

# Outershield® 71M-H

## CLASSIFICATION

AWS A5.20	E71T-1/9C-H4 / E71T-1/9M-H4	A-Nr	1
EN ISO 17632-A	T 46 3 P C 1 H5 / T 46 2 P M 2 H5	F-Nr	6
		9606 FM	1

## GENERAL DESCRIPTION

Rutile gas shielded flux cored wire for high deposition and 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 100% 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 +  
 M21 : Ar + (15-25%) CO<sub>2</sub>  
 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	IIYMS(H5)	3YH5S	3YSH5	3YSH5
M21	3Y40SAH5	SA3Y40MH5	3Y40H5S	IIY40MS(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
5 kg spool S200	X	
16 kg spool B300	X	X
16 kg spool S300	X	X

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## EXAMPLES OF MATERIALS TO BE WELDED

Steel grades/Standard	Type
<b>General structural steels</b>	
EN 10025	S185, S235, S275
<b>Ship plates</b>	
ASTM A131	Grade A, B, D, AH32 to EH36
<b>Cast steels</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 steels</b>	
EN 10028-2	P235GH, P265GH, P295GH, P355GH
<b>Fine grained steels</b>	
EN 10025 part 3	S275, S355, S420, S460
EN 10025 part 4	S275M, S275ML, S355M, S355ML, S420M, S420ML

## CALCULATION DATA, C1 AND M21 SHIELDING GASES

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	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 C1 AND M21 SHIELDING GASES

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