



Intending to achieve carbon neutrality ("CN") by 2050, WELDREAM CN offers high-performance products that support the transition to and growing demand for environmentally friendly energy, thus advancing towards a sustainable society.

1 Welding material for 7-9% nickel steel, contributing to the expanded use of LNG

Liquefied natural gas ("LNG") is recognized as a crucial energy source supporting the transitional phase until carbon neutrality (CN) is achieved. Since 1969, we have supplied welding materials for LNG tank construction, including covered arc welding rods, TIG welding wires, and submerged arc welding materials, accumulating valuable application insights. Recently, we have expanded our lineup to include the FC-9NI flux-cored wire for gas-shielded arc welding, further enhancing the quality and efficiency of LNG tank construction processes.

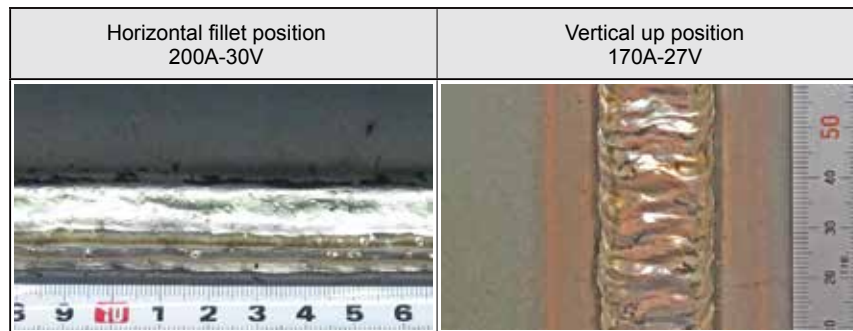
Table 1: List of welding materials for LNG tanks

Welding method	Brand	Size	Approval of classification society	AWS standard	JIS
FCAW	FC-9NI	1.2φ	NK LR ABS DNV CCS	A5.34 ENiGT1-1	—
SMAW	YAWATA™ WELD B (M)	3.2φ 4.0φ 5.0φ	NK LR ABS DNV BV	A5.11 ENiCrFe-4	Z3225 D9Ni-1
SMAW	NITTETSU™ WELD 196	3.2φ 4.0φ 5.0φ	NK LR ABS DNV BV	A5.11 ENiMo-9	Z3225 D9Ni-2
SAW	NITTETSU™ FLUX 10H /NITTETSU™ FILLER 196	500μm ~ 1.40mm 2.4φ	NK LR ABS DNV BV	A5.14 ERNiMo-9MOD	Z3333 FS9Ni-H YS9Ni
GTAW	NITTETSU™ FILLER 196	1.6φ 2.4φ	NK	A5.14 ERNiMo-9	Z3332 YGT9Ni-2

Table 2: Example of mechanical properties of weld metal (Shield gas: CO₂)

Brand	0.2% proof stress (MPa)	Tensile strength (MPa)	Elongation (%)	vE-196°C (J)
FC-9NI	445	699	47	88
Reference NK KSWL92G (C)-YP430M-TS690M	430 or more	690 or more	25 or more	27 or more

Fig.1: Example of bead appearance of FC-9NI



2 SF-309SD/FC-309SD, welding material exclusively for NIPPON STEEL High corrosion resistant coated steel plate series

SF-309SD/FC-309SD is a flux-cored wire designed exclusively for use with NIPPON STEEL'S High corrosion resistant coated steel. This wire contributes to reducing the life cycle cost by maintaining the corrosion resistance of weld metal during welding, thereby lessening the labor-intensive touch-up required for post-weld plating coating.

Table 3: Example of salt water spray test results for galvanized steel sheet joints

Steel plate	High corrosion resistant coated steel		
Welding material	YGW12	YGW12	FC-309SD
Touch-up	N/A	Applied	N/A
Salt water spray Test Test time 1000 hours	Rust on weld metal	Spot rust on weld metal	No rust on weld metal

Table 4: Example of mechanical properties of weld metal (Shield gas: CO₂)

Brand	0.2% proof stress (MPa)	Tensile Strength (MPa)	Elongation (%)	vE0°C (J)
FC-309SD	629	715	18	34