BÖLLINGHAUS STEEL

THE USE OF STAINLESS STEEL FOR WASTE WATER TREATMENT PLANTS

SPECIAL WEEK

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Clean and safe water is an essential part of our lives. It is a vital resource which must be conserved effectively and efficiently. Water is not only a critical element for our health, hygiene and the preservation of our community, but also for other living organisms, with an important role to play in maintaining biodiversity.

Water treatment is the process by which water is purified to a permissible level of usage.
The waste water treatment operation eliminates harmful external substances, including bacteria and other contaminants, so it can be applied to whichever specific function it is intended for. In other words, it is the water cleaning method for the desired application.

When developing, building and maintaining a waste water treatment plant, there are many factors to take into consideration. The choice of the right material for the construction of pipes, valves and tanks is highly critical, affecting the operational process of the system. The material must be resistant to corrosion in this humid atmosphere. This article explains how the various properties of stainless steel can make significant economic and environmental contributions to the water industry.

A water treatment plant is a complicated system with high standards governing the entire installation, including engineering systems. The materials required to build a waste water treatment plant must be able to withstand a wide variety of corrosive atmospheres that are encountered during operations. Intensely high corrosion rates can cause a complete system failure within a short period of time. Depending on the material applied in the installation, extensive cleaning and chemical maintenance with biocides may be needed. If a safe, ecological and economical installation system is required, there is no better choice than the application of stainless steel.

The use of stainless steel is a reliable and high-quality design solution for waste water treatment installations. Stainless steel is used extensively in water treatment plants around the world in the production of treated water, due to their extraordinary qualities.
Because of their corrosion resistance and durability, stainless steel, including stainless steel long products, is deployed across various water treatment applications, including water treatment equipment and valves. The preference for it is based on its extraordinary durability, due mainly to its high resistance to corrosion, as well as on its aesthetic qualities.

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The inclusion of chromium creates a natural protective layer on stainless steel, which conserves the steel from corrosion and ensures a long service life.The decision to apply stainless steel ensures low maintenance costs, long life and an easy recycling process at the end of the life cycle.
The systems and machinery in water treatment plants are subject to destructive and corrosive materials, which is a key reason why these installations use stainless steel. Two types of corrosion, namely microbiological influence corrosion and abrasive corrosion, are the major threats to the safe maintenance of a waste water treatment plant. Materials that are less durable and strong than stainless steel, or materials with harsh surfaces, are more prone to this form of corrosion.

Stainless steel does not require any chemical supplements to water in order to retain its corrosion resistance. Moreover, stainless steel systems do not need a corrosion protection system or adaptation of the water chemistry to avoid corrosion, thus achieving additional savings in operating costs.
Moreover, when the material reaches the end of its life cycle, stainless steel is 100% recyclable.
Due to its recyclability, re-usability, long service life, low maintenance, and product safety, emissions from the fabrication and application of stainless steel are minimal compared to substitute materials. Stainless steel enhances efficiency and minimizes maintenance, and is the most cost-effective option overall.

Stainless steel can be obtained in many shapes and grades, and íts malleability and weldability make it simple to handle during both assembly and installation.
Another reason to consider stainless steel, in addition to the longevity of the material, is the growing trend towards sustainability. The material is 100% recyclable, making it environmentally friendly and offering benefits to the planet, as well as to operators, designers and planners who want to develop a sustainable and green waste water treatment system. This could be the reason why, as society and governments become more aware of environmental and economic concerns, the growth in stainless steel consumption has increased dramatically in recent years.

While in the past cost compensation may have determined the use of an alternative material, durability, reliability and sustainability are the key considerations at present. These properties have also made stainless steel the major material in food processing, medical and catering installations.
A detailed and accurate analysis of the sustainable aspects of stainless steel makes its choice the logical solution.

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The higher price of stainless steel is more than offset by lower working costs for maintenance and fabrication, as well as greater durability and corrosion protection for the plants. There is a common saying: "Cheap today is expensive tomorrow". As long as the right type of stainless steel is chosen for an application, the steel remains inert and low-risk to those who deploy it and to the environment.

Applications for water treatment installations require stainless steel in a range of semifinished forms, including flat material and bars. The exact grade of stainless steel applied will depend on the corrosion resistance and durability required for a specific application. Types 304 and 316 stainless steel can typically be found in the area of water equipment, waste water treatment processes and water filtering applications that are fabricated for waste water installations.
In many cases, 1.4404 (316L) stainless steel is used in the construction of water pipes and underwater installations, while 1.4307 (304L) stainless steel is the preferred grade for many installations above the water line. Other popular forms of stainless steel for the fabrication of water treatment plants include chromium-nickel, chromium-nickel-molybdenum, and duplex (ferritic-austenitic) steel. In operation, stainless steel will prove to be a reliable and durable material.

About Böllinghaus Steel GmbH
Böllinghaus Steel is a producer of high-quality stainless steel profiles that can withstand
use in the demanding environments of plants and machines. Constant customer orientation and commitment to maximum quality are important guidelines in its undertaking. Böllinghaus Steel relies on consistent quality and a high degree of accuracy in order to achieve the highest level of customer satisfaction. Whether standard profile or custommade, Böllinghaus Steel manufactures custom-made stainless steel profiles of proven quality for the highest customer satisfaction. "We offer our customers high-quality stainless steel long products that help to save and protect water. We view water and energy as relevant resources. Stainless steel long products offer a sustainable solution for waste water installations", explains Nina Härtel, Managing Director of Böllinghaus Steel.