

Operation Manual BIND CONTROL

Measuring device for quality control of perfect bindings and wire stitchings



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Made in Germany

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1 General Information

These operating instructions support you during the initial start-up, operation and maintenance of the Perfect Binding Tester BIND CONTROL.

It contains important information, the observance of which ensures safe use. Familiarize yourself with this documentation carefully before using the measuring system to avoid personal injury and material damage. Always keep the documentation close to the measuring system so that it can be referred to for its entire service life.

Any application that deviates from or uses the measuring system beyond that specified in the operating instructions shall be deemed improper. Modifications, bypassing or decommissioning of individual components of the measuring system are prohibited.

The country-specific accident prevention regulations must be observed. The device may only be used by trained or instructed personnel. Responsibilities and the assignment of tasks must be clearly defined and monitored.

If the measuring system is not used as intended, the manufacturer accepts no liability. General safety and accident prevention regulations remain valid in addition to these operating instructions.

1.1 Symbols

Attention	Attention Risk of high voltage contact
Warning	Warning Severe to life-threatening personal injury can occur
Caution	Caution Slight to moderate personal injury may occur
IMPORTANT	Property damage can occur
1	Important information for operating the measuring system

L.	NOTE! Note or tip on using the measuring system
-	Cross Reference See also!

Intended Use and Restrictions On Use 2

2.1 Features and Possible Applications

The BIND CONTROL is a special testing device that was developed for the qualitative testing of perfect bound products that are cut to a sample size of 10 cm spine length and 11 to 13 cm page width.

IMDODTANT	For products already hardcover bound, the book cover must be
IMPORTANT	removed before cutting.

Due to the objective operation and reproducibility of the measured values, the BIND CONTROL is primarily used for quality control and quality verification of products from the bookbindery.

ΙΜΟΩΡΤΛΝΤ	If the operating limits of the device are exceeded, the measuring de-
IMPORTANT	vice may be damaged.

2.2 Copyrights / Intellectual Property Rights

The measuring method and algorithms of the BIND CONTROL analysis software are protected by copyright.

The copyrights to the components used in the BIND CONTROL, including the standard software, are held by their respective manufacturers.

The names of the components used in the BIND CONTROL, including the standard software, are usually registered trademarks of their respective manufacturers.

Safety Instructions 3



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4 Technical Data

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General Information

Name	BIND CONTROL
Series	25-0010.0/0
Device number	See nameplate
Manufacturer	Polygraphische innovative Technik Leipzig GmbH
Dimensions, Weight	285 mm (W) x 255 mm (D) x 300 mm (H) – 8.6 kg
Measurement range	2.5 25 N/cm
Sample dimensions	Spine length: 10 cm / Page width: 11 to 13 cm
Display	4 lines
Display size	60 x 38 mm
Resolution	0.1 N/cm
Measurement uncertainty	± 0.2 N/cm
Measurement time per page	ca. 25 s
Power supply voltage	100-240 VAC / 50/60 Hz
Power consumption (total)	< 250 VA
AC mains input fuse	10 A
Operating Conditions	
Operating temperature	+5°C bis +35°C
Storage temperature	-10°C bis +50°C
Air moisture content	30 % to 85 % non-condensing
Impact stress during operation	< 5G
Vibration during operation	max. 0.7 G (at 5 – 200 Hz)
Impact stress during transport	< 25G

Optimum Measuring Conditions

Operating temperature	+20°C bis +25°C
Air moisture content	45% bis 60%

5 Measuring Principle

To determine the page pull-out strength of book blocks, the page to be tested is positioned into the slot for sample insertion, taking into account the sample dimensions of 10 cm spine length and 11 to 13 cm page width. The inserted page is pulled out perpendicularly downwards. The force required to release the page from the block is determined. The results are then statistically analysed and evaluated.

6 Measuring System

6.1 Scope of Delivery

- Desktop device BIND CONTROL
- Power cord
- USB cable
- PC software/documentation on CD
- Customer documentation

6.2 Device Placement

Place the unit on a firm, safe surface (table, etc.).

The power connection for the delivered power cable and the on and off switch is located on the back of the device. (Section 6.3: Technical Design of the Device).

6.3 Technical Design of the Device

6.3.1 Front View BIND CONTROL



6.3.2 Rear View BIND CONTROL



7 Connection Ports of the BIND CONTROL

7.1 Electrical Connection

The BIND CONTROL operates with AC current. To power the device, please use the supplied and tested power cable and plug. Plug the BIND CONTROL into a grounded power outlet. The valid input voltage is:

AC supply: 100-240V / 50/60 Hz

The backup fuse for the grounded power outlet should be 10A.

Nameplate BIND CONTROL





Before inserting the power plug into the socket provided, check that the rated voltage corresponds to the data listed above and that the socket is properly grounded.

The BIND CONTROL has its own main power switch. This main switch disconnects the device from the power source. If the device needs to be free from power (e.g. for service on the device), the plug must also be pulled from the socket.

The following general requirements concerning the power supply are:

A maximum voltage interruption of 20 ms is admissible. A time of more than 1 second must elapse between two consecutive interruptions. Voltage drops must not exceed 20% of the peak voltage of the supply for more than one period. There must be more than 1 second between successive voltage drops.

7.2 Data Connection

The USB port is located on the back side of the device. This port is for connecting the device to a PC for transmitting measured values into a protocol for quality assessment.

7.3 Calibration Opening

On top of the device, next to the saddle, there is an opening in the device. This opening is used to verify the calibration of the sensor in the device. A detailed description of the verification is described in Section 10. (\checkmark Verifying the Calibration).

8 Working With the BIND CONTROL

8.1 Handling Instructions

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IMPORTANT	 Only test book blocks with the correct format! Do not move or pull the book block during the test; it will lead to incorrect results. Do not insert any other objects other than the pages to be test ed in the device.
	 The warranty is void if the device is damaged due to disregarding one of these mentioned instructions.

For data transfer to a PC, the system has an interface whose complete range of functionality is only available after installation of the supplied software package. The installation directions are described in Section 8.3.2 ($rac{ransmission}$).

8.2 Measurement Accuracy



The device has a measurement uncertainty of 0.2 N/cm.

In the context of the measurement uncertainty, the measurement result is not influenced by paper properties. A skewed feeding of the page will lead to an inaccurate measurement because the adhesive binding is not evenly loaded. The parallel position of the page to the guides during feeding must be ensured.

The book blocks to be tested must be cut at a right angle.

8.3 Operating the BIND CONTROL

8.3.1 Turning the Device On and Off

Turning the BIND CONTROL on and off is done with the main power switch located on the rear side of the device. (\rightarrow Section 6.3 Technical Design of the Device).

On the display, the following is shown after switching on the device:



Using the button below the arrow, the desired mode can be selected and confirmed with the "(ok)" button.

8.3.2 PC Interface and Data Transmission

The system has the ability to transmit the measured values to a PC with a Windows operating system. Included with the system are protocol files for simple and guided measurements (see description below) which are filled with the measurement results after enabling data transmission. Additional cells (with a blue background) are available for entering administrative information and production conditions.

8.3.2.1 System Requirements

Processor:	Minimum 1 GHz
RAM:	Minimum 512 MB
Operating system:	Windows 7 32 Bit or newer
Installed software:	Microsoft Excel Version 11 or newer (Excel 2003)

8.3.2.2 Installation

For the installation, you need administrator rights for the PC which will be used for the installation. Start the installation by opening the file 'BCDASetup10.msi' and follow the installation program instructions.

It is possible that the installation program detects that the .Net-Framework 4.0 is not installed on your PC. In this case, you will be asked to install or update this utility. To carry this out, the PC has to be connected to the internet. Follow the installation instructions for the .Net Framework and open the file 'BCDASetup10. msi' again.

8.3.2.3 Initialisation of the BIND CONTROL Interface to the PC

When the activated device is connected to the PC for the first time with the USB cable, the operating system of the PC will try and install a driver for the USB interface.

If this fails, the drivers will need to be manually installed. You will need administrator rights for the PC to complete this. Follow the following instructions:

- Keep the BIND CONTROL and the PC connected with the USB cable.
- Open the Device Manager (Control Panel > Category ,Hardware and Sound' > Subcategory ,Devices and Printers' > Device Manager).
- In the Device Manager directory, you will find 'Other Devices' with the entry 'UB232R'.



- Click on 'UB232R' with the right mouse button and select 'Update driver software'.
- In the next step, choose to search for the driver on the computer.

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- You will then be asked to enter the path where the driver installation files are located.
- Enter the path for the driver as being the 'Drivers' folder on the installation CD delivered with the device and start the installation.
- After this step has been successfully completed, the Device Manager will show the entry 'USB Serial Converter' in the 'USB Controllers' directory.
 - ⊿ ... USB-Controller

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- Aladdin Hardlock Key
- Aladdin USB Key
- Intel(R) ICH10-Familie,
- Intel(R) ICH10-Familie,
- Intel(R) ICH10-Familie,
- Intel(R) ICH10-Familie,
- Intel(R) ICH10-Familie.
- Intel(R) ICH10-Familie,
- Intel(R) ICH10-Familie,
- Intel(R) ICH10-Familie.
- USB Serial Converter
- USB-Root-Hub
- USB-Root-Hub
- USB-Root-Hub
- IISP Poot Lub
- The directory 'Other devices' with the entry 'UB232R' will still be shown with an exclamation point.
 - Andere Geräte h UB232R
- Repeat steps 5 through 7 again.
- After finishing the second installation successfully, the Device Manager directory 'Ports (COM & LPT' will show 'USB Serial Port (...)'.
 - Anschlüsse (COM & LPT) USB Serial Port (COM6)
- After these steps are completed, the interface has been installed successfully and the software program can communicate with the connected BIND CONTROL.



"AN 234 FTDI Drivers Installation Guide for Windows 8-1.pdf"

"AN 396 FTDI Drivers Installation Guide for Windows10 11.pdf"

which can found on the supplied CD in the 'Documentation' folder.

8.3.2.4 Using the Software Program

The programme is designed as an interface to the BIND CONTROL for the transmission of the measured values to a PC. The data will be written directly into a Microsoft Excel spreadsheet.

Instructions for Use:

- Turn on the BIND CONTROL and connect it with your PC using the supplied USB cable.
- Start the program BindControlDataAccess. The programme will start a new Microsoft Excel file and will try to establish a connection to the BIND CONTROL.
- Start the program BindControlDataAccess. The programme will start a new Microsoft Excel file and will try to establish a connection to the BIND CONTROL.
- As soon as the connection is established the status display will change to green. This is the required status in order to receive measurement data.
- When the status display turns yellow, the PC is in the process of receiving data from the BIND CONTROL. The data will be written into a corresponding Microsoft Excel template and you will be asked to save the data in a folder of your choosing. If you don't save the data, the received values are erased and there is no chance to restore them.
- After saving the Excel sheet you can add any additional information in the protocol.



If the USB connection between the PC and the BIND CONTROL is interrupted or the BIND CONTROL is turned off while the software is connected to the device, the status display will flash red. After re-establishing a connection by once again plugging the USB cable to the device, the connection to the software will take place automatically.

	If the interface is not established after an extended period of time, please check the USB connection and the installa- tion of the driver.
<u></u>	After starting the programme, it will check if the Microsoft Excel version 11 or newer is acceptable before opening. If this is not the case, this will be indicated as a status message and you will not be able to use the program. If there is a version 11 or newer installed and the program still cannot be used, please contact the software supplier.
E.	Additionally, the software checks if the necessary Excel templates are present on the computer. If this requirement is not filled, the program will display a status message with this information and you cannot use the software. Contact the software supplier if this is the case.

9 Measurement

The measuring device must be turned on before beginning a measurement (A Section 8.3.1 Turning the Device On and Off).

9.1 The Simple Measurement

One page of the block to be tested is inserted into the opening and the book block is positioned on the saddle.



The measurement begins by pushing the Start button.

Measurement
Page is pulled
Please wait!



During the "Page is pulled" and 'Measurement' display, the book block must stay in position on the saddle and must not be moved. After the measurement, the pulled-out page will be ejected via the ejection slot.

Measureme	nt No.: l
Fpull	=9.3 N/cm
Store Mea	surement
Yes	No

After a successful measurement, the measurement number is shown. The system counts every measurement that has been made and stores the results.

Additionally, the measured pull force will be shown. This value can be saved.

Following this, the next measurement can made.



By pressing the button "Results", the following will be displayed:

Measm∙No∙	3	of 4	Stand.Dev: D	•4 N/cm
Fpull	=9.3	N/cm	VariationCoef	f•∶ 8%
Average ▶▶▶	=9.5 (-)	N/cm (+)	•••	End

With the "(+)" and "(-)" buttons, you can toggle between the measured values. Switching to the second screen is made with the "▶▶▶" button.

On this second screen, the standard deviation and the variation coefficient are shown. Using the "►►►" button, you can toggle between the two displays.

Switch back to measurement mode by pressing "End" to perform additional measurements. These measured values will be included in the statistical analysis.

If a new series of measurements should be started, the already evaluated measurement results have to be erased from the internal storage:

Push "End". The device asks for confirmation to avoid the accidental deletion of the collected values.

Finish Measurement Send Data to PC Delete Values Yes No 8%

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If you confirm with 'Yes', the collected values will be transmitted to the PC via the interface. There, they will be filled into a protocol for quality control.

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The measurement data can only be transferred to the PC if the software has been installed (Section 8.3.2 PC Interface and Data Transmission).

Simultaneously, the collected values will be deleted from the internal storage and a new series of measurements can be started.

Pressing 'No' saves the data and the measurement series can be continued.

End

Measurement	-> Start
End	Results

Pressing the 'End' button will complete the current measurement series. After confirmation (see above) the measured values will be deleted! The device returns to its starting state:

Simple Measurement Guided Measurement Settings (ok) (↓)

9.2 The Guided Measurement

After choosing 'Guided Measurement' from the menu, the following input possibilities are shown:

Input No. of Blocks Input No. of Pages		Start of Back	Measurement	
Choice of Glue				
(ok) (↓)	as well as	(ok)	(↑) (↓)	

Input Number of Blocks

Within this menu, the number of pulled-out pages from one book block is set. Changing the amount of pages is done with the "(+)" and "(-)" buttons. The default value is a total of 10 book blocks per measurement series. The maximum number is limited to 99 book blocks. The amount is confirmed by pressing the "(ok)" button.

Input Number of Pages

Within this menu, the number of pulled-out pages from one book block is set. Changing the amount of pages is done with the "(+)" and "(-)" buttons. The default value is a total of 5 pages per book block. The maximum number is limited to 10 pages per block. The amount is confirmed by pressing the "(ok)" button.

Choice of Glue

Within this menu, the glue which is used to bind the books is set. The available choices are "Hot melt", "PUR" and "Dispersion". The selection is done by position-ing the "<" to the chosen glue. The choice is confirmed by pressing the "(ok)" button.

Upon confirmation with "(ok)", the following is shown on the display depending on the settings determined in the previous steps.

Block 1/1D Page 1/5 PUR Measurement -> Start End Start

Pressing the 'Start' button begins the first measurement of the measurement series.

Block	1/10 Page 1/5
Fpull	=17.6 N/cm
Store	Measurement
No	Yes

After each page has been pulled and the measurement has been finished, you will be asked if you would like to save the measurement.

After saving, the measurement series can be continued by pressing the 'Start' button.

Measurement Statistics

A display of the measured values obtained so far as well as an analysis of the previous measurements can be shown by pressing the "Results" button.

Block l	Page 5	
Fpull	= 16.6	N/cm
Average	= 17.5	N/cm
>>>	(-)	(+)

Pressing the "(+)" and "(−)" buttons will toggle between the measured values. Pressing "►►►" shows:

Quality Rank
Very Good Stability
All Values Averaged
End

Pressing "►►►" again shows

ΕN

Pressing "►►►" again shows

Distribution		
Very Good:	5=100%	
Good:	0= 0%	
>>>	End	

Pressing "►►►" again shows

Distribution		
Sufficient:	= []	0%
Poor	0=	0%
***		End

Pressing 'End' returns to measurement mode to continue the measurement series.

Upon completing the measurement series and when all the measured values have been determined the following display is shown:

Job Completed View Results	
Yes	No

Pressing 'Yes' and following the button sequence 'Results' and 'Statistic' will show the results of the measured series as described above.

Pressing 'End' will complete the measurement series:

Job Completed		
Send Data to PC		
Delete Values		
Yes	No	

If 'No' is chosen, the option to view the measured values will be shown on the display. If 'Yes' is chosen, the values will be transferred to the PC and the values of the measurement series will be deleted from the device memory. A new measurement series can be started.



The measurement data can only be transferred to the PC if the software has been installed (Section 8.3.2 PC Interface and Data Transmission).

The selections for block and page totals per block as well as the glue selection remain unchanged and can be used for further guided measurements. In this mode, the data and default values for the measurements as well as the analysis can be customised.

The menu consists of the following items:

- Selectable measurement width of 1.0 cm to 10.0 cm
- Change hot melt quality level
- Change PUR quality level
- Change dispersion glue quality level
- Change the display language

In the three quality level settings, the values of the binding strength can be changed to evaluate the quality of the binding. In the publication [1] "Technical Guidelines for the Assessment of adhesive-bound products using the page-pull test" of the German Association for Printing e. V. in 1992, the following recommend-ed values for binding strength are given. These values are already set as evaluation criteria in the BIND CONTROL.

Assessment of the binding strength	EVA hot melt	Dispersion glue / PUR
Very good	> 7.2 N/cm	> 7.5 N/cm
Good	> 6.2-7.2 N/cm	> 6.5-7.5 N/cm
Satisfactory	> 4.5-6.2 N/cm	> 5.5-6.5 N/cm
Unacceptable	≤ 4.5 N/cm	≤ 5.5 N/cm

The variation coefficient of the measured values must not exceed 20%. [2]

Within this menu, different target values other than those mentioned above can be set if a house standard exists which defines other higher targets.

10 Verifying the Calibration

In order to easily verify the accuracy of the measured values, the device is equipped with a special testing function. This allows the operator of the device to quickly and easily verify the functionality of the device as well as the accuracy of the used sensor.

For verification, a handle is located underneath the device and can be screwed into the calibration opening with its screw thread. Please only lightly tighten the handle.

The device can be changed to System Check mode by turning the device on in an alternative manner. To do this, hold the "Start" button before the device is turned on using the main switch and only let go once the following is shown on the display:

*** System Check *** No Measurement Value Please lift up

After the device has been lifted with the handle, the internal verification is carried out. The result is shown as text on the display. When "Device ok" is shown, the accuracy of the sensor is within its defined tolerances and the functionality of the device is correct.

If "Please contact service" is shown, please contact the manufacturer.

The calibration itself can only be done by the manufacturer!

The System Check mode is ended by turning off the device with the main switch.

11 Cleaning

If necessary, the device can be cleaned with a dry or damp cloth, or a cleaning agent can be used if it is very dirty.

In addition, the sample opening should occasionally be carefully cleaned with blown air to remove any paper dust that may have accumulated.



The measuring device is not waterproof and dustproof (protection class IP20). There is a risk of electric shock due to a short circuit.

IMPORTANT Liquids entering the device can cause damage.

IMPORTANT	The use of unsuitable chemicals or solvents can cause damage to the exterior and interior of the device. Take note of the chemical compatibility of the materials.
Contraction of the second seco	Coarse contaminants in the measurement system must be avoided.

12 Storage, Transportation

The device must be protected from dust and moisture during operation and storage. Avoid subjecting the device to strong shocks and vibrations.

Avoid transporting and storing the device at extreme temperatures.

If it becomes necessary to transport or ship the device (e.g. return to the manufacturer for repair), the product must be packed appropriately, e.g.:

- Wrap with plastic wrapping (dust protection), then
- Placed in a double-walled cardboard box and
- Bedded in foam packing peanuts (5 cm on all sides).

13 Repairs



Repairs and service measures on the device may only be carried out by the manufacturer.



To avoid unnecessary queries, please return the device with a brief description of the error after contacting us to:

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04329 Leipzig

Germany

Tel.: +49 341 25942-0

Fax: +49 341 25942-99

- E-Mail: info@pitsidleipzig.com
- Web: www.pitsidleipzig.com

14 Disposal

PITSID Polygraphische innovative Technik Leipzig GmbH takes over the disposal of sent-in old devices of the BIND CONTROL measurement device.



The BIND CONTROL measurement device must be disposed of as electronic waste in accordance with the applicable laws. PITSID Polygraphische innovative Technik Leipzig GmbH is registered in the WEEE directive (Waste Electrical and Electronic Equipment) register under WEEE reg. No. DE73410149.

Attachment

CE Declaration of Conformity

The PITSID – Polygraphische

Innovative Technik Leipzig GmbH Mommsenstrasse 2

04329 Leipzig

Germany

as manufacturer and distributor for the product declares:

Name:	BIND CONTROL
Series:	25-0010.0/0
As of device number:	BIND-0010

on the basis of

- EMC Directive 2014/30/EU of the European Parliament and of the Council of February 26, 2014 on the harmonization of the laws of the member states relating to electromagnetic compatibility
- RoHS Directive 2011/65/EU of the European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

that the product described above corresponds in its design and construction as well as in the version placed on the market to the provisions of the EU directives mentioned. If the product is changed without knowledge from the manufacturer, this declaration becomes invalid.

Compliance with the following harmonized standards is confirmed:

- IEC 61010-1:2010: Safety regulations for electrical measuring, control, regulating and laboratory devices Part 1: General requirements
- EN 55011:2022-05: Industrial, scientific and medical equipment Radio-frequency disturbance characteristics Limits and methods of measurement

- EN 61000-3-2:2006: Electromagnetic compatibility (EMC) Part 3-2: Limits Limits for harmonic current emissions
- EN 61000-3-3:2008: Electromagnetic compatibility (EMC) Part 3-3: Limits Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection
- EN 61000-6-2:2005: Electromagnetic compatibility (EMC) Part 6-2: Generic standards – Immunity standard for industrial environments

Complete technical documentation is available. The operation manual for the product is available in German (original) and English.

Dr - Ing Thomas

Leipzig, 04.12.2023

Dr.-Ing. Thomas Kaulitz Managing Director

Warranty

There is a guarantee for the product within the framework of the contractual agreements. There is no warranty claim in the following cases:

- Accidental or wilful damage
- Damage due to failure to observe the documentation
- Unauthorized changes to hardware or software

The warranty claim expires if changes to the product by the customer or by third parties are not agreed upon with PITSID – Polygraphische Innovative Technik Leipzig GmbH which go beyond the activities described in this product. This also applies to repair measures carried out independently or carried out by third parties.

Troubleshooting

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If the measuring device malfunctions, observe the information on operation (action).

Error	Cause	Action
Measuring device cannot be turned on	Main switch in OFF position	Turn main switch ON
	Power cable	Replace power cable
Measuring device cannot be turned off	Main switch in ON position	Turn main switch OFF
	Device error	Remove power cable → contact device manufacturer
Data transfer not possible	Defect USB cable	Replace USB cable
	Software error on PC (driver problems, etc.)	Reinstall software (Section 8.3.2 PC Interface and Data Transmission)
Pulled page is not ejected	Paper jam in the device	Turn off the device & contact device manufacturer

E S

If the above errors cannot be eliminated, contact the manufacturer.

Error Messages

If no measured values can be determined, error messages provide information on operation.



Error messages are visible via the operating panel (→ Section 6.3 Technical Design of the Device).

Error Message	Cause	Action	Reference
Measurement error Repeating values Measured value to low ►►►	No page inserted or tensile force below minimum	Insert page and start new measurement	Section 9
Error Roller position > Push and hold Start button	Feed roller is in the wrong position due to device error	Press the Start button until the message disappears	Section 9



If the above errors cannot be eliminated, contact the manufacturer.

Literature

[1] N.N.

Technical Guidelines for the Assessment of Adhesive-Bound Products with Page-Pull Test (German: Technische Richtlinien zur Beurteilung klebegebundener Erzeugnisse mittels Pulltest) *Bundesverband Druck E. V., Wiesbaden, 1992* [2] Wulf, Jens

Technical Guidelines Book Production and Brochure Production (German: Technische Richtlinien "Buchherstellung" und "Broschurenherstellung") *IBW, Leipzig, 2001* ΕN