

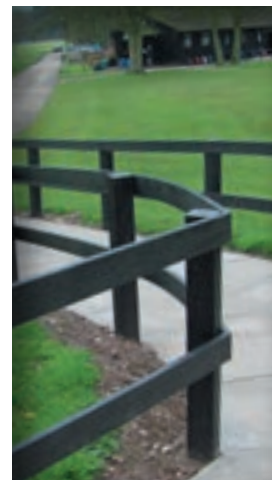


## FENCING SPECIFICATION GUIDE



**hanit**<sup>®</sup>  
100% RECYCLED PLASTIC

- Maintenance Free
- Easy Installation
- Durable & Vandal Resistant
- Splinter Free
- Aesthetically Pleasing
- 100% Recycled & 100% Recyclable



**HAHN**  
**PLASTICS**  
LIMITED



# What is hanit®?

hanit® is a family of highly engineered blends of recycled plastics, manufactured by Hahn Plastics UK Ltd, part of the Hahn Group. Hahn Kunststoffe GmbH has been the leader in the development and manufacture of outdoor technical products for over 20 years.

hanit® is a unique blend of recycled plastics carefully formulated to offer the appropriate balance of properties for fencing applications. hanit® formulations are a mixture of polyolefin compounds, which consist of hydrocarbons and contain no softeners, chlorides, cadmium or other additives. They are inert and safe to use in sensitive environmental applications.

hanit® is a mixed polymer composite combining the stiffness of polystyrene with the impact resistance of polythene. Manufactured with Hahn's unique patented process, hanit® boasts of a wide range of advantages over traditional materials such as wood, metal, concrete and virgin plastics, offering a cost effective high performance solution over a lasting product life time.

## hanit® Benefits

- Maintenance Free
- Easy Installation
- Durable & Long Lasting
- Splinter Free
- Aesthetically Pleasing
- Weather Resistant
- Light Weight
- 100% Recycled & 100% Recyclable



# hanit® Technical Data

Test	EN Standard	Result			hanit® Quality 1	hanit® Ultra
3 Point Bend	DIN EN ISO 178	Flexural Stress	-5°C	MPa	21.2	35.1
		Bending E-Modulus	-5°C	MPa	1,289	2,261
		Flexural Stress	+23°C	MPa	11.6	24
		Bending E-Modulus	+23°C	MPa	581	1,424
		Flexural Stress	+65°C	MPa	4.6	16.5
		Bending E-Modulus	+65°C	MPa	162	856
Tensile	DIN EN ISO 527-2	Strength	-	MPa	9.65	15.6
		Elongation	-	%	13.8	1.7
		Tensile E-modulus	-	MPa	659	1,490
Timed Tensile	DIN EN ISO 899-1	Tensile E-modulus	1 hour	MPa	316	1,043
		Tensile E-modulus	24 hours	MPa	-	975
		Tensile E-modulus	100 hours	MPa	202	852
Timed 3 Point Bend	DIN EN ISO 899-2	Bending E-Modulus	1 hour	MPa	380	1,159
		Bending E-Modulus	24 hours	MPa	271	943
		Bending E-Modulus	100 hours	MPa	235	816
Pressure Characteristics	DIN EN ISO 604	Compression Strength	1% Stretch	MPa	1.8	2.5
		Compression Strength	2% Stretch	MPa	3.3	5.3
		Compression Strength	10% Stretch	MPa	13.3	27.9
		Compression Strength	20% Stretch	MPa	18.2	-
		Compression Strength	At yield	MPa	-	29.0
		Pressure E-Modulus	-	MPa	271	815
Charpy Test	DIN EN ISO 179	Impact Resistance	-	kJ/m <sup>2</sup>	412	12
Impact Shore Hardness	DIN EN ISO 868	Shore Hardness	-	-	53	62
Density Test	DIN EN ISO 1183-1	Density	-	g/cm <sup>3</sup>	1.0062	1.0529
Water Absorption	DIN EN ISO 62	+23°C, 50% R.I	-	%	<1	<1
		+23°C in water	-	%	<1	<1
		+100°C in water	-	%	<1	<1
Resistance	DIN IEC 60093 <sup>4</sup>	Surface Resistance	-	Ω	3.2 x 10 <sup>13</sup>	1.5 x 10 <sup>14</sup>
		Specific Surface Resistance	-	Ω	3.2 x 10 <sup>14</sup>	1.5 x 10 <sup>15</sup>
		Flow/Contact Resistance	-	Ω	9.0 x 10 <sup>13</sup>	>2.0 x 10 <sup>14</sup>
		Specific Flow/Contact Resistance	-	Ω	4.5 x 10 <sup>14</sup>	>8.4 x 10 <sup>14</sup>
		Resistance	-	Ω	-	-
Ball Striking Test	DIN EN ISO 2039-1	Ball Striking Hardness	-	N/mm <sup>2</sup>	18.44	39.52
Thermal Expansion	-	Coefficient of Thermal Expansion	-	1 / °C	0.00018993	0.0001510648
Screw Pull Out Force	-	Drilled Material	-	N	7,500	8,230
		Non Drilled Material	-	N	7,500	8,140



hanit® fencing makes aesthetically pleasing boundaries with the added benefits of a long lasting product lifetime and no maintenance such as painting or staining. It is solid, strong, impact resistant and chemical resistant,

which makes it virtually vandal proof. It is a highly attractive and cost effective fencing option for commercial contracts in general and specifically for sectors such as education, local authorities and housing associations.

### Durable & Vandal Resistant

- Formulated for strength, durability and stability
- Typical lifetime up to 50 years
- Resistant to chemicals such as cleaning products, oils and greases; graffiti can be easily cleaned off

### Aesthetically Pleasing

- Brown & black
- Natural & smooth finish
- A variety of sizes and pale top styles

### No Maintenance

- Weather resistant and non-rotting
- Waterproof and mould resistant
- No painting, staining or regular treating required

### Easy Installation

- Light weight
- Easily cut, screwed and bolted on site

### Reduced Life Costs

- Maintenance free
- Over the course of a fence's lifetime, hanit® may cost only half of that of timber

### Eco-Friendly

- 100% recycled and recyclable
- Inert and safe to use in any environment, including sensitive nature reserves



# Comparison of Fencing Types

## hanit® Ultra versus Wood

Fencing Material/ Properties	hanit® Fencing	Wood - Oak	Wood - Pine
Lifetime	30 to 50 years	5 to 15 years	5 to 15 years
Strength MPa*	30	30	18
Material Density g/cm <sup>3</sup>	1.05	0.64	0.37
Recycled Material	Yes	No	No
Regular Painting/ Staining/Treatment	No	Yes	Yes
Cleaning	Can be easily cleaned. Water and chemical resistant	Absorbs chemicals & moisture	Absorbs chemicals & moisture
End of Life Recyclability	Recyclable	Rot/Landfill	Rot/Landfill
Colours	Brown & black	Various (stained colours)	Various (stained colours)

## hanit® Ultra versus Other Plastic Materials

Fencing Material/ Properties	hanit® Fencing	Polyethylene	Polystyrene	Wood Plastic Composite (WPC)	PVC/ Vinyl
Lifetime	30 to 50 years	30 to 50 years	30 to 50 years	10 to 25 years	30 years
Form	Solid	Solid/hollow	Foamed	Solid/hollow	Hollow/ foamed
Strength MPa*	30	16	30	34	39
Workable Like Wood	Yes	Yes	Yes	Some forms	No (Preformed)
Impact Resistance	Good	Good	Brittle	Tending to be brittle	Hollow section makes it weak
Cleaning	Good	Good	Poor resistance to solvents	Depends on matrix. 3% absorption	Limited resistance



# Whole Life Cost

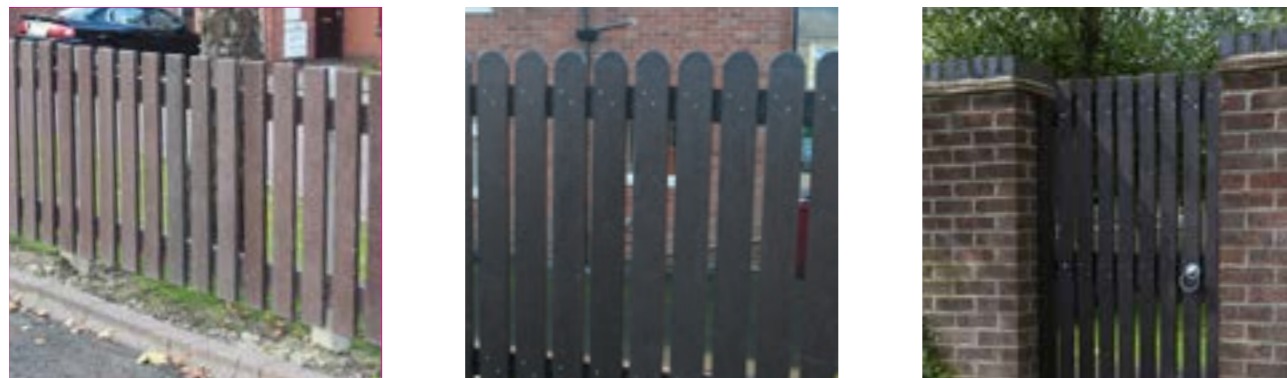
## What is "Whole Life Cost"?

When considering an investment in any long term outdoor fixture, it is important to consider the whole life cost of the product you choose.

This means looking at more than just the price-tag on the individual items. The cost of installation, maintenance, replacement and even disposal of the item over the course of the time it will be in place also needs to be considered.

## Why Choose Fencing Made from hanit®?

Although hanit® recycled plastic fencing may be more expensive to install than timber, over the course of a fence's lifetime, timber could be up to twice the cost of hanit®. This is because the timber needs to be treated every couple of years and even then will still need to be replaced on a 10-15 year cycle. In comparison, hanit® fencing requires no treatment once it is installed.



## Cost of hanit® versus Timber

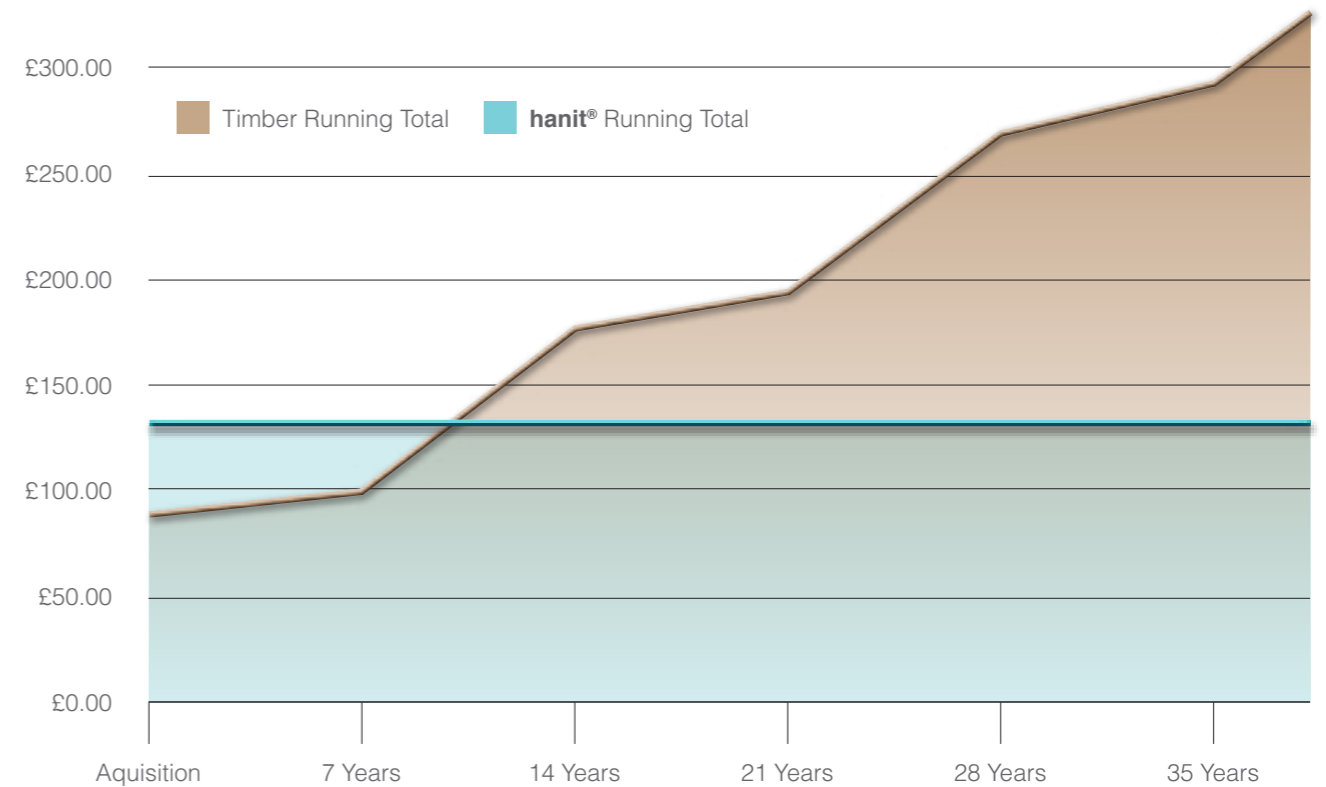
Cost of hanit® Versus Timber per Linear Metre	hanit®	Treated Timber
Cost per Linear Metre*	£53.03	£19.00
Cost of Intallation per Linear Metre*	£81.00	£62.00
Replacement Period	N/A	14 years
Cost of Maintenance per Linear Metre*	N/A	£13.00
Maintenance Period	N/A	7 years

\*2015 prices

## Cost of hanit® versus Timber (per Linear Metre)

Life of Fence	Aquisition	7 Years	14 Years	21 Years	28 Years	35 Years
Period Cost of hanit®*	£134.03	£0.00	£0.00	£0.00	£0.00	£0.00
hanit® Running Total*	£134.03	£134.03	£134.03	£134.03	£134.03	<b>£134.03</b>
Maintenance/Replacement	-	Maintain	Replace	Maintain	Replace	Maintain
Period Cost of Timber*	£81.00	£13.00	£81.00	£13.00	£81.00	£13.00
Timber Running Total*	£81.00	£94.00	£175.00	£188.00	£269.00	<b>£282.00</b>

\*2015 prices

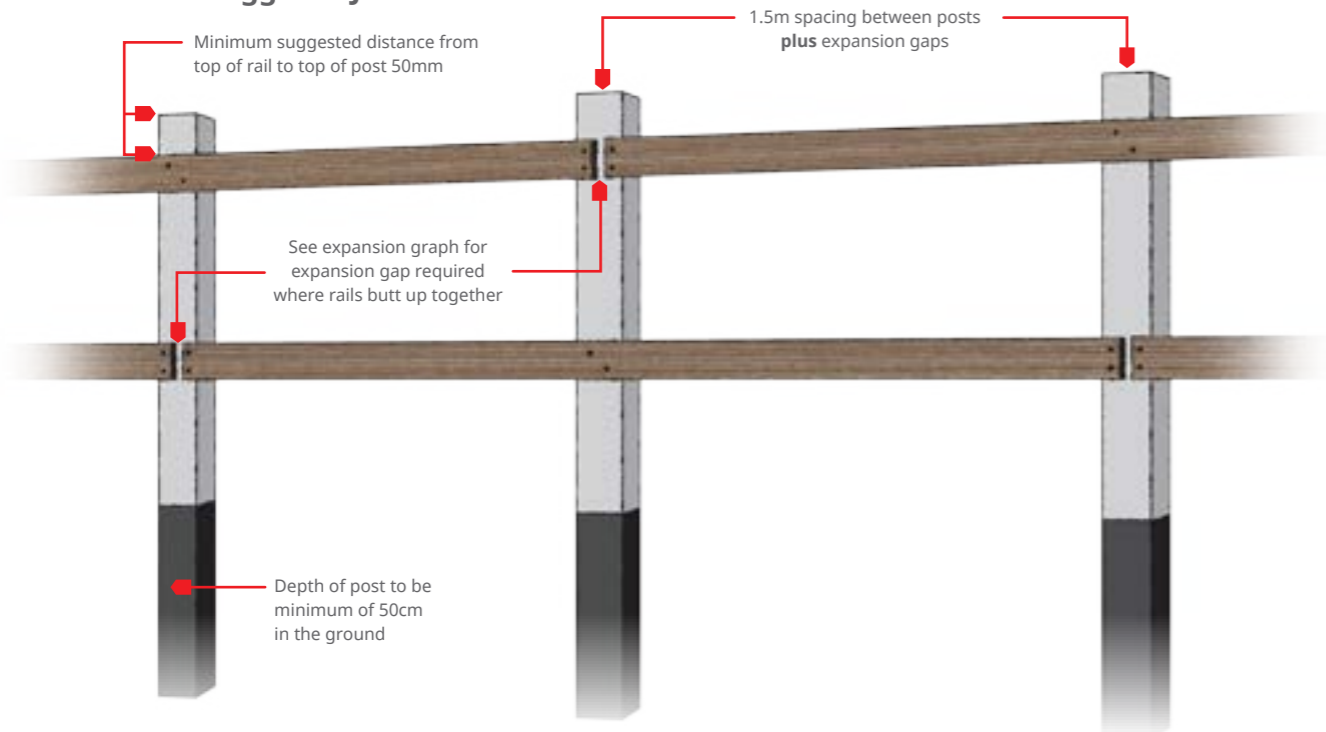


# Fencing Profiles Post and Rail

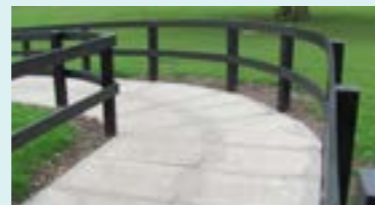
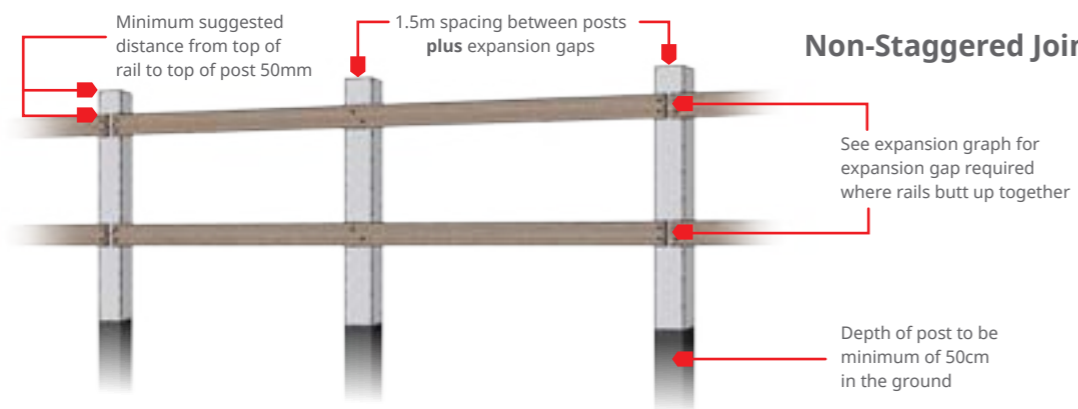
## Post and 2 Rail Components

Height	Post	Rails	Colour
100cm	10 x 10 x 150cm	5.0 x 10 x 300cm	Brown & Black

### Staggered Joints



### Non-Staggered Joints



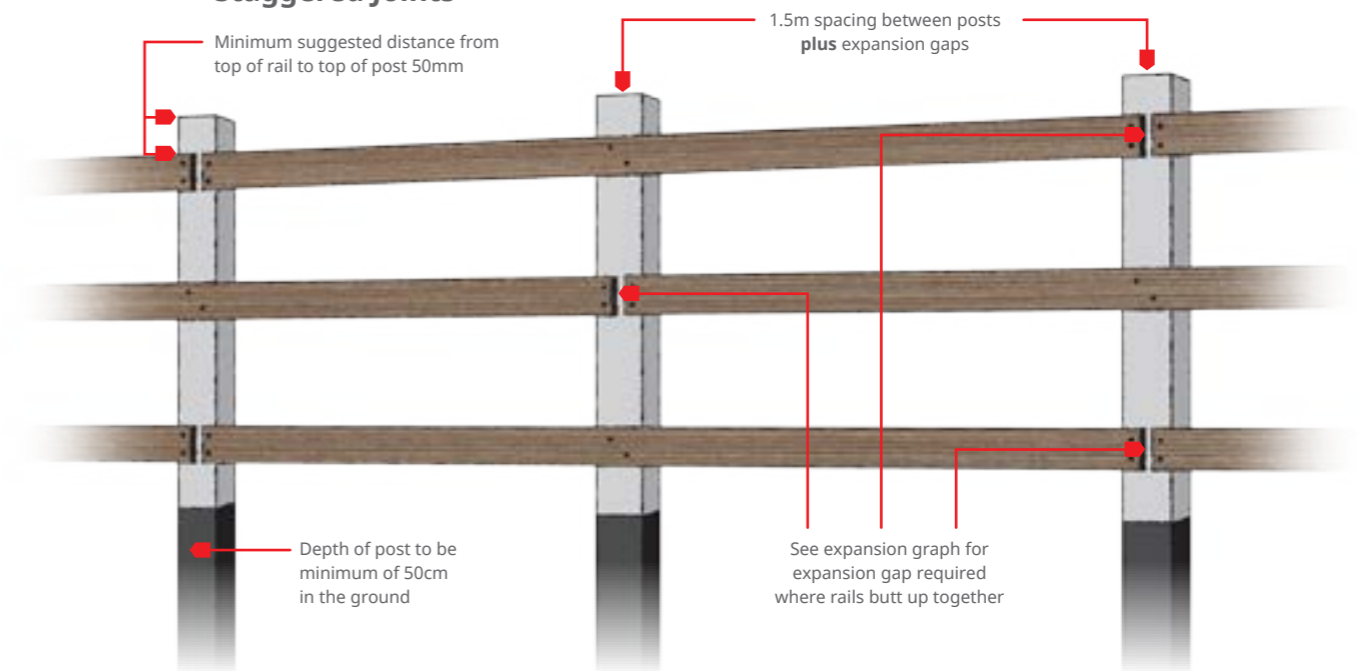
# Fencing Profiles Post and Rail

## Post and 3 Rail Components

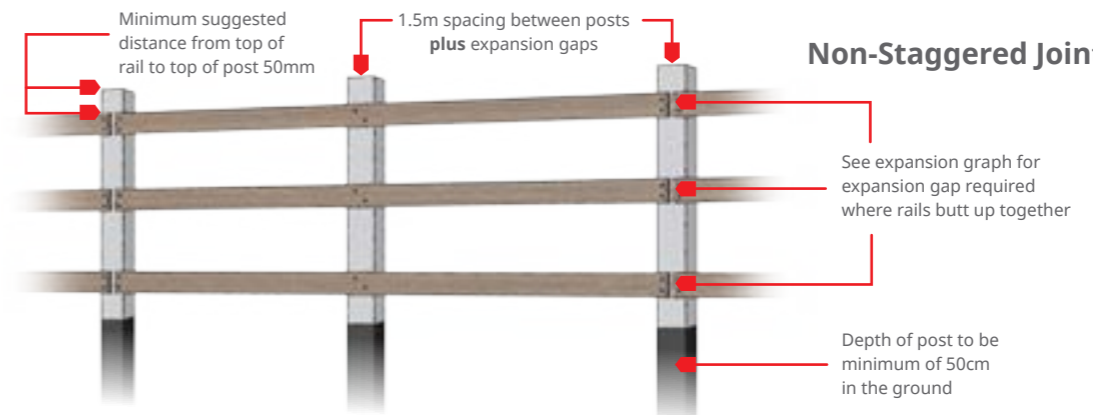
Height	Post	Rails	Colour
125cm	10 x 10 x 175cm	5.0 x 10 x 300cm	Brown & Black



### Staggered Joints



### Non-Staggered Joints



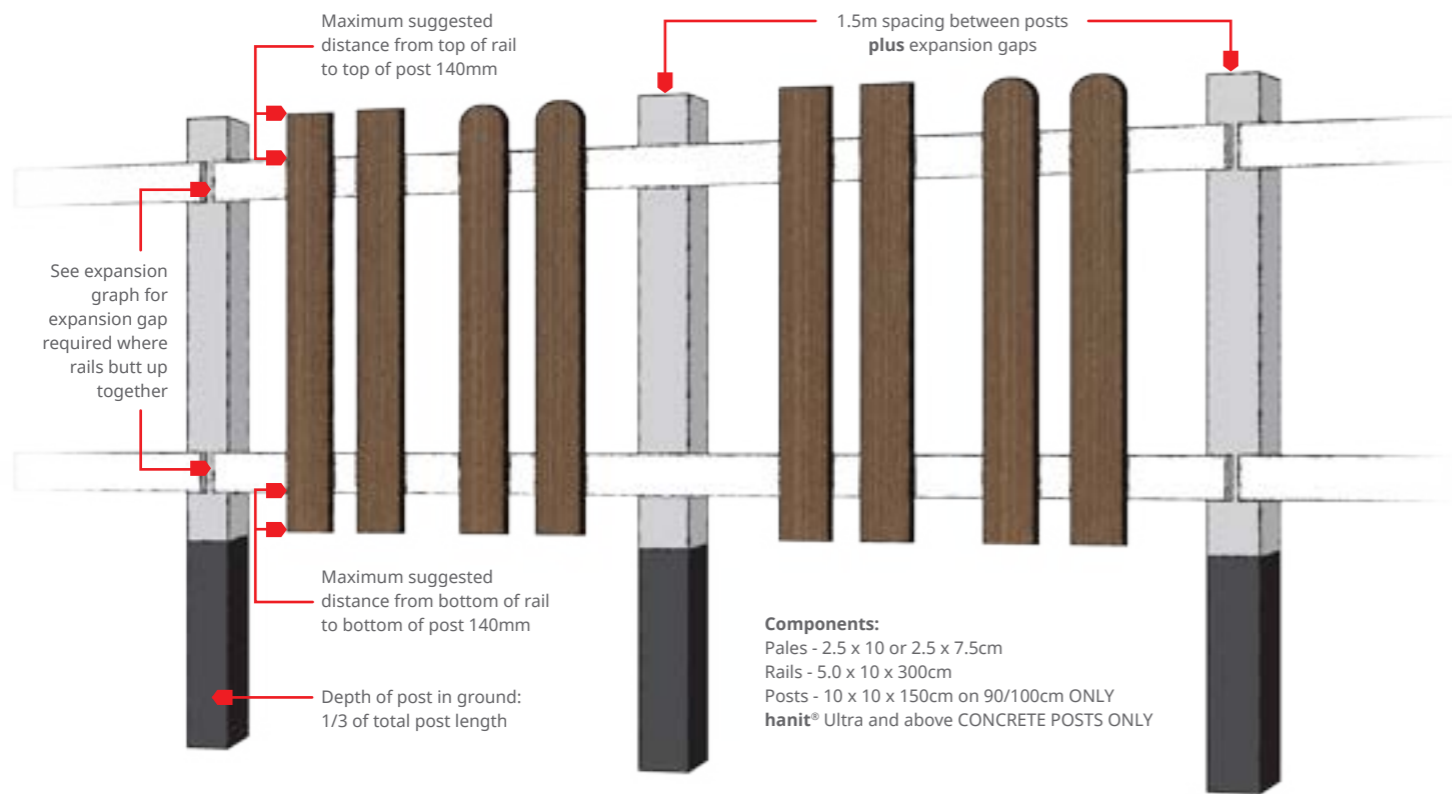


# Fencing Profiles 90cm & 100cm High

Detailed below are the most popular hanit® profile options for fencing applications. For all available options please see the Hahn Product Catalogue.

## 90cm & 100cm High Fencing Components

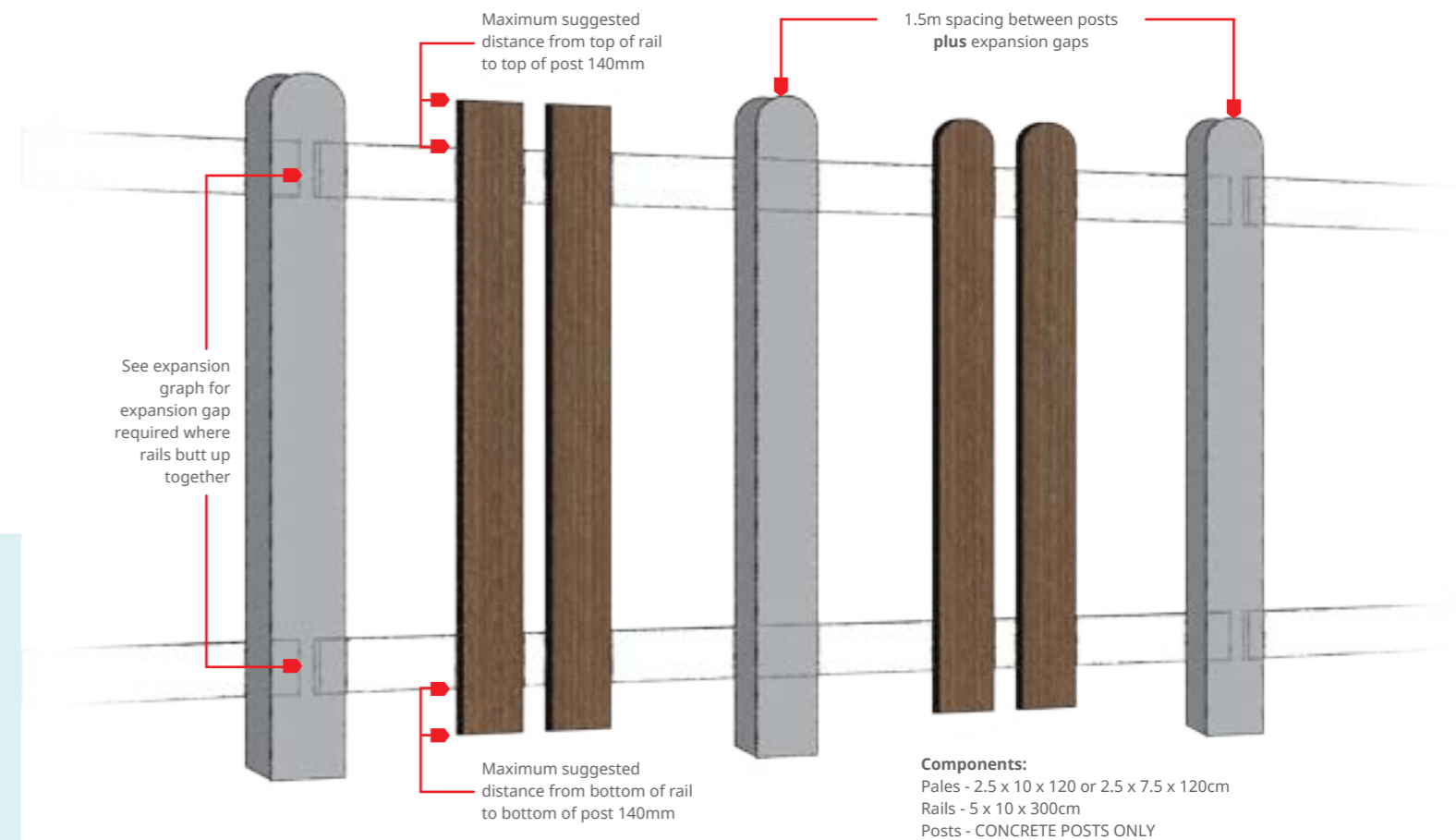
Height	Pales	Top	Rails	Posts	Colour
90cm	2.5 x 7.5cm	-	5.0 x 10 x 300cm (2 per panel)	10 x 10 x 150cm	Brown & Black
	2.5 x 10cm				
100cm	2.5 x 7.5cm	-	5.0 x 10 x 300cm (2 per panel)	10 x 10 x 150cm	Brown & Black
	2.5 x 10cm	-			



# Fencing Profiles 120cm High

## 120cm High Fencing Components

Height	Pales	Top	Rails	Posts	Colour
120cm	2.5 x 10cm		5.0 x 10 x 300cm (2 per panel)	Concrete	Brown & Black

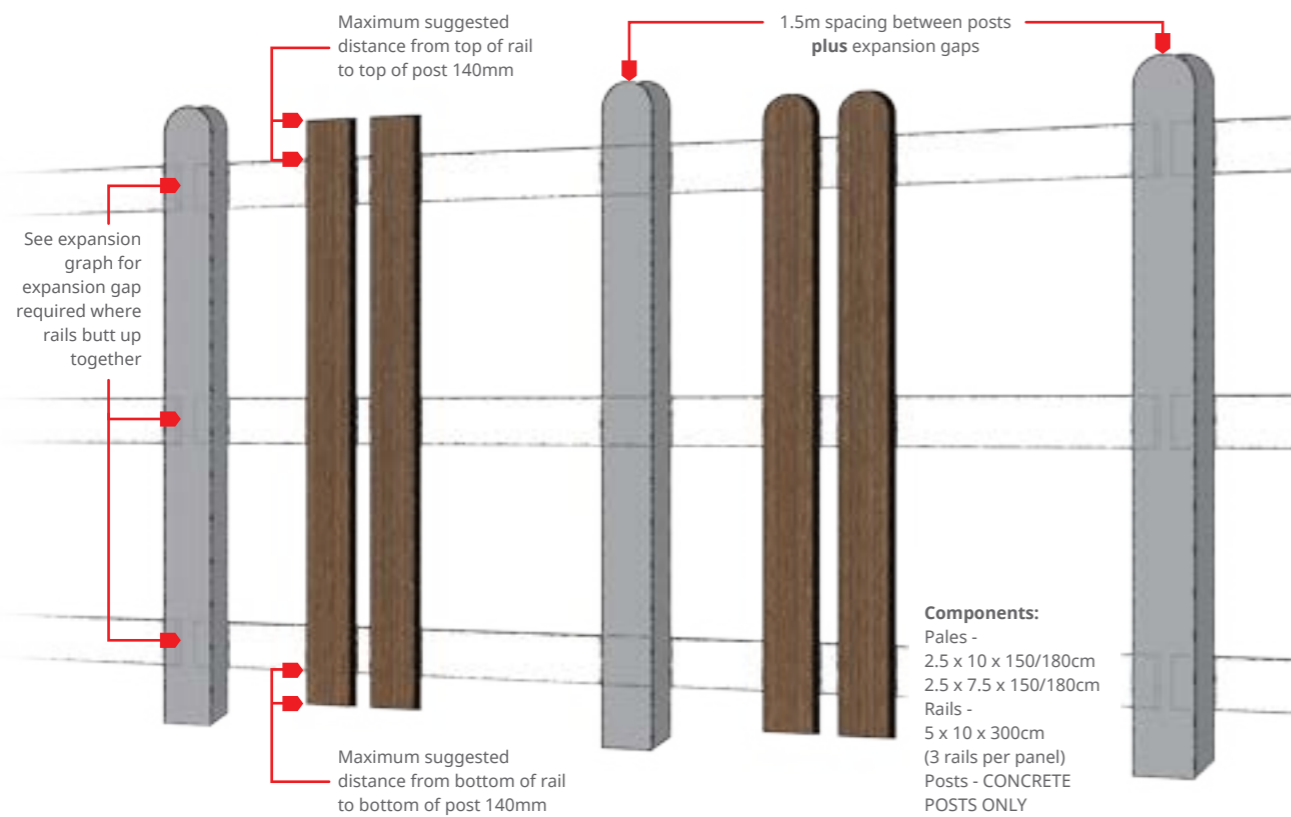




# Fencing Profiles 150cm & 180cm High

## 150cm & 180cm High Fencing Components

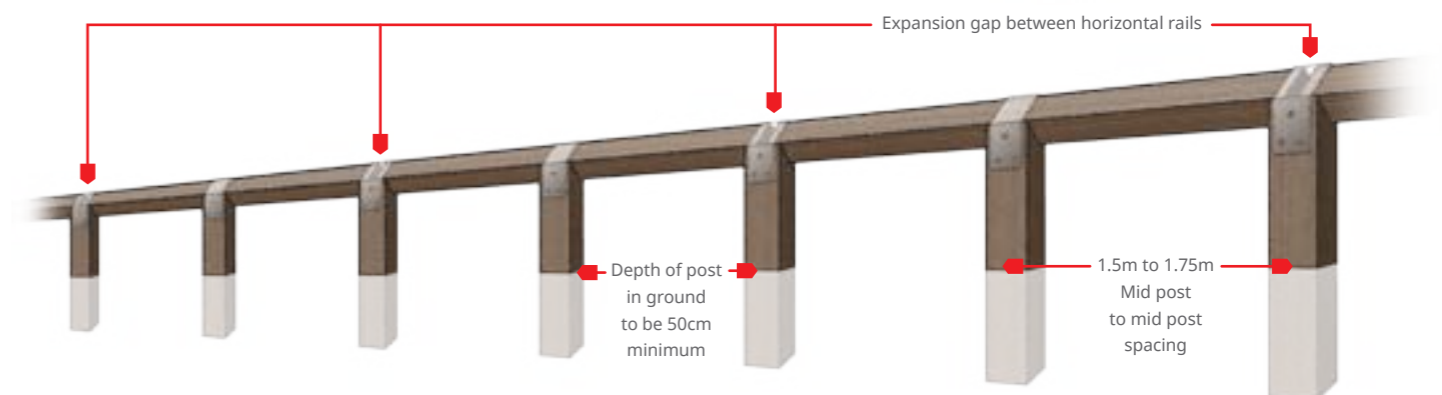
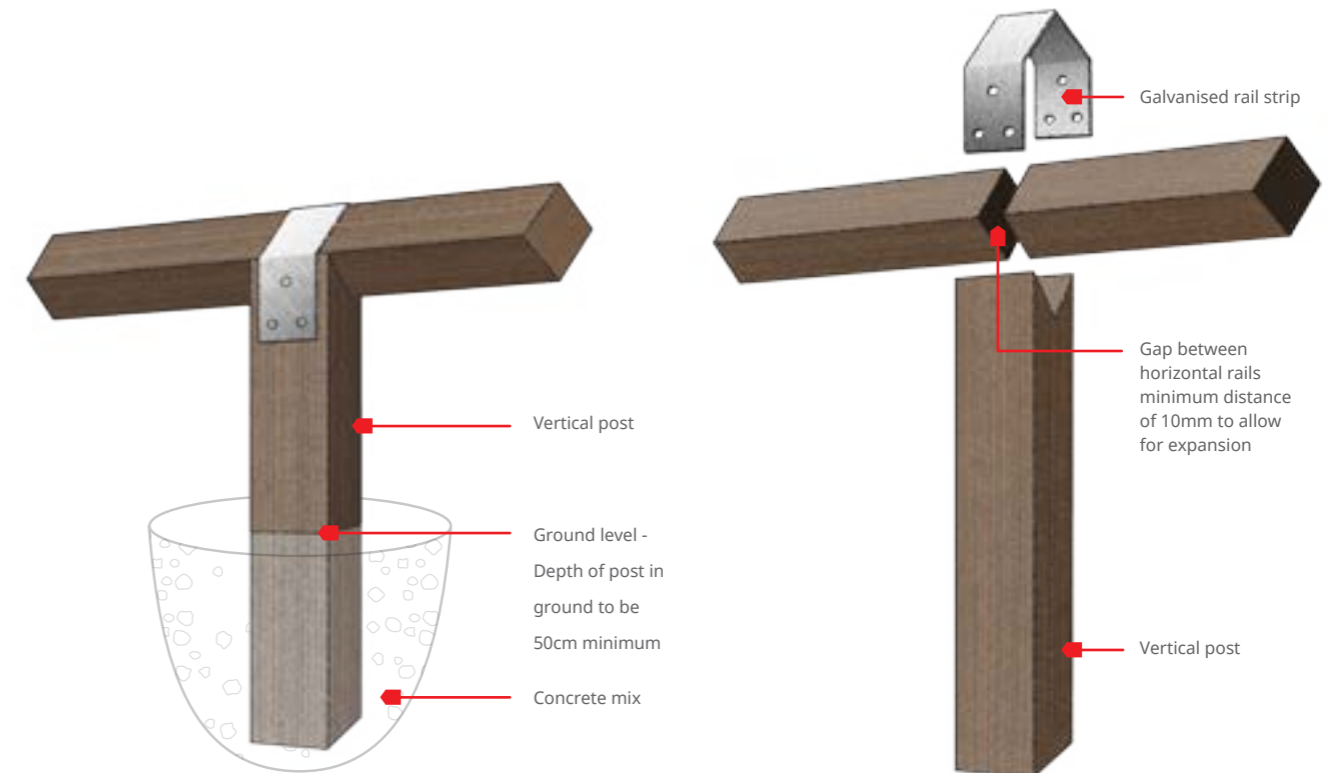
Height	Pales	Top	Rails	Posts	Colour
150cm	2.5 x 7.5cm	-	5.0 x 10 x 300cm (3 per panel)	Concrete	Brown & Black
	2.5 x 10cm	-			
180cm	2.5 x 7.5cm	-	5.0 x 10 x 300cm (3 per panel)	Concrete	Brown & Black
	2.5 x 10cm	Arched			



# Fencing Profiles Knee Rail

## Knee Rail Fence

Range	Post with Moulded V-top	Rail	Colour
Standard	10 x 10 x 125cm	8 x 8 x 300cm	Brown & Black
Heavy Duty	14 x 10 x 150cm	10 x 10 x 150/175/300cm	Brown & Black



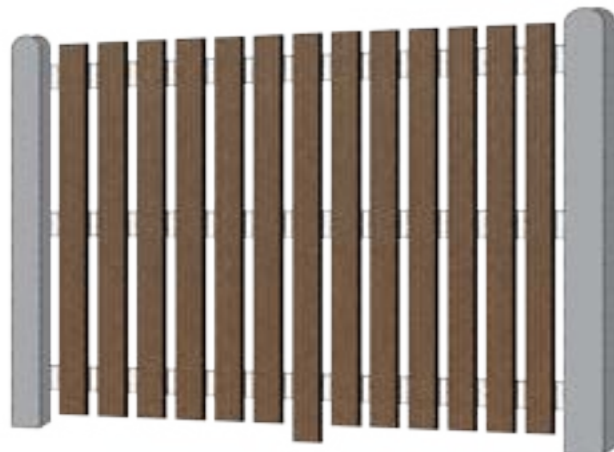
# Installation Guidance

Standard woodworking equipment is generally sufficient for installing **hanit**<sup>®</sup> fencing. However, it's recommended not to choose too high cutting speeds

when using electrical tools in order to prevent the material from melting. Below are further guidelines for a successful installation.

## Post Spacing

Spacing between post centres should be 1.5 metres plus expansion gaps. Should they be any further apart then it is recommended that the middle pale of the panel run should be extra long and touch the floor, thereby providing additional support to the panel.

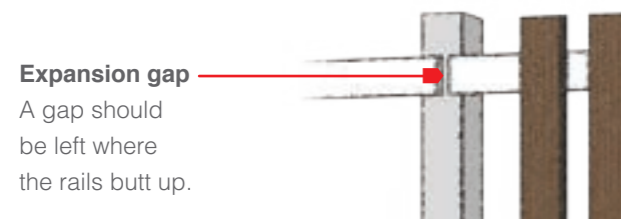


For **hanit**<sup>®</sup> fencing pales of 120cm and above, only concrete posts should be used. Posts for gates of any height should also be concrete.

## Rail Expansion & Contraction

Plastic is subject to thermal linear expansion and contraction, hence it's important to make allowances within the design of **hanit**<sup>®</sup> fencing installation.

There are a number of design options available allowing for thermal movement of the rails.



Allow for the maximum expansion with regard to the temperature at the time of installation. The higher the temperature at the time of installation, the smaller the maximum expansion will be. The lower the temperature at the time of installation, the larger the maximum expansion will be.

Maximum expansion occurring per running metre per installation temperature:

Expansion Table									
Maximum expansion (contraction) occurring per running metre:									
0°C	5°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	
+7mm	+6.5mm	+6mm	+5.5mm	+5mm	+4.5mm	+4mm	+3.5mm	+3mm	
(-2mm)	(-2.5mm)	(-3mm)	(-3.5mm)	(-4mm)	(-4.5mm)	(-5mm)	(-5.5mm)	(-6mm)	

Minimum temperature in Western Europe = -20°C; maximum temperature in the sun of e.g. black boards = 50°C. Assuming that the installation is normally done at a temperature between 10°C to 20°C, the maximum temperature difference will be in the region of +40°C (expansion) and in the region -40°C (contraction). This demonstrates the importance of taking into account the process of expansion/contraction.

### Expansion brackets with slotted holes

Brackets with slotted holes allow the rails to move.



### Slotted holes in the rails



## Fixing Rails to Posts

Rails can be joined at the posts with galvanized or stainless steel coach bolts. Counter-sinking the head into the rail will enable the pales to fit over them.

Coach bolts should be used to connect all fencing to corresponding posts.

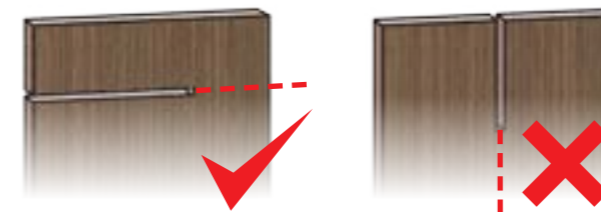
## Fixing Pales to Rails

Pales should be fixed to rails using screws. Stainless steel screws are preferable but zinc passivated or galvanized are also adequate. Splitting could occur if **hanit**<sup>®</sup> is screwed within 25mm of an edge.

## Cutting and Sawing

Standard wood working equipment is suitable i.e. handsaw, circular saw or chainsaw. Speeds must be kept low. A coarse blade and wide teeth are recommended, e.g. 500mm diameter blade with 34 teeth.

IMPORTANT: Do not cut down the length of the material (the grain) as severe distortion and bowing could occur due to the internal stresses inherent in **hanit**<sup>®</sup>.



## Screw Fixings

**hanit**<sup>®</sup> has very good screw retention properties. Use a minimum of 5mm diameter screw. As a general rule Pozzi drive screws will suffice although Torque Head screws can give an improved bit grip. Counter-sinking is recommended to ensure the screw sits flush with the surface of the profile thereby avoiding protrusion. Counter-sunk screws can drive in without the need for pilot holes or counter-sinking the surface.

Nails are not recommended as **hanit**<sup>®</sup> has high density, which can make it difficult for nail penetration.

If stainless steel screws are used, a pilot hole is advisable thus preventing undue stress on the screw.

## Maintenance

For **hanit**<sup>®</sup> fencing minimal maintenance is required. We only recommend a cleaning regime of occasional washing with a medium-pressure hose, simply for aesthetic reasons.

Alternatively it's possible to manually wash the plank surfaces with warm water and a standard household detergent such as washing up liquid, using a nonabrasive cloth.

Please note that cleaning with a pressure washer on a low power is recommended, however the use of a steamer is not advisable.

As **hanit**<sup>®</sup> fencing is not porous, graffiti will sit on the surface of the material and not be absorbed into the body. Thinners applied to a cloth can be used to rub off the graffiti.

## Waste Disposal

**hanit**<sup>®</sup> fencing is 100% recyclable.

## 15 Year Guarantee

All **hanit**<sup>®</sup> products come with a 15 year guarantee.

For further details about the guarantee and more information about other **hanit**<sup>®</sup> products please contact Hahn Plastics Ltd.







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 100% RECYCLED PLASTIC



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