

# Material handling of OxyPad<sup>®</sup> adhesive membrane

## Processing Temperature

The processing temperature for adhesive pads is between +16°C and +35°C. If the storage temperature deviates significantly, we recommend reconditioning before processing. With adhesive bonding carried out at lower temperatures, the initial strength of the bond is reduced.

## Surface and Cleaning

The surfaces to be bonded must be even, dry, and free of dust, grease, oil, and release agents. Moisture precipitation (e.g. through the transport of cold objects into warmer rooms) should be avoided. Loose coatings or coverings must be removed or solidified. Only material-compatible solvents (e.g. ethanol) should be used as cleaning agents. Other cleaning agents may alter or deteriorate the membrane properties. Only clean and lint-free cloths should be used to clean the surfaces. Good adhesive connections are achieved on smooth surfaces or surfaces with a roughness depth of up to 50 µ; rough surfaces generally require thicker adhesive. Metals, painted surfaces, high-energy plastics (e.g. ABS, polycarbonate, PBT, PA, PMMA, hard-PVC, smooth wood, stone, and glass) are easy bonding partners. In principle, the surface energy of the component should be greater than that of the adhesive for good adhesive bonding (optimal  $\geq 36$  mN/m).

Care should be taken with softened plastics. Softeners can alter the adhesive layer, which can impair the strength of the bond.

Corresponding tests should be carried out for sensitive surfaces (such as polyethylene, polypropylene, plastics with lubricant additives, powder coatings, rubber).

## High pressure promotes full-surface contact

The pressure is applied manually or automatically. The pressing force depends on the diameter of the adhesive pad. Numerical values are listed in the table below. Full adhesive strength is only achieved after at least 24 hours with the adhesives used. When pressing the adhesive pad, care should be taken to avoid skin contact with the surface of the membrane. The pressing time should be several seconds (approximately 3-5 seconds).

Outer Diameter	Inner Diameter	Contact-pressure
14 mm	8 mm	10 to 15 N
10 mm	5.5 mm	6 to 9 N
8 mm	4 mm	5 to 7 N
7 mm	3 mm	4 to 6 N
5 mm	2 mm	4 to 5 N
4 mm	1.8 mm	3 to 4 N

## Assemblies

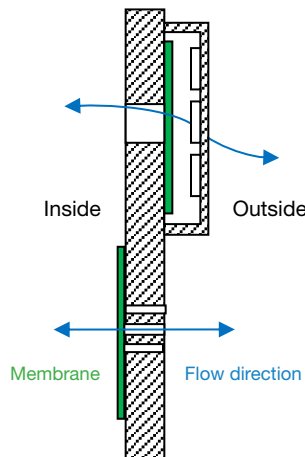
If membrane adhesive pads are to be applied to holes, domes, or openings that have sharp edges, care should be taken to deburr or round them beforehand. Burrs must be removed in any case, as they can cut the membrane.

## Storage and processing times

The adhesive pads should be stored at room temperature (23 +/- 5°C), normal humidity (50-70%), and protected from UV light.

Recommendation: In addition to the limitation of storage time by the type of adhesive, we generally recommend that adhesive pads be used within one year after delivery.

## Installation recommendations Integration and Protection



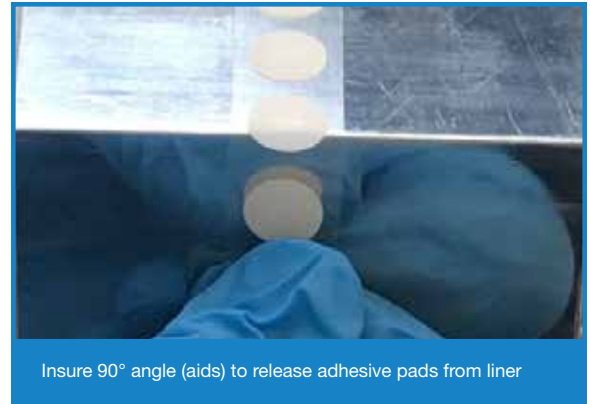
*It is ideal to attach the adhesive pad to a vertical surface of the component to prevent the accumulation of water or other contaminants.*

## Avoid mechanical stress impact

Connections should be designed to avoid any lever action (gap loading). Shear and tensile stresses must be able to distribute over the entire adhesive surface. Permanent peel stresses can affect the durability of the elastic connections. Stresses at the ends of the adhesive surfaces should be avoided.

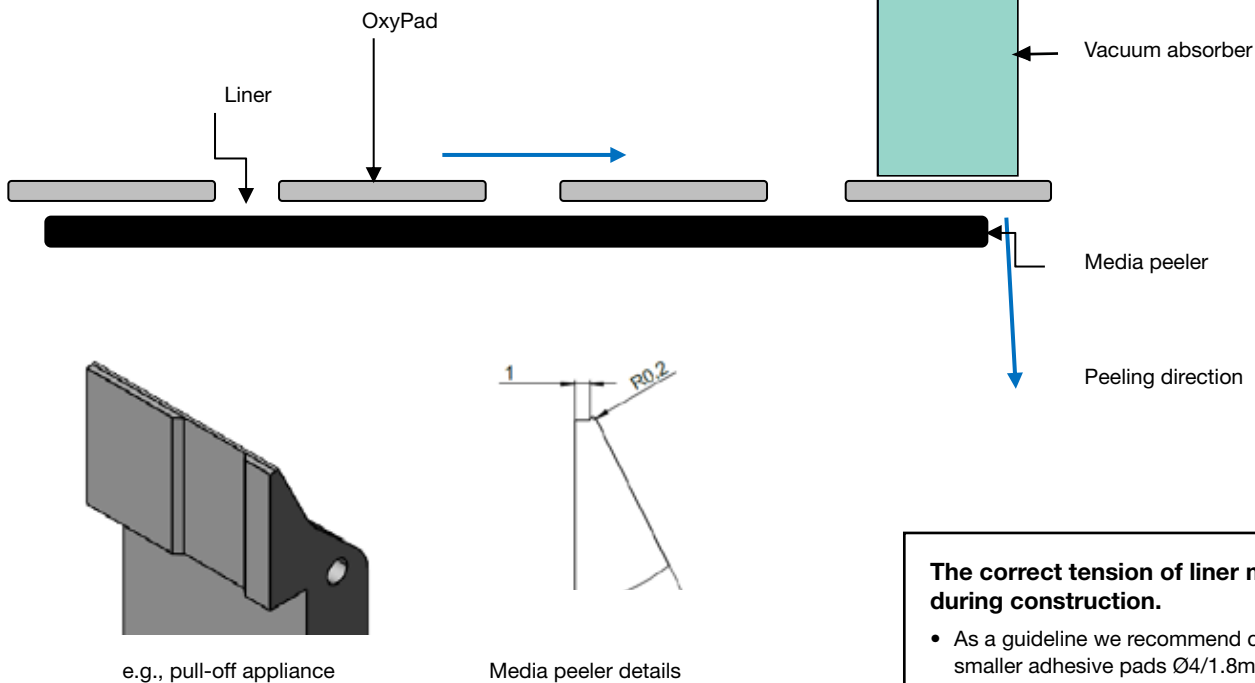
## Tips for manual extraction:

- Wear lint-free gloves and do not touch the membrane directly (risk of contamination and damage to the membrane).
- Carefully remove the membrane from the liner, preferably with a rounded pair of tweezers, only touching the adhesive area!
- Then place the membrane directly onto the component!
- To release the membrane from the liner, it is recommended to use a rectangular metal block with clean and smooth surfaces.
- The tension should be applied evenly and with the same force every time.



## Tips for automated process

Visual chart of automated assembly line of adhesive pads:



### The correct tension of liner material is critical during construction.

- As a guideline we recommend ca. 5N for assembly of smaller adhesive pads Ø4/1.8mm
- The mounting disc should be made of a rubber-like material and have a smooth surface
- It is also advantageous to round or chamfer the inside of the component to prevent damage to the adhesive pad

In general:

*Please note that the processing instructions, especially the pressing forces, are non-binding recommendations based on our experience, and necessary testing/validation at the system level must be performed by your company.*

## Drawing for mounting adhesive pads to main-assembly

