FLOWAIR
intelligent air flow

Air curtains
ELiS T

Table
of Contents

General characteristic

Air curtain ELiS T

Max. range[1] [m]	4
Heating capacity[2] [kW]	10,1–27,4
Air flow [m³/h]	1900–5300
Weight [kg]	20,7–37
Materials	steel + plastic, EPP, aluminium
Colour	grey[3]

[1] Vertical range of isothermal stream, at velocity limit above 2 m/s
[2] For T-W during operation at 3rd step, at inlet air temperature 10ºC and water temperature 90/70ºC
[3] Similar to RAL 9007

Elis T series air curtains generate an effective air barrier protecting the entire entrance to the building They are designed to ensure thermal protection of the rooms preventing the inflow of cold air during the winter and the inflow of warm air into the air-conditioned rooms during the summer.They effectively secure the room against the inflow of insects and dust.

ELiS T air curtains are:
• available in 3 lengths: 1 m, 1,5 m, 2 m
• available in 3 versions:
  Ⓝ - without heating elements - ambient air curtain (N)
  ⊕ - with water heat exchanger (W),
  ⚡ - with electric heaters (E),
• designed for horizintal as well as vertical installation.

T-N/W/E-100

T-N/W/E-150

T-N/W/E-200

DESIGNATION OF ELiS T DOOR CURTAINS

T-W-100
  1   2   3

1 | T — ELiS T, range of curtain 4 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 steel and plastic elements.

CONTROL SYSTEM WITH BMS

External control module enables the connection of the unit to BMS – intelligent building management system.

DIAGONAL FAN

High efficiency of curtains thanks to motor propelling set of diagonal rotors.

WIDE RANGE OF UNITS

Air curtains with water heat exchanger, with electric heaters and without heating elements (ambient) are available in 3 lengths - 1 m, 1,5 m and 2 m. Possibility to install the units horizontally and vertically.
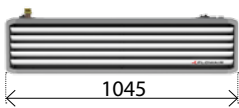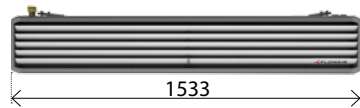
HEATING ELEMENTS

Air curtains can be equipped with PTC heating elements or water heat exchanger made of copper tubes and aluminum fins.
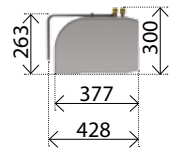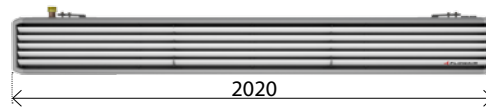
Dimensions

T-N/W/E-100

1045

T-N/W/E-150

1533

T-N/W/E-200

2020

263 | 300
377
428

Technical data

	T-N-100	T-W-100	T-E-100	T-N-150	T-W-150	T-E-150	T-N-200	T-W-200	T-E-200
Fan	motor with diagonal rotor								
Max. air flow stream for curtain [m³/h]	2900	2300		4000	3900		5300	5100	
Power supply [V/Hz]	230/50	230/50	3x400/50	230/50	230/50	3x400/50	230/50	230/50	3x400/50
Max. fan current consumption [A]	1,8	1,7		1,9	1,8		2,1	2	
Fan power consumption [kW]	0,39	0,38		0,42	0,4		0,46	0,44	
IP	21								
Max. acoustic pressure level[1] [dB(A)]	66	65		67	66		68	66	
Max. air stream range[2] [m]	4								

	T-W/E-100			T-W/E-150			T-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]	1900	2100	2300	3100	3500	3900	3200	4100	5100
Fan current consumption [A]	1,3	1,5	1,7	1,4	1,6	1,8	1,5	1,7	2
Fan power consumption [kW]	0,29	0,33	0,38	0,3	0,35	0,4	0,33	0,38	0,44
Acousitc pressure level[1] [dB(A)]	55	59	65	56	60	66	57	61	66

	T-N-100			T-N-150			T-N-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]	2100	2600	2900	3200	3600	4000	3300	4300	5300
Fan current consumption [A]	1,4	16	1,8	1,5	1,7	1,9	1,6	1,8	2,1
Fan power consumption [kW]	0,31	0,35	0,39	0,33	0,38	0,42	0,35	0,4	0,46
Acoustic pressure level[1] [dB(A)]	56	60	66	57	61	67	57	61	68

	T-W-100			T-W-150			T-W-200		
Heat exchanger	Cu–Al, one row								
Heating capacity[3] [kW]	11,1			20			27,4		
Air temperature rise for curtain (ΔT)[3] [°C]	15			15			16		
Max. operating pressure [MPa]	1,6								
Max. heating water temperature [°C]	95								
Connection ["]	½								

	T-E-100			T-E-150			T-E-200		
Heat source	2 x PTC heating elements			3 x PTC heating elements			4 x PTC heating elements		
Power supply [V/Hz]	3x400/50								
Rated current[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		

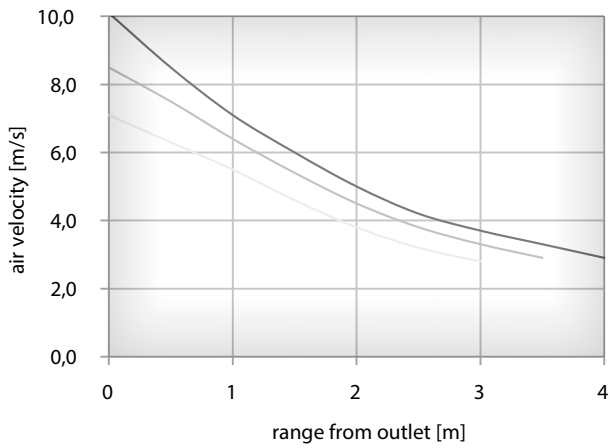|	T-N-100	T-W-100	T-E-100	T-N-150	T-W-150	T-E-150	T-N-200	T-W-200	T-E-200
Weight of unit [kg]	20,7	22,1	24	27	29,5	31,5	31,5	34,3	37
Weight of unit filled with water [kg]	–	22,9	–	–	30,7	–	–	35,9	–

[1] Acoustic pressure level measured for optimum installation height, on second step of efficiency, in the room with medium capability of sound absorption, capacity 500 m³, at distance of 3 m from the unit

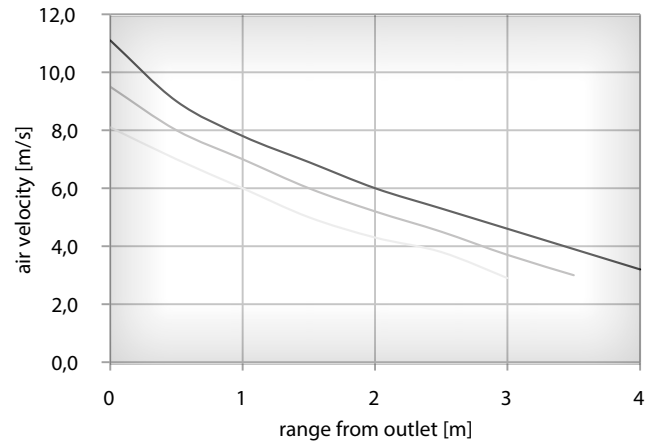[2] Range of vertical isothermal air stream, at velocity limit above 2 m/s

[3] For operation at 3rd step, at inlet air temperature 10°C, for T-W at inlet/outlet water temperature 90/70°C
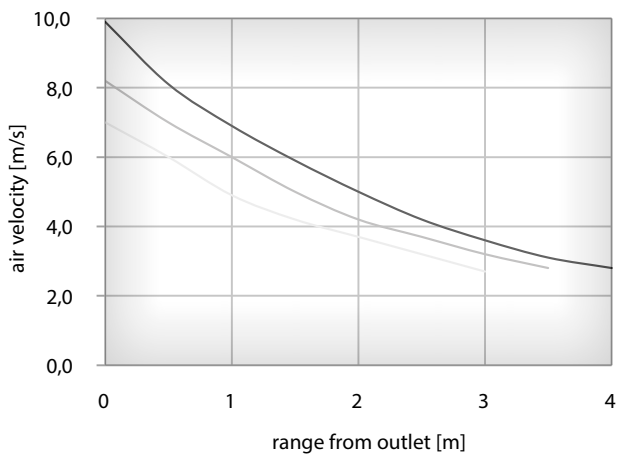
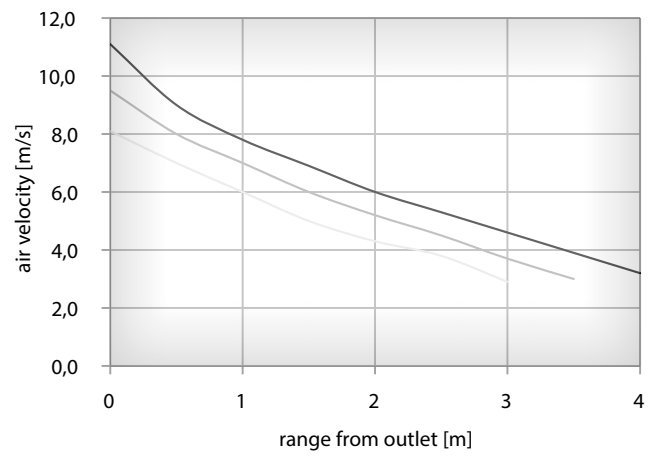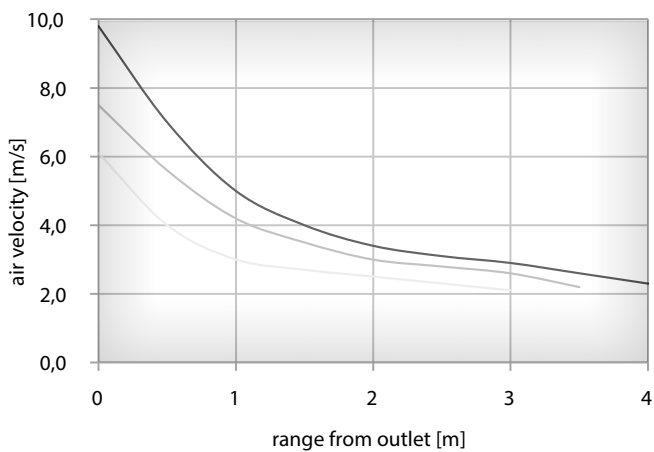# Nomograms of air stream velocity

T-W-100; T-E-100

T-N-100
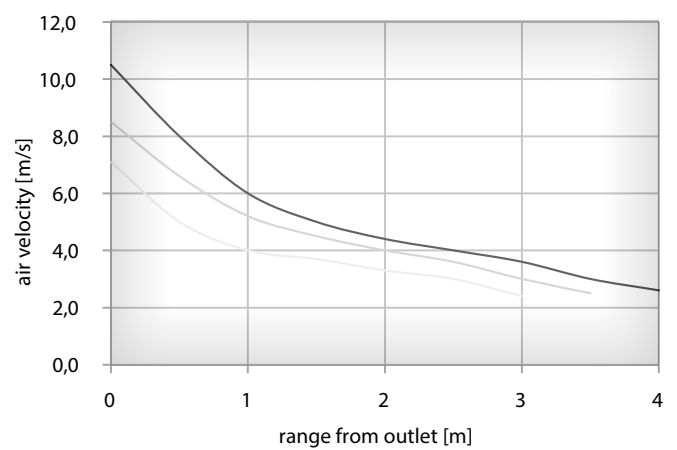

T-W-150; T-E-150

T-N-150

T-W-200; B-E-200

T-N-200

bieg 1
bieg 2
bieg 3

Installation
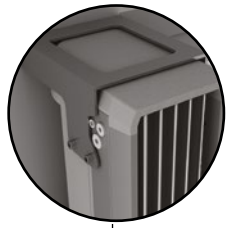
Possibility of vertical installation of ELiS T air curtains using brackets.

To vent air curtains installed on the left side of the door opening, use the vent valve located on the collector next to the terminal block at the top of the unit.

Elis T curtains can be mounted using instalation pins
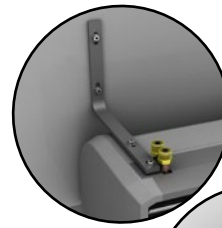
Optional installation console enables easy and quick installation of the air curtain on the wall in two ways.

or

min. 0,2 m

max. 4 m

max. 6 m

Correct installation

The key to the correct operation of the unit is to ensure an air barrier on entire door opening plane. ELiS T are adapted to chaining, so covering wider door openings doesn't make any problem. Incorrect installation may result in notable heat losses during the winter and chill losses in the air-conditioned rooms during the summer.
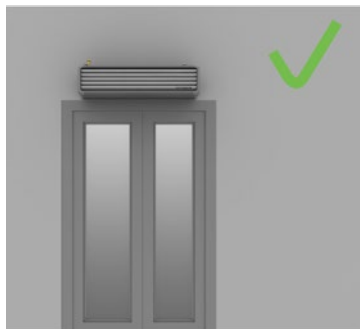
Control systems

Comparison of control systems

	TS 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	2
Type of controller	
TS – 3-step fan speed controller with thermostat	✔
Type of fan	
AC – standard 3-step fan	✔

TS control

ELiS T air curtain is equipped with a control system, which enables the connection of:

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

Control system provides 2 operating modes:

- continuous mode – fan operation independent of temperature setting. Thermostat gives signal for heating.
- thermostatic mode – fan operation depending on thermostat setting.

CHAINING OF CURTAINS:

It is possible to connect two ELiS T air curtains to a single TS controller.

BMS programming
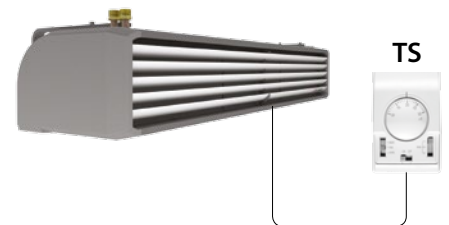
ELiS T air curtains can be optionally equipped with an external control system, which is BMS compatible (Building Management System). System is able to set up to 31 addresses. System ensures to set the address for each unit separately and enables independent loading and saving operating parameters of each curtain.

Parametry komunikacyjne:

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

Elements of control systems

Category	Name	Picture	Technical data
Controller	TS 3-step fan speed controller with touch screen		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	DCet magnetic door sensor wit relay cabinet		Operating temperature range: -5 … +60°C Protection degree: IP64 Material: plastic Length of connection wire: 2 m Jumpers: NO Inductive contacts load: 4 A Max. contacts voltage: 230 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

Connection diagrams

TS control

Terminal block ensures the control of the curtains by DCet or DCm mechanical door sensor and TS 3-step fan speed controller with thermostat.

TS   DCet   DCm   SRQ   SRQ

min.   min.   min.
2×1,0 mm²   2×1,0 mm²   3×0,5 mm²

power supply
~230 V

min.
5×1,0 mm²

min. 5×4,0 mm²   min. 3×1,5 mm²
3x400 V/50 Hz   230 V/50 Hz
ELiS T-E   ELiS T-N/W   **power supply**

power supply

max. 2 units
ELiS T
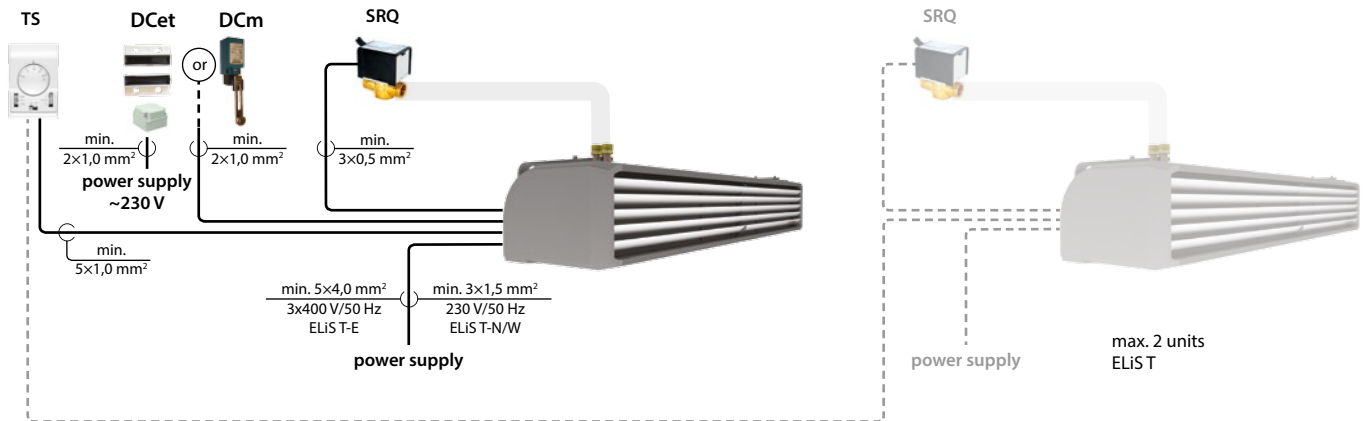
Heating capacities

ELiS T with water heat exchanger

ELiS T-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	1900/ 2100/ 2300	11,7/12,3/12,9	516/544/571	1,7/1,8/2	18/17,5/17	9,8/10,3/10,8	430/454/476	1,2/1,4/1,5	15/14,5/14
5		10,9/11,5/12	480/507/531	1,5/1,6/1,8	22/21,5/21	9/9,5/9,9	394/415/436	1,1/1,2/1,3	19/18,5/18
10		10,1/10,6/11,1	444/469/492	1,3/1,4/1,5	25,5/25/24,5	8,1/8,6/9	357/377/395	0,9/1/1,1	22,5/22/21,5
15		9,3/9,8/10,2	408/430/451	1,1/1,2/1,3	29/28,5/28	7,3/7,7/8,1	321/338/355	0,7/0,8/0,9	26/25,5/25
20		8,4/8,9/9,3	372/392/411	0,9/1/1,1	33/32,5/32	6,5/6,8/7,1	283/299/314	0,6/0,6/0,7	30/29,5/29
		Tw1/Tw2 = 70/50°C				**Tw1/Tw2 = 60/40°C**			
0	1900/ 2100/ 2300	7,8/8,3/8,7	342/361/379	0,8/0,9/1	12/11,5/11	5,7/6/6,3	248/262/276	0,5/0,5/0,6	9/8,5/8
5		7/7,4/7,7	305/322/338	0,7/0,8/0,8	16/15,5/15	4,8/5/5,3	207/220/232	0,4/0,4/0,4	12,5/12/11,5
10		6,1/6,5/6,8	267/282/296	0,5/0,6/0,7	19,5/19/18,5	3,7/3,9/4,2	159/172/183	0,2/0,3/0,3	16/15,5/15
15		5,2/5,5/5,8	229/242/254	0,4/0,5/0,5	23/22,5/22	1,9/2/2,1	85/87/89	0,1/0,1/0,1	18,5/18/17,5
20		4,3/4,6/4,8	188/199/210	0,3/0,3/0,4	27/26,5/26	1,6/1,6/1,7	70/71/73	0,1/0,1/0,1	22,5/22/22
		Tw1/Tw2 = 70/40°C				**Tw1/Tw2 = 50/40°C**			
0	1900/ 2100/ 2300	4,7/5,1/5,4	135/148/158	0,2/0,2/0,2	7,5/7/6,5	6,3/6,7/7	549/579/608	2,1/2,3/2,5	10/9,5/9
5		2,8/2,8/2,9	80/82/84	0,1/0,1/0,1	9,5/9/8,5	5,5/5,8/6,1	475/502/527	1,6/1,8/1,9	13,5/13/12,5
10		2,4/2,5/2,6	70/71/73	0,1/0,1/0,1	13,5/13/12,5	4,6/4,9/5,1	401/423/444	1,2/1,3/1,4	17/16,5/16
15		2,1/2,1/2,1	60/61/62	0,1/0,1/0,1	18,5/18/17,5	3,7/3,9/4,1	324/343/360	0,8/0,8/1	21/20,5/20
20		1,7/1,8/1,8	50/51/52	0,1/0,1/0,1	23/22,5/22	2,8/3/3,1	244/259/272	0,5/0,5/0,6	25/24,5/24

ELiS T-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	3100/ 3500/ 3900	20,6/21,9/23,2	907/968/1026	5,8/6,5/7,2	19,5/18,5/17,5	17,5/18,7/19,8	769/821/870	4,4/4,9/5,5	17/16/15
5		19,2/20,5/21,7	848/905/959	5,1/5,8/6,4	23/22/21	16,2/17,3/18,3	710/758/802	3,8/4,3/4,7	20,5/19,5/18,5
10		17,9/19,1/20,2	789/842/892	4,5/5/5,6	27/26/25	14,8/15,8/16,7	650/694/735	3,2/3,6/4	24,5/23,5/22,5
15		16,5/17,7/18,7	730/779/824	3,9/4,4/4,8	31/30/29	13,4/14,3/15,2	591/630/667	2,7/3,1/3,4	28/27/26
20		15,2/16,2/17,2	670/715/757	3,3/3,7/4,1	34,5/33,5/32,5	12,1/12,9/13,6	530/566/599	2,2/2,5/2,8	32/31/30
		Tw1/Tw2 = 70/50°C				**Tw1/Tw2 = 60/40°C**			
0	3100/ 3500/ 3900	14,4/15,4/16,3	631/674/714	3,2/3,6/4	14/13/12	11,3/12/12,8	492/525/556	2,1/2,4/2,6	11/10/9
5		13,1/13,9/14,8	572/610/646	2,6/3/3,3	18/17/16	9,9/10,6/11,2	431/460/487	1,7/1,9/2,1	15/14/13
10		11,7/12,5/13,2	511/546/578	2,2/2,4/2,7	22/21/20	8,5/9/9,6	369/394/417	1,3/1,4/1,6	18,5/17,5/16,5
15		10,3/11/11,6	450/481/509	1,7/1,9/2,1	25,5/24,5/23,5	7/7,5/7,9	305/327/346	0,9/1/1,1	22,5/21,5/20,5
20		8,9/9,5/10	389/415/439	1,3/1,5/1,6	29,5/28,5/27,5	5,5/5,9/6,2	239/256/272	0,6/0,7/0,07	26/25/24
		Tw1/Tw2 = 70/40°C				**Tw1/Tw2 = 50/40°C**			
0	3100/ 3500/ 3900	11,31/12,09/12,8	329/352/373	1/1,12/1,25	11/10/9	11,3/12,07/12,79	983/1050/1113	7,45/8,39/9,32	11/10/90
5		9,88/10,56/11,19	288/307/326	0,8/0,9/1	15/14/13	9,92/10,6/11,22	863/922/977	5,88/6,62/7,35	15/14/13
10		8,39/9/9,53	244/262/278	0,6/0,66/0,8	18,5/17,5/16,5	8,53/9,11/9,65	742/793/839	4,47/5/5,59	18,5/17,5/16,5
15		6,82/7,33/7,8	198/213/227	0,4/0,5/0,5	22/21/20	7,13/7,61/8,06	620/662/701	3,23/3,64/4	22/21/20
20		4,93/5,42/5,85	143/158/170	0,2/0,3/0,3	25/24/23	5,7/6,09/6,45	496/530/561	2,16/2,43/2,7	26/25/24

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
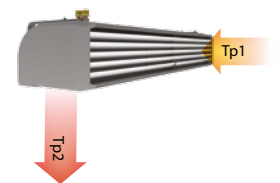
Heating capacities

ELiS T with water heat exchanger

ELiS T-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	3000/ 4100/ 5100	23,5/28/31,4	1037/1234/1387	8,5/11,7/14,5	23/20/18	20,2/24/26,9	885/1052/1183	6,5/9/11,1	19/17/15
5		22/26,2/29,4	972/1155/1299	7,5/10,3/12,8	27/24/22	18,6/22,2/24,9	819/974/1095	5,7/7,8/9,6	23,5/21/19,5
10		20,5/24,4/27,4	906/1077/1211	6,6/9,1/11,3	30/27/26	17,1/20,4/22,9	753/895/1005	4,9/6,7/8,2	27/24,5/23
15		19/22,6/25,4	840/998/1122	5,8/7,9/9,8	34/31/29	15,6/18,6/20,8	686/815/916	4,1/5,6/7	30/28/27
20		17,5/20,8/23,4	774/919/1033	5/6,8/8,4	38/35/33	14,1/16,7/18,8	619/735/826	3,4/4,7/5,8	33,5/32/30,5
		Tw1/Tw2 = 70/50°C				**Tw1/Tw2 = 60/40°C**			
0	3000/ 4100/ 5100	16,8/19,9/22,4	733/872/980	4,8/6,6/8,1	16,5/14,5/12,5	13,3/15,8/17,8	581/690/776	3,3/4,5/5,5	13/11,5/10
5		15,2/18,1/20,6	667/792/891	4/5,5/6,8	20/18/16	11,8/14/15,7	513/610/686	2,6/3,6/4,4	16,5/15/14
10		13,7/16,3/18,3	600/713/801	3,3/4,6/5,6	23,5/21,5/20,5	10,2/12,1/13,6	445/529/595	2/2,7/3,4	20/19/18
15		12,2/14,5/16,2	532/632/710	2,7/3,7/4,5	27/25/24	8,6/10,2/11,5	376/447/502	1,5/2/2,5	23,5/22,5/21,5
20		10,6/12,6/14,4	464/551/619	2,1/2,9/3,5	30,5/28,5/27,5	7/8,3/9,4	304/362/408	1/1,4/1,7	26,5/25,5/25
		Tw1/Tw2 = 70/40°C				**Tw1/Tw2 = 50/40°C**			
0	3000/ 4100/ 5100	13,7/16,3/18,3	399/474/533	1,6/2,2/2,8	13,5/11,5/10,5	13/15,5/17,4	1130/1345/1513	11/15,2/18,8	12,5/11/10
5		12,1/14,4/16,2	353/420/472	1,3/1,8/2,2	17/15/14	11,5/13,6/15,3	997/1186/1334	8,8/12/15	16/14,5/14
10		1,5/12,5/14,1	306/365/410	1/1,4/1,7	20/19/18	9,9/11,8/13,3	862/1025/1153	6,8/9,3/11,5	20/18,5/17,5
15		8,9/10,6/11,9	258/308/347	0,8/1/1,3	23,5/22,5/21,5	8,4/9,9/11,2	726/864/971	5/6,8/8,4	23/22/21
20		7,1/8,6/9,7	207/249/281	0,5/0,7/0,9	27/26/25	6,8/8/9	589/700/786	3,4/4,7/5,8	26,5/25,5/24,5

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
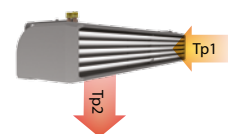
ELiS T with electric heaters

	T-E-100			T-E-150			T-E-200		
	1st step	2nd step	3rd step	1st step	2nd step	3rd step	1st step	2nd step	3rd step
Power supply [V/Hz]	3x400/50								
Rated current[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