

Approval Certificate



This is to certify, that the undernoted procedures have been approved in accordance with the relevant requirements of the GL Approval System.

Certificate No. 50 652 - 03 HH

Company Marine Service Jaroszewicz
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70-703 Szczecin, POLAND

Procedure FITTED BOLTS OF CAST-IN RESIN TYPE

Type/Equipment/System Cast Resin type: EPY

Technical Data/
Application

- 1.- Fitted Bolts of this type are to be installed into oversized holes of engine bed plate and ship's top plate. They must be provided exclusively for fixing and securing the plant components and must not be taken into account in the transmission of propeller thrust.
- 2.- Radial clearance in the range of 2 to 5 mm around each Fitted Bolt of this type is to be provided for pouring.
- 3.- For installation, processing and pouring around each Fitted Bolt of this type, the relevant instructions of MARINE SERVICE JAROSZEWICZ, "Guidelines For Fitted Bolts Of Cast-in Resin Type", Annexe 31GL 24.02.2003, approved by GL Ref.-No. 03-028974 dated 2003-12-18, are to be observed.
- 4.- Drawings and calculations for seating of propulsion plants designed for installation of these Fitted Bolts are subject to approval by GL Head Office in any case. Relevant drawings must reflect the design to be realized aboard the vessel.
- 5.- Guidelines and schematic drawings of these Fitted Bolts (Annexe 31GL 24.02.2003) approved by GL Ref.-No. 03-028974 dated 2003-12-18 form part of this Certificate.

Approval Standard GL Regulations for the Performance of Type Tests, Part 0, Procedure, Febr. 1997.

Documents Test Reports of POLITECHNIKA SZCZECINSKA / Technical University Szczecin, dated 1984-06-20, 1984-11-27, May 1992 and 1995-12-20.

Remarks Of overriding importance the conditions given by the current issue of GL Type Approval Certificate for the above-mentioned Cast Resin type are to be observed.

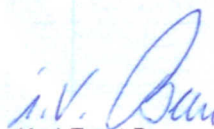
Valid until 2014-12-17

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Hamburg, 2009-12-18

Germanischer Lloyd


Karl-Ernst Beese


Ulrich Sieler



GUIDELINES FOR FITTED BOLTS OF CAST-IN-EPY RESIN TYPE

**ANNEXE
31GL
24.02.2003**

GUIDELINES

1. Make sure hole diameter D_{SE} and bolt pin diameter $D_{S1,2}$ do satisfy the requirement

$$D_{SE} = D_{S1,2} + (4 \div 10) \text{ mm /Fig 1a, 1b/}$$
2. Fit mould head plate to foundation making sure minimum height of head

$$h_2 > D_{S1,2} \text{ /Fig 1a, 1b/}$$
3. Fit sealing ring made in rubber, outside dia $D_o = D_{SE} + 0,5 \text{ mm}$, underneath bolt head /Fig 1a, 1b, Detail A,B/.
4. Apply parting agent to form a film on to surfaces contacting with EPY resin compound.
5. Fit holding down fitted bolt in place and run nut down by hand; centring of bolt within holes drilled in foundation also in bed plate, is ensured by provision of rubber sealing ring.
6. Provide ambient temperature $T > 15^\circ\text{C}$ in way of chock.
7. Pour EPY compound into mould up to level h_2 /Fig 1a, 1b/. In initial phase pouring is to proceed slowly until the gap in way of bolt is filled.
8. As soon as EPY compound has been cured, unscrew nut and inspect level of compound around the bolt.

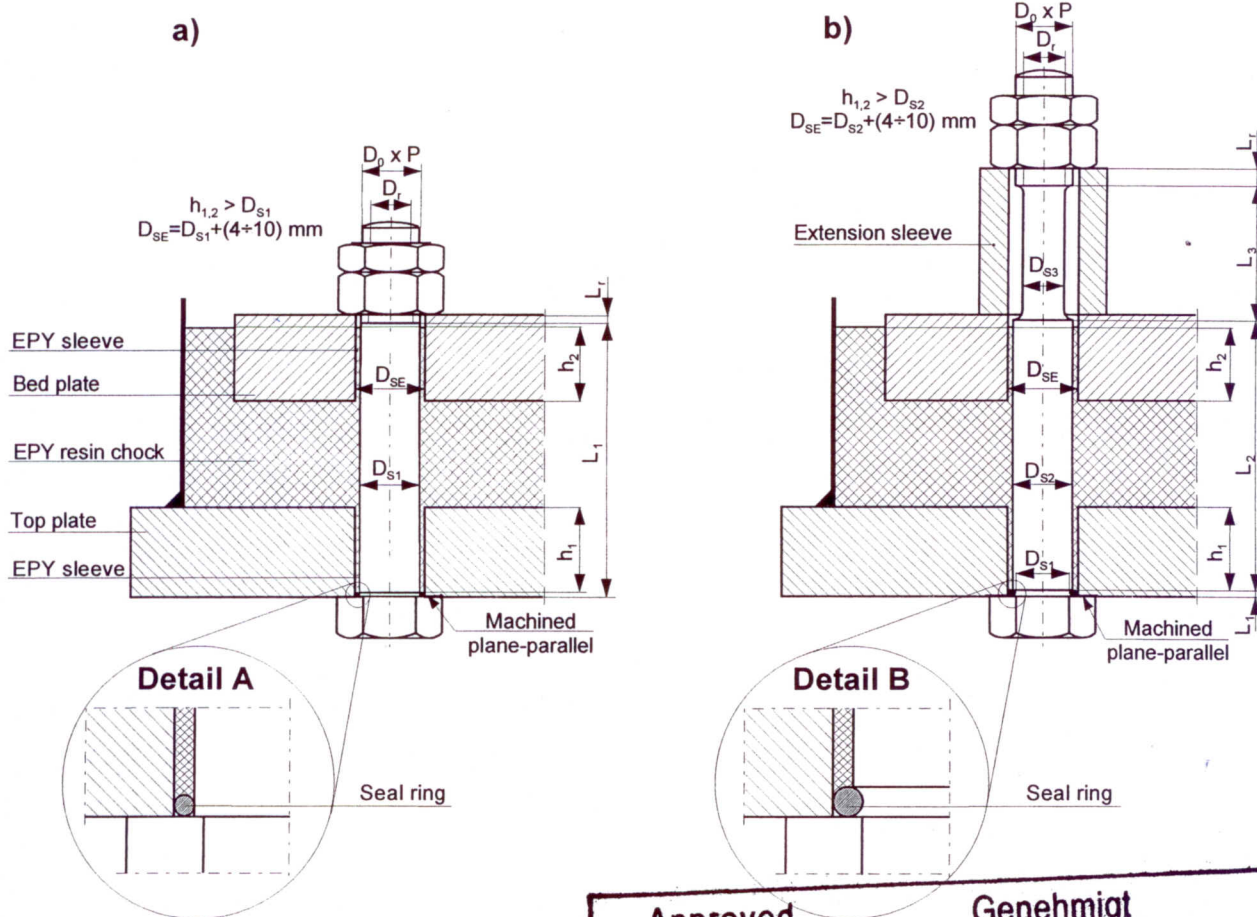


Fig.1. Illustration of a fitted bolts of cast-in-EPY resin type

MARINE SERVICE

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Approved Hamburg

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