

Provisional Certificate of Approval

This is to certify that

SeAH Besteel Corp.

552, Oehang-ro, Gunsan-si, Jeollabuk-do 54007, Korea

Is provisionally approved by MAN Energy Solutions for the manufacture and supply of:

**Crank Throws
Material: S34MnV
Made by Folding Method
for all engine types size 26-98 Bore**

with ingots produced by

SeAH Besteel Corp.

for MAN B&W engines (two-stroke) in accordance with the Terms and Conditions stated in Appendix A.

issued on 2022-01-06

expires on 2024-01-06

Certificate no.: 2700-2022-207.2

MAN Energy Solutions


Cristina Ferreira


Steen Krogh Jensen

Appendix A:

Certificate no.: 2700-2022-207.2

The approval as Vendor is based on the premise that the production and testing facilities, associated procedures and relevant qualifications are found in compliance with:

- Quality Control Ident no. 0743172-1.13 “General Procedure for First-Time Production Approval of Controlled Components”
- Quality Control Ident no. 0743078-7.11 “Forged Steel Crank Throw; First-Time Approval”
- Quality Specification Ident no. 0743099-1.3 “Forged Steel Crank Throw”
- Material Specification Ident no. P182-5 “S34MnV – Forged Steel”
- Result of destructive test ref. no. CMTR SBC-QA1103-01, dated 28th March 2011
- Certificate of material: Forging (Crank Throw) – S34MnV, dated 29th November 2010
- Report: The fatigue evaluation of forged Crank Throw (K90MC-C), dated 24th March 2011

Documents used in the renewal of the approval:

- Project ref. "19DMD025-Report / 7G80ME-C10.5" dated 2019, and including documents from: SeAH Besteel Corp.; Hansol Intech Co. Ltd; China Classification Society; Dalian Huarui Marine Crankshaft Co Ltd.
- Certificate from CCS for project "19DMD025 / 7G80ME-C10.5", ref. DL16W00003, dated 2019
- Certificate from DNV for project "19DM025 / 7G80ME-C10.5", ref. N141SBHB, dated 2019
- MAN ES analysis of the renewal ref. "(26773-2021) RE Renewal of certificate CoA-207.1", dated October 2021

With this provisional approval, MAN Energy Solutions accepts that SeAH Besteel Corp. is manufacturing crank throws within the range stated in this document.

SeAH Besteel Corp. must:

- Inform when starting production of crank throws
- Send production reports according with Quality Specification Ident. No. 0743099-1.3 to MAN Energy Solutions for evaluation, from the first crank throw produced.

The final approval can be given if the production reports are found acceptable by MAN Energy Solutions.

The Certificate of Approval is subject to the following Terms and Conditions:

Certificate no.: 2700-2022-207.2

1. Vendor shall at all times comply with the restrictions stipulated in the Undertaking of Confidentiality signed by Vendor on 2010-09-28
2. The Certificate of Approval (the "Approval") is given on the strict condition that Vendor undertake to indemnify MAN Energy Solutions against any and all claims arising from the Product's actual or alleged infringement of any third party intellectual property rights.
3. For Product's designed by the Vendor, the Approval is given on the strict condition that Vendor undertakes to indemnify MAN Energy Solutions against any and all claims arising from the Product's design.
4. The Approval is given on the basis that the Product conforms with MAN Energy Solutions' drawings and specifications valid at the time of the Approval. MAN Energy Solutions reserves the right to make changes to its drawings and product specifications notwithstanding that such changes may invalidate the Approval.
5. The Approval shall not relieve Vendor from its responsibility always to manufacture the Product in compliance with good manufacturing practice, free from any defect and in strict compliance with any drawings and specifications received from MAN Energy Solutions or its licensees.
6. Changes made to the Product specification by the Vendor must be informed to and accepted by MAN Energy Solutions in writing. Failure by the Vendor to obtain such written acceptance from MAN Energy Solutions may render this Approval invalid.
7. The Approval is given under the strict condition that MAN Energy Solutions has the right to assess periodically the Vendors continued ability to manufacture the Product in accordance with the requirements of MAN Energy Solutions.
8. The Approval does not imply (whether directly or indirectly) that MAN Energy Solutions in any way guarantee the quality of the Product manufactured and supplied by Vendor.
9. The Approval may be withdrawn by MAN Energy Solutions at any time without notice if Vendor should fail to comply with the conditions of this Certificate of Approval, the duly signed Undertaking of Confidentiality and Quality Control 0743172-1 "General Procedure for First-Time Production Approval of Controlled Components" and may otherwise be withdrawn by MAN Energy Solutions at any time by giving six months prior, written notice to the Vendor.