INSTALLATION MANUAL FOR RECTANGULAR DUCTS

PAROC® PRO SLAB (WR) 640/660 CLAD

MINIMUM INSTALLATION TEMPERATURE:
10 °C

OWENS CORNING® PAROC®

CONTENTS

Preparation of ducts and insulation work 3

Tools and Templates 3

Rectangular straight ducts 4

Insulation of elbows and figures parts 13

Contact us 17

Quick access: Click on the desired product or content page to immediately navigate to it. Clicking on 'Table of Contents' will direct you back to the index page. Hyperlinks will take you to relevant additional pages or research sources.

PREPARATION OF DUCTS AND INSULATION WORK

- The ducts must be in a clean and tightly installed condition.
- Protect the clad materials and installations from moisture.
- The recommended processing temperature is ≥ 10 °C and ≤ 40 °C.
- All areas to be insulated are easily accessible - the required insulation thickness can be maintained.
- The insulation thickness should be dimensioned so that the supports and duct flanges can be integrated into the insulation system.
- The working time may be longer if reductions, changes in shape (circular to rectangular) or branches as well as numerous attachments have to be insulated.

TOOLS AND TEMPLATES

- A marker

- Folding rule

- **PAROC® Clad Tape:** Water resistant butyl rubber tape with very high tack and very high aging resistance intended for indoor installations.
- **PAROC® Clad Alu Tape:** UV resistant tape intended for outdoor installation when UV resistance and increased durability is needed.

- **PAROC® Pro Knifes**

- Welding Pins (insulated)

- Welding Device

- **PAROC® Clad Dots**

- Spray adhesive

- 90 degree profile

- Circle

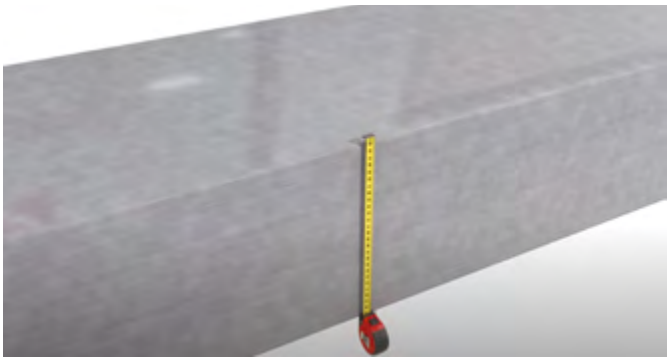
- Cutter knife

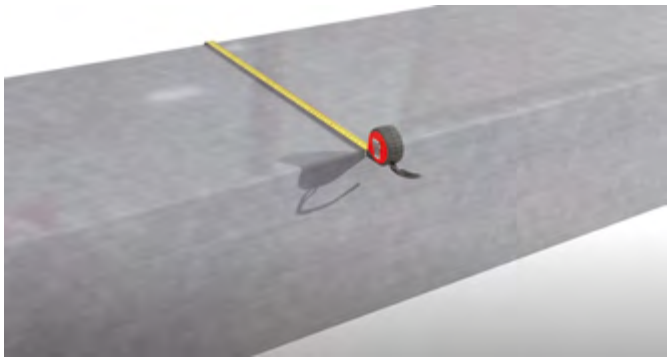
RECTANGULAR STRAIGHT DUCTS

To prevent stagnant water from reaching the roof of the ducts, a slope must be installed.

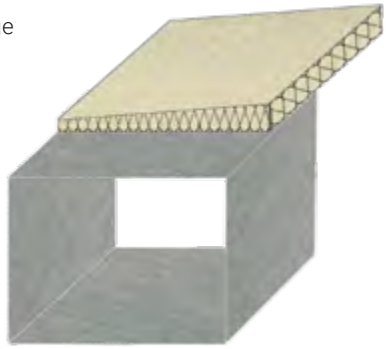
PAROC® Pro Roof Wedges give the duct the correct gradient of approximately 3% and are tailored to the duct surface.

First, measure the height and width of the duct. Then, depending on the size of the duct, PAROC® Pro Roof Wedges should be cut to size (see recommendations). Finally, they are fixed to the duct with the help of spray adhesive and welding pins.

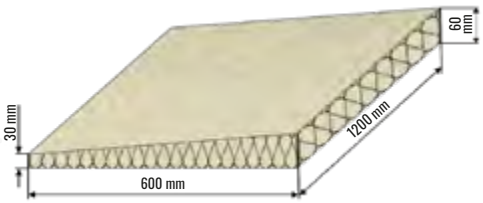
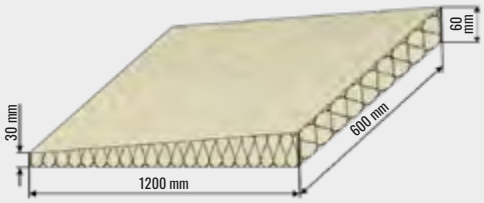




STEP 1: Installation of wedge



Recommendations

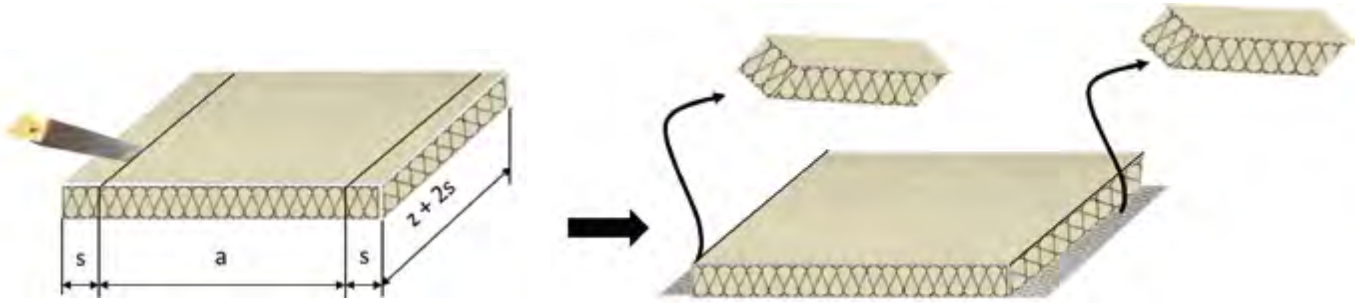
Air duct with [mm]	Dimension of the wedge [mm]	
<600	30/60×600×1200	
600-1200	30/60×1200×600	

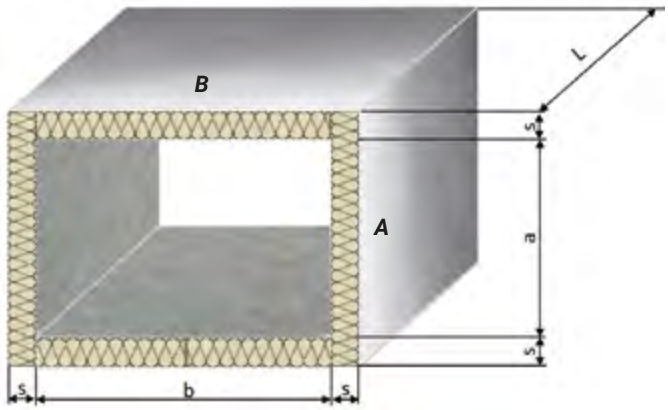
DEPENDING ON THE SIZE OF THE DUCT, THE CORNERS CAN BE DESIGNED IN 2 OPTIONS:

OPTION 1

Cutting out straight strips of stone wool
Cut the slab up to the coating (distance between cuts = insulation thickness). Please ensure that the clad coating is not damaged. Remove the cut-outs from the slab and dispose of them properly. Repeat this process for each edge.

When cutting the slabs to size, please ensure the joints are below the duct. As a result, the slab can be closed smoothly or sealed with PAROC® Clad Alu Tape or PAROC® Clad Tape.

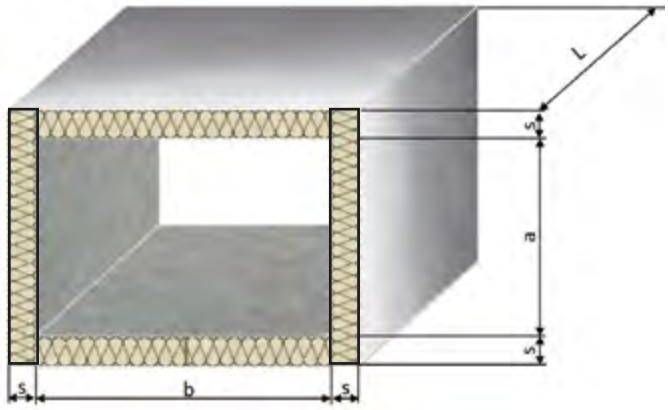




Use this formular to calculate the needed material:

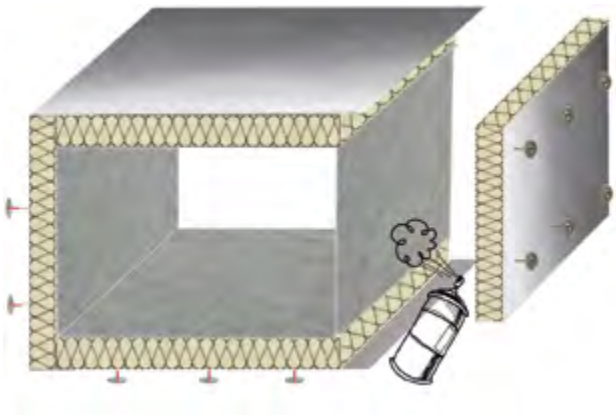
$$A_{width} = (a + 2 \cdot s)$$
$$B_{width} = (b + 2 \cdot s)$$

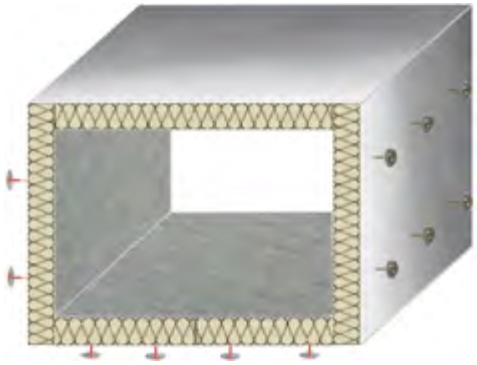
a – *duct height*
b – *duct width*
s – *insulation thickness*
L – *duct length*

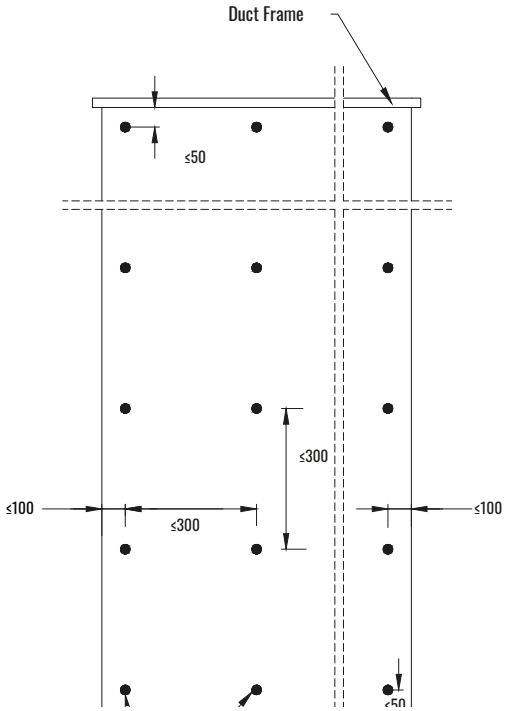


The two sides of the duct (a) are cut to size including the insulation thickness (2xs).

A commercially available spray adhesive can be used to fix the sides and bottom part.





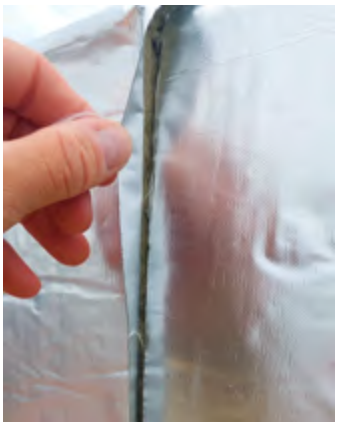


Mount the PAROC® Pro Slab (WR) 640 or 660 Clad on the sides and the rear of the duct. To facilitate the installation, spray adhesive can be used. For permanent mechanical fixing fastening to the duct, we recommend the use of welding pins with a maximum distance of 300 mm. To ensure an even positioning of the welding pins, we recommend the use of an appropriate template.

Recommendation (according to DIN 4140)
Number of welding pins;

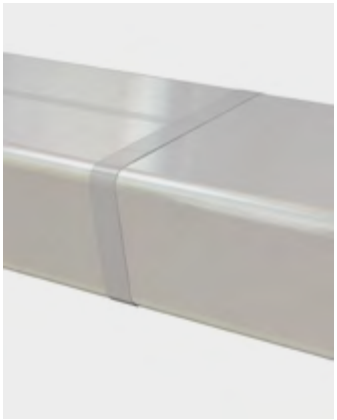
Above - no pins required
Sides - approximately 6 pcs/m²
Below - approximately 9 pcs/m²

PAROC® Pro Slab (WR) 640 or 660 Clad has an overlap of approximately 5-10 mm so that the joints can be covered and sealed tightly. It is recommended to align the overlaps along the direction of flow.



All longitudinal and butt joints are glued or sealed with PAROC® Clad Alu Tape or PAROC® Clad Tape. A plastic spatula is recommended for evenly pressing the PAROC® Clad Alu Tape or PAROC® Clad Tape onto the slabs to ensure a permanently tight bond.

To seal the welding pins, use the PAROC® Clad Dots. To increase the tightness of the PAROC® Clad Dots, a plastic spatula is also recommended as a support. A cardboard template can be produced to optimise the appearance of the welding pins.



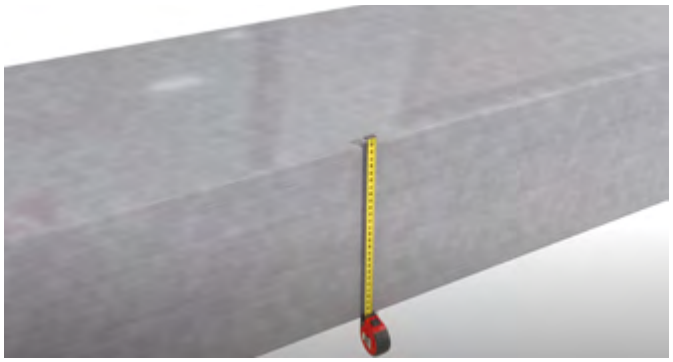
Always make sure that tape is applied without wrinkles and openings. Use a spatula to smoothen out any air bubbles. There must be no gaps or "pockets" where water can accumulate.

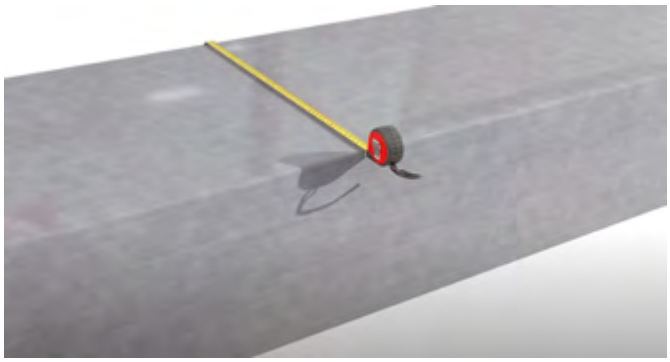
Tape position: Avoid joining the tapes in the top half of the duct (between 9 o'clock and 3 o'clock when looking at the clock face). This area is more exposed to environmental factors such as rain, wind, and sunlight, which can affect the integrity of the tape over time. By avoiding tape joints in this upper section, you reduce the risk of water infiltration and other damage. Instead, placing the joints in the lower half (between 3 o'clock and 9 o'clock) ensures they are less exposed and better protected, leading to a more durable and reliable seal.

INSULATION OF THE DUCT WITH V-CUTS

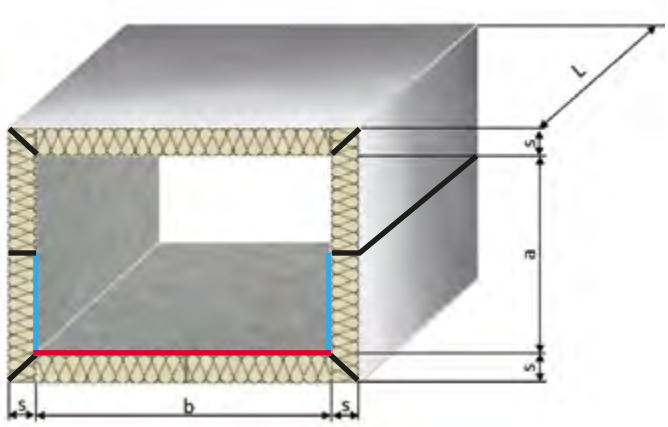
OPTION 2 (recommended)

Cutting out V-cuts from PAROC® Pro Slab (WR) 640 or 660 Clad
This procedure is recommended to adhesions with the PAROC® Clad Alu Tape or PAROC® Clad Tape.

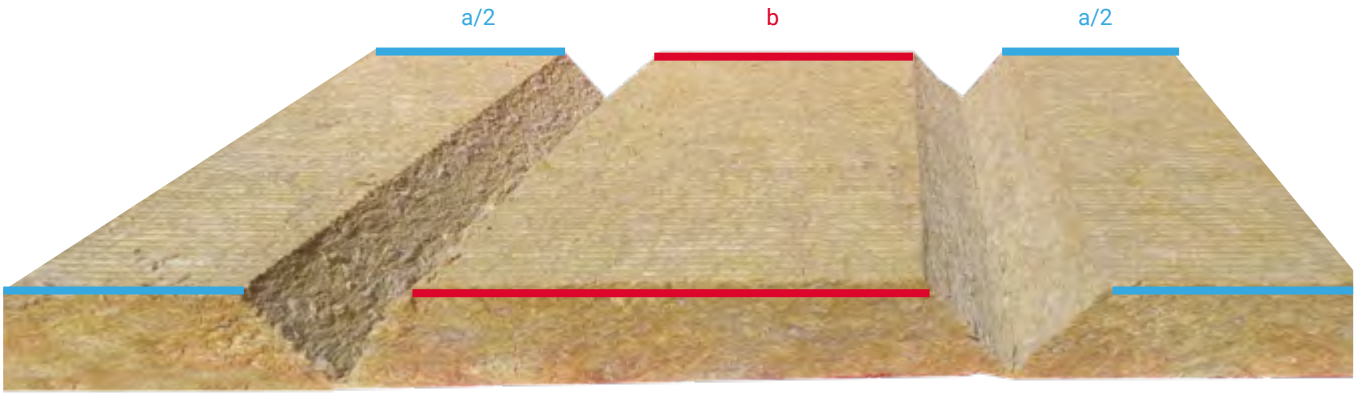




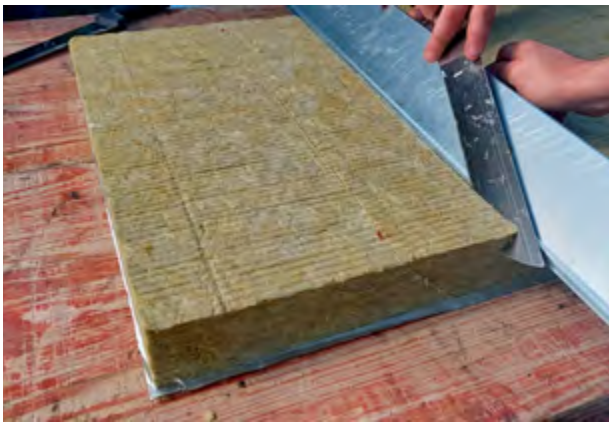
First the width and height of the duct are measured. Then depending on the size of the duct, the slab must be divided into sections, and the joints should be on the sides. Joints of the duct should be avoided.

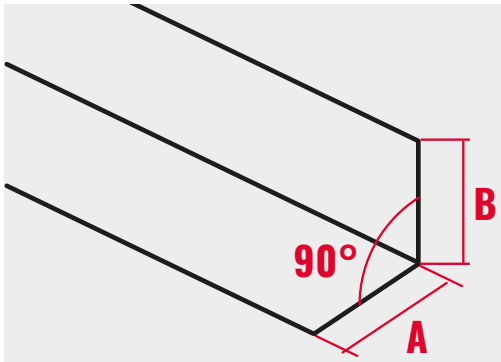


(a) the height of the duct is marked on the slab. The V-cut results from 2x45°; these can be made with a profile (sheet metal). Then the width (b) of the duct is marked. Depending on the size of the duct, the slab must be cut in half at the sides.



The V-cuts can be produced using a self-made template (90° profile)

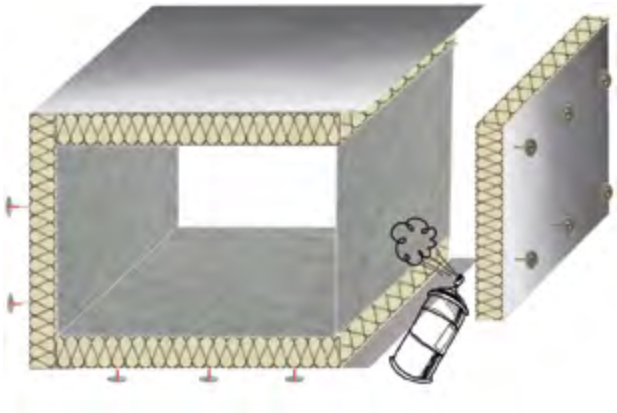




A - ca. 100 mm
B - ca. 100 mm
angle 90°

We recommend fixing to the duct and PAROC® Pro Slab (WR) 640 and 660 Clad with in the V-cuts using spray adhesive to ensure there are no gaps.

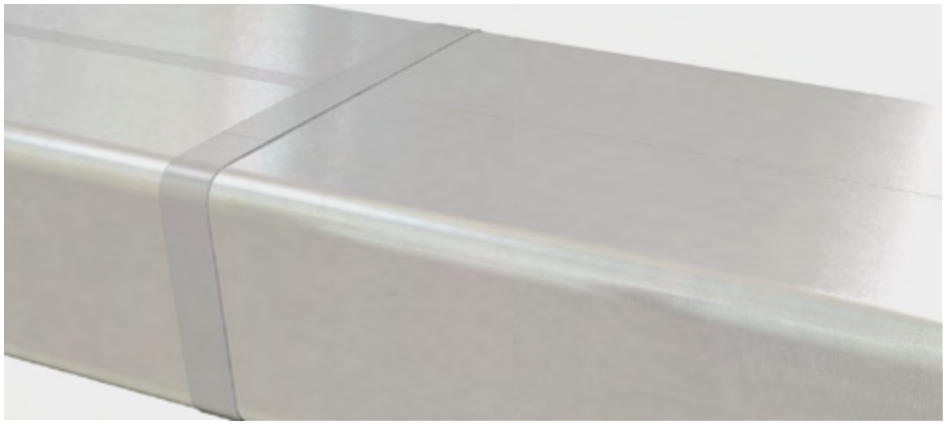
The V-cuts can be produced using a self-made template (90° profile)



After the second half has been produced, the slabs and V-cuts are fixed with spray adhesive and secured with welding pins (Option 1), then all joints are taped with PAROC® Clad Alu Tape or PAROC® Clad Tape.

Duct flanges or suspensions are integrated into the insulation. Cut the incisions as accurately as possible so that the air gaps are not too large.

Tape position: Avoid joining the tapes in the top half of the duct (between 9 o'clock and 3 o'clock when looking at the clock face). This area is more exposed to environmental factors such as rain, wind, and sunlight, which can affect the integrity of the tape over time. By avoiding tape joints in this upper section, you reduce the risk of water infiltration and other damage. Instead, placing the joints in the lower half (between 3 o'clock and 9 o'clock) ensures they are less exposed and better protected, leading to a more durable and reliable seal.

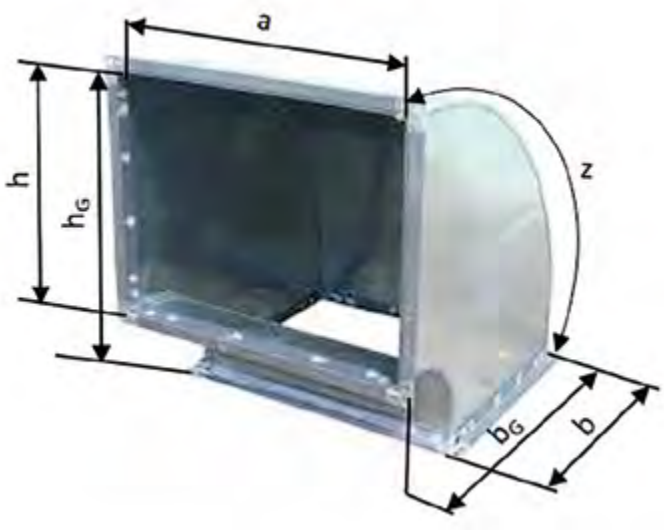


Always make sure that tape is applied without wrinkles and openings. Use a spatula to smoothen out any air bubbles. There must be no gaps or "pockets" where water can accumulate.

INSULATION OF ELBOWS AND FIGURES PARTS

There are two options for insulating the duct-elbow:
Option 1 - the long side (z) of the duct-elbow using PAROC® Pro Lamella Mat Clad
Option 2 - complete with PAROC® Pro Slab (WR) 640 or 660 Clad

OPTION 1

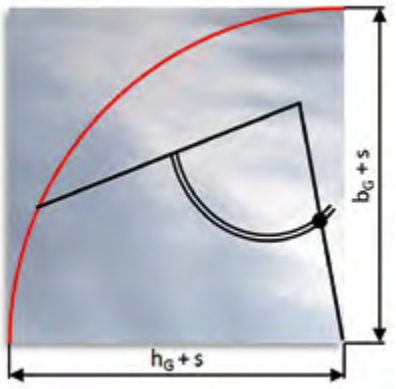


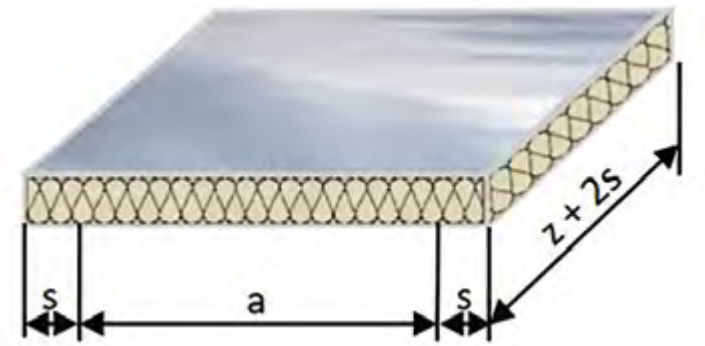
1. *measure length*

- ***h*** *– duct height*
- ***h_G*** *– total height of duct*
- ***a*** *– duct width 1*
- ***b*** *– duct width 2*
- ***b_G*** *– total width of duct*
- ***z*** *– length of duct back*
- ***s*** *– insulation thickness*

Cut the duct sides according to the formula below and mark the radius of the duct bend. For small bends we recommend using a drawing circle. For larger ones, the radius can be marked using a folding ruler. **Be sure to add the insulation thickness to the duct dimensions!**

$$Cutting_{duct\ sides} = (b_G + s) \cdot (h_G + s)$$

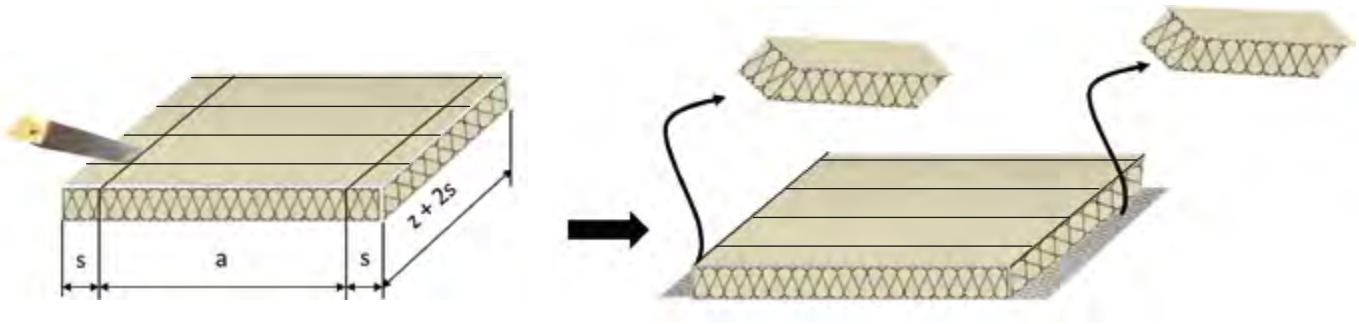




Now cut the back of the canal according to the following formula:

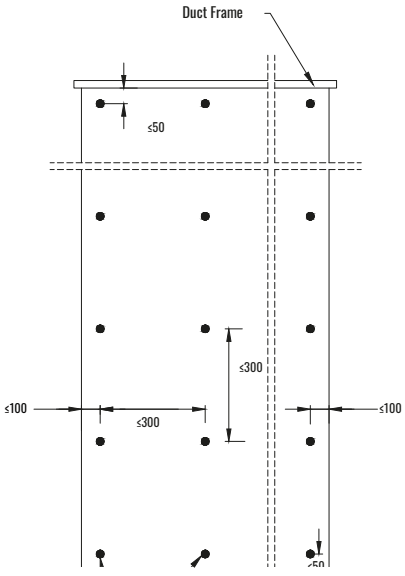
$$Cutting_{duct\ bend} = (a + 2 \cdot s) \cdot (z + 2 \cdot s)$$

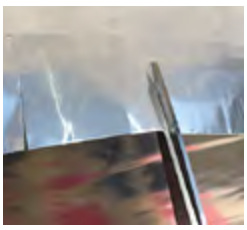
The lamella mats are then cut on the side up to the coating (s = insulation thickness). Remove the two-sided cut-outs and then use the remaining clad lamination as a “cover” for those surfaces on the side..

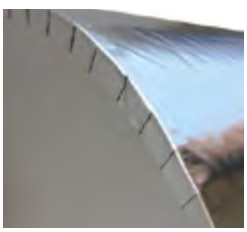


Mount the PAROC® Pro Lamella Mat Clad on the duct sides and back. In order to make the installation easier, a spray adhesive could be used. For the permanent mechanical fixation on the duct we recommend using welding pins; with a maximum distance of 300 mm. To ensure a uniform positioning of welding pins, we recommend using a corresponding template.

The joints of the arched connections must be sealed with PAROC® Clad Alu Tape or PAROC® Clad Tape.

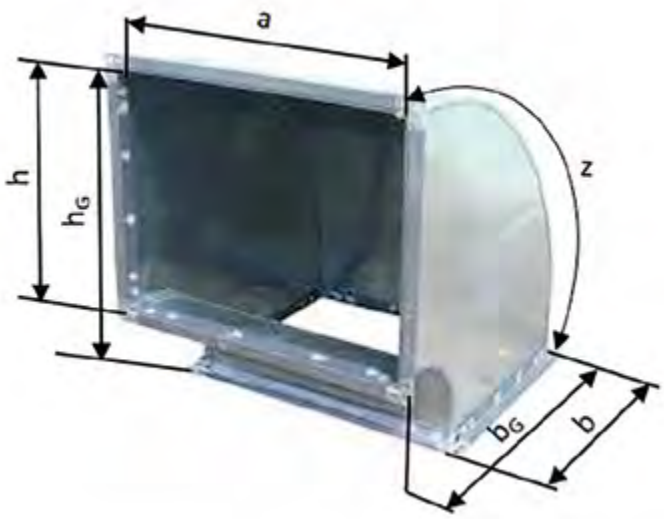






OPTION 2

Insulation of duct elbow / complete with PAROC® Pro Slab (WR) 640 or 660 Clad



1. *measure length*

h *– duct height*
h_G *– total height of duct*
a *– duct width 1*
b *– duct width 2*
b_G *– total width of duct*
z *– length of duct back*
s *– insulation thickness*

The side parts are produced as in option 1 - for smaller insulation thicknesses 20-30 mm, the assembly can be installed as shown in Option 1.

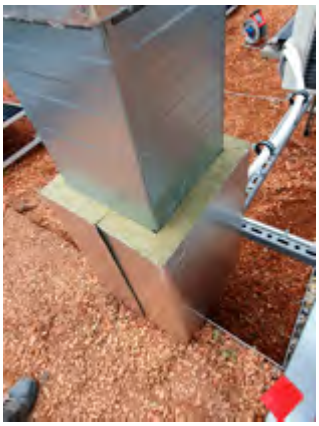
The following formula is recommended;

PAROC® Pro Slab (WR) 640 or 660 Clad side parts: b_G x h_G
bends (radius) are cut flush along the bend

PAROC® Pro Slab (WR) 640 or 660 Clad long side: (a+2xs) x (z+2xs)

To make the slab flexible, small V-cuts are cut every 100 mm.

After fitting and fixing to the duct, the mechanical fixing is carried out using the welding pins as in option 1.
All joints and connections are taped using PAROC® Clad Alu Tape or PAROC® Clad Tape.



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