

**Industry:** Power & Desalination

**End User:** Dubai Electricity & Water Authority (DEWA)

**Application:** Disc Shaft Bushing in Butterfly Valves and Non-Return Valves

**Thordon Grade:** ThorPlas-Blue

**Date of Original Installation:** March 2015

### About:

**Dubai Electricity & Water Authority (DEWA)** is a public service infrastructure company that was founded in 1992. The objective of the state-run company is to make an adequate and reliable supply of electricity and water available to the people of Dubai.

### Challenge:

There are hundreds of valves in the desalination and power plant and the butterfly and non-return valves regulate the seawater, potable water and brine recirculating water in the entire water circuit. Some valves are located in the suction/discharge of the various pumps and some are positioned in between various pipelines to control the flow. The disc shaft bushing supplied by the OEM for the butterfly, control and non-return valves are usually bronze, PTFE based reinforced cloth liner bonded in the housing, PTFE lined spring steel, or PTFE based paper bushing. The valves are removed and stripped only if there is an issue with its operation and that has been anywhere from 2 - 10 years. Whenever the valves are stripped, the end user has to replace the bushing which raised many issues when this was the case. In some instances, they had spare bushings on site from the OEM, however the maintenance staff at the end user were unfamiliar with the fitting procedure. When they did not have spares onsite the lead time for the new bushings was far too long compared to the very short maintenance overhauling period required. The high price of the spare bushings from the OEM was a further deterrent to the end user.

### Solution:

After hearing the issues that DEWA was having with the OEM bearings, Thordon's authorized distributor in the United Arab Emirates, Ocean Power International, proposed a solution that included ThorPlas-Blue bearings. They first checked the load calculations to ensure that ThorPlas-Blue could withstand the pressure in this application. The pressure for this application was between 1.5 to 2 MPa (218 to 290 psi) which is well within the material's capability as ThorPlas-Blue can withstand operating pressure of up to 45 MPa (6,527 psi). Ocean Power International then performed a complete refurbishment. Based on which method would be less of a hindrance to the existing design, either the case housings were bored or the shaft was skimmed to achieve the minimum space required for easily fitting the ThorPlas-Blue bushings.

### Result:

ThorPlas-Blue bearings were first installed in this application in 2015 and after 5 years (at the time of publication), the original valve remains in fine working condition. Based on the success in the original unit, Ocean Power International has installed ThorPlas-Blue in a number of valves at the Dubai Electricity & Water Authority facility.

