

# Approval Certificate



This is to certify, that the undernoted company has been granted the approval of

## In situ Crankshaft Annealing

This approval is based on a respective procedure test.

Certificate No. 12-24250 HH  
GL reference 12-058711  
Company Metalock Engineering Germany GmbH  
Gutenbergring 64  
DE-22848 Norderstedt

Description In situ crankshaft annealing of medium speed 4-stroke engines with installed crankshaft

Procedure/Details The procedure has been developed in order to reduce the hardness of a damaged/heat affected crankpin on side with installed crankshaft.

Annealing treatment corresponds and described in the Metalock Engineering Germany GmbH work procedure "Heat treatment process description". Further prerequisite for permission of complete crankshaft repair is a succesfull surface crack test and true running test, dimension, surface roughness and crank web deflection confirmation

Range of Application This procedure is limited to crankpins of one piece forged crankshafts made of tempering steel of medium speed 4-stroke engines.

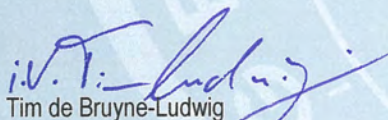
Remarks Every repair case remains a single case decision by Germanischer Lloyd.  
Every repair case requires a detailed repair procedure which has to be submitted to Germanischer Lloyd Head Office for approval prior the beginning of the repair.

Valid until The approval is valid until cancelled, in writing, by the society or the company. Cancellation can be given by the society with immediate effect, if the conditions of the approval are no longer adhered to.

Attachment Approval-Letter with reference 12-058711

**Germanischer Lloyd**

Hamburg, 2012-08-07

  
Tim de Bruyne-Ludwig

  
Matthias Meyer

Place of performance and jurisdiction is Hamburg.

The latest edition of the General Terms and Conditions of Germanischer Lloyd is applicable. German law applies.