

## Operating instructions *Compact ejector SCPS*

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# 1 SAFETY INSTRUCTIONS

## IMPORTANT SYMBOLS



This symbol indicates important information and instructions.



**Caution!**  
This symbol indicates a potentially dangerous situation.  
If it is not avoided, slight or minor injuries may result.



**Danger!**  
This symbol indicates an immediate hazard.  
If it is not avoided, death or serious injuries may result.

## GENERAL SAFETY INSTRUCTIONS



- These operating instructions contain important information on using the ejector. Please read the operating instructions thoroughly and keep them for later reference.



**Never look into any open or closed vacuum vents (e.g. vacuum connections or suction pads).  
Serious injuries could occur as a result. Eyes can be sucked in.**

- Compressed air can cause closed containers to explode. A vacuum can cause closed containers to implode.
- The ejector may only be operated with a silencer. Never look into the exhaust air jet of the silencer.
- The ejector emits noise. We recommend wearing ear protection.
- This device is not intended for use with hazardous dust, oil mist, vapors or aerosols, etc. If drawn in, these materials will enter the exhaust air and may result in poisoning.
- Use only the connections, mounting holes and attachment materials that have been provided.
- Carry out mounting and removal only when the device is in an idle, depressurized state.
- No person may sit or stand in the area in which the load is to be transported.
- No person may sit or stand in the danger zone while the machine or system is in automatic mode.
- Components may be installed by trained specialist personnel only.

- Specialist personnel must be familiar with current safety rules and requirements. For example, these apply to the use of components such as solenoid valves and pressure switches as well as to controllers used in devices, machines and systems.
- Specialist personnel must also be familiar with the system's control concept. In particular, they must be familiar with the system's redundant control components and feedback signals.

## INTENDED USE

The ejector is designed to generate a vacuum for gripping and transporting objects when used in conjunction with suction pads. Neutral gases in accordance with EN 983 are approved as evacuation media. Neutral gases include air, nitrogen and inert gases (e.g. argon, helium and neon). Aggressive gases or media such as acids, acid fumes, bases, biocides, disinfectants or detergents are not permitted.



The ejector is **not** suitable for transporting or sucking through liquids or bulk material such as granulates.  
Personal injury or damage to the ejector may occur.

**INSTALLATION AND OPERATION**

For safe installation and trouble-free operation, please observe and comply with the following points:



**The ejector may only be operated using power supply units with protected extra-low voltage (PELV). The system must incorporate safe electrical cut-off of the power supply in compliance with EN60204.**



**Do not operate the ejector in environments where there is a risk of explosion.  
Risk of fire and explosion.**



**Output signals (discrete signals as well as IO-Link signals) can change when the power supply is switched on or the M12 connectors are plugged in. Depending on the function of the machine/system, this can result in serious personal injury or damage to the equipment.**



The device may not be operated outside its specified performance limits. Doing so may cause it to malfunction or be destroyed.



During installation and maintenance, make sure that the ejector is disconnected and depressurized and that it cannot be switched on again without authorization. Personal injury or damage to the ejector may occur.

- Protect the ejector from damage at all times.
- No modifications may be made to the ejector.
- Opening the ejector will damage the “tested” labels. This voids the warranty.
- Connection symbols and labels are located on the ejector. These must be observed.
- Only the intended connections may be used.
- Pneumatic and electrical line connections must be securely connected and attached to the ejector.
- The ejector may be installed in any position.
- If these instructions are not observed, malfunctions, material damage and serious injury – including fatal injury – may result.
- If the ejector is no longer operative, the components must be disposed of in an ecologically sound manner.

## 2 PRODUCT OVERVIEW

### GENERAL DESCRIPTION OF FUNCTIONS

#### VACUUM GENERATION (PICKING UP THE WORKPIECE)

The ejector is designed for vacuum handling of parts in combination with suction systems.

The Venturi nozzle is activated and deactivated via the suction signal input. In the NO version, the Venturi nozzle is deactivated when the suction input signal is present. In the NC version, the Venturi nozzle is activated when the suction input signal is present.

An integrated sensor records the vacuum generated by the Venturi nozzle. This is evaluated by an electronics system and serves as the basis for displaying the system states and switching the output.

The ejector has an integrated air-saving function. The ejector automatically regulates the vacuum while in suction mode. The electronics system switches the Venturi nozzle off when the switching point H1 set by the user is reached.



If small volumes are to be evacuated, the set switching point H1 might be exceeded considerably before the vacuum is switched off. This system behavior does not constitute an error.

When objects with dense surfaces are picked up, the integrated non-return valve prevents the vacuum from dropping. If leakage causes the system vacuum to drop below the switching point H1-h1, the Venturi nozzle is switched on again.

#### BLOW-OFF (DEPOSITING THE WORKPIECE)

In blow-off mode, the vacuum circuit of the ejector is supplied with compressed air. This ensures that the vacuum drops quickly, depositing the workpiece quickly as well. Blow-off mode can be controlled externally or internally.

When controlled externally, blow-off mode is activated by the “blow-off” signal input.

When controlled internally (automatic blow-off), the blow-off valve is actuated for a defined period after suction mode is exited.



The ejector also has a manual mode. In this mode, the ejector can be controlled using the buttons on the ejector’s foil keypad. See the “Manual mode” section for more details.

## VACUUM/PRESSURE DISPLAY

The current system vacuum is always displayed in the 8-digit LED bar display. The 2 LEDs, H1 and H2, indicate which range the vacuum level is in relative to the threshold values set.

## VERSIONS

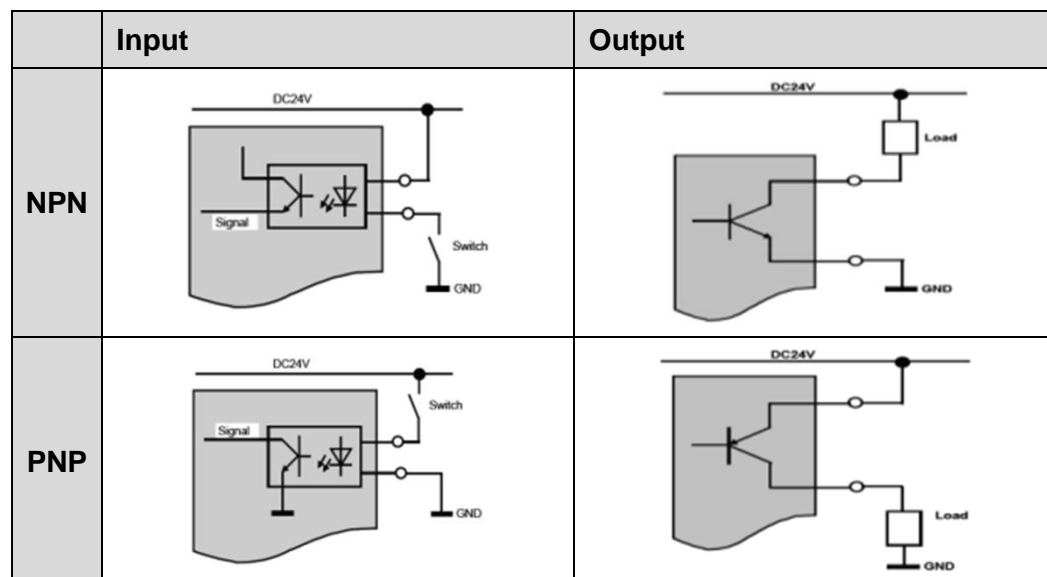
Each ejector has a specific item designation (e.g. SCPS-10-G2-NO-M12-5-PNP).

The item designation can be broken down as follows:

Type	Performance class	Pneumatic connection	Idle position	Electrical connection	Signal input / Signal output
SCPS	07 10 15	G2 (2x G1/8")	NO Normally open NC Normally closed	M12-5 (1xM12, 5-pin)	NPN PNP

## EJECTOR VERSION PNP OR NPN

The switching properties of the ejector's electrical inputs and output are permanently set on the device, meaning they are independent of the version.

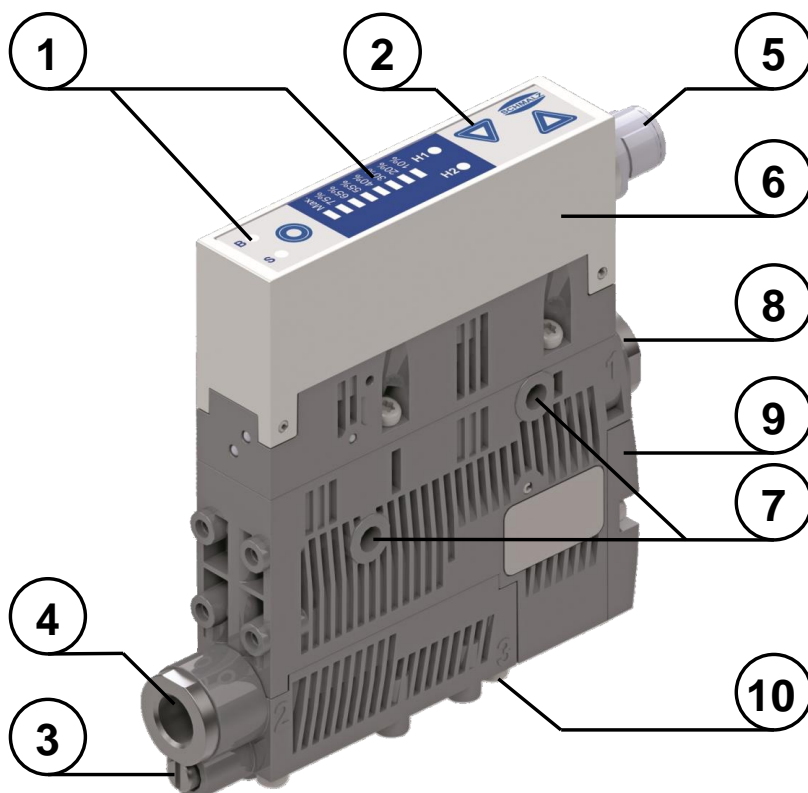


## ELECTRICAL CONNECTION

The electrical connection is established using a 5-pin M12 connector that supplies the ejector with voltage, and contains the two input signals and the output signal. The inputs and outputs are not electrically isolated from one another.



## EJECTOR DESIGN

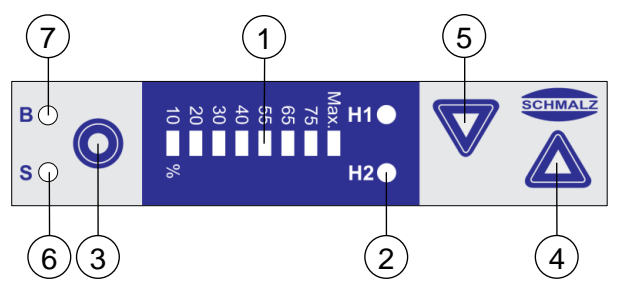


Only screw unions with cylindrical G-threads can be used at pos. 4 and pos. 8. We recommend using washers on the mounting holes. Do not look into the exhaust outlet (compressed air) during operation!

Position	Description	Max. tightening torque
1	Process state display: suction/blow-off	
2	Controls	
3	Blow-off valve screw	
4	G1/8" vacuum connection (label: 2 [V])	4 Nm
5	M12 electrical connection	Hand-tight
6	Controller	
7	Mounting holes	2 Nm
8	Compressed air connection G1/8" in H version (label: 1 [P])	4 Nm
9	Silencer cover	0,5 Nm
10	Exhaust outlet (label 3)	

## OPERATING AND DISPLAY ELEMENTS

The foil keypad with the LED bar and 4 additional LEDs allows for very simple operation of the ejector.

	Position	Description
	1	LED-bar
	2	LEDs for threshold values H1 / H2
	3	<b>MENÜ</b> - button
	4	<b>UP</b> - button
	5	<b>DOWN</b> - button
	6	LED process state: suction
	7	LED process state: blow-off

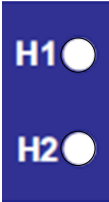
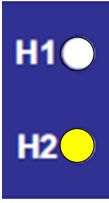

### PROCESS STATE LEDs

The process states „Suction“ and „Blow-off“ are each assigned an LED.

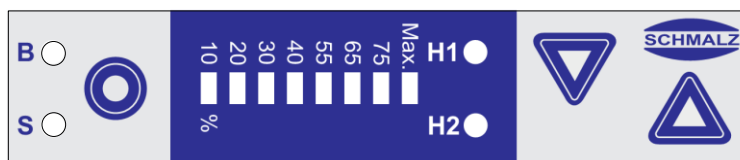
Process state LEDs		Ejector status
B <input type="checkbox"/> S <input type="checkbox"/>	<b>LEDs</b> are both off	No suction on ejector
B <input type="checkbox"/> S <input checked="" type="checkbox"/>	<b>Suction LED</b> is continuously lit	Ejector is in suction state or being controlled
B <input checked="" type="checkbox"/> S <input type="checkbox"/>	<b>Blow-off LED</b> is continuously lit	Ejector blows off

### LEDs FOR THRESHOLD VALUES H1/H2

The LEDs for the H1 and H2 threshold values indicate the current level of the system vacuum relative to the configured switching points.

Threshold value LEDs		Ejector status
	<p><b>LEDs</b> are both off</p>	<p>Rising vacuum: Vacuum &lt; H2</p> <p>Falling vacuum: Vacuum &lt; (H2-h2)</p>
	<p><b>H2 LED</b> is continuously lit</p>	<p>Rising vacuum: Vacuum &gt; H2 and &lt; H1</p> <p>Falling vacuum: Vacuum &gt; (H2-h2) and &lt; (H1-h1)</p>
	<p><b>LEDs</b> are both continuously lit</p>	<p>Rising vacuum: Vacuum &gt; H1</p> <p>Falling vacuum: Vacuum &gt; (H1-h1)</p>

### ADDITIONAL DISPLAY FUNCTIONS



Display	Meaning
Max. - LED lights up briefly	Supply pressure present, otherwise no LED is active
10% - LED flashes rapidly	Vacuum < permitted range (for example, during blow off)
Entire LED bar lights up Max. - LED flashes rapidly	Vacuum > permitted range
Max. - LED flashes rapidly	Supply pressure > permitted range

### 3 DESCRIPTION OF FUNCTIONS

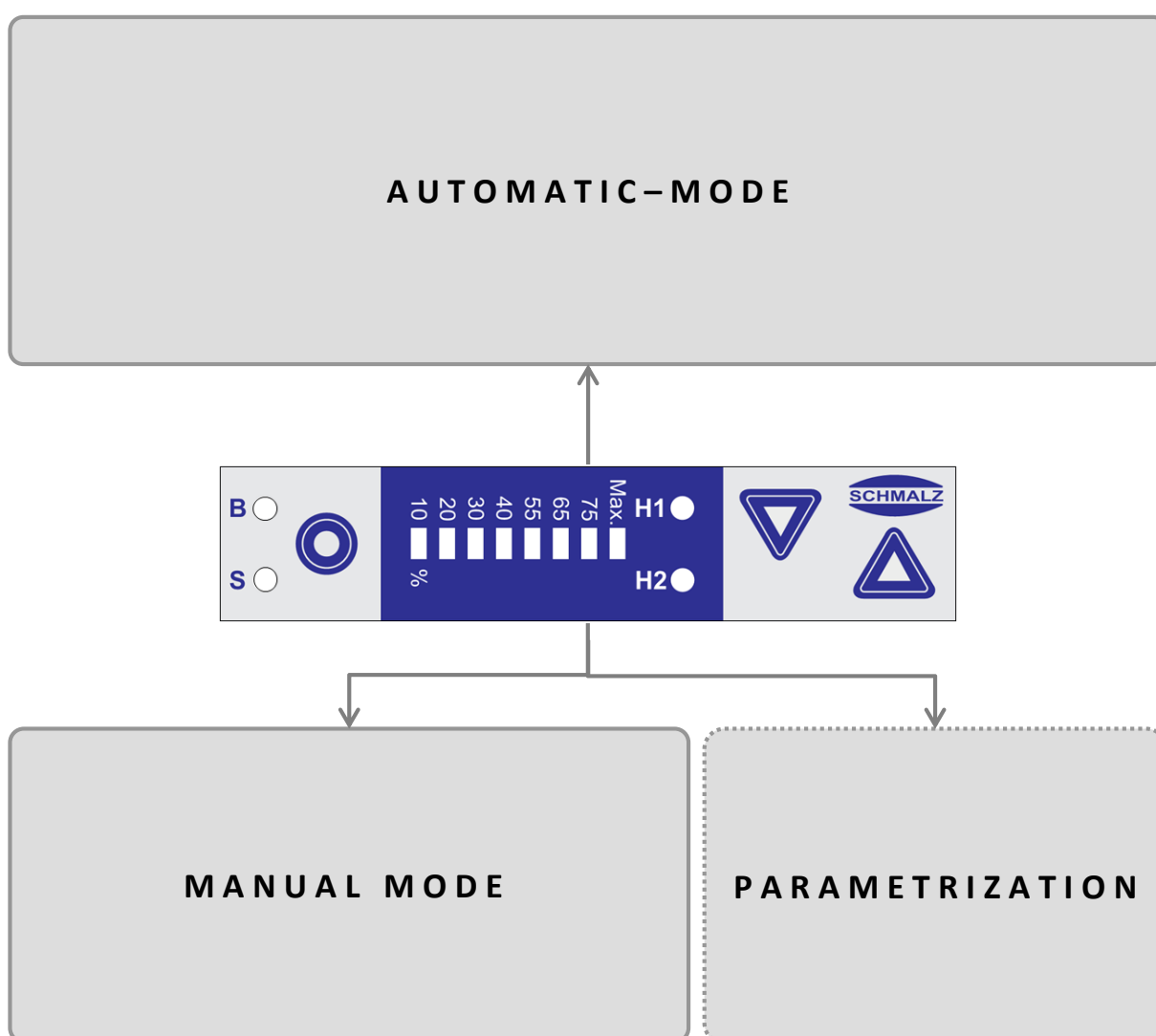
#### OPERATING MODES

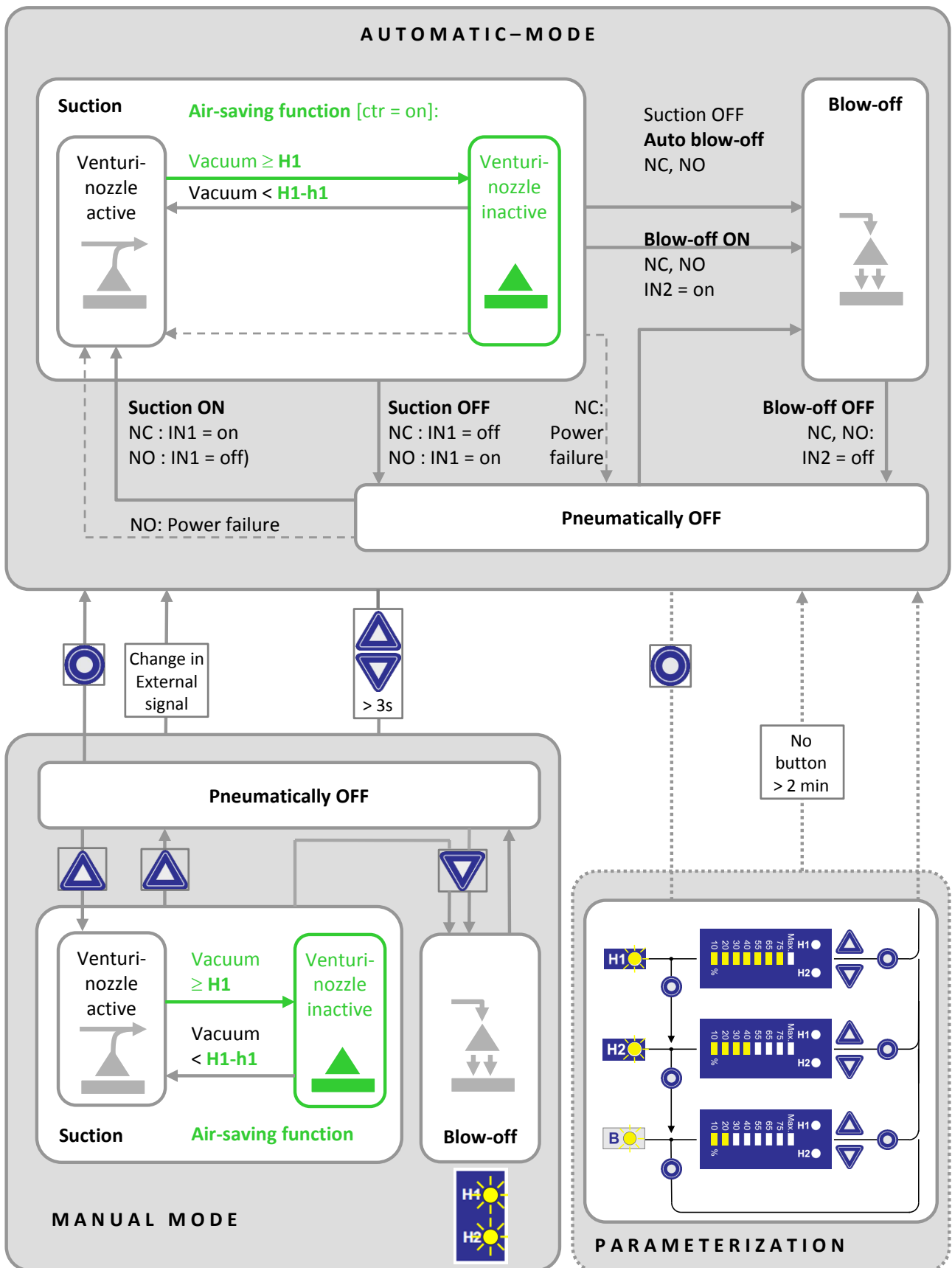
The ejectors are differentiated according to their start position when in the idle state: NO (normally open) and NC (normally closed).

When the ejector is connected to the power supply, the ejector is in automatic mode and ready for operation. This is the normal operating mode, in which the ejector is operated by the system controller.

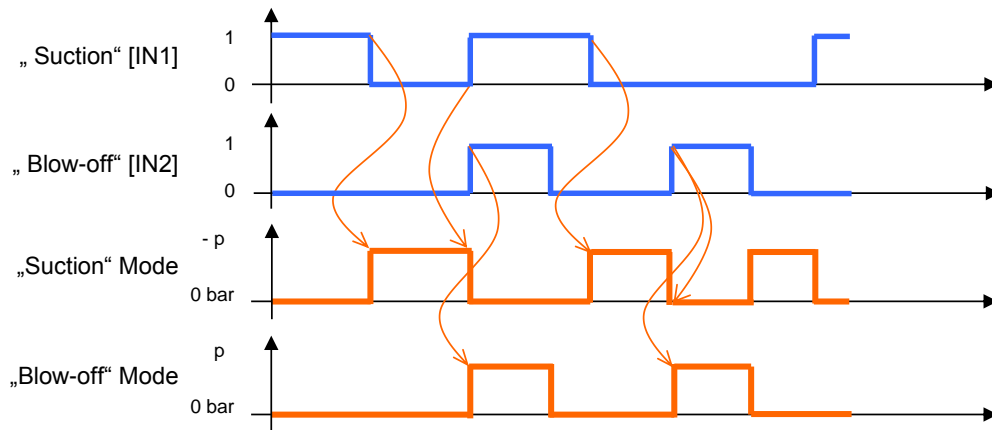
In addition to automatic mode, you can also change the operating mode of the ejector to manual mode using the buttons on the foil keypad.

Parameterization of the ejector is always performed in automatic mode.

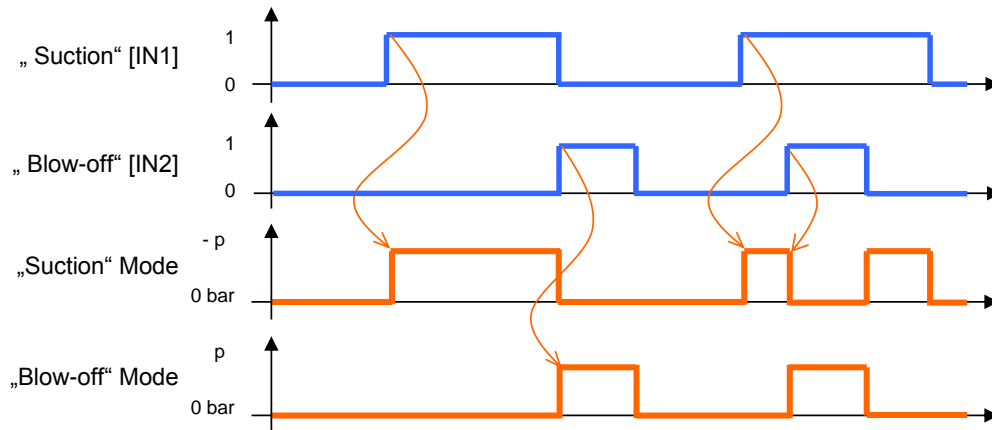




## ANSTEUERUNG EJEKTORVARIANTE NO



## ANSTEUERUNG EJEKTORVARIANTE NC



## GENERAL FUNCTIONS

### MANUAL MODE



The output signals may change during set-up in manual mode. Ensure that the machine or system does not start moving as a result. Personal injury or damage to the ejector could result.



Starting manual mode always switches the ejector to “pneumatically OFF” mode. In other words, starting manual mode interrupts an active suction process. Danger due to falling parts.




In manual mode, the pick-up and blow-off ejector functions can be controlled independently of the higher-level controller using the buttons on the operating panel.

In this operating mode, the H1 and H2 LEDs both flash.

#### ACTIVATING MANUAL MODE

- Activate manual mode as follows:
- Press and hold the  and  buttons together for more than 3 seconds


#### MANUAL SUCTION

In manual mode, suction is activated by pressing the  button. Exit suction mode by pressing the  button again or by pressing the  button.



If the air-saving function is activated this is also activated in manual mode.

#### MANUAL BLOW-OFF

Blow-off mode is activated in manual mode by pressing the  button. This mode remains active as long as the button is pressed.

#### DEACTIVATING MANUAL MODE

Exit manual mode using the  button.

The ejector also exits manual mode when the statuses of the external signal inputs change.



This automatic exiting of manual mode due to changes in external signals can cause the object being handled to move (due to suction or blow-off).

## MONITORING THE SYSTEM VACUUM

Every ejector has an integrated sensor for monitoring the current system vacuum. The vacuum level provides information on the process and has an effect on the following signals and parameters:

- Threshold value LED H1
- Threshold value LED H2
- Signal output H2

## CONTROL FUNCTION

This ejector function allows you to conserve compressed air. Vacuum generation is interrupted once the configured threshold value H1 is reached. If leakage causes the vacuum to fall below the hysteresis threshold H1-h1, vacuum generation resumes.

The control function can be deactivated by setting the threshold value for H1 to “Max.”.

## BLOW-OFF MODES

### EXTERNALLY CONTROLLED BLOW-OFF

The blow-off valve is controlled directly via the blow-off signal input. The ejector switches to blow-off mode for as long as the signal is present.

### INTERNALLY TIME-CONTROLLED BLOW-OFF

The “Blow-off” valve is automatically activated for the time period set as soon as the ejector leaves the “Suction” mode. This function makes it possible to save an output on the controller.



The time-controlled blow-off is activated by setting a value greater than zero for the blow-off time.

## SIGNAL OUTPUT

The ejector has a signal output.

### OUTPUT FUNCTION

The signal output is a normally open (NO) contact and cannot be changed.

The signal output is switched on or off when the system vacuum is higher or lower than the relevant threshold value.



## VACUUM UNIT



The vacuum level in the LED bar is shown as a percentage of the maximum possible vacuum.

If the vacuum is outside the permitted range, the LED next to this bar will flash rapidly. That means the LED flashes “10%” when overpressure is applied.

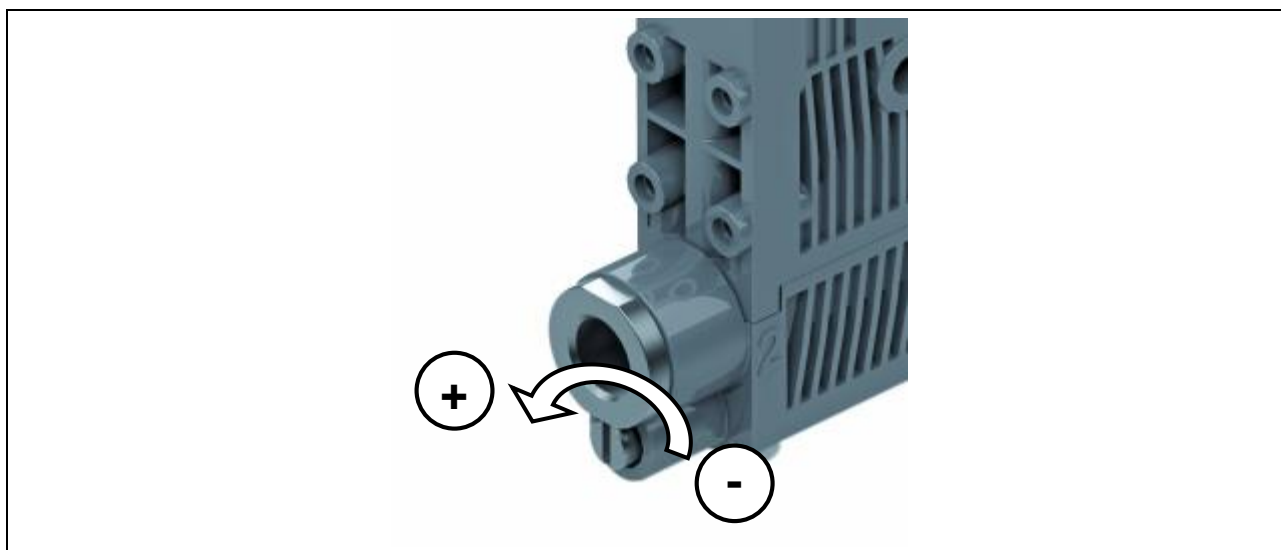
## OPERATING VOLTAGE DISPLAY

In operating modes in which no LEDs are activated, the “Max” LED will light up briefly. This indicates an operating voltage.

## LOCKING THE KEYPAD

Pressing the  and  keys at the same time locks the keypad. Pressing both keys again unlocks the keypad.

## SETTING THE BLOW-OFF VOLUME FLOW



There is a valve screw below the vacuum connection (2). This valve screw can be used to set the blow-off volume flow.

Turning the screw clockwise reduces the volume flow. Turning the screw counterclockwise increases the volume flow.

The valve screw is equipped with a stop on both sides.



Do not turn the valve screw past the stops. A minimum volume flow of approx. 10% is always necessary for technical reasons.

The blow-off volume flow can be set between 10% and 100%.

## 4 OPERATION AND SETTINGS

The three keys on the foil keypad are used for operation and setting the parameters. If no parameters are set, the ejector is in display mode. The current vacuum is displayed.



If settings are changed, this can cause undefined changes to the system status for a short period of time (approx. 50 ms) in certain situations.

### VIEWING AND SETTING PARAMETERS

The following parameters can be set for the ejector:

- H1 threshold value for the controller
- H2 threshold value for the signal output
- Blow-off period for time-controlled blow-off

The hystereses for the threshold values are pre-defined.



LED-bar	H1	h1	H2	h2	Blow-off time
10%	-	-	100 mbar	10 mbar	20 ms
20%	200 mbar	40 mbar	200 mbar	10 mbar	50 ms
30%	300 mbar	60 mbar	300 mbar	10 mbar	100 ms
40%	400 mbar	80 mbar	400 mbar	10 mbar	250 ms
55%	550 mbar	110 mbar	550 mbar	10 mbar	500 ms
65%	650 mbar	130/75 mbar *	650 mbar	10 mbar	750 ms
75%	750 mbar	150/75 mbar*	750 mbar	10 mbar	1000 ms
Max	Control disabled		-	-	1500 ms

\*If a value  $> (H1-h1)$  is selected for H2, the hysteresis h1 will be dynamically adjusted so that  $(H1-h1)$  is 25 mbar above H2.






The value set for H1 must always be greater than the value set for H2. Only settings that meet this specification can be made.

For H1, the hysteresis is always 20% of the H1 value; the hysteresis h2 is always 10 mbar.

By pressing the  key, you can view the first parameter (threshold value H1). If you press the  key again, the second parameter (threshold value H2) and the third parameter (blow

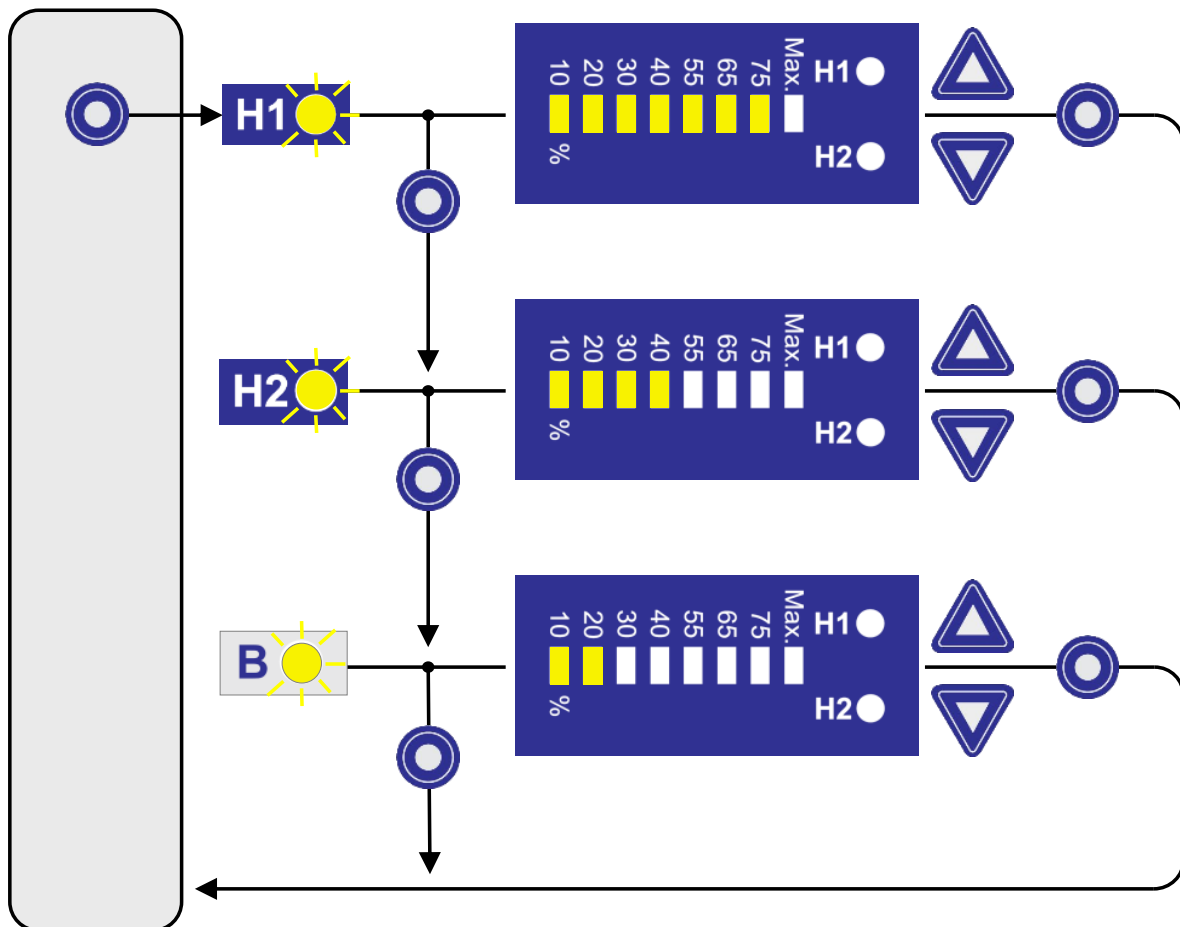
off time) are displayed. You can use the  and  keys to change any parameter. Press the  key again to exit the setting mode.

The LEDs assigned to the parameters flash to indicate which value is currently being displayed or changed.

LED	Parameter
	Parameter for H1 is being displayed or changed
	Parameter for H2 is being displayed or changed
	Parameter for blow off time is being displayed or changed

The value will flash briefly to indicate that a changed parameter is being applied.

### OVERVIEW OF THE OPERATING STRUCTURE



## 5 OPERATION

### OVERVIEW

During operation of the ejector, all input and output signals are connected to a controller, either directly or using intelligent terminal boxes.

For this purpose, not only the supply voltage but also two input signals and one output signal should be connected to allow the ejector to communicate with the controller.

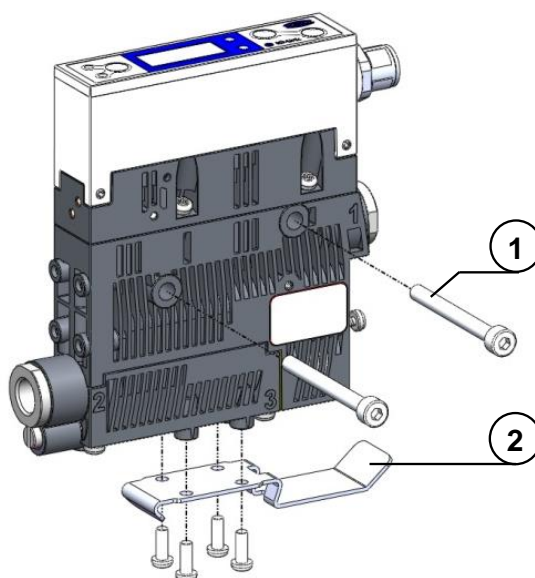
With these connections, the basic functions of the ejector can be used, including suction, blow-off and feedback signals. The individual connections are as follows:

Ejector inputs	Ejector output
<ul style="list-style-type: none"> <li>▪ Suction ON/OFF</li> <li>▪ Blow-off ON/OFF</li> </ul>	<ul style="list-style-type: none"> <li>▪ Feedback H2</li> </ul>

The parameters are set via the operating and display elements.

### MOUNTING

#### SCPS ...



We recommend using washers when mounting the securing screws.

Position	Description	Max. tightening torque
1	M4 securing screw	2 Nm
2	Top-hat rail clamp for TS35 top-hat rail, incl. plastic tapping screws (optional)	0,5 Nm

## PNEUMATIC CONNECTION

- Use only well-maintained compressed air (air or neutral gas according to EN 983, filtered to 5 µm, oiled or unoiled).
- High-quality compressed air is important to ensure a long service life for the ejector.
- Dirt particles or foreign bodies in the ejector connections, hoses or pipelines can lead to partial or complete ejector malfunction.
- Hoses and pipelines should be laid such that distances are minimized.
- If the internal diameter on the compressed air side is too small, insufficient compressed air will be supplied. This prevents the ejector from performing as specified in the performance data.
- Excessive flow resistance occurs if the internal diameter on the vacuum side is too small. This leads to both a reduction in suction capacity and increased evacuation times. Blow-off times are also lengthened.
- Hose lines must be laid without bends or crimps.
- Only use hoses or pipes with the internal diameters recommended for the ejector. If this is not possible, use the next largest internal diameter.

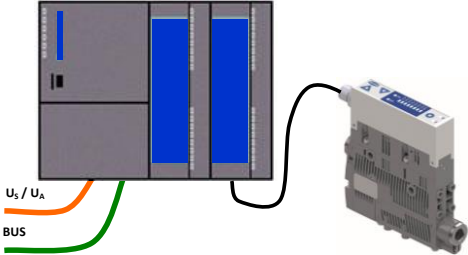
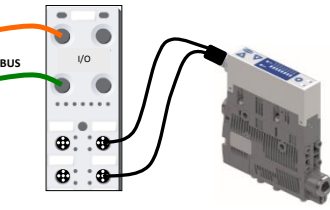
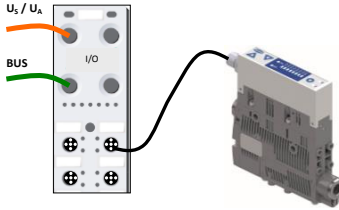
### RECOMMENDED LINE CROSS-SECTIONS (INTERNAL DIAMETERS)

SCPS performance class	Line cross-section (internal diameter) [mm] <sup>1)</sup>	
	Compressed air side	Vacuum side
07	2	4
10	4	4
15	4	6

<sup>1)</sup> Based on a maximum hose length of 2 m. For longer hoses, the cross-section should be correspondingly larger.

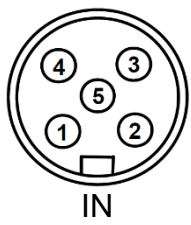
## ELECTRICAL CONNECTION

- The ejector's electrical connection is established using a 5-pin M12 connector.
- The plug connectors may not be connected or disconnected while the system is live.
- The ejector may only be operated using power supply units with protected extra-low voltage (PELV). The system must incorporate safe electrical cut-off of the power supply in compliance with EN60204.
- The lines for the power supply, the signal inputs and the signal outputs can have a maximum length of 30 meters.

Direct connection	Connection via I/O box	
		
<p>Schmalz connection lines may be used to connect the ejector directly to the controller.</p> <ul style="list-style-type: none"> <li>▪ Art. no. 21.04.05.00080 (5-pin)</li> </ul>	<p>external Blow-Off</p> <p>automatic Blow-Off</p> <p>Schmalz connection distributors and Schmalz connection lines may be used to connect the ejector to IO boxes.</p> <ul style="list-style-type: none"> <li>▪ Art.-No. 21.04.05.00158 M12 (5-pin) to M12 (5-pin), 1m</li> <li>▪ Art.-No. 10.02.02.03490 M12 (5-pin) to 2xM12 (5-pin), 1m</li> </ul>	

## PIN ASSIGNMENT OF THE CONNECTION PLUG

### M12 5-PIN CONNECTOR

Plug	Pin	Lead color <sup>1)</sup>	Symbol	Function
	1	Brown	U <sub>S/A</sub>	Supply voltage
	2	White	IN1	“Suction” signal input
	3	Blue	Gnd <sub>S/A</sub>	Ground
	4	Black	OUT	“Component check” signal output (H2/h2)
	5	Gray	IN2	“Blow-off” signal input

<sup>1)</sup> When Schmalz connection line part no. 21.04.05.00080 is used



The system may only be operated using power supply units with protected extra-low voltage (PELV) and safe electrical cut-off of the operating voltage, in accordance with EN60204.

Do not forcibly connect or disconnect plug connectors.



The behavior of the ejector may change when the supply voltage is switched on or when the M12 connectors are plugged in. Depending on the function of the machine/system, this can result in serious personal injury or damage to the equipment.

## PROJEKTIEREN

For operation of the ejector, all process signals must be wired in parallel. This means that three lines for the process signals are required for each ejector.

### PROCESS DATA INPUT

Signal	Symbol	Parameter
0	OUT 1	Switching point H2 (component check)

### PROCESS DATA OUTPUT

Signal	Symbol	Parameter
0	IN 1	Suction ON/OFF
1	IN 2	Blow-off ON/OFF

**START OF OPERATIONS**

A typical handling cycle is divided into three steps: pick-up, blow-off and the idle state. During the pick-up step, output 2 is monitored to determine whether a sufficient vacuum has been established.

Step	SCPS – xx – NO – xx		SCPS – xx – NC – xx			
	Signal	State	Signal	State		
1		IN1	Saugen EIN		IN1	Saugen EIN
2		OUT2	Vakuum > H2		OUT2	Vakuum > H2
3		IN1	Saugen AUS		IN1	Saugen AUS
4		IN2	Abblasen EIN		IN2	Abblasen EIN
5		IN2	Abblasen AUS		IN2	Abblasen AUS
6		OUT2	Vakuum < (H2-h2)		OUT2	Vakuum < (H2-h2)

Signal status switches from inactive to active | Signal status switches from active to inactive



## 6 MAINTENANCE

### GENERAL MAINTENANCE

#### EXTERIOR SOILING

Remove dirt on the exterior of the device with a soft cloth and soap suds (max. 60°C). Ensure that the silencer and the controller are not soaked with soap suds.

#### SILENCER

Because it is open, the silencer may be exposed to high levels of dust, oil, etc., which may dirty the silencer to the point of reducing the suction capacity. If this happens, it must be replaced. Cleaning is not recommended due to the capillary effect of the porous material.

#### PRESS-IN FILTERS

The vacuum and compressed air connections contain press-in screens.

Over time, dust, chips and other solids can become deposited in the filters.

If you notice that the performance of the ejector system has declined, simply replace the screens.



Do not operator the ejector system without press-in screens! This can damage the ejector system.

### WARRANTY, SPARE PARTS AND WEARING PARTS

This system is guaranteed in accordance with our general terms of trade and delivery. The same applies to spare parts, provided that these are original parts supplied by us.

We are not liable for any damage resulting from the use of non-original spare parts or accessories.

Wearing parts are not covered by the warranty.

The following list contains the primary spare and wearing parts.

Legend:     - Spare part= **S**  
              - Wearing part= **W**

## SPARE AND WEARING PARTS

Type	Designation	Article no.	Legend
	Silencer insert	10.02.02.04141	W
	Filter	10.02.02.03376	S
	Insulating plate	10.02.02.04152	W



When tightening the securing screws on the silencer module, observe the maximum tightening torque of 0,5 Nm.



When you replace the silencer insert, we recommend that you also replace the insulating plate.

## TROUBLESHOOTING

Fault	Possible cause	Solution
Vacuum level is not reach or vacuum is created too slowly	Press-in screen contaminated	Replace the screen
	Silencer is dirty	Replace silencer
	Leakage in hose line	Check hose connections
	Leakage at suction pad	Check suction pad
	Operating pressure too low	Increase operating pressure (observe max. limits)
	Internal diameter of hose lines too small	See recommended hose diameters
Payload cannot be held securely	Vacuum level too low	Increase the control range if the air-saving function is activated
	Suction pad too small	Select a larger suction pad

## ACCESSORIES

Designation	Article no.	Usage statement
Interface Connection cable, ASK B-M12-5 5000 Connection cable, Fem connect M12, 5 pol, L = 5 m	21.04.05.00080	For SCPS and SCPSi
Interface Connection cable ASK B-MIC10 3000 K-2P Connect. 10 mm, Cable 2: Kabel, 2 polig, L = 3 m	21.04.06.00086	For SCPSb Used 2 times
Interface Connection cable, ASK B-M12-5 1000 S-M12-5 Fem connect M12, 5 pol; Male connect M12, 5 pol, L = 1 m	21.04.05.00158	For SCPS and SCPSi
Interface Connection cable, ASK B-M12-5 1000 S-M12-5 Fem connect M12, 5 pol; Male connect M12, 5 pol, L = 2 m	21.04.05.00211	For SCPS and SCPSi
Connection distributor, ASV SMPI/SCPI 2xS-M12-4 Fem connect M12, 5 pol; 2xConnect M12, 4 pol	10.02.02.03490	For SCPS and SCPSi
Top-hat rail clamp comp., HUT-SN-KL 70x18x8 Section type: EN 50022	10.02.02.04149	All SCPS Incl. Fixing screws
Vacuum filter with replaceable filter cartridge VFI CN6/4 50 Connection: Hose 6/4 with Cap nut Filter pore size: 50 µm	10.07.01.00241	All SCPS
Vacuum filter with replaceable filter cartridge VFI CN8/6 50 Connection: Hose 8/6 with Cap nut Filter pore size: 50 µm	10.07.01.00245	All SCPS
Compressed-air distributor for use as a manifold and for building ejector blocks GP 4 SCPS 07..15 G2 Number of connections: 4; Dimension: 108 x 38 x 34 mm	10.02.02.04338	For SCPS 07..15 G2
Compressed-air distributor for use as a manifold and for building ejector blocks GP 3 SCPS 07..15 G2 Number of connections: 3; Dimention: 89.4 x 38 x 34 mm	10.02.02.04884	For SCPS 07..15 G2
Compressed-air distributor for use as a manifold and for building ejector blocks GP 5 SCPS 07..15 G2 Number of connections: 5; Dimention: 127 x 38 x 34 mm	10.02.02.04858	For SCPS 07..15 G2
Compressed-air distributor for use as a manifold and for building ejector blocks GP 6 SCPS 07..15 G2 Number of connections: 6; Dimention: 145 x 38 x 34 mm	10.02.02.04837	For SCPS 07..15 G2
Mounting set SCPS	10.02.02.04343	All SCPS
Exhaust air set; ABL-SET SCPS one-stage	10.02.02.04216	For SCPS one-stage Execution
Exhaust air set; ABL-SET SCPS two-stage	10.02.02.04667	For SCPS two-stage Execution

## 7 TECHNICAL DATA



Operating the ejector system outside of the specified values can result in damage to the system and attached components.

### ELECTRICAL PARAMETERS

Parameter	Symbol	Limit values			Units	Comment
		Min.	Typ	Max.		
Supply voltage	$U_{S/A}$	19,2	24	26,4	$V_{DC}$	PELV <sup>1)</sup>
<b>SCPS – xx – xx - NO – M12</b>						
Rated current from $U_{SA}$ <sup>2)</sup>	$I_{S/A}$	—	—	110	mA	$U_{S/A} = 24,0V$
<b>SCPS – xx – xx - NC – M12</b>						
Rated current from $U_{S/A}$ <sup>2)</sup>	$I_{S/A}$	—	—	70	mA	$U_{S/A} = 24,0V$
Voltage of signal output (PNP)	$U_{OH}$	$U_{S/A}-2$	—	$V_{S/A}$	$V_{DC}$	$I_{OH} < 150 \text{ mA}$
Voltage of signal output (NPN)	$U_{OL}$	0	—	2	$V_{DC}$	$I_{OL} < 150 \text{ mA}$
Current of signal output (PNP)	$I_{OH}$	—	—	150	mA	Short-circuit-proof <sup>3)</sup>
Current of signal output (NPN)	$I_{OL}$	—	—	-150	mA	Short-circuit-proof <sup>3)</sup>
Voltage of signal input (PNP)	$U_{IH}$	15	—	$U_{S/A}$	$V_{DC}$	Relative to $Gnd_{S/A}$
Voltage of signal input (NPN)	$U_{IL}$	0	—	9	$V_{DC}$	Relative to $U_{S/A}$
Current of signal input (PNP)	$I_{IH}$	—	5	—	mA	$U_{S/A} = 24V$
Current of signal input (NPN)	$I_{IL}$	—	-5	—	mA	$U_{S/A} = 24V$
Reaction time of signal inputs	$t_i$	—	3	—	ms	
Reaction time of signal output	$t_o$	—	2	—	ms	Adjustable

<sup>1)</sup> The power supply must comply with the requirements of EN60204 (protective extra-low voltage).

The power supply, signal inputs and signal outputs are all protected against reverse polarity.

<sup>2)</sup> Plus the output currents

<sup>3)</sup> The signal output is protected against short circuits. However, the signal output is not secured against overloading. Constant load currents of  $> 0.15 \text{ A}$  can lead to unacceptable heat levels and subsequent destruction of the ejector.

## MECHANICAL DATA

### GENERAL PARAMETERS

Parameter	Symbol	Limit values			Unit	Comment
		Min.	Typ	Max.		
Ambient temperature	T <sub>amb</sub>	0	—	50	°C	
Storage temperature	T <sub>Sto</sub>	-10	—	60	°C	
Humidity	H <sub>rel</sub>	10	—	90	% r.h.	Free from condensation
Degree of protection		—	—	IP65		
Operating pressure	P	2	4	6	bar	
Operating medium	Air or neutral gas, filtered to 5 µm, oiled or unoled, compressed air w/ quality class 3-3-3 acc. to ISO 8573-1					

### MATERIALS USED

Component	Material
Basic body	PA6-GF
Inner components	Anodized aluminum, Anodized aluminum alloy, brass, galvanized steel, stainless steel, PU, POM
Controller housing	PC, ABS
Silencer insert	Porous PE
Seals	NBR
Lubricants	Silicone-free
Screws	Galvanized steel

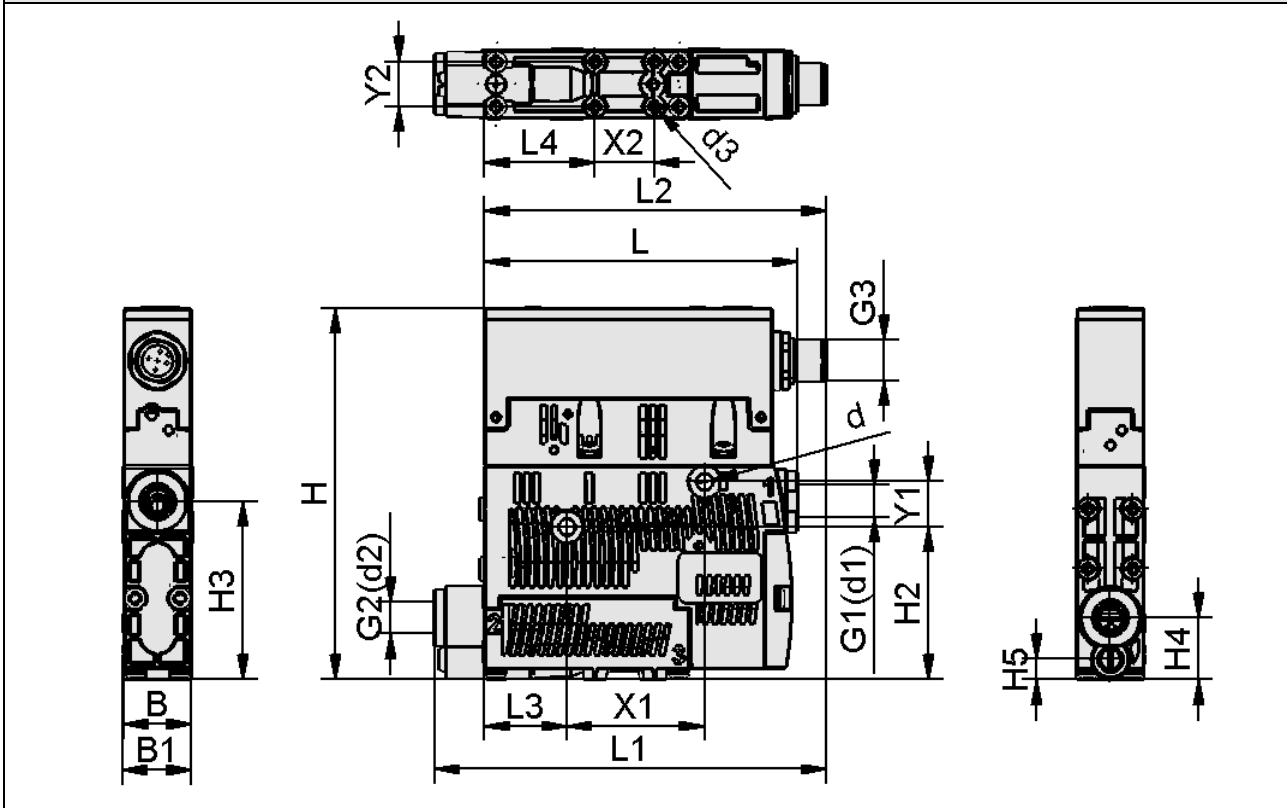
### MECHANICAL PARAMETERS

Type	Nozzle size	Max. vacuum <sup>1</sup>	Suction rate <sup>1</sup>	Max. blow-off capacity <sup>1</sup>	Air consumption <sup>1</sup>	Sound level <sup>1</sup>		Weight
						Free sucking	sucked	
	mm	%	l/min	l/min	l/min	dBA	dBA	kg
SCPS-07	0,7	85	16	130	25	61	58	0,195
SCPS-10	1,0	85	34	130	42	66	59	0,195
SCPS-15	1,5	85	63	130	95	68	60	0,195

<sup>1)</sup> at 4 bar

**DIMENSIONS**

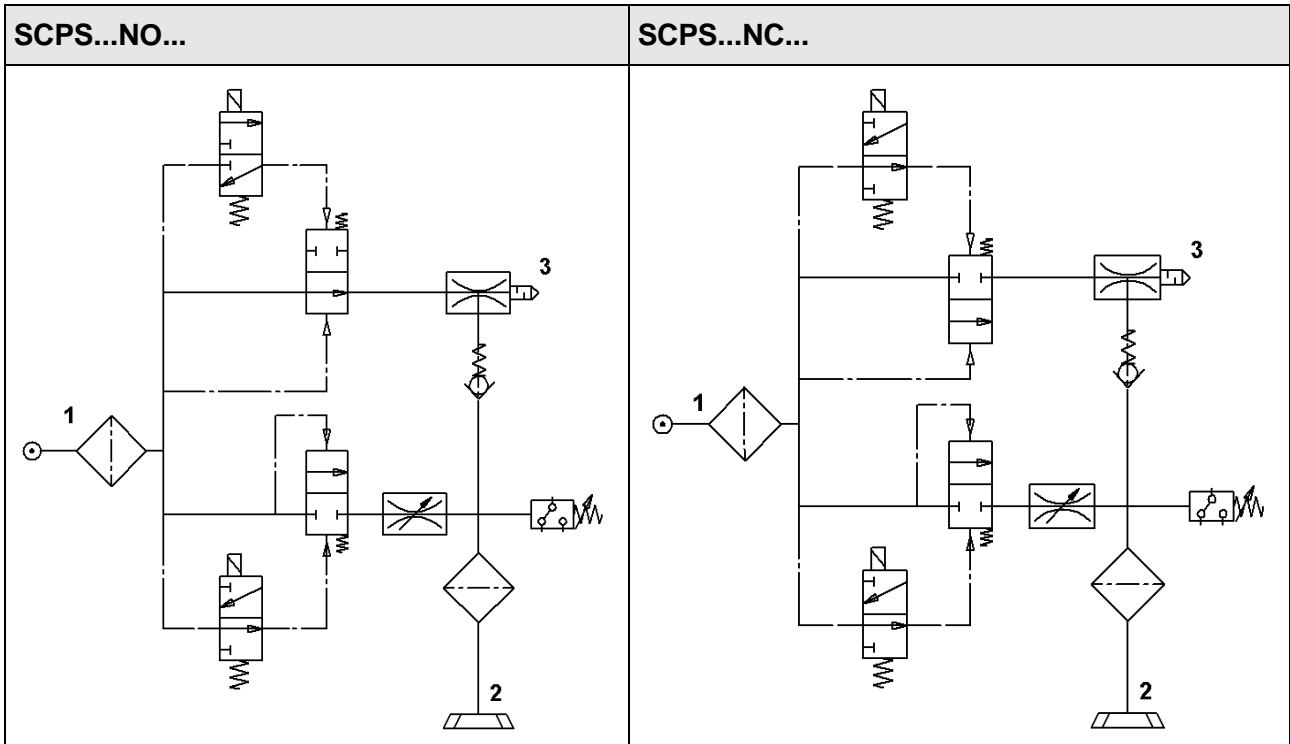
SCPS...



B	B1	d	d1	d2	d3	G1	G2	G3	H	H2	H3
18	18,6	4,4	6	6	2,6	G1/8"-IG	G1/8"-IG	M12x1-AG	99	40,8	47,5

H4	H5	L	L1	L2	L3	L4	X1	X2	Y1	Y2
16,5	5,5	83,8	105	91,5	22	29,5	36,9	16	12	12

**PNEUMATIC CIRCUIT DIAGRAMS**



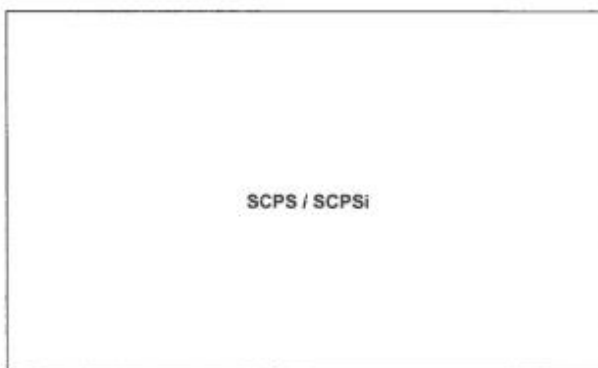
# 8 CONFORMITY DECLARATION

DE EU-Konformitätserklärung  
 EN EC- Declaration of Conformity  
 FR CE-Déclaration de conformité  
 ES Certificado de conformidad CE  
 IT Dichiarazione di conformità CE  
 NL CE Conformiteitsverklaring



Hersteller / Manufacturer / Fabricant / Fabricante / Produttore / Fabrikant  
 J. Schmalz GmbH, Aacher-Str. 29, D - 72293 Glatten

Produktbezeichnung / Product name / Designation du produit /  
 Denominación del producto / Denominazione del prodotto / Beschrijving van  
 de machine



Ejektoren der Serie / Ejectors series / Ejecteurs de la série / Eyectores de la  
 serie / Elettori de la serie / Ejector Serie

Erfüllte einschlägige EG-Richtlinien / Applicable EC directives met / Directives CE applicables respectées / Directivas vigentes de la CE cumplidas /  
 Direttive CE applicate ed osservate / Nagekomen betreffende EG-richtlijnen

- 2006/42/EG Maschinerichtlinie / Machinery Directive / Directive sur les machines / Directiva para máquinas / Direttiva macchine /  
 Machinerichtlijn
- 2014/30/EU Elektromagnetische Verträglichkeit / Electromagnetic Compatibility / Compatibilité électromagnétique / Compatibilidad  
 electromagnética / Compatibilità elettromagnetica / Elektromagnetische compatibiliteit

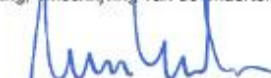
Angewendete harmonisierte Normen / Harmonised standards applied / Normes d'harmonisation appliquées / Normas armonizadas aplicadas / Norme  
 armonizzate adottate / Toegepaste geharmoniseerde normen

- EN ISO 12100:2011-03 Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risikominderung / Safety of Machinery -  
 General principles for design - Risk assessment and risk reduction / Sécurité des machines - Principes généraux de conception -  
 Appréciation du risque et réduction du risque / Seguridad de máquinas - Principios generales de diseño - Evaluación del riesgo y  
 reducción del riesgo / Sicurezza delle macchine - Principi generali di progettazione - Valutazione del rischio e riduzione del rischio /  
 Veiligheid van machines - Algemene beginselen voor ontwerp - Risicobeoordeling en de risico-reductie
- EN 61000-6-3:2012-11 Elektromagnetische Verträglichkeit - Störaussendung / Electromagnetic Compatibility - Emission /  
 Compatibilité électromagnétique - Norme sur l'émission / Compatibilidad electromagnética - Emisión de interferencias /  
 Compatibilità elettromagnetica - Norma generica sull'emissione / Elektromagnetische compatibiliteit - emissie
- EN 61000-6-2:2006-03 Elektromagnetische Verträglichkeit - Störfestigkeit / Electromagnetic Compatibility - Immunity /  
 Compatibilité électromagnétique - Immunité / Compatibilidad electromagnética - Resistencia a interferencias /  
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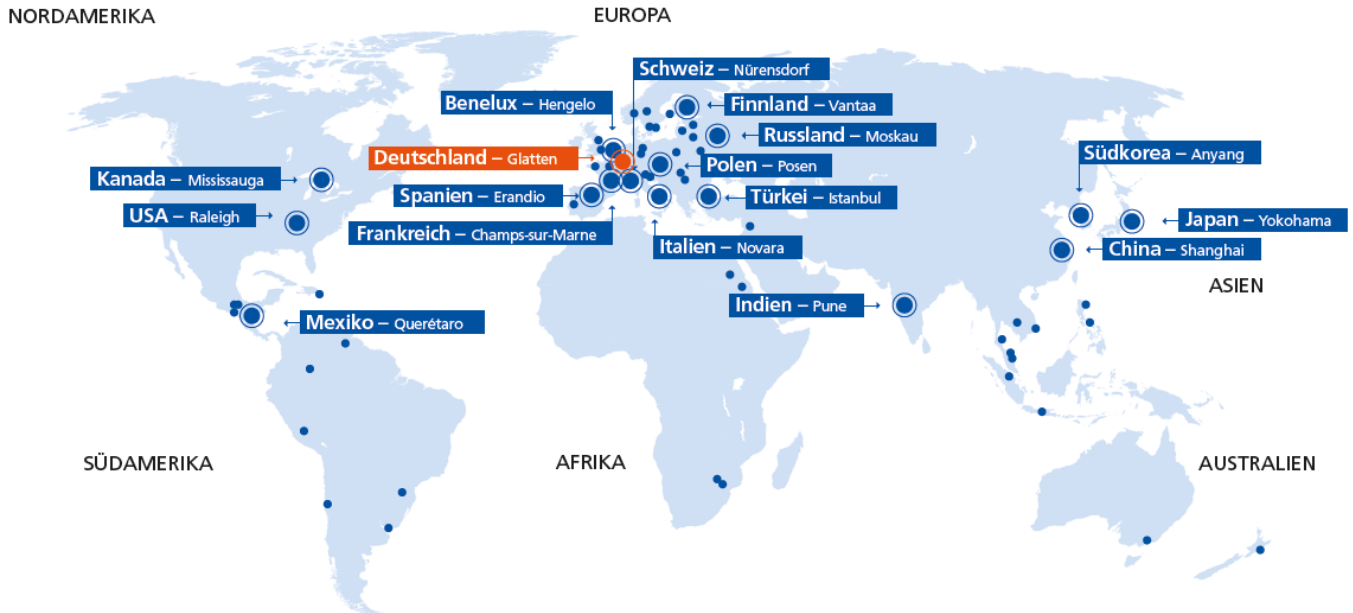
These operating instructions were originally written in German and have been translated into English.

We reserve the right to make technical changes. No responsibility is taken for print errors or other types of errors.

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