

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

1 Scope

This technical data sheet specifies requirements for Robusta® Nylofor F swing gates with Nylofor® F infill panels.

The gate consists of different components:

- Gate posts with quick fix fence connection system (Hinge post and latch post)
- Gate posts with or without fixation strip
- Wing with welded Nylofor® F infill panel (Without dental strip)
- Accessories (Hinges, lock-system, ground bolt)

There are 2 types: Single Robusta® Nylofor F swing gates (Figure 1) and double Robusta® Nylofor F swing gates (Figure 2).

Robusta® Nylofor F swing gates are CE labelled, in accordance with EN 13241-1.

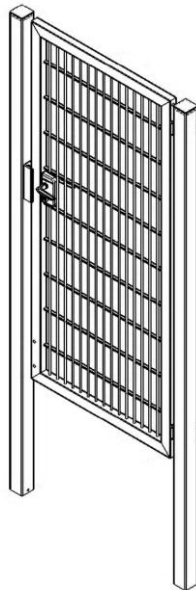


Figure 1: Single Robusta® Nylofor F Swing Gate

Page: 1 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
---	--	---	--

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

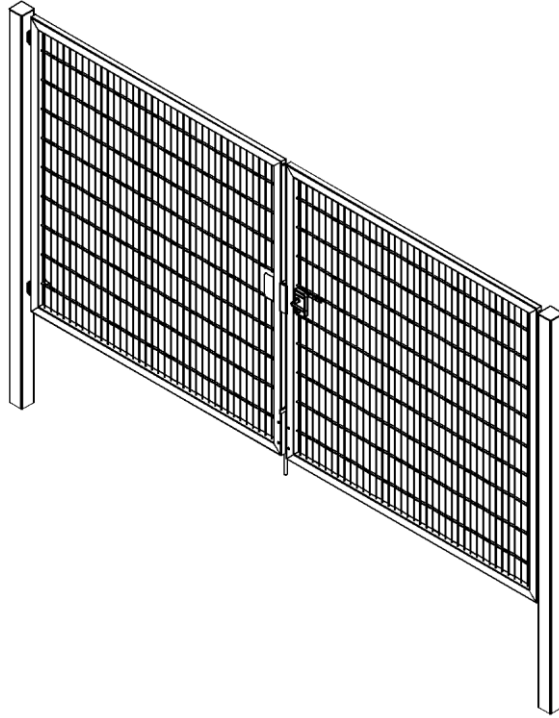


Figure 2: Double Robusta® Nylofor F Swing Gate

Page: 2 / 17
Date: 09-12-2016
Replaces version:
06-10-2015

Made up by:
Werner Frans
Group Quality
Department

Approved by:
Rafal Jordan
Plant Manager

Approved by:
Willy Naesens
Group Quality Manager

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F 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.
- ASTM A 510: Standard specification for general requirements for wire rods and coarse round wire carbon steel.
- ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods.
- 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.
- 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.
- Wire dimensions:

For round vertical wires: 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.

For flat horizontal wires: The measurements are carried out on 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.

Page: 3 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
---	--	---	--

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

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.

2.2 Wire rod used for the Nylofor® F infill panels

Typical wire rod quality used for making Nylofor® F panels : SAE 1006

Chemical composition : See table 1.

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

The chemical composition of the wire rod is based on grade SAE 1006 - ASTM A 510.

Note:

Other wire rod qualities based on grade C9D - ISO 16120-2 or grade SAE 1012 - ASTM A 510 can also be used for making Nylofor® F panels.

2.3 Zinc (Zinc used for hot dip galvanisation bath)

In accordance with ISO 1461.

2.4 Polyester

The polyester is free from Lead and Cadmium.

Page: 4 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
---	--	---	--

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

3 Properties

3.1 Dimensions and tolerances

3.1.1 Wing and posts

See tables 2 and 3.

Table 2: DIMENSIONS STANDARD ROBUSTA® NYLOFOR F SWING GATES

SINGLE SWING GATES						
Width (mm)	Height (mm)	Gate post (mm)	Total Width (mm)	Free passage (mm)	Center-center C-C (mm)	Wing dimensions (W x H) (mm)
1000	X 1030	80 x 80 x 2 x 1750	1145	985	1065	905 x 1022
	X 1230	80 x 80 x 2 x 1950				905 x 1222
	X 1430	80 x 80 x 2 x 2150				905 x 1422
	X 1630	80 x 80 x 2 x 2350				905 x 1622
	X 1830	80 x 80 x 3 x 2550				905 x 1822
	X 2030	80 x 80 x 3 x 2700				905 x 2022
	X 2430	80 x 80 x 3 x 3150				905 x 2422
1500	X 1030	80 x 80 x 2 x 1750	1685	1525	1605	1445 x 1022
	X 1230	80 x 80 x 3 x 1950				1445 x 1222
	X 1430	80 x 80 x 3 x 2150				1445 x 1422
	X 1630	80 x 80 x 3 x 2350				1445 x 1622
	X 1830	80 x 80 x 3 x 2550				1445 x 1822
	X 2030	80 x 80 x 3 x 2700				1445 x 2022
	X 2430	100 x 100 x 3 x 3150	1725		1625	1445 x 2422
2000	X 1030	100 x 100 x 3 x 1750	2265	2065	2165	1985 x 1022
	X 1230	100 x 100 x 3 x 1950				1985 x 1222
	X 1430	100 x 100 x 3 x 2150				1985 x 1422
	X 1630	100 x 100 x 3 x 2350				1985 x 1622
	X 1830	100 x 100 x 3 x 2550				1985 x 1822
	X 2030	100 x 100 x 3 x 2700				1985 x 2022
	X 2430	100 x 100 x 3 x 3150				1985 x 2422

Page: 5 / 17
Date: 09-12-2016
Replaces version:
06-10-2015

Made up by:
Werner Frans
Group Quality
Department

Approved by:
Rafal Jordan
Plant Manager

Approved by:
Willy Naesens
Group Quality Manager

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

Technical Data Sheet TDS-07-81
Robusta® Nylofor F Swing Gate

Table 2: DIMENSIONS STANDARD ROBUSTA® NYLOFOR F SWING GATES
SINGLE SWING GATES

Width (mm)	Height (mm)	Gate post (mm)	Total Width (mm)	Free passage (mm)	Center-center C-C (mm)	Wing dimensions (W x H) (mm)
2500	X 1030	100 x 100 x 3 x 1750	2670	2470	2570	2390 x 1022
	X 1230	100 x 100 x 3 x 1950				2390 x 1222
	X 1430	100 x 100 x 3 x 2150				2390 x 1422
	X 1630	100 x 100 x 3 x 2350	2750		2610	2390 x 1622
	X 1830	140 x 140 x 3 x 2550				2390 x 1822
	X 2030	140 x 140 x 3 x 2700				2390 x 2022
	X 2430	140 x 140 x 3 x 3150				2390 x 2422
3000	X 1030	100 x 100 x 3 x 1750	3210	3010	3110	2930 x 1022
	X 1230	100 x 100 x 3 x 1950	3290			2930 x 1222
	X 1430	140 x 140 x 3 x 2150			3150	2930 x 1422
	X 1630	140 x 140 x 3 x 2350				2930 x 1622
	X 1830	140 x 140 x 3 x 2550				2930 x 1822
	X 2030	140 x 140 x 3 x 2700				2930 x 2022
	X 2430	140 x 140 x 3 x 3150	2930 x 2422			

Page: 6 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
---	--	---	--

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

Table 3: DIMENSIONS STANDARD ROBUSTA® NYLOFOR F SWING GATES

DOUBLE SWING GATES						
Width (mm)	Height (mm)	Gate post (mm)	Total Width (mm)	Free passage (mm)	Center-center C-C (mm)	Wing dimensions (W x H) (mm)
3000	X 1030	80 x 80 x 2 x 1750	3170	3010	3090	1445 x 1022
	X 1230	80 x 80 x 3 x 1950				1445 x 1222
	X 1430	80 x 80 x 3 x 2150				1445 x 1422
	X 1630	80 x 80 x 3 x 2350				1445 x 1622
	X 1830	80 x 80 x 3 x 2550				1445 x 1822
	X 2030	80 x 80 x 3 x 2700	1445 x 2022			
	X 2430	100 x 100 x 3 x 3150	3210		3110	1445 x 2422
4000	X 1030	100 x 100 x 3 x 1750	4290	4090	4190	1985 x 1022
	X 1230	100 x 100 x 3 x 1950				1985 x 1222
	X 1430	100 x 100 x 3 x 2150				1985 x 1422
	X 1630	100 x 100 x 3 x 2350				1985 x 1622
	X 1830	100 x 100 x 3 x 2550				1985 x 1822
	X 2030	100 x 100 x 3 x 2700				1985 x 2022
	X 2430	100 x 100 x 3 x 3150				1985 x 2422
5000	X 1030	100 x 100 x 3 x 1750	5100	4900	5000	2390 x 1022
	X 1230	100 x 100 x 3 x 1950				2390 x 1222
	X 1430	100 x 100 x 3 x 2150				2390 x 1422
	X 1630	100 x 100 x 3 x 2350				2390 x 1622
	X 1830	140 x 140 x 3 x 2550	5180		5040	2390 x 1822
	X 2030	140 x 140 x 3 x 2700				2390 x 2022
	X 2430	140 x 140 x 3 x 3150				2390 x 2422

Page: 7 / 17
Date: 09-12-2016
Replaces version:
06-10-2015

Made up by:
Werner Frans
Group Quality
Department

Approved by:
Rafal Jordan
Plant Manager

Approved by:
Willy Naesens
Group Quality Manager

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

Technical Data Sheet TDS-07-81
Robusta® Nylofor F Swing Gate

Table 3: DIMENSIONS STANDARD ROBUSTA® NYLOFOR F SWING GATES

DOUBLE SWING GATES						
Width (mm)	Height (mm)	Gate post (mm)	Total Width (mm)	Free passage (mm)	Center-center C-C (mm)	Wing dimensions (W x H) (mm)
6000	X 1030	100 x 100 x 3 x 1750	6180	5980	6080	2930 x 1022
	X 1230	100 x 100 x 3 x 1950				2930 x 1222
	X 1430	140 x 140 x 3 x 2150	6260		6120	2930 x 1422
	X 1630	140 x 140 x 3 x 2350				2930 x 1622
	X 1830	140 x 140 x 3 x 2550				2930 x 1822
	X 2030	140 x 140 x 3 x 2700				2930 x 2022
	X 2430	140 x 140 x 3 x 3150				2930 x 2422
8000	X 1030	140 x 140 x 3 x 1750	8150	7870	8010	3875 x 1022
	X 1230	140 x 140 x 3 x 1950				3875 x 1222
	X 1430	140 x 140 x 3 x 2150				3875 x 1422
	X 1630	140 x 140 x 3 x 2350				3875 x 1622
	X 1830	140 x 140 x 3 x 2550				3875 x 1822
	X 2030	140 x 140 x 3 x 2700				3875 x 2022
	X 2430	160 x 160 x 5 x 3150	8190		8030	3875 x 2422
10000	X 1030	140 x 140 x 3 x 1750	10380	10100	10240	4990 x 1022
	X 1230	140 x 140 x 3 x 1950				4990 x 1222
	X 1430	140 x 140 x 3 x 2150				4990 x 1422
	X 1630	160 x 160 x 5 x 2350	10420		10260	4990 x 1622
	X 1830	160 x 160 x 5 x 2550				4990 x 1822
	X 2030	160 x 160 x 5 x 2700				4990 x 2022
	X 2430	160 x 160 x 5 x 3150				4990 x 2422

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

3.1.2 Panel

The bright infill panel is welded inside the gate frame before hot dip galvanising. The panel is cut and welded at the individual wires.

Page: 8 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
---	--	---	--

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

3.1.2.1 Wire diameters and tolerances

See figure 3.

Vertical wires:

Bright wire diameter: $4,50 \pm 0,045$ mm

The tolerance on the bright wire diameter is in accordance with ISO 22034-2, table 1, class T3

Horizontal flat wire:

Bright dimensions: $5,65: - 0,15 / + 0$ mm x $14,65: - 0,30 / + 0$ mm

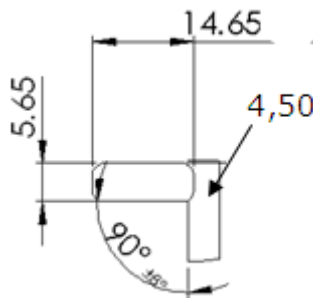


Figure 3.

3.1.2.2 Tensile strength of the wires

Tensile strength vertical wire: Min. 550 N/mm²

Tensile strength horizontal flat wire: Min. 600 N/mm²

3.1.2.3 Mesh dimensions and tolerances

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

See table 4 :

Table 4: Mesh dimensions and tolerances	
Distance between the horizontal flat wires	$200 \pm 2,0$ mm
Distance between the vertical wires	$50 \pm 2,0$ mm

Page: 9 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
---	--	---	--

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

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 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) ^a	Local coating mass (minimum) ^b	Mean coating thickness (minimum) ^c	Mean coating mass (minimum) ^b
	µm	g/m ²	µm	g/m ²
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.

Page: 10 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
--	--	---	--

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

4.2 Polyester coating

Thickness polyester coating:

The total layer is minimum 100 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).

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° 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 ΔE^* is maximum 3.

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

Page: 11 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
--	--	---	--

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

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° in the opening direction.

The polyester coated parts are electrolytically galvanized.



Figure 4

5.2 Quick fix fence connection system & Fixation strip

Quick fix fence connection system:

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



Picture 1: Quick fix fence connection system

Page: 12 / 17
Date: 09-12-2016
Replaces version:
06-10-2015

Made up by:
Werner Frans
Group Quality
Department

Approved by:
Rafal Jordan
Plant Manager

Approved by:
Willy Naesens
Group Quality Manager

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

Fixation strip:

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



Picture 2: Fixation strip on the post

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.



Picture 3: Ground bolt (Note: Picture from Robusta® SQ 25 swing gate)

Page: 13 / 17
Date: 09-12-2016
Replaces version:
06-10-2015

Made up by:
Werner Frans
Group Quality
Department

Approved by:
Rafal Jordan
Plant Manager

Approved by:
Willy Naesens
Group Quality Manager

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

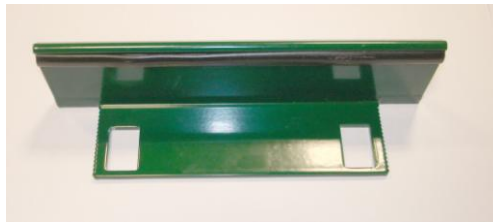
Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

5.4 Slamplate

Slamplate:

Type Secura: Standard colours RAL 6005, RAL 9005 and RAL 7030



Picture 4: Slamplate used for Robusta® Nylofor F swing gate



Picture 5: Pull box, only used for double Robusta® Nylofor F swing gate

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

Page: 14 / 17
Date: 09-12-2016
Replaces version:
06-10-2015

Made up by:
Werner Frans
Group Quality
Department

Approved by:
Rafal Jordan
Plant Manager

Approved by:
Willy Naesens
Group Quality Manager

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

5.5 Lock System

Lock system:

The lock is not adjustable.

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, RAL 9005 and RAL 7030.



Picture 6: Lock system (Note: Picture from Robusta® SQ 25 swing gate)

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 5: Post cap

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

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

Page: 15 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
--	--	---	--

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

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

6 Packaging

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



Picture 7

Each gate is delivered with a separate accessory box.

Each gate is foreseen with a product identification label, mentioning: See picture 8

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



Picture 8: Position of the product identification label

Page: 16 / 17
Date: 09-12-2016
Replaces version:
06-10-2015

Made up by:
Werner Frans
Group Quality
Department

Approved by:
Rafal Jordan
Plant Manager

Approved by:
Willy Naesens
Group Quality Manager

Technical Data Sheet
TDS-07-81

Robusta® Nylofor F Swing Gate

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>

Page: 17 / 17 Date: 09-12-2016 Replaces version: 06-10-2015	Made up by: Werner Frans Group Quality Department	Approved by: Rafal Jordan Plant Manager	Approved by: Willy Naesens Group Quality Manager
--	--	---	--

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