Energize your profits

– Discover hidden assets

Volcanoes are extraordinary sources of energy. For example, the Laki eruption of 1783 in southern Iceland produced 15 km^3 of lava. The heat released from the lava measured 80 exajoules; enough energy to keep all the world's industries running for six months …

Boost profits – recycle your energy

Energy prices continue to rise, yet every day thousands of megawatts of heat disappear into the atmosphere from industrial chimneys and stacks across the globe. The International Energy Agency (IEA) has estimated that industrial plants around the world use about 50% more energy than if they used the most energy-efficient technology available today.

For most industries, waste heat recovery using compact heat exchangers presents a major possibility to increase profits and bottom-line results. Waste energy is converted into monetary value, and initial investments often have a payback period of less than one year. As an added bonus, recovering energy often leads to significantly reduced CO_2 emissions.

<1 year

Payback periods for waste heat recovery investments are often shorter than one year thanks to the high thermal efficiency of Alfa Laval's compact heat exchangers.

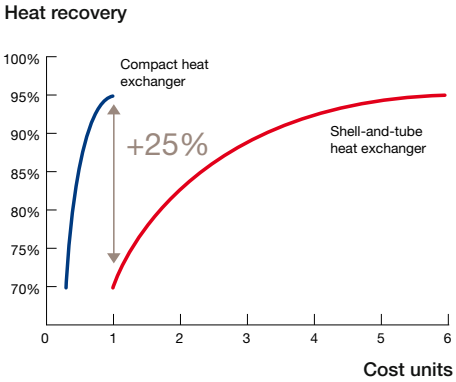
Please contact us if you would like to learn more about waste heat recovery, or visit our website: www.alfalaval.com/waste-heat-recovery

Proven technology with a long track record

Alfa Laval is one of the world's leading providers of industrial heat transfer technology. Our compact heat exchangers are up to five times more efficient than shell-and-tube heat exchangers, making heat recovery profitable even where the energy sources have traditionally been deemed worthless. Upgrading from existing shell-and-tubes not only increases the energy recovery substantially, it also makes the system much more compact.

First step – the Heat Integration Audit

Not all heat is worth recovering. It all comes down to the possibilities of reusing the energy in an economical way. The first step is to have a Heat Integration Audit performed by an Alfa Laval specialist. The audit investigates all parameters and possibilities and presents the results in a feasibility report outlining the investment and the potential financial gains.



The diagram shows the heat recovery level as a function of initial cost. The yield from compact heat exchangers is up to 25% higher than for shell-and-tubes at a comparable cost. To reach the same levels of heat recovery, shell-and-tube solutions often become several times more expensive. For details, see www.alfalaval.com/waste-heat-recovery.

Pure profitability

Recovered energy can be exploited in many ways

Save fuel

Use the recovered energy instead of heat from a boiler or a burner; or save fuel by preheating the feed to the boiler or burner.

Generate electricity

Save steam and generate more electricity in existing turbines. The extra electricity can be used in the plant, or sold.

Sell heat and electricity

Sell heat to the district heating network or neighbouring plants, and electricity to the grid.

Reduce cooling needs

Lower the need for cooling water or reduce cooling water return temperatures.

Reduce utility investments

Lower boiler and cooling system costs.

Increase production

Resolve heating and cooling limitations, all on minimum floor space.

Reduce greenhouse gas emissions

Lower emission costs.

Transform the energy

Use heat pumps, absorption chillers or evaporators to make hot, cold or distilled water. You may also transform heat to electricity using organic Rankine cycle technology.

BAL, India

Balaji Amines Limited is one of India's largest manufacturers of speciality chemicals and amines. Installing Alfa Laval Compabloc heat exchangers reduced steam consumption by 40%, giving major savings in energy costs and significantly reduced CO_2 emissions.

40% reduced steam consumption

Santelisa Vale, Brazil

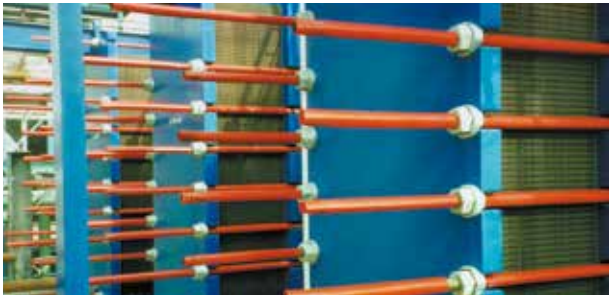
By using six Alfa Laval WideGap heat exchangers, Santelisa Vale has reduced the consumption of live steam by 40% to 50% at its Sertãozinho sugar and ethanol plant. The excess steam is used for generating electricity, which is sold to the national grid. The new heat exchangers also led to a reduced consumption of cooling water from a nearby lake.

40% to 50% reduced steam consumption

Mulgrave Central Mill, Australia

Mulgrave Central Mill produces raw sugar. When an Alfa Laval M30 plate heat exchanger was installed to preheat clarified juice, the capacity of the subsequent evaporator stage increased by 2.5% to 5%. The heat source is either bleed-off vapour from the first evaporator effect or low-pressure steam.

2.5% to 5 % increased capacity in evaporator stage



Kemira, Sweden

The Kemira sulphuric acid plant delivers a total of 240 GWh of heat to the district heating network of the city of Helsingborg. This corresponds to 25% of the city's requirements and is the equivalent of around 22,000 m^3 of oil. The payback time was less than one year.

240 GWh of heat sold to the local district heating network

Shell, Canada

Shell replaced the shell-and-tube condensers at its refinery in Sarnia, Canada with eight Compabloc heat exchangers to recover approximately 13.5 MW. Recovering this heat means the steam plant still has additional capacity to meet further increase in demand.

13.5 MW recovered

OPCON, Sweden

Opcon develops and markets cutting-edge products for waste heat recovery. Opcon Sweden uses Alfa Laval heat exchangers in its organic Rankine cycle systems. The systems are used for generating electricity from waste heat with temperatures as low as 55ºC.

Generatie electricity from waste heat

Saving 10 MW of heat energy gives you the opportunity to:

Save fuel – Annual fuel savings of

€3,000,000

Generate electricity – Annual savings of

€1,100,000

Reduce greenhouse gas emissions – Annual savings of

€350,000

Reduce utility investments

€300,000

Reduced cooling tower cost

€500,000

Reduced boiler cost:

DISCLAIMER
For more information about the underlying assumptions for the calculations and diagrams presented in this brochure, please refer to our website at www.alfalaval.com/waste-heat-recovery

Alfa Laval in brief

Alfa Laval is a leading global provider of specialized products and engineering solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

How to contact Alfa Laval

Contact details for all countries are continually updated on our web site. Please visit www.alfalaval.com to access the information.

www.alfalaval.com/waste-heat-recovery

PPI00436EN 1102