Vacuum Automation

Improve your productivity and energy efficiency

piab

Our Mission

“The piab mission is to increase productivity for industrial customers and provide energy saving solutions by promoting our superior technology universally.”

piab

A powerful business partner

Piab has a wide experience in various applications and industries, from pick and placing small candies to large heavy boxes. We strive to increase productivity, thus reinforcing your edge in the market. We also aim to reduce your energy consumption and improve your working environment. Partnering with Piab means more than having a reliable supplier of vacuum solutions.

Leader

We take pride in being the innovators in vacuum technology. Technical leadership means finding and developing solutions that have not yet been found by others. You should feel confident in knowing that your relationship with us will keep you on the cutting edge with innovative technology solutions.

At Piab, we commit to serve you with the same level of know-how and service no matter where you are in the world. A strong presence, with representatives all over the world allows Piab to present a global, unified front with one mission – to grow your business. Our success is a result of being focused on your success.

Productivity

In today's very competitive world, we realise that you need, as much as we do, to always be one step ahead of the competition. Among other things, one should always aim to improve productivity. Piab's technology and experience supports your ambition in improving productivity and maintaining your competitive edge.

Energy saving

We believe strongly in taking responsibility for our shared environment. We always strive to have products that are more energy efficient than the competitor. For example, using our smaller compressed air driven pumps directly on your machine as opposed to using a mechanical vacuum pump with inherent energy losses through long vacuum lines until it reaches the main suction point. This means that our products save energy and give you more flexibility on where to install your machinery.

Main industries where Piab is active

Consumer and food

Applications
Bag lifting, cartoning machines, carton erectors, rotary cartoners, palletizing/depalletizing, handling of flexible packages.

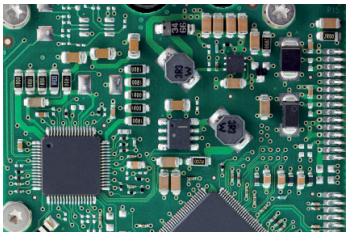
Pharmaceutical

Applications
Robot pick and place, blister packaging, vacuum drying, powder and tablet conveying, carton erecting, product/bags lifting, labeling, palletizing, bag opening.

Automotive

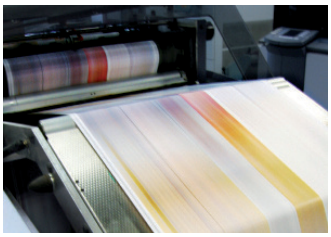
Applications
Metal stamping/press transfer, body assembly, windshield assembly, injection moulding, ergonomic lifters, liquid filling.

Electronics and semiconductor



Applications
Surface mounting PCB, vacuum holding measuring, leak testing, display assembly, calibration.

Graphic



Applications
Feeder, decurler, delivery, folding, bookbinding, glue binder, stitching, saddle stitching, inserters, die cutting, palletizing.

Chemical and plastics

Applications
Injection moulding, thermo/vacuum forming, vacuum holding during machine operations, vacuum laminations, evacuation of molds, degassings, evaporation, conveying.

White goods

Applications
Metal stamping, pick and place, palletizing, labeling, injection moulding, metal forming, glass handling, ergonomic lifter.

Aerospace

Applications
Vacuum assembly fixture, vacuum for instrument calibration, metal forming, degassing, vacuum holding for measuring/testing, ergonomic lifter.

Glass and solar cells

Applications
Glass forming and transfer, glass handling, ergonomic lifter, vacuum holding for measuring/testing.

Wood furniture

Applications
Wood working and handling, destacking layers of sheets, vacuum lamination, palletizing.

Reference Customers

bpa blueprint automation

DANONE

THE DRURY TEA & COFFEE COMPANY LTD

Electrolux

GM

JOULIN

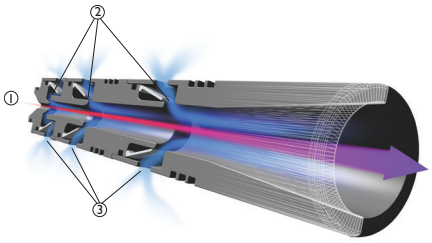
OKI PRINTING SOLUTIONS

WRIGLEY

COAX® – A forerunner within air-driven vacuum technology

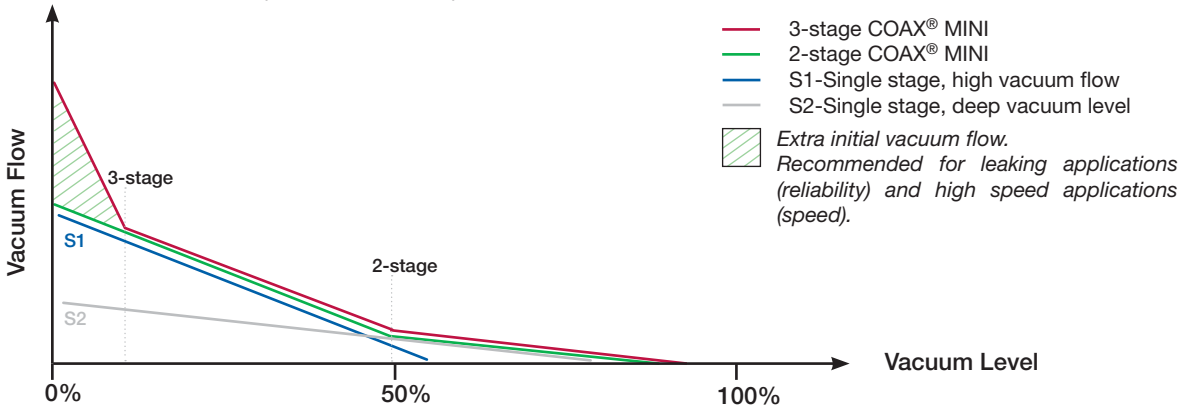
COAX® is an advanced solution for creating vacuum with compressed air. Based on Piab's multistage technology, COAX® cartridges are smaller, more efficient and more reliable than conventional ejectors, which allow for the design of a flexible, modular and efficient vacuum system. A vacuum system based on COAX® technology can provide you with several times more vacuum flow than conventional systems, allowing you to increase speed with high reliability while reducing energy consumption with up to 50%.

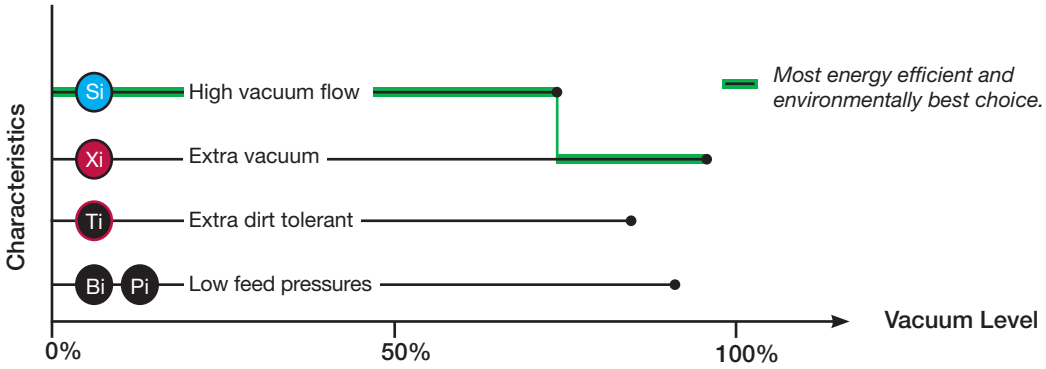
When compressed air (1) passes through the nozzles (2), air is pulled through with the stream of compressed air. Suction will be generated at the opening of each stage (3), resulting in vacuum.



COAX® cartridges exist in a 3-stage or 2-stage design in different sizes (MICRO, MINI and MIDI) and in several characteristics (Si, Xi, Ti and Bi/Pi) making them suitable for many applications. The technology ensures excellent performance at both low and high feed pressures (0.18-0.6 MPa, [26-87 psi]). Some cartridges are available in both 3-stage and 2-stage designs. The 3-stage is for increased vacuum flow and faster evacuation and the 2-stage is more economical and for applications where size and weight are factors.

The graphs represent ejectors that are equal in nozzle diameter-compressed air consumption.





piGRIP® – The first modular suction cup on the market

Taking gripping to new dimensions

Versatility and productivity

A modular suction cup that fits most machines and that can be optimized for handling almost all materials. piGRIP®'s six different lip types, optimized for various products to lift, ensure the right hardness/softness and sealing capability for your material. Combined with the firm bellows, piGRIP® is stable enough to handle faster accelerations and more high speed lifts as compared to traditional cups.

Your choices are endless, piGRIP® is available as a flat, one, three or as a six bellow cup. The availability of more than 40 different fittings, six different types of lips, and also a low micron filter disc for the bellow and a mesh filter for the fitting makes the variations of this modular suction cup endless. You can configure more than thousands and thousands of different types of cups to meet your exact need.

Lips

Standard Lip

The green standard lip is suitable for relatively even surfaces on sealed materials. It has extra wear resistance.

The blue standard lip is recommended if the surface is more uneven or rough, e.g. textured plastic parts.

Flexible Lip

For surface leaking materials (wrinkled or textured) and porous materials, such as corrugated paper.

Bag Lip

For difficult bags such as pouches and heavy bags with e.g. liquids.

Hot Surface Lip

Used in handling hot parts or where silicone or PWIS is not allowed. Mark free.

Foam Lip

Suitable when conventional lips are not sealing enough. Can replace mechanical grippers.

Materials & Durometers

60° TPE, Oil resistant, Silicone/PWIS free & Mark free

50° TPE, FDA

50° TPE, FDA

30° TPE, FDA

50° Silicone FDA

50° HNBR, High temperature, oil resistant, silicone/PWIS free & Mark free

60° S PU EPDM, Foam

60° F PU NR, Foam

Suction cups/grippers

piGRIP® Modular suction cup

Grip Hold Accelerate … like never before.

Applications

- Smooth, textured, uneven and also very rough surfaces on objects such as plastic pieces, wood, sheet metal (dry), glass, corrugated cardboard, carton, food, tiles, etc.

DURAFLEX®

High wear resistance without compromising adherence to the object.

DURAFLEX® Single durometer

- Smooth surfaces on objects such as plastic pieces, furniture parts, sheet metal (dry), glass, solar panels, etc.

Firm bellow, soft and flexible lip, very high sealing capacity and durability.

DURAFLEX® Dual durometer

- Textured, uneven and also very rough surfaces on objects such as plastic pieces, wood, sheet metal (dry), glass, corrugated cardboard, carton, tiles, etc.

Exceptional grip on oily surfaces.

DURAFLEX® Friction

- Oily metal sheets and other lubricated surfaces.

Silicone

For extremely high temperature applications and or when handling food products.

Applications

- Contact with food or FDA environments, packages, pre-colored plastic parts (high temperature), bakery (detectable), electronics/semiconductor (conductive/antistatic).
- Bags with fragile contents and food, bags with liquids, viscous contents and frozen food (low temperatures), open bags.

Nitrile-PVC and CR

NITRILE-PVC — Oil resistant, a traditionally designed cup.

CR — Especially good for low temperature environments, a traditionally designed cup.

- Conventional suction cup material for general purposes.

HNBR

Used in handling hot parts or where silicone or PWIS is not allowed. Mark free.

- Removing hot plastic parts from injection moulding equipment, glass handling.

CR — Chloroprene
HNBR — Hydrogenated Nitrile Butadiene Rubber
PWIS — Paint Wetting Impairment Substances

Suction Cup Accessories

Suction cup accessories are parts which make it easier to position the cup, add level compensation, reduce the risk for damaging parts or give a precise movement to the cup.

Level Compensators /Spring plungers

Wide range of thread connections and stroke lengths.

Applications

- Adjust differences in levels, for example on lifting devices with several suction cups.
- Allows for soft placement of cups on sensitive or thin objects.
- Available with rotational or non-rotational design (suitable for use with oval suction cups).

Height adjuster

Facilitates installation.

- Provides a height extension between the handling device and the suction cup.
- Adjustable in height.

Suction cup extensions

For handling devices used in cramped areas.

- Solid extension for mounting a suction cup.
- Several heights available.

Integrated filter

For increased system reliability in industrial environment.

- Available as an integrated filter disc in the bellow.
- A mesh filter is also available in the fitting.

Ball joints

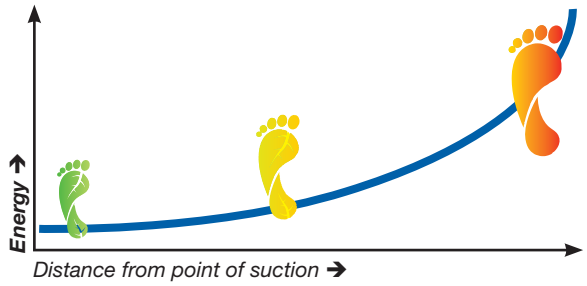
Mounts on a suction cup to avoid stress.

- Non-leaking design to work with vacuum system for ergonomic assist arms or other devices with high degree of safety.
- Available in loose-fit and locking versions.

An eco-friendly vacuum system

By never using more energy than absolutely necessary, companies can reduce their carbon footprint as well as their costs. Piab can work with you to achieve the lowest possible energy consumption.

Environmental index



The graph demonstrates the relationship between environmental impact and the distance of the pump from the point of suction.

Your pump will require less compressed air when placed close to the point of suction, thus reducing CO_2 emissions and energy consumption.

Best to use a decentralized vacuum system

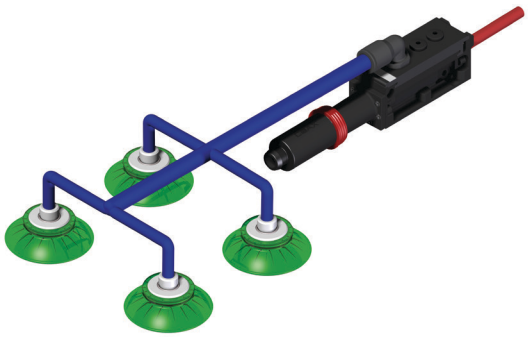
A decentralized system with the vacuum pump/cartridge placed directly at the point of suction eliminates the risk of loss in the vacuum piping and the need for expensive, oversized components.

- Lowest energy usage
- Fastest cycle time
- Safest product handling
- Most flexible design for zoning
- Easiest troubleshooting
- Independently working suction cups
- Most consistent/even performance

If not, design a centralized vacuum system

A centralized vacuum system is designed to have one vacuum source for multiple suction points.

- Easy installation
- Easy vacuum sensing and controls
- Light end-of-arm tooling
- Simple filtration options
- Some loss in system performance due to distance



Vacuum Gripper System – VGS™

Makes selection easy and dimensioning right

Piab's decentralized Vacuum Gripper system, VGS™, is a product solution integrating high quality suction cups with COAX® cartridges.

- VGS™ makes selection, sizing and installation of a vacuum system much easier. Design and dimension mistakes for the vacuum system will be avoided.
- You will enjoy the benefits of a more efficient and reliable vacuum system.
- Increased machine speeds can be achieved thanks to faster response times with the vacuum source right at the cup and better initial vacuum flow which will grip the object faster.
- The decentralized approach provides safety with one vacuum source per suction point and it also eliminates flow losses in long vacuum hoses, making maximum use of energy.
- VGS™3040 with integrated energy saving functions like Vacustat and AQR02 (Atmospheric Quik Release) is a pioneering product and the world's most energy efficient concept for vacuum handling of sealed parts, such as glass and metal sheets.

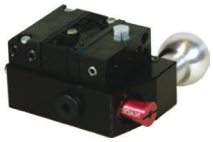
Fully decentralized and the most energy efficient and reliable vacuum handling system.

VGS™2010

VGS™3010

VGS™5010

With integrated options for energy-saving, positive blow-off or automatic quick-release.



VGS™3040

Vacuum pumps/generators

Compact design

Powerful vacuum pumps with integrated functionality.

piCOMPACT® MICRO, P3010, P5010

A large capacity pump (comparable up to 4kW [5 HP] electro mechanical pumps) that can still reduce energy costs by up to 40%.

P6010, P6040

Classic design

Now 22% improvement of energy efficiency compared to the previous model.

piCLASSIC

Maximum performance with minimum footprint.

Chip pump

Inline design

40-50% energy reduction compared to other in-line vacuum ejectors in corresponding size.

piINLINE®

Large capacity vacuum pump suitable for cramped areas or for environments with tough chemical conditions.

Round pump

Applications

- Electronic and semiconductor machine equipment.
- Robot handling equipment in plastic, consumer, furniture and automotive industries.
- Suitable for fast and reliable evacuation in sealed systems.

- Automated material handling and other manufacturing processes in the automotive, robotic and packaging.
- Machine equipment for the graphic industry, e.g. off set press, post press machines.

- Robot handling equipment in plastic, consumer, furniture and automotive industries.
- Packaging machines.

- Where a small footprint is needed.

- Injection moulding automation equipment.
- Sheet metal handling equipment, such as laser cutting, bending and punching machines.
- Pick-and-place, such as labelling machines.

- For environments with tough chemical conditions.
- Vacuum forming, evacuation and filling of liquids, leak testing.

Energy optimizers

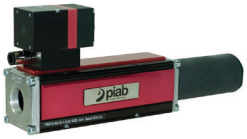
It is important to complete the vacuum system with “optimizing” control functions that will limit the use of compressed air and/or facilitate the use of a eco-friendly decentralized vacuum system.

Automatic Quick Release

Automatic Quick Release
Keeps energy consumption for releasing objects to a minimum.

AQR02 mounted on VGS™3010

Piab Cruise Control
The optimal energy saving function for leaking applications.



PCC mounted on a P6010

Energy Saving
Saves up to 95% of energy consumption in sealed vacuum applications.

ES mounted on a P3010

Automatic Vacuum Management
Integrated valve, vacuum switch, energy saving, flow control and much much more.

AVM™ 2 mounted on a P5010

System optimizers

Wide range both of filter types and degree of filtration.

Vacuum Filter

Flow through silencers to avoid clogging and reduced pump performance.

Silencers

Wide range of pneumatic, electric, electronic vacuum switches in fixed and adjustable versions.

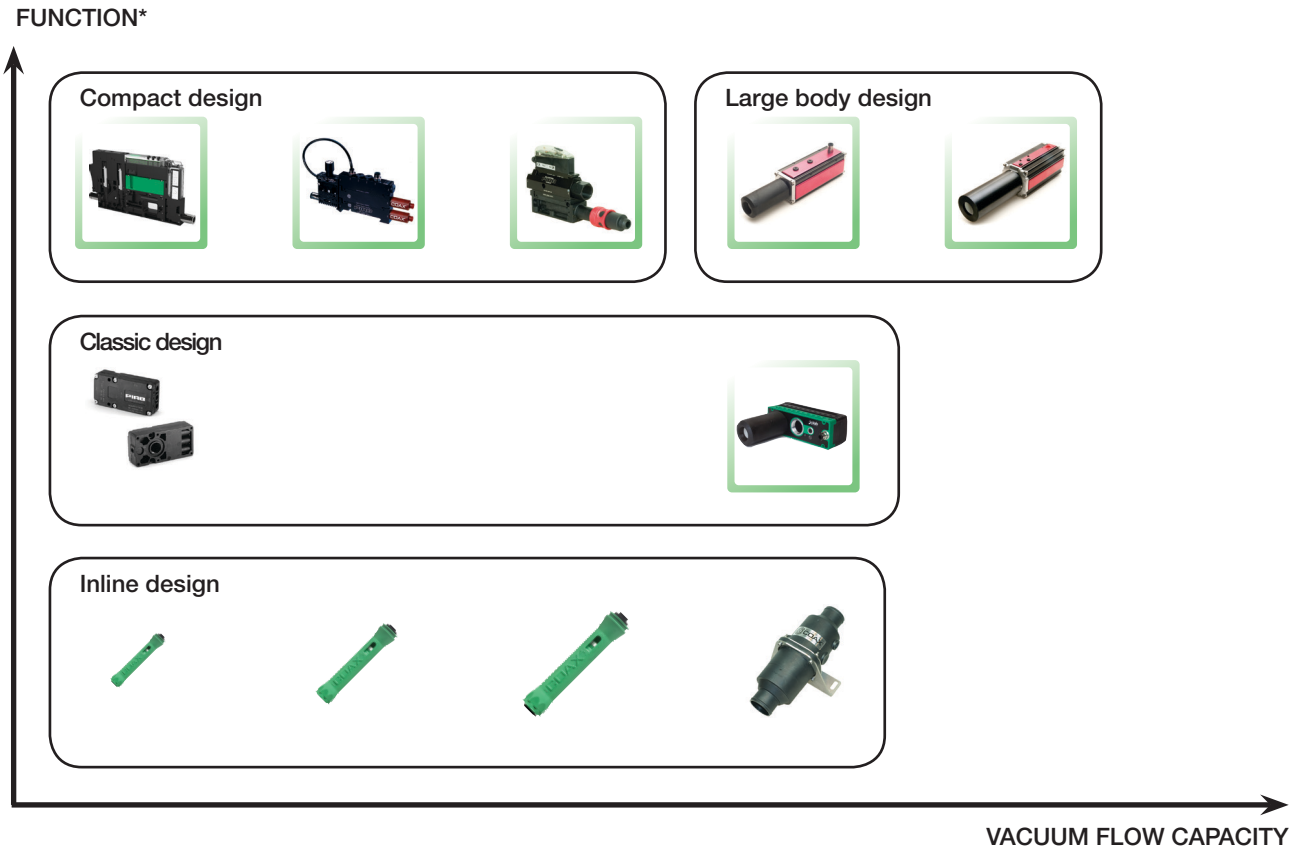
Vacuum Switches

Reliable quick-release function for faster response time.

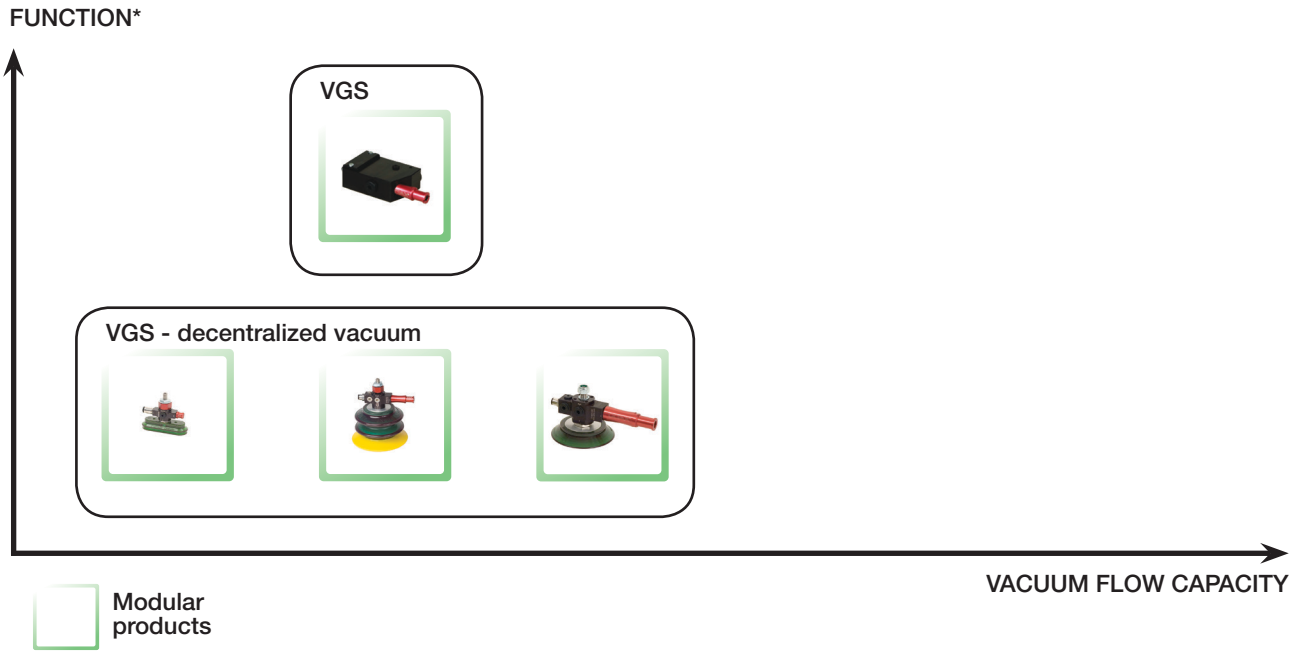
Low opening pressure.

Blow Off Valve

Overview of the vacuum pumps



Overview of the vacuum gripper system



* Function: Possibility to add functions, such as energy saving, release valve etc

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