

## **Stern gears structure and technology**

### **1. Forces in stern gear**

- 1.1. Forces, acting on the stern gear
- 1.2. Mounting the propeller screw to the cone
- 1.3. Ways to create a watertight hub

### **2. Structure of deadwood gears**

- 2.1. Overview
- 2.2. Basic requirements for structures of deadwood gears
- 2.3. Structures of stern tubes and their attachment to the hull
- 2.4. Sealing of stern
- 2.5. Stern tube bearings with a set of lignum vitae
- 2.6. Stern tube bearings with a set of textolite (cloth laminate)
- 2.7. Deadwood bearings with a set of thermoplastic materials
- 2.8. Stern tube bearings with a set of rubber-metallic segments
- 2.9. Stern tube bearings with metal anti-friction layer and an oil pressure lubrication
- 2.10. Stern gear of large vessels: structure of feed seals; fore seals
- 2.11. The lubrication system of stern tube bearings
- 2.12. Filling, the amount of oil in the filling chambers of fore seal and the aft seal
- 2.13. Control of lubrication of stern tube bearings during operation
- 2.14. Measurement of wear down of the propeller shafting
- 2.15. Protection of the propeller shafting from electrolytic corrosion
- 2.16. Seals of stern gears

### **3. Operation and maintenance of stern gears**

- 3.1. General concepts
- 3.2. Ship loading (draught)
- 3.3. Maintenance of water-lubricated stern gear
- 3.4. Maintenance of propeller shafting seals lubricated with water
- 3.5. Maintenance of stern gear with oil lubrication and "Simplex" seals
- 3.6. Examination of stern tube, bearings and propeller shafting
- 3.7. Cooling of stern tube, temperature measurement and installation of bearings
- 3.8. Maintenance and bellows cuffs and sealing cuffs
- 3.9. Replacement of filling of the deadwood gear fore sealing
- 3.10. Radial run-out of fore seals plugs
- 3.11. The characteristic fault of "Simplex" seal
- 3.12. The requirements of Surveyors Societies for propeller shafting

### **4. Repair of propeller shafting and propeller in operation**

- 4.1. Overview
- 4.2. Modern structures of deadwood gears
- 4.3. Electrochemical corrosion that occurs in the stern part
- 4.4. Dismantling and fault detection of deadwood gears lubricated with water
- 4.5. Dismantling and fault detection of deadwood gears lubricated with oil
- 4.6. Repair of stern bearings: replacement of lignum vitae bearing shells in stern hubs; replacement of textolite bearing shells in stern hubs; repair of rubber-metallic bearings; repair and replacement of stern caprolon bearings
- 4.8. Pushing and mounting of stern tube and hubs of large vessels
- 4.9. Repair of water lubricated seals of deadwood gears
- 4.10. Repair of seals with oil lubrication
- 4.11. Protection of propeller shafting from the effect of sea water
- 4.12. Installation and alignment of propeller shafting
- 4.13. The measurement of the wear of stern deadwood bearing