

## Assembly instructions

# Ejector HT-SG ... I ... AB

### Note

The Assembly 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 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 Assembly 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](http://www.schmalz.com/services)

## 1.2 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

## 1.3 Other Applicable Documents

The following operating instructions must also be observed when setting up the HT-SG:

- The operating instructions 30.30.01.03279 for the vacuum switch VSi-HD

# 2 Fundamental Safety Instructions

## 2.1 Intended Use

The holder with ejector (HT-SG) is designed to generate a vacuum for gripping and transporting objects when used in conjunction with suction cups.

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.

Any other use is considered improper by the manufacturer and is deemed as contrary to the designated use.

## 2.2 Non-Intended Use

Schmalz accepts no liability for damages caused by non-intended usage of the product. In particular, the following are considered non-intended use:

- Use in potentially explosive atmospheres
- Use in medical applications
- Lifting people or animals
- Evacuation of objects that are in danger of imploding

## 2.3 Personnel Qualifications

Unqualified personnel cannot recognize dangers and are therefore exposed to higher risks!

The operating company must ensure the following points:

- The personnel must be commissioned for the activities described in these instructions.
- The staff must be at least 18 years of age and physically and mentally capable.
- The product must be operated only by persons who have undergone appropriate training.
- Personnel must receive regular safety briefings (frequency as per country-specific regulations).
- Work on electrical equipment must be carried out only by qualified electrical specialists.

The following target groups are addressed in these instructions:

The operator of the system must comply with country-specific regulations regarding the age, ability and training of the personnel.

Applicable for Germany:

A qualified employee is defined as an employee who has received technical training and has the knowledge and experience – including knowledge of applicable regulations – necessary to enable him or her to recognize possible dangers and implement the appropriate safety measures while performing tasks. Qualified employees must observe the relevant industry-specific rules and regulations.

## 2.4 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
 <b>WARNING</b>	Indicates a medium-risk hazard that could result in death or serious injury if not avoided.
 <b>CAUTION</b>	Indicates a low-risk hazard that could result in minor or moderate injury if not avoided.

## 2.5 Residual Risks



### **CAUTION**

#### **Falling product**

Risk of injury

- ▶ Securely attach the product at the site of operation.
- ▶ Wear safety shoes (S1) and safety glasses when handling and mounting/dismounting the product.



### **WARNING**

#### **Noise pollution due to the escape of compressed air**

Hearing damage!

- ▶ Wear ear protectors.
- ▶ The ejector must only be operated with a silencer.



## **⚠ 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**

**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 such as suction cups, suction lines and hoses.

## **2.6 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

### 3.1 Variants of the HT-SG ... I ... AB

The tooling holder for suction cups HT-SG ... I ... AB is available in two basic versions. The version is indicated in the item designation.

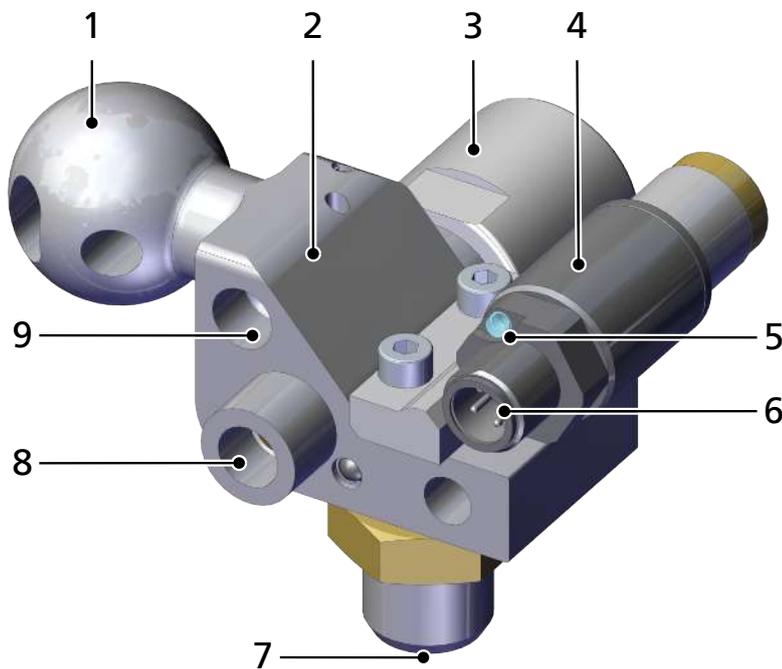
The item designation is composed as follows:

Type	Vacuum switch
HT-SG ... I ... AB	—
HT-SG ... I ... AB VS	Installed

### 3.2 Ejector Structure



The illustrations shown below may deviate from the customer's version because they serve as examples of different versions of the product.



1	Tooling beam interface	6	Electrical connection (only variant VS)
2	Holder with integrated vacuum nozzle	7	Connection for vacuum suction cups
3	Silencer	8	Compressed air connection G1/8"-IG (suction)
4	Vacuum switch (optional)	9	Compressed air connection G1/8"-IG (blow-off)
5	LED		

### 3.3 Application Description

The ejector built into the holder generates the vacuum necessary to handle parts with the tooling system. The ejector is set into "Suction" mode via the "Suction" compressed air connection (8), and the vacuum is generated via a venturi nozzle.

The vacuum circuit of the ejector is supplied with compressed air by the activation of the "Blow-off" compressed air connection (9). This ensures that the vacuum drops quickly, depositing the workpiece quickly as well. The "Suction" (8) and "Blow-off" (9) compressed air connections must be activated simultaneously for blow-off.

On the vacuum switch version, the system vacuum is measured. When the preset vacuum value is reached, an electrical signal is emitted at the switching outputs (e.g. "parts control" monitoring).

## 4 Technical Data

### 4.1 General Parameters

Parameter	Unit	HT-SG ... AB
Nozzle diameter	mm	1.0
Suction rate	NI/min	35
Maximum vacuum	%	85
Suction air consumption	NI/min	52 (at 4.5 bar)
Blow-off air consumption	NI/min	117 (at 4.5 bar)
Operating pressure	bar	4 to 6
Opt. operating pressure	bar	4.5
Mass	g	120–230, depending on the design
Temperature range	° C	0 to +50
Operating medium	--	Compressed air, oiled or unoled in accordance with ISO 8573-1:2001, class 7-4-4

All values at ambient conditions of  $T = 20^{\circ}\text{C}$  and 1000 mbar ambient pressure

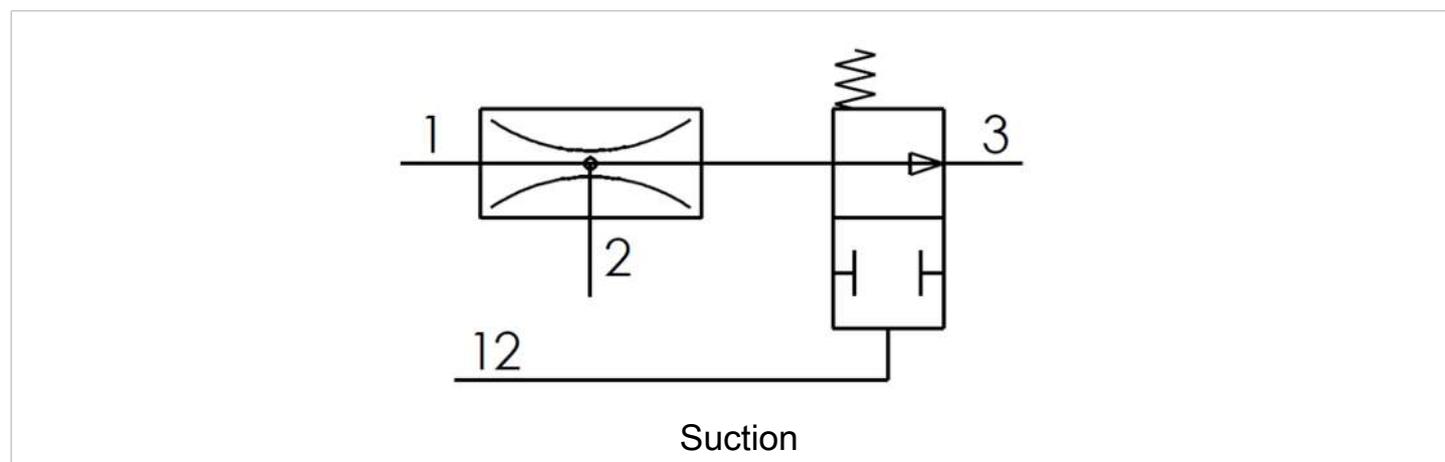
### 4.2 Dimensions

Connection for tooling beams:

Ball (A3:  $\varnothing 28.5\text{ mm}$ ; A5:  $\varnothing 32\text{ mm}$ ) or "Apple-Core" cylinder (A2:  $\varnothing 19\text{ mm}$ ) (1).

The dimensions result from the different holder variants. We refer here to the product data sheets of the individual variants at [www.schmalz.de](http://www.schmalz.de).

### 4.3 Pneumatic Circuit Plan



# 5 Mounting

## 5.1 Installation Instructions



### CAUTION

#### Compressed air or vacuum in direct contact with the eye

Severe eye injury

- ▶ Wear eye protection
- ▶ Do not look into the compressed air openings
- ▶ 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.

When mounting the HT-SG, please note the following:

- If there is a risk that larger particles of dirt will be sucked in, a special filter must be used.

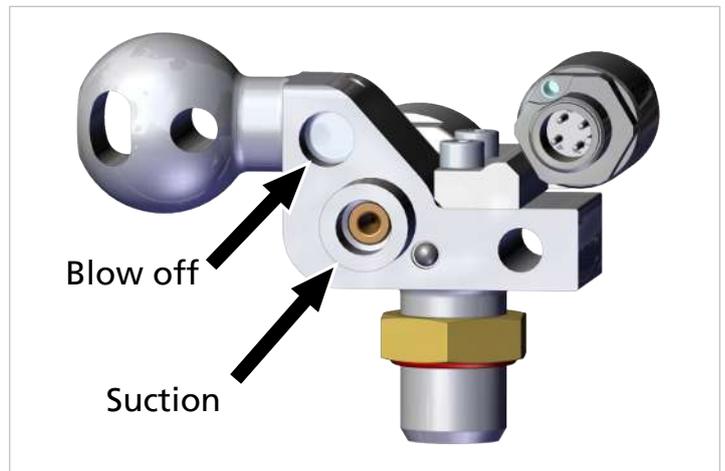
## 5.2 Mechanical Attachment

The HT-SG is mechanically attached via the interface to the tooling beam, depending on the selected holder variant.

It may be installed in any position.

## 5.3 Connecting the Compressed Air and Vacuum

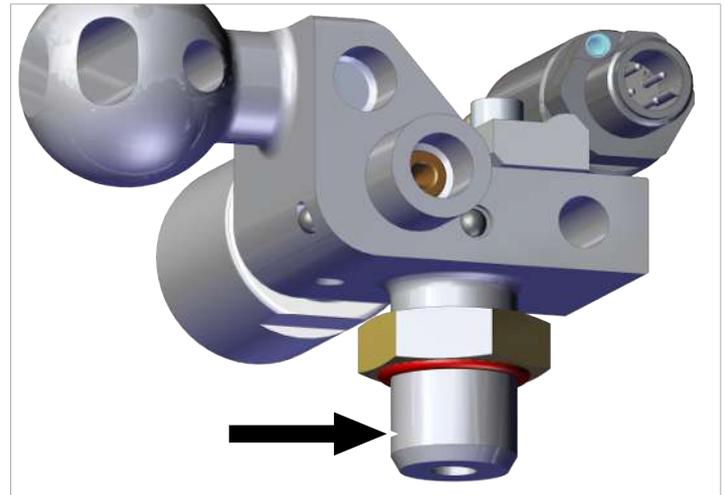
To operate the integrated ejector, the HT-SG must be supplied with compressed air via the G1/8" compressed air connector.



- ▶ Connect compressed air, description of connection

The vacuum connection or the attachment of the vacuum gripper is established using a thread or a right-angled adapter.

- ▶ Connect vacuum or vacuum gripper

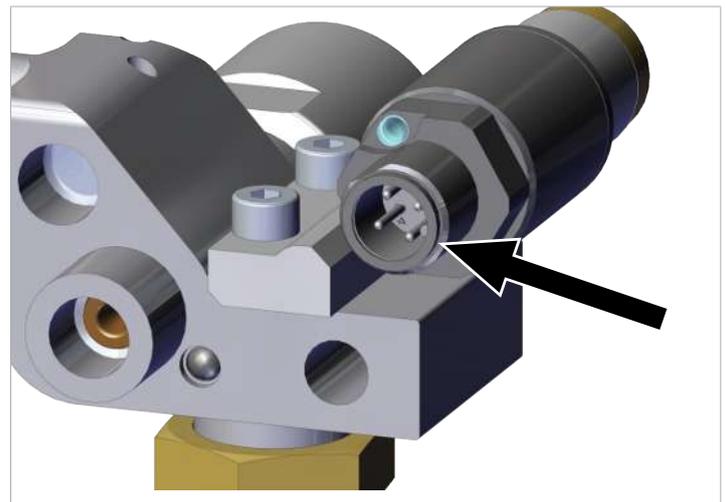


## 5.4 Electrical Connection

The electrical connection is established using the 5-pin M12 connection plug on the vacuum switch. The operating instructions for the vacuum switch and, in particular, the safety instructions must be considered.

- ✓ Prepare the connection cable

- ▶ Attach the connection cable to the electrical connection point and secure it (maximum tightening torque = hand-tight).



## 6 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.

## 7 Cleaning the Ejector

- ▶ Rinse with water or clean with hot air as required

## 8 Spare and Wearing Parts

Maintenance work may only be carried out by qualified personnel.

The following list contains the primary spare and wearing parts.

Part no.	Designation	Part type
10.06.02.00760	Vacuum / pressure switch VSi	Spare part

## 9 Warranty

Schmalz guarantees this system pursuant to our General Terms and Conditions of Sale and Delivery. The same applies to spare parts, provided that these are original parts supplied by us.

Wearing parts are not covered by the warranty.

## 10 Disposing of the Product

The components may only be prepared for disposal by qualified specialists.

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