



TYPE APPROVAL CERTIFICATE

Certificate No:
TAD00000V4
Revision No:
2

This is to certify:

That the Hoisting, Rotation and Pipehandling Equipment

with type designation(s)
BONDURA PIN SYSTEM

Issued to

Bondura Technology AS
Bryne, Norway

is found to comply with

DNV-OS-E101 – Drilling facilities, Edition July 2021

DNV standard DNV-ST-0378 – Offshore and platform lifting appliances

DNV statutory interpretations DNV-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2021

Application :

See: Specification for bondura® pivot pin system, 10.05.2022

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2022-11-04**

for **DNV**

This Certificate is valid until **2027-11-03**.

DNV local unit: **Stavanger**

Approval Engineer: **Thomas Henrik Tranesen**

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Per Esvall
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Reference standards

FEM 1.001, Rules for the design of hoisting appliances, 1998
API Spec.8C, Specification for drilling and production hoisting equipment (PSL 1 and PSL 2), 2019
NS 5514, Cranes and lifting appliances, steel structures, design rules,
NS-EN ISO 13535, Petroleum and natural gas industries, drilling and production equipment, hoisting equipment

Product description

The bondura® pins are designed to replace existing conventional round bolts with the same diameter and similar material. The dimensions and material shall be chosen in order to meet the safety factor, material requirements, fatigue and other design criteria applicable to the equipment where the pins are used. The bondura® pins cover a range of sizes up to Ø500mm diameter.

Type	Diameter range
BONDURA® PIVOT PIN TYPE 3.1	Ø30-Ø500
BONDURA® PIVOT PIN TYPE 3.2	Ø25-Ø500
BONDURA® PIVOT PIN TYPE 3.3	Ø10-Ø500
BONDURA® PIVOT PIN TYPE 3.4	Ø10-Ø500
BONDURA® PIVOT PIN TYPE 4.4	Ø10-Ø500
BONDURA® PIVOT PIN TYPE 6.1	Ø20-Ø59 Ø59-Ø99 Ø59-Ø275 Ø140-Ø500
BONDURA® PIVOT PIN TYPE 6.2	Ø25-Ø69 Ø55-Ø500
BONDURA® PIVOT PIN TYPE 6.6	Ø25-Ø69 Ø50-Ø500
BONDURA® PIVOT PIN TYPE dual 66	Ø30-Ø500
BONDURA® PIVOT PIN TYPE BX	Ø20-Ø140
BONDURA® PIVOT PIN TYPE dual 36	Ø25-Ø500
BONDURA® PIVOT PIN TYPE 6.6 LC	Ø40-Ø500
BONDURA® PIVOT PIN TYPE 3.3 LC	Ø50-Ø500
BONDURA® PIVOT PIN TYPE 6.2 LC	Ø55-Ø500

Design data shall be according to "Specification for bondura® pivot pin system" dated 10.05.2022.

For traceability to this type certificate the products are to be marked with Bondura Technology sales order and item number.

Depending selected design standards and rules, the design data shall specify at least basic input parameters (according to project/design specification), such as:

- Minimum design temperature,
- Max load capacity,
- Design safety factor,
- Dynamic amplification factor,
- Product safety level.
- [Other limitations].

Type Approval documentation

Following documents are stamped "For Information":

Drwg.No.	Rev.	Title
GA-0310	D	bondura 3.3. Ø010-Ø500 GENERAL ARRANGEMENT
GA-0300	D	bondura 3.1. Ø30-Ø500 GENERAL ARRANGEMENT
GA-4517	B	bondura 6.1. Ø140-Ø500 GENERAL ARRANGEMENT
GA-0370	C	bondura DUAL 36 Ø25-Ø500 GENERAL ARRANGEMENT
GA-0364	A	bondura 6.2-LC Ø55-Ø500 (Load Cell) GENERAL ARRANGEMENT
GA-0362	B	bondura 3.3-LC. Ø50-Ø500 (Load Cell) GENERAL ARRANGEMENT
GA-0360	B	bondura 6.6-LC Ø40-Ø500 (Load Cell) GENERAL ARRANGEMENT
GA-0350	C	bondura BX Ø20-Ø140 GENERAL ARRANGEMENT
GA-0345	C	bondura DUAL 66 Ø30-Ø500 GENERAL ARRANGEMENT
GA-0339	D	bondura 6.2. Ø25-Ø69 GENERAL ARRANGEMENT
GA-0338	D	bondura 6.2. Ø55-Ø500 GENERAL ARRANGEMENT

GA-0332	D	bondura 6.1. Ø59-Ø275 GENERAL ARRANGEMENT
GA-0330	D	bondura 6.1. Ø59-Ø99 GENERAL ARRANGEMENT
GA-0328	D	bondura 6.1 Ø20-Ø59 GENERAL ARRANGEMENT
GA-0326	D	bondura 6.6. Ø50-Ø500 GENERAL ARRANGEMENT
GA-0324	D	bondura 6.6. Ø25-Ø69 GENERAL ARRANGEMENT
GA-0322	C	bondura 4.4. Ø010-Ø500 GENERAL ARRANGEMENT
GA-0320	C	bondura 3.2. Ø025-Ø500 GENERAL ARRANGEMENT
GA-0318	C	bondura 3.4. Ø010-Ø500 GENERAL ARRANGEMENT

Specification for bondura® pivot pin system, 10.05.2022

Type Testing:

Scana Supply & Services as, Load Test Report, ID.No.BN-1075/WO.93-050, dated 93.02.17
 Bolt Norge AS, Load Test ID.No.BN-1075, dated 93.07.15
 Scana Supply & Services as, Load Test Report, ID.No.BN-1101/WO.93-105, dated 93.06.22
 Bolt Norge AS, Load Test, ID.No.BN-1101, dated 93.07.15.

Tests carried out

NDE testing shall be according to the design rules and specifications.
 Overload/load testing shall be according to the design rules and specifications.

Documents, etc. which are to accompany each product/delivery:

Material Traceability List
 Certificate of Conformity
 Pin Assembly Drawing with relevant dimensions
 Material Certificate EN 10204
 NDT Report - as applicable
 GA Drawing
 Assembly and Inspection Manual

Documents to be kept by Bondura Technology AS over a period of at least 10 years:

Material certificates traceable to each pin
 Relevant GA drawings and production drawings
 Certificate of Conformity
 Material Traceability List
 Assembly and Inspection Manual

Other conditions and comments

- This document may be used as part of the documentation required to comply with European Union (EU) Directives referenced in PSA's Acts, regulations and provisions for the petroleum activities.
- The pins shall be furnished with an appropriate material certificate in accordance with the relevant standard, as specified above. No product certificate is required for the pins.
- Where applicable, the risk assessment of the appliance where the bondura® pins are to be installed, shall be carried out by the appliance designer/manufacturer.

Certificate retention survey

For retention of Type Approval, DNV's representative shall carry Product Audits in accordance with DNV-CP-0338. This is in order to verify that the conditions for the type approval are complied with, ref. DNV-CP-0338, DNV Type approval scheme.

THIS CERTIFICATE REPLACES PREVIOUS TYPE APPROVAL CERTIFICATE NO. D-5176.

End of Certificate