ERP 2015
STAVOKLIMA

EC TECHNOLOGY
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Comfort Door
Air Curtain

Li Silent

STAVOKLIMA

Description

The Li-SILENT air curtain is a new generation of modern and effective Li series air curtains. Its design predisposes it for installation to high-end interiors. It is a harmonic element of the space, and it meets all functional requirements at the same time. Integration into any building design is easy owing to a wide range of power output, effective EC fans, and its compact design.

The air curtain forms a natural air barrier against penetrating cold air in the heated environment and vice versa, the air curtain prevents from hot air entering the air-conditioned environment in summer; and protects against undesirable smell, insects, and dust. In these installations, the air curtain will meet all requirements for the energy-saving equipment and thermal comfort in the building.

The Li-Silent air curtain meets high requirements for a contemporary product:

• maximum noise reduction

• optimum energy saving

• high efficiency

• excellent operational reliability and lifecycle

• timeless and compact design

• quality materials used and quality components

• accurate manufacturing quality

The Li-Silent air curtains correspond to requirements for installation into a space where low noise level, provision of cost-effective operation, and blending with the space owing to its pleasant design is required. Hence, they are excellent option for:

• banks and hotels

• restaurants

• museums and libraries

• shops and supermarkets

• clinics and residential buildings

... and else where tranquil and relaxed atmosphere contributes to better well-being and work.
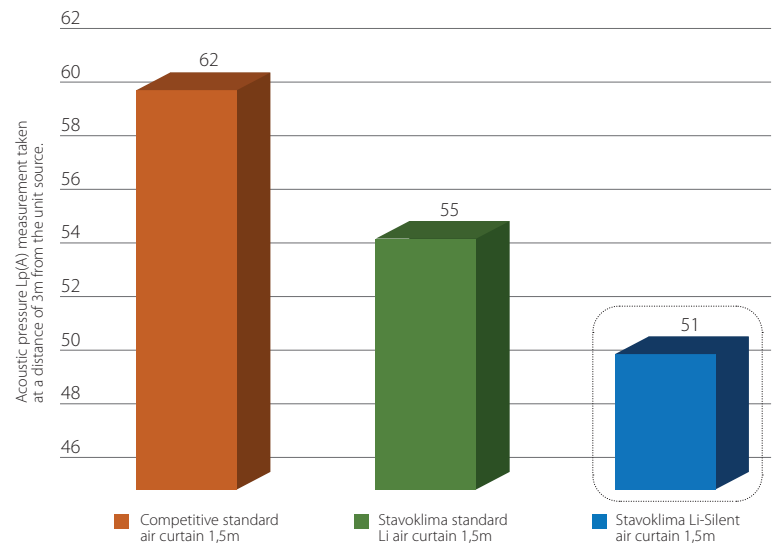
Door air curtain draft

For curtaining, the following may be used:

• circulating air heated by electric or hot-water heater (upon request)

Сравнение шумовой нагрузки ВТ3 с длиной блока 1500 мм

Acoustic pressure Lp(A) measurement taken at a distance of 3m from the unit source.

■ Competitive standard air curtain 1,5m   ■ Stavoklima standard Li air curtain 1,5m   ■ Stavoklima Li-Silent air curtain 1,5m

Basic features:

• position: vertical / horizontal

• heating: water heated, electric heated

• for the door heights: 2,7; 3,5m

• for the door widths: 1,0; 1,5; 2,0; 2,5m further unit assembly for all kinds of larger door

• colour: RAL 9010 (white) in standard, all other RAL palette colours on demand

Door air curtain draft

A stress factor of the modern times, which influences us all, is noise. A modern working environment is characterized by high noise level both it includes office spaces, common operation on various workplaces, phones, machines, chats in the rooms – it all stresses the nerves, disrupts concentration, and influences a man negatively in general including working performance.

Both positive and negative noise parameters of a room needs to be thoroughly considered in planning of installation of the low noise level air curtains.

The negative parameters of the room include:
• noise-echoing floor types (e.g., stone, wooden floors)
• noise-echoing walls (e.g., glass, stainless steel) small, sounded rooms
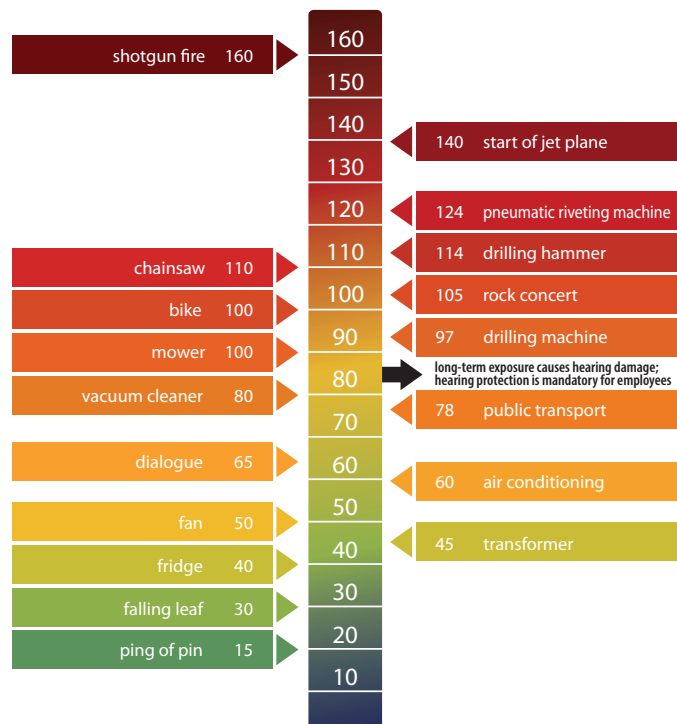• noise-echoing furniture
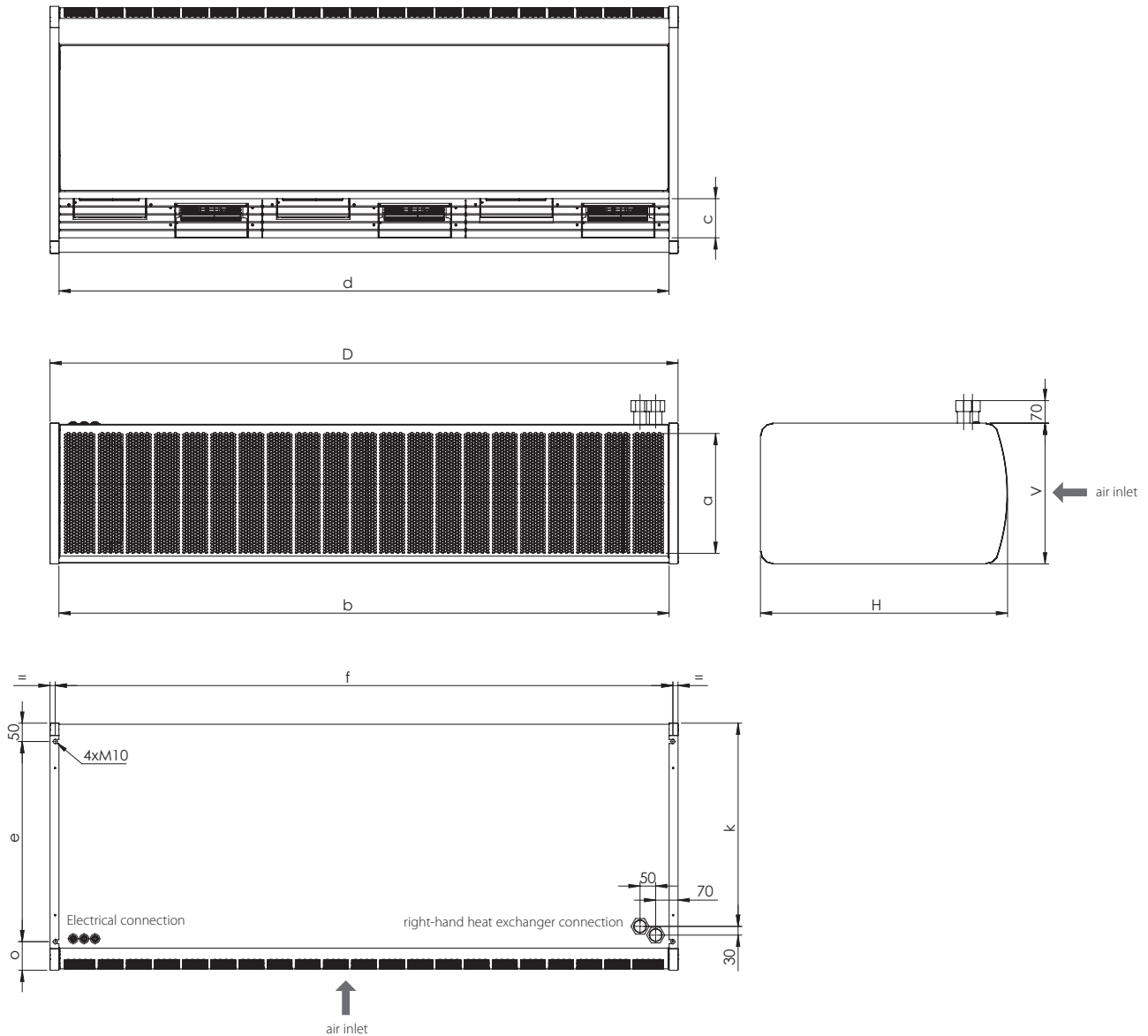
The positive parameters of the room include:
• noise-absorbing floor types (e.g., carpet, cork, and more)
• noise-absorbing walls (e.g., plasterboards, mineral wool boards, ...)
• noise-absorbing equipment in the room (e.g., upholstery furniture)

Quiet operation of the Li-Silent air curtain contributes to the feeling of comfort and higher efficiency. Noise level of the Li-Silent air curtain is about 50 dB(A) at maximum fan speed – it's noise level thereby corresponds to the noise level of a quiet office or common talk.

Accoustic noise level db (A)

Left	Scale	Right
shotgun fire 160	160	
	150	
	140	140 start of jet plane
	130	
	120	124 pneumatic riveting machine
	110	114 drilling hammer
chainsaw 110	100	105 rock concert
bike 100	90	97 drilling machine
mower 100	80	long-term exposure causes hearing damage; hearing protection is mandatory for employees
vacuum cleaner 80	70	78 public transport
dialogue 65	60	60 air conditioning
	50	
fan 50	40	45 transformer
fridge 40	30	
falling leaf 30	20	
ping of pin 15	10	

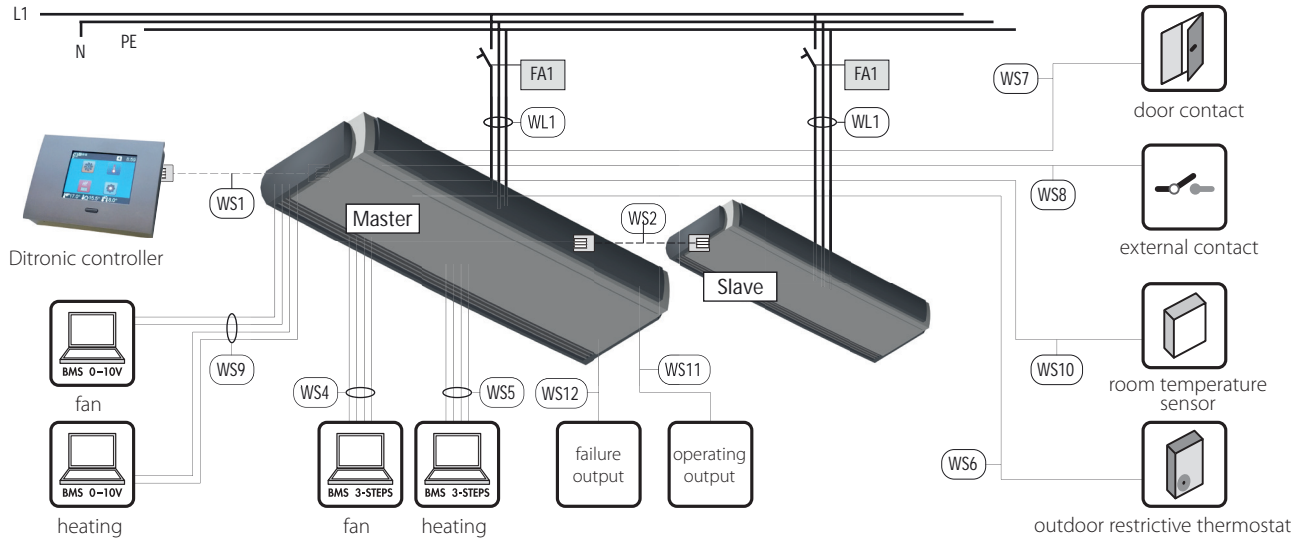| Type - Li Silent				THCP 100-3-Li0	THCP 150-3-Li0	THCP 200-3-Li0	THCP 250-3-Li0	THCP 100-3-Li2	THCP 150-3-Li2	THCP 200-3-Li2	THCP 250-3-Li2
Dimensions	length	D	[mm]	1010	1510	2010	2480	1010	1510	2010	2480
	height	V	[mm]	345	345	345	345	400	400	400	400
	depth	H	[mm]	625	625	625	625	1080	1080	1080	1080
Dimensions of the suction grille	width	a	[mm]	280	280	280	280	335	335	335	335
	length	b	[mm]	950	1450	1950	2420	950	1450	1950	2420
Dimensions of the outlet grille	width	c	[mm]	80	80	80	80	100	100	100	100
	length	d	[mm]	950	1450	1950	2420	950	1450	1950	2420
Mounting		e	[mm]	495	495	495	495	945	945	945	945
		f	[mm]	975	1475	1975	2445	975	1475	1975	2445
		o	[mm]	80	80	80	80	85	85	85	85
Connection		k	[mm]	485	485	485	485	930	930	930	930

Technical data

Technical data - water heated air curtain		THCP 100-3- Li0 NN Silent	THCP 150-3- Li0 NN Silent	THCP 200-3- Li0 NN Silent	THCP 250-3- Li0 NN Silent	THCP 100-3- Li2 NN Silent	THCP 150-3- Li2 NN Silent	THCP 200-3- Li2 NN Silent	THCP 250-3- Li2 NN Silent
	[m³/h]	1725	2100	4325	5250	3100	4325	7775	9450
Hot-water coil 70/50/18°C									
heating capacity	[kW]	13,7	20	36,6	45,2	21,7	34,7	57,6	71
pressure lost	[kPa]	3,8	6,1	9,7	6,8	6,1	8,5	11	8,6
flow volume rate	[m³/h]	0,58	0,83	1,55	1,9	0,9	1,47	2,45	3,1
Hot-water coil 60/40/18°C									
heating capacity	[kW]	9,9	14,9	27	33	15,6	25,4	42,1	52
pressure lost	[kPa]	2	3,7	5,8	4,1	3,5	5	6,5	5,1
flow volume rate	[m³/h]	0,39	0,61	1,15	1,4	0,65	1,08	1,8	2,23
Connection	[DN]	DN 20	DN 20	DN 20	DN 20	DN 20	DN 20	DN 25	DN 32
EC fan									
fan power input	[W]	210	290	450	530	262	368	580	686
fan current	[A]	1,6	2,2	3,5	4,2	1,9	2,8	4,5	5,3
fan voltage	[V]	230	230	230	230	230	230	230	230
Recommended protection FA1		B/6A/1p	B/6A/1p	B/10A/1p	B/10A/1p	B/10A/1p	B/10A/1p	B/16A/1p	B/16A/1p
Cable WL1		3Jx1,5	3Jx1,5	3Jx1,5	3Jx1,5	3Jx1,5	3Jx1,5	3Jx2,5	3Jx2,5
Protection degree		IP 20				IP 20			
Controller		Ditronic Touch				Ditronic Touch			
Noise level Lp (A) - 3m	dB (A)	50	51	52	53	50	51	52	53
Weight	[kg]	58	87	115	139	98	128	160	196

Technical data - electric air curtain		THCP 100-3- Li0 E Silent	THCP 150-3- Li0 E Silent	THCP 200-3- Li0 E Silent	THCP 250-3- Li0 E Silent	THCP 100-3- Li2 E Silent	THCP 150-3- Li2 E Silent	THCP 200-3- Li2 E Silent	THCP 250-3- Li2 E Silent
	[m³/h]	1750	2150	4400	5350	3150	4400	7925	9625
Electrical heater									
Capacity alt 1 Max. [kW]		5,0	7,5	12,5	15,0	5,0	12,5	15,0	20,0
Capacity alt 2 Max. [kW]		7,5	10,0	15,0	17,5	7,5	15,0	20,0	25,0
Capacity alt 3 Max. [kW]		10,0	12,5	20,0	22,5	10,0	17,5	25,0	30,0
Power supply	[V]	3x230V				3x230V			
EC fan									
fan power input	[W]	210	290	450	530	262	368	580	686
fan current	[A]	1,6	2,2	3,5	4,2	1,9	2,8	4,5	5,3
fan voltage	[V]	230	230	230	230	230	230	230	230
Recommended protection FA1		B/6A/1p	B/6A/1p	B/10A/1p	B/10A/1p	B/10A/1p	B/10A/1p	B/16A/1p	B/16A/1p
Cable WL1		3Jx1,5	3Jx1,5	3Jx1,5	3Jx1,5	3Jx1,5	3Jx1,5	3Jx2,5	3Jx2,5
Protection degree		IP 20				IP 20			
Controller		Ditronic Touch				Ditronic Touch			
Noise level Lp (A) - 3m	dB (A)	50	51	52	53	50	51	52	53
Weight	[kg]	58	87	115	139	98	128	160	196

Electric heater protection table - EO

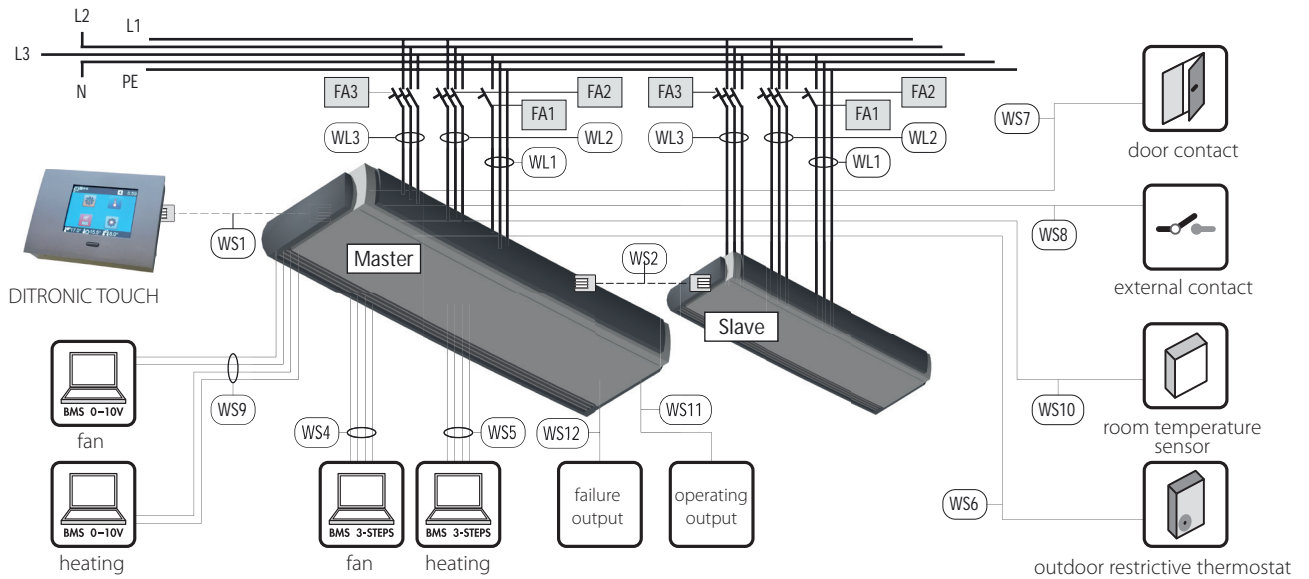| Electric heater			5kW	7,5kW	10kW	12,5kW	15kW	17,5kW	20kW	22,5kW	25kW	27,5kW	30kW	37,5kW
Protection	FA2		B/16A/1p	B/16A/3p	B/16A/3p	B/16A/3p	B/16A/3p	B/16A/3p	B/16A/3p	B/16A/3p	B/32A/3p	B/32A/3p	B/32A/3p	B/50A/3p
	FA3		B/16A/1p	B/16A/3p	B/16A/3p	B/16A/3p	B/16A/3p	B/32A/3p	B/32A/3p	B/32A/3p	B/32A/3p	B/32A/3p	B/32A/3p	B/50A/3p
Cables	WL2		3Jx4	5Jx4	5Jx4	5Jx4	5Jx4	5Jx4	5Jx4	5Jx4	5Jx10	5Jx10	5Jx10	5Jx16
	WL3		3Jx4	5Jx4	5Jx4	5Jx4	5Jx4	5Jx10	5Jx10	5Jx10	5Jx10	5Jx10	5Jx10	5Jx16

Water heated air curtains

Cables and Protection - water heated air curtains							
FA1	see tech.data page 6	**WS4**	5D x 1(1,5)	**WS7**	2A x 1(1,5)	**WS10**	2A x 1(1,5)
WL1	see tech.data page 6	**WS5**	5D x 1(1,5)	**WS8**	2A x 1(1,5)	**WS11**	2A x 1(1,5)
WS1	4 x 2 x 0,5	**WS6**	2A x 1(1,5)	**WS9**	5D x 1(1,5)	**WS12**	2D x 1(1,5)

Electrically heated air curtain

Cables and Protection - electrically heated air curtains									
FA1	see tech,data page 6	WL1	viz. tech. data str. 6	WS1	4 x 2 x 0,5	WS5	5D x 1(1,5)	WS8	2A x 1(1,5)	WS11	2A x 1(1,5)
FA2	see tab. page 6	WL2	viz.tab.EO	WS2	4 x 2x x 0,5	WS6	2A x 1(1,5)	WS9	5D x 1(1,5)	WS12	2D x 1(1,5)
FA3	see tab. page 6	WL3	viz.tab.EO	WS4	5D x 1(1,5)	WS7	2A x 1(1,5)	WS10	2A x 1(1,5)		

2-way and 3-way valves for temperature regulation

As required by the customer, an embedded 2-way or 3-way valve with control head can be delivered for the hot water heat exchanger. The valve drive may be either self-acting (thermostatic) or electrothermic.

The thermostatic head is always delivered with a separated sensor being located behind the water heat exchanger – exhausted air temperature control.

The electrothermic valve drive can be supplied to the hot water heat exchanger as embedded either as 2-way or 3-way. The valve is characterized by quiet and failure-free operation. Should the thermal drive be under voltage, the built-in sensor heats up. Following some time difference the drive starts continuously closing. Upon voltage interruption, the thermal drive continuously opens up; the opening time is about 4 minutes in case of cold-start.
The drive is always delivered in "normally open" (NO – 230V/3W) version.

name	characteristics	head	Kvs value [bar]	admissible pressure difference [bar]	admissible working temperature [°C]	admissible working pressure [bar]	temperature range [°C]
TV XXL"	2-way valve	thermostatic	8,0	0,2	120	10	25-57
TVT 1"	3-way valve	thermostatic	4,6	0,5	120	10	20-50
TVT 5/4"	3-way valve	thermostatic	6,4	0,25	120	10	20-50
ETVT 1"	3-way valve	electro-thermic	4,6	0,5	100	10	-
ETVT 5/4"	3-way valve	electro-thermic, IP54	6,4	0,25	100	10	-
ETVQ 1"	Pressure independet	electro-thermic, IP54	-	0,23/4	90	16	-
ETVQ 5/4"	Pressure independet	electro-thermic, IP54	-	0,23/4	90	16	-

Door contact: 24V
DKM – mechanical door contact / DKMG – magnetic door contact

Room thermostat: 230V
- Wall mounting
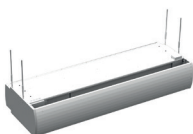- version: basic, with a switch, digital or industry with IP54

PPH – connection flexible tubes
- 300mm long flexible connection pipes with stainless steel or braided reinforcement for ease of connection from the air curtain connections to the system connections.
Set consists of 2 number pipes to DN 20, 25, 32

BMS 0-10V
- controlling the unit by BMS 0-10V

ZSA – Under ceiling suspension
- Under ceiling suspension with adjustable length of 1000 mm.
- Units levelled by adjustment on the drop rods for air curtains up to 2000 mm length

Control system of water and electrical heated air curtains DITRONIC TOUCH

Ditronic controller is fitted with an intelligent processor regulator, designed specifically for Comfort and Design air curtains that are fitted with AC or EC fans. Due to the units sleek design and readable blue colour screen, it is suitable for most kinds of interior design applications (from a basic type to the more expensive stylish type). The controller offers local control, control from superior system (BMS) or Modbus compatibility.

Dimensions: 125 x 90 x 32 (w x h x d) in mm

Description of standard functions of Ditronic controller

Week time clock
The unit is programable with simple calendar settings in order to run in different mode on working days and during the weekend (options: 1-7 or 1-5 and 6-7).

Anti-frost protection
All water heated air curtains are equipped with anti-frost protection. This protection works in two stages. When the risk of freezing is detected, the valve opens, the fans turn off and a signal sign is displayed on Ditronic.

Filter maintenance interval
The unit automatically signals the air filter cleaning request.

Indication of the room, outlet and media temperature
The room, outlet and media temperature is displayed on the front panel.

Door contact
The unit can be controlled with the door contact. After the door is closed, the delayed running is activated. The delayed time period is adjustable.

Keyboard Lock
The buttons can be easily locked to prevent any unwanted changes of settings.

Regulation via room or outlet temperature settings.
The system allows to control the temperature according to the room or outlet air temperature. There is an inbuilt function to restrict the min. outlet temperature at the same time.

Superior system – 3-step BMS
The whole unit can be regulated by the superior regulation system. 3-grade control of heating and fan is inbuilt in standard. At this kind of control the unit is completely controlled by BMS (building management system).

Setting the valve door contact
The user has the option to choose whether the valve is dependent on door contact (when the door is closed, the valve closes) or independent (if the temperature difference shows the requirement for heating, the valve remains opened after door closes).

Fault and operating output of the device
The unit is equipped with outputs for failure and opertion to signalize the failure on the display.

HELP TRONIC - QR code display.
Use a reader to get to the user manual to troubleshoot the Ditronic Touch.

Restrictive exterior thermostat
When the required temperature is reached, the heating (or the whole unit) can be switched of via the restrictive thermostat.

MASTER/SLAVE
The units can be connected in series as Master and Slaves. The room sensor is used for MASTER unit only.

External contact
The Air curtain can be switched on/off from a distant place with the external contact. If the function is enabled, wireless radio remote controller is not possible.

Automatic mode
The unit can run in the automatic mode. When the door is open, the device works according to the parameters selected on the controller. After closing the door, the device automatically switches to the corresponding stages heating and fan (according to the difference of required and actual temperatures).

Additional heating mode
If necessary, the unit can cover a sudden drop of temperature by turning on the additional heating mode. High heating capacity will be reached in a very short time.

Superior system Modbus
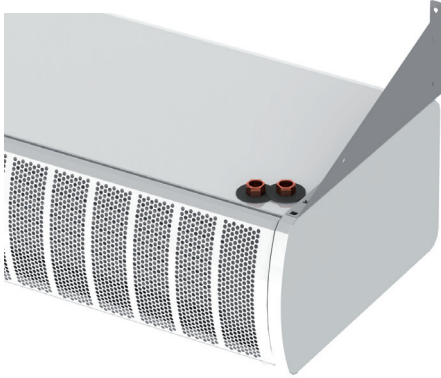The controller offers the user the option to control devices using Modbus protocol.

BMS 0-10V
For control from BMS 0-10V it is necessary to order module for control with continuous signal 0-10V.
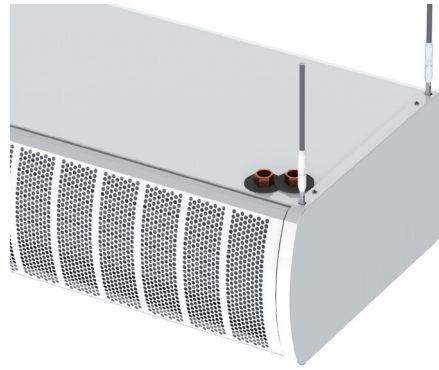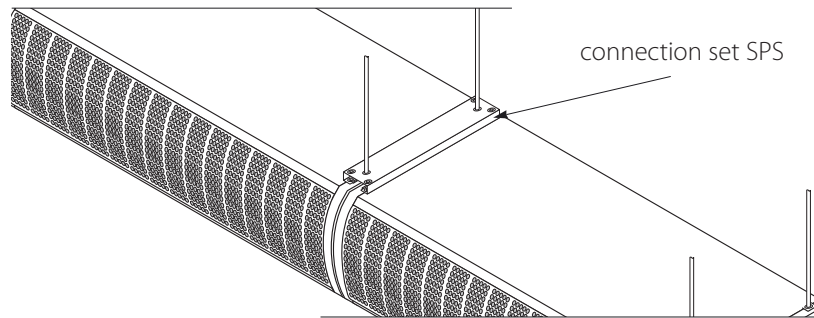
Connection and Position

Wall suspension

Underceiling suspension

Connection of air curtains

connection set SPS

Order code

T — HC — P — 200 — 3 — Li 0NN — Silent

Type

Unit position

Heat exchanger version

Unit length

Internal producer code

Air curtain capacity level

P - right connection
(from indoor perspective)
L - left connection
(from indoor perspective)

3 - Internal producer code

HC - horizontal position

150 - unit lenght 1500 mm
200 - unit lenght 2000 mm
250 - unit lenght 2500 mm
300 - combination of, (150 + 150) units

Li0 NN - capacity level 2; heater for low-temperature gradients;
recommended mounting height 2,5m
Li2 NN - capacity level 4; heater for low-temperature gradients;
recommended mounting height 3,5m
Li0 E - capacity level 2; electric heater; recommended mounting height 2,5m
Li2 E - capacity level 4; electric heater; recommended mounting height 3,5 m

S - ambient unit (without heat exchanger)
T - unit with hot water or electrical heat exchanger

Li Silent 07/18 AN