CIRCOR COLLABORATIVE APPROACH STRENGTHENS GABON INSTALLATION

A PLUG-AND-PLAY SOLUTION BUILT ON RELIABILITY

Maurel et Prom selected CIRCOR pumps to move crude oil through the 145km pipeline connecting its oil-field production plant in Onal to Coucal, near its refinery in Port-Gentil in Gabon, along the western coast of Africa. But the decision, according to Maurel et Prom officials, was based on more than pump reliability and durability; it was the collaborative approach CIRCOR offered that actually sealed the solution.

"We offered Maurel et Prom deep application expertise and technical support in crude oil applications every step of the way," said Daniel Joslin, managing director of CIRCOR Imo Pompes, located in Tours, France. "It was exactly the kind of across-the-board support the company needed to further its pipeline expansion

CASE STUDY OVERVIEW

CHALLENGE:

French oil company Maurel et Prom needed to install a new series of pumps capable of transporting viscous oil from one of its oil-field production plants to a refinery more than 145 kilometers (km) away. Normally that would be challenge enough, but in this case the distance between the field and the refinery covered some of the harshest landscapes in all of Africa.

SOLUTION:

CIRCOR responded with a portfolio of pump technologies that not only delivered the kind of reliability and durability required for operation in some of the most remote oil fields in the world, but provided the company with a complete engineered system of two-screw and progressing cavity pumps operating in series.

RESULTS:

Acting as pipe accelerators, the screw pumps move up to 30,000 barrels of crude oil every day and can clean the pipeline with water. The progressing cavity pumps, meanwhile, support five warming stations in the pipeline, keeping the unusually viscous oil of the region flowing freely.

in western Africa. For example, we conducted special performance tests with oil and water to match our pump technologies with the unique crude oil condition of the region; we offered complete engineering assistance; and we pinpointed the proper pumping technology for this specific application. It was truly a plug-and-play solution."

The pipeline runs from Onal to Coucal, near Port-Gentil in Gabon, on the western coast of Africa.

Onal, Gabon, Africa

DELIVERING THE RIGHT TECHNOLOGY

Originally Maurel et Prom approached CIRCOR about simply supplying progressive cavity pumps for oil-warming stations and transporting oil to cleaning systems; the oil company believed that all the pipeline's long-distance oil-transfer pumps should be piston-driven. But after a series of consultations, CIRCOR recommended screw pumps as the better option. CIRCOR engineers demonstrated to Maurel et Prom officials that rotary positive displacement screw pump technology would be 50 percent less expensive to buy and operate for transporting viscous crude oil from the production field.

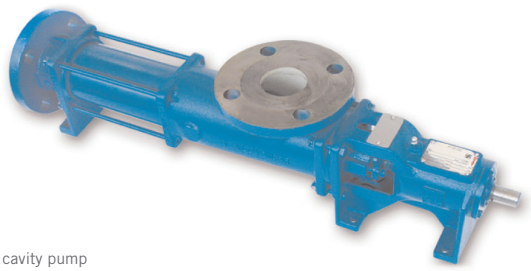
As part of its collaborative-solution approach, CIRCOR provided support for the pumping process, offering insight and information on speed regulations and startup processes. CIRCOR also met the demanding requirements of the customer that enabled the pumps to integrate seamlessly into the pipeline construction itself including all diameter, drain, bypass and safety specifications provided.Pumping Performance Throughout the Pipeline

The Gabon order for Maurel et Prom included CIRCOR's Allweiler® and Warren® pumps. Specifically, the application consists of nine Allweiler progressing cavity pumps, six Warren two-screw pumps and two Allweiler skid-mounted pump systems. The screw pumps act as pipe-acceleration pumps to move up to 30,000 barrels of crude oil every day and clean the pipeline with water at a rate of 50 cubic meters per hour (13,209 gallons per hour) at 50 bar.

The progressing cavity pumps operate at low pressure to costeffectively feed five warming stations along the pipeline as needed, ensuring the oil's ability to flow – a critical component in the Onal oil fields, where the crude is unusually viscous (from 30 to 1,380 centipoises). In addition, they reliably move the raw crude oil to upstream treatment systems, where it is cleansed of water, paraffin and other foreign contaminants before entering the pipeline.

The order also includes two complete skid-mounted pump systems. One system employs an Allweiler progressing cavity pump to empty a tank filled with a water-crude oil mixture. The second one provides firefighting capabilities with three Allweiler centrifugal pumps and complete automation, in accordance with French insurance industry L'Assemblée Plénière des Sociétés d'Assurance Dommage (APSAD) rules governing firefighting systems.

Two additional Allweiler pumps are located at the opposite end of the pipeline, near the refinery that will process the crude oil. One is a centrifugal pump, for cleaning the exterior of the pipeline; the other is a progressing cavity pump, used on a skid, for cleaning the interior.



Progressing cavity pump

Warren® two-screw pump

ABOUT CIRCOR

CIRCOR is a global leader in critical fluid-handling solutions, including the manufacture of positive displacement industrial pumps and valves used in global oil & gas, power generation, marine, naval and a variety of other industrial applications. Key product brands include Allweiler, Fairmount Automation, Houttuin, Imo, LSC, Portland Valve, Tushaco, Warren and Zenith. CIRCOR is traded on the NYSE under the ticker "CFX." Additional information about CIRCOR's products, businesses and practices is available at www.CIRCORcorp.com.

ABOUT CIRCOR OIL & GAS SOLUTIONS

CIRCOR has served virtually every oil company throughout the world over the past 90 years, bringing particular critical expertise to crude oil transport in production facility, pipeline, tank farm and refinery applications and surrounding customers with design, engineering, manufacture, installation, testing and technical support services. The CIRCOR portfolio of pumping technologies delivers not only unsurpassed reliability, but operational and energy efficiencies, environmental responsibility and cost savings over the lifecycle of the pump.

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