PROTON E 25; E 35; E 45; E 55; E 65; E 75 PROTON E15

PROTON ECO

These air heaters are designed for heating buildings inside meeting present-day requirements. The series has some peculiarities, namely: multi-speed AC-motor, wide model range, flexible settings of control elements, acceptable price. Large choice of control elements allows to provide various working modes of the equipment, including individual or group settings, manual or automatic control, multi-step temperature regulation or maintenance of constant temperature in the building.

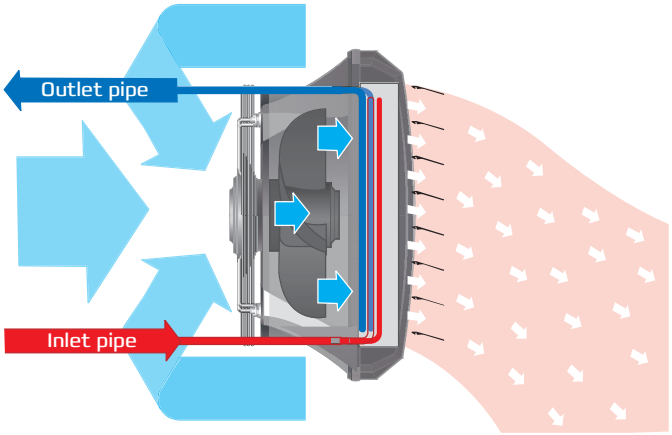
Model range

- PROTON E 15 – heating power 5-20 kW
- PROTON E 25 – heating power 15-25 kW
- PROTON E 35 – heating power 20-35 kW
- PROTON E 45 – heating power 25-50 kW
- PROTON E 55 – heating power 30-60 kW
- PROTON E 65 – heating power 35-65 kW
- PROTON E 75 – heating power 40-75 kW

Applications

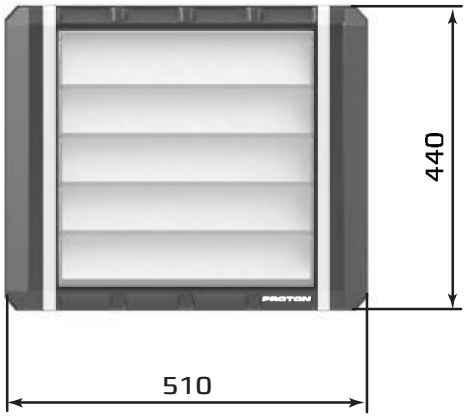
- Warehouses and hangars
- Production facilities
- Logistics centers
- Wholesale and retail premises
- Parking places
- Car service centers
- Sports facilities
- Airports
- Car washes
- Winter gardens and green houses
- Buildings of worship

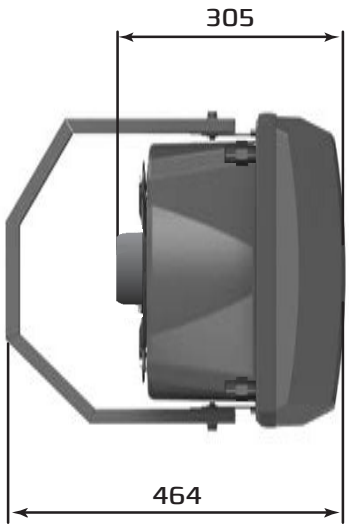
Principle of operation



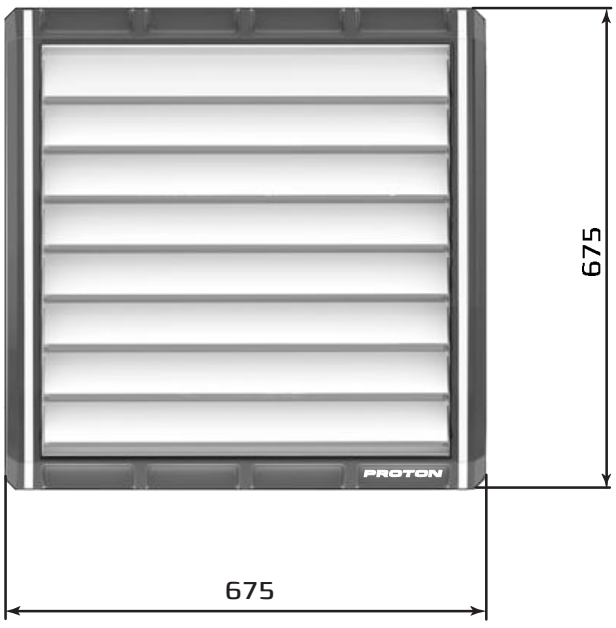
The air heater PROTON is an element of a heating system. It is designed for heating air and its even distribution in buildings. Its work is based on axial fan functioning, which charges the air and pass it through a copper-aluminum heat exchanger in which the heat medium (hot water) flows at certain temperature. Heated air is supplied into a room and is directed to the working area by directing louvers.

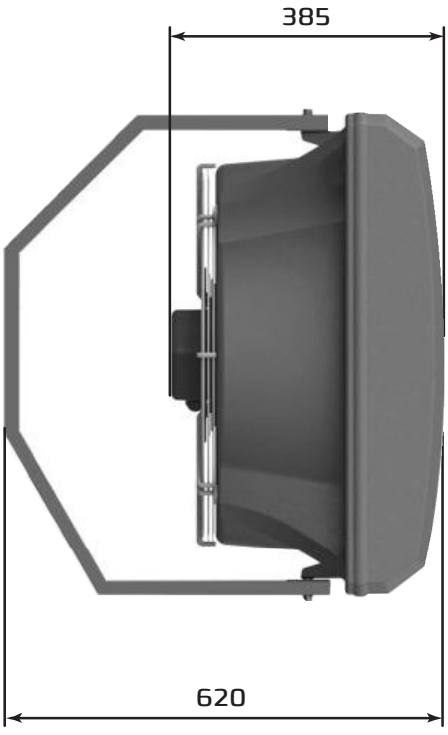
Dimensions of the air heater PROTON E 15



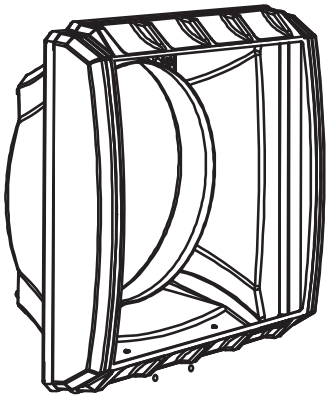


Dimensions of air heaters PROTON E25 / E 35 / E 45 / E 55 / E 65 / E 75





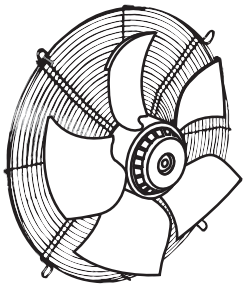
Major components of the air heater PROTON ECO



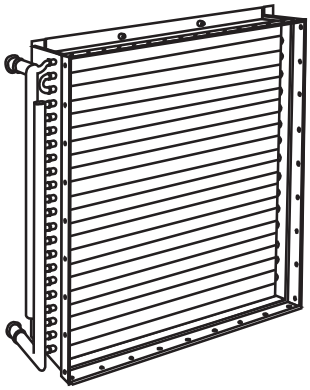
Casing

The casing consists of plastic components. The use of aerodynamic fins permits to achieve minimal eddies of air flow that reduce noise and vibrations.

Fan

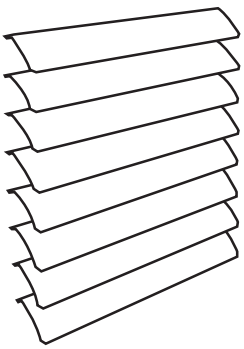


The fan is fixed in a special diffuser on the back of the unit, thanks to which air flow is evenly distributed on the heat exchanger's surface. This provides its most effective application. This solution decreases noise level created by the flowing air.
The fan is equipped with a special grill which protects the heater from falling in of debris, leaves etc. as well as prevents possible personnel injures or death caused by rotating fan's blades.
Rated power supply of PROTON ECO fans is 230 V/50 Hz. Motor protection grade is IP54. Operating temperature is up to +55 °C.



Heat exchanger

The heat exchanger consists of copper tubes and aluminum lamellas pressed on them. It is equipped with copper pipes with threading connection (external thread 3/4"). The copper-aluminum heat exchanger is distinguished by high efficiency, is not exposed to corrosion if you don't use substances and impurities in the heat medium causing copper corrosion. Maximal parameters of heat medium supply are 105 °C/1,6 MPa.



Directing louvers

They are made of aluminum and dyed by special paint, and provide minimal air resistance at the outlet from the air heater. Aesthetic look and high protection from corrosion guarantee durability and safety.

6. TECHNICAL CHARACTERISTICS

PROTON®

General parameters		E15	E25	E35	E45	E55	E65	E75
Number of heat exchanger rows	R	2	1	1	2	2	3	3
Airflow	m^3/h	1600	4600	5500	4100	5000	3700	4500
Heating power	kW	20.0	26.5	32.6	47.5	58.1	65.1	75.9
Air temperature increase	°C	37.1	23.8	17.6	42.8	34.5	57.6	50.0
Max. temperature of heat medium	°C	105	105	105	105	105	105	105
Max. working pressure	MPa	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Max. warm air throw	m	13	25	27	24	26	23	25
Volume of water in heat exchanger	dm^3	1.04	1.30	1.30	2.25	2.25	3.18	3.18
Diameter of connection pipes	inch	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Weight without heat medium	kg	10.1	17.1	17.3	19.0	19.2	20.8	21.0
Supply voltage	V/Hz	230/50	230/50	230/50	230/50	230/50	230/50	230/50
Motor power	W	90	320	420	320	420	320	420
Rated current of motor	A	0.42	1.40	2.00	1.40	2.00	1.40	2.00
Noise level	dB	48	53	57	53	57	53	57
Motor protection rating	IP	44	54	54	54	54	54	54

Parameters according to the heat medium — E15

Parameters T_z/T_p [°C]		Water 90/70				Water 80/60				Water 70/50				Water 60/40			
Q_p [m^3/h]	P_{p1} [°C]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]
1600	0	20.0	37.1	0.9	6.3	17.1	31.6	0.8	4.8	14.1	26.0	0.6	3.5	10.9	20.3	0.5	2.3
	5	18.7	39.6	0.8	5.6	15.7	34.1	0.7	4.1	12.7	28.5	0.5	2.9	9.6	22.7	0.4	1.8
	10	17.4	42.0	0.8	4.9	14.4	36.5	0.6	3.5	11.3	30.9	0.5	2.4	8.2	25.1	0.4	1.4
	15	16.0	44.5	0.7	4.2	13.0	38.9	0.6	2.9	10.0	33.3	0.4	1.9	6.7	27.4	0.3	1.0
	20	14.7	46.9	0.7	3.6	11.7	41.3	0.5	2.4	8.6	35.7	0.4	1.4	5.2	29.6	0.2	0.6
	25	13.3	49.3	0.6	3.0	10.3	43.7	0.5	1.9	7.2	38.0	0.3	1.0	3.4	31.1	0.1	0.3

Parameters according to the heat medium — E25

Parameters T_z/T_p [°C]		Water 90/70				Water 80/60				Water 70/50				Water 60/40			
Q_p [m^3/h]	P_{p1} [°C]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]
4600	0	26.5	23.8	1.2	6.9	22.5	20.3	0.9	5.3	18.5	16.7	0.8	3.8	14.4	13.0	0.6	2.5
	5	24.7	27.2	1.1	6.1	20.7	23.7	0.9	4.5	16.7	20.0	0.7	3.1	12.6	16.3	0.5	1.9
	10	23.0	30.6	1.0	5.3	19.0	27.0	0.9	4.5	14.9	23.4	0.6	2.6	10.8	19.7	0.5	1.5
	15	21.2	34.0	0.9	4.6	17.2	30.4	0.8	3.2	13.1	26.7	0.6	2.0	8.9	22.9	0.4	1.0
	20	19.4	37.3	0.9	3.9	15.4	33.7	0.7	2.6	11.3	30.1	0.6	1.5	6.9	26.1	0.3	0.7
	25	17.6	40.6	0.8	3.3	13.6	37.0	0.6	2.1	9.4	33.3	0.4	1.1	4.5	29.0	0.2	0.3

Parameters according to the heat medium — E35

Parameters T_z/T_p [°C]		Water 90/70				Water 80/60				Water 70/50				Water 60/40			
Q_p [m^3/h]	P_{p1} [°C]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m^3/h]	Δ_p [kPa]
5500	0	32.6	17.6	1.4	10.1	27.8	15.0	1.2	7.7	22.8	12.3	1.0	5.5	17.8	9.6	0.8	3.6
	5	30.5	21.4	1.3	8.9	25.6	18.8	1.1	6.6	20.6	16.1	0.9	4.6	15.5	13.4	0.7	2.8
	10	28.3	25.2	1.3	7.8	23.4	22.6	1.0	5.6	18.4	19.9	0.8	3.7	13.3	17.1	0.6	2.1
	15	26.1	29.0	1.2	6.7	21.2	26.3	0.9	4.7	16.2	23.7	0.7	2.9	10.9	20.9	0.5	2.1
	20	23.9	32.8	1.0	5.7	19.0	30.1	0.8	3.8	13.9	27.4	0.6	2.2	8.6	24.6	0.4	1.0
	25	21.7	36.5	1.0	4.8	16.7	33.9	0.7	3.0	11.6	31.2	0.5	1.6	5.9	28.2	0.3	0.5

Parameters according to the heat medium — E 45

Parameters T_z/T_p [°C]		Water 90/70				Water 80/60				Water 70/50				Water 60/40			
Q_p [m³/h]	P_{p1} [°C]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]
4100	0	47.5	42.8	2.1	12.9	40.6	36.6	1.8	9.9	33.7	30.3	1.5	7.1	26.7	24.0	1.2	4.8
	5	44.4	44.9	1.9	11.4	37.5	38.7	1.6	8.5	30.6	32.5	1.3	6.0	23.5	26.1	1.0	3.8
	10	41.3	47.0	1.8	10.0	34.4	40.8	1.5	7.3	27.4	34.6	1.2	4.9	20.3	28.2	0.9	2.9
	15	38.2	49.1	1.7	8.6	31.2	42.9	1.4	6.1	24.2	36.6	1.0	3.9	17.0	30.2	0.8	2.1
	20	35.0	51.2	1.5	7.4	27.1	45.0	1.2	5.0	21.0	38.7	0.9	3.0	13.6	32.1	0.6	1.4
	25	31.9	53.3	1.4	6.2	24.9	47.0	1.1	4.0	17.7	40.7	0.8	2.2	10.0	33.9	0.4	0.8

Parameters according to the heat medium — E 55

Parameters T_z/T_p [°C]		Water 90/70				Water 80/60				Water 70/50				Water 60/40			
Q_p [m³/h]	P_{p1} [°C]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]
5000	0	58.1	34.5	2.6	18.7	49.7	29.5	2.2	14.3	41.2	24.5	1.8	10.3	32.5	19.3	1.4	6.9
	5	54.3	37.2	2.4	16.5	45.8	32.2	2.0	12.3	37.3	27.1	1.6	8.6	28.6	22.0	1.3	5.4
	10	50.5	39.9	2.2	14.4	42.0	34.8	1.4	10.5	33.4	29.8	1.5	7.0	24.7	24.6	1.1	4.2
	15	46.6	42.5	2.1	12.5	38.1	37.5	1.6	8.8	29.5	32.4	1.3	5.6	20.7	27.2	0.9	3.0
	20	42.8	45.1	1.9	10.6	34.2	40.1	1.5	7.2	25.6	35.0	1.1	4.3	16.6	29.8	0.7	2.0
	25	38.9	47.8	1.7	8.9	30.3	42.7	1.3	5.8	21.6	37.6	0.9	3.2	12.4	32.2	0.5	1.2

Parameters according to the heat medium — E 65

Parameters T_z/T_p [°C]		Water 90/70				Water 80/60				Water 70/50				Water 60/40			
Q_p [m³/h]	P_{p1} [°C]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]
3700	0	65.1	57.6	2.9	17.8	56.1	49.6	2.4	13.7	47.0	41.6	2.1	10.1	37.7	33.3	1.7	6.9
	5	60.1	58.9	2.7	15.8	51.9	50.9	2.3	11.9	42.8	42.8	1.9	8.5	33.4	34.5	1.4	5.5
	10	56.6	60.1	2.5	13.9	47.8	52.1	2.1	10.2	38.6	44.0	1.7	7.0	29.1	35.7	1.3	4.3
	15	52.7	61.3	2.3	12.1	43.6	53.3	1.9	8.6	34.3	45.2	1.5	5.7	24.7	36.7	1.1	3.2
	20	48.6	62.5	2.2	10.4	39.4	54.5	1.7	7.1	30.0	46.3	1.3	4.4	20.1	37.6	0.9	2.2
	25	44.4	63.7	2.2	8.8	35.1	55.7	1.5	5.8	25.6	47.4	1.1	3.3	15.3	38.4	0.7	1.3

Parameters according to the heat medium — E 75

Parameters T_z/T_p [°C]		Water 90/70				Water 80/60				Water 70/50				Water 60/40			
Q_p [m³/h]	P_{p1} [°C]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]	P_g [kW]	P_{p2} [°C]	Q_w [m³/h]	Δ_p [kPa]
4500	0	75.9	50.0	3.3	23.7	65.2	43.0	2.9	18.2	54.5	36.0	2.4	13.3	43.6	28.8	1.9	9.0
	5	71.0	51.8	3.1	21.0	60.4	44.8	2.7	15.7	49.6	37.7	2.2	11.1	38.6	30.5	1.7	7.2
	10	66.2	53.5	2.9	18.4	55.5	46.5	2.4	13.4	44.7	39.4	1.9	9.2	33.6	32.1	1.5	5.6
	15	61.3	55.2	2.7	15.9	50.6	48.1	2.2	11.3	39.7	41.0	1.7	7.4	28.4	33.7	1.2	4.1
	20	56.4	56.8	2.5	13.7	45.6	49.8	2.0	9.4	34.7	42.6	1.5	5.8	23.2	35.2	1.0	2.8
	25	51.6	58.5	2.3	11.5	40.7	51.4	1.8	7.6	29.6	44.2	1.3	4.3	17.7	36.5	0.8	1.7

P_z – water temperature at the inlet of the unit
P_p – water temperature at the outlet of the unit
Q_w – water consumption
P_{p1} – air temperature at the inlet of the unit
P_{p2} – air temperature at the outlet of the unit
Δ_p – water pressure drop in heat exchanger
P_g – heat power of the unit
Q_p – air consumption

- Data on operating characteristics of air heater PROTON, when using heat medium with differing temperatures, is to be provided on demand.
- There is danger of heat exchanger defrosting (breakage) if room temperature falls lower than 0°C.
- As maximal pressure of the heat medium is 1,6 MPa, the water circuit system must have protection from pressure rise higher than accepted value.