COVAL

vacuum managers

series LEMCOM

Mini Vacuum Pumps with Fieldbus Communication

PROFINET EtherNet/IP CANopen

www.coval.com

UK2

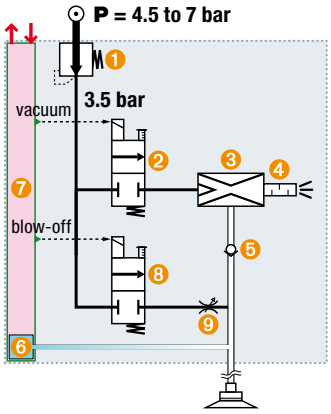
LEMCOM Series: 1st Mini Vacuum Pump

In a world where everything is connected, COVAL is innovating once more by unveiling the LEMCOM series: the first vacuum pump on fieldbus.

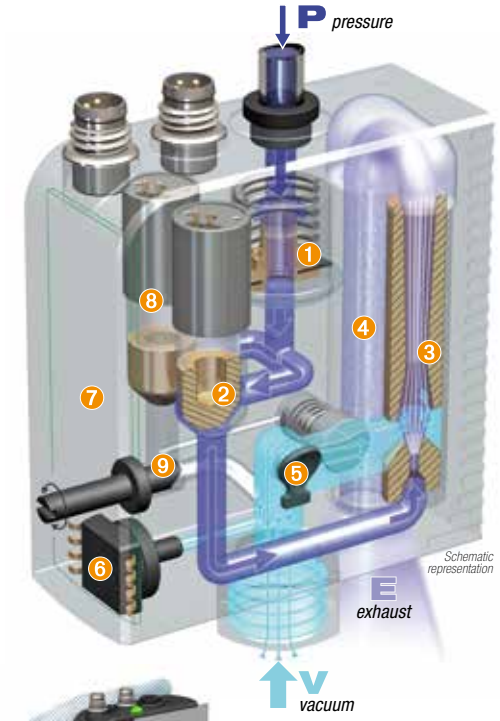
Compact integration: The COVAL technique

The illustrations demonstrate the COVAL advantage: all necessary functions are integrated into a complete and self-governing mini-module,

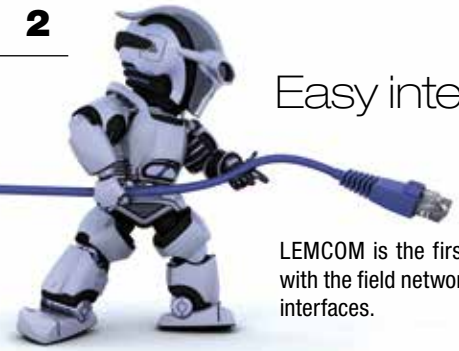
INTEGRATED FUNCTIONS



1. **3.5 bar** pressure regulator
2. "Vacuum" solenoid valve
3. 3.5 bar optimized venturi
4. Optimized silencer
5. Vacuum non-return valve
6. Vacuum sensor
7. Integrated electronics: management of "vacuum" functions and communication
8. "Blow-off" solenoid valve
9. Blow-off flow regulator



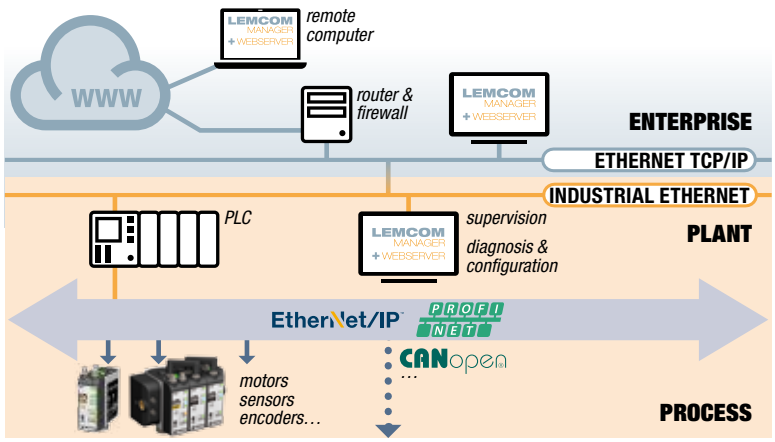
PROFINET
EtherNet/IP
CANopen



Easy integration with existing industrial network

LEMCOM is the first vacuum pump which seamlessly integrates with the field network without the use of gateways or other specific interfaces.

The LEMCOM "master" modules enable the continuity of a fieldbus through their two integrated communication ports. Tested and certified by ODVA (EtherNet/IP), PI (Profinet) and by CiA (CANopen), LEMCOM is connected very easily to the PLC (EDS file, RSLogix 5000 Add-On Instructions, GSDML file).
Based on a "master/secondary" structure where the "master" is a fully-integrated pump, the LEMCOM design enables the supply and control of 1 to 16 vacuum pumps while requiring only 2 connecting cables.



ADVANTAGES

- **Easy implementation:** Plug & Play, custom configuration for every type of application.
- **Maximum automatic energy savings**:
  - AIR Saving Regulator 40% savings for porous products.
  - AIR Saving Control 90% savings for airtight products.
- **Compactness:** LEMCOM vacuum pumps are the most compact on the market.
- **Short response times:** Installed in close proximity to vacuum cups.
- **Dust resistant:** Non-clogging through-type silencer.
- **Safety:** Product gripping is maintained even during power failure.
- **Supported buses**: EtherNet/IP, Profinet and CANopen.
- **Wiring simplified**: 2 cables are capable of managing 1 to 16 modules.
- Settings and diagnosis via **remote monitoring**.
- Nearly unlimited arrangements (stand-alone modules, island assemblies or remote modules) ➔ see page 7.

➔ ***An essential innovation for intelligent vacuum gripping.***

on Industrial Fieldbus

2 vacuum levels to match precise application needs

VERSION 60 (Max. 60% vacuum)
To enable a high rate of vacuum flow and compensate for leakage when gripping porous materials.

Suction flow rate (Nl/min) :

max. vacuum / Nozzle Ø	60 %
1.0 mm	38
1.2 mm	72
1.4 mm	92

VERSION 90 (Max. 85% vacuum)
To enable a high vacuum level and thus increase the holding force for gripping air-tight materials.

Suction flow rate (Nl/min) :

max. vacuum / Nozzle Ø	85 %
1.0 mm	29
1.2 mm	45
1.4 mm	70

	Porous Materials, Rough Surfaces				Airtight & Semi-Porous Materials				
	Cardboard	Food	Wood	Paper	Plastic	Metal	Glass	Composites	Concrete/Stone
LEMCOM 60	●	●	●	●	●	●	●	●	●
LEMCOM 90					■	■	■	■	■

● Air Saving Regulator ➔ **40 %** of energy savings on average.

■ Air Saving Control ➔ **90 %** of energy savings on average.

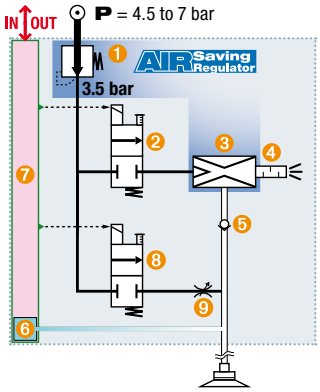
2 integrated energy-saving technologies

AIR Saving Regulator

40% energy savings *(on average, see below).*

Combined "venturi regulator" **ASR**: pressure regulator ❶ feeds venturi ❸ with 3.5 bar, the optimized pressure for operation.

➔ *No more unnecessary consumption of compressed air.*

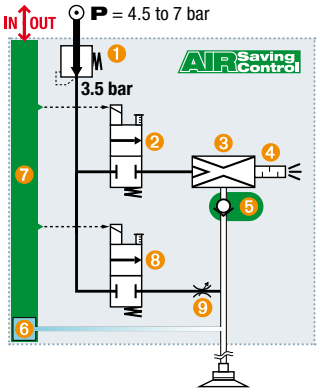


AIR Saving Control

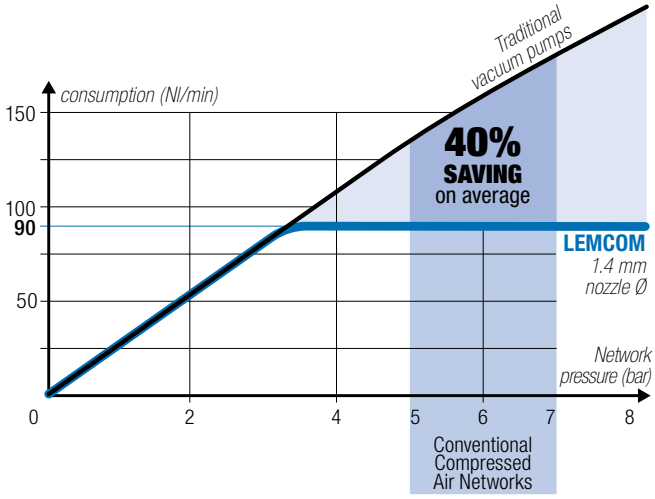
90% energy savings *(on average, see p.4).*

Combination of non-return valve ❺ and advanced electronics ❼ ensures **ASC**'s automatic performance.

➔ *Once vacuum is established, the pump no longer consumes air to hold the product.*



AIR Saving Regulator (ASR): porous applications



LEMCOM series vacuum pumps, which integrate an **ASR** "venturi regulator" combination, maintain ideals that COVAL values greatly: reducing both compressed air consumption and noise generation.

Regardless of pressure supplied by the compressed air network, the integrated regulator feeds the venturi at **3.5** bar pressure, optimal for its operation.

➔ No more unnecessary energy consumption.

➔ No external regulator required, thus eliminating the risk of improper adjustment.

Compared to pressures found in most compressed air networks (5-7 bar), the graph opposite demonstrates an achieved economy of 40% on average.

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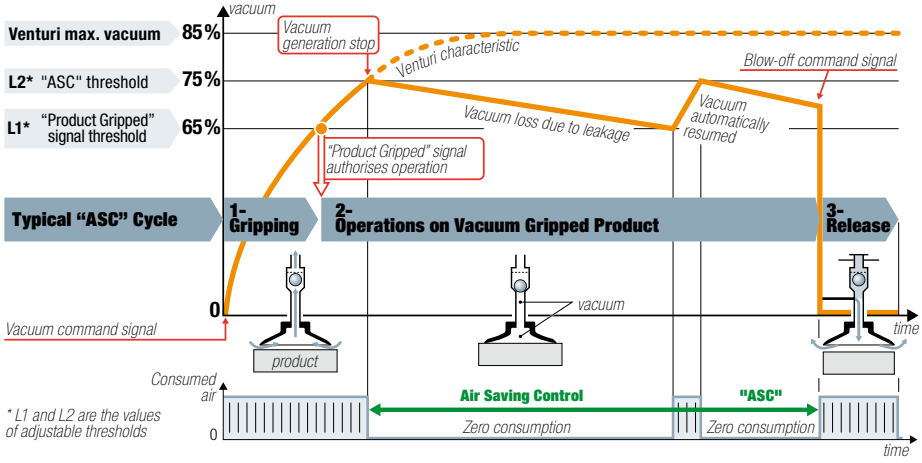
Energy saving & intelligence

AIR Saving Control (ASC): airtight products



For airtight or semi-porous products, the LEMCOM pumps automatically execute the above "ASC" cycle, thus resulting in maximum energy savings, according to the following three phases:

1- Product gripping : Vacuum generated by the venturi.

2- Operations on vacuum gripped product : At the L2 vacuum threshold (75%), incoming air pressure is blocked → consumption becomes zero; the product remains gripped due to the non-return valve. If micro-leaks make the vacuum drop to the L2 threshold – (the value of regulated hysteresis), vacuum generation is briefly resumed.

3- Product release : By externally controlled blow-off or automatic blow-off function.

1- Gripping + transfer

(1.4 mm nozzle Ø, emptying 0.2 l).

Phase	Duration	Air consumption without "ASC"	Air consumption with "ASC"	
Gripping	0.28 s	0.4 Nl	0.4 Nl	energy savings achieved
Transfer	1.20 s	1.8 Nl	0	
Release	0.14 s	0.2 Nl	0.2 Nl	
		2.4 Nl	0.6 Nl	→ 75 %

2- Clamping + operations

(1.4 mm nozzle Ø, emptying 0.4 l).

Phase	Duration	Air consumption without "ASC"	Air consumption with "ASC"	
Clamping	0.55 s	0.8 Nl	0.8 Nl	energy savings achieved
Operations	60 s	90 Nl	0	
Release	0.14 s	0.2 Nl	0.2 Nl	
		91 Nl	1.0 Nl	→ 99 %

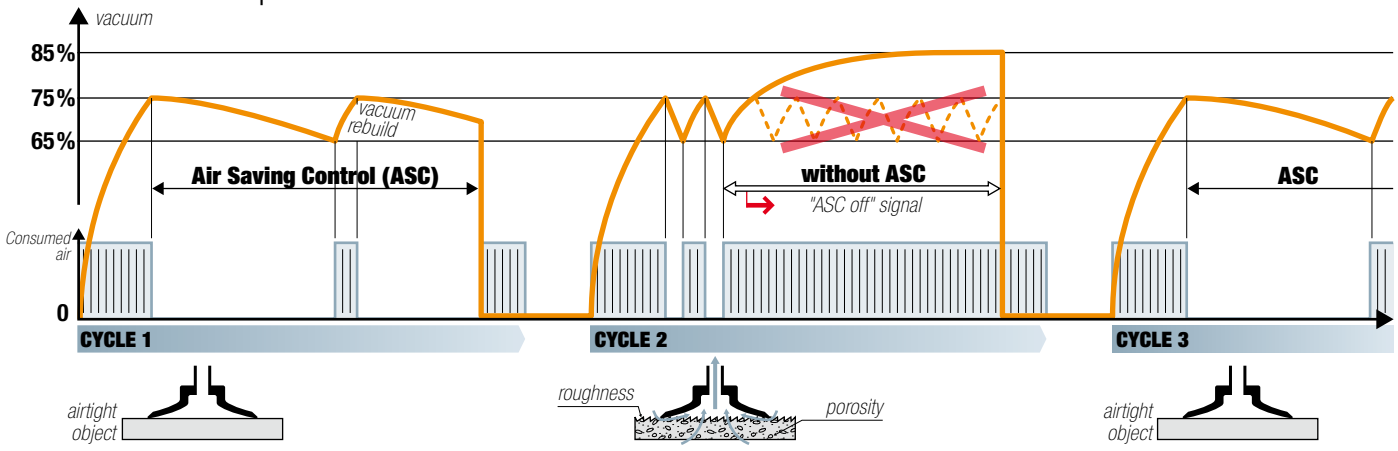
RESULTING SAVINGS

Energy savings from "ASC" are significant, as the two examples opposite show:

- 75% savings for transferring an object after gripping.
- 99% savings for holding an object during a 1 minute operation.

The product often pays for itself in just a few months.

Smart adaptation



The illustration above shows the adaptation capability of the LEMCOM module. "ASC" operation is automatic for any object that is airtight or generally nonporous (cycle 1).

If a leak occurs (cycle 2), due to a rough object or suction cup wear:

1/ the module automatically detects the anomaly, 2/ ends the cycle without "ASC" in order to continue production and 3/ reports the event for possible maintenance. Production continues and once everything is returned to normal (cycle 3), "ASC" operation is automatically resumed.

ENERGY SAVING APP

Calculate the savings you can achieve using ASC technology with our free software.

"ASC": AN ADVANTAGE WITHOUT LIMITATIONS

Saving energy has become essential. With LEMCOM, thanks to **ASC**, energy is saved automatically without interfering with established practices:

1- No specific adjustment

The default setting (L1 = 65%, L2 = 75%) is suitable for most applications.

2- Production regardless of conditions

Performance is guaranteed. When necessary, without "**ASC**", if the leakage level is too high.

3- Guided maintenance

Clear display of the need for maintenance in order to return to autoregulated "**ASC**" operation.

With LEMCOM, all settings are remotely configurable, and diagnosis is made easier.

Individual or island modules?

Stand-alone modules are suitable for the most common applications: one module controls one or more suction cups, all of which operate according to the same sequence.
When several suction cups are operating according to different sequences, multiple modules are required, which can be:

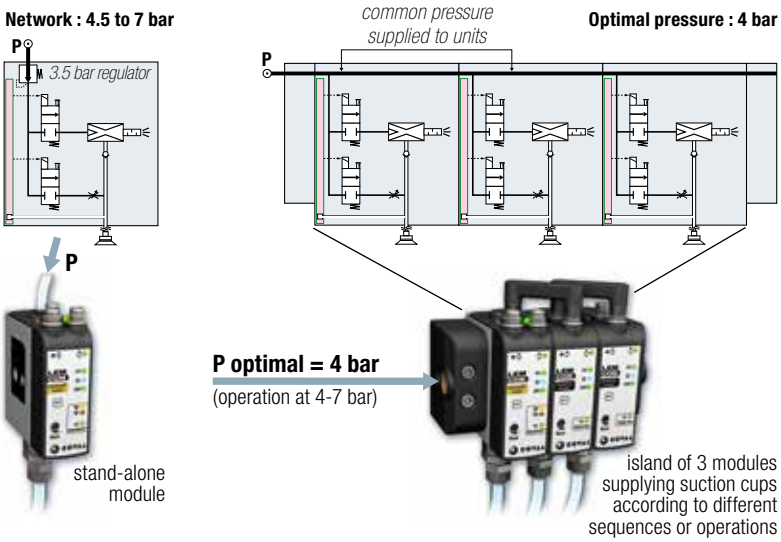
- several autonomous modules, OR
- a group of these modules with an internally shared pressure supply

The illustrations shown here guide the selection:

- autonomous modules are coupled with integrated pressure regulators (ASR)
- in a group, the integrated regulator is eliminated: to maintain the advantage of economical and silent operation, it is recommended to reduce the group's common pressure supply to 4 bar.

The maximum number of modules in an island depends on the power of the modules that must be active simultaneously:

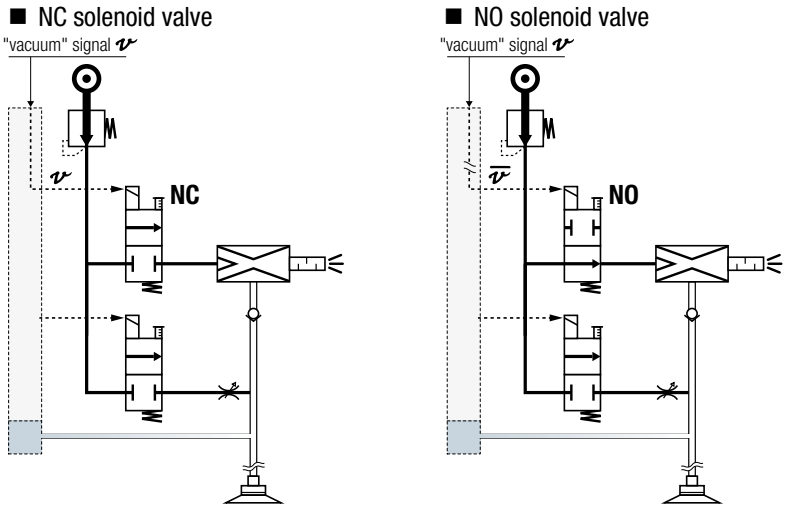
- 5 modules maximum for nozzle 1.4 mm ID.
- 7 modules maximum for nozzle 1.2 mm ID.
- 9 modules maximum for nozzle 1.0 mm ID.



Vacuum control by NC or NO solenoid valve

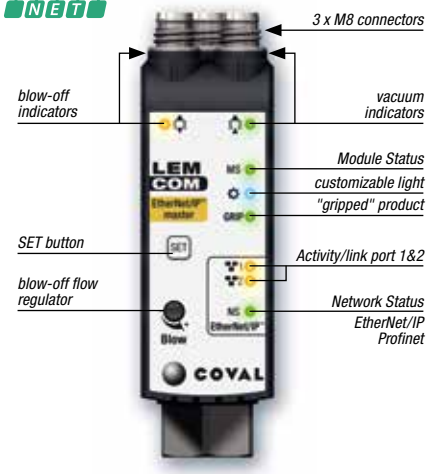
Vacuum control by NC (Normally Closed) solenoid valve is the most common: in the event of an electrical shut-off, vacuum is no longer generated. On the other hand, with a NO (Normally Open) solenoid valve, vacuum continues to be generated in the event of an electrical shut-off, providing positive object-gripped security.

The diagrams opposite show that both versions are controlled by the same "vacuum" signal v: The opposite $\overline{v}$ required for control of the NO solenoid valve is automatically obtained internally by the control electronics.

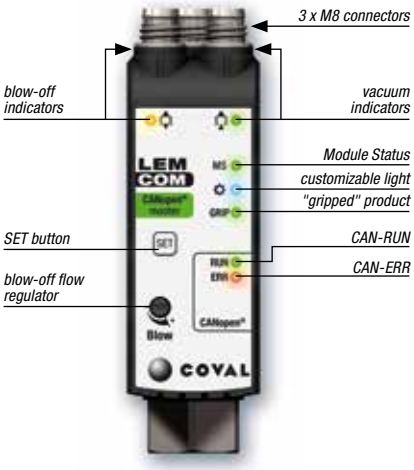


Communications panel

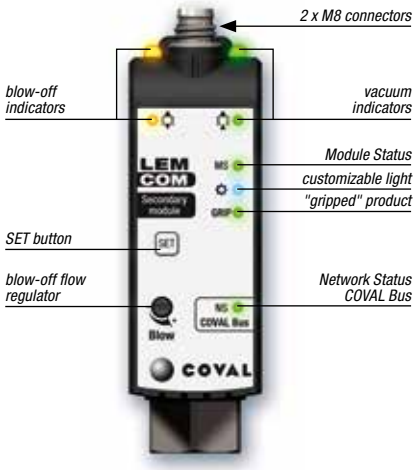
LEMCOM master
PROFINET EtherNet/IP



LEMCOM master
CANopen



LEMCOM secondary module



COVAL
vacuum managers

LEMCOM Series: simplified

Multitude of Innovations

- Maximum intelligence / minimal bulk.
- One "master" module controls up to 15 secondary modules.
- Master module is a fully-integrated pump.
- Remote configuration, monitoring and diagnostics.
- Dedicated Coval bus between master and secondary modules.
- Simplified wiring and installation.
- Standard secondary modules (regardless of the type of bus).
- Additional communications port.
- Supported buses: EtherNet/IP™ / Profinet / CANopen®…
- IP65 / M8 standard connectors.

PROFINET
EtherNet/IP
CANopen

A simple product to utilize

LEMCOM
master

EtherNet/IP PROFINET

- On-board 2-Port Ethernet Switch.
- On-board web server.
- Dedicated configuration software.
- M8/RJ45 standard connectors.

LEMCOM
master

CANopen

- Two CAN ports.
- From 20 to 1000 Kbps.
- Dedicated configuration software.
- Configuration by SDO.
- Adjustable PDO-TX transmission threshold.

LEMCOM
secondary module

- Universal secondary module, whatever the type of bus used.

Settings, diagnosis and process data

CONFIGURABLE SETTINGS

- "Product Gripped" and vacuum regulation (ASC) thresholds.
- Automatic blow-off.
- State of valves in the event of loss of communication.
- Client LED status.
- Network parameters.
- Firmware updates…

DIAGNOSIS

- Cycle counters, vacuum and blow-off control, gripped pieces, lost pieces, ASC…
- Power-supply voltage.
- Firmware version.
- Product reference.
- Vacuum cycle acquisition…

INPUT DATA

- Vacuum and blow-off control.

OUTPUT DATA

- Instant vacuum level (0 to 100%).
- "Gripped Product" signal (ON/OFF).
- Regulation system status.
- Alarms (power-supply voltage, temperature, preventive maintenance).

communication for all processes

A setting for every application

The LEMCOM is based on an innovative, efficient product structure:

- The "master" module manages communication on the fieldbus, assures management of the "secondary" modules and is a fully-integrated vacuum pump. Its 2 communication ports enable a continuous fieldbus.
- The "secondary" modules are interconnected with the "master" module via the COVAL bus.

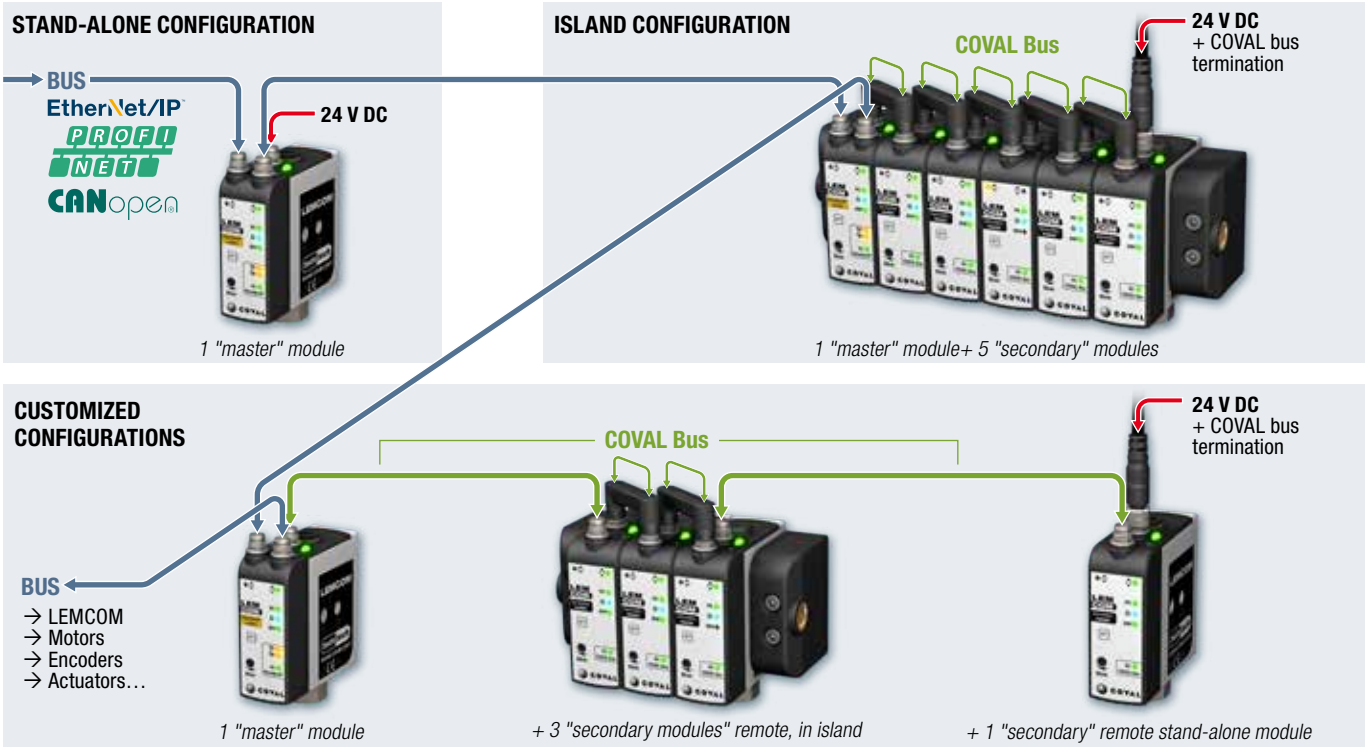
Contact between the "master" module and the "secondary" modules is confirmed by an M8 connecting bridge for island configurations or by a M8/M8 standard cable for configurations based on remote modules.

Advantages :

This product structure guarantees flexibility in selection, enabling use of LEMCOMs in stand-alone, island or mixed configurations. As a result, vacuum generators may be placed in close proximity to the application, guaranteeing a reduction:

- in gripping time
- in cycle time
- in energy consumption.

Because setup and diagnosis of the LEMCOM is carried out remotely, it is not necessary to install them in easily accessible zones.



Full remote access

LEMCOM parameters can easily be updated remotely and in several ways. Configuration is possible using LEMCOM Manager PC software, the embedded web server (EtherNet/IP and Profinet) or by sending vacuum parameters directly from the PLC during use or on initialization. This flexibility enables the LEMCOM user to adapt to all types of applications without direct intervention on the vacuum generator.

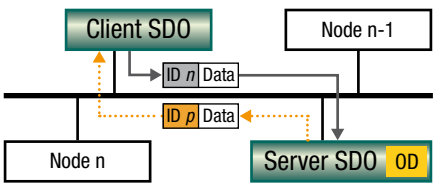
EtherNet/IP PROFINET

- Embedded web server.
- Implicit (I/O) and explicit messaging (setting) (EtherNet/IP).
- Synchronous (I / O) and asynchronous data (configuration) (Profinet).

CANopen

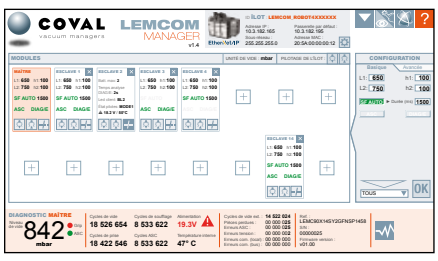
- SDO / PDO.

PDO : Process Data Object ((I/O process data).
SDO : Service Data Object (configuration data).



LEMCOM MANAGER

- Dedicated universal application: LEMCOM Manager.



COVAL vacuum managers

LEMCOM Series: selecting

LEMC	90	X	14		S

VACUUM LEVEL

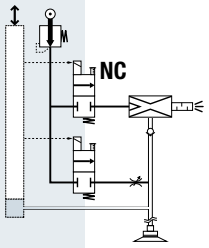
60% max. vacuum is optimal for porous materials	**60**
85% max. vacuum is optimal for airtight products	**90**

NOZZLE DIAMETER

10	1.0 mm Ø nozzle
12	1.2 mm Ø nozzle
14	1.4 mm Ø nozzle

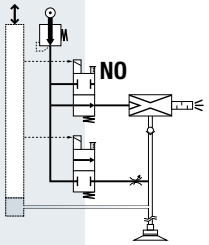
MODULE COMPOSITION

S **NC Vacuum pump with blow-off**
LEMC__X__**S**__G__



- **NC** vacuum control valve:
  → in case of electrical cut-off, vacuum generation stops (see p. 5).
- Blow-off configured on site at choice:
  - Blow-off controlled by specific signal;
  - Automatically delayed blow-off time from 0 to 10 s.
- Adjustable blow-off flow rate.

V **NO Vacuum pump with blow-off**
LEMC__X__**V**__G__



- **NO** vacuum control valve:
  → In case of electrical cut-off, vacuum continues to be generated (see p. 5).
- Blow-off configured on site, at choice:
  - Blow-off controlled by specific signal;
  - Automatically delayed blow-off time from 0 to 10 s.
- Adjustable blow-off flow rate.

OPTION :
Version without non-return valve available on request.

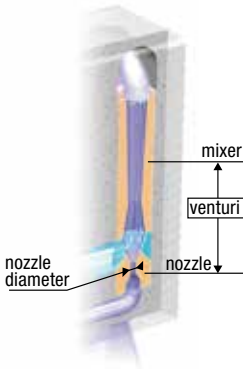
VENTURI SPECIFICATIONS:

1- Maximum Vacuum Level

Dependent upon the mixer profile:
- 85% of maximum vacuum is optimal for gripping airtight products.
- 60% of maximum vacuum is optimal for gripping porous products.

2- Nozzle Diameter

Reflects the generated vacuum flow rate, as well as energy consumption. Hence, it must be selected to meet precise requirements without wasting energy.



Handling of porous products: cardboard, untreated wood, pastries, etc. → LEMCOM 60% max. vacuum

When porosity and/or surface leaks are expected during gripping, a vacuum level between 35 and 55% is the best economical compromise generated by **a maximum venturi vacuum level of 60%.**

To determine the most effective nozzle diameter, use the table at right and measure the leakage flow rate of the material.

Nozzle Ø \ vacuum reached	Evacuation time *(in seconds)* of 1 liter volume 35 %	45 %	55 %	Consumed Air *(Nl/min)*	Vacuum flow *(Nl/min)*
1.0 mm	0.83	1.31	2.35	**44**	**38**
1.2 mm	0.52	0.83	1.49	**65**	**72**
1.4 mm	0.34	0.54	0.97	**90**	**92**

Handling of airtight products: glass, plastic, coated wood, sheet metal, etc. → LEMCOM 85% max. vacuum

Gripping done without major leaks will benefit from a high level of vacuum: Between 55 and 75% generated by **a maximum venturi vacuum level of 85%**
Depending on the volume to be evacuated and the time available for product gripping, use the table below to select the most effective nozzle diameter and vacuum flow rate.

Working without "ASC":

Nozzle Ø \ vacuum reached	Evacuation time *(in seconds)* of 1 liter volume 55 %	65 %	75 %	Consumed Air *(Nl/min)*	Vacuum flow *(Nl/min)*
1.0 mm	1.76	2.38	3.33	**44**	**29**
1.2 mm	1.13	1.53	2.15	**65**	**45**
1.4 mm	0.73	0.99	1.38	**90**	**70**

AIR Saving Control On airtight products, ASC enables you to considerably reduce compressed air consumption. The table below shows:
- A larger nozzle provides a faster grip without consuming more, when using "ASC".
- A smaller nozzle only consumes less when the operation is continued without "ASC".

When using "ASC" (evacuation of 1 liter volume):

Nozzle Ø	gripping time (65% vacuum) *(s)*	Time up to 75% vacuum *(s)*	Consumed Air *(Nl)*
1.0 mm	**2.38**	**3.33**	**2.2**
1.2 mm	**1.53**	**2.15**	**2.2**
1.4 mm	**0.99**	**1.38**	**2.2**

and ordering a module

	Y2		G		B2

PROTOCOL

Q2 PROFINET master

LEMC__X___**Q2**G__
- On-board 2-Port Ethernet Switch.
- On-board web server.
- Dedicated configuration software.
- M8/RJ45 standard connectors.
- GSDML file.

W2 CANopen® master

LEMC__X___**W2**G__
- Two CAN ports.
- From 20 to 1000 Kbps.
- Dedicated configuration software.
- Configuration by SDO.
- Regulated PDO-TX transmission threshold.

Y2 EtherNet/IP™ master

LEMC__X___**Y2**G__
- On-board 2-Port Ethernet Switch.
- On-board web server.
- Dedicated configuration software.
- M8/RJ45 standard connectors.
- RSLogix 5000 AOI + EDS file.

Z2 secondary module

LEMC__X___**Z2**G__
- Universal secondary module, can be used with any fieldbus.
- If necessary, M8/M8 "COVAL Bus" 120 Ω termination, available in accessories.

ACCESSORIES

Cat 5 shielded Ethernet cable: M8, straight, female, 4-pin – RJ45, straight, male, 8-pin – suitable for drag chain use

- **CDM8RJ45L2**: length 2 m.
- **CDM8RJ45L5**: length 5 m.
- **CDM8RJ45L10**: length 10 m.

Other lengths on request.

Cat 5 shielded Ethernet cable: M8, straight, female, 4-pin, on both ends – suitable for drag chain use

- **80003053**: length 1 m.

120 Ω "COVAL bus" termination: M8, straight, female, 4-pin – M8, plug, male, 4-pin

- **80002303**: length 0,2 m.

The COVAL bus is based on a CAN architecture and requires the addition of a bus termination to ensure proper communication between the secondary and master modules. It takes the form of an M8 male/M8 female cable that includes a 120 Ω line termination resistor. It must be integrated on the last secondary of the COVAL bus, between the module's rear connector and the 24 V DC power supply.

When using a stand-alone master module, this termination is not required.

Power supply cable: M8, straight, female, 4-pin – open end

- **CDM8**: length 2 m.
- **CDM8N**: length 0,5 m.

M8/M8 "COVAL bus" cable: M8, straight, female, 4-pin – M8, straight, female, 4-pin – suitable for drag chain use

- **CDM8FFL05**: length 0,5 m.
- **CDM8FFL1**: length 1 m.
- **CDM8FFL2**: length 2 m.
- **CDM8FFL4**: length 4 m.

Other lengths on request.

CONFIGURATION

_ 1 stand-alone module

Island assemblies

B2 LEMC__X_____G**B2**

Island assembly with **2** modules, with connecting bridges for internal "COVAL Bus" and M8/M8 120 Ω termination:
- ➔ The first module is of the type selected in "PROTOCOL".
- ➔ The following one is a secondary module.

B3 LEMC__X_____G**B3**

Island assembly with **3** modules, with connecting bridges for internal "COVAL Bus" and M8/M8 120 Ω termination:
- ➔ The first module is of the type selected in "PROTOCOL".
- ➔ The following two are secondary modules.

B4 …

NB: LEMC__X___**Z2GB_** *"Secondary" island modules are delivered without the M8/M8 "COVAL Bus" 120 Ω termination - order separately.*

Components for island assembly

B LEMC__X_____G**B**

Island module, complete with integrated assembly screw.

Island endplates set complete with assembly screw and plug for common pressure inlet.

PART NO.: LEMSETA

Connecting bridge for internal "COVAL Bus".

PART NO.: 80001231

NB: If necessary, M8/M8 "COVAL Bus" 120 Ω termination is available in accessories

EXAMPLES OF COMPLETE PART NUMBER:

LEMC90X14SY2G

LEMCOM vacuum pump, 85% maximum vacuum, 1.4 mm Ø nozzle, controlled by a NC (Normally Closed) solenoid valve, stand-alone EtherNet/IP™ "master" module.

LEMC90X10SY2GB3

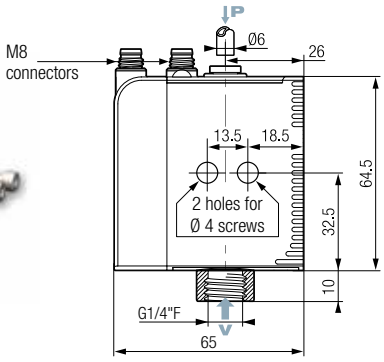
Island assembly of 3 LEMCOM vacuum pumps, 85% maximum vacuum, 1.0 mm nozzle Ø, controlled by a NC (Normally Closed) solenoid valve, EtherNet/IP™ "master" module, 2 secondary modules, with connecting bridges and the M8/M8 "COVAL Bus" 120 Ω termination.

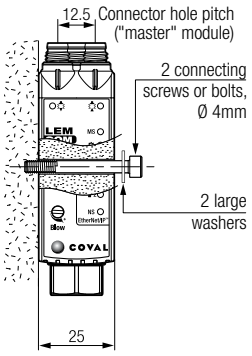
COVAL vacuum managers

Dimensions, mounting options

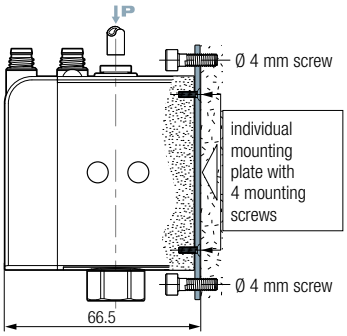
1- Stand-alone modules

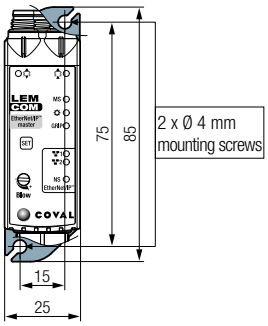
Mounting from side





Mounting from front



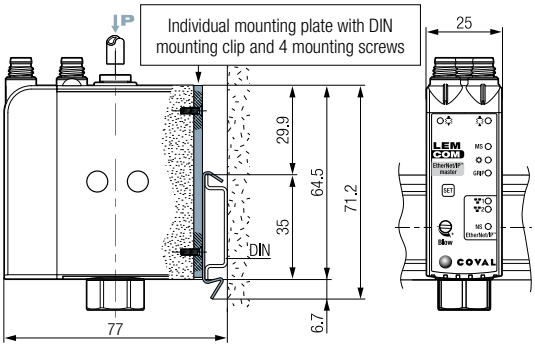


To mount from front, in addition to the module, a mounting kit must be ordered:

Kit for mounting from front:
1 plate + 4 screws

PART NO.: LEMFIXA

Mounting on DIN rail

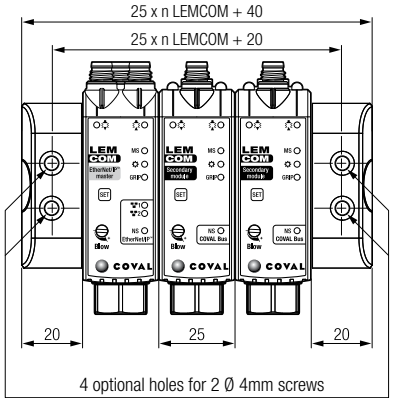


For static mounting (for example, in a cabinet), a module can be clipped onto a DIN rail. For this purpose, the module must first be equipped with an individual plate for mounting onto a DIN rail (ordered separately):

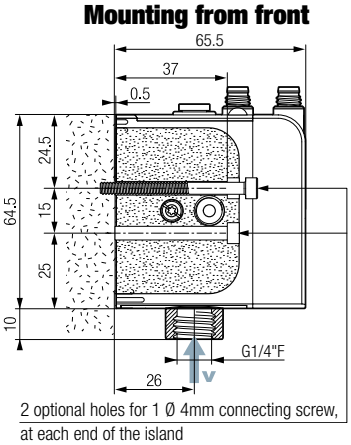
DIN rail mounting kit:
1 plate/clip + 4 screws

PART NO.: LEMFIXB

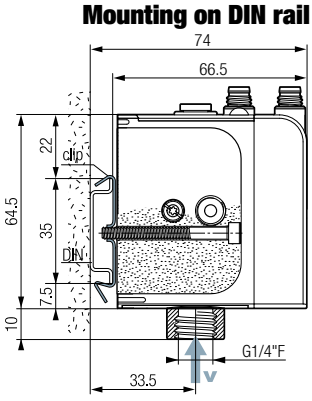
2- Islands



Mounting from front



Mounting on DIN rail



DIN rail mounting kit:
2 clips + 2 screws

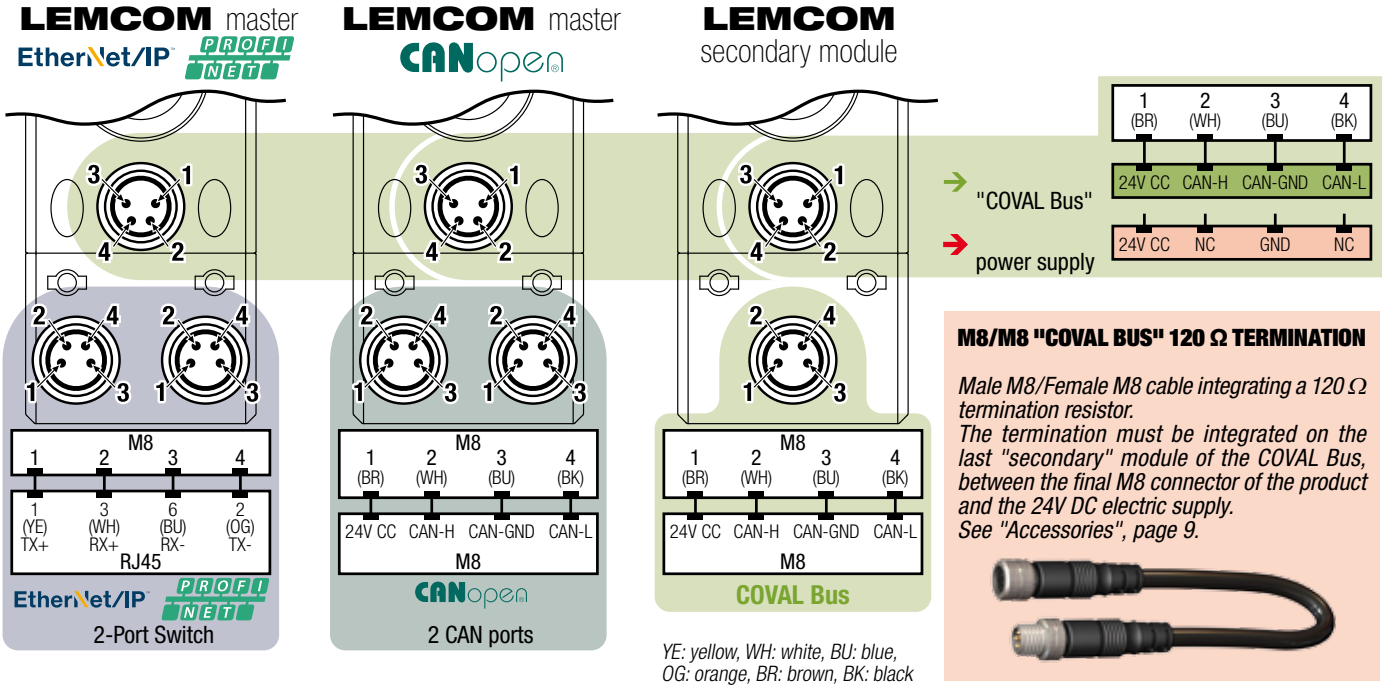
PART NO.: LEMFIXC

3D COVAL Data

On our site, www.coval.com you will find 3D models of all our products, in formats suitable for the most common CAD software.

LEMCOM Séries: specifications

Electrical connections



YE: yellow, WH: white, BU: blue, OG: orange, BR: brown, BK: black

M8/M8 "COVAL BUS" 120 Ω TERMINATION

Male M8/Female M8 cable integrating a 120 Ω termination resistor.
The termination must be integrated on the last "secondary" module of the COVAL Bus, between the final M8 connector of the product and the 24V DC electric supply.
See "Accessories", page 9.

Common specifications

- Supply: Non-lubricated air 5 microns filtered, according to ISO 8573-1 Class 4 standard.
- Operating pressure: 4.5 to 7 bar.
- Mini dynamic pressure: - stand-alone module: P = 4.5 bar.
  - island modules : 4 bar.
- Blow-off: adjustable flow: - stand-alone version: P = 3.5 bar.
  - island version: P network.
- Maximum vacuum: 85%.
- Suction flow rate: From 29 to 92 Nl/min.
- Air consumption: From 44 to 90 Nl/min, when operating “without ASC”.
- Integrated non-clogging silencer.
- Noise level: approximately 68 dBA "ASC off". 0 dBA with ASC.
- Electric protection grade: IP65.
- Maximum operating frequency: 4 Hz.
- Service life: 30 million cycles.
- Weight: 150 g.
- Operating temperature: From 0 to 50°C.
- Materials: PA 6-6 15% FG, brass, aluminum, NBR.
- 4-pins M8 male connectors.

Self-Adaptation
- Continuous monitoring of the leakage level: Shutoff or automatic return to operation with ASC.

Integrated electronics
- 24V DC supply (regulated ± 10 %).
- Electric consumption: "master" < 150 mA, "secondary" < 100 mA, of which 30 mA (0.7W) per vacuum and blow-off pilot.
- Measurement range: 0 to 99% vacuum.
- Measurement accuracy: ±1,5 % of range, temperature compensated.
- Communication ports protected against wiring errors or reversed polarity.

Service specifications

Settings
- Piece gripping (L1) and regulation (L2)thresholds.
- Automatic blow-off time configurable (0 to 10 seconds).
- Activation/deactivation of ASC regulation system.
- Activation/deactivation of the (DIAG ECO) leakage level monitoring system.
- Adjustable blue LED functioning mode
- Valve functioning mode in the event of loss of communication

Diagnosis
- Instantaneous vacuum level (0 to 99%).
- Gripped product, loss of product, regulation in process, regulation default information.
- Cycle counters (vacuum, blow-off, gripped piece, ASC, etc.).
- Supply voltage and internal temperature.
- Product reference and serial number.
- Firmware version.

Configuration and diagnosis tools
- LEMCOM Manager PC software (EtherNet/IP, Profinet and CANopen universal application.
- Embedded web server (EtherNet/IP and Profinet module).

Communication
EtherNet/IP:
- 2-port ethernet switch.
- Static IP address or DHCP.
- EDS file & RSLogix 5000 Add-On Instructions.

Profinet:
- 2-port ethernet switch.
- Static IP address or Profinet DCP.
- GSDML file.

CANopen:
- 2 CAN port.
- 10 to 1000 Kbps.
- EDS file.

COVAL Bus:
- CAN link between "master" and "secondary" units / 1 Mbps.
- Connection by specific bridge for island assembly or unshielded female M8/female M8 cable.
- Max total length of the COVAL Bus: 20 meters.

COVAL vacuum managers

COVAL
vacuum managers

vacuum
components

A TECHNOLOGICAL PARTNER ON A GLOBAL SCALE

Located in the southeast region of France, COVAL designs, manufactures and globally distributes high performance, advanced vacuum automation components and systems for industrial applications in all branches of activity.

COVAL is an ISO 9001: V2015 certified company, which offers innovative solutions integrating reliable and optimized components with intelligent functions. Our aim is to provide the most personalized and economic solution to a given application, while assuring significant improvement in productivity and safety for vacuum users around the world.

COVAL has an ambition for technical excellence and innovation. As a specialist in vacuum automation, COVAL is reputed for offering reliable, personalized, cost effective and productive solutions.

COVAL references can be found in several industrial sectors (Packaging, Automotive Industry, Plastics, Graphics, Aeronautics…) where vacuum handling is important for high efficiency and productivity.

COVAL markets its products and services all over Europe, in the United States and South America through its subsidiaries and authorized distribution network. COVAL strives to provide customer-driven solutions and gives the best possible service to satisfy all its clients.

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