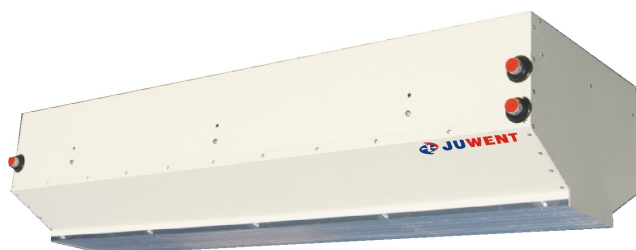




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## KP/BB AIR CURTAIN



- I. CONTACTS
- II. ORIGINAL INSTRUCTION MANUAL
- III. WARRANTY TERMS AND CONDITIONS
- IV. UNIT STARTUP REPORT
- V. INSPECTION AND MAINTENANCE DOCUMENT
- VI. SERVICE NOTIFICATION
- VII. LIST OF SUBASSEMBLIES INSTALLED IN THE UNIT



**Please read this instruction manual carefully before beginning any work.**

## I. CONTACTS



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## II. ORIGINAL INSTRUCTION MANUAL

### **KP/BB-01, -02, -1, -2, -3 AIR CURTAIN**

## TABLE OF CONTENTS

|   |    |
|---|----|
| 1. INTENDED USE                                     | 5  |
| 2. DESIGNATIONS                                     | 5  |
| 3. DEVICE DESCRIPTION                               | 5  |
| 4. TECHNICAL DATA                                   | 6  |
| 5. TRANSPORT  | 8  |
| 6. SAFETY RECOMMENDATIONS                           | 8  |
| 7. MOUNTING   | 8  |
| 8. WATER INSTALLATION                               | 10 |
| 9. ELECTRICAL INSTALLATION                          | 11 |
| 10. AUTOMATICS ELEMENTS                             | 12 |
| 11. DEVICE STARTUP                                  | 15 |
| 12. REPAIR, MAINTENANCE AND WITHDRAWAL FROM SERVICE | 15 |
| 13. TROUBLESHOOTING                                 | 16 |
| 14. INFORMATION                                     | 16 |

## 1. INTENDED USE

The KP/BB air curtains are intended to control the inflow of outside air in the gates, building openings, doors in:

- » halls of industrial plants
- » warehouses
- » commercial premises
- » other objects of similar use



The curtains cannot be used in the compartments with relative humidity larger than 90% and air dust concentration over 3 mg/m<sup>3</sup>.

They are adapted to take and warm up air from inside the compartment.

They can be also made without heaters as so called "cold curtains".

The curtains are intended to use in the gates with the height of 2,0-6,0 m.

Typically, they are installed above the gates or at their sides.

In case of larger widths and heights of the gates several curtains can be used alongside.

The curtains are manufactured in two versions A and B.

The version B of the curtains with an increased spacing of the fans and decreased air amounts is intended to operate in milder working conditions.

## 2. DESIGNATIONS

Air curtain

KP/BB

|         |  |
|---------|--|
| Version | A; B   |
| Size    | 01; 02; 1; 2; 3  |
| Length  | for units A-01: 94; 141; 188; 235cm<br>for units A-02: 110; 165; 220; 275cm<br>for units A-1: 120; 180; 240cm<br>for units A-2: 130; 195; 260cm<br>for units A-3: 140; 210; 280cm<br>for units B-01, B-02: 150 cm<br>for units B-1, B-2, B-3: 200; 300cm |
| Heater  | water (W); electric (E); "cold" curtain (Z)  |
| Motor   | three phase (T); single phase (J);   |

## 3. DEVICE DESCRIPTION

The curtain includes:

- » **2; 3; 4 or 5 centrifugal fans (1);**
- » **casing (2)** made of galvanized steel sheet (paintable) with a supply slot along the whole curtain length.

The casing can be made of stainless steel sheet.

- » **water heater (3)** in the frame of galvanized steel sheet is made of copper pipes with external diameter D=16mm and aluminium fins with spacing s=2,5mm.

The spouts of the heater are with internal threads.



For the fin heaters used the maximum temperature of heating medium is up to 150°C and the maximum operational pressure is up to 1,5Mpa.



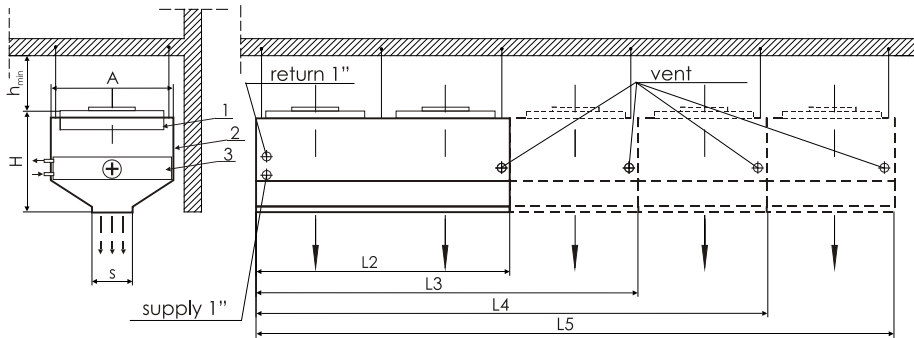
**There is a risk of heating medium freeze in the heater in the compartments with the temperature below 0°C.**

The risk can be reduced using an antifreeze thermostat (delivered at request), using antifreeze heating media or removing water from the curtain's heater.

#### 4. TECHNICAL DATA

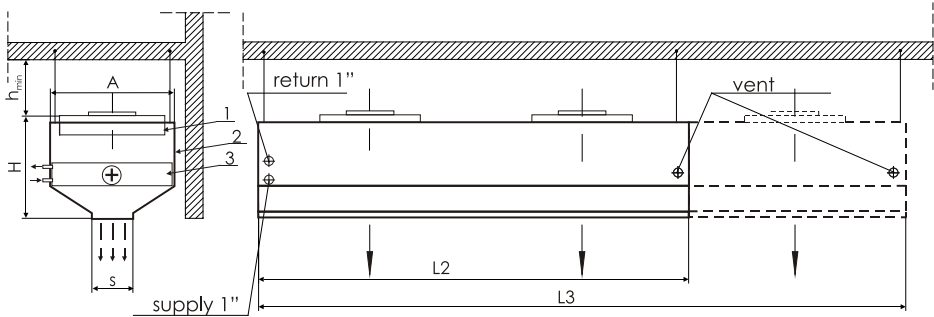
Basic dimensions

Version A



| Curtain size | Number of fans | A [cm] | H [cm] | S [cm] | Li [cm] | $h_{min}$ [cm] | Weight [kg] |
|--------------|----------------|--------|--------|--------|---------|----------------|-------------|
| 01           | 2              | 47     | 40     | 9      | 94      | 24             | 47          |
|              | 3              |        |        |        | 141     |                | 68          |
|              | 4              |        |        |        | 188     |                | 89          |
|              | 5              |        |        |        | 235     |                | 110         |
| 02           | 2              | 55     | 42     | 11     | 110     | 26             | 59          |
|              | 3              |        |        |        | 165     |                | 84          |
|              | 4              |        |        |        | 220     |                | 111         |
|              | 5              |        |        |        | 275     |                | 137         |
| 1            | 2              | 60     | 41     | 15     | 120     | 30             | 70          |
|              | 3              |        |        |        | 180     |                | 102         |
|              | 4              |        |        |        | 240     |                | 132         |
| 2            | 2              | 65     | 45     | 21     | 130     | 34             | 88          |
|              | 3              |        |        |        | 195     |                | 129         |
|              | 4              |        |        |        | 260     |                | 168         |
| 3            | 2              | 70     | 47     | 27     | 140     | 38             | 105         |
|              | 3              |        |        |        | 210     |                | 151         |
|              | 4              |        |        |        | 280     |                | 199         |

Version B



| Curtain size | Number of fans | A [cm] | H [cm] | S [cm] | Li [cm] | $h_{min}$ [cm] | Weight [kg] |
|--------------|----------------|--------|--------|--------|---------|----------------|-------------|
| 01           | 2              | 47     | 41     | 6      | 150     | 24             | 65          |
| 02           | 2              | 55     | 43     | 7,5    | 150     | 26             | 73          |
| 1            | 2              | 60     | 41     | 9      | 200     | 30             | 102         |
|              | 300            |        |        |        | 149     |                |             |
| 2            | 2              | 65     | 45     | 13,5   | 200     | 34             | 117         |
|              | 3              |        |        |        | 300     |                | 170         |
| 3            | 2              | 70     | 47     | 19,5   | 200     | 38             | 131         |
|              | 3              |        |        |        | 300     |                | 188         |

Curtain environment and fan motor parameters

| Curtain size | Max. air humidity [%] | Max. dust content [ mg/m <sup>3</sup> ] | Motor parameters             |                   |                  |
|--------------|-----------------------|---|------------------------------|-------------------|------------------|
|              |                       |   | Operational temperature [°C] | Protection rating | Insulating class |
| KP/BB-01     | 90                    | 3                                       | 70                           | IP54              | F                |
| KP/BB-02     | 90                    | 3                                       | 70                           | IP54              | F                |
| KP/BB-1      | 90                    | 3                                       | 70                           | IP54              | F                |
| KP/BB-2      | 90                    | 3                                       | 60                           | IP54              | F                |
| KP/BB-3      | 90                    | 3                                       | 60                           | IP54              | F                |

Curtain operational noise level

| Curtain size | Operational noise level [dB(A)] at distance of 3m* | Operational noise level [dB(A)] at distance of 5m** |
|--------------|--|---|
| KP/BB-01     | 60   | -   |
| KP/BB-02     | 62   | -   |
| KP/BB-1      | -  | 60  |
| KP/BB-2      | -  | 66  |
| KP/BB-3      | -  | 67  |

\*Noise level – acoustic pressure level at the distance of 3m from the curtain taking dispersion factor of compartment A=50m<sup>2</sup> into consideration.

\*\*Noise level – acoustic pressure level at the distance of 5m from the curtain taking dispersion factor of compartment A=100m<sup>2</sup> into consideration.

## 5. TRANSPORT

The delivered curtains are completely assembled, protected from outside by polyethylene foil against pollution and weather impacts and packed in cardboard packets.

The Product Manual is delivered along with the curtain.

The automatic elements delivered at the customer's request are packed separately.



The curtains should be transported in one layer in a way preventing mechanical damages.

## 6. SAFETY RECOMMENDATIONS



The curtains should be used in compliance with the instruction manual.



The start-up, mounting, connection, inspections and repairs of the curtains should be executed by an authorized installer, the electric works should be executed by a person having required certificates authorized to carry out electric works.

All service and repair works should be executed when voltage is off.



In case of the curtain failure it is necessary to switch off the power supply to the electric motor of the fan and close the water supply to the heater immediately.



It must be permanently connected to the electric installation equipped with protective (earth) terminal, residual current device and service switch.

It is necessary to pay attention not to change the protection lead to the power lead.



Only original spare parts should be used.

Due to the structure the unit does not emit harmful radiation

**Note for the user! The mounting or use of the curtain against the instruction manual makes the threat of curtain damage, creates the hazard to persons and property and causes the loss of warranty.**

Although the unit was designed and manufactured in compliance with the requirements of the standards, according to their state at the moment of production launch, a probability of injury or health loss when using the unit is not to be avoided. This probability is connected with a frequency of access to the unit in the course of its use, cleaning or repair, presence of persons within a dangerous zone, acting against the safety rules specified in the instruction manual.

The gravity of body injury or deterioration of health condition depends on many factors that often can be foreseen only partially, taking them into consideration in the structure of the unit, specifying them and warning against them in the instruction manual.

Therefore there is a residual risk when the operator does not observe the recommendations and guidelines included in the instruction manual.

## 7. MOUNTING

### Mounting recommendations

The curtain should be mounted observing the following rules:

- » the length of the curtain or set of the curtains should be close to the gate width or height;
- » the air supply to the curtains requires to maintenance a minimum distance to a constructional partition;



» the supply slots should be located as close as possible to the gate outline but in a way that they do not decrease its clearance.

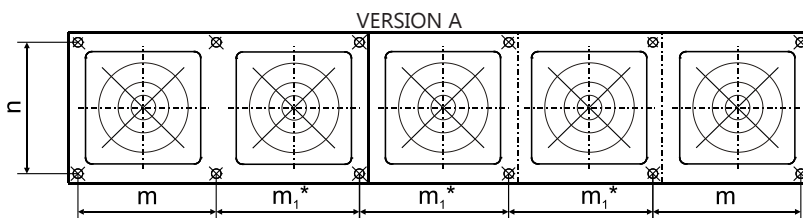
When the curtains are used on one side of the gate for their correct operation the opposite side of the gate should adhere to the wall or should be equipped with a wall installed perpendicularly to the air flow direction with the width ~ 0,25 of the gate width.

### Curtain suspension

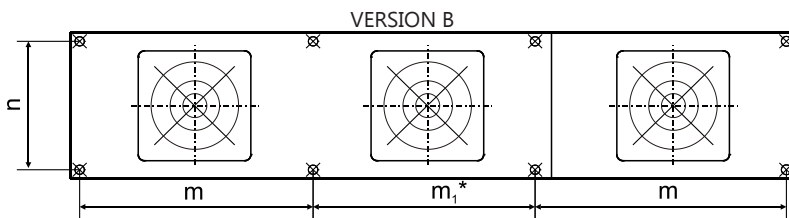
In the top part of the curtain casing there are blind rivet nuts to suspend the curtains to the ceiling or to fasten them to the supporting structure when they operate in vertical position.

The curtains are suspended to the ceiling by means of threaded bars (spacing of blind rivet nuts used to suspend the curtains is specified in the picture).

In case of vertical operation, the curtains are fastened by means of M8 bolts to the supporting structure, using the curtain's blind rivet nuts.



| Curtain size | n [cm] | m [cm] | m <sup>1</sup> [cm] |
|--------------|--------|--------|---------------------|
| KP/BB-A-01   | 41,1   | 45,9   | 46,7                |
| KP/BB-A-02   | 48,1   | 52,7   | 55                  |
| KP/BB-A-1    | 53,1   | 58,5   | 60                  |
| KP/BB-A-2    | 58,1   | 63     | 65                  |
| KP/BB-A-3    | 64,1   | 69     | 70                  |



| Curtain size | n [cm] | m [cm] | m <sup>1</sup> [cm] |
|--------------|--------|--------|---------------------|
| KP/BB-B-01   | 41,1   | 73,8   | -                   |
| KP/BB-B-02   | 48,1   | 73     | -                   |
| KP/BB-B-1    | 53,1   | 98     | 100                 |
| KP/BB-B-2    | 58,1   | 98     | 100                 |
| KP/BB-B-3    | 64,1   | 98     | 100                 |

\* concerns the curtains with more than two fans



The minimum distance of the curtain to the ceiling or the wall is 24cm for the size 01; 26cm for the size 02; 30cm for the size 1; 34cm for the size 2; 38cm for the size 3.



The threaded bars must be screwed in the blind rivet nuts of the casing to the depth of min. 15mm and protected by locknuts preventing the removal of the bars from the casing.



The bearing structures of the units or for the curtains can be freely designed observing the strength requirements..

## 8. WATER INSTALLATION

It is recommended:

- » to connect the curtain to the heating network by means of the lower spout of the heater and the return of the heating medium by means of the top spout (if the curtains are installed over the gates). When the curtains of the size 1; 2 and 3 are located at the side of the gate the supply spouts should be placed at the bottom and the vent at the top;
- » to use cut-off valves upstream and downstream the curtain to enable its dismounting without the necessity to drain the supply installation.
- » to mount a control valve (recommended by Juwent) in the heating medium supply line of the unit.

The venting of the heaters of the curtains is foreseen centrally in the network.

The curtains of the size 1; 2 and 3 have the vents specified in the picture in the section "TECHNICAL DATA". The venting of the curtains of the size 01 and 02 is foreseen centrally in the network.



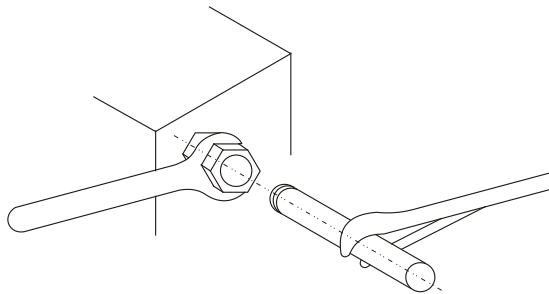
The imprecise venting of the heater can be a reason for which the curtain does not reach planned parameters.



The weight of installation pipes should not rest on the spouts of the heater.



When connecting the heater to the heating network the spouts of the heater should be protected against breaking in a way presented in the picture.



**The heater damages arisen for the afore-mentioned reason are not covered by the warranty.**

The heaters of the KP/BB air curtains should be supplied with water meeting the conditions specified in the Standard PN-93/C-04607

## WATER QUALITY PARAMETERS IN CENTRAL HEATING INSTALLATIONS

| Kind of materials used in installation | Water quality parameters               |                                  |   |  |  |                    |                           |  |
|--|--|----------------------------------|---|--|--|--------------------|---------------------------|--|
|  | for installation filling and refilling |                                  |   |  |  | installation water |                           |  |
|  | Installation system                    | General hardness mval/l (mmol/l) | Aggressive ion content mg/l                               | Ammonia nitrogen content mg/l ( $N_{NH_4^+}$ ) | Inhibitor concentration                | Reaction pH        | Oxygen content mg/l $O_2$ | Inhibitor concentration                |
| Steel / cast iron                      | open                                   | $\leq 4,0$ ( $\geq 2,0$ )        | $\leq 50 \sum (Cl^- + SO_4^{2-})$ including $< 30 Cl^-$   | x  | x                                      | 8,0-9,5            | $\leq 0,1$                | x                                      |
|  |  |                                  | $> 50 \sum (Cl^- + SO_4^{2-})$                            |  | acc. to manufacturer's recommendations | x                  | x                         | acc. to manufacturer's recommendations |
|  | closed                                 |                                  | $\leq 150 \sum (Cl^- + SO_4^{2-})$ including $< 100 Cl^-$ |  | x                                      | 8,0-9,5            | $\leq 0,1$                | x                                      |
|  |  |                                  | $> 150 \sum (Cl^- + SO_4^{2-})$                           |  | acc. to manufacturer's recommendations | x                  | x                         | acc. to manufacturer's recommendations |
| Steel / copper                         | closed                                 | $\leq 4,0$ ( $\geq 2,0$ )        | $\leq 50 \sum (Cl^- + SO_4^{2-})$ including $< 30 Cl^-$   | $\leq 0,5$                                     | x                                      | 8,0-9,0            | $\leq 0,1$                | x                                      |
| Copper                                 | open or closed                         | $\leq 4,0$ ( $\geq 2,0$ )        | -   | $\leq 0,5$                                     | x                                      | 8,0-9,0            | $\leq 0,1$                | x                                      |
| Steel / aluminium                      | open                                   | $\leq 4,0$ ( $\geq 2,0$ )        | $\leq 50 \sum (Cl^- + SO_4^{2-})$ w tym $< 30 Cl^-$       | x  | x                                      | 8,0-8,5            | $\leq 0,1$                | x                                      |
|  | closed                                 |                                  | $\leq 150 \sum (Cl^- + SO_4^{2-})$ including $< 100 Cl^-$ |  |  |                    |                           |  |
| Plastic                                | open or closed                         | $\leq 4,0$ ( $\geq 2,0$ )        | -   | x  | x                                      | x                  | x                         | x                                      |

## 9. ELECTRICAL INSTALLATION



The electric installation and the connection of power to the curtain must be executed according to the relevant requirements of the standards and construction regulations.



The electric connections of the curtain may be executed only by an authorized electrician who has got acquainted with the instruction manual.



Before the connection it is necessary to make sure whether the voltage value and power system frequency are compliant with the data specified on the rating plates of the curtains. In case of noncompliance the unit should not be connected.

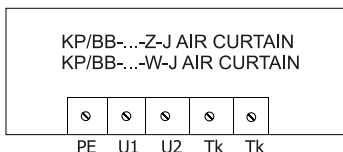
The curtains are equipped with single (1~230 V/50 Hz) or three-phase (3~400 V/50 Hz) fans with internal thermal contacts TK that in case of incorrect operation of the unit (increased temperature on the winding) stop the fan. It ensures a longer and safe operation of the fan. The electric connection of the fan should be executed taking a service switch and overload and short-circuit protection devices into consideration.

The power (control) lead of the fan should be run to the terminal block through the glands located in the top part of the curtain, however, the thermal contact TK of the fan should be connected directly to the supply control circuit of the fan.

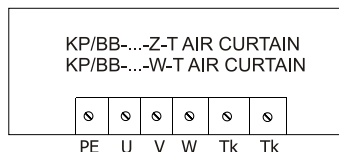


The lack of connection of thermal contact TK and overload and short-circuit protection devices of the motor causes the loss of warranty.

Curtain connection and control diagram are presented in fig. 1 and 2.

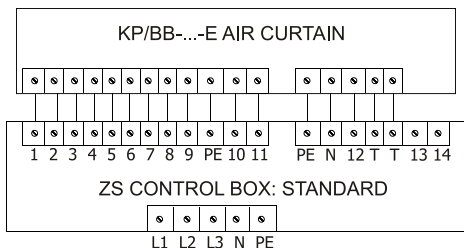


**PE,U2,U1** - Power supply (1~230V; U2-N; U1-L)  
**Tk-Tk** - Motor thermal protection circuit



**PE-U-V-W** - Power supply (3~400V)  
**Tk-Tk** - Motor thermal protection circuit

Fig. 1 Curtain connection block diagram: KP/BB-...-[-W;-Z;]-[J;-T]



**PE, N, L1, L2, L3** - Power supply (3~400V)  
**T** - Fan thermal protection  
**1-9-PE** - Heater power supply  
**10-11** - Heater protection  
**PE-N-12** - Fan power supply  
**T-T** - Fan thermal protection  
**13-14** - Limit switch or room thermostat

Fig. 2 Curtain connection block diagram: KP/BB-...-E-T

## 10. AUTOMATICS ELEMENTS

We can deliver the following items to the curtains:

### » **supply and control boxes ZS**

They are intended to power supply and control the operation of the curtains with single- or three-phase motors.

The control boxes are equipped with:

- » main switch;
- » overcurrent circuit breakers;
- » contactors;
- » transmitters;
- » OPERATION switch [auto/manual/stop];
- » signalling lamps [operation/failure].

The size of the control box depends on the number of curtains connected to the box (one to two curtains can be connected to a single control box).


Typically, the control boxes are adapted to cooperate with a servomotor of the valve MVK, thermostat (TP or TPP) or (door) limit switch. The electric connection itself should be executed in accordance with the delivered startup and adjustment instruction. The control box should be powered with voltage from the main switchboard equipped with a main switch and differential protection.

Typically, the curtains with electric heaters are equipped with the control boxes ZS (3-step thermal power control).


» **transformer revolution controllers**

The transformer, 5-step rotational speed controllers FA-...[5;-11;-15](1~230V/50Hz) or RTRD-...[-2;-4;-7](3~400V/50Hz) allow controlling the air delivery and thermal power. The individual rotational speed steps are selected manually. The controllers are delivered in three versions. The versions differ in a way of power supply and rated current value.

Controller parameters FA

| Controller type   | FA-5 | FA-11 | FA-15 |  |
|-------------------|------|-------|-------|--|
| Voltage [V]       | 230  | 230   | 230   |  |
| Rated current [A] | 5    | 11    | 15    |  |
| Protection rating | IP21 | IP21  | IP21  |  |
| Height [mm]       | 280  | 280   | 480   |  |
| Width [mm]        | 200  | 200   | 270   |  |
| Depth [mm]        | 160  | 160   | 170   |  |

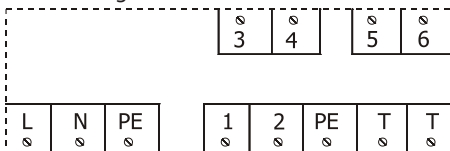
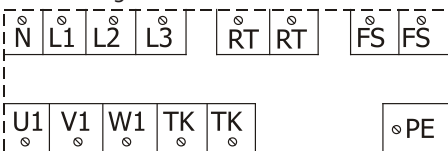
Controller parameters RTRD

| Controller type   | RTRD-2 | RTRD-4 | RTRD-7 |  |
|-------------------|--------|--------|--------|--|
| Voltage [V]       | 400    | 400    | 400    |  |
| Rated current [A] | 2      | 4      | 7      |  |
| Protection rating | IP54   | IP21   | IP21   |  |
| Height [mm]       | 255    | 309    | 309    |  |
| Width [mm]        | 190    | 162    | 162    |  |
| Depth [mm]        | 135    | 160    | 160    |  |

No more than two curtains can be connected to one revolution controller, remembering not to exceed rated currents of the specified controller. The controllers are optional equipment of "cold" curtains and curtains with water heaters.

The FA and RTRD controllers have a thermal protection circuit of the motor controlled by a signal from a sensor TK installed in the motor windings.

The controllers should be powered with voltage from the main switchboard equipped with a main switch and residual current circuit breakers.

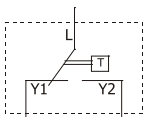

| Connec. diagram of revolution controller FA  | Connec. diagram of revolution controller RTRD   |
|--|---|
|    |    |
| <p><b>L-N-PE</b> Input voltage<br/> <b>1-2-PE</b> Output (control) voltage<br/> <b>T-T</b> Motor thermal protection circuit<br/> <b>3-4</b> Remote switching on/off - (thermostat TP/TPP or limit switch)<br/> <b>5-6</b> Valve servomotor</p> | <p><b>L1-L2-L3</b> Input voltage (400V AC)<br/> <b>U1,V1,W1</b> Output (control) voltage<br/> <b>TK-TK</b> Motor thermal protection circuit<br/> <b>RT-RT</b> Remote switching on/off - (thermostat TP/TPP)<br/> <b>FS-FS</b> Antifreeze thermostat</p> |

» **room thermostats TP or TPP**

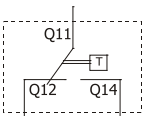

A room thermostat (on-off) TP allows setting the required temperature in the room within the range of 8...30°C by means of a knob, however, the room thermostat (on-off) TPP allows setting the required temperature in the room within the range of 8...35°C in the day and night mode on the liquid-crystal display.

The loss of temperature in the room below the set value causes that the thermostat applies a signal to open the valves and switches on the fan. However, if the temperature in the room exceeds the set value then the thermostat toggles itself applying a signal to close the valves and switches off the fan.

Termostat TP lub TP/IP65

|                          |             |             |  |   |
|--------------------------|-------------|-------------|--|---|
| <b>Supply voltage</b>    | 24..250V AC | 24..250V AC |  <p><b>L-Y1</b> Heating<br/><b>L-Y2</b> Cooling</p> |  |
| <b>Measurement range</b> | 8...+30°C   | 8...+35°C   |  |   |
| <b>Contact rating</b>    | 6(2)A       | 10(1,5)A    |  |   |
| <b>Protection rating</b> | IP30        | IP65        |  |   |

Termostat z programatorem czasowym TPP

|                          |                  |  |   |
|--------------------------|------------------|--|---|
| <b>Supply voltage</b>    | 2 batteries 1,5V |  <p><b>Q11-Q14</b> Heating<br/><b>Q11-Q12</b> Cooling</p> |  |
| <b>Measurement range</b> | 5...+35°C        |  |   |
| <b>Contact rating</b>    | 5(2)A            |  |   |
| <b>Protection rating</b> | IP30             |  |   |


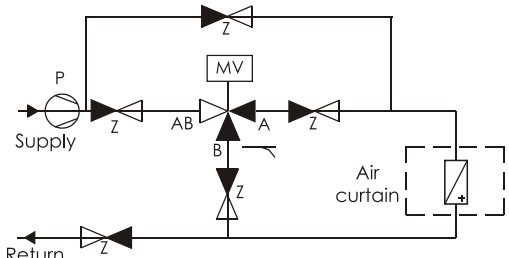
» **valves V**

The directional valves found a wide application in the curtains for the adjustment of heating medium flow through the heaters, the three-way valves with the connection with internal threads V25 are used in case of air curtains.

The medium flow depends on a signal from the thermostat / limit switch. The flow is admissible only in the marked direction AB->A or AB->B. A servomotor installed on the valve allows setting the valve stem in required position.

The valves should be installed in the supply line.

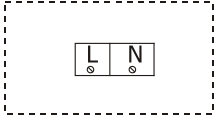

Valve parameters

| Symbol   | DN | $k_{vs}$ , m <sup>3</sup> /h | t[°C]   | PN | Curtain type |  |
|--|----|------------------------------|---------|----|--------------|---|
| V25  | 25 | 5                            | 1...110 | 16 | KP/BB        |   |
| <b>FITTINGS:</b><br>Z: cut-off valve: manual<br>P: circulating pump<br>MVK: three-way control valve controlled by servomotor |    |                              |         |    |              |  |

» **valve MVK servomotors**

The servomotor that allows controlling the valve "on-off" (by means of thermostat TP/TPP or limit switch) is used for a direct installation on the valves. Therefore a position (protrusion) of the servomotor stem is proportional to the value of control signal from the thermostat or limit switch.

Parameters of valve MVK servomotors

|                               |         |   |   |
|-------------------------------|---------|---|---|
| <b>Servomotor type</b>        | on/off  |  |  |
| <b>Supply voltage</b>         | 230V AC |   |   |
| <b>Closing / opening time</b> | 40 s    |   |   |
| <b>Protection rating</b>      | IP30    |   |   |
|                               |         | <b>L-N</b> Supply voltage 230V AC   |   |

## 11. DEVICE STARTUP

Prior to the startup it is necessary to:

- » check up the fastening state of the curtain;
- » check up the leak tightness of water connections;
- » check up the supply voltage according to the rated plate;
- » check up the additional protection of the fans and curtain casing.

To switch on the curtain it is necessary to:

- » open the valves of heating medium and vent precisely the curtain heater;
- » switch on the current supply to the electric motors.

To switch off the curtain it is necessary to:

- » limit the heating medium flow to the heater of the curtain;
- » switch off the current supply to the electric motor of the fan.



In case of long standstills of the curtain or breaks of heating network operation the heater should be drained and the cut-off valves should be closed, if need be.

## 12. REPAIR, MAINTENANCE AND WITHDRAWAL FROM SERVICE

The applied bearings of the fan do not require a periodical lubrication. However, it is recommended to check periodically a condition of the motor bearings (the rotor of the fan should rotate freely without excessive backlashes and knocks).

The rotor blades should be cleaned periodically not to allow unbalancing the rotor.

Do not use high pressure washers to clean the fan.

The condensers of the motors loses their capacity after ~40 000 hours of operation.

In case of any disturbances in the curtain operation it is necessary to contact with the installer or the service.



All repair and maintenance works should be executed when voltage is off. The curtain should be protected against an accidental activation by other persons as well.



The heater contamination state should be checked up periodically. The contaminated heater should be blown through with compressed air.



The heater contamination reduces the air efficiency and heating power of the curtain.

After withdrawal from service the unit should be passed over to the specialized collection point of recyclable materials.

## 13. TROUBLESHOOTING

| Trouble description                         | Possible trouble cause   | Troubleshooting   |
|---|--|---|
| heat exchanger leakage                      | mechanical damage of heat exchanger (it may appear when the unit is connected to the installation without taking care) | use a locking spanner to mount with the installation definitely   |
|   | exceedance of admissible heating medium parameters   | connect the unit with the heating installation protected against the excessive pressure and temperature growth  |
|   | heat exchanger freeze  | use an antifreeze thermostat, antifreeze heating fluids or remove water from the unit within the period of standstill and freeze risk   |
|   | use of the unit in the aggressive environment  |   |
| too load operation of the unit              | minimum distance from the wall or ceiling is not maintained  | use distances recommended in the instruction manual   |
|   | improper revolution direction  | execute a proper electric connection  |
|   | improper parameters of the mains   | use the unit only when the parameters of the mains and the unit are compliant   |
|   | air outlet is blocked by outlet grid louvres   | avoid a significant closing of outlet grid louvres at high speed ratios   |
|   | fan vibrations, the blades rub against fixed elements not centric fastening of the fan in its bearing plate            | check up the correctness of the fan and fastening reliability of other elements of the unit   |
| fan does not work                           | incorrect or unreliable electric connections   | check up or correct:  |
|   | improper parameters of the mains (lack of three phases in three-phase motors)  | 1) compliance of electric connections according to the diagrams specified in the instruction manual   |
|   | fan motor is damaged   | 2) reliability of connections on electric terminals   |
|   | fan operation control elements are damaged   | 3) parameters of the mains  |
| Revolution controller FA/TRTD does not work | correctness of electric connections (whether the leads are just clamped in the electric terminals)                     | check up or correct:  |
|   | only 1 controller can be connected to 1 unit   | 1) compliance of electric connections according to the diagrams specified in the instruction manual<br>2) reliability of connections on electric terminals<br>3) parameters of the mains  |
| Servomotor does not open the valve          | correctness of thermostat operation (characteristic "tick" when switching)   | check up or correct:<br>1) compliance of electric connections according to the diagrams specified in the instruction manual<br>2) reliability of connections on electric terminals<br>3) parameters of the mains<br>4) whether the servomotor reacts to an electric pulse. If the servomotor damage is stated, the damaged element should be claimed. |
| Room thermostat does not apply the signal   | more than one unit is connected directly to the thermostat (larger number means the thermostat overload)               | check up or correct:<br>1) compliance of electric connections according to the diagrams specified in the instruction manual<br>2) reliability of connections on electric terminals<br>3) parameters of the mains  |
|   | mounting place of the thermostat in the room   | 4) if there is no characteristic "tick", the thermostat is mechanically damaged and should be claimed.  |

## 14. INFORMATION

As to all issues concerning the air curtains please contact JUWENT Production Plant or our Representatives



### III. WARRANTY TERMS AND CONDITIONS

1. JUWENT Szymański, Nowakowski General Partnership, headquartered in Ryki at 31 Lubelska Str., hereinafter referred to as the Warrantor, grants the Customer a warranty of proper operation of the unit with reservation of the requirement of its use in accordance with the conditions determined in the instruction manual and the terms and conditions specified below.
2. The warranty has been granted for a period of 24 months from the purchase date demonstrated in this warranty document with a possibility of its special extension according to a separate agreement and specified in the Special Warranty Terms and Conditions.
3. The warranty covers the removal of technical defects of the unit arisen as a result of its use in accordance with the instruction manual, revealed within the warranty period. The warranty provisions are valid in the territory of the Republic of Poland.
4. By virtue of the granted warranty the Warrantor is not liable for the loss of expected profits and costs resulting from a periodical impossibility of the use of the unit incurred by the Customer.
5. To realize the Customer's rights resulting from the warranty it is required to deliver the claimed unit with the warranty document to the Warrantor at his expense.
6. The claimer delivers the unit in an original factory packing, in case there is no factory packing the claimed unit should be delivered by the Customer for the repair in a way ensuring a safe transport. The risk of accidental damage of the unit during the transport burdens always the party that dispatches the parcel.
7. The defects revealed with the warranty period will be removed by the Warrantor free of charge. A method selection of the realization of obligations resulting from the warranty granted to the Customer belongs to the Warrantor that may remove a defect by the repair or the replacement of the damaged subassembly or by the replacement of the unit. The property of the unit withdrawn from service and / or defective subassemblies is transferred to the Warrantor.
8. The warranty is extended by a period for which the Customer has been deprived of a possibility to use the unit.
9. The Warrantor will make efforts that the repair is executed without further delay within the time-limit of up to 14 working days from the delivery date of the unit. In reasonable cases of which the Customer will be informed by the Warrantor, this time-limit may be extended, e.g. by the time of provision import or when there is a necessity to execute an expertise or laboratory tests in specialized institutions.
10. The Warrantor is liable exclusively for the defects inherent in the sold unit. The damages arisen after its sale for other reasons are not covered by the warranty, in particular:
  - a) mechanical damages (including also damages caused by microparticles occurring in the working environment of the unit), thermal damages, chemical damages and aleatory damages or damages caused by the atmospheric factors,
  - b) damages occurred as a result of non-observance of typical rules or the rules required by the instruction manual related to the operation and mounting of the unit or the use of the unit against the intended use and other damages caused by the Customer's activity or omission,
  - c) damages being a result of defective operation of the system in which the unit has been built or used,
  - d) damages occurred as a result of non-execution of the actions to which the Customer has been obliged in accordance with the instruction manual, e.g. periodical cleaning, maintenance, adjustment, etc.,
  - e) damages occurred due to the use of materials or parts subject to a normal operational wear other than the materials recommended by the Warrantor in the instruction manual,
  - f) damages being a result of use of power supply of the unit (of the system in which this unit functions) incompatible with the standard, and in case the unit is also supplied with water, damages being a result of use of water (supply water and / or boiler water) with parameters other than the parameters foreseen in the valid standard (PN-93/C-04607),
  - g) damages occurred as a result of operation and / or maintenance of the unit in a way incompatible with the instruction manual and / or executed by the unauthorized persons.
11. The warranty does not cover as well:
  - a) activities executed by the Customer in accordance with the recommendations included in the instruction manual of the unit within the framework of normal maintenance and inspections,
  - b) travel and work costs of the Warrantor's service or an entity delegated by the Warrantor in case when a warranty call turns out to be groundless.
12. An annotation made by a trained employee in the Inspection and Maintenance Document of the unit is a confirmation of time-limit holding and range of activities foreseen for the maintenance of the unit.
13. The Warrantor is not liable for damages incurred by the Customer or third parties caused by the run of the unit occurred in particular as a result of non-observance of the afore-mentioned terms and conditions by the Customer.
14. In case the service works are executed by the Warrantor at the place where the unit is mounted, the Customer will make available a free access to the rooms where the units are located to the Warrantor.
15. In case the units are mounted at the height making an access from the floor surface impossible, the Customer will ensure the scaffolding compliant with the OHS regulations or mobile lifting platforms and vertical transport equipment.
16. The equipment from the electric and / or hydraulic system is disassembled by the Customer.
17. The claims should be lodged at the Warrantor's address in writing / by fax / email using a service notification form.
18. The Warrantor refuses to execute the warranty activities (periodical service works or repair) in case the price for the unit or previous service work is not paid for the benefit of the Warrantor.

**DATE OF SALE**

**STAMP AND SIGNATURE**

Special Warranty Terms and Conditions:

Warranty period extension up to ..... months.

Other:

**STAMP AND SIGNATURE**

|                            |  |
|----------------------------|--|
| <b>TYPE OF UNIT:</b>       |  |
| <b>FACTORY NUMBER:</b>     |  |
| <b>YEAR OF PRODUCTION:</b> |  |

#### IV. UNIT STARTUP REPORT

| <b>Date of startup</b> | <b>Executor of startup</b><br>stamp / name and signature | <b>Motor current</b><br>[A] | <b>User's representative</b><br>stamp / name and signature | <b>Remarks</b> |
|------------------------|--|-----------------------------|--|----------------|
|                        |  |                             |  |                |

#### V. INSPECTION AND MAINTENANCE DOCUMENT

| <b>Date of inspection</b> | <b>Executor of inspection</b><br>stamp / name and signature | <b>Service activity range</b> | <b>Remarks</b> |
|---------------------------|---|-------------------------------|----------------|
|                           |   |                               |                |

\* Inspection of the unit in accordance with the section "Repair and Maintenance" in the instruction manual

## VI. SERVICE NOTIFICATION

Date:

Notification type WARRANTY  POST-WARRANTY  PAID

|                              |  |
|------------------------------|--|
| <b>Unit's user (name)</b>    |  |
| <b>Contact person</b>        |  |
| <b>User's address</b>        |  |
| <b>Phone, fax, and email</b> |  |
| <b>Type of unit</b>          |  |
| <b>Factory No.</b>           |  |
| <b>Year of production</b>    |  |
| <b>Startup executed by</b>   |  |

Description of defect:

**NOTE: AFTER COPYING AND FILLING IN SEND THE NOTIFICATION BY FAX OR EMAIL TOGETHER WITH A COPY OF THE STARTUP REPORT.**

JUWENT Company accepts notifications filled legibly and completely.

When the lodged claim is not justified, the claimer will be burdened with service costs.

Date of warranty issue

Order No.

(company's stamp)

.....

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## VII. LIST OF SUBASSEMBLIES INSTALLED IN THE UNIT

| No. | Name of subassembly                               | *) |
|-----|---|----|
| 1   | Metal louvre I-row heat exchanger                 |    |
| 2   | Electric three-phase heat exchanger               |    |
| 3   | Without heat exchanger (so called "cold" curtain) |    |
| 4   | Single-phase-powered axial fan                    |    |
| 5   | Three-phase-powered axial fan                     |    |

\*) - mark proper box corresponding with the equipment variant