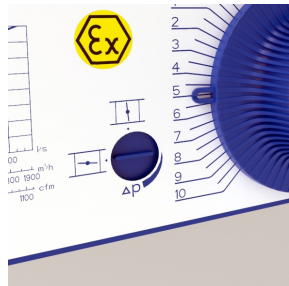




CAV CONTROLLERS TYPE
EN-EX



Visual display of the damper
blade position



Unit with two controllers



TESTED TO
VDI 6022

Conforms to VDI 6022



ATEX-ZERTIFIZIERUNG

ATEX certification

EN-EX



FOR THE PRECISE CONTROL OF NORMA TO HIGH CONSTANT VOLUME FLOWS IN POTENTIALLY EXPLOSIVE ATMOSPHERES (ATEX)

Rectangular, mechanical self-powered volume flow controllers for the control of supply air or extract air in constant air volume systems, approved and certified for potentially explosive atmospheres (ATEX)

- ATEX-compliant construction
- Approved for gases, mists, vapours and dusts in zones 1, 2, 21 and 22
- Suitable for volume flow rates up to 12,600 m³/h or 3,500 l/s
- Volume flow rate adjustment from outside by rotary knob
- High control accuracy
- No on-site test measurements required for commissioning

- Casing air leakage tested to EN 1751, class C
- Visual display of damper blade position for operating point optimisation

Optional equipment and accessories

- Acoustic cladding for the reduction of case-radiated noise
- Secondary silencer Type TX for the reduction of air-regenerated noise

General information



Application

- Rectangular EXCONTROL CONSTANTFLOW CAV controllers of Type EN for supply air / extract air volume flow control in constant air volume systems
- For use in potentially explosive atmospheres (ATEX)
- Mechanical self-powered volume flow control without external power supply
- Simplified project handling with orders based on nominal size

Special characteristics

- ATEX mark and certification
- ATEX equipment-group II, approved for zones 1, 2, 21 and 22
- Volume flow rate setpoint can be set from outside by rotary knob
- High control accuracy of the set volume flow
- Any installation orientation
- Correct operation even under unfavourable upstream conditions
- Visual display of damper blade position for operating point optimisation

Nominal sizes

- 19 nominal sizes from 200 × 100 – 600 × 600 mm

Variants

- EN-Ex: Air terminal units
- EN-Ex-D: Volume flow controller with acoustic cladding
- Units with acoustic cladding and/or secondary silencer Type TX for demanding acoustic requirements

Construction

- Galvanised sheet steel
- P1: Powder-coated, silver grey (RAL 7001)

Parts and characteristics

- Air terminal unit ready for commissioning
- Damper blade with low-friction bearings
- Bellows for vibration damping
- Cam plate with leaf spring
- Rotary knob pointer and scale for adjusting the flow rate setpoint
- Each air terminal unit is tested in the factory on a special ventilation test rig
- Visual display of the damper blade position for operating point optimisation

Classification

- Zones 1 and 2 (atmosphere: gases): II 2 G c II T5/T6
- Zones 21 and 22 (atmosphere: dusts): II 2 D c II T 80 °C

Useful additions

- Secondary silencer Type TX

Construction features

- Rectangular casing
- Construction and materials comply with the EU directive for use in potentially explosive atmospheres (ATEX)
- Flanges on both sides, suitable for duct connection
- Air terminal units from H = 400 mm as double version (2 dampers with separate setting scales)

Materials and surfaces

Galvanised sheet steel construction

- Casing and damper blade made of galvanised sheet steel
- Leaf spring made of stainless steel
- Polyurethane bellows
- Plain bearings with PTFE coating
- Cam plate and adjusting unit made of galvanised sheet steel

Powder-coated construction (P1)

- Casing and damper blade made of galvanised sheet steel, powder-coated
- Leaf spring made of stainless steel
- Polyurethane bellows
- Plain bearings with PTFE coating
- Cam plate and adjusting unit made of galvanised sheet steel

Variant with acoustic cladding (-D)

- Acoustic cladding made of galvanised sheet steel
- Rubber seal for the insulation of structure-borne noise
- Lining made of mineral wool

Mineral wool

- Acc. to EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388
- Non-hazardous thanks to high biosolubility according to the German Ordinance on Hazardous Substances and Note Q of the European Regulation (EC) No. 1272/2008

Standards and guidelines

Meets the hygiene requirements of

- EN 16798, Part 3
- VDI 6022, Sheet 1
- DIN 1946, Part 4
- For further standards and guidelines, please refer to the hygiene certificate

Casing air leakage

- EN 1751, Class C

ATEX Directive 2014/34/EU

- Equipment and protective systems intended for use in potentially explosive atmospheres

Maintenance

- Maintenance-free as construction and materials are not subject to wear

TECHNICAL INFORMATION

Functional description

The air terminal unit is a mechanical self-powered unit and works without external power supply. A damper blade with low-friction bearings is adjusted by aerodynamic forces so that the set volume flow rate is kept constant within the differential pressure range. The aerodynamic forces of the airflow create a closing torque on the damper blade. An inflating bellows amplifies this force and at the same time acts as a damping element. The closing torque is countered by a leaf spring that unrolls over a cam plate. The cam plate is adapted in such a way that the damper blade moves when the differential pressure changes. As a result, the volume flow rate remains constant within narrow tolerances.

Efficient commissioning

Using the rotary knob, the desired volume flow setpoint can be set quickly on the external scale, no prior measurement required. The advantage over conventional flow adjustment dampers is that no repeated measurements or adjustments during commissioning are required. Should the system pressure change, e.g. by opening or closing of duct sections, the flow rates in the entire system will also change if flow adjustment dampers are used; however, this is not the case with mechanical self-powered air terminal units. The air terminal unit reacts immediately and keeps the set air volume constant.

Schematic illustration of the EN-Ex



- ① Damper blade
- ② Bellows
- ③ Bellows inlet
- ④ Scale sticker
- ⑤ Connection for equipotential bonding
- ⑥ Visual display of the damper blade position
- ⑦ Rotary knob

| | |
|---------------------------------------|---|
| Nominal sizes | 200 × 100 – 600 × 600 mm |
| Volume flow rate range | 39 – 3500 l/s or 140 – 12600 m ³ /h |
| Volume flow rate control range | Approx. 25 to 100 % of the nominal volume flow rate |
| Scale accuracy | ± 4 % |
| Minimum differential pressure | 50 Pa |
| Maximum differential pressure | 1000 Pa |
| Operating temperature | 10 to 50 °C |

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design program.

Specification text

Air terminal units in rectangular design for constant air volume systems, mechanically self-powered, without external power supply, for supply or extract air, in 19 nominal sizes. Air terminal unit ready for commissioning. Unit consists of the casing with damper blade with low friction bearings, bellows, and external cam plate with leaf spring. The air terminal units are factory adjusted and preset to a reference air volume. Soundpower level measured according to DIN EN ISO 5135. Meets the hygiene requirements according to VDI 6022. Meets the

requirements of ATEX Directive 2014/34 EU.

Special features

- ATEX mark and certification
- ATEX equipment-group II, approved for zones 1, 2, 21 and 22
- Setting of the volume flow setpoint from the outside by rotary knob

- High control accuracy of the set volume flow
- Any installation orientation
- Correct operation even under unfavourable upstream conditions
- Visual display of damper blade position for operating point optimisation

Materials and surfaces

Galvanised sheet steel construction

- Casing and damper blade made of galvanised sheet steel
- Leaf spring made of stainless steel
- Polyurethane bellows
- Plain bearings with PTFE coating
- Cam plate and adjusting unit made of galvanised sheet steel

Powder-coated construction (P1)

- Casing and damper blade made of galvanised sheet steel, powder-coated
- Leaf spring made of stainless steel
- Polyurethane bellows
- Plain bearings with PTFE coating
- Cam plate and adjusting unit made of galvanised sheet steel

Variant with acoustic cladding (-D)

- Acoustic cladding made of galvanised sheet steel
- Rubber profile for the insulation of structure-borne noise
- Lining is mineral wool

Mineral wool

- Acc. to EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388
- Non-hazardous thanks to high biosolubility according to the German Ordinance on Hazardous Substances and Note Q of the European Regulation (EC) No. 1272/2008

Construction

- Galvanised sheet steel
- P1: Powder-coated, silver grey (RAL 7001)

Technical Data

- Nominal sizes: 200 × 100 to 600 × 600 mm
- Volume flow rate range: 39 – 3500 l/s or 140 – 12600 m³/h
- Volume flow rate control range: approx. 25 – 100 % of the nominal volume flow rate
- Minimum differential pressure: 50 Pa
- Maximum differential pressure: 1000 Pa
- Casing air leakage to EN 1751, class C

Sizing Data

- q_v [m³/h]
- Δp_{st} [Pa]

Air-regenerated noise

- L_{PA} [dB(A)]

Case-radiated noise

- L_{PA} [dB(A)]

1 Type

EN-Ex Volume flow controllers

2 Acoustic cladding

No entry: none

D With acoustic cladding

3 Material

No entry: galvanised sheet steel

P1 Powder-coated RAL 7001, silver grey

4 Nominal size [mm]

Specify size width × height

Order example: EN-Ex-D-P1/400×200

EN-Ex-D-P1/400 × 200

1 2 3 4