PILAN®

	VOLUME OF LIQUIDS - L		MAX FLOW RATE L/min		
REFERENCE	SHELL SIDE	TUBE SIDE	OIL	FRESH WATER	SEA WATER
TP-A1	0,3	0,35	100	50	35
TP-A2	0,46	0,48	100	50	35
TP-A3	0,7	0,68	100	50	35
TP-A4	1	0,8	100	50	35
TP-A5	1,3	1	100	50	35
TP-B1	0,7	0,7	130	80	50
TP-B2	1,1	0,9	130	80	50
TP-B3	1,4	1,1	130	80	50
TP-B4	1,9	1,4	130	80	50
TP-B5	2,5	1,7	130	80	50
TP-C1	1,4	1,3	200	140	90
TP-C2	2,2	1,6	200	140	90
TP-C3	2,8	2	200	140	90
TP-C4	3,7	2,6	200	140	90
TP-C5	4,8	3,05	200	140	90
TP-D1	3,4	3,2	300	190	110
TP-D2	4,6	3,9	300	190	110
TP-D3	6,1	4,8	300	190	110
TP-D4	7,7	5,6	300	190	110
TP-D5	9,4	6,4	300	190	110
TP-D6	11,5	7,4	300	190	110
TP-E1	6	6,3	550	340	215
TP-E2	8	7,5	550	340	215
TP-E3	10,8	9	550	340	215
TP-E4	13	10,5	550	340	215
TP-E5	16	12	550	340	215
TP-E6	20	14	550	340	215
TP-F1	13	15	1000	800	500
TP-F2	17	18	1000	800	500
TP-F3	22	21,4	1000	800	500
TP-F4	28	25,1	1000	800	500
TP-F5	33	29,1	1000	800	500
TP-F6	41	34,1	1000	800	500

PERTH - Head Office
42 Wildfire Road
Maddington WA 6109
Tel: 08 9452 8522
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KALGOORLIE Branch
43 Carnegie Street
Kalgoorlie WA 6430
Tel: 08 9091 1020
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OPERATING, INSTALLATION AND MAINTENANCE MANUAL

Floating Tube Stack Heat Exchangers for Liquid Systems.

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We thank you for the trust in our company by acquiring a PILAN® heat exchanger; we recommend you read through this Operation Instruction Manual for good performance and maintenance of this unit.

Scope of Use:
The PILAN® range of heat exchangers is of floating tube bundle and cast shell design and is devised for the liquid phases of cooling or heating, both liquids flowing through independent circuits. Both fluids shall flow counter-current and are driven through a series of baffle arrangements, from inlet to outlet ports. An amount of heat is transferred and dissipated along the fluid passage.

IMPORTANT SAFETY WARNING
The Plant engineer is responsible for the correct selection of the suitable exchanger for the required use. Always check whether the exchanger materials are compatible to the service fluids, working pressure and temperature. IF IN DOUBT DO NOT INSTALL AND CONTACT YOUR PILAN® DISTRIBUTOR. Please check the data sheets available with our technical department.

Reception / pressure / Packing:
All PILAN® exchangers are provided with a riveted name plate where the essential traceability data is contained. Please check that the model number, serial number, tube material specification, design pressure and Ce marking (if applicable) are on this plate.

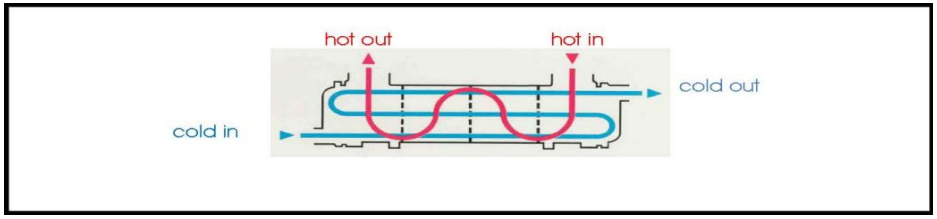
INPORTANT SAFETY WARNING
In case the exchanger was not provided with the above mentioned name plate, PLEASE DO NOT INSTALL IT AND CONTACT YOUR PILAN DISTRIBUTOR.

The exchangers are always protected for transit with bubble wrap. However, please check that the exchanger is in adequate condition and the packing is correct, otherwise, please contact your PILAN® Distributor to open a Non Conformity Report Action.

Installation and Start-up:

IMPORTANT SAFETY WARNING
ONLY Qualified and authorised plant personnel should carry out the installation, start-up and commissioning of the PILAN® heat exchangers.

PILAN® exchangers can be installed vertically or horizontally, however, and for the best performance, both system fluids must flow counter-current.
It should be observed that there are by-pass isolating valves at the inlet / outlet ports of the exchanger in the process return line to the tank.
It is highly recommended that the exchangers work full of cooling fluid in the tube side and is the responsibility of the Application Engineer to properly size the exchanger.



PILAN®

Before the start-up ensure that the tube material is compatible to the duty. **NEVER USE pure copper tubes for sea water service.**
The following check points should be followed before the start-up:

- Ensure a screen strainer up-stream of the shell and tube side in order to avoid an excessive ingress of foreign matter causing fouling on the tube side and choking on the shell side.
- Ensure the temperature control valve is properly selected.
- Remove the plastic end caps and observe that the machined surface is correct before starting up the system.

IMPORTANT SAFETY WARNING
Ensure that the system is depressurised and cool before installing the exchanger. Ensure that all operators are skilled and wear the adequate protective equipment.

Maintenance:
The floating tube stack design allows an easy maintenance by removing the full stack through one side of the exchangers.
A proper and regular maintenance service will extend the exchanger life span. However, the following key points might have an influence on the exchanger cycling span.

- Tube Side Flow Velocity: In order not to erode the inner tubes. It must not exceed the recommended limits by the Plant Engineer.
- Max. Flow rates and Pressure Drops: Not using a suitable exchanger to these parameters will shorten the exchanger life span.
- Acidity of Water: Ensure that the water Ph is not lower than 7. The water must flow clean and free of deposits.

In the event that maintenance is required, the floating tube stack can be removed from the shell and sent to the nearest PILAN® Service Centre, should no spare tube stack be available at the plant, an in-place maintenance can be done through the following process:
Insert a rod through the inner side of the tubes, assist with pressurised water and dry off with compressed air.

Recommended Spare Parts:
Only genuine PILAN® spare parts should be used to ensure a proper guarantee service. A gasket kit is recommended for Start-up. For two year service a spare tube stack is recommended, however. It is the Plant Engineers responsibility to plan the number and assortment of spares.

Ce Marking – Documentation
The Pressure Equipment Directive 97/23/CE is mandatory to all EU estate members and rules the Documentation to be delivered along with the Pressure Equipment. This document is comprehensive of a Declaration of Conformity where the basic responsibility is defined as well as the Module under which the product is classified according to the Directive. This Operation Manual is part of the compliance and points out all essential safety requirements to be observed. These documents do not rule out any other technical or commercial documentation.
ENSURE THAT THIS MANUAL IS ALWAYS AVAILBLE WITH THE EXCHANGER.