

Outershield® 101Ni1-HSR

CLASSIFICATION

AWS A5.29	E101T1-G-H4	A-Nr	11
		F-Nr	6
		9606 FM	2

GENERAL DESCRIPTION

Rutile micro alloyed flux-cored wire for welding in all positions, special of high carbon containing low alloy high strength steels such as SAE 4130
 Specific design for stress relieved applications
 Outstanding operator appeal
 Excellent mechanical properties (CVN >50J at -40°C)
 Superior product consistency with optimal alloy control
 Good wire feeding
 Meets NACE MR-0175 requirements

WELDING POSITIONS (ISO/ASME)



PA/1G



PB/2F



PC/2G



PF/3Gu



PE/4G



PH/5Gu

CURRENT TYPE / SHIELDING GAS (ISO 14175)

DC +
 M21 : Mixed gas Ar+ (>15-25%) CO₂
 Flow rate: 15-25 l/min

CHEMICAL COMPOSITION (W%), TYPICAL, ALL WELD METAL

Shielding gas	C	Mn	Si	P	S	Ni	Mo	HDM
M21	0.06	2.0	0.3	0.013	0.010	0.95	0.4	3 ml/100 g

MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

	Shielding gas	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
						-40°C	-50°C
Required: AWS A5.29			min. 610	830	min. 16		min. 27
Typical values	M21	AW	750	810	17	60	40
		SR	690	780	18		50

SR: 4h/645°C

PACKAGING AND AVAILABLE SIZES

Diameter (mm)	1.2
16 kg spool S300	X

Outershield® 101Ni1-HSR: rev. C-EN06-12/05/16

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EXAMPLES OF MATERIALS TO BE WELDED

Steel grades/Standard	Type
Fine grained steels	
EN 10025 part 6	S500Q to S620QL1
AISI/SAE	4130-4140
ASTM A1031	Grade 4130
ASTM A519	Grade 4130

CALCULATION DATA

Diameter (mm)	Electrical stick-out (mm)	Wire Feed Speed (cm/min)	Current (A)	Arc Voltage (V)	Deposition rate (kg/h)	kg wire/kg weldmetal
1.2	20	445	130	20-22	1.6	1.20
		700	180	23-25	2.5	1.20
		950	220	25-27	3.4	1.20
		1270	265	27-29	4.5	1.20
		1590	305	30-32	5.9	1.20

WELDING PARAMETERS, OPTIMUM FILL PASSES IN SHIELDING GAS Ar + (>15-25)% CO₂

Diameter (mm)	Welding positions				
	PA/1G	PB/2F	PC/2G	PF/3Gup	PE/4G
1.2	230-280A	230-280A	200-240A	200-240A	160-220A
	26-32V	26-32V	25-32V	25-28V	23-30V