Certificate No.: 2504161607231247

TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This is to certify that the

Pipe System with Couplings

TL Project No	**24-3445**
Manufacturer	**BLÜCHER METAL A/S**
Address	**Pugdalvej 1 - 7480 Vildbjerg | Denmark**
Product Type	**Push fit Pipe and drain system**
Reference Rule	**TL Rules, Part E, Chapter 103 - Metallic Materials, Special Materials for Naval Ships, 01.01.2022** **TL Rules, Part E, Chapter 107 - Naval Ship Technology, Ship Operation Installations and Auxiliary System, 01.01.2022** **TL Rules, Part A, Chapter 2, Material, 01.07.2024** **TL Rules, Part B, Chapter 4, Machinery, 01.07.2024**
Expire Date of Previous Certificate	-
Place and Date	**ISTANBUL / 16.04.2025**

Subject to the conditions referred to in the following pages, this certificate is valid until 16.04.2030.

Emrah SÖĞÜTÇÜ

New Building Division Manager

124369

This certificate is subject to terms and conditions described below:

- Any significant change in design or construction may render this Certificate invalid. Type Approval Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. This certificate is not valid for products without marking above mentioned. The manufacturer should notify TÜRK LOYDU of any modifications or changes to equipment in order to obtain valid certificate. This certificate shows that tested specimens as representative of the product complies of the TÜRK LOYDU rules, and revelant international instruments that apply to it.

Product	: Pipe System with Couplings
Type of Product	: Push fit Pipe and drain system
Product Description	: The pipes are longitudinal welded thin wall pipes with a pressed-out bulb at one end. The bulb gives room for a lip seal ring of EPDM, NBR or FPM. A length of same end of pipe is rolled to a diameter exceeding outside nominal diameter of rest of pipe. Assembly of pipes is performed by pushing the small end of pipe through the lip seal into the big end. Type designations:: 470,471,472,473,474,475,479,480,485,490,491,499,502,503,505,525,610,611,620,696,697,970,811,820,821,822,825,830,831,832,834,836,837,838,839,840,840.001,841,842,843,844,845,847,850,854,855,859,866,867,868,869,870,872,873,874,875,876,878,885,886 and 899. 670 MarineLine Channel 672 MarineLine Channel 660 MarineLine Channel 662 MarineLine Channel 651 MultiLine Channel 178 WaterLine Channel 275 WaterLine Channel 699 Special channels with push/fit connection
Approval No / Date	: PAE-EPAS/020643/24-3445/FP, 20.02.2025
Material Grade	: AISI304, AISI316L
Performed Tests	: - Quality Management System Audit - Visual Inspections - Dimensional Control acc. to Approved Drawings - Material Tests, reports reviewed - Pressure Tests, reports reviewed (The test was carried out by the accredited organisation Danish Technological Institute on 18.10.2002.) - Vacuum Tests, reports reviewed (The test was carried out by the accredited organisation Danish Technological Institute on 18.10.2002.) - Vibration Tests, reports reviewed (The test was carried out by "TNO Built Environment and Geosciences" on 17.02.2005.) - Review of Calibration Certificates of Testing and Measurement Equipment were found satisfactory.
Test Place	: BLÜCHER METAL A/S, Vildbjerg | Denmark
Last Inspection Date	: 04.04.2025
Application/Limitation	: 1. The piping system is intended for use in non-pressurized and vacuum applications, including: - Sanitary discharge systems are located above the freeboard deck and within enclosed spaces below, including machinery rooms, - Vent pipes for sanitary discharge systems and central vacuum cleaning systems (CVC), - Lines in tanks not forming part of the ship structure, - External drainage systems, such as scuppers and pipes located on weather decks or balconies, - Food waste systems. 2. Pipe penetrations through watertight bulkheads, fire bulkheads, or shell plating require individual approval. The following conditions apply: - A remotely operated valve is to be installed at each penetration of a watertight bulkhead. - The valve and its control system are to be located outside the ship's designated damage zone.

Surveyor Name : Sezer Mahir TUĞCU

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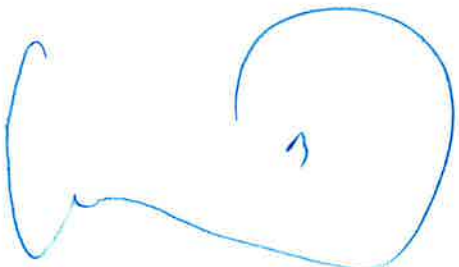
3. Temperature limitations based on sealing material:
- EPDM: -40°C to 100°C
- NBR: -30°C to 80°C
- FKM/FPM: -25°C to +200°C
- SI: -50°C to +230°C

Other Conditions
- Pipes and fittings are to be selected, installed, and tested in strict accordance with the manufacturer?s guidelines and recommendations.
- The structural integrity of watertight bulkheads, fire divisions, and shell plating shall remain uncompromised at all times.
- The piping system shall not be utilized in environments where high amplitude and rapid pressure pulsations are expected.
- This document outlines the operational constraints and necessary precautions to ensure the safety, durability, and regulatory compliance of the piping system.

Materials: Stainless steel AISI304 or AISI316L

Others : Max. pressure: Dependent on pipe sizes and fixations
Design: The pipes are longitudinal welded thin wall pipes with a pressed-out bulb at one end. The bulb gives room for a lip seal

Approval Conditions : -



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