

Floor graphics can be used both internally and externally.

There are **one-part solutions** around but our belief is that a **paired solution** is the best option in terms of visual appearance, durability and anti-slip indoors or outdoors.

A laminate ensures the surface of the graphic retains its original slip resistance characteristics regardless of the print technology used and it will extend the durability of your graphic, particularly after mechanical floor cleaning and when used in high traffic areas.

We do have some one-part solutions but they lose some of their slip resistance when printed, dependent on ink loading, also some print technologies, such as latex, can dramatically reduce the anti-slip properties.

The two standards we are generally asked for are DIN 51130 and EN-13036 / BS 14231. Although the DIN 51130 'R' ratings are the most familiar we believe the Pendulum test EN-13036 is a better gauge of anti-slip and this is the test method that has been used in any accidents our customers have been involved with.

Under BS EN 14231/ EN 13036-EN, the Health and Safety Executive (HSE) / United Kingdom Slip Resistance Group (UKSRG) have determined a minimum Pendulum Test Value reading of 36 must be obtained in all conditions (Dry, Wet and Contaminated) on a level surface for a floor to pass. This is roughly equivalent to an R11 rating under DIN 51130.

EN-13036 The harmonised European standard EN-13036-4:2011 (similar to BS 7976-2) uses the Pendulum test to assess the floor's surface properties under both wet and dry conditions. It replicates a heel striking the floor, as this causes most slips. The tested surface is given a value from 0 to 100, with 100 being the most slip resistant. PTV's (Pendulum Test Values) are on level floors with no slope. This is the test that the Health and Safety Executive conduct on site if there has been a slip reported. The minimum slip resistance value considered safe for pedestrians is 36 PTV in the worst conditions (wet).

PTV's can be roughly categorised as follows:

- PTV's of 0 to 24 are high risk of slip with slip injuries almost certain to happen, slip risk up to 1 in 20 (roughly equivalent to R9)
- PTV's of 25 to 35 have moderate slip potential and are generally not acceptable to the HSE, slip risk 1 in 100,000 (roughly equivalent to R10)
- PTV's of 36 plus are low risk with very rare slip injuries, slip risk 1 in 1,000,000 (roughly equivalent to R11 / R12)
- PTV's of 75 plus extremely low risk with slips very unlikely, slip risk less than 1 in 1,000,000 (roughly equivalent to R13)

DIN 51130 Flooring laminates are generally rated using the DIN 51130:2004-6 standard for shod feet.

Our interpretation of DIN 51130 is that the products are rated between R9 (the lowest) and R13 (the highest).

Floor surfaces classified R9 and R10 are not acceptable in wet, slippery, oily and greasy floor conditions in the UK.

- R9 should only be used for dry areas and is a high risk in wet areas. R9 is the minimum rating for floors. Not many products, be they textured or not, fail to get an R9
- R10 rated products are for areas that are kept largely dry. We believe this is the minimum rating that should be used
- R11 are for transitional areas that can occasionally be wet and we have a couple of products that meet R11
- R12 are for wet areas or slopes and R13 for very wet areas or slopes and are not locations where we would recommend floor graphics. You need a minimum of R12 and ideally R13 rating for any slopes



Printable Base Vinyls



We have a variety of print vinyls with adhesives from low tack removables for interior work to very high tack permanents for external applications. Some of the most popular are listed in the tables below.

Manufacturer	Code	Description	Roll Width	Fire Rating	Internal Smooth Surfaces (Removable Adhesive)	Internal Smooth Surfaces (Permanent Adhesive)	Internal Carpet	Internal Slight Textured Surfaces (Permanent Adhesive)	Internal Heavily Textured Surfaces	External Heavily Textured Surfaces (Permanent Adhesive)
EXAMPLES OF USE:					Marble, wood, ceramic tiles	Marble, wood, ceramic tiles	Wool / Nylon short to medium pile	Wood, ceramic tiles, smooth concrete	Wood, ceramic tiles	Brick, concrete, tarmac
	JT 8500 WG-RT	Gloss white removable	1370mm 1600mm	EN13501-1	✓✓✓	✗	✗	✗	✗	✗
	JT 8500 WG-RG	Gloss white grey removable	1370mm 1600mm	EN13501-1	✓✓✓	✗	✗	✗	✗	✗
	JT 8500 WG-PT	Gloss white permanent	1050mm 1370mm 1600mm	EN13501-1	✗	✓✓✓	✗	✗	✗	✗
	JT 8500 WG-PG	Gloss white grey permanent	1370mm 1600mm	EN13501-1	✗	✓✓✓	✗	✗	✗	✗
	M11-P	Gloss white PermPLUS permanent	1370mm 1600mm	Class 0	✗	✓✓✓	✗	✓	✗	✗
	M12-P	Gloss white high opacity PermPLUS permanent	1370mm 1600mm	Class 0	✗	✓✓✓	✗	✓	✗	✗
	M11-H	Gloss white HighGRAB permanent	1370mm 1600mm	Class 0	✗	✓✓✓	✓✓	✓✓	✓	✗
	M12-H	Gloss white high opacity HighGRAB permanent	1370mm 1600mm	Class 0	✗	✓✓✓	✓✓	✓✓	✓	✗
	M12-U	Gloss white high opacity UltraGRAB permanent	1370mm 1600mm	Class 0	✗	✓✓✓	✓✓✓	✓✓✓	✓✓	✗
	WW 300	Matt white high tack grey permanent adhesive	1370mm 1524mm	EN13501-1	✗	✓✓✓	✓✓	✓✓	✓	✗
	M15-M	Matt white MaxGRAB permanent	1370mm	Class 0	✗	✗	✗	✓✓✓	✓✓✓	✓✓✓
	M16-M	Matt white high opacity MaxGRAB permanent	1370mm	Class 0	✗	✗	✗	✓✓✓	✓✓✓	✓✓✓
	Streetrap	Matt white, aggressive permanent adhesive	1370mm	EN13501-1	✗	✗	✗	✓✓✓	✓✓✓	✓✓✓

✗ Not recommended ✓ Fair ✓✓ Good ✓✓✓ Excellent

Floor Laminates



We carry laminates from different manufacturers with 'R' ratings running from R9 to R12 and with internal durability from 2 to 12 months.

The durability statement is highly dependent on traffic and all these products will lose some slip resistance over time.

The 'DIN 51130 Slope Angle' is the average angle achieved in testing before slipping occurs, the bigger the angle the better anti-slip properties the product possesses.

As you can see from the table, products within a certain 'R' band have widely different slip potentials.

As accident potential is always there with floor graphics we would recommend R10 as the minimum requirement. Using the Pendulum test, the minimum slip resistance value considered safe for pedestrians is 36 PTV in the wet, this is the minimum figure that Health and Safety Executive would be looking for in the case of an accident.

Manufacturer	Code	Description	Expected Internal Durability	Roll Width	Fire Rating	EN-13036 Pendulum Test Value (Wet and Dry)	DIN 51130 'R' Rating (Slope Angle Achieved in Testing)	DIN 51130 Slope Angle Specification	Internal or External Use	Area of Use	Comments
	LUV 6300	125µ matt PVC laminate	6 months	1370mm	Class 0		R9 (6.0°)	6° to 10°	Internal	Always dry areas	
	LUV 6301	100µ matt PVC laminate	3 months	1050mm 1370mm 1524mm	Class 0		R9 (6.6°)	6° to 10°	Internal	Always dry areas	
	FV4-65	100µ matt PVC laminate	3 months	1040mm 1550mm	DIN 4102-1 B1		R9 (8.1°)	6° to 10°	Internal	Always dry areas	
	LUV 6400	125µ matt PP laminate	3 months	1370mm		25 Wet 113 Dry	R9*	6° to 10°	Internal	Always dry areas	*R9 under EN 13036-4
	FlooR10 M73-P-K	100µ matt PVC laminate	3 months	1370mm		38 Wet 78 Dry	R10 (10.5°)	>10° to 19°	Internal	Largely dry areas	
	FlooR11 M77-P-K	190µ matt PVC laminate	6 months (3 months external)	1370mm		42 Wet 69 Dry	R11*	>19° to 27°	External	Transitional occasionally wet areas	*R11 under EN 13036-4
	FloorGrip	150µ matt PVC laminate	12 months (3 months external)	1370mm	Class 0		R11 (20.6°)	>19° to 27°	External	Transitional occasionally wet areas	
	FV8-85	200µ matt PVC laminate	6 months	1300mm	DIN 4102-1 B1		R11 (26.7°)	>19° to 27°	Internal	Transitional occasionally wet areas	
	StreetLam	385µ matt PVC laminate	(6 months external)	1370mm	EN13501-1		R12 (27.8°)	>27° to 35°	External	Wet areas or slopes	

The information above is only a guide. Due to the huge variety of floor surfaces, it is important that end users conduct a site survey and test the product in-situ for at least 24 hours.

The printable products may leave some adhesive residue on some surfaces, which can generally be cleaned off using an adhesive remover such as RAPIDREMOVER or

Avery Dennison's Adhesive Remover. We would recommend producing any floor graphic with radius corners and the use of heat on more difficult surfaces such as concrete, brick and tarmac. For external graphics it is even more important to clean the area properly, use heat in application and the weather should also remain dry for a minimum of 24 hours after application to ensure proper adhesion.

Public Liability Insurance



In case of an accident involving your floor graphics, it is important to carry good Public Liability insurance.

This can provide protection if you are taken to court because your business activities have caused damage to someone else's property or have resulted in someone being injured or killed. It can cover your legal costs and any compensation you may have to pay. All Print's Public liability limit of Indemnity is currently £5 million.