



# P 31

SMAW - (Stick) - MMA  
Un-alloyed

Date: 2003-06-19  
Revision: 20

### Description:

P 31 is a medium-coated rutile electrode suitable for shipbuilding and structural steels as well as general purpose fabrication in mild and medium carbon steels. It has particularly good operability in both downhand and positional welding. The coating of the electrode is of higher basicity than most other rutile types and provides weld deposits of high metallurgical, Grade 3, quality.

### Welding positions:



### Coating type:

Rutile

### Welding current:

DC +/-, AC OCV ≥ 50 V  
For root passes: DC -

### Metal recovery:

95%

### Redrying temperature:

80-90°C, 2h

### Chemical composition, wt.%

	C	Si	Mn	P	S	Cr	Ni
Min		0,10	0,5				
Typical	0,05	0,2	0,8	0,015	0,015		
Max	0,10	0,40	1,0	0,030	0,020	0,1	0,2

	Mo	Cu	V	Nb
Min				
Typical				
Max	0,1	0,2	0,05	0,05

### Mechanical properties

	<u>Specified</u>	<u>Typical</u>
Yield strength, Re:	≥ 380 N/mm <sup>2</sup>	450 N/mm <sup>2</sup>
Tensile Strength, Rm:	470-550 N/mm <sup>2</sup>	530 N/mm <sup>2</sup>
Elongation, A5	≥ 22%	24%
Impact energy, CV:	-20°C • ≥47 J	-20°C • 50 J

### Classification:

EN 499-95 E 38 2 R 12  
AWS A5.1-91 E 6013

### Approvals:

UDT E 38 2 R 12  
BV 3  
DNV 3  
MOD (Navy) MS < 25 mm, B & BX < 12 mm  
LR 3m, 3Ym

### Note

Core wire:  
P < 0.015 %  
S < 0.015 %  
N < 0.008 %

### Product data

Diam.mm	Length mm	Product code	Current A	Voltage V	Kg weld metal/kg electrodes	No. of electrodes/kg weld metal	Kg weld metal/hour arc time	Burn-off time/electrode (sec.)
2,50	350	71312500	70-100	18	0,62	88	0,9	45
3,25	350	71313235	90-120	19	0,69	48	1,3	40
3,25	450	71313200	90-120	19	0,69	36	1,3	53
4,00	450	71314000	130-180	20	0,71	25	1,7	61
5,00	450	71315000	160-240	25	0,73	23	2,1	76