

MANDÍK®

INSTALLATION INSTRUCTIONS AIRSTREAM GATE CURTAIN

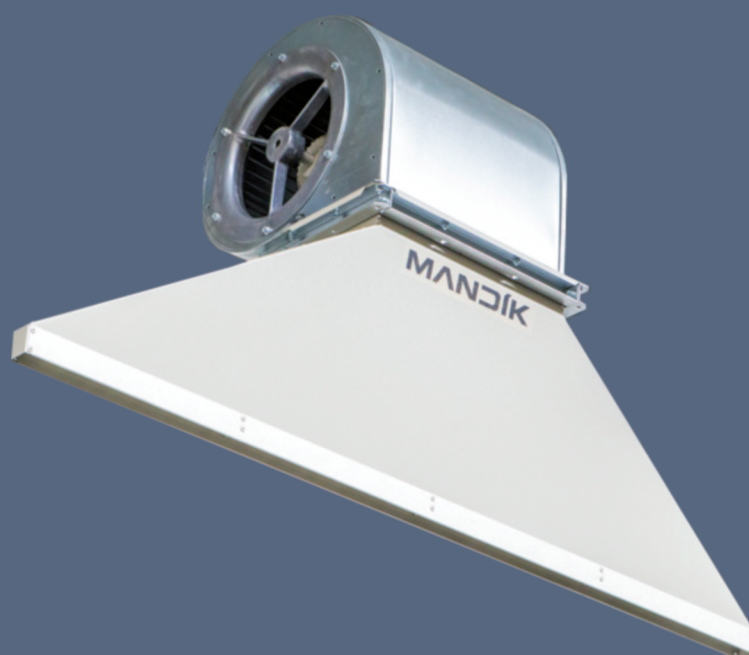


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1. General description

Fig. 1 AIRSTREAM gate curtain



Gate curtains are HVAC devices intended to separate the indoor and outdoor environment in industrial buildings. When opening industrial gates, the indoor temperature in the building drops, which reduces the thermal comfort and increases the heating costs. The air stream from the gate curtain serves to reduce the undesirable penetration of outdoor air into the heated room at opening the gate. The curtain is based on a powerful radial fan that draws in the warmer air from the upper layers of the heated room and blows it into the gate room with the help of a long and narrow outlet.

The gate curtains are intended for environments protected against weather effects, with 3K5 classification of climatic conditions, without condensation, frost, ice development and without water even from other sources than from rain according to EN 60 72133 amend. A2., with temperature range of 0°C to +40°C and BNV spaces.

The air passing through the gate curtain must not contain solid, fibrous, sticky or aggressive particles.

2. Technical parameters

Tab. 1 Gate curtain technical parameters

TYPE		AS 43	AS 47
Air output	m ³ /h	4300	4700
Noise level in a distance of 1m	dB(A)	74	79
Max. installation height	m	4,5	5,5
Hole (gate) width	m	2 to 3	2,5 to 3,5
Ventilator speed	rev./min	1150	1200
Maximal static pressure	Pa	450	480
Motor input	W	1500	1950
Number of fans		1	1
Power supply	V/Hz	230/50	400/50
Current	A	6,7	3,4
Protection	A	16	3x10A
Stupeň krytí		IP40	IP40
Hmotnost clony	kg	34,8	34,8

3. Sizes and terminology

Fig. 2 Gate curtain size

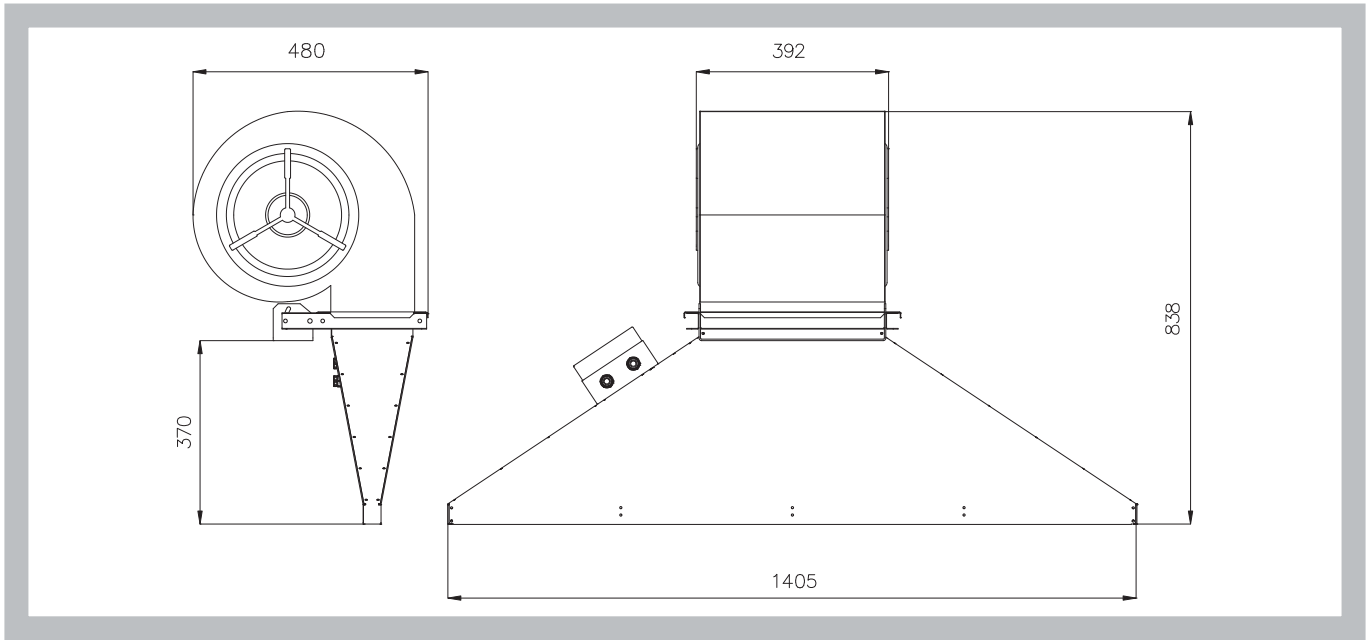
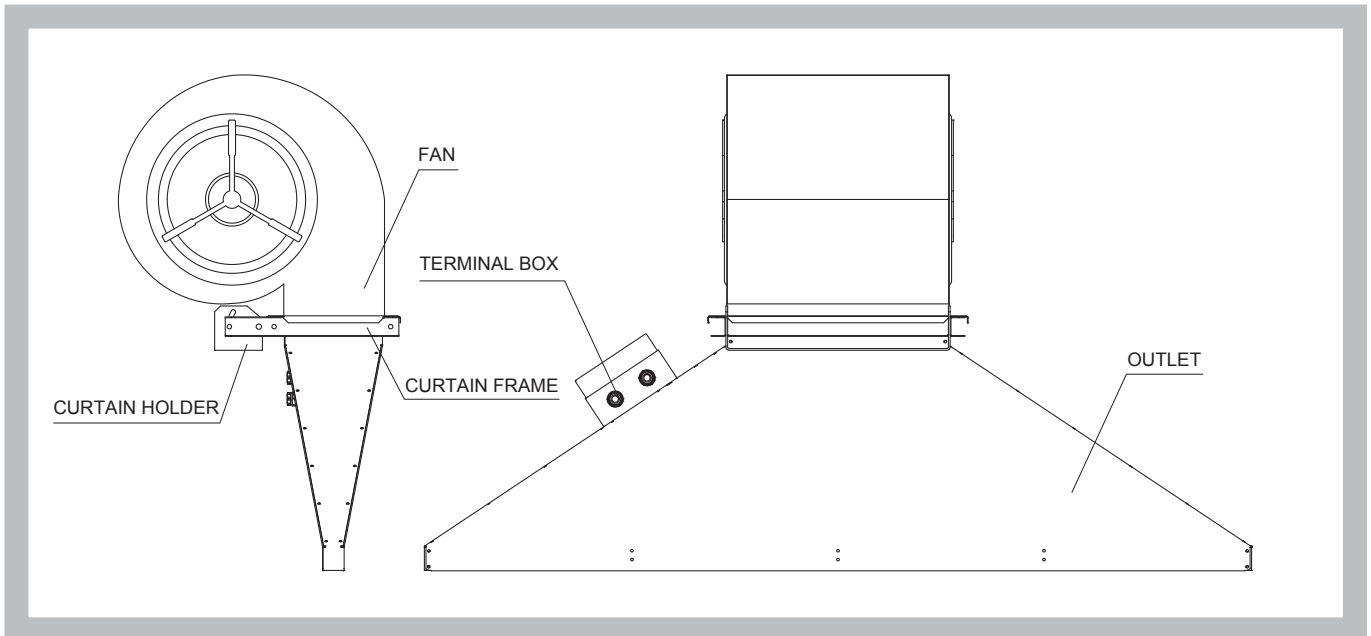


Fig. 3 Main parts of gate curtain



1. The radial fan provides the necessary air flow through the curtain. According to the curtain type, a fan with single-phase or three-phase motor can be used.
2. The outlet gives the necessary speed to the blown air and shapes the stream. The outlet is made of galvanized and powder coated metal sheet.
3. The curtain holder serves to attach the curtain on a bracket or on another bearing structure. It allows turning the curtain air stream from -30° to $+15^{\circ}$ from the vertical plane. It is made of galvanized metal sheet.
4. The terminal box situated in the connecting box serves to connect the gate curtain power supply and control. The connection cable, the control cable and the supply cable of the fan are brought to the connecting box through cable grommets. If a single-phase fan with an external capacitor is used, the capacitor is also situated in the connecting box.

4. Wiring diagrams

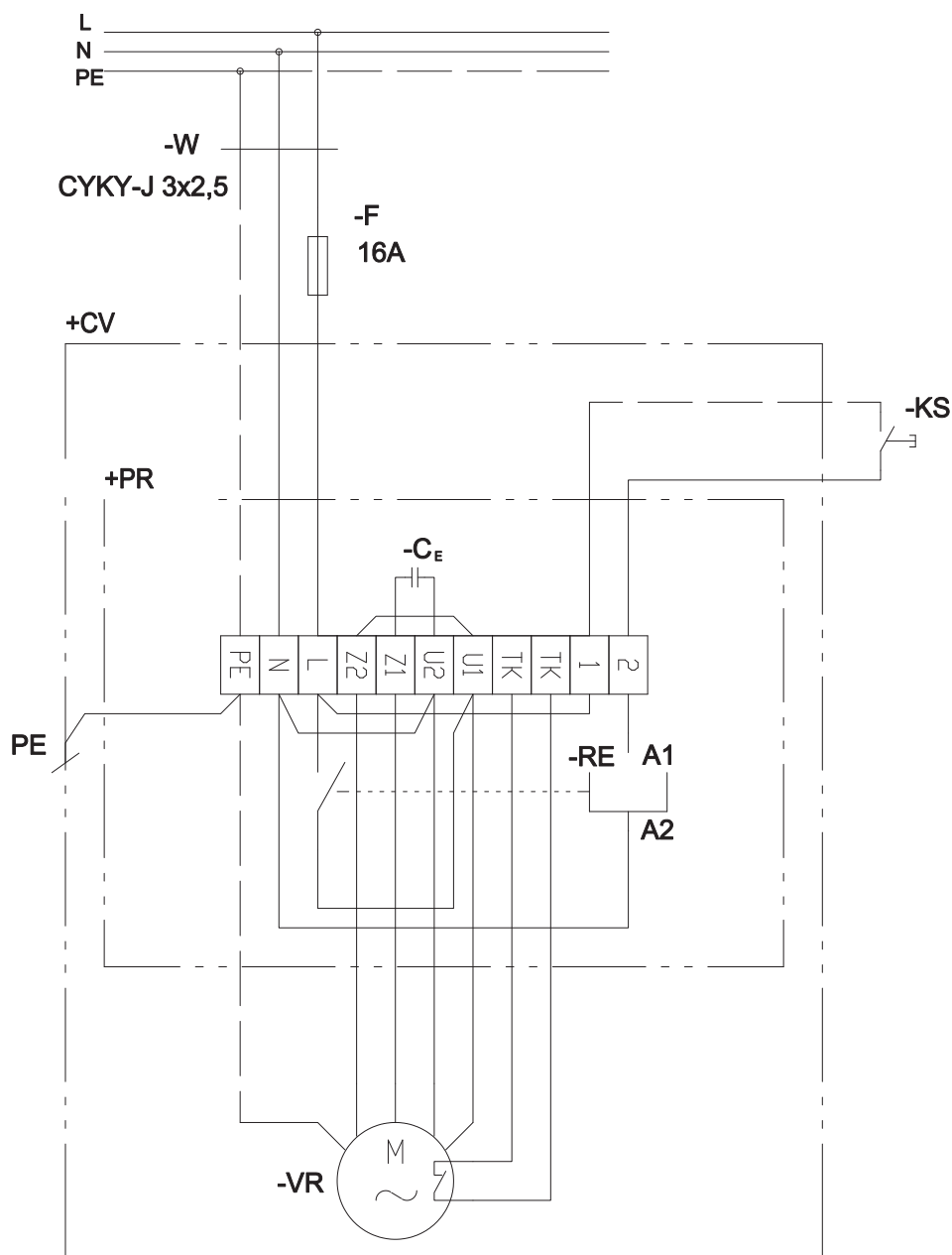
Gate curtain wiring diagrams:

Diagram for gate curtain with single-phase fan motor - Fig. 4

Diagram for gate curtain with three-phase fan motor, delta connection - Fig. 5

Diagram for gate curtain with three-phase fan motor, star connection - Fig. 6

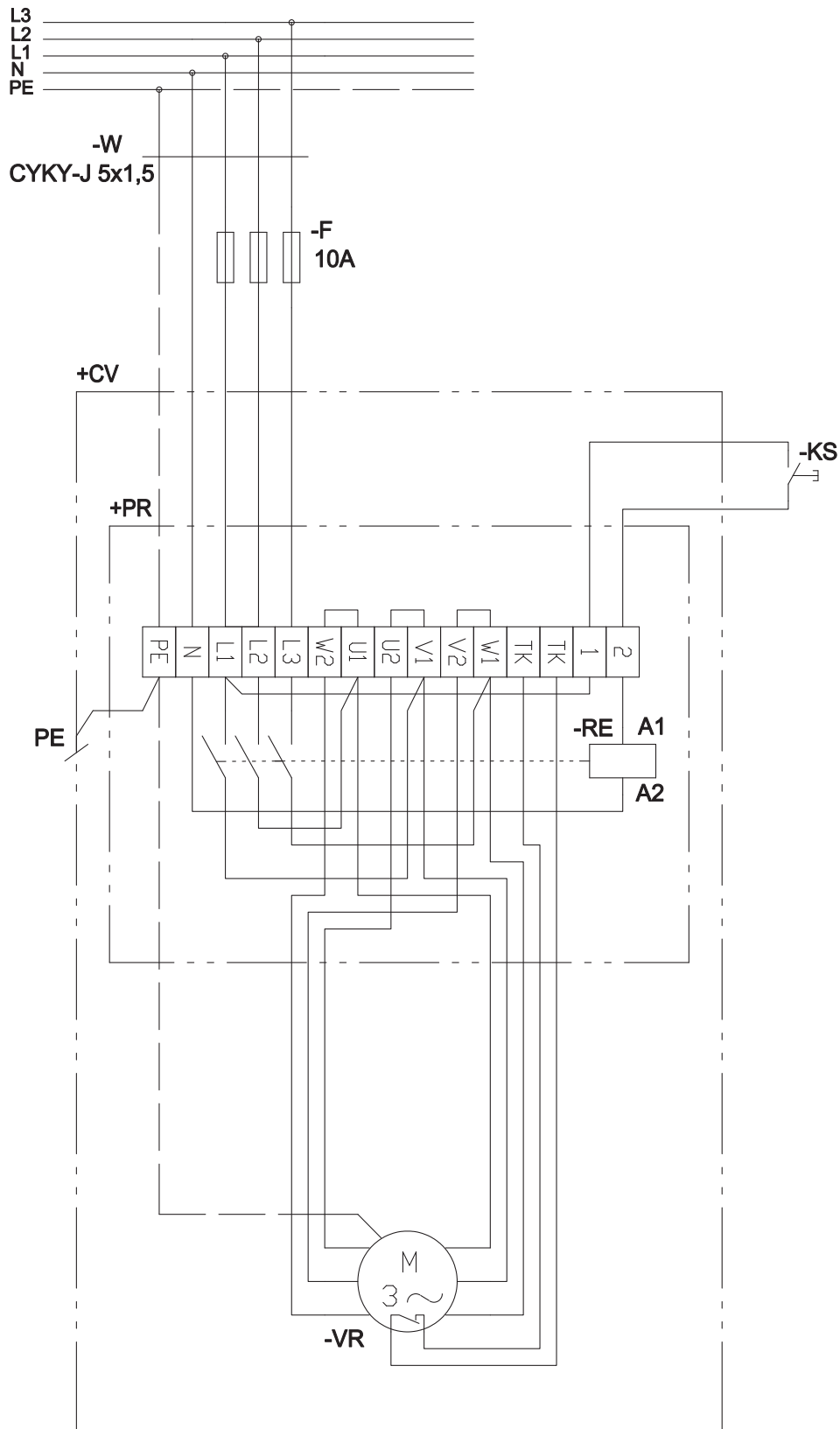
Fig. 4 Diagram for gate curtain with single-phase fan



Explanatory notes:

CE	External capacitor
CV	Gate curtain
KS	Limit switch - or another switching item
PR	Connecting box
RE	Relay
VR	Radial fan
W	Cable
F	Circuit breaker

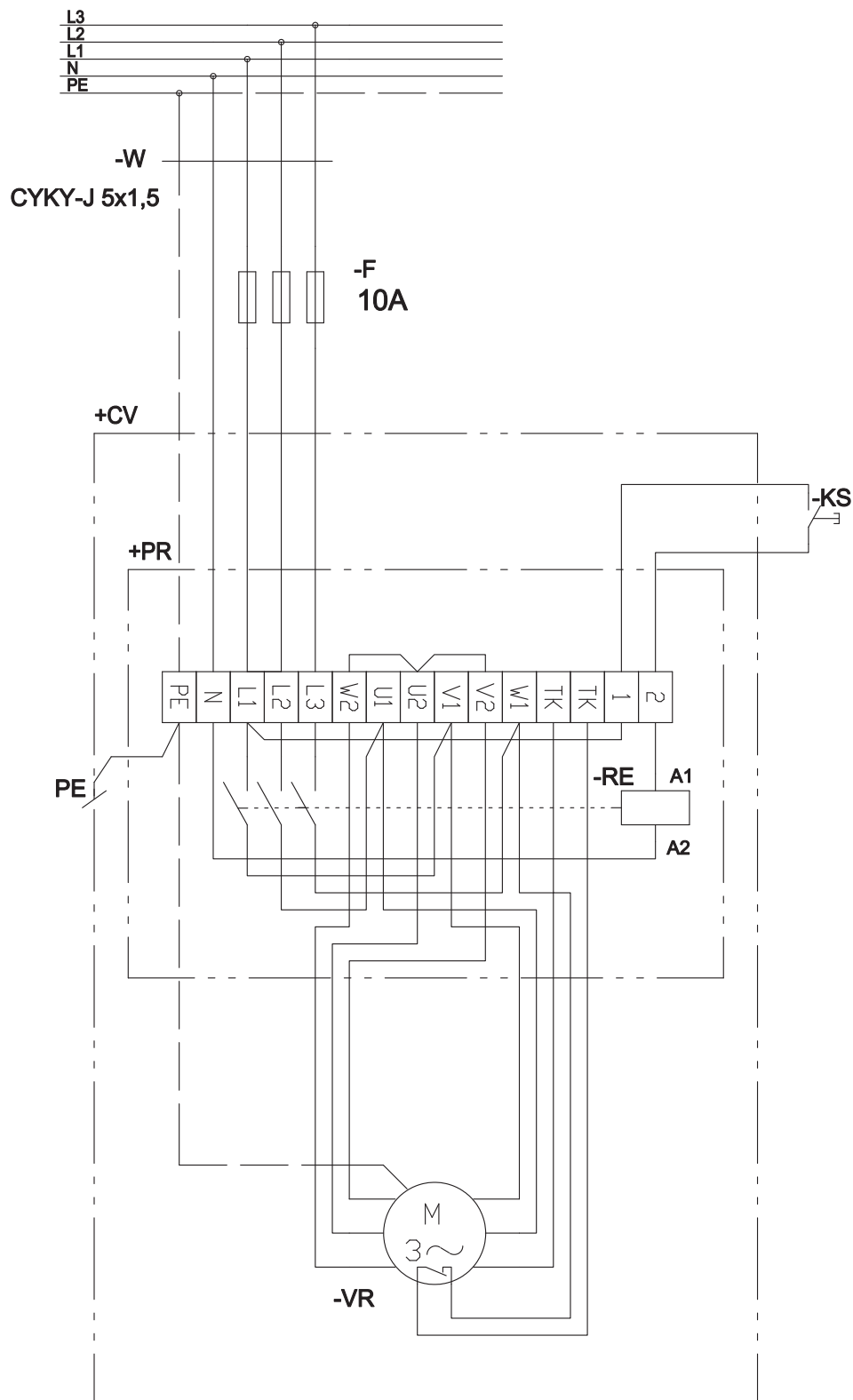
Fig. 5 Diagram for gate curtain with three-phase fan motor, delta connection



Explanatory notes:

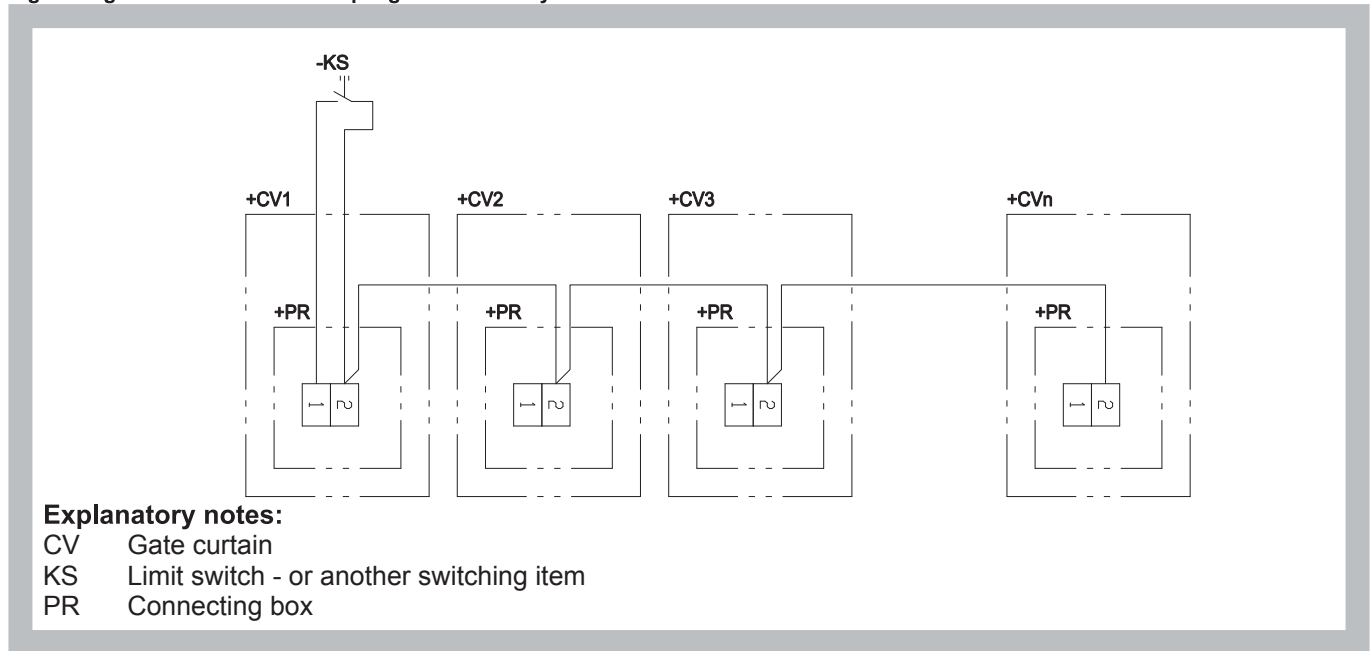
- CV Gate curtain
- KS Limit switch - or another switching item
- PR Connecting box
- RE Relay
- VR Radial fan
- W Cable
- F Circuit breaker

Fig. 6 Diagram for gate curtain with three-phase fan motor, star connection

**Explanatory notes:**

- CV Gate curtain
- KS Limit switch - or another switching item
- PR Connecting box
- RE Relay
- VR Radial fan
- W Cable
- F Circuit breaker

Fig. 7 Diagram for control of multiple gate curtains by one limit switch



5. Description of function

The gate curtain is installed on the upper edge of a protected building aperture. The air stream axis is adjusted askew against the penetrating air from outdoors. The curtain draws in the heated air directly from indoors. If the air stream from the curtain is well adjusted, the most air returns to the protected indoor room, only minimally mixed with the air from outdoors. The gate curtain is switched on when the gate is opened. The curtain can be operated manually or, more comfortably, with the help of a limit switch installed on the gate. The connection box of the gate curtain allows switching multiple gate curtains with the help of one limit switch.

The air stream direction of the gate curtain is set with the help of the curtain holder allowing to turn the air stream with the whole curtain from -30° to +15° from the vertical plane.

6. Recommended gate curtain accessories

Special brackets are offered to attach the gate curtains on vertical building structures, see Fig. 8. The curtain is attached to them with the help of 4 bolts M8 with nuts and washers, to be fixed to the holes in the curtain holder. 2 brackets are to be used for one curtain. The brackets are made of galvanized steel sheet.

In cases where it cannot be excluded that the gate curtain fan could come into contact with persons or where there is risk of sucking-in items from the air, we suggest that the curtain fan should be fitted with a protective grid on both suction sides. The protective grid is attached to the fan box with the help of three self-cutting screws.

Fig. 8 Bracket for gate curtain

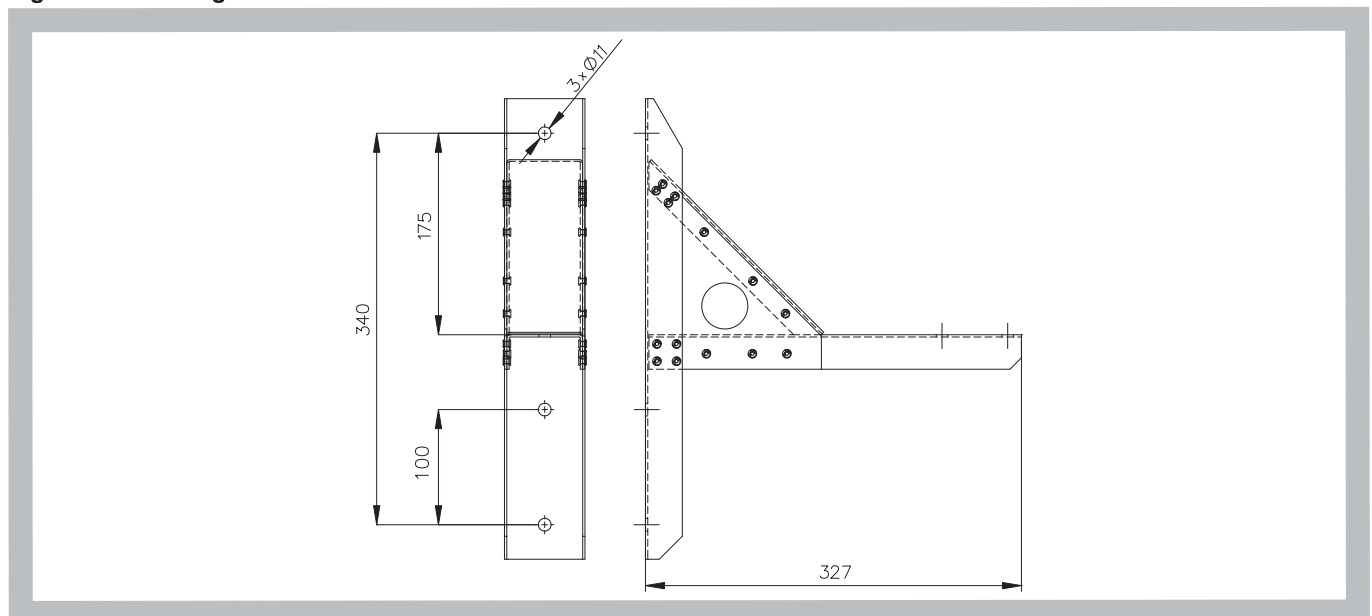
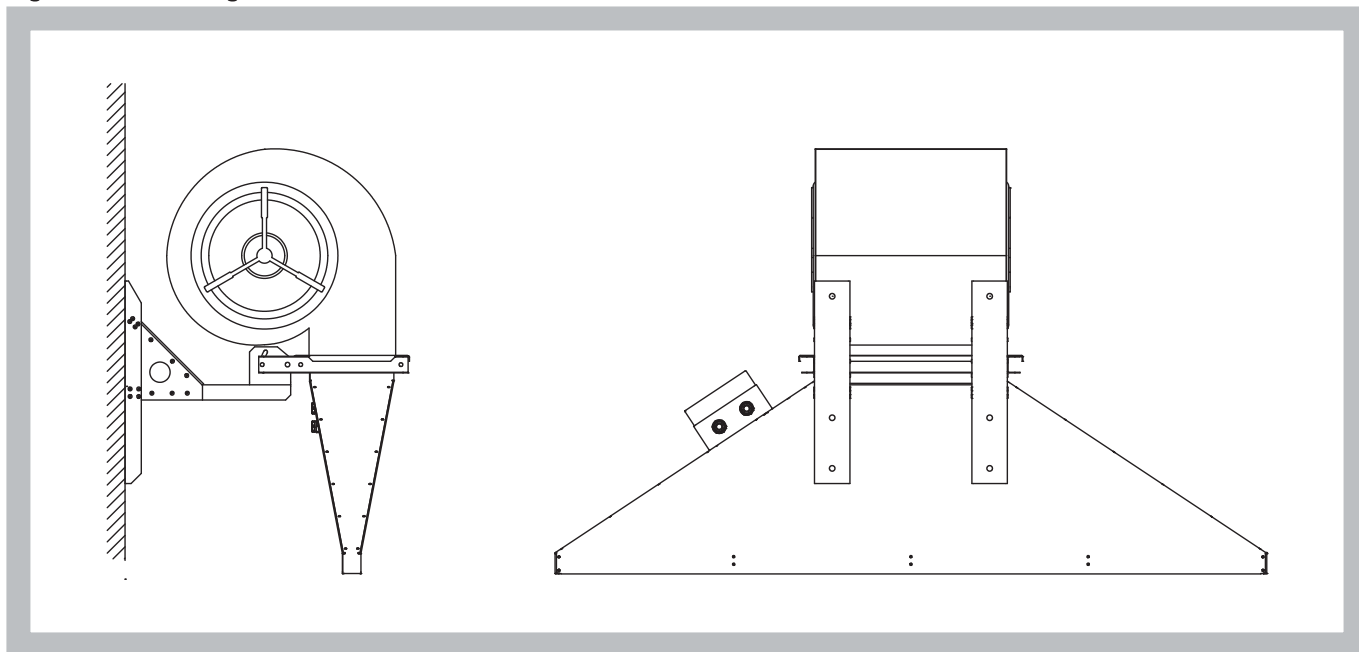


Fig. 9 Bracket with gate curtain



7. Installation of gate curtain on the wall with the help of brackets

1. Remove the curtain holder from the curtain frame (2x bolt M8, 2x bolt M6)
2. Screw the curtain holder on both brackets (4x bolt M8) – see Fig. 10
3. Attach the brackets with the curtain holder on the wall with the help of 4 anchoring elements suitable for the given wall type. The recommended size of the steel anchoring elements is M10.
4. After the anchoring elements fastening the brackets have reached their full bearing capacity, fasten the curtain in the holder on the brackets (2x bolt M8, 2x bolt M6) – see Fig. 11.

Fig. 10 Installation of curtain holder on brackets

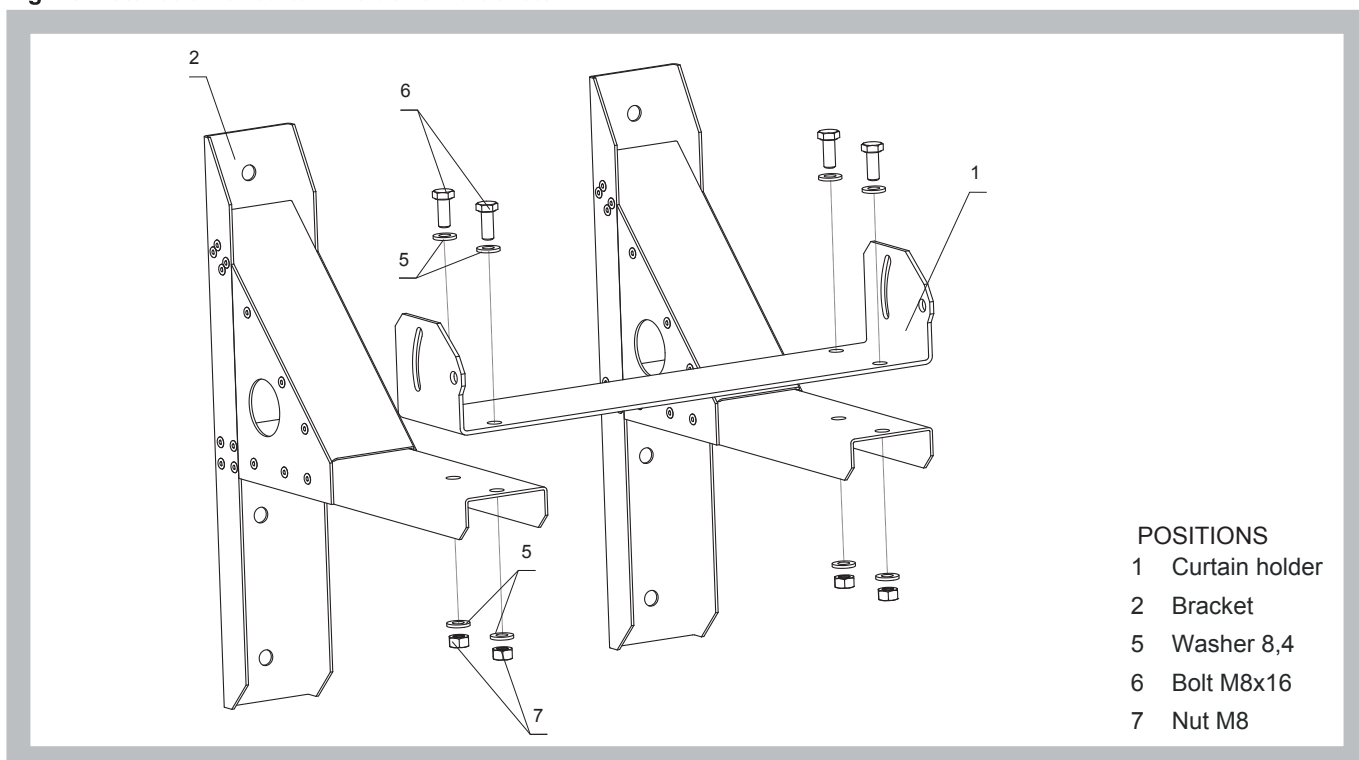
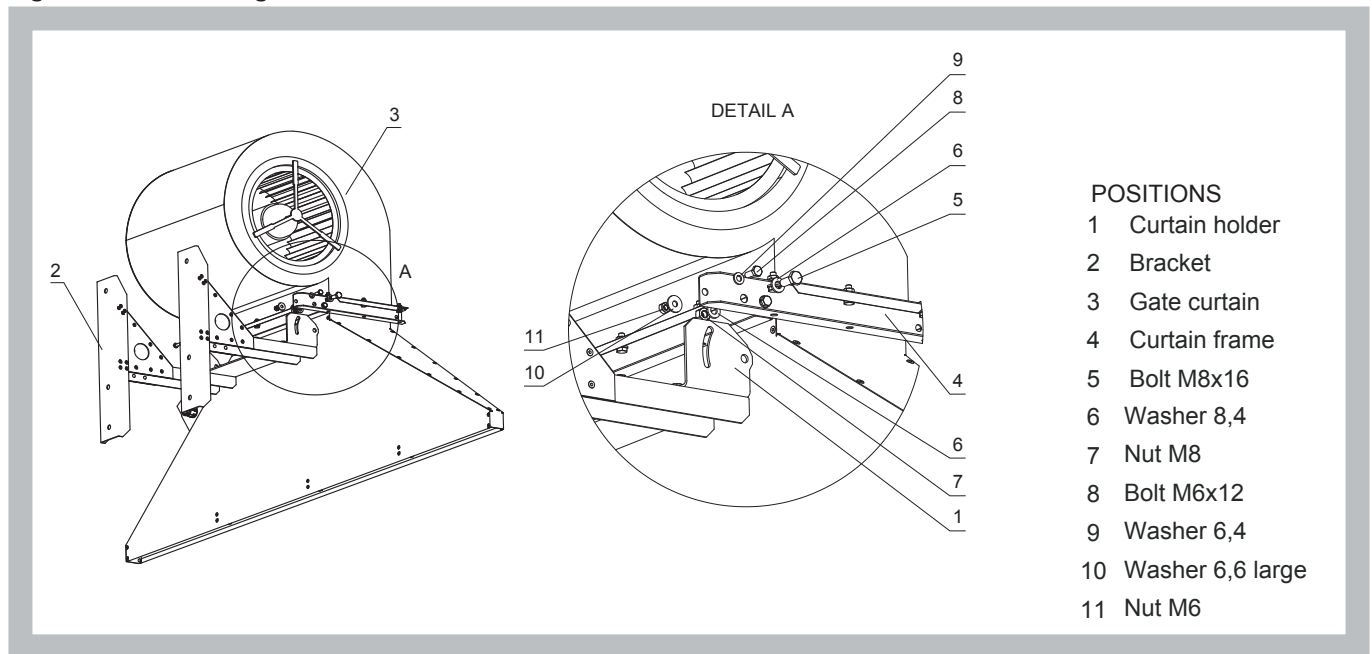


Fig. 11 Installation of gate curtain on holder



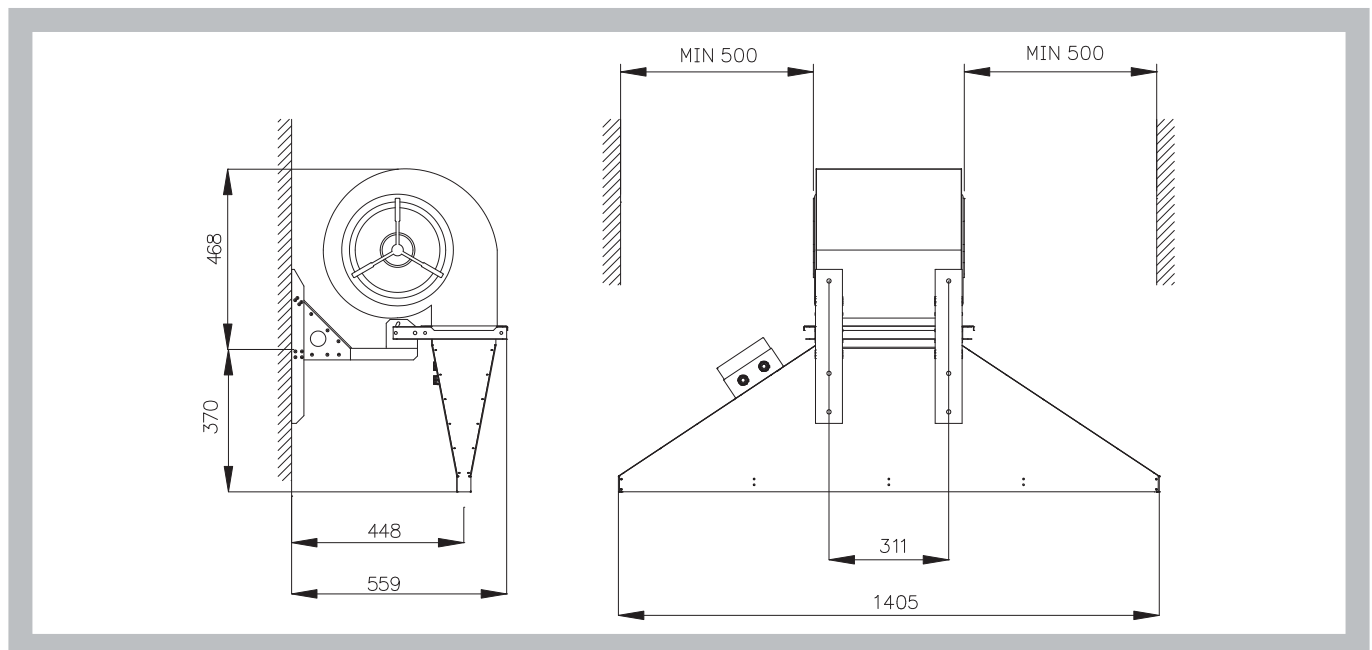
8. Installation conditions

The gate curtain must be installed in compliance with valid standards and regulations.

Important notice:

The installation of the gate curtain must be carried out so that free space for air supply to the air fan of not less than 0,5 meters from both sides of the fan suction is provided. No obstacles must be in the way of the air stream from the gate curtain outlet; otherwise, the stream and the function of the gate curtain will be disrupted.

Fig. 12 Installation of gate curtain on bracket



When carrying out the installation, valid standards concerning the following topics must be respected:

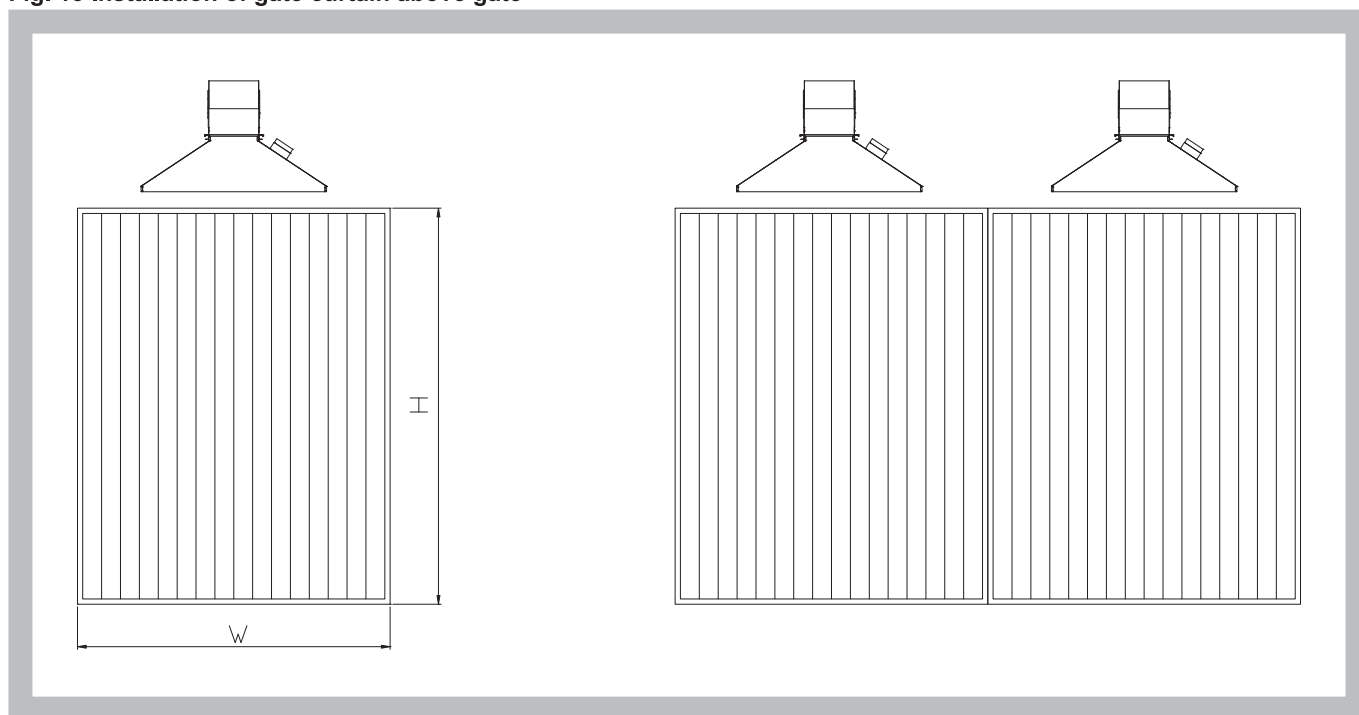
- fire protection
- electrical installation

BEFORE CARRYING OUT THE INSTALLATION, CHECK WHETHER THE LOCAL POWER SUPPLY CONDITIONS ARE COMPATIBLE WITH THE ELECTRICAL DATA STATED ON THE IDENTIFICATION PLATE.

9. Gate curtain installation

The gate curtains are to be installed as low as possible above the gate, but without hindering the gate opening. For wide gates, several gate curtains are situated next to each other. The maximal gate sizes apply to indoor / outdoor temperature differences up to 20°C.

Fig. 13 Installation of gate curtain above gate



Tab. 2 Maximal gate size

Gate curtain	Maximal gate size	
	Width W (mm)	Height H (mm)
AS 43	3000	4500
AS 47	3500	5500

After installing the gate curtain, the optimal inclination of the curtain as against the gate must be tested and set, so that the curtain does not blow the indoor air outside and that it does not let too much outdoor air inside.

10. Installation of electrical connection

The gate curtain is, according to ČSN EN 61140, an electric appliance of class I and it is fitted with a terminal to connect a protective conductor. The terminal must be connected, see ČSN EN 61140. In case of fixed connection to electrical distribution, a shut-down switch must be included.

The power supply must have the prescribed protection according to ČSN 33 2000-4-43, ČSN 33 2000-5-54 and ČSN 34 1610.

For the diagram of connecting terminal box see Fig. 4.5 and 6.

The gate curtain protection is IP40.

The electrical connection must be installed by a person with an adequate certification according to Regulation No. 50/78 Coll.

11. Instructions for operation and maintenance

The gate curtain must be operated only by a trained person charged with this activity.

The gate curtain is usually switched on by the limit switch when the gate is opened. But the gate curtain can be switched on also manually by a suitable switch.

Gate curtain maintenance and inspection.

The product has minimal demands on maintenance. Inspections are carried out according to the respective schedule at least 1x in 3 years, unless other regulations or national professional supervision authorities specify otherwise.

In dusty environment, the curtain and particularly the fan rotor must be cleaned from deposited dust that impairs the fan efficiency.

Before cleaning, the curtain must be disconnected from electrical supply!

12. Troubleshooting

ALL PROFESSIONAL WORKS MUST BE PERFORMED ONLY BY A TECHNICIAN WITH THE RELEVANT LICENCE.

Most failures during putting into operation are caused by bad cable installation.

Therefore check the supply and control cables before putting the gate curtain into operation.

- 230 V between phase L1 and neutral conductor N
- 230 V between phase L1 and protective conductor PE
- 0 V between neutral conductor N and protective conductor PE

Tab. 3 Troubleshooting

Gate curtain failure	Cause	Failure elimination
The curtain would not start after switching on or after gate opening	Faulty fan	Change fan
	Faulty fan capacitor	Change capacitor
	Tripped fuse or circuit breaker	Change fuse, switch circuit breaker
	Faulty limit switch	Change limit switch
	Electrical mains fault	Eliminate mains fault

13. Components used for gate curtains

Radial air fans:

- ALTEKO
- MVL
- ROSENBERG
- EBM
- NICOTRA
- ZIEHL-ABEGG

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