Columns with round profiles system (DL8, DL9, DL10, DL11 and DB9)
Preface

We are delighted that you have chosen a product from LINAK A/S. LINAK systems are high-tech products based on many years of experience in the manufacture and development of actuators, electric control boxes, controls, and chargers.

We are also constantly improving our products to meet customer requirements.

This User Manual will tell you how to install, use and maintain your LINAK DESKLINE® products.

We are sure that the DESKLINE® products will give you many years of problem-free operation. Before our products leave the factory they undergo full function and quality testing. Should you nevertheless experience problems with your systems, you are always welcome to contact our service departments or service centres.

LINAK subsidiaries and distributors all over the world have authorised service centres, which are always ready to help you.

LINAK provides a warranty on all its products. This warranty, however, is subject to correct use in accordance with the specifications, maintenance being done correctly and any repairs being carried out at a service centre, which is authorised to repair LINAK products.

Changes in installation and use of LINAK systems can affect their operation and durability. Changes must therefore only be made by agreement with LINAK A/S and are made at your own risk.

LINAK A/S
Important information

Important information on LINAK® products can be found under the following headings:

⚠️ **Warning!**

Failure to comply with these instructions may result in accidents involving serious personal injury.

⚠️ Failing to follow these instructions can result in the product being damaged or being destroyed.

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**Safety instruction ⚠️**

**General**

Safe use of the system is possible only when the operating instructions are read completely and the instructions contained are strictly observed.

Failure to comply with instructions marked with the “NOTE” symbol may result in serious damage to the system or one of its components.

⚠️ It is important for everyone who is to connect, install, or use the systems to have the necessary information and access to this User Manual. Follow the instructions for mounting – risk of injury if these instructions are not followed.

⚠️ The appliance is not intended for use by young children or infirm persons without supervision.

⚠️ If there is visible damage on the product it must not be installed.

⚠️ Note that during construction of applications, in which the actuator is to be fitted, there must be no possibility of personal injury, for example the squeezing of fingers or arms.

⚠️ Assure free space for movement of application in both directions to avoid blockade.
Before installation, re-installation, or troubleshooting
• Stop the DL8/DL9/DB9/DL10/DL11
• Switch off the power supply and pull out the mains plug.
• Relieve the DL8/DL9/DB9/DL10/DL11 of any loads, which may be released during the work.

Before start-up:
• Make sure that the system has been installed as instructed in this User Manual.
• Make sure that the voltage of the control box is correct before the system is connected to the mains.
• System connection. The individual parts must be connected before the control box is connected to the mains. See the User Manual for LINAK actuators, if necessary.

During operation:
• If the control box makes unusual noises or smells, switch off the mains voltage immediately.
• Ensure that the cables are not damaged.
• Unplug the mains cable on mobile equipment before it is moved.

Misc.
The actuator system has a sound level below 55dB(A) in typical applications.

Updated manuals and declarations can always be found here: www.linak.com/deskline
Only for EU markets

⚠️ This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

⚠️ Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Only for Non EU markets

⚠️ Persons who do not have the necessary experience or knowledge of the product/products must not use the product/products. Besides, persons with reduced physical, sensory or mental abilities must not use the product/products, unless they are under surveillance or they have been thoroughly instructed in the use of the apparatus by a person who is responsible for the safety of these persons.

Moreover, children must be under surveillance to ensure that they do not play with the product.

⚠️ It is the operator’s responsibility to ensure that there is free space for the application to move without risk for the operator or bystanders before operating the application.

Misuse

⚠️ Do not overload the actuators – this can cause danger of personal injury and damage to the system.

⚠️ Do not use the actuator system for lifting persons. Do not sit or stand on a table while operating – risk of personal injury.

⚠️ Do not use the system in environments other than the intended indoor use.
Repairs
In order to avoid the risk of malfunction, all DESKLINE® repairs must only be carried out by authorised LINAK workshops or repairers, as special tools must be used and special gaskets must be fitted. Lifting units under warranty must also be returned to authorised LINAK workshops.

⚠️ Warning!
If any of the DESKLINE® products are opened, there will be a risk of subsequent malfunction.

⚠️ Warning!
The DESKLINE® systems do not withstand cutting oil.

DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

LINAK A/S
Smedevænget 8
DK - 6430 Nordborg

Name and address of the person authorized to compile the relevant technical documentation:
John Kling, Group Headquarters, Guderup, DK-6430 Nordborg, email jk@linak.com

Herewith declares that LINAK Actuators and Actuator Systems comply with the following parts of the Machinery Directive 2006/42/EC, ANNEX I. Essential health and safety requirements relating to the design and construction of machinery:
1.5.1 Electricity supply: Directive 2006/95/EC on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.

The relevant technical documentation is compiled in accordance with part B of Annex VII and that this documentation or part thereof will be transmitted by post or electronically to a reasoned request by the national authorities.

This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this Directive, where appropriate.

Date: 2010-01-01
Signature:

John Kling
Certification and Regulatory Affairs
Misc. on the DESKLINE® DL8/DL9/DL10/DL11 system

Warranty
There is a 36 months’ warranty on the DESKLINE products against manufacturing faults from the production date of the individual products (see label).
LINAK A/S’ warranty is only valid in so far as the equipment has been used and maintained correctly and has not been tampered with. Furthermore, the system must not be exposed to violent treatment. In the event of this, the warranty will be ineffective/invalid. For further details, please see LINAK A/S ordinary conditions of sale.

Maintenance
Clean dust and dirt on the outside of the system at appropriate intervals and inspect them for damage and breaks.
Inspect the connections, cables, and plugs and check for correct functioning as well as fixing points.

Service of double-insulated products:

Class II

A Class II or double insulated electrical appliance is one which has been designed in such a way that it does not require a safety connection to electrical earth (US: ground).
The basic requirement is that no single failure can result in dangerous voltage becoming exposed so that it might cause an electric shock and that this is achieved without relying on an earthed metal casing. This is usually achieved at least in part by having two layers of insulating material surrounding live parts or by using reinforced insulation.
There is no earthing/grounding means provided on the product, and no earthing/grounding means is to be added to the product.
In Europe, a double insulated appliance must be labelled “Class II”, “double insulated” or bear the double insulation symbol (a square inside another square).
Servicing a double-insulated product requires extreme care and knowledge of the system, and is to be done only by qualified service personnel. Replacement parts for a double-insulated product must be identical to the parts they replace.

The cleaners and disinfectants must not be highly alkaline or acidic (pH value 6-8).
Description of the DESKLINE® system

Each DESKLINE® actuator/column is equipped with a motor and parallel/memory drive is ensured by means of software in the CBD4/CBD5/CBD6 that also takes account of an uneven load on the desk. Soft start and stop are also part of this software, which ensures a soft start and stop when adjusting the desk.

Application of the DESKLINE® system:
Irrespective of the load the duty cycle 10% ~ 6 min./ hour or max. 2 min. at continuous use stated in the data sheets, must NOT be exceeded as this will result in an overheating of the motor and control box. Exceeding the duty cycle will result in a dramatic reduction of the life of the system.

The system range contains the following products:
- 1 control box CBD4/CBD5/CBD6
- DL8, DL9, DB9, DL10 or DL11 (1 - 3 (4))
- 1 exchangeable mains cable
- motor cables (1 - 3 (4))
- 1 DP1U/DPF1M (if memory function is required) DP1C/WDPL/DPT/DPF1C (if memory function and display is required) or 1 DPA/DPB/DP1K/DP1V/DPFK/DPF1K (if only up/down is required.)
Mounting guidelines for the DL8/DL9/DL10/DL11 system

The motor housing is supplied with 6 M6 threaded holes meant for mounting onto the desk frame. We advise you to fasten the desk frame by means of 6 pcs. M6 screws of a good quality (min. 8.8) and a suitable length, which must not go further into the motor housing than max. 10 mm. The thrust moment must not exceed 7.5 Nm.

![Figure 1](image1.png)
*Use all 6 M6 threaded mounting holes for screws*

![Figure 2](image2.png)
*DL9/DL11 motor housing: be aware of the screw length.*

It is recommended to use all six M6 threaded holes to mount the desk frame. The values of the bending moments of the lifting units are only valid if the desk frame is mounted in this way. Tests with fixing the motor housing only by means of the 4 threaded holes have proved that this is not enough to obtain a sufficient torsional stability of the desk.

The column may not be twisted. If the column is twisting / rotated it may cause a failure. The maximum moment that the column can adapt in the rotation direction is 200 Nm.
**Mounting guidelines for the DL8 and DL9 (foot part)**

The DL8/DL9 is supplied with 4 M6 threaded holes for the mounting of the foot. We advise you to fasten the foot by means of 4 pcs. M6 screws of a good quality (min. 8.8) and of a suitable length, which must not go further into the DL8/DL9 column than 20 mm. The thrust moment must not exceed 10 Nm in the bottom plate thread. The 4 holes in the bottom of the DL8/DL9 are placed on a Ø 42 mm diameter circle.

The holes in the foot must be sufficiently larger than Ø 6 so that it is possible to bring the foot to a level line at assembly/mounting.

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**Mounting guidelines for the DL10 and DL11 (foot part)**

The DL10/DL11 is supplied with 4 M6 threaded holes for the mounting of the foot. We advise you to fasten the foot by means of 4 pcs. M6 screws of a good quality (min. 8.8) and of a suitable length, which must not go further into the DL10/DL11 column than 20 mm. The thrust moment must not exceed 10 Nm in the bottom plate thread. The 4 holes in the bottom of the DL10/DL11 are placed on a Ø 46 mm diameter circle.
Mounting guidelines for the DB9

For detailed information on how to mount the DB9, please contact LINAK.

⚠️ The DB9 must not be activated when it is not mounted in guidance due to the risk of squeezing.

Mounting of the desk (misc.)

As the desktop amplifies the sound, we advise you to place a vibration/shock absorbing material between the desktop and the desk frame.

With a desktop thickness of 25 mm, it is necessary for the lowest edge of the lifting unit to be mounted max. 15 mm above floor level to obtain a desk height of only 600 mm in the lowest position. If e.g. 2 mm vibration absorbing material is placed between the desktop and the desk frame the lifting unit must be mounted max. 13 mm above floor level.
LINAK recommends that the DESKLINE® DL8/DL9/DL10/DL11 system should only be used in push applications with the motor housing uppermost.

Placement of a monitor directly above the motor housing may cause malfunction of the monitor. Magnets inside the motor may interrupt the picture on the monitor depending on the distance and type of monitor. If this is the case, the problem may be solved by placing an iron plate/tube or another magnetic material, somewhat larger than the motor housing, between the motor and the tabletop.

The mounting screws on the DP, DPA or DPB must be fastened with a max. torque of 1 Nm.
Mounting guidelines CBD4/CBD5/CBD6

The control box is to be fastened with 4 screws (3 screws for CBD5 and CBD6) with a head diameter between ø 8 and ø 10 mm. Out of regard for the tension surface ø 10 mm is preferable due to lower surface tension. See drawing appendix for placing of mounting holes and the space the CBD takes up.

CBD4 - Control box  CBD5 - Control box  CBD6 - Control box

The CBD must not be packed in heat insulating material, but must be placed so that it can emit waste heat into the surroundings. There are no ventilation holes to consider, the CBD emits heat through the surface. The plug must be visible when the CBD is mounted so that the supply to the CBD can be disconnected at replacement, if any.

The mounting screws on the control box must be fastened with a max. torque of 1 Nm.
The mounting surface to which the control box is attached should have a surface evenness of better than ± 0.5 mm.

CBD6 - bottom with cable grooves
The bottom of CBD6 is equipped with two cable grooves improving the cable management when mounting. The grooves can be used to bypass the CBD for both motorcables and the mains cable (EU version only) from one side to the other, giving a cleaner design.

Remember to lead the cables through the grooves before mounting the control box.

For mounting and operation of the desk panel, please see the separate user manual for desk panels.
Electrical connection of the DL8/DL9/DB9/DL10/DL11 system

The systems is to be connected as shown on figure 7. Each DL8/DL9/DB9/DL10/DL11 is to be connected to the sockets on the control box by means of the motor cables, which have a 6-pin plug in each end.

Finally the mains cable is to be mounted and power switched on. Please note that the control box must only be connected to the voltage stated on the label.

CBD4/CBD5/CBD6 with earth
The CBD4/CBD5/CBD6 earth cable to be mounted on the desk construction (typically the top frame) in a way that ensures good electrical contact. The function of the earth cable is to earth the desk and ground static electricity. The earth connection does not protect other electrical products.

CBD4/CBD5 with mains cut-off (non ZERO models)
If the power cable is damaged it has to be replaced by an authorized LINAK service centre to avoid any danger.

Figure 7
Initialisation of the DESKLINE DL8/DL9/DB9/DL10/DL11 parallel system

Press the down button and the legs/actuators run down to the “buffer” causing cut-off due to excess current. Hereafter they run approx. 3 mm (from software version 1.66, previously 5 mm) upwards and thereby free of the “buffer”. When the movement stops, the system is initialised. During the entire initialisation procedure, the down button must be pressed down.

⚠️ If the button is released before the sequence is completed then the initialisation is interrupted and must be started again from the beginning.

It is sometimes necessary to press the down button twice to start the initialisation. This is because the system can be in different modes when the initialisation starts. There will be a 1.25 sec. delay. If an error situation occurs at the end stop positions or the DL8/DL9/DB9/DL10/DL11 are changed to another stroke length, then the CBD4/CBD5/CBD6 has to be initialised again.

The first two times the system runs into the outward end stop, it will automatically run approx. 3 mm back in inward direction.

The CBD5 and CBD6 can control the DL8/DL9/DB9/DL10/DL11 in 2 parallel while the CBD4 can control in 2, 3, and 4 parallel so that the desk is always kept horizontal.
Anti-Collision™
The function anti-collision is a new option for the standard CBD4/CBD5/CBD6 advanced control box. A system with anti-collision can limit material damages to a desk if a collision with a solid object should occur. Anti-collision is working for DL9. The other DL types require a configuration of the control box.

Enabling the anti-collision
To enable the anti-collision function a little plug called a dongle must be mounted in one of the 2 control ports. The function is only active when the dongle is mounted. – If you remove the dongle again you disable the function.

Method of operation
When the DL’s are running the CBD4/CBD5/CBD6 monitors the current consumption on each channel use a special algorithm. If the current consumption on one channel is increased more than a predefined value a collision is assumed and all channels are stopped immediately and all DL’s will start to run in the opposite direction (approx. 50 mm). This return drive is done automatically and continues with or without any control button pressed (for max. 2.5 sec.).

The anti-collision sensitivity is different in up and downward direction. Upwards the force is approx. 20 kg. Downwards the load will be approx. 40 kg + the load on the DL (the desk + what is on top of the desk). The 40 kg are needed to activate the anti-collision function.

Situations where the anti-collision does not work
There are situations where the anti-collision will not be activated. These situations are:

- If the collision happens during the initialisation phase
- If the collision happens within the first 1000 m sec or after the control button has been released
- If the collision happens between the floor and the table and the load on the desk + the weight of the legs is lower than 40 kg.
- If the collision time span is too long time, e.g. if the collision is with a soft object
DL11 with PIEZOTM: description of the feature

For optimised safety against squeezing and blocking on a desk, LINAK has developed a DL11 columns with integrated sensor, called PIEZO. The new option minimises the risk for damages on a desk caused by squeezing or blocking of obstacles in up and down direction. Examples could be driving down into an office chair or into a container or up into a windowsill. To a certain extent, the system also increases the personal safety, but it does not comply with legislation describing personal safety.

PIEZO allows the DL11 columns to have the standard built-in dimension and the standard stroke length. There are no visible changes to the column.

Do not use the DL11 with PIEZO in combination with a crossbar or a foot construction where you place the column in a tube welded on the foot.

Examples where PIEZO avoids squeezing situations.
Disposal of LINAK’s products

As LINAK’s customers often ask us how our products can be disposed of or scrapped we have prepared this guidance that enables a classification to different waste fractions for recycling or combustion.

Guidance

We recommend that our products be disassembled as much as possible and divided into different waste groups for recycling or combustion.

For example, waste can be sorted into metals, plastics, cable scrap, combustible material, and recoverable resources.

Some of these main groups can be further divided into subgroups; e.g. metal can be divided into steel/aluminium/copper and plastic can be divided into ABS/PA/PE/PP.

As an example, the table below breaks down the different components in LINAK products to various recycling groups:

<table>
<thead>
<tr>
<th>Product</th>
<th>Components</th>
<th>Recycling group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columns/Actuator</td>
<td>Spindle and motor</td>
<td>Scrap</td>
</tr>
<tr>
<td></td>
<td>Plastic housing</td>
<td>Plastic recycling or combustion</td>
</tr>
<tr>
<td></td>
<td>Cable</td>
<td>Cable scrap or combustion</td>
</tr>
<tr>
<td></td>
<td>PCB boards</td>
<td>Electronics scrap</td>
</tr>
<tr>
<td>Control Box</td>
<td>PCB boards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic housing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transformer</td>
<td></td>
</tr>
<tr>
<td>Handset/Control</td>
<td>Plastic housing</td>
<td>Plastic recycling or combustion</td>
</tr>
<tr>
<td></td>
<td>Cable</td>
<td>Cable scrap or combustion</td>
</tr>
<tr>
<td></td>
<td>PCB board</td>
<td>Electronics scrap</td>
</tr>
</tbody>
</table>

By now almost all our casted plastic parts are supplied with an interior code for plastic type and fibre contents, if any.

Main groups of disposal

<table>
<thead>
<tr>
<th>Product main groups</th>
<th>Metal scrap</th>
<th>Cable scrap</th>
<th>Electronics scrap</th>
<th>Plastic recycling or combustion</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBX</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>DLX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD4/CBD5/CBD6</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>DPXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WDPL</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

Disposal of batteries

Details regarding safe disposal of used and leaking batteries:

Batteries should be disposed in accordance with appropriate federal, state and local regulations. LINAK recommends that used or leaking batteries are disposed through local recycling system. Please do not throw used or leaking batteries in normal household waste or in nature. This will cause damage to the environment.

How to deal with leaking batteries.

Leaking batteries should be disposed as described above.

If leaking batteries are discovered in the product the batteries must be removed at once to minimise damage to the product. If leaking batteries are left in the product it might become defect.

It is recommended to use plastic gloves when handling leaking batteries. The contents of a leaking batteries can cause chemical burns and respiratory irritation.

If exposed to the contents of a leaking battery, please wash with soap and water. If irritation persists, please seek medical attention. In case of eye contact, please flush eyes thoroughly with water for 15 minutes and seek medical attention."

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Labels for DL8 and DL9

Labels for DL10 and DL11

Labels for DB9
DESKLINE® Columns with round profiles system:

DL8

DL9

LINAK A/S
DL9001
DECLARATION OF CONFORMITY

LINAK A/S
Smedevænge 8
DK - 6430 Nordborg

hereby declares that LINAK Actuator System composed of:

Control Box(s) CBD4, CBD5, CBD6

And

Linear Actuator(s) 31xxxxx-xxxx-50S, DB4, DB5, DB6, DB7, DB9, DB14, DB16 and/or
Lifting Column(s) DL1A, DL2, DL4, DL5, DL6, DL7, DL8, DL9, DL10, DL11, DL14, DL15, DL16

And

Desk Panel(s) DP1C, DP1K, OPT, DHB, DPf, DP8K, DP1L, DP1V, CPA, DPH, W10, and/or
Handset(s) HB2xxF2+00003

complies with the EMC Directive 2004/108/EC according to following standards:

and complies with Low Voltage Directive 2006/95/EC according to the standard:

and complies with Machinery Directive 2006/42/EC according to the standard:
EN 13849-1:2006 SRP/CS Cat. B, PL = b and SRESW PL = b

And

Controls: RF-transmitter: HB1XRFFXXX and/or
RF-transmitter: HB2XRFFXXX and/or
RF-receiver: RFR

complies with the Radio equipment and Telecommunications terminal equipment Directive 1999/5/EC:
EN 300220-2:2006, EN 61000-6-1:2007, EN 61000-6-3:2007,

Nordborg, 2011-05-25

[Signature]

LINAK A/S
John Kling, B.Sc.E.E.
Certification and Regulatory Affairs
Authorized to compile the relevant technical documentation
LINAK APPLICATION POLICY

The purpose of the application policy is to define areas of responsibilities in relation to applying a LINAK product defined as hardware, software, technical advice, etc. related to an existing or new customer application.

LINAK products as defined above are applicable for a wide range of applications within the Medical, Furniture, Desk and Industry areas. Yet, LINAK cannot know all the conditions under which LINAK products will be installed, used, and operated, as each individual application is unique.

The suitability and functionality of the LINAK product and its performance under varying conditions (application, vibration, load, humidity, temperature, frequency, etc.) can only be verified by testing, and shall ultimately be the responsibility of the LINAK customer using any LINAK product.

LINAK shall be responsible solely that the LINAK products comply with the specifications set out by LINAK and it shall be the responsibility of the LINAK customer to ensure that the specific LINAK product can be used for the application in question.