing	△
	U6	For ø6 soft tubing	△

❽ Connection thread

●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Male thread∗1	**A5**	M5 x 0.8	●△
	A6	M6 x 1	●△
Female thread	**B4**	M4 x 0.7	●△
	B5	M5 x 0.8	●△

It is not necessary to select a connection thread for ○:ZP□T/Vertical. Use the vacuum inlet.

∗1 The mounting nut is shipped together with the product (unassembled).

With buffer

❼ Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Female thread	**B3**	M3 x 0.5	○
	B5	M5 x 0.8	○
One-touch fitting	**04**	ø4	○●
	06	ø6	○●
Barb fitting	**N4**	For ø4 nylon tubing∗1	○△
	N6	For ø6 nylon tubing∗1	△
	U4	For ø4 soft tubing∗2	○△
	U6	For ø6 soft tubing∗2	△

∗1 Nylon tube piping

∗2 Soft nylon/Polyurethane tube piping

❽ Connection thread

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Male thread∗1	**A8**	M8 x 1	○●△

∗1 The mounting nut, buffer plate, and ○: ZPT/Vertical buffer are shipped together with the product (unassembled).

Basic Pad

Thin Flat Type with Ribs

ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP 10 CT N	p. 96	p. 115	From p. 121
With adapter	ZP ❶ T ❷ 10 ❸ CT ❹ N – A5 ❼ – ❽	From p. 96	p. 115	From p. 121
With buffer	ZP T 10 CT N J 6 – B3 ❼ – A8 ❽	From p. 101	p. 116	From p. 124

∗ Pad unit's sales unit: 10 pcs.

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

● Thin flat type with ribs

❶ Adapter material

Nil	Brass
S∗1	Stainless steel (Stainless steel 304)

∗1 Only applicable to the pad with adapter (Vacuum inlet direction: Vertical (Option "T"))

❷ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❸ Pad diameter

10	ø10
13	ø13
16	ø16

❹ Material

N	NBR
S	Silicone rubber∗1 ∗2
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

∗1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

∗2 Uses a material compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

❺ Buffer specification

J	Rotating
K	Non-rotating
JN	Rotating (Without buffer plate)
KN	Non-rotating (Without buffer plate)

❻ Buffer stroke

Stroke [mm]	Pad diameter
	All sizes
6	●
10	●
15	●
25	●

With adapter

❼ Vacuum inlet

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Male thread	**A5**	M5 x 0.8	○
	A6	M6 x 1	○
Female thread	**B4**	M4 x 0.7	○
	B5	M5 x 0.8	○
One-touch fitting	**04**	ø4	●
	06	ø6	●
Barb fitting	**N4**	For ø4 nylon tubing	△
	N6	For ø6 nylon tubing	△
	U4	For ø4 soft tubing	△
	U6	For ø6 soft tubing	△

❽ Connection thread

●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Male thread∗1	**A5**	M5 x 0.8	●△
	A6	M6 x 1	●△
Female thread	**B4**	M4 x 0.7	●△
	B5	M5 x 0.8	●△

It is not necessary to select a connection thread for ○:ZP□T/Vertical. Use the vacuum inlet.

∗1 The mounting nut is shipped together with the product (unassembled).

With buffer

❼ Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Female thread	**B3**	M3 x 0.5	○
	B5	M5 x 0.8	○
One-touch fitting	**04**	ø4	○●
	06	ø6	○●
Barb fitting	**N4**	For ø4 nylon tubing∗1	○△
	N6	For ø6 nylon tubing∗1	△
	U4	For ø4 soft tubing∗2	○△
	U6	For ø6 soft tubing∗2	△

∗1 Nylon tube piping

∗2 Soft nylon/Polyurethane tube piping

❽ Connection thread

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter
			All sizes
Male thread∗1	**A8**	M8 x 1	○●△

∗1 The mounting nut, buffer plate, and ○: ZPT/Vertical buffer are shipped together with the product (unassembled).

Basic Pad

Deep Type

ZP Series

How to Order

		Dimensions/ Models	Construction	Mounting Bracket Assembly
Pad unit	ZP□ 10 D N – □	p. 105	p. 117	From p. 121
With adapter	ZP□ T 10 D N – A5 – □	From p. 105	p. 117	From p. 121
With buffer	ZP T 10 D N J 10 – B5 – A10	From p. 111	p. 118	From p. 124

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

• Deep type

❶ Adapter (Lock ring) material

Nil	Brass
S∗1	Stainless steel (Stainless steel 304)

∗1 Only applicable to the pad unit (with lock ring) and the pad with adapter (Vacuum inlet direction: Vertical (Option "T"))

❷ Vacuum inlet direction

Nil	Pad unit
T	Vertical
R	Lateral (With One-touch fitting)
Y	Lateral (With barb fitting)

❸ Pad diameter

10	ø10
16	ø16
25	ø25
40	ø40

❹ Material

N	NBR
S	Silicone rubber∗1 ∗2
U	Urethane rubber
F	FKM
GN	Conductive NBR
GS	Conductive silicone rubber

∗1 Uses a material compliant with a dissolution test of the FDA (U.S. Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

∗2 Uses a material compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

❺ Buffer specification

J	Rotating
K	Non-rotating

❻ Buffer stroke

Stroke [mm]	Pad diameter [mm]			
	ø10	ø16	ø25	ø40
10	●	●	●	●
20	●	●	●	●
30	●	●	●	●
40	●	●	●	—
50	●	●	●	●

With adapter

❼ Vacuum inlet

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]		
			ø10, ø16	ø25	ø40
Male thread	**AS5**	M5 x 0.8	○∗4	○∗4	—
	AS6	M6 x 1	○∗4	○∗4	○∗4
	AG01	G1/8	○∗4	○∗4	—
	AG02	G1/4	—	—	○∗4
Female thread	**Nil**	M3 x 0.5	○ (❽Connection thread: A5/A6)	○ (❽Connection thread: A6)	○ (❽Connection thread: A6)
		M5 x 0.8	—	○ (❽Connection thread: A8)	○ (❽Connection thread: A8)
	B5	M5 x 0.8	○∗4	○∗4	—
	B6	M6 x 1	○∗4	○∗4	○∗4
	B8	M8 x 1.25	—	○∗4	○∗4
	BG01	G1/8	○∗4	○∗4	—
	BG02	G1/4	—	—	○∗4
	B01	Rc1/8	○∗4	○∗4	○∗4
	N01∗3	NPT1/8	○∗4	○∗4	○∗4
	T01∗3	NPTF1/8	○∗4	○∗4	○∗4
One-touch fitting	**04**	ø4	●	●	—
	06	ø6	●	●	●
	08	ø8	—	●	●
Barb fitting	**N4**	For ø4 nylon tubing∗1	△	△	—
	N6	For ø6 nylon tubing∗1	△	△	△
	U4	For ø4 soft tubing∗2	△	△	—
	U6	For ø6 soft tubing∗2	△	△	△

∗1 Nylon tube piping ∗2 Soft nylon/Polyurethane tube piping
∗3 Not compatible with stainless steel materials ∗4 Use the connection thread.

❽ Connection thread

○: ZP□T/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]		
			ø10, ø16	ø25	ø40
Male thread∗1	**A5**	M5 x 0.8	○∗2●△	—	—
	A6	M6 x 1	○∗2●△	○∗2●△	○∗2●△
	A8	M8 x 1	—	○∗2●△	○∗2●△
Female thread	**B5**	M5 x 0.8	●△	●△	—
	B6	M6 x 1	●△	●△	●△
	B8	M8 x 1.25	—	●△	●△

∗1 The mounting nut is shipped together with the product (unassembled).
∗2 ○: ZP□T/Vertical comes with a vacuum inlet (female thread).

With buffer

❼ Vacuum inlet

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]		
			ø10, ø16	ø25	ø40
Female thread	**B5**	M5 x 0.8	○	○	○
	B01	Rc1/8	—	—	○
	N01	NPT1/8	—	—	○
	T01	NPTF1/8	—	—	○
One-touch fitting	**04**	ø4	○●	○●	—
	06	ø6	○●	○●	○●
	08	ø8	—	●	○●
Barb fitting	**N4**	For ø4 nylon tubing∗1	△	△	—
	N6	For ø6 nylon tubing∗1	○△	○△	○△
	U4	For ø4 soft tubing∗2	△	△	—
	U6	For ø6 soft tubing∗2	○△	○△	○△

∗1 Nylon tube piping
∗2 Soft nylon/Polyurethane tube piping

❽ Connection thread

○: ZPT/Vertical ●: ZPR/Lateral (With One-touch fitting) △: ZPY/Lateral (With barb fitting)

Type	Symbol	Size	Pad diameter [mm]		
			ø10, ø16	ø25	ø40
Male thread∗1	**A10**	M10 x 1	○●△	○●△	—
	A14	M14 x 1	—	—	○●△

∗1 The mounting nut and ○: ZPT/Vertical buffer are shipped together with the product (unassembled).

❾ Lock ring

Symbol	Pad diameter
	All sizes
Nil	With lock ring
X19	Without lock ring

Lock ring unit

Part no.	Pad diameter [mm]
ZP□L1	ø10, ø16
ZP□L2	ø25
ZP□L3	ø40

□: Nil/Brass S/Stainless steel

∗ The pad unit lock ring is shipped together with the product (unassembled).