

Technical Data Sheet

UGIWELD™ 409Nb

Chemical composition (%)

C	Si	Mn	Ni	Cr	Mo	Cu	Nb
≤ 0.08	≤ 1.0	≤ 0.8	≤ 0.6	10.5 – 13.5	≤ 0,5	≤ 0,75	10xC – 0.75

30-09-2021 – REV 05

Classification

Stabilized ferritic grade

Designation

Material No.

Europe – EN ISO 14343-A	USA – AWS A5.9	Europe – WNr.
Z 13 Nb	ER409Nb	1.4601

Approvals

	MIG	TIG	SAW
TÜV (Germany)			
CE	X	X	X
DB			

Mechanical properties on as weld deposit (typical values)

Tensile test

Values measured on as welded assembly of 409 sheets, thickness 1.5 mm, in MIG process.

Rm (MPa)	E 0,2 (MPa)	A %	Rupture Zone
410	260	25	Base metal

Hardness measurements

Small increase in weld metal compared to base metal (+ 30/40 HV100).

Erichsen test

Erichsen deflection on welded assembly reach 85% of the values on base material.

Fatigue test at high temperature

The 409 sheets welded with the wire UGIWELD™ 409Nb have been tested between 300°C to 850°C. After 200 000 cycles, the values are the same as with an austenitic filler metal.



Swiss Steel Group

Production sites: Ugitech SA
www.swisssteel-group.com

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Welding

The niobium present in the filler grade ensures its stabilisation (essential for preventing intergranular corrosion phenomena in the WM during use).

Multipass are prohibited to avoid grain growth.

Welding parameters

Recommended welding conditions:

Due to grain growth:

- » Use the smallest diameter (1.2 mm max)
- » Avoid multipass
- » Restrict heat input at 0.25 kJ/mm

The best way to limit heat input is to have very high welding speed (about ≥1 m/min) workable in MIG process.

MIG welding

Recommended shielding gases are:

- » Argon + Oxygen (1 to 3%)
- » Argon + CO₂ (1 to 2.5%)

Typical parameters in spray arc with a 1.00 mm wire

- » Current: 180 to 250 A
 - » Voltage: 26 to 29 V
 - » Welding speed: 100 to 200 cm/min
- No preheating, no post weld heat treatment



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Available products

Process	Shape	Diameter Range	Packaging	Weight
TIG	Rods	1.0 – 4.0 mm	Cardboard tubes	5 kg
		0.8 – 1.6 mm	Metallic spools – BS 300	15 – 18 kg
MIG	Wire	0.8 – 1.2 mm	Plastic spools – D 200	5 kg
			Plastic spools – D 300	15 kg
		1.0 – 1.6 mm	Plastic spools – D 350	25 – 27 kg
		0.8 – 1.2 mm	Pay off pack - Drums	250 – 500 kg
SAW	Wire	1.6 – 3.2 mm	Rims K415 / 300 / 94	20 – 25 kg
			Rims K435 / 300 / 70	

Contact us for dimensions

Applications

UGIWELD™ 409Nb is especially suitable for welding ferritic stainless steels such as type 409 used for catalytic exhaust.

For this application, sheets are very thin (1 to 2 mm).



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