

GENERAL SPECIFICATION

CORROSION

GS EP COR 102

**Design of cathodic protection of submarine pipelines
by galvanic anodes according to ISO 15589-2**

Rev.	Date	Purpose of the revision
11	10/2017	Reference for field joint to ISO, simplification, reduction of number of exigencies, cbf for thermal insulation coatings, additional information for monitoring
10	09/2015	General revision
09	05/2015	Organisation change - January 2015
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General Specification		GS EP COR 102
Design of cathodic protection of submarine pipelines by galvanic anodes according to ISO 15589-2		
Rev.: 11	Effective date: 10/2017	Page: 2 of 13

Contents

1. Scope	3
2. Reference documents.....	3
3. Amendment to ISO 15589-2.....	4
4. Additional requirements to ISO 15589-2	11
4.1 Resistivity of seawater	11
4.2 Pipeline without coating at girth-weld joints	11
4.3 Specific monitoring at spot location	12
5. Tasks during project phases and deliverables.....	12
Appendix 1 Coating breakdown factors to be applied on coated pipelines	13

General Specification		GS EP COR 102
Design of cathodic protection of submarine pipelines by galvanic anodes according to ISO 15589-2		
Rev.: 11	Effective date: 10/2017	Page: 3 of 13

1. Scope

The aim of the present Company specification is to define the hypotheses, calculation methods, and materials to be used for the design of cathodic protection systems for submarine pipelines using sacrificial anodes.

Unless otherwise stated, all the requirements of [ISO 15589-2](#) shall be applicable. As a complement, requirements of [EN 12474](#), [DNV-RP-F103](#) and [NACE SP 0169](#) are applicable when they are not in conflict with the present General Specification and [ISO 15589-2](#) (2012 Edition).

Cathodic protection of conventional risers are included in the cathodic protection design calculation of the supporting jacket, as specified in [GS EP COR 100](#).

Cathodic protection of SCRs (Steel Catenary Risers) are be included in the cathodic protection design of the associated pipeline in accordance with present General Specification.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published at the effective date of this document.

Reference	Title
DNV-RP-B401	Cathodic protection design
DNV-RP-F103	Cathodic protection of submarine pipelines by galvanic anodes
EN 12474	Cathodic protection for submarine pipelines
ISO 15589-2	2012 Edition - Petroleum, petrochemical and natural gas industries - Cathodic protection of pipeline transportation systems - Part 2 Offshore pipelines
NACE SP 0169	Control of external corrosion on Underground or Submerged Metallic Piping Systems

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published.

Reference	Title
GS EP COR 100	Cathodic protection of offshore structures
GS EP COR 103	Cathodic protection of offshore floating structures
GS EP COR 110	External cathodic protection of onshore structures

General Specification		GS EP COR 102
Design of cathodic protection of submarine pipelines by galvanic anodes according to ISO 15589-2		
Rev.: 11	Effective date: 10/2017	Page: 4 of 13

Reference	Title
GS EP COR 201	Galvanic anodes
GS EP COR 401	Installation of anodes on submerged pipelines
GS EP COR 420	External field joint coatings of pipelines
GS EP COR 502	Control by electrical measurements of cathodic protection of submerged pipelines
GS EP EXP 311	Plant integrity - Minimum inspection requirements
GS EP PLR 425	Site welding of carbon steel pipelines (sweet and sour service, onshore and offshore) according to API STD 1104
GS EP PLR 426	Site welding of carbon steel and CRA pipelines (sweet and sour service, onshore and offshore) according to DNV-OS-F101
GS EP SPS 029	Metallic Materials for Subsea Production Facilities

3. Amendment to ISO 15589-2

The following chapters of the ISO 15589-2 are modified in accordance with the comments here after.

§ 1 Scope

Amended section

The design, production, quality and inspection of anodes are covered by GS EP COR 201.

The installation of bracelet galvanic anodes on submarine pipelines is covered by GS EP COR 401.

The inspection and measurements regarding the cathodic protection of submarine pipelines is covered by GS EP COR 502.

§ 5.1 Competence assurance

Additional information

Design of cathodic protection systems for submarine pipelines are the responsibility of competent and specialized personnel. The qualification of each of the specialists working for such a design is documented by Contractor to Company before commencement of the work. The verification of the formal Certification of the individuals shall comply with the following requirements:

- Conventional design work to be carried out by certified personnel at level 3 for NACE International and level 2 for all other certification schemes
- Complex design work or verification to be carried out by certified personnel at level 4 for NACE International and level 3 for all other certification schemes.