ISO 10683:2018 (E)

Fasteners — Non-electrolytically applied zinc flake coating systems

Contents

Foreword

1 Scope

2 Normative references

3 Terms and definitions

4 General characteristics of the coating

- 4.1 Zinc flake coating systems
- 4.2 Composition of the systems
- 4.3 Mechanical and physical properties and curing
- 4.4 Avoidance of internal hydrogen embrittlement
- 4.5 Coating systems and coating processes

5 Corrosion protection and testing

- 5.1 General
- 5.2 Neutral salt spray test
- 5.3 Sulfur dioxide test (Kesternich test)
- 5.4 Bulk handling, automatic processes such as feeding and/or sorting, storage and transport

6 Dimensional requirements and testing

- 6.1 General
- 6.2 Fasteners with ISO metric thread
- 6.2.1 Coating thickness
- 6.2.2 Gaugeability and assemblability
- 6.3 Other fasteners

7 Mechanical and physical properties and testing

- 7.1 Appearance
- 7.2 Corrosion resistance related to temperature
- 7.3 Test methods for thickness or coating weight determination
- 7.4 Ductility
- 7.5 Adhesion/cohesion
- 7.6 Sacrificial cathodic protection
- 7.7 Torque/clamp force relationship
- 7.8 Determination of hexavalent chromium

8 Applicability of tests

- 8.1 General
- 8.2 Tests mandatory for each lot
- 8.3 Tests for in-process control
- 8.4 Tests to be performed when specified by the purchaser

9 Designation

- 9.1 Designation of zinc flake coating systems for the order
- 9.2 Designation of zinc flake coating systems for labelling

10 Ordering requirements

Annex A (informative) Design aspects and assembly of coated fasteners

- A.1 Design
- A.1.1 General

A.1.2 Description of zinc flake coating systems
A.1.3 Coating process
A.2 Functional properties
A.2.1 Assemblability and mountability
A.2.2 Other properties of the assembly with coated fasteners
A.2.2.1 Chemical resistance
A.2.2.2 Electrical conductivity
A.2.2.3 Galvanic corrosion
A.2.2.4 Cleanliness
A.3 Particular issues related to fasteners and coating processes
A.3.1 General
A.3.2 Fasteners with ISO metric thread
A.3.3 Fasteners with captive washers
A.3.4 Fasteners with adhesive or patch
A.3.5 Nuts
A.3.6 Prevailing torque nuts
A.3.7 Fasteners with recess, internal drive or cavities
A.3.8 Screws which form their own mating threads
A.3.9 Clips and retaining rings
A.4 Storage of coated fasteners

Annex B (informative) Coating thickness and thread clearance for ISO metric screw threads

B.1 General
B.2 Geometrical relationship between coating thickness and pitch diameter
B.3 Variability of coating thickness
B.4 Clearance for coating thickness
B.5 Compatibility between corrosion resistance and clearance
B.6 Examples of application
B.6.1 Example of a bolt with thread tolerance class 6g
B.6.2 Example of a screw with thread tolerance class 6g
B.6.3 Example of the same screw as in B.6.2 but with thread tolerance class changed to 6f

Annex C (informative) Coating systems tested in accordance with ISO 9227, NSS — Evaluation of cabinet corrosivity for the neutral salt spray test

C.1 Introduction
C.2 Purpose
C.3 Frequency of controls
C.4 Operating conditions
C.4.1 Parameters
C.4.2 Reference panels
C.4.3 Preparation of the reference panels
C.4.3.1 Degreasing procedure
C.4.3.2 Panel protection
C.4.3.3 Position of reference panels and collectors
C.4.3.4 Filling of the cabinet
C.4.4 Control mask
C.4.5 Determination of the corroded surface
C.4.6 Quantification of corrosivity
C.5 Corrosivity results
C.6 Example of report format for annual control and monthly monitoring of the cabinet
C.6.1 Annual control and monthly monitoring of the cabinet corrosivity level
C.6.2 Condensate check
C.6.3 Determination of the corrosivity level
C.6.4 Conclusion for the corrosivity of the cabinet
C.6.5 Examples for the determination of the corrosivity level

Page count: 31