

Technical Data Sheet  
TDS-04-31

## Nylofor<sup>®</sup> City System Panels, Posts and Accessories

### 1 Scope

This Technical Data Sheet specifies the properties for the Nylofor<sup>®</sup> City System.

The complete system exists of:

- Nylofor<sup>®</sup> F panels
- Nylofor<sup>®</sup> posts
- Accessories such as the top rail, fixation system and posts caps.

Panels and posts are made out of steel, which is galvanized and subsequently polyester coated to assure an excellent corrosion resistance.



**Figure 1: Nylofor<sup>®</sup> posts & Nylofor<sup>®</sup> F panel with accessories**

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Made up by:  
Werner Frans  
Group Quality Department

Approved by:  
Willy Naesens  
Group Quality Manager

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**Nylofor<sup>®</sup> City System**  
**Panels, Posts and Accessories**

**1.1 Normative References**

- ISO 16120-2: Non-alloy steel wire rod for conversion to wire – Part 2: specific requirements for general purpose wire rod.
- ASTM A 510: Standard specification for general requirements for wire rods and coarse round wire carbon steel.
- EN 10346: Continuously hot-dip coated steel flat products – technical delivery conditions.
- EN 10025-2: Hot rolled products of structural steels – Part 2: Technical delivery conditions for non-alloy structural steels.
- EN 1179 : Zinc and zinc alloys – primary zinc.
- ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods.
- EN 10305-5: Steel tubes for precision applications – Technical delivery conditions – Part 5: Welded cold sized square and rectangular tubes.
- ISO 2768-1: General tolerances – Part 1: Tolerances for linear and angular dimensions without individual indications.
- EN 10223-7: Steel wire and wire products for fences - Part 7: Steel wire welded panels for fencing.
- ISO 9227: Corrosion tests in artificial atmospheres; salt spray tests.
- ISO 11507: Paints and varnishes – Exposure of coatings to artificial weathering – Exposure to fluorescent UV lamps and water.

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Werner Frans  
Group Quality Department

Approved by:  
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Group Quality Manager

**Technical Data Sheet  
TDS-04-31****Nylofor® City System  
Panels, Posts and Accessories****2 Raw materials****2.1 Wire rod (Nylofor® F panels)**

Chemical composition : See table 1.

<b>Table 1: Chemical composition</b>	
Element	%
C	≤ 0,10
Mn	0,25 - 0,45
P	< 0,04
S	< 0,05

The designation of the used wire rod is based on SAE 1006 – ASTM A 510.

**Note:**

Other wire rod designations based on C9D - ISO 16120-2 or ASTM A 510 can be used for making Nylofor® F panels.

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## **Nylofor<sup>®</sup> City System Panels, Posts and Accessories**

### **2.2 Sendzimir steel (Nylofor<sup>®</sup> posts and top rails)**

Chemical composition: See table 2

<b>Table 2: Chemical composition</b>	
Element	%
C	≤ 0,20
Si	Max. 0,60
Mn	Max. 1,70
P	Max. 0,12
S	Max 0,045

The steel is in accordance with the European Standard EN 10346.

The designation of the steel is: S250.

The steel strip is continuously hot-dip galvanized, in accordance with EN 10346.

If DX51D or S220 quality is used in accordance to EN 10346, the yield strength shall be minimum 235 N/mm<sup>2</sup>.

Minimum allowed zinc coat weight: 275 g/m<sup>2</sup> sum of both sides (Z275) according to EN 10346.

### **2.3 Construction steel (Metal clamps)**

Designation of the steel is S235 in accordance with EN 10025-2.

### **2.4 Zinc used for galvanisation bath (Nylofor<sup>®</sup> F panels)**

Minimum 99,995% of pure zinc is used for galvanising, in accordance with Z1 of EN 1179.

### **2.5 Zinc used for hot dip galvanisation bath (Metal clamps)**

The ingots are in accordance with ISO 1461.

### **2.6 Polyester**

The polyester is free of lead and Cadmium.

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Group Quality Department

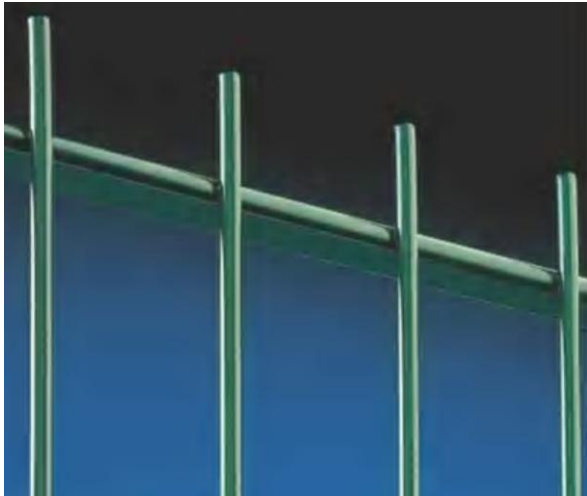
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Group Quality Manager

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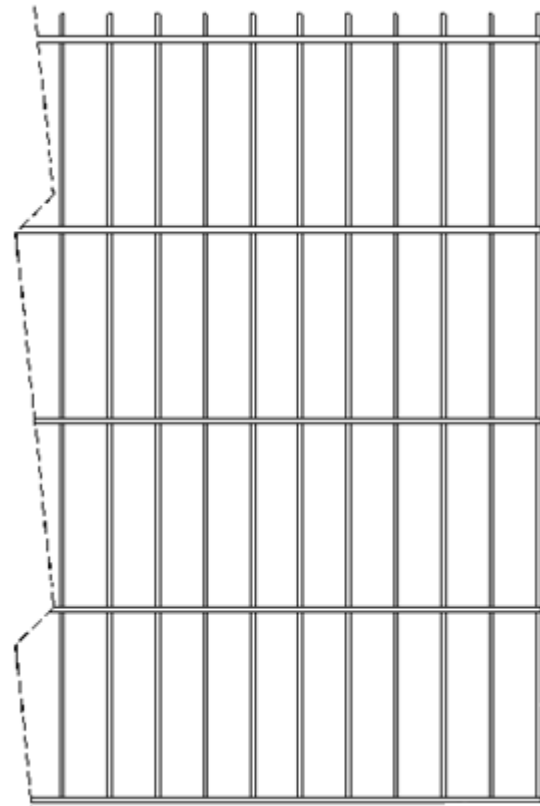
## Nylofor® City System Panels, Posts and Accessories

### 3 Panel

Nylofor® F is a spot welded mesh panel, made out of bright low carbon steel wires. The panels are electro galvanized after welding and subsequently polyester coated. The horizontal wires are flat, the vertical ones are round. See picture 1 and figure 2.



**Picture 1**



**Figure 2**

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Group Quality Department

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Group Quality Manager

*The information and data given are typical for the product described . However technical changes are possible without any notice.*

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## Nylofor® City System Panels, Posts and Accessories

### 3.1 Properties

#### 3.1.1 Dimensions & tolerances

See figure 3.

Vertical wires:

Core wire:  $4,50 \pm 0,04$  mm

Polyester coated wire diameter:  $5,00 \pm 0,35$  mm

Horizontal flat wire:

Uncoated flat wire:  $5,65: -0,15 / + 0$  mm x  $14,65: - 0,30 / + 0$  mm

Polyester coated flat wire dimensions:  $6,00 \pm 0,35$  mm x  $15,00 \pm 0,35$  mm

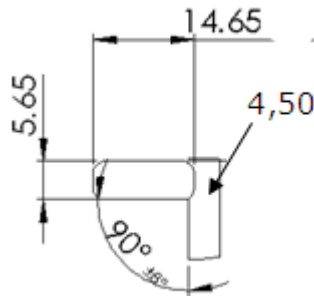


Figure 3

#### 3.1.2 Tensile strength

Tensile strength vertical wire: Min.  $550 \text{ N/mm}^2$

Tensile strength flat horizontal wire: Min.  $600 \text{ N/mm}^2$

#### 3.1.3 Mesh sizes and tolerances

Mesh sizes :

Distance between the horizontal flat wires:  $200 \pm 2,0$  mm

Distance between the vertical wires:  $50 \pm 2,0$  mm

Also available in  $25 \pm 2,0$  mm and  $100 \pm 2,0$  mm

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Werner Frans  
Group Quality Department

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Group Quality Manager

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## **Nylofor<sup>®</sup> City System Panels, Posts and Accessories**

### **3.1.4 Panel dimensions and tolerances**

Height of the panel: See table 3.  
Tolerance on the height of the panel:  $\pm 3$  mm.  
Width of the panel:  $2500 \text{ mm} \pm 3 \text{ mm}$ .

### **3.1.5 Weld shear strength**

Weld shear strength is tested on four welds selected at random from one transverse wire of the panel.

The minimum average weld shear strength value meets the required 50% of the breaking strength of the wire as per EN 10223-7.

### **3.1.6 Barbs**

Nylofor<sup>®</sup> F panels have a barb of  $30 \text{ mm} \pm 2 \text{ mm}$  at the topside of the panel. (See figure 2.)

### **3.1.7 Overhangs**

Overhangs: Maximum 3 mm

## **3.2 Coating**

### **3.2.1 Metallic coating**

The bright panel is after welding electro galvanized.

Minimum local coating thickness:  $> 5 \mu\text{m}$   
Average coating thickness:  $> 10 \mu\text{m}$

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Group Quality Department

Approved by:  
Willy Naesens  
Group Quality Manager

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### **3.2.2 Polyester coating**

#### **Thickness:**

The total layer is minimum 100 µm thick.

The polyester thickness – as well as the coated wire diameter dimension – is the average of 10 measurements done over 1 panel.

In corrosive environments, higher minimum coating thickness is recommended.  
Typical value is 150 µm (Always in agreement between buyer and seller).

#### **Colour:**

Standard colours are RAL 6005, RAL 9010, RAL 7016, RAL 7030 and RAL 9005

Other colours are available and can be found in the technical data sheet TDS-99-03. (Polyester coating)

Non standard colours: On request.

#### **Adhesion of the polyester:**

Make a scratch in the longitudinal direction of the wire, by means of a hard metal pointed graving tool, penetrating through the metal. The length of the scratch will be about 50 mm. The coating shall not be able to be lifted from the metal by more than 5 mm.

#### **Resistance of the polyester to salt spray**

Make a scratch in the longitudinal direction of the wire, by means of a hard metal pointed graving tool, penetrating through the metal. The length of the scribe will be about 50 mm. Test in accordance with ISO 9227.

There shall be, after 1000 h salt spray, no corrosion beneath the polyester or loss of adhesion in excess of 10 mm from the scratch.

**Resistance against UV:** In accordance with ISO 11507.

After 1000 h QUV and after washing with pure water, the colour difference, expressed as  $\Delta E^*$  is maximum 3.

Loss of gloss: After 1000 hours max. 50 % of the original one, measured after being washed with pure water.

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Werner Frans  
Group Quality Department

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Group Quality Manager



## Nylofor<sup>®</sup> City System

### Panels, Posts and Accessories

### 3.3 Packaging

The Nylofor<sup>®</sup> F panels are packed on a wooden pallet, protected by UV resistible shrink foil.

An identification label with the Sapcode, product description, production order number, customer order number, number of panels, and color shall be put on each side of the pallet.

Number of panels per pallet: See table 3.

<b>Table 3: Form of delivery : Nylofor<sup>®</sup> F panels (Mesh 200 x 50)</b>					
Panel Dimensions W x H (mm)	Number of panels / pallet	Panel weight (kg)	Sapcode RAL 6005	Sapcode RAL 9010	Sapcode RAL 7016
2500 X 630	30	10,10	7029133	7027621	+++
2500 X 830	30	+++	+++	7027725	7027729
2500 X 1030	30	15,70	7029135	7027726	7027730
2500 X 1230	30	18,48	7029136	7027727	7027633
2500 X 1430	30	21,28	7029137	7027625	7027634
2500 X 1630	30	24,08	7029138	7027626	7027731
2500 X 1830	30	26,90	7029139	7027627	7027636
2500 X 2030	30	29,70	7029140	7027628	7027637

Nylofor<sup>®</sup> F panels with panel height > 2030 mm are available on request.

**Nylofor® City System  
Panels, Posts and Accessories****4 Posts**

The posts are made out of Sendzimir (Z275) (See § 2.2) and subsequently polyester coated.

**4.1 Dimensions and Tolerances**

The Nylofor® posts are square 60 x 60 mm.

Tolerance on the post side section:  $\pm 0,35$  mm in accordance with EN 10305-5, table 6.

Material plate thickness, see table 4.

Tolerance on the plate thickness:  $\pm 0,20$  mm in accordance with ISO 2768-1 class c (coarse).

Tolerance on the height:

H :  $\leq 2000$  mm  $\pm 5$  mm

H :  $> 2000$  mm  $\pm 10$  mm

Different post heights: See table 4

Fence height (mm)	Post height (mm)	Material thickness (mm)
630	1000	1,25
1030	1500	1,25
1230	1700	1,25
1430	2000	1,50
1630	2200	1,50
1830	2400	1,50
2030	2600	1,50

**4.2 Tensile strength**

The strength is specified by:

Tensile strength: Min. 330 N/mm<sup>2</sup>

Yield strength: Min. 235 N/mm<sup>2</sup>

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### **4.3 Coating**

#### **4.3.1 Metallic coating**

Min. allowed zinc coating thickness: 275 g/m<sup>2</sup> as an average of 3 measurements and double side determined. (In accordance with EN 10346)

#### **4.3.2 Polyester coating**

**Thickness:**

Min 60 µm (Average of 10 measurements done on 1 Nylofor® Square post)

**Colour:** Standard Green RAL 6005.

Other colours are available on request and can be found in the technical data sheet TDS-99-03. (Polyester coating)

**Adhesion:**

Make two scratches by means of a hard metal pointed graving tool, penetrating through the metal and intersecting at an angle of 30° ± 5°. Lift a 30° peak with the point of a knife. The coating shall not be able to be lifted from the metal by more than 5 mm.

**Resistance of the polyester to saltspray:**

Make a diagonal cross by means of a hard metal pointed graving tool, penetrating through the metal. Test in accordance with ISO 9227.

After 1000 h there shall be no corrosion beneath the polyester or loss of adhesion in excess of 10 mm from the diagonals.

**Resistance against UV:** In accordance with ISO 11507.

After 1000 h QUV and after washing with pure water, the colour difference, expressed as  $\Delta E^*$  is maximum 3.

Loss of gloss: After 1000 hours max. 50 % of the original one, measured after being washed with pure water.

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Werner Frans  
Group Quality Department

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Group Quality Manager

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## Nylofor<sup>®</sup> City System Panels, Posts and Accessories

### 5 Accessories

#### 5.1 Post cap

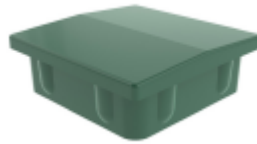
Each post is provided with a cap made out of aluminium.  
The cap is polyester coated in the colour of the post.

Dimensions : 60 x 60 mm

Standard colour: RAL 6005

Other colours available on request.

Polyester coating thickness : Min. 60 µm (Average of 10 measurements done on 1 post cap)



**Figure 4**

#### 5.2 Footplate

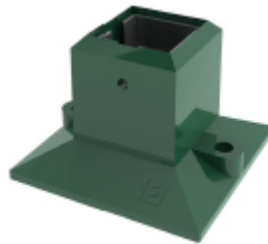
The footplate is made out of aluminium and afterwards polyester coated.

Dimensions : 60 x 60 mm

Standard colour: RAL 6005 (Sapcode 7008624)

Other colours available on request.

Polyester coating thickness : Min. 60 µm (Average of 10 measurements done on 1 footplate)



**Figure 5**

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Werner Frans  
Group Quality Department

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Group Quality Manager

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## Nylofor<sup>®</sup> City System Panels, Posts and Accessories

### 5.3 Panel Fixators

The panel fixators are made of Polyamide. (PA6)  
The fixators are packed in a set of 50 pieces together with 55 plastic caps.  
Standard colour: RAL 6005 (Sapcode 7008014)  
Other colours available on request.

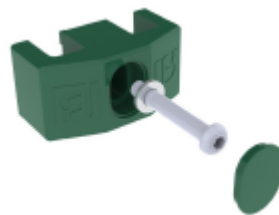


Figure 6

### 5.4 Top rail

The top rail is made out of Sendzimir (Z275) (See § 2.2) and subsequently polyester coated.  
Dimensions of the profile: C 31,5 x 32,5 x 1,50 mm  
Length of the profile: 2505 mm  
Standard colour: RAL 6005 (Sapcode 7008292)  
Other colours are available on request.  
Polyester coating thickness : Min. 60 µm (Average of 10 measurements done on 1 top rail)

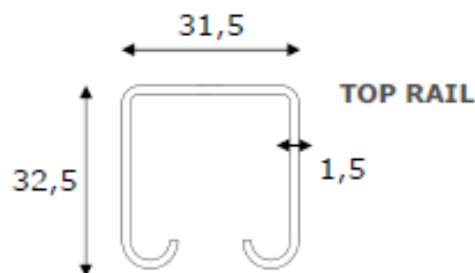


Figure 7

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Group Quality Department

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Group Quality Manager

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## Nylofor® City System Panels, Posts and Accessories

### 5.5 Neoprene strips

To avoid fibrations and noise cancelling, neoprene strips are glued between the Nylofor® F panel and the top rail.

In total 3 neoprene strips are glued on top of the horizontal flat wire of the Nylofor® F panel, under the top rail. See figures below.

Dimensions of the neoprene strip: 20 x 5 x 100 mm

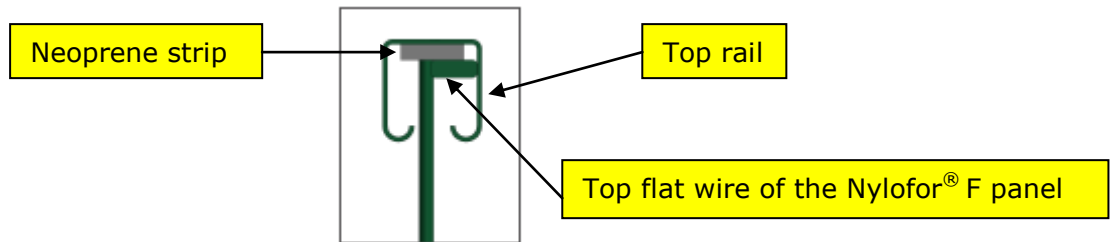
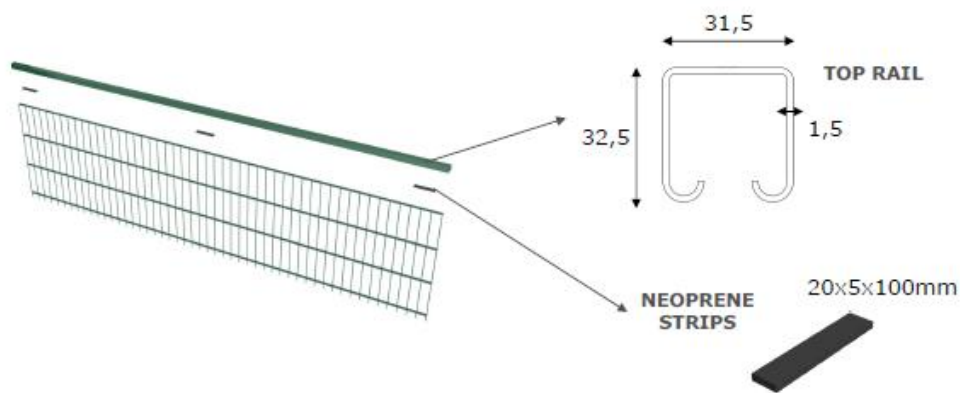


Figure 8

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Group Quality Manager

**Nylofor® City System  
Panels, Posts and Accessories****5.6 Top rail Fixators**

The top rail fixators are made out of S235 steel, hot dip galvanized and afterwards polyester coated.

Standard colour: RAL 6005

Other colours available on request.

Polyester coating thickness : Min. 60 µm (Average of 10 measurements done on 1 top rail fixator)

There are 3 types of fixators : See figures below

- Fixator for intermediate post
- Fixator for left corner post
- Fixator for right corner post



**Figure 9**

Dimensions fixator intermediate post : C33 x 39 x 50 mm (Sapcode 7008331, RAL 6005)

Dimensions fixator Left corner post : C33 x 39 x 54 mm (Sapcode 7008332, RAL 6005)

Dimensions fixator Right corner post : C33 x 39 x 54 mm (Sapcode 7008333, RAL 6005)

The fixators are mounted with a M6 x 60 mm stainless steel bolt on the 2 top rails and post.

**5.7 Bolts and washers**

To fix the polyamide and metal fixators on the Nylofor® post, a hexagon button head stainless bolt and washer (Stainless steel grade A2 in accordance with ISO 2506-1) is used.

Dimensions : M6 x 40 mm used in combination with the polyamide fixators (Sapcode 7008054)

The bolts are packed in a box / 100 pieces.

Dimensions : M6 x 60 mm used in combination with the metal fixators and when polyamide fixators are mounted on a footplate (Sapcode 7008055)

The bolts are packed in a box / 100 pieces.