Corroded Yalelift with integrated trolley
– still functional after 9 years in use

MKS coated hand chain hoist Yalelift 360 with integrated trolley and buffers.

This is the standard version with the classification Atex Basic. However, the unit can also be used in non-explosive areas without hesitation.

Corrosion protection

What does corrosion actually mean?

Corrosion is a term from the Latin “corrodere” and means to decompose or eat away and is, from a technical point of view the reaction of a material with its environment. In popular speech, metals are also referred as “rusting”.

How does corrosion occur?

Nowadays, metals are exposed to a wide variety of environmental influences, such as climate and air pollution. This can change their structure. Especially with metals such as iron or steel, oxide formation has a negative effect on the material. Rust develops as a product of corrosion.
In untreated or damaged areas, humidity can hit the metal surface and thus attack it. The corresponding area begins to corrode to the point of rusting through completely.

Types of corrosion

Technically speaking, types of corrosion are classified according to material, cause and appearance and also according to where they occur.
The standard DIN EN ISO 8044 defines 37 different types of corrosion.
One of the best-known types of corrosion is contact corrosion, in which an electrochemical reaction between two different metallic materials in conjunction with e.g. humidity leads to corrosion of the less noble metal.

Other types of corrosion can be:

- pitting corrosion
- surface corrosion
- vibration corrosion cracking
- gap corrosion, etc.

Areas of application

Corrosion-protected equipment with galvanised load or hand chains or rust and acid-resistant chains should be used wherever increased demands are made on corrosion resistance are required. Typical applications are in the food industry (e.g. dairies, slaughterhouses, etc.), the chemical industry (e.g. paper industry, colouring), agriculture or wastewater treatment plants.

Preventive corrosion protection

To prevent early corrosion, all our products are coated. This coating varies depending on the model and is carried out in the form of a wet coating, powder or MKS coating.

For specifications on corrosion protection, the DIN EN ISO 12944 series of standards is used in many cases. This series of standards is used for steel structures or structures whose components are made of unalloyed or low-alloyed steel with a thickness of at least 3 mm and which are designed in accordance with a structural safety designed.

We can only base our products on the corrosivity categories contained in this series of standards (see table below). For some models, increased corrosion protection can be achieved by applying additional or thicker coatings. You will find a detailed list on the next page.

INFO

Corrosion causes annually in Germany alone 75 billion € damage!

Corrosion protection classes in accordance to DIN EN ISO 12944

Atmospheric-Corrosivity categories, Corrosion stress	Corrosivity	Corrosion protection period	Protection period in years	Examples of typical environments
C1 very low	very low low-aggressive inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Only indoor rooms, insulated buildings 60 % relative humidity
C2 low	low moderate aggressive outside/inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Slightly polluted atmosphere, dry climate, e.g. rural areas
C3 medium	moderate low-aggressive outside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	City and industrial atmosphere with moderate SO_2 pollution or moderate climate
C4 high	high moderately aggressive outside/inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Industrial and coastal atmosphere with moderate salt pollution
C5 very high	very high aggressive outside/inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Industrial atmosphere with high relative humidity and aggressive atmosphere as well as coastal atmosphere with high salt content
CX extremely	very high maritim outside/inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Offshore areas with high salt content, industrial areas with extreme humidity and aggressive atmosphere as well as subtropical and tropical atmosphere

MKS Coating

The MKS coating (micro corrosion protection system) is a coating of zinc and aluminium lamellae which primarily protect the unit against corrosion. Even thin layers - typically a system consisting of base and top coat - can achieve high protective effects against base metal corrosion (red rust).

This MKS coating is used on the models Yalelift 360 Atex and HTP/G Atex trolleys for use in explosion-protected areas, but also, for example in wastewater treatment plants.

Powder coating

This is a coating process in which a metal surface is coated with powder. A typical coating line consists of surface pre-treatment (cleaning and/or application of a conversion coating), intermediate drying, electrostatic coating zone and dryer. The workpieces are transported via a transport system. The powder coatings produced typically have layer thicknesses between 60 and 120 ·m. However, depending on the application and surface characteristics, the coating thickness can also be above or below this range.

Wet painting

Varnish is a liquid coating material. This material is applied thinly to surfaces and built up into a continuous, solid film by chemical or physical processes (for example, evaporation of the solvent). Varnishes usually consist of binders such as resins, dispersions or emulsions, fillers, pigments, solvents and additives.

Coating types as standard:

Model	Coating type		
	Wet painting	Powder coating	MKS Coating
CD 85	+		
Yalelift 360		++	
YL with integrated trolley[1]	+	++	
HTP/G	+		
CPE/CPA (with integrated trolley/Atex)	+		
Yalelift 360 Atex			+++
YL Atex with integrated trolley			+++
HTP/HTG Atex			+++

[1] Hand chain hoist powder coated/trolley wet painted

Additional coating possible for:

Model	Coating type		
	Wet painting	Powder coating	MKS + Powder coating
CD 85	x		
Yalelift 360		x	
YL with integrated trolley[1]	x	x	
HTP/G	x		
CPE/CPA with integrated trolley/Atex	x		
Yalelift 360 Atex			x
YL Atex with integrated trolley			x
HTP/HTG Atex			x

[1] Hand chain hoist powder coated/trolley wet painted

All three types of coating have the same purpose:

- **Protection**
  (protective effect, such as protective coating with combination of primer and top coat, protective varnishes),
- **Decoration**
  (optical effect, specific colour effect) and
- **Function**
  (special surface properties, such as modified electrical conductivity)

Selection criteria

The correct selection of an additional coating is essentially based on the following questions:

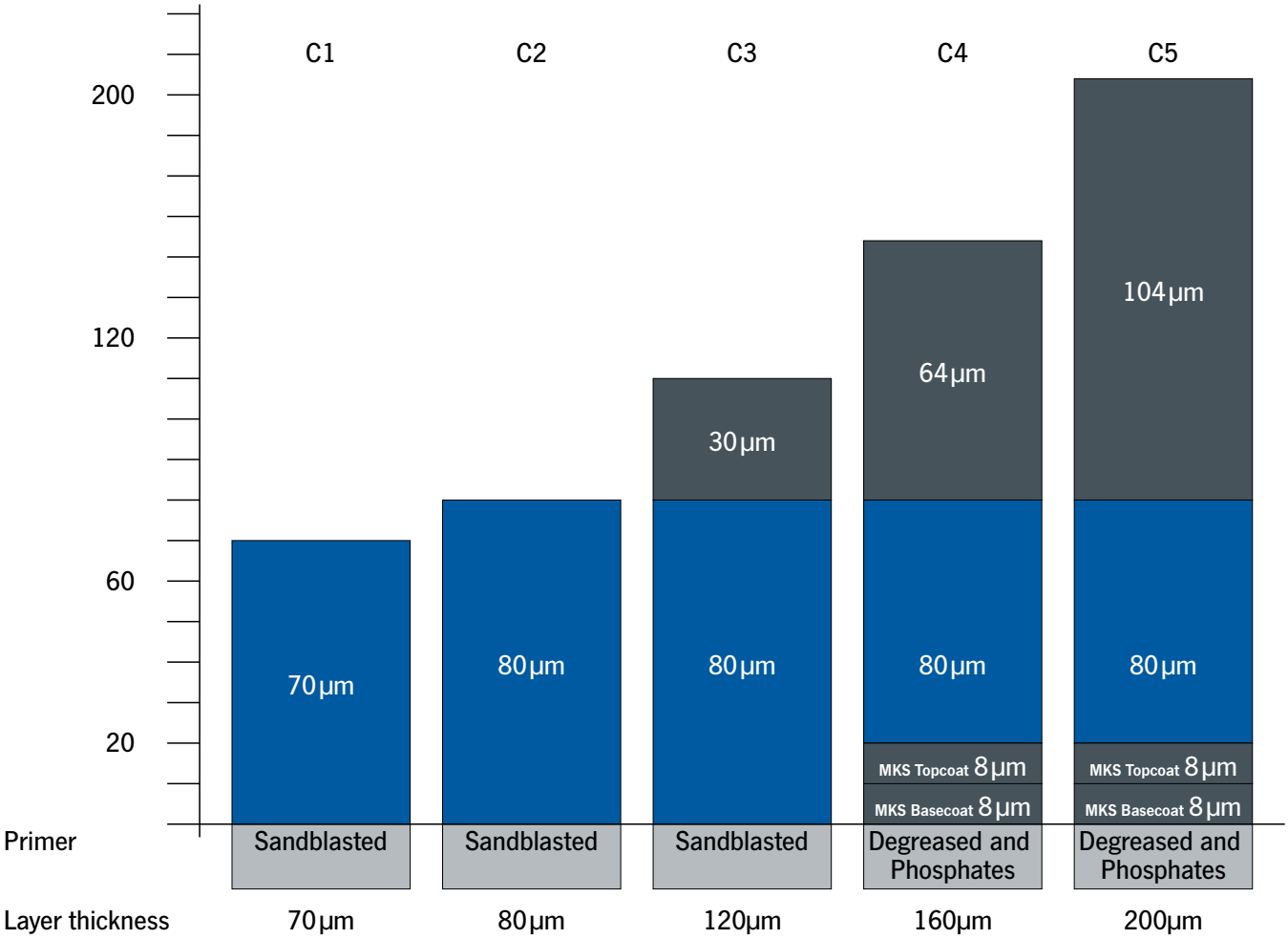
Where will the relevant equipment be used?

Chemical plants, refineries, off-/On-shore platforms etc.

What environmental stresses will the unit be exposed to?

This includes, for example, high humidity, industrial exhaust fumes, salty air, fluctuating temperature ranges, etc.

Layer thickness structure in general



Up to C3 we cover all standard coatings (wet painting and powder coating) on our products.
This means that the corrosivity categories C1 and C2 are also covered.

INFO

When measuring the coating thickness, slight deviations from the values given here are possible, depending on the measuring point.

A coating protocol can be prepared on request, at an additional charge.