

Outershield® 81K2-HSR

CLASSIFICATION

AWS A5.29/A5.29M : E81T1-K2M-JH4
 EN ISO 17632-A : T 50 6 1.5Ni P M 2 H5 T

GENERAL DESCRIPTION

All position gas shielded 1.5% Ni alloyed flux cored wire for offshore and similar applications
 Specific design for stress relieved applications, guaranteed impact properties after PWHT
 Superior weldability, low spatter, good bead appearance and outstanding operators appeal
 Exceptional mechanical properties (CVN >80J at -60°C)
 Very low hydrogen ($H_{DM} < 5 \text{ ml/100g}$)
 Superior product consistency with optimal alloy control
 Excellent wire feeding

WELDING POSITIONS



CURRENT TYPE

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

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

Shielding gas	C	Mn	Si	P	S	Ni	H_{DM} ml/100 g
M21	0.06	1.3	0.3	0.012	0.010	1.4	3

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	-60°C
Required: AWS A5.29 EN ISO 17632-A		min. 470	550-690	min. 19	min. 27		
		min. 500	560-720	min. 18	min. 47		
Typical values	M21	590	630	23	140	100	80
	SR	570	620	23			85

SR 1h/600°C, 3G up - V45°

PACKAGING AND AVAILABLE SIZES

Diameter (mm)	1.2
Unit : 15 kg spool B300	X

Outershield® 81K2-HSR: rev. EN 25

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MATERIALS TO BE WELDED

Steel grades/Standard	Type
General structural steel	
EN 10025 part 2	S185, S235, S275, S355
Ship plates	
ASTM A131	Grade A, B, D, AH32 to EH40
Cast steel	
EN 10213-2	G P 240R
Pipe material	
EN 10208-1	L210, L240, L290, L360
EN 10208-2	L240NB, L290NB, L360NB, L360QB, L240MB, L290MB, L360MB, L415MB, L415NB
API 5LX	X42, X46, X52, X60, X65, X70
EN 10216-1/	P235T1, P235T2, P275T1
EN 10217-1	P275T2, P355N
Boiler & pressure vessel steel	
EN 10028-2	P235GH, P265GH, P295GH, P355GH
Fine grained steel	
EN 10025 part 3	S275N, S275NL, S355N, S355NL, S420N, S420NL, S460N, S460NL
EN 10025 part 4	S275M, S275ML, S355M, S355ML, S420M, S420ML, S460M, S460ML
EN 10025 part 6	S460Q, S460QL, S460QL1, S500S, S500QL, S500QL1

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	23-28V