



When fast and easy access is critical to your operation

FrontLine™ 10 and 15 Automatic

Applications

Pasteurization and general cooling/heating of dairy, brewery, beverage and food products.

Other applications include liquid egg pasteurization and processing.

Standard design

The frame

The FrontLine 10 and 15 with automatic opening and closing has an electrical drive system supported with six pulling tie bars which moves the pressure plate inside the frame.

The drive unit is based on a standard electrical motor with sensors in combination with precise lubrication free timing belts and life time lubricated gearboxes which transfer the torque.

Each tie bar has a clean and open seal free design nut which can only be relocated in one position to guarantee the synchronization between the bolts. The two middle tie bars are removable and designed with quick connections.

One unit may contain several heating and cooling duties, separated by connection plates with interchangeable connections.

The control system

The PLC based control system has a reliable power supply with programmable interface utilizing standard components. The unit is controlled from the logic menus on the touch screen and can easily be reconfigured. This flexible control system allows communication with other equipment via a standard ethernet connection.

In addition, the control system monitors bolt torque as well as speed and will interrupt the movement if any saturation or other unexpected values occur.

The Front plate

The Front plates are designed to meet the highest requirements in sanitary applications. The combination of high pressing depth and a pattern with relatively few contact points provides longer operation time without interruptions. The distribution pattern assures an even flow over the entire plate. The ports have a diameter enabling cleaning in place (CIP) with the same flow used in the process itself.

The plates are fitted with a gasket which seals the inter-plate channel and directs the fluids into alternate channels. The number of plates is determined by the flow rate, physical properties of the fluids and the temperature program. Connections may be located in the frame plate, the pressure plate and the connection plate.



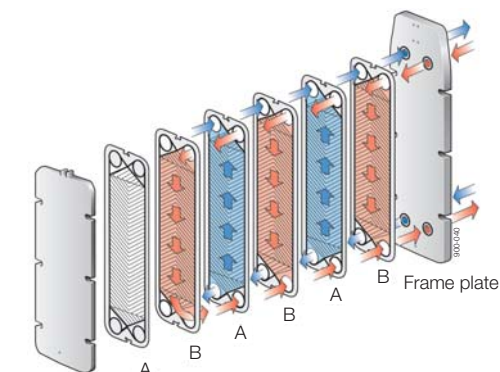
FrontLine™ 15 Automatic

The plate pack

The chevron corrugation of the plates provides a passage between the plates and supports each plate against the adjacent one. It also enhances the turbulence, resulting in efficient heat transfer. Different chevron angles are available to reach the optimal high heat transfer at a given pressure drop. A unique distribution area provides an efficient flow over the plate surface. The Alfa Laval hanging system enables easy handling of the plates in the frame. Furthermore, the corner guiding provides a strong plate pack. The plates are reversible and have parallel flow, which means that only one type of gasket is needed.

Working principle

A plate heat exchanger consists of a pack of corrugated metal plates with port holes for the passage of two fluids between which heat transfer will take place. The plate pack is assembled between a fixed frame plate and a movable pressure plate and compressed by bolts.



Pressure plate

Flow principle of a plate heat exchanger

Standard Materials

Frame

Frame and pressure plate in clad 304 stainless steel.

Plate type

Front 10 and Front15

Plates

AISI 316 stainless steel

Gaskets

Nitrile-FDA or EPDM-FDA.

The FrontLine plates are supplied with glue-free clip-on gaskets, which are easy to replace even with the plates still hanging in the frame.

The material of gaskets are selected for safe use in connection with pharmaceutical and food products

Technical Data

Mechanical design pressure (g) / Temperature

Cladded stainless steel 200 psi / 302 °F

Complies with 3A.

Complies with the European Pressure equipment Directive (PED). May carry the CE mark.

Connections

Tri-CLAMP standard.

DIN, SMS, BS/RJT and IDF/ISO male part available. Others on request.

Plates

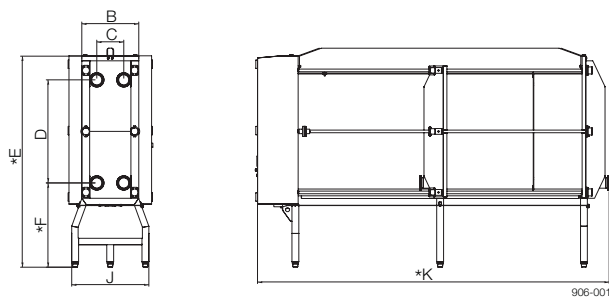
Plates	Front 10	Front 15
Plate pattern	Chevron	Chevron
Surface ft ²	6.67	9.80
Overall dim., inch	59 x 19.67	68.9 x 24.61
Port dim., inch	4	6
Thickness, inch (mm)	0.0279 / 0.0354 (0.5 / 0.6)	0.0279 / 0.0354 (0.5 / 0.6)

Options

- A. Thermometer pocket and nib with ventilation cock¹⁾
- B. Thermometer pocket¹⁾
- C. Connection for 2.01" pressure transmitter¹⁾
- D. Protection sheet
- E. Bolt protections of stainless steel
- F. Test certificates and material certificate
- G. Testing by authorized inspection companies

¹⁾ At through pass corners in connection plates.

Dimensions (inch)



Measurements	Front 10	Front 15
B	29	33
C	12.75	15.75
D	52	60
E	111	127.50
F	42	46
	(adjustable for leveling)	(adjustable for leveling)
J	45	45
K	152, 199 or 246	158, 205 or 307
Cabinet width	48	48

Connection	Front 10	Front 15
Diameter	4"	6"

Capacity GPM	Front 10	Front 15
Pasteurization	300	600
Heating/Cooling	600	1200

Overall length varies depending on numbers of plates and connecting plates.
Recommended free space around the unit is 5 feet at sides and frame head end.

Electronic system

Electrical motor

Front 10: 20 HP (15 kW)

Front 15: 30 HP (22 kW)

Power supply

Front 10: 3 x 460 VAC, 60A, 60 Hz

Front 15: 3 x 460 VAC, 80A, 60 Hz

Control system

PLC based control system with programming features.

User interface

Logic menus on full color 6" touch screen monitor. Access to other equipment via Ethernet.

Safety

Fulfill CE safety regulations.

Cable-car switch for emergency stop.

Main cabinet is equipped with emergency stop.

Key switch and pin code PLC limits access for authorized personnel