LINOP M 600 Operating Instructions

Control Unit used for Dispensing Cyberbond Adhesives









LINOP M 600

Table of contents

1	Important introductory information3
2	Safety precautions and warning notice4
3	General information4
3.1	Use4
3.2	Symbol information
4	Product content5
5	Installation
6	Connections7
7	Pin assignment8
7.1	Pin assignment of the interface
7.2	Pin assignment of the footswitch (LINOP FOT)
8	Operation9
8.1	Operating- and display panel9
8.2	Overview of display10
8.3	Changing of values
8.4	Operating modes
	8.4.1 Operating mode "Auto" ("automatic")
	8.4.2 Operating mode "Cont" ("continuous")
8.5	Programme memory
8.6	Supervision of output pressure
9	Faults / Malfunctioning
10	Maintenance
11	Appendix13
11.1	Technical data
11.2	Measurements
12	LINOP Equipment15
12.1	LINOP Cartridges
12.2	LINOP dosing tips for LINOP valves
12.3	LINOP FOT footswitch
13	LINOP Item Numbers16

General information on LINOP M 600

The company Cyberbond GmbH will neither supervise the observance of this manual nor the conditions and methods of instalment, operation, use and maintenance of the electronic devices and their components. Thus, we do not bear responsibility, nor liability for loss, damages or other costs that arise from incorrect instalment and improper use or any other damages connected with this manual, installation or use.

The arrangement of information for this document is to the best of our knowledge and belief. However, as errors can occur despite all efforts and best intentions, we would be grateful for any suggestions on improving this manual.



1 Important introductory information

The LINOP M 600 is addressed to applications when only very little amounts of liquids or pastes are used in progress (compared to the overall consumption). This unit is also ideal for sporadic applications. It is equipped with a cartridge that can be filled by the user. The other units like LINOP M 2000 or LINOP M 1500 are operated with a pressure pot and a 500g bottle.

LINOP M 600 is most suitable when used as a laboratory unit or in low volume production and it is mainly used for manual applications. The range of Cyberbond adhesives can ideally be applied with the UV- and light curing systems. Cyanoacrylates should not be used as the bonding of the plunger is possible.

In order to compensate the static pressure that is in every liquid, the device is additionally equipped with a vacuum valve. The effect is that a slight vacuum is created after each dosage (pressure/time impulse) which hinders the product to overrun.

The whole range of LINOP dosing units (LINOP M 2000 – electro-magnetically PLC control / LINOP M 1500 – electro-pneumatically PLC control and the above mentioned LINOP M 600) is based on the same concept and the characteristics of the units are almost identical.

Features

LINOP M 600 is the most recently developed dosing unit for Cyberbond reactive adhesives based on the latest findings in microelectronics. The features are:

- Microprocessors for all control systems
- Operating mode switchable from single impulse to permanent impulse and vice versa
- Low voltage 24 V, external power pack ~ 230 V
- Start signal is processed potential-free
- Wide range of dosing times (0, 01 to 99, 99 sec.)
- ▼ Exact electronic pressure control (0,01 to 2,00 bar)
- 5 memory locations for individual time- and pressure control
- Integrated cartridge holder with flexible arm
- Suitable for viscosities up to about 100.000 mPa*s



LINOP M 600

2 Safety precautions and warning notice

- The unit must always be operated according to the manufacturer's instructions for use.
- The unit must be operated by, staff who have been trained and who are authorised. They must know the operating instructions and operate the unit accordingly.
- The operation manual must be kept in a safe place easily accessible to each user.
- Illegal changes and the use of spare parts as well as accessories that have not been sold or recommended by the manufacturer of this unit can cause fires, electric shocks and injuries. These measures lead to an exclusion of liability and the manufacturer assumes no liability.
- Basis for the guarantee of the manufacturer is the version of the warranty policy for the unit at the time of purchase. We assume no liability for unsuitable or an incorrect manual or automatic adjustment of parameters of the unit. We also assume no liability for an improper use of the unit.
- Repairs must be carried out by the manufacturer
- The user is responsible for placing and installing the dosing unit according to the approved technical regulations of the country or area concerned.

3 General information

3.1 Use

The LINOP M 600 offers a control unit within a system for the exact dosage of reactive adhesive like cyanoacrylates, anaerobic adhesives and sealants as well as UV light-curing adhesives to be used in industry. The unit can either be placed autonomously (stand-alone option) as well as being integrated within a production system, for instance with a PLC control.

The LINOP M 600 offers the possibility to connect a foot switch or an optional external signal and / or an optional external sensor, to one of the four I/O ports, in order to monitor the level of adhesive in the bottle (empty alarm).

The modular series of LINOP units consist of various devices with different functions and options for connections. The external looks of both the LINOP units do not differ greatly. Therefore please check which particular LINOP unit is to be used, before the equipment is put into operation.

3.2 Symbol information

The hazard and safety symbols used in this document are illustrated as follows. [see right column]



Attention!

Safety precaution for device:

Disregard can lead to material damage and affect the reliable functioning of the device.



Danger!

Safety precaution for health: Disregard can lead to personal and material damage and affect

the reliable functioning of the device.



Note!

Important information:

This symbol points to additional information that describes the instructions in a more detailed manner. This allows for a better understanding of the operating procedure of the device



4 Product content

The following parts belong to the standard product content:

- **▼ 1 LINOP M 600**
- 1 operating instructions for LINOP M 600

Please check the content of the packaging for any damage that may have been caused by improper transport or storage.

We recommend keeping the original packaging in case the product needs to be sent back for maintenance or repair.

In order to operate your LINOP M 600 additional components may be necessary. These can be obtained from Cyberbond Europe GmbH upon request.

Dependent on the particular purchase order placed, the following components and/or accessories may be enclosed in the delivery contents, in separate packing units:

- Power supply unit Deutronic 24V / 3A (Type: ETC70-24)
- Mains cable with plug and IEC power connector (sw 3 x 0,75 mm², l = 2 m) (Various lengths and types available)
- LED lamps (Cyberbond LINOP Cyberlite4 oder Cyberlite4 S)
- **▼** Footswitch
- And much more

Due to the wide range of variants the (optional) components can partly differ from each other in their versions. Please see information on your delivery note and check the relevant order.

5 Installation

LINOP M 600 is a tabletop unit and must be placed on a suitable work surface. Please pay attention to the following safety suggestions when installing the unit:

- Ensure the unit is placed on a safe, sturdy work surface and in a safe upright / standing position! The unit must be placed in a way so that it cannot drop or fall from the work surface.
- Only operate the unit when it is clearly not damaged in any way.
- Only operate the unit when all connections and accessories are not damaged.
- Do not operate the unit out in the open.
- Do not operate the unit in areas that have the potential for explosions!
- Avoid additional warming of the unit by sunlight or other sources of heat such as radiators etc. This ensures the safety and life expectancy of the unit.
- Connectors are not to be left slack, nor running along or over sharp corners, moving or hot / warm parts.
- ▼ Fix cables well to avoid a trip hazard and damage to the cables.



Danger!

Safety precaution for health: Should the product be damaged this may cause unsafe use. Therefore the product must not be used!

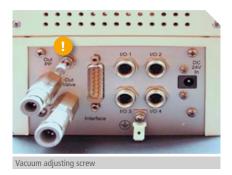


When using the unit within a production line, please pay attention to the following:

- Pay attention to specifications of the interfaces in chapter 6 and 7.
- Bear in mind any interactions with other connected systems and controls.
- Create a common connecting potential by earthing the LINOP M 600 and its surroundings.

For the assembly of accessories, please read the details in the respective documents enclosed. Due to the vast variety we are unable to give extra information on these in this manual.

The unit must be connected to electricity and compressed air (max. 8 bar). The cartridge filled with a medium is slid into the holder on the flexible arm. It is important that the cartridge is sealed with a plunger. After that the compressed air adapter is fixed on the cartridge. Now time and pressure can easily be set via the display. The value of the vacuum can be chosen by an adjusting screw on the rear side. If you turn the screw clockwise the vacuum will become stronger and so will the sucking effect and vice versa.







Cyberbond LINOP M 600 / Operating Instructions



6 Connections



Connections LINOP M 600 (Rear view)

- 1 Interface for the remote control of the unit in a super coordinated system (externally controlled and supervised)
- [I/O 1 ... I/O 4] 4 in and out ports for connecting up to 4 dosing valves (only M 2000), a foot switch, a sensor for monitoring adhesive level or a hand pen
- 3 DC 24V In Connecting plug for power supply
- In max 8 bar Connection for incoming compressed air (max. 8 bar)
- 5 Out Valve Connection for feeding air pressure to the cartridge
- 6 Out PP Vacuum adjusting screw
- Potential equalisation conductor (PE)

Attention!

Safety precaution for device:

When used in a production line system, the units must have an equalizer that needs to be earthed and fixed in the determined place (PE).



Note!

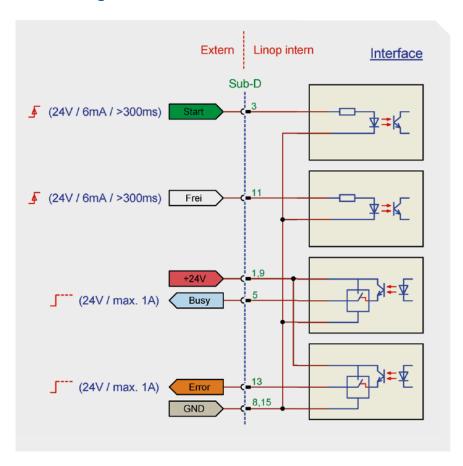
Important information:

The signals of the interface are completely isolated, electrically. In order to function the trip, voltage must be added externally!

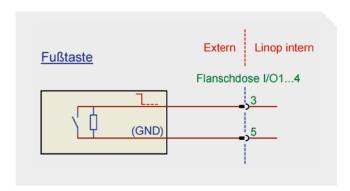


7 Pin assignment

7.1 Pin assignment of the interface



7.2 Pin assignment of the footswitch (LINOP FOT)





8 Operation

8.1 Operating- and display panel

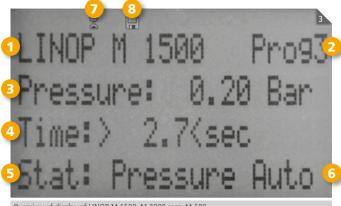


- Master switch
- 2 Programme buttons P1 P5
- Oisplay
- 4 Cursors to choose menu command
- 5 Enter button to determine chosen values
- 6 [+] resp. [-] buttons to change values
- 7 Start button to start dispense time



8.2 Overview of display

After switching on the unit the introductory picture appears on the monitor showing the name and the software of the device for a couple of seconds. Then the display changes to the basic setting as you can see in picture 3 below.



Overview of display of LINOP M 1500, M 2000 resp. M 600

Unit type (see picture above: LINOP M 1500) Prog3 shows the present programme

(see picture above: programme 3) Pressure display of outlet pressure (in bar)

Time displays the chosen time to dispense adhesive Status shows the current status:

"OK" or

"Pressure" fault message when outlet pressure is too low "Empty" fault message when there is a short supply

of adhesives (empty alarm*)

"Emp/Pres" combined fault message of "Pressure"

and "Empty" Operation type "Auto" or "Cont"

Symbol hourglass (flashes during the dispense time)

8 Symbol disk (flashes during saving)

The cursors >...< show the currently running but variable menu item. Example [see above]: >2.7< sec means that the current dispense time of the programme can be changed.

*Only when an externally connected sensor for the monitoring of adhesive level is used.



Note!

Important information:

When running the unit on "Cont" mode the time setting can not be changed!



LINOP M 600

8.3 Changing of values

In order to change certain parameter, please do as follows:

- Move the cursor with the help of the arrow keys to the chosen position.
- Press the [+] resp. [-] button to change the (pre-) fixed values.
 As soon as a saved value is being changed it will start flashing.
- Press the enter button to save chosen values. The new value will be saved and the flashing will stop.

8.4 Operating modes

LINOP M 600 can either run in the operation mode "Auto" or "Cont" as follows:

8.4.1 Operating mode "Auto" ("automatic")

When operating the unit in this mode the dosing time is pre-defined. However, it can be changed. The dosing time can be operated manually or can be finished prematurely.

After switching on the system the display will show the current remaining dispense time and the hourglass in the upper part of the display starts flashing. Pressing the start button or the foot switch before the end of the dispense time, the programme is interrupted. The stored object time re-appears on the display.

After the regular dispense time has ended the fixed dispense time re-appears on the display and the device remains in the basic position.

8.4.2 Operating mode "Cont" ("continuous")

When operating in the cont mode the dosing time is not pre-fixed. The duration of the flow of adhesive is controlled by continually pressing the start button the footswitch or respectively a signal via the interface.

When the dosing time is started either by pressing the start button or the foot switch (keep them pressed!) or via the interface, the display continuously shows the elapsed time since start; the hourglass in the upper part of the display starts blinking.

Releasing the start button or the foot-switch or if the signal of the interface is absent, the dispense time finishes automatically. The display shows the elapsed dispensing time in seconds.

Pressing and holding the start button or the foot switch or placing a start signal for the interface AGAIN will start up the dosing time; the recording of the dispense time starts again with 0 seconds.

Note!

Important information:

Moving the cursors whilst they are flashing will restore the original value. Ensure that the chosen value is actually saved!



Attention!

Safety precaution for device:

Der Druckbehälter steht unter Druck, sobald das Gerät eingeschaltet ist!



Note!

Important information:

When operating the unit in the interface mode the dispense time can be started but not be interrupted!



8.5 Programme memory

The required configuration can be stored in one of the five memories by keeping the key pressed for some time. During the storing process the disk symbol flashes on the upper edge.

As soon as the storage process has been successfully finished, a short signal can be heard and the disk symbol disappears. The current programme is shown on the display [1st upper line, right-hand side; see chapter 7.2.1 "LINOP M 1500 resp. M 2000"]

To retrieve contents of the memory please press the relevant programme button for a short period only.

8.6 Supervision of output pressure

In case the achieved output pressure (for the pressure tank) is below 10% compared to the fixed value the following will occur:

The display shows the status "Pressure" [see chapter ...] and an acoustic warning signal can be heard twice.

As soon as the initial pressure reaches the determined values the signal "Pressure" will go out.

Parallel to the report "Pressure" on the display, the exit "Error" of the Interfaces (PIN 13) [see chapter ...] switches to the determined potential. The alarm relating to loss of pressure, can be passed on to the externally connected devices and informs the operator that there is insufficient air pressure to dispense the adhesive.

9 Faults / Malfunctioning

Before searching for faults of the device, please check all possible errors of connected peripherals and especially all connected leads.

Fault: The operating unit and the display are lit but the device cannot be started. **Repair:** Check the configuration of the sensor for the filling level [see chapter ...]

Fault: The sensor for the filling level does not function.

Repair: Check the configuration of the sensor for the filling level [see chapter ...]

Fault: Starting the unit via interface is not possible.

Repair: Check the connectors of the interface. Ensure a supply of 24V towards the unit as there has to be a galvanic separation between the LINOP

control unit and the external control [see chapter ...]

Fault: The "Error" alarm via the interface does not function

Repair: Check the connectors of the interface. Ensure a supply of 24V towards

the unit as there has to be a galvanic separation between the LINOP

control unit and the external control [see chapter $\ldots]$

Note!

Important information:

After the last alteration all determined values are stored automatically after approx 3 seconds in a further memory. If the device is switched off and on again, the last used values are saved.



LINOP M 600

10 Maintenance

The device is maintenance free.

11 Appendix

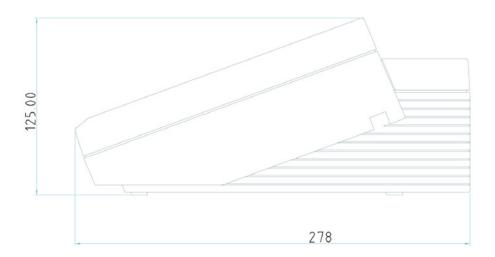
11.1 Technical data

Technical data LINOP M 600					
168 x 125 x 278 mm (without flexible	arm)				
Plastic ABS, UL classification: UL 94 HB					
RAL 9002 grey / white					
ca. 2,2 kg					
IP31					
24 Volt / DC					
max. 3 Ampere					
+10 °C to +50 °C					
−20 °C to +60 °C					
10 % to 90 %, not condensed					
max. 8 bar					
0,00 to 5,00 bar					
0,01 to 99,99 Sec. (in steps of 0,01 sec	:.)				
DC 24V In	Potential plug 2,0 mm inside				
Interface	D-Sub 15-pol. pin				
I/0 1 I/O 4	Binder Series 712 socket				
In max 8 bar	8 mm hose coupling				
Out PP	6 mm hose coupling				
Out Valve	6 mm hose coupling				
PE	6,3 mm plug				
	168 x 125 x 278 mm (without flexible Plastic ABS, UL classification: UL 94 HE RAL 9002 grey / white ca. 2,2 kg IP31 24 Volt / DC max. 3 Ampere +10 °C to +50 °C -20 °C to +60 °C 10 % to 90 %, not condensed max. 8 bar 0,00 to 5,00 bar 0,01 to 99,99 Sec. (in steps of 0,01 sec DC 24V In Interface I/0 1 I/O 4 In max 8 bar 0ut PP Out Valve				



11.2 Measurements

[All dimensions in mm]







12 LINOP Equipment

12.1 LINOP Cartridges



LINOP Cartridges

12.2 LINOP dosing tips for LINOP valves

white, transparent (Luer-Lock plastic)

coloured (Luer-Lock metal)



LINOP DT plastic dosing tips Luer Lock

LINOP DS metal dosing tips Luer Lock

- LINOP DT "0"
- **▼** LINOP DT "0,5"
- LINOP DT "1"
- LINOP DT "0" UV

- LINOP DS 1" 0,68 mm (brown) Ø 0,68 mm; length 1"
- **■** LINOP DS 0.5" 1,37 mm (orange) Ø 1,3 mm; length $\frac{1}{2}$ "
- LINOP DS 0.5" 0,58 mm (rose) Ø 0,58 mm; length ½"

12.3 LINOP FOT footswitch



■ The footswitch is equipped with a 3 pin plug / Item Number: 40100



LINOP M 600

13 LINOP Item Numbers

LINOP	Dosing and Curing Equipment	
LINUP	bosing and Curing Equipment	
its	LINOP M 600	10100
Dosing & Curing Units	LINOP M 1500	10200
ıring	LINOP M 2000	10300
3	LINOP U 400	10400
3 gr	power supply unit	10190
)osii	cord for power supply unit (EU standard)	10191
	flexible arm	10192
	valve plate (to hold valve M 1500 / M 2000 & Cyberlite)	10193
	syringe plate (to hold 30 ml syringe / M 600)	10194
lves	LINOP VCA Valve for CA	20100
VCA and VAN Valves	LINOP VAN Valve for AN	20200
X A	adaptana anado at flano lata tha contra	
and	adapters product flow into the valve	20104
Ş	product adapter (rectangular) AA 4/6	20194 20195
>	product adapter (rectangular) AA 4/6 (for UV) product adapter (rectangular) AA 6/8	20195
		20196
	product adapter (rectangular) AA 6/8 (for UV)	20197
	adapters product flow out of the valve	
	dosing tip adapter (Fine Thread (in) / Luer Lock (out)) 1/8	20150
	UV dosing tip adapter (Fine Thread (in) / Luer Lock (out)) 1/8	20151
	adapter as tube connector (Fine Thread (in)) 1/8-2,5 (for 2,5 mm tube)	20152
	adapter as tube connector (Fine Thread (in)) 1/8-4,0 (for 4 mm tube)	20154
	UV adapter as tube connector (Fine Thread (in)) 1/8-4,0 (for 4 mm tube)	20155
	adapter as tube connector (Fine Thread (in)) 1/8-6,0 (for 6 mm tube)	20156
	UV adapter as tube connector (Fine Thread (in)) 1/8-6,0 (for 6 mm tube)	20157
ves	EM 24 Valve with plug	30100
- Yal	EM 24 Valve without plug	30150
EM 24 Valves	EM 24 R Valve with plug	30200
	EM 24 R Valve without plug	30250
	adaptars and total floor into and out of the the color	
	adapters product flow into and out of the the valve adapter Fine Thread (in) / Luer Lock male (out) (former A1)	30190
	UV adapter Fine Thread (in) / Luer Lock male (out) (former A1)	30190
	ov adapter fille fillead (iii) / Eder Lock filale (out) (forfile) A4)	30131
Sa	electrical footswitch with plug (FOT)	40100
Impuls Devices	ciccincal rootswitch with plug (101)	40100
s De	Hand Pen	40200
Indu	Hand Pen electric	40300
드	adapter tube fixing hand pen for 2,5 mm tube	40392
	adapter tube fixing hand pen for 4,0 mm tube	40394
Iter	PP 505 Pressure Pot with air pressure nipple	50100
Druckbehälter	empty alarm with plug	50150
ıckb		
Dru	adapter for pressure pot lid / 1/4" for 2,5 product tube	50192
	adapter for pressure pot lid / 1/4" for 4 product tube	50194
	adapter for pressure pot lid / 1/4" for 6 product tube	50196
	adapter for pressure pot lid / 1/4" for 8 product tube	50198



LINOP M 600

tors	product tube PTFE, 2,5 mm outside (per meter)	60200
nec	adapter as tube connection / Luer Lock for 2,5 mm tube	60250
Ö	product tube PTFE, 4 mm outside (per meter)	60400
agr	adapter as tube connection / Luer Lock for 4 mm tube	60450
Tubes and Tube Connectors	UV product tube PTFE, 4 mm outside (per meter)	60401
s ar	UV adapter as tube connection / Luer Lock 4 mm tube	60451
npe	product tube PTFE, 6 mm outside (per meter)	60600
_	adapter tube connection / Luer Lock (former A2) for 6 mm tube	60650
	UV product tube PTFE, 6 mm outside (per meter)	60601
	UV adapter tube connection / Luer Lock for 6 mm tube	60651
	product tube PTFE, 8 mm outside (per meter)	60700
	UV product tube PTFE, 8 mm outside (per meter)	60701
	blue of surelification (or a surely)	50000
	blue air supplying tube (per meter)	60800
0	10 ml syringe black	70110
09	30 ml syringe black	70110
Z N	30 III Syringe black	70130
Syringes for M 600	piston 10 ml syringe UV	70111
ring	piston 30 ml syringe UV	70131
Ş	piston so nii synnige ov	70151
	closure cap for 10 and 30 ml syringes)	70141
	Adapter for air supply to syringe 10 ml	70115
	Adapter for air supply to syringe 30 ml	70135
	1 11,7 , 3	
	Reducer from 30 to 10 ml syringe	70200
tes	electrical cord 0,46 m (with rectangular connector)	80190
Cyberlites	electrical cord 2,00 m (with straight connectors)	80192
Š		
	Cyberlite4 S	80200
	lens Block Cyberlite4 S	80250
	Splitter	80300
	liquide fibre light guide	80400
	block keeping light guide	80450
	Cyberflood 400 S	80600
10		
Dosing Tips	Dosing Tips plastic (only DT 1 with Luer Lock)	DT 0#
sing	10 pieces	DT "0"
Dos	10 pieces	DT "0,5"
	10 pieces	DT "1"
	10 pieces	DT "0" UV
	Dsing Tips metal, LL	
	10 pieces DS 1,0" - 0,68 brown	DS 1,0"- 0,68
	10 pieces DS 1,0 - 0,68 brown 10 pieces DS 0,5" - 1,37 orange	DS 1,0 - 0,68 DS 0,5"- 1,37
	10 pieces DS 0,5" - 0,58 rose	DS 0,5 - 1,57 DS 0,5"- 0,58
	10 pieces D3 0,3 - 0,30 105e	8כ,ט - כ,ט נע



LINOP M 600

Cyberbond L.L.C.

401 North Raddant Road Batavia, IL 60510,

USA

phone: +1 / 630 / 761 – 89 00 fax: +1 / 630 / 761 – 89 89 e-mail: sales@cyberbond1.com

Cyberbond Europe GmbH

Werner-von-Siemens-Str. 2 31515 Wunstorf

Germany

phone: +49 / 5031 / 95 66 – 0 fax: +49 / 5031 / 95 66 – 26 e-mail: info@cyberbond.de

Cyberbond CS s.r.o.

Czech Republic & Slovakia ul. Generála Svobody 49/15 460 01 Liberec – Nové Pavlovice

Czech Republic

phone: +420 481 022 377 fax: +420 481 022 318 e-mail: info@cyberbond.cz

Cyberbond France Sàrl

15 A grand Rue 57282 Hauconcourt

France

phone: +33 / 3 / 87.61.76.90 fax: +33 / 3 / 87.61.77.96

e-mail: info@cyberbond-france.com

Cyberbond Iberica S.L.

Rambla Catalunya, 49, Pral 2 a 08007 Barcelona

Spain

phone: +34 (93) 452 16 14 fax: +34 (93) 452 16 15 e-mail: info@cyberbond.eu

Cyberbond UK Ltd

The Space Centre
Cardiff Road – Barry – CF63 2BG

United Kingdom

phone: +44 / 29 20 / 59 58 18 fax: +44 / 29 20 / 59 13 37 e-mail: info@cyberbond.uk.com

Imprint

Operating Instructions LINOP M 600

Responsible for Content
Ulrich Lipper and Dieter Rademacher

English Translation Gerry W. Lamb

Photos

Marian Schramm and Dieter Rademacher

Design and Production KONTOR3 Werbeagentur

Editor

Cyberbond Europe GmbH Werner-von-Siemens-Str. 2 31515 Wunstorf, Germany phone: +49 / 5031 / 95 66 – 0 fax: +49 / 5031 / 95 66 – 26 info@cyberbond.de www.cyberbond.eu

Copyright © 2013, 1. Edition Instruction date: May 2013 Version of software: R016

Exclusion of Liability

Cyberbond guarantees that LINOP Dispensing and Curing Equipment is fully operational when handled in an appropriate way and Cyberbond products are used. Nevertheless we refer to the Operation Instructions of each item, which can be downloaded from our Website (www.cyberbond.de).

In case of using other than Cyberbond goods for dispensing, cleaning or curing Cyberbond should be contacted beforehand, if this is suitable.

In case of installing LINOP equipment in a bigger production unit, Cyberbond can neither take any reliability for the functionality of the whole construction nor for the suitability of the LINOP equipment within this unit.

We recommend discussing all matters concerning LINOP equipment intensively with Cyberbond beforehand, in order to prove the suitability in each single case. Such a counselling interview should also be recorded in writing. If all this does not take place Cyberbond cannot take over any guaranty for functionality at all.

Cyberbond is working with price lists. These prices refer to the equipment alone. In case you wish support for the initial start-up or more advice after delivery, prices for this additional work have to be negotiated.

All given information, the data mentioned in this reference book, as well as particularly the recommendations for using LINOP equipment are based on our recent knowledge and experience. Due to the fact that the application possibilities are manifold and that the general working conditions are out of our influence, we strongly recommend doing sufficient tests in order to guarantee that LINOP equipment is suitable for the intended process. Except for wilful acts any liability based on such recommendations or any verbal advice is hereby expressly excluded.

Wunstorf, 30.05.2013

Ulrich Lipper Dieter Rademacher Managing Director Technical Director

All rights reserved. No element of this book is allowed to be reproduced without prior permission of Cyberbond.

