

Fabrications, Safety, Energy & Lighting Solutions  
UK & Republic of Ireland

Protected by



# SafeDefence Safety Solutions

SafeDefence Fall Arrest Systems /  
SafeDefence Barrier Protection Systems



# Introduction

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Fabrications, Safety & Lighting Solutions, a sub-division of Kingspan Insulated Panels, offers a comprehensive range of high performance and aesthetic insulated gutters and flashings, personal and collective fall protection systems, protective barriers and guardrails, superior-quality natural daylighting products and intelligent LED luminaires.

Our SafeDefence range of safety products includes proven and discreet personal and collective fall protection systems for working at height, and protective barrier and guard rail systems for personnel and machinery.

The range of solutions includes:

- SafePro2, SafeTraxx and SafeRidge roof mounted personal fall arrest systems;
- SafeSide collective fall protection roof perimeter guard rail; and
- a range of innovative, impact resistant posts, plinths, barriers and guard rails.

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# Overview

Our height safety products provide proven and discreet personal and collective fall protection systems for working at height.

The range includes:

- SafePro2, an innovative roof anchor system that employs force minimisation technology to limit the load transferred to the roof in a fall arrest event;
- SafeTraxx, a flexible high-grade, precision-extruded aluminium rail designed to be fixed continuously across a variety of roof positions to minimise potential roof damage;
- SafeRidge, a high-grade precision-extruded aluminium rail which is factory-fitted to a bespoke steel ridge capping and is designed to dissipate fall arrest forces across a wide roof area;
- SafeSide, a cost-effective collective fall protection system that provides a perimeter guard rail to prevent access to the edge of the roof.

## Compatibility

All four systems have been carefully chosen and tested in house to ensure full compatibility with our range of insulated roof panels, and are designed to minimise the dynamic load applied to the roof in a fall arrest event. Please refer to the table below.

## Product Compatibility Matrix

	Trapezoidal KS1000/ 2000 RW	Topdek KS1000 TD	Lo-Pitch KS1000 LP	Curved Roof KS1000 CR	Trapezoidal Secret-Fix KS1000 DR/DRC	Sinusoidal KS1000 SRW	Tile Support Nu-lok™ KS1000 TS	Roof Tile KS1000 RT	KingZip IP KS500/1000 ZIP IP
SafePro2	✓	✓	✓	-	✓	-	-	-	✓
SafeTraxx	✓	-	✓	-	✓	-	-	-	✓
SafeRidge	✓	-	✓	-	✓	-	-	-	-
SafeSide	✓	✓	-	-	✓	-	✓	-	-

## Kingspan Benefits

### Warranty

All four systems are available with the Kingspan Warranty and, for added peace of mind, we also offer extensive product and installation training.

SafePro2, SafeTraxx, SafeRidge and SafeSide are the only fall protection systems fully tested and approved for use on our range of insulated roof panels, ensuring protection of our insulated panels guarantee.

### Quality & Durability

Our height safety systems are manufactured from the highest quality materials, ensuring long-term reliability and service life. All four systems are fully compliant with ISO 9001 (Quality), ISO 14001 (Environmental) and OHSAS 18001 (Health & Safety).

# Design & Specification

When designing personal fall protection systems, it is important to consider which areas of the roof are to be accessed and how competent the worker is at working at height.

Access is generally required to the whole roof area to allow for inspection, cleaning and maintenance, however the designer may also choose to focus on specific areas of the roof such as the guttering.

It may not always be possible to provide the same level of protection to all areas of the roof, but a risk-based approach should be taken in order to offer the highest levels of protection to the largest possible roof area. The roof edge poses the most obvious hazard when working at height, but other areas, such as rooflights, should also be taken into account.

It is best practice to design personal fall protection systems for workers with low levels of competency in working at height. This approach is by no means foolproof, but should protect all workers with basic roof access training.

The Work at Height Regulations stipulate that work restraint protection should be considered before fall arrest protection. Fall arrest should only be considered where it is not 'reasonably practicable' to provide work restraint.

The technical standard EN 795 states that, to allow for foreseeable misuse, all anchor devices should be capable of arresting a fall, even if their intended use is for restraint. This means that, in order to comply with national standards, all personal fall protection systems should be proven capable of restraining and arresting a fall when installed on site.

The difference between designing a system for arrest and for restraint lies with the location of the system on the roof, and the type of PPE that is used by the worker.

When specifying personal fall protection systems, please refer to one of the personal protection (PP) levels in the table below.

## Personal Protective Equipment (PPE)

When designing personal fall protection systems, it is essential that PPE is taken into consideration and included as an integral part of the specification process. Kingspan offers a complete range of PPE including:

- harnesses;
- lanyards (single and double);
- ropes and grabs; and
- rescue kits.

## Personal Protection Levels

PP Level	Summary	Description	Application Example
1	Restraint without requirement for PPE adjustment.	Workers are restrained from reaching all fall hazards by attaching themselves to the fall protection system with PPE that requires no manual adjustment.  The system, as installed, should be proven capable of arresting falls.	<ul style="list-style-type: none"> <li>- System is fixed 2.5m back from the edge of a low pitch roof.</li> <li>- Worker is using a 2m long lanyard.</li> <li>- Within 5m of the roof edge, the worker is restrained from reaching the edge without the need to adjust PwPE.</li> <li>- For roof locations over 5m from the edge, there is negligible risk of a fall. There is no need for PPE attachment.</li> </ul>
2	Restraint with requirement for PPE adjustment.	Workers are restrained from reaching all fall hazards by attaching themselves to the fall protection system with PPE that requires correct manual adjustment.  The system, as installed, should be proven capable of arresting falls.	<ul style="list-style-type: none"> <li>- System is fixed centrally on a roof.</li> <li>- Worker uses a rope with a grab.</li> <li>- For protection when accessing different areas of the roof, workers should manually adjust the length of their connection to the system.</li> <li>- Incorrect adjustment may result in a fall.</li> </ul>
3	Fall arrest.	Workers are not restrained from reaching fall hazards, but any fall occurrence will be arrested in a controlled manner.  Fall clearance must be taken into consideration, and a rescue plan must be implemented before work begins.	<ul style="list-style-type: none"> <li>- A narrow roof area where it is not possible to prevent workers from reaching the edge, even when they are connected to a fall protection system.</li> </ul>

# Design & Specification

Where personal fall protection systems are fixed directly to the roof, i.e. not fixed to the primary structure, energy-absorbing anchor posts / rails should be installed to reduce the load applied to the roof in a fall arrest event. Rail-based anchor systems can be used to dissipate loads across a larger area of the roof.

## Central Life Line System

Provides work restraint protection to the majority of roof areas, and fall arrest protection around rooflights and end edges (please refer to PP level 2 in the table on page 7).

- Suitable for workers of medium competency in working at height.
- Moderate requirement to adjust PPE length.

In addition to absorbing energy, anchor posts should also deploy so that fall arrest loads are applied as close to the roof surface as possible. This reduces turning moments in the post, thus minimising tensile forces in the fixings and twisting of the roof panel. For roof slopes greater than 15°, rail-based anchor systems should be used, as rails are not prone to deployment due to incidental loading such as pulling on ropes while walking up or down the roof slope. For all system types, the fixings used should be proven on the specific roof type to which they are installed.

Single Point Anchors (provide protection to corners by reducing extent of potential swing falls)



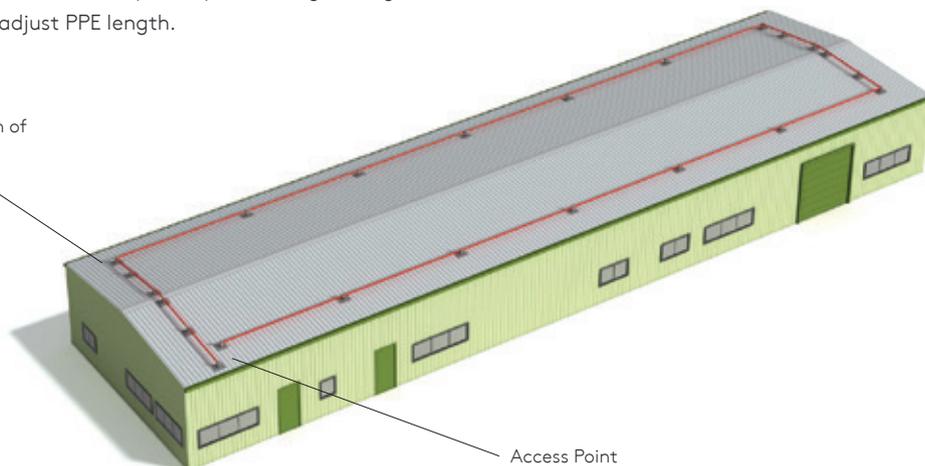
Access Point (first worker should use single point anchors with double lanyard technique only)

## Perimeter Life Line System

Provides work restraint protection to all roof edges (please refer to PP level 1 in the table on page 7).

- Suitable for workers of basic competency in working at height.
- No requirement to adjust PPE length.

Work Restraint (minimum of 2.5m from roof edges)



Access Point

# SafePro2

SafePro2 is an innovative personal fall protection system, designed to protect both the worker and the roof to which it is fixed. The SafePro2 system comprises a high-strength steel cable, supported on energy-absorbing roof anchor posts.

Roof anchor posts incorporate force minimisation technology, which limits the load transferred to the roof in a fall arrest event to less than 6kN. This is a significant improvement on previous types of force control posts which applied a load of 10kN or more.

SafePro2 is one of the easiest systems available on the market when it comes to design, installation and usage.

## Applications

SafePro2 is fully compliant with BS EN 795: C, and has been designed specifically for use with various Kingspan insulated roof panel systems, including Trapezoidal Roof, Lo-Pitch, KingZip IP and Topdek (see full compatibility matrix on page 4). SafePro2 can be installed anywhere on the roof to ensure the most practicable solutions are provided.

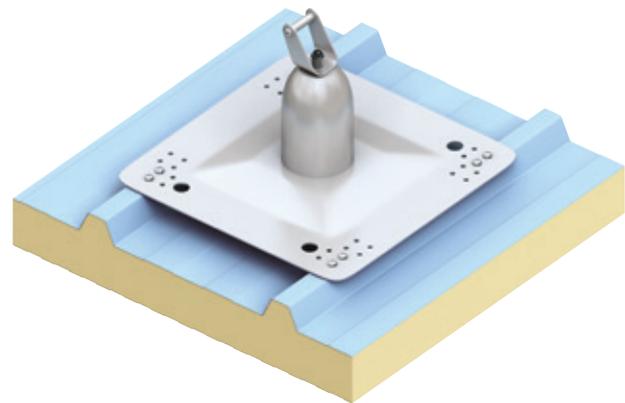
## Features & Benefits

- Fully compliant with BS EN 795: C.
- Fully compliant with ACR[M]002: 2009 Testing of Roof Anchors on Roof Systems.
- Compatible with most Kingspan insulated roof panels.
- Available with the Kingspan Guarantee.
- Does not affect the Kingspan insulated panels guarantee.
- High-grade stainless steel and aluminium components, providing superior levels of corrosion resistance, durability and service life.
- Advanced fixing design allows efficient installation without the need to access the underside of the roof.
- Systems are fixed to the top skin only, with no penetration of the insulation, eliminating thermal bridging. (For Topdek membrane-lined insulated panel applications, fully-insulated toggle fixings are used).
- Can be installed to ensure safe installation and maintenance of Kingspan Energy Rooftop Solar PV.
- Highly-evolved force minimisation technology.
- Can be installed during or after construction.

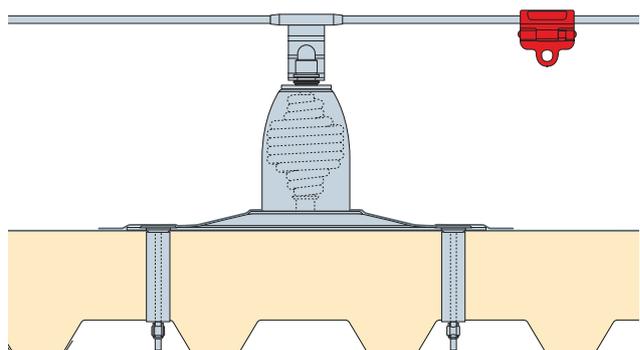
## SafePro2 with KingZip IP Base Plate



## SafePro2 with Trapezoidal Roof Panel Base Plate



## SafePro2 with Topdek Roof Panel Base Plate



# SafeTraxx

SafeTraxx is a robust personal fall protection system, comprising a high-grade precision-extruded aluminium rail. This flexible rail-based anchor system dissipates forces in a fall arrest event to minimise potential damage, and provide protection, across the whole roof area.

Featuring a discreet low profile rail, the SafeTraxx system minimises aesthetic impact whilst also providing high resistance to wind and snow loading. Various colour options are available to offer a complementary or contrasting finish.

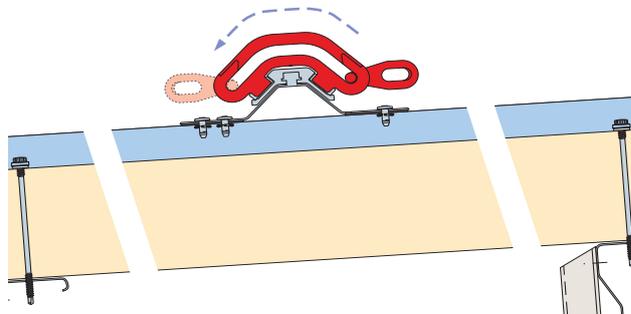
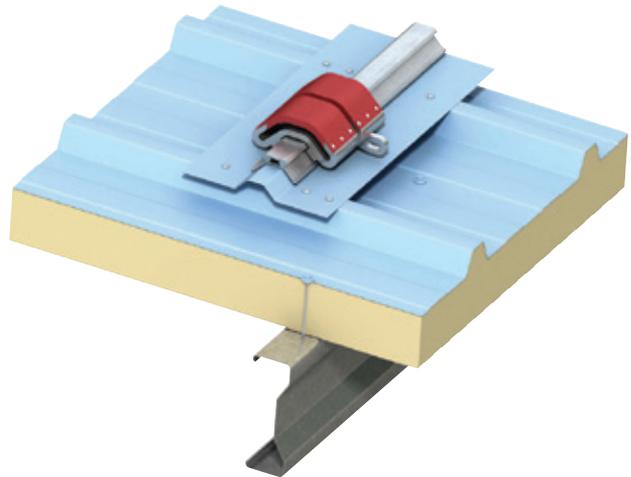
## Applications

SafeTraxx is fully compliant with BS EN 795: D, and has been designed specifically for use with various Kingspan insulated roof panel systems, including Trapezoidal Roof, Lo-Pitch and KingZip IP (see full compatibility matrix on page 4).

## Features & Benefits

- Fully compliant with BS EN 795: D.
- Compatible with most Kingspan insulated roof panels.
- Available with the Kingspan Guarantee.
- Does not affect the Kingspan insulated panels guarantee.
- High-grade steel and aluminium components, providing superior levels of corrosion resistance, durability and service life.
- Advanced fixing design allows efficient installation without the need to access the underside of the roof.
- Systems are fixed to the top skin only, with no penetration of the insulation, eliminating thermal bridging.
- Can be installed to ensure safe installation and maintenance of Kingspan Energy Rooftop Solar PV.
- Can be installed during or after construction.

## SafeTraxx with Trapezoidal Roof Panel



# SafeRidge

SafeRidge is a personal fall protection system comprising a high-grade precision-extruded aluminium rail, factory-fitted to a steel ridge capping (which is bespoke and fabricated for each roof). This unique rail-based anchor system is designed to dissipate fall arrest forces across a wide roof area, minimising potential damage to the roof.

Featuring a discreet low profile rail, the SafeRidge system minimises aesthetic impact whilst also providing high resistance to wind and snow loading. Various colour options are available to offer a complementary or contrasting finish.

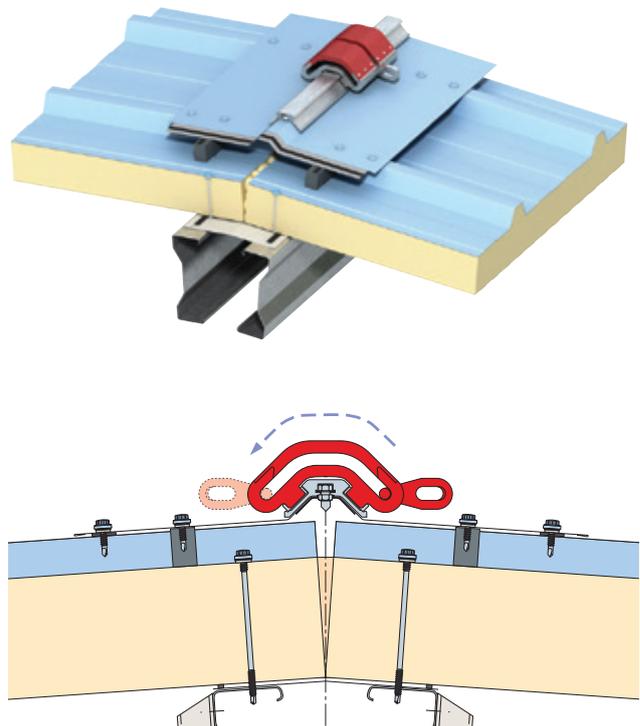
## Applications

SafeRidge is fully compliant with BS EN 795: D, and has been designed specifically for use with various Kingspan insulated roof panel systems, including Trapezoidal Roof, Lo-Pitch and KingZip IP (see full compatibility matrix on page 4).

## Features & Benefits

- Fully compliant with BS EN 795: D.
- Compatible with most Kingspan insulated roof panels.
- Available with the Kingspan Guarantee.
- Does not affect the Kingspan insulated panels guarantee.
- High-grade steel and aluminium components, providing superior levels of corrosion resistance, durability and service life.
- Advanced fixing design allows efficient installation without the need to access the underside of the roof.
- System is fixed to the top skin only, with no penetration of the insulation, eliminating thermal bridging.
- Can be installed to ensure safe installation and maintenance of Kingspan Energy Rooftop Solar PV.

## SafeRidge with Trapezoidal Roof Panel



# SafeSide

SafeSide is a cost-effective collective fall protection system for flat roof or suspended ceiling applications. This flexible guard rail system provides high levels of fall protection to the perimeter of the roof, and is suitable for accessible areas of any size and layout.

Installation is simple and quick, with no specialist tools required, and approved installation contractors can offer a cost-effective full design, supply and installation service.

## Applications

SafeSide is fully compliant with BS EN 13374: A, and is compatible with various Kingspan insulated roof panel systems, including Trapezoidal Roof, Lo-Pitch, KingZip IP and Topdek as well as Controlled Environments' UltraTemp (KS1100 CS) panels (see full compatibility matrix on page 4).

SafeSide can be used for external flat /pitched roofs up to 10°, and internal walk-on ceilings.

## Features & Benefits

- Fully compliant with BS EN 13374: A.
- Compatible with most Kingspan insulated roof panels, and suitable for suspended ceiling applications.
- Available with the Kingspan Guarantee.
- Does not affect the Kingspan insulated panels guarantee.
- High-grade steel components, providing superior levels of corrosion resistance, durability and service life.
- No penetration of the insulation, eliminating thermal bridging.
- Can be installed to ensure safe installation and maintenance of Kingspan Energy Rooftop Solar PV.
- Can be installed during or after construction.

## SafeSide with Controlled Environments Panel





# Overview

SafeDefence Barrier Protection Systems consist of high-performance, high-density polyethylene around a metal support, tested and certified to provide protection to people and structures from the impact of machinery.

The range includes:

- KPSPost for the protection of walls, doors and corners;
- KPSTrim impact resistant plinth for protection at the base of building corners, columns and walls;
- KPSRail for the protection of people in areas of forklift and other mobile machinery;
- KPSBarrier-S, KPSBarrier-D and KPSBarrier-H to protect walls, columns and other objects at varying heights.

## Testing

The University of Engineering and Architecture of Zaragoza, Spain, undertook a crash test with our Barrier Protection Systems to analyse the energy supported by our products and their impact resistance behaviour. Test results indicate that our Barrier Protection Systems products offer better impact protection than all others on the market due to their resistance and elasticity.

## Materials

Barrier Protection products are manufactured from solid\* high-density polyethylene designed to bend at the metal rod section with a force of over 10Tm, preventing floor and barrier breakage. Their simple construction and installation means they can be repaired or replaced immediately with minimum cost.

All products are located and installed independent of the elements to be protected, removing the risk of damage from impact transmission.

Hygienic and easy clean, low maintenance and carrying food-quality certification, these high-density polyethylene protective barrier systems are especially suitable for the agri-food industry.

\* KPSBarrier-H is manufactured from polyethylene but has a hollow construction.



# KPSPost

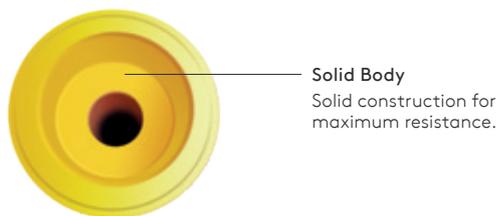
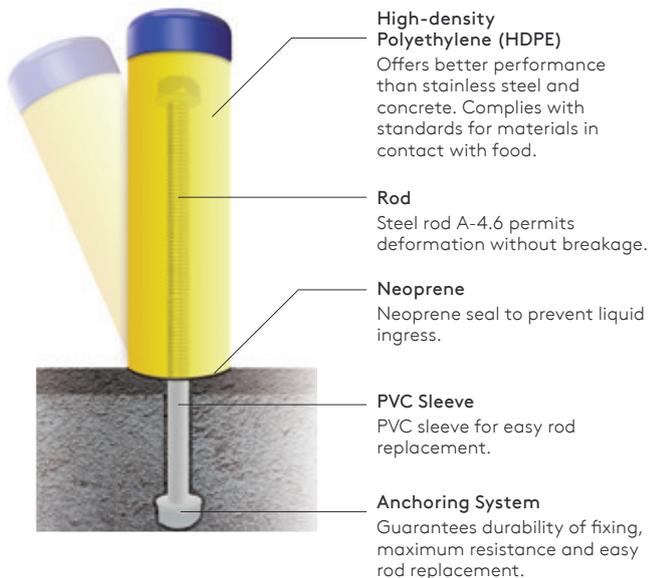
Our KPSPosts provide a high-performance solution for the protection of building corners, inner and outer door areas and walls, as well as smaller surface areas.

KPSPosts are manufactured from solid polyethylene to provide maximum impact resistance and, as they are self-coloured as opposed to painted, they offer superior resistance to UV rays.



## Technical Specification

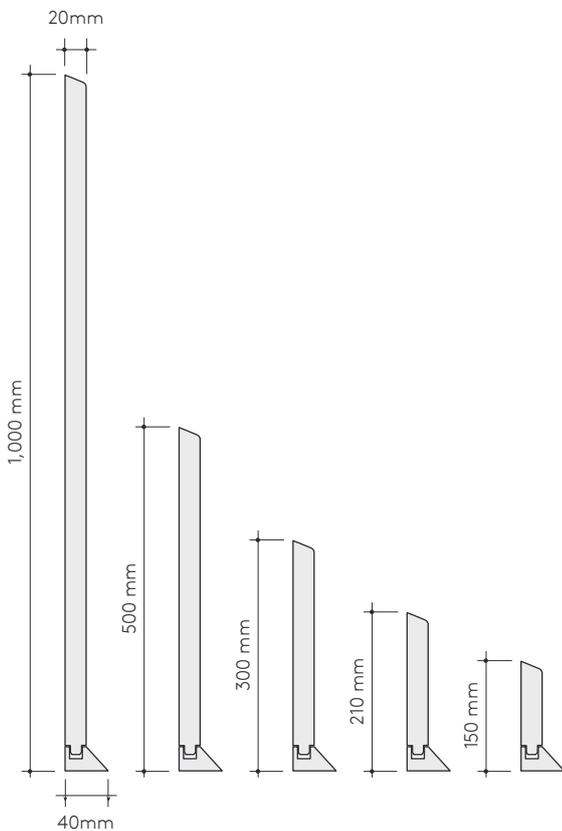
Dimensions (mm)			Drilling (mm)	
Diameter	Height	Ø Rod	Ø	Depth
70	266	20	48	150
100	430	30	68	150
100	530	30	68	150
120	430	30	68	150
120	530	30	68	150
120	800	30	68	150
180	430	30	68	150



# KPSTrim

Manufactured from unbreakable HDPE, KPSTrim is a two-piece protective plinth for protection at the base of building corners, columns and walls.

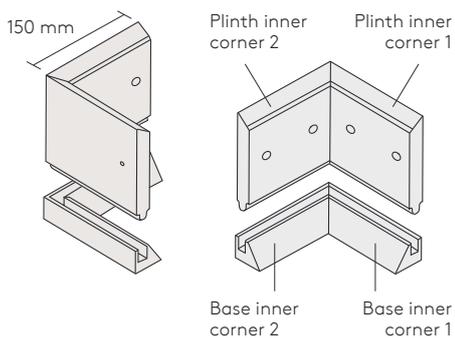
Supplied in 2 metre lengths and available in various heights, KPSTrim is easy to install, fixing to both floor and wall with hidden fasteners. Its high impact resistance makes it ideal for trafficked areas.



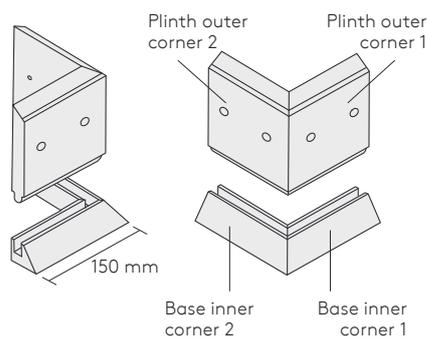
## Technical Specification

KPSTrim	
Standard length	2 m
Height	1,000 mm, 500 mm, 300 mm, 210 mm, 150 mm
Base thickness (± 1 mm)	40 mm
Plinth thickness (± 1 mm)	20 mm
Density	0.91 g/cm <sup>3</sup>
Conduction coefficient	0.17 W/m°C
Linear expansion ratio (mean)	1.6 · 10 <sup>-4</sup>
Breaking elongation	70 %
Working temperature range (max. / min.)	60 °C / -20 °C
Impact resistance	7
Shore hardness	72
Chemical resistance - acids / alkalis	Excellent
Fire reaction DIN 4102	B2

### Inner Corner



### Outer Corner



# KPSRail

Our KPSRail specifically provides personnel protection in areas with forklift and other mobile machinery activities.

KPSRails are manufactured from solid polyethylene to provide maximum protection and impact resistance.

## Technical Specification



Dimensions (mm)					Drilling (mm)		
Diameter INF SUP	Length	Number of Bases	Height	Ø Rod	Ø	Depth	
120 70	500 / 1000	2	500	20	48	150	
120 70	1500 / 2000	3	500	20	48	150	
120 70	500 / 1000	2	800	20	48	150	
120 70	1500 / 2000	3	800	20	48	150	
120 70	500 / 1000	2	1000	20	48	150	
120 70	1500 / 2000	3	1000	20	48	150	



# KPSBarrier-S

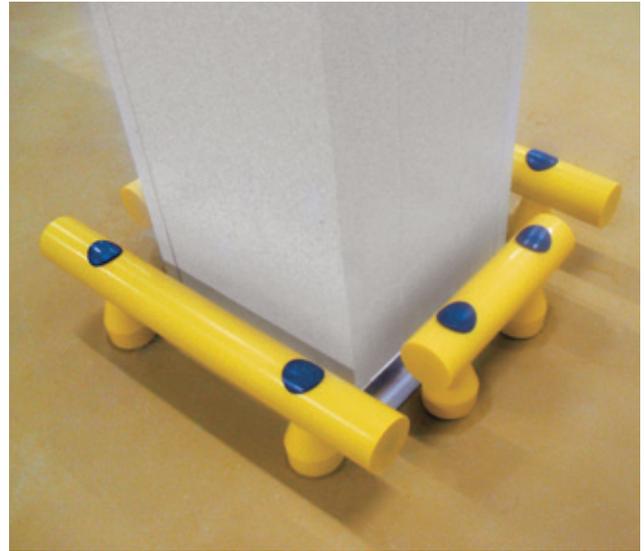
Due to extremely secure anchoring, KPSBarrier-S provides high impact resistance offering the best solution for the protection of walls and objects.

KPSBarrier-S is manufactured from solid polyethylene to provide maximum protection and impact resistance.

## Technical Specification



Dimensions (mm)					Drilling (mm)		
Diameter	Length	Number of Bases	Height	Ø Rod	Ø	Depth	
70	500 / 1000	2	125	16	38	150	
70	1500 / 2000	3	125	16	38	150	
100	500 / 1000	2	155	20	48	150	
100	1500 / 2000	3	155	20	48	150	
100	2500	4	155	20	48	150	
120	500 / 1000	2	175	20	48	150	
120	1500 / 2000	3	175	20	48	150	
120	2500	4	175	20	48	150	



# KPSBarrier-D

Offering the same protection performance as our KPSBarrier-S, but at various heights.

KPSBarrier-D is manufactured from solid polyethylene to provide maximum protection and impact resistance.

## Technical Specification



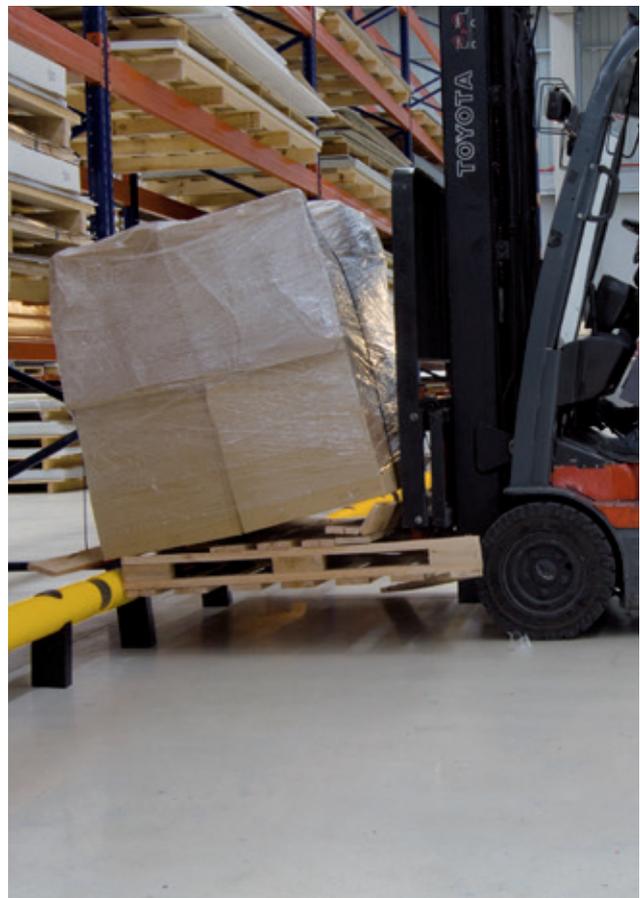
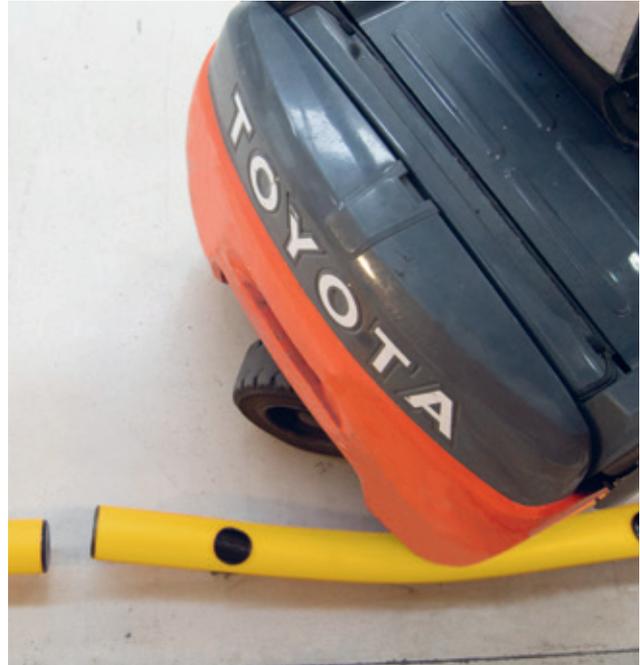
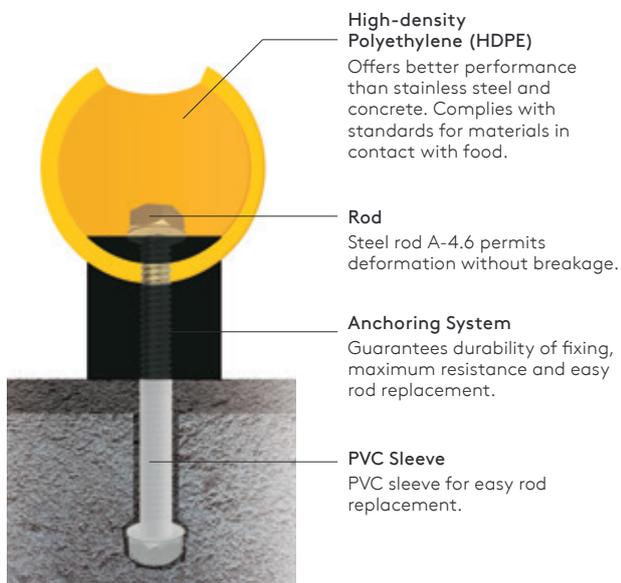
Dimensions (mm)					Drilling (mm)		
Diameter INF	Diameter SUP	Length	Number of Bases	Height	Ø Rod	Ø	Depth
70	70	500 / 1000	2	230	20	48	150
70	70	1500 / 2000	3	230	20	48	150
100	100	500 / 1000	2	300	20	48	150
100	100	1500 / 2000	3	300	20	48	150
120	120	500 / 1000	2	340	20	48	150
120	120	1500 / 2000	3	340	20	48	150



# KPSBarrier-H

KPSBarrier-H offers excellent impact resistance combined with high flexibility.

KPSBarrier-H is manufactured from polyethylene and its hollow construction provides a robust yet highly flexible barrier system that is easy to assemble and replace.



## Technical Specification



Dimensions (mm)					Drilling (mm)	
Diameter	Length	Number of Bases	Height	Ø Rod	Ø	Depth
110	500	2	175	14	36	150
110	1000	2	175	14	36	150
110	1500	3	175	14	36	150
110	2000	3	175	14	36	150
110	2500	4	175	14	36	150

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03

Service  
& Support

# Service & Support

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## Technical Services

Our technical engineers are a key part of our design and development process, providing a wide range of technical support and working with customers on an individual project basis to ensure that the correct products are specified and ordered.

### UK

Tel: +44 (0) 1944 712000

Email: [safety@kingspanpanels.com](mailto:safety@kingspanpanels.com)

### Ireland

Tel: +353 (0) 42 96 98529

Email: [technicalkc@kingspan.net](mailto:technicalkc@kingspan.net)

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## Quotes

To receive a quote and expected lead times for your project requirements, please call one of our team on:

### UK

Tel: +44 (0) 1944 712444

Email: [safety@kingspanpanels.com](mailto:safety@kingspanpanels.com)

### Ireland

Tel: +353 (0) 42 96 98555

Email: [quotationskc@kingspan.net](mailto:quotationskc@kingspan.net)

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## Field Service & Training

We recognise that customer staff training is key to maximising the performance of our products, there we provide extensive installation training on each of our personal and collective fall protection systems.

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## Area Sales Managers

To find your nearest area sales manager, simply visit:  
[www.kingspanpanels.co.uk/asm](http://www.kingspanpanels.co.uk/asm)





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## United Kingdom

### Kingspan Limited

Greenfield Business Park No.2, Greenfield,  
Holywell, Flintshire, North Wales CH8 7GJ

T: +44 (0) 1352 716100

F: +44 (0) 1352 710161

[www.kingspanpanels.co.uk](http://www.kingspanpanels.co.uk)

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## Ireland

### Kingspan Limited

Carrickmacross Road, Kingscourt,  
Co Cavan, A82 E897

T: +353 (0) 42 96 98500

F: +353 (0) 42 96 98572

[www.kingspanpanels.ie](http://www.kingspanpanels.ie)

For the product offering in other markets please contact your local sales representative or visit [www.kingspanpanels.com](http://www.kingspanpanels.com)

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