

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Heat Exchanger**

with type designation(s)

Heaters, steam or water heated named Pin Tube Type XLV 90/125

Issued to

**Kajiwara Iron Works Co.,Ltd.
Himeji Hyogo Pref, Japan**

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Temperature range: Steam: max. 220°C/Oil: max. 160°C****Design pressure: Steam: 1.18 MPa/Oil: 0.49-1.57 MPa (depending on type)****Operating media: Oil preheated by steam or water**Issued at **Høvik** on **2017-07-12**This Certificate is valid until **2021-12-31**.for **DNV GL**DNV GL local station: **Kobe**Approval Engineer: **Mehdi Rowshan**

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Marianne Spæren Marveng
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

Pin Tube heat exchangers with following Type:

XLV 90 (DP 5, 10, 16)
XLV 125 (DP 5, 10, 16)

The heat exchangers are graded as class II pressure vessels as defined in DNVGL Rules Pt.4 Ch.7 Sec.1, part 2.5.

Application/Limitation

Design temperature and pressure:

Type	Pressure (MPa)		Temperature (°C)	
	Steam side	Oil side	Steam side	Oil side
XLV 90				
(DP5)	1.18	0.49	220	160
(DP10)	1.18	0.98	220	160
(DP16)	1.18	1.57	220	160
XLV 125				
(DP5)	1.18	0.49	220	160
(DP10)	1.18	0.98	220	160
(DP16)	1.18	1.57	220	160

- The materials used shall have certificates according to DNVGL Rules Pt.4 Ch.7 Sec.1 Table 6.
- Each heat exchanger to be hydrotested at least 1.5 times the design pressure.
- Extent of Non-destructive testing shall be in accordance with DNV GL Ship Rules Pt.4 Ch.7 Sec.7, 4.1.
- Each heat exchanger shall be delivered with a DNV GL product certificate.

Type Approval documentation

Tests carried out

N/A

Marking of product

For traceability to this type approval, the final products are to be marked with:

- manufacturer's name and address
- type designation and serial number
- year of manufacture
- maximum allowable working pressure
- hydrostatic test pressure.

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform a periodical assessment every second year and before the expiry date of this certificate to verify that the conditions for the type approval are complied with.

The main elements of the certificate retention survey are:

- Review of Type Approval documentation
- Review of possible changes in design, materials and performance
- Ensure traceability between manufacturer's product type marking and Type Approval Certificate.



Job Id: **262.1-001891-6**
Certificate No: **TAP00000WM**