

Article group
2.51, 2.52



06/2008

Tandem 300 Tandem 385 Door air curtains

Innovative, professional, international

In over 35 years, Kampmann GmbH has grown from being a family-led company to become an internationally

renowned group of companies. Kampmann systems for heating, cooling and ventilation are today market leaders in a number of different market sectors. Innovation and the highest standards of quality guarantee this success into the future.

We have an "ear on the market" and the knowledge and expertise gained from 35 years of experience in development, production and sales. This, combined with a professionally-manned research and development department, is the basis for our continuous product development. This is what allows us to provide our customers with the best technical product at any time.

Traditionally, Kampmann's skills and expertise have been in the production of standard products with an extraordinary range of adapted products, as well as in the production of technically and visually high-quality tailor-made design solutions. Our specialist staff deal with the building in its entirety and develop unique and efficient system solutions. Our entire range is reflected in mix of standard, non-standard and tailor-made products for project-orientated solutions.

We set ourselves very high standards in production. Today an exceptionally well-trained specialist workforce manufactures high-quality Kampmann products in three plants for customers throughout the world. A number of different certificates are evidence of our high standards of quality, which have become the standard at Kampmann. Our products are characterised by the high guaranteed DIN EN-tested heat outputs. In terms of quality management the requirements of TÜV certification according to DIN EN ISO 9001 have been met since 1996.

For decades, Kampmann customers have valued our excellent service. Local external engineers and technicians, in-house measuring engineers and the Kampmann customer service team are available to customers. Kampmann good air quality is now to be found across the globe. Our sales engineers now cover the whole of Germany and Europe.

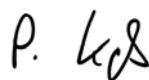
This Tandem Door air curtain brochure provides you with an insight into our wide product range. Take a look and make up your own mind – do not hesitate to arrange a personal visit with us. It is our aim to meet your high quality expectations, right down to the last detail.

Well-being is our product – Quality is our benchmark!

Hendrik Kampmann
Managing Director



Peter Kaß
Managing Director



Door air curtains produced in the Kampmann plant in Lingen

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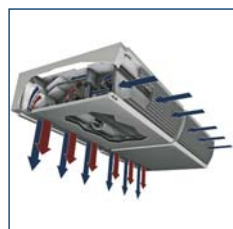
Tandem Door air curtains - For the controlled screening of open doorways

Basic units, Casings

Accessories

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Product description/
Accessories



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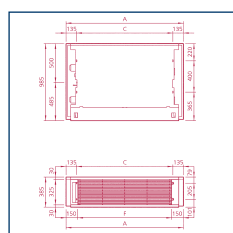
Controls



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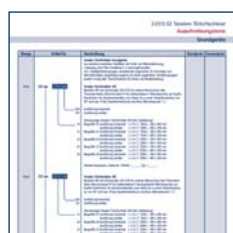
Design information



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Specifications / Ordering

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Twice the screening with two fan groups

Tandem - different to conventional door air curtains: an extra fan group produces an unheated secondary air stream to provide even more effective and more energy-saving screening of external cold air.

Tandem door air curtains - now with a new attractive casing making the unit exceptionally simple and easy to fit:

filter replacement without the need for a tool; modular design enables several units to be combined to create a single visual unit; optional installation within a suspended ceiling or within a bespoke or builderswork casing.

Kampmann door air curtains keep warm air where it belongs - inside!

The best possible screening of air conditioned rooms with Kampmann door air curtains:

- Minimal energy losses by screening out cold air in winter
- Continuous filtration of inducted room air and consequently a reduction in the ingress of dirt and pollution from outside
- Fewer draughts: work stations can be located closer to the entrance area so that the floor space can be better used.
- In summer provides back-up for air-conditioning by operating without hot water supply; reduces the ingress of warm air from outside, reduces the cooling requirement and lowers energy costs
- Uses warm air accumulated under the ceiling to provide screening
- Rapid warm-up after longer cool-down times thanks to high air volumes from the door air curtain units
- Versatile use in all types of shops, malls and public buildings

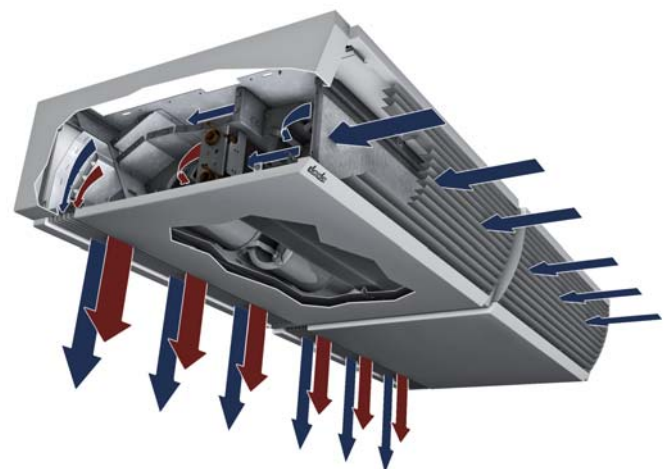
Open doorways

are nowadays an integral part of the "shopping" leisure experience. By removing the "obstacle of a doorway", passers-by and potential customers are motivated to enter the retail space. The usable retail floor area is thereby extended and the inviting open entrance area with an unimpeded view of the range of products results in higher numbers of customers.

Door air curtains create a comfortable interior environment during the heating season by screening open doorways. Customers can enjoy entering the entrance area of the store.

The warm stream of air that can be felt creates a rapid feeling of comfort and cosiness, especially when the temperatures outside are low, and has the benefit over units that blow from below that dust and clothing is not blown up.

Kampmann Tandem door air curtains are also available in an electric model (Tandem 300-Electro) - even quicker to fit, even more applications.



Door air curtain basic unit (indicated casing)

Tandem door air curtain 300, horizontal model is shown



Basic units

- Made of sheet steel, with sound and heat insulation on the inside
- Basic unit operational without casing; can be encased on site without any loss of output
- Large radial fans, direct-driven by 1-stage condenser motor, switched between 5 stages via transformers
- Voltage 230 V/50 Hz
- Easily removable air filter (Filter class G2 in accordance with DIN EN 779), fixed to a grille frame; can be cleaned by vacuuming or rinsing in water
- Heat exchanger made of hollow copper pipes with aluminium fins, LPHW up to a temperature of max. 90 °C, maximum permissible continuous operating pressure 10 bar
- See Technical Data for nominal widths and dimensions
- Available as horizontal and vertical models

Tandem engineering

Door air curtains with Tandem engineering produce an unheated secondary air curtain with a separate fan group in addition to a heated air curtain. The secondary air curtain has a greater penetration depth and acts as a back-up air curtain for the heated air curtain. Despite the proximity of the two air curtains to each other, there is hardly any turbulence, as the secondary air curtain only has a minimal mixing figure (<0.2).

The beneficial effect of this design is based on the fact that the secondary air curtain drags the warm air curtain downwards and acts, at the same time, as a separating layer towards the cold external air. This increases on the one hand the penetration depth of the warm air stream, thereby improving its screening effect. On the other hand it prevents any of the warm air seeping outside. The warm air curtain is used to a greater extent to back up the air conditioning. The benefits are as follows:

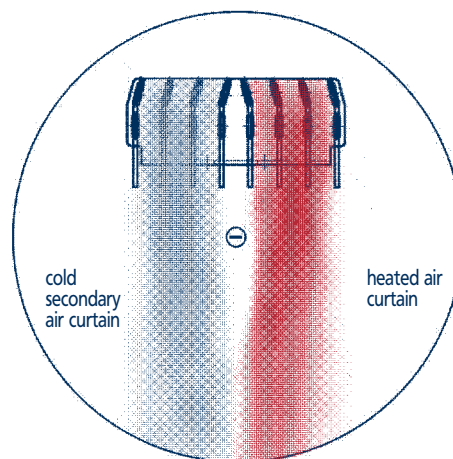
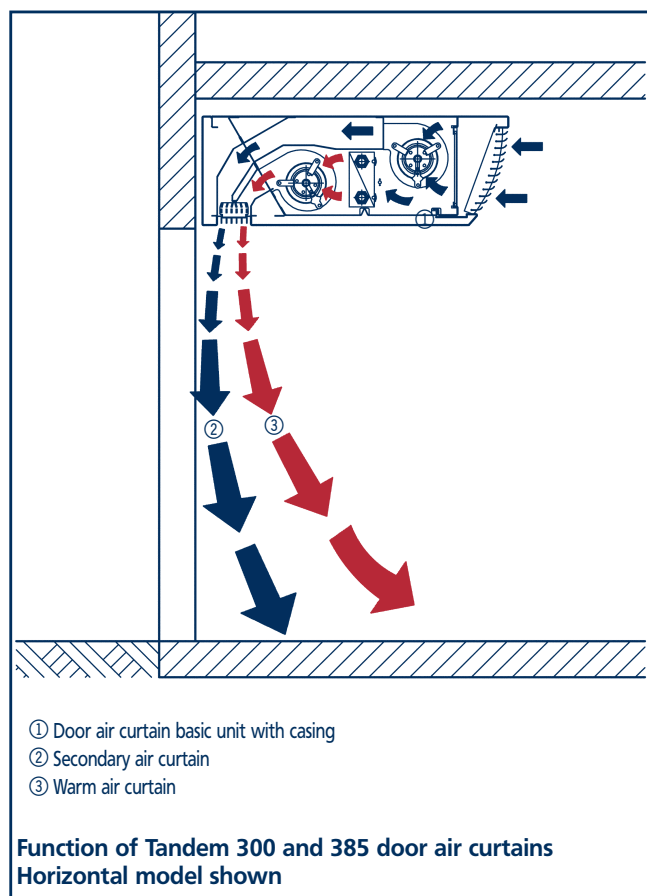
- By concentrating the air stream, the air speed and air temperature can be kept lower.
- Cold air is prevented from entering at floor level.
- The separately controllable secondary air curtain and heated air curtain fans enable the control of the door air curtains to be adjusted.
- Tandem door air curtains increase comfort and energy savings even when pressure conditions are poor and so are therefore ideal wherever there are more exacting requirements in terms of comfort.
- The lower heat output requires smaller boilers, whilst providing the same level of screening.

Energy savings: approx. 38 %

Owing to the

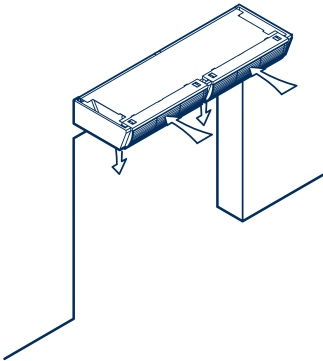
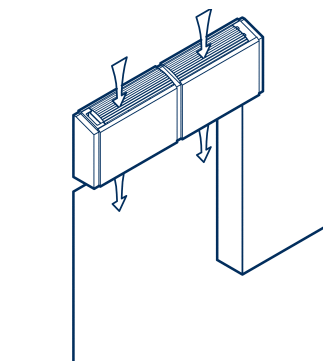
- secondary air curtain requiring no heating,
- greater penetration depth due to the Coanda effect,
- comparatively lower volume of heated air required

there are energy savings of **approximately 38 %** compared with conventional systems!



Coanda effect

Tandem engineering is more beneficial, in terms of energy, as the secondary air curtain, as part of the overall air curtain, does not need to be heated. Furthermore the Coanda effect produces a greater penetration depth and thus further benefits in terms of energy: the contraction of both air curtains causes the secondary air curtain to drag the warm air curtain downwards. It produces a greater screening effect and allows the units to be installed at a greater height.

Door air curtain	Tandem 300			Tandem 385			Type key		
Air direction	Secondary and heated air curtain						Model 25, Horizontal basic unit	1 25 330	
									
H _{max.} ¹⁾ ; W _{max.} ¹⁾	2.7 - 3.4			3.5 - 4.0					
Model	Air volume m³/h	Max. door width m	Model size	Air volume m³/h	Max. door width m	Model			
	840-1980	1.0	10	-	-	-			
	1260-2970	1.5	15	1890-4360	1.5	15			
	1680-3960	2.0	20	2460-5770	2.0	20			
	2520-5940	2.5	25	3370-8180	2.5	25	25		
	2590-6120	3.0	30						
	Horizontal basic unit			430	Horizontal basic unit			330	330
	Basic unit casing			900	Basic unit casing			800	
Casing extension			925	Casing extension			825		
Replacement filter for basic unit				Replacement filter for basic unit					
Electro basic unit, horizontal			460 00W						
	840-1980	1.0	10	-	-	-			
	1260-2970	1.5	15	1890-4360	1.5	15			
	1680-3960	2.0	20	2460-5770	2.0	20			
	2520-5940	2.5	25	3370-8180	2.5	25	25		
	2590-6120	3.0	30						
	Horizontal basic unit			431	Horizontal basic unit			331	801
	Basic unit casing			901	Basic unit casing			801	
Casing extension			925	Casing extension			825		
Replacement filter for basic unit				Replacement filter for basic unit					

¹⁾ H_{max.} = Max. discharge height (horizontal, vertical models), with average to good pressure conditions / requirements/ environment, see page 18 and 19

Article no. for DataNorm/EDV entry: * 000 _ _ (Insert type)
*Insert art. group (251 or 252)



Tandem 300, Model 20, split casing

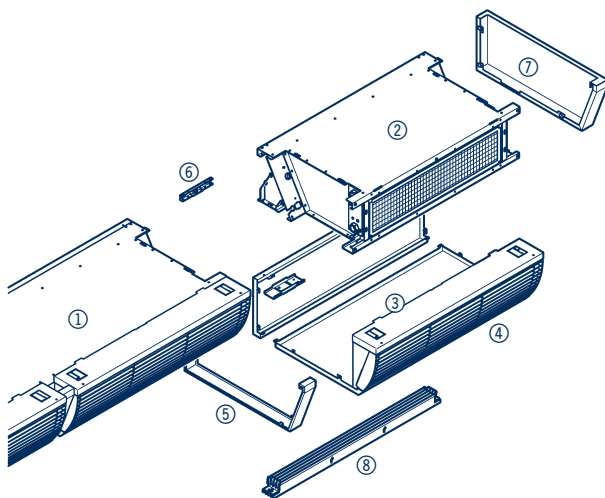


Tandem 385, Model 20, split casing

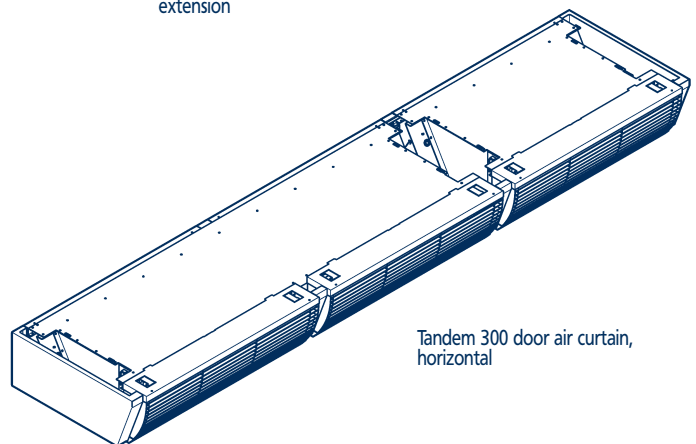
Casings • Casing extensions

- Attractive slimline housing design
- Simple to fit
- Rigid sheet steel design
- Welded and smoothed edges, with side recessed end sections, simple to dismantle for service
- Powdercoated traffic white RAL 9016
- Air inlet grille with rounded linear grille made of an air stream-enhancing profile, powdercoated RAL 9006, simple to dismantle to service the filter
- Outlet air rectifier in the outlet air stream for minimum turbulence and an even outlet air flow, powdercoated RAL 9006
- Lengths of > 2.5 m (horizontal and vertical models) are possible using casing extensions (modular design)

Modular design of casing extensions



- | | |
|---|--|
| ① Door air curtain basic unit with casing | ⑤ Connecting angle of casing extension |
| ② Door air curtain basic unit | ⑥ Spacing bracket for basic unit |
| ③ Lower casing panel of casing extension | ⑦ Side panel of basic unit casing |
| ④ Inlet air grille of casing extension | ⑧ Outlet air rectifier |



Tandem 300 door air curtain, horizontal

Basic door air curtain (Model 20) with basic unit casing

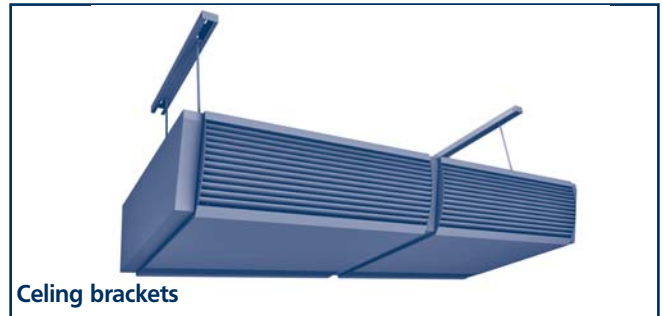
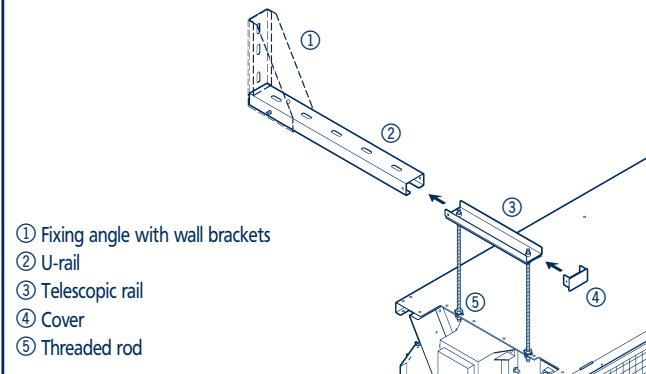
Casing extension

Fully assembled door air curtain with casing extension

Wall brackets · Ceiling brackets

- Adjustable in relation to the doorway
- Brackets powdercoated traffic white RAL 9016
- Exact height adjustment possible with threaded rods

Telescopic technique with wall and ceiling brackets



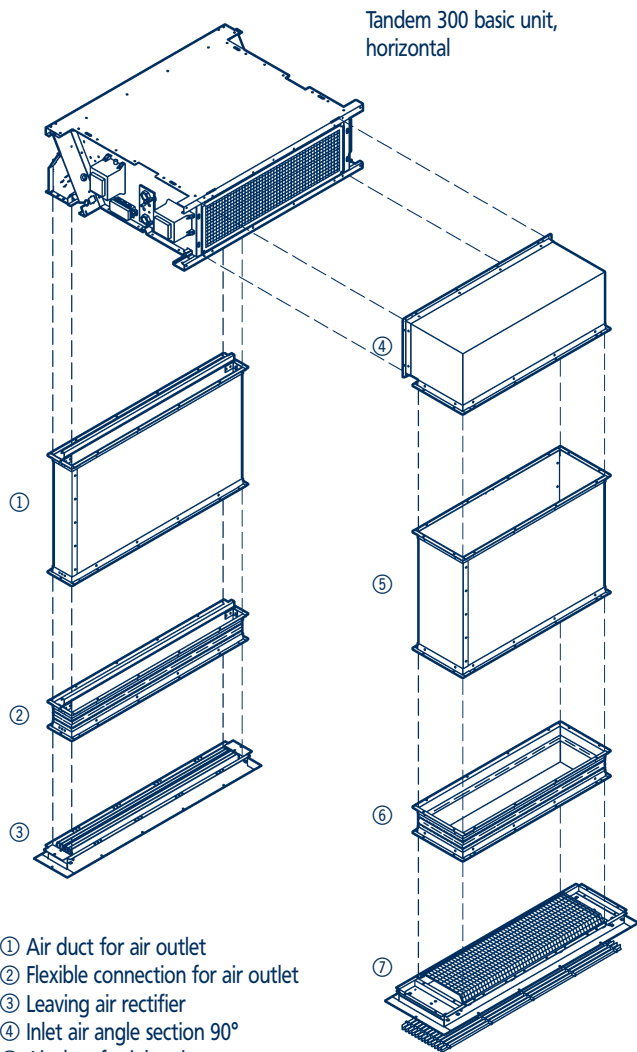
Overview of bracket types / Dimensions

Model	horizontal	vertical
Wall brackets		
Door air curtain	Wall brackets	Wall brackets
Tandem 300	Type 100990	Type 100991
Tandem 385	Type 200890	Type 200891
Ceiling brackets		
Door air curtain	Ceiling brackets	Ceiling brackets
Tandem 300	Type 100995	Type 100996
Tandem 385	Type 200895	Type 200896

() Figures apply to Tandem 385

Article no. for DataNorm/EDV entry: * 000 _ _ _ (Insert type)
*Insert art. group (251 or 252)

Sheet steel accessories



- ① Air duct for air outlet
- ② Flexible connection for air outlet
- ③ Leaving air rectifier
- ④ Inlet air angle section 90°
- ⑤ Air duct for inlet air
- ⑥ Flexible connection for air inlet
- ⑦ Inlet air grille
- ⑧ (no illustration)

For dimensions see pages 24-25

Sheet steel accessories overview

	Mod	①	②	③	④	⑤	⑥	⑦	⑧
Tandem 300 door air curtain	10	110981	110970	110940	110950	110980	110960	110930	110920
	15	115981	115970	115940	115950	115980	115960	115930	115920
	20	120981	120970	120940	120950	120980	120960	120930	120920
	25	125981	125970	125940	125950	125980	125960	125930	125920
	30	130981	130970	130940	130950	130980	130960	130930	130920
Tandem 385 door air curtain	15	215881	215870	215840	215850	215880	215860	215830	215820
	20	220881	220870	220840	220850	220880	220860	220830	220820
	25	225881	225870	225840	225850	225880	225860	225830	225820

① Air duct for air outlet

with a frame on both sides; please state length when ordering

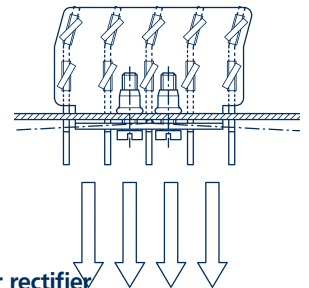
② Flexible connection for air outlet

with a frame on both sides and a flexible connection, made of sailcloth, for sound attenuation and to compensate for dimensional inexactitudes on site; installed length: 120-160 mm

③ Leaving air rectifier

Rectifier for low-turbulence air flow, comprising an air stream-enhancing adjustable louvre; reduced induction of outside air; the discharged flat air stream tends towards reduced divergence, whilst producing greater penetration, significantly reducing the air exchange; fully powdercoated in traffic white RAL 9016 with a steel frame.

When installed within a suspended ceiling, a leaving air rectifier and frame are used to fit in the suspended ceiling.



Cross-section through leaving air rectifier

④ Inlet air angle section 90°

with a frame on both sides; short angle section as a transition between horizontal and vertical ductwork when installed within suspended ceilings;

⑤ Air duct for air inlet

with a frame on both sides; please state length when ordering

⑥ Flexible connection for air inlet

with a frame on both sides and a flexible connection made of sailcloth for sound attenuation and to compensate for dimensional inexactitudes on site; length: 120-160 mm

⑦ Inlet air grille

with a frame and filter fixing; the inlet grille, a linear grille made of air flow-enhancing aluminium droplet profiles, has to be removed for servicing the filter. The sheet steel frame and the grille are completely powdercoated in traffic white RAL 9016.

⑧ Replacement filter mat for inlet air grille (no illustration)

reusable dry layer G2 filter for fixing in the inlet air grille;
1 set = 5 mats

Fan control

The fan motors used with Kampmann Tandem door air curtains can be switched between 5 stages via integral transformers. When operated with 3-stage switches, the stages can be assigned at random. If summer/winter switches are used in conjunction with thermoelectric shut-off valves, the units can be operated in ventilation-only mode in summer without a supply of hot water.

Tandem door air curtains with two fan groups can be switched by means of a 3- or 5-stage switch or a 5-stage controller. The fan groups can be switched individually or in parallel.

Individual control

The fan groups for the secondary and warm air curtains are switched individually using the stage switch. In normal mode, that is to say not in summer mode, both fan groups can be operated by means of a 3- or 5-stage switch. When operating in ventilation-only mode in summer, the fan group for the secondary air stream has to be switched by the 3- or 5-stage switch and the fan group for the heated air stream has to be switched by a 3- or 5-stage summer/winter switch.

Parallel control

Both fan groups can be operated in parallel by means of a 3- or 5-stage switch or by means of a 3- or 5-stage summer/winter switch.

Wiring

Please refer to pages 11 to 13 for wiring diagrams. The electrical rating figures are given in the technical data tables on pages 34 to 42. The figures are maximum figures measured under poor conditions. Depending on the location, accessories used and degree of contamination on the filter, the actual figures can be lower.

Electrical wiring must be carried out in accordance with the Association of German Electricians' (VDE) regulations and the guidelines laid down by the national power supply companies.

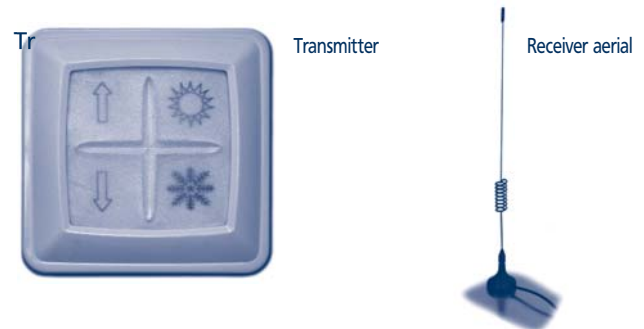
Cascade module

Up to 10 door air curtains can be operated in parallel via stage switches with a cascade module (see Table below).

Radio remote controller, fitted, type _ _ _ * _ _ - 00W

All Kampmann Tandem door air curtains can be operated by a wireless, factory-fitted remote controller instead of by a stage switch.

- Transmitter in plastic housing RAL 9010, 80 x 80 x 15 mm
- Simply to mount on the wall without cabling
- 3-stage fan control at the press of a key
- Summer/winter switch also available
- Receiver unit fitted to unit
- Aerial is included



Remote controller for door air curtains

Tandem 300 Electro

Door air curtains with electrical heating elements can only be controlled by a radio remote controller (even multiple units with only one transmitter).

- 3-stage control (5 basic fan speeds)
- Energy-optimised, continuous heat output adjustment via a leaving air temperature sensor
- Automatic adjustment of the heat output to pre-set fan speed and surrounding temperature

Number of cascade modules when operating door air curtains in parallel (maximum 10)

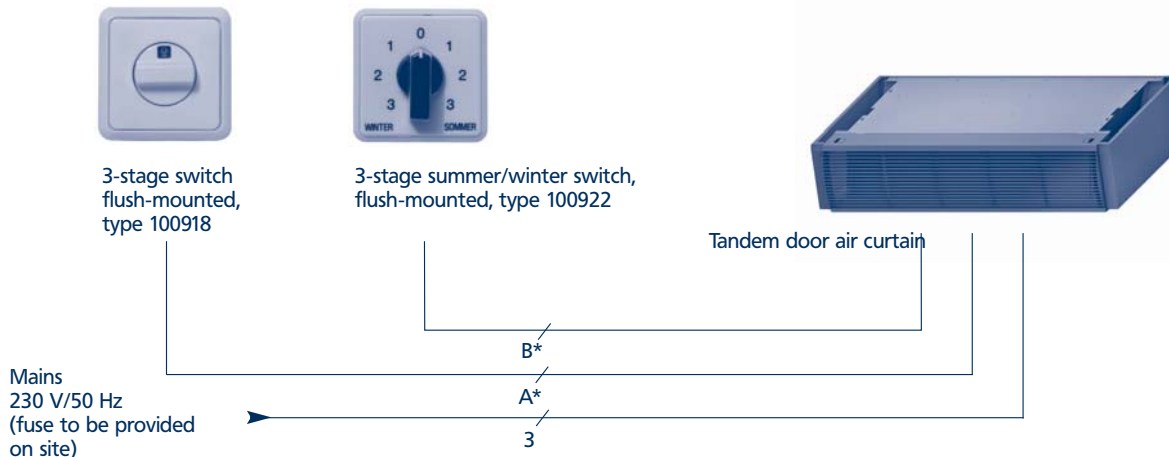
	No. of Tandem door air curtains																			
	Individual control (secondary and heated air curtain)										Parallel control (secondary and heated air curtain)									
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
No. of cascade modules when using a stage switch	0	2	4	4	6	6	8	8	10	10	0	1	2	2	3	3	4	4	5	5

*Enter basic door air curtain type

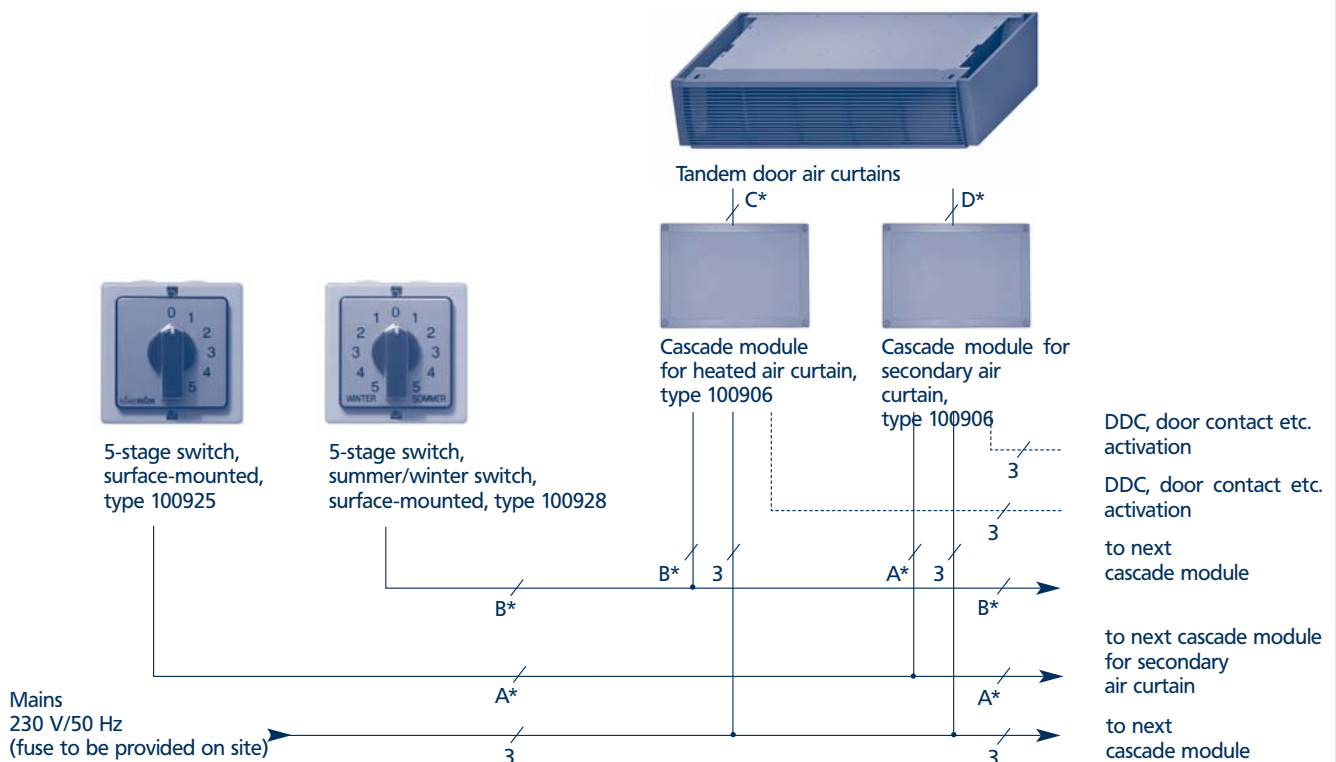
Article no. for DataNorm/EDV entry
Controls accessories: _ _ _ 000 (Insert type)
*Insert art. group (251 or 252)

Wiring

Individual operation of Tandem door air curtains (secondary and warm air curtain separately)



Parallel operation of Tandem door air curtains (secondary and warm air curtain separately)



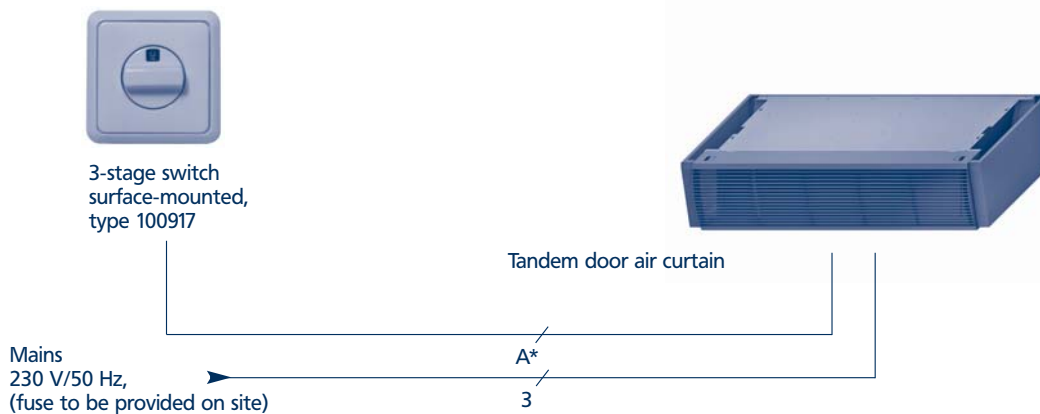
* See table below for the number of wires for cables marked with a letter. With all other cables, the number of wires incl. fuse is given on the wiring diagrams themselves. The figure in brackets applies when using a frost protection thermostat (only required in unheated rooms).

Number of wires incl. fuse

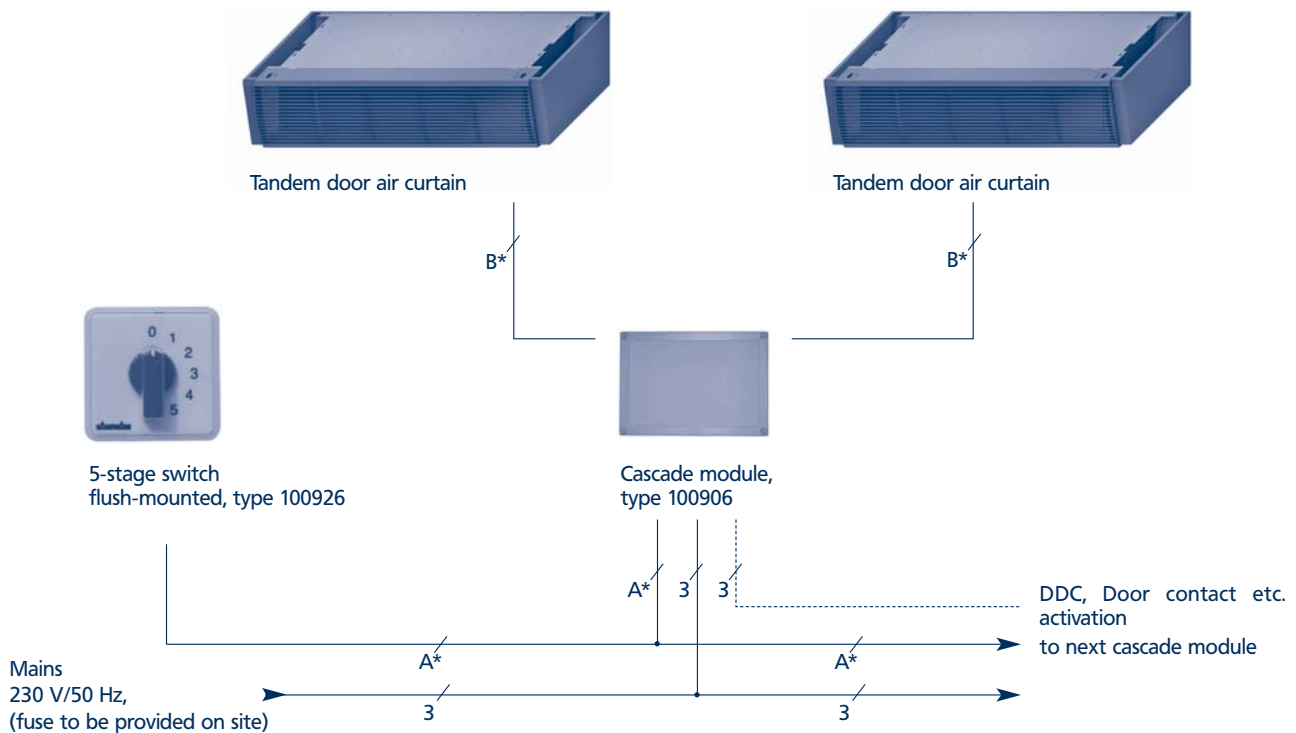
Cable	3-stage switch, type 100917/100918	3-stage summer/winter switch, type 100920/100922	5-stage switch, type 100925/100926	5-stage summer/winter switch, type 100928/100929
A	5	/	7	/
B	/	6	/	8
C	6 (9)	/	8 (11)	/
D	/	7 (10)	/	9 (12)

Article no. for DataNorm/EDV entry
Controls accessories: 196 000 (insert type)

Individual operation of Tandem door air curtains (secondary and warm air curtain in parallel)



Parallel operation of Tandem door air curtains (secondary and warm air curtain in parallel)



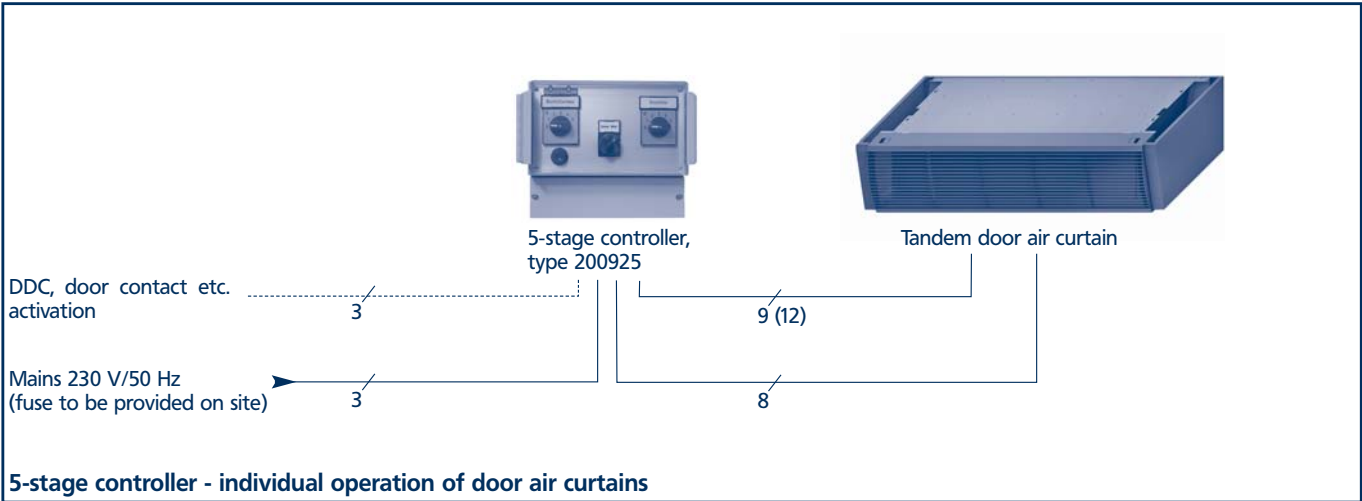
* See table below for the number of wires for cables marked with a letter. With all other cables, the number of wires incl. fuse is given on the wiring diagrams themselves. The figure in brackets applies when using a frost protection thermostat (only required in unheated rooms).

Number of wires incl. fuse

Cable	3-stage switch, type 100917/100918	3-stage summer/winter switch, type 100920/100922	5-stage switch, type 100925/100926	5-stage summer/winter switch, type 100928/100929
A	5	6	8	8
B	6 (9)	7 (10)	9 (12)	9 (12)

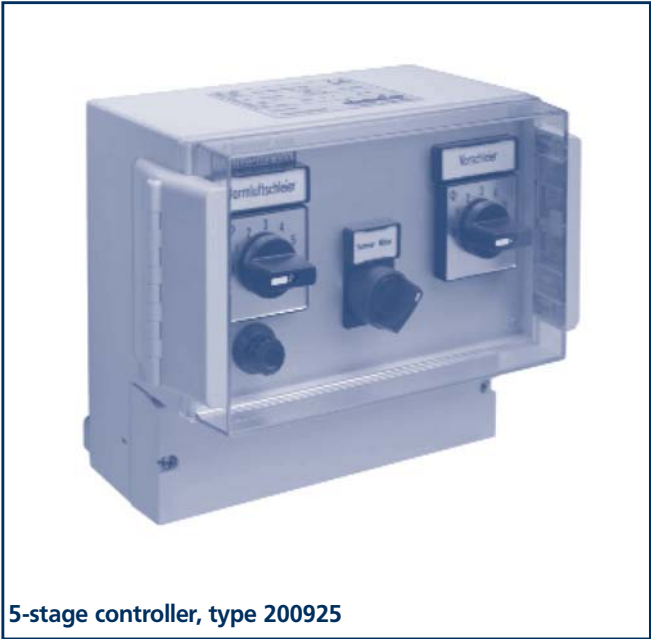
Article no. for DataNorm/EDV entry
Controls accessories: 196 000 (Insert type)

Wiring with a 5-stage controller



5-stage controller - individual operation of door air curtains

* The number of wires incl. fuse is given for each cable on the wiring diagram. The figure in brackets applies when using a frost protection thermostat (only required in unheated rooms).



5-stage controller, type 200925

5-stage controller 0-1-2-3-4-5, surface-mounted, type 200925

Only for use with Tandem door air curtains; incorporated within a wall-mounted housing, grey, with a clear perspex protective cover over the operating panel and display; cable entry from below; comprising the following:

- 1 no. 0-1-2-3-4-5 switch for "secondary air curtain" fan group
- 1 no. 0-1-2-3-4-5 switch for "heated air curtain" fan group
- 1 summer/winter switch to control a thermoelectric shut-off valve when the "heated air curtain" fan group is switched on
- 1 switching input for activating the door air curtain by a DDC controller (by others) or door contact; separate terminals for frost protection thermostat type 030268 or door air curtain type number ending in F.

Protection class	IP 54
Max. amperage	16 A
Max. switching voltage	230 V AC
Dimensions	H x W x D: 185 x 212 x 115 mm

Accessories: 3- and 5-stage switches · Cascade module

3- and 5-stage switches · Cascade module



3-stage switch, surface-mounted, type 100917

3-stage switch 0-1-2-3, surface-mounted, type 100917

Housing	white plastic, Jung
Amperage	10 A
Protection class	IP 21
Dimensions	H x W x D: 82 x 82 x 59 mm

3-stage switch 0-1-2-3, flush-mounted, type 100918

Installation	in a 55 mm back-box
Cover panel	white, Jung
Amperage	10 A
Dimensions	H x W x D: 82 x 82 x 24* mm



3-stage summer/winter switch, flush-mounted, type 100922

3-stage summer/winter switch 0-1-2-3, surface-mounted, type 100920

Housing	Light/dark grey plastic, insulated
Amperage	15 A
Protection class	IP 55
Dimensions	H x W x D: 82 x 82 x 125 mm

3-stage summer/winter switch 0-1-2-3, flush-mounted, type 100922

Installation	in a 55 mm back-box
Cover panel	white
Amperage	15 A
Dimensions	H x W x D: 82 x 82 x 24* mm



5-stage switch, flush-mounted, type 100926

5-stage switch 0-1-2-3-4-5, surface-mounted, type 100925

Housing	Light/dark grey plastic, insulated
Amperage	15 A
Protection class	IP 55
Dimensions	H x W x D: 82 x 82 x 125 mm

5-stage switch 0-1-2-3-4-5, flush-mounted, type 100926

Installation	in a 55 mm back-box
Cover panel	white
Amperage	15 A
Dimensions	H x W x D: 82 x 82 x 24* mm



5-stage summer/winter switch, surface-mounted, type 100928

5-stage summer/winter switch 0-1-2-3-4-5, surface-mounted, type 100928

Housing	light/dark grey plastic, insulated
Amperage	15 A
Protection class	IP 55
Dimensions	H x W x D: 82 x 82 x 125 mm

5-stage summer/winter switch 0-1-2-3-4-5, flush-mounted, type 100929

Installation	in a 55 mm back-box
Cover panel	white
Amperage	15 A
Dimensions	H x W x D: 82 x 82 x 24* mm



Cascade module, surface-mounted, type 100906

Housing	Light grey plastic
Protection class	IP 65
Dimensions	H x W x D: 179 x 255 x 72 mm

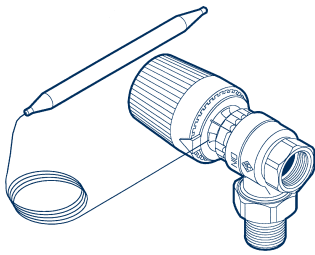
Accessories: Control valves · Frost protection thermostat

Control valves

The leaving air temperature has a key influence over the effect of a door air curtain system. If the leaving air temperatures are too high, the penetration depth of the air stream is reduced and the air stream can feel uncomfortable. From an energy-saving point of view, as well, the leaving air temperature should not exceed 40°C during the summer months. The use of a leaving air

temperature limiting valve means that the leaving air temperature can be controlled at a constant level. A thermoelectric shut-off valve should also be used in summer mode to prevent the air stream from heating up.

Control valves · Frost protection thermostat

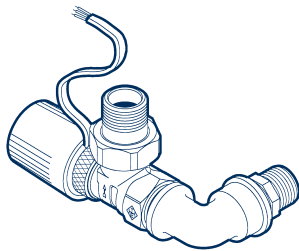


Leaving air temperature limiting valve, type 100965

Leaving air temperature limiting valve

Available as an angled and straight valve body with a thermostatic head and remote sensor with 2 m capillary tube to control the leaving air temperature at a constant level; the valve comes complete with fixings for mounting the sensor in the leaving air stream; temperature setting range 20-50 °C

Door air curtain model	Tandem 300	Tandem 385
horizontal	Type 100968 3/4", angled	Type 100965 3/4", angled
vertical	Type 100961 3/4", straight	Type 100961 3/4", straight

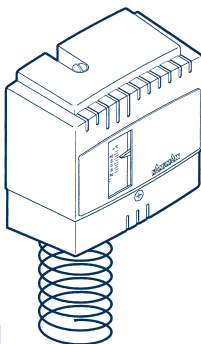


Thermoelectric shut-off valve, type 100910

Thermoelectric shut-off valve

Available as an angled or straight valve body with a 230V, 50 Hz thermoelectric actuator (sealed in a de-energised state); in conjunction with a 3- or 5-stage summer/winter switch (type 100920, type 100922, type 100928, type 100929) or 5-stage controller type 200925, to complete the heating circuit in summer mode.

Door air curtain model	Tandem 300	Tandem 385
horizontal	Type 100913 3/4", angled	Type 100910 3/4", angled
vertical	Type 100901 3/4", straight	Type 100901 3/4", straight



Frost protection thermostat, type 030268

Frost protection thermostat, loose type 030268, fitted type _ _ _ _ * -F

Only required with thermoelectric shut-off valves when door air curtains are installed in unheated rooms (e.g. porches); fitted to the leaving air side of the heat exchanger and set to approx. +8 to +10 °C (min. +5 °C); if the temperature falls below this level, then the fan is switched off and the thermoelectric shut-off valve is opened. Once the temperature has risen above this level, the fan automatically switches on again; supplied with a sensor monitoring device, 3 m capillary tube, setting range -10/+12 °C, amperage 8 A

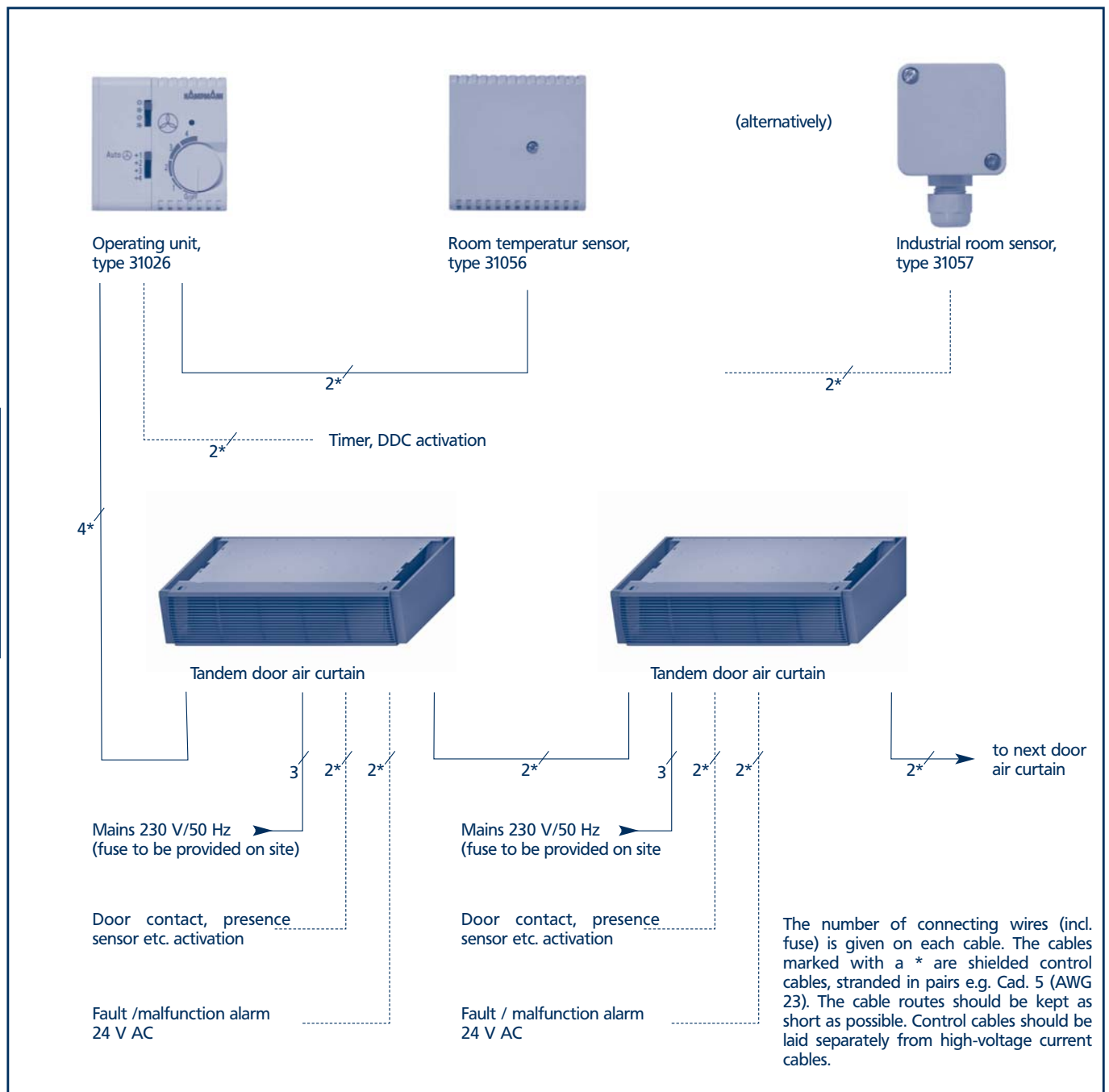
Housing	galvanised steel
Sensor	copper, gas-filled
Protection type	IP 40
Protection class	I
Contacts	dry changeover switch 24-250 V AC/15(8) A
Setting range	-10 to +12 °C
Switching differential	1 Kelvin
Dimensions	W x H x D: 105 x 112 x 55 mm

*Enter basic door air curtain type

Article no. for DataNorm/EDV entry

Controls accessories: 196 000 (Insert type)

Frost protection thermostat, fitted: _ _ _ _ 000(Insert type) _ *Insert art. group (251 or 252)

**Max. no. of Tandem door air curtains per operating unit**

	Secondary and heated air curtains, separately	Secondary and heated air curtains, in parallel
No.	4	8

BUS control with the KaBUS ECO control system

The KaBUS ECO control system is designed as a multi-functional control system for door air curtains. Up to eight units can be controlled via a BUS cable from the operating unit. The

electronics are concealed within the door air curtain units themselves. The system can be configured for summer and/or winter mode. In addition to controlling waterside valves, 4-stage fan operation can also be set, optionally with demand-led fan speed increase.

Room temperature control and fan run-on functions are included. The operating unit with integral room temperature sensor is very user-friendly. Activation by external timers, door contacts, presence sensors or DDC components is also possible.

Accessories: BUS control with the KaBUS ECO system

Control valves · Frost protection thermostat



KaBUS ECO operating unit, type 031026

KaBUS ECO operating unit, type 031026

The KaBUS ECO operating unit serves to control the fan stage, fan speed, room temperature setpoint, fan run-on time, summer/winter mode of the system. An integral operating LED displays the operational state.

Housing	white, surface-mounted on a 55mm backbox
Room temperature setpoint	5 - 25 °C
Switching differential	+/- 0.8 K
Fan run-on time	
- without room temperature control	0 - 10 min (adjustable)
- with room temperature control	2 min fixed
Digital input	external activation, e.g. timer
Protection type	IP 30
Protection class	III (safety low voltage)
Dimensions	W x H x D: 70 x 70 x 26 mm



KaBUS ECO power module, type _ _ _ _ _ *-00B

KaBUS ECO Power module, fitted, type _ _ _ _ _ *-00B

The KaBUS ECO power module is factory-fitted on the door air curtain and serves to control the valve and the fan group that can be switched between 4 stages. The different operating programmes are selected by the DIP switched integrated within the power module. Not suitable for use with door air curtains with remote radio control.

Housing	steel
Voltage	230 V AC/50 Hz
Fan switching output	230 V AC/50 Hz 10 A inductive
Valve switching output	230 V AC/50 Hz 3 A inductive
Operation/fault switching output	24 V DC/30 mA
Digital input	frost alert
Digital input	door contact/movement alert etc.
Protection class	IP 20
Dimensions	W x H x D: 207 x 185 x 75 mm



Room temperature sensor, type 031056

Room temperature sensor type 031056

The separate room temperature sensor type 031056 is required if the room temperature sensor integrated within the operating unit cannot be used for any reason, possibly because of a poor fixing location.

Housing	white, surface-mounted in a 55 mm back box
Measuring range	0 to 51 °C
Protection class	IP 20
Protection class	III (safety low voltage)
Dimensions	W x H x D: 70 x 70 x 26 mm



Industrial room sensor, type 031057

Industrial room sensor type 031057

For use in areas where there is a high concentration of dust or high levels of humidity.

Housing	surface-mounted on the wall
Measuring range	0 to 51 °C
Protection class	IP 54
Protection class	III (safety low voltage)
Dimensions	B x H x T: 70 x 70 x 26 mm

Frost protection thermostat and KaBUS ECO power module, fitted, type* _ _ _ _ _ -F0B

Frost protection thermostat and remote radio controller fitted, type* _ _ _ _ _ -F0W

*Insert door air curtain basic type

Thermoelectric shut-off valve and frost protection thermostat see page 15

Article no. for DataNorm/EDV entry 196 000 (Insert type)

KaBUS ECO power module: _ _ _ 000 (Insert type) _ -00B *Insert art group (251 or 252)

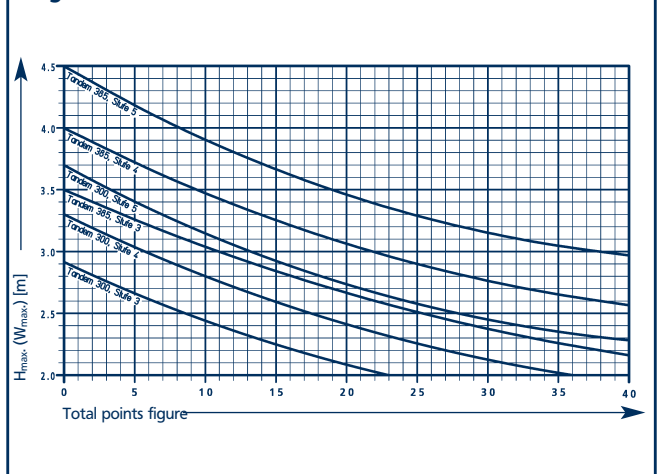
Evaluation criteria	Pressure conditions/Requirements/Environment	Points
Wind pressure conditions		☐ points
Passage/Porch		☐ points
Position of the building		☐ points
Area constantly used by people	 	☐ points
Pressure ratio due to mechanical ventilation		☐ points
Other thoroughfares/doorways		☐ points
Room height		☐ points
Floor area		☐ points
Distance from air outlet to doorway	 	☐ points
*intermediate figures are possible		☐ points
Total points total		☐ points

Selection process

Points should be allocated according to the circumstances on site, in terms of the different influencing factors/evaluation criteria as per the above scale.

- Intermediate figures are possible.
- Extreme cases for certain influencing factors beyond the scale can also be taken into account. The sum of the points in the right-hand column gives the points total for determining the maximum discharge heights and widths according to the switching stages given on Diagram 1.
- The limit values (see p 21) should be observed with doors that are constantly open
- H_{max} : Maximum discharge height for Tandem horizontal and vertical

Diagram 1



Evaluation criteria	Pressure conditions/Requirements/Environment	Points
Wind pressure conditions		2 points
Passage/Porch		4 points
Position of the building		0 points
Area constantly used by people		2 points
Pressure ratio due to mechanical ventilation		1 points
Other thoroughfares/Doorways		4 points
Room height		2 points
Floor area		2 points
Distance from air outlet to doorway		3 points
*Intermediate figures are possible		
Total points figure		20 points

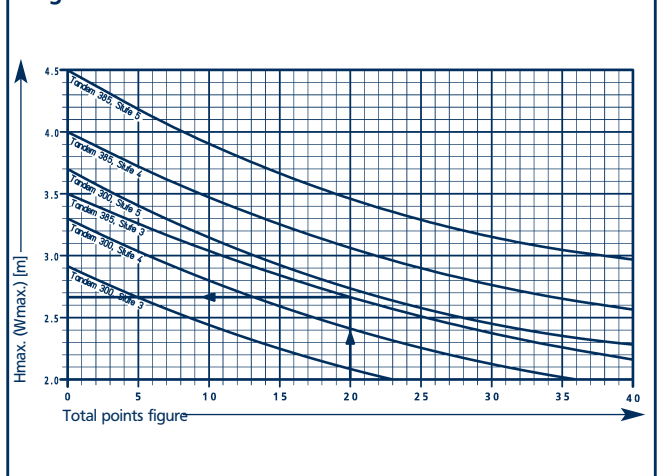
Selection example:**Given:**

Tandem door air curtain for showroom, door height: 2.30m, width: 2.00 m

- Slight to medium air flow (wind)
- No porch or passage
- Normal protected position
- Sales staff directly adjacent to the door
- Slight excess pressure in the room
- Thoroughfare opposite
- Room height: 3.50 m
- Floor area: 400 m²
- Distance from door to air outlet 300 mm

Selection:

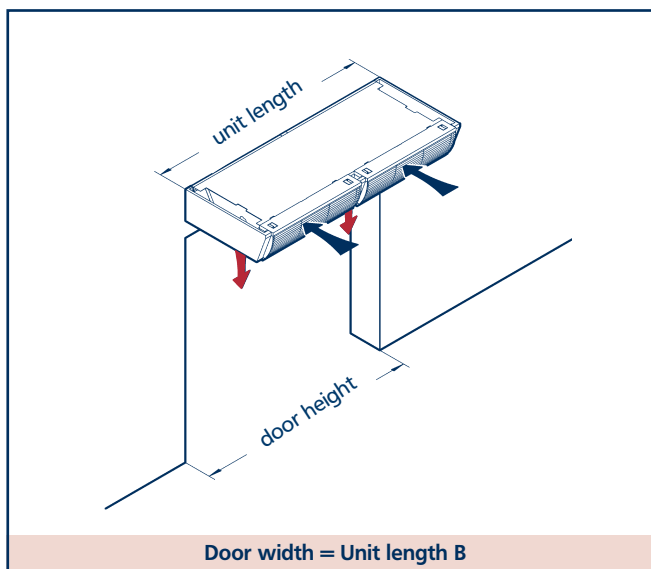
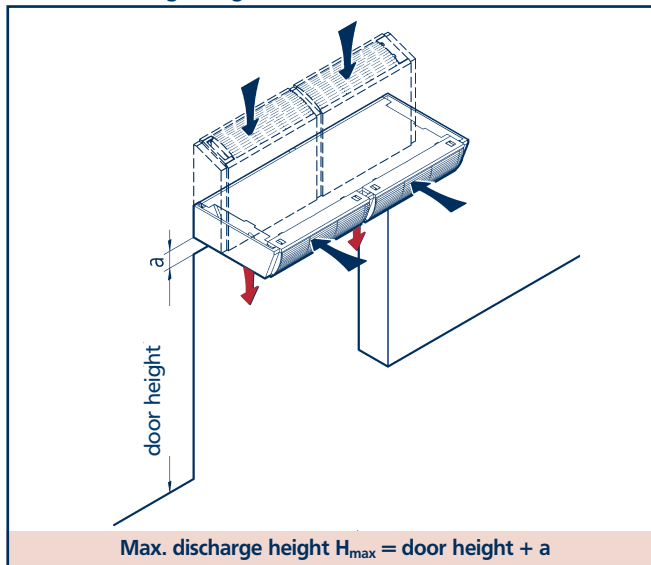
- Door air curtain model 20, unit length = door width
- Evaluation see table: points total 20
- Leaving air height = door height + a = 2.3 m + 0.3 m = 2.6 m
- From Diagram 1: minimum requirement with 20 points: Tandem door air curtain 385 at stage 3 with H_{max} = 2.70 m
- Result: Tandem door air curtain, model 20

Diagram 1

Unit selection

The following should be considered when selecting a unit:

- Door width/height
- Max. discharge height H



1. Calculation based on discharge height

- Max. discharge height $H_{\max} = \text{door height} + a$

The following should also be taken into consideration:

- Wind pressure conditions
- Influence of passages/porch/position of the building
- Areas used by people
- Pressure conditions due to mechanical ventilation etc.

Selection based on discharge height:

Max. discharge height $H_{\max}$ [m] ¹⁾	Door air curtain
2.7 - 3.4	Tandem 300 door air curtain
3.5 - 4.0	Tandem 385 door air curtain

2. Calculation based on door width

Selecting the required unit based on the door width:

- Door width = Unit length B

The lengths of the units are based on common door dimensions. Other lengths can be achieved by combining basic units of the same or different sizes or with the use of appropriate casing extensions (see table below).

Combination options

Door air curtain	Door width								
	Door air curtain sizes					Combination options with casing extensions ²⁾			
	1.0 m	1.5 m	2.0 m	2.5 m	3.0 m	3.0 m	3.5 m	4.0 m	4.5 m
Tandem 300	Model 10	Model 15	Model 20	Model 25	Model 30	1 x Model 30	Mod. 20 + Mod 15 Mod. 25 + Mod 10	2 x Model 20	Mod. 20 + Mod 25
Tandem 385	-	Model 15	Model 20	Model 25	-	2 x Model 15	Mod. 20 + Mod 15	2 x Model 20	Mod. 20 + Mod 25

¹⁾With average to good pressure conditions/requirements/environment

²⁾Shown up to door width 4.5 m; other widths can be created using further combinations

Arrangement

When door air curtains are arranged above the door (horizontal and vertical models), the units must be mounted in such a way that the outlet air grille sits as closely as possible to the door opening, and preferably directly adjacent to it. When arranged beside the doorway (standing models), it must also be ensured that the outlet air grille is positioned as closely as possible to the door opening.

Where there is a horizontal or vertical gap of more than around 500 mm between the door opening and the outlet grille, the next unit length up should be selected or side panels, not dissimilar to a corridor, have to be fitted.

Limits of use

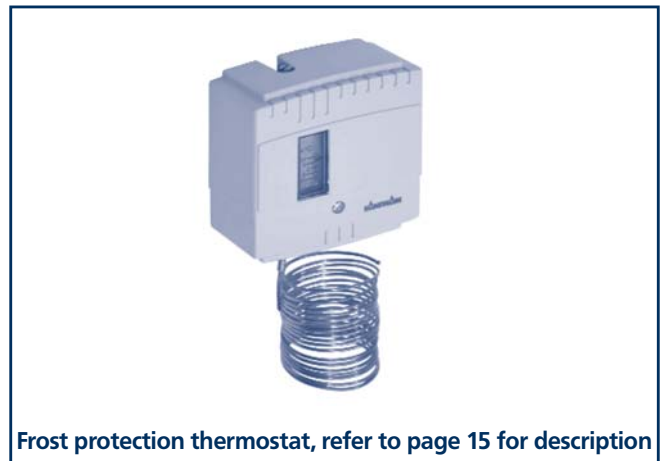
Extremely poor operating conditions, such as

- serious low pressure in the room, caused by mechanical ventilation without the supply of external air,
- extremely poor weather conditions, with high wind speeds in an unsheltered position,
- several open thoroughfares outside, particularly if they are located opposite each other,

can impair the effective screening effect of the door air curtains. Additional measures may be required to compensate for this. It should be taken into consideration when designing thoroughfares, that it may be necessary to close the doors even during business hours.

With standing door air curtains, the use of units on both sides of the door may be required with poor installation conditions.

Should doors, say in large department stores, have to be open, even in poor or extreme weather conditions, then units with a significantly higher air volume and heat output should be used. They must be capable of heating up the larger volumes of cold air.



Frost protection thermostat, refer to page 15 for description

Frost protection

If door air curtains are used in unheated rooms, such as porches, a frost protection thermostat is required to prevent the heat exchanger from freezing. This switches the fans off if there is a risk of frost, and opens the thermoelectric shut-off valve, should one be used (see p 13).

The frost protection thermostat is factory-fitted on the door air curtain, if the suffix -F is added to the end of the door air curtain type no.; it can also be supplied separately.

Low temperature operation

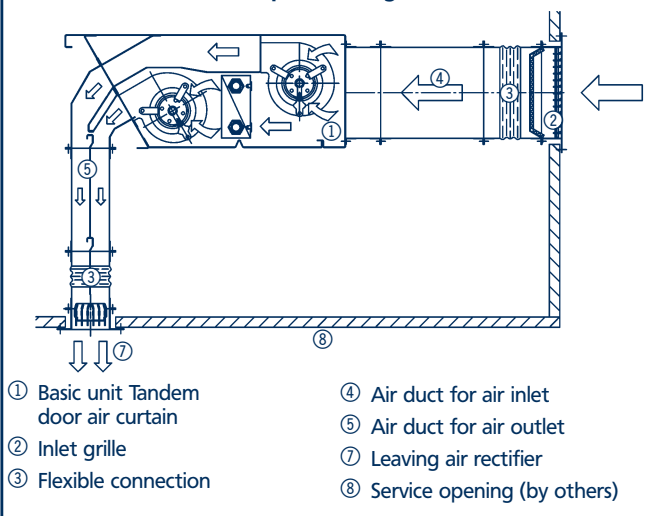
Modern low temperature and condensing boilers work most efficiently with low flow temperatures. Kampmann Tandem door air curtains have high-output copper/aluminium heat exchangers and are ideal for use in low temperature mode with a flow temperature of approx. 50 °C. The very low water content and fan operation with high air flows mean that they react very quickly to longer cool-down times.

Sound pressure level

The aerodynamic construction of the Tandem door air curtain has a very low noise level in spite of high outlet air velocity. It should nevertheless be borne in mind that the noise level can be rather annoying at higher fan speeds. The sound pressure levels are given in the technical data tables.

The sound pressure levels quoted have been calculated in an anechoic room with medium absorption at a distance of 3 m from the air inlet. As the actual sound pressure level is seriously dependent on the acoustic properties of the room, the given values can vary in practice. There can be increase in sound pressure level of up to 3-6 dB (A) with acoustically poor conditions, such as reverberant ceilings, closed doorways and poor absorption surfaces. If two door air curtains of the same model are arranged side by side, the sound pressure level increases by approximately 2-3 dB (A).

Unit shown within a bespoke casing



Conversion to other flow and return temperatures

Heat outputs for different water temperatures can be found in the technical data tables on pages 34 – 41.

The following formulae and heat output correction factors from Diagram 2 can be used to calculate the heat output with water temperatures which are not listed in the tables.

Key

t_{w1}	[°C] = Flow temperature
t_{w2}	[°C] = Return temperature
Δt	[K] = Average excess temperature
Δt_w	[K] = Water temperature difference
t_{L1}	[°C] = Entering air temperature
Q	[W] = Heat output
Q_n	[W] = Nominal heat output at LPHW 75/65 °C, $t_{L1} = 20$ °C
f	[/] = Heat output correction factor
$\dot{m}$	[l/h] = Water flow rate
R	[kPa] = Water pressure
V	[m³/h] = Air volume
C	[Wh/m³K] = Multiplier for outlet air temp. calculation = 0.34 wh/m³K

Calculation formulae

$$\Delta t = \frac{t_{w1} + t_{w2}}{2} - t_{L1} \quad (1)$$

$$Q = Q_n \cdot f \quad (3)$$

$$\Delta t_w = t_{w1} - t_{w2} \quad (2)$$

$$\dot{m} = \frac{Q}{\Delta t_w} \cdot 0.86 \quad (4)$$

$$t_{L2} = t_{L1} + \frac{Q}{V_{\text{warm}} \cdot C} \quad (5)$$

Calculation example

given:

Tandem 385 door air curtain, model 20
Horizontal model, type 220330
Flow temperature $t_{w1} = 65$ °C
Return temperature $t_{w2} = 55$ °C
Leaving air temperature $t_{L1} = 18$ °C

required:

Heat output Q at fan stage 5
Leaving air temperature t_{L2}
Water pressure R

Calculation

$$\Delta t = \frac{t_{w1} + t_{w2}}{2} - t_{L1} \quad (1) \quad \Delta t = \frac{65 + 55}{2} - 18 = 42 \text{ K}$$

$$\Delta t_w = t_{w1} - t_{w2} \quad (2) \quad \Delta t_w = 65 - 55 = 10 \text{ K}$$

from Diagram 2: $f = 0.81$

from Table page 40: $Q_n = 24199 \text{ W}$
(LPHW 75/65 °C, $t_{L1} = 20$ °C)

$$V = 2820 \text{ m}^3/\text{h}$$

$$Q = Q_n \cdot f \quad (3) \quad Q = 24199 \text{ W} \cdot 0.81 = \underline{\underline{19601 \text{ W}}}$$

$$\dot{m} = \frac{Q}{\Delta t_w} \cdot 0.86 \quad (4) \quad \dot{m} = \frac{19601}{10} \cdot 0.86 = 1960 \text{ l/h}$$

from Diagram 3, page 23, Tandem 385 door air curtain, model 20

Diagram line 2: $R = \underline{\underline{22 \text{ kPa}}}$

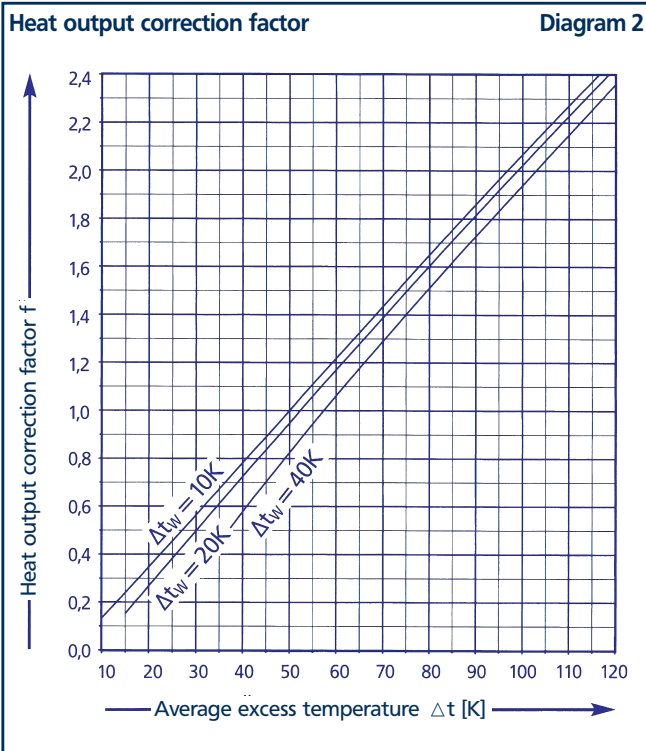
$$t_{L2} = t_{L1} + \frac{Q}{V_{\text{warm}} \cdot C} \quad (5) \quad t_{L2} = 18 + \frac{19601}{2820 \cdot 0.34} = \underline{\underline{38.4 \text{ °C}}}$$

Result

Heat output $Q = 19601 \text{ W}$

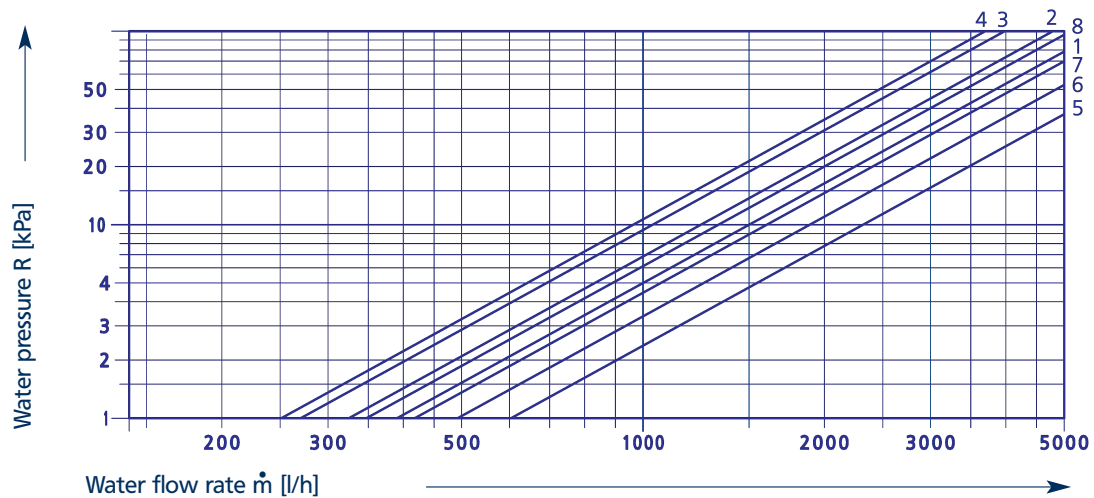
Leaving air temperature $t_{L2} = 38.4$ °C

Water pressure $R = 22 \text{ kPa}$



Horizontal/vertical model · Water pressure

Diagram 3



Water pressure

The water pressure can be calculated from Diagram 3 for the respective horizontal and vertical door air curtain sizes.

Table 1 gives the diagrams for Tandem models 300 and 385.

The flow rate can be calculated using the formulae on p 22. The pressure diagrams apply for LPHW with an average water temperature of 70 °C.

There must be hydraulic balancing when used together with conventional heating units.

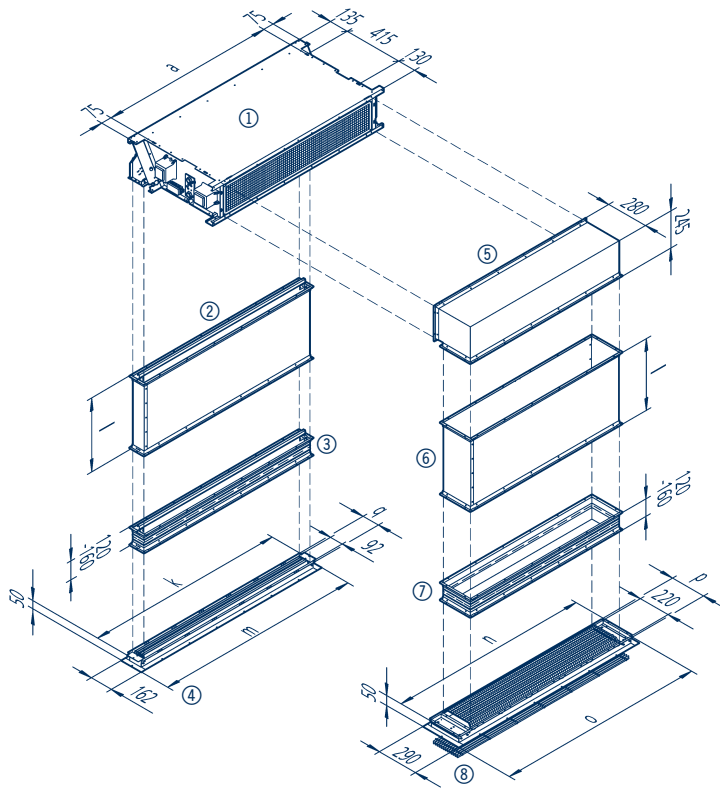
Horizontal and vertical models

Table 1

Model	10	15	20	25	30
Tandem 300	4	5	6	7	8
Tandem 385	-	1	2	3	-

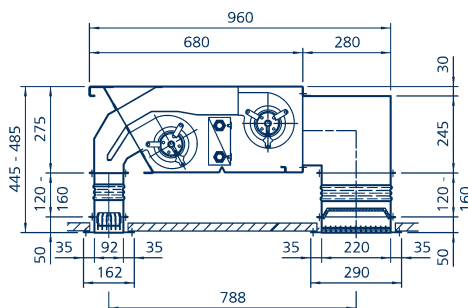
Dimensions of sheet steel components

Dimensions of sheet steel components



- ① Tandem 300 door air curtain, basic unit, horizontal model
- ② Air duct for air outlet
- ③ Flexible connection for air outlet
- ④ Leaving air rectifier
- ⑤ Inlet air angle section 90°
- ⑥ Air duct for air inlet
- ⑦ Flexible connection for air inlet
- ⑧ Inlet air grille

Installation within a suspended ceiling

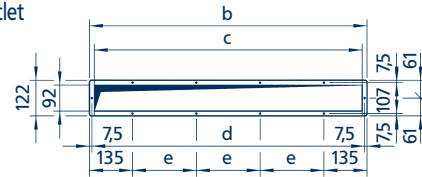


Horizontal model

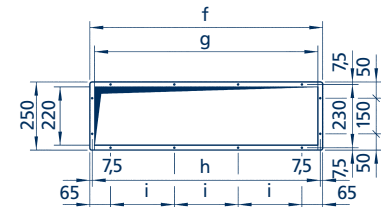
all dimensions in mm

Overall dimensions

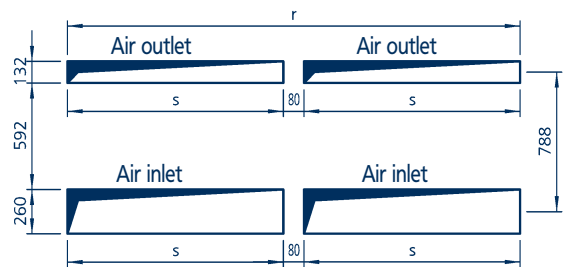
Air outlet



Air inlet



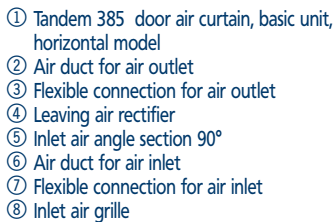
Opening dimensions



Model	10	15	20	25	30
a	730	1230	1730	2230	2730
b	870	1370	900*	1150*	1400*
c	840	1340	870*	1120*	1370*
d	855	1355	885*	1135*	1385*
e	200	220	200	212,5	220
f	730	1230	820*	1070*	1320*
g	700	1200	790*	1040*	1290*
h	715	1215	805*	1055*	1305*
i	200	220	200	212,5	220
k	884	1384	884*	1134*	1384*
l	Please state length when ordering				
m	954	1454	954*	1204*	1454*
n	884	1384	884*	1134*	1384*
o	954	1454	954*	1204*	1454*
p	250	250	250	250	250
q	122	122	122	122	122
r	-	-	1920	2420	2920
s	920	1420	920*	1170*	1420*

*Two sheet steel components are supplied for each model 20 and 25 door air curtain

Dimensions of sheet steel components for Tandem 385



This technical drawing shows the side profile of the machine. Key dimensions include:

- Total Width:** 1155
- Distance between main components:** 790
- Right-side extension:** 365
- Overall Height:** 530 - 570
- Main Body Height:** 360
- Base Mounting Heights:** 120 and 160
- Internal Vertical Spacing:** 160
- Front Base Dimensions:** 50, 35, 120, 35, 190
- Rear Base Dimensions:** 35, 305, 35, 375
- Bottom Total Width:** 927
- Side Panel Height:** 30, 330, 120, 160

[illegible]

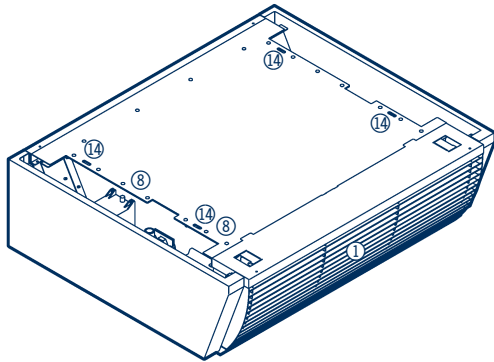
Technical drawing of a rectangular frame with dimensions and labels. The drawing shows a perspective view of a rectangular frame with a central opening. The dimensions are as follows:

- Overall width: f
- Overall height: 335
- Inner width: g
- Inner height: 305
- Top flange thickness: 75
- Bottom flange thickness: 50
- Side flange thickness: 320
- Inner width segments: 75 , h , 75
- Inner height segments: 175 , 50
- Bottom flange segments: 65 , i , i , i , 65

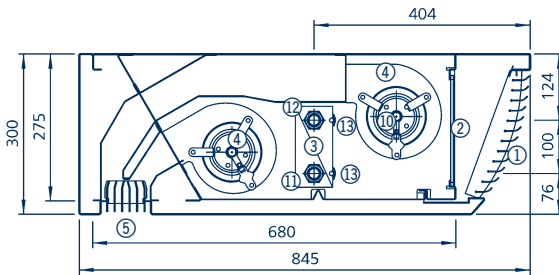
Technical drawing of a rectangular duct with four trapezoidal openings. The top two openings are labeled "Air outlet" and the bottom two are labeled "Air inlet". The total height of the duct is 927 mm. The distance between the centerlines of the top openings is 160 mm, and the distance between the centerlines of the bottom openings is 345 mm. The width of each opening is s , and the gap between the two openings on each side is 80 mm.

Technical data

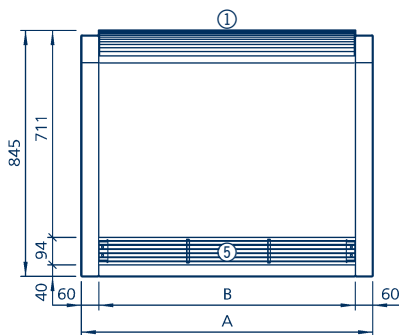
Dimensions of Tandem 300 • Models 10 and 15 • horizontal



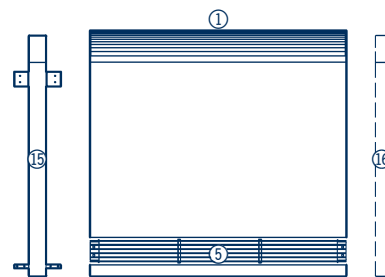
Horizontal door air curtain with basic unit casing



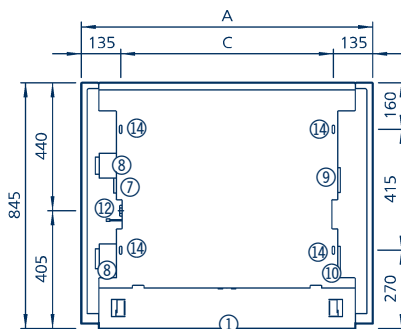
Cross-section through basic unit with casing



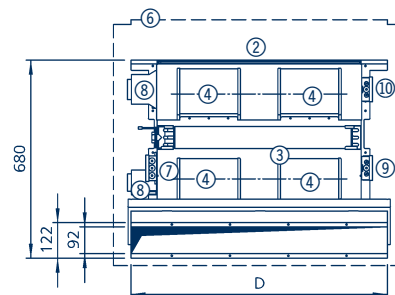
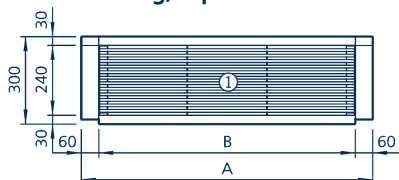
Basic unit casing, view from below



Casing extension



Basic unit with casing, top view

Basic unit without casing, view from below
Model 10 shown

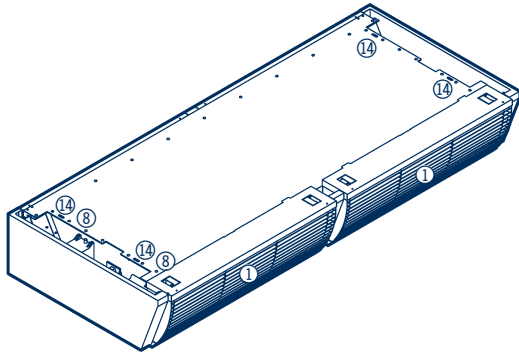
Basic unit casing, view of air inlet

- | | |
|---|---|
| ① Inlet air grille | ⑨ Electrical connection for heated air curtain |
| ② Filter G2 | ⑩ Electrical connection for secondary air curtain |
| ③ Heat exchanger (copper/aluminium) | ⑪ Flow connection 3/4" |
| ④ Radial fan | ⑫ Return connection 3/4" |
| ⑤ Leaving air rectifier | ⑬ Air vent and drain cock |
| ⑥ Casing outline | ⑭ Fixing holes |
| ⑦ Electrical terminal box for thermoelectric shut-off valve | ⑮ Connecting angle for casing extension |
| ⑧ Transformer | ⑯ Outline of end panel for basic unit casing |

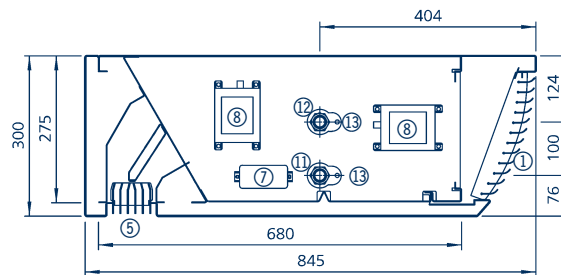
Model	10	15
A	1000	1500
B	880	1380
C	730	1230
D	880	1380

all dimensions in mm

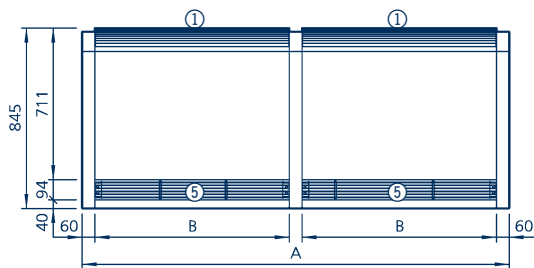
Dimensions of Tandem 300 • Models 20, 25 and 30 • horizontal



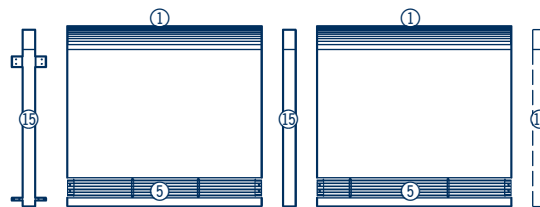
Horizontal door air curtain with basic unit casing



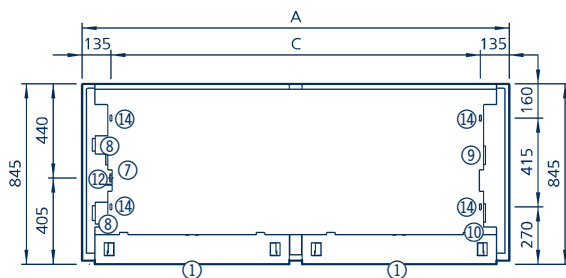
Basic unit with casing, side view



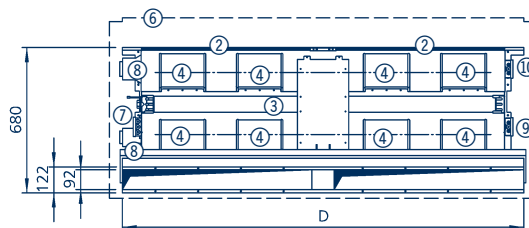
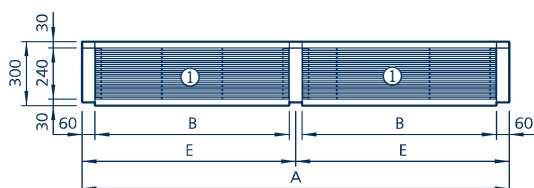
Basic unit casing, view from below



Casing extension



Basic unit with casing, top view

Basic unit without casing, view from below
Model 20

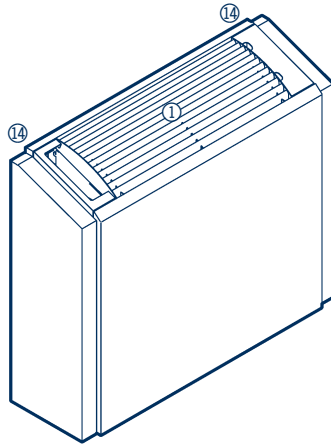
Basic unit casing, view of air inlet

- ① Inlet air grille
- ② Filter G2
- ③ Heat exchanger (copper/aluminium)
- ④ Radial fan
- ⑤ Leaving air rectifier
- ⑥ Casing outline
- ⑦ Electrical terminal box for thermoelectric shut-off valve
- ⑧ Transformer
- ⑨ Electrical connection for heated air curtain
- ⑩ Electrical connection for secondary air curtain
- ⑪ Flow connection 3/4"
- ⑫ Return connection 3/4"
- ⑬ Air vent and drain cock
- ⑭ Fixing holes
- ⑮ Connecting angle for casing extension
- ⑯ Outline of end panel for basic unit casing

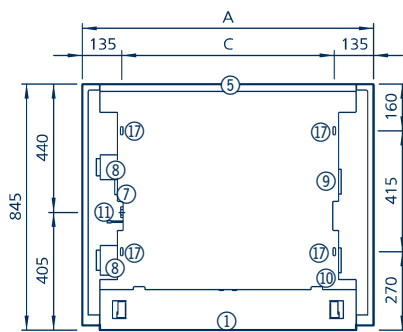
Model	20	25	30
A	2000	2500	3000
B	910	1160	1410
C	1730	2230	2730
D	1880	2380	2880
E	1000	1250	1500

all dimensions in mm

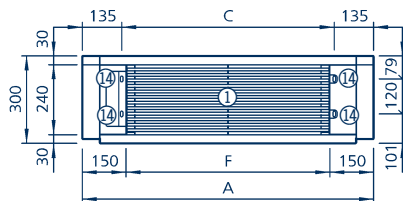
Dimensions of Tandem 300 • Modes 10 and 15 • vertical



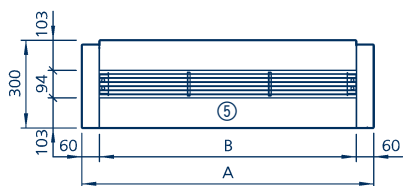
Vertical door air curtain with basic unit casing



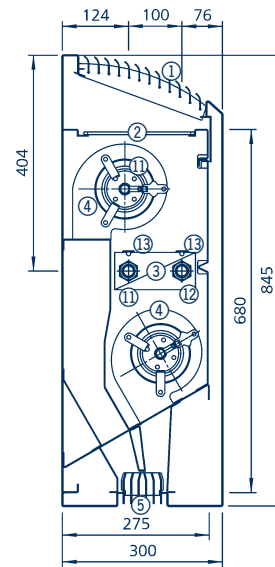
Basic unit casing, rear view



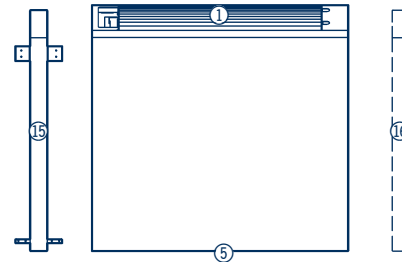
Basic unit with casing, top view



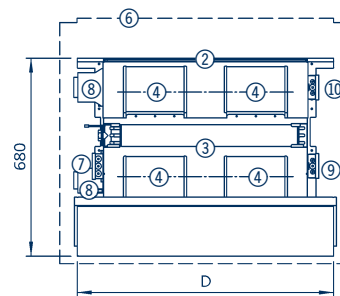
Basic unit casing, view of air inlet



Cross-section through basic unit casing



Casing extension

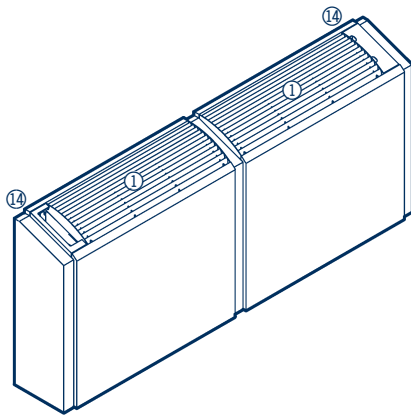
Basic unit without casing, front view
Model 10

- | | |
|---|--|
| ① Inlet air grille | ⑨ Electrical connection for heated air curtain |
| ② Filter G2 | ⑩ Electrical connection for secondary air curtain |
| ③ Heat exchanger (copper/aluminium) | ⑪ Flow connection 3/4" |
| ④ Radial fan | ⑫ Return connection 3/4" |
| ⑤ Leaving air rectifier | ⑬ Air vent |
| ⑥ Casing outline | ⑭ Fixing holes for use with wall or ceiling brackets |
| ⑦ Electrical terminal box for thermoelectric shut-off valve | ⑮ Connecting angle of casing extension |
| ⑧ Transformer | ⑯ Outline of end panel of basic unit casing |
| | ⑰ Fixing holes for wall mounting |

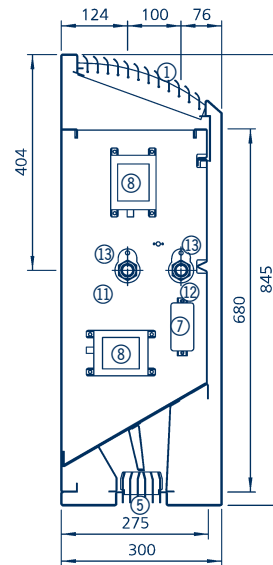
Model	10	15
A	1000	1500
B	880	1380
C	730	1230
D	880	1380
F	730	1230

all dimensions in mm

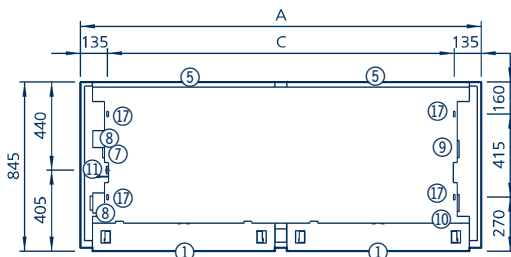
Dimensions of Tandem 300 • Models 20, 25 and 30 • vertical



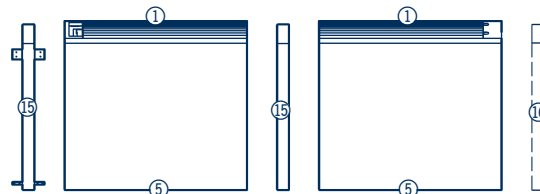
Vertical door air curtain with basic unit casing



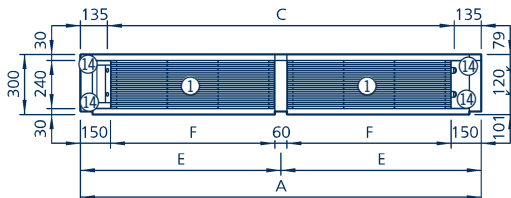
Basic unit with casing, side view



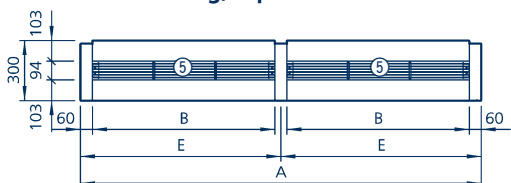
Basic unit casing, rear view



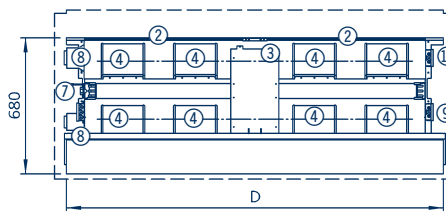
Casing extension



Basic unit with casing, top view



Basic unit casing, view of air inlet

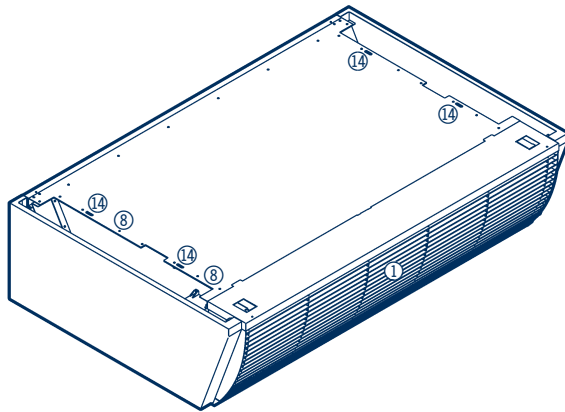
Basic unit without casing, front view
Model 20

- | | |
|---|--|
| ① Inlet air grille | ⑩ Electrical connection for secondary air curtain |
| ② Filter G2 | ⑪ Flow connection 3/4" |
| ③ Heat exchanger (copper/aluminium) | ⑫ Return connection 3/4" |
| ④ Radial fan | ⑬ Air vent |
| ⑤ Leaving air rectifier | ⑭ Fixing holes for use with wall or ceiling brackets |
| ⑥ Casing outline | ⑮ Connecting angle of casing extension |
| ⑦ Electrical terminal box for thermoelectric shut-off valve | ⑯ Outline of end panel of basic unit casing |
| ⑧ Transformer | ⑰ Fixing holes for wall mounting |
| ⑨ Electrical connection for heated air curtain | |

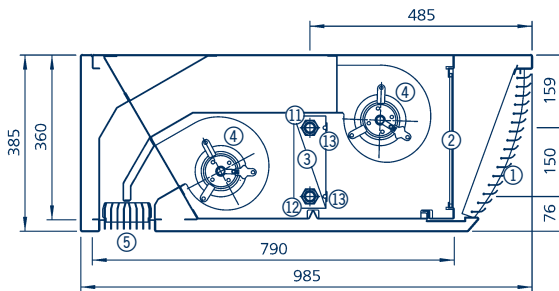
Model	20	25	30
A	2000	2500	3000
B	910	1160	1410
C	1730	2230	2730
D	1880	2380	2880
E	1000	1250	1500
F	820	1070	1320

all dimensions in mm

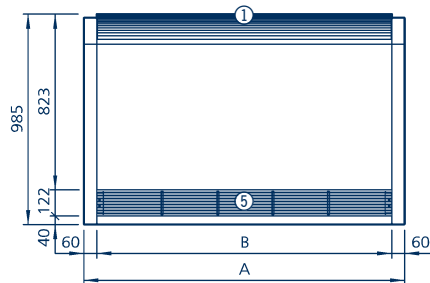
Dimensions of Tandem 385 • Model 15 • horizontal



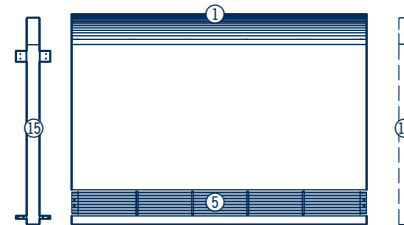
Horizontal door air curtain with basic unit casing



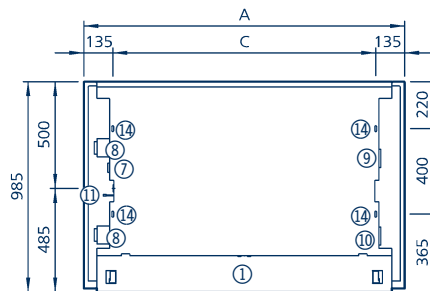
Cross-section through basic unit



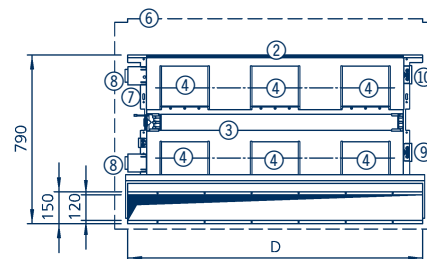
Basic unit casing, view from below



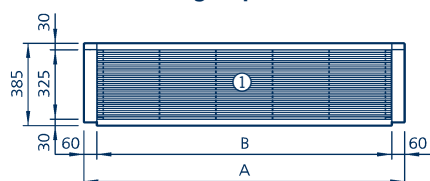
Casing extension



Basic unit with casing, top view



Basic unit without casing, view from below



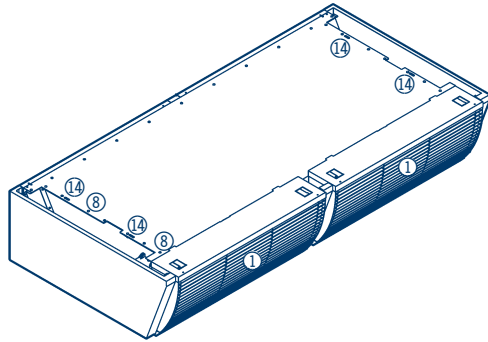
Basic unit casing, view of air inlet

- | | |
|---|---|
| ① Inlet air grille | ⑨ Electrical connection for heated air curtain |
| ② Filter G2 | ⑩ Electrical connection for secondary air curtain |
| ③ Heat exchanger (copper/aluminium) | ⑪ Flow connection 3/4" |
| ④ Radial fan | ⑫ Return connection 3/4" |
| ⑤ Leaving air rectifier | ⑬ Air vent and drain cock |
| ⑥ Casing outline | ⑭ Fixing holes |
| ⑦ Electrical terminal box for thermoelectric shut-off valve | ⑮ Connecting angle for casing extension |
| ⑧ Transformer | ⑯ Outline of end panel for basic unit casing |

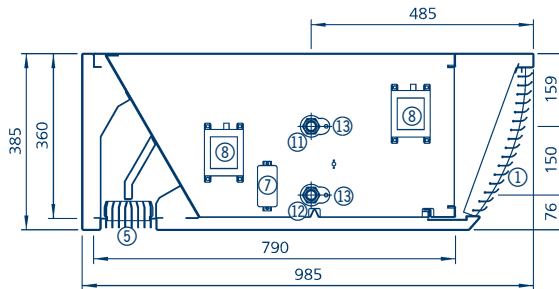
Model	15
A	1500
B	1380
C	1230
D	1380

all dimensions in mm

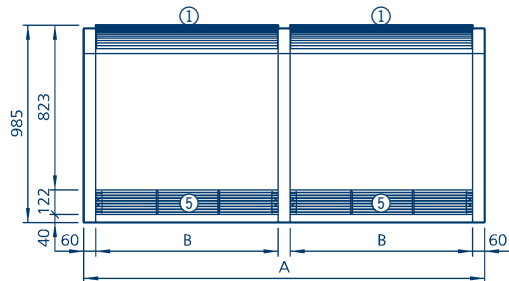
Dimensions of Tandem 385 • Models 20 und 25 • horizontal



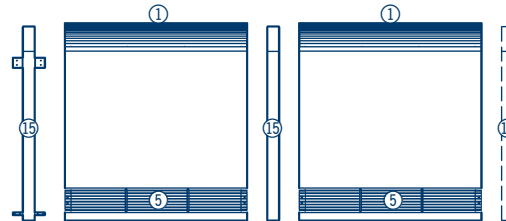
Horizontal door air curtain with basic unit casing



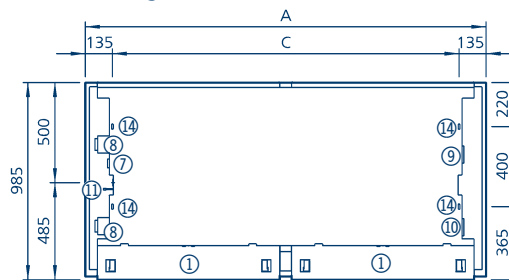
Basic unit with casing, side view



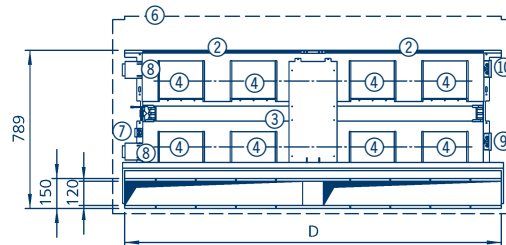
Basic unit casing, view from below



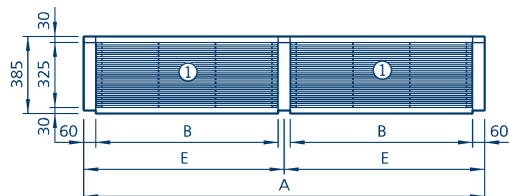
Casing extension



Basic unit with casing, top view



Basic unit without casing, view from below
Model 20 is shown



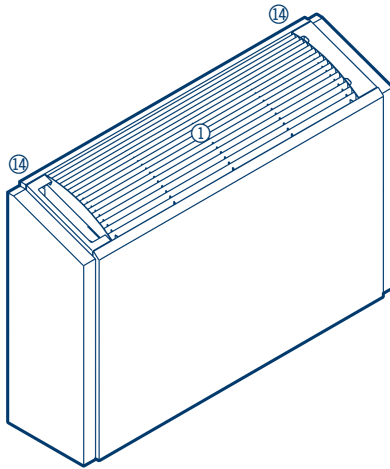
Basic unit casing, view of air inlet

- | | |
|---|---|
| ① Inlet air grille | ⑨ Electrical connection for warm air stream |
| ② Filter G2 | ⑩ Electrical connection for unheated secondary air stream |
| ③ Copper/aluminium heat exchanger | ⑪ Flow connection 3/4" |
| ④ Radial fan | ⑫ Return connection 3/4" |
| ⑤ Leaving air rectifier | ⑬ Air vent and drain cock |
| ⑥ Casing outline | ⑭ Fixing holes |
| ⑦ Electrical junction box for thermoelectric shut-off valve | ⑮ Connecting angle for casing extension |
| ⑧ Transformer | ⑯ Outline of the basic unit casing end panel |

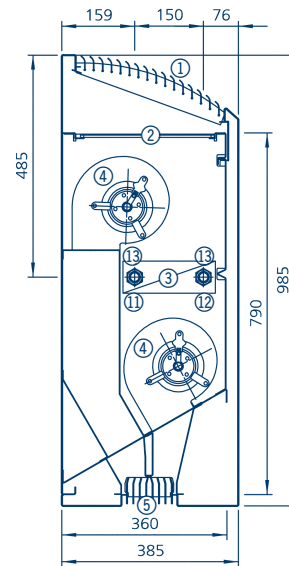
Model	20	25
A	2000	2500
B	910	1160
C	1730	2230
D	1880	2380
E	1000	1250

All dimensions in mm

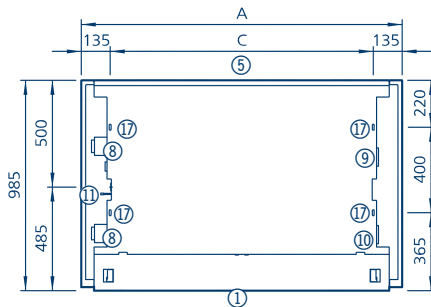
Dimensions of Tandem 385 • Model 15 • vertical



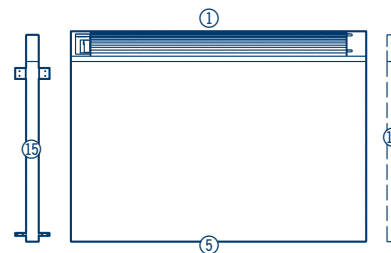
Vertical door air curtain with basic unit casing



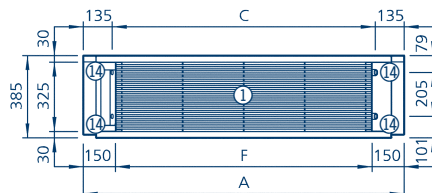
Cross-section through basic unit



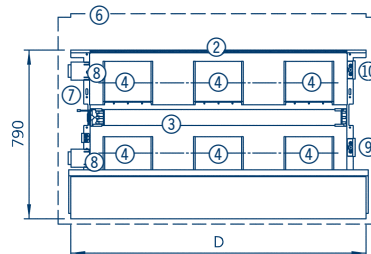
Basic unit casing, view from behind



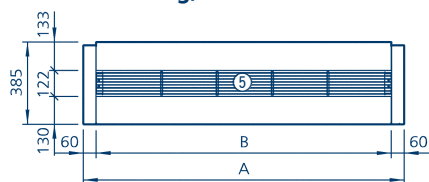
Casing extension



Basic unit with casing, view from above



Basic unit without casing, front view



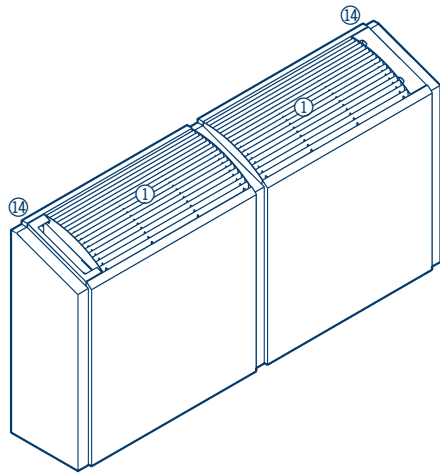
Basic unit casing, view of air outlet

- | | |
|---|---|
| ① Inlet air grille | ⑩ Electrical connection for unheated secondary air stream |
| ② Filter G2 | ⑪ Flow connection 3/4" |
| ③ Copper/aluminium heat exchanger | ⑫ Return connection 3/4" |
| ④ Radial fan | ⑬ Air vent and drain cock |
| ⑤ Leaving air rectifier | ⑭ Fixing holes |
| ⑥ Casing outline | ⑮ Connecting angle for casing extension |
| ⑦ Electrical junction box for thermoelectric shut-off valve | ⑯ Outline of the basic unit casing end panel |
| ⑧ Transformer | ⑰ Fixing holes for fixing directly to the wall |
| ⑨ Electrical connection for warm air stream | |

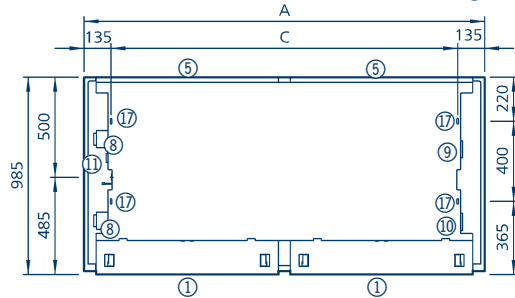
Model	15
A	1500
B	1380
C	1230
D	1380
F	1230

All dimensions in mm

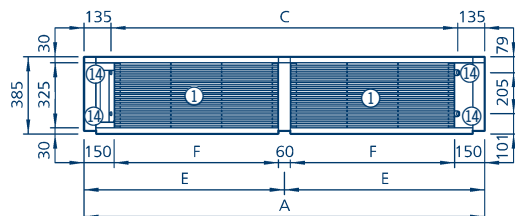
Dimensions of Tandem 385 • Models 20 and 25 • vertical



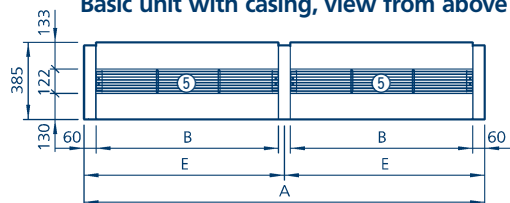
Vertical door air curtain with basic unit casing



Basic unit casing, view from behind

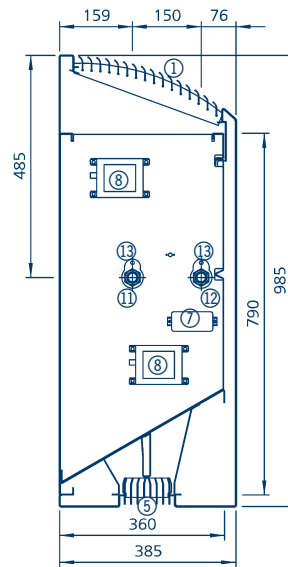


Basic unit with casing, view from above

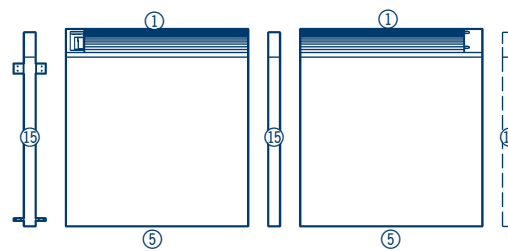


Basic unit casing, view of air outlet

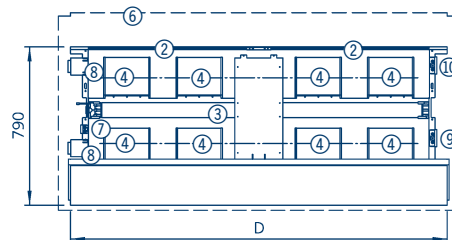
- | | |
|---|---|
| ① Inlet air grille | ⑨ Electrical connection for warm air stream |
| ② Filter G2 | ⑩ Electrical connection for unheated secondary air stream |
| ③ Copper/aluminium heat exchanger | ⑪ Flow connection 3/4" |
| ④ Radial fan | ⑫ Return connection 3/4" |
| ⑤ Leaving air rectifier | ⑬ Air vent and drain cock |
| ⑥ Casing outline | ⑭ Fixing holes |
| ⑦ Electrical junction box for thermoelectric shut-off valve | ⑮ Connecting angle for casing extension |
| ⑧ Transformer | ⑯ Outline of the basic unit casing end panel |
| | ⑰ Fixing holes for fixing directly to the wall |



Basic unit with casing, side view



Casing extension



Basic unit without casing, front view

Model 20 shown

Model	20	25
A	2000	2500
B	910	1160
C	1730	2230
D	1880	2380
E	1000	1250
F	820	1070

All dimensions in mm

Heat outputs - Model 10 • horizontal and vertical

Tandem door air curtain 300			horizontal					vertical				
Basic unit		Type	110430					110431				
Basic unit casing		Type	110900					110901				
Casing extension		Type	110910					110911				
Dimensions (incl. casing)	Length	mm	1000					1000				
	Height	mm	300					845				
	Depth	mm	845					300				
Max. discharge height H _{max} ¹⁾		m	2.7 - 3.4					2.7 - 3.4				
Max. door width		m	1.0					1.0				
Weight without/with casing		kg	49/83					49/83				
Water content		l	0.85					0.85				
Connections		inch	¾"					¾"				
Switching stage ²⁾			5		4		3		2		1	
Total air volume		m³/h	1980		1680		1440		1260		840	
Air volume, secondary air stream		m³/h	1030		860		740		640		430	
Air volume, warm air stream		m³/h	950		820		700		620		410	
Electr. power consumption ³⁾		W	590		480		380		320		180	
Current consumption ³⁾		A	2.55		2.11		1.67		1.44		0.90	
Sound pressure level at a distance of 3 m		dB(A)	59		56		52		48		37	
Water temperatures		Entering air temp. t _{L1} [°C]	Heat outputs									
			Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]
LPWW 55/45 °C		14	4946	29,0	4495	29,8	4050	30,7	3738	31,4	2841	34,0
		16	4636	30,2	4213	30,9	3796	31,8	3503	32,4	2663	34,9
		18	4326	31,3	3931	32,0	3542	32,8	3269	33,4	2485	35,7
		20	4016	32,4	3650	33,1	3289	33,8	3035	34,4	2307	36,6
		22	3707	33,5	3369	34,2	3035	34,8	2801	35,4	2129	37,4
LPHW 70/55 °C		14	6702	34,4	6090	35,5	5487	36,7	5064	37,6	3850	41,1
		16	6387	35,5	5804	36,6	5230	37,7	4826	38,6	3669	42,0
		18	6073	36,7	5518	37,7	4972	38,8	4589	39,6	3488	42,9
		20	5757	37,8	5232	38,8	4714	39,8	4350	40,6	3307	43,7
		22	5441	38,9	4945	39,8	4456	40,8	4112	41,6	3126	44,6
LPHW 70/60 °C		14	7275	36,1	6611	37,3	5957	38,6	5497	39,6	4179	43,5
		16	6965	37,3	6329	38,4	5703	39,7	5263	40,7	4001	44,4
		18	6654	38,5	6047	39,6	5449	40,8	5028	41,7	3822	45,3
		20	6344	39,6	5765	40,7	5194	41,8	4793	42,7	3644	46,1
		22	6033	40,8	5482	41,8	4940	42,9	4559	43,8	3466	47,0
LPHW 75/65 °C		14	8050	38,5	7315	39,8	6592	41,2	6083	42,4	4624	46,6
		16	7740	39,7	7034	40,9	6338	42,3	5849	43,4	4446	47,5
		18	7430	40,9	6752	42,1	6084	43,4	5614	44,5	4268	48,4
		20	7120	42,0	6470	43,2	5830	44,5	5380	45,5	4090	49,3
		22	6810	43,2	6188	44,3	5576	45,6	5145	46,6	3912	50,2
LPHW 82/71 °C		14	9055	41,5	8229	43,0	7415	44,6	6842	45,9	5202	50,7
		16	8747	42,8	7948	44,2	7162	45,7	6609	47,0	5024	51,6
		18	8437	44,0	7667	45,3	6909	46,9	6375	48,1	4847	52,6
		20	8128	45,2	7386	46,5	6655	48,0	6142	49,1	4669	53,5
		22	7818	46,3	7104	47,6	6401	49,1	5907	50,2	4491	54,4
LPHW 90/70 °C		20	8328	45,8	7567	47,1	6819	48,7	6292	49,9	4784	54,3

¹⁾With average to good pressure conditions/requirements/environment, see p 18 and 19²⁾When using a 3-stage switch, any 3 of the 5 stages can be selected.³⁾See page 10 for measuring data⁴⁾Based on warm air stream

Article no. for DataNorm/EDV entry: 251 000 (Insert type)

Heat outputs - Model 15 • horizontal and vertical

Tandem door air curtain 300			horizontal					vertical				
Basic unit	Type		115430					115431				
Basic unit casing	Type		115900					115901				
Casing extension	Type		115910					115911				
Dimensions (incl. casing)	Length	mm	1500					1500				
	Height	mm	300					845				
	Depth	mm	845					300				
Max. discharge height H _{max} ¹⁾	m		2.7 - 3.4					2.7 - 3.4				
Max. door width	m		1.5					1.5				
Weight without/with casing	kg		74/114					74/114				
Water content	l		1.5					1.5				
Connections	inch		3/4"					3/4"				
Switching stage ²⁾			5		4		3		2		1	
Total air volume	m³/h		2970		2520		2160		1890		1260	
Air volume, secondary air stream	m³/h		1545		1290		1110		960		645	
Air volume, warm air stream	m³/h		1425		1230		1050		930		615	
Electr. power consumption ³⁾	W		900		731		561		483		268	
Current consumption ³⁾	A		3.81		3.11		2.42		2.11		1.25	
Sound pressure level at a distance of 3 m	dB(A)		60		57		53		49		38	
Water temperatures	Entering air temp. t _{L1} [°C]	Heat outputs										
		Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]49	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	
LPWW 55/45 °C	14	8100	30,4	7343	31,3	6600	32,2	6072	32,9	4592	35,6	
	16	7592	31,5	6883	32,3	6186	33,1	5691	33,8	4304	36,3	
	18	7085	32,5	6422	33,3	5772	34,1	5310	34,7	4016	37,1	
	20	6577	33,6	5963	34,3	5359	35,0	4930	35,6	3729	37,8	
	22	6071	34,6	5503	35,2	4946	35,9	4550	36,5	3441	38,6	
LPHW 70/55 °C	14	10975	36,3	9949	37,4	8942	38,6	8226	39,6	6222	43,2	
	16	10460	37,3	9482	38,4	8523	39,6	7841	40,5	5930	44,0	
	18	9945	38,4	9015	39,4	8103	40,6	7454	41,4	5638	44,8	
	20	9428	39,5	8547	40,4	7682	41,5	7067	42,4	5345	45,6	
	22	8911	40,5	8078	41,4	7260	42,5	6680	43,2	5052	46,3	
LPHW 70/60 °C	14	11914	38,2	10800	39,4	9707	40,7	8930	41,8	6754	45,7	
	16	11406	39,3	10340	40,4	9293	41,7	8549	42,7	6466	46,6	
	18	10897	40,4	9879	41,5	8879	42,7	8168	43,7	6178	47,4	
	20	10389	41,4	9417	42,5	8464	43,7	7787	44,6	5889	48,2	
	22	9880	42,5	8956	43,5	8050	44,7	7406	45,6	5601	48,9	
LPHW 75/65 °C	14	13184	40,7	11951	42,1	10741	43,6	9882	44,7	7474	49,1	
	16	12676	41,9	11491	43,2	10328	44,6	9502	45,7	7186	50,0	
	18	12168	43,0	11031	44,2	9914	45,6	9121	46,7	6898	50,8	
	20	11660	44,1	10570	45,3	9500	46,6	8740	47,6	6610	51,6	
	22	11152	45,2	10109	46,3	9086	47,6	8359	48,6	6322	52,4	
LPHW 82/71 °C	14	14830	44,1	13443	45,6	12082	47,3	11116	48,5	8407	53,5	
	16	14324	45,2	12985	46,7	11670	48,3	10737	49,6	8120	54,4	
	18	13817	46,4	12526	47,8	11258	49,3	10357	50,6	7833	55,2	
	20	13310	47,5	12066	48,9	10845	50,4	9977	51,6	7546	56,1	
	22	12803	48,6	11606	49,9	10431	51,4	9597	52,5	7258	56,9	
LPHW 90/70 °C	20	13638	48,1	12363	49,6	11111	51,1	10222	52,3	7731	57,0	

¹⁾With average to good pressure conditions/requirements/environment, see p 18 and 19²⁾When using a 3-stage switch, any 3 of the 5 stages can be selected.³⁾See page 10 for measuring data⁴⁾Based on warm air stream

Artic. no. for DataNorm/EDV entry: 251 000 (Insert type)

Heat outputs - Model 20 • horizontal and vertical

Tandem door air curtain 300			horizontal					vertical				
Basic unit		Type	120430					120431				
Basic unit casing		Type	120900					120901				
Casing extension		Type	120910					120911				
Dimensions (incl. casing)	Length	mm	2000					2000				
	Height	mm	300					845				
	Depth	mm	845					300				
Max. discharge height H _{max} ¹⁾		m	2.7 - 3.4					2.7 - 3.4				
Max. door width		m	2.0					2.0				
Weight without/with casing		kg	99/146					99/146				
Water content		l	2.2					2.2				
Connections		inch	3/4"					3/4"				
Switching stage ²⁾			5		4		3		2		1	
Total air volume		m³/h	3960		3360		2880		2520		1680	
Air volume, secondary air stream		m³/h	2060		1720		1480		1280		860	
Air volume, warm air stream		m³/h	1900		1640		1400		1240		820	
Electr. power consumption ³⁾		W	1120		923		708		602		338	
Current consumption ³⁾		A	4.85		3.98		3.80		2.62		1.55	
Sound pressure level at a distance of 3 m		dB(A)	61		58		55		51		41	
Water temperatures		Entering air temp. t _{L1} [°C]	Heat outputs									
			Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]49	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]
LPWW 55/45 °C		14	11303	31,2	10240	32,0	9184	33,0	8441	33,7	6343	36,4
		16	10594	32,2	9598	33,0	8608	33,9	7911	34,5	5945	37,1
		18	9886	33,2	8956	34,0	8032	34,8	7382	35,4	5547	37,8
		20	9178	34,2	8315	34,9	7457	35,7	6854	36,3	5150	38,5
		22	8471	35,2	7674	35,8	6883	36,5	6326	37,1	4753	39,2
LPHW 70/55 °C		14	15314	37,3	13874	38,4	12443	39,7	11436	40,7	8593	44,3
		16	14596	38,3	13223	39,4	11860	40,6	10900	41,6	8191	45,0
		18	13877	39,4	12572	40,4	11275	41,5	10363	42,4	7787	45,8
		20	13156	40,4	11919	41,4	10690	42,5	9825	43,3	7383	46,5
		22	12434	41,4	11265	42,3	10103	43,4	9286	44,2	6978	47,2
LPHW 70/60 °C		14	16625	39,3	15061	40,5	13508	41,9	12415	42,9	9329	46,9
		16	15915	40,4	14419	41,6	12932	42,9	11885	43,9	8931	47,7
		18	15206	41,4	13776	42,6	12355	43,8	11355	44,8	8533	48,4
		20	14496	42,4	13133	43,6	11779	44,7	10825	45,7	8134	49,2
		22	13786	43,5	12490	44,5	11202	45,7	10295	46,6	7736	49,9
LPHW 75/65 °C		14	18396	42,0	16666	43,4	14947	44,9	13738	46,0	10323	50,4
		16	17688	43,1	16024	44,4	14372	45,8	13209	47,0	9926	51,2
		18	16979	44,1	15382	45,4	13796	46,8	12680	47,9	9528	52,0
		20	16270	45,2	14740	46,4	13220	47,8	12150	48,8	9130	52,7
		22	15561	46,2	14097	47,4	12644	48,7	11620	49,7	8732	53,5
LPHW 82/71 °C		14	20693	45,5	18747	47,0	16814	48,7	15453	50,0	11612	54,9
		16	19987	46,6	18107	48,1	16240	49,7	14926	51,0	11216	55,8
		18	19280	47,7	17467	49,1	15666	50,7	14398	52,0	10819	56,6
		20	18573	48,8	16826	50,2	15091	51,7	13870	52,9	10422	57,4
		22	17865	49,8	16185	51,2	14516	52,7	13341	53,8	10025	58,2
LPHW 90/70 °C		20	19029	49,5	17240	50,9	15462	52,5	14211	53,7	10678	58,3

¹⁾With average to good pressure conditions/requirements/environment, see p 18 and 19²⁾When using a 3-stage switch, any 3 of the 5 stages can be selected.³⁾See page 10 for measuring data⁴⁾Based on warm air stream

Articl. no. for DataNorm/EDV entry: 251 000 _ (Insert type)

Heat outputs - Model 25 • horizontal and vertical

Tandem door air curtain 300			horizontal					vertical				
Basic unit		Type	125430					125431				
Basic unit casing		Type	125900					125901				
Casing extension		Type	125910					125911				
Dimensions (incl. casing)	Length	mm	2500					2500				
	Height	mm	300					845				
	Depth	mm	845					300				
Max. discharge height H _{max} ¹⁾		m	2.7 - 3.4					2.7 - 3.4				
Max. door width		m	2.5					2.5				
Weight without/with casing		kg	127/185					127/185				
Water content		l	2.9					2.9				
Connections		inch	3/4"					3/4"				
Switching stage ²⁾			5		4		3		2		1	
Total air volume		m³/h	5940		5040		4320		3780		2520	
Air volume, secondary air stream		m³/h	3090		2580		2220		1920		1290	
Air volume, warm air stream		m³/h	2850		2460		2100		1860		1230	
Electr. power consumption ³⁾		W	1603		1319		1024		890		497	
Current consumption ³⁾		A	7.10		5.78		4.49		3.89		2.27	
Sound pressure level at a distance of 3 m		dB(A)	62		58		56		52		42	
Water temperatures		Entering air temp. t ₁ [°C]	Heat outputs									
			Q [W]	t ₁₂ ⁴⁾ [°C]	Q [W]	t ₁₂ ⁴⁾ [°C]	Q [W]	t ₁₂ ⁴⁾ [°C]	Q [W]49	t ₁₂ ⁴⁾ [°C]	Q [W]	t ₁₂ ⁴⁾ [°C]
LPWW 55/45 °C		14	16513	30,7	14978	31,6	13449	32,5	12373	33,2	9351	36,0
		16	15478	31,8	14039	32,6	12606	33,5	11597	34,1	8764	36,7
		18	14443	32,8	13100	33,6	11763	34,4	10821	35,0	8178	37,4
		20	13409	33,8	12162	34,5	10921	35,3	10047	35,9	7593	38,2
		22	12376	34,8	11225	35,5	10080	36,2	9273	36,7	7008	38,9
LPHW 70/55 °C		14	22373	36,7	20293	37,8	18222	39,1	16763	40,0	12669	43,8
		16	21324	37,8	19342	38,9	17368	40,0	15978	41,0	12075	44,5
		18	20273	38,8	18389	39,9	16512	41,0	15190	41,9	11480	45,3
		20	19221	39,8	17434	40,8	15655	41,9	14401	42,8	10884	46,0
		22	18166	40,9	16477	41,8	14796	42,8	13611	43,7	10287	46,7
LPHW 70/60 °C		14	24288	38,6	22030	39,9	19782	41,2	18198	42,3	13753	46,3
		16	23252	39,7	21090	40,9	18938	42,2	17422	43,2	13167	47,1
		18	22215	40,8	20150	42,0	18094	43,2	16645	44,2	12580	47,9
		20	21178	41,9	19209	43,0	17249	44,2	15868	45,1	11992	48,7
		22	20141	42,9	18269	44,0	16404	45,1	15091	46,0	11405	49,4
LPHW 75/65 °C		14	26876	41,3	24377	42,6	21890	44,1	20137	45,3	15219	49,8
		16	25841	42,4	23439	43,7	21047	45,1	19362	46,3	14633	50,6
		18	24806	43,4	22500	44,7	20204	46,1	18586	47,2	14047	51,4
		20	23770	44,5	21560	45,8	19360	47,1	17810	48,2	13460	52,2
		22	22733	45,6	20620	46,8	18516	48,1	17033	49,1	12873	53,0
LPHW 82/71 °C		14	30232	44,7	27421	46,2	24623	47,9	22651	49,2	17119	54,2
		16	29200	45,8	26486	47,3	23783	48,9	21879	50,2	16535	55,1
		18	28168	46,9	25549	48,4	22942	49,9	21105	51,2	15950	55,9
		20	27134	48,0	24612	49,4	22100	51,0	20331	52,1	15365	56,7
		22	26100	49,1	23673	50,5	21258	51,9	19556	53,1	14779	57,5
LPHW 90/70 °C		20	27802	48,7	25217	50,1	22644	51,7	20831	52,9	15743	57,6

¹⁾With average to good pressure conditions/requirements/environment, see p 18 and 19²⁾When using a 3-stage switch, any 3 of the 5 stages can be selected.³⁾See page 10 for measuring data⁴⁾Based on warm air stream

Article no. for DataNorm/EDV entry: 251 000 (Insert type)

Heat outputs - Model 30 • horizontal and vertical

Tandem door air curtain 300			horizontal					vertical				
Basic unit		Type	130430					130431				
Basic unit casing		Type	130900					130901				
Casing extension		Type	130910					130911				
Dimensions (incl. casing)	Length	mm	3000					3000				
	Height	mm	300					845				
	Depth	mm	845					300				
Max. discharge height H _{max} ¹⁾		m	2.7 - 3.4					2.7 - 3.4				
Max. door width		m	3.0					3.0				
Weight without/with casing		kg	152/217					152/217				
Water content		l	3.7					3.7				
Connections		inch	3/4"					3/4"				
Switching stage ²⁾			5		4		3		2		1	
Total air volume		m³/h	6120		5190		4450		3890		2590	
Air volume, secondary air stream		m³/h	3180		2660		2290		1980		1330	
Air volume, warm air stream		m³/h	2940		2530		2160		1910		1260	
Electr. power consumption ³⁾		W	1603		1319		1024		890		497	
Current consumption ³⁾		A	7.10		5.78		4.49		3.89		2.27	
Sound pressure level at a distance of 3 m		dB(A)	62		58		56		52		42	
Water temperatures		Entering air temp. t _{L1} [°C]	Heat outputs									
			Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]
LPWW 55/45 °C		14	18646	32,3	17305	33,0	15096	34,2	13852	35,0	10296	37,6
		16	17477	33,3	16220	33,9	14149	35,0	12984	35,8	9650	38,3
		18	16308	34,2	15135	34,8	13203	35,9	12116	36,5	9005	38,9
		20	15140	35,1	14052	35,7	12258	36,7	11248	37,3	8360	39,5
		22	13974	36,1	12969	36,6	11313	37,5	10382	38,1	7716	40,1
LPHW 70/55 °C		14	25263	38,8	23446	39,8	20453	41,4	18768	42,4	13949	46,0
		16	24078	39,8	22347	40,7	19494	42,2	17888	43,2	13295	46,7
		18	22892	40,8	21246	41,6	18534	43,1	17007	44,0	12640	47,3
		20	21703	41,7	20143	42,5	17571	43,9	16124	44,8	11984	48,0
		22	20513	42,6	19038	43,4	16607	44,7	15239	45,6	11326	48,6
LPHW 70/60 °C		14	27425	41,0	25453	42,0	22204	43,7	20375	44,8	15143	48,7
		16	26255	42,0	24367	42,9	21256	44,6	19505	45,7	14497	49,4
		18	25084	42,9	23281	43,9	20309	45,5	18636	46,5	13851	50,1
		20	23913	43,9	22194	44,8	19361	46,4	17766	47,4	13204	50,8
		22	22743	44,9	21107	45,7	18413	47,2	16896	48,2	12558	51,5
LPHW 75/65 °C		14	30347	43,8	28165	45,0	24569	46,9	22546	48,1	16756	52,4
		16	29179	44,9	27081	45,9	23624	47,8	21678	49,0	16111	53,2
		18	28010	45,9	25996	46,9	22677	48,7	20809	49,9	15466	53,9
		20	26840	46,9	24910	47,9	21730	49,6	19940	50,7	14820	54,6
		22	25670	47,8	23824	48,8	20782	50,5	19070	51,5	14174	55,3
LPHW 82/71 °C		14	34136	47,6	31681	48,8	27637	51,0	25360	52,4	18849	57,2
		16	32972	48,6	30601	49,8	26694	51,9	24495	53,3	18206	58,0
		18	31806	49,6	29519	50,8	25751	52,9	23629	54,2	17562	58,8
		20	30639	50,7	28436	51,8	24806	53,8	22762	55,1	16918	59,5
		22	29471	51,7	27352	52,8	23860	54,7	21895	55,9	16273	60,2
LPHW 90/70 °C		20	31392	51,4	29135	52,6	25416	54,6	23322	55,9	17334	60,5

¹⁾With average to good pressure conditions/requirements/environment, see p 18 and 19²⁾When using a 3-stage switch, any 3 of the 5 stages can be selected.³⁾See page 10 for measuring data⁴⁾Based on warm air stream

Article no. for DataNorm/EDV entry: 251 000 _ (Insert type)

Heat outputs - Model 15 • horizontal and vertical

Tandem door air curtain 385			horizontal					vertical				
Basic unit		Type	215330					215331				
Basic unit casing		Type	215800					215801				
Casing extension		Type	215810					215811				
Dimensions (incl. casing)	Length	mm	1500					1500				
	Height	mm	385					985				
	Depth	mm	985					385				
Max. discharge height H _{max} ¹⁾		m	3.5 - 4.0					3.5 - 4.0				
Max. door width		m	1.5					1.5				
Weight without/with casing		kg	98/145					98/145				
Water content		l	1.8					1.8				
Connections		inch	3/4"					3/4"				
Switching stage ²⁾			5		4		3		2		1	
Total air volume		m³/h	4360		3830		3280		2850		1890	
Air volume, secondary air stream		m³/h	2230		1950		1670		1450		960	
Air volume, warm air stream		m³/h	2130		1880		1610		1400		930	
Electr. power consumption ³⁾		w	1146		912		692		596		328	
Current consumption ³⁾		A	4,96		3,96		3,02		2,64		1,56	
Sound pressure level at a distance of 3 m		dB(A)	62		59		55		51		40	
Water temperatures		Entering air temp. t _{L1} [°C]	Heat outputs									
			Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]
LPWW 55/45 °C		14	12060	30,4	11074	31,0	9941	31,8	9008	32,6	6692	34,8
		16	11304	31,4	10379	32,0	9318	32,8	8443	33,5	6272	35,6
		18	10548	32,5	9685	33,1	8695	33,8	7878	34,5	5853	36,4
		20	9793	33,5	8992	34,1	8072	34,7	7314	35,4	5434	37,2
		22	9038	34,6	8299	35,1	7450	35,7	6751	36,3	5015	38,0
LPHW 70/55 °C		14	16340	36,2	15003	37,1	13469	38,2	12204	39,2	9067	42,2
		16	15574	37,3	14300	38,1	12838	39,2	11632	40,2	8642	43,0
		18	14806	38,3	13595	39,1	12205	40,2	11059	41,1	8216	43,8
		20	14038	39,4	12889	40,2	11571	41,1	10485	42,0	7789	44,6
		22	13267	40,4	12182	41,2	10936	42,1	9909	42,9	7362	45,4
LPHW 70/60 °C		14	17738	38,1	16287	39,0	14622	40,2	13249	41,4	9843	44,6
		16	16981	39,2	15592	40,1	13998	41,3	12683	42,3	9423	45,5
		18	16224	40,3	14897	41,2	13374	42,3	12118	43,3	9003	46,3
		20	15467	41,4	14202	42,2	12750	43,3	11552	44,3	8583	47,1
		22	14710	42,4	13507	43,3	12125	44,3	10987	45,2	8162	48,0
LPHW 75/65 °C		14	19628	40,6	18023	41,7	16180	43,0	14660	44,3	10892	47,8
		16	18873	41,8	17329	42,8	15557	44,1	14096	45,3	10472	48,7
		18	18117	42,9	16635	43,9	14934	45,1	13531	46,3	10053	49,6
		20	17360	44,0	15940	44,9	14310	46,1	12966	47,2	9633	50,5
		22	16603	45,1	15245	46,0	13686	47,1	12401	48,2	9213	51,3
LPHW 82/71 °C		14	22079	44,0	20273	45,2	18200	46,7	16491	48,0	12252	52,1
		16	21326	45,1	19582	46,3	17579	47,7	15928	49,1	11834	53,0
		18	20572	46,2	18889	47,4	16958	48,8	15365	50,1	11415	53,9
		20	19817	47,4	18196	48,5	16335	49,8	14801	51,1	10996	54,8
		22	19062	48,5	17503	49,5	15713	50,9	14237	52,1	10577	55,6
LPHW 90/70 °C		20	20304	48,0	18644	49,2	16737	50,6	15165	51,9	11267	55,6

¹⁾With average to good pressure conditions/requirements/environment, see p 18 and 19²⁾When using a 3-stage switch, any 3 of the 5 stages can be selected.³⁾See page 10 for measuring data⁴⁾Based on warm air stream

Articl no. for DataNorm/EDV entry: 252 000 _ _ _ _ _ (Insert type)

Heat outputs - Model 20 • horizontal and vertical

Tandem door air curtain 385			horizontal					vertical				
Basic unit	Type		220330					220331				
Basic unit casing	Type		220800					220801				
Casing extension	Type		220810					220811				
Dimensions (incl. casing)	Length	mm	2000					2000				
	Height	mm	385					985				
	Depth	mm	985					385				
Max. discharge height H _{max} ¹⁾	m		3.5 - 4.0					3.5 - 4.0				
Max. door width	m		2.0					2.0				
Weight without/with casing	kg		130/186					130/186				
Water content	l		2.6					2.6				
Connections	inch		3/4"					3/4"				
Switching stage ²⁾			5		4		3		2		1	
Total air volume	m³/h		5770		5050		4360		3770		2460	
Air volume, secondary air stream	m³/h		2950		2570		2220		1920		1250	
Air volume, warm air stream	m³/h		2820		2480		2140		1850		1210	
Electr. power consumption ³⁾	W		1508		1196		908		786		430	
Current consumption ³⁾	A		6,54		5,20		3,94		3,46		2,02	
Sound pressure level at a distance of 3 m	dB(A)		63		60		57		54		43	
Water temperatures	Entering air temp. t _{L1} [°C]	Heat outputs										
		Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	Q [W]	t _{L2} ⁴⁾ [°C]	
LPWW 55/45 °C	14	16811	31,2	15372	31,9	13855	32,7	12479	33,5	9123	35,8	
	16	15757	32,2	14408	32,9	12986	33,6	11696	34,4	8551	36,5	
	18	14703	33,2	13444	33,9	12118	34,6	10914	35,3	7979	37,3	
	20	13651	34,2	12482	34,8	11250	35,5	10133	36,1	7408	38,0	
	22	12599	35,2	11520	35,7	10384	36,4	9352	37,0	6837	38,7	
LPHW 70/55 °C	14	22777	37,3	20827	38,3	18772	39,4	16907	40,4	12360	43,5	
	16	21709	38,4	19850	39,3	17892	40,3	16115	41,3	11781	44,3	
	18	20639	39,4	18872	40,3	17010	41,2	15321	42,2	11200	45,1	
	20	19568	40,4	17892	41,2	16127	42,2	14525	43,1	10619	45,8	
	22	18494	41,4	16911	42,2	15242	43,1	13728	44,0	10036	46,5	
LPHW 70/60 °C	14	24726	39,3	22609	40,3	20379	41,5	18354	42,7	13418	46,1	
	16	23671	40,4	21645	41,4	19509	42,5	17571	43,6	12846	46,9	
	18	22616	41,4	20680	42,4	18639	43,5	16788	44,5	12273	47,7	
	20	21560	42,5	19714	43,4	17769	44,4	16004	45,4	11700	48,4	
	22	20505	43,5	18749	44,4	16899	45,4	15221	46,3	11127	49,2	
LPHW 75/65 °C	14	27361	42,0	25018	43,2	22550	44,5	20310	45,7	14848	49,5	
	16	26308	43,1	24055	44,2	21682	45,5	19528	46,7	14276	50,3	
	18	25254	44,2	23091	45,2	20813	46,4	18746	47,6	13704	51,1	
	20	24199	45,2	22127	46,2	19944	47,4	17963	48,6	13132	51,9	
	22	23144	46,3	21162	47,2	19074	48,4	17180	49,5	12559	52,7	
LPHW 82/71 °C	14	30777	45,5	28142	46,8	25366	48,3	22846	49,7	16702	53,9	
	16	29727	46,6	27182	47,9	24500	49,3	22067	50,7	16132	54,8	
	18	28676	47,7	26221	48,9	23634	50,3	21287	51,6	15562	55,6	
	20	27624	48,8	25259	50,0	22767	51,3	20506	52,6	14991	56,4	
	22	26571	49,9	24296	51,0	21899	52,3	19724	53,5	14419	57,3	
LPHW 90/70 °C	20	28303	49,5	25880	50,7	23327	52,1	21010	53,4	15359	57,3	

¹⁾With average to good pressure conditions/requirements/environment, see p 18 and 19²⁾When using a 3-stage switch, any 3 of the 5 stages can be selected.³⁾See page 10 for measuring data⁴⁾Based on warm air stream

Article no. for DataNorm/EDV entry: 252 000 _ (Insert type)

Heat outputs - Model 25 • horizontal and vertical

Tandem door air curtain 385			horizontal					vertical				
Basic unit		Type	225330					225331				
Basic unit casing		Type	225800					225801				
Casing extension		Type	225810					225811				
Dimensions (incl. casing)	Length	mm	2500					2500				
	Height	mm	385					985				
	Depth	mm	985					385				
Max. discharge height H _{max} ¹⁾		m	3.5 - 4.0					3.5 - 4.0				
Max. door width		m	2.5					2.5				
Weight without/with casing		kg	166/236					166/236				
Water content		l	3.5					3.5				
Connections		inch	3/4"					3/4"				
Switching stage ²⁾			5		4		3		2		1	
Total air volume		m³/h	8180		7020		6070		5340		3370	
Air volume, secondary air stream		m³/h	4180		3570		3090		2720		1710	
Air volume, warm air stream		m³/h	4000		3450		2980		2620		1660	
Electr. power consumption ³⁾		W	2182		1746		1316		1134		610	
Current consumption ³⁾		A	9,54		7,62		5,74		5,02		2,88	
Sound pressure level at a distance of 3 m		dB(A)	64		61		58		54		44	
Water temperatures		Entering air temp. t ₁ [°C]	Heat outputs									
			Q [W]	t ₁₂ ⁴⁾ [°C]	Q [W]	t ₁₂ ⁴⁾ [°C]	Q [W]	t ₁₂ ⁴⁾ [°C]	Q [W]	t ₁₂ ⁴⁾ [°C]	Q [W]	t ₁₂ ⁴⁾ [°C]
LPWW 55/45 °C		14	23518	31,0	21227	31,8	19147	32,6	17466	33,3	12488	35,7
		16	22043	32,0	19896	32,8	17946	33,5	16371	34,2	11705	36,5
		18	20569	33,0	18565	33,7	16746	34,4	15276	35,0	10922	37,2
		20	19096	34,0	17236	34,7	15547	35,3	14183	35,9	10140	38,0
		22	17625	35,0	15908	35,6	14349	36,2	13090	36,8	9359	38,7
LPHW 70/55 °C		14	31864	37,0	28759	38,1	25941	39,2	23665	40,1	16920	43,5
		16	30370	38,1	27411	39,1	24725	40,1	22555	41,0	16126	44,2
		18	28873	39,1	26060	40,1	23507	41,1	21444	41,9	15332	45,0
		20	27374	40,1	24707	41,1	22286	42,0	20330	42,8	14536	45,8
		22	25872	41,1	23352	42,0	21064	42,9	19215	43,7	13738	46,5
LPHW 70/60 °C		14	34591	39,0	31221	40,2	28162	41,3	25690	42,3	18368	46,0
		16	33115	40,1	29889	41,2	26960	42,3	24594	43,3	17584	46,8
		18	31639	41,1	28556	42,2	25758	43,3	23497	44,2	16800	47,6
		20	30162	42,2	27223	43,2	24556	44,2	22401	45,1	16016	48,4
		22	28685	43,2	25890	44,2	23353	45,2	21304	46,1	15232	49,1
LPHW 75/65 °C		14	38276	41,7	34548	42,9	31162	44,2	28427	45,4	20325	49,4
		16	36803	42,7	33218	44,0	29963	45,2	27333	46,3	19542	50,2
		18	35328	43,8	31887	45,0	28762	46,2	26238	47,3	18759	51,0
		20	33853	44,9	30555	46,0	27561	47,2	25142	48,2	17976	51,8
		22	32377	45,9	29223	47,1	26359	48,2	24046	49,2	17192	52,6
LPHW 82/71 °C		14	43056	45,1	38861	46,6	35053	48,0	31977	49,3	22863	53,8
		16	41587	46,2	37535	47,6	33857	49,0	30886	50,3	22083	54,7
		18	40117	47,3	36208	48,7	32660	50,0	29794	51,3	21302	55,5
		20	38645	48,4	34880	49,7	31462	51,1	28701	52,2	20520	56,4
		22	37171	49,5	33550	50,8	30263	52,0	27607	53,2	19738	57,2
LPHW 90/70 °C		20	39595	49,1	35737	50,5	32236	51,8	29406	53,0	21025	57,3

¹⁾With average to good pressure conditions/requirements/environment, see p 18 and 19²⁾When using a 3-stage switch, any 3 of the 5 stages can be selected.³⁾See page 10 for measuring data⁴⁾Based on warm air stream

Article no. for DataNorm/EDV entry: 252 000 _ (Insert type)

Electrical models, horizontal; Heat outputs - Models 10, 15, 20, 25

Tandem door air curtain 300-Electro			Model 10, horizontal					Model 15, horizontal				
Basic unit	Type		11046000W					11546000W				
Basic unit casing	Type		110900					115900				
Casing extension	Type		110910					115910				
Dimensions (incl. casing)	Length	mm	1000					1500				
	Height	mm	300					300				
	Depth	mm	845					845				
Max. discharge height $H_{max}^{1)}$	m		2.7 - 3.4					2.7 - 3.4				
Max. door width	m		1.0					1.5				
Weight without/with casing	kg		46/80					70/110				
Switching stage			5	4	3	2	1	5	4	3	2	1
Total air volume	m ³ /h		1980	1680	1440	1260	840	2970	2520	2160	1890	1260
Air volume, secondary air stream	m ³ /h		1030	860	740	640	430	1545	1290	1110	960	645
Air volume, warm air stream	m ³ /h		950	820	700	620	410	1425	1230	1050	930	615
Elec. consumption ²⁾ of fan	w		590	480	380	320	180	900	731	561	483	268
Current consumption ²⁾ of fan	A		2,55	2,11	1,67	1,44	0,90	3,81	3,11	2,42	2,11	1,25
Sound pressure level- at a distance of 3m	dB(A)		59	56	52	48	37	60	57	53	49	38
Max. curr. consump. - elec. heat. element	A		9,0					13,0				
Heat output - elec. heating element ³⁾	w		5170	4460	3810	3370	2230	7750	6690	5710	5060	3350

Tandem door air curtain 300-Electro			Model 20, horizontal					Model 25, horizontal				
Basic unit	Type		12046000W					12546000W				
Basic unit casing	Type		120900					125900				
Casing extension	Type		120910					125910				
Dimensions (incl. casing)	Length	mm	2000					2500				
	Height	mm	300					300				
	Depth	mm	845					845				
Max. discharge height $H_{max}^{1)}$	m		2.7 - 3.4					2.7 - 3.4				
Max. door width	m		2.0					2.5				
Weight without/with casing	kg		94/141					121/179				
Switching stage			5	4	3	2	1	5	4	3	2	1
Total air volume	m ³ /h		3960	3360	2880	2520	1680	5940	5040	4320	3780	2520
Air volume, secondary air stream	m ³ /h		2060	1720	1480	1280	860	3090	2580	2220	1920	1290
Air volume, warm air stream	m ³ /h		1900	1640	1400	1240	820	2850	2460	2100	1880	1230
Elec. consumption ²⁾ of fan	w		1120	923	708	602	338	1603	1319	1024	890	497
Current consumption ²⁾ of fan	A		4,85	3,98	3,80	2,62	1,55	7,10	5,78	4,49	3,89	2,27
Sound pressure level- at a distance of 3m	dB(A)		61	58	55	51	41	62	58	56	52	42
Max. elec. curr. consum. of heat. element	A		16,0					26,0				
Heat output - elec. heating element ³⁾	w		10340	8920	7620	6750	4460	15500	13380	11420	10120	6690

Technical data

Tandem door air curtains 300-Electro are only supplied with remote radio control.

¹⁾With average to good pressure conditions/requirements/environment, see p 18 and 19²⁾See page 10 for measuring data³⁾Depending on the air volumes of the individual stages, the heat output is regulated at approx. 36 °C leaving air temperatureArticle no. for DataNorm/EDV entry:
251 000 (Insert type) _____

Qty.	Article no.	Description	Price / each	Total price		
pc.	251 000	110430 Tandem door air curtain basic unit made of sendzimir galvanised sheet steel with sound and heat insulation; air inlet through filter class G 2, low maintenance; with 2 radial fan groups, arranged above each other, for secondary air stream and warm air stream, air inlet on both sides and direct driven, fan group can be switched between 5 fan stages via transformers for individual and parallel control Tandem door air curtain 300 height 300 mm (horizontal); 230 V/50 Hz, internal motor protection via thermal contacts, motor protection class IP 44, insulation class F; heat exchanger made of hollow copper pipes and aluminium fins; for heating up to a flow temperature of 90° and a max. continuous operating pressure of 10 bar; heat exchanger connections: 3/4"; 430horizontal model 431vertical model Dimensions of Tandem door air curtain 300 (incl. casing) Model 10: horizontal L x H x D: 1000 x 300 x 845 mm vertical L x H x D: 1000 x 845 x 300 mm Model 15: horizontal L x H x D: 1500 x 300 x 845 mm vertical L x H x D: 1500 x 845 x 300 mm Model 20: horizontal L x H x D: 2000 x 300 x 845 mm vertical L x H x D: 2000 x 845 x 300 mm Model 25: horizontal L x H x D: 2500 x 300 x 845 mm vertical L x H x D: 2500 x 845 x 300 mm Model 30: horizontal L x H x D: 3000 x 300 x 845 mm vertical L x H x D: 3000 x 845 x 300 mm Manufacturer Kampmann, article no. 2510001_____, type 1_____				
		pc.	252 000	215330 Tandem door air curtain 385 height 385 mm (horizontal); 230 V/50 Hz; internal motor protection via thermal contacts, motor protection class IP 44, insulation class F; high-output heat exchanger made of hollow copper pipes with aluminium fins, for heating up to LPHW 90° and max. continuous operating pressure of 10 bar; heat exchanger connections: 3/4"; 330horizontal 331vertical Dimensions of Tandem door air curtain 385 (incl. casing) Model 15: horizontal L x H x D: 1500 x 385 x 985 mm vertical L x H x D: 1500 x 985 x 385 mm Model 20: horizontal L x H x D: 2000 x 385 x 985 mm vertical L x H x D: 2000 x 985 x 385 mm Model 25: horizontal L x H x D: 2500 x 385 x 985 mm vertical L x H x D: 2500 x 985 x 385 mm Manufacturer Kampmann, article no. 2520002_____, type 2_____ Technical data Switching stage 54321 Air volumem³/h Power consumptionw Curr. consumption (fan/contr.)A Sound pressure leveldB(A) Heat outputW Leaving air temperature°C Weightkg Water temp. LPHW°C Entering air temperature°C		
				Required to complete article no. for DataNorm/EDV		

Qty.	Article no.	Description	Price / each	Total price
pc.	--- 000 1 10 900	Basic unit casing for door air curtain made of sheet steel; attractive, slimline housing design, simple to fit, welded and smoothed corners with recessed end sections, simple to remove for maintenance; powdercoated traffic white RAL 9016; curved linear grille made of air stream-enhancing profiles, easily removed to service filter, powdercoated RAL 9006; leaving air rectifier in the outlet air stream for minimum turbulence and an even leaving air stream powdercoated RAL 9006;		
	1	Tandem door air curtain 300		
	900	horizontal		
	901	vertical		
	10	Dimensions of Tandem door air curtain 300 Model 10: horizontalL x H x D: 1000 x 300 x 845 mm verticalL x H x D: 1000 x 845 x 300 mm		
	15	Model 15: horizontalL x H x D: 1500 x 300 x 845 mm verticalL x H x D: 1500 x 845 x 300 mm		
	20	Model 20: horizontalL x H x D: 2000 x 300 x 845 mm verticalL x H x D: 2000 x 845 x 300 mm		
	25	Model 25: horizontalL x H x D: 2500 x 300 x 845 mm verticalL x H x D: 2500 x 845 x 300 mm		
	30	Model 30: horizontalL x H x D: 3000 x 300 x 845 mm verticalL x H x D: 3000 x 845 x 300 mm		
	2	Tandem door air curtain 385		
	800	horizontal		
	801	vertical		
	15	Dimensions of Tandem door air curtain 385 Model 15: horizontalL x H x D: 1500 x 385 x 985 mm verticalL x H x D: 1500 x 985 x 385 mm		
	20	Model 20: horizontalL x H x D: 2000 x 385 x 985 mm verticalL x H x D: 2000 x 985 x 385 mm		
	25	Model 25: horizontalL x H x D: 2500 x 385 x 985 mm verticalL x H x D: 2500 x 985 x 385 mm		
		Manufacturer Kampmann Article no. ---000---- Type -----		
Required to complete article no. for DataNorm/EDV: 251 = Tandem door air curtain 300 252 = Tandem door air curtain 385				

Qty.	Article no.	Description	Price / each	Total price																																																
pc.	--- 000 1 10 910	Casing extension for door air curtains manufactured from sheet steel, powdercoated in traffic white RAL 9016; attractive, slimline housing design, simple to fit, welded and smoothed corners with recessed end sections, simple to dismantle for maintenance, with connecting angles to connect to the basic unit casing; rounded linear inlet air grille made of air stream- enhancing profiles, simple to remove for filter service, powdercoated RAL 9006; leaving air rectifier in the outlet air stream for minimum turbulence and an even leaving air stream, powdercoated RAL 9006; combined with a basic unit casing (horizontal and vertical) it is ideal for connecting several door air curtains together without additional connection set 1 Tandem door air curtain 300 910 horizontal 911 vertical Dimensions of Tandem door air curtain 300 <table><tr><td>Model 10:</td><td>horizontal</td><td>L x H x D: 1000 x 300 x 845 mm</td></tr><tr><td></td><td>vertical</td><td>L x H x D: 1000 x 845 x 300 mm</td></tr><tr><td>Model 15:</td><td>horizontal</td><td>L x H x D: 1500 x 300 x 845 mm</td></tr><tr><td></td><td>vertical</td><td>L x H x D: 1500 x 845 x 300 mm</td></tr><tr><td>Model 20:</td><td>horizontal</td><td>L x H x D: 2000 x 300 x 845 mm</td></tr><tr><td></td><td>vertical</td><td>L x H x D: 2000 x 845 x 300 mm</td></tr><tr><td>Model 25:</td><td>horizontal</td><td>L x H x D: 2500 x 300 x 845 mm</td></tr><tr><td></td><td>vertical</td><td>L x H x D: 2500 x 845 x 300 mm</td></tr><tr><td>Model 30:</td><td>horizontal</td><td>L x H x D: 3000 x 300 x 845 mm</td></tr><tr><td></td><td>vertical</td><td>L x H x D: 3000 x 845 x 300 mm</td></tr></table> 2 Tandem door air curtain 385 810 horizontal 811 vertical Dimensions of Tandem door air curtain 385 <table><tr><td>Model 15:</td><td>horizontal</td><td>L x H x D: 1500 x 385 x 985 mm</td></tr><tr><td></td><td>vertical</td><td>L x H x D: 1500 x 985 x 385 mm</td></tr><tr><td>Model 20:</td><td>horizontal</td><td>L x H x D: 2000 x 385 x 985 mm</td></tr><tr><td></td><td>vertical</td><td>L x H x D: 2000 x 985 x 385 mm</td></tr><tr><td>Model 25:</td><td>horizontal</td><td>L x H x D: 2500 x 385 x 985 mm</td></tr><tr><td></td><td>vertical</td><td>L x H x D: 2500 x 985 x 385 mm</td></tr></table> Manufacturer Kampmann Article no. ---000----- Type -----	Model 10:	horizontal	L x H x D: 1000 x 300 x 845 mm		vertical	L x H x D: 1000 x 845 x 300 mm	Model 15:	horizontal	L x H x D: 1500 x 300 x 845 mm		vertical	L x H x D: 1500 x 845 x 300 mm	Model 20:	horizontal	L x H x D: 2000 x 300 x 845 mm		vertical	L x H x D: 2000 x 845 x 300 mm	Model 25:	horizontal	L x H x D: 2500 x 300 x 845 mm		vertical	L x H x D: 2500 x 845 x 300 mm	Model 30:	horizontal	L x H x D: 3000 x 300 x 845 mm		vertical	L x H x D: 3000 x 845 x 300 mm	Model 15:	horizontal	L x H x D: 1500 x 385 x 985 mm		vertical	L x H x D: 1500 x 985 x 385 mm	Model 20:	horizontal	L x H x D: 2000 x 385 x 985 mm		vertical	L x H x D: 2000 x 985 x 385 mm	Model 25:	horizontal	L x H x D: 2500 x 385 x 985 mm		vertical	L x H x D: 2500 x 985 x 385 mm		
Model 10:	horizontal	L x H x D: 1000 x 300 x 845 mm																																																		
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Model 25:	horizontal	L x H x D: 2500 x 385 x 985 mm																																																		
	vertical	L x H x D: 2500 x 985 x 385 mm																																																		
Required to complete article no. for DataNorm/EDV: 251 = Tandem door air curtain 300 252 = Tandem door air curtain 385																																																				

Brackets • Sheet steel accessories for installation within suspended ceilings

Qty.	Article no.	Description	Price / each	Total price
set	___000 1 00 * 9 0	Wall brackets for door air curtain made of sendzimir galvanised sheet steel, powdercoated traffic white RAL 9016; consisting of telescopic rails and threaded rods, adjustable, comprising 2 fixing angles with U-rails and screws, 4 threaded rods M8 x 500 mm with nuts, 2 telescopic rails and 2 screw covers 1 for Tandem door air curtain 300 2 for Tandem door air curtain 385 0 for horizontal model 1 for vertical model Manufacturer Kampmann, Article no. ___000_00*9_ , Type _00*9_	one required per door air curtain	
set	___000 1 00 * 9 5	Ceiling brackets for door air curtains made of sendzimir galvanised steel metal, powdercoated traffic white RAL 9016; for adjustable ceiling mounting, consisting of 2 U-rails for fixing on the ceiling, 4 threaded rods M8 x 500 mm with bolts, 2 telescopic rails and 2 screw covers 1 for Tandem door air curtain 300 2 for Tandem door air curtain 385 5 for horizontal model 6 for vertical model Manufacturer Kampmann, Article no. ___000_00*9_ , Type _00*9_	one required per door air curtain	
pc.	___000 1 10 * 25	Replacement filter mat for fitting in door air curtain basic unit or inlet air grille, filter class G2; Manufacturer Kampmann, Article no. ___000___*25, Type ___*25		
pc.	___000 1 10 * 30	Inlet air grille with frame and filter fixing for installation in a suspended ceiling or bespoke casing; inlet grille supplied as a linear grille, made of air stream-enhancing aluminium droplet profiles, easily removed to take out filter; sheet steel frame and inlet grille, completely powdercoated in traffic white RAL 9016; Manufacturer Kampmann, Article no. ___000___*30, Type ___*30		
pc.	___000 1 10 * 20	Replacement filter mat for insertion in door air curtain basic units, filter class G2; Manufacturer Kampmann, Article no. ___000___*20, Type ___*20		
pc.	___000 1 10 * 40	Leaving air rectifier with steel metal frame for installation in suspended ceilings or bespoke casing; air displacement grille for low-turbulence air flow, adjustable; fully-powdercoated traffic white RAL 9016; Manufacturer Kampmann, Article no. ___000___*40, Type ___*40		
pc.	___000 1 10 * 50	Inlet air angle section 90° Manufacturer Kampmann, Article no. ___000___*50, Type ___*50		
pc.	___000 1 10 * 60	Flexible connection for air inlet Manufacturer Kampmann, Article no. ___000___*60, Type ___*60		
pc.	___000 1 10 * 70	Flexible connection for air outlet Manufacturer Kampmann, Article no. ___000___*70, Type ___*70		
pc.	___000 1 10 * 80	Air duct for air inlet Length _____ mm Manufacturer Kampmann, Article no. ___000___*80, Type ___*80		
pc.	___000 1 10 * 81	Air duct for air outlet Length _____ mm Manufacturer Kampmann, Article no. ___000___*81, Type ___*81 1 for Tandem door air curtain 300 2 for Tandem door air curtain 385 10 Model 10 (not Tandem door air curtain 385) 15 Model 15 20 Model 20 25 Model 25 30 Model 30 (only Tandem door air curtain 300)		
	Required to complete Article no. for DataNorm/EDV: 251 = Tandem door air curtain 300 252 = Tandem door air curtain 385			

*Insert figure for door air curtain model:

8 = Tandem door air curtain 385
9 = Tandem door air curtain 300

Qty.	Article no.	Description	Price / each	Total price
pc.	196 000 1 0 0 9 1 7	3-Stage switch 0-1-2-3, surface-mounted in a plastic housing, white, Jung Dimensions H x W x D: 82 x 82 x 59 mm Protection class: IP 21; Switching capacity: 10 A Article group 1.96, Manufacturer Kampmann, Article no. 196000100917, Type 100917		
pc.	196 000 1 0 0 9 1 8	3-Stage switch 0-1-2-3, flush-mounted for installation in a 55 cm back-box; cover: white, Jung; Dimensions H x W x D: 82 x 82 x 24 mm Switching capacity: 10 A Article group 1.96, Manufacturer Kampmann, Article no. 196000100918, Type 100918		
pc.	196 000 1 0 0 9 2 0	3-Stage summer/winter switch 0-1-2-3, surface-mounted in a plastic housing, light grey/dark grey; insulated; Dimensions H x W x D: 82 x 82 x 125 mm Protection class: IP 55; Switching capacity: 15 A Article group 1.96, Manufacturer Kampmann, Article no. 196000100920, Type 100920	only suitable for use with thermoelectric shut-off valve, type 100910, type 100901, type 100913	
pc.	196 000 1 0 0 9 2 2	3-Stage summer/winter switch 0-1-2-3, flush-mounted for installation in a 55 mm back-box; cover: white; Dimensions H x W x D: 82 x 82 x 24 mm Switching capacity: 15 A Article group 1.96, Manufacturer Kampmann, Article no. 196000100922, Type 100922	only suitable for use with thermoelectric shut-off valve, type 100910, type 100901, type 100913	
pc.	196 000 1 0 0 9 2 5	5-Stage switch 0-1-2-3-4-5, surface-mounted in a plastic housing, light grey/dark grey; insulated Dimensions H x W x D: 82 x 82 x 125 mm Protection class: IP 55; Switching capacity: 15 A Article group 1.96, Manufacturer Kampmann, Article no. 196000100925, Type 100925		
pc.	196 000 1 0 0 9 2 6	5-Stage switch 0-1-2-3-4-5, flush-mounted for installation in a 55 mm back-box; cover: white Dimensions H x W x D: 82 x 82 x 24 mm Switching capacity: 15 A Article group 1.96, Manufacturer Kampmann, Article no. 196000100926, Type 100926		
pc.	196 000 1 0 0 9 2 8	5-Stage summer/winter switch 0-1-2-3-4-5, surface-mounted in a plastic housing, light grey/dark grey; insulated Dimensions: H x W x D: 82 x 82 x 125 mm Protection class: IP 55; Switching capacity: 15 A Article group 1.96, Manufacturer Kampmann, Article no. 196000100928, Type 100928	only suitable for use with thermoelectric shut-off valve, type 100910, type 100901, type 100913	
pc.	196 000 1 0 0 9 2 9	5-Stage summer/winter switch 0-1-2-3-4-5, flush-mounted for installation in a 55 mm back-box Cover: white Dimensions: H x W x D: 82 x 82 x 24 mm Switching capacity: 15 A Article group 1.96, Manufacturer Kampmann, Article no. 196000100929, Type 100929	only suitable for use with thermoelectric shut-off valve, type 100910, type 100901, type 100913	
pc.	196 000 1 0 0 9 0 6	Cascade module, surface-mounted, in a plastic housing, light grey; for the parallel operation of Vario and Tandem door air curtains; Dimensions: W x H x D: 179 x 255 x 72 mm; Protection class: IP 65 Article group 1.96, Manufacturer Kampmann, Article no. 196000100906, Type 100906		
pc.	196 000 1 0 0 9 1 0	Thermoelectric shut-off valve, $\frac{3}{4}$" as an angled valve body with screw connection and thermoelectric actuator 230 V/50 Hz; for Vario door air curtains and Tandem 385 door air curtains, horizontal model Article group 1.96, Manufacturer Kampmann, Article no. 196000100910, Type 100910	only suitable for use with switch type 100920, type 100922, type 100928, type 100929	
pc.	196 000 1 0 0 9 0 1 Required to complete article no. for DataNorm/EDV	Thermoelectric shut-off valve, $\frac{3}{4}$" as a straight valve body with screw connection and thermoelectric actuator 230 V/50 Hz; for Tandem 300 and Tandem 385 door air curtains, vertical model Article group 1.96, Manufacturer Kampmann, Article no. 196000100901, Type 100901	only suitable for use with switch type 100920, type 100922, type 100928, type 100929	

	Article no.	Description	Price / each	Total price
pc.	196 000 1 0 0 9 1 3	Thermoelectric shut-off valve, 3/4" angled valve body with threaded connection and thermoelectric actuator 230 V/50 Hz; for Tandem door air curtain 300, horizontal model; Manufacturer Kampmann, Article no. 196000100913, Type 100913	only suitable for use with switch type 100920, type 100922, type 100928, type 100929	
pc.	196 000 1 0 0 9 6 5	Leaving air temperature limiting valve 3/4" as an angled valve body with thermostatic head and remote sensor, with 2 m capillary tube, including fixing material for mounting the sensor in the air stream; temperature setting range: 20 - 50 °C; for horizontal Vario door air curtain and Tandem 385 door air curtain models; Article group 1.96, Manufacturer Kampmann, Article no. 196000100965, Type 100965		
pc.	196 000 1 0 0 9 6 8	Leaving air temperature limiting valve 3/4" as an angled valve body with thermostatic head and remote sensor, with 2 m capillary tube, including fixing material for mounting the sensor in the air stream; temperature setting range: 20 - 50 °C; for Tandem door air curtain 300 horizontal model; Article group 1.96, Manufacturer Kampmann, Article no. 196000100968, Type 100968		
pc.	196 000 1 0 0 9 6 1	Leaving air temperature limiting valve 3/4" as a straight valve body with thermostatic head and remote sensor, with 2 m capillary tube, including fixing material for mounting the sensor in the air stream; temperature setting range: 20 - 50 °C; for Tandem door air curtains 300 and Tandem door air curtains 385; Manufacturer Kampmann, Article no. 196000100961, Type 100961		
pc.	196 000 0 3 0 2 6 8	Frost protection thermostat, supplied separately to switch off fan motors and open the thermoelectric shut-off valve in case of frost, temperature range -10/+12 °C, 3 m capillary tube, with sensor stand-alone monitoring; supplied separately; switching capacity 8 A; Manufacturer Kampmann, Article no. 196000030268, Type 030268	Frost protection thermostat only required when door air curtains are installed in unheated rooms	
pc.	* 000 ** -F	Frost protection thermostat, factory-fitted to switch off fan motors and open the thermoelectric shut-off valve in case of frost, temperature range -10/+12 °C, 3 m capillary tube, with sensor stand-alone monitoring; fitted to door air curtain; switching capacity 8 A; Article group 1.51, Manufacturer Kampmann, Article no. 151000_**_-F, Type **_-F		
pc.	* 000 ** -00W	Radio remote controller, factory-fitted with operating unit for wall mounting, 3-stage speed control, summer/winter switch; control circuit board and aerial; Article group 1.51, Manufacturer Kampmann, Article no. 151000_**_-00W, Type **_-00W	Not suitable for use with KaBUS ECO	
	Required to complete article no. for DataNorm/EDV			

* Insert article group: 251 = Tandem 300, 252 = Tandem 385

**Insert door air curtain basic unit type

Qty.	Article no.	Description	Price / each	Total price
pc.	196 000 0 3 1 0 2 6	KaBUS ECO Operating unit controls the system providing the means for controlling fan stage, increasing fan speed, room temperature setpoints, fan run-on time, summer/winter operation; the operating mode is displayed by an integral operating LED. - Room temperature setpoint 5 bis 25 °C - Switching differential +/- 0,8 K - Fan run-on time without room temperature control, 0 to 10 min adjustable - Fan run-on time with room temperature control, 2 min fixed - Digital input with external activation, e.g. time switch surface-mounted in a plastic housing, white Dimensions: W x H x D: 70 x 70 x 26 mm Protection class: IP 30 Protection class III: safety low voltage Article group 1.96, Manufacturer Kampmann, Article no. 19600031026, Type 031026	Not suitable for use with door air curtains with remote radio controllers, Type ____ *-00W	
pc.	* 000 ** -00B	KaBUS ECO Power module The KaBUS ECO power module is factory-fitted to the door air curtain and serves to control the valve and the 4-stage fan group. The different operating programmes are selected by a DIP switch integrated within the power module. Voltage 230 V AC/50 Hz - Four fan outputs 230 V AC/50 Hz/10 A inductive - Valve output 230 V AC/50 Hz/3 A inductive - Operation/Fault output 24 V DC/30 mA - Frost alert digital input - Digital input for door contact, movement alert etc.; - Steel metal housing - Protection class: IP 20 Dimensions: W x H x D: 207 x 185 x 75 mm Article group 1.51, Manufacturer Kampmann, Article no. 151000_**_-00B, Type ____ *-00B	Not suitable for use with door air curtains with remote radio controllers, Type ____ *-00W	
pc.	196 000 0 3 1 0 5 6	Room temperature sensor surface-mounted, in a plastic housing, white Dimensions: W x H x D: 70 x 70 x 26 mm Protection class: IP 20 Protection class III: safety low voltage Article group 1.96, Manufacturer Kampmann, Article no. 196000031056, Type 031056		
pc.	196 000 0 3 1 0 5 7	Industrial room sensor surface-mounted, in a plastic housing, grey Dimensions: W x H x D: 50 x 50 x 35 mm Protection class: IP 54 Protection class III: safety low voltage Article group 1.96, Manufacturer Kampmann, Article no. 196000031057, Type 031057		
pc.	* 000 ** -F0B	Frost protection thermostat and KaBUS ECO power module, factory-fitted Article group 1.51, Manufacturer Kampmann, Article no. 151000_**_-F0B, Type ____ *-F0B		
pc.	* 000 ** -F0W	Frost protection thermostat and remote radio controller, factory-fitted Article group 1.51, Manufacturer Kampmann, Article no. 151000_**_-F0W, Type ____ *-F0W		
	Required to complete article no. for DataNorm/EDV			

* Insert article group: 251 = Tandem 300, 252 = Tandem 385

**Insert door air curtain basic unit type

Tandem 300-Electro door air curtains

Qty.	Article no.	Description	Price / each	Total price																																																								
pc.	251 000 1 10 460 00W	Tandem Door air curtain 300-Electro, basic unit made of sendzimir galvanised sheet steel with sound and heat insulation, complete with fixing openings; air inlet through filter (class G 2), low-maintenance; with 2 radial fan groups, arranged above each other, for secondary air stream and warm air stream, air inlet on both sides and direct-driven. Fan groups can each be switched between 5 stages via transformers for individual and parallel control; heating by means of electric heating element, voltage 3 x 400 V/50 Hz, insulation class B; automatic, continuous power control of the electric heating element, adjusted to fan speed and controlled via a leaving air temperature sensor; the temperature is monitored by a safety temperature limiter on each fan, power regulation by factory-fitted 3-stage fan speed controller with remote radio control; motor protection class IP 44 horizontal model Dimensions of Tandem door air curtain 300-Electro (incl. casing) Model 10: horizontal L x H x D: 1000 x 300 x 845 mm Model 15: horizontal L x H x D: 1500 x 300 x 845 mm Model 20: horizontal L x H x D: 2000 x 300 x 845 mm Model 25: horizontal L x H x D: 2500 x 300 x 845 mm Technical data <table><tr><td>Switching stage</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td></td></tr><tr><td>Air volume</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>m³/h</td></tr><tr><td>Power consumption</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>w</td></tr><tr><td>Current consumption Fan/Contr.</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>A</td></tr><tr><td>Sound pressure level</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>dB(A)</td></tr><tr><td>Weight</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>kg</td></tr><tr><td>Heat output elec. htg. element</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>w</td></tr><tr><td>Max. curr. consumption (elec. htg. element)</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>A</td></tr></table> Manufacturer Kampmann, Article no. 2510001_ _ 46000W, Type 1_ _46000W	Switching stage	5	4	3	2	1		Air volume	_____	_____	_____	_____	_____	m³/h	Power consumption	_____	_____	_____	_____	_____	w	Current consumption Fan/Contr.	_____	_____	_____	_____	_____	A	Sound pressure level	_____	_____	_____	_____	_____	dB(A)	Weight	_____	_____	_____	_____	_____	kg	Heat output elec. htg. element	_____	_____	_____	_____	_____	w	Max. curr. consumption (elec. htg. element)	_____	_____	_____	_____	_____	A	Tandem door air curtains 300-Electro is only supplied with a remote radio controller Refer to pages 44 and 45 for basic unit casings and casing extensions	
Switching stage	5	4	3	2	1																																																							
Air volume	_____	_____	_____	_____	_____	m³/h																																																						
Power consumption	_____	_____	_____	_____	_____	w																																																						
Current consumption Fan/Contr.	_____	_____	_____	_____	_____	A																																																						
Sound pressure level	_____	_____	_____	_____	_____	dB(A)																																																						
Weight	_____	_____	_____	_____	_____	kg																																																						
Heat output elec. htg. element	_____	_____	_____	_____	_____	w																																																						
Max. curr. consumption (elec. htg. element)	_____	_____	_____	_____	_____	A																																																						

required to complete article for DataNorm/EDV

required to
complete article
for
DataNorm/EDV

This image shows a full page of blank graph paper. The grid consists of small, uniform squares formed by thin, light blue lines. The paper has a white background and is framed by a dark border. There are no markings, text, or drawings on the grid.

2510001

Art. group
2.51
Tandem 300 door air curtain

Model
430 horizontal
431 vertical

Article no.
Basic unit
Tandem 300
door air curtain

Dimensions incl. casing (L x H x D)

10 = Mod. 10, horiz., 1000 x 300 x 845 mm
vert., 1000 x 845 x 300 mm
15 = Mod. 15, horiz., 1500 x 300 x 845 mm
vert., 1500 x 845 x 300 mm
20 = Mod. 20, horiz., 2000 x 300 x 845 mm
vert., 2000 x 845 x 300 mm
25 = Mod. 25, horiz., 2500 x 300 x 845 mm
vert., 2500 x 845 x 300 mm
30 = Mod. 30, horiz., 3000 x 300 x 845 mm
vert., 3000 x 845 x 300 mm

2510001

Art. group
2.51
Tandem 300 door air curtain

Model
900 horizontal
901 vertical

Article no.
Casing
Tandem 300
door air curtain

Dimensions incl. casing (L x H x D)

10 = Mod. 10, horiz., 1000 x 300 x 845 mm
vert., 1000 x 845 x 300 mm
15 = Mod. 15, horiz., 1500 x 300 x 845 mm
vert., 1500 x 845 x 300 mm
20 = Mod. 20, horiz., 2000 x 300 x 845 mm
vert., 2000 x 845 x 300 mm
25 = Mod. 25, horiz., 2500 x 300 x 845 mm
vert., 2500 x 845 x 300 mm
30 = Mod. 30, horiz., 3000 x 300 x 845 mm
vert., 3000 x 845 x 300 mm

Please state article numbers when ordering!

Pos.	Qty.	Article number	Description	Price (see HKL Pricelist)
1		-----		
2		-----		
3		-----		
4		-----		
5		-----		
6		-----		
7		-----		
8		-----		
9		-----		
10		-----		
11		-----		
12		-----		
13		-----		
14		-----		

Specifications/Ordering

2520002

Art. group
2.52
Tandem 385 door air curtain

Model
330 horizontal
331 vertical

Article no.
**Basic unit
Tandem 385
door air curtain**

Dimensions incl. casing (L x H x D)
15 = Mod. 15, horiz., 1500 x 385 x 985 mm
vert., 1500 x 985 x 385 mm
20 = Mod. 20, horiz., 2000 x 385 x 985 mm
vert., 2000 x 985 x 385 mm
25 = Mod. 25, horiz., 2500 x 385 x 985 mm
vert., 2500 x 985 x 385 mm

2520002

Art. group
2.52
Tandem 385 door air curtain

Model
800 horizontal
801 vertical

Article no.
**Casing
Tandem 385
door air curtain**

Dimensions incl. casing (L x H x D)
15 = Mod. 15, horiz., 1500 x 385 x 985 mm
vert., 1500 x 985 x 385 mm
20 = Mod. 20, horiz., 2000 x 385 x 985 mm
vert., 2000 x 985 x 385 mm
25 = Mod. 25, horiz., 2500 x 385 x 985 mm
vert., 2500 x 985 x 385 mm

Please state article numbers when ordering!

Pos.	Qty.	Article number	Description	Price (see HKL Pricelist)
1		-----		
2		-----		
3		-----		
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14		-----		

Specifications/Ordering

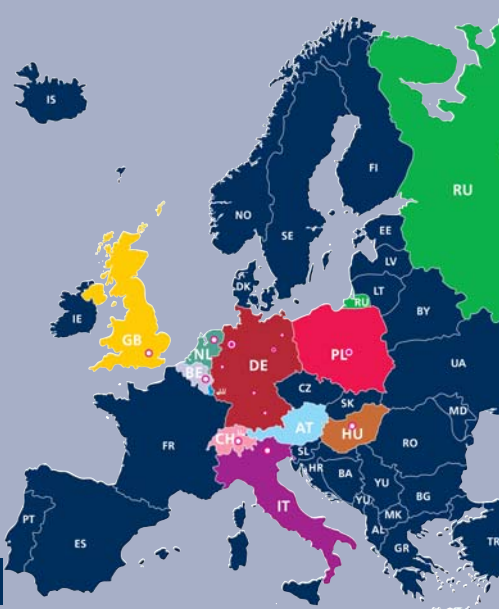
National

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International

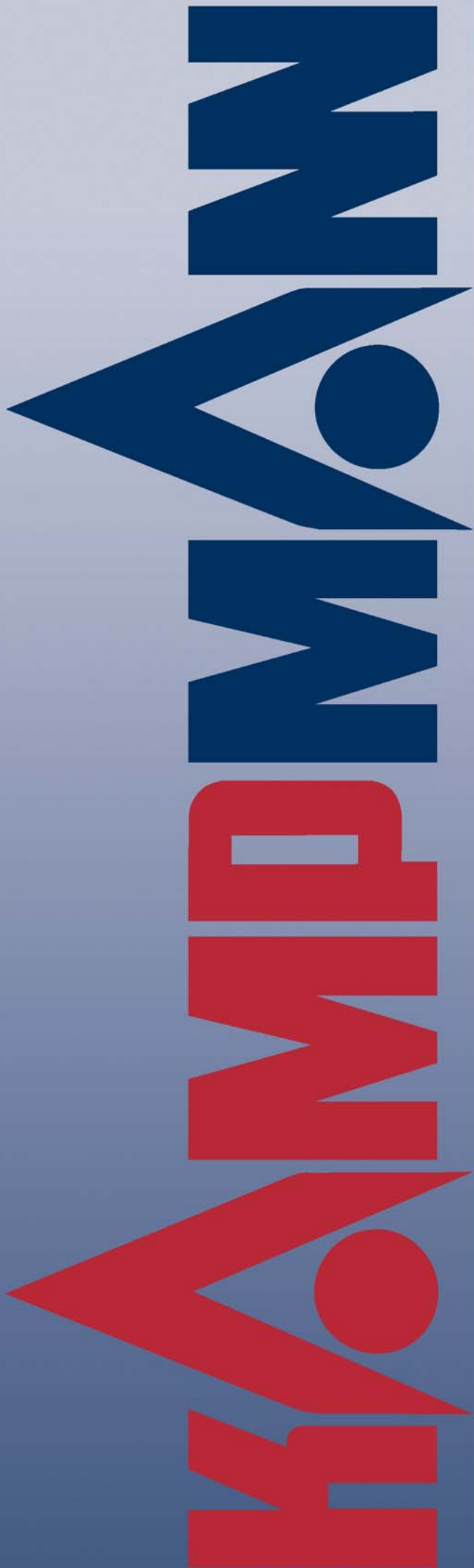


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Product information

- An unheated secondary air stream is produced in addition to the conventional warm air stream
- Greater air penetration
- Energy savings of up to 38% compared to conventional systems
- Improved screening, higher mounting heights
- Non-standard models: only inlet and outlet grilles are visible
- Can be integrated within the porch of the main entrance
- Guiding the recirculating air through a glass "chimney" means it blends into the transparent facade
- The entire associated engineering is concealed within the shell of the building as there is no suspended ceiling available



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