DEWERT OKIN

A Phoenix Mecano Company

DUOMAT 11

Installation Instructions

(Translation of the original installation instructions)

Foreword

Document revision history

Version	Date	Modification, change
(-)	12/11	First release
(a)	07/12	Second edition
(b)	12/12	RoHS, Safety Instructions, Toggle

Disclaimer and Exclusion of Liability

DewertOkin is not responsible for damage resulting from:

- failure to observe these instructions,
- changes made to this product which have not been approved by DewertOkin, or
- the use of replacement parts which have not been approved or manufactured by DewertOkin.

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Creation of a complete operating instruction manual for the entire end product

These instructions are only intended to be used by the end-product manufacturer. They should not be given to the operator of the end product. The factual information contained within may be used as a basis when creating the end-product manual.

The warning and danger notices are best suited for use in the end product's manual. However it is not sufficient to simply follow these notices. You should also carry out an internal risk assessment for your end product. This can then be used as the basis for the safety notices in your manual.

These installation instructions do not contain all information required to safely operate the end product. They only describe the installation and operation of the drive as partially completed machinery.

The instructions are intended for the technicians responsible for manufacturing an end product and not for the operators of the end product.

Notice for customers in EU nations

German Inspection Authority (TÜV) testing label

The construction of the DUOMAT 11 has been inspected by the German Inspection Authority (TÜV). The TÜV also monitors the production of the DUOMAT 11. The official German TÜV label certifies this construction inspection and production monitoring.

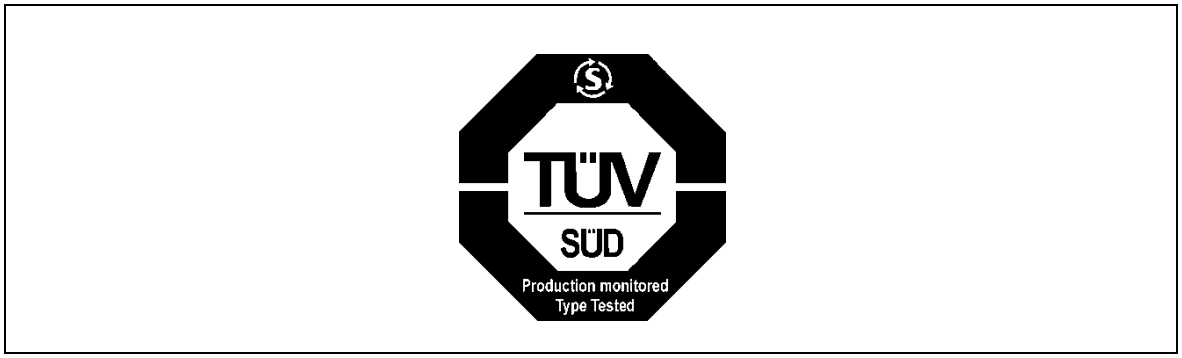


Figure 1 The TÜV label

Table of Contents

1. General information

1.1 Configurations

The DUOMAT 11 double drive is run in several different configurations. The "Possible combinations" chapter includes information about the different device combinations available.

1.2 About these installation instructions

These installation instructions must be followed closely in order to install this drive successfully and safely in the end product. These instructions are not an operating manual for the end product.

These instructions will help you to minimize danger, repair costs and down times. They will also help you to maximize the reliability and lifespan of the end product.

CAUTION

The notices in these instructions must be followed! Following the guidelines during installation and connection procedures will help to minimize:

- the risk of accident and injury, and
- damage to the drive system or the end product.

These installation instructions have been written with due care and attention. However, we cannot guarantee that the data, images and drawings are complete and correct nor do we accept any liability for the information contained therein, unless required by law.

▶ We reserve the right to make unannounced technical changes in the course of our continual product improvement process!

1.3 Availability of this document

As manufacturer of the end product, you are obligated to comply with Machinery Directive 2006/42/EC. This directive stipulates that the installation instructions must be kept on file for governmental inspection purposes.

1.4 Conventions used

Notices which do not relate to safety are indicated in these instructions with a triangle:

▶ Triangular notice symbol

Safety notice explanations

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Warning of a dangerous situation, possible consequences: death or serious injury.

CAUTION

Warning of a dangerous situation, possible consequences: light or minor injuries.

NOTICE

Notice about a harmful situation, possible consequences: the product itself or surrounding objects could be damaged.

2. Safety Instructions

2.1 Proper and Intended Usage

The DUOMAT 11 drive is meant to be installed in beds.

- It provides motor adjustment capabilities for movable reclining bed parts. It should be used in conjunction with suitable fittings and mechanics:
- It can be used for care purposes (CARE).
- It can be used in a hospital (HOSP).

CAUTION

This drive should only be used for the applications described above. Any other form of usage is not permitted and can lead to accidents or destruction of the unit. Such non-approved applications will lead immediately to the expiration of all guarantee and warranty claims on the part of the end-product manufacturer against the manufacturer.

Improper usage

Be sure to follow the notices below concerning improper usage. You should include them in your product manual in order to inform the users of your end product.

WARNING

The DUOMAT 11 drive should not be used:

- in any environment where combustible or explosive gases or vapours (e.g., anaesthesiology) may be present,
- in a moist environment,
- outdoors,
- in any application that will be cleaned with an automated washing system,
- for raising and lowering loads in industrial applications.

CAUTION

The DUOMAT 11 drive may not be operated:

- by small children,
- by frail or infirm persons without supervision, or
- in the proximity of small children.

CAUTION

You should only use spare parts which have been manufactured or approved by DewertOkin. Only these parts will guarantee a sufficient level of safety.

Optional: battery-operated reset function

	**CAUTION**
	The battery-operated reset function is not a safety system and does not avert danger.

DewertOkin does not guarantee that the drive will function in the event of a power outage.

If the end-product manufacturer chooses to guarantee the functionality of the end product during a power outage, then the end-product manufacturer is responsible for arranging a mechanism to ensure this functionality.

Using the drive systems in medical applications

This DewertOkin product is in compliance with the safety requirements found in IEC 60601-1.

We strongly recommend that the end product (including all its components) which you are manufacturing for a medical application should also be in compliance with the safety requirements found in IEC 60601-1.

You should make sure that the mechanical movement of the motor in your end product poses no risk of injury. Conduct a risk analysis for the end product for this purpose. You should also include safety notices in the instructions for the end product and technical safeguards in your product to eliminate any risk.

2.2 Safety notices within the installation instruction and the operating instructions for the entire machine

The manufacturer of the end product is only permitted to operate the DUOMAT 11 drive (by itself an incomplete machine)

- when the end product (for which the DUOMAT 11 drive is intended) is in compliance with all protective measures specified in the Machinery Directive 2006/42/EC, and
- when the manufacturer expressly declares the compliance of the end product.

The manufacturer of the end product must create a manual for the users of that product. The safety notices in the end-product manual must be written based on the end product's risk assessment.

2.3 Selection and qualification of personnel

This drive should only be installed into the end product by someone who has completed training in electronic motor assembly or has equivalent qualifications.

You should only install this drive when you are qualified to do so. Otherwise, a properly qualified person should be found for this task.

2.4 Notice on safety during operations

Basic safety rules must be followed in order to ensure that the end product can be continually operated in a safe manner. These rules must be observed while using the end product and while installing the drive.

These rules and safety measures can be categorized as follows:

- Construction measures before the installation (refer to the "Ensuring operational reliability during installation" section in the "Assembly" Chapter).
- Safety fundamentals during the drive installation and during cable and wire routing (refer to the "Safety notices to observe during installation" section in the "Assembly" chapter).
- Using the drive in intermittent duty (refer to the "General information" section in the "Operating notes" Chapter).
- Basic safety rules during operation (refer to the "Operating notes" Chapter).
- The creation of a manual for the end product which contains these and other safety rules.

Creating a user's manual

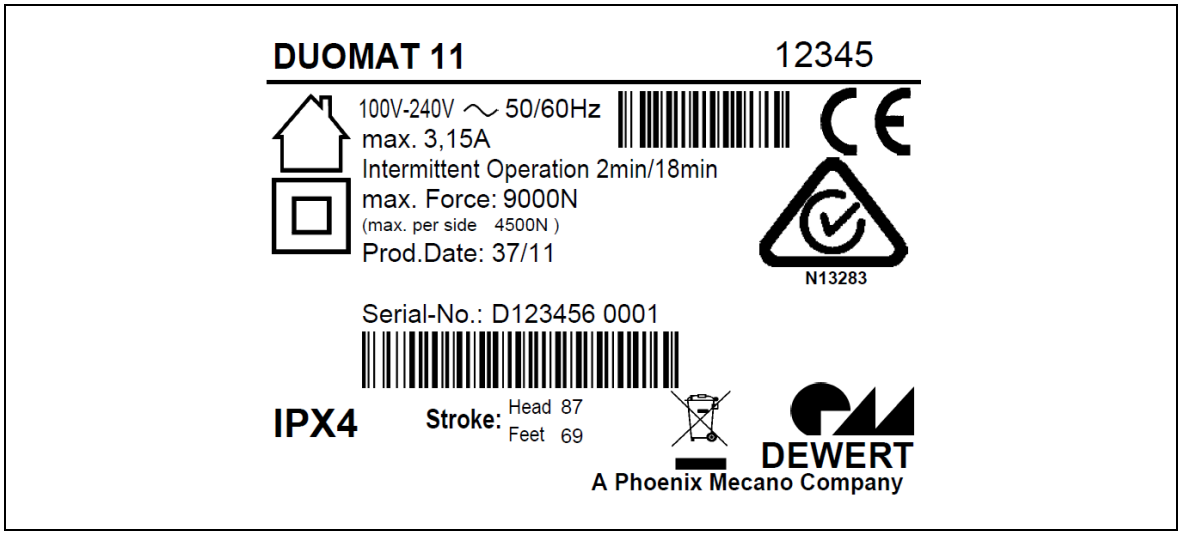
The manufacturer of the end product must create a manual for the users of that product. The safety notices in the end-product manual must be written based on the end product's risk assessment.

2.5 Product identification

2.5.1 Type plate

A ratings plate on each drive specifies the exact name and serial number of the drive. It also states the technical specifications valid for that particular drive. In particular, you will find the maximum pull force and the maximum push force here. The following illustration shows where the specifications are located on the drive's ratings plate.

▶ The ratings plate shown is an example; the specifications for your drive may differ from this illustration.



▶ Figure 2 Ratings plate example

DUOMAT 11	Article type designation
12345	Article No:
100V-240V ~	Input voltage
50/60Hz	Frequency
max. 3.15A	Rating of fuse
Intermittent Operation 2 min/18 min	Intermittent operations: 2 minutes / 18 minutes
Max. force	Push force
Prod.date	Calendar week / year
Serial No.	Serial number for your drive
	Use in dry rooms only!
	Protection class II
IPX4	Protection degree
Stroke	Stroke (head / foot)

	Follow all special disposal instructions!
	Conformity mark

3. Possible combinations

The DUOMAT 11 double drive can be combined for use with other single or double drives. The following basic combinations are possible:

- a DUOMAT 11 with a handset,
- a DUOMAT 11 as the main drive and a single drive used as a slave drive with a handset,
- a DUOMAT 11 as the main drive and two single drives used as a slave drives with a handset,

Systems can be customized by combining drives with the handset and control units as needed. The system components must be connected in a specific order.

DewertOkin has separate system instruction manuals containing all information and instructions needed for these systems.

▶ Only a DewertOkin device should be used to control the drive since they have already been verified to work together.

4. Device description

The DUOMAT 11 drive is an electrically driven motor that is responsible for moving the end product in a linear direction. The head and foot sections of a bed can be adjusted depending on the drive options. The drive is controlled by means of a handset.

The different drive models vary according to the:

- motor power,
- number of motors,
- in the options - fixed power supply cord and pluggable power supply cord
- model with optional reset function,

▶ We reserve the right to make unannounced technical changes in the course of our continual product improvement process!

▶ The "Possible combinations" Chapter describes the different possible combinations of drives and handsets/hand-held remote controls. You can also ask your supplier or dealer for additional information.

4.1 Components

The main components of the DUOMAT 11 drive are the motor and the adjustment motion mechanism. This mechanism is housed under the shutters. The shutters must be opened in order to mount the drive to the end product. The brackets fastened to the end product are then inserted into these openings.

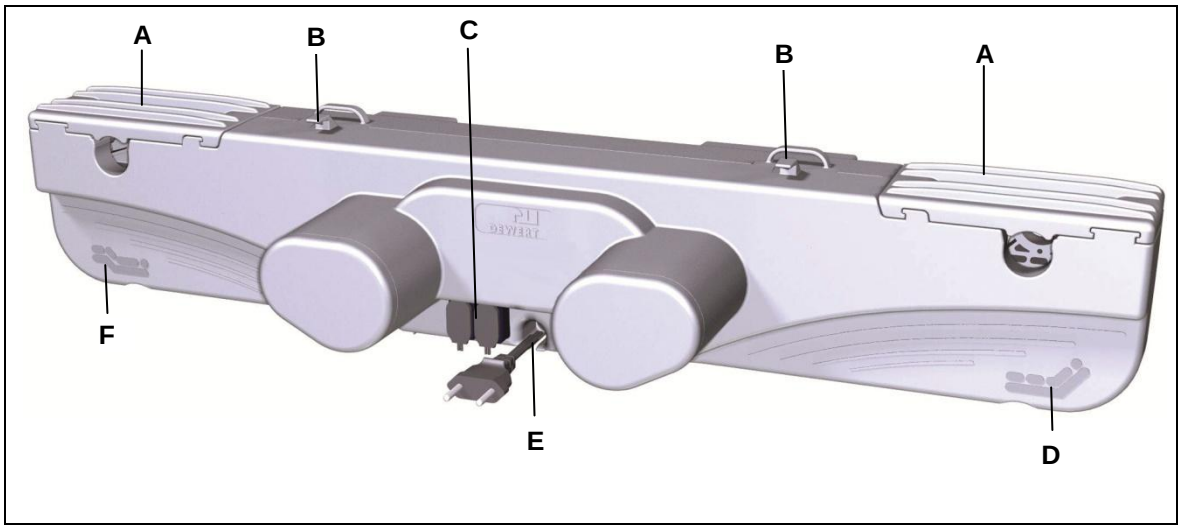


Figure 3 Main components of the DUOMAT 11 double drive (Version: fixed power supply cord)

A Cover
B Strain relief
C Battery compartment with nine-volt batteries
D Symbol for head end of bed
E (with attached power cord)
F Symbol for foot end of bed

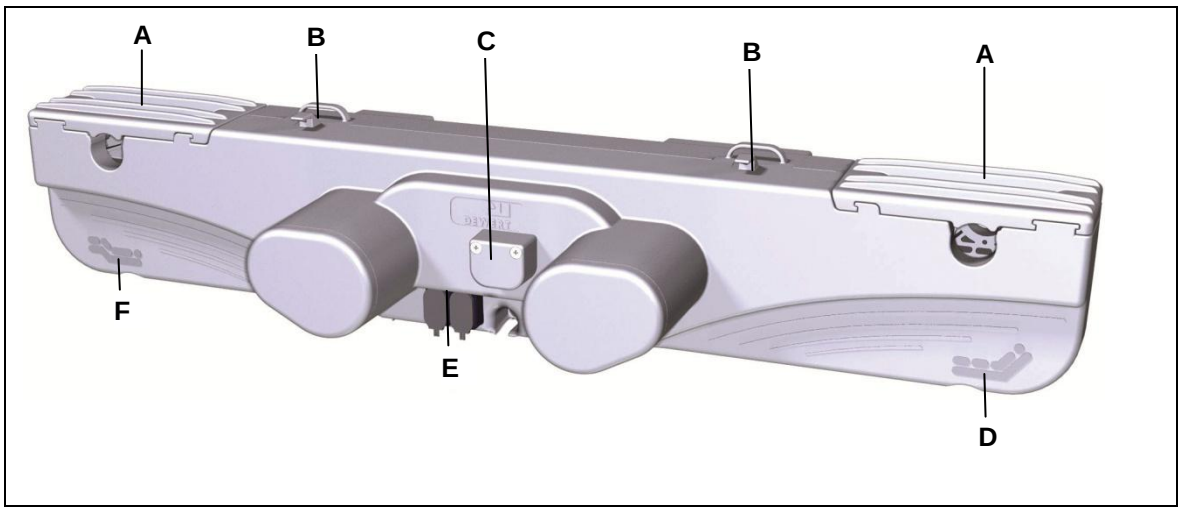


Figure 4 Main components of the DUOMAT 11 double drive (Version: pluggable power supply cord)

A Cover
B Strain relief
C Shield cover for detachable power cord
D Symbol for head end of bed
E Batteries in battery compartment
F Symbol for foot end of bed

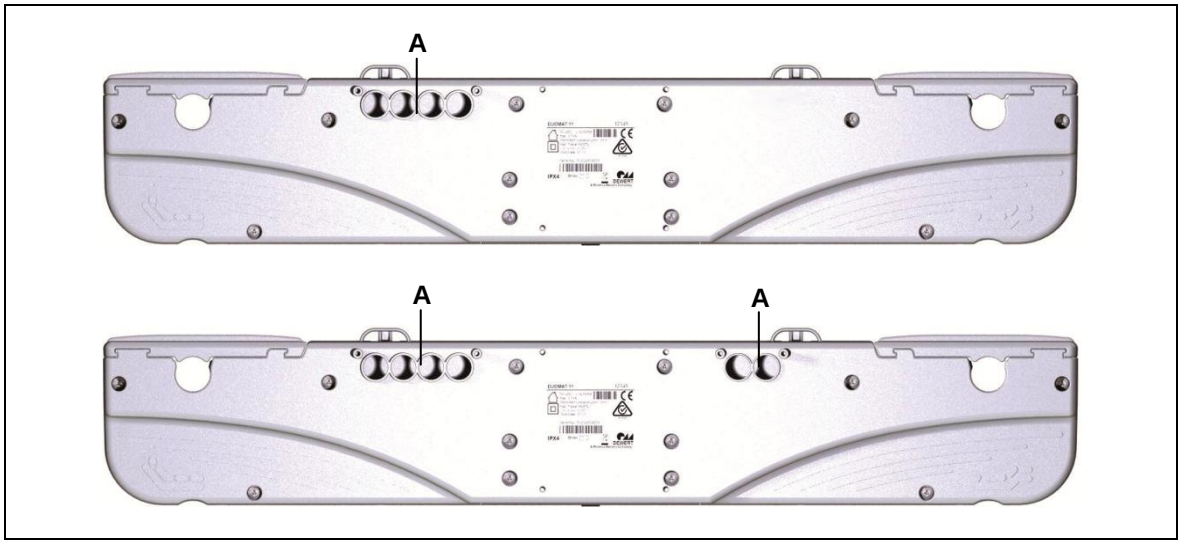


Figure 5 Case options for the DUOMAT 11 double drive

A Sockets for the electrical connection (with the shield cover removed)

4.1.1 Mains connection

WARNING

Please follow these operating instructions carefully. You could be injured by fire or electrical shock if you do not follow these assembly instructions.

Option with attached power cord

The appropriate power cord is included, depending on the regional version (USA, continental Europe, the UK, Australia or Japan).

WARNING

Only use the proper power cable that is permitted in your country. Be sure to use the correct plug adapter, as described in Figure 6.

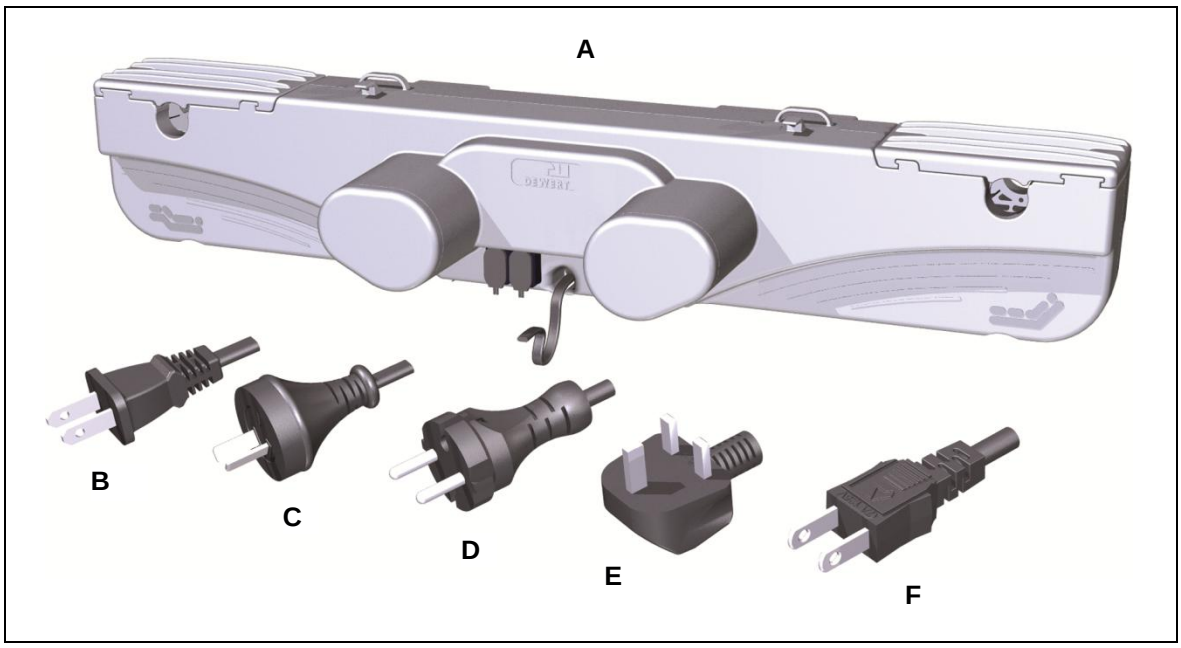


Figure 6 Fixed power supply cord, regional variants

A The DUOMAT 11 double drive
B Power plug (USA version)
C Power plug (Australian version)
D Power plug (German version)
E Power plug (United Kingdom version)
F Power plug (Japan version)

Version: pluggable power supply cord

The appropriate pluggable power supply cord is included, depending on the regional version (USA, continental Europe, the UK, Australia or Japan).

WARNING

Only use the proper power cable that is permitted in your country. Be sure to use the correct plug adapter, as described in Figure 7.

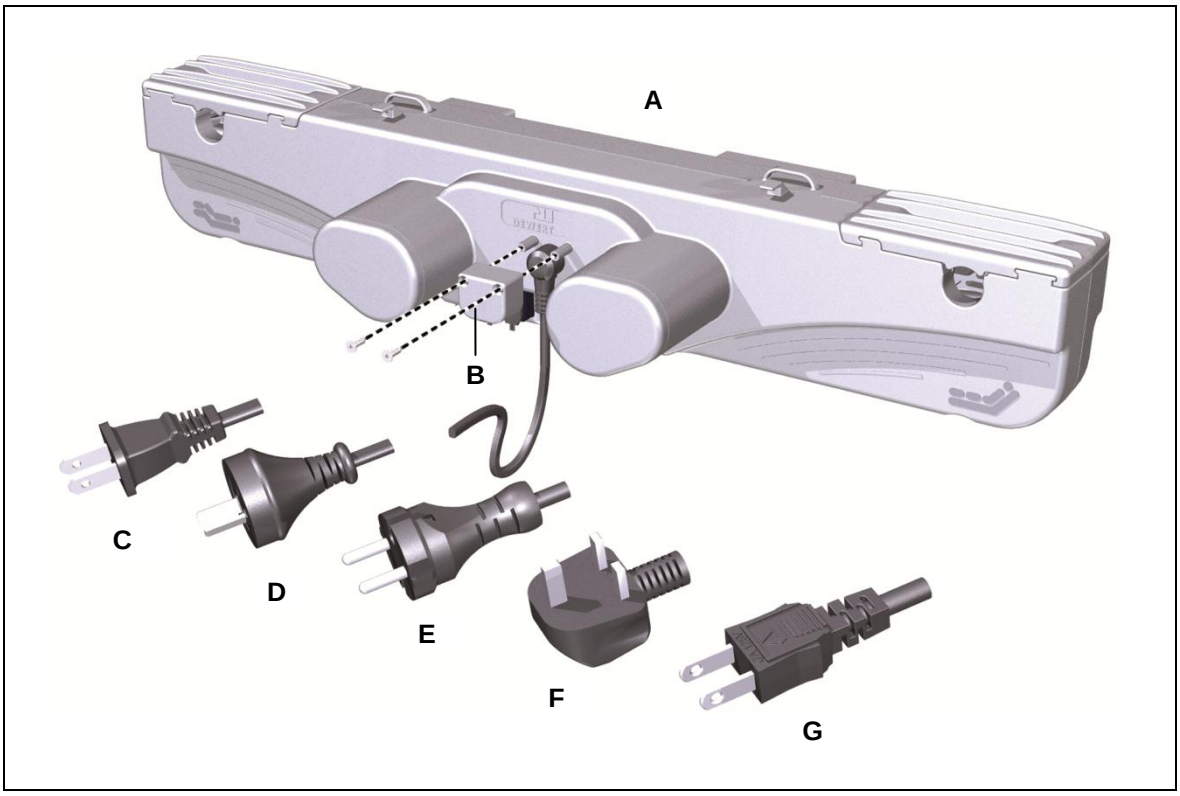


Figure 7 Pluggable power supply cord, regional variants

A The DUOMAT 11 double drive
B Shield cover
C Power plug (USA version)
D Power plug (Australian version)
E Power plug (German version)
F Power plug (United Kingdom version)
G Power plug (Japan version)

5. Technical specifications

Connection to mains power (AC) or Input voltage (DC)	100 V - 240 V AC, 50/60 Hz (refer to the ratings plate on the drive)
	24 V DC (refer to the ratings plate on the drive)
Current consumption at rated load	Max. 8.0 A DC
Permitted push force	Max. 9,000 N (total on both sides)
Mode of operation[1] under max. rated load	Intermittent duty 2 min./18 min.
Protection class	II
Noise level	≤ 65 dB(A)
Fuse	T 0.63 - T 3.15 A, depending on mains power connection (refer to the drive's ratings plate)
Drive type	Double drive
Protection degree	IP20, IPX4
Stroke[2]	87, 69 (standard), 53, 74
Colours	Refer to sales brochure
Length x width x height	715 mm x 190 mm x 130 mm
Centre distance	581 mm
Weight	Approx. 5 kg
Optional: Battery-operated reset function	
Voltage	One or two nine-volt batteries (type 6LR61) depending on version
Ambient conditions for operation, storage and transport	
Transport / storage temperature	From -20 °C to +50 °C From -4 °F to +122 °F
Operating temperature	From +10 °C to +40 °C From +50 °F to +104 °F
Relative humidity	From 30% to 75%
Air pressure	From 800 hPa to 1060 hPa
Altitude	< 2000 m

1 Mode of operation: intermittent duty 2 min./18 min. This means that after the unit is operated with its rated load for up to two minutes it must then be paused for 18 minutes. The system can malfunction if this pause is not observed!

2 Other stroke distances are available on request.

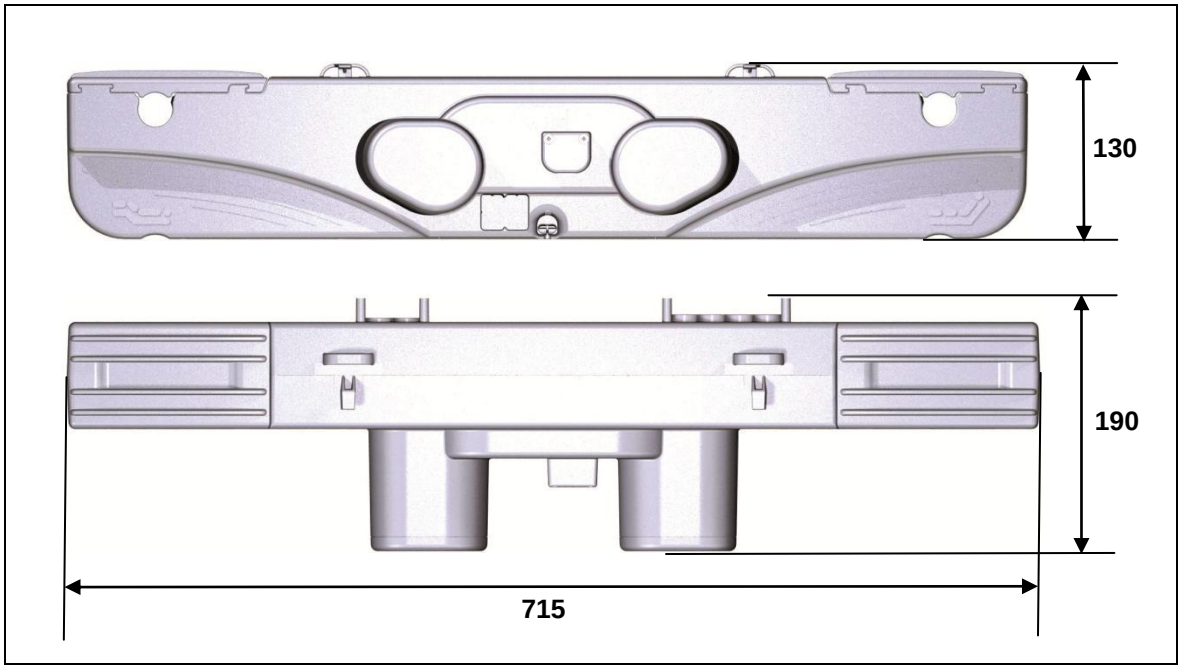


Figure 8 Dimensions of DUOMAT 11 drive (in mm)

6. Assembly

6.1 Safety notices to observe during installation

Basic safety rules must be followed in order to ensure that the end product can be continually operated in a safe manner. These rules must be observed while using the end product and while installing the drive.

6.1.1 Ensuring operational reliability during installation

The safety and reliability of the end product containing the DewertOkin drive can be ensured by using the proper construction methods described below.

Avoiding fatigue fractures

CAUTION

Drives that are incorrectly installed can undergo fatigue fractures which then create a risk of injury.

- Install the drive in the end product so that it is properly aligned. This will help prevent shear stress.
- Do not position the drive at a slanted angle when installing it in the end product. A slanted angle between the intended direction of movement of the end product and the drive's direction will create shear stress and could lead to a fatigue fracture.

Avoiding a pinching hazard

CAUTION

When designing your end product, you should take the drive adjustment movement into account with passive safety mechanisms and with the appropriate safety notices in your operating instructions.

- Installation methods for ensuring passive safety: Install the DUOMAT 11 drive so that none of the positions where shear and pinch hazards exist are accessible externally.

When preparing safety notices for the operator, be sure that your operating instructions inform the user of these points.

6.2 Installation procedure

6.2.1 An example installation

Before installing the drive, make sure that you are observing all of the safety notices found in the "Safety notices to observe during installation" section.

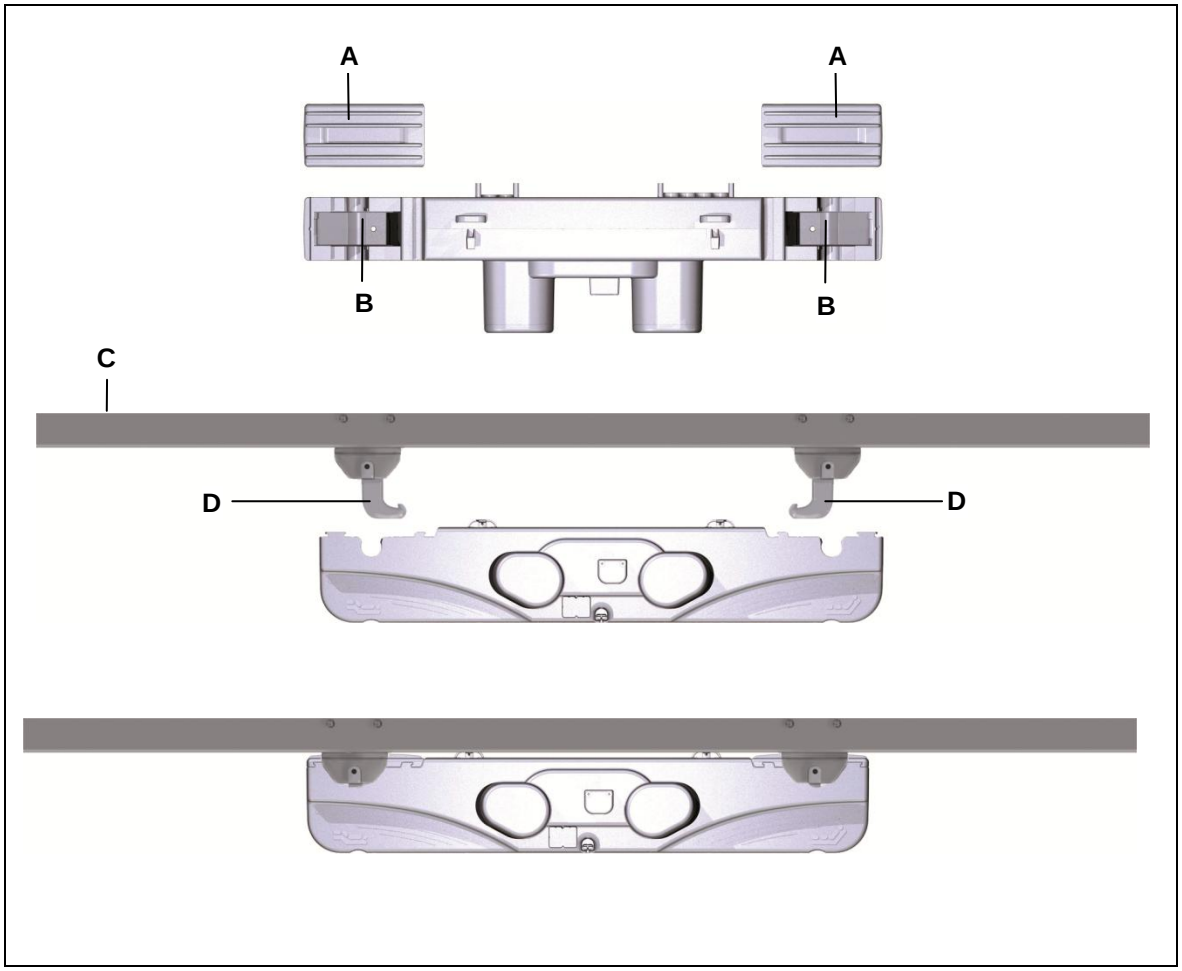


Figure 9 Installing the double drive

A Cover
B Fitting mounts
C Application
D Brackets

1 Move your product into a position where it is supporting no load.

	**CAUTION** Be sure to carry out work on the drive in a position so that no loads are bearing on it. Only in this way can you be sure to avoid any risks of crushing or injury.

	**CAUTION** Disconnect the batteries if you are using the battery-operated reset function. Disconnect the nine-volt block batteries.

2 Pull strongly on the shutters to the side (A). The slots (B) for the brackets (D) are uncovered.

3 Align the DUOMAT 11 next to your product. The slots for the head and foot sides must be properly aligned with the correct brackets on your product (refer to the symbols on the DUOMAT 11 as described in Figure 3).

4 Push the drive in so that the brackets (D) fit into the slots (B).

5 Close the shutters (A) on the drive by snapping them back in. The DUOMAT 11 is now securely attached to the end product.

6 Disconnect all additional components such as slave drives or handset from their sockets.

7 Connect the mains power plug.

Follow the notice below when plugging the power plug into the power outlet:

	**NOTICE** There is a delay after the supply voltage is applied before the device actually turns on. Wait at least 15 seconds before initial commissioning.

6.2.2 Electrical connection

CAUTION

Electrical components should be connected or disconnected only when the power supply cord is unplugged.

NOTICE

There is a delay after the supply voltage is applied before the device actually turns on. Wait at least 15 seconds before initial commissioning.

Option with attached power cord

WARNING

Only personnel with the following training are qualified to work on the attached power cord or to replace the power cord:

- someone who has completed training in electronic motor assembly or,
- someone with equivalent qualifications, or
- someone who has successfully completed the appropriate DewertOkin training program.

You should only work on the attached power cord when you are qualified to do so. Otherwise, a properly qualified person should be found for this task.

Version: pluggable power supply cord

The appropriate pluggable power supply cord is included, depending on the regional version (USA, continental Europe, the UK, Australia or Japan). The power socket is located behind the shield cover on the DUOMAT 11 drive. Be sure to use the correct pluggable power adapter, as described in Figure 10.

WARNING

Please follow these operating instructions carefully. You could be injured by fire or electrical shock if you do not follow these assembly instructions.

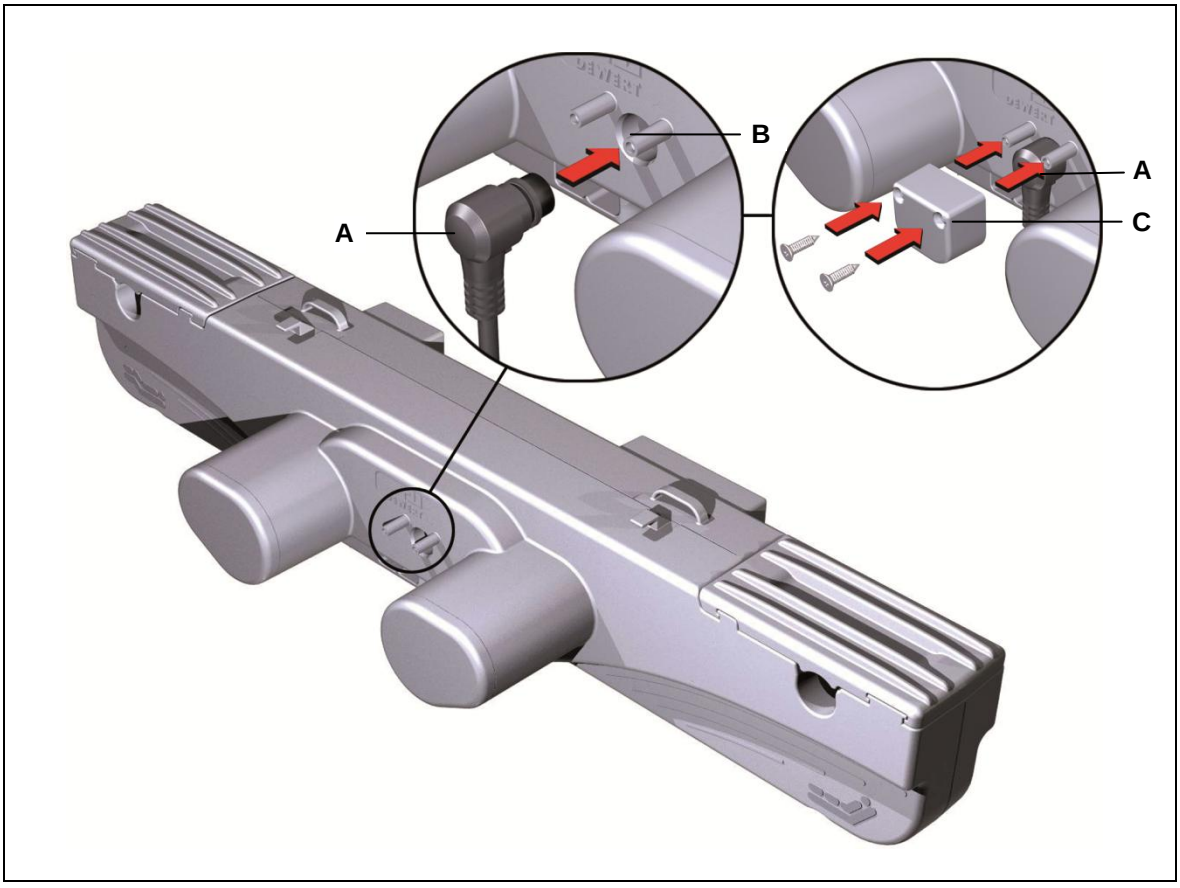


Figure 10 Pluggable power supply cords, regional variants

A Power plug **B** Power socket

C Shield cover

The pluggable power cord should be attached to the power socket (B) located on the front of the DUOMAT 11 drive.

WARNING

Only use the proper power cable that is permitted in your country. Be sure to use the correct plug adapter, as described in Figure 7.

CAUTION

You should only connect and disconnect the cables when they are completely disconnected from any live current!

1. Unscrew the screws on the shield cover (C).
2. Pull the shield cover (C) away from the socket.
3. Plug the power plug from the power cord (A) into the socket (B).
4. Put the shield cover (C) back on. Tighten the screws back on the cover.

Follow the notice below when plugging the power plug into the power outlet:

NOTICE

There is a delay after the supply voltage is applied before the device actually turns on. Wait at least 15 seconds before initial commissioning.

Opening and closing the shield cover

The electrical connections at the rear of the DUOMAT 11 drive are located under one or more shield covers. These shield covers can be removed after they are unscrewed, and closed by screwing up as shown in Figure 11.

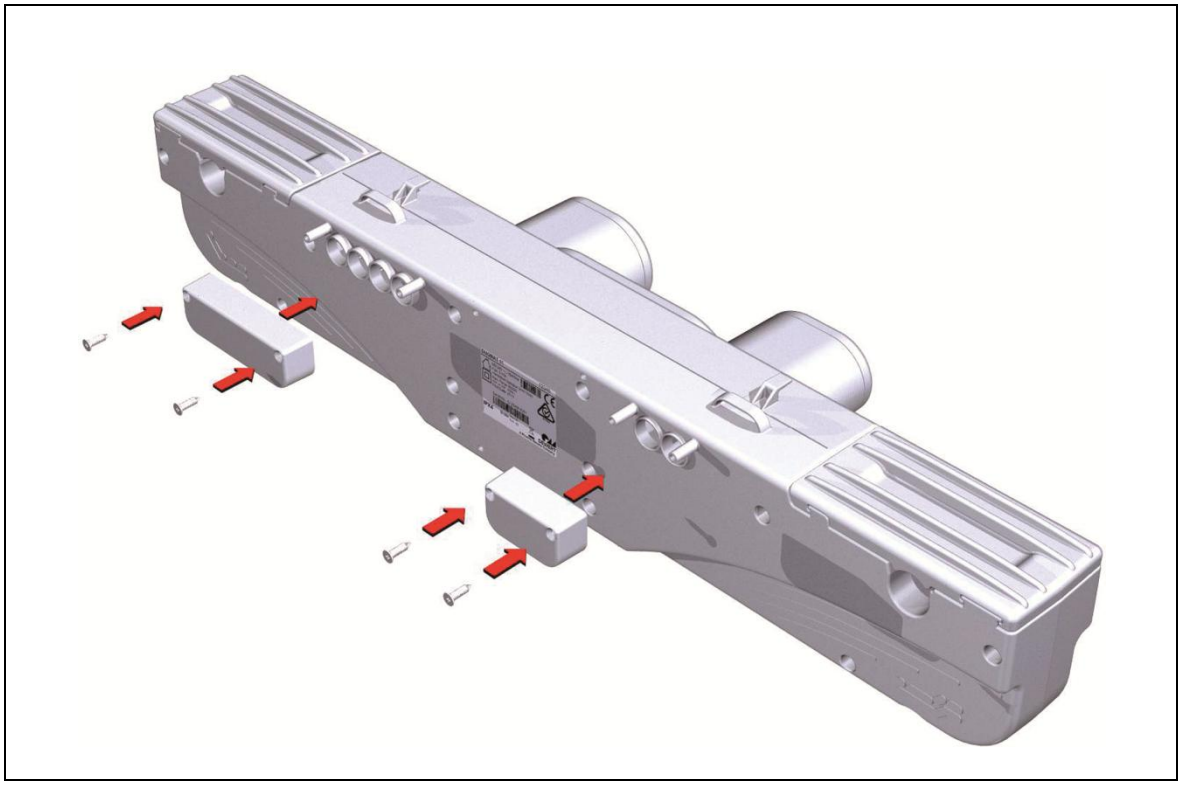


Figure 11 Closing the shield cover

	CAUTION
	You should only connect and disconnect the cables when they are completely disconnected from any live current!

1. Unscrew the screws on the shield cover.
2. Remove the shield cover.
3. Connect the plug into the appropriate socket.

	NOTICE
	Be sure to cover and seal all unused sockets by using dummy plugs. The protection category cannot be maintained when they are left unsealed.

4. Put the shield cover back on. Tighten the screws back on the cover.

Optional: Battery-operated reset function

Connecting the nine-volt batteries

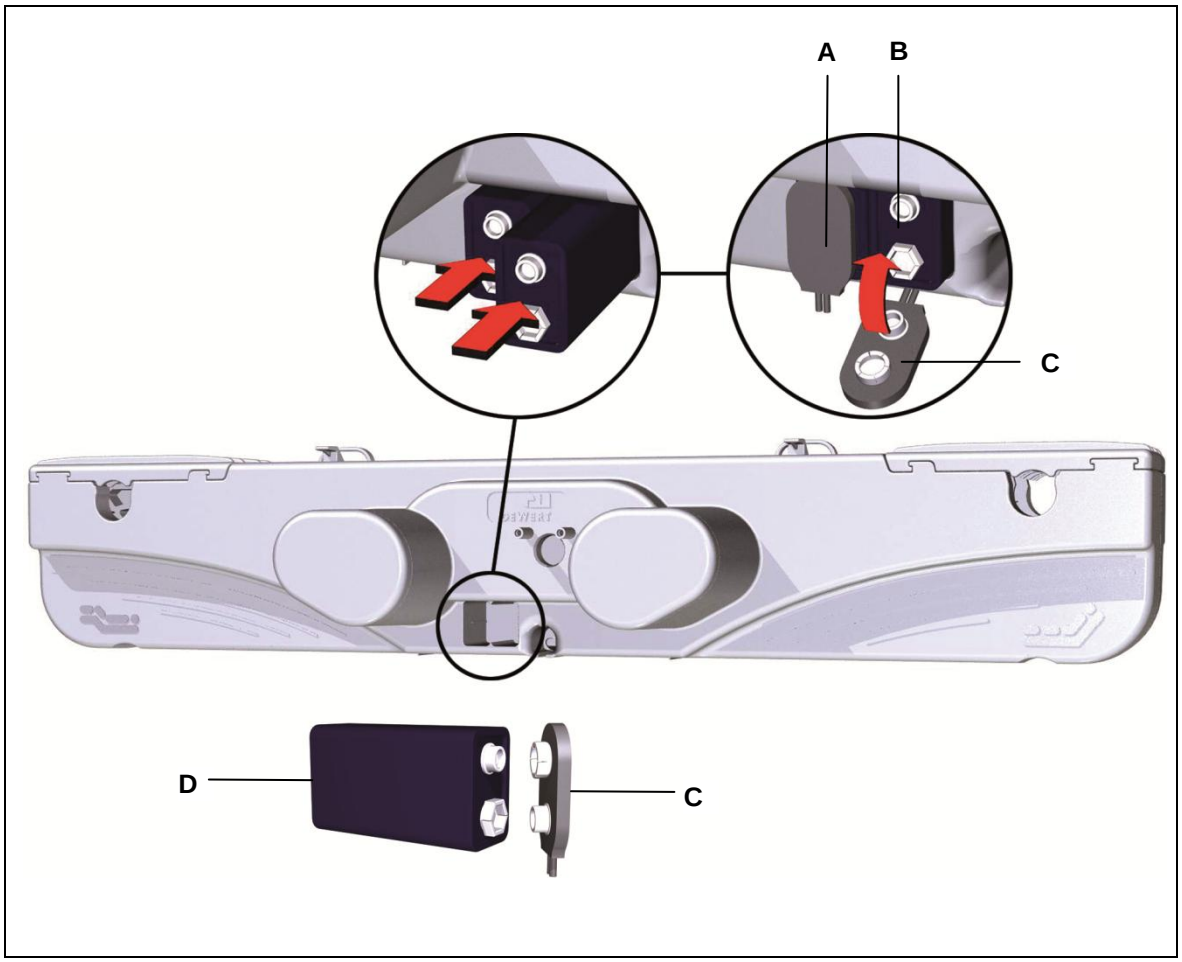


Figure12 Connecting the 9-V batteries

A Battery clip, attached

B Battery in the battery compartment

C Battery clip, unattached

D 9-V battery (type 6LR61)

CAUTION

Connect the nine-volt batteries first when you would like to perform a battery-operated reset. The batteries may only be used to power the reset function one time. Take out the batteries and dispose of them properly after the reset function has been carried out.

Routing the electrical cables

When routing the cables, be sure that:

- the cables cannot get jammed,
- no mechanical load (such as pulling, pushing or bending) will be put on the cables, and
- the cables cannot be damaged in any way.

Fasten all cables (especially the mains cable) to the end product using sufficient strain relief and kink prevention methods. Be sure that the design of the end product prevents the mains cable from coming into contact with the floor during transport.

6.2.3 Disassembly

CAUTION

Work on electrical components should be conducted only when the mains power connection is unplugged.

▶ Certain details may change as a result of technical changes.

1 Move your product into a position where it is supporting no load.

CAUTION

Be sure to carry out work on the drive in a position so that no loads are bearing on it. Only in this way can you be sure to avoid any risks of crushing or injury.

2 Pull out the mains power plug!

CAUTION

Disconnect the batteries if you are using the battery-operated reset function. Disconnect the nine-volt block batteries.

3 Disconnect all additional components such as slave drives or handset from their sockets.

NOTICE

Be sure to support the drive's weight while you open the shutters to release it.

4 Pull strongly on the shutters to the side (A).

5 Pull out the DUOMAT 11 far enough so that the brackets (D) are out of the slots (B). The DUOMAT 11 is now unattached and can be removed.

6 Push the shutters (A) back onto the DUOMAT 11 so that they are not lost during transportation.

7. Operating notes

The factual information contained within may be used when you are creating the end-product manual. The installation instructions do not contain all information required for the safe operation of the end product. They only describe the installation and operation of the drive as a partially assembled piece of machinery.

CAUTION

When creating the operating instructions, remember that the installation instructions are intended for qualified specialists and are not for typical users of the end product.

7.1 General information

▶ Only a DewertOkin device should be used to control the drive since they have already been verified to work together.

Delayed start-up

Follow the notice below when plugging the power plug into the power outlet:

NOTICE

There is a delay after the supply voltage is applied before the device actually turns on. Wait at least 15 seconds before initial commissioning.

Power-on time / intermittent operations

The DUOMAT 11 drive has been designed for intermittent operations. Intermittent operation is an operational mode where the drive must pause after a specified maximum period of operation (power-on time). This protects the drive from overheating. In an extreme case, overheating can lead to a malfunction.

▶ The ratings plate on the drive specifies the maximum power-on time and the required pause intervals.

Avoiding toggle operations

You should avoid switching from one direction of travel to the opposite direction without first stopping the motor. – Make sure that you pause between motions! A pause (motor stop time) can be activated using the operating element or handset.

NOTICE

You should always avoid a quick change ("toggle") of directions.

Avoiding electrical risks

WARNING

Be sure that all live (current-carrying) parts of the drive system and power supply cannot be touched. In particular, be sure that unused power and control unit connections are covered adequately.

Shutting off the drive

CAUTION

Pull out the power plug in order to shut off the drive. The power plug must always be accessible during operations so that emergency shut-off is possible.

Avoiding cable damage

Be sure that your operating instructions inform the user about the possible cable risks.

CAUTION

The cables (particularly the mains cable) should not be run over. In order to prevent injuries or drive damage, no mechanical strain should be placed on the cables.

Looping the handset cable through the strain relief mechanism

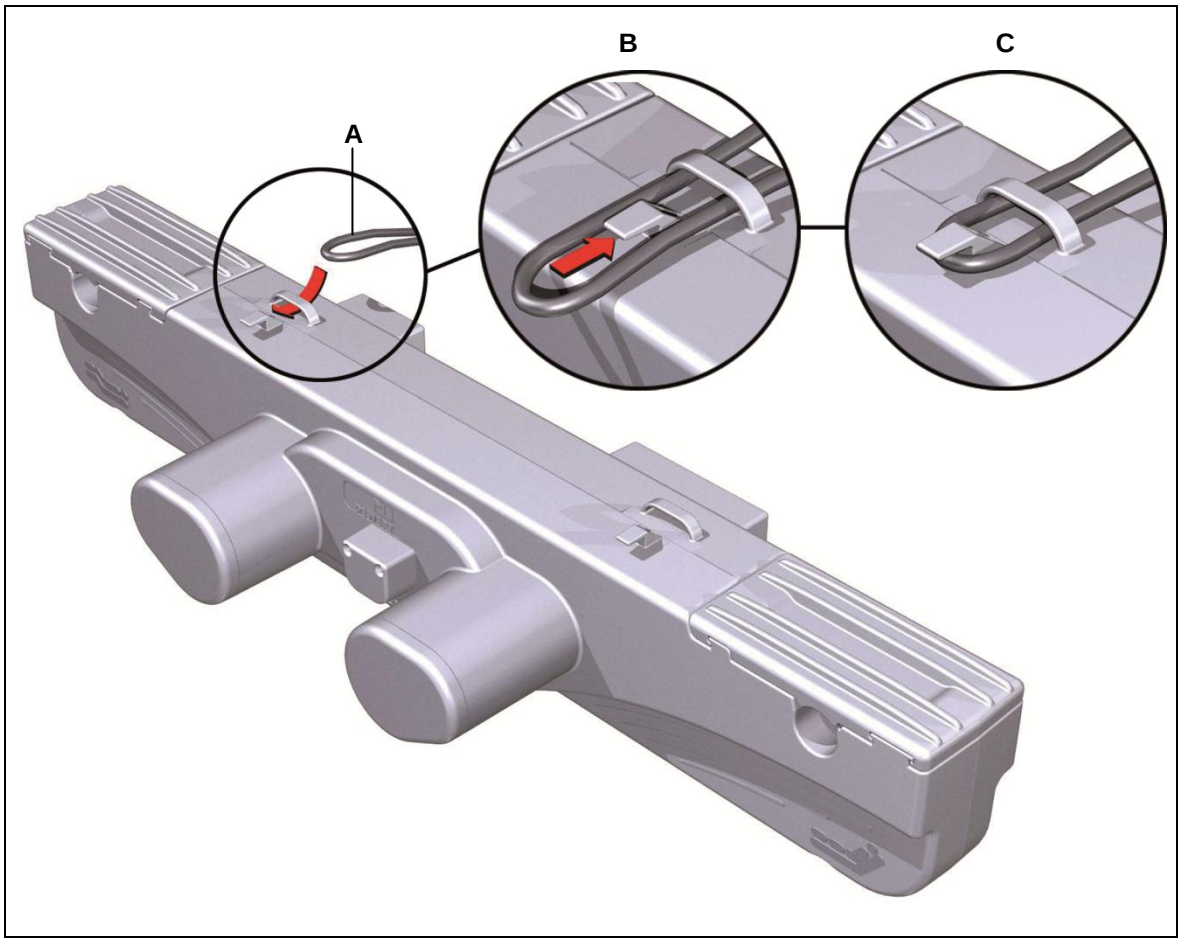


Figure 13 Looping the cable through the strain relief mechanism

A Handset cable loop **B** Looped-in cable

C Secured cable

1. Connect the plug from the handset to the handset socket on the DUOMAT 11.
2. Loop the handset cable through the strain relief catch and pull back gently on the loop as illustrated in Figure 13.

7.2 Notice for operating with optional configuration

7.2.1 Optional: Battery-operated reset function

The battery-operated reset function allows the drive system to be operated during a power outage. One or two nine-volt batteries can be used to power the DUOMAT 11 in the event of a power outage. The batteries should be connected only then when the outage occurs. The batteries are not connected by default since they have limited capacity. They can only be used to power the reset function once. The used batteries should then be replaced and properly disposed of.

CAUTION

The battery-operated reset function is not a safety system and does not avert danger.

CAUTION

Connect the nine-volt batteries first when you would like to perform a battery-operated reset. The batteries may only be used to power the reset function one time. Take out the batteries and dispose of them properly after the reset function has been carried out.

▶ If the end product is under a heavy load which prevents the reset function from operating, the strain or load on the end product must first be removed before a reset can be carried out.

7.2.2 Optional: The mains cut-off mechanism

The mains cut-off feature is only available with the attached power cord variants. The mains cut-off mechanism is responsible for isolating the drive automatically from the mains power supply when the drive is not moving. A switching component is used to isolate both poles of the power transformer from the mains power supply.

The mains cut-off mechanism allows power to the drive only after a button has been pressed on the handset to trigger drive motion.

▶ Do not use the integrated mains cut-off if you already use an in-house mains cut-off system.

WARNING

The mains cut-off is not a "central command device" in the sense used by the DIN VDE regulations. You should first completely disconnect the voltage supply from the drive system before conducting any type of work on a DewertOkin product which features a mains cut-off. First pull out the power plug. This guarantees that the system is safely shut off in compliance with the German DIN VDE 0105 and BGV A3 regulations.

8. Troubleshooting

This chapter contains remedial actions should any malfunctions occur. If you experience an error that is not listed in this table, please contact your supplier.

CAUTION

Only qualified specialists who have received electrician training should carry out troubleshooting and repairs.

Problem	Possible cause	Solution
The handset or drive system is not functioning.	There is no mains supply voltage.	Connect the mains power.
	The hand switch or drive system is defective.	Please contact your supplier or sales agent.
The drive is suddenly not capable of movement.	Possibly the thermal circuit breaker on the transformer has been triggered or is defective.	The drive system should be allowed to pause for 20 to 30 minutes.
	The thermal fuse on the transformer may have been triggered or may be defective.	Please contact your supplier or sales agent.
	The unit's fuse may have been triggered or may be broken.	Please contact your supplier or sales agent.
	There is no mains supply voltage.	Connect the mains power.
	A lead-in connection has been interrupted (mains power, hand switch or auxiliary drive).	Check the cables and reinsert them, if required.
The battery-operated reset is not functioning.	The batteries are empty.	Check the batteries and replace if necessary.
	Battery is not connected.	Connect the batteries.

9. Maintenance

▶ You should only use spare parts which have been manufactured or approved by DewertOkin. Only these parts will guarantee a sufficient level of safety.

9.1 Maintenance

Type of check	Explanation	Time interval
Check the function and safety of the electrical system.	A qualified electrician should carry out this inspection. (Refer to the "Electrical connection" section in the "Installation" Chapter.)	Periodic inspections can be carried out at intervals based on the risk assessment which you conduct for your end product.
Look over the housing periodically for any signs of damage.	Check the housing for breaks or cracks. The IP-class protection will be impaired by any breakage or cracks.	At least every six months.
Look over the plug-in connections and electrical access points for signs of damage.	Check that all electrical cables and connections are firmly seated and correctly positioned.	At least every six months.
Look over the cables for any signs of damage.	Check the connecting cables for pinching or shearing. Also check the strain relief and kink protections mechanisms, in particular after any mechanical load.	At least every six months.
Periodic functional test of the end switches.	Move the drive to the end positions in order to test the end switches.	At least every six months.

9.2 Cleaning and care

The DUOMAT 11 drive was designed so that it would be easy to clean. The smooth surfaces can be conveniently cleaned.

NOTICE

Never clean the drive in an automated washing system or with a high-pressure cleaner. Do not allow fluids to penetrate the drive. Damage to the system could result.

1 Always disconnect the mains power plug before you start to clean the drive!

CAUTION

Disconnect the batteries if you are using the battery-operated reset function. Disconnect the nine-volt block batteries.

2 Clean the DUOMAT 11 drive using a moist cloth.

3 Be sure that you do not damage the drive's connecting cable.

NOTICE

Do not use a cleanser that contains benzene, alcohol or similar solvents.

10. Disposal

The DUOMAT 11 drive consists of electronic components, cables and metal and plastic parts. You should observe all corresponding national and regional environmental regulations when disposing of the DUOMAT 11 drive.

The disposal of the end product is regulated in Germany by Elektro-G, internationally by the EU Directive 2002/95/EC (RoHS, from 1 Jul. 2006) and Directive 2011/65/EU (RoHS, from 3 Jan. 2013), or by any applicable national laws and regulations. (The end product is not regulated by the EU Directive 2002/96/EC (WEEE) and its amendment EU Directive 2003/108/EC.)

The DUOMAT 11 drive should not be disposed of with normal household waste!

The disposal of the nine-volt batteries is regulated in the EU by Battery Directive 2006/66/EC, in Germany by the BattG battery law of 25.6.2009, and internationally by any applicable national laws and regulations.

The nine-volt batteries should not be disposed of with normal household waste!

Declaration of Incorporation

According to Appendix II of the EU Machinery Directive 2006/42/EC

The manufacturer:
DewertOkin GmbH
Weststraße 1
32278 Kirchlengern
Germany

declares that the incomplete machine described below

DUOMAT 11

complies with the following basic requirements of the Machinery Directive (2006/42/EC):

Sections: 1.1.3; 1.3.3; 1.3.4; 1.3.7; 1.5.1; 1.5.2; 1.5.5; 1.5.6; 1.5.7; 1.5.8; 1.5.9; 1.5.10; 1.5.13; 1.6.3

You may only operate this machine after you have confirmed that the end product (into which this drive will be installed) complies with the Machinery Directive 2006/42/EC.

On request, the manufacturer is obliged to send the special documentation accompanying the partially completed machinery electronically to the appropriate national institution. The special technical documents corresponding to the machine have been created according to Appendix VII, part B.

The following person is responsible for the technical documentation: Hartmut Klimm,
Address cited above.
Tel.: 05223 979150

Kirchlengern, Germany on 15 December, 2012

Sascha Koltzenburg
Head of R & D

EU Declaration of Conformity

In compliance with Appendix IV of the EU EMC Directive 2004/108/EC
In compliance with Appendix III of the EU Low Voltage Directive 2006/95/EC
In compliance with Appendix VI of the EU RoHS Directive 2011/65/EU

The manufacturer:
DewertOkin GmbH
Weststraße 1
32278 Kirchlengern
Germany

declares that the following product

DUOMAT 11

meets the requirements of the following EU directives:

Electromagnetic Compatibility Directive 2004/108/EC

Low Voltage Directive 2006/95/EC

RoHS Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Applied standards:

- EN 60335-1:2012
- EN 55014-1/A1:2009
- EN 55014-2/A2:2008
- EN 61000-3-2/A2:2009
- EN 61000-3-3:2008
- EN 62233:2008

This declaration of conformity is no longer valid if constructional changes are made which significantly change the product (i.e., which influence the technical specifications found in the instructions or the intended use)!

Kirchlengern, Germany on 15 December, 2012

Sascha Koltzenburg
Head of R & D

Additional information

The DUOMAT 11 drive system

In accordance with EN 60601-1:1990 +A1:1993 +A2:1995, "Electrical medicinal devices", the following standards are used:

EN60601-1, Main section 2	Ambient conditions Electrical shock protection
EN60601-1, Section 21	Mechanical attachment
EN60601-1, Main section 7	Overheating protection
EN60601-1, Main section 9	Improper operations and malfunctions
EN60601-1, Main section 10	Structural requirements
EN60601-1, Section 56.8	Power supply indicator is, however, not present

In accordance with EN1970:2000, "Beds for disabled persons", the following standards are used:

EN1970, Section 4 partially	Unintentional movement: Prevented by means of a locking mechanism (such as a control box) or IPROXX® The back section can be lowered by means of an optional battery
EN1970, Section 5.5.8	Dimensions of the control unit (IPROXX®)
EN1970, Section 5.6	Operational forces for the electrical functions (IPROXX®)
EN1970, Section 5.7	Functional speeds (for adjusting the head and foot sections)
EN1970, Section 5.11	Electrical requirements of protection degree: only for IPX4
EN1970, Section 5.12	Electromagnetic compatibility

In accordance with EN60601-2-38:1996 +A1:2000, "Electrically operated hospital beds", the following standards are used:

EN60601-2-38, Section 5.2	The classification of application parts
EN60601-2-38, Section 5.3	System protection category, only for >= IPX4
EN60601-2-38, Section 22.2.102	Only with locking device: Control box, Supervisor, or IPROXX® SE
EN60601-2-38, Section 22.4.101	Control unit with button
EN60601-2-38, Section 36	Electromagnetic compatibility
EN60601-2-38, Section 52.4	Unintentional movement (locking device)
EN60601-2-38, Section 52.5	First fault (electrical): Prevented by means of a locking mechanism or IPROXX®
EN60601-2-38, Section 52.5.9	Component outages: Prevented by means of a locking device
EN60601-2-38, Section 52.5.101	Outages of electrical components
EN60601-2-38, Section 52.5.102	Inclination of the back section and the Trendelenburg during a power outage: Use of a battery
EN60601-2-38, Section 56.8	Lighting (not required)
EN60601-2-38, Section 57.3a	Power cord (for example, EPR or similar)
EN60601-2-38, Section 57.3.101	Mains plug

The following standards were according to ICE 60601-1, EN 60601-1:2006, 3rd edition, medical electrical equipment – used (labelling: 3E refer to the ratings plate):

EN60601-1, Section 8	Protection against electrical danger
EN60601-1, Section 11	Protection against overheating and other risks
EN60601-1, Section 13	Dangerous situations and error conditions
EN60601-1, Section 15	Design
EN60601-1, Section 16.6	Leakage current

In accordance with IEC 60601-2-52:2009, "Particular requirements for the safety and essential performance of medical beds", the following standards are used: (Labelling: 3E refer to the ratings plate):

IEC60601-2-52, Section 201.6.2	Protection against electrical shock: Protection class II
IEC60601-2-52, Section 201.6.3	Control panel symbols (depending on model, customer requirements)
IEC60601-2-52, Section 201.8.11.3.2	Power supply lead: only >= 2.5 m length Power supply lead: for example, EPR or similar
IEC60601-2-52, Section 201.9.2.2.5	Continuous operations: Control unit only with button
IEC60601-2-52, Section 201.9.2.3.1	Unintentional movement: Prevented by means of a locking mechanism (such as Control box, Supervisor, IPROXX® SE, IPROXX®, or Meditouch)
IEC60601-2-52, Section 201.9.6.2.1	Noise: <=65dB(A) (refer to EN60601-2-38)
IEC60601-2-52, Section 201.11.1.1	Temperatures
IEC60601-2-52, Section 201.11.6.5.101	Protection against water ingress: only for >= IPX4
IEC60601-2-52, Section 201.11.8	Power outage: for example, battery usage, depending on version (customer requirement)
IEC60601-2-52, Section 201.13.1.4	Special mechanical hazards: Prevented by means of a locking mechanism (such as Control box, Supervisor, IPROXX® SE, IPROXX®, or Meditouch)
IEC60601-2-52, Section 201.15.3.4.1	Mechanical attachment – handset
IEC60601-2-52, Section 201.15.4.4	Displays: Ready indicator is not required
IEC60601-2-52, Section 201.17	Electromagnetic compatibility
IEC60601-2-52, Section BB.3.3.3	Dimensions: vary according to the model (customer requirement)
IEC60601-2-52, Section BB.3.4.1	Operating forces

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