1.1 Propeller cone fit procedure

- For installation sufficient space is needed.
- Hoisting facilities must be arranged.

1.1.1 Documents

- Instruction “General warnings and cautions”.
- Drawing “Propeller boss”.

1.1.2 Required conditions

- The shaft hole in the propeller boss is either pre-machined to a scraping tolerance or is finish machined.
- When the shaft hole is finish machined by WPNL, a blue fit test on the propeller shaft hole has been carried out. A classification surveyor has witnessed the result of this test.
- In most cases the yard has to perform the blue fit test for a local classification surveyor, even when WPNL already obtained approval of the fit.
- The contract indicates whether the propeller cone is delivered pre- or finish machined.

1.1.3 Preparations

Pay attention to instruction “General warnings and cautions”.

- Prepare required tools and blue fit paste.
- Sufficient space.
- Cleaning material.

1.1.4 Procedure; Fitting of propeller by means of scraping

The shaft hole in the boss is pre-machined to a specified scraping tolerance on the inner diameter. For an accurate fit between propeller and shaft cone an additional scraping shall be carried out. The result of scraping has to be checked by means a blue fit test.

- In order to reduce the possibility of a premature oil leak it is important to avoid linear grooves to the extreme forward and aft ends of the propeller bore. See drawing “Propeller boss”.
- The effect of the scraping shall be regularly checked, by means of a template, cone or shaft fit.

1.1.5 Blue fit test

A classification representative shall witness and approve the results of the blue fit test.

The propeller is not pushed up the shaft cone. For the purpose of contact area determination only the shaft shall be put into the propeller shaft hole.

When the blue fit test is carried out in a machine shop, it is advised to position the propeller (exactly) horizontal on the floor. The shaft is lifted in vertical position above the propeller shaft hole.

1. Clean the shaft or gauge and the propeller cone hole with solvent cleaner.
2. Apply a thin layer of blue fit paste on the shaft or gauge cone.
3. Gently insert the shaft or gauge cone into the propeller. Do not force the shaft or gauge. Only the own shaft or gauge weight is applied during the fit test. If the propeller has to be fitted in horizontal position (for instance behind the ship), the propeller must be pushed onto the shaft using the hydraulic nut. Use in this case the start point load as an alternative for the shaft weight that is used in case of vertical fitting.

4. Protect the propeller blades to prevent damaging. When the cone is completely in the shaft hole, hit one of the propeller blades with a soft hammer. These vibrations will lead to a reliable marking.

5. Check the markings at the propeller cone hole. The fit is acceptable when markings are obtained over a 50 mm band at the extreme forward and aft ends of the propeller cone and on at least 70% of the total cone surface.

6. In case the fit is not acceptable, scrape the propeller cone surface where required.

7. Continue with point 1 and repeat this procedure until satisfactory result.

8. Check the linear grooves to the extreme forward and aft ends of the propeller bore.

9. After approval, clean all cone surfaces and protect all cones against any dirt and damage.