

# Sealing Ability of Spherical Hull Transfer Skirts(PDF)

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Title: Sealing Ability of Spherical Hull Transfer Skirts

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摘要: An improved spherical, movable transfer skirt for autonomous submersibles has been devised. It was designed to permit the transfer of equipment and personnel from a submersible to the pressure chamber of an oil storage sea-bed structure. It also allowed mating at large vertical angles while the submersible remained horizontal. Seal failure modes and procedures for analyzing the sealing ability of the mating flange of the hull transfer skirt were thoroughly analyzed using conservative estimation methods. In the analysis, sea currents and mating angles were considered. Results showed that when considering the effects of currents, spherical radius and mating angle, their influence on seal ring failure should be considered first. The critical mating depth for a seal ring failure was larger than for either sliding or rotational failure modes. The critical mating depth can be used to determine the mating method of the submersible. The analytical procedures and results can be used as a reference for the design of spherical hull transfer skirts.

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