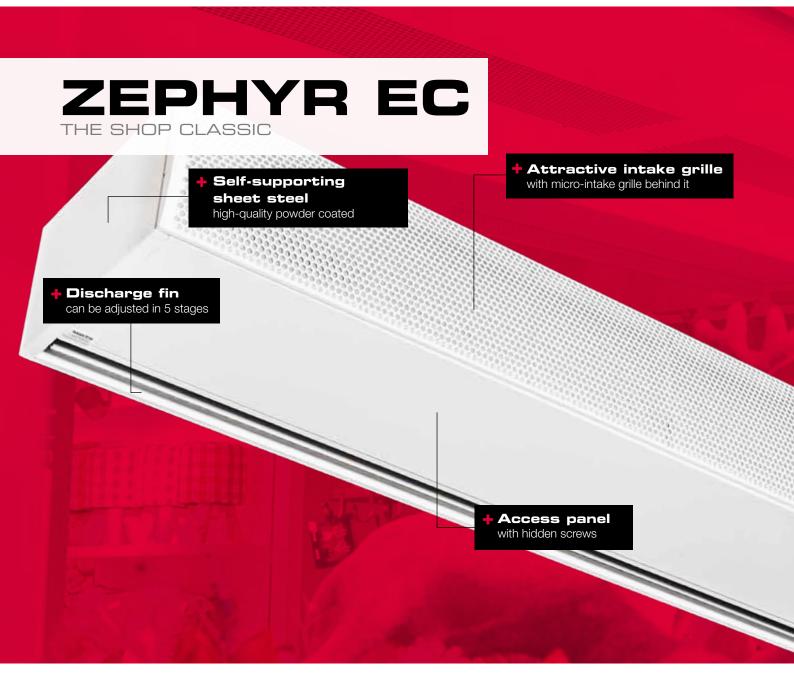




# ZEPHYR EC

INDIVIDUAL INNOVATIVE ENERGY-SAVING





#### **Applications**

Zephyr EC is the classic model for use in shops. Installation-ready unit which can be used for many applications, with 4 installation variants. Free-hanging, flush with the ceiling as a cassette, installation in suspended ceilings with sliding supports, and, on request also available as a floor-mounted vertical unit.

#### The housing

Self-supporting sheet steel. Screws are not visible. High-quality powder coating, RAL 9016 as standard (traffic white). Other colours are available. Access panel hidden behind the intake grille. Aerodynamically-optimised aluminium discharge fin (naturally anodised), flush with the underside of the unit and adjustable in 5 stages. Perforated metal intake grille (same colour as the unit) with micro grille behind it as an intake filter.

#### Heating media

#### Heat exchangers for different heating media

LPHW – for normal temperature LPHW 70/50°C and low-temperature LPHW 60/40°C, other temperatures available on request. DX – DX register soldered under nitrogen for operation with heat pumps. High-quality heat exchanger made from copper tubes, with pressed-on, extra-strong aluminium fins. ELECTRO: Series M: Ceramic 400V PTC elements Series L: 3-stage heat exchanger 400V, spiral form, corrosion resistant, with thermal overheating protection and switch-off delav.

#### Maintenance

Easy to clean (micro grille) without opening the unit by simply vacuuming the intake grille. Discreet secured access panel hidden on the lower side of the unit (hinges on one side) – easy to open.



# Advantages at a glance

- + Made in Germany
- + ErP conform / EC fans
- + Certified by TÜV-Süd
- Robust, self-supporting sheet steel
- + Individual colours available
- + 4 installation variants
- + Individual unit lengths up to 3000 mm
- + Service friendly thanks to filterless micro-intake grille
- Simple to install
- Aerodynamically optimised discharge fin
- + Different heating media possible

#### EC fans

The efficiency of the EC fans used by TEKADOOR is > 90% under partial load operation. This is 30–35% higher than for conventional AC fans. This does not just increase the efficiency, but also reduces the operating costs. The individually-driven EC fans with integrated motor protection can intake air in both directions. They have vibration-free bearings and are controlled by a PWM signal (pulse width modulation) – and for the DX with 0-10 V. They do not just comply with Directive ErP, but actually exceed this standard.

#### Mounting

Simple mounting thanks to the rivet nuts (M8) incorporated on the upper side of the unit and optionally-available assembly materials. In the standard version, the unit does not need to be opened for electrical connection. Connection terminals for the voltage supply, as well as the connectors for the control unit and parallel operation can be accessed from the outside.

#### Control

# Electronic TEKADOOR GTC EC control unit, multifunctional with touch display, including an optional ModBus interface

A GTC 1 EC control unit is used as standard for models with LPHW heating. A GTC E EC or a GTC PTC EC control unit is used for models with electrical heating. The units come with 20 m preassembled and shielded data cable. The GTC 1 EC 5-stage control unit includes the ability to switch from manual to automatic and from summer mode to winter mode as standard. A solenoid valve of up to 2.5 A can be connected as an option for the winter mode. With the standard GTC E EC control unit, the airflow can be selected manually in 5 stages and the heating capacity – depending on the fan level – can be selected manually in 3 stages. The GTC PTC EC control unit for PTC heating elements switches the heating level automatically to the preselected fan level. Each control unit includes a manual to automatic mode switch and a potential-free contact for enabling via any on-site BMS or BEMS. A choice of 5-stage or stepless fan operation is offered as standard.

3

A maximum of 10 units can be connected in parallel.



#### Connections

Heating connections – flow and return - on top of the unit as standard for easy connection to the on-site heating system. Optionally, the connections can also be to move - top right or side

#### Connection box (LPHW)

Simple electrical connection via connection box (voltage supply 230V/50Hz on the top of the unit); Optionally, the connections can also be to move

#### **Exception:**

Electrical units with a heating capacity greater than 22,5 kW.





#### Data cable connection/interface

Simple, standard plug and play connection of the data cable and an optional solenoid valve on the top side of the unit. The connection can be offset on request.

#### Control:

Input for the data cable to the control unit.

#### Auxiliary:

Output for parallel operation with other units.

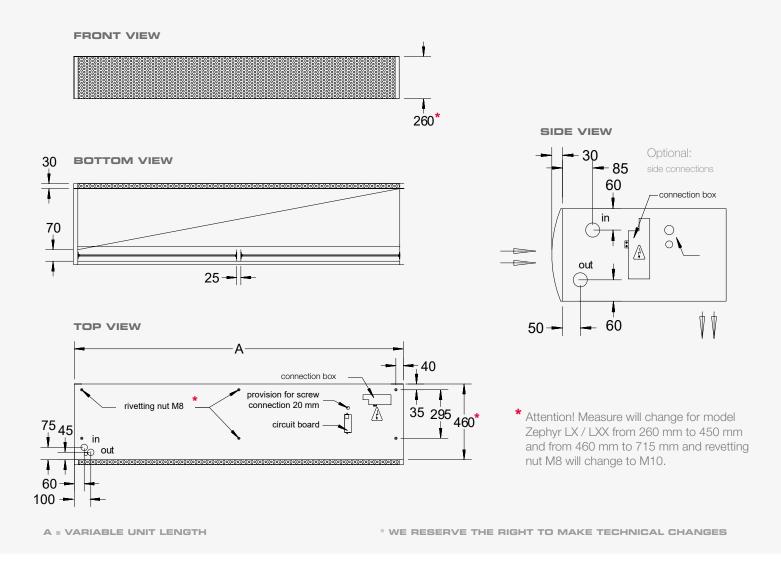
#### Discharge fin

The shielding performance of the door air curtain system is optimised by adjusting the discharge fin. The fin can be adjusted in 5 stages. During the heating period, the discharge fin should be tilted outwards by 10 to 15 degrees to prevent cold air coming in from the outside. In contrast, during operation in the summer, the fin is tilted inwards, so that the cooled indoor air cannot escape.



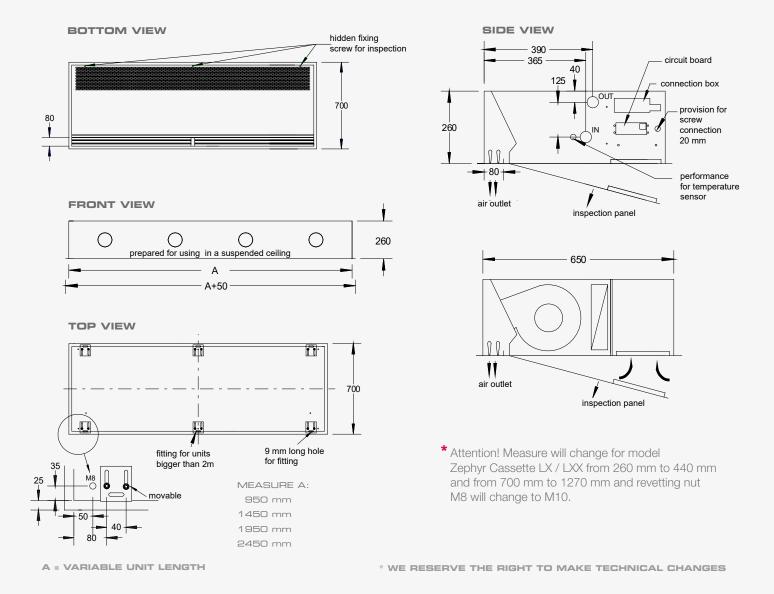


# Free-hanging



Connection-ready free-hanging door air curtain unit for visible installation directly above the door. Ambient air intake is at the front, on the room side.

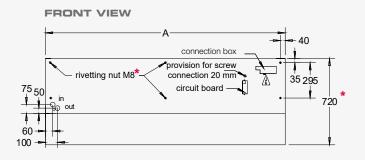
### Cassette



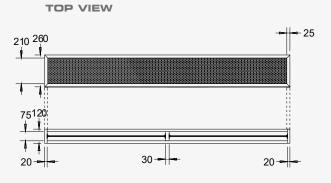
Connection-ready door air curtain unit with integrated intake chamber on the underside and surrounding frame for installation flush with the ceiling. Ambient air intake is from the underside, on the room side. Freely accessible maintenance panel.



# Suspended ceiling unit

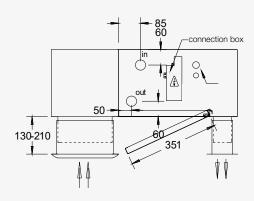






#### SIDE VIEW

Optional: side connection



\* Attention! Measure will change for model Zephyr LX / LXX from 260 mm to 580 mm and from 720 mm to 1100 mm and revetting nut M8 will change to M10.

A = VARIABLE UNIT LENGTH

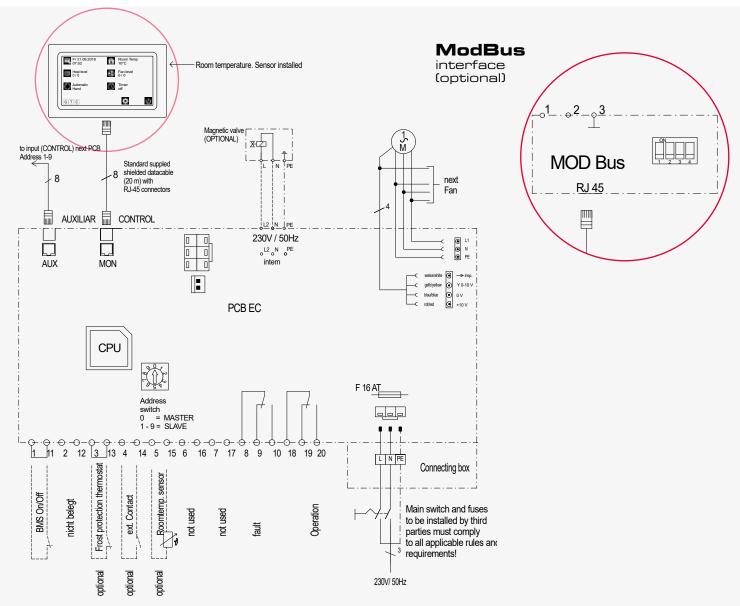
\* WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES

Connection-ready door air curtain unit with integrated intake chamber on the underside. Intake and discharge sliding supports for installation in a suspended ceiling. Only the intake and discharge grilles are visible from below. Ambient air intake is from the underside, on the room side.

CAUTION: The maintenance panel is on the underside of the unit. Therefore, it is essential that the suspended ceiling in which the unit is installed can be disassembled.

## ZEPHYR EC

STANDARD CIRCUIT DIAGRAM FOR LPHW (PUMPED WARM WATER)



WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES

# From 62 2019 GO 24 GO 24 GO 25 GO

#### **CONTROL UNIT GTC 1 EC**

Multilingual, menu-driven electronic control unit for TEKADOOR air curtains with LPHW heating and energy-saving EC fans. A standard feature of the control unit with touch display is a choice between 5-stage or stageless fan control, which can be selected individually by the operator. The relevant operating modes and symbols are arranged clearly on the colour display. The date, time and room temperature are shown as standard. The room temperature is monitored via an internal temperature sensor in the control unit as standard.

An easy-to-navigate menu offers a selection of different operating modes:

Hand – manual operation

Auto AS – automatic operation via cool down protection

Auto RT – automatic operation via room temperature

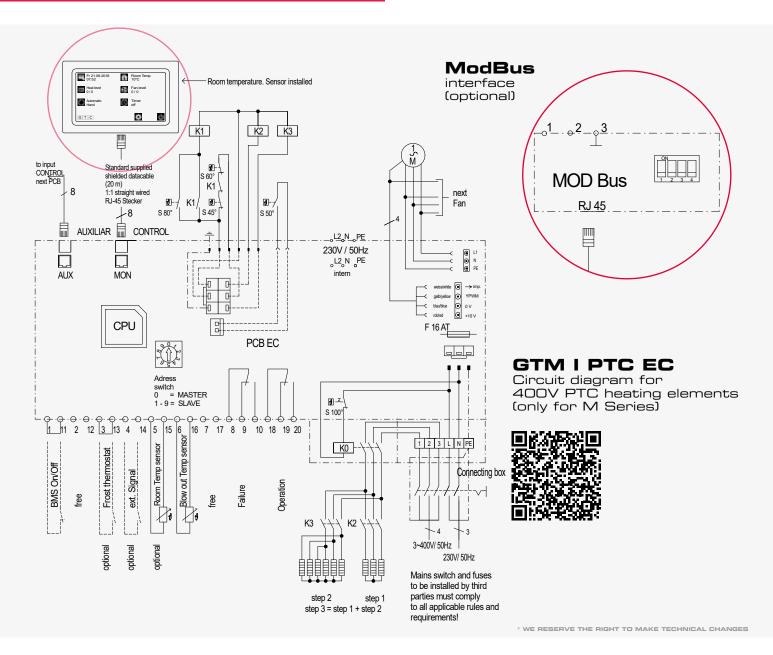
Auto TK – automatic operation via door contact

Auto Kombi – option to combine all individual automatic modes

An enabling contact and potential-free operation and malfunction signals are provided for control via an on-site BMS or BEMS. Errors and faults are displayed with a red "warning" sign. By coding the control boards differently, up to 10 door air curtains can also be operated in parallel with 1 control unit, using the Master/Slave principle. The control board is preinstalled in the door air curtain unit and 20 m of preassembled data cable (connection between the door air curtain and control unit) are included as standard.

# ZEPHYR E EC CIRCUIT DIAGRAM FOR ELECTRICAL HEAT EXCHANGER





#### **CONTROL UNIT GTC E EC**

Multilingual, menu-driven electronic control unit for TEKADOOR air curtains with LPHW heating and energy-saving EC fans. 5-stage fan operation or stageless fan control – easy to adjust on the control unit using the touch display. The electric heater can be activated in 3 stages. The relevant operating modes and symbols are arranged clearly on the colour display. The date, time and room temperature are shown as standard. The room temperature is monitored via an internal temperature sensor in the control unit as standard.

An easy-to-navigate menu offers a selection of different operating modes:

Hand – manual operation

**E3** 

WHAT THE

Auto AS – automatic operation via cool down protection

Auto RT – automatic operation via room temperature

Auto TK – automatic operation via door contact

Auto AT – automatic operation via constant discharge temperature

Auto Kombi – option to combine all individual automatic modes

An enabling contact and potential-free operation and malfunction signals are provided for control via an on-site BMS or BEMS. A constant discharge temperature can be set via an optional cable temperature sensor. This enables optimisation of the shielding performance. A week timer is incorporated as standard, enabling up to 12 different switching times to be programmed per week. Errors and faults are displayed with a red "warning" sign. By coding the control boards differently, up to 10 door air curtains can also be operated in parallel with 1 control unit, using the Master/Slave principle. The control board is preinstalled in the door air curtain unit and 20 m of preassembled data cable (connection between the door air curtain and control unit) are included as standard.

# ZEPHYR EC OPTIONAL ACCESSORIES



# Thermostatic straight-way valve

(Setting range + 20 °C to + 35 °C) limits the discharge temperature (constant supply air temperature limitation). Also available as a 3-way valve.

#### Solenoid valve

Opens or closes the warm water circuit in the summer/winter setting of the control unit, in order to close the heating water circuit and save energy during summer operation or when the air curtain is not working (normally closed). **Caution:** If solenoid valves are used, it is expressly recommended to install a frost protection thermostat (automatically actuated) and a strainer.

## Thermo-electric shut-off valve

230 V / 50 Hz, normally closed. On-site installation in the heating flow. Actuated by the summer/ winter circuit. Summer function – closed. Winter function – opened.

# Ceiling attachment set

For problem-free, vibration free ceiling attachment, consisting of M8 or M10 threaded rods, up to 1000 mm length, vibration dampers, turnbuckles and counter nuts.





# Frost protection thermostat

For monitoring LPHW heat exchangers exposed to the risk of frost. As soon as the temperature falls below +7 °C, the fans are switched off and an optional solenoid valve is opened.

#### Control unit GTC 2 EC

Possibility of combination of various automatic operations. A constant discharge temperature can be set via an optional electronic control valve, and a week timer is incorporated as standard, enabling up to 12 different switching times to be programmed per week.

# Electronic control valve

Electronic valve with 0-10V impulse and blow-out temperature sensor completely installed and wired. In combination with the GTC 2 control, a preselected blow-out temperature is kept constant.

## Door contact solenoid switch

In automatic mode switches on the door air curtain in the preselected stage

# ZEPHYR EC M

TECHNICAL DATA FREE HANGING / CASSETTE SUS-PENDED CEILING

#### Design based on:

recommended operating point Intake temperature tLE = +20 °C Discharge temperature tLA = +34 °C Discharge height = up to 2.70 m

Model			M 1	M 1.5	M 2	M 2.5	М 3
Air quantity max:		m³/h	1800	2700	3600	4500	6300
Heating capacity rated <sup>1</sup>	LPHW 70 / 50 °C LPHW 60 / 40 °C	kW kW	8.5 8.5	12.7 12.7	17.0 17.0	21.2 21.2	29.7 29.7
Flow rate	LPHW 70 / 50 °C LPHW 60 / 40 °C	m³/h m³/h	0.37 0.37	0.56 0.55	0.75 0.74	0.93 0.92	1.30 1.29
Water resistance	LPHW 70 / 50 °C LPHW 60 / 40 °C	kPa kPa	0.5 3.8	5.7 7.0	2.4 4.5	3.2 3.2	5.6 5.6
Nominal connection sizes	Internal thread Flow/return	Inches DN	2 x 3/4" 20	2 x 3/4" 20	2 x 3/4" 20	2 x 3/4" 20	2 x 3/4" 20
EC fans	Voltage Frequency Max. current consumption Max. motor power	V Hz A kW	2.1		1 / N / PE 50 4.1 0.6	5.1 0.8	7.2 0.9
400 V PTC Electric heater	Voltage Frequency Heating capacity	V Hz kW	7		3 / N / PE 50 14	17,5	on request
Sound pressure level <sup>2</sup>	Highest setting	dB (A)	58	59	60	61	62
Drawing dimension	Unit length (A) Unit height <sup>3</sup> Unit depth <sup>4</sup>	mm mm	1000 260 490	1500 260 490	2000 260 490	2500 260 490	3000 260 490
Weight	Zephyr Cassette Zephyr-Z	kg kg kg	45 52 62	60 70 85	75 88 107	80 97 122	100 120 149

\* WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES

<sup>1.</sup> Rated operation based on operating point (see above), discharge temperature control recommended.

<sup>2.</sup> measured at a lateral distance of 3 m. Sound pressure level may very depending on surrounding conditions.

<sup>3.</sup> For the Zephyr Z (suspended ceiling version), this dimension changes to 390–470 mm.

<sup>4.</sup> For the Zephyr Z this dimension changes to 720 mm and to 700 mm for the cassette (ceiling-flush version).

# ZEPHYR EC L TECHNICAL DATA FREE HANGING / SUSPENDED CEILING



#### Design based on:

recommended operating point Intake temperature tLE = +20 °C Discharge temperature tLA = +34 °C Discharge height = up to 3.00 m

Model			L1	L 1.5	L 2	L 2.5	L 3	
Air quantity max: m³/h		2700	3600	5400	6300	7200		
Heating capacity rated <sup>1</sup>	LPHW 70 / 50 °C LPHW 60 / 40 °C	kW kW	12.7 12.7	17.0 17.0	25.5 25.5	29.7 29.7	34.0 34.0	
Flow rate	LPHW 70 / 50 °C LPHW 60 / 40 °C	m³/h m³/h	0.56 0.55	0.75 0.74	1.11 1.11	1.31 1.29	1.49 1.48	
Water resistance	LPHW 70 / 50 °C LPHW 60 / 40 °C	kPa kPa	0.8 1.7	2.8 3.7	3.7 4.2	5.2 6.1	7.2 7.2	
Nominal connection sizes	Internal thread Flow/return	Inches DN	2 x 3/4" 20	2 x 3/4" 20	2 x 3/4" 20	2 x 3/4" 20	2 x 3/4" 20	
EC fans	Voltage Frequency Max. current consumption Max. motor power	V Hz A kW	3.1	230 / 1 5 4.1 0.6		7.2 1.1	8.2 1.2	
Electric heater 3-stage	Voltage Frequency Heating capacity	V Hz kW	400 / 3 / N / PE 50 5//10/15 7,5/15/22,5 10/20/30 10,7/21,4/32 10,7/2					
Sound pressure level <sup>2</sup>	Highest setting	dB (A)	60	61	62	63	64	
Drawing dimension	Unit length (A) Unit height <sup>3</sup> Unit depth <sup>4</sup>	mm mm	1000 260 490	1500 260 490	2000 260 490	2500 260 490	3000 260 490	
Weight	Zephyr Cassette Zephyr-Z	kg kg kg	50 57 67	65 75 90	80 93 112	105 122 147	125 145 174	

\* WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES

<sup>1.</sup> Rated operation based on operating point (see above), discharge temperature control recommended.

<sup>2.</sup> measured at a lateral distance of 3 m. Sound pressure level may very depending on surrounding conditions.

<sup>3.</sup> For the Zephyr Z (suspended ceiling version), this dimension changes to 390–470 mm.

<sup>4.</sup> For the Zephyr Z this dimension changes to 720 mm and to 700 mm for the cassette (ceiling-flush version).

# ZEPHYR EC LX

FREE HANGING / SUSPENDED CEILING

#### Design based on:

recommended operating point Intake temperature tLE = +20 °C Discharge temperature tLA = +34 °C Discharge height = up to 3.20 m

Model			LX 1	LX 1.5	LX 2	LX 2.5	LX 3
Air quantity max:		m³/h	4500	5100	7300	9800	12000
Heating capacity rated <sup>1</sup>	LPHW 70 / 50 °C LPHW 60 / 40 °C	kW kW	21.2 21.2	24.0 24.0	34.4 34.4	46.2 46.2	56.6 56.6
Flow rate	LPHW 70 / 50 °C LPHW 60 / 40 °C	m³/h m³/h	0.93 0.92	1.05 1.05	4.51 1.50	2.02 2.01	2.48 2.47
Water resistance	LPHW 70 / 50 °C LPHW 60 / 40 °C	kPa kPa	4.5 3.2	4.1 4.1	9.1 3.7	4.4 4.5	6.9 7.0
Nominal connection sizes	Internal thread Flow/return	Inches DN	2 x 1" 25	2 x 1" 25	2 x 1" 25	2 x 1" 25	2 x 1" 25
EC fans	Voltage Frequency Max. current consumption Max. motor power	V Hz A kW	6.0		/ N / PE 50 9.1 2.1	12.1 2.7	15.0 3.5
Sound pressure level <sup>2</sup>	Highest setting	dB (A)	64	63	64	65	67
Drawing dimension	Unit length (A) Unit height <sup>3</sup> Unit depth <sup>4</sup>	mm mm	1000 450 715	1500 450 715	2000 450 715	2500 450 715	3000 450 715
Weight	Zephyr Cassette Zephyr-Z	kg kg kg	85 97 102	105 123 130	145 168 177	180 213 222	225 260 274

<sup>\*</sup> WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES

<sup>1.</sup> Rated operation based on operating point (see above), discharge temperature control recommended.

<sup>2.</sup> measured at a lateral distance of 3 m. Sound pressure level may very depending on surrounding conditions.

<sup>3.</sup> For the Zephyr Z-LX/LXX (suspended ceiling version), this dimension changes to 580-680 mm.

<sup>4.</sup> For the Zephyr Z-LX/LXX this dimension changes to 1100 mm.





#### Design based on:

recommended operating point Intake temperature tLE = +20 °C Discharge temperature tLA = +34 °C Discharge height = up to 3.60 m

Model			LXX 1	LXX 1.5	LXX 2	LXX 2.5	LXX 3	
Air quantity max: m <sup>3</sup> /t		m³/h	4900	7300	9800	12000	14200	
Heating capacity rated <sup>1</sup>	LPHW 70 / 50 °C LPHW 60 / 40 °C	kW kW	23.1 23.1	34.4 34.4	46.2 46.2	56.6 56.6	67.0 67.0	
Flow rate	LPHW 70 / 50 °C LPHW 60 / 40 °C	m³/h m³/h	1.01 1.01	1.51 1.50	2.02 2.01	4.48 4.45	2.93 2.92	
Water resistance	LPHW 70 / 50 °C LPHW 60 / 40 °C	kPa kPa	1.3 3.8	2.9 2.4	7.9 4.7	7.8 7.8	9.6 9.7	
Nominal connection sizes	Internal thread Flow/return	Inches DN	2 x 1 1/4" 32	2 x 1 1/4" 32	2 x 1 1/4" 32	2 x 1 1/4" 32	2 x 1 1/4" 32	
EC fans	Voltage Frequency	V Hz	230 / 1 / N / PE 50					
	Max. current consumption	А	6.1	9.1	12.1	15.2	18.2	
	Max. motor power	kW	1.4	2.1	2.8	3.5	4.1	
Sound pressure level <sup>2</sup>	Highest setting	dB (A)	63	64	65	66	68	
Drawing dimension	Unit length (A)  Unit height <sup>3</sup> Unit depth <sup>4</sup>	mm mm	1000 450 715	1500 450 715	2000 450 715	2500 450 715	3000 450 715	
Weight	Zephyr	kg	100	130	180	210	250	
	Cassette Zephyr-Z	kg kg	112 117	148 155	203 212	238 252	285 299	

<sup>\*</sup> WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES

<sup>1.</sup> Rated operation based on operating point (see above), discharge temperature control recommended.

<sup>2.</sup> measured at a lateral distance of 3 m. Sound pressure level may very depending on surrounding conditions.

<sup>3.</sup> For the Zephyr Z-LX/LXX (suspended ceiling version), this dimension changes to 580-680 mm.

<sup>4.</sup> For the Zephyr Z-LX/LXX this dimension changes to 1100 mm.

# ZEPHYR-DX M EC

TECHNICAL DATA
FREE HANGING/CASSETTE /
SUSPENDED CEILING

#### Design based on:

recommended operating point intake temperature = +20/27 °C discharge temperature = +34/18 °C discharge height = up to 2.70 m heating gas temperature = 70 °C condensation temperature = 50 °C condensate exit temp. = 45 °C operating pressure = max. 45bar

Model			DX-M 1	DX-M 1.5	DX-M 2	DX-M 2.5	DX-M 3	
Air quantity max:		m³/h	1800	2700	3600	4500	6300	
Power <sup>1</sup>	DX heating capacity DX cooling capacity	kW kW	8.6 8.1	12.9 12.5	17.3 16.9	21.3 21.3	29.9 29.9	
Delivery and intake line	Connections	mm	10/16	10/16	10/18	10/22	10/22	
EC fans <sup>3</sup>	Voltage Frequency	V Hz	230 / 1 / N / PE 50					
	Max. current consumption	Α	2.4	3.6	4.7	5.9	8.2	
	Max. motor power	kW	0.3	0.5	0.7	0.8	1.2	
Sound pressure level <sup>2</sup>	Highest setting	dB (A)	58	59	60	61	62	
Drawing dimension	Unit length (A) Unit height	mm mm	1210 260	1710 260	2210 260	2710 260	3210 260	
	Unit depth	mm	490	490	490	490	490	
Weight	Zephyr DX	kg	50	65	80	85	105	
	Cassette Zephyr Z	kg kg	57 67	75 92	93 112	102 127	125 154	

\* WE RESERVE THE RIGHT TO MAKE TECHNICAL CHANGES

- 1. Rated operation based on operating point (see above).
- 2. measured at a lateral distance of 3 m. Sound pressure level may very depending on surrounding conditions.
- 3. Control voltage 0-10 V.
- 4. Only heating modus possible.

WARNING: in cooling mode the discharge temperature must not fall below 18 °C and the intake temperature must not rise above 27 °C! If these parameters are not adhered to, a higher level of condensate will form which cannot be removed by our optional condensate pump!

A well-balanced pressure ratio is one of the prerequisites for perfect function.

SIDE VIEW

Space for control (on site)

25 — 105 — 460

cable penetration

# ZEPHYR-DX L EC EKAD



TECHNICAL DATA FREE HANGING/CASSETTE / SUSPENDED CEILING

#### Design based on:

recommended operating point intake temperature = +20/27 °C discharge temperature = +34/18 °C discharge height = up to 3.00 m

heating gas temperature = 70 °C condensation temperature = 50 °C condensate exit temp. = 45 °C operating pressure = max. 45bar

Model			DX-L 1	DX-L 1.5	DX-L 2	DX-L 2.5	DX-L 3	
Air quantity max:		m³/h	2700	3600	5400	6300	7200	
Power <sup>1</sup>	DX heating capacity DX cooling capacity	kW kW	12.7 12	17.0 16.6	25.7 25.2	29.6 29.7	34 34.2	
Delivery and intake line	Connections	mm	10/16	10/18	10/22	10/22	10/22	
EC fans <sup>3</sup>	Voltage	V		230 / 1	I/N/PE			
	Frequency	Hz	50					
	Max. current consumption	А	3.5	4.7	7.1	8.2	9.4	
	Max. motor power	kW	0.5	0.7	1.0	1.2	1.4	
Sound pressure level <sup>2</sup>	Highest setting	dB (A)	60	61	62	63	64	
Drawing dimension	Unit length (A)	mm	1210	1710	2210	2710	3,210	
	Unit height	mm	260	260	260	260	260	
	Unit depth	mm	490	490	490	490	490	
Weight	Zephyr DX	kg	55	65	85	110	130	
J	Cassette	kg	62	80	98	127	150	
	Zephyr Z	kg	72	95	117	152	179	

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- 1. Rated operation based on operating point (see above).
- 2. measured at a lateral distance of 3 m. Sound pressure level may very depending on surrounding conditions.
- 3. Control voltage 0-10 V.
- 4. Only heating modus possible.

WARNING: in cooling mode the discharge temperature must not fall below 18 °C and the intake temperature must not rise above 27 °C! If these parameters are not adhered to, a higher level of condensate will form which cannot be removed by our optional condensate pump!





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