

On this issue:

We talk about our VTP pumps being selected for a water transfer project in Bolivia and a brief insight on specialty anti-corrosion materials.

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Our VTP pumps selected for a major water transfer project in Bolivia

The water transfer project Pongo-Estellani, one of many projects that will help alleviate drought in La Paz, Bolivia, was executed by Bolinter and recently inaugurated by authorities.

At altitudes between the 4200 and 4600 meters above sea level, the Ministry of Environment and Water required Bolinter to build an aqueduct to counteract the severe water drought that led to water rationing in La Paz, Bolivia. This undertaking will provide La Paz with 200 liters of water per second to its water system.

The transfer is made through two pumping plants, which allow the water that flows in the Unduavi river to climb 800 meters to the Estrellani lagoon, and from there, by gravity, to go down to the Incachaca dam and a water treatment plant in Chuquiaguillo, in the city of La Paz.

Bolinter chose Ruhrpumpen to provide the pumping equipment for the two pumping stations built along this aqueduct.

Ruhrpumpen provided 8 vertical multi-stage pumps, VTP 12B-75 model of 7 stages, with motors of 4000Kw. Each VTP pumps 240 m³/h at an altitude of 4200 m.

Ruhrpumpen was selected based on its demonstrated capabilities to provide the most efficient water pumping solutions and technical services for water transport and distribution with great reliability.

Bolinter is a Bolivian engineering and construction company serving the oil & gas industry specialized in pipeline construction as well as compressor stations, gas plants and refineries and all terrain construction projects in Bolivia, which has been in service for over 40 years. Bolinter developed the civil works, mechanics, hydrostatic test, gammagraphy and restoration of impacted areas, as well as the selection and acquisition of all pipe materials and equipment for the 16" steel welded underground pipeline.



RP's VTP pumps in one of the pumping stations

Specialty materials for corrosive pumping

...are you selecting the right material?

Across industries, corrosion is one of the major burden causing considerable expenses in maintenance costs, spare parts inventories, downtimes and even shutdowns. Prior to deciding on the materials of construction for your pumping system, you should have a full understanding of the pumped fluid characteristics and operation conditions in order to prevent and minimize corrosion. The compatibility of a material with the fluid is essential to achieve the reliability expected and proper performance.

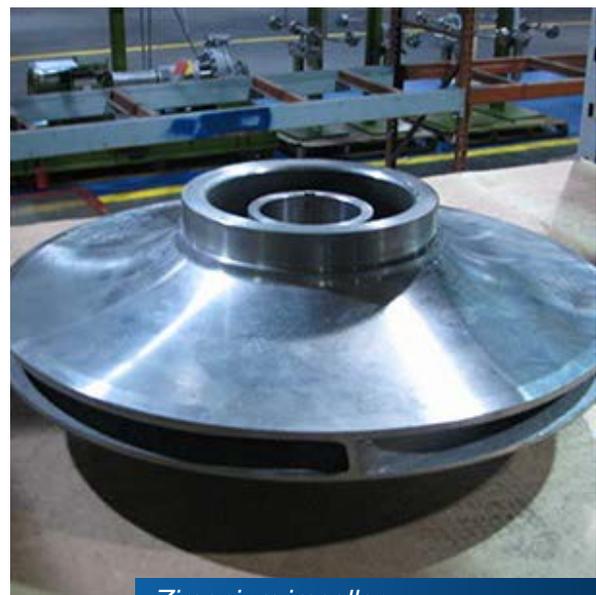
Corrosion is difficult, or even impossible to avoid in the pumping industry, however it is possible to control and reduce the damages in elements exposed to corrosion and the costs related to fix them with the right material selection.

Harsh environments require the application of corrosion-resistant materials in your pumping equipment, especially for the components that come into contact with the pumped liquid. Because of our expertise in the field of fluid transfer technology, our extensive knowledge in corrosion and wear resistant materials and our permanent dialogue with the customer, Ruhrpumpen is able to provide centrifugal pumps constructed of specialty alloys such as titanium, zirconium and Nickel Based Alloys (Inconel and Hastelloy).

Whether it is in verticals, horizontals, submersible or reciprocating pumps (among others), we can deliver the solutions that maximize efficiency and minimize the risk of serious and costly disruptions in the most difficult and critical services of the industry.



Titanium casting



Zirconium impeller

Special materials for special requirements

TITANIUM

Thanks to technological advance, titanium is now a viable option where conventional steel materials would render useless due to corrosion. Despite its high cost, its physical and chemical properties turn titanium into a cost-effective solution for harsh and corrosive industrial applications where long-term reliability is crucial.

The physical properties of titanium include a remarkable strength-to-weight ratio in comparison with other metals. It is as strong as steel but almost half the weight. At the same time, its passive oxide coating makes it extremely resistant to corrosion by saline solutions and virtually unaffected by most oxidizing acids and industrial chlorine solutions. This makes titanium the best option for applications in desalination plants, marine and offshore applications, chemical plants and wastewater treatment plants, just to name a few examples.

Other applications include:

- Bromine feeders
- Seawater boosters
- Sodium hypochlorite
- Hypochlorite dosing
- Polymer feed
- Fertilizers
- Acid regeneration plants



ZIRCONIUM

Very similar to titanium, zirconium is extremely resistant to heat and corrosion. Zirconium alloys are widely used in factories that make reactive materials. Moreover, its passivating oxide layer makes it resistant to practically all organic acids and alkaline solutions as well as to mineral acids.

The properties make the material suitable for a wide range of applications in chemical engineering, especially in sulfuric and hydrochloric acid applications. However, zirconium is less suitable for applications such as: handling hydrofluoric acid, sulfuric acid in concentrations exceeding 70%, aqua regia, wet chlorine gas, iron(III) chloride and copper(II) chloride.

HASTELLOY

Nickel-based alloys with exceptional resistance to stress corrosion, they are also able to withstand both oxidizing and non-oxidizing acids and resists pitting and crevice attack in the presence of chlorides and other halides.

Very resistant materials to corrosive media, they are suitable for most chemical process applications in the as-welded condition. These materials can handle hot contaminated mineral acids, organic and inorganic chloride-contaminated media, chlorine, formic and acetic acids, acetic, acetic anhydride, seawater and brine solutions.

At present, there are multiple material options able to reduce or minimize the corrosion effects with very good results; however, these options are increasing as more specialty alloys are brought to the market. Over the years, pumps handling corrosive fluids have been constructed from Standard and Nickel Austenitic cast-irons or even from aluminum-bronzes, but it must be admitted that **super duplex alloys, nickel-based alloys and titanium alloys are the preferred ones when price is not an issue.**



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