WELDING ENGINEERS
EFFICIENT WELDING SUPPLY SOLUTIONS

NIPPON STEEL

CORSPACE®

Steel structures are designed to give optimum long-term performance with a minimal level of normal maintenance. Conventional steel requires a protective coating to be applied in accordance with AS/NZS Standards. Corrosion is accelerated in coastal areas, geothermal, etc, requiring special designs, higher maintenance levels and regular repainting over the service life of the structure.

CORSPACE® steels utilise the same protective coating systems as conventional steel. However, the modified chemical composition of **CORSPACE®** extends the period before repainting is required by suppressing corrosion in areas where flaws or defects in the coating occur.

Zinc coating systems are often used in high corrosion zones. Testing with repeated salt washing shows the significant extra corrosion resistance of **CORSPACE®** compared to conventional steel with the same zinc coating system applied, see Fig. 2

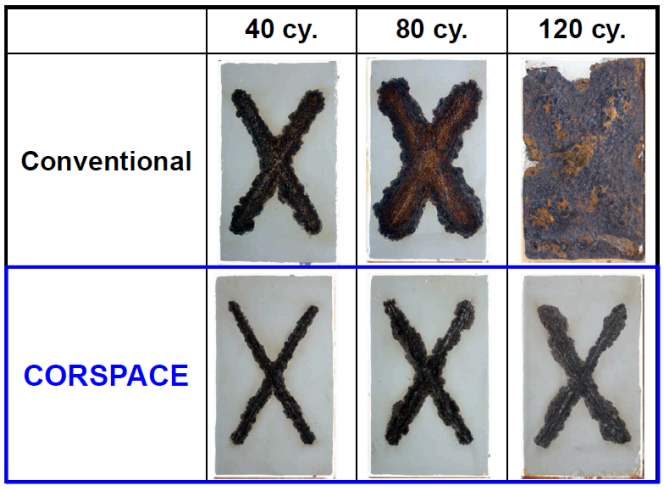
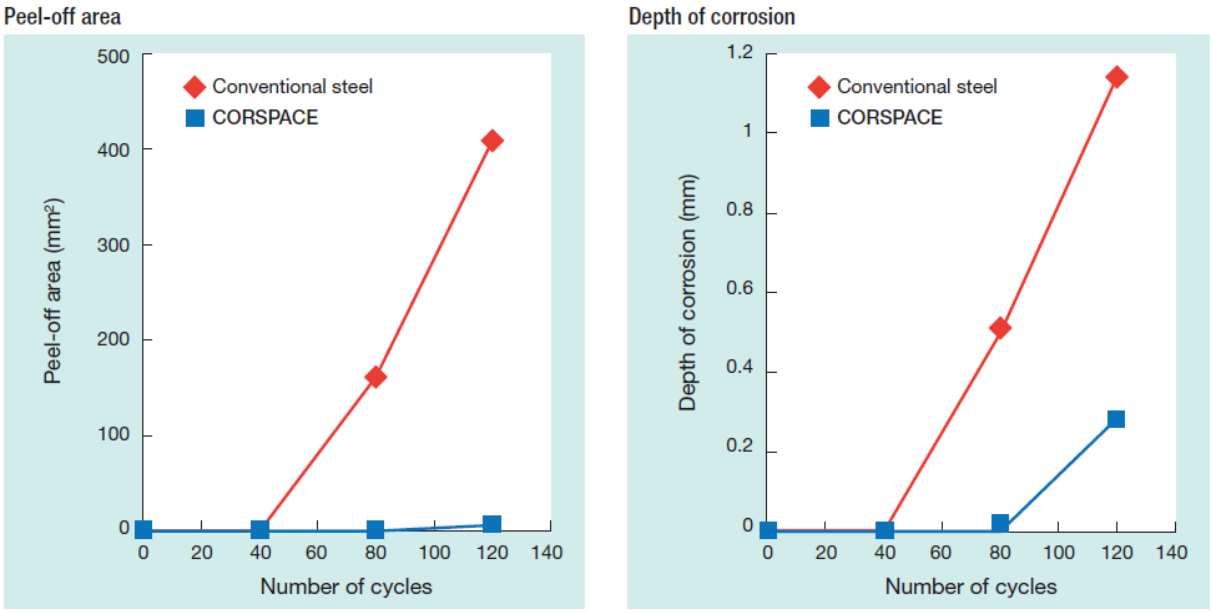


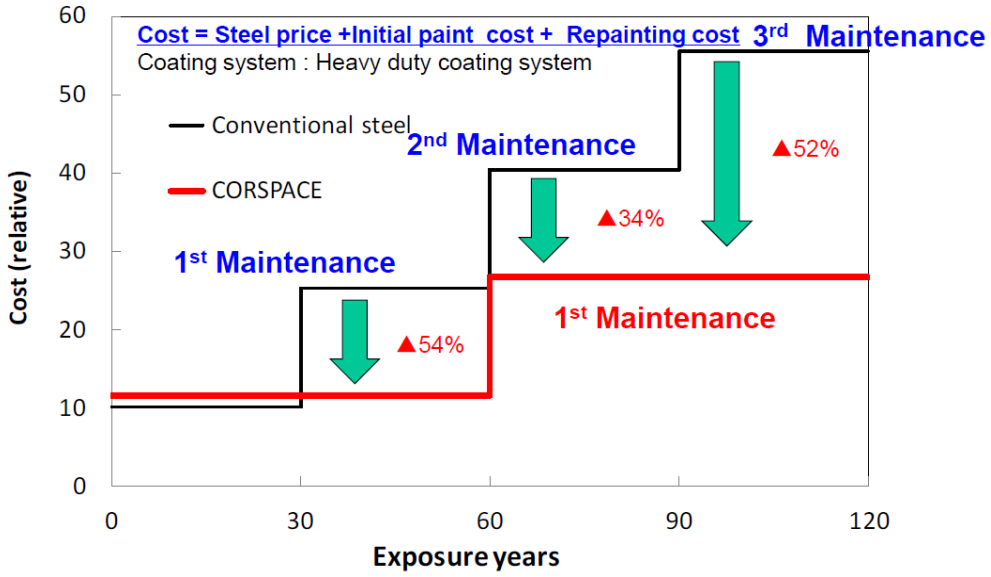
Fig. 1. Appearance of coated samples of Steel & CORSPACE after severe corrosion laboratory test.

Fig. 2. Comparative Results of Changes to Defects on Zinc System coatings on Steel & CORSPACE® after Repeated Washing Cycles.



The use of **CORSPACE®** can extend the coating cycle to double that of conventional steel under the same coating/installation environment. So, while conventional steel usually requires re-painting three times over its serviceable life, **CORSPACE® can reduce the re-coat requirement to once in 100 years and approximately halve the life maintenance costs.**

Fig. 3. Protection and Maintenance Costs for a Bridge constructed with CORSPACE® compared to Conventional Steel over Serviceable Life.



CORSPACE® Classification

CORSPACE® complies with the JIS standards required for steel used in bridge fabrication, corresponding to the tensile strength of class 400-570 N/mm2, as follows. Note: **SBHS** are high strength Steels for High Performance Bridge Structure.

Type/Brand	Plate Thickness (mm)	JIS Classification
SM400 - CORSPACE	6 - 200	JIS G3106
SM490 - CORSPACE	6 - 200	JIS G3106
SM520 - CORSPACE	6 - 100	JIS G3106
SM570 - CORSPACE	6 - 100	JIS G3106
SBHS400 - CORSPACE	6 - 100	JIS G3140
SBHS500 - CORSPACE	6 - 100	JIS G3140

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CORSPACE® Connections - Welding & Bolting

Welding consumables and high strength bolts with matched chemical compositions are specified by Nippon Steel Corporation to prevent different corrosion rates and appearances of weld metal to parent metal.

Steel Material	Type of Steel (Tensile Strength)	Covered Arc Welding Electrode	Solid Wire	Flux Cored Wire		Welding Material for Submerged Arc Welding	
		All Positions		All Positions	Fillet	Butt	Fillet
CORSPACE®	SM400 SM490 SBHS400	L-55·PX	YM-26·PX	SF-1·PX	SM-1F·PX	YF-15 × Y-D·PX	YF-800 × Y-D·PX
	SM520	-	YM-55C·PX	-	-	YF-15B × Y-DM3·PX	NF-820 × Y-D·PX
	SM570 SBHS500	L-60·PX	YM-60C·PX	SF-60·PX	SM-60F·PX	YF-15B × Y-DM·PX	NF-820 × Y-DM·PX

CORSPACE® can prolong the life of, and reduce the lifetime costs of, large steel structures used in coastal areas including bridges, industrial buildings or large equipment.

Higashiharima–Nanboku Road (Mizuashi Shintsuji No. 5 Elevated Bridge) built in 2012.

Unloader, Japanese Port.

For further information contact Welding Engineers (NZ) Ltd, PH +64 9 634 1949 or Email sales@wenzl.co.nz.