



NX INFRASTRUCTURE STAINLESS STEEL CLAD REBAR



NX Infrastructure Limited is distinguished by its patented and fully integrated stainless steel bar-cladding process.



NX Infrastructure Ltd

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NX is a Stainless Steel Clad Composite with a Carbon Steel Core

NX Infrastructure Limited (NXIL) is a unique steel company using advanced technology to produce high quality infrastructure materials. It is headquartered in South Wales, United Kingdom.

The Company is distinguished by its patented and fully integrated stainless steel bar-cladding process, leading the world in producing a composite stainless steel clad carbon steel bar. This stainless steel alternative is known as NX-SCR™.

NX stainless clad rebar (NX-SCR) is made through a patented “green” process, which results in a metallurgical bond during hot rolling between a durable outer stainless steel cladding and a carbon steel core.

NX-SCR is tailor-made to combine the very high corrosion resistance of stainless steel with the yield strength and elastic modulus characteristics of low alloy carbon steel, with the lowest life cycle cost in the industry.

Applications

NX-SCR addresses structures’ corrosion problems where they occur, at the surface of the rebar. The typical amounts of corrosion from black steel rebar necessary to cause concrete cracking correspond to less than 0.004" (0.1mm). In northern US bridge decks, such corrosion can occur within 3-5 years because of the use of de-icing salts.

Structures in corrosive chloride environments requiring a project design life of 75-100 years typically rely on multiple approaches by combining all or some of the following corrosion prevention strategies:

high-performance concrete, galvanized or epoxy-coated rebar, corrosion inhibitors, increased concrete cover and cathodic protection. However Life Cycle Cost studies have shown that standard concrete and NX-SCR provide the lowest life cycle cost while meeting the 100 year design requirement. In addition, a much higher tolerance to construction and concrete defects is realized using NX-SCR in these environments.



NX-SCR has already been used for concrete reinforcement where de-icing salts are used on pavements and bridge decks. It is also the most economical and cost effective choice in marine environments and marine substructures. In these environments, even higher chloride levels accumulate over time than those caused by de-icing salts and are known to cause premature failures in existing rebar.

Properties and Characteristics

- NX-SCR conforms to AASHTO MP13M/MP 13-04 (2006) Standard Specification for Stainless Clad Deformed and Plain Round Steel Bars for Concrete Reinforcement, which is based on ASTM A 955 and ASTM A 615.



- NX-SCR is available Grades 40 and 60 (Grades 300 and 420) and meets the required bending diameters for ASTM A 955 and ASTM A 615.
- Superior corrosion resistance relative to epoxy, galvanized and black bar has been proven in long term field trials and tests over the last 20 years. NX-SCR has a superior critical chloride concentration threshold to induce corrosion of over 11.8 lb/yd³ (7 kg/m³) in comparison to only 1.2-2.0 lb/yd³ (0.7-1.2 kg/m³) for epoxy coated rebar and is expected to have a 100-year service life.
- NX-SCR does not generate galvanic corrosion, when used adjacent to black bar.
- NX-SCR has been fatigue tested to 2 million cycles (150MPa-275MPa) with no impairment to the metallurgical bond.
- Our unique manufacturing process provides a high bond shear strength between core and cladding of 300MPa when tested according to ASTM A 263-88.
- An average stainless steel clad thickness of 0.03" (0.8mm) results in a durable outer cladding enabling NX-SCR to be handled using normal procedures for black bar, without impairment to cladding integrity.
- Ends are sealed by application of plastic caps pre-filled with a suitable sealant.
- NX-SCR is available fully fabricated with ends sealed according to AASHTO MP13 in a chemically de-scaled (pickled) finish.
- Available size range: #4 (13mm) - #10 (32mm).
- NX-SCR can be supplied in standard lengths of up to 39.5 ft (12.0 m) or up to a maximum of 60 ft (18.0 m) as special deliveries.
- Standard practices for handling stainless rebar should be employed when working with NX-SCR. Carbon steel bands, carbon tie-wire, and carbon lifts are not recommended for use.
- Please refer to our website: www.nxinfrastructure.com for further information on standard manufacturer’s recommendations