

Rutile Electrodes





AMA 23 AK

Standards: EN 499 E 380 RC 11
 DIN 1913 E 43 22 R (C) 3
 AWS/ASME SFA - 5.1 E 6013

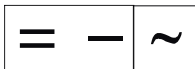
Application / Properties: Rutile - Cellulosic type for general assembly work, also on lighter sheet. Highly suitable for sheet metal containers, storage vessels and tanks. Excellent all-position weld ability including vertical - up and down .Ideal for fillet welding in the vertical - down position.

Weld metal analysis in % (typical)

C	Mn	Si	S	P
0.08	0.50	0.30	<0.02	<0.02

Mechanical Properties of all-weld metal : (single values are typical values)

Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation A5 (%)	ISO-V Impact energy (J)	
			+ 20 °C	0 °C
>360	550-450	>22	>60	>50



Amperage:

2.5Ø	3.25	4.0Ø	5.0Ø
60-85	90-130	130-180	180-240



Materials:

Unalloyed Structural steels	St 33, St 37, St 44
Boiler plates	HI, HII
Pipe steels	U St 37.0, St 37.0, St 37.4, St 44.0, St 44.4, St 52.0, St 52.4, St 35.8, St 45.8, St E210.7, St E240.7, St E 290.7, St E320.7, St E 360.7
Shipbuilding steels	A, B
cast steels	GS-38, GS-45

Approval: LRS

Redrying : If necessary 1 h at 100-120 C



AMA 1008 A

Standards: AWS/ASME SFA - 5.1 E 7014

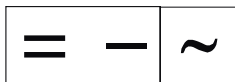
Application / Properties: High metal recovery rutile electrode, due to iron power. Suitable for welding AC and DC. Easy removal & smooth bead appearance.

Weld metal analysis in % (typical)

C	Mn	Si	S	P
0.09	0.45	0.35	0.02	0.02

Mechanical Properties of all-weld metal : (single values are typical values)

Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation A5 (%)	ISO-V Impact energy (j) + 20°C
>400	>490	>20	>70



Amperage:		
Electrode dia (mm)	Electrode length (mm)	Amperage (A)
5.0Ø	450	180-280



Weld position: Flat, Fillet

Redrying : If necessary 1 h at 100-120 C



AMA 1303 C

Standards: AWS/ASME SFA - 5.1 E 6019

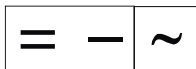
Application / Properties: Rutile electrode with suitable penetration and mechanical properties. This electrode use for thick section steel fabrication. Easy arc striking, welability in all position are some

Weld metal analysis in % (typical)

C	Mn	Si	S	P
0.08	0.5	0.25	<0.02	<0.02

Mechanical Properties of all-weld metal :
(single values are typical values)

Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation A5 (%)	ISO-V Impact energy (j) -18 °C
400-550	>360	>22	>27



Amperage:			
2.5Ø	3.25 Ø	4.0Ø	5.0Ø
60-85	90-130	135-160	160-210



Materials:

Unalloyed Structural steels St33, St 37, St 44
 Boiler plates HI, HII
 Pipe steels USt 37.0, St 37.4, StE 240.7, St 44.4, StE 320.7, StE 360.7, St 45.8, StE 45.8, StE 210.7, StE240.7, StE 290.7, StE320.7, St 360.7
 Shipbuilding steels A, B
 cast steels GS-38, GS-45

Approval: LRS

Redrying : If necessary 1 h at 100-120 C



AMA 1531

Standards: EN499
DIN 1913
AWS/ASME SFA-5.1

E 38 2RB12
E 43 43 RR (B) 7
E 6013

Application / Properties: Electrode with particular Suitability for welding root passes and positional welding in pipework, boiler and tank construction. Well-suited for depositing backing-up beads in submerged arc welding. Having a low Si-content Weld metal is particularly suited for subsequent galvanizing or

Weld metal analysis in % (typical)

C	Si	Mn
0.08	0.2	0.6

Mechanical Properties of all-weld metal : (single values are typical values)

Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation (A5)%	ISO-V Impact energy (j)	
			+20°C	-20°C
470-600	380	20	100	70



Amperage:

2.5Ø	3.25 Ø	4.0Ø	5.0Ø
70-90	100-150	140-190	220-260



Material:

Unalloyed Structural steels Boiler plates Pipe steels	St 33 to St 44 H I, H II, 17 Mn 4 to St 52.4 St 35.8 to 17 Mn 4 StE 210.7 to StE 385.7
Fine grain structural steels	StE 255 to StE 380 WStE 255 to WStE 380
Shipbuilding steels cast steels	A, B, D, E GS-38toGS-52

Redrying : If necessary 1 h at 100-1200 C



AMA 2000 A

Standards: EN 499 E 420 RR 12
 DIN 1913 E 51 22 RR 6
 AWS/ASME SFA - 5.1 E 6013

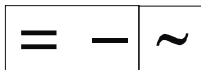
Application / Properties: Thick-coated, rutile type electrode for light section iron and steel fabrication, regular bead appearance of butt and fillet welds, absence of undercutting and self-detaching slag.

Weld metal analysis in % (typical)

C	Mn	Si	S	P
0.08	0.60	0.45	<0.02	<0.02

Mechanical Properties of all-weld metal :
 (single values are typical values)

Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation A5 (%)	ISO-V Impact energy (J)	
			+ 20 °C	0 °C
>360	>450	>22	>60	>50



Amperage:			
2.5Ø	3.25 Ø	4.0Ø	5.0Ø
70-100	110-140	140-190	160-220



Material:

Unalloyed Structural steels	St 33, St 37, St 44
Boiler plates	HI, HII, 17 Mn4
Pipe steels	U St 37.0, St 37.0, St 37.4, St 44.0, St 44.4, St 52.0, St 52.4, St 35.8, St 45.8, St E210.7, St E240.7, St E 290.7, St E320.7, St E 360.7
Shipbuilding steels	St 35.8 to 17 Mn4
cast steels	A, B GS-38, GS-45

Redrying : If necessary 1 h at 100-120 C



AMA MK 14

Standards: AWS/ASME SFA - 5.1 E 6013
 DIN 1913 E 4333 R (C) 3

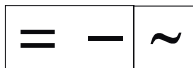
Application / Properties: Medium coated rutile-electrode, suitable for welding of mid steel application. Easy arc striking, weldability in all position, easy detachable slag & clean without undercut, are some properties of this electrode.

Weld metal analysis in % (typical)

C	Mn	Si	S	P
0.08	0.6	0.45	<0.02	<0.02

Mechanical Properties of all-weld metal :
 (single values are typical values)

Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation A5 (%)	ISO-V Impact energy (J)	
			+ 20 °C	0 °C
>360	450-570	>22	>60	>50



Amperage:

2.5Ø	3.25 Ø	4.0Ø	5.0Ø
60-85	90-140	130-180	180-240



Material:

Unalloyed Structural steels	St 33, St 37, St 44 HI, HII, 17 Mn 4
Boiler plates	St 35.8, St 37.0, St 37.4, USt 37.0, St 44.0, St 44.4, St 45.8,
Pipe steels	StE 210.7, StE 290.7, StE 320.0, StE 360.7 A, B, D GS-38, GS-45, GS-52
Shipbuilding steels	
cast steels	

Approval: LRS

Redrying : If necessary 1 h at 100-120 C



AMA PL

Standards: AWS/ASME SFA - 5.1 E 6013
DIN 1913 E 4322 R (C) 3

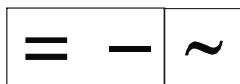
Application / Properties: rutile-Cellulosic electrode, suitable for welding of the small diameter gas pipes in vertical down position. Good penetration easy striking & restriking, smooth bead appearance without undercut, and low spatter arc some properties of this electrode.

Weld metal analysis in % (typical)

C	Mn	Si	S	P
0.07	0.40	0.35	<0.02	<0.02

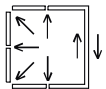
Mechanical Properties of all-weld metal : (single values are typical values)

Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation A5 (%)	ISO-V Impact energy (j) + 20 °C
>360	450-550	>22	>60



AC, DC+

Electrode dia(mm) Amperage(A)	Electrode Length(mm)



Material:

Unalloyed Structural steels St 33, St 37, St 44
Pipe steels St 35.8, St 37.0, USt 37.0, St 44.0, St 44.4,
St 45.8, StE 210.7, StE 240.7, StE 290.7, StE 320.7

Welding position : All position

Redrying : If necessary 1 h at 100-120 C