



## Year after year of robust performance

### Oil refinery, Japan

In 1993, a Japanese refinery installed an Alfa Laval Packinox combined feed/effluent heat exchanger in its CCR platforming unit. The heat exchanger has performed according to its original specifications ever since—for 27 years at the time of writing. There has never been any mechanical problems and the required maintenance has consisted of standard inspections and chemical cleanings at plant turnarounds.

#### High operating reliability and performance

The company initially chose Alfa Laval Packinox technology over traditional shell-and-tubes to:

- Maximize heat recovery
- Minimize the pressure drop in the reaction loop
- Minimize fouling problems
- Have a compact installation and save plot space

#### Outstanding heat recovery

Operating data from the plant shows heat recovery in the Alfa Laval Packinox heat exchanger has stayed constant over decades, see figure 1.

Chemical cleanings at turnarounds have kept the heat exchanger in good-as-new condition and performance stable.

Ever since the heat exchanger was commissioned, the Hot Approach Temperature (HAT) has remained steady at the same low level as originally specified and guaranteed. The low HAT means the Packinox unit offers outstanding heat recovery. Heat from the reactors' effluent stream is reused for preheating the combined feed, with substantial fuel savings as a result.

**Satisfied customer**

A company representative says the performance of the Alfa Laval Packinox unit is beyond his expectations, and that the company values the heat exchanger’s high operating reliability and stable heat recovery, as well as the cooperation with Alfa Laval.

**Low maintenance requirements**

The company has never had to make any repairs on its Alfa Laval Packinox heat exchanger. Maintenance has consisted of a visual inspection, leak test and chemical cleaning (when required) every fourth year when the plant has stopped for planned maintenance, and a yearly cleaning of a feed-side strainer.

**Over 450 units in operation**

Alfa Laval Packinox heat exchangers have become the industry standard for several demanding process industry duties thanks to the robust design, exceptional heat recovery and low pressure drop.

Today more than 450 Packinox heat exchangers are currently in operation in critical positions. More than one hundred of these have been running for more than 15 years, a number that is steadily growing.

Alfa Laval Packinox heat exchangers are installed in 75% of the world’s CCR reforming units with a capacity of 25,000 BPSD and higher. These figures are unique, and a strong indication of the trust put in the reliability of Packinox heat exchangers by the refining industry.

**Great return on investment**

An Alfa Laval Packinox heat exchanger in a 35,000 BPSD catalytic reformer typically saves roughly 4,000 tonnes of fuel gas if compared to a shell-and-tube solution. This leads to a reduction in CO<sub>2</sub> emissions by 11,000 tonnes per year and an annual OPEX saving of US\$1,000,000.

Learn more about Alfa Laval Packinox heat exchangers at: [www.alfalaval.com/packinox](http://www.alfalaval.com/packinox).

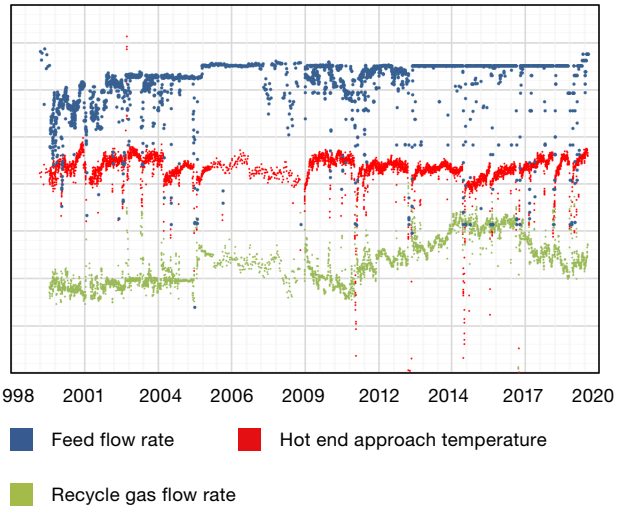


Figure 1. Heat recovery has remained at a stable, high level over time.

**Fast facts**

**The plant**

A refinery in Japan

**The challenge**

To recover heat in a catalytic reforming unit

**The solution**

An Alfa Laval Packinox heat exchanger

**The benefits**

- High operating reliability
- Minimal maintenance requirements
- 27 years of reliable uptime
- Exceptional heat recovery and substantially lower fuel costs

**How to contact Alfa Laval**

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)

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