

Metrode's new nickel base FCW: **SUPERCORE 625P**

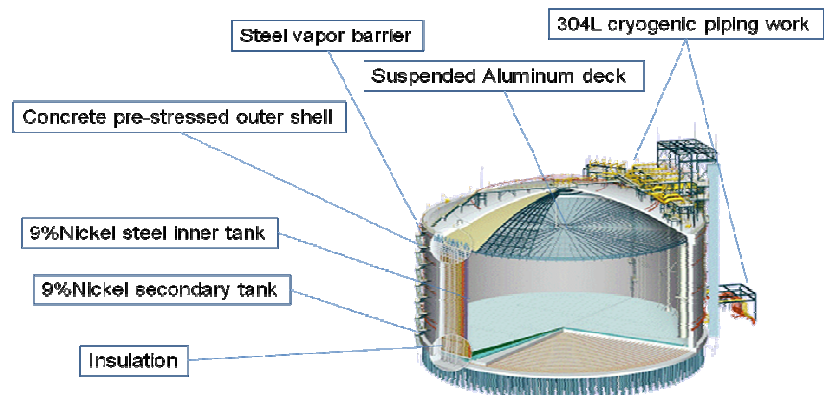
The ideal flux cored wire for welding 9%Ni steel for LNG facilities and other applications requiring 625 filler metals



South Hook LNG Terminal,
Milford Haven, UK

Metrode has a reputation for manufacturing high quality 625 welding consumables including SMAW/MMA electrodes and solid wires for the GTAW/TIG, GMAW/MIG and submerged arc welding processes. The new flux cored wire, Supercore 625P, is a further milestone in the rich history of Metrode's research and development achievements. Supercore 625P combines the productivity of continuous GMAW process with the operability and bead appearance of SMAW electrodes. At the same time, it gives many other additional benefits - such as ease of use, excellent weldability and slag release with both DC+ and AC current, producing excellent weld appearance with good radiographic qualities and achieving excellent mechanical properties including impact toughness at -196°C . The introduction of Supercore 625P completes the family of Metrode 625 welding consumables, with wide ranging applications from -196°C up to 1000°C .

One of the most important applications of Supercore 625P is for welding 9%Ni grade base material which is used extensively in LNG (Liquefied Natural Gas) storage tanks. It will provide very high deposition rate, hence productivity in comparison to the SMAW process. Some of the additional information and typical mechanical properties of Supercore 625P have been detailed in the following section



LNG Tank Construction

General features

- AWS A5.34 – ENiCrMo3T1-4
- Proposed EN ISO 12153 – T Ni 6625 P M 2
- Rutile all-positional flux cored wire in 1.2 mm diameter
- Vacuum foil protected spool PLW on S300
- 15 kg weight
- Mixed Ar-CO₂ shielding gas
- M21/M24 (Ar/15-25% CO₂)
- Minimal spatter, very stable arc and self releasing slag



Operating parameters

- Current and voltage:
 - vertical-up: 6-8 m/min wire feed speed, 150-170A, 25-26V.
 - downhand: 8-10 m/min wire feed speed, 180-200A, 28-30V.
- Polarity: DC+
- Gas flow rate: 15-20 litre/min
- ESO: 15-20 mm
- Metal recovery: 90%

All-weld metal composition (wt%)

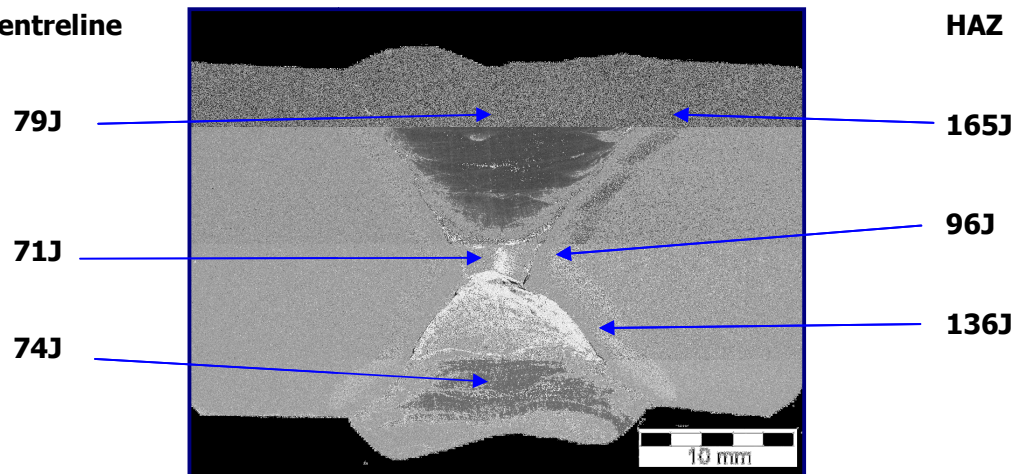
C	Mn	Si	Cr	Ni	Mo	Nb+Ta	Ti	Fe	Cu
0.02	0.3	0.2	21.0	66.0	8.5	3.4	0.2	1.0	0.02

Mechanical properties

	Rp _{0.2%} [MPa]	Rm [MPa]	4d [%]	5d [%]	Z [%]	Impact value [J]	
						+20°C	-196°C
<i>AWS (minimum)</i>	--	690	25	--	--	--	--
<i>Typical (all weld metal)</i>	500	770	46	42	42	95	80

Vertical-up 9%Ni steel joint impact properties at -196°C:

Weld centreline



Form further information -

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