INDUSTRIAL FLOW SOLUTIONS

Case Study

A Bridge for Progress: Building Hudson Bridge foundation while maintaining ecosystem

Overview

In late 2013, Tappan Zee Constructors (TZC) began replacing the existing 3.1 mile bridge across the Hudson River in New York. The existing bridge (est. 1955) served more than 138,000 vehicles a day, but had corroded. The city invested $3.98 billion to build the new Tappan Zee bridge to accommodate more lanes, a pedestrian and bicycle path and an integrated new mass transit system.

There were two big concerns for this project. First, the bridge's concrete foundation had to cure properly, which required cooling water to run 150ft into the air at a flow rate that would maintain the integrity of the structure. Second, ensuring the Hudson River water temperature would remain at viable levels for the underwater ecosystem.

Customized pumps with 5mm wedge wire screens helped with intakes to prevent fish, eggs and larvae from being drawn into the pump. This protected both the ecosystem as well as the pumps' mechanical systems.

PROBLEM

- Pumping large volumes of water 150 vertical feet
- 24/7 operation to cure concrete foundation
- Maintaining water temperature
- Potential negative impact on ecosystem

Solution

After much research, TZC purchased Industrial Flow Solutions™ customizable Stancor® P/S Series high head dewatering pumps. These heavy-duty pumps are rated at 30HP and pump up to 430 GPM or generate up to 165 psi. This helped TZC achieve the required head and psi to move river water at a speed and temperature that would help cure pylon concrete. P/S Series pumps feature cast 356 aluminum motor housing and Class F motor insulation for thermal protection. This not only ensures the pump motor runs at correct temperature, but also that surrounding river water temperature vacillated by no more than 3°F. The stainless steel handles and discharge connections allow for easy handling in these challenging environments. The 316 stainless steel impellers are abrasion resistant, which is ideal when there are small rocks and other debris flowing in river water.

To address ecological concerns, Industrial Flow Solutions customized the pumps with wedge wire screens designed to fit intakes. The wire screens' 5mm openings helped prevent fish, eggs and larvae from being drawn into the pump. This protected both the ecosystem as well as the pumps' mechanical systems.

In total, TZC placed over 50 P/S Series high head dewatering pumps with heavy-duty, jacketed 50' cables along the span tower pylons. "A project of this size has unique challenges, and collaborating with Industrial Flow Solutions on all aspects, including power supplies, flow rate and head pressure allowed us develop a comprehensive solution," concludes Martir Ortex TZC Field Engineer for the NY Bridge Tappan Zee project.

This monumental project was rewarding for its impact on millions of people that will rely on this bridge.

FEATURES

- Heavy-duty, dewatering pump with cast 356 T6 aluminum motor housing
- Stainless steel handle and discharge connection
- Heavy-duty jacketed 50' cable
- 316 stainless steel impeller

APPLICATIONS

- Construction/Rental
- Industrial
- Mining & Minerals
- Oil & Gas
- Power Generation & Utilities

RESULTS

- Personalized, unique pump solution for TZC
- High head, abrasion resistant heavy duty for wear and tear
- Project completed on time and with full structural integrity

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