

## Description and advantages

NLMK Europe proposes a large range of Advanced High Strength Steels (AHSS) dedicated for the automotive industry. Their use is recommended where high resistance is needed and to prevent accelerated fatigue in severe environments. They offer good formability properties. The high potential of these steels facilitates the development of innovative designs.

The AHSS steels proposed by NLMK Europe for the agriculture industry include the following grades:

## - for cold forming:

- Wear resistant steels (QUARD)
- High Strength low ALLOYED (HSLA)
- DUAL PHASES steels (DP);
- FERRO BAINITIC steels (FB);
- High RESISTANCE steels (HR);.

#### - for heat treatment:

- HIGH CARBON steels;
- BORON steels;
- ALLOYED steels.

NLMK Europe proposes also **other steels** for specific use in the structure or as component:

- Steels for visible parts (MS/DD/RP/BH);
- DRYZINC for improved forming;
- Organic coated steels.

## 2 Product and service range

To meet all your requirements, NLMK Europe proposes a very large range of products and services:

- Lingots and Heavy plates;
- Hot Rolled (HR) products;
- Cold Rolled (CR) products;
- Electro-Zinc (EZ) products;
- Hop Dip Galvanised (HDG) products;
- Organic coated products;
- Integrated Steel Service network.

## 3 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.

#### Quality Certifications within the Group:

- ISO 9001 for La Louvière, Clabeca, Strasboura & Beautoi
- ISO TS 16949 for La Louvière, Strasbourg & Beautor
- ISO 14001 for DanSteel A/S, Strasbourg et Beauto
- ISO 18001 for Strasbourg





### HIGH STRENGTH LOW ALLOYED STEELS (HSLA)

#### Uses:

- recommended for **cold forming** applications;
- when weight reduction and also higher resistance is needed.

#### Grades:

- S315MC S355MC S420MC;
- HC340 380 420LA.



# MILD STEELS AND EXTRA DEEP DRAWING STEELS (MS/DD)

#### Uses:

• when deformability is linked to extreme and severe design and/or applications.

#### Grades:

- DD11-12-13-14;
- DC01-04-05-06;
- Rephosphorised;
- Bake Hardening.



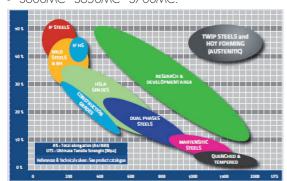
#### ADVANCED HIGH STRENGTH STEELS (AHSS)

#### Uses:

- recommended for cold forming applications;
- when energy absorption, fatigue and weight performance must be achieved.

#### Grades:

- DP450 DP500 DP800;
- HR45 HR55 HR60;
- FB 590;
- S460MC S500MC S550MC;
- S600MC S650MC S700MC.



# INNOVATION IN STEEL



### **AGRICULTURE USER GUIDE**

On wheels vehicles	Chassis & crossmembers	S355MC/ S420MC/ S700MC
	Powertrain Transmission	18 / 20 / 30 Mnb5 / S355MC Boron (28 - 28Mnb5), alloyed (51CRV4) and high
	Wheels	Discs & Rims
Cabins & Panels	Seats	S355MC/ H320LA / H400LA
	Other panels	BH 220 / RP 260 / DC 01
	Security parts	S700MC / DP 600
Add on units	Beams / Profiles / Tubes	S355MC / S420 MC / S700 MC
	Tippers / Trailers	S700MC / QUARD / S500MC
	Ramps	H320 LA / DP 600
	Storage / silos	S350 GD / S400GD
	Building	Check www.sif-steel.com
Earthmoving	Plonghs / Blades HF	20 - 22 - 28 -30 - 38 Mnb5 / C60 - C 75
	Plonghs / Blades CF	QUARD 400 / 450
Energy	CNG cylinders	34CRMO4 / Assimilated grades

### **WEAR RESISTANT STEELS**

#### Uses:

 when wear abrasion requires direct use of high hardness sheets and plates.

#### Grades:

QUARD 400 - 450.

## CARBON, BORON AND ALLOYED STEELS

#### Uses:

- recommended for heat treatment operations and hot forming applications;
- when extreme resistance to wear and also energy absorption must be reached.

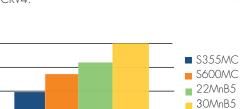
#### Grades:

1500

1000

500

- C40 45 50 55 60:
- 20 30 38MNB5;
- 27 33 39 MNCRB5;
- 25 34 42 50 CRMO4;
- 51CRV4.

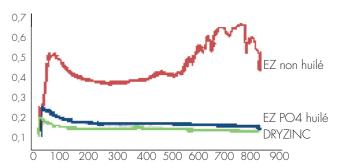


### SPECIFIC PRODUCTS: DRYZINC

Technical innovation for improved production costs and feasability. Dryzinc has been specially developped for improving feasability of difficult designed part and tested and approuved by major company in Europe.

- Organic coated steels;
- Dryzinc for improved deformation of our steel range.

## Coefficient of friction as a tool







## 3 Technical information

As the workability differs from steel to steel, it is recommended to observe elementary precautions and to strictly follow the instruction given in the norms and in the technical guides before using advanced techniques for cutting, welding, forming, ...

Use and processing of Advanced High Strength Steels (AHSS) in substitution of conventional mild or low alloyed steels is subjected to prior analysis, such as static and dynamic calculations or energy absorption simulations.

Specific materials as BORON STEELS are today one of the standard most in use. Our materials are elaborated for hot quenching and we do suggest you to contact our technical department for all information you may need regarding properties after heat treatment.

Our technical experts are at your disposal for any demand or requirement. Read more about technical aspects in the individual product datasheets available via our website or through our sales representatives.

## 4 Network



Thanks to an proven and well established production and distribution network, we bring you the global solution for your global activities.

Moreover, we can reply on of a precise and ponctuous delivery wherever you want in Europe and in the rest of the world.



Our experts stay at your disposal to propose you the right answer to your needs. Don't hesitate to contact them at the sales and production headquarters:

#### NLMK Clabeca

Rue de Clabecq, 101 B - 1460 lttre

Tél: +32 (0) 2/391 91 00 FAX: +32 0) 2/391 98 70 Email: plate@eu.nlmk.com

#### NLMK Coating S.A.

18, rue du Stade F- 02800 Beautor

Tél: +33 (0) 3 23577144 FAX: +33 O) 3 23577157 Email: plate@eu.nlmk.com

#### NLMK Belgium Holdings

Rue des Rivaux, 2 B - 7100 La Louvière Tél: +32 (0)64/272711 FAX: +32(0)64/272848 Email: strip@eu.nlmk.com

www.eu.nlmk.com

## You can also contact directly the company of your choice:

#### Plate

#### NLMK Clabecq

Rue de Clabeca 101 1460 lttre - Belgium Phone: +32 2 391 91 00 Fax: +32 2 391 98 90 E-mail:plate@eu.nlmk.com

#### NLMK Verona

Via Antonio Salieri, 24 37050 Vallese di Oppeano (VR) - Italy Phone: +39 045 69 97 900 Fax: +39 045 69 97 915 E-mail:plate@eu.nlmk.com

#### NLMK DanSteel A/S

Havnevej 33DK 3300 Frederiksvaerk Denmark Phone: +45 47 77 03 33 Fax: +45 47 77 03 02 E-mail:plate@eu.nlmk.com

#### Strip products Europe Distribution & trans-

#### NLMK La Louvière Rue des Rivaux 2

7100 La Louvière - Belgium Phone: +32 64 27 27 11 Fax: +32 64 27 28 48 E-mail:strip@eu.nlmk.com

#### NLMK COATING

18, rue du Stade 02 800 Beautor - France Phone: +33 3 23 57 71 43 Fax: +33 3 23 57 71 57 E-mail:strip@eu.nlmk.com

#### NLMK Strasbourg

1, rue du Bassin de l'Indus-trie-BP 89 67016 Strasbourg Cedex France Phone: +33 3 88 41 48 43 Fax: +33 3 88 41 48 02 E-mail: strip@eu.nlmk.com

## formation network

#### NLMK Manage Steel Center

Rue du Long Trî, 67 7170 Manage - Belgium Phone: +32 64 51 92 00 Fax: +32 64 51 92 91 E-mail:strip@eu.nlmk.com

#### NLMK Jemappes Steel Center

Av. Maréchal Foch 937 7012 Jemappes - Belgium Phone: +32 65 82 47 31 Fax: +32 65 82 47 34 E-mail:strip@eu.nlmk.com

NLMK Distribution France 173/179 Bd Felix Faure 93 300 Aubervilliers France Phone: +33 1 53 56 92 00 Fax: +33 1 53 56 16 17

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