

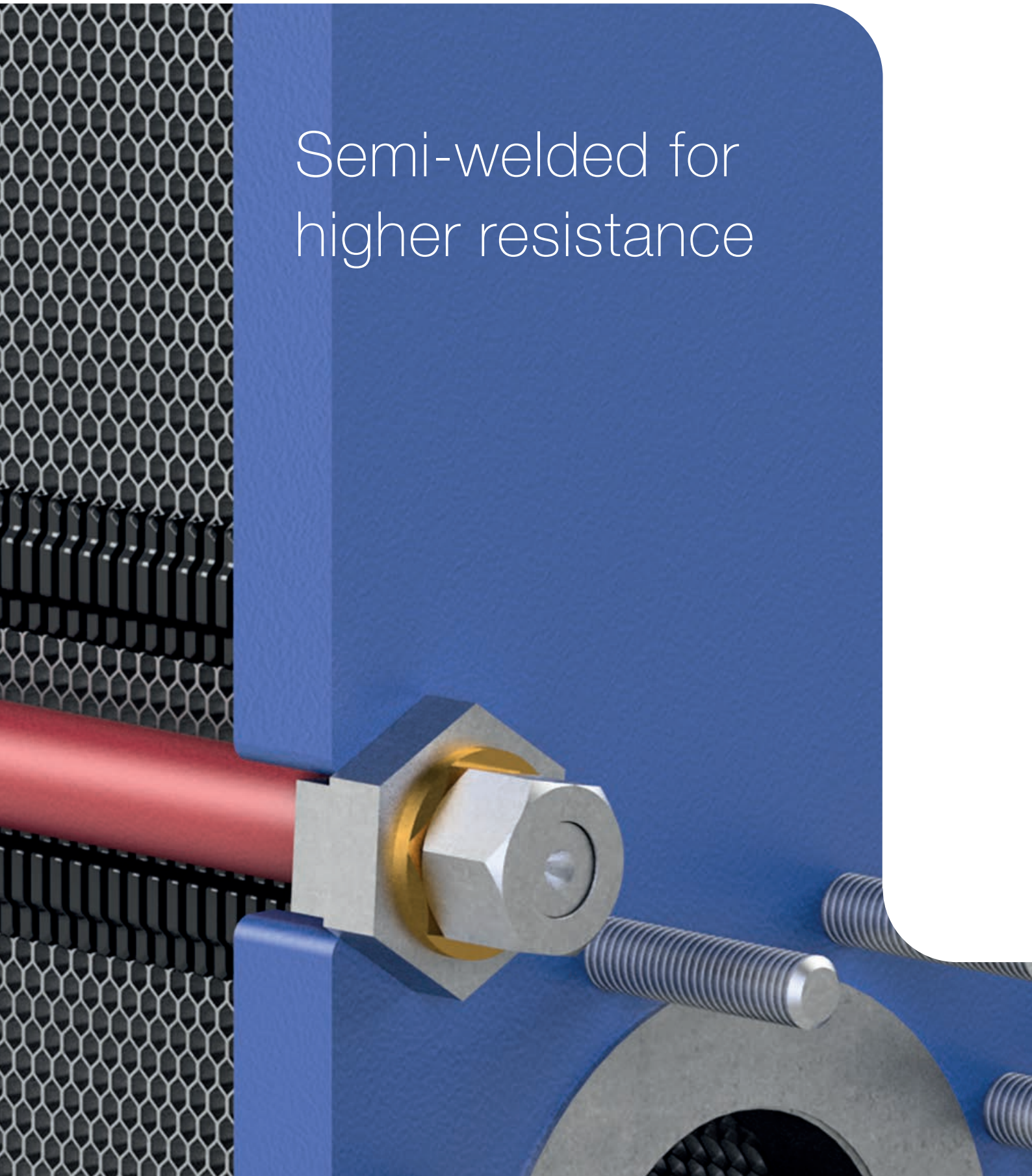


## Cool performance, high resistance

Semi-welded plate heat  
exchangers for industrial  
refrigeration



Semi-welded for  
higher resistance





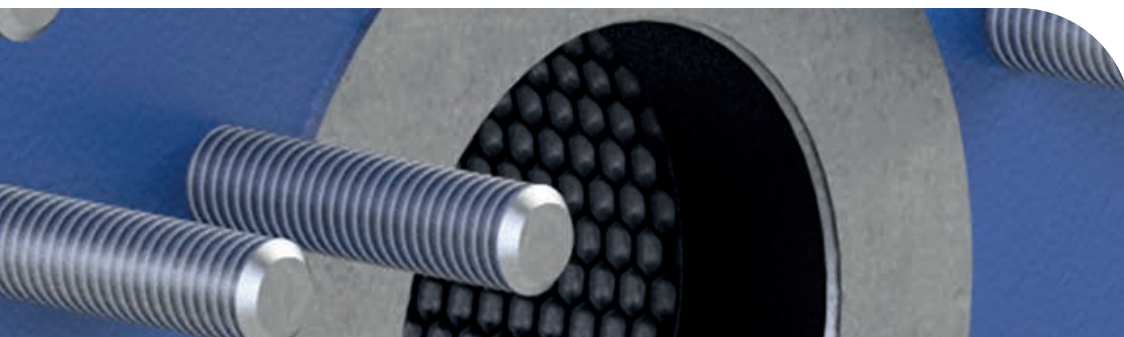
The semi-welded plate heat exchanger consists of a series of thin corrugated twin plates (cassettes) which are laser welded on one side and gasketed on the other side.

They combine most of the flexibility and serviceability of normal gasketed plate heat exchangers while obtaining higher pressure resistance on the welded side.

## A comprehensive range for refrigeration applications

Alfa Laval offers a wide range of semi-welded plate heat exchangers for most types of primary refrigerants and secondary fluids. They are particularly suitable for refrigeration and heat pump solutions that use ammonia and carbon dioxide, as they offer high resistance against ice formation and fatigue stresses from pressure and/or temperature variations.

Depending on size, the units can handle temperature ranges from  $-45^{\circ}\text{C}$  ( $-49^{\circ}\text{F}$ ) to  $150^{\circ}\text{C}$  ( $302^{\circ}\text{F}$ ) and pressure ranges from below vacuum, up to 63 barg (900 psig). Heat transfer plates can be in stainless steel (AISI304, AISI316, SMO254) or titanium, enabling the handling of a wide variety of fluids with optimal performance.



## Key benefits of Alfa Laval semi-welded heat exchangers

### High heat transfer

- Always turbulent flow
- Good flow distribution
- High COP factor achievable

### Compact

- Low refrigerant filling
- Low environmental impact
- Low weight & space

### High Resistance

- Pressure and temperature fatigue resistance
- Freezing causes no damage
- Corrosion-resistant plate material

### Flexible design

- Add/remove cassettes
- Openable for cleaning



The Alfa Laval semi-welded plate heat exchanger range

**Technical Data (all data for PED versions)**



Plate type	M6MW	M10BW	T10EW
	Frame Type	Frame Type	Frame Type
Design Pressure PED			
16 barg	FGR	FG	FGR
25 barg	FDR	FDR	FDR
30 barg		REF	
40 barg		FT	FT
55 barg		FX	
63 barg			FX
Height max, H (mm)	940	1170	1170
Width max , W (mm)	330	470	470
Min standard length, L (mm)	555	555	745
Max standard length, L (mm)	1615	2485	2485
Vertical connection distance, VC (mm)	640	719	719
Horizontal connection distance, HC (mm)	140	225	225
Connection size (mm)	OD 62	DN100	DN100
Optional: U-turn™ NH3 separator	NA	Available	Available



Applications

Alfa Laval semi-welded plate heat exchangers are mainly used in refrigeration and heat pump systems for the following applications:

- Flooded evaporators
- DX evaporators
- Cascade systems
- Liquid-cooled condensers
- Desuperheater/gas coolers (for e.g. heat recovery)
- Economizers/subcoolers
- Oil coolers



MK15BW

Frame Type



TK20BW

Frame Type



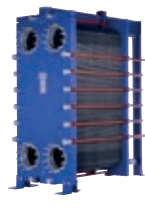
T20BW

Frame Type



T20MW

Frame Type



MA30W

Frame Type

FGR	FG	FG	FG	FG
FDR	FD			
		FS	FS	FD
FT				
		FX		
1486	1560	2202	2202	3140
650	785 900	780	780	1170
1198	910	1235	1235	1620
3322	4039	3990	3990	5245
1044	878	1478	1478	1811
304	363	363	363	561
DN150	DN200	DN200	DN200	DN300
Available	Available	NA	NA	NA



## RefTight™ sealing system –

High-performance gasket sealing for high-pressure duties

### Reliable, robust gasket system design

Alfa Laval has developed Reftight™, a unique, reliable, robust sealing system with a long-life expectancy, for use in refrigeration applications. Its design enables the use of plate technology in applications requiring higher pressure and temperatures. A major feature is the ring-formed gasket groove, designed to fully support the ring gasket sealing at high pressure and temperatures. The groove is formed in the pressed plate and positioned separate from any laser weld, assuring optimal sealing of the ring gasket.

The Reftight™ system allows the use of different materials for ring and field gaskets, enabling gaskets to be combined and selected accordingly to ensure the optimal fit for their specific duty and media combination. Choosing the most suitable gasket material also means lower permeation, which is important for applications in sensitive facilities such as hospitals, supermarkets and other public buildings.

Alfa Laval's unique Reftight™ system ensures a longer gasket lifetime than any other available solution, allowing service intervals to be extended and resulting in lifetime savings for the end-user.

### Tailored gasket material

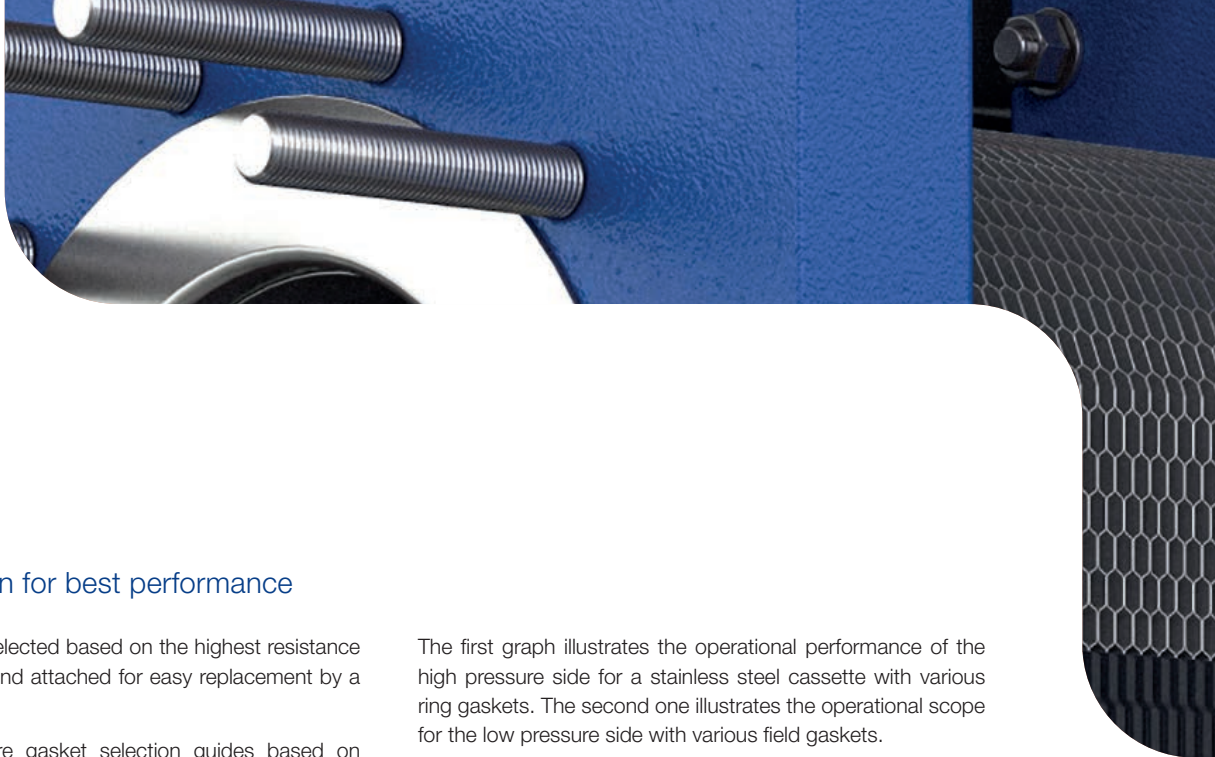
Laser-welded cassettes form the higher pressure rated channel side. These are then equipped with a set of separated gaskets: one field gasket forms the intermediate, low-pressure channel, while two ring formed gaskets seal the welded channel cassettes together.



### Key benefits of RefTight™ sealing system

- Longer gasket lifetime
- Can handle higher pressure and temperatures
- Reduced ammonia permeation





## Material selection for best performance

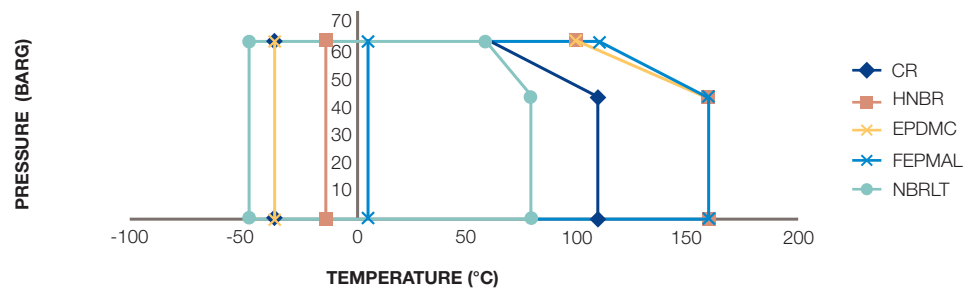
Gasket materials are selected based on the highest resistance for their specific duty and attached for easy replacement by a glue-free construction.

The graphs shown are gasket selection guides based on temperature and pressure, with data for the welded and gasketed side shown separately.

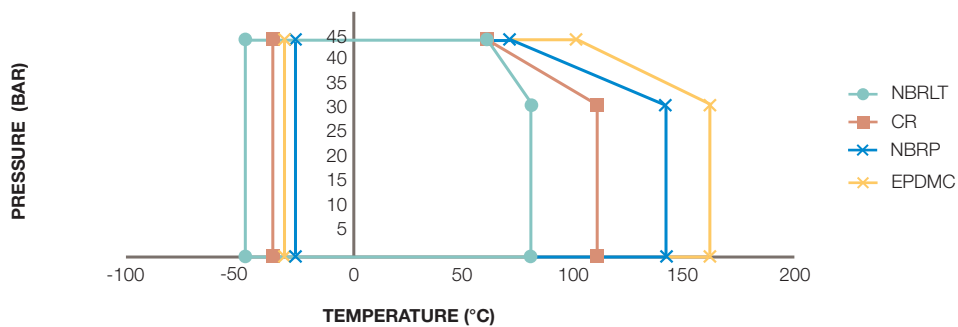
The first graph illustrates the operational performance of the high pressure side for a stainless steel cassette with various ring gaskets. The second one illustrates the operational scope for the low pressure side with various field gaskets.

This data is for guide purpose only. For a specific, accurate selection please contact Alfa Laval.

Operational scope high pressure side (Ring gasket)



Operational scope low pressure side (Field gasket)





#### **Alfa Laval in brief**

Alfa Laval is active in the areas of Energy, Food, Water and Marine, offering its expertise, products and service to a wide range of industries in some 100 countries. The company is committed to optimizing processes and creating responsible growth. We drive progress, always going the extra mile to support customers in achieving their business goals and sustainability targets.

Alfa Laval's innovative technologies are dedicated to purifying, refining and recycling material. They contribute to enhanced energy efficiency, improved heat recovery, responsible use of natural resources, better water treatment, and reduced emissions. Thereby not only accelerating success for our customers, but also for people and our planet. Making the world better, every day. It's all about Advancing better™.

#### **How to contact Alfa Laval**

Contact details for all countries are continually updated on our web site. Please visit [www.alfalaval.com](http://www.alfalaval.com) to access the information.

