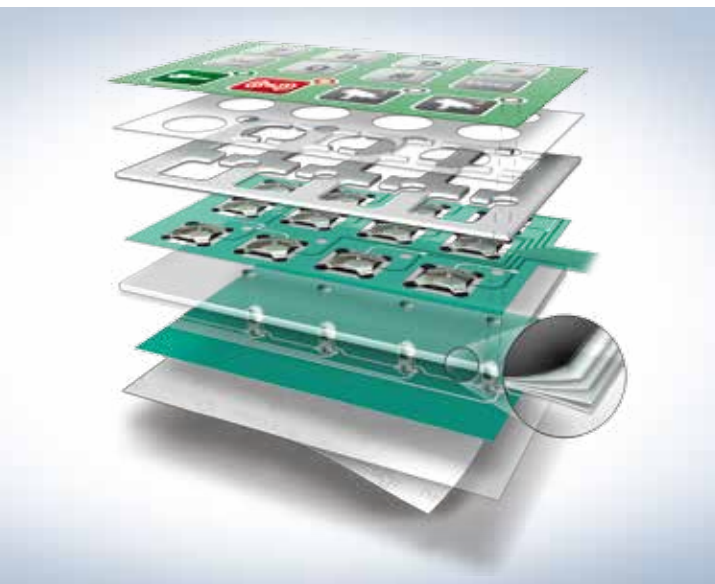


PRODUCT OVERVIEW FOR THE MEMBRANE SWITCHES INDUSTRY



Standard Spacer Range

Double-sided pure acrylic coating

Thickness (mm)	Name	Carrier (Thickness)	PU*
0.080	DuploCOLL® 360.2	PET 0.012 mm	100
0.112	DuploCOLL® 3605.2	PET 0.012 mm	100
0.150	DuploCOLL® 361.2	PET 0.050 mm	75
0.175	DuploCOLL® 362.2	PET 0.075 mm	75
0.200	DuploCOLL® 363.2	PET 0.100 mm	75
0.225	DuploCOLL® 364.2	PET 0.125 mm	50
0.275	DuploCOLL® 365.2	PET 0.175 mm	50

Standard Spacer Range

Double-sided modified acrylic coating

Thickness (mm)	Name	Carrier (Thickness)	PU*
0.130	DuploCOLL® 37020	PET 0.012 mm	100

The spacers are available as sheets of 1000 x 700 mm. Other formats on request.
*PU = Packing Unit

Standard Spacer Range

Single-sided pure acrylic coating

Thickness (mm)	Name	Carrier (Thickness)	PU*
0.100	DuploCOLL® 3611.2	PET 0.050 mm	100
0.175	DuploCOLL® 3641.2	PET 0.125 mm	50
0.225	DuploCOLL® 3651.2	PET 0.175 mm	50
0.275	DuploCOLL® 3661.2	Laminate	50

Black Spacer

Double-sided modified acrylic coating

Thickness (mm)	Name	Carrier (Thickness)	Color
0.050	DuploCOLL® 36050 BLK	PET 0.012 mm	Black
0.100	DuploCOLL® 36100 BLK	PET 0.025 mm	Black
0.150	DuploCOLL® 36150 BLK	PET 0.050 mm	Black

White Spacer

Single-sided white colored pure acrylic coating

Thickness (mm)	Name	Carrier (Thickness)	PU*
0.100	DuploCOLL® 36030	PET 0.050 mm	100

The spacers are available as sheets of 1000 x 700 mm. Other formats on request.
*PU = Packing Unit

PE-Foam Spacer Range

Double-sided coating

Thickness (mm)	Name	Carrier (Thickness)	Color
0.150	DuploCOLL® 38150 BLK	PE-Foam 0.100 mm	Black
0.200	DuploCOLL® 38200 BLK	PE-Foam 0.125 mm	Black
0.230	DuploCOLL® 902	PE-Foam 0.125 mm	White
0.450	DuploCOLL® 5015	PE-Foam 0.390 mm	White
0.450	DuploCOLL® 5016	PE-Foam 0.390 mm	Black
0.600	DuploCOLL® VP 7178	PE-Foam 0.500 mm	Black
0.800	DuploCOLL® 21135	PE-Foam 0.600 mm	Black

Standard Spacer Range

Pure acrylic transfer tape

Thickness (mm)	Name	Carrier (Thickness)	PU*
0.050	DuploCOLL® 101	No carrier	100
0.100	DuploCOLL® 102	No carrier	100
0.125	DuploCOLL® 103	No carrier	100

DuploCOLL® Spacer Laminates

Double-sided pure acrylic coating

Thickness (mm)	Name	Thickness (mm)*					
		0.100	0.150	0.175	0.200	0.225	0.275
0.300	DuploCOLL® 36002	•			•		
0.325	DuploCOLL® 366.2		•	•			
0.350	DuploCOLL® 36003			••			
0.400	DuploCOLL® 36005			•		•	
0.450	DuploCOLL® 36007					••	
0.500	DuploCOLL® 36009					•	•
0.550	DuploCOLL® 36011	•				••	

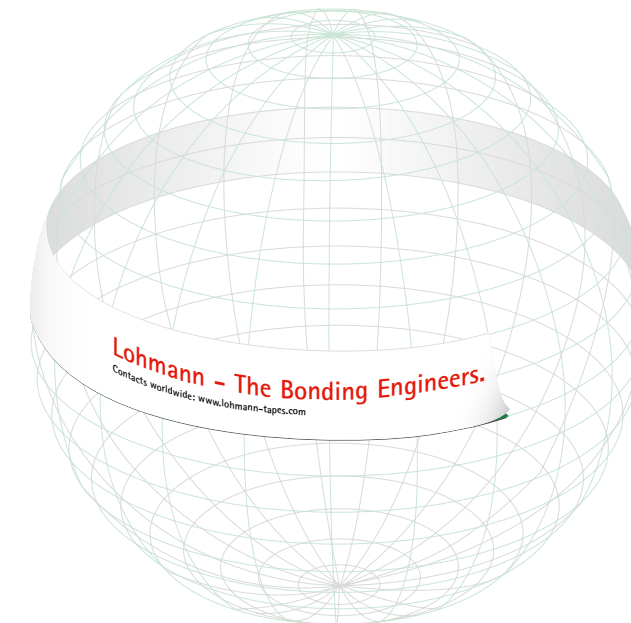
Quantities and availability on request. *Variations possible.

DuploCOLL® Spacer Laminates

Double-sided asymmetric pure and modified acrylic coating

Thickness (mm)	Name	Thickness (mm)*				
		0.100	0.175	0.225	0.050**	0.100**
0.325	DuploCOLL® 36047			•		•

Quantities and availability on request. *Variations possible. **Modified acrylic.
Modified acrylic on the second side makes the spacer suitable for low-energy surfaces.



Our certificates can be found on: www.lohmann-tapes.com/Certificates

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Instructions for use of adhesive tapes

Processing Instructions and Technical Information

Application temperature	The most favourable temperature for using pressure sensitive adhesive tapes is in the range +18 °C to +35 °C. If bonding is carried out at low temperatures, the initial strength of the bond will be reduced and final bond time extended.
Surfaces	The surfaces to be bonded must be clean, dry and free of dust, grease, oil, and separating agents. Loose paint, protective coatings or faces must be removed or hardened.
Cleaning	For cleaning the surfaces only use a clean cloth and a solvent that is compatible with the materials, e.g. benzines, alcohol, esters or ketones.
High contact pressure promotes all-over contact	Contact pressure (approx. 10–15 N/cm2) is applied manually with a roller or surface press. Hard-type ("dry") adhesive tape requires greater contact pressure than soft tape. Full adhesive strength is only reached in the case of hard adhesives after at least 24 hours at normal temperatures.
Avoid any unnecessary loads	Bonds must be made in such a way that no lever action (cleavage stress) can arise. Any shearing or tensile stress must be able to spread across the entire adhesive surface. Continuous peeling stresses impair the permanent elasticity of the bond (e.g. plates to be applied to curved surfaces must first be suitably preformed). Avoid stresses at the ends of the materials to be bonded.
Surface finish	Good bonds are achieved on smooth surfaces; rough surfaces require thicker adhesive tapes. The following are examples of problem-free bonding materials: metals, high-energy plastics (e.g. ABS, polycarbonate, rigid PVC, smooth wood, stone and glass). Plastics containing plasticizers require special attention. The plasticizer can cause changes in the adhesive layer with the result that the strength of the bond is impaired.
Storage	Pressure sensitive adhesive tapes should be stored at 15-25 °C and normal humidity (50–70%). For information regarding storage stability of the different adhesive classes please see overleaf.

Details regarding storage stability of pressure sensitive adhesive tapes

The storage stability of adhesive tapes depends on the different adhesive classes

Adhesive Class	Storage Stability (after despatch)
Pure acrylics	2 years
Modified acrylics	1 year
Dispersion acrylics	1 year
Water-soluble adhesive	½ year
Hotmelt rubber	1 year
Solvent rubber	1 year
Natural rubber	½ year
Synthetic rubber	1 year
Silicone adhesive	1 year

In addition to the limitation in shelf life due to the type of adhesive, we generally recommend that die cut parts be processed within one year of delivery. The duration indicated above requires storage in original packing at 15–25 °C, normal humidity (50–70%) and absence of UV-radiation. Already existing product-specific specifications for storage stability shall prevail. All application related statements, information and recommendations here in are given to the best of our knowledge and practical experience. The buyer is responsible for determining the suitability of the specific tape for its intended use in connection with user's method of application. Please consult our Application Technology Service for specific questions.

Surface pre-treatment

Processing Instructions and Technical Information

One important parameter for efficient bonding is the best possible preparation of the bonding surfaces in order to reach high adhesive strengths. There are generally two cleaning methods, the chemical and the mechanical one or a combination of both. The surfaces to be bonded must be dry and free from dust, oil, separating agents and other contaminations. Loose paints or protective coatings have to be removed.

For cleaning the surfaces only use a clean cloth in combination with material-compatible solvents like benzine, alcohol, ester or ketones.

Change the cloth regularly.

Cleaning agents:	Isopropanol
	Cleaning benzine
	Ethyl acetate
	Heptane
	Acetone or methylethylketone

All solvents must evaporate without leaving residues before bonding. Prior to bonding we recommend testing of the solvent resistance of the material to be bonded.

All the above-mentioned cleaning agents are inflammable!

Evaporatable solvents must not exceed the maximum allowable threshold limit values at the workplace (TLV – threshold limit value).

Surface energy

Processing Instructions and Technical Information

Each material features its individual surface energy. With high surface energies you may achieve high adhesive strengths. If the surface energy is low, bonding will be difficult.

Material	Material abbreviation	Surface tension in mN/m
Polydimethylsiloxane	PDMS	23
Polytetrafluoroethylene	PTFE	18 – 22
Plasticised PP	PP-EPDM	21 – 23
Natural rubber		24
Polyethylene	PE	31 Rubber: >29 mN/m
Polypropylene	PP	29 – 30
Polystyrene	PS	33 – 35 Mod. acrylics: >32 mN/m
Polycarbonate	PC	34 – 40
Acryl nitril butadiene-styrene	ABS	34 – 40
Powder lacquer (polyester-based)		34 – 44
Styrene/acrylonitrile copolymer	SAN	36 Pure acrylics: >36 mN/m
Polyoxymethylene	POM	36
Polyvinylchloride	PVC	38 – 41
Polymethylmethacrylate	PMMA	33 – 44
Cellulose acetate	CA	42
Polyamid	PA	40 – 46
Polyethylene therephthalate	PET	41 – 45
Epoxide	EP	44 – 47
Paper		60
Water		72
Metals, metal oxides		>100

Resistance to weathering

Processing Instructions and Technical Information

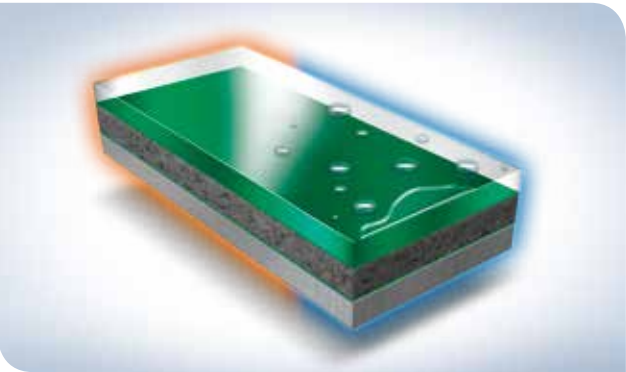
For outdoor applications further aggravating parameters like UV-radiation, humidity, warm and cold temperatures and other environmental influences are to be respected. For these applications we recommend pure acrylic pressure-sensitive adhesives. They are resistant to aging and weathering.

Chemical influences

Many applications require adhesive tapes and adhesives that are resistant to chemical influences, e.g. solvents, oils, acids, bases or plasticizers. This is also a task for pure acrylic pressure-sensitive adhesives.

Aging

Pressure-sensitive adhesives with strongly modified adhesive masses feature a different aging behaviour which is very much depending on environmental influences.



Initial and final adhesion

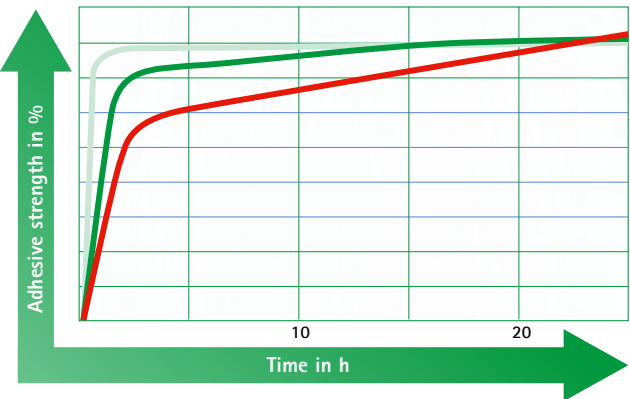
Processing Instructions and Technical Information

Soft-type adhesives generally feature an enhanced initial adhesion in comparison to hard-type ("dry") adhesives. For bonds that require a high final adhesion the use of hard adhesives is advisable.

The final adhesive strength of our standard spacer is achieved after approx. 24 hours.

Influence of flow properties

Time variable



- Highly elastic (rubber adhesives)
- Average viscous (modified acrylics)
- Highly viscous (pure acrylics)