FLOWAIR
intelligent air flow

Air curtains
ELiS B

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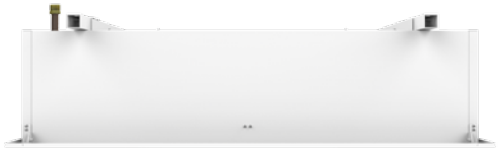
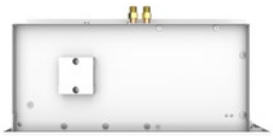
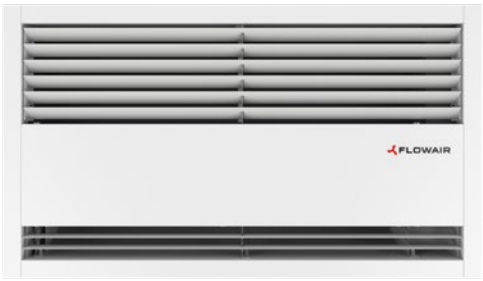






Air curtain ELiS B	
Max. range[1] [m]	5
Heating capacity[2] [kW]	10,9–27,7
Air flow [m³/h]	2200–6600
Weight [kg]	31,7–53,2
Materials	steel, plastic, EPP, aluminium
Colour	white (RAL 9016)

[1] Vertical range of isothermal stream, at velocity limit above 2 m/s
[2] For B-W during operation at 3rd step, at inlet air temperature 10°C and water temperature 90/70°C

ELiS B air curtains are used to secure the rooms against heat losses and uncontrolled heat gains. They are installed in suspended ceilings and reduce heat losses associated with air exchange between room and environment. Additionally, they successfully protect the room against insects and dust.

ELiS B air curtains:
- are available in 3 lengths: 1 m, 1,5 m or 2 m
- are available in 3 versions:
  - (N) – without heating elements (ambient) (N)
  - (W) – with water heat exchanger (W)
  - (E) – with electric heaters (E)
- are designed for installation in suspended ceilings

B-N/W/E-100

B-N/W/E-150

B-N/W/E-200

DESIGNATION OF ELiS B AIR CURTAINS

B-W-100
1 2 3

1 | B – ELiS B, range of air curtain 5 m

2 | N – curtain without heat exchanger (ambient)
W – curtain with water heat exchanger
E – curtain with electric heaters

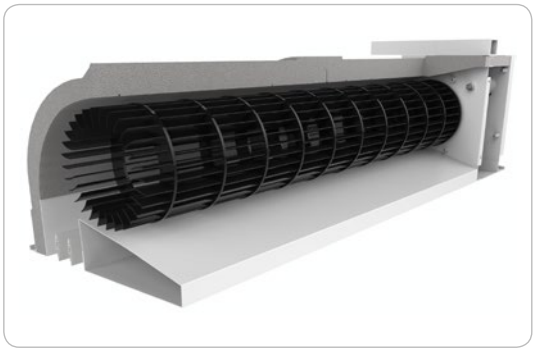
3 | 100/150/200 – length of air outlet

SIMPLE CONSTRUCTION

Simple and lightweight construction thanks to combination of metal and plastic elements.

BMS CONTROL SYSTEM

Control systems are BMS compatible.

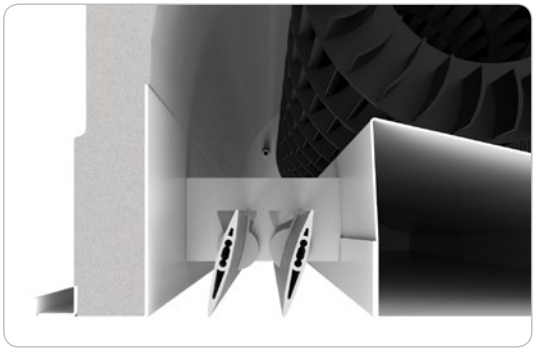


DIAGONAL FAN

High efficiency of the units thanks to motor propelling a set of diagonal rotors.

INSTALLATION

ELiS B air curtains are redy for installation in existing suspended ceilings. The are equipped with holders, which enable simple and easy installation of the unit.

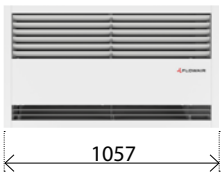


ADJUSTABLE AIR STREAM

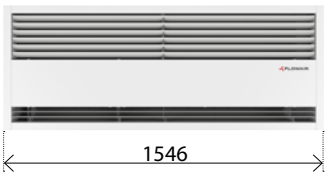
Adjustment of the air stream barrier using regulated air deflectors.

Dimensions

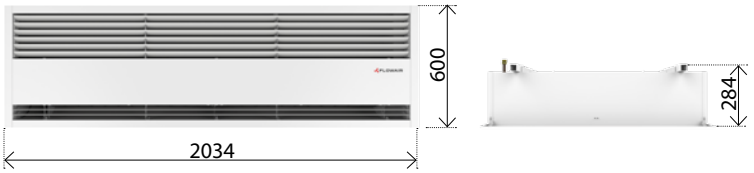
B-N/W/E-100



B-N/W/E-150



B-N/W/E-200

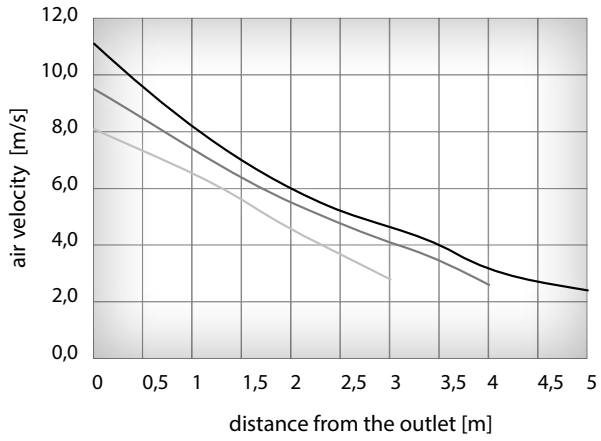


Technical data

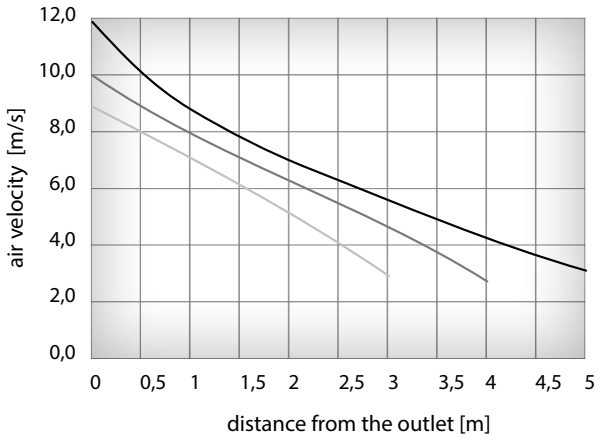
	B-N-100	B-W-100	B-E-100	B-N-150	B-W-150	B-E-150	B-N-200	B-W-200	B-E-200
Fan	motor with diagonal rotor								
Max. air flow stream of curtain [m³/h]	3500	2600		4800	4000		6600	5200	
Power supply [V/Hz]	230/50	230/50	3x400/50	230/50	230/50	3x400/50	230/50	230/50	3x400/50
Max. current consumption of fan [A]	1,9	1,5		2,0	1,6		2,2	1,7	
Power consumption of fan [kW]	0,42	0,34		0,44	0,36		0,49	0,38	
IP	21								
Max. acoustic pressure level of unit(1) [dB(A)]	64	62		65	63		66	64	
Max. range of air stream(2) [m]	5								
	B-W/E-100			**B-W/E-150**			**B-W/E-200**		
Fan setting	I step	II step	III step	I step	II step	III step	I step	II step	III step
Air flow [m³/h]	2200	2500	2600	3200	3500	4000	4000	4300	5200
Current consumption of fan [A]	1,0	1,1	1,5	1,1	1,2	1,6	1,2	1,3	1,7
Power consumption of fan [kW]	0,22	0,24	0,34	0,24	0,26	0,36	0,26	0,29	0,38
Acoustic pressure level(1) [dB(A)]	54	58	62	55	59	63	56	61	64
	B-N-100			**B-N-150**			**B-N-200**		
Air flow	I step	II step	III step	I step	II step	III step	I step	II step	III step
Air flow [m³/h]	2300	2700	3500	3200	4000	4800	3600	4300	6600
Current consumption of fan [A]	1,3	1,6	1,9	1,6	1,7	2,0	1,6	1,9	2,2
Power consumption of fan [kW]	0,29	0,35	0,42	0,36	0,38	0,44	0,35	0,41	0,49
Acoustic pressure level(1) [dB(A)]	56	60	64	56	60	65	58	63	66
	B-W-100			**B-W-150**			**B-W-200**		
Heat exchanger	Cu–Al, one row								
Heating capacity(3) [kW]	11,9			20,5			27,7		
Air temperature rise for curtain (ΔT)(3) [°C]	15			15			16		
Max. water pressure [MPa]	1,6								
Max. water temperature [°C]	95								
Connection [″]	½								
	B-E-100			**B-E-150**			**B-E-200**		
Heat source	2 x PTC heating board			3 x PTC heating board			4 x PTC heating board		
Power supply [V/Hz]	3x400/50								
Rated current of unit(3) [A]	11			16,6			22,4		
Heating capacity(3) [kW]	7,5			11,5			15,5		
Air temperature rise for curtain (ΔT)(3) [°C]	11			12			13		
	B-N-100	**B-W-100**	**B-E-100**	**B-N-150**	**B-W-150**	**B-E-150**	**B-N-200**	**B-W-200**	**B-E-200**
Weight of unit [kg]	31,7	32,3	34,5	38,9	41,2	42,4	47,2	50	53,2
Weight of unit filled with water [kg]	–	33,1	–	–	42,4	–	–	51,6	–

(1) Acoustic pressure level measured in the room with average sound absorption, capacity 500 m³, at distance of 3 m from the unit
(2) Vertical range of isothermal stream, at velocity limit above 2 m/s
(3) For operation at 3rd step, at inlet air temperature 10°C, for B-W at inlet/outlet water temperature 90/70°C

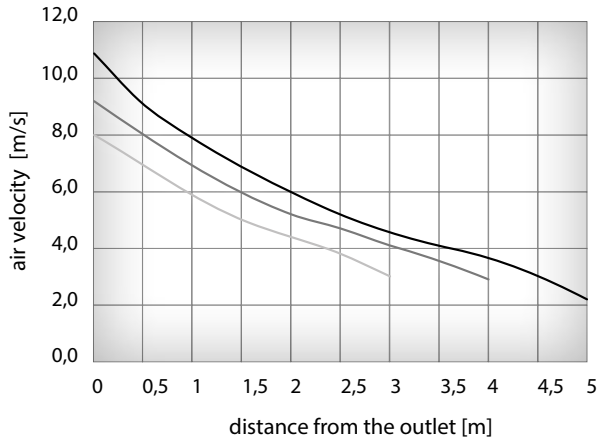
B-W-100; B-E-100



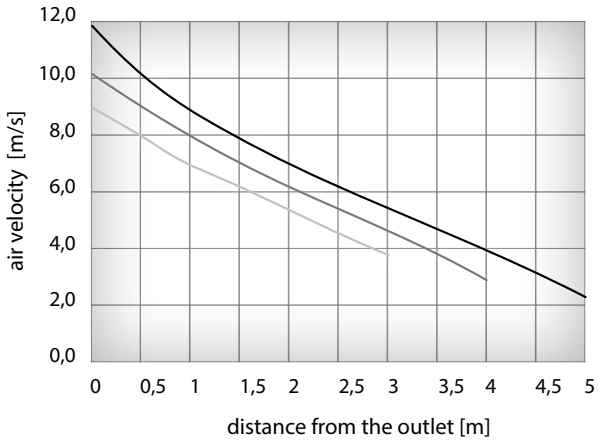
B-N-100



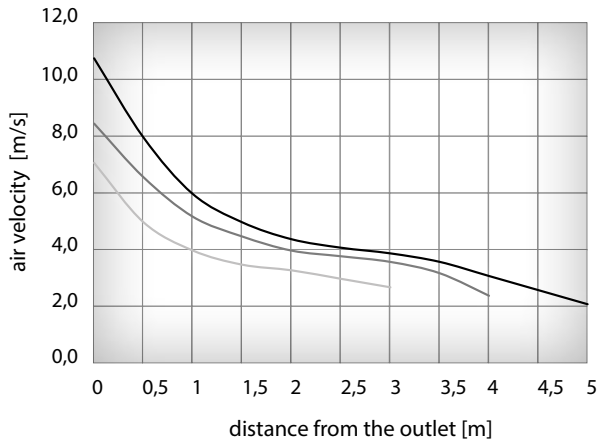
B-W-150; B-E-150



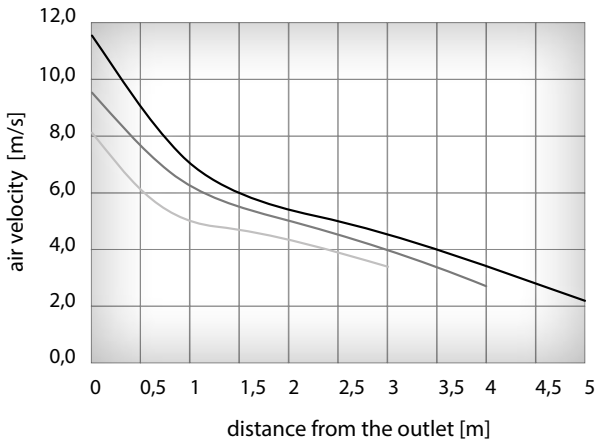
B-N-150



B-W-200; B-E-200



B-N-200



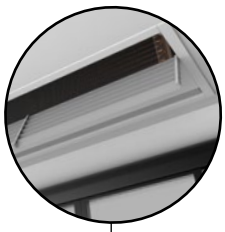
step 1
step 2
step 3

Installation

ELiS B air curtains are equipped with holders, which enable installation in suspended ceilings. Casing of the unit was designed to enable installation in already existing ceilings, without cutting bigger holes or service hatches.

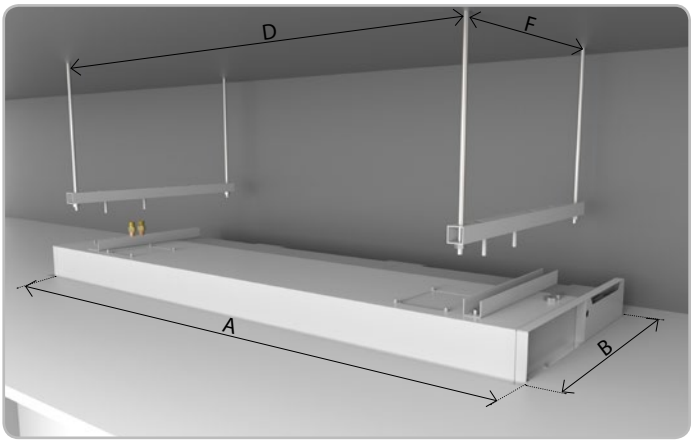
Brackets for installation using pins are included.

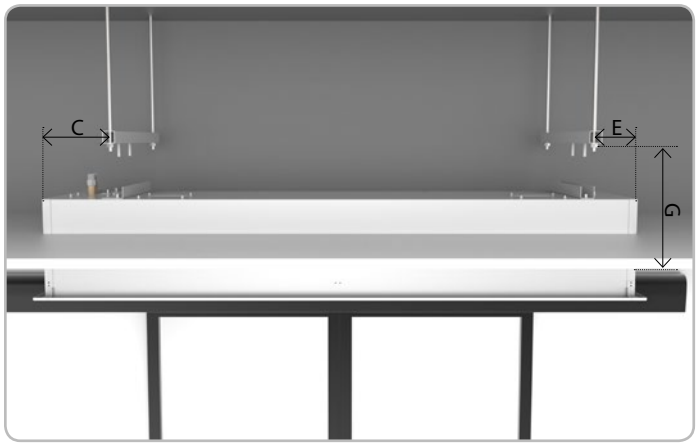
Installation of the unit does not require preparing additional holes in the ceiling.



Access from the front makes it easier to instal, connect and clean the air curtain.

Installation in suspended ceiling





Installation distances [mm]	A	B	C	D	E	F	G
ELiS B-N/W/E-100	1024	572	133	770	121	561	248
ELiS B-N/W/E-150	1510	572	182	1207	122	561	248
ELiS B-N/W/E-200	2000	572	256	1621	123	561	248

Comparison of control systems

	TS control	T-box control
		
Controlling options		
Manual 3-step air flow control	✓	✓
Modes		
Heating / Ventilation	✓	✓
Operation depending on door sensor and temperature	✓	✓
Weekly programmer		✓
BMS	✓	✓
Curtain switch off delay		✓
Idle speed mode		✓
Integration with FLOWAIR SYSTEM		✓
Max. number of connected units		
Via controller	5	31
Type of controller		
TS – 3-step fan speed controller with thermostat	✓	
T-box – intelligent controller with touch screen		✓
Type of fan		
AC – standard 3-step fan	✓	✓

TS control

ELiS B air curtain is equipped with control system, enabling you to connect:

- DCm/DCe door sensor,
- TS 3-step fan speed controller with thermostat.

Controller enables choice of 2 operating modes:

- Configuration 1 - curtain operation when overriding signal comes from door sensor as well as from 3-step fan speed controller with thermostat.
- Configuration 2 - curtain operation when overriding signal comes from door sensor, while 3-stem fan speed controller with thermostat is responsible for fan speed control and heating engagement signal.

CHAINING OF CURTAINS:

The control system is ready for chaining of the curtains and is able to control up to 5 units via single TS controller.

BMS:

The control system can be connected to BMS- intelligent building management system. This solution enables you to save and load operating parameters of the curtain (e.g. fan step).

T-box control

ELiS B air curtain is equipped with control system, enabling you to connect:

- DCm/DCe door sensor,
- T-box intelligent controller with touch screen.

Controller enables choice of 2 operating modes:

- Configuration 1 - curtain operation when overriding signal comes from door sensor as well as from T-box controller.
- Configuration 2 - curtain operation when overriding signal comes from door sensor, while T-box is responsible for fan speed control and heating engagement signal.

The control system is ready for chaining of the curtains and is able to control up to 31 units via a single T-box controller.

CHAINING OF CURTAINS:

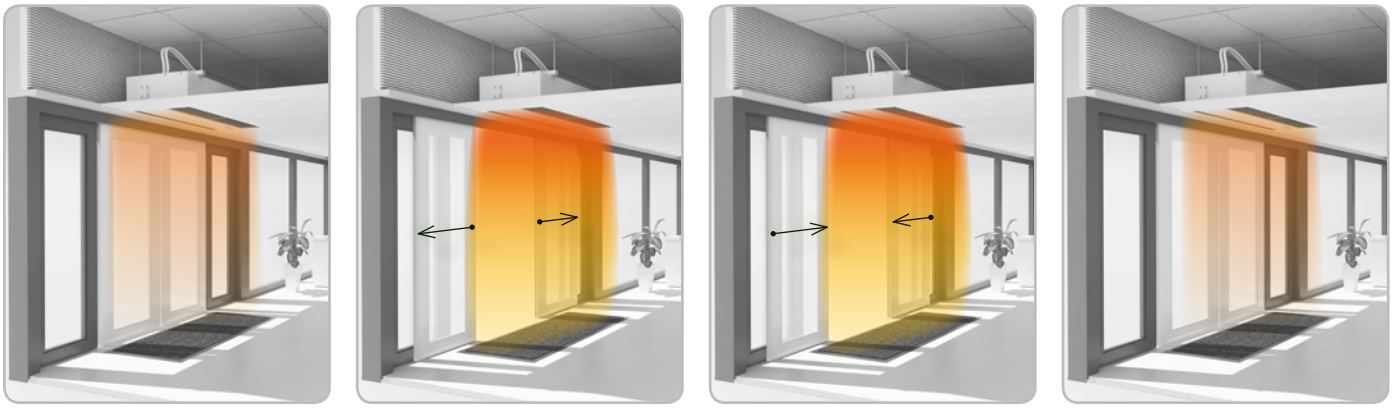
Control system is adapted to chaining the curtains and controlling up to 31 units via single T-box controller.

BMS:

T-box controller can be connected to BMS-intelligent building management system. This solution enables you to control all of the units, which communicate with T-box controller.

Idle speed mode

When the doors are closed, fans are operating with a lower speed. This solution eliminates delay in the air barrier formation, which is caused by the time needed to switch on the fans.



A) Doors are closed – fans operate with a lower speed.

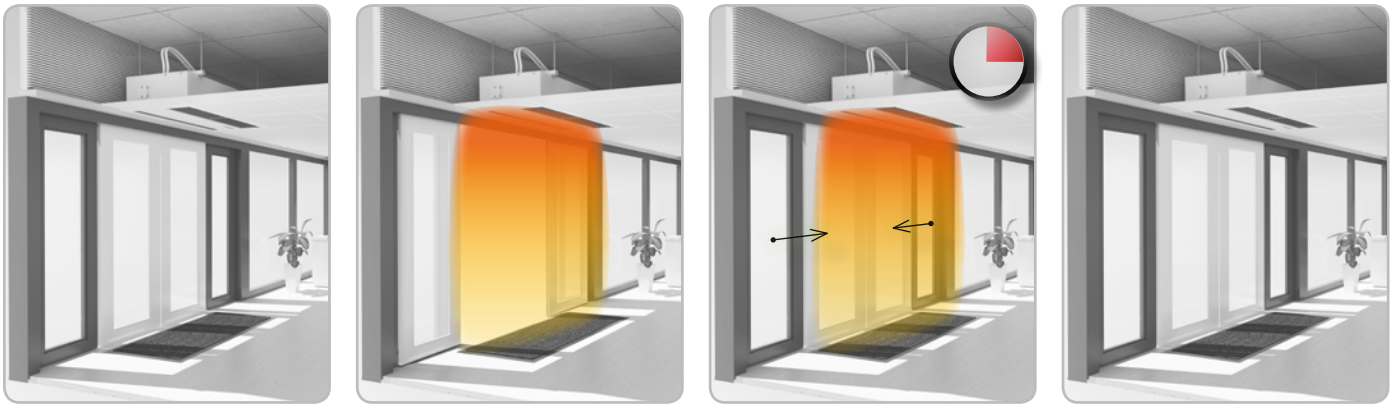
B) Doors are opening – speed of fan is rising.

C) Doors are closing – fans still operate with increased speed.

D) Doors are closed – fan operate with a lower speed again.

Curtain switch off delay time

If the doors in the building keep opening and closing constantly, it is possible to set a switch-off time delay. After closing the doors, curtain is still operating for the set time. If the doors open shortly, there is no need to switch off/on the curtain again. This solution increases reliability of the components and improves the air barrier effectiveness.



A) Doors are closed – fans are stopped.

B) Doors are open – fans operate with speed set on the controller.

C) Doors are closed – fans operate for a delay time set by the user. After that time, curtain may switch off or return to idle speed mode.

D) Doors are closed – fans will switch off after delay time.

Version 1

In the case of controlling the units via T-box controller using one address in BMS it is possible to control up to 31 units independently.

Communication parameters:

Name	Description
Physical layer	RS485
Protocol	MODBUS-RTU
Transmission rate	9600, 19200, 38400, 57600 or 115200 [bps]
Parity	Even
Number of data bits	8
Number of stop bits	1

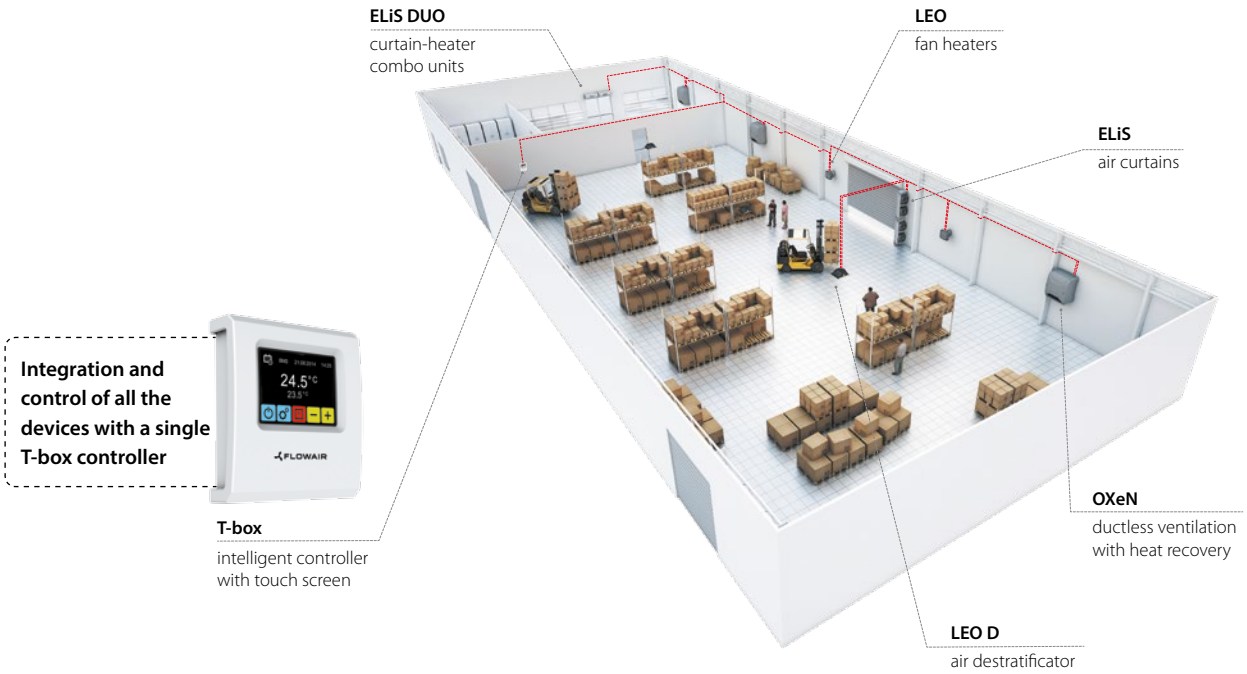
Version 2

ELiS B curtains are equipped with a BMS compatible control system. It is possible to set up to 31 addresses. Setting the address for each unit enables independent loading and saving their operating parameters separately.

Communication parameters:

Name	Description
Physical layer	RS485
Protocol	MODBUS-RTU
Transmission rate	38400 [bps]
Parity	Even
Number of data bits	8
Number of stop bits	1

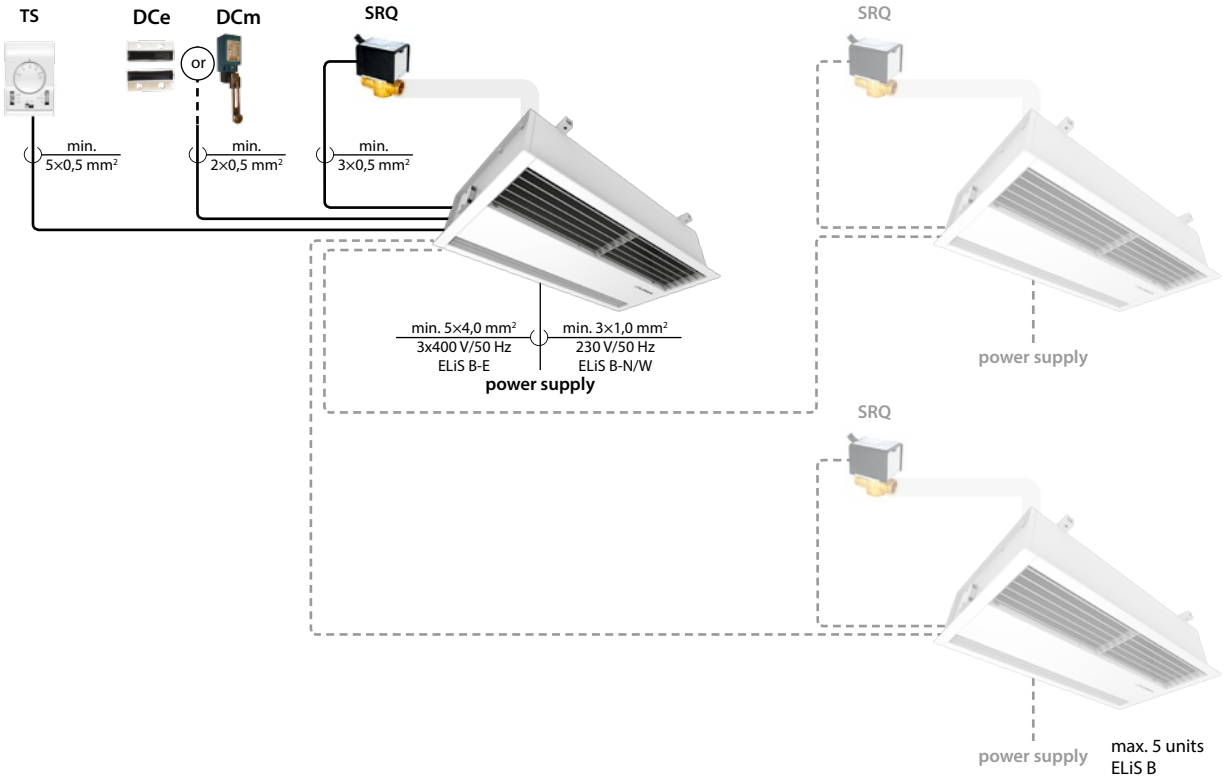
FLOWAIR SYSTEM is a complete offer of heating and ventilation devices integrated with one T-box controller enabling you to control all the units from one location.



Category	Name	Picture	Technical data
Controller	T-box intelligent controller with touch screen		Protection degree: IP 20 Power supply: 24 VDC Operating temperature range: -10 … +60°C Temperature adjustment range: +5 … +35°C
	TS 3-step fan speed controller with thermostat		Protection degree: IP30 Temperature adjustment range: +10 … +30°C Operating temperature range: 0 … +40°C Contacts load: inductive 5 A, resistance 6 A
Door sensors	DCe magnetic door sensor		Operating temperature range: -5 … +60°C Protection degree: IP64 Material: plastic Length of connection wire: 2 m Jumpers: NC Resistance contacts load: 0,5 A Max. contacts voltage: 175 VDC Max. distance between contacts: 8 mm
	DCm mechanical door sensor		Operating temperature range: -10 … +80°C Protection degree: IP65 Material: plastic Length of connection wire: none Jumpers: 1xNC i 1xNO Inductive contacts load: 3 A Max. contacts voltage: 300 VAC or 250 VDC
Valves with actuator	SRQ2d two-way valve 1/2” with actuator		Protection degree: IP20 Power supply: 200–240 V 50/60 Hz Max. water temperature: +93°C Max. water pressure: 1,6 MPa Kvs: 3,0 m^3/h Installation: on water outlet pipe Opening/closing time: 18s/5s Dimensions (HxWxD): 108x86x66 mm
	SRQ3d three-way valve 1/2” with actuator		Protection degree:IP20 Power supply: 200–240 V 50/60 Hz Max. water temperature: +93°C Max. water pressure: 2 MPa Kvs: 3,4 m^3/h Installation: on water inlet pipe Opening/closing time: 18s/5s Dimensions (HxWxD): 118x86x66 mm

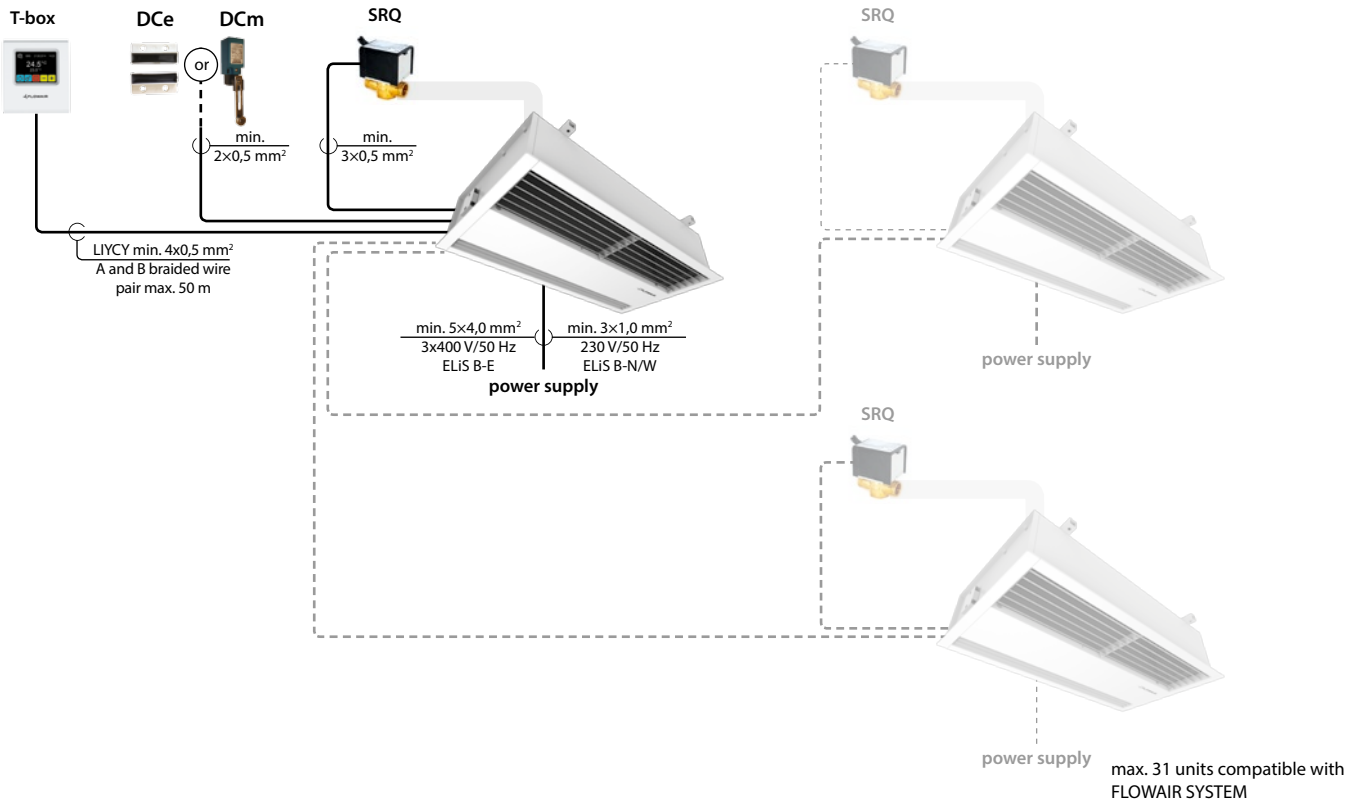
TS control

Control via DCe or DCm door sensor and TS 3-step fan speed controler with thermostat.



T-box control

Control via DCe or DCm door sensor and T-box controller.



ELiS B with water heat exchanger

ELiS B-W-100

Tp1	V	PT	Qw	Δpw	Tp2	PT	Qw	Δpw	Tp2
°C	m³/h	kW	l/h	kPa	°C	kW	l/h	kPa	°C
		Tw1/Tw2 = 90/70°C				**Tw1/Tw2 = 80/60°C**			
0	2200/ 2500/ 2600	12,6/13,5/13,8	558/597/609	1,9/2,2/2,3	17,0/16,0/15,5	10,6/11,3/11,5	465/497/507	1,4/1,6/1,7	14,0/13,5/13,0
5		11,8/12,6/12,8	519/555/566	1,7/1,9/2,0	21,0/20,0/19,5	9,7/10,4/10,6	426/455/464	1,2/1,3/1,4	18,0/17,5/17,0
10		10,9/11,6/11,9	480/513/524	1,5/1,6/1,7	24,5/23,5/24,5	8,8/9,4/9	386/413/395	1,0/1,1/1,1	21,5/21,0/21,5
15		10,0/10,7/10,9	441/471/481	1,3/1,4/1,5	28,0/27,5/27,0	7,9/8,5/8,6	347/370/378	0,8/0,9/1,0	25,5/25,0/24,5
20		9,1/9,7/9,9	402/429/438	1,1/1,2/1,2	32,0/31,5/31,0	7,0/7,5/7,6	306/328/334	0,7/0,8/0,8	29,5/29,0/28,5
		Tw1/Tw2 = 70/50°C				**Tw1/Tw2 = 70/40°C**			
0	2200/ 2500/ 2600	8,5/9,0/9,2	370/396/404	1,0/1,1/1,2	11,5/11,0/10,5	5,3/5,8/5,9	153/168/172	0,2/0,2/0,3	7,0/6,5/6,5
5		7,5/8,1/8,2	330/353/360	0,7/0,8/0,9	15,0/14,5/14,0	2,8/2,9/2,9	83/85/86	0,1/0,1/0,1	9,0/8,5/8,5
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20		4,7/5,0/5,1	204/220/225	0,3/0,4/0,4	26,0/25,5/25,0	1,8/1,8/1,8	51/53/53	0,1/0,1/0,1	22,5/22,0/22,0
		Tw1/Tw2 = 60/40°C				**Tw1/Tw2 = 50/40°C**			
0	2200/ 2500/ 2600	6,2/6,6/6,8	269/289/295	0,6/0,6/0,7	8,5/8,0/7,5	6,8/7,3/7,5	594/636/649	2,4/2,7/2,8	9,5/9,0/8,5
5		5,2/5,6/5,7	226/243/249	0,4/0,4/0,5	12,0/12,0/11,5	5,9/6,3/6,5	514/550/562	1,9/2,1/2,2	13,0/12,5/12,5
10		4,1/4,5/4,6	178/193/198	0,3/0,3/0,3	15,5/15,0/15,0	5,0/5,3/5,6	434/464/474	1,4/1,5/1,6	17,0/16,5/16,0
15		2,0/2,1/2,1	88/90/91	0,1/0,1/0,1	18,0/17,5/17,5	4,0/4,3/4,4	352/377/385	0,9/1,1/1,1	20,5/20,0/20,0
20		1,6/1,7/1,7	72/74/74	0,1/0,1/0,1	22,5/22,0/22,0	3,1/3,3/3,4	266/285/292	0,6/0,6/0,7	24,5/24,0/24,0

ELiS B-W-150

Tp1	V	PT	Qw	Δpw	Tp2	PT	Qw	Δpw	Tp2
°C	m³/h	kW	l/h	kPa	°C	kW	l/h	kPa	°C
		Tw1/Tw2 = 90/70°C				**Tw1/Tw2 = 80/60°C**			
0	3200/ 3500/ 4000	20,9/21,9/23,5	923/968/1039	5,9/6,5/7,4	19,6/18,5/17,5	17,8/18,7/20,0	783/821/881	4,5/4,9/5,6	16,5/16,0/15,0
5		19,6/20,5/22,0	863/905/972	5,3/5,6/6,6	23,0/22,5/21,5	16,4/17,3/18,5	722/758/813	3,9/4,3/4,9	20,0/19,5/18,5
10		18,2/19,1/20,5	803/842/904	4,6/5,0/5,7	27,0/26,0/25,0	15,0/15,8/17,0	662/694/745	3,3/3,6/4,1	24,0/23,0/22,5
15		16,8/17,6/19,0	742/779/835	4,0/4,4/5,0	30,5/30,0/30,0	13,7/14,3/15,4	601/630/676	2,8/3,0/3,5	27,5/27,0/26,5
20		15,5/16,2/17,4	682/715/767	3,4/3,7/4,2	34,0/33,5/32,5	12,3/12,9/13,8	539/566/607	2,3/2,5/2,8	31,0/30,5/30,0
		Tw1/Tw2 = 70/50°C				**Tw1/Tw2 = 70/40°C**			
0	3200/ 3500/ 4000	14,7/15,4/16,5	642/674/723	3,3/3,6/4,0	13,5/13,0/12,5	11,5/12,1/13,0	335/352/378	1,0/1,1/1,3	10,5/10,0/9,6
5		13,3/13,9/15,0	581/610/655	2,7/3,0/3,4	17,5/16,5/16,0	10,1/10,5/11,3	293/307/330	0,8/0,9/1,0	14,5/14,0/13,5
10		11,9/12,5/13,4	520/546/585	2,2/2,4/2,8	21,0/20,5/20,0	8,6/9,0/9,7	249/262/281	0,6/0,7/0,8	18,0/17,5/17,0
15		10,5/11,0/11,78	458/481/516	1,8/1,9/2,2	24,5/24,0/23,5	7,0/7,3/7,9	202/213/230	0,4/0,5/0,5	21,5/21,0/20,5
20		9,0/9,5/10,2	395/415/445	1,4/1,5/1,7	28,0/27,5/27,5	5,1/5,4/6,0	147/158/173	0,2/0,3/0,3	24,5/24,5/24,0
		Tw1/Tw2 = 60/40°C				**Tw1/Tw2 = 50/40°C**			
0	3200/ 3500/ 4000	11,5/12,0/13,0	500/525/563	2,2/2,4/2,7	10,5/10,0/9,5	11,5/12,0/13,0	1001/1050/1128	7,7/8,4/9,5	10,5/10,0/9,5
5		10,1/10,5/11,5	438/460/494	1,7/1,9/2,1	14,5/14,0/13,5	10,1/10,6/11,4	878/922/990	6,1/6,6/7,5	14,5/14,0/13,5
10		8,6/9,0/9,7	375/394/423	1,3/1,4/1,6	18,0/17,5/17,0	8,7/9,1/9,8	755/793/851	4,6/5,0/5,7	18,0/17,5/17,0
15		7,1/7,5/8,1	311/327/351	0,9/1,0/1,1	21,5/21,0/21,0	7,3/7,6/8,2	631/662/711	3,3/3,6/4,1	21,5/21,5/21,0
20		5,6/5,9/6,3	243/256/276	0,6/0,7/0,7	25,0/24,5/24,5	5,8/6,1/6,5	505/530/568	2,2/2,4/2,8	25,5/25,0/24,5

To obtain operating parameters concerning other water temperatures, please contact Sales Office.

PT – heating capacity
Tp1 – inlet air temperature
Tp2 – outlet air temperature
Tw1 – inlet water temperature
Tw2 – outlet water temperature
Qw – water stream flow in the heat exchanger
Δpw – water pressure drop in the heat exchanger

ELiS B-W-200

Tp1	V	PT	Qw	Δpw	Tp2	PT	Qw	Δpw	Tp2
°C	m³/h	kW	l/h	kPa	°C	kW	l/h	kPa	°C
		Tw1/Tw2 = 90/70°C				**Tw1/Tw2 = 80/60°C**			
0	4000/ 4300/ 5200	27,6/28,7/31,8	1217/1266/1402	11,4/12,2/14,7	20,5/19,5/18,0	23,6/24,6/27,7	1038/1080/1195	8,7/9,4/11,3	17,5/17,0/15,5
5		25,8/26,9/29,7	1140/1186/1312	10,0/10,8/13,0	24,0/23,5/22,0	21,9/22,7/25,2	961/999/1106	7,6/8,2/9,8	21,1/20,5/19,5
10		24,0/25,0/27,7	1063/1105/1223	8,9/9,5/11,5	27,5/27,0/25,7	20,1/20,9/23,1	883/918/1016	6,5/7,0/8,4	25,0/24,5/22,5
15		22,3/23,2/25,7	985/1024/1133	7,7/8,3/10,0	32,5/30,5/29,5	18,3/19,0/21,0	804/836/925	5,5/5,9/7,1	28,5/28,0/27,0
20		20,5/21,4/23,6	907/943/1043	6,6/7,1/8,8	35,0/34,5/33,0	16,5/17,2/19,0	725/754/834	4,6/4,9/5,9	32,0/31,5/30,5
		Tw1/Tw2 = 70/50°C				**Tw1/Tw2 = 70/40°C**			
0	4000/ 4300/ 5200	19,7/20,5/22,5	860/894/990	6,4/6,9/8,3	14,5/14,0/13,0	16,1/16,7/18,5	468/487/538	2,2/2,3/2,8	12,0/11,5/10,5
5		17,9/18,6/20,5	782/813/900	5,4/5,8/6,9	18,0/17,5/17,0	14,3/14,8/16,4	414/431/477	1,8/1,9/2,3	15,5/15,0/14,5
10		16,1/16,7/18,5	703/731/809	4,5/4,7/5,7	21,5/21,5/20,5	12,4/12,9/14,2	360/374/414	1,4/1,5/1,8	19,0/19,0/18,0
15		14,5/14,8/16,4	624/649/717	3,6/3,8/4,6	25,5/25,0/24,5	10,4/10,9/12,0	304/316/350	1,0/1,1/1,3	22,5/22,5/21,5
20		12,4/12,9/14,3	544/565/625	2,8/3,0/3,6	29,0/28,5/28,0	8,4/8,8/9,6	245/256/284	0,7/0,7/0,9	26,0/26,0/25,5
		Tw1/Tw2 = 60/40°C				**Tw1/Tw2 = 50/40°C**			
0	4000/ 4300/ 5200	15,6/16,3/18,0	681/708/784	4,6/4,7/5,6	11,5/11,0/10,5	15,3/15,9/17,6	1327/1380/1529	14,8/15,9/19,2	11,5/11,0/10,0
5		13,8/14,4/15,9	602/626/693	3,5/3,7/4,5	15,0/15,0/14,0	13,5/14,0/15,5	1170/1217/1348	11,8/12,7/15,2	15,0/14,5/13,5
10		12,0/12,5/13,8	522/543/601	2,7/2,9/3,5	18,5/18,5/18,0	11,6/12,1/13,4	1012/1052/1165	9,1/9,7/11,7	18,5/18,5/17,5
15		10,1/10,5/11,6	441/458/507	2,0/2,1/2,6	22,5/22,0/21,5	9,8/10,2/11,3	852/886/981	6,6/7,1/8,6	22,5/22,0/21,5
20		8,2/8,5/9,5	357/372/412	1,4/1,5/1,8	26,0/25,5/25,0	7,9/8,3/9,1	690/718/794	4,6/4,9/5,6	25,5/25,5/25,0

To obtain operating parameters concerning other water temperatures, please contact Sales Office.

PT – heating capacity
Tp1 – inlet air temperature
Tp2 – outlet air temperature
Tw1 – inlet water temperature
Tw2 – outlet water temperature
Qw – water stream flow in the heat exchanger
Δpw – water pressure drop in the heat exchanger

ELiS B with electric heaters

	B-E-100			B-E-150			B-E-200		
	1 step	2 step	3 step	1 step	2 step	3 step	1 step	2 step	3 step
Power supply [V/Hz]	3x400/50								
Rated current of unit[1] [A]	10,2	10,5	11	15,9	16,1	16,6	21,5	21,8	22,4
Heating capacity[1] [kW]	7,1	7,3	7,5	11	11,2	11,5	14,9	15,1	15,5
Air temperature rise for curtain (ΔT)[1] [°C]	12	12	11	13	12	12	14	14	13

[1] At inlet air temperature 10°C.