

# Approval Certificate



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

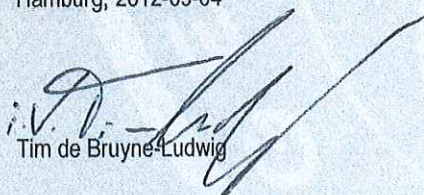
## In situ Crankshaft Annealing

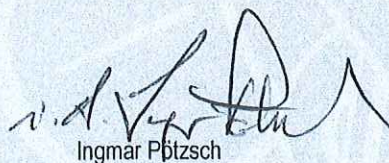
This approval is based on a respective procedure test.

Certificate No.	12- 26348 HH
GL reference	12-100294 Poz / Jac
Company	GOLTENS Rotterdam B.V. 29, Lorentzweg Industrial Halfweg 4 NL-3208 LJ Spijkenisse
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 GOLTENS "STANDARD OPERATING PROCEDURE FOR IN SITU ANNEALING OF CRANKSHAFTS"; Rev. 3, September, 2012. Further prerequisite for permission of complete crankshaft repair is a successful 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.  GOLTENS Rotterdam B.V. acts as supervisor for all relevant repairs to be performed by GOLTENS Group.  Every repair case requires a detailed repair procedure according to Documents 1.0, 2.0 & 3.0 of the "GOLTENS Index (List of documents) for crankshaft annealing", 2012-08-28, which has to be submitted via GOLTENS Rotterdam B.V. to Germanischer Lloyd Head Office for approval prior the beginning of the repair. For final verification of repair documents 4.0 to 11.0 of the "GOLTENS Index (List of documents) for crankshaft annealing", 2012-08-28 shall be forwarded to GL.
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. Major changes of "GOLTENS "STANDARD OPERATING PROCEDURE FOR IN SITU ANNEALING OF CRANKSHAFTS" are subject to approval by GL.
Attachment	Approval-Letter with reference 12-100294 Poz / Jac

## Germanischer Lloyd

Hamburg, 2012-09-04

  
Tim de Bruyne-Ludwig

  
Ingmar Pöttsch

Place of performance and jurisdiction is Hamburg.

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