

Fall Prevention Valve

Valve for multiple vacuum pads with one vacuum supply

⚠ Safety instructions for this product
Safety instructions, Common safety instructions for each product category and Detailed safety instructions for each product are in the end of this catalog and our website.

Model Designation (Example)

ECV (1) **M4** (2) - **FM4** (3)

(1) Fall Prevention Valve

(2) Male thread size (Holder side)

(3) Female thread size (Pad side)

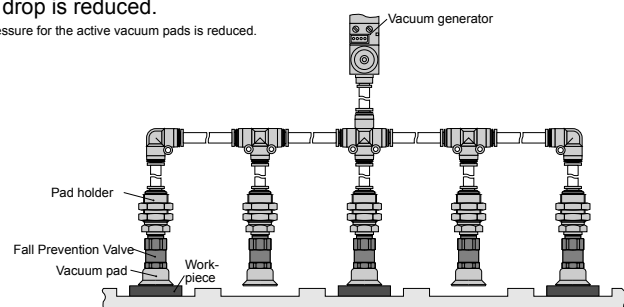
Code	M3-FM3	M4-FM4	M5-FM5	M6-FM6	M10-FM10	O1-F01
Male thread size (Holder side)	M3×0.5	M4×0.7	M5×0.8	M6×1	M10×1.5	R1/8
Female thread size (Pad side)	M3×0.5	M4×0.7	M5×0.8	M6×1	M10×1.5	Rc1/8

Characteristics

Minimizing the pressure drop of other circuit when a work-piece falls down.

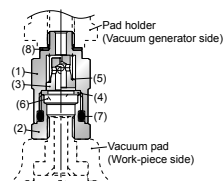
Even if some vacuum pads are not operated, active vacuum pads would work normally because the vacuum drop is reduced.

Drop in vacuum pressure for the active vacuum pads is reduced.



Fall prevention valve for large pad holder (ø60 to ø100 mm) is also available.

Suitable for Standard pad (ø60, ø80 and ø100 mm). Sponge pad (ø70, ø100 mm) and Bellows pad (ø80 mm).



Specifications

Fluid medium	Air					
Operating pressure range	Positive pressure : 0 to 0.7 MPa Negative pressure: -100 to 0 kPa					
Min. working suction flow	M3-FM3	M4-FM4, M5-FM5	M6-FM6, M10-FM10, O1-F01			
	2 l/min[ANR]	5 l/min[ANR]	13 l/min[ANR]			
Operating temp. range	0 to 60°C (No freezing)					

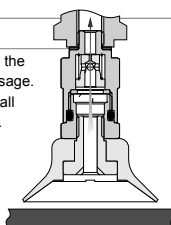
Sectional drawing

No.	Parts	ECVM3-FM3	ECVM4-FM4	ECVM5-FM5	ECVM6-FM6	ECVM10-FM10	ECV01-F01
Material							
(1)	Metallic body A	Stainless steel		Nickel-plated brass		Nickel-plated aluminum	
(2)	Metallic body B	Nickel-plated brass		Nickel-plated aluminum			
(3)	Valve body	Aluminum					
(4)	Stopper	Nickel-plated brass					
(5)	Spring	Stainless steel					
(6)	Filter	PVFM					
(7)	O-ring	NBR					
(8)	Gasket	SUS304 + NBR				POM	—

Mechanism

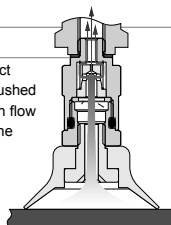
Fall Prevention

When a work-piece is off from vacuum pad, the valve is pushed up and shuts a suction passage. Small amount of air is sucked through a small hole at the center of Valve during operation.



Suction State

When a work-piece is lifted and gets in direct contact with the vacuum pad, the valve is pushed down by a spring force because of a suction flow drop. Then, the suction passage between the valve and the body part opens up.



Applicable vacuum pad list

Fall prevention valve Model code	Connection configuration code	Pad type/size (mm)											
		Standard			Soft	Soft Bellows	Skidproof	Bellows	Multi-bellows	Metal detectable	Ultrathin	Flat Large Suction Flow	Mark-free
ECVM3-FM3	T4	—			—	—	—	—	—	—	—	—	—
	H3	—			—	—	—	—	—	—	—	—	—
ECVM4-FM4	M4	—	—	—	—	—	—	—	—	—	—	—	—
	H3	—	—	—	—	—	—	—	—	—	—	—	—
ECVM5-FM5	T4	—			—	—	—	—	—	—	—	—	—
	H3	—			—	—	—	—	—	—	—	—	—
ECVM6-FM6	T4	—			—	—	—	—	—	—	—	—	—
	H3	—			—	—	—	—	—	—	—	—	—
ECVM10-FM10	M10	—	—	—	—	—	—	—	—	—	—	—	—
	H3	—	—	—	—	—	—	—	—	—	—	—	—

RoHS2 (2011/65/EU+EU2015/863) compliant

Product	Model code
Fall Prevention Valve	ECVM3-FM3
	ECVM4-FM4
	ECVM5-FM5
	ECVM6-FM6
	ECVM10-FM10
	ECV01-F01

ECV

M

FM

CAD data is available at PISCO website.

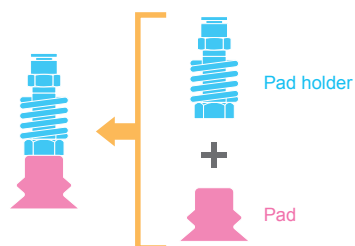
Packaging specifications 1 pc./bag

Maintenance parts

Spring Model code	Fall prevention valve Model code
ECV01-S	ECVM3-FM3
ECV02-S	ECVM4-FM4, ECVM5-FM5
ECV03-S	ECVM6-FM6, ECVM10-FM10, ECV01-F01
Valve body Model code	Fall prevention valve Model code
ECV01-V	ECVM3-FM3
ECV02-V	ECVM4-FM4, ECVM5-FM5
ECV03-V	ECVM6-FM6, ECVM10-FM10, ECV01-F01
Stopper Model code	Fall prevention valve Model code
ECV01-R	ECVM3-FM3
ECV02-R	ECVM4-FM4, ECVM5-FM5
ECV03-R	ECVM6-FM6, ECVM10-FM10, ECV01-F01
Filter Model code	Fall prevention valve Model code
ECV01-E	ECVM3-FM3
ECV02-E	ECVM4-FM4, ECVM5-FM5
ECV03-E	ECVM6-FM6, ECVM10-FM10, ECV01-F01

Packaging specifications of Maintenance parts 10 pcs./bag
* The list price is the price per piece.

1. PISCO's Vacuum pad series consists of the combination of vacuum pads and holders.

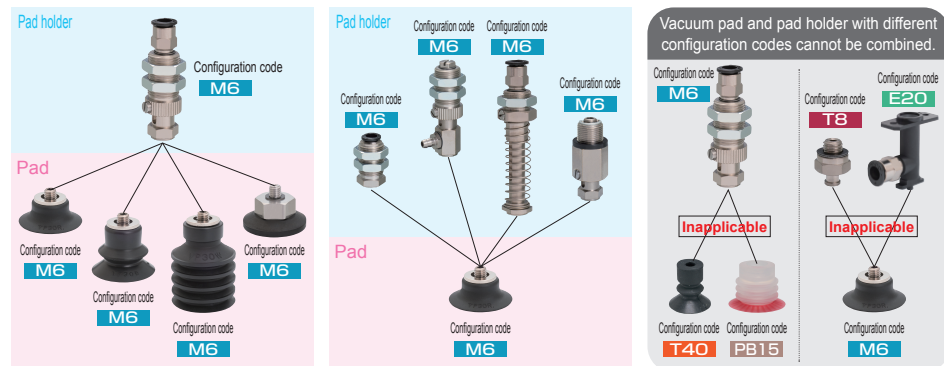


2. Vacuum pad and pad holder have a specific connection type depending on the size and shape.

Pad connection type	Insert type (Direct connection)		Mount type (Direct connection)		Screw type (Connection with screw)	
Connection configuration code	H3		T4 T8			
			T15 T40 (Exclusive to soft type & soft bellows type vacuum pads)		M4 M6 M10 M20	
			PB8 PB15 (Exclusive to Vacuum pad for packaging bag)		G1 G2 G3 G4	
			E10 E20 (Exclusive to Oval type vacuum pad)			

*As shown in above drawings, Vacuum pad and pad holder are connected with a screw or a rim.

3. Any Vacuum pad and pad holder can be connected, as long as their connection configuration codes are same.



If you have purchased a pad and holder set but want to install a different pad or replace the holder with a different one...
→ Please check the connection configuration code of your pad or pad holder and select the one that matches the configuration code.

4. Please refer to the below chart for the "Connection Configuration Code". *Configuration codes are also listed on the page of model code list for each product.

Connection configuration code list (Holder)

Common holder

	Fixed type		Mini	Slim	Spring type		No cover	Low dust emission
	Mini	Standard			Standard			
Code	VPMA	VPA	VMC	VPSC	VPC	VPOC	VPLFC	
Type								
Configuration code	T4 T8 M4 M6	H3 T8 M4 M6 M10 M20 G1 G2 G3 G4	T4 T8 M4 M6	H3 T8	H3 T8 M4 M6 M10 M20 G1 G2 G3 G4	T8 M4 M6	T4 T8 M4 M6	
Code	VPMB	VPB	VPMD	—	VPD	VPOD	VPLFD	
Type				—				
Configuration code	T4 T8 M4 M6	H3 T8 M4 M6 M10 M20 G1 G2 G3 G4	T4 T8 M4 M6	—	H3 T8 M4 M6 M10 M20 G1 G2 G3 G4	T8 M4 M6	T4 T8 M4 M6	
Code	VPME	VPE	—	—	VPF	*Holders with configuration code: G1 to G4 can be connected to VPE holders.		
Type			—	—				
Configuration code	T4 T8 M4 M6	H3 T8 M4 M6 M10 M20 T15 T40	—	—	H3 T8 M4 M6			

Common holder (Lightweight/Low profile)

	Top port		Side port	Dual side port
	Code	VPHC		
Type				
Configuration code	T15 T40 M4 M6	T15 T40 M4 M6	T15 T40 M4 M6	T15 T40 M4 M6
Code	—	VPHE	VPHEW	
Type	—			
Configuration code	—	T15 T40 M4 M6	T15 T40 M4 M6	

Special holder *Pads of other shapes cannot be installed.

	Top port		Side port
	Code	VPA	
Type			
Configuration code	E10 E20	E10 E20	E10 E20
Code	VPA	VPE	
Type			
Configuration code	PB8 PB15	PB8 PB15	

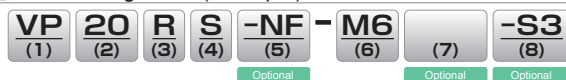
Connection configuration code list (Pad) (○: Available)

Pad type or application	Standard														Pad type or application
	Small	General	Deep	Bellows	Multi-bellows	Metal detectable	Skidproof	Pat Large suction flow type	Mark-free	Soft	Soft bellows	Sponge	Ultrathin	For packaging bag	
Code	R	R	A	B	W	BE,BD	K	F,FH	Q	L	LB	S	P	PB	Code
0.7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	2x4
1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	3.5x7
1.5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	4x10
2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	5x10
3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	6x10
4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	8x10
6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	4x30
8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	5x30
10	○	○	○	○	○	○	○	○	○	○	○	○	○	○	6x30
15	○	○	○	○	○	○	○	○	○	○	○	○	○	○	8x30
20	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
25	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
30	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
35	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
40	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
50	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
60	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
70	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
80	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
100	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
150	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
200	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

Some combinations are possible by using a conversion screw adapter.

H3, T4 and T8 can be converted to M4 or M6. M4 to M6 conversion is also available. For details, please see "Rearrangement parts" of each pad type.

Model Designation (Example)



(1) Vacuum Pad

(2) Pad size (3) Pad type (6) Connection configuration code *Required for Pad & screw set only. (○: Available)

Pad type or application	Small	General	Deep	Bellows	Multi-bellows	Metal detectable	Skidproof	Flat (Large suction flow type)	Mark-free	Soft	Soft bellows	Sponge	Ultrathin	For packaging bag	Pad type or application
Code	RM	R	A	B	W	BE, BD	K	F, FH	Q	L	LB	S	P	PB	Code
0.7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	2x4
1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	3.5x7
1.5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	4x10
2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	5x10
3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	6x10
4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	4x20
6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	4x30
8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	5x30
10	○	○	○	○	○	○	○	○	○	○	○	○	○	○	6x30
15	○	○	○	○	○	○	○	○	○	○	○	○	○	○	8x20
20	○	○	○	○	○	○	○	○	○	○	○	○	○	○	8x30
25	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
30	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
35	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
40	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
50	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
60	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
70	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
80	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
100	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
150	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
200	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

(4) Pad material (○: Available)

Code	N	S	U	F	SE	NE	G	HN	EP	FS	NH	YS2	YS4	MSF3	MSF5	MSS3	MSS5
Rubber material	Nitrile	Silicone	Urethane	Fluoro	Conductive silicone	Conductive NBR (Low resistance)	Food Sanit. Act compliant NBR	HNBR	EPDM	Fluoro-silicone	Oil proof NBR	Extra soft silicone	Iron powder type	SUS powder type	Metal detectable silicone		
Pad color	Black	Clear white	Dark blue	Gray	Black	Black	Light gray	Black	Black	Red-orange	Black	Pink	Blue	Reddish-brown	Dark-green	Brown	Green
Material code marking ¹⁾	None	None	None	None	SE	NE	None	HN	EP	None	None	None	None	SF	SF	SS	SS
Standard	General	Deep	Small	Soft	Soft bellows	Skidproof	Bellows	Multi-bellows	For packaging bag	Metal Detectable	Ribs	Ultrathin	Flat	Flat large suction flow	Oval		
Code	R	A	RM	L	LB	K	B	W	PB	BE	BD	P	F	FH	E		

● Mark-free type (Pad type code: Q)

Code	K	M	KE
Resin material	PEEK	POM	Conductive PEEK
Pad color	Beige	White	Black

● Sponge type (Pad type code: S)

Code	S	C
Rubber material	Silicone	Chloroprene
Pad color	Dark-orange	Black

*1. For vacuum pads in black color (SE: Conductive silicone, NE: Conductive NBR (low resistance), HN: HNBR and EP: EPDM) and Vacuum pad Metal Detectable type, the pad material code is marked on the top or the side of the vacuum pad for material identification. (The marking on black vacuum pads has started since Oct. 2023 gradually.)



*2. Some materials are not available depending on pad size. Please see the catalog for details.

*3. Pad color of pads for Packaging bag. Lip hardness 20° (Pink) Lip hardness 40° (Blue)

*4. The Conductive Silicone rubber (SE) is a silicon rubber capable of releasing static electricity. (Volume resistance: More than 200 Ω·cm and 10⁵ Ω·cm or less)

*5. Nitrile rubber (N), Conductive NBR (Low resistance, Volume resistance: 200Ω·cm or less) (NE), Food Sanitation Act-compliant NBR (G), Oil proof NBR (NH) are not suitable for use with ozone environment.

*6. Extra soft silicone (YS2/YS4), Metal detectable silicone and Silicone for Packaging bag are compliant with Food Sanitation Act and FDA.

*7. Volume resistance of Conductive PEEK (KE) is 10⁵ to 10⁶ Ω·cm.

(5) Surface treatment (Optional) (○: Available)

Code			No code	-NF	-SF	-DL	-ER	-FG
Surface treatment			None	Fiber surface		DLC. coating	Reformed surface	Fluoro-coating
				Nylon fiber	Silk fiber			
			—					
Applicable pad material			—	Silicone (S) Fluoro (F)	Silicone (S) Fluoro (F)	Silicone (S) Fluoro (F) Conductive silicone (SE)	Nitrile (N) Conductive NBR (NE)	Silicone (S) Conductive silicone (SE) Extra soft silicone (YS2, YS4)
Pad type	Standard	General	R	—	—	○	○	○
		Deep	A	—	—	—	○	○
		Small	RM	—	—	—	—	○
	Soft		L	—	○	○	○	○
	Soft bellows		LB	—	○	○	○	○
	Skidproof		K	—	—	—	—	—
	Bellows		B	—	○	○	○	○
	Multi-bellows		W	—	—	○	○	○
	For packaging bag		PB	—	—	—	—	○
	Metal Detectable		BE,BD	—	—	—	—	—
	Ultrathin		P	—	—	○	○	○
	Flat		F	—	—	—	○	○
	Flat large suction flow		FH	—	—	—	○	○
	Mark-free		Q	—	—	—	—	—
Sponge		S	—	—	—	—	—	
Oval		E	—	—	—	○	○	

*Some surface treatments are not available depending on pad size.

Please refer to page 370 for the details of each pad surface type and treatment for Suction Mark-free.

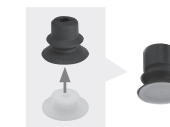
(6) Connection configuration code (Required for Pad & screw set only.) Please refer to the Pad size and type list on the 374 page.

Code	No code	-M4	-M6	-M10	-M20	-M5 ^(*)
Connection config. code	—	M4	M6	M10	M20	—
Thread size	Pad rubber only	M4×0.7	M6×1	M10×1.5	M20×2	M5×0.8

*M5 thread is used for mounting on non-PISCO holders. Contact us for the price of screw set.

(7) Mark-free resin attachment material (Bellows type only) (Optional)

Code	No code	-QK	-QM	-QKE
Resin material	—	PEEK	POM	Conductive PEEK (Volume resistance: 10 ⁵ to 10 ⁶ Ω·cm)
	—			



*1. Selectable for Bellows type pad dia. 10 to 30 mm.

*2. Resin attachment cannot be installed when selecting surface treatment.

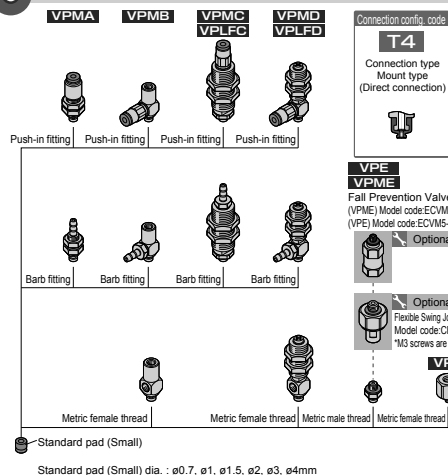
*3. Resin attachment cannot be installed when selecting Extra soft silicone for pad material.

(8) -S3 spec. (Required for Pad & screw set only) (Optional)

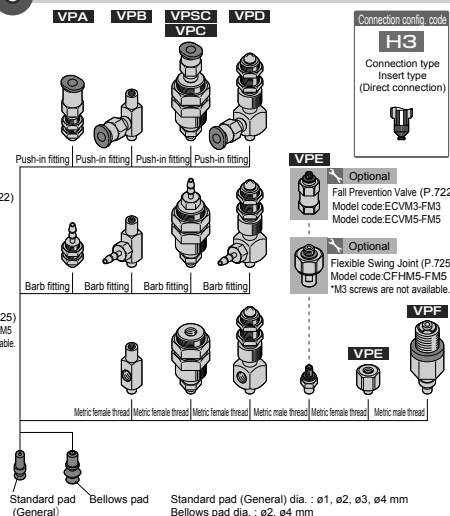
Code	No code	-S3
Metal material	Standard	No copper-based metallic materials used in flow paths

Vacuum Pad Configuration

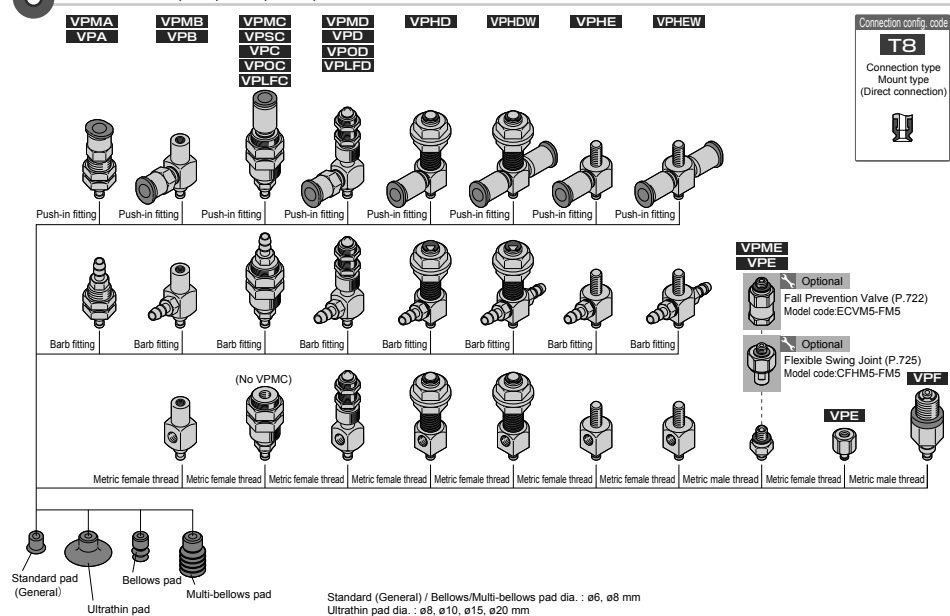
Pad dia. : $\phi 0.7, \phi 1, \phi 1.5, \phi 2, \phi 3, \phi 4$ mm



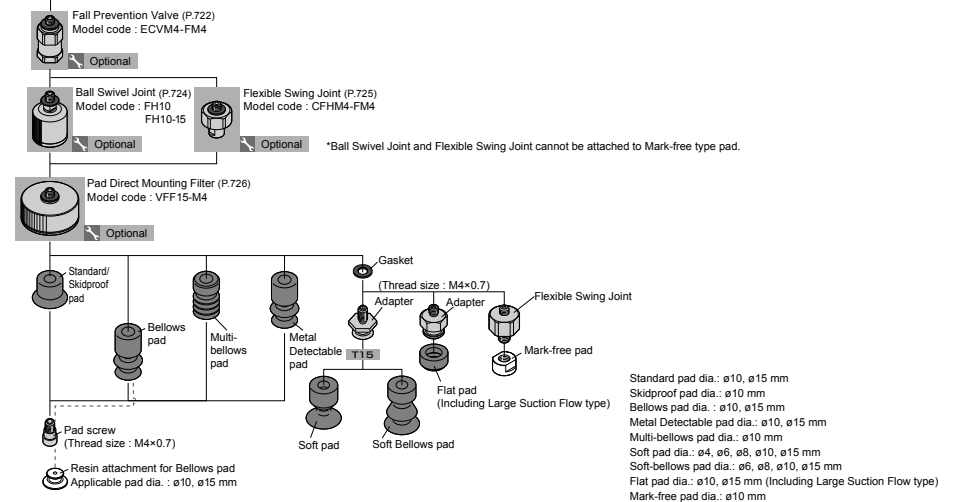
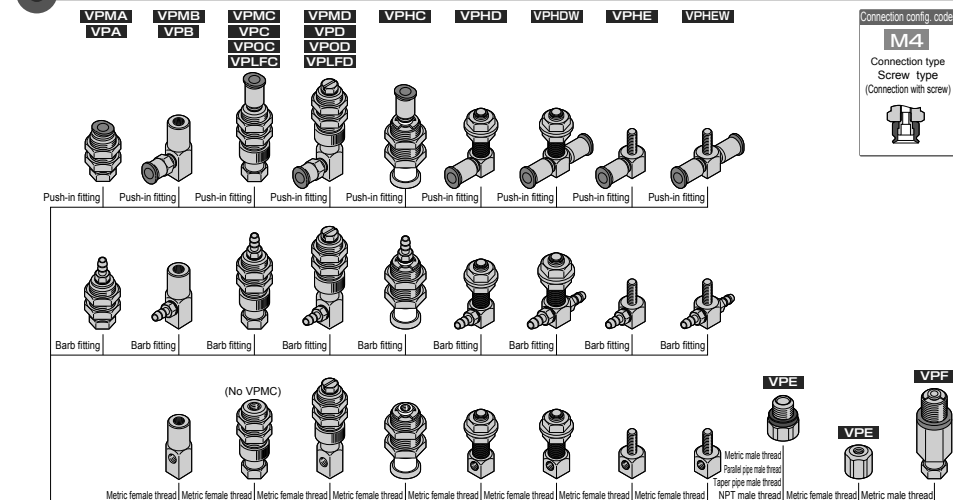
Pad dia. : $\phi 1, \phi 2, \phi 3, \phi 4$ mm



Pad dia. : $\phi 6, \phi 8, \phi 10, \phi 15, \phi 20$ mm

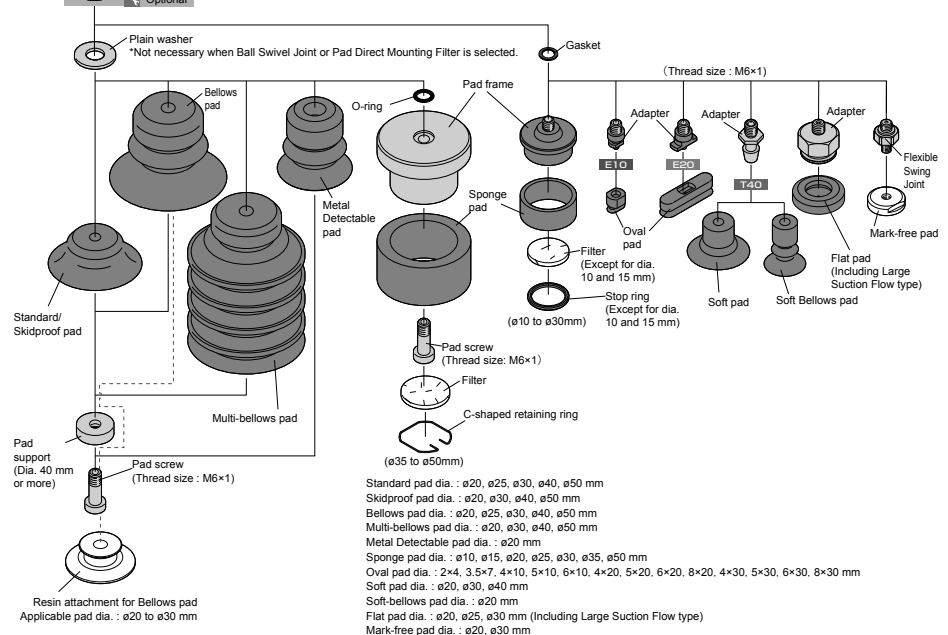
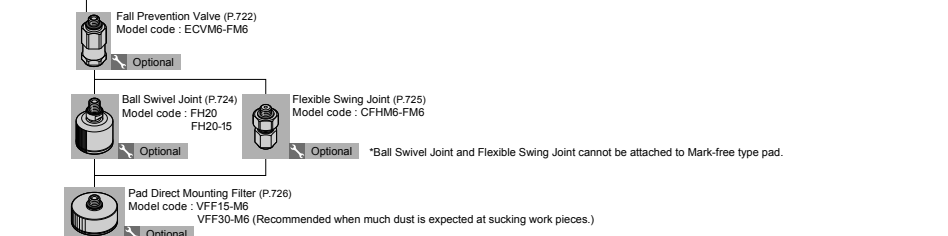
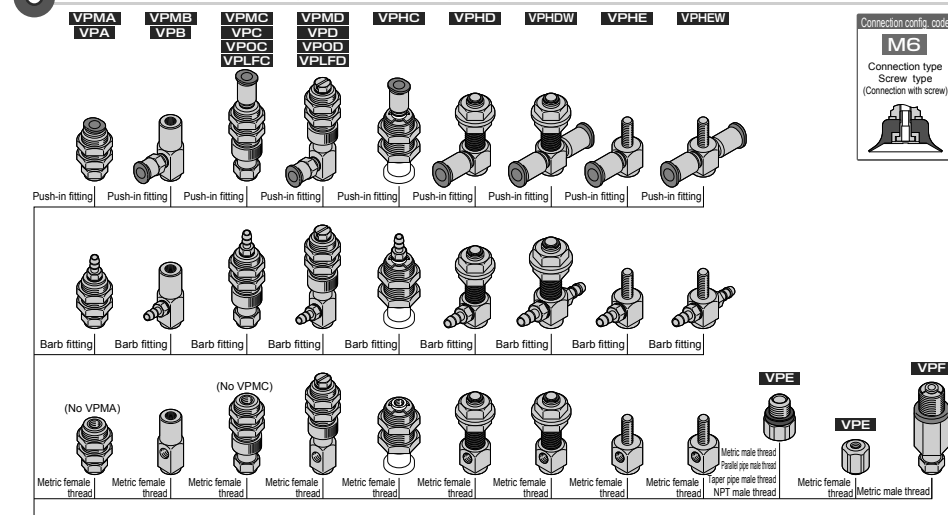


Pad dia. : $\phi 4, \phi 6, \phi 8, \phi 10, \phi 15$ mm

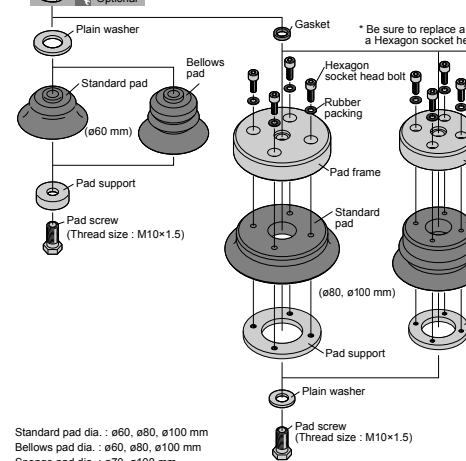
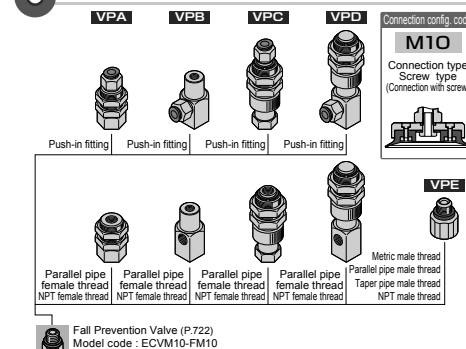


Vacuum Pad Configuration

Pad dia. : $\varnothing 10$, $\varnothing 15$, $\varnothing 20$, $\varnothing 25$, $\varnothing 30$, $\varnothing 35$, $\varnothing 40$, $\varnothing 50$ mm

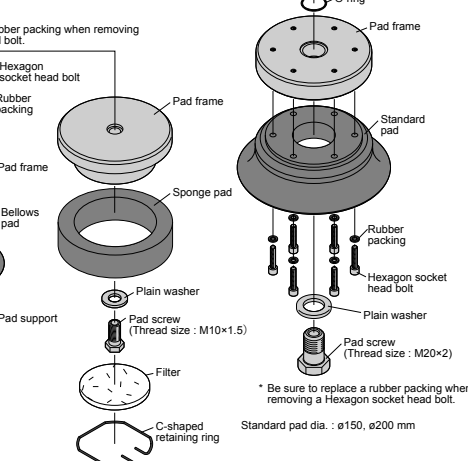
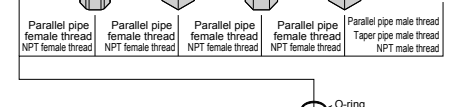
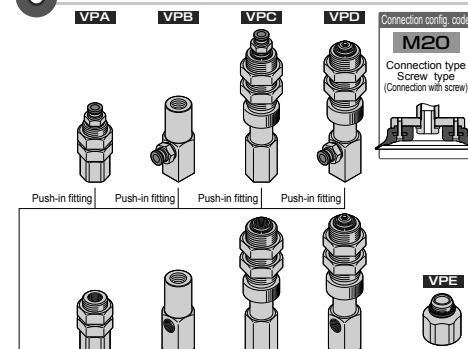


Pad dia. : $\varnothing 60$, $\varnothing 70$, $\varnothing 80$, $\varnothing 100$ mm



Standard pad dia. : $\varnothing 60$, $\varnothing 80$, $\varnothing 100$ mm
Bellows pad dia. : $\varnothing 60$, $\varnothing 80$, $\varnothing 100$ mm
Sponge pad dia. : $\varnothing 70$, $\varnothing 100$ mm

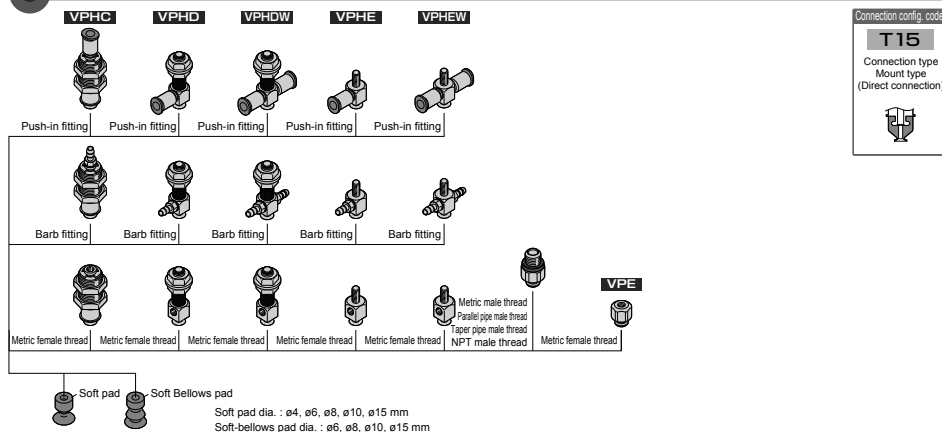
Pad dia. : $\varnothing 150$, $\varnothing 200$ mm



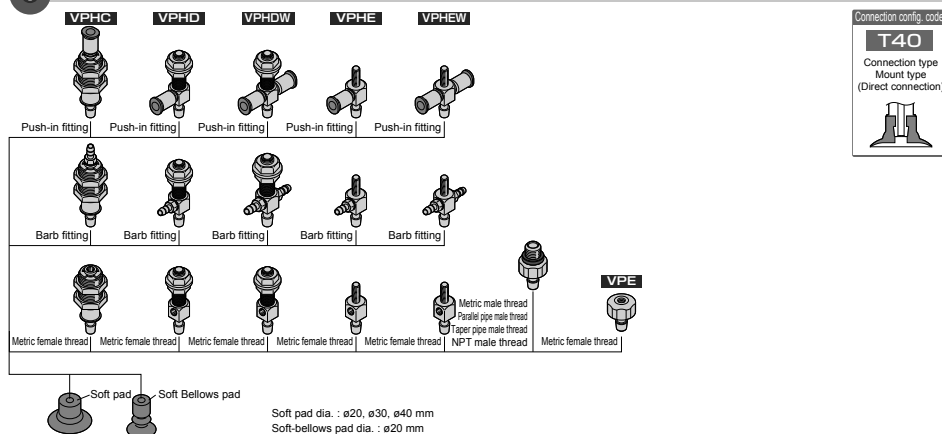
Standard pad dia. : $\varnothing 150$, $\varnothing 200$ mm

Vacuum Pad Configuration

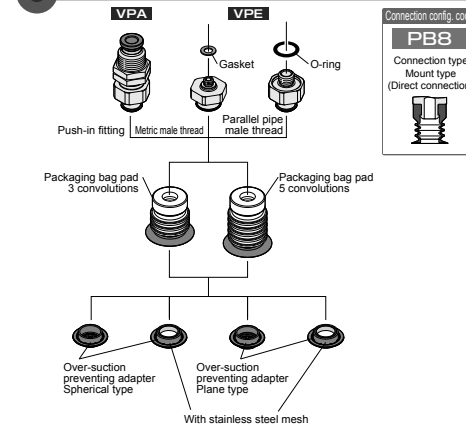
● Pad dia. : $\varnothing 4, \varnothing 6, \varnothing 8, \varnothing 10, \varnothing 15$ mm (Exclusive to Soft and Soft Bellows type)



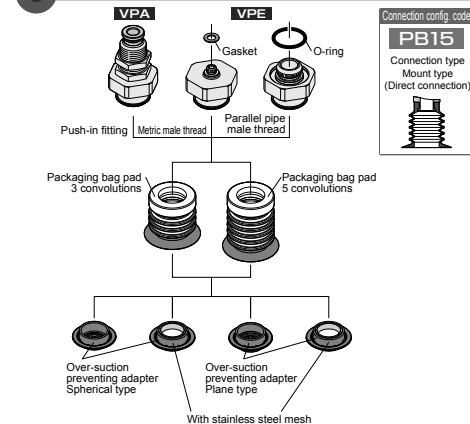
● Pad dia. : $\varnothing 20, \varnothing 30, \varnothing 40$ mm (Exclusive to Soft and Soft Bellows type)



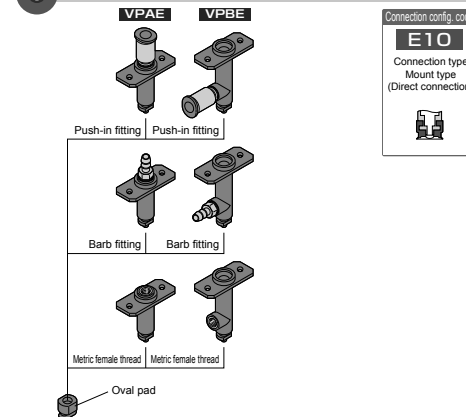
● Pad dia. : $\varnothing 20, \varnothing 25$ mm (Exclusive to Vacuum pad for packaging bag)



● Pad dia. : $\varnothing 30, \varnothing 40, \varnothing 50$ mm (Exclusive to Vacuum pad for packaging bag)



● Pad size : 2×4, 3.5×7, 4 to 6×10 mm (Exclusive to Oval type)



● Pad size : 4 to 8×20 mm, 4 to 8×30 mm (Exclusive to Oval type)

