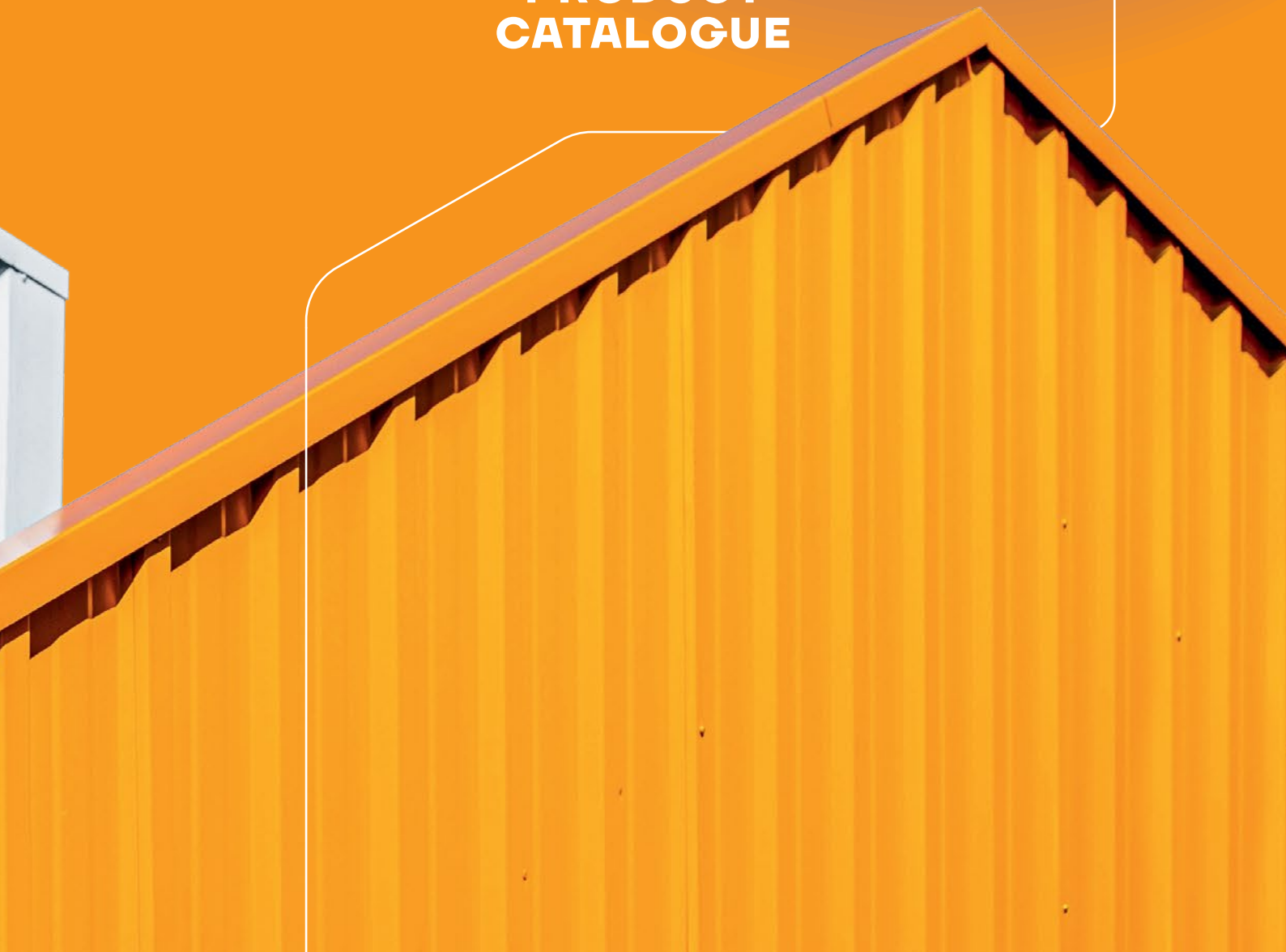


**NLMK**

# PRE-PAINTED STEEL



**PRODUCT  
CATALOGUE**



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## ABOUT NLMK

Russia's No. 1 producer of steel, NLMK Group supplies products to sectors of the economy: from power engineering, petrochemical, pipe making, shipbuilding and construction through to manufacturing of railway transport, mining machinery, trucks, passenger cars, and yellow and white goods.

### WHY NLMK

#### 1. Reliability and quality guarantee

Our business model allows us to control the quality of our products at each stage: from the mining of raw materials to finished product manufacturing and servicing. Self-sufficiency in raw material and energy supplies ensures stability of our operations and unfailing delivery of all commitments to our partners.

#### 2. A wide product mix

NLMK Group produces a wide range of steel products: from semi-finished products and standard grades to high-tech electrical steels. We also offer our clients made-to-order customization to match their individual specifications.

#### 3. Strong team with a customized approach

Our customer service model relies on NLMK Trading House and NLMK.shop, which enables direct engagement with any type of business. We offer a unique proposition in servicing and logistical capabilities, with a guarantee of high and stable product quality.

#### 4. Long-standing expertise in steelmaking

NLMK's success is driven by 90 years' worth of experience in the market and by our continuous efforts in designing new products and deploying digital technologies in production. Our digitalisation projects are widely acclaimed by market experts and recognized with specialised awards.





**R**olled steel with decorative, protective and functional coatings holds a special place in NLMK's product portfolio. All these products deliver exceptionally high performance and are used in the construction and white goods manufacture. A dedicated production process enables high-quality adhesion, or the binding of the coating with the surface. This is one of the key parameters that determines coating longevity.

- **Pre-painted steel with decorative and protective coatings** offer both strength and ductility, attractive appearance and high resistance to the elements. A dedicated production process enables high-quality adhesion, or the binding of the coating with the surface. This is one of the key parameters that determines coating longevity. NLMK offers an evidence-based guarantee on the decorative finish and on the resistance to through corrosion.

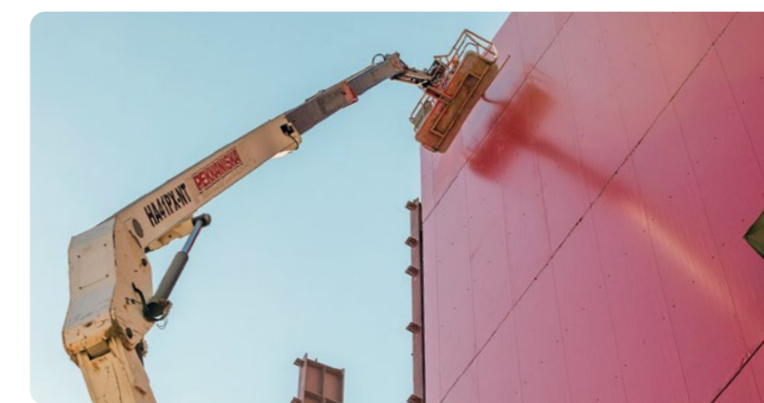
- **Pre-painted steel with functional coatings** is used in various segments of the construction industry. These rolled products are marked by high mechanical, chemical and thermal resistance, as well as great appearance. Such products can operate in aggressive environments and under high UF exposure. NLMK's steel UF resistance is in line with RUV 4. This means that even under prolonged exposure to bright sun the discolouration and de-glossing are minimal. Depending on the coating, the warranty period can be as long as 35 years.

Our partners are also protected from counterfeit products thanks to laser DataMatrix labelling, which provides comprehensive information on the metal's properties and manufacturer.



## Applications

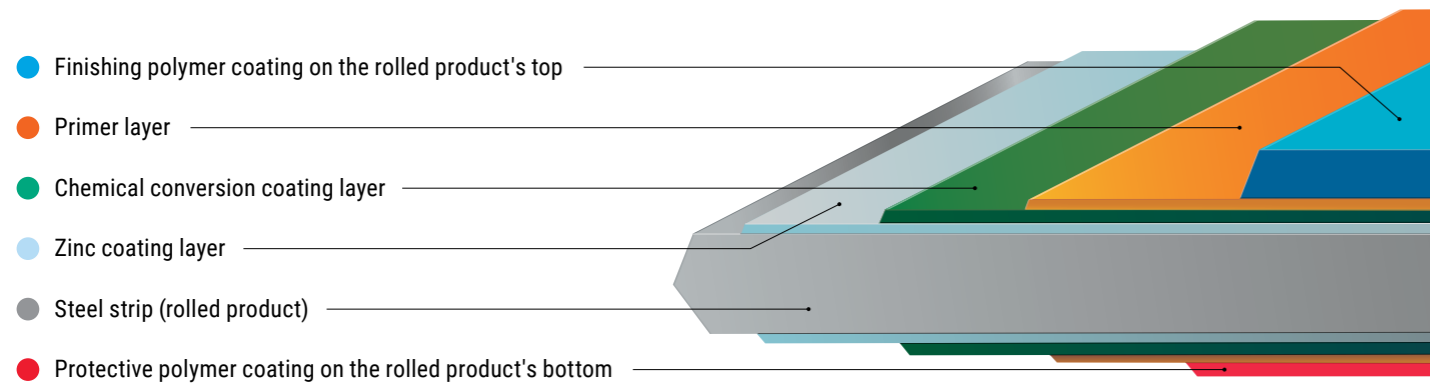
- White goods
- Roofing materials
- Wall panels
- Enclosing structures
- Retail fixtures and equipment



# PRODUCT MIX

Thickness of substrate (rolled products)	0.35–2.0 mm
Rolled product width	900–1,800 mm
Coil inner diameter	500 mm, 600 mm
Weight of commercial coils	3–15 tons
Sheet length	1,500–3,500 mm
Weight of sheet bundles	up to 10 t

# PRE-PAINTED STEEL STRUCTURE



## QUALITY INDICATORS OF POLYMER COATINGS

Indicator*	Type of polymer coating			
	Polyester	Polyurethane	Laminated film	Epoxy-polyester**
Thickness, $\mu\text{m}$	25–35	35–50	20–200	10–18
T-bend strength	0.5–2.0***	0.5–1.0***	0–0.5	$\leq 3$
Erichsen elasticity, mm	$\geq 6$	$\geq 8$	$\geq 8$	not rated
Backward impact strength, J	$\geq 10$	$\geq 10$	20	$\geq 5$
Pencil hardness	F–2H***	F–H	> H	not rated
Color difference ( $\Delta E$ )	$\leq 1$	$\leq 1$	not rated	not rated
Surface texture	smooth textured rippled	textured rippled	smooth textured	smooth textured
Gloss	deep matt semi-matt high-gloss	deep matt semi-gloss	deep matt semi-matt high-gloss	not rated

\* Test methods as per GOST 34180, DIN EN 13523

\*\* Coating on the rolled product's bottom

\*\*\* Depending on the type of coating

At the customer's request, other quality indicator values are possible. When producing one-side pre-painted steel, protective polymer coating is applied onto the back side. When producing two-side pre-painted steel, polymer coating is applied on the back side similar to the top side.

# TYPES AND CHARACTERISTICS OF POLYMER COATINGS

## Polyester

### ADVANTAGES

- Rich color palette (80+ colors)
- Good formability
- Test-proven guarantee for decorative properties and protection against penetrating corrosion
- Balanced price/quality ratio

### APPLICATIONS

- Sandwich panels
- Enclosing structures
- Ventilated facades
- Interior finishing of medical premises, warehouses, and transport infrastructure
- Profiled sheeting products

### WARRANTY OBLIGATIONS\*

- 10–12 years for decorative properties
- 22–28 years for penetrating corrosion



Product	Coating thickness, $\mu\text{m}$	Minimum forming temperature, $^{\circ}\text{C}$	UV resistance	Corrosion resistance as per EN 10169	Wear resistance	Contamination resistance	Chemical resistance, in % of PE
Polyester	25	15	RUV 2-3	RC3	Medium	Medium	100

## Coral polyester

### ПРЕИМУЩЕСТВА

- Good formability
- Finish that mimics natural materials
- Test-proven guarantee on decorative properties and protection against penetrating corrosion
- Weather resistance
- High water repellence

### APPLICATIONS

- Roofing (metal tiles, seam roofing)
- Enclosing structures
- Ventilated facades

### WARRANTY OBLIGATIONS\*

- 15 years for decorative properties
- 22–28 years for penetrating corrosion



Product	Coating thickness, $\mu\text{m}$	Minimum forming temperature, $^{\circ}\text{C}$	UV resistance	Corrosion resistance as per EN 10169	Wear resistance	Contamination resistance	Chemical resistance, in % of PE
Rippled polyester	25	15	RUV 4	RC3	Medium	Good	150

\* In temperate climates

# TYPES AND CHARACTERISTICS OF POLYMER COATINGS

## Textured polyester

### ADVANTAGES

- High mechanical strength and wear resistance
- Good formability
- Weather resistance

### APPLICATIONS

- Metal tiles, seam roofing, and drainage systems
- Facade wall panels, corrugated decks, and sandwich panels
- Noise absorbing barriers
- Transport infrastructure and pedestrian crossings

### WARRANTY OBLIGATIONS\*

- 15 years for decorative properties
- 22–28 years for penetrating corrosion



Product	Coating thickness, µm	Minimum forming temperature, °C	UV resistance	Corrosion resistance as per EN 10169	Wear resistance	Contamination resistance	Chemical resistance, in % of PE
Textured polyester	28	15	RUV 2-3	RC3	Excellent	Medium	150

## Chemically resistant coating

### ADVANTAGES

- High UV resistance for southern and mountainous areas
- High contamination resistance
- Operating ability in aggressive media
- Superb color stability
- High chemical resistance
- High thermal resistance

### APPLICATIONS

- Construction of sports, retail, industrial and agricultural facilities
- Sandwich panels
- Facade panels and profiled sheeting

### WARRANTY OBLIGATIONS\*

- 25 years for decorative properties
- 30–35 years for penetrating corrosion



Product	Coating thickness, µm	Minimum forming temperature, °C	UV resistance	Corrosion resistance as per EN 10169	Wear resistance	Contamination resistance	Chemical resistance, in % of PE
Polyurethane	50	-10	RUV 4	RC5	Excellent	Good	400

## Polyurethane 35/50

### ADVANTAGES

- High mechanical strength and wear resistance
- Good formability
- Weather resistance
- High water repellence

### APPLICATIONS

- Metal tiles, seam roofing, and drainage systems
- Facade wall panels, corrugated decks, and sandwich panels
- Noise absorbing barriers
- Transport infrastructure and pedestrian crossings

### WARRANTY OBLIGATIONS\*

- 25 years for decorative properties
- 30–35 years for penetrating corrosion



Product	Coating thickness, µm	Minimum forming temperature, °C	UV resistance	Corrosion resistance as per EN 10169	Wear resistance	Contamination resistance	Chemical resistance, in % of PE
Polyurethane	50	-10	> RUV 4	RC5	Excellent	Good	300/200
Polyurethane	35	-10	> RUV 4	RC4	Excellent/Medium	Good	300/200

\* In temperate climates

## Varnished coating

### ADVANTAGES

- High aesthetics
- Glossy surface
- Extended service life and wear resistance
- High contamination resistance
- High weather resistance

### APPLICATIONS

- Facade wall panels
- Finishing elements of transport infrastructure
- Roofing (metal tiles, seam roofing)

### WARRANTY OBLIGATIONS\*

- 15 years for decorative properties
- 28 years for penetrating corrosion



Product	Coating thickness, µm	Minimum forming temperature, °C	UV resistance	Corrosion resistance as per EN 10169	Wear resistance	Contamination resistance	Chemical resistance, in % of PE
Varnished polyester	40	15	RUV 3-4	RC3	Good	Good	150

\* In temperate climates

# TYPES AND CHARACTERISTICS OF POLYMER COATINGS

## Antibacterial coating

### ADVANTAGES

- Reduction of bacteria population on the surface by 99.99% over 24 hours proven in testing
- Nanoparticles of copper and silver to prevent propagation of all types of bacteria and fungi
- Free from volatile toxic compounds, chlorine or fluorine compounds
- Certified for compliance with fire, sanitary and hygienic requirements

### APPLICATIONS

- Interior finishing of medical and pharmaceutical facilities
- Premises for processing and storage of agricultural products
- Interior finishing of vans

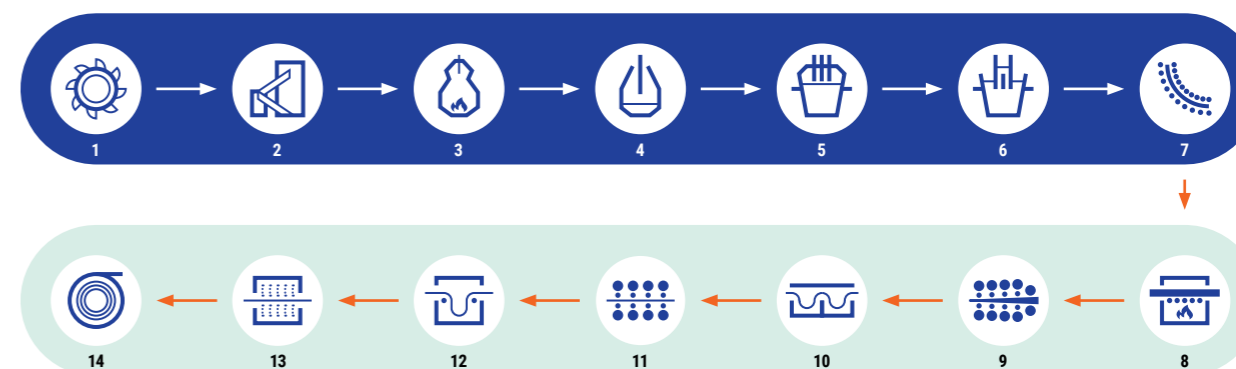
### WARRANTY OBLIGATIONS\*

- 12 years for decorative properties
- 22 years for penetrating corrosion



Product	Coating thickness, µm	Minimum forming temperature, °C	UV resistance	Corrosion resistance as per EN 10169	Wear resistance	Contamination resistance	Chemical resistance, in % of PE
Antibacterial polyester	25	15	RUV 2-3	RC3	Medium	Medium	100

# PRODUCTION FLOW



Production stage	
1	Iron ore mining
2	Sintering
3	Blast furnace
4	Basic-oxygen furnace
5	Ladle furnace
6	Vacuum degasser
7	Continuous casting machine
8	Reheating furnace
9	Mill 2000
10	Continuous pickling line
11	Cold-rolling mill
12	Hot-dip galvanizing line
13	Polymer coating unit
13	Cutting machines
14	Finished products in coils

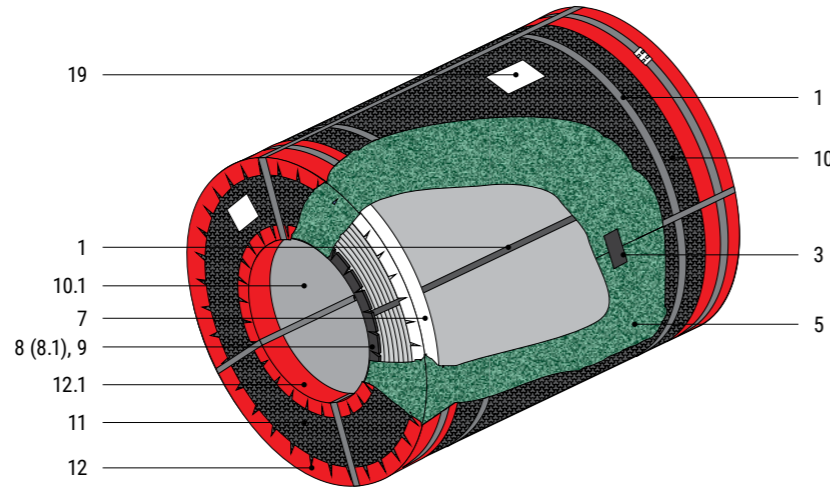


\* In temperate climates

# PACKING CHARTS

## Chart No. 09, No. 91

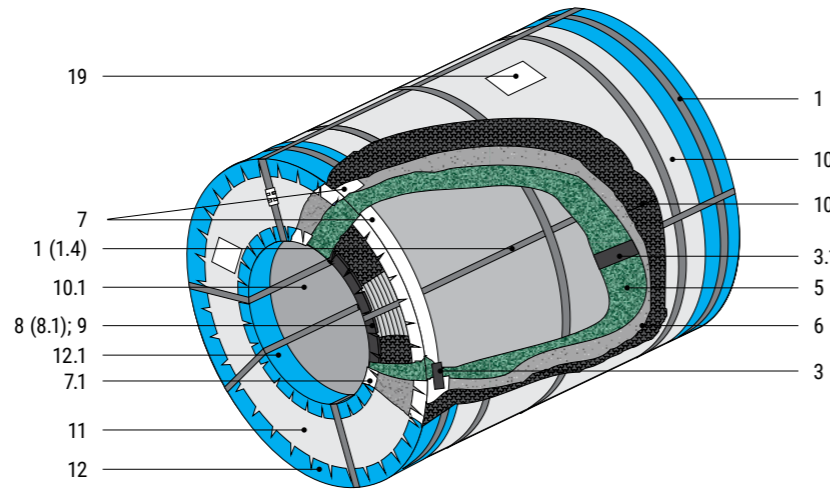
No.	Description
1	Polyester packing strap
3	Adhesive tape 50 mm
5	Multilayer anticorrosive material
7	Protective cardboard angle
8	Plastic insert
8.1	Plastic shell
9*	Cardboard sleeve
10	Internal packing sheet
11	End cover
12	External corrugated angle
12.1	Internal corrugated angle
19	Label (shipping)



\* For Packing Chart No. 91

## Chart No. 12, No. 12-1

No.	Description
1	Polyester packing strap
1.4	Steel baling strap
3	Adhesive tape 50 mm
3.1	Adhesive tape 100 mm
5	Multilayer anticorrosive material
6	Polyethylene film
7	Protective angle 60 x 60 mm
7.1	Protective angle 120 x 80 mm
8	Plastic insert
9*	Cardboard sleeve
10	External packing sheet
10.1	Internal packing sheet
11	End cover
12	External corrugated angle
12.1	Internal corrugated angle
19	Label (shipping)



\* For Packing Chart No. 12-1

# CERTIFICATION OF NLMK GROUP'S MANAGEMENT SYSTEM

Certification body	International standard	Management System
TÜV AUSTRIA CERT GMBH	ISO 9001:2015	Quality Management System
TÜV AUSTRIA CERT GMBH	ISO 14001:2015	Environmental Management System
TÜV AUSTRIA CERT GMBH	ISO 45001:2018	Occupational Health and Safety Management System
TÜV AUSTRIA CERT GMBH	ISO 50001:2018	Energy Management System





# CONTACT US

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