

## VACUUM GRIPPING SYSTEMS



A modular and versatile solution  
for handling products with  
different sizes, shapes and porosity



# Gimatic Vacuum Gripping Systems

Our wide range of products includes vacuum gripping systems capable of meeting the most diverse needs, adapting to objects of various shapes, sizes, and weights.

The contact surface of our systems is made of special sealing foam (EPDM or natural rubber) with high resistance to meet specific requirements.

Furthermore, the systems can be equipped with suction cups (in various materials, including those compliant with FDA standards and polyurethane), making the solution customizable according to specific needs.

Advantages of vacuum gripping systems:

- > **Versatility:** they can handle a wide variety of objects, regardless of shape, size, material, or surface finish.
- > **Gentle handling:** they do not damage fragile objects.
- > **Flexibility:** they can be easily integrated into automated systems.



## Typical Applications

Our vacuum gripping systems are designed and manufactured to provide optimal solutions in a variety of sectors, including:

- **Palletizing systems:** handling boxes, slipsheets, and wooden pallets.
- **Packaging:** gently handling boxes, plastic films, labels, and other components.
- **Food industry:** safe handling of packaged products, bottles, cans, and other food items.
- **Automotive industry:** handling components such as body panels, glass, and bumpers.
- **Electronics industry:** handling delicate components such as printed circuit boards and LCD screens.
- **Logistics industry:** handling packages, boxes, and other objects during warehouse operations.
- **Wood industry:** handling panels, boards, and other wooden elements.



Palletizing



Food



Automotive



Electronics



Logistics



Wood

## OUR PRODUCT RANGE

### FGS - Vacuum gripping systems



**FGS-060-F20**  
Size 60  
with 20mm thick foam



**FGS-060-PSC**  
Size 60  
with suction cup preparation



**FGS-120-F20**  
Size 120  
with 20 mm thick foam



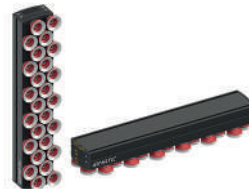
**FGS-120-F20-BSV**  
Size 120 with 20 mm thick foam,  
vacuum solenoid valve, and blow-off



**FGS-120-PSC**  
Size 120  
with suction cup preparation



**FGS-120-PSC-BSV**  
Size 120 with suction cup  
preparation, vacuum solenoid  
valve, and blow-off



**FGS-120-SC**  
Size 120 with VG.IS suction cups



**FGS-120-SC-BSV**  
Size 120 with VG.IS suction  
cups, solenoid valve, and  
blow-off

### FBG - Vacuum gripping systems for bags



**FBG**  
Sizes: 245x125 mm, 250x180 mm, 350x250 mm  
Heights: 70 mm and 90 mm  
Foam: 30 mm thickness - natural rubber or EPDM

### FBG-L - Vacuum gripping systems for bags Integrated vacuum generator



**FBG-L**  
Size: 245x125 mm  
Heights: 70 mm and 90 mm  
Foam: 30 mm thickness - natural rubber or EPDM

### FCG - Vacuum gripping systems Carbon body



**FCG-400**  
Size: 400x300 mm  
Foam: 25 mm thickness - 30 mm pitch

### FCR - Collaborative vacuum gripping systems Carbon body



**FCR**  
Size: 240x120  
Foam: 20 mm thickness



# Operating principle

## Self-closing valves

### HOW IT WORKS

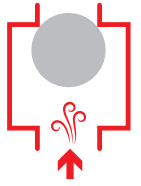
The vacuum channel has a chamber containing a metal ball. In the absence of the object to be picked up, the metal ball moves and hermetically closes the vacuum channel.

### WHEN TO USE IT

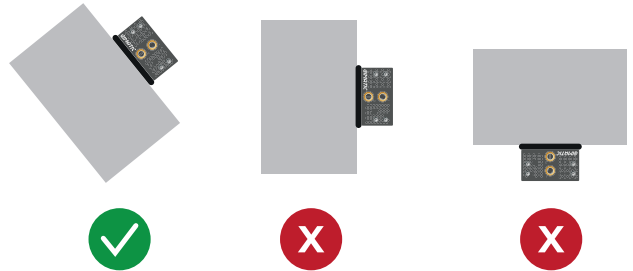
Ideal in different applications and formats, where a high level of vacuum must be maintained, despite the fact that most of the surface of the manipulator may not be gripping.

### STRENGTHS

Faster, more flexible, less sensitive to dust, with lower consumption as it requires smaller pumps.



1. Positioning of the gripping system on the object to be handled, parallel to the gripping surface.
2. Approaching of the gripping system until contact is made with the gripping surface.
3. Activation of vacuum generation.
4. Picking up of the object to be handled.
5. Deposit of the object with vacuum deactivation and blow-off if necessary.



## Calibrated holes

### HOW IT WORKS

The vacuum channel has a bottleneck (calibrated microhole), which generates a known leak in the vacuum chamber if the object to be picked up is missing.

### WHEN TO USE IT

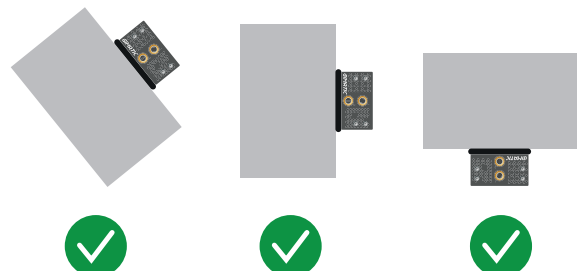
Ideal when self-closing valves cannot be used (e.g. in vertical handling applications) or when the gripping system covers about 90% of the gripping surface to be handled.

### STRENGTHS

Can also work at 180°, lightweight.



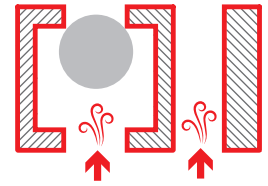
1. Positioning of the gripping system on the object to be handled, parallel to the gripping surface.
2. Approaching of the gripping system until contact is made with the gripping surface. Vacuum activation before contact with the object is advised for high-speed applications.
3. Picking up of the object to be handled.
4. Deposit of the object with vacuum deactivation and blow-off if necessary.



## Self-closing valves with calibrated holes

### HOW IT WORKS

The vacuum channel features a chamber containing a metal sphere and a restriction (calibrated micro-hole). In the absence of an object to be picked up, the sphere moves and hermetically seals the vacuum channel, and the calibrated hole creates a known leak in the vacuum chamber.



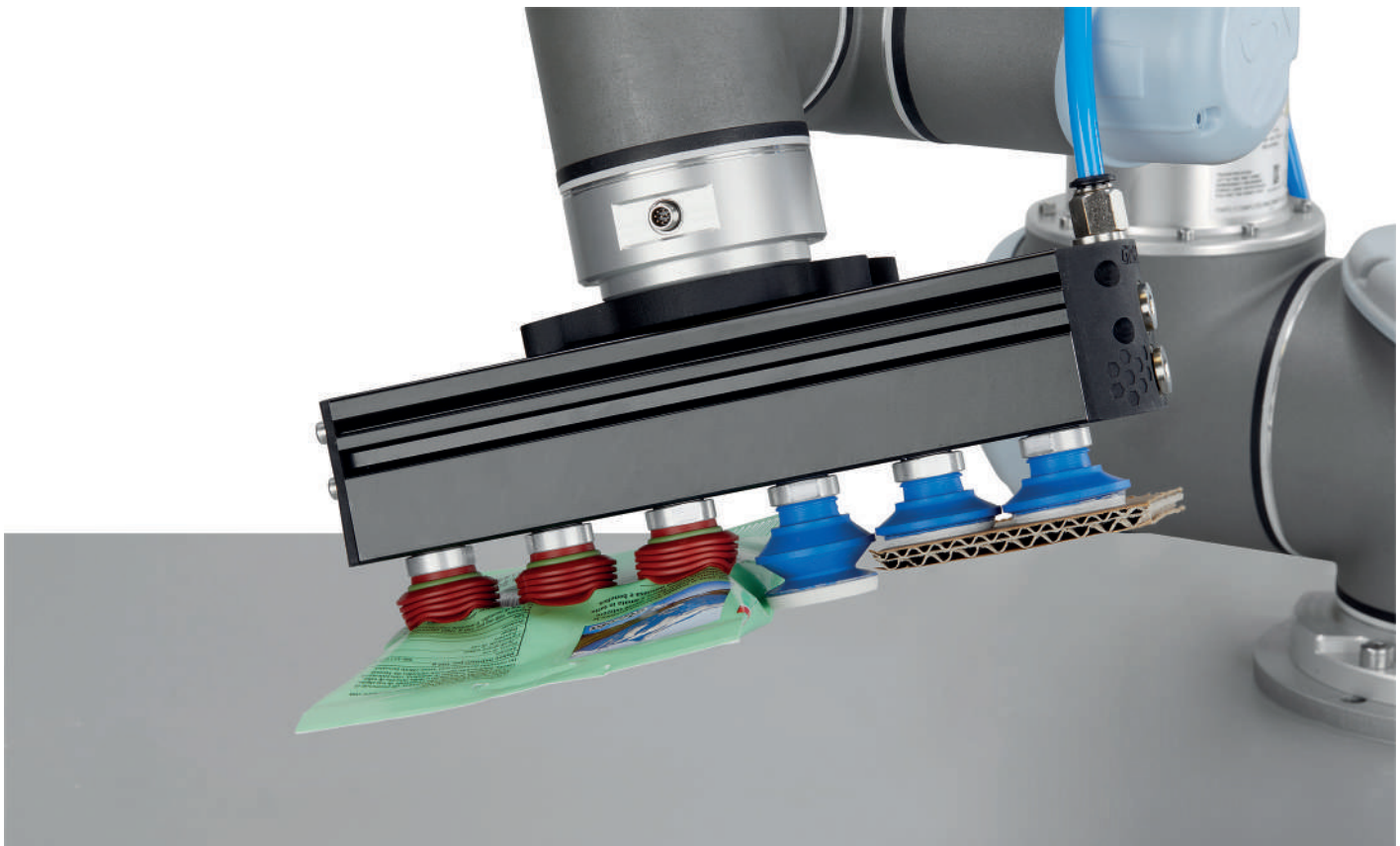
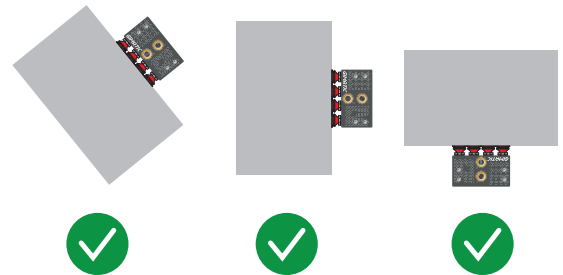
### WHEN TO USE IT

Perfect for various applications and sizes that require rotating the piece more than 45 degrees and need fast gripping and releasing.

### STRENGTHS

It's capable of operating at 180°, offering increased speed, flexibility, and dust resistance.

1. Positioning of the gripping system on the object to be handled, parallel to the gripping surface.
2. Approaching of the gripping system until contact is made with the gripping surface. Vacuum activation before contact with the object is advised for high-speed applications.
3. Picking up of the object to be handled.
4. Deposit of the object with vacuum deactivation and blow-off if necessary.





# FGS Series

Our **FGS** vacuum gripping systems stand out for their versatility and adaptability to any handling requirement, offering a range of advantages:

## > Configuration flexibility and compactness

- **Integrated vacuum generator:** a self-contained and compact solution, ideal for confined spaces, as all components are integrated into a single system.
- **Customizable number of cartridges:** maximum flexibility for connection to existing vacuum systems or for specific suction flow requirements.
- **Option for integrated solenoid valves:** directly control vacuum generation and blow-off within the gripping system.

## > Precise grip control

- **Self-closing valves:** ensure a firm and secure grip on objects of various shapes and surfaces, maintaining a constant degree of vacuum regardless of the manipulator's contact surface, making the system flexible and independent of the shape of the object being gripped.
- **Calibrated holes:** allow handling of objects of different shapes, even with 180° tilting.

## > High performance and energy saving

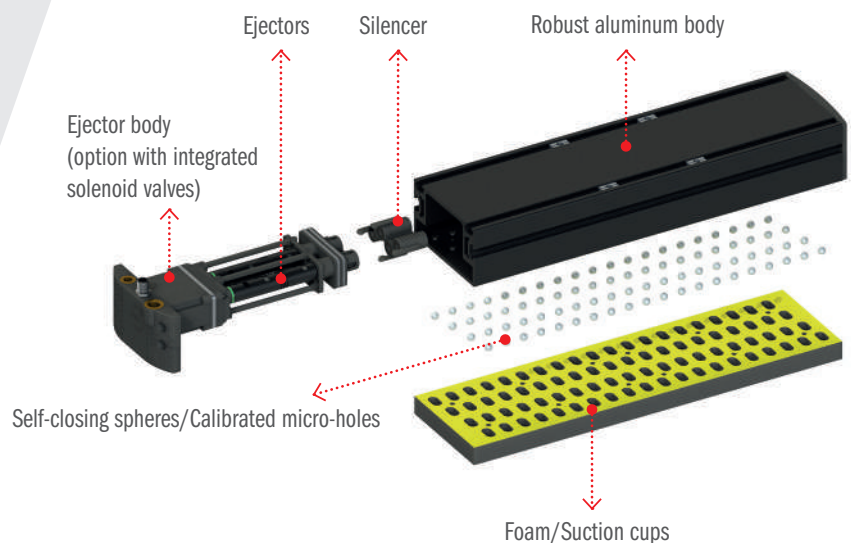
- **EJ-LARGE-HF-3 multi-stage ejectors:** maximum suction flow with reduced energy consumption, for optimal efficiency and significant cost savings.

> Available in both foam versions (with calibrated holes or self-closing valve) and suction cup versions (self-closing valve with calibrated hole)

> Available in various lengths to meet the needs of different industrial sectors

> Available with different hole patterns depending on requirements

> Available with integrated solenoid valves in the 120 mm size



Suction cup version



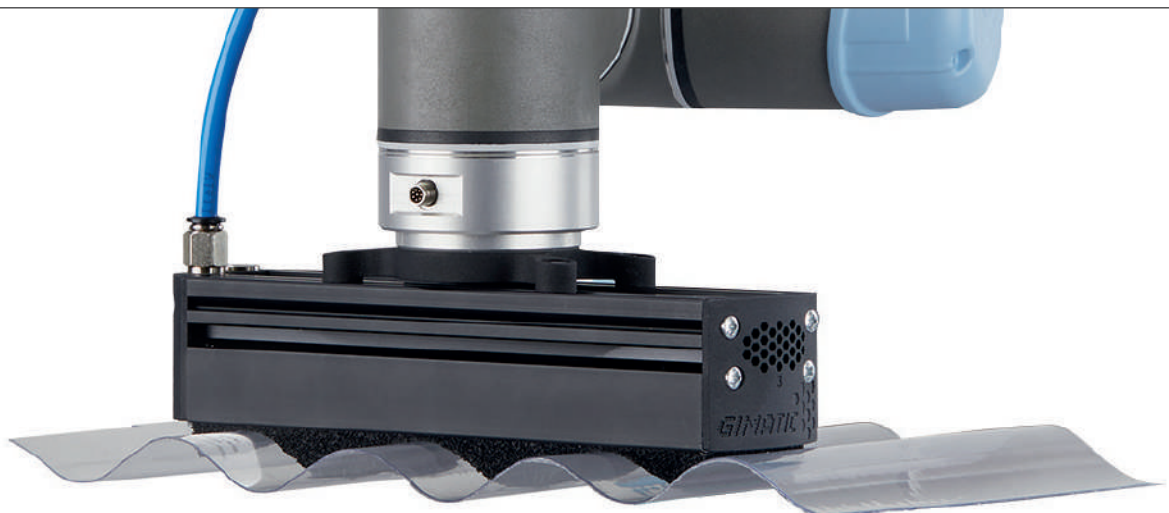
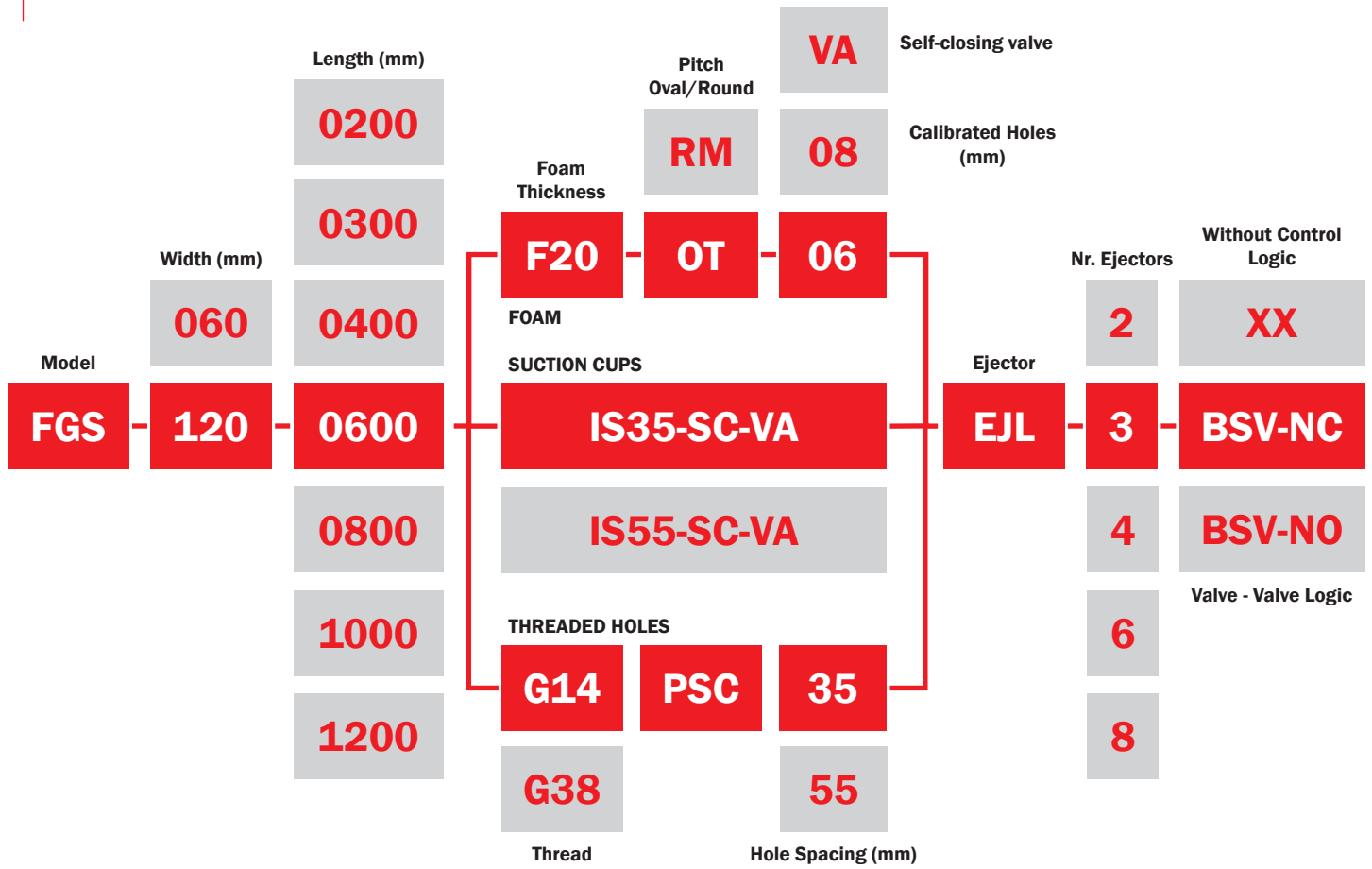
Foam version



Version with threaded holes for suction cups



## Configuration Code



More Info



Plastic



Glass



Packaging



Metal Sheet



Wood



# FBG Series

The **FBG** series of vacuum gripping systems is designed to handle bags containing liquid or solid materials of various shapes and weights.

Numerous advantages make it the ideal choice for this type of handling:

- > **Efficient gripping:** easily lifts and moves heavy bags from above, eliminating the need for bulky mechanical systems that wrap around the bag.
- > **Adaptability:** handles bags of various shapes and weights, meeting specific requirements.
- > **Safety and stability:** safe and reliable vacuum gripping system, ensuring maximum safety during transport.
- > **Optimized times:** increases productivity by reducing material handling times.

- > Supplied without a vacuum generator; a wide range of Gimatic pumps can be selected
- > Available with 30 mm thick natural rubber orange foam or black EPDM foam
- > Internal metal plate to prevent damage to the handled bag (can be removed if not needed)



The 30 mm thick orange foam is made of natural rubber and offers excellent wear resistance and high grip stability.

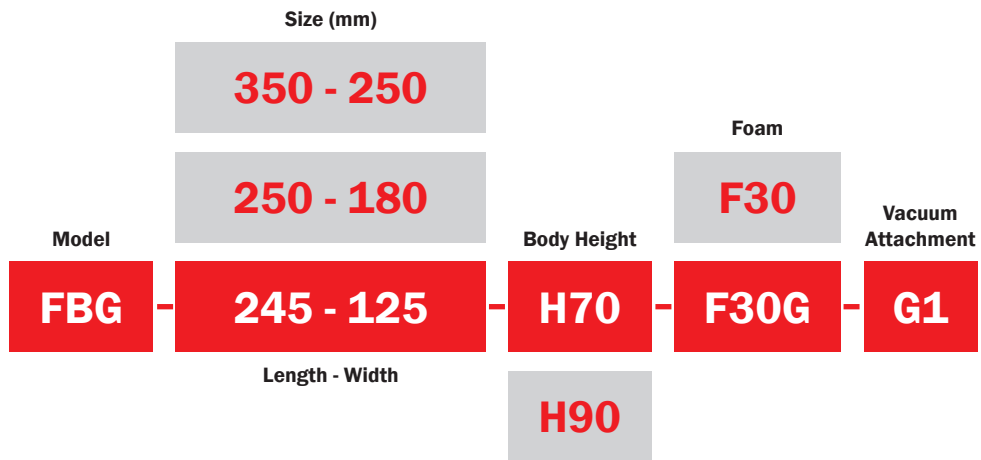


The 30 mm thick black foam is made of EPDM and allows for a perfect fit to the bag being handled.





**Configuration Code**



More Info



Plastic



Bag Palletizing



Packaging



# FBG-L Series

The **FBG-L** series of vacuum gripping systems with integrated vacuum generators is a compact solution for handling bags containing liquid or solid materials of various shapes and weights.

Numerous advantages make it the ideal choice for this type of handling:

- > **Compact design:** integrates ejectors that occupy minimal space and positions the system as close as possible to the gripped object.
- > **Plug&Play:** enables direct mounting on most collaborative robots available on the market.
- > **Efficient gripping:** easily lifts and moves heavy bags from above, eliminating the need for bulky mechanical systems that wrap around the bag.
- > **Adaptability:** handles bags of various shapes and weights, meeting specific requirements.
- > **Safety and stability:** safe and reliable vacuum gripping system, ensuring maximum safety during transport.
- > **Optimized times:** increases productivity by reducing material handling times.

- > Possibility of vacuum generation thanks to the integration of two LARGE ejectors that can be 2 or 3 stage
- > Available with 30 mm thick natural rubber orange foam or black EPDM foam
- > Internal metal plate to prevent damage to the handled bag
- > By adding the MFIA374-A kit, it can be directly attached to the most common cobots on the market (ISO-9409-1-50-4-M6)



The 30 mm thick orange foam is made of natural rubber and offers excellent wear resistance and high grip stability.



The 30 mm thick black foam is made of EPDM and allows for a perfect fit to the bag being handled.



**Configuration Code**

Model	Size (mm)	Body Height	Foam	Ejector Size	Ejector Type	Ejector Stages
FBG	350 - 250	H70	F30	LX2	HF	2
	250 - 180					H90
	245 - 125					
	Length - Width					



More Info



Plastic



Bag Palletizing



Packaging

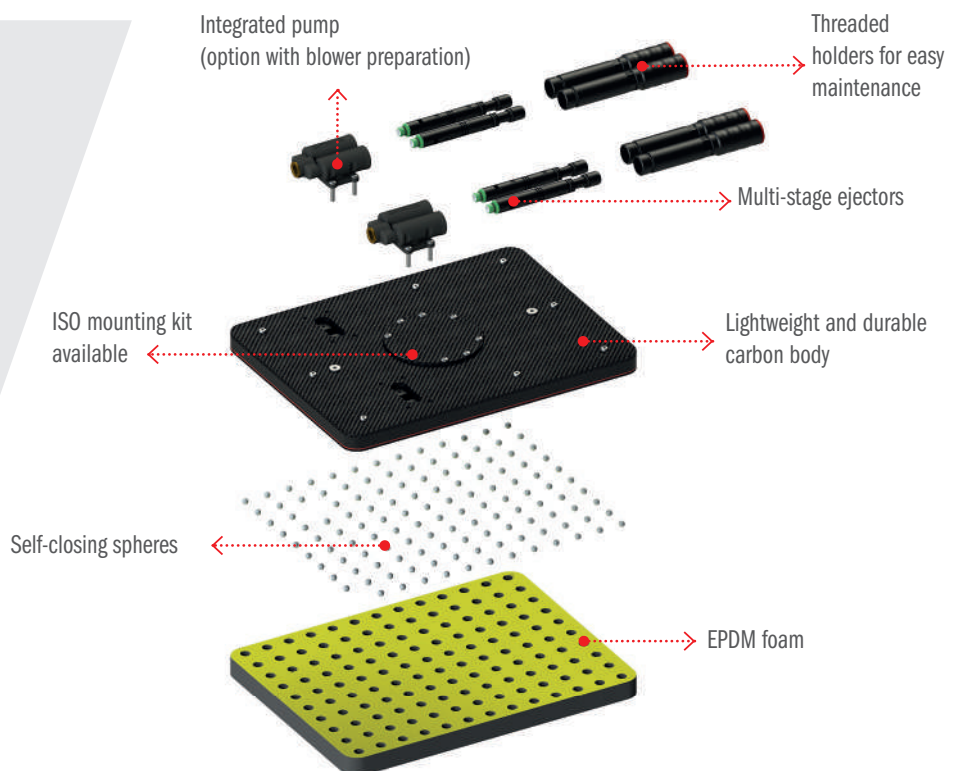


# FCG Series

The **FCG** series of vacuum gripping systems is distinguished by its compact and lightweight design, ideal for integration on robots with low payloads, thanks to its reduced weight. It is particularly suitable for the palletizing of cardboard boxes, interleaves, and pallets.

- > **Adaptability:** offers a modular and versatile solution for handling products of different sizes, shapes, and porosity with a single system.
- > **Self-closing valves:** guarantee a firm and secure grip on objects of various shapes and surfaces, maintaining a constant degree of vacuum regardless of the surface of the manipulator in contact, making the system flexible and not dependent on the shape of the object picked up.
- > **Dual configuration:** allows you to choose between the version with an integrated vacuum generator for complete autonomy or the version with a central vacuum port for connection to an external source.
- > **Energy saving:** uses EJ-LARGE-HF-3 multi-stage ejectors that guarantee a high suction flow rate with reduced energy consumption, without moving mechanical parts and without generating heat.
- > **Power&light:** guarantees a high suction flow rate with a reduced weight thanks to the carbon body.

- > Available with integrated vacuum generator
- > Available with a central vacuum port for connection to an external vacuum source (blower; electric pump)
- > Equipped with self-closing valves

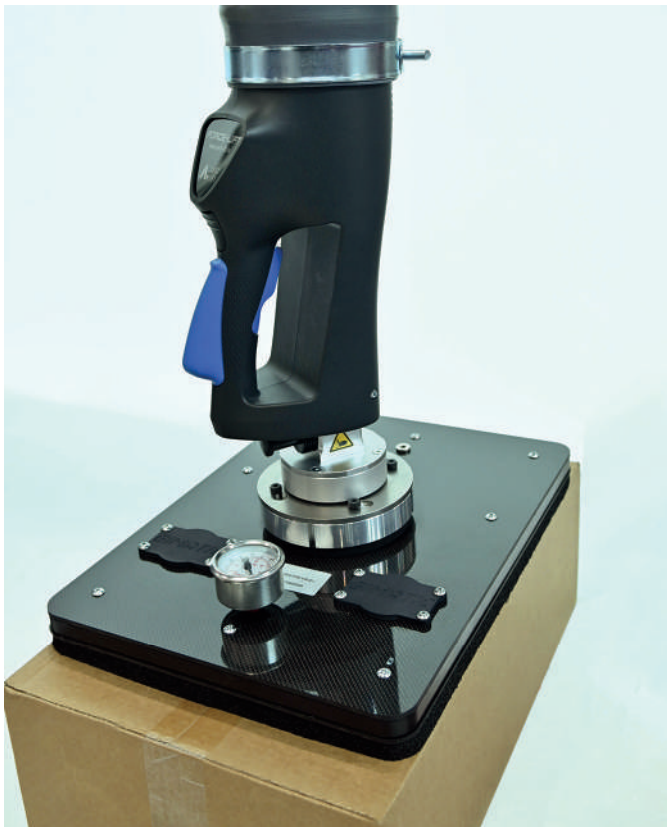


The black foam, 25 mm thick, is made of EPDM and allows for a perfect fit to the object being handled.



**Configuration Code**

Model	Width (mm)	Length (mm)	Foam	Pitch Round/ Ø Hole	Pitch	Self-closing valve	Ejector	Ejector Size
<b>FCG</b>	<b>400</b>	<b>0300</b>	<b>F25</b>	<b>R10</b>	<b>P30</b>	<b>VA</b>	<b>EJL</b>	<b>4</b>
							Central blower connection	<b>G1</b>
								<b>T40</b>
							Off-center blower connection	



More Info



Wood



Palletising



Plastic



Glass



Packaging



Metal Sheet



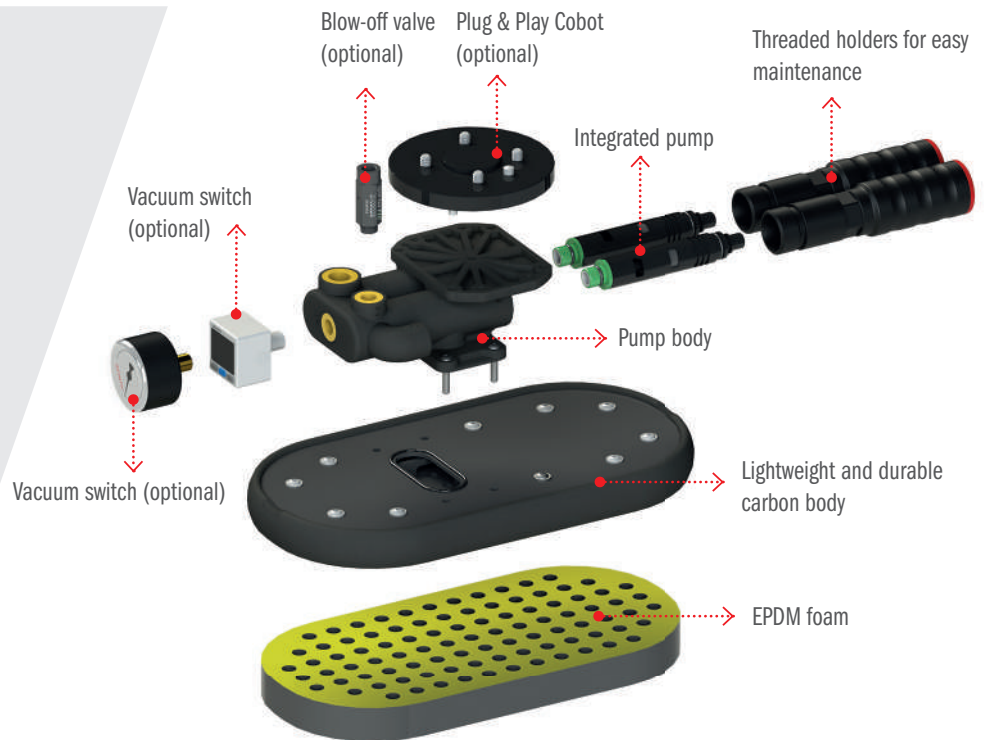
# FCR Series

The FCR series of vacuum grippers stands out for its innovative Plug & Play system, making it the optimal choice for integration with collaborative robots.

This solution is particularly suitable for collaborative robots because it is lightweight (less than 750 g), offering intuitive installation and great versatility in the context of collaborative automation.

- > **Versatility:** a versatile solution for handling products of various sizes, shapes, and porosities with a single system.
- > **Maximum lifting efficiency:** equipped with calibrated holes, this version is ideal for applications where it is required to rotate the manipulated objects more than 45° and require that at least half of the gripper surface is in contact.
- > **Energy efficiency:** the EJ-LARGE-HF-2 multi-stage ejectors guarantee a high suction flow rate with reduced energy consumption, without moving mechanical parts and without heat generation.
- > **Compactness and lightness:** the 240x120 mm size is ideal for filling packages thanks to its compact shape.

- > Plug & Play solution; no configuration required for installation.
- > Integrated vacuum generator.
- > Calibrated holes for rotations > 45°



The black foam, 20 mm thick, is made of EPDM and allows for a perfect fit to the object being handled.



**Configuration Code**

	Size (mm)	Foam	Calibrated Holes (mm)		Ejector Type	Ejector Stages
<b>FCR</b>	<b>240 - 120</b>	<b>F20</b>	<b>R08</b>	<b>06</b>	<b>LX2</b>	<b>HF</b> - <b>2</b>
Model	Length - Width		Pitch Round/ Ø Hole		Ejector Size	



More Info



Wood



Palletising



Plastic



Glass



Packaging



Metal Sheet



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