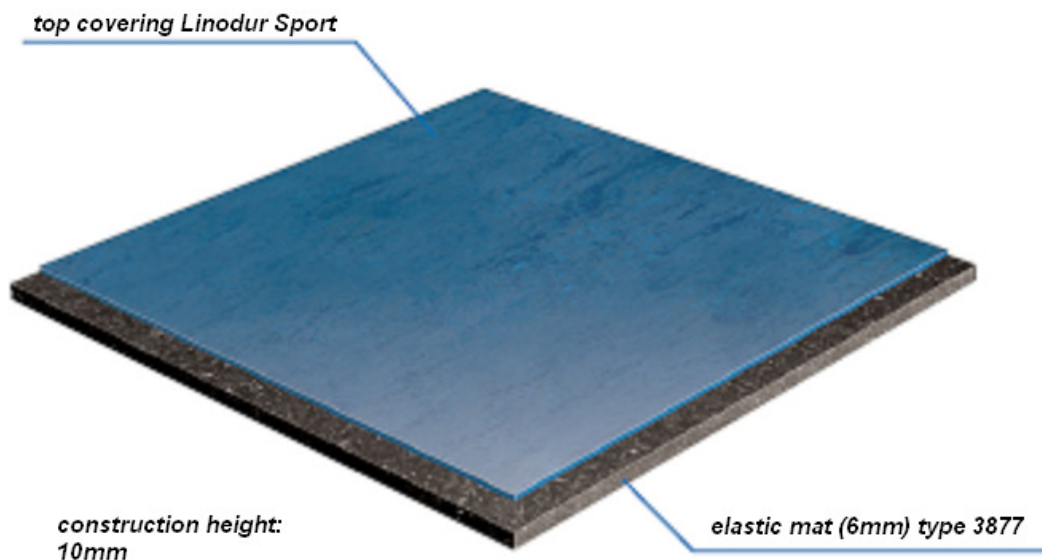


Installation Instruction - Linopol Sport / Linogym Sport

Issued: 10 / 2009

Linopol Sport - Installation Instruction



Installation of Linopol Sport / Linogym Sport

IMPORTANT: DLW SPORTS SYSTEMS IS NOT LIABLE FOR ANY DAMAGE CAUSED BY INSTALLATION THAT DOES NOT COMPLY WITH THESE INSTRUCTIONS.

Linopol Sport / Linogym Sport is a sports floor system consisting of an elastic mat and a Linodur Sport flooring layer. This system is suitable for gymnasiums, badminton or fitness centers as well as kindergartens.

Linodur, Linopro, LinovationSport:
Linodur, Linopro, Linovation Sport is made predominantly from natural renewable raw materials. This gives the linoleum floor covering the following properties which have to be taken into consideration during its installing.

Veiling

During maturation in the drying room at the factory, linoleum develops a natural film in the form of a slight yellow discoloration. This disappears when the product is exposed to light. Direct sunlight will make the film disappear relatively quickly. However, when it is exposed to artificial light or weak sunlight it can take some days or weeks for the film to disappear. For this reason the complete floor covering must be exposed to uniform light conditions.

Reaction to humidity

Linoleum is susceptible to dimensional changes when the humidity of either the air, the floor underneath, or the adhesive is too high. Consequently, the following instructions regarding the sub floor and the adhesives must be observed:

1 Subbase

Linodur Sport can be laid on all kinds of surfaces so long as they are flat, durably solid, free of cracks and dry, and remain so (see VOB Part C, DIN 18365, Floor covering installation and pertaining regulations).

The residual moisture of the different kinds of floors must comply with the following experimental values for floors of normal thickness, i.e. must comply with the minimum requirements of DIN 18560:

Admissible floors :	Residual moisture in % CM:
Cement floor	= 2.0
Anhydrite floor/cast anhydrite floor	<0.5

In case of direct contact with the ground, i.e. floors of greater thickness, we recommend installing a moisture barrier (epoxy resin applied according to the manufacturer's instructions). If necessary, request technical information, or specialized technicians to carry this out. This also applies in cases where the sub floor on which the sports flooring will be installed will overlay a substructure made of wood.

Installation Instruction - Linopol Sport / Linogym Sport

Issued: 10 / 2009

2 Adhesives

We recommend installing the elastic mat and Linodur Sport using proper adhesives depending on the subbase and with low emissions as far as possible.

3 Dimension and calculation of quantities

To determine the quantity of linoleum required it is necessary to measure the width and length of the area. Firstly, the laying direction must be determined. Head seams are only admissible for lengths exceeding 5 m. If the flooring length runs towards a door opening or niche, it must overlap these areas. Door openings at the sides, and lateral niches may be covered with threshold strips.

Elastic mat Regupol:

Thickness 6mm
Length 10m or 20m
Width ca. 125cm

Elastic mat Gymflex:

Thickness 8mm
Length 20m
Width ca. 125cm

Linodur Sport:

Thickness 4mm
Length approximately 27-28m
Width 200cm

4 Laying of the elastic mat:

Measure the exact dimensions of the room, and determine the middle of the area by spanning string across both the width and length. The strings must cross at right angles in the centre.

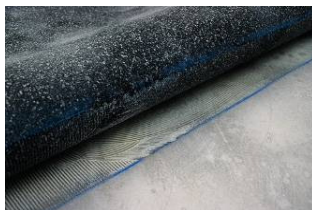


The laying direction of the elastic mat should be the same as that of the top covering. It is recommended that the linoleum be laid out from the central axis of the room towards both walls. Head seams, if required, must be offset by 50 cm. Lengths running towards the face wall should be measured and laid out at the end.

5 Fixing the elastic mat:

The elastic mat has to be glued with appropriate dispersion adhesives (trowel notched A2, for consumption see list). As a rule, elastic mats have to be fully glued.

On the floor, mark the outline of the area to be coated with adhesive. Fold back the mat and apply the adhesive starting approximately 0.5 cm from the marking lines.



Then lay the mat lengths by smoothing or rolling them into the wet adhesive within the period specified by the manufacturer. The amount of time required to lay depends on the ambient temperature, the air humidity, as well as the absorbency and moisture of the subbase. Avoid trapping air when laying the mat. If air bubbles occur, press them out sideways.

The next section of the mat is laid edge-to-edge against the first and so on.

After approximately 1- 2 hours the completed surface has to be pressed once more with a roller and hammered along the edges. Pay particular attention to head seams. **Leave the elastic mat adhesive to harden for approximately 8 - 12 hours.** Protect the laid surface with a barrier to prevent dirt being carried in from outside.



6 Storage, acclimatisation and installation conditions of Linodur Sport

To preserve the installation properties of Linodur Sport the appropriate storage conditions are important. As a rule, Linodur Sport rolls have to be stored upright in a dry room at normal temperatures. On each roll is a label with a directional arrow indicating the way up for storage. The prepared cut lengths have to be stored upright, loosely rolled with the top side outwards. They must be stored in the room where the installation, at a minimum temperature of 18 °C. During this time the rolls must not be exposed to direct sunlight (see **Veiling**). If this procedure is observed, the material can acclimatise to the ambient humidity and temperature of the room.

During and after the installation the ambient temperature must be at 18 °C and the temperature of the sub floor must be at least 15 °C. The relative air humidity must not exceed 75 % (the ideal value is between 40 and 60 %).

Installation Instruction - Linopol Sport / Linogym Sport

Issued: 10 / 2009

7 Laying of Linodur Sport

Each linoleum roll has at least one adhesive label showing technical data such as length, thickness, width, batch, etc. as well as the roll number. Attention must be paid to the order of the roll numbers when the rolls are distributed and cut.

Ideally, the rolls should be installed in ascending roll number order from one side of the room to the other to avoid color differences.



Each roll contains a multilingual instruction leaflet explaining the properties of the naturally ecological linoleum.

It gives architects and customers detailed information in case of queries, especially about the maturing film or yellowing.



After determining the ambient temperature, sub floor temperature and air humidity, any dirt in the area must be removed using a vacuum cleaner. The linoleum can then be rolled out.

Make sure that when the rolls are laid out there is at least a 5 cm overlap of the ends up against the wall. This overlap will be trimmed after the glueing is completed.



Measure the exact dimensions of the room, and determine the middle of the area by spanning string across both its width and its length.

The strings must cross at right angles in the centre. It is recommended that the linoleum be laid out from the room central axis of the room towards both walls. Head seams, if required, must be offset by 50 cm. Lengths running towards the face wall should be measured and laid out at the end.

Both edges of the linoleum lengths have to be trimmed. Cut off 1.5 - 2 cm from the edge of the first length with the strip cutter. Lay the second length with approximately 2 cm overlap over the trimmed edge of the completed first length. Then trim 1.5—2 cm off the second length as before. Repeat this procedure over the entire surface of the room.



8 Installation of Linodur Sport with adhesive

As a rule, the flooring must be fully glued. Use adhesive appropriate for Linodur Sport and observe the manufacturers application instructions. Apply the adhesive with the help of a Bi notched trowel. Usage will be approximately 400 g/m². If the surface is larger than 150 m², fold back only 2, or at most 3 lengths at a time to apply the adhesive.

Before glueing, use white chalk to outline the floor area to be coated with

linoleum must always be laid or rolled into a fresh (wet) adhesive bed. Lay the rolls in the same order as they were cut. Regarding laying period, and latest laying time, please refer to chapter 5. Avoid trapping air: if air bubbles occur, press them out towards the sides.



The edges at the ends of each length (at the wall) have to be pressed and rolled against the adhesive bed.

Then trim the edges adjacent to the wall with the help of a hooked knife and press the ends carefully against the adhesive bed.

Thereafter the seams have to be cut in such a way that between the edges of each roll there is a joint of approximately 0.5 mm left open.

This is achieved by scoring the edge of the uppermost roll with a scribe, or with the Linodurcut tool, along the already cut edge of the length laying underneath. Then cut the strip with the hooked knife so that the back of the knife can slip unhindered through the joint. The result is the required 0.5 mm joint.



Installation Instruction - Linopol Sport / Linogym Sport

Issued: 10 / 2009

Now, using moderate pressure, press the seam edge against the adhesive layer with the help of a hammer, and fix the complete surface with the pressing roller.



Depending on the climatic conditions, half an hour after laying all the seams and edges have to be pressed down thoroughly once more with a heavy hammer.

In order to prevent the adhesive drying under the fold back line, an adhesive tape with approximately 2 trowel widths of adhesive is placed over the adhesive edge at a distance of 0.5 cm. The folded back linoleum is pushed forward 20 - 30 cm on this tape, and the procedure is continued in the fresh adhesive bed. This ensures that the complete linoleum floor is covering is always laid into a fresh adhesive bed.



The next step is to press once more press the wall edges with a roller, to trim them and then press them again against the adhesive. Then the whole surface has to be rolled and the seams have to be cut. After approximately 30 minutes, the seams and edges have to be pressed again.



It is recommended that the surface be inspected with a hammer after rolling to hear whether there is air trapped. If there is it must be let out through a small incision in the linoleum. If in doubt, place weights on these areas.

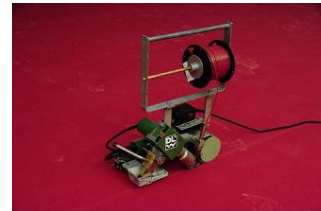
When the adhesive has hardened (which can take several days depending on the type of adhesive, the temperature of the sub floor and the humidity), using a joint milling machine mill the joints and butts to a depth of 2/3 of the linoleum thickness. Then vacuum or blow the dust thoroughly out of the joints. The joints should be approximately 3.5 mm wide.



The melting wire is applied with an automatic welding machine or a hand torch with an instant welding nozzle or a polyolefin nozzle 5 mm in diameter. The rear part of the foot (air outlet) of the instant welding nozzle should not be broader than the milled groove (3.5 mm). We recommend automatic welding machines in which the melting wire runs without tension, the temperature is controlled constantly and the welding rod is put into the milled groove without pressure.



The processing temperature is around 400 - 450 °C. Choose a suitable working speed so that ideally the welding rod is running into the milled groove. This corresponds to a running speed of 2.5 - 3.0 m/mm.



The excess welding rod is removed in two stages. The first stage is carried out warm with the quarter moon knife and attached push-off device.



Applying an initial care treatment using a product that complies with DIN 18032 T2 completes the installation. Please refer to the Cleaning and Maintenance Instructions for Linodur Sport.

