

# Information page

Description	Fresh air systems »ZEW« basic 1600
Versions	automatic opening (a.o.):
	automatic closing (a.c.)
	M variant
Year of construction	2020
Manufacturer	REVENTA GmbH
	Im Gewerbegebiet 3 48612 Horstmar
	Germany
Instruction number	9702079E-4920
Item code	Frame depth 60mm
	202160010 – automatic closing (a.c.)
	202160110 – automatic closing (a.c.), including bird protective grid
	202160020 – M version
	202160120 – M version, including bird protective grid
	202160000 – automatic opening (a.o.)
	202160100 – automatic opening (a.o.), including bird protective grid
	Frame depth 100mm
	202161010 – automatic closing (a.c.)
	202161110 – automatic closing (a.c.), including bird protective grid
	202161020 – M version
	202161120 – M version, including bird protective grid
	202161000 – automatic opening (a.o.)
	202161100 – automatic opening (a.o.), including bird protective grid

This document is the translated version.

Revision index	Modification undertaken	Implemented by	Date



# 1 General Safety Instructions for Mounting Systems and System Components

## IMPORTANT READ CAREFULLY BEFORE USE KEEP FOR REFERENCE PURPOSES

# 1.1 General

The system and system component parts correspond to the state of the art and - if required - to the applicable harmonized standards. However, particularly in mounting and repair work, use of the system may create hazards for the user or third parties or lead to the system or other material assets being adversely affected.

Before any mounting work, inform yourself in the operating and mounting instructions of all components about the structure of the system and about the required work steps in order to execute all work safely and correctly.

The particulars in the operating and mounting instructions correspond to the manual as issued but may differ from the as-delivered condition given further development of the system component parts. Therefore, no claim to any corrective work or a replacement delivery can be derived from images and drawings at variance with the instructions as issued. Errors excepted.

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# 1.2 Information on selecting personal protective equipment



Wear a hard hat if at risk both from bumping into objects as well as from falling, swaying and toppling over objects.



Protective masks protect from dust, gas and vapour hazards.



Wear protective goggles to protect eyes from mechanical, thermal, biological, electrical and chemical dangers.



Ear muffs are to be provided from 80 dB(A) on and must be worn from 85dB(A) on.



On construction sites, do wear safety shoes with toe protection caps and anti-slip, surefooted soles.

Wear protective clothing as a protection from the elements, from getting caught, from chemical effects and for maintenance purposes.



Wear safety gloves which are suitable as a protection from mechanical/thermal or chemical hazards.



## 1.3 Requirements for the qualification of the mounting personnel

This applies to all personnel irrespective of the employment relationship or company affiliation. Qualification of the groups of persons must comply with the national workplace safety legislation.

### **Definition of technical qualifications**

Term	Definition
Authorised specialist	Having received instruction from the manufacturer, the authorized service provider or from a company assigned by the manufacturer.
Specialist	Is professionally trained, experienced and instructed and also has knowledge of the relevant standards, requirements, accident prevention regulations and operating conditions. Is authorized to carry out the required operations and can both detect and avoid any dangers.
Trained and instructed person	Instructs on tasks and on potential dangers due to inappropriate conduct. If necessary, trained on-the-job and instructed about protective equipment and safeguards.

### Definition of the target group and allocation of the tasks and qualification:

Target group	Definition	Qualification
Operator	In-depth knowledge of the subject, specific circumstances and the resulting dangers. Responsible for compliance with the technical guidelines and implementation of the required protective equipment and safeguards by the persons appointed by him.	Specialist
Qualified personnel	Carry out work and mounting steps in keeping with their qualification e.g. installing gas, electrical equipment and electronic components and handling chemical substances.	Specialist
Mounting personnel	Are trained in handling and operating the required tools. Carry out work under the direction and supervision of a qualified person, e.g. preliminary work, straightforward mounting work with consideration given to the required safeguards.	Trained and instructed person
Authorized specialists	Carry out work for which they have received specific instructions, e.g. mounting work, commissioning.	Authorised specialist



# 1.4 Notes for reading the mounting instructions

### Graphic symbols used

Warning symbol	Type of danger
<u>^</u>	General warning
4	Warning of electrical voltage
	Warning of being pulled in and caught
	Warning of automatic start-up
	Warning of hand injury

### Signs used and meaning of the signal words in safety warnings

Safety warnings warn against injury and damage that can arise from not following the signs. The signs point to differing major risks (Danger, Warning and Caution).

Ţ	DANGER	<b>Extremely dangerous situation</b> Disregarding the safety sign results in death or severe injuries.
	WARNING	<b>Dangerous situation</b> Disregarding the safety sign can result in death or severe injuries.
	CAUTION	<b>Dangerous situation</b> There is a potential risk of injuries from disregarding the safety sign. There is also the risk of damage from not following the instructions.
!	WARNING	Notes are used to point to a particular circumstance or to provide assistance.

### Information on reading mounting and operating instructions

The safety warnings in this manual refer solely to the mounting work. Refer to the operating instructions for information on operation, maintenance, cleaning and repairs

Safety warnings always precede the passages in which they are of relevance.

The information on the previous pages is understood to be a requirement for each of the mounting instructions and, as such, is not repeated. This does not apply to safety warnings.



### Rules of conduct during mounting work

Safe mounting and fail-safe operations depend, for instance, on the tools, auxiliary equipment, media and energies being used carefully and as intended.

Any changes or modifications to system components are only permitted after consulting the manufacturer and receiving his written approval.

Wear the Personal Protective Equipment (PPE) for your own safety. Corresponding information on wearing the PPE can be found in the mounting and operating instructions of the components.

Tie long hair together. Remove any jewellery, watches and rings before working on the system. Do not wear any loose and fluttering clothing when working on the system. Clothes, hair and jewellery could get caught in moving components!

Store and handle components properly. Protect components from moisture, dirt and damage. Check components for damage before mounting. Damaged components must not be used.

Follow the national regulations and legislation on accident prevention and safety on construction sites and with mounting work.

## 1.5 Specific dangers

### Working at heights

Working at heights may be necessary when mounting system components. Wear the personal protective equipment intended for the task. Ensure that the workplace is secured.

### **Caustic substances and vapours**

Caustic or otherwise harmful liquids e.g. sulphuric acids, may be used in system components. The concentration of the operating substances used must not be above the specified values. Under certain circumstances, caustic or otherwise harmful gases could be released by these liquids. Wear the personal protective equipment intended for the task.

Only use operating substances and cleaning agents authorized by the system manufacturer.

Before work on interconnection points or other interventions in the system, ensure that the system is not in service and/or cannot be started and is secured from being accidentally started!

### Moving/ rotating parts

Components may re-set or be set in motion caused by mounting, maintenance and repair work. Ensure that all components are at a standstill and/or are secured against moving spontaneously.

### Biohazard

High micro-organism concentrations in water can arise in systems in which water trickles or is sprayed. Avoid any contact with water. Wear the personal protective equipment intended for the task.

#### Pressure

System parts may become pressurized during the operation. There is a risk of gases and/or liquids escaping during the installation. Before opening the system parts, ensure that the components are depressurized.



### **Electrical voltage**

Working on electrical components/sub-assemblies must only be carried out by qualified electricians or authorized specialists under the direction and supervision of a qualified electrician in accordance with the electrical engineering regulations. The operator has to ensure that the electrical systems are operated, serviced and maintained in accordance with the electrical engineering regulations.

Life-threatening voltages may arise when working on electrical systems. Only work on the electrical system when the power supply is disconnected and when the lack of voltage has been confirmed by means of a two-pole voltage tester.

Do not mount control equipment in the stable. There is a potential risk of corrosion from ammonia  $(NH_3)$  vapours. Do not cover electric motors! Fire hazard due to heat accumulation.

### Flammable gases

Work on gas-conveying components/sub-assemblies is only to be carried out by specialists in accordance with the technical guidelines for gas installation. The operator has to ensure that the gas-conveying systems are operated, serviced and maintained in accordance with the technical guidelines for gas installation.

Working on the gas installation may cause combustible gases to escape and explosive concentrations may be reached. Only carry out work on the gas-conveying system when the shut-off mechanism is locked and secured against being unlocked by non-authorized persons and when the pipe is depressurized and the gas has been safely discharged.

### Spring forces

Mounting, maintenance and servicing work may result in spontaneous movements from spring-tensioned components. Ensure that the springs are stress-relieved prior to the respective work.

### Hot liquids

System-filled liquids may still be extremely hot even when the system is switched off. For work on hot liquids, the personal protective equipment intended for the task is to be worn or a sufficient time for cooling kept to.

### Hot surfaces

System components may still be extremely hot even after the system is switched off. For work on hot systems, the personal protective equipment intended for the task is to be worn or a sufficient time for cooling kept to.



## 1.6 Essential requirements for reliable commissioning

The installation can be put into operation safely:

- When all the relevant components and safety devices (fixed, moving and electrical safety components) are mounted and in working order.
- When all components are in perfect technical condition.
- When all external contacts and connections are in accordance with applicable safety regulations.
- After consultation with all trades.

In addition, when electrical connections were necessary:

- When all control devices, switching devices and control units are closed or fitted in the control cabinet.
- When the fuses provided in the electrical circuit diagram are fitted.
- When all cables have been examined for any visible damage and, if necessary, replaced.
- · When connected loads are not exceeded.

In addition, when a gas installation was necessary:

- When all work on the gas installation pipes is finished.
- When the seal tightness of the gas installation is established.
- When all outlets are tightly shut.
- When any escaping gas has been safely directed to the atmosphere.
- When air supply and exhaust gas discharge is assured without hindrance.
- When the installation company has instructed the operator on handling and servicing the entire system and has handed over the operating instructions and servicing information.

## 1.7 Disposal

After completion of mounting the system, the packaging materials and non-recyclable waste or residues are to be sent for recycling or disposed of in accordance with the statutory regulations.

## 1.8 Warranty and liability

Warranty and liability claims of individuals and material damage are ruled out should they be attributable to one or several of the following reasons:

- Improper use of the system.
- Incorrect mounting, commissioning, operating, maintaining and repairing the system.
- Operating the system despite defective safeguards or improperly attached or malfunctioning safety and protective equipment.
- Disregarding the information in the operating manual on transporting, storing, mounting, commissioning, operating, maintaining, cleaning and equipping the system.
- Non-authorized structural changes to the system.
- Non-authorized change of product at the hardware and software (e.g. drive ratio: power and speed, change to the software and performance parameters).
- Inadequate monitoring of system components subject to wear.
- Catastrophes resulting from foreign body effects and force majeure.



# 2 Instructions for fresh air inlets

## 2.1 Basic instructions

### **Tension-free installation**

Eliminate any deformation in fresh air inlets during installation. Deformed fresh air inlets are not air-tight, meaning daylight and air can penetrate. Carrying out installation as described prevents deformation in the fresh air inlets. Do not install fresh air inlets which are tensioned.

### Wind and weather shield

Install the fresh air inlet with a wind and weather shield if wind, snow, ice or sunlight could possibly have a negative impact on the fresh air system. A wind and weather shield ensures that the fresh air system will function more reliably.

### Drive for fresh air inlets

We only recommend using the REVENTA GmbH M8 pull rod and electrical cylinders to open and close fresh air inlets. The maximum permitted tensile force is 3000 N.

## 2.2 Wall outlets

!	WARNING	Fresh air inlets must be free of tension when installed. You will permanently damage the fresh air inlet if you build over it directly.
		Leave a 10 mm distance around the vent. Install wall air inlet in a level, right-angled position. Support with a prop in the centre while foaming it into position.

Recess



Create a wall opening. You will find the dimensions of wall air inlets in the technical data.



#### Installation



Insert fresh air inlet into wall recess. Use installation aids to centre it. Support with added prop in centre (made of wood, for example). Fasten wall air inlet onto wall. Foam in distance with light expanding spray foam. **Observe** manufacturer's instructions. Remove installation aids after hardening.

# 2.3 Ceiling outlets



WARNING

Fresh air inlets must be free of tension when installed. Leave a 10 mm distance around the vent.

Recess



Create an opening in the ceiling. You will find the dimensions of wall air inlets in the technical data.

### Installation

Insert fresh air inlet into ceiling recess.

Position fresh air inlet and fasten with screws. (Screws not included in the installation set).

Foam spaces between ceiling and fresh air inlet with light expanding spray foam; observe manufacturer's instructions in doing so.





# 2.4 Position of the cord guide with wall guide

»ZED« 1000/1500 s.ö.





(REAEMIN.)

»ZED« 1800 s.ö.







Distances	between	wall	auide	/ ceilina	auide	and	fresh	air	inlets
Distances	Dettreen	w an	guide	/ coming	guiuc	ana	110011	un	moto

Туре	Distance A (minimum)						
	a.o. with wall guide	a.c. with wall guide	a.o. with ceiling guide				
»ZEW« Professional 1300 / 2100	100 mm	100 mm	-				
»ZEW« Professional 2900	200 mm	100 mm	_				
»safe-let«	200 mm	200 mm	_				
»ZEW« basic 1600	100 mm	100 mm					
»ZEW« Flatwave 2600	100 mm	_	_				
»ZEW«	100 mm	200 mm	-				
»ZED« Professional 1800	_	_	100 mm				
»ZED« 1800	_	_	100 mm				
»ZED« 1000 / 1500	_	_	100 mm				



# 3 »ZEW« basic 1600 wall air inlet

## 3.1 Introduction

The wall air inlet regulates the fresh air stream into livestock sheds. It is opened in the following ways in this model:

- Automatic closing (a.c.): A piston cylinder pulls the wall air inlet open and releases to close it.
- Automatic opening (a.o.): The force of gravity opens the fresh air inlet and a pullcord is used to close it.

## 3.2 Technical data

### Frame depth 60mm

Туре	Item code	Air flow rate*	Tensile force (N)	Stroke path (mm)	Weight (kg)
»ZEW« basic 1600 automatic closing (a.c.)	202160010	2300	15	425	2
»ZEW« basic 1600 automatic closing (a.c.) including bird protective grid	202160110	2300	15	425	2
»ZEW« basic 1600 M version	202160020	2200	15	440	2.2
»ZEW« basic 1600 M version, including bird protective grid	202160120	2200	15	440	2.2
»ZEW« basic 1600 automatic opening (a.o.)	202160000	2300	15	420	2.2
»ZEW« basic 1600 automatic opening (a.o.) including bird protective grid	202160100	2300	15	420	2.2

\* Flow rate in m<sup>3</sup>/h at 20 Pa



### Frame depth 100mm

Туре	Item code	Air flow rate*	Tensile force (N)	Stroke path (mm)	Weight (kg)
»ZEW« basic 1600 automatic closing (a.c.)	202161010	2300	15	425	2.4
»ZEW« basic 1600 automatic closing (a.c.) including bird protective grid	202161110	2300	15	425	2.4
»ZEW« basic 1600 M version	202161020	2200	15	440	2.6
»ZEW« basic 1600 M version, including bird protective grid	202161120	2200	15	440	2.6
»ZEW« basic 1600 automatic opening (a.o.)	202161000	2300	15	420	2.6
»ZEW« basic 1600 automatic opening (a.o.) including bird protective grid	202161100	2300	15	420	2.6

\* Flow rate in m<sup>3</sup>/h at 20 Pa



## 3.2.1 Dimensions





Wall air inlet a.o.



Wall air inlet a.c.

Wall air inlet M version

	Des.	Value	Des.	Value	Des.	Value	Note
Frame depth	T1	60 mm	-	-	-	-	The wall air inlet is
	T1	100 mm	-	-	-	-	depths.
Wall air inlet dimensions	B1	650 mm	H1	270 mm	-	-	Installation dimension
Wall air inlet	B2	731 mm	H2	351 mm	T2	114 mm	For 60 mm frame depth
outside dimension	B2	731 mm	H2	351 mm	T2	154 mm	For 100 mm frame depth
Cut-out in wall	B1+20 mm	670mm	H1+20 mm	290 mm	-	-	Leave a 10 mm gap all around inlet.



## 3.3 Mounting overview

3.3.1 Work steps for wall air inlet »ZEW« basic 1600 a.c.



PLEASE NOTE!

Use a torque of < 2 Nm to tighten screws which are fastened into PU foam parts or screwed into place with PU foam parts.

Work step	Tools and material	Description
(1)	1x frame 1x seal	Press seal into the groove.
		Warning:
		Ensure that the seal is fully pressed into the groove.



Work step	Tools and material	Description
2 Na anus	1x flap 1x flap mount 2x chipboard screws, 5 x 30 fillister screws	Push flap mount sideways into the flap. Place flap mount into the frame stop and screw into position. Fasten screws vertically into the frame. Carry out work step on left and right.
	1x flap lever 3x chipboard screws, 5 x 20, countersunk head 3x washers, 8.4 x 17	Position flap lever on flap. Insert the screw through washer and flap and fasten to the flap lever. <b>Please note!</b> Use a torque of ≤ 2Nm to fasten screws.



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Warning       Risk of injury due to springs flying         Springs can fly out and cause injury w         Wear safety glasses.	<b>out</b> /hen you insert them.
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Work step	Tools and material	Description
	2x springs	Fit springs into frame eyelet. Close flap. Fit spring into flap eyelet.



3.3.2 Work steps for wall air inlet »ZEW« basic 1600 a.o.



Work step	Tools and material	Description
1	1x frame 1x seal	Press seal into the groove.
		Warning:
		Ensure that the seal is fully pressed into the groove.



Work step	Tools and material	Description
2 Ne Bages	1x flap 1x flap mount 2x chipboard screws, 5 x 30, fillister head	Push flap mount sideways into the flap. Place flap mount into the frame stop and screw into position. Fasten screws vertically into the frame. Carry out work step on left and right.
	1x »ZEW « a.o. flap lever 3x chipboard screws, 5 x 20, countersunk head 3x washer 8.4 x 17	Position flap lever on flap. Insert the screw through washer and flap and fasten to the flap lever. Please note! Use a torque of ≤ 2Nm to fasten screws.
4	1x weight	Screw weight to flap lever.



## 3.3.3 Work step »ZEW« basic 1600 M version



PLEASE NOTE!

Use a torque of < 2 Nm to tighten screws which are fastened into PU foam parts or screwed into place with PU foam parts.



Work step	Tools and material	Description
	1x frame 1x seal	Press seal into the groove. <b>Warning:</b> Ensure that the seal is fully pressed into the groove.
	1x »ZEW« basic frame mount M Version 2x drive-in nuts 2x ULF screw 6 x 14	Place frame mount in stop. Push screw through frame mount and wall air inlet frame and screw into nut held in place. Carry out work step on left and right.
3 PIEMIE Basic	1x flap 1x dowel	Press dowel into the flap mount hole. Carry out work step on left and right.
4 VIENTE Basic VIENTE Basic	1x »ZEW« basic flap mount M Version 1x chipboard screw, 4.5 x 40	Place flap mount on air inlet. Swing elevation should face inwards. Insert the screw through lower hole in the flap mount and fasten to the flap. Please note! Use a torque of ≤ 2Nm to fasten screws. Warning: Mount must not stick. Carry out work step on left and right.



Work step	Tools and material	Description
5 rene ande	1x nut M6 1x ULF screw 6 x 14	<ul> <li>Place flap in frame.</li> <li>Push screw through mount on the flap and mount on the frame and fasten with nut.</li> <li>Warning:</li> <li>Mounts must not get stuck and must remain flexible.</li> <li>Carry out work step on left and right.</li> </ul>
(6)	1x »ZEW« a.o. flap lever	Position flap lever on flap.
	countersunk head	flap and fasten to the flap lever.
	3x washer 8.4 x 17	
		Use a torque of $\leq 2$ Nm to fasten
		Screws.
Con Con		
7	1x weight	Screw weight to flap lever.



## 3.3.4 Work steps for optional accessories

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PLEASE NOTE!
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Use a torque of < 2 Nm to tighten screws which are fastened into PU foam parts or screwed into place with PU foam parts.

### Bird protective grid optional

Work step	Tools and material	Description
	1x bird protective grid 4x chipboard screws, 4 x 16	Insert and centre bird protective grid into frame pockets.
	countersunk head	Push screws through bird protective grid and fasten to the frame.

### Air guide plate optional

Work step	Tools and material	Description
1	1x drill ø 6 mm 1x air guide plate bracket 2x drive-in nuts M6 2x ULF screws 6 x 14	Drill holes into marks in the frame. Push screw through air guide plate bracket and frame and screw into nut held in place. Carry out work step on left and right.
2	1x air guide plate 1x [2.1] ULF screw 6 x 30	Place air guide plate between two brackets. Push screw [2.1] through bracket and fasten to air guide plate. <b>Warning:</b> Use drill markings.
		warning: The air quide plate must not get

The air guide plate must not get stuck.

Carry out work step on left and right.



Work step	Tools and material	Description
3	1x [2.2] chipboard screw 5 x 30 fillister head	Place air guide plate in desired position in the catch.
		Push screw [2.2] through bracket and fasten to air guide plate.
		Warning:
		Use drill markings.
		Warning:
		The air guide plate must not get stuck.
		Carry out work step on left and right.

## Wall guide optional

Wall guide for wall air inlet »ZEW« basic 1600 a.c.



PLEASE NOTE!

Fit wall guide at a distance of 100 mm beneath the wall air inlet.

	Work step	Tools and material	Description
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Work step	Tools and material	Description
	1x »ZEW« wall guide 1x cord	Knot one end of cord. Thread cord through wall guide.
2		Thread cord through flap lever. <b>Warning:</b> The different holes on the flap lever can be used to set a delayed opening to other inlets.
3		Thread cord through hole in the wall guide.
4	1x cord fastener, including mounting components*	Place cord fastener over connecting rod. Push screw through cord fastener and fasten with nut. Thread cord through cord fastener and knot the end.
	* Not included in supply package	1





Wall guide for wall air inlet »ZEW« basic 1600 a.o. and M

PLEASE NOTE!

Fit wall guide at a distance of 100 mm above the wall air inlet.

Work step	Tools and material	Description
D C C C C C C C C C C C C C C C C C C C	1x cord 1x weight	Knot one end of cord. Thread cord through flap lever. Bind cord with weight to the flap lever.
2	1x »ZEW« wall guide	Thread cord through rear hole in the wall guide.



Work step	Tools and material	Description
3	1x cord fastener, including mounting components*	Place cord fastener over connecting rod.
		Push screw through cord fastener and fasten with nut.
Contraction of the second seco		Thread cord through cord fastener and knot the end.
	* Not included in supply package	

# 3.4 Finishing work

Separate and dispose of the packaging material in accordance with the statutory requirements.



# 3.5 Accessories (optional)

Article	»ZEW« basic 1600
Wall guide	Item no. 9-201990800
Bird protective grid	Article no. 202160790
Air guide plate 180 mm	Article no. 202160008
Wind deflection hood	Article no. 209219910
Wind deflection hood, including light filter	Article no. 209219912
Light filter	Item no. LF04040880



Image Variant with accessories: Wind deflection hood and light filter

1 Wind deflection hood



Image Variant with accessories: Wind deflection hood and light filter

1 Light filter





Image Variant with accessories: Light filter package

1+ 2 Wind deflection hood, including light filter package