

Espey bulkhead seal WDK-BHS for a work boat

The water and shipping authority (WSA) Bremen in Germany is responsible for the national waterway Weser. The authority's tasks include maintaining and upgrading the waterway, observance of order and safety of shipping traffic, taking over maritime police functions, maintenance and operating of bridges and waterway locks. The ship fleet includes several kinds of vessels for diverse tasks, supplied e.g. by the Fassmer shipyard. The company Fr. Fassmer GmbH & Co. KG, operating in shipbuilding (yachts, offshore-ships, work and patrol boats, ferries, navy) trusts in propulsions made by Schottel GmbH including bulkhead seals of EagleBurgmann Espey GmbH.

Process description

Ships with drive shafts that run through one or more bulkheads require bulkhead seals to prevent any possibility of water from rushing into adjacent sections of the ship – and therefore provide a high level of protection against flushing. The work and observance vessel Weserplate with a length of 27.1 m (1,066.93"), a width of 6.7 m (263.78") and 1.19 m (46.85") depth of flotation requires a bulkhead seal to protect the engine room against flushing.

Problem and challenge

The shaft feed through in the bulkhead of work and observance vessel Weserplate requires a bulkhead seal. The entire drive system needs to be highly reliable in order to ensure that the ship offers year-round service without ever being laid up for repairs – and call for a minimum of maintenance at the same time. The shaft runs with $1,800 \text{ min}^{-1}$ revolutions. The diameter in the sealing area is 98 mm (3.86"). The seal operating temperature in the engine room is maximum 45°C (113°F) according to the specifications of German Lloyd. The operating pressure in case of damage will not exceed 1.5 bar (21.76 PSI). The installation length should be as short as possible. The seal should guarantee an easy assembly. The seals' outer diameter deviates from Espey standard dimensions.



Work and observance boat Weserplate

Photos by courtesy of Fr. Fassmer GmbH & Co. KG

EagleBurgmann Espey solution

To fulfill the application requirements Espey designed the bulkhead seal Espey WDK-BHS with 2 segmented seal rings made of a PTFE-carbon compound and split housing for easy assembly. A barrier gas port is not needed. The seal width' of only 30 mm (1.18") meets the customers' requirements. The seal guarantees a long-term operation time without any maintenance.

Operating conditions

Application: bulkhead shaft feed through

Seal type: Espey WDK-BHS

Medium: water

Operation temperature: max. 45 °C (113 °F)

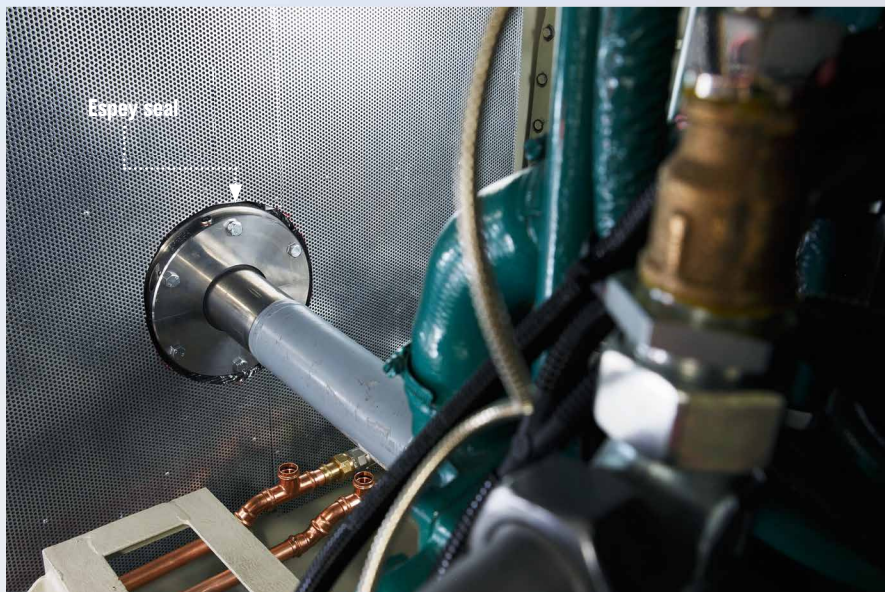
Pressure abs.: max. 1.5 bar (21.76 PSI)

Revolutions: 1,800 min⁻¹

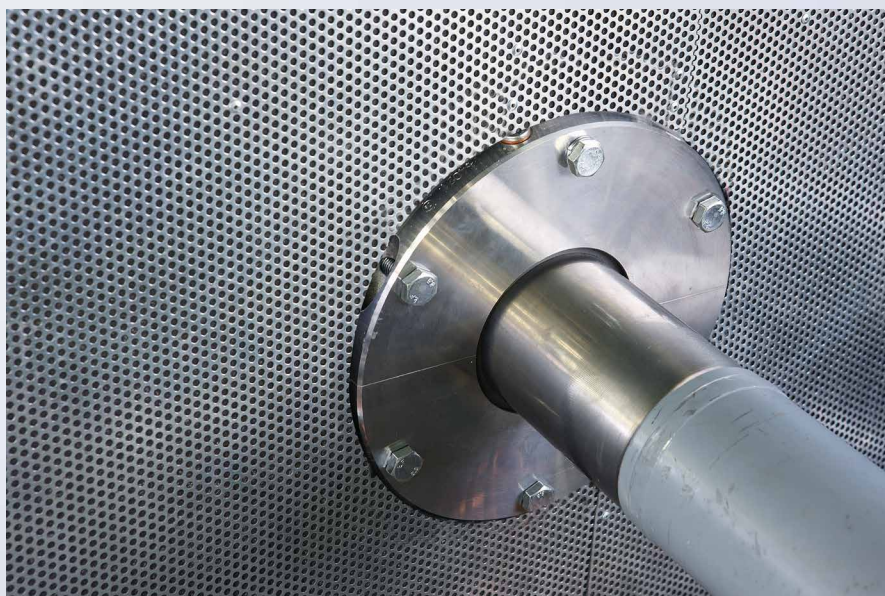
Shaft diameter: 98 mm (3.86")

Radial and axial play: present

Barrier gas: not necessary



Espey WDK-BHS, installed on a bulkhead



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