



Type Approval Certificate

Germanischer Lloyd

This is to certify that the undemoted product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No. **40 508 - 01 HH**

Company **ITW Philadelphia Resins**
130 Commerce Drive
Montgomeryville, PA 18936, USA

Product Description **Pourable compound (resin and hardener) for chocking of propulsion plants and auxiliary machinery**

Type **PR610TCF (Chockfast orange)**

Environmental Category **None**

Technical Data / Range of Application **Surface pressure exerted on Cast Resin chocks caused by dead weight of machinery and bolt preloading force: max. 4.5 N/mm².**
Surface pressure exerted on Cast Resin chocks caused by dead weight of machinery: max. 0.7 N/mm².
Temperature in way of Cast Resin chocks: max. 80°C.
Barcol hardness of Cast Resin chocks: min. 35.
Height of Cast Resin chocks: 10 to 100 mm (pouring in one layer is permitted).

Test Standard **GL "Regulations for the Approval and Application of Composite Materials (Reaction Resins) for Repair and Seating of Components"**

Documents **"CHOCKFAST Chocking Procedure" / Report No. U 097-95 / Technical Bulletin No. 693A (Hardener Ratio Guide) approved with GL Ref.-No. 55540/95 dated 1995-06-30.**
GL Type Approval Certificate No. 99827 HH dated 1998-06-29.

Remarks **Special conditons / restrictions acc. to page 2 of Certificate.**
General conditions acc. to GL "Regulations for the Seating of Propulsion Plants".

Valid until **2006-06-30**

Page **1 of 2**

Type Approval Symbol



File No. **II.G.12**

Hamburg, **2001-06-27**

Germanischer Lloyd

[Signature]
C. Heider

[Signature]
G. Ondrej

71 430
Overhead
Projection
pvr





Type Approval Certificate

Germanischer Lloyd

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No. 40 508 - 01 HH

- 1.- For mixing and processing of the Cast Resin the manufacturer's instructions have to be observed. Pouring has to be carried out under supervision of the Cast Resin manufacturer or an authorized representative.
- 2.- Of each batch (resin and hardener) which is employed for Cast Resin seating, a sample has to be taken on board and has to be marked accordingly.
- 3.- For mounting, locating and attachment of the components, the latest edition of GL "Regulations for the Seating of Propulsion Plants" has to be observed.
- 4.- After hardening of the Cast Resin chocks and prior to tightening of the holding-down bolts a Barcol hardness test has to be performed in each case under supervision of the local GL Surveyor.
- 5.- A sign plate has to be fitted on the machinery seated on Cast Resin chocks indicating the name of the used Cast Resin type, the name of the responsible firm, the date of pouring and the tightening torque of the holding-down bolts and/or data on which the bolt prestressing has been based.
- 6.- The representatives authorized by the Cast Resin manufacturer to perform foundation work have to be stated to GL Head Office in writing including name list of the responsible persons.
- 7.- Seating of propulsion plants on Cast Resin chocks with the primary components as Diesel engines, turbines, generators for propulsion, gear boxes, power-take-off drives, thrust bearings, shaft bearings, shaft generators, stern tubes, steering gears and windlasses is subject to approval by Germanischer Lloyd Head Office in any case.
To this effect, drawings and calculations acc. to GL "Regulations for the Seating of Propulsion Plants" have to be submitted to GL Head Office for approval exclusively by the Cast Resin manufacturer or an authorized representative .
- 8.- Seating of auxiliary machinery on Cast Resin chocks is to be performed on the basis of the afore-mentioned conditions without Germanischer Lloyd Head Office having to be informed.

This Type Approval Certificate may be withdrawn if decided by GL Head Office or upon its expiry.
GL Head Office is to be informed in writing about any changes in manufacturing, mixing, processing, conditions of application and authorized representatives.

Valid until 2006-06-30

Page 2 of 2

Type Approval Symbol



File No. II.G.12

Hamburg, 2001-06-27

Germanischer Lloyd

i.v. Hadler
C. Hadler

i.A. Ondrej
G. Ondrej

Germanischer Lloyd

Head Office

Germanischer Lloyd AG P.O.Box 11 16 06 D-2000 Hamburg 11
Federal Republic of Germany

Philadelphia Resins Corp.
P.O.Box 454
Montgomeryville, PA. 18936
U.S.A.

For information to:

1) GL-New York + encs.

2) MIM Marine- und
Industrie-Montage GmbH
Postfach 26 11 22
2 Hamburg 26
+ encs.

Your Ref.	Your letter of	Our Ref.	Extension	Date
J.M.Wilson	13.11.85 05.02.86	43455/87 On/Th	(40) 36149- 335	07.09.1987

Please indicate in your reply

Ref. Approval of your Cast Resin "CHOCKFAST ORANGE (PR61OTCF)" for the seating of main and auxiliary machinery aboard ships classified by Germanischer Lloyd.

Raising the maximum permitted chock loading.
Our Telex Tgb. No. 13940/86 of 25.03.86
Our Approval Certificate No. 44374HH
Our Account No. 0091/87/44374

Dear Sirs,

With reference to your above letters and particulars we agree to raising the maximum permitted chock stress from 3.5 N/mm² to 4.5 N/mm² for the above cast resin.

We have accordingly revised and updated the approval granted by our letter Tgb. No. 49901/80 of 30.09.80.

Enclosed, please find our newly issued Approval Certificate No. 44374HH for your ready reference.

To maintain the previous rated fatigue limit of the bolted joints of cast resin foundations in case of bending and transverse stresses, preferably bolts with reduced shaft (necked-down bolts) and/or bolted joints with great grip length should be fitted also in future.

On account of adaptation of the increased stress of chock of 4.5 N/mm² to our present regulations (edition of Sept. 1984) the following results:

- 1) The dimensions of bolted joints are to be such that the required pretensioning based on a total chock stress of 4.5 N/mm² results in a theoretical elongation of the bolt of at least 0.154 mm.

- 2 -

Vorsetzen 32, D-2000 Hamburg 11 Phone: (40) 36149-0 Telex: 2 12 828 glnh d. Teletax: 04036149-200, Cable: KlassenHov

Chairman of Supervisory Board: Dipl.-Kfm. Walter Benmann
Board of Management: Gerhard Gutschow · Hermann C. Heims · Robert Kruse · Reinhard Mau
Registered Office Hamburg: Abt. B No. 31393

Deutsche Bank Hamburg 0300897 BLZ 20070000 Dresdner Bank Hamburg 9152428 BLZ 20080000 Landesbank und Girozentrale Schleswig-Holstein
Kiel 53003977 BLZ 21050000 Post girokonto: Hamburg 11965-202 BLZ 20010020

The respective latest edition of Germanischer Lloyd's Classification Rules is applicable. The exclusive jurisdiction and place of performance is Hamburg. German law applies.

Germanischer Lloyd

page 4 of letter to Philadelphia Resins Corp.

dated 07.09.1987 Our Ref. 43455/87 On/Th

Where chocks are loaded by lower stress than 4.5 N/mm^2 the theoretical bolt elongation has to be at least as follows:

$$f = 0.0343 \cdot p, \text{ but not less than } 0.12 \text{ mm}$$

where:

f [mm] - theoretical elongation of bolt
 p [N/mm²] - stress on resin chocks

- 2) When using bolts reduced in the shaft diameter (cutting), the ratio of reduced shank-diameter to thread core-diameter must not be smaller than 0.8.

The costs incurred for approval will be charged to you under Account No. 0091/87/44374.

Furthermore, we should like to inform you that our regulations are being revised at the moment which is also the reason for the delay in handling this subject. We hope you will understand that.

Your letter with diagram "Chock Stress versus Temperature" will be commented on in a separate letter.

Yours faithfully,
GERMANISCHER LLOYD

V. Schick i.H. - whg
ENCs.