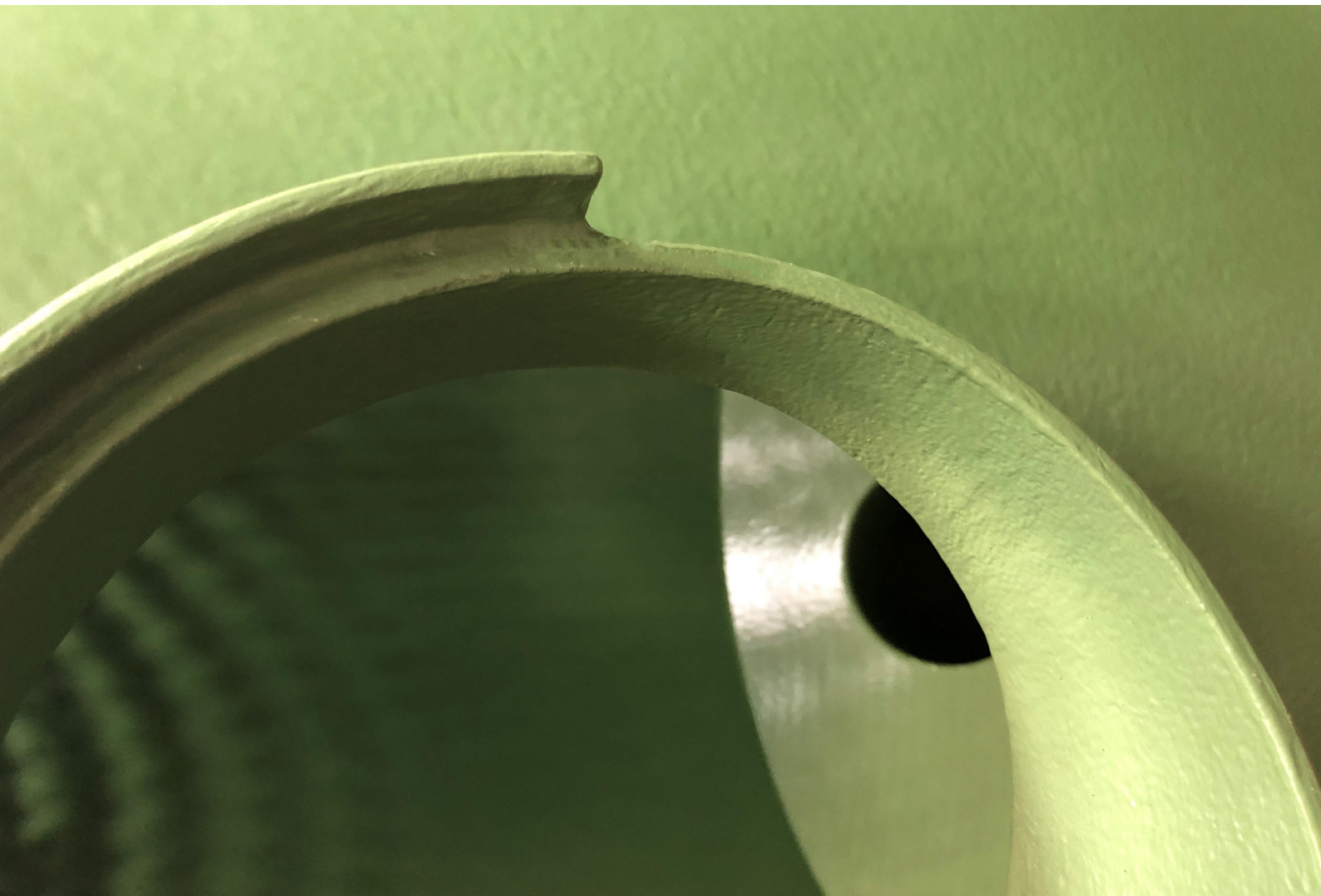




— WASTEWATER

STRATE AWAGUARD®

CORROSION PROTECTION IN SEWAGE PUMPING STATIONS

MEMBER
OF DUEKER
GROUP.

High-level corrosion protection for your sewage pumping system.

AWAguard® is a 2-component ceramic composite coating with a special epoxy binder matrix, which offers excellent chemical resistance at high operating temperatures. Application on various substrates in extremely aggressive environments, as interior coating of tanks and containers (e.g. metals, plastics, GFRP, CFRP and concrete, etc...)

The AWAguard® version is enriched with nanocrystalline biocides, which provide long-term protection against SRB-induced biocorrosion (pitting by sulfate-reducing bacteria). This system is internationally patented.

Characteristics

- Corrosiveness C5-M
- Volume Solides = 100% / Solvents = 0%
- Potlife at 23°C: 30-40 Min
- Abrasion resistance: 80mg (ASTM D4060)
- Adhesion: > 27N/mm² (ISO 4624)
- Specific Gravity (Mix): 1,64kg/L
- Coating System: 1or 2 coats - depending on environment. Minimum coating thickness 400µm. Maximum thickness per layer: 1200µm (at 20°C)



STRATE AWAguard® offers reliable corrosion protection at the highest level.

Benefits

- Micro- ceramic and nano filler component combined with an ultra-modern, highly reactive hardener component
- Extreme cross linking of the material
- Nano-Crystalline biocide reinforced in the cross linked polymer matrix, provides a long term protection against pitting corrosion caused by anaerobe bacteria (sulphate reducing bacteria)
- Dry temperature resistance up to 150°C and wet up to 130°C
- 5x higher adhesion to metal and composite materials (> 27N/mm²) compared to standard epoxy coatings
- 100x higher corrosion protection compared to standard epoxy coatings
- Processing using commercial airless spray equipment, easy application by hand with a roller or brush
- Fast curing
- Direct application on the surface without any primer
- High chemical resistance
- Optimal surface protection on the basis of very hard ceramic fillers, very high abrasion resistance to abrasive media
- Very smooth surface

Comparison of two different Corrosion protection concepts for sewage pumping systems

Classification of **corrosiveness categories** and **corrosion resistance classes**

Coating

DIN EN ISO 12944
(2008)

Stainless steel

DIN EN 1993-1-4,
Ver. A1, (2015)
General release for
building authorities,
Z-30.3-6, (2014)



Corrosivity categories

STRATE AWAguard® 2 components ceramic composite coating

- C5-1 (very high, industry)
- C5-M (very high, maritime (off shore))
- Durability > 15 years
- Suitable for waters of category IM2 (marine or brackish water)

Corrosivity Category	Corrosivity	Duration of Corrosivity Protection (class)	Duration (Years)*	Nominal Coating Thickness (µm)	Typical Applications	
					Interior	Exterior
C1 very low	very low insignificant aggressiveness interior	short medium long	2 - 5 years 5-15 years > 15 years	70	Heated buildings with clean air, such as offices, shops, schools, hotels, etc.	None
C2 low	low low aggressiveness exterior / interior	short medium long	2 - 5 years 5-15 years > 15 years	80 120 160	Buildings not heated, where condensation may occur, such as warehouses and sports halls.	Atmosphere with low pollution. For example in the country.
C3 medium	medium medium aggressiveness exterior / interior	short medium long	2 - 5 years 5-15 years > 15 years	120 160 200	Buildings for production with high atmospheric humidity and some air pollution such as food manufacturers, breweries, dairies and laundries.	Urban and industrial areas, moderate sulphur dioxide pollution. Coastal areas with low salt content.
C4 high	high moderate aggressive exterior / interior	short medium long	2 - 5 years 5-15 years > 15 years	160 200 240-280	Chemical manufacturers, swimming baths and ship- and boatyards by the sea.	Industrial areas and coastal areas with moderate salt impact.
C5-I very high (industry)	very high aggressive exterior / interior	short medium long	2 - 5 years 5-15 years > 15 years	200 240-280 320	Buildings or areas with almost permanent condensation and with high pollution.	Industrial areas with high humidity and aggressive atmosphere.
C5-M very high (extreme)	very high maritime (off shore) exterior / interior	short medium long	2 - 5 years 5-15 years > 15 years	200 240-280 320		Coast and offshore areas with high salt content.

* no warranty time

Corrosion resistance classes for stainless steels and the comparison with AWAguard®

Uncoated high-alloy stainless steels (e.g. 1.4301, 1.4571 or 1.4462) are also used for components in contact with waste water and waste water atmosphere.

(Extract from the Technical Statement ST200/002/17, IKS). The table shows the classification of stainless steels into their corrosion resistance classes (CRC).

Frequently used Stainless Steels according to Corrosion Resistance Classes (CRC)				
EN Name	EN Material No.	Structure	Corrosion Resistance Class	Typical Applications
X5CrNi18-10 X2CrNi18-9 X6CrNiTi18-10 X3CrNiCu18-9-4 X2CrNi18-7	1.4301 1.4307 1.4541 1.4567 1.4318	Austenitics	II	1. Standard materials for all known applications in accessible structures and components such as balcony balustrades, railing constructions, cladding, fasteners in rural and urban environment without significant loads due to Chlorides and SO ₂ . 2. For non-free-watered components to obtain a visually appealing appearance at least once a year maintenance cleaning required.
X5CrNiMo17-12-2 X2CrNiMo17-12-2 X6CrNiMoTi17-12-2 X3CrNiCuMo17-11-3-2	1.4401 1.4404 1.4571 1.4578	Mo Austenitics	III	1. Standard materials for constructions with moderate load by chlorides e.g. by de-icing salts or in maritime environment in temperate climates and / or moderate exposure to SO ₂ and also to constructions and components where due to their location and accessibility an inspection and regular Cleaning is not possible and the life expectancy over 50 ears. 2. For high optical requirements is a suitable surface finish pay special attention.
X2CrNi23-4 X2CrNi22-2 X2CrMnNi21-5-1 X2CrNiMnMoCuN24-4-3	1.4362 1.4062 1.4162 1.4662	Lean Duplex		
X2CrNiMoN22-5-3	1.4462	Duplex / Super Duplex		
X2CrNiMoN17-13-5 X1NiCrMoCu25-20-5	1.4439 1.4539	Super Austenitics	IV	These materials are suitable for high corrosion load by chlorides, even in the spray and Spray area, especially in environments with simultaneously increased SO ₂ concentrations and higher Humidity and at considerable concentration of pollutants.



The STRATE AWAguard® coating has a corrosion protection effect of category C5-I and C5-M. A comparable corrosion protection is only achieved by stainless steels of category CRC IV (1.4462 Duplex/ Super Duplex; 1.4439 and 1.4539 Super Austenitics Steel).

The STRATE AWAguard® coating of the corrosivity category C5-M thus offers a cost-efficient solution for high-quality corrosion protection compared to stainless steels, which corresponds to category CRC IV for stainless steel.

Project example

STRATE Pumping station in Croatia Novalja, island of Pag

The example shows a pumping station in Croatia, which is only 200 m from the coast. A STRATE AWALIFT 1/2 penta with AWAguard® coating was installed in the GRP shaft. The coating provides optimal protection against the salt load of the sea.



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For over 70 years, STRATE has stood for innovation in all aspects of wastewater transport. Our patented dry-installed system combines maximum operational reliability, economy with user-friendliness. Our portfolio includes wastewater pumping stations with innovative separator system as well as check valves and ventilation and bleeding valves. In addition, STRATE supplies blower and compressor manufacturers with check valves and valves for air and industrial gases.

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