

Vacuum- Generation and Monitoring

Product brochure 2015/16



> Vacuum Generation

Ejectors for efficient vacuum generation

> Vacuum Monitoring

Vacuum sensors for monitoring of automatic processes



Closer Cooperation

AVAC Vakuumtechnik AB and MP-SENSOR GmbH

Both companies have a substantial excellence in their respective fields and offers competitive standard as well as customized solutions. The ambition is to create innovative developments to meet the requirements from the market. The cooperation between the two companies will strengthen the presence on common markets.

AVAC Vakuumtechnik AB is located in Mullsjö in the south of Sweden with production and development of vacuum generators. The product development is focused on handling of air tight materials e.g. sheet metal/glass handling and pick & place applications.

MP Sensor GmbH is located in Neuhausen auf den Fildern, Germany, with both production and development of electronic pressure/vacuum switches and sensors.

Maximum power – optimum energy efficiency!

Using optimised vacuum generation and vacuum monitoring systems makes workflows not only quicker and more precise, but also more cost-effective.

AVAC Vakuumtechnik and MP-SENSOR can help you optimise your processes no matter where in the world you do business.

We are doing what we can to conserve resources and use them as efficiently as possible

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AVAC Vakuumenteknik AB is certified according to ISO 9001 Quality Management System.

MP Sensor GmbH is certified according to ISO 9001 Quality Management System and the Environmental Management System ISO 14001.

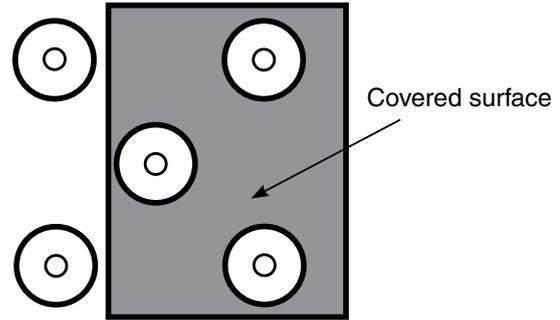


MULTI CIRCUIT Ejector – Air Operated Blow-Off



4 TO 6 INDEPENDENT VACUUM CIRCUITS

Maintains the vacuum level in other suction cups in case of damaged cup or without contact.



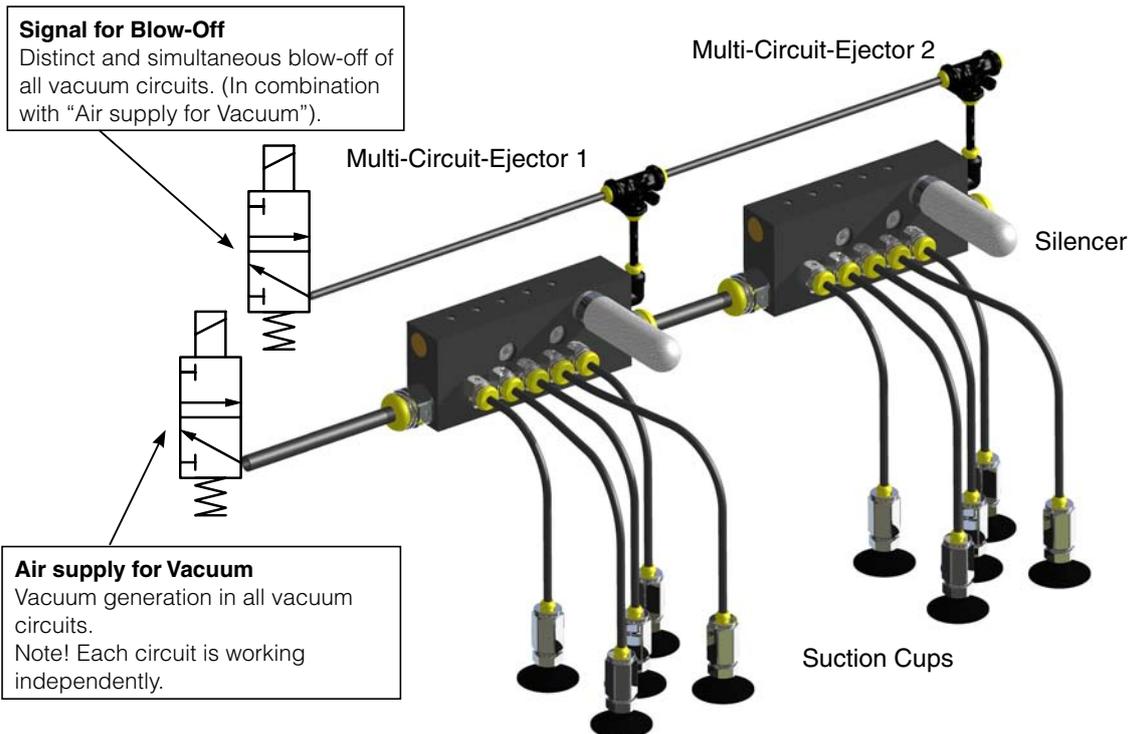
SIMPLE AND CLEAR INSTALLATION

Simplifies assembly and installation with reduced cost and improved visibility as result.

COMMON BLOW-OFF

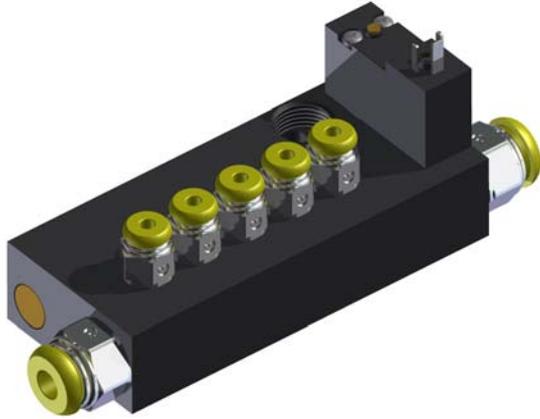
Distinct and simultaneous blow off in all vacuum circuits makes it easier to release the object in the right position.

AVAC MULTI-CIRCUIT with air operated blow-off

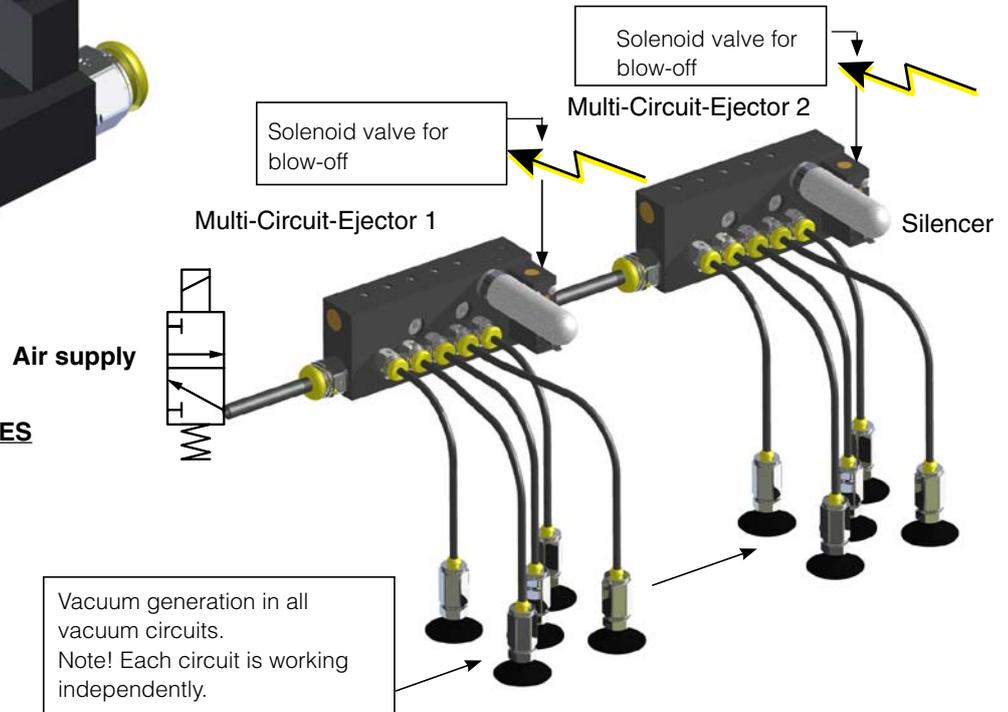


<http://avac.se/pdfu/U-MULTI.pdf>

MULTI CIRCUIT Ejector – Solenoid Operated Blow-Off



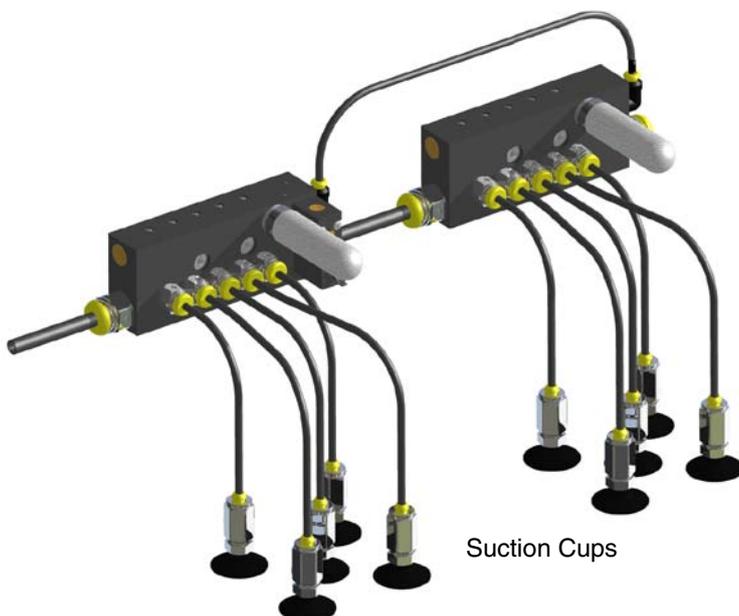
AVAC MULTI-CIRCUIT with solenoid operated blow-off (In combination with “Air supply”).



INCREASED PRECISION IN SERIES

The electrical signal for blow-off ensures a distinct release also for remote devices connected in series.

AVAC MULTI-CIRCUIT Ejector with a solenoid operated release (MASTER) and one with air operated release (SLAVE).



MASTER/SLAVE COMBINATION

By combining one solenoid operated (MASTER) with one or more air operated MULTI-CIRCUIT-EJECTORS (SLAVES), the internal signal from the solenoid valve for blow-off can be used for blow-off of the slave units by removing the M5 plug and connect the blow-off port of the SLAVE unit(s). Provided that the blow-off capacity is sufficient.

BOOSTER RELEASE Ejector - Patented Blow-Off



BLOW-OFF WITH BOOSTER EFFECT

Minimizes the time of blow-off and releases the work piece gentle and with accuracy.

ADVANTAGE PNEUMATIC SIGNAL

A pneumatic signal is significantly faster than a vacuum signal, therefore it is beneficial to place the ejector near the suction cups. The tube dimensions can be reduced considerably.

ADVANTAGE ELECTRICAL SIGNAL

At blow-off an electrical signal is given to all ejectors which will release the work piece instantaneously. The switch to blow-off mode takes approximately 5 ms and with a flat suction cup Ø50 mm it releases in 3.5 ms.

DIRECT MOUNTED ON THE SUCTION CUP

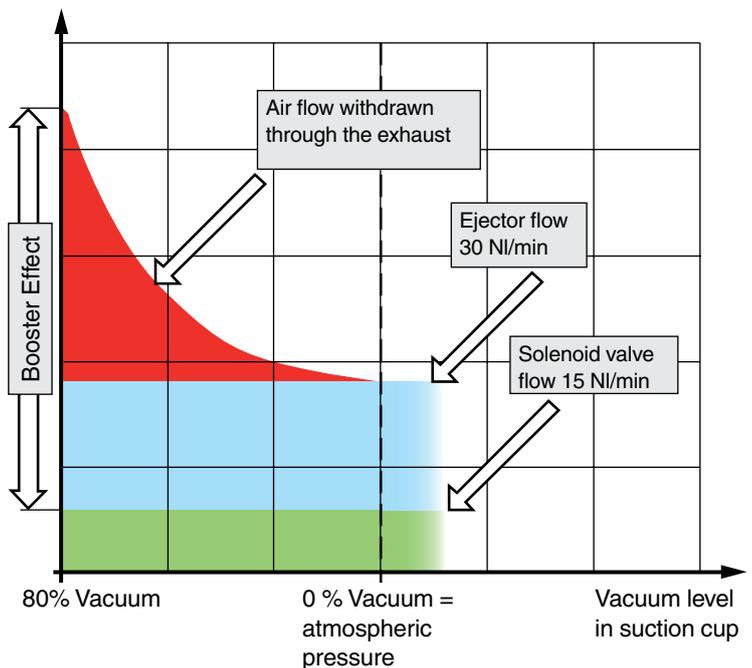
The response time for achieving vacuum and for blow-off is considerably shorter and is done with higher accuracy compared to an ejector remotely located from the suction cup.

MULTIPLE SUCTION CUPS

One single Booster Release ejector can be used for several suction cups if the capacity to generate vacuum and blow-off is sufficient.

Blow-off with Booster Effect

Release flow



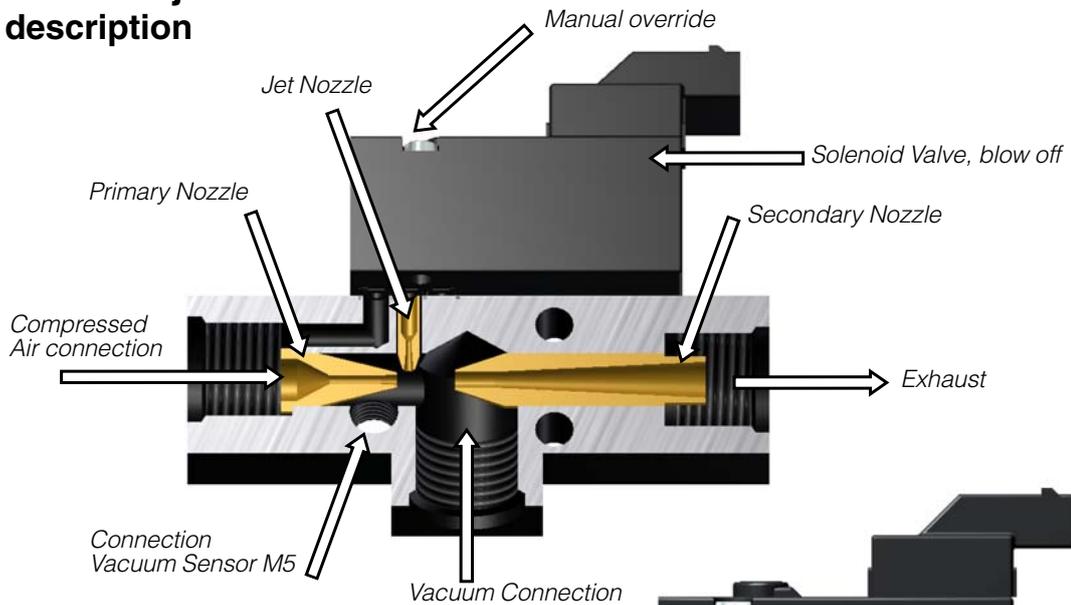
SERVICE LIFE 100 MILJON

A life of >100 million actuations will ensure a reliable function and a long service life with reduced air consumption.



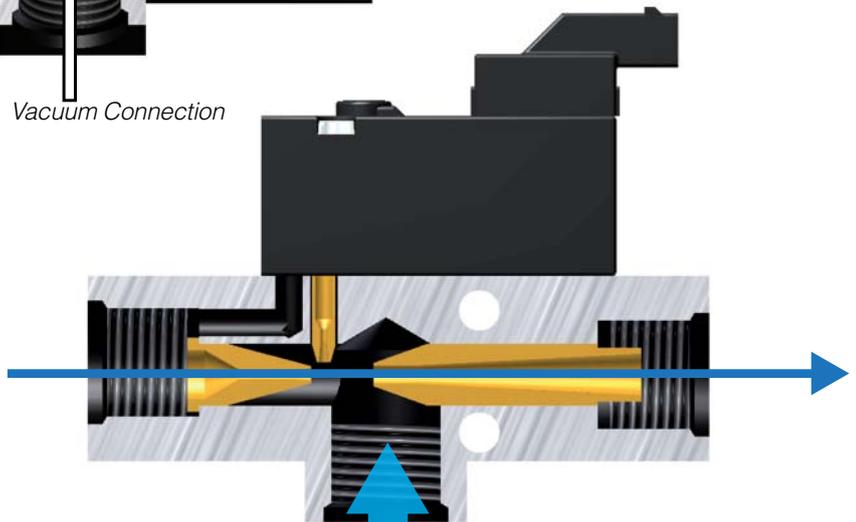
<http://avac.se/pdf/U-BRE.pdf>

Booster Release Ejector - Functional description



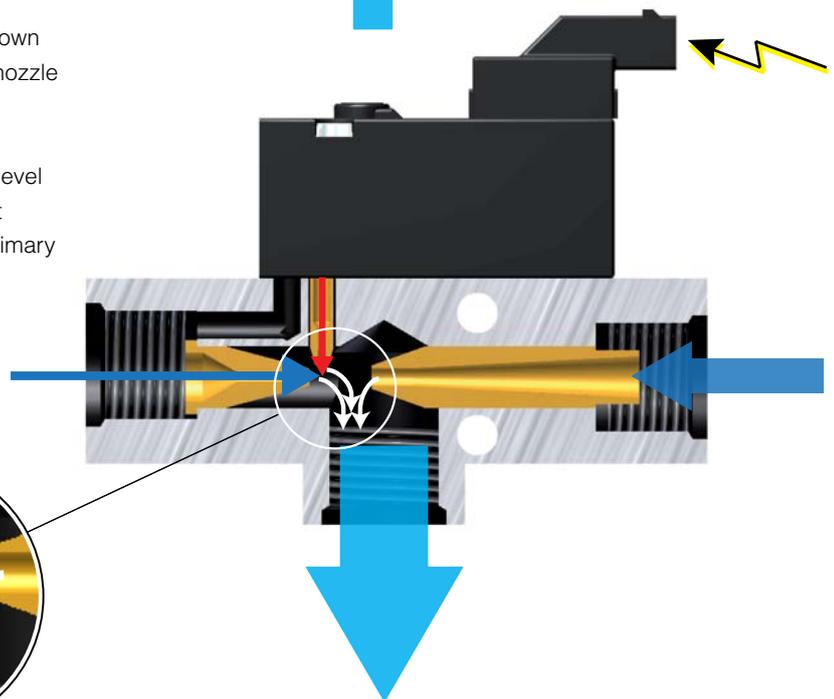
VACUUM GENERATION

The ejector is supplied with compressed air which is led through the primary nozzle and blown to the secondary nozzle, drawing the air from the vacuum connection where vacuum is achieved.



THE RELEASE PHASE

When the solenoid valve is actuated, compressed air is blown through the Jet Nozzle linking off the air from the primary nozzle into the vacuum connection. Additionally air is withdrawn through the exhaust. At the beginning, the withdrawn air signifies the major part of the blow-off. When the vacuum level gradually is sinking the withdrawn air loses importance. At atmospheric pressure only the flow through the jet- and primary nozzles remain.



BLOW-OFF FLOW:

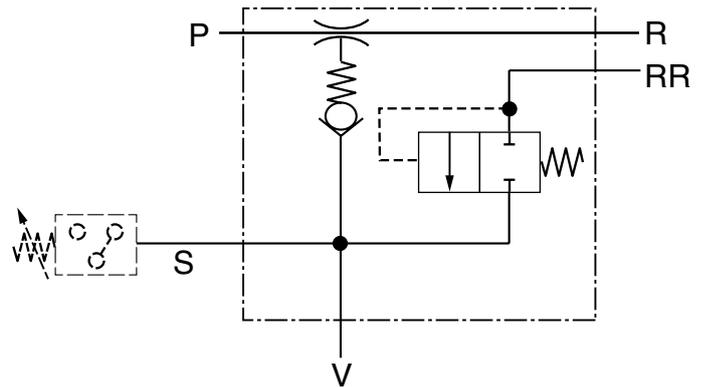
The Ejector flow
+
the flow of the
solenoid valve
+
air withdrawn
through the
exhaust



EJECTOR with Vacuum-holding-function - 2BV Ejector



Air operated ejectors with an integrated vacuum holding valve.



LIFTING OF GLASS AND METAL SHEETS

Ejectors suitable for lifting of glass, metal and other air tight materials.

COMMON BLOW-OFF IMPULS

The blow off valve opens at 0.5 bar, which make it possible to connect several 2BV EJECTORS to the same blow-off signal.

DOUBLE SAFETY

The vacuum holding valve in the vacuum port prolongs time until the load is dropped due to pressure loss. The blow off valve blocks, in case of broken signal tube connected to the blow off port (RR).

MONITORING OF VACUUM LEVEL

A vacuum sensor connected to the ejector can monitor the vacuum level and ensure that the alarm is triggered at too low vacuum level.



<http://avac.se/pdfu/U-2BV.pdf>

Ejector with Air Saving Device - 2BV AIR SAVE Ejector



Air saving 97%:

- 0.1 liter volume to be evacuated in 0.3 seconds.
- Cycle time 10 seconds
- Air consumption traditional ejector **10 liter**
- AIR SAVE Ejector **0.3 liter**

2BV AIR SAVE EJECTOR

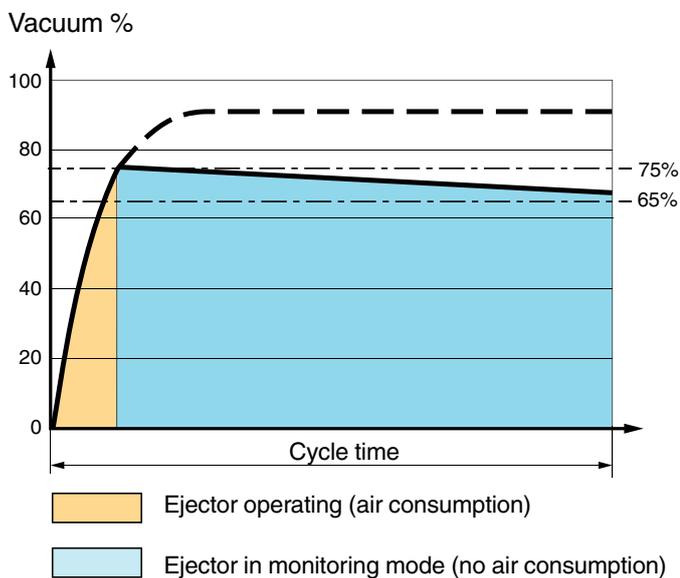
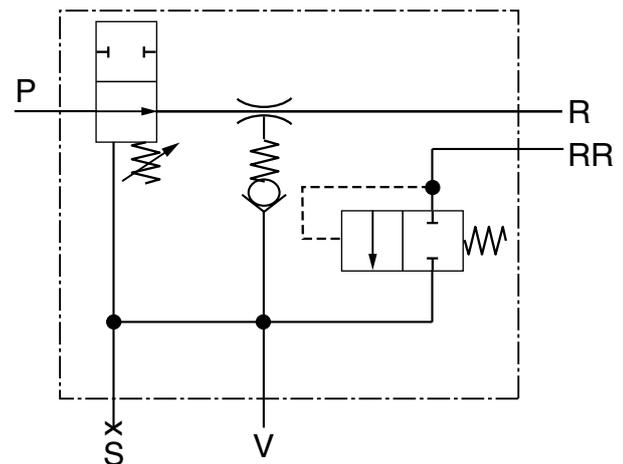
The ejector is equipped with an integrated full pneumatic control circuit which shuts off the air supply when the preset max vacuum level is reached and restarts when reaching the min level. This enables compressed air savings of more than 95 %.

BLOW-OFF IMPULS

The valve in the blow-off port opens at 0.5 bar, which results in a very quick and controlled blow-off.

SIMPLE INSTALLATION

Connect the air supply (P) and the blow-off impuls (RR). The internal control circuit monitors the vacuum level and shuts of the air consumption when the max vacuum level is reached and restarts when reaching the min level.



<http://avac.se/pdf/u-2BVAS.pdf>

Vacuum and Pressure Monitoring



Electronic Vacuum and Pressure Sensors with display - 2 x digital outputs with IO-Link



PICO

Electronic vacuum and pressure sensor with display and programming buttons. This accurate and fast switching sensor has a slim and lightweight design - ideal for most handling applications and industrial automation processes.

<http://www.mp-sensor.de/de/produkte/vakuum-druck-sensoren/elektronische-druckschalter-und-vakuumschalter.html>



NANO

Electronic vacuum and pressure sensor with display and programming buttons. This accurate and fast switching sensor has an aluminium body and is suitable for a wide range of engineering applications.

<http://www.mp-sensor.de/de/produkte/vakuum-druck-sensoren/elektronische-druckschalter-und-vakuumschalter.html>



Electronic Vacuum and Pressure Sensors programmable - 1 x digital output and 1 x analogue output



FEMTO

Electronic vacuum and pressure sensor with status & switching indicator and teach buttons. This sensor has a slim and lightweight design - ideal for most handling applications and industrial automation processes.

<http://www.mp-sensor.de/de/produkte/vakuum-druck-sensoren/elektronische-druckschalter-und-vakuumschalter.html>



Vacuum and Pressure Monitoring

Electronic Vacuum and Pressure Sensors - our compact series with 1 x digital output



VS11

Electronic vacuum sensor with miniaturized design. Ideal for applications where every gram counts - e.g. direct-mounting near the vacuum gripper. The switching point can easily be adjusted with the setting screw. After mounting the sensor, the body can be rotated (360°) and adjusted in any position.

<http://www.mp-sensor.de/de/produkte/vakuum-druck-sensoren/elektronische-druckschalter-und-vakuumschalter.html>



F08-K

Electronic vacuum and pressure sensor with a very compact and robust design - ideal for most handling applications and industrial automation processes. Switch/reset point as well as the switching logic are programmable (teachable).

<http://www.mp-sensor.de/de/produkte/vakuum-druck-sensoren/elektronische-druckschalter-und-vakuumschalter.html>



Mechanical Vacuum and Pressure Switches



If there are low or average requirements regarding measurement accuracy, then mechanical vacuum and pressure switches are the right choice. We offer switches with NO, NC and changeover function.

<http://www.mp-sensor.de/de/produkte/vakuum-druck-sensoren/mechanische-druckschalter-und-vakuumschalter.html>



Analogue Vacuum and Pressure Sensors



Our compact and robust transmitters have a high measurement accuracy. Depending on the application and the required pressure range we offer transmitters with ceramic, stainless steel or silicon sensing elements.

<http://www.mp-sensor.de/de/produkte/drucktransmitter-analog.html>



Other Products - Air Operated Ejectors



MINI Ejectors

The compact design and the low weight (from 8 g) makes it suitable for e.g. the electronics industry.



<http://avac.se/pdf/U-MINI.pdf>



ORIGINAL Ejectors

Ejectors in a robust design with a high vacuum level >85% at 4 bar resulting in a low air consumption.

Equipped with a connection for blow-off or to connect a vacuum sensor.



<http://avac.se/pdf/U-ORIGINAL.pdf>



BLOW-OFF Valve

To be connected to the blow-off port (RR) for increased safety. Suitable for all ORIGINAL Ejectors with a RR-connection G1/8.



<http://avac.se/pdf/U-BLOWOFF.pdf>



INLINE Ejectors

Two ejector sizes with nozzles for a high vacuum level or high vacuum flow. Compact design with low weight and Ø 6 mm push-in connections or with external G1/8 thread.



<http://avac.se/pdf/U-INLINE.pdf>

Other Products - Solenoid Operated Ejectors



MV Ejectors

Solenoid operated ejectors in four sizes with one integrated solenoid valve for vacuum generation.



<http://avac.se/pdf/U-MV.pdf>



MV-MV Ejectors

Solenoid operated ejectors in three sizes with one integrated solenoid valve for vacuum generation and one for a controlled blow-off offering a minimum response time with greater accuracy.



<http://avac.se/pdf/U-MV-MV.pdf>

Other Products - EJECTORS with vacuum holding valve



BVX Ejectors

Air operated ejectors in four sizes with integrated vacuum holding valve and blow-off valve. Suitable for handling of glass, sheet metal and other air tight materials. In case of a supply pressure loss the vacuum holding valve closes and delays the vacuum loss which increases the safety.



<http://avac.se/pdfu/U-BVX.pdf>



COMPACT AUTOVAC Ejectors

Ejectors for air saving, safety and monitoring of the vacuum level. COMPACT AUTOVAC is available in four sizes. In combination with an appropriate control system and a vacuum switch air savings of >95% are achievable.



<http://avac.se/pdfu/U-AUTOVAC.pdf>



AUTOVAC Ejectors

The AUTOVAC series are available in three sizes and offers air savings in combination with an appropriate control system and a vacuum switch. Air savings of >95% are achievable for air tight materials.



<http://avac.se/pdfu/U-AUTOVAC.pdf>



**Maximum power – minimal
wastage of resources!**

Using optimised vacuum generation systems makes processes more economical.

AVAC Vakuumtechnik and MP-SENSOR can provide you with energy-efficient solutions no matter how your automation systems work or what you use them for.

Taking long-term measures to reduce wastage is important for conserving our valuable resources.



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