



## XLG<sup>®</sup>PH Pharmagrade

### MULTITUBE FOR PHARMAGRADE APPLICATIONS

Designed to process liquids and emulsions in the pharmaceutical, biotech and personal care industries, of low to average viscosity.

The heat exchanger is formed by a tube bundle of corrugated tubes inside a shell. Product flows inside the tube bundle and the service outside it.

**Main features:**

- Double tube-sheets avoid any risk of crossed contamination between sterile product and non sterile service.
- Inner tubes are welded and roller expanded into the tube-sheets.
- Inner tubes are seamless, with an inner surface roughness Ra minor than 0.5 µm.
- Eccentric reducers are connected to the external tube-sheet by means of a clamp or sterile flange.
- Self draining design.
- Exchanger free of maintenance.

**Materials**

Tubeside in AISI-316L and shell side in AISI-304, AISI-316 or AISI-316L. Other materials on request.

**High safety multitube**

Designed and manufactured following the FDA "Current Good Manufacturing Practices" for High Purity Water Systems

**Design conditions**

- Temperature: min -40°C(40°F) / max +180°C (+356°F)
  - Pressure: min full vacuum/max 10 bar(150 Psi)
- Higher temperature and pressure ratings are available subject to a revision of component



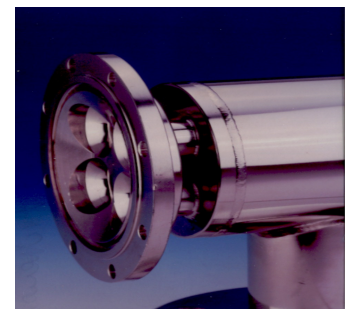
**Superior quality**

Exchangers incorporate FDA approved elastomers, can be electropolished, and may be subject to all sort of NDE (dye penetrant liquids, X-rays, etc). And inspected by nominated inspection authorities.



**Effective heat transfer**

Corrugation enhances heat transfer allowing a faster and more efficient heat exchange. Moreover, high turbulent flow provokes a self cleaning effect that reduces fouling.

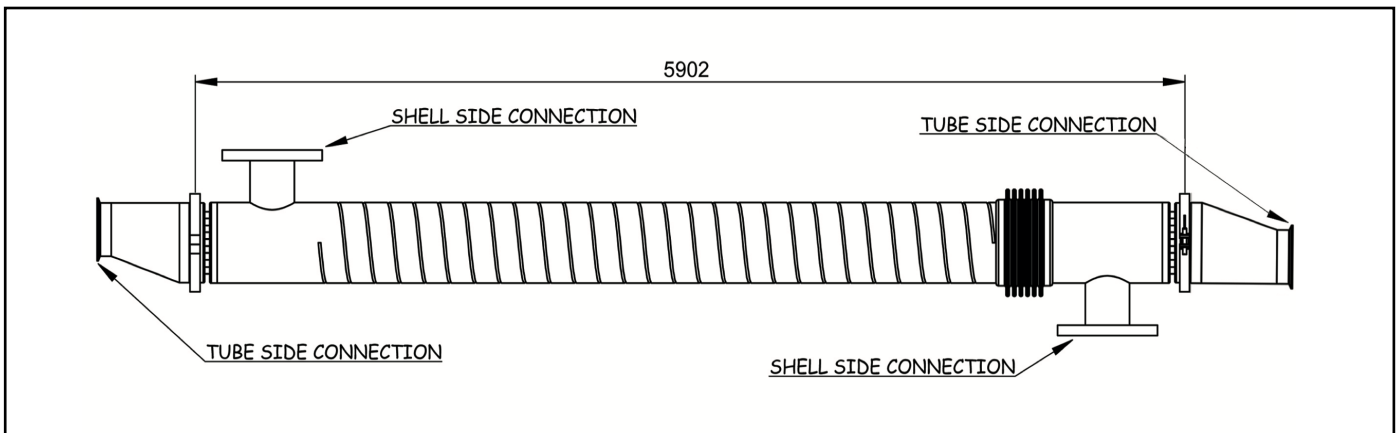


**Double Tube Sheet**

Pharmagrades include a double tube-sheet system so that in case of any weld failure no contamination can occur between fluids as any leak would go to the exterior of the heat exchanger.



# PH Pharmagrade Technical Data Sheet



Model	Connections		Heat exchange Area m <sup>2</sup> /ft <sup>2</sup>	Volume	
	Shell DIN-ISO/ASME BPE	Tubes		Shellside lt/Ga	Tubeside lt/Ga
PH-51/4x13	DN25/1 1/2"	DN20/1"	1.0/10.3	7.7/2.0	1.7/0.4
PH-64/7x13	DN40/2"	DN25/1 1/2"	1.7/18.0	11.9/3.2	2.9/0.8
PH-76/13x13	DN50/2 1/2"	DN40/2"	3.1/33.5	15.4/4.1	5.4/1.4
PH-89/19x13	DN65/3"	DN50/2 1/2"	4.5/49.0	19.5/5.2	7.9/2.1
PH-104/29x13	DN80/3 1/2"	DN65/3"	6.9/74.7	25.1/6.6	12.1/3.2
PH-114/32x13	DN80/3 1/2"	DN65/3"	7.7/82.5	33.0/8.7	13.3/3.5
PH-129/42x13	DN100/4 1/2"	DN80/3 1/2"	10.1/108.2	41.7/11.0	17.5/4.6
PH-140/55x13	DN100/4 1/2"	DN80/3 1/2"	13.2/141.7	45.0/11.9	22.9/6.0
PH-154/69x13	DN125/5 1/2"	DN100/4 1/2"	16.5/177.8	53.6/14.2	28.7/7.6
PH-168/85x13	DN125/5 1/2"	DN100/4 1/2"	20.3/219.0	62.6/16.5	35.4/9.3
PH-204/121x13	DN150/6 5/8"	DN125/5 1/2"	29.0/311.8	96.5/25.5	50.4/13.3
PH-219/151x13	DN150/6 5/8"	DN125/5 1/2"	36.1/389.1	103.3/27.3	62.9/16.6
PH-254/199x13	DN150/6 5/8"	DN125/5 1/2"	47.6/512.8	143.3/37.8	82.9/21.9

**Notes:**

- (1) Dimensions shown on the drawing above are expressed in mm (millimeters).
- (2) Each model includes seamless tubes 12.7x1.65 mm.
- (3) Standard heat exchangers length can be 6m/20', 3m/10', 2m/6.56', 1.5m/5', 1m/3.3'. 0.75m/2.46' and 0.5m/1.64'. Others on request.
- (4) XLG reserves the right to amend any of the above technical data without prior notice subject to project conditions.

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