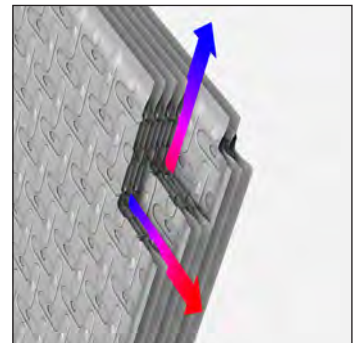


ProTERM – Thermal Energy-Recovery Module



Take advantage of heat energy from exhausted air and save on heating costs

ProTERM reduces the heat requirement by up to 95% compared to systems without heat recovery.



The heat energy produced by the exhausted air process is directly transferred to the incoming outside air. With ProTERM, a separate make-up air unit is no longer required.



Filtration technology and Air Conditioning technology all in one

Take advantage of heat energy

Ideally, exhausted air that has been cleaned is returned into the workplace. However, air recirculation is often not feasible and the heated exhaust air from the machine has to be vented outdoors. A make-up air unit then provides supply air for optimal air balance within the

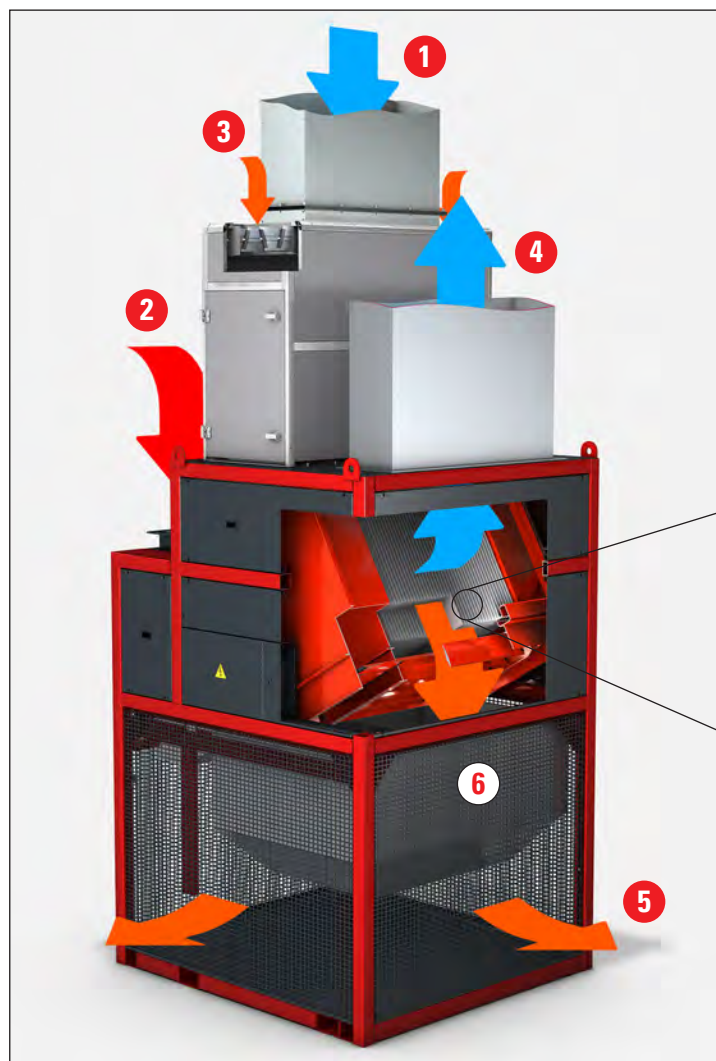
workplace. ProTERM combines filtration technology with air conditioning technology in industrial plants and takes advantage of heat energy from the process exhaust air to heat the outside air. A specially developed control system ensures an optimal interface among

components. ProTERM can be applied in combination with wet, dry and mist separators.

Heat transfer by plate heat exchangers

Exhaust air and cool outside air are directed past each other in the cross-flow heat exchanger. Because it keeps the two air currents in separate channels, the

fresh air supply cannot become contaminated. The exhaust air is then released through the roof. Heat transfer is highly efficient.

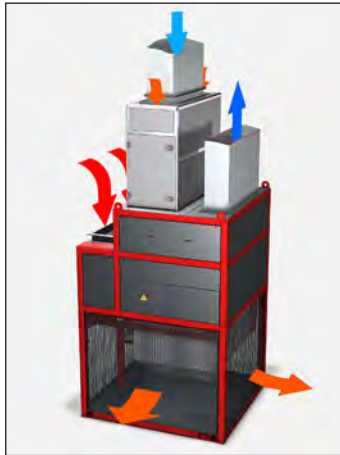


- 1 Outside air
- 2 Dirty air
- 3 Recirculating air (upon request)
- 4 Exhaust air (through the roof)
- 5 Supply air distribution into the workplace
- 6 Heating/Cooling battery (as an option)

The heated dirty air (exhaust) and the cool outside air are directed past each other in the cross-flow plate heat exchanger and the heat energy is transferred.

Sectional diagram ProTERM

Normal operation or dual operation with air recirculation

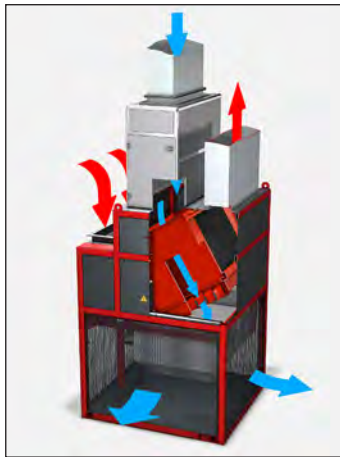


During normal operation, exhausted air is heated when processed. In dual operation, the circulating air from the plant can also be heated, if required.

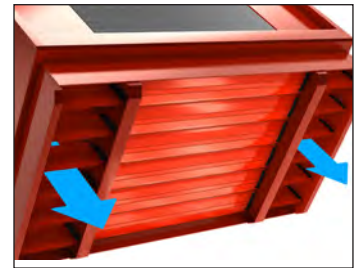


Cross-flow plate heat exchanger is active in normal and in dual operation mode.

Cooling effect in the summer, heating in the winter



The outside air is directed past the heat exchanger via a bypass in the summer to avoid additional heat. Air can be cooled as well with an additional cooling battery for plant air-conditioning. The outside air can be heated by a heating battery for very cold days.



Outside air is directed past the heat exchange unit by means of a bypass.

Clean air recirculation operation



To heat up the plant at the start of the work shift, it can be switched to air recirculation. In this mode, only the air from the plant is extracted, warmed up by the heating battery, and then distributed into the area.

Air distribution options in the plant

- 1 Via make-up air channels, connection on the left or back.
- 2 Via air outlet around the system. For this energy-saving concept according to VDI, adequate space for optimal air distribution around the system should be available.



ProTERM – Thermal Energy-Recovery Module



Process-proof and oil proof construction

The heat exchanger is produced as **oil-proof** to avoid a material exchange between discharged and fed air. The corrosion-protected aluminum construction ensures high heat conductivity and therefore optimal heat transfer.

Technical data

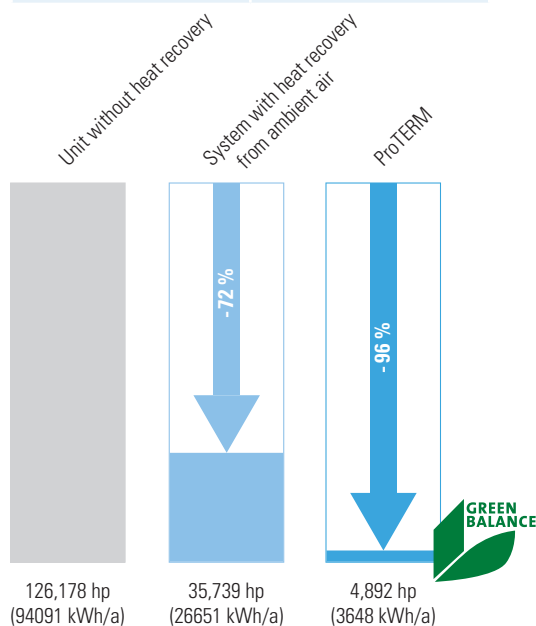
ProTERM	
Airflow	4700 - 7300 cfm (8 000 – 12 500 m ³ /h)
Cooling efficiency	max. 166 hp (124 kW)
Heating efficiency	max. 256 hp (191 kW)
Length	79" (2 000 mm)
Width	79" (2 005 mm)
Height	171" (4 339 mm)
Weight	4630 lbs (2100 kg)
Weight	2 100 kg

ProTERM

- **Economic**
Amortizes investment costs in short time
- **Environmentally-friendly**
Creates excellent emission values
- **Smart**
Decentralized and flexible
- **Comfortable**
Easy to set-up, integrate, enlarge and retrofit

Environmental protection that pays off

The sizable savings become apparent in a comparison of the annual heated air requirement.



Reference:

Exhaust air temperature (Room)	68 °F (20 °C)
Exhaust air temperature (Process)	79 °F (26 °C)
Ambient room temperature	65 °F (18 °C)
Airflow	5900 cfm (10 000 m ³ /h)
Location	Germany
Operating time	12 hours per day

Facts

- **Annual cost savings** **\$ 6,800.00**
- **Amortization** **approx. 3 years**

We would be pleased to perform an individual amortization calculation for you – do not hesitate to contact us!



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