



TEAM UP FOR ENERGY SAVINGS

Waste-Heat Recovery

Saving the environment and saving money can be as easy as re-using hot exhaust air. That means you're on the front line for energy-savings opportunities. Team up with co-workers to spot ways to recover waste heat – it's good for the environment and good for your bottom line.

Uncover energy savings

Check out your waste-heat recovery. Proper maintenance will save energy by capturing and re-using rejected heat, instead of buying more energy. To conserve energy and cut costs, consider three main areas:

1. Housekeeping

- › Identify sources of waste heat.
- › Eliminate as many sources of waste heat as possible.
- › Reduce the temperature of the remaining waste heat.
- › Inspect and maintain equipment to minimize the production of waste heat.

2. Low-cost opportunities

- › Capture waste heat from a clean waste stream that normally goes into the atmosphere or down the drain, and then pipe the waste stream to where it can be used.
- › Use waste-process water as a heat source for a heat pump.
- › Use the heat of the plant effluent being treated in a wastewater treatment plant as a heat source for a heat pump.
- › Re-use hot exhaust air for drying.
- › Install automatic controls.
- › Re-use heat from cooling hydraulic oil (e.g. within moulding machines and the injection moulds themselves). This also reduces the electrical load on the production process.

3. Retrofits

- › Install waste-heat reclamation equipment (e.g. replace a cooling tower circulation loop with a shell-and-tube heat exchanger).
- › Upgrade or replace outdated waste-heat reclamation equipment.
- › Combine a flue gas heat recuperator with a heat pump.
- › Use an absorption heat transformer, which reclaims waste heat by using a solution of lithium bromide.
- › Use a low-grade chiller, which can convert low-grade heat to spare cooling.
- › Integrate a compact heat exchanger with other processes.
- › In a large computer centre, capture generated heat by using thermal storage.
- › Recover heat generated through refrigeration and upgrade the heat by using a heat pump.
- › Consider converting high-temperature flue gas heat (e.g. from metallurgical furnaces) into superheated steam for electric power generation.

