YUXI
CORROSION CONTROL

Impressed Current Cathodic Protection (ICCP System)

YUXI CORROSION CONTROL CORPORATION

ICCP System

Introduction

Marine ship undergoes corrosion in various aspects. Impressed current cathodic protection system (ICCP) is considered to be an optimum solution for corrosion suppression.

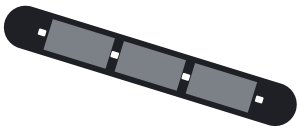
The electrical potential is monitored by reference electrodes which are fitted at both port side and starboard side between the anodes and been reflected to the power supply unit. Thus the whole CP system could automatically defects the electrical potential at the hull/seawater interface and raises or lowers the output to the anodes accordingly. This way, the ship receives optimum level of protection against corrosion.

Advantages

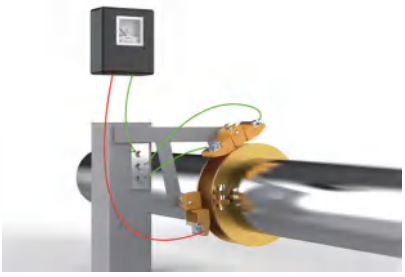
- Fuel cost saving achieved by a smoothier hull surface compared with sacrificial anode
- Longer operational lifetime and less maintenance requiments
- Unlimited protection capacity until anode coating breakdown
- Continuously monitoring and automatic operation

ICCP System

Components

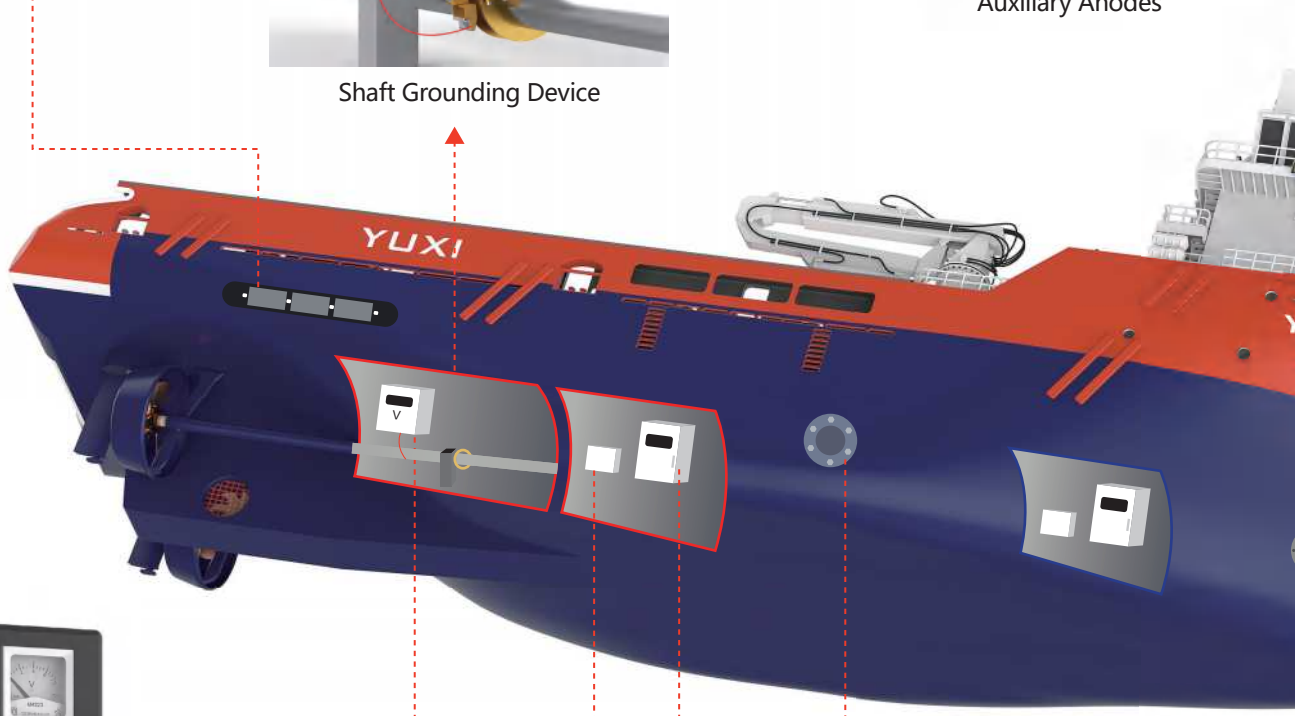


Auxiliary Anodes



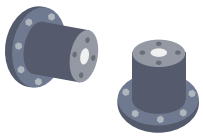
Shaft Grounding Device

Auxiliary Anodes



Volmeter

DC Power Supply



Reference electrode

Junction Box

Office: +86(574)8388 2233 E-mail: info@yuxi-anode.com Web: www.yuxi-anode.com

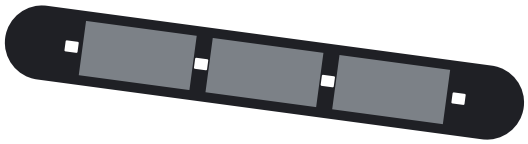
ICCP System

MMO Auxiliary Anodes

Standard	Shape	Size (mm)	Nominal Current (A)	Maximum Current (A)
Q/YXFZYJ004-2020	Oval	430*210	42.5	70
	Circular	φ500	118	195
	Circular	φ400	75	125
	Strip	1510*230	60	100

Note: Shape/size could be customized

Titanium Substrate	ASTM-B348 Gr 1, Ti>99.6%
Life	25 yrs
Insulation Properties	500MΩ
Coating Adhesion	4B
Coating Thickness	>8μm
Water Tightness	withstand 196kPa water pressure > 15mins



ICCP System

DC Power Supply

Power Sources	AC 440V/380V, AC 220V±10%, Frequency 50Hz±5%
Output Voltage / Output Current	0~24V, or customized / 0~300A, or customized
Output Phase	Single and triple phase
Ripple Coefficient	≤5%
Designated Potential	-3000mV~3000mV
Working Environment	Temp: -15℃~45℃, Relative Humidity: 20~90%
Fixed-potential Accuracy	≤3 mV
Fixed-current Accuracy	≤1%
Working Efficiency	≥80%
Insulation Resistance	>10MΩ
Protection Potential Change	≤5mV change after 24-hour working
AC Interference Protection	≤5 mV change of protection potential under 50 Hz, 100V AC interference voltage
Remote Monitoring	Support MODBUS RTU standard industrial communication protocol. Compatible with mainstream industrial control systems, achieving full-featured control of transformer rectifier. Note: communication protocol could be customized.
Communication Method	Choose from RS-485/232, GPRS/WIFI/Lora, 4~20 mA communication

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ICCP System

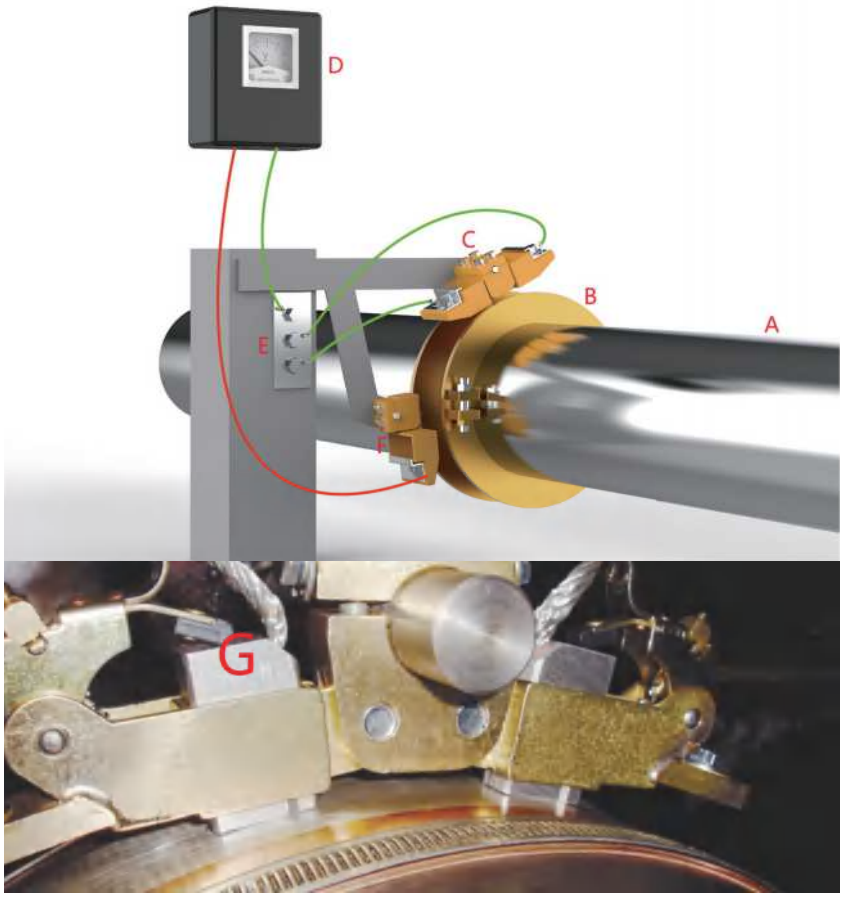
Zinc Reference Electrodes

Size could be customized

Electrode Potential	-1.042V vs. Saturated calomel electrode
Potential Fluctuation	<0.015V
Insulation Property	180MΩ
Zinc Purity	>99.996%
Water Tightness	Withstand 196kPa water pressure >15mins

Shaft Grounding Device

Shaft Grounding



A	Propeller shaft
B	Slip ring
C	Double brush holder
D	Voltmeter
E	Grounding (ship hull) pile
F	Single brush holder
G	Silver graphite brush fixed on brush holder (double)

Shaft Grounding Device

Shaft Grounding

Carbon-Silver Brush Chemical Composition	Silver>85%
Slip Ring Life	>20 yrs
Carbon-Silver Brush Life	>1 yr