Amarinth designs API 610 VS4 vertical pumps for ADCO Al Dabb'iya project to fit pump corrosive effluent with high solid concentrations

case study

METITO

Effluent treatment

Phase III of the Al Dabb'iya project is part of the North East Bab development program of the Abu Dhabi National Company for Onshore Oil Operation (ADCO), a shallow coastal and marine area, located 40 km south-west of Abu Dhabi.

This challenging project involves increasing production to 145,000 barrels of oil per day from 114 onshore and offshore wells aggregated in 24 new and existing clusters, extending existing clusters and adding new process trains to the existing central processing plant.

The effluent treatment package being supplied by Metito at Al Dabb'iya required API 610 VS4 vertical sump pumps to pump out pre and post treated waste and de-oiled water.

High solid concentrations

Amarinth had previously completed various pump projects for ADCO successfully, including Bab Thamama, ASAB, and Bu Hasa, and so was able to draw on this extensive knowledge of ADCO specifications and requirements for the design.

Working in partnership with Metito, Amarinth was able to quickly understand the process and challenges for these waste water pump which included reliable continuous operation with high concentrations of solids in the process fluids.

Modular design

To deliver the bespoke design, Amarinth leveraged its own unique modular solution for API 610 VS4 pumps that has been configured to handle over 100,000 variants, quickly delivering a design for almost any pump length or application requirement.

Using a range of standardised modules, assemblies and sub-assemblies which have already been checked against mating parts for clashes ensured all parts would fit together perfectly during final assembly.

Bespoke bearing lubrication

Amarinth then applied its extensive expertise in solids handling capabilities developed for other API 610 VS4 vertical pumps in similar demanding projects.

The duplex stainless steel pumps were supplied with Amarinth's unique line shaft lubrication system which is designed to filter out any solid particulates in the process fluid thereby protecting the pump bearings.

This configuration ensures longevity, low running costs and reduced time between scheduled maintenance, all of which can cause problems for pumps working in high solid concentration environments.

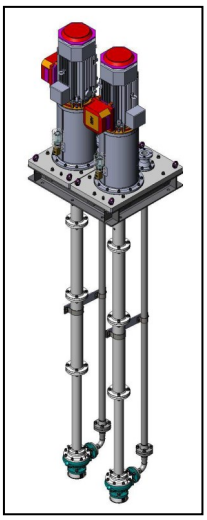
Minimising piping losses

Space constraints at the site called for a compact solution and so two vertical pumps were mounted in pairs on a common rectangular baseplate and 'H' subframe.

The limited space available meant that tight radius pipe bends were required, and so careful consideration was given to the piping design in order to minimise the losses and deliver efficient operating pumps.

Industry leading delivery times

In meeting the specifications laid down for this project, Amarinth was able to design, manufacture and deliver these bespoke API 610 11th edition VS4 pumps successfully in an industry leading time of just 20 weeks.



Metito

Metito is a global leader and provider of choice for total intelligent water management solutions with over 60 years of experience providing customized, comprehensive and advanced solutions including clean to dirty water, desalination and re-use, and industrial solutions up to hyper pure water.

Metito is at the forefront of the water and wastewater industry with an impressive project portfolio that includes more than 3000 projects in more than 46 countries managed by over 3000 employees worldwide.

"This project was one of our more complicated ones. We faced particular issues on space availability and footprint orientation and worked collaboratively with the Amarinth engineers to be sure we had the correctly configured pumps. The solution provided was neat, cost effective and satisfied all stakeholders involved in the execution."

Dhananjay Bhosale
Procurement Manager
Metito

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