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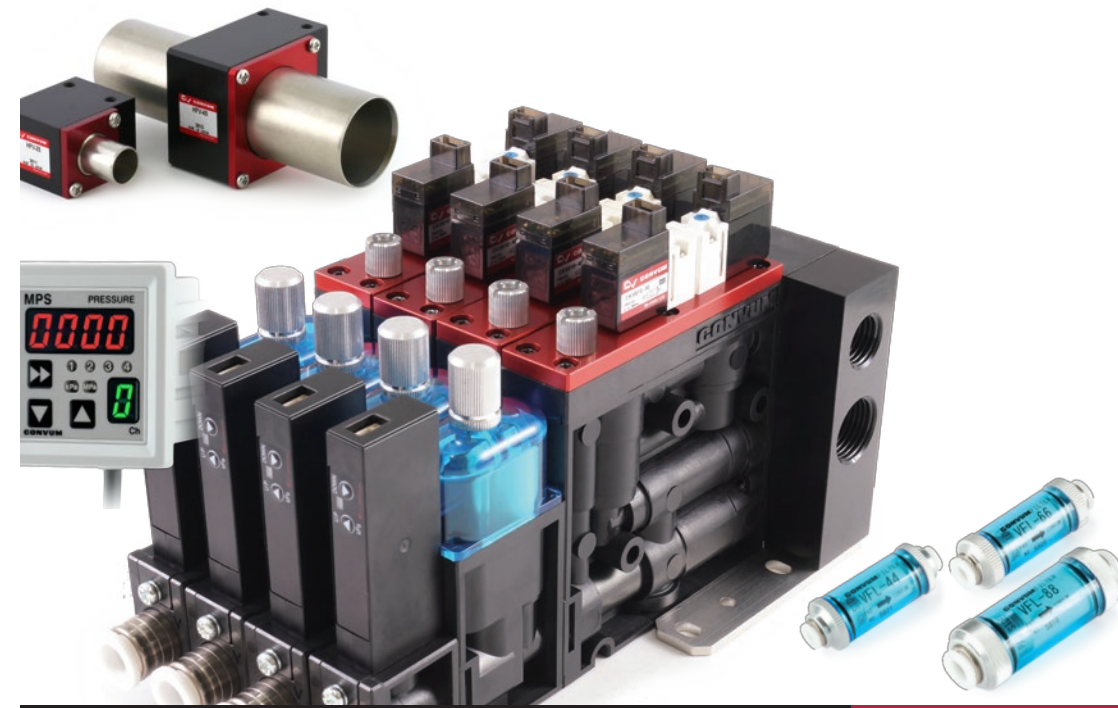
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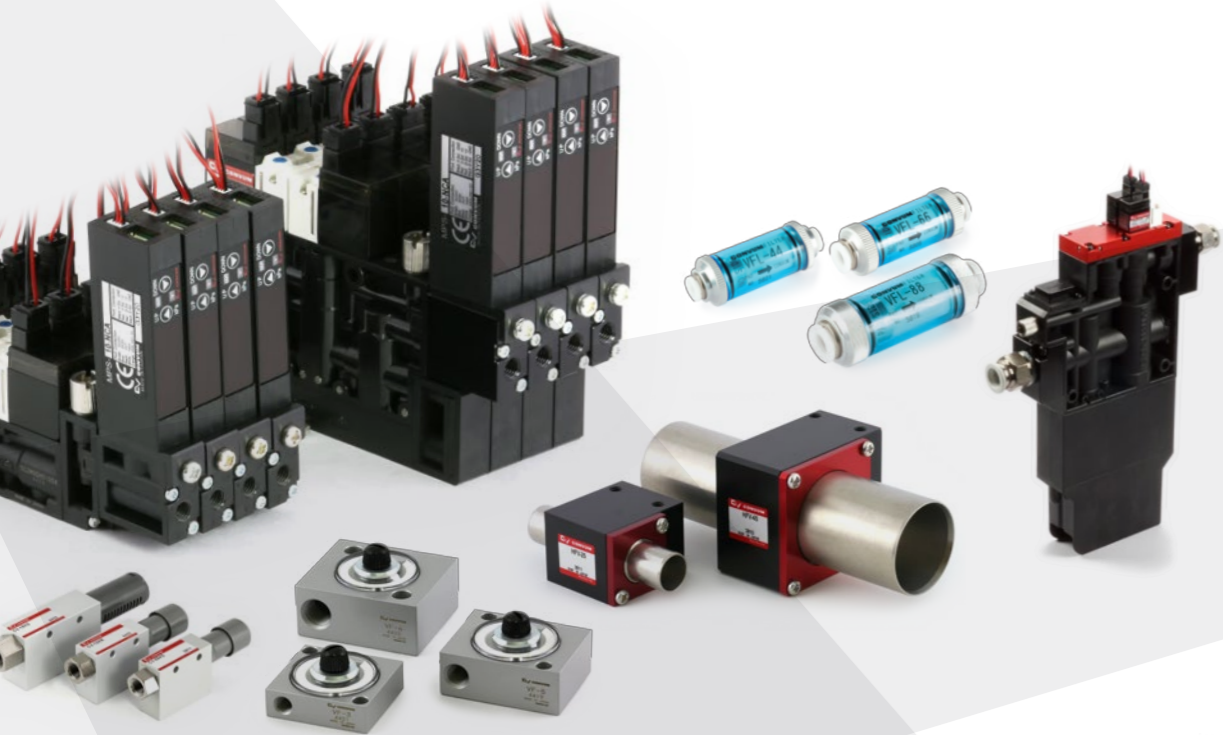


## PRODUCTS LINEUP





# CONVUM

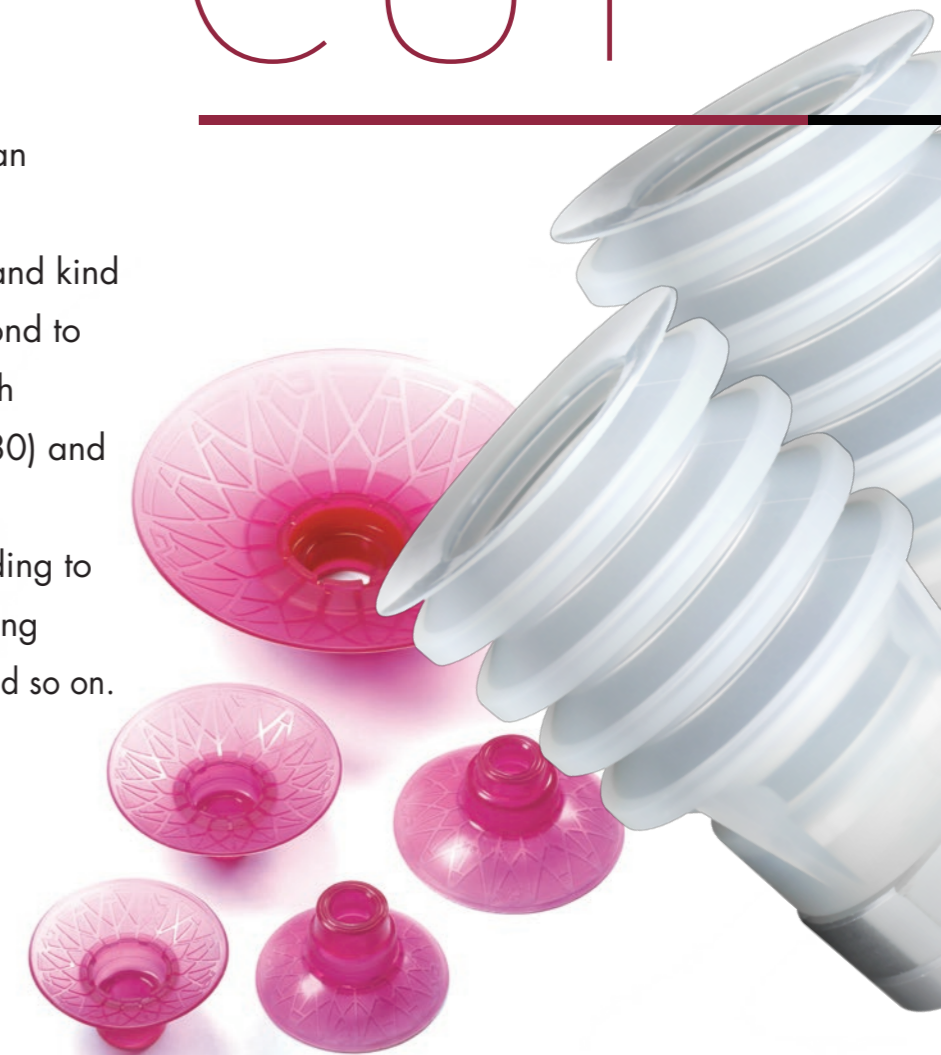


CONVUM® is a vacuum generator that uses compressed air to generate suction (negative pressure). Compressed air is released (ejected) from the nozzle, therefore earning the name "ejector" or "ejector pump". We release the ejector-type vacuum generator on the market under the brand name "CONVUM®" in 1972, then these products have been adopted in the automation lines of various factory. Following customer's needs, we have about 20 series line-up in the current.



## SUCTION CUP

The pad is a product that utilizes the suction (negative pressure) obtained from the CONVUM® vacuum generator to adsorb and lift workpieces (adsorbate). The pad acts as that of a human "hand" or "finger". We have more than ten thousand kind of cups, to be able to correspond to the diversified workpieces, with variation of pad size ( $\varnothing 1$ - $\varnothing 280$ ) and the shape and material. Fittings can be selected according to the application, as with buffering function, anti-rotation function and so on.



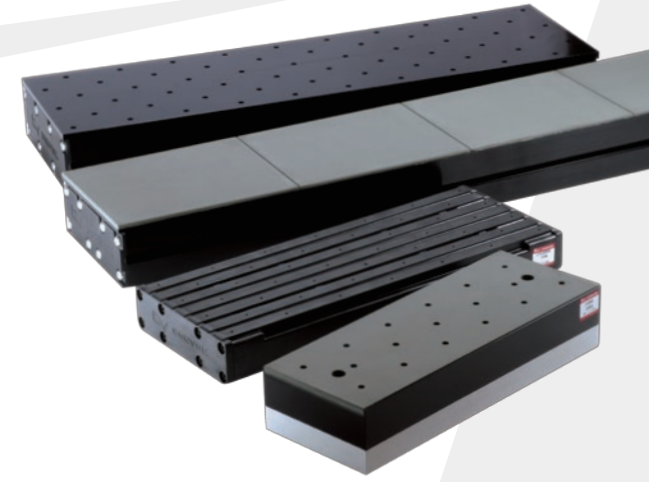
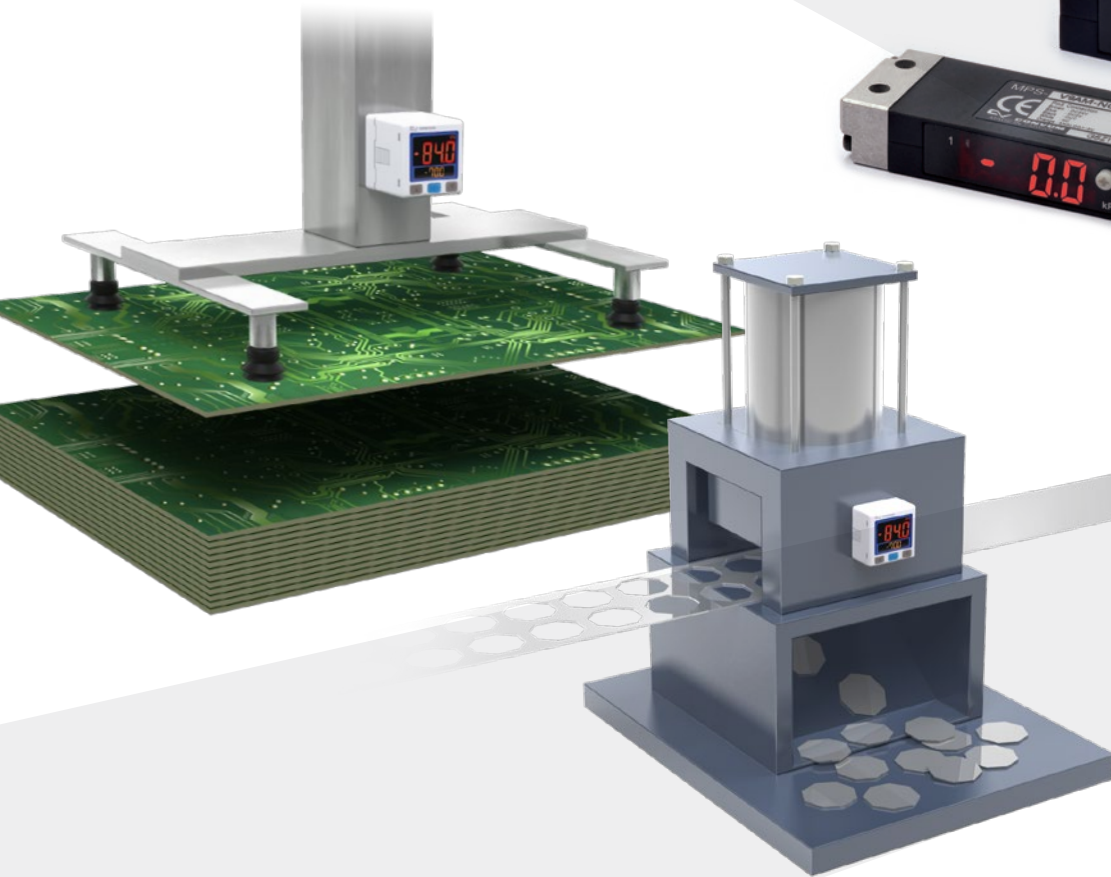




# SENSOR

Pressure Sensor measure a pressure displacement with internal pressure-sensitive element, then convert and output electrical signal.

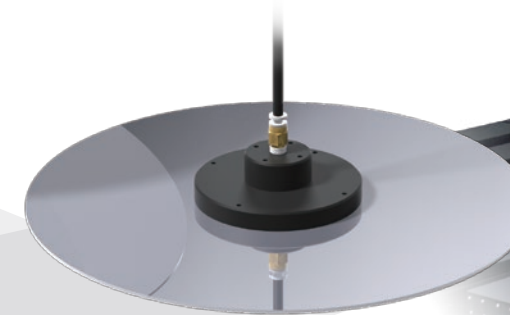
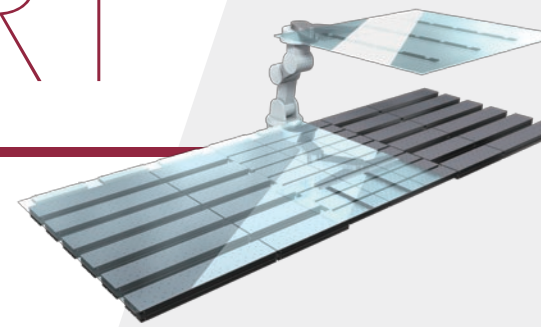
Our company's pressure sensors, which focus on air pressure, are used for a variety of applications including suction confirmation, seating confirmation, and source pressure management.



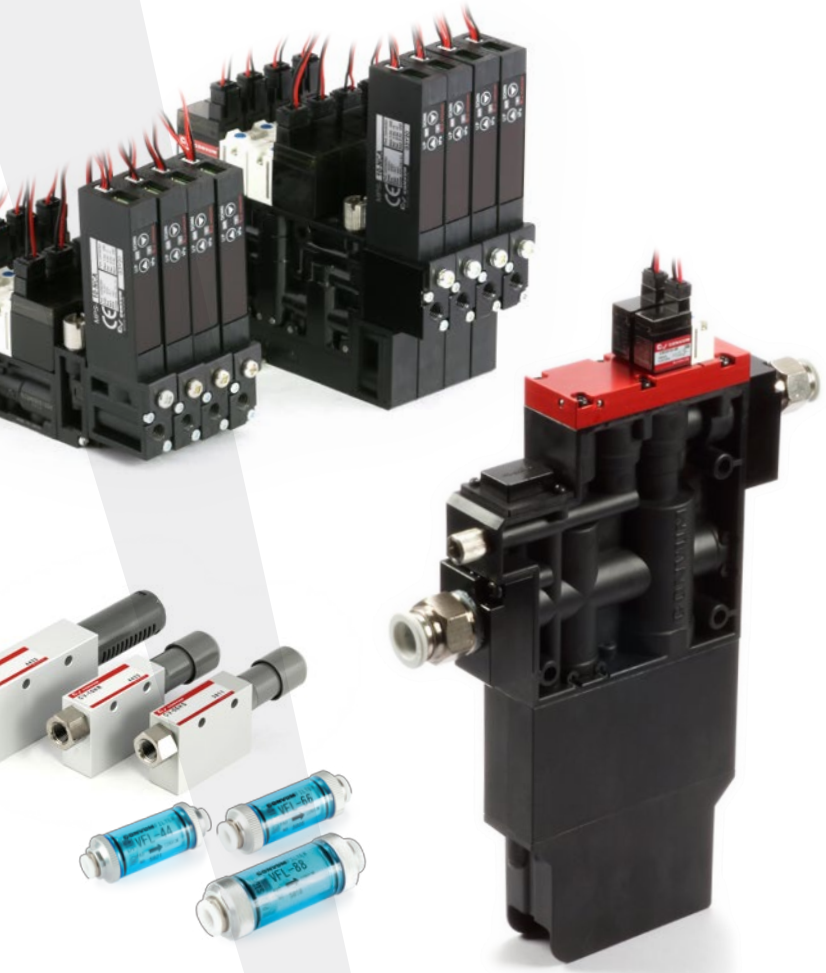
# NON-CONTACT TRANSPORT

Equipment to adsorb and carry the workpieces without contacting (as rising) ,utilizing air characteristic to supplying compressed air.

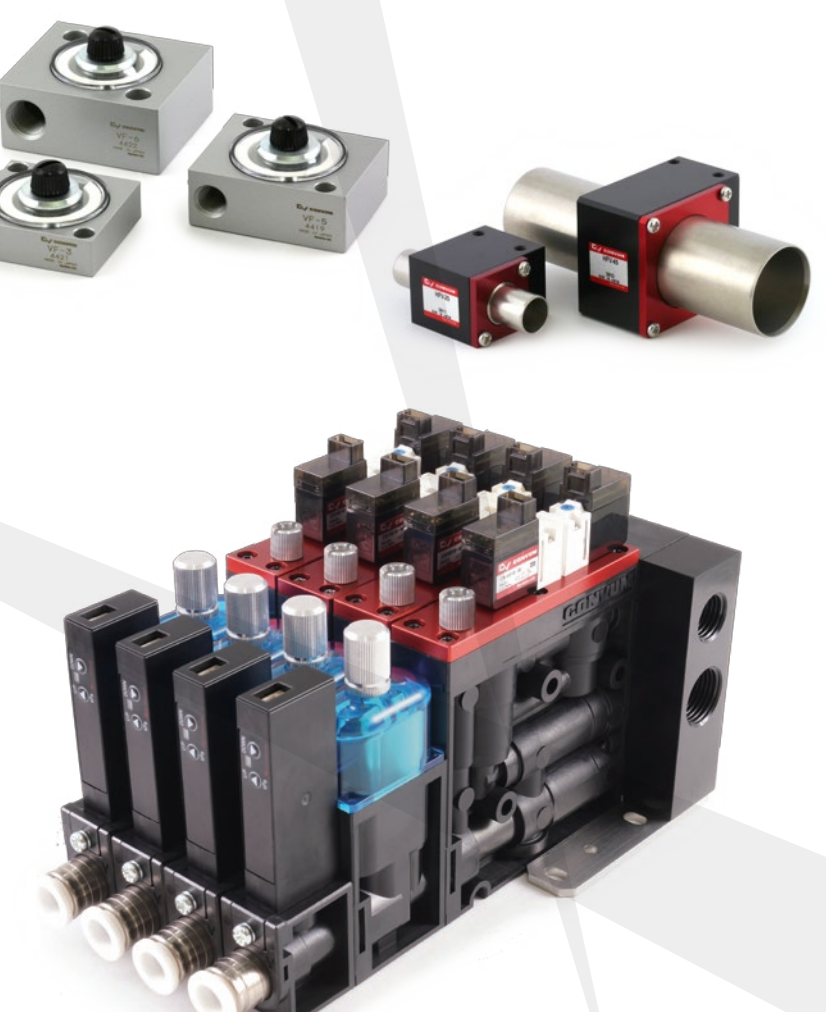
Use for workpieces transfer that cannot adsorb with cups, as Liquid Crystal Panel, film, Circuit Board, and so on.







# CONVUM lineup



Aluminum Standard type  
**CV series**

- Simple construction
- No moving parts, long life
- Several nozzle sizes (5mm ~ 3mm)
- Mechanical switch mountable
- Silencer is mounted
- SUS and PTFE type also available



Resin body Standard type  
**MCV series**

- Simple construction
- No moving parts, long life
- Mechanical switch mountable
- Push-in connector mounted, piping easy
- Lightweight for the resin body



Miniature type  
**CCV series**

- Simple construction
- No moving parts, long life
- The smallest size of this class
- Just weight 10g
- Most suitable for attachment to a narrow space
- Energy-saving, air consumption is 7.1l/min



Multi function stand-alone type  
**CVA2 series**

- Free combination of body, sensor, blow-off valve
- Solenoid valve for vacuum generation mounted
- For the blow-off valve mounted vacuum generation and destruction can be controlled one solenoid valve
- Aluminum body, high durability



Mounted filter  
**CVF series**

- With filter type
- It doesn't need to pip to filter
- Compact design
- The combination with or without the valve for vacuum generation can be selected
- Aluminum body, high durability
- Pressure sensor mountable



Small size resin type  
**CV4 series**

- Compact design
- With silencer
- Lightweight for the resin body
- Pressure sensor mountable



With push-in connector type  
**MCA series**

- Lightweight for the resin body
- With push-in connector, easy mounting
- Pad direct mounting
- Small size, compact



High vacuum level type  
**HDV series**

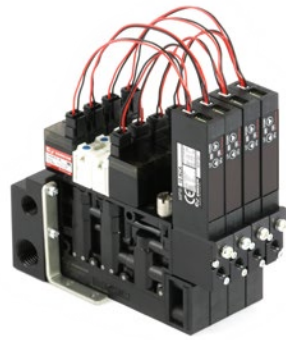
- The max vacuum pressure higher than normal type
- The max vacuum pressure up to -98.6kPa
- Suitable for degassing, air evacuation or vacuum chamber



High vacuum flow type  
**HFV series**

- High vacuum flow
- Sucking object with porous surface
- Evacuation of small granulated parts
- Evacuation of air or gas

# CONVUM lineup



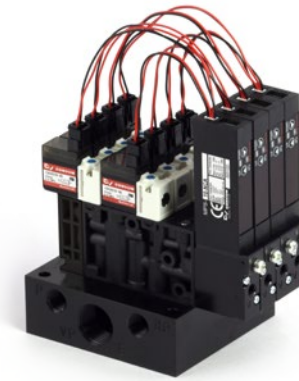
All in one compact energy-saving type  
**SC1 series**

- Special nozzle mounted, energy-saving
- Air consumption will be dramatically reduced with the use of the energy saving sensor
- Compact design, lightweight for the resin body
- Filter mounted
- Concentrated exhaust function
- Self-holding function
- Can be mounted on manifold ,up to 8 units



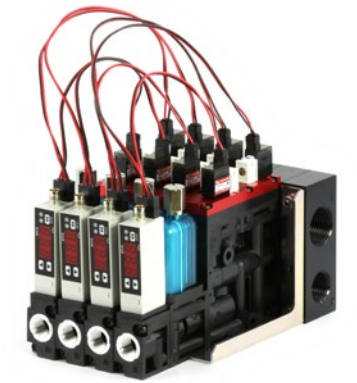
All in one middle size  
**MC22 series**

- Long seller all in one type
- Air consumption will be dramatically reduced with the use of the energy saving sensor
- 20mm width, resin body
- Self-holding function
- Check valve choice available
- Can be mounted on manifold ,up to 8 units



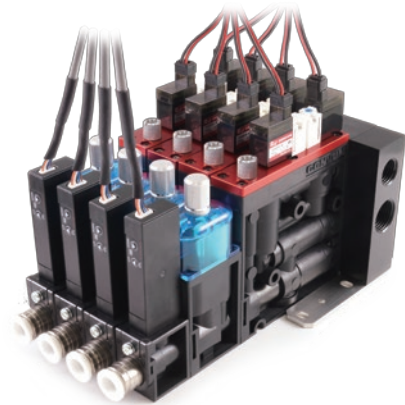
All in one small size  
**MC42 series**

- Compact design
- Lightweight for the resin body
- Same dimension with MPV42 switching valve
- Easy replacement of vacuum pump system
- Self-holding function
- Can be mounted on manifold ,up to 5 units



All in one large size  
**MC72 series**

- High vacuum flow type
- Air consumption will be dramatically reduced with the use of the energy saving sensor
- Resin body
- Blow-off solenoid valve and check valve option available
- Self-holding function
- Can be mounted on manifold ,up to 5 units



All in one middle size smart type  
**SC3 series**

- Multi-stage nozzle is available
- Resin body
- Air consumption will be dramatically reduced with the use of the energy saving sensor
- Mounted with the sealing valve that can be used to release workpieces without wasting blow-off air
- Self-holding function
- Sealing valve and check valve option available
- The connector with supply port and vacuum port is easy assemble and easy disassemble
- Can be mounted on manifold ,up to 8 units



High flow type  
**CVZ series**

- High flow ejector that is comparable to vacuum pump
- Mount in high flow multi-stage nozzle
- 1 to 4 number of nozzle are available to select
- Energy saving suction for breathable material



©All in one small size smart type  
**SC2 series**

- Quick response by direct acting solenoid valve
- Compact design
- Lightweight for the resin body
- Individual exhaust
- Self-holding function
- Can be mounted on manifold ,up to 8 units



All in one small size  
**MC32 series**

- Compact design
- Lightweight for the resin body
- Silencer exhaust and individual exhaust choice available
- Self-holding function
- Can be mounted on manifold ,up to 8 units



All in one small size  
**MC52 series**

- Compact design
- Lightweight for the resin body
- Silencer exhaust
- High blow-off flow
- Can be mounted on manifold ,up to 8 units



All in one large size  
**MC10 series**

- High flow ejector that is comparable to vacuum pump
- Resin body
- Air consumption will be dramatically reduced with the use of the energy saving sensor
- Self-holding function
- Can be mounted on manifold ,up to 5 units





# Suction cups lineup



## Representative work

- Metal sheets
- Wood products
- CD/DVD
- Curve
- Car
- Glass products
- Cardboard / thick paper
- Slender
- Uneven
- Semiconductor chips
- Food & package
- Resin products
- Paper/vinyl
- For round rods
- Breathability
- Sphere



Thin lip type  
**PA series**

- Type with thin lip. Thin type cups
- Application: For works with smooth and pliable surfaces like paper or vinyl sheets
- Lineup:  $\phi$  5, 10, 15, 20, 25, 30, 40, 50



2 bellows type  
**PB series**

- 2 bellows Type with thick lip
- Application: When there is no space for attaching spring type suction cups. When the suction surface is oblique.
- Lineup:  $\phi$  10, 15, 20, 30, 40, 50, 75, 110, 150



2 bellows type cups with lubrication grooves  
**PBO series**

- 2 bellows type cups with lubrication grooves
- Application: When there is no space for attaching spring type suction cups. When the suction surface is oblique. The work which has an oil film in the surface.
- Lineup:  $\phi$  35, 50, 75, 110



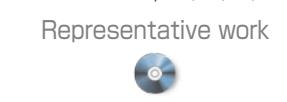
3 bellows type  
**PC series**

- Type with 3 bellows
- Application: When there is no space for attaching spring type suction cups. When the suction surface is oblique.
- Lineup:  $\phi$  5, 7, 10, 15, 18, 20, 30, 40, 60, 90



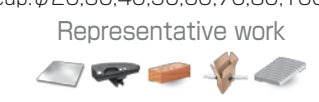
Ring-shaped  
**PCD series**

- Suction cups whose suction surface is ring-shaped
- Application: Work pieces that are ring-shaped, such as CD and DVD discs
- Lineup: Internal diameter  $\phi$  19, 20, 23, 29, 5, 34, 38, 46



Foam (sponge) type  
**PD series**

- Suction cups made of foam (sponge)
- Application: For gripping uneven work pieces with surfaces such as those of block tiles.
- Lineup:  $\phi$  20, 30, 40, 50, 60, 70, 80, 100



Special shaped  
**PE series**

- Special shaped, flat type cups
- Application: Work pieces with smooth and even surfaces.
- Lineup:  $\phi$  8, 10, 12, 15x45, 30, 30x50, 35



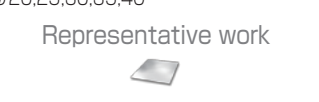
Flat type  
**PF series**

- Standard shaped, flat type cups
- Application: Work pieces with smooth and even surfaces.
- Lineup:  $\phi$  1.5, 2, 2x4, 2.2x4, 2.3, 3, 3.5x7, 5, 6, 8, 10, 15, 20, 25, 29, 35, 40, 50, 60, 80, 93, 120, 150, 200



Flat type cups with lubrication grooves  
**PFO series**

- Flat type cups with lubrication grooves
- Application: Work pieces with smooth and even surfaces. The work which has an oil film in the surface.
- Lineup:  $\phi$  20, 25, 30, 35, 40



# Suction cups lineup



Deep type  
**PH series**

- Suction cups with great internal depth
- Application: Work pieces whose suction surface
- Lineup:  $\phi$ 8, 10, 12, 15x45, 30, 30x50, 35

Representative work



High durability ecology  
**PK2 series**

- Material is thermoplastic polyurethane, high durability ecology suction cup
- For automobile manufacturing line
- Application: steel sheets
- Lineup:  $\phi$ 30, 40, 50, 60, 80, 100

Representative work



Non-rotation  
**PQ series**

- cups with structure preventing rotation of attachment portion
- Application: For works with smooth and pliable surfaces, and works that resist rotation of cups
- Lineup:  $\phi$ 6, 8, 10

Representative work



Oval type  
**PW series**

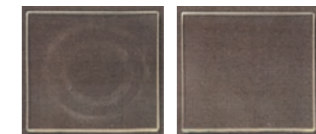
- Suction cups with oval shape
- Application: Where gripping space is limited and when lifting force is desired.
- Lineup: 3.5x7.4x10, 4x20, 4x30, 5x10, 5x20, 5x30, 6x10, 6x20, 6x30, 8x20, 8x30

Representative work



The remains comparison of adsorption

Work pieces : Glass



NBR RA

Non-adhesive treatment  
**RA series**

- Using our own treatment method, reducing suction marks to the limits.
- Application: Optimal for work pieces that are sensitive to marks, such as semiconductor chips and glass products
- Lineup: The suction-pad material is used only with fluorine rubber.

Representative work



2 bellows Type  
**PJ series**

- 2 bellows Type with thin lip
- Application: When there is no space for attaching spring type suction cups. When the suction surface is oblique.
- Lineup:  $\phi$ 4, 6, 8, 10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80

Representative work



Multiple Bellows  
**PL series**

- Multiple Bellows Pad
- Application : Handling uneven or soft work pieces
- Lineup :  $\phi$ 20, 30, 40, 50

Representative work



Cube type  
**PP series**

- Super-small suction cups for gripping square work pieces
- Application: Used exclusively for gripping small objects such as semiconductor chips.
- Lineup: 0.55x0.55, 0.5x1.3, 0.8x1.6, 1.3x2.8, 2.0x2.8

Representative work



Swivel type  
**PU series**

- Swivel type suction cups
- Application: Work pieces whose surfaces are not horizontal.
- Lineup:  $\phi$ 10, 15, 20, 25, 30, 35, 40, 50, 60, 80, 100, 120, 150, 200

Representative work



Suction cups that react with metal deteccors  
**SM series**

- Made of silicone rubber containing metallic components
- Material that passed FDA-compatible Food Sanitation Law tests is used
- Lineup: Under  $\phi$ 50 of PB, PC, PF, PJ, PL,

Representative work



Ecology type  
**PK series**

- For automobile manufacturing line
- Flat and bellows types
- Application: steel sheets
- Lineup:  $\phi$ 30, 40, 50, 60, 75, 80, 85, 100, 110

Representative work



Thin lip type  
**PN series**

- Type with thick lip, Thin type cups
- Application: For works with smooth and pliable surfaces like paper or vinyl sheets
- Lineup:  $\phi$ 15, 17, 17.6, 18, 20, 23, 24, 24.8, 25, 27, 31, 34, 40, 49

Representative work



For round bar  
**PR series**

- Cups specialized for round rods
- Application: For gripping work pieces with cylindrical shape.
- Lineup: 9.5x25, 12.5x23, 15x30, 32x32

Representative work



Non-contact type  
**COP series**

- Non-contact transfer possible based on Bernoulli principle
- Application: transfer of porous, uneven surface
- Lineup:  $\phi$ 20, 40, 60, 80, 100

Representative work



Fitting for suction cups  
**TN series**

- Several fitting type  
Locking type, spring type, non-rotation fitting type, simple fitting type
- Vacuum port  
Top port and side port
- Connection type  
Without connecting, barb connection, push-in connection



# Pressure sensor lineup



Dual digital display with 3 colors status  
**MPS-35 series**

- Main display two colors, Sub-display one color
- Flexible combination can select
- Energy-saving, power consumption is 40mA
- Connector type, easy to install
- Easy setting with using UP and DOWN key
- Pressure range  
Vacuum pressure:-101.3 ~ 10kPa  
Positive pressure:0.1 ~ 1MPa  
Compound pressure:-101 ~ 101kPa



Digital differential type  
**MPS-4 series**

- Detecting a slight pressure differential with high accuracy
- Detection of clogging of the filter
- Easy setting with using UP and DOWN key
- Cable is grommet type
- High response performance of 2 ms
- Pressure range  
-2.00 ~ 2.00kPa



Separate type  
**MPS-8 series**

- Sensor head
- Space saving, 10mm width  
High response performance
- Several port type  
4 type of M5, Φ4 and Φ6 push-in connector
- Can be mounted on CONVUM
- Pressure range  
Vacuum pressure:-101 ~ 0kPa  
Positive pressure:0.1 ~ 1MPa  
Compound pressure:-101 ~ 500kPa



Electronic type  
**MVS-030 series**

- Vacuum sensor
- Flashing LED (red)
- High response performance of 2 ms
- Can be mounted on CONVUM
- Pressure range -2.7 ~ -101.2kPa



Electronic type  
**MVS-035 series**

- Vacuum sensor
- Flashing LED (red)
- Standard analog output
- Hysteresis variable type
- High response performance of 2 ms
- Can be mounted on CONVUM
- Pressure range -2.7 ~ -101.2kPa



Digital display  
**MPS-33 series**

- Easy setting with using UP and DOWN key
- Standard analog output
- IP65
- Cable is grommet type
- Pressure range  
Vacuum pressure:-101 ~ 0kPa  
Positive pressure:0.1 ~ 1MPa  
Compound pressure:-101 ~ 500kPa か -100 ~ 100kPa



Digital display  
**MPS-9 series**

- Thin type ,10mm width
- Lightweight
- Easy setting with using UP and DOWN key
- Connector type, easy to install
- High response performance of 1.5 ms
- Can be mounted on CONVUM
- Pressure range  
Vacuum pressure:-99.9 ~ 0kPa  
Compound pressure:-99.9 ~ 99.9kPa か -100 ~ 500kPa



Energy-saving type  
**MPS-10 series**

- With solenoid valve control, reduction in air consumption
- Thin type ,10mm width
- Lightweight
- Easy setting with using UP and DOWN key
- Connector type, easy to install
- Can be mounted on CONVUM
- Pressure range  
Compound pressure:-101 ~ 500kPa



Mechanical type  
**MVS-VSW**

- Vacuum sensor for CV4 CONVUM
- Mechanical switch
- Pressure range -28 ~ -68kPa



Mechanical type  
**CVA-V**

- Vacuum sensor for CVA2 CONVUM
- Mechanical switch
- Pressure range -33.3 ~ -73.2kPa



Digital display  
**MPS-23 series**

- Easy setting with using UP and DOWN key
- Standard analog output
- Cable is grommet type
- Can be mounted on CONVUM
- Pressure range  
Vacuum pressure:-101 ~ 0kPa  
Positive pressure:0.1 ~ 1MPa  
Compound pressure:-101 ~ 500kPa



Digital display unit  
**MPS-7 series**

- Display for sensor heads (MPS-8 series)
- Pressure management for up to 8 sensor heads
- 1,4,8 channel option available
- High response performance
- CE marking
- EI connector 5P, phoenix contact 4P choice available



Energy-saving type  
**MVS-201 series**

- With solenoid valve control, reduction in air consumption
- 20mm width
- Easy setting with using UP and DOWN key
- Connector type, easy to install
- Can be mounted on CONVUM
- Pressure range  
Compound pressure:-101 ~ 500kPa



Flow sensor  
**MFS-01-N**

- Thin type ,10mm width
- Detecting a slight flow
- High response performance of 2.5 ms
- Flow range 0.25 ~ 500ml/min



# Non-contact transfer equipments lineup



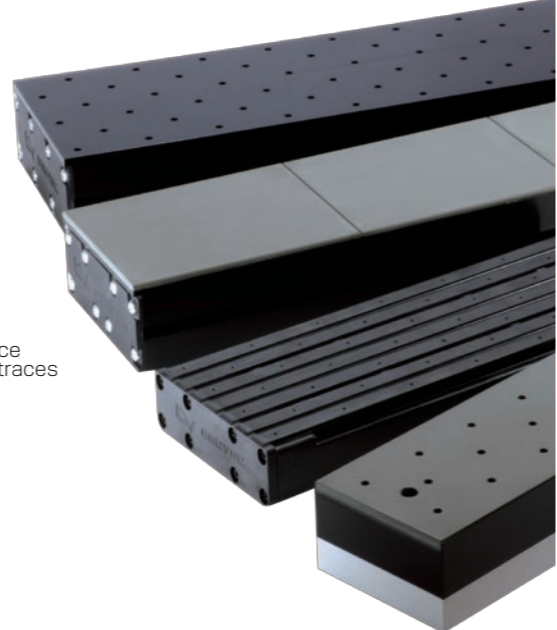
High flotation type unit  
**LTU-025P**

- Resin type
- Adopt the carbon fiber, having an electrically conductive
- Connected by a dedicated joint, layout easy
- Size (WXLXH): 100X250X29.7mm



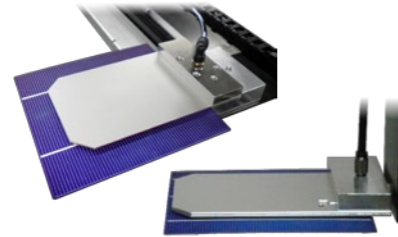
Non-contact cup  
**COP series**

- Non-contact transfer possible based on Bernoulli principle
- Lineup:  $\phi$ 20,40,60,80,100
- Application:  
Suction the bumpy workpiece, porous workpiece  
Carries workpiece without making adsorption traces



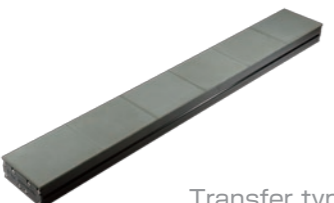
High flotation type unit  
**LTU-B-R**

- Aluminum type
- Suitable for long conveyer line
- High flotation is achieved by using blow
- Size (WXLXH) 100X250,500,750,1000X47.5mm



Thin suction hand

- Size: 165x100x2.5mm
- Application: film, PCB, glass etc



Transfer type unit  
**LTU-CE**

- Porous material type
- Steady transferring
- Size (WXLXH) 100X500,750,1000X45mm



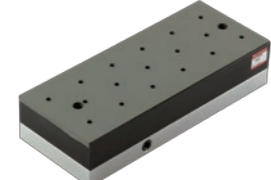
Hand for wafer

- Size: for 6 inch, for 8 inch
- Application: wafer



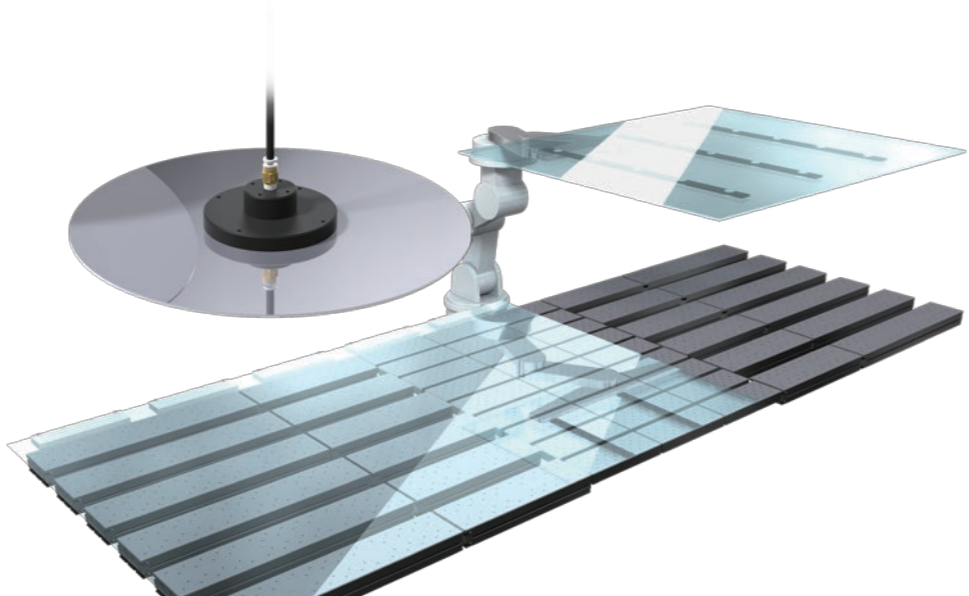
Hand for PCB

- Size: 360x50x8.8mm
- Application: PCB, thin workpiece



High precision type unit  
**LTU-S-CE**

- Porous material type
- High level precision
- Size (WXLXH) 100X186,200,250X40mm



# Vacuum pumps lineup



Cyber type  
**CCP series**

- Simple structure
- Single phase 100V
- Rotary vane type
- Space saving, easy to build into machines
- Integrated cooling fan
- Vacuum (air) flow (l/min): 15, 30, 40
- Max. vacuum level (kPa): -60 or -65



Compact rotary vane type  
**CDV series**

- Rotary vane structure
- Compact, space-saving
- Easy installation
- Single phase 110V or 220V can select
- Integrated cooling fan
- Vacuum (air) flow (l/min): 50Hz(57,100), 60Hz(70,113)
- Max. vacuum level (kPa): -89



Rotary vane type  
**CRV series**

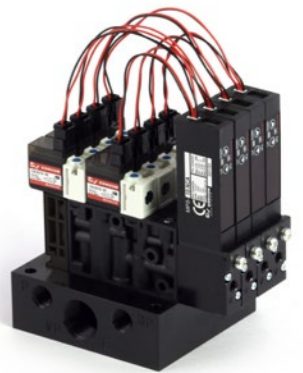
- Rotary vane structure
- Integrated cooling fan
- With filter
- Three phase 220V
- Vacuum (air) flow (l/min) 50Hz(230,400), 60Hz(280,480)
- Max. vacuum level (kPa) -86.3

# Vacuum switching valves lineup



20mm width type  
**MPV3 series**

- Most suitable for the suction and transfer system with vacuum pumps
- All in one unit, with sensor, filter, blow-off valve
- Regulating vacuum (air) flow function
- Can be mounted on manifold, up to 8 units
- Pressure range  
Vacuum: -90 ~ 0kPa, Blow-off: 0.3 ~ 0.5MPa
- Control flow (l/min)  
Vacuum: about 50 (at -80kPa), Blow-off: about 60 (at 0.5MPa)



10mm width type  
**MPV42 series**

- Slim design, lightweight
- All in one type, with sensor, filter, blow-off valve, self-holding function
- Common attachments with CONVUM MC42
- Can be mounted on manifold, up to 5 units
- Pressure range  
Vacuum: -90 ~ 0kPa, Blow-off: 0 ~ 0.5MPa
- Control flow (l/min)  
Vacuum: about 19 (at -90kPa), Blow-off: about 10 (at 0.5MPa)



# Other vacuum equipments lineup



Vacuum filter  
**VF series**

- Thin type
- Applicable for High Vacuum flow
- Easy maintenance, change only element
- Several port sizes available  
Rp1/8, Rp1/4, Rc3/8



Work drop prevention check valve  
**FPV series**

- Safety handling of workpiece with several suction cups
- Keep inside circuit pressure, and prevent to drop workpieces
- Maintain of vacuum pressure when no contact with workpiece
- When no contact with workpiece and free to the air, keep the vacuum pressure inside air circuit
- With filter

# Push-in connector lineup



**WP series**

- Touch connector is made of only six parts
- A newly designed lock ring assures a tight tube connection and smooth insertion
- Tube can be inserted with light force
- High airtight reliability
- Standard flame-resistant resin material PA and F/G (polyamid)

# Miniature air cylinder lineup



Block type  
**SCW series**

- Ultra-small, block type
- Double acting
- Two sides are available for mounting
- All types can mount cylinder switches
- Female or male fitting can be selected
- Bore size X stroke (mm)  
φ4.5X3.6, φ6X4.8, φ8X4.8, φ10X5.10



Vacuum in-line filter  
**VFL series**

- Compact type, space saving
- With push-in connection φ4, φ6, φ8, φ10
- Easy mounting to tube
- Easy maintenance, transparent case, easy checking



Check valve  
**CH-01**

- Compact design
- High sealing
- Keep the suction condition in long time, with minimize air leakage in vacuum condition



Speed controller line-up

- Compact and light body for use in confined space
- Precisely controlling the wide range of air flow
- Standard flame-resistant resin material PBT



Push-in connector type  
**MKY series**

- Ultra-small, with push-in connector
- Single action or double action can be selected
- Can be mounted to body directly
- Bore size X stroke (mm)  
φ4.5X3.6, φ6X4.8, φ8X4.8, φ10X5.10



Vacuum gauge  
**SG-4**

- Bourdon tube pressure gauge
- Easy connection, push-in connection type(φ6)



Miniature vacuum in-line filter  
**VFL-M5**

- Ultra-small type
- Space saving, direct mounting
- Easy maintenance, transparent case, easy checking



Silencer for CONVUM  
**MS series**

- For CONVUM ejector
- Light, body made of resin
- Direct mounting



Polyurethane tubes

- Excellent flexibility
- Small bending radius
- Superior mechanical strength
- Light weight
- O.D.XI.D(mm) line-up  
4X2.5, 6X4, 8X5, 10X6.5, 12X8
- Length 20m,100m



Barb connectot type  
**TKY series**

- Ultra-small, with barb connector
- Single action or double action can be selected
- Can be mounted to body directly
- Bore size X stroke (mm)  
φ4.5X3.6, φ6X4.8, φ8X4.8, φ10X5.10