

Approval of Production Plants
Zulassung von Fertigungsbetrieben



This is to certify that the works of
Hiermit wird bescheinigt, dass die Firma

**ELLWOOD CRANKSHAFT AND MACHINE CO.
HERMITAGE
UNITED STATES OF AMERICA**

has been subjected to an approval test in accordance with the Society's Rules with satisfactory results and is approved for the following process of production:

einer Zulassungsprüfung nach den Vorschriften des Germanischen Lloyd unterzogen wurde und für folgenden Herstellungsprozess zugelassen ist:

***Final machining of crankshaft blanks
in low alloy steel grades***

***in accordance with GL-Rules for Metallic Materials,
Chapter 2, Section 3, C.***

This approval is granted provided that all products intended to be used for the construction of ships or installations classed with Germanischer Lloyd comply in every respect with the Society's Rules and Requirements.

Die Zulassung erfolgt unter der Voraussetzung, dass alle Erzeugnisse, die zum Bau von Schiffen und Anlagen mit Klasse des Germanischen Lloyd bestimmt sind, die Vorschriften des Germanischen Lloyd in jeder Hinsicht erfüllen.

Certificate of approval No.
Zulassungsbescheinigung Nr.

PZ 2143 HH

This Certificate is valid until:
Diese Bescheinigung ist gültig bis:

2013-03-31

Part of the approval is our letter of approval ref. no. 107135-09 of 2010-03-04.
Bestandteil der Zulassung ist das Zulassungsanschreiben, Tgb.-Nr. 107135-09 vom 2010-03-04.

Hamburg, 2010-03-04

Germanischer Lloyd


Sven Koller


Stefan Röhr

Type Approval Certificate



Certificate No. **24187-11 HH**
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This is to certify that the Diesel Engine noted hereunder has been approved in accordance with the relevant requirements of the GL Approval System

Engine Manufacturer **MAN Diesel & Turbo SE**
86153 Augsburg, Germany

Engine Series / Type **L23/30**

Design / Working Process **four stroke, trunk-piston type, non-reversible**

Combustion Method / Kind of Air Charging **with supercharging**

Technical Data

Rated Power [kW/Cylinder]	130	135	150	160
Rated Speed [1/min]	720	750	825	900
Mean effective Pressure [bar]	18.2	18.1	18.3	17.9
Max. Firing Pressure [bar]	137	137	137	137

Application **Unrestricted Unrestricted Propulsion Unrestricted**

Approval Standard **Rules for Classification and Construction, I Ship Technology, Part 1, Chapter 2, Section 2.E Tests and Trials**

Approval Documents **11-013065, 54049/01, 84353/90, 96285/92**

Hamburg, 2011-02-16

valid until 2016-02-15

Germanischer Lloyd

Olaf Drews

Sver Neddenien

Notice: This Certificate is subject to remarks and details overleaf. Any significant change in design, up-fit or construction may render this Certificate invalid. The latest edition of the General Terms and Conditions of Germanischer Lloyd is applicable. German law applies.

