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## Released:

This company standard is valid and released only on the intranet of Broetje-automation. Prints and copies are stored locally to test. They are not subject to the amendment service.

The website [www.broetje-automation.de](http://www.broetje-automation.de) serves as an additional source for company standards for External .

## Scope and Objective

Components must be finished with corrosion-resistant coating to protect them against aggressive agents.

This standard is aimed at ensuring that both the technical properties and the visual appearance of coating supplied by various third parties are equivalent. The proper application of such coating safeguards the products of Broetje-Automation against corrosion damage, thus preserving the value of the products for a long period of time.

Deviations from this standards must be authorized by the Quality Assurance Department of Broetje-Automation and are subsequently documented separately.

## 1 Standards and Corrosion Protection

### 1.1 Standards

EN ISO 12944	Corrosion protection of steel structures by protective paint systems
EN ISO 2409	Paints and varnishes - Cross-cut test
DIN 53209	Designation of degree of blistering of paint coatings
DIN 53210	Designation of degree of rusting of paint surfaces
Colors	RAL 840 HR
Application	in accordance with the paint/varnish manufacturer's specifications
Coating	Exclusive use of products from company Osnatol or technically comparable are allowed

### 1.2 Corrosion Resistance

Ambient climate conditions:

- Atmosphere type I: Industrial conditions in closed, dry and climated shop C1
- Atmosphere type II: Industrial conditions in closed, dry shop C2
- Atmosphere type III: Industrial conditions in closed shop near coastal area C3

## 2 Surface Preparation

Surface preparation must achieve the degree of cleanliness and coarseness required for the intended coating and ensure good adhesion of the coating.

All surface preparation tasks must be monitored and checked. Subsequent coating must only be applied when the surface to be coated has been prepared in accordance with the principles of this specification.

All surfaces must be free from substances impairing adhesion, such as:

- inherent residues
  - corrosion
  - scales
  - skin
  
- foreign residues
  - oils
  - greases
  - preservatives
  - dirt
  - dew
  - detergent residues
  
- Allowed cleaning methods include:
  - blasting
  - sanding
  - evaporating

### 2.1 Bores, Taped Bores and Assembly Surfaces

Bores, taped bores and assembly surfaces are not painted and must be protected against corrosion, for example by applying stripping paint or suitable plastic or rubber capping.

### 2.2 Surfaces

Surfaces must be dry, clean (free from dust) and free from grease.

### 2.3 Steel Surfaces

Cleaned steel surfaces must be protected no later than:

- 6 hours if the relative humidity is < 70%
- 3 hours if the relative humidity ranges between 70% and 85%

by applying a prime coat or a metallic protective coat.

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## **2.4 Steel, Sheet-Metal and Plastic Parts**

The edges of all steel, sheet-metal and plastic parts must be beveled and absolutely free from burrs in accordance with DIN ISO 13715 .

## **2.5 Surface Treatment**

All irregularities and visible sanding traces on the surface are to be removed.

Surface treatment of Material that will be welded and coated:

1. Material < 5,0 mm: has to be blasted free of any rust and other adhesions
2. Material  $\geq$  5,0 mm: The Surface is to be primed to preparation grade P3 in accordance with DIN EN ISO 8501-3. Edges are to be primed to preparation grade P2 (2.1 and 2.2 Tab. 1, DIN EN ISO 8501-3)
3. Welding seams: The area of the welding seams must meet the requirement under point 2 (Material  $\geq$  5,0 mm)
4. Material: Raw material is to be ordered blasted or to be blasted after welding. The Surface must comply to the surface quality SA2 ½ in accordance with DIN EN ISO 8501-1
5. Components and primary material in accordance with DIN EN 1090:

The entire surface must fulfill the preparation grade P3 in accordance with DIN EN ISO 8501-3.

### 3 Requirements for Coatings

- |    |                       |            |                           |
|----|-----------------------|------------|---------------------------|
| a) | Gloss level:          | 70 ±5      | at a viewing angle of 60° |
| b) | Cross cut:            | max. Gt 1  | EN ISO 2409               |
| c) | Corrosion resistance: | 250 h      | Salt spray test           |
| d) | Humidity resistance:  | 250 h      | No blistering             |
| f) | Color accuracy:       | Delta E ≤1 |                           |

#### Coating Inspection prior to Delivery

Gloss level and total coating thickness are to be checked after drying. Cross-cut tests, if required, are to be made on reference surfaces, e.g. reference sheets. The tests must subsequently be evaluated and documented.

## 4 Coating Systems Corrosivity Category C1, enclosed, long

Corrosion protection system for steel

C1003

Well-drying coating system on 2K-PUR-AY basis showing excellent drying and resistance properties. Spray application is to be preferred.

Examples for typical environments in moderate climate include:  
heated buildings with neutral atmospheres such as offices, stores, schools, hotels.

In accordance with DIN EN ISO 12944-4, part 5

Type	Basis		Number of layers	theo. application rate	DFT $\mu\text{m}$
Prime coat (with light colors)	AY WV	OSNACRYL-Aquaprime Item No. 7508-xxxx waterthinnable	1	8.65 m <sup>2</sup> /kg	40
Alternatively: Prime coat	EPE	OSNAPOX Z 1K Grund Item No. 7038-xxxx solvent-containing	1	4.75 m <sup>2</sup> /kg	40
Top coat	PUR- AY	OSNACRYL PUR SBA G Lack Item No. 32040-xxxx-0011 single-layered	1	11.11 m <sup>2</sup> /kg 5.56 m <sup>2</sup> /kg	40 80
Total coat thickness			1-2	=	80

Surfaces must be prepared in accordance with DIN EN ISO 12944-4, standard grade of cleanliness Sa 2 ½.

### Exposure spectrum

Expected durability according to DIN EN ISO 12944 for corrosivity categories														
C1 very low			C2 low exposure			C3 medium exposure			C4 high exposure			C5-I very high Industrial atmosphere		
short	medium	long	short	medium	long	short	medium	long	short	medium	long	short	medium	long

The classification into different corrosivity categories provides only limited information on durability and shelf life.  
. Please refer to DIN EN ISO 1294, part 5

## 5 Coating Systems Corrosivity Category C2, enclosed, long

### Corrosion protection system for steel

C2 A2.07

Fast-drying, highly-resistant coating system on EP / PUR basis, as well as repair or maintenance system. Spray application is to be preferred.

Examples for typical environments in moderate climate include:  
unheated buildings where condensation may occur such as warehouses, gyms.

In accordance with DIN EN ISO 12944-4, part 5

Type	Basis		Number of layers	theo. application rate	DFT $\mu\text{m}$
Prime coat	EP	OSNAPOX PA ZH-Grund Item No. 7135-xxxx-0050	1	4 m <sup>2</sup> /kg	80
Top coat	PUR-AY	OSNACRYL PUR SBA G Lack Item No. 32040-xxxx-0011 single-layered	1	5.56 m <sup>2</sup> /kg	80
Total coat thickness			2	=	160
Total coat thickness			2	=	160

Surfaces must be prepared in accordance with DIN EN ISO 12944-4, standard grade of cleanliness Sa 2 ½.

#### Exposure spectrum

Expected durability according to DIN EN ISO 12944 for corrosivity categories														
C1 very low			C2 low exposure			C3 medium exposure			C4 high exposure			C5-I very high Industrial atmosphere		
short	medium	long	short	medium	long	short	medium	long	short	medium	long	short	medium	long

The classification into different corrosivity categories provides only limited information on durability and shelf life.  
. Please refer to DIN EN ISO 1294, part 5

## 6 Coating Systems Corrosivity Category C3, enclosed, long

**Corrosion protection system for steel**

**BV C3 A3.009**

Fast-drying, highly-resistant coating system on EP / PUR basis showing quick thorough drying properties and good chemical resistance. Spray application is to be preferred.

Examples of typical environments in moderate climate include:

Production space with high humidity levels and certain air contamination such as foodstuff plants, laundries, breweries, dairies, chemical plants, pools, boat houses.

In accordance with DIN EN ISO 12944-4, part 5

Type	Basis		Number of layers	theo. application rate	DFT $\mu\text{m}$
Prime coat	EP	OSNAPOX PA ZH-Grund Item No. 7135-xxxx-0050	1	4.0 m <sup>2</sup> /kg	80
Intermediate coat	EP	Osnapox 2K EZA Lack Item No. 5009-xxxx-0260	1	6.34 m <sup>2</sup> /kg	60
Top coat	PUR-AY	OSNACRYL PUR SBA G Lack Item No. 32040-xxxx-0011 Single-layered	1	7.41 m <sup>2</sup> /kg	60
Total coat thickness			3	=	200

Surfaces must be prepared in accordance with DIN EN ISO 12944-4, standard grade of cleanliness Sa 2 1/2.

### Exposure spectrum

Expected durability according to DIN EN ISO 12944 for corrosivity categories														
C1 very low			C2 low exposure			C3 medium exposure			C4 high exposure			C5-I very high Industrial atmosphere		
short	medium	long	short	medium	long	short	medium	long	short	medium	long	short	medium	long

The classification into different corrosivity categories provides only limited information on durability and shelf life.  
Please refer to DIN EN ISO 1294, part 5