

GEWA-PB

ENHANCED BOILING TUBE FOR THE HYDROCARBON INDUSTRY

APPLICATIONS

The GEWA-PB tube is a dual enhanced tube with a nucleate boiling structure on the shell side and a spiral fin structure on the tube side, which has been specially developed for shell-and-tube heat exchangers for the process industry:

- LNG C3 chillers
- Ethylene reboilers and condensers for C2 and C3 fractionation and splitting units
- Other C3 refrigeration systems

BENEFITS

- Best efficiency through the combination of optimized heat transfer coefficients on both shell and tube side
- Highest compactness of heat exchanger design
- Maximal savings in CAPEX and OPEX

PRODUCT TYPES

- Gas cooling in a gas processing unit or a feed gas stream in an LNG plant
- Liquid cooling, e.g. quenchwater as heating source
- Condensation of a mixed refrigerant or C2 resp. C3 overhead stream

TUBE MATERIAL

Available carbon steel grades:

- CS (ASTM-A 179 | ASME-SA 179)
- LTCS (ASTM-A 334 Gr 1&6 | ASME-SA 334 Gr 1&6)
- LTCS 3.5 % Ni (ASTM-A 334 Gr 3 | ASME-SA334 Gr 3)

CODES/QUALITY AND TESTING / CERTIFICATES

- Bare tubes (ASTM-A 450 | ASME-SA 450 and ASTM-A 1016 | ASME-SA 1016)
- Finned tubes – NDT:
 - EC testing (mandatory)
 - Pressure testing in accordance to ASME BPVC Div. VIII Sect. 1 or related code (upon request)
 - Other related codes upon request
- Certificates 3.1 | 3.2 according to DIN EN 10204

ENGINEERING SERVICES

Wieland Thermal Solutions provides an engineering package for enhanced heat exchanger solutions with shell-and-tube heat exchangers. This covers thermal design, best practice design guidance as well as project management and documentation.

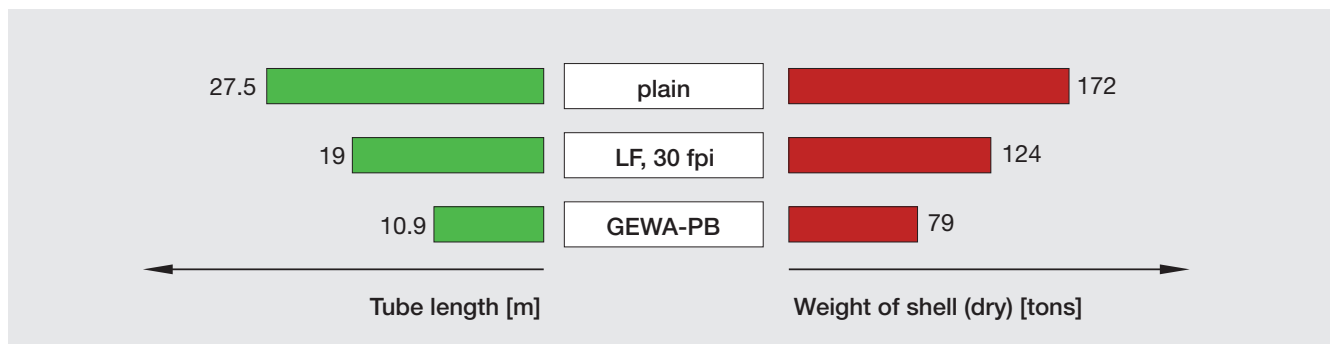
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CASE STUDY LNG PRECOOLING REFRIGERATION SYSTEM

Heat Duty	45 MW
Shell Design	NKN, 1-pass, bundle OD = 1500 mm, 3/4" GEWA-PB, tube count: 3745
Shell-side Fluid	Propane, $T_{\text{sat}} = -21.8 \text{ }^{\circ}\text{C}$
Tube-side Fluid	Mixed refrigerant, condensing, $T_{\text{in/out}} = -1.9 / -18.5 \text{ }^{\circ}\text{C}$

Design comparison for propane chiller with different tube types: plain, low finned and double enhanced GEWA-PB



GEWA-PB TUBE SPECIFICATION

Plain tube dimensions - outside diameter - wall thickness at plain end	3/4" 2.11 mm (nom.)	5/8" 1.70 mm (nom.)
Finned tube dimensions - tube length - wall thickness under the fins	18.3 m (max.) 1.4 mm (nom.)	18.3 m (max.) 1.0 mm (nom.)
Tube code	PB-8407.17140-49* PB-8407.17140-40**	PB-8407.14100-49*
Material	ASTM A / ASME SA 179, ASTM A / ASME SA 334 Gr. 1, 3 (3.5 % Ni), 6	
U-bends	<ul style="list-style-type: none"> • U-bends based on individual bending schedule • Annealing of U-bend section feasible • Pressure testing of U-bend upon request 	

* gas cooling and condensation

** liquid cooling

For further information please contact:

Wieland-Werke AG | Thermal Solutions
 Andreas Knoepfler
 Phone: +49 731 944 2892
 Email: andreas.knoepfler@wieland.com

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