

## tesa® ACX<sup>plus</sup> – Intelligent Bonding Products and Applications

Constructive Bonding Solutions with tesa® ACX<sup>plus</sup>

PRODUCT AND APPLICATION FOLDER



# tesa® ACX<sup>plus</sup> – 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<sup>plus</sup> – 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<sup>plus</sup> product assortment is specifically designed for.

## tesa® ACX<sup>plus</sup> – Intelligent Bonding Solutions for your constructive bonding demands

tesa® ACX<sup>plus</sup> is a new category of double sided tapes for constructive bonding and is the highest performing product line made by tesa. tesa® ACX<sup>plus</sup> 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<sup>plus</sup> products.

tesa® ACX<sup>plus</sup> 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<sup>plus</sup> 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<sup>plus</sup> offers new solutions for your constructive bonding demands.**



## tesa® ACX<sup>plus</sup> – The best performance for every task

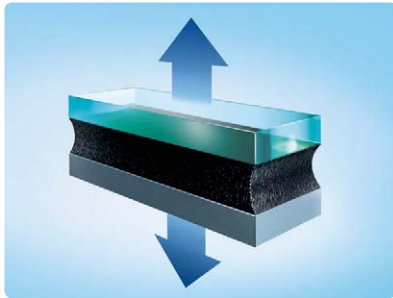
### tesa® ACX<sup>plus</sup> – The core is the key

The high performance of tesa® ACX<sup>plus</sup> 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<sup>plus</sup> tape employs a special

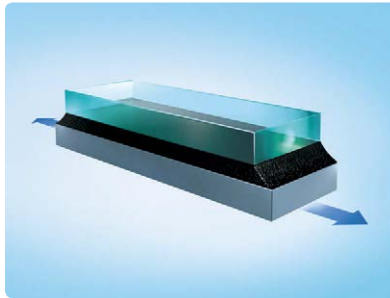
acrylic system that combines both effects in an outstanding manner.

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.



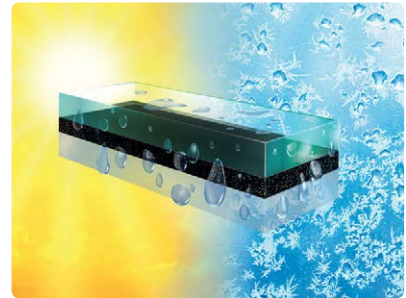
#### Bonding Power

tesa® ACX<sup>plus</sup> 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<sup>plus</sup> 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<sup>plus</sup> 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<sup>plus</sup>. 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<sup>plus</sup> product families with specific additional strengths

#### tesa® ACX<sup>plus</sup> 705x – High Transparency



- Ultra transparent tesa® ACX<sup>plus</sup> family allows for invisible bonding.

#### tesa® ACX<sup>plus</sup> 706x – High Adhesion



- tesa® ACX<sup>plus</sup> family with excellent immediate adhesion even on substrates with a lower surface energy, such as many plastics and powder-coated materials.

#### tesa® ACX<sup>plus</sup> 707x – High Resistance



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

## tesa® ACX<sup>plus</sup> – technical features & decision tree

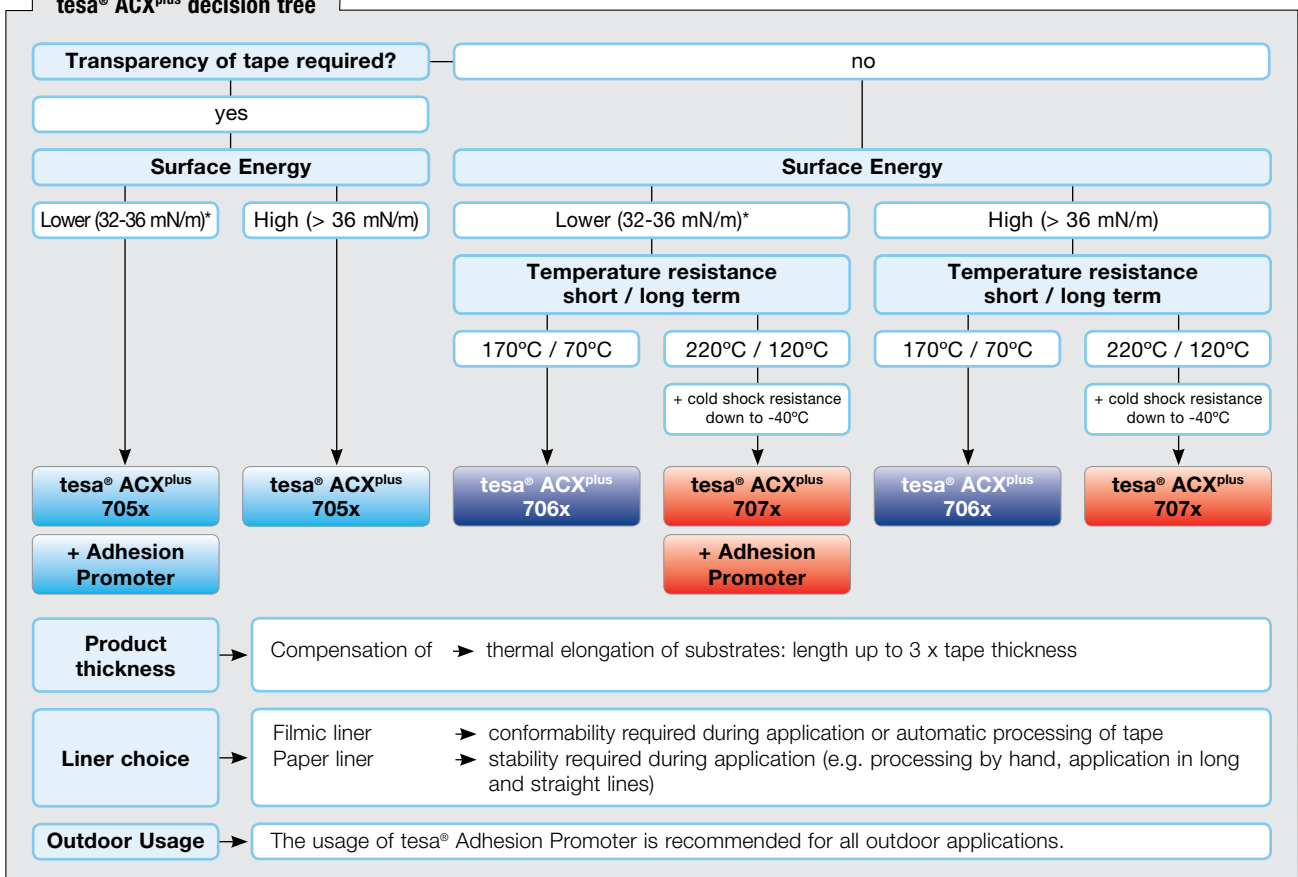
### tesa® ACX<sup>plus</sup> product families – technical features

Product	tesa® ACX <sup>plus</sup> 705x – High Transparency	tesa® ACX <sup>plus</sup> 706x – High Adhesion	tesa® ACX <sup>plus</sup> 707x – High Resistance
<b>Construction</b>	Solid Pure Acrylic	Foamed Tackified Acrylic	Foamed Pure Acrylic
<b>Short-term temperature resistance</b> [minutes]*	200°C	170°C	220°C
<b>Long-term temperature resistance</b> [weeks]*	100°C	70°C	120°C
<b>Adhesion to steel</b> [after 3 days]	24 N/cm	35 N/cm	30 N/cm
<b>Adhesion to ABS</b> [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<sup>plus</sup> decision tree



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



Which of your product needs can be solved by tesa® ACX<sup>plus</sup> ?

## 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<sup>plus</sup> 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



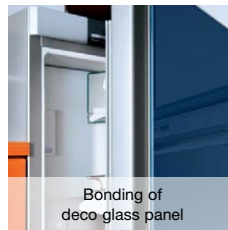
Fixation of H-shaped profile

Furniture



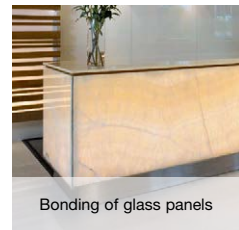
Bonding of glass in glass doors

Refrigerator



Bonding of deco glass panel

Furniture



Bonding of glass panels

Partition Wall



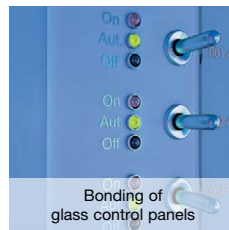
Bonding glass panels to one another

Shower Cabin



Fixation of glass elements

Elevator



Bonding of glass control panels

Sign manufacturing



PMMA panel bonded to back sheet

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<sup>plus</sup> 706x – High Adhesion**

**For best results please consider:**

- Plastics can 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**



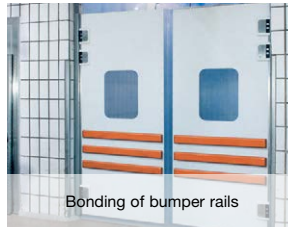
Bonding of aluminum bumper rails

**Switch cabinet**



Mounting of glass panels

**Supermarket**



Bonding of bumper rails

**Window**



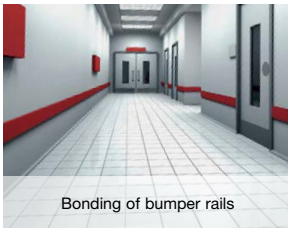
Bonding of muntin bars

**Hospital bed**



Bonding of bumper rails

**Hospital floor**



Bonding of bumper rails

**LED bonding**



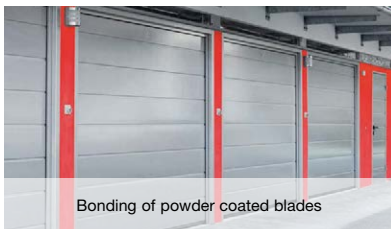
Bonding of LEDs onto backsheet

**Switch cabinet**



Bonding of powder coated panels

**Roller shutter**



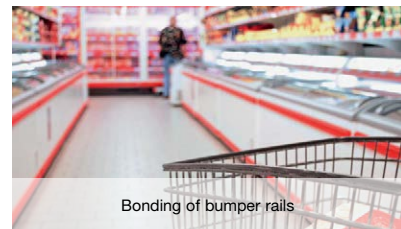
Bonding of powder coated blades

**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<sup>plus</sup> 707x – High Resistance**

#### For best results please consider:

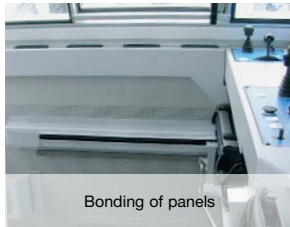
- The adhesive tape can be exposed to load bearing. Calculate the bonding area accordingly and conduct relevant application tests.
- In case of substrates with a low surface energy, make use of our Adhesion Promoter assortment.

#### Door



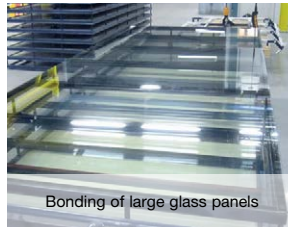
Bonding of deco panels

#### Transportation



Bonding of panels

#### Production equipment



Bonding of large glass panels

#### Door



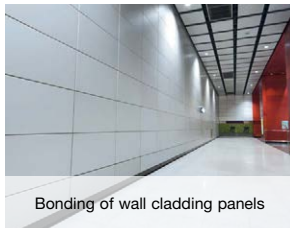
Panel bonding onto T-profile

#### Reinforcement bar



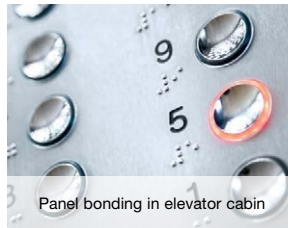
Reinforcement bar on panels

#### Wall cladding



Bonding of wall cladding panels

#### Elevator



Panel bonding in elevator cabin

#### Elevator



Reinforcement bar in elevators

#### Production equipment



Panel mounted to profile

#### Transportation



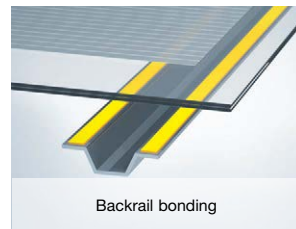
Panels mounted onto skeleton-structure

#### Furniture



Bonding of wood panels

#### Solar



Backrail bonding

## tesa® ACX<sup>plus</sup> – Intelligent Bonding

tesa® ACX<sup>plus</sup> stands for Intelligent Bonding solutions. Compared to conventional fastening methods like bolting, riveting, liquid glueing or welding, the use of tesa® ACX<sup>plus</sup> 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 drying times and post-processing

- Shorter processing time
- Saving of costs
- Less or no re-work

### ■ 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 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 <sup>plus</sup> Family	tesa® ACX <sup>plus</sup> Product	Thickness without liner [µm]	Construction	Colour	Liner*	Adhesion [N/cm] after 72h dwelling time			
						Steel	PMMA	Aluminum	Glass
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
	tesa® 7056	1500				27	19	24	26
	tesa® 7058	2000				29	22	24	28
	tesa® 75530	2900				27	20	26	32
706x High Adhesion	tesa® 7062	500	foamed tackified acrylic	black	PV 22, PV 24	24	20	27	27
	tesa® 7063	800				30	27	32	32
	tesa® 7065	1200				40	35	35	36
	tesa® 7066	1500				45	41	40	39
707x High Resistance	tesa® 7072	500	foamed pure acrylic	black	PV 22, PV 24	20	12	18	20
	tesa® 7074	1000				30	15	25	32
	tesa® 7076	1500				35	19	28	36
	tesa® 7078	2000				40	23	32	40
	tesa® 70725	2400				31	17	28	30
	tesa® 70730	2900				44	22	39	38

\* PV 22: PE coated paper liner – tesa® ACX<sup>plus</sup> branded, PV 24: HDPE filmic liner blue

## Further information material

- tesa® ACX<sup>plus</sup> Brand & Technology
- tesa® ACX<sup>plus</sup> Complementary Assortment
- tesa® ACX<sup>plus</sup> Hints & Tips for the right tape application
- Building Supply Market & Applications
- tesa® ACX<sup>plus</sup> for the Partition Wall Industry



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.



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



All tesa® ACX<sup>plus</sup> products are recognized regarding UL 746C. UL File: QQQW2.E30

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