



# **BROTHER FX Tape – Technical Data Sheet**

BROTHER INDUSTRIES LTD.

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## 1. General

Printing Technology:	Thermal Transfer
Label Type:	Continuous Laminated Label
Application:	<ul style="list-style-type: none"> <li>• Cable identification (wrappable)</li> <li>• Curved surface identification</li> </ul>

## 2. Regulatory/Agency Approvals

The FX Tape is UL-Recognized to the UL969 Labelling and Marking Standard. For more information, see the UL files MH21016.

The FX Tape complies with the regulations for hazardous chemicals described in the EU RoHS directive. For more information, see “BROTHER GROUP GREEN PROCUREMENT STANDARD” at <http://global.brother>.

## 3. Colors and Sizes

Cassette Model Number	Print Color	Tape Color	Available Widths
TZe-FX211	Black	White	6 mm (0.23 in)
TZe-FX221	Black	White	9 mm (0.35 in)
TZe-FX231	Black	White	12 mm (0.47 in)
TZe-FX241	Black	White	18 mm (0.7 in)
TZe-FX251	Black	White	24 mm (0.94 in)
TZe-FX261	Black	White	36 mm (1.4 in)
TZe-FX611	Black	Yellow	6 mm (0.23 in)
TZe-FX621	Black	Yellow	9 mm (0.35 in)
TZe-FX631	Black	Yellow	12 mm (0.47 in)
TZe-FX641	Black	Yellow	18 mm (0.7 in)
TZe-FX651	Black	Yellow	24 mm (0.94 in)
TZe-FX661	Black	Yellow	36 mm (1.4 in)

## 4. Physical Properties

- Including the backing paper: approximately 160 µm
- Excluding the backing paper: approximately 100 µm

## 5. Test Results

### 5.1 Flat Surface Adhesion – Temperature Ratings (Based on the UL969 test result)

- Readable and not peeling off

Cassette Model Number	Application Surface	Max Temp (°C)	Min Temp (°C)	Indoor Use	Outdoor Use
TZe-FX211	Acrylonitrile Butadiene Styrene	100	-30	○	○
TZe-FX221					
TZe-FX231	Alkyd Paint	100	-30	○	○
TZe-FX241	Aluminum	100	-30	○	○
TZe-FX251	Galvanized Steel	100	-30	○	○
TZe-FX261	Phenolic-Phenol Formaldehyde	100	-30	○	○
	Polycarbonate	100	-30	○	○
	Polyester Paint	100	-30	○	○
	Polyester Terephthalate	100	-30	○	○
	Polyphenylene Oxide/Ether	100	-30	○	○
	Polyvinyl Chloride	100	-30	○	○
	Stainless Steel	100	-30	○	○
TZe-FX611	Alkyd Paint	100	-30	○	○
TZe-FX621	Aluminum	100	-30	○	○
TZe-FX631	Galvanized Steel	100	-30	○	○
TZe-FX641	Phenolic-Phenol Formaldehyde	100	-30	○	○
TZe-FX651	Polycarbonate	100	-30	○	○
TZe-FX661	Polyester Paint	100	-30	○	○
	Polyester Terephthalate	100	-30	○	○

Cassette Model Number	Application Surface	Max Temp (°C)	Min Temp (°C)	Indoor Use	Outdoor Use
	Polyphenylene Oxide/Ether	100	-30	○	○
	Stainless Steel	100	-30	○	○

## 5.2 Cylindrical Object Adhesion

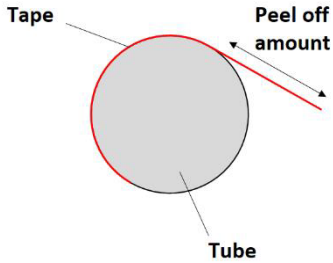
### Test Method

1. Wrap a 24 mm-wide label around a polypropylene tube ( $\phi 3$  mm and  $\phi 6$  mm).
2. Measure the peel-off amount after leaving the tubes under the test conditions described below.

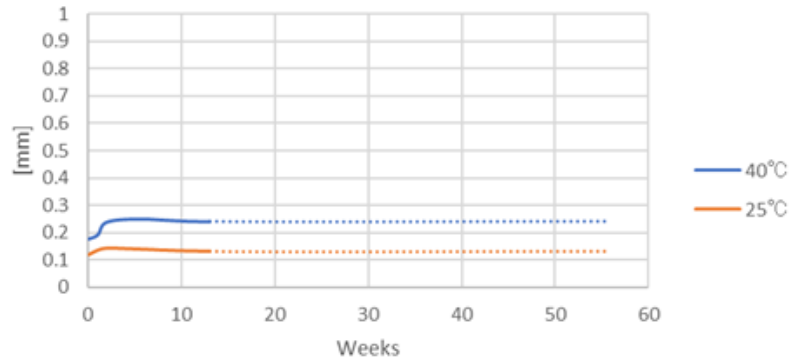
### Test Conditions

- Label size: 24 mm (width) × 24 mm (length)
- Cassette condition: Two weeks after production, stored at room temperature ( $23\pm 2^{\circ}\text{C}$ )
- Application conditions: Applying the label with a pressure of approximately 200 g/label width
- Environmental conditions:
  - During application: Room temperature  $23\pm 2^{\circ}\text{C}$ , humidity  $50\pm 10\%$
  - Storage temperature after application:  $25^{\circ}\text{C}$  and  $40^{\circ}\text{C}$
- Measurement method:
  - Wrapping: Observed with a microscope (magnification x30)
  - Flagging: Standard observation

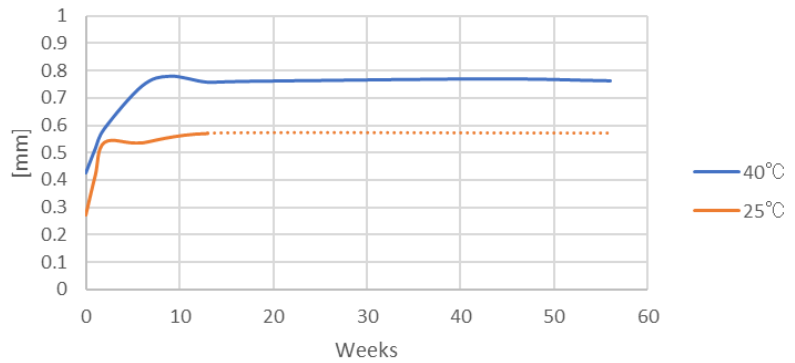
## Wrap-around



Peel-off amount (FX): Wrapping on a  $\Phi$  6 mm tube



Peel-off amount (FX): Wrapping on a  $\Phi$  3 mm tube



Solid line: Actual data

Dotted line: Estimated test result

## Flagging

- Readable and not peeling off

Storage Temperature	Cable diameter (mm)	Immediately After Application	2 Weeks	1 Month	3 Months
25°C	$\varphi$ 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	$\varphi$ 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40°C	$\varphi$ 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	$\varphi$ 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 5.3 Chemical/Solvent Resistance (Wiping)

#### Test Method

1. Paste a 12 mm-wide label on a glass plate.
2. Dampen a piece of cloth with a chemical/solvent and then wipe the tape with the cloth. Observe the surface for changes.

#### Test Conditions

- Label size: 12 mm (width) × 24 mm (length)
- Cassette condition: Two weeks after production, stored at room temperature (23°C ±2°C)
- Environmental conditions during application: Room temperature and humidity (23°C ±2°C, 50% ±10%)
- Application conditions: Pressing down with a roller one way and back at a pressure of approximately 2 kg.

- Readable and not peeling off

Chemical/Solvent	Result
Water	○
0.1N HCL	○
0.1N NaOH	○
Toluene	○
Hexane	○
Ethyl Alcohol	○
Ethyl Acetate	○
Acetone	○
Mineral Spirits	○

## 5.4 Chemical Resistance – Cylindrical Object (Soaking)

### Test Method

1. Wrap a 24 mm-wide label around a stainless steel rod ( $\phi 2$  mm,  $\phi 3$  mm, and  $\phi 6$  mm).
2. Observe the results after soaking the rods in each of the chemicals/solvents that are listed in the “Test Conditions” section for two hours.

### Test Conditions

- Label size: 24 mm (width) × 24 mm (length)
  - Cassette condition: Two weeks after production, stored at room temperature ( $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ )
  - Environmental conditions during application: Room temperature and humidity ( $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ,  $50\% \pm 10\%$ )
  - Application condition: Applying with a pressure of approximately 200 g/label width
- Readable and not peeling off  
 △ Readable but peeling off partially  
 × Unreadable and peeling off either partially or completely

Chemical/Solvent	$\phi 2$	$\phi 3$	$\phi 6$
Water	○	○	○
0.1N HCL	○	○	○
0.1N NaOH	△	△	△
Toluene	×	×	×
Hexane	×	×	△
Ethyl Alcohol	×	×	○
Ethyl Acetate	×	×	×
Acetone	×	×	×
Mineral Spirits	×	×	△

## 6. Notes

1. From among the many different types of available tapes, a random sample was selected and used to perform these tests. Accordingly, the results of these tests may differ slightly, depending on the type of tape used.
2. The test results were acquired under specific conditions arranged by Brother. Brother does not guarantee the strength, safety, or accuracy of the numerical data presented in this report.
3. The tape adherence performance can be affected by the material that the tape is attached to, the material's surface condition (whether it is greasy, dusty, rough or curved), the material's shape, and the environmental conditions. Users should confirm the adherence performance under their actual usage conditions after purchasing this product and use the product under their own responsibility.
4. We assume no responsibility for any damage, injuries, or lost profit arising from the use of labels created according to the information contained in this document.