

FlangeBot™ Remote Cleaning and Inspection of the Reactor Vessel Flange



Field
Services

Background

A clean, debris and scratch-free head o-ring sealing surface is absolutely essential to reactor assembly. To ensure an acceptable sealing surface, personnel are normally dispatched into the reactor cavity to perform the final wipe down and inspection. Though well-planned, inherent inefficiencies and risks are present. It is time consuming. Intrinsic industrial safety hazards exist, and it is performed in a high radiation field. A technological solution now exists to address these hazards. A remote flange cleaning device, the FlangeBot™, jointly developed among Westinghouse, Remote Ocean Systems and Texas Utilities, cleans, dries, and provides a finely detailed inspection of the head o-ring sealing surface.

Benefits

Reduced radiation exposure and industrial safety hazards, enhanced inspection quality, and a permanent digital video record



Description

The system is comprised of a wireless remotely controlled robot and a control console. The robot is a compact, battery-operated and self-propelled wheeled vehicle that carries a high performance color zoom camera, lighting, and various cleaning and drying attachments. The robot includes an RF transceiver to receive commands initiated by the operator at the control console, and, as necessary transmit feedback information. A separate RF transmitter sends the video signal to the control console via the relay station. A motorized roller-scrubber may also be attached. This apparatus incorporates a self-powered Scotch-Brite roller, a squeegee, and an absorbent roller. Easily configured in the field, any or all may be used. A final wipe down pad attachment may also be deployed either in place of the roller/scrubber and/or trailed behind the robot.

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Deliverables

Westinghouse provides all equipment, personnel, and procedures to deploy, use, and recover the FlangeBot™.



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