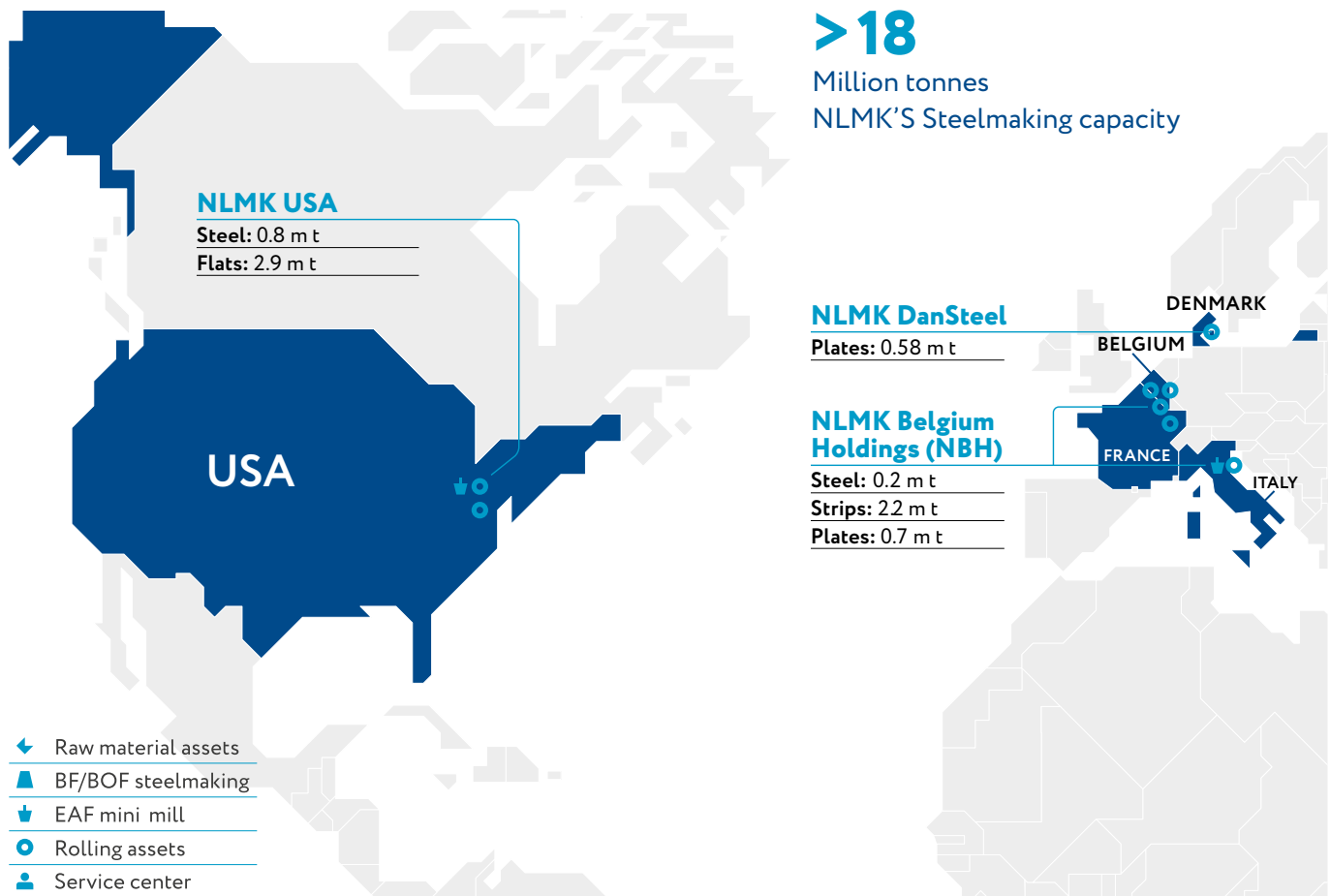




STEELS FOR
BUILDING & CONSTRUCTION



AT A GLANCE



NLMK Europe

The European branch of the NLMK includes all the steel businesses of the NLMK Group in Europe, bringing together production sites with a long history and extensive experience in producing flat steel. In addition, NLMK Europe has an extensive network focusing on transforming and distributing steel products to end users.

NLMK Europe employs almost 2.000 people and is made up of two business units: NLMK Europe-Strip Products producing coils, slit strips and sheets (Belgium and France), and NLMK Europe-Plate specialized in heavy plates and ingots (Belgium, Denmark and Italy).

Key end users include the automotive, general industry, ship-building, construction and energy-producing companies, as well as offshore windmill manufacturers.

NLMK Europe Strip Products

NLMK Europe Strip manufactures coated and uncoated steels. Its production capacity is 2.2 million tonnes of hot-rolled steel, 1.2 million tonnes of pickled and oiled steel and 0.4 million tonnes of galvanized steel per year.

NLMK Europe Strip's facilities located in La Louvière (Belgium) and Strasbourg (France) offer hot-rolled, galvanized and pre-painted steels for automotive, construction, general industry, tubes and distribution segments.

NLMK Steel Center located in Manage (Belgium) provides a range of transformation services for Strip business of NLMK Europe. It focuses on slitting (slit coil) and cutting (sheets) hot-rolled and galvanized steels for automotive, general industry and distribution segments.

STRENGTHS

A strong shareholder

NLMK Group is the biggest Russian steel company. NLMK is vertically integrated and oversees the complete value chain, from the mining of raw materials to the delivery of products to consumers. In addition, the NLMK Group supports us in our numerous investments and in our ongoing development.

Integrated supply chain

Our integrated supply-chain allows the continuous support that our customers seek. Our lean and flexible organization has made us a preferred partner in the segments we target.

High quality slabs

They are produced directly in the steel shops of Lipetsk with the latest technology. Their quality consistency and clean-liness give us a competitive advantage for supplying finished products meeting the highest standards.

Close to you

We are able to deliver our products to you very quickly, no matter where you are. Moreover, our different teams, made up of talented and skilled professionals, provide tailored solutions that help your business to grow.



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HOT ROLLED STEELS

Hot rolled steels can be supplied with a surface finish as hot rolled or pickled. When required, a preservative oil can be applied on pickled steel according to several oil weight ranges between 0.5 and 2.5 g/m² per side.

The following edge finish are available[°]:

- Mill edges for non-pickled or pickled (-and oiled) conditions,
- Trimmed edges for pickled (-and oiled) conditions.

[°] For any further information, please contact our Sales Department.



Structural Steels

Structural steels are Carbon-Manganese steels and have a guaranteed minimum Yield-, Tensile- and Impact-strength. Besides the usual hot rolled steels, the range includes fine-grain steels (obtained by normalizing rolling "+ N").

Structural steels are also available as rolled (+AR), normalized rolling (+N), suitable for cold forming (C).

They can also be in compliance with post-galvanizing (see table for Class 1 to Class 3).

Class	Elements in weight %		
	Si	Si + 2.5P	P
Class 1	≤ 0.030	≤ 0.090	-
Class 2	≤ 0.030	-	-
Class 3	0.14 ≤ Si ≤ 0.25	-	≤ 0.035

Use

Structural steels are extensively used in Mechanical and Building industries, particularly suitable to manufacture structures subject to high mechanical requests.

Typical uses are:

- Cranes, pylons, steel frames for buildings and other architectural works
- Structure of industrial equipment & welded mechanical assemblies
- Posts for public lighting & guardrails
- Welded tubes and beams for construction

The atmospheric corrosion resistant steels are particularly performing in:

- Industry (structures, chimneys, ventilation ducts)
- Railway transport (bogies, chassis)
- Marine environment (ships, harbour equipment, containers)

Quality Standard

In compliance with European Standard EN 10025-2 & "Construction Products Regulation" 305/2011/EU

Mechanical properties

Grades	Yield Strength (MPa) min	Tensile Strength (MPa) min-max		L ₀ =5.65√S ₀ Nominal Thickness						Impact Strength	
		<3	≥ 3	>1	>1.5	>2	>2.5	>3		Energy J min	Temp. °C
			≤12.7	≤1.5	≤2	≤2.5	< 3	≤12.7			
S235JR	235	360-510	360-510	16	17	18	19	24	27	20	
S235JO	235	360-510	360-510	16	17	18	19	24	27	0	
S235J2	235	360-510	360-510	16	17	18	19	24	27	-20	
S275JR	275	430-580	410-560	14	15	16	17	21	27	20	
S275JO	275	430-580	410-560	14	15	16	17	21	27	0	
S275J2	275	430-580	410-560	14	15	16	17	21	27	-20	
S355JR	355	510-680	470-630	13	14	15	16	20	27	20	
S355JO	355	510-680	470-630	13	14	15	16	20	27	0	
S355J2	355	510-680	470-630	13	14	15	16	20	27	-20	
S355K2	355	510-680	470-630	13	14	15	16	20	40	-30	

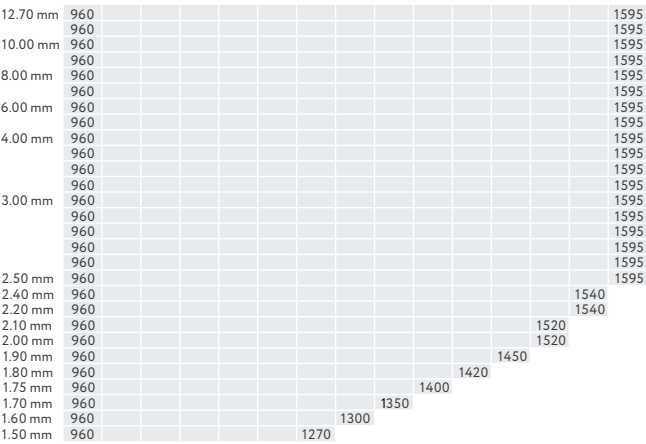
Chemical composition

Grades	C% max	Si% max	Mn% max	P% max	S% max	N% max	Cu% max
S235JR	0.17	-	1.40	0.035	0.035	0.012	0.55
S235JO	0.17	-	1.40	0.030	0.030	0.012	0.55
S235J2	0.17	-	1.40	0.025	0.025	-	0.55
S275JR	0.21	-	1.50	0.035	0.035	0.012	0.55
S275JO	0.18	-	1.50	0.030	0.030	0.012	0.55
S275J2	0.18	-	1.50	0.025	0.025	-	0.55
S355JR	0.24	0.55	1.60	0.035	0.035	0.012	0.55
S355JO	0.20	0.55	1.60	0.030	0.030	0.012	0.55
S355J2	0.20	0.55	1.60	0.025	0.025	-	0.55
S355K2	0.20	0.55	1.60	0.025	0.025	-	0.55

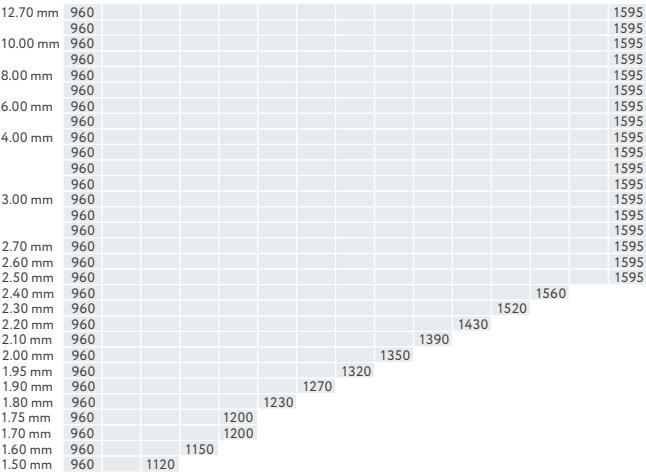
Rolling program

A. Range of specifications

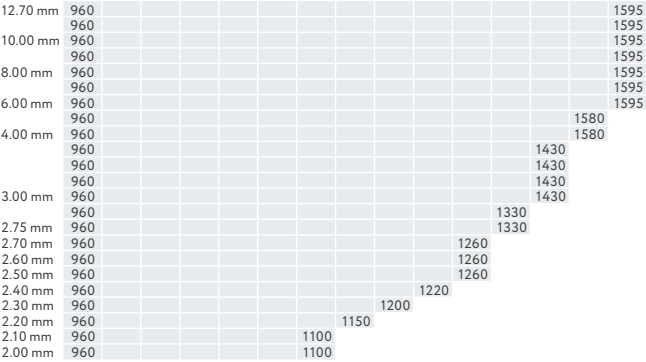
Grade S235J



Grade S275J



Grade S355J



Production standard

B. Thickness tolerances

In compliance with European Standard EN 10051

(for 1/2 or 3/4 EN, please contact our Technical or Sales Departments)

Delivery

	HR Black	HR Pickled and Oiled
T/coils	25 t max	
Kg/mm	18 kg max	
Outside diameter	1900 mm max	
Inside diameter	762 (-30) mm	610 mm
Axis	Horizontal	
Strapping	Radial & circumferential	
Label	1 inside / 1 outside	
Packaging	Nothing	To be defined
Protection	-	Anticorrosion oil
Certificate	In compliance with standard EN 10204	

Steel processing

A. Cutting

Unless otherwise mentioned, Hot rolled steel grades can all be processed by cutting (mechanical, laser, plasma, HD plasma); because of high risk that flame-cutting destroys the mechanical properties alongside the steel sheet, this process might be unused.

B. Weldability

Unless otherwise mentioned, low carbon steels are in compliance with usual welding processes.

C. Forming

Unless otherwise mentioned, NLMK hot rolled steels have due forming ability, as for drawing, bending and rolling.

PRODUCT RANGE

HOT DIP GALVANIZED STEELS

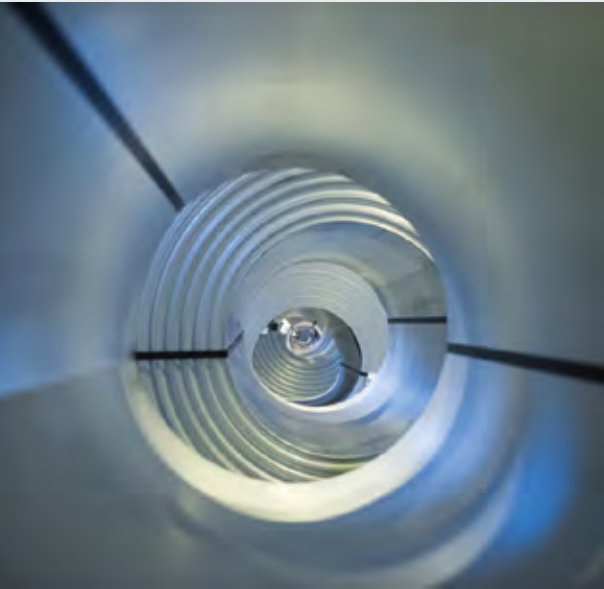
Hot rolled or cold rolled coils are annealed and coated in a 450°-melting bath of Zinc or Zinc-alloy in a continuous process. Zinc coating protects steel from corrosion. NLMK Strasbourg supplies a wide variety of Hot Dip Galvanized steels, especially designed for cold-forming, such as drawing, bending and profiling.



Hot Dip Galvanized Steels

Hot rolled or cold rolled coils are annealed and coated in a 450°-melting bath of Zinc or Zinc-alloy in a continuous process. Zinc coating protects steel from corrosion.

Cathodic protection: When the surface is scratched or cut at the edges, the spontaneous electromechanical reaction of the zinc sacrifice generates a protective repair barrier.



Quality Standard

Substrate steel grades and dimensions rolling programme are in compliance with the corresponding standards (revert to NLMK La Louviere or Strasbourg data sheets).

Galvanized steels are in compliance with European Standard EN 10346

Mechanical properties

Mild Steels

Grades	Rp ₀₂ MPa min-max	R _m MPa min-max	A ₈₀ % ¹ min	r min	n min
DX 51 D	-	270-500	22	-	-
DX 52 D	140-300	270-420	26	-	-

¹ For product thickness 0.5<t<0.70 mm, the minimum elongation at break A80 values is to be reduced by 2 units. For t≤0.50 mm, the reduction is 4 units.

Structural Steels

Grades	Rp ₀₂ MPa min	R _m MPa min	A ₈₀ % ¹ min
S 220 GD	220	300	20
S 250 GD	250	330	19
S 280 GD	280	360	18
S 320 GD	320	390	17
S 350 GD	350	420	16

¹ For product thickness ≤ 0.70 mm, the minimum elongation at break A80 values is to be reduced by 2 units.

Use

Galvanized steels are traditionally used for industrial applications and construction sector.

Steel Family	Grades	Applications	Properties
Mild Steels	DX51D-DX52D	Electrical household appliances, profiles, electrical cabinets, equipment	Suitable for cold forming / hydroforming DX52D Stamping part possible Resistance to static load <= suitable for cold forming Folding / cutting / profiling
Structural Steels	S220GD S250GD S280GD S320GD S350GD	Construction, agriculture, silos and trailers, swimming pools, metal shelving, protective housings, profiles	Suitable for cold forming / hydroforming DX52D Stamping part possible Resistance to static load <= suitable for cold forming Folding / cutting / profiling



Coating

A. Zinc mass

Depending on substrate' end-use and thickness, Zinc layer varies from 70 up to 450 gr/m²-double side.

Mass of zinc	Thickness
≥ 70 g/m ² and ≤ 100 g/m ²	≥ 0.70 mm and ≤ 2.00 mm
> 100 g/m ² and ≤ 275 g/m ²	≥ 0.40 mm and ≤ 3.00 mm
> 275 g/m ² and ≤ 450 g/m ²	≥ 0.45 mm and ≤ 3 mm (aspect MA or MB)

Aspect for extrem case (thin thickness vs. high zinc loading) has to be validated with technical teams.

B. Surface

Minimized spangle ONLY

Aspect	Definition		Applications
Type A (MA)	Standard	Yes	Non-visible components Exposed and non exposed components Profile, rail, accessories, cladding
Type B (MB)	Skinpass	Yes	Visible and non-visible components Exposed and non exposed components Profile, rail, accessories, cladding

C. Treatments

Without treatment	X	
Oiled	X	PL3802-39S FUCHS + QUAKER N6130
Passivation	X	Without Cr ⁶
Stamping	X	Approved by all OEMs



Rolling program

Framework of dimensions

- Thicknesses from 0.40 up to 3.00 mm
- Widths from 970 up to 1530 mm

Limits due to cold rolled or hot rolled substrate, or zinc coating.

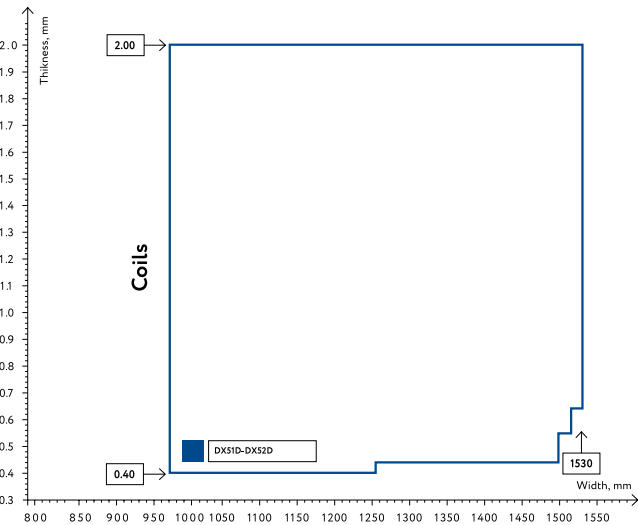
Delivery possibilities

Coils

- Horizontal axis, radial and circumferential strapping
 - Coil weights: 2t min to 27t max
 - Outside diameter 780 to 2100 mm max
- Depending on the dimensions of the coils

Dimensional Programs

Mild Steels

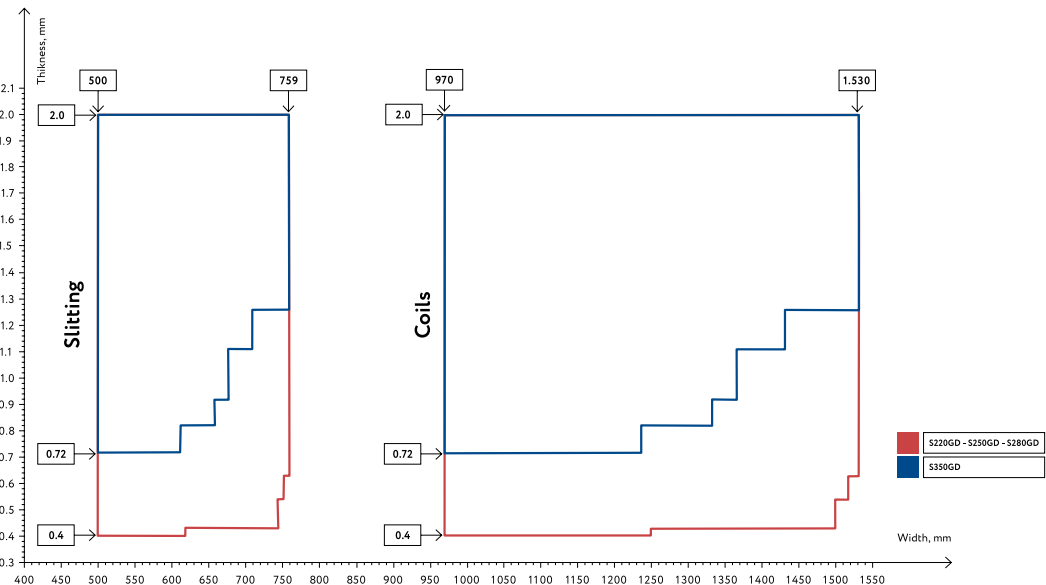


Steel processing

The galvanized steels have same grade and processing ability as their steel substrates. However, the metallic finish coating type and thickness might prevent from cutting, forming or welding at usual technical terms.

Please contact our technical or sales teams for any questions or further information on our new capabilities and our extented HR product range.

Structural Steels





TECHNICAL DOCUMENTATION

Steel processing

The galvanized steels have same grade and processing ability as their steel substrates.

However, the metallic finish coating type and thickness might prevent from cutting, forming or welding at usual technical terms.

Our galvanized steels can also be delivered as slits and/or sheets by our Steel Service Center.

Standards and specifications

Without particular requirement of the user, our products are processed according to Euronorm standards.

On your request, our specialists will elaborate the material according to your own technical specifications.

Please contact us if you have any questions or require further information.

PRODUCT RANGE

PRE-PAINTED STEELS

Pre-painted steel - also called organic coated steel (OCS) - are produced at the NLMK Strasbourg plant in France and consist of layers on a substrate (on metallic coated steel), a surface treatment, a 'primer' paint layer and a 'finishing' paint layer. According to the Quality Standards, different grades are available for the following products: Mild (DX 51 to DX 52) and Structural Steels (S220 to S350GD), Resins and Organic Coated Steel. Our organic coated steels are mainly suitable for the building markets (construction and equipment).



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POLYVINYLIDENE FLUORIDE (PVDF)

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VERY HIGH DURABILITY (VHD)

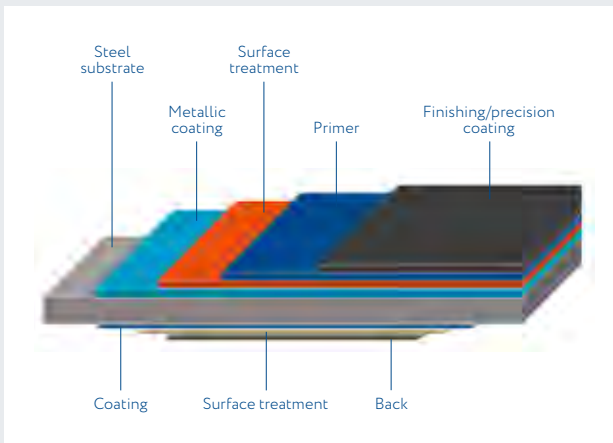
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VERY VERY HIGH DURABILITY (VVHD)

Organic Coated steel Guide & Recommendations

Organic steel - also called “pre-painted”- consists of:

- Substrate: metallic coated steel
- surface treatment without Chrome (Cr)
- “primer” paint layer
- “finishing” paint layer - also called “precision coating” or “front coating”



Advantages

Ecological

- NLMK Coating steel mill has been built in compliance with environmental legislations, ensuring nature protection and sustainability:
 - Liquid effluents are collected in due containers and appropriately recycled
 - Solvents are entirely used to heat baking oven
 - All paints and surface treatments are free of chromium and heavy metals

Economic

- Quicker, safer and easier than post-painting
- Simplified industrial process (continuous line), cheaper than individual post-painting equipment

Technic

Quality control on line:

- Thickness
- Color measurement
- Gloss
- Aspects: metallic, grained, iridescent, smooth, structured

Use

Our organic coated steels are priory suitable for the Building markets (construction and equipment)

- Cladding & roofing, sectional doors, ceilings, gutters...

They are also extensively used in General Industry, as

- Metallic furniture, appliance framing, shutters, fences...



How to select

There is no single organic coated steel, which would be convenient for each or any application; the choice is as wide as the variety of combinations (substrates, colours, layer thickness, gloss, aspect, types of resins...), allowing the accurate product performance and leading up to your personal taste!

Criteria or constraints for choosing the adequate organic coated steel are:

- Aesthetic (gloss, aspect, UV resistant...)
- Process (forming ability, painting adhesion, surface hardness...)
- Quality in use (corrosion-, fire-, heat-, chemical resistant; food industry compliance...)
- Legislations (architecture, environment, technic...)

Quality Standards

Available steel grades

- Mild steels: DX 51D and DX 52D in compliance with EN 10346
- Structural steels: S220 to S350GD, in compliance with EN 10346

Available organic coating types

- Organic coated steel - compliant with EN 10169, NF P34-301
- Paint layer characteristics in compliance with EN 13523
- Main painting system
 - Polyester : 15* to 35 µm
 - Polyurethane : 35 to 80 µm
 - PVDF : 25 to 35 µm

* single layer (without primer)

Contact us for others configurations

- Polyester advantages: Gloss; corrosion-, heat- and UV- resistant, cost-effective
- PVDF, PUR advantages
Color durability; screen against corrosion

Liquid paints

- Paints result from the complex mix of several components: binder (resin), pigments (giving the colour), additives, solvents
- Solvents, liquids dissolving resins et reducing (diluting) the viscosity of the paint
- Additives, influencing the drying, sliding
- Loads: influencing gloss, permeability, hardness
- "Binders" are intrinsically essential and classified in two groups
 - Thermo-hardener, for Polyester system, PUR
 - Thermo-plastic, for PVDF system
 - Given the layer's properties .
- Pigments : giving the colour

Conditions of use

A. Building markets - Outdoor use (Z225 min)

	Corrosion			UV	Urban & industrial			Marine				Special
	DIN 55928 -8	XP 34-301	EN 10169	EN 10169	Rural unpolluted	Normal	Severe	20 to 10 km	10 to 3 km	Seaside (3 to 1 km)	Mixed	
Organic coated												
Polyester 25 µm	III	III	RC3	RUV3	A	A	C	B	C	C	C	C
Grained Polyester 25 µm	III	III	RC3	RUV3	A	A	C	B	C	C	C	C
Matt Polyester 25 µm	III	III	RC3	RUV3	A	A	C	B	C	C	C	C
THD 25 µm	III	III	RC3	RUV4	A	A	C	B	C	C	C	C or B
THD Thermal 25 µm	III	III	RC3	RUV4	A	A	C	B	C	C	C	C or B
PVDF 25 µm	III	IV	RC3	RUV4	A	A	C	B	B	C	C	C or B
Matt Polyester 35 µm	III	V	RC4	RUV3	A	A	B	A	A	A	B	C or B
THD 35 µm	III	VI	RC4	RUV4	A	A	B	A	A	A	B	A or B
THD Thermal 35 µm	III	VI	RC4	RUV4	A	A	B	A	A	A	B	A or B
PVDF 35 µm	III	VI	RC4	RUV4	A	A	B	A	A	A	B	A or B
TTHD 55µm	III	VI	RC5	RUV4	A	A	B	A	A	A	B	A or B

A = Adapted B = Acceptable / On consultation C = Not recommended

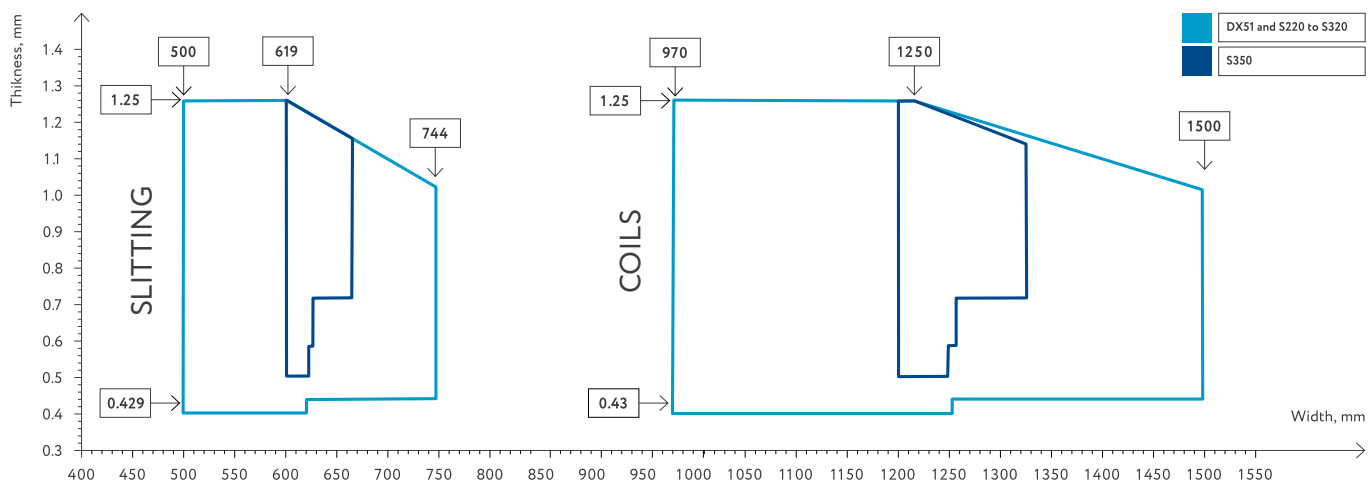
B. Building markets - Indoor use (Z100 min)

	Humidity Z100 min			Not aggressive			Slightly aggressive	Aggressive	Very aggressive
	DIN 55928 -8	XP 34-301	EN 13523-26	Low humidity	Average humidity	High humidity	Humid	Very humid	Saturated
Organic coated									
Mono 15 µm	II	II	CPI2	A	B	C	C	C	C
Polyester 25 µm	III	III a	CPI3	A	A	B	C	C	C
Grained Polyester 25 µm	III	III a	CPI3	A	A	B	C	C	C
Matt Polyester 25 µm	III	III a	CPI3	A	A	B	C	C	C
THD 25 µm	III	III a	CPI3	A	A	B	C	C	C
PVDF 25 µm	III	III a	CPI3	A	A	B	C	C	C
Matt Polyester 35 µm	III	III a	CPI4	A	A	A	B	C	C
THD 35 µm	III	III a	CPI4	A	A	A	B	C	C
PVDF 35 µm	III	IV b	CPI4	A	A	A	B	C	C
TTHD 55 µm	III	IV b	CPI5	A	A	A	A	B	C

A = Adapted B = Acceptable / On consultation C = Not recommended

Type of coatings & Range of dimensions

Dimensional tolerances are in accordance with EN 10143



Organic coated steel Performances

Performances depend on:

- **Substrate steel grade:** according to forming constraints (for example, bending or profiling), the adequate steel grade is Mild steel or Structural steel.
- **Substrate metallic coating:** substrates for building use, any general outdoor use or demanding-atmosphere use, are hot dipped galvanized; Zinc-type (pure or alloyed) as well as Zinc-mass are linked to the organic coated steel end-use conditions (revert to Data Sheet Galvanized steels).
- **Organic coating (the paint):** linked to the quality in use, coating is made of a single layer ("Monolayer") or two layers (Primer + Finishing).

Paint is usually coated on the top side, optionally on the reverse side, or even on both sides. Reverse side is commonly Backcoat coated only or compatible with glue, PUR...

NB: NLMK Strasbourg supplies **food-industry compliant paints** (for Polyester, PVDF and PU systems).

Aesthetic is made of

- **Colour:** available from colour chart (Ex: RAL) or customized + metallic color + pearly paint

NB: metallic and pearly finishes can be provided for VHD, PVDF and PUR systems

- **Gloss:** Gardner gloss scale ranks from 5 up to 50 GU (gloss unit), in other words from matte not radiant up to high luminance paint
- **Texture:** smooth, grained, structured

Delivery

Coils

T/Coils	17.3 t max
Outside diameter	1800 mm max
Inside diameter	508 mm
Section	1520 mm²
Axis	Horizontal
Strapping	Radial & circumferential
Label	1 inside / 1 outside
Packaging on request	Rolled-up on cardboard Paper or metallic wrapped Wooden cradle
Protection	–
Certificate	In compliance with EN 10204

Sheets & Narrow Strips

> Please contact our Sales Department

Steel processing

The Organic coated steels processing ability depends on the substrate’s steel grade.

However, the organic finish coat type and thickness, as well as substrate’s properties, might prevent from cutting, forming or welding at usual technical terms.

Please contact our technical or sales teams for any questions or further information on our new capabilities and our extented HR product range.



1 Building Polyester 25μ

Galvanized steel coated with a painting system (nominal thickness of 25 μm) consisting of a primer coat and a polyester finish coat.

Wide range of colours and glosses available, except metallic finishes.

Major performances

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	III	III	RC3 RC2 for Z100
Photochemical resistance (UV)		III	RUV3

Use

Suitable for indoor and outdoor use in Building markets, in normal weather situation.

Ex: cladding and ruffingharbour equipment, containers)

Quality Standards

A. Organic coating

In compliance with EN 10169

NB: according to it's environment protection policy, NLMK supplies coatings and surface treatments free of chromium and heavy metals.

B. Mechanical properties

Defined by the substrate's steel grade and it's corresponding norm

Available steel grades

- DX51, DX52, S220 to S350GD in compliance with EN 10346

Conditions of use

Finish organic coating

- **Conventional:** Top side finish coat
- **Optional:** double sided finish coat
- **Otherwise:** backcoat layer on reverse side

Properties	Test standard	Criteria	Guarantee	Comments
Thickness	EN-13523-1	P34301 or EN-10169	25 μm	
Specular gloss	EN-13523-2	P34301 or EN-10169	20 to 50 GU	GU = Gloss unit
Bending adhesion	EN-13523-7	P34301 or EN-10169	2 T	
CLEMEN Hardness	ISO 1518		> 1500 g	
Flexibility	EN 13523-7		3 T	
Salt Spray Test	EN-13523-8	EN-10169	360 h	240 h on Z100
UV Resistance	EN-13523-10	DELTA E <=5 Gloss retention>30%	2000 h	
Fire Resistance	CSTB		M0	
Heat Resistance			80°C	
Tropical Test	EN-13523-26	ISO 6270-1	1000 h	-

Delivery

Coils

T/Coils	17.3 t max
Outside diameter	1800 mm max
Inside diameter	508 mm
Section	1520 mm ²
Axis	Horizontal
Strapping	Radial & circumferential
Label	1 inside / 1 outside
Packaging on request	Rolled-up on cardboard Paper or metallic wrapped Wooden cradle
Protection	–
Certificate	In compliance with EN 10204

Sheets & Narrow Strips

> Please contact our Technical or Sales Departments

Steel processing

The Organic coated steels processing ability depends on the substrate's steel grade.

However, the organic finish coat type and thickness, as well as substrate's properties, might prevent from cutting, forming or welding at usual technical terms.

Please contact our technical or sales teams for any questions or further information for other specifications.

2 Indoor Polyester

Galvanized steel coated with a painting system consisting of a light Polyester layer (thickness max 15 µm).

Major performances

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	II	II	RC2
Photochemical resistance		II	RUV1

Use

Low-cost system, suitable for:

- Indoor Building applications
- Outdoor Industry and Building markets, free of guarantee

Ex: indoor cladding, shutters, construction works barriers

Quality Standards

A. Organic coating

In compliance with EN 10169

NB: according to it's environment protection policy, NLMK supplies coatings and surface treatments free of chromium and heavy metals.

B. Mechanical properties

Defined by the substrate's steel grade and it's corresponding norm

Available steel grades

- DX51, DX52, S220 to S350GD in compliance with EN 10346



Coating

A. Substrate's Metallic coating

- Double-sided, in compliance with EN 10346
- **Zinc mass:** Z100 min

B. Finish organic coating

- **Conventional:** Top side finish coat
- **Optional:** double sided finish coat
- **Otherwise:** backcoat layer on reverse side

Properties	Test standard	Criteria	Guarantee	Comments
Thickness	EN-13523-1	P34301 or EN-10169	15 µm	
Specular gloss	EN-13523-2	P34301 or EN-10169	20 to 50 GU	GU = gloss unit
Bending adhesion	EN-13523-7	P34301 or EN-10169	2 T	
CLEMEN Hardness	ISO 1518		> 1500 g	
Flexibility	EN 13523-7		3 T	
Salt Spray Test	EN-13523-8	EN-10169	240 h	
Fire Resistance	CSTB		M0	
Tropical Test	EN-13523-26	ISO 6270-1	500 h	-

Delivery

Coils

T/Coils	12t max (risk of ovalization)
Outside diameter	1800 mm max
Inside diameter	508 mm
Section	1520 mm ²
Axis	Horizontal
Strapping	Radial & circumferential
Label	1 inside / 1 outside
Packaging on request	Rolled-up on cardboard Paper or metallic wrapped Wooden cradle
Protection	-
Certificate	In compliance with EN 10204

Sheets & Narrow Strips

> Please contact our Technical or Sales Departments

Steel processing

The Organic coated steels processing ability depends on the substrate's steel grade.

However, the organic finish coat type and thickness, as well as substrate's properties, might prevent from cutting, forming or welding at usual technical terms.

Please contact our technical or sales teams for any questions or further information for other specifications.

3 Grained Coating

Galvanized steel coated with a painting system (nominal thickness of 25 µm), consisting of a primer coat and a Polyester finish coat containing micro-leads of polyamid.

Characteristics

- Aesthetic: granular touch and aspect
- Technic: stronger surface hardness.

Major performances

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	III	III	RC3 RC2 for Z100
Photochemical resistance		III	RUV3

Use

Especially designed for indoor and outdoor uses in both industrial and building markets.

Ex: sectional doors, metallic furniture, appliance framing

Quality Standards

A. Organic coating

In compliance with EN 10169

NB: according to it's environment protection policy, NLMK supplies coatings and surface treatments free of chromium and heavy metals.

B. Mechanical properties

Defined by the substrate's steel grade and it's corresponding norm

Available steel grades

- DX51, DX52, S220 to S350GD in compliance with EN 10346



Coating

A. Substrate's Metallic coating

- Double-sided, in compliance with EN 10346
- **Zinc mass:** inside use: Z100 min
outside use: Z225 - Z2275

B. Finish organic coating

- **Conventional:** Top side finish coat
- **Optional:** double sided finish coat
- **Otherwise:** backcoat layer on reverse side

Properties	Test standard	Criteria	Guarantee	Comments
Thickness	EN-13523-1	P34301 or EN-10169	25 µm	
Specular gloss	EN-13523-2	P34301 or EN-10169	30 GU	GU = Gloss unit
Abrasion Resistance	EN-13523-16	CS10/500g/1000T	50 mg	
Bending adhesion	EN-13523-7	P34301 or EN-10169	0.5 T	
CLEMEN Hardness	ISO 1518		> 1500 g	
Flexibility	EN 13523-7		1.5 T	
Salt Spray Test	EN-13523-8	EN-10169	360 h	240 h on Z100
UV Resistance	EN-13523-10	DELTA E <=3 Gloss retention >50%	2000 h	
Fire Resistance	CSTB		M0	
Heat Resistance			80°C	
Tropical Test	EN-13523-26	ISO 6270-1	1000 h	-

Delivery

Coils

T/Coils	12 t max (risk of ovalization)
Outside diameter	1800 mm max
Inside diameter	508 mm
Section	1520 mm²
Axis	Horizontal
Strapping	Radial & circumferential
Label	1 inside / 1 outside
Packaging on request	Rolled-up on cardboard Paper or metallic wrapped Wooden cradle
Protection Certificate	- In compliance with EN 10204

Sheets & Narrow Strips

> Please contact our Technical or Sales Departments

Steel processing

The Organic coated steels processing ability depends on the substrate's steel grade.

However, the organic finish coat type and thickness, as well as substrate's properties, might prevent from cutting, forming or welding at usual technical terms.

Please contact our technical or sales teams for any questions or further information for other specifications.

4 Matt Polyester

Galvanized steel coated with a painting system (nominal thickness of 25 up to 35 µm), consisting of a primer coat and a matt polyester finish coat (gloss ≤ 5 GU).

Characteristics

- Aesthetic: reduced steel appearance (different sizes of structure are available)
- Technic: good UV resistance

Major performances

Polyester 25 µm

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	III	III	RC3
Photochemical resistance		III	RUV3

Polyester 35 µm

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	III	V	RC4
Photochemical resistance		V	RUV3

Use

Especially designed for outdoor Building markets, particularly roofing systems.

Examples: tiles profile sheets

Quality Standards

A. Organic coating

In compliance with EN 10169

NB: according to it's environment protection policy, NLMK supplies coatings and surface treatments free of chromium and heavy metals.

B. Mechanical properties

Defined by the substrate's steel grade and it's corresponding norm

Available steel grades

- DX51, DX52, S220 to S350GD in compliance with EN 10346



Coating

A. Substrate's Metallic coating

- Double-sided, in compliance with EN 10346
- **Zinc mass:** Z225 - Z275

B. Finish organic coating

- **Conventional:** Top side finish coat
- **Otherwise:** backcoat layer on reverse side

Properties	Test standard	Criteria	Guarantee	Comments
Thickness	EN-13523-1	P34301 or EN-10169	25 to 35 µm	
Specular gloss	EN-13523-2	P34301 or EN-10169	≤ 5 GU	GU = Gloss unit
Bending adhesion	EN-13523-7	P34301 or EN-10169	0.5 T	
CLEMEN Hardness	ISO 1518		> 1500 g	
Flexibility	EN 13523-7		2 T	
Salt Spray Test	EN-13523-8	EN-10169	360 h	
UV Resistance	EN-13523-10	DELTA E ≤3 gloss retention>80%	2000 h	
Fire Resistance	CSTB		M0	
Tropical Test	EN-13523-26	ISO 6270-1	2500 h	-

Delivery

Coils

T/Coils	7 t max (risk of ovalization)
Outside diameter	1800 mm max
Inside diameter	508 mm
Section	1520 mm ²
Axis	Horizontal
Strapping	Radial & circumferential
Label	1 inside / 1 outside
Packaging on request	Rolled-up on cardboard Paper or metallic wrapped Wooden cradle
Protection	-
Certificate	In compliance with EN 10204

Sheets & Narrow Strips

> Please contact our Technical or Sales Departments

Steel processing

The Organic coated steels processing ability depends on the substrate's steel grade.

However, the organic finish coat type and thickness, as well as substrate's properties, might prevent from cutting, forming or welding at usual technical terms.

Please contact our technical or sales teams for any questions or further information for other specifications.

5 Polyvinylidene Fluoride (PVDF)

Galvanized steel coated with a painting system (nominal thickness of 25 to 35 µm), consisting of a primer coat and a Polyvinylidene Fluoride finish coat.

Available range of selected colours, standard gloss 30 GU only.

Characteristics

- Aesthetic: very long-term colour stability
- Technic: strong corrosion and UV resistance, good forming ability

Major performances

PVDF 25 µm

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	III	IV	RC3
Photochemical resistance		IV	RUV4

PVDF 35 µm

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	III	VI	RC4
Photochemical resistance		VI	RUV4

Use

Particularly designed for the Building markets in strong demanding environments, as chemical industry (SO₂ atmosphere).

Environmental prior audit might be required
> Please contact our Sales Department

Examples: cladding and roofing

Quality Standards

A. Organic coating

In compliance with EN 10169

NB: according to its environment protection policy, NLMK supplies coatings and surface treatments free of chromium and heavy metals.

B. Mechanical properties

Defined by the substrate's steel grade and its corresponding norm

Available steel grades

- DX51, DX52, S220 to S350GD in compliance with EN 10346



Coating

A. Substrate's Metallic coating

- Double-sided, in compliance with EN 10346
- **Zinc mass:** Z225 - Z275

B. Finish organic coating

- **Conventional:** Top side finish coat
- **Otherwise:** backcoat layer on reverse side

Properties	Test standard	Criteria	Guarantee	Comments
Thickness	EN-13523-1	P34301 or EN-10169	25 to 35 µm	
Specular gloss	EN-13523-2	P34301 or EN-10169	30 GU	GU = Gloss unit
Bending adhesion	EN-13523-7	P34301 or EN-10169	0.5 T	
Pencil Hardness	EN-13523-4	-	HBH	-
Flexibility	EN 13523-7		2 T	
Salt Spray Test	EN-13523-8	EN-10169-2	360 h	
UV Resistance	EN-13523-10	DELTA E <=3 Gloss retention >80%	2000 h	
Fire Resistance	CSTB		M0	
Tropical Test	EN-13523-26	ISO 6270-1	1000 h	-

Delivery

Coils

T/Coils	17.3 t max
Outside diameter	1800 mm max
Inside diameter	508 mm
Section	1520 mm²
Axis	Horizontal
Strapping	Radial & circumferential
Label	1 inside / 1 outside
Packaging on request	Rolled-up on cardboard Paper or metallic wrapped Wooden cradle
Protection	-
Certificate	In compliance with EN 10204

Sheets & Narrow Strips

> Please contact our Technical or Sales Departments

Steel processing

The Organic coated steels processing ability depends on the substrate's steel grade.

However, the organic finish coat type and thickness, as well as substrate's properties, might prevent from cutting, forming or welding at usual technical terms.

Please contact our technical or sales teams for any questions or further information for other specifications.

6 Very High Durability (VHD)

Galvanized steel coated with a painting system (nominal thickness of 25 to 35 µm), consisting of a primer coat and a Polyester finish coat.

Characteristics

- Aesthetic: long-term colour stability. Wide range of metallic colours.
- Technic: good corrosion resistance, wide forming ability.

Major performances

VHD 25 µm

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	III	III	RC3
Photochemical resistance (UV)		III	RUV4

VHD 35 µm

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	III	VI	RC4
Photochemical resistance (UV)		III	RUV4

Use

Especially designed for outdoor Building markets in demanding environments, as strong insulation, medium rate of humidity ...

Ex: roofing and cladding in Overseas Territories

Quality Standards

A. Organic coating

In compliance with EN 10169

NB: according to it's environment protection policy, NLMK supplies coatings and surface treatments free of chromium and heavy metals.

B. Mechanical properties

Defined by the substrate's steel grade and it's corresponding norm

Available steel grades

- DX51, DX52, S220 to S350GD in compliance with EN 10346



Coating

A. Substrate's Metallic coating

- Double-sided, in compliance with EN 10346
- **Zinc mass:** Z225 - Z275

B. Finish organic coating

- **Conventional:** Top side finish coat
- **Optional:** double sided finish coat
- **Otherwise:** backcoat layer on reverse side

Properties	Test standard	Criteria	Guarantee	Comments
Thickness	EN-13523-1	P34301 or EN-10169	25 to 35 µm	
Specular Gloss	EN-13523-2	P34301 or EN-10169	20 to 50 GU	GU = Gloss unit
Bending adhesion	EN-13523-7	P34301 or EN-10169	0.5 T	
Pencil Hardness	EN-13523-4	-	HBH	-
Flexibility	EN 13523-7		2 T	
Tropical test	EN-13523-26	1500 h	-	-
Salt Spray Test	EN-13523-8	EN-10169	360 h	
UV Resistance	EN-13523-10	DELTA E <=3 Gloss retention >80%	2000 h	
Fire Resistance	CSTB		M0	
Heat Resistance			80°C	

Delivery

Coils

T/Coils	17.3 t max
Outside diameter	1800 mm max
Inside diameter	508 mm
Section	1520 mm²
Axis	Horizontal
Strapping	Radial & circumferential
Label	1 inside / 1 outside
Packaging on request	Rolled-up on cardboard Paper or metallic wrapped Wooden cradle
Protection	-
Certificate	In compliance with EN 10204

Sheets & Narrow Strips

> Please contact our Technical or Sales Departments

Steel processing

The Organic coated steels processing ability depends on the substrate's steel grade.

However, the organic finish coat type and thickness, as well as substrate's properties, might prevent from cutting, forming or welding at usual technical terms.

Please contact our technical or sales teams for any questions or further information for other specifications.

7 Very Very High Durability (VVHD)

Galvanized steel coated with a painting system (nominal thickness 55 µm), consisting of a primer coat and a polyurethane finish coat containing micro-leads of polyamid.

Wide range of colours, including metallic finishes.

Characteristics

- Aesthetic: long-term colour stability.
- Technic: strong corrosion and UV resistance; wide forming ability

Major performances

	DIN 55928-8	XP 34-301	EN 10169
Corrosion Resistance	III	VI	RC5
Photochemical resistance		VI	RUV4

Use

Especially designed for the building markets in high-demanding environments, as Heavy Industry and/or marine atmosphere.

Environmental prior audit might be recommended.

> Please contact our Technical or Sales Departments

Ex: cladding and roofing of seaport-warehouses, steel mills.

Quality Standards

A. Organic coating

In compliance with EN 10169

NB: according to it's environment protection policy, NLMK supplies coatings and surface treatments free of chromium and heavy metals.

B. Mechanical properties

Defined by the substrate's steel grade and it's corresponding norm

Available steel grades

- DX51, DX52, S220 to S350GD in compliance with EN 10346



Coating

A. Substrate's Metallic coating

- Double-sided, in compliance with EN 10346
- **Zinc mass:** Z225 - Z275

B. Finish organic coating

- **Conventional:** Top side finish coat
- **Optional:** double sided finish coat
- **Otherwise:** backcoat layer on reverse side

Properties	Test standard	Criteria	Guarantee	Comments
Thickness	EN-13523-1	P34301 or EN-10169	55 µm	
Specular gloss	EN-13523-2	P34301 or EN-10169	20 to 35 GU	GU = Gloss unit
Abrasion Resistance	EN-13523-16	CS10/500g/1000T	15 to 50 mg	Depending on colour
Bending adhesion	EN-13523-7	P34301 or EN-10169	0.5 T	
CLEMEN Hardness	ISO 1518		> 2500 g	
Flexibility	EN 13523-7		1.5 T	
Tropical test	EN-13523-26	1500 h	-	-
Salt Spray Test	EN-13523-8	EN-10169	500 h	
UV Resistance	EN-13523-10	DELTA E <=3 Gloss retention >80%	2000 h	
Fire Resistance	CSTB		M0	
Heat Resistance			80°C	

Delivery

Coils

T/Coils	17.3 t max
Outside diameter	1800 mm max
Inside diameter	508 mm
Section	1520 mm²
Axis	Horizontal
Strapping	Radial & circumferential
Label	1 inside / 1 outside
Packaging on request	Rolled-up on cardboard Paper or metallic wrapped Wooden cradle
Protection	-
Certificate	In compliance with EN 10204

Sheets & Narrow Strips

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Steel processing

The Organic coated steels processing ability depends on the substrate's steel grade.

However, the organic finish coat type and thickness, as well as substrate's properties, might prevent from cutting, forming or welding at usual technical terms.

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PRODUCT RANGE

GENERAL OVERVIEW

Hot-rolled products

STEEL TYPE	STANDARD	STEEL GRADES		
Structural	EN 10025-2	S235JR	S275JR	S355JR
		S235JO	S275JO	S355JO
		S235J2	S275J2	S355J2

In compliance with “Construction Products Regulation” 305/2011/EU

S355K2

Hot-dip galvanized products

STEEL TYPE	STANDARD	STEEL GRADES						
Structural	EN 10346	S220GD	S250GD	S280GD	S320GD	S350GD	S420GD*	S450GD*

*Under development



Pre-painted products

STEEL TYPE	STANDARD	STEEL GRADES						
Structural	EN 10346	DX51	DX52	S220GD	S250GD	S280GD	S320GD	S350GD

Organic Steel consists of:

- 1 Substrate metallic coated steel
- 2 Surface treatment
- 3 “Primer” paint layer
- 4 “Finishing” paint layer (also called “precision coating” of “front coating”)

In compliance with EN 10169

ORGANIC COATED	PAINT	SUBSTRATE'S METALLIC COATING		FINISH ORGANIC COATING	STANDARD
		DOUBLE-SIDED	ZINC MASS		
Building Polyester	25 µm	EN 10346	Indoor use Z100 Outdoor use Z225-Z275	CONVENTIONAL Top side finish coat OPTIONAL Double sided finish coat OTHERWISE Backcoat layer on reverse sidet	In compliance with EN 10169
Indoor Polyester	15 µm		Z100		
Grained Coating	25 µm		Indoor use Z100 Outdoor use Z225-Z275		
Matt Polyester	25 to 35 µm		Z225-Z275		
Polyvinylidene Fluoride (PVDF)	25 to 35 µm		Z225-Z275		
Very high Durability (VHD)	25µm to 35µm		Z225-Z275		
Very very high Durability (VVHD)	55µm to 80µm		Z225-Z275		

STEEL SERVICE CENTER

The Strip Product Business is backed up by a Steel Service Center in Belgium, giving it a wide range of processing services for strip products. 40% of the output of this Steel Service Center is dedicated to the automotive sector.

Certified with IATF and ISO 9001

A. Decoiling lines

The operation consists in decoiling, flattening and cutting-to-length steel coils into sheets according to standard or customized dimensions.

	"HR" decoiler	"CR" decoiler
Coild Max	30 t	30 t
Thickness	3 - 8 mm	0,4 - 3 mm
Width	1000 - 2.000 mm	1000 - 1.600 mm
Length	1000 - 12.000 mm	1000 - 6.100 mm
Product	Hot Rolled Steels	Hot Rolled & Hot Dip Galvanized steels
Production	120.000 tpa	50.000 tpa

Slitting lines

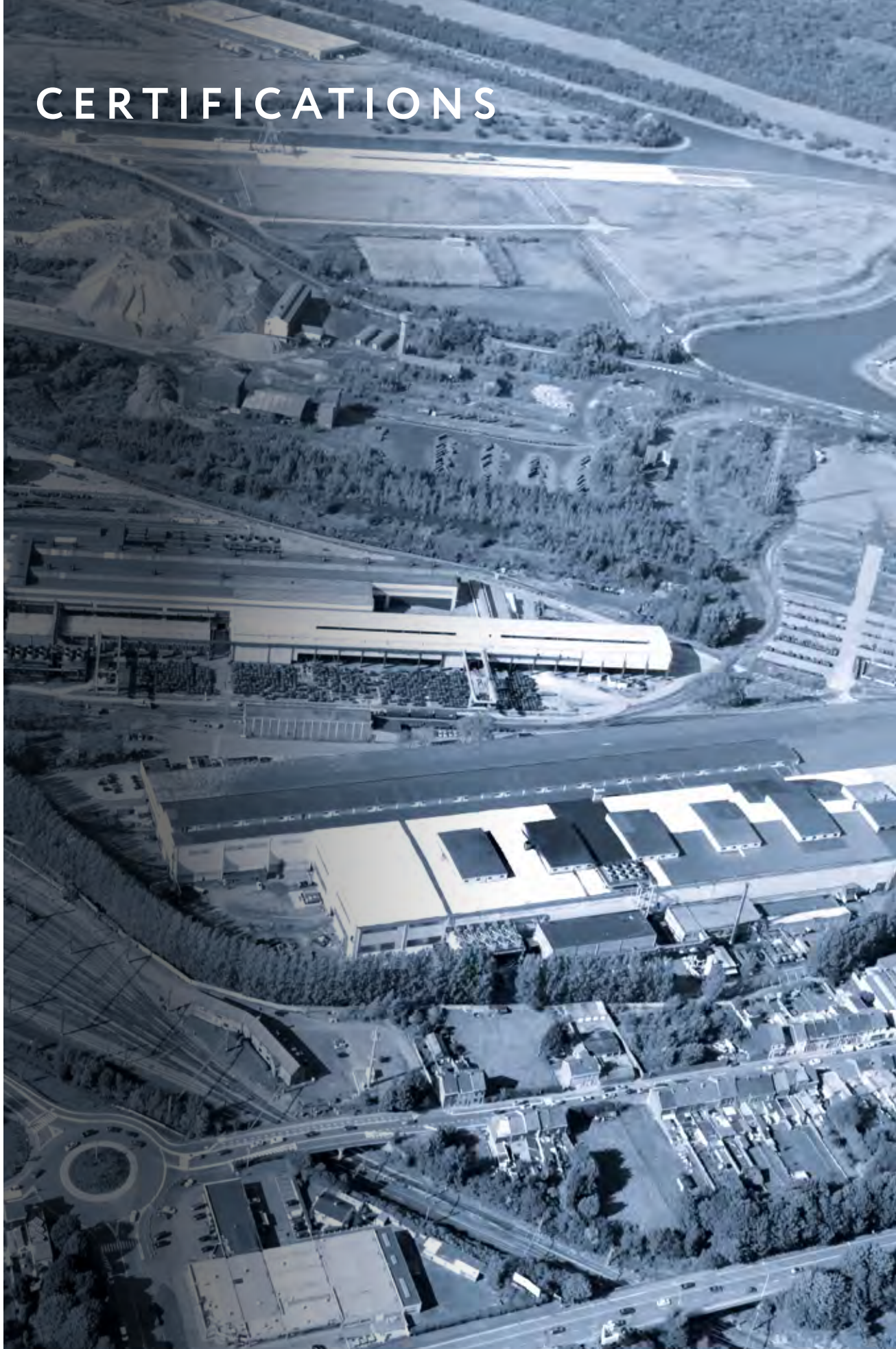
The operation consists in decoiling and slitting coils into narrow strips of customized width(s).

	Slitter	
Coild Max	30 t	30 t
Thickness	0,5-3,5 mm	1,5 - 8 mm
Width	45 - 1.845 mm	1000 - 1.600 mm
Product	Hot Rolled & Hot Dip Galvanized Steels	
Production	70.000 tpa	40.000 tpa

Our activity

Located in the heart of Europe (Manage, Belgium), our Service Centre provides a wide range of processing services for Mild Hot Rolled steels (black and pickled), HLE (high yield strength) steels, hot-dip galvanized and pre-painted steels. Our products are used in General Industry (profiling, furniture, laser cutting...), Construction (frameworks and light structures...), Automotive (equipment manufacturers and subcontractors) or in the Agricultural Sector (trailers...).

Most of the steel is supplied by road with just-in-time deliveries. The strength of our service centre lies in its proximity to the group's production companies and end customers.



Certificates list for NLMK Europe Strip Products

COMPANY	ISO 9001	IATF 16949	ISO 14001	ISO 45001
NLMK LA LOUVIÈRE	●	●	●	○
NLMK STRASBOURG	●	●	●	●
NLMK MANAGE	●	●	○	○

All certificates are available on our website or on request at the following e-mail: strip@eu.nlmk.com



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