



BÖLLINGHAUS STEEL

# THE USE OF STAINLESS STEEL IN THE OIL AND GAS INDUSTRY



SPECIAL WEEK

**OIL AND GAS INDUSTRY**

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To keep pace with global demand, the oil and gas industry is forced to build up reserves in both deeper and more remote locations. Extraction in extreme environments is a huge challenge.

Many traditional reserves have been depleted, and oil and gas storage facilities located in very inaccessible places are now common targets for exploration. Pressures and temperatures that were previously considered unsustainable are now common operating parameters, imposing significant limitations on existing equipment and technologies, so that the oil and gas industry faces serious material challenges.

Oil and gas refining often involves treating contaminants, breaking down compounds into essential elements, and operating a wide range of temperatures, some of which are very high.

Drilling, production, processing, storage and transportation of petroleum products place strict demands on the metal materials used in the oil and gas industry. Some of these requirements include structural and/or thermal stress, fatigue, crack growth and corrosion, which require constant inspection and maintenance. In addition, offshore projects are crucial sites of the production and processing of hydrocarbons worldwide. However, the saltwater environment dictates high standards of safety and longevity for coastal platforms. Infrastructure for application at sea is often exposed to significant amounts of salt in air and water. Moreover, offshore installations require underwater treatment technology to be safe, efficient and economical.

Thus, stainless steel is a practical and ideal choice for the oil and gas industry. When traditional factors and corrosion risks are understood, stainless steel will provide the opportunity to reduce risk while offering long-term protection and performance. Although carbon steel is suitable for low temperature, pressure or corrosion situations, various stainless steel alloys provide protection against even the most corrosive oil and gas refining processes. Moreover, conventional carbon steel structures often suffer from corrosion, which calls for regular maintenance and upkeep.

Awareness of the cost of corrosion and of the potential impact and safety of devices is a driving force behind the use of stainless steel. Stainless steel contains a high proportion of chromium, which protects the alloy against corrosion. In addition, it is a cost-effective and practical choice for the industry and can be used for many different parts, including structural components, process equipment, heat exchangers, valves, fittings and flow lines.

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With its corrosion resistance, reliability and ability to withstand extreme pressures, stainless steel has become the industry standard as an integral part of critical equipment.

For various reasons, the material must be extremely strong and durable. Another reason is that offshore installations are often associated with high-pressure environments. Stainless steel has proven to be particularly effective in this regard. Moreover, due to the excellent combination of mechanical properties and resistance to stress corrosion, duplex provides a good choice for marine applications.

In addition, renewable energy technologies, including solar, geothermal, hydropower and wind energy, also use stainless steel components, as they can withstand the loads of a highly corrosive seawater environment. At the same time, stainless steel is guaranteed as a robust choice of material for heavy coastal processes and provides a long service life along with impressive resistance to extreme pressures and high temperatures.

## About Böllinghaus Steel

Böllinghaus Steel produces both standard and custom-made stainless steel long products and offers nickel alloys as well as titanium that can be used as parts and applications in the oil and gas industry. Whether you need parts onshore or offshore, custom-made profiles can be produced according to your requirements. Our stainless steel long products are well suited to chloride-containing environments and environments where induced cracking is a challenge. Overall, stainless steel long products offer a unique combination of high strength, great mechanical properties and excellent corrosion resistance, which is very useful as a component and application in the oil and gas industry.

