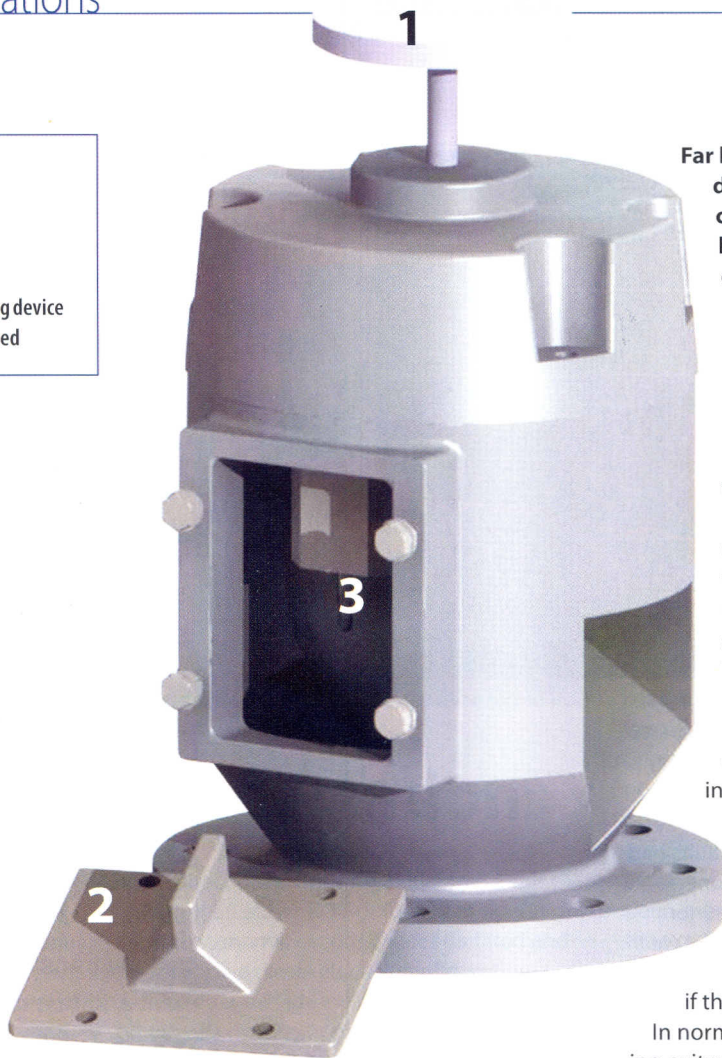
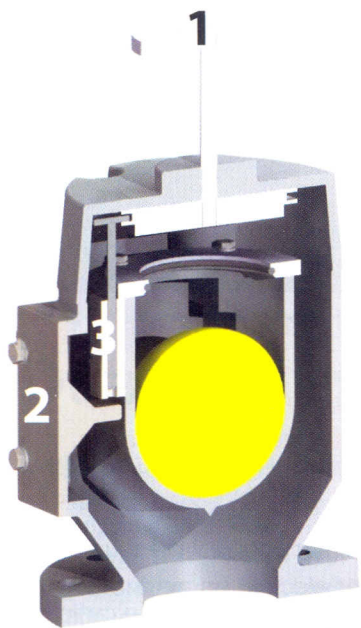


Key

- 1 Closing device
- 2 Flushing exit
- 3 Safety mechanism ensuring that the closing device cannot be operated if the flushing exit is closed



Far left: Normal operations, closing device (1) open and flushing exit (2) closed. Left: Continuously flushing ballast water: closing device (1) closed and flushing exit (2) open

desired, all that was required was the temporary removal of the cover plate on the blind flange. This allowed water pumped through to be discharged without passing through the air pipe head.

While the basic idea was good it may have been slightly flawed since the pressure in the system would direct the flow of water upward. While some would then pass through the T-piece, more was likely to be forced up into the air pipe head.

Improving on this idea, Winteb has developed the WIN2000BWM. This incorporates a flushing exit and a closing device that prevents possible damage to the float ball or the O-ring seal that could compromise the whole system. A simple safety mechanism means that the closing device cannot be operated if the flushing exit is closed.

In normal operating conditions, the flushing exit remains closed and the device operates in exactly the same manner as the air pipe head on which it is based. When flush-through of the ballast tanks is to be done, the flushing exit is opened by releasing four bolts and the closing device is pushed down into the closed position.

Once the operation is complete, the exit cover is replaced and in doing so releases the safety device. It is physically impossible for the bolt holes to line up unless the safety mechanism has activated properly.

The device has been given class approval by Germanischer Lloyd and in early March an initial order for 169 WIN2000BWM air pipe heads was made by the Indian shipbuilder Larsen and Tubro.

Winteb has also developed a ballast water management system that can be connected to the device and which also takes in data from the ship's GPS and other systems, permitting a record of all ballasting operations to be compiled and saved. Records can also be transmitted via the ship's communication systems to appropriate authorities or shore offices. **S**

Head up on ballast exchange

A design modification to the standard air pipe head has the potential to streamline the flow-through method for continuous exchange

EVER since the Ballast Water Convention was first mooted, *Solutions* has regularly featured systems being developed to ensure compliance. Most of those have involved treatment of the ballast water in some way but the convention does allow for alternative means to comply. In most cases these alternatives will expire in 2016, depending on vessel type.

First among these is ballast water exchange, which is widely practised but does have safety issues that were dramatically highlighted in the case of *Cougar Ace* in July 2006.

Much safer but less widely used is the flow-through method where a continuous exchange takes place, usually through the ballast tank air pipes. This method also has its prob-

lems because it will require modification to the air pipes – firstly to prevent over pressurising the system, and secondly because discharge through the air pipe heads is not permitted.

A solution that addresses the practical problems of flow-through exchange has been developed by Winteb, a Dutch maker of air pipe heads. The company has made modifications to one of its products, allowing a straightforward and quick retrofit.

The idea arose when engineers from Winteb visited a shipyard that was installing its standard air pipe head, the WIN2000.

The yard had simply fitted a T-piece with a blind flange directly under the air pipe head. When a flow-through exchange of ballast was