

# Corrosion Protection of Seawater Filters from ARMATUREN-WOLFF

Seawater filters are frontline functional elements in the sea cooling water system and exposed to various impacts: mechanical, chemical, biological and fluidic mechanical. ARMATUREN-WOLFF, internationally renowned manufacturer of seawater filters, presents the following commonly applied concepts: Galvanization, corrosion-free alloys (stainless steel, coppernickel) and lining (epoxy powder coating, rubber lining).

Hot-dip galvanization is often the market standard for low-budget seawater systems. In contact with seawater, the zinc serves as a sacrificial anode to the base metal, thereby slowing corrosion. However, the zinc can dissolve locally within few years, producing (barely recognisable) critical conditions, and putting the systems at a permanent risk of failure. Also, re-galvanization is practically impossible, and the permanent zinc dissolution is environmentally questionable. Consequently, ARMATUREN-WOLFF does not offer galvanization. The best durability is naturally achieved with corrosion-free alloys, which however involve a high investment. Therefore, such metals are often used for the filter element only.



*Epoxy powder coated seawater filter, cast iron*

One economic solution is the FBE (fusion-bonded epoxy) powder coating of ARMATUREN-WOLFF seawater filters. In order to meet the standard level of 'High Corrosion Protection for Valves', the filter has to undergo specific steps (sandblasting, washing, etc.) before the epoxy powder is sprayed on at a closely controlled temperature. The film thickness



*Rubber lined seawater filters DN 700, welded steel*

is 250-500µm. The smoothness of the completely sealed surface prevents encrustation by salts and organic substances. In contrast to galvanization, the chemically passive layer prevents all corrosion as long as the layer is intact. This is yet put to risk, considering mechanical surface damages.

In order to achieve a more rugged protection, ARMATUREN-WOLFF also offers a 4.0 mm (!) hard rubber lining, which is directly vulcanized onto the filter and has therefore got virtually outstanding properties: The lifetime of an ARMATUREN-WOLFF seawater filter with rubber lining is up to the economical lifetime of the vessel itself!

For the application of rubber, all edges and weld seams have to be rounded off smoothly. Cavities, large pores, etc. are not permitted. After sandblasting and application of a bonding agent, the lining material is cut to size and fitted into the filter, before the entire filter is put into an autoclave for curing. This application, developed together with a specialist partner company in Germany, is beyond comparison to other kinds of rubber lining. Manufactured properly, rubber lined surfaces are completely closed, strongly adherent and a thick and strong shield against all kinds of impact. Economically, the life cycle costs are very interesting, as failures and repairs come down to a minimum, at a reasonable investment. In Europe, this method has become the prevailing standard for many applications.

ARMATUREN-WOLFF has got a wide network of international partners to discuss, offer and realise the optimum solution for every requirement.



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**Exhibiting at Marintec, Stand 4C31-1, November 29<sup>th</sup> - December 2<sup>nd</sup>**

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