VERTICAL SEA WATER PUMP ENHANCEMENT SERVICE OFFERINGS

Lifecycle Extension & Energy Savings / Environmental Efficiency

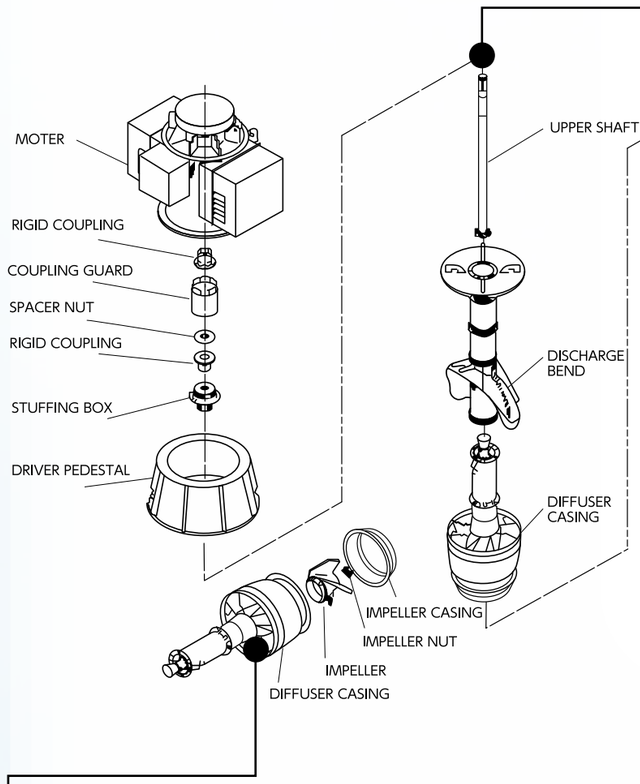
Case 1

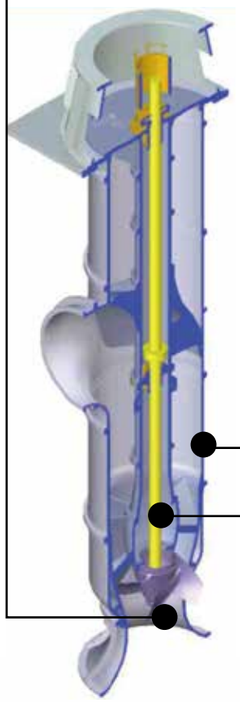
Lifecycle extension and improvement in ease of maintenance management through use of duplex stainless steel for main components

The use of duplex stainless steel –a combination of austenite and ferrite, which have high strength and excellent resistance to crevice corrosion and pitting corrosion– improves the corrosion resistance of the equipment.

Severe corrosion

Dissimilar metals ⇒ Insulation required





Case 2

Lifecycle extension of cast iron casing through FRP lining

Compared with general FRP
*Improved maintainability through glass mat sheathing
(Easily repairable, semi-permanent sheathing not susceptible to degradation like normal coating)

Tip of stator blade
(enlargement)

Case 3

Lifecycle extension of impeller blade surfaces through hardfacing

Using a crevice-corrosion resistant alloy for the first layer and overlaying it with a high-hardness alloy as the second layer improves corrosion and erosion resistance.

Example of application Duplex stainless steel + hardfacing

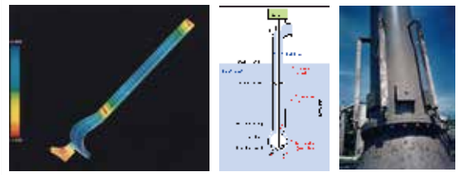
Example of damage (aluminum bronze cast component)

Hardfacing (undergoing processing)

Case 4

Lifecycle extension through corrosion prevention analysis and sacrifice anode instillation

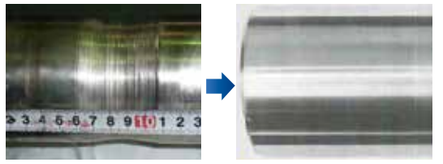
Through a corrosion prevention analysis we can propose an optimal anode life design according to the customer's desired pump maintenance period.



Case 5

Lifecycle extension of packing sleeve through use of hard facing

Since a hard facing material developed by EBARA is hard and has good corrosion resistance, it helps to improve abrasion resistance in sea water pumps.



Before

After

Case 6

Improvement of maintainability through elimination of water injection for submerged bearings

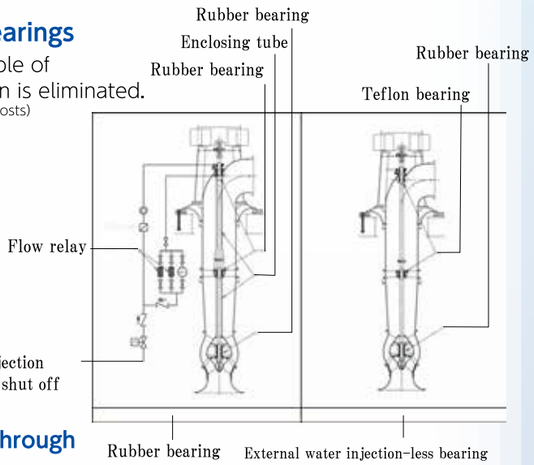
By changing to bearings made of advanced materials capable of dry operation, the need for water injection during operation is eliminated.
(Simplification through removal of water injection equipment ⇒Reduction of operating costs)

Comparison with water injection equipment for submerged bearings

Before

After

Externa l water injection when start up and shut off



Case 7

Solving problems with other manufacturers' pumps through pump reconstruction technology

* Using 3D scanning equipment, pump components can be shaped and replicated. (Field measurement possible)

*Defective/missing hydro components ⇒ Recommendations for interpolation and performance improvement can also be provided with EBARA's flow analysis technology.

To Restoration