

**Industry:** Hydro-Turbine Power

**End User:** Mecamidi HPP India Private Limited, India

**Application:** Hydro-Turbine Guide Bearings, Wicket Gate Bearings, Axial and Radial Wear Pads

**Thordon Grade:** COMPAC, ThorPlas-Blue, SXL

**Date of Original Installation:** 2018

### **About:**

The Sardar Sarovar Narmada Nigam Ltd. (SSNL) project is one of the largest water resources projects in India. The Sardar Sarovar Dam was constructed to provide water and electricity to four Indian states: Gujarat, Madhya Pradesh, Maharashtra, and Rajasthan. The dam's spillway discharging capacity ( $86,932 \text{ m}^3/\text{s}$  or  $3,069,974 \text{ ft}^3/\text{s}$ ) is third highest in the world.

With  $1132 \text{ m}^3/\text{s}$  ( $39976 \text{ ft}^3/\text{s}$ ) capacity at the head regulator, and 532 km (331 miles) in length, the Narmada Main Canal is the largest irrigation canal in the world. The dam is the third highest concrete dam (163 meters) in India and yet the second largest in the world with an aggregate volume of 6.82 million cubic metres ( $387,102 \text{ ft}^3$ ).

The Indian government policy aims to provide water to the villages in this region for irrigation. There will also be a power generation site with 16 Kaplan turbines with capacity of 750KW installed along the canal at different locations. Approximately 12MW of power will be generated from these turbines which will be used to power nearby homes and small industries.

### **Challenge:**

For this project, Mecamidi HPP India Private Limited was required to supply and install hydro-turbines along the Narmada Canal, where water quality is slightly muddy with moderate abrasion, especially in the rainy season. Incorporated in India in February 1995, Mecamidi HPP, has established itself as a Leading Global EPC Company engaged in design, engineering, supply, erection, testing and commissioning of electro-mechanical equipment's for small & medium size (50KW - 30 MW) hydro-turbine power projects.



**Solution:**

Mecamidi HPP contacted Thordon's distributor in the region, Soneji Engineering to provide the bearings and wear pads required for these new units. Soneji has worked regularly with Mecamidi HPP to supply Thordon Turbine Guide Bearings to many of their earlier projects such as Yedgaon, Kachch, Urmodi, Rani Jamaira, and based on these successful projects Mecamidi was confident in Thordon's solutions. Based on the design, Soneji worked with Thordon to recommend our COMPAC material for the horizontal Turbine Guide Bearings for high performance and long life. COMPAC is able to handle mild abrasives in the water due to its elastomeric properties. ThorPlas-Blue was chosen for the wicket gate bearings and SXL was chosen for the radial and axial wear pads due to their proven performance in hydro-turbine applications around the world.

**Result:**

In 2017, Soneji Engineering supplied 16 COMPAC Turbine Guide Bearings to Mecamidi HPP, for stages 1 – 6 of the Miyagam project. Six of the COMPAC bearings supplied were OD 440 x ID 400 x 750 mm (15.7 x 15.7 x 29.5 inches) long, and ten were OD 524 x ID 480 x 800 mm (20.6 x 18.9 x 31.5 inches) long. Approximately 1500 pieces of ThorPlas-Blue and SXL were machined and installed for the wicket gates and wear pads for these turbines. The complete turbine guide bearing assembly was manufactured by Soneji.

The first installation took place in 2018, with subsequent installations in 2021 and 2022. All bearings and wear pads have been running in good condition to date.

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