

# Horizon

 iCE Series

BINDING

# iCE BINDER BQ-500

Next Generation  
Perfect Binder





**i** = Intelligence, Integration, Interaction  
**C** = Connection  
**E** = Efficiency

**All Connected...**

**Optimize the finishing process with automation and workflow.**

The iCE series is a new product line-up which is designed to provide added value to our customers.

A new operator interface for a more intuitive operation, and advanced automation to provide increased efficiency and productivity. In addition, connecting with an iCE LiNK workflow system provides an advanced and totally connected work environment.

## **NEXT GENERATION BOOK BINDER WITH CONNECTED FEATURES.**

New level of automation brings  
binding quality to the next level.



ICE TRIMMER HT-300  
Three-side Trimmer

### **BENEFITS**

#### **HIGH PRODUCTIVITY**

The BQ-500 excels at and is the most productive binder for book-of-one production. In addition, productivity is increased on longer runs with decreased set-up time and improved system efficiencies.

#### **HIGH QUALITY**

A uniquely designed template feature produces high quality books even with a non-skilled operator. Knowledge from a skilled operator can be stored in custom templates to produce consistent high quality books by any operator.

#### **EVA & PUR**

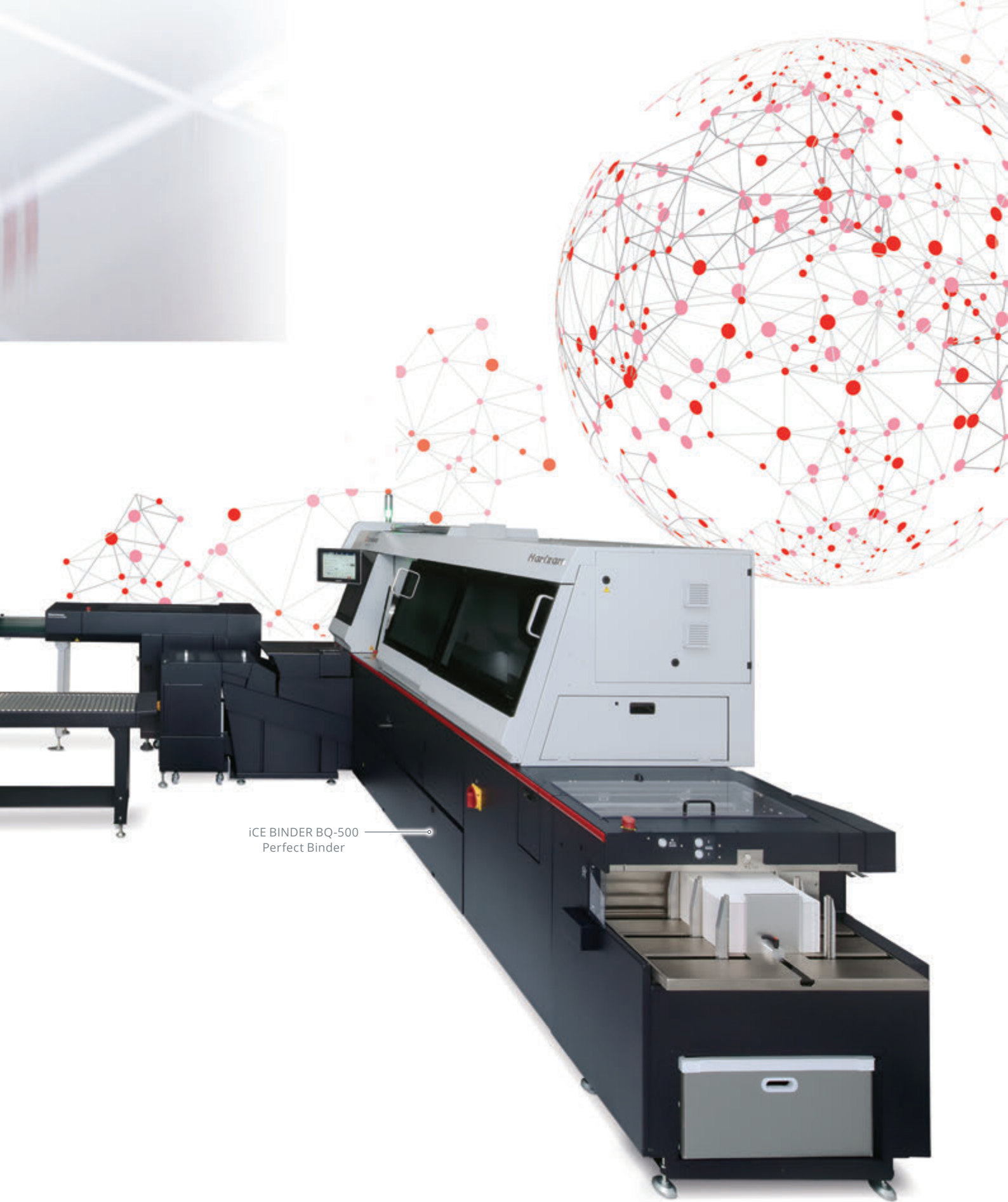
The BQ-500 supports both EVA and PUR hotmelt glue. Two different tanks are available and interchangeable for each glue type.

#### **CONFIGURATION FLEXIBILITY**

The system can be connected with various options to extend capabilities. A cover slitting unit, cover reject unit, elevator unit, glued book block feeder, loose sheet book block feeder, and in-line three knife trimmer are all available options with the BQ-500.

#### **MANAGE YOUR BINDERY WITH HORIZON'S BINDERY CONTROL SYSTEM**

The system can be enhanced with automated workflow from upstream to post-press with iCE LiNK, which uses cloud technology, Horizon's post-press management system.



ICE BINDER BQ-500  
Perfect Binder



Scan QR code  
and watch the  
product video.



# DETAILED PROCESS FEATURES.

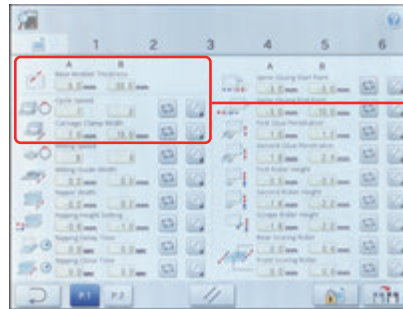
Exclusive new features for improved production and quality.

## 1 TOUCH PANEL DISPLAY



The 12.1 inch color touch-screen is icon-based for user-friendly operation. Setup, operation and fine tuning can be done at the touchscreen. Ergonomically designed slide operator console for operation efficiency, with loading and operation from either the left or right side.

### CUSTOM AUTOMATED SET-UP

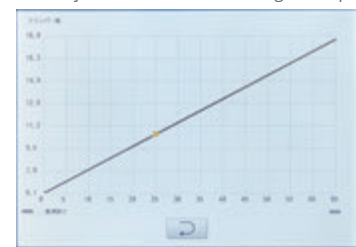


Customized templates can be created according to desired book quality, paper type and other factors. These customized templates can be created by a key operator or manager who controls the quality. Once a template is created, the operator just selects the desired template to setup the system. This enables any operator to produce consistent quality books with improved production efficiency and greater quality control.

### Thinnest Book Block Thickest Book Block



Fine Adjustment Value for Carriage Clamp



Book Block Thickness

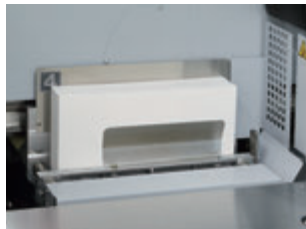
To create a template, set-up for the thinnest book and thickest book and it automatically calculates the value in between.





## 2 BOOK FEEDING SECTION

A rigid clamping system holds the book block firmly in position during the milling and nipping process to produce a quality finished book. The safety curtain ensures risk-free operation.



## 3 MILLING SECTION

Powerful servo motor driven milling and notching mechanism mills the spine of the book block or signatures for optimum glue penetration and adhesion. Milling rotation speed can be adjusted automatically according to book thickness and custom templates. Milling depth can be adjusted from 0 to 4 mm or 0" to 0.157".



## 4 GLUE TANK SECTION

Dual application rollers and side gluing rollers ensure superior glue application to the spine and excellent adhesion of the cover for consistent quality binding. Glue roller height, wiper opening and cut-off timing, scraper roller height, and side glue roller width are automated.



## 5 NIPPING SECTION

A strong rigid nipping mechanism and positive jogging guarantees precise alignment of the cover to the book block and square spines. Nipping width, height, operating time and delay time are adjusted automatically according to book thickness.



## 6 COVER REGISTRATION SECTION

After transport to the nipping section, the cover is registered precisely with the fore-edge guide and tail-edge positioning guides.



## 7 SCORING SECTION

The scoring width and position are automatically set-up according to book block thickness and cover registration. Scoring is performed on thick covers for professional binding with sharp, square spines and hinge scores.



## 8 COVER FEEDING SECTION

The high capacity cover feed station has a maximum pile height of 150 mm or 5.9" for continuous binding operation. The cover feeder can handle a wide range of covers: Bond Paper 81.4 to 302.4 gsm and Coated Paper 104.7 to 348.9 gsm.



## 9 BOOK DELIVERY SECTION

Uniquely designed delivery eliminates damage to the spine. Even 65 mm or 2.56" thick books or PUR bound books can be delivered without damage or marking.



# OPTIONS.

## Performance Enhancing Options.

### **MU-500PUR** PUR SPINE GLUE TANK

- Polyurethane reactive adhesive suitable for coated stock. Lay-flat binding can be performed.



#### MU-500PUR : Cleaning and Replacement



The application drums and back spinner lift and latch to provide easy access for cleaning of the tank.



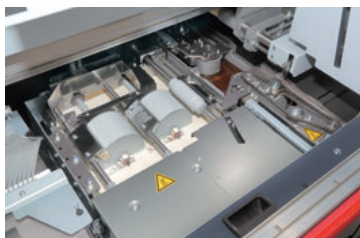
Install the special drain for glue run-off. The PUR tank and drums are teflon coated so that the remaining glue can be easily peeled off after cooling.



Sliding rail glue tank for easy replacement. Pull out the tank and remove it with the optional lifting trolley.

### **MU-500EVA** EVA SPINE GLUE TANK

- Commonly used for many types of binding. The melted glue can be used repeatedly so there's no need to clean the tank after operation.



### **SL-500** COVER SLITTER



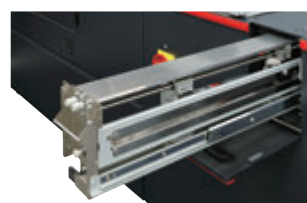
#### COVER DIVERTING SECTION

Cover diverting device to reject the cover in case the cover does not match the book block.



#### SLITTER UNIT SECTION

Cover slitting device to slit both edges of the cover to eliminate cover over hang for easy handling and increased accuracy at the three knife trimmer.

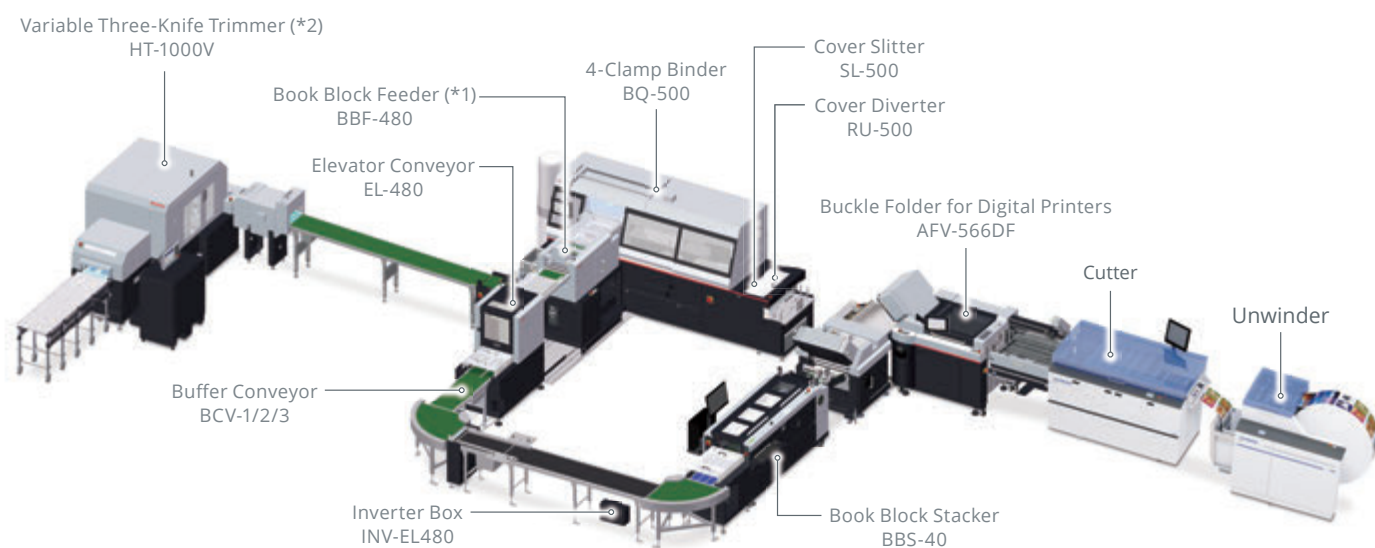


## OPTIONS FOR THE BQ-500

NAME	MODEL	DESCRIPTIONS
Manual Simple Lifter	L-470	The L-470 is a lifting dolly for easy and safe tank replacement.
Fork for Lifter	F-470	The F-470 fork is a custom-fit attachment for the lifter that holds the glue tank firmly in position for easy and safe tank replacement.
Stand for Melt Tank Unit	S-470	The S-470 stand is designed to receive and hold the glue tank unit after replacement.
Glue Melting Heater	M-470	The M-470 is a laboratory oven used to premelt the PUR hotmelt glue.
Premelt Tank (18 Liter)	PM-20L/20LN	The PM-20L/LN is the premelt tank for EVA hotmelt glue.
Teflon Coated Beaker	B-470	The B-470 teflon coated beaker can be used to premelt the PUR hotmelt glue to refill the glue tank.
Premelt Tank Connection Kit	CN-480	This is required to connect the PM-20L/LN with the BQ-500.
Fume Extractor	VS-280	This deodorizes the smell of hotmelt glue.
Book Thickness Input Caliper	SI-500A	The SI-500A is a book thickness measuring and input device for increased operational efficiency.
Extra Table	ET-500	This table is required to install the SI-500A. You can also use this table as a work table.
Support Table	EBT-480	This extends the table on the book block feed section 90 mm or 3.54" to the front.
Flap Cover Kit	FLP-480	The fold lines for the flap covers can be scored in-line. *The flap covers need to be manually folded inward along the scoring lines after binding.
1D Code Reader	BC-480-1D	This supports both 1D and 2D codes for the book block and only 1D codes for the cover sheet. Code Types: Barcode CODE39, CODE128, EAN, JAN 2D Code QR Code, Data Matrix
2D Code Reader	BC-480-2D	This supports both 1D and 2D codes on the both book block and cover sheet. Code Types: Barcode CODE39, CODE128, EAN, JAN 2D Code QR Code, Data Matrix
Cover Slitter	SL-500	The slitter unit slits both edges of the cover to eliminate cover over hang. The cover diverter rejects the cover in case it does not match the book block.
Cover Diverter	RU-500	This is only for cover diverting. The SLU-480 cover slit cassette is retrofittable for cover slitting.
Cover Slit Cassette	SLU-480	Retrofittable to the RU-500 for cover slitting.

## SMART BINDING SYSTEM

Roll to finish configuration suitable for medium to short run production. The system processes the books into various finished sizes with quick changeover. A tracking system is also available for efficient and high security production.



\*1 Loose sheet book block feeder LBF-500 is also available.

\*2 Three-side trimmer HT-300 is also available.

# OPTIONS.

## In-line Book Block Feeding System.

### BBF-480 BOOK BLOCK FEEDER

#### LABOR SAVINGS

The BBF-480 replaces the hand feeding process to the binder. System includes a thickness caliper to measure thickness of the book block accurately for automatic setup of the BQ-500. Optional barcode reader allows for higher security production of variable thickness books.



#### HIGH PRODUCTIVITY

Pre-glued or sewn book blocks can be fed automatically at high speed. The maximum speed is 1,000 book blocks per hour.

#### USE OFF-LINE

The system can be converted to an off-line manual feeding system. Uniquely designed bridge conveyor and slide track enables quick and easy changeover from an in-line to off-line system.

#### BARCODE READER

Optional barcode reader BC-BBF480 is available to match book block and cover. BC-BBF480 is also capable of comparing the actual book block thickness measured at the caliper to that in the data, if provided via barcode.



Infeed section of BBF-480 (BC-BBF480)

BBF-480  
Book Block Feeder

#### EL-480 ELEVATOR CONVEYOR

This system elevates the book block from upstream conveying to the infeed height of the BBF-480.

#### OPTION FOR THE BBF-480

NAME	MODEL	DESCRIPTIONS
Barcode Reader	BC-BBF480	The barcode reader reads the book block ID at the infeed section to check book block / cover matching.



## LBF-500 BOOK BLOCK FEEDER

### APPLICATION FLEXIBILITY

The system can handle various types of book blocks including loose sheets, folded signatures, pre-glued book blocks and sewn book blocks. You can hand drop book blocks at the infeed conveyor or connect to a wide range of upstream devices capable of producing book blocks for inline production.

### HIGH PRODUCTIVITY

The system can process 800 books per hour. Barcode matching, thickness detection, jogging and book block pressing are all automated to produce high quality books at high speed.

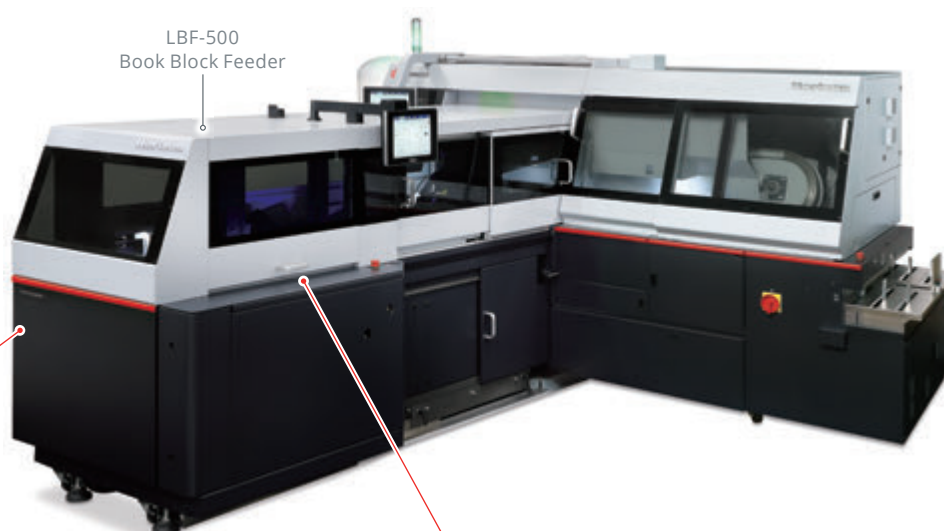
### STATUS RECOGNITION

The LED lights in the system indicate the operational status by switching colors to identify the system status at a glance. The lights serve as white working lights when the cover is open. The color of the lights can be chosen from the touch panel.

### CONGIFURATION FREXIBILITY

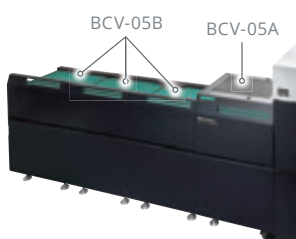
The LBF-500 can be connected with upstream devices such as the end sheet feeder ESF-1000, the B2 sheet processing system SmartStacker, and connectable third party devices.

LBF-500  
Book Block Feeder



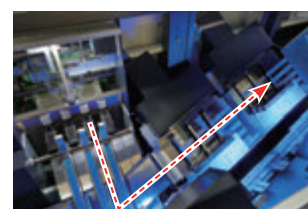
### INFEED BUFFERING CONVEYOR

BCV-05A/B advances the book blocks into the LBF-500. These conveyors perform as buffering modules to control the stable transportation of the book blocks.



### JOGGING / PRESSING

Two jogging stations and blowing air\* provide perfect alignment of the book block. The book block is pressed down to remove the air between sheets before feeding into the perfect binder.



\*First station only

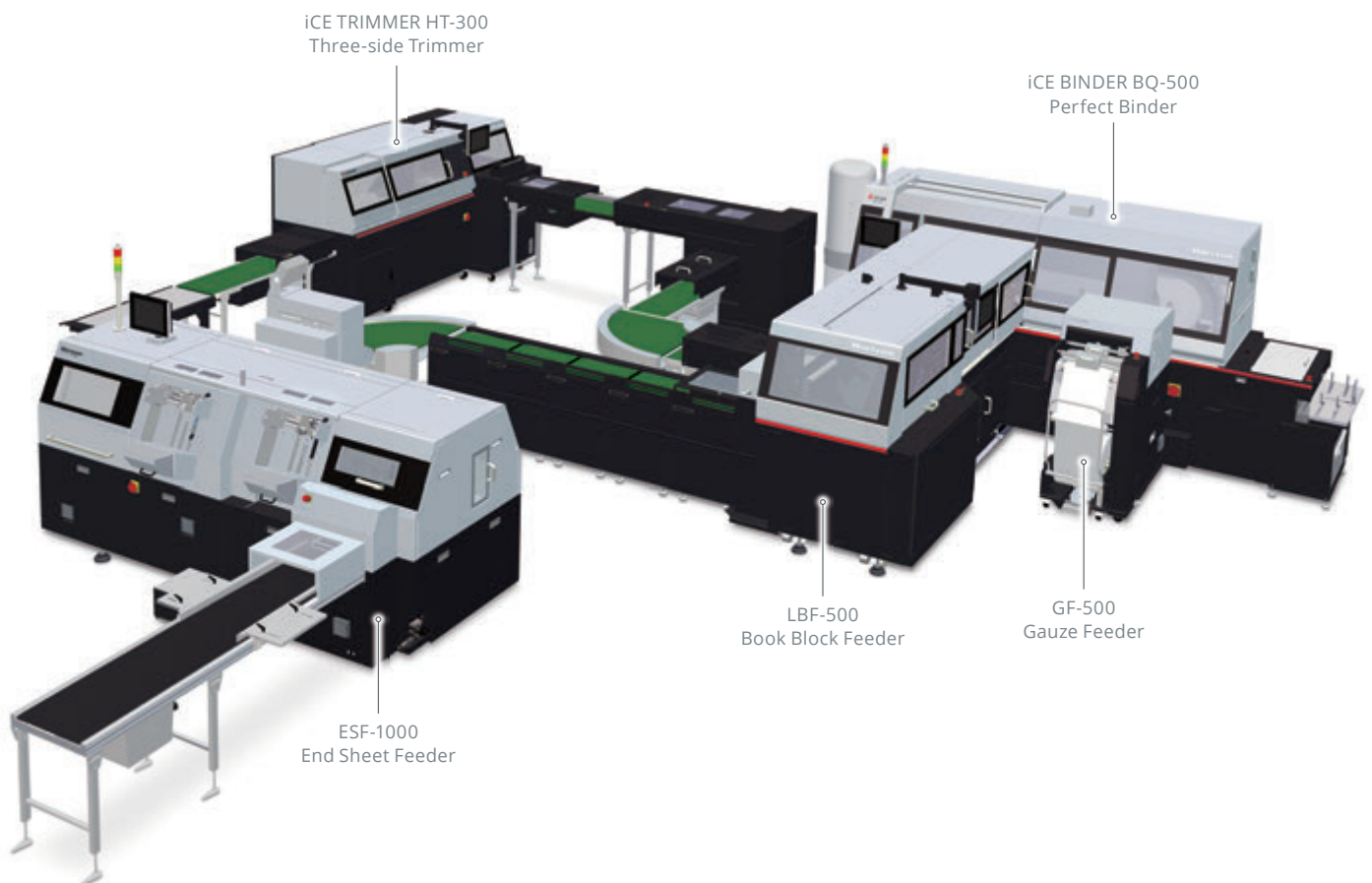
### OPTIONS FOR THE LBF-500

NAME	MODEL	DESCRIPTIONS
Buffer Conveyor	BCV-05A *Required	Infeed conveyor suitable for handling loose sheet book blocks. Each unit transports one book block to prevent loose sheet book blocks from hitting each other on the conveyor causing misaligned pages.
	BCV-05B	*BCV-05B up to 9 units can be connected to the BCV-05A.
1 m Conveyor	BCV-1	Infeed roller conveyor suitable for manual feeding or feeding pre-glued / sewn book blocks continuously. *BCV-1/2/3 will be connected to the BCV-05A.
2 m Conveyor	BCV-2	
3 m Conveyor	BCV-3	

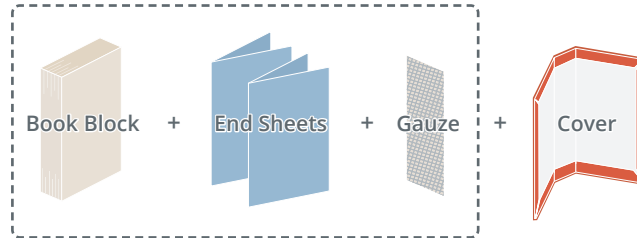
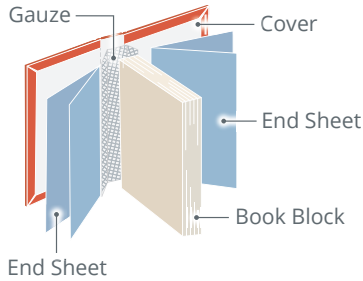
# SOLUTIONS FOR CASE BINDING BOOKS.

Efficient end sheet feeding and gauze application.

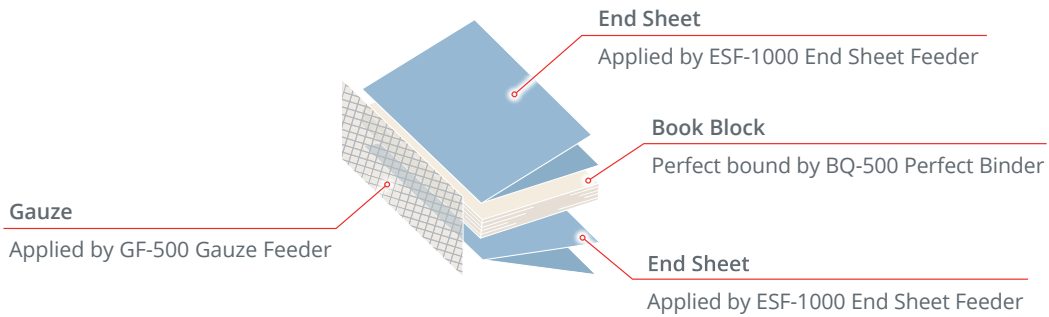
For short run case binding demand, end sheet feeder ESF-1000 and gauze application system GF-500 are available to produce book blocks for case binding with the BQ-500 perfect binding system. This system can be configured from a simple stand alone system to a fully connected Smart Binding solution. This system provides the solution to challenges such as quality, labor costs, and material costs.



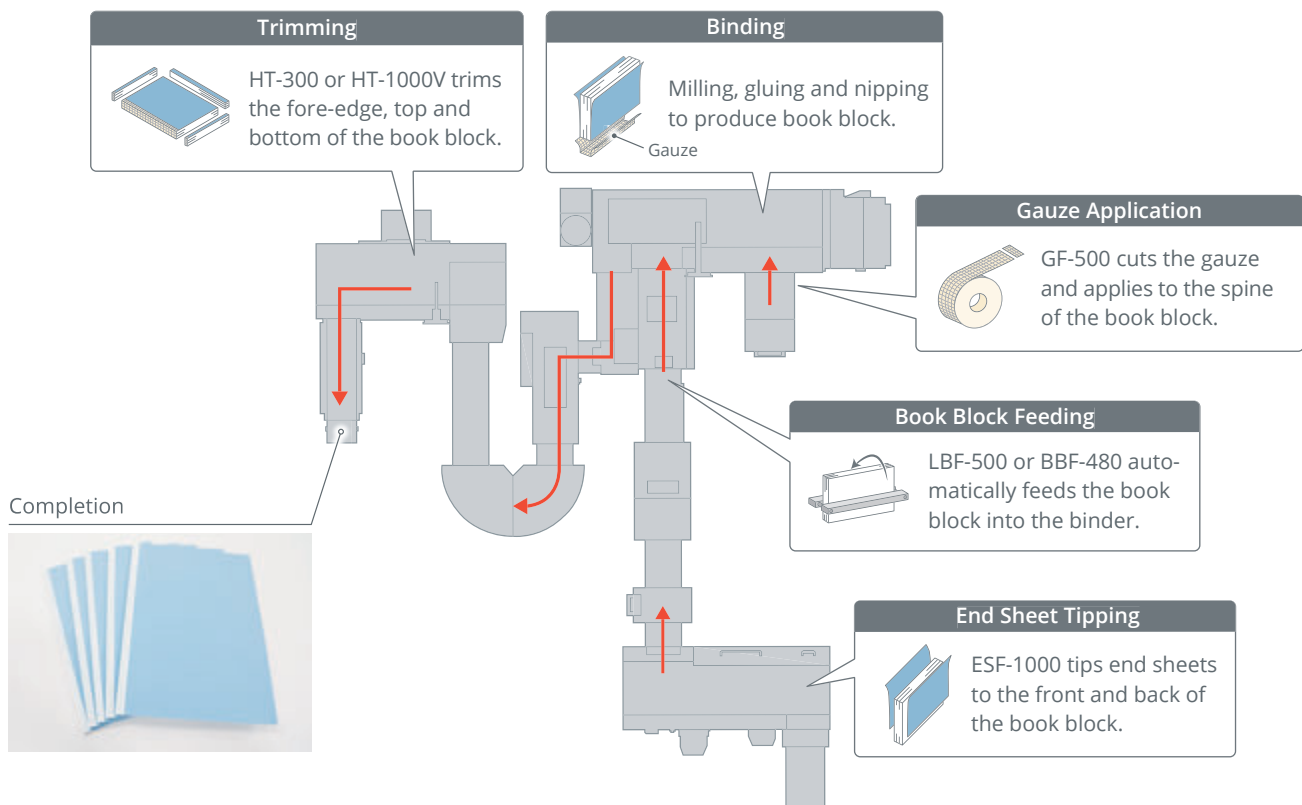
## ■ STRUCTURE OF A CASE BOUND BOOK



## ■ REQUIRED PROCESSES / UNITS



# BOOK BLOCK FLOW



# OPTIONS.

## Connected Options for Case Binding.

### GF-500 GAUZE FEEDER

#### FULLY AUTOMATED GAUZE BINDING

Gauze width and length can be setup according to book block information from the binder. Even automated set-up on-the-fly for variable thickness jobs can be performed.



#### EASY GAUZE ROLL REPLACEMENT

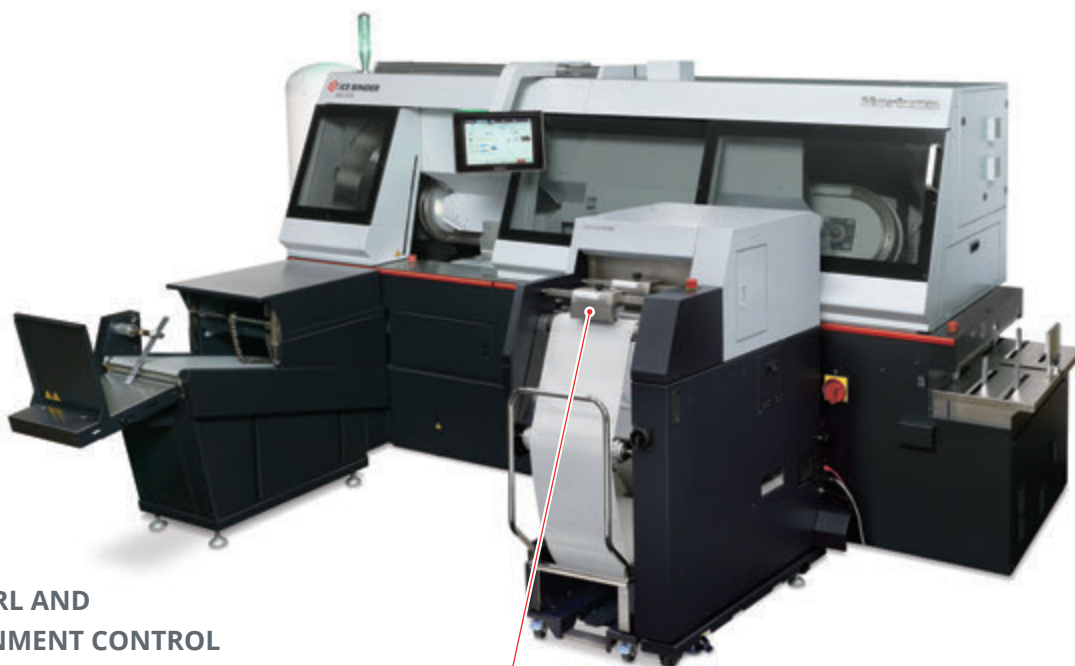
Easy gauze roll replacement with the optional dolly MCT-GF500. No special skills required for gauze roll replacement.



MCT-GF500

#### EASY OPERATION

Gauze application and regular soft cover book production can be switched between from the touchscreen without removing the GF-500 from the binder.



#### AUTO DE-CURL AND GAUZE ALIGNMENT CONTROL

Automated de-curl function according to the diameter of the gauze roll. Force of de-curling can be adjusted automatically. The position of the gauze application is insured by a uniquely designed gauze alignment control system.



#### OPTIONS FOR THE GF-500

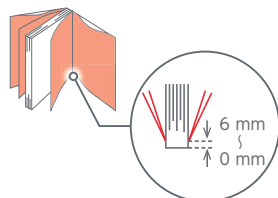
NAME	MODEL	DESCRIPTIONS
Mobile Cart	MCT-GF500	Dolly for gauze roll replacement (One dolly is included in the accessories of the GF-500.)
Fork for Lifter	F-500GF	An attachment for the lifter L-470 that holds the roll firmly in position for easy and safe gauze roll replacement. *Note: requires L-470



# ESF-1000 END SHEET FEEDER

## ADJUSTABLE TIPPING POSITION

The ESF-1000 adds folded end sheets to the book block. The position to attach the end sheet can be adjusted up to 6 mm from the bottom of the spine depending on milling amount.



## APPLICATION FLEXIBILITY

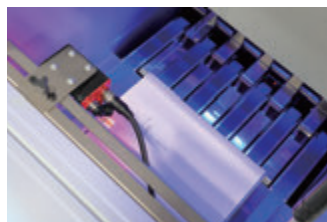
The system can handle various types of book blocks including loose sheet, folded signature, glued book block and sewn book blocks. The system can be configured inline with the BQ-500 binder or offline.

## VARIABLE THICKNESS PRODUCTION

On the fly variable thickness production can be performed with the built in thickness caliper system.

## OPTIONAL BARCODE PRINTING

The optional barcode reader BR-ESF for the infeed section and the code printer CPR-ESF for the delivery section allow for printing the barcode on the end sheet to drive set-up of the binder and trimmer as well as matching at the casing-in process.



BR-ESF



CPR-ESF

## BARCODE PRINTER



## END SHEET FEEDING

One or two end sheets can be tipped on the front or back of the book block. End sheets can be loaded on the run for continuous production.

## OPTIONS FOR THE ESF-1000

NAME	MODEL	DESCRIPTIONS
1 m Conveyor	CBF-CV1	Infeed buffer conveyor *At least one conveyor is required.
2 m Conveyor	CBF-CV2	
3 m Conveyor	CBF-CV3	
Melter	PM-ESF	Glue is supplied for end sheet tipping.
Melter Hose	PMH-ESF	
Code Reader	BR-ESF	Code reader to read the thickness for setup or to recall the job from memory or iCE LiNK for variable production.
Barcode Printer	CPR-ESF	Barcode printer prints the code on the end sheet at the delivery section.

## THICKNESS MEASUREMENT

The thickness caliper measures the thickness of the book block to set the system automatically.

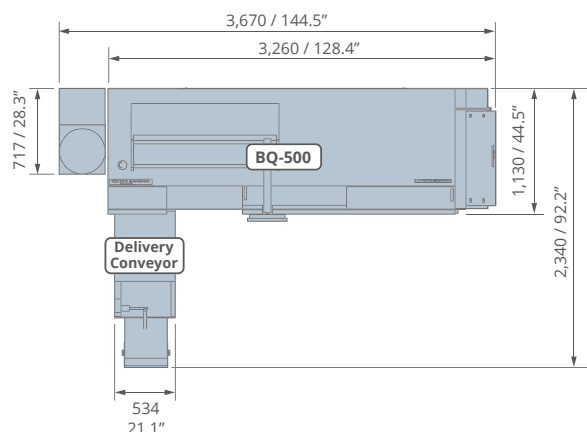


# SPECIFICATIONS.

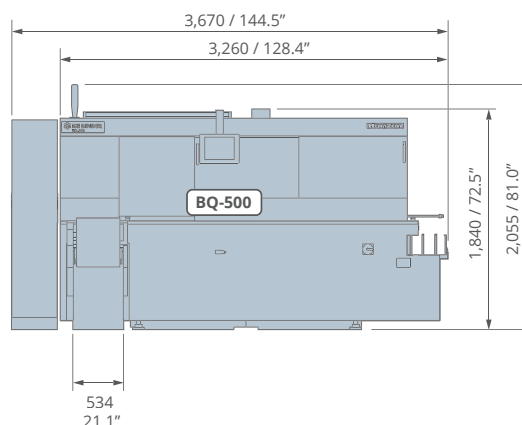
## Machine Dimensions. (Unit: mm / inch)

### BQ-500

(Top View)

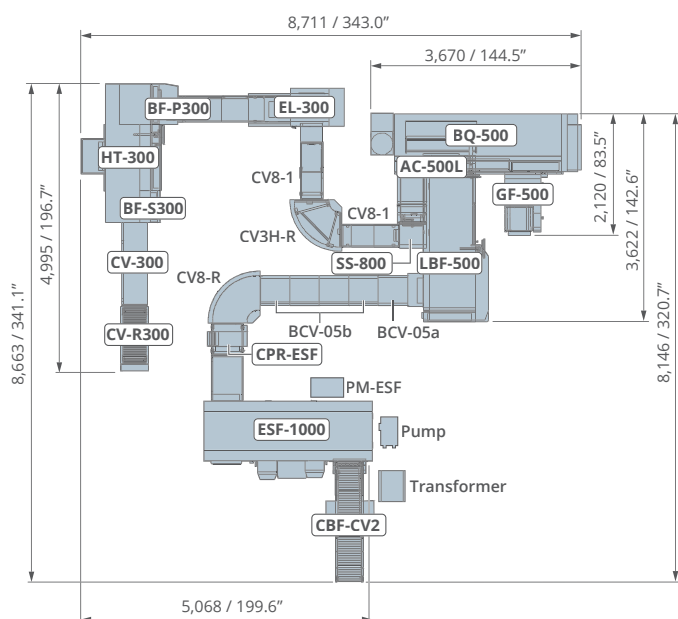


(Front View)






### BQ-500 + LBF-500 + GF-500 + ESF-1000 + HT-300

(Top View)






### BQ-500

<b>Binding Type</b>	Binding with milling, Binding without milling and Pad binding	
<b>Glue Type</b>	EVA Glue or PUR Glue (Tank is optional)	
<b>Number of Carriage Clamps</b>	4	
<b>Book Block Size</b>		<b>Spine Length x Fore-edge Length</b> Max. 320 x 320 mm or 12.59" x 12.59" Min. 145 x 105 mm or 5.71" x 4.14"
<b>Book Block Thickness</b>	Min. 1 mm or 0.04" Max. 65 mm or 2.56"	
<b>Cover Size</b>		<b>Length x Width</b> Max. 320 x 670 mm or 12.59" x 26.37" Min. 135 x 225 mm or 5.32" x 8.86"
<b>Cover Weight Range</b>	Normal Paper 81.4 to 302.4 gsm Coated Paper 104.7 to 348.9 gsm	
<b>Cover Stack Height</b>	Max. 150 mm or 5.9"	
<b>Cycle Speed</b>	Cover Binding (EVA glue)	Max. 1,350 cycles per hour (EVA)
	Cover Binding (PUR glue)	Max. 1,000 cycles per hour (PUR)
	Pad Binding	Based on cover binding (The glue temperature differs depending on conditions)
	Lining Binding	Max. 900 cycles per hour
	Variable Binding	Max. 810 cycles per hour (when difference in thickness is 5 mm or less) (You will need the optional SI-500A Book Thickness Input Caliper for this function.)
<b>Voltage/Frequency</b>	3-phase 200-208 V, 60 Hz 3-phase 220 V, 50 or 60 Hz 3-phase 400 V, 50 or 60 Hz (An external transformer is necessary for 220 V or 400 V)	
<b>Machine Dimensions</b>	Delivery Conveyor (long type), and milling blower duct: W3,670 x D2,340 x H1,840 mm (+ pole lamp 215 mm) or W144.5" x D92.2" x H72.5" (+ pole lamp 8.5")	
	Without delivery stacker and milling blower duct: W3,260 x D1,130 x H1,840 mm (+ pole lamp 215 mm) or W128.4" x D44.5" x H72.5" (+ pole lamp 8.5")	

LBF-500		
Type of Book Block	Loose sheet block with single sheets or signatures Glue tacked or sewn book blocks	
Book Block Size		<b>Spine Length x Fore-edge Length</b> Max. 320 x 320 mm or 12.59" x 12.59" Min. 145 x 105 mm or 5.71" x 4.14"
Book Block Thickness	Min. 1 mm or 0.4" Max. 65 mm or 2.55"	
Weight Range of Sheet for Book Block	Single Sheet: Bond Paper 81.4 gsm or more Coated Paper 104.7 gsm or more Signature: Bond Paper 52.3 gsm or more Coated Paper 84.9 gsm or more	
Cycle Speed	When the book thickness is constant: Max. 750 cycles per hour *  *Note: The conditions that enable maximum speed are: LBF production speed = level 3 When book thickness is 15 mm / 0.6" or greater. BQ production speed = maximum Book binding using EVA Variable setting = Off (Same Thickness) Wait time = zero Jogger Jog Duration = zero Supplying enough air pressure (The BCV-05 can feed the book blocks to the LBF without delay. BCV-05 Speed Adjusting Dial = at Maximum Speed) Variable Binding (when difference in book thickness is 5 mm): Max. 690 cycles per hour	
Voltage/Frequency	3-phase 200-208 V, 50 or 60 Hz 3-phase 400 V, 50 or 60 Hz (Step down to 200 V by Transformer)	
Machine Dimensions	LBF-500: W1,400 x D2,900 x H1,550 mm or W55.2" x D114.2" x H61.1"(Moving Range Depth: 1,000 mm or 39.37")  Buffer Conveyor (Each conveyor): W520 x D520 x H850 mm or W20.5" x D20.5" x H33.5"	

ESF-1000		
Glue Type	Hot Glue	
Book Block Size		<b>Spine Length x Fore-edge Length</b> Max. 385 x 320 mm or 15.155" x 12.595" Min. 145 x 100 mm or 5.705" x 3.935"
Book Block Thickness	Min. 1 mm or 0.039" Max. 65 mm or 2.559"	
End Sheet Size	<b>Spine Length x Fore-edge Length (single Folded)</b> Max. 385 x 320 mm or 15.155" x 12.595" Min. 145 x 100 mm or 5.705" x 3.935"	
Weight Range of Sheet for Book Block	Temporary Bound Book Block Signature: Bond Paper 52.3 gsm or more Coated Paper 84.9 gsm or more Single Sheet: Bond Paper 64.0 gsm or more Coated Paper 104.7 gsm or more  Loose Book Block Signature: Bond Paper 64.0 gsm or more Coated Paper 104.7 gsm or more Single Sheet: Bond Paper 81.4 gsm or more Coated Paper 127.9 gsm or more	
End Sheet Weight Range	Bond Paper: 81.4 to 157 gsm Coated Paper: 104.7 to 209.4 gsm	
End Sheet Stack Height	Max. 200 mm or 7.87"	
Tipping Distance		0 to 6 mm or 0" to 0.23"
Cycle Speed	Bound Book Block: 1,000 books per hour Loose Book Block: 800 books per hour (500 books per hour in case that the fore-edge length of book block is 250 mm (9.84") or longer, and moreover, the spine length is smaller than the fore-edge length.)	
Voltage/Frequency	3-phase 200 to 230 V, 50 or 60 Hz 3-phase 208 V, 50 or 60 Hz 3-phase 400 V, 50 or 60 Hz (400 V is supplied to the pump. Step down to 200 V for other electrical parts by Transformer)	
Machine Dimensions	W2,930 x D1,259 x H1,932 or W115.35" x D49.57" x H76.06" (The height includes the pole lamp.)	

BBF-480		
Binding Type	Type of Book Block: Glue tacked or sewn book blocks	
Book Block Size		<b>Spine Length x Fore-edge Length</b> Max. 320 x 320 mm or 12.59" x 12.59" Min. 145 x 105 mm or 5.71" x 4.14"
Book Block Thickness	Min. 1 mm or 0.04" Max. 65 mm or 2.56"	
Cycle Speed	Max. 1,000 cycles per hour: With same thickness of book (EVA, at the maximum speed of carriage clamps)  Max. 800 cycles per hour: With 5 mm variable thickness of book (EVA, at the maximum speed of carriage clamps)  Max. 660 cycles per hour: With 30 mm variable thickness of book (EVA, at the maximum speed of carriage clamps)  Max. 400 cycles per hour: With 64 mm variable thickness of book (EVA, with the auto setting according to the thickness of book)	
Voltage/Frequency	3-phase 200-230 V, 50 or 60 Hz	
Machine Dimensions	W1,080 x D1,730 x H1,610 mm or W42.6" x D68.2" x H63.4" (The rail plate is not included.) *The depth of the machine changes according to the position of the feeding unit.	

GF-500		
Binding Type	Lining Binding	
Gauze Type	- Gauze Roll Diameter of Roll: Max. 400 mm or 15.745" Roll Width: Min. 125 mm or 4.925", Max. 320 mm or 12.595"  - Inner Diameter of Roll Core: Optional φ50 (1.97 inch), φ70 (2.76 inch), φ76 (3 inch) - Lined Gauze Only (Testing required for crepe applications) - Gauze Thickness: 0.2 mm or thicker	
Gauze Size		<b>Gauze Size: Width x Length</b> Max. 320 (Trim amount in head-foot direction is zero) x 85 mm or 12.595" x 3.345" Min. 125 (Minimum roll width) x 23 mm or 4.925" x 0.910"
Trim Amount (Head-foot direction)	Min. 5 mm or 0.200" Max. 175 mm or 6.885" (Width after trimming: 145 to 315 mm or 5.710" to 12.400")	
Head-foot Registration for Gauze	The gauze is registered to the right-side of the carriage clamp. Adjustment Range: +4 mm to -10 mm or +0.155" to -0.390" The left (foot) edge of the gauze can be adjusted by changing the trim amount.	
Wrap around Length from Spine Corner		Adjustment Range Rear: 9 mm to 15 mm or 0.355" to 0.590" Front: 9 mm or 0.355" to the maximum length of the gauze  *The minimum total gauze length is 23 mm or 0.9". If the wrap around length is set to 9 mm or 0.35", but the total length does not meet or exceed 23 mm, then the changeover cannot be performed.
Wandering Correction Function	Within 3.5 mm or 0.137" of wandering range (depending on the type of sheet)	
Right Edge Correction Function	Within 1 mm or 0.039" of misalignment range (depending on the type of sheet)	
Cycle Speed	Max. 900 cycles per hour	
Voltage/Frequency	3-phase 200 to 208 V, 50 or 60Hz (supplied from the BQ)	
Machine Dimensions	W630 x D1,289 x H1,350 mm or W24.9" x D50.8" x H53.2"	

\*The machine design and specifications are subject to change without any notice.

\*Specifications may vary depending on the job, paper quality, environmental influences, and various other factors. Please do a test run before starting production.

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