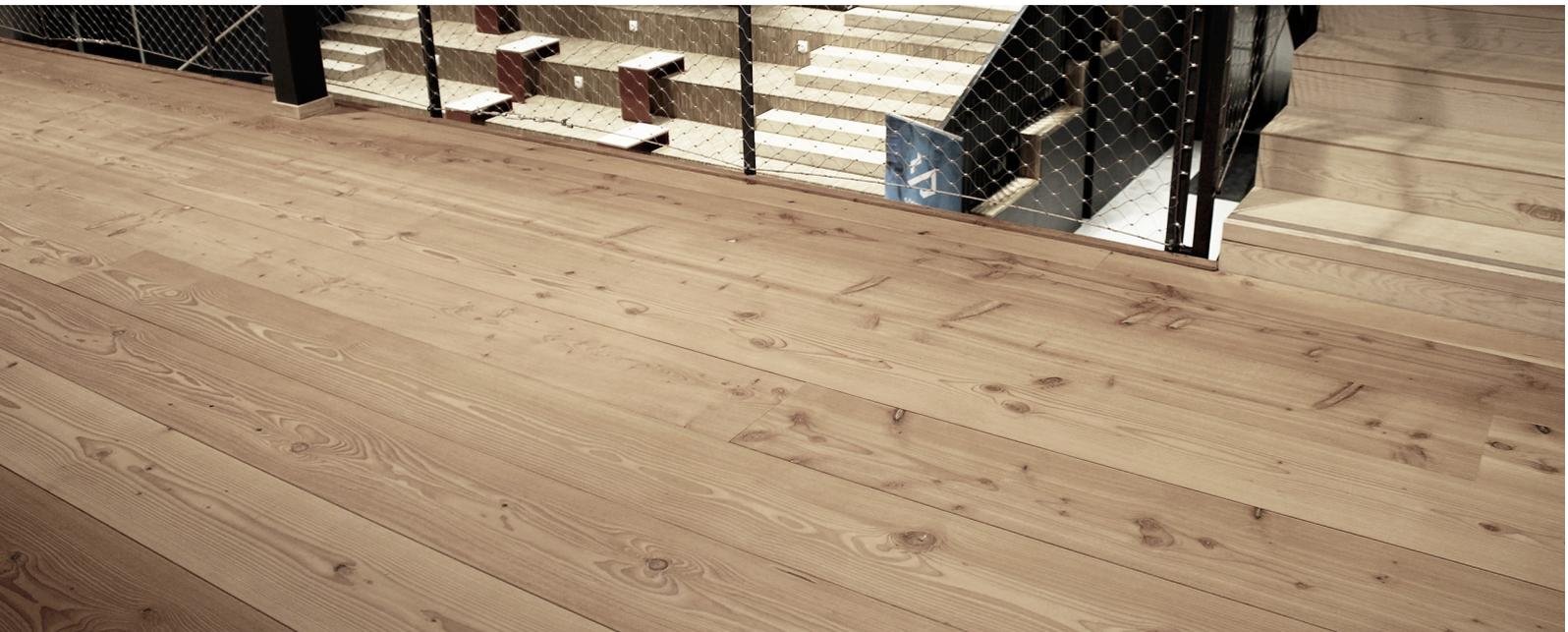


Installation Guide

Origin Planks



When the architecture dictates true large format.

HØRNING Origin plank is produced from carefully selected wood from hundreds of years old trees from Danish and German forests.

Quality takes time, and it takes up to 2 years from the cutting down of the trees until the finished floor is ready for installation. This unique solid floor is available in special dimensions in thicknesses up to 35 mm, width up to 40 cm and lengths up to 16 m.

A unique flooring solution that will make the room appear bigger and longer.

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General information

HØRNING Origin planks undergoes thorough quality control at the factory. It is, nevertheless, important to check for any defects before installing the floor.

Should you expect any climatic deviations from the recommended residual humidity, please contact our technical department for advice. If there is a risk of the residual humidity from the underlying sub-floor exceeding 65% (R. H.), the installation of the floor will have to be postponed.

Please keep a distance of 10-15 mm from walls and any permanent fixtures. Hørning Parket can supply floor mouldings that cover these measurements. If you do not wish to use floor mouldings you may finish the floor by means of elastic joints (in which case the distance to the walls should be increased by 5 mm).

HØRNING Origin plank flooring must not be glued on the long sides, but only over the ends.

Receipt of goods and quality control

By the delivery of the material the building must be dry and free of construction humidity, such as bricklaying and painting. Never have the floor delivered until the building is sealed, dry and warm, and the humidity levels are under control. Carry the material inside immediately after delivery, do not leave them outside under any circumstances.

Carry the floor into the room where it is to be installed – and stored before installation. Make sure to carry out a detailed quality check of the flooring as well as of other related materials that you have received before signing the freight note. Any complaints regarding visible defects must be made in writing before the floor is installed and no later than 8 days after receipt. A floor which has been installed has also automatically been approved.

Contractions and expansions

The moisture content in wood floors will always seek to adjust in equal weight with air relative humidity (RF) and temperature. The tree absorbs and releases moisture by changes in the relative humidity. It happens in all the wooden floors, but the movement wooden floors in form of contractions or expansions (swelling) depends of product type, wood species, thickness and surface treatment.

In practice, it is often necessary to know how much a floorboard or an entire floor contracts or expands. A commonly and internationally used realistic average used wooden floors of oak, douglas, beech, oak, ash, bilinga and walnut, a mean of 2.2 mm contraction or expansion per meter meters can in in practice be calculated for each 1% change in the humidity of the wooden floor.

Climate

The temperature in the room must be between 18-24 degrees centigrade and the relative humidity (R.H.) must be 35-65% before the delivery of the plank flooring. The humidity in the atmosphere can be measured by a hygrometer. If the above criteria cannot be met, please contact HØRNING before the installation.

As regards the temperature, the plank flooring should be delivered one day before installation is due to begin. The installation may be commenced 12-24 hours after the planks have been carried into the room. Please check the temperature and the humidity. If the planks are stored at a humidity in excess of 50% (R. H.), they will absorb humidity and widen, which will then result in larger shrinkage cracks than normally at a later stage.

Under-floor heating

HØRNING Origin plank flooring may be used for floors with under-floor heating provided that the heat distribution is completely even and that the surface temperature does not exceed 27 degrees centigrade. The under-floor heating must be closed for at least a week before the installation is commenced and after installation the temperature should be increased by a maximum of 3 degrees centigrade each day until the room temperature is 18-24 degrees centigrade. The temperature must be at least 15 degrees centigrade at the time of installation.

Under-floor heating may result in slightly larger cracks in the floor during the winter compared to using radiators.

General information about installation

Mix up the rows of planks from several bundles in order for your floor to have a harmonious appearance. Once a floor has been installed, you cannot complain about any visible defects.

The first plank is installed with its groove against the wall at a distance of 10-15 mm. Use temporary distance wedges. The leftover material from the first plank is then used to start off the next row in order to have staggered joints. You have to have a minimum distance of 60 cm between the ends of two adjoining rows of planks.

Remember to keep a distance of 2 mm between all of the floor planks of a width of 300 mm or more.

Please carefully push the plank completely down against the base when you are screwing or gluing it on. You must always use a wooden block or rail.

If the planks bend you may have to wedge the planks in place. Please check the straightness of the row by using a rope. Repeat this check for every five rows that you install.

Any excess glue must be wiped off immediately by using a firmly wrung cloth. Cover the floor as and when you have installed it in order to avoid any dirt. When installing the final row of floor planks, the planks must be adjusted in order to take into account the minimum distance of 10-15 mm to the walls and any permanent fixtures.

Cut outs for radiator pipes etc.

Measure and mark the pipe's position in the plank in question. Drill through the plank. Please remember to leave at least 10 mm all the way around the pipe. Cut the plank in the centre of the hole. Gather the planks around the hole, glue them together and make sure that they are supported. If possible, you may cut out a triangle on the reverse of the plank, put the plank in place and glue back the triangle.

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You may use a crowbar to put the plank in place. Be careful with walls of plaster!

Thickness of the floor	Residential area	Small shops	Larger common rooms
21-22 mm	60 cm	49 cm	42 cm
24-28 mm	72 cm	59 cm	50 cm
30-35 mm	95 cm	77 cm	67 cm

When you have completed the installation of the floor, please remove the distance wedges, but do not use the floor until the glue is completely dry. Cover the floor with floor felt in order to protect it unless you decide to sand and surface treat it immediately. In the case of fully glued floor planks the glue must dry for at least 48 hours before you start sanding the floor.

Installation on joists

Joists may be put on chocks by using plastic blocks and wedges. If there is a risk of rising damp from the underlying sub-floor, please apply a foil of a minimum of 0.2 mm and a minimum overlap of 20 cm with taped joints.

The distance between the blocks and the joists depends on the load bearing capacity of the floor, the dimensions and the types of joist.

The first and final row of joists require a distance of 50 mm to the walls. The second row of joists must be at a maximum distance of 40 cm (from middle to middle) from the first row. The joists are placed at intervals that depend on the floor's load bearing capacity and its thickness. Please consult the table below as regards the maximum distances from middle to middle:

The joists must be completely level +/- 2 mm per 2 square metres. The joists should be screwed on to the chocks. The distance between the joist ends and the walls must be 10 mm.

The planks should be drilled, screwed and plugged from above. Use a 15 mm plug centre bit to drill a 10 mm hole 4-5 cm from each edge. Make sure that the holes are straight and that they are not frayed. The plank flooring is screwed on by means of a self-tapping wood screw (21-25 mm: 5x50 mm. 28-35 mm: 5x60 mm).

Once the entire floor has been installed, Hoover the holes and glue the stoppers with humidity resistant PVC glue. The direction of the stoppers' grains ought to be the same as those of the planks. Make sure that you apply glue on the sides. Any excess stoppers may be polished off by using a band sander - not a wood chisel.

Alternatively, the planks may be screwed into every joist and concealed in the side where the tongue is placed. However, planks of a width of 300 mm or more must always be screwed from above and plugged. Along the walls you al-

ways screw and plug from above notwithstanding the width of the planks.

When screwing into planks of between 21-25 mm's thickness, please use 48 mm PTS floor screws, i.e. one for each joist. In the case of 28-35 mm's thickness, please use PTS 61 screws or PWS 62/80 mm floor screws. It must always be at an angle of 45 degrees.

The minimum distance between two jointings should be 600 mm. Please ensure that you do not have any jointings in between the joists in any two adjoining rows of planks within one and the same line of joists. You have to have at least one through-going/continuous plank after each jointing in between the joists.

HØRNING Origin plank flooring must not be glued on the long sides, but only over the ends.

Planks in descending lengths have tongue and groove on all four sides and consequently, they may be joined between the joists. You may always clean and join the tiers of beams/joists.

Installation on concrete or thin plaster

In the case of concrete or light plaster (tyndpuds?) underlying sub-floors, the planks must be screwed on and plugged from above. The concrete must be completely level, i.e. no more than +/- 2 mm over 2 square metres as measured by a straight-edge.

You may wish to use wedges in order to adjust the direction of the planks in the first row.

Please remember to keep 2 mm's distance between any and all floor planks of a width of 300 mm or more.

When screwing on the planks, drill a 10 mm hole 4-5 cm from each edge by means of a 15 mm plug centre bit. Make sure that the holes are in a straight line and that they are not frayed. Then you drill a 50 mm hole into the concrete with a 6 mm concrete drill and then you Hoover the hole. 21-25 mm planks are screwed on with a 5x50 mm self-tapping, part threaded spun screw and a 6x30 mm dowel. 28-35 mm planks are screwed on with 5x60 mm part threaded spun screws and a 6x30 mm dowel. The distance between the stoppers should be 70-90 cm. If you are using under-floor heating be careful not to drill or screw into the heating pipes.

If you wish to glue the planks, please fully glue them on to clean and solid concrete. If the concrete has a maximum residual humidity of 80%, the planks may be glued on directly by using 'HØRNING MS Flexlim'. Use adhesive trowel no. 6. You will need to use approx. 1 litre per square metre. Remember to clean the concrete for it to stick properly.

Please do not pour out anymore glue than what you can cover within 20 minutes. The installation should be done while the glue is still wet. Do not push up any glue in between the planks and do not glue the tongue and groove.

Planks of a width of 300 mm or more must be bevelled by

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an approx. 5 mm bevel on the reverse, below each of the lowest groove lip, so that the glue does not get pushed into the tongue and groove joints when using glue.

When you are gluing, it is important that the planks are continuously loaded with a minimum of 10 kilogrammes per square metre during the installation and until the glue has dried completely, especially along the edges and ends, in order to ensure that they stick properly to the base. 'HØRNING MS Flexlim' must dry for at least 48 hours before any sanding and surface treatments are commenced.

Installation on an existing floor

In order to achieve the correct planeness, the underlying sub-floor must be adjusted by planing off, filling and possibly by means of a board. The planks may be either screwed or glued on. It is imperative that you clean the base, so that it is completely free from any dirt before you possibly start gluing.

The existing floor must be stable and without any squeaking noises. Screw it up if necessary. The existing floor must be level +/- 2 mm per 2 square metres as measured by a straight-edge.

When screwing the planks on, remember to use floor felt (500 grammes per square metre) between the two floors.

Installation on boards

HØRNING Origin plank flooring may be installed on top of plywood or chip-board of a minimum thickness of 22 mm. The board floor must be completely level, i.e. maximum +/- 2 mm over 2 square metres as measured by a straight-edge. If the underlying sub-floor is made of wood-based boards, the planks may be either screwed or fully glued on.

The installation of the board floor must be carried out in accordance with the board manufacturer's instructions. In order to muffle any noise from walking on the floor you should use 500 grammes floor felt or noise-reduction material between the boards and the floor planks (if you are screwing on the planks).

The way in which you screw the planks on to boards is essentially the same as screwing the planks on to joists (as described in our guidelines above). However, the following screws and stoppers are used from above: In the case of 21-22 mm floor planks, use 5x30 mm wood screws, in the case of 24-25 mm floor planks, use a wood screw of 5x35 mm and in the case of 28-35 mm, use a 5x40 mm wood screw. Use PTS 48 screws or PWS 62/80 mm floor screws for concealed screwing.

After installation

For the best result, office chair mats should be laid out under office chairs. All chairs and table legs and other items that can scratch or mark marks on the surface should be fitted with felt. Remember to check the felt continuously and replace them if they get worn. Keep in mind that latex-containing pads, mats and black rubber wheels may leave marks on the surface of the wood floor.

Surface treatments for new floors

After installation the floor must be sanded. It is essential that the sanding is done professionally. Before starting this task, the building must be closed off, be dry and be subject to constant heating.

During the process the temperature must be between 18-24°C and the humidity should be between 35-65% (R. H.). If you use under-floor heating, the surface temperature should be lowered to the normal room temperature (20-21°C). Five days after the completion of the surface treatment you may increase the floor temperature gradually.

You ought to cover any adjacent rooms, as sanding is dusty. Before you start sanding, please ensure that the floor is completely free from grease, bits of mortar, filler, glue, paint, silicone etc.

Sanding is carried out by a belt sander, initially with grade 60, then grade 80 and then grade 100. Finally, you sand the floor with a rotex sander with grade 100 or 120 depending on the hardness of the wood. In order to ensure that any possible traces of the surface treatment can be removed, you should not leave out more than one grade. The honing should be carried out lengthwise on the planks. Alternatively, you may hone the floor with the light in your back.

After you have finished sanding and honing the floors as well as any adjacent horizontal surfaces (skirting boards, window sills etc.), Hoover them carefully in order to avoid any impurities in the subsequent surface treatments.

Once you have sanded and honed the floors, treat them with lacquer, oil or lye plus oil (depending on the wood species). The surface treatment should be carried out without being subject to draught and sunlight, as these may result in uneven drying.