



Operating Instructions

Ejector VR

Note

The Operating instructions were originally written in German. Store in a safe place for future reference. Subject to technical changes without notice. No responsibility is taken for printing or other types of errors.

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1 Important Information

1.1 Note on Using this Document

J. Schmalz GmbH is generally referred to as Schmalz in this document.

The document contains important notes and information about the different operating phases of the product:

- Transport, storage, start of operations and decommissioning
- Safe operation, required maintenance, rectification of any faults

The document describes the product at the time of delivery by Schmalz and is aimed at:

- Installers who are trained in handling the product and can operate and install it
- Technically trained service personnel performing the maintenance work
- Technically trained persons who work on electrical equipment

1.2 The technical documentation is part of the product

1. For problem-free and safe operation, follow the instructions in the documents.
2. Keep the technical documentation in close proximity to the product. The documentation must be accessible to personnel at all times.
3. Pass on the technical documentation to subsequent users.
 - ⇒ Failure to follow the instructions in these Operating instructions may result in injuries!
 - ⇒ Schmalz is not liable for damage or malfunctions that result from failure to heed these instructions.

If you still have questions after reading the technical documentation, contact Schmalz Service at:

www.schmalz.com/services

2 Fundamental Safety Instructions

2.1 Intended Use

The ejector is used for vacuum generation, i.e. for evacuating suction cups for holding payloads or for evacuating other volumes.

The vacuum generated should be monitored in order to detect any issues with vacuum generation.

Neutral gases are approved as evacuation media. Neutral gases include air, nitrogen and inert gases (e.g. argon, xenon and neon).

The product is built in accordance with the latest standards of technology and is delivered in a safe operating condition; however, hazards may arise during use.

The product is intended for industrial use.

Intended use includes observing the technical data and the installation and operating instructions in this manual.

2.2 Non-Intended Use



Schmalz accepts no liability for damages caused by non-intended usage of the ejector.

In particular, the following are considered non-intended use:

- Use in potentially explosive atmospheres
- Use in medical applications
- Evacuation of objects that are in danger of imploding

2.3 Warnings in This Document

Warnings warn against hazards that may occur when handling the product. The signal word indicates the level of danger.

Signal word	Meaning
 WARNING	Indicates a medium-risk hazard that could result in death or serious injury if not avoided.
 CAUTION	Indicates a low-risk hazard that could result in minor or moderate injury if not avoided.

2.4 Residual Risks



WARNING

Extraction of hazardous media, liquids or bulk material

Personal injury or damage to property!

- ▶ Do not extract harmful media such as dust, oil mists, vapors, aerosols etc.
- ▶ Do not extract aggressive gases or media such as acids, acid fumes, bases, biocides, disinfectants or detergents.
- ▶ Do not extract liquids or bulk materials, e.g. granulates.



CAUTION

Depending on the purity of the ambient air, the exhaust air can contain particles, which escape from the exhaust air outlet at high speed.

Eye injuries!

- ▶ Do not look into the exhaust air flow.
- ▶ Wear eye protection.



CAUTION

Vacuum close to the eye

Severe eye injury!

- ▶ Wear eye protection.
- ▶ Do not look into vacuum openings such as suction lines and hoses.

2.5 Modifications to the Product

Schmalz assumes no liability for consequences of modifications over which it has no control:

1. The product must be operated only in its original condition as delivered.
2. Use only original spare parts from Schmalz.
3. The product must be operated only in perfect condition.

3 Product Description

Inline ejector for mounting between the suction cup and compressed air supply.

Inline ejector with main body made from anodized aluminum and nozzle system made from brass.

The ejector is suitable for filtered, lubricant-free compressed air from 4 to 6 bar.

Operating pressure 5 bar

Operating temperature 0° C to +60° C

It may be installed in any position.

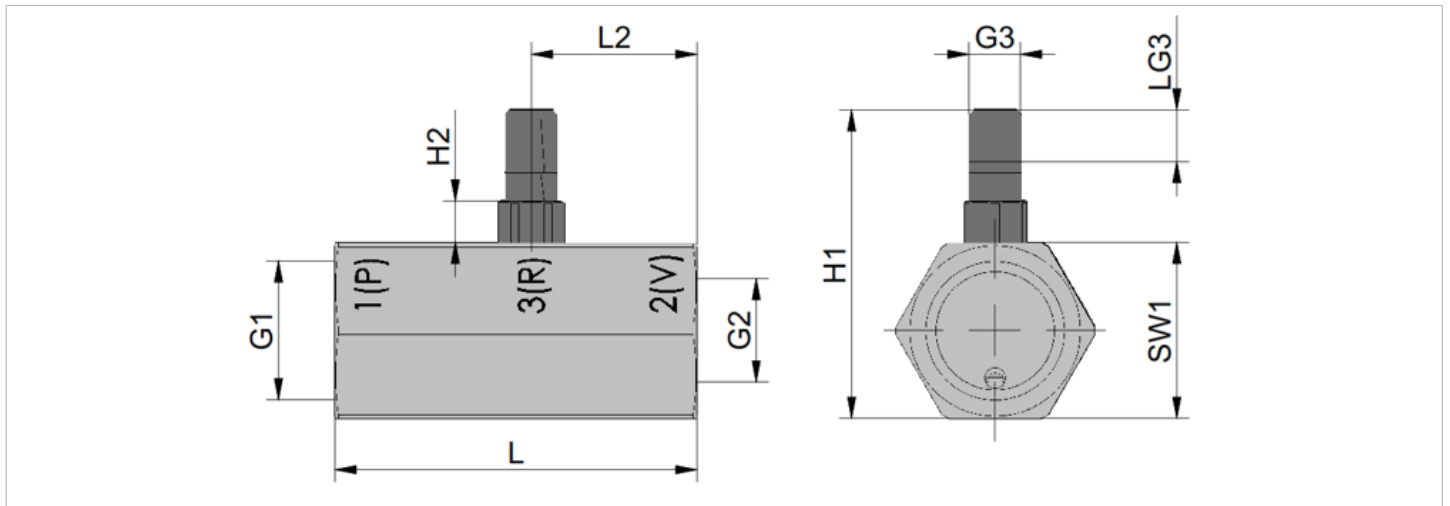
The ejector does not require maintenance.

4 Technical Data

4.1 Performance Data

Type	Nozzle Ø [mm]	Suction rate [NI/min]	Max. vacuum [%]	Air consumption [NI/min]	Weight [kg]
VR 05	0.5	7	85	12	0.015
VR 07	0.7	14	85	21	0.015
VR 09	0.9	21	85	36	0.015

4.2 Dimensions



L	B	H1	H2	G1	G2	G3	LG3	SW1
35	16	29.8	4	G 1/4"	G 1/8"	M5	5	17

All specifications are in mm

5 Checking the Delivery

The scope of delivery can be found in the order confirmation. The weights and dimensions are listed in the delivery notes.

1. Compare the entire delivery with the supplied delivery notes to make sure nothing is missing.
2. Damage caused by defective packaging or occurring in transit must be reported immediately to the carrier and J. Schmalz GmbH.

6 Installation

6.1 Installation Instructions

For safe installation, the following instructions must be observed:

- Use only the connectors, mounting holes and attachment materials that have been provided.
- Carry out mounting or removal only when the device is depressurized.
- Pneumatic line connections must be securely connected and attached to the product.
- Ensure that you make all connections correctly and never close them off – danger of bursting!
- When using hose connectors (plug-in couplings and plug-in screw unions), make sure that they are suitable for use with a vacuum.
- To ensure a vacuum-tight connection, make sure that the hose engages correctly into the coupling.
- In the case of severe contamination, use a suitable filter.

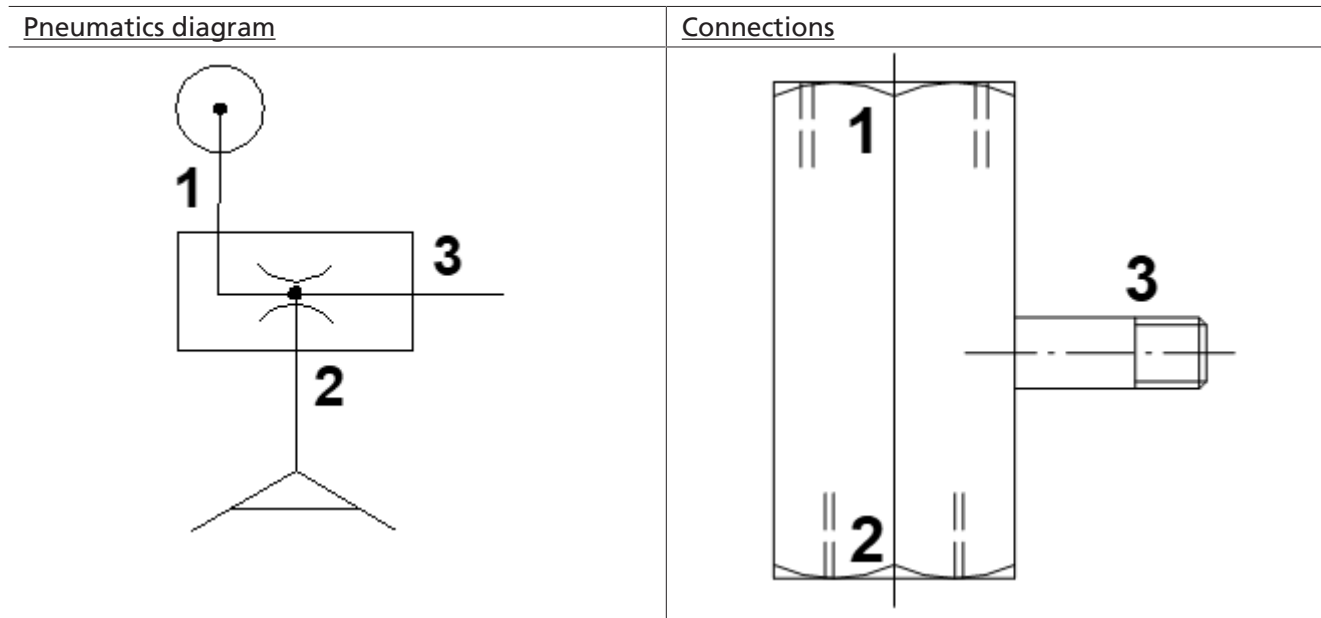
- The ejector should be protected from vibrations and impacts.

6.2 Connection

Legend:

1	Compressed air connection
2	Vacuum connection
3	Exhaust outlet

VR 05, VR 07, VR 09



6.3 Pneumatic Connection



⚠ CAUTION

Compressed air or vacuum in direct contact with the eye

Severe eye injury

- ▶ Wear eye protection
- ▶ Do not look into compressed air openings
- ▶ Do not look into the silencer air stream
- ▶ Do not look into vacuum openings, e.g. suction cups



⚠ CAUTION

Noise pollution due to incorrect installation of the pressure and vacuum connections

Hearing damage

- ▶ Correct installation.
- ▶ Wear ear protectors.

6.3.1 Instructions for the Pneumatic Connection

Use only screw unions with cylindrical G-threads for the compressed air and vacuum connection!

To ensure problem-free operation and a long service life of the ejector, only use adequately maintained compressed air and consider the following requirements:

- Use of air or neutral gas in accordance with EN 983, filtered 20 µm, oiled or unoled.
- Dirt particles or foreign bodies in the ejector connections, hoses or pipelines can lead to partial or complete ejector malfunction.

1. Shorten the hoses and pipelines as much as possible.
 2. Keep hose lines free of bends and crimps.
 3. Only use a hose or pipe with the recommended internal diameter to connect the ejector, otherwise use the next largest diameter.
 - On the compressed air side, ensure that the internal diameter has the dimensions required for the ejector to achieve its performance data.
 - On the vacuum side, ensure that the internal diameters have the necessary dimensions for preventing high flow resistance. If the selected internal diameter is too small, the flow resistance and the evacuation times increase and the blow off times are extended.
- ▶ For longer hose lengths, the cross-sections must also be larger.

7 Disposing of the Product

Recover the disassembled parts for recycling or reuse (provided no agreement on return or disposal has been made).

1. Dispose of the product properly after replacement or decommissioning.
2. Observe the country-specific guidelines and legal obligations for waste prevention and disposal.