



# Pharma-X

## Pharma-X Point-of-use Cooler for Pharmaceutical Water Systems

### Applications

The Alfa Laval Pharma-X is a compact point-of-use cooler for Water For Injection (WFI) or Purified Water (PW) systems. The Pharma-X meets the stringent hygiene standards imposed by both control authorities and industry.

For quick and easy installation, the Pharma-X point-of-use cooler is supplied as a complete insulated module with a pitot tube arrangement and either manual or automatic valves. Installed in a water system, the Pharma-X module can be regarded as a sub-loop of the main loop.

### Working principles

To maintain optimum sanitary conditions when the point-of-use cooler is in 'stand-by' mode, hot water from the main loop enters via the pitot tube and flows continuously through the point-of-use cooler and back to the main loop (fig. 1).

Switching from 'stand-by mode' to 'cooling mode' (fig. 2) enables cold WFI or PW to be withdrawn within a few seconds.

It is also possible to withdraw hot WFI or PW at the point of use.

The low hold up volume, and the quick response of the heat exchanger, ensures that waste of WFI or PW is minimised. The cooling water demand is very low thanks to the efficient heat transfer.

### PHYSICAL DATA

Connections: . . . . . Tri-clamps metric or ANSI  
 Material: . . . . . 316 L stainless steel, seamless tubes  
 Pharma-X module: . . . . . Insulation: Armaflex  
 Cladding: 304L electropolished  
 Weight of module: . . . . . 22-46 kg



### TECHNICAL DATA

Max flow rate: . . . . . 1500 l/h  
 Heat transfer area: . . . . . 0.3-1.0 m<sup>2</sup>  
 Surface finish: . . . . . Ra < 0.5 µm. Electropolished on all product wetted parts  
 Welding according to: . . . . . EN 287 and ASME IX  
 Design pressure: . . . . . 10 barg  
 Design temperature: . . . . . 150 °C  
 Pressure vessel code: . . . . . N/A

### Hygienic design

The Pharma-X is based on an innovative tube-in-tube design. All product wetted parts in the Pharma-X are electropolished and the tubes are seamless.

If needed, the Pharma-X is easy to clean and it can be steam sterilized.

There are no internal welds in the Pharma-X, eliminating the risk of cross contamination between the product and the service medium.

The Pharma-X is fully drainable on the product side, with no dead legs in the complete module.

### Lower total pressure drop

The Pharma-X pitot tube arrangement ensures that throttling valves are not needed at every sub-loop, significantly reducing the total pressure drop of the water system.

### Minimum maintenance

The Pharma-X is virtually maintenance free with no internal gaskets. This reduces the downtime of the water system to a minimum.

### Standard sizes

There are six standard Pharma-X models - TT 311, TT 3151, TT 312 and TT 3152. These are supplied either as complete modules or as stand alone heat exchangers.

### Documentation

The Pharma-X is delivered along with a standard documentation including drawings, material certificates, operation and maintenance manual, pressure test certificate, welder's certificates, etc.



Pitot tube for connection to the water system.



Pharma-X module installed as a point-of-use cooler at AstraZeneca, Sweden.

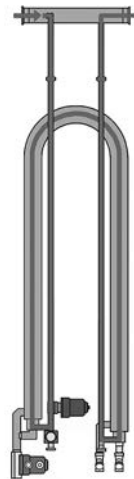


Fig 1. Stand-by mode:  
The Pitot tube ensures that the product is kept circulating in the point-of-use cooler, keeping it sanitized.

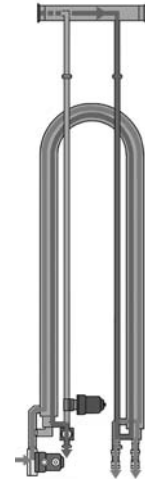


Fig 2. Cooling mode:  
The cooling water valve opens. The recirculation valve is closed and the product flows in the opposite direction. Cold water is available within seconds.

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