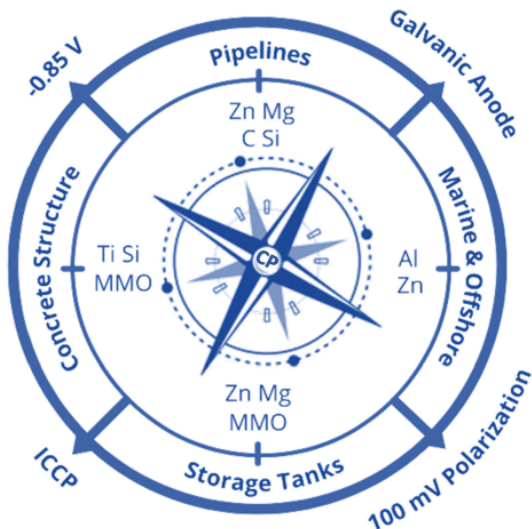




Corrosion Modeling Software and Corrosion Prediction
Software Series

CP-Compass®: Cathodic Protection Design, Verification & Assessment for Offshore Platforms

Version 26.9

★ Performance ★ Functionality ★ Usability



Anytime Anywhere Any Device Any OS
No USB dongles No installation No Browser Plug-ins

Contact Us for Licensing Details

Why WebCorr | Performance Guarantee | Unparalleled Functionality | Unmatched Usability | Any Device Any OS | Free Training & Support | CorrCompass

CP-Compass has the following standalone modules:

- **CP-Compass-Underground-Pipelines:** Cathodic Protection Design Calculations, Verification, Assessment and Solution for Underground Pipelines
- **CP-Compass-Submarine-Pipelines:** Cathodic Protection Design Calculations, Verification, Assessment and Solution for Submarine Pipelines
- **CP-Compass-Platforms:** Cathodic Protection Design Calculations, Verification, Assessment and Solution for Offshore Platforms

- **CP-Compass-Concrete-Structures:** Cathodic Protection Design Calculations, Verification, Assessment and Solution for Concrete Structures

Design calculations in CP-Compass modules are in compliance with internationally accepted codes and standards such as AS 2239, AS 2832, BS EN ISO 12696, BS EN 12473, BS ISO 15589, DNV-RP-B401, DNV-RP-F103, NACE SP0169, and NACE SP0176.

Unparalleled Functionality: CP-Compass is not just for CP design and verification of CP design calculations by 3rd party contractors, it also gives you tools to assess the actual level of cathodic protection achieved (corrosion rate reduction factor) and to predict the corrosion rate of the structure WHEN CP IS ON! Refer to the screen shot below for details.

Unmatched Usability: CP-Compass was designed with the user in mind. Experience the industry's first cross-platform and device-independent Cathodic Protection Design, Verification and Assessment application on your iPads, tablets, smart phones, notebooks and desktops, at any time and anywhere, in the office or in the field. No installation files to download, no browser plug-ins required, no USB dongles to carry around, and no license keys to transfer from one PC to another. **CP-Compass simply works on any device running any OS.** All you need is an internet browser.

A Brief Overview of CP-Compass-Offshore-Platforms

Cathodic Protection Design Calculations, Verification, Assessment, and Solution for Offshore Platforms						Version 26.7
Project Ref					1/Jul/26	
Design Life	year	20	Utilization Factor	0.90		
Anode Material	Zinc	▼	Driving Potential, V	V	0.300	
Electrochemical Capacity	A.h/kg	2,530.00	Anode Length	cm	366.0	
Seawater Resistivity	Ω.cm	20	Average Width	cm	25.0	
Protection Potential	V (SSC)	-0.800	Anode Height	cm	25.0	
Anode Potential	V (SSC)	-1.100	Core Diameter	cm	11.4	
Coating Breakdown Factor		1.000	Anode Net Weight	kg	540	
Surface Area To Be Protected	m ²	9,300	Optimized Anode Weight		372 kg/anode	
Total Protection Current Required			Initial	Mean	Final	
Design Current Density	mA/m ²		110	54	75	
Extra Capacity for Well Conductors, etc.	Amp		5.00	5.00	5.00	
Total Protection Current Required	Amp		1,028.00	507.20	702.50	
Total Anode Weight Required	kg		79,098	39,026	54,053	
Single Anode Current Output	Amp		9.795	8.931	7.257	
Number of Anodes Required by Current			105.0	56.8	96.8	
Number of Anodes Required by Weight			146.5	72.3	100.1	
Number of Anodes Selected	105	540 kg/anode	Design Checks	Anode weight can be optimized.		
The number of anodes selected must satisfy both the total current and the total anode weight requirements.	$C_{a \text{ tot}} = N * C_a$	≥	$I_{cm} * t_f * 8760$			
	129,105,900.00	≥	88,861,440.00	Passed!		
	$I_{a \text{ tot i}} = N * I_{ai}$	≥	I_{ci}			
	1,028.48	≥	1,028.00	Passed!		
	$I_{a \text{ tot f}} = N * I_{af}$	≥	I_{cf}			
	761.94	≥	702.50	Passed!		

Figure 1 Galvanic anode cathodic protection design and verification using CP-Compass software

Galvanic Anode CP Design and Verification

Unlike other cathodic protection design software developed by computer programmers that requires users to be trained as an application specialist in order to operate the software, WebCorr's CP-Compass software was developed by corrosion engineers for corrosion engineers with no learning curve required. With CP-Compass, designing a cathodic protection system or verifying a CP design by a 3rd party contractor is as easy as 1-2-3:

1. Enter the design parameters (items in the above screen shot).

2. Choose the anode from the dropdown list.
3. The number of anode required, the the anode life, and system design life are automatically determined and verified.

The corrosion rate of the structure when CP is on can be calculated based on the polarization measurements, as shown in the screen shot below:

CP Design

Corrosion Rate

Tools

Effect of Cathodic Protection on Corrosion Rate

Environment:		Seawater
Temperature:	°C	5.00
Corrosion Rate (No CP):	mm/y	0.150
Polarization:	mV	100
Tafel slope:	V	0.0552
Corrosion Rate Reduction Factor by CP:		65
Corrosion Rate (CP on):	mm/y	0.002311

Figure 2 Assessing the degree of CP protection using CP-Compass software

This unique function not found in any other CP design software allows users of CP-Compass to assess the degree of CP protection on an existing structure based on the CP survey results (the polarization data). It also allows the designer to set the CP criteria (e.g., 100 mV or 150 mV) to meet the corrosion rate target when CP is on.

The "Tools" menu in CP-Compass allows users to perform anode life calculations for assessment and retrofit of an existing CP system. For example, the remaining anode dimensions can be measured. The volume of the anode material can be calculated. The remaining anode weight can be determined from the anode material density. Using other anode material property such as anode efficiency and utilization factor as inputs, the remaining anode life can then be determined as shown in Figure 3.

CP Design

Corrosion Rate

Tools

Standard Reference Electrode Potentials at 25°C (SHE), V			
Electrode (Half - Cell)	Name	Potential (Volts)	Typical Usage
Copper - Copper Sulfate (Cu-Cu SO4)	CSE	0.316	soils, fresh water
Silver - Silver Chloride (Saturated, LJ)	Ag-AgCl (LJ)	0.222	sea water, brackish
Silver - Silver Chloride (0.6M, SJ)	Ag-AgCl (SJ)	0.256	water, laboratory
Saturated Calomel	SCE	0.241	water, laboratory
Zinc (Pure Zinc)	ZRE	-0.800	sea water, soil

Anode Material

Galvalum III

Al-Zn-In

Galvalum III

Magnesium

Zinc

Silicon Cast Iron

U_F = Utilization Factor

I = Total Protection Current (amps)

L = Life of Anode (yrs)

User Inputs

Ca = 0.250

W = 109.000

E = 0.5

U_F = 0.85

I = 2.000

L = 5.791 yrs

Figure 3 CP-Compass software has tools for users to determine anode life for the assessment of an existing CP system.

[Click here to contact us for licensing details and experience the power of CP-Compass.](#)

CP-Compass, giving you the right directions in the design and operation of cathodic protection.