

# PERPRO CATHODIC PROTECTION MANUFACTURE

SINCE - 1991

**PERPRO**  
Anti Corrosion Company





## **ANTI CORROSION INDUSTRY :**

### **Manufacture :**

#### **1. SACRIFICIAL ANODE SYSTEM (SACP)**

- Aluminium Anode • Magnesium Anode • Zinc Anode

#### **2. IMPRESSED CURRENT SYSTEM (ICCP)**

- Transformer Rectifier • Junction Box • Tex Box/ Test point • Accesories

#### **3. STOCKIST**

- MMO Anode • Fe/Si/CR Anode • Coke Breeze • Halar / HMWPE Cable



## **OUR SISTER COMPANY :**

### **Manufacture :**

- 1. PROTECTIVE COATING**
- 2. COMPOSITE WRAPPING SYSTEM**
- 3. METAL ADHESIVE & METAL FILLER**
- 4. PETROLATUM TAPE**

### **OUR SCOPE OF WORK**

- 1. SURVEY**
- 2. ENGINEERING DESIGN**
- 3. SUPPLY MATERIAL**
- 4. TESTING & COMMISSIONING**



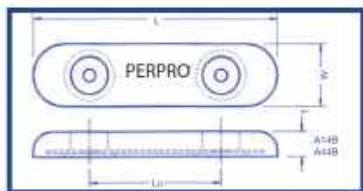
# Anti Corrosion for Infrastructure Oil & Gas



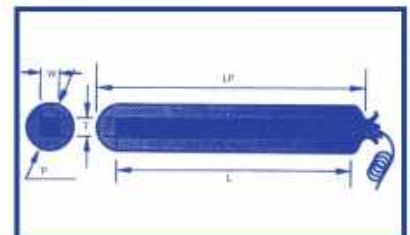
## BOLT ON TYPE

ANODE TYPE	WEIGHT Kg	L (mm)	W (mm)	T (mm)	LA (mm)
ASB	0.7	200	100.2	0	110
A14B 1	8	305	78.3	6	205
A18B 1	8	200	100.2	0	110
A29B 2	7	300	150.2	5	160
A32B 3	7	300	150.3	0	160
A40B 4	2	300	150.4	0	160
A44B 5	0	456	102.5	3	230
A50B 5	2	300	150.5	0	160
A60B 6	2	300	200.4	0	160
A60B 8	2	300	200.5	0	160

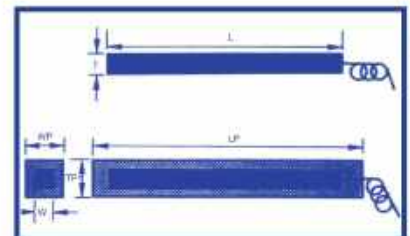
NOTE: NON-STANDARD ANODES OF OTHER WEIGHTS/ DIMENSIONS OR SPECIAL CORES ARE ALSO AVAILABLE ON REQUEST

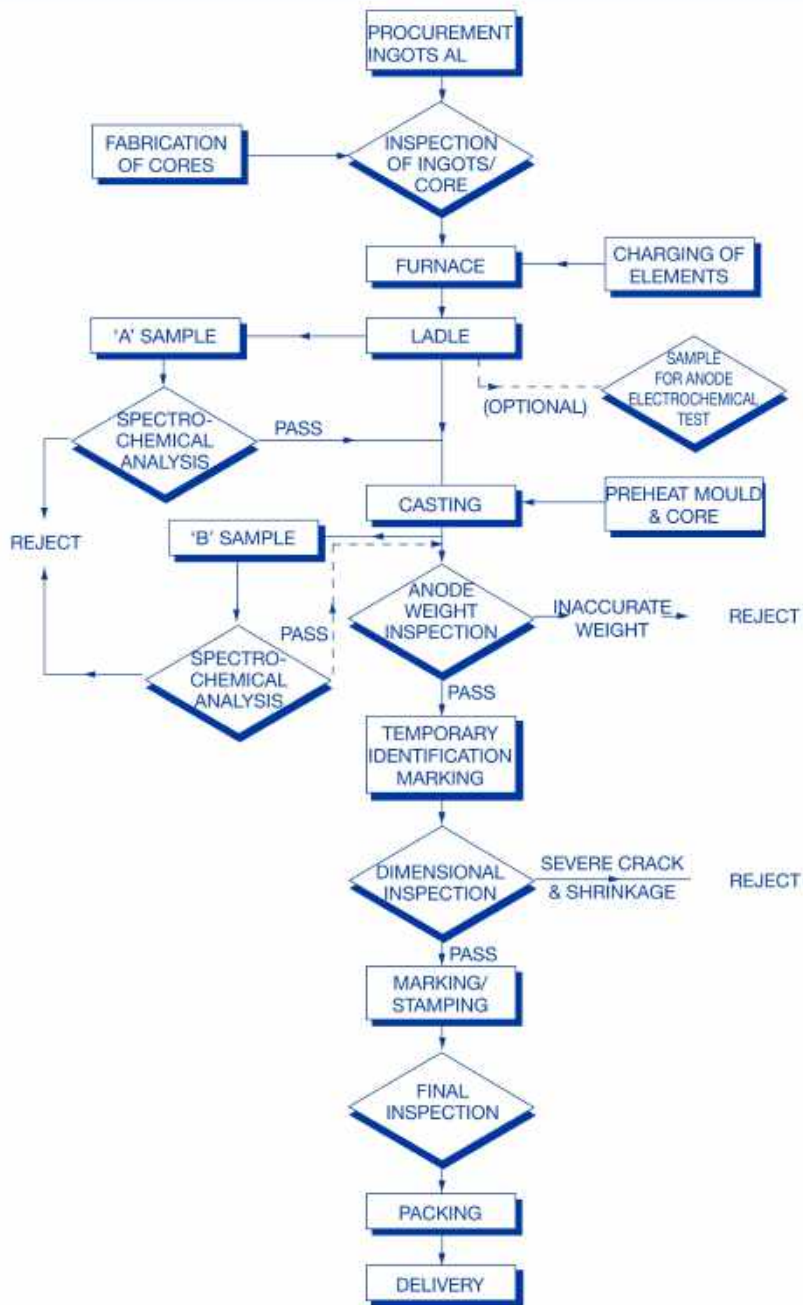


ANODE PREPACKAGED IN COTTON BAG



ANODE PREPACKAGED IN FIBRE BOX





Similar Quality Assurance Procedures are in place for the other Cathodic Protection and Corrosion Prevention Products.



# INSPECTION & TEST PLAN (ITP)



## INSPECTION AND TEST PLAN

PROJECT: CORROSION PROTECTION AT JETTY PILE / OFFSHORE PLATFORM  
EQUIPMENT DESCRIPTION: ALUMINIUM ANODES

Document No: .....ITP  
Revision: 0  
Date: 26 Juli 2019

Item No.	Inspection Activity	by	Control DocumentA	Acceptance CriteriaV	Frequency	Verifying Document	Inspection Surveillance Code	
							PERPRO	
1	Chemical composition test	PERPRO	Approved Chemical Analysis NACE SP0387-2006 - 3.1.2	Galvalum III2 Zinc (Zn) 2.000 - 4.000 % Indium (In) 0.010 - 0.020 % Silicon (Si) 0.080 - 0.200 % Iron (Fe) 0.120 % max Copper (Cu) 0.006% max Other each 0.020% max Aluminium (Al) remainder	samples at start and finish of each melts	Spectrometer result		
2	Electrochemical capacity and closed potential	PERPRO	Approved anode drawing & data Dwg ..... NACE TMO190-98	Capacity min 2500 Ah/kg Closed potential wrt AgAgC $\leq -1.05$ V	1 sample every 15 produced	test result		
3	Insert material	PERPRO	Approved anode drawing & data Dwg ..... NACE SP0387-2006 - 3.6.3	Steel Plate ASTM A 36 , JIS G3101 or equiv Rod Bar JIS G 3129 or equiv CE max 0.41%	All steel insert	bill certificate		
4	Anode dimension	PERPRO	Approved anode drawing & data Dwg ..... NACE SP0387-2006 - 3.4.1	Dimensional tolerance - mean length +/- 3% or +/- 25 mm whichever smaller - mean width shall be +/- 5% of the nominal width - mean depth shall be +/- 10% of the nominal depth	Every anode	Dimension report		

## INSPECTION AND TEST PLAN



PROJECT : UNDERGROUND FIRE WATER PIPE  
EQUIPMENT DESCRIPTION : MAGNESIUM ANODES

Document No :  
Revision : 0  
Date : 11

No	Qualities Activity	MANUFACTURE	METHOD OF INSPECTION	INSPECTION TESTING LOCATION	PARTICIPATION BY		REMARK
					PERPRO	SW	
1	Magnesium Anode	PERPRO (INDONESIA)	Visual Inspection	JAKARTA	P	SW	
			Dimension/Size/type/Model		P	SW	
			Material composition		P	R	
			Quantitative		P	SW	
2	Test Point	PERPRO (INDONESIA)	Visual Inspection	JAKARTA	P	SW	
			Dimension/Size/type/Model		P	SW	
			Quantitative		P	SW	
3	Cable	JEMBO (INDONESIA)	Visual Inspection	JAKARTA	P	SW	
			Dimension/Size/type/Model		P	SW	
			Conductor Resistance		P	SW	
			Insulation Resistance test		P	SW	
			Quantitative		P	SW	
4	Cable Equipment Consist of: Pilot Lighter, Mault and Charge	THERMOWELD (USA)	Visual Inspection	JAKARTA	P	SW	
			Quantitative		P	SW	
5	Handycap	TAM ROYSTON (INDONESIA)	Visual Inspection	JAKARTA	P	SW	
			Quantitative		P	SW	
6	Material Accessories	LOCAL (INDONESIA)	Visual Inspection	JAKARTA	P	SW	
			Quantitative		P	SW	

\* Key to inspection surveillance code:  
Legend:  
P : Provide or 100 % Inspection  
R : Review  
SW : Spet Witness  
W : Witness  
H : Hold

# PERPRO

## MATERIAL COMPOSITION

### PERPRO ZINC ALLOY

The Perpro zinc alloy anodes are cast to the internationally recognised U.S Military Specification ML-18001-H using only special high grade zinc inggot of minimum purity 99.995% with small additions of special alloy elements.

Element :	Chemical Composition ( % ) :
Lead	0.006 max.
Iron	0.005 max.
Cadmium	0.025 – 0.070 max.
Copper	0.005 max.
Aluminium	0.10 – 0.50
Silicon	0.125 max.
Zinc	remainder
Open circuit potential (vs Ag/AgCl ref. cell)	-1.05 Volt
Current capacity in sea water	780 Amp-Hr/Kg
Consumption rate in seawater	11.25 Kg/Amp-Yr

Note : Special chemical composition could be made on request

# PERPRO

## MATERIAL COMPOSITION PERPRO ALUMINIUM ALLOY ANODE

The Perpro aluminium alloy anode are cast from the highest purity aluminium ingot to conform with following material composition.

Element :	Chemical Composition ( % ) :
Iron	0.13 maximum
Silicon	0.08 – 0.20
Copper	0.006 maximum
Zinc	2.0 -6.0.
Indium	0.01 – 0.02
Other ( each)	0.02 maximum.
Aluminium	remainder
Anode open circuitpotential (vs Ag/AgCl ref. cell)	-1.05 Volt - -1.10 Volt
Electrochemical capacity Seawater @ 26 degree C	2535 -2650 Amp-Hr/Kg
Consumption rate in seawater @ 26 degree C	3.45 – 3.30 Kg/Amp-Yr
Efficiency	85% to 92%

Note : Special chemical composition could be made on request



# INSTALLATION OF ALUMINIUM ANODE





# INSTALLATION OF ALUMINIUM ANODE





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Website : [www.perintis-proteksi.com](http://www.perintis-proteksi.com)

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Kawasan Industri Greenland

International Industrial Center

( GIIC ) Blok CD No. 6A.

Kota Deltamas, Cikarang Pusat,

Bekasi, INDONESIA



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