

MARKCLIMATE.COM

Specialist in climate control
since 1945

PRODUCT CATALOGUE 2024

AIR HEATING

RADIANT HEATING

VENTILATION & RECIRCULATION

AIR TREATMENT

DRY COOLERS

HEAT PUMPS

AIR CURTAINS

BOILERS

TOTAL SOLUTION SUPPLIER IN CLIMATE TECHNOLOGY



mark[®]
CLIMATE TECHNOLOGY
FOR A HEALTHY CLIMATE

Meet Europe's leading specialist in the field of air heating, radiant heating, air treatment and ventilation.



Energy-efficient products, sustainably produced



Expert advice



Own production



More than 75 years experience



International operating organisation



Unparalleled quality



Innovative



Complete range for your climate control systems



Own service department



Own distributor network



Fast delivery

**THAT'S WHY YOU CHOOSE
MARK CLIMATE TECHNOLOGY !**

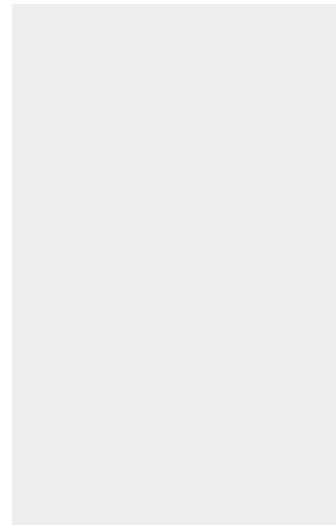
For more than 75 years, we have been focusing on the climate control of large buildings.

WELCOME



Mark has been specialising in climate management for large buildings since 1945. Under the name 'Ingenieursbureau Gebroeders Van der Mark NV', production and sales of bending machines and coal-fired air heaters were started. From the mid-1950s, the 'van der Mark' brothers increasingly focused on heating large buildings. For this purpose they built hanging gas-fired air heaters themselves. This is how the GS series came about, a unique system that is still a leader in the European heating market to this day.

This innovative strength still characterizes Mark. Mark Climate Technology now supplies a leading range in the field of heating, cooling and ventilation. This means that our customers can go to one supplier for their complete climate management system.



MARK'S SUSTAINABLE MISSION

Mark & BREEAM

Mark continues to develop, including in the field of sustainability and circularity. A good example is our Eurovent-certified Mark Aerflow heat recovery unit. This appliance with a **heat recovery efficiency of 90%** now ensures optimal air quality in many buildings. With the aid of a heat pump, the appliance can also heat and cool without using natural gas.

In addition to our Aerflow heat recovery unit, Mark Climate Technology has 7 other products in the product range that contribute in a sustainable way to a pleasant indoor climate. For certification method BREEAM-NC, the products of Mark Climate Technology can score up to **15 credits** for your sustainability assessment.

What is BREEAM?

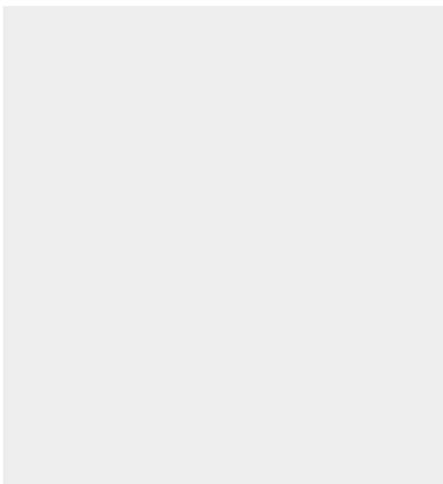
BREEAM-NC (BREEAM International New Construction) is a method to assess and certify the sustainability of a building. BREEAM-NC is divided into 9 main categories (see chart below). Each category is divided into a number of subcategories with their own parameters. If these criteria are met, a certain number of credits can be obtained. In addition, each category has a specific weighting factor. Based on the credits achieved and the weighting factor, a building receives a score from pass (one star) to outstanding (five stars).

The requirements are higher than required by law, making BREEAM-rated buildings more sustainable environments that improve the well-being of the people who live and work there, help protect natural resources and make real estate investments more attractive.



For detailed information, please refer to our BREEAM brochure.

WHY BREEAM?



More than just a certification

A BREEAM certification gives an extra dimension to a building. But how come?

Low running costs

Because water and energy consumption (among other things) have been carefully considered before and during construction, you are assured of an energy-efficient building that will benefit you for years to come.

Increased well-being and productivity

Thanks to correctly selected climate control systems, you have invested in an optimal indoor climate. This translates directly to the performance and health of the people who work in the building.

Investment in the future

A BREEAM certificate is also a great marketing tool. By investing in a sustainable building, you are also investing in your corporate image and thus your future. A business that profiles itself as sustainable strengthens its position in the market.

BREEAM-NC qualifications	Stars	% score
Pass	★	≥ 30%
Good	★★	≥ 45%
Very good	★★★	≥ 55%
Excellent	★★★★	≥ 70%
Outstanding	★★★★★	≥ 85%



The Mark products not only create a pleasant indoor climate, they can also contribute up to **15 credits** in your BREEAM assessment. The products mentioned in this brochure, corresponding BREEAM credits and substantiation have been assessed and drawn up by the independent engineering firm Encon.

Category	Parameters	max. credits	MARK Products							
			A	B	C	D	E	F	G	H
Management (MAN)	MAN04 - Commissioning and handover	4	2	2	2	2	2	2	2	2
Health & Well-being (HEA)	HEA02 - Indoor Air Quality	5	2	2	-	-	-	2	2	2
	HEA04 - Thermal comfort	3	2	2	2	2	2	-	-	1
	HEA05 - Acoustic Performance	2	1	1	1	1	1	1	1	-
Energy (ENE)	ENE01 - Reduction of energy use and carbon	15	2	2	2	2	3	2	2	-
	ENE02 - Energy monitoring	2	-	-	-	-	-	-	-	2
	ENE04 - Low carbon design	3	1	1	1	1	1	1	1	1
Materials (MAT)	MAT01 - Life Cycle Impacts	6	1	1	1	1	1	1	1	1
Waste (WST)	WST06 - Functional adaptability	1	1	1	1	1	1	1	1	1
Pollution (POL)	POL02 - NO _x Emissions	2	2	2	2	2	2	-	-	-
	POL05 - Reduction of noise pollution	1	1	1	1	1	1	1	1	-
TOTAL			15	15	13	13	14	11	11	10

A = Aerflow CFX/HWX
 B = GS+
 C = Tanner MDA/MBA

D = Infra (HE)
 E = Infra Aqua Design
 F = Ecofan W

G = MDV Blue
 H = Demand-driven control



The products and associated points presented here have been weighed and assessed by independent engineering firm Encon, on the basis of the BREEAM-NL guidelines.

PRODUCT CATALOGUE

2024

CONTENTS



13

Air heating

(Gas-fired - Electric -
water-supplied)



102

Radiant heating

(Gas-fired - Electric -
water-supplied)



140

Ventilation and recirculation

(Recirculation - Venti-
lation- Mobile units)



168

Air conditioning

(Air treatment - Heat
pumps - Dry Coolers)



254

Air curtains

(Electric -
Water-supplied - DX)

Our consultants are happy to help
you use energy as efficiently as
possible.

Index

Gas-fired air heaters



GS+
Gas-fired high performance air heater with axial fan

14



GSX
Gas-fired air heater with axial fan

24



GC+
Condensing high efficiency air heater with centrifugal fan

33



L-TYPE
Gas-fired vertical air heater

39

Electric air heaters



TANNER MDE
Electric air heater with axial fan

45

Hot water-supplied air heaters



TANNER MDA
Water-supplied air heater with axial fan

50



TANNER MDA+
Water-supplied air heater/cooler with EC axial fan

64



TANNER MD
Duct hot water heater

72



TANNER MBA
Water-supplied air heater with EC axial fan

76



TANNER MDC
Water-supplied air heater with centrifugal fan

81



TANNER CLA
Water-supplied air heater for recessed ceiling system

86



LDA SWIRL
Water-supplied air heater with EC-fan

91



FAN COIL
Water-supplied decentral unit with EC-fan




95






COMFORT-LINE
Water-supplied air heater

99





Gas-fired radiant heaters

	INFRA <i>Gas-fired black radiant tube heater</i>	103
	INFRA HE <i>Gas-fired high performance black radiant tube heater</i>	112
	INFRA HT <i>Gas-fired high temperature radiant heater</i>	117







Water-supplied radiant heating

	INFRA AQUA DESIGN <i>Water-supplied aluminium radiation panel</i>	124
	INFRA AQUA ECO <i>Water-supplied steel radiation panel</i>	129
	CEILFIT <i>Water-supplied radiation panel for grid type ceiling</i>	133





Ventilation and recirculation equipment

	ECOFAN W <i>Recirculation fan</i>	141
	ECOFAN P <i>Recirculation ceiling fan</i>	146
	MDV BLUE <i>Roof fan</i>	150
	COLDSTREAM <i>Adiabatic cooling</i>	160
	SUPPLY+EXTRACT FANS <i>Low noise ventilation boxes</i>	166





Air conditioning

	AERFLOW <i>Plug & Play high-efficiency heat recovery unit with an efficiency up to 90%</i>	169
	COMPACT <i>Plug & Play high-efficiency heat recovery unit</i>	176
	ERV <i>Compact high-efficiency heat recovery unit for ceiling installation</i>	180
	FLAT LINE <i>Compact high-efficiency heat recovery unit for ceiling installation</i>	185
	AERFLOW AHU <i>Modular air handling unit with various options</i>	189
	CALFLO <i>Gas-fired make-up air heater</i>	198

Heat pumps

	MISTRAL MDX <i>Air-to-air VRF heat pump system for large spaces</i>	203
	MARK HEAT PUMPS <i>Air-Water heat pumps</i>	209
	HEAT PUMPS <i>DX-heat pumps and Air-Water heat pumps</i>	223
	MARK HEAT PUMP SPLIT UNIT <i>Cooling and heating</i>	228

Dry Coolers

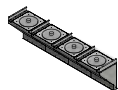
	AWS <i>Dry coolers with a single row of fans</i>	232
	AWD <i>Dry coolers with a double row of fans</i>	238
	AWVS <i>V-Dry coolers with a single row of fans</i>	243
	AWS-EPA <i>Dry coolers with adiabatic cooling</i>	248

Air curtains



EASYAIR
Water-supplied, electrical or cold air curtain

255



EASYAIR T200
Recirculation air curtain for industrial applications

263

Boilers



BOILERS
High efficiency boilers with outputs up to 2200 kW

267

Miscellaneous



CONTROL EQUIPMENT
Overview of the control options provided by Mark

276



SUPPLY AIR SYSTEMS

293

Air Heating



GS+

TANNER MDE

TANNER MDA

GSX

TANNER MDA+

GC+

TANNER MD

L-TYPE

TANNER MBA

TANNER MDC

TANNER CLA

LDA SWIRL

FAN COIL

COMFORT-LINE



GS+

Gas-fired high performance air heater with axial fan

High efficiency air heater with modulating premix burner for
unrestricted outlet into the room. Output from 13,6 to 142,2 kW.



For more information, downloads
and videos, visit the GS+ page on
our website



Product features

- Efficiency >106%
- Energy-saving
- Environmentally-friendly
- Modulating premix burner
- Outlet temperature sensor
- Low temperature rise of the exit air
- Low thermal stratification of the heated air
- Stainless steel heat exchanger
- Corrosion-resistant aluzinc housing

Environmentally friendly heating with the GS+

Mark manufactures a gas-fired, high-performance air heater with an axial fan. This condensing equipment provides efficiency greater than 106% (lower value). Heat is generated via a modulating premix-burner which results in very low gas consumption.

The GS+ is suitable in many situations due to its extensive capacity range from 13,6 to 142,2 kW. The GS+ is designed to heat garages, warehouses, distribution centres and showrooms.

Standard equipment:

- Stainless steel combustion chamber & heat exchanger
- Closed combustion circuit
- Advanced modulating burner technology
- Electronic ignition
- Low NOx
- Powerful axial fan(s)
- Downflow hood with horizontal louvres
- CE-approval
- PIN 0063BP3341
- Carbon trust (UK)

Optional: speed controlled low noise EC-motor. Advantages:

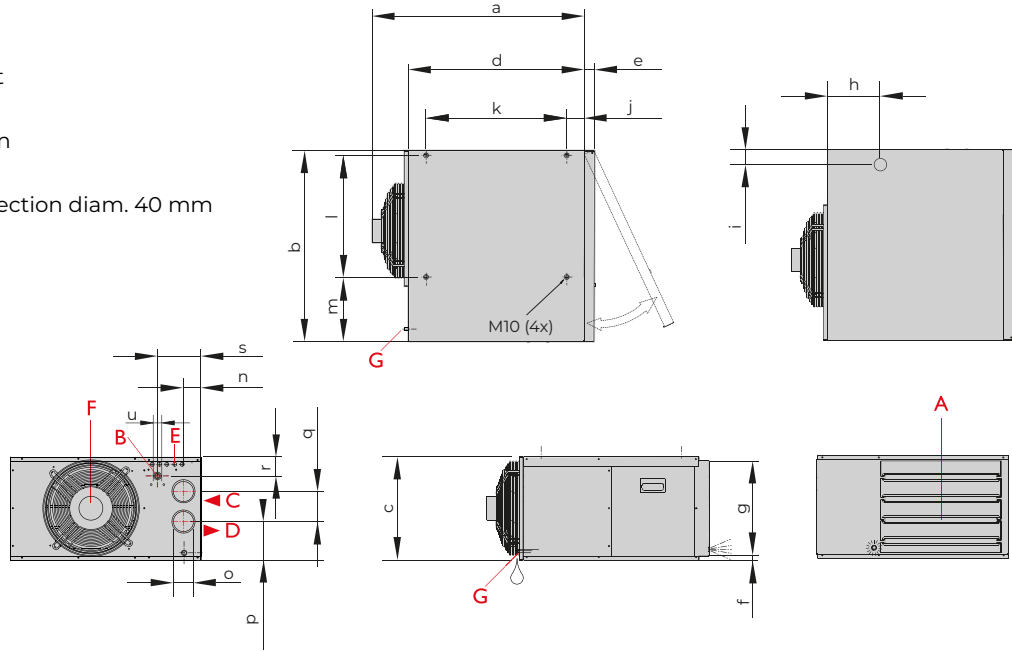
- The highest efficiency in case of speed control
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable
- Long lifetime
- Low noise level
- Integrated electronic thermal protection



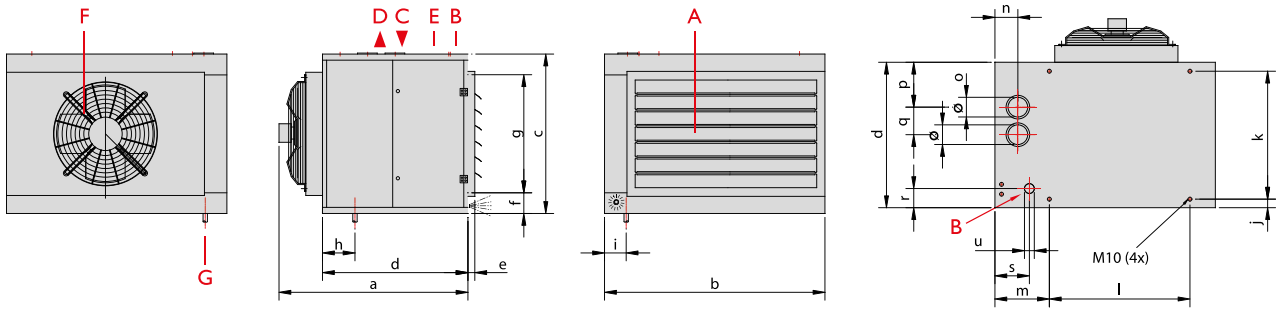
The GS+ is operated using an Optitherm+ clock thermostat or an Interface+ module that allows a connection with the BMS (building management system) via Modbus or a 0-10V contact.

Dimensions

- A = Horizontal louvres
- B = Gas connection
- C = Combustion air inlet
- D = Flue gas exhaust
- E = Electrical connection
- F = Axial fan
- G = Condensation connection diam. 40 mm



Type	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	u
15/25	790	760	410	700	40	15	380	210	60	70	560	485	255	70	80	150	120	80	175	1/2" (M)

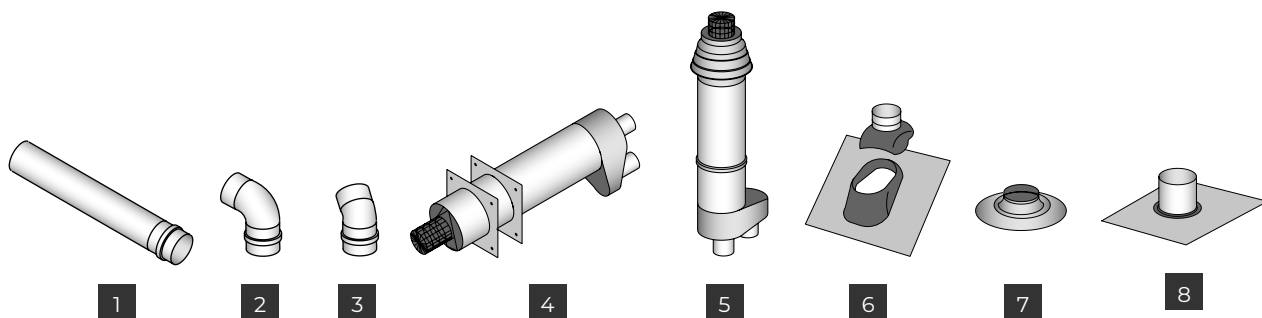


Type	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	u
35	969	875	810	739	35	105	600	165	110	90	560	470	275	120	80	240	120	97	135	3/4" (M)
40	969	875	810	739	35	105	600	165	110	90	560	470	275	120	80	240	120	97	135	3/4" (M)
60	969	1120	810	739	35	105	600	165	110	90	560	715	275	120	100	230	140	97	135	3/4" (M)
80	969	1305	810	739	35	105	600	165	110	90	560	890	275	120	100	230	140	97	135	1" (M)
100	979	1595	810	739	35	105	600	165	110	90	560	1180	275	120	100	230	140	97	135	1" (M)
135/150	1180	1890	1000	1000	35	105	790	190	175	75	850	1455	295	165	130	235	225	140	170	1" (F)

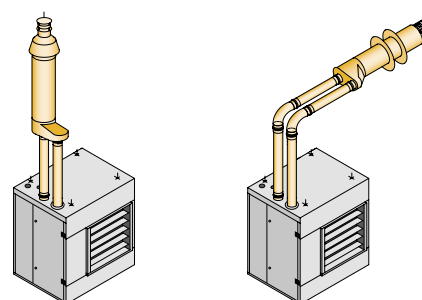
Technical information

Type		15	25	35	40	60	80	100	135	150
Nominal load (upper value)	kW	16,1	27,2	38,8	44,4	66,7	88,9	110,6	149,9	166,7
Maximal power	kW	13,6	23,0	33,4	38,4	56,2	75,6	93,3	128,9	141,0
Minimal load (upper value)	kW	4,6	6,8	9,6	9,6	13,9	24,5	10,8	21,1	36,6
Minimal power	kW	4,3	6,6	9,2	9,2	13,5	23,8	10,6	20,6	35,3
Flue efficiency at maximum load (lower value) <i>on/off fan</i>	%	94,1	93,9	95,1	95,1	93,6	94,0	93,8	95,5	94,0
Flue efficiency at maximum load (lower value) <i>modulating fan</i>	%	93,2	94,0	94,8	94,8	94,0	94,4	93,9	95,7	94,8
Flue efficiency at minimum load (lower value) <i>on/off fan</i>	%	106,7	107,0	106,9	106,9	107,3	107,1	107,4	107,5	107,3
Flue efficiency at minimum load (lower value) <i>modulating fan</i>	%	106,1	106,7	106,4	106,4	106,6	106,9	106,9	107,4	107,1
Burner turndown ratio	+/-	3:1	4:1	4:1	5:1	5:1	7:1	6:1	7:1	4:1
Gas consumption G20 (15 °C)	m ³ /h	1,50 - 0,41	2,54 - 0,57	3,62 - 0,89	4,15 - 0,90	6,22 - 1,07	8,29 - 1,27	10,30 - 1,68	13,99 - 1,76	15,57 - 3,68
Gas consumption G25 (15 °C)	m ³ /h	1,75 - 0,49	2,95 - 0,65	4,1 - 1,02	4,73 - 1,02	7,03 - 1,20	9,3 - 1,44	11,57 - 1,91	15,98 - 2,00	17,65 - 4,18
Gas consumption G31 (15 °C)	kg/h	1,13 - 0,32	1,91 - 0,48	2,68 - 0,64	3,17 - 0,64	4,72 - 1,04	6,22 - 0,89	7,76 - 1,34	10,51 - 2,23	11,69 - 2,57
Gas consumption G30 (15 °C)	kg/h	1,19 - 0,33	2,02 - 0,51	2,92 - 0,72	3,46 - 0,72	5,05 - 1,11	6,70 - 0,96	8,19 - 1,48	11,1 - 1,85	12,35 - 2,72
Air displacement (20 °C) <i>on/off fan</i>	m ³ /h	1410	2190	5000	5000	5300	9000	9800	16300	16300
Air displacement (20 °C) <i>modulating fan</i>	m ³ /h	850 - 1730	1090 - 2470	1350 - 3900	1350 - 3900	2700 - 5500	4500 - 8800	5400 - 9400	7350 - 14500	7350 - 16300
Delta T (ΔT) <i>on/off fan</i>	K	29,0 - 9,2	31,5 - 9,0	20,0 - 5,5	23,1 - 5,5	31,8 - 7,7	25,2 - 7,9	29,6 - 9,2	23,7 - 3,8	25,9 - 6,5
Delta T (ΔT) <i>modulating fan</i>	K	23,4 - 14,8	28,0 - 17,8	25,7 - 20,4	29,3 - 19,9	30,8 - 14,5	25,9 - 15,6	30,9 - 16,5	26,7 - 8,3	26,2 - 14,2
Throw	m	10 - 16	14 - 20	28 - 36	26 - 36	26 - 36	32 - 46	36 - 50	48 - 68	48 - 68
Weight of GS+	kg	50	56	95	95	111	136	155	228	230
Noise level (5 m, side) <i>on/off fan</i>	dB(A)	44	48	48	48	51	52	52	58	58
Noise level (5 m, side) <i>modulating fan</i>	dB(A)	44-31	48-31	47-31	47-31	51-33	49-33	52-34	55-34	55-34
Electrical power at 230V	W	100	175	300	300	320	490	670	1280	1500
Consumed current	A	0,5	0,8	1,4	1,4	2,0	2,9	3,2	6,5	7,6

Accessories – flue gas exhaust

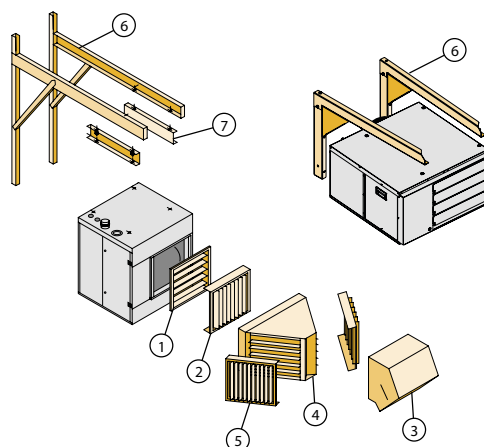


- | | |
|------------------------------|---|
| 1 Extension set | 5 Single flue set vertical |
| 2 90° elbow | 6 Roof flashing for pitched roof |
| 3 45° elbow | 7 Adhesive plate |
| 4 Single flue set horizontal | 8 Flexible roof flashing for cladded roof |

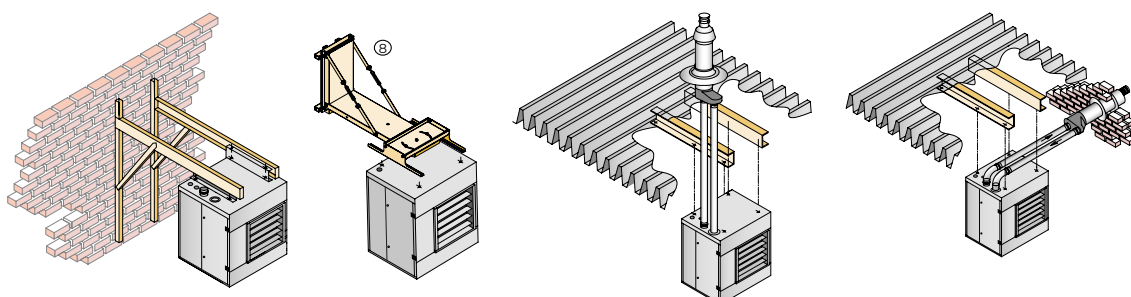


Accessories – additional sections

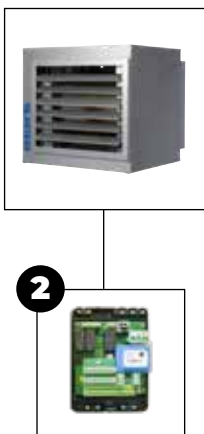
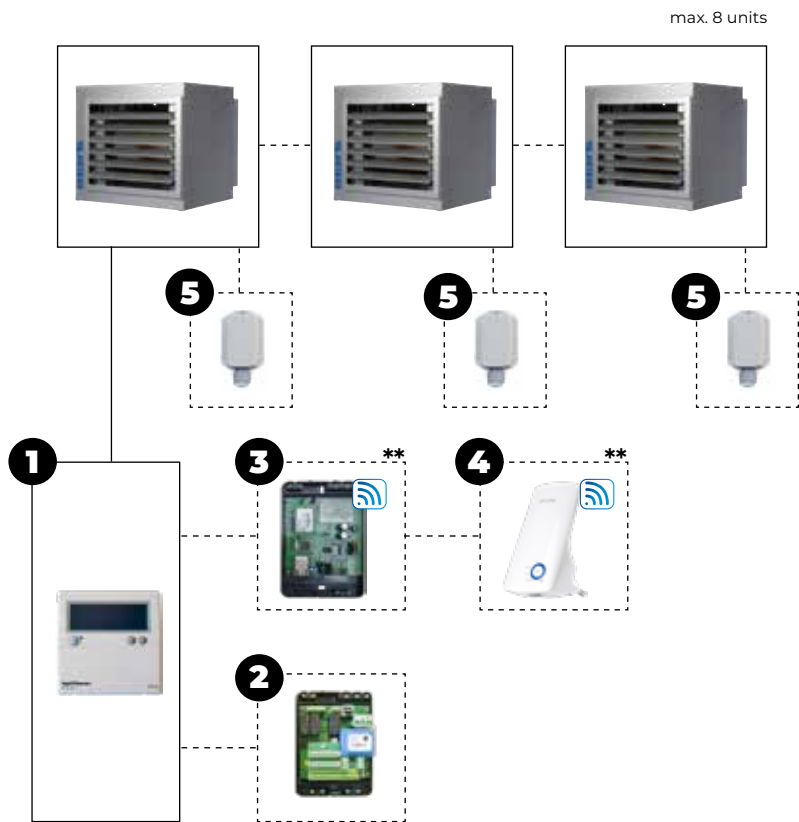
- 1 = Horizontal louvers (standard)
- 2 = Vertical louvres
- 3 = Downflow hood 45°
- 4 = Diffuser (2 x 45°) and horizontal louvres
- 5 = Vertical louvres for diffuser
- 6 = Set of wall mounting brackets
- 7 = Shock absorbers set
- 8 = Reversible wall bracket (types 15 - 60)



Assembly/location suggestions



Controls



Control combination options

Room temperature control

GS+ + **1**

GS+ + **1** + **5**

Room temperature control in combination with remote control

A remote connection with the mobile phone app is only possible when using a Web module. A WiFi bridge can be added to create a wireless connection.

GS+ + **1** + **3**

GS+ + **1** + **3** + **4**

GS+ + **1** + **5** + **3**

GS+ + **1** + **5** + **3** + **4**

Room temperature control in combination with Modbus

Allows you to read the status and change the settings of the Optitherm+.

GS+ + **1** + **2** + **5**

GS+ + **1** + **2**

Capacity control with external 0-10V signal or Modbus

Heating / Continuous ventilation / reset contacts / Modbus communication

GS+ + **2**

** Temporarily unavailable

See price list for description and code numbers of the relevant items

Prices GS+



PRODUCT - GAS-FIRED CONDENSATING AIR HEATER GS+ - G25 / G20 / G30 / G31

Code nr.	Description	Price
	GS+ 15 (13,6 kW)	€ 3487
	GS+ 25 (23,0 kW)	€ 3686
	GS+ 35 (33,4 kW)	€ 5196
	GS+ 40 (38,4 kW)	€ 5196
	GS+ 60 (56,2 kW)	€ 6459
	GS+ 80 (75,6 kW)	€ 7783
	GS+ 100 (93,3 kW)	€ 8873
	GS+ 135 (128,9 kW)	€ 10640
	GS+ 150 (141,0 kW)	€ 12542
	Additional cost for non-standard operating side type GS+ 35-100	€ 436
	Additional cost for non-standard operating side type GS+ 135/150	€ 651



PRODUCT - GAS-FIRED CONDENSATING AIR HEATER GS+ WITH MODULATING EC FAN - G25 / G20 / G30 / G31

Code nr.	Description	Price
	GS+ 15 (13,6 kW)	€ 3808
	GS+ 25 (23,0 kW)	€ 4023
	GS+ 35 (33,4 kW)	€ 5393
	GS+ 40 (38,4 kW)	€ 5393
	GS+ 60 (56,2 kW)	€ 6853
	GS+ 80 (75,6 kW)	€ 8527
	GS+ 100 (93,3 kW)	€ 9882
	GS+ 135 (128,9 kW)	€ 12920
	GS+ 150 (141,0 kW)	€ 15315

ACCESSORIES - CONTROLS

	Code nr.	Description	Price
1	0629185	Optitherm+ digital clock thermostat	€ 332
5	0629194	External room temperature sensor	€ 96
2	3002866	Interface+	€ 546
3	0629187	Web module (Temporarily unavailable)	€
4	0629186	WiFi bridge (Temporarily unavailable)	€
	3000600	Data cable JY(st)Y Dca 1x2x0.8+0.8mm GY (12,5 m)	€ 38
	3000601	Data cable JY(st)Y Dca 1x2x0.8+0.8mm GY (25 m)	€ 69
	3000602	Data cable JY(st)Y Dca 1x2x0.8+0.8mm GY (100 m)	€ 242
	0631162	Isolator switch, separate delivery, 230 Volt (2 poles)	€ 63
	5017097	Isolator switch, pre-wired, 230 Volt (2 poles)	€ 101

For explanation see chapter controls

ACCESSORIES - EXHAUST OUTLET - FOR GS+ 15 / 25 / 35 / 40

Code nr.	Description	Price
5990557	Single flue set vertical, stainless steel \varnothing 80 mm, external diameter 125mm	€ 214
5990581	Single pipe horizontal, stainless steel \varnothing 80 mm, external diameter 125mm	€ 191
5990201	Set 2 pipes stainless steel, \varnothing 80 mm, length 500 mm	€ 82
5990202	Set 2 pipes stainless steel, \varnothing 80 mm, length 1000 mm	€ 132
5990203	Set smooth elbows stainless steel, \varnothing 80 mm, 90°	€ 118
5990204	Set smooth elbows stainless steel, \varnothing 80 mm, 45°	€ 106
5990230	Reducer kit \varnothing 80-100 mm	€ 252
0540927	Roof flashing \varnothing 80 mm **	€ 37
3040927	Adhesive coated roof flashing for plastic roofing **	€ 68
0540807	Dektite 4-7" **	€ 255
0540804	Roof flashing 20 to 35° **	€ 72



ACCESSORIES - EXHAUST OUTLET - FOR GS+ 60 / 80 / 100*

Code nr.	Description	Price
5990561	Single flue set vertical, stainless steel \varnothing 100 mm, external diameter 160mm	€ 418
5990585	Single pipe horizontal, stainless steel \varnothing 100 mm, external diameter 160mm	€ 282
5990211	Set 2 pipes stainless steel, \varnothing 100 mm, length 500 mm	€ 141
5990212	Set 2 pipes stainless steel, \varnothing 100 mm, length 1000 mm	€ 211
5990213	Set smooth elbows stainless steel, \varnothing 100 mm, 90°	€ 137
5990214	Set smooth elbows stainless steel, \varnothing 100 mm, 45°	€ 127
5990240	Reducer kit GS+ 100*, \varnothing 100-130 mm	€ 326
0540929	Roof flashing \varnothing 100 mm ***	€ 39
3040929	Adhesive coated roof flashing for plastic roofing ***	€ 93
0540807	Dektite 4-7" ***	€ 255
0540806	Roof flashing 20 to 35° ***	€ 100



ACCESSORIES - EXHAUST OUTLET - FOR GS+ 100* / 135 / 150

Code nr.	Description	Price
5990564	Single flue set vertical, stainless steel \varnothing 130 mm, external diameter 200mm	€ 833
5990589	Single pipe horizontal, stainless steel \varnothing 130 mm, external diameter 200mm	€ 434
5990221	Set 2 pipes stainless steel, \varnothing 130 mm, length 500 mm	€ 181
5990222	Set 2 pipes stainless steel, \varnothing 130 mm, length 1000 mm	€ 252
5990223	Set smooth elbows stainless steel, \varnothing 130 mm, 90°	€ 332
5990224	Set smooth elbows stainless steel, \varnothing 130 mm, 45°	€ 252
0540626	Roof flashing \varnothing 130 mm, only in combination with 5990564	€ 58
3040626	Adhesive coated roof flashing for plastic roofing, only in combination with 5990564	€ 130
0540809	Dektite 4-7", only in combination with 5990564	€ 347



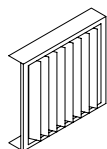
REMARKS

CE-approval only applies when the unit is supplied with the corresponding flue gas system.

* For GS+ 100 with long flue gaspipes, use \varnothing 100-130 mm transition piece. See Technical manual.

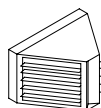
** Only in combination with 5990557 / 5990620

*** Only in combination with 5990561 / 5990625



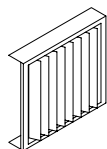
ACCESSORIES - ADDITIONAL SECTIONS - VERTICAL LOUVRE

Code nr.	Description	Price
5008533	for GS+ 15/25	€ 131
5008534	for GS+ 35/40	€ 204
5008536	for GS+ 60	€ 204
5008538	for GS+ 80	€ 214
5008540	for GS+ 100	€ 338
5008542	for GS+ 135/150	€ 285



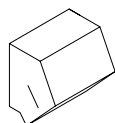
ACCESSORIES - ADDITIONAL SECTIONS - DIFFUSER WITH HORIZONTAL LOUVRE

Code nr.	Description	Price
5008554	for GS+ 35/40	€ 446
5008556	for GS+ 60	€ 507
5008558	for GS+ 80	€ 704
5008560	for GS+ 100	€ 927
5008562	for GS+ 135/150	€ 1040



ACCESSORIES - ADDITIONAL SECTIONS - VERTICAL LOUVRE FOR DIFFUSER

Code nr.	Description	Price
5008574	for GS+ 35/40	€ 243
5008576	for GS+ 60	€ 256
5008578	for GS+ 80	€ 288
5008580	for GS+ 100	€ 348
5008582	for GS+ 135/150	€ 338



ACCESSORIES - ADDITIONAL SECTIONS - DOWNFLOW HOOD 45°

Code nr.	Description	Price
5008544	for GS+ 35/40	€ 595
5008546	for GS+ 60	€ 743
5008548	for GS+ 80	€ 873
5008550	for GS+ 100	€ 1130
5008552	for GS+ 135/150	€ 1229

ACCESSORIES - CONDENSATE

Code nr.	Description	Price
3100562	Condensate pump kit for GS+ 15/25 (separate delivery)	€ 420
3100565	Condensate pump kit for GS+ 35/40/60/80/100 (separate delivery)	€ 432
3100564	Condensate pump kit for GS+ 135/150 (separate delivery)	€ 445
3100586	Condensate neutralizing kit (separate delivery)	€ 118
3100589	Tube extension kit DN10 25 meter	€ 111
5990620	Single flue set vertical, stainless steel ø80mm, external diameter 130mm, with condensation drain	€ 339
5990625	Single flue set vertical, stainless steel ø100mm, external diameter 160mm, with condensation drain	€ 540
5990630	Single flue set vertical, stainless steel ø130 mm, external diameter 200mm, with condensation drain	€ 945
3100552	Condensate pump kit for GS+ 15/25 (only in combination with 5990620)	€ 443
3100558	Condensate pump kit XL for GS+ 15/25 (only in combination with 5990620)	€ 1385
3100553	Condensate pump kit for GS+ 35-100 (only in combination with 5990620/5990625)	€ 506
3100557	Condensate pump kit XL for GS+ 35-100 (only in combination with 5990620/5990625)	€ 1385
3100555	Condensate pump kit for GS+ 135/150 (only in combination with 5990630)	€ 517
3100559	Condensate pump kit XL for GS+ 135/150 (only in combination with 5990630)	€ 1385

ACCESSORIES - ASSEMBLY

Code nr.	Description	Price
3187220	Set wall mounting brackets (2 pieces), GS+ 15/25	€ 231
5017620	Set wall mounting brackets (2 pieces), GS+ 35/40/60/80/100	€ 405
5017627	Set wall mounting brackets (2 pieces), GS+ 135/150	€ 692
5017621	Set shock absorbers for wall mounting brackets, GS+ 35/40/60/80/100	€ 118
5017628	Set shock absorbers for wall mounting brackets, GS+ 135/150	€ 175
5017590	Reversible wall brackets GS+ 15/25	€ 410
5017573	Reversible wall brackets GS+ 35/40	€ 420
5017576	Reversible wall brackets GS+ 60	€ 431

ACCESSORIES - COLOURS **

Code nr.	Description	Price
	GS+ provided with colour	€ 295
	Accessories provided with colour 1 to 3 pieces (by piece)	€ 145
	Accessories provided with colour 4 to 10 pieces (by piece)	€ 127
	Accessories provided with colour for more than 10 pieces (by piece)	€ 87

** These prices are only for the Mark standard RAL-colours: 3002 red, 1028 yellow, 6010 green, 7016 gray, 8014 brown, 9001 beige white, 5009 blue, 2009 orange, 1019 beige



GSX

Gas-fired air heater with axial fan

Air heater with premix burner for unrestricted outlet into the room.
Output from 13,7 to 84,6 kW.



For more information, downloads
and videos, visit the GSX page on
our website



Product features

- Long lifespan
- Low operating costs
- Robust
- Reliable
- Uniform temperature distribution through high air displacement
- Small ΔT
- Small difference between supply air and room temperature
- Control up to 8 units possible via a 2-wire bus system
- Zone heating possible via 1 control (up to 8 zones)

Economical heating with the GSX

With the Mark GSX heat is generated via a premix-burner and blown out by means of an axial fan. The robust air heater is particularly suitable for industrial use and is very economical thanks to its low gas consumption, low maintenance and long lifespan.

The Mark GSX series fully complies to the new Ecodesign 2021 and has a capacity range of 13,7 to 84,6 kW. The GSX is suitable to heat garages, warehouses, workshops, distribution centers, showrooms and more.

Standard equipment:

- Stainless steel heat exchanger
- Closed combustion circuit
- Premix burner
- Electronic ignition
- Aluzinc coating
- Powerful axial fan(s)
- Downflow hood with horizontal louvers
- CE-approval
- No condensation pipe required

The GSX is standard equipped with a speed-regulated, low-noise EC fan. Advantages:

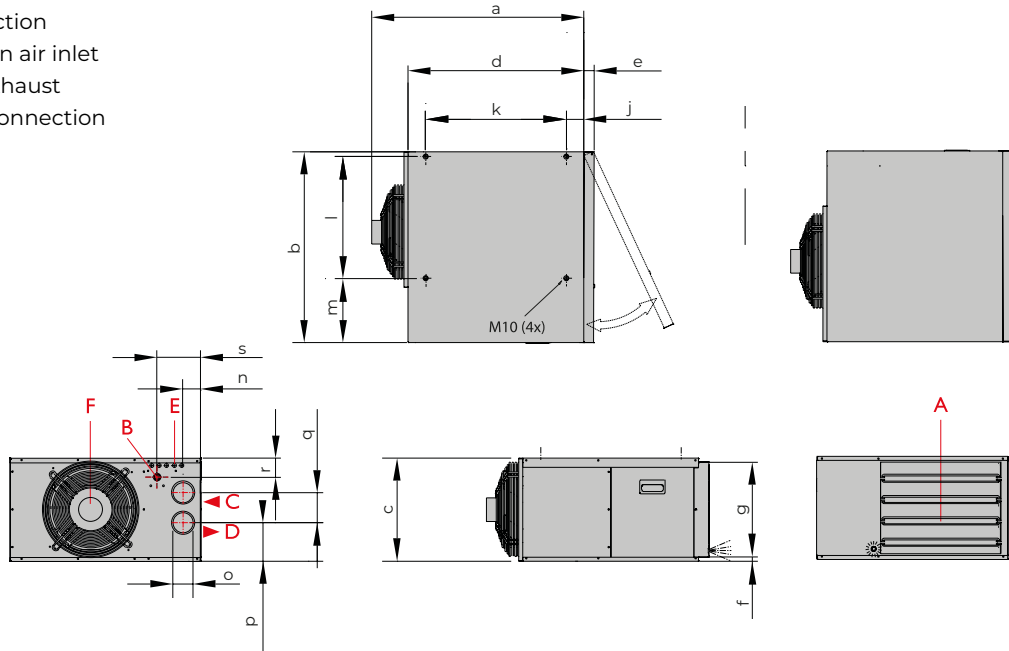
- The highest efficiency in case of speed control
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable
- Long lifetime
- Low noise level
- Integrated electronic thermal protection



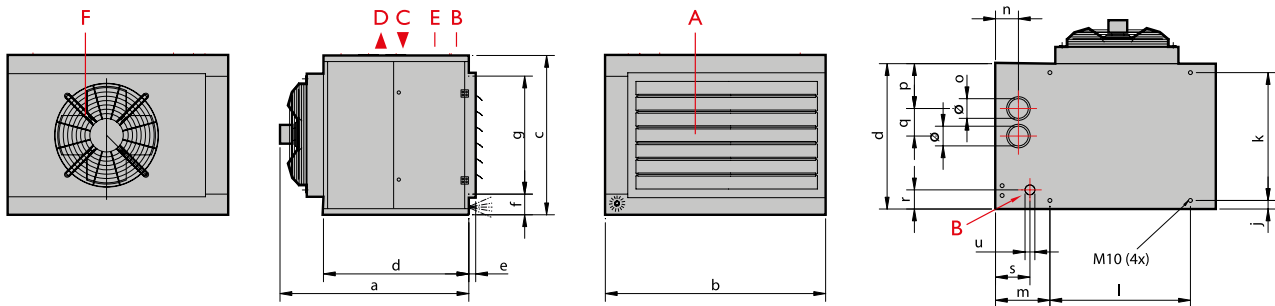
The GSX is operated using an Optitherm+ clock thermostat or an Interface+ module that allows a connection with the BMS (building management system) via Modbus.

Dimensions

- A = Horizontal louvres
- B = Gas connection
- C = Combustion air inlet
- D = Flue gas exhaust
- E = Electrical connection
- F = Axial fan



TYPE	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	u
20	790	760	410	700	40	15	380	210	60	70	560	485	255	70	80	150	120	80	175	1/2" (M)

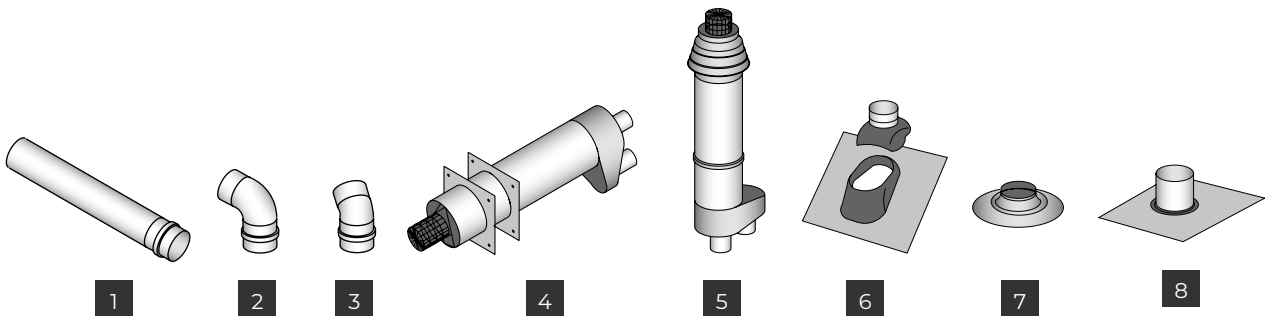


TYPE	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	u
35	969	875	810	739	35	105	600	165	110	90	560	470	275	120	80	240	120	97	135	3/4" (M)
55	969	1120	810	739	35	105	600	165	110	90	560	715	275	120	100	230	140	97	135	3/4" (M)
75	969	1305	810	739	35	105	600	165	110	90	560	890	275	120	100	230	140	97	135	1" (M)
90	979	1595	810	739	35	105	600	165	110	90	560	1180	275	120	100	230	140	97	135	1" (M)

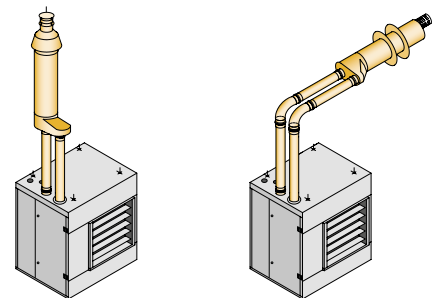
Technical information

Type		20	35	55	75	90
Nominal load (lower value)	kW	14,5 - 10,2	34,9 - 24,2	51,3 - 35,9	72,0 - 50,4	90 - 63
Nominal load (upper value)	kW	16,1 - 11,3	38,8 - 26,9	57,0 - 39,9	80,0 - 56,0	100 - 70
Nominal power	kW	13,7 - 9,8	32,6 - 23,1	48,0 - 34,3	68,2 - 48,4	84,4 - 60,1
Flue efficiency max (lower value)	%	94,5	93,4	93,6	94,7	93,8
Flue efficiency min (lower value)	%	96,1	95,5	95,5	96,0	95,4
Gas consumption G25 (15 °C)	m ³ /h	1,8 - 1,2	4,2 - 2,9	6,19 - 4,33	8,69 - 6,1	10,86 - 7,6
Gas consumption G20 (15 °C)	m ³ /h	1,5 - 1,1	3,7 - 2,6	5,43 - 3,8	7,62 - 5,3	9,52 - 6,7
Gas consumption G31 (15 °C)	kg/h	1,13 - 0,79	2,72 - 1,89	3,99 - 2,79	5,59 - 3,91	6,99 - 4,89
Gas consumption G30 (15 °C)	kg/h	1,14 - 0,79	2,75 - 1,93	4,05 - 2,84	5,67 - 3,97	7,10 - 4,97
Air displacement (20 °C)	m ³ /h	2400-1800	5900-4800	9300-6300	14000-9200	16500-11800
Delta T (ΔT)	K	17,1-16,3	16,6-14,3	15,6-16,4	14,6-15,8	15,4-15,3
Throw	m	14	28	26	32	36
Weight	kg	50	89	101	123	139
Noise level (5 m, side)	dB(A)	52-48	59-53	60-48	66-53	62-53
Electrical power at 230V	W	200	410	650	1490	1050
Consumed current	A	0,9	1,9	2,9	6,8	4,8

Accessories – flue gas exhaust

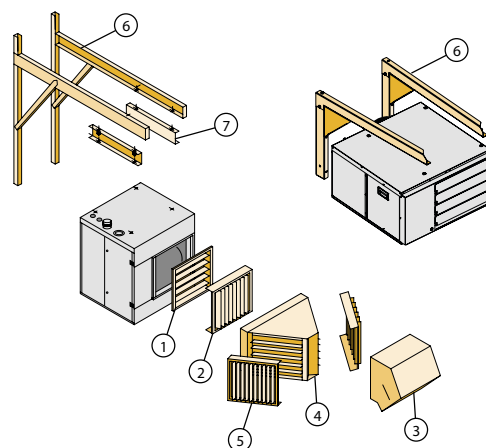


- 1 Extension set
- 2 90° elbow
- 3 45° elbow
- 4 Single flue set horizontal
- 5 Single flue set vertical
- 6 Roof flashing for pitched roof
- 7 Adhesive plate
- 8 Flexible roof flashing for cladded roof

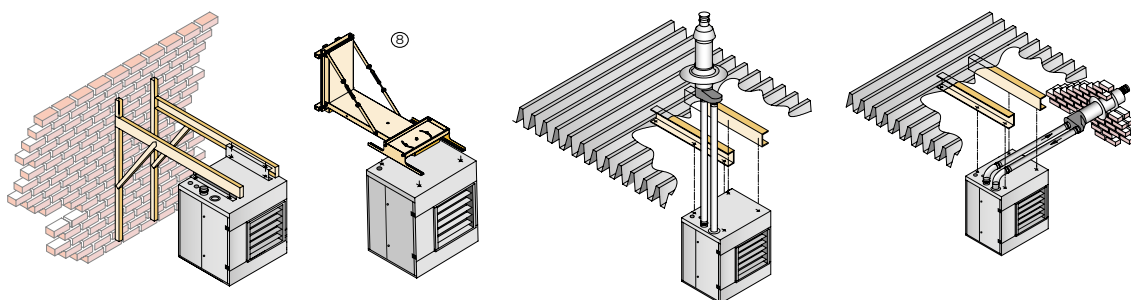


Accessories – additional sections

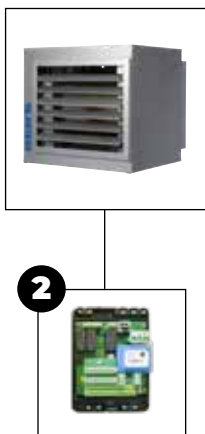
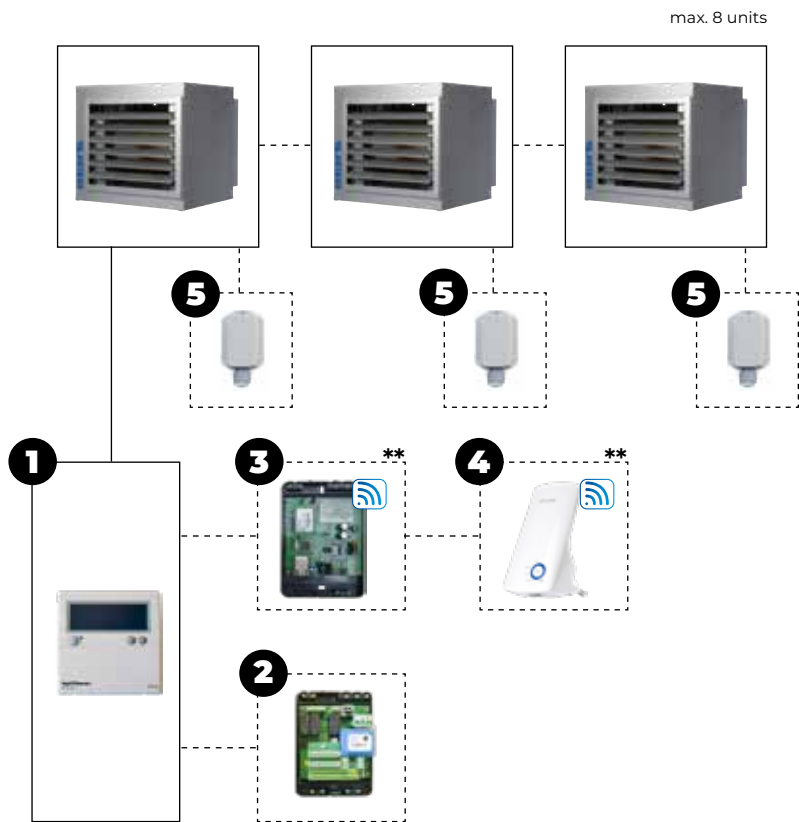
- 1 = Horizontal louvers (standard)
- 2 = Vertical louvers
- 3 = Downflow hood 45°
- 4 = Diffuser (2 x 45°) and horizontal louvres
- 5 = Vertical louvres for diffuser
- 6 = Set of wall mounting brackets
- 7 = Shock absorbers set
- 8 = Reversible wall bracket (types 20 - 55)



Assembly/location suggestions



Controls



Control combination options

Room temperature control

GSX + **1**

GSX + **1** + **5**

Room temperature control in combination with remote control

A remote connection with the mobile phone app is only possible when using a Web module. A WiFi bridge can be added to create a wireless connection.

GSX + **1** + **3**

GSX + **1** + **3** + **4**

GSX + **1** + **5** + **3**

GSX + **1** + **5** + **3** + **4**

Room temperature control in combination with Modbus

Allows you to read the status and change the settings of the Optitherm+.

GSX + **1** + **2** + **5**

GSX + **1** + **2**

Capacity control with external 0-10V signal or Modbus

Heating / Continuous ventilation / reset contacts / Modbus communication

GSX + **2**

** Temporarily unavailable

See price list GS+ for description and code numbers of the relevant items

Prices GSX



PRODUCT - GAS-FIRED AIR HEATER GSX - G25 / G20 / G30 / G31

Code nr.	Description	Price
	GSX 20 (13,7 kW)	€ 2927
	GSX 35 (32,5 kW)	€ 4286
	GSX 55 (48,3 kW)	€ 5434
	GSX 75 (68,2 kW)	€ 6739
	GSX 90 (84,6 kW)	€ 7436

ACCESSORIES - CONTROL

Code nr.	Description	Price
1 0629185	Optitherm+ digital clock thermostat	€ 332
5 0629194	External room temperature sensor	€ 96
2 3002866	Interface+	€ 546
3 0629187	Web module (Temporarily unavailable)	€
4 0629186	WiFi bridge (Temporarily unavailable)	€
3000600	Data cable JY(st)Y Dca 1x2x0.8+0.8mm GY (12,5 m)	€ 38
3000601	Data cable JY(st)Y Dca 1x2x0.8+0.8mm GY (25 m)	€ 69
3000602	Data cable JY(st)Y Dca 1x2x0.8+0.8mm GY (100 m)	€ 242
0631162	Isolator switch, separate delivery, 230 Volt (2 poles)	€ 63
5017097	Isolator switch, pre-wired, 230 Volt (2 poles)	€ 101

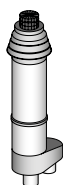
For function explanation see chapter on control

ACCESSORIES - EXHAUST OUTLET - GSX 20 / 35

Code nr.	Description	Price
5990556	Single flue set vertical aluminium, ø 80mm, external diameter 125mm	€ 193
5990579	Single pipe horizontal aluminium, ø 80mm, external diameter 125mm	€ 144
5990727	Set 2 aluminium pipes, ø 80mm, length 500 mm	€ 67
5990732	Set 2 aluminium pipes, ø 80mm, length 1000 mm	€ 82
5990733	Set smooth aluminium elbows, ø 80mm, 90°	€ 53
5990734	Set smooth aluminium elbows, ø 80mm, 45°	€ 74
0540927	Roof flashing ø 80 mm, only in combination with 5990556	€ 37
3040927	Adhesive coated roof flashing for plastic roofing, only in combination with 5990556	€ 68
0540807	Dektite 4-7", only in combination with 5990556	€ 255
0540804	Roof flashing 20 to 35°, only in combination with 5990556	€ 72



ACCESSORIES - EXHAUST OUTLET - GSX 55 / 75 / 90

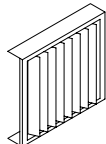


Code nr.	Description	Price
5990560	Single flue set vertical aluminium, ø 100mm, external diameter 160mm	€ 333
5990583	Single pipe horizontal aluminium, ø 100mm, external diameter 160mm	€ 234
5990728	Set 2 aluminium pipes, ø 100mm, length 500 mm	€ 81
5990736	Set 2 aluminium pipes, ø 100mm, length 1000 mm	€ 118
5990737	Set smooth aluminium elbows, ø 100mm, 90°	€ 74
5990738	Set smooth aluminium elbows, ø 100mm, 45°	€ 80
0540929	Roof flashing ø 100 mm, only in combination with 5990560	€ 39
3040929	Adhesive coated roof flashing for plastic roofing, only in combination with 5990560	€ 93
0540807	Dektite 4-7", only in combination with 5990560	€ 255
0540806	Roof flashing 20 to 35°, only in combination with 5990560	€ 100

REMARKS

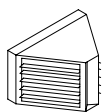
CE-approval only applies when the unit is supplied with the corresponding flue gas system.

ACCESSORIES - VERTICAL LOUVRE



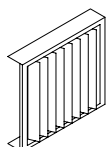
Code nr.	Description	Price
5008533	GSX 20	€ 131
5008534	GSX 35	€ 204
5008536	GSX 55	€ 204
5008538	GSX 75	€ 214
5008540	GSX 90	€ 338

ACCESSORIES - DIFFUSER WITH HORIZONTAL LOUVRE

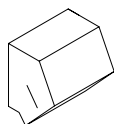


Code nr.	Description	Price
5008554	GSX 35	€ 446
5008556	GSX 55	€ 507
5008558	GSX 75	€ 704
5008560	GSX 90	€ 927

ACCESSORIES - VERTICAL LOUVRE FOR DIFFUSER



Code nr.	Description	Price
5008574	GSX 35	€ 243
5008576	GSX 55	€ 256
5008578	GSX 75	€ 288
5008580	GSX 90	€ 348

**ACCESSORIES - DOWNFLOW HOOD 45°**

Code nr.	Description	Price
5008544	GSX 35	€ 595
5008546	GSX 55	€ 743
5008548	GSX 75	€ 873
5008550	GSX 90	€ 1130

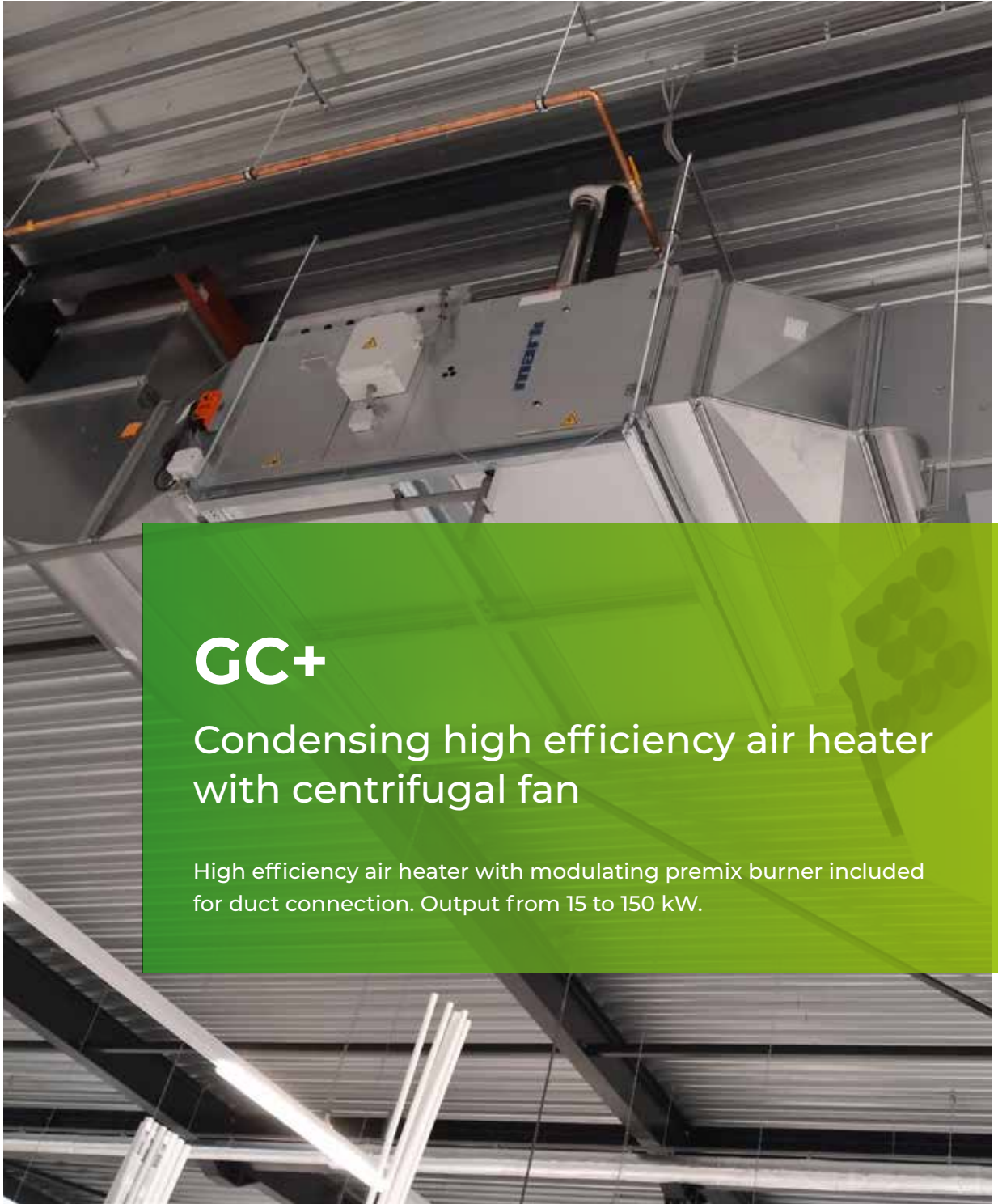
ACCESSORIES - MONTAGE

Code nr.	Description	Price
3187220	Set wall mounting brackets (2 pieces), GSX 20	€ 231
5017620	Set wall mounting brackets (2 pieces), GSX 35/55/75/90	€ 405
5017621	Set shock absorbers for wall mounting brackets, GSX 35/55/75/90	€ 118
5017590	Reversible wall brackets GSX 20	€ 410
5017573	Reversible wall brackets GSX 35	€ 420
5017576	Reversible wall brackets GSX 55	€ 431

ACCESSORIES - COLOURS *

Code nr.	Description	Price
	GSX provided with colour	€ 295
	Accessories provided with colour 1 to 3 pieces (by piece)	€ 145
	Accessories provided with colour 4 to 10 pieces (by piece)	€ 127
	Accessories provided with colour for more than 10 pieces (by piece)	€ 87

* These prices are only for the Mark standard RAL-colours: 3002 red, 1028 yellow, 6010 green, 7016 gray, 8014 brown, 9001 beige white, 5009 blue, 2009 orange, 1019 beige



GC+

Condensing high efficiency air heater with centrifugal fan

High efficiency air heater with modulating premix burner included
for duct connection. Output from 15 to 150 kW.



For more information, downloads
and videos, visit the GC+ page on
our website

Custom-made environment friendly heating with standard Mark-equipment



In addition to the High Efficiency air heater, the Mark-range also includes a gas-fired, high performance air heater with a centrifugal fan. The GC+ is particularly suited for connection to duct systems, or systems where high pressure is required. This condensing equipment provides efficiency greater than 106% (lower value). Heat is generated via a modulating (5:1) premix burner which results in very low gas consumption.

An extensive range of additional sections has been developed for the GC+. This ensures the standard GC+ can be simply and affordably adapted to any project specification. The comprehensive capacity range (15-150 kW) also means the area of application for this type of equipment is virtually limitless. The GC+ can additionally be incorporated into an air handling unit.

The GC+ is designed to heat garages, warehouses, workshops, schools and sports halls among other applications, with or without a duct system.

Product features

- Centrifugal fan with forward curved blades
- 3-phase electric motor 1400 min-1
- V-belt transmission
- Shock absorbers
- Low noise level
- Variable air volume
- Variable delta T
- System air pressure up to 300 Pa
- Low maintenance
- Modulation range 5:1

Options:

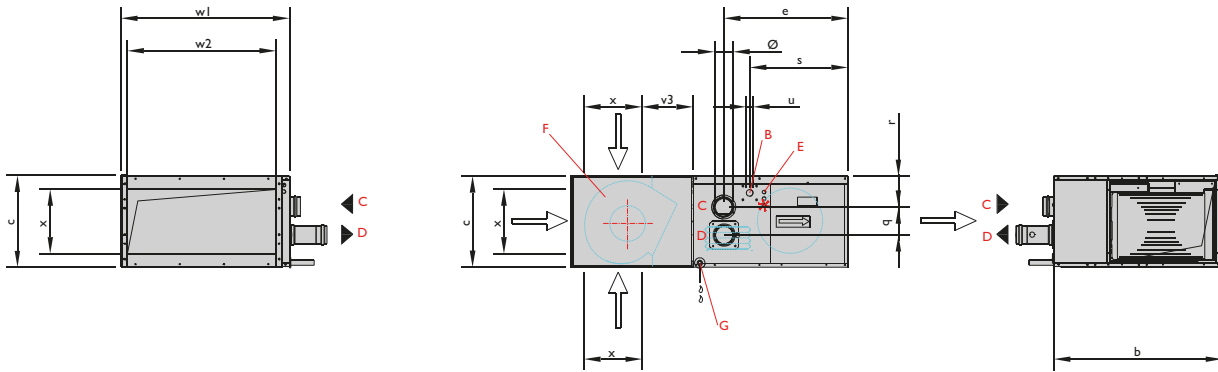
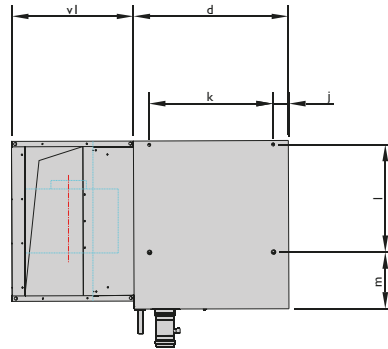
- Centrifugal fan with backward curved blades
- Insulated fan casing
- Outdoor version available



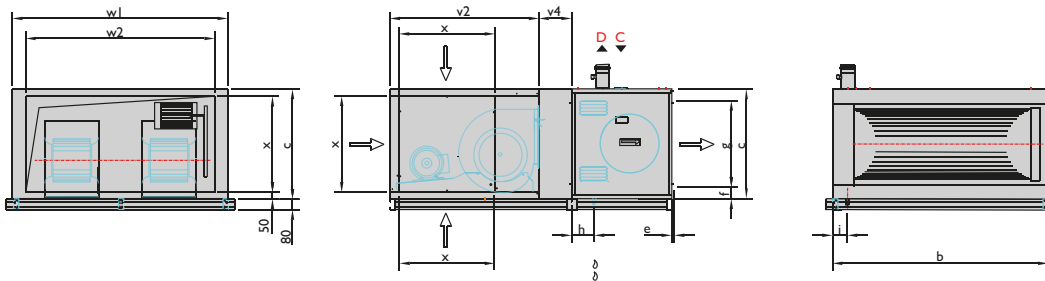
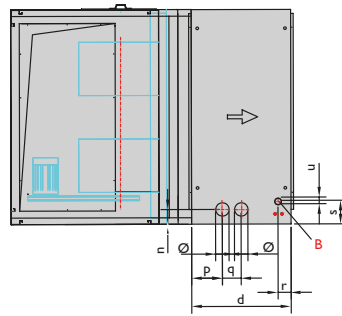
The GC+ is operated using an Optitherm+ clock thermostat or an Interface+ module that allows a connection with the BMS (building management system) via Modbus or a 0-10V contact. Other operating options are also available.

Dimensions

- B = Gas connection
- C = Combustion air inlet
- D = Flue gas exhaust
- E = Electrical connection
- F = Centrifugal fan
- G = Condensation connection $\varnothing 40$ mm



T	B	C	D	E	G	H	J	K	L	M	Ø	Q	R	S	U	V1	V3	W1	W2	X
15/25	760	410	700	560	375	669	70	560	485	255	80	120	139	444	1/2"(M)	550	182	723	670	360



T	B	C	D	E	F	G	H	I	Ø	P	Q	R	S	U	V2	V3	V4	W1	W2	X
35	875	810	739	35	105	600	165	110	80	240	120	97	175	3/4" (M)	1100	100	244	875	675	710
40	875	810	739	35	105	600	165	110	80	240	120	97	175	3/4" (M)	1100	100	244	875	675	710
60	1120	810	739	35	105	600	165	110	100	230	140	97	175	3/4" (M)	1100	100	244	1120	920	710
80	1305	810	739	35	105	600	165	110	100	230	140	97	175	1" (M)	1100	100	244	1305	1105	710
100	1595	810	739	35	105	600	165	110	100	230	140	97	175	1" (M)	1100	100	244	1595	1395	710
135/150	1890	1000	1000	35	105	790	190	175	130	235	225	140	170	1" (F)	1100	-	304	1890	1750	800

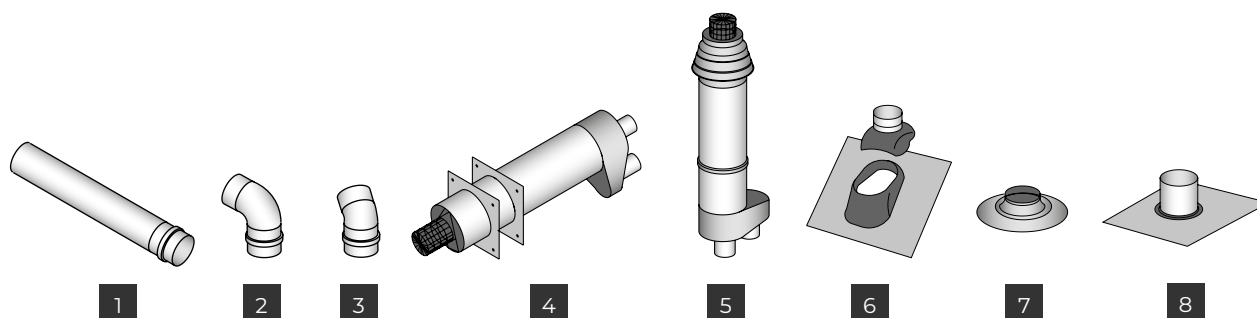
Technical information

TYPE		15	25	35	40	60	80	100	135	150
Nominal load (upper value)	kW	16,1	27,2	38,8	44,4	66,7	88,9	110,6	149,9	166,7
Maximal power	kW	13,6	23,0	33,4	38,4	56,2	75,6	93,3	128,9	141,0
Minimal load (upper value)	kW	4,6	6,8	9,6	9,6	13,9	24,5	10,8	21,1	36,6
Minimal power	kW	4,3	6,6	9,2	9,2	13,5	23,8	10,6	20,6	35,3
Flue efficiency at maximum load (lower value)	%	94,1	93,9	95,1	95,1	93,6	94,0	93,8	95,5	94,0
Flue efficiency at minimum load (lower value)	%	106,7	107,0	106,9	106,9	107,3	107,1	107,4	107,5	107,3
Burner turndown ratio	+/-	3:1	4:1	4:1	5:1	5:1	7:1	6:1	7:1	4:1
Gas consumption G20 (15°C)	m ³ /h	1,56-0,45	2,61-0,66	3,65-0,88	4,18-0,88	6,22-1,34	8,16-2,25	10,30-1,78	14,05-1,98	15,30-3,37
Gas consumption G25 (15°C)	m ³ /h	1,75-0,49	2,95-0,74	4,10-1,02	4,73-1,02	7,03-1,47	9,30-1,40	11,57-1,85	15,98-2,25	17,05-3,75
Gas consumption G31 (15°C)	kg/h	1,13-0,32	1,91-0,48	2,68-0,64	3,17-0,64	4,72-1,04	6,22-0,89	7,76-1,34	10,51-2,23	11,69-2,57
Gas consumption G30 (15°C)	kg/h	1,19-0,33	2,02-0,51	2,92-0,72	3,46-0,72	5,05-1,11	6,70-0,96	8,19-1,48	11,1-1,85	12,35-2,72
Minimum air displacement (20 °C)	m ³ /h	1250	2000	3760	3760	5640	7520	9400	12500	14000
Delta T (ΔT)	K	32,7	34,5	26,6	30,3	30,3	30,3	31,3	30,8	30,5
Nominal air displacement (20 °C)	m ³ /h	1400	2300	5000	5000	6500	10000	12500	18500	18500
Delta T (ΔT)	K	29,2	30,0	20,0	22,8	26,3	22,8	23,5	20,8	23,1
Maximum air displacement (20 °C)	m ³ /h	4100	4100	7200	7200	8640	13680	16200	20880	20880
Delta T (ΔT)	K	10,0	16,8	13,9	15,8	19,8	16,7	18,1	18,4	20,5
Fan		9-7	9-7	12-12	12-12	12-12	twin 12-19	twin 12-12	twin 15-15	twin 15-15
Dimensions fan	max.	-	-	112	112	112	112	112	132	132

External pressure = 0-300 Pa, more on request

G25 = Natural gas, G20 = Natural gas, G31 = Propane, G30 = Butane

Accessories – flue gas exhaust



1 Extension set

2 90° elbow

3 45° elbow

4 Single flue set horizontal

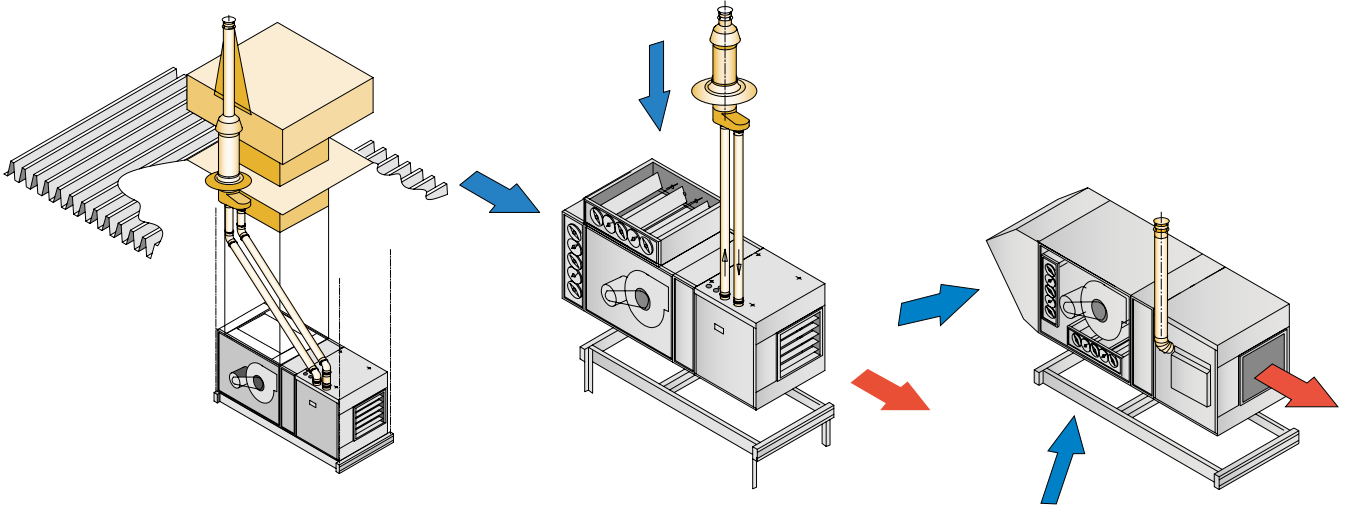
5 Single flue set vertical

6 Roof flashing for pitched roof

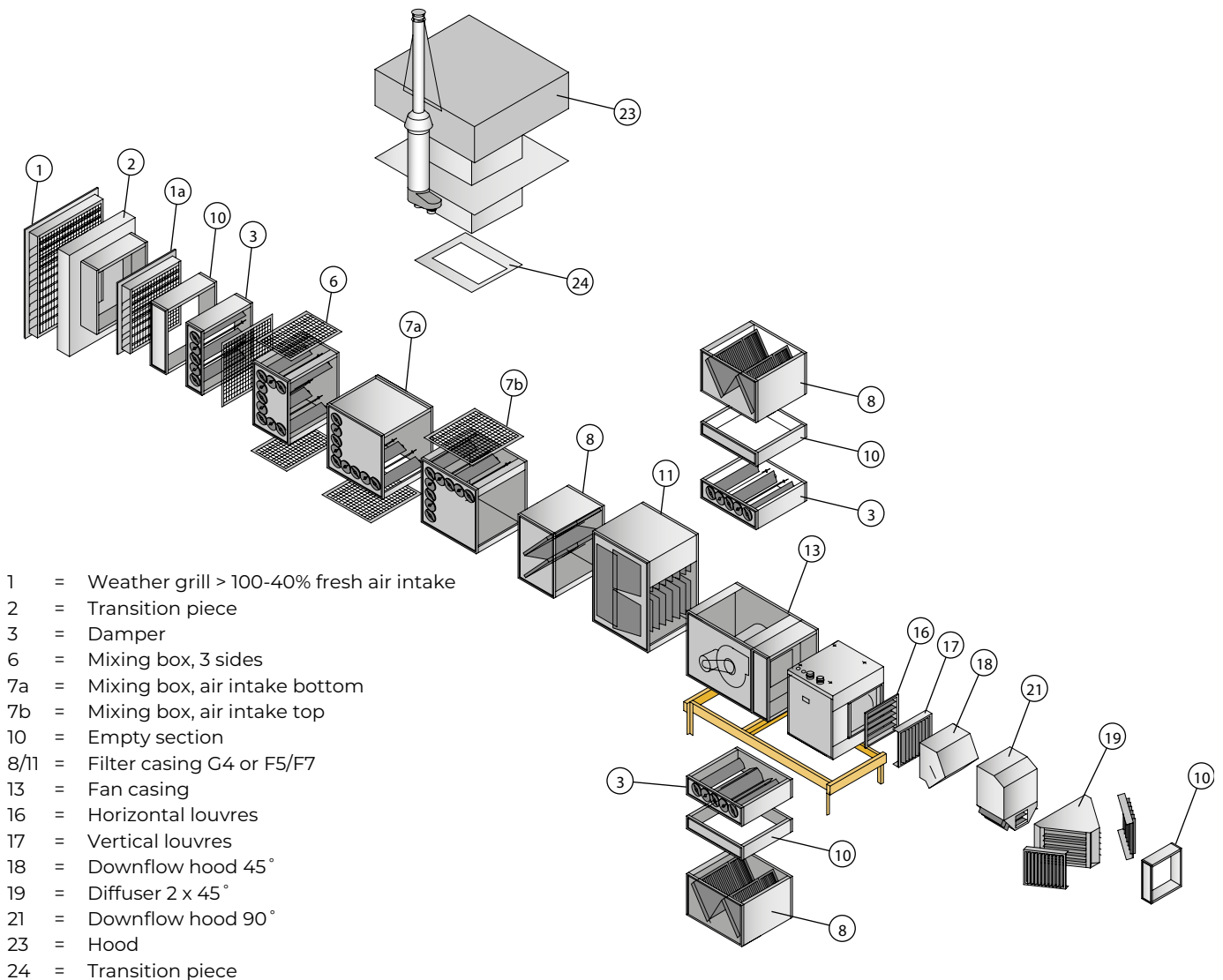
7 Adhesive plate

8 Flexible roof flashing for cladded roof

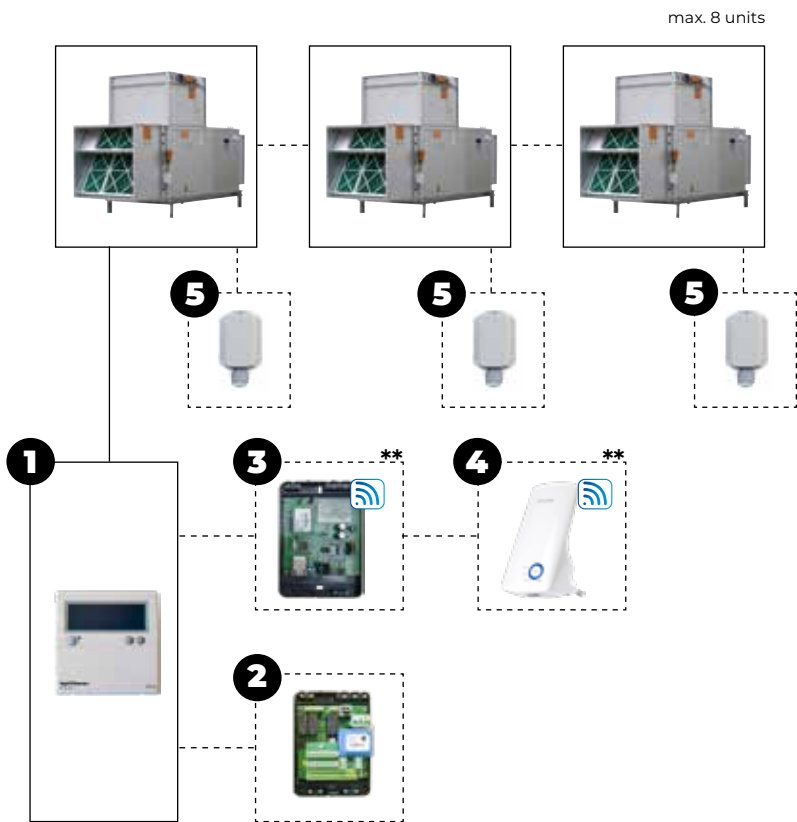
Assembly/location suggestions



Accessoires - aanbouwlementen



Controls



Control combination options

Room temperature control

GC+ + **1**

GC+ + **1** + **5**

Room temperature control in combination with remote control

A remote connection with the mobile phone app is only possible when using a Web module. A WiFi bridge can be added to create a wireless connection.

GC+ + **1** + **3**

GC+ + **1** + **3** + **4**

GC+ + **1** + **5** + **3**

GC+ + **1** + **5** + **3** + **4**

Room temperature control in combination with Modbus

Allows you to read the status and change the settings of the Optitherm+.

GC+ + **1** + **2** + **5**

GC+ + **1** + **2**

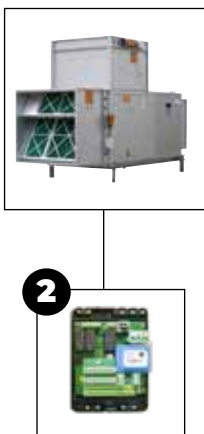
Capacity control with external 0-10V signal or Modbus

Heating / Continuous ventilation / reset contacts / Modbus communication

GC+ + **2**

** Temporarily unavailable

See price list GS+ for description and code numbers of the relevant items





L-TYPE

Gas-fired vertical air heater

Vertical or horizontal air heater with burner.
Output from 30 to 600 kW.



For more information, downloads
and videos, visit the L-TYPE page
on our website



A wide variety of uses

The Mark L-TYPE is a vertical or horizontal gas-fired air heater with a capacity of 30 to 600 kW. In combination with a 2-stage Low-Nox gas burner (< 70 mg/kWh), ERP 2021 Step 2 is fulfilled.

The device can be blown into the room with an optional exhaust hood or can be connected to a duct system (increased external pressure optional).

The Mark L-TYPE can be used in the following rooms: sports halls, churches, warehouses, offices and shops.

Accessories/options:

- 2-stage duct thermostat
- Room thermostat PinTherm Connect
- Outside installation
- Air filter with filter monitoring
- Servo or manually-operated slatted valves
- Flexible connection
- Downflow hood
- Increased external pressure 300 Pa
- Siphon for condensate connection

Fan:

- A dual blast centrifugal ventilator with bent blades
- V-belt drive

Housing:

- Pre-painted steel plating
- Frame: aluminium profiles

Standard equipment:

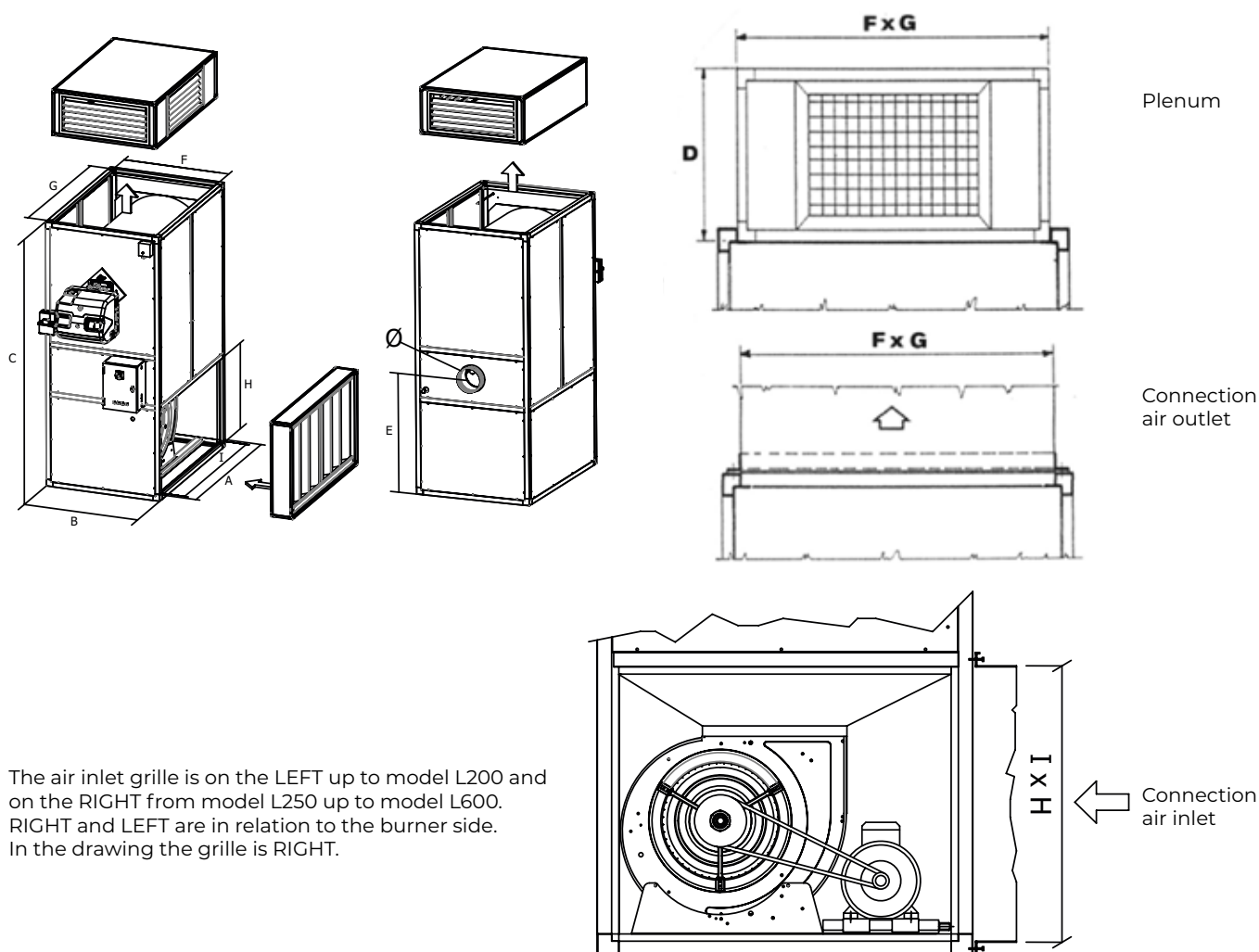
- AISI 430 (1.4016) blast chamber
- AISI 409 (1.4512) heat exchanger
- Electrical switch box
- Three-way thermostat
- Motor cut-out
- Condensate connection



Remote connection possible with the PinTherm Connect!

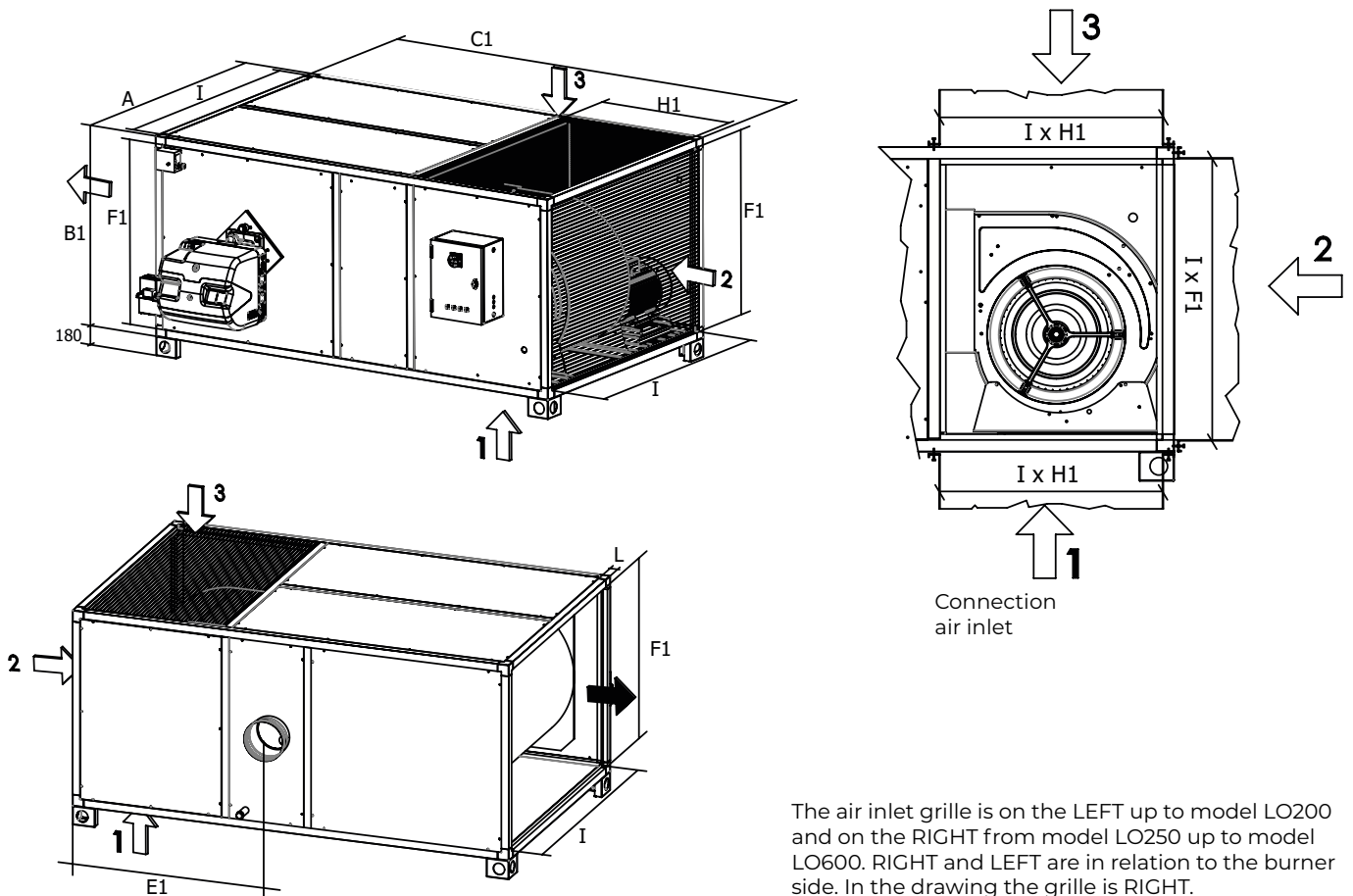
Dimensions

Type	L-TYPE			Head height D	Flue height E	Air Outlet connection		Air Inlet connection		Frame profile L	Flue system Ø	Weight		Net head weight kg
	Length	Width	Height			F	G	H	I			Net	Packed	
	A	B	C											
L30	660	530	1430	305	705	490	620	480	620	20	150	110	115	10
L60	870	636	1750	305	860	596	830	630	830	20	150	176	183	12
L80	1020	750	1950	405	935	670	940	690	940	40	130	236	245	37
L100	1020	750	1950	405	935	670	940	690	940	40	130	250	260	37
L150	1440	1020	2340	405	1070	940	1360	760	1360	40	150	390	400	40
L175	1440	1020	2340	405	1070	940	1360	760	1360	40	150	400	410	40
L200	1440	1020	2340	405	1070	940	1360	760	1360	40	150	415	425	40
L250	1790	1020	2340	405	1130	940	1710	760	1710	40	200	520	535	46
L300	1790	1020	2340	405	1130	940	1710	760	1710	40	200	550	565	46
L425	2300	1340	2660	405	1220	1260	2220	930	2220	40	250	790	810	67
L500	2300	1340	2660	405	1220	1260	2220	930	2220	40	250	815	830	67
L600	2300	1500	2840	445	1400	1420	2220	1070	2220	40	250	965	985	70



The air inlet grille is on the LEFT up to model L200 and on the RIGHT from model L250 up to model L600. RIGHT and LEFT are in relation to the burner side. In the drawing the grille is RIGHT.

Type	L-TYPE			Head height	Flue height	Air Outlet and Inlet connection		Air Inlet connection		Frame profile	Flue system	Weight	Net head weight
	Length	Width	Height			F1	I	H1	I				
LO30	660	530	1430	305	705	490	620	480	620	20	150	114	10
LO60	870	636	1750	305	860	596	830	630	830	20	150	180	12
LO80	1020	850	2200	405	1185	770	940	880	940	40	130	300	37
LO100	1020	850	2200	405	1185	770	940	880	940	40	130	314	37
LO150	1440	1020	2340	405	1070	940	1360	760	1360	40	150	395	40
LO175	1440	1020	2340	405	1070	940	1360	760	1360	40	150	405	40
LO200	1440	1020	2340	405	1070	940	1360	760	1360	40	150	420	40
LO250	1790	1020	2660	405	1450	940	1710	1100	1710	40	200	615	46
LO300	1790	1020	2660	405	1450	940	1710	1100	1710	40	200	645	46
LO425	2300	1340	2960	405	1750	1260	2220	1190	2220	40	250	910	67
LO500	2300	1340	2960	405	1750	1260	2220	1190	2220	40	250	935	67
LO600	2300	1500	3290	445	2080	1420	2220	1520	2220	40	250	1100	70

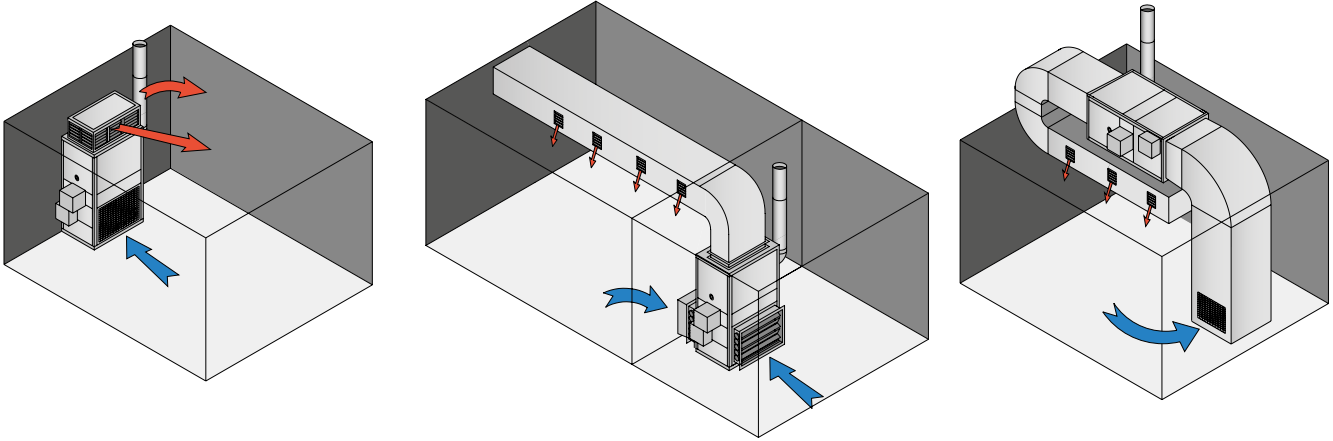


The air inlet grille is on the LEFT up to model LO200 and on the RIGHT from model LO250 up to model LO600. RIGHT and LEFT are in relation to the burner side. In the drawing the grille is RIGHT.

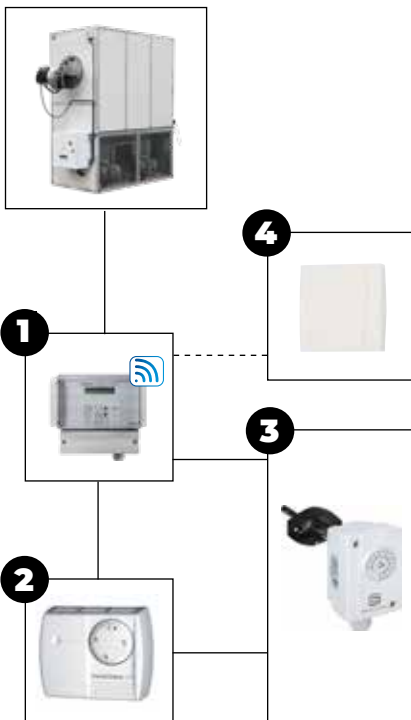
Technical information

Type		30	60	80	100	150	175	200	250	300	425	500	600
Rated heat input (Hi)	kW	32,6	58	98,5	115,8	179	203	238	270	313	425	500	600
Rated heat input	kW	30,6	56	94,7	110,2	172,4	198,3	229,2	260,8	300,8	420,7	487,5	585
Thermal efficiency at rated heat input	%	94	96,5	96,1	95,2	96,3	97,7	96,3	96,6	96,1	98,6	97,5	97,5
Thermal efficiency at 50% of the rated heat input	%	99,8	103,8	99,3	97,9	100,4	101,8	100,3	101,6	100,5	101,4	102,1	102,1
Back pressure in the combustion chamber with G20	mbar	0,5	0,2	2,3	3,5	2,5	3,4	4	2,6	3,3	3	3,6	5,2
G20: NOx (ERP 20 step ≤ 70Mg/kWh)	mg/kWh	63	69,1	62	57,6	67,4	67,8	67,1	59,5	67,4	63	59,5	58,4
Air flow rate at 18 °C	m ³ /h	2.750	5.100	7.560	9.200	13.000	15.800	18.000	20.800	24.000	32.500	38.300	41.000
Useful static pressure	Pa	50	90	150	150	200	200	200	200	200	200	200	160
Delta T air at max. power	°C	30	30,5	37,2	37,2	40,4	37,6	38,3	37,1	37	37,2	36,7	41
Methane G20 (20 mbar)	m ³ /h	3,45	5,82	10,42	12,91	18,94	21,48	25,19	28,57	33,12	44,97	52,9	63,5
Natural gas G25 (25 mbar)	m ³ /h	4	6,76	12,1	15	22	25	29,3	33,24	38,53	52,3	61,5	73,8
Propane G31 (37 mbar)	kg/h	2,48	4,27	7,65	9,48	13,91	15,77	18,49	20,98	24,32	32,8	38,6	46,3
Butane G30 (28 mbar)	kg/h	2,52	4,34	7,77	9,62	14,12	16,01	18,77	21,29	24,68	33,5	39,4	47,3
Sound pressure (at 5 m)	dB(A)	62	72	72	73	71	73	74	74	75	74	75	75
Supply voltage	V-Ph-Hz	230V-1-50	230V-1-50						400V-3+N-50				
Fan motor absorption	A	3,1	6,7	3,5	4,9	6,3	8,3	11,3	2 x 6,3	2 x 8,3	2 x 8,3	2 x 11,3	2 x 11,3
Fan motor capacity	kW	0,2	0,75	1,5	2,2	3	4	5,5	2 x 3	2x4	2 x 4	2 x 5,5	2 x 5,5
ELECTRICAL DATA, WITH EXTERNAL PRESSURE = 300 PA													
Supply voltage	V-Ph-Hz	230V-1-50							400V-3+N-50				
Fan motor absorption	A	4,6	3,5	4,9	6,3	8,3	11,3	15	2 x 6,3	2 x 11,3	2 x 11,3	2 x 15	2 x 15
Fan motor capacity	kW	0,5	1,5	2,2	3	4	5,5	7,5	2 x 3	2 x 5,5	2 x 5,5	2 x 7,5	2 x 7,5

Assembly/location suggestions



Controls



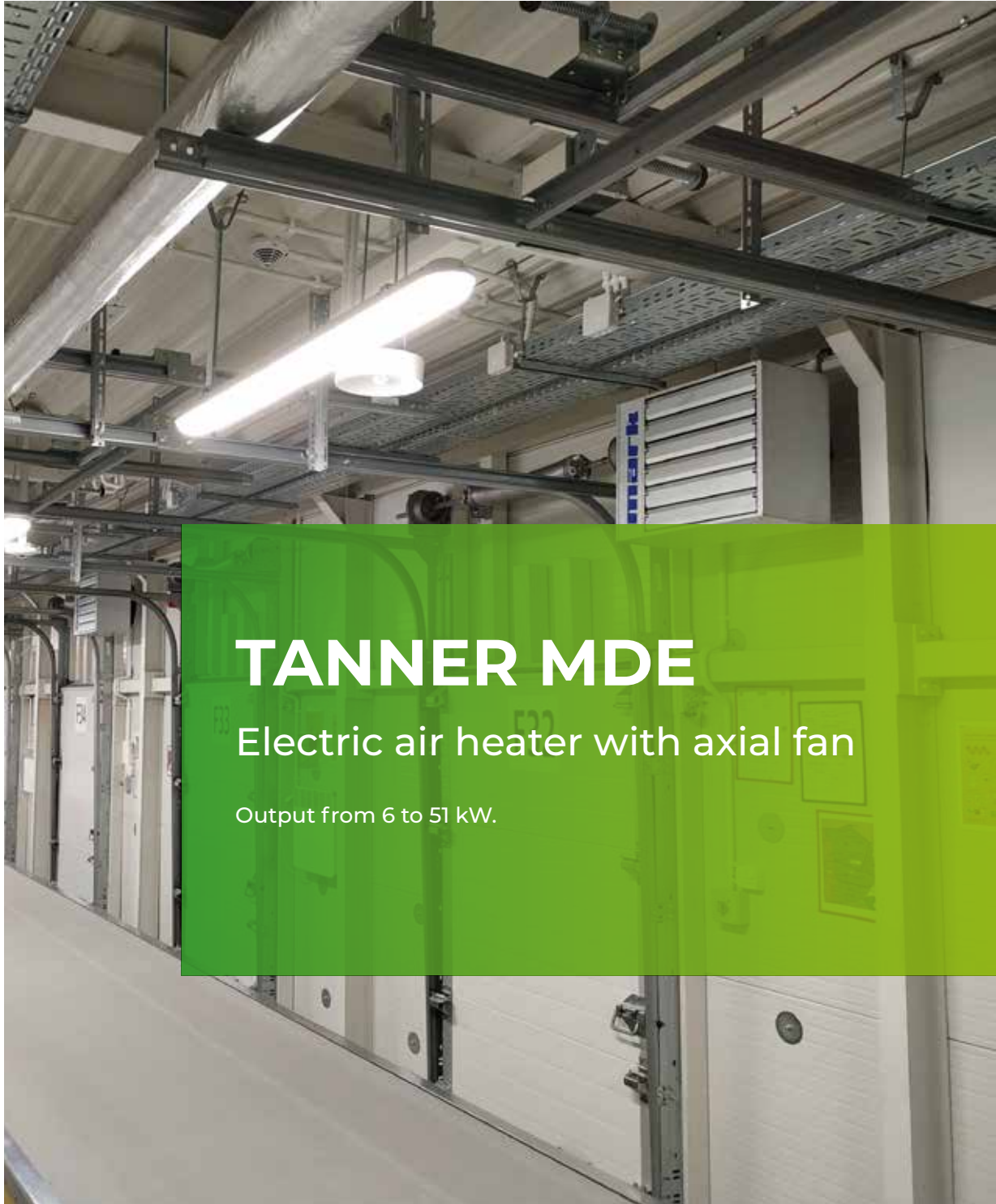
Control combination options

L-TYPE + **1** + **3**

L-TYPE + **2** + **3**

L-TYPE + **1** + **3** + **4**

1 = Pintherm Connect (0629108)
 2 = Room thermostat (0629013)
 3 = Outlet temperature control KTR-090 U for automatic burner step control (0701050)
 4 = Room sensor (0629086)



For more information, downloads and videos, visit the Tanner MDE page on our website

Electric air heater for effective heating



The TANNER MDE is a suspended electric air heater for permanent use. The unit is equipped with horizontally adjustable discharge blades and can be mounted with the optional wall bracket. The unit has a powerful axial fan, which means that the unit has many applications.

The TANNER MDE is designed for use in showrooms, changing rooms, industrial halls, ships and garages.

The TANNER MDE can be operated with an external selector switch. The switch has the following positions:

- Ventilation
- Heating high
- Heating low

The unit is equipped with a thermostat connection.

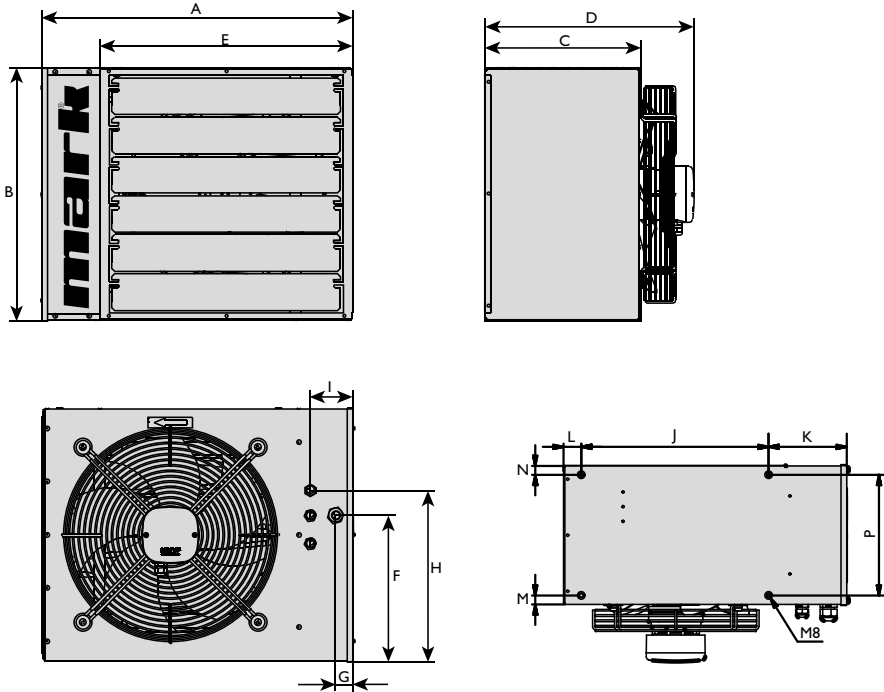
Product features

- Aluzinc housing
- 400V version
- IP 00B
- Long lifetime
- Low noise level
- Integrated electronic thermal protection
- Post-running thermostat for efficient cooling.



Remote connection possible with the PinTherm Infra Connect!

Dimensions

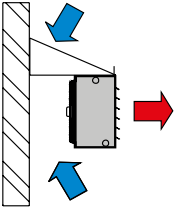


Type	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
6	480	380	240	330	380	190	30	235	75	318	133	30	15	15	318	205
9	480	380	240	330	380	190	30	235	75	318	133	30	15	15	318	205
12	550	450	280	370	450	260	30	305	75	390	133	30	35	35	390	205
15	550	450	280	370	450	260	30	305	75	390	133	30	35	35	390	205
24	660	570	300	440	550	290	30	330	75	390	195	78	45	45	390	205
30	660	570	300	440	550	290	30	330	75	390	195	78	45	45	390	205
42	660	570	300	440	550	290	40	330	85	390	195	78	45	45	390	205
51	830	730	350	490	715	450	40	530	85	665	136	29	32	37	665	281

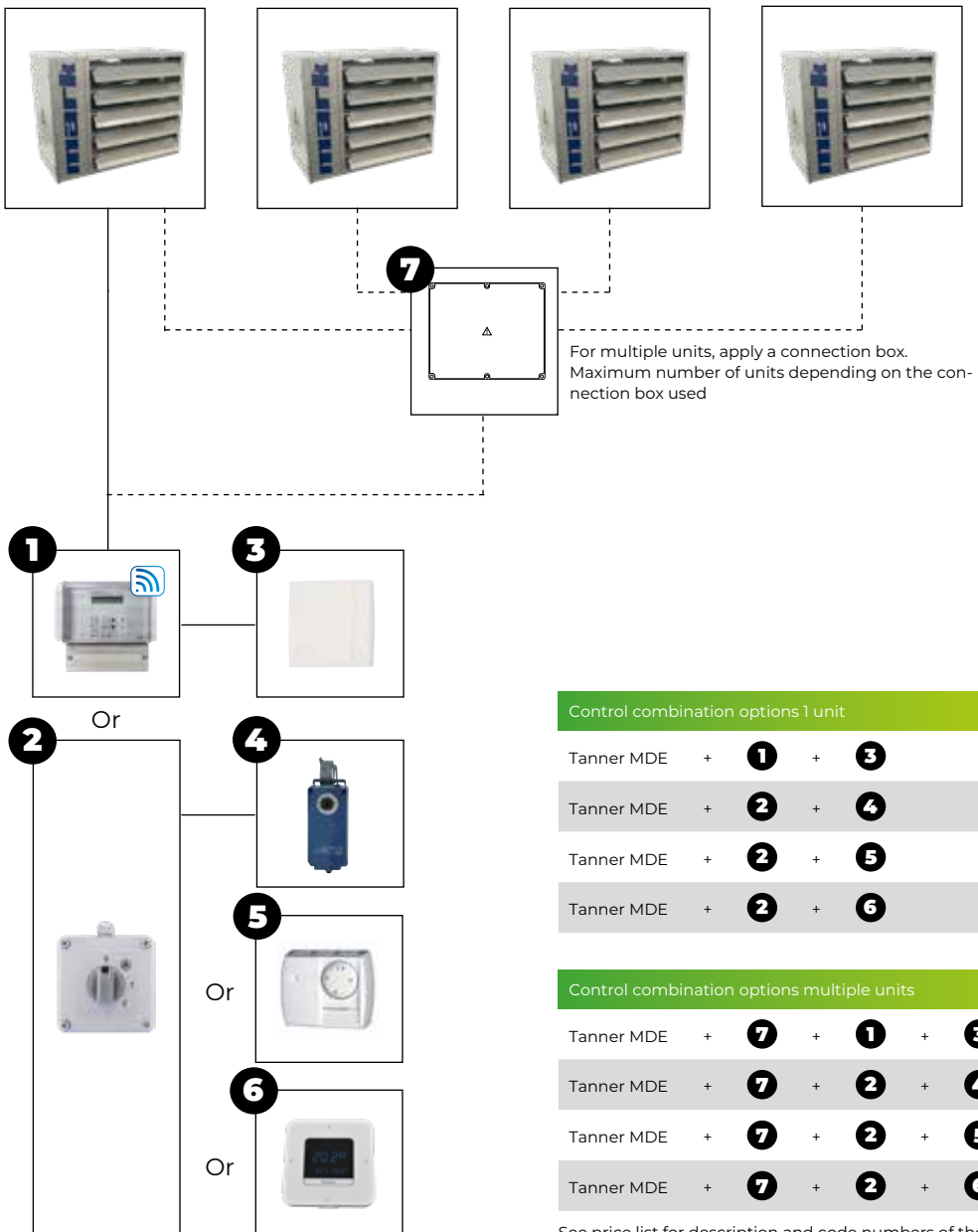
Technical information

Type		6	9	12	15	24	30	42	51
Nominal power	kW	6	9	12	15	24	30	42	51
Power steps	kW	3+3	4,5+4,5	6+6	9+6	12+12	15+15	24+18	24+27
Supply voltage (50Hz)	V	3x400V+N+PE							
Consumed current	A	8,7	13,0	17,3	21,7	34,7	43,4	60,7	73,7
Air displacement	m ³ /h	800	800	1600	1600	2800	2800	4450	6495
Speed	rpm	1400	1400	1000	1000	1000	1000	1400	1000
Delta T (ΔT)	K	22,5	33,8	22,6	28,2	25,7	32,1	28,3	23,6
Weight	kg	13	14	19	20	30	32	36	53
Noise at 5 m	dB(A)	38	38	48	48	50	50	50	52
Throw	m	8	8	12	12	17	17	20	25
Protection class	IP	00B	00B	00B	00B	00B	00B	00B	00B
Recommended circuit breaker	A	B16	B20	B25	B32	B50	B63	B80	B100
Recommended isolator switch		0631147		0631148		0631149		0631144	0631145

Assembly/location suggestions



Controls



See price list for description and code numbers of the relevant items

Prices Tanner MDE




PRODUCT - ELECTRICAL AIR HEATER TANNER MDE, 3-PHASE 400V / 50HZ

Code nr.	Description	Price
5017002	Tanner MDE 6	€ 1088
5017003	Tanner MDE 9	€ 1198
5017004	Tanner MDE 12	€ 1442
5017005	Tanner MDE 15	€ 1610
5017008	Tanner MDE 24	€ 1919
5017010	Tanner MDE 30	€ 2048
5017014	Tanner MDE 42	€ 2232
5017017	Tanner MDE 51	€ 2722

ACCESSORIES - ASSEMBLY

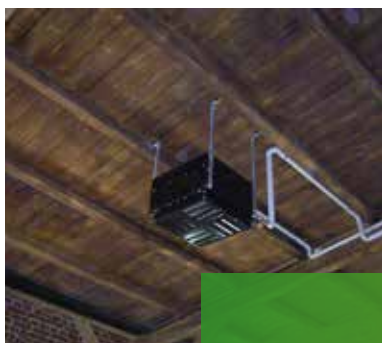
Code nr.	Description	Price
5064047	Set wall brackets for horizontal air flow	€ 80

ACCESSORIES - CONTROLS

Code nr.	Description	Price
7 3004475	Connection box for max. 4x Tanner MDE and selector switch and room thermostat*	€ 899
7 3004476	Connection box for max. 4x Tanner MDE and PinTherm Infra Connect*	€ 852
7 3004477	Connection box for max. 8x Tanner MDE and selector switch and room thermostat*	€ 1252
7 3004478	Connection box for max. 8x Tanner MDE and PinTherm Infra Connect*	€ 1168
4 0629004	Water resistant room thermostat, 230V, IP65	€ 284
5 0629013	Room thermostat 230V, (4A)	€ 58
6 0629039	Clock thermostat (1A)	€ 394
1 0629109	PinTherm Infra Connect – programmable thermostat with Ethernet and Modbus, 230V (4A)	€ 726
3 0629086	Room sensor only in combination with 0629109	€ 93
2 0631107	Selector switch 0-  -1-2	€ 75
0631147	Isolator switch 16A black	€ 55
0631148	Isolator switch 32A black	€ 89
0631149	Isolator switch 63A black	€ 110
0631144	Isolator switch 80A black	€ 572

* Pintherm Infra Connect or selector switch and room thermostat order separately.

For explanation see chapter controls.



TANNER MDA

Water-supplied air heater with axial fan

Water-supplied air heater with copper/aluminium heat exchanger.
Output from 14,5 to 117 kW.



For more information, downloads and videos, visit the Tanner MDA page on our website

The most versatile hot water air heater on the market



The TANNER MDA is a water-supplied suspended air heater which can expel air horizontally or vertically. The unit has a powerful axial fan which means it is suitable for many applications.

Mark offers a highly extensive range of accessories for the TANNER MDA allowing it to be aligned to all applications. For example, the unit can be made suitable for external air connection in combination with filtering and a mixing box for the destratification of fresh external air.

The unit is also available as an ATEX / EEX-model. (400V) - IP 44 (Ex II 2 G c Ex e IIB T3).

The TANNER MDA is designed for use in showrooms, changing rooms, industrial halls and garages.

Optional: speed controlled low noise EC-motor (230V/0-10V).
Advantages:

- The highest efficiency in case of speed control
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable
- Long lifetime
- Low noise level
- Integrated electronic thermal protection

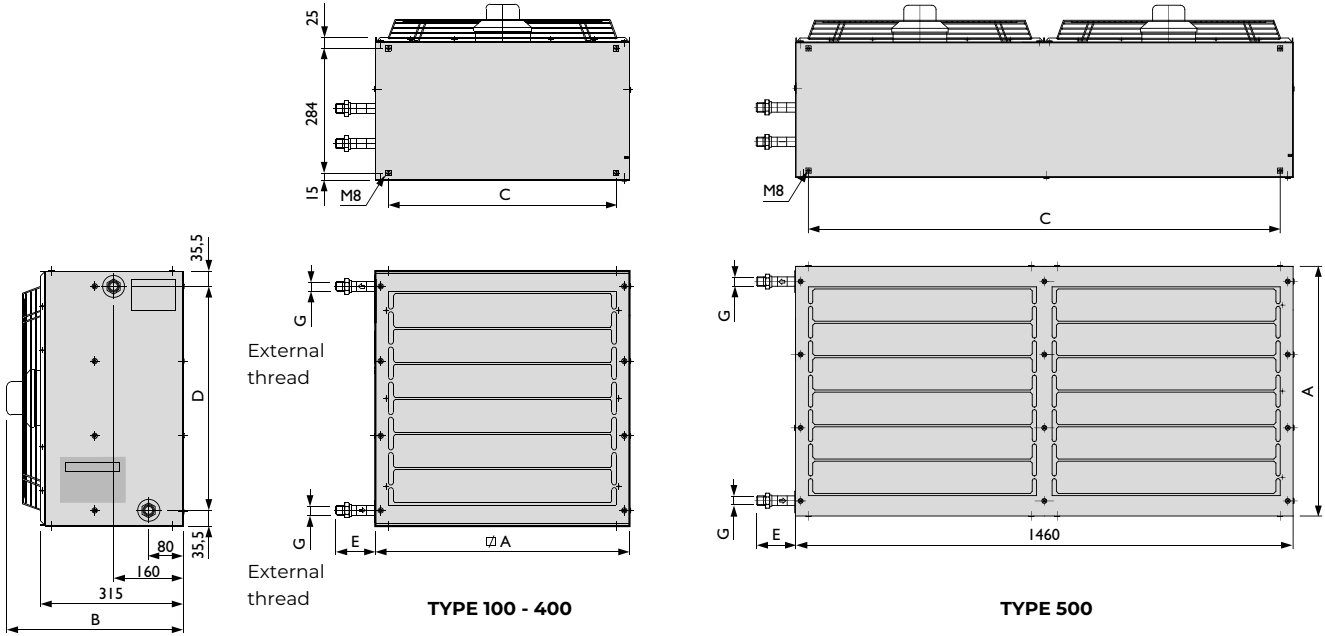
Product features

- Manufactured with a corrosion-resistant aluzinc housing as standard
- Copper/aluminium heat exchanger
- Highly versatile due to extensive configuration options
- Available as 230V or 400V
- IP class 54



Remote connection possible with the PinTherm Connect!

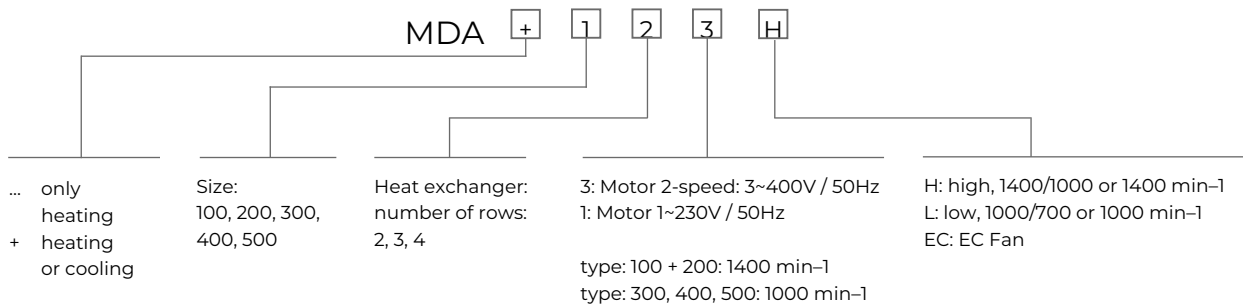
Dimensions



Type	A	B	C	D	E	G		
						2R	3R	4R
100	450	380	387	379	110	1"	1"	1"
200	580	385	517	509	113	1"	1"	1"
300	730	385	667	659	110	1"	1 1/4"	1 1/2"
400	860	405	797	789	115	1 1/4"	1 1/2"	1 1/2"
500	730	385	1392	659	80	-	2"	2"

Technical information

TYPE DESIGNATION



MDA low-speed - 1 phase 230V

Type		121L	131L	141L	221L	231L	241L	321L*	331L*	341L*	421L*	431L*	441L*	531L*	541L*
90/70 T 15	kW	14,5	17,0	19,0	25,1	30,8	33,3	52,7	65,9	72,1	80,0	101,0	110,0	142	168
Water resistance T15	kPa	4	8	12	7	4	8	8	4	12	8	6	18	25	50
Outlet temperature at the heat exchanger	°C	41,7	49,4	59,2	42,7	53,0	58,8	38,8	48,0	54,0	38,6	48,6	54,1	52,3	61,9
80/60 T 15	kW	11,9	14,1	15,9	20,6	25,4	27,8	43,3	54,1	60,2	65,7	83,1	91,6	118	141
Outlet temperature at the heat exchanger	°C	36,8	43,6	52,0	37,8	46,3	51,6	34,6	42,1	47,6	34,4	42,7	47,7	46	54,4
40/30 T 15	kW	3,77	4,42	4,94	6,53	8,0	8,66	13,7	17,1	18,8	20,8	26,3	28,6	36,9	43,7
Speed	rpm	900	900	900	830	830	830	845	845	845	925	925	925	845	845
Air displacement	m ³ /h	1595	1446	1265	2656	2381	2233	6495	5857	5423	9933	8816	8217	11300	10600
Noise at 5 m	dB(A)	49	49	49	49	48	48	52	53	53	61	59	58	56	56
Weight without accessories	kg	22	23	24	32	34	36	43	46	49	55	59	63	95	98,5
Horizontal throw	m	12	10	8	17	15	12	25	22	19	35	31	27	25	22
Vertical throw	m	4	4	3,5	4,8	4,5	4	8,1	6,8	5,9	7,4	6,2	5,5	6,8	5,9
Consumed current (AC fan)	A	0,35	0,35	0,35	0,49	0,49	0,49	1,5	1,5	1,5	1,8	1,8	1,8	3,0	3,0
Consumed current (EC fan)	A	-	-	-	-	-	-	1,65	1,65	1,65	2,7	2,7	2,7	3,3	3,3
Nominal electric power (AC fan)	kW	0,077	0,077	0,077	0,113	0,113	0,113	0,33	0,33	0,33	0,4	0,4	0,4	0,66	0,66
Nominal electric power (EC fan)	kW	-	-	-	-	-	-	0,24	0,24	0,24	0,62	0,62	0,62	0,48	0,48

MDA high-speed - 1 phase 230V

Type		121H*	131H*	141H*	221H*	231H*	241H*
90/70 T 15	kW	18,0	22,1	25,1	32,4	42,0	46,6
Water resistance T15	kPa	7	13	20	9	5	13
Outlet temperature at the heat exchanger	°C	37,4	43,9	53,4	37,6	46,4	51,6
80/60 T 15	kW	14,7	18,3	20,9	26,6	34,5	38,7
Outlet temperature at the heat exchanger	°C	33,3	38,9	47,1	33,6	40,8	45,5
40/30 T 15	kW	4,68	5,75	6,53	8,42	10,9	12,1
Speed	rpm	1400	1400	1400	1400	1400	1400
Air displacement	m ³ /h	2365	2244	1914	4202	3932	3734
Noise at 5 m	dB(A)	54	55	55	57	53	53
Weight without accessories	kg	22	23	24	32	34	34
Horizontal throw	m	15	13	11	20	19	17
Vertical throw	m	6,9	6,8	6,3	7,7	7,6	7,2
Consumed current (AC fan)	A	0,6	0,6	0,6	1,15	1,15	1,15
Consumed current (EC fan)	A	0,98	0,98	0,98	2,2	2,2	2,2
Nominal electric power (AC fan)	kW	0,13	0,13	0,13	0,23	0,23	0,23
Nominal electric power (EC fan)	kW	0,125	0,125	0,125	0,32	0,32	0,32

* Available with speed controlled EC-motor.

MDA low-speed - 3 phase 400V

Type		223L	233L	243L	323L	333L	343L	423L	433L	443L	533L	543L
90/70 T 15	kW	26,2	32,4	35,1	52,7	65,9	72,1	84,0	107,0	117,0	142	168
Water resistance T15	kPa	6	4	9	8	4	12	9	7	21	25	50
Outlet temperature at the heat exchanger	°C	41,9	52,0	57,7	38,8	48,0	54,0	37,7	47,3	52,7	52,3	61,9
80/60 T 15	kW	21,6	26,7	29,3	43,3	54,1	60,2	68,9	88,1	97,4	118	141
Outlet temperature at the heat exchanger	°C	37,1	45,4	50,6	34,6	42,1	47,6	33,6	41,6	46,5	46	54,4
40/30 T 15	kW	6,81	8,42	9,13	13,7	17,1	18,8	21,8	27,8	30,4	36,9	43,7
Speed	rpm	1000	1000	1000	910	910	910	870	870	870	910	910
Air displacement	m³/h	2865	2574	2414	6495	5857	5423	10868	9735	9064	11300	10600
Noise at 5 m	dB(A)	49	48	48	52	53	53	61	59	59	56	56
Weight without accessories	kg	32	34	36	43	46	46	52	61	64	95	98,5
Horizontal throw	m	17	15	13	25	22	19	35	31	28	25	22
Vertical throw	m	5,9	4,5	4	8,1	6,8	5,9	8,5	6,9	5,8	6,8	5,9
Consumed current	A	0,3	0,3	0,3	0,85	0,85	0,85	1,25	1,25	1,25	1,7/0,88	1,7/0,88
Nominal electric power	kW	0,12	0,12	0,12	0,38	0,38	0,38	0,6	0,6	0,6	1,2	1,2

MDA high-speed - 3 phase 400V

Type		123H	133H	143H	223H	233H	243H
90/70 T 15	kW	18,0	22,1	25,1	32,4	42,0	46,6
Water resistance T15	kPa	7	13	20	9	5	13
Outlet temperature at the heat exchanger	°C	37,4	43,9	53,4	37,6	46,4	51,6
80/60 T 15	kW	14,7	18,3	20,9	26,6	34,5	38,7
Outlet temperature at the heat exchanger	°C	33,3	38,9	47,1	33,6	40,8	45,5
40/30 T 15	kW	4,68	5,75	6,53	8,42	10,9	12,1
Speed	rpm	1330	1330	1330	1350	1350	1350
Air displacement	m³/h	2365	2244	1914	4202	3932	3734
Noise at 5 m	dB(A)	54	55	55	57	53	53
Weight without accessories	kg	22	23	24	32	34	36
Horizontal throw	m	15	13	11	20	19	17
Vertical throw	m	6,9	6,8	6,3	7,7	7,6	7,2
Consumed current	A	0,36	0,36	0,36	0,51	0,51	0,51
Nominal electric power	kW	0,16	0,16	0,16	0,216	0,216	0,216

Capacity calculation for other water temperatures

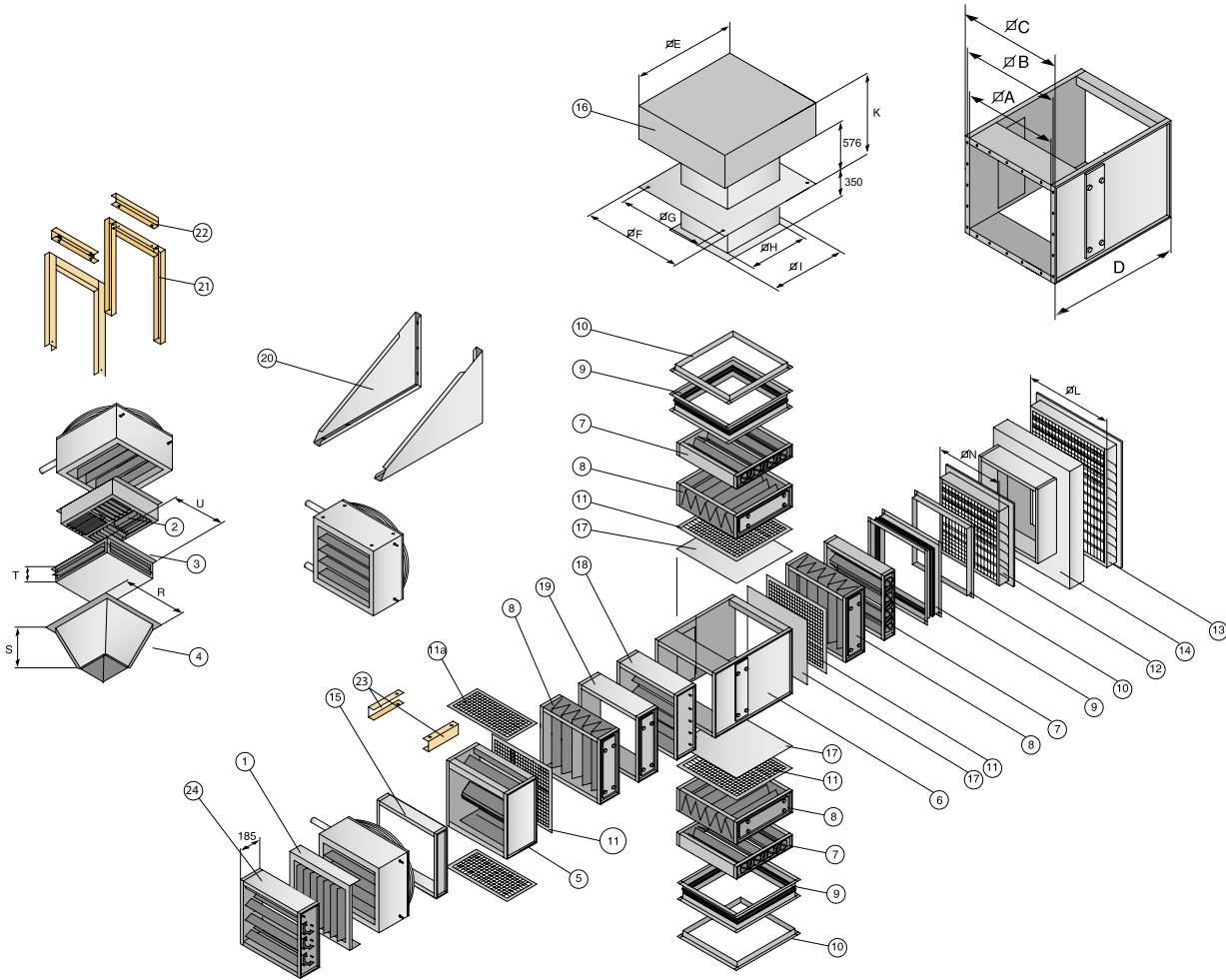
ΔT_1	ΔT_2															
	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
10	0,26	0,35	0,44	0,53	0,62	0,71	0,80	0,89	1,04	1,14	1,23	1,34	1,44	1,54	1,64	1,74
15	0,22	0,31	0,39	0,49	0,58	0,67	0,77	0,85	0,96	1,06	1,17	1,26	1,36	1,46	1,56	1,66
20	0,18	0,27	0,36	0,46	0,55	0,64	0,74	0,82	0,92	1,00	1,10	1,20	1,29	1,40	1,50	1,61
30	0,11	0,21	0,30	0,39	0,48	0,57	0,66	0,77	0,86	0,95	1,05	1,15	1,25	1,36	1,48	X
40	X	0,11	0,21	0,32	0,43	0,52	0,62	0,71	0,80	0,90	1,00	1,10	1,20	1,30	X	X
50	X	X	0,12	0,22	0,32	0,45	0,55	0,64	0,74	0,83	0,93	1,03	1,14	X	X	X
60	X	X	X	0,15	0,26	0,36	0,46	0,56	0,66	0,76	0,86	0,96	X	X	X	X

ΔT_1 = Temperature difference hot water inlet minus outlet ΔT_2 = Average water temperature minus air inlet temperature

Calculation example: Water temperature = 40/30 T inlet = 15 °C
 $\Delta T_1 = 40 - 30 = 10K$ $\Delta T_2 = 35 - 15 = 20K$

Tanner MDA 541L has a capacity of 168 kW at a water temperature of 90/70 T 15 °C
 168 kW x factor 0,26 = 43,68 kW

Accessories – additional sections



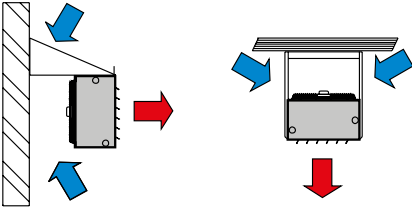
Position Description

- | | | | |
|-----|----------------------------------|----|---|
| 1 | Vertical louvres | 12 | Weather grill ≤ 50% fresh air intake |
| 2 | Downflow hood 4-sided vertical | 13 | Weather grill > 50%-100% fresh air intake |
| 3 | Downflow hood 4-sided horizontal | 14 | Transition piece for 13 |
| 4 | Destratification hood | 15 | Empty section 120 mm |
| 5 | Mixing box (short) incl. dampers | 16 | Rain cap incl. adhesive plate (aluminium) |
| 6 | Mixing box for dampers | 17 | Blanking plate |
| 7 | Damper | 18 | Motor protection damper |
| 8 | Filter box with filter (EU 3) | 19 | Empty section 240 mm |
| 9 | Flexible connection | 20 | Wall bracket |
| 10 | Corner profile | 21 | Ceiling bracket, vertical |
| 11 | Mesh | 22 | Shock absorber set for 21 |
| 11a | Mesh | 23 | Ceiling bracket, horizontal |
| | | 24 | Induction damper |

Type	A	B	C	D	E	F	G	H
100	390	415	443	463	690	740	690	380
200	520	545	573	593	920	920	820	510
300	670	695	723	743	1180	1240	975	665
400	800	835	853	873	1420	1240	1110	800

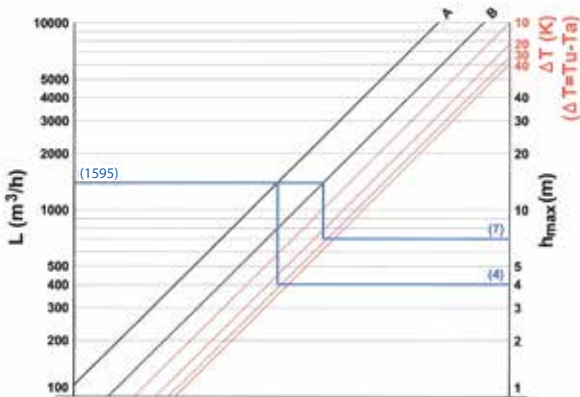
Type	I	K	L	N	R	S	T	U
100	440	800	516	386	439	212	120	406
200	570	895	666	516	573	253	151	530
300	720	940	796	666	724	300	175	680
400	860	1075	1005	796	853	329	220	815

Assembly/location suggestions

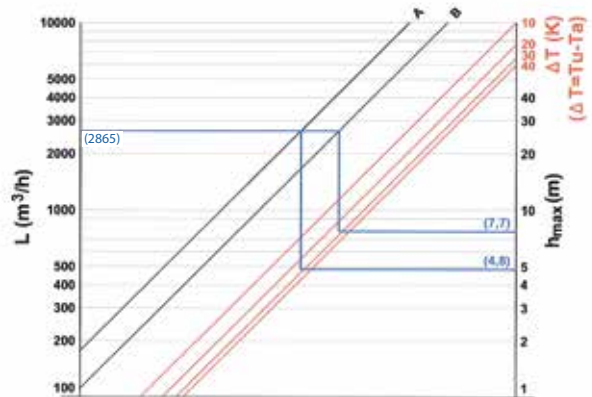


Tanner MDA maximum assembly height for

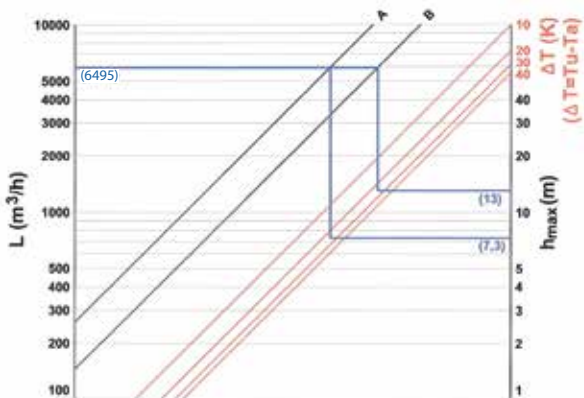
TYPE 100



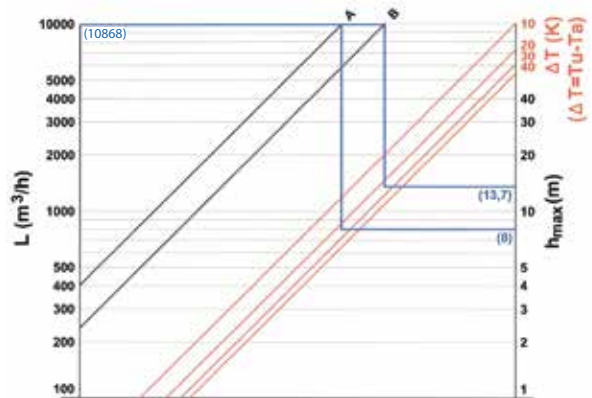
TYPE 200



TYPE 300



TYPE 400



Calculation example:

- Tanner MDA 123L (Type 100)
- The table indicates that the air displacement with this unit is: $L = 1595 \text{ m}^3/\text{h}$
- If the intake temperature (T_a) is 15°C , the table shows that the outlet temperature (T_u) will be 41.7°C .

The temperature difference is:

$$Dt = T_u - T_a$$

$$Dt = 42.8 - 15$$

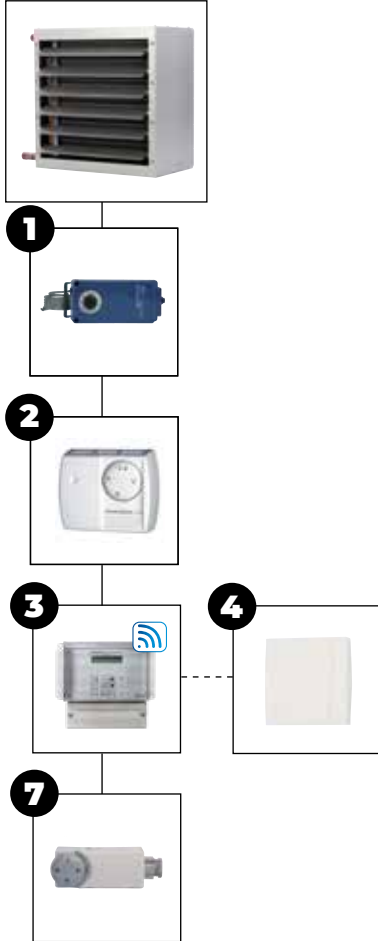
$$Dt = 26.7\text{K}$$

- The table (TYPE 100) indicates that:
 - A or the basic model, without accessories, the max. suspension height is: = 4m
 - B or the combination with a destratification hood, the max. suspension height is: = 7m

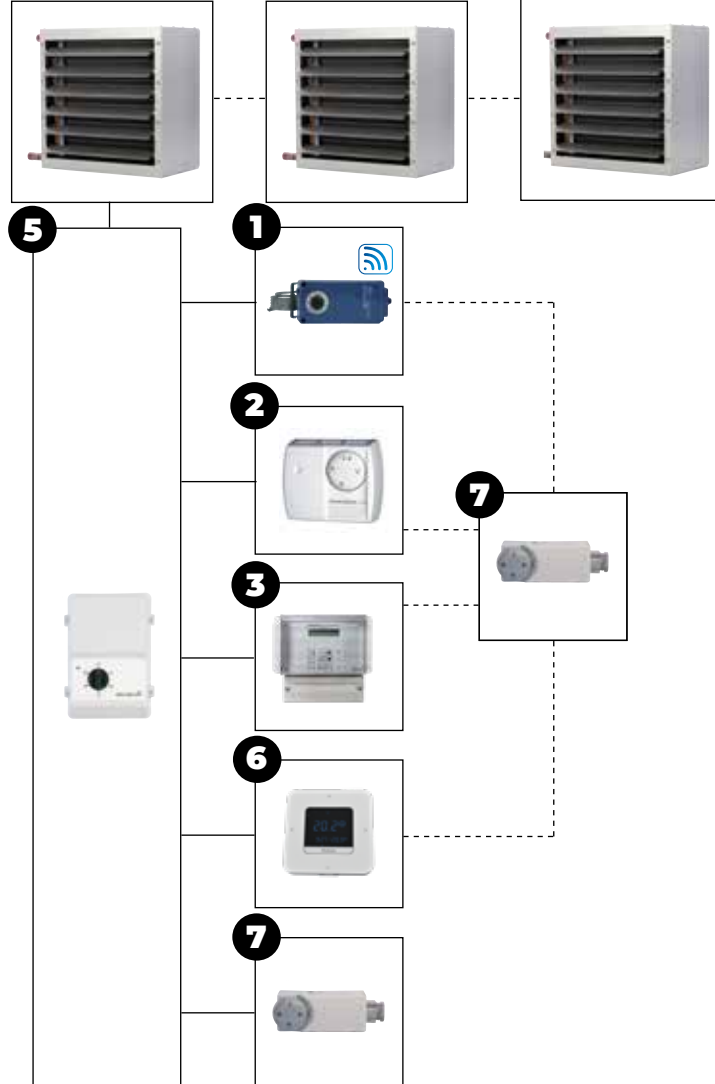
Controls (Not EEX)

AC-motor

230V - 1 unit



230V or 400V - multiple units



Maximum amount of units is depending on the selected 5-step regulator.

Control combination options AC Motor - 1 unit

Tanner MDA + **1**

Tanner MDA + **2**

Tanner MDA + **3**

Tanner MDA + **3** + **4**

Tanner MDA + **7**

See price list for description and code numbers of the relevant items

Control combination options AC Motor - multiple units

Tanner MDA + **5**

Tanner MDA + **5** + **1**

Tanner MDA + **5** + **2**

Tanner MDA + **5** + **3**

Tanner MDA + **5** + **6**

Tanner MDA + **5** + **7**

Tanner MDA + **5** + **1** + **7**

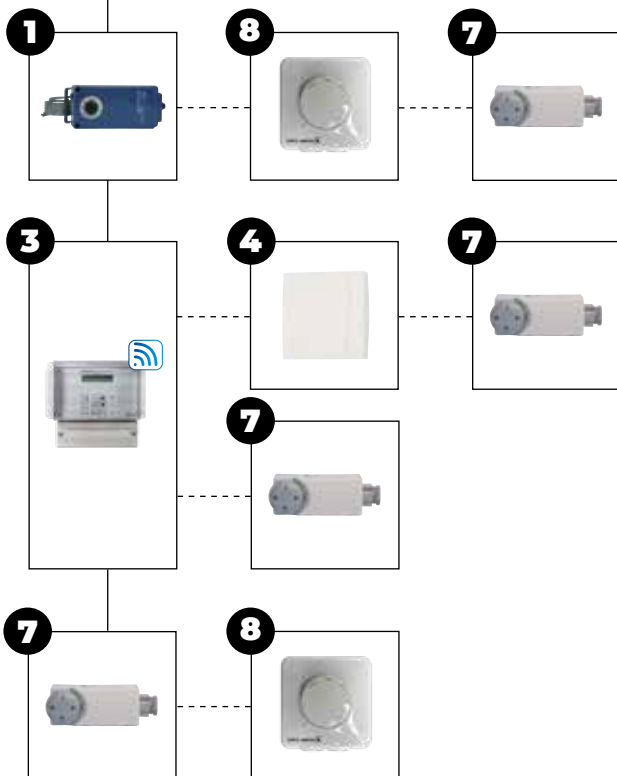
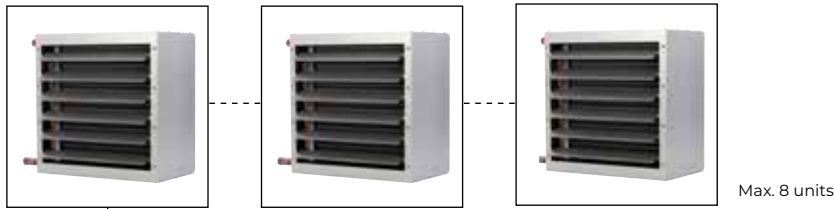
Tanner MDA + **5** + **2** + **7**

Tanner MDA + **5** + **3** + **7**

Tanner MDA + **5** + **6** + **7**

5 = - 5-step regulator for 230V (6A-14A) or 400V (2A-7A)
 - High / Low / Off Control for 400V (7A). See pricelist

EC-motor



Control combination options EC Motor - multiple units

- Tanner MDA + **1**
- Tanner MDA + **1** + **8**
- Tanner MDA + **1** + **8** + **7**
- Tanner MDA + **3**
- Tanner MDA + **3** + **4**
- Tanner MDA + **3** + **4** + **7**
- Tanner MDA + **3** + **7**
- Tanner MDA + **7**
- Tanner MDA + **7** + **8**

See price list for description and code numbers of the relevant items

Prices Tanner MDA

PRODUCT - HOT WATER AIR HEATER TANNER MDA, 230V, 90/70 - 15 °C

Code nr.	Description	Price
5060056	MDA 121H, nominal power 18,0 kW	€ 970
5060057	MDA 131H, nominal power 22,1 kW	€ 1059
5060058	MDA 141H, nominal power 25,1 kW	€ 1109
5060256	MDA 221H, nominal power 32,4 kW	€ 1221
5060257	MDA 231H, nominal power 42,0 kW	€ 1334
5060258	MDA 241H, nominal power 46,6 kW	€ 1420
5060051	MDA 121L, nominal power 14,5 kW	€ 1034
5060052	MDA 131L, nominal power 17,0 kW	€ 1059
5060053	MDA 141L, nominal power 19,0 kW	€ 1080
5060251	MDA 221L, nominal power 25,1 kW	€ 1199
5060252	MDA 231L, nominal power 30,8 kW	€ 1381
5060253	MDA 241L, nominal power 33,3 kW	€ 1458
5060451	MDA 321L, nominal power 52,7 kW	€ 1932
5060452	MDA 331L, nominal power 65,9 kW	€ 2001
5060453	MDA 341L, nominal power 72,1 kW	€ 2139
5060651	MDA 421L, nominal power 80,0 kW	€ 2206
5060652	MDA 431L, nominal power 101,0 kW	€ 2453
5060653	MDA 441L, nominal power 110,0 kW	€ 2647
5060472	MDA 531L, nominal power 142,0 kW	€ 3310
5060473	MDA 541L, nominal power 168,0 kW	€ 3762

PRODUCT - HOT WATER AIR HEATER TANNER MDA, 400V, 90/70 - 15 °C

Code nr.	Description	Price
5060066	MDA 123H, nominal power 18,0 kW	€ 968
5060067	MDA 133H, nominal power 22,1 kW	€ 972
5060068	MDA 143H, nominal power 25,1 kW	€ 1009
5060266	MDA 223H, nominal power 32,4 kW	€ 1343
5060267	MDA 233H, nominal power 42,0 kW	€ 1408
5060268	MDA 243H, nominal power 46,6 kW	€ 1495
5060261	MDA 223L, nominal power 26,2 kW	€ 1348
5060262	MDA 233L, nominal power 32,4 kW	€ 1446
5060263	MDA 243L, nominal power 35,1 kW	€ 1572
5060461	MDA 323L, nominal power 52,7 kW	€ 2073
5060462	MDA 333L, nominal power 65,9 kW	€ 2157
5060463	MDA 343L, nominal power 72,1 kW	€ 2290
5060661	MDA 423L, nominal power 84,0 kW	€ 2243
5060662	MDA 433L, nominal power 107,0 kW	€ 2479
5060663	MDA 443L, nominal power 117,0 kW	€ 2683
5060482	MDA 533L, nominal power 142,0 kW	€ 3589
5060483	MDA 543L, nominal power 168,0 kW	€ 4038

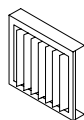


PRODUCT - HOT WATER AIR HEATER TANNER MDA WITH EC-MOTOR, 230V, 90/70 - 15 °C



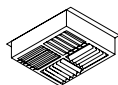
Code nr.	Description	Price
5063056	MDA 121EC, nominal power 18,0 kW	€ 1213
5063057	MDA 131EC, nominal power 22,1 kW	€ 1158
5063058	MDA 141EC, nominal power 25,1 kW	€ 1182
5063256	MDA 221EC, nominal power 32,4 kW	€ 1639
5063257	MDA 231EC, nominal power 42,0 kW	€ 1607
5063258	MDA 241EC, nominal power 46,6 kW	€ 1854
5063451	MDA 321EC, nominal power 52,7 kW	€ 2561
5063452	MDA 331EC, nominal power 65,9 kW	€ 2688
5063453	MDA 341EC, nominal power 72,1 kW	€ 3274
5063651	MDA 421EC, nominal power 80,0 kW	€ 2909
5063652	MDA 431EC, nominal power 101,0 kW	€ 3124
5063653	MDA 441EC, nominal power 110,0 kW	€ 3555
5063472	MDA 531EC, nominal power 142,0 kW	€ 5557
5063473	MDA 541EC, nominal power 168,0 kW	€ 5982

ACCESSORIES - ADDITIONAL SECTIONS - VERTICAL LOUVRES



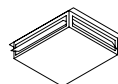
Code nr.	Description	Price
5064011	for MDA type 100	€ 238
5064012	for MDA type 200	€ 215
5064013	for MDA type 300	€ 190
5064014	for MDA type 400	€ 190

ACCESSORIES - ADDITIONAL SECTIONS - DOWNFLOW HOOD 4-SIDE VERTICAL



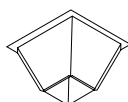
Code nr.	Description	Price
5064021	for MDA type 100	€ 125
5064022	for MDA type 200	€ 170
5064023	for MDA type 300	€ 181
5064024	for MDA type 400	€ 257

ACCESSORIES - ADDITIONAL SECTIONS - DOWNFLOW HOOD 4-SIDE HORIZONTAL

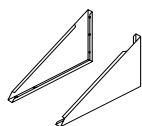


Code nr.	Description	Price
5064001	for MDA type 100	€ 150
5064002	for MDA type 200	€ 175
5064003	for MDA type 300	€ 204
5064004	for MDA type 400	€ 245

ACCESSORIES - ADDITIONAL SECTIONS - DESTRIFICATION HOOD

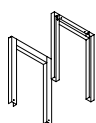


Code nr.	Description	Price
5064016	for MDA type 100	€ 125
5064017	for MDA type 200	€ 170
5064018	for MDA type 300	€ 181
5064019	for MDA type 400	€ 257



ACCESSORIES - ASSEMBLY - GENERAL

Code nr.	Description	Price
5064047	Wall brackets horizontal, MDA type 100 - 500	€ 80
5064055	Ceiling brackets horizontal, MDA type 100 - 500	€ 59
5064116	Mounting bracket	€ 79



ACCESSOIRES - ASSEMBLY - CEILING BRACKETS VERTICAL

Code nr.	Description	Price
5064051	for MDA type 100	€ 196
5064052	for MDA type 200	€ 204
5064053	for MDA type 300	€ 209
5064054	for MDA type 400	€ 209



ACCESSORIES - ASSEMBLY - SHOCK ABSORBER SET FOR ABOVE MENTIONED BRACKETS

Code nr.	Description	Price
5064056	for MDA type 100 only in combination with 5064051	€ 93
5064057	for MDA type 200 only in combination with 5064052	€ 95
5064058	for MDA type 300 only in combination with 5064053	€ 106
5064059	for MDA type 400 only in combination with 5064054	€ 111

ACCESSORIES - CONTROLS

	Code nr.	Description	Price
5	0616186	Control box 5-steps, 230V, 6,0A*	€ 401
5	0616188	Control box 5-steps, 230V, 12,0A*	€ 629
5	0616189	Control box 5-steps, 230V, 14,0A*	€ 848
5	0616162	Control box 5-steps, 400V, 2A*	€ 752
5	0616164	Control box 5-steps, 400V, 4A*	€ 1050
5	0616166	Control box 5-steps, 400V, 7A*	€ 1245
5	0616170	High / low / off control, 400V, 10A*	€ 446
8	0631390	Potentiometer 10K with on/off contact IP54**	€ 196
	0631163	Isolator switch, separate delivery, 230V (4 poles)	€ 71
	0631167	Isolator switch, separate delivery, 400V (8 poles)	€ 91
2	0629013	Room thermostat 230V, (4A)	€ 58
1	0629004	Water resistant room thermostat, 230V, IP65	€ 284
7	0629180	Surface contact thermostat (4A)	€ 82
6	0629039	Clock thermostat (1A)	€ 394
3	0629108	PinTherm Connect - programmable room thermostat with Ethernet and Modbus, 230V (4A)	€ 726
4	0629086	Room sensor only in combination with 0629108	€ 93

* Not applicable for Tanner MDA with EC motor.

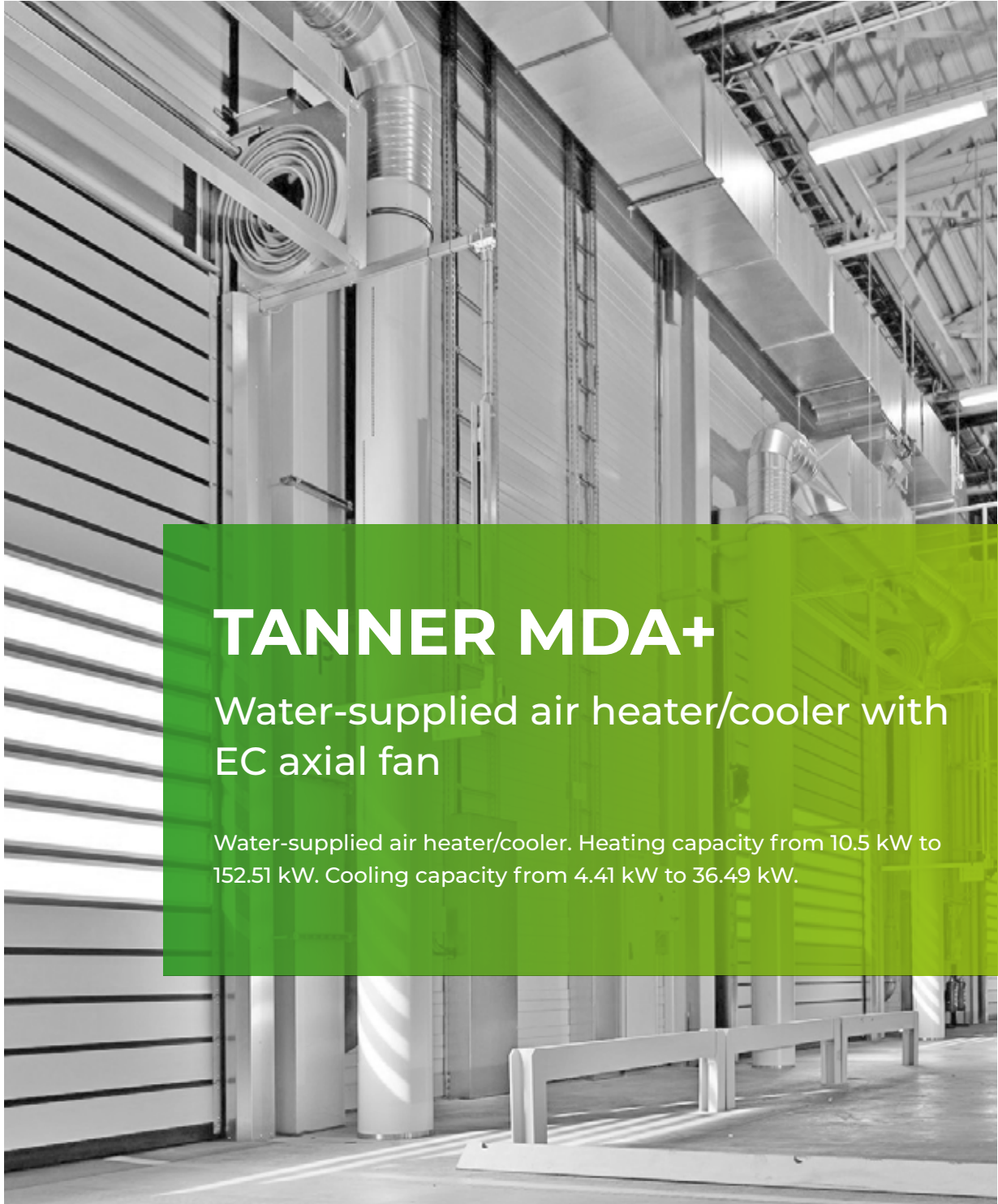
** Only applicable for Tanner MDA with EC motor.

For function explanation see chapter on control

ACCESSORIES - COLOURS ***

Description	Price
MDA Type 100 Accessories provided with colour 1 to 3 pieces (by piece)	€ 127
MDA Type 100 Accessories provided with colour 4 to 10 pieces (by piece)	€ 110
MDA Type 100 Accessories provided with colour for more than 10 pieces (by piece)	€ 87
TANNER MDA 100 provided with colour	€ 76
MDA Type 200 Accessories provided with colour 1 to 3 pieces (by piece)	€ 139
MDA Type 200 Accessories provided with colour 4 to 10 pieces (by piece)	€ 122
MDA Type 200 Accessories provided with colour for more than 10 pieces (by piece)	€ 87
TANNER MDA 200 provided with colour	€ 87
MDA Type 300 Accessories provided with colour 1 to 3 pieces (by piece)	€ 156
MDA Type 300 Accessories provided with colour 4 to 10 pieces (by piece)	€ 133
MDA Type 300 Accessories provided with colour for more than 10 pieces (by piece)	€ 92
TANNER MDA 300 provided with colour	€ 92
MDA Type 400 Accessories provided with colour 1 to 3 pieces (by piece)	€ 162
MDA Type 400 Accessories provided with colour 4 to 10 pieces (by piece)	€ 139
MDA Type 400 Accessories provided with colour for more than 10 pieces (by piece)	€ 99
TANNER MDA 400 provided with colour	€ 110
MDA Type 500 Accessories provided with colour 1 to 3 pieces (by piece)	€ 324
MDA Type 500 Accessories provided with colour 1 to 3 pieces (by piece)	€ 278
MDA Type 500 Accessories provided with colour 1 to 3 pieces (by piece)	€ 198
TANNER MDA 500 provided with colour	€ 220

*** These prices are only for the Mark standard RAL-colours: 3002 red, 1028 yellow, 6010 green, 7016 gray, 8014 brown, 9001 beige white, 5009 blue, 2009 orange, 1019 beige



TANNER MDA+

Water-supplied air heater/cooler with EC axial fan

Water-supplied air heater/cooler. Heating capacity from 10.5 kW to 152.51 kW. Cooling capacity from 4.41 kW to 36.49 kW.



For more information, downloads and videos, visit the Tanner MDA+ page on our website



Product features

- Integrated drip tray
- Optional: condensate pump
- Supplied as standard in a corrosion-resistant Aluzinc casing
- Copper/aluminium heat exchanger
- IP 54
- Units with AC motor on request
- Modern design

Cooling and heating with the TANNER MDA+

In addition to the standard TANNER MDA, Mark Climate Technology also has the MDA+ in its range. The TANNER MDA+ is suitable for both heating and cooling thanks to the integrated drip tray and optional condensate pump.

The TANNER MDA+ is a water-supplied hanging air heater/cooler suitable for horizontal air discharge. The unit has a powerful EC axial fan, which means that the MDA+ has many applications, such as in industrial halls, production areas and garages.

The air heater can also heat and cool with low water temperatures and small temperature differences. **This means that the TANNER MDA+ can also be combined with a heat pump.**

The air heaters/coolers are equipped with an EC motor as standard. Advantages:

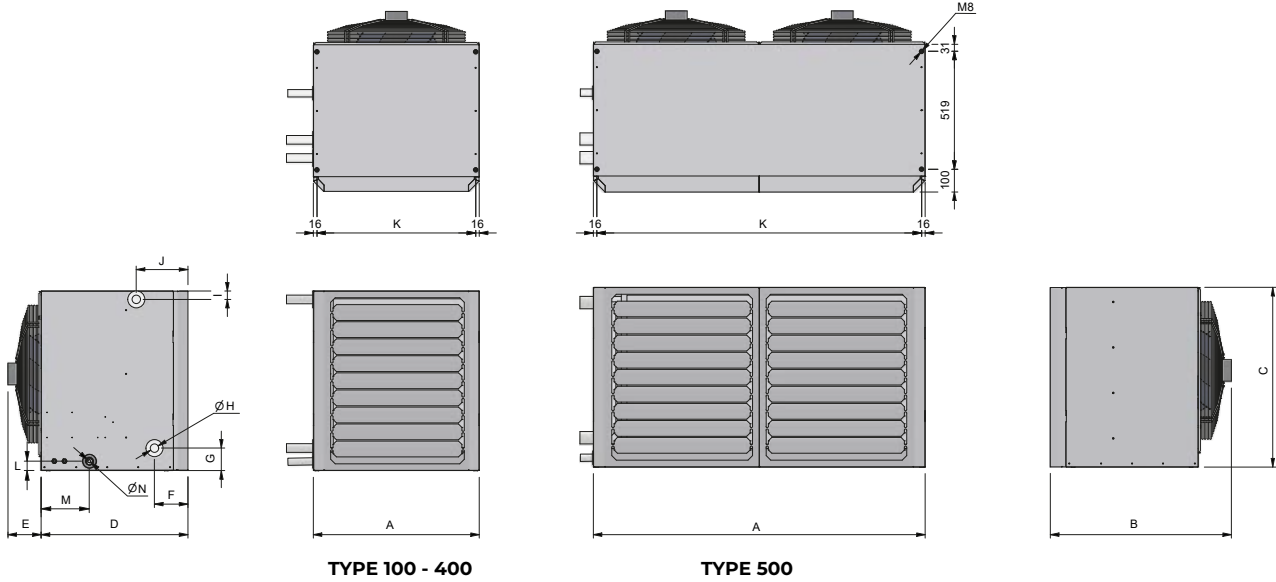
- The highest efficiency in case of speed control
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable 30-100%
- Long lifetime
- Low noise level
- Integrated electronic thermal protection

The TANNER MDA+ also features a completely new design.



Remote connection possible with the PinTherm Mistral!

Dimensions



TYPE 100 - 400

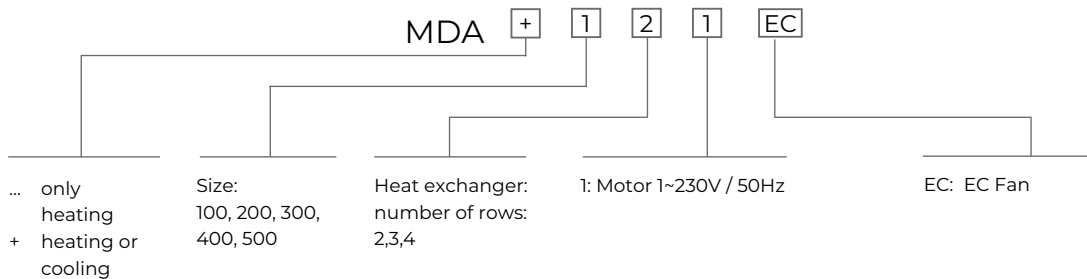
TYPE 500

Type	A	B	C	D	E	F	G	H	I	J	K	L	M	N*
200	580	774	640	650	128	137	97	1"	33	217	548	41	213	32
300	730	794	790	650	144	147	99	1 1/2"	37	227	698	41	213	32
400	860	805	920	650	155	152	101	1 1/2"	39	232	828	41	213	32
500	1460	794	790	650	144	151	129	2"	67	233	1428	41	213	32

* An MDA+ with natural slope has a drain with a diameter of 32mm. An MDA+ with optional condensate pump has a 4.5 meter long PVC pipe DN 10.

Technical information

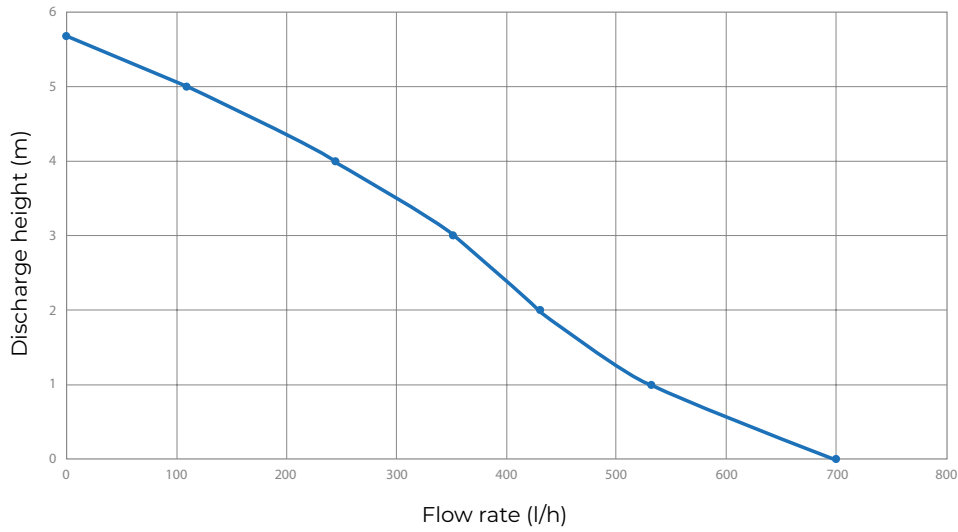
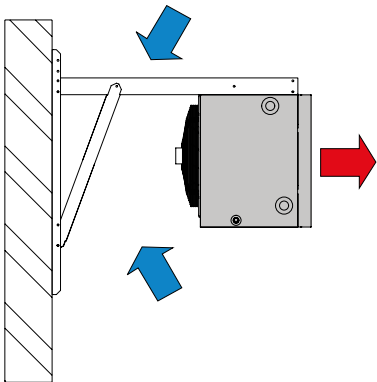
TYPE DESIGNATION



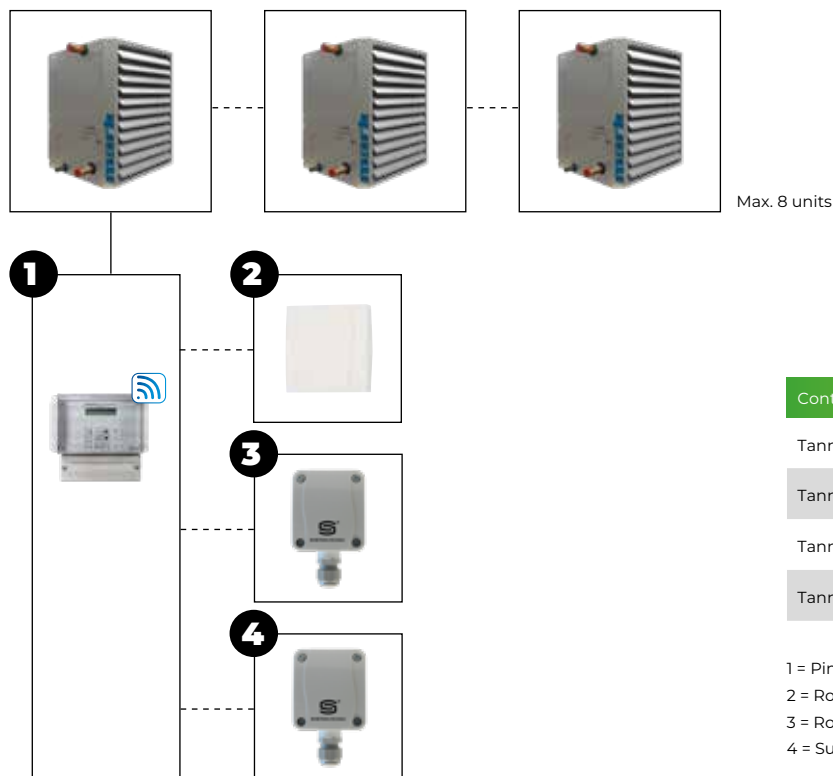
241EC		Control signal EC fan (VDC)								
		10	9	8	7	6	5	4	3	
heating	90/70 T 15	kW	43,13	41,3	37,79	34,57	30,64	26,27	20,92	16,21
	Water resistance	kPa	2,54	2,34	1,98	1,68	1,4	1	0,66	0,41
	80/60 T 15	kW	34,93	33,44	30,6	27,98	24,79	21,22	16,82	12,87
	Water resistance	kPa	1,73	1,6	1,35	1,15	0,91	0,68	0,44	0,27
	60/40 T 15	kW	13,56	12,86	12,2	11,56	10,73	9,73	8,36	7,01
	Water resistance	kPa	0,31	0,28	0,25	0,23	0,2	0,17	0,13	0,09
	45/40 T 15	kW	18,57	17,77	16,23	14,82	13,1	11,2	8,88	6,85
	Water resistance	kPa	7,46	6,87	5,79	4,89	3,88	2,9	1,88	1,16
	35/30 T 15	kW	10,5	10,04	9,14	8,32	7,3	6,14	4,52	3,7
	Water resistance	kPa	2,63	2,42	2,03	1,7	1,34	0,97	0,55	0,38
Air amount	m ³ /h	3734	3495	3060	2686	2261	1826	1348	975	
cooling	7/12 T 28 °C [rv50%]	kW	x	x	x	7,83	6,37	5,66	5,02	4,41
	Water resistance	kPa	x	x	x	2,15	1,48	1,19	0,96	0,75
	Air amount	m ³ /h	x	x	x	2686	2261	1826	1348	975
	Connection		x	x	x	1,0"	1,0"	1,0"	1,0"	1,0"
Noise level at 5m	dB(A)	55	54	51	48	44	40	34	30	
Speed	rpm	1400								
Weight without accessoires	kg	42								
Horizontal Throw	m	12								
Consumed current	A	2,2								
Nominal electric power	kW	0,32								
341EC		Control signal EC fan (VDC)								
		10	9	8	7	6	5	4	3	
heating	90/70 T 15	kW	68,66	63,62	59,83	54,77	49,62	45,29	38,13	27,27
	Water resistance	kPa	2,76	2,4	2,14	1,82	1,52	1,28	0,93	0,5
	80/60 T 15	kW	56,39	52,26	49,17	45,02	40,8	37,24	31,34	22,36
	Water resistance	kPa	1,95	1,7	1,52	1,29	1,08	0,91	0,66	0,36
	60/40 T 15	kW	29,7	27,33	25,52	23,02	20,32	16,43	14,57	11,52
	Water resistance	kPa	0,63	0,54	0,48	0,39	0,31	0,21	0,17	0,11
	45/40 T 15	kW	29,34	27,15	25,5	23,31	21,08	19,21	16,12	11,46
	Water resistance	kPa	8	6,93	6,18	5,23	4,35	3,67	2,65	1,42
	35/30 T 15	kW	17,28	15,99	15,02	13,72	12,39	11,27	9,4	6,33
	Water resistance	kPa	3,1	2,69	2,4	2,03	1,68	1,41	1,02	0,49
Air amount	m ³ /h	5423	4847	4435	3910	3406	3005	2387	1554	
cooling	7/12 T 28 °C [rv50%]	kW	x	x	x	11,99	9,81	9,17	8,07	6,64
	Water resistance	kPa	x	x	x	1,72	1,2	1,06	0,84	0,59
	Air amount	m ³ /h	x	x	x	3910	3406	3005	2387	1554
	Connection		x	x	x	1,25"	1,25"	1,25"	1,25"	1,25"
Noise level at 5m	dB(A)	53	51	48	46	41	37	33	29	
Speed	rpm	950								
Weight without accessoires	kg	62								
Horizontal Throw	m	19								
Consumed current	A	1,7								
Nominal electric power	kW	0,24								

441EC		Control signal EC fan (VDC)								
		10	9	8	7	6	5	4	3	
heating	90/70 T 15	kW	105,2	102,94	88,99	7910	72,65	62,4	53,82	51,06
	Water resistance	kPa	4,05	3,89	2,98	2,4	2,05	1,55	1,19	1,08
	80/60 T 15	kW	86,93	85,07	73,62	65,48	60,16	51,7	44,61	42,32
	Water resistance	kPa	2,91	2,8	2,14	1,73	1,48	1,12	0,86	0,78
	60/40 T 15	kW	48,37	47,32	40,79	36,09	31,97	27,86	21,54	19,96
	Water resistance	kPa	1,04	1	0,76	0,61	0,52	0,38	0,24	0,21
	45/40 T 15	kW	44,84	43,86	37,82	33,55	30,76	26,35	22,66	21,48
	Water resistance	kPa	11,68	11,22	8,56	6,87	5,86	4,41	3,35	3,04
	35/30 T 15	kW	26,88	26,3	22,7	20,14	18,48	15,82	13,58	12,86
	Water resistance	kPa	4,71	4,53	3,46	2,78	2,38	1,79	1,36	1,23
Air amount	m ³ /h	8217	7956	6438	5450	4844	3941	3242	3028	
cooling	7/12 T 28 °C [rv50%]	kW	x	x	x	21,17	19,46	16,34	11,36	10,93
	Water resistance	kPa	x	x	x	3,32	2,86	2,08	1,07	1
	Air amount	m ³ /h	x	x	x	5450	4844	3941	3242	3028
	Connection		x	x	x	1,5"	1,5"	1,5"	1,5"	1,5"
	Noise level at 5m	dB(A)	59	58	55	52	48	43	37	31
	Speed	rpm	1000							
	Weight without accessoires	kg	82							
	Horizontal Throw	m	27							
	Consumed current	A	2,7							
	Nominal electric power	kW	0,62							
541EC		Control signal EC fan (VDC)								
		10	9	8	7	6	5	4	3	
heating	90/70 T 15	kW	152,51	141,25	132,8	121,47	109,93	100,19	84,12	59,77
	Water resistance	kPa	5,98	5,2	4,65	3,96	3,3	2,79	2,04	1,1
	80/60 T 15	kW	127,03	117,74	110,76	101,39	91,84	83,77	70,45	50,19
	Water resistance	kPa	4,39	3,82	3,42	2,92	2,44	2,07	1,51	0,82
	60/40 T 15	kW	74,41	69,1	65,09	59,7	54,18	49,5	41,7	29,67
	Water resistance	kPa	1,76	1,54	1,38	1,18	0,99	0,84	0,62	0,34
	45/40 T 15	kW	64,67	59,8	56,16	51,27	46,31	42,13	35,25	24,88
	Water resistance	kPa	17,1	14,84	13,24	11,23	9,34	7,87	5,71	3,04
	35/30 T 15	kW	39,59	36,67	34,47	31,53	28,52	25,99	21,81	15,46
	Water resistance	kPa	7,28	6,34	5,67	4,82	4,03	3,4	2,48	1,33
Air amount	m ³ /h	10600	9474	8669	7643	6658	5873	4666	3037	
cooling	7/12 T 28 °C [rv50%]	kW	x	x	x	36,49	33,66	31,18	26,87	19,78
	Water resistance	kPa	x	x	x	6,55	5,68	4,95	3,79	2,19
	Air amount	m ³ /h	x	x	x	7643	6658	5873	4666	3037
	Connection		x	x	x	2,0"	2,0"	2,0"	2,0"	2,0"
	Noise level at 5m	dB(A)	56	54	51	49	44	40	36	32
	Speed	rpm	950							
	Weight without accessoires	kg	119							
	Horizontal Throw	m	22							
	Consumed current	A	3,4							
	Nominal electric power	kW	0,76							

DISCHARGE HEIGHT CONDENSATE PUMP

**Assembly/location suggestions**

Controls MDA+ EC



Control combination options

Tanner MDA+ + **1**

Tanner MDA+ + **1** + **2**

Tanner MDA+ + **1** + **3**

Tanner MDA+ + **1** + **4**

1 = PinTherm Mistral (0629110)

2 = Room sensor IP20 for 0629110 (0629086)

3 = Room sensor IP65 for 0629110 (0629093)

4 = Surface contact temperature sensor IP65 (0629094)

Prices Tanner MDA+

PRODUCT - TANNER MDA+ FOR HEATING AND COOLING, EXCL. CONDENSATE PUMP, 230V, 90/70 -15 °C, 7/12 - 28 °C - WITH EC FAN

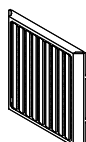


Code nr.	Description	Price
5060878	MDA+ 241EC, nominal cooling capacity 7,83 kW	€ 2568
5060883	MDA+ 341EC, nominal cooling capacity 11,99 kW	€ 3460
5060888	MDA+ 441EC, nominal cooling capacity 21,17 kW	€ 4765
5060898	MDA+ 541EC, nominal cooling capacity 36,49 kW	€ 6003

PRODUCT - TANNER MDA+ FOR HEATING AND COOLING, CONDENSATE PUMP, 230V, 90/70 -15 °C, 7/12 - 28 °C - WITH EC FAN



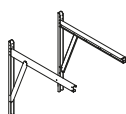
Code nr.	Description	Price
5060978	MDA+ 241EC with condensate pump, nominal cooling capacity 7.83 kW	€ 2984
5060983	MDA+ 341EC with condensate pump, nominal cooling capacity 11,99 kW	€ 3858
5060988	MDA+ 441EC with condensate pump, nominal cooling capacity 21,17 kW	€ 5163
5060998	MDA+ 541EC with condensate pump, nominal cooling capacity 36,49 kW	€ 6628


ACCESSORIES - ADDITIONAL SECTIONS - VERTICAL LOUVRES

Code nr.	Description	Price
5064242	for MDA+ type 200	€ 171
5064243	for MDA+ type 300	€ 205
5064244	for MDA+ type 400	€ 251
5064245	for MDA+ type 500	€ 404

ACCESSORIES - ASSEMBLY - GENERAL

Code nr.	Description	Price
5017620	Wall brackets horizontal, MDA+ type 200 - 500	€ 405
5017520	Ceiling brackets horizontal, MDA+ type 200 - 500	€ 119


ACCESSORIES - CONTROLS

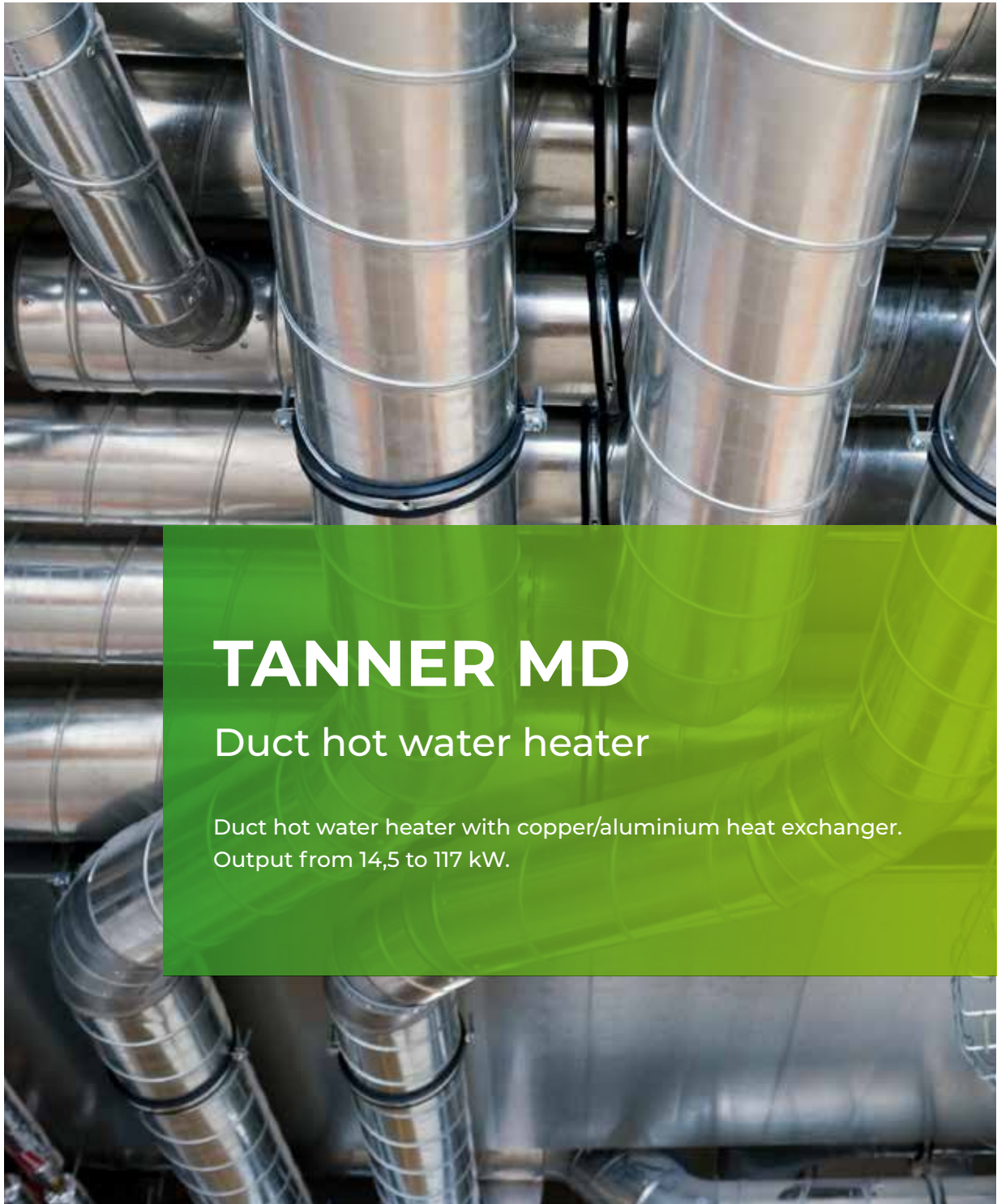
Code nr.	Description	Price
1 0629110	Pintherm Mistral	€ 726
2 0629086	Room sensor IP20	€ 93
3 0629093	Room sensor IP65	€ 65
4 0629094	Surface contact temperature sensor IP65	€ 110
0631163	Isolator switch, separate delivery, 230V (4 poles)	€ 71

For function explanation see chapter on control

ACCESSOIRES - COLOURS ***

Description	Price
MDA Type 200 Accessories provided with colour 1 to 3 pieces (by piece)	€ 139
MDA Type 200 Accessories provided with colour 4 to 10 pieces (by piece)	€ 122
MDA Type 200 Accessories provided with colour for more than 10 pieces (by piece)	€ 87
MDA Type 300 Accessories provided with colour 1 to 3 pieces (by piece)	€ 156
MDA Type 300 Accessories provided with colour 4 to 10 pieces (by piece)	€ 133
MDA Type 300 Accessories provided with colour for more than 10 pieces (by piece)	€ 92
MDA Type 400 Accessories provided with colour 1 to 3 pieces (by piece)	€ 162
MDA Type 400 Accessories provided with colour 4 to 10 pieces (by piece)	€ 139
MDA Type 400 Accessories provided with colour for more than 10 pieces (by piece)	€ 99
MDA Type 500 Accessories provided with colour 1 to 3 pieces (by piece)	€ 324
MDA Type 500 Accessories provided with colour 4 to 10 pieces (by piece)	€ 278
MDA Type 500 Accessories provided with colour for more than 10 pieces (by piece)	€ 198

*** These prices are only for the Mark standard RAL-colours: 3002 red, 1028 yellow, 6010 green, 7016 gray, 8014 brown, 9001 beige white, 5009 blue, 2009 orange, 1019 beige



TANNER MD

Duct hot water heater

Duct hot water heater with copper/aluminium heat exchanger.
Output from 14,5 to 117 kW.



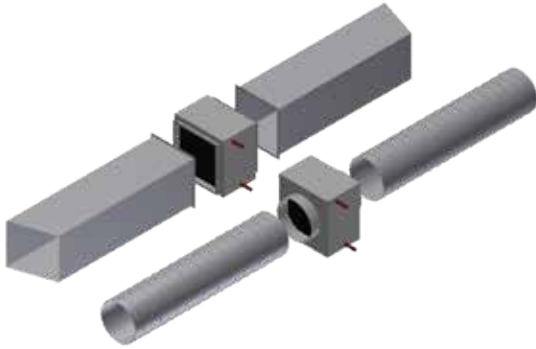
For more information, downloads
and videos, visit the Tanner MD
page on our website

Duct hot water heater

The TANNER MD water-supplied air heater should be located directly in a duct to (post) heat intake air. The MD is available in a wide range of capacities ranging from 14,5 to 117 kW.

The round version is optionally available with rubber sealing.

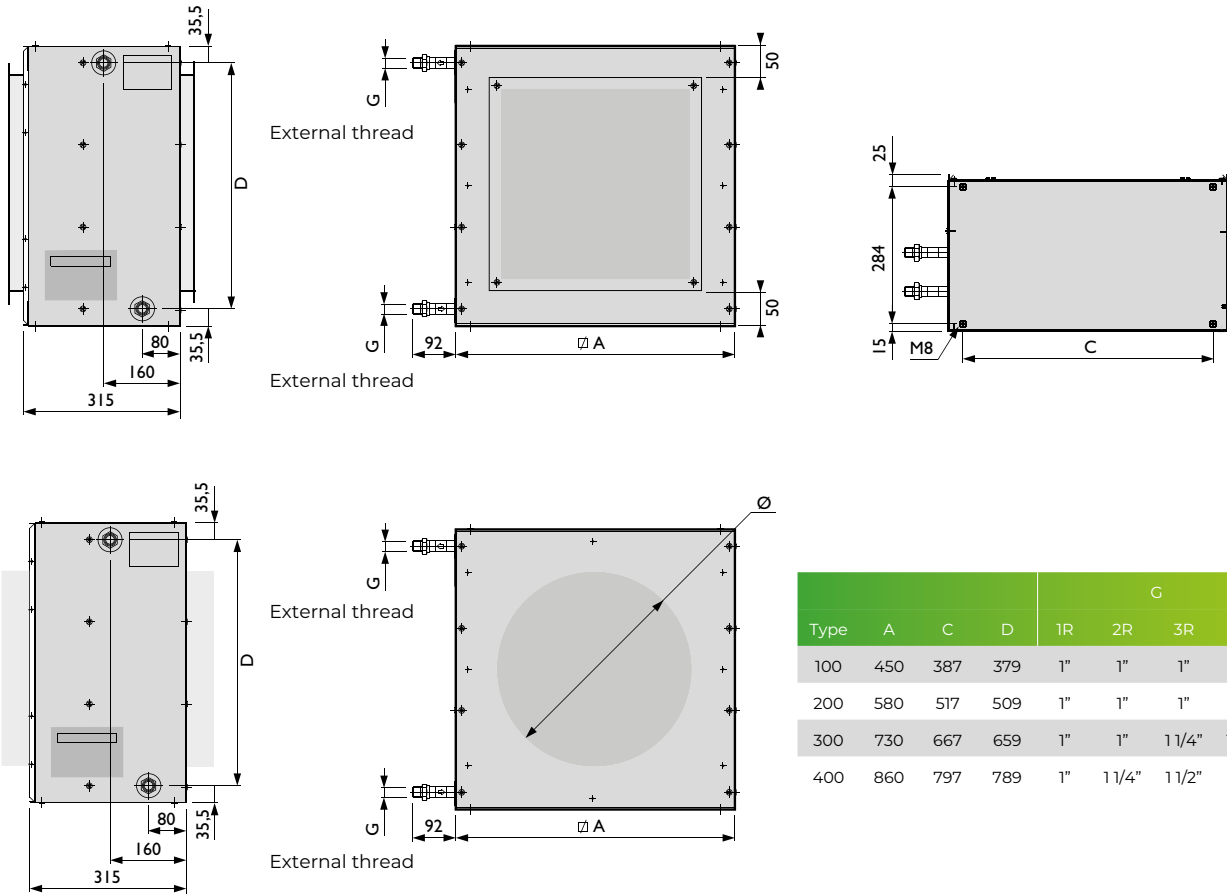
See Tanner MDA for technical specifications.



Product features

- Manufactured with a corrosion-resistant aluzinc housing as standard
- Copper/aluminium heat exchanger

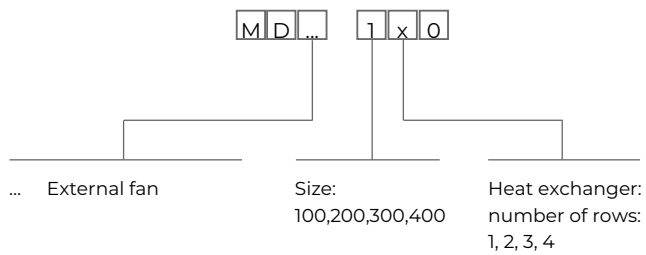
Dimensions



Type	A	C	D	G				Ø
				1R	2R	3R	4R	
100	450	387	379	1"	1"	1"	1"	315/400
200	580	517	509	1"	1"	1"	1"	450/500
300	730	667	659	1"	1"	1 1/4"	1 1/4"	600/630
400	860	797	789	1"	1 1/4"	1 1/2"	1 1/2"	710

Technical information

TYPE DESIGNATION

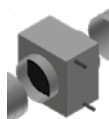


See Tanner MDA tables on pages 53/54 for heat delivery.

Prices Tanner MD

PRODUCT - TANNER MD DUCT HEATER WITH ROUND CONNECTION

Code nr.	Description	Price
3189051	Tanner MD 120 - Ø 355mm	€ 593
3189052	Tanner MD 130 - Ø 355mm	€ 647
3189053	Tanner MD 140 - Ø 355mm	€ 676
3189056	Tanner MD 220 - Ø 500mm	€ 734
3189057	Tanner MD 230 - Ø 500mm	€ 811
3189058	Tanner MD 240 - Ø 500mm	€ 869
3189061	Tanner MD 320 - Ø 630mm	€ 956
3189062	Tanner MD 330 - Ø 630mm	€ 1169
3189063	Tanner MD 340 - Ø 630mm	€ 1516
3189066	Tanner MD 420 - Ø 710mm	€ 1265
3189067	Tanner MD 430 - Ø 710mm	€ 1521
3189068	Tanner MD 440 - Ø 710mm	€ 1719



PRODUCT - TANNER MD DUCT HEATER WITH SQUARE CONNECTION

Code nr.	Description	Price
3189071	Tanner MD 120 - 300mm	€ 618
3189072	Tanner MD 130 - 300mm	€ 671
3189073	Tanner MD 140 - 300mm	€ 695
3189076	Tanner MD 220 - 450mm	€ 768
3189077	Tanner MD 230 - 450mm	€ 801
3189078	Tanner MD 240 - 450mm	€ 860
3189081	Tanner MD 320 - 550mm	€ 898
3189082	Tanner MD 330 - 550mm	€ 1033
3189083	Tanner MD 340 - 550mm	€ 1629
3189086	Tanner MD 420 - 700mm	€ 1082
3189087	Tanner MD 430 - 700mm	€ 1300
3189088	Tanner MD 440 - 700mm	€ 1739





TANNER MBA

Water-supplied air heater with
EC axial fan

Water-supplied air heater for ceiling installation with RAL9016
coating. Output from 34,9 to 67,0 kW.



For more information, downloads
and videos, visit the Tanner MBA
page on our website

The luxury hot water air heater

The Mark Tanner MBA is an aesthetically attractive water-supplied suspended hot water air heater with a stepless modulating EC axial fan. The units are available with capacities up to 68,6 kW, making them more suitable for heating with low water temperatures.

With its low height, the MBA is suited to heat low-ceilinged rooms, such as showrooms, offices, dressing rooms and shops. By using this unit, a room can be heated up in a short period of time.



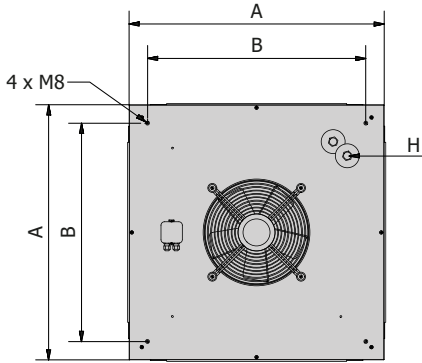
Product features

- Attractive appearance
- Simple installation
- Low maintenance
- Low noise level
- Powerful EC-fan
- RAL 9016 powder coating



Remote connection possible with the PinTherm Connect!

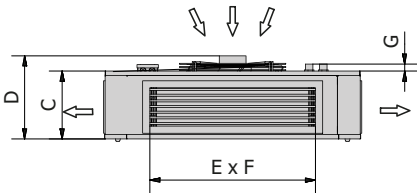
Dimensions



Type	A	B	C	D	E	F	G	H
MBA 750	750	650	239	293	585	135	24	3/4" M
MBA 900	900	770	239	356	585	135	24	1" M

General data:

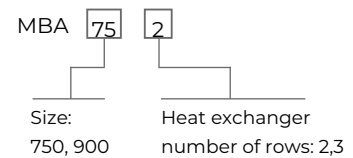
- Strip spacing: 2.1mm
- Maximum water inlet temperature: 120°C
- Maximum working pressure: 10 bar
- Maximum room temperature: ± 40 °C



Technical information

Type		752	753	902	903
90/70 T 15	kW	34,9	44,7	53,0	68,6
Air outlet temperature at the exchanger	°C	46,8	57,9	44,7	54,5
80/60 T 15	kW	28,9	37,5	44,1	57,6
Air outlet temperature at the exchanger	°C	41,4	50,9	39,7	48,1
60/40 T 15	kW	16,5	22,5	25,9	34,0
Air outlet temperature at the exchanger	°C	30,4	36,6	29,5	35,0
45/40-15	kW	14,9	18,9	22,7	29,0
Air outlet temperature at the exchanger	°C	28,6	33,1	27,7	32,1
35/30-15	kW	9,0	11,7	13,8	18,1
Air outlet temperature at the exchanger	°C	23,2	26,2	22,7	25,7
Water resistance at 90/70 T15	kPa	4,7	14,3	12,5	25,2
Speed	rpm	variable	variable	variable	variable
Air displacement maximum	m ³ /h	3250	3090	5300	5035
Noise level (3m) (high level)	dB(A)	55	55	59	59
Weight	kg	32,5	33,5	36	37
Consumed current 230V	A	0,95	0,95	2,2	2,2

TYPE DESIGNATION

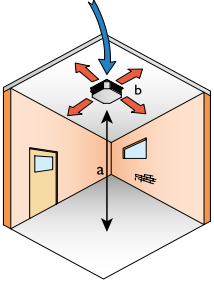


All motors EC 230V

SOUND SPECTRUM AT MAXIMUM SPEED

		63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
MBA 752	dB	45	52	54	53	49	47	40	31
MBA 902	dB	56	59	62	57	53	50	46	41

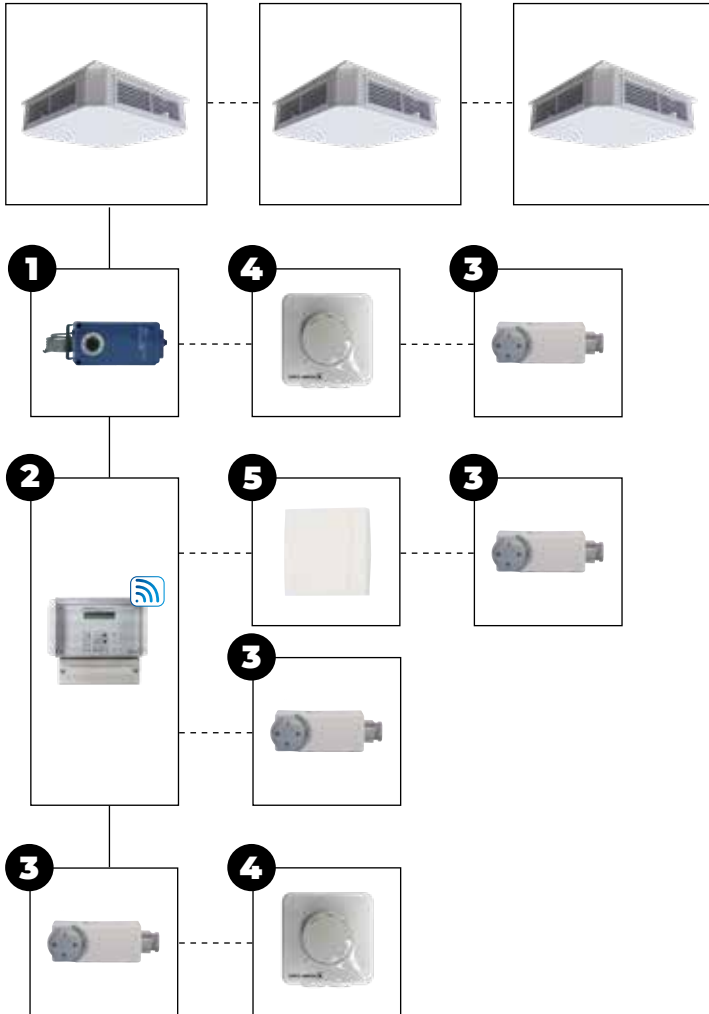
Assembly/location suggestions



Type	a (m)	b
MBA 750	2,5	4
MBA 900	3,4	5

Controls

max. 8 units



Control combination options

- Tanner MBA + **1**
- Tanner MBA + **1** + **4**
- Tanner MBA + **1** + **4** + **3**
- Tanner MBA + **2**
- Tanner MBA + **2** + **5**
- Tanner MBA + **2** + **5** + **3**
- Tanner MBA + **2** + **3**
- Tanner MBA + **3**
- Tanner MBA + **3** + **4**

See price list for description and code numbers of the relevant items

Prices Tanner MBA



PRODUCT - WARM WATER AIR HEATER TANNER MBA, 230V, 90/70 - 15° C

Code nr.	Description	Price
5997110	MBA 752, nominal power 34,9 kW	€ 2072
5997111	MBA 753, nominal power 44,7 kW	€ 2239
5997112	MBA 902, nominal power 53,0 kW	€ 2314
5997113	MBA 903, nominal power 68,6 kW	€ 2497

ACCESSORIES - CONTROLS

Code nr.	Description	Price
2 0629108	PinTherm Connect - programmable room thermostat with Ethernet and Modbus, 230V (4A)	€ 726
5 0629086	Room sensor only in combination with 0629108	€ 93
3 0629180	Surface contact thermostat (4A)	€ 82
1 0629004	Water resistant room thermostat, 230V, IP65	€ 284
4 0631390	Potentiometer 10K with on/off contact IP54	€ 196
0631163	Isolator switch, separate delivery, 230V (4 poles)	€ 71

For explanation see chapter controls

ACCESSORIES - ASSEMBLY

Code nr.	Description	Price
5997097	Mounting brackets, set of 4 pieces, H=150mm	€ 55



TANNER MDC

Water-supplied air heater with centrifugal fan

Water-supplied air heater with copper/aluminium heat exchanger.
Output from 14,5 to 117 kW.



For more information, downloads
and videos, visit the Tanner MDC
page on our website



Versatile hot water air heater with centrifugal fan

The TANNER MDC is a water-supplied suspended air heater which can expel air horizontally or vertically.

The unit has a powerful centrifugal fan which means it is suitable for many applications. Mark offers a highly extensive range of accessories for the TANNER MDC allowing it to be aligned to specific client requirements.

For example, the unit can be made suitable for external air connection in combination with filtering and a mixing box for the destratification of fresh external air. The MDC is highly suitable for connection to a duct system.

The MDC is designed for use in showrooms, changing rooms, industrial halls and garages.

Optional: EC-motor (230V / 0-10V), advantages of which are:

- The highest efficiency in case of speed control
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable
- Long lifetime
- Low noise level
- Integrated electronic thermal protection

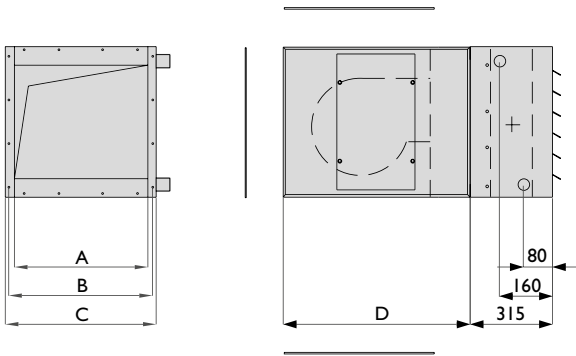
Product features

- Manufactured with a corrosion-resistant aluzinc housing as standard
- Copper/aluminium heat exchanger
- Highly versatile due to extensive configuration options
- Available as 230V or 400V



Remote connection possible with the PinTherm Connect!

Dimensions



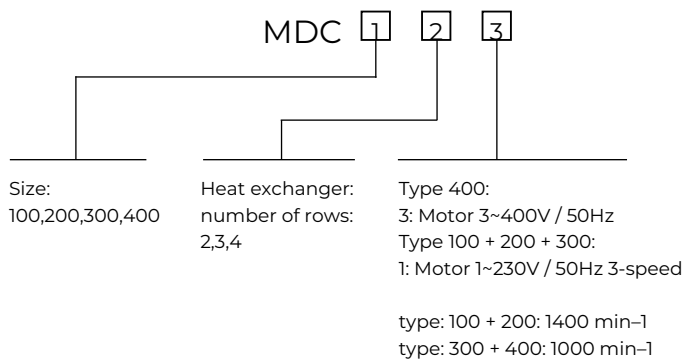
T	A	B	C	D
	mm	mm	mm	mm
100	390	415	443	583
200	520	545	573	713
300	670	595	723	863
400 1.1 kW	800	835	853	993
400 1.5 kW	800	835	853	993
400 2.2 kW	800	835	853	993
400 3.0 kW	800	835	853	993

Technical information

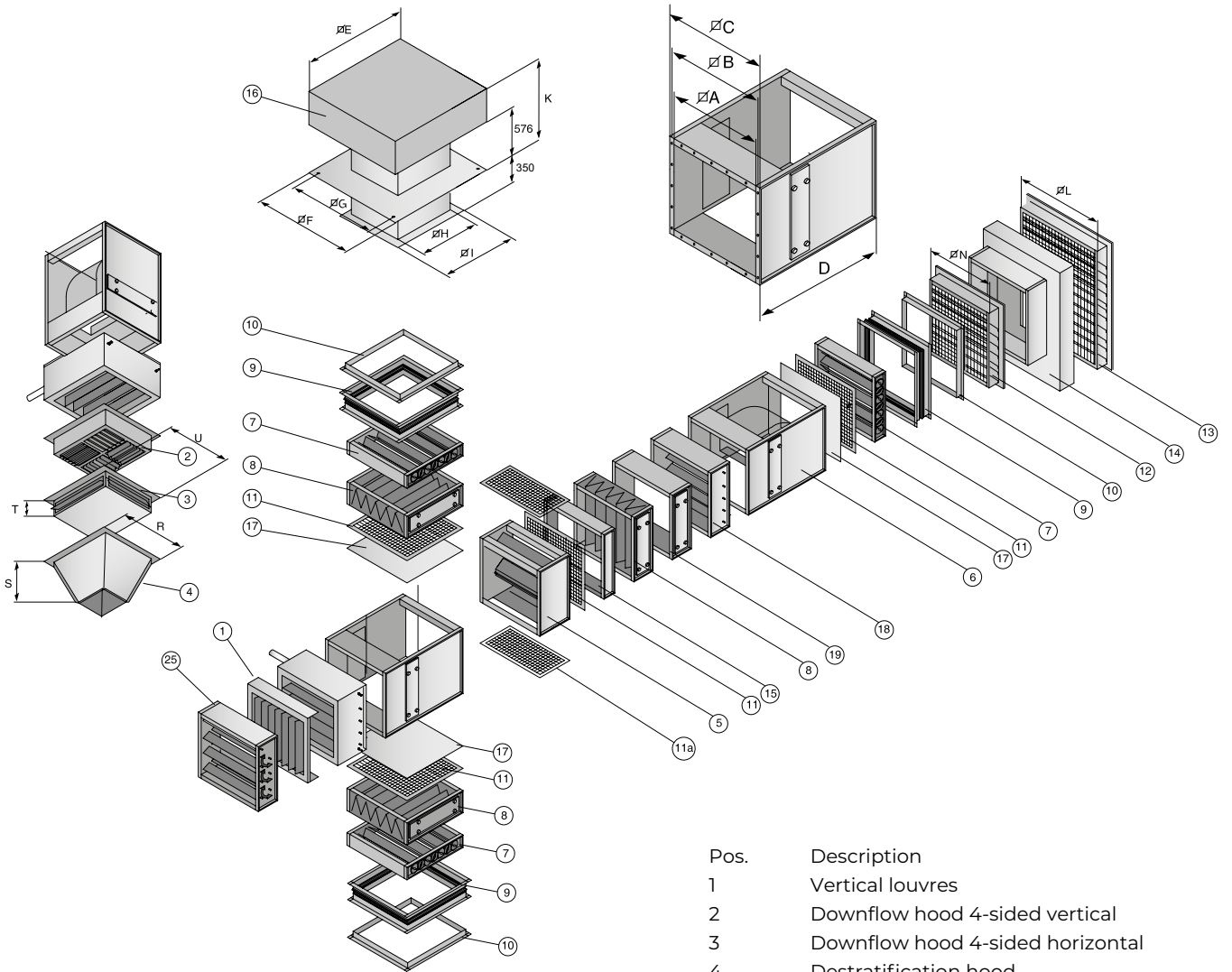
Type		100	200	300	400	400	400	400
Air displacement minimum	m ³ /h	1.000	2.000	2.500	4.000	4.000	4.000	4.000
Air displacement maximum	m ³ /h	2.500	3.600	5.400	7.000	<7.800	<8.800	<9.300
External pressure maximum	Pa	300	380	250	400	400	420	420
Noise level (5m)	dB(A)	53	53	53	58	58	64	70
Supply voltage (50Hz)	V	1~230V	1~230V	1~230V	3~400V+N	3~400V+N	3~400V+N	3~400V+N
Motor	kW	0,42	0,55	0,75	1,1	1,5	2,2	3
Consumed current	A	3,1	6,7	7,0	2,8	3,7	5	6,9

See MDA tables on pages 53/54 for heat delivery.
 Technical information of the Tanner MDC with EC motor is available on request.

TYPE DESIGNATION



Accessories - additional sections

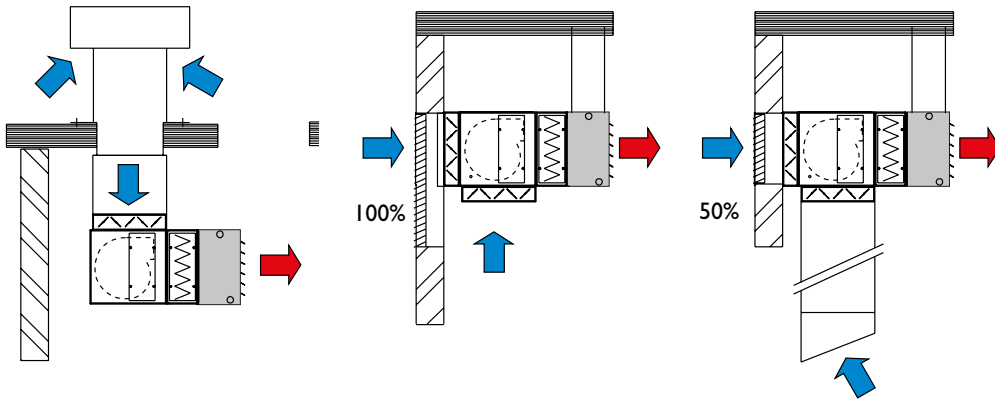


Type	A	B	C	D	E	F	G	H
100	390	415	443	463	690	740	690	380
200	520	545	573	593	920	920	820	510
300	670	695	723	743	1180	1240	975	665
400	800	835	853	873	1420	1240	1110	800

Type	I	K	L	N	R	S	T	U
100	440	800	516	386	439	212	120	406
200	570	895	666	516	573	253	151	530
300	720	940	796	666	724	300	175	680
400	850	1075	1005	796	853	329	220	815

- | Pos. | Description |
|------|---|
| 1 | Vertical louvres |
| 2 | Downflow hood 4-sided vertical |
| 3 | Downflow hood 4-sided horizontal |
| 4 | Destratification hood |
| 5 | Mixing box incl. dampers |
| 6 | Mixing box for dampers |
| 7 | Damper |
| 8 | Filter box with filter (EU 3) |
| 9 | Flexible connection |
| 10 | Corner profile |
| 11 | Mesh |
| 11a | Mesh |
| 12 | Weather grill ≤ 50% fresh air intake |
| 13 | Weather grill > 50%-100% fresh air intake |
| 14 | Transition piece for 13 |
| 15 | Empty section 120 mm |
| 16 | Rain cap incl. adhesive plate (aluminium) |
| 17 | Blanking plate |
| 18 | Motor protection strip |
| 19 | Empty section 240 mm |
| 25 | Induction damper |

Assembly/location suggestions



Controls

Control combination options

Tanner MDC + **1** + **2** + **4**

Tanner MDC + **1** + **2** + **5**

Tanner MDC + **1** + **2** + **6**

Tanner MDC + **1** + **2** + **7**

Tanner MDC + **1** + **2** + **4** + **8**

Tanner MDC + **1** + **2** + **5** + **8**

Tanner MDC + **1** + **2** + **6** + **8**

Tanner MDC + **1** + **2** + **7** + **8**

Tanner MDC + **1** + **3** + **4**

Tanner MDC + **1** + **3** + **5**

Tanner MDC + **1** + **3** + **6**

Tanner MDC + **1** + **3** + **7**

Tanner MDC + **1** + **3** + **4** + **8**

Tanner MDC + **1** + **3** + **5** + **8**

Tanner MDC + **1** + **3** + **6** + **8**

Tanner MDC + **1** + **3** + **7** + **8**

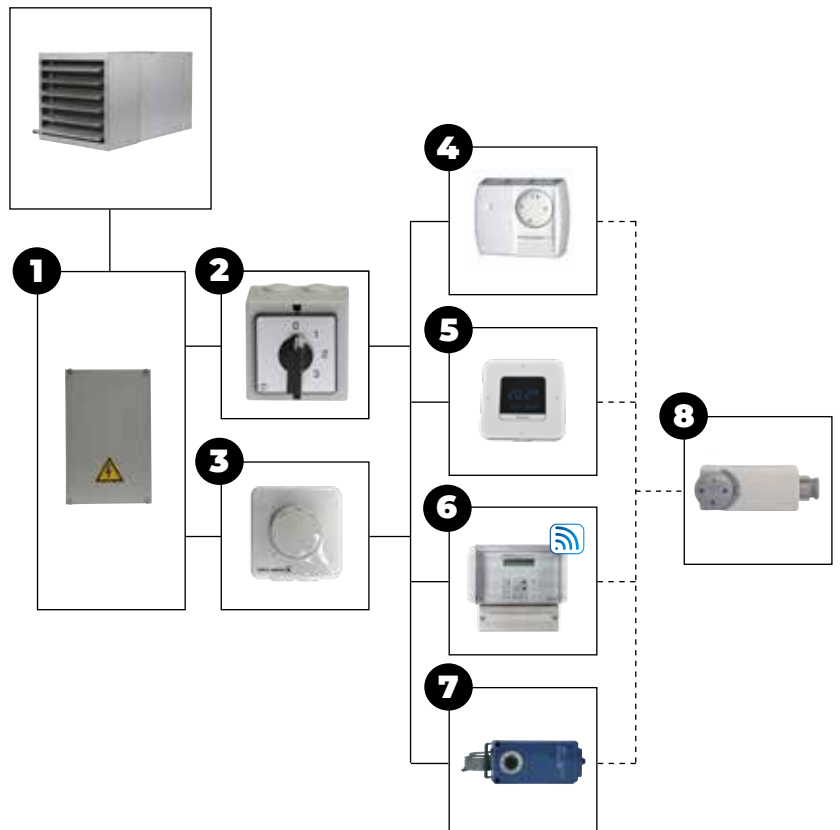
1 = Motor control:'

- A 3003500 Motor control Tanner MDC Type 100/200/300 230V
- B 3003502-3003505 Motor control Tanner MDC Type 400 3~400V
- C 3003510 Motor control Tanner MDC (EC version) Frequency inverter OJ-DV
- D 3003511 Motor control Tanner MDC (EC version) with DDMP fan

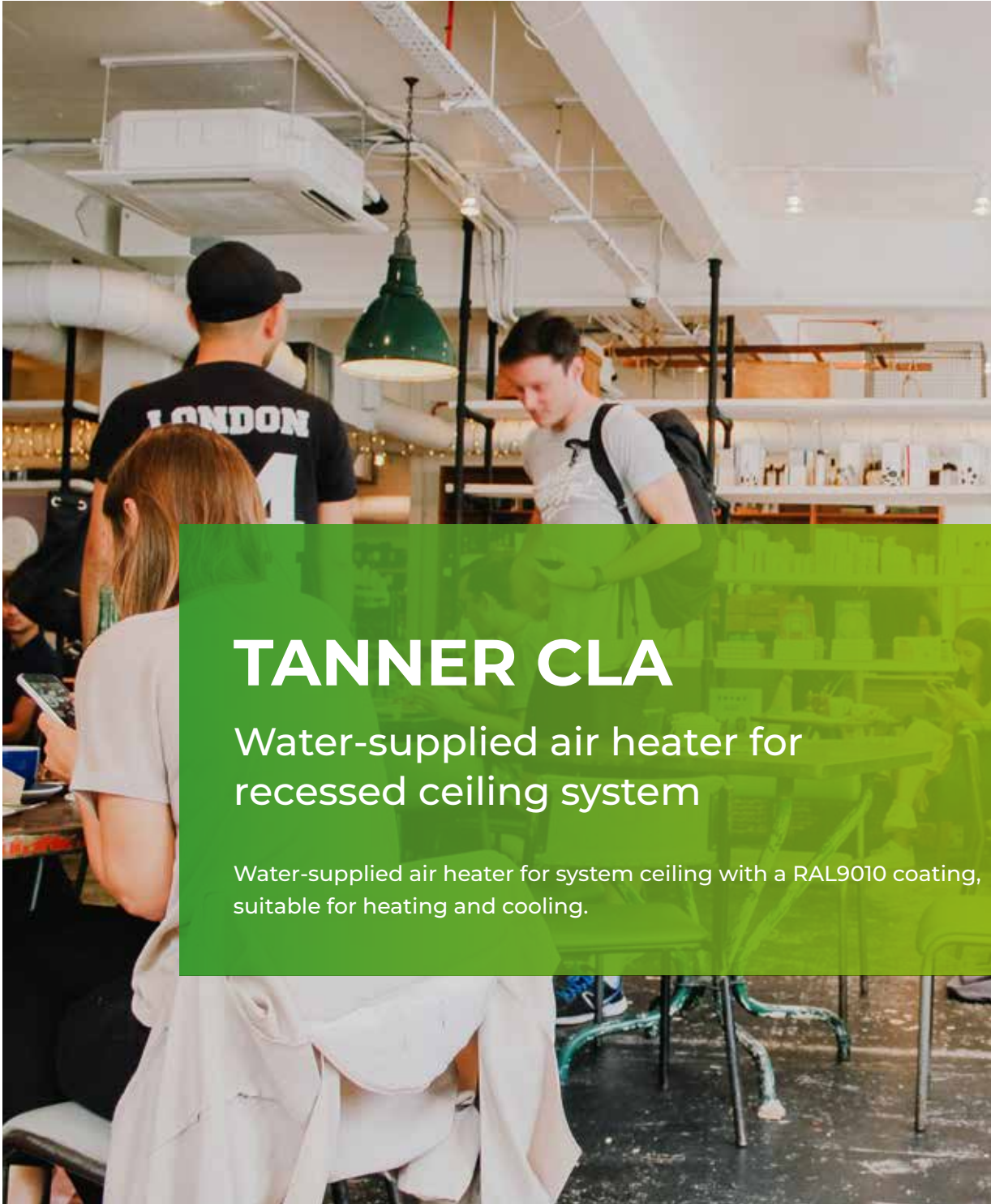
Remark:

Switch (2) only in combination with A or B

Potentiometer (3) only in combination with C or D



- 2 = 3-step switch (0631175)
- 3 = Potentiometer (0631390)
- 4 = Room thermostat (0629013)
- 5 = Clock thermostat (0629039)
- 6 = Pintherm Connect (0629108)
- 7 = Waterproof room thermostat (0629004)
- 8 = Surface contact thermostat (0629180)



TANNER CLA

Water-supplied air heater for recessed ceiling system

Water-supplied air heater for system ceiling with a RAL9010 coating, suitable for heating and cooling.



For more information, downloads and videos, visit the Tanner CLA page on our website

Ceiling cassette unit for heating and cooling

The Mark TANNER CLA is a water-supplied air heater intended for installation in a suspended ceiling. The cassette unit is equipped with an EC motor.

The CLA has the same appearance as the internal part of a split air conditioning unit. The unit can also be fitted with a design plate in color that is suitable for placement in rooms where high-quality requirements are imposed on interior architecture.

The CLA is applicable in, for example, showrooms, offices, changing rooms and shops.

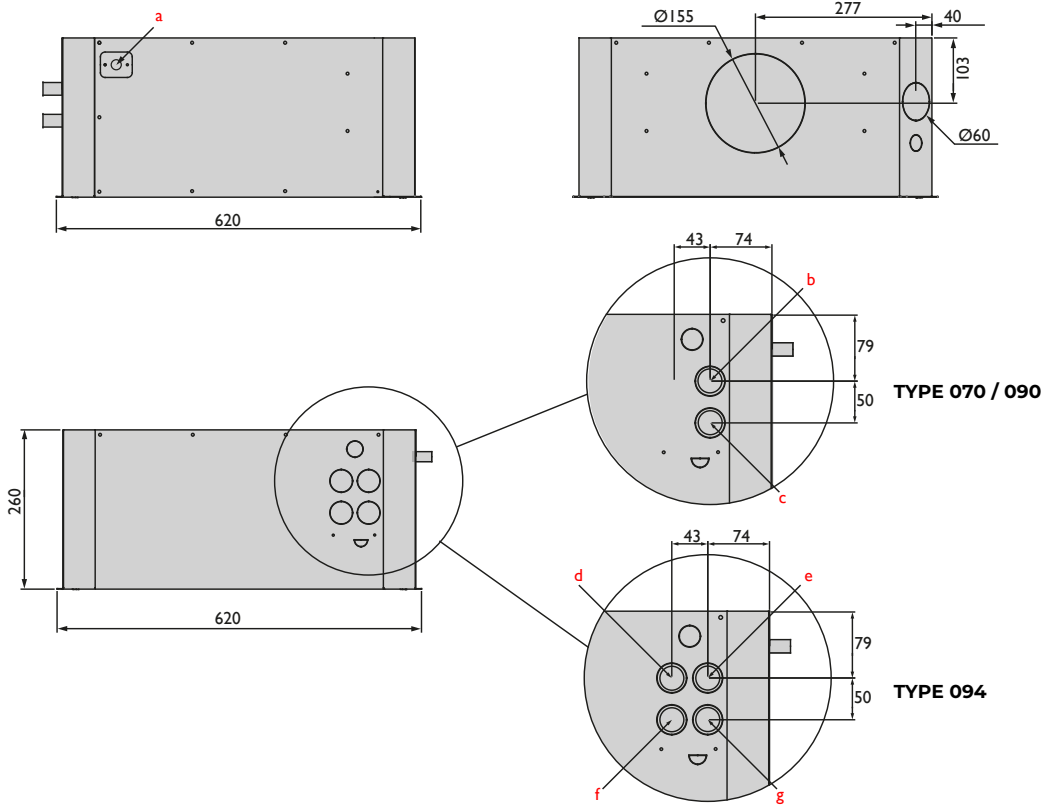


Product features

- Modern design
- Low maintenance
- Powerful energy-efficient EC motor
- Quiet
- Built-in protected condensate pump
- Available with one or two water circuits

Dimensions

TYPE 070/090/094



a = Condensate drain Ø16

TYPE 070 / 090 / 150 (2-pipe)

b = Return

c = Supply

TYPE 150 / 094 (4-pipe)

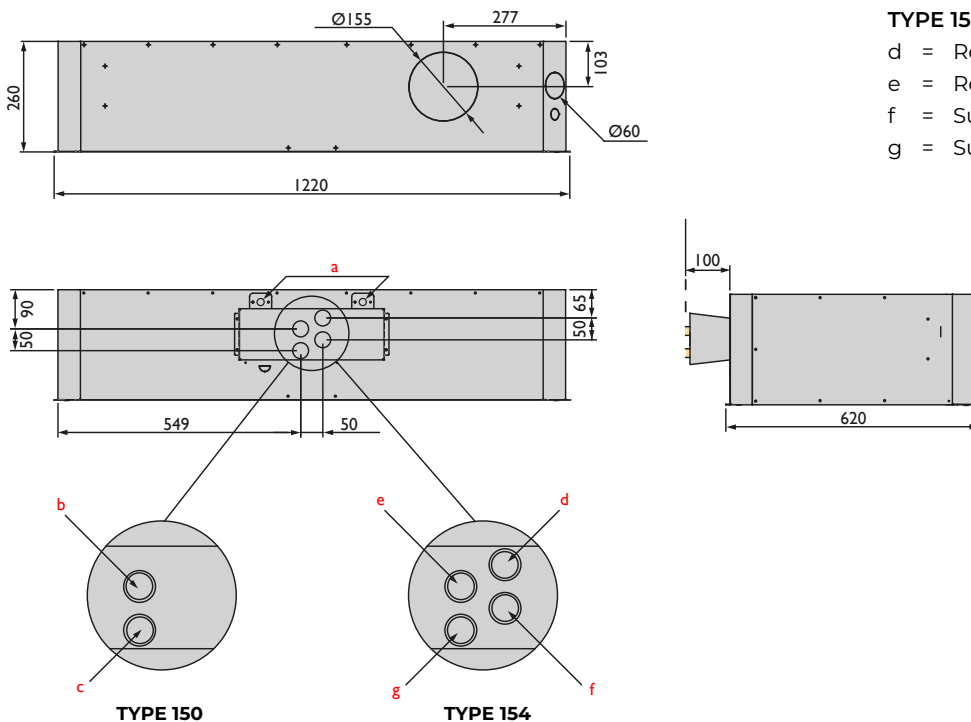
d = Return heating

e = Return cooling

f = Supply heating

g = Supply cooling

TYPE 150/154



Technical information

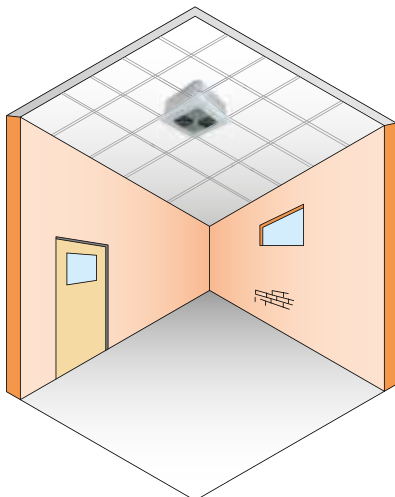
Type		070*	090*	094**	150*	154**
Total cooling capacity 7/12°C, T=27, rv=50	H - kW (10V)	4,32	7,29	6,39	13,49	11,20
	M - kW (6V)	2,88	4,74	4,26	11,60	9,75
	L - kW (2V)	1,27	2,17	2,05	7,44	6,43
Sensible cooling capacity 7/12°C, T=27, rv=50	H - kW (10V)	2,99	4,86	4,11	8,56	7,15
	M - kW (6V)	2,06	3,14	2,76	7,38	6,23
	L - kW (2V)	1,04	1,40	1,35	4,73	4,14
Water flow	l/h (10V)	742	1251	1096	2314	1923
Pressure drop	kPa	3,5	5,0	34,3	36,6	31,8
Heating capacity 60/40°C, T=20	H - kW (10V)	5,89	11,48	4,51	19,75	7,43
	M - kW (6V)	3,93	6,92	3,23	15,25	6,48
	L - kW (2V)	1,95	3,17	1,77	9,79	4,66
Water flow	l/h (10V)	259	501	210	763	295
Pressure drop	kPa	3,1	4,5	2,8	34,4	5,0
Heating capacity 50/43°C, T=20	H - kW (10V)	5,85	8,60	7,19	14,8	21,54
	M - kW (6V)	3,96	5,46	5,08	12,63	11,12
	L - kW (2V)	1,94	2,43	2,73	7,88	7,80
Water flow	l/h (10V)	742	1251	632	2314	1101
Pressure drop	kPa	3,1	4,6	22,1	34,6	43,4
Air amount	H - m ³ /h (10V)	980	980	980	1620	1620
	M - m ³ /h (6V)	590	590	590	1360	1360
	L - m ³ /hs (2V)	250	250	250	820	820
Sound level	dB(A) (10V)	48	48	48	51	51
Supply voltage	V/Ph/Hz	210-230/1/50-60				
Power consumption	W (10V)	41	45	45	85	85
Current consumption	A (10V)	0,36	0,42	0,42	0,55	0,55
Water connections	Nr. x "	2 x 3/4"F	2 x 3/4"F	4 x 3/4"F	2 x 3/4"F	4 x 3/4"F
Weight	kg	18	19	19,5	38	39

H = high speed, M = medium speed, L = low speed

* For heating or cooling (one coil)

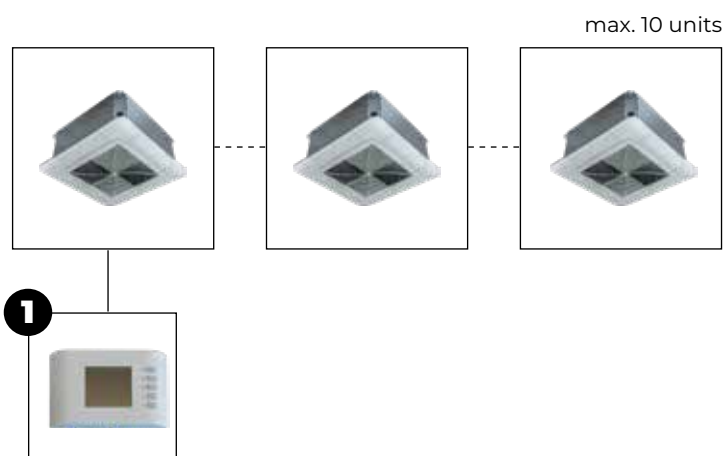
** For heating and cooling (two coils)

Assembly/location suggestions



Throw = 3,5M

Controls



Control combination options

Tanner CLA + **1**

See price list for description and code numbers of the relevant items

Prices Tanner CLA



PRODUCT - TANNER CLA CEILING CASSETTE UNIT WITH EC-MOTOR

Code nr.	Description	Price
5997301	CLA 070 EC - 600x600 mm	€ 2097
5997303	CLA 090 EC - 600x600 mm	€ 2308
5997305	CLA 094 EC - 600x600 mm	€ 2476
5997307	CLA 150 EC - 1200x600 mm	€ 4425
5997309	CLA 154 EC - 1200x600 mm	€ 4752

ACCESSORIES - CONTROLS

Code nr.	Description	Price
1 5997350	Room thermostat with speed control	€ 345
5997353	On-Off servomotor (230V) for control valve	€ 148
5997354	On-Off servomotor (24V) for control valve	€ 148
5997355	On-Off servomotor with end contact (230V) for control valve	€ 162
5997356	On-Off servomotor with end contact (24V) for control valve	€ 142
5997357	Modulating servomotor 0-10V for control valve	€ 470
0631163	Isolator switch 4-poles 230V, separate delivery	€ 71

For explanation see chapter controls

ACCESSOIRES - WATER-SIDED CONTROLS

Code nr.	Description	Price
5997360	2-way valve 3/4" without servomotor mounted	€ 183
5997361	3-way valve 3/4" without servomotor mounted	€ 235
5997365	Ball valve 3/4" set of 2 pieces	€ 137

ACCESSORIES - OTHER

Code nr.	Description	Price
5997370	Design metal front color RAL 9003	€ 312



LDA SWIRL

Water-supplied air heater with EC-fan

Water-supplied air heater with copper/aluminium heat exchanger.
Air amounts from 500 to 2000 m³/h.



For more information, downloads
and videos, visit the LDA Swirl
page on our website

Design air heater for grid type ceilings



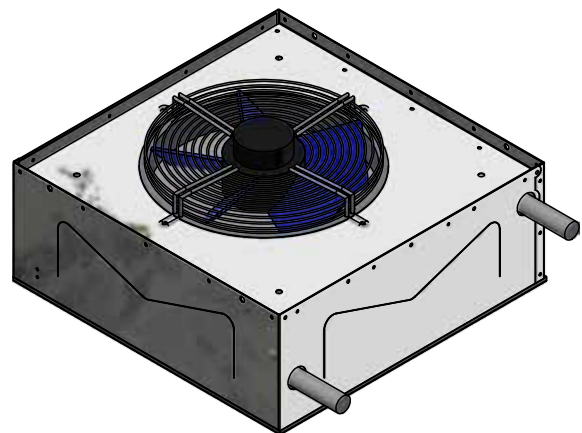
The Mark LDA SWIRL design water-supplied air heater has been developed to fit into 600x600 grid type ceilings. The unit is easy to install due to its compact dimensions and is also perfectly suitable for rooms with low ceilings. Of course it is also easy to install as a free hanging unit.

Due to the modulating EC fan, the Mark LDA SWIRL is available for a wide range of air volumes and heating capacities. The EC fan also ensures a quiet and energy efficient unit.

The LDA is designed for use in stores, offices and hospitals.

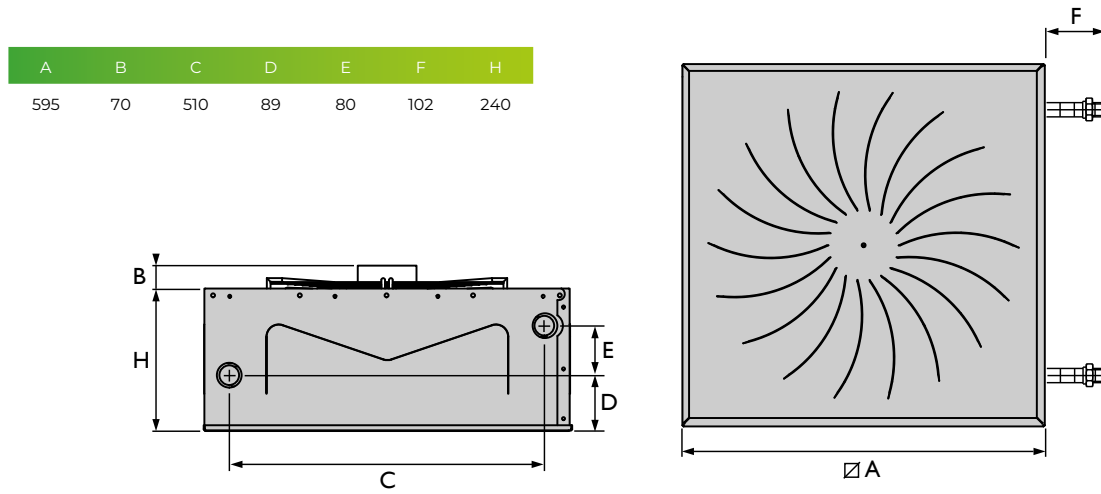
Product features

- RAL 9010 powder coating (other colours on request)
- Low maintenance
- Silent
- Pleasant air diffusion
- Attractive appearance
- Low energy consumption
- 0-10V control



Remote connection possible with the PinTherm Connect!

Dimensions

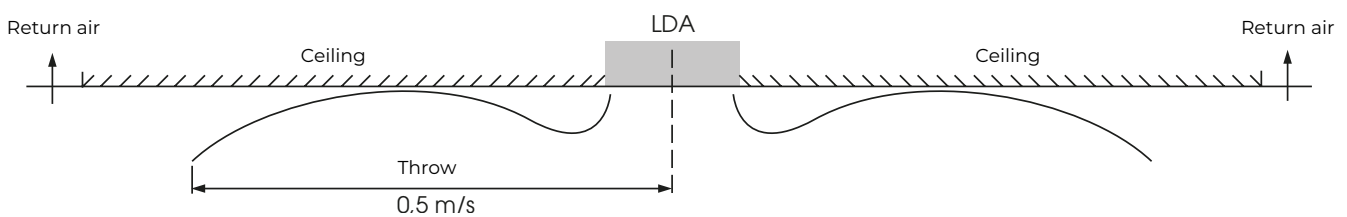


Technical information

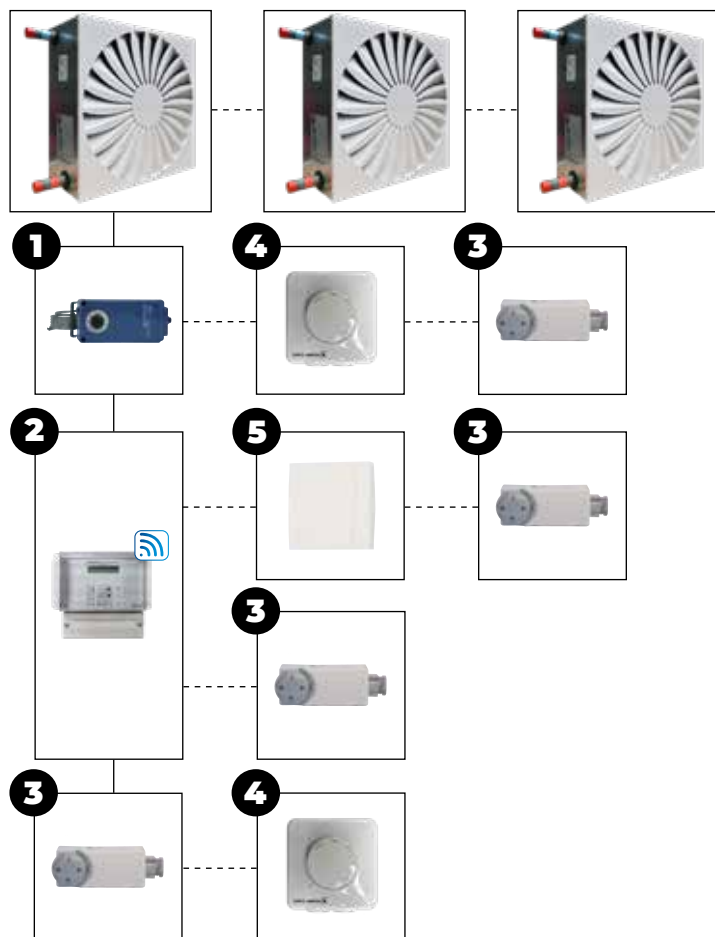
Air displacement LDA 221	Heat delivery 90/70 T15	Heat delivery 80/60 T15	Heat delivery 60/40 T15	Heat delivery 45/38 T15	Throw	Noise level
m^3/h	W	W	W	W	m	dB(A)
500	6750	5560	3400	2720	3	26
750	8640	7290	4300	3560	4,5	31
1000	10430	8580	5040	4100	6	33
1250	11950	9910	5690	4872	8	33
1500	13520	11110	6480	5270	9,5	35
1750	14700	12180	6950	5850	11	36
2000	15910	13120	7540	6260	13	42

- Water connection: 1" male thread
- Water resistance T15: 5 kPa
- Weight: 23 kg
- 1 Phase 230 V

Assembly/location suggestions



Controls



Control combination options

LDA Swirl	+	1				
LDA Swirl	+	1	+	4		
LDA Swirl	+	1	+	4	+	3
LDA Swirl	+	2				
LDA Swirl	+	2	+	5		
LDA Swirl	+	2	+	5	+	3
LDA Swirl	+	2	+	3		
LDA Swirl	+	3				
LDA Swirl	+	3	+	4		

See price list for description and code numbers of the relevant items

Prices LDA SWIRL



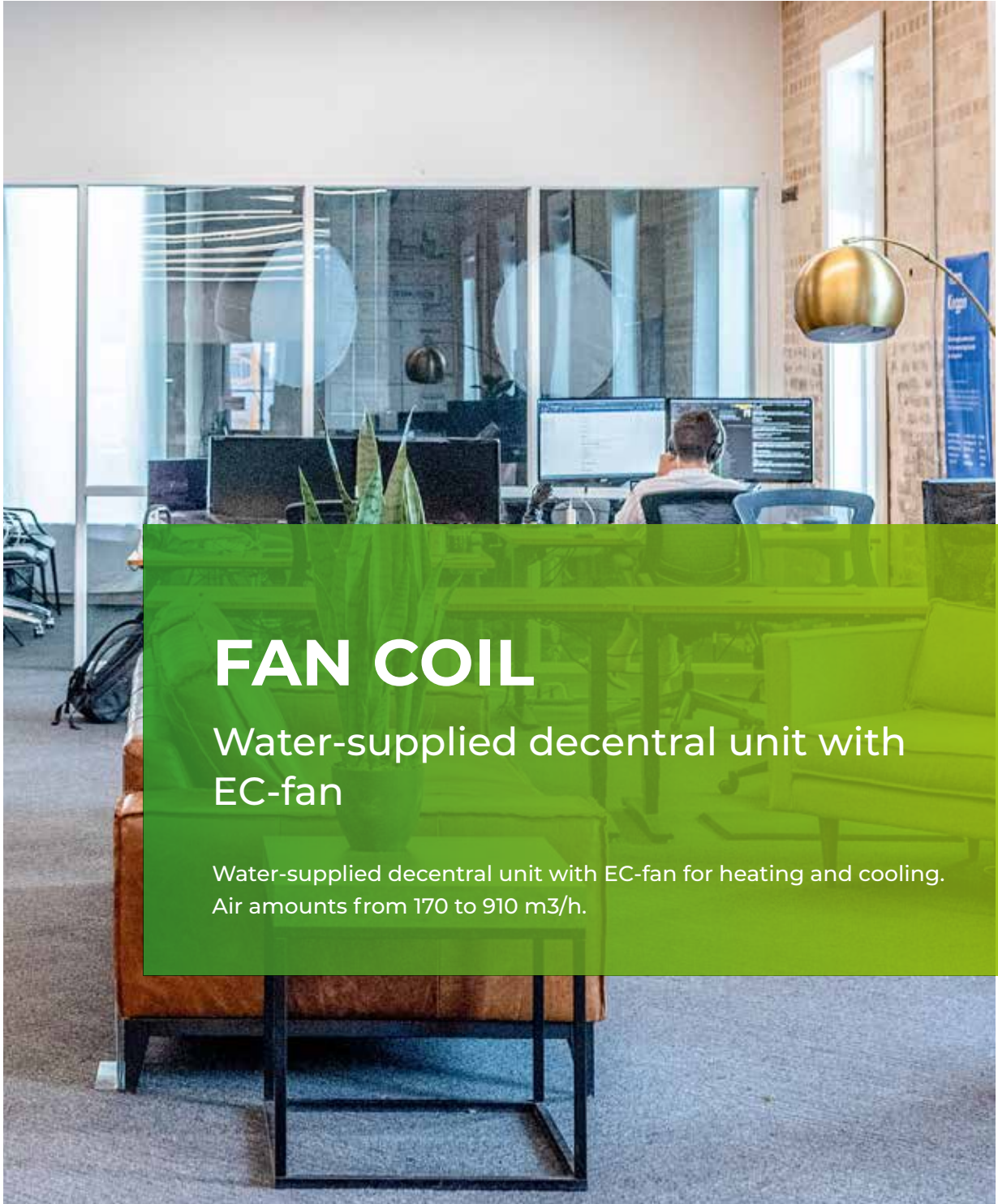
PRODUCT - LDA SWIRL

Code nr.	Description	Price
3182041	LDA Swirl 221 water-supplied air heater with EC-fan	€ 1264

ACCESSORIES - CONTROLS

Code nr.	Description	Price
2 0629108	PinTherm Connect - programmable room thermostat with Ethernet and Modbus, 230V (4A)	€ 726
5 0629086	Room sensor, only combined with 0629108	€ 93
3 0629180	Surface contact thermostat (4A)	€ 82
1 0629004	Waterproof room thermostat, 230V, IP65	€ 284
4 0631390	Potentiometer 10K with on/off contact IP54	€ 196
0631163	Isolator switch 4-poles 230V, separate delivery	€ 71

For explanation see chapter controls



FAN COIL

Water-supplied decentral unit with EC-fan

Water-supplied decentral unit with EC-fan for heating and cooling.
Air amounts from 170 to 910 m³/h.



For more information, downloads and videos, visit the Fan Coil page on our website



High comfort with small dimensions in a modern design

The FAN COIL is a decentralized unit for low temperature heating systems and cooling. The unit is equipped with a low-noise EC fan and can easily be combined with a heat pump system.

The FAN COIL unit has a very low water content and can therefore react quickly. This ensures maximum controllability, which is the ideal basis for contemporary heating and cooling.

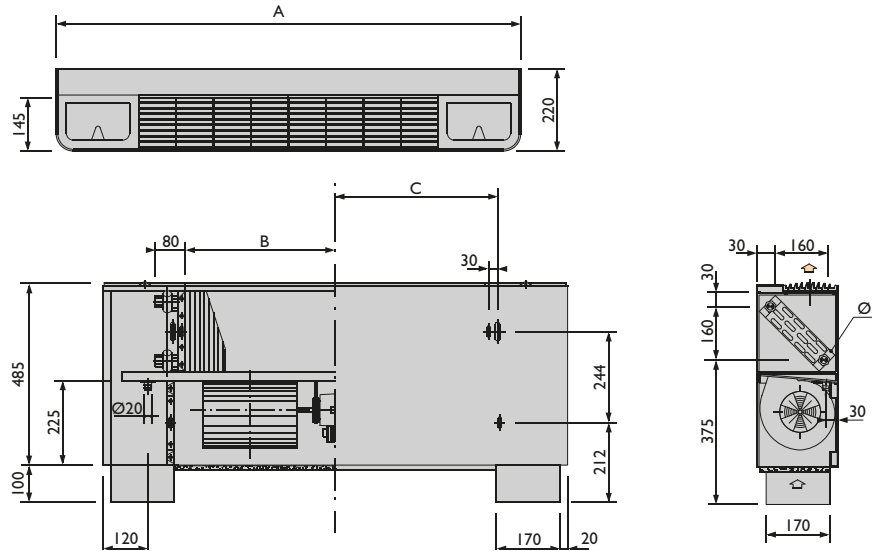
The FAN COIL is designed for use in smaller spaces such as offices, shops, living rooms and garages.

Product features

- 8 sizes and 2 versions
- Casing made of galvanized steel with a RAL 9010 coating
- Copper / aluminum heat exchanger
- Cleanable synthetic air filter type G2
- Reliable low-noise EC fan

Dimensions

T	A	B	C	Ø
030	840	400	480	1/2"
050	1040	600	680	1/2"
070	1240	800	880	1/2"
100	1640	1200	1280	3/4"

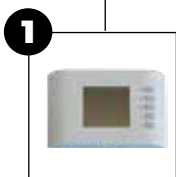


Technical information

Type		030	050	070	100	034	054	074	104
Total cooling capacity 7/12°C, T=27, rv=50	H - kW (10V)	2,18	3,11	4,57	5,36	2,18	3,11	4,57	5,36
	M - kW (6V)	1,44	2,35	3,53	4,05	1,44	2,35	3,53	4,05
	L - kW (2V)	0,98	1,24	1,59	1,77	0,98	1,24	1,59	1,77
Sensible cooling capacity 7/12°C, T=27, rv=50	H - kW (10V)	1,75	2,15	3,02	3,58	1,75	2,15	3,02	3,58
	M - kW (6V)	1,35	1,67	2,35	2,84	1,35	1,67	2,35	2,84
	L - kW (2V)	0,75	0,89	1,09	1,22	0,75	0,89	1,09	1,22
Water flow	l/h (10V)	374	533	783	920	374	533	783	920
Pressure drop	kPa	3,7	7,8	12,7	6,9	3,7	7,8	12,7	6,9
Heating capacity 60/40°C, T=20	H - kW (10V)	3,12	4,24	6,14	7,24	1,07	1,75	2,63	2,72
	M - kW (6V)	2,34	3,24	4,71	5,44	0,87	1,41	2,13	2,16
	L - kW (2V)	1,30	1,74	2,11	2,41	0,53	0,86	1,13	1,14
Water flow*	l/h (10V)	137	186	270	318	47	77	115	120
Heating capacity 50/43°C, T=20	H - kW (10V)	3,26	4,03	5,64	6,68	2,50	3,24	4,54	5,32
	M - kW (6V)	2,44	3,08	4,33	5,02	2,03	2,61	3,67	4,22
	L - kW (2V)	1,36	1,65	1,94	2,22	1,24	1,60	1,95	2,23
Water flow**	l/h (10V)	374	533	783	920	220	285	399	467
Pressure drop	kPa	3,2	7,0	11,2	6,3	7,3	13,5	21,2	8,8
Air amount	H - m³/h (10V)	495	540	745	910	495	540	745	910
	M - m³/h (6V)	360	390	540	620	360	390	540	620
	L - m³/h (2V)	170	190	215	245	170	190	215	245
Sound level	dB(A) (10V)	47	48	45	48	47	48	45	48
Supply voltage	V/Ph/Hz	210-230/1/50-60							
Power consumption	W (10V)	43	44	49	55	43	44	49	55
Current consumption	A (10V)	0,28	0,30	0,34	0,37	0,28	0,30	0,34	0,37
Water connections	Nr. x "	2 x 1/2" F							
Weight	kg	24	27	39	55	25,5	28,5	41	57

H = high speed, M = medium speed, L = low speed

Controls



Control combination options

Fan Coil + **1**

See price list for description and code numbers of the relevant items

Prices Fan Coil



PRODUCT - FAN COIL

Code nr.	Description	Price
5991030	Fan Coil FLE 030 EC	€ 1248
5991031	Fan Coil FLE 050 EC	€ 1327
5991032	Fan Coil FLE 070 EC	€ 1589
5991033	Fan Coil FLE 100 EC	€ 1843
5991034	Fan Coil FLE 034 EC	€ 1380
5991035	Fan Coil FLE 054 EC	€ 1473
5991036	Fan Coil FLE 074 EC	€ 1767
5991037	Fan Coil FLE 104 EC	€ 2049

ACCESSORIES - CONTROLS

Code nr.	Description	Price
1 5997350	Room thermostat with speed control	€ 345

For explanation see chapter controls



COMFORT LINE

Water-supplied air heater

Water-supplied air heater with various applications, including homes.
Output from 6,7 to 51,9 kW.



For more information, downloads
and videos, visit the Comfort Line
page on our website



Product features

- Energy saving
- Comfort increasing
- Long lifespan
- High quality
- Compact
- Quiet
- Equipped with controller

A comfortable temperature for every home

The Mark COMFORT LINE water-supplied air heaters are specially designed for optimal and energy efficient heating of homes. The unit can be used in combination with a combi boiler and/or heat pump. The air heater is also dimensioned in such a way that it is very suitable for renovation.

The COMFORT LINE ensures recirculation, filtering and heated supply of the air in a building or home. This allows all rooms to be heated quickly and comfortably.

In addition to homes, the COMFORT LINE can also be used in shopping centers, offices, churches and school buildings.

The COMFORT LINE air heaters are fitted with EC motors as standard. Benefits:

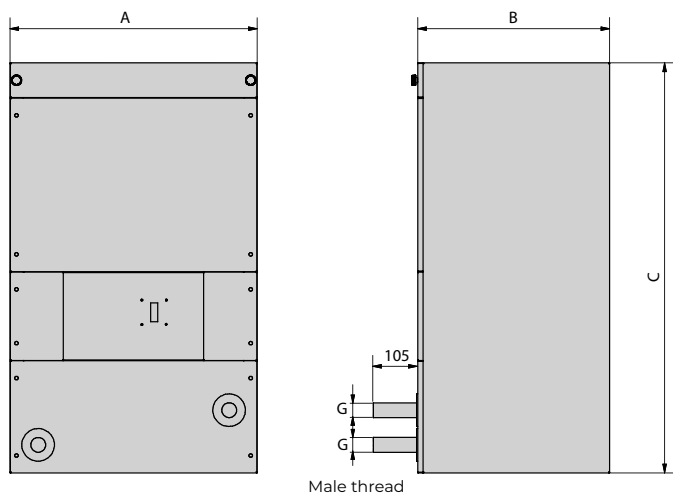
- Highest efficiency with speed control
- Up to 50% energy savings at partial load
- Almost linearly adjustable from 0-100%
- Long lifespan
- Quiet
- Integrated electronic protection against overheating

Controller

Every COMFORT LINE is supplied with a controller as standard. This user-friendly and easy-to-operate control ensures perfect and worry-free operation.

Each controller is equipped with a pipe surface temperature sensor. The COMFORT LINE fan speeds up or down depending on the water temperature.

Dimensions



Type	A	B	C	G
8-12	570	442	945	1"
18-24	670	612	945	1"
28	670	612	945	1"
32	670	612	945	1"

Technical information

Type		8-12	18-24	28	32
90/70 T10 °C (ECL)	kW	12,1	31,1	38,1	51,9
55/45 T10 °C (LTV)	kW	6,7	17,6	21,5	29,4
Air volume	m ³ /h	900	1800	2380	3740
Current consumption	A	0,8	1,5	2,2	4,2
Weight	kg	48	60	60	62
Electrical connection	V/F/Hz	230/1/50			

Prices Comfort Line



PRODUCT - COMFORT LINE DOMESTIC AIR HEATER - DOWNFLOW

Code nr.	Description	Price
5997120	Comfort Line 8-12 EC (Downflow)	€ 3666
5997121	Comfort Line 18-24 EC (Downflow)	€ 4068
5997122	Comfort Line 28 EC (Downflow)	€ 4068
5997123	Comfort Line 32 EC (Downflow)	€ 4158



PRODUCT - COMFORT LINE DOMESTIC AIR HEATER - UPFLOW

Code nr.	Description	Price
5997130	Comfort Line 8-12 EC (Upflow)	€ 3699
5997131	Comfort Line 18-24 EC (Upflow)	€ 4068
5997132	Comfort Line 28 EC (Upflow)	€ 4068
5997133	Comfort Line 32 EC (Upflow)	€ 4158

ACCESSORIES - PEDESTAL

Code nr.	Description	Price
5997140	Pedestal for Comfort Line 8-12 (H=250mm)	€ 201
5997141	Pedestal for Comfort Line 8-12 (H=250mm)	€ 194

Radiant Heating



INFRA

INFRA HE

INFRA HT



INFRA AQUA DESIGN

INFRA AQUA ECO

CEILFIT



INFRA

Gas-fired black radiant tube heater

Gas-fired black radiant tube heater with atmospheric burner and electrical ignition. Output from 10 to 100 kW.



For more information, downloads and videos, visit the Infra page on our website



High efficiency black tube radiant heater

Mark INFRA / INFRA MONO black tube radiant heaters heat with long-wave infrared radiation. Radiant heating is based on the principle of heat transfer from a warm object to an object of lower temperature by means of electromagnetic wave energy. This electromagnetic wave, not hindered by air, radiates walls, floor and the people present in the room.

As soon as the infrared radiation gets in contact with the human body, it is converted into heat. This does not cause any change in the air temperature. This method of heat generation is considered very pleasant.

The more intense the radiant heat is, the less the actual air temperature has to be increased for a comfortable indoor climate. Therefore, heating with the Mark INFRA system is much more economical compared to conventional systems.

Possible applications include: sports halls, production facilities, aircraft hangars, showrooms and garages.

Product features

- Available in 6 different types from 9 to 44,2 kW
- Various sizes, from 3 to 18 m length
- Highly reflective reflector hood, optional double air insulated (type +)
- The radiator with a double air-insulated reflector can be optimized energetically by using a flue gas cooler (type ++)
- The highly reflective radiation hood features integrated V-shaped reflectors and end caps
- Available in natural gas and propane
- Easy installation and maintenance
- Optional: waterproof stainless steel version for damp rooms

The benefits of radiant heating include:

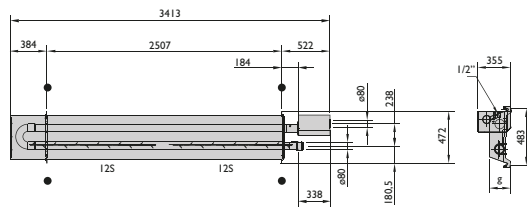
- A radiation efficiency of up to 75% according to EN 416-2
- A flue efficiency higher than 90%
- No spreading of dust and low noise level during operation
- Can be used in a focused way to enable a high energy efficiency
- A uniform heat distribution across the entire length of the radiator is achieved by the use of an overpressure burner with a long stable flame, in combination with built-in turbulators in the radiant tube
- By using a 1-stage or 2-stage control the output of the radiant heater is adapted to the required heat



Remote connection possible with the PinTherm Infra Connect!

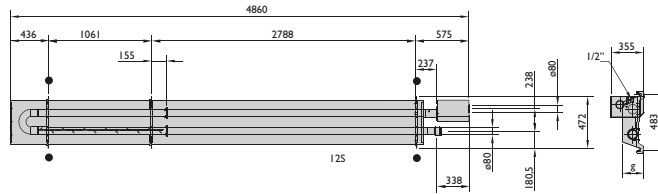
Dimensions

INFRA 10-3

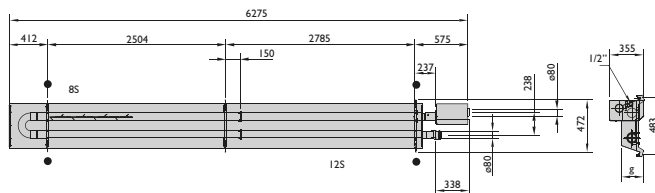


● suspension point

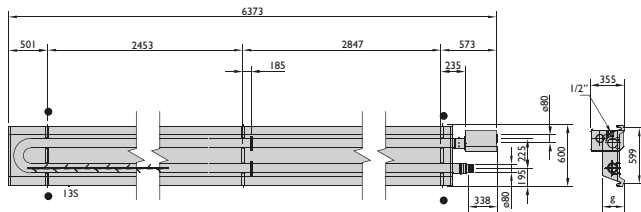
INFRA 15-5



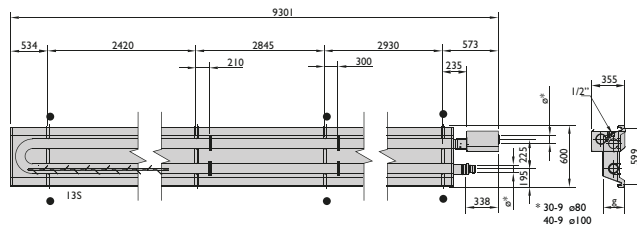
INFRA 20-6



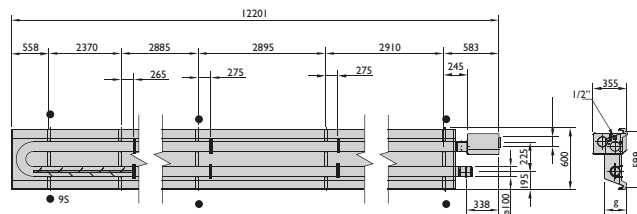
INFRA 30-6



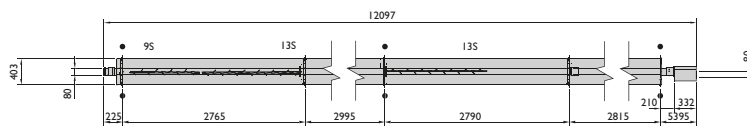
INFRA 30-9 / 40-9 / 50-9



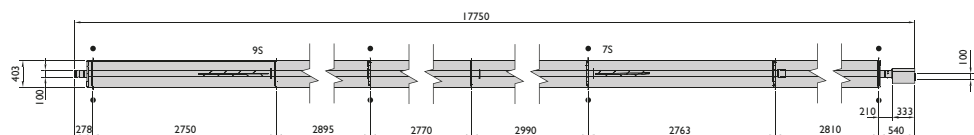
INFRA 50-12



INFRA MONO 30-12



INFRA MONO 50-18

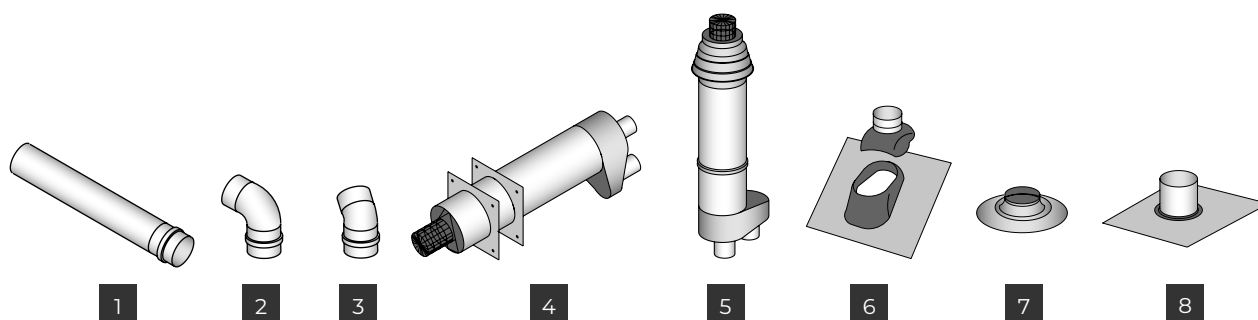


Technical information

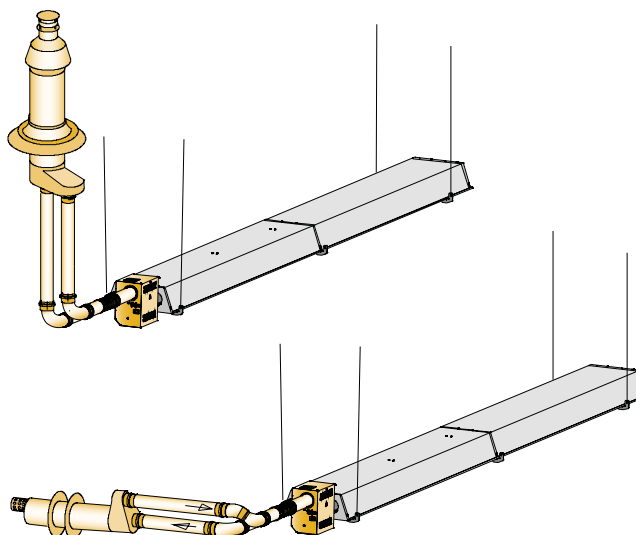
Type		10-3	15-5	20-6	30-6	30-9	40-9	50-9	50-12	30-12 MONO	50-18 MONO
Nominal load (NCV)	kW	10,0	14,0	18,0	28,0	30,0	38,0	46,0	49,9	30,0	49,9
Flue efficiency (NCV)	%	91	90,7	90,6	90,0	91,7	90,5	90,0	90,3	91,7	90,3
Gas consumption G20 (15 °C)	m ³ /h	1,10	1,50	1,90	2,90	3,20	3,90	4,9	5,30	3,20	5,30
Gas consumption G25 (15 °C)	m ³ /h	1,20	1,70	2,20	3,30	3,60	4,60	5,4	5,90	3,60	5,90
Gas consumption G31 (15 °C)	kg/h	0,79	1,11	1,42	2,12	2,21	2,99	3,72	3,92	2,36	3,92
Gas consumption G30 (15 °C)	kg/h	0,81	1,14	1,46	2,19	2,27	3,08	3,64	4,04	2,43	4,04
Weight	kg	48 / 65*	66 / 91*	81 / 112*	97 / 136*	132 / 190*	132 / 190*	132	168 / 244*	101	143
Electrical power	W	55	57	60	60	60	63	63	63	60	63
Recommended suspension height, horizontal	m	4	4	4	5	5	5	7	7	5	7
Recommended suspension height, 30° angle	m	4	4	4	4	4	5	6	6	5	6
Burner pressure G25	mbar	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0
Burner pressure G20	mbar	11,0	11,0	11,0	11,5	11,5	11,5	11,5	11,5	12,0	12,0
Burner pressure G31	mbar	35,1	35,1	35,1	35,1	35,1	35,1	35,1	35,1	35,1	35,1
Burner pressure G30	mbar	27,2	27,2	27,2	27,2	27,2	27,2	27,2	27,2	27,2	27,2
Sound level at 5 metres	dB(A)	41	41	42	42	42	43	43	43	42	43

* Single-/ Double-walled reflector

Accessories – flue gas exhaust

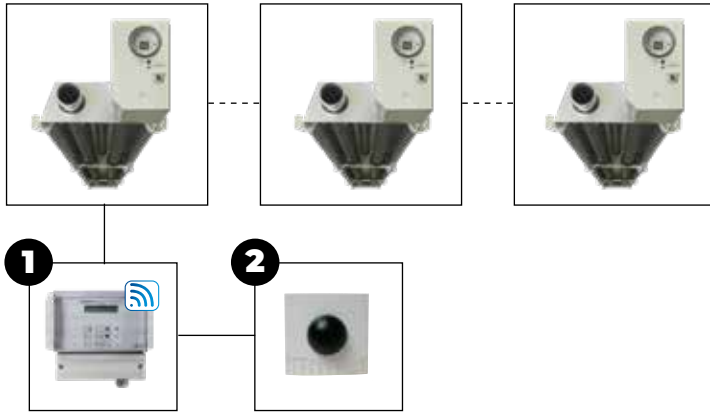


- 1 Extension set
- 2 90° elbow
- 3 45° elbow
- 4 Single flue set horizontal
- 5 Single flue set vertical
- 6 Roof flashing for pitched roof
- 7 Adhesive plate
- 8 Flexible roof flashing for cladded roof



Controls

max. 10 units



Control combination options

Infra + **1** + **2**

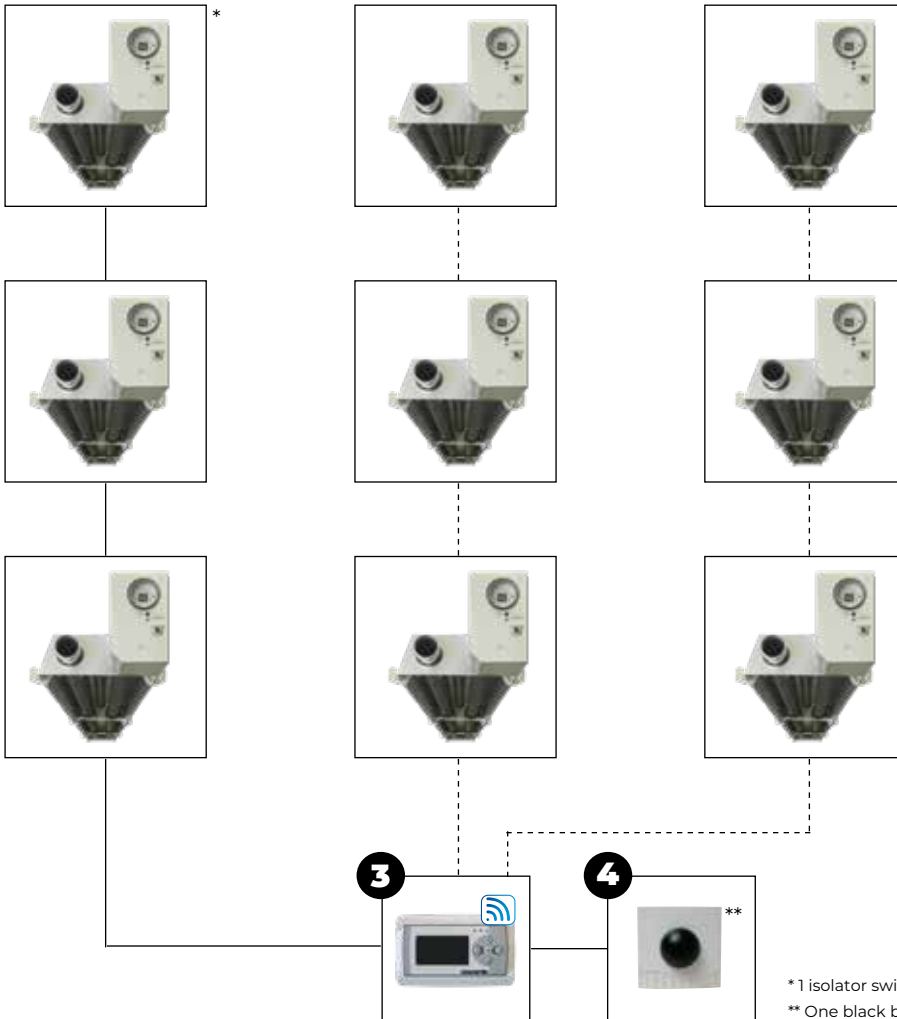
See price list for description and code numbers of the relevant items

Zone control

Zone 1

Zone 2

Zone 3



Control combination options zones Infra

2 zones + **3** + **4** + **4**

3 zones + **3** + **4** + **4** + **4**

See price list for description and code numbers of the relevant items

*1 isolator switch per Infra

** One black bulb sensor per zone

Prices Infra / Infra Mono

PRODUCT - INFRA, ON/OFF BURNER, SINGLE-WALLED, NATURAL GAS G20

Code nr.	Description	Price
5033010+5025100	INFRA 10-3, nominal power 10,0 kW	€ 2732
5033016+5025106	INFRA 15-5, nominal power 14,0 kW	€ 3062
5033011+5025101	INFRA 20-6, nominal power 18,0 kW	€ 3207
5033013+5025103	INFRA 30-6, nominal power 27,0 kW	€ 3613
5033012+5025102	INFRA 30-9, nominal power 30,0 kW	€ 4191
5033014+5025104	INFRA 40-9, nominal power 38,0 kW	€ 4210
5033017+5025104	INFRA 50-9, nominal power 46,0 kW	€ 4210
5033015+5025105	INFRA 50-12, nominal power 49,9 kW	€ 4804
5033070+5025141	INFRA MONO 30-12, nominal power 30,0 kW	€ 3893
5033073+5025143	INFRA MONO 50-18, nominal power 49,9 kW	€ 4657

Other gas types available on request. Always mention both order codes when placing an order.

PRODUCT - INFRA, HIGH/LOW BURNER, SINGLE-WALLED, NATURAL GAS G20

Code nr.	Description	Price
5033040+5025100	INFRA 10-3, nominal power 10,0 kW	€ 2758
5033046+5025106	INFRA 15-5, nominal power 14,0 kW	€ 3087
5033041+5025101	INFRA 20-6, nominal power 18,0 kW	€ 3233
5033043+5025103	INFRA 30-6, nominal power 27,0 kW	€ 3638
5033042+5025102	INFRA 30-9, nominal power 30,0 kW	€ 4216
5033044+5025104	INFRA 40-9, nominal power 38,0 kW	€ 4243
5033047+5025104	INFRA 50-9, nominal power 46,0 kW	€ 4243
5033045+5025105	INFRA 50-12, nominal power 49,9 kW	€ 4829
5033075+5025141	INFRA MONO 30-12, nominal power 30,0 kW	€ 3919
5033078+5025143	INFRA MONO 50-18, nominal power 49,9 kW	€ 4683

Other gas types available on request. Always mention both order codes when placing an order.

PRODUCT - INFRA, ON/OFF BURNER, DOUBLE-WALLED, NATURAL GAS G20

Code nr.	Description	Price
5033010+5025110	INFRA 10-3, nominal power 10,0 kW	€ 3024
5033016+5025116	INFRA 15-5, nominal power 14,0 kW	€ 3598
5033011+5025111	INFRA 20-6, nominal power 18,0 kW	€ 3768
5033013+5025113	INFRA 30-6, nominal power 27,0 kW	€ 4143
5033012+5025112	INFRA 30-9, nominal power 30,0 kW	€ 4971
5033014+5025114	INFRA 40-9, nominal power 38,0 kW	€ 4990
5033017+5025114	INFRA 50-9, nominal power 46,0 kW	€ 4990
5033015+5025115	INFRA 50-12, nominal power 49,9 kW	€ 5850

Other gas types available on request. Always mention both order codes when placing an order.



PRODUCT - INFRA, HIGH/LOW BURNER, DOUBLE-WALLED, NATURAL GAS G20

Code nr.	Description	Price
5033040+5025110	INFRA 10-3, nominal power 10,0 kW	€ 3050
5033046+5025116	INFRA 15-5, nominal power 14,0 kW	€ 3623
5033041+5025111	INFRA 20-6, nominal power 18,0 kW	€ 3794
5033043+5025113	INFRA 30-6, nominal power 27,0 kW	€ 4168
5033042+5025112	INFRA 30-9, nominal power 30,0 kW	€ 4996
5033044+5025114	INFRA 40-9, nominal power 38,0 kW	€ 5023
5033047+5025114	INFRA 50-9, nominal power 46,0 kW	€ 5023
5033045+5025115	INFRA 50-12, nominal power 49,9 kW	€ 5875

Other gas types available on request. Always mention both order codes when placing an order.

PRODUCT - STAINLESS STEEL INFRA, ON/OFF BURNER, SINGLE-WALLED, NATURAL GAS G20, WATERPROOF STAINLESS STEEL VERSION FOR HUMID ROOMS

Code nr.	Description	Price
5033110+5025200	Stainless steel INFRA10-3, nominal power 10,0 kW	€ 8657
5033116+5025206	Stainless steel INFRA 15-5, nominal power 14,0 kW	€ 9395
5033111+5025201	Stainless steel INFRA 20-6, nominal power 18,0 kW	€ 10055
5033113+5025203	Stainless steel INFRA 30-6, nominal power 27,0 kW	€ 10102
5033112+5025202	Stainless steel INFRA 30-9, nominal power 30,0 kW	€ 11802
5033114+5025204	Stainless steel INFRA 40-9, nominal power 38,0 kW	€ 11844
5033117+5025204	Stainless steel INFRA 50-9, nominal power 46,0 kW	€ 12016
5033115+5025205	Stainless steel INFRA 50-12, nominal power 49,9 kW	€ 12972

Other gas types available on request. Always mention both order codes when placing an order.

PRODUCT - STAINLESS STEEL INFRA, HIGH/LOW BURNER, SINGLE-WALLED, NATURAL GAS G20, WATERPROOF STAINLESS STEEL VERSION FOR HUMID ROOMS

Code nr.	Description	Price
5033140+5025200	Stainless steel INFRA 10-3, nominal power 10,0 kW	€ 8778
5033146+5025206	Stainless steel INFRA 15-5, nominal power 14,0 kW	€ 7860
5033141+5025201	Stainless steel INFRA 20-6, nominal power 18,0 kW	€ 10166
5033143+5025203	Stainless steel INFRA 30-6, nominal power 27,0 kW	€ 10212
5033142+5025202	Stainless steel INFRA 30-9, nominal power 30,0 kW	€ 11913
5033144+5025204	Stainless steel INFRA 40-9, nominal power 38,0 kW	€ 11955
5033147+5025204	Stainless steel INFRA 50-9, nominal power 46,0 kW	€ 12110
5033145+5025205	Stainless steel INFRA 50-12, nominal power 49,9 kW	€ 11772

Other gas types available on request. Always mention both order codes when placing an order.

ACCESSORIES - FLUE FAN - FOR INFRA 10-3 / 15-5 / 20-6 / 30-6 / 30-9 / MONO 30-12

Code nr.	Description	Price
5990556	Single flue set vertical, \varnothing 80mm. External diameter 125mm	€ 193
5990579	Single pipe horizontal, \varnothing 80mm. External diameter 125mm	€ 144
5990727	Set ALU pipes \varnothing 80mm, length 500 mm	€ 67
5990732	Set ALU pipes \varnothing 80mm, length 1000 mm	€ 82
5990733	Set ALU elbows 90°, \varnothing 80mm (2 pieces)	€ 53
5990734	Set ALU elbows 45°, \varnothing 80mm (2 pieces)	€ 74
5017656	Reducer kit 2 x from \varnothing 80 to \varnothing 100 / 2x from \varnothing 100 to \varnothing 80	€ 324
0540927	Roof flashing, only in combination with 5990556	€ 37
3040927	Adhesive coated roof flashing for plastic roofing, only in combination with 5990556	€ 68
0540804	Roof flashing 20 to 35°, only in combination with 5990556	€ 72
0540807	Dektite 4"-7"	€ 255
0540820	Dektite 5"-9"	€ 159
5990520	Flue gas cooler \varnothing 80	€ 252
5018047	Flexible connection \varnothing 80 intake side	€ 114



ACCESSORIES - FLUE FAN - FOR INFRA 40-9 / 50-9 / 50-12 / MONO 50-18

Code nr.	Description	Price
5990560	Single flue set vertical, \varnothing 100mm. External diameter 160mm	€ 333
5990583	Single pipe horizontal, \varnothing 100mm. External diameter 160mm***	€ 234
5990728	Set ALU pipes \varnothing 100mm, length 500 mm	€ 81
5990736	Set ALU pipes \varnothing 100mm, length 1000 mm	€ 118
5990737	Set ALU elbows 90°, \varnothing 100mm (2 pieces)	€ 74
5990738	Set ALU elbows 45°, \varnothing 100mm (2 pieces)	€ 80
5017657	Reducer kit 2 x from \varnothing 100 to \varnothing 130 / 2x from \varnothing 130 to \varnothing 100	€ 156
0540929	Roof flashing, only in combination with 5990560	€ 39
3040929	Adhesive coated roof flashing for plastic roofing, only in combination with 5990560	€ 93
0540806	Roof flashing 20 to 35°, only in combination with 5990560	€ 100
0540807	Dektite 4"-7"	€ 255
0540820	Dektite 5"-9"	€ 159
5990521	Flue gas cooler \varnothing 100	€ 315
5018057	Flexible connection \varnothing 100 intake side	€ 129



ACCESSORIES - FLUE FAN - GENERAL

Code nr.	Description	Price
5990744	Set ALU pipes \varnothing 130mm, length 1000 mm	€ 181
5990741	Set ALU elbows 90°, \varnothing 130mm (2 pieces)	€ 263
5990742	Set ALU elbows 45°, \varnothing 130mm (2 pieces)	€ 196
3199749	Box draught diverter \varnothing 130mm	€ 97

ACCESSORIES - CONTROLS

	Code nr.	Description	Price
1	0629109	PinTherm Infra Connect – programmable thermostat with Ethernet and Modbus, 230V (4A) *	€ 726
3	3003795	Zone control Infra****	€ 2377
2	0629087	External black bulb sensor for 0629109	€ 140
4	0629082	External black bulb sensor RSTF PT1000 for 3003795	€ 141
	0631162	Isolator switch, separate delivery, 230V (2 poles)	€ 63
	0631163	Isolator switch, separate delivery, 230V (4 poles)**	€ 71

For explanation see chapter controls. Control boxes on request.

ACCESSORIES - ASSEMBLY

	Code nr.	Description	Price
	3187210	Set wall mounting brackets INFRA 10-3 / 15-5 / 20-6 / 30-6	€ 237
	3187212	Set wall mounting brackets INFRA 30-9 / 40-9 / 50-9 / 50-12 / INFRA MONO 30-12	€ 290
	3187214	Set wall mounting brackets INFRA MONO 50-18	€ 359
	1999053	Wire rope suspension set suitable for mounting to a roof beam. Cable length up to 3m.	€ 29
	1999055	Wire rope suspension set suitable for mounting on concrete/wooden roof. Cable length up to 3m.	€ 29
	1999057	Wire rope suspension set suitable for mounting on sheet piling roof. Cable length up to 3m.	€ 29

Ball guard on demand

ACCESSORIES - OTHER

	Code nr.	Description	Price
	5018020	Flexible hose 3/4" - 1/2"	€ 147
	0607001	Gas pressure regulator for up to 100 mbar, connection 1/2"	€ 270

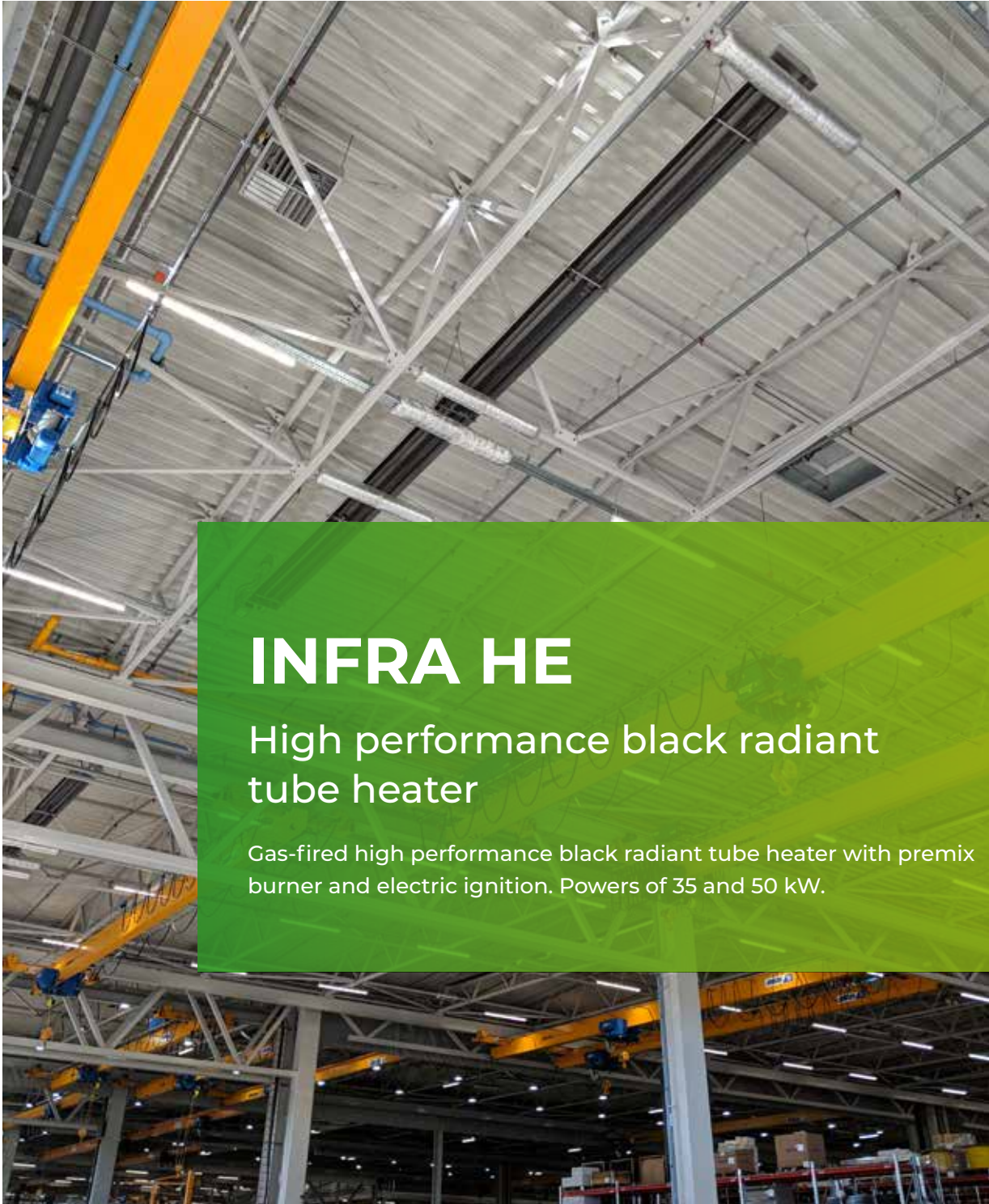
REMARKS

* Also order 0629087

** Only select when unit is high/low

*** Not applicable for INFRA MONO

**** Also order 0629082 (one for each zone)



INFRA HE

High performance black radiant tube heater

Gas-fired high performance black radiant tube heater with premix burner and electric ignition. Powers of 35 and 50 kW.



For more information, downloads and videos, visit the Infra HE page on our website



Black tube radiant heater with a low emission

The Mark INFRA HE gas-fired radiant heaters have been developed for the highest possible efficiency in combination with low NOx emissions (< 35 mg/kWh). This makes the units very suitable for BREEAM projects!

Mark INFRA HE black tube radiant heaters heat with long-wave infrared radiation. Radiant heating is based on the principle of heat transfer from a warm object to an object of lower temperature by means of electromagnetic wave energy. This electromagnetic wave, not hindered by air, radiates walls, floor and the people present in the room.

As soon as the infrared radiation gets in contact with the human body, it is converted into heat. This does not cause any change in the air temperature. This method of heat generation is considered very pleasant.

The more intense the radiant heat is, the less the actual air temperature has to be increased for a comfortable indoor climate. Therefore, heating with the Mark INFRA system is much more economical compared to conventional systems.

Possible applications include: sports halls, production facilities, aircraft hangars, showrooms and garages.

Benefits of the Infra HE black tube radiant heater are:

- No spreading of dust and low noise level during operation
- Can be used in a focused way to enable a high energy efficiency
- A flue efficiency higher than 90%
- A uniform heat distribution across the entire length of the radiator is achieved by the use of an overpressure burner with a long stable flame, in combination with built-in turbulators in the radiant tube
- Premix burner technology for optimal combustion and very low NOx emissions.

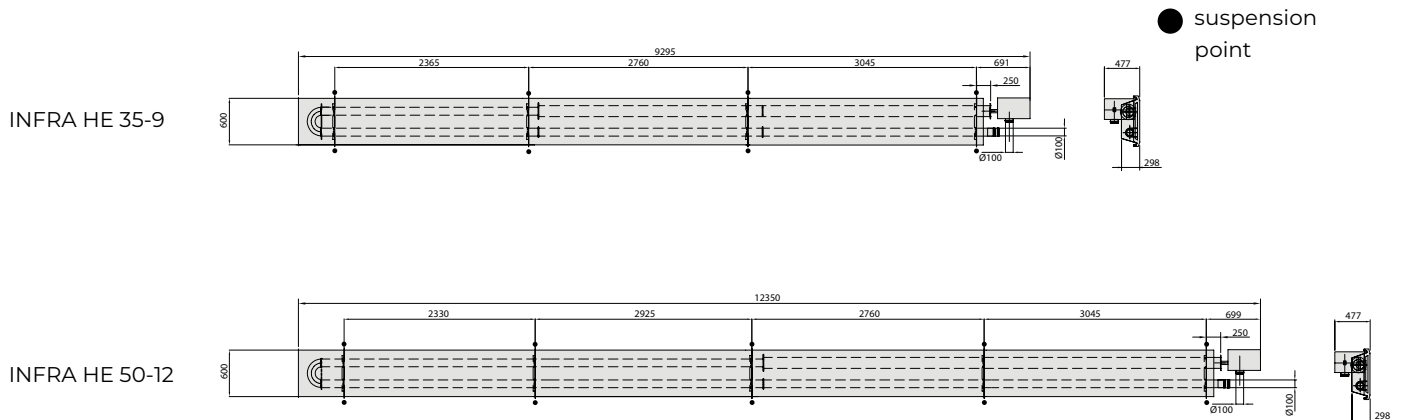
Product features

- Modulating control that optimally adapts the input capacity to the heat requirement
- Available in 2 different capacities of 35 and 50 kW
- Sizes of 9 and 12 meter in length
- A NOx emission of < 35 mg/kWh
- Highly reflective reflector hood, double air insulated
- Can be optimized energetically by using a flue gas cooler
- The highly reflective radiation hood features integrated V-shaped reflectors and end caps
- Easy installation and maintenance
- Suitable for natural gas with 20% hydrogen gas (H2) admixture



Remote connection possible with the PinTherm Infra HE Connect!

Dimensions

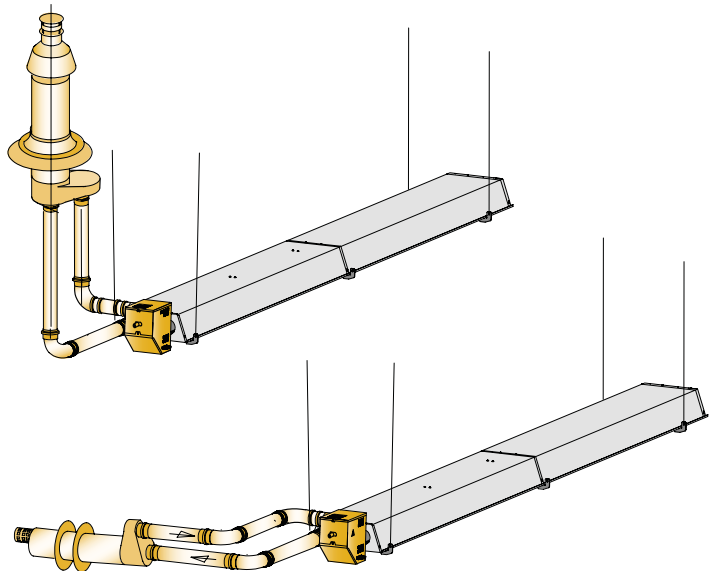
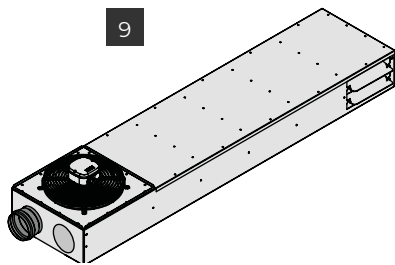
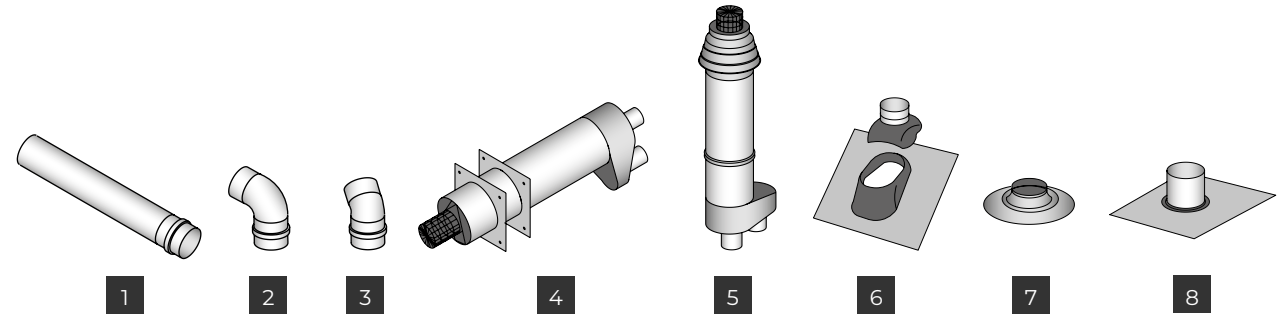


Technical information

Type		35-9	50-12
Nominal load (NCV)	kW	35,0	50,0
Flue efficiency (NCV)*	%	90,4 - 94,1	90,0 - 93,5
Flue efficiency (NCV)**	%	96,3 - 94,8	94,3 - 95,7
Gas consumption G25 (15 °C)	m ³ /h	4,14 - 2,07	5,98 - 2,98
Gas consumption G20 (15 °C)	m ³ /h	3,66 - 1,83	5,23 - 2,63
Gas consumption G31 (15 °C)	kg/h	2,72 - 1,36	3,88 - 1,94
Gas consumption G30 (15 °C)	kg/h	2,76 - 1,38	3,94 - 1,97
NOx-emission (GCV)	mg/kWh	34,8* / 32,9**	24,5* / 23,3**
Weight	kg	245	322
Electrical power	W	81-30	113-36
Recommended suspension height, horizontal	m	5,5	6,8
Recommended suspension height, 30° angle	m	5,0	6,3
Sound level at 5 metres	dB(A)	41	42

* without flue gas cooler / ** with flue gas cooler (condensation drain required)

Accessories - flue gas exhaust



- 1 Extension set
- 2 90° elbow
- 3 45° elbow
- 4 Single flue set horizontal
- 5 Single flue set vertical
- 6 Roof flashing for pitched roof
- 7 Adhesive plate
- 8 Flexible roof flashing for cladded roof
- 9 Flue gas cooler

Controls

max. 8 units



Control combination options

Infra HE + **1** + **2**

See price list for description and code numbers of the relevant items

Prices Infra HE



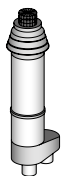
PRODUCT - NATURAL GAS G20

Code nr.	Description	Price
5033214+5025163	INFRA HE 35-9, nominal power 35,0 kW	€ 6757
5033215+5025165	INFRA HE 50-12, nominal power 50,0 kW	€ 8751

Other gas types available on request. Always enter both order codes when placing an order.

ACCESSORIES - FLUE GAS EXHAUST

Code nr.	Description	Price
5990560	Single flue set vertical, ø 100mm. External diameter 160mm	€ 333
5990583	Single flue set horizontal, ø 100mm. External diameter 160mm	€ 234
5990728	Set ALU pipes ø 100mm, length 500 mm	€ 81
5990736	Set ALU pipes ø 100mm, length 1000 mm	€ 118
5990737	Set ALU elbows 90°, ø 100mm (2 pieces)	€ 74
5990738	Set ALU elbows 45°, ø 100mm (2 pieces)	€ 80
0540929	Roof flashing, only in combination with 5990560	€ 39
3040929	Adhesive coated roof flashing for plastic roofing, only in combination with 5990560	€ 93
0540806	Roof flashing 20 to 35°, only in combination with 5990560	€ 100
0540807	Dektite 4"-7"	€ 255
5018057	Flexible connection ø 100 intake side	€ 129
5025150	Flue gas cooler**	€ 1461



ACCESSORIES - CONTROLS

	Code nr.	Description	Price
1	3003796	PinTherm Infra HE Connect – programmable room thermostat 230V (10A)*	€ 1166
2	0629002	External black bulb sensor RSTF NTC 10K required for the PinTherm Infra HE Connect 3003796	€ 194
	0631162	Isolator switch, separate delivery, 230V (2 pole)	€ 63

For explanation see chapter controls

ACCESSORIES - ASSEMBLY

Code nr.	Description	Price
1999053	Wire rope suspension set suitable for mounting to a roof beam. Cable length up to 3m.	€ 29
1999055	Wire rope suspension set suitable for mounting on concrete/wooden roof. Cable length up to 3m.	€ 29
1999057	Wire rope suspension set suitable for mounting on sheet piling roof. Cable length up to 3m.	€ 29

ACCESSORIES - OTHER

Code nr.	Description	Price
5018020	Flexible hose 3/4" - 1/2"	€ 147

REMARKS

* Also order sensor 0629002

** Condensate drain required



INFRA HT

Gas-fired high temperature radiant heater

Gas-fired high temperature radiant heater with ceramic burner and electrical ignition. Output from 6.5 to 68.8 kW.



For more information, downloads and videos, visit the Infra HT page on our website



Product features

- Ceramic Burner
- High heat output
- 9 different capacities with the length of the unit increasing as the capacity increases.

Ideal for heating tall or poorly insulated buildings

The INFRA HT offers the option of heating without displacing air. In addition, heat reaches only the location where it is required. The short warming-up period and the lower room temperature can yield good energy savings. Savings can be as high as 40%.

The INFRA HT uses an open ceramic burner for heating. This emits a high level of heat over a relatively small surface area. This high concentration of heat enables these units to be located in tall buildings.

As this unit uses open combustion, ventilation within the room must be considered. The room may be ventilated with the Mark MDV BLUE.

Possible applications include: construction halls, production facilities, aircraft hangars and stadium grandstands or other open spaces.

The Infra HT and the HT Eco have the same output. The HT has a very high radiant efficiency and a competitive price. The HT Eco has a good performance and a very competitive price.

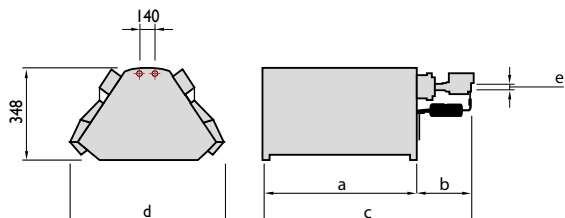
The benefits of radiant heating include:

- Short warm-up time
- High floor temperature
- Silent
- No air movement
- Low energy consumption
- "Zone" heating
- Heat only where needed



Remote connection possible with the PinTherm Infra Connect!

Dimensions



Type	a (mm)	b (mm)	c (mm)	d (mm)	e (inch/zoll)
Infra HT 4.2	421	162	583	592	1/2"
Infra HT 6.2	604	162	766	592	1/2"
Infra HT 8.2	791	162	953	592	1/2"
Infra HT 10.2	991	162	1137	592	1/2"
Infra HT 12.2	1158	218	1376	592	1/2"
Infra HT 16.2	1529	218	1747	592	1/2"
Infra HT 10+10.2	975	241	1216	822	3/4"
Infra HT 12+12.2	1158	297	1455	822	3/4"
Infra HT 16+16.2	1529	297	1826	822	3/4"

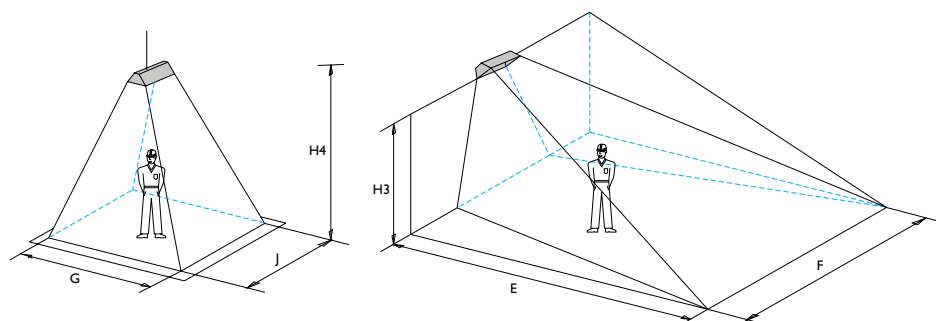
Type	a (mm)	b (mm)	c (mm)	d (mm)	e (inch/zoll)
INFRA HT 4.2 ECO	420	250	670	370	1/2"
INFRA HT 6.2 ECO	605	250	855	370	1/2"
INFRA HT 8.2 ECO	790	250	1040	370	1/2"
INFRA HT 10.2 ECO	975	250	1225	370	1/2"
INFRA HT 12.2 ECO	1160	250	1410	370	1/2"
INFRA HT 16.2 ECO	1530	250	1780	370	1/2"
INFRA HT 10+10.2 ECO	975	300	1275	600	1/2"
INFRA HT 12+12.2 ECO	1160	300	1460	600	1/2"
Infra HT 16+16.2 eco	1530	300	1830	600	1/2"

Technical information

Infra HT		4.2	6.2	8.2	10.2	12.2	16.2	10+10.2	12+12.2	16+16.2
Surface area exposed to radiation	m ²	30-40	35-50	40-65	55-90	60-100	80-110	85-115	95-155	110-180
Nominal load G20 (upper value)	kW	7,2	9,6	16,1	18,3	22,2	34,4	36,6	44,4	68,8
Nominal load G20 (lower value)	kW	6,5	8,6	14,5	16,5	20,0	31,0	33,0	40,0	62,0
Nominal load G25 (upper value)	kW	7,2	9,6	16,1	18,3	22,2	34,4	36,6	44,4	68,8
Nominal load G25 (lower value)	kW	6,5	8,6	14,5	16,5	20,0	31,0	33,0	40,0	62,0
Nominal load G31 (upper value)	kW	7,0	9,3	13,5	17,9	21,7	33,6	35,8	43,4	67,2
Nominal load G31 (lower value)	kW	6,5	8,6	12,5	16,5	20,0	31,0	33,0	40,0	62,0
Nominal load G30 (upper value)	kW	7,0	9,3	13,5	17,9	21,7	33,6	35,8	43,4	67,2
Nominal load G30 (lower value)	kW	6,5	8,6	12,5	16,5	20,0	31,0	33,0	40,0	62,0
Gas-regulating unit	n°	1	1	1	1	1	1	2	2	2
Gas consumption G20 (15°C)	m ³ /h	0,69	0,91	1,53	1,75	2,12	3,43	3,50	4,24	6,70
Gas consumption G25 (15°C)	m ³ /h	0,80	1,06	1,78	2,03	2,46	3,75	4,06	4,92	7,50
Gas consumption G31 (15°C)	kg/h	0,50	0,67	0,97	1,28	1,55	2,40	2,56	3,10	4,80
Gas consumption G30 (15°C)	kg/h	0,51	0,68	0,99	1,30	1,58	2,42	2,60	3,16	4,84
Electrical power	W	25	25	25	25	25	25	50	50	50
Ignition		electronic								
Electrical connection		230 Volt-50Hz								
Weight of HT	kg	14	17	21	24	28	35	40	47	57
Weight of HT eco	kg	8	10	12	14	17	21	29	34	40

The minimum ventilation air volume of the area is 10 m³/h per installed kW.

Assembly/location suggestions



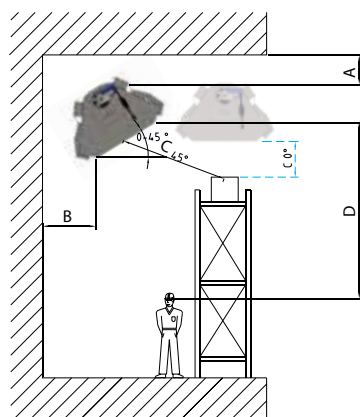
(Ceiling 0°)

Infra HT		4.2	6.2	8.2	10.2	12.2	16.2	10+10.2	12+12	16+16.2
H4 min-max	m	2,5-4,5	3,5-6,0	4,0-6,0	5,0-7,0	6,0-8,0	6,0-10,0	8,0-11,0	9,0-14,0	10-18
G	m	4,0	5,0	7,5	8	8,5	9,0	10,0	11,0	12,0
J	m	5,5	7,0	8,0	8,5	9,0	10,0	11,0	12,0	13,0

Recommended suspension height for installing high temperature radiators.

(Floor 45°)

Infra HT		4.2	6.2	8.2	10.2	12.2	16.2	10+10.2	12+12	16+16.2
H3 min - max	m	2,5-4,0	2,9-5,5	3,9-6,5	4,5-7,0	4,7-8,5	5,1-10,0	5,1-11,0	5,6-14,0	6,0-15,0
E	m	4,0	5,0	7,5	7,8	8,0	8,5	9,0	10,0	12,0
F	m	4,5	6,0	8,0	8,5	9,0	10,0	11,0	12,0	14,0



Minimum distances (ceiling 0°)

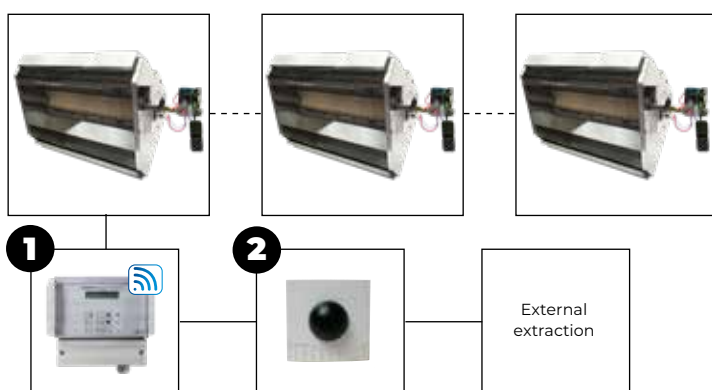
Type	A	B	D
HT 4.2	1,0	1,0	2,0
HT 6.2	1,0	1,0	2,5
HT 8.2	1,5	1,5	3,0
HT 10.2	1,5	1,5	3,5
HT 12.2	1,5	2,0	4,0
HT 16.2	1,5	2,0	4,5
HT 10+10.2	2,0	2,5	5,0
HT 12+12.2	1,5	2,5	5,5
HT 16+16.2	2,0	2,5	6,0

Minimum distances (floor 45°)

Type	A (m)	B (m)	C (m)	D 45° - 0° (m)
HT 4.2	1,0	0,5	2,0	2,4 - 3,0
HT 6.2	1,0	0,5	2,0	2,9 - 3,5
HT 8.2	1,5	0,5	2,5	3,9 - 4,5
HT 10.2	1,5	0,5	2,5	4,2 - 4,8
HT 12.2	1,5	0,5	2,5	4,7 - 5,5
HT 16.2	1,5	0,75	3,0	5,1 - 6,0
HT 10+10.2	2,0	0,75	3,0	5,0 - 6,2
HT 12+12.2	1,5	0,75	3,0	5,6 - 6,5
HT 16+16.2	2,0	1,0	3,5	6,0 - 7,1

Controls

max. 10 units

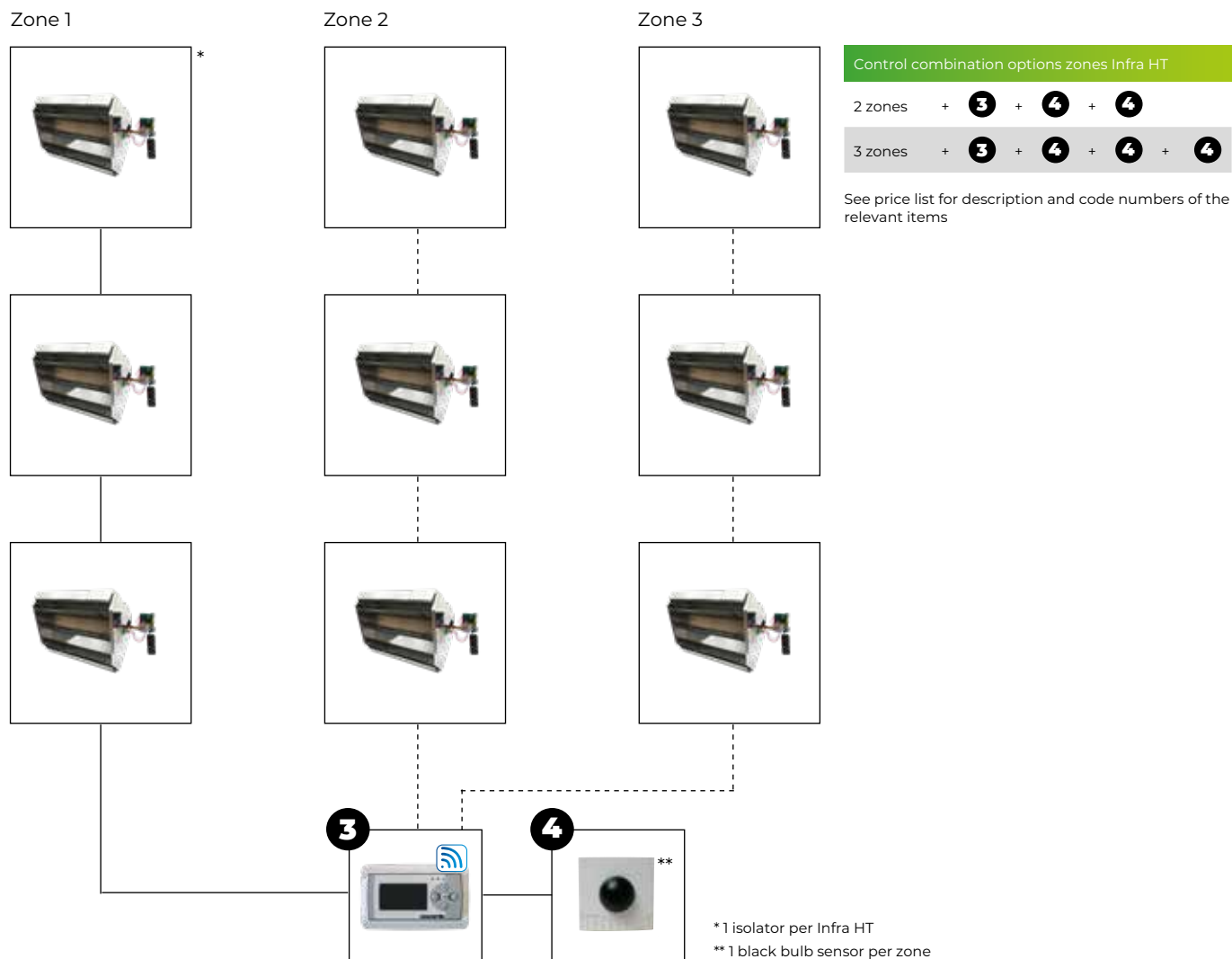


Control combination options

Infra HT + **1** + **2** + External extraction

See price list for description and code numbers of the relevant items

Zone control



Prices Infra HT



PRODUCT - INFRA HT		
Code nr.	Description	Price
	INFRA HT 4.2, nominal power 6,5 kW, H/L	€ 1433
	INFRA HT 6.2, nominal power 8,6 kW, H/L	€ 1552
	INFRA HT 8.2, nominal power 14,5 kW, H/L	€ 1741
	INFRA HT 10.2, nominal power 16,5 kW, H/L	€ 1787
	INFRA HT 12.2, nominal power 20,0 kW, H/L	€ 2105
	INFRA HT 16.2, nominal power 31,0 kW, H/L	€ 2160
	INFRA HT 10+10.2, nominal power 33,0 kW, H/L	€ 2965
	INFRA HT 12+12.2, nominal power 40,0 kW, H/L	€ 3193
	INFRA HT 16+16.2, nominal power 62,0 kW, H/L	€ 3953



PRODUCT - INFRA HT

Code nr.	Description	Price
	INFRA HT 4.2 eco, nominal power 6,5 kW, On/Off	€ 1177
	INFRA HT 6.2 eco, nominal power 8,6 kW, On/Off	€ 1314
	INFRA HT 8.2 eco, nominal power 14,5 kW, On/Off	€ 1420
	INFRA HT 10.2 eco, nominal power 6,5 kW, On/Off	€ 1529
	INFRA HT 12.2 eco, nominal power 20,0 kW, On/Off	€ 1589
	INFRA HT 16.2 eco, nominal power 31,0 kW, On/Off	€ 1874
	INFRA HT 10+ 10.2 eco, nominal power 33,0 kW, On/Off	€ 2518
	INFRA HT 12+ 12.2 eco, nominal power 40,0 kW, On/Off	€ 3046
	INFRA HT 16+ 16.2 eco, nominal power 62,0 kW, On/Off	€ 3317

ACCESSORIES - CONTROLS

Code nr.	Description	Price
1 0629109	PinTherm Infra Connect – programmable thermostat with Ethernet and Modbus, 230V (4A)****	€ 726
3 3003795	Zone control Infra*****	€ 2377
2 0629087	External Black bulb sensor for 0629109	€ 140
4 0629082	External Black bulb sensor RSTF PT1000 for 3003795	€ 141
0631162	Sectionneur, livré séparé 230 V (2 polig)	€ 63
0631163	Isolator switch, separate delivery, 400V (4 poles)	€ 71

For explanation see chapter controls

ACCESSORIES - ASSEMBLY

Code nr.	Description	Price
5998000	Wall bracket for INFRA HT 4.2 - 16.2*	€ 78
5998002	Suspended bracket for INFRA HT 4.2 - 16.2	€ 54
5998003	Suspended bracket for INFRA HT 10+10.2, 12+12.2 and 16+16.2	€ 79

ACCESSORIES - OTHER

Code nr.	Description	Price
5018025	Flexible gas hose 3/4" - 1/2"	€ 143
	Conversion kit natural gas to propane gas**	€ 86

PRODUCT -

Code nr.	Description	Price
5998060	Ball protection mesh Infra HT 4.2	€ 159
5998061	Ball protection mesh Infra HT 6.2	€ 172
5998062	Ball protection mesh Infra HT 8.2	€ 172
5998063	Ball protection mesh Infra HT 12.2	€ 214
5998064	Ball protection mesh Infra HT 16.2	€ 242
5998066	Ball protection mesh Infra HT 10.2	€ 214

REMARKS

* No wall bracket for INFRA HT 10+10.2, 12+12.2 en 16+16.2 available

** A conversion kit must be ordered for the exact type of unit and consist of.
 1 nozzle
 1 technical plate
 1 technical manual for instructions

*** Only select when the unit is high/low

**** Also order 0629087

***** Also order 0629082 (one for each zone)



INFRA AQUA DESIGN

Water-supplied aluminium radiation panel

Aluminium radiation panel with a RAL 9010 coating.



For more information, downloads and videos, visit the Infra Aqua Design page on our website

Silent, pleasant heat from a designer radiation panel



The INFRA AQUA DESIGN is a water-supplied aluminium radiation panel, fitted with a glass wool insulation blanket as standard. This insulation blanket prevents heat from being radiated upwards.

This appliance offers the option of heating without displacing air. In addition, heat reaches only the location where it is required. The short warming-up period and the lower room temperature can yield good energy savings.

The INFRA AQUA DESIGN has a very wide area of application in both utility and industrial buildings. The panel may even be integrated into a system ceiling.

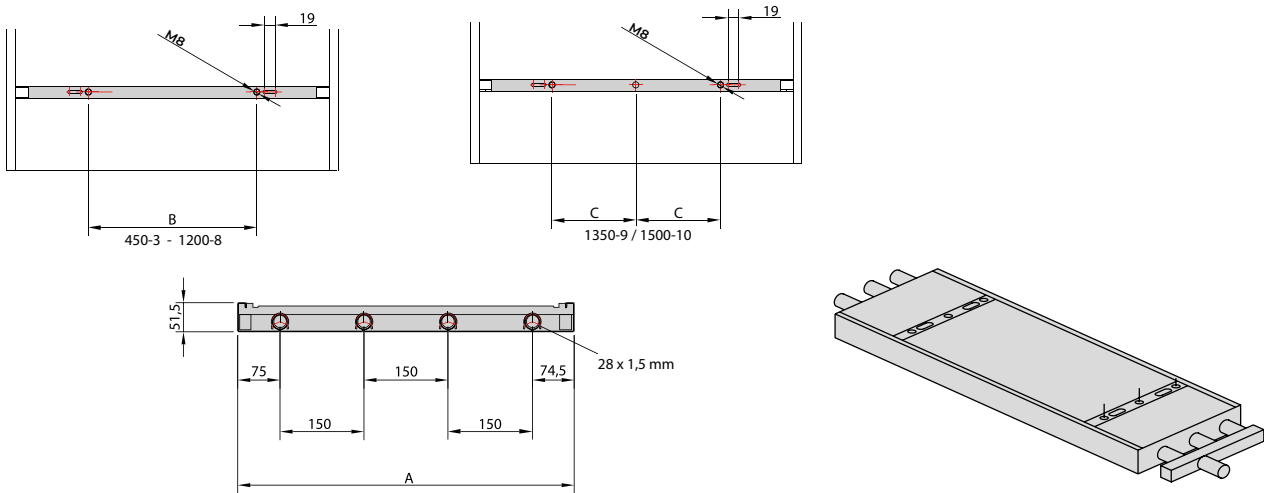
Heating with the INFRA AQUA DESIGN means heating without any draughts or displacement of air or dust.

The panel can be supplied in various widths and lengths, and in RAL 9010 white colour as standard. Other RAL-colours are available on request.

Product features

- Aluminium panel, low weight per metre.
- Aesthetically pleasing and completely flat panel.
- High heat delivery compared to steel panels
- Galvanized distributors and registers possible when used in wet spaces.
- Approved in accordance with EN 14037 1-3
- Ball-resistant in accordance with DIN 18032 d13
- Glass wool insulation
- Acoustic panels (on demand)

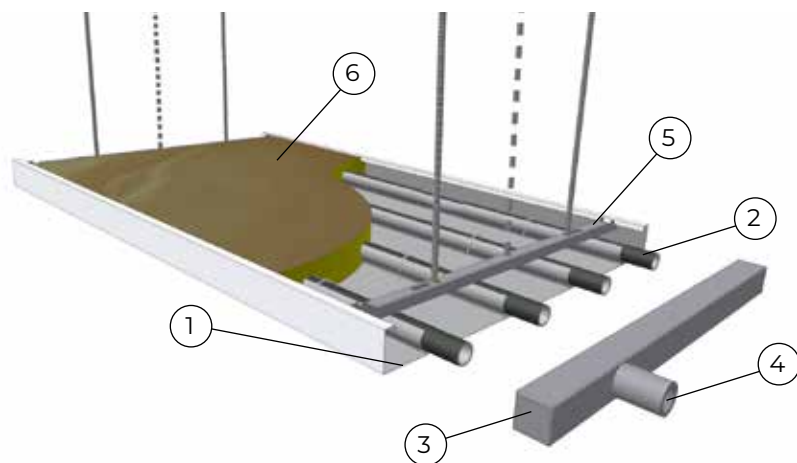
Dimensions



Type	450-3	600-4	750-5	900-6	1050-7	1200-8	1350-9	1500-10
Width = A	440	590	740	890	1040	1190	1340	1490
B/C in mm	200	300	450	600	750	600	375	450
Suspension points (6m)	3x2	3x2	3x2	3x2	3x2	3x2	3x3	3x3
Number of pipes	3	4	5	6	7	8	9	10

Technical information

- 1 = Aluminium radiant reflector
- 2 = Water-carrying tube
- 3 = Distributor
- 4 = Connection, water-side
- 5 = Suspension profile with M8 blind rivnut
- 6 = Insulating material



Type		450-3	600-4	750-5	900-6	1050-7	1200-8	1350-9	1500-10
Heat delivery 15°C (90/70 °C) room temperature	W/m	300	377	453	529	608	686	764	842
Water content	kg/m	1,47	1,96	2,45	2,94	3,43	3,92	4,41	4,90
Weight of panel (filled)	kg/m	6,24	8,49	10,55	12,82	14,67	16,73	18,79	20,85
Weight of distributor (filled)	kg/m	1,55	2,13	2,70	3,28	3,86	4,44	5,01	5,58

RADIANT PANEL, TYPE 450-3 to 1500-10

Heat delivery table in W/m² in accordance with EN 14037 1-3

K	450-3	600-4	750-5	900-6	1050-7	1200-8	1350-9	1500-10
115	578	723	868	1011	1162	1313	1465	1618
110	549	687	825	961	1104	1248	1392	1537
105	521	652	782	911	1047	1183	1320	1457
100	492	616	739	862	990	1119	1248	1378
95	464	581	697	813	934	1056	1177	1299
90	436	546	656	765	878	992	1106	1221
85	408	512	614	717	823	930	1036	1144
80	381	477	573	669	768	868	967	1067
75	354	443	533	622	714	807	899	991
70	327	410	493	576	661	746	831	916
69	322	403	485	566	650	734	817	901
68	316	397	477	557	639	722	804	887
67	311	390	469	548	629	710	791	872
66	306	383	461	539	618	698	777	857
65	300	377	453	529	608	686	764	842
64	295	370	445	520	597	674	751	828
63	290	364	438	511	587	662	737	813
62	285	357	430	502	576	650	724	798
61	279	351	422	493	566	638	711	784
60	274	344	414	484	555	627	698	769
59	269	338	406	475	545	615	685	755
58	264	331	399	466	534	603	671	740
57	259	325	391	457	524	591	658	726
56	254	318	383	448	514	580	645	711
55	248	312	375	439	503	568	632	697
54	243	306	368	430	493	556	619	683
53	238	299	360	421	483	545	607	668
52	233	293	353	412	473	533	594	654
51	228	287	345	403	463	522	581	640
50	223	280	337	395	453	510	568	626
49	218	274	330	386	442	499	555	612
48	213	268	322	377	432	488	543	598
47	208	261	315	368	422	476	530	584
46	203	255	307	360	412	465	517	570
45	198	249	300	351	402	454	505	556
44	193	243	293	342	392	442	492	542
43	188	237	285	334	383	431	480	528
42	183	231	278	325	373	420	467	515
41	178	224	270	317	363	409	455	501
40	174	218	263	308	353	398	443	487
39	169	212	256	300	343	387	430	474
38	164	206	249	291	334	376	418	460
37	159	200	241	283	324	365	406	447
36	154	194	234	274	314	354	394	433
35	150	188	227	266	305	343	382	420
30	126	159	192	225	257	290	322	354
25	103	130	157	185	211	238	264	290
20	81	102	124	146	166	187	208	229
15	60	76	92	108	123	139	154	169

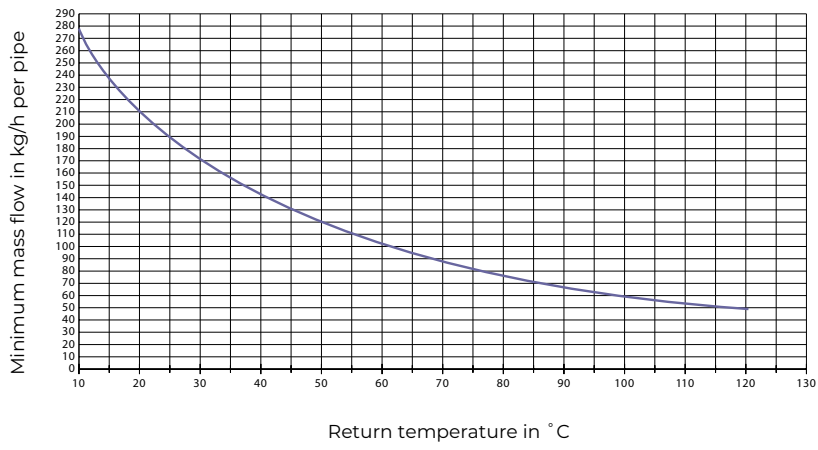
DISTRIBUTOR, TYPE 450-3 to 1500-10

Warmteafgiftetabel in W/m² volgens EN 14037 1-3 per 2 verzamelaars

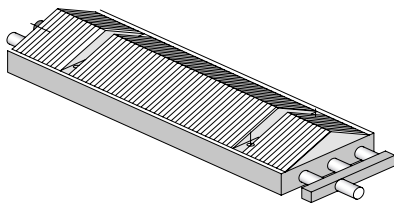
K	450-3	600-4	750-5	900-6	1050-7	1200-8	1350-9	1500-10
115	88	113	138	164	184	203	223	243
110	84	107	131	155	174	193	212	230
105	79	101	124	147	164	182	200	218
100	75	96	117	138	155	172	189	205
95	70	90	110	130	146	161	177	193
90	66	84	103	122	136	151	166	181
85	62	79	96	114	127	141	155	169
80	58	73	89	106	118	131	144	157
75	53	68	83	98	110	121	133	145
70	49	63	76	90	101	112	123	134
69	49	62	75	88	99	110	121	131
68	48	61	74	87	97	108	118	129
67	47	60	72	85	96	106	116	127
66	46	59	71	84	94	104	114	124
65	45	58	70	82	92	102	112	122
64	44	57	69	81	91	100	110	120
63	44	55	67	79	89	98	108	118
62	43	54	66	78	87	97	106	115
61	42	53	65	76	85	95	104	113
60	41	52	64	75	84	93	102	111
59	40	51	62	73	82	91	100	109
58	40	50	61	72	81	89	98	107
57	39	49	60	70	79	87	96	104
56	38	48	59	69	77	86	94	102
55	37	47	57	67	76	84	92	100
54	37	46	56	66	74	82	90	98
53	36	45	55	64	72	80	88	96
52	35	44	54	63	71	78	86	94
51	34	43	52	62	69	77	84	91
50	33	42	51	60	67	75	82	89
49	33	41	50	59	66	73	80	87
48	32	40	49	57	64	71	78	85
47	31	39	48	56	63	69	76	83
46	30	38	47	55	61	68	74	81
45	30	38	45	53	60	66	72	79
44	29	37	44	52	58	64	71	77
43	28	36	43	50	56	63	69	75
42	27	35	42	49	55	61	67	73
41	27	34	41	48	53	59	65	71
40	26	33	40	46	52	57	63	69
39	25	32	38	45	50	56	61	67
38	24	31	37	44	49	54	59	65
37	24	30	36	42	47	52	58	63
36	23	29	35	41	46	51	56	61
35	22	28	34	40	44	49	54	59
30	19	24	28	33	37	41	45	49
25	15	19	23	27	30	33	37	40
20	12	15	18	21	23	26	28	31
15	9	11	13	15	17	19	21	22

K = Average water temperature - room temperature. Values for a mass flow of 0.04 litres per second/pipe.

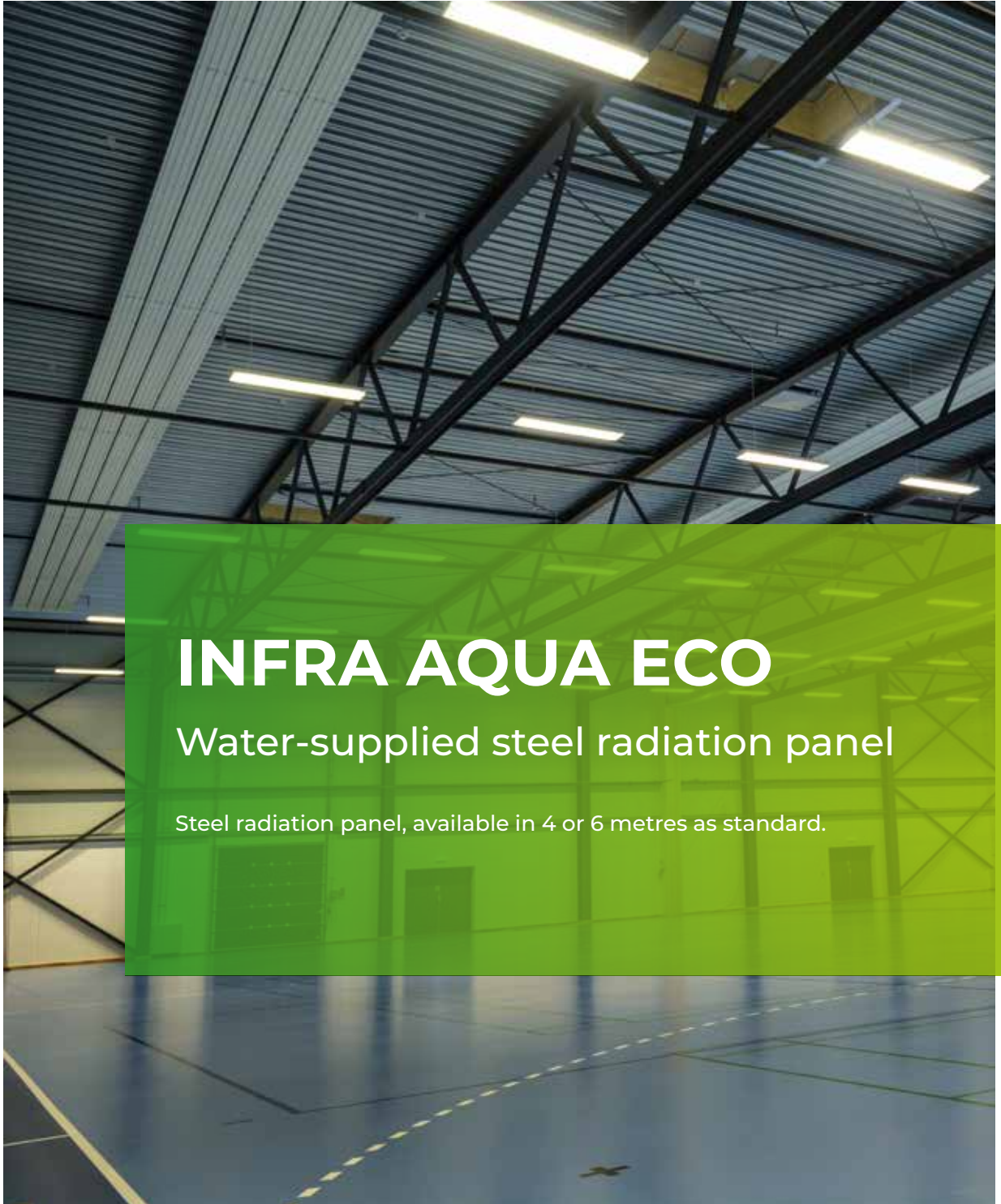
Relation between minimum mass flow and return temperature



Accessories



Ball removal plates (optional)



INFRA AQUA ECO

Water-supplied steel radiation panel

Steel radiation panel, available in 4 or 6 metres as standard.



For more information, downloads
and videos, visit the Infra Aqua
Eco page on our website

Economic heating and cooling using a lightweight panel



The INFRA AQUA ECO is a water-supplied radiation panel, fitted with a glass wool insulation blanket as standard. This insulation blanket prevents heat from being radiated upwards. This appliance offers the option of heating without displacing air. In addition, heat reaches only the location where it is required. The short warming-up period and the lower room temperature can yield good energy savings.

The INFRA AQUA ECO has a very wide area of application in both utility and industrial buildings.

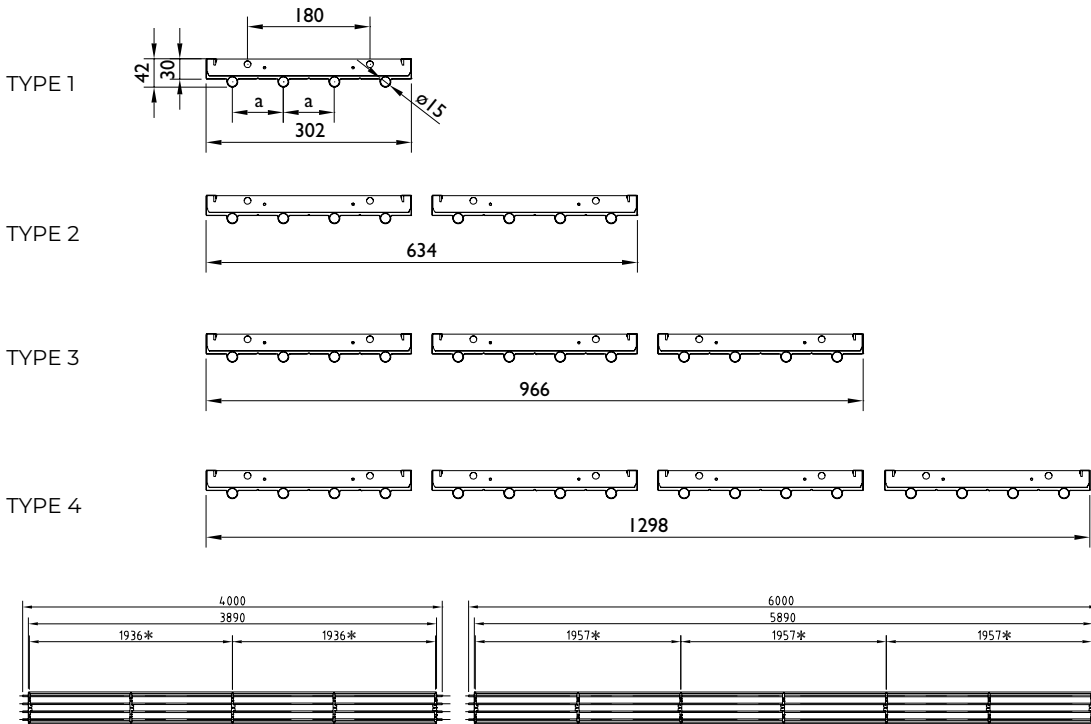
The panels are delivered in standard lengths of 4 or 6 metres. The panels may also be suspended in parallel with standard widths varying between 305 - 1.300 mm.

The panel is supplied in white RAL 9010 as standard. Other RAL colours are available on request.

Product features

- Simple installation / suspension
- Low weight per metre
- High heat emission
- Galvanized finish for collectors and registers (optional)
- Linking of panels by means of press couplings
- Measured and approved in accordance with EN 14037 1-3
- Ball-resistant

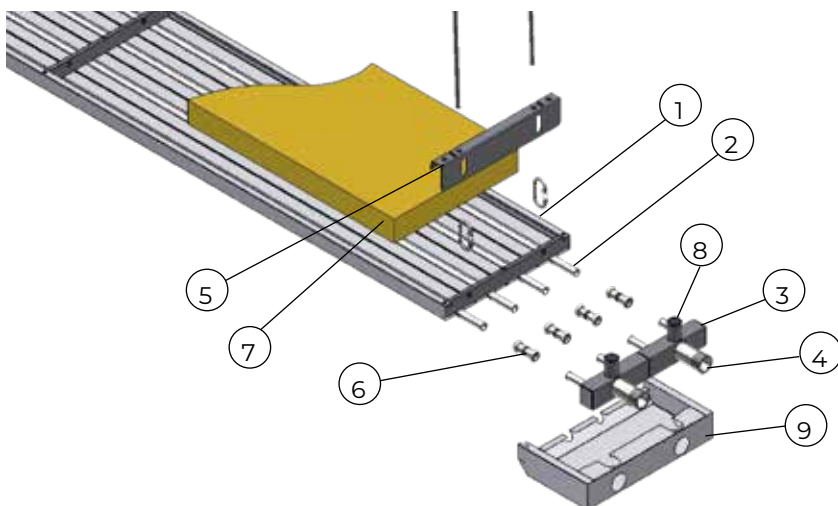
Dimensions



INFRA AQUA ECO		Type 1	Type 2	Type 3	Type 4
Tube distance (a)	mm	75	75	75	75
Outside diameter of tube	mm	15	15	15	15
Number of suspension points per axis		2	2	2	2
Operating weight with water content and insulation (4 m)	kg	14,3	28,6	43,0	57,7
Operating weight with water content and insulation (6 m)	kg	21,4	42,8	64,2	85,6

Max. operating temperature: 120 °C. Max. operating pressure: 10 bar
 * Suspension points from centre point to centre point.

Technical information



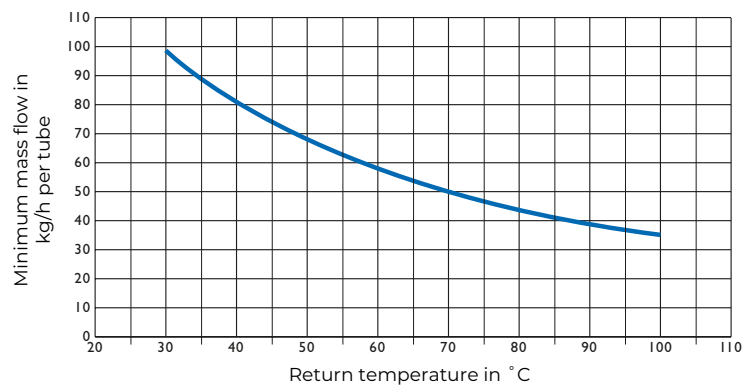
- 1 = Reflector
- 2 = Water tube
- 3 = Collector
- 4 = Water connection 1"
- 5 = Suspension set (profile and carabiners)
- 6 = Press-fittings (optional)
- 7 = Insulating material (supplied separately)
- 8 = De-aerater connection 1/2" (air point not supplied by Mark)
- 9 = Cover plate (supplied separately)

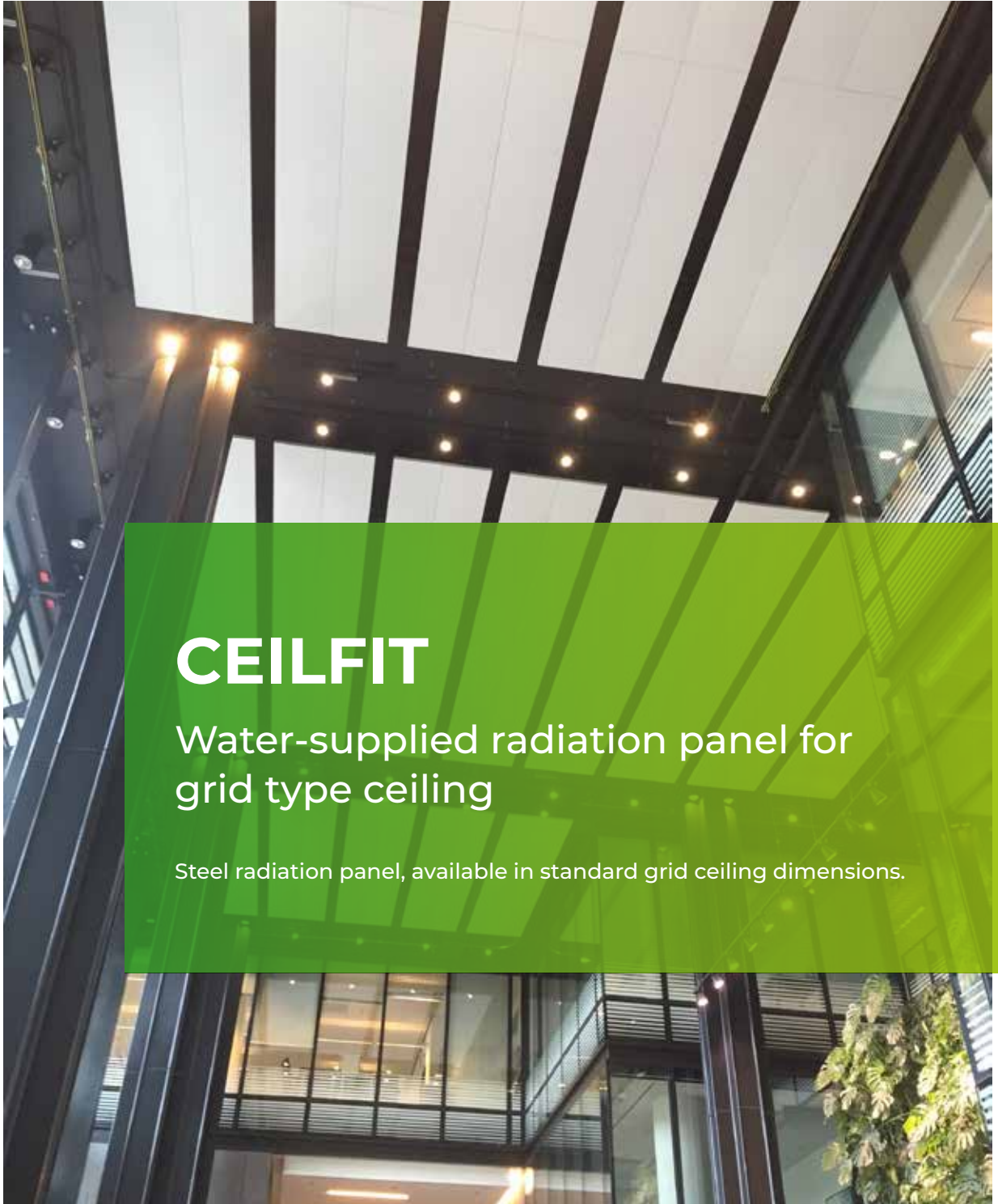
Medium over temp K	Type 1	Type 2	Type 3	Type 4	Medium over temp K	Type 1	Type 2	Type 3	Type 4
115	476	952	1428	1904	115	165	330	494	659
110	451	903	1354	1806	110	156	312	468	624
105	427	855	1282	1709	105	147	295	442	590
100	403	807	1210	1613	100	139	278	417	556
95	380	759	1139	1518	95	131	261	392	522
90	356	712	1068	1424	90	122	244	367	489
85	333	666	998	1331	85	114	228	342	456
80	310	619	929	1239	80	106	212	318	423
75	287	574	861	1148	75	98	196	293	391
70	264	529	793	1058	70	90	180	270	360
69	260	520	780	1040	69	88	177	265	353
68	256	511	767	1022	68	87	174	260	347
67	251	502	753	1004	67	85	170	256	341
66	247	493	740	987	66	84	167	251	335
65	242	485	727	969	65	82	164	246	329
64	238	476	714	951	64	81	161	242	322
63	233	467	700	934	63	79	158	237	316
62	229	458	687	916	62	78	155	233	310
61	225	449	674	899	61	76	152	228	304
60	220	441	661	881	60	74	149	223	298
59	216	432	648	864	59	73	146	219	292
58	212	423	635	847	58	71	143	214	286
57	207	415	622	830	57	70	140	210	280
56	203	406	609	812	56	68	137	205	274
55	199	398	596	795	55	67	134	201	268
54	195	389	584	778	54	66	131	197	262
53	190	381	571	761	53	64	128	192	256
52	186	372	558	744	52	63	125	188	250
51	182	364	545	727	51	61	122	183	244
50	178	355	533	710	50	60	119	179	239
49	173	347	520	694	49	58	116	175	233
48	169	338	508	677	48	57	113	170	227
47	165	330	495	660	47	55	111	166	221
46	161	322	483	644	46	54	108	162	215
45	157	314	470	627	45	52	105	157	210
44	153	305	458	611	44	51	102	153	204
43	149	297	446	594	43	50	99	149	198
42	144	289	433	578	42	48	96	145	193
41	140	281	421	562	41	47	94	140	187
40	136	273	409	546	40	45	91	136	182
39	132	265	397	529	39	44	88	132	176
38	128	257	385	513	38	43	85	128	171
37	124	249	373	497	37	41	83	124	165
36	120	241	361	482	36	40	80	120	160
35	116	233	349	466	35	39	77	116	154
30	97	194	291	388	30	32	64	96	128
25	78	156	235	313	25	26	51	77	102
20	60	120	180	240	20	19	39	58	78
15	43	85	128	171	15	14	27	41	55

Heat delivery table for panels in W/m in accordance with EN 14037 1-3

Heat delivery table per 2 distributors in W/unit in accordance with EN 14037 1-3

Relation between minimum mass flow and return temperature





CEILFIT

Water-supplied radiation panel for
grid type ceiling

Steel radiation panel, available in standard grid ceiling dimensions.



For more information, downloads
and videos, visit the Ceilfit page
on our website

Radiant panel for grid type ceiling

The Mark CEILFIT gives a comfortable work and living environment through heating and cooling by convection and radiation. It is easy to regulate zones or rooms individually to ensure a pleasant surrounding. Due to the exclusion of radiators, extra wall and floor space is made available.

Our panels are compatible with grid type ceilings and can replace the standard tile without any additional work to the grid. The standard panels are available in common standard grid dimension, or as custom dimensions on request.

The Mark CEILFIT is constructed of RAL 9010 powder coated 0,7 mm steel sheet fused to copper tube. The copper tubing allows a quick and efficient heat or cooling transfer. The copper tubing is a 10x0,4mm high quality precision tubing that can withstand pressure up to 6 bar.

Panels can be optionally insulated with mineral wool with an aluminium foil layer. Dummy panels can be fitted to accommodate lightning, sensors, ventilation or other additions to the ceiling.

The panels are also available with perforation for a better sound absorption.

To support the weight of a fluid filled panel we strongly advise to add suspension wires from the panels to a structural part of the building or ceiling. The panels are accommodated with several holes to fix the suspension brackets or cables.

Intermediate panels are available for easy connection of a range of CEILFIT panels.

The Mark CEILFIT can be used in offices, schools, hospitals, public buildings and clinics.

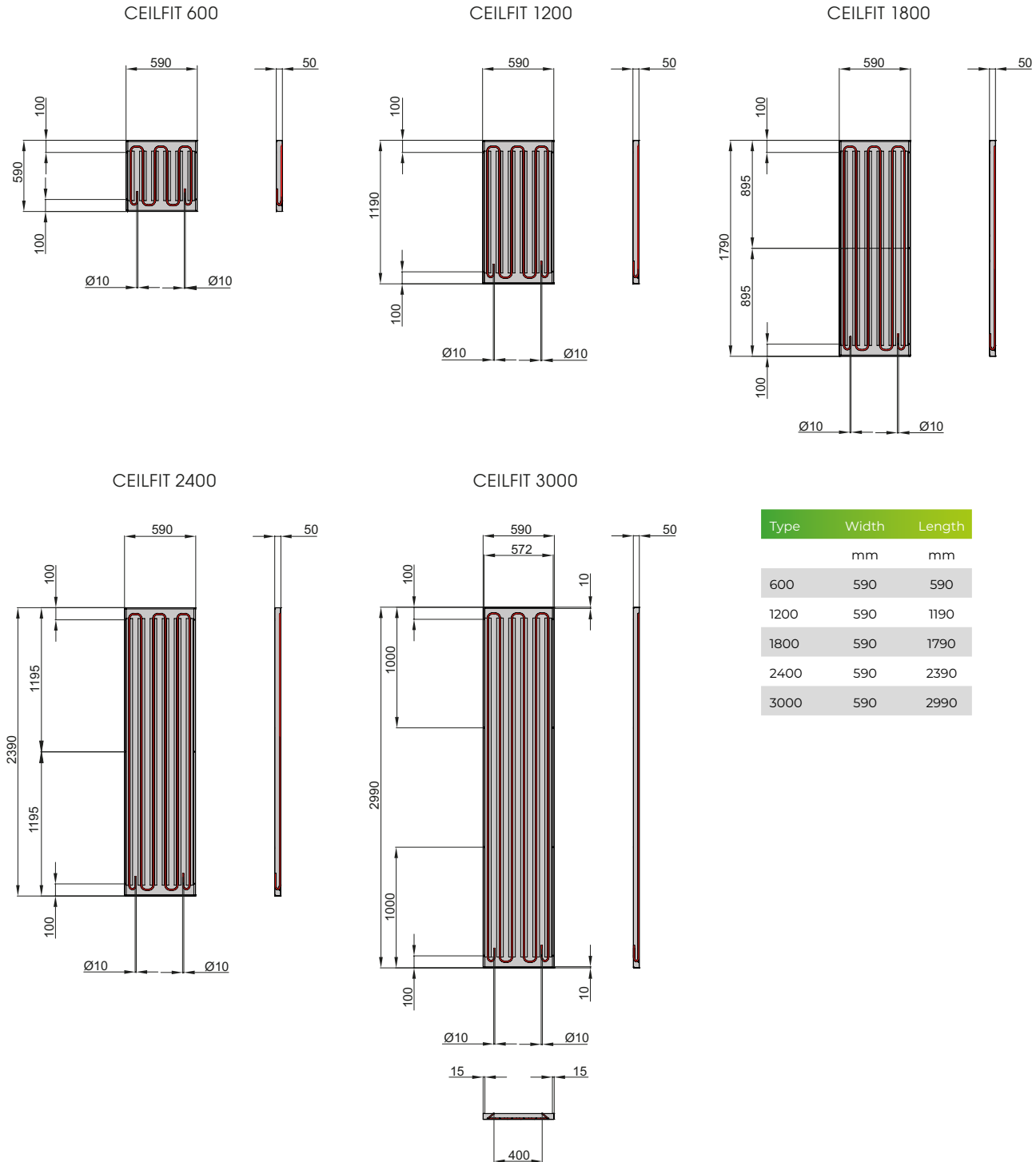
All CEILFIT products are in accordance with the NEN-EN 13964 regulation.



Product features

- Easy to clean
- Frees up floor and wall space
- Rapid warm up times, due to low water content
- Low air movement
- Low pressure drop (operating pressures)
- Low whole life costs - lack of moving parts
- Easily installed in standard T-Grid ceiling
- Cost efficient heating and cooling

Dimensions



Type	Width	Length
	mm	mm
600	590	590
1200	590	1190
1800	590	1790
2400	590	2390
3000	590	2990

Technical information

Type		600	1200	1800	2400	3000
Panel weight without water content	kg	3,8	7,4	11,2	14,9	18,6
Panel weight with water content	kg	4,0	7,9	11,9	15,8	19,8

HEAT DELIVERY PER PANEL IN WATT

with insulation					
K	600	1200	1800	2400	3000
90	293	653	1012	1371	1729
89	289	644	998	1352	1706
88	285	635	984	1333	1682
87	281	628	972	1317	1662
86	277	619	959	1299	1638
85	274	611	947	1282	1618
84	270	602	933	1264	1594
83	266	594	921	1247	1574
82	262	586	907	1229	1550
81	259	578	895	1213	1530
80	255	570	883	1196	1509
79	251	561	870	1178	1486
78	248	554	858	1161	1466
77	244	545	844	1143	1442
76	241	537	832	1127	1422
75	237	529	820	1110	1401
74	233	520	806	1092	1378
73	230	513	794	1076	1357
72	226	505	782	1059	1337
71	222	496	768	1041	1313
70	219	488	756	1024	1293
69	215	480	744	1008	1272
68	212	473	732	992	1252
67	208	464	719	973	1228
66	204	456	707	957	1208
65	201	448	695	941	1187
64	197	441	683	925	1167
63	194	433	671	908	1146
62	190	424	657	890	1123
61	186	416	645	873	1102
60	183	408	633	857	1082
59	180	401	621	841	1061
58	176	393	609	825	1041
57	173	385	597	808	1020
56	169	377	585	792	999
55	166	370	573	776	979
54	162	362	561	760	958
53	159	354	549	743	938
52	155	346	537	727	917
51	152	339	525	711	897
50	148	331	513	695	876
49	145	323	501	678	856
48	141	315	489	662	835
47	138	309	478	648	818
46	135	301	466	632	797
45	131	293	454	616	777
44	128	286	442	599	756
43	124	278	430	583	736
42	122	271	420	569	718
41	118	263	408	553	698
40	115	256	396	537	677
39	112	249	386	523	659
38	108	241	374	506	639
37	105	234	362	490	618
36	102	227	352	476	601
35	98	219	340	460	580
34	95	213	329	446	563
33	92	205	317	430	542
32	89	198	307	416	525
31	85	190	295	400	504
30	82	184	285	386	487
29	79	177	274	372	469
28	76	169	262	355	448
27	73	163	252	341	431
26	70	156	242	328	413
25	66	148	230	311	393
24	63	142	220	297	375
23	61	135	209	283	358
22	58	128	199	269	340
21	55	122	189	256	322
20	52	115	178	242	305

without insulation					
K	600	1200	1800	2400	3000
90	353	789	1222	1656	2089
89	349	778	1206	1633	2061
88	344	768	1189	1611	2032
87	340	758	1175	1591	2008
86	335	748	1158	1569	1979
85	331	738	1144	1549	1954
84	326	727	1127	1527	1926
83	322	718	1112	1507	1901
82	317	707	1096	1484	1873
81	313	698	1081	1465	1848
80	309	689	1067	1445	1823
79	304	678	1050	1423	1795
78	300	669	1036	1403	1770
77	295	658	1019	1381	1742
76	291	649	1005	1361	1717
75	286	639	990	1341	1692
74	282	629	974	1319	1664
73	277	619	959	1299	1639
72	273	610	945	1280	1615
71	268	599	928	1257	1586
70	264	590	914	1238	1561
69	260	580	899	1218	1537
68	256	571	885	1198	1512
67	251	560	868	1176	1484
66	247	551	854	1156	1459
65	243	542	839	1137	1434
64	238	532	825	1117	1409
63	234	523	810	1097	1384
62	229	512	793	1075	1356
61	225	503	779	1055	1331
60	221	493	764	1035	1306
59	217	484	750	1016	1282
58	213	475	735	996	1257
57	208	465	721	977	1232
56	204	456	706	957	1207
55	200	447	692	937	1183
54	196	437	677	918	1158
53	192	428	663	898	1133
52	188	419	648	878	1108
51	183	409	634	859	1083
50	179	400	619	839	1059
49	175	390	605	819	1034
48	171	381	590	800	1009
47	167	373	578	783	988
46	163	364	563	763	963
45	159	354	549	744	938
44	155	345	534	724	913
43	150	336	520	704	889
42	147	328	508	688	867
41	143	318	493	668	843
40	138	309	479	648	818
39	135	301	466	631	797
38	131	292	452	612	772
37	126	282	437	592	747
36	123	274	425	575	726
35	119	265	410	556	701
34	115	257	398	539	680
33	111	247	383	519	655
32	107	239	371	502	634
31	103	230	356	483	609
30	99	222	344	466	588
29	96	214	331	449	567
28	92	205	317	429	542
27	88	197	305	413	520
26	84	189	292	396	499
25	80	179	278	376	474
24	77	171	265	359	453
23	73	163	253	342	432
22	69	155	240	326	411
21	66	147	228	309	389
20	62	139	215	292	368

K = Average water temperature - room temperature. Values for a mass flow of 0.02 litres per second/pipe.
 Maximum waterpressure: 6 Bar - Maximum water temperature: 80 °C - Heat delivery inline with EN 14037-5

When panels are installed below a height of 3 meter, the mean temperature of the panel should not be more than +45 °C in order to avoid radiation assymetry.

COOLING CAPACITY PER PANEL IN WATT

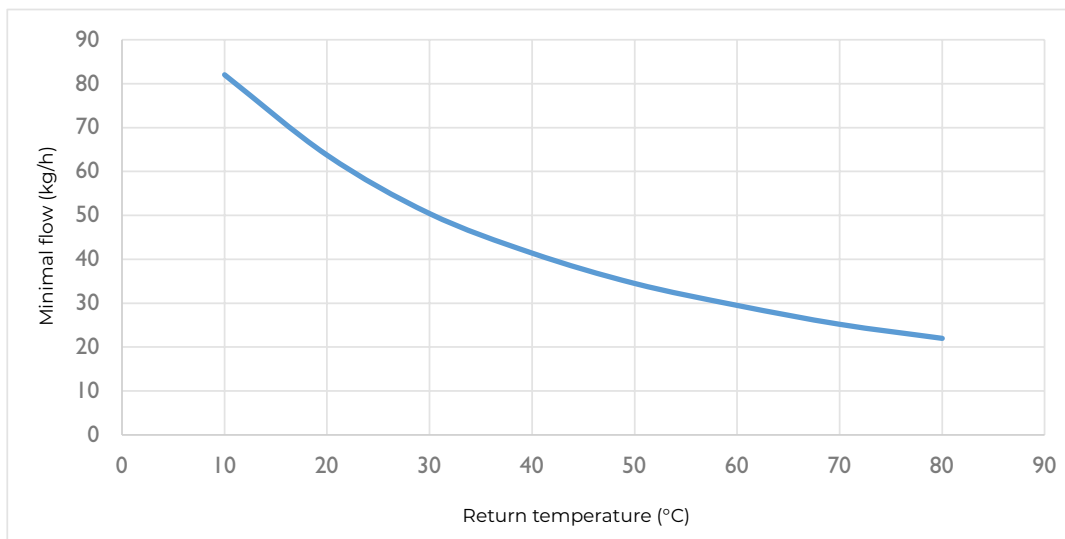
with insulation						without insulation					
K	600	1200	1800	2400	3000	K	600	1200	1800	2400	3000
15	52	117	181	246	310	15	61	136	204	285	360
14	49	108	168	228	288	14	57	126	189	265	334
13	45	100	155	210	265	13	52	116	174	244	308
12	41	92	142	193	243	12	48	106	160	223	282
11	37	83	129	175	221	11	43	97	145	203	257
10	34	75	116	157	199	10	39	87	131	183	231
9	30	67	104	141	178	9	35	78	117	163	206
8	26	59	91	124	156	8	31	68	102	143	181
7	23	51	79	107	135	7	26	59	88	124	156
6	19	43	67	91	114	6	22	50	75	105	132
5	16	35	55	74	93	5	18	41	61	86	109
4	12	28	43	58	73	4	14	32	48	67	85
3	9	20	31	42	54	3	11	23	35	49	62
2	6	13	20	27	34	2	7	15	23	32	40
1	3	6	10	13	16	1	3	7	10	14	18

K = Room temperature - average water temperature - . Values for a mass flow of 0.02 litres per second/pipe.

Maximum waterpressure: 6 Bar
Cooling capacity inline with EN 14240

When panels are used for cooling, it is recommended to use non-insulated panels.
Panel cooling is dry cooling. This type of cooling requires a dew point control system.

Relationship between the minimum mass flow and return temperature



Prices Ceilfit

PRODUCT - CEILFIT RADIANT PANEL (NON-INSULATED)

Code nr.	Description
5995910	Ceilfit 600 - 590x590 mm
5995911	Ceilfit 1200 - 590x1190 mm
5995912	Ceilfit 1800 - 590x1790 mm
5995913	Ceilfit 2400 - 590x2390 mm
5995914	Ceilfit 3000 - 590x2990 mm



PRODUCT - CEILFIT RADIANT PANEL (INSULATED)

Code nr.	Description
5995920	Ceilfit 600 - 590x590 mm
5995921	Ceilfit 1200 - 590x1190 mm
5995922	Ceilfit 1800 - 590x1790 mm
5995923	Ceilfit 2400 - 590x2390 mm
5995924	Ceilfit 3000 - 590x2990 mm



PRODUCT - CEILFIT RADIANT PANEL PERFORATED (NON-INSULATED)

Code nr.	Description
5995930	Ceilfit 600 - 590x590 mm
5995931	Ceilfit 1200 - 590x1190 mm
5995932	Ceilfit 1800 - 590x1790 mm
5995933	Ceilfit 2400 - 590x2390 mm
5995934	Ceilfit 3000 - 590x2990 mm

PRODUCT - CEILFIT RADIANT PANEL PERFORATED (INSULATED)

Code nr.	Description
5995940	Ceilfit 600 - 590x590 mm
5995941	Ceilfit 1200 - 590x1190 mm
5995942	Ceilfit 1800 - 590x1790 mm
5995943	Ceilfit 2400 - 590x2390 mm
5995944	Ceilfit 3000 - 590x2990 mm

PRODUCT - CEILFIT INTERMEDIATE PANEL (NON-INSULATED)

Code nr.	Description
5995952	Ceilfit 1800 - 590x1790 mm
5995953	Ceilfit 2400 - 590x2390 mm
5995954	Ceilfit 3000 - 590x2990 mm

PRODUCT - CEILFIT INTERMEDIATE PANEL (INSULATED)

Code nr.	Description
5995962	Ceilfit 1800 - 590x1790 mm
5995963	Ceilfit 2400 - 590x2390 mm
5995964	Ceilfit 3000 - 590x2990 mm

PRODUCT - CEILFIT INTERMEDIATE PANEL PERFORATED (NON-INSULATED)

Code nr.	Description
5995972	Ceilfit 1800 - 590x1790 mm
5995973	Ceilfit 2400 - 590x2390 mm
5995974	Ceilfit 3000 - 590x2990 mm

PRODUCT - CEILFIT INTERMEDIATE PANEL PERFORATED (INSULATED)

Code nr.	Description
5995982	Ceilfit 1800 - 590x1790 mm
5995983	Ceilfit 2400 - 590x2390 mm
5995984	Ceilfit 3000 - 590x2990 mm

Ventilation and Recirculation Equipment

RECIRCULATION

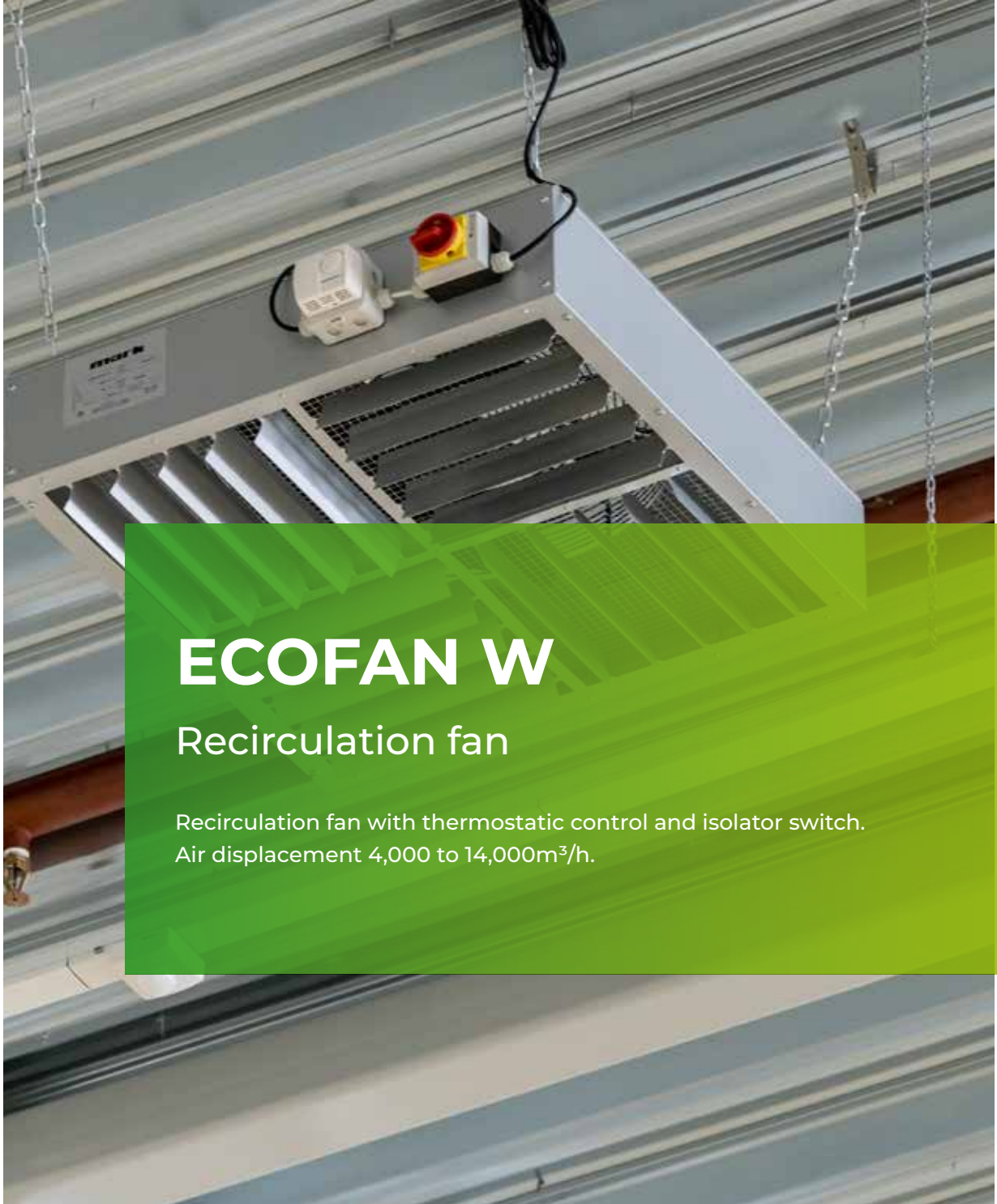
ECOFAN W

ECOFAN P

VENTILATION

MDV BLUE

COLDSTREAM



ECOFAN W

Recirculation fan

Recirculation fan with thermostatic control and isolator switch.
Air displacement 4,000 to 14,000m³/h.



For more information, downloads
and videos, visit the Ecofan W
page on our website

Easy to use, with savings up to 30% on your energy consumption



Mark recommends an ECOFAN with every air heater. A combination of these products provides optimum comfort and good heat distribution within the room. It is known that hot air rises which means that an air heater requires more time to heat up a room. A thermostatically-controlled ECOFAN transports the warm blanket under the roof to the occupied area. As a result, the room heats up more quickly, and gas consumption can in some cases be reduced by up to 30%.

The ECOFAN recirculating fan is available with various air displacements from 4.000 to 14.000 m³/h. The unit comes as standard with isolator switch and a reverse operating room thermostat that switches on the fan when the area under the ceiling becomes hot. The unit is also available as an ATEX / EEX-model, with the following classification: Ex II 2 G c Ex e IIB T3.

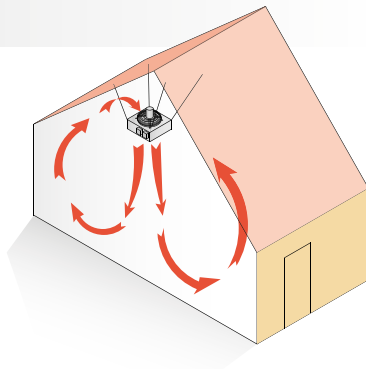
The ECOFAN can be used in construction halls, workshops, garages and logistics areas.

The ECOFAN is also available with speed controlled low noise EC-motor. Advantages:

- The highest efficiency in case of speed control
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable
- Long lifetime
- Low noise level
- Integrated electronic thermal protection

Product features

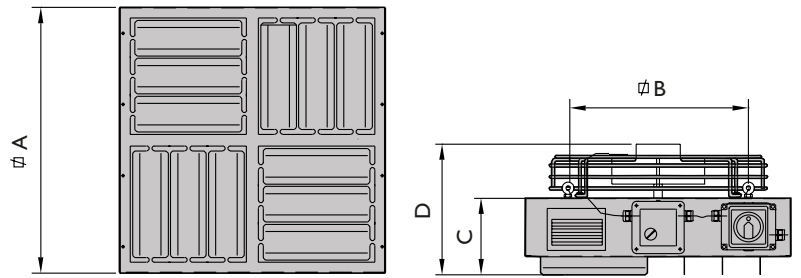
- Aluzinc housing
- Integrated thermostat
- 4-sided downflow hood
- Low maintenance



Remote connection possible with the PinTherm Connect!

Dimensions

Type	W42	W82	W142
A	560	720	860
B	500	600	797
C	185	170	220
D	280	265	325

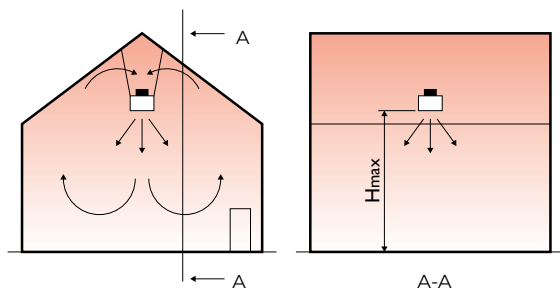


Technical information

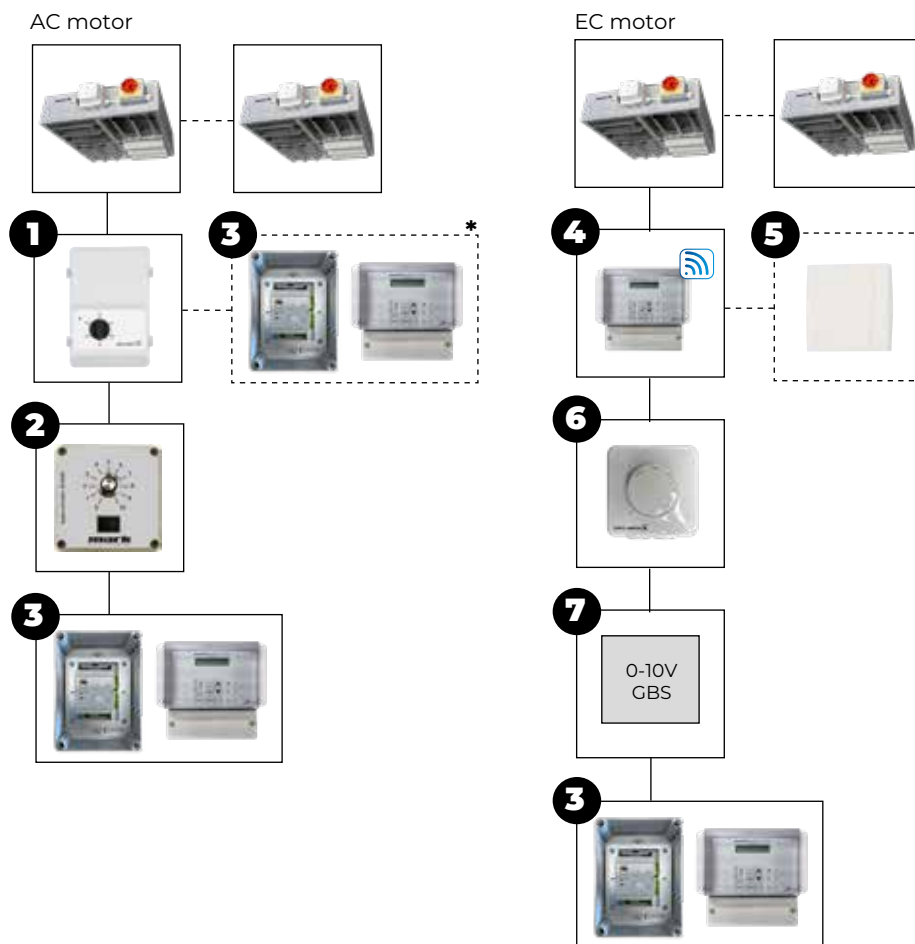
Type		W42	W82	W142
Air displacement	m ³ /h	4000	8000	14000
Motor rating AC-motor	W	150	360	535
Motor rating EC-motor	W	125	320	620
Consumed current AC-motor	A	0,65	1,7	2,5
Consumed current EC-motor	A	1,0	2,2	2,7
Motor speed AC-motor	min ⁻¹	1050	1150	880
Motor speed EC-motor	min ⁻¹	1400	1490	1000
Protection class of motor	IP	20	20	20
Supply voltage (50Hz)	V	1~230	1~230	1~230
Noise level	dB(A)	45	50	59
Weight	kg	18	24	34
Mounting height	m	4 - 8	7 - 13	10 - 18 (- 30*)
Covered m ² per fan	m ²	400	625	900

* with cone

Assembly/location suggestions



Controls



Control combination options

Ecofan W (AC)	+	1
Ecofan W (AC)	+	1 + 3 *
Ecofan W (AC)	+	3
Ecofan W (AC)	+	2
Ecofan W (EC)	+	2
Ecofan W (EC)	+	4 + 5
Ecofan W (EC)	+	6
Ecofan W (EC)	+	7

See price list for description and code numbers of the relevant items
 * This allows the Ecofan to be manually regulated in speed (no automatic speed control)..

Prices Ecofan W



PRODUCT - ECOFAN W-SERIE RECIRCULATION MODEL - INCL. THERMOSTAT AND ISOLATOR SWITCH		
Code nr.	Description	Price
5065005	ECOFAN W42, air displacement 4.000 m3/h	€ 825
5065010	ECOFAN W82, air displacement 8.000 m3/h	€ 982
5065012	ECOFAN W142, air displacement 14.000 m3/h	€ 1222



PRODUCT - ECOFAN W-SERIE RECIRCULATION MODEL WITH EC-MOTOR - INCL. THERMOSTAT AND ISOLATOR SWITCH		
Code nr.	Description	Price
5065003	ECOFAN W42, air displacement 4.000 m3/h	€ 1064
5065008	ECOFAN W82, air displacement 8.000 m3/h	€ 1399
5065014	ECOFAN W142, air displacement 14.000 m3/h	€ 2018

ACCESSORIES

Code nr.	Description	Price
5064019	Destratification hood for type W142	€ 257

ACCESSORIES - CONTROLS

Code nr.	Description	Price
1 0616186	Control panel, 5-step, 230V - 6,0A, for Ecofan W42-W82*	€ 401
1 0616188	Control panel, 5-step, 230V - 12A, for Ecofan W42-W82*	€ 629
1 0616189	Control panel, 5-step, 230V - 14A, for Ecofan W42-W82*	€ 848
1 3003096	Control panel, 5-step, 230V - 6,0A, for Ecofan W142*	€ 433
1 3003097	Control panel, 5-step, 230V - 12A, for Ecofan W142*	€ 739
1 3003098	Control panel, 5-step, 230V - 14A, for Ecofan W142*	€ 958
3 3002660	Destratification control RJ402 incl. PinTherm Connect	€ 983
4 0629108	PinTherm Connect - programmable room thermostat with Ethernet and Modbus, 230V (4A)	€ 726
6 0631390	Potentiometer 10K with on/off contact IP54	€ 196
5 0629086	Room sensor only in combination with 0629108	€ 93
2 0616040	Controller P140 **	€ 169

For explanation see chapter controls

ACCESSORIES - ASSEMBLY

Code nr.	Description	Price
1999042	Suspension-set for W42, W82 en W142. 4 pieces of chain at 550 mm and 8 x carbine hook (5x50mm)	€ 68
0562043	Carabine Hooks	€ 1

ACCESSORIES - COLOURS ***

Code nr.	Description	Price
	ECOFAN W42 provided with colour	€ 139
	ECOFAN W82 provided with colour	€ 156
	ECOFAN W142 provided with colour	€ 162

REMARKS

* W42 0,65A/230V, W82 1,7A/230V, W142 2,5A/230V

** Maximum 2 pieces W42, maximum 1 piece W82, not applicable to W142

*** These prices are only for the Mark standard RAL-colours: 3002 red, 1028 yellow, 6010 green, 7016 gray, 8014 brown, 9001 beige white, 5009 blue, 2009 orange, 1019 beige



ECOFAN P

Recirculation ceiling fan

Air displacement 22,000 m³/h.



For more information, downloads
and videos, visit the Ecofan P
page on our website

Silent and low maintenance air distributor

The ECOFAN P140 is particularly suited to better distributing hot air in a room. Achieving better distribution of air can reduce heating bills.

The ceiling fan is supplied without a position control. A reverse operating thermostat can also be supplied as an option so that the unit is switched on automatically if the temperature below the ceiling rises.

The ECOFAN P140 can, if desired, also be placed in low spaces thanks to a supplied rod of 150 mm.

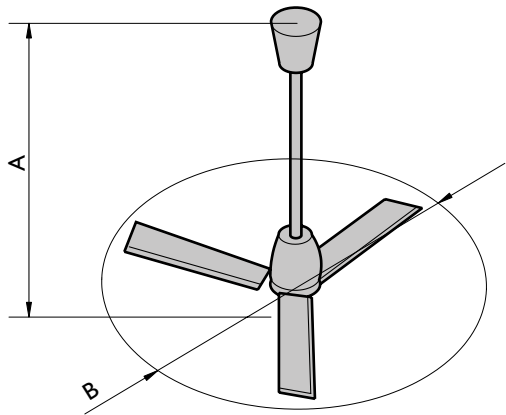
Possible applications include: factories, schools, churches, shops and offices.



Product features

- Large air displacement
- Supplied in RAL 9010 colour as standard
- Low noise
- Efficient
- Equipped with safety cord

Dimensions

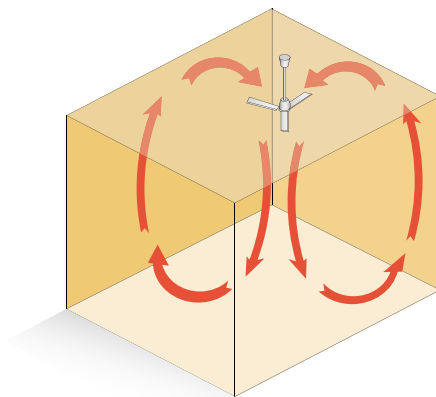


P140		
A	mm	610
B	mm	1400

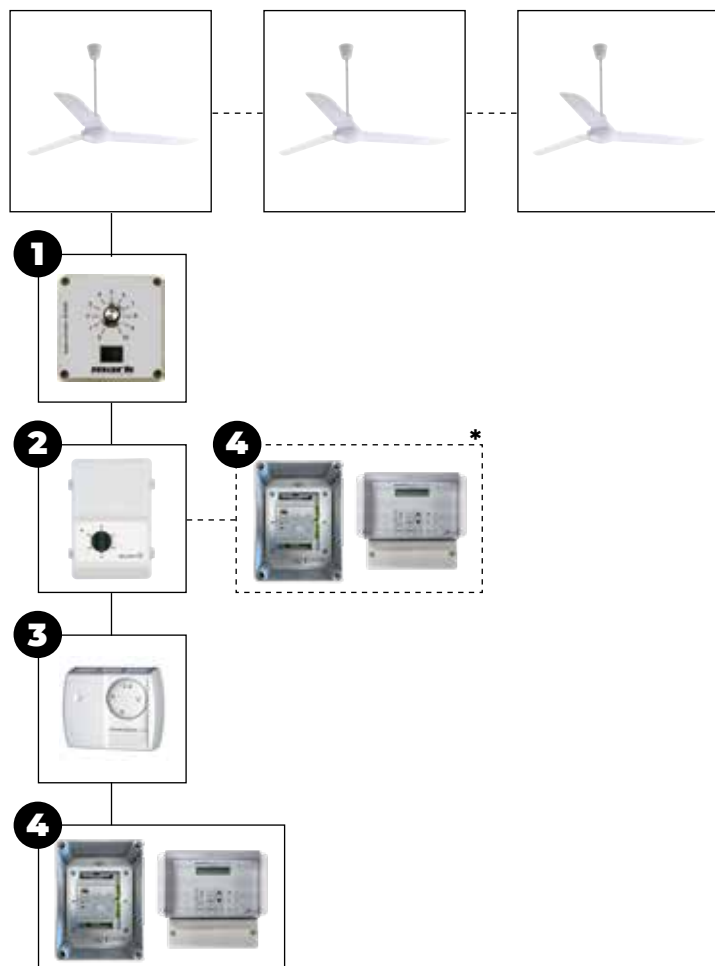
Technical information

Type	P140	
Air displacement	m ³ /h	22.000
Motor rating	W	67
Consumed current	A	0.30
Motor speed	min ⁻¹	290
ø Fan	mm	1400
Supply voltage (50Hz)	V	1~230
Weight	kg	5,0
Suspension height	m	4-9

- Number of fans
- Number of fans per 1000 m²: 12
 - Covered m² per fan: 83



Controls



Control combination options

Ecofan P	+	1	
Ecofan P	+	2	
Ecofan P	+	2	+ 4 *
Ecofan P	+	3	
Ecofan P	+	2	+ 3
Ecofan P	+	4	

See price list for description and code numbers of the relevant items.

* This allows the Ecofan to be manually regulated in speed (no automatic speed control).

Prices Ecofan P



PRODUCT - ECOFAN P CEILING FAN

Code nr.	Description	Price
5990814	ECOFAN P140, air amount 22.000 m ³ /h	€ 271

ACCESSORIES - CONTROLS

Code nr.	Description	Price
3 0629013	Room thermostat (4A)	€ 58
0631162	Isolator switch, separate delivery, 230 Volt (2 poles)	€ 63
2 3003095	5-step regulator, 230V-6,0A*	€ 433
1 0616040	Controller P140 for 9 fans	€ 169
4 3002660	Destratification control RJ402 incl. PinTherm Connect	€ 983

For explanation see chapter controls

REMARKS

* More than one fans connected on the regulator



MDV BLUE

Roof fan

Roof fan with centrifugal fan.
Air displacement 300 to 15,000 m³/h.



For more information, downloads
and videos, visit the MDV Blue
page on our website



Sustainable and efficient air extraction

The Mark MDV BLUE roof fan is suitable for extracting air from buildings and features the latest developments in the field of fans, including the efficient EC technology. This guarantees a very low power consumption combined with excellent performance.

The MDV BLUE roof fan is available in various sizes and air displacements varying from 300 m³/h to 15.000 m³/h. The unit is supplied with a radial fan. The casing is made of sendzimir plate.

The MDV BLUE can be used in factories, welding areas, offices and supermarkets.

Optional

- Aluminum casing seawater resistant AlMg3
- Controls: i.a. constant pressure, 0-10V, presence control, CO₂ control, humidity control and temperature control.

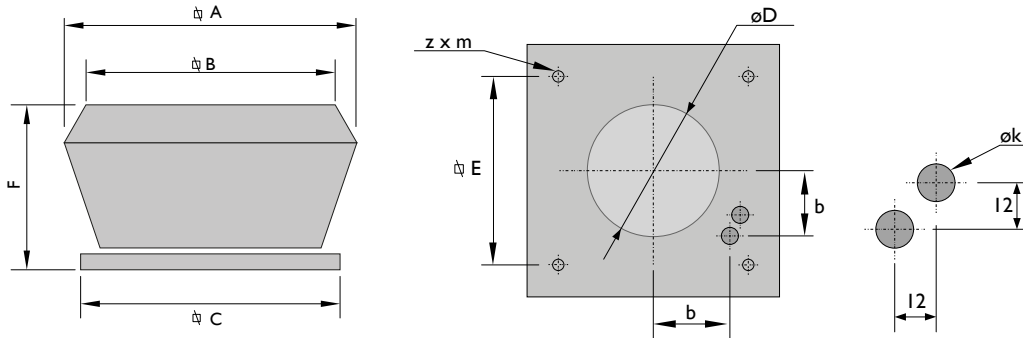
Product features

- Sharp pricing
- EC technology
- Reliable
- High efficiency
- Meets EU 1253/2018
- 300 m³/h to 15.000 m³/h
- Low maintenance
- Good chemical resistance
- Complete BMS integration possible



Remote connection possible with the PinTherm Connect!

Dimensions

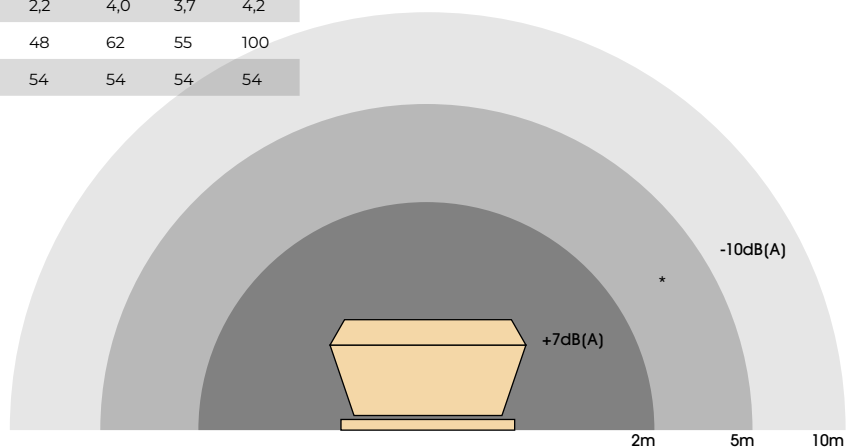


Type	A	B	C	D	E	F	b	z x m	ϕk
MDV Blue 225	514	430	435	200	330	277	115	4 x $\phi 9$	20
MDV Blue 355	715	590	595	290	450	365	160	4 x $\phi 12$	20
MDV Blue 400	715	590	595	365	450	365	160	4 x $\phi 12$	20
MDV Blue 450	880	660	665	410	535	480	220	4 x $\phi 12$	20
MDV Blue 500	870	720	723	450	590	480	245	4 x $\phi 12$	20
MDV Blue 560	1135	935	939	510	750	570	250	4 x $\phi 12$	20
MDV Blue 630	1135	935	939	550	750	570	260	4 x $\phi 12$	20

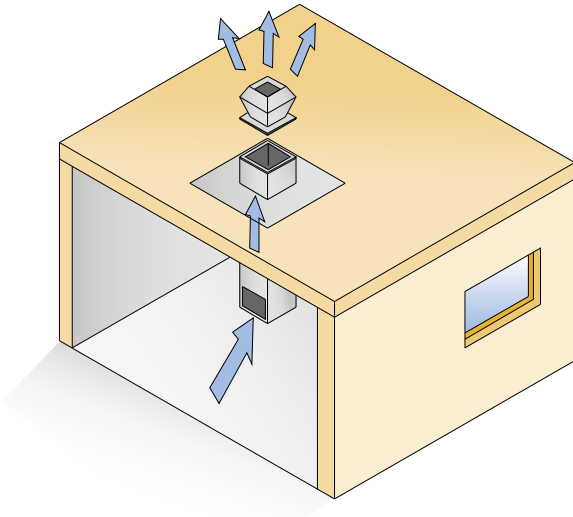
Technical information

MDV Blue		225	355	400	450EC	500	560	630
Supply voltage (50Hz)	V	230	230	230	230	400	400	400
Nominal air flow	m ³ /s	0,25	0,56	1,16	1,39	2,50	3,05	3,89
Nominal power consumption	kW	0,07	0,15	0,26	0,32	0,82	1,508	1,40
SFP nominal	W/m ³ /s	277	275	228	199	330	494	362
Nominal air velocity	m/s	6,69	13,37	16,73	18,73	23,77	23,38	24,03
Nominal pressure	Pa	72	105	120	120	142	284	178
Stat. efficiency fan	%	26,0	38,2	52,7	60,4	43,1	57,4	49,2
Noise level (5m)*	dB(A)	63	65	63	67	72	70	72
Maximum air flow	m ³ /h	1200	3150	4300	5300	10750	11500	15000
Consumed current	A	1,4	2,2	3,0	2,2	4,0	3,7	4,2
Weight	kg	16	32	35	48	62	55	100
Protection class	IP	54	54	54	54	54	54	54

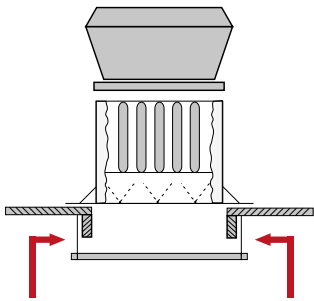
Thermal efficiency: Not applicable
 HRS: None
 Category: NRVU
 Operating temperature: -20 / +60 °C



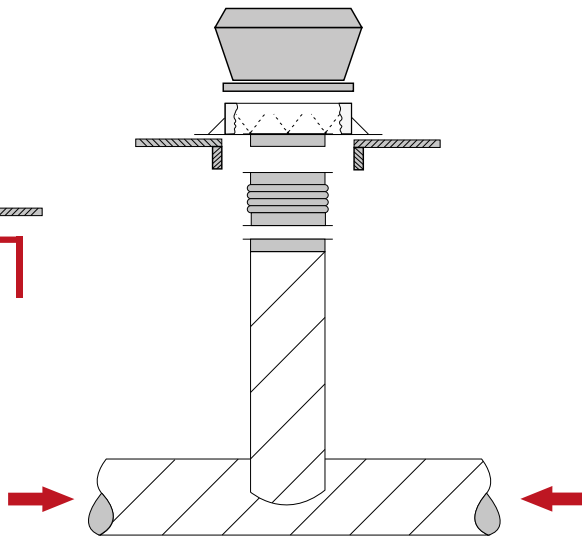
Assembly/location suggestions



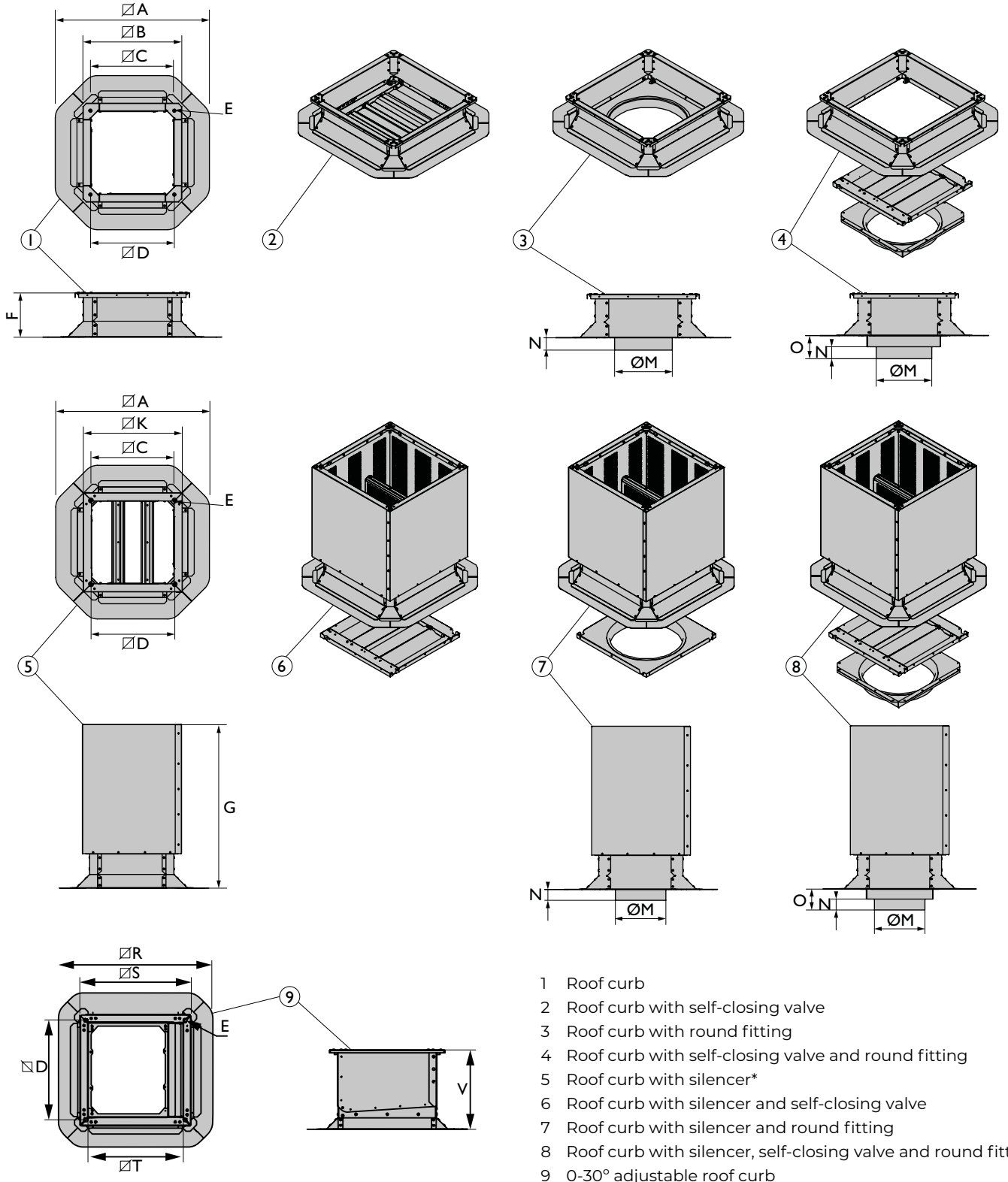
MDV with sound absorbing plate



MDV with duct connection



Accessoires - additional sections



- 1 Roof curb
- 2 Roof curb with self-closing valve
- 3 Roof curb with round fitting
- 4 Roof curb with self-closing valve and round fitting
- 5 Roof curb with silencer*
- 6 Roof curb with silencer and self-closing valve
- 7 Roof curb with silencer and round fitting
- 8 Roof curb with silencer, self-closing valve and round fitting
- 9 0-30° adjustable roof curb

* silencer is also available seperately, price on request.
attenuation value 9 dB(A)

Dimensions (mm) belonging to previous page

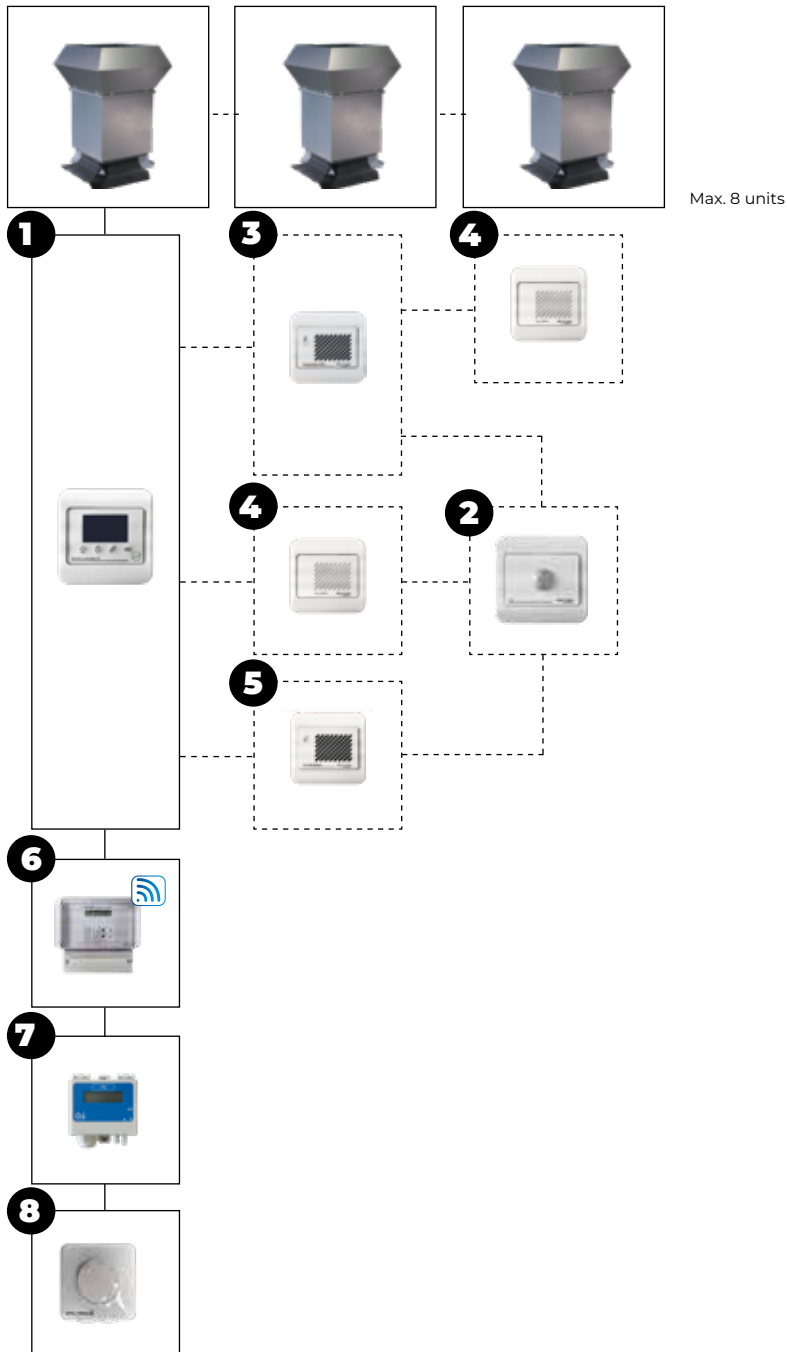
Type	A	B	C	D	E	F	G	K	M	N	O	R	S	T	V
225	610	390	328	320	M8	150	648	392	200	43	83	515	372	312	255
355/400	728	510	448	450	M10	150	733	514	355	53	93	635	490	431	316
450	815	600	533	530	M10	150	733	598	400	53	93	720	575	516	372
500	870	650	588	585	M10	150	698	656	450	53	93	775	630	571	372
560/630	1030	810	748	745	M10	150	698	816	600	63	103	934	790	731	341

Weights (kg)

Type	225	355/400	450	500	560/630
Roof curb	6,3	8,4	9,9	10,9	13,7
Roof curb with self-closing valve	7,6	10,4	12,5	13,8	18,2
Roof curb with round fitting	7,8	10,4	12,7	14,0	18,1
Roof curb with self-closing valve and round fitting	8,4	11,0	14,2	15,8	21,1
Roof curb with silencer	19,6	29,2	33,1	37,4	46,6
Roof curb with silencer and self-closing valve	20,8	31,1	35,7	40,3	51,2
Roof curb with silencer and round fitting	21,1	31,2	35,8	40,6	51
Roof curb with silencer, self-closing valve and round fitting	21,7	32,3	37,4	42,3	54,1
0-30° adjustable roof curb	6,6	10	13,5	15	18

Controls

MDV Blue EC



Control combination options EC

MDV Blue + **1**

MDV Blue + **1** + **3**

MDV Blue + **1** + **4**

MDV Blue + **1** + **5**

MDV Blue + **1** + **3** + **4**

MDV Blue + **1** + **3** + **2**

MDV Blue + **1** + **4** + **2**

MDV Blue + **1** + **5** + **2**

MDV Blue + **6**

MDV Blue + **7**

MDV Blue + **8**

See price list for description and code numbers of the relevant items

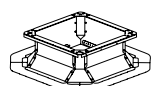
Prices MDV Blue

PRODUCT - MDV BLUE EC ROOF FAN



Code nr.	Description	Price
3182007	MDV Blue EC 225, 230V	€ 990
3182001	MDV Blue EC 355, 230V	€ 1490
3182002	MDV Blue EC 400, 230V	€ 1981
3182003	MDV Blue EC 450, 230V	€ 2876
3182004	MDV Blue EC 500, 400V	€ 2699
3182005	MDV Blue EC 560, 400V	€ 2865
3182006	MDV Blue EC 630, 400V	€ 3360

ACCESSORIES - ADDITIONAL SECTIONS - ROOF CURB



Code nr.	Description	Price
3074470	for MDV Blue 225	€ 251
3074471	for MDV Blue 355/400	€ 250
3074473	for MDV Blue 450	€ 287
3074475	for MDV Blue 500	€ 314
3074476	for MDV Blue 630	€ 310

ACCESSORIES - ADDITIONAL SECTIONS - ROOF CURB WITH SELF-CLOSING VALVE

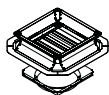


Code nr.	Description	Price
3182060	for MDV Blue 225	€ 392
3182061	for MDV Blue 355/400	€ 396
3182063	for MDV Blue 450	€ 505
3182065	for MDV Blue 500	€ 534
3182066	for MDV Blue 630	€ 573

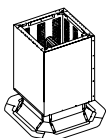
ACCESSORIES - ADDITIONAL SECTIONS - ROOF CURB WITH ROUND FITTING



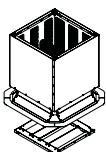
Code nr.	Description	Price
3182050	for MDV Blue 225	€ 365
3182051	for MDV Blue 355/400	€ 382
3182053	for MDV Blue 450	€ 436
3182055	for MDV Blue 500	€ 474
3182056	for MDV Blue 630	€ 488


ACCESSORIES - ADDITIONAL SECTIONS - ROOF CURB WITH SELF-CLOSING VALVE AND ROUND FITTING

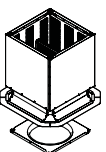
Code nr.	Description	Price
3182070	for MDV Blue 225	€ 500
3182071	for MDV Blue 355/400	€ 521
3182073	for MDV Blue 450	€ 644
3182075	for MDV Blue 500	€ 683
3182076	for MDV Blue 630	€ 735


ACCESSORIES - ADDITIONAL SECTIONS - ROOF CURB WITH SILENCER

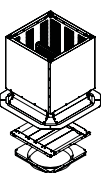
Code nr.	Description	Price
3182024	for MDV Blue 225	€ 643
3182025	for MDV Blue 355/400	€ 797
3182027	for MDV Blue 450	€ 915
3182029	for MDV Blue 500	€ 985
3182030	for MDV Blue 630	€ 1062


ACCESSORIES - ADDITIONAL SECTIONS - ROOF CURB WITH SILENCER AND SELF-CLOSING VALVE

Code nr.	Description	Price
3182110	for MDV Blue 225	€ 782
3182111	for MDV Blue 355/400	€ 944
3182113	for MDV Blue 450	€ 1133
3182115	for MDV Blue 500	€ 1205
3182116	for MDV Blue 630	€ 1326


ACCESSORIES - ADDITIONAL SECTIONS - ROOF CURB WITH SILENCER AND ROUND FITTING

Code nr.	Description	Price
3182100	for MDV Blue 225	€ 757
3182101	for MDV Blue 355/400	€ 930
3182103	for MDV Blue 450	€ 1063
3182105	for MDV Blue 500	€ 1145
3182106	for MDV Blue 630	€ 1241


ACCESSORIES - ADDITIONAL SECTIONS - ROOF CURB WITH SILENCER, SELF-CLOSING VALVE AND ROUND FITTING

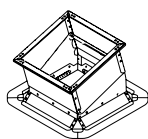
Code nr.	Description	Price
3182120	for MDV Blue 225	€ 875
3182121	for MDV Blue 355/400	€ 1051
3182123	for MDV Blue 450	€ 1254
3182125	for MDV Blue 500	€ 1337
3182126	for MDV Blue 630	€ 1471

ACCESSORIES - ADDITIONAL SECTIONS - NOISE REDUCTION PLATE

Code nr.	Description	Price
5064230	for MDV Blue 225	€ 143
5064231	for MDV Blue 355/400	€ 163
5064232	for MDV Blue 450/500	€ 170
5064233	for MDV Blue 630	€ 214

ACCESSORIES - ADDITIONAL SECTIONS- ADJUSTABLE (0-30°) ROOF CURB

Code nr.	Description	Price
3074478	for MDV Blue 225	€ 505
3074479	for MDV Blue 355/400	€ 590
3074481	for MDV Blue 450	€ 618
3074482	for MDV Blue 500	€ 651
3074483	for MDV Blue 630 (0-20°)	€ 777



ACCESSORIES - CONTROLS

Code nr.	Description	Price
6 0629108	PinTherm Connect - programmable room thermostat with Ethernet and Modbus, 230V (4A)	€ 726
1 0629400	Multi Controller E regulate 230V	€ 756
3 0629410	Room temperature sensor IP20	€ 198
3 0629411	Room temperature sensor IP54	€ 119
4 0629412	Room CO2 sensor	€ 617
5 0629413	Room humidity sensor	€ 341
2 0629414	Presence sensor	€ 214
8 0631390	Potentiometer 10K with on/off contact IP54	€ 196
7 3004561	Constant pressure control 230V	€ 500
7 3004560	Constant pressure control 400V	€ 500
0631163	Isolator switch 4 poles 230V, separate delivery	€ 71
0631167	Isolator switch 8 poles 400V, separate delivery	€ 91
5017098	Isolator switch 4 poles 230V, pre-wired	€ 125
5017099	Isolator switch 8 poles 400V, pre-wired	€ 169

For explanation see chapter controls



COLDSTREAM

Adiabatic cooling

Sustainable ventilation and adiabatic cooling
Air displacement 20.000 and 25.000 m³/h.



For more information, downloads
and videos, visit the Coldstream
page on our website



Sustainable ventilation and adiabatic cooling

The Mark ColdStream adiabatic cooling is based on the evaporation of water. The required heat is taken from the outside air. The fresh outside air flows through the water-wetted cellulose filters. Due to the evaporation of the water, the air temperature is reduced in a natural and environmental-friendly manner.

The principle is based on the ventilated cooling with very low operational costs for a favorable price. The system is particularly suitable for cooling and ventilation of large industrial areas.

The technique is reliable, safe, easy and virtually maintenance free. Another big advantage is that there is no annual inspection required. The simple technique is cheap in terms of system maintenance. In addition, the system is legionella proof.

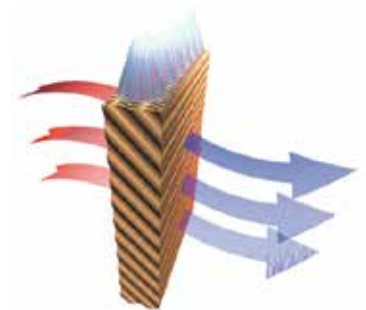
The Mark ColdStream is suitable for workshops, garages, weldinghalls, sports halls, bakeries and exhibition halls.

Product features

- Electronic remote control with the following functions:
 - Temperature
 - Speed control
 - Relative humidity control
 - Daily and weekly programming
- Economical fan
- Electrical shut-off valve on the water connection
- Water distribution system with an electric pump
- High efficiency cellulose filter pack
- Automatic water change
- Automatic water drainage
- Automatic cleaning

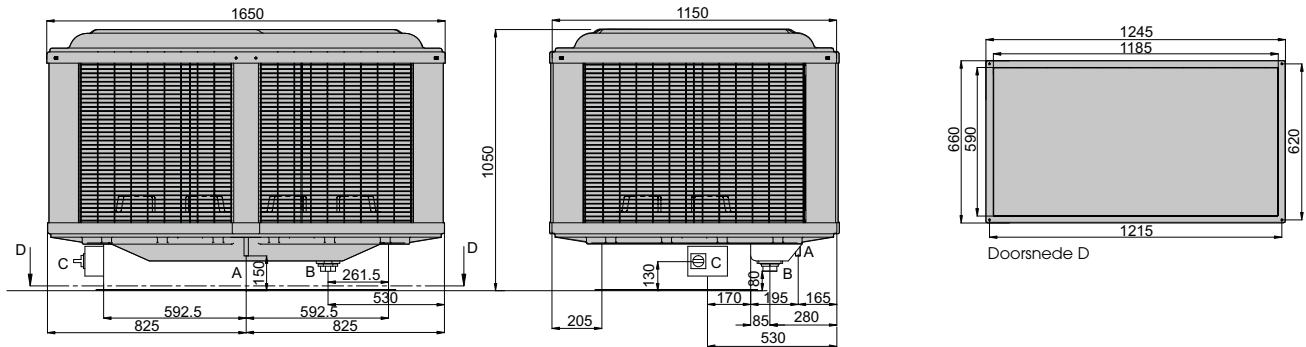
Advantages:

- High ventilation rate
- Ventilation and / or cooling in one system
- Low operating costs
- Favourable purchase price
- Cheap maintenance
- Environmentally friendly
- Increased productivity
- Durable

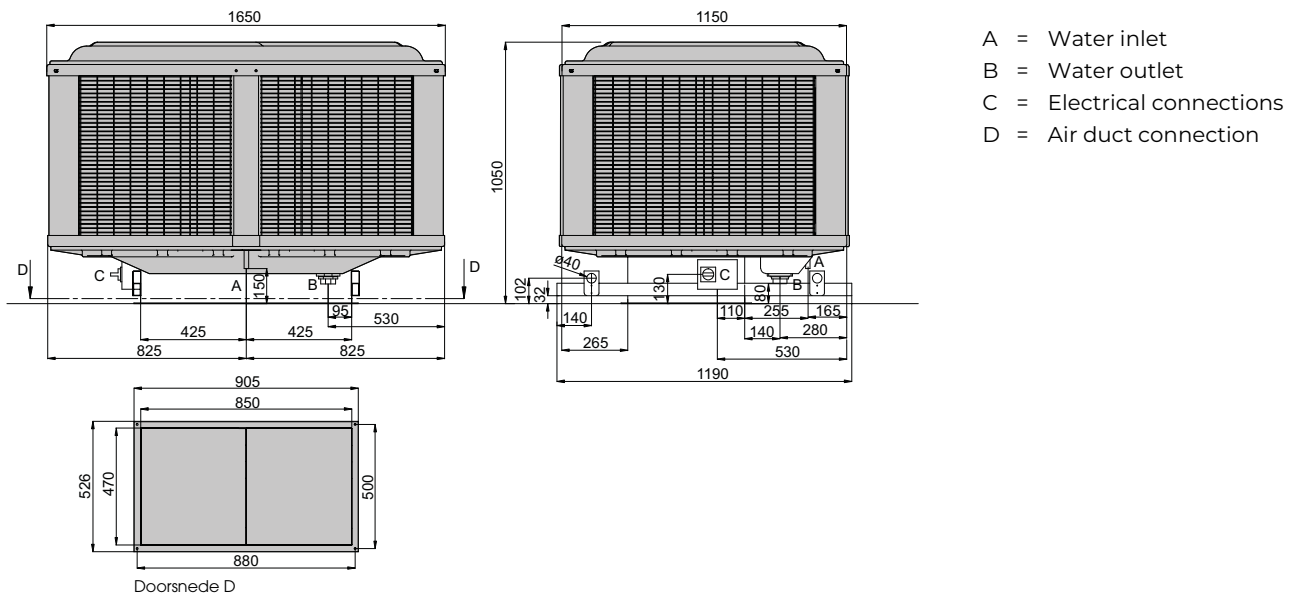


Dimensions

TYPE TA209



TYPE TC209

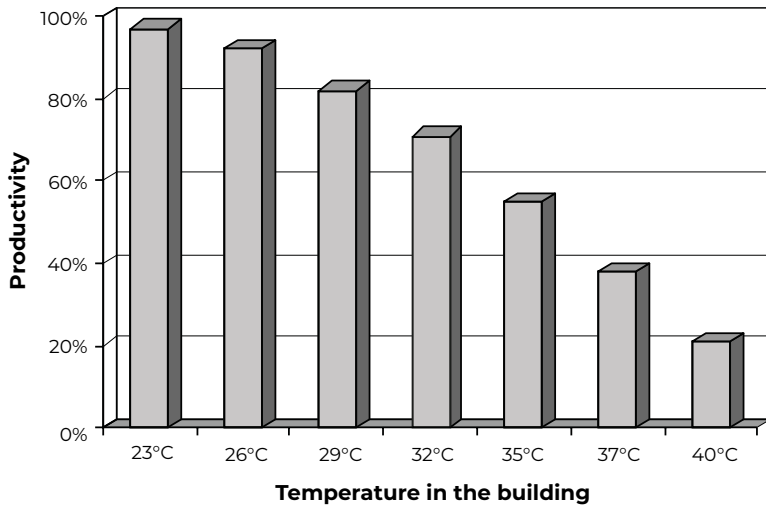
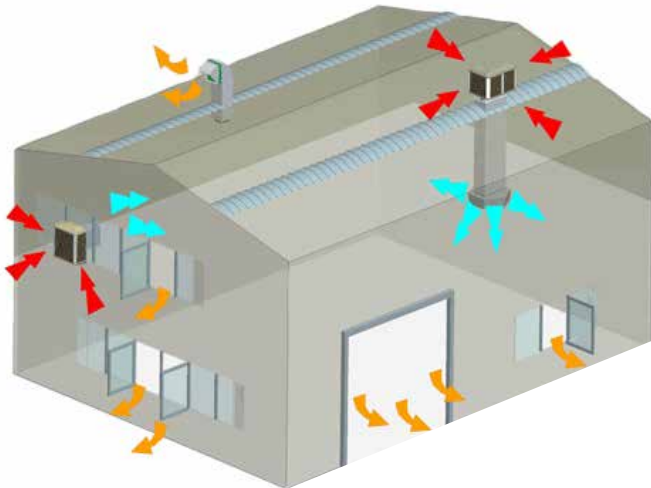


Technical information

Type	TA209	TC209*
Cooling capacity	kW 30	30
Airflow	m ³ /h 20.000	20.000
Nominal power	W 1.800	3.200
Voltage	V/Hz 230/50	400/50
Weight	kg 146	186

* Unit with centrifugal fan: available static pressure = 80 Pa
Specials on request.

Relative air humidity	30% T.	40% T.	50% T.	60% T.	70% T.	80% T.
outlet	outlet	outlet	outlet	outlet	outlet	outlet
Outside temperature 20 °C	13,5 °C	14,5 °C	15,5 °C	16,5 °C	17,5 °C	18,5 °C
Outside temperature 25 °C	16,0 °C	17,5 °C	19,0 °C	20,0 °C	21,5 °C	23,0 °C
Outside temperature 30 °C	19,0 °C	21,0 °C	23,0 °C	24,5 °C	26,0 °C	28,0 °C
Outside temperature 35 °C	22,5 °C	25,0 °C	27,5 °C	29,5 °C	31,0 °C	32,5 °C
Outside temperature 40 °C	22,5 °C	25,0 °C	27,5 °C	29,5 °C	31,0 °C	37,5 °C

MARK COLDSTREAM ENSURES OPTIMAL PRODUCTIVITY**Assembly/location suggestions**

Accessories

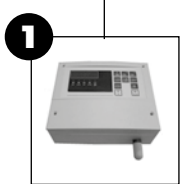


Winter cover



6-sided hexagonal air blowing plenum with horizontal louvers

Controls



Control combination options

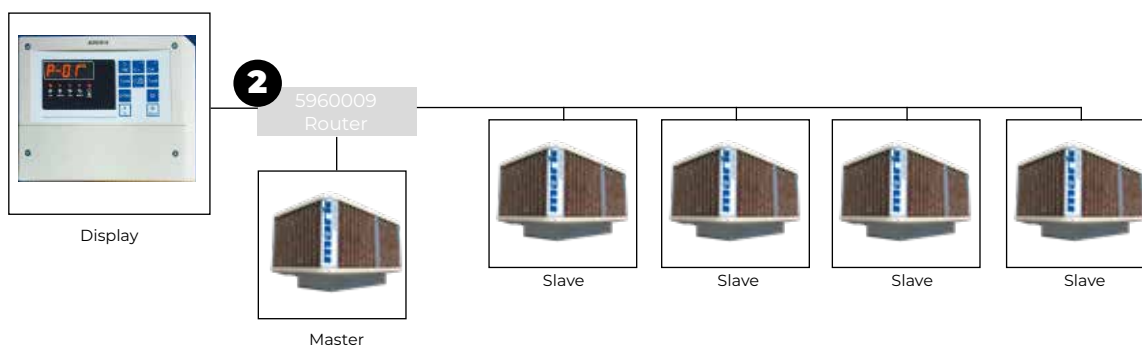
Coldstream - 1 unit + **1**

Coldstream - up to 5 units + **1** + **2**

See price list for description and code numbers of the relevant items

CABS-SYSTEM

With the CABS system 5 ColdStream units can be controlled with 1 Electronic Remote. Mark ColdStream CABS-System is available on request.



Prices Coldstream



PRODUCT - COLDSTREAM ADIABATIC COOLER

Code nr.	Description	Price
5960004	Mark ColdStream TA 209	€ 8137
5960006	Mark ColdStream TC 209 with centrifugal fan	€ 12950

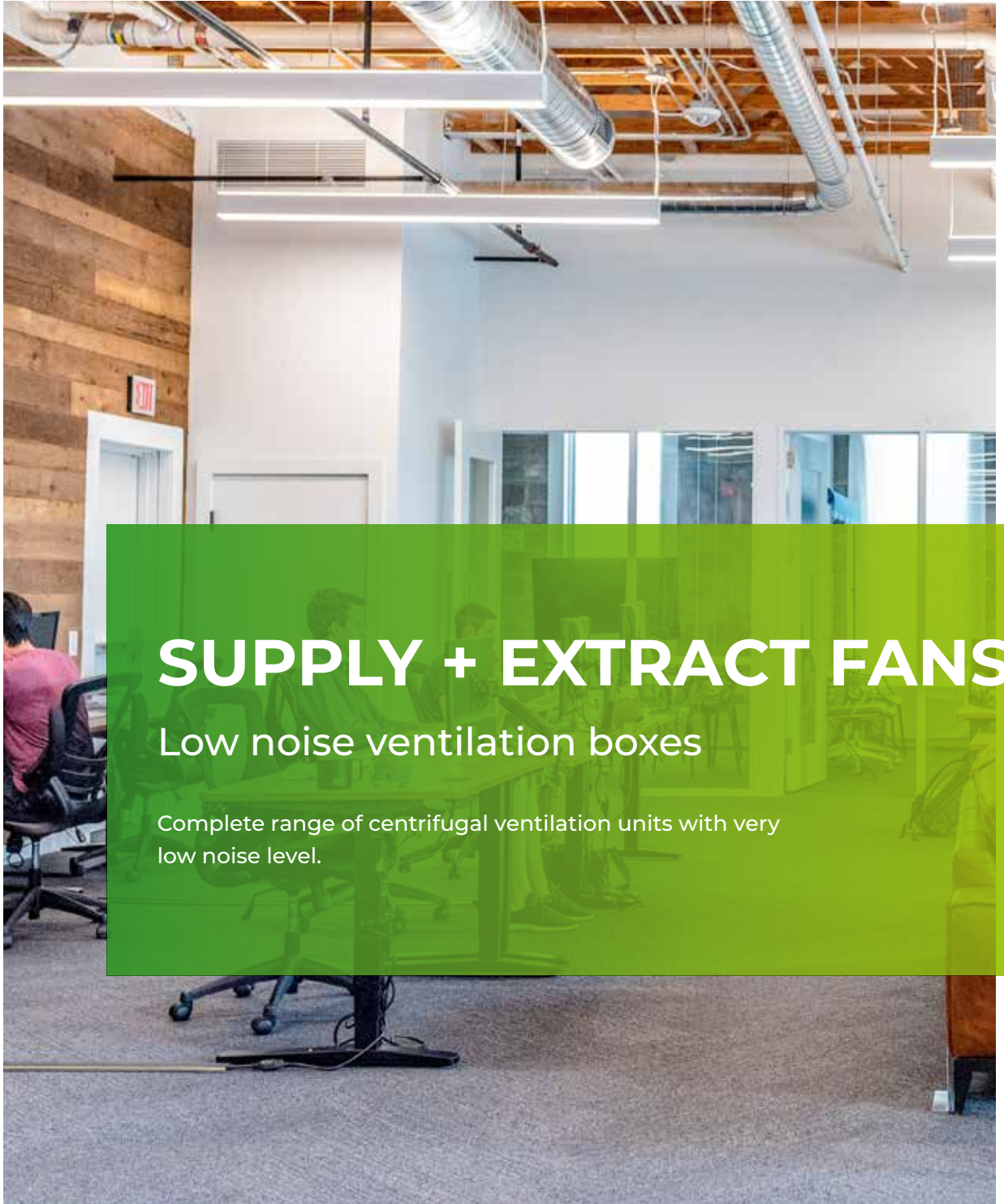
ACCESSORIES - CONTROLS

Code nr.	Description	Price
1 5960010	EVO display electronic remote control	€ 979
2 5960009	Router for CABS-system	€ 921
0631163	Isolator switch, separate delivery, 230V (4 poles)	€ 71
0631167	Isolator switch, separate delivery, 400V (8 poles)	€ 91

For explanation see chapter controls

ACCESSORIES - OTHER

Code nr.	Description	Price
5960011	Winter cover for ColdStream TA 209 and TC 209	€ 503
5960012	6-sided hexagonal air blowing plenum with horizontal louvres	€ 1865
5960013	Air duct TA 209 L=1000mm	€ 1009
5960014	Air duct TA 209 L=2000mm	€ 1047
5960015	Air duct TC 209 L=1000mm	€ 841
5960016	Air duct TC 209 L=2000mm (2x1000mm)	€ 1208



SUPPLY + EXTRACT FANS

Low noise ventilation boxes

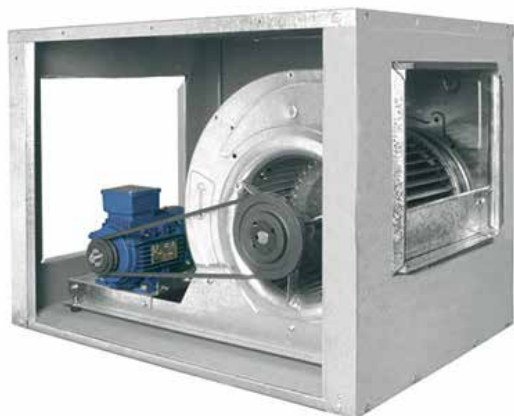
Complete range of centrifugal ventilation units with very low noise level.



For more information, downloads and videos, visit the supply and extract fans page on our website

Low noise ventilation boxes

A complete range of centrifugal ventilation units of very low noise level. The supply and extract fans are fitted in a solid casing, versatile and easy to mount. The casing is made of aluminium or galvanised steel with a 50 mm layer of mineral wool, that insulates from noise and external temperature.



Product features

- Galvanized steel or aluminium.
- Double inlet centrifugal fans with forward-curved impellers, backward impeller, EC fan, easy to connect to spiral ducts using mounting clamps.
- Integrated thermal-contacts that protect the motors from overheating with lead for connection to a motor protection device.
- Maintenance-free external rotor motors.
- External terminal box.



BD Box Supply/Return Fan

Belt driven centrifugal fan in soundproof cabinet.



BD Twinbox Supply/Return Fan

Belt driven centrifugal in soundproof cabinet.



DDF Kitchen Extract Fan

Simple inlet forward impeller fan.



BD SS Supply/Return Fan

Box fan with backward impeller and belt transmission - F400-120.



TF Inline (EC) Fan

The TF and TF EC is an in-line centrifugal duct fan with high capacity and excellent reliability.

Air Conditioning

AIR TREATMENT

AERFLOW
COMPACT
ERV
FLAT LINE
AERFLOW AHU
CALFLO

HEAT PUMPS

MISTRAL MDX
(VRF-SYSTEM)
MARK
HEAT PUMPS
(AIR-WATER)
HEAT PUMPS
(DX AND AIR-WATER)
MARK HEAT PUMP
SPLIT UNIT

DRY COOLERS

AWS
AWD
AWVS
AWS-EPA



AERFLOW

Plug & Play high-efficiency heat recovery unit

High-efficiency heat recovery unit.
Air displacement 600 to 45,000 m³/h.



For more information, downloads and videos, visit the Aerflow page on our website



Plug and play heat recovery unit

Increasingly high demands are being placed on the air quality in buildings. Multiple ventilation is often needed in order to comply with these demands. A great deal of energy is lost when standard ventilation equipment is used. To counter the loss of energy, Mark has included a heat recovery unit, the AERFLOW, in its product range.

The unit has an efficiency upto 90%. This means that 90% of the energy expelled is supplied to the fresh intake air. This high-efficiency means that in many cases no after-heating is required.

The AERFLOW heat recovery unit is available in two versions for both indoor and outdoor installation. The AERFLOW CFX is equipped with a certified high-efficiency counterflow heat exchanger with bypass. The AERFLOW HWX is equipped with a corrosion-resistant rotary heat exchanger.

Possible applications for the AERFLOW include offices, schools, workshops and changing areas.

Product features

- Efficiency > 90%
- Air amounts between 600-45000 m³/h
- Indoor and outdoor installation
- Low noise level
- Plug & play version
- Supplied pre-assembled
- High external pressure possible
- Various construction types possible as standard as well as specials on request
- Certification according to RLT Richtlinie-01

Standard equipment:

- 45 mm environmentally friendly foam sandwich panel
- The outer panelling consists of galvanized plate coated in RAL 9002 (white - grey). Other colors available on request at extra cost.
- The internal panelling is made of Magnelis ZM310 with a C4 corrosion resistance
- Thermal-bridge-free cabinet construction with aluminum profiles
- Seamless connection of the panels to the inside with rubber seal (hygienic)
- Removable doors
- Plug Fans equipped with energy-saving EC-motors

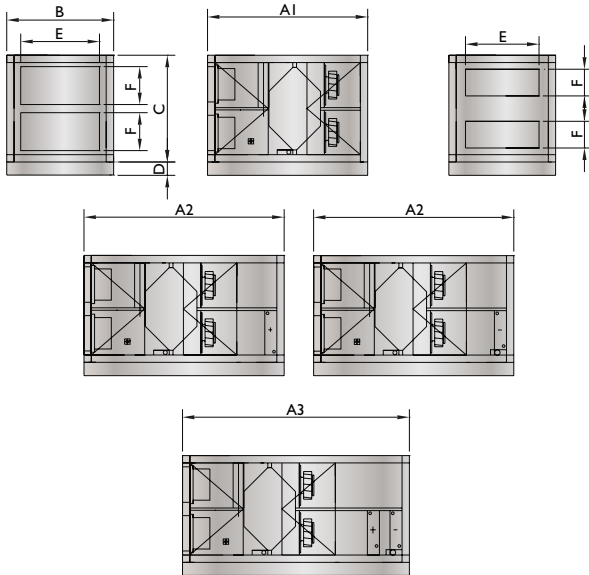
Optional:

- Pre- and after-heating: electric, gas, water, change-over
- Cooling coil
- Heat pump
- Indirect adiabatic cooling

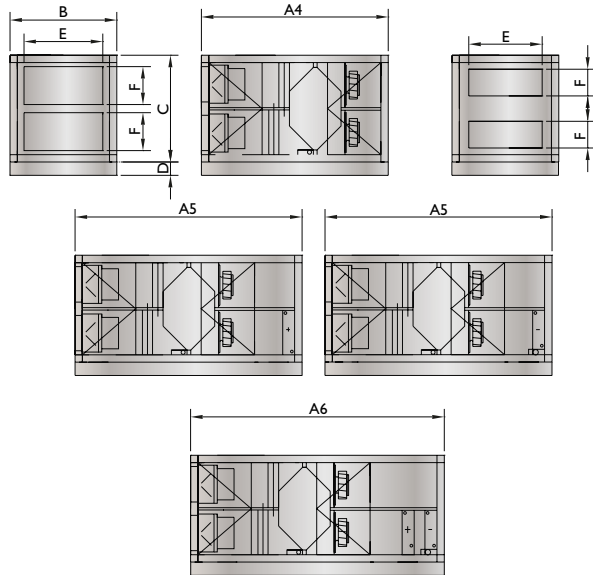


Dimensions

Aerflow CFX*



Aerflow CFX with external air damper and return damper*



T	A1	A2	A3	A4	A5	A6	B	C	D	E	F
600	1700	2000	2200	1900	2200	2400	1000	900	100	565	265
1400	1800	2100	2300	2000	2300	2500	1100	1150	100	565	265
2000	2000	2300	2500	2200	2500	2700	1050	1150	100	565	265
3200	2100	2400	2600	2300	2600	2800	1300	1400	100	565	465
4000	2200	2500	2700	2400	2700	2900	1400	1400	100	865	465
5400	2500	2800	3000	2700	3000	3200	1500	1700	100	1155	465
6400	2600	2900	3100	2800	3100	3300	1700	1750	100	1155	565
8600	2700	3000	3200	2900	3200	3400	2400	1750	180	1455	565
10000	3000	3300	3500	3200	3500	3700	2050	1950	180	1455	565
12500	3100	3400	3600	3300	3600	3800	2500	2000	180	2030	565
15200	3600	3900	4100	3800	4100	4300	2300	2700	180	1755	865
20000	3700	4000	4200	3900	4200	4400	2950	2700	180	2030	865

- A1 Aerflow CFX
- A2 Aerflow CFX with post-heating or cooling coil
- A3 Aerflow CFX with post-heating and cooling coil
- A4 Aerflow CFX with external air damper
- A5 Aerflow CFX with external air damper, post-heating or cooling coil
- A6 Aerflow CFX with external air damper, post-heating and cooling coil

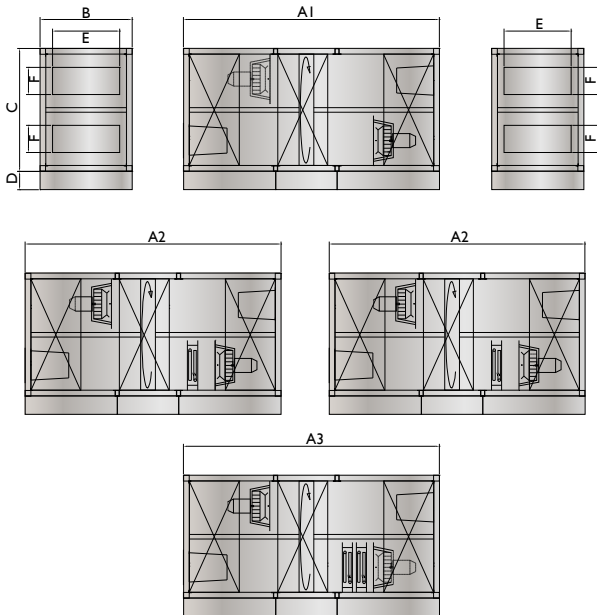
* Optional change of airflow



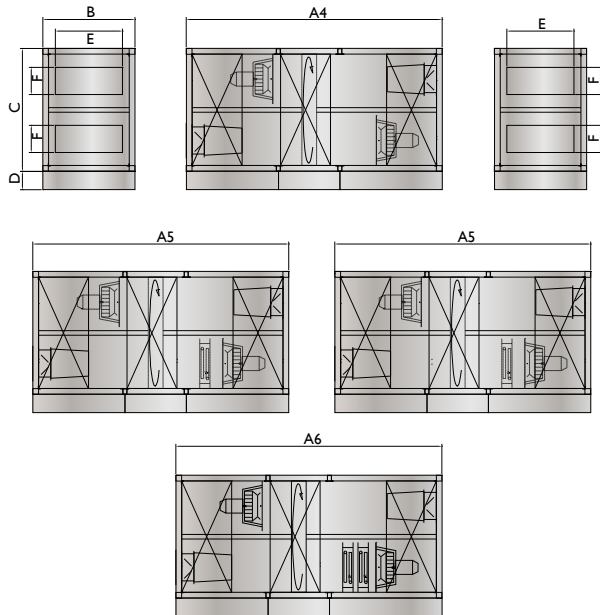
Optional: heat pump



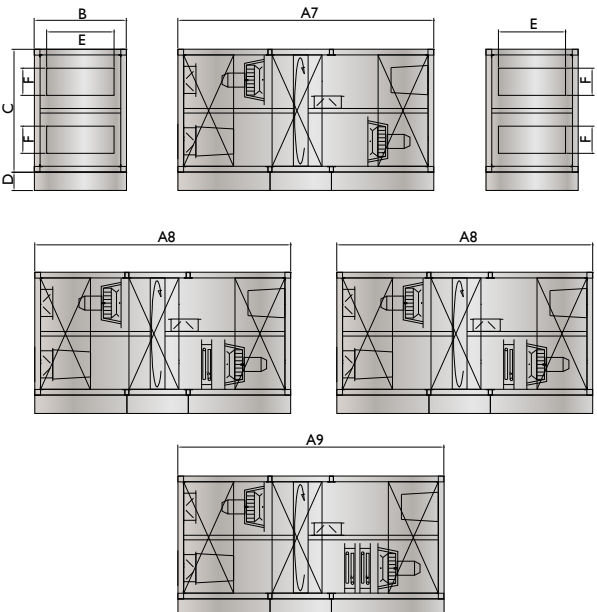
Aerflow HWX*



Aerflow HWX with external air damper*



Aerflow HWX with external air damper and recirculation damper*



- A1 Aerflow HWX
- A2 Aerflow HWX with post-heating or cooling coil
- A3 Aerflow HWX with post-heating and cooling coil
- A4 Aerflow HWX with external air damper
- A5 Aerflow HWX with external air damper, post-heating or cooling coil
- A6 Aerflow HWX with external air damper, post-heating and cooling coil
- A7 Aerflow HWX with external air damper and recirculation damper
- A8 Aerflow HWX with external air damper, recirculation damper, post-heating or cooling coil
- A9 Aerflow HWX with external air damper, recirculation damper, post-heating and cooling coil

T	A1	A2	A3	A4	A5	A6	A7	A8	A9	B	C	D	E	F
1500	1400	1650	1900	1700	1950	2200	2200	2450	2700	1200	1200	100	565	265
3000	1900	2150	2400	2200	2450	2700	2700	2950	3200	1200	1300	100	865	465
4500	1900	2150	2400	2200	2450	2700	2700	2950	3200	1500	1500	100	1155	465
6000	2100	2350	2600	2400	2650	2900	2900	3150	3400	1600	1600	100	1155	565
9500	2600	2850	3100	2900	3150	3400	3400	3650	3900	1800	1900	180	1455	565
12000	2700	2950	3200	3000	3250	3500	3500	3750	4000	2400	2000	180	2030	565
15000	2300	2550	2800	2600	2850	3100	3100	3350	3600	2400	2400	180	2030	865
20000	2600	2850	3100	2900	3150	3400	3400	3650	3900	2500	2500	180	2030	865
27500	3100	3350	3600	3400	3650	3900	3900	4150	4400	2900	2900	180	2030	865

* Optional change of airflow

Technical information

Aerflow CFX		600	1400	2000	3200	4000	5400	6400	8600	10000	12500	15200	20000
Maximum air volume	m ³ /h	600	1400	2000	3200	3700	5400	6400	8600	9200	12100	14250	19400
Maximum external pressure	Pa	250	425	150	1140	915	595	375	395	720	470	450	570
Efficiency	%	90	90	90	90	90	90	90	90	90	90	90	90
Maximum current consumption per unit	A	3,6	4,7	4,7	7,9	7,9	7,9	7,7	11,4	16,7	15,6	22,5	33,2
Weight of unit for L = A1	kg	435	520	530	690	745	980	1105	1550	1505	1810	2120	2690
Weight of unit for L = A2	kg	470	565	570	745	805	1030	1180	1645	1600	1930	2245	2855
Weight of unit for L = A3	kg	510	620	620	815	870	1125	1270	1770	1725	2085	2400	3075
Weight of unit for L = A4	kg	450	540	545	715	775	995	1145	1600	1555	1870	2195	2775
Weight of unit for L = A5	kg	485	585	590	765	835	1065	1220	1700	1650	1990	2320	2940
Weight of unit for L = A6	kg	585	640	645	830	915	1145	1310	1825	1775	2145	2470	3160
Supply voltage (50Hz)	V	1~230	1~230	1~230	3~400+N	3~400+N	3~400+N	3~400+N	3~400+N	3~400+N	3~400+N	3~400+N	3~400+N

Aerflow HWX		1500	3000	4500	6000	9500	12000	15000	20000	27500
Maximum air volume	m ³ /h	1500	3000	4500	6000	9500	12000	15000	20000	27000
Maximum external pressure	Pa	500	1250	975	580	875	500	230	845	265
Temperature efficiency	%	82,4	83,7	81,8	81	82,3	80,2	83,1	81	78,4
Humidity efficiency	%	88,8	90,9	87,7	86,4	88,6	85,3	90	86,3	81,9
Maximum current consumption per unit	A	5,0	8,5	8,5	17,2	17,5	17	16,9	34,4	29,1
Weight of unit for L = A1	kg	525	590	755	860	1115	1475	1785	1845	2245
Weight of unit for L = A2	kg	570	640	815	925	1195	1585	1895	1980	2385
Weight of unit for L = A3	kg	630	705	900	1015	1310	1745	2075	2165	2625
Weight of unit for L = A4	kg	550	625	795	900	1170	1540	1865	1935	2335
Weight of unit for L = A5	kg	600	670	855	965	1250	1655	1985	2070	2475
Weight of unit for L = A6	kg	655	735	935	1065	1365	1810	2160	2250	2715
Weight of unit for L = A7	kg	595	665	850	960	1240	1635	1965	2035	2445
Weight of unit for L = A8	kg	640	715	950	1030	1315	1750	2080	2315	2595
Weight of unit for L = A9	kg	695	785	990	1120	1430	1905	2250	2345	2825
Supply voltage (50Hz)	V	1~230	3~400+N	3~400+N	3~400+N	3~400+N	3~400+N	3~400+N	3~400+N	3~400+N

Accessories – additional sections



The Aerflow can be equipped with the following options:

Integrated dampers for external air, waste air, recirculated air.

Integrated pre- and after-heater (electric or hot water), change-over system, integrated cooler (cold water or DX).

Assembly/location suggestions



Indoor version



Outdoor version

Mark Aerflow

Mark Aerflow is constructed with 45 mm prefab insulated panels. The mechanical strengths of the casing have been tested according to NEN-EN 1886.

- Deflection: Class D1
- Air leakage: Class L1
- Thermal transmission: Class T2
- Thermal bridging: Class TB2

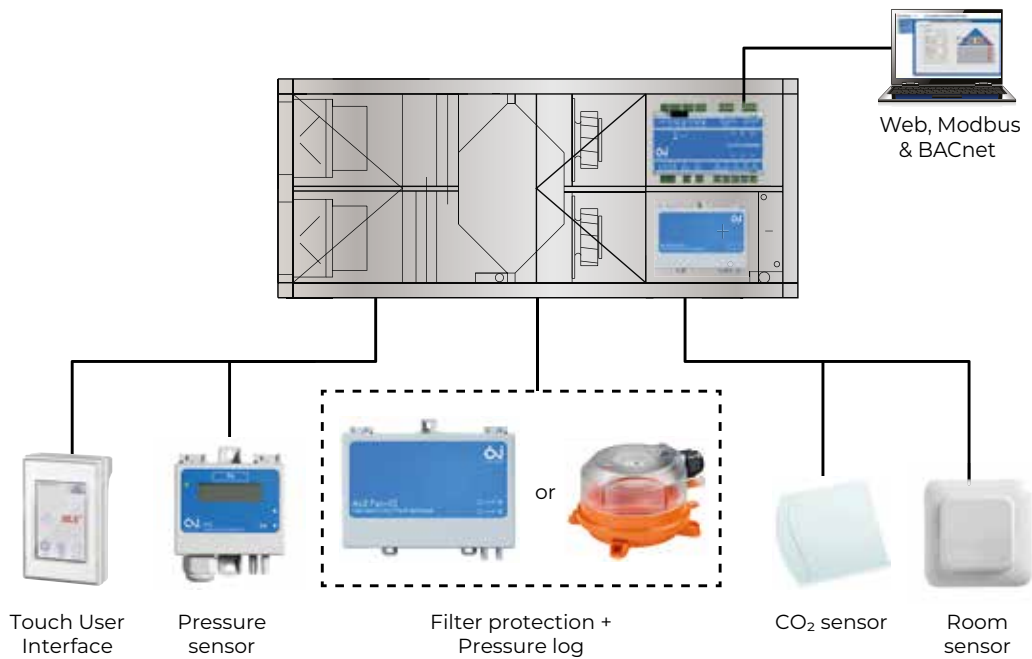
The fans in the air handling units are equipped with high-efficiency intelligent centrifugal fans with EC-technology, the advantages of which are:

- The highest efficiency in case of speed control
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable
- Long lifetime
- Low noise level
- Integrated electronic thermal protection

Controls

Mark Aerflow is provided with OJ-controls. This control system manages the entire unit. Frost protection for the counterflow heat exchanger, control of the bypass but also the control of the fans are included. This control system is extremely easy to adjust using the remote control or laptop / computer. For operation with laptop / computer, no additional software is needed. A network connection through webbrowser Google Chrome is all you need to get access. The menu structure is clear and intuitive, with different levels of access and authority.

It is possible to control the air amount on the basis of CO₂, air quality, loss of pressure or humidity. Each unit is internally fused and completely wired from the components to the isolator switch. Optional is the control of a 3-way valve for cooler, heater or battery change-over with the release of a pump. Obviously much more is possible, we will be pleased to advise you.





COMPACT

Plug & Play high-efficiency
heat recovery unit

High-efficiency heat recovery unit. Air displacement 600 to 3200 m³/h.



For more information, downloads
and videos, visit the Compact page
on our website

Plug and play heat recovery unit

Delivery from stock!

Are you familiar with our COMPACT? This economical and compact version of our Plug & Play Aerflow heat recovery unit is equipped with a counterflow heat exchanger with bypass and a fully integrated control.

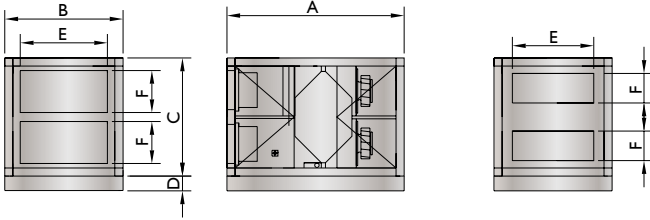
Where our Aerflow is a custom-made and project-built device that excels in its versatility, the COMPACT is only equipped with the necessary options. This makes this unit an economical alternative for ventilation of offices, schools, workshops and changing rooms.



Product features

- Compact and standard construction
- The outer panelling consists of galvanized plate coated in RAL 9002 (white - grey)
- Counter flow plate heat exchanger
- Bypass for night ventilation and cooling
- EC fans
- Plug & play
- Fully integrated control, connectable via internet to BMS, BACnet or Modbus
- Air volumes of 600, 1400, 2000 or 3200 m³/h
- Efficiency > 90%
- Indoor and outdoor installation
- Filter pressure monitoring
- On/off contact
- Fire alarm contact

Dimensions



T	A	B	C	D	E	F
600	1203	800	955	100	565	265
1400	1403	1000	955	100	565	265
2000	1503	950	955	100	565	265
3200	1703	1200	1305	100	865	465

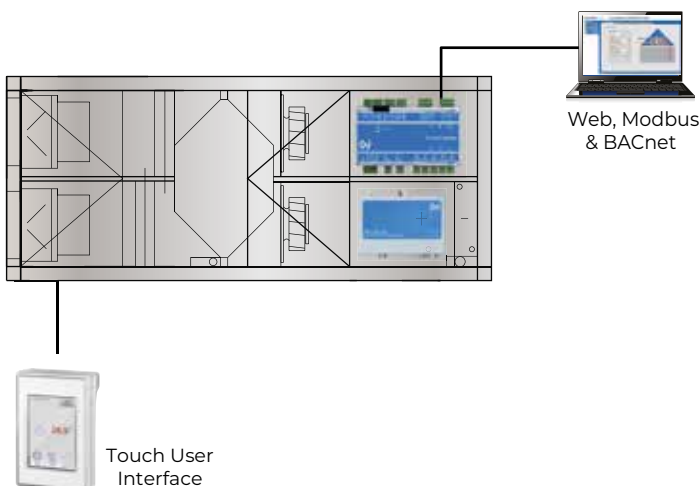
Technical information

COMPACT		600	1400	2000	3200
Max. air volume	m ³ /h	600	1400	2000	3200
Max. external pressure	Pa	250	300	300	300
Efficiency	%	90	90	90	90
Maximum current consumption per unit	A	3	11,4	11,4	6
Nominal	A	2,2	3,9	6,5	2,8
Unit weight	kg	175	218	215	345
Supply voltage (50Hz)	V	1~230	1~230	1~230	3~400+N

Controls

Mark COMPACT is provided with OJ-controls. This control system manages the entire unit. Frost protection for the counterflow heat exchanger, control of the bypass but also the control of the fans are included. This control system is extremely easy to adjust using the remote control or laptop / computer. For operation with laptop / computer, no additional software is needed. A network connection through webbrowser Google Chrome is all you need to get access. The menu structure is clear and intuitive, with different levels of access and authority.

Each unit is internally fused and completely wired from the components to the isolator switch. Obviously much more is possible, we will be pleased to advise you.



Prices Compact

PRODUCT - COMPACT - INDOOR

Code nr.	Description	Price
5995530	Compact 600	€ 10388
5995531	Compact 1400	€ 11839
5995532	Compact 2000	€ 12550
5995533	Compact 3200	€ 17350

PRODUCT - COMPACT - OUTDOOR

Code nr.	Description	Price
5995550	Compact 600	€ 11052
5995551	Compact 1400	€ 12380
5995552	Compact 2000	€ 13115
5995553	Compact 3200	€ 17925

ACCESSORIES

Code nr.	Description	Price
0442465	Filter for compact 600, 1400, 2000 ePM1 55% (F7)	€ 290
0442455	Filter for compact 600, 1400, 2000 ePM10 60% (M5)	€ 206
0442466	Filter for compact 3200 before 2024 ePM1 55% (F7)	€ 196
0442456	Filter for compact 3200 before 2024 ePM10 60% (M5)	€ 202
0442469	Filter for compact 3200 after 2024 ePM1 55% (F7)	€ 250
0442459	Filter for compact 3200 After 2024 ePM10 60% (M5)	€ 275
5960100	Duct reducer from square to round for Compact 600, from 565x265mm to D=200mm	€ 307
5960101	Duct reducer from square to round for Compact 1400, from 565x265mm to D=315mm	€ 351
5960102	Duct reducer from square to round for Compact 2000, from 565x265mm to D=400mm	€ 372
5960103	Duct reducer from square to round for Compact 3200, from 565x465mm to D=500mm	€ 384
0631374	OJ user interface with touchscreen	€ 481
5995791	Ball siphon over/under pressure set complete	€ 125
0414322	Playground tile 45mm, 505x505mm	€ 45
3004595	Vibration mats, set 15 stuks, 60x100mm	€ 28

REMARKS

The COMPACT is standard delivered with:

- M5 and F7 panel filters D = 50 mm
- Filter pressure monitoring
- Plug & Play OJ scheme
- Bypass
- Control side = right (looking in the direction of the airflow)

In addition, the outdoor installation also comes with:

- Aluminum roof
- Rain cover
- Relief hood
- Heating element for ball siphon



ERV

Heat recovery unit

Compact high-efficiency heat recovery unit.
Air displacements of 500, 1000 and 2000 m³/h.



For more information, downloads
and videos, visit the ERV page on
our website

Ceiling heat recovery unit with an efficiency up to 78%

Delivery from stock!

The Mark ERV is the ideal solution for energy efficient ventilation and a comfortable indoor climate. The appliance is equipped with a high efficiency counter flow heat exchanger with an heat recovery efficiency up to 78%. This means that 78% of the energy expelled is supplied to the fresh intake air. This high efficiency means that in many cases no after-heating is required.

Possible applications for the ERV include offices, showrooms, apartment complexes and schools.

The Mark ERV is intended as a decentralized heat recovery unit. For central heat recovery, please refer to the Mark Aerflow.

Optional:

- Electric re-heaters
- Disinfection-unit to sterilize the outdoor polluted air

Product features

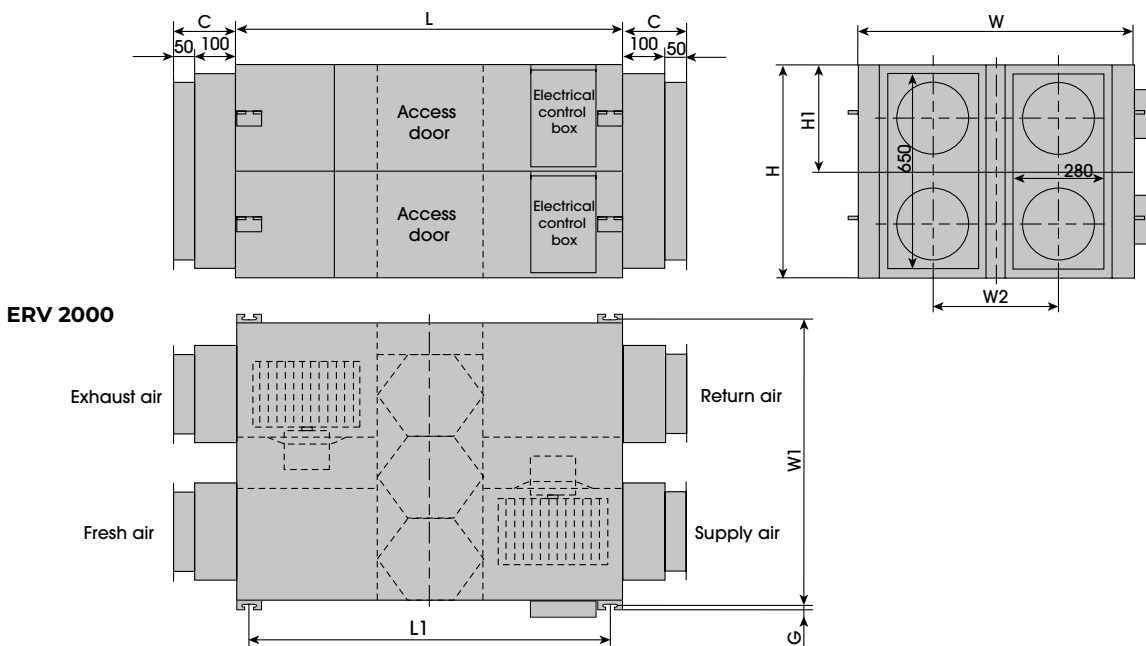
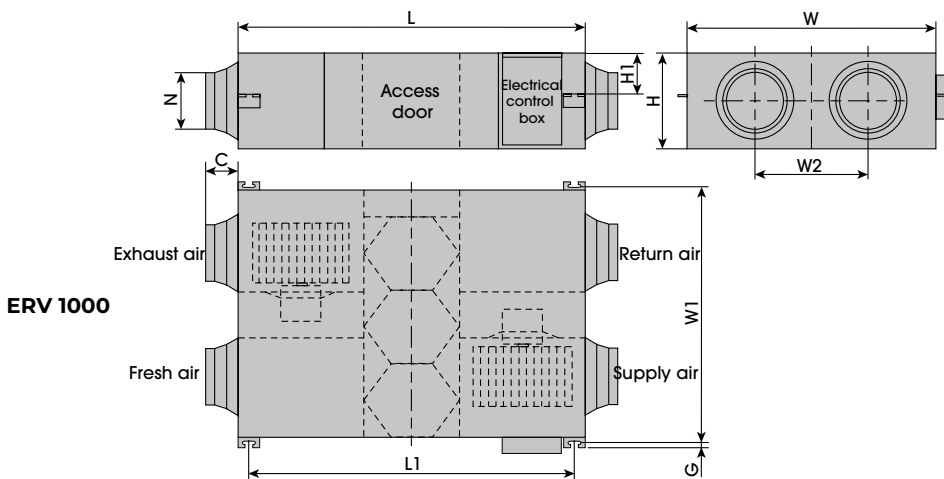
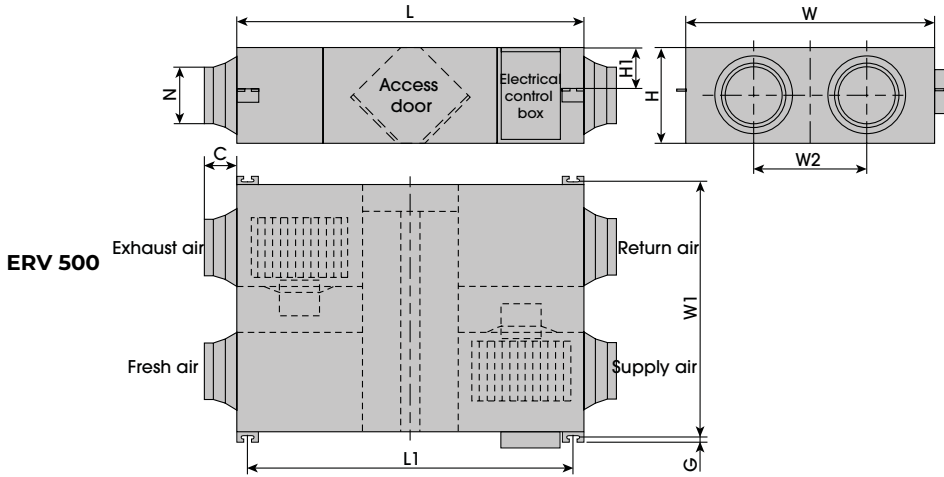
- High efficiency for optimal air comfort
- No condensation drain required
- Exchange of heat and moisture
- Energy-saving BLDC motor with 10 speeds
- Innovative high efficiency counter flow exchanger
- Low weight
- Indoor installation
- Automatic bypass, intelligently controlled by outside temperature
- Plug & play control, optional CO2 and humidity control function, remote control and Modbus/BMS* control available
- ErP 2018 ready!

* For type 2000 only available at extra cost. Inquire about the possibilities.



A Mark disinfection unit (MDU) can be used in combination with a Mark ERV. This unit is equipped with a UVC germicidal lamp with a wavelength of 254 nm and a medical photocatalytic sterilization filter to kill bacteria and viruses in a short time. This makes the MDU an excellent weapon in the fight for cleaner air.

Dimensions



Type*	L	L1	W	W1	W2	H	H1	C	G	N
ERV500	962	890	904	960	500	270	111	107	19	ø 194
ERV1000	1322	1250	1134	1190	678	388	170	85	19	ø 242
ERV2000	1322	1250	1134	1190	678	785	170	150	19	280*650

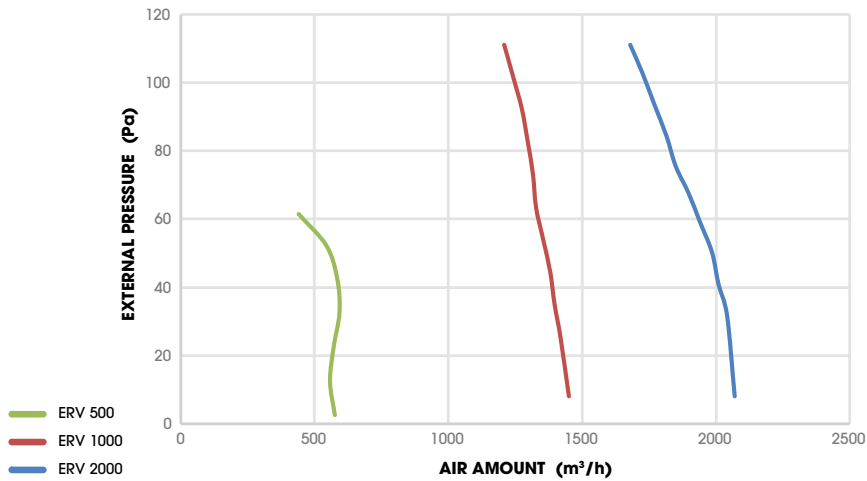
*See images previous page

Technical information

Type		500	1000	2000
Air amount	m ³ /h	441	1208	1680
External pressure	Pa	60	110	110
Cooling efficiency	%	62-74	65-74	65-74
Heating efficiency	%	67-75	71-78	71-78
Temperature efficiency	%	75-86	75-85	75-85
Noise level (1m)	dB(A)	39	43	51.5
Supply voltage	V	220	220	220
Power	W	88	243	486
Weight	kg	43	83	189

Noise level (dB):

Type	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Overall dB(A)
ERV500	34	40	35	35	36	28	22	17	39
ERV1000	38	44	39	41	40	31	31	19	43
ERV2000	45	52	46	48	48	48	37	23	51



Prices ERV

PRODUCT - ERV CEILING HEAT RECOVERY UNIT*



Code nr.	Description	Price
5997401	ERV 500	€ 2997
5997403	ERV 1000	€ 3994
5997405	ERV 2000	€ 8526

ACCESSORIES - CONTROLS



Code nr.	Description	Price
5997450	Touch control user interface*	€ 289
5997451	CO2 sensor	€ 400
5997452	Humidity sensor	€ 159

ACCESSORIES - DISINFECTION-UNIT



Code nr.	Description	Price
5997402	Fresh air disinfection-unit MDU 500**	€ 888
5997404	Fresh air disinfection-unit MDU 1000***	€ 1036

ACCESSORIES

Code nr.	Description	Price
0620320	Filter for ERV 500	€ 40
0620321	Filter for ERV 1000 / 2000	€ 64
5997460	Electric duct heater 1.0 kW for ERV 500	€ 620
5997461	Electric duct heater 2.0 kW for ERV 1000	€ 695
5997462	Electric duct heater 3.0 kW for ERV 2000	€ 812

REMARKS

* all ERV heat recovery units are delivered with a Touch control user interface including data cable (5 meter).

** Compatible with ERV 500

*** Compatible with ERV 1000



FLAT LINE

Heat recovery unit

Ceiling heat recovery unit.
Air displacements of 150 - 3300 m³/h.



For more information, downloads
and videos, visit the FLAT LINE
page on our website



Ceiling heat recovery unit with an efficiency up to 93%

The Mark FLAT LINE compact heat recovery unit is the ideal solution for energy efficient ventilation and a comfortable indoor climate. The appliance is equipped with a high efficiency counter flow heat exchanger with a heat recovery efficiency of 93%. This means that 93% of the energy expelled is supplied to the fresh intake air. This high efficiency means that in many cases no after-heating is required.

The ceiling heat recovery units are tested in the factory and are supplied Plug & Play.

Possible applications for the FLAT LINE include offices, showrooms, apartment complexes and schools. Due to the low height of the devices they are ideal for placing above suspended ceilings.

The Mark ERV is intended as a decentralized heat recovery unit. For central heat recovery, please refer to the Mark AERFLOW.

Product features

- High efficiency for optimal air comfort
- Flat heat recovery unit suitable for ceiling mounting
- High efficiency aluminium counter flow exchanger with an efficiency up to 93%
- Double-walled insulated steel housing, supplied with mineral wool.
- EC-motors (IE4)
- Supply filter ePM2,5 65%
- Return filter ePM10 50%
- Intergrated multifunctional Plug & Play control
- Modbus
- Service acces: underside
- Condensation drain required (2 pieces)

Optional:

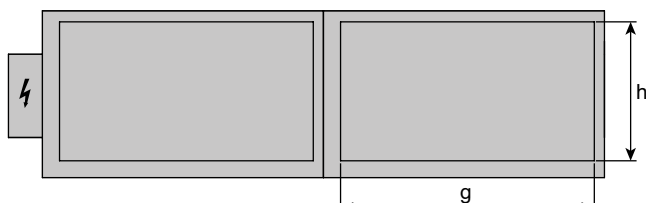
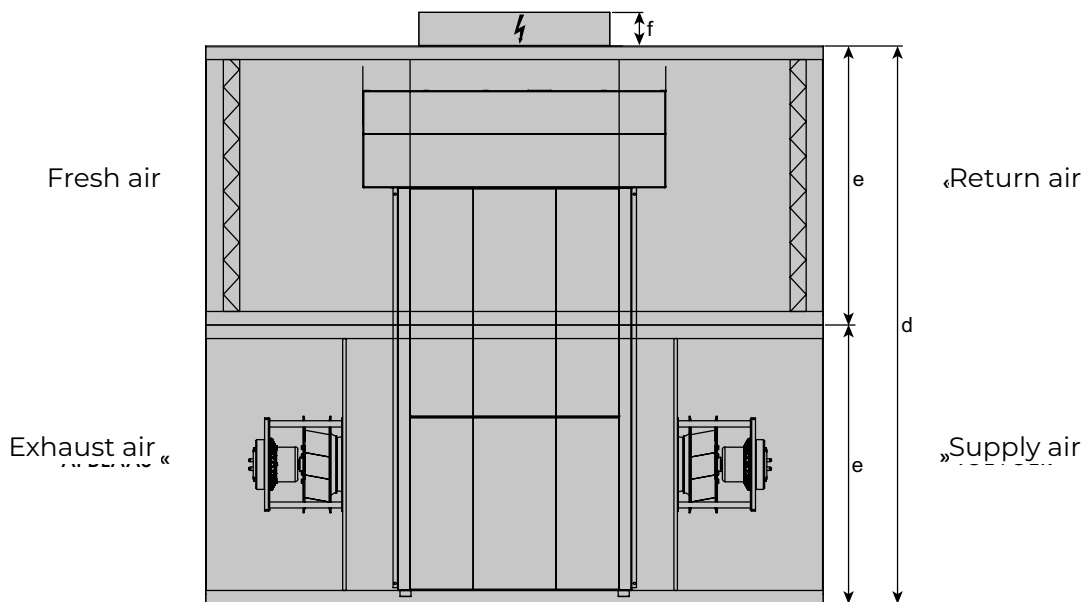
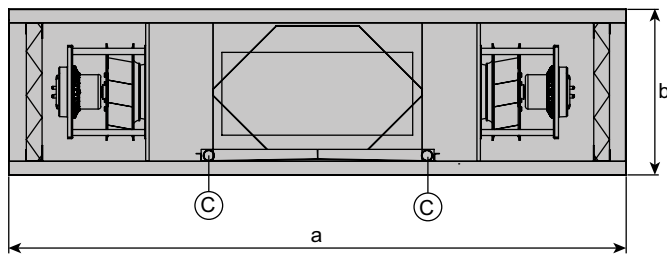
- Water-supplied after-heating/cooling
- Electric after-heating
- DX-change-over coil
- Bag filters
- Attenuator
- Flexible connections
- Round connections
- Damper

Prices on request.

Dimensions standard unit*

Type	a	b	d	e	f	g	h
500F	1251	400	830	415	100	318	335
1000F	1500	400	1190	595	100	318	515
1500F	1500	400	1590	795	100	318	715
2000F	1826	490	1650	825	100	408	745
3000F	1826	490	2200	1100	100	408	1020

C = Condensation drain
* Non-standard units on request



Technical information

Type		500F	1000F	1500F	2000F	3000F
Nominal air flow	m ³ /h	500	1000	1500	2000	2500
Air amount (range)	m ³ /h	150 - 650	300 - 1100	450 - 1650	600 - 2200	900 - 3300
External pressure	Pa	200	250	300	300	300
Noise level @ 1m	dB(A)	52	55	57	59	57
Voltage	V	230	230	230	230	230
Power	W	2 x 160	2 x 240	2x 420	2 x 520	2 x 760
Weight	kg	171	242	292	361	468



AERFLOW AHU

Air Handling Unit

Modular air handling unit made of double-walled insulated seawater-resistant aluminum. Air displacements of 150.000 m³/h.



For more information, downloads and videos, visit the Aerflow AHU page on our website



The ultimate in air handling units: directly and indirectly fired

Mark has developed a range of air handling units with several options for a wide variety of applications. From a simple air intake unit to a fully automatically-controlled air handling unit suitable for both indoor or outdoor use.

There is a wide selection of heating systems, such as hot water batteries, gas or oil-fired modules, gas-fired make-up air systems or high performance gas-fired heating systems. Heat recovery and cooling are of course also possible.

Mark Aerflow AHU air handling units are made from seawater-resistant aluminium panels with double-walled insulation as standard. This means lower weight and a longer lifespan. The Mark air handling unit is a highly developed, premium quality product that can be adjusted to the customer's requirements.

The mechanical strengths of the casing of the Mark Aerflow AHU have been tested according to NEN-EN 1886.

- Deflection: Class D3
- Air leakage: Class L2
- Thermal transmission: Class T4
- Thermal bridging: Class TB4

The fans in the air handling units are equipped with high-efficiency intelligent centrifugal fans with EC-technology, the advantages of which are:

- The highest efficiency in case of speed control
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable
- Long lifetime
- Low noise level
- Integrated electronic thermal protection

Product features

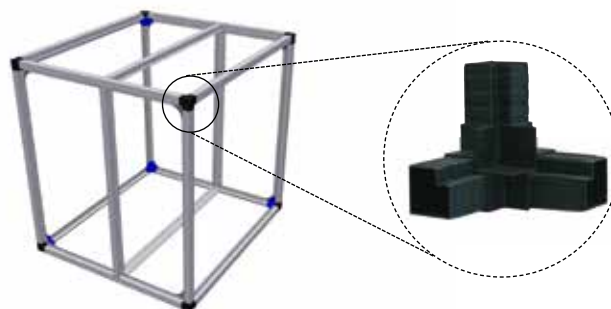
- Air displacements up to 150,000 m³/h
- Very economical to buy and use
- Integration of high-efficiency heating modules is possible
- Modular construction
- Easy to maintain
- Long life
- Flexible and variable
- Proven design
- Low weight

Dimensions

Type of air handling unit	Air displacement max.	Dimensions (Width x Height)
Aerflow AHU 15 – 15	10 000 m ³ /h	975 x 975
Aerflow AHU 15 – 20	14 150 m ³ /h	975 x 1280
Aerflow AHU 20 – 20	19 150 m ³ /h	1280 x 1280
Aerflow AHU 25 – 20	23 350 m ³ /h	1530 x 1280
Aerflow AHU 30 – 20	29 150 m ³ /h	1890 x 1280
Aerflow AHU 35 – 25	40 000 m ³ /h	2195 x 1530
Aerflow AHU 35 – 35	60 000 m ³ /h	2195 x 2195
Aerflow AHU 40 – 35	69 500 m ³ /h	2508 x 2195
Aerflow AHU 50 – 50	150 000 m ³ /h	3120 x 3120
Projects on request	> 150 000 m ³ /h	

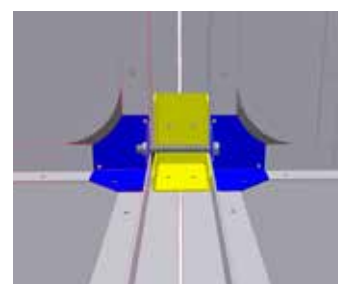
Construction

- The air handling unit is of modular construction.
- The frame construction consists of profiled closed aluminium tube profiles.
- The individual cabinet modules can be installed in different ways, either in line, next to each other or on top of each other.
- The tube profiles are attached to each other using plastic angled profiles to create a stable frame construction.



Modular construction

- The individual parts of the air handling unit are quick and easy to install due to a well thought out system.
- In almost every case, the modules are supplied pre-assembled.
- The individual modules are fixed to each other so that they are airtight.
- The double-walled aluminium panels are mounted in the frame in an airtight manner.
- The centering section in the corner of the module ensures correct installation to the next module.



Technical detail

The access doors are fitted with adjustable, maintenance-free hinges (adjustable both in height and at the sides). The hinges, or panel clips if required, are mounted on the outside of the air handling unit. This prevents dirt from building up on the inside of the unit.

The access doors of the air handling unit are fitted with lockable spring locks. The airtight closure of the doors against the housing is guaranteed by a special rubber profile.



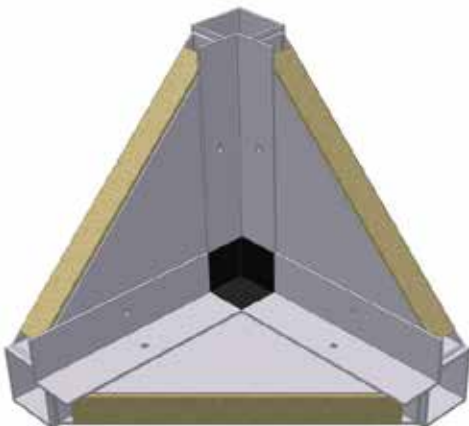
Sound and thermal insulation

Noise reduction is an important point for consideration in the design of an air handling unit. For this reason, we have opted to use a double-walled seawater-resistant aluminium panel with 25 or 40 mm mineral wool insulation. This also results in excellent thermal insulation.

A lot of attention is paid to the smooth finishing on the inside of the unit, which makes it easy to clean. See table for sound insulation values.

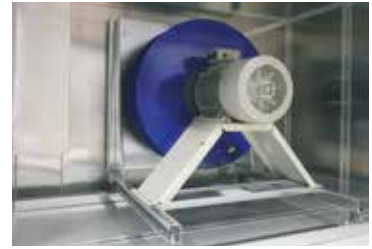
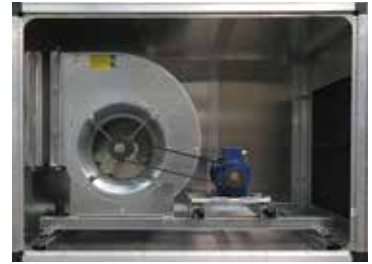
Air/noise insulation

Frequency (Hz)	125	250	500	1000	2000	4000	8000
Air/sound insulation (dB)	18	17	22	26	29	28	24



Optimal fan power

- The heart of the air handling unit is the fan.
- Mark selects the most suitable fan for the application requested.
- Depending on the application, a fan with forward or backward curved blades or a free-running fan can be used.
- The fan and the motor are placed on a frame. The frame is set up on shock absorbers in the housing.
- Delta P air flow monitoring is possible.



Filter section

To guarantee the right air quality, Mark offers a wide selection of filters.

All necessary care is taken in the sealing of the filter frames and filters.

Filters should be changed from the inside on the dirty side.

The filter options are:

- Panel filter
- Bag filter short
- Bag filter long
- High temperature filter

Special filters are available on request.

Delta P filter monitoring is possible.

Heating systems

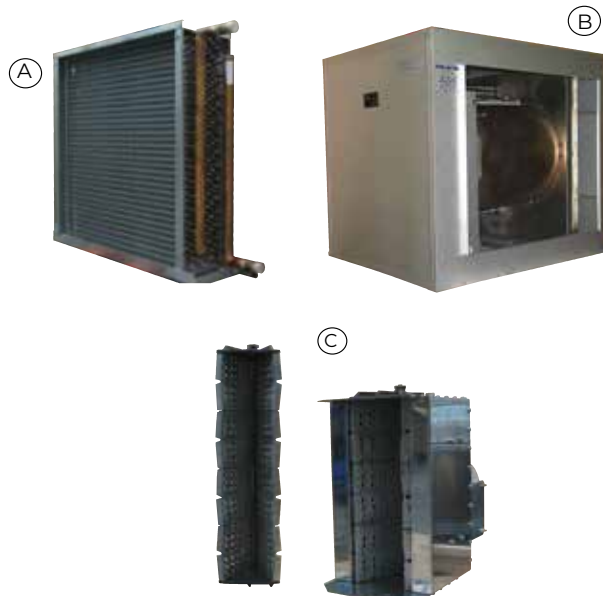
Mark air handling units can be equipped with various heat generators.

- A Hot water battery
- B Gas-fired condensing modulating high-efficiency air heater (> 106% efficiency)
- C Direct gas-fired make-up air burner, only applicable if all intake air is expelled in a controlled manner.

Benefits:

Gas-fired air heaters

- No heat intermediary
- No heat loss during stoppages
- Large selection of heating capacities
- High-efficiency
- Good temperature control
- The air handling unit can be supplied as plug & play.

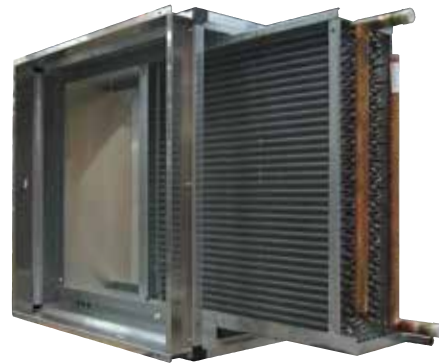


Hot water batteries

Hot water batteries are designed as standard in copper-aluminium. The heat exchanger connections can be fitted internally or externally.

Optional:

- Hot-dip galvanised
- Anti-corrosion coating
- Steam, thermal oil
- Frost protection thermostat



Gas-fired condensing modulating air heater

- High modulation range
- Efficiency >106%
- Closed design.
- Electronic ignition of the main burner.
- Control: modulating.
- Module suitable for installation in an air handling unit.



Type		15	25	35	40	60	80	100	135	150	200	300	400	540	600	800
Nominal load (upper value)	kW	16,1	27,2	38,8	44,4	66,7	88,9	110,6	149,9	166,7	216,7	331,8	433,4	599,6	650,1	866,8
Maximal power	kW	13,6	23,0	33,4	38,4	56,2	75,6	96,6	128,9	141,0	185,7	279,9	371,4	515,6	557,1	742,8
Minimal load (upper value)	kW	4,6	6,8	9,6	9,6	13,9	24,5	10,8	21,1	36,6	41,6	32,4	83,2	84,4	124,8	166,4
Minimal power	kW	4,3	6,6	9,2	9,2	13,5	23,8	10,6	20,6	35,3	40,6	31,8	81,2	82,4	121,8	162,4
Efficiency at 100% load	%	94,1	93,9	95,7	94,8	94,2	94,3	94,2	95,1	94,8	93,6	94,8	93,6	95,1	94,8	93,6
Efficiency at min. load	%	104,4	106,1	107,3	107,3	107,4	106,2	106,3	107,9	107,0	107,3	107,0	107,3	107,9	107,0	107,3
Burner turndown ratio	+/-	3:1	4:1	4:1	5:1	5:1	7:1	6:1	7:1	4:1	5:1	4:1	5:1	7:1	4:1	5:1
Air volume, min.	m ³ /h	1250	2000	3760	3760	5640	7520	9400	13500	14200	17500	**	**	**	**	**
Air volume, max.*	m ³ /h	4100	4100	7200	7200	8640	13680	16200	20880	20880	24500	**	**	**	**	**

* Larger air volumes using a bypass.

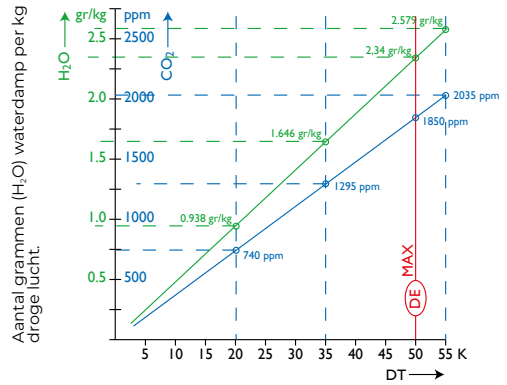
** On request

Direct gas-fired make-up air burner

Direct gas-fired air make-up air heaters are integrated into the air handling unit. This type of air heater is suitable only if the heated air is extracted mechanically.

Adjustment:
modulating 20:1.

CO ≤ 5 ppm
NO ≤ 1 ppm
NO_x ≤ 1 ppm



DT als functie van het toegevoegde CO₂ gehalte in ppm.

1 m³ lucht 15 °C = 1.20 kg.

MONO Type		55	110	165	220	275	330	385	440	495	550	660	770
Nominal load (upper value)	kW	71	142	213	284	356	427	498	569	640	712	854	996
Nominal load (lower value)	kW	64	128	192	256	320	384	448	512	576	640	768	896
Minimum load (lower value)	kW	3,2	6,4	9,6	12,8	16,0	19,2	22,4	25,6	28,8	32,0	37,4	44,8
Air volume, min.	m ³ /h	3500	7020	10450	14130	17510	20800	24350	27820	31210	39730	41680	48700
Air volume, max.	m ³ /h	9600	19200	28800	38400	48000	57600	67200	69500	69500	69500	69500	69500

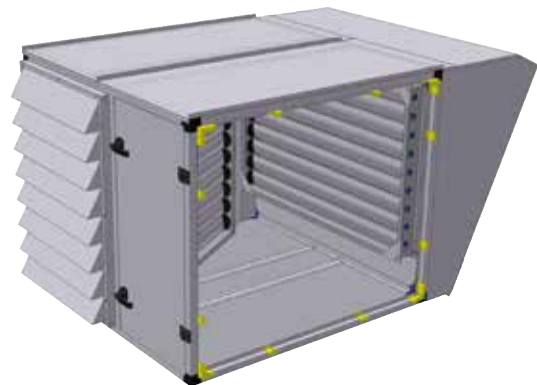


Mixing boxes

The air handling unit can be equipped with a mixing box. This box is placed between the air extraction section and the air inlet section. The mixing box can be fitted with servomotor-controlled dampers.

Optional:

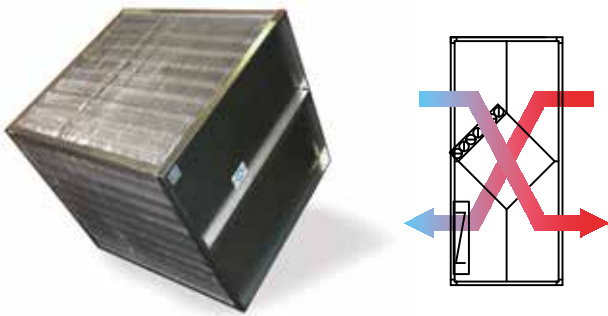
- Modulating - or open/closed control
- 24 V or 230 V.



Heat recovery

Operating costs can be reduced and the environment protected by the use of heat recovery. Heat can be recovered using the following systems:

Cross-flow plate heat exchanger



Benefits:

- Durable, no mechanical moving parts
- Reliable
- Simple installation
- Separate air flows
- Air flow via a by-pass is possible
- Very economical solution for heat recovery
- Efficiency > 50%

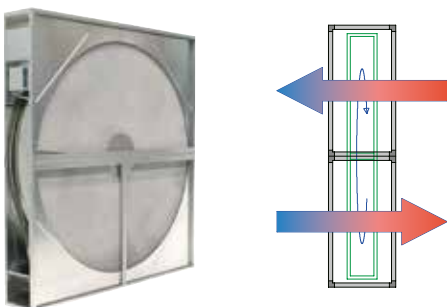
Twin-coil heat exchanger



Benefits:

- Fresh air and return air can be separated spatially
- Short installation length
- Suitable for installation in existing units
- Can also be used at higher temperatures, large selection of heat exchangers, number of tube rows and materials used (Cu/Al or galvanized steel)
- Efficiency up to approx. 50%

Heat wheel



Benefits:

- Low pressure drop
- Compact construction
- High heat-exchanging power
- Option to re-use latent heat
- Option to re-use available humidity
- Efficiency between 60% and 90% can be selected

Cooling

Direct cooling (air cooling), "DX system"
 Indirect cooling (water cooling), "Chiller"
 Adiabatic cooling, "soft cool" (optional)

Indirect cooling



Water is cooled in the cooling unit. Cold water is pumped into a cold water battery in the air handling unit. This will cool the air flow.

Benefits:

- The cooling unit is installed separately from the air handling unit.
- Low investment costs
- Short installation length
- Low operating costs
- Good cooling efficiency
- Excellent air dehumidification
- Control sends the quantity of cold water through the air-cooled cold water battery
- The cooling unit ensures the water temperature is constant
- Highly adjustable
- Guaranteed cooling capacity.

Direct cooling



The air flow is cooled directly, the humidifier is situated directly in the air flow that needs to be cooled.

Benefits:

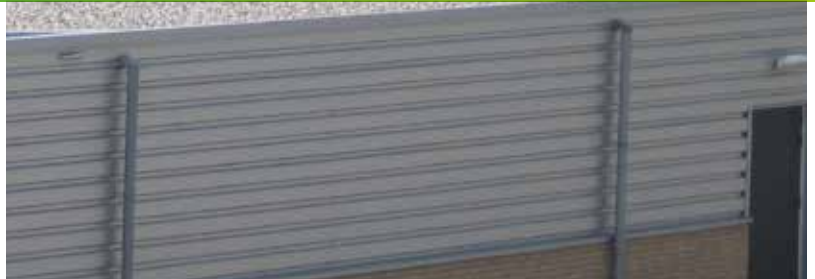
- Low investment costs
- Short installation length
- Low operating costs
- No water-related problems (risk of freezing, glycol concentrate, corrosion)
- Good cooling efficiency
- Excellent air dehumidification.



CALFLO

Gas-fired make-up air heater

Air heater with burner located directly in the air flow.
Output from 64 to 896 kW.



For more information, downloads
and videos, visit the Calflo page
on our website



Maximum performance with large air quantities

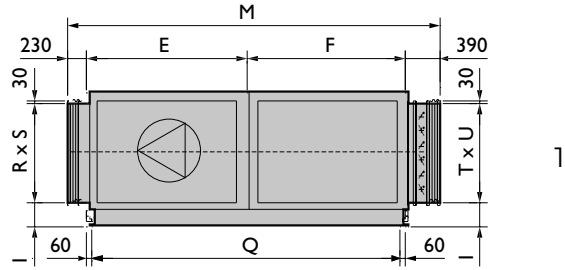
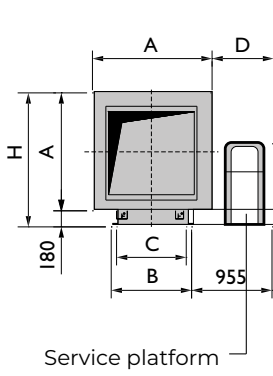
The Mark CALFLO is a make up air heating system. This means that the burner (and the flame) is located directly in the air flow to deliver maximum performance. The flue gases are so clean that they may be blown into the building. The CALFLO is suitable for rooms requiring large degrees of ventilation. This appliance is equipped with a modulating stainless steel burner and a seawater-resistant aluminium housing.

Possible applications include sand blasting areas, welding areas, and the processing industry.

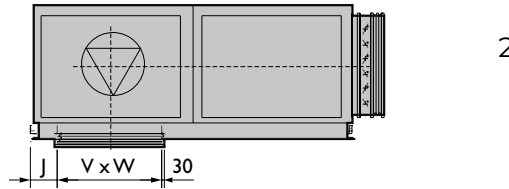
Product features

- Stainless steel line or box burners
- AlMg3 seawater-resistant aluminium housing (single-skin or double-skin)
- Low weight
- Available for both inside and outside installation
- Large air displacement
- Wide turndown ratio through use of modulating burner
- Long lifespan
- Extensive configuration options
- Reliable
- HT filters (option)

Dimensions

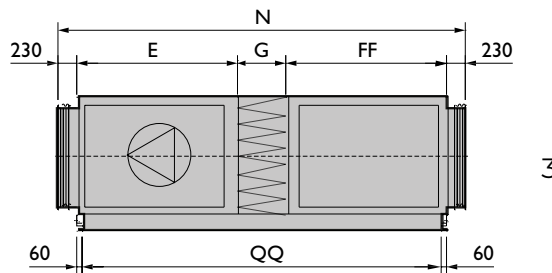


1

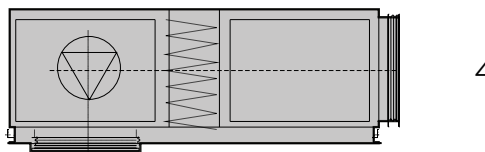


2

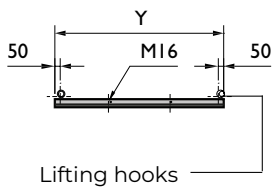
1-4: Indoor version
5&6: External installation



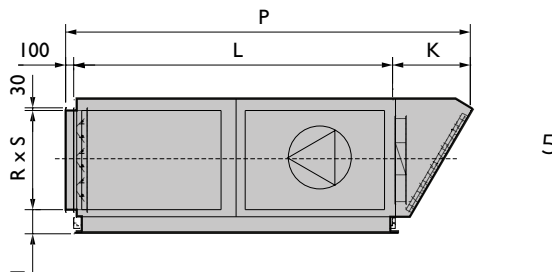
3



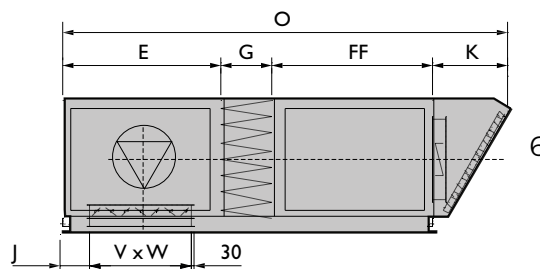
4



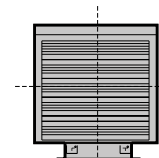
Lifting hooks



5



6



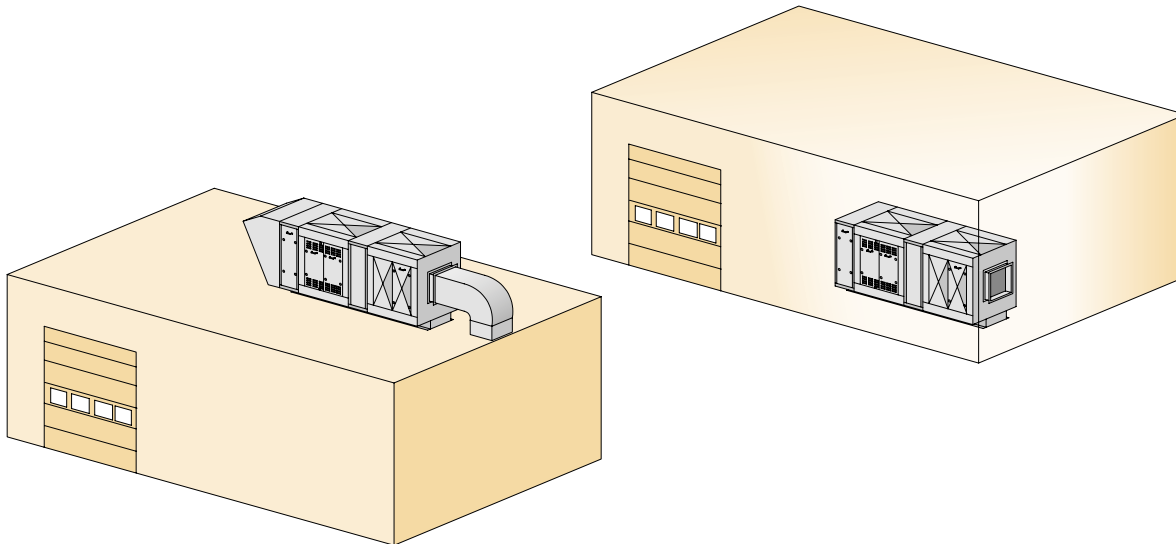
This table belongs to the previous page

Type	A	B	C	D	E	F	FF	G	H	I	J	K	L	M	N	O	P	Q	QQ	RxS	TxU	VxW	Y
55CK55	1090	870	750	845	1090	1090	1680	590	1270	295	160	745	2180	2800	3820	4105	3025	2040	3220	860x820	1025x1020	820x530	1400
55CK35	1090	870	750	845	1090	1090	1680	590	1270	295	160	745	2180	2800	3820	4105	3025	2040	3220	860x820	1025x1020	820x530	1400
110CK55	1090	870	750	845	1090	1090	1680	590	1270	295	160	745	2180	2800	3820	4105	3025	2040	3220	860x820	1025x1020	820x530	1400
110CK35	1090	870	750	845	1090	1090	1680	590	1270	295	160	745	2180	2800	3820	4105	3025	2040	3220	860x820	1025x1020	820x530	1400
165CK55	1404	960	840	733	1900	1900	1900	600	1584	287	340	915	3800	4420	4860	5315	4815	3680	4280	1190x1220	1190x1220	1220x695	2000
165CK35	1404	960	840	733	1900	1900	1900	600	1584	287	340	915	3800	4420	4860	5315	4815	3680	4280	1190x1220	1190x1220	1220x695	2000
220CK55	1404	960	840	733	1900	1900	1900	600	1584	287	340	915	3800	4420	4860	5315	4815	3680	4280	1190x1220	1190x1220	1220x695	2000
220CK35	1404	960	840	733	1900	1900	1900	600	1584	287	340	915	3800	4420	4860	5315	4815	3680	4280	1190x1220	1190x1220	1220x695	2000
275CK55	1404	960	840	733	1900	1900	1900	600	1584	287	340	915	3800	4420	4860	5315	4815	3680	4280	1190x1220	1190x1220	1220x695	2000
275CK35	1804	1370	1250	738	1900	1900	1900	600	1984	405	240	1165	3800	4420	4860	5565	5065	3680	4280	1355x1420	1685x1620	1420x1025	2400
330CK55	1804	1370	1250	738	1900	1900	1900	600	1984	405	240	1165	3800	4420	4860	5565	5065	3680	4280	1355x1420	1685x1620	1420x1025	2400
330CK35	1804	1370	1250	738	1900	1900	1900	600	1984	405	240	1165	3800	4420	4860	5565	5065	3680	4280	1355x1420	1685x1620	1420x1025	2400
385CK55	1804	1370	1250	738	1900	1900	1900	600	1984	405	240	1165	3800	4420	4860	5565	5065	3680	4280	1355x1420	1685x1620	1420x1025	2400
385CK35	1804	1370	1250	738	1900	1900	1900	600	1984	405	240	1165	3800	4420	4860	5565	5065	3680	4280	1355x1420	1685x1620	1420x1025	2400
440CK55	1804	1370	1250	738	1900	1900	1900	600	1984	405	240	1165	3800	4420	4860	5565	5065	3680	4280	1355x1420	1685x1620	1420x1025	2400
495CK55	1804	1370	1250	738	1900	1900	1900	600	1984	405	240	1165	3800	4420	4860	5565	5065	3680	4280	1355x1420	1685x1620	1420x1025	2400
440CK35	2204	1810	1690	758	2200	2200	2200	600	2384	357	190	1280	4400	5020	5460	6280	5780	4280	4880	1850x1820	2015x2020	1820x1355	2800
495CK35	2204	1810	1690	758	2200	2200	2200	600	2384	357	190	1280	4400	5020	5460	6280	5780	4280	4880	1850x1820	2015x2020	1820x1355	2800
550CK55	2204	1810	1690	758	2200	2200	2200	600	2384	357	190	1280	4400	5020	5460	6280	5780	4280	4880	1850x1820	2015x2020	1820x1355	2800
550CK35	2204	1810	1690	758	2200	2200	2200	600	2384	357	190	1280	4400	5020	5460	6280	5780	4280	4880	1850x1820	2015x2020	1820x1355	2800
660CK55	2204	1810	1690	758	2200	2200	2200	600	2384	357	190	1280	4400	5020	5460	6280	5780	4280	4880	1850x1820	2015x2020	1820x1355	2800
660CK35	2204	1810	1690	758	2200	2200	2200	600	2384	357	190	1280	4400	5020	5460	6280	5780	4280	4880	1850x1820	2015x2020	1820x1355	2800
770CK55	2204	1810	1690	758	2200	2200	2200	600	2384	357	190	1280	4400	5020	5460	6280	5780	4280	4880	1850x1820	2015x2020	1820x1355	2800
770CK35	2204	1810	1690	758	2200	2200	2200	600	2384	357	190	1280	4400	5020	5460	6280	5780	4280	4880	1850x1820	2015x2020	1820x1355	2800

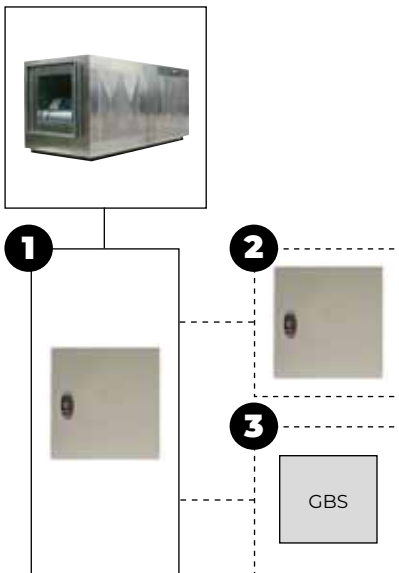
Technical information

Type		55	110	165	220	275	330	385	440	495	550	660	770
Nominal load (upper value)	kW	71	142	213	284	356	427	498	569	640	712	854	996
Nominal load (lower value)	kW	64	128	192	256	320	384	448	512	576	640	768	896
Minimum load (lower value)	kW	3,2	6,4	9,6	12,8	16,0	19,2	22,4	25,6	28,8	32,0	38,4	44,8
Burner turndown ratio		20:1	20:1	20:1	20:1	20:1	20:1	20:1	20:1	20:1	20:1	20:1	20:1
Gas consumption G20 (15 °C)	m³/h	7,9	15,8	23,6	31,5	39,4	47,3	55,1	63,0	70,9	78,8	94,5	110,3
Gas consumption G25 (15 °C)	m³/h	6,8	13,5	20,3	27,1	33,9	40,6	47,4	54,2	60,9	67,7	81,3	94,8
Gas consumption G31 (15 °C)	kg/h	5,0	9,9	14,9	19,9	24,8	29,8	34,8	39,7	44,7	49,7	59,6	69,5
Gas consumption G30 (15 °C)	kg/h	5,1	10,1	15,2	20,2	25,3	30,3	35,4	40,4	45,5	50,5	60,6	70,7
Air displacement ΔT35K (15 °C)	m³/h	5430	10870	16300	21740	27170	32600	38040	43470	48900	54340	65200	76080
Fan type ΔT35K		355	450	560	560	710	710	710	900	900	900	900	1000
Air displacement ΔT55K (15 °C)	m³/h	3500	7020	10450	14130	17510	20800	24350	27820	31210	34730	41680	48700
Fan type ΔT55K		355	450	560	560	560	710	710	710	710	900	900	900

Assembly/location suggestions



Controls



Control combination options

Calflo	+	1	
Calflo on/off or high/low	+	1	+ 2
Calflo on/off or high/low	+	1	+ 3

1 = Motor control box

2 = Remote control C10 CALFLO on/off
 Remote control C12 CALFLO on/off with clock
 Remote control C20 CALFLO high/low
 Remote control C22 CALFLO high/low with clock



MISTRAL MDX

Air-to-air VRF heat pump system
for large spaces

Sustainable heating and cooling with the Mark MDX
VRF system. Powers of 33 and 56 kW.



For more information, downloads and
videos, visit the MISTRAL MDX page on
our website

Sustainable heating and cooling with the Mark MISTRAL MDX



The Mark MISTRAL MDX is a VRF system, which is specially developed for energy-efficient heating and cooling of large spaces. The combination of an air-to-air heat pump (outdoor unit) with a compact air heater / cooler (indoor unit) ensures excellent performance. Thanks to the extensive setting options, the installation can be fully adapted to the use of the building and the wishes of the users.

Thanks to the long available pipe lengths (90m MDX 33/ 170m MDX 56) and the wide temperature range, the MISTRAL MDX has many application options. Suitable for heating and cooling garages, warehouses, workshops, distribution centers and showrooms.

Product features

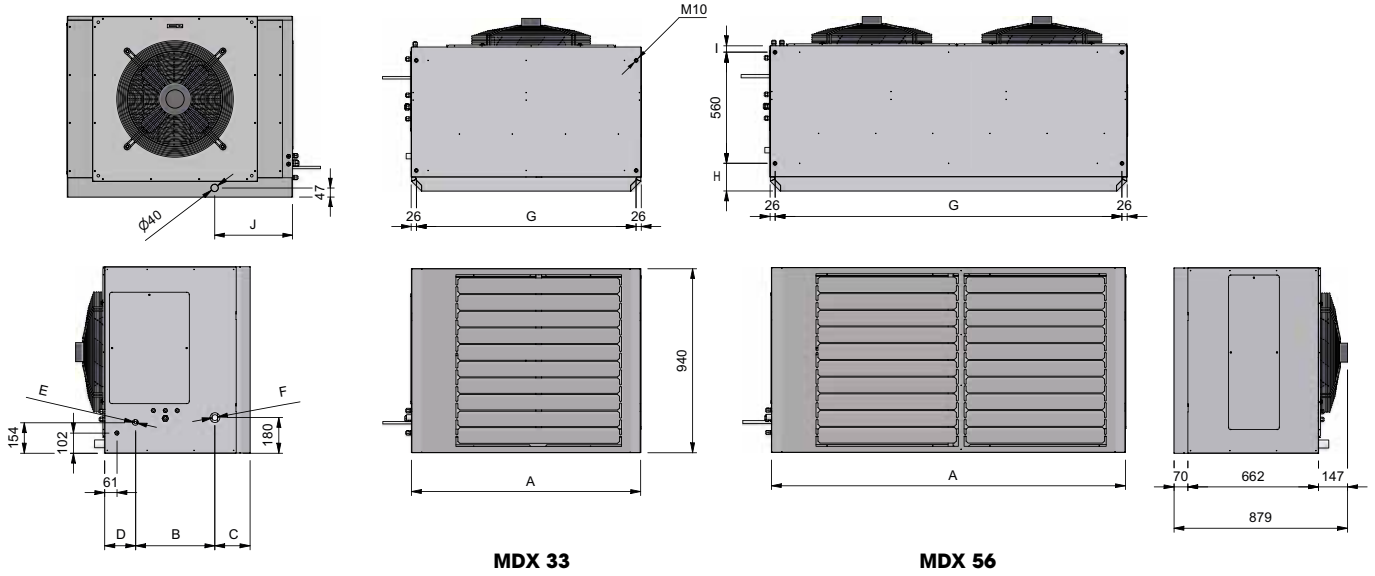
- Available with powers of 33 kW and 56 kW
- Air to air heat pump VRF-system
- Cooling and heating
- Large temperature range
- Indoor unit with EC fan
- Energy efficient
- Pipe length: (90m MDX 33/ 170m MDX 56)
- Refrigerant: R410a
- Optional: integrated condensate pump

Ambient temperature range (indoor unit):

- Cooling: +17°C - +43°C
- Heating: +7°C - +25°C



Dimensions - indoor unit

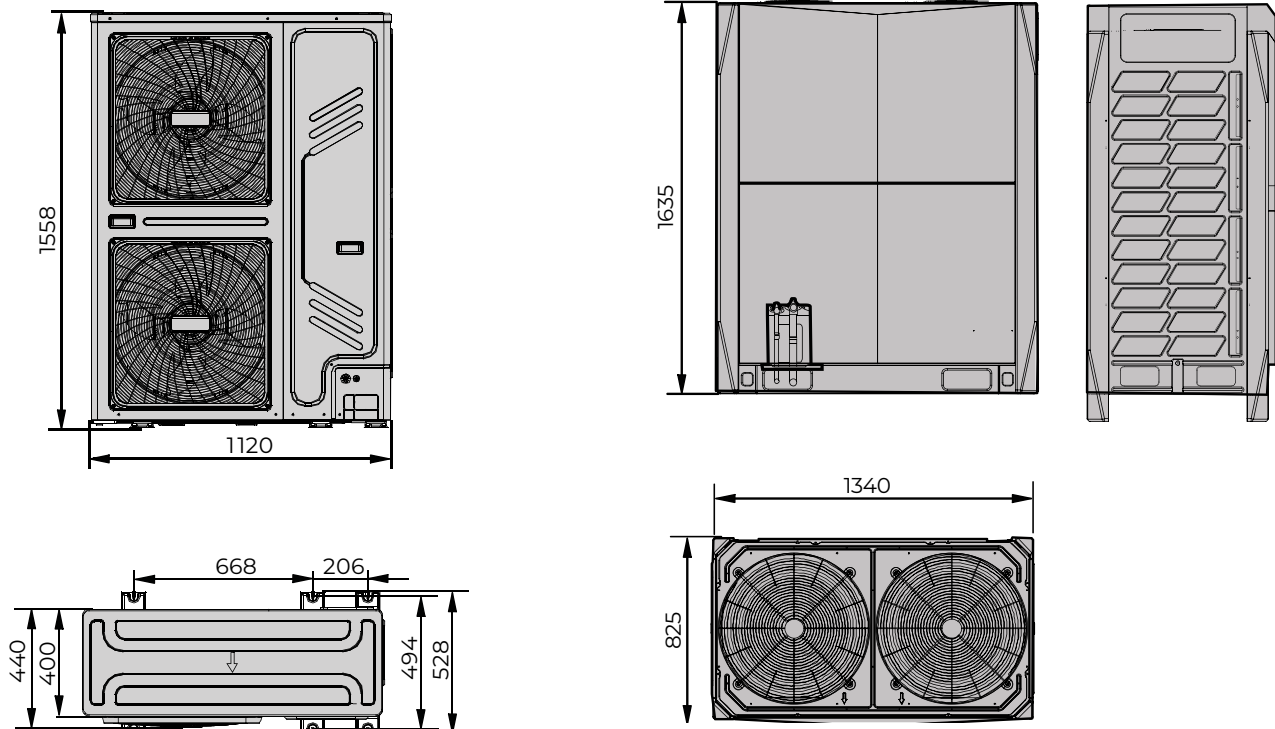


TYPE	A	B	C	D	E	F	G	H	I	J	K
MDX 33	1170	399	178	156	28	1/2"	1118	105	68	404	47
MDX 56	1800	373	206	154	28	5/8"	1748	140	33	389	47

Dimensions - outdoor unit

MDX 33

MDX 56



Technical information

Type			MDX 33	MDX 56
Power		HP	12	20
heating	Nominal capacity ²	kW	37,5	63,0
	Absorbed power ²	kW	9,08	19,21
	Nominal capacity ³	kW	30,7	51,6
	Absorbed power ³	kW	10,79	22,83
SCOP			3,96	4,31
cooling	Nominal capacity ¹	kW	33,5	56
	Absorbed power ¹	kW	15,3	32,2
	SEER ¹		6,77	6,45
Electrical data				
Power supply		Ph/V/Hz	3/380-415/50	3/380-415/50
Nominal Consumed current		A	19,6	35
Maximum current		A	26,4	45,9
Fuse		A	32	50
Refrigerant features				
Refrigerant			R410A	R410A
Refrigerant content ⁴		kg	8	17 ⁵
DC Inverter compressor		no. / type	1 / Rotary DC Inverter	2 / Scroll DC Inverter
Pipe connections	Liquid	Ø inch	1/2"	5/8"
	Gas	Ø mm	28	28
Distance indoor and outdoor unit	min	m	2	2
	max	m	90	170
Maximum height difference		m	40	90
Specifications outdoor unit				
Dimensions (LxHxD)		mm	1120x1558x528	1340x1635x825
Net weight		kg	157	344
Sound pressure level (5 mtr.)		max dB(A)	47	52
Air flow		max m ³ /h	11300	17000
Operating limits (outside temperature)	Cooling	°C	-5 ~ +48	-5 ~ +48
	Heating	°C	-20 ~ +24	-23 ~ +24
Specifications indoor unit				
Weight		kg	112	160
Air flow		max m ³ /h	6600	11200
Sound pressure level (5 mtr.) at max air flow		dB(A)	53	56
Throw		m	19	22
Pipe connections	Liquid	Ø mm (inch)	12,7 (1/2")	15,8 (5/8")
	Gas	Ø mm	28	28
Power supply		Ph/V/(Hz)kW	1/230/(50)0,24	1/230/(50)0,48
Temperature range	Cooling	°C		+17 ~ +43
	Heating	°C		+7 ~ +25

¹ Indoor air temperature 27°C DB, 19°C WB; outdoor air temperature 35°C DB; equivalant refrigerant piping length 7.5m with zero level difference.

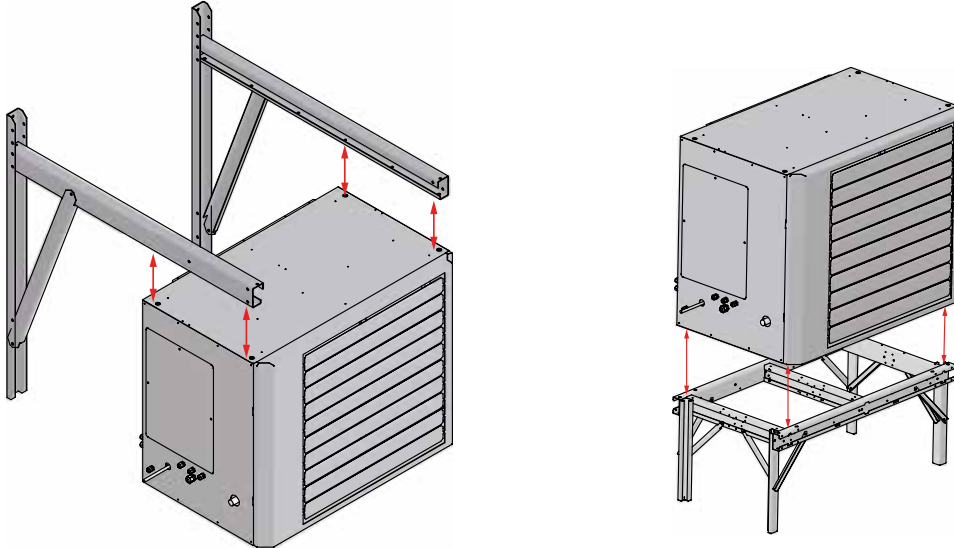
² Indoor air temperature 20°C DB, 19°C WB; outdoor air temperature 7°C DB, 6°C WB; equivalant refrigerant piping length 7.5m with zero level difference.

³ Indoor air temperature 16°C DB, 19°C WB; outdoor air temperature -19,8°C DB, -20°C WB; equivalant refrigerant piping length 7.5m with zero level difference.

⁴ Excl. liquid line refill

⁵ Refill 5.2 kg on location, excluding refill liquid line.

Assembly/location suggestions



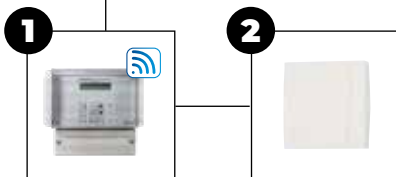
Controls



Control combination options

Mistral MDX + **1** + **2**

See price list for description and code numbers of the relevant items



Prices Mark MISTRAL MDX



PRODUCT - MISTRAL MDX VRF HEAT PUMP SYSTEM

Code nr.	Description	Price
5992703	Mistral MDX 33 kW (indoor + outdoor unit, excl. condensate pump)	€ 19728
5992705	Mistral MDX 56 kW (indoor + outdoor unit, excl. condensate pump)	€ 34122
5992713	Mistral MDX 33 kW (indoor + outdoor unit, incl. condensate pump)	€ 20148
5992715	Mistral MDX 56 kW (indoor + outdoor unit, incl. condensate pump)	€ 34542

ACCESSORIES - CONTROL

Code nr.	Description	Price
1 0629110	Pintherm Mistral	€ 726
2 0629086	Room sensor required for 0629110	€ 93
3004481	Multi controller for max. 3x Mistral MDX	€ 1995
3004482	Multi controller for max. 6x Mistral MDX	€ 3098
0631144	Isolator switch 80A black	€ 572
0631146	Isolator switch 50A black	€ 111
0631163	Isolator switch 230V (4 poles)	€ 71

ACCESSORIES - MOUNTING

Code nr.	Description	Price
5017595	Set wall mounting brackets (2 pieces)	€ 405
5017597	Adjustable support frame for outdoor unit Mistral MDX (heat pump)	€ 1318
5016840	Support frame for Mistral MDX 33 indoor unit	€ 396
5016841	Support frame for Mistral MDX 56 indoor unit	€ 417

ACCESSORIES - ADDITIONAL SECTIONS - VERTICAL LOUVRES

Code nr.	Description	Price
5064341	Vertical louvres for MDX type 33	€ 227
5064342	Vertical louvres for MDX type 56	€ 401



MARK HEAT PUMPS

Air-Water heat pumps

Wide range of heat pumps with various applications.



For more information, downloads and videos, visit the Mark Heat Pumps page on our website



Product features

- Frame made of solid galvanized sheet steel
- Scroll 3-phase compressor complete with integrated protection module
- Axial fans type AC, with which condensation control up to 0 °C is possible.
- Evaporator
- Front operation
- Microprocessor with logic program for overheating
- Refrigerant circuit manufactured according to UNI EN 13134 directive
- High and low pressure transducers, with values that can be shown on the display
- Water circuit with copper pipes
- Standard quipped with control and security equipment
- Refrigerant: R410a

High-quality air-water heat pumps from Mark

In addition to our wide range of DX heat pumps, Mark Climate Technology now also has high-quality air-water heat pumps in its range. The air-water heat pumps are very easy to install and extremely suitable in combination with various systems for cooling and heating.

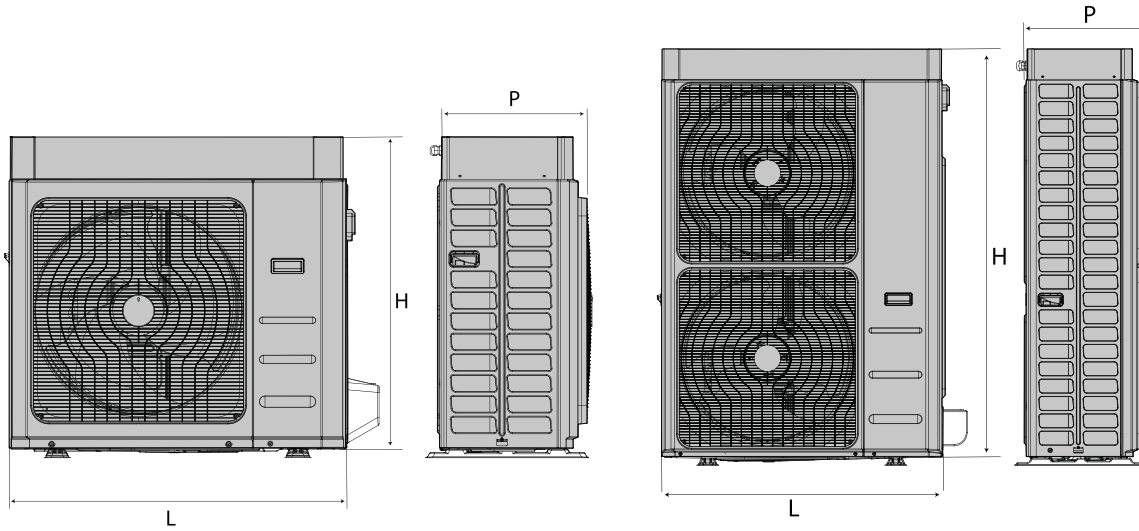
They can of course also be used in combination with the Mark Aerflow heat recovery units and the Mark Aerflow AHU air handling units. In addition, the heat pumps are easily adjustable, low maintenance and reliable.

Mark's air-water heat pumps are selected customer-specifically for each project.

We deliver three types:

- i-MV5: Monoblock air-water heat pump for cooling or heating.
Capacities: 4-18 kW
- MWAI-A: cooling only. Capacities: 40-85 kW & 106-349 kW
- MWAI-A/H: air-cooled heat pump for cooling or heating.
Capacities: 40-85 kW & 109-345 kW
- iMax: air-cooled heat pump for cooling, heating and hot water.
Capacities: 79,6-102,8 kW

Dimensions i-MV5 (4-18 kW)



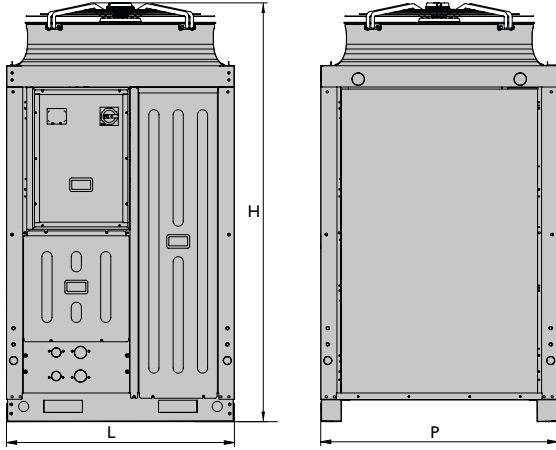
Type		04	06	08	10	10T	12	12T	14	14T	16	16T	18T
L	mm	924	924	924	1047	1047	1047	1047	1044	1044	1044	1044	1044
P	mm	377	377	377	456	456	456	456	455	455	455	455	455
H	mm	828	828	828	936	936	936	936	1409	1409	1409	1409	1409

Technical information i-MV5 (4-18 kW)

Type		04	06	08	10	10T	12	12T	14	14T	16	16T	18T	
cooling	Cooling capacity ⁽¹⁾	kW	4,23	5,02	6,08	7,53	7,53	8,51	8,51	11,48	11,48	13,8	13,8	15,04
	Power input ⁽¹⁾	kW	1,29	1,6	1,99	2,39	2,39	2,79	2,79	3,53	3,53	4,38	4,38	4,88
	EER ⁽¹⁾	W/W	3,28	3,14	3,05	3,15	3,15	3,05	3,05	3,25	3,25	3,15	3,15	3,08
	Cooling capacity ⁽²⁾	kW	5,51	6,18	7,72	9,5	9,5	11,6	11,6	14,0	14,0	15,8	15,8	17,1
	Power input ⁽²⁾	kW	1,10	1,28	1,76	2,15	2,15	2,79	2,79	2,59	2,59	3,15	3,15	3,59
	EER ⁽²⁾	W/W	5,02	4,82	4,38	4,41	4,41	4,16	4,16	5,40	5,40	5,02	5,02	4,76
	SEER ⁽⁵⁾	W/W	4,07	4,12	4,25	4,15	4,15	4,25	4,25	4,62	4,62	4,80	4,80	4,91
	Water flow ⁽¹⁾	L/s	0,20	0,24	0,28	0,36	0,36	0,41	0,41	0,55	0,55	0,66	0,66	0,71
	Pressure drop ⁽¹⁾	kPa	80,8	78,8	76,0	68,9	68,9	63,4	63,4	75,0	75,0	62,3	62,3	55,6
	Thermal power ⁽³⁾	kW	4,55	6,08	7,81	10,1	10,1	11,8	11,8	14,1	14,1	16,3	16,3	17,9
heating	Power input ⁽³⁾	kW	0,95	1,35	1,78	2,28	2,28	2,73	2,73	2,91	2,91	3,49	3,49	4,07
	COP ⁽³⁾	W/W	4,78	4,51	4,38	4,43	4,43	4,32	4,32	4,85	4,85	4,67	4,67	4,40
	Thermal power ⁽⁴⁾	kW	4,47	5,88	7,58	9,76	9,76	11,47	11,47	13,56	13,56	15,77	15,77	17,32
	Power input ⁽⁴⁾	kW	1,17	1,66	2,17	2,80	2,80	3,33	3,33	3,55	3,55	4,24	4,24	4,92
	COP ⁽⁴⁾	W/W	3,82	3,54	3,50	3,48	3,48	3,44	3,44	3,82	3,82	3,72	3,72	3,52
	SCOP ⁽⁶⁾	W/W	4,52	4,46	4,46	4,53	4,53	4,47	4,47	4,48	4,48	4,49	4,49	4,46
	Water flow ⁽⁴⁾	l/s	0,22	0,28	0,37	0,47	0,47	0,55	0,55	0,65	0,65	0,76	0,76	0,83
	Heat exchanger pressure ⁽⁴⁾	kPa	80,0	75,8	66,3	55,2	55,2	43,4	43,4	63,6	63,6	48,5	48,5	37,3
	Energy efficiency (water 35°C)		A+++/A++											
	Compressor type		Twin Rotary DC Inverter											
Number of compressors	n°	1	1	1	1	1	1	1	1	1	1	1	1	
Refrigerant circuits	n°	1	1	1	1	1	1	1	1	1	1	1	1	
Refrigerant charge l ⁽⁴⁾	kg	1,5	1,5	1,5	2,5	2,5	2,5	2,5	3,6	3,6	4	4	4	
Water connections	inch	1"	1"	1"										1"
Minimum water volume ⁽⁸⁾	L	35	40	40	50	50	60	60	60	60	70	70	70	
Sound power ⁽⁹⁾	dB(A)	64	64	64	64	64	65	65	68	68	68	68	68	
Sound pressure ⁽¹⁰⁾	dB(A)	49,8	49,8	49,8	49,4	49,4	50,4	50,4	52,7	52,7	52,7	52,7	52,7	
Power supply		230V/1/50Hz			400V/3P+N+T/50Hz		230V/1/50Hz		400V/3P+N+T/50Hz		230V/1/50Hz		400V/3P+N+T/50Hz	
Maximum power input	kW	2,9	3,5	3,9	4,6	4,6	5,1	5,1	6,6	6,6	7,0	7,0	8,3	
Maximum current input	A	12,6	15,1	17,0	20,2	6,6	22,1	7,3	28,6	9,5	30,4	10,1	12,0	
Gross weight	kg	84	84	84	110	110	110	110	134	148	140	154	154	
Operating weight	kg	72	72	72	96	96	96	96	121	136	126	141	141	

Operating conditions, see page 225

Dimensions MWA1-A en MWA1-A/H (40-85 kW)



Type		0140	0147	0260	027	0285
L	mm	1125	1125	1125	1125	1125
P	mm	1170	1170	1170	1170	1170
H	mm	2040	2040	2070	2070	2070

Technical information MWA1-A (40-85 kW)

Type		0140	0147	0260	0273	0285
Cooling capacity ⁽¹⁾	kW	39,7	46,8	60,8	73,3	86,5
Power input ⁽¹⁾	kW	12,5	15,1	19,3	24,8	29,3
EER ⁽¹⁾	W/W	3,16	3,11	3,16	2,95	2,96
Cooling capacity ⁽¹²⁾	kW	54,4	63,5	81,9	99,4	116,3
Power input ⁽¹²⁾	kW	14,3	17,0	21,9	28,0	33,3
EER ⁽¹²⁾	W/W	3,80	3,74	3,75	3,55	3,50
SEER ⁽⁵⁾	W/W	3,80	3,80	4,05	3,98	4,14
Cooling capacity ⁽¹³⁾	kW	22,7	27,0	36,2	42,9	51,1
Power input ⁽¹³⁾	kW	11,4	13,5	16,9	22,1	25,7
EER ⁽¹³⁾	W/W	1,99	2,01	2,14	1,94	1,99
Water flow ⁽¹¹⁾	L/s	1,90	2,24	2,92	3,51	4,14
Pressure drop ⁽¹¹⁾	kPa	54,08	51,68	56,79	46,43	50,41
Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors	n°	1	1	2	2	2
Refrigerant circuits	n°	1	1	1	1	1
Refrigerant charge ⁽⁷⁾	kg	7,8	7,8	12,8	13,4	14,6
Nominal air flow	m ³ /s	4,04/5,32	3,88/5,23	4,15/5,44	4,86/6,01	7,4
Maximum pressure hydronic kit	bar	6	6	6	6	6
Water connections	inch	2"	2"	2"	2"	2"
Minimum water volume ⁽⁸⁾	L	330	380	260	380	490
Sound power ⁽⁹⁾	dB(A)	81	81	82	83	84
Sound pressure ⁽¹⁰⁾	dB(A)	49,3	49,3	50,3	51,3	52,3
Power supply		400V/3P+N+T/50Hz				
Maximum power input	kW	17,0	21,5	28,0	35,0	43,0
Maximum current input	A	28,0	38,0	45,0	56,0	71,0
Gross weight	kg	365	375	470	495	510
Operating weight	kg	350	360	455	480	495

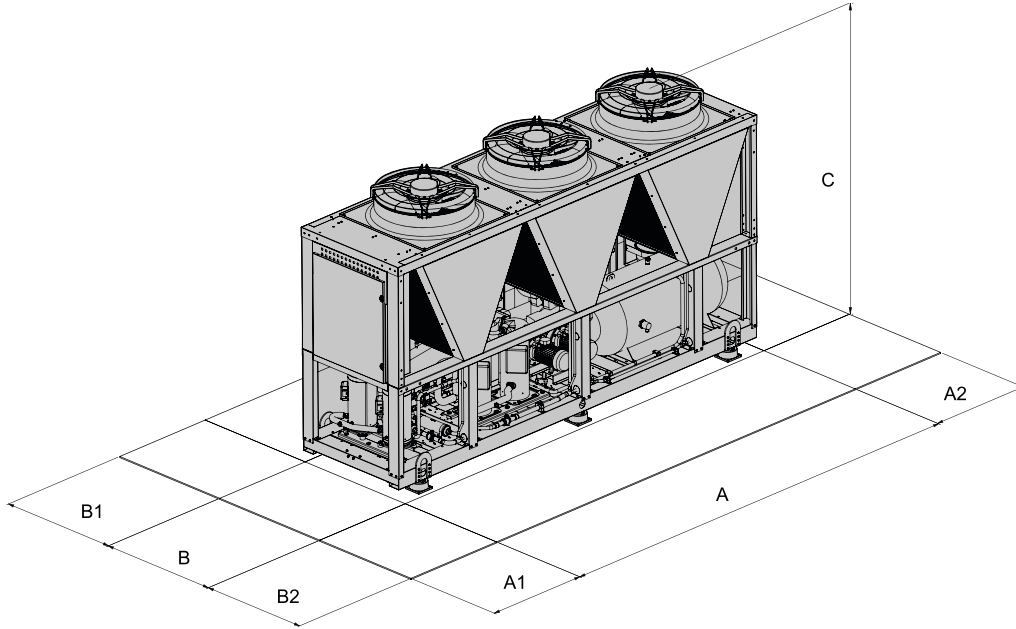
Operating conditions; see page 217

Technical information MWA1-A/H (40-85 kW)

Type		0140	0147	0260	0273	0285	
cooling	Cooling capacity ⁽¹⁾	kW	38,6	45,6	58,6	71,2	80,2
	Power input ⁽¹⁾	kW	13,0	15,7	19,9	24,6	29,2
	EER ⁽¹⁾	W/W	2,97	2,91	2,94	2,90	2,75
	Cooling capacity ⁽²⁾	kW	51,8	60,6	77,7	94,1	106,4
	Power input ⁽²⁾	kW	14,7	17,6	22,6	28,0	33,3
	EER ⁽²⁾	W/W	3,53	3,43	3,43	3,37	3,20
	SEER ⁽⁵⁾	W/W	3,82	3,8	3,94	3,98	4,07
	Water flow ⁽¹⁾	L/s	1,86	2,20	2,83	3,41	3,84
	Pressure drop ⁽¹⁾	kPa	55,8	56,6	61,5	63,7	66,6
	Thermal power ⁽³⁾	kW	43,5	48,2	64,1	80,9	88,7
heating	Power input ⁽³⁾	kW	10,7	12,3	15,6	20,0	22,7
	COP ⁽³⁾	W/W	4,05	3,92	4,10	4,05	3,90
	Thermal power ⁽⁴⁾	kW	42,1	47,8	63,0	74,9	84,6
	Power input ⁽⁴⁾	kW	12,8	14,8	18,8	23,3	28,5
	COP ⁽⁴⁾	W/W	3,28	3,23	3,35	3,22	2,97
	SCOP ⁽⁶⁾	W/W	3,49	3,34	3,85	3,84	3,70
	Water flow ⁽⁴⁾	l/s	2,02	2,30	3,03	3,60	4,07
	Heat exchanger pressure ⁽⁴⁾	kPa	84,4	81,6	84,1	81,5	84,1
	Energy efficiency (water 35°C)		A+	A+	A++	A++	A+
	Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors	n°	1	1	2	2	2	
Refrigerant circuits	n°	1	1	1	1	1	
Refrigerant charge ⁽⁷⁾	kg	9,98	9,98	14	15,25	15,6	
Nominal air flow	m ³ /s	4,3	5,3	6,3	6,9	7,4	
Maximum pressure hydronic kit	bar	6	6	6	6	6	
Water connections	inch	2"	2"	2"	2"	2"	
Minimum water volume ⁽⁸⁾	L	330	380	260	380	490	
Sound power ⁽⁹⁾	dB(A)	84	85	88	88	88	
Sound pressure ⁽¹⁰⁾	dB(A)	52,3	53,3	56,3	56,3	56,3	
Power supply		400V/3P+N+T/50Hz					
Maximum power input	kW	17,0	21,5	28,0	35,0	43,0	
Maximum current input	A	28,0	38,0	45,0	56,0	71,0	
Gross weight	kg	400	420	520	545	555	
Operating weight	kg	390	410	505	530	540	

Operating conditions; see page 225

Dimensions MWA1-A (106-349 kW)



Type	Dimensions (mm)			Recommended free space (mm)				Heat exchanger	
	A	B	C	A1	A2	B1	B2	Type	Ø
02106	2860	1100	2350	1000	800	1000	1000	Victaulic	DN65 (2" 1/2)
02120	2860	1100	2350	1000	800	1000	1000	Victaulic	DN65 (2" 1/2)
02128	2860	1100	2350	1000	800	1000	1000	Victaulic	DN65 (2" 1/2)
02140	4060	1100	2350	1000	800	1000	1000	Victaulic	DN65 (2" 1/2)
04155	4060	1100	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04177	4060	1100	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04184	4060	1100	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04209	2860	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04239	2860	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04258	2860	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04305	4060	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04349	4060	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")

Technical information MWA1-A (106-349 kW)

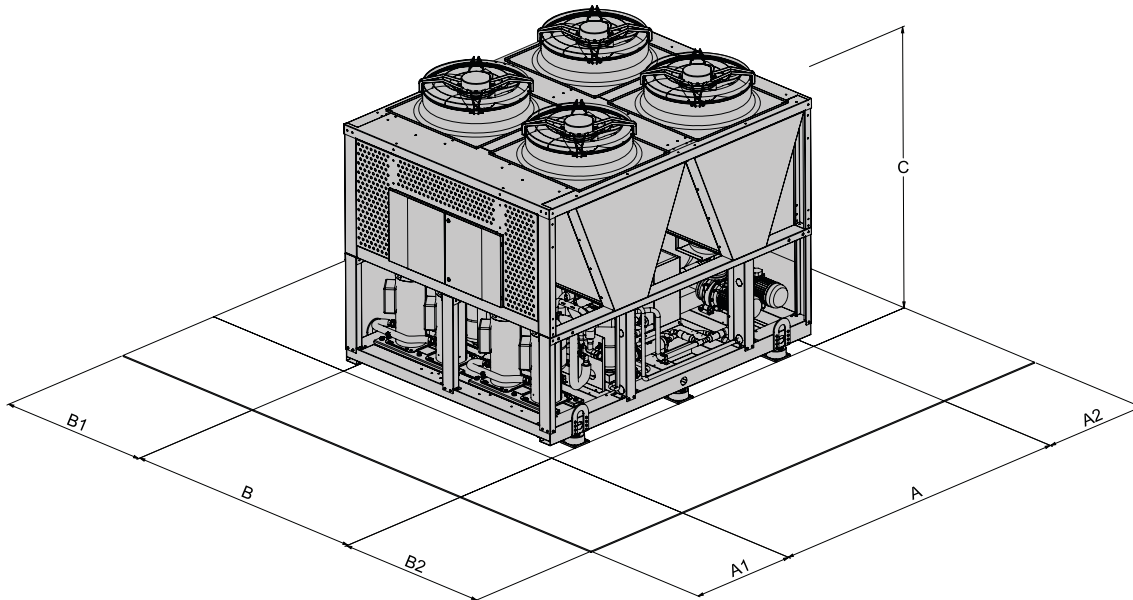
Type		02106	02120	02128	02140	04155	04177
Cooling capacity ⁽¹⁾	kW	105,3	119,2	127,9	139,3	155,0	176,5
Power input ⁽¹⁾	kW	33,6	38,3	44,0	44,3	49,9	56,8
EER ⁽¹⁾	W/W	3,14	3,11	2,91	3,15	3,11	3,11
Cooling capacity ⁽²⁾	kW	139,4	155,9	164,8	184,9	204,4	231,0
Power input ⁽²⁾	kW	35,8	40,9	46,9	47,5	52,9	60,9
EER ⁽²⁾	W/W	3,90	3,81	3,51	3,89	3,87	3,79
SEER ⁽⁵⁾	W/W	4,05	4,03	3,80	4,27	4,11	4,00
Cooling capacity ⁽¹³⁾	kW	61,9	70,6	76,3	82,0	91,5	103,4
Power input ⁽¹³⁾	kW	29,9	34,1	39,1	39,5	45,4	50,8
EER ⁽¹³⁾	W/W	2,07	2,07	1,95	2,08	2,02	2,04
Water flow ⁽¹⁾	L/s	5,11	5,82	6,19	6,45	7,19	8,25
Pressure drop ⁽¹⁾	kPa	18,02	21,48	24,50	27,84	21,08	17,27
Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors	n°	2	2	2	2	4	4
Refrigerant circuits	n°	1	1	1	1	2	2
Refrigerant charge 1 ⁽⁷⁾	kg	12	12	12	17	11	11
Refrigerant charge 2 ⁽⁷⁾	kg	-	-	-	-	9	9
Nominal air flow	l/s	10142	10200	10520	14649	14467	15072
Number of fans	n°	2	2	2	3	3	3
Maximum pressure hydronic kit	bar	6	6	6	6	6	6
Minimum water volume ⁽⁶⁾	L	420	530	530	690	400	520
Sound power ⁽⁹⁾	dB(A)	86/(SL) 85/ (SSL)83	86/(SL) 85/ (SSL)83	87/(SL) 86/ (SSL)84	87/(SL) 86/ (SSL)84	87/(SL) 86/ (SSL)84	88/(SL) 87/ (SSL)85
Sound pressure ⁽¹⁰⁾	dB(A)	54/(SL) 53/ (SSL) 51	54/(SL) 53/ (SSL) 51	55/(SL) 54/ (SSL) 52	54,9/(SL) / 53,9/(SSL) / 51,9	54,9/(SL) / 53,9/(SSL) / 51,9	55,9/(SL) / 54,9/(SSL) / 52,9
Power supply		400V/3P/50Hz					
Maximum power input	kW	48,9	55,0	61,1	66,9	82,4	87,4
Maximum current input	A	83,0	93,4	103,8	113,5	139,9	148,3
Gross weight	kg	1.080	1.080	1.090	1.510	1.620	1.620
Operating weight	kg	1.090	1.090	1.100	1.520	1.630	1.630

Operating conditions:, see page 225

Type		04184	04209	04239	04258	04305	04349
Cooling capacity ⁽¹⁾	kW	183,2	208,4	238,1	257,1	304,8	348,9
Power input ⁽¹⁾	kW	62,9	67,1	76,8	88,6	98,3	112,1
EER ⁽¹⁾	W/W	2,91	3,11	3,10	2,90	3,10	3,11
Cooling capacity ⁽²⁾	kW	240,4	278,6	314,3	334,8	405,3	460,6
Power input ⁽²⁾	kW	67,9	71,7	81,9	94,8	105,2	121,2
EER ⁽²⁾	W/W	3,54	3,89	3,84	3,53	3,85	3,80
SEER ⁽⁵⁾	W/W	3,97	4,07	4,24	3,83	4,16	4,03
Cooling capacity ⁽¹³⁾	kW	108,9	122,9	144,1	157,1	183,8	210,6
Power input ⁽¹³⁾	kW	55,8	59,7	68,8	79,2	88,5	100,5
EER ⁽¹³⁾	W/W	1,95	2,06	2,09	1,98	2,08	2,10
Water flow ⁽¹⁾	L/s	8,92	10,10	11,40	12,47	14,69	16,31
Pressure drop ⁽¹⁾	kPa	19,87	25,54	34,23	40,86	31,97	27,47
Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors	n°	4	4	4	4	4	4
Refrigerant circuits	n°	2	2	2	2	2	2
Refrigerant charge 1 ⁽⁷⁾	kg	11	11	12	12	18	19
Refrigerant charge 2 ⁽⁷⁾	kg	9	11	12	12	19	19
Nominal air flow	l/s	15054	19713	20471	21067	29279	30351
Number of fans	n°	3	4	4	4	6	6
Maximum pressure hydronic kit	bar	6	6	6	6	6	6
Minimum water volume ⁽⁶⁾	L	520	520	650	650	850	850
Sound power ⁽⁹⁾	dB(A)	88/(SL) 87/ (SSL)85	88/(SL) 87/ (SSL)85	88/(SL) 87/ (SSL)85	88/(SL) 87/ (SSL)85	88/(SL) 87/ (SSL)85	90/(SL) 89/ (SSL)87
Sound pressure ⁽¹⁰⁾	dB(A)	55,9/(SL) / 54,9/(SSL) / 52,9	55,9/(SL) / 54,9/(SSL) / 52,9	55,9/(SL) / 54,9/(SSL) / 52,9	55,9/(SL) / 54,9/(SSL) / 52,9	55,8/(SL) / 54,8/(SSL) / 52,8	57,8/(SL) / 56,8/(SSL) / 54,8
Power supply		400V/3P/50Hz					
Maximum power input	kW	90,9	97,8	110,0	122,3	146,0	165,8
Maximum current input	A	154,3	166,0	186,8	207,6	247,8	281,4
Gross weight	kg	1.620	1.950	1.960	1.960	2.670	2.850
Operating weight	kg	1.630	1.960	1.970	1.980	2.690	2.870

Operating conditions, see page 225

Dimensions MWA1-A/H (109-345 kW)



Type	Dimensions (mm)			Recommended free space (mm)				Heat exchanger	
	A	B	C	A1	A2	B1	B2	Type	Ø
02109	2860	1100	2350	1000	800	1000	1000	Victaulic	DN65 (2" 1/2)
02121	2860	1100	2350	1000	800	1000	1000	Victaulic	DN65 (2" 1/2)
02142	4060	1100	2350	1000	800	1000	1000	Victaulic	DN65 (2" 1/2)
02148	4060	1100	2350	1000	800	1000	1000	Victaulic	DN65 (2" 1/2)
02160	4060	1100	2350	1000	800	1000	1000	Victaulic	DN65 (2" 1/2)
04176	2860	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04199	2860	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04215	2860	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04237	2860	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04273	4060	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04304	4060	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")
04345	4060	2200	2350	1000	800	1000	1000	Victaulic	DN80 (3")

Technical information MWA1-A/H (109-345 kW)

Type		02109	02121	02142	02148	02160	04176	
cooling	Cooling capacity ⁽¹⁾	kW	102,8	113,1	131,8	137,9	148,1	165,3
	Power input ⁽¹⁾	kW	33,8	38,9	41,3	44,4	49,8	52,6
	EER ⁽¹⁾	W/W	3,05	2,90	3,19	3,11	2,97	3,14
	Cooling capacity ⁽²⁾	kW	139,0	150,6	177,0	187,8	202,4	223,6
	Power input ⁽²⁾	kW	36,5	42,7	44,1	47,7	53,0	55,7
	EER ⁽²⁾	W/W	3,81	3,53	4,01	3,94	3,82	4,01
	SEER ⁽⁵⁾	W/W	4,35	4,36	4,38	4,73	4,50	4,61
	Water flow ⁽¹⁾	L/s	4,92	5,41	6,31	6,61	7,09	7,90
	Pressure drop ⁽¹⁾	kPa	21,65	20,13	26,53	24,3	20,21	21,7
heating	Thermal power ⁽³⁾	kW	112,6	125,1	147,8	154,1	166,2	187,6
	Power input ⁽³⁾	kW	27,6	30,9	36,6	37,7	41,4	46,0
	COP ⁽³⁾	W/W	4,09	4,05	4,04	4,08	4,01	4,08
	Thermal power ⁽⁴⁾	kW	108,3	120,1	141,5	147,9	159,7	179,1
	Power input ⁽⁴⁾	kW	32,9	37,5	43,9	45,3	49,4	55,9
	COP ⁽⁴⁾	W/W	3,30	3,20	3,22	3,26	3,23	3,21
	SCOP ⁽⁶⁾	W/W	3,72	3,77	3,62	3,69	3,68	3,90
	Water flow ⁽⁴⁾	l/s	5,20	5,78	6,80	6,96	7,68	8,62
	Heat exchanger pressure ⁽⁴⁾	kPa	24,16	22,92	30,61	28,4	24,03	26,63
	Energy efficiency (water 35°C)		A+/A+	A+/A+	A+/A+	A+/A+	A+/A+	A+/A+
	Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
	Number of compressors	n°	2	2	2	2	2	4
	Refrigerant circuits	n°	1	1	1	1	1	2
	Refrigerant charge 1 ⁽⁷⁾	kg	28	33	33	42	42	23
	Refrigerant charge 2 ⁽⁷⁾	kg	-	-	-	-	-	23
Nominal air flow	l/s	10021	9984	15109	15088	15045	20954	
Number of fans	n°	2	2	3	3	3	4	
Maximum pressure hydronic kit	bar	6	6	6	6	6	6	
Minimum water volume ⁽⁸⁾	L	490	630	630	820	820	480	
Sound power ⁽⁹⁾	dB(A)	88/(SL) 87/ (SSL) 84	88/(SL) 87/ (SSL) 84	88/(SL) 87/ (SSL) 84	88/(SL) 87/ (SSL) 84	88/(SL) 87/ (SSL) 84	89/(SL) 88/ (SSL) 85	
Sound pressure ⁽¹⁰⁾	dB(A)	56/(SL) 55/ (SSL) 52	56/(SL) 55/ (SSL) 52	55,9/(SL) / 54,9/(SSL) / 51,9	55,9/(SL) / 54,9/(SSL) / 51,9	55,9/(SL) / 54,9/(SSL) / 51,9	56,9/(SL) / 55,9/(SSL) / 52,9	
Power supply		400V/3P/50Hz						
Maximum power input	kW	48,9	55,0	63,1	66,9	73,0	87,9	
Maximum current input	A	83,0	93,4	107,1	113,5	123,9	149,2	
Gross weight	kg	1.180	1.210	1.470	1.530	1.530	2.030	
Operating weight	kg	1.190	1.220	1.480	1.540	1.540	2.040	

Operating conditions, see page 225

Technical information MWA1-A (106-349 kW)

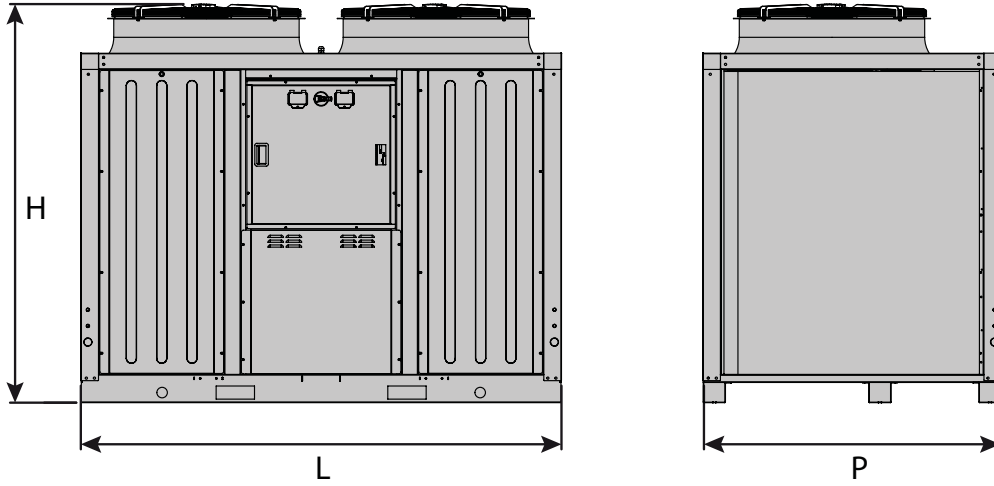
Type		04199	04215	04237	04273	04304	04345	
cooling	Cooling capacity ⁽¹⁾	kW	186,9	208,3	224,8	259,6	289,1	324,6
	Power input ⁽¹⁾	kW	59,4	67,2	77,5	80,6	92,9	111,9
	EER ⁽¹⁾	W/W	3,15	3,10	2,90	3,22	3,10	2,90
	Cooling capacity ⁽²⁾	kW	252,0	282,0	301,1	351,2	387,5	433,8
	Power input ⁽²⁾	kW	63,8	71,6	83,2	87,0	100,5	121,8
	EER ⁽²⁾	W/W	3,95	3,94	3,62	4,04	3,86	3,56
	SEER ⁽³⁾	W/W	4,64	4,71	4,53	4,65	4,73	4,42
	Water flow ⁽¹⁾	L/s	8,94	9,97	10,76	12,42	13,81	15,53
	Pressure drop ⁽¹⁾	kPa	26,48	24,66	27,21	18,78	24,85	17,91
	Thermal power ⁽³⁾	kW	207,3	223,0	245,9	285,8	316,1	356,1
heating	Power input ⁽³⁾	kW	50,7	54,8	61,1	69,2	78,3	88,5
	COP ⁽³⁾	W/W	4,09	4,07	4,02	4,13	4,04	4,02
	Thermal power ⁽⁴⁾	kW	198,1	214,1	236,7	273,0	303,3	344,4
	Power input ⁽⁴⁾	kW	61,5	66,0	74,0	83,8	94,7	107,6
	COP ⁽⁴⁾	W/W	3,22	3,24	3,20	3,26	3,20	3,20
	SCOP ⁽⁶⁾	W/W	3,84	3,96	4,00	3,92	3,95	4,01
	Water flow ⁽⁴⁾	l/s	9,54	10,29	11,38	13,13	14,59	16,57
	Heat exchanger pressure ⁽⁴⁾	kPa	31,94	27,61	30,53	22,86	29,13	22,26
	Energy efficiency (water 35°C)		A++/A+	A++/A+	A++/A+	A++/A+	A++/A+	A++/A+
	Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors	n°	4	4	4	4	4	4	
Refrigerant circuits	n°	2	2	2	2	2	2	
Refrigerant charge 1 ⁽⁷⁾	kg	23	30	31	45	59	61	
Refrigerant charge 2 ⁽⁷⁾	kg	23	30	31	35	32	32	
Nominal air flow	l/s	20888	20815	20738	31370	31264	31109	
Number of fans	n°	4	4	4	6	6	6	
Maximum pressure hydronic kit	bar	6	6	6	6	6	6	
Minimum water volume ⁽⁸⁾	L	610	610	780	1.020	1.020	1.290	
Sound power ⁽⁹⁾	dB(A)	89/(SL) 88/ (SSL) 85	89/(SL) 88/ (SSL) 85	90/(SL) 89/ (SSL) 86	90/(SL) 89/ (SSL) 86	91/(SL) 90/ (SSL) 87	92/(SL) 91/ (SSL) 88	
Sound pressure ⁽¹⁰⁾	dB(A)	56,9/(SL) / 55,9/(SSL) / 52,9	56,9/(SL) / 55,9/(SSL) / 52,9	57,9/(SL) / 56,9/(SSL) / 53,9	57,8/(SL) / 56,8/(SSL) / 53,8	58,8/(SL) / 57,8/(SSL) / 54,8	59,8/(SL) / 58,8/(SSL) / 55,8	
Power supply		400V/3P/50Hz						
Maximum power input	kW	92,8	97,8	110,0	123,8	139,8	160,1	
Maximum current input	A	157,6	166,0	186,8	210,2	237,4	271,8	
Gross weight	kg	2.060	2.100	2.130	2.680	2.880	2.900	
Operating weight	kg	2.070	2.110	2.140	2.700	2.900	2.930	

Operating conditions:

- (1) Cooling: outdoor air temperature 35 °C; water temperature inlet/outlet 12/7 °C.
- (2) Cooling: outdoor air temperature 35 °C; water temperature inlet/outlet 23/18 °C.
- (3) Heating: outdoor air temperature 7 °C d.b. 6°C w.b.; water temperature inlet/outlet 30/35 °C.
- (4) Heating: outdoor air temperature 7 °C d.b. 6°C w.b.; water temperature inlet/outlet 40/45 °C.
- (5) Internal exchanger water reference temperature = 12/7 °C.
- (6) Heating: average climatic conditions; T_{biv} = -7 °C; water temperature in/out 30/35 °C.
- (7) Indicative data and subject to change. For the correct data, always refer to the technical label on the unit.
- (8) The calculated value of minimum volume of water at the plant does not consider the volume of water contained in the internal exchanger (evaporator). With low external air temperature applications or low average loads required, the minimum volume of water to the system is obtained by doubling the indicated value.
- (9) Condition (3); value determined on the basis of measurements carried out in accordance with the UNI EN ISO 9614-2 standard,
- (10) Value calculated from the sound power level using ISO 3744: 2010, referred to 10 m distance from the unit.
- (11) Internal exchanger water temperature = 12/7 °C, air entering the external heat exchanger 35 °C.
- (12) Internal exchanger water temperature = 23/18 °C, air entering the external heat exchanger 35 °C.
- (13) Cooling version BT: outdoor air temperature 35 °C, internal exchanger water temperature = -3 / -8 °C. Fluid treated with 35% ethylene glycol.

N.B. The performance data are indicative and could be subject to change. In addition, the performances declared in apex (1), (2), and (8) refer to the instantaneous power according to EN 14511. The declared data stated in the apex (6) is determined according to the UNI EN 14825.

Dimensions iMax



Type	Dimensions (mm)		
	L	P	H
0466	2250	1170	1985
0475	2250	1170	1985
0485	2250	1170	1985
0695	2250	1170	2250
06105	2250	1450	1450
06115	2250	1450	2010

Technical information iMax

Type		0466	0475	0485	0695	06105	06115	
cooling	Cooling capacity ⁽¹⁾	kW	65,59	74,6	83,9	94,7	105,6	114,3
	Power input ⁽¹⁾	kW	22,62	25,72	28,83	32,66	36,16	39,4
	EER ⁽¹⁾	W/W	2,90	2,90	2,91	2,90	2,92	2,90
	Cooling capacity ⁽²⁾	kW	79,6	90,16	102,8	113,3	127,3	139,3
	Power input ⁽²⁾	kW	21,81	24,64	28,16	31,04	34,88	38,16
	EER ⁽²⁾	W/W	3,65	3,66	3,65	3,65	3,65	3,65
	SEER ⁽⁵⁾	W/W	3,82	3,85	3,81	3,8	3,83	3,81
	Water flow ⁽¹⁾	L/s	3,14	3,57	4,01	4,53	5,05	5,47
	Pressure drop ⁽¹⁾	kPa	32	36	37	34	33	38
heating	Thermal power ⁽³⁾	kW	68,4	74,7	85,6	93,34	102,47	111,47
	Power input ⁽³⁾	kW	16,85	18,44	21,14	23,87	25,3	28,58
	COP ⁽³⁾	W/W	4,06	4,05	4,05	3,91	4,05	3,90
	Thermal power ⁽⁴⁾	kW	65,86	71,0	82,12	88,57	97,13	108,28
	Power input ⁽⁴⁾	kW	20,52	22,19	25,66	27,68	30,35	36,09
	COP ⁽⁴⁾	W/W	3,21	3,20	3,20	3,20	3,20	3,00
	SCOP ⁽⁶⁾	W/W	3,58	3,55	3,53	3,54	3,57	3,50
	Water flow ⁽⁴⁾	l/s	3,15	3,40	3,93	4,24	4,65	5,18
	Heat exchanger pressure ⁽⁴⁾	kPa	30	31	31	32	27	27
	Energy efficiency (water 35°C)		A+/A+	A+/A+	A+/A+	A+/A+	A+/A+	A+/A+
	Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
	Number of compressors	n°	4	4	4	6	6	6
Refrigerant circuits	n°	2	2	2	2	2	2	
Refrigerant charge ⁽⁷⁾	kg	13,4	14,2	14,3	13,4	14,2	14,3	
Nominal air flow	m ³ /s	6,5x2	7x2	7,5x2	8x2	8,5x2	9x2	
Maximum pressure hydronic kit	bar	6	6	6	6	6	6	
Water connections	inch	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	
Minimum water volume ⁽⁸⁾	L	200	200	200	260	260	260	
Sound power ⁽⁹⁾	dB(A)	84 / SL 82,0 / SSL 81,2	84 / SL 82,5 / SSL 81,7	85 / SL 83,0 / SSL 82,2	85 / SL 83,2 / SSL 82,7	85 / SL 83,2 / SSL 82,7	86 / SL 83,7 / SSL 83,2	
Sound pressure ⁽¹⁰⁾	dB(A)	52,2	52,2	53,2	53,2	53,2	54,2	
Power supply		400V/3P+N+T/50Hz						
Maximum power input	kW	39,9	42,3	46,7	52,3	55,8	63,0	
Maximum current input	A	60,1	63,5	70,3	78,7	83,9	94,7	
Gross weight	kg	943	955	1011	1026	1128	1142	
Operating weight	kg	923	946	996	1011	1105	1120	

Operating conditions:

⁽¹⁾ Cooling: outdoor air temperature 35 °C; water temperature inlet/outlet 12/7 °C.

⁽²⁾ Cooling: outdoor air temperature 35 °C; water temperature inlet/outlet 23/18 °C.

⁽³⁾ Heating: outdoor air temperature 7 °C d.b. 6°C w.b.; water temperature inlet/outlet 30/35 °C.

⁽⁴⁾ Heating: outdoor air temperature 7 °C d.b. 6°C w.b.; water temperature inlet/outlet 40/45 °C.

⁽⁵⁾ Cooling: water temperature inlet/outlet = 12/7 °C.

⁽⁶⁾ Heating: average climatic conditions; tbiv = -7 °C; water temperature in/out 30/35 °C.

⁽⁷⁾ Indicative data and subject to change. For the correct data, always refer to the technical label on the unit.

⁽⁸⁾ Calculated in the case of the plant water temperature decreased by 10°C for 6 minutes of defrosting.

⁽⁹⁾ Condition (3); value determined on the basis of measurements carried out in accordance with the UNI EN ISO 9614-2 standard.

⁽¹⁰⁾ Value calculated from the sound power level using ISO 3744: 2010, referred to 10 m distance from the unit.

⁽¹⁾ The prevalence data and characteristics of the pump refer to kit C11 for all sizes except 0270 for which the data are expressed for kit C16

NB: The performance data are indicative and could be subject to change. In addition, the performances declared in apex (1), (2), (3) and (4) refer to the instantaneous power according to EN 14511. The declared data stated in the apex (5) and (6) is determined according to the UNI EN 14825.



HEAT PUMPS

DX-heat pumps and Air-Water
heat pumps

Wide range of heat pumps with various applications



For more information, downloads
and videos, visit the Heat Pumps
page on our website



Wide range of heat pumps with various applications

Mark Climate Technology also has the energy-efficient TOSHIBA heat pumps in its program. These DX heat pumps are fully compatible with the Mark Aerflow heat recovery units and air handling units. The heat pumps are also available separately.

Applications:

- Combination with DX battery in an air handling unit for cooling and / or heating.
- Combination with DX air curtains.

Air-water heat pumps:

Also available are Air-Water heat pumps, which are still able to heat with the nominal capacity at an outside temperature of up to -15 °C.

Product features

- High energy efficiency, distinctive partial load efficiencies and therefore high S(asonal) COPs
- A high and highly valued reliability.
- Inverter controlled Twin-Rotary compressor technology with individual control, low starting currents and a very large control range.
- Technical support

DX HEAT PUMPS

Type		RAV-GM301ATP	RAV-GM401ATP	RAV-GM561ATP	RAV-GM801ATP
Nominal cooling capacity	kW	2,5	3,6	5,0	6,7
Nominal heating capacity	kW	3,4	4,0	5,3	7,7
Cool power range	kW	0,9 - 3,0	0,9 - 4,0	1,5 - 5,6	1,5 - 8,0
Heat power range	kW	0,8 - 4,5	0,8 - 5,0	1,5 - 6,3	1,5 - 9,0
SEER		5,94	5,76	6,34	5,81
SCOP		5,48	5,08	5,29	4,79
Heating capacity at -10°C	kW	2,92	3,25	4,09	5,85
Electrical connection	V/ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50
Recommended fuse	A	16	16	16	16
Air quantity	m ³ /h	1.800	2.200	2.400	2.700
Power condenser fan	W	43	43	43	43
Sound pressure level cooling / heating	dB(A)	38/39	41/42	40/42	40/44
Cooling / heating sound power	dB(A)	61/62	64/65	63/65	65/69
Dimensions H x W x D	mm	550x780x290	550x780x290	550x780x290	550x780x290
Weight	kg	33	39	40	44
Minimum outdoor temperature cooling / heating	°C	-15/ -15	-15/ -15	-15/ -15	-15/ -15
Refrigeration connection	flare	1/4" x 3/8"	1/4" x 1/2"	1/4" x 1/2"	3/8" x 5/8"
Cooling pipe length max.	m	15/20*	15/20*	20/30*	20/30*
Maximum height difference	m	10	10	30	30
Refrigerant content R32	kg	0,6	0,9	0,9	1,3
Extra refrigerant	g/m	20	20	20	20
Article number		0699500	0699501	0699502	0699503
Price	€	1.814	2.050	2.529	3.466

Type		RAV-GM901ATP	RAV-GM1101ATP	RAV-GM1401ATP	RAV-GP1601AT8
Nominal cooling capacity	kW	8,0	9,5	12,0	14,0
Nominal heating capacity	kW	9,0	11,2	13,0	16,0
Cool power range	kW	1,9 - 8,8	3,0 - 11,2	3,0 - 13,2	2,6 - 16
Heat power range	kW	1,6 - 9,9	3,0 - 13,0	3,0 - 16,0	2,4 - 19,0
SEER		7,0	6,15	5,71	6,72 (EER)
SCOP		5,22	4,71	4,69	4,82 (COP)
Heating capacity at -10°C	kW	6,43	8,45	10,40	13,14
Electrical connection	V/ph/Hz	230/1/50	230/1/50	230/1/50	400/3-N/50
Insurance value	A	16	20	25	3 x 16
Air quantity	m ³ /h	2.900	4.080	4.200	6.180
Power condenser fan	W	45	100	100	2 x 100
Sound pressure level cooling / heating	dB(A)	43/47	47/51	47/51	45/47
Cooling / heating sound power	dB(A)	68/72	70/74	70/74	68/70
Dimensions H x W x D	mm	630x800x300	890x900x320	890x900x320	1.340x900x320
Weight	kg	47	68	68	95
Minimum outdoor temperature cooling / heating	°C	-15/ -15	-15/ -15	-15/ -15	-15/ -20
Refrigeration connection	flare	3/8" x 5/8"	3/8" x 5/8"	3/8" x 5/8"	3/8" x 5/8"
Cooling pipe length max.	m	30/50*	30/50*	30/50*	30/75*
Maximum height difference	m	30	30	30	30
Refrigerant content R32	kg	2,0 (R32)	2,1 (R32)	2,1 (R32)	2,6 (R32)
Extra refrigerant	g/m	20	40	40	40
Article number		0699507	0699504	0699505	0699506
Price	€	3.770	4.581	5.234	7.439

* With extra refrigerant charge

Type		RAV-GP561ATP	RAV-GP801AT	RAV-GP1101AT	RAV-GP1401AT
Nominal cooling capacity	kW	5,0	7,1	10,0	12,5
Nominal heating capacity	kW	5,6	8,0	11,2	14,0
Cool power range	kW	1,2 - 5,6	1,9 - 8,0	3,1 - 12,0	3,1 - 14,0
Heat power range	kW	0,9 - 8,1	1,3 - 11,3	2,6 - 13,0	2,6 - 16,5
SEER		7,61	8,8	8,65	8,15
SCOP		5,54	6,48	5,87	5,79
Heating capacity at -10°C	kW	4,79	6,84	9,89	12,17
Electrical connection	V/ph/ Hz	230/1/50	230/1/50	230/1/50	230/1/50
Insurance value	A	16	16	25	25
Air quantity	m ³ /h	2.250	3.180	6.960	6.960
Power condenser fan	W	43	60	2 x 100	2 x 100
Sound pressure level cooling / heating	dB(A)	40/42	40/42	43/44	44/45
Cooling / heating sound power	dB(A)	63/65	63/65	66/67	67/68
Dimensions H x W x D	mm	630x799x299	1.050x1.010x370	1.550x1.010x370	1.550x1.010x370
Weight	kg	45	74	104	104
Minimum outdoor temperature cooling / heating	°C	-15/ -27	-15/ -27	-15/ -27	-15/ -27
Refrigeration connection	flare	1/4" x 1/2"	3/8" x 5/8"	3/8" x 5/8"	3/8" x 5/8"
Cooling pipe length max.	m	20/50*	30/50*	30/75*	30/75*
Maximum height difference	m	30	30	30	30
Refrigerant content R32	kg	1,35	1,9	3,1	3,1
Extra refrigerant	g/m	20	40	40	40
Article number		0699512	0699513	0699514	0699515
Price	€	3.234	3.946	6.451	7.132

Type		RAV-GM1101AT8P	RAV-GM1401AT8P	RAV-GM1601AT8P	RAV-GM2241AT8	RAV-GM2801AT8
Nominal cooling capacity	kW	9,5	12,0	14,0	20,0	23,5
Nominal heating capacity	kW	11,2	12,8	16,0	22,4	27,0
Cool power range	kW	3,0 - 11,2	3,0 - 13,2	3,0 - 16,0	4,6 - 22,4	4,6 - 27,0
Heat power range	kW	3,0 - 13,0	3,0 - 16,0	3,0 - 18,0	4,6 - 25,0	4,6 - 31,5
SEER		6,15	5,71	6,3	6,53	6,21
SCOP		4,71	4,69	4,71	4,41	4,67
Heating capacity at -10°C	kW	8,45	10,4	11,7	16,95	21,57
Electrical connection	V/ph/Hz	400/3-N/50	400/3-N/50	400/3-N/50	400/3-N/50	400/3-N/50
Insurance value	A	3x10	3x10	3x16	3 x 20	3 x 25
Air quantity	m ³ /h	4.080	4.200	6.900	9150	10.890
Power condenser fan	W	2x100	2x100	2x100	2 x 100	2 x 100
Sound pressure level cooling / heating	dB(A)	47/51	47/51	45/47	53/53	55/57
Cooling / heating sound power	dB(A)	70/74	70/74	70/72	76/76	78/80
Dimensions H x W x D	mm	890x900x320	890x900x320	1.340x900x320	1.550x1.010x370	1.550x1.010x370
Weight	kg	69	69	94	142	142
Minimum outdoor temperature cooling / heating	°C	-15/ -15	-15/ -15	-15/ -15	-15/ -27	-15/ -27
Refrigeration connection	flare	3/8" x 5/8"	3/8" x 5/8"	3/8" x 5/8"	1/2" x 1 1/8"	1/2" x 1 1/8"
Cooling pipe length max.	m	30/50*	30/50*	30/50*	30/60*	30/60*
Maximum height difference	m	30	30	30	30	30
Refrigerant content R32	kg	2,1	2,1	2,4	5	5
Extra refrigerant	g/m	40	40	40	80	80
Article number		0699520	0699521	0699522	0699527	0699528
Price	€	5.316	6.069	6.784	12.863	14.423

* With extra refrigerant charge

AIR-WATER HEAT PUMPS

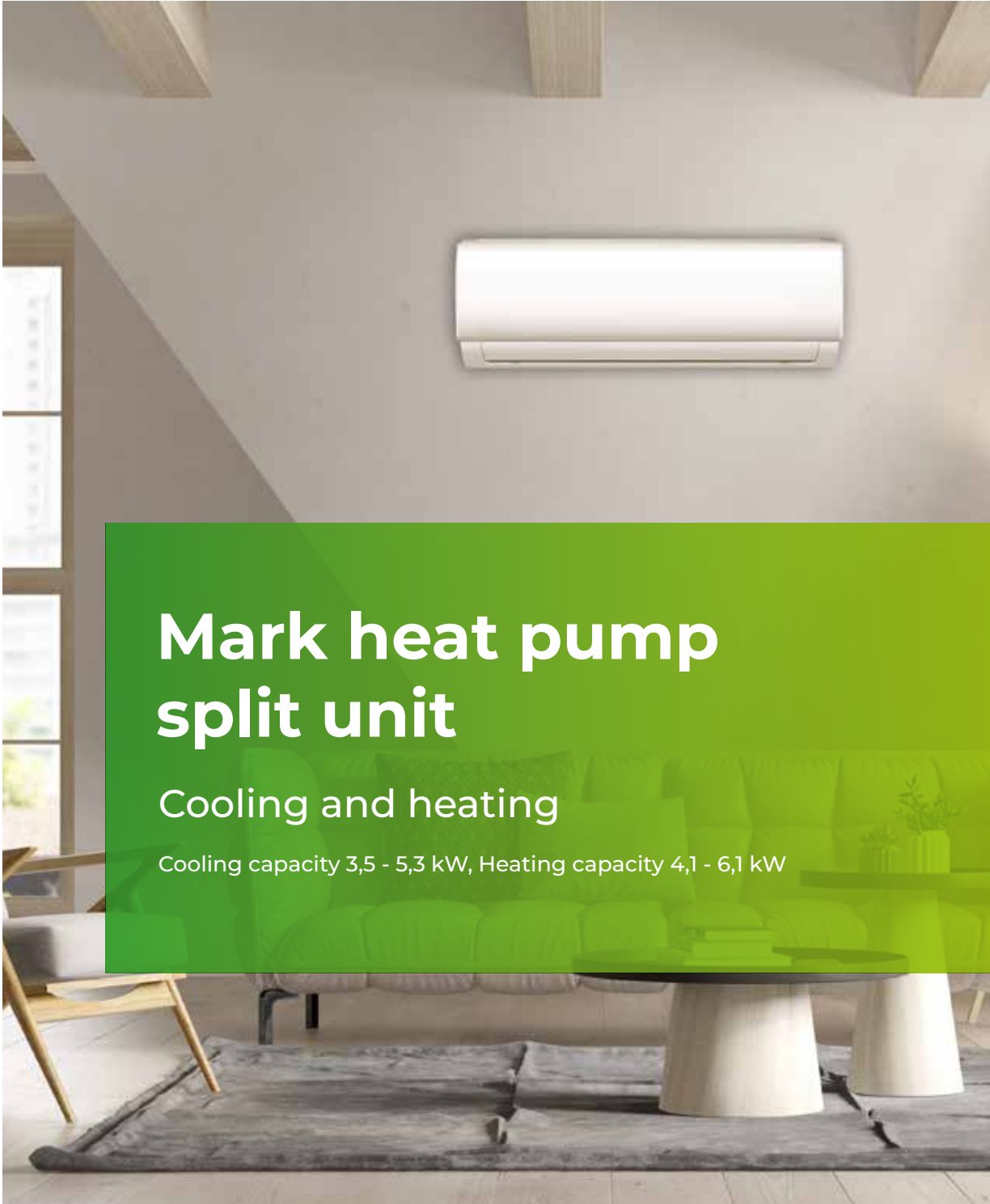
Type		HWS-P805HR	HWS-PT105HR	HWS-P805H8R	HWS-PT105H8R	HWS-P1405H8R	
heating	Nominal heating capacity*	kW	8,0	11,2	8,0	11,2	14,0
	Power consumption*	kW	1,68	2,29	1,71	2,33	3,15
	Water outlet temperature	°C	20-60	20-60	20-60	20-60	20-60
	Heating capacity -7 °C/-15 °C	kW	11,92 / 9,37	12,79 / 11,23	10,82 / 8,18	11,62 / 9,26	13,44 / 10,7
	COP		4,76	4,88	4,68	4,80	4,44
cooling	Nominal cooling capacity*	kW	6,0	10,0	6,0	10,0	11,0
	Power consumption*	kW	1,64	3,33	1,64	3,33	3,9
	Water outlet temperature	°C	7-25	7-25	7-25	7-25	7-25
	Annual energy consumption heating	kWh	5.881	5.523	5.372	5.476	6.588
	Energy label heating		A+++	A+++	A+++	A+++	A+++
	SCOP		4,01	4,48	4,31	4,43	4,43
	Fuse	A	20	25	3 x 16	3 x 16	3 x 16
	Electrical connection	V/ph/Hz	230/1/50	230/1/50	400/3-N/50	400/3-N/50	400/3-N/50
	Compressor type		DC Twin Rotary	DC Twin Rotary	DC Twin Rotary	DC Twin Rotary	DC Twin Rotary
	Connections (gas-fluid)	flare	5/8" x 3/8"	5/8" x 3/8"	5/8" x 3/8"	5/8" x 3/8"	5/8" x 3/8"
	Sound pressure level **	dB(A)	47	47	47	48	49
	Dimensions (H x W x D)	mm	1.340x900x320	1.340x900x320	1.340x900x320	1.340x900x320	1.340x900x320
	Weight	kg	92	92	94	94	94
	Minimum outdoor temperature cooling / heating	°C	10/-25	10/-25	10/-25	10/-25	10/-25
	Minimum pipe length	m	5	5	5	5	5
Maximum pipe length	m	30	30	30	30	30	
Maximum height difference	m	30	30	30	30	30	
Pipe length without refill	m	30	30	30	30	30	
Refrigerant		R410A	R410A	R410A	R410A	R410A	
Article number		0699550	0699551	0699555	0699556	0699557	
Price	€	14.737	16.083	15.447	16.784	18.266	

* These capacities apply under the following conditions and are in accordance with standard EN14511:

Heating: hot water outlet temperature: 35°C (ΔT 5°C), outside temperature: 7°C DB / 6 °C WB.

Cooling: cold water outlet temperature: 7°C (ΔT 5°C), outside temperature: 35°C DB.

** The sound pressure level is specified at 2 m distance in free field conditions.



Mark heat pump split unit

Cooling and heating

Cooling capacity 3,5 - 5,3 kW, Heating capacity 4,1 - 6,1 kW



For more information, downloads and videos, visit the Mark heat pump split unit page on our website



Both cooling and heating with a split unit

Control the climate at the office, in the store or in your home with Mark's energy-efficient air conditioners. Enjoy an air conditioner that can both cool and heat. The Mark heat pump split unit consists of an indoor and outdoor unit. In addition to cooling, the indoor unit also provides heating and dehumidification

The Mark heat pump split unit is equipped with advanced inverter technology. This technology ensures that the temperature of the air conditioner is quickly adapted to the changed conditions in a room. It also makes the air conditioner very energy efficient.

Features of the Mark Heat pump split unit:

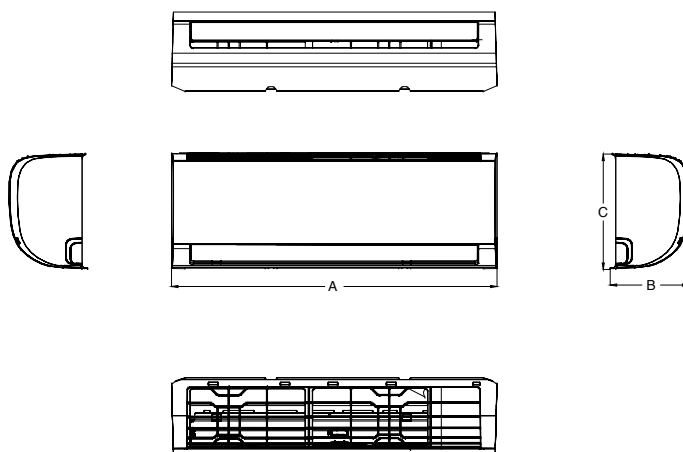
- Very attractively priced
- Both cooling and heating
- Energy saving
- Environmentally friendly
- Extremely quiet: 25dB(A) (Indoor unit)
- Self-cleaning function
- Self-diagnosis function
- Cooling medium R32
- High density filter
- Installation flexibility: up to 25 m (type 353) / 30 m (type 553) piping length possible between the indoor and outdoor unit.
- Standard remote control with temperature sensor
- Optional: Control via Wi-Fi
- Delivery from stock



Dimensions

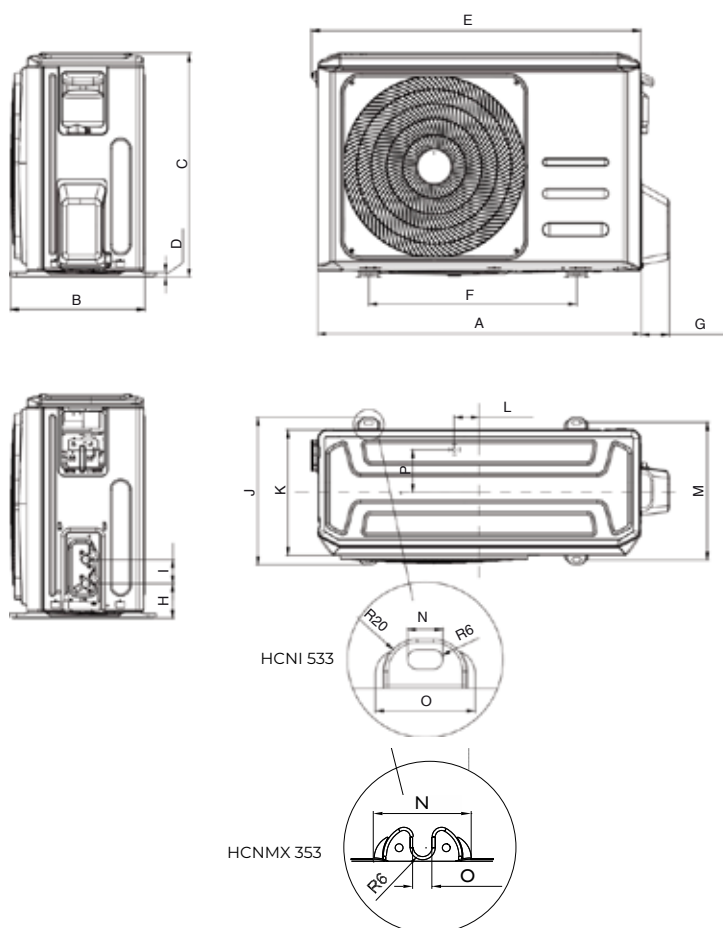
Indoor unit

Type	a	b	c
HKEU 353	805	194	285
HKEU 533	957	213	302



Outdoor unit

Type	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
HCNMX 353	720	270	495	7.6	727	452	70	87	60	281	245	33	256	49	11	76.5
HCNI 533	800	333	554	12.0	815	514	70	85.5	60	365	311	62	340	20	61.6	106



Technical information

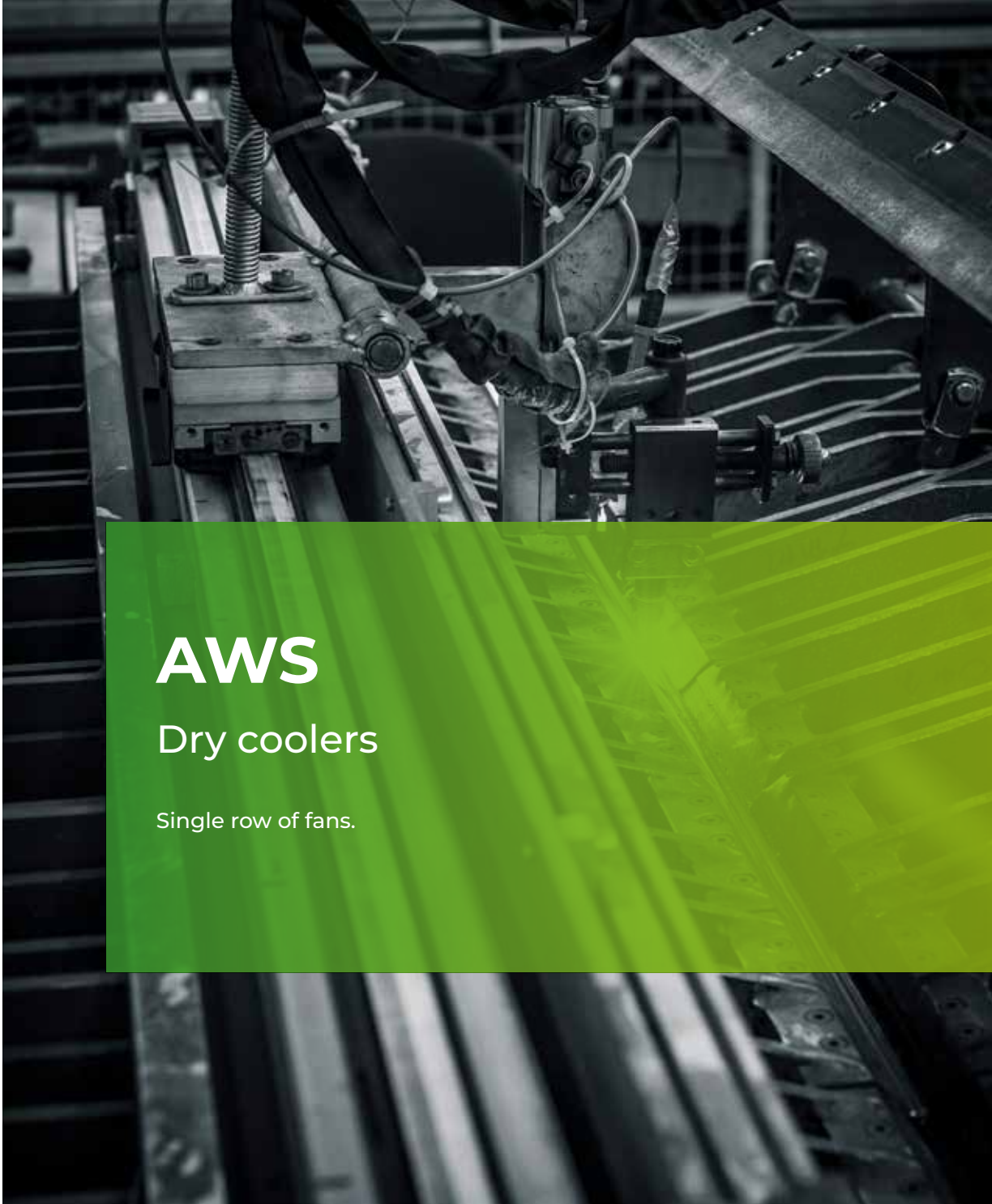
		Indoor unit model	HKEU 353	HKEU 533
		Outdoor unit model	HCNMX 353	HCNI 533
Type		DC-Inverted heat pump		
Control		Infra-red		
cooling	Rated capacity (T=+35 °C)	kW	3.52 (1.11~4.16)	5.28 (1.82~6.13)
	Rated absorbed power (T=+35 °C)	KW	1.21 (0.13~1.58)	1.54 (0.14~2.36)
	Rated energie efficiency coefficient	EER	2.91	3.43
	Seasonal energy efficiency class	626/2011	A++	A++
	Seasonal energy efficiency index	SEER	6.1	7.1
	Annual energy consumption	kWh/a	221	256
	Theoretical load (Pdesignc)	kW	3.60	5.20
	Operating limits (outside temperature)	°C	-15~50	
heating	Rated capacity (T=+7 °C)	kW	3.81 (1.08~4.22)	5.57 (1.38~6.74)
	Rated absorbed power (T=+7 °C)	kW	1.09 (0.10~1.68)	1.48 (0.20~2.41)
	Rated energy performance coefficient	COP	3.50	3.76
	Energy efficiency class (average season)	626/2011	A+	A+
	Seasonal energy efficiency class index (average season)	SCOP	4.0	4.0
	Annual energy consumption	kWh/a	945	1435
	Theoretical load (Pdesignc) @-10 °C	kW	2.70	4.10
	Operating limits (outside temperature)	°C	-15~30	
Electrical data				
Power supply	Outdoor unit	Ph-V-Hz	1Ph-220/240V-50Hz	
Power cable		Type	3 x 2.5 mm ²	3 x 4 mm ²
Indoor and outdoor unit communication cable		Type	5 x 1.5 mm ²	5 x 1.5 mm ²
Refrigerant circuit				
Refrigerant (GWP)			R32(675)	R32(675)
Diameter of refrigerant piping on liquid/gas		mm (inches)	Ø6.35(1/4") - Ø9.52(3/8")	Ø6.35(1/4") - Ø12.74(1/2")
Max splitting length		m	25	30
Max height difference I.U./O.U.		m	10	20
Split length without additional charge		m	5	5
Additional load		g/m	12	12
Indoor unit specifications				
Net weight		Kg	7.6	10
Sound pressure level (I.U.)	Hi/Me/Lo	dB(A)	40.5/34.5/25	44/37/25
Sound power level (I.U.)	Hi	dB(A)	55	55
Treated air volume	Hi/Me/Lo	m ³ /h	540/430/314	840/680/540
Motor power (Output)		W	40	36
Outdoor unit specifications				
Net weight		Kg	23.2	34
Sound pressure level (O.U.)		dB(A)	56	56
Sound power level (O.U.)		dB(A)	63	61
Treated air (Max)		m ³ /h	1800	2500
Motor power (Output)		W	63	63

Prices Mark heat pump split unit (Note: net prices)

PRODUCT - MARK HEAT PUMP SPLIT UNIT - INDOOR AND OUTDOOR UNIT - INCL. REMOTE CONTROL



Code nr.	Description	Netto Price
0699601	Type HKEU 353	€ 536
0699602	Type HKEU 533	€ 730



AWS

Dry coolers

Single row of fans.



For more information, downloads and videos, visit the AWS page on our website



Dry coolers: Single row of fans

The Mark AWS is a series of Dry Coolers with a single row of fans. Both the standard version and the low-noise version are available in cooling capacities from 44 kW to 217 kW.

The AWS Dry Coolers are compact and robust. They are made of galvanized steel for both horizontal and vertical mounting using the correct kit. The units are equipped with anchor and lifting points for placement.

The chassis and housing are fully protected with a paint layer with a high corrosion resistance that offers maximum weather resistance. The parts are each coated in RAL 9002 prior to assembly.

Mark single row Dry Coolers are equipped with heat exchangers with a copper tube and aluminum fins. They are equipped with a steel threaded connection.

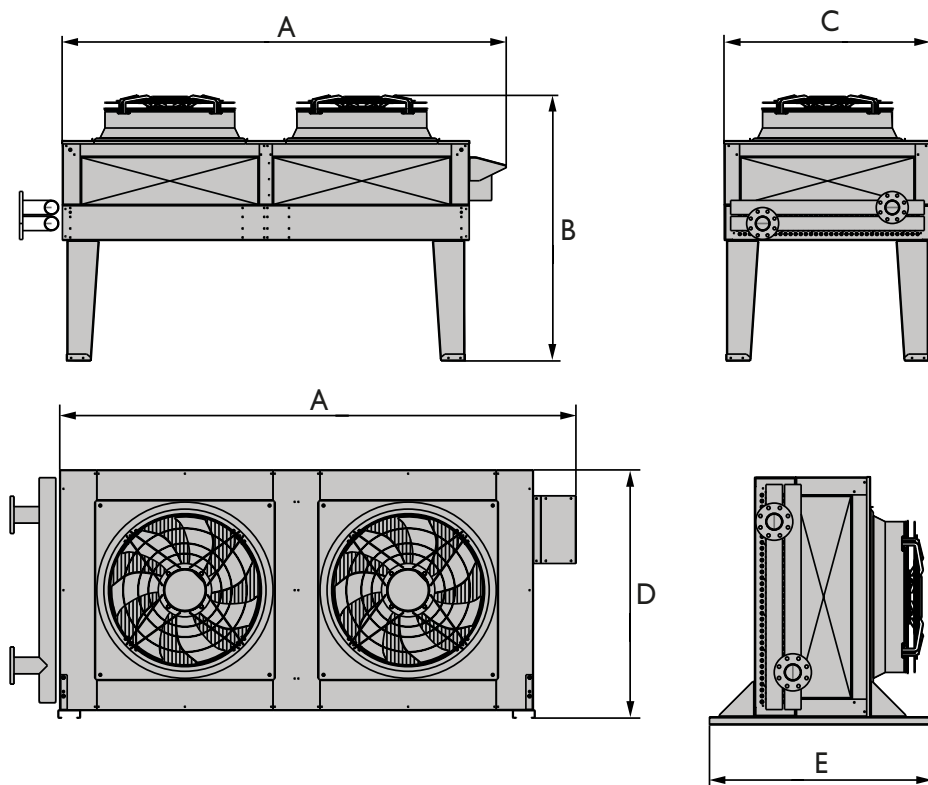
The fans incorporate 3-phase asynchronous external rotor motors with IP54 protection level, class F insulation, with the possibility of connecting them in star or delta, having in this way two speeds of operation.

Adaptation to the most restrictive noise conditions, this range of fan motors is available with a different number of poles.

Product features

- Optimized heat exchangers and fans
- Compact
- Quiet
- Robust
- Economical
- Completely wired up to the terminal box

Dimensions



AWSN series - Ø 800 mm fans - standard version

Type	Number of fans	Surface m ²	Internal volume dm ³	Connection Ø	A mm	B mm	C mm	D mm	E mm	Weight kg
AWSN-41C-044M		99	13							271
AWSN-41D-051M	1	132	17	2"	1575	1660	1295	1335	1200	283
AWSN-41E-054M		164	21							294
AWSN-42C-090M		197	26							471
AWSN-42D-102M	2	263	35	3"	2775	1660	1295	1335	1200	495
AWSN-42E-108M		329	43							518
AWSN-43C-135M		296	39							648
AWSN-43D-154M	3	395	52	3"	3975	1660	1295	1335	1200	682
AWSN-43E-163M		493	64							718
AWSN-44C-181M		395	52							854
AWSN-44D-205M	4	526	69	4"	5175	1660	1295	1335	1200	900
AWSN-44E-217M		658	87							947

AWSB series - Ø 800 mm fans - low noise fans

Type	Number of fans	Surface m ²	Internal volume dm ³	Connection Ø	A mm	B mm	C mm	D mm	E mm	Weight kg
AWSB-41C-035M		99	13							266
AWSB-41D-039M	1	132	17	2"	1575	1660	1295	1335	1200	278
AWSB-41E-040M		164	21							289
AWSB-42C-070M		197	26							461
AWSB-42D-077M	2	263	35	3"	2775	1660	1295	1335	1200	484
AWSB-42E-081M		329	43							508
AWSB-43C-106M		296	39							632
AWSB-43D-117M	3	395	52	3"	3975	1660	1295	1335	1200	667
AWSB-43E-122M		493	64							702
AWSB-44C-140M		395	52							833
AWSB-44D-155M	4	526	69	4"	5175	1660	1295	1335	1200	880
AWSB-44E-162M		658	87							927

AWSN series - Ø 910 mm fans - standard version

Type	Number of fans	Surface m ²	Internal volume dm ³	Connection Ø	A mm	B mm	C mm	D mm	E mm	Weight kg
AWSN-51C-71L		180	24							404
AWSN-51D-81L	1	241	32	2"	2175	1768	1747	1588	1260	425
AWSN-51F-90L		362	48							470
AWSN-52C-142L		362	48							664
AWSN-52D-162L	2	482	63	2 1/2"	3975	1768	1747	1588	1260	708
AWSN-52F-181L		724	95							795
AWSN-53C-221L		543	71							960
AWSN-53D-251L	3	724	95	3"	5775	1768	1747	1588	1260	1024
AWSN-53F-279L		1086	143							1152
AWSN-54C-262L		817	94							1255
AWSN-54D-308L	4	1089	125	4"	7575	1768	1747	1588	1260	1335
AWSN-54F-365L		1634	188							1494
AWSN-55C-333L		1021	117							1540
AWSN-55D-391L	5	1361	156	4"	9375	1768	1747	1588	1260	1640
AWSN-55F-462L		2042	234							1838
AWSN-56F-560L	6	2450	281	4"	11175	1768	1747	1588	1260	2183

Technical information

AWSN series - Ø 800 mm fans - standard version

Type	~ 400v/50 Hz Connection Δ					~ 400v/50 Hz Connection Y				
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Capacity	Mass flow	Pressure drop	Power consumption	Sound
	kW	m ³ /h	kPa	kW	dB(A)	kW	m ³ /h	kPa	kW	dB(A)
AWSN-41C-044M	44	8	23		47	37	6	16		42
AWSN-41D-051M	51	9	38	1,94	48	41	7	26	1,21	43
AWSN-41E-054M	54	9	31		50	43	7	20		44
AWSN-42C-090M	90	16	33		50	74	13	23		45
AWSN-42D-102M	102	18	34	3,88	51	82	14	23	2,42	46
AWSN-42E-108M	108	19	26		53	85	15	17		47
AWSN-43C-135M	135	24	36		52	111	19	25		46
AWSN-43D-154M	154	27	43	5,82	53	124	22	29	3,63	48
AWSN-43E-163M	163	28	37		54	129	22	24		49
AWSN-44C-181M	181	32	42		53	150	26	30		48
AWSN-44D-205M	205	36	37	7,76	54	165	29	26	4,84	49
AWSN-44E-217M	217	38	34		56	171	30	22		50

Room (environment) temperature = 25 °C. Water inlet T = 40 °C. Water outlet T = 35 °C.

AWSB series - Ø 800 mm fans - low noise fans

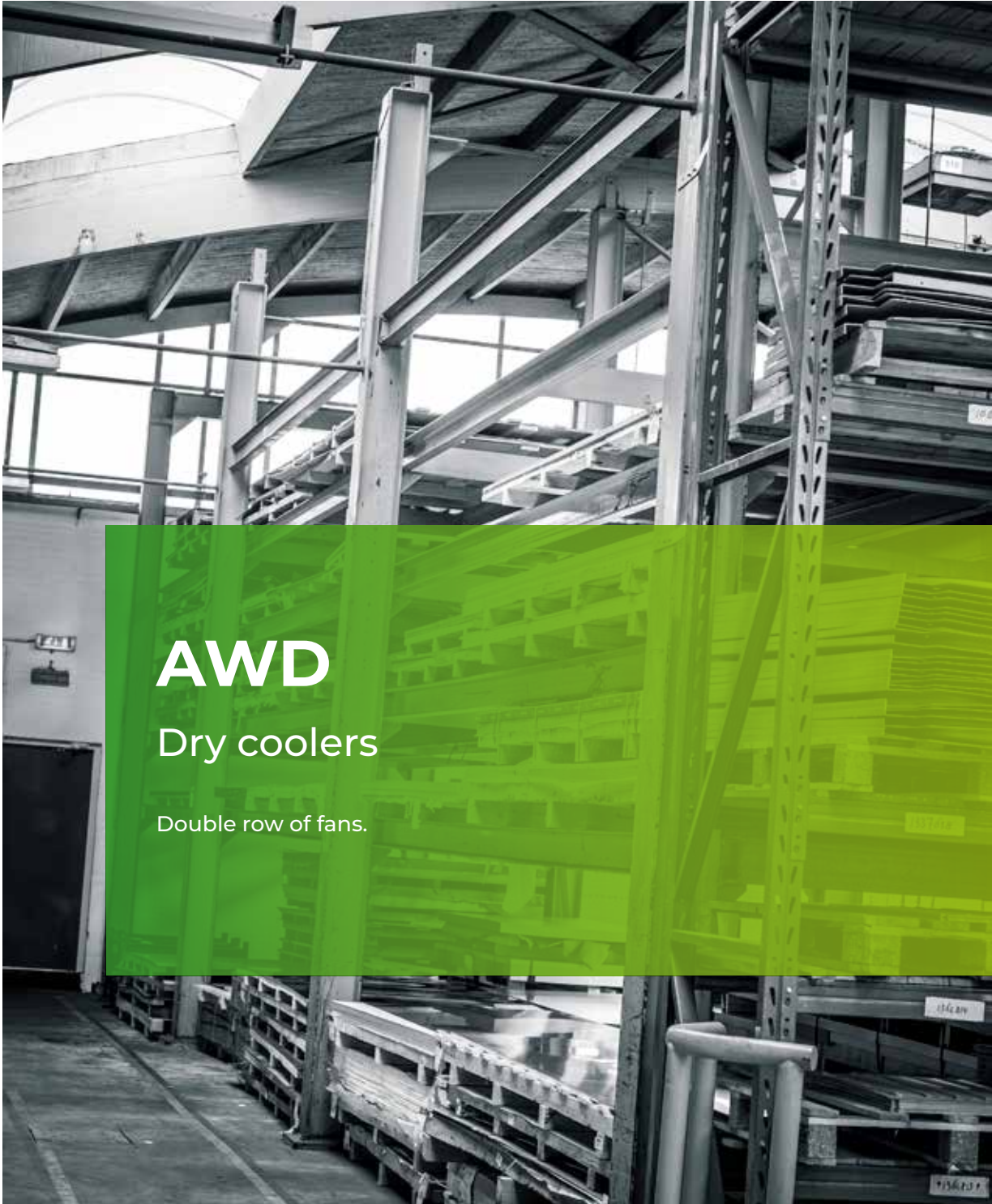
Type	~ 400v/50 Hz Connection Δ					~ 400v/50 Hz Connection Y				
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Capacity	Mass flow	Pressure drop	Power consumption	Sound
	kW	m ³ /h	kPa	kW	dB(A)	kW	m ³ /h	kPa	kW	dB(A)
AWSB-41C-035M	35	6	29	0,83	39	30	5	22	0,50	34
AWSB-41D-039M	39	7	23	0,83	40	32	6	17	0,50	35
AWSB-41E-040M	40	7	18	0,83	41	33	6	13	0,50	36
AWSB-42C-070M	70	12	31	1,66	42	60	10	24	1,00	37
AWSB-42D-077M	77	14	21	1,66	43	65	11	15	1,00	38
AWSB-42E-081M	81	14	15	1,66	44	66	12	11	1,00	39
AWSB-43C-106M	106	18	34	2,94	44	91	16	26	1,50	39
AWSB-43D-117M	117	20	26	2,49	45	98	17	19	1,50	40
AWSB-43E-122M	123	21	22	2,49	46	100	17	15	1,50	41
AWSB-44C-140M	140	24	27	3,32	45	120	21	20	2,00	40
AWSB-44D-155M	155	27	22	3,32	46	130	23	17	2,00	41
AWSB-44E-162M	162	28	20	3,32	47	133	23	14	2,00	42

Room (environment) temperature = 25 °C. Water inlet T = 40 °C. Water outlet T = 35 °C.

AWSN series - Ø 910 mm fans - standard version

Type	~ 400v/50 Hz Connection Δ					~ 400v/50 Hz Connection Y				
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Capacity	Mass flow	Pressure drop	Power consumption	Sound
	kW	m ³ /h	kPa	kW	dB(A)	kW	m ³ /h	kPa	kW	dB(A)
AWSN-51C-71L	71	12	20		49	59	10	14		43
AWSN-51D-81L	81	14	18	2,48	49	66	11	12	1,57	43
AWSN-51F-90L	90	16	14		49	72	12	9		44
AWSN-52C-142L	142	25	20		52	118	21	14		46
AWSN-52D-162L	162	28	19	4,96	52	132	23	13	3,14	46
AWSN-52F-181L	181	31	17		52	144	25	11		47
AWSN-53C-221L	221	38	52		53	184	32	38		48
AWSN-53D-251L	251	44	43	7,44	54	205	35	30	4,71	48
AWSN-53F-279L	279	48	32		54	223	39	21		49
AWSN-54C-262L	262	46	61		55	223	39	46		49
AWSN-54D-308L	308	53	51	9,92	55	259	45	37	6,28	49
AWSN-54F-365L	365	63	37		55	299	52	26		49
AWSN-55C-333L	333	58	114		56	283	49	86		50
AWSN-55D-391L	391	68	94	12,4	56	328	57	69	7,85	50
AWSN-55F-462L	462	80	68		56	378	66	47		50
AWSN-56F-560L	560	97	111	14,88	56	457	79	77	9,42	51

Room (environment) temperature = 25 °C. Water inlet T = 40 °C. Water outlet T = 35 °C.



AWD

Dry coolers

Double row of fans.



For more information, downloads and videos, visit the AWD page on our website



Dry coolers: Double row of fans

The Mark AWD is a series of Dry Coolers with a double row of fans. Both the standard version and the low-noise version are available in cooling capacities from 163 kW to 763 kW.

The AWD Dry Coolers are compact and robust. They are made of galvanized steel for both horizontal and vertical mounting using the correct kit. The units are equipped with anchor and lifting points for placement.

The chassis and housing are fully protected with a paint layer with a high corrosion resistance that offers maximum weather resistance. The parts are each coated in RAL 9002 prior to assembly.

Mark double row Dry Coolers are equipped with heat exchangers with a copper tube and aluminum fins. They are equipped with a steel threaded connection.

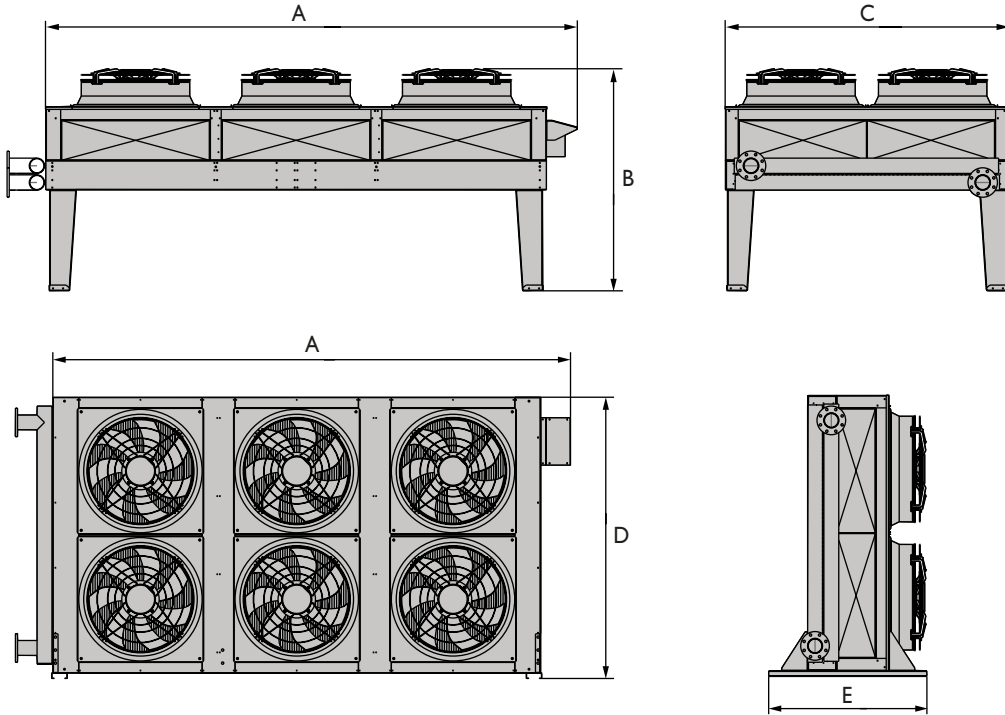
The fans incorporate 3-phase asynchronous external rotor motors with IP54 protection level, class F insulation, with the possibility of connecting them in star or delta, having in this way two speeds of operation.

Adaptation to the most restrictive noise conditions, this range of fan motors is available with a different number of poles.

Product features

- Optimized EC fans
- Stainless steel housing
- Multi circuit water connection
- Compact
- Quiet
- Robust
- Economical
- Completely wired up to the terminal box

Dimensions



AWDN series - Ø 800 mm fans - standard version

Type	Number of fans	Surface m ²	Internal volume dm ³	Connection Ø	A mm	B mm	C mm	D mm	E mm	Weight kg
AWDN-44C-163M		340	45							691
AWDN-44D-184M	4	453	60	3"	2775	1660	2120	2160	1215	732
AWDN-44E-194M		566	74							772
AWDN-46C-245M		509	67							1145
AWDN-46D-276M	6	680	90	4"	3975	1660	2120	2160	1215	1265
AWDN-46E-293M		850	112							1385
AWDN-48C-330M		680	90							1263
AWDN-48D-368M	8	907	119	4"	8175	1660	2120	2160	1215	1345
AWDN-48E-391M		1133	149							1425

AWDB series - Ø 800 mm fans - low noise fans

Type	Number of fans	Surface m ²	Internal volume dm ³	Connection Ø	A mm	B mm	C mm	D mm	E mm	Weight kg
AWDB-44C-130M		340	45							670
AWDB-44D-141M	4	453	60	3"	2775	1660	2120	2160	1215	712
AWDB-44E-145M		566	74							752
AWDB-46C-195M		509	67							1115
AWDB-46D-211M	6	680	90	4"	3975	1660	2120	2160	1215	1235
AWDB-46E-219M		850	112							1355
AWDB-48C-259M		680	90							1223
AWDB-48D-281M	8	907	119	4"	8175	1660	2120	2160	1215	1305
AWDB-48E-293M		1133	149							1385

AWDN series - Ø 910 mm fans - standard version

Type	Number of fans	Surface m ²	Internal volume dm ³	Connection Ø	A mm	B mm	C mm	D mm	E mm	Weight kg
AWDN-54C-244L		542	71							912
AWDN-54D-276L	4	723	95	3"	3975	1761	2246	2287	1275	977
AWDN-54F-304L		1085	143							1107
AWDN-56C-379L		814	107							1311
AWDN-56D-428L	6	1085	143	4"	5775	1761	2246	2287	1275	1407
AWDN-56F-470L		1628	214							1599
AWDN-58C-431L		1157	132							1633
AWDN-58D-510L	8	1542	177	4"	7575	1761	2246	2287	1275	1746
AWDN-58F-602L		2314	265							1972
AWDN-510D-647L		1928	221							2140
AWDN-510F-763L	10	2892	332	4"	9375	1761	2246	2287	1275	2422

Technical information

AWDN series - Ø 800 mm fans - standard version

Type	~ 400v/50 Hz Connection Δ					~ 400v/50 Hz Connection Y				
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Capacity	Mass flow	Pressure drop	Power consumption	Sound
	kW	m ³ /h	kPa	kW	dB(A)	kW	m ³ /h	kPa	kW	dB(A)
AWDN-44C-163M	163	28	37		54	134	23	26		49
AWDN-44D-184M	184	32	42	7,76	56	148	26	29	4,84	50
AWDN-44E-194M	194	34	34		57	153	27	22		52
AWDN-46C-245M	245	43	36		56	201	35	25		50
AWDN-46D-276M	276	48	39	11,64	57	222	39	26	7,26	52
AWDN-46E-293M	293	51	38		59	230	40	25		53
AWDN-48C-330M	330	57	51		57	271	47	36		52
AWDN-48D-368M	368	64	40	15,52	59	296	52	27	9,68	53
AWDN-48E-391M	391	68	45		60	308	54	29		55

Room (environment) temperature = 25 °C. Water inlet T = 40 °C. Water outlet T = 35 °C.

AWDB series - Ø 800 mm fans - low noise fans

Type	~ 400v/50 Hz Connection Δ					~ 400v/50 Hz Connection Y				
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Capacity	Mass flow	Pressure drop	Power consumption	Sound
	kW	m ³ /h	kPa	kW	dB(A)	kW	m ³ /h	kPa	kW	dB(A)
AWDB-44C-130M	130	23	36		46	111	19	27		40
AWDB-44D-141M	141	24	26	3,32	48	116	20	18	2	42
AWDB-44E-145M	145	25	21		49	118	21	14		43
AWDB-46C-195M	195	34	37		47	167	29	28		42
AWDB-46D-211M	211	37	24	4,98	49	174	30	17	3	44
AWDB-46E-219M	219	38	23		51	178	31	16		45
AWDB-48C-259M	259	45	33		49	222	39	25		43
AWDB-48D-281M	281	49	25	6,64	51	232	40	18	4	45
AWDB-48E-293M	293	51	27		51	238	41	18		46

Room (environment) temperature = 25 °C. Water inlet T = 40 °C. Water outlet T = 35 °C.

AWDN series - Ø 910 mm fans - standard version

Type	~ 400v/50 Hz Connection Δ					~ 400v/50 Hz Connection Y				
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Capacity	Mass flow	Pressure drop	Power consumption	Sound
	kW	m ³ /h	kPa	kW	dB(A)	kW	m ³ /h	kPa	kW	dB(A)
AWDN-54C-244L	244	42	28		55	204	34	20		49
AWDN-54D-276L	276	47	26	9,92	56	227	39	18	6,28	50
AWDN-54F-304L	304	52	23		58	242	42	15		52
AWDN-56C-379L	379	65	65		57	316	54	47		51
AWDN-56D-428L	428	74	52	14,88	57	351	61	37	9,42	52
AWDN-56F-470L	470	81	36		59	374	64	24		54
AWDN-58C-431L	431	74	84		58	371	64	65		52
AWDN-58D-510L	509	88	74	19,84	58	432	75	55	12,56	52
AWDN-58F-602L	602	104	59		59	494	85	41		54
AWDN-510D-647L	646	112	136		59	547	95	101		53
AWDN-510F-763L	763	132	105	24,8	60	626	108	73	15,7	55

Room (environment) temperature = 25 °C. Water inlet T = 40 °C. Water outlet T = 35 °C.



AWSV

Dry coolers

V-Dry coolers with a single row of fans.



For more information, downloads
and videos, visit the AWSV page
on our website



V-Dry coolers with a single row of fans

De Mark AWSV is a serie of Dry Coolers with two coils and a single row of fans, arranged in a "V-shape". Both the standard version and the low-noise version are available in cooling capacities from 130 kW to 964 kW. Larger capacities on request.

The AWSV Dry Coolers are compact and robust. They are made of galvanized steel for both horizontal and vertical mounting using the correct kit. The units are equipped with anchor and lifting points for placement.

The chassis and housing are fully protected with a paint layer with a high corrosion resistance that offers maximum weather resistance. The parts are each coated in RAL 9002 prior to assembly.

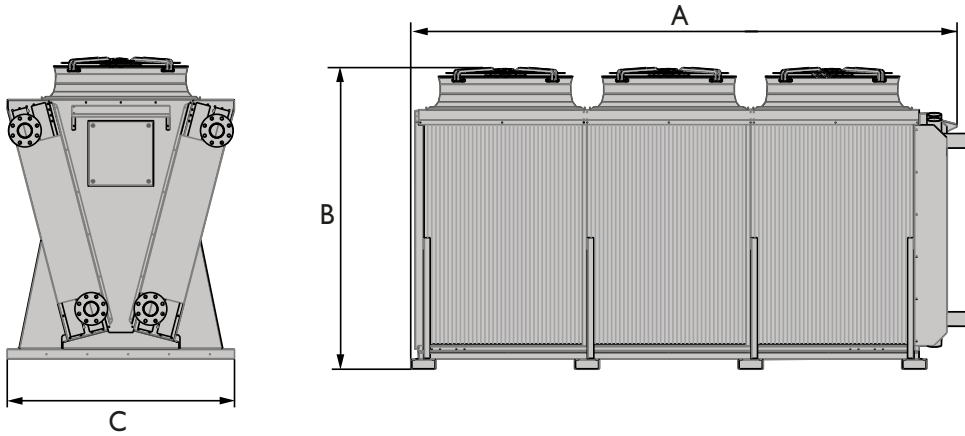
Mark single row V-Dry Coolers are equipped with heat exchangers with a copper tube and aluminum fins. They are equipped with a steel threaded connection.

The fans incorporate 3-phase asynchronous external rotor motors with IP54 protection level, class F insulation, with the possibility of connecting them in star or delta, having in this way two speeds of operation.

Product features

- Optimized EC fans
- Multi circuit water connection
- Compact
- Quiet
- Robust
- Economical
- Completely wired up to the terminal box

Dimensions



AWSVN series - Ø 800 mm fans - standard version

Type	Number of fans	Surface m ²	Internal volume dm ³	Connection Ø	A mm	B mm	C mm	Weight kg
AWSVN-42C-130M	2	402	53	2"	2342	1875	1390	710
AWSVN-42D-148M		536	70					757
AWSVN-43C-195M	3	603	79	2"	3342	1875	1390	1029
AWSVN-43D-222M		804	106					1100
AWSVN-44C-261M	4	804	106	2" 1/2	4342	1875	1390	1275
AWSVN-44D-296M		1072	141					1370
AWSVN-45C-326M	5	1005	132	2" 1/2	5342	1875	1390	1560
AWSVN-45D-371M		1340	177					1679
AWSVN-46C-392M	6	1206	159	3"	6342	1875	1390	1834
AWSVN-46D-445M		1608	212					1976

AWSVB series - Ø 800 mm fans - low noise fans

Type	Number of fans	Surface m ²	Internal volume dm ³	Connection Ø	A mm	B mm	C mm	Weight kg
AWSVB-42C-97M	2	402	53	2"	2342	1875	1390	700
AWSVB-42D-108M		536	70					747
AWSVB-43C-146M	3	603	79	2"	3342	1875	1390	1014
AWSVB-43D-162M		804	106					1085
AWSVB-44C-195M	4	804	106	2" 1/2	4342	1875	1390	1255
AWSVB-44D-217M		1072	141					1350
AWSVB-45C-244M	5	1005	132	2" 1/2	5342	1875	1390	1535
AWSVB-45D-272M		1340	177					1654
AWSVB-46C-293M	6	1206	159	3"	6342	1875	1390	1804
AWSVB-46D-326M		1608	212					1946

AWSVN series - Ø 910 mm fans - standard version

Type	Number of fans	Surface m ²	Internal volume dm ³	Connection Ø	A mm	B mm	C mm	Weight kg
AWSVN-52C-195M		712	93					993
AWSVN-52D-220M	2	950	125	2" 1/2	3425	2047	1390	1076
AWSVN-52F-244M		1425	187					1242
AWSVN-53C-287M		1069	140					1405
AWSVN-53D-324M	3	1425	187	2" 1/2	4925	2047	1390	1531
AWSVN-53F-361M		2138	281					1781
AWSVN-54C-390M		1425	187					1919
AWSVN-54D-439M	4	190	250	3"	6425	2047	1390	2085
AWSVN-54F-488M		2851	375					2417
AWSVN-55C-493M		1781	234					2159
AWSVN-55D-555M	5	2375	312	4"	7925	2047	1390	2365
AWSVN-55F-615M		3563	469					2777
AWSVN-56C-535M		2382	273					2492
AWSVN-56D-618M	6	3176	364	4"	9425	2047	1390	2720
AWSVN-56F-715M		4624	546					3177
AWSVN-57C-629M		2779	319					2870
AWSVN-57D-727M	7	3705	425	4"	10925	2047	1390	3136
AWSVN-57F-840M		5558	638					3667
AWSVN-58D-835M		4235	486					3551
AWSVN-58F-964M	8	6353	729	5"	12425	2047	1390	4158

Technical information

AWSVN series - Ø 800 mm fans - standard version

Type	~ 400v/50 Hz Connection Δ					~ 400v/50 Hz Connection Y				
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Capacity	Mass flow	Pressure drop	Power consumption	Sound
	kW	m ³ /h	kPa	kW	dB(A)	kW	m ³ /h	kPa	kW	dB(A)
AWSVN-42C-130M	130	23				106	18	26		
AWSVN-42D-148M	148	26	37	3,88	49	118	21	25	2,42	43
AWSVN-43C-195M	195	34				159	28	27		
AWSVN-43D-222M	222	39	38	5,82	51	177	31	26	3,63	45
AWSVN-44C-261M	261	45				212	37	28		
AWSVN-44D-296M	296	52	40	7,76	52	237	41	27	4,84	46
AWSVN-45C-326M	326	57	44			266	46	31		
AWSVN-45D-371M	371	64	45	9,7	53	297	52	30	6,05	47
AWSVN-46C-392M	392	68	48			319	56	34		
AWSVN-46D-445M	445	77	50	11,64	54	356	62	34	7,26	48

Room (environment) temperature = 25 °C. Water inlet T = 40 °C. Water outlet T = 35 °C.

AWSVB series - Ø 800 mm fans - low noise fans

Type	~ 400v/50 Hz Connection Δ					~ 400v/50 Hz Connection Y				
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Capacity	Mass flow	Pressure drop	Power consumption	Sound
	kW	m³/h	kPa	kW	dB(A)	kW	m³/h	kPa	kW	dB(A)
AWSVB-42C-97M	97	17	22	1,66	41	85	15	17	1	38
AWSVB-42D-108M	108	19	21			93	16	16		37
AWSVB-43C-146M	146	25	23	2,49	43	128	22	18	1,5	39
AWSVB-43D-162M	162	28	22			140	24	17		39
AWSVB-44C-195M	195	34	24	3,32	44	170	30	19	2	41
AWSVB-44D-217M	217	38	23			187	32	18		40
AWSVB-45C-244M	244	42	26	4,15	45	213	37	21	2,5	41
AWSVB-45D-272M	272	47	26			234	41	20		41
AWSVB-46C-293M	293	51	29	4,98	46	256	45	23	3	42
AWSVB-46D-326M	326	57	29			281	49	22		42

Room (environment) temperature = 25 °C. Water inlet T = 40 °C. Water outlet T = 35 °C.

AWSVN series - Ø 910 mm fans - standard version

Type	~ 400v/50 Hz Connection Δ					~ 400v/50 Hz Connection Y				
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Capacity	Mass flow	Pressure drop	Power consumption	Sound
	kW	m³/h	kPa	kW	dB(A)	kW	m³/h	kPa	kW	dB(A)
AWSVN-52C-195M	195	33	34		53	160	27	24		47
AWSVN-52D-220M	220	38	27	4,96	52	177	30	19	3,14	47
AWSVN-52F-244M	244	42	18		52	193	33	12		47
AWSVN-53C-287M	287	49	20		54	235	40	14		49
AWSVN-53D-324M	324	56	18	7,44	54	262	45	12	4,71	49
AWSVN-53F-361M	361	62	16		54	286	49	10		48
AWSVN-54C-390M	390	57	36		56	320	55	25		50
AWSVN-54D-439M	439	76	30	9,92	55	355	61	20	6,28	50
AWSVN-54F-488M	488	84	31		55	386	67	20		50
AWSVN-55C-493M	493	85	59		56	404	70	42		51
AWSVN-55D-555M	555	96	45	12,4	56	448	77	31	7,85	51
AWSVN-55F-615M	615	106	29		56	487	84	19		50
AWSVN-56C-535M	535	92	60		58	447	77	44		52
AWSVN-56D-618M	618	107	49	14,88	57	510	88	35	9,42	52
AWSVN-56F-715M	715	124	34		57	575	99	23		52
AWSVN-57C-629M	629	109	92		58	526	91	67		53
AWSVN-57D-727M	727	126	75	17,36	58	599	104	53	10,99	52
AWSVN-57F-840M	840	145	52		58	675	117	35		52
AWSVN-58D-835M	835	144	108	19,84	59	688	119	76	12,56	53
AWSVN-58F-964M	964	167	74		58	775	134	50		53

Room (environment) temperature = 25 °C. Water inlet T = 40 °C. Water outlet T = 35 °C.



AWS-EPA

Dry coolers

Dry coolers with adiabatic cooling.



For more information, downloads and videos, visit the AWS-EPA page on our website



AWS-EPA Adiabatic Dry Coolers

The Mark AWS-EPA adiabatic series is a range of Dry Coolers with an integrated adiabatic pre-cooler. This pre-cooling system is used to cool ambient air before it enters the coil, thereby ensuring an increase in cooling capacity and large energy savings.

The adiabatic dry coolers allow to obtain the following temperatures in the heat exchanger:

- DRY AREAS: 15°C below the maximum outside temperature.
- MEDIUM AND WET AREAS: between 10°C and 5°C below the maximum outside temperature.

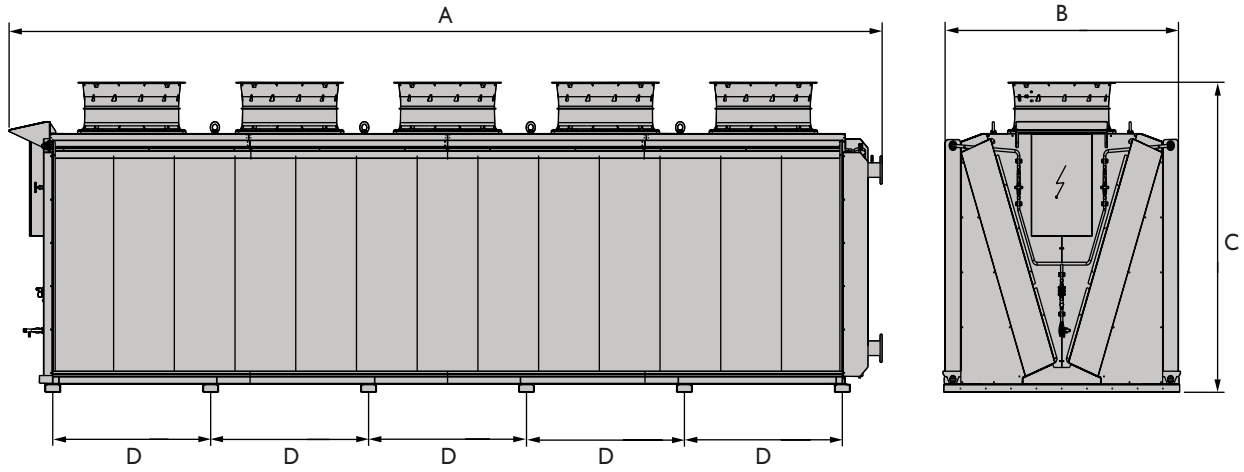
Water temperature target: 28-32°C.

The chassis and housing are fully protected with a paint layer with a high corrosion resistance that offers maximum weather resistance. The parts are each coated in RAL 9002 prior to assembly.

Product features

- Energy saving
- Water saving
- High efficiency evaporation
- Maintenance friendly
- Environmentally friendly
- Legionella proof
- Good controls

Dimensions AWSN-EPA



AWSN-EPA series - Ø 910 mm fans - standard version

Type	Number of fans	Surface m ²	Internal volume dm ³	A mm	B mm	C mm	D mm
AWSN-EPA-52E-A/B/C	2	868	134	3118	2230	2421	1200
AWSN-EPA-53E-A/B/C	3	1302	202	4318	2230	2421	1200
AWSN-EPA-54E-A/B/C	4	1736	270	5518	2230	2421	1200
AWSN-EPA-55E-A/B/C	5	2170	337	6718	2230	2421	1200

Technical information AWSN-EPA

AWSN-EPA series - Ø 910 mm fans - standard version - Dry Environments

Type	~ 400v/50 Hz Connection						
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Connection	Weight
	kW	m ³ /h	kPa	kW	dB(A)	Ø	kg
AWSN-EPA-52E-A	209	36	36	8	58	2" 1/2	1390
AWSN-EPA-53E-A	314	54	39	12	60	2" 1/2	1920
AWSN-EPA-54E-A	424	73	77	16	61	3"	2690
AWSN-EPA-55E-A	517	90	29	20	62	3"	3120

Water inlet T = 35 °C. Water outlet T = 30 °C.

AWSN-EPA series - Ø 910 mm fans - standard version - Medium Environments

Type	~ 400v/50 Hz Connection						
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Connection	Weight
	kW	m ³ /h	kPa	kW	dB(A)	Ø	kg
AWSN-EPA-52E-A	154	27	25	8	58	2"	1380
AWSN-EPA-53E-A	231	40	31	12	60	2"	1910
AWSN-EPA-54E-A	313	54	49	16	61	2" 1/2	2615
AWSN-EPA-55E-A	379	66	22	20	62	2" 1/2	3005

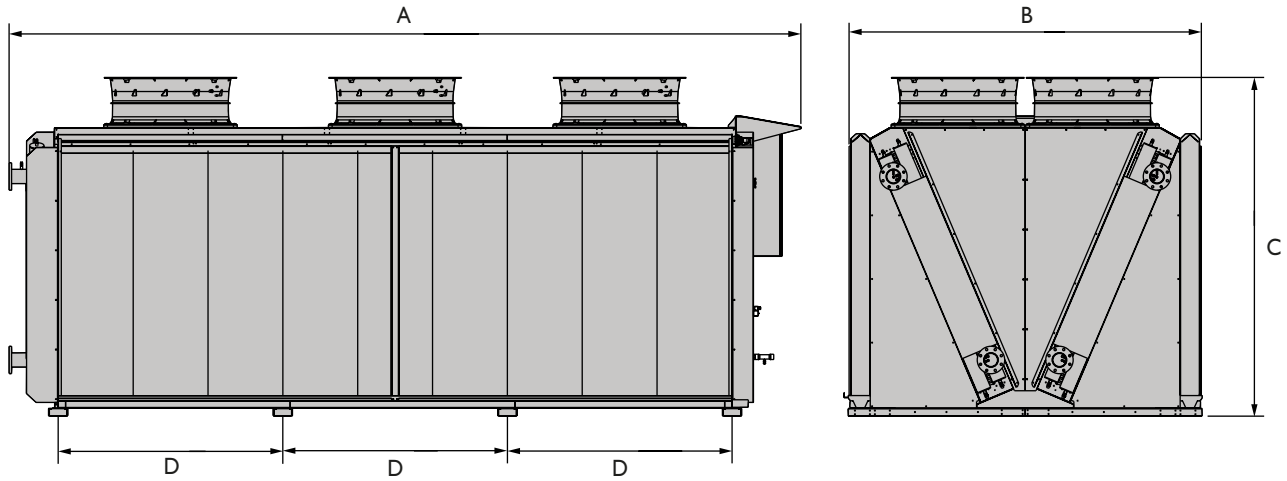
Water inlet T = 35 °C. Water outlet T = 30 °C.

AWSN-EPA series - Ø 910 mm fans - standard version - Wet-Coastal Environments

Type	~ 400v/50 Hz Connection						
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Connection	Weight
	kW	m ³ /h	kPa	kW	dB(A)	Ø	kg
AWSN-EPA-52E-A	81	14	30	8	58	1" 1/2	1370
AWSN-EPA-53E-A	120	21	29	12	60	1" 1/2	1895
AWSN-EPA-54E-A	164	29	47	16	61	2"	2440
AWSN-EPA-55E-A	202	35	34	20	62	2"	3005

Water inlet T = 35 °C. Water outlet T = 30 °C.

Dimensions AWSD-EPA



AWSD-EPA series - Ø 910 mm fans - standard version

Type	Number of fans	Surface m ²	Internal volume dm ³	A mm	B mm	C mm	D mm
AWSD-EPA-56F-A/B/C	6	2338	293	4468	2837	2715	1250
AWSD-EPA-58F-A/B/C	8	3117	391	5718	2837	2715	1250
AWSD-EPA-510F-A/B/C	10	3896	488	6968	2837	2715	1250

Technical information AWSD-EPA

AWSD-EPA series - Ø 910 mm fans - standard version - Dry Environments

Type	- 400v/50 Hz Connection						
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Connection	Weight
	kW	m ³ /h	kPa	kW	dB(A)	Ø	kg
AWSD-EPA-56F-A	512	89	41	24	65	3"	2885
AWSD-EPA-58F-A	694	120	73	32	67	4"	3725
AWSD-EPA-510F-A	840	146	27	40	67	4"	4640

Water inlet T = 35 °C. Water outlet T = 30 °C.

AWSD-EPA series - Ø 910 mm fans - standard version - Medium Environments

Type	- 400v/50 Hz Connection						
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Connection	Weight
	kW	m ³ /h	kPa	kW	dB(A)	Ø	kg
AWSD-EPA-56F-A	396	67	62	24	65	3"	2880
AWSD-EPA-58F-A	510	88	50	32	67	3"	3690
AWSD-EPA-510F-A	647	112	79	40	67	4"	4630

Water inlet T = 35 °C. Water outlet T = 30 °C.

AWSD-EPA series - Ø 910 mm fans - standard version - Wet-Coastal Environments

Type	- 400v/50 Hz Connection						
	Capacity	Mass flow	Pressure drop	Power consumption	Sound	Connection	Weight
	kW	m ³ /h	kPa	kW	dB(A)	Ø	kg
AWSD-EPA-56F-A	198	34	42	24	65	2" 1/2	2865
AWSD-EPA-58F-A	264	46	44	32	67	2" 1/2	3670
AWSD-EPA-510F-A	338	59	77	40	67	3"	4595

Water inlet T = 35 °C. Water outlet T = 30 °C.

Air Curtains

Easyair

Easyair T200



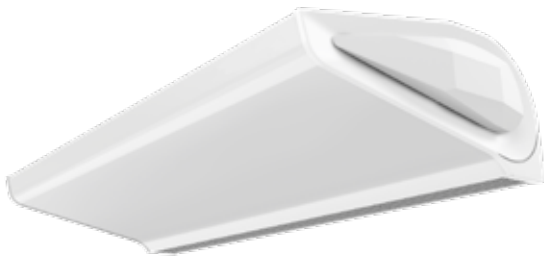
EASYAIR

Water-supplied, electrical or cold air curtain

Water-supplied, electrical or cold air curtain for retail or industrial applications. Output from 6 to 39,3 kW.



For more information, downloads and videos, visit the Easyair page on our website



Product features

- Compact and modern design
- Silent operation
- Efficient EC motor
- Standard white finish in RAL 9016
- Simple installation
- Low maintenance
- Optional: version in RAL 7016 (dark grey)

Keep cold and contaminated air outside

Due to its broad range, the EASYAIR air curtain can be used in any sort of open entrance, such as in shops, supermarkets, builder's merchants, offices and hospitals. The air curtains are available as water-supplied and electric. Ambient air curtains without a heating source are also available.

The EASYAIR air curtains are suitable for an installation height of up to 3.7 meters and are available in widths of 1, 1.5 and 2 meters. The air curtain without a heating source is even suitable for an installation height of up to 4.7 meters. The air curtains can be mounted both horizontally and vertically with the optional mounting brackets.

The air curtains can be connected to each other to create a wider air curtain (up to 8 pieces per controller).

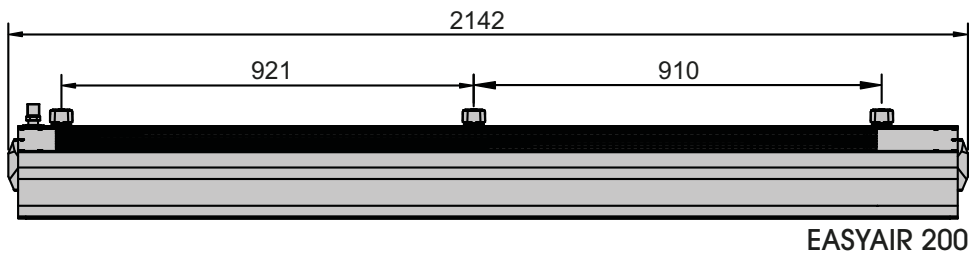
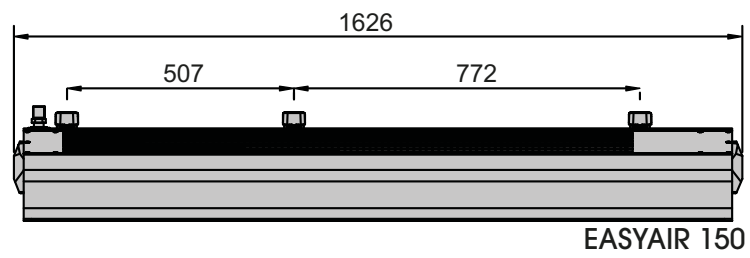
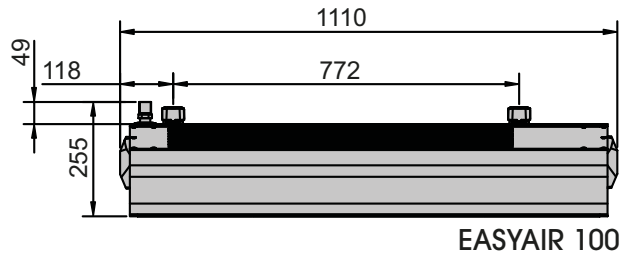
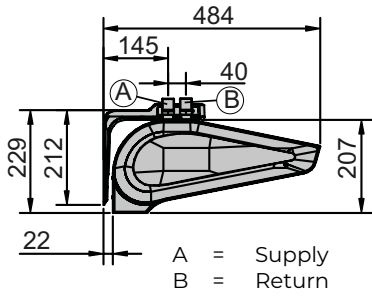
The housing of the EASYAIR consists of a double coating (galvanization + powder coating) and offers long-term protection against corrosion.

Suitable for use in shops, offices, hospitals and factories.

EASYAIR air curtains are equipped with a speed controlled low noise EC-fan. Advantages:

- The highest efficiency in case of speedcontrol
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable
- Long lifetime
- Low noise level
- Integrated electronic thermal protection

Dimensions



Technical information

Type		Water-supplied air curtain			Electric air curtain			Ambient air curtain		
		W100	W150	W200	E100	E150	E200	C100	C150	C200
Maximum door width (1 unit)	m	1	1,5	2	1	1,5	2	1	1,5	2
Maximum door height (vertical air stream)**	m	3,7			3,7			4,7		
Maximum air flow	m ³ /h	1850	3100	4400	1850	3150	4500	1950	3200	4600
Heating power range*	kW	4-17	10-32	17-47	2-6 or 4-6	4-12 or 8-12	6-15 or 9-15	-		
Maximum temperature heat exchanger	°C	95			-			-		
Maximum operating pressure	MPa	1,6			-			-		
Water volume	dm ³	1,6	2,6	3,6	-			-		
Number of rows heat exchanger	st	2			-			-		
Supply voltage	V/ph/Hz	~ 230/1/50			~230/1/50 for 2kW	~400/3/50		~ 230/1/50		
					~400/3/50 for 2/4/6kW					
Power electric heating coil	kW	-			2 or 4	4 or 8	6 or 9	-		
Current electric heating coil	A	-			max.9	6/11,3/ max 17,3	8,5/12,9/ max 21,4	-		
Motor power	kW	0,2	0,3	0,45	0,2	0,3	0,45	0,2	0,3	0,45
Nominal current	A	1,1	1,3	1,9	1,1	1,3	1,9	1,1	1,3	1,9
Weight (without water)	kg	21,5	29	37,5	22	30,5	39	19	25,5	32,5
Protection class	IP	20								
Colour		Casing: RAL 9016, Exhaust grille: RAL 9022								

Fan speed	Noise level	Easyair W100-200			Easyair E100-200			Easyair C100-200		
		1m	1,5m	2m	1m	1,5m	2m	1m	1,5m	2m
I	dB(A)***	52	53	56	49	51	55	53	54	57
II	dB(A)***	55	58	61	51	56	59	59	62	61
III	dB(A)***	57	59	62	58	58	60	62	63	63

* available heating power in the control option configuration:

Easyair E100 2-6 kW or 4-6 kW

Easyair E150 4-12kW or 8-12kW

Easyair E200 6-15 kW or 9-15 kW

** air stream range depends on curtain operation speed

*** measurement conditions: semi-open space, horizontal installation on the wall, measurement performed 5 m away from the device

EASYAIR W - WATER-SUPPLIED AIR CURTAIN

Tz = water temperature at the inlet to the device

Tp = water temperature at the outlet from the device

Tp1 = air temperature at the inlet to the device

Tp2 = air temperature at the outlet from the device

Pg = heating power of the device

Qw = water flow

 Δp = pressure drop in the heat exchanger

Parameters		Easyair W100															
T_z/T_p [°C]		90/70				80/60				70/50				60/40			
T_{p1} [°C]		5	10	15	20	5	10	15	20	5	10	15	20	5	10	15	20
III/1850[m³/h]/57dB(A)*																	
P_g [kW]		17,7	16,3	14,9	13,5	14,8	13,3	11,9	10,5	11,6	10,2	8,7	7,0	8,0	5,1	4,3	3,5
T_{p2} [°C]		32,0	35,3	38,5	41,7	27,5	30,7	33,8	36,8	22,8	25,8	28,7	31,3	17,2	17,9	21,8	25,6
Q_w [m³/h]		0,8	0,7	0,7	0,6	0,7	0,6	0,5	0,5	0,5	0,5	0,4	0,3	0,4	0,2	0,2	0,2
Δp [kPa]		0,5	0,4	0,4	0,3	0,4	0,3	0,2	0,2	0,2	0,2	0,1	0,1	0,1	0,1	0,04	0,03
II/1350[m³/h]/55dB(A)*																	
P_g [kW]		15,0	13,8	12,6	11,4	12,5	11,3	10,1	8,8	9,8	8,5	7,2	4,7	5,4	4,6	3,9	3,2
T_{p2} [°C]		34,7	37,8	40,8	43,7	29,7	32,7	35,6	38,4	24,4	27,2	29,7	29,7	15,6	19,3	23,0	26,7
Q_w [m³/h]		0,7	0,6	0,6	0,5	0,6	0,5	0,4	0,9	0,4	0,4	0,3	0,2	0,2	0,2	0,2	0,1
Δp [kPa]		0,4	0,3	0,3	0,2	0,3	0,2	0,2	0,1	0,2	0,1	0,1	0,1	0,1	0,1	0,04	0,03
I/880[m³/h]/52dB(A)*																	
P_g [kW]		11,9	10,9	9,9	9,0	9,8	8,9	7,9	6,9	7,6	6,5	4,6	4,0	4,6	4,0	3,4	2,8
T_{p2} [°C]		38,5	41,3	44,0	46,7	32,8	35,5	38,0	40,4	26,5	28,8	28,6	31,9	18,0	21,5	24,9	28,4
Q_w [m³/h]		0,5	0,5	0,4	0,4	0,4	0,4	0,4	0,3	0,3	0,3	0,2	0,2	0,2	0,2	0,2	0,1
Δp [kPa]		0,2	0,2	0,2	0,1	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,0	0,1	0,04	0,03	0,02
Parameters		Easyair W150															
T_z/T_p [°C]		90/70				80/60				70/50				60/40			
T_{p1} [°C]		5	10	15	20	5	10	15	20	5	10	15	20	5	10	15	20
III/3100[m³/h]/59dB(A)*																	
P_g [kW]		31,7	29,3	26,9	24,5	26,9	24,5	22,1	19,8	22,0	19,6	17,3	14,9	17,0	14,5	12,1	9,5
T_{p2} [°C]		33,9	37,2	40,4	43,6	29,5	32,7	35,9	39,0	25,1	28,2	31,3	34,3	20,5	23,5	26,4	29,1
Q_w [m³/h]		1,4	1,3	1,2	1,1	1,2	1,1	1,0	0,9	1,0	0,9	0,8	0,7	0,7	0,6	0,5	0,4
Δp [kPa]		2,1	1,8	1,6	1,3	1,6	1,4	1,2	0,9	1,2	1,0	0,8	0,6	0,8	0,6	0,4	0,3
II/2050[m³/h]/58dB(A)*																	
P_g [kW]		26,5	24,5	22,5	20,5	22,5	20,5	18,5	16,6	18,5	16,5	14,4	12,4	14,2	12,1	10,0	7,7
T_{p2} [°C]		36,9	40,0	43,0	46,0	32,1	35,1	38,1	41,0	27,2	30,1	33,0	35,7	22,1	24,8	27,5	29,7
Q_w [m³/h]		1,2	1,1	1,0	0,9	1,0	0,9	0,8	0,7	0,8	0,7	0,6	0,5	0,6	0,5	0,4	0,3
Δp [kPa]		1,5	1,3	1,2	1,0	1,2	1,0	0,8	0,7	0,9	0,7	0,6	0,4	0,6	0,4	0,3	0,2
I/1420[m³/h]/53dB(A)*																	
P_g [kW]		21,6	19,9	18,3	16,7	18,3	16,7	15,1	13,5	15,0	13,4	11,7	10,1	11,5	9,8	8,0	4,8
T_{p2} [°C]		40,4	43,3	46,1	48,9	35,1	37,9	40,6	43,3	29,6	32,3	34,9	37,4	23,9	26,3	28,5	28,3
Q_w [m³/h]		1,0	0,9	0,8	0,7	0,8	0,7	0,7	0,6	0,7	0,6	0,5	0,4	0,5	0,4	0,4	0,2
Δp [kPa]		1,1	0,9	0,8	0,7	0,8	0,7	0,6	0,5	0,6	0,5	0,4	0,3	0,4	0,3	0,2	0,1

Parameters		Easyair W200															
T_2/T_p [°C]		90/70				80/60				70/50				60/40			
T_{p1} [°C]		5	10	15	20	5	10	15	20	5	10	15	20	5	10	15	20
III/4400[m³/h]/62dB(A)*																	
P_g [kW]		46,9	42,7	39,3	35,9	39,4	36,0	32,6	29,3	32,6	29,2	25,8	22,5	25,7	22,3	18,9	15,4
T_{p2} [°C]		34,6	37,9	41,1	44,3	30,3	33,5	36,7	39,8	25,9	29,1	32,2	35,2	21,5	24,5	27,5	30,4
Q_w [m³/h]		2,0	1,9	1,7	1,6	1,7	1,6	1,4	1,3	1,4	1,3	1,1	1,0	1,1	1,0	0,8	0,7
Δp [kPa]		5,6	4,9	4,2	3,6	4,3	3,7	3,1	2,6	3,2	2,6	2,1	1,7	2,2	1,7	1,3	0,9
II/3150[m³/h]/61dB(A)*																	
P_g [kW]		40,9	37,9	34,8	31,9	35,0	31,9	28,9	26,0	28,9	25,9	22,9	20,0	22,8	19,8	16,7	13,7
T_{p2} [°C]		36,6	39,8	42,9	46,0	32,0	35,1	38,2	41,2	27,4	30,4	33,4	36,3	22,6	25,6	28,4	31,1
Q_w [m³/h]		1,8	1,7	1,5	1,4	1,5	1,4	1,3	1,1	1,3	1,1	1,0	0,9	1,0	0,9	0,7	0,6
Δp [kPa]		4,5	3,9	3,4	2,9	3,5	3,0	2,5	2,1	2,6	2,1	1,7	1,4	1,8	1,4	1,0	0,7
I/2050[m³/h]/56dB(A)*																	
P_g [kW]		34,0	31,4	28,9	26,4	29,0	26,5	24,0	21,6	24,1	21,6	19,1	16,6	19,0	16,4	13,9	11,3
T_{p2} [°C]		39,9	42,8	45,8	48,6	34,8	37,7	40,6	43,3	29,7	32,5	35,3	37,9	24,5	27,2	29,8	32,2
Q_w [m³/h]		1,5	1,4	1,3	1,2	1,3	1,2	1,1	1,0	1,1	1,0	0,8	0,7	0,8	0,7	0,6	0,5
Δp [kPa]		3,2	2,8	2,4	2,1	2,5	2,2	1,8	1,5	1,9	1,6	1,2	1,0	1,3	1,0	0,7	0,5

EASYAIR E - ELECTRIC AIR CURTAIN

T_{p1} = air temperature at the inlet to the device

T_{p2} = air temperature at the outlet from the device

P_g = heating power of the device

Parameters		Easyair E100				Easyair E150				Easyair E200			
T_{p1} [°C]		5	10	15	20	5	10	15	20	5	10	15	20
III/1850[m³/h]/59dB(A)*													
P_g [kW]		2/4/6	2/4/6	2/4/6	2/4/6	8/12	8/12	8/12	8/12	10/15	10/15	10/15	10/15
T_{p2} [°C]		8/11/15	13/16/20	18/21/25	23/26/30	12/15	17/20	22/25	27/30	10/14	15/19	20/24	25/29
II/1400[m³/h]/48dB(A)*													
P_g [kW]		2/4/6	2/4/6	2/4/6	2/4/6	8/12	8/12	8/12	8/12	10/15	10/15	10/15	10/15
T_{p2} [°C]		9/12/16	14/17/21	19/22/26	24/27/31	14/19	19/24	24/29	29/34	12/16	17/21	22/26	27/31
I/920[m³/h]/44dB(A)*													
P_g [kW]		2/4/6	2/4/6	2/4/6	2/4/6	8/12	8/12	8/12	8/12	10/15	10/15	10/15	10/15
T_{p2} [°C]		11/16/21	16/21/26	21/26/31	26/31/36	19/26	24/31	29/36	34/41	15/21	20/26	25/31	30/36

EASYAIR C - AMBIENT AIR CURTAIN

Parameters		EASYAIR C100			EASYAIR C150			EASYAIR C200		
Fan speed		III	II	I	III	II	I	III	II	I
Q_p [m³/h]		1950	1500	1050	3200	2250	1500	4600	3400	2340
Noise level [dB(A)]		62	59	53	63	62	54	63	61	57

Accessories



HMI-EC Controller
(0699150)



Door sensor
(0699151)



Valve with actuator
(0699152)



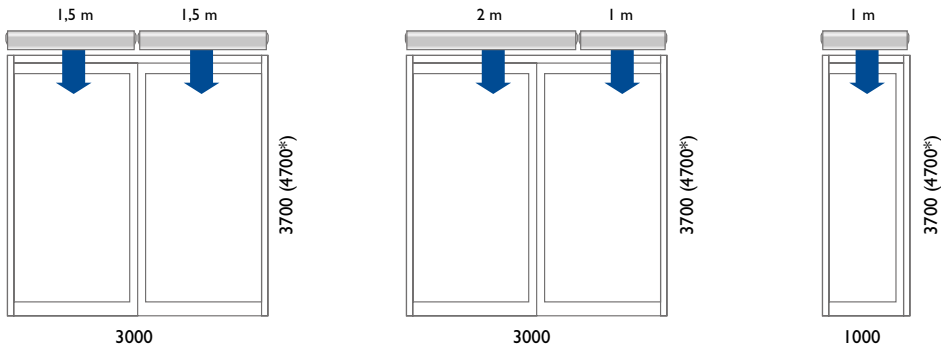
Mounting brackets
(0699153/0699154)



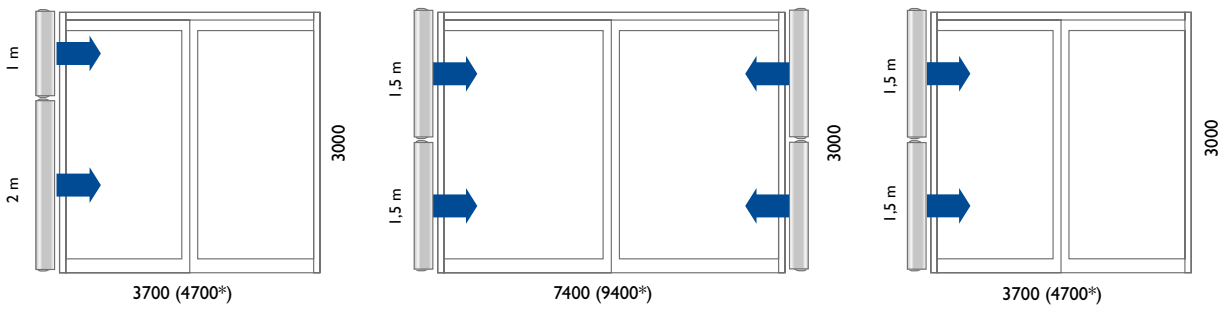
Flexible hoses
(0699155)

Assembly/location suggestions

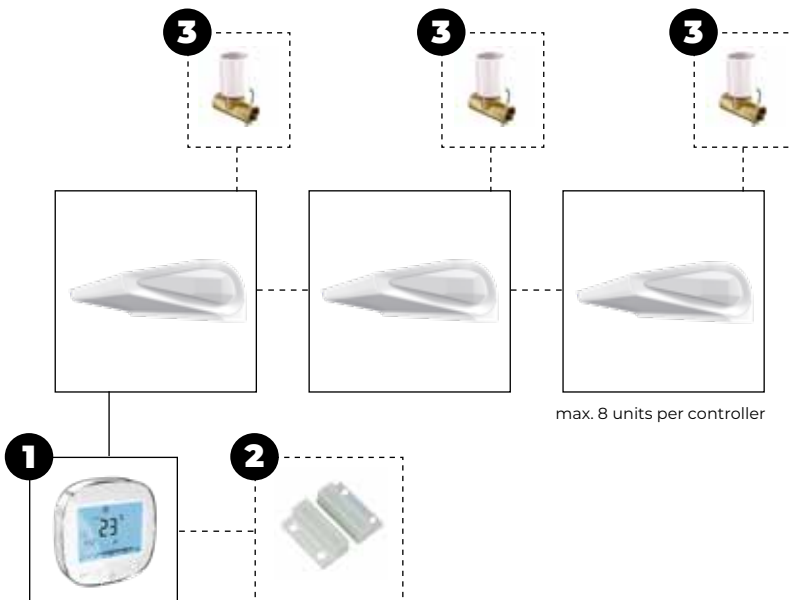
HORIZONTAL INSTALLATION



VERTICAL INSTALLATION



Controls



Control combination options

Easyair	+	1		
Easyair	+	1	+	2
Easyair	+	1	+	3
Easyair	+	1	+	2 + 3

See price list for description and code numbers of the relevant items

Prices Easyair



PRODUCT - AIR CURTAIN EASYAIR W WITH EC-MOTOR - MAX. MOUNTAIN HEIGHT 3,7 M

Code nr.	Description	Price
5992600	Easyair W100 water-supplied air curtain, nominal power 14,9 kW	€ 1467
5992601	Easyair W150 water-supplied air curtain, nominal power 26,9 kW	€ 1715
5992602	Easyair W200 water-supplied air curtain, nominal power 39,3 kW	€ 2029



PRODUCT - AIR CURTAIN EASYAIR E WITH EC-MOTOR - MAX. MOUNTAIN HEIGHT 3,7 M

Code nr.	Description	Price
5992605	Easyair E100 electric air curtain, nominal power 6 kW	€ 1467
5992606	Easyair E150 electric air curtain, nominal power 12 kW	€ 1715
5992607	Easyair E200 electric air curtain, nominal power 15 kW	€ 2069



PRODUCT - AIR CURTAIN EASYAIR C WITH EC-MOTOR - MAX. MOUNTAIN HEIGHT 4,7 M

Code nr.	Description	Price
5992610	Easyair C100 ambient air curtain, air flow 1950 m ³ /h	€ 1278
5992611	Easyair C150 ambient air curtain, air flow 3200 m ³ /h	€ 1529
5992612	Easyair C200 ambient air curtain, air flow 4600 m ³ /h	€ 1781

ACCESSORIES - INSTALLATION

Code nr.	Description	Price
0699153	Mounting brackets Easyair 100	€ 63
0699154	Mounting brackets Easyair 150/200	€ 95
0699155	Flexible hoses	€ 79

ACCESSORIES - CONTROLS

	Code nr.	Description	Price
1	0699150	HMI-EC controller	€ 272
	0699156	Surface mounted box for HMI-EC control (0699150)	€ 45
2	0699151	Door sensor	€ 36
3	0699152	Valve with actuator	€ 202

For explanation see chapter controls



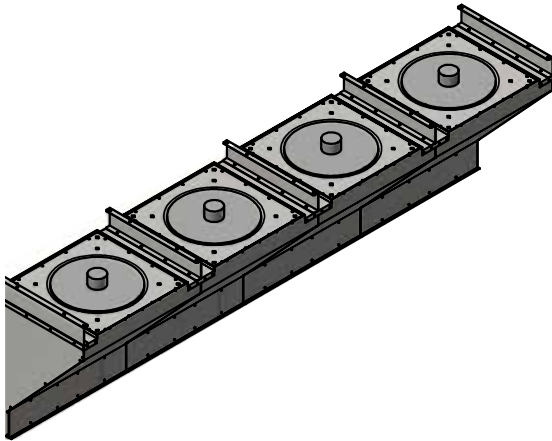
EASYAIR T200

Recirculation air curtain

Recirculation air curtain for industrial applications.
Air displacement 11.200 to 36.600 m³/h.



For more information, downloads
and videos, visit the Easyair T200
page on our website



Product features

- Economical
- Sharp pricing
- No maintenance required
- Speed controllable
- Low weight
- Easy installation
- Corrosion-resistant aluzinc housing
- Optional: vertical version
- Optional: gas-fired or water-supplied version

Keep cold and contaminated air outside

For industrial applications, Mark has the Easyair T200 in its product range. This industrial air curtain is available with 3, 4 or 5 fans, which can be combined to create the desired width. The air curtain is suitable for an installation height up to 8 metres.

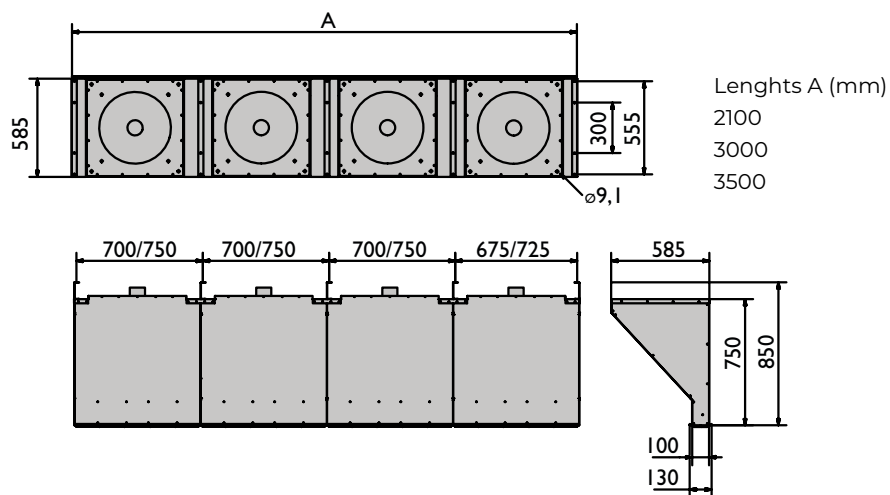
The EASYAIR T200 blows the warm air located at the top of the room down to the occupied area. Therefore, for this type of air curtain no heat source is required. It works simple and efficiently!

In addition to the Easyair T200, there is now also the Easyair T200+. This air curtain is equipped with water-fed heat exchangers, so that the unit can also blow out hot air.

Optional: speed controlled low noise 1~230V EC-motor with 0-10V control. Advantages:

- The highest efficiency in case of speed control
- Up to 50% energy saving in case of partial load
- Almost completely linearly adjustable
- Long lifetime
- Low noise level
- Integrated electronic thermal protection

Dimensions



Technical information

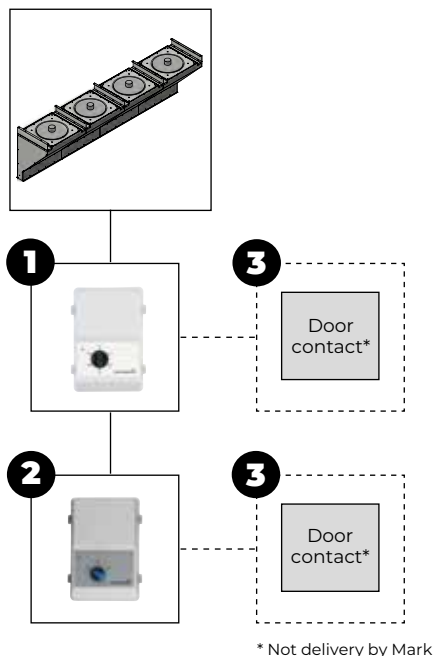
Type	Length mm	Air displacement m ³ /h	Connection voltage V	Current A	Weight kg	Mounting height m
T200 provided with 3 fans	2100	11200	400	1,53	93	4-8
T200 provided with 4 fans	3000	14900	400	2,04	130	4-8
T200 provided with 5 fans	3500	18650	400	2,55	153	4-8

It is possible to combine the above mentioned Easyair T200 air curtains to create the desired lenght.

Assembly/location suggestions



Controls



Control combination options

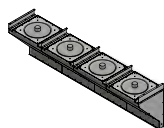
Easyair T200	+	1		
Easyair T200	+	2		
Easyair T200	+	1	+	3
Easyair T200	+	2	+	3

See price list for description and code numbers of the relevant items

1 = on/off
2 = high/low

Prices Easyair T200

PRODUCT - INDUSTRIAL AIR CURTAIN EASYAIR T200 INCL. WIRING AND A TERMINAL BOX - MAX. MOUNTING HEIGHT 8 M



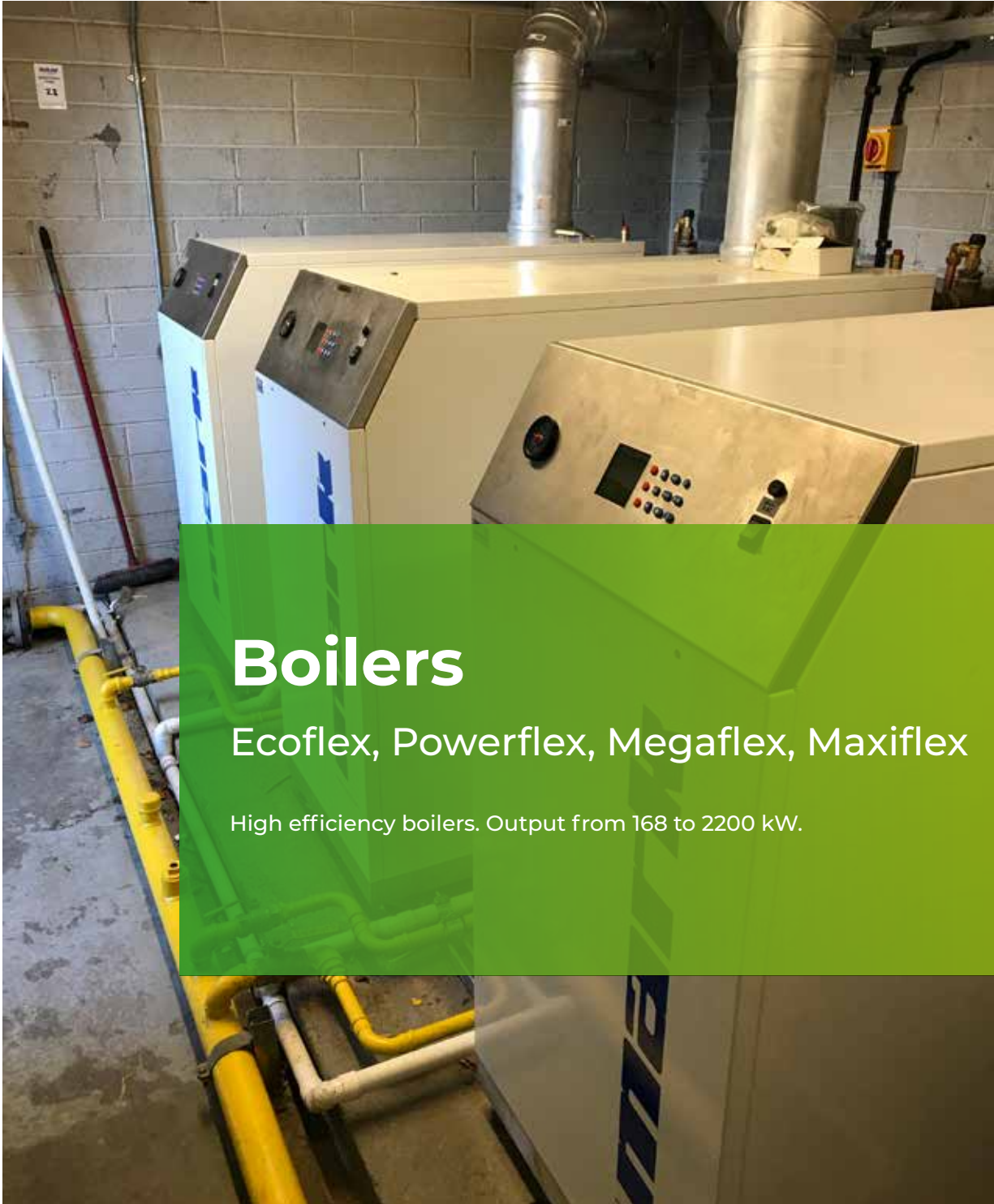
Code nr.	Description	Price
5063010	Easyair T200 provided with 3 fans L=2100mm, H=750mm On/Off	€ 1929
5063011	Easyair T200 provided with 4 fans L=3000mm, H=750mm On/Off	€ 2592
5063012	Easyair T200 provided with 5 fans L=3500mm, H=750mm On/Off	€ 3150
5063020	Easyair T200 provided with 3 fans L=2100mm, H=750mm High/Low	€ 2225
5063021	Easyair T200 provided with 4 fans L=3000mm, H=750mm High/Low	€ 2900
5063022	Easyair T200 provided with 5 fans L=3500mm, H=750mm High/Low	€ 3506

It is possible to combine the above mentioned Easyair T200 air curtains to create the desired length.

ACCESSORIES - CONTROLS

Code nr.	Description	Price
1 0616162	Control box 5-steps, 400V, 2A	€ 752
1 0616164	Control box 5-steps, 400V, 2A	€ 1050
1 0616166	Control box 5-steps, 400V, 7A	€ 1245
2 0616170	High / low / off control, 400V, 10A	€ 446
0631167	Isolator switch, separate delivery, 400V (8 poles)	€ 91

For explanation see chapter controls



Boilers

Ecoflex, Powerflex, Megaflex, Maxiflex

High efficiency boilers. Output from 168 to 2200 kW.



For more information, downloads and videos, visit the Boiler pages on our website



The high-efficiency boilers of Mark

The Mark High-efficiency boilers are very compact, sustainable and available in 4 different models:

- ECOFLEX (capacities: 168 kW, 210 kW, 252 kW and 294 kW)
- POWERFLEX (capacities: 340 kW up to 600 kW)
- MEGAFLEX (capacities: 850 kW and 1020 kW)
- MAXIFLEX (capacities: 2200 kW)

The Mark boilers are a.o. suitable to heat offices, garages, warehouses, apartment buildings, workshops, distribution centers and showrooms.

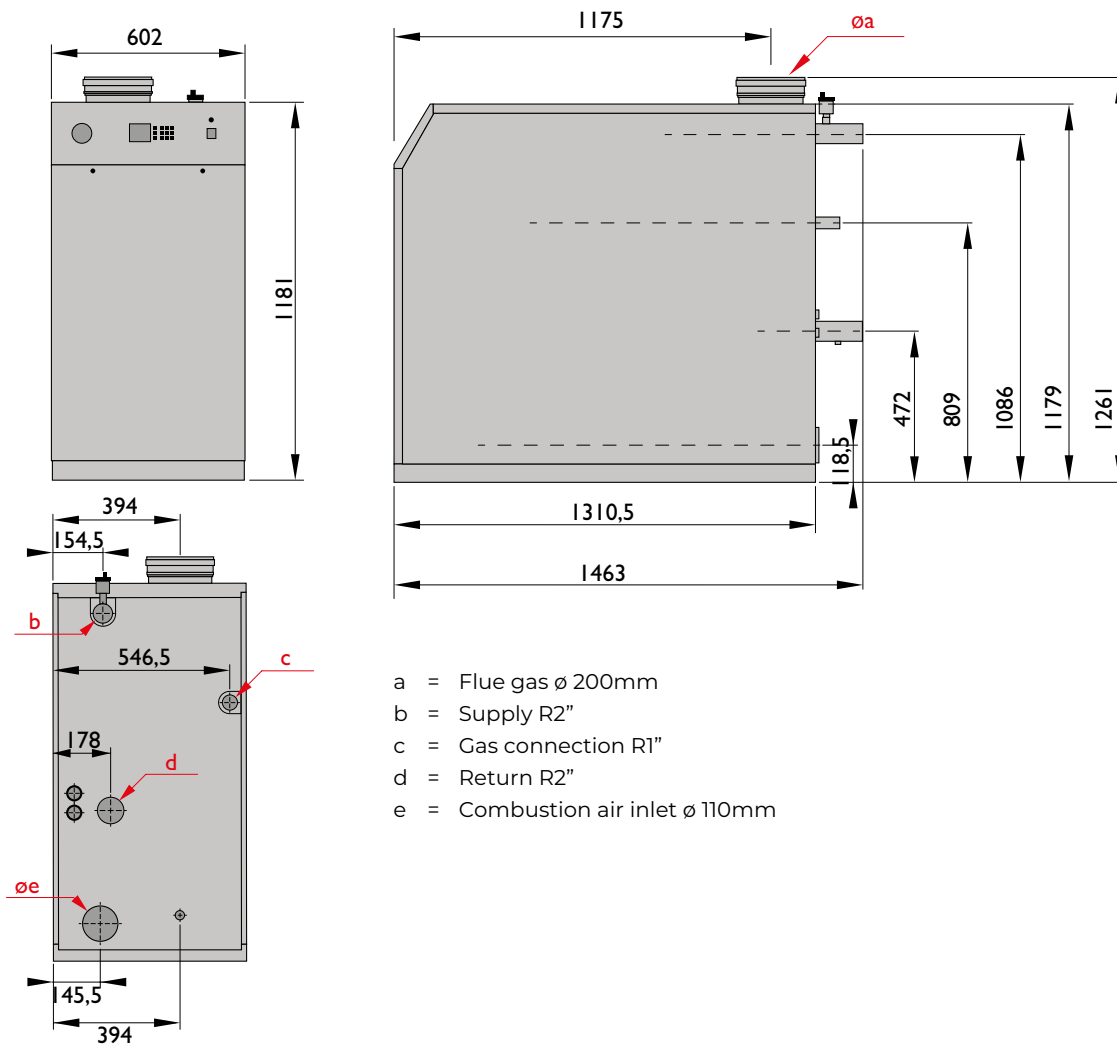
For a complete heating solution from Mark it is also possible to combine the Mark boilers with water-supplied products such as the TANNER MDA and INFRA AQUA ECO.

Product features

- Competitive pricing
- Proven and innovative technology
- Cast aluminum heat exchanger
- Robust
- Low-noise
- Advanced diagnostic system
- Very low maintenance interval
- Low service interval
- Integrated pump control
- Closed version available
- Cascade control already integrated
- Weather-dependant control
- Control:
 - On/off thermostat
 - OpenTherm
 - BMS 0-10V control



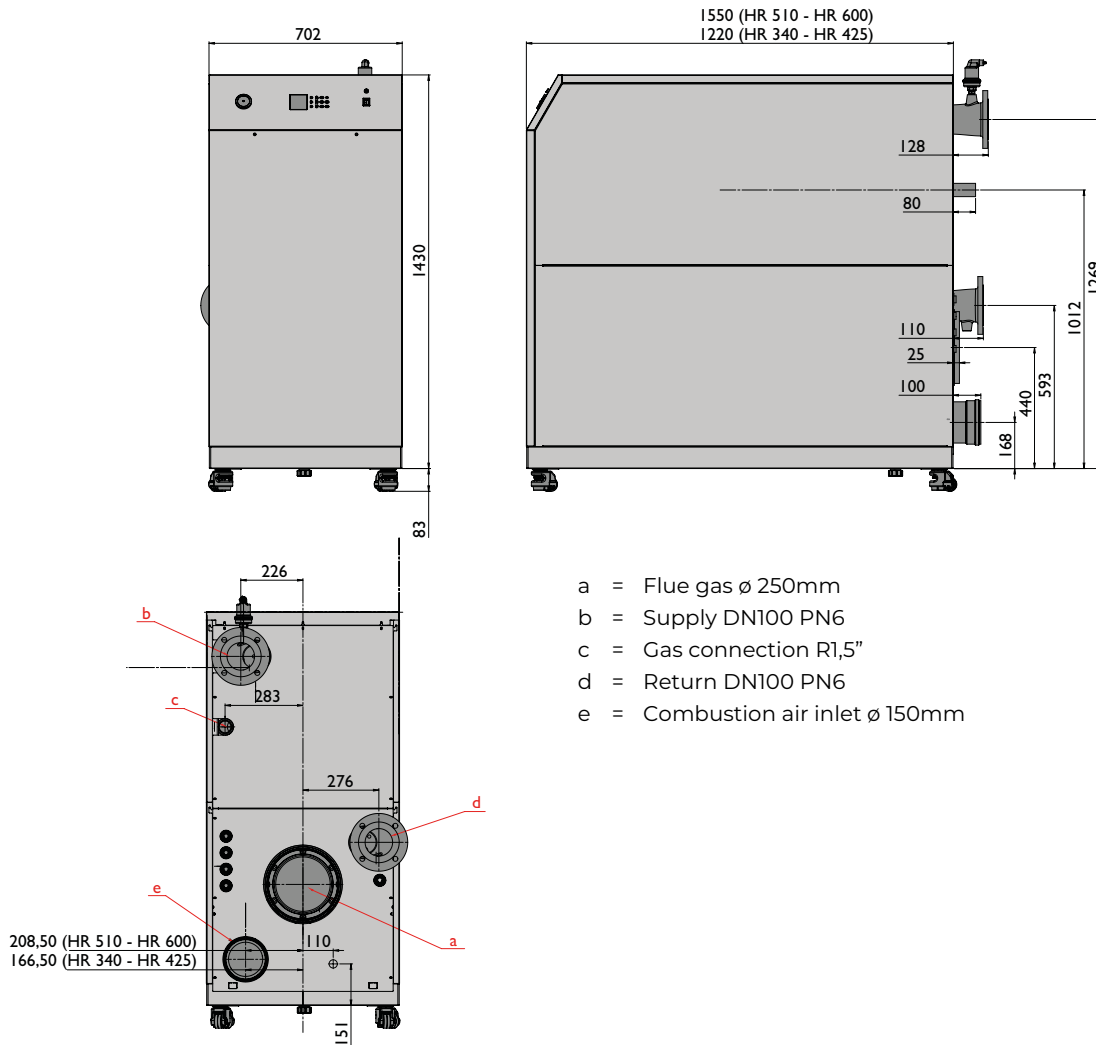
Dimensions ECOFLEX



Technical information ECOFLEX

ECOFLEX		HR 168	HR 210	HR 252	HR 294
Nominal output 80/60 °C	kW	163,6	204,5	245,4	282,5
Efficiency	%	107,5	107,5	107,5	107,5
Operating pressure	bar	6	6	6	6
Weight	kg	193	210	227	244
Supply voltage	230V 1F ~50 Hz				

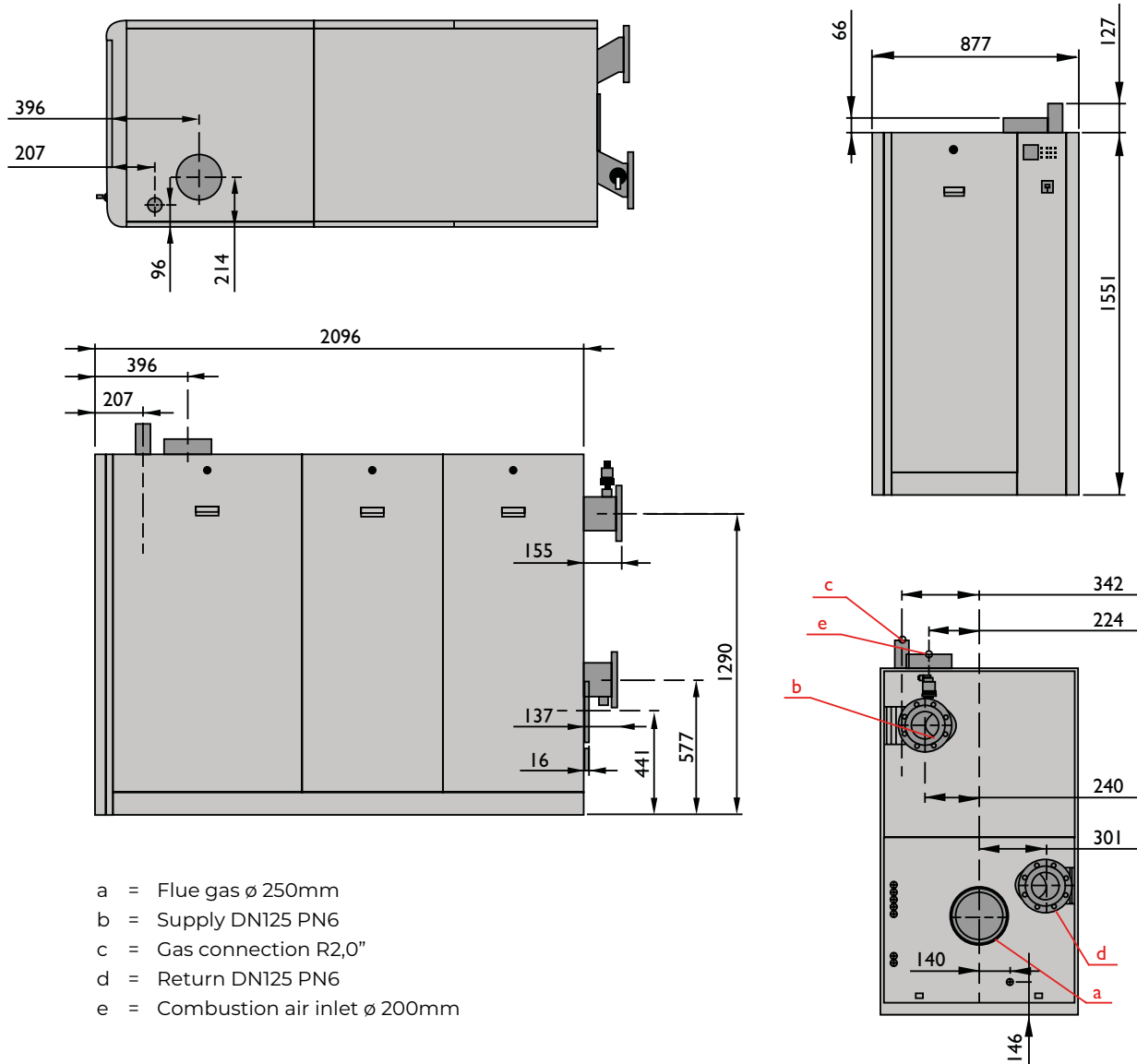
Dimensions Powerflex



Technical information Powerflex

POWERFLEX		HR 340	HR 425	HR 510	HR 600
Nominal output 80/60 °C	kW	331	413,1	495,7	578,3
Efficiency	%	108,1	108,1	108,1	108,1
Operating pressure	bar	6	6	6	6
Weight	kg	330	365	429	464
Supply voltage	230V 1F ~50 Hz				

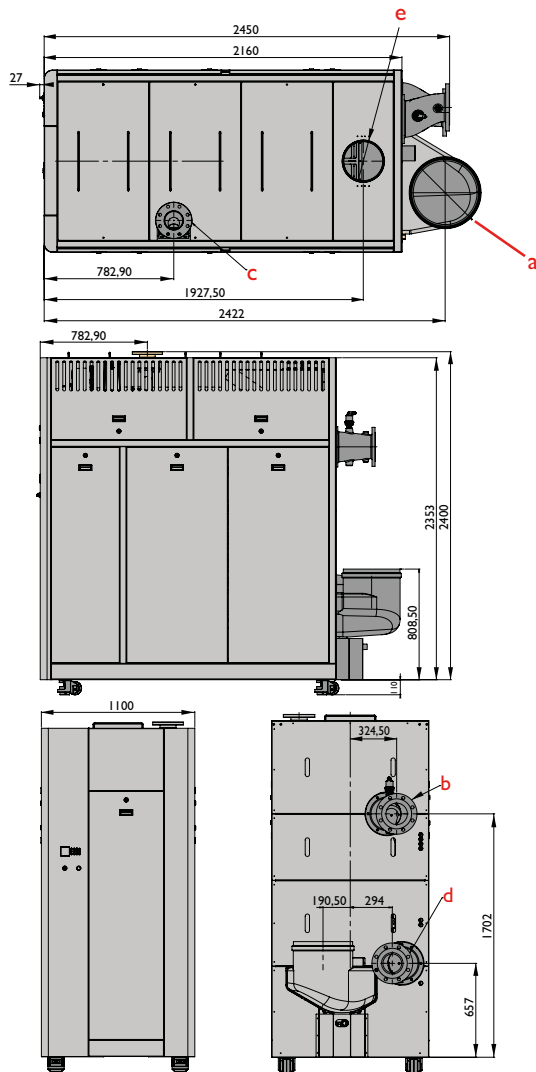
Dimensions Megaflex



Technical information Megaflex

MEGAFLEX		HR 850	HR 1020
Nominal output 80/60 °C	kW	828,8	994,5
Efficiency	%	108,3	108,3
Operating pressure	bar	6	6
Weight	kg	625	700
Supply voltage		400V~3N/10	

Dimensions Maxiflex

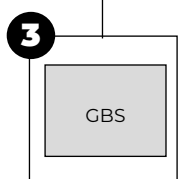
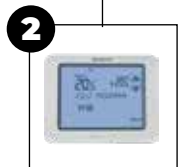


- a = Flue gas \varnothing 400 mm
- b = Supply DN150 PN10
- c = Gas connection R2,0"
- d = Return DN150 PN10
- e = Combustion air inlet \varnothing 250 mm

Technical information Maxiflex

MAXIFLEX		HR 2200
Nominal output 80/60 °C	kW	2156
Efficiency	%	107,9
Operating pressure	bar	6
Weight	kg	1740
Supply voltage		230V 1F ~50 Hz

Controls



Control combination options

CV-ketel + **1**

CV-ketel + **2**

CV-ketel + **3**

See price list for description and code numbers of the relevant items

Prices Boilers



PRODUCT - ECOFLEX - NATURAL GAS G25

Code nr.	Description	Price
5970005	EcoFlex HR 168	€ 18096
5970006	EcoFlex HR 210	€ 19129
5970007	EcoFlex HR 252	€ 20630
5970008	EcoFlex HR 294	€ 23692

Other gas types on request.



PRODUCT - POWERFLEX - NATURAL GAS G25

Code nr.	Description	Price
5970010	PowerFlex HR 340	€ 30744
5970011	PowerFlex HR 425	€ 32647
5970012	PowerFlex HR 510	€ 37023
5970013	PowerFlex HR 600	€ 39701

Other gas types on request.


PRODUCT - MEGAFLEX - NATURAL GAS G25

Code nr.	Description	Price
5970051	MegaFlex HR 850	€ 62518
5970052	MegaFlex HR 1020	€ 82438

Other gas types on request.


PRODUCT - MAXIFLEX - NATURAL GAS G25

Code nr.	Description	Price
5970053	MaxiFlex HR 2200	€ 189570

Other gas types on request.

ACCESSORIES - CONTROLS

Code nr.	Description	Price
2 0629077	Chronotherm Touch (modulating) thermostat	€ 507
1 0629039	Clock thermostat (1A)	€ 394

For explanation see chapter controls. Circulation pump on request.

ACCESSORIES - FLUE GAS EXHAUST

Code nr.	Description	Price
5990301	Wall bracket Ø150	€ 7
5990302	TwinSafe + Extension pipe RVS Ø100/150	€ 124
5990303	Sealing EPDM Ø150	€ 9
5990304	Roof flashing PB Ø205 25-45	€ 357
5990305	Adhesive plate ALU Ø370	€ 195
5990306	ALU-Fix Bend AL Ø250 90gr	€ 533
5990307	ALU Fix Bend Ø250 45gr	€ 394
5990308	ALU Fix Extension pipe Ø250 L=1000	€ 221
5990310	ALU Fix Roof terminal AL Ø250 L=1450	€ 1337
5990311	Twinline Reducer PP Ø130-150	€ 44
5990312	Air grill AL Ø150 L=180	€ 74
5990313	Roof terminal ALU Ø250 L=2500	€ 1956
5990314	T-piece ALU Ø250-200-350 90gr	€ 557
5990319	Twinline Bend PP Ø200 90gr	€ 119
5990320	Twinline Bend PP Ø200 45gr	€ 107
5990321	Twinline Extension pipe PP Ø200 L=1900	€ 291
5990322	Twinline Extension pipe PP Ø200 L=1000	€ 143
5990323	Twinline Extension pipe PP Ø200 L=500	€ 128
5990324	Twinline Roof terminal PP Ø200 L=500	€ 695
5990326	Bracket Ø200	€ 32
5990327	Fix-Safe Sealing ring Ø250	€ 77
5990328	Sealing ring Sil. Ø200 Blue	€ 26
5990329	Sealing ring EPDM Ø200	€ 17
5990330	Adhesive plate ALU Ø275	€ 96

ACCESSORIES - FLUE GAS EXHAUST

Code nr.	Description	Price
5990331	Twinline Bend PP Ø150 90gr	€ 60
5990332	Twinline Bend PP Ø150 45gr	€ 49
5990333	Twinline Extension pipe PP Ø150 L=2000	€ 154
5990334	Twinline Extension pipe PP Ø150 L=1000	€ 87
5990335	Twinline Extension pipe PP Ø150 L=500	€ 60
5990336	Twinline Gradient PP Ø150-150	€ 113
5990337	Single flue set horizontal PP Ø150 black	€ 209
5990342	ALU-Fix Extension pipe AL Ø200 L=500	€ 202
5990343	ALU Fix Extension pipe AL Ø200 L=2000	€ 452
5990344	ALU Fix Bend AL Ø200 90gr	€ 232
5990345	Extension pipe AL Ø200 L=500	€ 116
5990346	Wall terminal AL M2000 Ø200 200-150	€ 1388
5990347	Connection kit PP DN200 Compact Condens	€ 595
5990348	Adhesive plate AL Ø210 130/200x150	€ 49
5990349	Adhesive plate AL Ø320	€ 169
5990350	Roof flashing for pitched roof PB Ø318 18-22gr	€ 381
5990351	Roof flashing for pitched roof PB Ø318 58-62gr	€ 526
5990352	Adhesive plate AL Ø150/220x175	€ 75
5990353	Roof flashing for pitched roof PB Ø228 18-22gr	€ 338



CONTROL EQUIPMENT

Overview of the control options provided by Mark



For more information, downloads and videos, visit the control equipment page on our website



Mark takes care of it for you!

Devices can be regulated and controlled in various ways. Each individual will have his own ideas and requirements. Mark has thus developed a range of options from standard to project-specific.

Our range includes various types of thermostats, speed controllers, packaged digital controllers and full custom made power and control panels, enabling the user to control a single unit or multiple units.

Mark has its own electrical engineering and manufacturing department and is therefore able to offer a solution for any control requirement. Our engineers would be pleased to advise you. Simply contact them to discuss the options within our range of control equipment.

Our assortment includes:

- Full range of thermostats and sensors
- Time controls
- Digital time and temperature controllers
- Speed controllers including variable speed drives (VSD)
- Custom-made power and control panels



New in our range are the thermostats and controllers controlled via Internet (web-based). This allows remote connection with the thermostat via a web browser or mobile app. For example, you can operate or change the thermostat anywhere in the world with a telephone, tablet or laptop / PC.

230V Room thermostat



Order code: 0629013

A room thermostat for 1 to 1 control of a device based on room temperature.

Specifications:

- Required temperature adjustable from 10...30°C.
- Switch contact voltage free max. 4A / 230V.

Can be used for:

- G-TYPE
- Tanner MDA (230V)
- Tanner MDE
- Tanner MDC (230V)
- MDV Blue AC
- Ecofan P
- Fohn
- 5-position controller 230V
- High/low/off controller

Clock thermostat RAMSES 811 top3



Order code: 0629039

A digital clock thermostat for 1 to 1 control of a device based on room temperature.

Specifications:

- Language can be set to English, German, Dutch, French, Italian or Spanish.
- NO contact, voltage free max. 10A(2)/250V~
- Temperature measurement range 0...50°C increments of 0.1°C.
- Temperature setting range 2...30°C in stages from 0.2°C.
- 3 control programmes, freely programmable with 40 memory points.
- Comfort, Eco/Reduction, Frost protection
- Automatic switching between summer/winter.
- Protection class IP40 in accordance with EN 60529 -1.
- 2x alkaline batteries, 1.5V, type AA.
- Power back up when battery replaced 10 minutes.
- Holiday program with a separate setpoint
- Setting various parameters using Ramses top 3 Application Communication via Bluetooth

Can be used for:

- Tanner MDA
- Tanner MDE
- Tanner MBA
- 5-position controller 230V
- High/low/off controller

Water-proof room thermostat



Order code: 0629004

Water resistant (IP65) room thermostat with adjustable differential. Measures the temperature using a sensor filled with liquid connected to the thermostat with a capillary.

Specifications:

- Bulb sensor filled with liquid.
- Adjustment range from -5...+28°C.
- Differential adjustable from 2...8K.
- Material protection class and resistant to splashing in accordance with IP65.
- Switching power 230V~, 15(8)A.

Can be used for:

- Tanner MDE
- Tanner MDA
- Tanner MDC
- Tanner MBA
- 5-position controller 230V
- High/low/off controller

Zone control infra

WEB-BASED **Order code: 3003795**

Digital temperature control suitable to on/off, high/low or modulated control multiple Infra's based on room temperature. With the ability for area control and PIN security to modify settings.

Specifications:

- Delivery: Control panel with external display
- Size ext. display (WxHxD): 160x98x43mm
- Languages: English, French, German and Dutch
- Protection class: IP20
- Mounting of display: built-in / wall installation
- Number of areas: 3
- Number of Infra's per area: 6
- Temperature range: 2 / 40°C per 0,5°C.
- Operating options: Auto, continuous day, continuous night or continuous off
- Day-/night temperature monitoring with reading of the actual room temperature on the display
- Automatic switching between summer/winter time.
- Control: on/off, high/low or modulating
- High/low control: Auto 1, 2 or 3K
- Time switch with week program (7 switch blocks)
- Overtime timer: 0-180 min.
- Signaling of burner malfunction.
- Reset option to release a burner malfunction per area.
- PIN security to modify for example switching times and temperatures.
- Temperature sensor: PT1000 (black bulb) to order separately (required per area)
- Modbus TCP/IP
- Power: 230Vac / 50Hz
- Embedded webservice

Can be used for:

- Infra on/off and high/low model.
- Infra Mono on/off and high/low model.
- Infra HT

Accessories:

- External black bulb sensor
Order code: 0629081 or 0629082

Mark PinTherm Connect

WEB-BASED **Order code: 0629108**

The PinTherm Connect is a digital week clock room thermostat. The controller is equipped with an on/off contact and a 0-10VDC output. Both signals are reversible, so the control is suitable for heating and cooling. The settings of the thermostat can be read and/or modified with Modbus or Ethernet. The thermostat can be connected to the BMS (building management system).

Specifications:

- Power PinTherm Connect: 230Vac / 50Hz
- Own consumption: < 9W
- Clock: 24 hour clock with automatic summer/winter time switching
- Switching programs: 3 switching programs a day
- Switching differential: 0,1 - 3K
- Dimensions: 166 x 160 x 106mm (bxwxh)
- Weight: 880 grams
- Protection class: IP54
- Installation environment:
Transport/storage: -20°C until +70°C
Operational: -10°C until +60°C
Relative air humidity: 0-90% not condensating
- Switch contact(s):
Heating: 230Vac/16A (4A)
Others: 230Vac/10A (2,5A)
- Temperature setting: 0 until 39°C per 1°C adjustable
- Overtime timer: adjustable 1, 2 or 3 hours (060, 120, 180)
- Calibration: adjustable from -3.5°C until +3.5°C
- Heating/cooling:
Reversible contact for heating or cooling
0-10 VDC output for heating or cooling
- Languages: NL/EN/DE/FR/PL/RO/LT
- Fuse: 6A

Can be used for:

- G-Type
- Tanner MDA / MDC / MBA
- LDA Swirl
- Ecofan W
- MDV Blue
- Fohn

Accessories:

- External room temperature sensor
Order code: 0629086

Mark PinTherm Infra Connect

WEB-BASED **Order code: 0629109**

The PinTherm Infra Connect is a digital room thermostat to switch an Infra on/off or control high/low or modulating based on room temperature. The settings of the thermostat can be read and/or modified with Modbus or Ethernet. The thermostat can be connected to the BMS (building management system).

Specifications:

- Power PinTherm Infra Connect : 230Vac / 50Hz
- Own consumption: < 9W
- Clock : 24 hour clock with automatic summer/winter time switching
- Switching programs : 3 switching programs a day
- Switching differential: 1°C
- Dimensions: 166 x 160 x 106mm (bxwxh)
- Weight: 880 grams
- Protection class: IP-54
- Installation environment :
Transport/storage: -20°C until +70°C
Operational: -10°C until +60°C
Relative air humidity: 0-90% not condensating
- Switch contact(s):
Heating: 230Vac/16A (4A)
Others: 230Vac/10A (2,5A)
- Temperature setting : 0 until 39°C per 1°C adjustable
- Overtime timer : adjustable 1, 2 or 3 hours (060, 120, 180)
- Calibration : adjustable from -3.5°C until +3.5°C
- High/low switching: Temperature 1K, 2K, 3K or manual. PinTherm Infra Connect always starts 20 min on high a heat demand.
- Languages : NL/EN/DE/FR/PL/RO/LT
- Fuse: 6A

Can be used for:

- Infra on/off and high/low model.
- Infra Mono on/off and high/low model.
- Infra HT
- Infra Line
- Tanner MDE

Accessories:

- External black bulb sensor
Order code: 0629087
- External room temperature sensor
Order code: 0629086

Mark PinTherm Infra HE Connect



WEB-BASED

Order code: 3003796

The PinTherm Infra HE Connect is a digital temperature controller suitable for modulating control of one or more Infra HEs based on the room temperature. With the possibility of PIN code protection for changing the settings.

Specifications:

- Power supply: 230Vac/50Hz
- Dimensions: 376 x 300 x 120mm (lxbxh)
- Protection class: IP54
- Installation: surface / wall mounting
- Maximum number of Infra HEs: 8
- Temperature setting: 2 until 40°C per 0,5°C adjustable
- Operating mode selection: Automatic, continuous day, continuous night or continuous off
- Day/night temperature monitoring with reading of the current room temperature on the display
- Automatic summer/winter time switching
- Control: modulating
- Time switch with weekly program (7 switching blocks)
- Overtime timer: 0-180 min
- Burner fault indication
- Reset option for unlocking a burner fault
- Pin code protection to be able to change switching times and temperatures, among other things
- Languages: EN/FR/DE/NL
- Fuse: 10A
- Modbus TCP/IP
- Built-in web server

Can be used for:

- Infra HE

Accessories:

- External black bulb sensor
Order code: 0629002

Optitherm+



Order code: 0629185

The OptiTherm+ is a digital clock thermostat with internal room sensor with which 1 or more air heaters (type GS+), up to a maximum of 8, can be controlled on the basis of the room temperature by means of a bus system.

Specifications:

- Push-button for switching the heating mode on and off.
- Push-button for switching the fan of the air heater(s) on and off.
- LED to indicate a malfunction along with notification on the display in the form of a failure code.
- Reset button to release a burner malfunction.
- An annual clock with 20 program blocks, clock program Mon-Fri, Tues-Fri, Sat-Son, daily or every day.
- Exceptional days, 20 program blocks, programmable by date, switching to daytime, eco or night-time temperature.
- 4 different operating modes (day, eco, night, frost).
- An overtime timer for switching to a different operating mode outside the switching times. Overtime timer freely adjustable from 15 min to 24 hours switching to daytime, eco or night-time temperature.
- Pin code protection to protect settings such as temperature, clock program, etc.
- Frost protection which automatically switches on the air heaters if the room temperature falls too far.
- Digital clock thermostat.
- Connection: bus system (2-wire).
- Dimensions: 129 x 129 x 20mm (lwxhxh)
- Weight: 188 grams.
- Protection class: IP30.
- Ambient temperature: 0-40°C.
- Temperature setting: 0 to 40°C per 0.5°C can be set
- Time display: 24 hours
- Summer/winter: adjustable automatic/off
- Languages can be set to Dutch, English, German, French, Polish or Romanian
- External sensor: option of measuring the temperature per unit or on the basis of an average value.

Can be used for:

- GS+
- G(C)+
- GSX

Accessories:

- External room sensor to be connected to the air heater. Order code 0629194
- Data cable 12,5 meter (3000600), 25 meter (3000601), 100 meter (3000602)

Mark PinTherm Mistral

WEB-BASED   **Order code: 0629110**

The PinTherm Mistral is a digital week clock room thermostat. The controller is suitable for controlling the Mark Mistral MDX, but also an air/water heat pump in combination with the Mark Tanner MDA+ air heater. The controller is equipped with an on/off contact and a 0-10 VDC output. The thermostat settings can be read and/or changed using Modbus or Ethernet. The thermostat can be linked to the BMS (building management system).

Specifications:

- Power: 230Vac / 50Hz
- Clock: 24 hour clock with automatic summer/winter time switching
- Switching programs: 3 switching programs a day
- Switching differential: 0,1 - 3K
- Dimensions: 166 x 160 x 106mm (lxwxh)
- Weight: 880 grams
- Protection class: IP54
- Installation environment:
 - Operational: -10°C until +60°C
 - Relative air humidity: 0-90% not condensating
- Switch contact(s):
 - Heating: 230Vac
 - Others: 230Vac
- Temperature setting: 0 until 39°C per 1°C adjustable
- Overtime timer: adjustable 1, 2 or 3 hours (060, 120, 180)
- Calibration: adjustable from -3.5°C until +3.5°C
- Heating/cooling:
 - Automatic changeover for heating or cooling.
 - 0-10 VDC output for heating or cooling
- Languages: NL/EN/DE/FR/PL/RO/LT
- Fuse: 6A

Can be used for:

- Mistral MDX
- Tanner MDA+

Accessories:

- External room temperature sensor
Order code: 0629086

CHRONOTHERM TOUCH
(Modulating thermostat)**Order code: 0629077**

A programmable, modulating clock thermostat for modulating boilers, that control according to the OpenTherm@-communication protocol, as Mark EcoFlex, PowerFlex, MegaFlex and MaxiFlex. Operation is extremely easy through the touch screen.

Specifications:

- Display: large touch screen with backlight.
- The touch screen display can be locked in whole or in part.
- Cleaning ability for the touch screen without changing the settings.
- Clock program: week program.
- Adjustable up to 6 periods per day.
- Possibility to program multiple days simultaneously.
- Possibility to program a day off, holiday period or shiftwork.
- Overtime timer easy to program.
- Automatic switching between summer/winter.
- Temperature range -4,5...+32 °C
- Control: modulating. Self-learning and optimizing.
- Weather-dependant control possible.
- Fitted with a permanent memory which stores all saved settings. Only temporary settings are not memorized.
- No battery power.

Can be used for:

- EcoFlex
- PowerFlex
- MegaFlex
- MaxiFlex

Destratificatieregeling RJ402
incl. PinTherm Connect***Order code: 3002660**

Automatic energy-saving system for continuous control of ECOFAN ceiling fans depending on the temperature difference. Incl. two room temperature sensors, 1. room sensor in the lounge area, 2. room sensor in the ceiling area.

Specifications:

- Power: 230Vac / 50Hz
- Own consumption: < 0,5W
- Permissible ambient temperature: 0° - 50°C
- Temperature range: 0° - 50°C
- Hysteresis: 2° - 35°C
- Output: Switch contact
- Maximum permissible continuous current: 5A AC1
- Temperature sensor: 10K S

Can be used for:

- Ecofan W (With EC and AC motor)
- Ecofan P

Room thermostat with speed control



Order code: 5997350

Programmable room thermostat for speed control of appliances with an EC motor.

Specifications:

- Power supply: 230V/50Hz, 230V/60Hz or 24V/60Hz
- Protection class: IP30.
- Room temperature adjustable from 0...40°C
- Transport / storage temperature: -10...+50°C
- Humidity limits: 20...80% RH (not condensing)
- Dimensions: 132 x 87 x 23,6 mm (wxhxd)
- Weight: 265 gram
- Plastic housing in RAL 9003
- Wall mounting

Can be used for:

- Tanner CLA
- Fan Coil

Surface contact thermostat



Order code: 0629180

Thermostat to start a water-supplied air heater, for example, when the water is at the required temperature.

Specifications:

- Temperature adjustable from 20...90°C per 5°C.
- Protection class IP40.
- Voltage free exchange contact.
- Switching power 24...230V~, 16(4)A, min. 150mA at 24V~.
- Ambient temperature -35...+65°C.
- Maximum sensor temperature 110°C.
- Dimensions 38 x 48 x 103mm.
- Process connection using the 220mm metal butterfly clips supplied.

Can be used for:

- Tanner MDA
- Tanner MDC
- Tanner MBA
- 5-position controller 230V
- High/low/off controller

Frost protection thermostat



Order code: 0629125

Thermostat to protect against the danger of frost. Equipped with a bulb sensor which is active over the entire length.

Specifications:

- Adjustment range from -10...+12°C.
- Switch differential 1K.
- Protection class IP40.
- Voltage free exchange contact.
- Switching power 24...230V~, 15(8)A, min. 150mA at 24V~.
- Ambient temperature -9...+55°C.
- Dimensions 105 x 112 x 55mm.
- Colour grey (RAL 7035).
- Copper capillary.
- Capillary filled with Solkane R134a.
- Capillary active across the entire length.
- Capillary length 1.8m.

Can be used for:

- Tanner MDA
- Tanner MDC
- 5-position controller 230V
- High/low/off controller

Digital time clock



Order code: 0633030

Digital time switch to switch installations on and off or to control temperature reductions for the night or over the weekend.

Specifications:

- Simple to use.
- 8 on/off cycles with 13 different day blocks, programmable by day or block of days.
- 4 different operating positions: manually on constantly, manually off constantly, adjustable countdown timer, automatic operation in accordance with timer switching programme.
- Integrated countdown timer.
- Suitable for wall installation or installation on DIN rail.
- Manual on/off.
- Rapid summer/winter time switching.
- Power reserve 72 hours.
- Dimensions 78.8 x 106 x 56mm.
- Protection degree IP20 in accordance with EN 60529.
- Operating voltage AC 230V -15...10%, 50/60Hz, 3.0VA.
- Relay contact Q AC24...240V, DC 24V, max. 6(3)A.

OJ user interface with touch panel



Order code: 0631374

User friendly control panel for commissioning and setting the daily operation of the Mark Aerflow. The control panel is very easy to use, thanks to the logical menu's, easy navigation and recognizable symbols.

Specifications:

- 3.5" color Touchscreen.
- Easy navigation through graphic interface.
- Connection and installation through Modbus.
- Mounting on the Aerflow or wall is possible.
- QuickPlug™ installation.
- All system parameters are visible to each user.
- Only authorised users can change the system parameters. Access to the control system can be granted for 3 different levels:
 - User
 - Installer
 - Service
- Voltage 24 V DC, ±15%
- Consumed current max 37,5 mA
- Modbus RS-485, 115 kBaud
- Modbus connection 2 x RJ12 6/6
- Max. cable length 50 m (in low EMC environment)
- Ambient temperature -10°C / +40°C
- Air humidity 0-95% (not condensing)
- Dimensions 80 x 121 x 42
- Modbus cable MPFK6S
- Density class IP21
- Weight 190 g

Can be used for:

- Aerflow

CO2 sensor



Order code: 0629165 (muurmontage)

Sensor that detects CO2 content in the air. The detection range of this CO2 sensor is calibrated for standard applications such as monitoring of residential rooms or conference rooms.

Specifications:

- Power supply 24 V AC/DC.
- Several measurement ranges possible: 0...2000ppm, 0...5000 ppm, 0...10000ppm.
- Output signal 0...10V.
- Measuring accuracy: +/- 70ppm plus 5% of measured value.
- Pressure dependence: +/- 1,6% / kPa.
- Warm-up time: approximately 1 hour.
- Ambient temperature: 0...50°C
- Reaction time: approximately 1 minute.
- Electrical connection: 0,14 - 1,5 mm².
- Plastic enclosure (RAL 9010).
- Dimensions 98 x 106 x 32 mm.

Can be used for:

- Aerflow

5-position transformer regulator 230V



- Order code: 6A 0616186 - IP54**
6A 3003096 - IP54 (Ecofan W142)
12A 0616188 - IP21
12A 3003097 - IP21 (Ecofan W142)
14A 0616189 - IP54
14A 3003098 - IP54 (Ecofan W142)

Regulator to regulate the speed of 1~230V voltage adjustable fan motors.

Specifications:

- Option to connect several fans with the maximum connection current.
- Protection class IP54/IP21.
- Selector to switch the fan to 6 positions, including off.
- Green operating lamp.
- Option to connect a room and/or construction thermostat.
- Option to control an air valve for example via a co-switching contact (max 2A).
- Motor protection via thermo contacts (not for PTC thermister). The regulator switches off automatically in the case of overload.

Can be used for:

- Tanner MDA (230V)
- MDV Blue (230V)
- Ecofan W
- Ecofan P (6A)

5-position transformer regulator 400V



- Order code: 2A 0616162 - IP54**
4A 0616164 - IP21
7A 0616166 - IP21

Regulator to regulate the speed of 3~400V voltage adjustable fan motors.

Specifications:

- Option to connect several fans with the maximum connection current.
- Protection class IP54/IP21.
- Selector to switch the fan to 6 positions, including off.
- Green operating lamp.
- Option to connect a room and/or construction thermostat.
- Option to control an air valve for example via a co-switching contact (max 2A).
- Motor protection via thermo contacts (not for PTC thermister). The regulator switches off automatically in the case of overload.

Can be used for:

- Tanner MDA (400V)
- MDV Blue (400V)
- Easyair T200

High/low/off regulator 400V



- Order code: 10A 0616170**

Regulator to manually switch 3~400V fan motors in Y/Δ to high/low.

Specifications:

- Option to connect several fans with the maximum connection current.
- Protection class IP54.
- A selector to switch the fan to high, low and off.
- A green operating lamp.
- The option to connect a room and/or construction thermostat.
- The option to control an air valve for example via a co-switching contact (max 2A).
- Motor protection via thermo contacts (not for PTC thermister). The regulator switches off automatically in the case of overload.

Can be used for:

- Tanner MDA (400V)
- Easyair T200

HMI-EC Controller



Order code: 0699150

The HMI-EC controller is an electronic controller with an LCD screen especially for the range of EASYAIR air curtains. The controller manages the performance of an air curtain by means of fan revolutions and control of the air heating capacity.

The HMI-EC is equipped with a Modbus RTU port that supports communication with BMS systems. The controller is suitable for all types of EASYAIR air curtains.

Specifications:

- Power supply: 1*90-240 VAC 50/60 Hz
- Type of temperature sensor NTC, 10 kΩ @ 25 °C
- Temperature setting: 0 °C...50 °C
- Precision temperature measurement: ±0.5 °C
- Relative humidity: 10-90% with no condensation
- Protection class: IP20
- Dimensions: 86 x 86 x 48 mm
- Weight: 150 gr

Can be used for:

- Easyair

3-position selector
MDC 230V

Order code: 0631175

Selector to switch the fan on the MDC 230V to 3 positions.

Can be used for:

- Tanner MDC (230V)
 - In combination with MDC 230V motor control
- Order code: 3003500

Speed controller



Order code: 0616040

Controller P140 for max. 9x Ecofan P140 ceiling fans.

Specifications:

- On/off button
- Selector to switch the fan to 10 different positions, from low to high.
- Power supply: 230/1 Ph/50Hz
- Max amperage: 3 A
- Up to max. 9x Ecofan P ceiling fans
- Up to max. 2x Ecofan W42 / 1x W82
- Ambient temperature: 0-40 °C
- Dimensions surface mounting: 108x108x60 (lxwxh)
- Dimensions flush mounting: 108x108x55 (lxwxh)

Can be used for:

- Ecofan P140
- Ecofan W42 / W82

WEB MODULE



WEB-BASED 

Order code: 0629187 (Temporarily unavailable)

Module for remote control and reading out an Optitherm+ thermostat by means of an app for mobile phone and tablet. The Optitherm+ is suitable for GS+/GSX/GC+ air heaters.
A WiFi bridge (0629186) can be added to create a wireless connection.

You need a separate Optitherm+ and Web module for each unit that you want to read out via the app. When using one Web module, only the fault messages and history of the first unit can be read via the app. It is possible to control multiple unit with one Web module via the app.

Can be used for:

- Optitherm+ (0629185)
- GS+
- GSX
- GC+

INTERFACE+



Order code: 3002866

An Interface+ can be used in two ways.

1. Power control: An externally supplied 0-10VDC signal is converted into a power control of the burner. With an Interface+ module, one G(S)+ can be controlled.

- Potential free entry: Reset
- Potential free exits: Malfunction
Operation

2. Connection BMS (building management system): Settings, actual temperatures and fault codes can be read using Modbus. Settings of the OptiTherm+ can be modified.

Specifications:

- Wiring: Shielded data cable (between Interface+ and air heater)
- Dimensions: 109x154x49 mm (lwxh)
- Weight: 498 grams
- Degree of protection: IP20
- Ambient temperature: 0-40°C

Can be used for:

- GS+
- G(C)+
- GSX

Pressure sensor



Order code: 3004561 (230V)
3004560 (400V)

To control an EC-fan based on pressure.

Specifications:

- Measuring range: 0-2500Pa
- Accuracy: 0,5% * measured value \pm 2,5Pa
- Maximum pressure: 20kPa
- Dimensions: 91x75x38mm (wxhxd)
- Ambient temperature:
-20 / +40°C (operation)
0 / +50°C (display)
- Humidity environment: 10-95 %RH
- Protection class: IP54
- Weight: 110 grams
- Output: 0-10Vdc, 2-10Vdc, 0-20mA, 4-20mA*

Can be used for:

- MDV Blue EC

Potentiometer with on/off contact



Order code: 0631390

To variable control the MDV Blue EC fan through a 0-10V signal.

Specifications:

- Type: 10K
- Resistance: 10kOhm (-20% / +20%)
- Contact load: 1A 230Vac
- Ambient temperature: 35°C
- Protection class: IP54 built-on, IP44 built-in
- Weight: 145 grams
- Color: RAL 9010
- Housing: Plastic ASA
- Mounting: built-in or built-on

Can be used for:

- MDV Blue EC
- Tanner MDA EC
- LDA Swirl
- Ecofan W EC

Multi-functional controller 230V with integrated display



Order code: 0629400

Controller to control MDV Blue fans on the basis of temperature and CO2, constant flow, constant pressure, constant humidity, constant CO2, CO2 and temperature.

Specifications:

- Power supply: 230Vac \pm 10%
- Protection class: IP40
- Dimensions (wxhxd): 87x87x42mm
- Modbus: RS485 connection (slave)
- Temperature range: 0-50°C
- Languages: English, German, Danish and Swedish
- Easy to operate
- Contrast adjustable
- Menu password protection is possible
- Output: 0-10V
- Relay contact: NO 250Vac 5.0A-AC1
- With overtime timer adjustable 0-240min
- Suitable to connect a presence sensor, temperature sensor, CO2 sensor, humidity sensor and pressure sensor.
- Equipped with a switch with weekly program up to 10 blocks per day
- Weight: 160 grams

Can be used for:

- MDV Blue AC
- MDV Blue EC

Room presence sensor for multi-functional controller



Order code: 0629414

PIR presence sensor for mounting on the wall.

Specifications:

- Dimensions (wxhxd): 85x85x33mm
- Angle: 90°
- Distance: 5 meter
- Switch-off delay: 15 sec. not adjustable
- Protection class: IP20
- Temperature range: +10 / +30°C
- The sensor measures the temperature changes to a limited distance from the front of the sensor.
- Weight: 74 grams

Can be used for:

- MDV Blue AC
- MDV Blue EC

Room temperature sensor ip20 for the multi-functional controller



Order code: 0629410

22K ohm NTC room temperature sensor for wall mounting in IP20 housing.

Specifications:

- Dimensions (wxhxd): 85x85x33mm
- Temperature range: -20 / +40°C
- Accuracy: ±1°C
- Protection class: IP20, humid rooms area 3
- Sensor type: NTC 22K 2%
- Mounting: Wall mounting
- Weight: 88 grams

Can be used for:

- MDV Blue AC
- MDV Blue EC

Temperature sensor IP54 for the multi-functional controller



Order code: 0629411

22K ohm NTC external room temperature sensor in IP54 housing.

Specifications:

- Dimensions (wxhxd): 80x80x55mm
- Temperature range: -40 / +60°C
- Accuracy: 2°C full range
- Protection class: IP54
- Sensor type: NTC 22K 2%
- Mounting: Wall mounting
- Weight: 152 grams
- Storage temperature: -40 / +80°C

Can be used for:

- MDV Blue AC
- MDV Blue EC

Room co2 sensor for the multi-functional controller

Order code: 0629412
Room humidity sensor for the multi-functional controller

Order code: 0629413
Active pressure & flow sensor with display

Order code: 3004506

To measure the CO₂ in a room.

Specifications:

- Dimensions (wxhxd): 85x85x33mm
- Measuring range: 0-2000 ppm
- Accuracy: ±50ppm per 500ppm
- Protection class: IP21
- Mounting: Wall mounting
- Weight: 94 grams
- Operating temperature: +10 / +60°C
- Output: proportional 0-10V 15mA

Can be used for:

- MDV Blue AC
- MDV Blue EC

To measure the temperature and/or the relative humidity in a room.

Specifications:

- Dimensions (wxhxd): 85x85x33mm
- Room temperature: 0 / +60°C
- Accuracy temp.: 0-10V = 0-50°C (max5mA)
- Accuracy temp.: ±1°C
- Humidity output: 0-10V = 0-100%RH (max 5mA)
- Accuracy humidity: ±5% RH (10-90% RH)
- Protection class: IP20, humid rooms area 3
- Sensor type: NTC 22K 2%
- Mounting type: Wall mounting
- Weight: 88 grams

Can be used for:

- MDV Blue AC
- MDV Blue EC

Pressure sensor to monitor and control based on pressure difference or flow.

Specifications:

- Measuring range: 0-2500Pa
- Accuracy: -20/+40°C ±3 % (> 350 Pa), ±10 Pa (< 350 Pa)
- Maximum pressure: 20kPa
- Dimensions: 91x75x36mm (wxhxd)
- Room temperature: -20 / +40°C (operation)
0 / +50°C (display)
- Protection class: IP54
- Weight: 110g
- Output: 0-10Vdc, 2-10Vdc, 0-20mA, 4-20mA
- K-factor: 0.1 to 9999 m³/h can be modified to l/s.
- Supply 24Vac ±15%, 50/60 Hz, 3.5-28Vdc
- Setting pressure range: -50/+50 Pa, 0/100 Pa, 0/150 Pa, 0/300Pa, 0/500 Pa, 0/1000 Pa, 0/1600 Pa, 0/2500 Pa
- Setting flow range: 100 m³/h, 300 m³/h, 500 m³/h, 1000 m³/h, 3000 m³/h, 5000 m³/h, 9999 m³/h, 30.00 m³/h x 1000, 50.00 m³/h x 1000, 99.99 m³/h x 1000

Can be used for:

- MDV Blue EC
- Aerflow

W9 G+



Order code:	W9-1	GS+	3004401
	W9-2	GS+	3004402
	W9-3	GS+	3004403
	W9-4	GS+	3004404
	W9-5	GS+	3004405
	W9-6	GS+	3004406

Switchbox for modulating regulation of 1 or more modulating air heaters based on room temperature.

Specifications:

- Steel box with cylinder lock
- One 230V power supply group per device with a switchbox for several devices.
- Digital time switch with weekly programme.
- Day and night temperature regulator.
- Holiday switch to operate devices at the night-time temperature over longer periods.
- Overtime timer adjustable from midnight to 6.0 a.m.
- Selector per device for "heat / off / ventilate".
- Illuminated reset button per device to indicate and reset a burner trip
- A room temperature sensor supplied separately.

Can be used for:

- GS+
- GC+

C10



Order code: 3004231

Switchbox for controlling a Calflo with on/off fan based on room temperature with minimum inlet temperature restriction.

Specifications:

- Steel box with cylinder lock
- Regulator for the room temperature and minimum inlet temperature restriction using 2-10Vdc control signal.
- Selector for heat/off/ventilate.
- Failure lamps for:
 - Burner failure
 - Intake air failure
 - Burner fan thermally off
 - Maximum failure
 - Dirty filter
- Operating lamps for:
 - Burner on
 - Burner in operation
 - Release of control
- Reset button to reset a burner failure.
- Voltage free contact to operate extraction (24Vmax).
- Voltage free contact (supply to third parties) to check whether extraction is operating.
- A room temperature sensor supplied separately.
- A duct temperature sensor supplied separately for the minimum inlet temperature restriction.

Can be used for:

- Calflo on/off model

C12



Order code: 3004233

Switchbox for controlling a Calflo with on/off fan based on room temperature with minimum inlet temperature restriction.

Specifications:

- Steel box with cylinder lock
- Regulator for the room temperature and minimum inlet temperature restriction using 2-10Vdc control signal.
- Selector for heat / off / ventilate.
- Digital time switch with weekly programme.
- Holiday switch to allow devices to operate at the night-time temperature over longer periods.
- Overtime timer adjustable from midnight to 6.00 a.m.
- Failure lamps for:
 - Burner failure
 - Intake air failure
 - Burner fan thermally off
 - Maximum/gas pressure failure
 - Dirty filter failure
- Operating lamps for:
 - Burner on
 - Burner in operation
 - Supply fan on
 - Release control
- Reset button to reset a burner failure.
- Voltage free contact to operate extraction (24Vmax).
- Voltage free contact (supply to third parties) to check whether extraction is operating.
- A room temperature sensor supplied separately.
- A duct temperature sensor supplied separately for the minimum inlet temperature restriction.

Can be used for:

- Calflo on/off model

C20

**Order code: 3004241**

Switchbox for controlling a Calflo with high/low fan based on room temperature with minimum inlet temperature restriction.

Specifications:

- Steel box with cylinder lock
- Regulator for the room temperature and minimum inlet temperature restriction using 2-10Vdc control signal.
- Selector for heat / off / ventilate.
- High/low selector supply fan selector.
- Failure lamps for:
 - Burner failure
 - Intake air failure
 - Burner fan thermally off
 - Maximum/gas pressure failure
 - Dirty filter
- Operating lamps for:
 - Burner on
 - Burner in operation
 - Supply fan low
 - Supply fan high
 - Release control
- Reset button to reset a burner failure.
- Voltage free contact to start extraction (24V max).
- Voltage free contact to switch extraction to high (24V max).
- Voltage free contact (supply to third parties) to check whether extraction is operating at low.
- Voltage free contact (supply to third parties) to check whether extraction is operating at high.
- A room temperature sensor supplied separately.
- A duct temperature sensor supplied separately for the minimum inlet temperature restriction.

Can be used for:

- Calflo high/low model

C22

**Order code: 3004243**

Switchbox for controlling a Calflo with high/low fan based on room temperature with minimum inlet temperature restriction. With day/night temperature monitoring.

Specifications:

- Steel box with cylinder lock.
- Regulator for the room temperature and minimum inlet temperature restriction using 2-10Vdc control signal.
- Selector for heat / off / ventilate.
- High/low selector supply fan selector.
- Digital time switch with weekly programme.
- A holiday switch to allow the device to be operated at the night-time temperature over longer periods.
- A digital timer (0-6 hours) to switch to the daytime mode temporarily outside the clock programme.
- Failure lamps to indicate:
 - Burner failure
 - Intake air failure
 - Burner fan thermally off
 - Maximum failure
 - Dirty filter
- Operating lamps to indicate:
 - Burner on
 - Burner in operation
 - Supply fan low
 - Supply fan high
 - Release control
- Reset button to reset a burner failure.
- Voltage free contact to start extraction (24V max).
- Voltage free contact to switch extraction to high (24V max).
- Voltage free contact (supply to third parties) to check whether extraction is operating at low.
- Voltage free contact (supply to third parties) to check whether extraction is operating at high.
- A room temperature sensor supplied separately.
- A duct temperature sensor supplied separately for the minimum inlet temperature restriction.

Can be used for:

- Calflo high/low model

**MDC 230V motor control
up to 3.0kW**



Order code: 3003500

To be able to switch the 1~230V fan on the MDC. Plus the option to connect an external room thermostat and a 3-position selector for the fan.

Specifications:

- Steel box.
- Solenoid switch to control the fan.
- Connecting terminals for external room thermostat.
- Connecting terminals for external 3-position selector.

Can be used for:

- Tanner MDC (230V)

MDC 400V motor control



Order code: 3003502 (1,1 kW)

3003503 (1,5 kW)

3003504 (2,2 kW)

3003505 (3,0 kW)

To control the 3~400V fan on the MDC. Plus the option to connect an external room thermostat.

Specifications:

- Steel box.
- Solenoid switch to control the fan.
- Connecting terminals for an external room thermostat.

Can be used for:

- Tanner MDC (400V)



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