

# Operating Instructions Schmalz Silencer Box SBB

WWW.SCHMALZ.COM

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#### 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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## **Contents**

1	Impor	tant Information	. 5
	1.1	Note on Using this Document	. 5
	1.2	Other Applicable Documents	. 5
	1.3	The technical documentation is part of the product	. 5
	1.4	Type Plate	. 5
	1.5	Symbols	. 6
2	Funda	amental Safety Instructions	. 7
	2.1	Intended Use	. 7
	2.2	Non-Intended Use	. 7
	2.3	Personnel Qualification	. 7
	2.4	Personal Protective Equipment	. 7
	2.5	Warnings in This Document	. 8
	2.6	Danger Zone	. 8
	2.7	Modifications to the Product	. 9
3	Produ	ct Description	10
	3.1	General Description	10
	3.2	Design of the Silencer Box	10
	3.3	Versions of the Silencer Box	11
4	Techn	ical Data	12
	4.1	Electrical Data	12
	4.2	Mechanical and Thermal Data	12
	4.3	Dimensions	13
5	Trans	portation and Storage	15
	5.1	Checking the Delivery	15
	5.2	Removing the Packaging	15
	5.3	Transporting the Silencer Box with the Installed Vacuum Generator	15
6	Instal	lation	17
	6.1	Safety Instructions for Installation	17
	6.2	Installation Location/Workplace Requirements	17
	6.3	Mechanically Mounting the Blower	18
	6.4	Electrical Supply	23
7	Opera	ation	24
	7.1	Silencer	24
	7.2	Start of Operations	24
8	Troub	leshooting	25
9	Maint	tenance	26
		Parts	
	•		
1 <b>1</b>		nmissioning and Disposal	
	11.1	Decommissioning the Silencer Box	
	11.2	Disposing of the Product	28

#### Contents

11.3	Materials Used	28
12 Decla	rations of Conformity	29
12.1	EC Conformity	29
12.2	UKCA Conformity	30

## 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 Other Applicable Documents

The following operating instructions must also be referred to when using the silencer box:

- The operating instructions for the blower used
- The operating instructions and data sheet for the fan

#### 1.3 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 life-threatening 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

#### 1.4 Type Plate

The type plate is permanently attached to the silencer box and must always be clearly legible.

The type plate contains the following data:

- Part sales designation/type
- Part number
- Manufacturing date

Please specify all the information above when ordering replacement parts, making warranty claims or for any other inquiries.

#### 1.5 Symbols



This symbol indicates useful and important information.

- ✓ This symbol represents a prerequisite that must be met before an action is performed.
- ▶ This symbol represents an action to be performed.
- ⇒ This symbol represents the result of an action.

Actions that consist of more than one step are numbered:

- 1. First action to be performed.
- 2. Second action to be performed.

## 2 Fundamental Safety Instructions

#### 2.1 Intended Use

The Schmalz silencer box SBB-St is used to house a blower. It reduces the sound pressure level during operation and provides protection from dirt and damage by external influences. The blower is installed by the customer

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 the use of the silencer box for purposes other than those described under Intended Use.

Non-intended use includes the following:

- Use in potentially explosive atmospheres
- Use as a climbing aid

#### 2.3 Personnel Qualification

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 operating instructions.
- The staff must be at least 18 years of age and physically and mentally capable
- The operating staff have been instructed in the operation of the product and have read and understood the operating instructions.
- Work on electrical equipment must be carried out only by qualified electrical specialists.
- Installation, maintenance, and repairs must be carried out only by specialists or by persons who can prove that they have undergone appropriate training.

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 Personal Protective Equipment

To avoid injury, always use appropriate protective equipment that is suitable for the situation. The protective equipment must meet the following standards:

- Protective work shoes in safety class S1 or higher
- Sturdy work gloves in safety category 2133 or higher
- Industrial helmet
- Ear protection class L or higher
- Eye protection class F

• Closely fitting clothing

Observe the applicable country-specific regulations.

#### 2.5 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>⚠</b> DANGER	Indicates a high-risk hazard that will result in death or serious injury if not avoided.
<b>⚠ WARNING</b>	Indicates a medium-risk hazard that could result in death or serious injury if not avoided.
NOTE	Indicates a danger that leads to property damage.

#### 2.6 Danger Zone

Persons in the danger zone of the silencer box may suffer severe injuries.



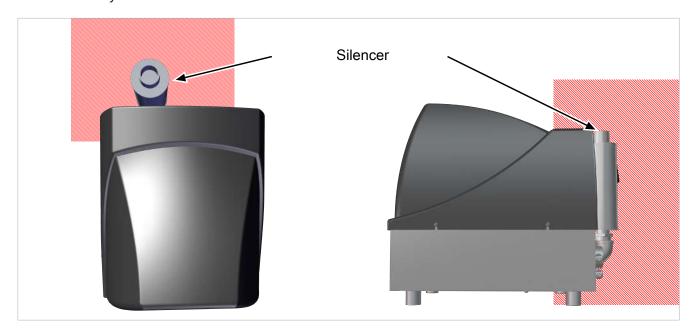
#### **MARNING**

#### Hot air flows out of the silencer and heats up surrounding parts

Risk of burns from touching hot surfaces!

- ▶ Keep your distance.
- ▶ Observe a cooling time of 60 minutes before working on the product.
- Wear work gloves.

The danger zone is the area in the vicinity of working equipment that poses a hazard to the safety of persons located within it. The danger zone of the Schmalz silencer box (see the red shaded area) is in the immediate vicinity of the silencer.



▶ Ensure that no persons are present in the danger zone!

#### 2.7 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

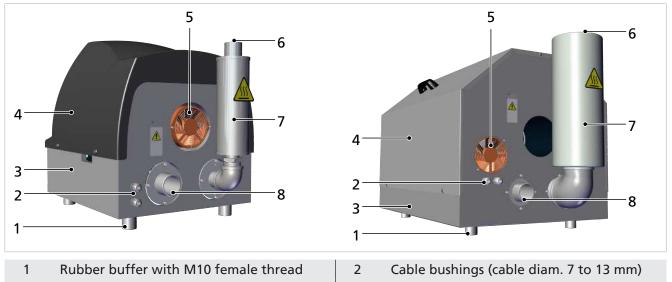
#### 3.1 General Description

The Schmalz silencer box SBB is used to house a blower. It reduces the sound pressure level of the blower during operation and provides protection from dirt and damage by external influences.

The blower is cooled by an active fan that is integrated into the box.

The operator must ensure that the exhaust air is discharged into the open air.

#### 3.2 Design of the Silencer Box



- 3 Metal tray
- 5 Fan
- 7 Silencer

- 4 Cover
- 6 Exhaust air
- 8 Vacuum connection

#### 3.3 Versions of the Silencer Box

Different versions of the silencer box are available. The version is indicated by the item number. These operating instructions apply for the following versions:

Version	Designation	Part no.	Design
With plastic	SBB-230V-AC-ST/ABS-LUE SB	10.04.04.00234	Standard voltage, 230V AC
cover	SBB-24V-DC-ST/ABS-LUE SB	10.04.04.00319	Standard voltage, 24V DC
	SBB-115V-AC-ST/ABS-LUE SB	10.04.04.00303	USA voltage, 115V AC
	SBB-230V-AC-ST/ABS-LUE SB	10.04.04.00235	Standard voltage, 230V AC
	SBB-24V-DC-ST/ABS-LUE SB	10.04.04.00320	Standard voltage, 24V DC
	SBB-115V-AC-ST/ABS-LUE SB	10.04.04.00304	USA voltage, 115V AC
	SBB-230V-AC-ST/ABS-LUE SB	10.04.04.00236	Standard voltage, 230V AC
	SBB-24V-DC-ST/ABS-LUE SB	10.04.04.00321	Standard voltage, 24V DC
	SBB-115V-AC-ST/ABS-LUE SB	10.04.04.00305	USA voltage, 115V AC
	SBB-230V-AC-ST/ABS-LUE SB	10.04.04.00237	Standard voltage, 230V AC
	SBB-24V-DC-ST/ABS-LUE SB	10.04.04.00322	Standard voltage, 24V DC
	SBB-115V-AC-ST/ABS-LUE SB	10.04.04.00306	USA voltage, 115V AC
	SBB-230V-AC-ST/ABS-LUE SB- FU	10.04.04.00335	Standard voltage, 230V AC (SB-FU)
	SBB-24V-DC-ST/ABS-LUE SB-FU	10.04.04.00336	Standard voltage, 24V DC (SB-FU)
With sheet	SBB-230V-AC-ST-VZ-LUE SB	10.04.04.00238	Standard voltage, 230V AC
metal cover	SBB-24V-DC-ST-VZ-LUE SB	10.04.04.00317	Standard voltage, 24V DC
	SBB-115V-AC-ST-VZ-LUE SB	10.04.04.00307	USA voltage, 115V AC
	SBB-230V-AC-ST-VZ-LUE SB	10.04.04.00239	Standard voltage, 230V AC
	SBB-24V-DC-ST-VZ-LUE SB	10.04.04.00318	Standard voltage, 24V DC
	SBB-115V-AC-ST-VZ-LUE SB	10.04.04.00308	USA voltage, 115V AC

## 4 Technical Data

#### 4.1 Electrical Data

You can find the electrical data for the fan in the fan data sheet.

See (> See ch. 1.2 Other Applicable Documents, p. 5)

#### 4.2 Mechanical and Thermal Data

Property	.00234 .00303 .00319 .00335	10.04.04 .00235 .00304 .00320	.00236 .00305 .00321	10.04.04 .00237 .00306 .00322	10.04.04 .00238 .00307 .00317	10.04.04 .00239 .00308 .00318		
	.00336							
Mass <sup>1)</sup> [kg]	2	27		30		85		
Max. permissible ambi-	50 Hz 25° C							
ent temperature [° C]	60 Hz 30° C							
Max. temperature at outlet [° C]	130							
Max. surface temperature on the silencer [° C]	120							
Min. distances [mm]	200							

<sup>1)</sup> without blower, may vary depending on the design

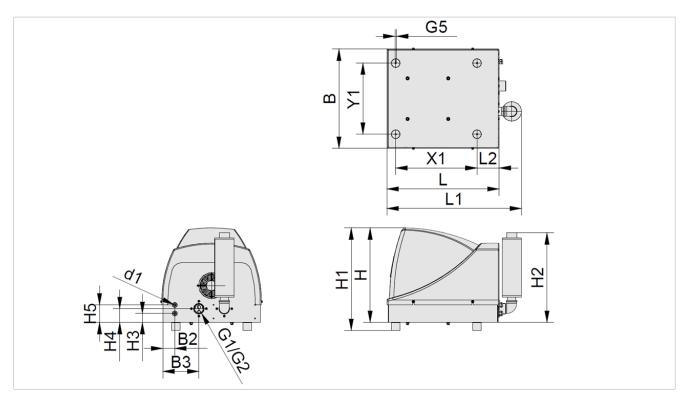
Depending on the model, blower and frequency, the silencer box reduces noise emissions:

- By 3 to 6 dB(A) when running in idle
- By 8 to 12 dB(A) with the maximum vacuum level 2).

<sup>&</sup>lt;sup>2)</sup> measured with the vacuum connection at a distance of 1 m from the silencer box.

#### 4.3 Dimensions

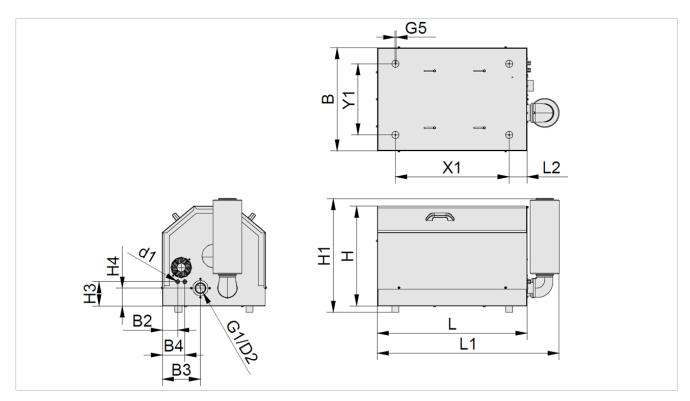
#### **Versions with Plastic Cover**



Pa- rame- ter					Pa- rame- ter				
Н	563	564	625	648	d1	13.5			
H1	610	611	672	695	G1	G2" male thread			
H2	529	571	580	582	G2	— G2 1/2" male thread		ale	
H3		5	3		L		60	51	
H4	81	93	102	104	L1	794		801	
H5		10	03		L2	125 170 115 65		65	
В	586		X1	480	420	490	520		
B2	70 60		Y1	420					
В3	213	193	170	178	G5	M10 female thread			

All specifications are in mm

#### **Versions with Sheet Steel Cover**



Parameter	10.04.04 .00238 .00307	10.04.04 .00239 .00308	Parameter	10.04.04 .00238 .00307	10.04.04 .00239 .00308
	.00317	.00318		.00317	.00318
Н	703		G1	G2 1/2" male thread	_
H1	801		D2	_	101.6
H3	170		L	1055	
H4	125		L1	1281	
В	727		L2	1.	25
B2	105		X1	800	
B3	265		Y1	500	
B4	155		G5	M10 female thread	
d1	13.5		-	_	

All specifications are in mm

## 5 Transportation and Storage

#### 5.1 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.

#### 5.2 Removing the Packaging

The device is supplied shrink wrapped on a pallet.



#### NOTE

#### Sharp knives or blades

Damage to components!

- ▶ Ensure that no components are damaged while opening the packaging.
- 1. Remove labeled transport aids and securing devices.
- 2. Open and remove the shrink wrap.
- 3. Dispose of the packaging material in accordance with the national laws and guidelines.

#### 5.3 Transporting the Silencer Box with the Installed Vacuum Generator

- ✓ Wear protective work shoes and gloves.
- 1. Secure the load according to national regulations before every transport operation.
- 2. Ensure that the hoists and slings used have the necessary specifications.
- 3. Ensure that any personnel involved in transporting with lifting devices or industrial trucks are authorized and qualified to do so.



#### **⚠** WARNING

#### Falling objects due to improper transport

Risk of injuries and damage to property!

- ▶ Before lifting, make sure that the vacuum generator is securely fastened to the metal tray.
- ▶ Ensure that no one is in the danger zone of the suspended load.



#### **NOTE**

#### Load suspension outside the center of gravity

Damage to the hoses between the blower and metal tray

Sudden and incorrect lifting must be avoided

- 1. Loosen the four fastening screws on the cover.
- 2. Lift up the cover to remove it.

3. Lift the metal tray and the vacuum generator together using the eyelet or a suitable sling.



#### 6 Installation

#### **6.1 Safety Instructions for Installation**

The lifting device must be installed and maintained only by qualified specialist electricians and mechanics. Personnel must have read and understood the operating instructions.



#### **⚠** DANGER

#### Electric shock from touching live components

Serious injury or death!

▶ Make sure that the electrical components are not live before installation, maintenance and troubleshooting.



#### ♠ WARNING

#### Serious injuries due to improper mounting!

- ▶ Carry out mounting and removal only when the device is in an idle, depressurized state.
- Use only the connectors, mounting holes and attachment materials that have been provided.
- Make sure that the electrical lines and the vacuum hose are securely connected.

#### 6.2 Installation Location/Workplace Requirements

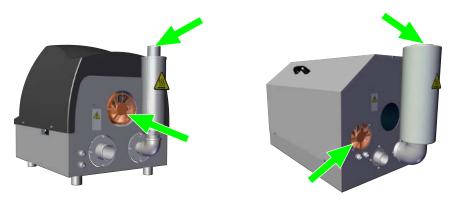


#### **A** DANGER

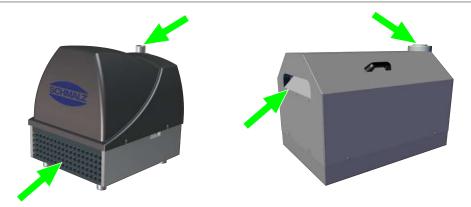
Risk of fire and explosion due to components that are not explosion-proof Serious injury or death!

▶ Do not use the product in environments where there is a risk of explosion!

#### Ensure that:



Fan areas for the cooling air supply and blower exhaust air



Area for the exhaust air outlets of the fan and the blower

- In the areas of the fan and the exhaust air openings, the distance from neighboring walls and ceilings is at least 20 cm of open space to ensure that the cooling air flow is not impaired and the heated air can flow out of the exhaust air openings unhindered
- The silencer box is installed or stored in a dry state and protected from splashing or dripping water
- The ambient temperature is within the range of the blower specifications
- No foreign bodies can enter the exhaust air or air intake openings
- The silencer box remains easily accessible for maintenance and repair work on the blower (accessibility to the fastening screws for the hood, and working space for removing the hood)

#### 6.3 Mechanically Mounting the Blower

When using the silencer box, the blower must be installed only in a horizontal position. The base plate must be securely connected to the support with 4 screws. **Exception**: The blower does not have to be secured for floor mounting.

#### **Required Tools and Materials:**

- Screwdrivers (flat head and Phillips head)
- Saw, knife, wire cutter
- Size 5 Allen key
- Wrench in sizes 10, 13 and 16
- Teflon tape

#### **Material:**

Screws, double nipples, hoses, hose clamps and flanges are supplied.

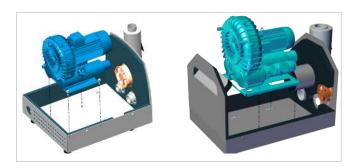
1. Loosen the screws



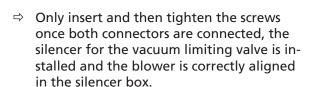
2. Lift up the cover to remove it

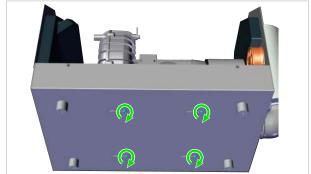


- 3. Set the metal tray in the designated position
- 4. Lift the blower into the silencer box SBB using a lifting aid. Make sure that it is the right way round.

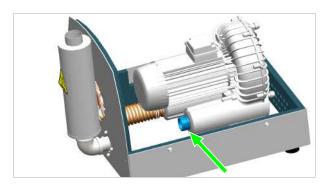


5. Fasten the blower from below using the 4 supplied hex head screws, U washers and the nuts if necessary. For the silencer box with the plastic cover, M10 screws are used. For the version with a steel cover, M8 screws are screwed into the blower console thread from below.



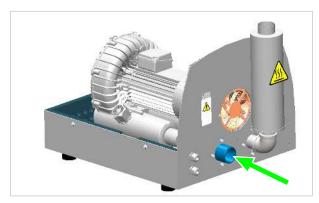


6. Seal the supplied double nipple with Teflon tape (or similar) and screw it into the blower silencer (on the exhaust air side).

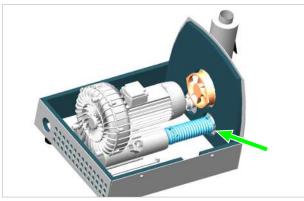


#### Continuing with the Connection of Connecting Hoses for the Exhaust Air and Vacuum Connection:

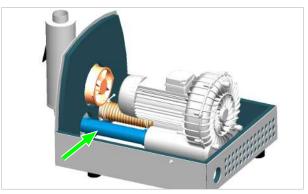
- -- For silencer boxes with the plastic cover
  - ✓ Cut the vacuum hose and exhaust air hose to the appropriate length.
  - ✓ NOTE For part numbers 10.04.04.00236 (10.04.04.00305) and 10.04.04.00237 (10.04.04.00306), use the appropriate accessories (hose, hose clamps and flange) for the vacuum connection on the blower (Ø60 or Ø75).
  - 1. Install the appropriate flange for the vacuum connection on the blower (Ø60 or Ø75).



2. Connect the vacuum connection for the blower with the flange in the silencer box using a spiral hose and fasten it using wire hose clamps.

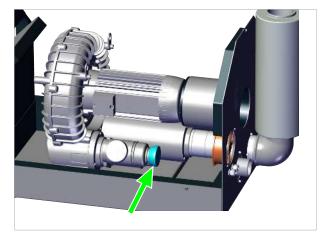


3. Connect the exhaust air connection for the blower with the flange in the silencer box using a heat-resistant (aluminum) exhaust air hose and fasten it using band hose clamps.

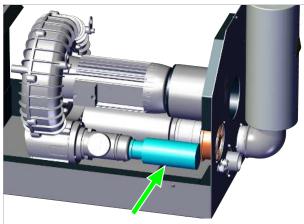


#### -- For silencer boxes with sheet steel cover

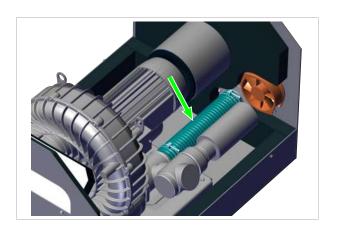
1. Remove the cover of the vacuum limiting valve.



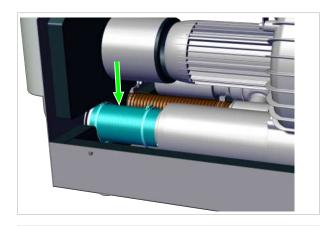
2. Seal the silencer using Teflon tape (or similar) and screw it onto the vacuum lifting valve. Secure it from loosening.



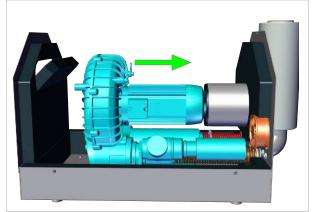
- 3. Cut the vacuum hose and exhaust air hose to the appropriate length.
- 4. Connect the vacuum connection for the blower with the flange in the silencer box using a spiral hose and fasten it using hose clamps.



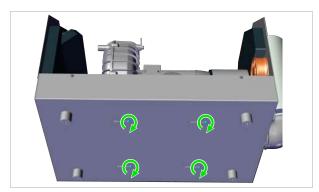
5. Connect the exhaust air connection for the blower with the flange in the silencer box using the red, heat-resistant exhaust air hose and fasten it using hose clamps.



6. Move the blower as far against the metal connector piece as possible inside the silencer box.



7. Tighten the fastening screws.



#### 6.4 Electrical Supply



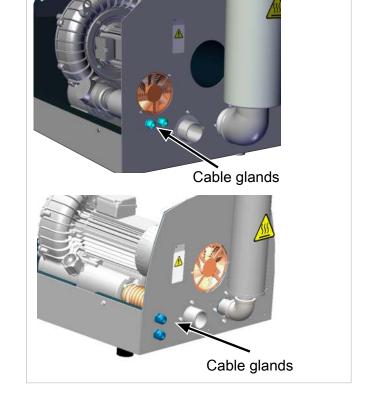
### **▲** DANGER

#### **Electric shock from touching live components**

Serious injury or death!

- ▶ Make sure that the electrical components are not live before installation, maintenance and troubleshooting.
- ▶ Switch off the mains switch and secure against unauthorized restart.

The silencer box is fitted with two cable bushings to ensure that the connection cables from the blower and from the fan are routed securely.



1. Guide the cables through the cable glands.

- 2. Connect the cables according to the blower and fan operating instructions <sup>1)</sup>.
- 3. Place the cover onto the metal tray and fasten it

<sup>&</sup>lt;sup>1)</sup>The electrical supplies for the blower and the fan must be connected by the operator of the silencer box according to the applicable blower and fan operating instructions.

## 7 Operation

#### 7.1 Silencer

The silencer box must be operated only with correctly installed silencers.

#### 7.2 Start of Operations



#### **⚠ WARNING**

#### Hot air flows out of the silencer and heats up surrounding parts

Risk of burns from touching hot surfaces!

- ▶ Keep your distance.
- ▶ Observe a cooling time of 60 minutes before working on the product.
- ▶ Wear work gloves.



#### **⚠ WARNING**

#### A powerful vacuum flow creates a strong suction effect

Risk of injury to eyes or other body parts

- Wear eye protection.
- ▶ Do not look or reach into the vacuum opening.
- ▶ When the vacuum generator is switched on, maintain a safe distance from the vacuum opening.



#### **NOTE**

#### Fan not in operation

The blower becomes damaged due to overheating.

- ▶ The fan must be active while operating the blower.
- ✓ The cover is closed.
- 1. Activate the fan externally and ensure that the air supply is correct. The fan must feed the air from the outer environment into the silencer box.
- 2. Switch on the vacuum generator and check that the silencer box is functioning correctly (vacuum on the vacuum connection and exhaust air on the exhaust air outlets).

# 8 Troubleshooting

#### **General Errors**

In the event of malfunctions, refer to the following documents:

- For the ventilator, depending on the design, specifications in operating instructions 30.30.01.00579, 30.30.01.01856 or 30.30.01.01997.
- For the blower, the specifications in operating instructions 30.30.01.01410.

#### 9 Maintenance

The blower and fan must be disconnected from the electrical circuit before working on the silencer box.

Since the blower emits heat, a cooling time of 60 minutes must be observed. If necessary, the temperature should be checked with a thermometer (max. 40° C).

The silencer box does not require maintenance.

We recommend that you regularly:

- 1. Clean the dust from the surfaces to prevent overheating. Commercial water soluble cleaning agent should be used to do so. Under no circumstances should solvents such as trichloroethylene, carbon tetrachloride, hydrocarbons or vinegar-based cleaning products be used for cleaning.
- 2. Check the hose connections for leakage.

# **10 Spare Parts**

Maintenance work may only be carried out by qualified personnel.

The following list contains the primary spare parts.

Туре	Designation	Part no.	Туре
AX-LUEF 150x55 SBB 0.05-230V-AC	Axial ventilator	22.10.02.00018	S
AX-LUEF 150x55 SBB-115V-AC	Axial ventilator	22.10.02.00015	S
AX-LUEF 150x55 SBB-24V-DC	Axial ventilator	22.10.02.00029	S
SD G4-IG 205x538 SGBL	Silencer (round)	10.07.01.00178	S
SD G2-AG 115x406 SGBL	Silencer (round)	10.04.04.00068	S

## 11 Decommissioning and Disposal

#### 11.1 Decommissioning the Silencer Box

The silencer box must be decommissioned only by qualified specialist personnel.

- 1. Switch off the vacuum generator.
- 2. Disconnect the vacuum generator from the power supply.
- 3. Remove the vacuum supply hose.

#### 11.2 Disposing of the Product

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

- ✓ The silencer box is decommissioned.
- 1. Detach and dispose of the vacuum generator in accordance with the operating instructions supplied separately.
- 2. Dispose of the silencer box components in a manner appropriate for the materials concerned.



For proper disposal, please contact a company specializing in the disposal of technical goods and instruct the company to observe the applicable disposal and environmental regulations. Schmalz is happy to assist you in finding a suitable company.

#### 11.3 Materials Used

Bauteil	Werkstoff
Blechwanne	Stahl, verzinkt
Haube	ABS, Stahl verzinkt
Schalldämpfer	Stahl verzinkt, Stahl lackiert
Schrauben	Stahl, verzinkt
Dämmmaterial	PU-Schaum
Schlauchschellen	Stahl, verzinkt
Schläuche	Alu, PUR, Silikon
Schlauchanschlüsse	Stahl verzinkt

## 12 Declarations of Conformity

#### 12.1 EC Conformity

Within the meaning of the Machinery Directive 2006/42/EC, the pumps are partly completed machinery and are therefore not considered to be ready for use. The underlying requirements of Directive 2006/42/EC as per Appendix I ("General Principles") are applied and complied with.

#### EC Declaration of Incorporation

The manufacturer Schmalz confirms that the silencer box SBB product described in these operating instructions fulfills the following applicable EC directives:

2006/42/EC	Machinery Directive
2014/30/EU	Electromagnetic Compatibility
2014/35/EU	Low Voltage Directive

The product specified is solely intended for installation indoors in a complete system. Startup is prohibited until the end product has been declared to comply with the Directive 2006/42/EC.

The manufacturer commits to provide special documentation of the partly completed machinery to national authorities in electronic form if requested. The special technical documentation belong to the machine as per Annex VII Part B has been created.

The following harmonized standards were applied:

EN ISO 12100	Safety of machinery — General principles for design — Risk assessment and risk reduction
EN 60204-1+A1+AC	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN ISO 2151	Acoustics - Noise test code for compressors and vacuum pumps - Engineering method (grade 2)
EN 60034-1	Rotating electrical machines – Part 1: Rating and performance

#### **12.2 UKCA Conformity**

The manufacturer Schmalz confirms that the product described in these operating instructions fulfills the following applicable UK regulations:

2008	Supply of Machinery (Safety) Regulations
2016	Electromagnetic Compatibility Regulations
2016	Electrical Equipment (Safety) Regulations

The product specified is solely intended for installation indoors in a complete system. The start of operations shall be prohibited until the conformity of the final product with the "Supply of Machinery (Safety) Regulations 2008" has been established.

The manufacturer commits to provide special documentation of the partly completed machinery to national authorities in electronic form if requested. The special technical documentation belonging to the machine as per Annex VII Part B has been created.

The following designated standards were applied:

EN ISO 12100	Safety of machinery — General principles for design — Risk assessment and risk reduction
EN 60204-1+A1+AC	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN ISO 2151	Acoustics - Noise test code for compressors and vacuum pumps - Engineering method (grade 2)
EN 60034-1	Rotating electrical machines – Part 1: Rating and performance



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