

## Basic Pad ZP Series

p. 26

<b>Pad diameter</b>	ø2, ø4, ø6, ø8, ø10, ø13, ø16, ø20, ø25, ø32, ø40, ø50
<b>Pad form</b>	Flat type, Flat type with ribs, Bellows type, Thin flat type, Thin flat type with ribs, Deep type
<b>Mounting</b>	Male thread, Female thread
<b>Vacuum inlet direction</b>	Vertical, Lateral
<b>Vacuum inlet</b>	Male thread, Female thread, One-touch fitting, Barb fitting
<b>Buffer</b>	Without, With [Buffer stroke [mm]: 6, 10, 15, 20, 25, 30, 40, 50]
<b>Ball joint</b>	Without, With (Flat type only)

12 sizes, 6 types of pad forms  
The mounting bracket can be selected according to the application.



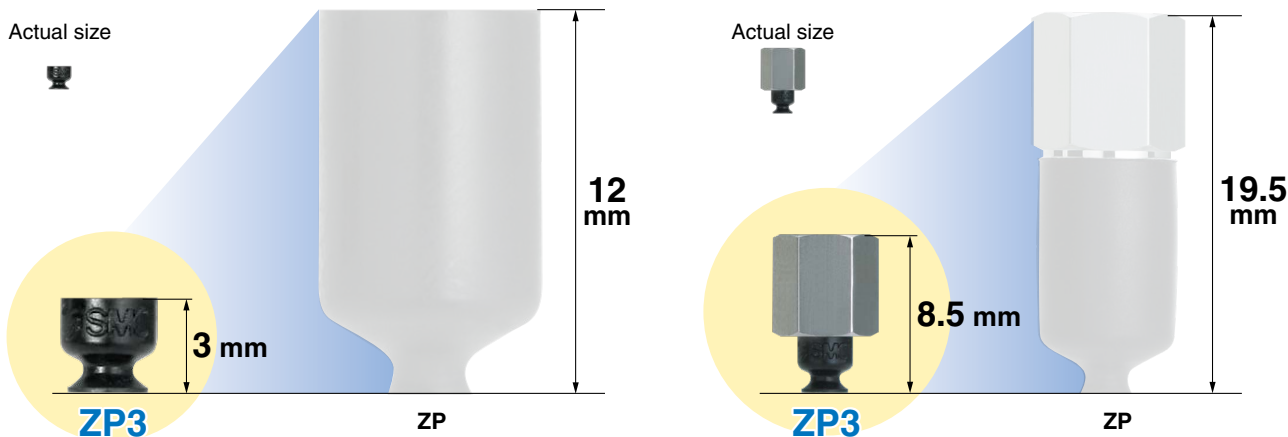
## Compact Type ZP3 Series

p. 132

<b>Pad diameter</b>	ø1.5, ø2, ø3.5, ø4, ø6, ø8, ø10, ø13, ø16
<b>Pad form</b>	Flat type, Flat type with groove, Bellows type, Bellows type with ribs
<b>Mounting</b>	Male thread, Female thread
<b>Vacuum inlet direction</b>	Vertical, Lateral
<b>Vacuum inlet</b>	Male thread, Female thread, One-touch fitting, Barb fitting
<b>Buffer</b>	Without, With [Buffer stroke [mm]: 3, 6, 10, 15, 20]



Overall length shortened For the flat type (Pad diameter: ø2)



## Oval Pad *ZP/ZP2 Series*

p. 166

<b>Pad size</b>	2 x 4, 3.5 x 7, 4 x 10, 4 x 20, 4 x 30, 5 x 10, 5 x 20, 5 x 30, 6 x 10, 6 x 20, 6 x 30, 8 x 20, 8 x 30
<b>Pad form</b>	Oval flat type
<b>Mounting</b>	Male thread, Female thread
<b>Vacuum inlet direction</b>	Vertical, Lateral
<b>Vacuum inlet</b>	Male thread, Female thread, One-touch fitting, Barb fitting
<b>Buffer</b>	Without, With [Buffer stroke [mm] ZP: 6, 10, 15, 20 ZP2: 10, 20, 30, 40, 50]

For rectangular, vertically long, and horizontally long workpieces



## High Rigidity Pad *ZP3E Series*

p. 200

<b>Pad diameter</b>	ø32, ø40, ø50, ø63, ø80, ø100, ø125
<b>Pad form</b>	Flat type with groove, Bellows type with ribs and groove
<b>Mounting</b>	Male thread, Female thread
<b>Vacuum inlet direction</b>	Vertical, Lateral
<b>Vacuum inlet</b>	Male thread, Female thread
<b>Buffer</b>	Without, With [Buffer stroke [mm]: 10, 30, 50]
<b>Ball joint</b>	Without, With



Stable suction position, Improved ease of removal

### Stable suction position

Groove and rib formed to adsorb with entire surface



### Improved ease of removal

#### With groove

The dents and bumps on the adsorption surface prevent workpieces from sticking to the pad. This facilitates easy removal.

#### Shot-blasted

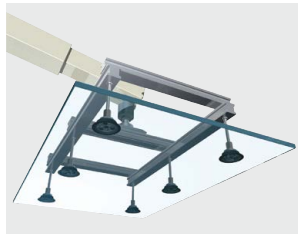
Micro-dents and bumps are formed on the adsorption surface. Workpieces can be removed easily.



# Pads for Special Applications ZP2/ZP3P Series

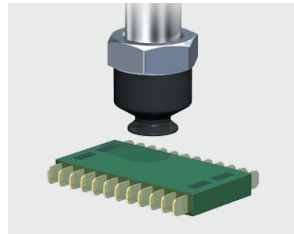
## Mark-free Pad

For use where adsorption marks must not be left on workpieces



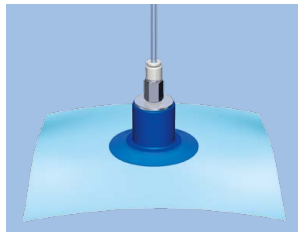
## Static Neutralization

Discharge static electricity gently. Prevent damage to electronic parts.



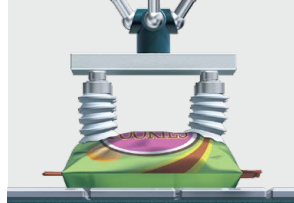
## For Film Adsorption

Good for film packaging applications



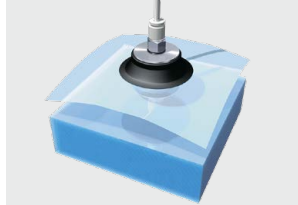
## Multistage

For use where there is no space for a buffer (spring type)  
For workpieces with inclined adsorption surfaces



## Flat Pad

For the adsorption of flexible sheets or film  
Reduced deformation of flat surfaces during adsorption



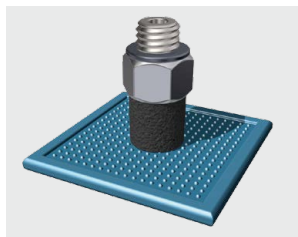
## Nozzle Pad

For the adsorption of small components such as IC chips



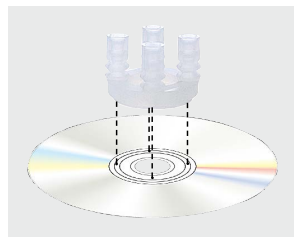
## Sponge Pad

For the adsorption of workpieces with bumps



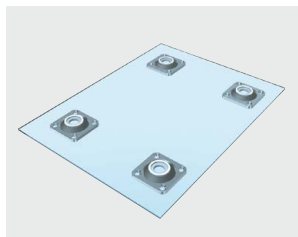
## Vacuum Pad for Disk Adsorption

For the adsorption of circular components like CDs and DVDs



## Vacuum Pad for Panel Holding

For the adsorption and holding of the stage of panels, glass circuit boards, etc.



## Pad with Ball Spline Buffer

The ball spline guide is used for buffers.



## Compact Pad

Pad diameter:  $\varnothing 3, \varnothing 4, \varnothing 5, \varnothing 6, \varnothing 7, \varnothing 8$

Pad form: Flat type, Flat type with ribs, Thin flat type, Bellows type

### Compact, Space saving

#### Blast-type pad

Workpieces can be removed easily.



## Short-type Pad

Pad diameter:  $\varnothing 2, \varnothing 3, \varnothing 3.5, \varnothing 4, \varnothing 5, \varnothing 6, \varnothing 8, \varnothing 10, \varnothing 15$

Pad form: Flat type

### Space saving in the height direction

#### Blast-type pad

Workpieces can be removed easily.



## Thin Flat Pad

Pad diameter:  $\varnothing 5, \varnothing 6, \varnothing 11, \varnothing 14, \varnothing 18, \varnothing 20$

For the adsorption of soft workpieces such as thin sheets or vinyl  
Wrinkling or deformation during adsorption is reduced.



## Bellows Pad

Pad diameter:  $\varnothing 2, \varnothing 4, \varnothing 5, \varnothing 6, \varnothing 8, \varnothing 10, \varnothing 15, \varnothing 20$

For use where there is no space for a buffer (spring type)  
For the adsorption of workpieces with inclined surfaces



## High Rigidity Pad

Pad diameter:  $\varnothing 32, \varnothing 40, \varnothing 50, \varnothing 63, \varnothing 80, \varnothing 100, \varnothing 125, \varnothing 150, \varnothing 250, \varnothing 300, \varnothing 340, 30 \times 50$

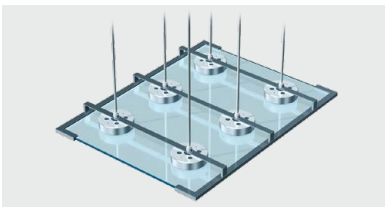
Pad form: Flat type with ribs, Thin flat type with ribs, Bellows type, Oval type



Ball joint

## Non-contact Gripper

Assists in non-contact workpiece transfer



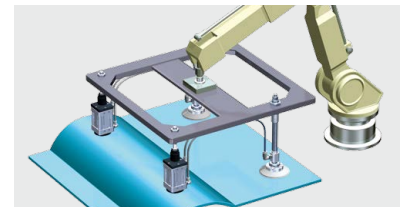
## Vacuum Saving Valve

Can restrict the reduction of vacuum pressure even when there is no workpiece



## Magnet Gripper

Steel plates can be transferred without vacuum.



# Pad Form/Pad Diameter Variations List

## Vacuum Pad ZP Series Variations ▶ p. 27

Pad form	Symbol	Pad diameter [mm]												Page					
		ø1.5	ø2	ø3.5	ø4	ø6	ø8	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50	Dimensions/Models	Construction	Mounting bracket assembly	
Flat	—	U		●		●	●	●	●	●	●	●	●	●	●	●	From p. 32	From p. 115	From p. 121
	With ribs	C							●	●	●	●	●	●	●	●	From p. 51	From p. 117	From p. 121
	Ball joint	F							●	●	●	●	●	●	●	●	From p. 62	From p. 119	From p. 127
Bellows	—	B				●	●	●	●	●	●	●	●	●	●	●	From p. 68	From p. 115	From p. 121
Thin flat	—	UT							●	●	●						From p. 87	From p. 115	From p. 121
	With ribs	CT							●	●	●						From p. 96	From p. 115	From p. 121
Deep	—	D							●		●		●		●		From p. 105	From p. 117	From p. 121

## Vacuum Pad/Compact Type ZP3 Series Variations ▶ p. 134

Pad form	Symbol	Pad diameter [mm]												Page					
		ø1.5	ø2	ø3.5	ø4	ø6	ø8	ø10	ø13	ø16	ø20	ø25	ø32	ø40	ø50	Dimensions/Models	Construction	Mounting bracket assembly	
Flat	—	U	●	●	●												From p. 137	From p. 160	From p. 162
	With groove	UM				●	●	●	●	●	●						From p. 143	From p. 160	From p. 162
Bellows	—	B				●	●	●									From p. 149	From p. 160	From p. 162
	With ribs	B							●	●	●						From p. 155	From p. 160	From p. 162

## Oval Pad ZP/ZP2 Series Variations ▶ p. 167

Pad form	Series	Symbol	Pad size (Breadth x Length) [mm]								Page								
			2 x 4	3.5 x 7	4 x 10	4 x 20	4 x 30	5 x 10	5 x 20	5 x 30	6 x 10	6 x 20	6 x 30	8 x 20	8 x 30	Dimensions/Models	Construction	Mounting bracket assembly	
Oval	ZP	U	●	●	●												From p. 171	From p. 185	From p. 189
	ZP2	W		●	●	●	●	●	●	●	●	●	●	●	●	●	From p. 180	From p. 187	From p. 195














## High Rigidity Pad ZP3E Series Variations ▶ p. 203

Pad form	Symbol	Pad diameter [mm]						Page							
		ø32	ø40	ø50	ø63	ø80	ø100	ø125	Dimensions/Models	Construction	Mounting bracket assembly				
Flat	With groove	UM	●	●	●	●	●	●	●	●	●	●	From p. 209	From p. 233	From p. 237
	Ball joint, With groove	F, UM	●	●	●	●	●	●	●	●	●	●	From p. 215	From p. 235	From p. 241
Bellows	With ribs and groove	BM	●	●	●	●	●	●	●	●	●	●	From p. 221	From p. 233	From p. 237
	Ball joint, With ribs and groove	F, BM	●	●	●	●	●	●	●	●	●	●	From p. 227	From p. 235	From p. 241



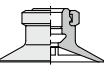
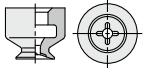

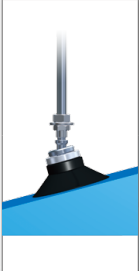
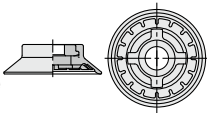


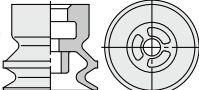
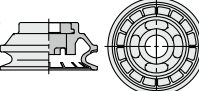
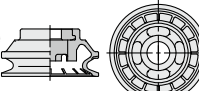





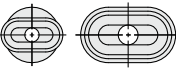
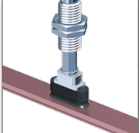
# Pads for Special Applications

Variations ▶ p. 249

Page

Pad form		Series	Symbol	Pad diameter [mm]											How to order
Mark-free pad	Flat	—	ZP2	U, CL	ø4	ø6	ø8	ø10	ø16	ø25	ø32	ø40	ø50	p. 253	
		With ribs	ZP2	H, CL/NT/FT	ø40	ø50	ø63	ø80	ø100	ø125	p. 254				
		With groove	ZP3E	UM, CL	ø32	ø40	ø50	ø63	ø80	ø100	ø125	p. 208			
		With groove, Ball joint type	ZP3E	F, UM, CL	ø32	ø40	ø50	ø63	ø80	ø100	ø125	p. 214			
	Bellows	With ribs and groove	ZP3E	BM, CL	ø32	ø40	ø50	ø63	ø80	ø100	ø125	p. 220			
		With groove, Ball joint type	ZP3E	F, BM, CL	ø32	ø40	ø50	ø63	ø80	ø100	ø125	p. 226			
Resin attachment	—	ZP2	K	ø6	ø8	ø10	ø13	ø16	ø20	ø25	ø32	p. 264			
Static neutralization		Flat type with groove	ZP3	HS	ø4	ø6	ø8	ø10	ø13	ø16	Web Catalog				
For film adsorption		2.5-stage	ZP3P	JT	ø20	ø25	ø32	ø40	ø50	Web Catalog					
		5.5-stage	ZP3P	JT	ø20	ø25	ø32	ø40	ø50	Web Catalog					
		With groove	ZP3P	PT	ø20	ø25	ø35	ø50	p. 267						
Multistage		4.5-stage	ZP2	ZJ	ø15	ø20	ø30	ø40	ø46	p. 276					
		2.5-stage 3.5-stage	ZP2	J	ø6	ø9	ø10	ø14	ø15	ø16	ø25	ø30	p. 282		
Flat pad		With groove	ZP2	MT	ø10	ø15	ø20	ø25	ø30	p. 286					
Nozzle type		—	ZP2	AN	ø0.8	ø1.1	p. 289								
Sponge		—	ZP2	S	ø4	ø6	ø8	ø10	ø15	p. 290					
For disk adsorption		—	ZP2	Z1	p. 294										
For panel holding		—	ZP2	Z	p. 295										
With ball spline buffer		Flat type	ZP2	U, S	ø2	ø4	ø6	ø8	p. 297						
Vacuum saving valve			ZP2V	p. 346											
Bernoulli gripper			ZNC	Web Catalog											
Non-contact gripper			XT661	p. 362											
Magnet gripper			MHM	Web Catalog											
			MHM-X6400	p. 373											

# Select from pad forms

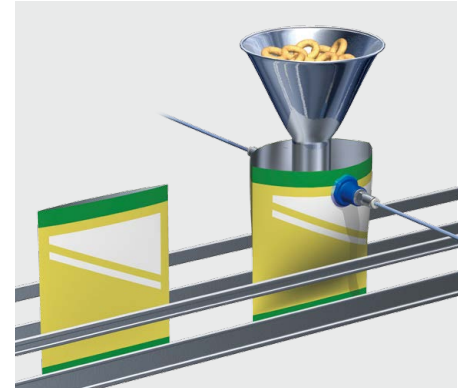
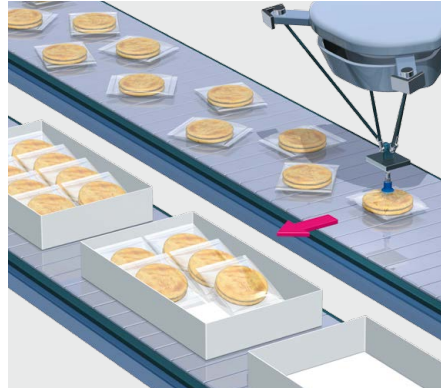
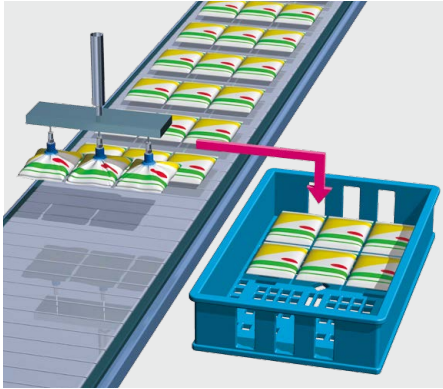
			Basic	Compact	High rigidity	Oval		
			ZP	ZP3	ZP3E	ZP	ZP2	
Flat	Flat type		<ul style="list-style-type: none"><li>For the adsorption of general workpieces</li><li>For the adsorption of workpieces with flat and non-deformed surfaces</li></ul>		p. 31	p. 136		
	Flat type with ribs		<ul style="list-style-type: none"><li>For workpieces which are likely to become deformed</li><li>For the reliable release of workpieces</li></ul>		p. 50			
	Flat type with groove		<ul style="list-style-type: none"><li>For workpieces which are likely to become deformed</li><li>For the reliable release of workpieces</li></ul>			p. 142	p. 208	
	Ball joint, Flat type		<ul style="list-style-type: none"><li>For the adsorption of workpieces with inclined or curved surfaces</li></ul>		p. 61			
	Ball joint, Flat type with groove		<ul style="list-style-type: none"><li>For the adsorption of workpieces with inclined or curved surfaces</li><li>For workpieces which are likely to become deformed</li><li>For the reliable release of workpieces</li></ul>				p. 214	
Bellows	Bellows type		<ul style="list-style-type: none"><li>For the adsorption of workpieces with inclined surfaces</li><li>For workpieces of varying heights</li></ul>		p. 67	p. 148		
	Bellows type with ribs		<ul style="list-style-type: none"><li>For the adsorption of workpieces with inclined surfaces</li><li>For workpieces of varying heights</li><li>For the reliable release of workpieces</li></ul>			p. 154		
	Bellows type with ribs and groove		<ul style="list-style-type: none"><li>To be used when the adsorption surface of the workpieces is slanted</li><li>For the reliable release of workpieces</li></ul>				p. 220	
	Ball joint, Bellows type with ribs and groove		<ul style="list-style-type: none"><li>For the adsorption of workpieces with inclined or curved surfaces</li><li>For the reliable release of workpieces</li></ul>					p. 226
Thin flat	Thin flat type		<ul style="list-style-type: none"><li>For workpieces which are likely to become deformed</li></ul>		p. 86			
	Thin flat type with ribs		<ul style="list-style-type: none"><li>For workpieces which are likely to become deformed</li><li>For the reliable release of workpieces</li></ul>		p. 95			
Deep	Deep type		<ul style="list-style-type: none"><li>For workpieces with curved surfaces</li></ul>		p. 104			
Oval	Oval flat type		<ul style="list-style-type: none"><li>For workpieces with adsorption surface limitations</li><li>For use when a large adsorption area is required for long and narrow workpieces</li></ul>				p. 170	p. 179

# Select according to the workpiece, application, or industry

## Film packaging

Packaging facility

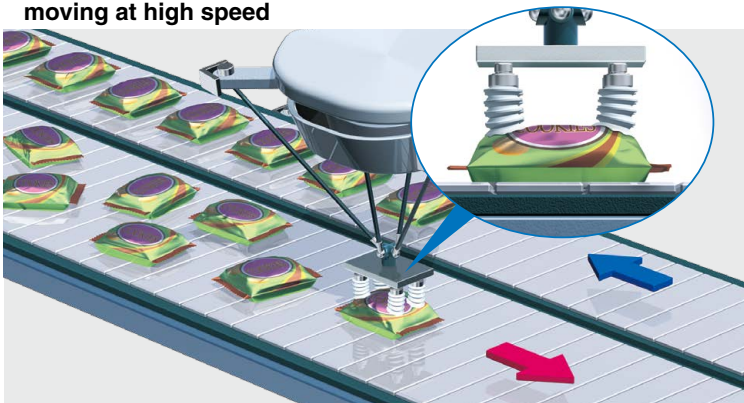
Food



· Good for film packaging applications



· For the adsorption of workpieces randomly moving at high speed



### Applicable Pads

U.S. FDA dissolution test compliant

For Film Adsorption ZP3P-PT  
p. 266

4.5-Stage Bellows Pad ZP2  
p. 276



U.S. FDA dissolution test compliant

For Film Adsorption/Bellows ZP3P-JT

Web Catalog

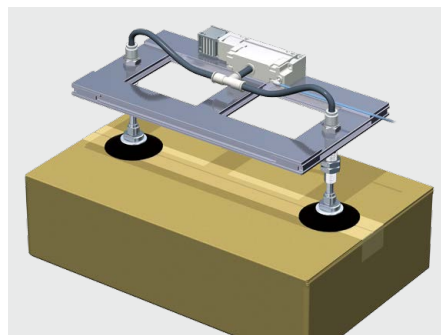
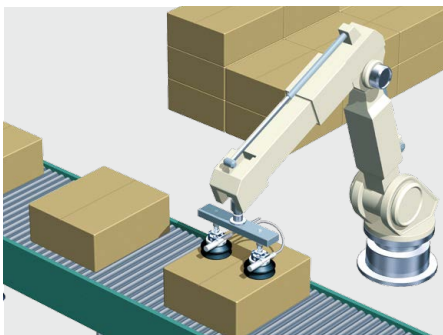


## Corrugated boards

Carton former

Palletizer

Food



### Applicable Pads

High Rigidity Pad ZP3E

p. 200





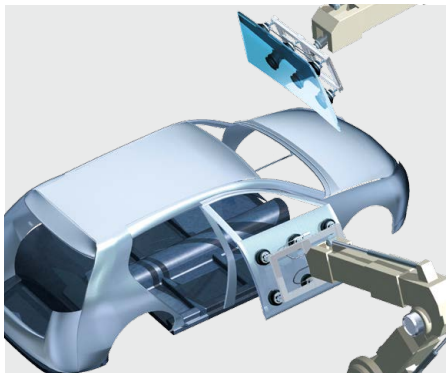
# Select according to the workpiece, application, or industry

## ■ Glass

Automobile

Electronics

· For use where adsorption marks must not be left on workpieces



### Applicable Pads

Mark-free Pad ZP3E  
p. 200



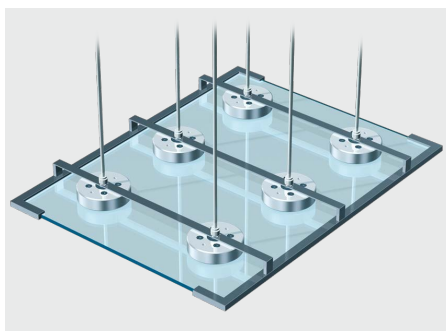
Mark-free Pad ZP2  
p. 251



## ■ FPD, Glass circuit boards

Automobile

Electronics



### Applicable Pads

Mark-free Pad ZP3E  
p. 200



Mark-free Pad ZP2  
p. 251

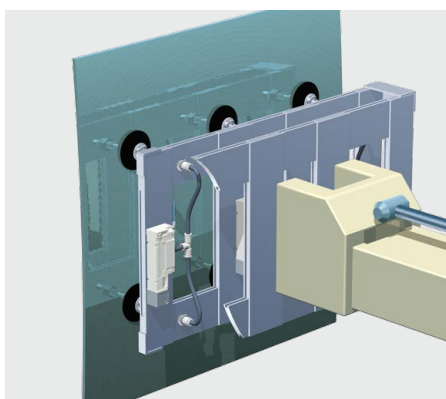


Non-contact Gripper  
XT661  
p. 353



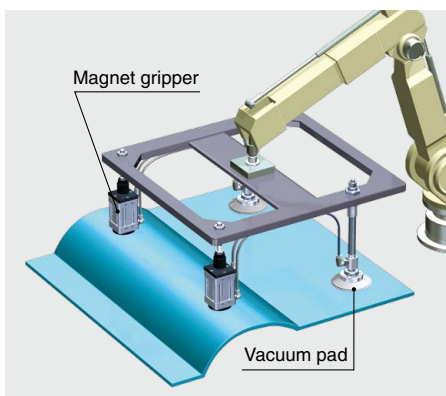
## ■ Iron plates, Metal

Automobile



### Applicable Pads

High Rigidity Pad ZP3E  
p. 200



### Applicable Pads

Magnet Gripper  
MHM  
MHM-X6400 [Web Catalog](#)  
p. 372



IC chips

Electronics



Applicable Pads

Nozzle Pad ZP2

p. 289



Compact Type ZP3

p. 132



Applicable Pads

Oval Pad ZP

p. 170



Oval Pad ZP2

p. 179



Applicable Pads

Pad with Ball Spline Buffer ZP2

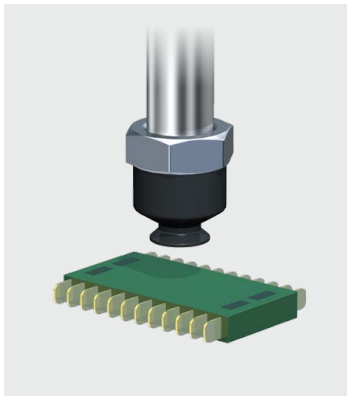
p. 297



Applicable Pads

Sponge Pad ZP2

p. 290



Applicable Pads

Static Neutralization Pad ZP3-HS

Web Catalog

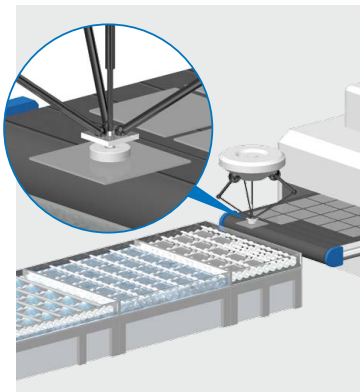


Solar battery cells

Electronics

Circuit boards with holes

Electronics



Applicable Pads

Non-contact Gripper XT661

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# Mounting Bracket Assembly Model Index

Assembly part no.		Basic		Compact	Oval		High Rigidity		Special applications													
		ZP		ZP3	ZP	ZP2	ZP3E		Mark-free		Static Neutralization	For film adsorption		Multistage		Flat	Nozzle	Sponge				
		Standard	Ball joint	Standard	Standard	Standard	Standard	Ball joint	Standard	Ball joint	Standard	Ball joint	HS□	Standard	JT	J	ZJ	MT	AN	S		
ZP	ZPB1	Buffer plate																				
	ZPB(1/2/3)(J/K)-	Buffer assembly																				
	ZPR(S/L)-	Adapter assembly																				
	ZPRF(1/2/3)-	Adapter assembly/ Ball joint																				
	ZPT(1/2/3/4)-	Adapter assembly																				
	ZPTF(1/2/3)-	Adapter assembly/ Ball joint																				
	ZPY(1/2/3/4)-	Adapter assembly																				
ZP2	ZPA-	Adapter assembly																				
	ZPB-	Buffer assembly																				
	ZP2A-	Adapter																				
	ZP2B-	Buffer assembly																				
ZP3	ZP3A-	Adapter assembly																				
	ZP3B-	Buffer assembly																				
ZP3E	ZP3EA-	Holder, Plate, Stopper, Set screw, Adapter																				
	ZP3EA-F	Ball joint assembly																				
	ZP3EB-	Buffer assembly																				
	ZP3EU-(T/Y)F	Ball joint buffer unit																				
ZP3P	ZP3EU-F	Ball joint unit																				
	ZP3PA-	Adapter assembly																				
Mounting nut	ZP3P□A-	Adapter assembly																				
	NTJ-015A																					
	SNJ-006C																					
	ZPNA-M6A																					
	RB08J																					
	ZPNA-M8A																					
	ZPNA-M10																					
	ZPNA-M12																					
	ZPNA-M12A																					
	ZPNA-M12C																					
	ZPNA-M14																					
	ZPSNA-M16A																					
	ZPSNA-M20																					
	KQ08-P01A																					
	KQ10-P01A																					
	RBQ16J																					
NT-05																						
ZPNA-M22																						