



Approved by  
 Engineers India Ltd.  
 Projects & Development (I) Ltd.  
 Nuclear Power Corporation  
 Toyo Engineering (I) Ltd.  
 BPCL

**ANAND - 2A**  
 Stainless Steel Electrode

**Description**

A rutile coated, all position electrode capable of depositing 316 type of weld metal with normal carbon content. The weld has excellent resistance to corrosive agents of reducing nature and also has good creep strength. The weld metal is of radiographic quality.

**Typical Applications**

For welding ANSI 316, 317 types of stainless steel. It finds application in aper, textile, paint and chemical process industries.

**Classifications**

AWS : A 5.4 E 316 - 16  
 IS : 5206 E 19.12 - 2 R 26

**Welding Current (Amps.)  
 DC (+)**

2.50 mm	3.15 mm	4.0 mm	5.0 mm
40 - 60	60 - 95	95 - 135	135 - 175

**Typical Weld  
 Metal Analysis (%)**

C	Mn	Si	Cr	Ni	Mo	S	P
0.045	1.5	0.45	18.0	12.0	2.30	0.010	0.030

**Typical Mechanical  
 Properties**

UTS : 590 mpa (N/mm<sup>2</sup>)  
 Elongation % (l=4d) : 38.0  
 Ferrite % : 6.5

**Packing Specifications**

Size (mm)	Pcs. Per Carton	Pcs. Per Box	Pcs. Per Kg.
2.50 x 350	110	440	47
3.15 x 350	70	280	30
4.00 x 350	50	200	19
5.00 x 350	30	120	12

**ANAND ARC LTD.**

**(AN ISO 9001 COMPANY)**

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**ANAND - 1A**  
 Stainless Steel Electrode

**Description**

A rutile coated, all position electrode capable of depositing 308 type of weld metal with normal carbon content. The bead finish is good and slag removal is easy. The weld metal has excellent resistance to corrosion and cracking and it has good creep strength. The weld metal is of radiographic quality.

**Typical Applications**

For welding ANSI 301, 302 and 304 types of stainless steel. It finds application in food and chemical process industries. It can be used to weld steel with poor weldability.

**Classifications**

AWS : A 5.4 E 316 - 16  
 IS : 5206 E 19.9 - R 26

**Welding Current (Amps.)**

AC/DC (+)

2.50 mm	3.15 mm	4.0 mm	5.0 mm
40 - 60	60 - 95	95 - 135	135 - 175

**Typical Weld Metal Analysis (%)**

C	Mn	Si	S	P	Cr	Ni
0.045	1.50	0.45	0.015	0.030	19.5	10.0

**Typical Mechanical Properties**

UTS : 590 mpa (N/mm<sup>2</sup>)  
 Elongation % (l=4d) : 40.0  
 Ferrite % : 6.5

**Packing Specifications**

Size (mm)	Pcs. Per Carton	Pcs. Per Box	Pcs. Per Kg.
2.50 x 350	110	440	47
3.15 x 350	70	280	30
4.00 x 350	50	200	19
5.00 x 350	30	120	11

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**ANAND ARC**

**Description**

**Typical Applications**

**Classifications**

**Welding Current (Amps.)**

**AC/DC (-)**

**Weld Metal Analysis (%)**

**Typical Mechanical Properties**

**Packing Specifications**

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Indian Register of Shipping - Gr.2  
Uhde India Ltd.  
L&T

**ANAND PLUS**  
All Purpose  
M.S. Electrode



**TECHNICAL DATA**

A medium rutile coated, all position electrodes with smooth operating characteristics. The electrode gives medium penetration and east spatter. The electrode has uniform weld bead easily detachable slag and radiographic quality weld metal. The electrode is ideally suited for structural work and general fabrication.

For fabrication of tanks, barges ships, railway wagons boilers etc. And for structural work, grill work and general fabrication.

AWS : A 5.1 E 6013  
IS : 814 ER 4222 X

2.50 mm	3.15 mm	4.0 mm	5.0 mm	6.3 mm
60 - 90	90 - 140	140 - 175	175 - 210	210 - 270

<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>S</b>	<b>P</b>
0.10 Max	0.15 - 0.40	0.08 - 0.30	0.030 Max	0.030 Max

UTS : 500 mpa (N/mm<sup>2</sup>)  
YS : 420 mpa (N/mm<sup>2</sup>)  
Elonation % (l=4d) : 24.0  
ZCVN Impact at 0°C : 60 Joules

Size (mm)	Pcs. Per Carton	Pcs. Per Box	Pcs. Per Kg.
2.50 x 350	275	1100	60
3.15 x 350	150	600	36
3.15 x 450	150	600	28
4.00 x 350	105	420	18
5.00 x 350	70	280	11
6.30 x 450	40	160	7

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Toyo Engineering (I) Ltd  
Essar Projects Ltd  
Uhde India Ltd  
M N. Dastur & Co  
BPCL. HPCL. IOCL. BHEL  
L&T

**ANAND - S**

General Purpose  
Mild Steel Electrode

IS 814



CM/L 2007327

**Description**

**TECHNICAL DATA**

A medium heavy rutile coated, all position mild steel electrode with excellent welding characteristics producing finely rippled weld metal It is easy to operate even in vertical down position The weld metal is of radiographic quality.

**Typical Applications**

General fabrication, steel structures, pressure vessels, ship building, boilers, Auto bodies etc.

**Classifications**

AWS : A 5.1 E 6013  
IS : 814 ER 4212 X

**Welding Current (Amps.)  
AC/DC (-)**

2.00 mm	2.50 mm	3.15 mm	4.0 mm	5.0 mm	6.3 mm
40 - 60	60 - 90	90 - 140	140 - 180	180- 230	230 - 300

**Weld  
Metal Analysis ( %)**

<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>S</b>	<b>P</b>
0.10 Max	0.30 - 0.60	0.12 - 0.40	0.030 Max	0.030 Max

**Typical  
Mechanical Properties**

UTS : 510 mpa (N/mm<sup>2</sup>)  
YS : 450 mpa (N/mm<sup>2</sup>)  
Elongation % (l=4d) : 26.0  
ZCVN Impact at 0 ° : 70 Joules  
% R.A : 50-70

**Packing Specifications**

Size (mm)	Pcs. Per Carton	Pcs. Per Box	Pcs. Per Kg.
2.00 x 300	360	1440	103
2.50 x 350	250	1000	57
3.15 x 350	150	600	35
3.15 x 450	150	600	27
4.00 x 450	100	400	17
5.00 x 450	60	240	11
6.30 x 450	30	120	7

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 Nuclear Power Corporation  
 Directorate of Steam Boilers (IBR)  
 Toyo Engineering (I) Ltd  
 Essar Projects Ltd  
 BPCL  
 L&T  
 HPCL  
 IOCL



## Description

### TECHNICAL DATA

A heavy basic coated, all positions, low hydrogen electrode having excellent welding characteristics such as good penetration easy slag removal and low spatter.

The weld metal is of radiographic quality and has excellent notch toughness even at -30°C Weld metal recovery is approx. 115%

## Typical Applications

Pressure Vessels. Boilers, Pipe line Tanks and for welding of restrained joints and structures designed for service down to -30°C

## Classifications

AWS : A 5.1 E 7018  
 IS : 814 EB5426 H,JX / E85426 H3JX

## Welding Current (Amps.) AC/DC (+)

2.50 mm	3.15 mm	4.0 mm	5.0 mm	6.3 mm
65 - 90	100 - 140	150 - 200	200 - 250	250 - 320

## Weld Metal Analysis (%)

<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>S</b>	<b>P</b>
0.10 Max	0.90 - 1.60	0.25 - 0.65	0.030 Max	0.030 Max

## Typical Mechanical Properties

UTS : 590 mpa (N/mm<sup>2</sup>)  
 YS : 500 mpa (N/mm<sup>2</sup>)  
 Elongation % (l=4d) : 26.0  
 CVN Impact at 30°C : 80 Joules  
 % R.A : 70

## Packing Specifications

Size (mm)	Pcs. Per Carton	Pcs. Per Box	Pcs. Per Kg.
2.50 x 350	250	1000	57
3.15 x 350	150	600	35
4.00 x 450	100	400	17
5.00 x 450	60	240	11
6.30 x 450	30	120	7

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## ANAND ARC PRODUCTS

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# ELECTRODE DETAILS

## ANAND PLUS

Classification: AWS E 6013 IS ER 4222X

Approved by: IRSGR2, UHDE, L&T, BIS

ANAND PLUS is an all purpose mild steel electrode ideally suited for welding in all positions using AC and DC power Sources. High rutile content ensures soft arc, easily detachable slag, and uniform weld bead and the weld metal is of radiographic quality. Recommended for welding of tanks, barges, wagons, autobodies etc. and general fabrication.

C	Typical Weld Properties		Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces metal Per Box
	Mn	Si				
0.090	0.30	0.12	2.00x300	40-60	375	1500
UTS	500mpa(N/mn <sup>2</sup> )		2.50x350	60-90	275	1100
YS	420mpa(N/mm <sup>2</sup> )		3.15x350	90-140	150	600
EI	24.0%		3.15x450	90-130	150	600
(l=4d)			4.00x450	140-170	105	420
CVN impact			5.00x450	170-200	70	280
at 0°C		60Joules	6.30x450	210-270 AC/DC (-)	40	160

## ANAND - S

Classification : AWS E 6013 IS ER 4212X

Approved by : LRS-Gr2, ABS-Gr2, IRS-Gr2, BV-Gr2, DNV-Gr2, EIL, PDIL, BIS, NPC, IBR, CRL, BPCL, TOYO ENGG., UHDE INDIA, ICB, MN DASTUR & CO., ESSAR PROJECTS LTD., IOCL, L&T.

A medium heavy rutile coated, all position electrode for general fabrication and structural work- The welding characteristics include smooth arc, easy slag removal, minimum spatter and well rippled bead. Weld metal is of radiographic quality. Recommended for welding of Ships, Pressure Vessels, Pipe lines, storage tanks, Boilers, Automobile bodies, railway wagon and general fabrication.

C	Mn	Si				
%0.080	0.45	0.20	2.00x300	40-60	360	1440
UTS	510mpa(N/mn <sup>2</sup> )		2.50x350	60-90	250	1000
YS	450mpa(N/mm <sup>2</sup> )		3.15x350	100-140	150	600
EI	24.0%		3.15x450	100-130	150	600
(l=4d)			4.00x450	140-180	100	400
CVN impact			5.00x450	180-230	60	240
at 0°C		70Joules	6.30x450	230-300 AC/DC (-)	30	120

## ANAND - SS

Classification : AWS E 6013 IS : ERR 4222X / ERR 4222X

Approved by : BIS, IBR

A heavy coated, rutile type, all position electrode with excellent welding characteristics. The welding speeds are higher and the weld metal is of radiographic quality. The electrode can be used for "touch welding". Application includes Welding of Boilers, Bridges, Ships, Compressors, Automobile parts etc. and rapid filling of gaps.

C	Mn	Si				
%0.080	0.45	0.20	2.50x350	60-90	175	700
UTS	510mpa(N/mn <sup>2</sup> )		3.15x450	100-140	105	420
YS	450mpa(N/mm <sup>2</sup> )		4.00x450	140-190	65	260
EI	26.0%		5.00x450	190-250	40	160
(l=4d)				AC/DC(-)		
CVN impact						
at 0°C		70Joules				

## ANAND - 714

Classification : AWS E 7014 IS : ERR 5222JX

A medium heavy coated, all position electrode, containing iron powder in the coating. The electrode is capable of taking higher currents and thus gives higher welding output. The weld metal is of radiographic quality and the deposition efficiency is approx. 110%. Recommended for general fabrication, welding of thicker sections, making corner joints, and any other applications requiring higher welding output and fast deposition rate.

C	Mn	Si				
%0.090	0.5	0.4	2.50x350	70-100	175	700
UTS	510mpa(N/mn <sup>2</sup> )		3.15x450	100-150	105	420
YS	420mpa(N/mm <sup>2</sup> )		4.00x450	150-200	65	260
EI	26.0%		5.00x450	200-250	40	160
(l=4d)				AC/DC(-)		
CVN impact						
at 0° C		60Joules				

# ELECTRODE DETAILS

## ANAND -724

Classification : AWS E 7024 IS : ERR 5235KX

A heavy coated iron powder, electrode with a deposition efficiency of approx. 140%. The electrodes can take high currents, thereby increasing welding productivity. Ideal for touch welding in flat and horizontal positions. The weld is of radiographic quality. Suitable for heavy machine parts, heavy structural work like welding of columns and girders, ship building etc.

C	Typical Weld metal Properties		Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
	Mn	Si				
%0.07	0.55	0.35	2.50x350	80-120		
UTS	510mpa(N/mm <sup>2</sup> )		3.15x450	130-170	75	300
YS	420mpa(N/mm <sup>2</sup> )		4.00x450	80-240	45	180
EI	25.0%		5.00x450	250-290	35	120
(L=4d)						
CVN impact				AC/DC(-)		
at 0°C		70Joules				

## LOW HYDROGEN ELECTRODE

### ANAND SUPER PLUS

Classification : AWS E 7016 IS : EB5426H<sub>3</sub>X

Approved by : BIS, BPCL, EIL, PDIL

A medium heavy coated, all position, low hydrogen electrode for welding of Carbon Steels. It is also suitable for joining mild steel to cast steel, for depositing non-machinable welds on Cast iron and as a buffer layer before hardfacing. Recommended for fabrication of Boilers, Pressure Vessels, ships etc. and for welding cast steel, cast iron, mild and low-alloy steels.

C	Mn	Si				
%0.08	1.0	0.40	2.50x350	60-90	225	900
UTS	590mpa(N/mm <sup>2</sup> )		3.15x450	95-140	130	520
YS	500mpa(N/mm <sup>2</sup> )		4.00x450	140-180	85	340
EI	26.0%		5.00x450	180-240	55	220
(l=4d)			6.30x450	240-310	30	120
CVN impact				AC/DC(+)		
at - 30° C		80Joules				

## ANANDTHERME

Classification : AWS E 7018 IS : EB5426H<sub>3</sub>JX / EB5426H<sub>3</sub>X

Approved by : LRS-Gr3YH, ABS-Gr3YH, IRS-Gr3YH, BV-Gr3YH, DNV-Gr3YH, EIL, PDIL, BIS, NPC, IBR, UHDE INDIA, TOYO ENGG., ICB, BPCL, MN DASTUR & CO., ESSAR PROJECTS LTD., IOCL, L&T.

A heavy basic coated, low hydrogen iron powder type of electrode with excellent welding characteristics. The weld metal is ductile, crack resistant and is of radiographic quality. Easy to operate in all position efficiency is approx. 115%. Suitable for welding of pressure vessels, Restrained joints, Penstocks, ship construction, Boilers, Bridges etc.

C	Mn	Si				
%0.080	0.12	0.40	2.50x350	60-90	150	600
UTS	590mpa(N/mm <sup>2</sup> )		3.15x450	100-140	105	420
YS	500mpa(N/mm <sup>2</sup> )		4.00x450	150-200	70	280
EI	26.0%		5.00x450	200-240	45	180
(L=4d)			6.30x450	250-320	30	120
CVN impact				AC/DC(+)		
at 30°C		70Joules				

## ANANDTHERME (SPL)

Classification : AWSE 7018-1 IS : EB5626H<sub>3</sub>JX

Approved by : UHDE, EIL, NPC, TOYO ENGG.

A heavy coated, low hydrogen iron powder type of electrode, specially designed for high CVN impact values down to - 50 C. The weld metal is resistant to cracking and is of radiographic quality. Metal recovery approx. 110% Suitable for welding of pressure vessels & Equipments, subjected to severe stress and low temperatures down to - 50 C, Ammonia Storage tanks, Hortonspheres etc.

C	Mn	Si				
%0.08	1.3	0.30	2.50x350	60-90	150	600
UTS	590mpa(N/mm <sup>2</sup> )		3.15x450	100-140	105	420
YS	500mpa(N/mm <sup>2</sup> )		4.00x450	150-200	70	280
EI	26.0%		5.00x450	200-240	45	180
(l=4d)			6.30x450	250-320	30	120
CVN impact				AC/DC(+)		
at - 45° C		60Joules				

# ELECTRODE DETAILS

## LOW ALLOY, HIGH TENSILE ELECTRODES

### ANANDTHERME - Ni

Classification : AWS E 7018-G IS : EB5626H2JX

A medium heavy coated iron powder, low hydrogen type of electrode, yielding 0.5% Ni in the weld metal. The weld metal is of radiographic quality and has good notch toughness down to -60 C. The deposition efficiency is 115% approx. Recommended for welding heavy sections, restrained joints, requiring good notch toughness down to -50 C and for welding fine grained steel containing Ni upto 1%.

C	Typical Weld metal Properties		Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
	Mn	Si				
%0.07	1.4	0.30	2.50x350	70-100	150	600
	Ni		3.15x450	100-140	105	420
	0.60		4.00x450	140-180	70	280
	UTS 550mpa(N/mn <sup>2</sup> )		5.00x450	180-250	45	180
	YS 480mpa(N/mm <sup>2</sup> )		6.30x450	250-320	30	120
	EI(l=4d) 27.0%			AC/DC(+)		
	CVN impact at -50° C	50Joules				

### ANANDTHERME - Ni (X)

Classification : AWS E 8018-G IS : E55BG129Fe

Approved by: EIL

A basic coated, low hydrogen, iron powder type of electrode yielding 1.5% Mn and 0.7% Ni in the weld metal. Recommended for welding of fine grained, high strength Q & T steels, Penstocks, Pressure vessels etc., where a combination of high strength and sub-zero impact toughness are called for.

Also recommended for welding of low alloy steels, containing Ni upto 1%.

The welds are of radiographic quality and has good notch toughness down to -60 C. The deposition efficiency is approx. 115%.

C	Mn	Si	Ni	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
%0.07	1.6	0.20	0.75				
	UTS 580mpa(N/mm <sup>2</sup> )			3.15x450	100-140	105	420
	YS 500mpa(N/mm <sup>2</sup> )			4.00x450	140-180	70	280
	EI 26.0%			5.00x450	180-250	45	180
	(l = 4d)			6.30x450	250-320	30	120
	CVN impact at -60°C	70Joules			AC/DC(+)		

### ANAND-818W

Classification : AWS E 8018-W2 IS : E55BG 129 Fe

A basic coated all position electrode, designed for welding of weathering steels such as Corten A, Corten B etc. The weld metal has excellent resistance to atmospheric corrosion and is of radiographic quality. Suitable for welding of weathering steel used in the construction of Railway wagons, Bridges etc. and also high tensile steels.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box	
%0.06	0.7	0.4					2.50x350
	Cr	Ni	Cu	3.15x450	100-140	105	420
	0.6	0.7	0.5	4.00x450	140-180	70	280
	UTS 580mpa(N/mn <sup>2</sup> )			5.00x450	180-230	45	180
	YS 500mpa(N/mn <sup>2</sup> )			6.30x450	240-310	30	120
	EI(l=4d) 25.0%				AC/DC(+)		
	CVN impact at - 20° C	60Joules					

### ANAND-918

Classification : AWS E 9018 - M IS : E63BM 129 Fe

Hydrogen controlled, Iron powder type of electrode for all position welding of high tensile, low alloy structural steels. The weld metal has good notch toughness down to -51 C and is of radiographic quality. Ideal for welding penstocks, machinery parts, heavy duty structures, Pressure vessels, Pipings etc.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box	
%0.05	1.0	0.5					2.50x350
	Ni	Mo		3.15x450	100-140	105	420
	1.7	0.3		4.00x450	140-180	70	280
	UTS 650mpa(N/mm <sup>2</sup> )			5.00x450	180-250	45	180
	YS 580mpa(N/mm <sup>2</sup> )			6.30x450	240-310	30	120
	EI(l=4d) 24.0%				AC/DC(+)		
	CVN impact at - 50° C	50Joules					

### ANAND-918W

Classification : AWS A5.5E 9018 - G IS : E63B-D124J

A low hydrogen, Low Alloy Steel, Iron powder electrode specially designed for welding of high strength Railway/Concor wagons. The electrode is also suitable for welding of High Tensile Steels, Pen stocks, Machinery Parts and heavy duty structures.

C	Mn	Si	Mo	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box	
%0.06	1.30	0.20	0.25					2.50x350
	to 0.10	to 1.75	0.45	0.45	3.15x450	100-140	105	420
					4.00x450	140-180	70	280
	UTS 630-670mpa(N/mn <sup>2</sup> )				5.00x450	180-250	45	180
	YS 530-570mpa(N/mn <sup>2</sup> )				6.30x450	240-310	30	120
	EI(l=4d) 20-25%					AC/DC(+)		
	RA 48-60%							
	CVN impact at - 50° C	30-65 Joules						
	at R.T.	90-140 Joules						



# ELECTRODE DETAILS

## ANAND MONICHROM

Classification : AWS E 10016 G IS : E68BG126Fe

Anand Monichrom is a low hydrogen, low alloy all position electrode. The weld metal has very high tensile strength and is resistant to high temperature abrasion, Recommended for welding high strength steels, earth moving equipment etc. and repair welding of hot forging dies, mould, steam turbine rotors etc.

Typical Weld metal Properties			Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
C	Mn	Si				
%0.06	1.3	0.3	2.5x350	60-90	225	900
Cr	Ni	Mo	3.15x450	100-140	130	520
1.0	2.5	0.7	4.0x450	140-180	85	340
UTS 800mpa(N/mm <sup>2</sup> )			5.0x450	190-240	55	220
YS 700mpa(N/mm <sup>2</sup> )			6.3x450	250-320	30	120
El(l=4d) 20.0%				AC/DC(+)		
CVN impact at 50Joules at -50° C						

## ANAND 1118

Classification : AWS : E 11018-M IS : E76BM329Fe

A low hydrogen, low alloy, iron powder electrode for all position welding of high tensile, fully killed, fine grained, quenched and tempered steels. The weld metal has good notch toughness down to -51 C and is of radiographic quality. Ideal for welding of penstocks, heavy duty structures, earth moving equipment and high strength steels such as HY80 and SA517 grades.

C	Mn	Si				
%0.06	1.5	0.45	2.50x350	60-90	150	600
Cr	Ni	Mo	3.15x450	100-140	105	420
0.3	2.1	0.4	4.00x450	140-180	70	280
UTS 800mpa(N/mm <sup>2</sup> )			5.00x450	180-240	45	180
YS 740mpa(N/mm <sup>2</sup> )			6.30x450	250-320	30	120
El(l=4d) 24.0%				AC/DC(+)		
CVN impact 55Joules at - 50° C						

## ANAND MOLY

Classification : AWS : E 7018 -A1 IS : E49BA126Fe

A low hydrogen, iron powder type, all position electrode yielding a ductile and creep resistant weld metal containing 0.5% Mo. The weld metal is of radiographic quality. Suitable for welding 1/2 Mo and 1 Cr-1/2 Mo steels, boiler tubes and plates, and for other high temperature applications upto 525 C.

C	Mn	Si					
%0.07	0.75	0.35	2.5x350	60-90	145	580	
			Mo	3.15x450	100-140	105	420
			0.5	4.0x450	140-180	70	280
UTS 550mpa(N/mm <sup>2</sup> )			5.0x450	180-250	50	200	
YS 460mpa(N/mm <sup>2</sup> )			6.3x450	250-320	30	120	
El(l=4d) 26.0%				AC/DC(+)			
CVN impact 150Joules at R.T							

## ANAND CHROM -1

Classification : AWS : E 8018 - B2 IS : E55B-B2 26 Fe

Approved by : EIL

A low hydrogen, iron powder type, all position electrode yielding a creep resistant weld metal containing 1.25% Cr. and 0.5% Mo. The weld metal is of radiographic quality and has creep resistance upto 550 C. Recommended for welding 1 Cr 0.5 Mo and 0.5 Cr- 0.5 Mo steels, used in Boilers, super heaters, pipelines, oil refineries etc.

C	Mn	Si				
%0.06	0.80	0.45	2.5x350	60-90	145	580
Cr	Mo		3.15x450	100-140	105	420
1.35	0.55		4.0x450	140-180	70	280
UTS 600mpa(N/mm <sup>2</sup> )			5.0x450	180-240	50	200
YS 500mpa(N/mm <sup>2</sup> )			6.3x450	240-320	30	120
El(l=4d) 25.0%				AC/DC(+)		
Creep Strength 120Joules at 550° C						

## ANAND CHROM - 2

Classification : AWS : E9018 - B3 IS : E63B-B3 26Fe

Approved by : EIL

A low hydrogen, iron powder type, all position electrode yielding a creep resistant weld metal containing 2.25% Cr. and 1% Mo. The weld metal is of radiographic quality and has creep resistance upto 600 C. Recommended for welding 2.25% Cr. 1 % Mo steels, used in Boilers, oil refineries power plants etc. at service temp. upto 600 C.

C	Mn	Si				
%0.06	0.80	0.45	2.5x350	60-90	145	580
Cr	Mo		3.15x450	100-140	105	420
2.2	1.1		4.0x450	140-180	70	280
UTS 650mpa(N/mm <sup>2</sup> )			5.0x450	180-240	50	200
YS 560mpa(N/mm <sup>2</sup> )			6.3x450	240-320	30	120
El(l=4d) 23.0%				AC/DC(+)		
Creep Strength 90Joules at 575° C						

# ELECTRODE DETAILS

## ANAND CHROM - 5

Classification : AWS : E 8018 - B6 IS:41BB626Fe

Approved by : EIL

A low hydrogen, Iron powder type, all position electrode yielding a creep resistant weld metal containing 5% Cr. and 0.5% Mo. The weld metal is of radiographic quality and has excellent creep resistance upto 550 C. Recommended for welding of 5 Cr 0.5% Mo steels for high temperature applications in oil refineries, power plants, fertilizer and pharmaceutical industries.

Typical Weld metal Properties			Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
C	Mn	Si				
%0.07	0.80	0.4	2.5x350	60-90	145	580
Cr	Mo		3.15x450	100-140	105	420
5.0	0.5		4.0x450	140-180	70	280
UTS	580mpa(N/mn <sup>2</sup> )		5.0x450	180-240	50	200
YS	500mpa(N/mn <sup>2</sup> )		6.3x450	240-320	30	120
El(I=4d)	23.0%			AC/DC(+)		
Creep Strength at 575° C	80Joules					

## HARDFACING ELECTRODES

### ANAND C -1

A medium heavy coated, rutile type of electrode, depositing an air hardening type of weld metal of approx. 250 BHN hardness. The weld metal is machinable. Recommended for Gears, Shafts, Axles, Pinion teeth and Machinery parts where moderate hardness and toughness combined with easy machinability is desired.

Hardness 250 BHN on 3rd Layer	3.15x450	100-140	130	520
	4.0x450	140-180	85	340
	5.0x450	180-220	55	220
		AC/DC(-)		

### ANAND C - II

A medium heavy coated, rutile type of electrode, depositing an air hardening type of weld metal of approx. 350 BHN hardness. A buffer layer of ANAND SUPER PLUS is recommended on hard base materials. The weld metal is machinable. Suitable for Shear blades, shafts, axles, pulleys, brake shoes, couplings, conveyor parts, steel castings etc.

Hardness 400 BHN on 3rd Layer	3.15x450	100-140	130	520
	4.0x450	140-180	85	340
	5.0x450	180-220	55	220
	6.3x450	220-290	30	120
		AC/DC(-)		

### ANAND C- III

A medium heavy coated, rutile type of electrode, depositing an air hardening type of weld metal of approx. 600 BHN hardness. The weld metal consists of hard chromium carbides in a martensitic matrix. It is non machinable and can only be ground. The electrode is recommended for hard facing where severe conditions of abrasion, friction, accompanied by moderate impact exist. Suitable for Shear blades, Shafts, axles, pulleys, brake shoes, couplings, conveyor parts, steel castings etc.

Hardness 600 BHN on 3rd Layer	3.15x450	100-140	130	520
	4.0x450	140-180	85	340
	5.0x450	180-220	55	220
		AC/DC(-)		

### ANAND C -III(LH)

A medium heavy coated, low hydrogen electrode depositing an air hardening type of weld metal of approx. 600 BHN hardness. The low hydrogen coating enables the electrode to be used on high carbon and high sulphur steels without the risk of underbead cracking or porosity. The electrode is recommended for hardfacing where severe conditions of abrasion, friction, accompanied by moderate impact exist. The weld is not machinable and can only be ground. Recommended for parts of earth-moving equipments, oil expellers, crusher hammers, shears, crane wheels, scraper blades, punching dies etc.

Hardness 600 BHN on 3rd Layer	3.15x450	100-140	110	440
	4.0x450	140-180	70	280
	5.0x450	180-220	40	160
		AC/DC(+)		

## ELECTRODE DETAILS

### ANAND C - V

A medium heavy coated, low hydrogen type, hardfacing electrode depositing alloyed cast iron type of weld metal. The weld metal is hard and extremely resistant to abrasion and metal to metal wear, has a hardness of approx. 600 BHN. Suitable for concrete mixer blades, excavator teeth, bucket lips, scarper blades, cement die rings, plough shares, oil expellers etc.

	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
Hardness 600 BHN on 3rd Layer	3.15x450	100-140	130	520
	4.0x450	140-180	85	340
	5.0x450	180-220	55	220
		AC/DC(+)		

### ANAND C-VI

A heavy coated hard facing electrode yielding weld metal, resistant to abrasion, corrosion, erosion, heat and impact. The weld metal has an as-deposited hardness of approx. 250 BHN, which increase to 500 BHN under impact in service. For hardfacing Mill hammers. Crusher mantles. Ingot lifting tongs, Industrial valves, coal mining cutters etc. and other applications involving abrasion, corrosion heat and impact.

Hardness	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
A.W. 250 BHN	2.5x350	60-80	150	600
W.H. 500 BHN	3.15x350	90-130	95	380
	4.0x350	140-180	60	240
	5.0x350	180-220	35	140
		AC/DC(+)		

### ANAND MANGAN

A basic coated, low hydrogen type of electrode, depositing austenitic weld metal of 12% Mn composition. The weld metal is tough and work hardens to more than 500 BHN in service under severe impact. Reconditioning of medium Manganese steel rail points and crossings, rock crusher jaws, crusher hammers, bulldozer teeth, dredger bucket, austenitic manganese steel castings etc.

Hardness	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
A.W. 200 BHN	3.15x450	100-140	105	420
W.H. 500 BHN	4.0x450	140-180	65	260
	5.0x450	180-220	40	160
		AC/DC(+)		

### ANAND HSS

Anand HSS, deposits high speed steel type of weld metal, corresponding to steel used for hot working and tool steels. The weld metal has an "As welded" hardness of approx. 600 BHN which is retained upto about 600 C. The weld metal also has resistance to "metal to metal wear", abrasion and impact. Recommended for surfacing of hot trimming tools. Hot shear blades, ingot lifting tongs, Rolling mill guides, punching and forming dies etc.

Hardness (A.W.) 600 BHN	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
	2.5x350	60-90	200	800
	3.15x350	100-140	115	460
	4.0x350	140-180	75	300
	5.0x350	180-220	45	180
		AC/DC(+)		

## STAINLESS STEEL ELECTRODES

### ANAND - IA

Classification : AWS : E 308-16 IS : E19.9R 26

Approved by : EIL, PDIL, CRL, NPC, BPCL, TOYO ENGG.

A normal carbon 19/10 type of stainless steel electrode with controlled ferrite.

The weld metal has good resistance to cracking, corrosion, and scaling upto 800 C. The weld metal is of radiographic quality. Suitable for welding stainless steels of AISI 301, 302, 304 and 308 composition. For fabrication of equipments used in food industry. Hospital apparatus, Pharmaceutical equipment etc.

**ANAND - IA - 15** conforming to AWS E 308-15 can also be manufactured on request.

Typical Weld metal Properties			Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
C	Mn	Si				
%0.045	1.55	0.45	2.0x300	35-45	210	840
Cr		Ni	2.5x350	40-60	110	440
19.0		0.0	3.15x350	60-95	70	280
UTS	590mpa(N/m <sup>2</sup> )		4.0x350	95-135	50	200
El(l=4d)	40.0%		5.0x350	130-175	30	120
Ferrite	5.0%			AC/DC(+)		

# ELECTRODE DETAILS

## ANAND -1B

Classification : AWS E 347 - 16 IS : E19.9 Nb R 26

A normal Carbon 19/10 stabilised stainless steel electrode with controlled ferrite, Niobium in the weld metal prevents Chromium Carbide precipitation and provides resistance to inter-granular corrosion. The weld metal has excellent creep strength and is of radiographic quality. Recommended for welding of AISI 304, 308, 321 and 347 composition, in application where the material has to withstand hot exhaust gases or high temperatures.

**ANAND-IB-15** conforming to AWS E 347 - 15 can also be manufactured on request.

Typical Weld metal Properties			Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
C	Mn	Si				
%0.045	1.55	0.45	2.5x350	40-60	110	440
Cr	Ni	Cb	3.15x350	60-95	70	280
19.0	10.0	0.45	4.0x350	95-135	50	200
UTS 590mpa(N/mm <sup>2</sup> )			5.0x350	135-175	30	120
El(l=4d) 40.0%				AC/DC(+)		
Ferrite 6.0%						

## ANAND - 1C

Classification : AWS E 308L-16 IS : E 19.9 Lr26

Approved by : PDIL, EIL, NPC.

An extra low carbon 19/10 type stainless steel electrode with controlled ferrite. Extra low Carbon content, in the weld metal, eliminates the chances of intergranular corrosion at elevated temperatures. The weld metal has excellent creep strength and is of radiographic quality. Suitable for welding stainless steels of AISI 301, 302, 304, 304L and 308 composition. Finds application in Nuclear Plant, Foodstuffs and chemical process industries.

**ANAND-IB-15** Conforming to AWS E 347-15 can also be manufactured on request.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
%0.030	1.55	0.45				
Cr	Ni		3.15x350	60-95	70	280
19.0	0.0		4.0x350	95-135	50	200
UTS 580mpa(N/mm <sup>2</sup> )			5.0x350	135-175	30	120
El(l=4d) 40.0%				AC/DC(+)		
Ferrite 6.0						

## ANAND - 2A

Classification : AWS E 316-16 IS : E 19.12.2 R 26

Approved by : EIL, PDIL, BPCL, TOYO ENGG.

A normal carbon 19/12/Mo type of stainless steel electrode with controlled ferrite. The weld metal has excellent resistance to corrosion agents of reducing nature and also has good resistance to pitting and is of radiographic quality. Suitable for welding AISI 316 and 317 type of stainless steels. It finds application in Paper, Textile, paints and chemical process industries.

**ANAND-2A-15** Conforming to AWS E 316-15 can also be manufactured on request.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
%0.045	1.5	0.45				
Cr	Ni	Mo	2.5x350	40-60	110	440
18.0	12.0	2.3	3.15x350	60-95	70	280
			4.0x350	95-135	50	200
UTS 590mpa(N/mm <sup>2</sup> )			5.0x350	135-175	30	120
El(l=4d) 38.0%				AC/DC(+)		
Ferrite 6.5%						

## ANAND - 2B

Classification : AWS E 318-16 IS : E 19.19.2 Nb R 26

Approved by : EIL.

A normal carbon 18/13/Mo, stabilised stainless steel electrode with controlled ferrite. It can be used in all positions to deposit weld metal resistant to pitting, stress corrosion cracking, chemical corrosion and intergranular corrosion.

The weld metal has excellent creep strength upto 850 and is of radiographic quality. Recommended for welding AISI 316, 317 and 318 types of stainless steels. For the fabrication of chemical plants, paper mill equipment, bleaching equipment, pickling plant etc.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
%0.045	1.5	0.45				
Cr	Ni	Mo Cb	3.15x350	60-95	70	280
18.0	12.0	2.3 0.45	4.0x350	95-135	50	200
UTS 590mpa(N/mm <sup>2</sup> )			5.0x350	135-175	30	120
El(l=4d) 38.0%				AC/DC(+)		
Ferrite 6.5%						



ANAND ARC

# ELECTRODE DETAILS

## ANAND -2C

Approved by: EIL, NPC

Classification : AWS E 316L - 16 IS : E19.12.2 Lr26

A extra low carbon 18/13/Mo type of stainless steel electrode with controlled ferrite. The weld metal has excellent resistance to intergranular corrosion even at elevated temperature. It also has good resistance to stress corrosion cracking & hot cracking and is of radiographic quality. Suitable for welding AISI 316L and 317L types of stainless steels. Finds application in chemical plants, paint, paper and textile industries.

**ANAND -2D** Conforming to AWS E 317- L-16 can also be manufactured on request.

Typical Weld metal Properties			Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
C	Mn	Si				
%0.030	1.5	0.45	2.5x350	40-60	110	440
Cr	Ni	Mo	3.15x350	60-95	70	280
18.0	12.0	2.3	4.0x350	95-135	50	200
UTS	580mpa(N/mm <sup>2</sup> )		5.0x350	135-175	30	120
El(l=4d)	38.0%			AC/DC(+)		
Ferrite	6.0%					

## ANAND -D2

Classification : AWS E 309 -16 IS : E23.12.R26

Approved by: PDIL, BPCL

A medium heavy coated rutile type all position electrode, depositing 23Cr/12 Ni type of weld metal. The weld metal has excellent resistance to chemical corrosion and oxidation upto 1100 C. The electrode has good welding characteristics. Recommended for AISI 309 grade of stainless steel and straight chrome steel. For joining clad steels, stainless steels to low alloy steels and carbon steels.

**ANAND-D2-15** Conforming to AWS E 309 -15 can also be manufactured on request.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
%0.05	1.75	0.45				
Cr	Ni		3.15x350	60-95	70	280
23.5	13.0		4.0x350	95-135	50	200
UTS	590mpa(N/mm <sup>2</sup> )		5.0x350	135-175	30	120
El(l=4d)	38.0%			AC/DC(+)		
Ferrite	8.0%					

## ANAND -D2-M0

Classification : AWS E 309 Mo -16 IS : E23.12.2R26

A medium heavy coated rutile type all position stainless steel electrode, depositing 23Cr/12 Ni/2.5 Mo type of weld metal. The weld has excellent resistance to chemical corrosion and oxidation upto 1100 C. The electrode has good welding characteristics. Suitable for welding clad side of 316 type clad steels, 316 type of steels to carbon steels and low alloy steels. Also used as a buffer layer for welding dissimilar steels.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
%0.045	1.5	0.45				
Cr	Ni	Mo	3.15x350	60-95	70	280
23.5	13.0	2.4	4.0x350	95-135	50	200
UTS	600mpa(N/mm <sup>2</sup> )		5.0x350	135-175	30	120
El(l=4d)	38.0%			AC/DC(+)		
Ferrite	12.0%					

## ANAND - D2 + Cb

Classification : AWS E 309 Cb-16 IS : E23.12.NbR 26

A medium heavy coated, rutile type, all position stainless steel electrode, depositing 23 Cr/12 Ni type of weld metal, stabilised with columblum. The weld metal withstands temperatures upto 1100 C in continous service and has excellent resistance to chemical corrosion. Recommended for welding AISI 309, 309 Cb steels and straight chrome steels. For joining stainless steels to low alloy steels and carbon steels. Suitable for over laying on ferritic steels.

**ANAND - D2-Cb-15** Conforming to AWS E 309-15 can also be manufactured on request.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
%0.05	1.75	0.45				
Cr	Ni	Cb	3.15x350	60-95	70	280
23.5	13.0	0.8	4.0x350	95-135	50	200
UTS	600mpa(N/mm <sup>2</sup> )		5.0x350	135-175	30	120
El(l=4d)	38.0%			AC/DC(+)		
Ferrite	8.5%					

# ELECTRODE DETAILS

## ANAND - CW

Approved by: BPCL

Classification : AWS E 310 - 16 IS : E25.20R26

A rutile coated all position stainless steel electrode with excellent welding characteristic, manufactured using 25 Cr/20 Ni type of core wire, depositing a weld metal of identical chemistry. The weld metal has excellent resistance to oxidation and scaling upto 1200 C in continuous service. Weld metal is fully austenitic and is of radiographic quality. Suitable for welding AISI 310 type of stainless steel, straight chrome steels, clad steels, C-Mo and and Cr-Mo steels, Also suited for joining dissimilar steels. High temperature furnace parts, broken dies, non-magnetic inserts in electrical equipment etc.

**ANAND - CW-15** Conforming to AWS E 310-15 can also be manufactured on request.

Typical Weld metal Properties			Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
C	Mn	Si				
%0.09	1.9	0.45	2.5x350	40-60	110	440
Cr	Ni		3.15x350	60-95	70	280
27.0	21.0		4.0x350	95-135	50	200
UTS	600mpa(N/mm <sup>2</sup> )		5.0x350	135-175	30	120
El(l=4d)	40.0%			AC/DC(+)		
Ferrite	0%					

## ANAND - CHROM-13

Classification : AWS E 410-15

A heavy coated, low hydrogen, stainless steel electrode, depositing 13% Cr. type of weld metal. The electrode operates in all positions and the weld metal is of radiographic quality. Suited for surfacing of turbine blades, valve seats, pump parts etc. For welding straight chrome steels and for general corrosion and heat resisting applications.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
%0.05	0.75	0.35				
Cr	Ni		3.15x350	75-125	105	420
13.0	0.4		4.0x350	125-160	65	260
UTS	560mpa(N/mm <sup>2</sup> )		5.0x350	160-220	40	160
El(l=4d)	40.0%					

## ANAND - CHROM-17

Classification : AWS E 430-15

A heavy coated, low hydrogen, stainless steel electrode, depositing 17% Cr. type of weld metal. The electrode can be used be in all positions. The weld metal has good resistance to corrosion and heat and is of radiographic quality. Suitable for surfacing and welding of straight chrome steels, such as AISI430.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
0.070%	0.70%	0.35%				
Cr	Ni		3.15x350	75-125	105	420
17.0	0.5		4.0x350	125-160	65	260
UTS	560mpa(N/mm <sup>2</sup> )		5.0x350	160-220	40	160
Z El(l=4d)	40.0%					

## ANAND 18.8.5(S)

Classification : IS:E: 18.8MnR 14036

A heavy coated and highly alloyed, mild steel cored electrode producing 18 Cr, 8 Ni, 5 Mn type of austenitic stainless steel deposit. The weld metal has excellent heat resistant and crack resistant properties. It also has resistance to corrosion from weak acids, sea water and atmosphere. Deposition efficiency is approx. 140%. Recommended for welding austenitic manganese steel, hardenable steels, armour steels etc. Also recommended for repair of manganese steel castings and as a buffer layer before hardfacing.

C	Mn	Si	Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
%0.08	5.0	0.50				
Cr	Ni		3.15x350	130-170	100	400
19.0	8.5		4.0x350	180-220	60	240
UTS	600mpa(N/mm <sup>2</sup> )		5.0x350	230-280	35	140
El(l=4d)	35.0%					

# ELECTRODE DETAILS

## ANAND - 18.8.5

Classification : AWS E 307-15 (Nearest) IS: 18.8 Mn B26

Anand 18.8.5 is a medium coated stainless steel electrode depositing low hydrogen type o weld metal with 18 Cr, 8 Ni, 5 Mn composition. The weld metal has excellent crack resistance, corrosion resistance and heat resistance upto 900 C. The electrode is suitable for positional welding. Highly recommended for welding dissimilar steels. Armour steels and austenitic manganese steels.

Typical Weld metal Properties			Sizes (mm)	Current Range Amps	Pieces Per Carton	Pieces Per Box
C	Mn	Si				
%0.07	5.5	0.35	2.5x350	50-80	110	440
Cr	Ni		3.15x350	80-110	70	280
19.0	8.5		4.0x350	110-160	50	200
UTS 620mpa(N/mm <sup>2</sup> )			5.0x350	160-200	30	120
EI(l = 4d) 38.0%				AC/DC(+)		

## CAST IRON ELECTRODES

### ANAND CAST-1

Classification : AWS ENiFeCl IS :EMNiFe214

ANAND CAST - 1 is a light coated graphite based electrode, depositing Ferro-Nickel type of weld metal. The weld metal has good ductility and adequate strength and is machinable. The electrode is suitable for welding cast iron without preheat. The deposit is free of defects such as cracks, porosity etc. and it gives good colour match with cast iron.

%C	Ni	Fe			
1.3	5.5	Bal.	2.5x350	55-70	All sizes in 1 Kg packaging
			3.15x350	70-110	
			4.0x350	110-140	
			5.0x350	140-180	
UTS 450mpa(N/mm <sup>2</sup> )				AC/DC(+)	
Hardness 175 BHN					

### ANAND CAST-2

Classification : AWS ENi Cu IS :EMNiCu2/214

ANAND CAST - 2 is a light coated graphite based electrode, depositing 'Monel' type of weld metal. The weld metal is machinable and the electrode can be used for welding cast iron without preheat and for rectification of casting defects.

%C	Ni	Fe			
0.75	68	Bal.	2.5x350	55-70	All sizes in 1 Kg packaging
			3.15x350	70-110	
			4.0x350	110-140	
			5.0x350	140-180	
UTS 450mpa(N/mm <sup>2</sup> )				AC/DC(+)	
Hardness 170 BHN					

### ANAND CAST-3

Classification : AWS ENi Cl IS :EMNi241

ANAND CAST - 3 is a light coated graphite based electrode, depositing pure Nickel type of weld metal. The weld metal has good ductility and is easily machinable. The electrode is suitable for welding cast iron without preheat and the weld metal is free from defects.

%C	Ni	Fe			
1.3	98	Bal.	2.5x350	55-70	All sizes in 1 Kg packaging
			3.15x350	70-110	
			4.0x350	110-140	
			5.0x350	140-180	
UTS 420mpa(N/mm <sup>2</sup> )				AC/DC(+)	
Hardness 165 BHN					

## NON FERROUS ELECTRODES

### ANAND MONEL

Classification : AWS E NiCu-7

A medium heavy coated, low hydrogen type of electrode depositing 'Monel' type of weld metal. The metal has good corrosion resistance to sea water, sulphuric acid and alkalis. Ideal for welding monel and similar Ni-Cu alloys to themselves and to steels. Also recommended for surfacing of steel for service in Corrosive atmosphere.

%C	Ni	Cu	Ti		
0.05	65	Bal.	0.5	2.5x350	50-70
				3.15x350	70-110
				4.0x350	120-160
				5.0x350	160-200
				DC(+)	