Save Energy with Leister.

Large amounts of energy and with that, money, can be saved by recycling the hot air. Leister has customized solutions for combining air heaters and blowers which are suitable for recycling hot air thanks to a design made to withstand high-temperatures.

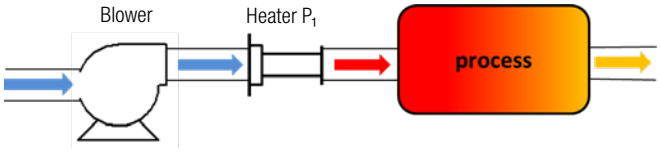
Hot Air Recycling Saves Energy and Costs

In order to heat a defined volume of air (air flow) to the desired temperature, a certain amount of energy needs to be present. The greater the difference in temperatures ΔT between the air inlet and the air outlet, the more energy that is needed. The ΔT is reduced by operating with hot air recirculation. That saves energy and costs.

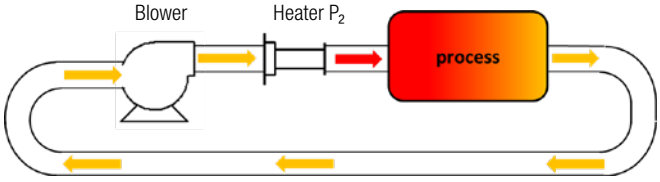
To 'recycle' the hot air from the process, both the blower and the air heater have to withstand the high temperatures at the air inlet side. LEISTER's double-flange air heaters types LE 5000 DF-R and LE 10000 DF-R (page 46/47) and the RBR blower (page 54) provide the solution. Air with a temperature of up to 350°C can be moved, reheated and recirculated without a problem.

When accessories such as insulated hoses, high-temperature seals and various flanges are added, systems with air heaters and blowers become perfectly supplemented for recycling applications.

Hot Air System without Recirculation



Hot Air System with Recirculation



$P_2 < P_1$

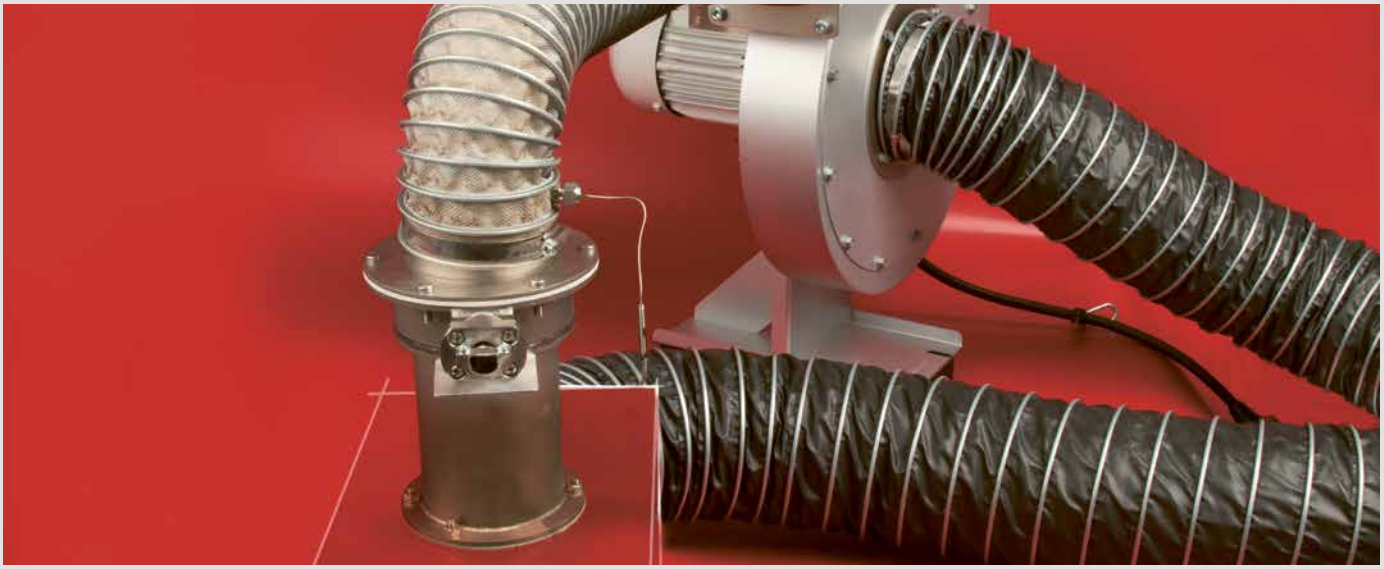
Sample calculation:
To heat 4000 l/min of air flow to a desired temperature of T2 = 500°C, different outputs are required, depending on the air inlet temperature T1.

T_1 = 20°C	–>	38.7 kW	
T_1 = 160°C	–>	27.4 kW	29.2 % compared with 20°C
T_1 = 350°C	–>	12.1 kW	68.7 % compared with 20°C
			55.8 % compared with 160°C

These differences also match the potential savings in energy. The energy savings are 159 600 kWh per year when the recirculation mode is used and the inlet temperature is 350°C, instead of working with ambient air at 20°C (in 24-hour operation, for 250 working days).

Annual energy consumption at T1 = 20° C > 232 200 kWh.
Annual energy consumption at T1 = 350° C > 72 600 kWh,
Savings = 159 600 kWh

If the price of electricity (commercial, large consumers) is € 0.12 / kWh, the potential savings per year is € 19,152 just from using DF-R type double-flange air heaters. Based on a 24-hour operation, 250 days per year, T1 = 350°C instead of 20°C and T2 = 500°C and 4000 l / min air flow.



Hot air system for hot air recirculation.