

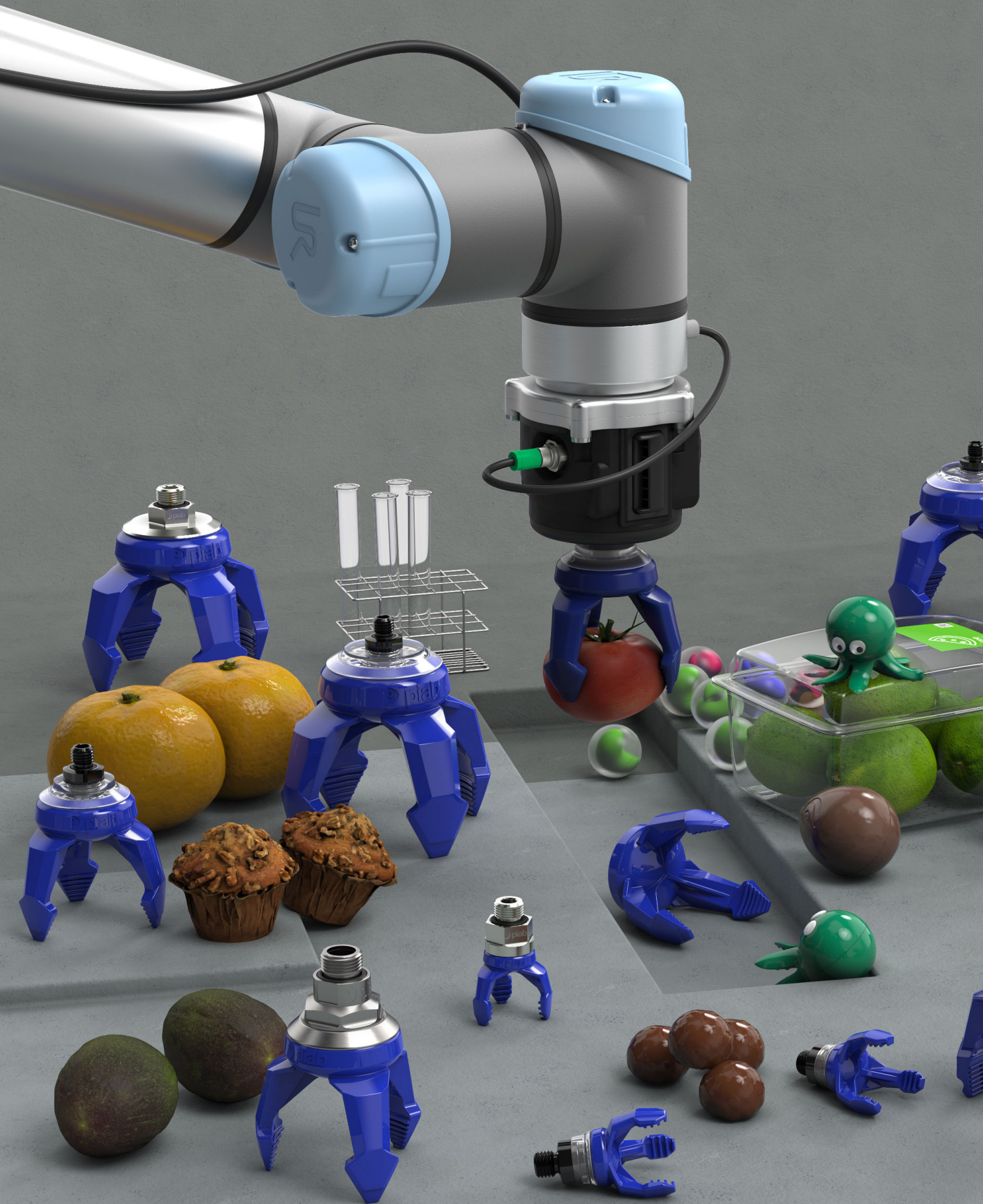
piSOFTGRIP®

pneuvano

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Handling sensitive and difficult to pick objects





piSOFTGRIP®

The human hand has been at the centre of intense research and development within robotics since the field's infancy. Huge efforts have been spent on making robotic hands that imitate the human hand, copying its dexterity and complexity. But with complexity comes great expense.

Instead of trying to copy the human hand, Piab's developers realised an affordable substitute that works in real industrial settings. The piSOFTGRIP® vacuum grippers are a unique and extremely cost-effective solution – a truly innovative gripping tool developed especially with food industry automation in mind requiring minimal vacuum flow to operate.

Using vacuum technology, Piab's piSOFTGRIP® picks up sensitive and lightweight objects of odd geometries and/or unusual surfaces. Automating the packaging of delicate items like delicious pralines, soft strawberries, cream-filled cornets or hollow chocolate eggs becomes child's play. Made in detectable silicone approved for direct contact with food, the vacuum gripper can be used to automate the handling of all sorts of fresh, unpackaged and delicate food items, without the risk of crushing.

Furthermore, the piSOFTGRIP® can handle other delicate items such as test tubes in high throughput labs, bin-picking of toys like rubber ducks, machine parts or the removal of sensitive items from injection moulding equipment.

- **Cost-effective and robust solution**
- **Very small footprint for various applications**
- **Easy installation without programming**
- **Simple to clean with the wash-down fitting**

piSOFTGRIP® 30-3

The perfect pralines packer!



Piab's piSOFTGRIP® 30-3 has three oval-shaped gripper fingers with deep grooves and a vacuum cavity. It can hold objects up to 30 mm [1.18 inch] width and was originally developed for the confectionary industry to automatically handle pralines.

It can also be used for a wide variety of further food applications such as packaging other high-quality foodstuffs like dried dates, cherry tomatoes etc. In other industries, it can be used for processes such as handling test tubes during packaging or in the lab environment itself.



piSOFTGRIP® 50-2

Great gripping solution for small, sensitive oblong objects



The piSOFTGRIP® 50-2 can handle objects between 10-50 mm [0.40-1.97 inch] width. This gripper, too, was developed with the confectionery industry and packaging of sensitive objects like candy bars or cream-filled waffle cones in mind but is even suitable to pack fish cuts into cans.

piSOFTGRIP® 50-2 has two gripping fingers and a vacuum cavity, all made in one piece, resulting in a simple and robust product. Because it is vacuum-driven, the gripping force is easily adjusted and controlled by the applied vacuum level.



Do you
want to know
more?

Take a look at
the online
product page:
www.piab.com

piSOFTGRIP® 50-3

Handling strawberries automatically?



No problem with Piab's soft gripping tool **piSOFTGRIP® 50-3**, which has three triangular-shaped gripper fingers, allowing it to hold objects up to 50 mm [1.97 inch] in width. It will grip sensitive and lightweight objects of odd geometries, oblong shapes and/or unusual surfaces.

piSOFTGRIP® 50-3 can easily handle delicate fruits such as strawberries, tomatoes and passion fruit as well as unwrapped hollow chocolate eggs or even real raw eggs.

Bin-picking of small irregularly shaped objects, such as toys, is another potential application.



piSOFTGRIP® 100-4

Big is beautiful!



Piab is proud to introduce the new and largest piSOFTGRIP® 100-4, developed especially with the food industry automation in mind. It is also capable of handling odd-shaped machine parts or remove injection moulded parts.

piSOFTGRIP® 100-4 has four gripping fingers and a vacuum cavity allowing it to hold objects up to 100 mm [3.93 inch] in width. Like all other members of the piSOFTGRIP® family, it is made in one piece, resulting in a simple and robust product. Its gripping force is easily adjusted and controlled by the applied vacuum level.



piSOFTGRIP® stands for great gripping solutions for sensitive and fragile objects.

Check out some of the endless application possibilities and get inspired. Your nearest Piab sales representative will be happy to do a test run at your premises or in one of our vacuum technology labs.

Applications

Get inspired

Bread and bakery

Flaky pastry, non-uniform surface, slashes in the surface - these are the issues faced when automating the handling of bread and bakery products from Danish pastry to sausage rolls. Yet, increasing productivity by using multiple picker robots to cope with a large number of products in the shortest possible time, placing them e.g. in a tray is mandatory to stay competitive.

The piSOFTGRIP® picks bakery products securely with no damage to the product and eliminates the need for a filter. Blow off function of e.g. the piCOBOT® vacuum unit allows quick release and extra expansion of fingers to ease positioning around the product before the vacuum is applied to grip the product resulting in a stable yet soft grip that eliminates any fly-off.



Chocolates and sweets

Delicate pralines, hollow chocolate eggs and sweets need careful attention during handling to avoid damages, crushing, surface marks or loss of sprinkled nut toppings. Previous solutions have been complex and expensive or led to many rejected pieces. These handling problems have ended with Piab's piSOFTGRIP® solutions, which handle these sensitive products gently

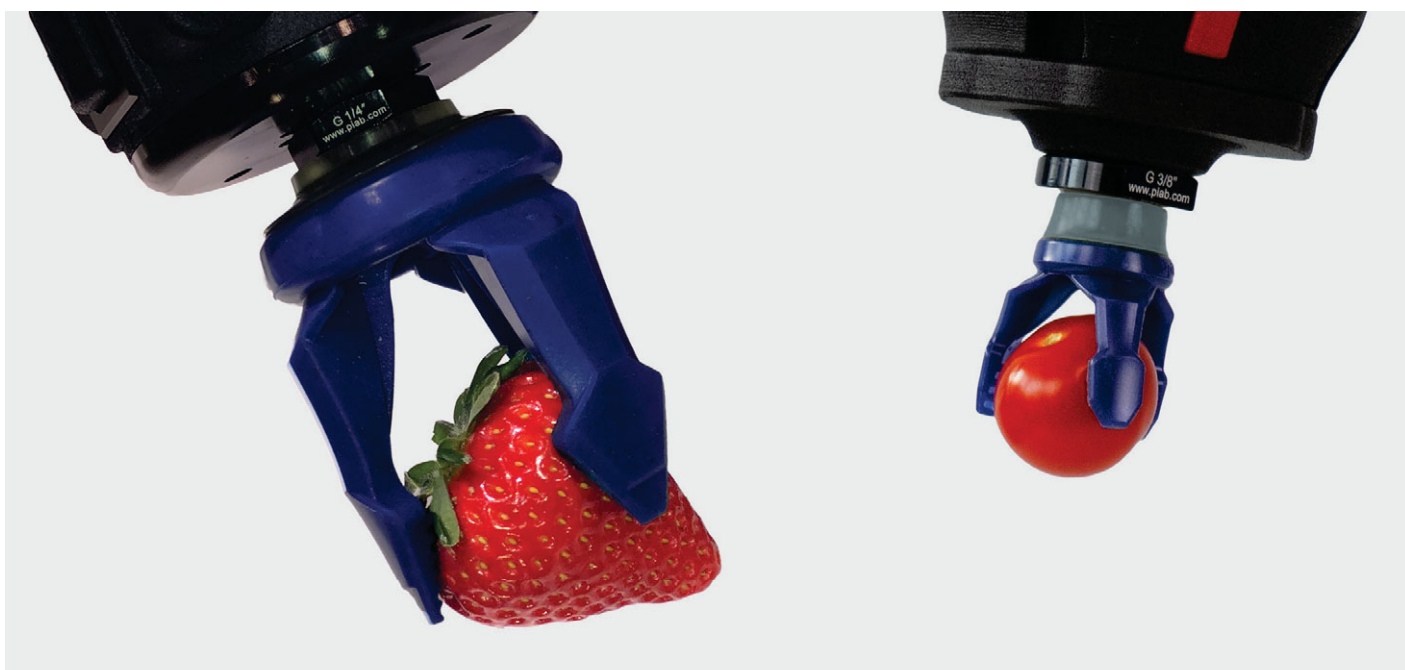
but firmly at the same time - enabling fast but flawless packaging into respective trays even at high-speed packaging stations. Attached to a Piab Custom-Line area grippers, several rows of piSOFTGRIP®s can be placed according to the respective needs allowing pick-up from moving conveyor belts and precise positioning of each item in the respective tray location.



Fruit and vegetables

Made in detectable silicone approved for direct contact with food, in accordance with FDA 21 CFR and EU 1935/2004 regulations, the piSOFTGRIP® vacuum gripper is ideally suited for fruit and vegetable picking and packaging. Connected to a Piab vacuum unit such as the piCOBOT® the pressure level can easily be adjusted and kept to the lowest viable level to

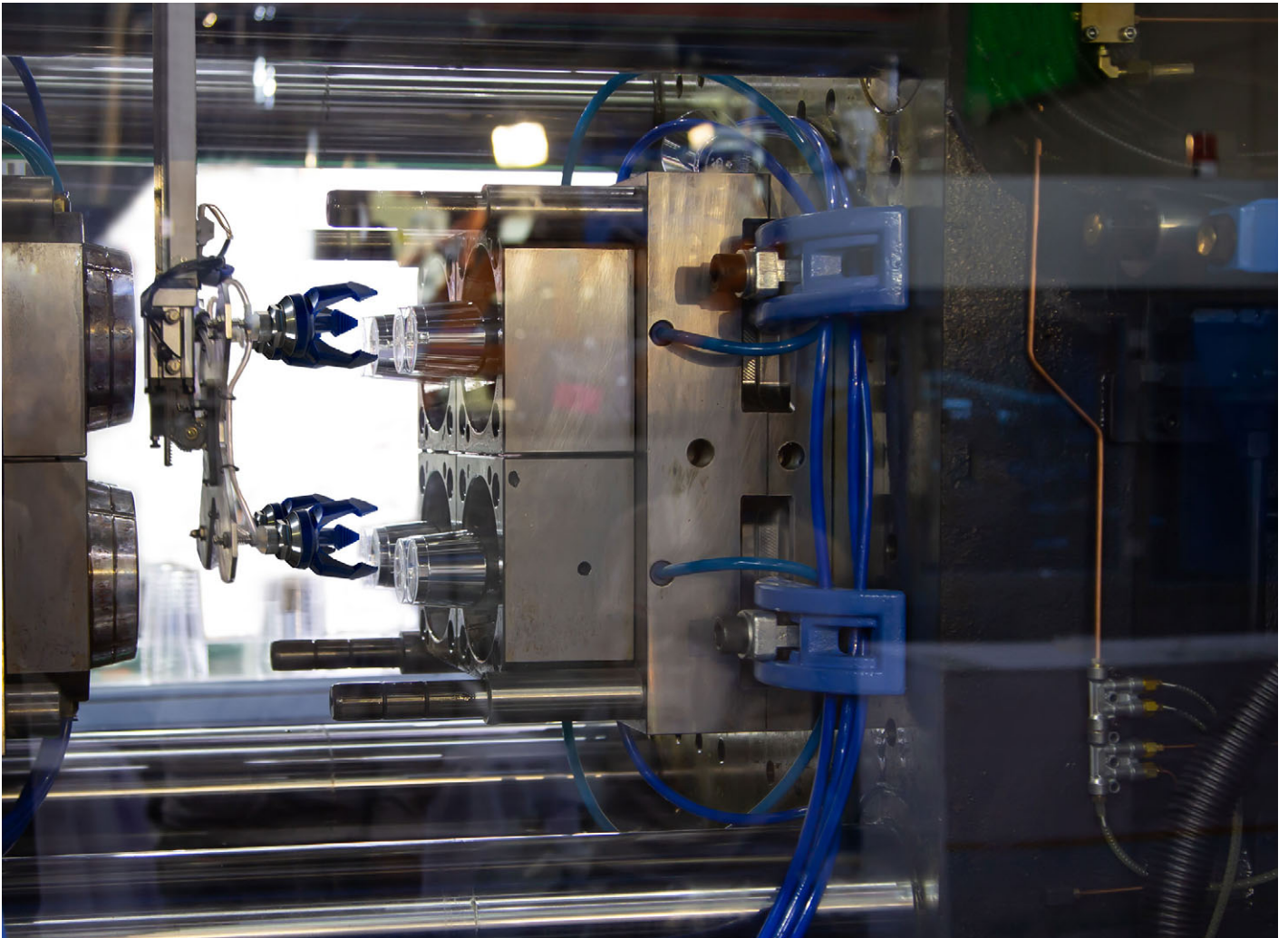
handle delicate fruits and vegetables as softly as possible. Thanks to the optional stainless-steel washdown fittings the piSOFTGRIP® is easily cleaned between product changes or in case of soiling from dirty products. As the piSOFTGRIP® is not sensitive to dust it can handle products coming directly from the field for further processing without any problem.



Injection molding

In processes, in which the product cools off quickly, piSOFTGRIP® can be a great alternative to complex End-of-Arm-Tools (EOAT) consisting of different pneumatic and mechanical components when removing contoured, textured or specially shaped parts from a mould. This is particularly interesting for small and delicate items, which cannot be handled by a suction cup but

where a mechanical gripper solution would have a too high potential to damage the part. A piSOFTGRIP® EOAT is a more cost-sensitive and flexible solution for such a task, too. Combined in an EOAT it is possible to match the number of piSOFTGRIP®s used to the number of cavities of the mould to allow fast and easy removal of all products in one process step.



Medtech

Sometimes tests have to be conducted as fast as possible. Automate your sequential test set-up with Piab's piSOFTGRIP® solutions to increase throughput and save valuable time for other important tasks in your lab. Automated handling offers additional safety by reducing direct contact with potentially dangerous substances.

The piSOFTGRIP® family allows gentle and firm handling of delicate, sensitive objects such as e.g. test tubes, vials and conical flasks and can be integrated into a Piab Custom-Line gripper solution arranging the respective number of needed piSOFTGRIP®s to handle the specific number of containers required in your application.



Machined parts

Handling hollow parts such as metal nuts, pipes or tube sockets has so far not been possible with vacuum technology for obvious reasons. The advent of the piSOFTGRIP® family has shifted that assumption and even turned it around making it one of the best and most economic solutions for these applications. Tested by ABB and various robot integrators the piSOFTGRIP®

flawlessly handles any of these parts even in high-speed applications. Less complex than conventional grippers and extremely energy efficient when powered with Piab's state-of-the-art vacuum pumps it is the gripper of choice. As often, simplicity wins! Experience how easy the piSOFTGRIP® can handle your parts!

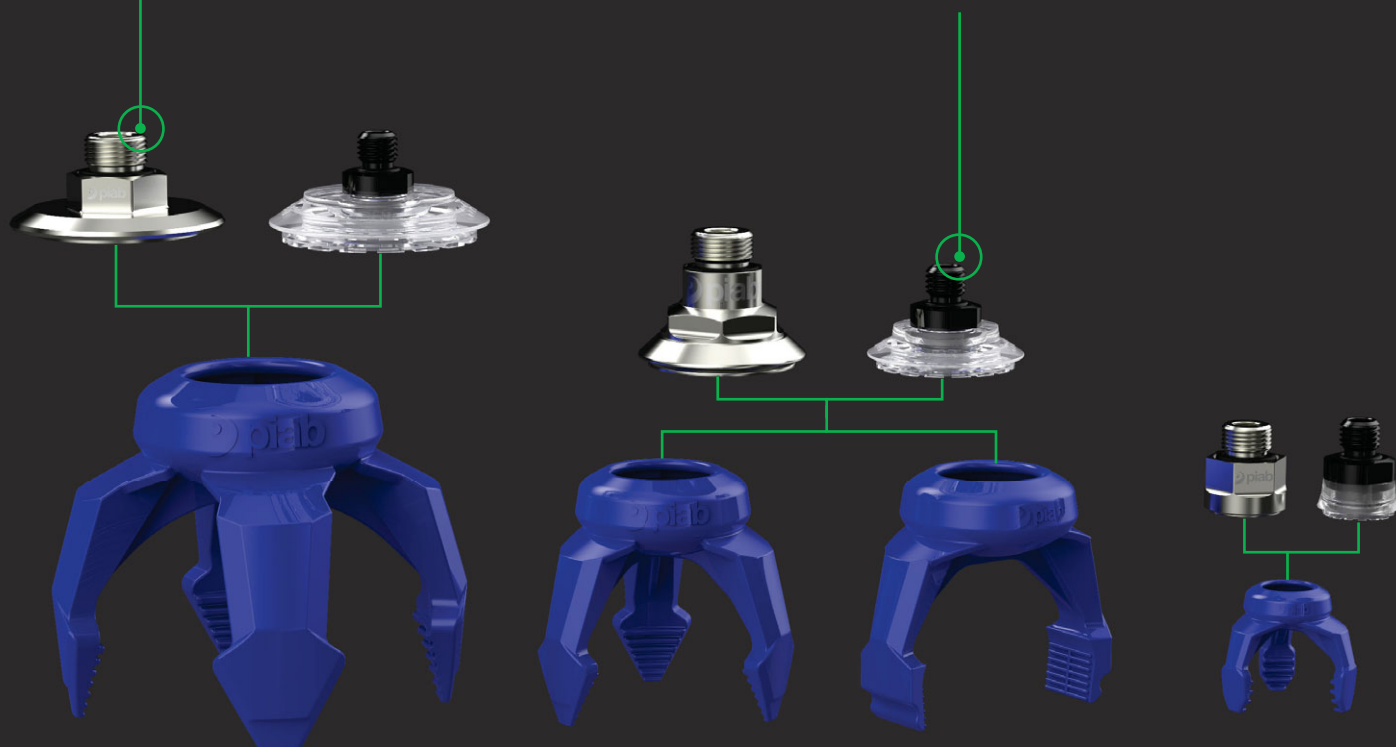


Fitting options for piSOFTGRIP®

Two main fitting alternatives are offered with piSOFTGRIP® to match individual demand for either easy cleaning or a broad variety of attachment options.

Stainless steel washdown fittings for easy cleaning and adjustment. Optional fittings are available with G3/8" or G1/4" thread. Able to withstand spray washing with strong detergents. In addition, allowing to rotate the gripper so that the fingers can be aligned in a certain way and then locked for easy adjustment.

piGRIP® interface for easy installation with a broad variety of fittings. A range of more than 20 fittings is readily available in different sizes and types. The finger orientation is determined at random when the gripper is fully screwed in.



Features

The piSOFTGRIP® vacuum grippers are an excellent and cost-effective solution for sensitive and fragile objects. They have a very small footprint making them ideal for multiple applications even in space restraint machine settings.

Easy to use and control

The piSOFTGRIP® vacuum tools are as simple to control and install as a suction cup. They do not require any specific programming. To ensure the right gripping force for gentle but safe handling of delicate objects, the vacuum level can easily be adjusted.



**Lennart
Ryberg**

Product
Manager for
suction cups

“Enabling the automation of as yet unautomated procedures, piSOFTGRIP® has generated a lot of interest among our customers.”

The intuitive and user-friendly design makes piSOFTGRIP® vacuum grippers easy to integrate into automated procedures, where they can help to secure the quality of products and increase overall productivity. With the wash down fittings, cleaning them is easy.

Lightweight tools

The silicone-made piSOFTGRIP® is a lightweight automation tool. Hence, very little extra weight is added when fitted to robot arms. They have a low building height, allowing them to be used where space is limited.

Combined with Piab's end-of-arm vacuum tool piCOBOT®, the piSOFTGRIP® offers a powerful and flexible “plug and play” extension for collaborative robots. As both piCOBOT® and piSOFTGRIP® offer compressed air saving functionality (ES), virtually no energy is needed to perform a grip and release.

- **Vacuum driven soft gripper with simple and robust design**
- **Cost-effective solution for sensitive and delicate objects**
- **As easy to control and install as a suction cup even in fast operations similar to a flexipicker**
- **Not sensitive to dust thanks to its sealed vacuum cavity**

Food approved

The piSOFTGRIP® vacuum grippers are made in detectable silicone approved for direct contact with food in accordance with FDA 21 CFR and EU 1935/2004 regulations. Delicate food items can be handled without the risk of being spoiled due to crushing. The silicone makes them resistant to high temperatures.

“They were looking for gripping tools with as delicate a touch as a human hand in order to automate handling procedures for sensitive objects of odd shapes or unusual surfaces.”

Description	Unit	30-3	50-2	50-3	100-4
Building height (with G3/8" male fitting)	mm / [inch]	45 / [1.77]	78 / [3.07]	78 / [3.07]	104 / [4.09]
Outer diameter	mm / [inch]	38.5 / [1.52]	73 / [2.87]	72 / [2.83]	112 / [4.41]
Weight of gripper (without fitting)	g / [oz]	5 / [0.17]	30 / [1.06]	55 / [1.94]	136 / [4.79]
Temperature range	°C / [°F]	-20 - 100 / [-4 - 212]	-20 - 100 / [-4 - 212]	-20 - 100 / [-4 - 212]	-20-100 / [-4 - 212]
Recommended vacuum level	-kPa / [-inHg]	35-90 / [10.3-26.6]	15-60 / [4.4-17.7]	25-70 / [7.4-20.7]	25-70 / [7.4-20.7]
Recommended object width	mm / [inch]	10-30 / [0.39-1.18]	10-50 / [0.40-1.97]	20-50 / [0.79-1.97]	20-100 / [0.79-3.93]



+32 3 355 32 20 | www.pneuvano.com



Evolving around the world

EUROPE

France

Lagny sur Marne
+33 (0)16-430 82 67
info-france@piab.com

Germany

Butzbach
+49 (0)6033 7960 0
info-germany@piab.com

Italy

Torino
+39 (0)11-226 36 66
info-italy@piab.com

Poland

Gdansk
+48 58 785 08 50
info-poland@piab.com

Spain

Barcelona
+34 (0)93-633 38 76
info-spain@piab.com

Sweden

Täby (HQ)
+46 (0)8-630 25 00
info-sweden@piab.com

Kungsbacka
Lifting Automation
+46 (0)300-185 00
eh.info@piab.com

United Kingdom

Loughborough
+44 (0)15-098 570 10
info-uk@piab.com

AMERICAS

Brazil

Sao Paulo
+55 (0)11-449 290 50
info-brasil@piab.com

Canada

Toronto (ON)
Lifting Automation
+1 (0)905-881 16 33
eh.ca.info@piab.com

Hingham (MA, US)

+1 800 321 7422
info-usa@piab.com

Mexico

Hingham MA (US)
+1 781 337 7309
info-mxca@piab.com

USA

Hingham (MA)
+1 800 321 7422
info-usa@piab.com

Xenia (OH)
Robotic Gripping
+1 888 727 3628
info-usa@piab.com

ASIA

China

Shanghai
+86 21 5237 6545
info-china@piab.com

India

Pune
+91 8939 15 11 69
info-india@piab.com

Japan

Tokyo
+81 3 6662 8118
info-japan@piab.com

Singapore

Singapore
+65 6455 7006
info-singapore@piab.com