

Assembly and Operating Manual

SLIGHTLINE, Exhaust air unit

SL 6030 ... E1...

SL 9030 ... E1...

SL 9040 ... E1...

SL 12040 ... E1...

English

The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.

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The picture on the cover shows an example configuration. The product supplied may therefore differ from the illustration.

The original manual has been produced in the German language.

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We reserve the right to make changes

Assembly and Operating Manual

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1. Important information

This manual contains important information on the safe and appropriate assembly, transport, commissioning, operation, maintenance, disassembly and simple troubleshooting of the product.

The product has been manufactured according to the accepted rules of current technology.

There is, however, still a danger of personal injury or damage to equipment if the following general safety instructions and the warnings before the steps contained in these instructions are not complied with.

- **Read these instructions completely and thoroughly before working with the product.**
- **Keep these instructions in a location where they are accessible to all users at all times.**
- **Always include the operating instructions when you pass the product on to third parties.**



1.1. Rules and regulations

Also observe the generally applicable, legal or otherwise binding regulations of the European or national legislation and the rules for the prevention of accidents and for environmental protection applicable in your country.

1.2. Guarantee and liability

ruck products are made to the highest technical standards in accordance with the generally recognized rules of the profession. They are subject to constant quality control and meet the relevant requirements when delivered. Because the products are being constantly developed, we reserve the right to make changes to the products at any time and without prior announcement. We do not accept any liability for the correctness or completeness of this installation and operating manual.

The warranty only applies to the delivered configuration. The warranty will not apply if the product is incorrectly assembled or handled or not used as intended.



2. General safety instructions

Planners, plant engineers and operators are responsible for ensuring that the product is installed and operated correctly.

- Exclusively use **ruck** Ventilatoren in good technical order and condition.
- Check the product for visible defects, for example cracks in the housing or missing rivet, screws and covers.
- Only use the product within the performance range provided in the technical data.
- Protection against contact and being sucked in and safety distances should be provided in accordance with DIN EN 13857.
- Generally prescribed electrical and mechanical protection devices are to be provided by the client.
- Safety components must not be bypassed or put out of operation.
- The product may be operated by personnel with limited physical, sensory or mental capacities only if they are supervised or have been instructed by responsible personnel.
- Children must be kept away from the product!

2.1. Intended use

The **ruck** fan is a component in terms of the machine directive 2006/42/EC (partly completed machinery). The product is a not ready-for-use machine in terms of the machine directive. It is intended exclusively for installation in a machine or in ventilation equipment and installations or for combination with other components to form a machinery or installation. The product may be commissioned only if its integrated in the machinery/system for which it is designed and the machinery/system fully complies with the EC machinery directive. **Observe the operating conditions and performance limits specified in the technical data.**

ruck ventilation products can be used to provide:

- Clean, dry air (no condensation) and non-aggressive gases with a maximum density of 1.2 kg/m³.
- The medium and room temperatures and the humidity range given in the technical data and on the rating plate.

Intended use includes having read and understood these instructions, especially chapter 2 "General safety instructions".



2.2. Improper use

Any use of the product other than described in chapter “Intended use” is considered as improper. The following points are improper and dangerous:

- Delivery of explosive and flammable media or operation in potentially explosive atmospheres.
- Delivery of aggressive and abrasive media.
- Delivery of media containing dust or grease.
- Installation outside without any protection against the weather.
- Eine Aufstellung in Feuchträumen.
- Operation without the duct system.
- Operation with closed air connections.

2.3. Personnel qualifications

Assembly, commissioning, operation, disassembly and service (including maintenance and repair) require basic mechanical and electrical knowledge, as well as knowledge of the appropriate technical terms. In order to ensure operating safety, these activities may therefore only be carried out by qualified technical personnel or a instructed person under the direction and supervision of qualified personnel. Qualified personnel are those who can recognize possible hazards and institute the appropriate safety measures due to their professional training, knowledge, and experience, as well as their understanding of the relevant conditions pertaining to the work to be done. Qualified personnel must observe the rules relevant to the subject area.



2.4. Safety instructions in this manual

In this manual, there are safety instructions before the steps whenever there is a danger of personal injury or damage to the equipment. The measures described to avoid these hazards must be observed.

Safety instructions are set out as follows:

- Safety sign (warning triangle)** - Draws attention to the risk.
- **Type of risk** - Identifies the type or source of the hazard.
 - » **Consequences** - Describes what occurs when the safety instructions are not complied with.
 - **Precautions** - States how the hazard can be avoided.

Safety sign (warning triangle)	Denotation
	General warning! Indicates possible hazardous situations. Failure to observe the warnings may result in personal injury and / or damage to property.
	Electricity warning (hazardous voltage)! Indicates possible hazards due to electricity. Failure to observe the warnings may result in death, injury and/or damage to property.
	Hot surface warning! Indicates possible hazards due to high surface temperatures. Failure to observe the warnings may result in personal injury and/or damage to property.
	Crushing of fingers warning! Indicates possible hazards due to moving and rotating parts. Failure to observe the warnings may result in personal injury.
	Overhead load warning! Indicates possible hazards due to overhead loads. Failure to observe the warnings may result in death, injury and/or damage to property.
	Important instructions follow! Instructions for safe, optimum use of the product.



2.5. Adhere to the following instructions

2.5.1. General instructions

- Observe the provisions for accident prevention and environmental protection for the country where the product is used and at the workplace.
- Persons who assemble, operate, disassemble or maintain **ruck** products must not consume any alcohol, drugs or pharmaceuticals that may affect their ability to respond.
- Responsibilities for the operation, maintenance and regulation of the product should be clearly determined and observed so that there can be no unclear areas of responsibility with regard to safety.
- Never overload the product. Never use it as a handle or step. Do not place anything on it.
- The warranty only applies to the delivered configuration.
- The warranty will not apply if the product is incorrectly assembled or handled or not used as intended.

2.5.2. During installation

- Disconnect all of the product's poles from the mains before installing the product or connecting or removing plugs. Make sure that the product cannot be switched back on again.
- Lay cables and lines so that they cannot be damaged and no one can trip over them.
- Before commissioning, make sure that all gaskets and seals in the plug-in connections are correctly fitted and undamaged in order to prevent fluids and foreign matter getting into the product.
- Information signs must not be changed or removed.

2.5.3. During commissioning

- Make sure that all electrical connections are either used or covered. Commission the product only if it is installed completely.
- The power switch must be always fully functional and easy accessible!

2.5.4. During operation

- Only authorized personnel is allowed to operate the setting mechanisms of the components or parts, under the provision that the system is used as intended.
- In an emergency, or if there is a fault, or other irregularities, switch the equipment off and make sure it cannot be switched back on again.
- The technical data given on the rating plate must not be exceeded.

2.5.5. During cleaning

- Never use solvents or aggressive detergents. Only clean the product using a slightly damp, lint-free cloth. Only use water to do this and, if necessary, a mild detergent.
- Do not use a high-pressure cleaner for cleaning.
- After cleaning, make sure that the product is working correctly again.

2.5.6. During maintenance and repair

- If operated correctly, **ruck** products only require a minimum amount of maintenance. Please follow all of the instructions given in section 10 in this respect.
- Make sure that no connections or components are loosened unless the device is disconnected from the mains. Make sure that the equipment cannot be switched back on again.
- Individual components must not be interchanged. For example, the components intended for one product may not be used for other products.

2.5.7. Disposal

- Dispose the product in accordance with the currently applicable national regulations in your country.

2.6. Safety labels on the product

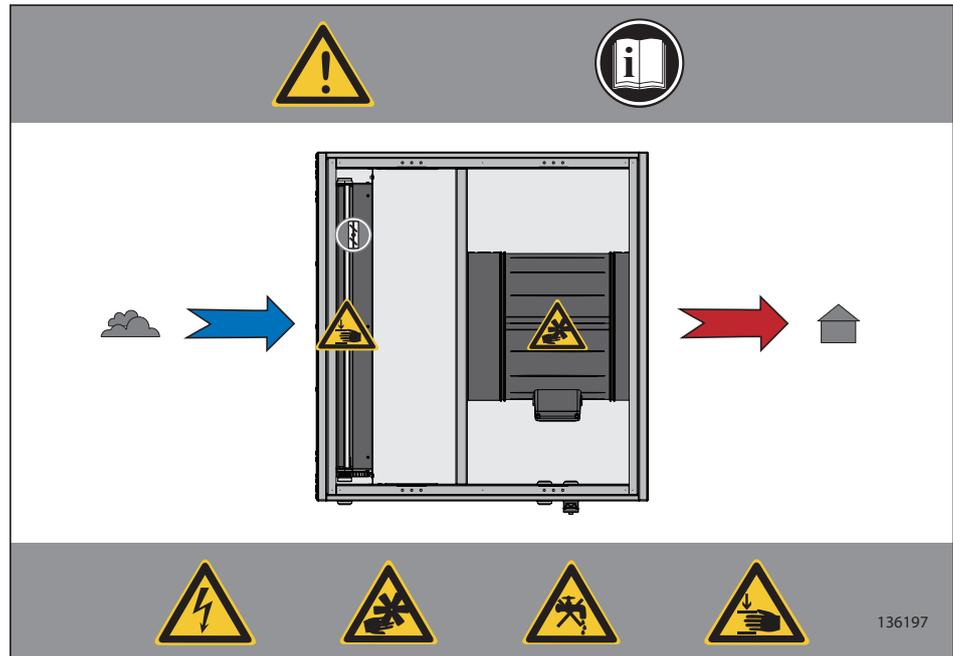


Fig. 1



- General warning
- » Failure to observe the warnings may result in personal injury and / or damage to property.
- Unauthorized repairs may cause personal injury and / or damage to property, in which case the manufacturer's guarantee or warranty will not apply.



- Never reach into rotating or moving parts.
- » Failure to observe the hazard may lead to serious injury.
- Work may only be performed once the impeller has come to a complete halt.



Read the operating manual before commissioning the product.



Bypass



- Electricity warning (hazardous voltage)!
- » Failure to observe the hazard may result in death, injury or damage to property.
- Before performing any work on conductive parts, always disconnect the unit completely from the electricity supply and make sure that it cannot be switched back on again.



- Never reach into the impeller or other rotating or moving parts.
- » Failure to observe the hazard may lead to serious injury.
- Work may only be performed once the impeller has come to a complete halt.



- Never clean the internal space with flowing water or a high-pressure cleaner. Do not use aggressive or easily flammable products for cleaning (impellers/housing).
- Only use mild soapsuds. The impeller should be cleaned with a cloth or brush.

3. Delivery contents

Included in delivery depending on model type:

- 1 x SLIGHTLINE air extraction unit with diagonal fan
- 1 x EC fan
- 4 x Brackets
- 1 x Installation and operating manual

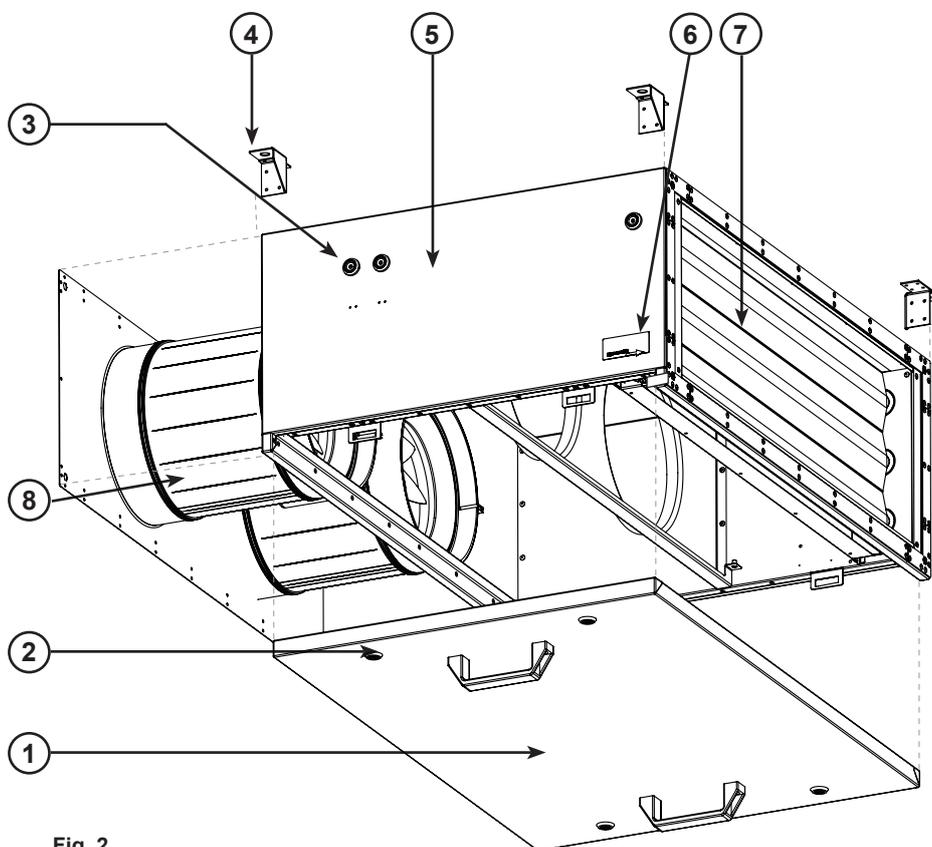
4. Product and Performance description

The SLIGHTLINE compact supply air unit is a complete, ready-to-use supply air unit. The high quality housing consists of a frameless sheet metal structure with smooth internal and external walls. The housing is insulated with 30 mm mineral wool. There are no cold bridges. Im Innenbereich ist ein mit Glasseide versiegeltes Schalldämmmaterial, zur Reduzierung der Ventilatorgeräusche und zur Isolierung gegen thermische Verluste angebracht. Der Ventilator ist drehzahlsteuerbar.

Data in detail:

- Galvanized steel housing.
- Removable Galvanized steel cover.
- Motor with integrated thermal contact, designed for continuous operation.
- Integrated shutter (damper)
- Maximum temperature: 40 °C - 55 °C (technical data).
- Protection class: in ceiling installation with cover at the bottom and correct duct and cable connection, IPX 3 (see connection diagram).
- Protection class: in ceiling installation correct duct and cable connection, IPX3 (see 6.1. Permitted installation positions).

4.1. Device description



Legend

1. Cover
2. Lock
3. Cable bushing
4. Bracket
5. Housing
6. Rating plate
7. Damper
8. Tube fan - ETAMASTER

Fig. 2
SL...E1

5. Transport and storage

Transport and storage should only be performed by specialist personnel in accordance with the installation and operating manual and regulations in force.

The following points should be noted and followed:

- Check the delivery according to the delivery note to ensure it is complete and correct and check for any damage. Any missing quantities or damage incurred during transport should be confirmed by the carrier. No liability is accepted if this is not observed.
- The product weighs approx. 77 - 155 kg (depending on the product type in question).
- It should be transported with suitable lifting equipment in the original packaging or on the transport equipment indicated.
- If transported with a forklift it should be ensured that the product is resting with the basic profile or base frame completely on the forks or on a pallet and the product's centre of gravity is between the forks (see Fig. 3).
- The driver must be authorized to drive a forklift.
- Do not go beneath the suspended load.
- Only lift and transport the machine by its base plate, never by the cover handle!
- Avoid damage or deformation of the housing.
- The product must be stored in a dry area and protected from the weather in the original packaging. Open pallets should be covered with tarpaulins.
- Open pallets should be covered with tarpaulins. Even weatherproof modules should be covered because their weather resistance is only guaranteed after complete installation.
- Storage temperature between $-10\text{ }^{\circ}\text{C}$ and $+40\text{ }^{\circ}\text{C}$. Avoid severe temperature fluctuations.
- If the product has been in storage for more than a year, check the smooth running of impellers and valves by hand.

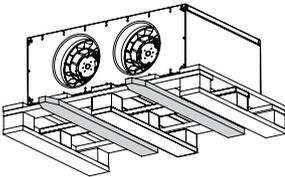


Fig. 3:
Unit transported on a pallet with a forklift.

6. Assembly

Assembly work may only be performed by specialist personnel in accordance with the installation and operating manual and the regulations and standards in force.

The following points should be noted and followed:

- Set up and align the machine with the aid of a water level. Only if the machine is horizontally installed can proper condensate drainage be guaranteed.
- Installation accessories should be provided by the client.
- Only suitable installation aids, in accordance with regulations, should be used.
- The installation should be easily accessible for maintenance and cleaning and should be easy to dismantle. Leave a space of at least the height of the unit + 5 cm from other units, shelves or cabinets to facilitate maintenance work such as changing the filter (see Fig. 6).
- The unit should only be installed using approved and suitable fastening components, using the defined fastening points.
- It must be fastened with screws or threaded rods, minimum diameter 8 mm.
- The unit should only be installed on ceilings or supporting frames with adequate load-bearing capacity. (see Fig. 5)
- Do not distort the unit when installing.
- The unit should be suitably secured.
- No holes should be made in the housing, or any screws screwed into it. Excluded are the mounting screws for the supplied angle bracket (Fig. 4).
- The duct system must not be supported on the housing.
- It is recommended that the duct system is attached with flexible connections in order to isolate any structure-borne noise.
- Make sure that the duct system cannot be closed off.
- Make sure that the intake duct has direct access to the intake air.
- Warning: branches in the intake duct, to other fan units for example, may, if the dimensions are too small, lead to low pressure in the duct and therefore malfunction of the unit.
- The pressure loss in the duct system must not be more than the capacity of the unit! The pressure loss in the duct should not be more than 2/3 the unit's maximum pressure so that an adequate air output can still be achieved. This will prevent malfunction. Pressure losses in the duct system are adversely affected by: the length of the duct system, small duct cross-section, elbows, additional filters, valves, etc.

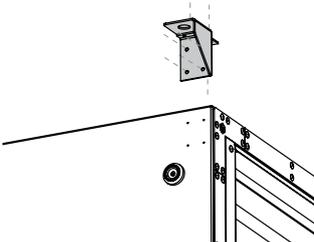


Fig. 4:
Mounting the securing brackets.

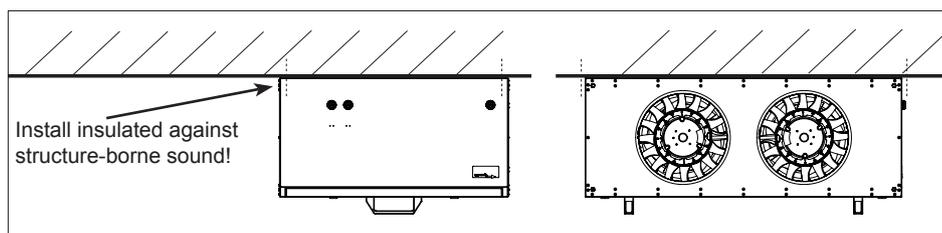


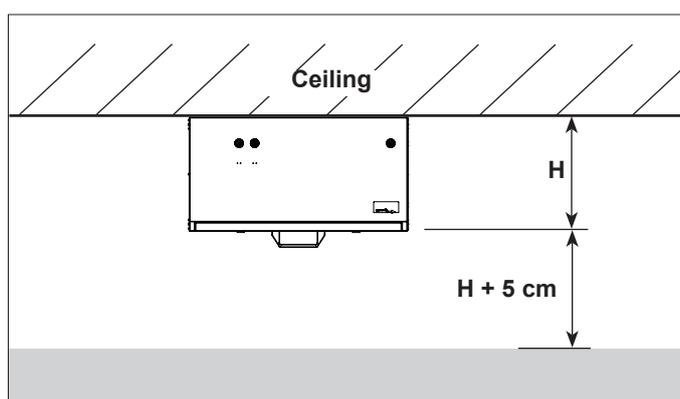
Fig. 5:
Unit suspension

6.1. Permitted installation positions

The unit is solely for ceiling mounting in a horizontal installation position.

The warranty applies only to units which has been mounted workmanlike as depicted in the „permissible mounting position“.

The warranty will not apply if the product is incorrectly assembled or handled or not used as intended.



See table on chapter 14.
Technical Data for height
H.

Fig. 6:
SL-E Ceiling installation / Minimum distance for maintenance work

6.2. Air connections

During assembly of the air supply unit, please note the following:

Air duct

- The ducting system may not be suspended from the housing.
- To decouple structurally borne noise, it is recommended that elastic couplings are used in the duct system.

7. Electrical connection



- Electricity warning (hazardous voltage)
- » Failure to observe the hazard may result in death, injury or damage to property.
- Before performing any work on conductive parts, always disconnect all of the unit from the electricity supply with all poles and make sure that it cannot be switched back on again.

Electrical installation may only be performed by qualified electricians in accordance with the installation and operating manual and the national regulations, standards and guidelines in force:

- EN, DIN and VDE specifications, including all safety requirements.
- Technical connection conditions
- Safety at work and accident prevention requirements.

This list does not claim to be complete.

Requirements should be applied under one's own personal responsibility.

The following points should be noted and followed:

- The electrical connections must be made as shown in the corresponding wiring diagrams and terminal diagrams.
- The type of cable, size of cable and method of laying should be determined by an authorized electrician.
- An all-pole mains disconnection device with at least 3 mm contact gap must be provided in the supply line.
- Use a separate cable inlet for each cable.
- Any cable inlets that are not used must be sealed so that it is airtight.
- All cable inlets must have strain relief.
- Create equipotential bonding between the unit and the duct system.
- Check all protective measures after the electrical connection work (earthing resistance, etc.).

Unit supply cable

Connect the mains supply cable as shown in the wiring diagram. For the dimensioning of the line, observe the unit's rating plate and the relevant guidelines. Suitable fuse protection should be provided.

7.1. Overcurrent protection

- The unit may only be operated with the correct overcurrent protection.
- This must be established by a qualified electrician.
- The recommended protection is shown in the enclosed wiring diagram.
- Pre-fuse 10 A up to max. voltage of 240 V.





8. Commissioning

- **Electricity warning (hazardous voltage)**
- » Failure to observe the hazard may result in death, injury or damage to property.
- Before performing any work on conductive parts, always disconnect all of the unit from the electricity supply with all poles and make sure that it cannot be switched back on again.



- **Never reach into the impeller or other rotating or moving parts.**
- » Failure to observe the hazard may lead to serious injury.
- Work may only be performed once the impeller has come to a complete halt.



- **Caution! Burning hazard.**
- » Failure to observe the hazard may result in personal injury and/or damage to property.
- Do not touch the surface until the motor and heater have cooled.



Commissioning by trained technical personnel may only be performed when any risk has been ruled out. The following checks should be performed in accordance with the installation and operating manual and the regulations in force:

- Correctly sealed installation of the unit and duct system.
- Check the duct system, unit and medium lines, if present, remove any foreign bodies if necessary.
- The intake opening and inflow into the unit must be clear.
- Check all mechanical and electrical protection measures (e.g. earthing).
- Voltage, frequency and type of current must correspond with the rating plate.
- Check all electrical connections and wiring.
- Check any electrical, switching, safety and control devices connected.
- The unit may not be switched on when the housing is open.
- Measure electricity consumption at operating speed and compare with the rated current.
- Check the fan for excessive vibrations and noise generation.
- The impeller must not be rubbing against the inlet nozzle or other fittings.



9. Operation

The Power consumption and function of the unit is examine regularly by qualified person.

Switching the unit on/off.

After a proper connection to the mains the unit is fully functional. However, it is recommended that an isolator switch be installed on the unit.

Changing fan stage

The fan is voltage controllable. Thus, through installation of a transformer or frequency convertor the speed of the fans can be regulated.

Thermal contact

The motor has a thermal contact that opens when the permissible motor temperature is exceeded. The unit switches off when the contact opens.

After the motor has cooled down, i.e. thermal contact is closed and troubleshooting (see 14.1. Error table) the unit can be returned to service.

10. Maintenance and repair

10.1. Important notes



- **Electricity warning (hazardous voltage)**
- » Failure to observe the hazard may result in death, injury or damage to property.
- Before performing any work on conductive parts, always disconnect all of the unit from the electricity supply with all poles and make sure that it cannot be switched back on again.



- **Never reach into the impeller or other rotating or moving parts.**
- » Failure to observe the hazard may lead to serious injury.
- Work may only be performed once the impeller has come to a complete halt.



- **Caution! Burning hazard.**
- » Failure to observe the hazard may result in personal injury and/or damage to property.
- Do not touch the surface until the motor and heater have cooled.



Maintenance and repairs may only be performed by specialist personnel in accordance with this installation and operating manual and the regulations in force.

Do not repair defective or damaged units yourself, but report the damage or faults to the manufacturer in writing.



- Unauthorized repairs may cause personal injury and / or damage to property, in which case the manufacturer's guarantee or warranty will not apply.



10.2. Cleaning and care

Servicing, troubleshooting and cleaning may only be performed by specialised personnel in accordance with this installation and operating manual and the regulations in force.

If operated correctly, **ruck** products only require a small amount of maintenance. The following work should be performed at regular intervals, in accordance with health and safety regulations:

- Check the operation of the control system and safety devices.
- Check electrical connections and wiring for damage.
- Remove any dirt from the fan impeller or impellers and from inside the fan housing in order to prevent any unbalance or reduction in output.
 - Do not use aggressive or easily flammable products for cleaning (impellers/housing).
 - Preferably only water (not flowing water) or mild soapsuds should be used.
 - The impeller should be cleaned with a cloth or brush.
 - Never use a high-pressure cleaner.
 - Balancing clips must not be moved or removed.
 - The impeller and fittings must not be damaged in any way.
- Check the operation of the bearing with a visual inspection and by checking running noise.
- Check the unit for leaks on the air side.

Before putting the unit back into operation after maintenance and servicing work, carry out a visual inspection as described in section 7 and 8.



11. Expansion and reconfiguration

The unit must not be reconfigured.

The warranty for ruck fans only applies for the configuration delivered. The warranty will cease to apply after any reconfiguration or expansion.



12. Dismantling and disposal

- **Risk of injury if dismantled under hazardous voltage!**
- » **If you do not switch off the voltage before starting to dismantle the unit, you may injure yourself and damage the product or parts of the installation.**
- **Make sure that the relevant parts of the installation have been disconnected from the voltage supply.**

Dismantle the unit as follows:

12.1. Disassembling the product

Observe the safety instructions given in Sections 2 to 8 and Section 12 when decommissioning and disassembling the unit.

12.2. Disposal

Careless disposal of the unit may cause pollution.

Please therefore dispose of the unit in accordance with the national requirements that apply in your country.

13. Troubleshooting

Please note the following instructions:

- Proceed systematically and purposefully when troubleshooting, even under time pressure. In the worst case, randomly and indiscriminately dismantling and changing settings may result in it no longer being possible to determine the original cause of the fault.
- Get an overview of the unit's operation in conjunction with the overall installation.
- Try to clarify whether the unit provided the required function in the overall installation before the fault occurred.
- Try to find any changes to the overall system in which the unit is installed:
 - Have the unit's operating conditions or operating range been changed?
 - Have any changes (e.g. reconfigurations) or repairs been performed on the overall system (installation, electrics, control) or to the unit? If yes: what?
 - Has the unit been operated correctly?
 - How does the fault appear?
- Form a clear idea of the cause of the fault. If necessary, question the immediate operator or the installation operator.



If you have not been able to remove the fault, please contact the manufacturer. The contact address can be found at www.ruck.eu or on the back cover of this assembly and operating manual.

13.1. Possible operating faults

Further faults may occur before and during operation of the unit.

Fuse	Possible causes	Fault correction
Fan does not run!	<ul style="list-style-type: none"> • Unit not switched on! • No electricity supply. • Supply lead not connected. • Thermal contact has opened. 	<ul style="list-style-type: none"> • Switch unit on. • Check fuse / supply • Have the supply lead connected by an electrician. • Allow fan motor to cool.
Airflow to low!	<ul style="list-style-type: none"> • Fan speed set to slow. • Airway obstructed. 	<ul style="list-style-type: none"> • Set the fan speed higher. • Ensure that the air ducts are unobstructed.
Draughts	<ul style="list-style-type: none"> • Fan speed set to high. 	<ul style="list-style-type: none"> • Set the fan speed lower.
Unit too noisy!	<ul style="list-style-type: none"> • Fan speed set to high. • Air outlet obstructed, causing air noises. • Fan bearing noise. 	<ul style="list-style-type: none"> • Select a lower speed setting. • Free the air ducts of restrictions and direction changes. • Inform specialist company / service.

14. Technical data

Specifications			SL 6030 E1 10 10	SL 9030 E1 10 10	SL 9040 E1 10 10	SL 12040 E1 10 10
Units / Model			135881	136269	136182	135974
Length	L	mm	630	700	700	705
Width	B	mm	667	967	967	1267
Height without holder	H	mm	367	367	467	467
Weight		kg				
Operating voltage		V	230V ~	230V ~	230V ~	230V ~
Frequency		Hz	50	50	50	50
Current		A	1,9	3,8	3,4	6,8
Max. medium temp.		°C	40	40	40	40
Power consumption		W	267	533	730	1471
Max. air volume		m³/h	2440	4580	5180	8880
RPM		1/min	2970	2935	2320	2790
Max. pressure		Pa	630	655	860	910
Sound intake air	L _{WA 5}	dB(A)	82			
Sound outlet air	L _{WA 6}	dB(A)	83			
Sound extraction	L _{WA 2}	dB(A)				
Fan stage			stepless (0 - 10V)			
Wiring diagram No.			130303	136709	136705	136705

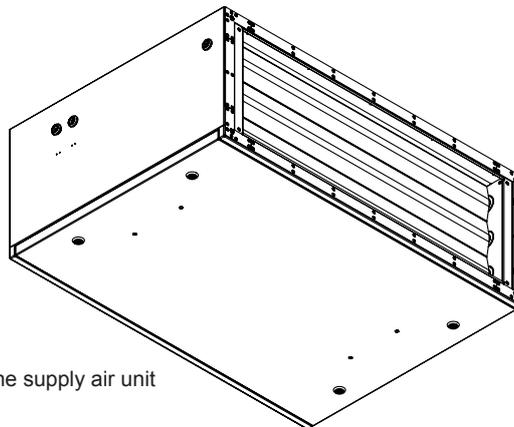
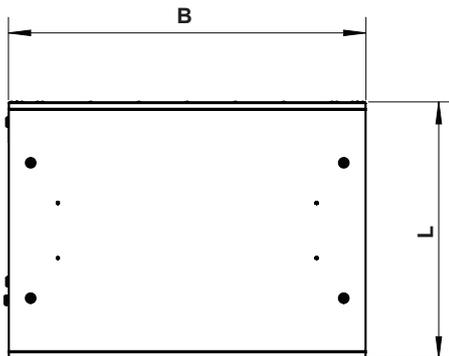
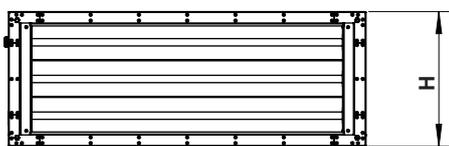
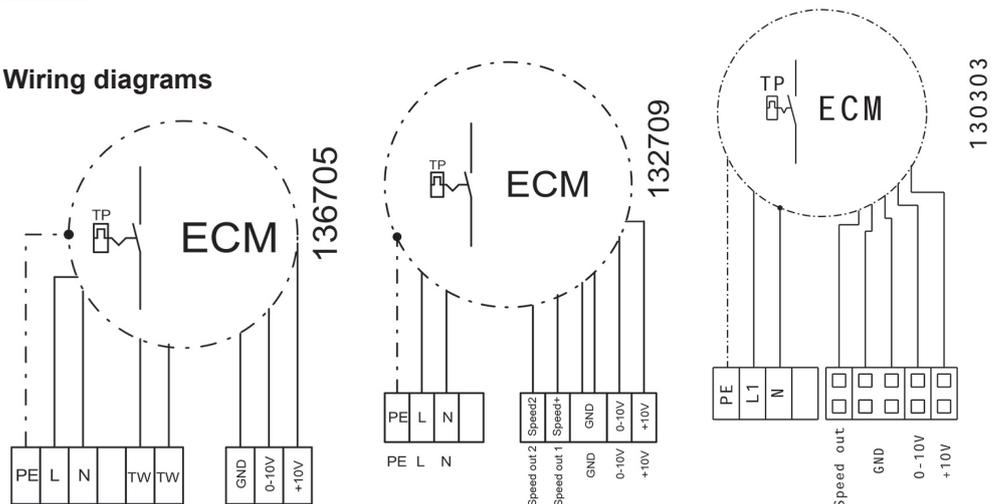


Fig. 7:
Dimensions of the supply air unit



15. Wiring diagrams



ruck Ventilatoren GmbH

Max-Planck-Str. 5
D-97944 Boxberg-Windischbuch

Tel. +49 (0)7930 9211-0

Fax +49 (0)7930 9211-150

info@ruck.eu

www.ruck.eu

The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information.

The information given does not release the user from the obligation of own judgment and verification.

It must be remembered that our products are subject to a natural process of wear and aging.

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