### Alfa Laval in brief

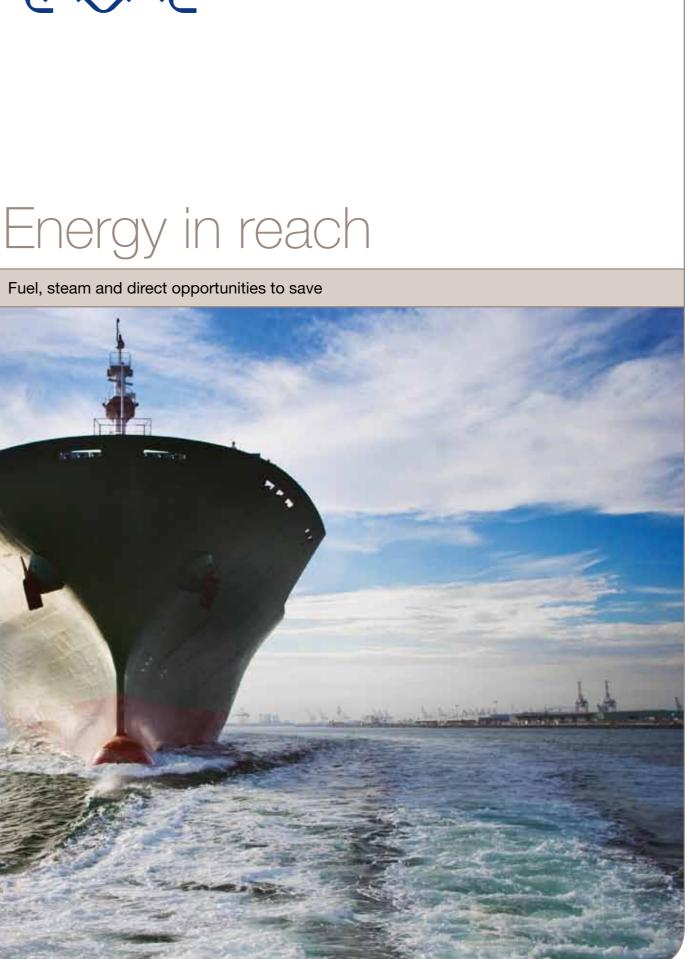
Alfa Laval is a leading global provider of specialized products and engineering solutions.

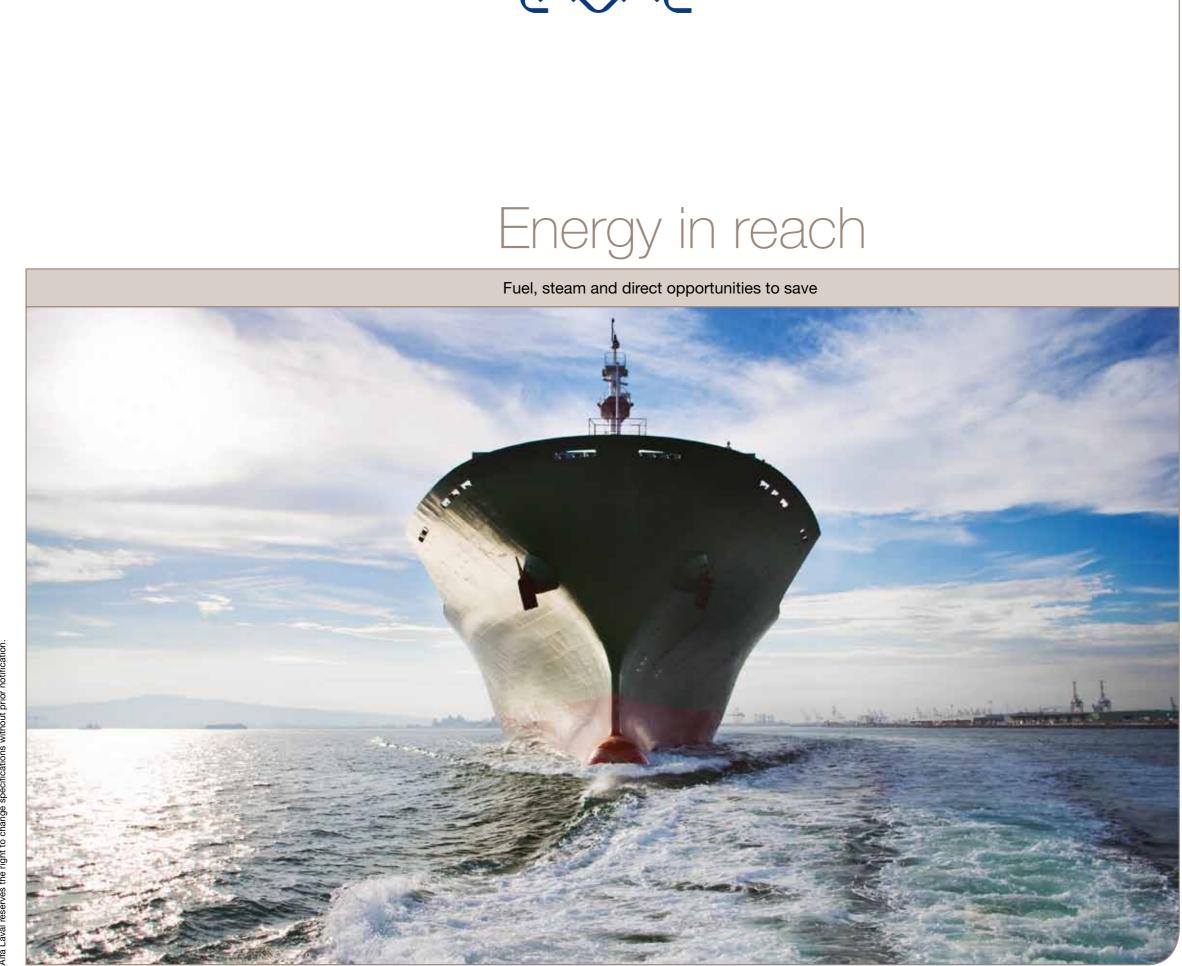
Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

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.





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# Savings in a wider perspective



# Where do you put your energy?

Working with energy on board is an increasingly complex challenge. Changing needs, changing fuels and changing regulations mean you must balance a wide range of concerns – investing your time, effort and resources in the most effective way.

With so many choices to make and so much money riding on them, your choice of supplier is as important as your choice of fuels. Having a partner who can see the bigger picture is vital in sorting the possibilities from the pitfalls.

Alfa Laval is that kind of partner, with a century of marine experience and key technologies for almost every operation on board. When it comes to energy efficiency, those advantages make all the difference, as folding out these pages will show you.

In the fuel line, the steam line and elsewhere on board, your Alfa Laval investments come back to you quickly - in energy and money saved.



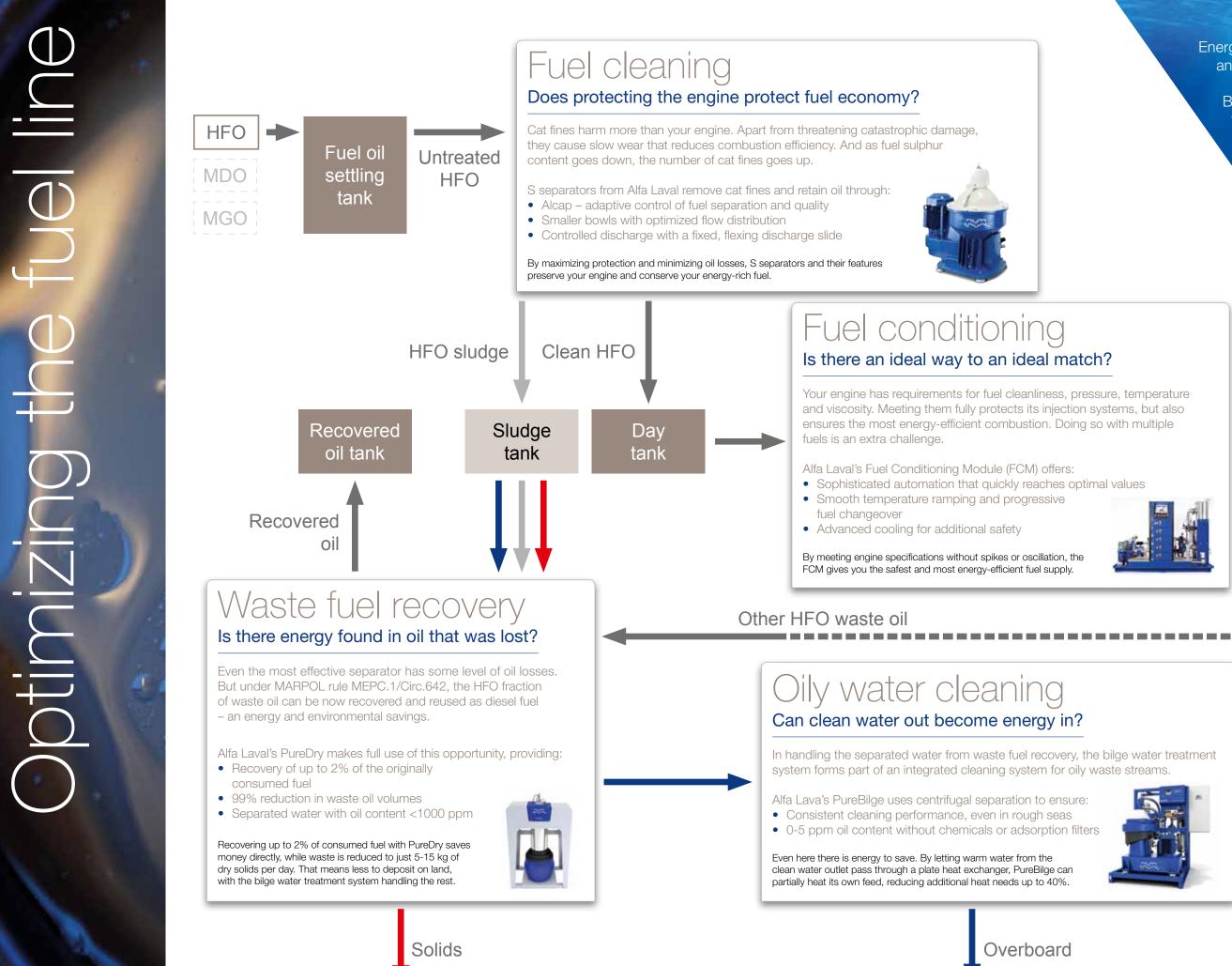
We also work with you over time, making sure the solutions you have stay optimized in day-to-day operation. And as new fuels and approaches appear, we keep you prepared for tomorrow's energy alternatives.



### Complete answers are true answers

Alfa Laval works with energy efficiency on all levels, so that you can meet energy challenges in all areas.

Combining the industry's widest range of equipment with its most in-depth expertise, we help you optimize your vessel to the fullest. We begin with our products, by ensuring the highest possible levels of equipment efficiency. But we go on to employ our expertise in full applications – even working across them to optimize entire lines and create more integrated solutions.



Energy efficiency tends to be focused on the engine. Long-stroke engines and the practice of slow steaming are usually the centre of attention.

But true energy efficiency demands a wider perspective. Before the engine, the fuel line has opportunities to reduce the amount of fuel burned or wasted. After the engine and elsewhere, the steam line makes it possible to get more from the energy produced.

> Connections are key, and more exist than the ones shown here. Besides optimizing products and applications, Alfa Laval is at work on adaptive solutions that integrate these lines into an energy-efficient whole.



Steam to service or power generation

Steam

Steam

## Waste heat recovery Should even a little go up in smoke?

At today's fuel prices, producing steam with the heat energy from exhaust gas makes sense wherever possible. Alfa Laval enables this with a full selection of Aalborg exhaust gas economizers.

Alfa Laval offers complete waste heat recovery systems for:

- Main engine exhaust
- Auxiliary engine exhaust

Once seen as a bonus, auxiliary waste heat recovery does more than meet steam needs in port. Today, with long-stroke main engines producing cooler exhaust, it gives you an energy supplement en route – keeping the use of your oil-fired boiler to a minimum.



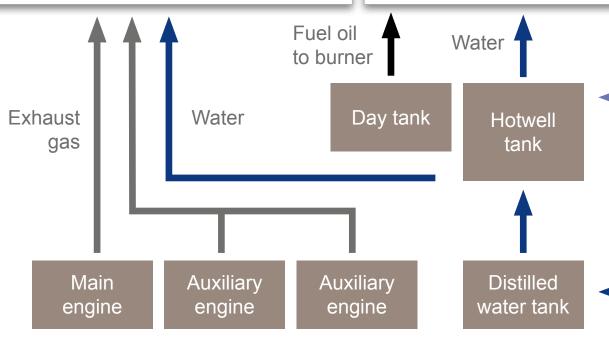
### Steam production Can looking downstream keep efficiency up?

While waste heat offers the most economical steam production sometimes the oil-fired boiler is your only alternative. When fuel is burned, however, the energy should be used to the greatest possible effect.

Alfa Laval ensures this through:

- Energy-efficient Aalborg boilers and burners
- Optimization of steam output for connected consumers

Each Aalborg boiler is individually constructed to match the steam consumers it serves. By analyzing the needs downstream, Alfa Laval can adapt the output temperature and pressure of the boiler to ensure the highest energy efficiency in your steam line as a whole.



### Pumping

- Fuel oil heating
- Cargo heating
- General heating
- Cleaning
- Hot water for the accommodation
- Steam turbine for production of electrical power

Heating and cooling What is the value of a good exchange?

Efficient production of steam is one side of saving energy. The other is making better use of it, through heat exchangers that effectively steer the thermal energy within the system.

Alfa Laval maximizes heat transfer efficiency through:

- Exact and even distribution of media
- Innovative constructions that minimize fouling
- Durable designs and materials that withstand extremes

With plate heat exchangers and shell-and-tube models that lose less along the way, Alfa Laval helps the energy in your steam to stretch further and do more.



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# Freshwater generation

### Can water be made with less water?

Water is a prerequisite for steam, but seawater is impossible to use directly. When removing salt and impurities, energy can be saved.

Alfa Laval's AQUA produces high-quality technical water using:

- 3-in-1 plate technology (evaporation, separation, condensation)
- Half the seawater and pumping requirements

With only half the seawater and pumping needs of other freshwater generators, AQUA lets you use smaller seawater pumps. That reduces not only your installation costs, but also the energy used to produce technical water.

