

tesa® ACX^{plus} – Intelligent Bonding Products and Applications

Constructive Bonding Solutions with tesa® ACX^{plus}

PRODUCT AND APPLICATION FOLDER



tesa® ACX^{plus} – The world of constructive bonding applications

Based on 75 years of experience in the production of self-adhesive tape- and system solutions, tesa has become one of the world's leading suppliers in many fields of self-adhesive applications.

tesa prides itself in having an in-depth understanding of its customers' processes and needs in order to provide high class technical support and to select the best solution for your application.

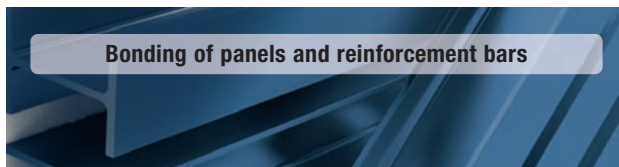
tesa® ACX^{plus} – Application Clusters



Bonding of transparent and translucent materials



Bonding of hard-to-bond materials



Bonding of panels and reinforcement bars

Due to our close contact to customers and their applications on a daily base, tesa deeply understands the world of constructive bonding applications.

Based on that know-how, we identified 3 clusters of relevant applications, our tesa® ACX^{plus} product assortment is specifically designed for.

tesa® ACX^{plus} – Intelligent Bonding Solutions for your constructive bonding demands

tesa® ACX^{plus} is a new category of double sided tapes for constructive bonding and is the highest performing product line made by tesa. tesa® ACX^{plus} consists of a high-performance acrylic system and is primarily characterized by its Bonding Power, Stress Dissipation and its Temperature and Weather Resistance.

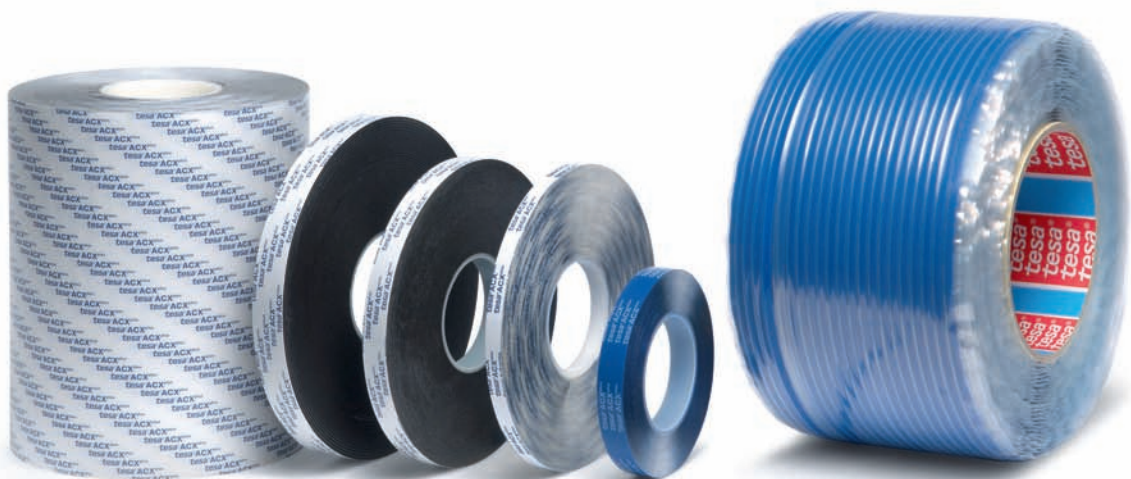
It is our unique ACX production technology, which enables the creation of acrylic core tapes with outstanding viscoelastic properties – the key for the typical performance of tesa® ACX^{plus} products.

tesa® ACX^{plus} bonding solutions can outperform conventional fastening methods such as bolting, riveting, liquid gluing or welding – by optimizing our customers' production processes and the quality of their products.

With tesa® ACX^{plus} tesa offers more than tapes:

- an assortment of specially formulated adhesion promoters
- a wide range of specific application equipment
- a worldwide technical advisory service on site for individual application support

Thus, tesa® ACX^{plus} offers new solutions for your constructive bonding demands.



tesa® ACX^{plus} – The best performance for every task

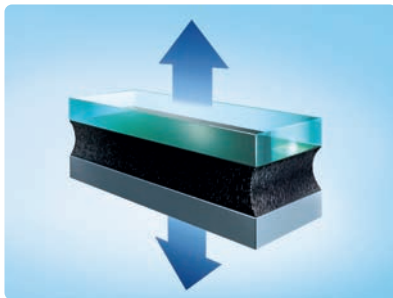
tesa® ACX^{plus} – The core is the key

The high performance of tesa® ACX^{plus} is based on a special feature: viscoelasticity. Viscoelasticity describes a material performance which is defined by both elastic and viscous characteristics.

The elastic restoring forces provide inner strength while the viscous part of the material behavior leads to relaxation of mechanical stresses. The tesa® ACX^{plus} tape employs a special

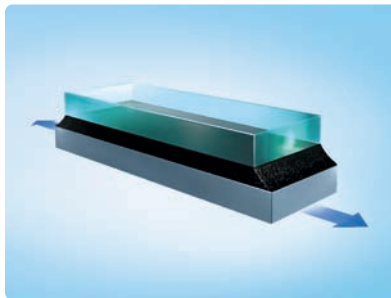
acrylic system that combines both effects in an outstanding manner.

The special balance between elastic and viscous performance does not only secure an optimal wetting of different surfaces but also absorbs dynamic forces and vibrations and relieves stress in the bonded joint. At the same time the adhesive bond is dimensionally stable and permanent.



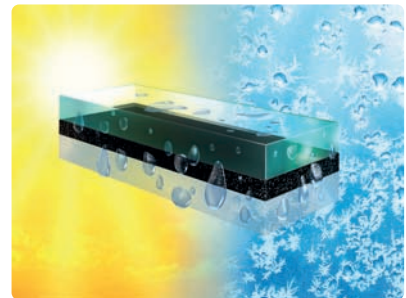
Bonding Power

tesa® ACX^{plus} has a powerful bond on materials with different surface characteristics because the acrylic adhesive system used secures an optimal wetting and chemically adapts to the bonded surfaces. Even more, the tape thicknesses can be adjusted to compensate for rough and uneven surfaces. The result is a permanent contact and a complete sealing of the joint partners. This leads to a high strength and long lasting bond that will last for decades.



Stress Dissipation

During the life cycle of a component, static and dynamic stress act upon the constructive bond. An important special case are stresses in the bonded joint which are caused by different thermal elongations of the respective substrates. Due to the viscoelastic behavior of tesa® ACX^{plus} the arising stresses can be optimally dissipated and a secure bond is assured. Extreme temperature changes are tolerated even for joint partners with different elongation factors.



Temperature and Weather Resistance

tesa® ACX^{plus} offers a high resistance to temperatures and different weather conditions. Main reason is the oxidation resistance of the fully saturated carbon chain which is the foundation of the acrylates used in tesa® ACX^{plus}. Furthermore, the special curing chemistry forms an outstanding temperature resistance network. This results in a superior bond that resists temperature, weather, UV and chemical influence.

3 tesa® ACX^{plus} product families with specific additional strengths

tesa® ACX^{plus} 705x – High Transparency



- Ultra transparent tesa® ACX^{plus} family allows for invisible bonding.

tesa® ACX^{plus} 706x – High Adhesion



- tesa® ACX^{plus} family with excellent immediate adhesion even on substrates with a lower surface energy, such as many plastics and powder-coated materials.

tesa® ACX^{plus} 707x – High Resistance



- tesa® ACX^{plus} family with highest long-term resistance against extreme temperatures, including an outstanding shock resistance (down to -40°C) in cold environments.

tesa® ACX^{plus} – Technical features & Decision tree

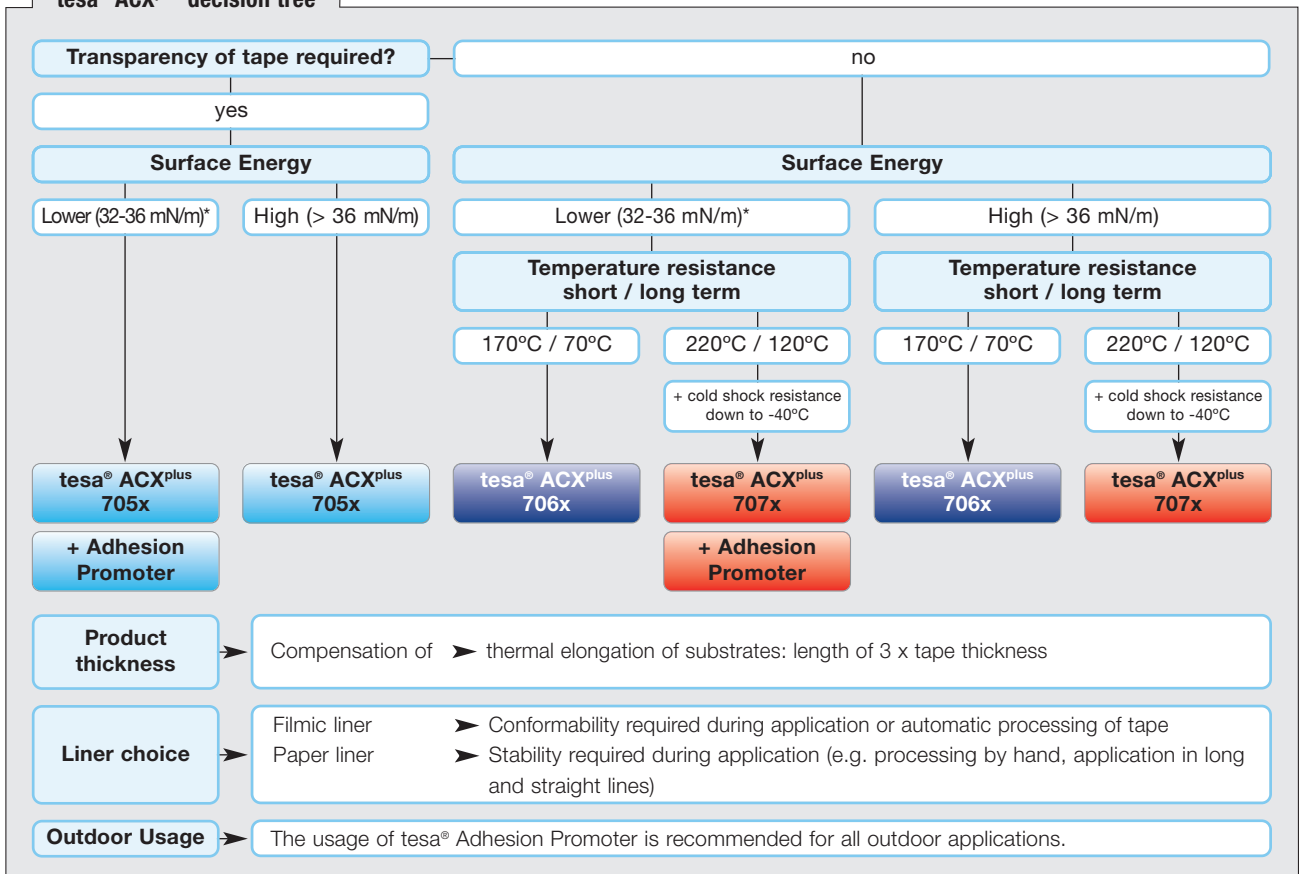
tesa® ACX^{plus} product families – Technical features

Product	tesa® ACX ^{plus} 705x – High Transparency	tesa® ACX ^{plus} 706x – High Adhesion	tesa® ACX ^{plus} 707x – High Resistance
Construction	Solid Pure Acrylic	Foamed Modified Acrylic	Foamed Pure Acrylic
Short-term temperature resistance [minutes]*	200°C	170°C	220°C
Long-term temperature resistance [weeks]*	100°C	70°C	120°C
Adhesion to steel [after 3 days]	24 N/cm	35 N/cm	30 N/cm
Adhesion to ABS [after 3 days]	10 N/cm	30 N/cm	8 N/cm

*According to tesa test method

Note: The technical information and data mentioned above, should be considered representative or typical for a product design of 1000µm only and should not be used for specification purposes.

tesa® ACX^{plus} decision tree



*surface energies below 32 dyn are critical – intensive testing is recommended

Which of your product needs can be solved by tesa® ACX^{plus} ?

Bonding of transparent and translucent materials

For constructions that involve transparent or translucent materials, an invisible bonding method is often an important optical design criterion.

We recommend: tesa® ACX^{plus} 705x – High Transparency

For best results please consider:

- Apply the tape in a very controlled manner to avoid air bubbles. A thin film of water + detergent e.g. dish washing liquid on the substrate can facilitate an optimal application. Additionally, we recommend our assortment of dispensers and lamination equipment. For specific needs tesa can develop individual application solutions.
- In case of substrates with a low surface energy or a high exposure to temperature and weather conditions, make use of our Adhesion Promoter assortment.

Air Conditioning



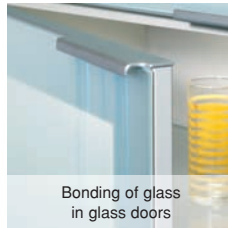
Bonding of deco glass panel

Partition Wall



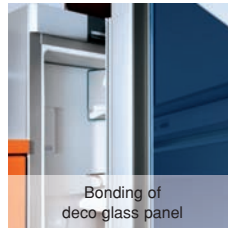
Fixation of H-shaped profile

Furniture



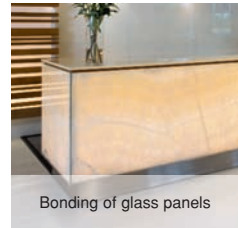
Bonding of glass in glass doors

Refrigerator



Bonding of deco glass panel

Furniture



Bonding of glass panels

Partition Wall



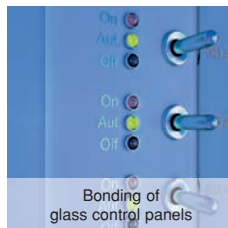
Direct fixation of glass plates

Shower Cabin



Fixation of glass elements

Elevator



Bonding of glass control panels

Sign manufacturing



PMMA panel bonded to DiBond®

Glass cabinet



Fixation of glass to metal

Bonding of hard-to-bond materials

Materials with a lower surface energy are commonly known as hard-to-bond. This refers to (powder) coated surfaces as well as to many kinds of plastics that cause plasticizer migration.

We recommend:
tesa® ACX^{plus} 706x – High Adhesion

For best results please consider:

- Plastics usually show high degrees of thermal elongation. Choose the optimal tape thickness accordingly.
- (Powder) coated materials are usually metals which can be heavy. Take this into account in your bonding area calculation.

Delivery truck



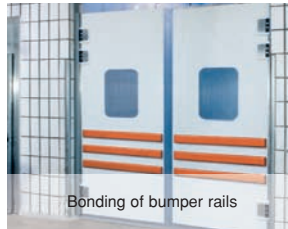
Bonding of aluminum bumper rails

Switch cabinet



Mounting of glass panels

Supermarket



Bonding of bumper rails

Wind energy converter



Bonding of air distributaries

Hospital bed



Bonding of bumper rails

Hospital floor



Bonding of bumper rails

LED bonding



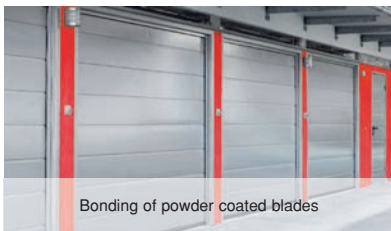
Bonding of LEDs onto backsheet

Switch cabinet



Bonding of powder coated panels

Roller shutter



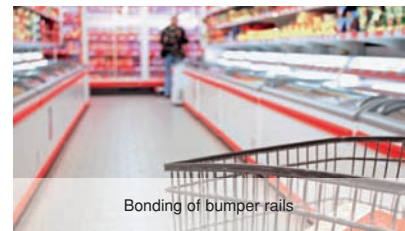
Bonding of powder coated blades

Sign



Bonding of columns to powder coats

Commercial refrigerator



Bonding of bumper rails

Bonding of panels and reinforcement bars

Panels are thin sheet materials, usually used to cover a certain sub-structure. Reinforcement bars are profiles with a specific geometry to stabilize a thin sheet material. For both, outdoor use and the exposure to extreme temperatures, UV, chemicals, solvents and cleaning agents are common.

We recommend:
tesa® ACX^{plus} 707x – High Resistance

For best results please consider:

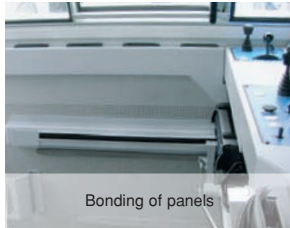
- The adhesive tape can be exposed to load bearing. Calculate the bonding area accordingly and conduct relevant application tests.
- In case of substrates with a low surface energy, make use of our Adhesion Promoter assortment.

Doors



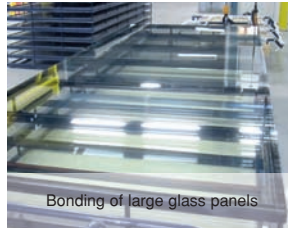
Bonding of deco panels

Transportation



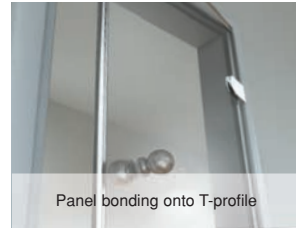
Bonding of panels

Production equipment



Bonding of large glass panels

Doors



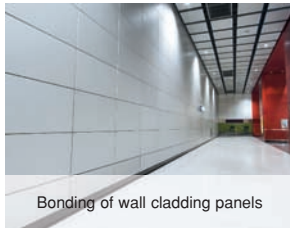
Panel bonding onto T-profile

Reinforcement bar



Reinforcement bar on DiBond® panels

Wall cladding



Bonding of wall cladding panels

Elevator



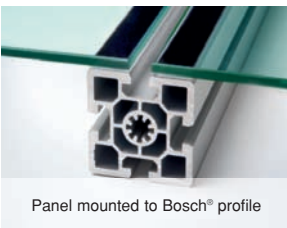
Panel bonding in elevator cabin

Elevator



Reinforcement bar on elevator door

Production equipment



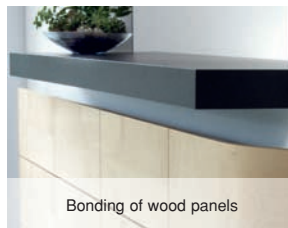
Panel mounted to Bosch® profile

Transportation



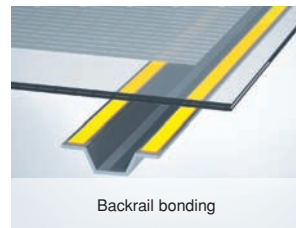
Panels mounted onto skeleton-structure

Furniture



Bonding of wood panels

Solar



Backrail bonding

tesa® ACX^{plus} – Intelligent Bonding

tesa® ACX^{plus} stands for Intelligent Bonding solutions. Compared to conventional fastening methods like bolting, riveting, liquid glueing or welding, the use of tesa® ACX^{plus} tape can bring enormous process and design improvements.

- **Better force distribution**
 - Unlike rivets and screws, an adhesive bond distributes the force over a large area rather than transferring it at individual points.
- **No mechanical weakening of substrates**
 - Optical design improvement
 - No corrosion and deformation
 - Less maintenance needed
 - Usage of thinner materials possible
 - Weight reduction & cost saving
- **No drying times and post-processing**
 - Shorter processing time
 - Saving of costs
 - Less or no re-work
- **No contamination by liquid glue**
 - Healthy working environment
 - Clean production sites
 - No post-processing



For a reliable and convenient tape application, please refer to our complementary assortment of dedicated application equipment, such as dispensers and pressure rollers.

Technical data

tesa® ACX ^{plus} Family	tesa® ACX ^{plus} Product	Thickness without liner [µm]	Construction	Colour	Liner*	Adhesion [N/cm] after 72h dwelling time			
						Steel	PMMA	Aluminum	Glas
705x High Transparency	tesa® 7054	500	solid pure acrylic	transparent	PV 22, PV 24	19	12	19	17
	tesa® 7055	1000				24	17	24	24
706x High Adhesion	tesa® 7063	800	foamed modified acrylic	black	PV 22, PV 24	30	27	32	32
	tesa® 7065	1200				40	35	35	36
	tesa® 7066	1500				45	41	40	39
707x High Resistance	tesa® 7074	1000	foamed pure acrylic	black	PV 22, PV 24	30	15	25	32
	tesa® 7076	1500				35	19	28	36
	tesa® 7078	2000				40	23	32	40

* PV 22: PE coated paper liner – tesa® ACX^{plus} branded, PV 24: HDPE filmic liner blue

Further information material

- tesa® ACX^{plus} Brand & Technology
- Building Supply Market & Applications
- tesa® ACX^{plus} Complementary Assortment



tesa® products prove their impressive quality day in, day out in demanding conditions and are regularly subjected to strict controls. All information and recommendations are provided to the best of our knowledge on the basis of our practical experience. Nevertheless tesa SE can make no warranties, expressed or implied, including, but not limited to any implied warranty of merchantability or fitness for a particular purpose. Therefore, the user is responsible for determining whether the tesa® product is fit for a particular purpose and suitable for the user's method of application. If you are in any doubt, our technical support staff will be glad to advise you.

HEADQUARTERS

tesa SE

Quickbornstrasse 24
D-20253 Hamburg, Germany
Phone: +49 40 4909 3400
www.tesa.com
www.tesa-acxplus.com



The tesa management system is certified according to the standards ISO 9001 and ISO 14001.

