

# FlangeBot Remote Cleaning and Inspection of the Reactor Vessel Flange

## Background

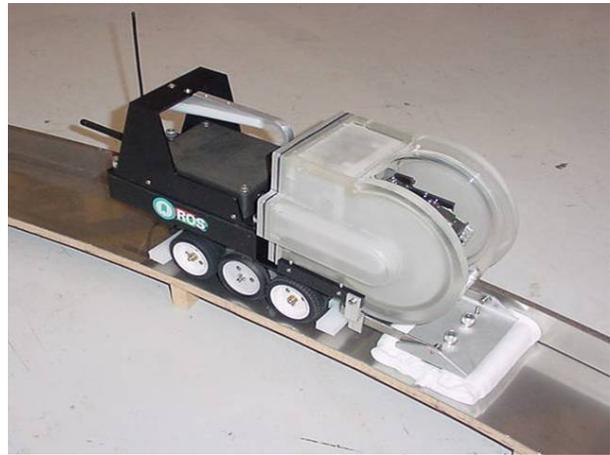
A clean, debris- and scratch-free head O-ringsealing surface is essential to reactor assembly. In order to make sure the sealing service is acceptable, personnel usually work in the reactor cavity to perform the final wipedown and inspection. Though well planned, there are usually inherent time-consuming inefficiencies and risks. There are intrinsic industrial safety hazards, and the work is performed in a high radiation field. A technological solution to address these hazards is the remote flange cleaning device, the FlangeBot™. The FlangeBot, jointly developed by Westinghouse, Remote Ocean Systems and Texas Utilities, cleans, dries and provides a finely detailed inspection of the head O-ring sealing surface.

## Description

The system comprises 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 can 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 of these can be used. A final wipe-down pad attachment can also be deployed either in place of the roller/scrubber and/or trailed behind the robot.

## Benefits

Using the FlangeBot cleaning and inspection procedure, Westinghouse's customers benefit from reduced radiation exposure and industrial safety hazards, enhanced inspection quality and a permanent digital video record.



## Deliverables

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



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