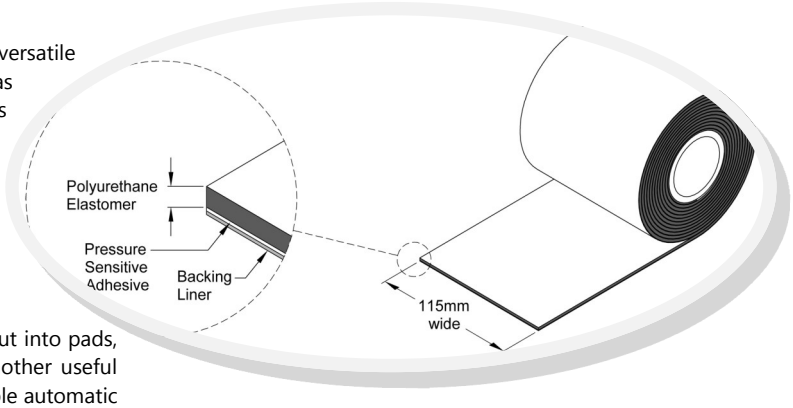
BumperFlex™ Tape

BumperFlex™ tape programme 0.5mm—1.6mm

Technical Data **March 2018**

A highly resilient flexible polyurethane based tape coated with versatile pressure sensitive adhesives. This tough yet durable material has excellent anti-slip properties and is ideal for preventing squeaks & rattles. It also offers good protection against scratches and is the perfect way to create a non-slip base over a large area due to It's high coefficient of friction. BumperFlex™ tapes are available in a wide range of thicknesses to suit most applications. They are supplied on a roll with a high quality backing liner suitable for die-cutting or if required a film based release liner. A noticeable feature of BumperFlex tape is the ability to die-cut into pads, discs, washers, squares or gaskets to suit almost any job. Another useful feature is the ability to supply die-cut parts in roll form to enable automatic or robotic application.



General Tape Information

	BF.4105	BF.4108	BF.4110	BF.4116
Thickness (mm)	0.5	0.8	1.0	1.6
Standard width (mm)	115	115	115	115
Standard length (M)	66	66	66	33
Adhesive system	See adhesive data on pages 2 & 3			
Polyurethane finish	Transparent tapes = high gloss finish. Coloured tapes = matt finish			
Colours available	Standard colours are Transparent & Black—Non-standard colours White & Brown. Special colours subject to MOQ			
Slitting tolerance mm	± 0.5	± 0.5	± 0.5	± 0.5
Thickness tolerance	± 8%	± 6%	± 5%	± 5%

Polyurethane Physical Properties

Properties	Test Method	Clear	Coloured
Hardness (Shore A)	ASTN D-2240	68-76	68-76
Tensile Strength (MPA)	BS903	4.5MN/m2	4.5MN/m2
Elongation (%)	BS903	190	190
Tear Strength (KN/m)	BS903	22.3	22.3
Abrasion Resistance (MG loss)	BS EN 5470-1:1999	175	150
Load Tolerance 21°C to 60°C		Min 3 Mpa	Min 3 Mpa
Flame Retardency	UL94HB (in house test)	Pass	Pass
Kinetic Coefficient of friction	ASTM D-1894-78		
	A Stainless Steel B Glass D High impact polystyrene	5.69 2.9 2.53	5.52 2.7 2.37
Density		1080-1120 kg/m3	1080-1120 kg/m3
Compression Set 40°C (%)	BS903	Max 5	Max 5
Solvent & Fuel Resistance **Tests carried out at 23°C for 24 hours**	5% detergent in water 25% detergent in water 5% bleach in water Motor oil Isopropyl Alcohol Hydrochloric acid (one normal solution) Diesel Fuel Heptane Toluene	No noticeable effect No noticeable effect No noticeable effect No noticeable effect Some swelling. More evident in clear series No noticeable effect No noticeable effect Slight swelling Substantial swelling	

Exposure to the Enviroment	BumperFlex™ tape is intended for interior applications where physical properties will remain unchanged. When exposed to UV light for extended periods some discoloration as well as loss of adhesion may occur. However BumperFlex™ may be used outdoors in a protected area with some discoloration apparent. SHELF LIFE– 12 months when stored in original packaging at room temperature

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Pressure Sensitive adhesive data

4001 Acrylic (Standard on all CLEAR BumperFlex ™ Tapes)	4002 Acrylic (Standard on all COLOURED BumperFlex ™ Tapes)
The 4001 adhesive is a medium tack adhesive with higher end use temperature and good clarity. Usually preferred for applications where good ageing properties are required. Unless otherwise requested this adhesive is standard on all clear BumperFlex™ tapes	The 4002 adhesive is a high tack acrylic based adhesive which displays good instant tack as well as high peel and shear properties. Unless otherwise requested this adhesive is standard on all coloured BumperFlex™ tapes.

Peel & Shear Data

• **FINAT 1 :** 90° Peeling test, 300mm/min.

Samples width: 25x145mm – Load 2 back and forth with roll of 2 kg

• **FINAT 8 :** Shear test

Samples width: 25x25mm – Load 2 back and forth with roll of 2 kg

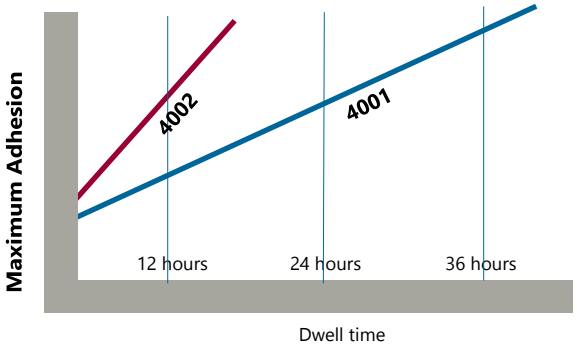
Surface Material	Test Method	4001 Acrylic Standard on Clear BumperFlex™ tapes		4002 Acrlic Standard on Coloured BumperFlex™ tapes	
		20min 23°C 50% RH	**24h** 23°C 50% RH	**20min** 23°C 50% RH	**24h** 23°C 50% RH
Stainless Steel	**Peel FINAT 1** Unit N/25mm	13.6	22.2	12.8	15.5
Aluminium		15.6	21.2	7.8	14.00
Glass		17.6	22.3	17.0	19.3
HPDE		1.6	2.4	3.8	3.8
Polystyrene		8.1	15.2	15.3	17.3
ABS		7.9	17.5	12.8	19.5
Stainless Steel	**Shear FINAT 8**	-	>120h	-	>300h

Adhesive Considerations

Please refer to the chart below which illustrates the relative adhesion properties in the adhesive systems used in the production of BumperFlex™ tapes.

In general terms please allow time (dwell) to increase the surface contact and therefore the adhesion.

In all cases we recommend customers carry out their own tests because application conditions will vary.



APPLYING BumperFlex™ Tapes

It is important to remember, that as with any self adhesive product, the surface to which they are being applied must be clean, dry and free from dust and dirt. Therefore, to gain maximum adhesion, clean the surface with low strength solvent and allow to dry thoroughly before use. Please follow solvent manufacturers' instructions for safety.

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Temperature Data (Application)

Usual application temperature advised for pressure sensitive adhesives are 20-40°C. We do not advise application at higher temperature

Concerning lowest temperature, test have been carried out to evaluate the impact of lower temperature on initial adhesion. Indeed, the major risk is a lack of adhesion when temperature decreases.

Test description

- Adhesive and plates are stored for at least 2h at tested temperature
- 90° peeling test on stainless steel after 1 min at 23°C.
- 90° Peeling test on stainless steel after 1 min at 10 or 15°C.

By comparison we can evaluate low temperature impact on initial adhesion.

Adhesion after 1min (N/25mm)	**4001 Acrylic** Standard on Clear BumperFlex™ tapes	**4002 Acrylic** Standard on Coloured BumperFlex™ tapes
23°C	14.8	10.6
15°C		8.8
10°C	12.3	

There was an impact on initial adhesion at low temperature. The decrease is inferior to 20%.

Temperature Data (Service)

Test description:

This test is based on the evaluation of adhesion performances after an exposure at low or elevated temperature.

- 90° Peeling test on stainless steel is carried out after 24h at 23°C
- Same test is carried after 24 h at 23°C + 2h at low or elevated temperature

(for example, extreme value -40°C / +120°C)

If the performance of adhesion is compared **with and without** temperature exposure then:

Maximum Adhesion Decrease 20% accepted.

	4001 Acrylic Standard on Clear BumperFlex™	**4002 Acrylic** Standard on Coloured BumperFlex™
Minimum Service Temperature	- 40°C	- 30°C
Maximum Service Temperature	+ 120°C	+ 100°C