ISO 4042:2018 (E)

Fasteners — Electroplated coating systems

Contents

	I	Foreword				
	I	Introduction				
1	;	Scope				
2	1	Normative references				
3		Terms and definitions				
4	(General characteristics of the coating				
	4.1 4.2 4.3 4.4 4.4.1 4.4.2 4.4.3 4.4.4 4.4.5 4.4.6 4.4.7 4.4.8 4.5	Fasteners with hardness below 360 HV Fasteners with hardness equal to and above 360 HV and up to 390 HV Fasteners with hardness above 390 HV Fasteners in accordance with ISO 898-1, ISO 898-2 and ISO 898-3 Baking and test requirements for case-hardened and tempered screws Work-hardened fasteners				
5	(Corrosion protection and testing				
	5.1 5.2 5.3 5.4	General Neutral salt spray test (NSS) for zinc based coating systems Sulfur dioxide test (Kesternich test) Bulk handling, automatic processes such as feeding and/or sorting, storage and transport				
6						
	6.1 6.2 6.2.1 6.2.2 6.3 6.4					
7		Mechanical and physical properties and testing				
	7.1 7.2 7.3 7.4 7.5	General Appearance Corrosion resistance related to temperature Torque/clamp force relationship Determination of hexavalent chromium				
8		Applicability of tests				
	8.1 8.2 8.3 8.4	General Tests mandatory for each lot Tests for in-process control Tests to be performed when specified by the purchaser				
9		Designation system				

	9.1 9.2 9.3		General Designation of electroplated coating systems for the order Examples of designation of hexavalent chromium free electroplated coating systems for fasteners			
	9.4		Designation of fasteners with electroplated coating systems for labelling			
10		Order	ing requirements for electroplating			
11		Storage conditions				
Annex	A	(informative) Design aspects and assembly of coated fasteners				
	A.1		Design			
	A.1. A.1.	-	General			
	A.1.		Coating process Sealants and top coats			
	A.1.		Possible effects of coating corrosion on appearance			
	A.1.		General			
	A.1.		White haze			
	A.1.		White corrosion			
	A.1.		Black spots			
	A.2		Functional properties			
	A.2.	1	Assemblability and mountability			
	A.2.	2	Other properties of coated fasteners and assemblies			
	A.2.	2.1	Chemical resistance			
	A.2.		Electrical conductivity			
	A.2.		Galvanic corrosion			
	A.2.	2.4	Cleanliness			
	A.3		Particular issues related to fasteners and coating processes			
	A.3.	-	General			
	A.3.		Fasteners with ISO metric thread			
	A.3.		Fasteners with captive washer Washers and similar fasteners			
			Fasteners with adhesive or patch			
	A.3.5 A.3.6		Prevailing torque nuts			
A.3.6 A.3.7			Fasteners with recess, internal drive, cavity or hole			
	A.3.		Screws which form their own mating thread			
A.3.9			Clips and retaining rings			
	A.4		Storage of coated fasteners			
Annex	В	(inform	mative) Hydrogen embrittlement consideration			
	B.1		General			
	B.2		Conditions for hydrogen embrittlement failure			
	B.3		Electroplating and Internal Hydrogen Embrittlement (IHE)			
	B.4		Baking			
	B.5		Stress relief			
	B.6		Hydrogen embrittlement test methods			
Annex	C	(inform	mative) Corrosion protection related to zinc coatings with chromate conversion coatings			
Annex	D	(inform	native) Coating thickness and thread clearance for ISO metric screw threads			
	D.1		General			
	D.2		Geometrical relationship between coating thickness and pitch diameter			
	D.3		Coating thickness on externally threaded fasteners			
	D.4		Coating thickness on internal threads			
	D.5		Clearance for coating thickness			
D.5.1			Fasteners with external thread			
	D.5. D.6	2	Fasteners with internal thread			
	٥.۵		Compatibility between corrosion resistance and clearance			
Annex	Ε	-	mative) Coating systems tested in accordance with ISO 9227, NSS — Evaluation of et corrosivity for the neutral salt spray test			
	E.1		Introduction			
	E.2		Purpose			
	E.3		Frequency of controls			

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

(informative) Obsolete designation codes for electroplated coating systems on fasteners according to ISO 4042:1999

- F.1
- Obsolete code system Example of obsolete designation F.2

Page count: 55