

Terrace massive
Technical file

deceuninck



Terrace

Outdoor living

TWINSON
by deceuninck

www.deceuninck.com

Revision log

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1 *General*

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1.1 Material & benefits

BEST OF BOTH WORLDS

Welcome to the world of Twinson where nature and technology go hand in hand.

Twinson is made of wood and PVC. By combining the advantages of both materials in a single new base material, Twinson offers the best of both worlds: the natural appearance and warm feel of wood, the ease of maintenance and durability of PVC.

Twinson is also 100% recyclable. What's more, with its PEFC certification, Twinson is an environmentally friendly alternative to tropical hardwood. While tropical hardwood is only available from endangered rain forests, Twinson contains pinewood that grows quickly in continuously replanted forests. The extraordinary qualities of Twinson Terrace Massive are guaranteed by the German VHI quality label and the French NF514 quality label provided by LNE.

Notes:

Twinson is a durable product. In accordance with norm EN 350-1, which describes the durability of different kinds of wood, Twinson reaches the highest class 1. (see page 13)

	Twinson	wood	pvc
Does not split	XX		XX
Resistant to insects	XX		XX
Easily maintained	XX		XX
Slip resistance	XX		
Quick and easy installation	XX	X	X
Durable and natural	XX	X	XX
Treatment required		XX	
Resistant to rot without treatment	XX		XX
UV stable	XX		XX

About PEFC:

The international non-profit organisation PEFC is dedicated to sustainable forest management.

With more than 200 million hectares of certified forest, PEFC is the largest certification system in the world. PEFC ensures that the number of trees harvested is not greater than the number replanted, and that biodiversity is retained.

Essential here is respect for the natural habitat of fauna and flora, as well as for the soil and climate.



1.2 Data sheets

1.2.1 Material characteristics

Deceuninck Twinson products meet strict quality standards and are manufactured in accordance with established ISO 9000 quality management system procedures.

		pr EN 15534-1	based on	specific property	unit	value		
material characteristics	physical properties	density	§ 6.1	ISO 1183-1/A		kg/dm ³	1.41 ± 0.05	
		moisture content	§ 6.2	ISO 16979		%	< 0.2	
		HDT	§ 6.3	ISO 75-1/A		°C	73 ± 2	
		vicat softening point	—	ISO 306/B50		°C	84 ± 2	
	mechanical properties	impact resistance	§ 7.1.1	ISO 179-1fU	charpy		kJ/m ²	> 5
		tensile properties	§ 7.2	ISO 527-2/1B	tensile modulus		MPa	5500 ± 10%
					tensile strength		MPa	> 35
					strain at break		%	1 ± 10%
		flexural properties	§ 7.3.1	ISO 178	flexural modulus		MPa	6300 ± 10%
					bending strength		MPa	> 55
					bending at break		%	1.3 ± 10%
		creep behaviour (9MPa/30°C/20 days)	§ 7.4.1	ISO 899-2	elongation		%	< 0.3
		resistance to indentation	§ 7.5	EN 1534	1 kN		MPa	> 100
					3 kN		MPa	> 120
	nail and screw withdrawal	§ 7.6	EN 13446			MPa	> 50	
	durability	artificial weathering (300 hours WOM)	§ 8.1.1	ISO 4892-2	discoloration		dE	< 20
					impact retention		%	< 20
		moisture resistance (28 days)	§ 8.3.1	EN 317	mass increase		%	< 8
					length increase		%	< 0.6
					width increase		%	< 1.5
					thickness increase		%	< 4
		resistance to termites	§ 8.4.2	EN 117			class	1
	resistance against basidiomycetes	§ 8.4.3.2	ENV 12038			class	1	
	resistance against soil inhabiting soft rotting microfungi	§ 8.4.3.3	CEN/TS 15083-2			class	1	
	thermal properties	linear thermal expansion (-20°C...+60°C)	§ 9.1	ISO 11359-2	length direction		10 ⁻⁶ m ⁻¹ K ⁻¹	20 - 25
					width direction		10 ⁻⁶ m ⁻¹ K ⁻¹	45 - 50
					thickness		10 ⁻⁶ m ⁻¹ K ⁻¹	80 - 90
		thermal conductivity	—	ISO/CD 22007-2	room temperature		W/m.K	0.2 - 0.3
burning behaviour	oxygen index	§ 10.1	ISO 4589-2			%	> 20	
	epiradiator	—	NF P92-501			class	M4	
			NBN S21-203			class	A4	
	small burning test	—	DIN 4102-1			class	B2	

1.2.2 Quality labels

VHI (pending)

We are proud to inform you that the Twinson Terrace massive system has been granted the German “VHI” quality label. The German wood industry has created a quality label for WPC (Wood Polymer Composites) terrace planks

Twinson Terrace massive meets all the test criteria. These values have been tested by the official test institute SKZ (Süddeutsches Kunststoffzentrum).

The following product related characteristics are measured: (see data sheets)

- Flexural properties (EN 310)
- Boiling test (EN 1087-1)
- Slip resistance (Floor slider 2000 EN 13893)
- Creep behaviour (ISO 899-2)
- Cyclic conditions (EN 321)
- Linear thermal expansion (DIN 53752)

Terrace: Deceuninck, Twinson - QG/2009/Z12, PVC

Terrace+: Deceuninck, Twinson - QG/2008/Z06, PVC

LNE (pending)

We are proud to inform you that Twinson Terrace massive has been granted the French “LNE” quality label. The LNE provides an independent audit service of both our production process and our after sales market. These are the different tests that the Terrace massive plank is subjected to:

- Coefficient of dynamic friction
- Dimensional variations and waterabsorption
- Colour verification
- Linear mass
- Impact resistance
- Flexural properties
- Durability

The tests are based on :

- XP CEN/TS 15534-1 (2007)
- XP CEN/TS 15534-2 (2007)
- XP CEN/TS 15534-3 (2007)

1.2.3 Product related characteristics

		pr en 15534-1	based on	specific property	unit	value	
product related characteristics	physical properties	slip resistance	§ 6.4	DIN 51097	bare foot ramp test	class	C
			—	EN 13893	Floor slider 2000	—	> 0.4
			—	CEN/TS 15676	pendulum	USRV	> 36
			—	DIN 51130	rubber sole ramp test	class	R12
	mechanical properties	impact resistance	§ 7.1.2.1	EN 477	falling mass	J	> 20
			flexural properties (Lv = 40 cm)	§ 7.3.2	EN 310	flexural modulus	MPa
		bending strength				MPa	> 45
		bending at break				mm	14 ± 2
		creep behaviour (Lv = 40 cm/85kg/ 50°C / 7 days)	§ 7.4.2.1	EN 310	additional bending	mm	< 10
	durability	natural weathering (1 year Bandol)	§ 8.2	ISO 877-2	discoloration	dE	< 20
					impact retention	%	< 20
					bending strength retention	%	< 20
		cyclic conditions (Lv = 40 cm)	§ 8.3.2	EN 321	bending strength retention	%	< 20
		boiling test	§ 8.3.3	ISO 1087-1	mass increase	%	< 4
					length increase	%	< 0.6
					width increase	%	< 1.5
thickness increase					%	< 4	
thermal properties	heat reversion	§ 9.2	EN 479		%	< 0.2	
	heat build-up	§ 9.3	ASTM D4083		°C	< 45	
burning behaviour	single flame source	§ 10.2.1	ISO 11925-2		pass	OK	
	radiant heat source	§ 10.2.3	ISO 9239-1		class		
	hot metal nut test	—	BS 4790		radius	< 35	

1.2.4 Data sheet explanation

PHYSICAL PROPERTIES:

A. Slip resistance

Twinson Terrace massive has a very high slip resistance, even in wet conditions. According to the standard DIN 51097 and DIN 51130, Twinson reaches the highest and most safe classification. These values of slip resistance are measured by a ramp and are ideal for comparative testing of floor covering materials. Floor coverings are tested by fitting them to the surface of the ramp. An operator then moves or walks forwards and backwards, as per specified test method, whilst simultaneously tilting the table at a set speed, using a remote controller. During the tilting process the operator cannot see the readout which depicts the angle of the table. When slip occurs and the operator loses his or her grip on the floor covering, a reading of the inclined angle is taken. The operator uses special footwear with a specific sole material during each test, this is to prevent the footwear from being a variable factor in the experiment. The operator's safety is assured by wearing a safety harness attached to an overhead gantry. Consistency of the operator is checked at intervals using specially made calibration floor plates

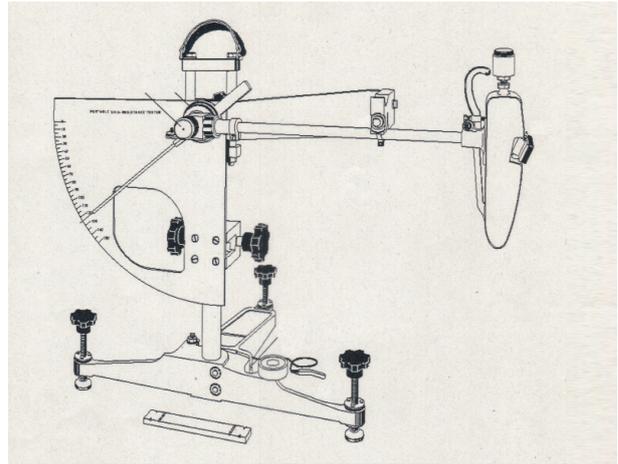


- **Barefoot Ramp Test DIN 51097:** This test is used for floor tiles or profile surfaces under wet and barefoot conditions. The tiles or profiled surfaces are fixed on a ramp which is made wet and a test operator walks on them with the ramp set at a succession of increasing angles until the person slips. The angle at which they slip is recorded. Tiles or profiled surfaces are classified into one of three groups. A, B, C, as an indication of their level of slip resistance.
- **Floor slider 2000 EN13893:** This test is measured with a device (Floor Slide Control 2000) that measures the dynamic coefficient of friction of floor coverings. The normal load is 24N and the speed is 0.20 m/s. The test is done with 3 different types of stamps (sliders): standard rubber, leather and synthetic in dry and wet conditions.

	value	degrees
A	= unsafe	12° - 18°
B	= average	18° - 24°
C	= extremely safe	24°+



- Pendulum test CEN/TS 15676:** This test measures the friction characteristics of each specimen by determining the wet dynamic friction between the specimen and the slider of a pendulum swinging in a vertical plane. The Pendulum Slip Tester has proved to give good correlation between its readings and the incidence of pedestrian slipping accidents and also produces the same hydraulic uplift characteristics that occur when a person slips. The criterion for judging the results of slip resistance tests is based on the work of the Building Research Station in the 1960s, supported by the experience of investigators and bodies such as the former GLC over the last 40 years. This work suggested that for unencumbered, reasonably active pedestrians aged between 18 and 60 a PTV level of 36 or above represented an acceptably low risk of slipping when walking in a straight line on a level surface.
- Rubber sole ramp test:** This test is used for testing a surfaces slip resistance using a specific treaded boot worn by an operator on a lubricated ramp. This test is most useful for assessing profiles surfaces where there is a high risk of contamination. The test is carried out by an operator standing shoe shod on a ramp. The test itself is done by slowly tipping the ramp and measuring the angle (in degrees) the moment the operator begins to slip. Each R value includes a certain range of degrees. The idea is that the surface is tested in the most extreme of conditions.



R value		degrees
R 9	= extremely unsafe	6° - 10°
R 10	= unsafe	10° - 19°
R 11	= average	19° - 27°
R 12	= safe	27° - 35°
R 13	= extremely safe	35°+

MECHANICAL PROPERTIES:

A. Impact resistance

EN 477 describes a test method for determining the impact resistance of profile. The profile is subject to an impact with a rounded weight from a known height, on the sight surface, at a mid-way point between two supporting internal webs, at a specific fixed temperature. Presently there are no specifications for impact resistance on European level, so any impact value is accepted. The falling mass must be more than 10J; this is equivalent to a 1 kg weight falling from 1m height without showing any sign of damage.

B. Flexural resistance

EN 310 specifies a method of determining the apparent modulus of elasticity in horizontal bending and bending strength. The test method consists of applying, at a given speed, a force by means of a loading edge in an axial direction to the faces of the test specimen, which is placed on two supporting positions. The test specimen is a full size product, the width shall be the actual width of the profile. The full length of the specimen is defined as being 20 times its thickness plus 50 mm up to a maximum of 1050 mm. The calculated value is the apparent modulus of elasticity, because of the shear forces induced in the specimen. The bending strength is the maximum stress calculated from the maximum force recorded during the bending procedure. The Terrace massive plank is placed onto 2 supports at a distance of 600 mm, whilst in position the bending machine applies a force until the deflection reaches 3 mm. The total force is expressed as a flexural modulus and a bending strength, the result indicates the stiffness of the profile. The bending machine then applies an increasing force until the profile breaks, the distance of deflection at the point of breaking is measured in millimetres.

C. Creep behaviour

The same test profiles are tested for creep with a force of 85kg at 50°C for 7 days and the additional bending is registered. Determination in a constant climate of the load duration factor (loss in strength with time under load) and the creep factor (ratio of increase in deflection with time to the initial elastic deflection) in bending by applying and sustaining a constant moment over the central region of the test piece; both the time to failure, and the increase in deflection with time are measured.

DURABILITY

A. Natural weathering

The profiles are exposed for 1 year in the Bandol official test centre for checking the natural weathering. The discoloration, the impact retention and the bending strength retention is measured. EN ISO 877 specifies methods of exposing plastics to solar radiation, either by direct exposure to natural weathering (Method A), to indirect solar radiation by modification of its spectral distribution using glass to simulate ageing of plastics located behind glazing in buildings or cars (Method B), or to solar radiation intensified by the use of Fresnel mirrors to achieve acceleration of the weathering processes (Method C). The ageing of the wood plastic composite (WPC) products may be assessed by:

- the variation of the Charpy impact strength according to EN ISO 179-1 type 1fU
- the degree of chalking according to prEN ISO 4628-6
- the difference of colour determined in terms of the grey scale according to EN 20105-A03 or the difference of colour, ΔL^* , Δa^* , Δb^* , ΔE^* , determined in according to ISO 7724-1, ISO 7724-2 and ISO 7724-3.

B. Cyclic conditions EN 321

The profiles are exposed to a cyclic test:

- 28 days under water at 20°C, then 24hours at -25°C and then 3 days at 70°C
- 3 days under water at 20°C, then 24hours at -25°C and then 3 days at 70°C
- 3 days under water at 20°C, then 24hours at -25°C and then 3 days at 70°C

After this test the bending strength retention is measured.

C. Boiling test ISO 1087-1

The profile is exposed to a boiling test for 5 hours and after this period the mass increase, length increase, width increase and thickness increase is measured.

D. Resistance against biological agents

EN 350-1: This part of EN 350 gives guidance on methods for the determination of the natural durability of untreated solid wood to attack by - wood-destroying fungi - insects (beetles and termites) - marine organisms and the principles of classification of the wood species based on the test methods.

THERMAL PROPERTIES

A. Heat reversion

This Standard EN 479 establishes a percent of linear shrinkage of profiles at elevated temperature. Dimensional stability is an excellent indicator of any internal or residual stresses in the profile that may have resulted from the extrusion process. In use shrinkage can lead to distortion of profiles. It consists of placing a test piece of a specified length in an oven at 100 °C for 1 h. A marked length of this test piece is measured under identical conditions, before and after heating in the oven. The heat reversion is calculated as the percentage change of the final length relative to the initial length per pair of marks.

B. Heat build-up

External PVC products are susceptible to distortion due to heat build-up from exposure to the sun. A products colour, its emissivity and its reflectance levels can all affect heat build-up. Generally, the darker the colour, the more energy is absorbed. However, even products with the same apparent colour can exhibit varying levels of heat build-up, this is due to the actual colour pigment.

The greatest heat build-up occurs in the black colours containing carbon black pigment. The black control sample used in this test method contains 2.5 parts of furnace black per 100 parts of PVC suspension resin. For a surface at 45° or on a horizontal plain where the sun is perpendicular, the maximum temperature rise above ambient temperature for this black is 90°F (50°C) and 74°F (41°C) for a vertical surface, this is assuming the measurements were taken on a cloudless day with no wind and without heavy insulation on the back of the specimen. Using a specific type of heat lamp to imitate the suns energy, this test method measures the temperature rise relative to that of a known black surface reference, from this a predicted heat build-up is made. The test method also predicts the heat build-up of various colours or pigment systems, or both. This test method provides a relative heat build-up compared to black under certain defined severe conditions, but it does not predict actual application temperatures of the product as this can depend on; air temperature, angle of the sun, cloud concentration, wind speed, insulation or if the installation is positioned behind glass, etc.

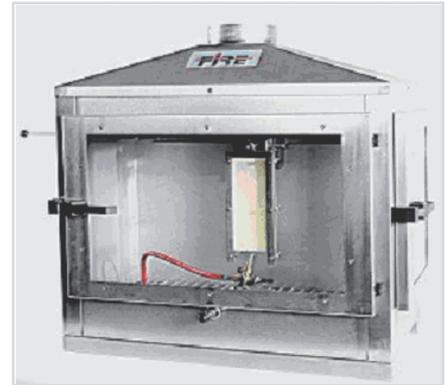
The determination of the predicted heat build-up test method described in ASTM D4803-2002 and prCEN/TS 15534 annex F covers the prediction of the increase in temperature above that of ambient air due to the amount of energy absorbed by a specimen from the sun, relatively to a black reference.

The predicted maximum heat build-up is calculated by multiplying an experimental reference temperature rise under real solar exposure by the ratio of the temperature rise of the specimen and the temperature rise of the black control sample, measured under a IR lamp of 250W.

BURNING BEHAVIOUR

A. *Single flame source ISO 11925-2*

The test determines the possibility of ignition of a vertically assembled test piece by exposure to a small flame, on the edge and/or the surface of the test piece. The ignition source consists of a small flame (0,8 kW) which is put under an angle of 45° across the test piece. The ignition source is placed on a sliding platform, so the flame can be brought in and drawn off by a smooth movement. Underneath the product that has to be tested, a small basket is placed with two layers of filter paper to collect possible burning and/or non-burning droplets or particles determining the time to ignition of the filter paper. The dimensions of the test specimen are 250 mm x 90 mm. For each flame application, 6 test specimens have to be tested. The flame application duration is 15 sec or 30 sec, dependent on the expected Euroclass classification. During and after the flame application it is observed whether the flame spread reaches the reference mark of 150 mm within a duration of 20 sec or 60 sec after flame application.



B. *Radiant heat source*

EN ISO 9239-1 specifies a method for assessing the wind-opposed burning behaviour and spread of flame of horizontally mounted floorings exposed to a heat flux radiant gradient in a test chamber, when ignited with pilot flames. EN ISO 9239-1 is applicable to the measurement and description of the properties of floorings in response to heat and flame under controlled laboratory conditions. The test specimens shall be representative of the flooring, in its end use. At 10 min intervals from the start of the test and at the flame-out time, the distances between the flame front and the zero point are measured. Any significant phenomena such as transitory flaming, melting, blistering, time and location of glowing combustion after flameout, penetration of the flame through to the substrate are observed and recorded.

C. *Hot metal nut test BS 4790*

A heated stainless steel nut is placed on the sight-surface of the material to be tested. The times of flaming and of afterglow and the greatest radius of the effect of ignition from the point of application of the nut are measured. Three stainless steel nuts are tested weighing 30 + 2g to 900 +20°C and the nut is removed from the Terrace massive plank after 30 + 2s. The flame extinction time, after-glow/smouldering time or time to reach the outer clamping ring is measured. The radius of effects of ignition on both use surface under the side of the specimen is recorded.

Radius of tested area:

- Up to 35 mm: Low radius of effects of ignition
- 40 mm to 75 mm: Medium radius of effects of ignition
- 80 mm and over: High radius of effects of ignition

1.3 Colours

All decking materials as well as those manufactured from wood-composite products are expected to weather naturally over time. During the first months of exposure to the elements, Twinson Terrace Massive will weather typically to a slightly lighter shade of the original colour. This process is a result of a combination of water absorption of the wood fibres and UV stabilisation at the surface of the boards. Careful observation shows that the colour change or colour fading is due to the lightening of the wood fibres. Once the initial stabilisation has taken place, minimal colour change is witnessed.



The colour samples are reproductions and can deviate from the originals. The large inset shows the natural colour which the Terrace Massive planks will change to over time.

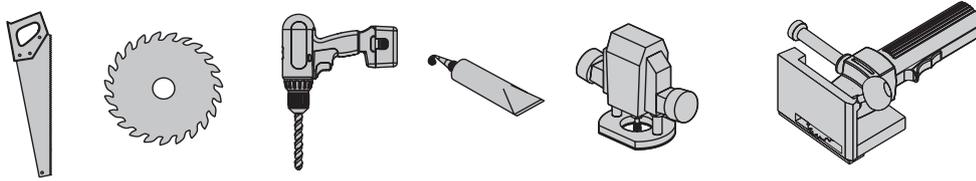
Below you'll find an overview of the Twinson colour which matches the best with the aluminium colour of the finishing profile P 9518 and P 9363. The choice of the colours is a suggestion and not an obligation.

Twinson colour		Recommended colour aluminium	
522	walnut	66	brown anodized
502	liquorice	12	black anodized
503	hazelnut	66	brown anodized
504	bark	12	black anodized
505	turf	12	black anodized
506	apricot	66	brown anodized
507	olive	65	silver anodized
509	river stone	65	silver anodized

1.4 Machining & safety precautions

General

General: You can use almost the same range of tools as for wood.



Specific tools/machining:

- Glass paper, sandpaper, wire brush or steel wool.
- Drills: HSS metal drills
 - ▶ During drilling: for best result do not apply heavy pressure.
 - ▶ Periodically lift the bit to clear the shavings.
- Cutting: use saw blades with carbide teeth.
 - ▶ Thin blade.
 - ▶ Number of teeth: minimum 80.
 - ▶ Burrs can be removed with glass paper or steel wool
- Glue: see page 68



Beware using electrical products and power tools outdoor. Follow the manufacturers instructions regarding safety and never use electrical equipment outdoors when it is raining. When using electrical devices for machining the Twinson profiles, we recommend wearing a dust mask and safety goggles. There are no specific measures necessary to process Twinson as there are no dangerous particles being released during processing.

1.5 Recycling

- An important aspect of sustainable building is the life expectancy of the materials and the impact that they have on the environment. There is no sense of using an environmentally friendly building material if the durability can not be guaranteed. That is why Deceuninck has created the Twinson bag. The intention is that after installation all the Twinson cut-offs are collected in the special Twinson bag. This material can be returned to Deceuninck to be recycled, enabling us to have a closed loop recycling system.



P87014

- To guarantee that the next generation of Twinson profiles are not polluted with saw dust, aluminium or other material we ask you to only put Twinson cut-offs in the bag. Close the bag before returning it to Deceuninck. Maximum weight of 30kg.

1.6 Warranty

DECEUNINCK NV
Warranty certificate Twinson® Terrace products

Subject of the conditions set out below, Deceuninck NV warrants to the purchaser who directly purchases from Deceuninck NV (hereinafter "Purchaser"), that the Twinson® Terrace products will correspond with their specification at the time of delivery.

SAVE AS EXPRESSLY PROVIDED IN THIS WARRANTY, DECEUNINCK NV DOES NOT PROVIDE ANY WARRANTY (WHETHER EXPRESS OR IMPLIED) AS TO THE QUALITY OF THE TWINSON® TERRACE PRODUCTS OR THEIR FITNESS FOR ANY PARTICULAR PURPOSE (EVEN IF THIS PURPOSE IS MADE KNOWN EXPRESSLY OR BY IMPLICATION BY DECEUNINCK NV) OR AS TO THE CORRESPONDENCE OF THE TWINSON® TERRACE PRODUCTS WITH ANY DESCRIPTION OR SAMPLE. NEITHER DOES DECEUNINCK PROVIDE ANY OTHER WARRANTY. SUCH WARRANTIES ARE HEREBY EXCLUDED TO THE FULLEST EXTENT PERMITTED BY LAW.

Notwithstanding the stipulations of this Warranty and subject to evidenced normal use, load and maintenance conditions, Deceuninck NV, (hereinafter "Deceuninck") warrants to the Purchaser that,

- (1) for a period of twenty-five (25) years from the date of original purchase, Twinson® Terrace products shall not split, splinter or suffer structural damage as a sole and direct consequence of termites, insects or soft rotting micro-fungi;
- (2) for a period of ten (10) years from the date of original purchase, Twinson® Terrace products shall not break, provided however that this warranty explicitly excludes occurrences where the break occurs or may have occurred as a consequence of impact loads;
- (3) for a period of ten (10) years from the date of original purchase, that accidental stains on the Twinson® Terrace products due to spots of chlorinated water, spots of bleach solution or spots of road salt, as stated in the maintenance instruction for Twinson® Terrace products (www.twinson.com), will disappear after sufficient outside exposure of the material.

If one of the above defects occur within the related Warranty period, Purchaser shall immediately notify Deceuninck in writing to the place of business of Deceuninck, and the Purchaser shall provide a description of the claimed defect, proof of purchase and of purchase date and of normal use, load and maintenance. If these conditions have not been complied with, the Warranty shall not be applicable. Upon timely notification and in accordance with the above, Deceuninck will at its option and in Deceuninck's sole discretion either, (a) provide Purchaser with non-defective replacement Twinson® Terrace products or (b) substitute the defective Twinson® Terrace product with a product that in its sole determination is of comparable value and quality or (c) refund the portion of the purchase price paid by Purchaser for such defective product taking into account the depreciated value of the product (not including the cost of its initial installation).

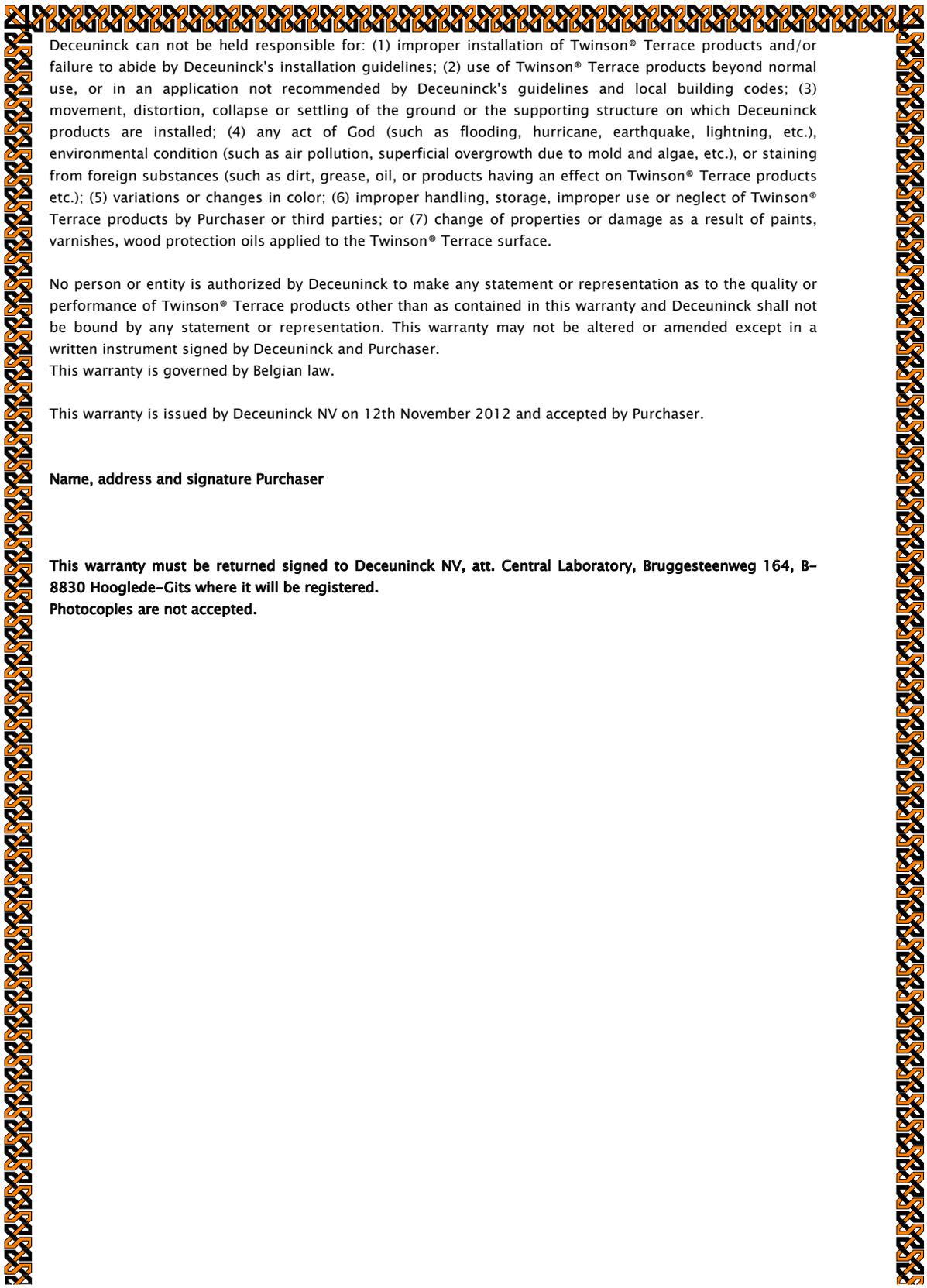
Any replacement or substitute products provided will be covered under this Warranty only for the time remaining under the original Warranty period.

Deceuninck reserves the right to discontinue availability of any Twinson® Terrace product at any time.

The replacement, substitution or refund of defective Twinson® Terrace products is Purchaser's sole remedy under this Warranty.

Deceuninck will have no liability or responsibility to the Purchaser other than as expressly provided in subparagraphs (1), (2) and (3) above.

Labour costs incurred in removing defective Twinson® Terrace products or installing replacement or substitute products are NOT covered by this warranty. Any additional costs and expenses, such as shipping, delivery, installation, removal, and all other incidentals are not covered by the warranty and are expressly disclaimed.



Deceuninck can not be held responsible for: (1) improper installation of Twinson® Terrace products and/or failure to abide by Deceuninck's installation guidelines; (2) use of Twinson® Terrace products beyond normal use, or in an application not recommended by Deceuninck's guidelines and local building codes; (3) movement, distortion, collapse or settling of the ground or the supporting structure on which Deceuninck products are installed; (4) any act of God (such as flooding, hurricane, earthquake, lightning, etc.), environmental condition (such as air pollution, superficial overgrowth due to mold and algae, etc.), or staining from foreign substances (such as dirt, grease, oil, or products having an effect on Twinson® Terrace products etc.); (5) variations or changes in color; (6) improper handling, storage, improper use or neglect of Twinson® Terrace products by Purchaser or third parties; or (7) change of properties or damage as a result of paints, varnishes, wood protection oils applied to the Twinson® Terrace surface.

No person or entity is authorized by Deceuninck to make any statement or representation as to the quality or performance of Twinson® Terrace products other than as contained in this warranty and Deceuninck shall not be bound by any statement or representation. This warranty may not be altered or amended except in a written instrument signed by Deceuninck and Purchaser.

This warranty is governed by Belgian law.

This warranty is issued by Deceuninck NV on 12th November 2012 and accepted by Purchaser.

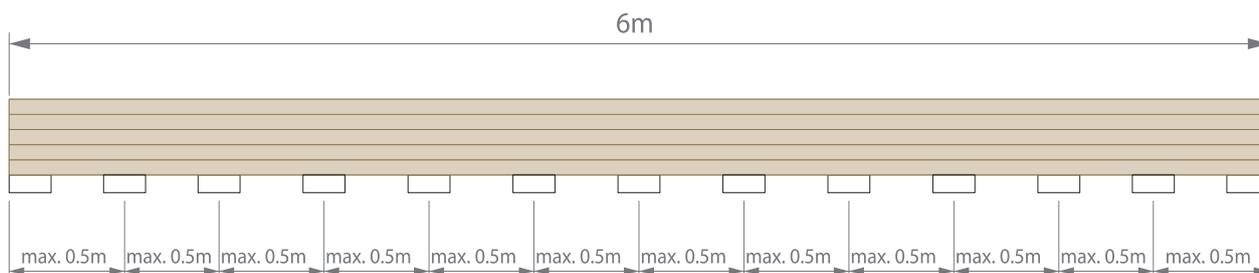
Name, address and signature Purchaser

This warranty must be returned signed to Deceuninck NV, att. Central Laboratory, Bruggesteeweg 164, B-8830 Hooglede-Gits where it will be registered.

Photocopies are not accepted.

1.7 Storage & transport

- Store profiles or stillages containing profiles in a dry and ventilated environment, away from direct exposure to sunlight.
- Stock and transport the profiles horizontally.
- Handle long profiles with 2 persons (> 2 m).
- Unload the profiles with care.



Ensure that the profiles are secured during transportation, Twinson profiles can easily slide over each other and this can leave shiny tracks and burrs on to the profiles.

Distance between supports maximum 0,5 m.

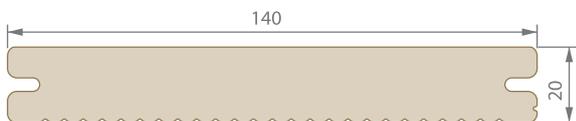
Profiles or stillages partially stored outside will result in differences in colour on the profiles. The parts of the profiles that are exposed to the elements (rain, UV) will incur some weathering and change in colour. Afterwards, when they are completely exposed outside, the normal weathering process will continue.

2 *System properties*

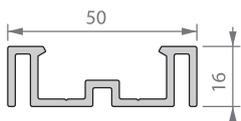
2.1 Profile overview	24
2.2 Packaging	26
2.3 Profile sheets	27

2.1 Profile overview

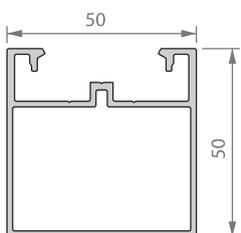
MAIN PROFILES



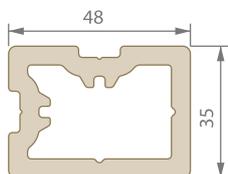
P 9360



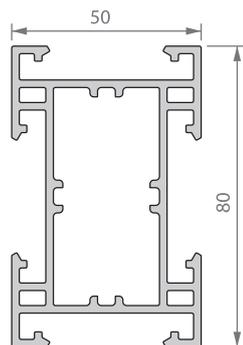
P 9523



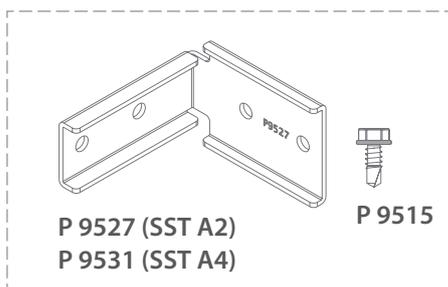
P 9522



P 9552



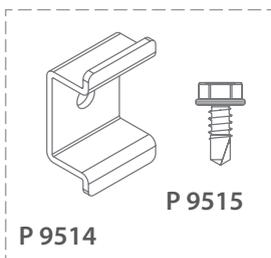
P 9524



P 9527 (SST A2)
P 9531 (SST A4)

P 9515

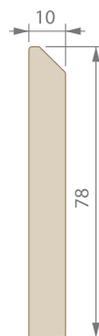
- P 9495 → 10 x P 9527 (SST A2)
→ 40 x P 9515
- P 9496 → 10 x P 9531 (SST A4)
→ 40 x P 9515



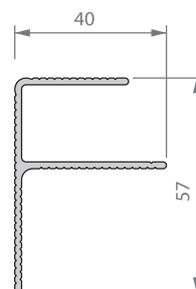
P 9514

P 9515

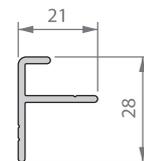
- P 9489 → 10 x P 9514
→ 10 x P 9515



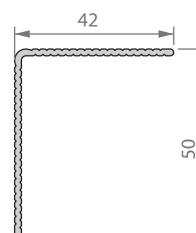
P 9556



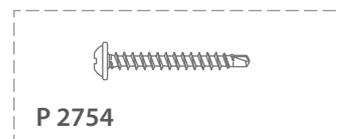
P 9363



P 9366

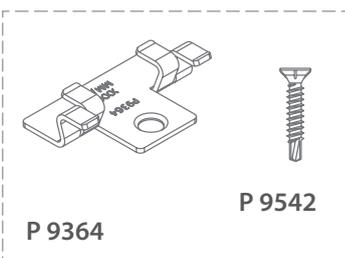


P 9518



P 2754

- P 2753 → 100 x P 2754
→ 1 x R2 bit

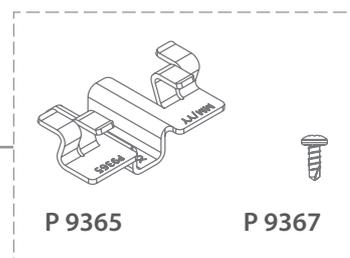


P 9364

P 9542

- P 9477 → 100 x P 9364
→ 110 x P 9542
→ 1 x R2 bit

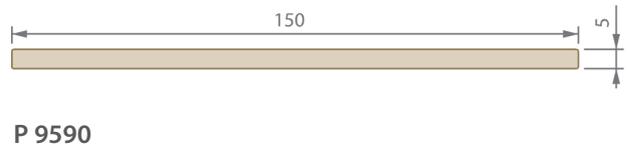
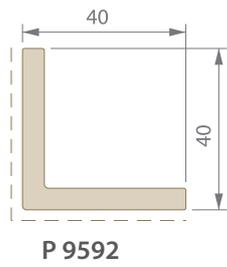
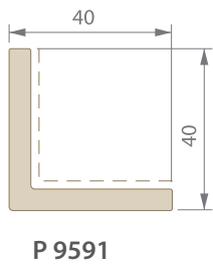
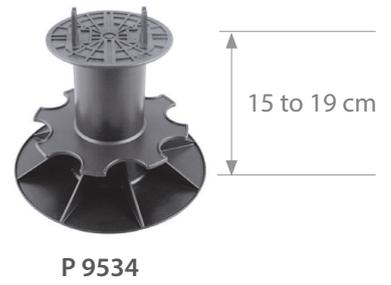
- P 9478 → 100 x P 9365
→ 110 x P 9367
→ 1 x TX 10 bit



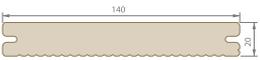
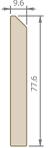
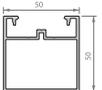
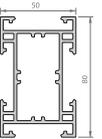
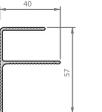
P 9365

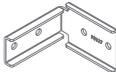
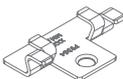
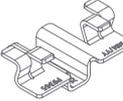
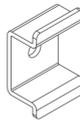
P 9367

MULTIFUNCTIONAL PRODUCTS



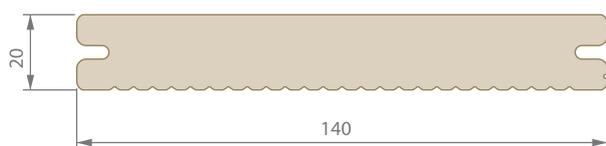
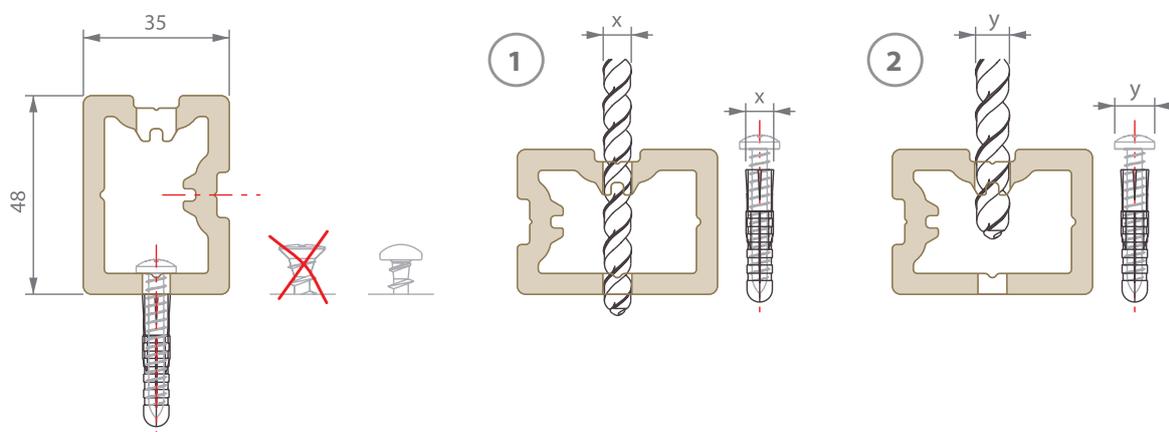
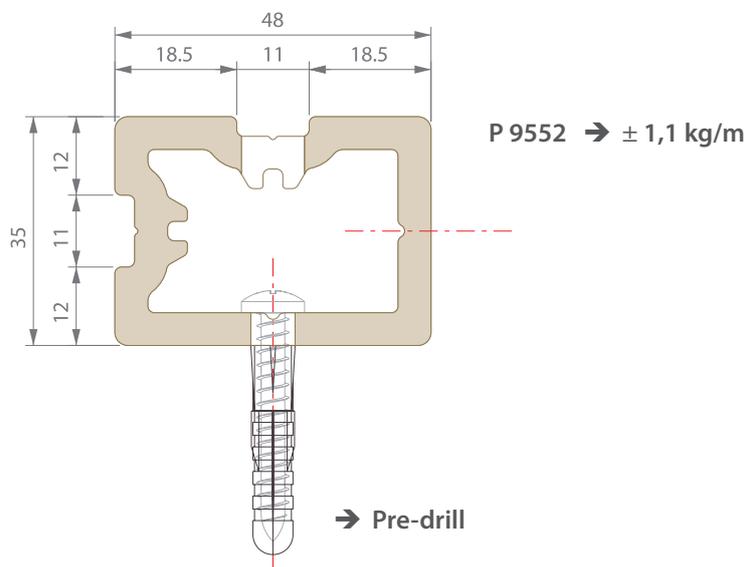
2.2 Packaging

P-nr	Profile drawing	Length (m)
P 9360		4 - 4,5 - 5 - 6
P 9556		4,5 - 6
P 9552		6
P 9523		6
P 9522		6
P 9524		6
P 9363		6
P 9518		4,5
P 9366		3

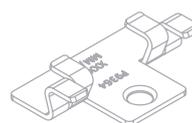
P-nr	P-nr	Profile drawing	pieces
P 9495	P 9527 (SST A2)		10
P 9496	P 9531 (SST A4)		10
P 9495 P 9496	P 9515		40
P 9477	P 9364		100
	P 9542		110
	R2 bit		1
P 9478	P 9365		100
	P 9367		110
	TX 10 bit		1
P 9489	P 9514		10
	P 9515		10
P 2753	P 2754		100
	R2 bit		1

2.3 Profile sheets

2.3.1 Profile sheet P 9552



P 9360

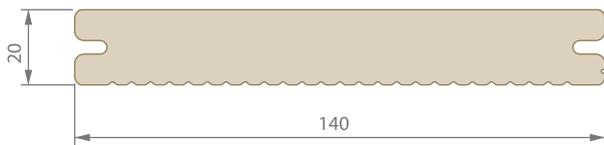
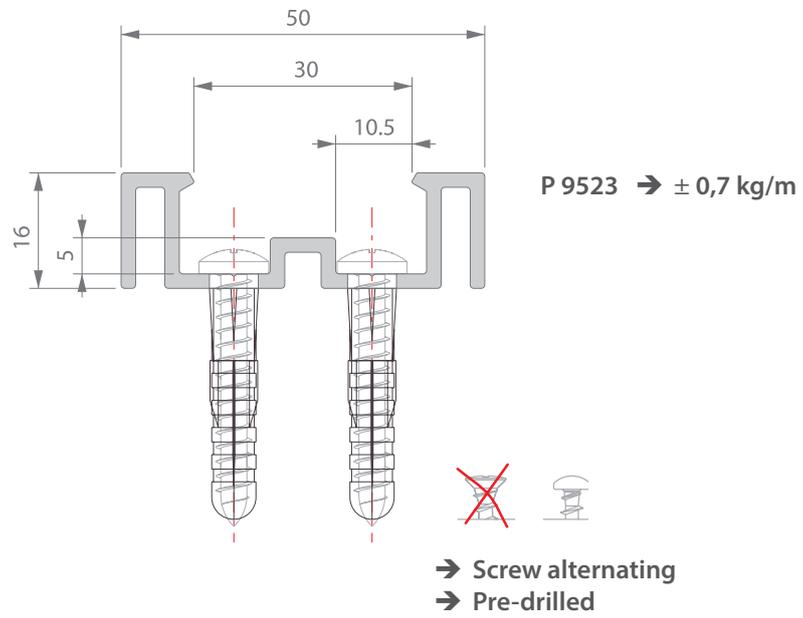


P 9364

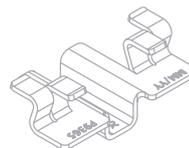


P 9542

2.3.2 Profile sheet P 9523



P 9360

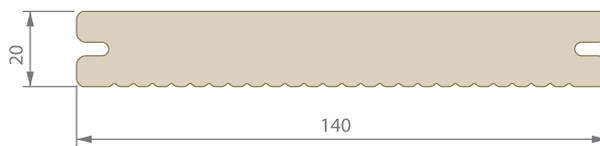
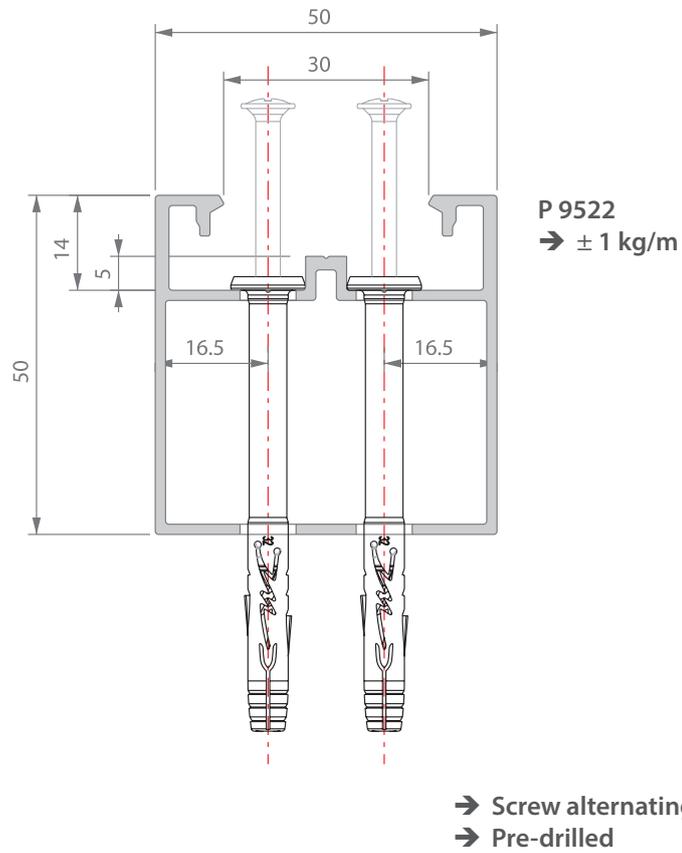


P 9365

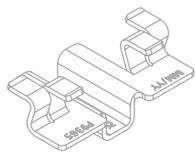


P 9367

2.3.3 Profile sheet P 9522



P 9360

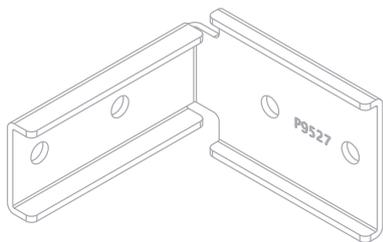
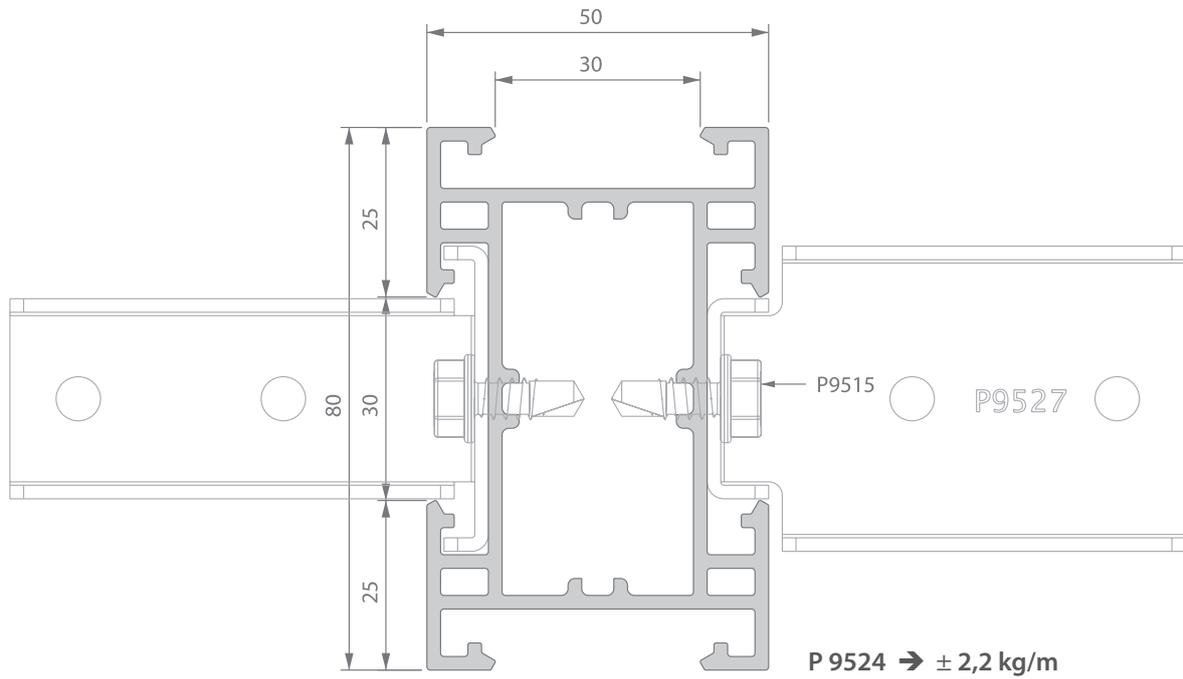


P 9365

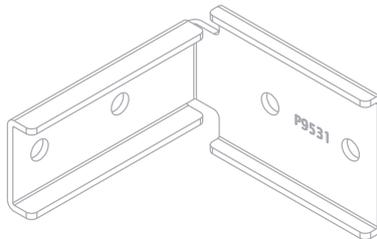


P 9367

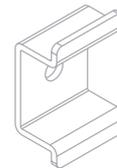
2.3.4 Profile sheet P 9524



P 9527
(RVS DIN A2, AISI 304)



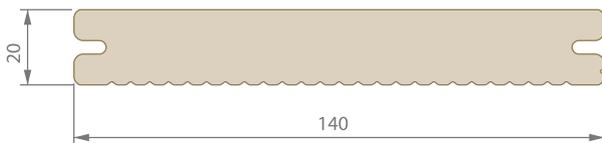
P 9531
(RVS DIN A4, AISI 316)



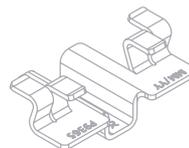
P 9514
(RVS DIN A2, AISI 304)



P 9515



P 9360



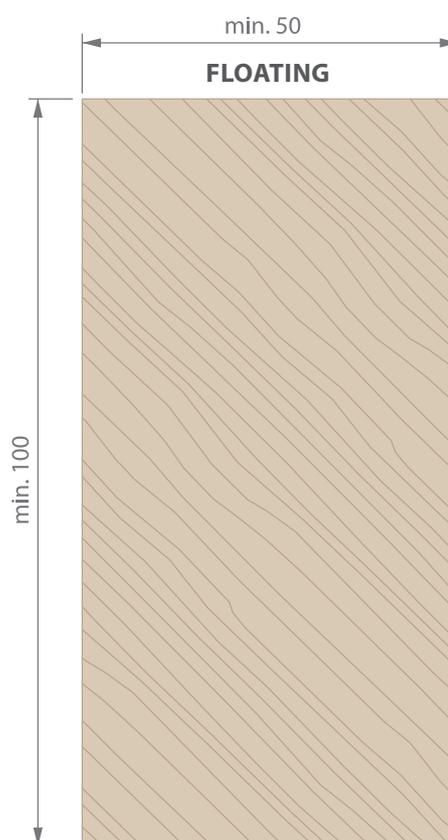
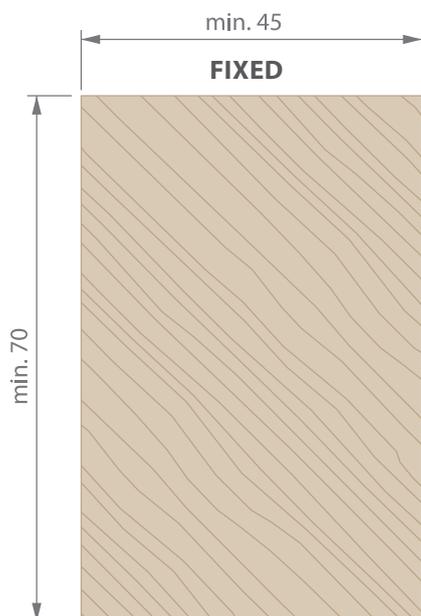
P 9365



P 9367

2.3.5 Profile sheet wood

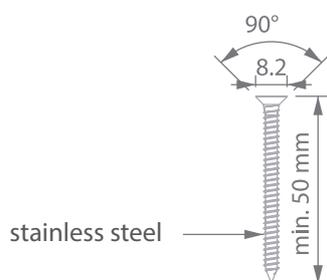
- **Not in product range, only recommendation.**



- Pre-drill \varnothing 3 mm.
- Please take advice from your wood supplier.
- Durability class 1 for all countries, class 4 for France.

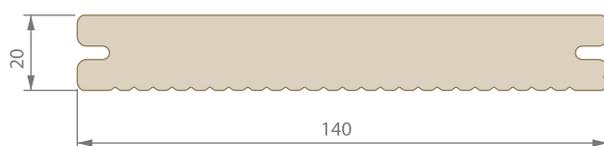


P 9542

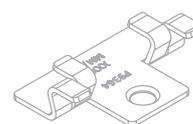


HARDWOOD

SOFTWOOD

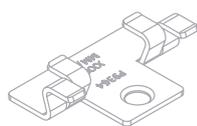
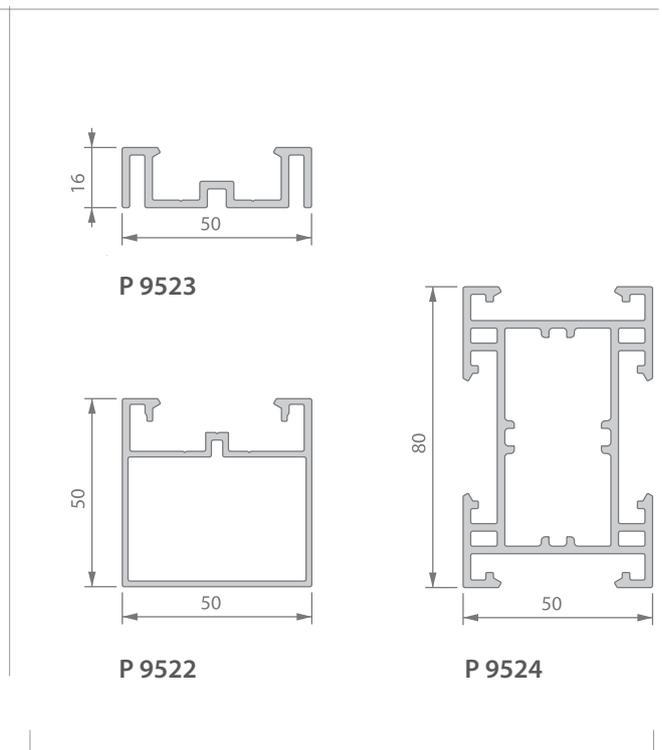
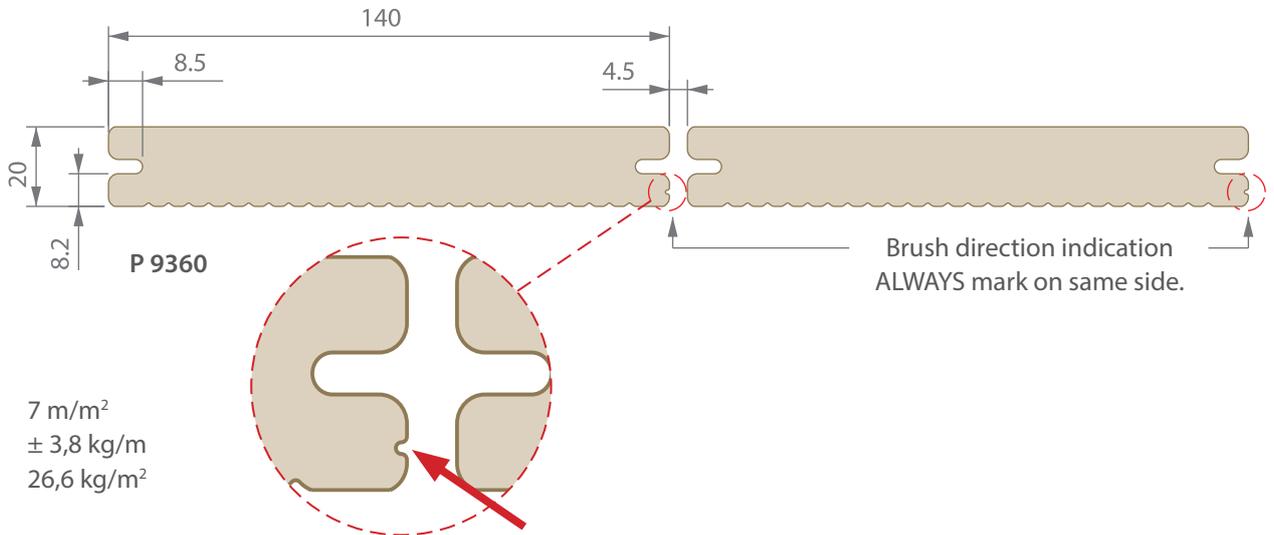


P 9360

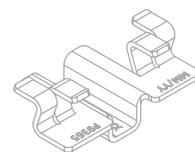


P 9364

2.3.6 Profile sheet P 9360

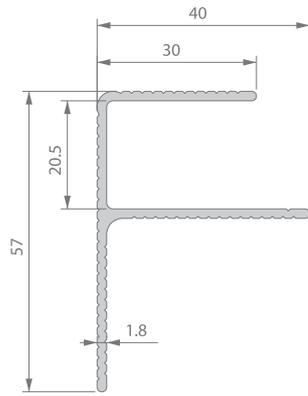


P 9364

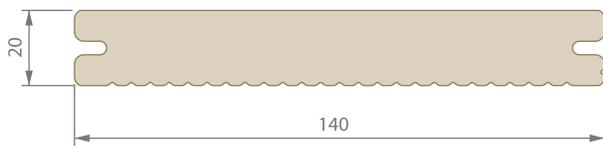


P 9365

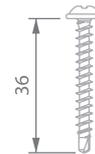
2.3.7 Profile sheet P 9363



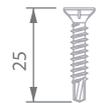
P 9363



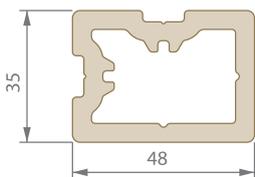
P 9360



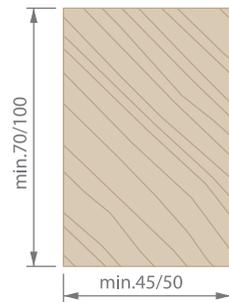
P 2754



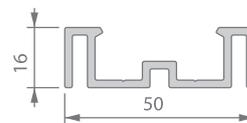
P 9542



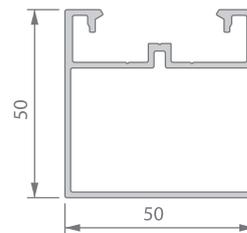
P 9552



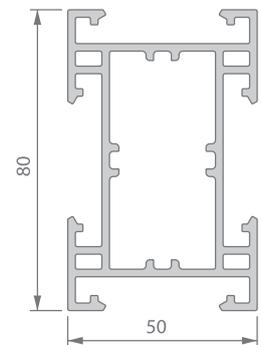
hardwood by others



P 9523

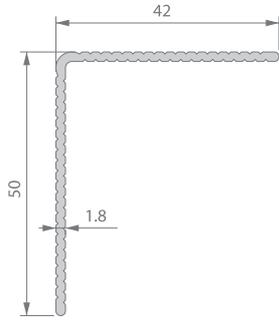


P 9522

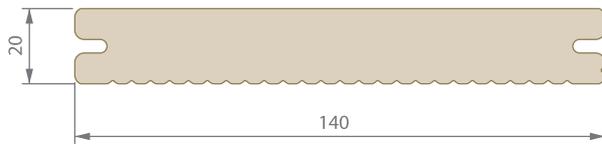


P 9524

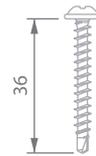
2.3.8 Profile sheet P 9518



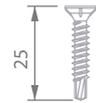
P 9518



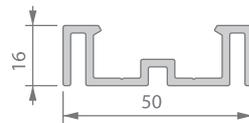
P 9360



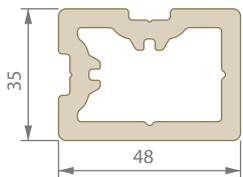
P 2754



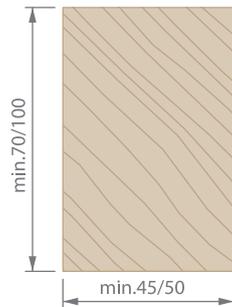
P 9542



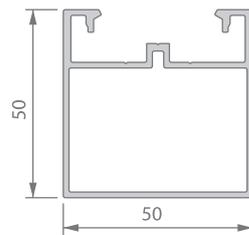
P 9523



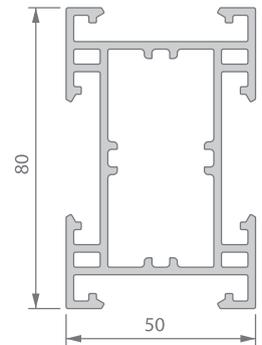
P 9552



hardwood by others

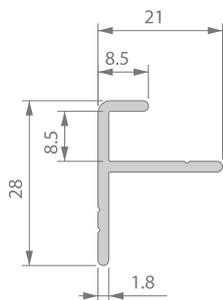


P 9522

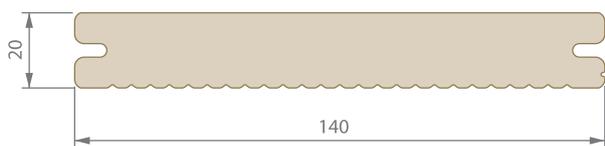


P 9524

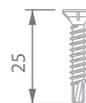
2.3.9 Profile sheet P 9366



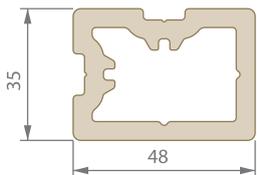
P 9366



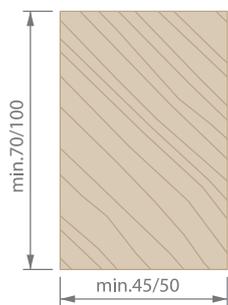
P 9360



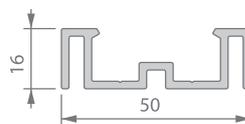
P 9542



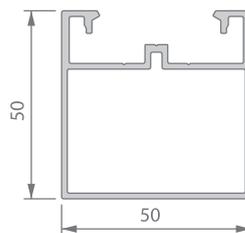
P 9552



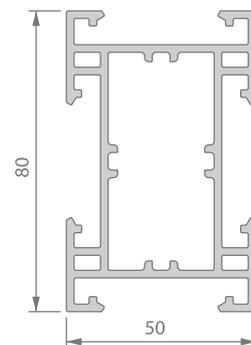
hardwood by others



P 9523



P 9522



P 9524

3 Installation

3.1 Preparation	38
3.2 Survey and inspection	41
3.3 Step-by-step assembly	46
3.4 Substructure	47
3.5 Planks	60
3.6 Finishing	67

3.1 Preparation

Before you start your plan, it is a good idea to prepare a written list of all the general and specific requirements for your deck. Here are some questions to help you:

- What do we want to use our deck for? What size should it be? How many people will use it? Is it for residential or commercial use?
- Where will the water drainage go? Where do we want the slope to head towards?
- Will we be using electrical appliances later on? Do we have access to the domestic electrical power supply?
- How will we guarantee sufficient air circulation underneath the deck?
- Will we have to incorporate lights for evening use? Will the lights be stand alone or built into the deck surface?
- What is the condition of the site and foundations? Is it sufficiently stable? How long has it been there? Are there any construction parts or tree roots running underneath the section where we plan the deck? How will we position and stabilise the structure underneath? Do we need to take out a lot of ground in order to stabilise it? What shall we do with the excess ground material?
- If it is a roof terrace: what is the top layer of the roof made of? Can we build anything on top of it? How can we fasten the boards without damaging the waterproof layer?
- What type of joints will we be using? What are the standard lengths?
- How will we create shade if needed?
- How will we make the transition from/to the house (elevation, pathways,...)?
- Will we need additional heating?
- What parts of the deck will be covered? If you live in a rainy area, do you intend to use the deck when it rains? How shall we assemble and anchor the construction?
- Do you want an eating area which includes a table, food preparation counter, storage, grill, seating.
- Hot tub, planter garden, reading area...?

3.1.1 Drafting your plan:

A. Take a photo or photos of the site (enlarge) and mark:

- Details
- Dimensions
- Outlines of the house including doors and relevant windows
- Hazards: Underground electricity, gas, phones, cable TV, tanks (water, fuel, septic),...
- Large natural objects: trees, bushes
- Location of neighbouring houses and easements
- Location of downpipes to carry away water
- Compass directions:
 - ▶ wind directions
 - ▶ sun position during the day: shadows cast by the house or nearby trees that will affect shading of the deck
- Accurately determine the total drop in elevation over a certain horizontal distance
- Attempt to integrate an array of small designs into a whole

B. Draw a deck plan which includes:

- All the components drawn from the photos during the preparation process
- All the important dimensions:
 - ▶ overall size
 - ▶ locations of support beams (depending on the direction of the Terrace massive planks)
 - ▶ finishing profiles
 - ▶ house perimeter
 - ▶ doorways and windows.

C. Draw an elevation plan which includes:

- The heights of the various deck components
- Vertical arrangement
- Other information not easily conveyed on the plan view

3.1.2 Installation restrictions:



First read carefully the installation instructions. Twinson acquires certain specific installation methods which include expansion rules, support rules, fixing rules,... Thorough studying of the technical manual, will ensure more profitable projects. Failure to do so may result in difficult installations, unforeseen problems or even errors that may jeopardise the deck's long-term integrity and/or the product warranty.

- Is the construction according to the local building regulations and planning rules and the following been taken into account?
 - ▶ Meets requirements for safe construction
 - ▶ Plumbing or electrical work for hot tubs or lighting
 - ▶ Depths and seismic requirements
- Acclimatise profiles to local site conditions for at least 24 hours before installation.
- Installation below 0° C is not allowed.
- Twinson Terrace massive profiles must not be used as a structural component.

- Twinson Terrace massive planks must be installed on a grid or lattice. You cannot install the planks directly on to the flat ground because of ventilation and water drainage reasons.
- Planks cannot be glued to the ground.

3.1.3 Design considerations:

Site selection for climate and exposure.

- Influence of local weather conditions needs to be considered when you locate your deck. Position of a deck in relation to the daily path of the sun: for countries North of the equator:
 - ▶ Cold climate: avoid northern and cooler side of the house
- Locate on the southern and western sides of the house to capture the afternoon and evening sun
- Shade from trees is unwelcome
 - ▶ Warmer climates: provide shade by location
- Locate on the eastern side of the house
- Take advantage of shade in the late afternoon or early evening
 - ▶ Very hot climates:
 - Locate on the northern side of the house
 - Take advantage of the coolest side at midday
- When deciding the location of your deck, provisions for sufficient unobstructed air flow should be made allowing thorough drying of the space beneath the deck. Ventilation holes/air vents at various positions around the perimeter should be provided.
- Is the deck surrounded by trees? A shaded deck will require more cleaning from moss, tree debris or sap. Lighter Terrace massive colours will be affected by this more so than darker colours.

3.1.4 Installations that require expert or engineer's advice:



- Highly elevated decks
- Ground with poor bearing capacity
- Steep or unstable hillsides
- Large cantilevers
- Roof decks
- Supporting structures and foundations with concentrated loading such as hot tub, Jacuzzi, big flower pots,...

3.2 Survey and inspection

3.2.1 Condition of the foundation

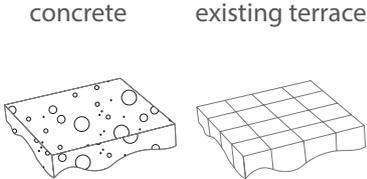
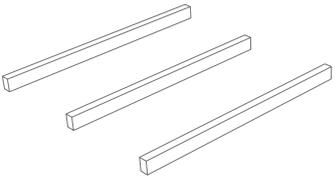
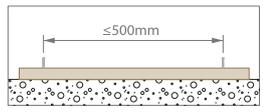
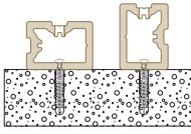
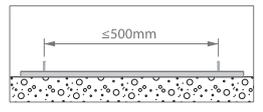
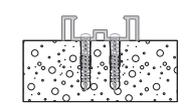
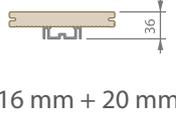
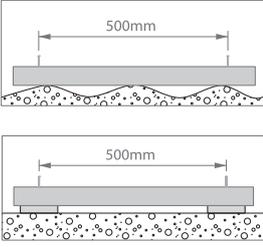
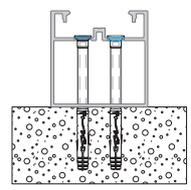
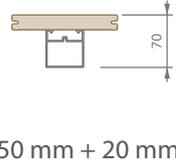
The supporting structure and foundation of a deck needs to:

- Be strong enough to hold up the deck itself
 - ▶ statically weight-bearing
 - ▶ people who will be using the deck
 - ▶ all of the things placed on the deck
- Be protected against
 - ▶ rot and insects
- Be solid enough to withstand
 - ▶ freezing temperatures
 - ▶ wind or mild quakes
- Be flat with a slope of 10mm/m in the direction of the Twinson Terrace massive planks
- Guarantee the water flow at all times
 - ▶ for proper drainage
 - ▶ water logging must be avoided

You should seek a local engineer's advice when there're doubts about the foundation.

3.2.2 Foundation prepared for a FIXED substructure:

FIXED = SUBSTRUCTURE DIRECTLY FIXED INTO FOUNDATION

foundation	levelling			
Concrete (slab)	<ul style="list-style-type: none"> • Packing blocks • Packing pieces or shims • Cement • ... 			
<p>concrete existing terrace</p>  <p>... (*)</p>  <p>(*) depending on the composition of the foundation, please refer to a local architect, engineer,....</p>	fully supported substructure			
	P 9552			
	P 9523			
	not fully supported substructure			
P 9522				

3.2.3 Foundation prepared for a FLOATING substructure:

FLOATING = SUBSTRUCTURE NOT FIXED INTO FOUNDATION

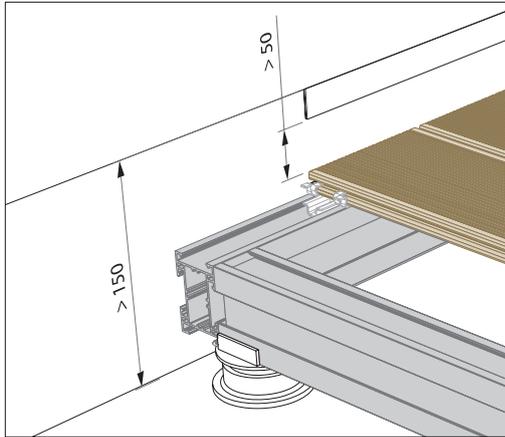
substructure	levelling
Structural For example: <ul style="list-style-type: none"> • Concrete foundation posts • Wooden poles construction that rests on a concrete footing • Steel posts with steel beams • Concrete footing • Plastic cone-shaped footing form with a pier tube on top, filled with concrete • Pier block • This list is not exhaustive. 	<ul style="list-style-type: none"> • Integrated in the structure • Adjustable post base • ...
Sufficient stable and compacted gravel base For example: <ul style="list-style-type: none"> • Flint chips • Shingle • Gravel (bed) • Pebble stones • Other stones • This list is not exhaustive. 	<ul style="list-style-type: none"> • Concrete pier tubes • Downpipe filled with concrete • Precast pier blocks •
Roof or balcony terrace	<ul style="list-style-type: none"> • Concrete pads • Paving support pads or blocks • Cement filled bags • ... 

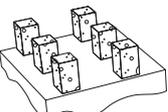
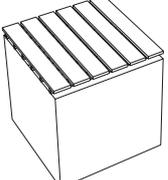
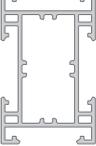
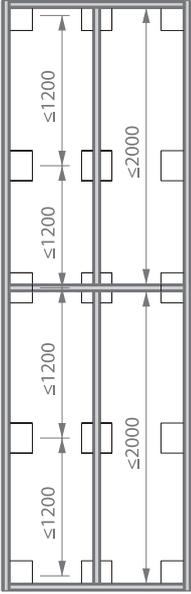
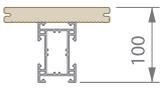
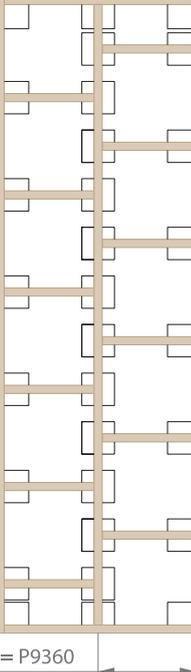
- Structural
 - ▶ If necessary, please contact a structural engineer for advice and install according to the local building regulations and planning laws.
- Sufficient stable and compacted gravel base
 - ▶ If necessary, you need to integrate loadbearing points to support the understructure of the Terrace Massive system.
 - ▶ Thick layer of gravel
 - Minimum 200 mm
 - Start with a geotextile, geofabric or ground foil insulation (*) (e.g. Polystyrene) to prevent weed growth.
- Roof or balcony terrace
 - ▶ Concrete pads: minimum 400 x 400 mm and 50 mm thick

(*) Geotextile, geofabric or ground foil insulation are permeable fabrics which, when used in association with soil, have the ability to separate, filter, reinforce, protect and drain. When used within a foundation of soil, rock or earth etc its purpose is to increase stability and decrease wind and water erosion. It also prevents that sand or other granulates that may have been used specifically from mixing with the ground underneath.

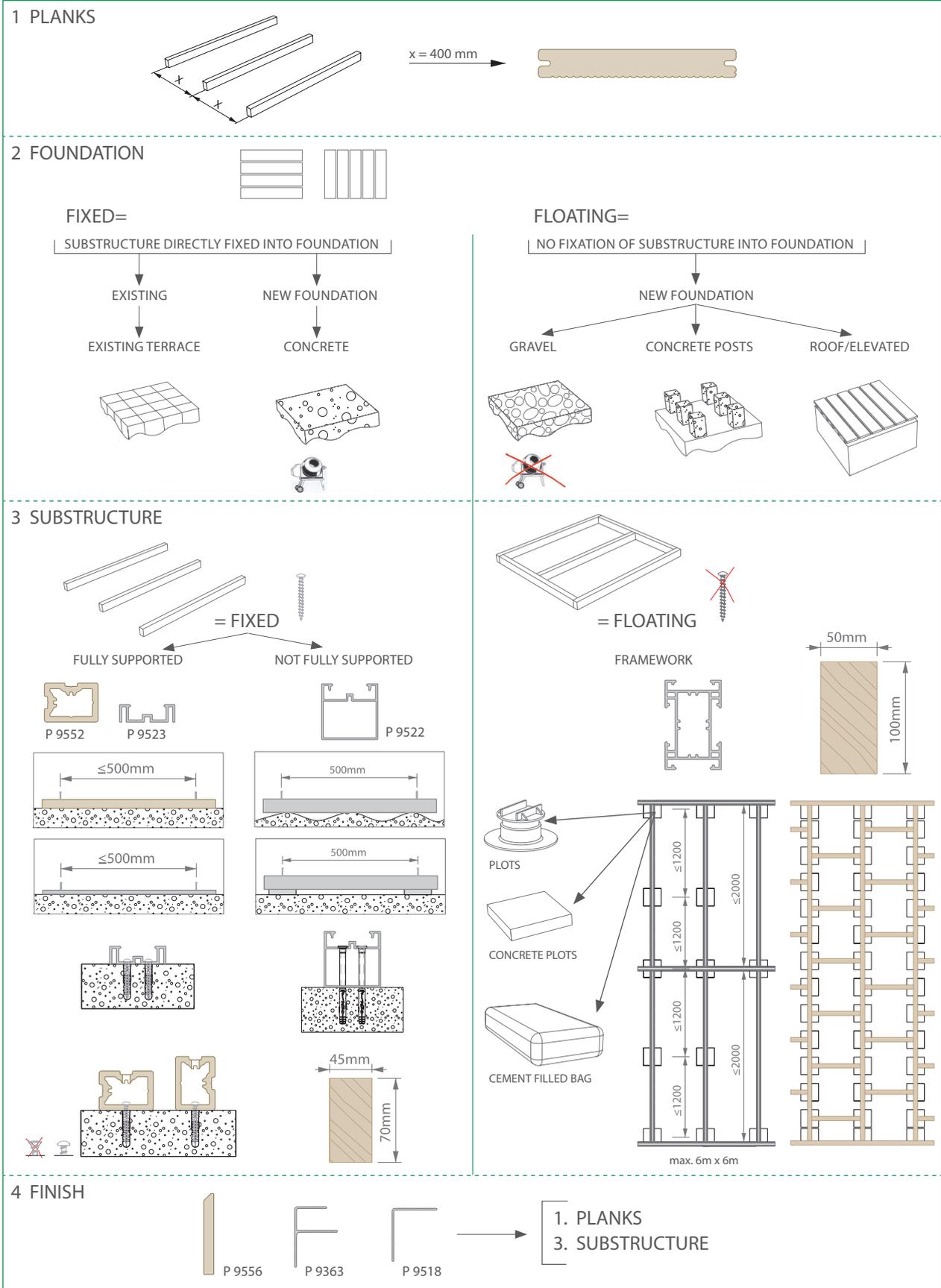
On roof or balcony terraces high wind loads must be absorbed. To secure against high wind loads it may be necessary to use concrete plate anchors. The height of the damp proof course must be more than 150 mm (following the local standards).

The level of the Terrace Massive planks must be 50 mm under the upper side of the damp proof course (following the local standards). Observe local building regulations and planning laws.



substructure	framework			
<p>Gravel</p>  <p>concrete posts</p>  <p>roof / elevated</p> 	<p>P 9524</p> 		<p style="text-align: center;">FIXATION</p>	 <p>80 mm + 20 mm</p>
<p>...(*)</p>  <p>(*) depending on the composition of the foundation, please refer to a local architect, engineer,...</p>	<p>Hardwood (by others)</p> 		<p style="text-align: center;">FIXATION</p>	 <p>100 mm + 20 mm</p>

3.3 Step-by-step assembly



3.4 Substructure

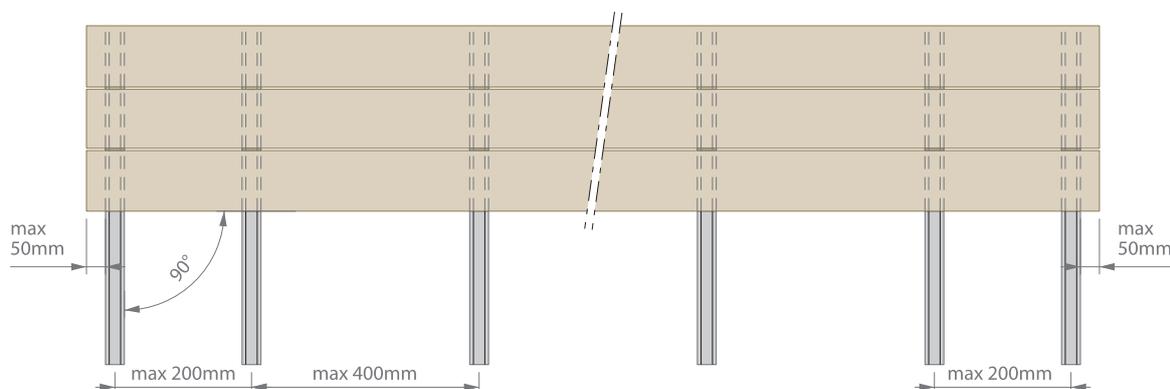
3.4.1 General



- Always use **at least 3 support beams** per length (P 9523, P 9522, P 9524 or hardwood).
- A maximum overhang of 50 mm is allowed at deck ends.
- Provide sufficient unobstructed air flow to allow thorough drying of the space beneath the deck. Ventilation holes/air vents at various positions around the perimeter are required.
- The foundation must maintain a slope of 10mm/m, in the direction of the grooves. The Terrace Massive planks must follow the same slope to ensure proper drainage. Drainage provisions should be foreseen beneath outside water taps.
- Method to set the slope:
 - ▶ Laser
 - ▶ Cord/nylon line
 - ▶ Levelling stick
 - ▶ Ground/foundations directly in the right slope
- Special patterns:
When planning a specific pattern you need to adjust the substructure to support the decking pattern. Care should be taken with the support span and spacing between planks.
- Terraces (fixed or floating) where the planks are longer than 6m should be made using planks of 3m max.
- Floating terraces where the substructure is longer or wider than 6m should be made using support frames of 6m x 6m max.
- For special projects contact your Terrace dealer.

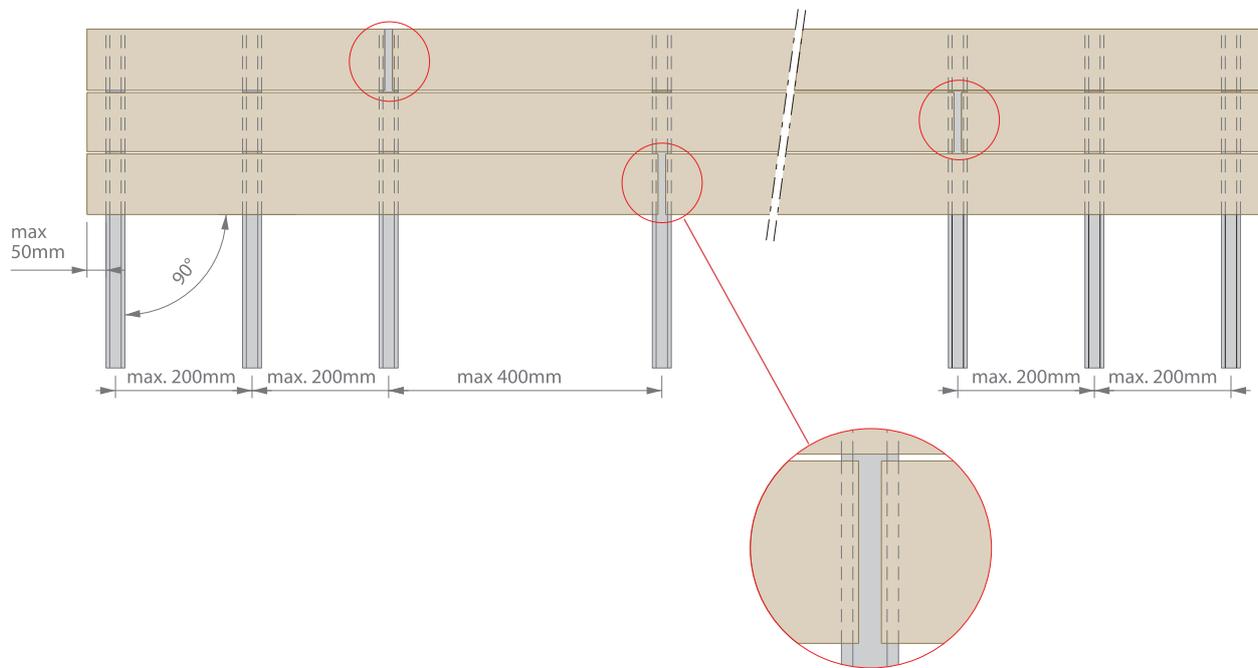
A. Terrace < 6m

- Maximum 200 mm distance centres between the first and second support beam and the second last and last, when installed at 90°.
- Maximum 400 mm distance centres between all other support beams when installed at 90°.
- For terracing used by the public, these support centre distances need to meet local building regulations and planning laws.



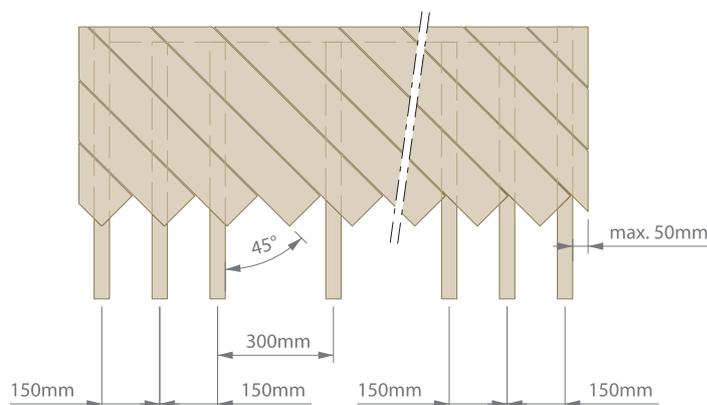
B. Terrace > 6m

- Maximum 200 mm distance centres between the first and second support beam and the second last and last, when installed at 90°.
- Maximum 400 mm distance centres between all other support beams when installed at 90°.
- For terracing used by the public, these support centre distances need to meet local building regulations and planning laws.

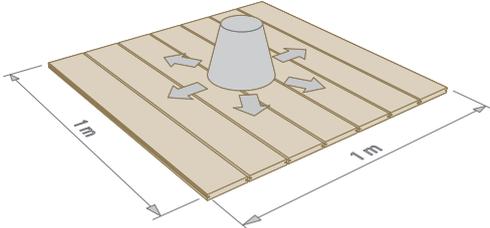
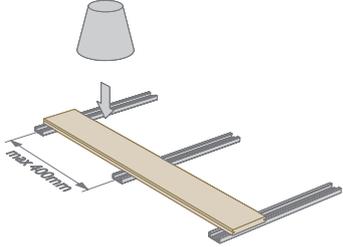


C. Terrace 45°

- Maximum 150 mm distance centres between the first 3 support beams and the 3 last support beams, when installed at 45°.
- Maximum 300 mm distance centres between all other support beams when installed at 45°.
- This is required for the P9552 support beam or a hardwood frame.



3.4.2 Maximum load

centres	uniformly distributed load	point load
P 9360 400 mm	Max. 1750 kg/m ² 	Max. 100 kg 

- According to EN 310 the profiles will be submitted to a three point bending test. The length of the profile is the distance between the supports plus 100 mm. The profiles will not be fixed on the support beams.
- The support beam of the test apparatus should be cylindrical as described in test method EN 310. This is done using a concentrated point load; the test parameter is that the plank can bend a maximum of 3 mm with a load of 100 kg or 150 kg.
- P 9360 -> 400 mm:
 - ▶ with 1m² this means that we have 7 planks of 1 m
 - ▶ $\frac{21 \times 100 \text{ kg}}{1,2 \text{ m}^2}$ point load because we have 3 support beams = 1750 kg

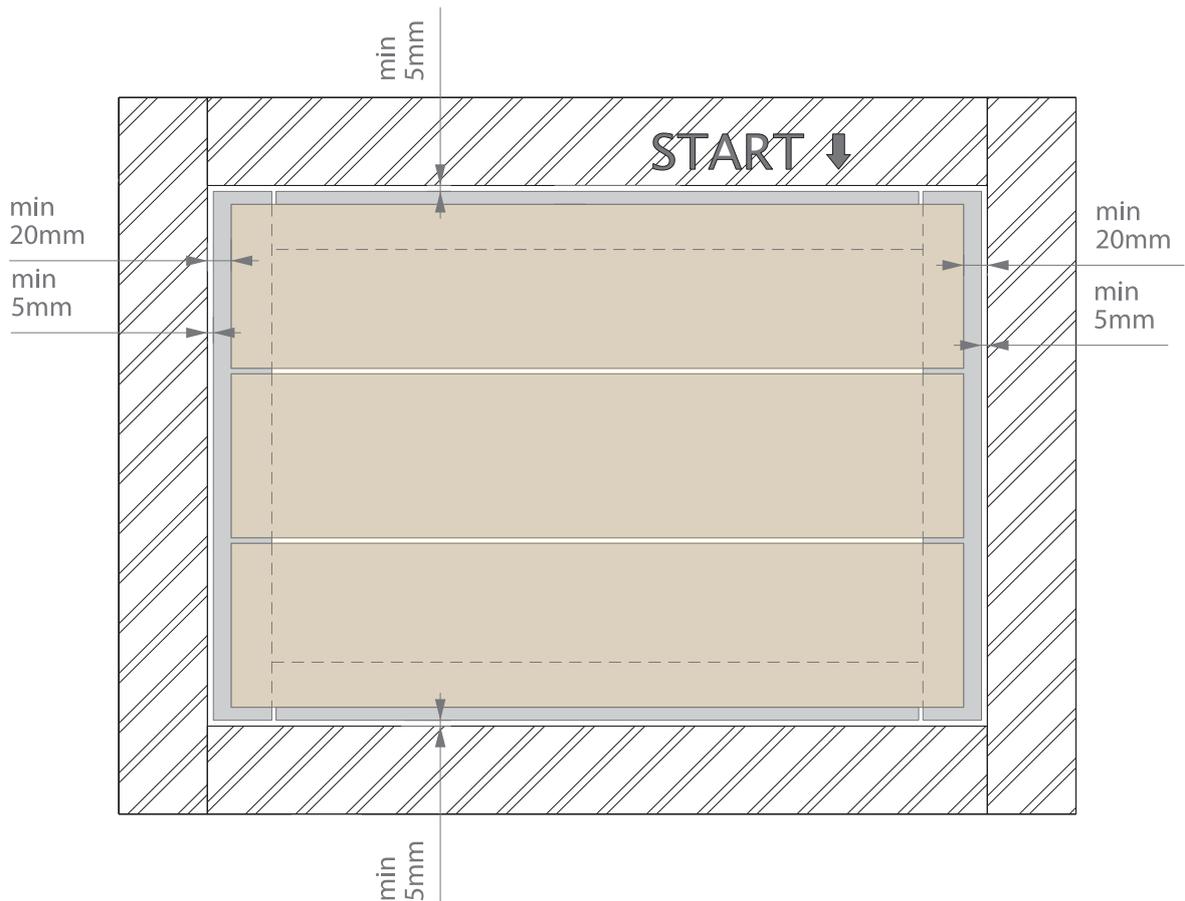


The terrace planks cannot be seen as self supporting! For applications in galleries, walkways, access balconies, stairs,... (this list is not exhaustive) special measures must be foreseen.

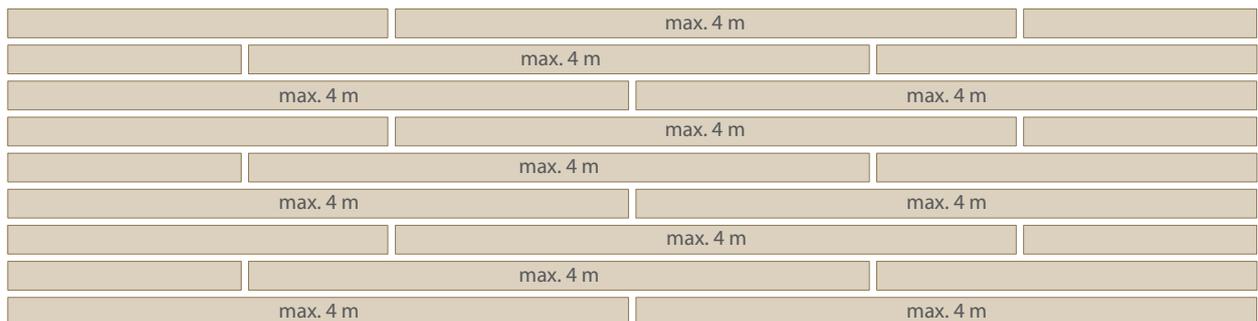
3.4.3 Expansion rules

A. Terrace $\leq 6m$

- Take a general expansion allowance of 2 mm per linear meter into account.
- Distance from fixed objects:
 - ▶ Aluminium understructure $\leq 6 m$: allow min. 5 mm expansion at both ends of decking
 - ▶ Twinson planks longitudinal direction: min. 20 mm expansion at both ends of decking
 - ▶ Twinson planks widthwise: min. 5 mm expansion on both sides

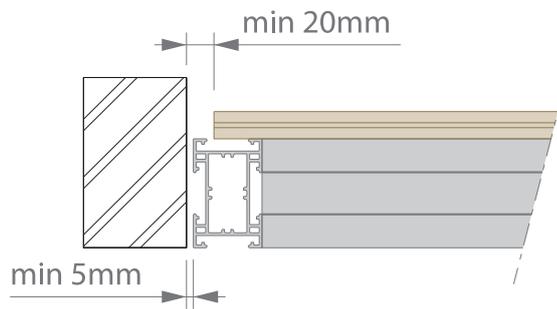


B. Terrace $> 6 m$

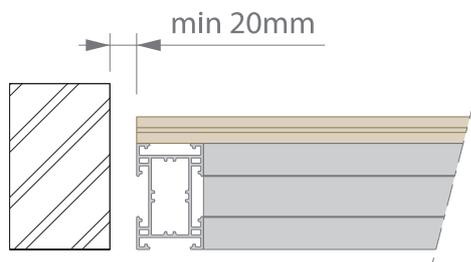


C. Options without finishing

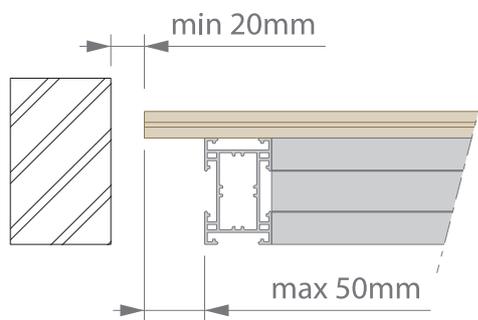
Option A



Option B

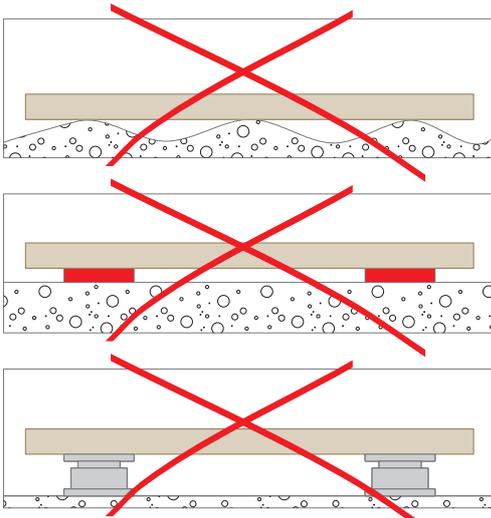


Option C

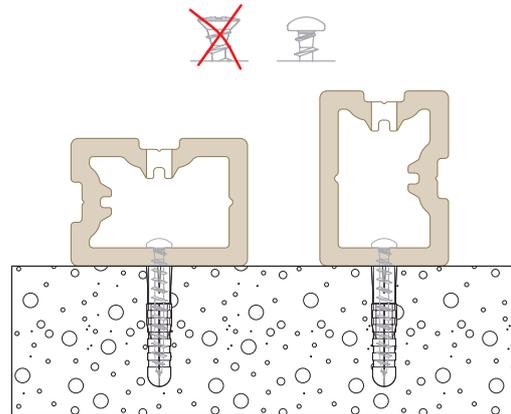
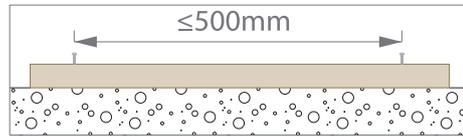


3.4.4 Support beam P9552

- Profile P 9552 is not a structural support.
- Profile P 9552 needs to be fully supported and installed on a concrete slab. The quality of the foundation needs to meet with local guidelines/legislation.
- The usage of packing blocks, paving support pads, plots,... is forbidden.

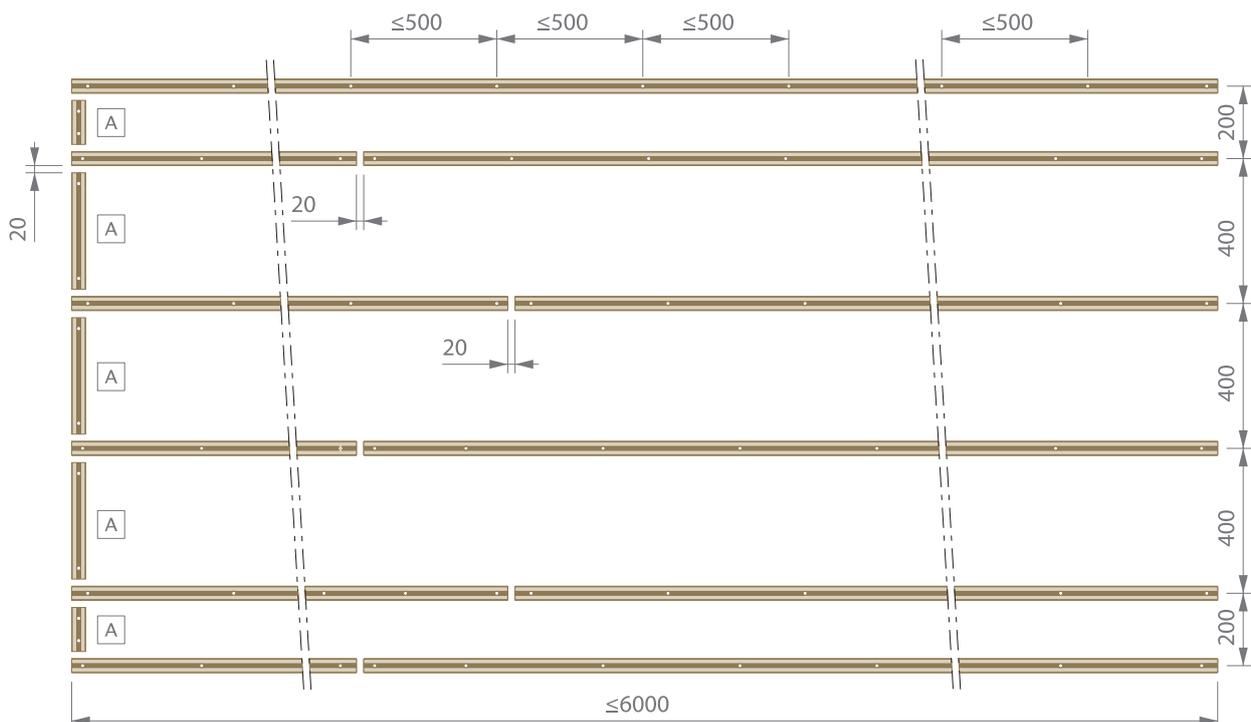


- Needs to be fixed at $\leq 500\text{mm}$ centres to the foundation using suitable fixings, this can be a screw + plug or self tapping screw.



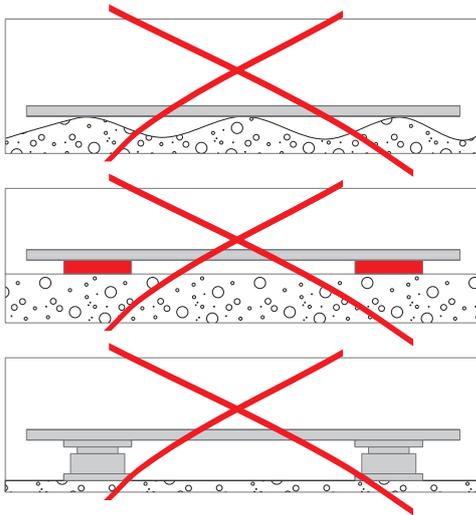
- The foundation needs to be installed with a slope of a minimum 10mm/m and this needs to be integrated in the concrete slab.
- Needs to be fixed at the beginning and end.

- We recommend creating a gap of approx 20 mm between lengths of support beam in order to guarantee drainage.
- Place extra pieces depending on the type of finishing. A



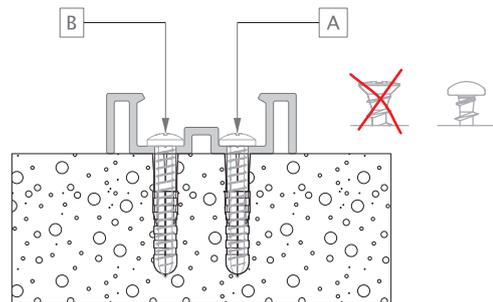
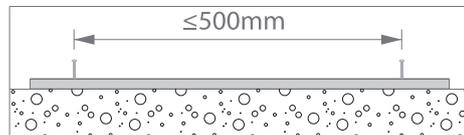
3.4.5 Support beam P9523

- Profile P 9523 is not a structural support.
- Profile P 9523 needs to be fully supported and installed on a concrete slab. The quality of the foundation needs to meet with local guidelines/legislation.
- The usage of packing blocks, paving support pads, plots,... is forbidden.

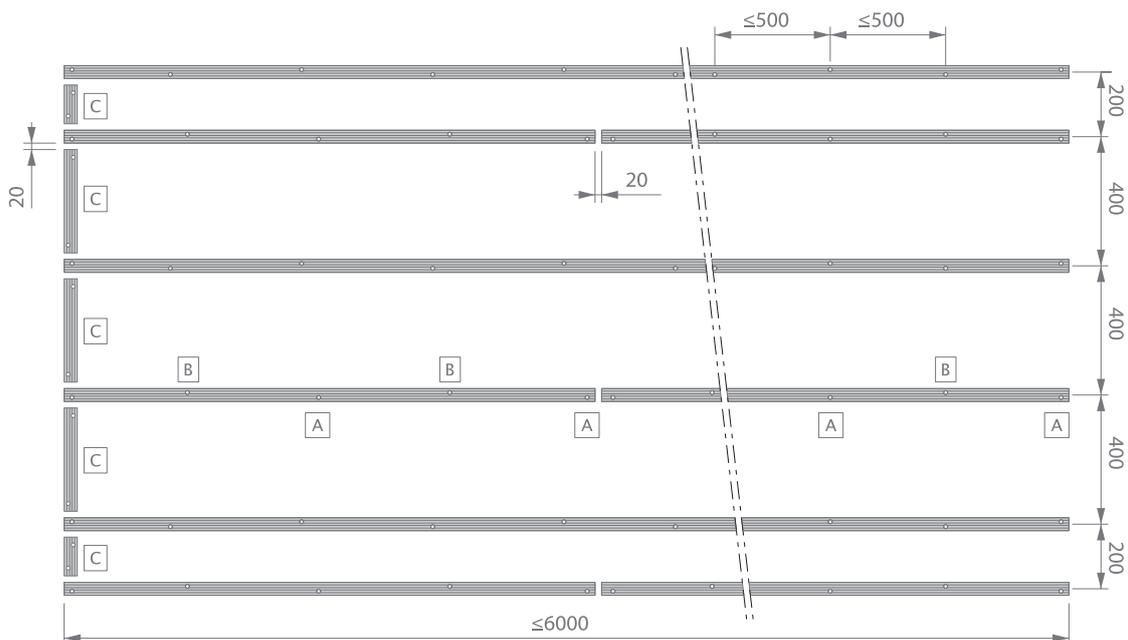


- The foundation needs to be installed with a slope of a minimum 10mm/m and this needs to be integrated in the concrete slab.
- Needs to be fixed at the beginning and end.

- Needs to be fixed at $\leq 500\text{mm}$ centres to the foundation using suitable fixings, this can be a screw + plug or self tapping screw.

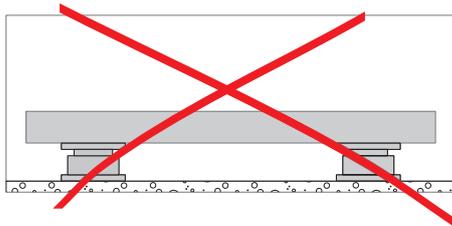
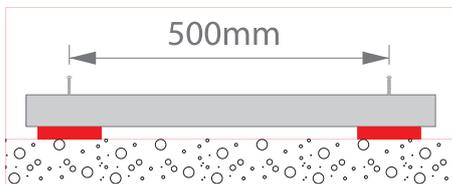
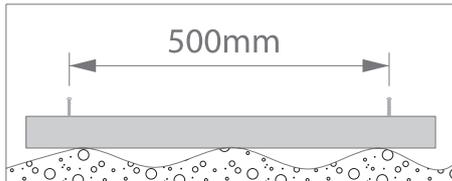


- We recommend creating a gap of approx 20 mm between lengths of support beam in order to guarantee drainage.
- Place extra pieces depending on the type of finishing. [C]

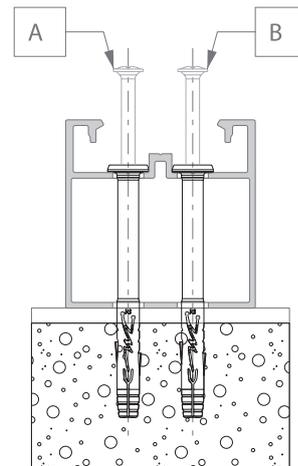


3.4.6 Support beam P9522

- Profile P 9522 needs to be supported every 500 mm.
- The foundation needs to be installed with a slope of a minimum 10 mm/m and this can be done by the usage of packing blocks.
- The usage of paving support pads or plots is forbidden.

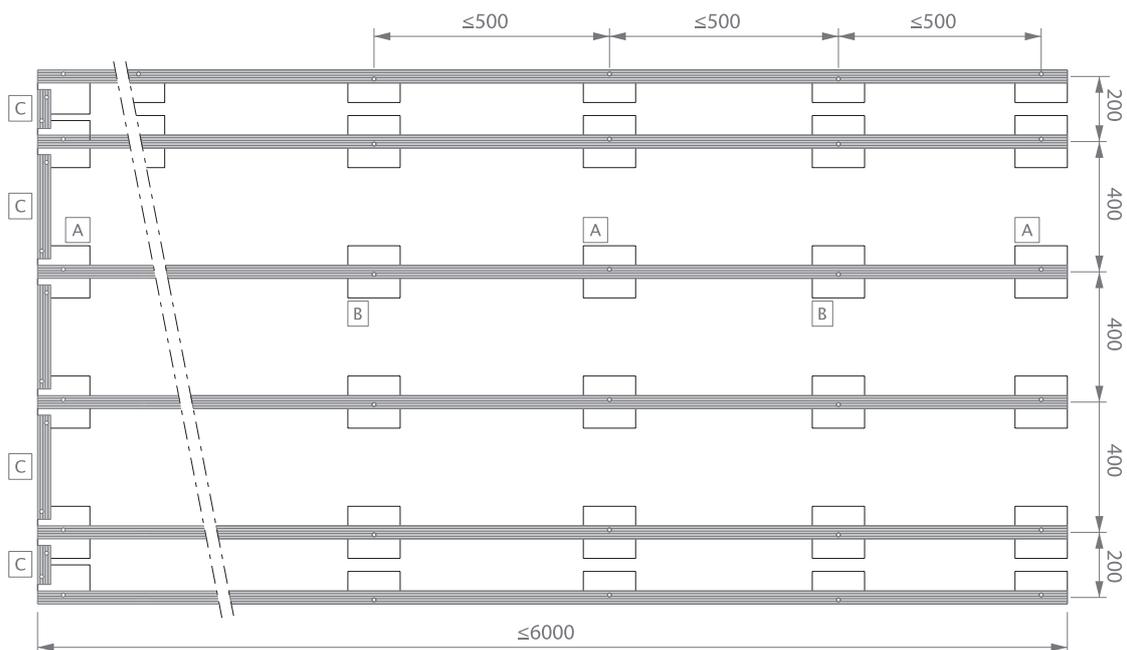


- Needs to be fixed at ≤ 500 mm centres to the foundation using suitable fixings.
- If packing blocks have been used, fix the P 9522 support beam through the packing block and into the foundation.
- We recommend that you fix with a screw + plug or a self tapping screw and the head of the screw needs to be tightened on to the upper layer of the P 9522.



- Needs to be fixed at the beginning and end.

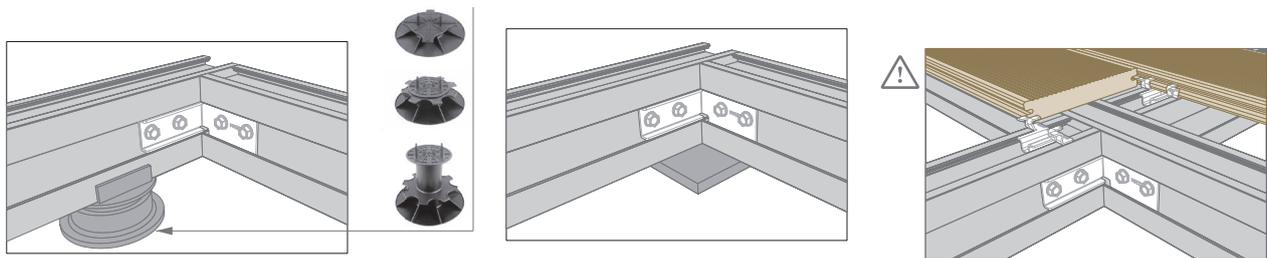
- Be sure that the waterdrainage can be guaranteed
- Place extra pieces depending on the type of finishing. C



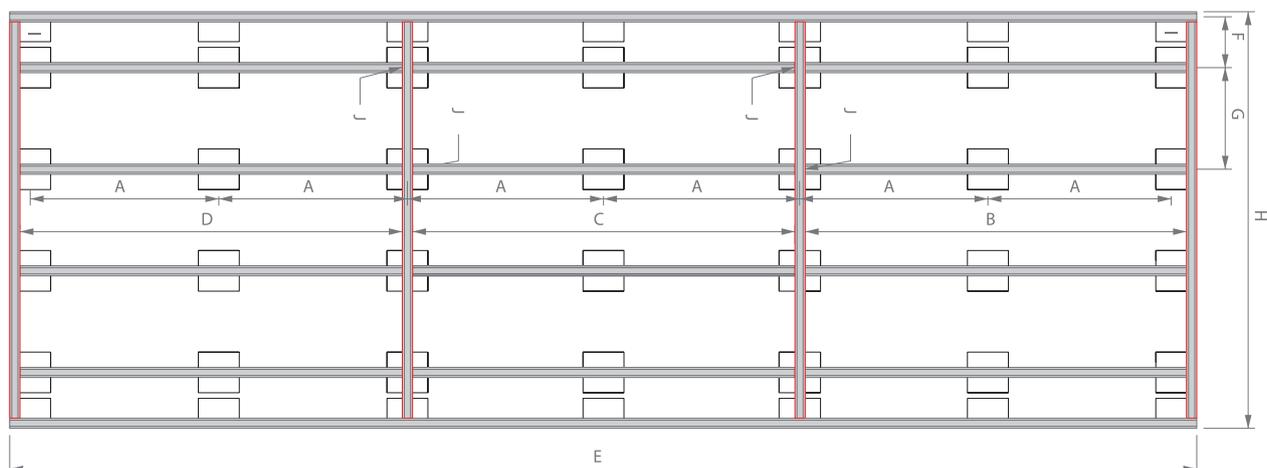
3.4.7 Framework P9524

- For a floating substructure you are required to make a complete framework.
- Always use the P 9524 on the high side.
- The maximum distance between supports along the length of P 9524 is ≤ 1200 mm. (A)
- The maximum distance between two lengths of the P9524 in the direction of the planks is < 2000 mm (B, C or D).

A	≤ 1200 mm		
B	≤ 2000 mm	$103,25 + (12 \times 144,5) + 28,75$	first module equals 14 planks of p9360
C	≤ 2000 mm	$65,75 + (12 \times 144,5) + 66,25$	2nd module equals 13 planks of p9360
D	≤ 2000 mm	$28,25 + (12 \times 144,5) + 103,25$	3rd module equals 13 planks of p9360
E	≤ 6000 mm		
F	≤ 250 mm		
G	≤ 500 mm		
H	≤ 6000 mm		
I	corner connection		



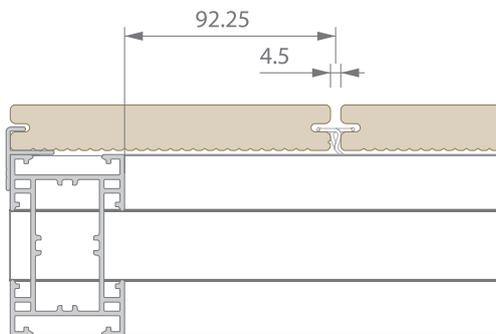
J: support beam positioned in between clips



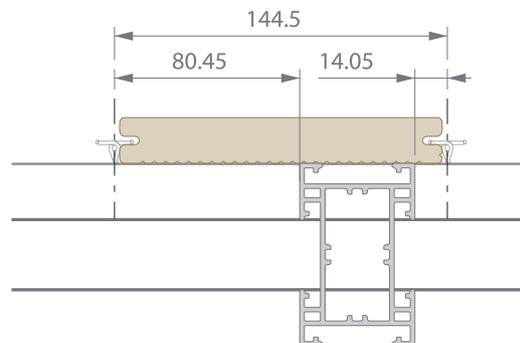
Example max. dimensions:

If you want to end with a full plank of the P 9360, you will need to calculate the length of all the required support beams.

A START

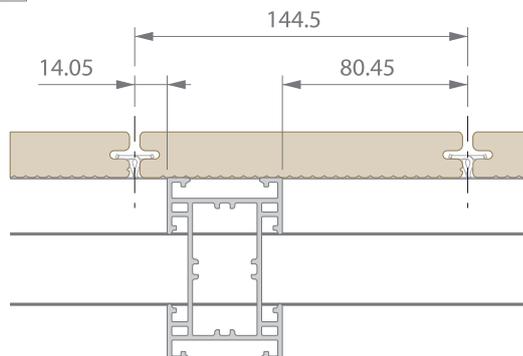


B

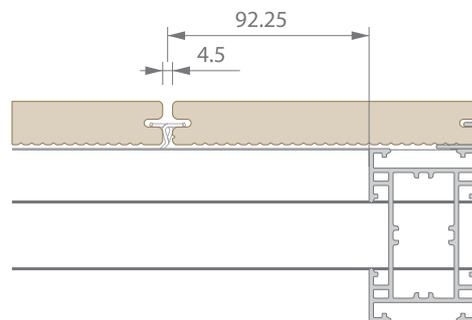


Calculate 92 mm from the edge of the first support beam (A) to the center of the joint.

C



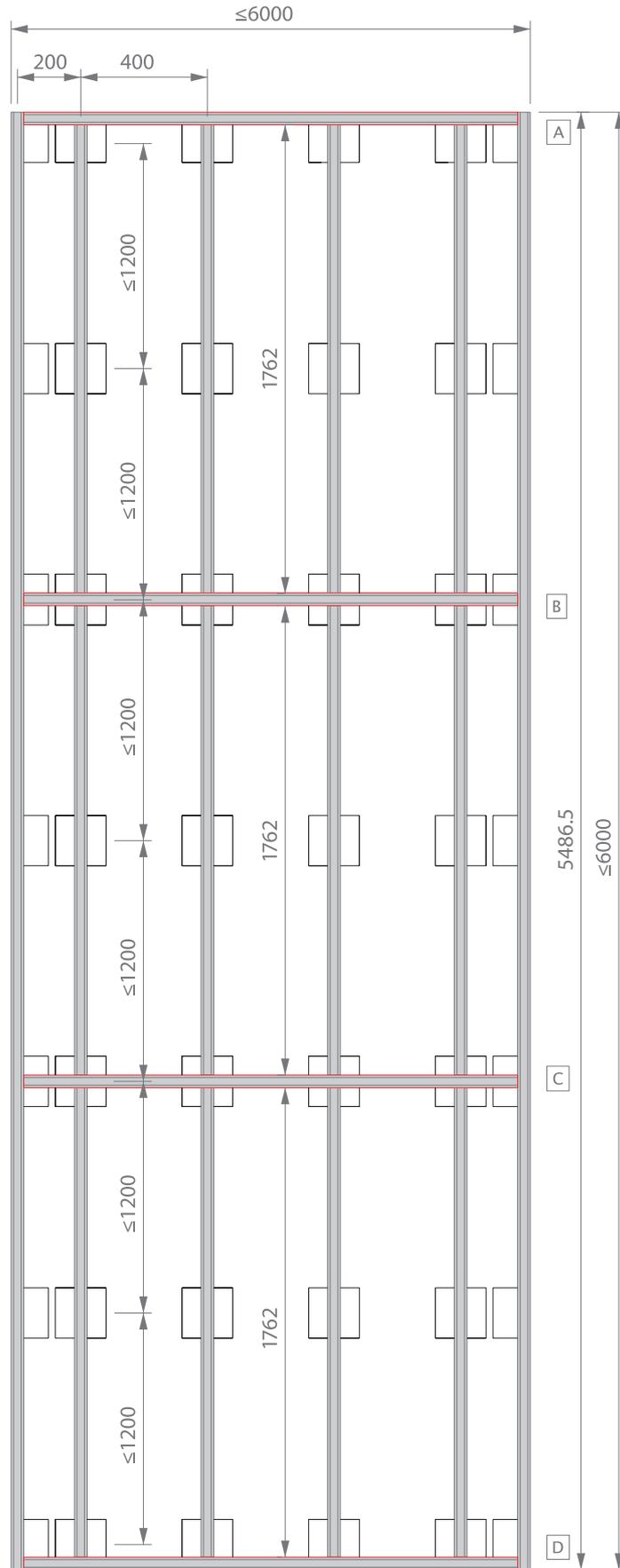
D END



Calculate 144.5 mm for every plank.

NOTE:

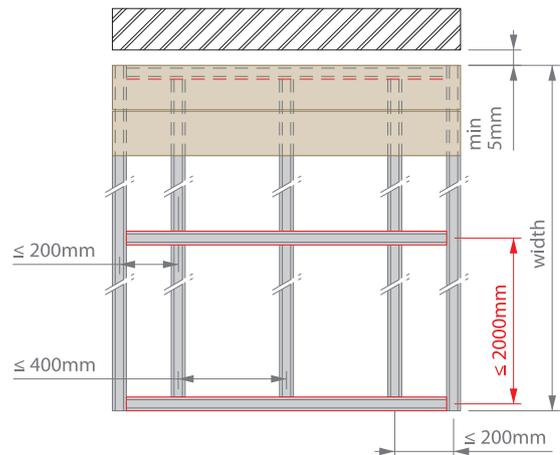
Floating terraces where the substructure is longer or wider than 6 m should be made using support frames of 6 m x 6 m max.



3.4.8 Assembly of a floating structure

A single supporting structure is only valid when sections of profiles P 9524 are securely fixed to one another forming a solid framework. The support beams are fixed to each other by using the corner brackets P 9527/P 9531.

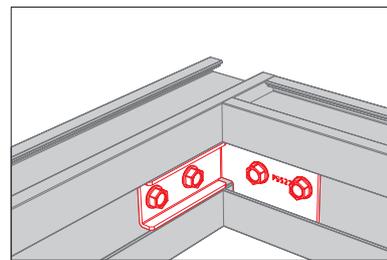
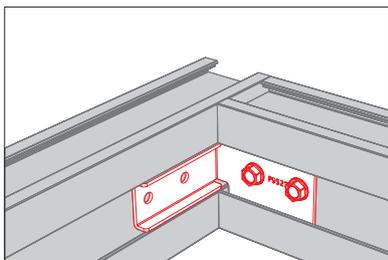
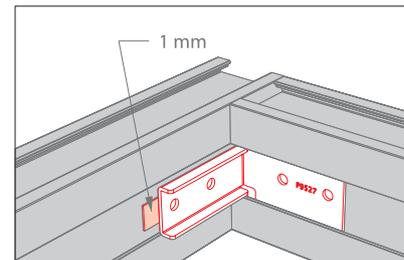
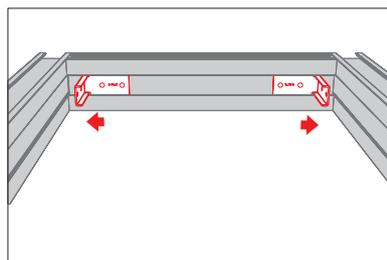
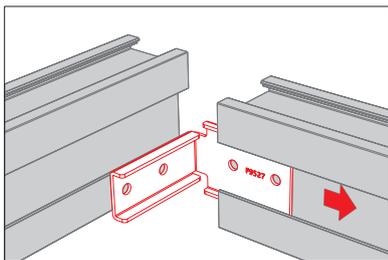
- T-connection support beam P 9524 : always use 2 corner brackets at the end of each support beam.
- When the length of the support beam is ≥ 2 m you need to install extra support beams in the same direction as the planks.
- The standard corner bracket is the P 9527 (SST, DIN A2) and in strongly corrosive surroundings like coastal regions, swimming pool,... we recommend to use the corner bracket P 9531 (SST, DIN A4).



SEQUENCE OF ASSEMBLY

Install the P 9527/P 9531:

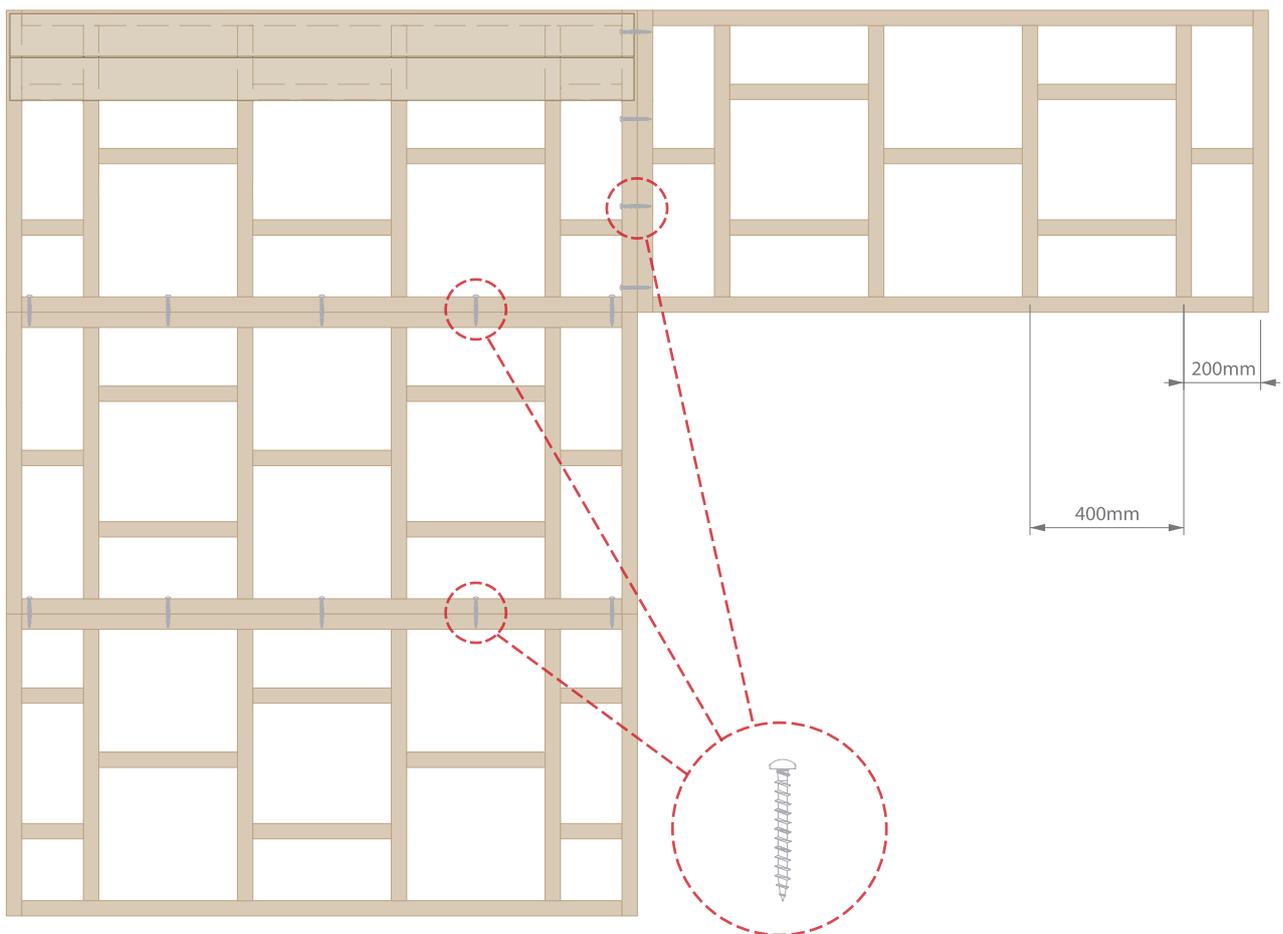
- Slide the corner bracket into the first support beam; this support beam will form the top or end of your framework.
- Move the first support beam next to the connecting support beams; your connecting support beams will form the sides of your framework.
- Slide the corner bracket from the top support beam into the side support beam.
- Place a 1 mm packer between the corner bracket and the side support beam, do this while you fix the corner bracket to the top support beam using self-tapping screws P 9515 with an M10 wrench. Remove the 1mm packer and fix the corner bracket to the side support beam. This procedure will tighten the two support beams together. If using a powered screwdriver be sure to limit the torque as this will prevent stripping the thread of the screw.



3.4.9 Hardwood framework

Installation rules of chapter 3 remain valid!

- Fixed: Use only durable wood of the highest durability class (class 1 for all countries/class 4 for France) to make a wooden grid or a solid framework and use dividing beams to strengthen the structure. Ensure that the framework is level.
- Floating: Use only durable wood of the highest durability class (class 1 for all countries/class 4 for France) to make a wooden grid or a solid framework and use dividing beams to strengthen the structure. Ensure that the framework is level. The choice of dimensions of the wooden support beams should be relevant to the surface, loads (wind), etc. to which the terrace will be exposed and according the local building regulations. If necessary, please contact a structural engineer. When using paving support pads or concrete slabs etc on a roof terrace we recommend you install a protective layer beneath each element to prevent the roof from absorbing moisture or leaking. The height of the damp proof course must be greater than 150mm (or in accordance with local building regulations). The level of the Terrace Massive planks must be 50mm below the upper edge of the damp proof course (in accordance with local building regulations).

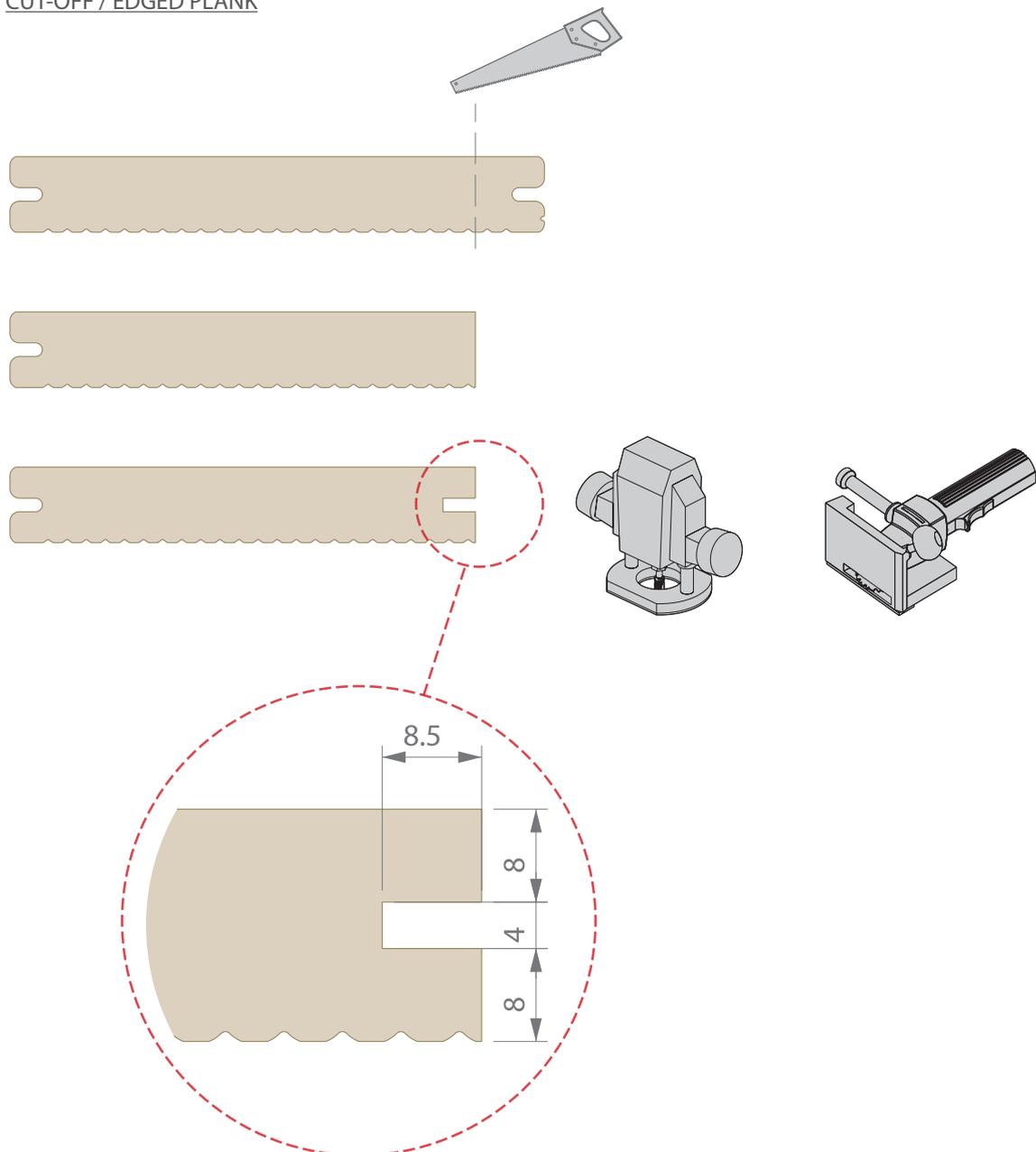


3.5 Planks

3.5.1 General rules

- For a perfect result, it is advisable to cut both ends of the plank removing approx 10 mm.
- Never screw the decking plank directly in to the framework.
- Because of the wood fibres the profiles can differ slightly in colour, it is therefore recommended to mix the planks before installation.
- Use a powered screwdriver with adjustable torque to fix all clips so that screws do not strip their thread.
- The terrace can end with a full plank or a cut-off/edged plank.

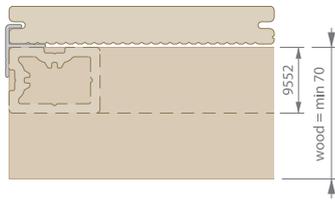
CUT-OFF / EDGED PLANK



3.5.2 Start

A. Fixed substructure

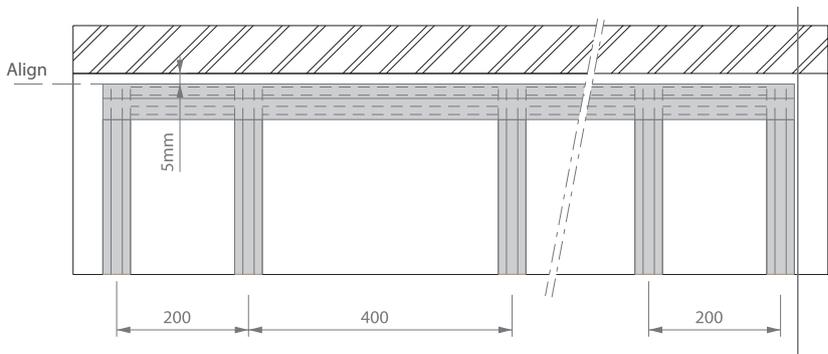
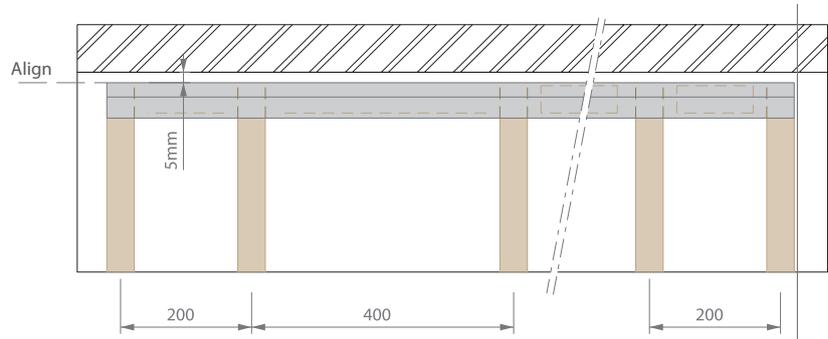
P 9366 / 9552 or wood



P 9366 / 9523

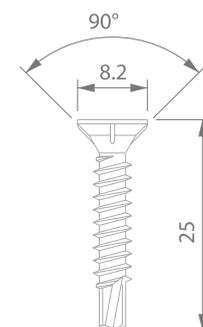
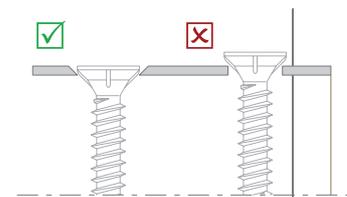


P 9366 / 9523



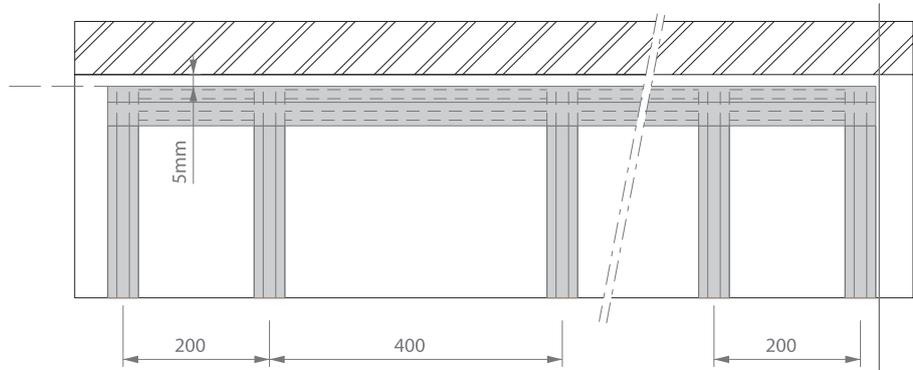
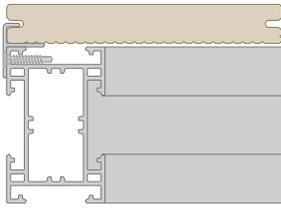
Before placing the first P 9360 Terrace plank on a Twinson or wooden substructure, install the starter profile P 9366.

- The aluminium starter profile is fixed onto every support beam with the screw P 9542. To prepare the starter profile for fixing, pre-drill with a 4mm bit and countersink the head of the screw so it is level with the profile. The use of a powered screwdriver with torque adjustment is recommended so that the screws do not strip their thread.
- Slide the first Terrace plank in to the P 9366.

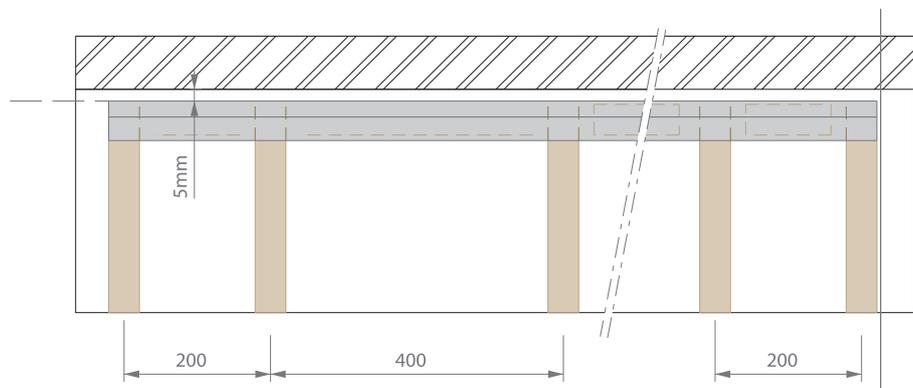
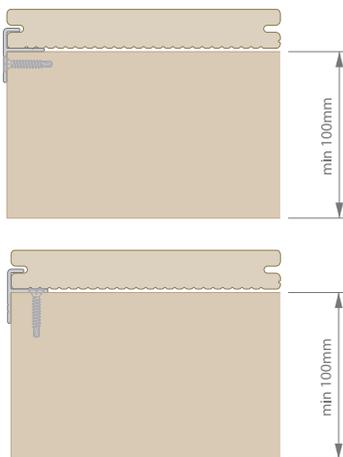


B. Floating substructure

P 9366 / 9524

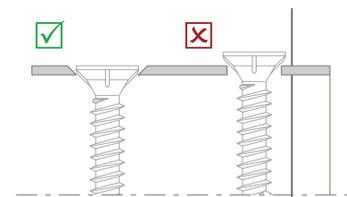


P 9366 / wood



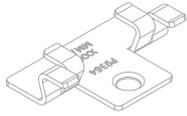
Before placing the first P 9360 Terrace plank on a Twinson, install the starter profile P 9366.

- The aluminium starter profile is fixed onto every support beam with the screw P 9542. To prepare the starter profile for fixing, pre-drill with a 4mm bit and countersink the head of the screw so it is level with the profile. The use of a powered screwdriver with torque adjustment is recommended so that the screws do not strip their thread.
- Slide the first Terrace plank in to the P 9366.



3.5.3 Clip P 9364

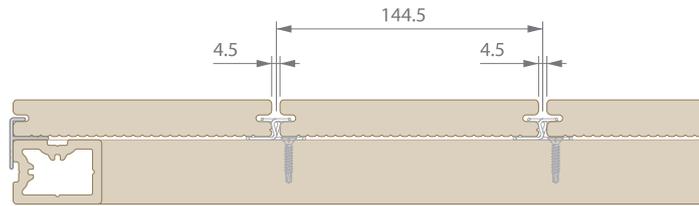
P 9364 / 9552 or wood



P 9364

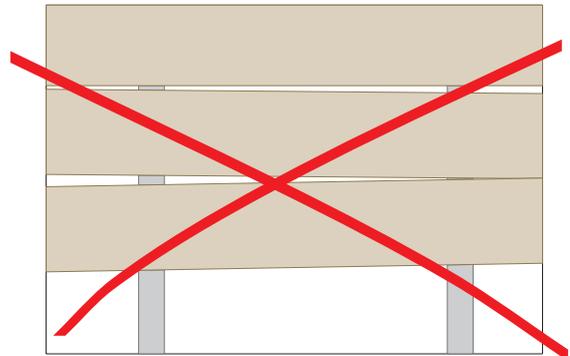
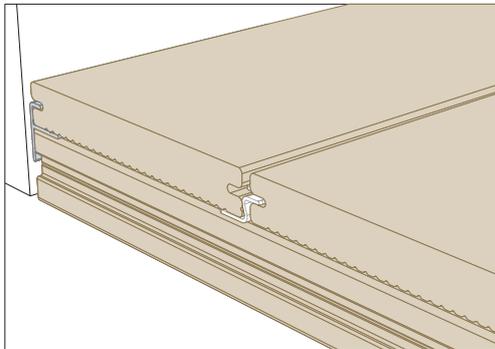
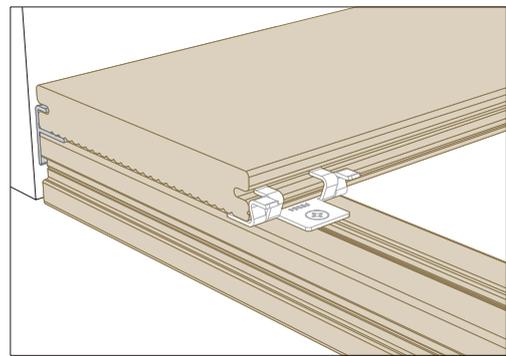


P 9542



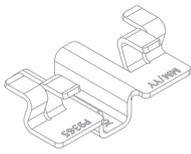
Position and fix the clip P 9364.

- The clip needs to be screwed with the P 9542 to the P 9552 or hardwood.
- When using hardwood: pre-drill with \varnothing 3 mm.
- The use of a powered screwdriver with torque adjustment is recommended so that the screws do not strip their thread.
- Place clip P 9364 to every support beam and between every plank.



3.5.4 Clip P 9365

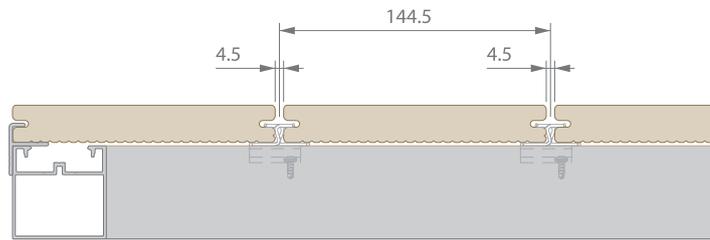
P 9365 / P 9522 - P 9523 - P 9524



P 9365

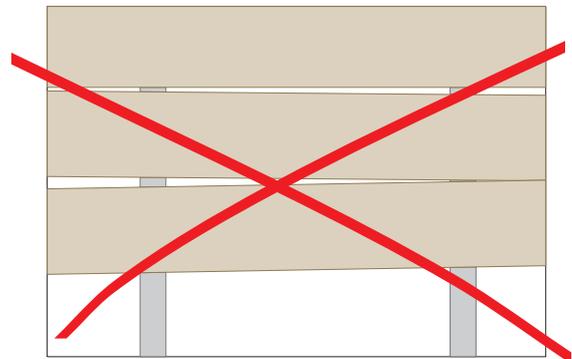
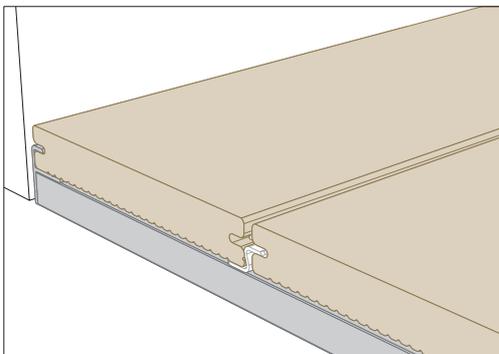
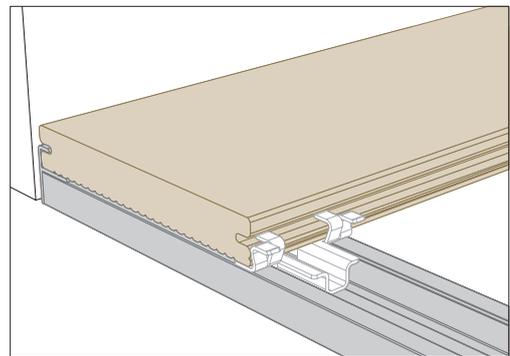


P 9367



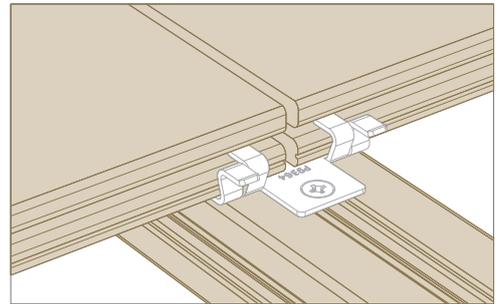
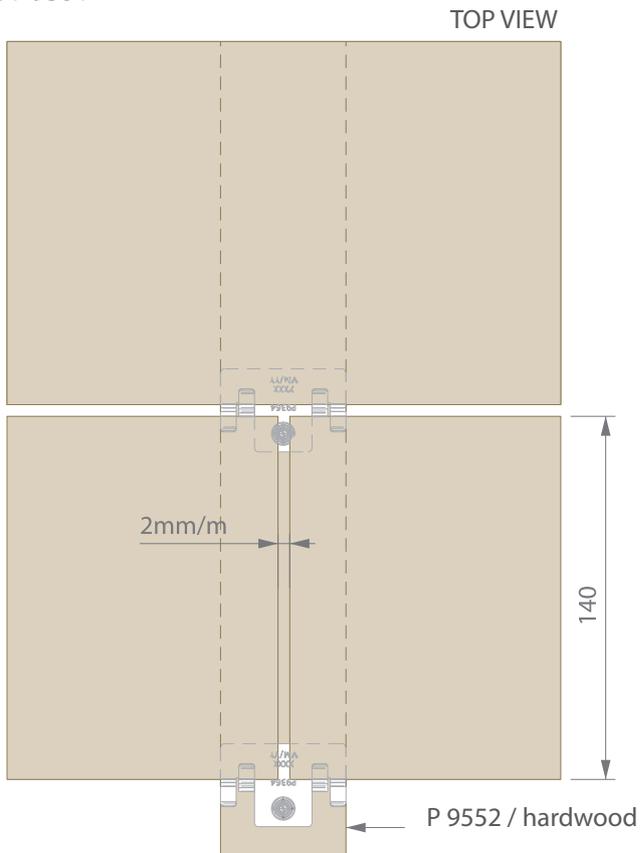
Position and fix the clip P 9365.

- The clip needs to be screwed with the P 9367 to P 9522, P 9523, P 9524.
- The use of a powered screwdriver with torque adjustment is recommended so that the screws do not strip their thread.
- Place clip P 9365 to every support beam and between every plank.

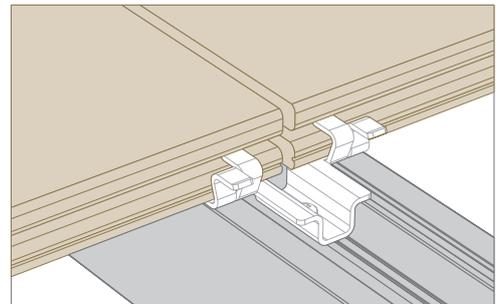
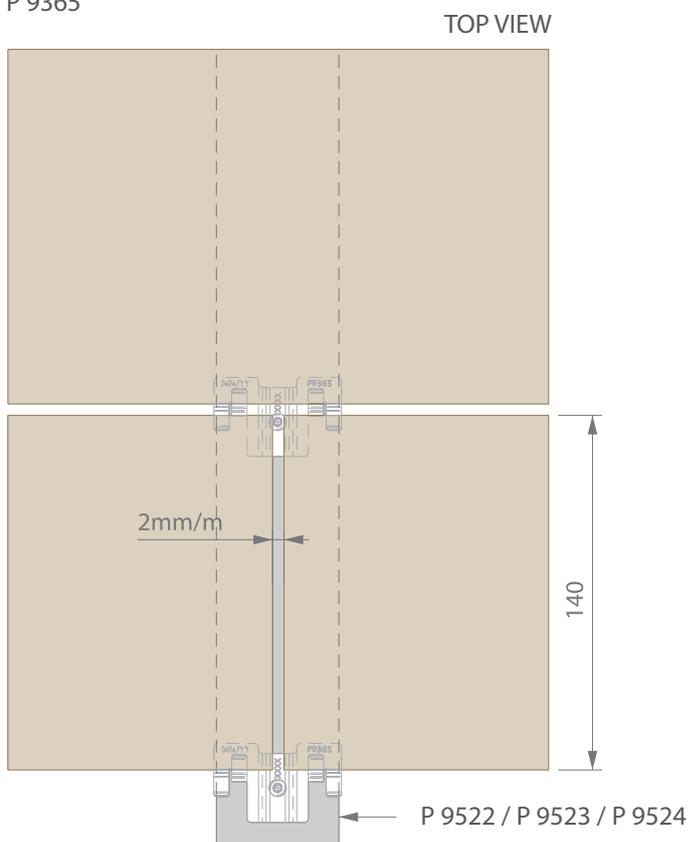


3.5.5 Connections: butt joint

Clip P 9364

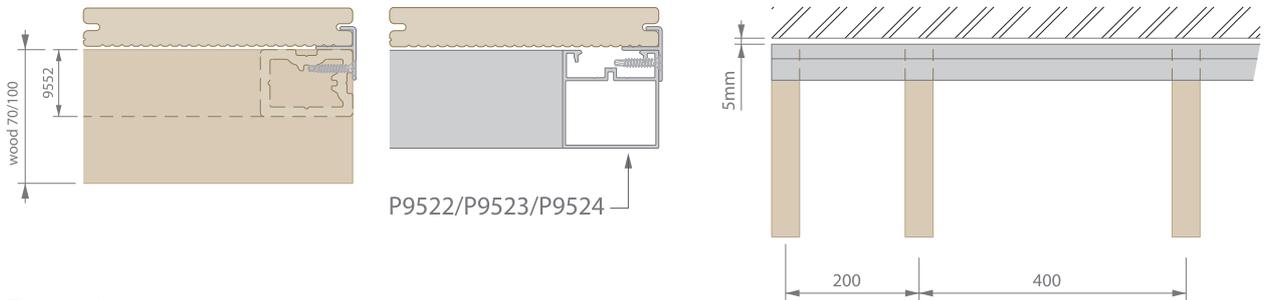


Clip P 9365



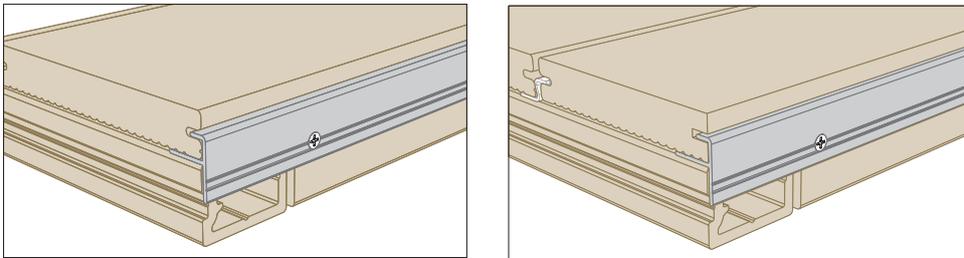
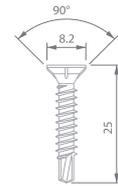
3.5.6 Stop

Aluminium profile P 9366

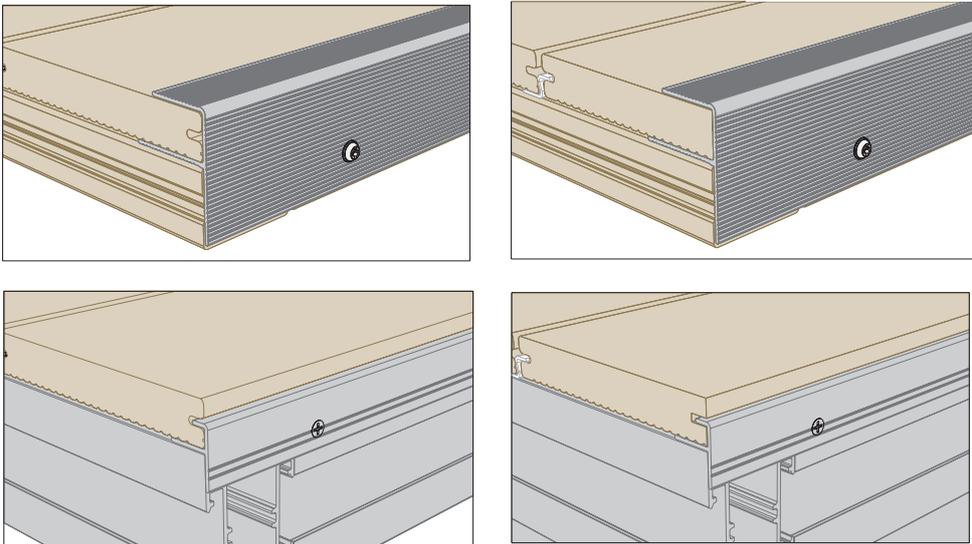


The profile can be glued or screwed on the substructure.

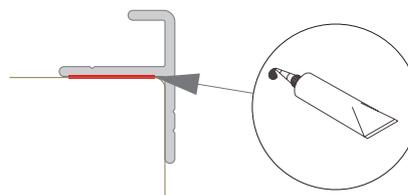
- The aluminium starter profile is fixed onto every support beam with screw P 9542. To prepare the starter profile for fixing, pre-drill with a 4mm bit and countersink the head of the screw so it is in level with the profile.
- The use of a powered screwdriver with torque adjustment is recommended so that the screws do not strip their thread.



As an alternative you can use the P 9363 as starter profile as well as ending profile.



If not accessible, the profile P 9366 can be glued on the substructure. For gluing instructions see page 68.



3.6 Finishing

3.6.1 General

	SCREW	GLUE	SUPPORTED	FIXATION	P 9360 	P 9552 	P 9523 	P 9522 	P 9524 
P 9590 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	always completely on water resistant wood	2-component PU-glue 1-component MS Polymer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
P 9591 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	always completely	2-component PU-glue 1-component MS Polymer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
P 9592 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	always completely	2-component PU-glue 1-component MS Polymer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
P 9556 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	always continuously by the support beam	every 300 mm 35 mm from corner 2-component PU-glue 1-component MS Polymer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
P 9366 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		600 mm max 80 mm from corner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
P 9518 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		every 300 mm 35 mm from corner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
P 9363 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		600 mm max 80 mm from corner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

3.6.2 Gluing profiles

In general a 2-component PU glue is the best for gluing Twinson. To achieve the best result the instructions for using the glue must be read in detail. The guidelines for use must be followed precisely in accordance with the manufacturer's instructions.

A. GLUE TYPES

- 2-component PU-glue
- 1-component MS Polymer glue

B. STEP BY STEP BONDING PROCEDURE

Step 1:

- Rough up the surface if you glue a non-brushed side of the Twinson material or a smooth surface of another material. Typically a steel brush or sandpaper is sufficient.

Step 2:

- Degrease and clear the surface.
- The surface needs to be dust-free and grease-free.
- Attention:
 - ▶ When using the 2-component PU-glue: the applied surface must be dry.
 - ▶ When using the 1-component MS Polymer glue: moistening the surface will accelerate and improve the bond strength.

Step 3:

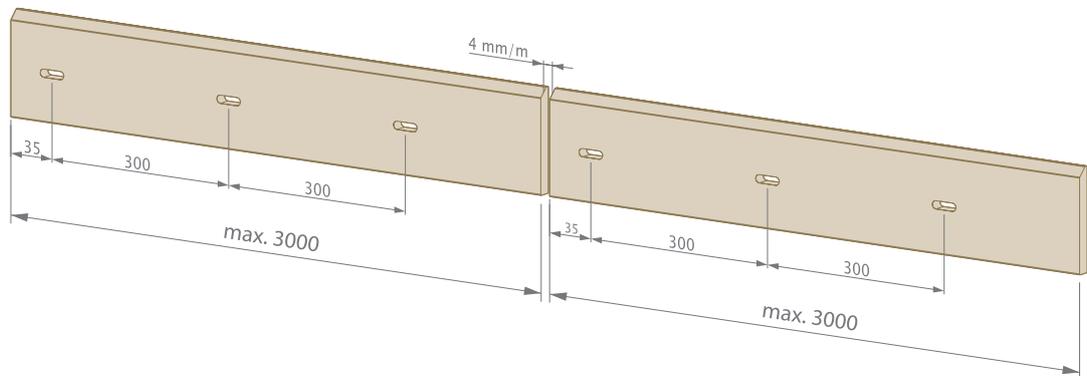
- Glue the surfaces with a 2-component PU glue or a 1-component MS Polymer.
- The entire surface of the profile must be coated with glue.

C. IMPORTANT

- Only the multifunctional profiles P9590, P9591, P9592 and the plinth P9556 can be glued.
- Gluing the Terrace planks is not allowed.

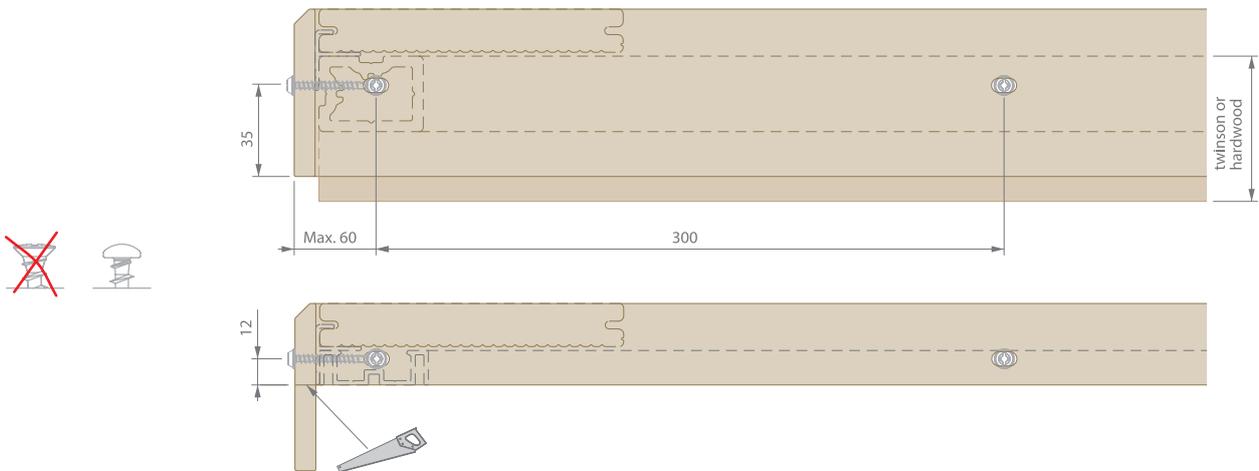
3.6.3 Plinth P9556

- The plinth is fixed with screws when using a Twinson or hardwood support beam and glued when using an aluminium support beam. The exception to this rule is P9523 aluminium support beam, here the plinth must be screwed.
- Length of plinth: max. 3 m.



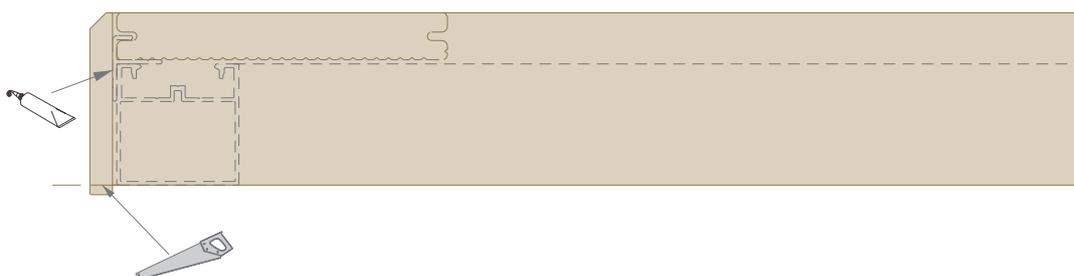
Fixing the plinth

- Pre-drilling the plinth is vital! The hole size must be larger than the diameter of the screw.
- Be sure that the plinth is fully supported whilst fitting.
- The plinth must be fitted using 1 screw every 300 mm, preferably towards the centre of the plinth.
- The first screw should be positioned max. 60 mm from the end.



Gluing the plinth

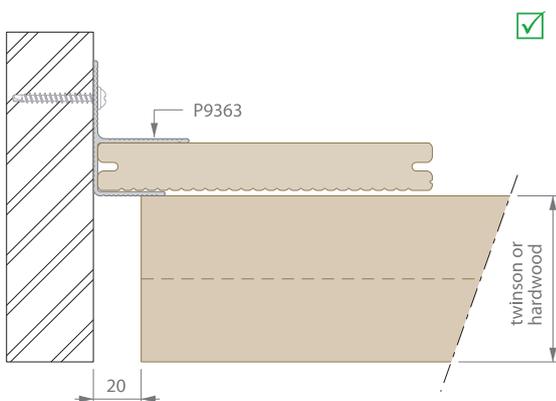
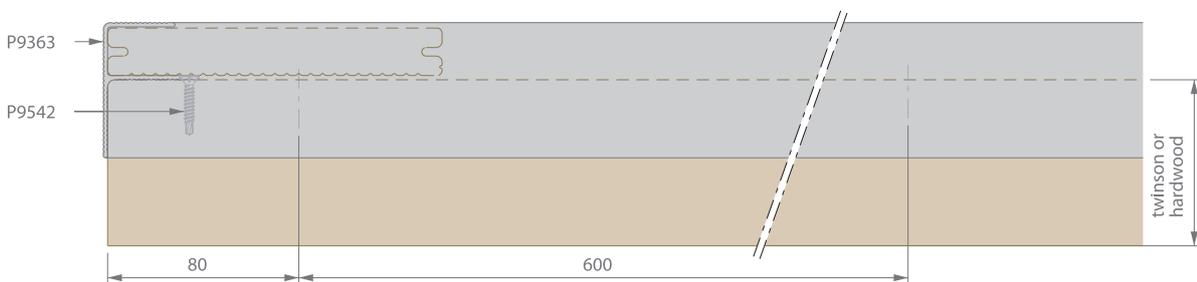
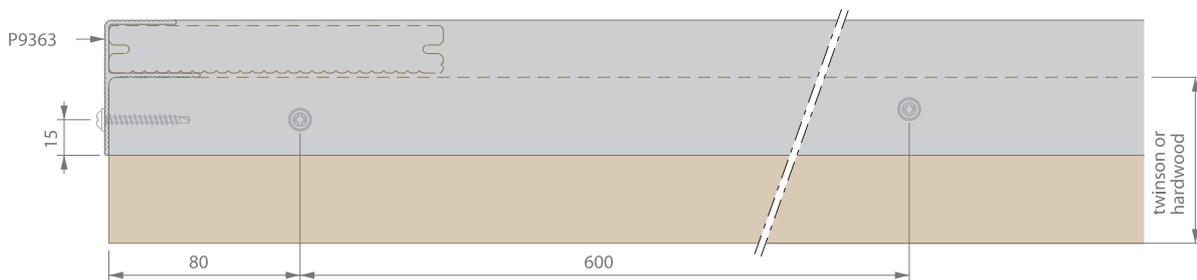
- For gluing instructions see page 68.
-



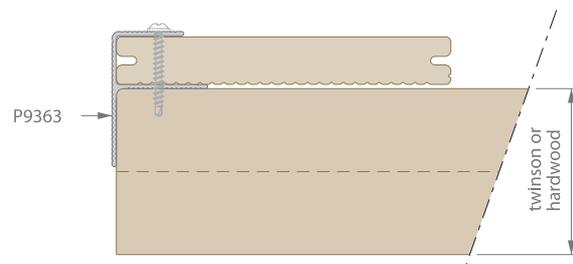
3.6.4 Aluminium finishing

- Pre-drilling the aluminium finishing profiles (P9363, P9518) and the aluminium support beam (P9523, P9522, P9524) is necessary. Use a $\varnothing 3$ mm drill suitable for metal.
- The aluminium finishing profile must be fixed every 600 mm. If using a powered screwdriver be sure to adjust the torque as this will prevent stripping the thread of the screw.
- The first screw should be positioned no more than 80 mm from the end.

A. P9363

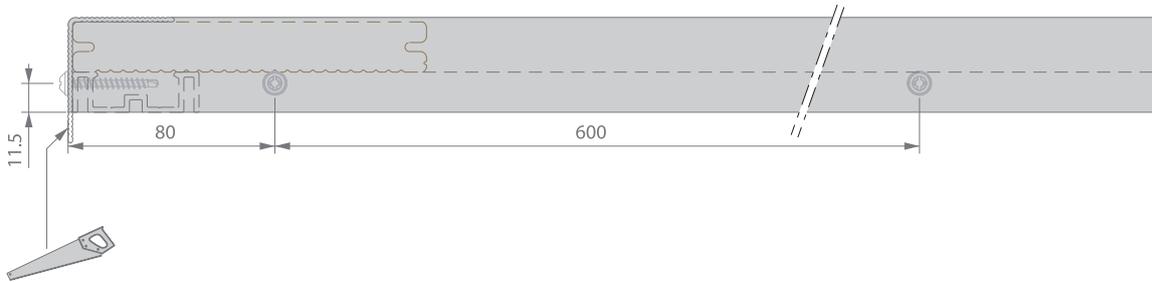


✗ SCREWING THROUGH THE TERRACE PLANKS IS NOT ALLOWED!

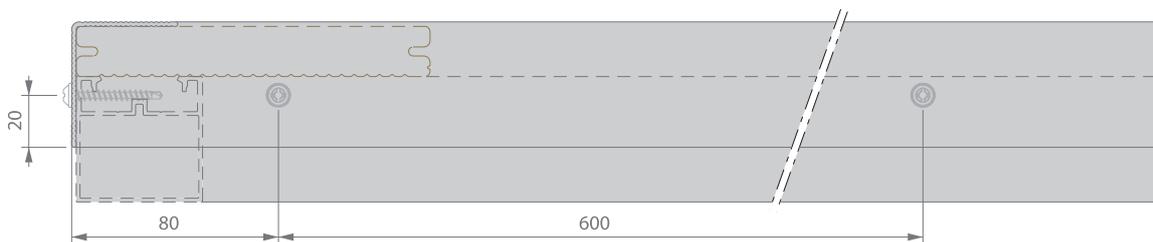


B. P 9518

- Depending on the height of the support beam, the P9518 finishing profile can be used in several different directions.
- The aluminium finishing profile can be fixed to the aluminium support beam using screws with a minimum length of 20 mm.

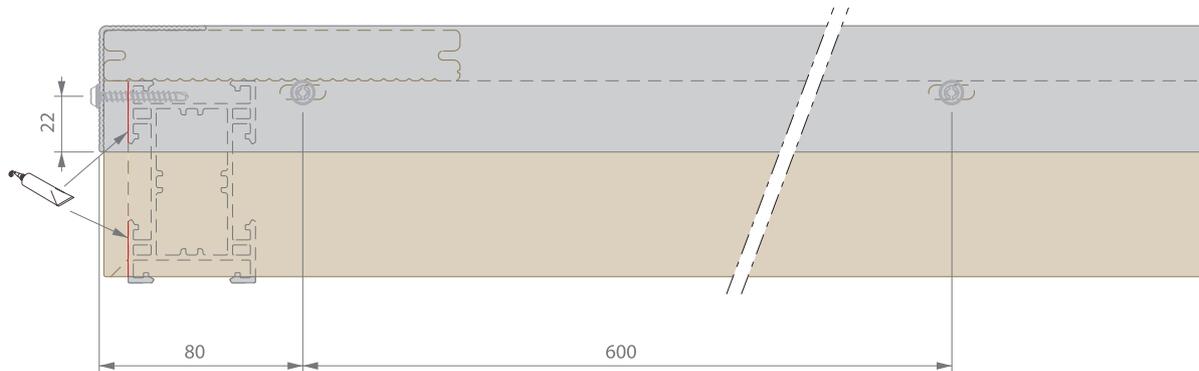


- When necessary the aluminium profile needs to be cut off in combination with the P9523 support beam.

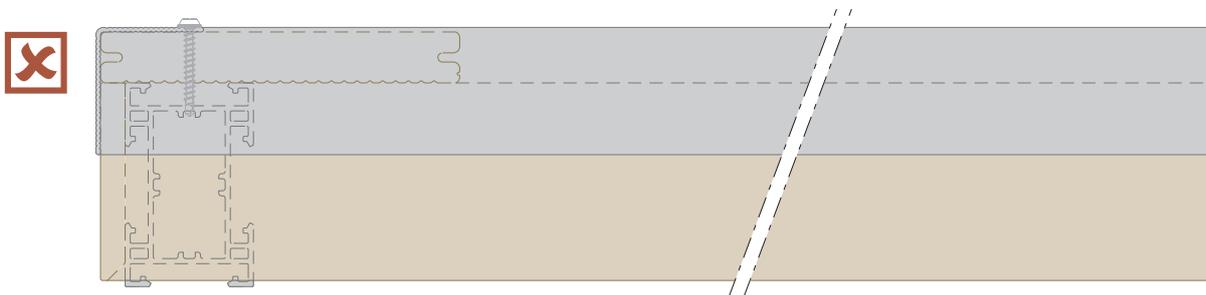


3.6.5 Combining plinth + aluminium finishing

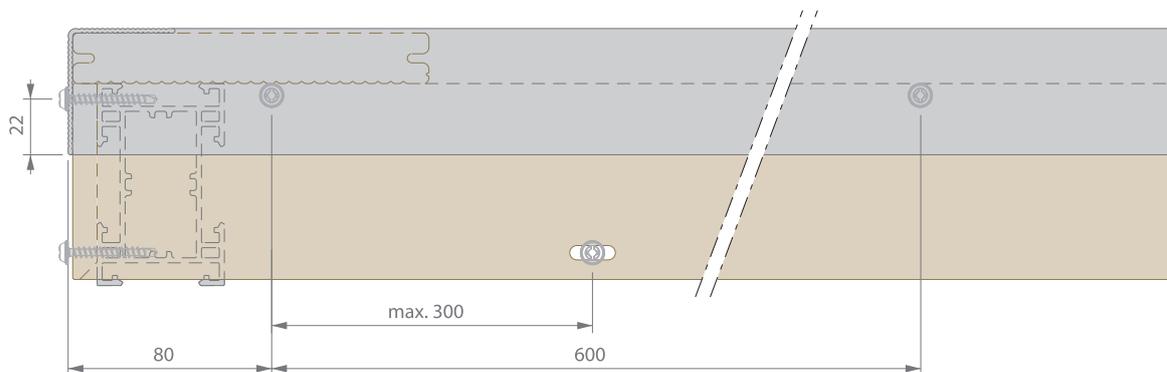
- Pre-drill the aluminium profile P9518, the plinth P9556 and the aluminium support beam.
- The plinth is glued to the support beam, remember to rough up the surface if you are gluing the non-brushed side of the Twinson material or the smooth side of another material! The whole surface of the P9556 must be glued.
- Screw the finishing profile P9518 to the plinth P9556 using SST screws with a minimum length of 20 mm.



- **Screwing through the Terrace Massive planks is not allowed!**

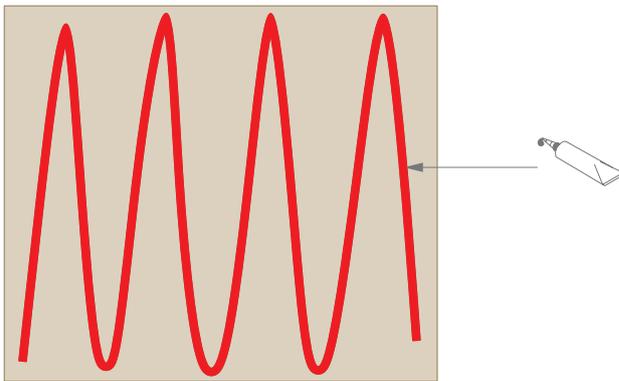
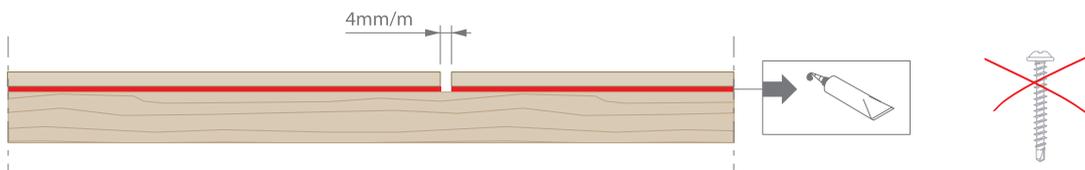


- The plinth is screwed to the support beam: see page 69.
- Pre-drilling the plinth, the aluminium support and the aluminium finishing profile is necessary.



3.6.6 P9590

- The multifunctional plank P9590 must always be fully supported.
- The whole surface of the P9590 must be glued (See page 68).
- Screwing the P9590 is not allowed.



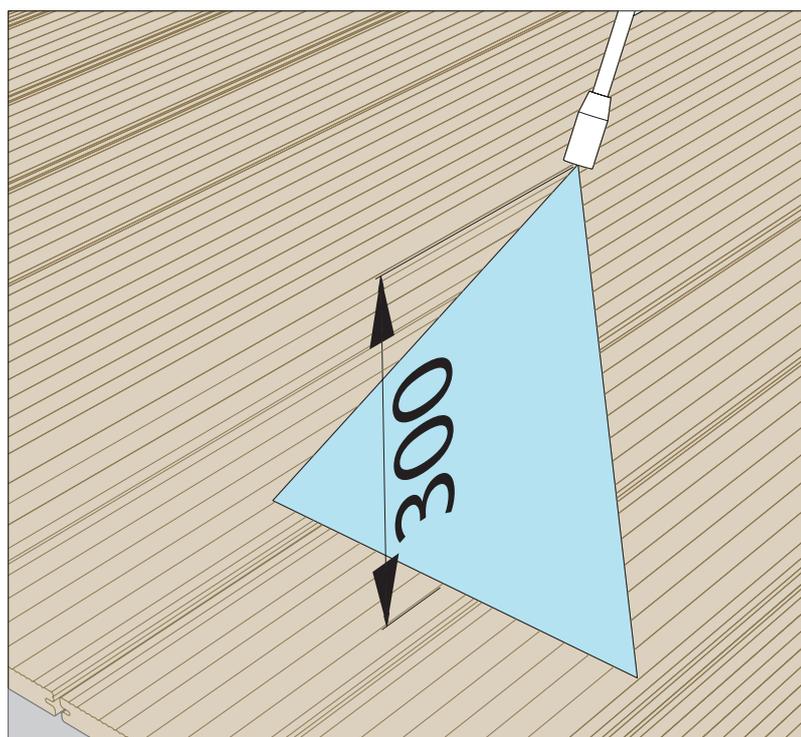
4 Maintenance

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4.1 Initial cleaning

After installation there is potential for dust build-up from sawing the planks etc. Because of this we recommend you thoroughly wash the surface. Washing should be done using a soft brush and water combined with a diluted household detergent. Spray your terrace using a garden hose or pressure cleaner (pressure cleaner nozzle should be kept 30 cm from the surface and the pressure limited to 100 bar max) rinsing each plank thoroughly and evenly in the direction of the grooves.

The build-up of static electricity is a natural occurrence for products containing PVC. The phenomenon will disappear with time should you experience it with your terrace.



4.2 General

Twinson is maintenance friendly but this does not mean maintenance free, you will therefore still need to maintain the terrace. Terrace Massive planks should be cleaned on a regular basis with a diluted liquid bleach solution; this should help prevent the build-up of any moss-like deposits. However as with any other outdoor wall or floor covering/rendering using wood, plastic or stone etc., the risk of decay from a combination of external factors, in which water often plays an important role, can occasionally occur. The surroundings, orientation, design and condition of the original building will often influence how well (or not) your wall/terrace performs. Your surroundings and orientation are not usually things you can control, if you are aware you live in an urban location near busy roads or heavy industry it may be advisable to opt for a darker colour (e.g. Liquorice black 502). Over time this colour will be less sensitive to the more pollutant of environments. The longer the period the planks are exposed to natural weathering the less susceptible they will be to staining. In particularly sheltered areas with little or no extreme pollutants, dirt can still build-up from dust and pollen etc., this is due to air pollution. When such particles come into contact with moisture, (from damp air, dew or rain), water marks can form creating clearly defined dark edged marks. In regularly weathered areas, rain will dilute these particles, washing them away naturally. To help prevent these accumulations of dirt forming, we recommend cleaning with a soft brush or sponge with lots of water (you can add a mild soap solution to clean stubborn marks). After installation avoid dragging garden furniture, outdoor grills or any sharp objects across the surface, try to keep the surface generally free of debris that could cause damage. Scratches that do appear will usually weather to a consistent colour meaning they become less visible, this is due to the products density and through colour formulation. Twinson material contains its own natural protection and therefore does not need treatment from artificial preservatives or staining products. Painting, deck sealant application or water proofing is also not necessary, if applied these products will not bond effectively to the surface and will eventually flake off. Use of any of these types of products is not covered by the Twinson warranty.

All decking material and wood-composite products are expected to experience some level of weathering over time. During the first 12 weeks of exposure to the elements, Twinson will typically weather to a slightly lighter shade from the original colour. This process is a result of a combination of water absorption in the wood fibres and UV stabilisation at the surface of the planks. Close inspection shows that this colour change or fading is due to the natural bleaching of the wood fibres. After this initial acclimatising, any colour change will be less visible.

4.3 Cleaning and care

Cleaning with a pressure cleaner is allowed if the instructions for use are followed and the applied pressure is not higher than 100 bar. Adopt a minimum distance of 30 cm and move the waterjet in the direction of the grooves and prevent the use of circular jet movements.

Remove burrs and/or scratches :

- Remove burrs with a steel brush, sand paper or steel wool
- Always work in the direction of the grooves
- Remove dust after treatment



Ice and snow:

- Calcium chloride or rock salt which is available in many DIY centres will melt on Twinson decking. When possible, rinse away, do not let it soak in. Remember, any marks should be removed as soon as possible using lots of water, a sponge and a mild cleaning product where applicable.
- Use caution when removing snow or ice with a shovel, use a snow shovel not a metal shovel as this may scratch the deck. Damage of this nature is not covered by the Twinson warranty.

Burn spots:

- Rub the surface lightly with fine abrasive paper, a wire brush or steel wool.
- Always work in the same direction as the grooves to minimise damage to the surface.

Food debris:

- Use a pressure cleaner, eventually rubbing aggressively using a diluted liquid bleach solution

Paints (synthetic and water based):

- Carefully remove as much paint as possible using a filling knife or something similar
- Rub the surface lightly with fine abrasive paper, a wire brush or steel wool.
- Always work in the same direction as the grooves to minimise damage to the surface.

Vegetable, animal or other fats and oils:

- Use O-Clean P9545: spray the product over the affected area and rub it in. Leave to allow cleaner to work.
- Rinse thoroughly with lots of water
- P9545 comes in a 200ml bottle (12 per box)

The use of the following Deceuninck cleaning products is prohibited!

- PVC Cleanup P956
- PVC Protect P960
- Decoclean P961
- PVC Cement Wipe-off P965

Consult the chemical resistance and cleanability document if marks have not disappeared or dried immediately. For each generic name there are different products that demand special cleaning instructions. Twinson material has been extensively tested on a large number of products that it may come into contact with during its application. There are 3 categories:

- Is resistant to: This product type leaves no permanent mark on the material or the stain disappears in a short space of time after outside exposure.
- Is less resistant to: This product type leaves a light mark on the material.
- Is not resistant to: This product type leaves marks on the material that remains clearly visible.

resistant to	less resistant to	not resistant to
Floor cleaning soap + water	Butter	Silicone (= a silicone based sealant)
Concentrated bleach solution (chlorinated water)	Milk	Acrylic paint
Concentrated ammonia	Sun Cream	Synthetic paint
Road Salt (for icy roads)	Vinegar	Shoe polish
Weed killer	Red wine	Felt-tip
Household product used to clean windows (e.g. Instant)	Ketchup	Deceuninck cleanup
White Spirit	Candle Wax	Lipstick
Chlorinated water used in swimming pools	Cement Cleaner	PVC glue
Dish washing detergents (e.g. Dreft)		Strong acids
Coffee		Strong bases
Fruit juice		Acetone
Coca cola		
Drinking chocolate		
Chalk		
Isobutadine		
Silicone Oil (= a silicone based lubricant)		
Fuel Oil (diesel & petrol)		
Lubricants based on petrol derived products (liquid & solid)		
Cement		
Synthetic thinner		
Graffiti cleaner		

Cleanability Twinson material:

generic name	product	special cleaning instructions if not removed immediately (*)
Vegetable, animal and other fats & oils	Butter	Spray O-CLEAN on the mark and rub if desired. Leave to act for a few minutes, then rinse with large quantities of water.
	Milk	
	Yoghurt	
	Olive oil	
	Salad oil	
	Fondue oil	
	Mayonnaise	
	Cocktail sauce	
	Frying oil	
	Sun cream	
	Lubricant	
	Motor oil	
	Petrol	
	Heating oil	
...		
Burns	Cigarettes	Lightly sand surfaces with fine sandpaper, a steel brush or steel wool (**).
	Charcoal	
Stubborn food residues	Ketchup	Scrub well with a diluted bleach solution, then rinse with large quantities of water.
	Tomato puree	
	Spaghetti sauce	The use of a pressure washer (***) is recommended to remove stubborn residues.
	Red wine	
	Fruit	
	Instant soup	
...		
Sugar-containing soft drinks	Coca cola	Scrub well with a diluted bleach solution, then rinse with large quantities of water.
	Fruit juice	
	Soft drinks	The use of a pressure washer (***) is recommended to remove stubborn residues.
	...	
Hot drinks	Coffee	Scrub well with a diluted bleach solution, then rinse with large quantities of water.
	Tea	
	...	The use of a pressure washer (***) is recommended to remove stubborn residues.
General cleaning products	Floor cleaning soap	---
	Bleach solution	
	...	
Special cleaning products	Cement cleaner	Scrub well with a diluted bleach solution, then rinse with large quantities of water.
	Deceuninck cleanup	Lightly sand surfaces with fine sandpaper, a steel brush or steel wool (**).
	Graffiti cleaner	Lightly sand surfaces with fine sandpaper, a steel brush or steel wool (**).
	O-clean	---

generic name	product	special cleaning instructions if not removed immediately (*)
Organic solvents	Acetone	Lightly sand surfaces with fine sandpaper, a steel brush or steel wool (**).
	MeCl	
	MEK	
	Trichloroethylene	
	Isopropanol	
	Tetrahydrofuran	
	Diethyl ether	
...		
Acids	Sulphuric acid	Lightly sand surfaces with fine sandpaper, a steel brush or steel wool (**).
	Niric acid	
Bases	Caustic soda	Lightly sand surfaces with fine sandpaper, a steel brush or steel wool (**).
	Ammonia	
Paint	Water-baed	Remove paint with a filling knife and lightly sand surfaces with fine sandpaper, a steel brush or steel wool (**).
	Synthetic	
Hardened materials	Silicone	Repeated treatment with O-CLEAN If this treatment is unsuccessful, remove material with a filling knife and lightly sand surfaces with fine sandpaper, a steel brush or steel wool (**).
	Glue	
	Candle wax	

(*) If certain marks have not been removed immediately for any reason, they may dry on the surface. They typically fade or disappear after exposure to outside conditions (sun and water).

(**) Sand in the direction of the grooves to prevent unnecessary damage to the surface. By removing the upper layer the original colour as established at installation is acquired. This minor difference will be rectified after no more than 12 weeks by which time the colour will be uniform.

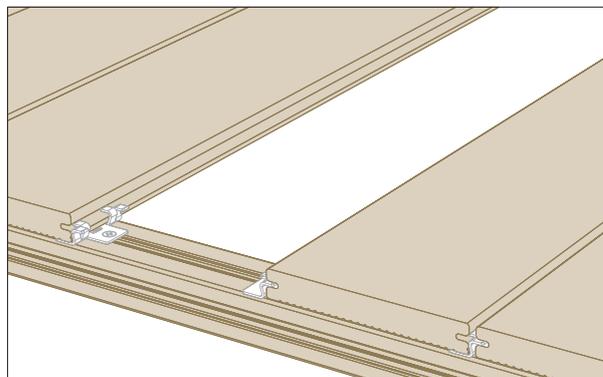
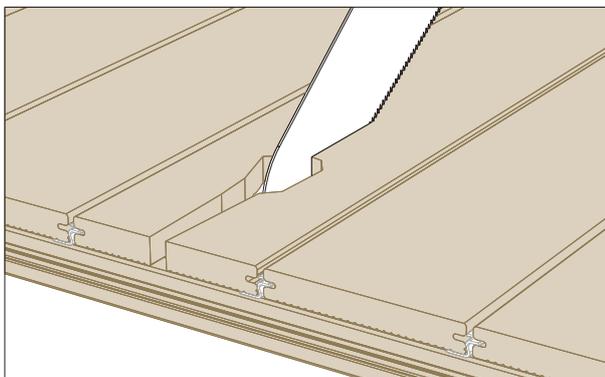
(***) Pressure washer (max 100 bar) combined where needed with a mild cleaning product. Always use the water jet in the direction of the grooves, avoiding any turning movements.

Note: This must be set on single stream setting and not on multi stream.

4.4 Replacement

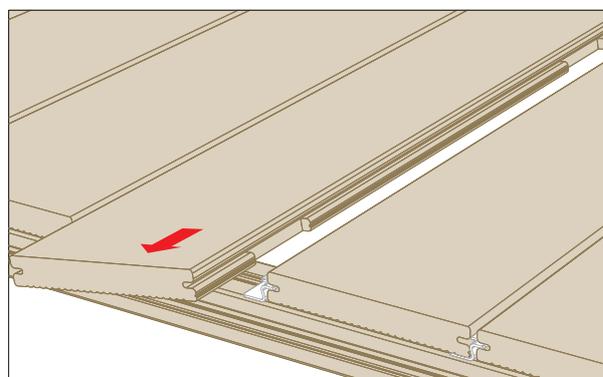
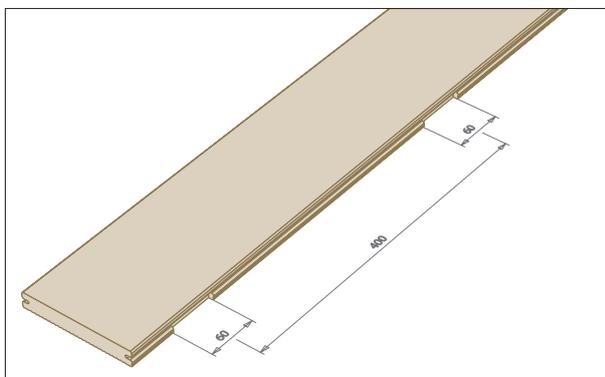
STEP 1

Cut the Terrace plank to be replaced into two pieces along its length so it can be easily released.



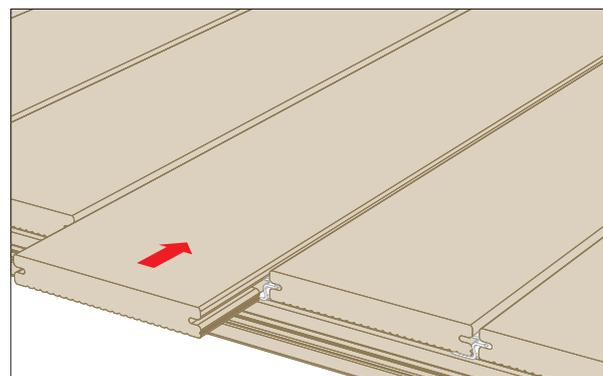
STEP 2

Place the new Terrace plank in its final resting position. Now shift the plank 60mm in the direction of the adjacent planks. Mark the position of the hook of the clip. The marking should be on one side of the Terrace plank on the lower lip or flange. Remove the new Terrace plank and cut away the lip of the new plank where you have marked so the new Terrace plank can slide over the hook of the clip.



STEP 3

Lay the Terrace plank flat by lining up the saw cuts with the hooks of the clips. Finally shift the Terrace plank 60mm to the correct position.



Your Deceuninck partner

All Deceuninck certified partners are part of a professional dealer network with a focus on craftsmanship and service. This network is your guarantee of correct installation and the highest quality support, further enhancing the value of your Deceuninck product.



Windows & Doors

Quality in harmony with smart universal colours. Comfort. Space. Security. Exclusivity. An elegant design. The innovative window and door system gives you all.

Outdoor Living

Low maintenance and durable terrace. Enjoy all aspects of your house and garden with family, friends and neighbours.

Roofline & Cladding

An aesthetically pleasing collection of roofline accessories and cladding can enhance any property and add value with durability and style.

Interior

Durable and stylish window boards are easy to install. Our range of innovative interior profiles combine functionality with aesthetically pleasing design.



At Deceuninck, our commitment towards innovation, ecology and design provides us with a clear focus: building a sustainable home. A home that is more energy-efficient to live in and more attractive to look at. Deceuninck works worldwide with state-of-the-art materials, resulting in low maintenance, top insulating and long lasting products that can be fully recycled at end of life. Moreover, our values help us build a better world for our partners and end users. Deceuninck sets the first step by building a sustainable home.



Building a sustainable home

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