

Welcome to Corrosion's CP tool!

This is a calculation tool for cathodic protection projects. It is based on recommended practices and guidelines accepted by DNV, NACE and other recognized international organizations. All procedures including background for equations used are fully documented and can be accessed by following appropriate links. A reference list from which all procedures are based is also included. It is built using a log in procedure with normal users and admins. Each user has access to a database in which all his or her 'projects' are stored. Admins can see all projects. [[In the future, keys should be included to link this tool projects to corrosion system projects (e.g. in exact software).]]

Overview of procedure

Follow links on the right depending on the type of project. Before starting a new project, make sure the steps below are clear and the information described is available.

Step 1. Identify structure to be protected

- What kind of structure → for example a vessel, a barge, or an offshore foundation
- Metal type(s) → Main metal to be protected, e.g. mild steel
- Operation conditions → What operation conditions could affect CP e.g. flow rates, friction, etc
- Surface area to be protected → Is this info available? Do we have access to drawings, etc.?
- Coatings → Presence (or absence) of coatings is very important in CP design. Which areas are coated? What kind o coating? Coating state?
- Similar structures → Is there data from similar structures. What are the experiences?
- Target design life → For how long do we need to keep protection?

Step 2. Environmental conditions

- Geographic location of structure (tropical, Mediterranean, North Sea, etc)
- Type of water (freshwater, brackish water, seawater)
- Depth

Step 3. Current demand

For calculating current demand you would need:

- Required current density in A/m² (depends on step 1 and step 2). See annex A
- Surface area to be protected in m² (from step 1)
- Coating breakdown factor (from step1) See annex A

Step 4. Determine anode type to be used (GACP)

Choose anode alloy type to be used based on the following criteria:

- Zinc (if no Aluminum possible) for seawater
- Aluminum for brackish and seawater
- Magnesium for freshwater (rare)

Step 5. Determine anode mass requirements (GACP)

For calculating anode mass you would need:

- The current demand in Amps (step 3)
- The design life in years (step 1)
- Anode utilization factor (link to reference page)
- Anode capacity in Ah/Kg (link to reference page)

Step 5. Determine anode current output (GACP)

For calculating anode current output you would need:

- Anode resistance (resistance to earth):
- Anode shape to determine equation to be used
- Water resistivity in ohm.cm
- Length and radius of anode in cm
- Exposed surface area and mean of anode sides

ICCP calculations

ICCP for vessels
ICCP for offshore wind
<u>ICCP for special projects</u>

GACP calculations

GACP for vessels
<u>GACP for special projects</u>