

## Robusta<sup>®</sup> Nylofor 3D Swing Gate

### 1 Scope

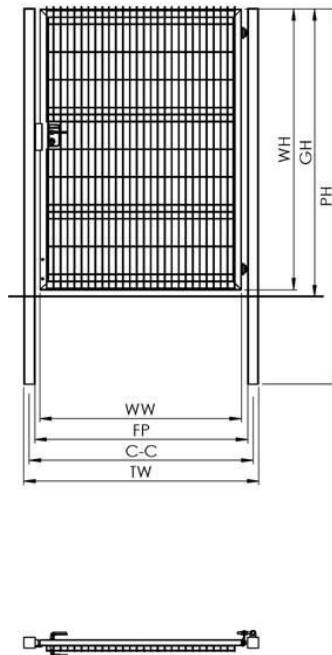
This technical data sheet specifies requirements for Robusta<sup>®</sup> Nylofor 3D swing gates with Nylofor<sup>®</sup> 3D infill panels.

The gate consists of different components:

- Gate posts with quick fixation system (Hinge post and latch post)
- Gate posts with or without fixation strip
- Wing with welded Nylofor<sup>®</sup> 3D infill panel (Without dental strip)
- Accessories (Hinges, lock-system, ground bolt)

There are 2 types: Single Robusta<sup>®</sup> Nylofor 3D swing gates (Figure 1) and double Robusta<sup>®</sup> Nylofor 3D swing gates (Figure 2).

Robusta<sup>®</sup> Nylofor 3D swing gates are CE labelled, in accordance with EN 13241-1.

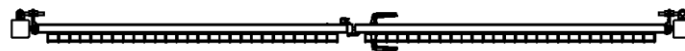
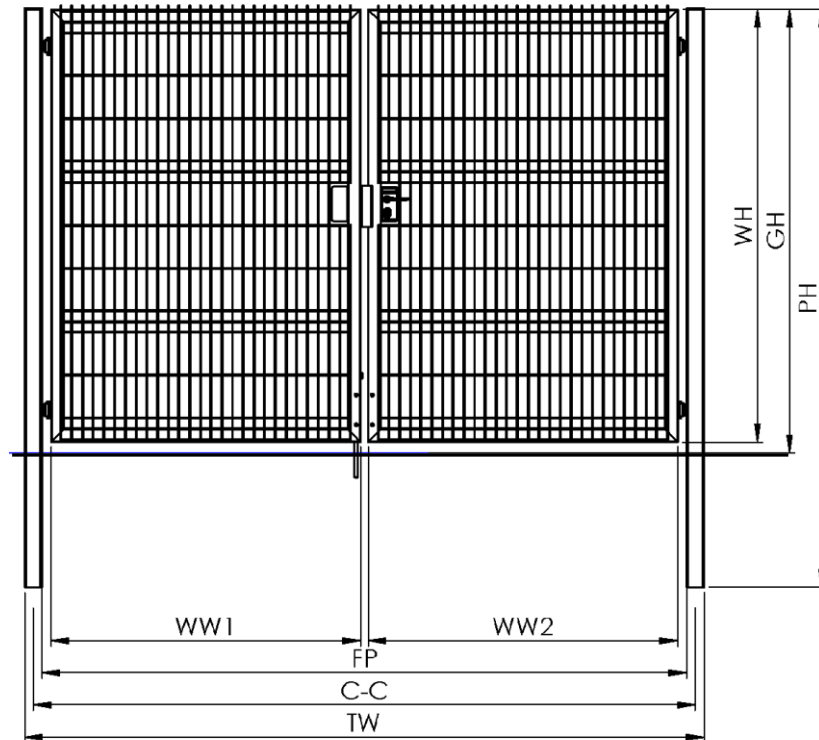


**Figure 1: Single Robusta<sup>®</sup> Nylofor 3D Swing Gate**

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## Robusta<sup>®</sup> Nylofor 3D Swing Gate



**Figure 2: Double Robusta<sup>®</sup> Nylofor 3D Swing Gate**

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**Robusta® Nylofor 3D Swing Gate****1.1 Normative References**

- EN 13241-1: Industrial, commercial and garage doors and gates - Product standard - Part 1: Products without fire resistance or smoke control characteristics.
- EN 10219-1: Cold formed welded structural hollow sections of non-alloy and fine grain steels – Part 1: technical delivery conditions.
- ISO 16120-2: Non-alloy steel wire rod for conversion to wire – Part2: Specific requirements for general purpose wire rod.
- EN 10088-3: Stainless steels – Part 3: Technical delivery conditions for semi finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes.
- ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods.
- 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 16474-3: Paints and varnishes – Methods of exposure to laboratory light sources – Part 3: Fluorescent UV lamps.

**1.2 Definitions**

- Nominal wire diameter: The diameter in mm to designate the wire,
- Real wire diameter: The average value of the minimal and the maximal diameter, measured in the same section of a straight piece of wire, by means of a micrometer accurate to 0,01 mm.
- Mesh sizes: The distance measured between the centres of two neighbouring wires.

**2 Raw materials****2.1 Steel used for the posts and wing frame**

The posts and wing frame are made out of construction steel: Type S235 JRH class 1, in accordance with EN 10219-1.

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## Robusta<sup>®</sup> Nylofor 3D Swing Gate

### 2.2 Wire rod used for the Nylofor<sup>®</sup> 3D infill panels

Chemical composition: See table 1

<b>Table 1 : Chemical composition</b>	
Element	%
C	≤ 0,10
Si	≤ 0,30
Mn	≤ 0,70
P	≤ 0,035
S	≤ 0,035

The designation of the wire rod is based on grade C9D – ISO 16120-2.

### 2.3 Zinc (Zinc used for galvanisation bath - posts and wing frame)

In accordance with ISO 1461.

### 2.4 Polyester

The polyester is free from Lead and Cadmium.

## 3 Properties

### 3.1 Dimensions and tolerances

#### 3.1.1 Wing and posts

See tables 2 and 3:

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## Robusta® Nylofor 3D Swing Gate

**Table 2: DIMENSIONS STANDARD ROBUSTA® NYLOFOR 3D SWING GATES**

SINGLE SWING GATES						
Width (mm)	Height (mm)	Gate post (mm)	Total Width (mm)	Free passage (mm)	Centre- centre C-C (mm)	Wing dimensions (mm)
1000	1030	80 x 80 x 2 x 1750	1145	985	1065	905 x 1022
	1230	80 x 80 x 2 x 1950				905 x 1222
	1530	80 x 80 x 2 x 2250				905 x 1522
	1730	80 x 80 x 2 x 2450				905 x 1722
	2030	80 x 80 x 3 x 2700				905 x 2022
	2430	80 x 80 x 3 x 3150				905 x 2422
1200	1030	80 x 80 x 2 x 1750	1415	1255	1335	1175 x 1022
	1230	80 x 80 x 2 x 1950				1175 x 1222
	1530	80 x 80 x 2 x 2250				1175 x 1522
	1730	80 x 80 x 3 x 2450				1175 x 1722
	2030	80 x 80 x 3 x 2700				1175 x 2022
	2430	80 x 80 x 3 x 3150				1175 x 2422
1500	1030	80 x 80 x 2 x 1750	1685	1525	1605	1445 x 1022
	1230	80 x 80 x 3 x 1950				1445 x 1222
	1530	80 x 80 x 3 x 2250				1445 x 1522
	1730	80 x 80 x 3 x 2450				1445 x 1722
	2030	80 x 80 x 3 x 2700				1445 x 2022
	2430	100 x 100 x 3 x 3150	1725	1625	1445 x 2422	
2000	1030	100 x 100 x 3 x 1750	2265	2065	2165	1985 x 1022
	1230	100 x 100 x 3 x 1950				1985 x 1222
	1530	100 x 100 x 3 x 2250				1985 x 1522
	1730	100 x 100 x 3 x 2450				1985 x 1722
	2030	100 x 100 x 3 x 2700				1985 x 2022
	2430	100 x 100 x 3 x 3150				1985 x 2422

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2500	1030	100 x 100 x 3 x 1750	2670	2470	2570	2390 x 1022	
	1230	100 x 100 x 3 x 1950				2390 x 1222	
	1530	100 x 100 x 3 x 2250				2390 x 1522	
	1730	100 x 100 x 3 x 2450	2390 x 1722				
	2030	140 x 140 x 3 x 2700	2750		2610	2390 x 2022	
	2430	140 x 140 x 3 x 3150				2390 x 2422	
3000	1030	100 x 100 x 3 x 1750	3210	3010	3110	2930 x 1022	
	1230	100 x 100 x 3 x 1950	3290			3150	2930 x 1222
	1530	140 x 140 x 3 x 2250					2930 x 1522
	1730	140 x 140 x 3 x 2450			2930 x 1722		
	2030	140 x 140 x 3 x 2700	3290		3150		2930 x 2022
	2430	140 x 140 x 3 x 3150					2930 x 2422
4000	1030	140 x 140 x 3 x 1750	4235	3955	4095		3875 x 1022
	1230	140 x 140 x 3 x 1950				3875 x 1222	
	1530	140 x 140 x 3 x 2250				3875 x 1522	
	1730	140 x 140 x 3 x 2450	4275		4115	3875 x 1722	
	2030	140 x 140 x 3 x 2700				3875 x 2022	
	2430	160 x 160 x 5 x 3150				3875 x 2422	
4500	1030	140 x 140 x 3 x 1750	4775	4495	4635	4415 x 1022	
	1230	140 x 140 x 3 x 1950				4415 x 1222	
	1530	140 x 140 x 3 x 2250				4415 x 1522	
	1730	140 x 140 x 3 x 2450	4815		4655	4415 x 1722	
	2030	160 x 160 x 5 x 2700				4415 x 2022	
	2430	160 x 160 x 5 x 3150				4415 x 2422	
5000	1030	140 x 140 x 3 x 1750	5350	5070	5210	4990 x 1022	
	1230	140 x 140 x 3 x 1950				4990 x 1222	
	1530	140 x 140 x 3 x 2250				4990 x 1522	
	1730	160 x 160 x 5 x 2450	5390		5230	4990 x 1722	
	2030	160 x 160 x 5 x 2700				4990 x 2022	
	2430	160 x 160 x 5 x 3150				4990 x 2422	

(\*) Heights < 1530: Infill welded on the gate frame with barbs pointing downwards.

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## Robusta® Nylofor 3D Swing Gate

**Table 3: DIMENSIONS STANDARD ROBUSTA® NYLOFOR 3D SWING GATES**

DOUBLE SWING GATES						
Width (mm)	Height (mm)	Gate post (mm)	Total Width (mm)	Free passage (mm)	Centre-centre C-C (mm)	Wing dimensions (mm)
2000	1030	80 x 80 x 2 x 1750	2090	1930	2010	905 x 1022
	1230	80 x 80 x 2 x 1950				905 x 1222
	1530	80 x 80 x 2 x 2250				905 x 1522
	1730	80 x 80 x 2 x 2450				905 x 1722
	2030	80 x 80 x 3 x 2700				905 x 2022
	2430	80 x 80 x 3 x 3150				905 x 2422
2400	1030	80 x 80 x 2 x 1750	2630	2470	2550	1175 x 1022
	1230	80 x 80 x 2 x 1950				1175 x 1222
	1530	80 x 80 x 2 x 2250				1175 x 1522
	1730	80 x 80 x 3 x 2450				1175 x 1722
	2030	80 x 80 x 3 x 2700				1175 x 2022
	2430	80 x 80 x 3 x 3150				1175 x 2422
3000	1030	80 x 80 x 2 x 1750	3170	3010	3090	1445 x 1022
	1230	80 x 80 x 3 x 1950				1445 x 1222
	1530	80 x 80 x 3 x 2250				1445 x 1522
	1730	80 x 80 x 3 x 2450				1445 x 1722
	2030	80 x 80 x 3 x 2700				1445 x 2022
	2430	100 x 100 x 3 x 3150	3210	3110	1445 x 2422	
4000	1030	100 x 100 x 3 x 1750	4290	4090	4190	1985 x 1022
	1230	100 x 100 x 3 x 1950				1985 x 1222
	1530	100 x 100 x 3 x 2250				1985 x 1522
	1730	100 x 100 x 3 x 2450				1985 x 1722
	2030	100 x 100 x 3 x 2700				1985 x 2022
	2430	100 x 100 x 3 x 3150				1985 x 2422
5000	1030	100 x 100 x 3 x 1750	5100	4900	5000	2390 x 1022
	1230	100 x 100 x 3 x 1950				2390 x 1222
	1530	100 x 100 x 3 x 2250				2390 x 1522
	1730	100 x 100 x 3 x 2450				2390 x 1722
	2030	140 x 140 x 3 x 2700	5180		5040	2390 x 2022
	2430	140 x 140 x 3 x 3150				2390 x 2422

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6000	1030	100 x 100 x 3 x 1750	6180	5980	6080	2930 x 1022
	1230	100 x 100 x 3 x 1950				2930 x 1222
	1530	140 x 140 x 3 x 2250	6260		6120	2930 x 1522
	1730	140 x 140 x 3 x 2450				2930 x 1722
	2030	140 x 140 x 3 x 2700				2930 x 2022
	2430	140 x 140 x 3 x 3150				2930 x 2422
8000	1030	140 x 140 x 3 x 1750	8150	7870	8010	3875 x 1022
	1230	140 x 140 x 3 x 1950				3875 x 1222
	1530	140 x 140 x 3 x 2250				3875 x 1522
	1730	140 x 140 x 3 x 2450				3875 x 1722
	2030	140 x 140 x 3 x 2700				3875 x 2022
	2430	160 x 160 x 5 x 3150	8190		8030	3875 x 2422
9000	1030	140 x 140 x 3 x 1750	9230	8950	9090	4415 x 1022
	1230	140 x 140 x 3 x 1950				4415 x 1222
	1530	140 x 140 x 3 x 2250				4415 x 1522
	1730	140 x 140 x 3 x 2450				4415 x 1722
	2030	160 x 160 x 5 x 2700	9270		9110	4415 x 2022
	2430	160 x 160 x 5 x 3150				4415 x 2422
10000	1030	140 x 140 x 3 x 1750	10380	10100	10240	4990 x 1022
	1230	140 x 140 x 3 x 1950				4990 x 1222
	1530	140 x 140 x 3 x 2250				4990 x 1522
	1730	160 x 160 x 5 x 2450	10420		10260	4990 x 1722
	2030	160 x 160 x 5 x 2700				4990 x 2022
	2430	160 x 160 x 5 x 3150				4990 x 2422

(\* ) Heights < 1530: Infill welded on the gate frame with barbs pointing downwards.

All other dimensions and tolerances are specified in the corresponding technical drawings, available on request.

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<b>Technical Data Sheet</b> <b>TDS-07-37</b>
<b>Robusta<sup>®</sup> Nylofor 3D Swing Gate</b>

### 3.1.2 Panel

The bright infill panel is welded on the gate frame before hot dip galvanising.

#### 3.1.2.1 Wire diameters and tolerances

See table 4:

<b>Table 4: Wire diameters and tolerances</b>		
	Bright horizontal core wire (mm)	Bright vertical core wire (mm)
Nylofor <sup>®</sup> 3D infill panel	4,50 ± 0,05	4,50 ± 0,05

#### 3.1.2.2 Tensile strength of the wires

Horizontal and vertical wires: Min 500 N/mm<sup>2</sup>

#### 3.1.2.3 Mesh sizes

Mesh sizes: The distance measured between the centres of two neighbouring wires.

See table 5 :

<b>Table 5 : Mesh sizes and tolerances</b>	
Distance between the horizontal wires	200 ± 4,0 mm
Distance between the vertical wires	50 ± 3,0 mm

The tolerances are in accordance with the European standard EN 10223-7.

#### 3.1.2.4 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.

#### 3.1.2.5 Dimensions of the V-shapes

Dimensions of V-shapes: See corresponding technical drawing, available on request.

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## Robusta<sup>®</sup> Nylofor 3D Swing Gate

### 3.1.2.6 Dimensions of the infill panel

Dimensions of the infill panel: See corresponding technical drawing, available on request.

## 4 Coating

### 4.1 Metallic coating

The wing with welded infill panel and posts are hot dip galvanized according ISO 1461.

Article and its thickness	Local coating thickness (minimum) <sup>a</sup>	Local coating mass (minimum) <sup>b</sup>	Mean coating thickness (minimum) <sup>c</sup>	Mean coating mass (minimum) <sup>b</sup>
	µm	g/m <sup>2</sup>	µm	g/m <sup>2</sup>
Steel > 6 mm	70	505	85	610
Steel > 3 mm to ≤ 6 mm	55	395	70	505
Steel ≥ 1,5 mm to ≤ 3 mm	45	325	55	395
Steel < 1,5 mm	35	250	45	325
Castings ≥ 6 mm	70	505	80	575
Castings < 6 mm	60	430	70	505

An excellent corrosion protection is obtained through the thick layer of zinc covering the entire surface, including the cutting edges and the welds of the fabrication. Inherent to this process is the possible appearance of some visual surface roughness.

(\*) Robusta<sup>®</sup> Nylofor 3D swing gates with height > 2m: A pre-galvanized Nylofor<sup>®</sup> 3D panel is welded on the hot dip galvanized gate frame.

Zinc coating thickness on the horizontal and vertical wires: Min 30 g/m<sup>2</sup>

### 4.2 Polyester coating

#### Thickness polyester coating:

The total layer is minimum 60 µm thick. (\*)

The polyester thickness is the average of 10 measurements done over 1 gate wing / post.

**Colour:** Green RAL 6005.

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

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**Technical Data Sheet**  
**TDS-07-37****Robusta<sup>®</sup> Nylofor 3D Swing Gate****Adhesion:**

Make two scratches by means of a hard metal pointed graving tool, penetrating through the metal and intersecting at an angle of  $30^\circ \pm 5^\circ$ . Lift a  $30^\circ$  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 16474-3.

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.

(\* ) Robusta Nylofor 3D swing gates with welded pre-galvanized panels, height > 2m:  
The total thickness of the polyester layer is minimum 100  $\mu\text{m}$  thick.

**5 Accessories****5.1 Hinges****Hinges:**

The hinges are adjustable: M16 – M20 according to the wing size.

The uncoated parts are made out of hot dip galvanized steel.

The hinges allow the gate leaves to open up to  $180^\circ$  in the opening direction.

The polyester coated parts are electrolytically galvanized.

**Figure 3**

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## Robusta® Nylofor 3D Swing Gate

### 5.2 Quick fixation system

#### Quick fixation system:

The quick fixation system is made out of stainless steel, quality 304, number 1.4301 in accordance with EN 10088-3.



**Picture 1: Quick fixation system**

### 5.3 Ground bolt

#### Ground bolt:

For double swing gates, the ground bolt is mounted by means of a "plug connection" which allows invisible installation.

The ground bolt is made out of construction steel and afterwards hot dip galvanized in accordance with ISO 1461.

The housing is made from Aluminium and afterwards polyester coated in the colour of the gate. Standard colours: RAL 6005 and RAL 7030.



**Picture 2: Ground bolt with housing**

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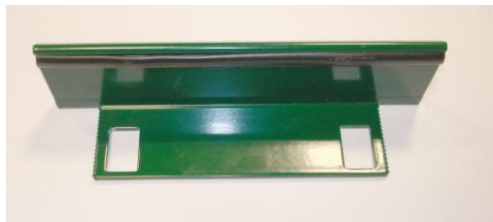
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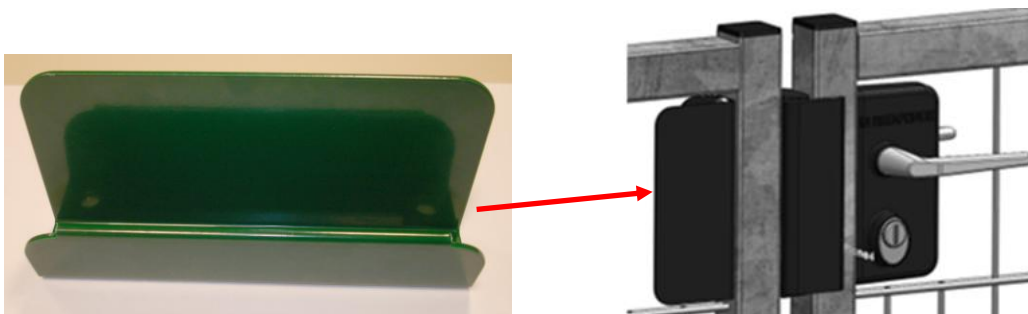
### 5.4 Slamplate

#### Slamplate:

Type Secura: Standard colours RAL 6005 and RAL 7030



**Picture 3: Slamplate used for Robusta® Nylofor 3D swing gate**



**Picture 4 and figure 4: Pull box, only used for double Robusta® Nylofor 3D swing gate**

The anchoring system is made out of stainless steel.  
The lock receiver is made out of aluminium

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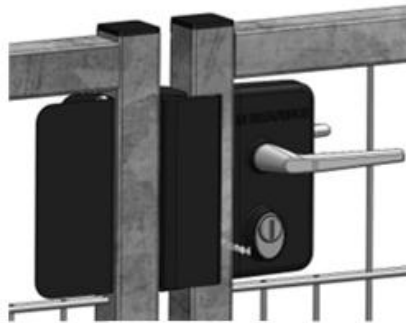
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**Robusta® Nylofor 3D Swing Gate****5.5 Lock System****Lock system:**

The lock is not adjustable.  
The lock is supplied with aluminium handles and 2 keys.  
The 25 mm long night pin, assures secured locking.

All metal parts of the lock system are made out of stainless steel or coated steel to assure good corrosion resistance.

Standard colours: RAL 6005 and RAL 7030.



**Figure 5: Lock system**

**5.6 Post cap****Post cap:**

On each post there is black HDPE – standard, weatherproof and UV-resistant plastic cap mounted.

Dimensions: 80 x 80 or 100 x 100 or 140 x 140 or 160 x 160 mm according to dimensions of the gate posts.



**Figure 6: Post cap**

Posts with dimensions 160 x 160 x 5 will have a metal cap, afterwards polyester coated.

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## Robusta<sup>®</sup> Nylofor 3D Swing Gate

### 5.7 Fixation strip

#### Fixation strip:

The fixation strip is welded on the post, hot dip galvanized and afterwards polyester coated.



**Picture 5: Fixation strip on the post**

Other accessories are available and can be found in the salesbook.

### 6 Packaging

Each gate is wrapped with shrink foil and separately packed on a wooden pallet. See picture below.



**Picture 6**

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## Robusta<sup>®</sup> Nylofor 3D Swing Gate

Each gate is delivered with a separate accessory box.

Each gate is foreseen with a product identification label, mentioning: See picture 7

- Production order number
- Sapcode
- Description gate type
- Colour
- Quantity



**Picture 7: Position of the product identification label**

## 7 CE-marking and Declaration of Performance

### CE-marking and Declaration of Performance

These gates are provided with a **CE label**. This means Betafence guarantees the gate has been **produced** following the **CE Regulations**, as specified in the EU Construction Products Regulation (N° 305/2011).

A specific **Declaration of Performance** (DoP) is available for this type of gate with number DoP- Beta-011. The number is written on the CE label and the contents of this Declaration of Performance can be consulted and printed from the web page:

**<https://www.betafence.com/en/ce-documentation>**

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