ProtecTor

Door air curtains with ambient and heated air streams for effective screening across industrial doorways

Technical Catalogue

KAMPMANN
Genau mein Klima.

Kampmann.co.uk/protector

Contents

01 Product information 6

- Overview 7
- Product data 8
- Selection guide: Overview of models 9
- ProtecTor at a glance 10

02 Technical data 12

- Information on use 13
- ProtecTor, for discharge heights and widths up to 3.5 m, model 20 14
- ProtecTor, for discharge heights and widths up to 3.5 m, model 30 16
- ProtecTor, for discharge heights and widths up to 3.5 m, model 40 18
- ProtecTor, for discharge heights and widths up to 3.5 m, model 50 20
- ProtecTor, for discharge heights and widths up to 4.5 m, model 20 22
- ProtecTor, for discharge heights and widths up to 4.5 m, model 30 24
- ProtecTor, for discharge heights and widths up to 4.5 m, model 40 26
- ProtecTor, for discharge heights and widths up to 4.5 m, model 50 28

03 Design information 30

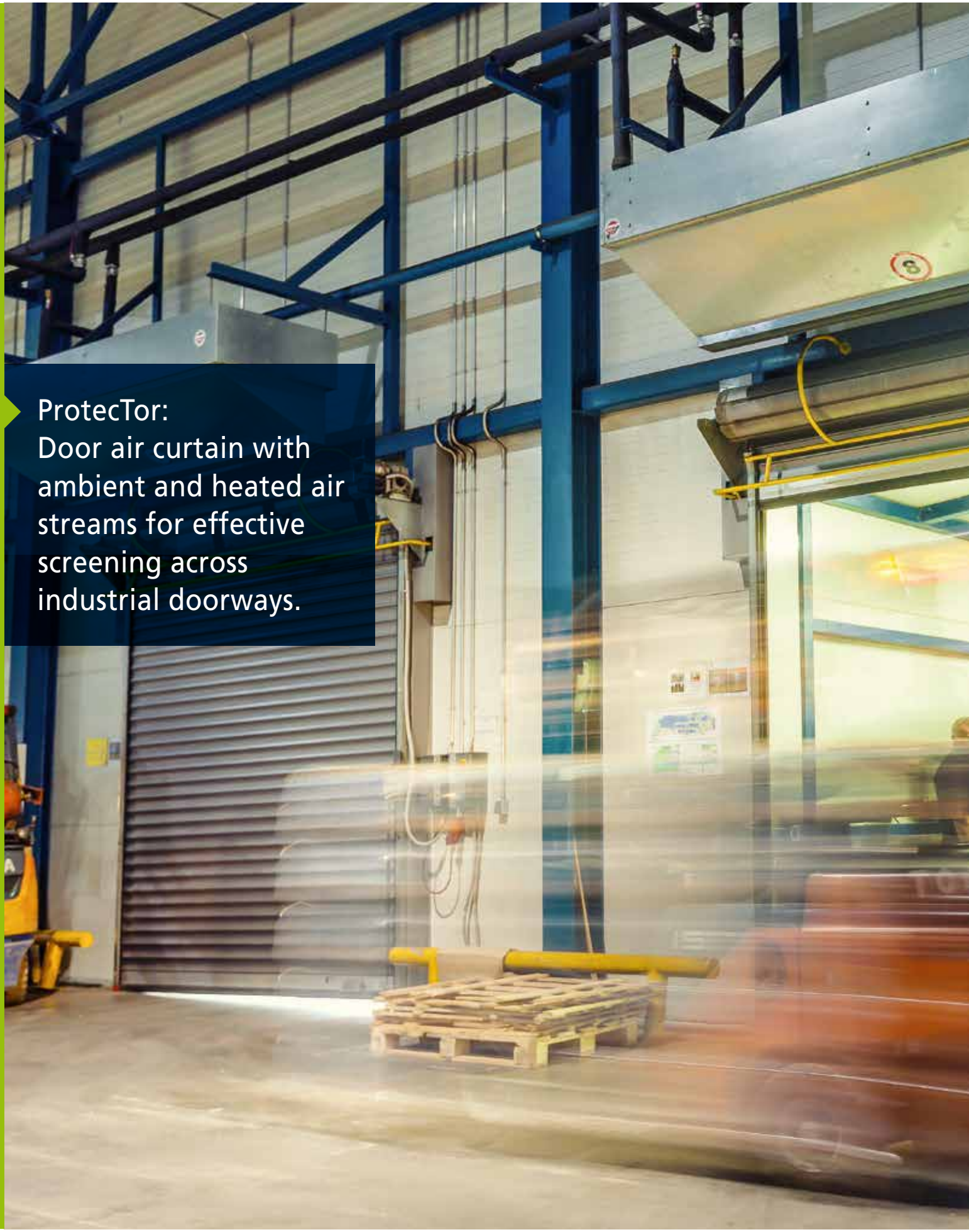
- Information on planning and design 31
- Discharge-side accessories 32

04 Controls 36

- Stage switch/speed controller for 400 V AC and 230 V EC motors 37
- 2-stage three-phase motor 38
- Control accessories for EC recirculating air units *00 39
- Wiring diagram for 230 V EC motors 40
- KaControl – The all-inclusive solution for 400 V AC and 230 V EC motors 42
- Single-circuit control 45
- Multi-circuit control 48

05 Ordering information 50

- ProtecTor 50
- Accessories 58



ProtecTor: Door air curtain with ambient and heated air streams for effective screening across industrial doorways.

ProtecTor door air curtains effectively prevent the ingress of cold air in the loading bay in Heineken's "Volga" subsidiary in Nizhniy Novgorod in the heart of Russia.

01 Product information

ProtecTor – Enhanced space at doorways

The screening effect of ProtecTor door air curtains creates a comfortable indoor climate with open doors.

The perceptible warm air stream creates a rapid feeling of comfort around people. Unlike conventional door air curtains, a patented dynamic and self-regulating ambient air stream provides for more effective and energy-saving screening of cold air from outdoors. The cold ambient air stream has a greater penetration depth than the warm air stream and acts as a back-up air stream. The contraction of both air streams causes the ambient air stream to pull the warm air stream downwards with it.

Adverse energy-intensive turbulence occurs primarily between the outside air and the unheated ambient air stream.
The Coanda effect produces even greater penetration depth. The contraction of both air streams causes the ambient air stream to pull the warm air stream downwards with it, enabling the unit to be installed at a greater height.

Operating principle

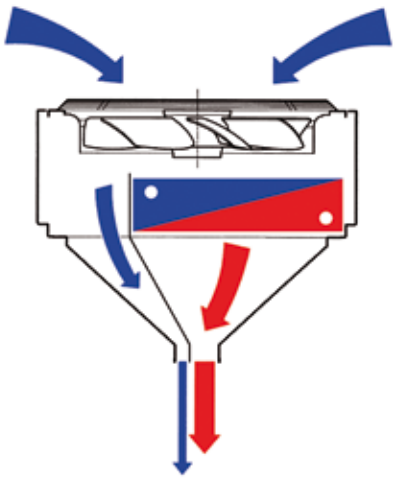
Air is drawn in through the sickle-blade silently-operating fan and is blown through/past the heat exchanger into the discharge nozzle. The cross-counterflow design of the heat exchanger is ideal for large temperature spreads.

Air outlet

ProtecTor can be supplied as standard with 3 different standard nozzles, ideally meeting all requirements on site.

Coanda effectt

- increased penetration depth of both air streams: the ambient air stream pulls the warm air stream along with it
- ambient air stream acts as a back-up stream: it automatically optimises as the fan speed changes to match the warm air stream



PATENTED
EP 1462730

Product data

Product features

- energy savings through the patented separation of ambient and warm air streams
- coanda effect between the ambient air and heated air streams
- self-optimising back-up air stream when speed changes
- range of heat exchangers available: copper/ aluminium, galvanised steel or cross-counterflow
- low-noise sickle-blade fan and optimised full nozzle

Features

- 2-stage three-phase motor or continuously variable EC motor
- different air outlets are available
- patented Tandem technology with ambient and warm air stream
- unit and accessories available powder coated in RAL colours
- extensive range of control accessories

Heating
- LPHW

Installation
- horizontal above the door or vertical beside the door

Air flow
- ambient and warm air stream

Heat exchanger
- copper/aluminium, galvanised steel or cross-counterflow

KaControl
- optional

Connections
- heat exchanger connection 2 "

Performance data

Heat output [1] [kW]
- 13.5 - 167.2

Air volume [m³/h]
- 1700 - 35800

Operating limits
- max. operating pressure: 10 bar with copper/aluminium, 16 bar with galvanised steel
- max. entering water temperature: 120 °C
- max. entering air temperature: 40 °C
- models for higher operating conditions available on request

Applications

ProtecTor door air curtains efficiently screen cold air across open doorways in industrial buildings.

Warehouses and logistics buildings

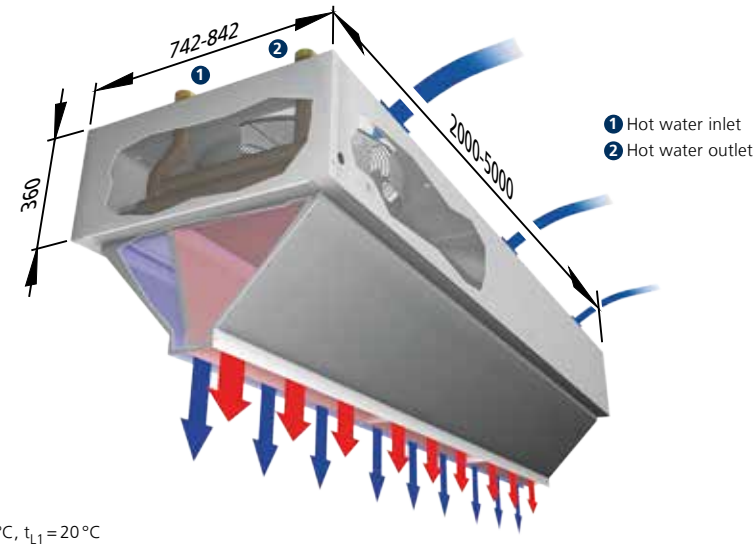
Commercial and industrial buildings

[1] differentiation on page 9

Selection guide: Overview of models

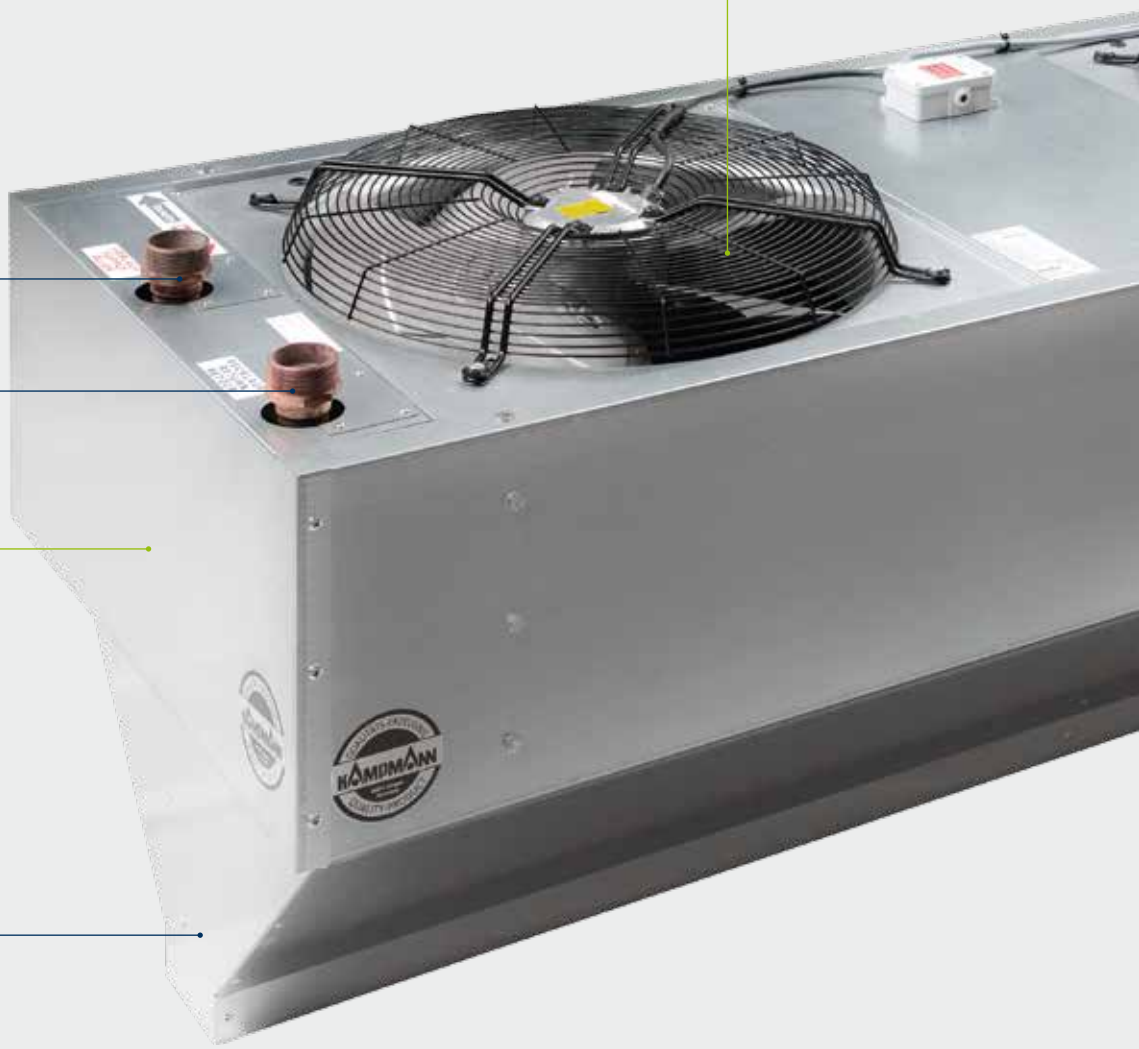
Max. discharge height or width	Model	Max. door width or height	Heat exchanger	Heat exchanger code	Motor design	Motor code	Heat output	Air volume, total	Further information
		[m]					[kW]	[m³/h]	
3.5	20	2.25	Copper/aluminium	20	AC, 400 V; EC, 230 V	66 + 63	13.5 – 47.4 [1]	1700 - 10540	Page 14
			Galvanised steel	31	AC, 400 V; EC, 230 V	66 + 63	13.5 – 47.4 [1]	1700 - 10540	Page 14
			Galvanised steel, cross-counterflow	33	AC, 400 V; EC, 230 V	66 + 63	8.5 – 29.8 [2]	1700 - 10540	Page 14
			No heat exchanger	00	AC, 400 V; EC, 230 V	66 + 63	--	1900 - 11780	Page 14
	30	3.25	Copper/aluminium	20	AC, 400 V; EC, 230 V	66 + 63	20.2 – 71.1 [1]	2560 - 15810	Page 16
			Galvanised steel	31	AC, 400 V; EC, 230 V	66 + 63	20.2 – 71.1 [1]	2560 - 15810	Page 16
			Galvanised steel, cross-counterflow	33	AC, 400 V; EC, 230 V	66 + 63	12.8 – 44.9 [2]	2560 - 15810	Page 16
			No heat exchanger	00	AC, 400 V; EC, 230 V	66 + 63	--	2860 - 17670	Page 16
	40	4.25	Copper/aluminium	20	AC, 400 V; EC, 230 V	66 + 63	27.0 – 94.9 [1]	3410 - 21080	Page 18
			Galvanised steel	31	AC, 400 V; EC, 230 V	66 + 63	27.0 – 94.9 [1]	3410 - 21080	Page 18
			Galvanised steel, cross-counterflow	33	AC, 400 V; EC, 230 V	66 + 63	17.0 – 59.8 [2]	3410 - 21080	Page 18
			No heat exchanger	00	AC, 400 V; EC, 230 V	66 + 63	--	3810 - 23560	Page 18
	50	5.25	Copper/aluminium	20	AC, 400 V; EC, 230 V	66 + 63	33.6 – 118.3 [1]	4260 - 26350	Page 20
			Galvanised steel	31	AC, 400 V; EC, 230 V	66 + 63	33.6 – 118.3 [1]	4260 - 26350	Page 20
			Galvanised steel, cross-counterflow	33	AC, 400 V; EC, 230 V	66 + 63	21.1 – 74.2 [2]	4260 - 26350	Page 20
			No heat exchanger	00	AC, 400 V; EC, 230 V	66 + 63	--	4760 - 29460	Page 20
4.5	20	2.25	Copper/aluminium	20	AC, 400 V; EC, 230 V	76 + 73	26.7 – 66.7 [1]	3810 - 14350	Page 22
			Galvanised steel	31	AC, 400 V; EC, 230 V	76 + 73	26.7 – 66.7 [1]	3810 - 14350	Page 22
			Galvanised steel, cross-counterflow	33	AC, 400 V; EC, 230 V	76 + 73	19.5 – 48.6 [2]	3810 - 14350	Page 22
			No heat exchanger	00	AC, 400 V; EC, 230 V	76 + 73	--	4260 - 16050	Page 22
	30	3.25	Copper/aluminium	20	AC, 400 V; EC, 230 V	76 + 73	40.2 – 100.3 [1]	5710 - 21500	Page 24
			Galvanised steel	31	AC, 400 V; EC, 230 V	76 + 73	40.2 – 100.3 [1]	5710 - 21500	Page 24
			Galvanised steel, cross-counterflow	33	AC, 400 V; EC, 230 V	76 + 73	29.0 – 72.4 [2]	5710 - 21500	Page 24
			No heat exchanger	00	AC, 400 V; EC, 230 V	76 + 73	--	6390 - 24100	Page 24
	40	4.25	Copper/aluminium	20	AC, 400 V; EC, 230 V	76 + 73	53.7 – 133.8 [1]	7620 - 28600	Page 26
			Galvanised steel	31	AC, 400 V; EC, 230 V	76 + 73	53.7 – 133.8 [1]	7620 - 28600	Page 26
			Galvanised steel, cross-counterflow	33	AC, 400 V; EC, 230 V	76 + 73	38.9 – 96.8 [2]	7620 - 28600	Page 26
			No heat exchanger	00	AC, 400 V; EC, 230 V	76 + 73	--	8510 - 32100	Page 26
	50	5.25	Copper/aluminium	20	AC, 400 V; EC, 230 V	76 + 73	67.0 – 167.2 [1]	9520 - 35800	Page 28
			Galvanised steel	31	AC, 400 V; EC, 230 V	76 + 73	67.0 – 167.2 [1]	9520 - 35800	Page 28
			Galvanised steel, cross-counterflow	33	AC, 400 V; EC, 230 V	76 + 73	48.4 - 120.6 [2]	9520 - 35800	Page 28
			No heat exchanger	00	AC, 400 V; EC, 230 V	76 + 73	--	10640 - 40050	Page 28

Dimensions



[1] at LPHW 75/65 °C, $t_{L1} = 20\,°C$
[2] at LPHW 55/45 °C, $t_{L1} = 20\,°C$

ProtecTor at a glance



Features

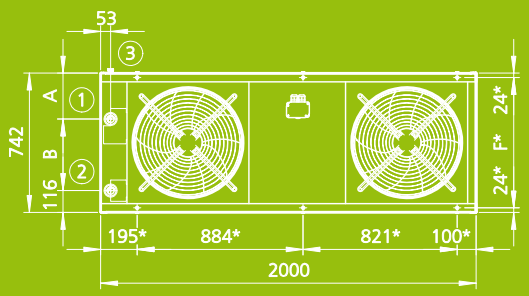
A PowerKon heat exchanger

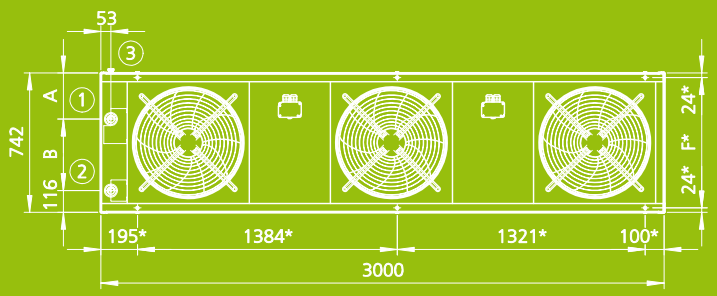
B Whisper-quiet sickle-blade fan

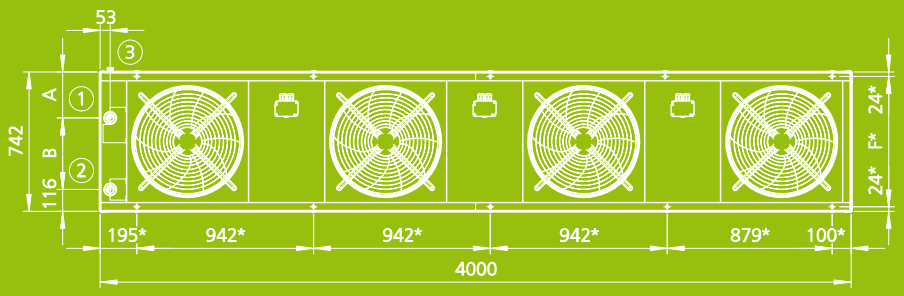
A A PowerKon heat exchanger
- copper/aluminium heat exchanger, especially lightweight, with high heat outputs from minimal dimensions
- galvanised steel
- galvanised steel, cross-counterflow suitable for low water temperature heating systems and LPHW heating systems

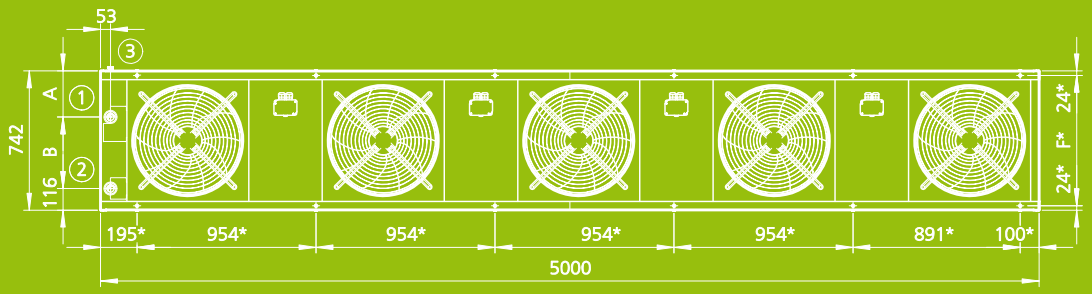
B B Sickle-blade, whisper-quiet fan, in compliance with ErP 2015
- continuously variable EC single-phase or 2-stage three-phase sickle-blade whisper-quiet fan,
- excellent efficiency through aerodynamic shape of rotor housing,
- electrical design with thermal class F
- motor protection: IP 54
- balancing at two levels; balancing quality according to G 6, DIN ISO1940 Part 1

02 Technical data









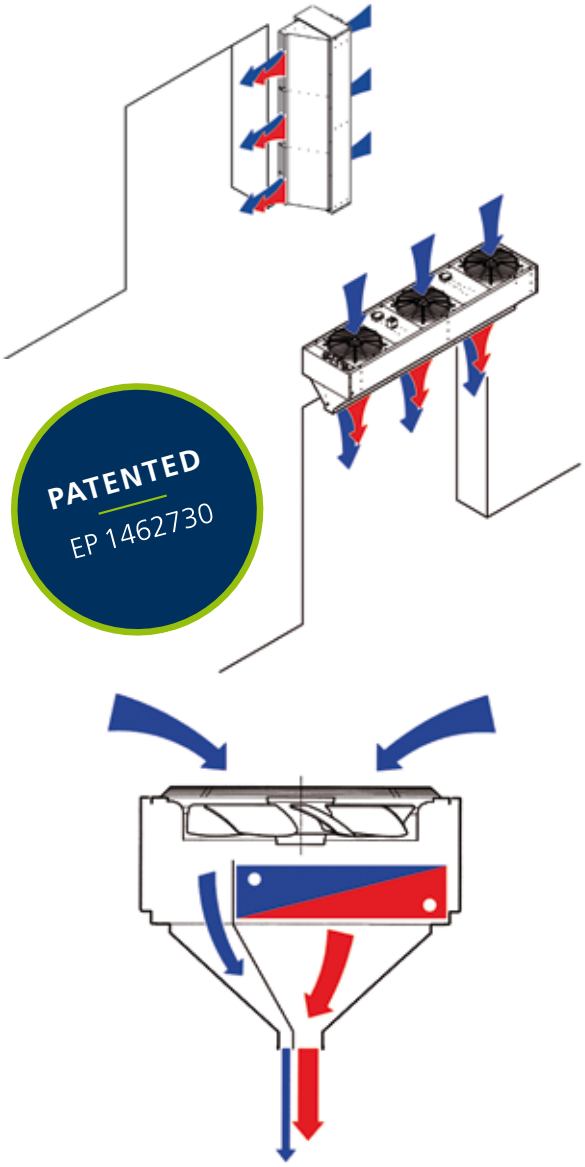
Information on use

Door air curtains should have a largely continuous air discharge opening to cover the entire width or height of the doorway. The outlet temperature should be controllable, depending on the heat or cooling requirement in the building. In heating mode, preferably design the outlet temperature at 32 °C, although 36 °C is recommended. This requirement applies to the room-side layer with multi-stream systems.

European patent
The European Patent Office issued a European patent at the start of 2016 for the ProtecTor door air curtain. The unique feature of the ProtecTor air curtain is its air flow. The ProtecTor features a multi-stream outlet discharge nozzle with two adjacent air streams. An unheated ambient air stream acts as a back-up air stream and automatically adapts to the air volume of the heated air stream when the fan speed changes. The heated air is protected by the ambient air stream and cannot escape to the outside. The ambient air stream has a greater flow velocity than the warm air stream and so acts as a back-up air stream, ensuring the greater stability of the air stream and greater penetration depth.

Compliance with the Energy-related Products Directive 2015
The European Commission's ErP Directive ("Energy-related Products") evaluates and modifies the requirements of technical products in energy-related applications. According to the ErP Directive (EU) 327/2011 ("LOT 11"), the efficiency requirements have heightened on fans with an electric drive output of 125 watts to 500 kilowatts. A number of fans can no longer be marketed since the second stage entered into force on 1st January 2015.

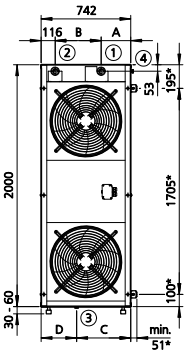
The inlet nozzle used in the unit has to be taken into account along with the fan, in terms of energy. ProtecTor door air curtains are solely equipped with ErP-compliant fans.



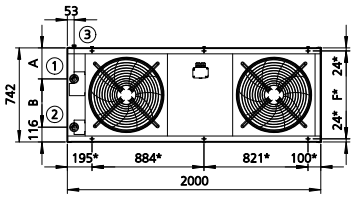
ProtecTor

For discharge heights and/or widths of up to 3.5 m
Model 20

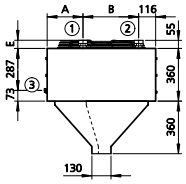
Technical drawings (dimensions in mm)



Side view (standing)



Top view (horizontal)



Side view (horizontal)

1. Flow 2"
2. Return 2"
3. 1/2" drain valve
4. Air vent

* Installation dimensions

Type	A	B	C	D	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
***202066**	245	381	448	294	56	695
***203166**	320	306	448	244	56	695
***203366**	320	306	448	244	56	695
***200066**	--	--	--	--	56	695
***202063**	245	381	448	294	75	695
***203163**	320	306	448	244	75	695
***203363**	320	306	448	244	75	695
***200063**	--	--	--	--	75	695

Specifications

Connections: 2"

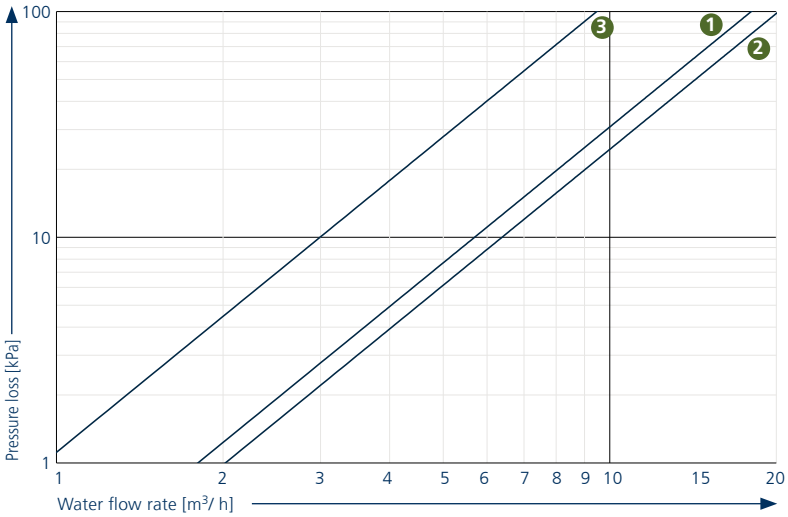
Weights

Type	Weight	Water content
	[kg]	[l]
202066	103	7.7
203166	190	16.3
202063	104	7.7
203163	191	16.3
203366	192	16.3
203363	193	16.3
200066	72	--
200063	73	--
2202066	112	7.7
2203166	199	16.3
2202063	113	7.7
2203163	200	16.3
2200066	81	--
2200063	82	--

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!

▸ **kampmann.co.uk/ProtecTor/calculation**

Water resistance



1. Heat exchanger, copper/aluminium
2. Heat exchanger, galvanised steel
3. Heat exchanger, galvanised steel, cross-counterflow

Heat outputs of copper/aluminium and galvanised steel heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 82/71 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*202066	2,25	Copper/aluminium	3,5	2	9250	3450	5800	43.3	42.0	49.3	45.0	720	1.7	61	77
				1	7300	2700	4600	33.3	41.2	37.9	44.3	440	0.9	54	70
*203166		Galvanised steel	3,5	2	9250	3450	5800	43.3	42.0	49.3	45.0	720	1.7	61	77
				1	7300	2700	4600	33.3	41.2	37.9	44.3	440	0.9	54	70
EC, 230 V / 50 Hz															
*202063	2,25	Copper/aluminium	3,5	10	10540	3930	6610	47.4	41.1	54.0	44.0	892	4.0	63	79
				8	8510	3170	5340	40.9	42.5	46.6	45.7	452	2.0	58	74
				6	5960	2220	3740	32.0	45.2	36.5	48.7	184	0.9	51	67
				4	3940	1470	2470	24.0	48.6	27.3	52.6	57	0.4	42	58
				2	1700	640	1070	13.5	57.1	15.4	62.3	17	0.3	23	39
*203163		Galvanised steel	3,5	10	10540	3930	6610	47.4	41.1	54.0	44.0	892	4.0	63	79
				8	8510	3170	5340	40.9	42.5	46.6	45.7	452	2.0	58	74
				6	5960	2220	3740	32.0	45.2	36.5	48.7	184	0.9	51	67
				4	3940	1470	2470	24.0	48.6	27.3	52.6	57	0.4	42	58
				2	1700	640	1070	13.5	57.1	15.4	62.3	17	0.3	23	39

Outputs of galvanised steel, cross-counterflow heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 110/50 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*203366	2,25	Galvanised steel, cross-counterflow	3,5	2	9250	3450	5800	27.0	33.7	41.3	40.9	720	1.7	61	77
				1	7300	2700	4600	24.1	35.4	36.8	43.5	440	0.9	54	70
EC, 230 V / 50 Hz															
*203363	2,25	Galvanised steel, cross-counterflow	3,5	10	10540	3930	6610	29.8	33.2	45.2	40.1	892	4.0	63	79
				8	8510	3170	5340	25.7	34.2	39.1	41.5	452	2.0	58	74
				6	5960	2220	3740	20.1	35.8	30.5	44.0	184	0.9	51	67
				4	3940	1470	2470	15.1	38.0	22.9	47.3	57	0.4	42	58
				2	1700	640	1070	8.5	43.3	12.9	55.4	17	0.3	23	39

Outputs without heat exchanger

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Total air volume	Power consumption	Current consumption	Sound pressure level [3]	Sound power level
	[m]		[m]		V [m³/h]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz									
*200066	2,25	No heat exchanger	3,5	2	10400	720	1.7	61	77
				1	8160	440	0.9	54	70
EC, 230 V / 50 Hz									
*200063	2,25	No heat exchanger	3,5	10	11780	892	4.0	63	79
				8	9520	452	2.0	58	74
				6	6660	184	0.9	51	67
				4	4400	57	0.4	42	58
				2	1900	17	0.3	23	39

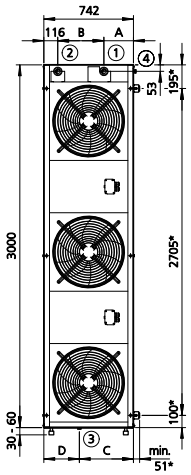
V [m³/h] = air volume, free-blowing; Q_H [kW] = heat output; t_{L1} [°C] = air inlet temperature; t_{L2} [°C] = air outlet temperature

[1] at low to medium pressure / requirements / conditions, in conjunction with long outlet nozzle
[2] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[3] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A).
* This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

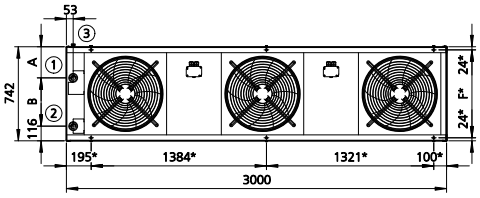
ProtecTor

For discharge heights and/or widths of up to 3.5 m
Model 30

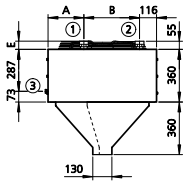
Technical drawings (dimensions in mm)



Side view (standing)



Top view (horizontal)



Side view (horizontal)

1. Flow 2"
2. Return 2"
3. 1/2" drain valve
4. Air vent

* Installation dimensions

Type	A	B	C	D	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
***302066**	245	381	448	294	56	695
***303166**	320	306	448	244	56	695
***303366**	320	306	448	244	56	695
***300066**	--	--	--	--	56	695
***302063**	245	381	448	294	75	695
***303163**	320	306	448	244	75	695
***303363**	320	306	448	244	75	695
***300063**	--	--	--	--	75	695

Specifications

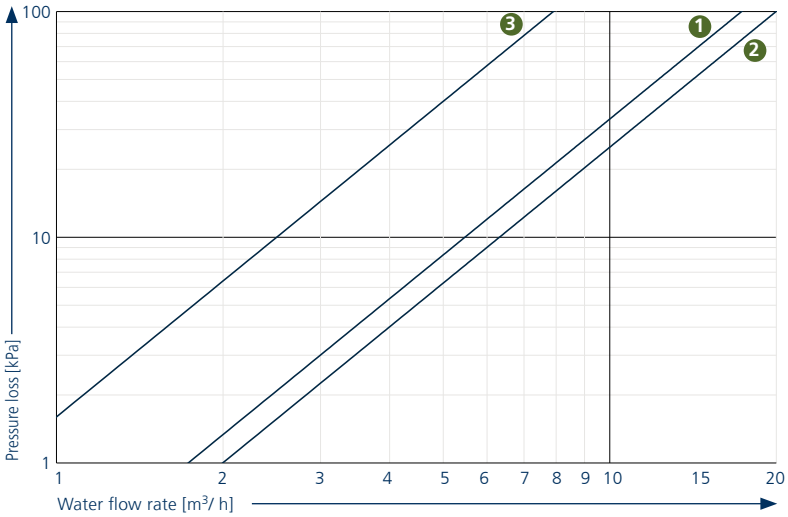
Connections: 2"

Weights

Type	Weight	Water content
	[kg]	[l]
302066	150	10.8
303166	280	22.8
302063	152	10.8
303163	282	22.8
303366	281	22.8
303363	283	22.8
300066	101	--
300063	103	--
2302066	159	10.8
2303166	290	22.8
2302063	162	10.8
2303163	292	22.8
2300066	111	--
2300063	113	--

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!
▸ **kampmann.co.uk/ProtecTor/calculation**

Water resistance



1. Heat exchanger, copper/aluminium
2. Heat exchanger, galvanised steel
3. Heat exchanger, galvanised steel, cross-counterflow

Heat outputs of copper/aluminium and galvanised steel heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 82/71 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*302066	3,25	Copper/aluminium	3,5	2	13900	5200	8700	65.0	42.0	74.1	45.0	1080	2.5	63	79
				1	11000	4080	6920	50.0	41.3	57.0	44.2	660	1.4	56	72
*303166		Galvanised steel	3,5	2	13900	5200	8700	65.0	42.0	74.1	45.0	1080	2.5	63	79
				1	11000	4080	6920	50.0	41.3	57.0	44.2	660	1.4	56	72
EC, 230 V / 50 Hz															
*302063	3,25	Copper/aluminium	3,5	10	15810	5910	9900	71.1	41.1	81.0	44.1	1338	6.1	65	81
				8	12780	4780	8000	61.3	42.6	69.8	45.7	678	3.0	60	76
				6	8940	3340	5600	48.0	45.2	54.7	48.7	276	1.3	52	68
				4	5910	2210	3700	36.0	48.6	41.0	52.6	86	0.6	43	59
				2	2560	960	1600	20.2	57.1	23.0	62.3	26	0.4	25	41
*303163		Galvanised steel	3,5	10	15810	5910	9900	71.1	41.1	81.0	44.1	1338	6.1	65	81
				8	12780	4780	8000	61.3	42.6	69.8	45.7	678	3.0	60	76
				6	8940	3340	5600	48.0	45.2	54.7	48.7	276	1.3	52	68
				4	5910	2210	3700	36.0	48.6	41.0	52.6	86	0.6	43	59
				2	2560	960	1600	20.2	57.1	23.0	62.3	26	0.4	25	41

Outputs of galvanised steel, cross-counterflow heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 110/50 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*303366	3,25	Galvanised steel, cross-counterflow	3,5	2	13900	5200	8700	41.1	33.9	62.8	41.2	1080	2.5	63	79
				1	11000	4080	6920	36.7	35.6	56.0	43.8	660	1.4	56	72
EC, 230 V / 50 Hz															
*303363	3,25	Galvanised steel, cross-counterflow	3,5	10	15810	5910	9900	44.9	33.3	68.3	40.3	1338	6.1	65	81
				8	12780	4780	8000	38.8	34.3	59.0	41.7	678	3.0	60	76
				6	8940	3340	5600	30.3	35.9	46.1	44.2	276	1.3	52	68
				4	5910	2210	3700	22.8	38.1	34.6	47.5	86	0.6	43	59
				2	2560	960	1600	12.8	43.5	19.4	55.7	26	0.4	25	41

Outputs without heat exchanger

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Total air volume	Power consumption	Current consumption	Sound pressure level [3]	Sound power level
	[m]		[m]		V [m³/h]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz									
*300066	3,25	No heat exchanger	3,5	2	15600	1080	2.5	63	79
				1	12250	660	1.4	56	72
EC, 230 V / 50 Hz									
*300063	3,25	No heat exchanger	3,5	10	17670	1338	6.1	65	81
				8	14280	678	3.0	60	76
				6	10000	276	1.3	52	68
				4	6600	86	0.6	43	59
				2	2860	26	0.4	25	41

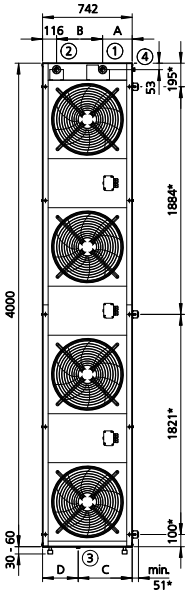
V [m³/h] = air volume, free-blowing; Q_H [kW] = heat output; t_{L1} [°C] = air inlet temperature; t_{L2} [°C] = air outlet temperature

[1] at low to medium pressure / requirements / conditions, in conjunction with long outlet nozzle
[2] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[3] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A).
* This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

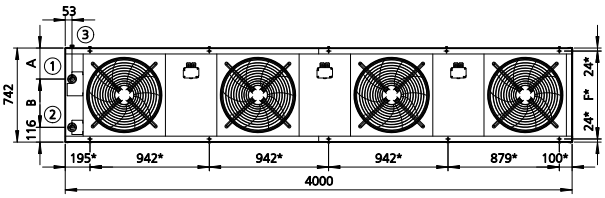
ProtecTor

For discharge heights and/or widths of up to 3.5 m
Model 40

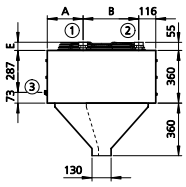
Technical drawings (dimensions in mm)



Side view (standing)



Top view (horizontal)



Side view (horizontal)

1. Flow 2"
2. Return 2"
3. 1/2" drain valve
4. Air vent

* Installation dimensions

Type	A	B	C	D	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
***402066**	245	381	448	294	56	695
***403166**	320	306	448	244	56	695
***403366**	320	306	448	244	56	695
***400066**	--	--	--	--	56	695
***402063**	245	381	448	294	75	695
***403163**	320	306	448	244	75	695
***403363**	320	306	448	244	75	695
***400063**	--	--	--	--	75	695

Specifications

Connections: 2"

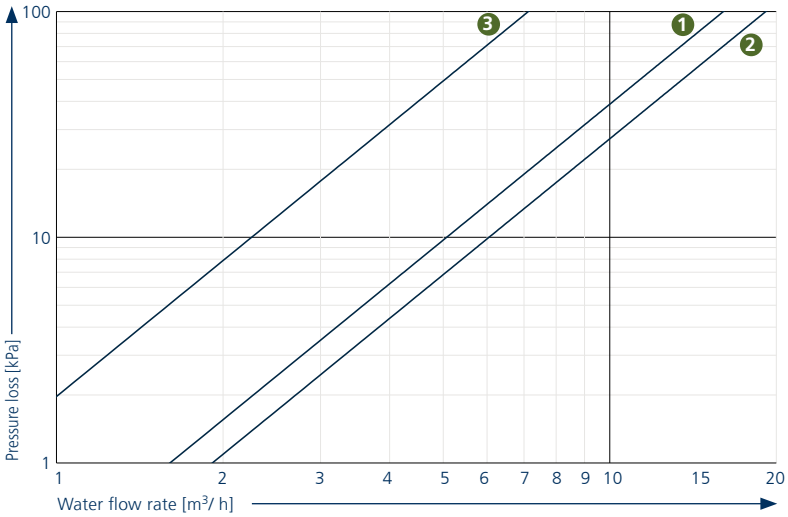
Weights

Type	Weight	Water content
	[kg]	[l]
402066	201	13.9
403166	374	29.3
402063	204	13.9
403163	377	29.3
403366	376	29.3
403363	379	29.3
400066	136	--
400063	139	--
2402066	212	13.9
2403166	385	29.3
2402063	215	13.9
2403163	388	29.3
2400066	147	--
2400063	150	--

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!

▸ **kampmann.co.uk/ProtecTor/calculation**

Water resistance



1. Heat exchanger, copper/aluminium
2. Heat exchanger, galvanised steel
3. Heat exchanger, galvanised steel, cross-counterflow

Heat outputs of copper/aluminium and galvanised steel heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 82/71 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*402066	4,25	Copper/aluminium	3,5	2	18500	6930	11570	86.7	42.0	98.8	45.1	1440	3.3	64	80
				1	14700	5440	9260	66.6	41.2	75.9	44.1	880	1.8	57	73
*403166		Galvanised steel	3,5	2	18500	6930	11570	86.7	42.0	98.8	45.1	1440	3.3	64	80
				1	14700	5440	9260	66.6	41.2	75.9	44.1	880	1.8	57	73
EC, 230 V / 50 Hz															
*402063	4,25	Copper/aluminium	3,5	10	21080	7900	13180	94.9	41.2	108.1	44.1	1784	8.1	66	82
				8	17030	6380	10650	81.9	42.6	93.9	45.8	904	4.1	61	77
				6	11920	4470	7450	64.0	45.3	72.9	48.8	368	1.7	54	70
				4	7890	2960	4930	48.1	48.7	54.8	52.7	114	0.8	45	61
				2	3410	1280	2130	27.0	57.2	30.8	62.5	34	0.5	26	42
*403163		Galvanised steel	3,5	10	21080	7900	13180	94.9	41.2	108.1	44.1	1784	8.1	66	82
				8	17030	6380	10650	81.9	42.6	93.9	45.8	904	4.1	61	77
				6	11920	4470	7450	64.0	45.3	72.9	48.8	368	1.7	54	70
				4	7890	2960	4930	48.1	48.7	54.8	52.7	114	0.8	45	61
				2	3410	1280	2130	27.0	57.2	30.8	62.5	34	0.5	26	42

Outputs of galvanised steel, cross-counterflow heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 110/50 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*403366	4,25	Galvanised steel, cross-counterflow	3,5	2	18500	6930	11570	86.7	42.0	49.5	32.6	1440	3.3	64	80
				1	14700	5440	9260	66.6	41.2	38.1	32.1	880	1.8	57	73
EC, 230 V / 50 Hz															
*403363	4,25	Galvanised steel, cross-counterflow	3,5	10	21080	7900	13180	59.8	33.4	91.0	40.3	1784	8.1	66	82
				8	17030	6380	10650	51.7	34.3	78.5	41.7	904	4.1	61	77
				6	11920	4470	7450	40.4	35.9	61.4	44.2	368	1.7	54	70
				4	7890	2960	4930	30.4	38.1	46.2	47.5	114	0.8	45	61
				2	3410	1280	2130	17.0	43.5	25.9	55.7	34	0.5	26	42

Outputs without heat exchanger

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Total air volume	Power consumption	Current consumption	Sound pressure level [3]	Sound power level
	[m]		[m]		V [m³/h]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz									
*400066	4,25	No heat exchanger	3,5	2	20800	1440	3.3	64	80
				1	16300	880	1.8	57	73
EC, 230 V / 50 Hz									
*400063	4,25	No heat exchanger	3,5	10	23560	1784	8.1	66	82
				8	19040	904	4.1	61	77
				6	13330	368	1.7	54	70
				4	8810	114	0.8	45	61
				2	3810	34	0.5	26	42

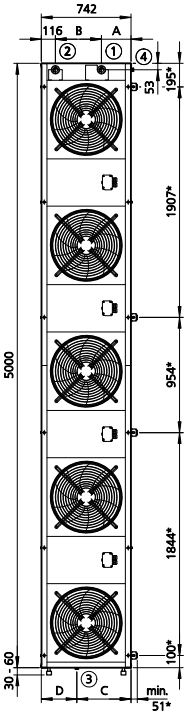
V [m³/h] = air volume, free-blowing; Q_H [kW] = heat output; t_{L1} [°C] = air inlet temperature; t_{L2} [°C] = air outlet temperature

[1] at low to medium pressure / requirements / conditions, in conjunction with long outlet nozzle
[2] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[3] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A).
* This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

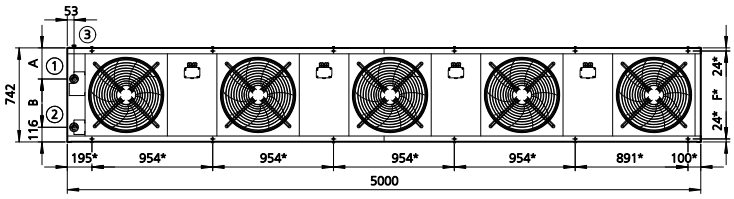
ProtecTor

For discharge heights and/or widths of up to 3.5 m
Model 50

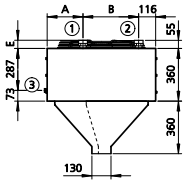
Technical drawings (dimensions in mm)



Side view (standing)



Top view (horizontal)



Side view (horizontal)

1. Flow 2"
2. Return 2"
3. 1/2" drain valve
4. Air vent

* Installation dimensions

Type	A	B	C	D	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
***502066**	245	381	448	294	56	695
***503166**	320	306	448	244	56	695
***503366**	320	306	448	244	56	695
***500066**	--	--	--	--	56	695
***502063**	245	381	448	294	75	695
***503163**	320	306	448	244	75	695
***503363**	320	306	448	244	75	695
***500063**	--	--	--	--	75	695

Specifications

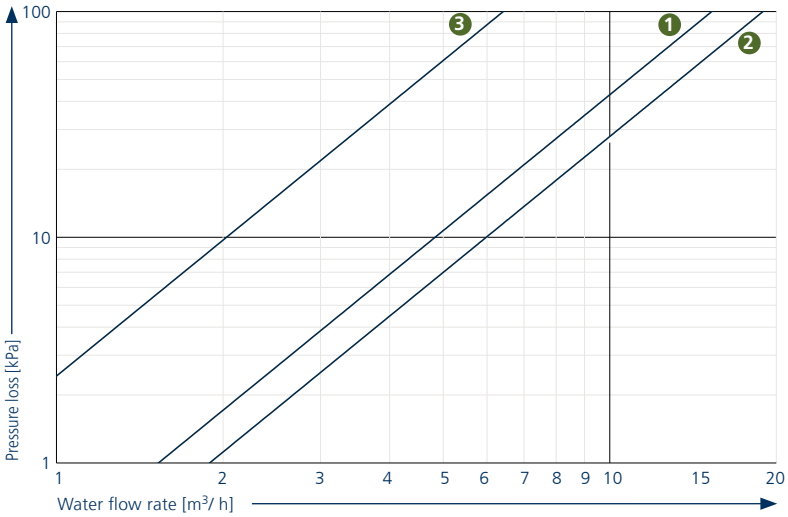
Connections: 2"

Weights

Type	Weight	Water content
	[kg]	[l]
502066	250	17.1
503166	466	35.8
502063	254	17.1
503163	470	35.8
503366	468	35.8
503363	472	35.8
500066	168	--
500063	172	--
2502066	262	17.1
2503166	479	35.8
2502063	267	17.1
2503163	483	35.8
2500066	181	--
2500063	185	--

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!
▸ **kampmann.co.uk/ProtecTor/calculation**

Water resistance



1. Heat exchanger, copper/aluminium
2. Heat exchanger, galvanised steel
3. Heat exchanger, galvanised steel, cross-counterflow

Heat outputs of copper/aluminium and galvanised steel heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 82/71 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*502066	5,25	Copper/aluminium	3,5	2	23200	8700	14500	108,3	42,0	123,4	45,0	1800	4,2	65	81
				1	18300	6800	11500	83,3	41,3	94,9	44,3	1100	2,3	58	74
*503166		Galvanised steel	3,5	2	23200	8700	14500	108,3	42,0	123,4	45,0	1800	4,2	65	81
				1	18300	6800	11500	83,3	41,3	94,9	44,3	1100	2,3	58	74
EC, 230 V / 50 Hz															
*502063	5,25	Copper/aluminium	3,5	10	26350	9880	16470	118.3	41.1	134.8	44.1	2230	10.1	67	83
				8	21290	7980	13310	102.1	42.6	116.3	45.7	1130	5.1	62	78
				6	14910	5590	9320	79.8	45.2	90.9	48.7	460	2.2	55	71
				4	9860	3700	6160	60.0	48.6	68.4	52.6	143	0.9	46	62
				2	4260	1600	2660	33.6	57.2	38.3	62.3	43	0.7	27	43
*503163		Galvanised steel	3,5	10	26350	9880	16470	118.3	41.1	134.8	44.1	2230	10.1	67	83
				8	21290	7980	13310	102.1	42.6	116.3	45.7	1130	5.1	62	78
				6	14910	5590	9320	79.8	45.2	90.9	48.7	460	2.2	55	71
				4	9860	3700	6160	60.0	48.6	68.4	52.6	143	0.9	46	62
				2	4260	1600	2660	33.6	57.2	38.3	62.3	43	0.7	27	43

Outputs of galvanised steel, cross-counterflow heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 110/50 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*503366	5,25	Galvanised steel, cross-counterflow	3,5	2	23200	8700	14500	68,0	33,8	103,9	41,1	1800	4,2	65	81
				1	18300	6800	11500	61,0	35,6	93,1	43,8	1100	2,3	58	74
EC, 230 V / 50 Hz															
*503363	5,25	Galvanised steel, cross-counterflow	3,5	10	26350	9880	16470	74,2	33,3	112,9	40,2	2230	10,1	67	83
				8	21290	7980	13310	64,1	34,2	97,4	41,5	1130	5,1	62	78
				6	14910	5590	9320	50,1	35,8	76,2	44,0	460	2,2	55	71
				4	9860	3700	6160	37,7	38,0	57,3	47,3	143	0,9	46	62
				2	4260	1600	2660	21,1	43,3	32,1	55,5	43	0,7	27	43

Outputs without heat exchanger

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Total air volume	Power consumption	Current consumption	Sound pressure level [3]	Sound power level
	[m]		[m]		V [m³/h]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz									
*500066	5,25	No heat exchanger	3,5	2	26100	1800	4,2	65	81
				1	20400	1100	2,3	58	74
EC, 230 V / 50 Hz									
*500063	5,25	No heat exchanger	3,5	10	29460	2230	10,1	67	83
				8	23810	1130	5,1	62	78
				6	16660	460	2,2	55	71
				4	11010	143	0,9	46	62
				2	4760	43	0,7	27	43

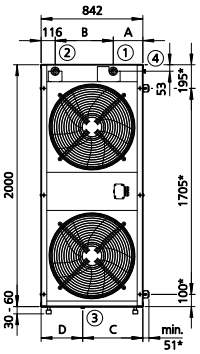
V [m³/h] = air volume, free-blowing; Q_H [kW] = heat output; t_{L1} [°C] = air inlet temperature; t_{L2} [°C] = air outlet temperature

[1] at low to medium pressure / requirements / conditions, in conjunction with long outlet nozzle
[2] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[3] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A).
* This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

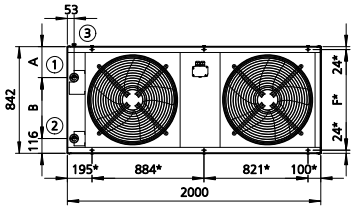
ProtecTor

For discharge heights and/or widths of up to 4.5 m
Model 20

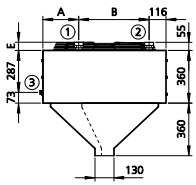
Technical drawings (dimensions in mm)



Side view (standing)



Top view (horizontal)



Side view (horizontal)

1. Flow 2"
2. Return 2"
3. 1/2" drain valve
4. Air vent

* Installation dimensions

Type	A	B	C	D	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
***202076**	245	481	498	344	51	795
***203176**	320	406	498	294	51	795
***203376**	320	406	498	294	51	795
***200076**	--	--	--	--	51	795
***202073**	245	481	498	344	50	795
***203173**	320	406	498	294	50	795
***203373**	320	406	498	294	50	795
***200073**	--	--	--	--	50	795

Specifications

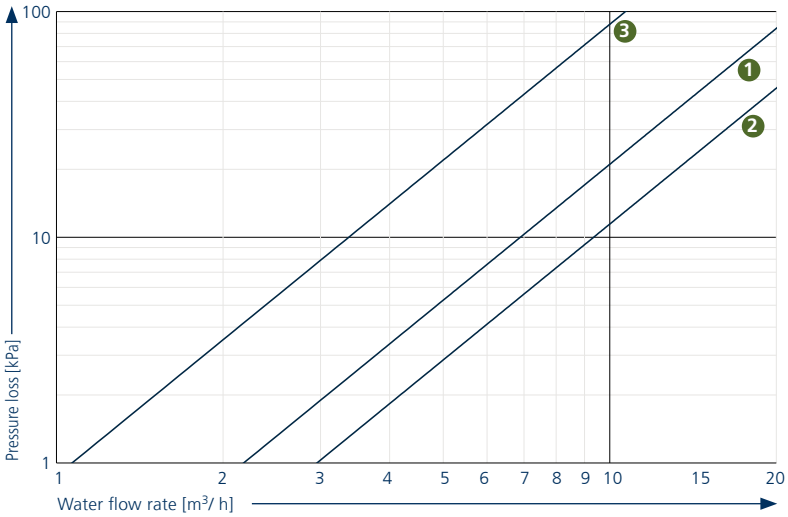
Connections: 2"

Weights

Type	Weight	Water content
	[kg]	[l]
202076	120	9.5
203176	226	20.0
202073	112	9.5
203173	218	20.0
203376	228	20.0
203373	220	20.0
200076	81	--
200073	73	--
2202076	129	9.5
2203176	235	20.0
2202073	121	9.5
2203173	227	20.0
2200076	90	--
2200073	82	--

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!
▸ **kampmann.co.uk/ProtecTor/calculation**

Water resistance



1. Heat exchanger, copper/aluminium
2. Heat exchanger, galvanised steel
3. Heat exchanger, galvanised steel, cross-counterflow

Heat outputs of copper/aluminium and galvanised steel heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 82/71 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*202076	2,25	Copper/aluminium	4,5	2	14350	5360	8990	66.7	41.8	76.0	44.9	1060	2.0	64	80
				1	11950	4430	7250	53.0	40.7	60.4	44.5	720	1.2	60	76
*203176		Galvanised steel	4,5	2	14350	5360	8990	66.7	41.8	76.0	44.9	1060	2.0	64	80
				1	11950	4430	7250	53.0	40.7	60.4	44.5	720	1.2	60	76
EC, 230 V / 50 Hz															
*202073	2,25	Copper/aluminium	4,5	10	13710	5120	8590	64.6	42.1	73.6	45.2	852	3.9	64	80
				8	12940	4830	8110	62.1	42.5	70.8	45.7	728	3.3	63	79
				6	10210	3810	6400	52.8	44.2	60.2	47.6	352	1.6	58	74
				4	7170	2680	4490	41.3	47.1	47.1	50.8	126	0.7	50	66
				2	3810	1420	2390	26.7	52.9	30.4	57.4	35	0.3	36	52
*203173		Galvanised steel	4,5	10	13710	5120	8590	64.6	42.1	73.6	45.2	852	3.9	64	80
				8	12940	4830	8110	62.1	42.5	70.8	45.7	728	3.3	63	79
				6	10210	3810	6400	52.8	44.2	60.2	47.6	352	1.6	58	74
				4	7170	2680	4490	41.3	47.1	47.1	50.8	126	0.7	50	66
				2	3810	1420	2390	26.7	52.9	30.4	57.4	35	0.3	36	52

Outputs of galvanised steel, cross-counterflow heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 110/50 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*203376	2,25	Galvanised steel, cross-counterflow	4,5	2	14350	5360	8990	48.6	35.9	74.2	44.3	1060	2.0	64	80
				1	11950	4430	7250	42.2	37.1	64.4	46.1	720	1.2	60	76
EC, 230 V / 50 Hz															
*203373	2,25	Galvanised steel, cross-counterflow	4,5	10	13710	5120	8590	47.1	36.1	71.6	44.5	852	3.9	64	80
				8	12940	4830	8110	45.3	36.4	68.8	45.0	728	3.3	63	79
				6	10210	3810	6400	38.4	37.7	58.4	46.9	352	1.6	58	74
				4	7170	2680	4490	30.1	39.7	45.8	50.0	126	0.7	50	66
				2	3810	1420	2390	19.5	44.0	29.6	56.4	35	0.3	36	52

Outputs without heat exchanger

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Total air volume	Power consumption	Current consumption	Sound pressure level [3]	Sound power level
	[m]		[m]		V [m³/h]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz									
*200076	2,25	No heat exchanger	4,5	2	16050	1060	2.0	64	80
				1	13250	720	1.2	60	76
EC, 230 V / 50 Hz									
*200073	2,25	No heat exchanger	4,5	10	15330	852	3.9	64	80
				8	14480	728	3.3	63	79
				6	11410	352	1.6	58	74
				4	8010	126	0.7	50	66
				2	4260	35	0.3	36	52

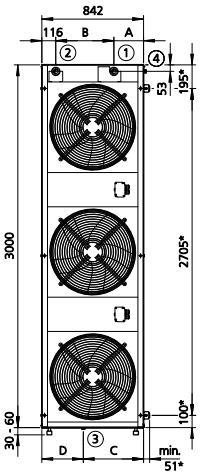
V [m³/h] = air volume, free-blowing; Q_H [kW] = heat output; t_{L1} [°C] = air inlet temperature; t_{L2} [°C] = air outlet temperature

[1] at low to medium pressure / requirements / conditions, in conjunction with long outlet nozzle
[2] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[3] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A).
* This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

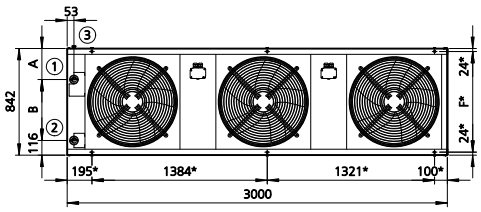
ProtecTor

For discharge heights and/or widths of up to 4.5 m
Model 30

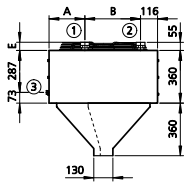
Technical drawings (dimensions in mm)



Side view (standing)



Top view (horizontal)



Side view (horizontal)

1. Flow 2"
2. Return 2"
3. 1/2" drain valve
4. Air vent

* Installation dimensions

Type	A	B	C	D	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
***302076**	245	481	498	344	51	795
***303176**	320	406	498	294	51	795
***303376**	320	406	498	294	51	795
***300076**	--	--	--	--	51	795
***302073**	245	481	498	344	50	795
***303173**	320	406	498	294	50	795
***303373**	320	406	498	294	50	795
***300073**	--	--	--	--	50	795

Specifications

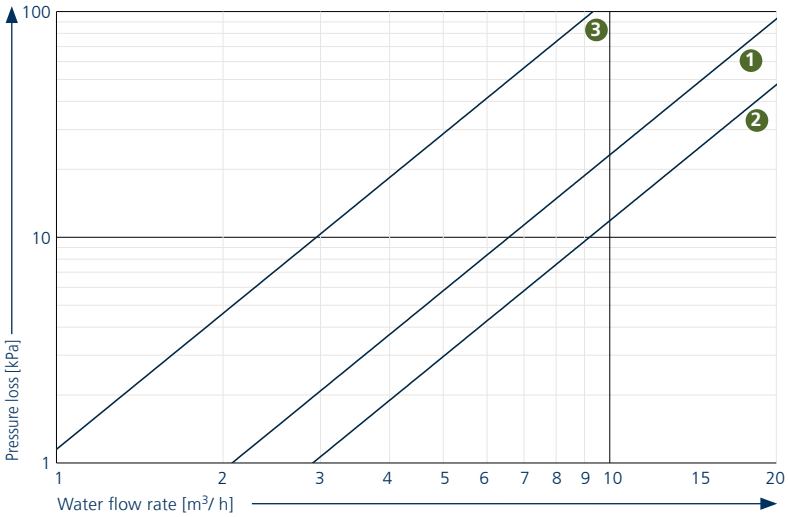
Connections: 2"

Weights

Type	Weight	Water content
	[kg]	[l]
302076	174	13.4
303176	335	28.1
302073	162	13.4
303173	323	28.1
303376	356	28.1
303373	344	28.1
300076	115	--
300073	103	--
2302076	184	13.4
2303176	345	28.1
2302073	172	13.4
2303173	333	28.1
2300076	125	--
2300073	113	--

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!
▸ **kampmann.co.uk/ProtecTor/calculation**

Water resistance



1. Heat exchanger, copper/aluminium
2. Heat exchanger, galvanised steel
3. Heat exchanger, galvanised steel, cross-counterflow

Heat outputs of copper/aluminium and galvanised steel heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 82/71 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*302076	3,25	Copper/aluminium	4,5	2	21500	8030	13470	100.3	41.9	114.3	45.0	1590	3.0	66	82
				1	17900	6640	11260	79.5	40.8	90.6	43.7	1080	1.9	62	78
*303176		Galvanised steel	4,5	2	21500	8030	13470	100.3	41.9	114.3	45.0	1590	3.0	66	82
				1	17900	6640	11260	79.5	40.8	90.6	43.7	1080	1.9	62	78
EC, 230 V / 50 Hz															
*302073	3,25	Copper/aluminium	4,5	10	20560	7680	12880	97.2	42.2	110.7	45.3	1278	5.8	66	82
				8	19430	7260	12170	93.5	42.6	106.5	45.7	1092	4.9	64	80
				6	15310	5720	9590	79.3	44.3	90.3	47.7	528	2.4	59	75
				4	10740	4010	6730	62.1	47.2	70.8	50.9	190	1.0	51	67
				2	5710	2130	3580	40.2	53.0	45.8	57.6	53	0.5	38	54
*303173		Galvanised steel	4,5	10	20560	7680	12880	97.2	42.2	110.7	45.3	1278	5.8	66	82
				8	19430	7260	12170	93.5	42.6	106.5	45.7	1092	4.9	64	80
				6	15310	5720	9590	79.3	44.3	90.3	47.7	528	2.4	59	75
				4	10740	4010	6730	62.1	47.2	70.8	50.9	190	1.0	51	67
				2	5710	2130	3580	40.2	53.0	45.8	57.6	53	0.5	38	54

Outputs of galvanised steel, cross-counterflow heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 110/50 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*303376	3,25	Galvanised steel, cross-counterflow	4,5	2	21500	8030	13470	72.4	35.8	110.5	44.1	1590	3.0	66	82
				1	17900	6640	11260	65.8	37.2	100.6	46.3	1080	1.9	62	78
EC, 230 V / 50 Hz															
*303373	3,25	Galvanised steel, cross-counterflow	4,5	10	20560	7680	12880	70.2	36.0	106.7	44.4	1278	5.8	66	82
				8	19430	7260	12170	67.5	36.3	102.6	44.8	1092	4.9	64	80
				6	15310	5720	9590	57.3	37.6	87.1	46.7	528	2.4	59	75
				4	10740	4010	6730	44.9	39.6	68.2	49.8	190	1.0	51	67
				2	5710	2130	3580	29.0	43.8	44.1	56.2	53	0.5	38	54

Outputs without heat exchanger

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Total air volume	Power consumption	Current consumption	Sound pressure level [3]	Sound power level
	[m]		[m]		V [m³/h]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz									
*300076	3,25	No heat exchanger	4,5	2	24100	1590	3.0	66	82
				1	19900	1080	1.9	62	78
EC, 230 V / 50 Hz									
*300073	3,25	No heat exchanger	4,5	10	22990	1278	5.8	66	82
				8	21710	1092	4.9	64	80
				6	17110	528	2.4	59	75
				4	12010	190	1.0	51	67
				2	6390	53	0.5	38	54

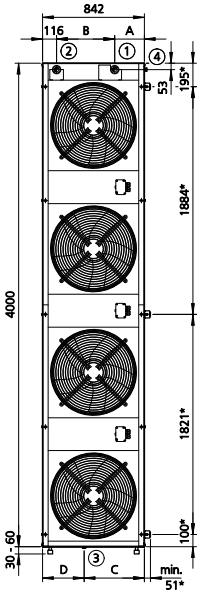
V [m³/h] = air volume, free-blowing; Q_H [kW] = heat output; t_{L1} [°C] = air inlet temperature; t_{L2} [°C] = air outlet temperature

[1] at low to medium pressure / requirements / conditions, in conjunction with long outlet nozzle
[2] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[3] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A).
* This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

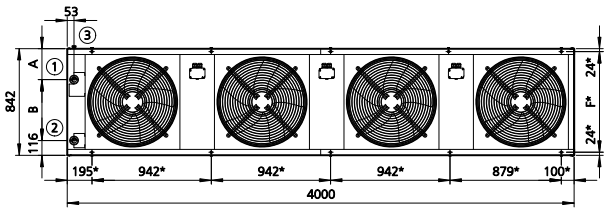
ProtecTor

For discharge heights and/or widths of up to 4.5 m
Model 40

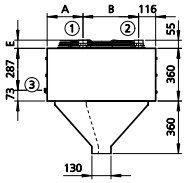
Technical drawings (dimensions in mm)



Side view (standing)



Top view (horizontal)



Side view (horizontal)

1. Flow 2"
2. Return 2"
3. 1/2" drain valve
4. Air vent

* Installation dimensions

Type	A	B	C	D	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
***402076**	245	481	498	344	51	795
***403176**	320	406	498	294	51	795
***403376**	320	406	498	294	51	795
***400076**	--	--	--	--	51	795
***402073**	245	481	498	344	50	795
***403173**	320	406	498	294	50	795
***403373**	320	406	498	294	50	795
***400073**	--	--	--	--	50	795

Specifications

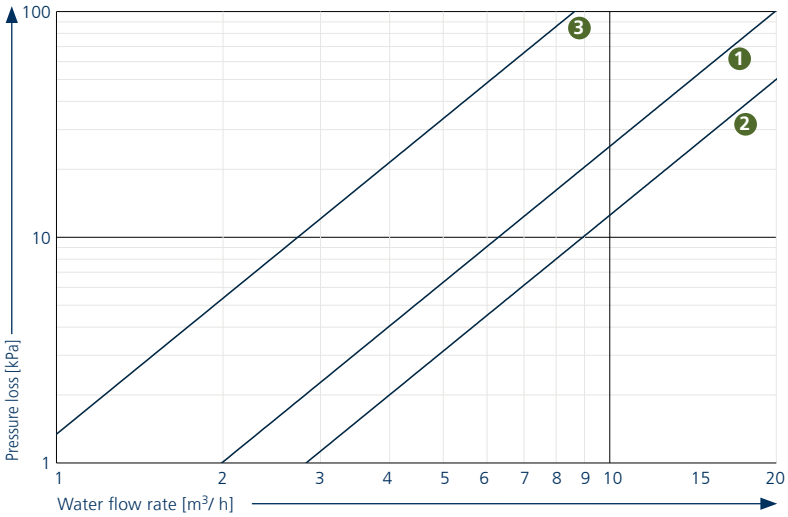
Connections: 2"

Weights

Type	Weight	Water content
	[kg]	[l]
402076	233	17.2
403176	448	36.2
402073	217	17.2
403173	432	36.2
403376	450	36.2
403373	434	36.2
400076	154	--
400073	138	--
2402076	244	17.2
2403176	459	36.2
2402073	228	17.2
2403173	443	36.2
2400076	165	--
2400073	149	--

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!
▸ **kampmann.co.uk/ProtecTor/calculation**

Water resistance



1. Heat exchanger, copper/aluminium
2. Heat exchanger, galvanised steel
3. Heat exchanger, galvanised steel, cross-counterflow

Heat outputs of copper/aluminium and galvanised steel heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 82/71 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*402076	4,25	Copper/aluminium	4,5	2	28600	10700	17900	133.8	42.0	152.4	45.0	2120	4.0	67	83
				1	23900	8870	15030	106.0	40.7	120.8	43.6	1440	2.5	63	79
*403176		Galvanised steel	4,5	2	28600	10700	17900	133.8	42.0	152.4	45.0	2120	4.0	67	83
				1	23900	8870	15030	106.0	40.7	120.8	43.6	1440	2.5	63	79
EC, 230 V / 50 Hz															
*402073	4,25	Copper/aluminium	4,5	10	27420	10260	17160	130.0	42.3	148.1	45.4	1704	7.8	67	83
				8	25900	9690	16210	125.0	42.7	142.4	45.8	1456	6.6	66	82
				6	20410	7640	12770	106.0	44.4	120.8	47.8	704	3.2	61	77
				4	14320	5360	8960	83.0	47.2	94.6	51.0	253	1.3	53	69
				2	7620	2850	4770	53.7	53.1	61.2	57.7	70	0.7	39	55
*403173		Galvanised steel	4,5	10	27420	10260	17160	130.0	42.3	148.1	45.4	1704	7.8	67	83
				8	25900	9690	16210	125.0	42.7	142.4	45.8	1456	6.6	66	82
				6	20410	7640	12770	106.0	44.4	120.8	47.8	704	3.2	61	77
				4	14320	5360	8960	83.0	47.2	94.6	51.0	253	1.3	53	69
				2	7620	2850	4770	53.7	53.1	61.2	57.7	70	0.7	39	55

Outputs of galvanised steel, cross-counterflow heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 110/50 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*403376	4,25	Galvanised steel, cross-counterflow	4,5	2	28600	10700	17900	96.8	35.9	147.8	44.3	2120	4.0	67	83
				1	23900	8870	15030	87.4	37.1	133.4	46.1	1440	2.5	63	79
EC, 230 V / 50 Hz															
*403373	4,25	Galvanised steel, cross-counterflow	4,5	10	27420	10260	17160	94.0	36.1	142.9	44.5	1704	7.8	67	83
				8	25900	9690	16210	90.4	36.4	137.4	44.9	1456	6.6	66	82
				6	20410	7640	12770	76.7	37.7	116.6	46.8	704	3.2	61	77
				4	14320	5360	8960	60.0	39.7	91.3	50.0	253	1.3	53	69
				2	7620	2850	4770	38.9	44.0	59.1	56.4	70	0.7	39	55

Outputs without heat exchanger

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Total air volume	Power consumption	Current consumption	Sound pressure level [3]	Sound power level
	[m]		[m]		V [m³/h]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz									
*400076	4,25	No heat exchanger	4,5	2	32100	2120	4.0	67	83
				1	26600	1440	2.5	63	79
EC, 230 V / 50 Hz									
*400073	4,25	No heat exchanger	4,5	10	30650	1704	7.8	67	83
				8	28950	1456	6.6	66	82
				6	22820	704	3.2	61	77
				4	16010	253	1.3	53	69
				2	8510	70	0.7	39	55

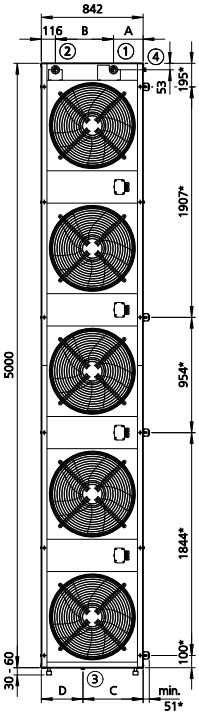
V [m³/h] = air volume, free-blowing; Q_H [kW] = heat output; t_{L1} [°C] = air inlet temperature; t_{L2} [°C] = air outlet temperature

[1] at low to medium pressure / requirements / conditions, in conjunction with long outlet nozzle
[2] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[3] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A).
* This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

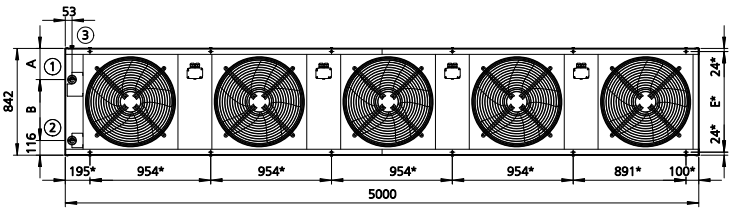
ProtecTor

For discharge heights and/or widths of up to 4.5 m
Model 50

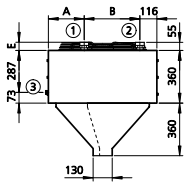
Technical drawings (dimensions in mm)



Side view (standing)



Top view (horizontal)



Side view (horizontal)

1. Flow 2"
2. Return 2"
3. 1/2" drain valve
4. Air vent

* Installation dimensions

Type	A	B	C	D	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
***502076**	245	481	498	344	51	795
***503176**	320	406	498	294	51	795
***503376**	320	406	498	294	51	795
***500076**	--	--	--	--	51	795
***502073**	245	481	498	344	50	795
***503173**	320	406	498	294	50	795
***503373**	320	406	498	294	50	795
***500073**	--	--	--	--	50	795

Specifications

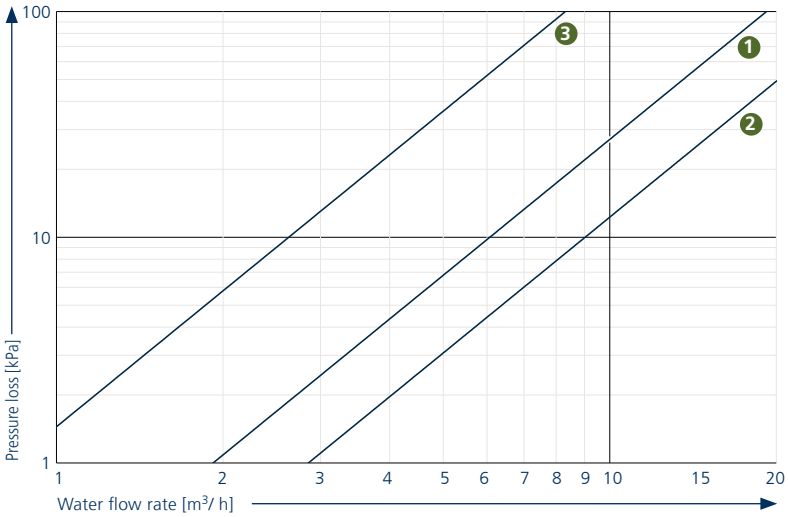
Connections: 2"

Weights

Type	Weight	Water content
	[kg]	[l]
502076	290	21.2
503176	593	44.3
502073	270	21.2
503173	573	44.3
503376	560	44.3
503373	540	44.3
500076	190	--
500073	170	--
2502076	303	21.2
2503176	606	44.3
2502073	283	21.2
2503173	586	44.3
2500076	203	--
2500073	183	--

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!
▸ **kampmann.co.uk/ProtecTor/calculation**

Water resistance



1. Heat exchanger, copper/aluminium
2. Heat exchanger, galvanised steel
3. Heat exchanger, galvanised steel, cross-counterflow

Heat outputs of copper/aluminium and galvanised steel heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 82/71 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*502076	5,25	Copper/aluminium	4,5	2	35800	13350	22450	167.2	41.9	190.5	45.0	2650	5.0	68	84
				1	29800	11030	18770	132.5	40.8	151.0	43.7	1800	3.1	64	80
*503176		Galvanised steel	4,5	2	35800	13350	22450	167.2	41.9	190.5	45.0	2650	5.0	68	84
				1	29800	11030	18770	132.5	40.8	151.0	43.7	1800	3.1	64	80
EC, 230 V / 50 Hz															
*502073	5,25	Copper/aluminium	4,5	10	34270	12780	21490	162.2	42.2	184.8	45.3	2130	9.7	68	84
				8	32370	12070	20300	156.0	42.6	177.7	45.8	1820	8.2	67	83
				6	25520	9520	16000	132.4	44.3	150.8	47.7	880	4.0	62	78
				4	17890	6670	11220	103.6	47.2	118.0	50.9	316	1.7	54	70
				2	9520	3550	5970	67.0	53.0	76.3	57.6	88	0.8	40	56
*503173		Galvanised steel	4,5	10	34270	12780	21490	162.2	42.2	184.8	45.3	2130	9.7	68	84
				8	32370	12070	20300	156.0	42.6	177.7	45.8	1820	8.2	67	83
				6	25520	9520	16000	132.4	44.3	150.8	47.7	880	4.0	62	78
				4	17890	6670	11220	103.6	47.2	118.0	50.9	316	1.7	54	70
				2	9520	3550	5970	67.0	53.0	76.3	57.6	88	0.8	40	56

Outputs of galvanised steel, cross-counterflow heat exchangers

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Air volume			Heat outputs [2]				Power consumption	Current consumption	Sound pressure level [3]	Sound power level
					Total	Ambient air stream	Warm air	at LPHW 75/65 °C		at LPHW 110/50 °C					
	[m]		[m]		V [m³/h]	V [m³/h]	V [m³/h]	Q_H [kW]	t_{L2} [°C]	Q_H [kW]	t_{L2} [°C]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz															
*503376	5,25	Galvanised steel, cross-counterflow	4,5	2	35800	13350	22450	120.6	35.8	184.2	44.1	2650	5.0	68	84
				1	29800	11030	18770	109.8	37.2	167.6	46.3	1800	3.1	64	80
EC, 230 V / 50 Hz															
*503373	5,25	Galvanised steel, cross-counterflow	4,5	10	34270	12780	21490	117.0	36.0	177.9	44.3	2130	9.7	68	84
				8	32370	12070	20300	112.5	36.3	171.0	44.8	1820	8.2	67	83
				6	25520	9520	16000	95.5	37.5	145.1	46.7	880	4.0	62	78
				4	17890	6670	11220	74.7	39.6	113.6	49.8	316	1.7	54	70
				2	9520	3550	5970	48.4	43.8	73.5	56.2	88	0.8	40	56

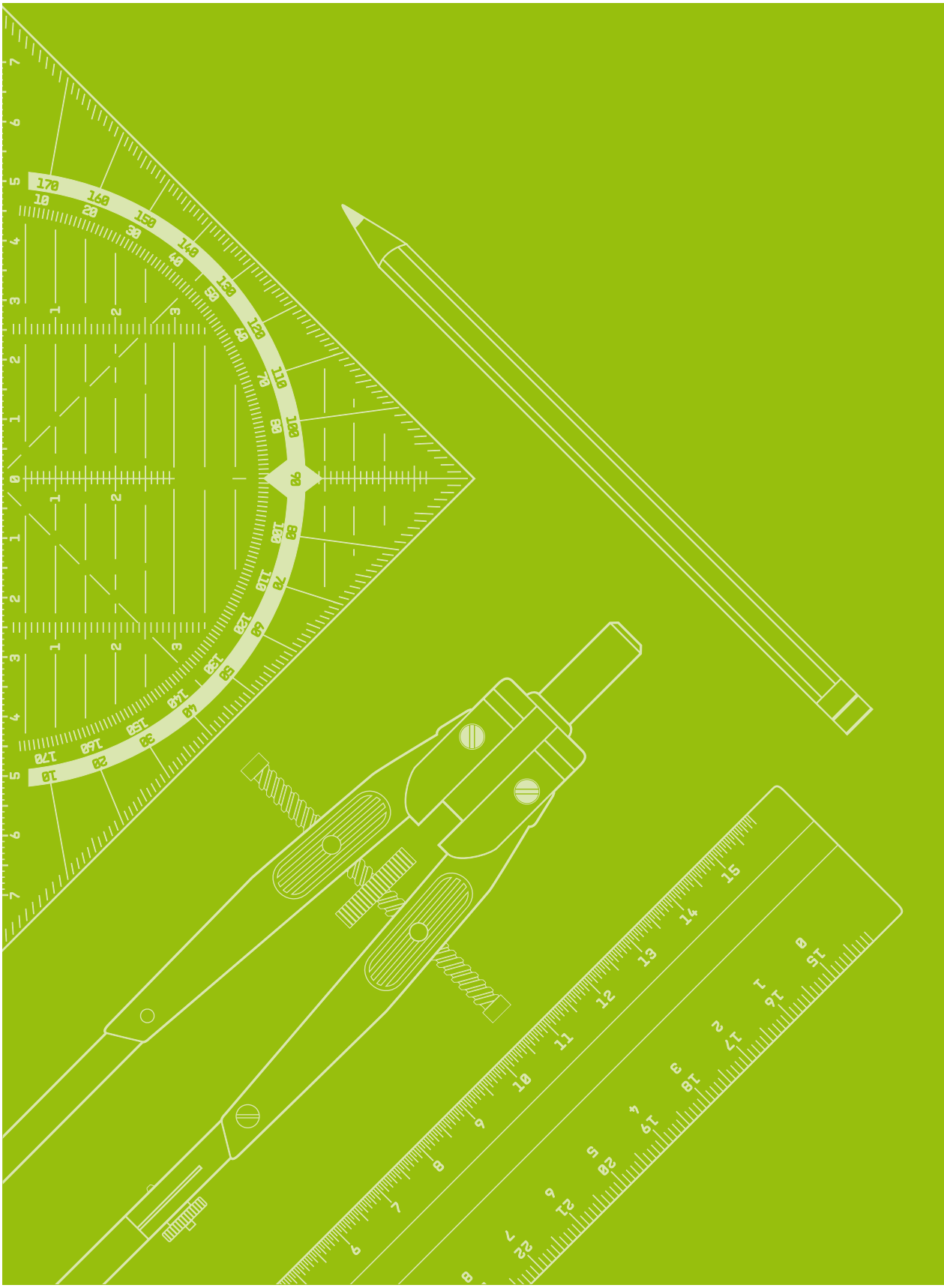
Outputs without heat exchanger

Type	Max. door width or height	Heat exchanger	Max. discharge height and/or width[1]	Switching stage or control voltage	Total air volume	Power consumption	Current consumption	Sound pressure level [3]	Sound power level
	[m]		[m]		V [m³/h]	P [W]	I [A]	L_{PA} [dB(A)]	L_{WA} [dB(A)]
AC, 400 V / 50 Hz									
*500076	5,25	No heat exchanger	4.5	2	40050	2650	5.0	68	84
				1	33090	1800	3.1	64	80
EC, 230 V / 50 Hz									
*500073	5.25	No heat exchanger	4.5	10	38310	2130	9.7	68	84
				8	36180	1820	8.2	67	83
				6	28520	880	4.0	62	78
				4	20010	316	1.7	54	70
				2	10640	88	0.8	40	56

V [m³/h] = air volume, free-blowing; Q_H [kW] = heat output; t_{L1} [°C] = air inlet temperature; t_{L2} [°C] = air outlet temperature

[1] at low to medium pressure / requirements / conditions, in conjunction with long outlet nozzle
[2] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[3] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A).
* This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

03 Design information



Information on planning and design

Selection and size of door air curtains

When positioned over the door (horizontal arrangement), the unit needs to be installed in such a way that the air outlet is positioned as closely as possible to the door opening.
With horizontal and vertical gaps of more than 500 mm between the door opening and outlet nozzle, select the next model length up or provide for side panelling similar to a corridor.

Operating limits

Extremely adverse operating conditions, such as

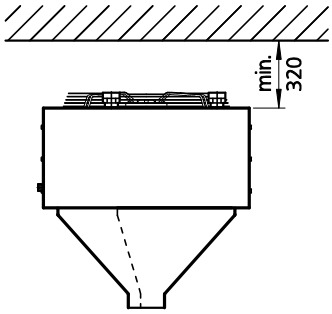
- strong negative pressure in the rooms, e.g. produced by mechanical ventilation without the supply of outside air,
- extremely adverse weathering conditions with high wind speeds in an unprotected position,
- several openings to the outside, especially if they are positioned opposite each other,

can impair the effective screening effect of the door air curtains. Additional measures may need to be put in place, to compensate for the pressure in the room. When designing doorway entrances, note that it may be necessary to close the doors when the building is occupied.
Provide for units with higher air volumes and heat outputs should doorways need to remain open in large warehouses, even in the event of unfavourable or extreme weather. They have to be in a position to heat up the large volumes of cold air, which can penetrate under certain circumstances.

Layout

When positioned over the door (horizontal arrangement), the equipment needs to be installed in such a way that the air outlet is positioned as closely as possible to the door opening. Provide a gap of 320 mm above the motor guard, both with horizontal and standing units.

Ceiling-mounted



Here's an example: Ceiling-mounted horizontal unit

Max. discharge height or width

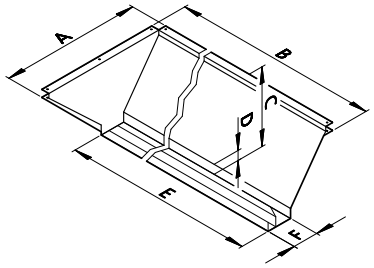
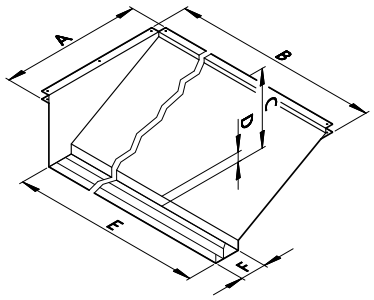
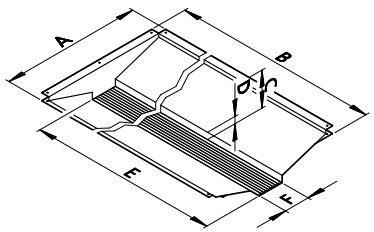
The maximum discharge height and/or width comes from the maximum penetration depth of the air stream in the doorway area. The maximum discharge height and width is dependent on

- the fan size of the unit
- the discharge nozzle for the air outlet

The maximum mounting heights given in the Technical data on pages 14 to 29 apply to free-blowing operation at maximum fan speed.

Outlet-side accessories

The discharge heights and/or widths stated in the technical data (pages 14 - 29) only apply in conjunction with the discharge nozzle fitted. When using the short discharge nozzle, note that it can reduce the discharge height or width by up to 1.0 metre.

Figure	Article	Properties						
Discharge-side accessories								
	**Discharge nozzle, long, central**	Discharge nozzle, long, arranged centrally for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 3.5 metres						
			A	B	C	D	E	F
		Model 20	715	1978	360	50	1900	130
		Model 30	715	2978	360	50	2900	130
		Model 40	715	3978	360	50	3900	130
		Model 50	715	4978	360	50	4900	130
		Discharge nozzle, long, arranged centrally for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 4.5 metres						
			A	B	C	D	E	F
		Model 20	815	1978	360	50	1900	130
		Model 30	815	2978	360	50	2900	130
		Model 40	815	3978	360	50	3900	130
		Model 50	815	4978	360	50	4900	130
	**Discharge nozzle, long, one-sided**	Discharge nozzle, long, one-sided arrangement for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 3.5 metres						
			A	B	C	D	E	F
		Model 20	715	1978	360	50	1900	130
		Model 30	715	2978	360	50	2900	130
		Model 40	715	3978	360	50	3900	130
		Model 50	715	4978	360	50	4900	130
		Discharge nozzle, long, one-sided arrangement for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 4.5 metres						
			A	B	C	D	E	F
		Model 20	815	1978	360	50	1900	130
		Model 30	815	2978	360	50	2900	130
		Model 40	815	3978	360	50	3900	130
		Model 50	815	4978	360	50	4900	130
	**Discharge nozzle, short, central**	Discharge nozzle, short, central arrangement with guard for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 3.5 metres (discharge height reduces by 1.0 metre)						
			A	B	C	D	E	F
		Model 20	715	1978	140	38	1900	133
		Model 30	715	2978	140	38	2900	133
		Model 40	715	3978	140	38	3900	133
		Model 50	715	4978	140	38	4900	133
		Discharge nozzle, short, central arrangement with guard for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 4.5 metres (discharge height reduces by 1.0 metre)						
			A	B	C	D	E	F
		Model 20	815	1978	140	38	1900	133
		Model 30	815	2978	140	38	2900	133
		Model 40	815	3978	140	38	3900	133
		Model 50	815	4978	140	38	4900	133

Outlet air temperatures

Please refer to the performance tables for the outlet air temperatures of the different door air curtains (on pages 15 to 29). If the use of additional components results in a reduced air volume and thus a lower heat output or if a temperature difference t between the mean water temperature and the air intake temperature has been selected that is not shown in the performance tables then the outlet air temperature can be calculated as follows:

$$t_{L2} = t_{L1} + \frac{Q_{eff} \cdot 1000}{V_{L\,eff} \cdot C}$$

t_{L1}	[°C]	=	entering air temperature
t_{L2}	[°C]	=	leaving air temperature
Q_{eff}	[KW]	=	eff. heat output of the air stream
$V_{L\,eff}$	[m³/h]	=	effective air volume of the air stream (taking into account accessory components)
C	[Wh/m³ K]	=	multiplier for air outlet temperature calculation

t_{L1}	C	t_{L1}	C
[°C]	[Wh/m³ K]	[°C]	[Wh/m³ K]
+ 20	0.34	± 0	0.36
+ 10	0.35	– 10	0.37

Guideline values for leaving air temperature:

- min. 35 – 40 °C (if people are working in the discharge area of the unit)

Max. permissible flow temperature

The maximum permissible flow temperature of 120 °C may not be exceeded, as long periods of fan idleness can lead to impermissible heating up of the motor windings and bearings.
The fan can also overheat by the use of slow-closing solenoid or motor valves. This can interrupt the flow of medium before the fan is switched off and the heat exchanger cools down.

Water resistance

Calculate the water resistance using the water resistance diagrams (pages 14 to 29).
This is formed from the:

- heat output Q_{eff}
- water temperature difference
  $\Delta t_w = t_{w1} - t_{w2}$
- volumetric flow rate

$$m = \frac{Q_{eff}}{\Delta t_w} \cdot 0.86$$

These figures apply to a mean water temperature of 70 °C but can also be used for other heating media temperatures because of the minimal dependence on the water temperature.

Noise

There is minimal noise from these units due to the aerodynamic design of the sickle-blade, whisper-quiet fan. Flow noise is reduced because of the sickle-shaped design of the profiled blades combined with the optimised inlet nozzle. The uniform spread over the entire frequency range, minimising blade passing noise, reduces unpleasant peaks of noise.

Nevertheless, take into account the permissible noise levels when designing door air curtains.
The A-rated total noise levels, for both sound pressure and sound power, are given in the performance tables on pages 15 to 29.

Sound pressure level

The A-rated sound pressure levels given in the technical data (pages 15 to 29) have been calculated with an assumed room insulation of 16 dB(A). This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081). The actual sound pressure level may differ significantly from the given figures, depending on the room geometry, absorption capacity of the space, equipment, accessories etc.

Sound power level

The sound power level describes the noise emission from the units, independent of the space and distance. The sound pressure level can be determined if the spatial geometry and absorption behaviour is known. The sound power levels were determined based on the enveloping surface method in line with DIN 45635-56.

Calculation data

ProtecTor type	Voltage [V]/ Frequency [Hz]	Power consumption [kW]	Current consumption [A]	Speed [rpm]
*20**66	400 / 50	0.72 / 0.44	1.7 / 0.9	890 / 630
*30**66	400 / 50	1.08 / 0.66	2.5 / 1.4	890 / 630
*40**66	400 / 50	1.44 / 0.88	3.3 / 1.8	890 / 630
*50**66	400 / 50	1.80 / 1.10	4.2/ 2.3	890 / 630
*20**76	400 / 50	1.06 / 0.72	2.0 / 1.2	910 / 740
*30**76	400 / 50	1.59 / 1.08	3.0 / 1.9	910 / 740
*40**76	400 / 50	2.12 / 1.44	4.0 / 2.5	910 / 740
*50**76	400 / 50	2.65 / 1.80	5.0 / 3.1	910 / 740
*20**63	230 / 50/60	0.92	4.0	990
*30**63	230 / 50/60	1.38	6.0	990
*40**63	230 / 50/60	1.84	8.0	990
*50**63	230 / 50/60	2.30	10.0	990
*20**73	230 / 50/60	0.90	4.0	900
*30**73	230 / 50/60	1.35	6.0	900
*40**73	230 / 50/60	1.80	8.0	900
*50**73	230 / 50/60	2.25	10.0	900

* Code for mounting design
** Heat exchanger model

04 Controls

Stage switch/speed controller for 400 V AC and 230 V EC motors

Kampmann offers an extensive range of control accessories for each required function:

Model with EC motors

- manual speed controller, continuously variable, in conjunction with thermostat and/or door contact switch in the mains power supply
- repair switch

Motor protection:

All EC door air curtains have built-in motor protection, which switches off the motor in the event of motor overloading. This fault can be evaluated externally by a potential-free N/C 250 VAC/2A
The entire group or individual units is/are shut down in the event of a motor fault, depending on the control solution.

Model with AC motors

- 2-stage, 5-stage speed controllers
- thermostats and temperature controls; optionally with timer program
- repair switch

Motor protection

Thermal contacts (temperature monitors) are embedded in the motor windings, which open when the maximum winding temperature of 155 °C is exceeded.

Thermal contacts meet the conditions for protecting against overloading of equipment with electric motor drive VDE 0730. Commercial motor protection switch or bi-metal trips are not suitable as motor protection with multi-stage operated motors.

With group circuits

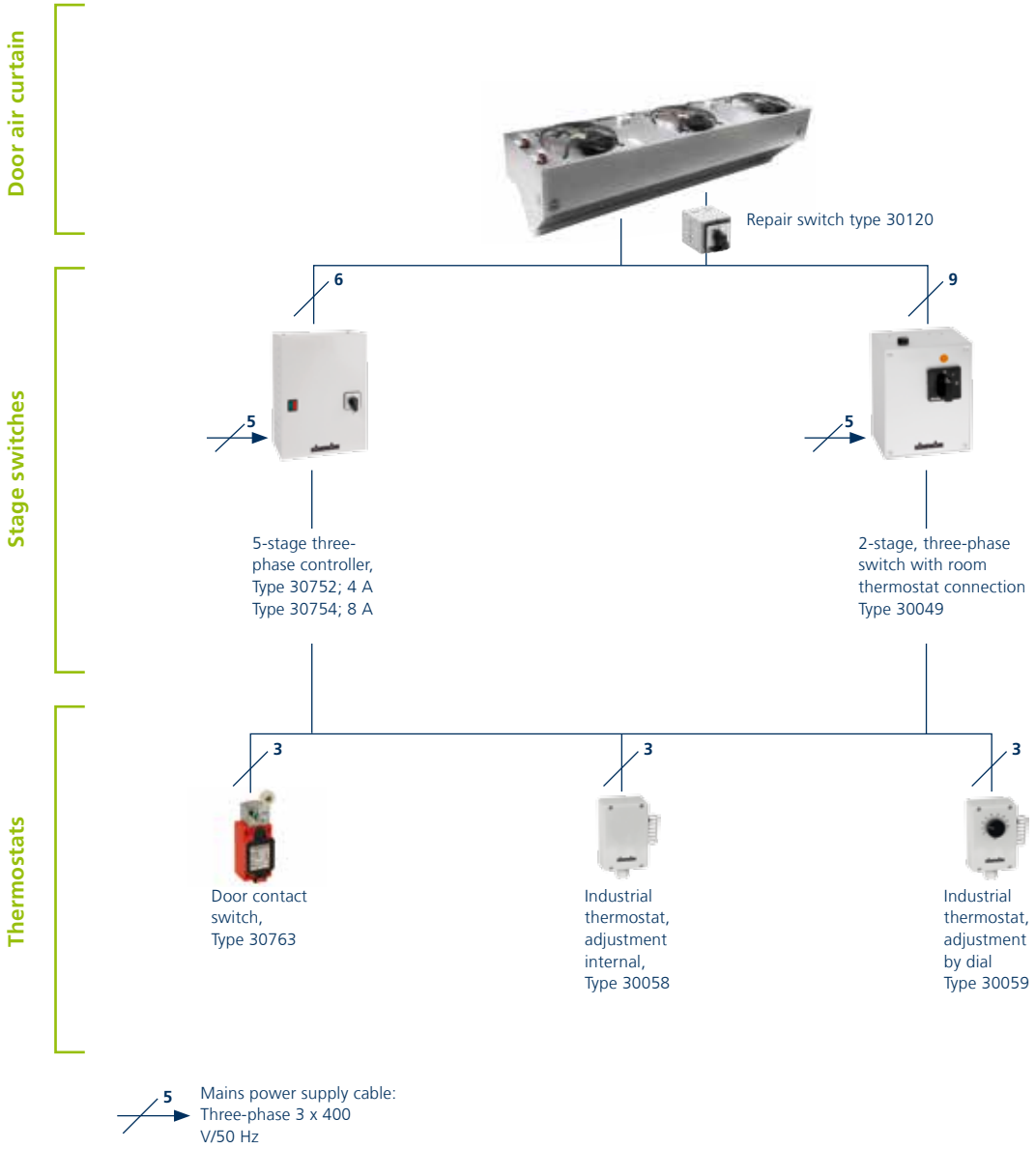
- thermal contacts are connected in series. This configuration secures as many motors as needed with the motor protection device.
- total power for the connected door air curtains should not exceed the maximum rating of the switch. In the event of a fault (e.g. 2-phase, mechanical obstruction, bearing failure), ensure that the units cannot automatically restart. All Kampmann speed controls are fitted with a switch-on lock in the event of a fault.
- switch on again by turning the stage switch to zero
- automatic restart after power failure with switches connected to a room thermostat

2-stage three-phase motor

Maximum connectible door air curtains per switch

Door air curtains with 2-stage 3-phase motor	Switch		
	5-stage 3-phase controller with room thermostat connection		2-stage, three-phase switch with room thermostat connection
	Type 30752	Type 30754	Type 30049
[Series]	[Quantity]	[[Quantity]]	[Quantity]
***20**66**	2	4	5
***30**66**	1	3	3
***40**66**	1	2	2
***50**66**	-	1	2
***20**76**	1	3	3
***30**76**	1	2	2
***40**76**	-	1	1
***50**76**	-	1	1

* Code for mounting design
** Heat exchanger model



The number of connecting wires required including fuses is given on the individual control units.
Electrical supply: Observe the technical connection requirements laid down by utility companies!

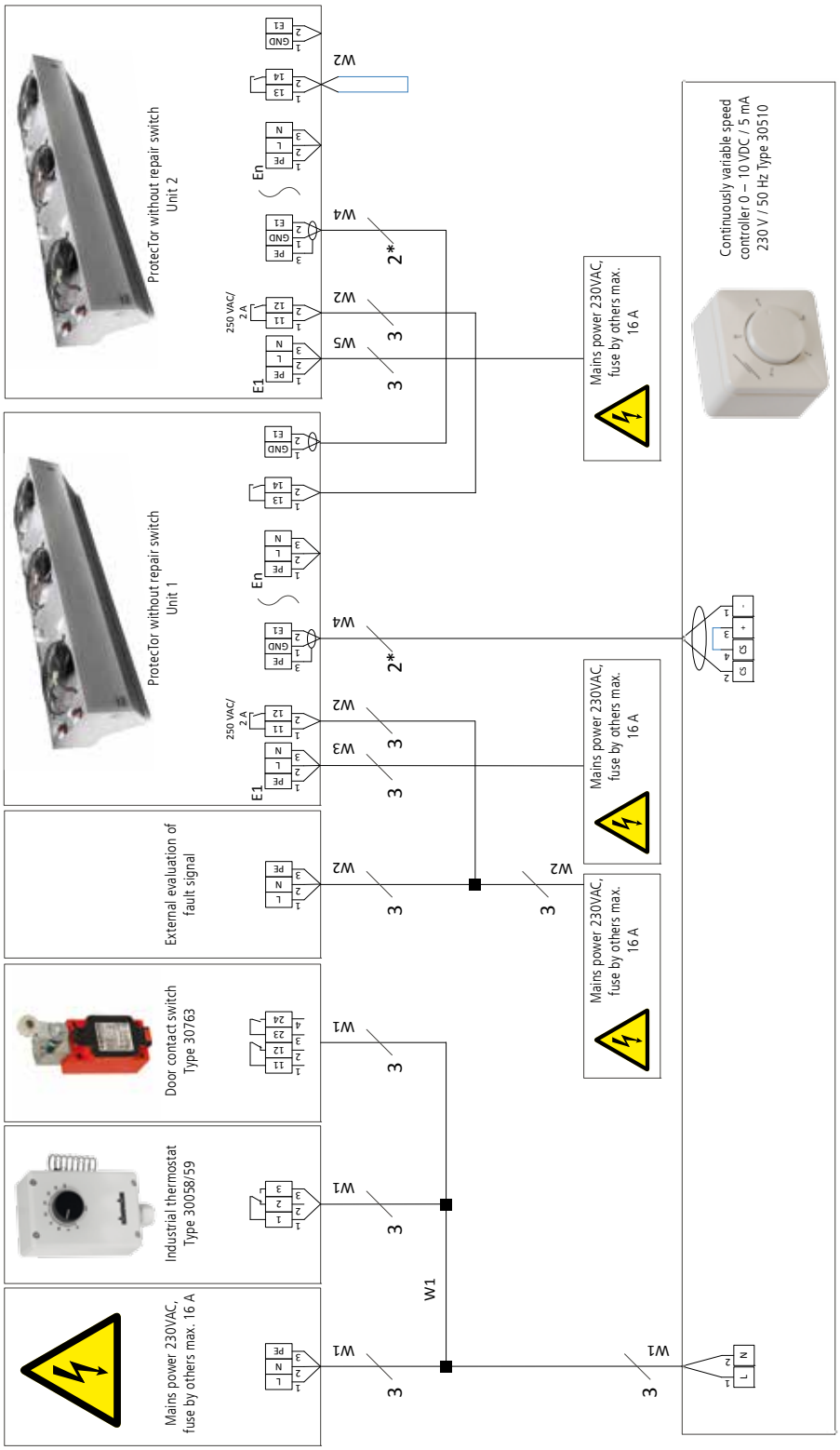
Control accessories for EC recirculating air *00

Brief description of speed controller, Type 30510
Continuously variable speed controller for use in conjunction with a thermostat and/or door contact switch. The fan speed is set manually on the speed controller at between 0 and 100%. The thermostats activate the door air curtains at the pre-set speed depending on the temperature.
A door contact switch or an on-site motion sensor can be used in place of the thermostat to switch on the door air curtain. A combination can also be used for activation of the door air curtains by a thermostat or door contact switch.

Maximum connectible door air curtains
Maximum 2 ProtecTor door air curtains with EC motors can be controlled in parallel with speed controller type 30510.

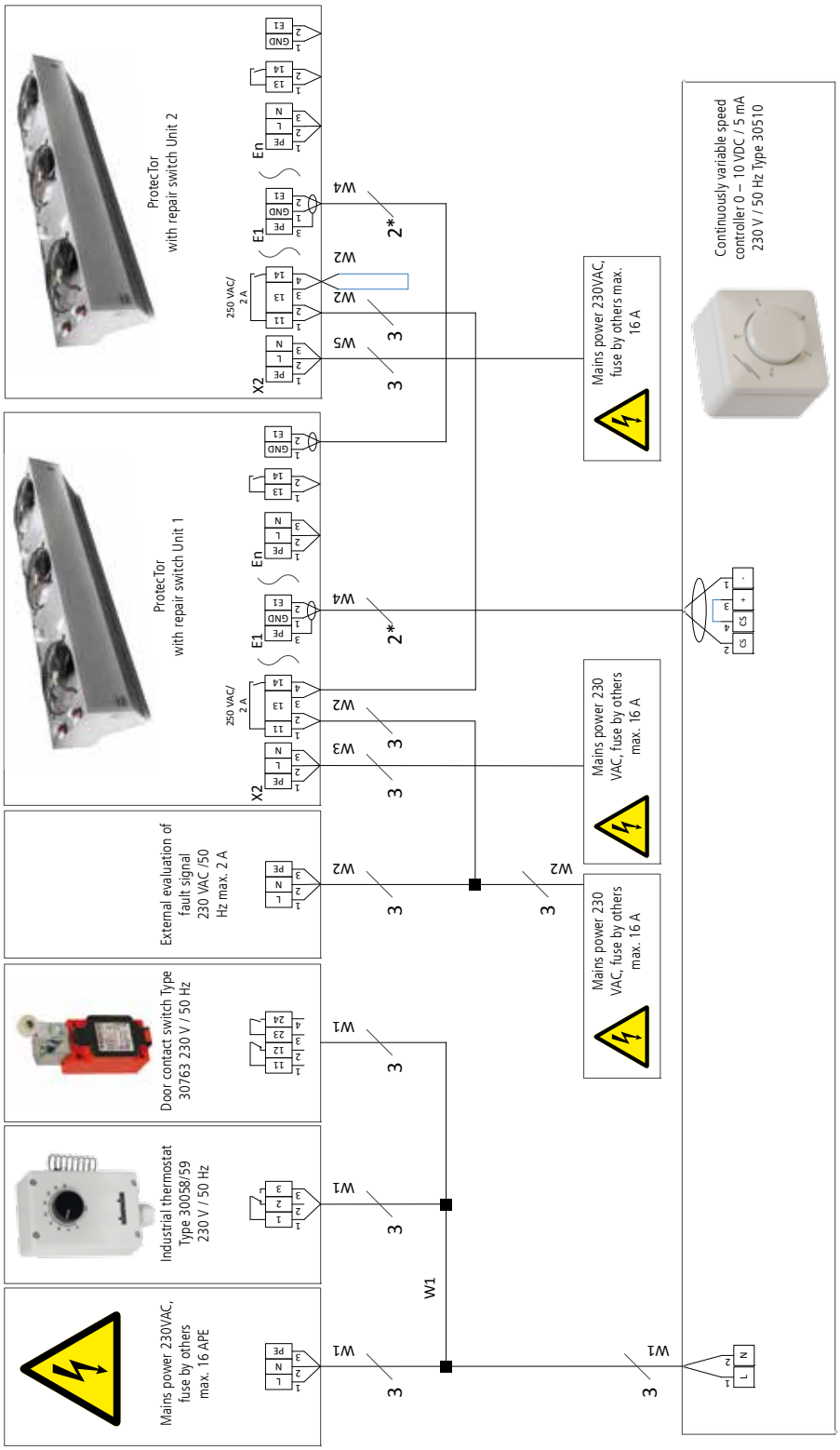
230 V EC-Motor

Wiring – Configuration of the ProtecTor **without** repair switch



* Lay shielded cables (e.g. B. J-Y(St)Y, 0.8 mm) separately from high-voltage cables!
W1: Voltage supply to speed controller. Wire N/O or N/C on door air curtains depending on function required.
W2: Fan fault signal as N/C. Insert a bridge for the fault signal between terminal 13 and 14 at the last unit in the group on terminal strip En!
W3, W5: Voltage supply to ProtecTor
W4: Voltage supply to fan. Max. 100 m from speed controller to 2nd ProtecTor, applying a shield (PE) to one side of the ProtecTor from a cable length of 20 m.
The number of connecting wires required including fuses is given on the individual control units.
Electrical supply: Observe the technical connection requirements laid down by utility companies!

Wiring –
Configuration of the ProtecTor **with** repair switch



* Lay shielded cables (e.g. B. J-Y(St)Y, 0.8 mm) separately from high-voltage cables!
W1: Voltage supply to speed controller. Wire N/O or N/C on door air curtains depending on function required.
W2: Fan fault signal as N/C. Insert a bridge for the fault signal between terminal 13 and 14 at the last unit in the group on terminal strip X2!
W3, W5: Voltage supply to ProtecTor
W4: Voltage supply to fan. Max. 100 m from speed controller to 2nd ProtecTor, applying a shield (PE) to one side of the ProtecTor from a cable length of 20 m.
The number of connecting wires required including fuses is given on the individual control units.
Electrical supply: Observe the technical connection requirements laid down by utility companies!

KaControl – The all-inclusive solution for 400 V AC and 230 V EC motors

ProtecTor door air curtains can be operated with KaControl electronics, supplied separately. Every ProtecTor door air curtain is thus equipped with its own "intelligence" and can be operated in groups via Kampmann-T-LAN or CANbus networks.

Integration into higher-level systems

ProtecTor door air curtains with KaControl offer the option of defined data transfer via BMS systems between the air conditioning system and higher-level management system via BMS interfaces. Defined communication profiles between KaControl and the management system can be used via the building management standards BACnet or LON.

Available interfaces:
- KNX
- Modbus
- Canbus
- LON
- BACnet IP (Ethernet)

Commissioning

Each ProtecTor door air curtain with KaControl is supplied factory-fitted with a basic program and wired ready for operation with factory presettings for all control parameters. If required, the parameters can be accessed via the operating unit (KaController) on site and changed as needed. When using a communication card, it is also possible to set comfort parameters on the unit via IT networks or even directly via a Notebook. Groups with up to two control electronics systems can be operated with automatic addressing.

KaControl for ProtecTor door air curtains

The parametrisable KaControl offers a wide range of functions:

- 5-stage fan control (AC and EC)
- continuous fan control (EC only)
- activation of the unit depending on the room temperature
- control of on-site hot water shut-off valve (heating) with Open/Close valve drive via 24 V DC output
- integrated timer program for programming day and week switching functions in the KaController unit
- operation of several door air curtains via a control unit
- motor monitoring with fault signal processing
- contact control
  The door air curtain system can be switched on/off via an external contact or the fan speed can be changed by a defined value. The hot water valve can either be simultaneously opened via the contact or permanently opened or closed.
- outside temperature-managed control
  The fan speed can be optionally automatically raised via an outside temperature sensor at a certain outside temperature.
  The valve can also be switched on or off when the set outside temperature value is reached (summer/ winter changeover).
- room automation
  The individual systems of several rooms can be combined to create a network via field bus interfaces. There is also the option of controlling units with different modes of operation in a small database system.
- management/ automation level
  A CANbus system or connection via RS485 technology offers the option of functionally connecting units from the field layer to centralised ventilation units. A complete building management solution for ventilation and air conditioning technology can be set up using KaControl building management applications with a PC and industrial PC.

KaControl electronics, recirculating air, for AC 3-phase fans

The wall-mounted control incorporates intelligent KaControl components, a module and a set of transformers. Max. load capacity 4 kW/8 A. Max. 2 ProtecTor units can be connected in parallel depending on the model.

Type 3231200

KaControl electronics, recirculating air, for EC 1-phase fans

Intelligent KaControl components are incorporated in the wall-mounted control. Max. 2 ProtecTor units can be connected in parallel.

Type 3231160

KaController – Type 3214001

KaController – Type 3210002

KaController operating unit

The "face" of the KaControl building automation system: the KaController operating unit.
The KaController provides maximum convenience with its large display and one-touch operation. With the basic principle, "as little as possible, as much as required", even untrained users can intuitively get to grips with the control options.
The basic functions for comfortable interior temperatures are set up in a user-friendly way using the KaController.

Product features

- high-quality designed wall-mounted room operating units
- plastic housing, colour similar to RAL 9010
- large display with automatic background lighting
- communication interface to the Kampmann T-LAN bus system
- integrated room temperature sensor
  Important! The model in an industrial housing always needs a separate
  room temperature sensor
- push-turn navigator dial with endless turn/lock function
- built-in weekly switching program
- password-protected parameter level
- side operating keys for quick access (only with Type 3210002 and Type 3214002)

Turn: Simplest room temperature setting method

Press: Fan stage setting

Single-circuit control system

Wiring – System configuration for max. 2 control electronics, each with max. 2 ProtecTor units via tLan depending on model size

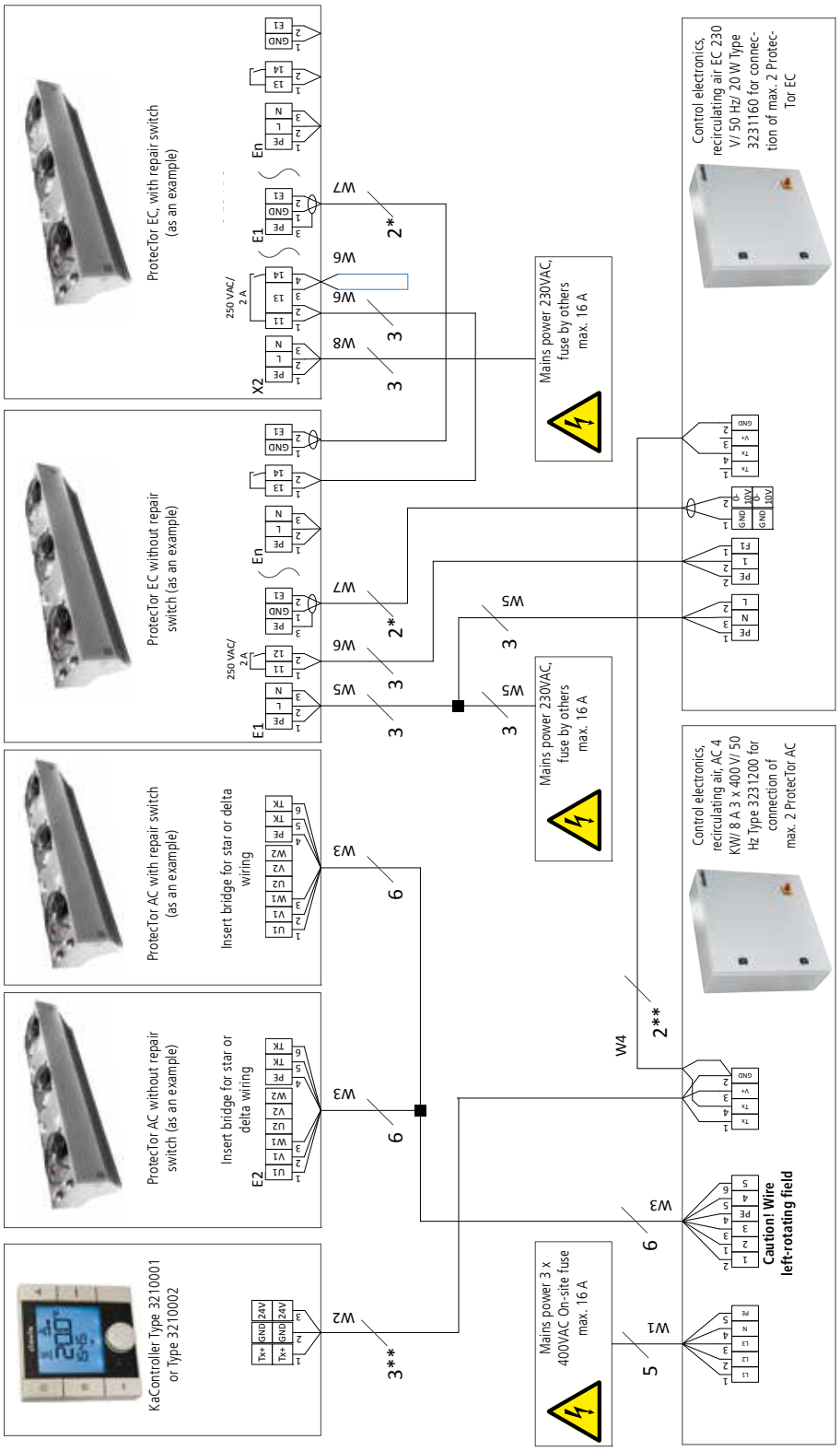
Maximum connectible number of ProtecTor door air curtains per KaControl electronic controller, recirculating air, for AC 3-phase fans

Door air curtains with 2-stage 3-phase motor	KaControl electronic controller Type 3231200
[Series]	[Quantity]
***20**66**	4
***30**66**	3
***40**66**	2
***50**66**	1
***20**76**	3
***30**76**	2
***40**76**	1
***50**76**	1

* Code for mounting design
** Heat exchanger model

Single-circuit control system

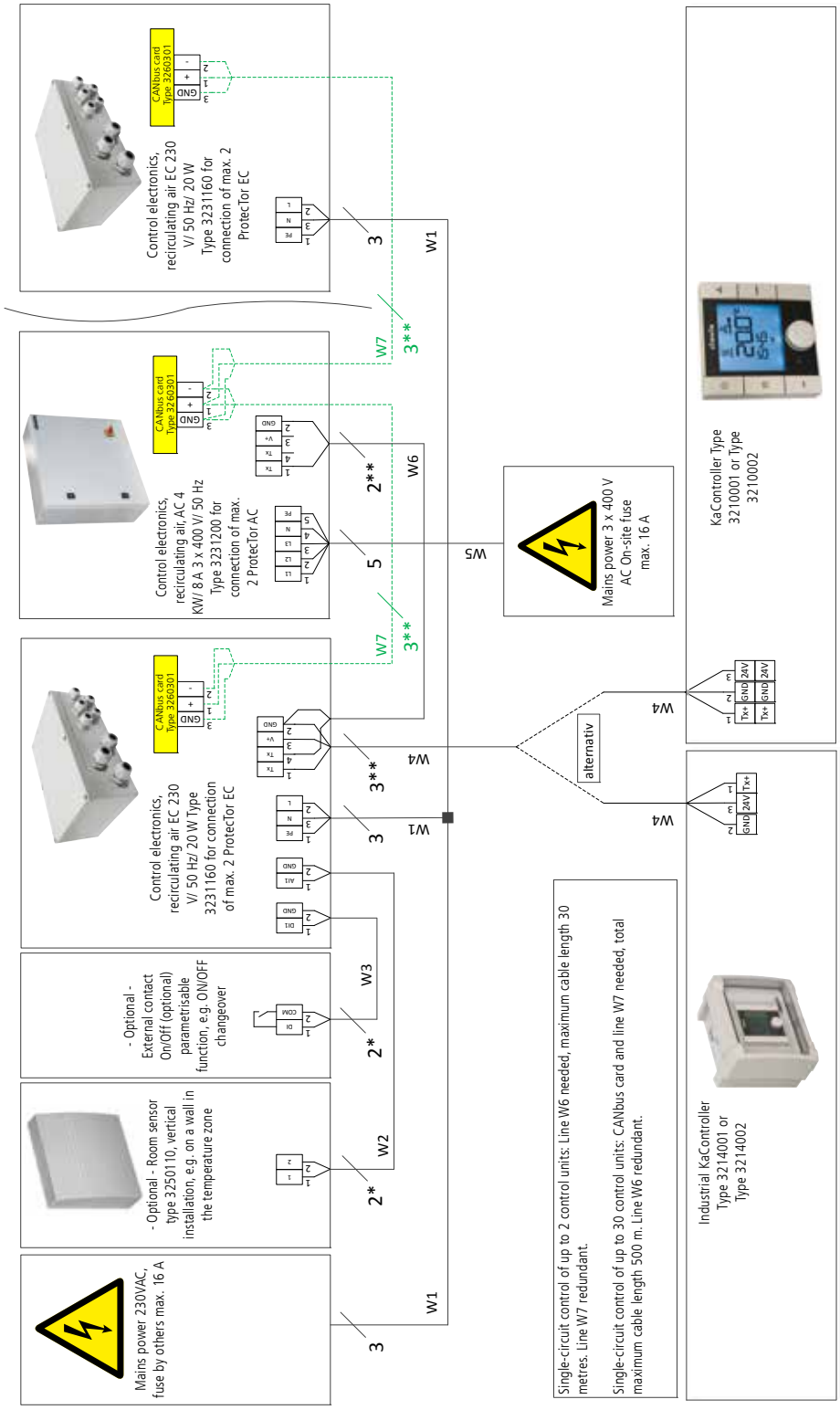
Wiring - System configuration for max. 2 control electronics, each with max. 2 ProtecTor units via tLan depending on model size



*) Lay shielded cables (e.g. B. J-Y(St)Y, 0.8 mm) separately from high-voltage cables.
**) Lay shielded data cable, twisted pairs, e.g. UNITRONIC® BUS LD 2 x 2 x 0.22 mm² or similar, linear but separate from power lines.
W1, W5, W8: Voltage supply
W2, W4: Bus signal (tLan), max. cable length = 30 m
W3: Wire three-phase motor connection cable, windings parallel and thermal contacts in series.
W6: Insert a bridge for the fault signal between terminal 13 and terminal 14 at the last unit in a group on terminal strip X2 or En.
W7: Apply a shield (PE) to one side at the ProtecTor max. 30 metres from the control electronics to the 2nd ProtecTor, with cable lengths of more than 20 metres.
The number of connecting wires required including fuses is given on the individual control units.
Electrical supply: Observe the technical connection requirements laid down by utility companies!

Single-circuit control system

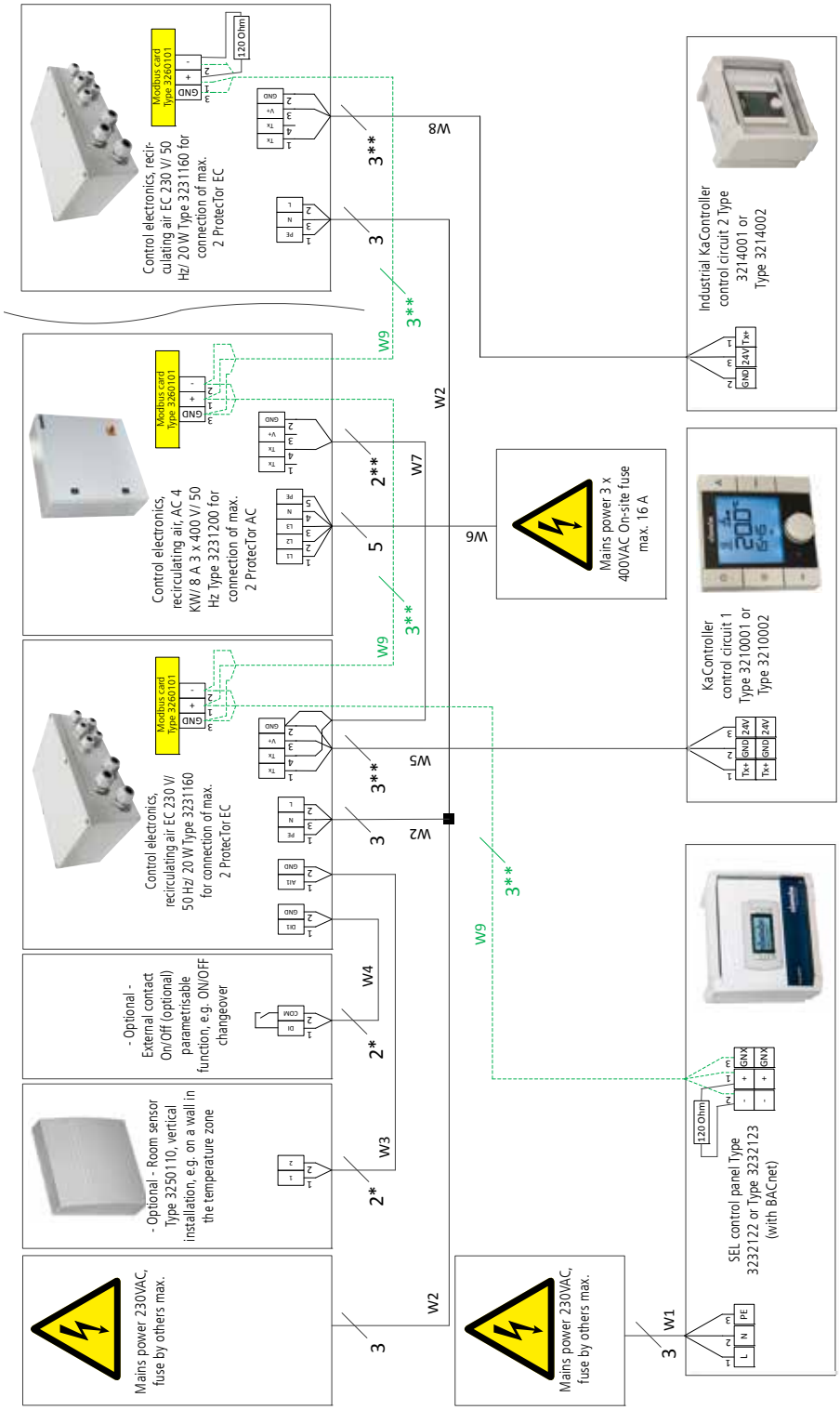
Wiring – System configuration for max. 2 control electronic units via tLan or for max. 30 control electronic units via CANbus



*) Lay shielded cables (e.g. B. J-Y(St)Y, 0.8 mm) separately from high-voltage cables.
**) Lay shielded data cable, twisted pairs, e.g. UNITRONIC® BUS LD 2 x 2 x 0.22 mm² or similar, linear but separate from power lines.
W1, W5: Voltage supply
W2: Analogue input AI1, max. cable length = 10 m
W3: Digital input DI1, max. cable length = 10 m
W4, W6: Bus signal (tLan), max. cable length = 30 m
W7: Bus signal (CANbus) max. cable length = 500 metres. The number of connecting wires required including fuses is given on the individual control units.
Electrical supply: Observe the technical connection requirements laid down by utility companies!

Multi-circuit control

Wiring – System configuration for SEL panel with max. 24 Modbus subscribers (control electronics)



*)	Lay shielded cables (e.g. B. J-Y(St)Y, 0.8 mm) separately from high-voltage cables.
**)	Lay shielded data cable, twisted pairs, e.g. UNITRONIC® BUS LD 2 x 2 x 0.22 mm² or similar, linear but separate from power lines.
W1, W2, W6:	Voltage supply
W3:	Analogue input AI1, max. cable length = 10 m
W4:	Digital input DI1, max. cable length = 10 m
W5, W7, W8:	Bus signal (tLan), max. cable length = 30 m
W9:	Bus signal (Modbus), max. cable length = 500 m

The number of connecting wires required including fuses is given on the individual control units.

Electrical supply: Observe the technical connection requirements laid down by utility companies!

05 Ordering information

ProtecTor

Model	Max. door width or height	Motor version	Total air volume	Heat output[1]	Sound pressure level[2]	Sound power level	Installation design	Control options	Art. No.
	[mm]		[m³/h]	[kW]	[dB(A)]	[dB(A)]			
For discharge heights and/or widths of up to 3.5 m									
20	2.25	AC. 400 V /50 Hz	7300 - 9250	33.3 - 43.3	54 - 61	70 - 77	horizontal, connection on left	no control components	255000202066
								with repair switch	255000202066R
								with frost protection thermostat	255000202066F0
								with repair switch + frost protection thermostat	255000202066FR
							horizontal, connection on right	no control components	255001202066
								with repair switch	255001202066R
								with frost protection thermostat	255001202066F0
								with repair switch + frost protection thermostat	255001202066FR
							standing, to the right of the doorway	no control components	255002202066
								with repair switch	255002202066R
								with frost protection thermostat	255002202066F0
								with repair switch + frost protection thermostat	255002202066FR
							standing, to the left of the doorway	no control components	255003202066
								with repair switch	255003202066R
								with frost protection thermostat	255003202066F0
								with repair switch + frost protection thermostat	255003202066FR
		EC. 230 V /50/60 Hz	1700 - 10540	13.5 - 47.4	23 - 63	39 - 79	horizontal, connection on left	no control components	255000202063
								with repair switch	255000202063R
								with frost protection thermostat	255000202063F0
								with repair switch + frost protection thermostat	255000202063FR
							horizontal, connection on right	no control components	255001202063
								with repair switch	255001202063R
								with frost protection thermostat	255001202063F0
								with repair switch + frost protection thermostat	255001202063FR
							standing, to the right of the doorway	no control components	255002202063
								with repair switch	255002202063R
								with frost protection thermostat	255002202063F0
								with repair switch + frost protection thermostat	255002202063FR
							standing, to the left of the doorway	no control components	255003202063
								with repair switch	255003202063R
								with frost protection thermostat	255003202063F0
								with repair switch + frost protection thermostat	255003202063FR

1) with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
2) The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A). This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

ProtecTor

Model	Max. door width or height	Motor version	Total air volume	Heat output[1]	Sound pressure level [2]	Sound power level	Installation design	Control options	Art. No.
	[mm]		[m³/h]	[kW]	[dB(A)]	[dB(A)]			
For discharge heights and/or widths of up to 3.5 m									
30	3.25	AC. 400 V / 50 Hz	11000 - 13900	50.0 - 65.0	56 - 63	72 - 79	horizontal, connection on left	no control components	255000302066
								with repair switch	255000302066R
								with frost protection thermostat	255000302066F0
								with repair switch + frost protection thermostat	255000302066FR
							horizontal, connection on right	no control components	255001302066
								with repair switch	255001302066R
								with frost protection thermostat	255001302066F0
								with repair switch + frost protection thermostat	255001302066FR
							standing, to the right of the doorway	no control components	255002302066
								with repair switch	255002302066R
								with frost protection thermostat	255002302066F0
								with repair switch + frost protection thermostat	255002302066FR
							standing, to the left of the doorway	no control components	255003302066
								with repair switch	255003302066R
								with frost protection thermostat	255003302066F0
								with repair switch + frost protection thermostat	255003302066FR
		EC. 230 V / 50/60 Hz	2560 - 15810	20.2 - 71.1	25 - 65	41 - 81	horizontal, connection on left	no control components	255000302063
								with repair switch	255000302063R
								with frost protection thermostat	255000302063F0
								with repair switch + frost protection thermostat	255000302063FR
							horizontal, connection on right	no control components	255001302063
								with repair switch	255001302063R
								with frost protection thermostat	255001302063F0
								with repair switch + frost protection thermostat	255001302063FR
							standing, to the right of the doorway	no control components	255002302063
								with repair switch	255002302063R
								with frost protection thermostat	255002302063F0
								with repair switch + frost protection thermostat	255002302063FR
							standing, to the left of the doorway	no control components	255003302063
								with repair switch	255003302063R
								with frost protection thermostat	255003302063F0
								with repair switch + frost protection thermostat	255003302063FR

[1] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream

[2] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A). This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

ProtecTor

Model	Max. door width or height	Motor version	Total air volume	Heat output[1]	Sound pressure level [2]	Sound power level	Installation design	Control options	Art. No.
	[mm]		[m³/h]	[kW]	[dB(A)]	[dB(A)]			
For discharge heights and/or widths of up to 3.5 m									
40	4.25	AC. 400 V /50 Hz	14700 - 18500	66.6 - 86.7	57 - 64	73 - 80	horizontal, connection on left	no control components	255000402066
								with repair switch	255000402066R
								with frost protection thermostat	255000402066F0
								with repair switch + frost protection thermostat	255000402066FR
							horizontal, connection on right	no control components	255001402066
								with repair switch	255001402066R
								with frost protection thermostat	255001402066F0
								with repair switch + frost protection thermostat	255001402066FR
							standing, to the right of the doorway	no control components	255002402066
								with repair switch	255002402066R
								with frost protection thermostat	255002402066F0
								with repair switch + frost protection thermostat	255002402066FR
							standing, to the left of the doorway	no control components	255003402066
								with repair switch	255003402066R
								with frost protection thermostat	255003402066F0
								with repair switch + frost protection thermostat	255003402066FR
		EC. 230 V /50/60 Hz	3410 - 21080	27.0 - 94.9	26 - 66	42 - 82	horizontal, connection on left	no control components	255000402063
								with repair switch	255000402063R
								with frost protection thermostat	255000402063F0
								with repair switch + frost protection thermostat	255000402063FR
							horizontal, connection on right	no control components	255001402063
								with repair switch	255001402063R
								with frost protection thermostat	255001402063F0
								with repair switch + frost protection thermostat	255001402063FR
							standing, to the right of the doorway	no control components	255002402063
								with repair switch	255002402063R
								with frost protection thermostat	255002402063F0
								with repair switch + frost protection thermostat	255002402063FR
							standing, to the left of the doorway	no control components	255003402063
								with repair switch	255003402063R
								with frost protection thermostat	255003402063F0
								with repair switch + frost protection thermostat	255003402063FR

[1] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[2] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A). This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

ProtecTor

Model	Max. door width or height	Motor version	Total air volume	Heat output[1]	Sound pressure level[2]	Sound power level	Installation design	Control options	Art. No.
	[mm]		[m³/h]	[kW]	[dB(A)]	[dB(A)]			
For discharge heights and/or widths of up to 3.5 m									
50	5.25	AC. 400 V /50 Hz	18300 - 23200	83.3 - 108.3	58 - 65	74 - 81	horizontal, connection on left	no control components	255000502066
								with repair switch	255000502066R
								with frost protection thermostat	255000502066F0
								with repair switch + frost protection thermostat	255000502066FR
							horizontal, connection on right	no control components	255001502066
								with repair switch	255001502066R
								with frost protection thermostat	255001502066F0
								with repair switch + frost protection thermostat	255001502066FR
							standing, to the right of the doorway	no control components	255002502066
								with repair switch	255002502066R
								with frost protection thermostat	255002502066F0
								with repair switch + frost protection thermostat	255002502066FR
							standing, to the left of the doorway	no control components	255003502066
								with repair switch	255003502066R
								with frost protection thermostat	255003502066F0
								with repair switch + frost protection thermostat	255003502066FR
		EC. 230 V /50/60 Hz	4260 - 26350	33.6 - 118.3	27 - 67	43 - 83	horizontal, connection on left	no control components	255000502063
								with repair switch	255000502063R
								with frost protection thermostat	255000502063F0
								with repair switch + frost protection thermostat	255000502063FR
							horizontal, connection on right	no control components	255001502063
								with repair switch	255001502063R
								with frost protection thermostat	255001502063F0
								with repair switch + frost protection thermostat	255001502063FR
							standing, to the right of the doorway	no control components	255002502063
								with repair switch	255002502063R
								with frost protection thermostat	255002502063F0
								with repair switch + frost protection thermostat	255002502063FR
							standing, to the left of the doorway	no control components	255003502063
								with repair switch	255003502063R
								with frost protection thermostat	255003502063F0
								with repair switch + frost protection thermostat	255003502063FR

[1] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream

[2] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A). This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

ProtecTor

Model	Max. door width or height	Motor version	Total air volume	Heat output[1]	Sound pressure level [2]	Sound power level	Installation design	Control options	Art. No.
	[mm]		[m³/h]	[kW]	[dB(A)]	[dB(A)]			
For discharge heights and/or widths of up to 4.5 m									
20	2.25	AC. 400 V /50 Hz	11950 - 14350	53.0 - 66.7	60 - 64	76 - 80	horizontal, connection on left	no control components	255000202076
								with repair switch	255000202076R
								with frost protection thermostat	255000202076F0
								with repair switch + frost protection thermostat	255000202076FR
							horizontal, connection on right	no control components	255001202076
								with repair switch	255001202076R
								with frost protection thermostat	255001202076F0
								with repair switch + frost protection thermostat	255001202076FR
							standing, to the right of the doorway	no control components	255002202076
								with repair switch	255002202076R
								with frost protection thermostat	255002202076F0
								with repair switch + frost protection thermostat	255002202076FR
							standing, to the left of the doorway	no control components	255003202076
								with repair switch	255003202076R
								with frost protection thermostat	255003202076F0
								with repair switch + frost protection thermostat	255003202076FR
		EC. 230 V /50/60 Hz	3810 - 13710	26.7 - 64.6	36 - 64	52 - 80	horizontal, connection on left	no control components	255000202073
								with repair switch	255000202073R
								with frost protection thermostat	255000202073F0
								with repair switch + frost protection thermostat	255000202073FR
							horizontal, connection on right	no control components	255001202073
								with repair switch	255001202073R
								with frost protection thermostat	255001202073F0
								with repair switch + frost protection thermostat	255001202073FR
							standing, to the right of the doorway	no control components	255002202073
								with repair switch	255002202073R
								with frost protection thermostat	255002202073F0
								with repair switch + frost protection thermostat	255002202073FR
							standing, to the left of the doorway	no control components	255003202073
								with repair switch	255003202073R
								with frost protection thermostat	255003202073F0
								with repair switch + frost protection thermostat	255003202073FR

[1] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
[2] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A). This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

ProtecTor

Model	Max. door width or height	Motor version	Total air volume	Heat output[1]	Sound pressure level[2]	Sound power level	Installation design	Control options	Art. No.
	[mm]		[m³/h]	[kW]	[dB(A)]	[dB(A)]			
For discharge heights and/or widths of up to 4.5 m									
30	3.25	AC. 400 V / 50 Hz	17900 - 21500	79.5 - 100.3	62 - 66	78 - 82	horizontal, connection on left	no control components	255000302076
								with repair switch	255000302076R
								with frost protection thermostat	255000302076F0
								with repair switch + frost protection thermostat	255000302076FR
							horizontal, connection on right	no control components	255001302076
								with repair switch	255001302076R
								with frost protection thermostat	255001302076F0
								with repair switch + frost protection thermostat	255001302076FR
							standing, to the right of the doorway	no control components	255002302076
								with repair switch	255002302076R
								with frost protection thermostat	255002302076F0
								with repair switch + frost protection thermostat	255002302076FR
							standing, to the left of the doorway	no control components	255003302076
								with repair switch	255003302076R
								with frost protection thermostat	255003302076F0
								with repair switch + frost protection thermostat	255003302076FR
		EC. 230 V / 50/60 Hz	5710 - 20560	40.2 - 97.2	38 - 66	54 - 82	horizontal, connection on left	no control components	255000302073
								with repair switch	255000302073R
								with frost protection thermostat	255000302073F0
								with repair switch + frost protection thermostat	255000302073FR
							horizontal, connection on right	no control components	255001302073
								with repair switch	255001302073R
								with frost protection thermostat	255001302073F0
								with repair switch + frost protection thermostat	255001302073FR
							standing, to the right of the doorway	no control components	255002302073
								with repair switch	255002302073R
								with frost protection thermostat	255002302073F0
								with repair switch + frost protection thermostat	255002302073FR
							standing, to the left of the doorway	no control components	255003302073
								with repair switch	255003302073R
								with frost protection thermostat	255003302073F0
								with repair switch + frost protection thermostat	255003302073FR

[1] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream

[2] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A). This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

ProtecTor

Model	Max. door width or height	Motor version	Total air volume	Heat output[1]	Sound pressure level[2]	Sound power level	Installation design	Control options	Art. No.
	[mm]		[m³/h]	[kW]	[dB(A)]	[dB(A)]			
For discharge heights and/or widths of up to 4.5 m									
40	4.25	AC. 400 V /50 Hz	23900 - 28600	106.0 - 133.8	63 - 67	79 - 83	horizontal, connection on left	no control components	255000402076
								with repair switch	255000402076R
								with frost protection thermostat	255000402076F0
								with repair switch + frost protection thermostat	255000402076FR
							horizontal, connection on right	no control components	255001402076
								with repair switch	255001402076R
								with frost protection thermostat	255001402076F0
								with repair switch + frost protection thermostat	255001402076FR
							standing, to the right of the doorway	no control components	255002402076
								with repair switch	255002402076R
								with frost protection thermostat	255002402076F0
								with repair switch + frost protection thermostat	255002402076FR
							standing, to the left of the doorway	no control components	255003402076
								with repair switch	255003402076R
								with frost protection thermostat	255003402076F0
								with repair switch + frost protection thermostat	255003402076FR
		EC. 230 V /50/60 Hz	7620 - 27420	53.7 - 130.0	39 - 67	55 - 83	horizontal, connection on left	no control components	255000402073
								with repair switch	255000402073R
								with frost protection thermostat	255000402073F0
								with repair switch + frost protection thermostat	255000402073FR
							horizontal, connection on right	no control components	255001402073
								with repair switch	255001402073R
								with frost protection thermostat	255001402073F0
								with repair switch + frost protection thermostat	255001402073FR
							standing, to the right of the doorway	no control components	255002402073
								with repair switch	255002402073R
								with frost protection thermostat	255002402073F0
								with repair switch + frost protection thermostat	255002402073FR
							standing, to the left of the doorway	no control components	255003402073
								with repair switch	255003402073R
								with frost protection thermostat	255003402073F0
								with repair switch + frost protection thermostat	255003402073FR

1) with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream
2) The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A). This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

ProtecTor

Model	Max. door width or height	Motor version	Total air volume	Heat output[1]	Sound pressure level [2]	Sound power level	Installation design	Control options	Art. No.
	[mm]		[m³/h]	[kW]	[dB(A)]	[dB(A)]			
For discharge heights and/or widths of up to 4.5 m									
50	5.25	AC. 400 V /50 Hz	29800 - 35800	132.5 - 167.2	64 - 68	80 - 84	horizontal, connection on left	no control components	**255000502076**
								with repair switch	**255000502076R**
								with frost protection thermostat	**255000502076F0**
								with repair switch + frost protection thermostat	**255000502076FR**
							horizontal, connection on right	no control components	**255001502076**
								with repair switch	**255001502076R**
								with frost protection thermostat	**255001502076F0**
								with repair switch + frost protection thermostat	**255001502076FR**
							standing, to the right of the doorway	no control components	**255002502076**
								with repair switch	**255002502076R**
								with frost protection thermostat	**255002502076F0**
								with repair switch + frost protection thermostat	**255002502076FR**
							standing, to the left of the doorway	no control components	**255003502076**
								with repair switch	**255003502076R**
								with frost protection thermostat	**255003502076F0**
								with repair switch + frost protection thermostat	**255003502076FR**
		EC. 230 V /50/60 Hz	9520 - 34270	67.0 - 162.2	40 - 68	56 - 84	horizontal, connection on left	no control components	**255000502073**
								with repair switch	**255000502073R**
								with frost protection thermostat	**255000502073F0**
								with repair switch + frost protection thermostat	**255000502073FR**
							horizontal, connection on right	no control components	**255001502073**
								with repair switch	**255001502073R**
								with frost protection thermostat	**255001502073F0**
								with repair switch + frost protection thermostat	**255001502073FR**
							standing, to the right of the doorway	no control components	**255002502073**
								with repair switch	**255002502073R**
								with frost protection thermostat	**255002502073F0**
								with repair switch + frost protection thermostat	**255002502073FR**
							standing, to the left of the doorway	no control components	**255003502073**
								with repair switch	**255003502073R**
								with frost protection thermostat	**255003502073F0**
								with repair switch + frost protection thermostat	**255003502073FR**

Article key for heat exchanger model

		Heat exchanger
25500020	**20 66**	copper/aluminium
	31	galvanised steel
	33	galvanised steel, cross-counterflow
	00	no heat exchanger

[1] with air intake temperature t_{L1} = 20°C, t_{L2} based on warm air stream

[2] The sound pressure levels were calculated based on an assumed room insulation of 16 dB(A). This corresponds to a distance of 5 m, a room volume of 3000 m³ and a reverberation time of 2.0 s (in accordance with VDI 2081).

Accessories

Figure	Article	Properties	Suitable for	Art. No.
	Stage switch for speed control AC			
	2-stage three-phase switch 4 KW/10 A	Type 30049 Without connection option for valve actuator and frost protection thermostat Protection class IP43 Dimensions W x H x D: 127 x 160 x 100 mm	Motor code 66 + 76	**196000030049**
	5-stage three-phase controller	4 A, Type 30752 Protection class IP20 Dimensions W x H x D: 260 x 340 x 150 mm	Motor code 66 + 76	**196000030752**
		8 A, Type 30754 Protection class IP20 Dimensions W x H x D: 330 x 380 x 170 mm		**196000030754**
	Compact controllers for speed control			
	Continuously variable speed controller	Type 30510 Continuously variable speed controller (0-10 V/5 mA) for up to 2 units. Continuously variable range can be pre-set. On/Off via industrial thermostat and/or door contact switch in the mains supply line. Operating voltage: 230 V / 50-60 Hz Protection class: IP 54 Dimensions W x H x D: 82 x 82 x 68 mm	Motor code 63 + 73	**196000030510**
	KaControl, recirculating air AC and EC			
	Control electronics, recirculating air AC	Type 3231200 In a wall-mounted housing, for the operation of the ProtecTor door air curtain with KaControl Three-phase 4 kW / 8 A Maximum two door air curtains can be connected in parallel Protection class: IP 54	Motor code 66 + 76	**196003231200**
	Control electronics, recirculating air EC	Type 3231160 In wall-mounted housing, for the operation of the ProtecTor door air curtain with KaControl Maximum two door air curtains can be connected in parallel Protection class: IP 65	Motor code 63 + 73	**196002321160**
	KaController operating unit in an industrial housing with one-touch operation	Type 3214001 With one-touch operation in a wall-mounted housing with perspex cover for remote operation and parametrisation via seven-segment display. Pictograms to display of the current operating mode. Technical specification: housing with perspex cover Material: plastic Colour: grey Protection class: IP 65 Installation: surface-mounted Dimensions (WxHxD): 199 x 179 x 106.5 mm	Control electronics, recirculating air	**196003214001**
	KaController operating unit in an industrial housing with side operating keys	Type 3214002 With one-touch operation and operating keys in a wall-mounted housing with perspex cover for remote operation and parametrisation via seven-segment display. Pictograms to display of the current operating mode. Technical specification: housing with perspex cover Material: plastic, Colour: grey Protection class: IP 65 Installation: surface-mounted Dimensions (WxHxD): 199 x 179 x 106.5 mm		**196003214002**

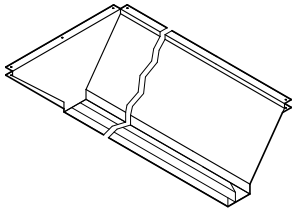
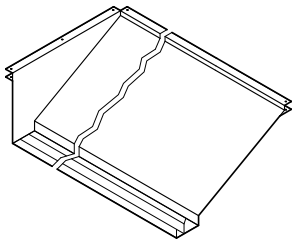
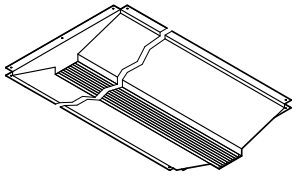
more »

Figure	Article	Properties	Suitable for	Art. No.
	KaController operating unit with one-touch operation	Type 3210001 Room control unit with large LCD multifunctional display and one-touch operation, only for control option KaControl Housing: wall-mounted (surface-mounted) Housing colour: white, similar to RAL 9010 Voltage: 24 V DC Temperature adjustment range max.: 8 °C – 35 °C Protection class: IP30 Display dimensions H x W: 48 x 51 mm Housing dimensions H x W x D: 86 x 86 x 29 mm Wall installation height (+29 mm flush-mounted installation)	Control electronics, recirculating air	**196003210001**
	KaController operating unit with side operating keys	Type 3210002 For quick access to fan settings, operating modes, Eco mode, time and timer program, otherwise as Type 3210001, only for control option KaControl Housing: wall-mounted (surface-mounted) Housing colour: white, similar to RAL 9010 Voltage: 24 V DC Temperature adjustment range max.: 8 °C – 35 °C Protection class: IP30 Display dimensions H x W: 48 x 51 mm Housing dimensions H x W x D: 86 x 86 x 29 mm Wall installation height (+29 mm flush-mounted installation)		**196003210002**
	Room temperature sensor	Type 3250110 Room temperature sensor can be used if required, when the KaController cannot measure the temperature due to its location. Housing: wall-mounted Housing colour: white Protection class: IP30 Dimensions H x W x D: 84.5 x 84.5 x 25 mm		**196003250110**
	Industrial temperature sensor	Type 3250112 The industrial temperature sensor can be used if required, when the KaController cannot measure the temperature due to its location. Housing: wall-mounted Housing colour: white Protection class: IP65 Dimensions H x W x D: 65 x 50 x 44.5 mm		**196003250112**
	Serial CANbus card	To increase the number of units in a single-circuit control system		**196003260301**
	Serial Modbus card	Type 3260101 For connection to BMS stations and automation units		**196003260101**
	SEL control panel	KaControl electronics including KaControl control unit for the centralised control of Kampmann products via a central bus communication (Modbus) in a wall-mounted housing		**196003232122**
	panel SEL BACnet	KaControl electronics with integrated BACnet interface including KaControl control unit for the centralised control of Kampmann products via a central bus communication (Modbus) in a wall-mounted housing		**196003232123**

more »

Figure	Article	Properties	Suitable for	Art. No.
	Thermostats AC/EC			
	Industrial thermostat with setpoint adjustment by tool	Housing made of impact-resistant plastic, setpoint adjustment only possible after removing the housing cover by screwdriver. Protection class: IP54, Temperature setting range: 0 – 40 °C Switching capacity: 250 VAC, 50 Hz Heating: 16 (4) A Cooling: 8 (4) A	all ProtecTor door air curtains	**196000030058**
	Industrial thermostat with dial-operated setpoint adjustment	Housing made of impact-resistant plastic, setpoint adjustment using dial Protection class: IP54 Temperature setting range: 0 – 40 °C Switch capacity 250 VAC, 50 Hz Heating: 16 (4) A Cooling 8 (4) A	all ProtecTor door air curtains	**196000030059**
	Frost protection thermostat	For external evaluation Setting range -10 °C... +15 °C, supplied separately Protection class: IP 65	all ProtecTor door air curtains	**196000030668**
	Door contact switch			
	Door contact switch	Type 30763 Solid mechanical design, potential-free NC and NO contact. Protection class IP65 Switching capacity 240 V / 50 Hz	all ProtecTor door air curtains	**196000030763**
	Repair switch, supplied loose			
	Repair switch AC	For two-stage three-phase motors, supplied loose; enables individual ProtecTor units in a switching group to be decommissioned by voltage disconnection. The thermal contacts are bridged in advance, and subsequently opened on the motor side so that the other ProtecTor units in the group can continue to operate without interruption. Protection class: IP55 Max. switching current 25 A	all ProtecTor door air curtains 400 V AC	**196000030120**
	Repair switch EC	For EC motors, supplied loose; enables individual ProtecTor units in a switching group to be decommissioned by voltage disconnection. The fault signal contacts are bridged in advance, and subsequently opened on the motor side so that the other ProtecTor door air curtains in the group can continue to operate without interruption. Protection class: IP55 Max. switching current 25 A	all ProtecTor door air curtains 230 V EC	**196000030160**

more »

Figure	Article	Properties	Suitable for	Art. No.
	Discharge-side accessories			
	**Discharge nozzle, long, central**	Discharge nozzle, long, arranged centrally for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 3.5 metres	Motor code 66 + 63, Model 20	**255000200060**
			Motor code 66 + 63, Model 30	**255000300060**
			Motor code 66 + 63, Model 40	**255000400060**
			Motor code 66 + 63, Model 50	**255000500060**
		Discharge nozzle, long, arranged centrally for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 4.5 metres	Motor code 76 + 73, Model 20	**255000200070**
			Motor code 76 + 73, Model 30	**255000300070**
			Motor code 76 + 73, Model 40	**255000400070**
			Motor code 76 + 73, Model 50	**255000500070**
	**Discharge nozzle, long, one-sided**	Discharge nozzle, long, one-sided arrangement for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 3.5 metres	Motor code 66 + 63, Model 20	**255000201060**
			Motor code 66 + 63, Model 30	**255000301060**
			Motor code 66 + 63, Model 40	**255000401060**
			Motor code 66 + 63, Model 50	**255000501060**
		Discharge nozzle, long, one-sided arrangement for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 4.5 metres	Motor code 76 + 73, Model 20	**255000201070**
			Motor code 76 + 73, Model 30	**255000301070**
			Motor code 76 + 73, Model 40	**255000401070**
			Motor code 76 + 73, Model 50	**255000501070**
	**Discharge nozzle, short, central**	Discharge nozzle, short, central arrangement with guard for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 3.5 metres (discharge height reduces by 1.0 metre)	Motor code 66 + 63, Model 20	**255000200160**
			Motor code 66 + 63, Model 30	**255000300160**
			Motor code 66 + 63, Model 40	**255000400160**
			Motor code 66 + 63, Model 50	**255000500160**
		Discharge nozzle, short, central arrangement with guard for ProtecTor door air curtains, suitable for use up to a maximum discharge height of 4.5 metres (discharge height reduces by 1.0 metre)	Motor code 76 + 73, Model 20	**255000200170**
			Motor code 76 + 73, Model 30	**255000300170**
			Motor code 76 + 73, Model 40	**255000400170**
			Motor code 76 + 73, Model 50	**255000500170**

Kampmann.co.uk/protector

Kampmann GmbH
Friedrich-Ebert-Str. 128 - 130
49811 Lingen (Ems)
Germany

T +49 591 7108-660
F +49 591 7108-173
E export@kampmann.de
W Kampmann.eu

Kampmann UK Ltd.
Dial House, Govett Avenue
Shepperton, Middlesex, TW17 8AG
Great Britain

T +44 (0)1932 228592
F +44 (0)1932 228949
E info@kampmann.co.uk
W Kampmann.co.uk

426/03/17 GB