

## Metrode Duplex Stainless Steel Consumables used for The York Millennium Bridge



**TUV NORD**



Officially opened on Tuesday, April 10th, the elegant 140m long York Millennium Bridge crosses the River Ouse on the southern boundary of the City. Its pioneering design by Whitby Bird & Partners won the York Millennium Bridge Trust competition for a pedestrian/cycle bridge. It is the first such structure to exploit the high strength of 22Cr Duplex stainless steel to work to the limits of contemporary technology. The inherent corrosion-resistance, strength and toughness of 22Cr duplex steel mean that weight-savings can be safely made, particularly in offshore structures where it is more commonly found.



Meldan Fabrications of Barton-on-Humber selected Metrode's **Supercore 2205P** flux cored wire and **2205XKS** electrodes to fabricate the slender, 80m long, 40-tonne arch from which the main weight of the 200 tonne bridge is suspended. The 600mm wide 200mm thick arch sections, many cut from a single 20m sheet of Duplex stainless steel, are highly polished, and represent a bicycle wheel, set 50° to the horizontal. Between the springing points, stainless steel cables above the deck represent the spokes. These, together with a rigid box below, which mimics the hub of the bicycle wheel, stabilise the structure.

Much of the steelwork was fabricated at Meldan Fabrications' site in Immingham, and brought to York for final assembly at a riverside site before it was lowered onto a pontoon, floated into place and lifted by jacking rams and cranes by main contractors C Spencer Ltd of Barrow-on-Humber into its permanent position in late October 2000.

The severe flooding of the winter delayed the official opening with the unprecedented rise in the river levels only a few days after the bridge had been fixed in position, rendering groundwork impossible for several months.

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