
Kalmar Group Standard

KGS 50519

Part

Method Standards

Name

Surface treatment - Requirements - Nitrocarburizing + post oxidation

Group

Manufacturing Methods

1 Scope

This Kalmar Group Standard, hereinafter referred to as KGS, presents the manufacturing requirements for inorganic surface treatment, valid for Nitrocarburizing + post oxidation.

2 Purpose

The purpose is to ensure high quality surface treatment for the specific manufacturing method.

3 Responsibilities

Design Engineers - when applicable, note the relevant information on the technical documents such as drawings and BOMs

Supplier Development Engineers - to inform suppliers about this KGS and make sure that compliance is met.

4 Definitions

BOM - Bill of Material

5 References

KGS 50506	Accelerated corrosion test
ISO 9227	Corrosion tests in artificial atmospheres – Salt spray tests
ASTM G85	Standard Practice for Modified Salt Spray (Fog) Testing
ISO 16701	Corrosion of metals and alloys – Corrosion in artificial atmosphere [...]
ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ISO 2819	Metallic coatings on metallic substrates – Electrodeposited and chemically [...]

6 Procedure description

The surface treatment shall comprise the following steps:

- Washing – No left inhibitors after washing is allowed
- Pretreatment – If stress relieving of the part prior to nitrocarburizing is needed, a temperature of at least 20-30°C higher than nitrocarburizing temperature shall be used.
- Nitrocarburizing
- Post-oxidation
- Verification

6.1 Appearance

Black semi-matt appearance.

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Approver: lasse.eriksson@kalmarglobal.com
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6.2 Surface

The following coating defects are not allowed:

- erosion craters
- rough surfaces
- cracks
- blotchy surfaces
- bare base metal areas
- flakes

6.3 Adhesion

The adhesion of the coating may not show any tendency to peel or flake off. For testing the adhesion, the "Peel test" referred to in ISO 2819 or similar test method shall be used.

6.4 Coating thickness

Minimum permitted nitrocarburizing thickness (compound layer thickness Fz) is 18 µm + post oxidation.

6.5 Corrosion resistance

The corrosion resistance should be tested according to KGS 50506 Accelerated corrosion test (alt ISO 16701 or ASTM G85).

Time until white corrosion appears: 1.5 weeks.

Alternatively, ISO 9227 or ASTM B117 Salt spray tests.

Time until white corrosion appears: 200 hours