

Decofor® System: Panel, post and accessories

1 Scope

This technical data sheet specifies the properties of the Decofor® System.
The complete system exists of:

- Decofor® panels
- Decofor® posts with floor plate and decorative ball cap
- Accessories

See figure 1.

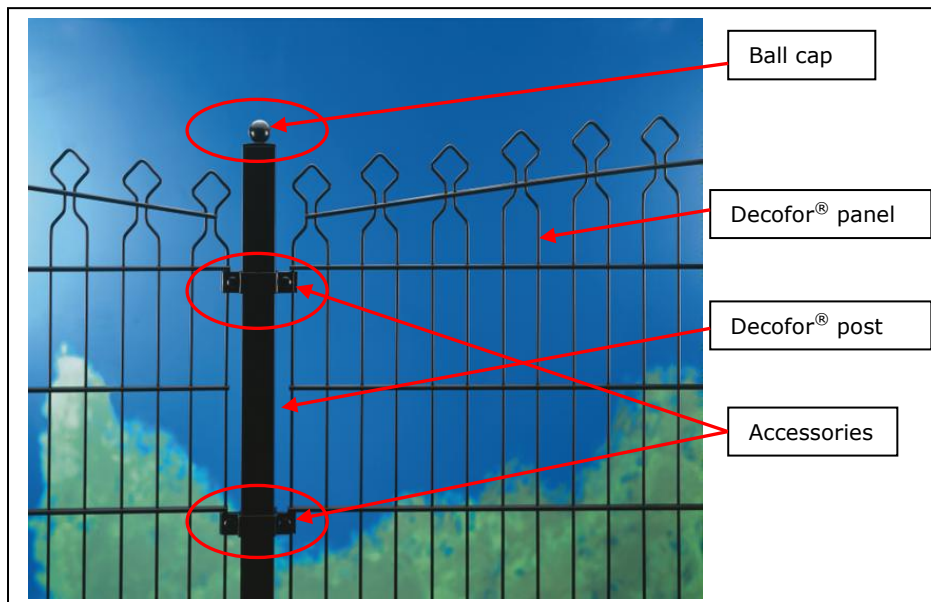


Figure 1: Decofor® System

Decofor[®] System: Panel, post and accessories

I. Decofor[®] panel

1 Scope

Decofor[®] is a spot welded mesh made out of galvanized low carbon steel wire and polyester coated afterwards.

There are 3 types of panels:

- Decofor[®] Arco
- Decofor[®] Recto
- Decofor[®] Wave

Decofor[®] Arco is a bow-shaped panel, composed out of 16 vertical profiles welded in between twin-positioned horizontal wires (figure 2).

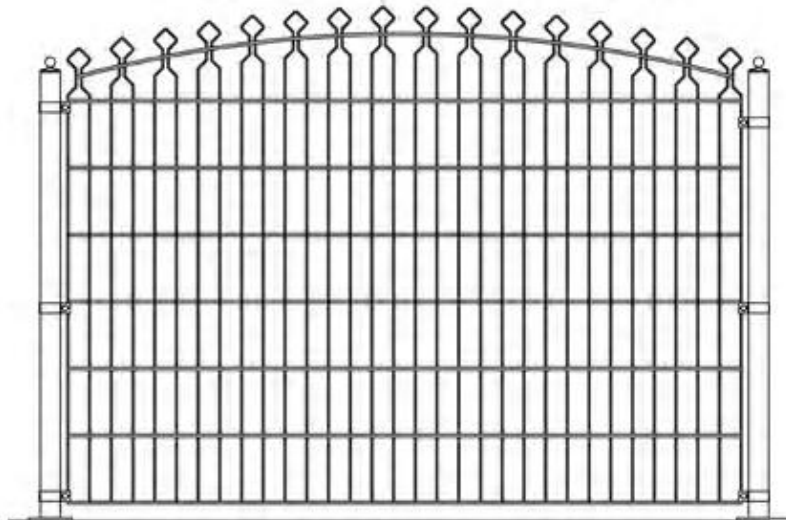


Figure 2: Decofor[®] Arco panel

**Decofor® System:
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Decofor® Recto is a straight panel, composed out of 16 vertical profiles welded in between twin-positioned horizontal wires (figure 3).

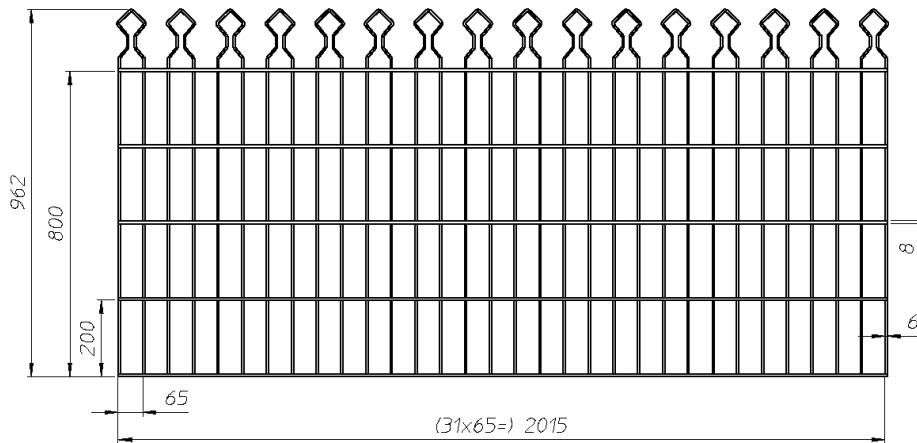


Figure 3: Decofor® Recto panel

Decofor® Wave is a bow-shaped panel, composed out of 16 vertical profiles welded in between twin-positioned horizontal wires (figure 4).

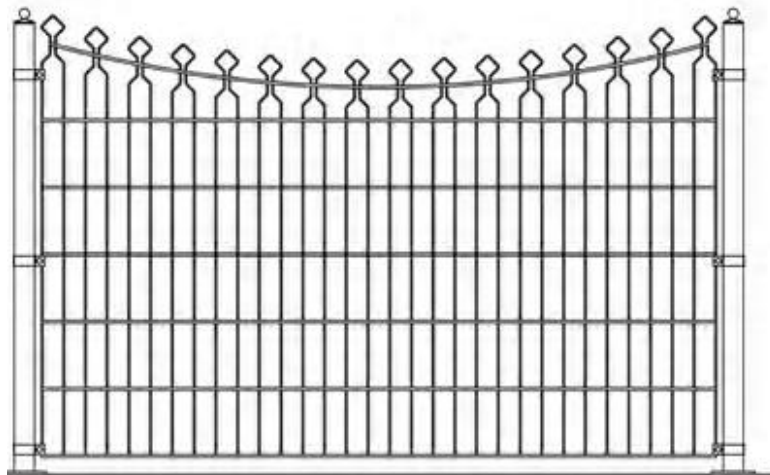


Figure 4: Decofor® Wave panel

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

Technical Data Sheet
TDS-06-20

Decofor[®] System: Panel, post and accessories

Possible combinations with Decofor[®] Wave and Arco[®] panels: See figure 5 and 6

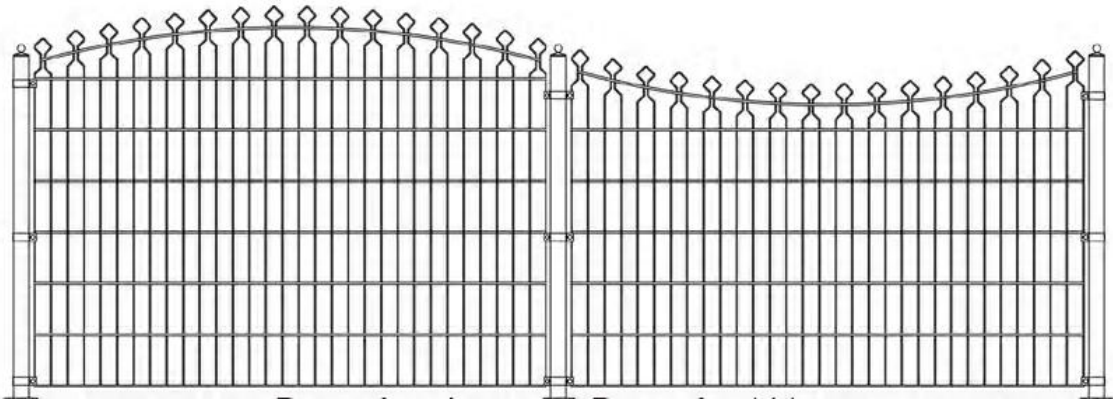


Figure 5: Combination Decofor[®] Arco and Decofor[®] Wave panels

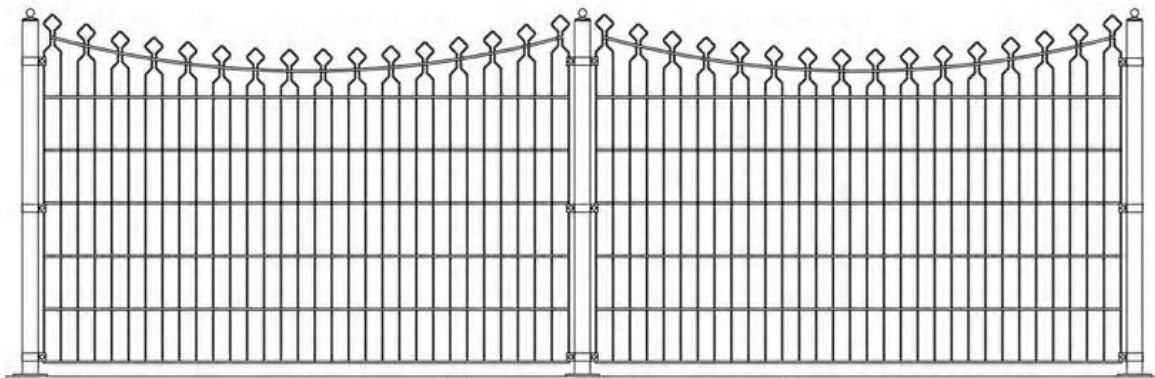


Figure 6: Combination with two Decofor[®] Wave panels

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Decofor[®] System: Panel, post 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.
- EN 1179: Zinc and zinc alloys – primary zinc.
- 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.

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 material

2.1 Wire rod

Chemical composition: See table 1

Table 1 : Chemical composition	
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.

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2.2 Zinc used for galvanisation bath

Minimum 99,95% of pure zinc is used for galvanising, in accordance with Z3 of EN 1179.

2.3 Polyester

The polyester is free of lead and cadmium.

3 Properties

3.1 Wire diameter and tolerances

See table 2:

Table 2: Wire diameters and tolerances				
	Horizontal wire (mm)		Vertical wire (mm)	
	Core wire	Polyester coated	Core wire	Polyester coated
Decofor [®] panel	7,50 ± 0,05	8,0 ± 0,35	5,50 ± 0,04	6,0 ± 0,35

3.2 Tensile strength of the wires

Horizontal and vertical wires: Min. 500 N/mm².

3.3 Mesh sizes and tolerances

Distance between the horizontal wires: 200 ± 4,0 mm

Distance between the vertical wires: 65 ± 3,0 mm

The tolerances on the meshes are in accordance with EN 10223-7.

3.4 Weld shear strength

Welds have a shear strength not less than 4kN.

3.5 Dimensions and tolerances of panel height and width

Overall height of the panels: See table 3.1, 3.2 and 3.3.

Tolerance on the panel height: ± 2 mm

Width of the panel: 2015 mm

Tolerance on the panel width: ± 2 mm

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Decofor[®] System: Panel, post and accessories

4 Coating

4.1 Metallic coating

The wires are galvanised, the min. zinc coating weight for the horizontal and vertical wires is 30 g/m².

4.2 Polyester coating

Thickness polyester coating: Minimum 100 µm.

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:

Arco panel:

- Green RAL 6005 and White RAL 9010
- Black RAL 9005 is available as MTO product

Recto panel:

- Green RAL 6005, Black RAL 9005 and White RAL 9010 are available as MTO product

Wave panel:

- Green RAL 6005, Black RAL 9005 and White RAL 9010 are available as MTO product

Other standard 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 50mm. 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 ΔE^* 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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Decofor[®] System: Panel, post and accessories

5 Packaging

Panels are delivered on wooden pallet, protected by shrink foil.

Number of panels per pallet: See table 3.1, 3.2 and 3.3.

Table 3.1: Form of delivery (Decofor[®] Arco)				
Colour 6005				
Number of horizontal wires	Overall height of the panel (mm)	Number of panels per pallet	Weight of the panel (kg)	Sapcode
3 X 2	886	25	12,75	7005515
4 X 2	1086	25	15,45	7005518
5 X 2	1286	25	18,18	7005521
6 X 2	1486	25	20,88	7005524
Colour 9010				
Number of horizontal wires	Overall height of the panel (mm)	Number of panels per pallet	Weight of the panel (kg)	Sapcode
3 X 2	886	25	12,75	7005517
4 X 2	1086	25	15,45	7005520
5 X 2	1286	25	18,18	7005523
6 X 2	1486	25	20,88	7005526
Colour 9005				
Number of horizontal wires	Overall height of the panel (mm)	Number of panels per pallet	Weight of the panel (kg)	Sapcode
3 X 2	886	25	12,75	7005516
4 X 2	1086	25	15,45	7005519
5 X 2	1286	25	18,18	7005522
6 X 2	1486	25	20,88	7005525

Other panel heights are available on request.

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Table 3.2: Form of delivery (Decofor® Recto)

Colour 6005				
Number of horizontal wires	Overall height of the panel (mm)	Number of panels per pallet	Weight of the panel (kg)	Sapcode
3 X 2	762	25	10,83	7006877
4 X 2	962	25	13,53	7006878
5 X 2	1162	25	16,25	7006879
6 X 2	1362	25	18,95	7006880
Colour 9010				
Number of horizontal wires	Overall height of the panel (mm)	Number of panels per pallet	Weight of the panel (kg)	Sapcode
3 X 2	762	25	10,83	7006885
4 X 2	962	25	13,53	7006886
5 X 2	1162	25	16,25	7006887
6 X 2	1362	25	18,95	7006888
Colour 9005				
Number of horizontal wires	Overall height of the panel (mm)	Number of panels per pallet	Weight of the panel (kg)	Sapcode
3 X 2	762	25	10,83	7006881
4 X 2	962	25	13,53	7006882
5 X 2	1162	25	16,25	7006883
6 X 2	1362	25	18,95	7006884

Other panel heights are available on request.

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Table 3.3: Form of delivery (Decofor® Wave)

Colour 6005						
Number of horizontal wires	Dimensions of the panels (mm)			Number of panels per pallet	Weight of the panel (kg)	Sapcode
	Width (C-C)	Overall height				
		Middle	Side			
2 x 2	2015	589	713	25	10,01	7036089
3 x 2	2015	789	913	25	12,73	7036090
4 x 2	2015	989	1113	25	15,45	7036091
5 x 2	2015	1189	1313	25	18,18	7036092
Colour 9010						
Number of horizontal wires	Dimensions of the panels (mm)			Number of panels per pallet	Weight of the panel (kg)	Sapcode
	Width (C-C)	Overall height				
		Middle	Side			
2 x 2	2015	589	713	25	10,01	7036093
3 x 2	2015	789	913	25	12,73	7036094
4 x 2	2015	989	1113	25	15,45	7036095
5 x 2	2015	1189	1313	25	18,18	7036096
Colour 9005						
Number of horizontal wires	Dimensions of the panels (mm)			Number of panels per pallet	Weight of the panel (kg)	Sapcode
	Width (C-C)	Overall height				
		Middle	Side			
2 x 2	2015	589	713	25	10,01	7036100
3 x 2	2015	789	913	25	12,73	7036099
4 x 2	2015	989	1113	25	15,45	7036098
5 x 2	2015	1189	1313	25	18,18	7036097

Other panel heights are available on request.

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**Decofor® System:
Panel, post and accessories****II. Decofor® Post****1 Scope**

The post is made out of continuously hot-dip zinc coated steel sheet (Sendzimir) and subsequently polyester coated, See figure 1.

The Decofor® post is a square one with decorative ball cap (Approx. 40 mm height) at the top.

The **decorative ball cap** is made out of aluminium and afterwards polyester coated in the colour of the posts and panels.



Figure 1: Decofor® post with ball cap, to be put in concrete.

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Decofor[®] System: Panel, post and accessories

1.1 Normative references

- EN 10346: Continuously hot-dip coated steel flat products – technical delivery conditions.
- 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.

2 Raw material

2.1 Base steel

Chemical composition: See table 1:

Table 1: chemical composition	
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 Z275.

If DX51D or S220 quality is used in accordance to EN 10346, the yield strength shall be minimum 235 N/mm².

2.2 Polyester

The polyester is free of lead and cadmium.

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Decofor[®] System: Panel, post and accessories

3 Properties

3.1 Dimensions and tolerances

Dimensions of the section of the post: 60 x 60 x 1,50 mm.

Height: See table 2 and figure 2.

Tolerance on the side lengths: $\pm 0,35$ mm

Tolerance on the thickness: ± 10 %

Tolerance on the height: ± 3 mm

Height of the post (mm)	Side of the square (mm)	Thickness of the sheet (mm)
1500	60 x 60	1,5
1750	60 x 60	1,5
2000	60 x 60	1,5

The height mentioned in table 2 is the height of the post without ball cap.

Other lengths are available on request.

Note: Posts can also be glued in an aluminium base plate with dimensions: 150 x 150 mm

3.2 Yield and Tensile strength

The strength is specified by:

- Tensile strength: Min. 330 N/mm²
- Yield strength: Min. 250 N/mm²

4 Coating

4.1 Metallic coating

Zinc coating:

Min. of 275 g/m² as an average of 3 measurements and double side determined.

In accordance with EN 10346. (Z275)

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Decofor® System:
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4.2 Polyester coating

Thickness of the coating layer:

Minimum layer thickness of 60 µm (Average of 10 measurements done on 1 post)

In corrosive environments, higher minimum coating thickness is recommended.
Typical value is 100 µm (Always in agreement between buyer and seller).

Colour:

Standard colours are RAL 6005, RAL 9005 and RAL 9010.

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

Non-standard colours: On request.

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 11507.

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.

5 Packaging

The posts are packed on a wooden pallet with dimensions 120 x 80 cm.

The posts are packed per two in UV resistant shrink foil.

Each layer put on the pallet shall have 12 posts.

8 layers will be put on the pallet. (Total of 96 posts)

Other packing is possible in agreement between Betafence and customer.

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**Decofor® System:
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Form of delivery, See table 3.

Table 3: Form of delivery (Decofor® post to be put in concrete)

Height of the post (mm)	Packed per	Number of posts per pallet	Dimensions of the pallet L x W x H (cm)	Weight of the post (kg)	Sapcode RAL 6005	Sapcode RAL 9010	Sapcode RAL 9005
1500	2	96	165 x 85 x 75	4,13	7005636	7005637	7005638
1750	2	96	190 x 85 x 75	4,82	7005639	7005640	7005641
2000	2	96	215 x 85 x 75	5,50	7005642	7005643	7005644

6 Post with welded Base plate

On request, a Decofor® post with welded base plate is available. The base plate is welded at the post. The post is made from continuously hot dip galvanized steel sheet. The base plate is electrolytically galvanized. See figure 2.

In corrosive atmospheres (e.g. close to sea or in environments with high humidity or with industrial air-pollution), Betafence recommends to use a "hot dip galvanized after" version of the post with base plate, information available on request.

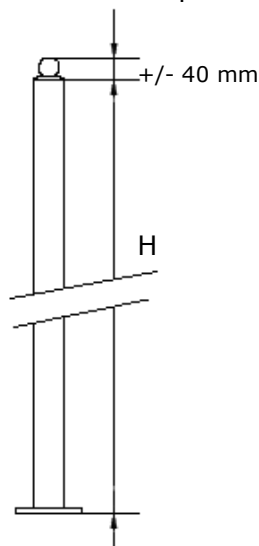


Figure 2: Decofor® post with welded base plate

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Decofor® System: Panel, post and accessories

III. Accessories

1 Scope

There are 3 types of accessory sets to connect the panels at the post:

- End post accessory set (figure 1)
- Intermediate post accessory set (figure 2)
- Corner post accessory set (figure 3)

Each set exists of two braces, with carriage bolts and nuts.

There is one brace set to connect the panels to the wall:
See figure 4

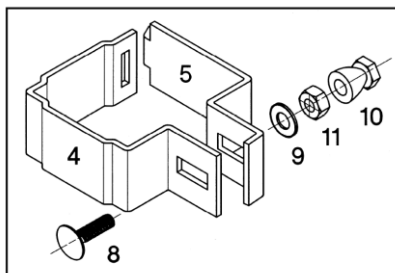


Figure 1

4	Brace
5	Brace
8	Bolt
9	Washer
10	Self breaking nut
11	Nut

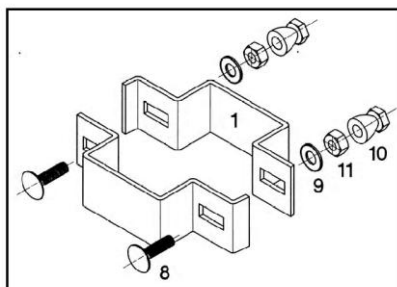


Figure 2

1	Brace
8	Bolt
9	Washer
10	Self breaking nut
11	Nut

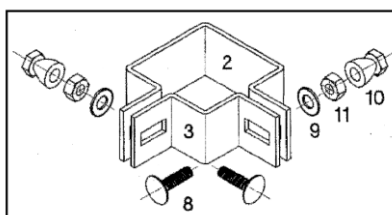


Figure 3

2	Brace
3	Brace
8	Bolt
9	Washer
10	Self breaking nut
11	Nut

Decofor® System: Panel, post and accessories

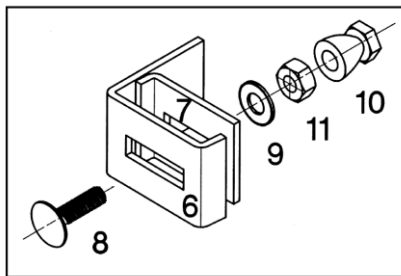


Figure 4

6	Brace
7	Brace
8	Bolt
9	Washer
10	Self breaking nut
11	Nut

2 Braces

The braces are made out of low carbon steel (Material thickness: 3 mm), hot dip galvanized and subsequently polyester coated.

2.1 Coating

2.1.1 Metallic coating

The minimum zinc coating layer (Mean coating thickness) is 55 µm in accordance with ISO 1461, table 4.

2.1.2 Polyester coating

Thickness of the coating layer:

Minimum layer thickness of 60 µm (Average of 10 measurements done on 1 brace)

In corrosive environments, higher minimum coating thickness is recommended. Typical value is 100 µm (Always in agreement between buyer and seller).

Colour:

Standard colours are RAL 6005, RAL 9005 and RAL 9010.

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

Non-standard colours: On request.

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.

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**Decofor® System:
Panel, post and accessories****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 ΔE^* is maximum 3.

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

2.2 Packaging

The coated braces are packed together with the stainless steel parts in a cardboard box.

The box is sealed with a transparent adhesive tape.

48 boxes are packed in 5 layers on a 4-way pallet with dimensions 120 x 80 cm (Wall fixator, Corner and End brackets)

30 boxes are packed in 3 layers on a 4-way pallet with dimensions 120 x 80 cm (Intermediate brackets)

A label is put on top of each cardboard box mentioning type and Sapcode.

Stretch or shrink foil is put around the pallet to protect the cardboard boxes.

A pallet label is put on the 2 longest sides of the pallet, mentioning the Sapcode and number of cardboard boxes / pallet.

3 Bolt and nuts

Standard are the security bolts M8 x 30, self breaking nuts M8, Hexagon nuts M8 and washers M8 made out of stainless steel.

Stainless steel quality A2 in accordance with ISO 3506.



Figure 1: Self Breaking Nut

Bolts, nuts and washers are packed and sealed in a small plastic bag.

The plastic bag is put together with the coated parts in a cardboard box.

Force used to tighten the self breaking nut: Between 13 – 21 Nm.

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