Advanced Technology of Thruster Seal

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Abstract

For an oil lubricated stern tube system, a new type of seal, which is usually called Air Seal, has been applied to many ships as a “pollution free” seal. The concept of air seal is that the lubricating oil is completely separated from seawater by an air space between sealing rings. The paper outlines the historical perspective. In the air seal developed by Kobelco, a constant quantity of compressed air is supplied from within the ship. The air passes through the air chamber between lip type sealing rings and is spouted into the sea. An air control unit automatically detects any change of draft level and adjusts the pressures to maintain the optimum pressure on each sealing ring. The key mechanism to detect the draft change correctly and to adjust the pressure balance is explained. It is possible to apply the above technology to various kinds of thruster seals. Specific design and project applications for thruster air seals are introduced.

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