

# Outershield® 71M-H

## CLASSIFICATION

AWS A5.20/A5.20M : E71T-1/9C-H4 / E71T-1/9M-H4  
 EN ISO 17632-A : T 46 3 P C 1 H5 / T 46 2 P M 2 H5

## GENERAL DESCRIPTION

Rutile gas shielded flux cored wire for high deposition & quality welding  
 Excellent operator appeal due to superior welding characteristics and premium slag system  
 Specially developed for welding with 100% CO<sub>2</sub> and optimised for Ar/CO<sub>2</sub> mix gas; smooth arc with low spatter  
 Suitable for welding coated plate  
 Perfect root pass welding on ceramic backing  
 Good mechanical properties (CVN > 47) at -30°C for CO<sub>2</sub>  
 High current capacity, especially in positional welding  
 Stable mechanical properties over the wider range of heat input

## WELDING POSITIONS (ISO/ASME)



## CURRENT TYPE / SHIELDING GAS (ISO 14175)

DC +  
 C1 : Active gas 100% CO<sub>2</sub>  
 Flow rate : 15-25 l/min

## APPROVALS

Shielding gas	ABS	BV	DNV	GL	LR	RINA	PRS
C1	3YSAH5	SA3YMH5	3YH5S	IIIVM5(H5)	3YH5S	3YSH5	3YSH5
M21	3Y40SAH5	SA3Y40MH5	3Y40H5S	IIIV40MS(H5)	3Y40MS(H5)	3Y40SH5	3Y40SMH5

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

Shielding gas	C	Mn	Si	P	S	HDM
C1	0.05	1,3	0.4	0.015	0.009	3 ml/100 g
M21	0.05	1,47	0.5	0.015	0.009	4 ml/100 g

## MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

	Shielding gas	Condition	Yield strength (N/mm <sup>2</sup> )	Tensile strength (N/mm <sup>2</sup> )	Elongation (%)	Impact ISO-V(J)	
						-20°C	-30°C
Required: AWS A5.20 EN ISO 17632-A			min. 400 min. 460	min. 480 530-680	min. 22 min. 20	min. 47	min. 47
Typical values	C1	AW	530	590	25		70
	M21	AW	595	650	26	80	

## PACKAGING AND AVAILABLE SIZES

Diameter (mm)	1.2	1.6
Unit: 5 kg spool S200	X	
15 kg spool B300	X	X
15 kg spool S300	X	X

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## EXAMPLES OF MATERIALS TO BE WELDED

Steel grades/Standard	Type
<b>General structural steel</b>	
EN 10025	S185, S235, S275
<b>Ship plates</b>	
ASTM A131	Grade A, B, D, AH32 to EH36
<b>Cast steel</b>	
EN 10213-2	G P 240R
<b>Pipe material</b>	
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
EN 10216-1/	P235T1, P235T2, P275T1
EN 10217-1	P275T2, P355N
<b>Boiler &amp; pressure vessel steel</b>	
EN 10028-2	P235GH, P265GH, P295GH, P355GH
<b>Fine grained steel</b>	
EN 10025 part 3	S275, S355, S420, S460
EN 10025 part 4	S275M, S275ML, S355M, S355ML, S420M, S420ML

## CALCULATION DATA

Diameter (mm)	Electrical stick-out (mm)	Wire Feed					kg wire/ kg weldmetal
		Speed (cm/min)	Current (A)	Arc Voltage (V)	Deposition rate (kg/h)		
1.2	20	445	130	21-23	1,75	1.16	
		700	170	22-24	2,54	1.16	
		955	220	25-27	3,45	1.16	
		1270	260	27-29	4,73	1.16	
		1590	290	30-32	6,2	1.16	
1.6	20	320	180	21-23	2,2	1.16	
		510	255	22-25	3,3	1.16	
		635	300	24-26	4,2	1.16	
		760	335	25-27	5,0	1.16	
		890	370	27-29	5,8	1.16	
		1015	395	28-30	6,5	1.16	
		1080	415	29-30	7,0	1.16	

## WELDING PARAMETERS, OPTIMUM FILL PASSES IN SHIELDING GAS Ar + [15-25]% CO<sub>2</sub>

Diameter (mm)	Welding positions					
	PA/1G	PB/2F	PC/2G	PF/3Gup	PG/3Gdown	PE/4G
1.2	230-280A	230-280A	200-240A	200-240A	160-220A	160-220A
	26-32V	26-32V	25-30V	25-28V	23-26V	26-28V
1.6	250-380A	250-380A	230-280A	220-260A	170-240A	170-240A
	24-32V	24-32V	24-30V	22-28V	22-28V	22-28V