



WOOD COMPOSITE GARDEN PRODUCTS

duo
fuse[®]
the natural look



WHAT IS DUOFUSE® WOOD COMPOSITE

Duofuse® is a mix of wood flour and plastic, this means the warmth and look of solid wood combined with the unique properties of plastic.

This durable material is ecological and maintenance-friendly and available in a traditional wood colour and in modern shades of gray. The extensive garden range includes decking in various sizes, colours and designs to give your patio a nice view and good comfort.

To separate your garden or patio you can choose out of different screens that are all modular and can be combined with each other. The tongue and groove system gives your garden a sleek smooth look. The slat wall system, however, is a more modern fence with pleasing lines. The ranch fencing allows you to be enclosed and yet keep an open feeling.

All articles can be combined perfectly as they are produced from the same raw materials and colours.

AVAILABLE COLOURS

	Tropical Brown	Stone Grey	Graphite Black
Decking	X	X	X
Tongue and groove system	X	X	X
Slat wall system	X	X	X
Ranch fencing	X	X	X

The colours and the surface brushing may differ slightly from production deliveries and are not contractual. We advise not to mix boards from different production batches. You can see the manufacturing date on the top of each board. It is necessary to install the boards in the same direction each time. You can find the mark on every board.

ADVANTAGES WOOD COMPOSITE

- **WILL NOT ROT, SWELL, SPLINTER OR SPLIT**
- **SLIP RESISTANT, BRUSHED SURFACE**
For maximum comfort and a natural look.
- **EASY TO CLEAN AND TO INSTALL**
It does not require treatment with oil, solvents or cleaning products.
- **MINIMAL DISCOLOURATION, MAINTAINS ORIGINAL LOOK**
After several days, the product will begin to fade slightly. This is a temporary and a natural process due to the leaking of the lignin. Afterwards the original colour will return.

- **ECOLOGICAL AND RECYCLABLE**
Wood composite is a durable and ecological alternative to hardwood. It is made of a mix of wood flour and PVC. Therefore it contributes to the protection and conservation of the tropical rain forests. The estimated life span exceeds that of conventional wood and afterwards is fully recyclable.

Plastivan recently invested in a granulate installation for the production of WPC granules. This production is fully integrated from raw material to finished product. Thanks to this investment Plastivan now has full control over the entire production process.



DECKING

ADVANTAGES

• WILL NOT ROT, SWELL, SPLINTER OR SPLIT

If installed correctly you will enjoy your decking for years without any sorrow and you can walk and play barefoot on the decking in safety.

• SLIP RESISTANT, BRUSHED SURFACE

Thanks to the brushed surface the decking is much less slippery than a wooden decking.

• INVISIBLE FIXING

No screws or nails that distort the view or hurt you. Thanks to the specially designed clips boards are fastened to the wood composite beams.

• DIFFERENT HEIGHTS POSSIBLE

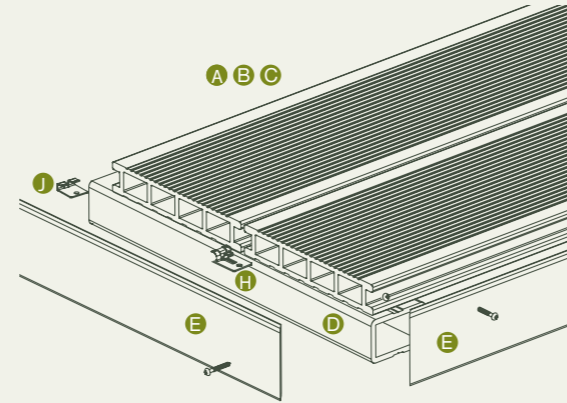
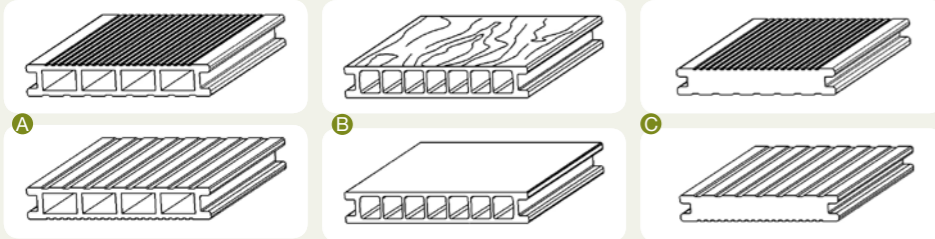
The Duofuse® beam can be installed in 2 ways, so that decking can be placed at 35 mm or 48,5 mm from ground.



For higher placements or placement on roof terraces you can use polypropylene pedestals that allow heights of more than 200 mm. When using these pedestals, however, you cannot use wood composite beams, since it is not a structural element.



RANGE



hollow board DFD 162* hollow board DFDE 162** full board DFD 140*

* Double-sided finish: a refined and a robust finish
** double-sided finish: brushed surface and a wood grain finish

PARTS



ARTICLE	COLOUR			MATERIAL	DIMENSIONS (WXH)
	Graphite Black	Stone Grey	Tropical Brown		
hollow board DFD 162* A				Wood Flour and PVC	162 x 28 mm
hollow board DFDE 162** B				Wood Flour and PVC	162 x 28 mm
full board DFD 140* C				Wood Flour and PVC	140 x 23 mm
beam DFB048 D				Wood Flour and PVC	48,5 x 35 mm
skirt DFS076 E				Wood Flour and PVC	76 x 10 mm
L profile DFL078 F				Wood Flour and PVC	78 x 39 mm
ALU L profile DFLA076 G				Anodised aluminium	76 x 37 mm
CLIPS				DFC001 H standard clip DFC002 I butting clip DFC004 J starter and finishing clip	

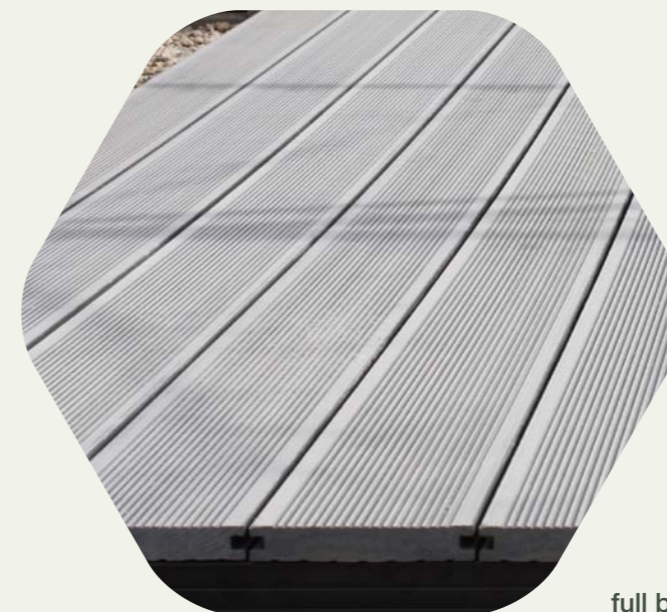
Standard length of all boards and profiles : 4 m (other dimensions on request)



A
hollow board DFD 162*



B
hollow board DFDE 162**



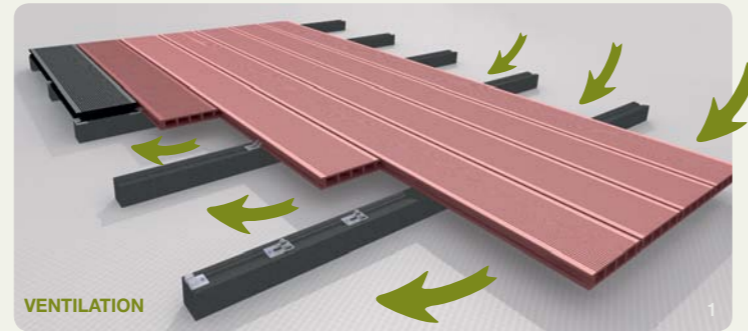
C
full board DFD 140*



INSTALLATION GUIDE

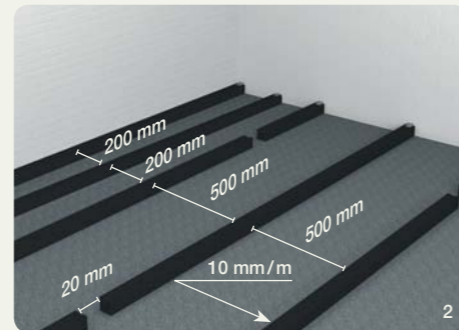
• GROUND

- It is essential that sufficient ventilation (1) is provided under the boards so that they can dry after a shower.
- The ground has to be flat and stable.
- For a good evacuation of water the ground has to have a slope of 10mm every meter (2) in the direction of the board and preferably away from the house. This slope has to be maintained on the board so that the drainage of the water is optimized and no water can remain on, in or under the board.



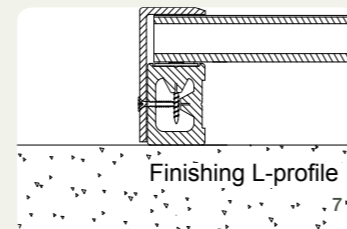
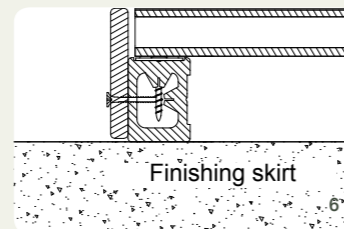
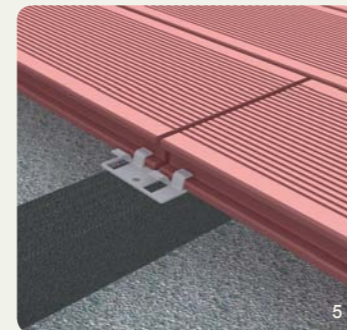
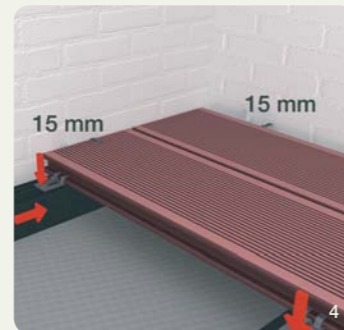
• FIXING OF THE BEAMS

- The decking is installed on beams. Align all beams, so that the starter clips can be fixed at the front of every beam.
- The distance between the beams is a maximum 500mm. Install an extra beam at 200mm distance from the first and the last beam at the beginning and at the end of the decking.
- Beams need to be fixed on the concrete foundation or on a supporting structure every 500mm in the correct way (2).
- Use a countersink to make the holes conical so that the screws and plugs are sunk (3).



• FIXING OF BOARDS

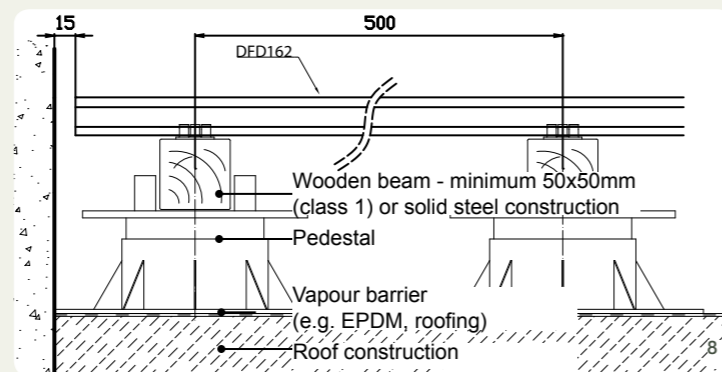
- Boards have to be placed in the same direction (a mark is present at the inner side of every board).
- 5mm/m spacing must be kept to allow expansion, with a minimum of 15mm away from every wall (4).
- The first and last board is fixed with starter and finishing clips. The following board is then inserted into the previous clips and again secured on beams with standard clips (4), repeat procedure for additional boards on all beams. When all boards have been installed the starter and finishing clip has to be shoved at the end of all boards.
- Placing the beam at the end of the boards is recommended. If not, then the board overhang must not exceed 50mm from the last support beam.
- The butting clip (5) allows boards to be joined lengthwise. Spacing between the short sides of the boards must be 10mm.
- Pre-drilling is mandatory before fixing the clips.
- The finishing of a terrace can be done with a skirt or with an L-Profile (6-7).



• DIFFERENT PLACEMENTS: ROOF TERRACE, FLOATING STRUCTURE,...

- If the beams
 - cannot be supported over the whole length or
 - cannot be fixed to the (roof) construction or
 - have to be installed floated on pedestals,
 - ...

a solid steel or timber (class 1) frame needs to be mounted (5). The Duofuse® beam (DFB048) cannot be used for this. Place the framework on the ground or on pedestals. The distance between the pedestals is a maximum 500mm. Use butting clips (DFC002) on wooden or steel beams instead of standard clips (DFC001).



TONGUE AND GROOVE BOARDS SYSTEM



ADVANTAGES

- **STRONGER AND MORE DURABLE THAN WOODEN FENCES.**
- **VERSATILE AND MODULAR**
 - Heights between 15cm and 195cm are possible.
 - By using the corresponding U-profiles the boards can be attached to the post in 4 directions.
 - Standard width of the boards is 180/200cm but boards can be cut to length.

- **APPLICATIONS**
Can be used for garden fences, raised beds, building material for sheds, carports, cabins, storeroom, gates,...



PARTS



- | | | | | | | | |
|--|---|--|--|--|---|--|---|
| <p>DF1B150
Board
15 x 2,7 x 180 / 200 cm
(reinforced with steel)</p> | <p>DF1P90
Post
9 x 9 x 270 / 300 cm
(reinforced with an aluminium core)</p> | <p>DF1C11
Cover cap
11 x 11 x 1,7 cm
(to avoid water infiltration in the post)</p> | <p>DF1U27
Small U-profile
2,7 x 3,5 x 182 / 202 cm
(fitting system for the boards and to use as finishing profile above the upper board)</p> | <p>DF1U42
Large U-profile
4,2 x 3,5 x 182 cm
(optional - only needed if a concrete gravel board is used at the base)</p> | <p>DFPH60
Internal post holder
tube 6 x 6 x 60 cm
on plate 15 x 15 cm
(optional - only needed when fixing the posts on a terrace, concrete floor or wall)</p> | <p>DF1G1.00
Garden gate
100 x 2,7 x 180 cm
(including door hardware)</p> | <p>DF1PG90
Gate post
9 x 9 x 270 cm
(optional - in combination with the Duofuse gate)</p> |
|--|---|--|--|--|---|--|---|

INSTALLATION GUIDE

As the boards and the posts have been brushed, it is necessary that the mark (1) is on the same side of the board (front or back).

The boards can be placed directly on the soil as they will not rot. If the screen is placed on grass or other soft surface, make sure that the screen cannot sink into the ground. Support for this the screen at ground level at 3 places by means of tiles, concrete slab or other hard material. When you want to use a concrete gravel board – up to 4cm thick – beneath the fence, you can attach it with the large Duofuse® U-profiles (width 4.2cm) (2). Standard length of the boards is 180/200cm but boards can be cut to any length.

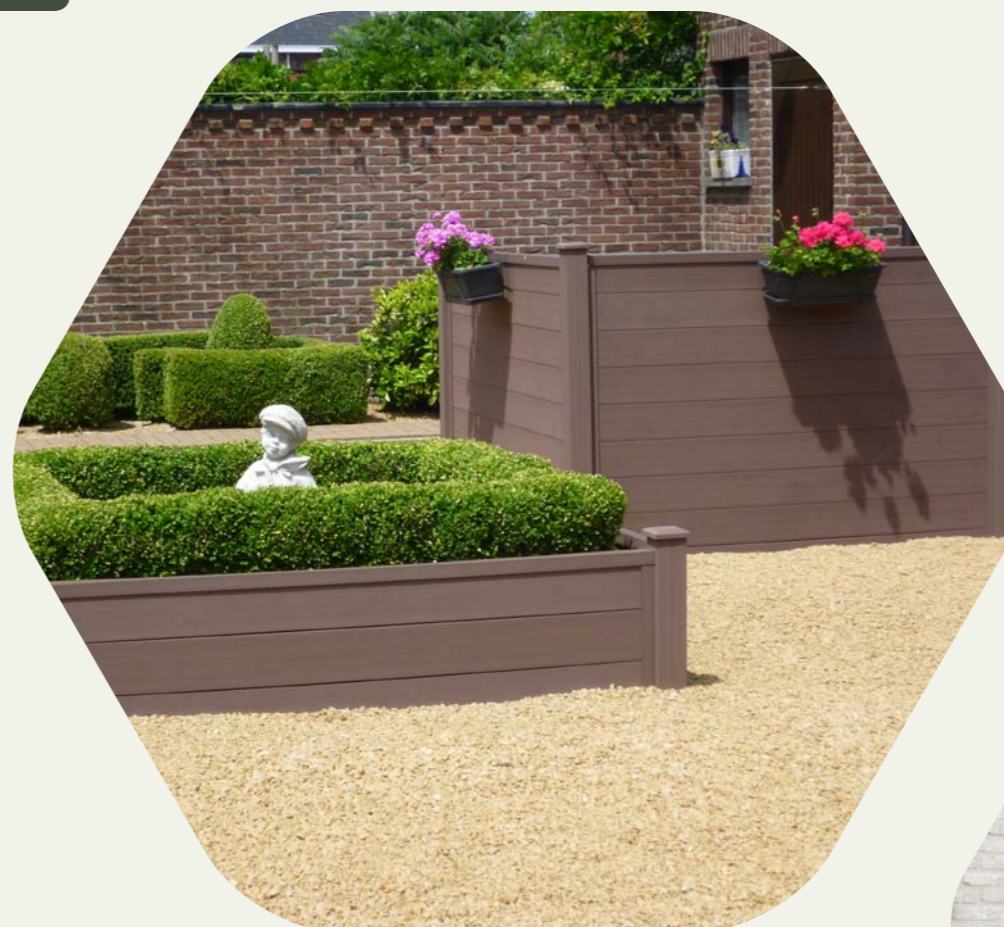
- **ASSEMBLY OF THE U-PROFILES**
In order to create a corner or extra raised beds, you can attach at more than one side a U-profile (up to 4). Attach the U-profile to the post with stainless steel screws of 4.5/5.0 x 25/40mm (max. intersection 40cm).

- **MOUNTING OF THE POSTS AND BOARDS**
If applicable always start against the house, shed or other fix point. After installing the first post, install the last post. Anchor sturdily the first and the last post. Build fence after fence. Place the post in one straight line and on the same height. Place the boards from above into the U-profiles (3). Press the boards to each other. An expansion space of min. 1cm at both sides needs to be respected (4). make sure the post exceeds the screen by minimum 5.5cm in order to leave enough expansion space.

There are 3 possibilities to attach the posts:

- Against a wall with plugs, screws or stainless steel L brackets.
- Into the ground **without fence post supports (5)**. 1/3 of the length of a post needs to be into the ground with a minimum of 40 cm. Dig a hole of 40x40cm and 80cm deep, filled completely or at least for 2/3 with stabilised sand, concrete or rapid concrete.
- On a terrace, concrete floor or wall by using **internal post holder**. Mount the post supports with the suitable screws, bolts and/or plugs to the ground. Place the pole over the post support. You will have to saw the post with the aluminium cross to the desired length.

- **FINISHING**
You can finish the fence by placing the small U-profile on top of the upper board (6). The posts are to be finished by gluing the inside edges of the cap to the post. Attach the cover caps after all horizontal U-profiles have been put in place.



For full installation details, see our website.



SLAT WALL SYSTEM

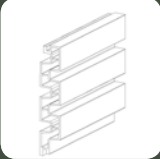









ADVANTAGES

- **A UNIQUE FENCING SYSTEM THAT COMBINES DESIGN WITH DURABILITY**
- **VERSATILE AND MODULAR:**
 - Heights between 20cm and 200cm are possible.
 - By using the corresponding U-profiles the boards can be attached to the post in 4 directions.
 - Standard width of the boards is 180/200cm but boards can be cut to length.

- **APPLICATIONS**
Can be used for garden fences, raised beds, building material for sheds, carports, cabins, storeroom, gates,...

PARTS

							
DF4B200 Board 20 x 4 x 200 cm (reinforced with steel)	DF1P90 Post 9 x 9 x 270 / 300 cm (reinforced with an aluminium core)	DF1C11 Cover cap 11 x 11 x 1,7 cm (to avoid water infiltration in the post)	DF4U40 U-profile for slat wall system 4 x 5,5 x 202 cm (fitting system for the boards and to use as finishing profile above the upper board)	DF1U42 Large U-profile 4,2 x 3,5 x 182 cm (optional - only needed if a concrete gravel board is used at the base)	DFPH60 Internal post holder tube 6 x 6 x 60 cm on plate 15 x 15 cm (optional - only needed when fixing the posts on a terrace, concrete floor or wall)	DF1G1.00 Garden gate 100 x 2,7 x 182 cm (including door hardware)	DF1PG90 Gate post 9 x 9 x 270 cm (optional - in combination with the Duofuse gate)



INSTALLATION GUIDE

The installation of the Duofuse® slat wall system is identical to the installation of the tongue and groove boards system, as the boards are also clamped between 2 U-profiles.

By using the Duofuse® slat wall system, multiple combinations of panel frame (heights of 20cm to 200cm) are possible depending on the number of boards used. The fences can also be built in cascade, e.g. first fence 120cm high, second 160cm high,.... The boards can be placed directly on the soil as they will not rot.

Standard length of the boards is 200cm but boards can be cut to any length. By the presence of reinforcement profiles in galvanised steel, carbide tipped saw is necessary to cut the boards.

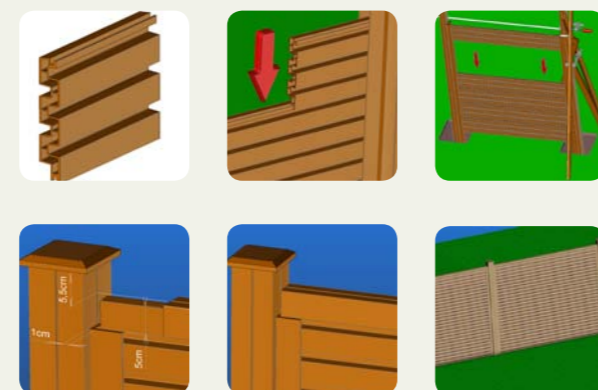
A minimum of 1cm gap is needed to be left at both ends to allow for expansion of the boards. Make sure the board is placed with the single lip facing down (see drawing). When taking into account the thickness of the U-profile (0.5cm), the boards need to be at least 2x1.5cm smaller than the distance between two posts.

For the standard length of the fences the distance between two posts is 203cm.

1/3 of the length of a post needs to be into the ground. For a fence of 200cm, 95cm into the ground is sufficient. Dig a hole of 40x40cm and 95cm deep and place a tile in the hole to avoid sinking of the post.



For full installation details, see our website.



RANCH FENCING

ADVANTAGES

- **STRONGER AND MORE DURABLE THAN WOODEN RANCH FENCING, MORE BEAUTIFUL THAN CONCRETE FENCING**
- **VERSATILE AND MODULAR:**
 - Heights between 12cm and 200cm are possible. The number of boards and the space between the boards is free to choose.
- **APPLICATIONS**
 - Can be used for fencing for ranches, stables, gardens,...

Ranch fencing can also be used in combination with tongue and groove system:

- Lower part can be a closed fencing and upper part open fencing.
- A number of closed fencing and then a number of ranch fencing.
- By using the corresponding U-profiles the boards can be attached to the post in 4 directions.



PARTS

					
DF3B120 Board 12 x 2,7 x 180 cm (reinforced with steel)	DF1P90 Post 9 x 9 x 270 / 300 cm (reinforced with an aluminium core)	DF1C11 Cover cap 11 x 11 x 1,7 cm (to avoid water infiltration in the post)	DF1U27 Small U-profile 2,7 x 3,5 x 182 / 202 cm (fitting system for the boards)	DF3P27 Spacer 2,7 x 3,5 x 180 cm (to create distance between the boards)	DFPH60 Internal post holder tube 6 x 6 x 60 cm on plate 15 x 15 cm (optional - only needed when fixing the posts on a terrace, concrete floor or wall)



INSTALLATION GUIDE

As the boards and the posts have been brushed, it is necessary that the mark is on the same side of the board (front or back).

The boards can be placed directly on the soil as they will not rot. Standard width of the boards is 180cm but boards can be cut to length.

- **ASSEMBLY OF THE U-PROFILES AND SPACERS**
 - Cut the U-profiles to length and attach to the post (see p. 8).

Determine the free space between the bottom and the bottom board, as well as the spacing between the different boards. Use these distances to cut off the spacer to the desired length. Slide the first spacer down into the U-profile to the ground. Fasten this spacer now with a screw. Repeat for all posts.

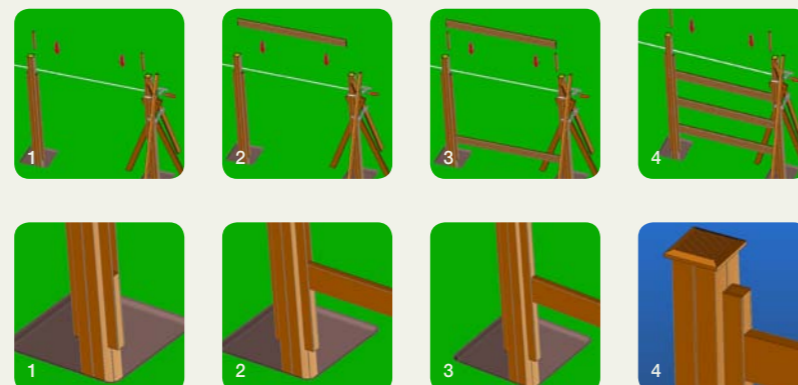
- **MOUNTING OF THE POSTS AND BOARDS**
 - The mounting of the posts is identical as with the tongue and groove system (see p.8).

Slide the first board from above into the U-profiles against the first spacer. Slide now the second spacer down against the first board. Attention, in order to allow expansion you can only screw the spacer under the bottom board. The following spacers and boards must have the ability to expand up. Make sure that the U-profile is a few centimeters above the upper board. Insert a last spacer. The post has to be a few centimeters above the fence to provide the necessary expansion.

- **FINISHING**
 - The posts are to be finished by gluing the inside edges of the cap to the post.



For full installation details, see our website.



TIPS FOR MAINTENANCE

The Duofuse® tongue and groove system is easy to clean and special cleaning products are not necessary. For normal maintenance a high pressure cleaner can be used (max. 80 bar). A mild cleaning product can be used. A rotating head is dissuaded.

Grease stain and oil can be cleaned with a domestic degreasing agent. For persistent dirt, use a diluted bleach solution (25% bleach 10° and 75% water). Do not use solvent base materials. To keep a good drainage it is necessary to clean the space between each board.

In case of stains:

1 Removing the stain immediately: this is the best situation, the stain does not dry and penetrate the material. Clean with water and a mild soap solution.

2 The stain isn't removed immediately: this is the worst situation, the stain can dry and penetrate the material. Thoroughly clean with high pressure cleaner. Scour in the direction of the grooves, the slight decolouration will even out in 6 to 10 weeks.

COLOUR CHANGING

After several days, the product will begin to fade slightly. This is a temporary and a natural process due to the leaking of the lignin. Afterwards the original colour is obtained again.



The reason is the wood composite material containing 50% PVC and 50% wood flour. Wood flour contains lignin in the cell wall and together with cellulose it determines the strength of wood. By sanding the surface during the manufacturing process, the wood fibres release the lignin and following exposure to UV light a slight discoloration occurs. In this early stage Stone Grey and Graphite Black get a yellow / green tint. The sun and rain loosen the lignin on the surface and a brown / yellow substance emerges. This substance is completely harmless and is responsible for the colour change. This may cause water circles or drip edges on the wood composite profiles. The more irrigated the boards, the faster the lignin disappears from the wall and after a few weeks / months, the original colour of the panels will be obtained. If you wish to speed up this process you can rinse the product regularly with water.

Boards that have started to fade can be perfectly positioned with boards that have not been subject to this discoloration process. Over time, all the boards will have the same even colour. Below is the original color with adjacent the final colour. There can be slight colour differences between different production series as 50% of the material is made of wood.

WARRANTY

Plastivan NV offers a 10 years warranty for all mechanical properties of the Duofuse® decking, tongue and groove boards system, slat wall system and ranch fencing and against all ant and insect attacks.

Plastivan disclaims responsibility for damage caused by, or failure of, the product as a result of faulty installation caused by failure to follow the installation instructions that were available on the Plastivan website at the time of installation. Failure to follow these instructions will void Plastivan warranty. This warranty means we will replace damaged products. All works, withdrawing and replacing decking and related costs (e.g. transport costs) are excluded from warranty.



CHARACTERISTICS AND TESTS ON DUOFUSE® WOOD COMPOSITE (GENERAL)

Description test	Conducted test	Value	Unit
Density at 20°C	EN ISO 1183-1:2006 Method A	1,39	g/cm³
Vicat softening temperature	NBN EN ISO 306:2002 Method B	86,2	°C
Traction characteristics			
Traction at 23°C Yield stress	NBN ISO 527-2	35,8	N/mm²
Modulus of elasticity	NBN ISO 527-2	6990	N/mm²
Bending characteristics			
Flexural strength σ_b	ISO 178:2006	67,5	Mpa
Modulus of elasticity (Flexural test) E_b	ISO 178:2006	6460	Mpa
Brinell hardness	EN 1534:2002	111	HB
Linear modulus of elongation	ASTM D696	0,018	mm/m/°C
Stress grading	EN 350	1	
Verification of dimensional stability after immersion in water for 28 days	PN-EN317:1999+Ap1:2002		
	Maximum swelling in thickness	2,66	%
	Maximum elongation in length	0,31	%
Resistance to artificial weathering Xenon Alpha+	EN 513:2002 cycles with rain 18/102 PN-EN 20105-A02:1996	Colour change ≤ 2 on the grey scale	
Verification of dimensional changes under changes of humidity			
	from 65% to 85%	PN-EN 1604:1999+A1:2006	0,093 %
	from 65% to 30%	PN-EN 1604:1999+A1:2006	0,135 %

CHARACTERISTICS AND TESTS ON DUOFUSE® (DECKING)

Description test	Conducted test	Value	Unit
Changes in length caused by internal tension	NBN EN 479	0,1	%
Coefficient of kinetic friction			
dry samples	BN-86/6781-02 PB LT-29	0,30/0,41	$\geq 0,24$
damped samples	BN-86/6781-02 PB LT-29	0,33/0,35	$\geq 0,12$
oiled samples	BN-86/6781-02 PB LT-29	0,09/0,26	$\geq 0,08$
Anti-slip characteristics	DIN 51130:2004 PB-LF 40	$\geq R11$	class
Abrasion resistance	EN ISO 5470-1:2001	933 mg	≤ 1000
Fire reaction	EN 13501-1:2004	Cfl-S1	
Water absorption			
	EN 317:1999/Apl:2002 (23°C)		
	after 24 h	< 2	%
	after 28 days	< 3,5	%
Resistance to impact			
	at temperature of 23°C - impact energy 5,0J	EN 950:2000	no damage
	at temperature of -23°C - impact energy 4,0J	EN 950:2000	no damage
Bending properties			
	Deflection under load of 1 kN span 400mm	EN 1533:2002	1,41 mm
	Deflection under load of 1 kN span 500mm	EN 1533:2002	2,31 mm
Verification of resistance to permissible concentrated load	EN 12871:2004	No damage under loads of 1kN	

CHARACTERISTICS AND TESTS ON DUOFUSE® (TONGUE AND GROOVE BOARDS SYSTEM)

Description test	Conducted test	Value	Unit
Wind loads (wind resistance)	NBN EN 12210	class 4	

PLASTIVAN

Plastivan is a Belgian producer with 50 years experience in extrusion of PVC and WPC building products and with different production plants and sales offices and in Belgium and abroad.



Produced by Plastivan nv

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