

Installation manual

Automatic exhaust valve Type ATVC-100



TROX[®] TECHNIK



The art of handling air

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Installation manual for automatic exhaust valve ATVC-100

2. Safety and correct use

General safety notes

VORSICHT!

Verletzungsgefahr an scharfen Kanten, Graten, spitzen Ecken und dünnwandigen Blechteilen!

- Bei allen Arbeiten vorsichtig vorgehen.
- Schutzhandschuhe, Sicherheitsschuhe und Schutzhelm tragen.

GEFAHR!

Stromschlag beim Berühren spannungsführender Teile. Elektrische Ausrüstungen stehen unter gefährlicher elektrischer Spannung. Nichtbeachtung kann Tod, schwere Körperschäden oder Sachschaden verursachen!

- An den elektrischen Komponenten dürfen nur Elektrofachkräfte arbeiten.
- Vor Arbeiten an der Elektrik die Versorgungsspannung ausschalten.

WARNUNG!

Verletzungsgefahr bei unzureichender Qualifikation!

Unsachgemässer Umgang kann zu erheblichen Personen- und Sachschäden führen.

- Alle Tätigkeiten nur durch dafür qualifiziertes Personal in der Gebäudetechnik-Branche durchführen lassen.

WARNUNG!

Gefahr durch Fehlgebrauch! Fehlgebrauch des Produktes kann zu gefährlichen Situationen führen.

Das Produkt darf nicht eingesetzt werden:

- in Ex-Bereichen.
- im Freien ohne ausreichenden Schutz gegen Witterungseinflüsse.
- in Atmosphären, die planmässig oder ausserplanmässig aufgrund chemischer Reaktionen eine schädigende und/oder Korrosion verursachende Wirkung auf das Produkt ausüben.

VORSICHT!

Beschädigung des Produktes durch unsachgemässe Behandlung! Gerät vor Inbetriebnahme auf Schäden und Verunreinigung prüfen und beheben!

Unsachgemässer Umgang kann zu erheblichen Sachschäden am Produkt führen.

- Keine säurehaltigen oder scheuernden Reinigungsmittel verwenden.
- Klebstoffe von Klebändern können Farbschäden verursachen.
- Unverhältnismässige Feuchtigkeit kann zu Farbschäden und Korrosion führen.
- Nur ausdrücklich spezifizierte Reinigungsmittel, Fette und Öle benutzen.

Installation manual for automatic exhaust valve ATVC-100

Standards and guidelines

For all work on the automatic exhaust valve, the following regulations and guidelines must be observed among others:

- Product Safety Laws (PrSG)
- EKAS provisions

The local regulations for health and safety at work and general safety regulations also apply.

Repair and replacement parts

To maintain the function, use only original TROX HESCO Schweiz AG replacement parts.

Environmental protection / disposal

To protect the environment keep the following in mind:

- The packaging of the automatic exhaust valve must be disposed of in an environmentally-friendly manner.
- The automatic exhaust valve must be disposed of properly by an authorised agent after its final decommissioning.
- Dispose of electronic components according to the national electronic waste regulations.

Qualified staff

Skilled qualified electrician

Skilled qualified electricians are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to work on electrical systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

Specialist personnel

Specialist personnel are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to carry out their assigned duties, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

Limitation of liability

The information in this manual has been compiled with reference to the applicable standards and guidelines, the state of the art, and our expertise and experience of many years.

The manufacturer does not accept any liability for damages resulting from:

- Non-compliance of these instructions
- Improper use
- Operation or handling by untrained individuals
- Unauthorised modifications

The actual supply package may differ from the information in this manual for special versions, additional order options or as a result of recent technical changes.

Personal protective equipment

Personal protective equipment must be worn for any work in order to reduce health or safety hazards to the minimum.

The appropriate protective equipment for a job must be worn for as long as the job takes.

Industrial safety helmet



Industrial protective equipment, suspended loads, stationary objects.

Protection from falling objects.

Protective gloves



Protective gloves protect against cuts, abrasions, punctures, deep cuts, and sharp edges.

Protection against cuts, abrasions, punctures, sharp surfaces.

Safety shoes



Safety shoes protect against falling parts and from slipping.

Protection against falling parts, slipping.

Correct use

The automatic exhaust valve ATVC-100 is suitable for installation in multi-storey residential and commercial buildings, hotels, schools, etc. with central exhaust air systems. The ATVC-100 can be installed in new buildings and in refurbishment projects.

Installation manual for automatic exhaust valve ATVC-100

3. Transport, storage and packaging

Delivery check

Upon delivery, carefully remove the packaging and check the unit for transport damage and completeness. In case of any damage or an incomplete shipment, contact the shipping company and the supplier immediately. Put the product back into its packaging after the delivery check to protect it from dust and contamination.



Befestigungs- und Montagematerial

Befestigungs- und Montagematerialien sind, soweit nicht anders angegeben, kein Bestandteil der Lieferung und müssen bauseits, abgestimmt auf die jeweilige Einbausituation beigestellt werden.

Transport on site

Please note:

- When unloading the delivery and transporting on-site, proceed with care and observe the symbols and notices on the packaging.
- Devices should preferably be transported to the installation location in their original packaging.
- Use only lifting and transport gear designed for the required load.
- Always secure the load against tipping and falling.
- Cumbersome equipment should be transported with at least two people to prevent injury and damage.

Storage

Please note:

- Store the product only in its original packaging.
- Protect the product from the effects of weather.
- Protect the product from humidity, dust and contamination.
- Storage temperature: -10 °C to +30 °C..
- Relative humidity: maximum 95%, no condensation

Packaging

Properly dispose of packaging material.

Installation manual for automatic exhaust valve ATVC-100

4. Product description

Brief description

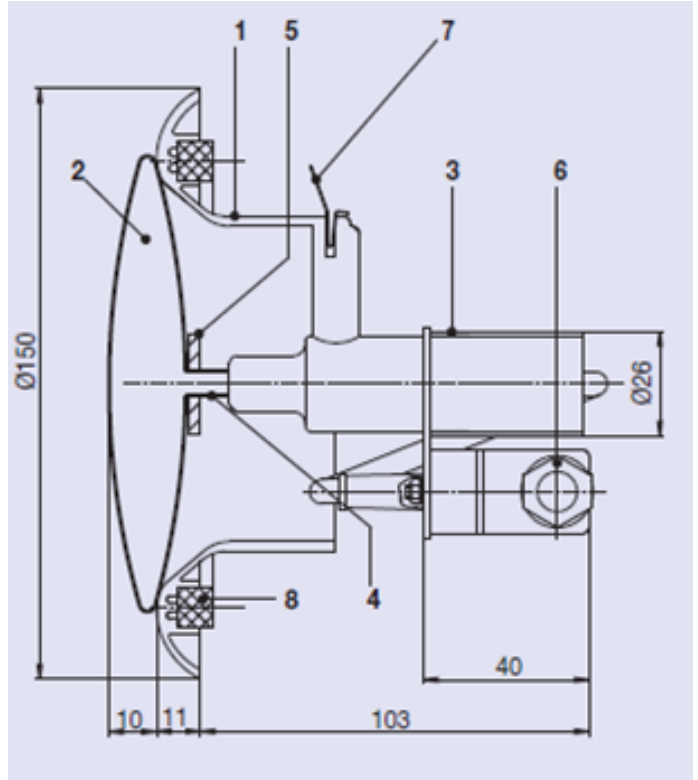
The automatic exhaust valve is an exhaust air device controlled by an electric external power supply. It is normally closed or only slightly open to enable a basic volume flow rate. Air is only extracted at a higher operating volume flow rate when the corresponding switch contact is closed.

Special features of the ATVC-100

- Heating energy can be saved thanks to targeted ventilation (basic volume flow rate/operating volume flow rate).
- No high volume flow rate during brief occupation of the room thanks to the installed start delay.
- Silent opening and closing of exhaust valve.
- Exhaust valve and electro-thermal drive made from proven components.
- Easy assembly.
- Taking the diversity factor into account, a smaller roof fan and riser duct can be selected.
- The exhaust valve can be closed tightly.
- Connection to the normal lighting network 230V 50Hz without additional delay relay (follow-up ventilation) or transformers.

How it works

When the circuit is closed, the electro-thermal drive heats up and causes the valve disc to open within 2 to 4 minutes (delay during brief occupation of the room). Air is exhausted through the opening between the valve housing and the valve disc. The valve stroke (6 mm) is always the same, i.e. the valve disc always moves from the minimum setting to the maximum valve opening. In the minimum setting, the exhaust valve can either be closed or opened. Since the valve stroke is always the same, the operating volume flow rate cannot be freely selected, but is dependent on the minimum setting. The exhaust valve stays open at the maximum valve stroke for as long as the circuit is closed. Once the circuit has been interrupted, the automatic exhaust valve remains open for follow-up ventilation for approx. 5-8 minutes before it starts to move back to its minimum setting slowly and silently.



- 1 Valve casing
- 2 Valve disc
- 3 Electro-thermal actuator
- 4 Tappet
- 5 Knurled nut
- 6 Electrical connection
- 7 Spring element (3 pieces)
- 8 Foam seal

5. Technical data

Nominal voltage	230V 50 Hz
Power consumption – initial	60 W
Power consumption – when running	8 W
Max. ambient temperature	30° C
Opening time	2 to 3 min.
Closing time	5 to 8 min.
Device for connection opening	Ø 100 mm

Dimensions

Installation manual for automatic exhaust valve ATVC-100

6. Installation / commissioning

Device selection

The exhaust valve is determined by the following data:

- Stat. pressure loss Δp_s (Pa)
- Basic volume flow rate \dot{V}_0 (m³/h)
- Operating volume flow rate \dot{V}_o (m³/h)

Using this data, the stat. pressure loss and only one of the two volume flow rates can each be freely selected.

The performance diagram (see below) is used to determine the following:

- Number of rotations
- Residual volume flow rate
- Acoustic data.

Note that, if the minimum setting is selected, then the corresponding operating volume curve must be taken into account.

Example (as plotted)

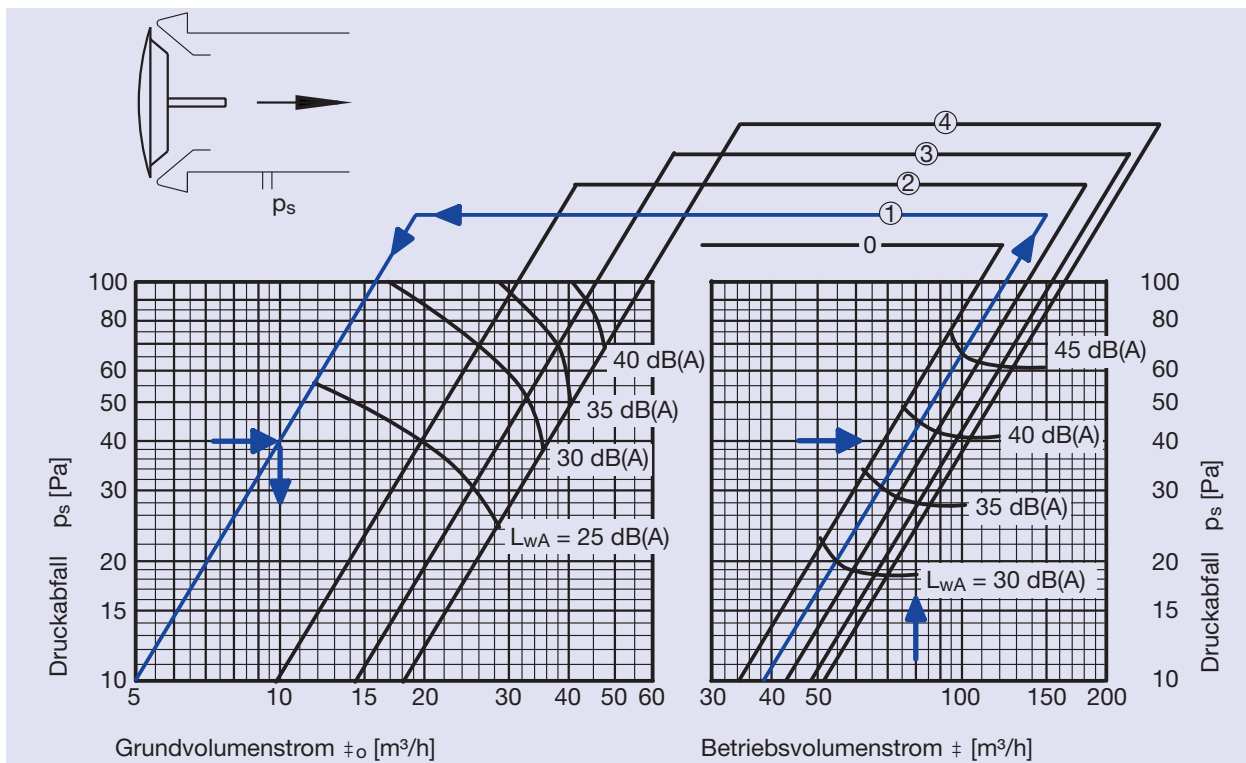
Given:

- Stat. pressure drop $p_s = 40$ Pa
- Operating volume flow rate $V = 80$ m³/h

Solution:

- Rotations for minimum setting 1
- Basic volume flow rate: $V_0 = 10$ m³/h
- Sound power level for:
Basic volume flow rate <25 dB(A)
Operating volume flow rate approx. 38 dB(A)

Performance diagram



Installation manual for automatic exhaust valve ATVC-100

Setting the basic air volume flow rate V_0

The automatic exhaust valve is delivered ex-works in a closed condition (basic volume flow rate $V_0 = \text{m}^3/\text{h}$). If a basic volume flow rate is required, this must be set as follows:

- 1 Valve casing
- 2 Valve disc
- 3 Electro-thermal actuator
- 4 Tappet
- 5 Knurled nut

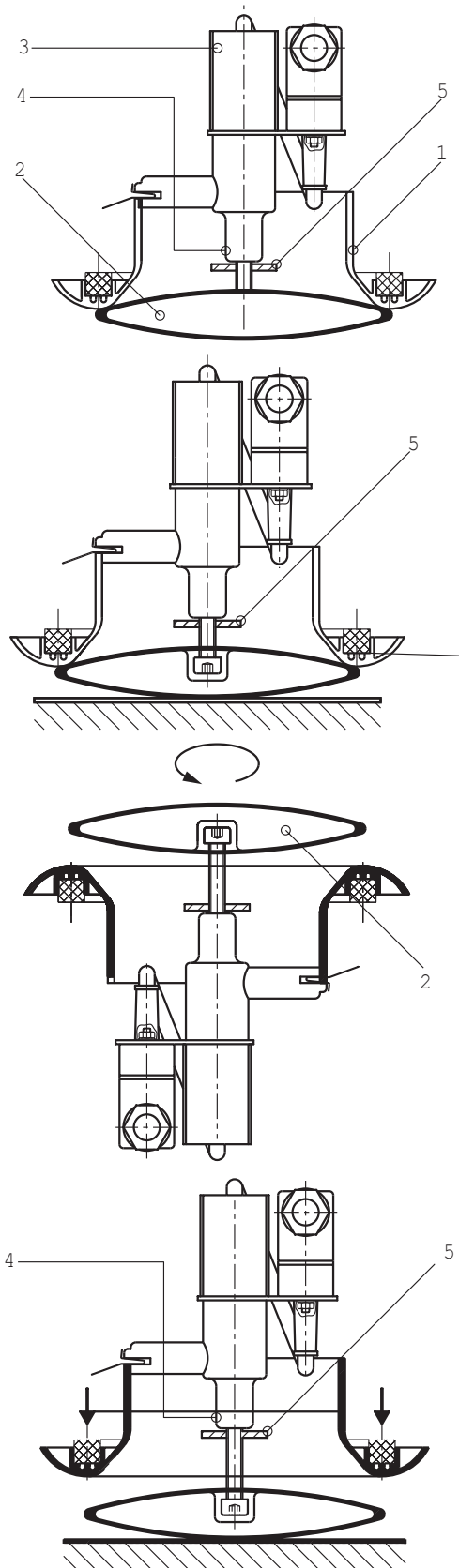
Place the exhaust valve on a firm base as shown, e.g. on a table, and loosen the brass knurled nut "5" by turning it one rotation in a clockwise direction.

Hold the exhaust valve at the electric drive as shown and, using one finger of your free hand, open the valve disc "2" by turning it the required number of rotations in an anticlockwise direction.

Place the exhaust valve on a firm base as shown, e.g. a table, hold it firmly with one hand against the base and tighten the knurled screw "5" in an anticlockwise direction up to the tappet "4".

Note: It is important that the valve disc does not rotate during this operation.

The exhaust valve is now set.



Installation manual for automatic exhaust valve ATVC-100

Assembly

Once the required volume flow rate has been set and the electric connection has been completed, the automatic exhaust valve can be inserted into the appropriate opening so that the casing is flush with the wall. The exhaust valve is held in the opening by 3 spring elements.

Initial commissioning

Before you start commissioning:

- Check that the air terminal devices are seated correctly.
- Remove protective film.
- Ensure that all air terminal devices are clean and free from residues and foreign matter.
- Check that electrical connections (if any) have been correctly made.
- Check that the fixing and connection with the air duct is correct.

Volume flow rate balancing

When several diffusers are connected to just one volume flow controller, it may be necessary to balance the volume flow rates.

7. Electrical installation



GEFAHR!

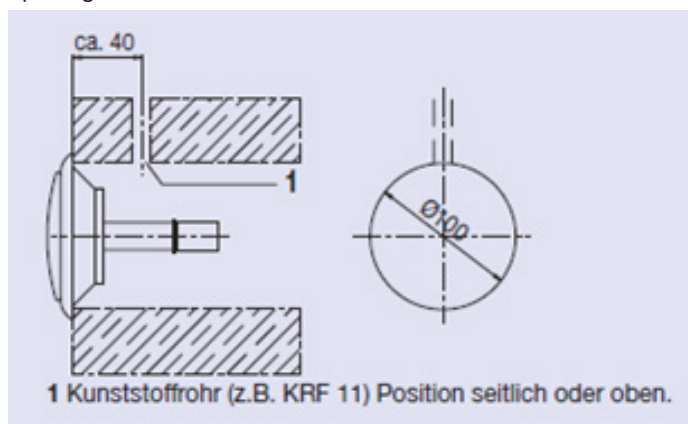
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- Vor Arbeiten an der Elektrik die Versorgungsspannung ausschalten.

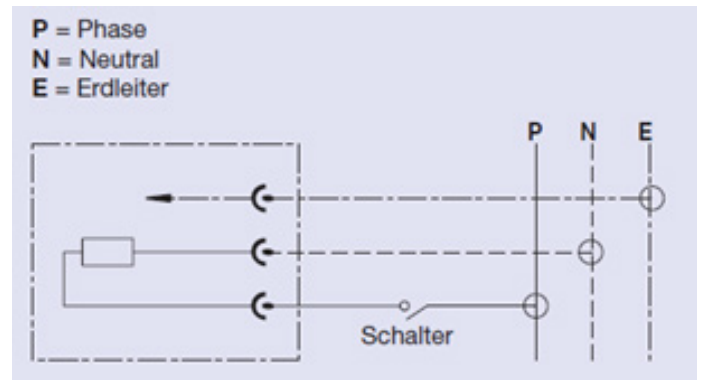
Electrical connection

Location of the electric cable

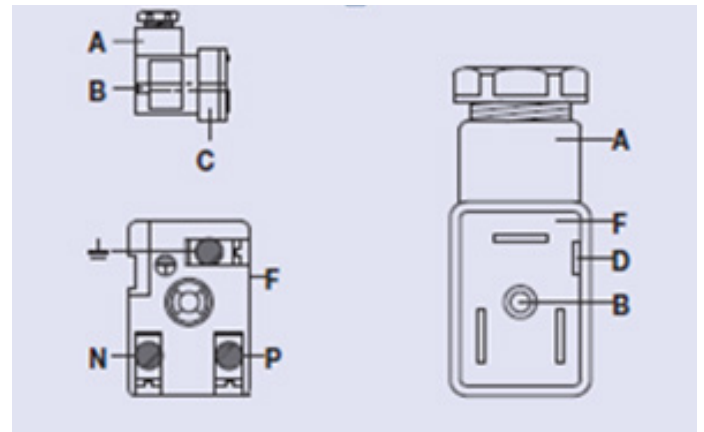
It is best to lead the electrical cable into the round air extract opening.



Connection diagram



A 2-pin plug-in connector with protective contact is provided for the electrical connection on site. Plug "A" can be removed from the connector plate "C" after loosening the central screw "B". With the central screw "B" removed from the plug "A", the insert "F" can be pressed out with a screwdriver at the point marked "D".



Installation manual for automatic exhaust valve ATVC-100

8. Maintenance



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Maintenance and cleaning

Please note:

- Clean surfaces with a damp cloth.
- Only use commercially available, non-corrosive cleaning agents-
for cleaning.
- Do not use cleaning agents that contain chlorine.
- The use of cleaning tools for removing persistent contamination, e.g. scrubbing sponges and scouring agents, can damage the surface and is not permitted.
- All technical components can be replaced if defective.