TAPE STRUCTURE

Brother's laminated tapes – both the TC and TX lines – consist of six layers of materials, resulting in thin, yet extremely strong, labels. Characters formed with thermal transfer ink are actually printed onto the underside of a laminate. Sandwiched between two layers of PET (polyethylene) film, the characters are virtually indestructible.

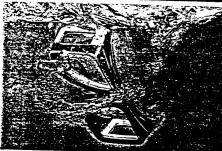


BROTHER LAMINATED TAPE

LAMINATION

Brother's 50 μ m of top lamination protects the ink from the sorts of hazards which abound in industrial environments: abrasion, chemicals, oil and water. . . even general rough handling.

Special tape technologies



FLUORESCENT TAPES

INSTANT LETTERING TAPES

IRON ON TRANSFER TAPES

SAFE FOR USERS

Brother had its tapes tested by an official Japanese government food research laboratory. For the purpose of the tests, it was assumed that labels would be attached to food containers, food packages, or to food preparation equipment. The tapes met the food sanitation law of Japan. Results can be seen at the right. P-Touch laminated tapes were found to meet all of the chemical limits in the standard. Though they passed the chemical tests, P-Touch tapes are strong, and not easily digested. For this reason, care should be taken to prevent accidental ingestion by infants or the elderly.

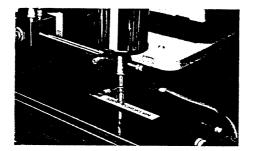
Additional tests were performed to determine the effects of accidental affixation of tapes to one's skin. Again, the tapes caused no skin irritation in the tests and, therefore, are described as safe according to OECD guidelines. Again, though the tapes passed the irritation tests, they could have some effect on people with sensitive skin. Brother recommends that labels not be attached to one's skin.

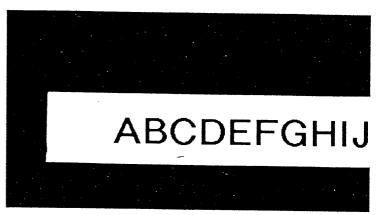
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RESULT	s
Lead :	none detected (MLD 5ppm)
Cadmium :	(the oppe)
	(MLD 0.5ppm)
Dissolution tests	
Heavy metals (as Pb) : (Solvent : 4% V/V acetic acid)	
Consumption of Potassium permanganate (Solvent : water)	: 1.1µg/ml
Residue on evaporation : (Solvent : a-heptan)	not more than 5µg/ml
Residue on evaporation :	not more than 5µg/ml
Residue on evaporation :	not more than 5µg/ml
Residue on evaporation :	
(Solvent : 4% V/V acetic acidi	none detected
Hermanium : (Solvent : 4% V/V acetic acid)	(MLD 0.05µg/ml)
ethyl methacrylate : (Solvent : 20% V/V ethanol)	(MLD 0.05µg/ml) none detected (MLD 5µg/ml)

BRASION RESISTANCE

Tapes were tested with a weighted (1kg) sand eraser After 50 "return" passes, Brother's tapes' device. lamination was only slightly scratched. The characters underneath were completely unaffected.





ABRASION RESULT (after 50 passes)

ELECTRIC STRENGT

In tests performed by Brother, white P-Touch tapes with black characters began to lose their electric resistance at an applied voltage of 8kv, and lost their resistance entirely at 11kv. Most other colour variations will have a similar resistance. However, though they meet the majority of Japan Industrial Standards for electrical insulator tape, P-Touch tapes are not designed to be used as electrical insulation, and Brother recommends that they not be used as such. (It is important to note that tapes with "metallic" (gold, silver) backgrounds or characters contain aluminium, and that tapes with black backgrounds contain carbon, and therefore have lower dielectric strength than the standard colour styles.)

TAPES	(a) (mm)	(b) (kV)	(c) (kV/mm)	(d) (kV)
BLACK ON WHITE	0.110	11	100	8
BLACK ON GOLD	0.110	8	55	4
BLACK ON SILVER	0.110	6	55	5

(a) DIELECTRIC BREAKDOWN VOLTAGE
 (b) DIELECTRIC STRENGTH FOR IMM IN THICKNESS (b)/(a)
 (c) DIELECTRIC STRENGTH FOR IMM IN THICKNESS (b)/(a)
 (d) THE MAXIMUM VOLTAGE WHICH CAN BE APPLIED BEFORE THE INSULATOR RUPTURES.

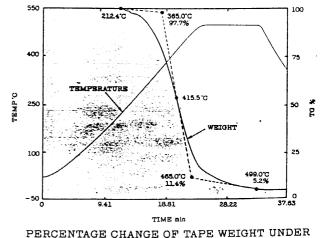
AKING THE HEAT

Brother's P-Touch tapes retain their integrity even at extremely high temperatures. Tapes were placed in an analysis chamber. Then, starting at room temperature, the chamber was heated at a rate of 20°C increase per minute.

Decomposition of the tapes did not begin until the temperature reached 365°C. In other words, under general working environments the tapes will retain their form and readability. Tapes began to decompose more rapidly before and after temperature reached 415.5°C.

People often ask about using P-Touch tapes in conjunction with Diazo copy machines and with laminators. Copying an original document with a label attached will not cause problems with a Diazo machine. However, attaching a label to Diazo output may be difficult, due to the outputted document's wetness or coatings. As for

lamination machines, extreme heat and pressure can cause the label's structure and printed characters to be damaged. For this reason, items with P-Touch labels attached should not be fed through a laminator.



PERCENTAGE CHANGE OF TAPE WEIGHT UNDER HIGH TEMPERATURE



- 2 -

ADHESIVE STRENGTH

A label that falls off ceases to perform its function. Anybody who has experience using embossed stiff films knows that their reduced surface adhesion area decreases the tape's ability to cling to items.

ADHESION TO VARIOUS MATERIALS •

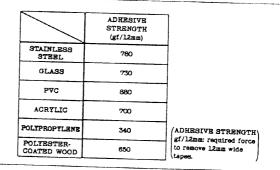
First, Brother tested their tapes' adhesive strength under ordinary conditions when applied to various materials. Though the exact forces required to remove the labels varied, the finding was that in a general working environment, even after handling, P-Touch tapes will remain affixed.

ADHESION AFTER EXPOSURE TO HEAT AND COLD .

Next, tapes attached to stainless steel slightly roughened with abrasive paper were heated and cooled. After two hours in -50° C, a force of 710 gf was required to remove the P-Touch tape. No change in tape or adhesive colour had occured. Heating, on the other hand, actually increased the tapes' adhesive strength, due to a slight softening and spreading of adhesive. (After two hours in 200°C though, the tape's white backing and adhesive had slightly discoloured.)

ADHESION IN HIGH TEMPERATURE & HIGH HUMIDITY

The combination of high temperature and high humidity was no problem for Brother's tapes. The highest adhesion strengths of any test were registered after the tapes' exposure to 40°C temperatures and 5% salt water baths. No change in ink colour occured, and no adhesive was left behind when tapes were removed.



	ADHESIVE STRENGTH (g1/12mm)
-50°C×2 HOURS	710
200°C×2 HOURS	1100

	ADHESIVE STRENGTH (gf/12mm)	
40°C DISTILLED WATER×24 HOURS	1440	
40°C 5% SALT WATER×24 HOURS	1560	(OBJECTS:STAINLESS STEEL RUBBED) WITH ABRASIVE PAPER #280

ADHESION TO ROUNDED OBJECTS •

Adhesion strength on rounded objects was also tested. Tapes were attached to stainless steel poles of various diameters, prepared with #280 abrasive paper. The poles were then placed in a variety of environments. On tightly-rounded, 8mm-diameter poles, after 24 hours in 65°C and 80% humidity, some labels' ends pulled up slightly from the pole (up to 3mm), and in a few cases.

the background tape remained attached while the laminate pulled up (i.e. some tape separation occured). In both normal and cold temperatures, even on the 8mm-diameter poles, no loss of adhesion was noted. More importantly, on all poles with larger diameters (from 12mm to 24mm), no loss of contact between label and pole resulted.

ADHESION TO ROUGH SURFACE

The last adhesion tests addressed the issue of surface roughness. Stainless steel samples were prepared using a variety of abrasive paper weights. Roughening the surface actually increased the Brother tapes' adhesion strengths.

	PEBLING			
ENVIRONMENTAL CONDITION	ADECESTON AMOUNT PROFILIDA	1 MM OR LESS (0.04" OR LESS)	1-3 MM (0.04'-1/8')	3 MM OR MORE
65°C×24 HOURS	SEPARATED	20%	50%	0
	DETACHED	20%	0	0
23°C×24 HOURS	SEPARATED	0	0	0
	DETACHED	0	0	0
-20°C×24 HOURS	SEPARATED	0	0	0
	DETACHED	0	0	

PERCENTAGE OF TAPES WHICH DETACHED FROM SUBSTRATE OR SEPARATED ON 8MM (1/3)-DIAMETER POLES

<hr/>	
	ADHESIVE STRENGTH (gf/l2mm)
SPECULAR GLOSS STAINLESS STEEL	560
STAINLESS STEEL RUBBED WITH A.P. #280	780
STAINLESS STREL RUBBED WITH A.P. #240	750
STAINLESS STERL RUBBED WITH A.P. #180	710
STAINLESS STEEL RUBBED WITH A.P. #120	730
STAINLESS STEEL RUBBED WITH A.P. #80	660

In general, the adhesion strengths determined through the various tests demonstrate that Brother's tapes will remain affixed under all but the most extreme environments.

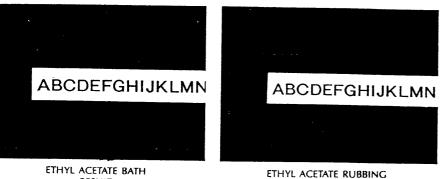
EMICALS & WATER

P-Touch tapes, attached to glass slides, were bathed in a variety of materials for two hours. Despite some changes in appearance and structure, all tapes remained affixed to their slides. As the photographs show, in a number of tests, Brother's laminated tapes fared remarkably well.



TOLUENE:	Slight adhesive swelling Slight puffing of tape and laminate
HEXANE:	No noticeable change
ETHANOL:	Slight adhesive swelling Slight puffing of tape
ETHYL ACETATE:	Slight adhesive swelling Slight puffing of laminate
ACETONE:	Some adhesive dissolving Slight puffing of laminate
1.1.1 TRICHLOROETHANE:	Slight adhesive swelling Slight puffing of laminate
MINERAL SPIRITS:	Slight adhesive swelling Slight puffing of laminate
WATER:	No noticeable change in structure Very slight weakening of adhesive
0.1N HCI:	No noticeable change in structure Very slight weakening of adhesive
0.1N NaOH:	No noticeable change in structure Very slight weakening of adhesive

CHANGES OF APPEARANCE AND STRUCTURE IN VARIOUS CHEMICALS



RESULT

RESULT

Brother's laminated tapes of various background colours were attached to coated metal plates (similar to a car's surface), and placed in a fade-inducing chamber at 83°C. They were left for 100 hours to simulate a year in sunny surroundings. Afterwards, measurements of the change in reflective strength (Δ E) were taken, with results as shown:

Only yellow tape showed significant fading. The other background films, though yielding measurable ΔEs , were not overly affected to the eye. Ink remained basically unchanged, and all characters were still completely legible.

Next, tape samples were placed in a sunshine weathero-meter at 63°C for 400 hours. They were subjected to not only heat and light, but also water, to simulate a year of outdoor conditions. Again, yellow tapes were the most affected, with these results:

3

Also, though soaking labels in chemicals for two hours caused some changes, rubbing P-Touch labels with cloths soaked in those same chemicals had no effect on the tapes. This implies that even if chemicals are spilled on the P-Touch tapes, quick wiping should prevent damage. Here, Brother's laminated tape technology clearly protects the printed characters.

TAPES'	FADE-O-METER			
BACEGROUNDS	20 HOURS	50 HOURS	100 HOURS	
CLEAR	0.09	0.08	0.26	
WHITE	0.13	011	0.16	
RED	0.30	0.48	0.74	
BLUB	080	0.82	0.52	
TELLOW	1.14	2.32	4.13	
GREEN	0.32	0.29	091	
GREY	0.52	0.71	1.09	
BLACK	0.24	ள	0.35	

TAPES'	WEATHER-O-METHIA				
CLBAR	TOO HOURS	200 BOURS	400 HOURS		
	and tot	256	Ever		
WHITE	-		.		
RED	œr:	٩. T	<u>87</u>		
BLUE	<u></u>	æ.	<u>ن</u> ي ا		
TELLOW	CE)	e	œ		
GREEN		ility of			
GREY		1.1	2.26		
BLACK	¥070	L36	2.58		



Some commonly asked que

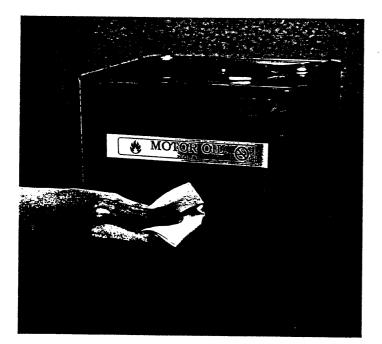
"Can I use these labels outside ?"

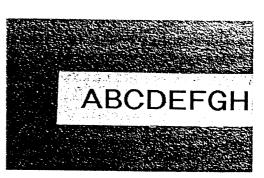
If the label is originally attached to a clean, dry surface, it will be able to stand even harsh environments without falling off. After prolonged exposure to the sun, some fading of tape or print colours may occur. Readability will not be affected.



"What happens if water/motor oil/ diluted acid gets on the labels ?"

Water presents no problems for the tape. Motor oil, diluted acid and other chemicals, in time, will weaken the tape's adhesive and/or laminate. If the spilled chemicals are wiped within a reasonable amount of time, the tapes will remain affixed, and will not be adversely affected.

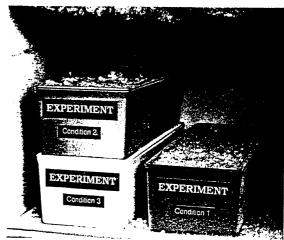




NO DAMAGE TO BROTHER'S LAMINATED TAPE FROM SPILLED LACQUER

5TIONS

"Will the labels fall off if they are left in a refrigerator/ freezer, or in a hot environment ?"



Even at extremely low temperatures, labels will remain adhered to most materials. Many customers already use P-Touch tapes in refrigerated environments for a variety of applications and are satisfied with the results. Domestic refrigerator/freezers reach low temperatures of approximately -20° C, while industrial models reach -30° C. During adhesion tests, even at -50° C, no adhesive strength problems, ink or tape changes were noted. High temperatures can even increase the labels' adhesion. After two hours in 200°C temperatures, tested labels did not fall off (though some discolouration may occur.)

"When I remove the label, will messy adhesive remain? How can I remove it?"

Tapes can be easily removed from most materials such as polyethylene, polypropylene, fluoric resin, silicon – process materials, etc. Unless subjected to extreme heat, humidity or certain chemicals, adhesive will not remain on the item's surface after removal. On some other materials, portions of adhesive might remain after extended periods of affixation. If this occurs, the adhesive can --in most cases -- be removed by rubbing with Ethanol.

"Does the label adversely affect the item to which it is attached ?"

3

P-Touch tapes are harmless for nearly all objects to which you might attach them. However, labels should not be affixed to copper, because corrosion is possible. This is especially true for copper plates of electrical circuits, whose components could be damaged.



TAPE DIRECTOR

PRINTS IN VARIOUS COLOURS



Not all models are avaulable in all

PT-5000/20 ON WHITE ADHESIVE

		BLACK	RED	BLUE		
T	24mm	TX-251	TX-252	TX-253		
F X	18mm	TX-241	TX-242	TX-243		
ње д .Ш	12mm	TX-231	TX-232	TX-233		
В.Ш.	9mm	TX-221				
مىغۇر م	6mm	TX-211				
ČĂ	12mm	TC-201	TC-202	TC-203		
E E	9mm	TC-291	TC-292	TC-293		

ON CLE	AR ADHE	SIVE		
BLACK	RED	BLUE	GOLD	WHITE
TX-151	TX-152	TX-153		
TX-141				
TX-131	TX-132	TX-133		
TC-101	TC-102	TC-103	TC-104	
				TC-195

PT-3000/15

ON BLACK ADHESIVE BLACK ON

countries.

BLACK ON FLUORESCENT					
4 + 3 EV	WHITE		2.224.62	YELLOW	GREEN
TX-364	TX-355		TX-851	TX-C51	TX-051
	TX-345				
TX-334	TX-335		TX-B31	TX-C31	TX-D31
	TX-325				
	TX-315				
TC-301			TC-801	TC-C01	TC-D01
TC-391	TC-395				

WHITE ON COLOURS

		RED	BLUE	(IIII)	GREEN	GREY
	24mm					
X	18mm					
I	12mm					
- the w	9mm					
	6mm					
5 A	12mm					
٩u	9mm	TC-495	TC-595	TC-695	TC-795	TC-A95

BLACK ON COLOURS

•	11425	YELLOW	Galaan	GREY	୍ର କରି କରି କରି ।	
TX-451	TX-551	TX-651	TX-751	TX-A51		<u>.</u>
TX-441	TX-541	TX-641	TX-741			
TX-431	TX-531	TX-631	TX-731	TX-A31		
		TX-621				
		TX-611				
TC-401	TC-501	TC-601	TC-701			
TC-491	TC-591	TC-691	TC-791		TC-891	TC-991

ON MATT FINISH

		BLACK	RED	BLUE
	24mm	TX-M51	· · · · · · · ·	
T X	18mm			
Ţ	12mm			
	9mm	TX-M21		
	6mm	TX-M11	·	
L L	12mm			
-APE	9mm	TC-M91	TC-M92	TC-M93

IRON ON TRANSFER TAPE

BLACK	RED	BLUE
		·
	· · · · · · · · · · ·	·
TC-Y01	TC-Y02	TC-Y03

ON INSTANT LETTERING TAPE

BLACK	RED	BLUE
TX-051		
TX-031		
TC-001	TC-002	TC-003

★Actual tape colours may differ from the printed samples here.

- ★ Some kinds of tapes are not available in some countries.
- ★Tape Width Variations:
 - TX TAPE-24mm (1")
 - 18mm (3/4")
 - 12mm (1/2")
 - 9mm (3/8*)
 - 6mm (1/4")

Division.

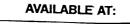
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194 m

TC TAPE-12mm (1/2") 9mm (3/8")

All tests, with the exception of toxicity and skin irritation analyses, were performed by Brother Industries, Ltd. Though they were not performed by an independent research laboratory, their procedures conformed to Japanese Industrial Standards. Results published here could differ slightly from those conducted by different groups, under different circumstances.

As a service to our customers, Brother will provide Material Safety Data Sheets for its tapes upon request. For additional information on tapes, including available styles and pricing, please call Brother Customer Service Dept.



ALC: NO.

PT350 SPECIFICATIONS

PT350 SPECI	FICATIONS 957-501
	PT350
	Jun-97
Fare Proceeding Date	
Hardware Zeros Dimensions	178(W) x 205(D) x 60(H) mm
Weight	700g (excl. batteries)
Housing Design	Low Profile
Housing Colour	B900
Keyboard	QWERTY. QWERTZ, AZERTY
Number of Keys	51
Cutter	Manual
Power	Dry Cell AA Batteries x 6 (inc.) / Op. AC Adapter
LCD	12 Chrs x 2 Line
Attachments	12mm Black on Clear, 6 x AA Batteries
Print Head	180 dpi / 128 dot (available 98 dot)
Print Speed	10mm / sec
Таре Туре	TZ
Tape Width	6, 9, 12, 18, 24 mm
Tape Feed	Yes
1 april 1 apri	
	Helsinki, Brussels, Bermuda
Sottware Built-In Font	San Diego, Florida, US, Belgium, Istanbul
Title Font	216 (UK, FRA, BEL) / 256 (GER)
Characters and Symbols	12.4mm
Max Character Height	13.5mm
Max Print Height	Auto, 10, 13, 19, 26, 38 (Normal or Wide)
Character Size (point)	Normal, Outline, Shadow, Bold, Italic It +(Outline,
	Shadow, Bold)
Font Styles (8)	4 Line –
Multi-Line	Yes (Also 7 presets)
Label Length Set	No
Multi-Block	255 Characters
Buffer	2000 Characters
Memory	Square, Round, Background shadow, background
	cross, Background diagonal, Nameplate, Telephone
	Dog, Cat, Hands, Candy, Banner, Aeroplane, Vine
	Flower
Framing (15 kinds)	CODE39, CODE128, EAN8, EAN13, EAN128,
	CODABAR, I 2/5, UPC-E, UPC-A
Barcode	Yes (1-9)
Copy Printing	BackSpace, Line Out, All Clear
Delete	Underline, Strike out
Underline	Full, Large, Middle, Small, None
Tape Margin	Horizontal, Left, Centre, Right, Justify
Text Alignment	(Use "background" options in frame function)
Fill Pattern	Yes
Mirror Printing	Insert
Text Insert	Yes
Vertical Printing	Yes (1-99)
Numbering	No
Split Printing	Yes (Hidden Function)
Stamp Format	Yes
Calendar Printing	Yes
Auto Power Off Multi Colour Software	Semi-Automatic
In the Colour Soltware	Page 1/1 10th Fe

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Page 1/1 10th February 97

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PT220 SPECIFICATIONS

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9575B

		PT220
	Thanked Province to a Deir-	Jul-97
Hardware	Dimensions	109(W) x 190(D) x 68(H) mm
	Weight	570g (excl. batteries)
	Housing Design	Large Handy
	Housing Colour	B900 (With light grey middle)
	Keyboard	QWERTY, QWERTZ, AZERTY
	Number of Keys	52
	Cutter	Manual
		Dry Cell LR66 Batteries x 6 (inc.) / Op. AC
	Power	Adapter
	LCD	12 Chrs x 2 Line
	Attachments	12mm Black on Clear, 6 x LR66 Batteries
	Print Head	180 dpi / 128 dot
	Print Speed	10mm / sec
	Таре Туре	TZ
	Tape Width	6, 9, 12, 18 mm
	Tape Feed	Yes
	Taperteu	1 CS
	Built-In Font	
Software		Helsinki
	Title Font	No
	Characters and Symbols	175?? (UK, FRA, BEL) / 187 (GER)
	Max Character Height	12.4mm
	Max Print Height	13.5mm
	Character Size (dots)	24, 32, 48, 56, 88 +BIG
		Normal, Outline, Shadow, Bold, Italic It+(Outline,
	Font Styles (8)	Shadow, Bold)
	Multi-Line	4 Line
	Label Length Set	Yes
	Multi-Block	No 00 Characteristic
	Buffer	99 Characters
	Memory	300 Characters
	Framing (15 kinds)	Rectangle, Ribbon, Nameplate, Vine
		CODE39, EAN8, EAN13, CODEBAR, I 2/5, UPC
	Barcode	E, UPC-A BackSpace, Line Out ?, All Clear
	Delete Underline	Underline
	Tape Margin	Full, Middle, Small, None
	Text Alignment	No
	Fill Pattern	No
	Mirror Printing	Yes
	Text Insert	Insert
	Vertical Printing	Yes
	Numbering	Yes (1-9)
	Split Printing	No
	Auto Power Off	Yes
	Multi Colour Software	Semi-Automatic
	Intalli Colodi Golemal C	

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Page 1/1 10th February 97



STAMP KIT ACCESSORIES FOR P-TOUCH LABEL PRINTERS

34

<u>Model</u>	Description	Can be used with
SKLB	24mm Large Stamp Kit Contains Stamp Holder - Black Ink Pad-Stencil Film	PT-350 Only Automatic
SKMB	18mm Medium Stamp Kit Contains Stamp Holder - Black Ink Pad-Stencil Film	PT-350 Automatic PT-220 Manual PT-540C Manual
SHLB	24mm Large Stamp Holder and Black Ink Pad	PT-350 Automatic only
SHMB	18mm Medium Stamp Holder and Black Ink Pak	PT-350 Automatic PT-220 Manual PT-540C Manual

Automatic: Set-up for use of the Stamp Kit is automatic on PT-350

4

Manual : Requires manual set-up from special instructions supplied with all Stamp Kits when used with PT-220, PT-340, PT-340C & PT-540.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for brother manufacturer:

Other Similar products are found below :

 TZE-S651
 TZE-S621
 TZE-FX221
 TZE-B31
 TZE-651
 TZE-641
 TZE-431
 TZE-334
 TZE-232
 TZE-223
 TX231
 TZE

 131
 TZE-161
 TZE-355
 TZE-451
 TZE-661
 TZE-731
 TZE-FX251
 DK-11202
 DK-11204
 DK-11207
 DK-11208
 DK-11218
 DK

 11219
 DK-11221
 DK-11240
 DK-22214
 DK-22223
 DK-22225
 DK-22251
 DK-44605
 DK-N55224
 FLE-7511
 HSE-211
 HSE

 221
 HSE-241
 PT-D210
 PT-D400
 PT-D450VP
 PT-D600VP
 PT-H110
 PT-P300BT
 STE-141
 STE-151
 STE-161