

# DLW LINOLEUM Installation DLW Linoleum LPX and PUR

## Recommendations for installation

DLW Linoleum PUR is manufactured from natural and recyclable raw materials. The properties of linoleum that derive from these materials must be taken into account during installation.

### A. Reaction to moisture

Excessive humidity in the air or moisture in the sub-floor or adhesive can cause changes in the dimensions of the linoleum. Therefore, please follow the guidelines regarding sub-floors and adhesives outlined in the sections below.

### B. Veiling

The natural veiling caused by the linoleum curing process in the drying chamber and visible as a yellowish discoloration disappears over time from exposure to light. This process takes only a short amount of time when exposed to direct sunlight; it may take several days or even weeks under artificial light or weak sunlight. Therefore, sheets and tiles installed at the same time should be exposed to identical light conditions.

If the instructions are followed closely, DLW Linoleum PUR is simple to install.

## 1. Sub-floor

DLW Linoleum PUR can be installed on all sub-floors that are permanently smooth, firm, free of cracks and dry (see relevant country standards for installation, together with other regulations applicable

to all associated factors). Dense, nonporous sub-floors, poured asphalt, for instance, sand/cement screeds and wooden sub-floors must be smoothed with a self levelling compound of adequate thickness (minimum 3 mm); cementbound, low-tension compounds are suitable for this purpose.

The following values for residual moisture for various sub-floors apply to substrates of normal thickness, i.e. not greatly in excess of the minimum requirements according to DIN 18560, BS 8203/4 or relevant country standards and serve as guidelines based on experience:

Permissible residual

Screed moisture in CM-%

Calcium sulphate floors < 0,5

Cement floors ≤ 2,0

Surface moisture readings ≤ 75 % R.H.

## 2. Adhesives

Application of all adhesives suitable for linoleum is generally done with a B1 square-notched trowel, using approx. 400-500 gr/m<sup>2</sup>. Please also observe the adhesive manufacturer's recommendations. Continuously check the backing of the flooring to ensure it is sufficiently covered.

We recommend using low-emitting, solvent-free adhesives, which are also free of heavy solvents. You may obtain information about suitable adhesives suitable for installing linoleum from the DLW Technical Service in Germany +49 (0) 7142-71255 or [www.dlw.eu](http://www.dlw.eu).

## 3. Estimating requirements

### 3.1 Rolls

In order to establish requirements for material supplied in rolls, the required lengths and widths of the rolls must be determined. Before taking measurements, the direction in which the material is to be laid must be determined. Head seams are only recommended with roll lengths of more than 5 metres. Allowances must be made for rolls, which run up to door openings, or recesses etc. Strips can be used for covering door openings at the sides, recesses and so on.

### 3.2 Tiles

Tiles are generally laid in a chequerboard pattern. But they can also be laid, if desired, in a parallel manner. With regard to the way the joins run, either parallel or diagonal layouts are possible. For measuring-up, the nett floor surface is calculated, allowing an extra percentage amount for wastage, based upon experience. The amount of waste material is greater with diagonal laying methods than with a parallel design and greater also with oblique angled or rounded surfaces than it is with straight edges.

### 3.3 Staircases

Coverings for stairs are cut from rolls of material. When laying coverings with patterns that run lengthways, these should run parallel with the edge of the stair. This applies also to landings. The requirements are calculated from the number of stairs that can be cut, respectively, from one roll. Special templates are made up to enable accurate measurements and cutting in for angled staircases.



## 4. Storage, acclimatisation and conditions for installing

Correct storage is essential to ensure that the technical laying properties of DLW Linoleum PUR are retained.

As a rule, rolls of linoleum are stored upright in a dry room at normal temperatures. Tiles may not be piled more than eight boxes high. Once cut to size, store the loosely re-rolled sheets upright with the top surface facing outwards for at least 24 hours at a temperature of at least + 18°C in the room in which they are to be laid (see B, Veiling). This allows the material to acclimatise to the ambient humidity and temperature of the room. When the linoleum is being installed, it is important that the temperature not only of the room but also of the sub-floor should be at least 15°C and the maximum relative humidity 65 % (ideally between 40 % and 60 %).

Make sure that, in each room, only one and the same factory batch number of floorcovering is installed in the sequence of roll numbers. This applies both to tiles and sheets.

## 5. Cutting Linoleum

### 5.1 Trimming the edges of sheets

Even if sheets are to be joined at a later stage, we recommend trimming both edges of the sheet. The first edge is easily trimmed using a linoleum edge-cutter. The second edge may be trimmed by two methods:

a) In the case of small rooms (before adhesive is applied)

The lower sheet is scribed with a knife along the trimmed edge of the upper sheet. The resulting strip of waste is then cut in the opposite direction with a hooked blade.

b) In the case of large rooms (after adhesive has been applied)

The upper edge is scribed along already trimmed edge of the glued bottom sheet with an under-and-over scribe or a lino-cutter, and the resulting waste strip is then cut in the opposite direction with a hooked blade.

#### 5.1.1 Cutting the seams

In either case, the cut should be done in such a way that a gap of about 0.5 mm is left open between the sheets. The cut should be vertical or slightly diagonal so that the joint is loose, i.e. without contact between the two sheet edges.

#### 5.1.2 Top ends

When the seams are cut, possible alterations in the dimensions of the floorcovering should be taken into account. When long sheets are being joined it

is a good idea not to trim the top ends before the linoleum has been installed in the adhesive bed.

### 5.1.3 Fitting around door thresholds, radiators etc.

Once acclimatised, the sheet is installed and cut to fit around door thresholds, radiators etc. with the help of a recess scribe. The sheets should then be rolled back and the adhesive applied.

### 5.2 Tiles

Linoleum tiles are manufactured to order and should be laid within a maximum of 8 weeks after delivery. The tiles should be stored in a dry area.

For recommendations regarding adhesives see under point 6.

## 6. Installation

It is recommended that linoleum is fully adhered throughout. With this the operational guidelines of the adhesive manufacturer should be followed. Selecting the correctly notched trowel as well as the basic rubbing-in procedures are vital elements to ensure that the adhesive is correctly transferred to the material backing. Lift up the tiles to check that the adhesive is spread on the underside, when the work is being carried out.

### 6.1 Rolls

Rolls should be folded back and adequate adhesive is to be applied to the floor. The rolls should be laid in sequence onto the area where the adhesive has been spread, within the time that is specified by the adhesive manufacturer and then immediately rubbed in or rolled. This will depend on the room temperature and air moisture as well as the absorbency and dampness of the subfloor.

When rolls are being laid in corridors, they are to be folded back crossways. During the laying procedure, no pockets of air should be allowed to remain and these should be pushed out of the sides. Any hollow spots found when tapping down on the covering with a hammer, can be pierced and the air then pressed out.

### 6.2 Tiles

After the adhesive has been applied, tile laying begins with the predetermined first line of tiles. With large rooms, laying of the tiles in stages is recommended in order to avoid any misalignment. When applying the adhesive to the under side, the tiles are to be carefully smoothed or pressed on. It may be necessary to repeat this process.

Adhesive notching	Trowel required	Amount
2 component dispersion adhesive	B1	400-500 g/m <sup>2</sup>



## 7. Welding of seams

As per Code of practice 7/98 of the Technical Committee for Architectural Adhesives (TKB) in the Trade Association of the Adhesives Industry in Düsseldorf, the sealing up of joints with welding rod is always to be recommended. This is particularly applicable for areas where wet cleaning and/or basic cleaning is carried out frequently and with flooring bases that are sensitive to damp. The welding operation itself is carried out either with a hand-welding device or automatic welder. This is done basically after the adhesive has bonded, e.g. 48 hours after laying (see recommendations of the adhesive manufacturer). Sealing the joints too soon can lead to changes in the adhesive in the area of the joint due to the effects of heat, and this may impair adhesion.

The flooring joint should be grooved with a grooving tool and jointing plane to a depth of about 2/3 of the thickness of the floorcovering. The groove should then be cleaned carefully. The width of the joint should be around 3.5 mm. DLW weld rod can be applied using a hand-held welder with a 5 mm diameter quick welding jet attachment. Operating temperature is around 400-450°C, and the running speed about 2.5-3 metres per minute. In order not to damage the PUR surface, we recommend using speed welding nozzles, which have a very small air exit. The excess welding material will be trimmed off in two steps. Immediately after the groove is filled, the welding rod, which is still warm, is trimmed with the quarter moon knife and attached slide; after it has cooled, the excess welding material is trimmed flush with the finished flooring surface using the quarter moon knife.

Note: With linoleum that is not exposed to light (see section B, Veiling), differences in color may develop between the rolls and the weld rod. The flooring color will match the color of the welding rod after the veiling disappears.

## 8. DLW Linoleum PUR with underfloor heating

DLW Linoleum PUR can be installed on sub-floors with floor heating; the heat conductivity resistance is so small, that it practically has no effect on the performance of the heating system (see leaflet: interface coordination on heated floor constructions. Issued by the Germany Sanitation, Heating and Air Conditioning Association or relevant country code).

### 8.1 Dry constructions

Dry constructions can consist of calcium sulfate or brick plates. The flooring can be installed once the

seams have been smoothed over.

### 8.2. Wet constructions (A1-A3)

In the case of wet constructions, the heating pipe or cables are embedded into a floating cement or calcium sulfate screed. Before the flooring is installed, care must be taken to ensure that any residual moisture generated by the thermal influence is removed before the floor is laid. This is generally the responsibility of the heating engineer, who should report the required heating and cooling measured he/she completed. A moisture test may only be conducted where the sub-floor installer marked measuring points. If there are no measuring points, the floor installer must indicate his/her concern to the customer in writing.

## 9. Cleaning and maintenance

The contractor will provide the customer with maintenance instructions for the flooring in writing according to "Contract Procedures for Building Works" (DIN 18365, Part C, Paragraph 3.1.4).

The following publication is available at no charge:  
- Cleaning and Maintenance of DLW Linoleum PUR, Vinyl PUR and Luxury Vinyl PUR

Please call +49(0)7142/71-340 to request this publication.

## 10. Special information

### 10.1 Office chairs

Office chairs must be equipped with type W casters as per EN 12529 for use on elastic flooring, i.e. with soft casters of prescribed dimensions (50 mm diameter, 20 mm tread surface, 100 mm ball diameter of the tread surface). This must be taken into account when procuring new chairs.

### 10.2 Discolourations

After long periods of contact, rubber can leave discolorations on all elastic floorings, which cannot be removed.

These discolorations can be caused by, for example: Car tires, cover material, the castors or feet of washing machines, refrigerators and stroller wheels. The discoloration in this case does not appear immediately, but is the result of substances penetrating the flooring and their subsequent exposure to light.

To avoid such discoloration, polyurethane castors must be used. If this is not possible, we recommend using protective plates.

Substances such as tar asphalts, mineral oils, grease, and colored waxes, which shoes can track onto floors, can cause discolorations in highly-traveled areas of light-colored flooring. For



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instance, this is the case in rooms which are entered from tarred streets, in kitchens or in the offices of gas stations and repair shops.

### **10.3 Adhesive tapes**

When Adhesive tapes are used on the flooring please ask the tape manufacture about the compatibility to the flooring.

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