Engineered Adhesive Solutions for the Smart Card & Identification Industry

Scapa

Your Partner, Your Solution

Scapa is a global leading supplier of technical adhesive tapes and films to major industries such as automotive, cable, building & construction, printing & graphics, medical, aerospace and electronics.

For the Smart Card and Identification Industry, we develop highly specialised films for secured devices used in numerous sectors: Telecommunication, Banking, Healthcare, Government & ID, Transportation, etc.

With approaching 90 years experience in adhesive tapes production and 15 years working in partnership with key smart card market leaders in the manufacturing of films, card materials, processing machines and module embedding, Scapa offers high technology adhesive solutions for all bonding and assembly needs.

We are able to cover the full range of substrates such as modules, body cards and passports made of a wide range of materials. This success is the result of 3 billions cards already utilising Scapa films for module embedding, which meet the increasing demand for secured identification data.

With evolving market requirements including additional memory into cards, more processing capabilities and higher speed process expectations, you can be assured of Scapa's ability to understand and deliver reliable service performance and product features geared to customers own specific and complex requirements.

As we are a specialist in this field, our customers can rely on Scapa's precise technology, application knowledge and ability to customise to your particular needs.

Within the Smart Card market, adhesive tape technology is seen as the most flexible, clean and easy solution in the manufacturing process. Indeed, adhesive use for module embedding guarantees both card quality and long term resistance, which in turn reinforce the Smart Card security.

Scapa has built up strong expertise in module embedding and its Thermofilm® range already offers consumers an approved choice of films for various types of cards: SIM, dual interface, contactless and multifunctional cards as well as for passport assembly and inlay insertion in E-passports.

Today, the Thermofilm® range is acclaimed by market leaders for its versatile bonding properties, its constant quality and performance for a fast and easy implementation with existing processing machines.

Thermofilm® - key features and benefits

Thermofilm® G175

- Is a nitrile-phenolic technology based film
- Meets or exceeds ISO requirements on the vast majority of plastic card materials including PVC, ABS, PVC/ABS blend, PC, PET-G and PET-F
- Bonds particularly well on PET-F materials
- Complies with various dielectric films: glass epoxy, polyimide, etc.
- Has a specific adhesive formulation for low temperature embedding or for use on temperature sensitive substrates like PVC, thus avoiding card deformation on the back
- Provides soft bonding, preventing cards to become fragile just behind module after multiple handling

Thermofilm® H212 NEW

- Is a thinner and no tack version of Thermofilm® G175

Thermofilm® G185 NEW

- Is a co-polyamide technology based film
- Exceeds ISO requirements
- Exhibits high bonding performance on PVC, ABS, PVC/ABS blend cards, preventing module removal without destroying it
- Complies with various dielectric films: glass epoxy, polyimide, etc.
- Specially required for banking and telecommunication applications

Typical Characteristics of Scapa module embedding heat-activated films

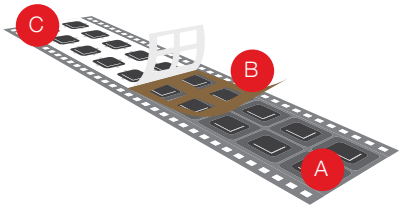
		Thermofilm® G175	Thermofilm® H212 NEW	Thermofilm® G185 NEW
Physical Properties	Adhesive Type	Nitrile Rubber/ Phelonic Resins	Nitrile Rubber/ Phelonic Resins	Co-polyamide
	Adhesive Thickness (µm)	70	50	45
	Liner Thickness (µm)	115	90	90
Standard Size	Width (mm)	24-29-29.5	24-29-29.5	24-29-29.5
	Length (m)	200	200	300
Shelf Life		6 months at 23°C or 18 months at 6°C		12 months at 23°C

01 Adhesive lamination on lead frame

A Lead frame

B Scapa heat-activated adhesive

C Liner



Thermofilm® - product process and performance

Typical process conditions for Scapa module embedding heat-activated films

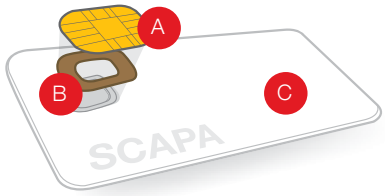
		Thermofilm® G175	Thermofilm® H212 NEW	Thermofilm® G185 NEW
Lamination (bonding)	Temperature (°C)	90	110	130
	Time (s)	2	2	2
Embedding	Temperature (°C)	160-180-220 (PET-F)	180-200	200
	Time (ms)	2 x 750 or 3 x 500	2 x 750 or 3 x 500	2 x 750 or 3 x 500
	Pressure (bar)	3	3	3

02 Module embedding

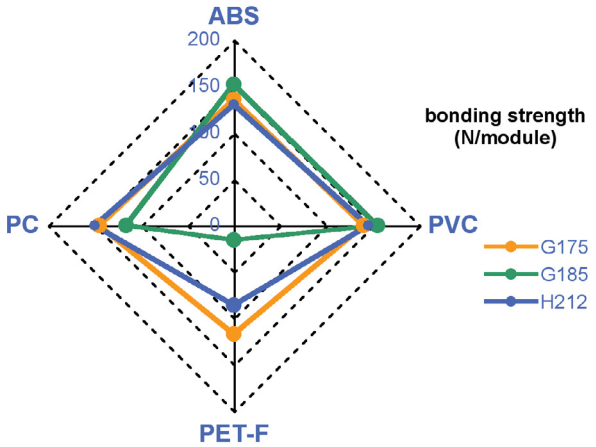
A Module

B Scapa heat-activated adhesive

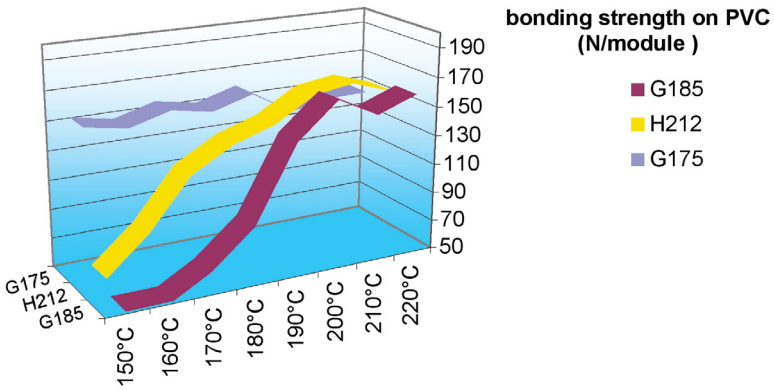
C Plastic card



Bonding strength value per product and body card material*



Bonding strength value per product according to embedding temperature*



* Embedding process parameters: Lamination 130°C 2 seconds 3 bar, embedding 180°C 2 x 1 second 3 bar
Bonding strength measurement is made by compression from the back side of the card (24 hours after embedding and at jaw speed of 100 m/min).

Thermofilm® range meets all standard card materials needs in the smart card industry. G175 is the unique product giving high bonding strength on PET-F. G185 is showing very high bonding performance on PVC and ABS allowing destruction of the module when manual removal.

Embedding process parameters are important to get full Thermofilm® range performance. G175 exhibits high and consistent bonding on a wide range of temperature and can be used particularly on heat sensitive substrates. G185 high performance is directly linked to an elevated temperature of > 190°C during manufacturing process.

Other specialist adhesive films

To challenge the smart card market, Scapa also provides you with a comprehensive range of specialist films to allow high performance and quality bonding, mounting, splicing and masking on a large extend of substrates:

Bonding - Mounting - Splicing - Masking						
Product Code	Carrier	Adhesive Type	Thickness (µm)	Operating Temperature	Application	Special Features
1801	Kapton®	Silicone	70	-40°C to +180°C	Splicing High temperature masking Lead frame splicing	Excellent heat and chemical resistance High shear strength Leaves no residue after removal Can be used in short term up to 280°C
C556	Polyimide	Silicone	65	-40°C to +180°C	Splicing High temperature masking Lead frame splicing	Excellent heat and chemical resistance High shear strength Leaves no residue after removal Can be used in short term up to 280°C
C524	PET	Silicone	100	-40°C to +180°C	Butt splicing of siliconised papers and plastic films	Thick adhesive coat weight helps bonding well to most siliconised surfaces Green colour enables easy splice identification Excellent heat and chemical resistance High shear strength
1504H	Glass Cloth	Silicone	170	-40°C to +180°C	Multipurpose Bobbin Closing	Glass cloth substrate provides very good conformability High mechanical and chemical resistance
C1640	PET	Silicone	60	-40°C to +150°C	Butt splicing of siliconised papers and plastic films	Bonds well to most siliconised surfaces Product construction with embossed PVC liner and silicone release on its backing ensures identical non-sticky properties to the web material (tape and label manufacturing)
1695	Aluminised PET	Acrylic	45	-15°C to +130°C	Butt splicing	Easy to use Leaves no residue after removal Good shear resistance High chemical, moisture and solvent resistance
S159RW	Double sided PET	Removable Acrylic / Permanent Acrylic	76	-15°C to +120°C	Temporary mounting Temporary labels Label and card bonding onto paper mailings	Ultra removable acrylic adhesive exhibits very low peel, easy and clean removal

Scapa also produces specific products for plastic cards and passports lamination:

Lamination						
Product Code	Carrier	Adhesive Type	Thickness (µm)	Operating Temperature	Application	Special Features
Thermofilm® G160 NEW	Clear transfer	Polyurethane	20	-15°C to +60°C	Passport Plastic card	Low temperature activation (70°C) High bond strength Soft and flexible bond
Thermofilm® G161 NEW	White transfer	Polyurethane	27	-15°C to +60°C	Passport Plastic card	Low temperature activation (80°C) High bond strength Soft and flexible bond High opacity

Scapa develops solutions to meet customers' demands - a selection of products in our standard range is shown here. If, however, you do not find the right product for your specific requirements, please contact us to research the best solution.

Thermofilm is a registered trademark of Scapa Group Plc. Kapton is a registered trademark of DuPont.

For further information please contact your local distributor or Scapa customer care:

Scapa Asia
Tel: +852 2439 4330

Scapa North America
Tel: +1 860 688 8000

Scapa Europe

English
Tel: +44 (0) 161 301 7400

Schweiz
Tel: +41 71 844 5680

Deutsch
Tel: +49 (0) 621 470 91-0

Français
Tel: +33 (0) 475 44 80 00

Italiano
Tel: +39 0161 867 400

enquiries@scapa.com
www.scapa.com

AFAQ ISO 9001 ISO/TS 16949
AFAQ ISO 14001