Installation Instructions

Issue
11/2008

DEWERT
A Phoenix Mecano Company

Installation Instructions for the Manufacturer of the End Product GIGAMAT Drive System

11/2008
ID no. 58717

GIGAMAT

Contents

General Information

These instructions are intended for the manufacturer of the end product and are not designed for passing on to the operator of the end product. With regard to the specialist information contained herein, these instructions can well serve as a basis for drawing up the instructions for the end products.

It is essential to note the information contained in these instructions! In doing so, you can prevent mistakes being made in installing or connecting the system which could result in

- **injury** and **accidents** as well as
- **damage** to the drive system or the end product.

Use only DEWERT drive control units!

The DEWERT drive control unit incorporate an earth-free circuit which is isolated from the supply mains by reinforced insulation or double insulation.

DEWERT **accepts no liability** for damage caused as a result of…

- non-observance of these instructions,
- alterations to the product not approved by DEWERT or...
- the use of spare parts not manufactured or approved by DEWERT- these may not ensure adequate safety!

Due to the policy of ongoing product improvement, DEWERT reserves the right to carry out technical changes at any time without prior notification!

1. Designated Use

The **GIGAMAT** drive system is **designed for installing in end products**…

- for the motorized adjustment of movable furniture parts **using suitable fittings/ mountings or mechanics**.

The **GIGAMAT** drive system is **not intended for use**...

- in an environment where **inflammable** or **explosive** gases or vapours (e.g. anaesthetics) are likely to occur
- in a damp environment, i.e. outdoors
- in appliances used by small children or fragile persons
- in the immediate vicinity of young children

2. Prerequisites

The installation steps described in these instructions must be performed by a **suitable qualified** or **trained person**.

- This being the case, you should never carry out this work **yourself** unless you are a **suitable trained qualified** or
- you should **entrust** this work to a **suitable qualified, skilled** or **trained person only**.

Conformity in accordance with EC Directives

The drive system is supplied ex factory as a **machine not ready for use** in accordance with the EC "Machinery" Directive. In other words, you may not put the drive system into operation until you have met the **safety** objectives of the "Machinery" Directive and issued a corresponding **Declaration of Conformity**!

The drive system with DEWERT controls meets the safety objectives of the EC Directives concerning **"Low Voltage"** and **"Electromagnetic Compatibility (EMC)".**

The drive is not a **medical product** if you install it into a medical device, manufacture in **conformity** with the EC Directive for "Medical Products" or other regulations it is the responsibility of the **manufacturer of the end product**. For this purpose, DEWERT has additionally applied, fully or partially, a number of standards from the medical products sector, in order **to facilitate** use in medical products (see page 23, Additional Information).

3. Getting to Know the System

The **GIGAMAT** drive system is intended for the German market and complies with the Law applicable in Germany in implementation of relevant EC Directives.

With regard to other variation options contact your after-sales service or take a look at the current catalogue. We will be happy to assist you with any special requests you may have.

GIGAMAT

b) Technical Data

Rated voltage.....:	24 V DC
Power consumption with rated load.....:	max. 8.5 A DC (depending on application)
permissible push force.....:	max. 10000 N (depending on application)
permissible pull force.....:	max. 6000 N (depending on application)
Operating mode[1] with max. rated load.....:	Intermittent duty 2 min. ON/18 min. OFF
Protection classification.....:	III
Noise level.....:	65 dB(A)
Drive type.....:	Single drive
Type of load.....:	Push; pull
Stroke[2].....:	to 500 mm (depending on application)
Adjustment Speed[3] with rated load.....:	to 5,4 mm/s (depending on application)
Adjustment Speed[3] without load.....:	to 18,5 mm/s (depending on application)
Protection category.....:	IP20; IP44; IP54
Colours.....:	grey
Quick release “QR”.....:	to 10000 N (only for push drives or pull drives)
Cable versions.....:	Cable for permanent mains installation or Cable with attached plug

Dimensions and Weights

Length x width x height of the drive.....:	min. 236 x 212 x 110 mm
Weight.....:	approx. 4.7 kg approx. 5.1 kg (with “QR”) approx. 5.0 kg (with “QR” for patient lifters)

Ambient Conditions

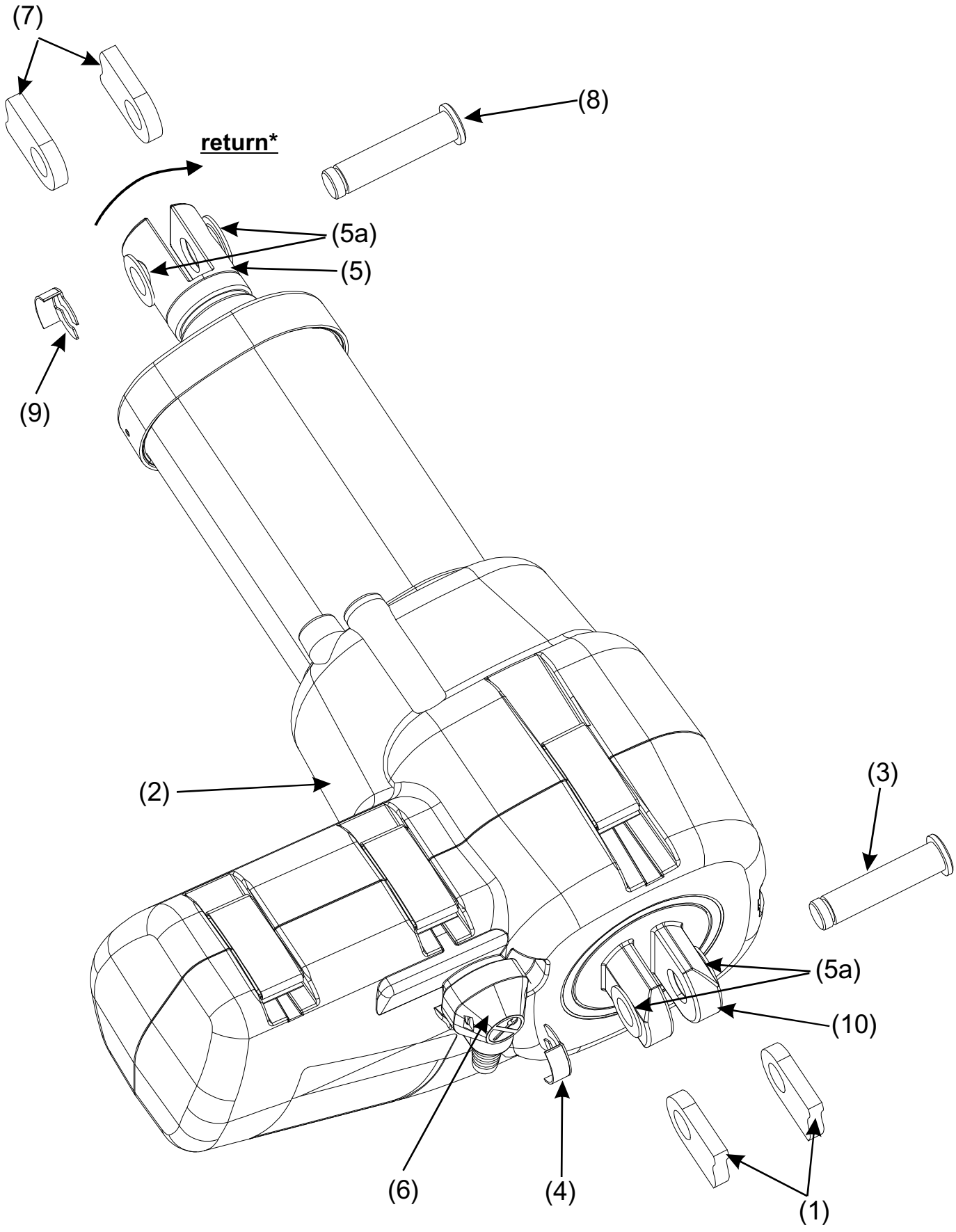
Room temperature.....:	from +10° to +40° C
Relative humidity.....:	from 30% to 75%
Barometric pressure.....:	from 700 hPa to 1060 hPa

[1] Operating mode = **intermittent duty 2 min**.**ON/18 min**.**OFF**, i.e. run for a maximum of 2 min. under rated load, then observe a **rest period** of 18 min. Operational failure could otherwise result.

[2] Data deviating from these standard values can be established after consultation and depending on the application.

[3] Adjustment speed = **speed** at which the clevis travels **with/without load**

Assembly of the GIGAMAT single drive



* direction of rotation to set the clevis position

4. Fitting

a) Installation of the drive

Caution!

Only ever connect or disconnect electrical components when they are **voltage-free**.

1) **Push drive (2) into mounting (1)** and fasten it there using **BEK bolt (3)** and secure with **security clip (4)**.
2) Now **fasten stroke pipe clevis (5)** (with bushings (5a) for an optimal bearing) with **BEK bolt (8)** and **security clip (9)** onto **mounting (7)**.

Attention!

In case the **stroke-pipe clevis (5)** is not aligned with the **gear clvis (10)** please **do not** screw the stroke-pipe tighter as this could result in damage to the actutor. If required unscrew the stroke-pipe by max. ½ turn until **both clevises (5 and 10)** are aligned. (see figure, page 5).

3) Now connect the drive to the **DEWERT control unit. Secure cable (6) to prevent it from being pulled out** (please also refer to the Installation Instructions supplied with the DEWERT control units).

Recommendation: Please bear in mind that installing mechanical limit stops into your end product considerably increases the safety standard.

b) Electrical Connection

In the **Operating Instructions** to be issued by you, point out to the operator that if leads, in particular the **connection lead**, are **driven over** they could sustain damage. **Mechanical loads should also be avoided.**

When routing the leads make sure that they:

- cannot get caught up or trapped,
- are not subjected to mechanical loads (i.e. do not pull, apply pressure or bend),
- cannot get damaged in any other way.

Make sure that the cables, in particular the **connection lead**, are fastened to the end product with adequate **strain relief** and **kink protection** and that suitable constructional measures prevent the **connection lead from trailing on the floor** when the end product is being **moved**.

c) Plug-in connection cable (optional)

Fig. a)

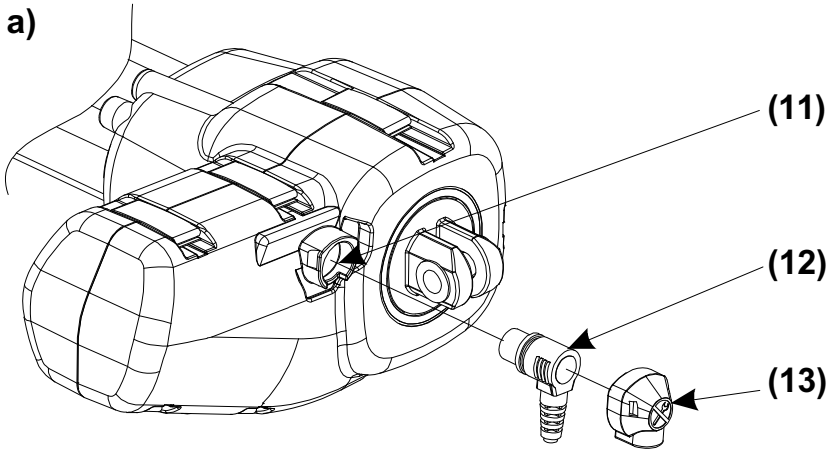
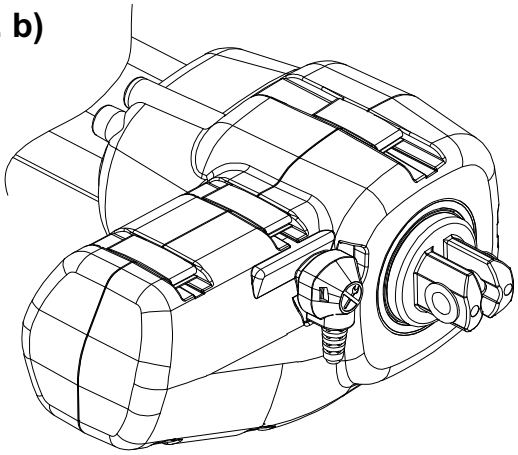


Fig. b)



Connecting the connection cable to the drive

Insert **motor cable plug (12)** into the corresponding **socket (11)** on the **GIGAMAT**. Finally, press the **locking cap (13)** over the plug on the drive until it engages.

Removing the connection cable from the drive

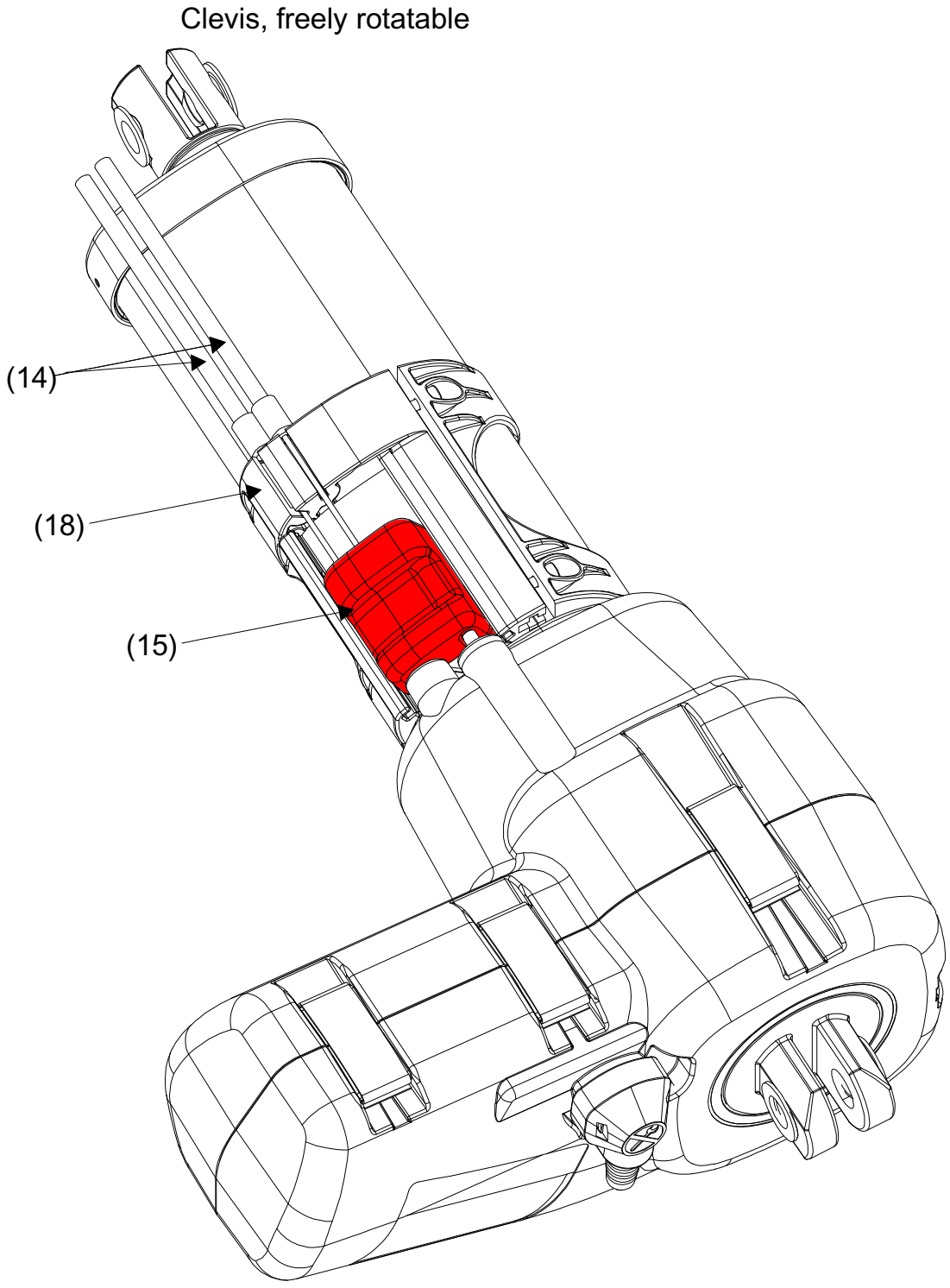
With a suitable tool, loosen the **locking cap (13)** from the **GIGAMAT**. Withdraw the **motor cable plug (12)** from the **socket (11)**.

d) Dismantling of the drive

Operate the furniture to travel to the starting position, then isolate **drive (2)** from the DEWERT controls. When removing **security clip (4, 9)** and **BEK bolts (3, 8)**, it is important to **support drive (2)**, as this is released instantly! Then dismantle the Bowden cable in reverse sequence (see page 8 to 10).

GIGAMAT

Assembly of the GIGAMAT single drive with optional Quick release “QR”



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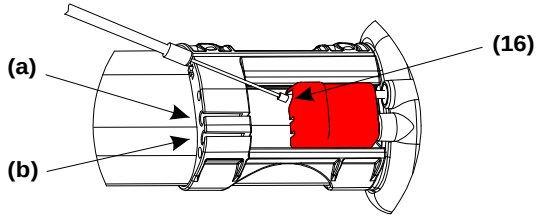
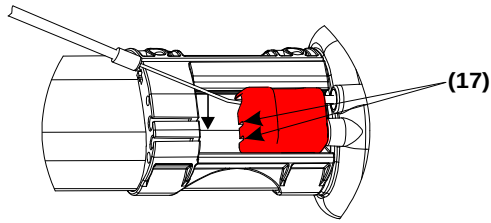
e) Fastening the Bowden cable for Quick release (10), "QR"
(Representative example, max. 2 Bowden cables (ø 6.0mm) for use together)

If using a single Bowden cable on its own **(guideway a)**, insert this in the middle. If a second Bowden cable is to be used in addition, then first insert the Bowden cable into **(guideway b)**.

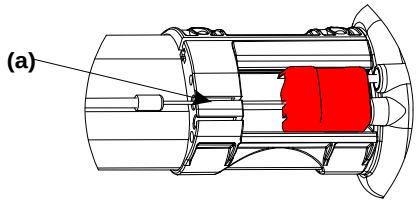
- Feed the Bowden cable into the **seating hole (11)**.



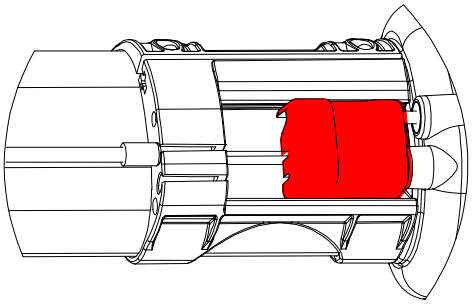
- Push the Bowden cable into one of the two **slots (12)** at the side.



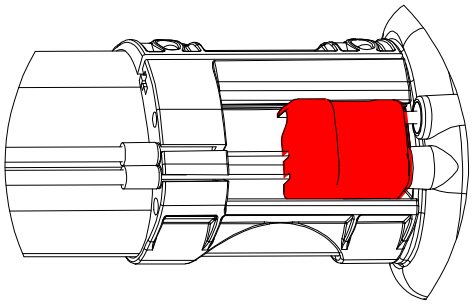
- Inserting the Bowden cable into **guideway (18)**.



- Check whether the Bowden cable end is firmly anchored in the QR push block. The Bowden cable guideway and the Bowden cable seat **must** align.

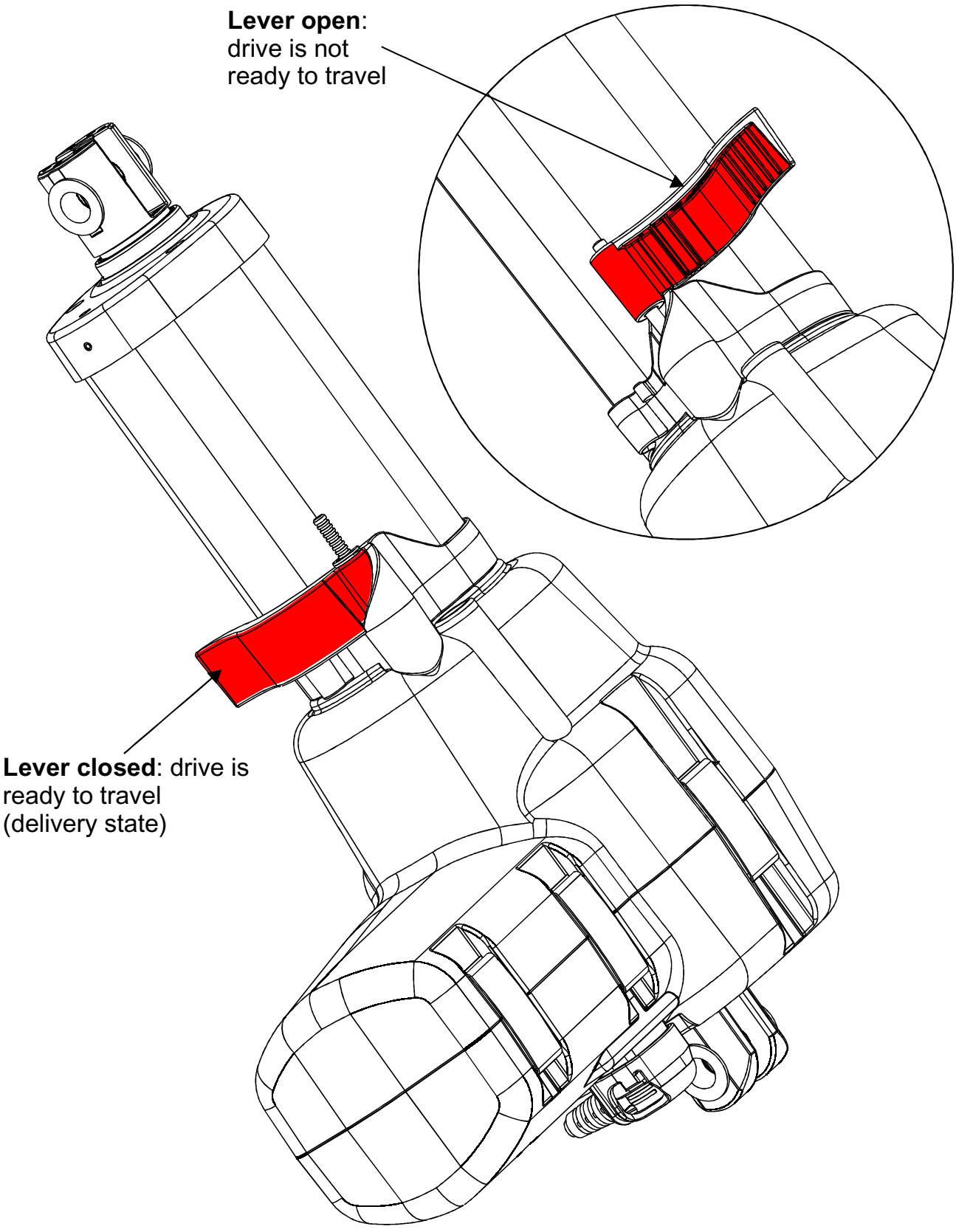


- Insert the second Bowden cable by following the same procedure. The two Bowden cables must be laid parallel.



Assembly of the GIGAMAT single drive with optional Quick release “QR-Patient Lifter”

See also 4a), b), c) and d)



5. Operation

For drawing up the Operating Instructions for the end product, you can use the specialist information described herein. Please bear in mind that these instructions are intended for you as a specialist and not for the possibly non-technically trained operator of the end product.

Attention!

- **The electric adjustment drive is not intended for use by small children or the unsupervised infirm.**
- **The electric adjustment drive is not a toy for children to play with.**

a) Prerequisites

The high-performance **GIGAMAT** drive requires powerful DEWERT controls. Regarding the variation options available, contact your DEWERT customer support.

In this connection please also follow the installation instructions supplied with the accompanying control unit.

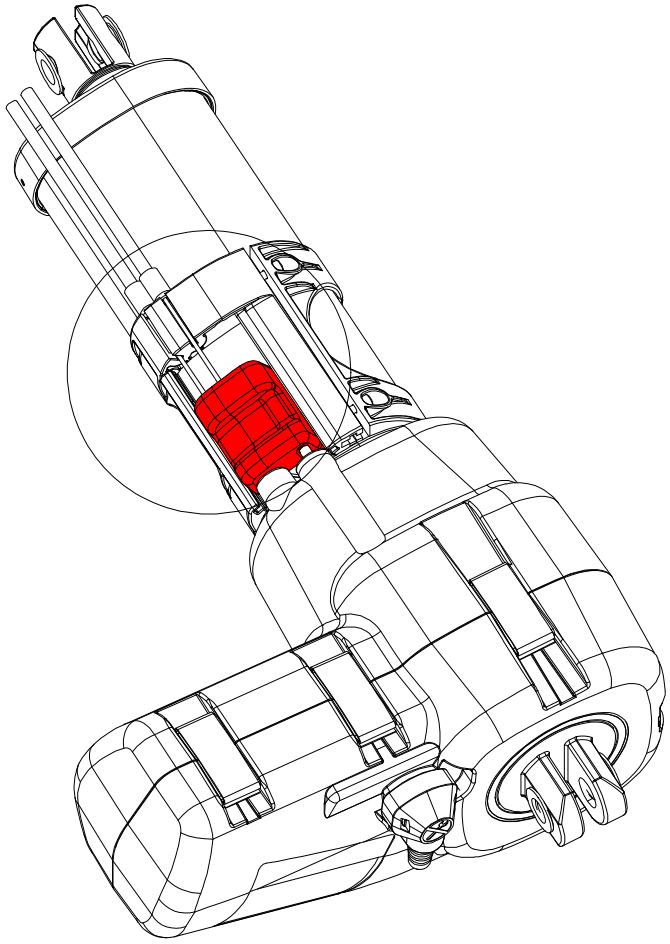
b) Mechanical release functions (Quick release, “QR”)

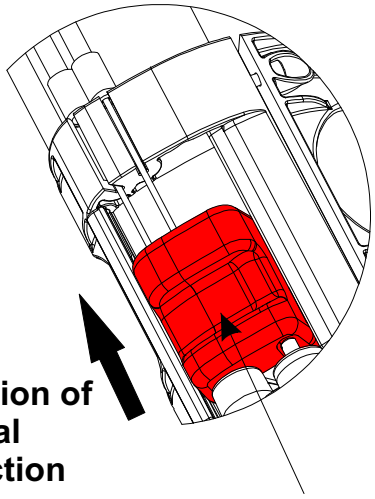
The **Quick release ”QR”** allows manual adjustment of the drive, e.g. in emergency situations or in the event of a power failure.

If you have acquired a **GIGAMAT** drive system **with Quick release “QR”**, please note the following:

- Where the QR version is involved, installing mechanical limit stops in your end product is recommended for the top end-of-travel position. For the bottom end-of-travel position it is absolutely imperative.
- Actuate the mechanical release and move the drive into the desired position.
- The “QR” system can be used at any time, also in the loaded state.
- The “QR” system is equipped with a high-quality clutch system, designed for continued use.
- To allow actuation, one or two suitable commercially available **Bowden cable** (ø6.0 mm, sheathing) were provided. They were fastened in the **Bowden cable receptacles** (the Bowden cable is not a part of the supply package).
- Always make sure that the return of the quick release functions flawlessly. Therefore also check the return of your Bowden cable system to ensure that it too is functioning flawlessly; it may be necessary to use an additional retracting spring in your application.

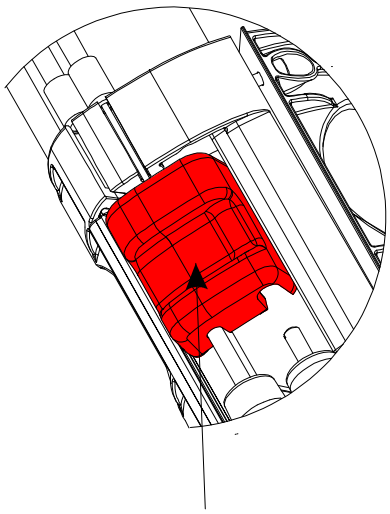
Depending on the type of application, lowering via its unloaded weight is possible. If the application does not permit lowering via its unloaded weight, you must facilitate this procedure by applying slight pressure to the power-adjustable section of the application.





Pull direction of mechanical disconnection

Release mechanism (Quick release “QR”)

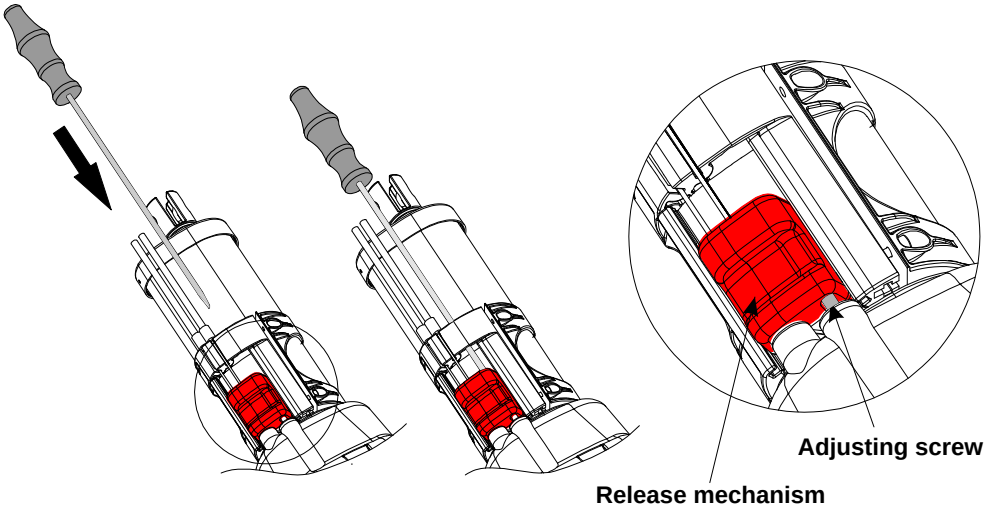


Release mechanism activated (Quick release “QR”)

GIGAMAT

Depending on the type, the drive can generate adjustment forces of more than 10000N (equivalent in weight to one ton). Before putting into operation, check whether the lowering behaviour of the quick release is properly adjusted for your particular application. If in doubt, screw in the adjusting screw fully.

c) Setting/Adjusting the QR push block (lowering speed)



The adjusting screw can be set to trigger disengagement from a specific rated load. The adjusting screw acts as a stop screw for actuating the red disengagement device.

In the delivery state the drive is supplied pre-set (production-related).

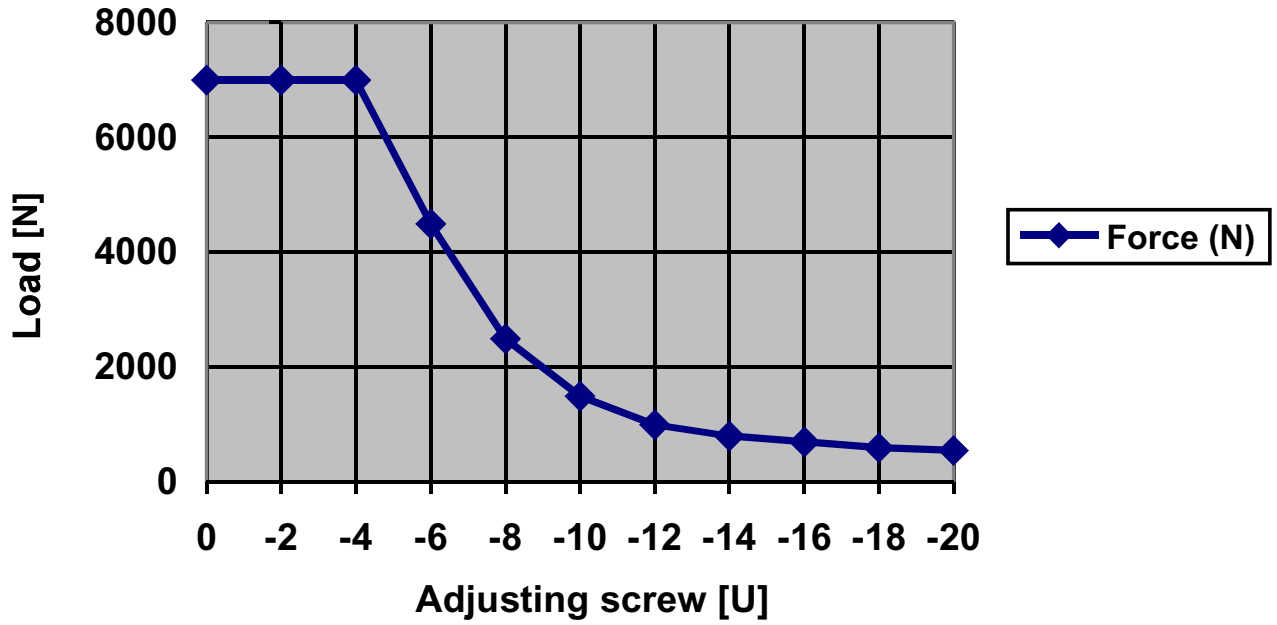
In this way the lowering behaviour of the clutch can be adjusted to comply with the rated load and application.

- Insert the screwdriver (Dewert equipment no. 60266) into the release mechanism.
- Turn the adjusting screw clockwise (to the right), the path of the release mechanism is shortened. (Adjustment in the direction of maximum lowering forces. The drive can only be disengaged in the case of higher loads.)
- Turn the adjusting screw anti-clockwise (to the left), the path of the release mechanism is lengthened (Adjustment in the direction of minimum lowering forces. The drive can be disengaged already in the case of smaller loads.)

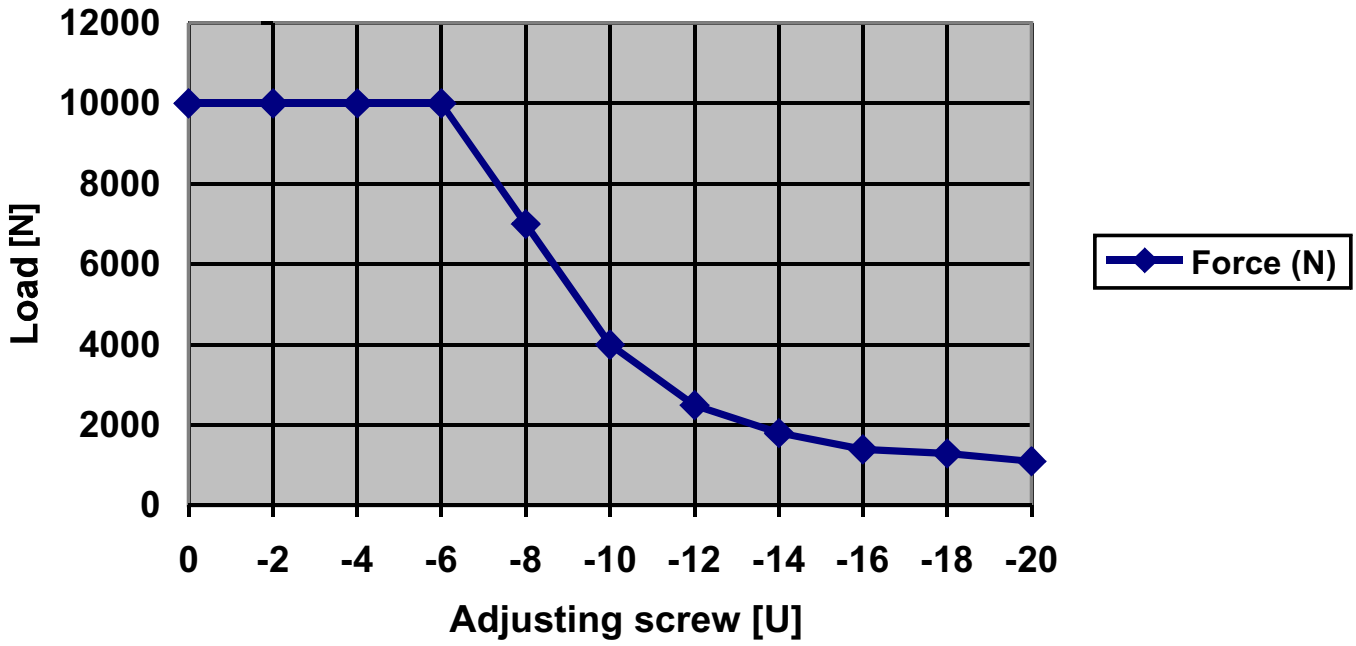
Force tables

The following tables show the relationship between the revolutions of the adjusting screw to the nominal load, or start from nominal load it is possible to disengaged the drive.

Gigamat 10000N lowering force in relation to the adjusting screw



Gigamat 10000N lowering force in relation to the adjusting screw

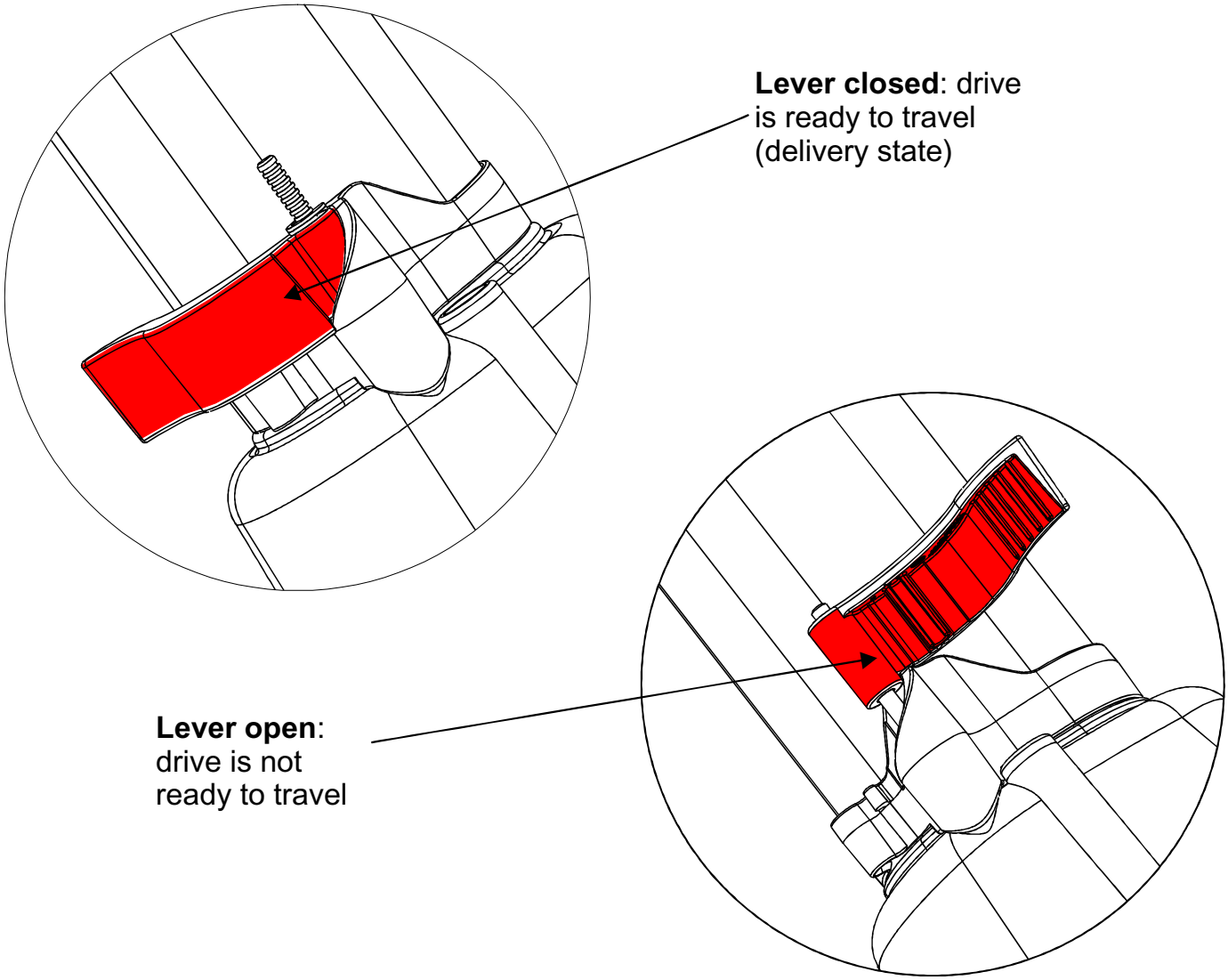


d) Mechanical disconnection function (quick release, QR patient lift)

The **Quick release,** QR patient lift permits manual adjustment of the drive, e.g. in emergency situations or in the event of a power failure.

If you have acquired a **GIGAMAT drive system with Quick release „QR patient lift“**, please note the following:

- **Actuate (open) the lever and move the drive into the desired position by screwing in the stroke pipe**. The QR system for a patient lift is equipped with a self-locking spindle mechanism for safety reasons. This prevents uncontrolled lowering once the QR lever has been opened. Depending on the load situation, it may be necessary to initiate or assist the lowering procedure by turning the stroke pipe.
- The QR patient lift can be operated at any time, also in the loaded state.
- Trap protection: 150N
- After releasing (closing) the lever, the drive automatically re-engages. The drive system is ready for operation again.



e) Maintenance and Repairs

At regular intervals carry out the inspections in accordance with the BGV A3 (Instruction of the Professional Trade Association). The inspections must be performed by an electrical specialist.

The recommended inspection period is: **6 months**

In addition to the above, the following checks should be carried out at shorter intervals:

- **Regular visual checks** for damage of all kinds
  Check the housing for **cracks** and **fractures** and the connection lead for signs of **pinching** and **shearing-off**. Also check the **strain relief** with **kink protection**, in particular after each case of mechanical loading. Any **damaged connection leads** of equipment must be replaced by **the manufacturer** or **persons qualified** to do so (see page 3) in order to exclude hazards.

- **Regular functional testing of the "Quick Release, QR"** by actuating the Bowden cable, as described on page 12 and 13.

- Check the limit switches by using the DEWERT control unit to make the drive travel to the end-of-travel positions.

Caution!

For Your Own Safety!

Shutdown in an emergency is achieved **by pulling the mains plug out of the drive controls!** For drive systems with **optionally accumulator**, it is not sufficient to **simply** pull out the mains plug! Due to residual charge in the accumulator, the drive can still start up even if the mains plug has been pulled out!

The **mains plug** and **the accumulator plug/Emergency-OFF switch** must therefore be accessible **at all times** when the system is in operation to ensure it can be quickly **pulled out of the wall socket resp. the accumulator socket of the control unit** in an emergency.

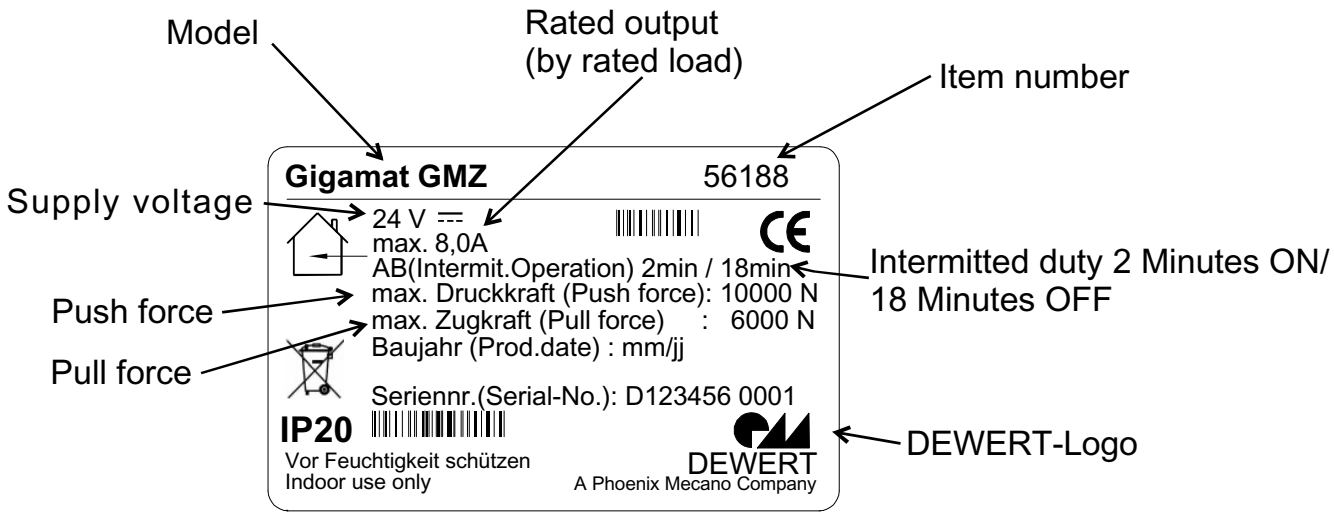
Movement of the drive takes place via a stroke pipe. Please bear this in mind when designing your product:

- After installing the **GIGAMAT** make sure that no shearing or trap/crush zones are accessible from the outside.

In the Operating Instructions to be drawn up by yourselves, it is essential that you draw the operator's attention to the points mentioned here.

6. Type Label and Seal (Example)

Each drive component carries an identification label giving the exact model, item number and technical specifications (see following figure as an example).



Graphical Symbols

CE — Conformity mark

IP20 — Protection category

Use in dry rooms only!

Do not dispose in your household waste!

In order to guarantee the safety of DEWERT products, a seal is attached to all DEWERT products. Opening the product damages the seal, thereby indicating that the drive has been altered or tampered with. The drive may only be opened by specialist personnel holding the qualifications as described on page 3.

7. Trouble-shooter's Guide to Detect and Eliminate Common Faults and Errors

The following table has been developed to help you detect and eliminate common faults and errors. If you come across a fault/error that is not listed here, please contact your supplier. All of these faults/errors may only be investigated and rectified by specialists holding the qualifications as described on page 3.

Problem	Possible Cause	Remedy
Handset or drive system without function	- Handset or drive system defective - No supply voltage	- Contact your supplier/ dealer - Connect to mains
Drives suddenly no longer respond, no movement takes place	- Thermoswitch on transformer or in The DEWERT controls has possibly been triggered - Temperature fuse in transformer has possibly been triggered - Instrument fuse has possibly been triggered - Lead (mains and/or handset/slave Drives) interrupted - No supply voltage - QR (Quick release) has been operated	- Leave the drive system in the rest position for approx. 20-30 minutes - Contact your supplier/ dealer - Check the lead, if necessary restoring contact[1)] - Check the Bowden cable
When travelling in the one direction, the drive produces a clicking sound	- The drive's freewheel clutch has been activated	- Release the drive from the blocked state - Check the mechanics of the application for smooth running
Motor is running but the drive does not move	- GQR Bowden cable is not at the starting position	- Adjust Bowden cable

[1)] see page 17 Maintenance and Repairs

8. Cleaning

The **GIGAMAT** drive system has been designed to facilitate cleaning for the user, and this has been made even easier thanks to the large number of flat surfaces.
The **GIGAMAT** drive system should be cleaned with a household cleaning agent suitable for plastic using a damp cloth. Always note the instructions provided by the manufacturer of the respective cleaning agent used.

Before cleaning, always pull out the mains plug of the controls!

Never clean the drive system in a wash tunnel or with a **high-pressure cleaner nor spray liquids onto it.** You otherwise risk damaging the equipment!

When **cleaning** take care not to damage the drive system's **connection lead**!

In its basic version the drive system meets the requirements of the IP20 protection category. You have the option of upgrading the protection category to IP44 or IP54.

Do not use any solvents such as **benzene**, **alcohol** or similar substances.

9. Disposal

The **GIGAMAT** drive system contains electronic components, cables, metal, plastic etc.
The **GIGAMAT** drive system should be disposed of in accordance with the environmental regulations applicable in the respective country. Information on this subject can also be obtained from:

Federal Association for
Disposal Management BDE
Behrenstraße 29
10117 Berlin
Germany
Phone: +49 (0) 30-59 00 33 5-0
Www.bde-berlin.de

Notes on environmental directives and legislation

- The product complies with the European Directive 2002 / 95 / EC (RoHS as of 01.07.2006).
- The product is not subject to the European Directive 2002 / 96 / EC (WEEE) and its amendment EU Directive 2003 / 108 / EC.

The GIGAMAT drive system may not be disposed of with the normal household waste!

EC Manufacturer's Declaration

DEWERT
A Phoenix Mecano Company

According to Appendix II B of the EC Machinery Directive (98/37/EC)

The Manufacturer:

DEWERT

Antriebs- und Systemtechnik GmbH

Weststr. 1

32278 Kirchlengern

Germany

hereby declares that the drive system described below

GIGAMAT (GMZ)

is not a ready-to-use machine in keeping with the EC Machinery Directive and, therefore, does not fully comply with the requirements of the Directive!

This machine may not be put into operation until conformity with the above Directive of the entire machine, into which it is to be installed, has been declared!

Partially applied harmonized standards:

Based on:

EN 292-1 Safety of Machines, Basic Terminology, Methods

EN 292-2 Safety of Machines, Guiding Technical Principles

Kirchlengern, 21th November 2008

Andreas Roither
Managing Director R&D and Engineering

GIGAMAT

EC Declarations

EC Declaration of Conformity

according to appendix IV of the EC Directive on Electromagnetic Compatibility 2004/108/EEC,
according to appendix III of the EC Low-Voltage Directive 2006/95/EEC

The Manufacturer:

DEWERT
Antriebs- und Systemtechnik GmbH
Weststr. 1
32278 Kirchlengern
Germany

hereby declares that the drive system described below

GIGAMAT (GMZ) with DEWERT Controls

meets the following EC Directives:

Directive on Electromagnetic Compatibility 2004/108/EEC

Low-Voltage Directive 2006/95/EEC

Applied Standards:

EN 60335-1
EN 55014-1
EN 55014-2
EN 61000-3-2
EN 61000-3-3
EN 50366 (measurement distance: 5cm)

Constructional changes which affect the technical data stated in the Installation Instructions as well as the designated use, in other words which alter the drive system in a significant way, make this Declaration of Conformity null and void!

Kirchlengern, 21th November 2008

Andreas Roither
Managing Director R&D and Engineering

Additional Information

For the GIGAMAT (GMZ) drive system in the IP44 and IP54 versions with DEWERT CARE/HOSP control unit and AccuControl 4.5, the following standards were applied Based on EN 60601-1:1990 +A1:1993 +A2:1995, Electro medical Equipment.

EN60601-1, main section 2	Environmental Conditions
EN60601-1, main section 3	Protection against Electrical Shock Hazard
EN60601-1, section 21	Mechanical Strength
EN60601-1, main section 7	Protection against Excessive Temperatures
EN60601-1, main section 9	Non-designated Operation and Cases of Faults
EN60601-1, main section 10	Constructional Requirements
EN60601-1, section 56.8	But without power supply indicator
EN60601-1, section 36	Electromagnetic Compatibility
EN60601-1-2	Electromagnetic Compatibility

Option: Partially based on EN 60601-2-38:1996 +A1:2000, Particular requirements for the safety of electrically operated hospital beds

EN60602-2-38, clause 5.3	min IPX4
EN60601-2-38, clause 28.4	(twice time / four times static safety)

Option: Partially based on ISO 10535:2006, Hoists for the transport of disabled persons

ISO 10535, clause 4.3.1.2	Electrical safety
ISO 10535, clause 4.3.1.23	Electromagnetic compatibility
ISO 10535, clause 4.3.1.24	min IPX4
ISO 10535, clause 4.3.19	Safety device

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A Phoenix Mecano Company

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