

Barcode Printer

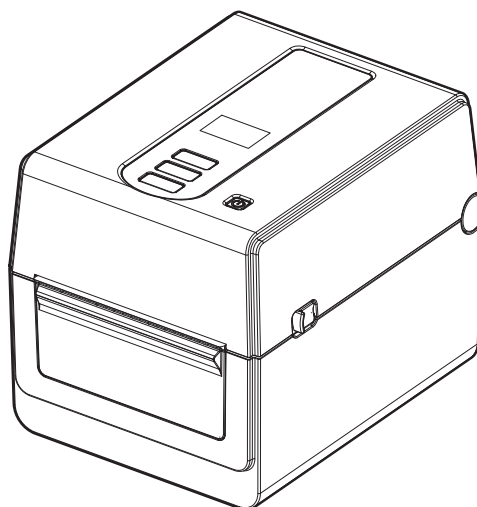
Owner's Manual

BV410D-GS02-QM-S

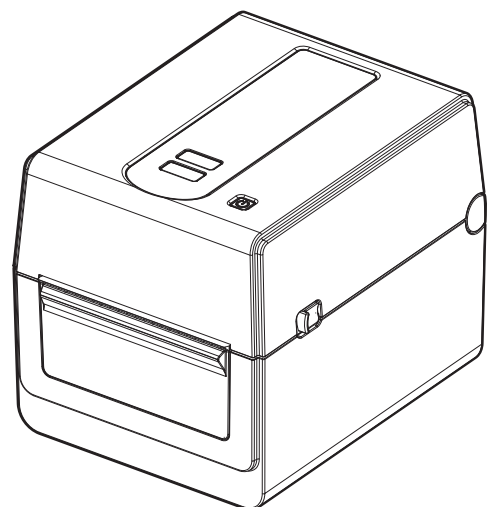
BV410D-TS02-QM-S

BV420D-GS02-QM-S

BV420D-TS02-QM-S



BV410D



BV420D

Preface

Thank you for purchasing our product.

To keep the product in its best condition, keep this manual handy and use it whenever necessary.

■ Important notices about this manual

- This product is designed for commercial usage and is not consumer product.
- This manual may not be copied in whole or in part without prior written permission of Toshiba Tec Corporation.
- The contents of this manual may be changed without notification.
Contact your Toshiba Tec representative for further information concerning this manual.
- Refer to your local authorized service representative with regard to any queries you may have in this manual.
- Windows is a registered trademark of Microsoft Corporation.

■ Importers and Manufacturer

Importer (For Turkey)

BOER BILISIM SANAYI VE TICARET ANONIM SIRKETI BCP
Yukari Dudullu, Tavukcuyolu Cad. Demirturk Sok No: 8A 34775,
Umraniye-Istanbul, Turkey

Manufacturer:

Toshiba Tec Corporation
1-11-1, Osaki, Shinagawa-ku, Tokyo, 141-8562, Japan

CONTENTS

Preface	1
Important notices about this manual	1
Importers and Manufacturer	1
1. Product Overview	4
Introduction	4
Features	4
Unpacking	4
2. Description of Components	6
Front and rear views	6
Interior	7
3. Accessories	8
4. Operation Panel Functions	9
BV410D	9
BV420D	11
5. Printer Setup	12
Precautions	12
Setup procedure of the printer	13
6. Connecting the Cables	14
7. Connecting the AC Adapter and Power Cable	15
8. Turning the Printer On and Off	16
How to turn the power on	16
How to turn the power off	16
9. Opening and Closing the Top Cover	17
To open the top cover	17
To close the top cover	17
10. Loading the Media	18
Loading the media roll (label roll and tag roll)	18
Loading the fanfold paper	21
11. Adjusting the Media Sensors	22
Feed gap sensor	22
Black mark sensor	22
12. Print mode	23
Batch mode	23
Strip mode (Option)	23
Cut mode (Option)	24
External media stand (Option)	25
13. Maintenance	27
Print head	27
Media sensors	27
Platen roller	28
Peel-off module (Option)	28
Media housing	28
How to store and handle the media	29
14. Troubleshooting	30
Troubleshooting	30
Status lamp	31
Removing jammed media	33
15. Printer Specifications	34
Printer	34
Options	36
16. Media Specifications	37

Media 37

1. Product Overview

■ Introduction

Thank you for purchasing our barcode printer. This Owner's Manual contains valuable information such as the general setup and how to confirm the printer's operation using test prints. Read this carefully to help you to gain maximum performance and life from your printer. Be sure to keep this manual close at hand for daily reference. For further information concerning this manual, contact your Toshiba Tec Corporation representative.

■ Features

This printer has the following features:

Interfaces	A USB port and Ethernet support interface are embedded in this printer as standard. Wireless LAN, Bluetooth and serial interface (RS-232C) can also be embedded as an option.
Easy to use	The printer mechanism is designed to allow simple operation and easy access to maintenance.
Flexible hardware	Sharp and clear printing can be achieved by an 8-dot/mm (203 dpi) print head (in BV410D-GS02-QM-S and BV420D-GS02-QM-S) at a speed of up to 177.8 mm/sec. (7"/sec.) or an 11.8-dot/mm (300 dpi) print head (in BV410D-TS02-QM-S and BV420D-TS02-QM-S) at a speed of up to 127 mm/sec. (5"/sec.).
Full range of options	The following optional devices can also be installed in this printer. <ul style="list-style-type: none">• Cutter module• Peel-off module• External media stand• Wireless LAN interface• Bluetooth interface• Serial (RS-232C) interface• AC adapter cover

■ Unpacking

- 1 Unpack the printer.**
- 2 Check that there are no scratches on the printer or any other damage to it.**

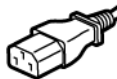
Note

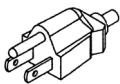
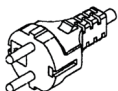
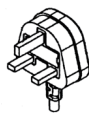

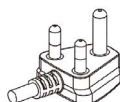
Toshiba Tec Corporation shall have no liability for any damage or anything similar sustained during transportation.

- 3 Keep the carton and internal packing materials for future transportation of the printer.**

Power cable instructions

1. For use with 100 – 125 Vac mains power supply, select a power cable rated Min. 125V, 10A.
2. For use with 200 – 240 Vac mains power supply, select a power cable rated Min. 250V, 10A.
3. Select a power cable with the length of 2 m or less.
4. The power cable plug connected to the AC adapter must be able to be inserted into an ICE-320-C14 inlet. Refer to the following figure for the shape.




Country/Region	North America	Europe	United Kingdom	Australia	South Africa
Power cable Rated (Min.) Type	125V, 10A SVT	250V H05VV-F	250V H05VV-F	250V AS3191 approved, Light or Ordinary Duty type	250V, 6A H05VV
Conductor size (Min.)	No. 3/18AWG	3 x 0.75 mm ²	3 x 0.75 mm ²	3 x 0.75 mm ²	3 x 0.75 mm ²
Plug configuration (locally approved type)					
Rated (Min.)	125V, 10A	250V, 10A	250V * ¹	250V * ¹	250V * ¹

*¹ At least, 125% of the rated current of the product

2. Description of Components

The name of the components in this section is used in the following chapters.

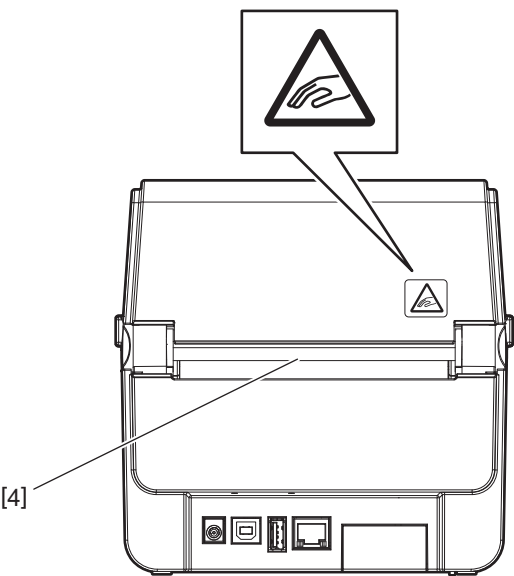
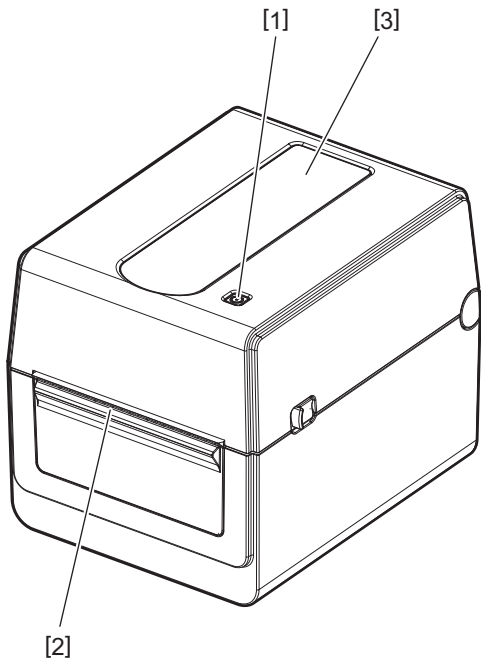
■ Front and rear views



⚠ CAUTION


MECHANICAL HAZARD

To avoid injury, be careful not to trap your fingers in the paper slot while opening or closing the top cover.



No.	Part Name	No.	Part Name
1	[POWER] button	3	Media view window
2	Media outlet	4	Paper slot

Note

For the interface section at the rear side, refer to  P.14 “6. Connecting the Cables”.

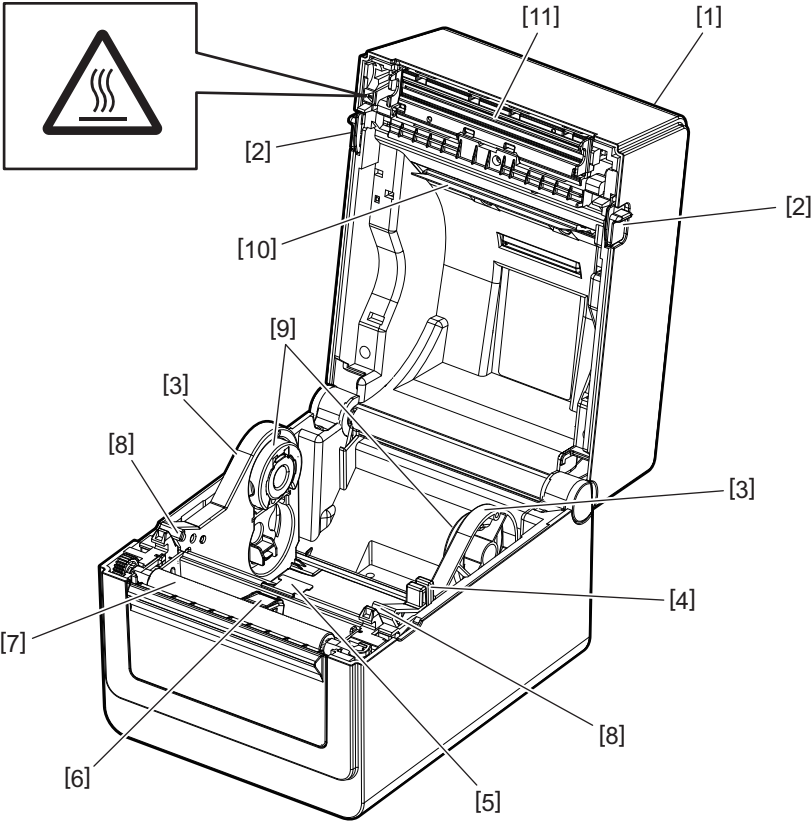
■ Interior



⚠ **WARNING**

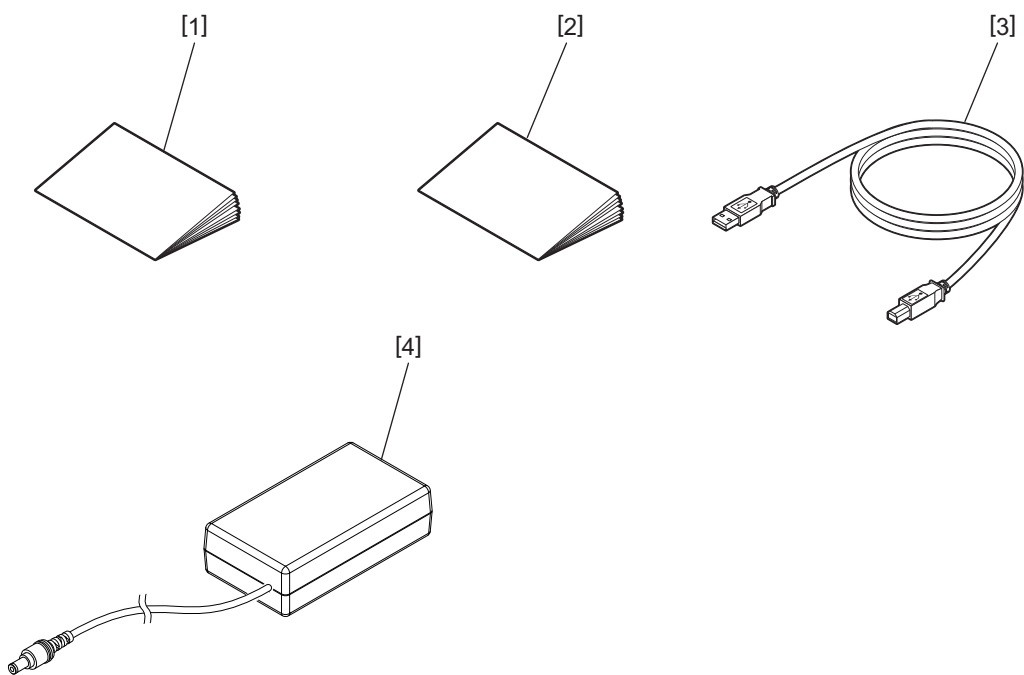
HOT SURFACE

You may get burned.
Do not touch the print head or around it immediately after printing.
The print head will become very hot during printing.



No.	Part Name	No.	Part Name
1	Top cover	7	Platen roller
2	Lock release portions (left, right)	8	Media guides (left, right)
3	Media roll holder	9	Core holders (left, right)
4	Holder lock lever	10	Media damper (upper)
5	Media damper (lower)	11	Print head
6	Media sensors		

3. Accessories

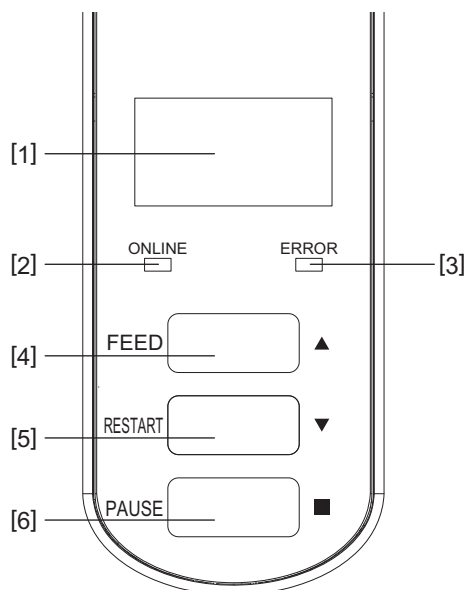


No.	Part Name	No.	Part Name
1	QSG	3	USB cable
2	Safety Information	4	AC adapter

4. Operation Panel Functions

The buttons on the operation panel are used to operate and set the printer.

■ BV410D

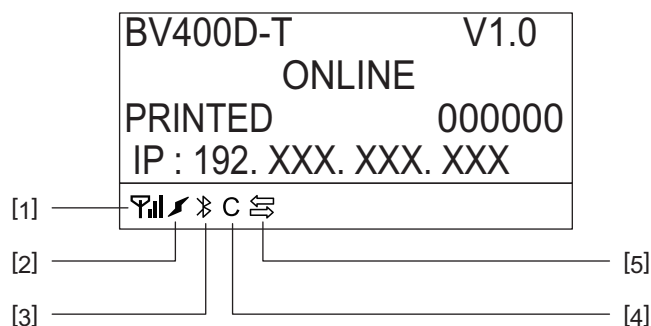


No.	Name	Function/Usage
1	LCD (Liquid Crystal Display)	<ul style="list-style-type: none">Displays the printer status icons, such as the radio intensity and etc.The printer status is indicated in alphanumeric characters or symbols.
2	ONLINE lamp	<ul style="list-style-type: none">Lights when the printer is in the online mode.Blinks when communicating with a host computer.
3	ERROR lamp	Lights when a communication error occurs, the paper ends or the printer is not operating correctly.
4	[FEED] button	Feeds one sheet of media by pressing this button while the printer is in the online mode. This is used to move the cursor upward in the operation of the Help screen or the selection screen.
5	[RESTART] button	<ul style="list-style-type: none">Returns the printer to the online mode by pressing this button after removing the error.Restarts printing by pressing this button while the printer pauses.This is used to reboot the printer by quitting the Help screen or to move the cursor downward in the selection screen.
6	[PAUSE] button	<ul style="list-style-type: none">Pauses printing.Resets the printer when paused or when an error occurs.This is used to fix the items selected in the operation of the Help screen or the selection screen.

Note

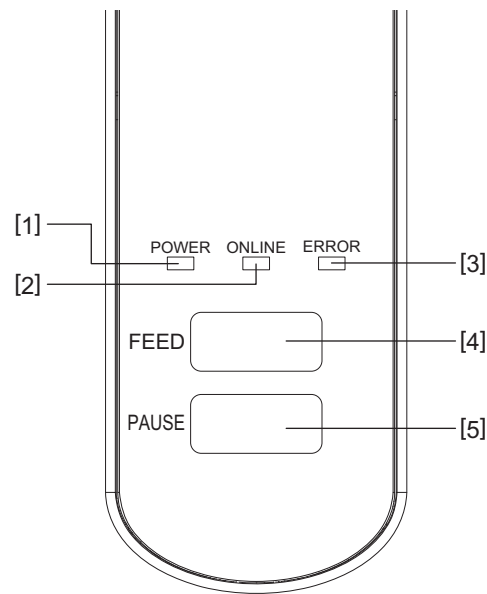
When an error occurs in the printer, the ERROR lamp lights and a message is displayed on the LCD. For details, refer to P.30 “14. Troubleshooting”.

<Icons displayed on the LCD>



No.	Name	Icon	Function/Usage	
1	Wireless LAN		Indicates when the optional Wireless LAN is installed. The intensity of the Wireless LAN is indicated by 4 levels.	
2	Link		Roaming	Indicates when the optional Wireless LAN is installed. When the radio wave of the specified access point is lost, another one is searched and is connected automatically.
			Wireless LAN connecting	
3	Bluetooth connection		Bluetooth connecting	Indicates the Bluetooth connection status when the optional Bluetooth is installed.
			Bluetooth connectable	
4	Bluetooth mode		Bluetooth connecting	Indicates during the automatic reconnection mode of Bluetooth.
5	Data reception		Data transmission/reception	Indicates the data transmission status.

BV420D



No.	Name	Function/Usage
1	POWER lamp	Lights when the power is turned on.
2	ONLINE lamp	<ul style="list-style-type: none">• Lights when the printer is in the online mode.• Blinks when communicating with a host computer.
3	ERROR lamp	Lights when a communication error occurs, the paper ends or the printer is not operating correctly.
4	[FEED] button	Feeds one sheet of media by pressing this button while the printer is in the online mode.
5	[PAUSE] button	<ul style="list-style-type: none">• Pauses printing.• Resets the printer when paused or when an error occurs.

Note

When the ERROR lamp lights, an error has occurred in the printer.
For details, refer to P.30 “14. Troubleshooting”.

5. Printer Setup

This chapter explains the procedures necessary to set up the printer prior to its operation.

WARNING

Avoid using the printer in the locations where it is subjected to intense light (e.g.: direct sunlight or desk light). Such light may affect the sensors of the printer, causing malfunctions.

Precautions

To insure the best operating environment, as well as to assure the safety of the operator and the printer, be sure to observe the following precautions.







- Operate the printer on a stable and level surface in a location free from excessive humidity, high temperature, dust, vibration and direct sunlight.
- Keep the work environment static free. Static discharges can cause damage to delicate internal components.
- Make sure that the printer is connected to a clean AC power source and that no other high voltage devices that may cause line noise interference are connected to the same power source.
- Ensure that the printer is connected only to an AC power source that has a proper ground (earth) connection.
- Do not operate the printer with the cover open. Be careful not to allow your fingers or any articles of clothing to get caught in any of the moving parts of the printer.
- Before working on the inside of the printer or cleaning it, be sure to turn off the power of the printer and remove the AC adapter from it.
- For best results and a longer printer life, use only Toshiba Tec Corporation recommended media. (Refer to the Supply Manual.)
- Store the media in accordance with “How to store and handle the media” in this manual.
- This printer mechanism contains high voltage components. Therefore, you should never remove any of the covers of the printer as you may get an electric shock.
Additionally, the printer contains many delicate components. They may be damaged if accessed by unauthorized personnel.
- Clean the outside of the printer with a clean dry cloth or a clean cloth slightly dampened with a mild detergent solution.
- The print head and its peripherals will become very hot during printing. You may get burnt if you touch it in such a condition. Therefore, wait until the printer has cooled down sufficiently before cleaning.
Use only the Toshiba Tec Corporation recommended print head cleaner to clean the print head.
- Do not turn off the printer or remove the power plug while printing or while any lamp is blinking.
- The printer shall be installed near the socket outlet and shall be set so that the power plug can be removed from the socket outlet easily.
- The power plug should be removed from the socket outlet once a year at least and cleaned around the prongs. Accumulating dust and dirt could cause a fire due to the heat released by electrical leakage.
- When the printer will not be used for a long time, pull the lock release lever toward you to unlock the top cover so that no pressure is applied to the label.

■ Setup procedure of the printer

This section explains the procedures necessary to set up the printer properly.

⚠ CAUTION

- To make a communication with a host computer, an RS-232C, Ethernet or USB cable is required.
 - RS-232C cable: 9 pins (Do not use a null modem cable.)
 - Ethernet cable: 10/100 base
 - USB cable: V2.0 (Hi-Speed)
- The use of a Windows driver will enable printing from Windows applications.
The printer can also be controlled with its own programming commands. For details, contact your Toshiba Tec representative.

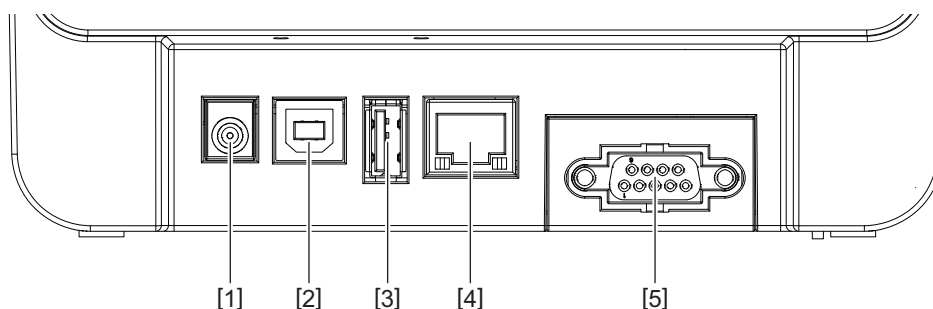
- 1 Unpack the printer and its accessories from the carton.**
- 2 Place the printer in the location where it is used.**
To correctly use and install the printer, see the co-packed "Safety Precautions".
- 3 Check that the printer is turned off.**
Refer to  P.16 "8. Turning the Printer On and Off".
- 4 Connect the printer to the host computer or network using an RS-232C, Ethernet or USB cable.**
Refer to  P.14 "6. Connecting the Cables".
- 5 Connect the AC adapter to the printer and plug the power cable into a properly grounded outlet.**
Refer to  P.15 "7. Connecting the AC Adapter and Power Cable".
- 6 Load the media.**
Refer to  P.18 "10. Loading the Media".
- 7 Adjust the position of the media sensors to match the media to be used.**
Refer to  P.22 "11. Adjusting the Media Sensors".
- 8 Install the printer driver in the host computer.**
Refer to https://www.toshibatec.com/download_overseas/printer/printer_driver/.
- 9 Turn the power on.**
Refer to  P.16 "8. Turning the Printer On and Off".

6. Connecting the Cables

This chapter explains on how to connect the communication cables to the printer from a host computer or other devices. Three types of cables can be used in this printer.

⚠ CAUTION

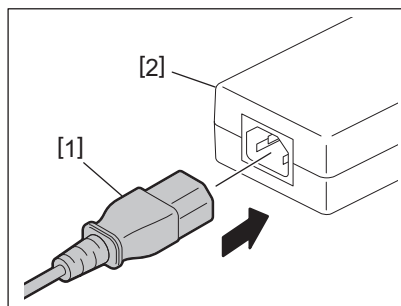
- Be sure to connect the serial cable while the printer and the host computer are turned off.
- If an attempt is made to connect the cable while the printer and the host computer are turned on, this may cause damage, an electric shock or a short circuit.




No.	Part Name	Usage
1	Power jack	This is used to connect the AC adapter.
2	USB interface for connecting a host computer	This is used to connect one of the USB ports of a host computer with a USB cable. Use a USB cable which has a type B plug attached to one of its sides.
3	USB interface for connecting a USB memory	This is used to connect another device with a USB cable. e.g. the firmware downloading, the flash ROM expansion by a USB memory etc. and not for user.
4	Ethernet interface	<div>This is used to connect a network with an Ethernet cable. In addition, direct connection to the Ethernet port of a host computer is possible.</div> <div>Note</div> <ul style="list-style-type: none">• Be sure to use an Ethernet cable complying with the standard. 10BASE-T: Category 3 or greater 100BASE-TX: Category 5 or greater Cable length: Up to 100 m segment length• If a communication error caused by radio wave interference on the cable has occurred, use a shield cable (STP).
5	Serial interface (RS-232C) (Option)	This is used to connect one of the COM ports of a host computer with a serial cable.

7. Connecting the AC Adapter and Power Cable

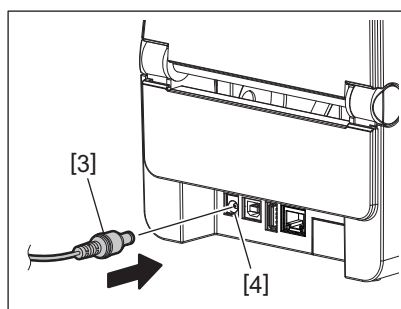
- 1 Plug the power cable [1] into the AC adapter [2].**



Note

If a power cord is not provided with this printer, please purchase the correct one referring to  P.5 “When purchasing the power cable”.

- 2 Plug the AC adapter connector [3] into the power jack [4] at the rear side of the printer.**



- 3 Plug the other end of the power cable into a grounded outlet.**

8. Turning the Printer On and Off

CAUTION

- Press the [POWER] button of the printer to turn it on or off.
Do not plug in or unplug the power cable when you are turning the printer on or off as this may cause a fire, an electric shock or damage to the printer.
- Do not turn the power off during printing as this may cause a media jam or damage to the printer.
- Do not turn the power off while the ONLINE lamp is blinking as this may cause loss or corruption of the data being downloaded.

■ How to turn the power on

Note

If the printer is connected to a host computer, it is recommended to turn the printer on first and then the host computer.


<BV410D>

- 1 While the printer is turned off, press the [POWER] button for a few seconds.**
- 2 The LCD on the control panel lights.**
If the printer is connected to a host computer, the ONLINE lamp lights.

<BV420D>

- 1 While the printer is turned off, press the [POWER] button for a few seconds.**
- 2 The POWER lamp on the control panel lights.**
If the printer is connected to a host computer, the ONLINE lamp lights.

Note

- Approx. 30 seconds will be required to complete the loading of Open Type fonts after the power is turned on. The ONLINE lamp starts blinking (interval: 0.5 sec.) after 10 seconds have passed after the power has come on. When the loading of Open Type fonts is completed, the ONLINE lamp status is changed to lit. While the ONLINE lamp is blinking, print data can be received; however, printing of files including Open Type fonts is not possible.
- When the ERROR lamp lights, an error has occurred in the printer.
For details, refer to  P.30 “14. Troubleshooting”.

■ How to turn the power off

Note

If the printer is connected to a host computer, it is recommended to turn the host computer off first and then the printer.

<BV410D>

- 1 If the printer is connected to a host computer, check that the ONLINE lamp on the control panel is lighting (not blinking).**
- 2 Press the [POWER] button for a while. The LCD will go out and the printer will be turned off.**
If the printer is connected to a host computer, check that the ONLINE lamp on the control panel has gone out.

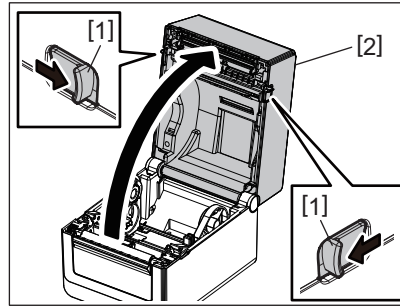
<BV420D>

- 1 Check that the ONLINE lamp on the control panel is lighting (not blinking).**
- 2 Press the [POWER] button for a while. All the lamps will go out and the printer will be turned off.**
If the printer is connected to a host computer, check that the ONLINE lamp on the control panel has gone out.

9. Opening and Closing the Top Cover

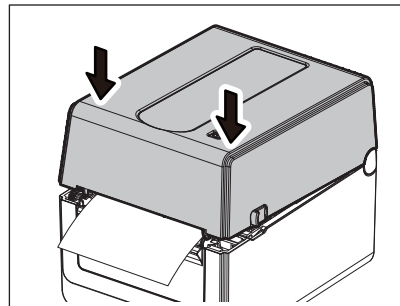
■ To open the top cover

While pulling the lock release part [1], open the top cover [2].



■ To close the top cover

Close the top cover.



Note

Be sure to close the top cover completely. Otherwise, this may affect the print quality.

10. Loading the Media

This chapter explains how to load the media in the printer. This printer is intended for printing the media roll (label roll and tag roll) and fanfold paper. Use Toshiba Tec Corporation approved media.

⚠ WARNING

Do not touch the print head or around it immediately after printing.

The print head will become very hot during printing. You may get burnt if you touch it in such a condition.

⚠ CAUTION

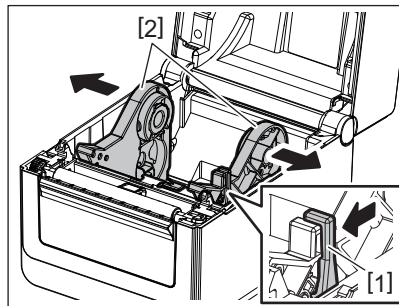
- To avoid injury, be careful not to trap your fingers in the paper slot while opening or closing the top cover.
- Do not touch the print head.
Otherwise, some dots may be damaged due to static electricity or other print quality problems.

■ Loading the media roll (label roll and tag roll)


1 Open the top cover.

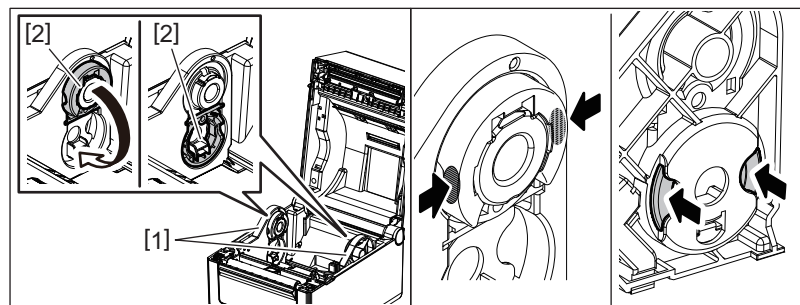
For details, refer to  P.17 “9. Opening and Closing the Top Cover”.

2 While holding the holder lock lever [1], slide the media holder [2] toward the exterior.

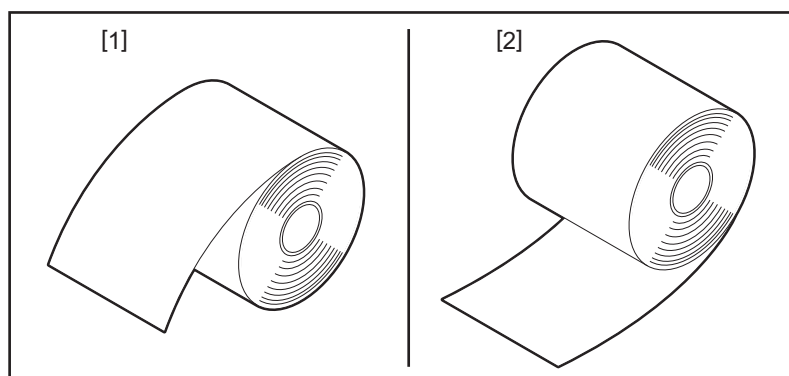


Note

- Be sure to perform calibration of the media sensors by using BCP Setting Tool whenever you change the media type.
- The available media size to be set in the printer is as below.
 - Roll diameter: Max. 127 mm (5")
 - Inner core diameter: 25.4 mm (1"), 38.1 mm (1.5") or 42 mm (1.65")
- If the roll diameter exceeds 127 mm (5") and the inner core diameter is 76.2 mm (3"), the External media stand (option) is required.
For details, refer to  P.25 “External media stand (Option)”.
- The size of the core holder in the media roll holder [1] is set to 38.1 mm (1.5") and 42 mm (1.65") at the time of factory shipment. When a media roll whose inner core diameter is 25.4 mm (1") is used, remove the core holder [2], turn it over and put it into the frame of the printer as shown below.

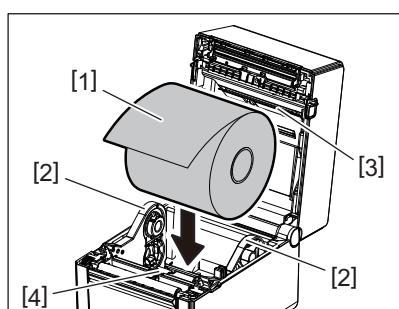


- Printing can be performed with both an outside wound [1] and an inside wound [2] media roll. (Refer to the figure below.) Place the media roll so that its printing surface comes upward.



3 Place the media roll.

Set the media roll [1] between the media roll holders [2] while its printing surface comes upward.

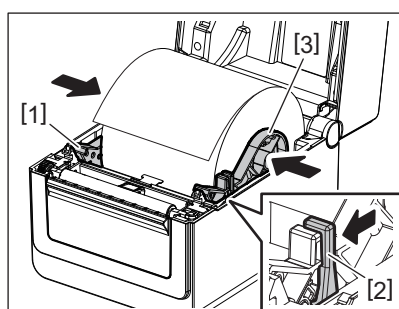


Note

When placing the media roll, be careful not to let it be folded by coming into contact with the media damper (upper) [3] and the media damper (lower) [4] attached to the top cover and the printer.

4 Align the media guides [1] to the media roll width.

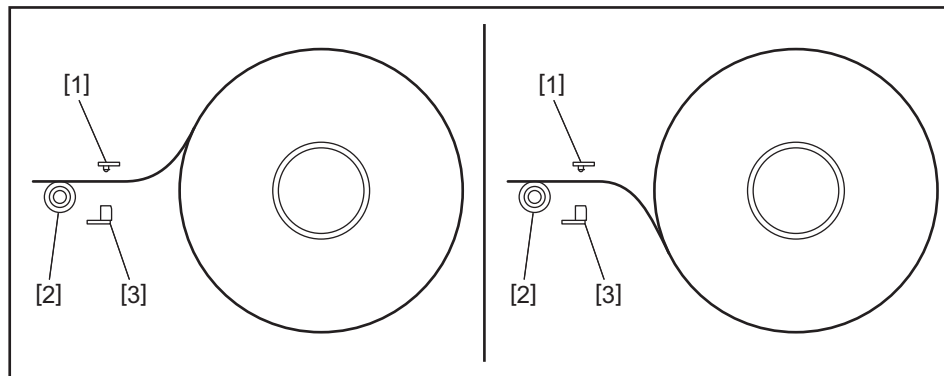
While holding the holder lock lever [2], slide the media holder [3] to fix the media roll securely.



Note

- Check that the printer printing surface has come upward.

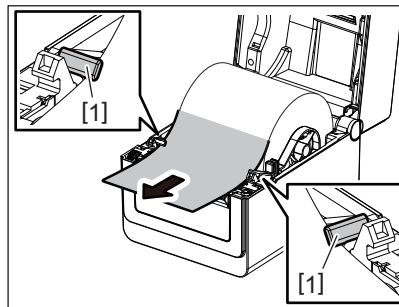
- Cut the edge of the media with scissors.



- [1] Feed gap sensor
- [2] Platen roller
- [3] Black mark sensor

5 Load the media.


Pass the media through the media guides [1] and pull it until it reaches the front of the printer.



Note

Do not squeeze the media too much with the media guides. Otherwise, the media will bend and this may cause jamming or misfeeding.

6 Adjust the media sensors.

For details, refer to  P.22 “11. Adjusting the Media Sensors”.

7 Close the top cover.

For details, refer to  P.17 “9. Opening and Closing the Top Cover”.

Note

Be sure to close the top cover completely. Otherwise, this may affect the print quality.

8 Press the [FEED] button.

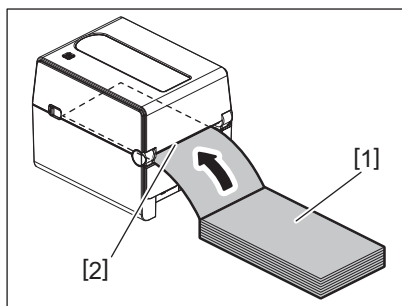
Check that the media is fed correctly.


■ Loading the fanfold paper

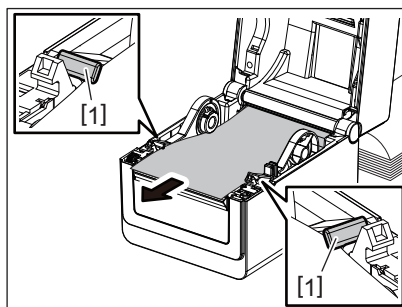
Note

- Set the fanfold paper while its printing surface comes upward.
- Place the stack of fanfold paper parallel to the paper slot.
- Check that the interface cable and the power cable do not interfere with the feeding of the fanfold paper.

- 1 Place the stack of fanfold paper [1] at the rear side of the printer and insert its leading edge into the paper slot [2].**




- 2 Open the top cover.**
For details, refer to  P.17 “9. Opening and Closing the Top Cover”.
- 3 Pass the media through the media guides [1] and pull it until it reaches the front of the printer.**



Note

Do not squeeze the media too much with the media guides. Otherwise, the media will bend and this may cause jamming or misfeeding.

- 4 Close the top cover.**
For details, refer to  P.17 “9. Opening and Closing the Top Cover”.

11. Adjusting the Media Sensors

The two types of media sensors are equipped in this printer as below.

Feed gap sensor (transmissive): Detects the length between the labels.

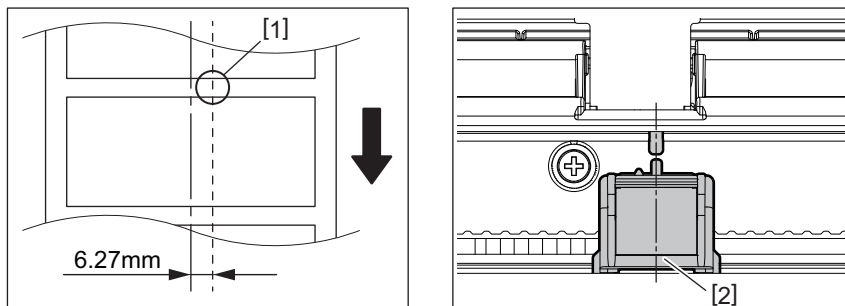
Black mark sensor (reflective): Detects the black marks printed on the back side of the media.

Note

- When the media is changed to another one, it is necessary to adjust the sensitivity of these two sensors.
- Otherwise, printed black marks are not detected and an error will occur as a result.

Feed gap sensor

- The position [1] of the feed gap sensor is fixed. Align the protrusion of the black mark sensor [2] to the position as shown in the figure below.
- Be sure to perform calibration of the media sensors by using BCP Setting Tool whenever you change the media type.

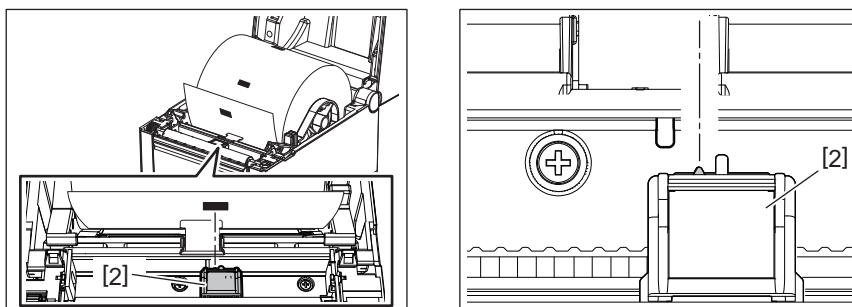


Note

The feed gap sensor is positioned 6.27 mm right from the media center.

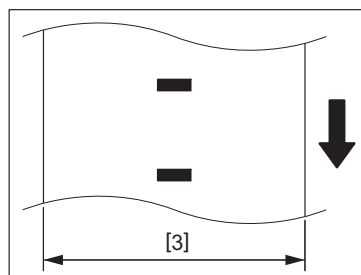
Black mark sensor

- 1 Slide the black mark sensor [2] toward the right or left to align it to the center of the black mark of the media.



Tip

The black mark sensor is movable over the range of the media width [3].



- 2 Adjust the sensitivity of the black mark sensor.

12. Print mode

There are four print modes available for this printer.

■ Batch mode

In the batch mode, the media is continuously printed and fed until the number of prints specified in the issue command has been printed.

Note

To separate the printed media from the printer in the batch mode, tear the media off at the media outlet with your hands. (When the optional peel-off module is installed, tear the media off outside of the strip plate.) If you have torn the media off at the print head mistakenly, be sure to feed one label (10 mm or more) by pressing the [FEED] button prior to the next print. Otherwise, this may cause a media jam.


■ Strip mode (Option)

When the optional peel-off module is installed and printing is performed in the strip mode, labels are automatically removed from the backing paper as each label is printed.

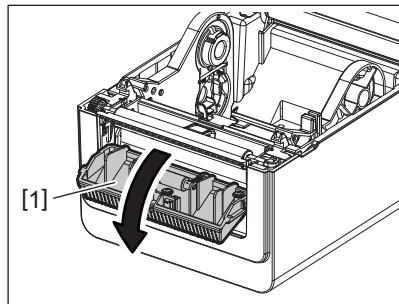
Note

When you print labels without removing them from the backing paper, it is not necessary to pass the media through the media slot.

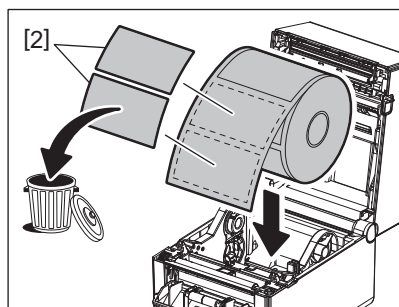
1 Place the media.

For details, refer to  P.18 “10. Loading the Media”.

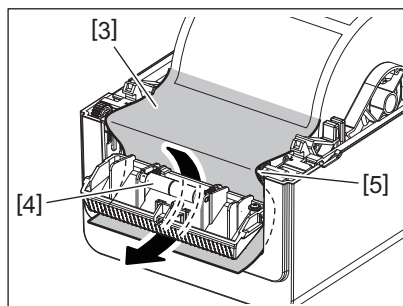
2 Open the peel-off module [1].



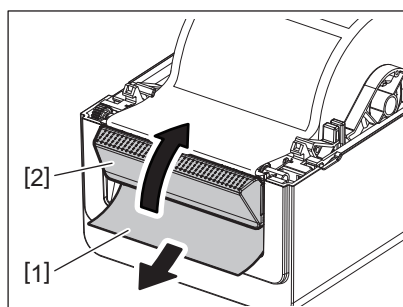
3 Remove enough labels [2] from the leading edge of the media so as only the backing paper portion can be created.




-
- 4** Pass through the backing paper [3] between the strip feed roller [4] and the peel-off bar [5].



- 5** Close the peel-off module [2] while slightly pulling the media toward you so that its backing paper [1] is not loosened.



- 6** Close the top cover.
For details, refer to  P.17 “9. Opening and Closing the Top Cover”.

■ Cut mode (Option)

When the optional cutter module is installed, the media can be automatically cut.

⚠ WARNING

HAZARDOUS MOVING PARTS KEEP FINGERS AND OTHER BODY PARTS AWAY

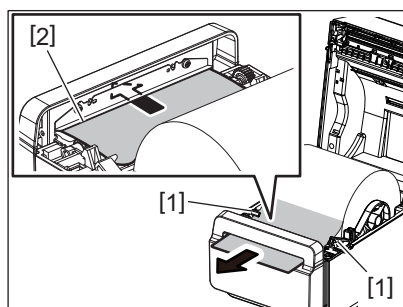
The cutter is sharp, so care must be taken not to injure yourself when handling the cutter.

⚠ CAUTION

- Be sure to cut only the backing paper of the label.
Cutting labels will cause glue to stick to the cutter blades which may affect the cutter quality and shorten its life.
- Use of tag paper with a thickness exceeding the maximum specified value may affect the cutter life.

- 1** Place the media.
For details, refer to  P.18 “10. Loading the Media”.

- 2** Load the media.
Set the media between the media guides [1] and then pass it through the media outlet [2] of the cutter module.



Note

Do not squeeze the media too much with the media guides. Otherwise, the media will bend and this may cause jamming or misfeeding.

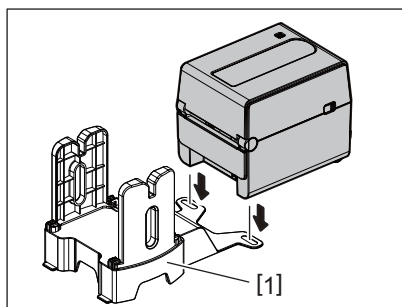
3 Close the top cover.

For details, refer to  P.17 “9. Opening and Closing the Top Cover”.

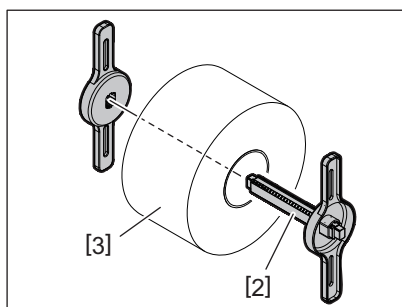
■ External media stand (Option)

If the roll diameter exceeds 127 mm (5") and the inner core diameter is 76.2 mm (3"), the External media stand (option) is required.

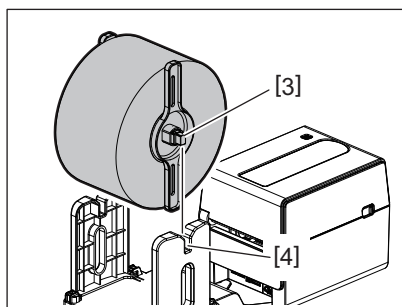
1 Install the External media stand [1] in the foot at the bottom of the printer.



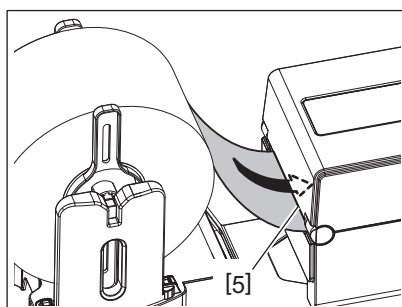
2 Insert the media shaft [2] into the core of the media roll [3].



3 Insert the media shaft [3] into the slot [4] on the External media stand.



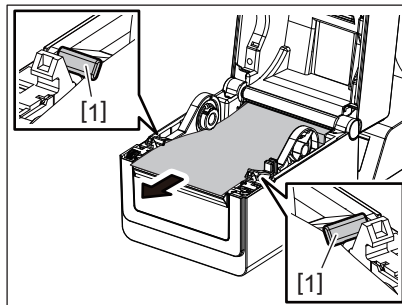
4 Insert the leading edge of the media into the paper slot [5] of the printer.



5 Open the top cover.

For details, refer to  P.17 “9. Opening and Closing the Top Cover”.


6 Pass the media through the media guides [1] and pull it until it reaches the front of the printer.



Note

Do not squeeze the media too much with the media guides. Otherwise, the media will bend and this may cause jamming or misfeeding.

7 Close the top cover.

For details, refer to  P.17 “9. Opening and Closing the Top Cover”.

13. Maintenance

This chapter explains the routine maintenance procedures.

To ensure the continuous high quality operation of your printer, regularly perform the maintenance routines or every time when the media is changed.

When the printer is intensively used (high throughput), perform the maintenance on a daily basis. When the printer is not intensively used, perform these maintenance on a weekly basis.

⚠ WARNING

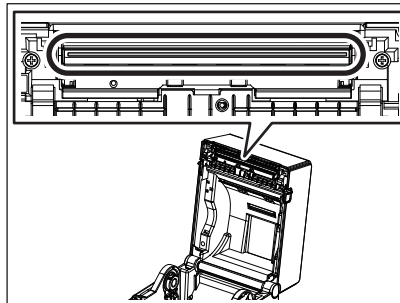
- Before cleaning the printer and its inside, be sure to turn off the power of the printer and unplug the power plug from the outlet for safety.
- To avoid injury, be careful not to trap your fingers in the paper slot while opening or closing the top cover. You may injure yourself.
- The print head will become very hot during printing. Therefore, do not touch the print head or its vicinity immediately after printing. You may get burnt if you touch it in such a condition.
- Do not pour water directly onto the printer. This may cause damage, an electric shock or a fire.

⚠ CAUTION

- Do not allow any hard objects to touch the print head or platen roller. This may cause damage to them.
- Do not use any volatile solvents including thinner and benzene. This may cause discoloration of the cover, print failure or printer damage.
- Do not touch the print head with your bare hands. This may cause static electricity and thus may damage the print head.

■ Print head

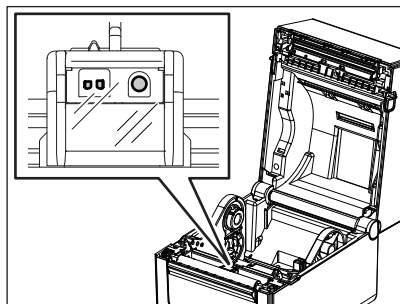
- 1 Turn the power off and open the top cover.**
- 2 Clean the print head with a print head cleaner, cotton swab or soft cloth slightly moistened with ethyl alcohol.**



■ Media sensors

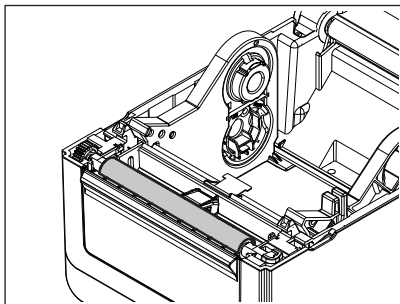
- 1 Turn the power off and open the top cover.**
- 2 Wipe the media sensors with a soft cloth or a cotton swab slightly moistened with absolute (pure) ethyl alcohol.**

To remove dust or paper particles, wipe the media sensors with a dry soft cloth.



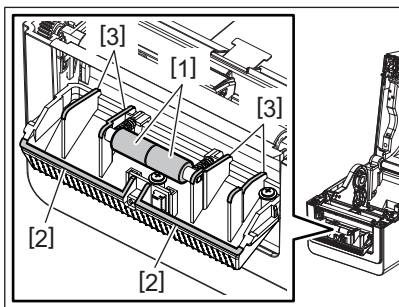
■ Platen roller

- 1** Turn the power off and open the top cover.
- 2** Wipe the platen roller with a soft cloth slightly moistened with absolute (pure) ethyl alcohol.



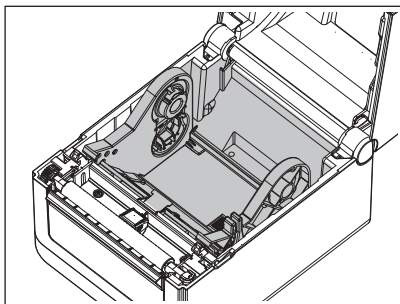
■ Peel-off module (Option)

- 1** Turn the power off and open the peel-off module.
- 2** Clean the surface of the roller [1], the edges [2] of the peel-off module cover and the ribs [3] of the backing paper transport guide with a dry soft cloth.



■ Media housing

- 1** Turn the power off and open the top cover.
- 2** Wipe the media housing with a dry soft cloth.
If dirt still adheres, wipe it off with a soft cloth slightly moistened with mild detergent solution.



■ How to store and handle the media

CAUTION

Be sure to carefully review and understand the Supply Manual. Use only media which meets the specified requirements. Use of non-specified media may shorten the head life and result in problems concerning barcode readability or print quality. All media should be handled with care to avoid any damage to the media or the printer. Read the guidelines in this section carefully.

- Do not store media for longer than the manufacturer's recommended shelf life.
- Store the media on the flat end. Do not store them on the curved sides as this might flatten that side causing an erratic media advance and poor print quality.
- Store the media in plastic bags and always reseal after opening. Unprotected media can get dirty and the extra abrasion from the dust and dirt particles will shorten the print head life.
- Store the media in a cool, dry place. Avoid areas where they would be exposed to direct sunlight, high temperatures, high humidity, dust or gas.
- The thermal paper used for direct thermal printing must not have specifications which exceed Na^+ 800 ppm, K^+ 250 ppm and Cl^- 500 ppm.
- Some ink used on pre-printed media may contain ingredients which shorten the print head's product life. Do not use labels pre-printed with ink which contain hard substances such as carbonic calcium (CaCO_3) and kaolin (Al_2O_3 , 2SiO_2 , $2\text{H}_2\text{O}$).










For further information, contact your local distributor or your media manufacturer.



14. Troubleshooting

WARNING

If a problem cannot be solved by taking the actions described in this chapter, do not attempt to repair the printer. Turn off and unplug the printer. Then contact an authorized Toshiba Tec representative for assistance.

■ Troubleshooting

Symptom	Cause	Solutions
The POWER lamp of the printer does not light when the [POWER] button is pressed .	The power cable is not connected to the AC adapter.	Unplug the power cable from the AC outlet. Connect the power cable to the AC adapter and plug it into the AC outlet.  P.15 “7. Connecting the AC Adapter and Power Cable”
	There is a power failure or the power is not being supplied to the AC outlet.	Check the AC outlet with a power cable from another electric appliance. If the power is not being supplied, ask your electrician or electricity supplier.
	The fuse of the building has blown or the circuit breaker has tripped.	Check the fuse or the circuit breaker.
	The AC adapter connector is disconnected from the power jack.	Unplug the power cable from the AC outlet. Connect the AC adapter connector to the power jack and plug the power cable to the AC outlet.  P.15 “7. Connecting the AC Adapter and Power Cable”
Media is not issued.	The media is not loaded correctly.	Reload the media correctly.  P.18 “10. Loading the Media”
	The interface cable is not connected correctly.	Reconnect the interface cable.  P.14 “6. Connecting the Cables”
	The media sensors are dirty.	Clean the media sensors.  P.27 “13. Maintenance”
Nothing is printed.	Even if the direct thermal mode is selected, the direct thermal media is not loaded.	Load a direct thermal media.  P.18 “10. Loading the Media”
	The media is not loaded correctly.	Reload the media correctly.  P.18 “10. Loading the Media”
	Print data are not sent from the host computer.	Send the print data.
Poor printing	Toshiba Tec Corporation approved media is not used.	Replace the media with the approved one.
	The print head is dirty.	Clean the print head.  P.27 “13. Maintenance”
Missing dots	The print head is dirty.	Clean the print head.  P.27 “13. Maintenance”
	Some print head parts are broken.	When missing dots affect the printout, turn off the printer and ask your Toshiba Tec representative to replace the print head.
Intermittent operation has started.	In order to cool down a print head whose temperature has become heated during a long-time continuous printing sequence, printing will be carried out by means of the intermittent operation.	Since there is no problem in the life and safety of the printer, it can continue to be used in this condition.

Symptom	Cause	Solutions
Operation stops for a moment during continuous printing.	This will occur in order that the printer can be used with greater safety.	The printer can continue to be used in this condition.
Power supply is cut off when printing is attempted using paper whose length exceeds 40 cm (15.7").	When printing of an image whose black area is large (approx. 30% or larger) is carried out at a low speed, such as 50.8 mm/sec. (2"/sec.), 76.2 mm/sec. (3"/sec.), 101.6 mm/sec. (4"/sec.), the printer sometimes cuts off the power supply for safety purposes.	Remove the power plug of the AC adapter from the socket outlet and wait for a while. Then reconnect the power plug into the socket outlet. Press the [Power] button of the printer to return it to the online mode. This problem will be solved if printing is carried out at a high speed, such as 127 mm/sec. (5"/sec.), 152.4 mm/sec. (6"/sec.), 177.8 mm/sec. (7"/sec.).
Media jamming occurs immediately after printing has started.	If the printer is left for a long time without any printing being performed, media jamming may occur between the label and the platen roller.	When the printer will not be used for a long time, pull the lock release lever toward you to unlock the top cover so that no pressure is applied to the label.
Barcodes or 2D codes are not readable correctly.	This symptom might happen depending on paper characteristics.	Increase the module size. Select a lower printing speed. Change the barcode print orientation for the ladder barcode to the picket fence barcode (rotate 90 degrees). Check the scanner settings.
Labels are not correctly separated from the backing paper. (When the optional peel-off module is installed)	Toshiba Tec Corporation approved media is not used.	Replace the media with the approved one.
	The media is not loaded correctly.	Reload the media correctly.  P.18 "10. Loading the Media"
The peel-off module opens during printing in the strip mode. (When the optional peel-off module is installed)	The backing paper is loaded in a loose state.	Reload the backing paper correctly.  P.23 "12. Print mode"
The media is not cut cleanly. (When the optional cutter module is installed)	The cutter blade has reached the end of its useful life.	Turn off the printer and ask your Toshiba Tec representative to replace the cutter module.
A wireless LAN communication error occurs immediately after the printer is turned on.	It will take approx. 10 seconds to enable wireless LAN communication while the ONLINE lamp is being lit.	Turn on the printer. Wait at least 10 seconds after the ONLINE lamp has lit to start the communication.

■ Status lamp

LED lamps will light (ON) or blink corresponding to the printer status.

□ BV410D

LCD message	LED		Printer status
	ONLINE	ERROR	
ONLINE	ON	OFF	Normal - Online mode
	Blink	OFF	Normal - Online mode (communicating)
PAUSE	OFF	OFF	Printing is temporarily stopped (paused).
HEAD OPEN	OFF	OFF	The top cover is opened in the online mode.
	OFF	ON	Printing or media feeding is attempted while the top cover is opened.
COMMS ERROR	OFF	ON	A communication error has occurred. (Only when the RS-232C is used)

LCD message	LED		Printer status
	ONLINE	ERROR	
PAPER JAM	OFF	ON	1. Media jamming has occurred.
			2. The media is not loaded correctly.
			3. The media sensors differing from the media to be used are selected.
			4. The black mark sensor is not correctly aligned to the black marks on the media.
			5. The size of the loaded media differs from that for the specified paper size.
			6. The media sensor level is not suitable for the actual media.
			7. The gap of the pre-printed label cannot be detected.
CUTTER ERROR	OFF	ON	Media jamming has occurred in the cutter module. (Only when the optional cutter module is installed)
NO PAPER	OFF	ON	1. No media is left.
			2. The media is not loaded correctly.
HEAD ERROR	OFF	ON	There is a problem in the print head.
EXCESS HEAD TEMP	OFF	ON	The print head is too hot.
MEMORY WRITE ERR.	OFF	ON	An error has occurred during writing into the flash ROM.
FORMAT ERROR	OFF	ON	An error has occurred during initialization of the flash ROM.
MEMORY FULL	OFF	ON	Saving has failed due to the flash ROM having insufficient blank space.
SYNTAX ERROR	OFF	ON	An improper command such as a print command has been received while the firmware is being upgraded in the download mode.
SYSTEM ERROR	OFF	ON	When any abnormal operations as below are performed, a system error occurs. (a) Command fetch from an odd address. (b) Access to the word data from a place other than the boundary of the word data. (c) Access to the long word data from a place other than the boundary of the long word data. (d) Access to the area of 80000000H to FFFFFFFFH in the logic space in the user system mode. (e) Undefined command placed in other than the delay slot has been decoded. (f) Undefined command in the delay slot has been decoded. (g) Command to rewrite the delay slot has been decoded.

❑ BV420D

LED			Printer status
POWER	ONLINE	ERROR	
ON	ON	OFF	Normal - Online mode
ON	Blink	OFF	Normal - Online mode (communicating)
ON	OFF	OFF	1. The top cover is opened in the online mode.
			2. Printing is temporarily stopped (paused).

LED			Printer status
POWER	ONLINE	ERROR	
ON	OFF	ON	1. A communication error has occurred. (Only when the RS-232C is used)
			2-1. Media jamming has occurred.
			2-2. The media is not loaded correctly.
			2-3. The media sensors differing from the media to be used are selected.
			2-4. The black mark sensor is not correctly aligned to the black marks on the media.
			2-5. The size of the loaded media differs from that for the specified paper size.
			2-6. The media sensor level is not suitable for the actual media.
			2-7. The gap of the pre-printed label cannot be detected.
			3. Media jamming has occurred in the cutter unit.
			4. No media is left.
			5. Printing or media feeding is attempted while the top cover is opened.
			6. There is a problem in the print head.
			7. The temperature of the print head has exceeded the upper limit.
			8. An error has occurred during writing into the flash ROM.
ON	OFF	ON	9. An error has occurred during initialization of the flash ROM.
			10. Saving has failed due to the flash ROM having insufficient blank space.
			11. An improper command such as a print command has been received while the firmware is being upgraded in the download mode.
			12. When any abnormal operations as below are performed, a system error occurs.
			(a) Command fetch from an odd address.
			(b) Access to the word data from a place other than the boundary of the word data.
			(c) Access to the long word data from a place other than the boundary of the long word data.
			(d) Access to the area of 80000000H to FFFFFFFFH in the logic space in the user system mode.
			(e) Undefined command placed in other than the delay slot has been decoded.
			(f) Undefined command in the delay slot has been decoded.
			(g) Command to rewrite the delay slot has been decoded.

■ Removing jammed media

⚠ CAUTION

Do not use any tool that may damage the print head.

When media jamming occurs, please remove jammed media from the printer as following procedure.

- 1 Turn the power off.**
- 2 Open the top cover and remove the media roll.**
- 3 Remove the jammed media from the printer. DO NOT USE any sharp implements or tools as these could damage the printer.**
- 4 Clean the print head and platen, then remove any further dust or foreign substances.**
- 5 Load the media again, and close the top cover.**

15. Printer Specifications

This chapter describes the printer specifications.

■ Printer

The following table shows the printer specifications.

Item		BV410D-GS02-QM-S / BV420D-GS02-QM-S
Supply voltage		DC +24V, 2.5A (External AC adapter)
Power consumption		
	During a print job	60 W
	During standby	4.4 W (without options)
Operating temperature range		5°C to 40°C (41°F to 104°F)
Storage temperature range		-20°C to 60°C (-4°F to 140°F)
Relative humidity		25% to 85% RH (no condensation)
Humidity for storage		10% to 90% RH (no condensation)
Resolution		203 dpi (8-dot/mm)
Printing method		Direct thermal
Issue mode		Batch, Strip (option), Cut (option)
Printing speed		
	In the batch/cut mode	50.8 mm/sec. (2"/sec.), 76.2 mm/sec. (3"/sec.), 101.6 mm/sec. (4"/sec.), 127 mm/sec. (5"/sec.), 152.4 mm/sec. (6"/sec.), 177.8 mm/sec. (7"/sec.)
	In the strip mode	50.8 mm/sec. (2"/sec.), 76.2 mm/sec. (3"/sec.), 101.6 mm/sec. (4"/sec.)
Available media width (including backing paper)		25.4 mm (1.0") to 118 mm (4.6")
Effective print width (max.)		108.0 mm (4.25")
Dimension (W x D x H)		169 mm x 213 mm x 173 mm (6.66" x 8.39" x 6.81") (excluding projecting parts) 174 mm x 218 mm x 173 mm (6.85" x 8.59" x 6.81") (including projecting parts)
Weight		2.0 kg (4.4 lb)
Available barcode types		UPC-A, UPC-E, EAN8/13, UPC-A add on 2&5, UPC-E add 2&5, EAN-8/13 add on 2&5, Code39, Code93, Code128, EAN128, NW7, MSI, Industrial 2 of 5, ITF, POSTNET, RM4SCC, KIX-code, GS1 Databar, USPS Intelligent mail barcode
Available two-dimensional code		Data Matrix, PDF417, QR Code, Maxi Code, Micro PDF417, Micro QR, GS1 Data Matrix, Aztec Code
Available font		Bitmap: 21 types, Outline: 7 types, Writable characters: 132 types, Optional TTF: 20 types, Chinese-simp 24x24, OTF(CJK)
Rotations		0°, 90°, 180°, 270°
Standard interface		USB 2.0 Hi-speed Ethernet interface (10BASE-T, 100BASE-TX)
Option interface		Serial interface (RS-232C) Wireless LAN interface (IEEE802.11a/b/g/n) Bluetooth interface (Ver.2.1+EDR)

Note

- Data Matrix™ is a trademark of International Data Matrix Inc., U.S.
- PDF417™ is a trademark of Symbol Technologies Inc., US.
- QR Code is a trademark of DENSO CORPORATION.
- Maxi Code is a trademark of United Parcel Service of America, Inc., U.S.
- Bluetooth® is a registered trademark owned by Bluetooth SIG, Inc.

Item		BV410D-TS02-QM-S / BV420D-TS02-QM-S
Supply voltage		DC +24V, 2.5A (External AC adapter)
Power consumption		
	During a print job	60 W
	During standby	4.4 W (without options)
Operating temperature range		5°C to 40°C (41°F to 104°F)
Storage temperature range		-20°C to 60°C (-4°F to 140°F)
Relative humidity		25% to 85% RH (no condensation)
Humidity for storage		10% to 90% RH (no condensation)
Resolution		300 dpi (11.8-dot/mm)
Printing method		Direct thermal
Issue mode		Batch, Strip (option), Cut (option)
Printing speed		
	In the batch/cut mode	50.8 mm/sec. (2"/sec.), 76.2 mm/sec. (3"/sec.), 101.6 mm/sec. (4"/sec.) 127 mm/sec. (5"/sec.)
	In the strip mode	50.8 mm/sec. (2"/sec.), 76.2 mm/sec. (3"/sec.), 101.6 mm/sec. (4"/sec.)
Available media width (including backing paper)		25.4 mm (1.0") to 118 mm (4.6")
Effective print width (max.)		105.7 mm (4.16")
Dimension (W x D x H)		169 mm x 213 mm x 173 mm (6.66" x 8.39" x 6.81") (excluding projecting parts) 174 mm x 218 mm x 173 mm (6.85" x 8.59" x 6.81") (including projecting parts)
Weight		2.0 kg (4.4 lb)
Available barcode types		UPC-A, UPC-E, EAN8/13, UPC-A add on 2&5, UPC-E add 2&5, EAN-8/13 add on 2&5, Code39, Code93, Code128, EAN128, NW7, MSI, Industrial 2 of 5, ITF, POSTNET, RM4SCC, KIX-code, GS1 Databar, USPS Intelligent mail barcode
Available two-dimensional code		Data Matrix, PDF417, QR Code, Maxi Code, Micro PDF417, Micro QR, GS1 Data Matrix, Aztec Code
Available font		Bitmap: 21 types, Outline: 7 types, Writable characters: 132 types, Optional TTF: 20 types, Chinese-simp 24x24, OTF(CJK)
Rotations		0°, 90°, 180°, 270°
Standard interface		USB 2.0 Hi-speed Ethernet interface (10BASE-T, 100BASE-TX)
Option interface		Serial interface (RS-232C) Wireless LAN interface (IEEE802.11a/b/g/n) Bluetooth interface (Ver.2.1+EDR)

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- Maxi Code is a trademark of United Parcel Service of America, Inc., U.S.
- Bluetooth® is a registered trademark owned by Bluetooth SIG, Inc.

■ Options

Note

The following options are available from your nearest Toshiba Tec Corporation representative or Toshiba Tec Corporation Head Quarters.

<BV410D>

Option Name	Type	Description
Cutter module (White)	BV214-F-QM-S	A cutter module that fully cuts (separates) the printed media.
	BV214-P-QM-S	A cutter module that partial cuts (dose not fully separate) the printed media.
Peel-off module (White)	BV914-H-QM-S	This module enables the printer to strip the backing paper from the print labels and present the striped labels on-demand (one by one) by detecting the presence or removal of a label from the peel bar.
External media stand	BV904-PH-QM-S	When this option is attached to the printer, a media with an outer roll diameter up to 214 mm (8.4") and inner core diameter of 76.2 mm (3") can be used.
Wireless LAN interface kit	BV700-WLAN-QM-S	This interface kit enables wireless LAN (WLAN) communication.
Bluetooth interface kit	BV700-BLTH-QM-S	This interface kit enables Bluetooth communication.
Serial (RS-232C) I/F board	BV700-RS-QM-S	This interface kit enables Serial (RS-232C) communication.
AC adapter cover (White)	BV914-ACD-QM-S	Attached to the printer bottom for housing the AC adapter

<BV420D>

Option Name	Type	Description
Cutter module (Black)	BV224-F-QM-S	A cutter module that fully cuts (separates) the printed media.
	BV224-P-QM-S	A cutter module that partial cuts (dose not fully separate) the printed media.
Peel-off module (Black)	BV924-H-QM-S	This module enables the printer to strip the backing paper from the print labels and present the striped labels on-demand (one by one) by detecting the presence or removal of a label from the peel bar.
External media stand	BV904-PH-QM-S	When this option is attached to the printer, a media with an outer roll diameter up to 214 mm (8.4") and inner core diameter of 76.2 mm (3") can be used.
Wireless LAN interface kit	BV700-WLAN-QM-S	This interface kit enables wireless LAN (WLAN) communication.
Bluetooth interface kit	BV700-BLTH-QM-S	This interface kit enables Bluetooth communication.
Serial (RS-232C) I/F board	BV700-RS-QM-S	This interface kit enables Serial (RS-232C) communication.
AC adapter cover (Black)	BV924-ACD-QM-S	Attached to the printer bottom for housing the AC adapter

16. Media Specifications

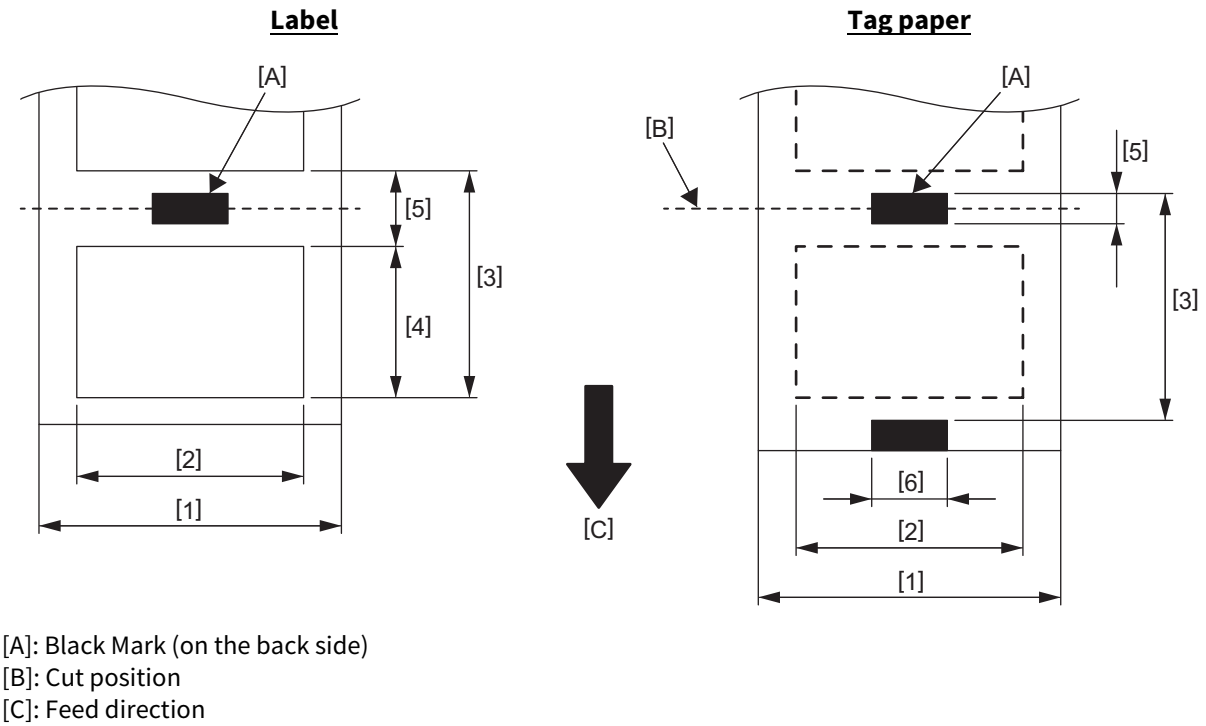
This chapter describes the media specifications.

Media

Make sure that the media to be used is approved by Toshiba Tec Corporation. The warranties do not apply to problems caused by using media that is not approved by Toshiba Tec Corporation.
For information regarding Toshiba Tec Corporation-approved media, contact your Toshiba Tec authorized representative.

Media type

The table below shows the size and shape of the media that can be used on this printer.



Issue mode		Batch mode	Batch mode (Tear-off)	Strip mode	Cut mode
[1] Media width (Including the backing paper)		25.4 to 118.0 (1.00 to 4.64)			
[2] Label width		22.4 to 115.0 (0.88 to 4.52)			
[3] Media pitch	Label	10 to 999 (0.39 to 39.3)	25.4 to 152.4 (1.0 to 6.0)	25.4 to 999 (1.0 to 39.3)	
	Tag	10 to 999 (0.39 to 39.3)	-----	25.4 to 999 (1.0 to 39.3)	
[4] Label length		8 to 997 (0.32 to 39.2)	23.4 to 150.4 (0.92 to 5.92)	19.4 to 993 (0.76 to 39.1)	
[5] Gap/black mark length		2.0 to 10.0 (0.08 to 0.39)			6.0 to 10.0 (0.24 to 0.39)
[6] Black mark width		Min. 8.0 (0.32)			
Thickness		0.06 to 0.19 (0.0024 to 0.0074)			
Max. outer roll diameter		Ø127 (5.0) Ø214 (8.4): When the optional External media stand is used			
Roll direction		Outside (standard), Inside (See Note 3.)			
Inner core diameter		25.4, 38.1, 42 or 76.2 (1.0, 1.5, 1.65 or 3.0) (See Note 2 and 3.)			

Note

1. To ensure print quality and print head life, use only Toshiba Tec Corporation approved media.
2. When using a media roll with 76.2 mm (3") inner core diameter, the optional External media stand is required.
3. When you use inside wound Label, a media roll with 76.2 mm (3") inner core diameter and the optional External media stand are required.

Barcode Printer

Owner's Manual

BV410D-GS02-QM-S

BV410D-TS02-QM-S

BV420D-GS02-QM-S

BV420D-TS02-QM-S

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