



# **STRETCH CEILING INSTALLATION TRAINING MANUAL**

Part 1

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## INTRODUCTION

This is a training manual describing installation methods applied with Saros Design PVC stretch ceilings and additional accessories.

The stretch ceiling is one of the most popular room ceiling finishing options. The stretch ceiling technology is based on thermoplastic properties of PVC. A stretch ceiling is manufactured being 7-10% smaller than the actual size of a room. The membrane becomes elastic when heated up to 50-70°C, and the membrane can easily be stretched to be attached to a track preliminary installed around the room perimeter.

The main advantages of stretch ceilings are:

- Rapid installation
- Absence of dirty work
- Watertight, and provides protection in the event of a water leak
- A wide range of colours and finishes
- Minimum loss of the room height
- Multilevel or 3D stretch ceiling constructions

There are two installation systems applied with stretch ceilings:

*With harpoons* – a rigid track (profile) is attached around the room perimeter, and the stretch ceiling membrane has a flexible harpoon welded to it (Fig. 1); the harpoon is securely hooked into the track during installation. *Without harpoons* – a PVC or any other special fabric membrane is attached to a track with a cord, wedge etc.

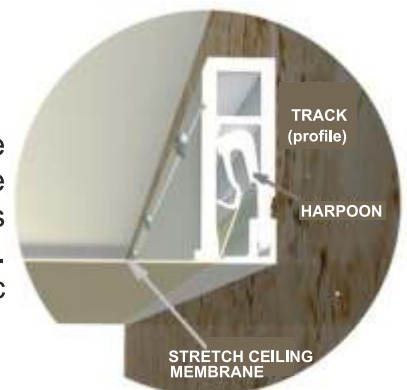


Fig. 1

Saros Design stretch ceilings are mostly manufactured with harpoon edges, therefore this training manual focuses on the installation method applied with harpoon-edged stretch ceilings.

We will share our many years' experience and look into individual installation cases paying attention to key aspects of measuring and installation.

Hopefully, our recommendations will help you avoid making costly mistakes and mistakes others have made.

## TAKING MEASUREMENTS

**ATTENTION!** All measurements shall be taken in CENTIMETERS!  
Rounding to the nearest whole number is allowed (326.5 cm → 327 cm).

Please remember, there are no two identical ceilings! Therefore, pay great attention when taking the measurements, even in case of a typical space layout

To take your ceiling measurements, you will need:

1. Laser range finder;
2. Tape measure (2-3 m);
3. Notebook or a tablet computer;
4. Note pad;
5. Masking tape (to measure curvatures);
6. Set of SAROS DESIGN catalogues



### Starting measuring and corner labelling

**ATTENTION!** Whenever a sloped ceiling (mansard) is measured or in case a stretch ceiling panel needs to be fit to a wall, take the LOWER LEFT-HAND corner as your start corner A. Then follow the standard numbering scheme (Fig. 2).



Fig. 2



When entering a room, find the FARTHEST LEFT-HAND corner and set it your **A** corner. This will be the starting point to label the other corners of the room (internal and external). Corners shall be numbered left-to-right, each of the corner shall be labelled with a Latin alphabet letter (A, B, C, D etc.) (Fig. 3).



Рис. 3

## Ceiling layout

Draw a ceiling layout in the note pad; the layout must match the room layout. Mark all the corners with respective letter labels, and draw a table for side and visible diagonal dimensions next to it (Fig. 4).

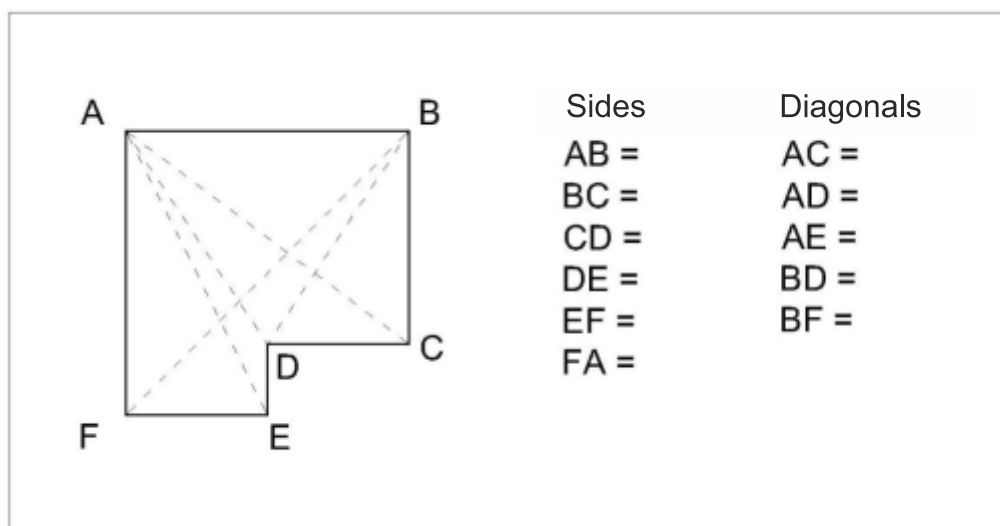


Fig. 4

Next, measure every side and visible diagonals of the room and fill the data required on your ceiling layout (see above).

Measure the **AB** side and visible diagonals **AC** and **AE** starting from the **A** corner. Write the values measured down.

Measure the **BC** side and visible diagonal **BF** starting from the **B** corner etc.

Follow the procedure above to measure **ALL (!)** the room sides and as many diagonals as possible.

**ATTENTION!** In case any of the sides value is missing or the number of the diagonals measured is not enough, you will not be able to draw a ceiling layout using Saros Designer 2 software.

**ATTENTION!** In case you use an official room layout or plan, always check actual dimensions and measure diagonals.

## Data transfer to the Saros Designer2 software

Having taken all the measurements, you need to transfer the data obtained to the Saros Designer 2 software used to plot stretch ceiling drawings (Fig. 5).

**Recommendation** Transfer the data while in the room to be able to evaluate the correctness of the side and diagonal measurements taken and repeat measurements if required.

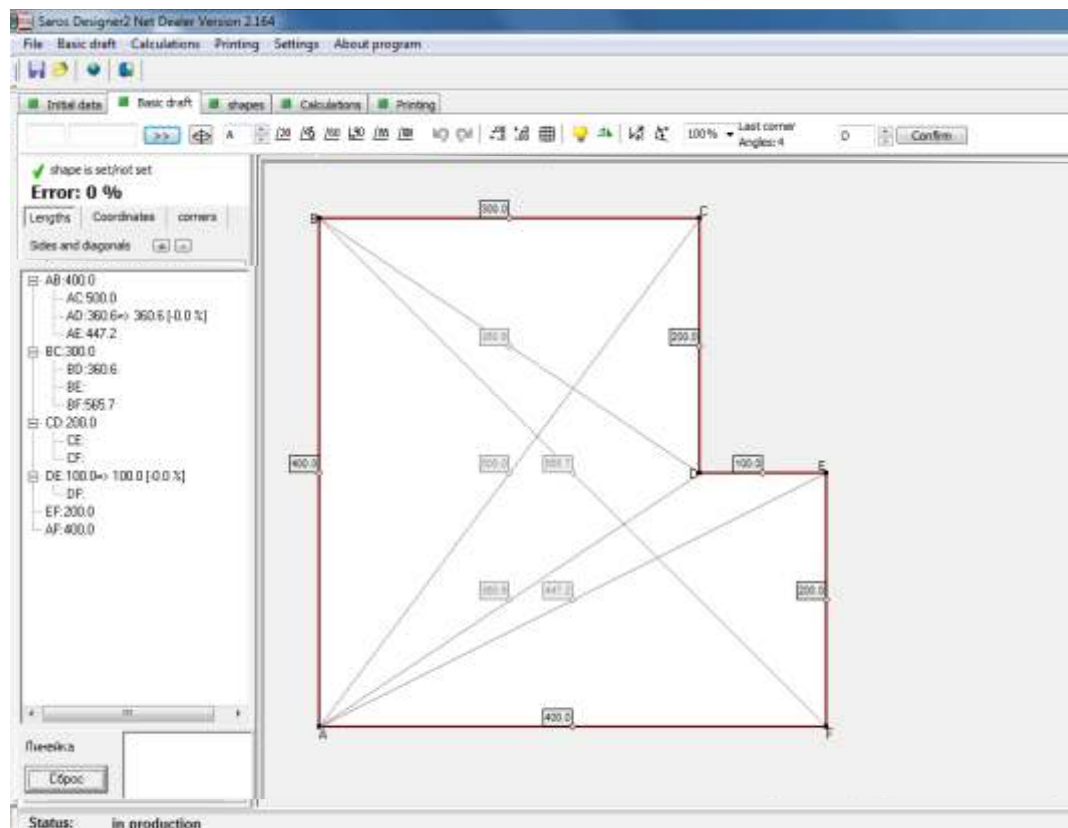


Fig. 5

Detailed description of Saros Designer 2 application can be found in a respective User's guide 'SAROS DESIGNER2. Client Version'.

## Room specification

Room specification (or a room work sheet) (Fig. 6) – is a standard form we recommend using when taking measurements. The form will prepare you for subsequent ceiling installation taking account of the wall material, furniture, niches and cornices that may interfere with stretch ceiling installation.

**SAROS  
DESIGN**

Room specification

Address:

1.1. Wall material: drywall, bricks, concrete, wood, aerated concrete

1.2. Wall finish: wallpaper, paintwork, tile, porcelain tile, plastic, wood, no finish

1.3. Floor finish: linoleum, flooring, hardwood flooring, laminated flooring, wood, tile, no finish

1.4. Furniture and other items restricting access to the walls:

Hight \_\_\_\_ cm

Depth \_\_\_\_ cm

Distance between the ceiling and upper edge \_\_\_\_ cm

Can be moved? Yes No

1.5. Ceiling hight: 2.10 cm

1.6. Illumination:

Chandelier \_\_\_\_ pcs

Ceiling-fixed light fixture \_\_\_\_ pcs

Recessed light fixture \_\_\_\_ pcs

1.7. Heating pipes \_\_\_\_ pcs

1.8. Ventilation applications \_\_\_\_ pcs

1.9. Alarm applications \_\_\_\_ pcs

2.0. Other materials:

2.1. Floor \_\_\_\_\_ Elevator \_\_\_\_\_

Ceiling drawing

CONTRACTOR \_\_\_\_\_

CLIENT \_\_\_\_\_

Fig. 6

**IMPORTANT!** Give attention to every detail!  
An unsecured gypsum board wall will not be able to withstand the tension and will stop you from stretching the ceiling membrane.  
A wall covered with porcelain tiles is impossible to drill.

## Measuring a curved ceiling

Below is an example explaining how to measure a curved ceiling.  
The room shall be measured following the standard procedure (the start corner is the farthest left-hand corner).

First, you need to visually identify curve (ceiling curvature) starting and end points while labelling the corners. These points shall be marked with a masking tape, and are letter-labelled just like corners (Fig. 7).

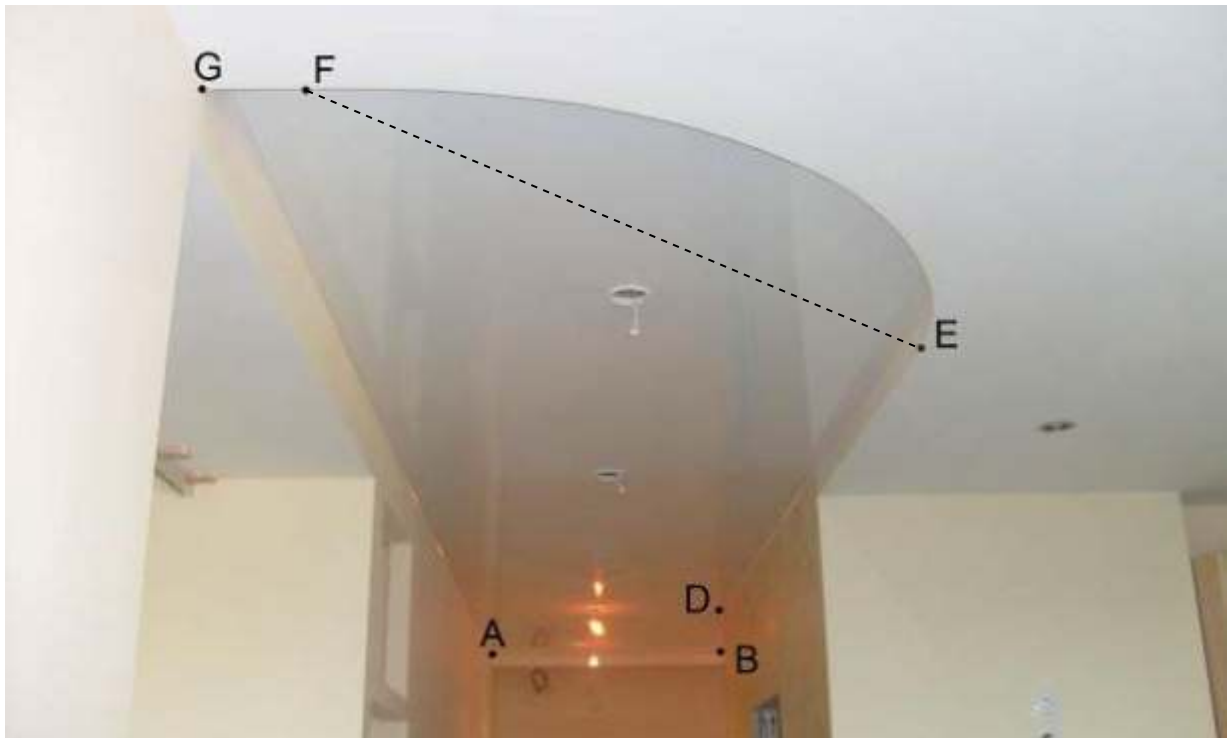


Fig. 7

You need to measure the EF length (chord L) when measuring the sides and diagonals of the room. The EF curve length can be measured with a tape measure laid along the curve. These measurements are required for ceiling drawing plotting with the Saros Designer2 software.

A curved ceiling layout and its dimensions will look as seen below in Fig. 8.

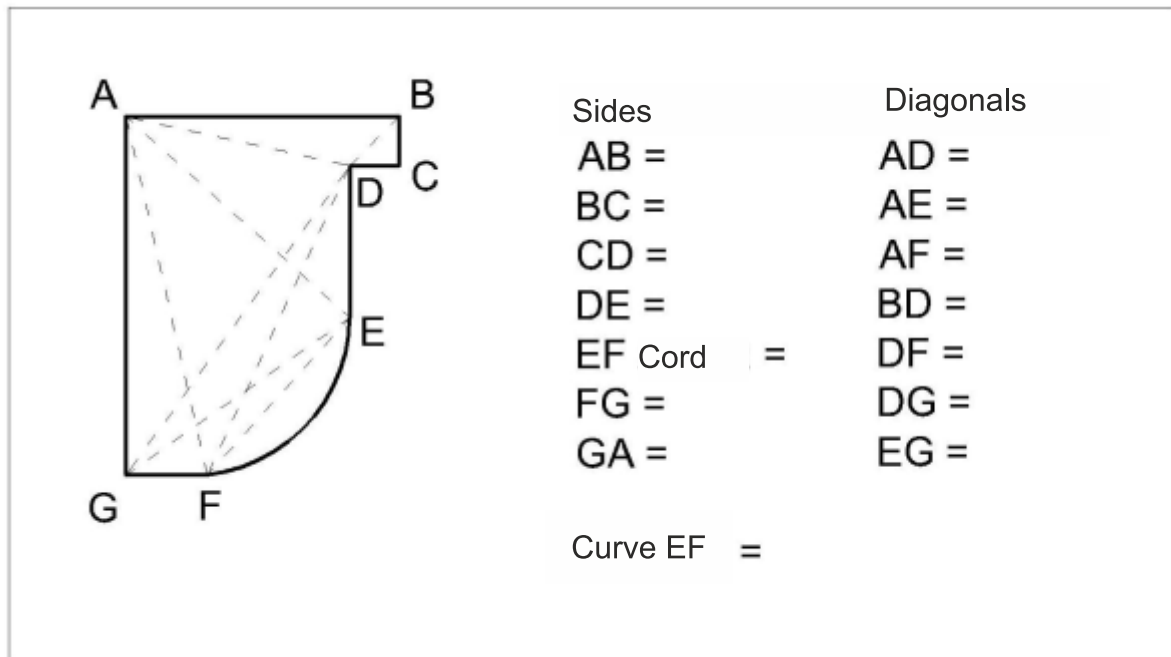


Fig. 8

In case you need to take measurements in a room with an inward curve or a half-column, measuring the chord will be difficult (Fig. 9 and 10).

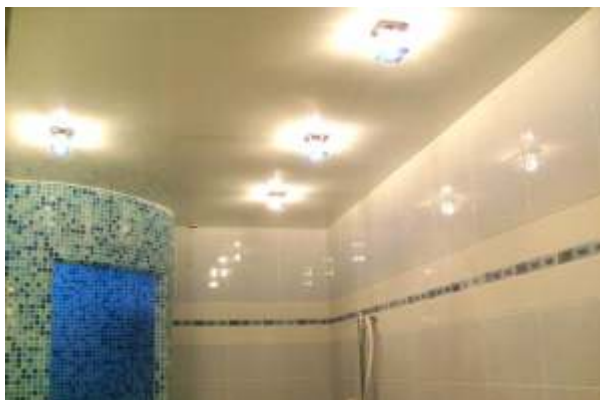


Fig. 9



Fig. 10

Should the above be the case, our recommendation is to split the length into shorter sections of 15-20 cm. Use the masking tape labelled with letters to mark your points. These marked points shall be seen as additional corners you should use to measure as many diagonals as possible (Fig. 11).

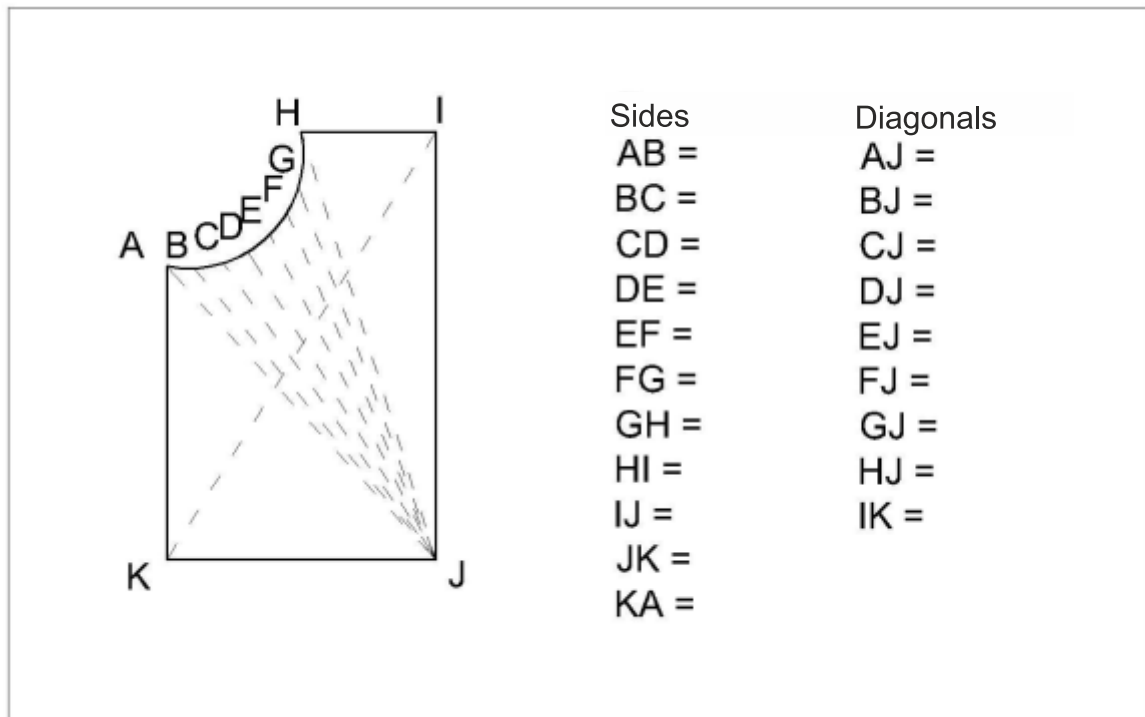


Fig. 11

## Measuring a ceiling with an internal cutout

The Saros Designer2 software has an option that can be used to plot a ceiling with cutouts (in case of columns or pillars, gypsum board structures etc.). To plot such a ceiling, you need to take additional measurements (Fig. 12). First, you need to identify a reference corner and a reference wall to start your measuring from.

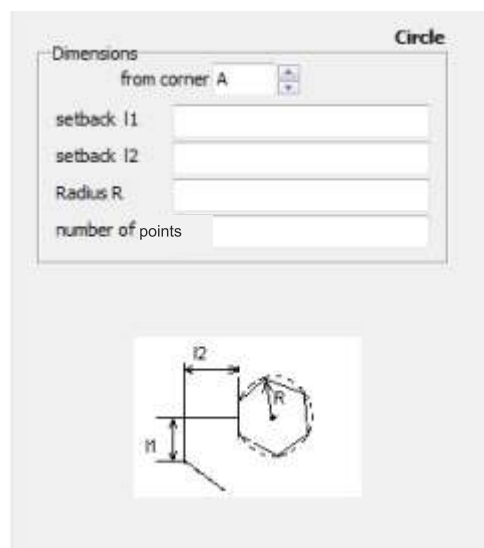


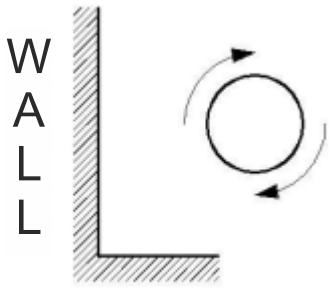
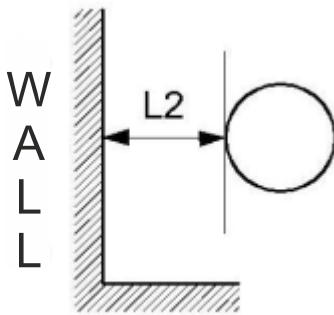
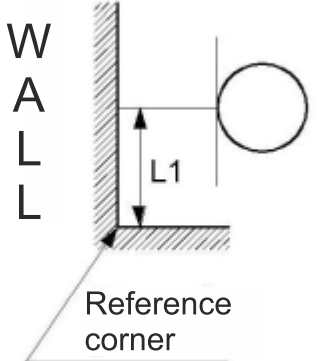
Fig. 12



**Recommendation** The corner nearest to the cutout should be set the reference corner.

Below is an example explaining how to measure a ceiling with a pillar.

To plot a ceiling drawing with a round cutout, you will need:

<b>R</b>	Cutout radius	Use a tape measure to measure the perimeter of the pillar circle ( $L_{\text{circle}}$ ) and then use the equation below to calculate the radius $R = L_{\text{circle}} / 2\pi \text{ where } \pi = 3.14$	
<b>L2</b>	Distance from the wall	You need to find the shortest distance from the pillar to the nearest wall. To do that, find a tangent line to the pillar circle that will run in parallel to the nearest wall. Then measure the perpendicular (the shortest distance) from the tangent point to the wall, and put a mark on the wall.	
<b>L1</b>	Distance from the corner	Measure the distance from the reference corner selected to the mark on the wall put in Step 2.	

**ATTENTION!** Do not rely on visual estimation only when finding the tangent line position or the shortest distance. In case the perpendicular line deviates just 2-3 degrees, the cutout location in the drawing may shift 15-20(1) cm.

## BASIC TRACK TYPES AND RECOMMENDATIONS ON THEIR USE

Track (profiles) – a load-bearing structural element of the stretch ceiling arrangement.

Stretch ceiling tracks can be:

- visible – does not require any cover strips and is suitable for awkward-to-reach locations (Fig. 13)
- invisible – the most popular track type that can be of various designs depending on the purposes it is used to serve.

The invisible track is made from PVC or aluminium. Below please see the advantages of all invisible track types.



Fig. 13

### Invisible track No 2 (PVC)



This track is used to attach stretch ceiling membranes to any vertical plane. The main advantage of the track is its flexibility. No additional notches are required in case of this track installation over curved sections with a radius of 1 m and beyond. Being flexible, the track follows all wall unevenness making that invisible.

Most simple tools can be used for such track preparation (a knife, a light hacksaw etc.). The track does not require pre-drilling of installation holes.

Spacing between screws – 7-10 cm

Standard track length – 2.5 r. m.

Available in shorter sections of 1.25 r. m.

### Invisible track No 2g (PVC)



Has the same advantages as Track No 2.

The main difference of this track is its short rear panel. This track is most suitable when cover strip installation is not required as the track will not be visible in the gap between the wall and the ceiling.

Spacing between screws – 7-10 cm.

Standard track length – 2.5 r. m.

Available in shorter sections of 1.25 r. m.

## Wall track No 5 (aluminium)



Used to attach a stretch ceiling membrane to any vertical surface. Quite stiff, does not follow minor wall surface unevenness. Minimum ceiling height loss of 3.5 cm. The space between the wall and the ceiling is concealed with a cover strip.

Spacing between screws – 15-20 cm.

Track material – aluminium.

Available in sections of 2.5 r. m.



## Universal track No 4 (aluminium)



Used to attach a stretch ceiling membrane either to a wall or to a ceiling. Quite stiff and can be fixed at a larger distances between rawplugs which makes it a good solution in case of surfaces that are too hard to drill (for instance, ceramic granite).

Spacing between screws – 30-40 cm.

Track material – aluminium.

Available in sections of 2.5 r. m.



## Ceiling track No 3 (aluminium)



Used to attach a stretch ceiling membrane to a ceiling. This is the only track producing a minimum gap of 2 cm between the stretch ceiling membrane and the original ceiling.

Spacing between screws – 20-30 cm.

Track material – aluminium.

Available in sections of 2.5 r. m.



## Spacer track No 6 (aluminium)



Used to join stretch ceiling membranes when fitting ceilings around columns or pillars, in case of various colour ceilings or in case of larger ceilings where membrane sagging is likely.

Spacing between screws – 15-20 cm.

Track material – aluminium.

Available in sections of 2.5 r. m.



## WALL TRACK INSTALLATION

Tracks installation is one of the most important installation stages as they are load-bearing elements of the stretch ceiling. Quality and durability of the entire structure depends on correct track installation.

### The minimum list of equipment required for stretch ceilings installation

- Propane gas heater 30 kW
- Gas bottle 12 l
- Rotary hammer drill with dust extractor
- Set of concrete drills Ø 4-8 mm
- Screw gun 2 pcs.
- Magnetic crosshead bits – at least 4 pcs.
- Set of metal drills Ø 3-8 mm
- Tile drills Ø 5-6 mm – at least 4 pcs.
- Hack saw
- Spirit level or laser level
- Chalk line
- Wide spatulas 2 pcs.
- Narrow spatula 1 pc.
- Corner clamps (alligator clips) 4-6 pcs.
- Tape measure
- Detector for hidden electrical wires
- Step ladder, 7 steps, 2 pcs.

**ATTENTION!** Step ladder legs should have soft pads attached to them to avoid damage to the flooring surface.

### Marking off

The easiest way to mark the track location off is to use the laser level (fig. 14).

Using such tool quickens the marking-off, and requires only one person.



Fig. 14

Since perfectly even ceilings do not exist, you need to find the lowest ceiling level. To do that, drive and adjust the laser beam as close to the existing ceiling as possible. In case there are any communication lines to be covered with the stretch ceiling, run the beam as close to these lines as possible (Fig. 15).



Fig. 15

For convenience, it is recommended to transfer the laser beam line onto the wall using a chalk line or a pencil. Use a flexible ruler for curvatures. As a result, you will have a line indicating the upper edge position of the track.

To secure the profile, you need to drill holes at a distance from 7 to 15 cm, therefore, damaging hidden cables or pipes becomes highly likely. Such an error can produce very bad consequences. Our recommendation is to mark possible communication locations.

According to Construction Codes and Regulations, all electrical wires and pipes concealed in a wall, must be laid strictly vertically. If room construction and repair operations have been done in compliance with the existing Codes and Regulations, one can safely rely on location of switches, sockets etc. You need to draw vertical lines up to the ceiling and draw respective marks there. Then measure 3 cm to the right and to the left from the vertical line – **no drilling must be done in this area!** In case of a multiple socket, draw vertical lines from its edges and measure 3 cm to the left and to the right (Fig. 16).

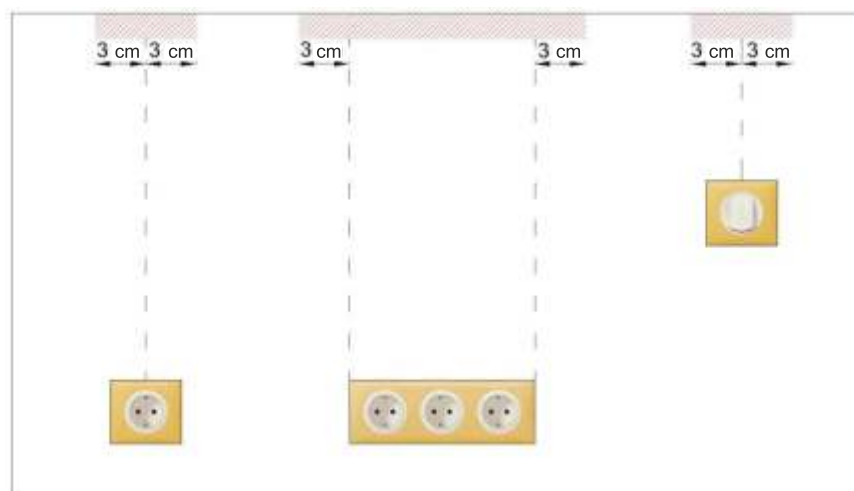


Fig. 16

## Track Installation

**ATTENTION!** Prior to drilling, make sure there are no hidden electrical wires, cables or other communications at the locations where you are going to drill! In case of the slightest doubt regarding hidden communications location, use a hidden electrical wires detector to check this

**ATTENTION!** Drilling into a wall is the most dusty installation stage. A rotary hammer drill with a dust extractor shall make the operation neater (Fig. 17).



Fig. 17

To secure the No 2 plastic track, drill holes following the marks drawn earlier (5 mm below the white chalk line). It is acceptable to drill the holes based on rough spacing. The depth of drilling and the dowel type depend on the wall material. Put a mark above the drilled hole (Fig. 18) and drive a dowel into the wall.

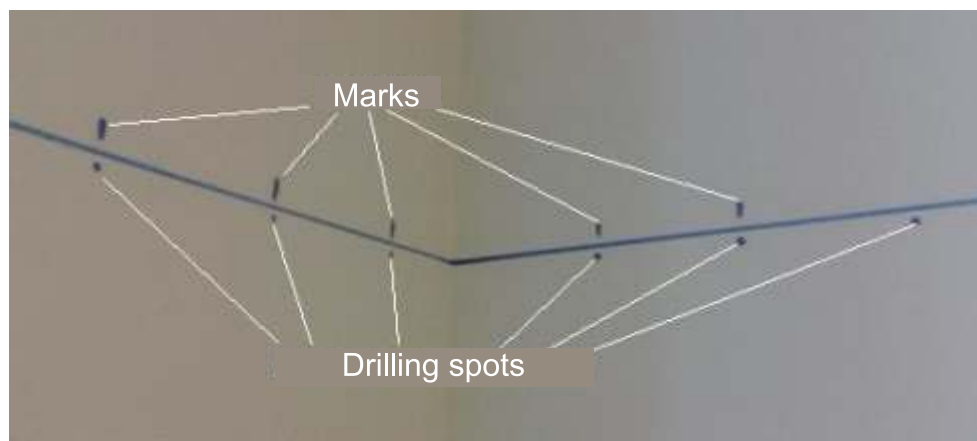


Fig. 18



**Recommendation** 4-5 mm diameter dowels are used for bearing walls.  
Using Ø 4-5 mm drills, you can reduce the wall drilling time by 15-20% compared to Ø 6-8 mm.

There are 2 main installation methods applied with aluminium tracks.

Method 1: the track is pre-drilled, and the drill pattern is then transferred onto the wall. Simply put the track against a wall and use the pre-drilled holes to mark drilling spots on the wall through them. Saros Design suggests using a perforated track for Method 1 (Fig. 19).



Fig.19

Method 2: first, attach the track to a wall either with one self-tapping screw in the middle or with two self-tapping screws on the sides, and then drill the wall directly through the track.

This method has a number of shortcomings. To start with, two people are needed for Step 1. Secondly, joining track corners with each other and precise corner installation are very complicated. Only a vacuum cleaner is expected to be used to remove dust in case of this method, as a rotary hammer mill dust extractor will be inefficient.

Track installation should be started from a room corner.

An internal corner is made as shown below: the rear panel of a shorter track section is pre-cut where suitable and the track is then bent at an angle of more than 90 degrees (Fig. 20).

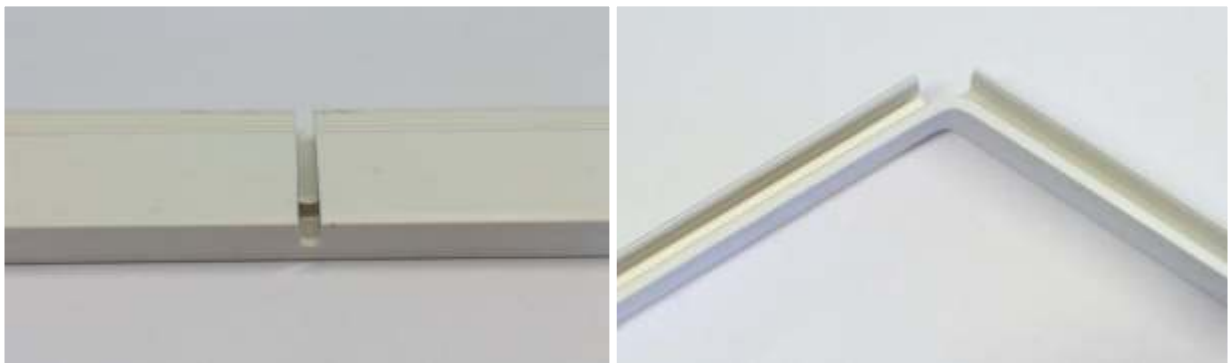


Fig. 20

**ATTENTION!** Corner-shaping pre-cuts should not be made either on the front panel of the track or on the ledge (Fig. 21).

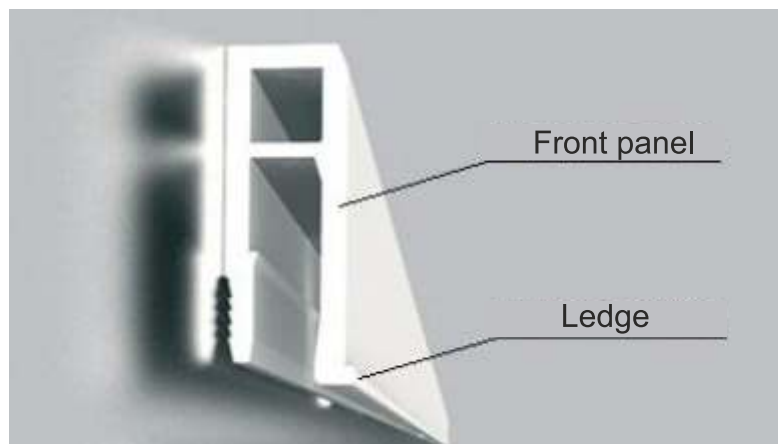


Fig. 21

The shaped track is then fitted into a room corner and is secured with a self-tapping screw wherever convenient but as close to a pre-set mark as possible, though. (Fig. 22). The white chalk line shall run along the upper edge of the track. Next self-tapping screws shall be screwed in as indicated by respective marks.



Fig. 22

Next, if there is enough space, attach an entire shorter section end-to-end with the previous one.

In order to have neat joints, carefully check the tracks: the ends must be clean cut and have smooth surface. It is preferable to use tracks from the same production batch in one room.

To install the next track section, you need to measure the distance from the end of the track installed to the next room corner. Then, subtract 9 mm from the measured value (the track thickness). Measure the resulted value out on a new shorter track section, pre-cut the rear panel as marked and shape the next corner.

In order to shape an external corner, put the track against the corner (the track end must meet the section installed earlier) and mark the notch location on the track itself. Cut the rear panel of the track on the track leg you are about to bend. The cut length shall be 1-1.5 cm starting from the mark (Fig. 23).



Fig. 23

Follow the procedure to attach the track around the entire room perimeter.

Tracks for curved sections with a bend radius beyond 1 meter shall be installed similar to straight sections. However, in case of bend radii less than 1 meter, make notches at a distance 15-20 mm along the entire track length for the curved section (Fig. 24).

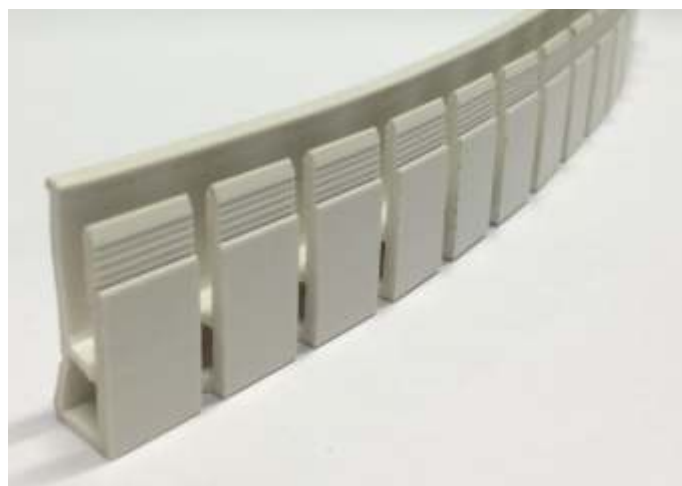


Fig. 24

Track ends must be neatly meet each other on cut ends (bent legs). Joints between two shorter sections must be reinforced with plastic. You can use foamed PVC or track offcuts and some super glue (Fig. 25).

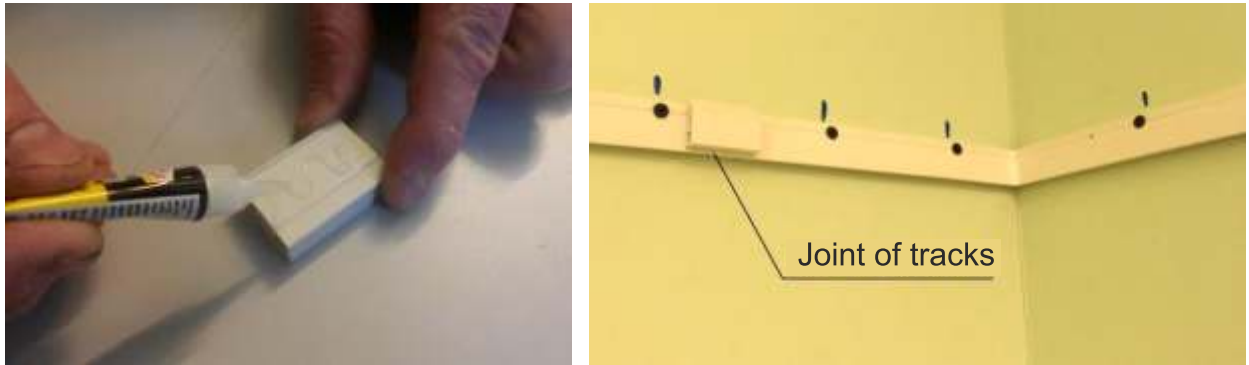


Рис. 25

**Recommendation** Once you have completed drilling and track installation, check the room lights, power supply to the light switches and their operation.

## PREPARING FOR INSTALLATION OF LIGHT FIXTURES, CHANDELIERS, VENTILATION GRILLS AND CORNICES

99% of the accessories and fittings designed for conventional ceilings can be effectively incorporated into a stretch ceiling.

To incorporate any of the accessories or fittings, first attach a rigid background support (insert) to the original ceiling.

An undeniable advantage of lighting hardware incorporation into a stretch ceiling is that it eliminates chasing and plastering, as wiring is laid directly over the original ceiling (Fig. 26).



Fig. 26

Installation of chandeliers, ceiling-fixed cornices, detachable smoke detectors etc. requires identical preparation activities.

Once you have marked the equipment placement location off, secure rigid background supports (inserts) at the same level with the stretch ceiling membrane to be installed.

A non-standard size background support can be made from plywood, timber, foamed PVC, PVC track cut-offs etc. All sharp edges must be rounded and hand-filed. The background support should not be larger than fixing elements of the accessories to be installed. A metallic perforated tape or a thick wire (for instance, a 2\*2.5 PVC-insulated wire) can be used as suspensions).

Chandeliers with hanger supports do not require any background support installation. Simply attached the hanger support at a spot desired and then lay the wiring and terminal bus. It is preferable to use a hanger support with a long thread to be able to adjust the chandelier suspension height.

## Installation of recessed lights and ventilation grilles up to 125 mm in diameter

Saros Design manufactures special universal supports (Fig. 27) which can be used to install the accessories above.

These supports are designed for round light fixtures and incorporated ventilation grilles with a diameter from 55 to 125 mm. The specially developed support design makes preparation of a background support suitable for installation of a specific diameter light fixture very quick. Use of universal supports saves time and makes the installation process cleaner.



Fig. 27


 Use a knife to cut the support to the size required (Fig. 28) (the dimensional grid is found on the back). The installation dimension of a light fixture is usually indicated on the packaging next to the pictogram.



Fig. 28

Next, use 3.8/11 self-tapping screws to attach the perforated tape to the pre-cut supports and to fix the supports to the original ceiling following the layout marked out earlier (Fig. 29).



Fig.29



## **Installation of light fixtures and other recessed accessories with a diameter beyond 125 mm. Installation of rectangular accessories.**

In case you need to install an accessory with a diameter beyond 125 mm or when a rectangular installation hole is required, background supports shall be manufactured specifically.

You can use 8-mm plywood or 10-mm foamed PVC to make such background supports.

Use hole saws or adjustable circle drills (Fig. 30) of the required diameter to make background supports with round holes, and a fret saw – for rectangular holes.



Fig. 30

Manufacture of non-standard background supports is an untidy process producing a lot of dust, therefore, it is recommended to obtain accessories samples in advance from the customer to make the supports beforehand.

**ATTENTION!** Saros Design can manufacture custom-made non-standard background supports and reinforcement rings from translucent acryl.

## STRETCH CEILING MEMBRANE INSTALLATION

**ATTENTION!** Prior to stretch ceiling membrane installation, make sure all the dust-producing activities have been completed. Remove the wastes, change the gloves, check the wiring, and check the equipment to be installed against requirements specifications.

## Membrane suspension

**ATTENTION!** In case the ceiling was transported to the installation site at a temperature below 0°C, leave it at room temperature for 24 hours. Do not open the soft protective covering!

**ATTENTION!** Do not use any cutting tools to open the stretch ceiling packing.

See a Saros Design warranty certificate for the corner you should start suspension with (Fig. 31).

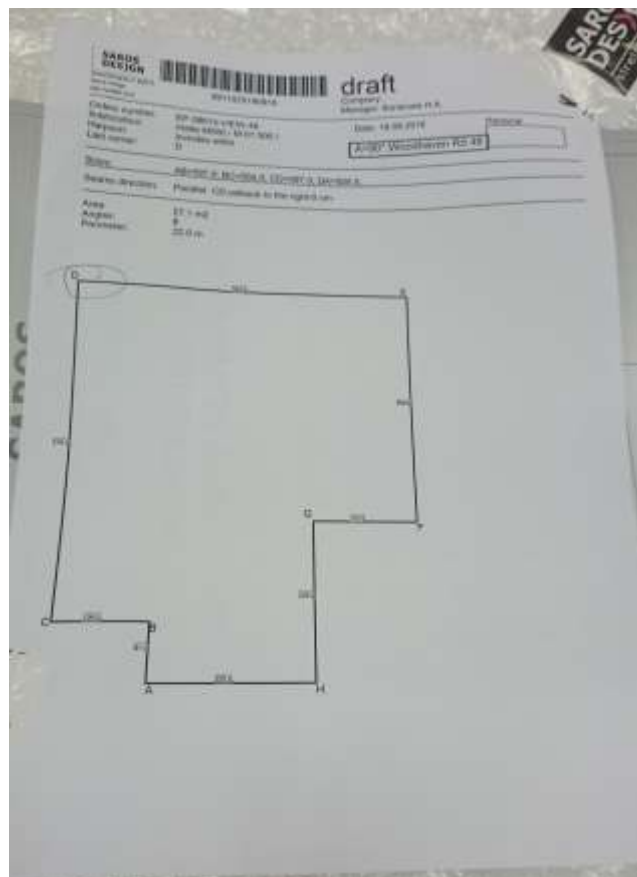


Fig. 31

Prior to stretching, you need to fix corner clamps (crocodile clips) in the far corners of the room.

Start to carefully unfold the stretch ceiling membrane beginning with the corner marked on the warranty certificate; clamp stretch ceiling membrane corners with the crocodile clips (Fig. 32).



Fig. 32

Next, you need to warm the entire stretch ceiling membrane up. Use the propane gas heater starting from the centre and proceed moving in a spiral to the edges. Keep the heater at a distance 70-90 cm from the stretch ceiling membrane (Fig. 33). Keep warming until wrinkles developed as a result of being folded get straight.



Fig. 33

## Stretch Ceiling Membrane Stretching

Stretch ceiling installation always starts with corners.

Recommended installation procedure:

1. The farthest corners of the room and corners located at a distance from curvatures and cutouts.
2. External corners and cutouts. It is important to fix the corners of smaller shoulders and the sides adjacent to external corners of the room to avoid harpoon overstretching.
3. Hardly accessible (awkward-to-reach) corners

Keep warming the membrane while hooking the corners up.

The stretch ceiling harpoon is hooked into the track with a spatula (Fig. 34).



Fig. 34

Once you have hooked all the corners up, start inserting the sides.

Installation technique: visually divide in two each of the uninserted sections and then insert 10-15 cm in the middle into the track. Having inserted the harpoon on one side, repeat the procedure on the opposite side. Keep going until the entire harpoon is inserted into the track. A suggested harpoon installation sequence is shown in Fig. 35.

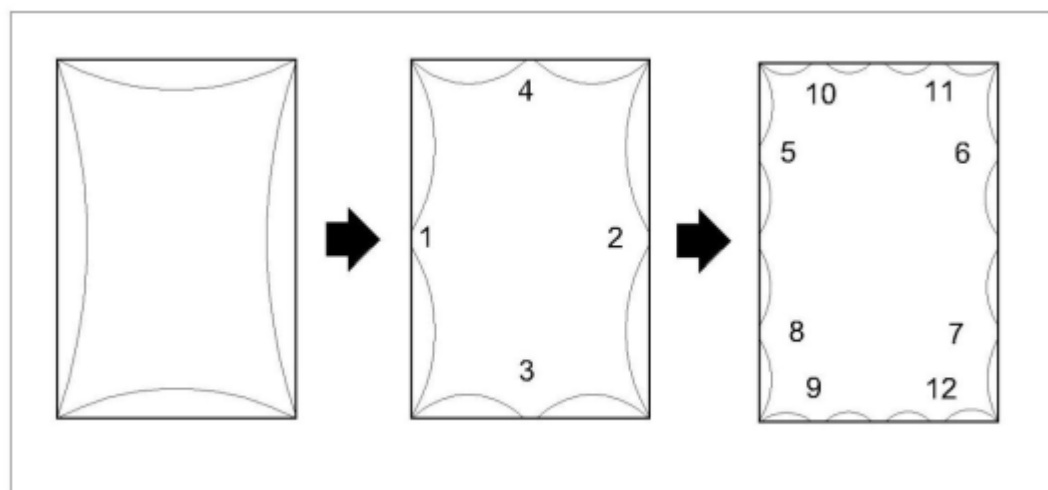


Fig. 35

**ATTENTION!** Avoid lopsided harpoon insertion, i.e. considerable differences between inserted and uninserted harpoon lengths, during stretch ceiling membrane installation as that can result in harpoon overstretching and excessive material.

## FINISHING STAGE

### Installation around heating pipes

Start stretch ceiling membrane installation around a pipe only after you have stretched the membrane over the entire room except for the space behind the pipe.

Cut the harpoon (using tinsnips or side cutters) and the stretch ceiling membrane to a length equal to the distance from the wall to the pipe centre.

Insert the cut harpoon into the track behind the pipe. In case of any wrinkles around the pipe, cut the excessive material with a sharp knife. You need to reinforce the membrane to avoid further material creeping. Use special flat bars designed for installation around pipes (Fig. 36), which are manufactured by Saros Design. These flat bars of various sizes help you conceal and reinforce cut stretch ceiling membranes installed around 1/2", 3/4", 1" diameter pipes standing at a distance up to 150 mm from the wall.



Fig. 36

In case the distance between the pipe and the wall is more than 5 cm, cut the flat bar along the side groove. If the distance is less than 5 cm, you can cut along the centre groove (Fig. 37).

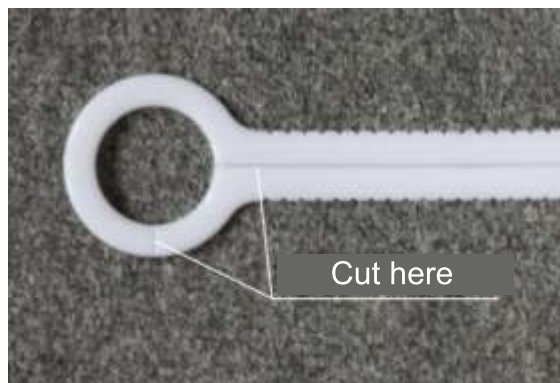


Fig. 37

The flat bar installed around pipes is applied to the stretch ceiling membrane with glue (Moment Super Glue, Kontakt or Cosmofen).

In case you need to install your membrane around pipes of other diameters, you can make a respective flat bar yourselves using a 0.3 thick PVC plate and following the diagram in Fig. 38. You will need a pair of compasses and a ruler to draw that. The bar shall then be cut along either the side or the centre groove depending on the distance between the pipe and the wall.

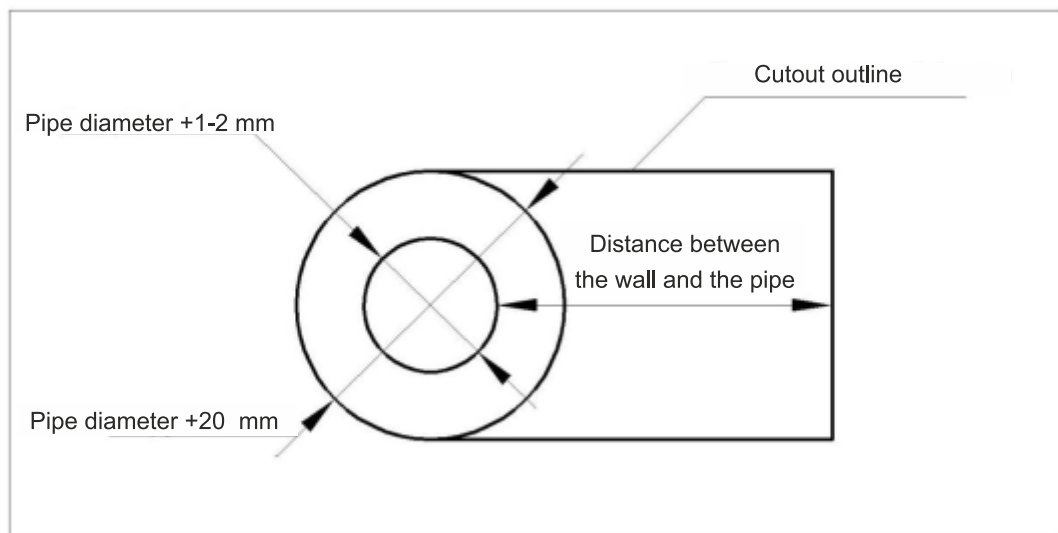


Fig. 38

### Installation of reinforcement rings for recessed light fixtures, chandeliers and other accessories

Prior to cutting, special reinforcement rings should be applied to reinforce the membrane where perforation is required. Use Saros Design protection rings with a diameter from 15 to 200 mm (diameter increment is 5 mm) (Fig. 39)

The size range above can be used with most of the recessed lights available at retail and while installing ceiling-fixed cornices, chandeliers and other accessories. The reinforcement rings are applied to the membrane with glue (Cosmofen).



Fig. 39

Translucent plastic rings are not visible on the stretch ceiling after installation and are of great advantage in case of coloured membranes and when can lights skirting is so thin it cannot cover the ring.

Before gluing a ring, make sure you have marked light fixtures installation locations on the stretch ceiling membrane.



**ATTENTION!** Do not rely on background supports location installed behind the stretch ceiling membrane as those are attached to sliding suspensions and could have moved during stretch ceiling installation.

**ATTENTION!** Use a pencil or a self-tapping screw to pierce the membrane in the perforation centre when marking the membrane off. Do not use markers, ink pens etc as the chance of leaving accidental stains on the stretch ceiling membrane is very high, and such stains are indelible.

Apply glue over a reinforcement ring in a thin layer as close to the inner diameter as possible. Hold the ring vertically keeping it away from your face as glue fumes are toxic. Remove the gloves when working with glue.

**ATTENTION!** Be careful as it is impossible to remove glue from the stretch ceiling membrane!

Use a sharp knife to cut the membrane inside the reinforcement ring after you have glued it.

## Installation of lighting accessories

Recessed light fixtures shall be installed as specified in respective installation manuals. However, first you need to align a background support with a reinforcement ring.







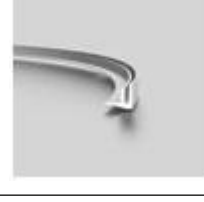
Once you have installed the light fixture, align it horizontally to have it at the same level as the stretch ceiling. The light fixture should neither cause any additional stretching of the membrane nor should it protrude below the membrane. However, minor reflection distortion in case of lacquer-finish membranes is permissible (Fig. 41).



Fig. 41

## COVER STRIP INSTALLATION

Use cover strips in case you need to conceal the space between the stretch ceiling and the wall.

<b>№10 HB strip</b>	Used with tracks No 2 and No 3. Completely conceals the gap between the front and the rear panels of the track and also compensates for minor wall unevenness (up to 1.5 mm). Needs to be pre-heated with the propane gas heater before installation.	
<b>№11 Wall-adjacent soft corner strip</b>	Used with all tracks except for No 1 and No 6. Completely conceals the gap between the ceiling and the wall compensating even for considerable wall unevenness.	
<b>№12 Cover strip for the invisible aluminium track</b>	Used with tracks No 4 and No 5. Completely conceals the gap between the front and the rear panels of the track. Does not compensate for wall unevenness.	
<b>№13 Universal cover strip</b>	Used with all tracks except for No 1 and No 6. Completely conceals the gap between the ceiling and the wall compensating even for considerable wall unevenness. More complicated installation is required compared to No 11.	
<b>№14 Cover strip for the aluminium separator</b>	Used with track No 6. The width is 7 mm. Pay special attention to make sure the harpoon is hooked along the entire track length.	
<b>№15 Oval cover strip for the aluminium separator</b>	Used with track No 6. The width is 9 mm.	
<b>№17 HB cover strip</b>	Used with the invisible PVC track. Conceals the gap between the front and the rear panels of the track. Needs to be pre-heated with the propane gas heater before installation.	

Cover strips are supplied in coils and can have be creased, kinked and packed (Fig. 42). Any of the above is not a defect.

Prior to installation, heat the strip up and straighten the sections creased. In case you do not succeed, cut the deformed section off. Use the propane gas heater to heat up strip sections cut to the wall lengths plus 5-10 cm.



Fig. 42

Start installation from corners. First trim the strip at an angle required using a stationary knife or special scissors. You will also need to cut the topping of the strip off as shown in Fig. 43. This is required to avoid corner-installed harpoon interference with strip installation.



Fig. 43

Do not stretch the strip during installation. To the contrary, compress it a little bit since it is going to be exposed to high temperatures during installation. Strip overstretching might cause separation of joints and strip falling-out during its service life. It is not recommended to install strip sections longer than 5 m. Either use shorter sections joining them with each other or glue the strip every 2-2.5 m applying glue to an area of 2-4 mm.

Stretch ceiling installation is completed.

Examine the membrane in order to see if there are any stains. Use wet alcohol wipes normally used for office appliances to clean the membrane.

Check functionality of the lights and other accessories installed.

## TROUBLESHOOTING

### Harpoon disengagement

In case a part of the harpoon tears off from the membrane, you can easily repair that yourself. Apply some glue (Cosmofen, Moment Super) to the inner surface of the disengaged harpoon and then insert the membrane edge into the harpoon using a spatula. Leave the glue to dry and proceed with stretch ceiling installation following the standard technique.



### Repairing holes (cuts) in the stretch ceiling membrane

Here we will look at two kinds of membrane holes or cuts

#### 1. A hole near harpoon

You need to cut a part of the harpoon from the stretch ceiling membrane near the hole. Next, you need to cut the holed membrane off in an arc keeping as close to the damaged spot as possible. Then follow the procedure recommended in case of a disengaged harpoon described above



## 2. A hole at a distance from the harpoon

Holes located at a distance from the harpoon cannot be repaired as described above. Should this happen, you need to take the damaged ceiling section down in order to relieve the stress (stretching) in the holed area.

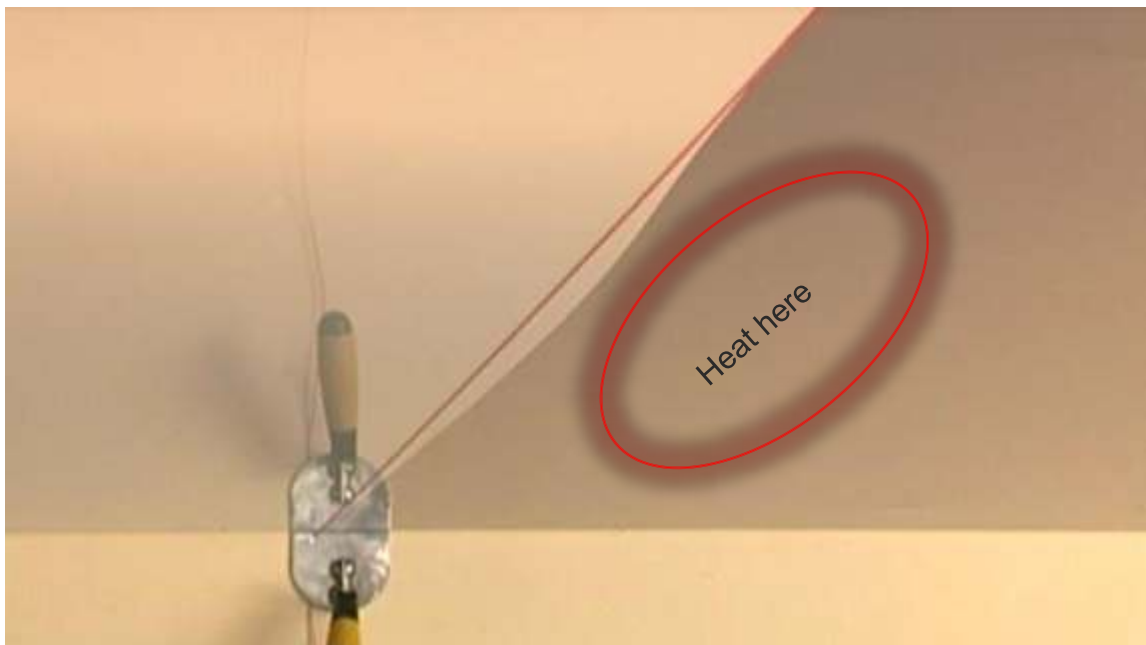
Apply a piece of the masking tape over the hole on the face of the membrane. On the reverse, you need to join the hole (cut) edges together edge-to-edge pulling them with a flat screwdriver. Next, apply glue over the joined hole edges on the reverse of the ceiling membrane and evenly spread the glue using the screwdriver. Leave the glue to dry for about 10 minutes and install the membrane back having heated it up first. Once you have re-installed the membrane, you can remove the masking tape from the face.



## Joints straightening

In case of improper installation of a stretch ceiling consisting of several membranes (which requires a welding seam) or in case of uneven heating of such a membrane, the seam on the membrane will be uneven. That can easily be rectified by means of additional heating of the stretch ceiling already installed.

Hang a thread (thin rope) to the opposite sides of the seam to make a reference line to straighten the seam. In case the seam is too deflected, use the propane gas heater. As the membrane temperature in different section changes, the seam shall move to the colder membrane side.



If you need to straighten a seam over a small area, use a common blow dryer. Do not use a hot air gun as you can burn a hole in the stretch ceiling membrane.



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