

New UGIMA® 4116N stainless steel for parts subject to heavy wear and tear

Hardness, corrosion resistance and impact strength are determinate factors in the lifecycle costs of wearing parts made of steel bar such as valve seats, bending guides and nozzles for abrasive liquids. The material's machinability, however, is just as relevant for quality and cost effectiveness. Ugitech now for the first time introduces to the market a stainless steel with outstanding values that meet all of these criteria. UGIMA® 4116N is extremely hard thanks to the addition of nitrogen and much more resistant to corrosion than standard-grade steel as EN 1.4125 (AISI 440C) and EN 1.4112 (AISI 440B). Combined with improved machinability, designers, steel producers and users of parts subject to heavy wear and tear profit from a true competitive advantage.

"The rising demand for a special steel with good mechanical properties comparable to those of UGI® 4116N and improved machinability was the driving force behind our development of UGI® 4116N," says Marc Marticou, Business Development Manager at Ugitech, a company of the SCHMOLZ + BICKENBACH Group. In introducing this new development, Ugitech expands the range of applications of special steel UGI® 4116N developed for hard edged cutting tools and leverages significant improvements in productivity in steel processing. UGIMA® 4116N, a new corrosion resistant steel, is a competitive alternative to the conventional martensitic steel grades commonly used such as EN 1.4112/AISI 440B and EN 1.4125/AISI 440C. Both standard materials have high hardness values. However, due to their high carbon content (0.9% and 1.0%, respectively) they contain primary carbides and thus their corrosion resistance is comparatively low and their resistance to impact loads even lower. These properties have a direct effect on the quality and service life of wearing parts, such as cutting tools, valve seats and bending guides as well as nozzles for flow control of liquids containing abrasive particles.

With 57 HRC when tempered UGIMA® 4116N has a comparable hardness value to that of the materials EN 1.4112/AISI 440B and EN 1.4125/AISI 440C. By adding nitrogen (0.1%) Ugitech specifically improves the corrosion resistance of stainless steel containing carbon. Resistance to pitting has a potential of 200 mV/ECS (in NaCl 0,02 M at 23°C and pH = 6,6) in a quenched and tempered state and is thereby much more resistant to pitting corrosion than comparable products. In contrast to other martensitic steel grades, UGIMA® 4116N also has greater impact strength. The added sulfur content improves machinability and produces short chipping lengths during machining. Users profit from cost-efficient manufacturing and high-quality and long-lasting wearing parts.