FLOWAIR
intelligent air flow

LEO AGRO
LEO AGRO SP

TABLE OF CONTENTS

	AGRO	AGRO SP
Heating capacity (kW)	16-43	20-56
Air flow (m³/h)	1900-3700	3300-4600
Weight (kg)	21,8-23,9	27,3-31,0
Colour	grey	
Casing	powder-painted steel	plastic

LEO AGRO fan heaters are designed to operate indoors. They are used to heat medium and big size with a high humidity level and a corrosive environment, e.g. livestock buildings.
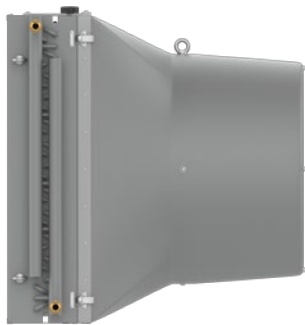
Two types of units are available:

LEO AGRO
fan heater with epoxidized heat exchanger, casing is made of galvanized steel protected by anti-corrosion coating.

LEO AGRO SP
fan heater with epoxidized heat exchanger, casing is made of plastic, with long-range air stream.

LEO AGRO

LEO AGRO SP
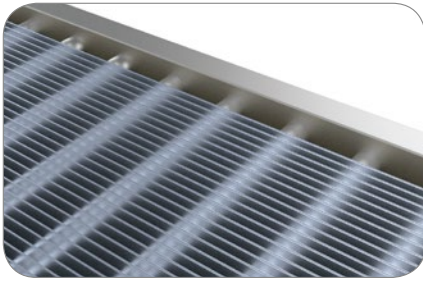
EPOXIDIZED HEAT EXCHANGER

Three-row heat exchanger with 40% thicker fins and increased distance between the fins in comparison with a standard fan heater. It is protected by a special anti-corrosion coating, which increases the durability of the unit.

HIGHLY-EFFICIENT FAN

Water and dustproof fan with IP66 protection degree and compression (ew. static pressure) which enables the removal of dust and small grits from the heat exchanger.

EASY CLEANING

Easy to remove drop tray with drain plug makes easy discharge of impurities after cleaning operations possible.

ROTATION CONSOLE

Enables the user to rotate the unit by 170° and to install it on vertical partitions, poles, pillars etc

OPENED CASING
AIR MIXER

Easy access to the inside of the unit speeds up the maintenance and service operations. The open casing design of the unit enables air mixing in the summer.
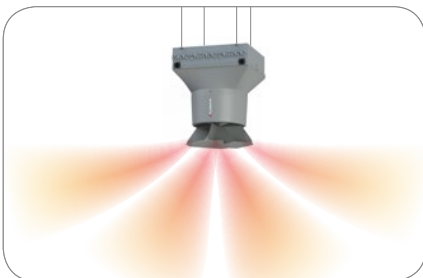
4-SIDE OUTLET GRILLE

The use of the 4-side outlet grille provides steady air distribution in the entire space of the building. Additionally, the heat stream is not aimed directly at the animals.

DIMENSIONS

LEO AGRO

650 · 510 · 610 · 440

LEO AGRO SP

700 · 585 · 660 · 600
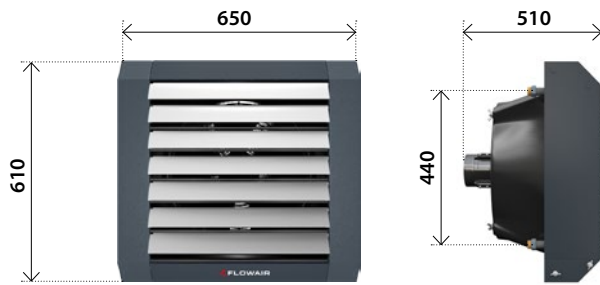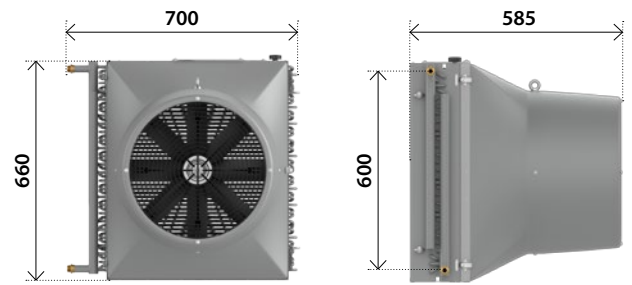
LEO AGRO and installation console

630 · 510 · 440
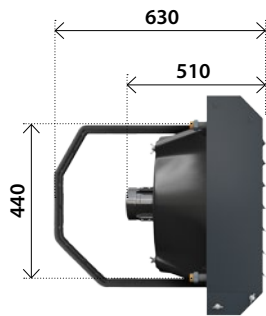
LEO AGRO SP and installation brackets

930 · 585
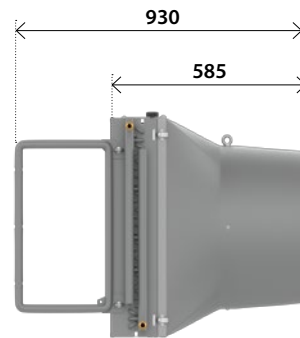
TECHNICAL DATA

	AGRO	AGRO SP
Fan	axial, single phase, AC	
Max. air flow [m³/h]	3700	4600
Power supply [V/Hz]	230/50	
Max. current consumption [A]	1,8	2,5
Max. power consumption [W]	350	360
IP / Insulation class	66	
Max. acoustic pressure level* [dB(A)]	51,0	62,0
Max. air stream range** [m]	22,0	28,0
Heat exchanger	Cu – Al., three-row	
Nominal heating capacity*** [kW]	43,0	56,2
Air temperature rise (ΔT)*** [°C]	32,5	34,0
Max. water temperature [°C]	130,0	95,0
Max. water pressure [MPa]	1,6	
Connection ["]	¾	
Casing	powder-painted steel	plastic
Colour	grey	
Place of installation	indoors	
Max. ambient temperature [°C]	40,0	
Installation position	any	
Unit weight [kg]	21,8	27,3
Weight of unit filled with water [kg]	23,9	31,0

* Acoustic pressure level measured in the room with average sound absorption, capacity 1500 m³, at distance of 5 m from the unit.
** Horizontal range of isothermal stream (at velocity boundary equal to 0,5 m/s).
*** At max. air flow stream, inlet/outlet water temperature 90/70°C, inlet air temperature 0°C.

AIR TEMPERATURE RISE

Tw1/Tw2 = 90/70°C

Tw1/Tw2 = 40/30°C
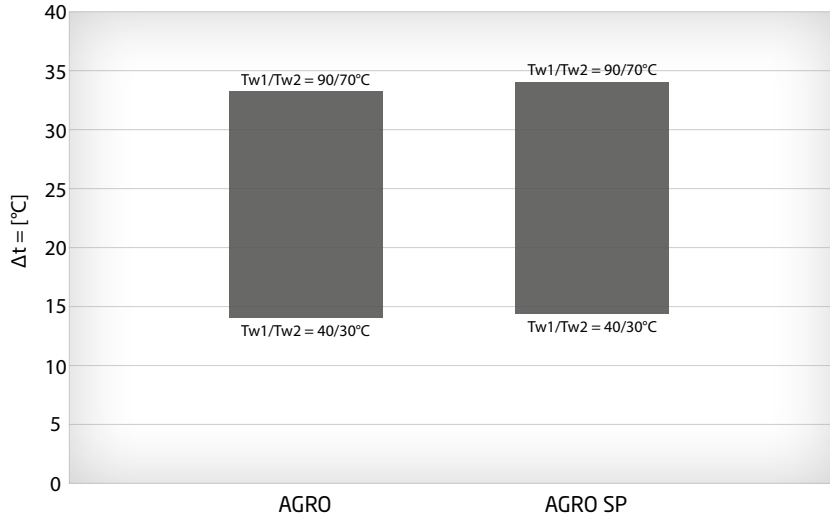
AGRO   AGRO SP

Air temperature rise at unit's maximum air flow. Inlet air temperature 0°C.

Tw1/Tw2 - inlet/outlet water temperature.

AIR FLOW REGULATION
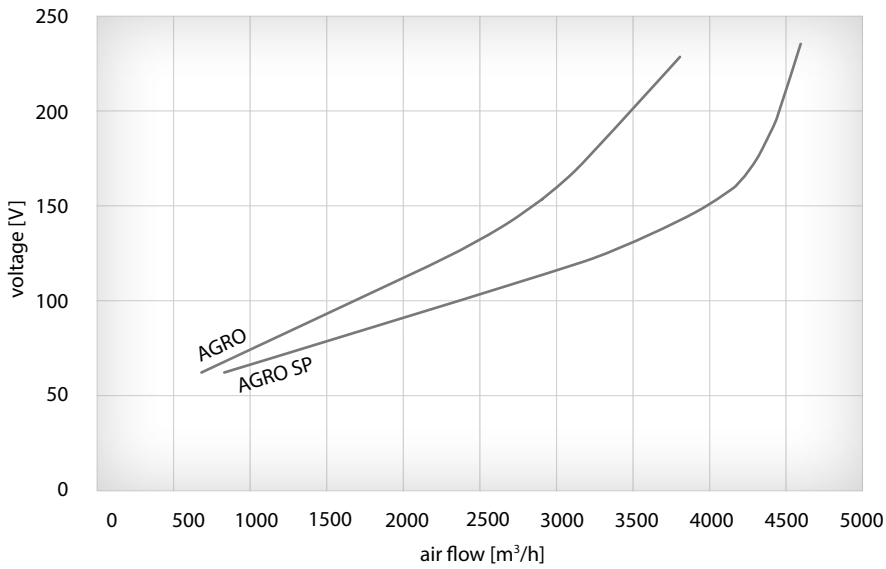
AGRO

AGRO SP

HORIZONTAL RANGE OF AIR STREAM   ISOTHERMAL
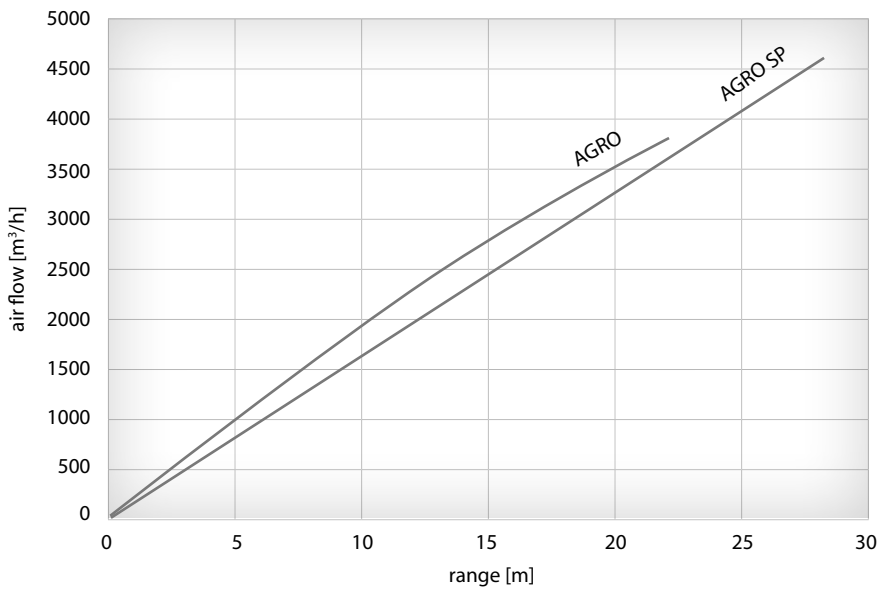
AGRO

AGRO SP

Horizontal range of isothermal stream (at velocity boundary equal to 0,5 m/s).

VERTICAL RANGE OF AIR STREAM — NON-ISOTHERMAL — LEO AGRO
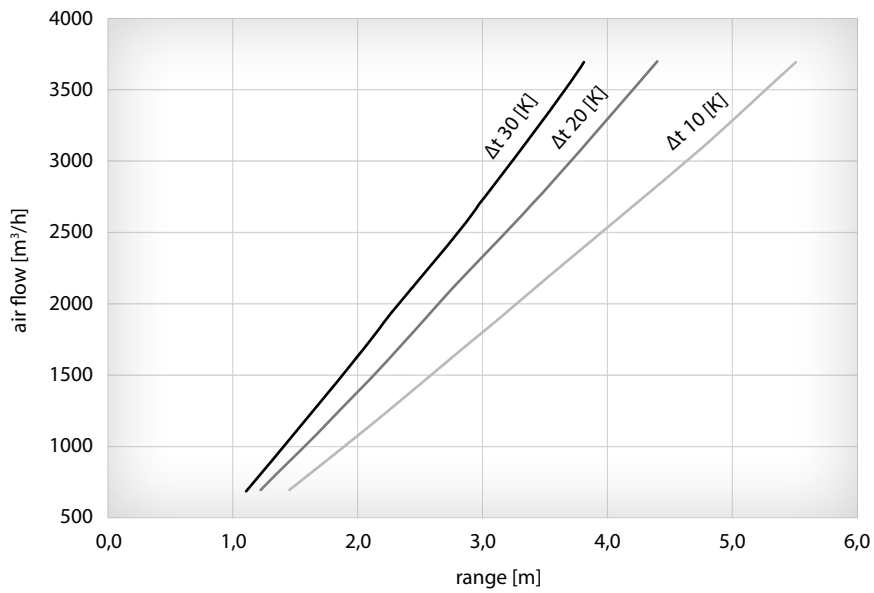
Vertical range of non-isothermal stream (at velocity boundary equal to 0,5 m/s).

VERTICAL RANGE OF AIR STREAM — NON-ISOTHERMAL — LEO AGRO SP
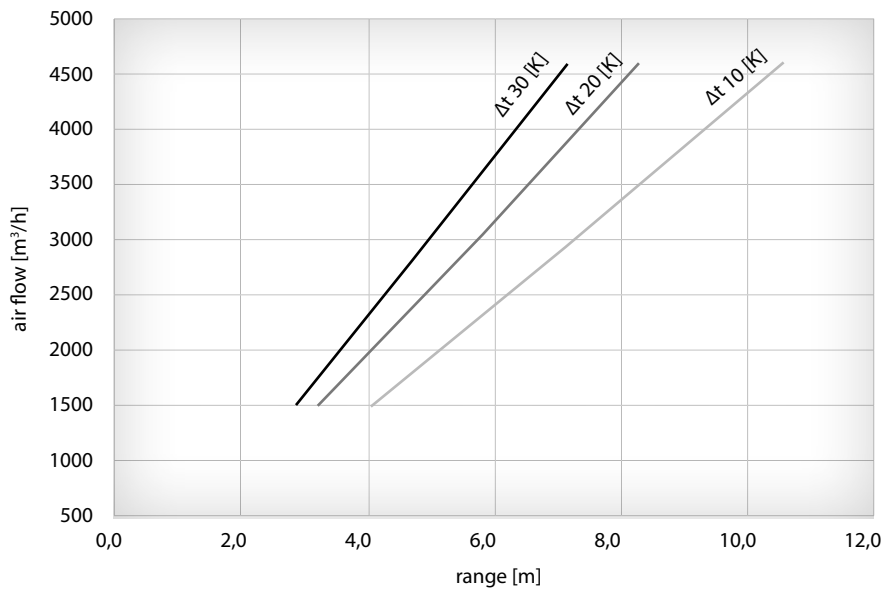
Vertical range of non-isothermal stream (at velocity boundary equal to 0,5 m/s).

CONSOLE | INSTALLATION BRACKETS

Installation console for LEO AGRO
enables the user to rotate the unit by 170°, direct the air stream to the desired area. It provides easy access to each side of the unit making cleaning easier. Use of the console makes installation of the unit on walls, poles and tight pillars possible.

Installation brackets for LEO AGRO SP
enable easy and quick installation of the unit and ensure optimum air flow around the unit.

**INSTALLATION CONSOLE
FOR LEO AGRO**

**INSTALLATION BRACKETS
FOR LEO AGRO SP**

INSTALLATION OPTIONS

installation **under the ceiling**

vertical installation using the console

170°

90°

45°

A

C

vertical installation using brackets

B

A
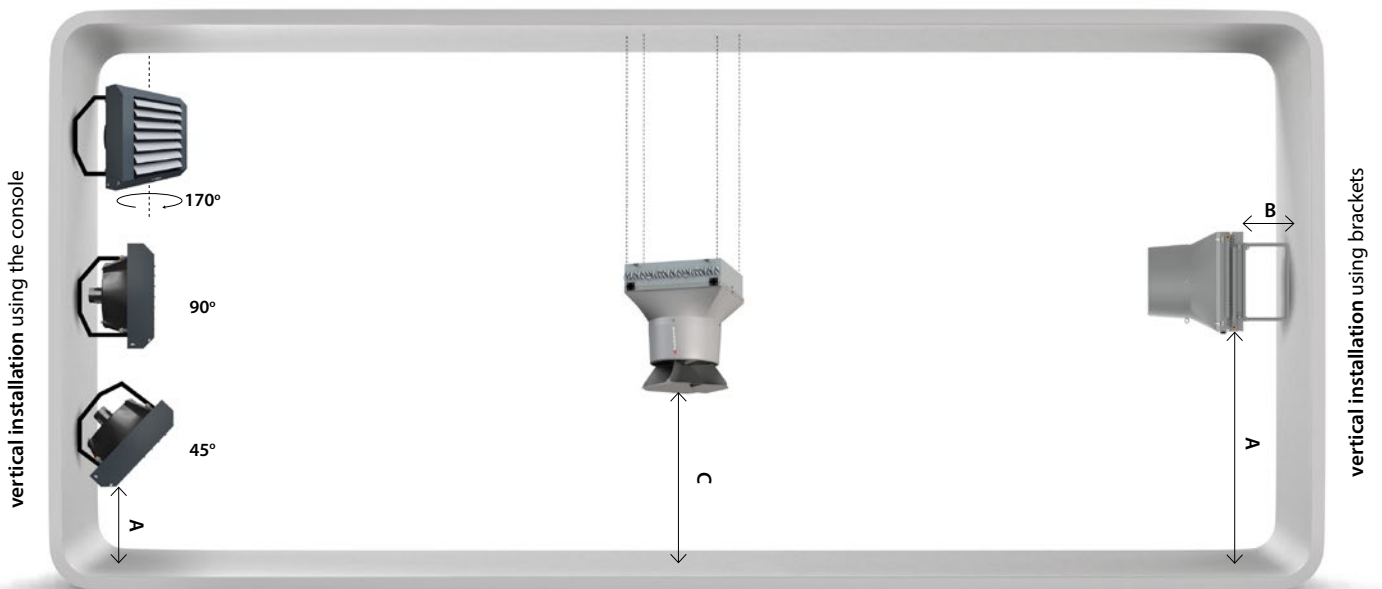
Recommended installation distances [m]	AGRO	AGRO SP
(A) on-wall installation	1,5-3,0	1,5-3,0
(B) on-wall installation	0,30	0,30
(C) installation under the ceiling	-	0,75-1,5

INSTALLATION TIPS

ON-WALL INSTALLATION OF LEO AGRO
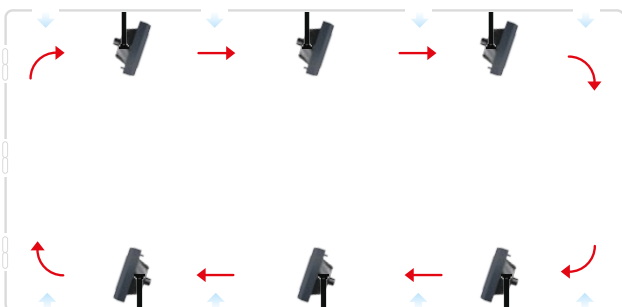
On-wall installation of the units ensures correct air distribution in entire volume of the room.

INSTALLATION UNDER THE CEILING OF LEO AGRO SP WITH 4-SIDE OUTLET GRILLE
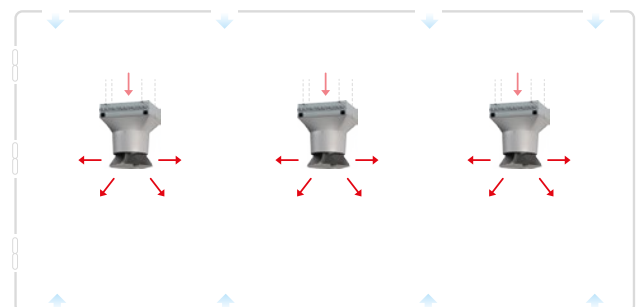
Installation under the ceiling of units with 4-side air outlet ensures steady air distribution in the entire space of the room and the warm air stream is not aimed directly at the animals.

760

650
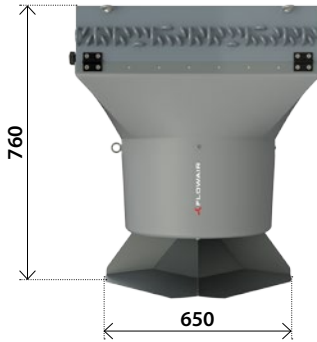
AGRO SP 4-side outlet grille
nozzle that distributes the air from
fan heaters installed under the ceiling.

The benefits of using AGRO SP 4-side outlet grille:
- Steady temperature distribution
- Better quality of bedding
- Lower concentration of ammonia
- Lower humidity level in the room

Material: powder-painted galvanized steel, protected
by special anti-corrosion coating
RAL 7012
Weight: 3,2 kg

Air flow zone

min. 0,3 m

max. 12 m*

0,75 - 1,5 m
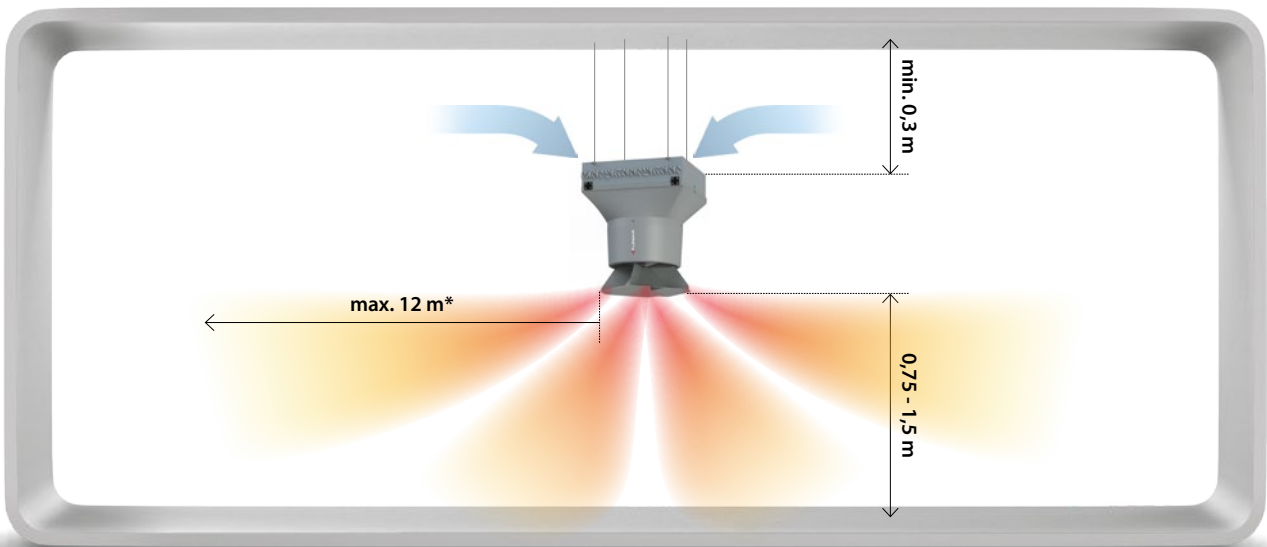
* Horizontal range of isothermal stream (at velocity boundary equal to 0,5 m/s).

CONTROL SYSTEMS

ON/OFF CONTROL SYSTEM

AC
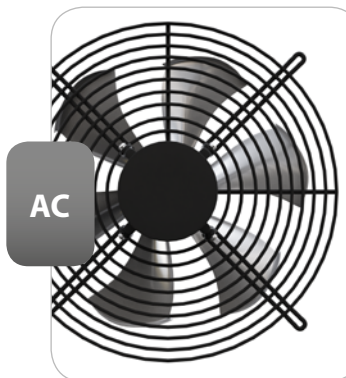
SRQ2d
two-way valves
with actuator

R55
room thermostat with
increased protection degree
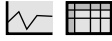
TRa
5-step fan
speed regulator

It is the simplest ON/OFF regulation system.
Fan heater is controlled by room thermostat,
which turns on the unit (or/and opens the
valve) when the measured temperature drops
below the set temperature. The air flow is
adjusted by a transformer regulator.

It is most commonly used in objects, where
independent control of every single unit is
needed.

FEATURES:

Low thermal inertia.

Low investment costs.

Easy to use.

Independent control of every single unit.

Gradual regulation of the air flow.

Category	Symbol	Picture	Technical data
thermostats	R55 room thermostat with high protection degree		Temperature adjustment range: 0 … +40°C Protection degree: IP55 Contacts load: inductive 4 A, resistance 16 A Dimensions (HxWxL): 130x105x86 mm
fan speed regulators	TRa 5-step fan speed regulator p. 11 p. 11		Power supply: 230 V 50/60 Hz Protection degree: IP54 Operating temperature range: 0 … +40°C Steps of regulation:

step	1	2	3	4	5
	Ur [V] / Ir [A]				
TRa	115/2,4	135/2,6	155/2,8	180/3,0	230/3,0

Weight: 2,5 kg
Dimensions (HxWxL): 120x75x60 mm

Category	Symbol	Picture	Technical data
valves	SRQ2d two-way valve ¾" with actuator		Protection degree: IP20 Power supply: 200–240 V 50/60 Hz Max. water temperature: +93°C Max. operating pressure: 1,6 MPa Kvs: 6,5 m³/h Installation: on water outlet pipe Opening/closing time: 18s/5s Dimensions (HxWxL): 112x86x66 mm

* Possibility to use single 5, 7, 10 or 15 A regulator to control several fan heaters.

CONNECTION DIAGRAMS

• R55 thermostat controls SRQ2d valve
• TRa fan speed regulator enables 5-step fan speed adjustment

• R55 controls SRQ2d valve and TRa fan speed regulator
• TRa fan speed regulator enables 5-step fan speed regulation

SRQ2d   TRa   R55

min. 3×0,5 mm²

min. 3×1 mm²

min. 3×1 mm²

min. 3×0,5 mm²

power supply 230V/50Hz   power supply 230V/50Hz

SRQ2d   TRa   R55

min. 3×0,5 mm²

min. 3×1 mm²

min. 3×1 mm²

power supply 230V/50Hz
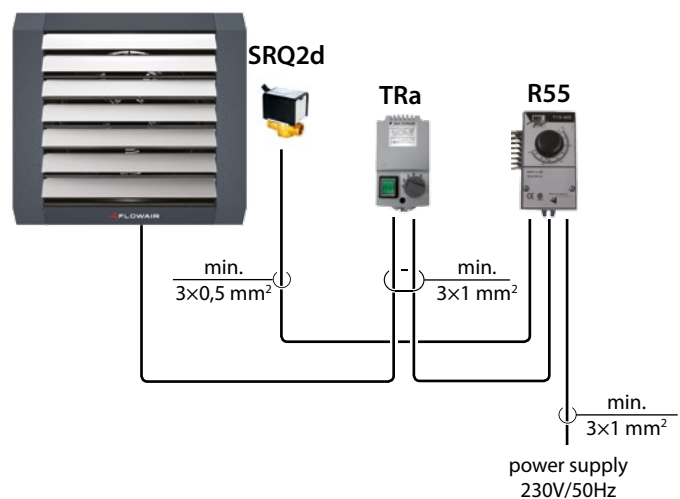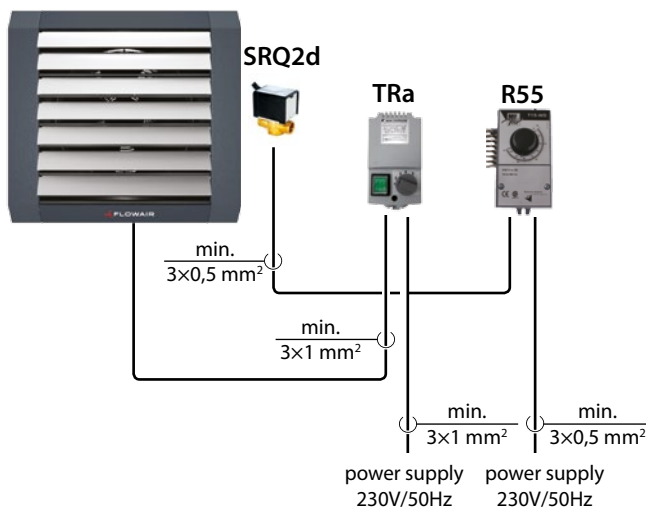
VELOCITY OF THE AIR FLOW

Legend:
- 1st step TRa
- 2nd step TRa
- 3rd step TRa
- 4th step TRa
- 5th step TRa

air velocity [m/s] vs range [m]

Legend:
- 1st step TRa
- 2nd step TRa
- 3rd step TRa
- 4th step TRa
- 5th step TRa

air velocity [m/s] vs range [m]
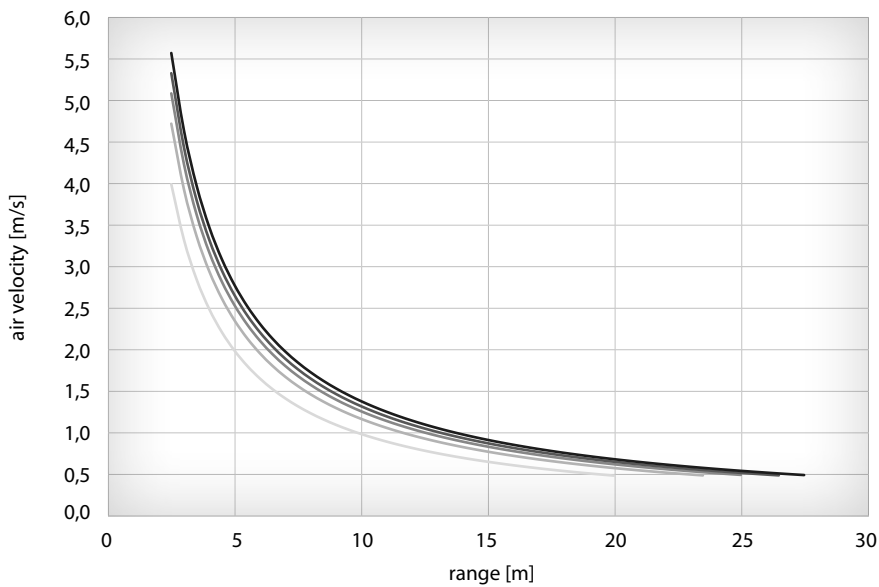
AIR FLOW REGULATION - TECHNICAL DATA

LEO AGRO air flow regulation by the TRa speed regulator					
Step of TRa	1st step	2nd step	3rd step	4th step	5th step
Air flow [m³/h]	1900	2400	2800	3150	3700
Power consumption [W]	155	220	270	300	350
Acoustic pressure level [dB(A)]*	44	46	48	50	51

LEO AGRO SP air flow regulation by the TRa speed regulator					
Step of TRa	1st step	2nd step	3rd step	4th step	5th step
Air flow [m³/h]	3300	3900	4200	4400	4600
Power consumption [W]	255	300	305	325	360
Acoustic pressure level [dB(A)]*	54	57	58	60	62

*Acoustic pressure level measured in the room with average sound absorption, capacity 1500 m³, at distance of 5 m from the unit.

Air flow regulation by the TRa regulator

Tp1	PT	Qw	Δpw	Tp2	Tp1	PT	Qw	Δpw	Tp2	Tp1	PT	Qw	Δpw	Tp2
°C	kW	l/h	kPa	°C	°C	kW	l/h	kPa	°C	°C	kW	l/h	kPa	°C
1st step - TRa / V=1900 m3/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	28,2	1240	11,0	41,5	0	24,4	1070	10,0	36,0	0	20,6	900	7,0	30,5
5	26,0	1150	9,0	44,0	5	22,3	980	8,0	38,5	5	18,6	810	6,0	33,0
10	23,9	1060	9,0	46,5	10	20,3	890	7,0	41,0	10	16,6	730	6,0	35,5
15	21,9	970	8,0	49,0	15	18,3	800	6,0	43,5	15	14,6	640	5,0	38,0
20	19,9	880	7,0	51,5	20	16,3	720	6,0	46,0	20	12,7	560	4,0	40,0
25	18,0	790	5,0	54,0	25	14,4	630	5,0	48,0	25	10,8	470	4,0	42,5
30	16,1	710	4,0	56,0	30	12,6	550	4,0	50,5	30	9,0	390	3,0	44,5
35	14,2	630	5,0	58,5	35	10,7	470	4,0	53,0	35	7,1	310	2,0	47,0
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	18,0	520	6,0	26,5	0	16,8	730	7,0	24,5	0	15,6	1360	14,0	23,0
5	16,0	470	5,0	29,0	5	14,8	650	5,0	27,0	5	13,6	1190	11,0	25,5
10	14,0	410	4,0	31,5	10	12,9	560	4,0	29,5	10	11,7	1020	9,0	28,0
15	12,0	350	3,0	33,5	15	10,9	480	4,0	32,0	15	9,8	860	7,0	30,5
20	10,0	290	2,0	36,0	20	9,0	390	4,0	34,5	20	8,0	700	6,0	32,5
25	8,1	240	1,0	38,0	25	7,2	310	3,0	36,5	25	6,2	540	4,0	35,0
30	6,1	180	1,0	40,0	30	5,3	230	3,0	38,5	30	4,4	380	4,0	37,0
35	3,9	110	1,0	41,5	35	3,3	140	3,0	40,5	35	2,6	220	4,0	39,0
2nd step - TRa / V=2400 m³/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	32,8	1450	14,0	38,0	0	28,4	1250	11,0	33,0	0	24,0	1050	10,0	28,0
5	30,3	1340	12,0	41,0	5	26,0	1140	9,0	36,0	5	21,6	950	8,0	30,5
10	27,9	1230	10,0	43,5	10	23,6	1040	9,0	38,5	10	19,3	840	6,0	33,5
15	25,6	1130	10,0	46,5	15	21,3	940	8,0	41,0	15	17,0	740	7,0	36,0
20	23,2	1020	9,0	49,0	20	19,0	830	6,0	43,5	20	14,8	650	5,0	38,5
25	21,0	920	7,0	51,5	25	16,8	740	7,0	46,5	25	12,6	550	5,0	41,0
30	18,7	830	6,0	54,0	30	14,6	640	5,0	49,0	30	10,4	460	4,0	43,5
35	16,6	730	6,0	57,0	35	12,5	550	4,0	51,0	35	8,2	360	3,0	46,0
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	20,9	610	5,0	24,5	0	19,5	850	7,0	22,5	0	18,2	1580	16,0	21,0
5	18,5	540	5,0	27,0	5	17,2	750	7,0	25,5	5	15,9	1380	14,0	24,0
10	16,1	470	5,0	29,5	10	14,9	650	5,0	28,0	10	13,7	1190	11,0	26,5
15	13,9	400	4,0	32,0	15	12,7	550	5,0	30,5	15	11,4	1000	9,0	29,0
20	11,6	340	3,0	34,5	20	10,5	460	4,0	33,0	20	9,3	810	6,0	31,5
25	9,3	270	3,0	37,0	25	8,3	360	3,0	35,5	25	7,2	620	5,0	34,0
30	7,0	200	2,0	39,0	30	6,1	260	2,0	38,0	30	5,1	440	5,0	36,5
35	4,5	130	2,0	41,0	35	3,8	160	2,0	40,0	35	3,0	260	2,0	39,0
3rd step - TRa / V=2800 m³/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	36,2	1600	15,0	36,0	0	31,3	1380	13,0	31,0	0	26,4	1160	10,0	26,5
5	33,5	1480	15,0	39,0	5	28,7	1260	11,0	34,0	5	23,8	1040	9,0	29,0
10	30,8	1360	12,0	42,0	10	26,0	1140	9,0	37,0	10	21,2	930	8,0	32,0
15	28,2	1240	11,0	44,5	15	23,5	1030	9,0	39,5	15	18,7	820	6,0	34,5
20	25,6	1130	9,0	47,5	20	20,9	920	7,0	42,5	20	16,2	710	6,0	37,5
25	23,1	1020	9,0	50,0	25	18,5	810	6,0	45,0	25	13,8	610	5,0	40,0
30	20,7	910	7,0	53,0	30	16,1	710	6,0	48,0	30	11,4	500	3,0	42,5
35	18,3	800	6,0	55,5	35	13,7	600	5,0	50,5	35	9,0	400	3,0	45,0
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	22,9	670	6,0	23,0	0	21,5	940	8,0	21,5	0	20,1	1750	19,0	20,0
5	20,3	590	5,0	25,5	5	18,9	820	6,0	24,0	5	17,5	1530	17,0	23,0
10	17,8	520	4,0	28,5	10	16,4	720	6,0	27,0	10	15,1	1310	13,0	25,5
15	15,2	440	4,0	31,0	15	13,9	610	5,0	29,5	15	12,6	1100	11,0	28,5
20	12,7	370	3,0	33,5	20	11,5	500	3,0	32,5	20	10,2	890	7,0	31,0
25	10,2	300	3,0	36,0	25	9,1	400	3,0	35,0	25	7,9	690	6,0	33,5
30	7,6	220	2,0	38,5	30	6,6	290	2,0	37,5	30	5,6	490	3,0	36,0
35	4,9	140	2,0	40,5	35	4,1	180	2,0	40,5	35	3,2	280	2,0	39,0

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

Tp1	PT	Qw	Δpw	Tp2	Tp1	PT	Qw	Δpw	Tp2	Tp1	PT	Qw	Δpw	Tp2
°C	kW	l/h	kPa	°C	°C	kW	l/h	kPa	°C	°C	kW	l/h	kPa	°C
4th step - TRa / V=3150 m³/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	39,0	1720	17,0	34,5	0	33,7	1480	15,0	30,0	0	28,4	1240	11,0	25,0
5	36,0	1590	15,0	37,5	5	30,8	1350	13,0	33,0	5	25,6	1120	11,0	28,0
10	33,1	1460	14,0	40,5	10	28,0	1230	11,0	35,5	10	22,8	1000	9,0	31,0
15	30,3	1340	12,0	43,5	15	25,5	1110	10,0	38,5	15	20,1	880	7,0	34,0
20	27,6	1220	10,0	46,0	20	22,6	990	8,0	41,5	20	17,5	760	5,0	36,5
25	24,9	1100	10,0	49,0	25	19,9	870	7,0	44,5	25	14,9	650	5,0	39,5
30	22,2	980	8,0	52,0	30	17,3	760	7,0	47,0	30	12,3	540	4,0	42,0
35	19,6	870	6,0	54,5	35	14,7	650	5,0	50,0	35	9,7	430	4,0	45,0
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	24,6	720	6,0	22,0	0	23,1	1010	9,0	20,5	0	21,6	1880	22,0	19,0
5	21,8	630	5,0	24,5	5	20,3	890	7,0	23,5	5	18,9	1640	17,0	22,0
10	19,0	550	4,0	27,5	10	17,6	770	6,0	26,0	10	16,2	1410	15,0	25,0
15	16,3	470	4,0	30,5	15	14,9	650	5,0	29,0	15	13,6	1180	11,0	27,5
20	13,6	400	3,0	33,0	20	12,3	540	4,0	32,0	20	11,0	960	8,0	30,5
25	10,9	320	3,0	35,5	25	9,7	420	4,0	34,5	25	8,5	740	7,0	33,5
30	8,1	240	3,0	38,0	30	7,1	310	2,0	37,0	30	6,0	520	4,0	36,0
35	5,2	150	3,0	40,0	35	4,4	190	5,0	39,5	35	3,5	300	2,0	38,5
5th step - TRa / V=3700 m³/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	43,0	1890	20,0	32,5	0	37,2	1630	16,0	28,0	0	31,3	1370	13,0	23,5
5	39,7	1750	17,0	35,5	5	34,0	1490	15,0	31,0	5	28,2	1230	11,0	26,5
10	36,6	1610	15,0	38,5	10	30,9	1360	13,0	34,0	10	25,1	1100	10,0	29,5
15	33,5	1470	15,0	41,5	15	27,8	1220	11,0	37,0	15	22,2	970	8,0	32,5
20	30,4	1340	12,0	44,5	20	24,9	1090	10,0	40,0	20	19,2	840	6,0	35,5
25	27,5	1210	10,0	47,5	25	21,9	960	8,0	43,0	25	16,3	710	6,0	38,5
30	24,5	1080	10,0	50,5	30	19,1	840	6,0	46,0	30	13,5	590	5,0	41,5
35	21,7	950	8,0	53,5	35	16,2	710	6,0	49,0	35	10,7	470	5,0	44,0
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	27,0	790	6,0	20,5	0	25,4	1110	11,0	19,0	0	23,8	2070	26,0	18,0
5	23,9	700	6,0	23,5	5	22,4	980	9,0	22,0	5	20,8	1810	21,0	21,0
10	20,9	610	5,0	26,5	10	19,4	840	7,0	25,0	10	17,8	1550	18,0	24,0
15	17,9	520	4,0	29,5	15	16,4	720	7,0	28,0	15	15,0	1300	13,0	27,0
20	14,9	430	4,0	32,0	20	13,5	590	5,0	31,0	20	12,1	1050	10,0	30,0
25	11,9	350	3,0	35,0	25	10,7	460	5,0	34,0	25	9,3	810	6,0	33,0
30	8,9	260	2,0	37,5	30	7,8	340	3,0	36,5	30	6,6	570	4,0	35,5
35	5,6	160	2,0	40,0	35	4,8	210	3,0	39,0	35	3,8	330	3,0	38,0

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

Air flow regulation by the TRa regulator

Tp1	PT	Qw	Δpw	Tp2	Tp1	PT	Qw	Δpw	Tp2	Tp1	PT	Qw	Δpw	Tp2
°C	kW	l/h	kPa	°C	°C	kW	l/h	kPa	°C	°C	kW	l/h	kPa	°C
1st step - TRa V=3300 m³/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	45,6	2010	14,0	38,5	0	39,5	1740	11,0	33,5	0	33,3	1460	10,0	28,0
5	42,1	1860	12,0	41,5	5	36,1	1590	10,0	36,0	5	30,1	1320	8,0	31,0
10	38,8	1710	11,0	44,0	10	32,8	1440	10,0	39,0	10	26,8	1170	7,0	33,5
15	35,5	1560	9,0	46,5	15	29,6	1300	8,0	41,5	15	23,6	1030	7,0	36,0
20	32,3	1420	9,0	49,5	20	26,5	1160	7,0	44,0	20	20,6	900	5,0	38,5
25	29,1	1280	8,0	52,0	25	23,3	1030	6,0	46,5	25	17,5	770	4,0	41,0
30	26,1	1150	6,0	54,5	30	20,3	890	5,0	49,0	30	14,5	640	4,0	43,5
35	23,0	1010	6,0	57,0	35	17,4	760	5,0	51,5	35	11,6	510	3,0	46,0
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	29,1	850	6,0	24,5	0	27,2	1190	7,0	23,0	0	25,3	2200	19,0	21,5
5	25,8	750	5,0	27,0	5	24,0	1040	7,0	25,5	5	22,1	1920	15,0	24,0
10	22,6	660	4,0	30,0	10	20,8	910	5,0	28,5	10	19,0	1650	11,0	26,5
15	19,4	560	3,0	32,5	15	17,7	770	4,0	31,0	15	15,9	1390	10,0	29,5
20	16,2	470	3,0	35,0	20	14,6	640	4,0	33,5	20	12,9	1130	8,0	32,0
25	13,0	380	2,0	37,0	25	11,6	500	3,0	35,5	25	10,0	870	5,0	34,5
30	9,8	290	2,0	39,5	30	8,5	370	3,0	38,0	30	7,1	620	4,0	36,5
35	6,3	180	2,0	41,0	35	5,3	230	3,0	40,0	35	4,2	360	3,0	39,0
2nd step - TRa V=3900 m³/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	50,7	2240	17,0	36,5	0	43,9	1930	14,0	31,5	0	37,1	1620	10,0	26,5
5	46,9	2070	15,0	39,0	5	40,2	1760	12,0	34,5	5	33,4	1460	10,0	29,5
10	43,2	1900	13,0	42,0	10	36,5	1600	10,0	37,0	10	29,8	1300	8,0	32,0
15	39,5	1740	11,0	45,0	15	32,9	1450	10,0	40,0	15	26,3	1150	7,0	35,0
20	35,9	1580	9,0	47,5	20	29,4	1290	8,0	42,5	20	22,8	1000	6,0	37,5
25	32,4	1430	9,0	50,5	25	26,0	1140	6,0	45,5	25	19,4	850	5,0	40,0
30	29,0	1280	8,0	53,0	30	22,6	990	6,0	48,0	30	16,1	700	5,0	43,0
35	25,6	1030	6,0	55,5	35	19,3	850	5,0	50,5	35	12,8	560	3,0	45,5
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	32,2	940	6,0	23,0	0	30,2	1320	9,0	21,5	0	28,1	2450	23,0	20,0
5	28,6	830	5,0	26,0	5	26,6	1160	7,0	24,5	5	24,6	2140	18,0	23,0
10	25,0	730	5,0	28,5	10	23,1	1010	7,0	27,0	10	21,1	1840	13,0	25,5
15	21,4	620	4,0	31,0	15	19,6	850	5,0	30,0	15	17,7	1540	12,0	28,5
20	17,9	520	3,0	34,0	20	16,2	710	5,0	32,5	20	14,4	1250	8,0	31,0
25	14,4	420	3,0	36,5	25	12,8	560	4,0	35,0	25	11,1	970	6,0	33,5
30	10,8	320	2,0	38,5	30	9,4	410	3,0	37,5	30	7,9	680	5,0	36,5
35	7,0	200	2,0	40,5	35	5,8	250	2,0	40,0	35	4,6	400	4,0	39,0
3rd step - TRa V=4200 m³/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	53,1	2340	19,0	35,5	0	46,0	2020	15,0	30,5	0	38,8	1700	11,0	26,0
5	49,1	2160	16,0	38,0	5	42,1	1850	13,0	33,5	5	35,0	1530	11,0	28,5
10	45,2	1990	14,0	41,0	10	38,2	1680	11,0	36,5	10	31,2	1370	9,0	31,5
15	41,4	1820	12,0	44,0	15	34,5	1510	11,0	39,0	15	27,5	1200	7,0	34,5
20	37,6	1660	10,0	47,0	20	30,8	1350	9,0	42,0	20	23,9	1050	7,0	37,0
25	34,0	1500	10,0	50,0	25	27,2	1190	7,0	45,0	25	20,3	890	5,0	40,0
30	30,4	1340	8,0	52,5	30	23,7	1040	7,0	47,5	30	16,8	740	5,0	42,5
35	26,8	1180	7,0	55,0	35	20,2	890	5,0	50,0	35	13,4	580	4,0	45,0
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	33,7	980	6,0	22,5	0	31,6	1380	9,0	21,0	0	29,5	2560	25,0	19,5
5	29,9	870	6,0	25,5	5	27,8	1210	7,0	24,0	5	25,8	2240	19,0	22,5
10	26,1	760	5,0	28,0	10	24,1	1050	7,0	26,5	10	22,1	1920	15,0	25,5
15	22,4	650	4,0	30,5	15	20,5	890	6,0	29,5	15	18,5	1610	11,0	28,0
20	18,7	550	4,0	33,5	20	16,9	740	5,0	32,0	20	15,0	1310	9,0	31,0
25	15,0	440	3,0	36,0	25	13,4	580	4,0	35,0	25	11,6	1010	7,0	33,5
30	11,3	330	3,0	38,5	30	9,8	430	4,0	37,5	30	8,2	720	5,0	36,0
35	7,2	210	3,0	40,5	35	6,1	260	2,0	39,5	35	4,8	420	4,0	38,5

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

Tp1	PT	Qw	Δpw	Tp2	Tp1	PT	Qw	Δpw	Tp2	Tp1	PT	Qw	Δpw	Tp2
°C	kW	l/h	kPa	°C	°C	kW	l/h	kPa	°C	°C	kW	l/h	kPa	°C
4th step - TRa V=4400 m³/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	54,7	2410	20,0	34,5	0	47,3	2080	16,0	30,0	0	39,9	1750	12,0	25,5
5	50,5	2230	17,0	37,5	5	43,3	1900	13,0	33,0	5	36,0	1570	10,0	28,5
10	46,5	2050	15,0	40,5	10	39,3	1730	11,0	36,0	10	32,1	1400	10,0	31,0
15	42,6	1880	13,0	43,5	15	35,5	1560	11,0	39,0	15	28,3	1240	8,0	34,0
20	38,7	1710	11,0	46,5	20	31,7	1390	9,0	42,0	20	24,6	1080	7,0	37,0
25	35,0	1540	11,0	49,0	25	28,0	1230	7,0	44,5	25	20,9	920	6,0	39,5
30	31,3	1380	9,0	52,0	30	24,3	1070	7,0	47,0	30	17,3	760	5,0	42,5
35	27,6	1220	7,0	55,0	35	20,7	910	5,0	50,0	35	13,7	600	4,0	45,0
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	34,6	1010	7,0	22,0	0	32,5	1420	10,0	20,5	0	30,3	2640	24,0	19,5
5	30,7	890	5,0	25,0	5	28,6	1250	8,0	23,5	5	26,5	2310	20,0	22,0
10	26,8	780	5,0	27,5	10	24,8	1080	8,0	26,5	10	22,7	1980	15,0	25,0
15	23,0	670	4,0	30,5	15	21,1	920	6,0	29,0	15	19,1	1660	11,0	28,0
20	19,2	560	3,0	33,0	20	17,4	760	6,0	32,0	20	15,5	1350	9,0	30,5
25	15,4	450	3,0	36,0	25	13,7	600	4,0	34,5	25	11,9	1040	7,0	33,5
30	11,6	340	3,0	38,0	30	10,1	440	4,0	37,0	30	8,5	740	6,0	36,0
35	7,4	220	4,0	40,5	35	6,2	270	2,0	39,5	35	4,9	430	4,0	38,5
5th step - TRa V=4600 m³/h														
Tw1/Tw2 = 90/70°C					**Tw1/Tw2 = 80/60°C**					**Tw1/Tw2 = 70/50°C**				
0	56,2	2480	21,0	34,0	0	48,6	2140	16,0	29,5	0	41,0	1800	12,0	25,0
5	52,0	2290	18,0	37,0	5	44,5	1950	14,0	32,5	5	36,9	1620	10,0	28,0
10	47,8	2110	16,0	40,0	10	40,4	1780	12,0	35,5	10	33,0	1440	10,0	31,0
15	43,8	1930	13,0	43,0	15	36,4	1600	10,0	38,5	15	29,1	1270	8,0	33,5
20	39,8	1750	11,0	46,0	20	32,6	1430	10,0	41,0	20	25,3	1110	8,0	36,5
25	35,9	1580	9,0	49,0	25	28,7	1260	8,0	44,0	25	21,5	940	6,0	39,5
30	32,1	1420	9,0	51,5	30	25,0	1100	7,0	47,0	30	17,8	780	4,0	42,0
35	28,4	1250	7,0	54,5	35	21,3	940	5,0	49,5	35	14,1	620	4,0	44,5
Tw1/Tw2 = 70/40°C					**Tw1/Tw2 = 60/40°C**					**Tw1/Tw2 = 50/40°C**				
0	35,6	1040	7,0	21,5	0	33,4	1450	10,0	20,5	0	31,2	2710	26,0	19,0
5	31,5	920	5,0	24,5	5	29,4	1280	8,0	23,0	5	27,2	2370	21,0	22,0
10	27,5	800	4,0	27,5	10	25,5	1110	8,0	26,0	10	23,4	2030	16,0	24,5
15	23,6	690	4,0	30,0	15	21,6	940	6,0	29,0	15	19,6	1710	12,0	27,5
20	19,7	570	3,0	33,0	20	17,9	780	4,0	31,5	20	15,9	1380	10,0	30,5
25	15,8	460	3,0	35,5	25	14,1	610	4,0	34,5	25	12,3	1070	7,0	33,0
30	11,9	350	3,0	38,0	30	10,3	450	4,0	37,0	30	8,7	750	6,0	36,0
35	7,6	220	4,0	40,0	35	6,4	280	2,0	39,5	35	5,0	440	4,0	38,5

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