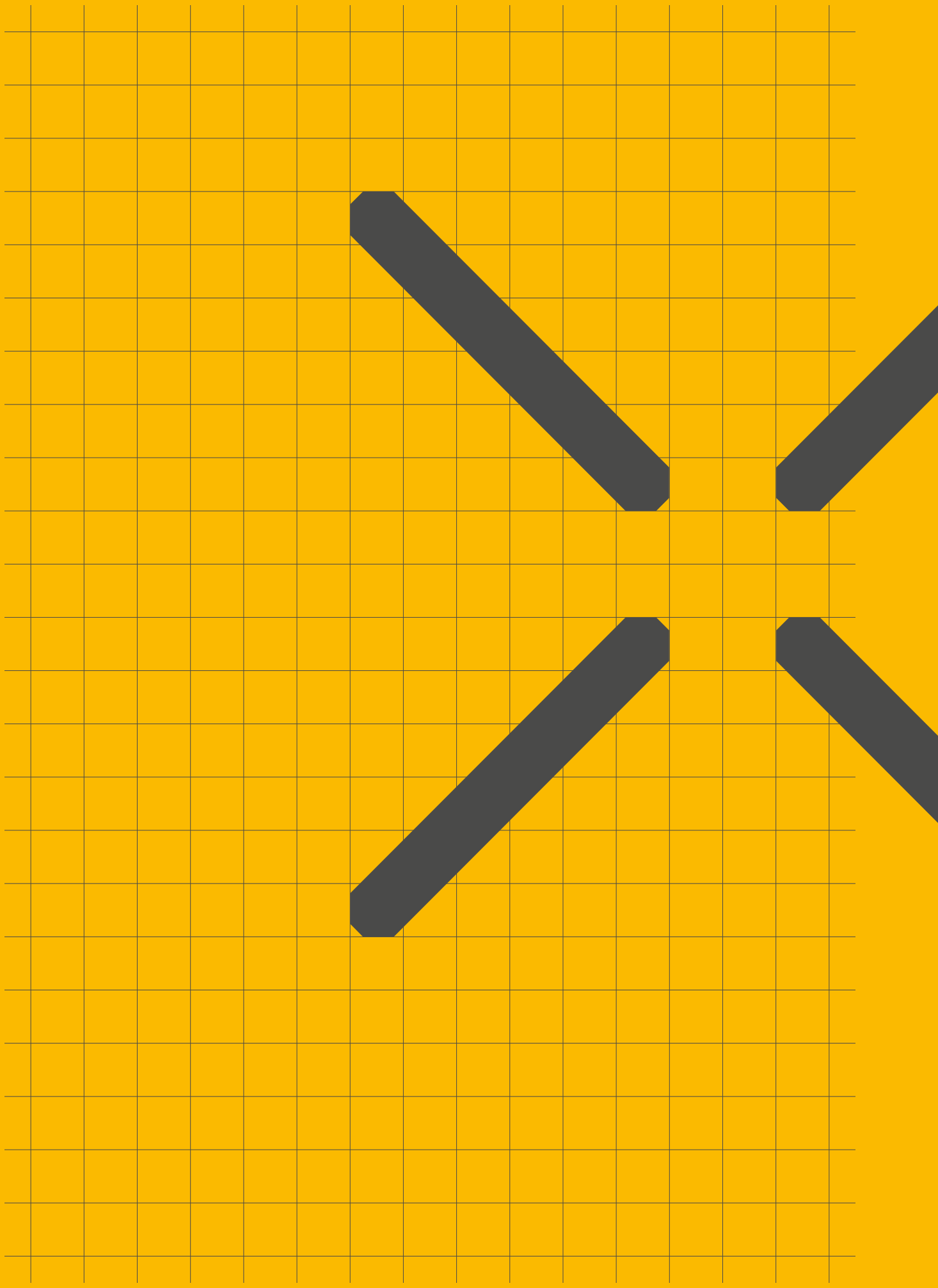
EWELLIX

MAKERS IN MOTION

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

CPMT

Telescopic pillar



Contents

⚠ WARNING

Read this manual before installing, operating or maintaining this telescopic pillar. Failure to follow safety precautions and instructions could cause telescopic pillar failure and result in serious injury, death or property damage. Keep this manual nearby for future reference.

1.0 General information

1.1 Information in this manual

This manual provides important information on how to work with the telescopic pillar (also called the device) safely and efficiently. The manual is part of the device, must always be kept near the device and should be available for personnel to read at any time. All personnel working with the device must read and understand this manual before starting any work. Strict compliance with all specified safety notes and instructions is a basic requirement.

Moreover, the accident prevention guidelines and general safety regulations applicable at the place of use of the device must also be complied with.

For better representation of circumstances, the illustrations in this manual are not necessarily to scale and may vary from the actual design of the device.

All information and notes in this manual were compiled with due consideration given to applicable standards and regulations, the present status of technology and our years of knowledge and experience.

⚠ DANGER

Indicates a dangerous situation, which will lead to death or serious personal injury, if the precautionary measures are ignored.

⚠ WARNING

Indicates a dangerous situation, which can lead to minor or moderate injury or property damage, if the precautionary measures are ignored.

⚠ CAUTION

Indicates a dangerous situation, which can lead to minor or moderate injury the precautionary measures are ignored.

NOTE

Emphasizes useful hints and recommendations as well as information for efficient and trouble-free operation.

1.2 Explanation of symbols and signal words

Safety precautions

Safety precautions are identified by symbols and signal words defined on the right side of this page. These signal words indicate the severity of the hazard. Adhere to these safety precautions and take caution in order to avoid accidents that may result in personal injury or damage to property.

1.3 Limitation of liability

All information and notes in this manual were compiled under due consideration of valid standards and regulations, the present state of technology and our years of experience.

The manufacturer will not be liable for injury or damage resulting from:

- disregarding this manual
- unintended use
- employment of untrained personnel
- unauthorized conversions
- unauthorized technical modifications
- manipulation or removal of the screws on the device

Where the telescopic pillar has been customized by Ewellix, the actual product delivered may be different from what is described in this manual. In this case, ask Ewellix for any additional instructions or safety precautions relevant to this product.

We reserve the right to make technical modifications to the telescopic pillar to improve usability.

1.4 Copyright

This manual is protected by copyright law and to be used exclusively by Ewellix customers for internal purposes.

Passing this manual on to third parties, duplication of any kind – even in the form of excerpts – as well as the use and/or disclosure of the contents without the written consent of the manufacturer, is not permitted, except for internal purposes.

Violation of Ewellix's copyright may become the subject of a future claim for damages.

1.5 Spare parts

This telescopic pillar is designed to be repairable. Repairs must only be carried out by persons authorized by the manufacturer. All warranty and service claims become void without notice, if any screws on the telescopic pillar have been manipulated.

⚠ WARNING

Safety hazard caused by wrong spare parts

Wrong or faulty spare parts can adversely affect safety and cause damage, malfunctions or total failure.

Therefore, follow the precautions below:

- Use only genuine spare parts from the manufacturer.
- Spare parts in/on the device may only be replaced by the manufacturer.

If the device cannot be repaired on site by authorised personnel, it must be dismantled from the application and sent to the manufacturer.

1.6 Warranty terms

The applicable and effective warranty terms are those contained in the manufacturer's terms and conditions of sale contained in the Ewellix sales contract that governs this sale.

1.7 Customer service

Ewellix Customer Service is always available to provide technical information and answer questions.

The contact information for Ewellix Customer Service can be found on www.ewellix.com.

2.0 Safety

2.1 Use

2.1.1 Intended use

The device has been designed and built exclusively for its intended purpose as described in these instructions. The device is to be used only for dynamic centric compression or tensile-loaded lift of a load. It is intended for interior use only.

The device has been designed for the movement of medical equipment, specifically medical procedure chairs and tables.

2.1.1.1 Product service life

The telescopic pillar CPMT is designed for a service life of 10 years in a typical medical procedure equipment application.

Product service life of the telescopic pillar CPMT depends on the stroke and load of the application. According to the L_{10} lifetime of the device, 56 000 cycles can be achieved in an average medical procedure application (average load of 4 000 N and average stroke of 150 mm)

Some reference values for different stroke and load conditions are given in the table below.

Lifetime [cycles] reference at given average load and stroke			
Average load F_m	4 000 N	5 000 N	6 000 N
CPMT1-XS0XXXFX-000			
Stroke = 150 mm	42 000	23 000	14 000
Stroke = 300 mm	21 000	11 000	7 000
Stroke = 500 mm	12 000	7 000	4 000
CPMT1-XM0XXXFX-000			
Stroke = 150 mm	56 000	30 000	18 000
Stroke = 300 mm	28 000	15 000	9 000
Stroke = 500 mm	17 000	9 000	5 000

2.1.2 Unintended use

Any use other than the intended use, or modifications to the device without the manufacturer's written agreement, or operation beyond the technical limits, is considered unauthorized.

Specific application exemptions are:

- Flammable anaesthetic mixture with air
- Flammable anaesthetic mixture with oxygen or nitrous oxide
- Increased radiation
- Places exposed to water (wet rooms)

NOTE

Any unauthorized use of the device can cause personal injury and property damage. Always adhere to the instructions given in this manual.

2.1.3 Essential performance

The essential performance of the telescopic pillar CPMT is moving or holding a load within the boundaries defined by the device specifications given in this operating manual and the datasheet.

2.2 Responsibility of the owner and processor

The device is designed for use in commercial applications by its owner or processor.

The processor is the contracting partner of the reseller or the manufacturer. The processor installs the device in a complete system (application).

The owner or processor of the system is therefore subject to the requirements of the Occupational Health and Safety Act.

In addition to the safety instructions in this manual, the owner or processor must do the following, concerning safety and accident prevention guidelines and environmental protection regulations, applicable to the site of the system's installation:

- Inform themselves of applicable industrial safety regulations. They must also determine additional hazards that arise due to the specific working conditions prevailing at the site where the device is installed, using risk assessment. The risk assessment must be implemented in the form of work instructions for device operation.
- Confirm that the work instructions created for the system, including the device, satisfy current legal requirements, and if not, alter the instructions accordingly.
- Clearly regulate and specify the responsibilities for installation, operation, maintenance, and cleaning.
- Ensure that all employees who deal with the device have read and understood this manual.
- Provide personnel with the required protective equipment.
- Provide training for personnel at regular intervals and inform personnel of the hazards.

In addition, the owner or processors must ensure that the device is in adequate working condition. They must do the following:

- Ensure that the maintenance intervals described in these instructions are complied with.
- Have all safety devices inspected regularly for function and completeness.

2.3 Personnel requirements

⚠ WARNING

Improper installation, operation and maintenance can result in serious injury, death or property damage.

Use only qualified, instructed or trained personnel (as described below) who have read, understood and followed these instructions.

2.3.1 Qualifications

The following qualifications are specified for different areas of activity listed in this manual.

- **An instructed person (operator)**: Instructed by the customer in an orientation session on the assigned tasks and possible dangers arising from improper behaviour.
- **Qualified personnel**: Based on their professional training, know-how and experience, as well as knowledge of the applicable standards and regulations, are able to independently perform assigned work activities and to detect and avoid possible dangers.
- **Professional electrician:** Based on his/her professional training, know-how and experience, as well as knowledge of the applicable standards and regulations, is able to independently perform work on electrical systems and to detect and avoid possible dangers.
  In addition, the professional electrician has been trained for the special location where he/she works and knows the relevant standards and regulations.

Only persons who can be expected to perform their tasks reliably, are permitted to work with this device. Persons whose reaction capabilities are impaired, through the use of drugs, alcohol or medication for example, are not permitted.

2.4 Specific dangers

The following section lists the residual risks that have been determined by a risk assessment.

- Heed the safety instructions listed here, and the warnings in sub-sequent chapters of this manual, to reduce health hazards and to avoid dangerous situations.

⚠ WARNING

Danger of injury caused by moving components
Rotating and/or linearly moving components can cause serious injury.
Therefore:

- Do not work on, or place, hands ,arms or any other parts of the body, close to moving components.

2.5 Safety equipment

Integration of an emergency-stop system (for certain applications)

The device is intended only for installation into an application or system. It does not have its own operating control elements, and does not have an independent emergency-stop function. Therefore, the device must be installed so that it is part of an emergency shut-off system and can be stopped if necessary.

The emergency shut-off system must be connected in such a way that any disruption of the power supply or reactivation of the power supply after a power disruption, cannot cause a hazardous situation for persons or objects.

The emergency shut-off system must always be freely accessible.

NOTE

The processor decides which applications require installation of an emergency shut-off system.

Integration of a patient release system (for certain applications)

The device is intended only for installation into an application or system. It does not have its own operating control elements, and does not have an independent patient release mechanism. In the event of a malfunction, the device cannot extend or retract.

If required by the application, a separate provision for patient release must be installed, to allow safe release of the patient in case of emergency, or equipment failure.

NOTE

The processor decides whether the intended application requires the installation of an emergency patient release system.

Integration of a safety mechanism to prevent unintended triggering of the operating device (for certain applications)

The device does not have its own operating control elements, and does not have a safety mechanism against unintended triggering of the operating device.

If required by the application, a safety provision must be provided to prevent unintended triggering of the operating device.

NOTE

The processor decides whether the intended application requires the installation of a safety mechanism to prevent unintended triggering of the operating device.

The following safety mechanisms have been installed:

- The telescopic pillar CPMT is fitted with a thermoswitch in the motor, which switches off the telescopic pillar if the temperature reaches a certain threshold, in order to reduce the risk of fire.
- Backup nuts are fitted on the ballscrews to prevent the pillar from collapsing if there is a ballscrew failure.
- End limit switches are installed to provide a safe current cut-off when the end of stroke position of the device is reached. In case of failure of the end limit switches, a mechanical safety end-stop prevents the device from exceeding its intended stroke.

2.6 Safeguard against restart

⚠ WARNING

Life-threatening situation through unauthorized restart
For work in hazard zones, there is a risk that the power supply could be turned on without prior authorization. This presents a potentially life-threatening situation for people in the hazard zone.

- Read the information contained in this manual, concerning safeguarding against any unintentional restart of the power supply.
- Always follow the procedure as described below.

Protect CPMT against an unauthorised restart

Pull the power-line plug of the control unit attached to the CPMT, out of the power outlet.

2.7 Modifications of device

⚠ WARNING

To avoid hazardous situations and to ensure optimal performance, do not make any changes or modifications to the device unless they have been specifically authorized by Ewellix.

2.8 Manufacturer's declaration of EMC compliance

IEC/EN 60601-1-2:2007
Medical Electrical Equipment
Part 1-2: General requirements for safety
Additional standard: Electromagnetic compatibility-requirements and tests

Guidance and manufacturer's declaration – electromagnetic emissions (Table 1 - IEC 60601-1-2)
The telescopic pillar CPMT is intended for use in the electromagnetic environment specified below.
The customer or user of the telescopic pillar should ensure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The telescopic pillar CPMT uses only RF energy for internal function. Therefore, RF emissions are very low and not likely to cause any interference with nearby electronic equipment.
RF emissions CISPR 11	Class B	The telescopic pillar CPMT is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacturer's declaration – electromagnetic immunity (Table 2 - IEC 60601-1-2)

The telescopic pillar CPMT is intended for use in the electromagnetic environment specified below.
The customer or user of the telescopic pillar should ensure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U1 (>95% dip in U1) for 0,5 cycle 40% U1 (60% dip in U1) for 5 cycles 70% U1 (30% dip in U1) for 25 cycles <5% U1 (>95% dip in U1) for 5 s	<5% U1 (>95% dip in U1) for 0,5 cycle 40% U1 (60% dip in U1) for 5 cycles 70% U1 (30% dip in U1) for 25 cycles <5% U1 (>95% dip in U1) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the telescopic pillar CPMT requires continued operation during power mains interruptions, it is recommended that telescopic pillar CPMT is powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	If distortion occurs, it may be necessary to position the telescopic pillar CPMT further from sources of power frequency magnetic fields, or to install magnetic shielding. The power frequency magnetic field should be measured in the intended installation location to ensure that it is sufficiently low.

Note: U1 is the a.c. mains voltage prior to application of the test level.

Guidance and manufacturer's declaration – electromagnetic immunity (Table 4 - IEC 60601-1-2)

The telescopic pillar CPMT is intended for use in the electromagnetic environment specified below.
The customer or the user of telescopic pillar should ensure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the telescopic pillar CPMT, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1,2 \sqrt{P}$ $d = 1,2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2,3 \sqrt{P}$ 800 MHz to 2,5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey[1], should be less than the compliance level in each frequency range[2]. Interference may occur in the vicinity of equipment marked with the following symbol:
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	

Note 1: At 80 MHz and 800 MHz, the higher frequency range applies.
Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

[1] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the telescopic pillar CPMT is used exceeds the applicable RF compliance level above, the Model 006 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the telescopic pillar CPMT.

[2] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the telescopic pillar CPMT (Table 6 – IEC 60601-1-2)

The telescopic pillar CPMT is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or user of the telescopic pillar CPMT can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the telescopic pillar CPMT as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter [W]	Separation distance according to frequency of transmitter [m]		
	150 kHz to 80 MHz $d = 1,2 \sqrt{P}$	**80 MHz to 800 MHz** $d = 1,2 \sqrt{P}$	**800 MHz to 2,5 GHz** $d = 2,3 \sqrt{P}$
0,01	0,1	0,1	0,2
0,1	0,4	0,4	0,7
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12,0	12,0	23,0

3.0 Technical data

NOTE

The technical data (dimension, weight, output, connection details etc.) can be found in the appendix.

3.1 Ambient conditions

Operation

- Indoor use only at: Operation
- Ambient temperature +10 to +40 °C.
- Atmospheric humidity max 90%
- Air pressure from 700 to 1 050 hPa
- Overvoltage Category I device
- Pollution degree 2

Storage/transport

- Temperature –20 to +60 °C
- Atmospheric humidity from 0% to 90%, non-condensing
- Air pressure from 700 to 1 050 hPa

3.2 Product label

The type label (**fig. 1** and **fig. 2**) is located on the outer tube and contains the following information:

Fig. 1

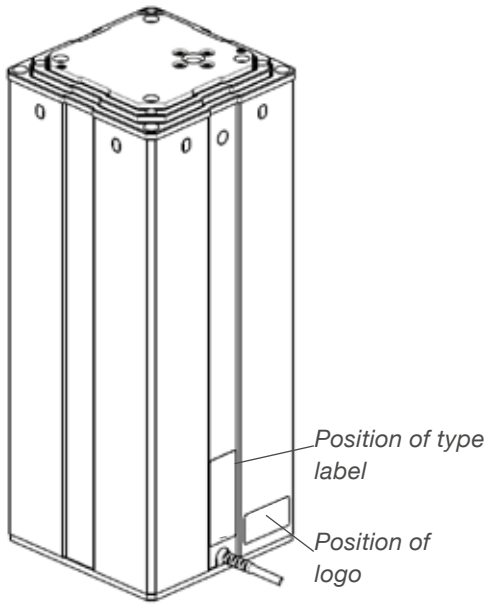
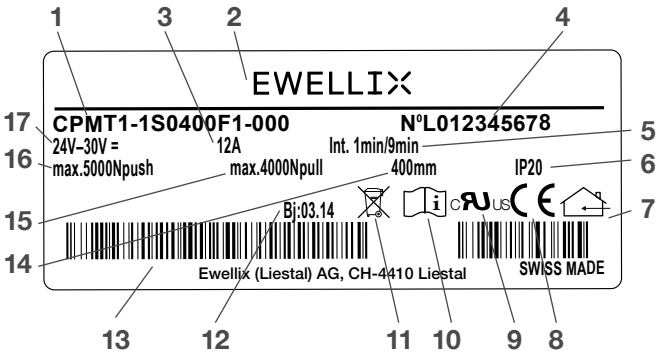


Fig. 2



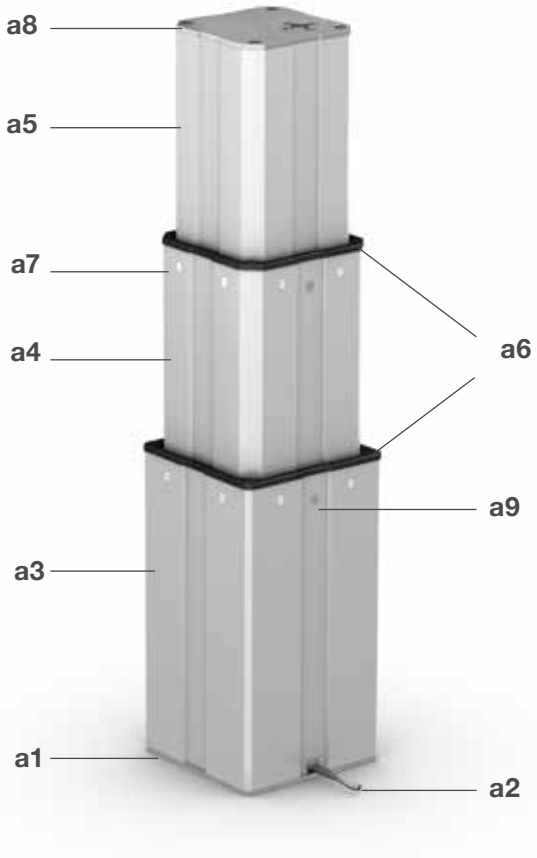
Type label (without options):

1. Type designation
2. Manufacturer
3. Maximum current consumption
4. Serial number
5. Duty cycle of operation (ON/OFF time)
6. IP protection class
7. Indoor use only
8. CE mark
9. UL test mark
10. Recommendation to read operating manual
11. Disposal information
12. Date of manufacture (month, year)
13. Manufacturer's address
14. Maximum stroke
15. Pull force
16. Push force
17. Voltage

4.0 Structure and function

4.1 Overview

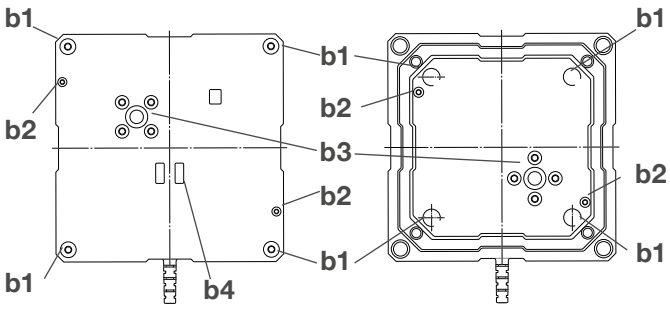
Fig. 3



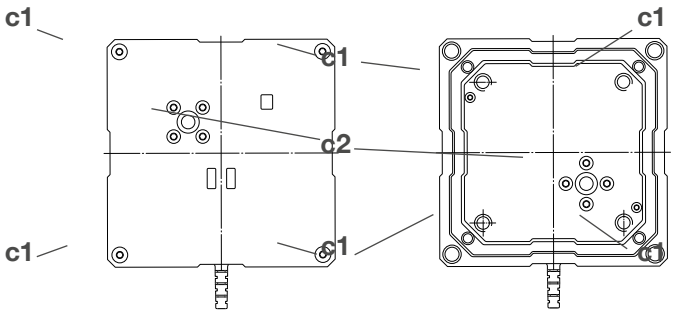
a1. Outer tube base plate
a2. Motor cable
a3. Outer tube
a4. Middle tube
a5. Inner tube
a6. Rim covers
a7. Glide pads
a8. Inner tube base plate
a9. Mechanical safety end stop

Fig. 4

Outer tube base plate *Inner tube base plate*



b1. Threads M10 for mounting screws
b2. Centering screws for plates on tube
b3. Attachment of ballscrew to base plates
b4. Hole on outer tube base plate – no function



c1. Areas of force distribution
c2. Areas of force distribution

4.2 Brief description

The functional principle of the telescopic pillar CPMT is based on a push or pull force for the movement of centric and eccentric loads. The CPMT requires an external controller for it to be operational.

A DC gear motor attached to the middle tube drives two spindle nuts simultaneously via a spur gear. The rotation of the nuts induces a linear motion of the two ballscrews in opposing directions. The ballscrews are attached to the base plates and cause an extension or retraction of the telescopic tubes depending on the direction of motion. A built-in brake holds the position at a standstill or during power cut.

Outer tube base plate (a1)

The outer tube base plate has four holes to access attachment bores in the outer tube (b1) for the mounting screws. This enables the pillar to be fastened to one side of the application. The outer tube base plate must be attached permanently with fastenings screws M10 to a metal plate in the application, which has to support the areas of force distribution (c1, c2).

Motor cable (a2)

The cable (a2) exits to one side at the outer tube base plate (a1) and has to be connected to an external control unit via the DIN-8 plug or the flying leads cable attached.

Outer tube (a3)

The outer tube is the tube with the largest outside dimensions. The CPMT pillar can be mounted in any orientation to place the outer tube (a3) at the top or bottom of the application.

Middle tube (a4)

The middle tube is the tube between the outer and inner tubes.

Inner tube (a5)

The inner tube is the tube with the smallest outside dimensions. The CPMT pillar can be mounted in any orientation to place the inner tube (a5) at the top or bottom of the application.

Rim covers (a6)

The purpose of the rim covers for the outer and middle tube is to protect the tube guiding system from dust and to prevent the ingress of foreign matter. The rim covers must not be removed under any circumstances.

Glide pads (a7)

The purpose of the glide pads (a7) is to provide a stiff, virtually play-free guiding of the tube sets.

Inner tube base plate (a8)

The inner tube base plate has four holes to access attachment bores in the inner tube (b1) for the mounting screws. Its purpose is to fasten the pillar to one side of the application. The inner tube base plate must be attached permanently with fastenings screws M10 to a metal plate in the application, which has to support the areas of force distribution (c1, c2).

Mechanical safety end-stops (a9)

The purpose of the mechanical safety end-stops (a9) is to block the extension of the tubes in the event of failure of the end limit switches. This is a safety mechanism only.

Areas of force distribution (c1, c2)

The outer and inner tube base plates must be attached to a support plate in the application. The areas of force distribution have to be supported in the application by an adequately dimensioned support plate covering these areas. This support plate must not be removed under any circumstances.

Guide tube unit

The guide tube unit is made up of the outer tube (a3), middle tube (a4) and inner tube (a5), and its purpose is to carry centric and eccentric loads.

Drive unit

The permanent magnet motor is a 24–30 V DC gear motor and drives the ballscrews via a spur gear. The speed of the movement depends on the load and the direction of the movement. The motor and spur gear are attached to the middle tube (a4).

Spur gear

The spur gear drives the ballscrews. It is driven via the permanent magnet motor.

End positions

The stroke is limited by the integrated end limit switches that cut the power to the DC gear motor. If the CPMT moves beyond the end limit switches (in the event of a malfunction), a mechanical safety end stop (a9) halts the movement.

Thermo-switch

The thermo-switch in the motor, controls thermal and electrical overload and switches off the permanent magnet motor if it overheats. The pillar cannot be operated again until the drive temperature has fallen below the switching threshold.

Brake

The brake is attached to the gear motor. Its purpose is to block the movement of the pillar during standstill or if the power supply to the motor is cut.

External control unit

The DC gear motor is fed via an external control unit through the cable connection (a2). The control unit controls the running direction of the telescopic pillar. An integrated 2-hall encoder on the motor can be accessed by the controller to enable variable speed control or positioning.

NOTE

Additional variations between CPMT pillars are given in the appendix.

4.3 Requirements for third party control units (mandatory in medical applications)

Control units not approved by Ewellix for CPMT pillars, are treated as third party control units.

NOTE

It is strongly recommended to use original Ewellix controls for the operation of the CPMT pillar. If third party controls are used, there must be good documented evidence that the requirements listed below are complied with.

The secondary circuit of third party control units must be designed as an overvoltage category 1 circuit. The third party control unit must be fitted with an overload safety cut-off. The maximum power input to the device should be only 0.5 A above the nominal value. The maximum shut-off value may be only 1 A above the nominal value. For example: The maximum power consumption is 12 A. The recommended shut-off value is 12,5 A, the maximum cut-off value is 13 A.

NOTE

The current cut-off has to be set differently if the main load direction is in pull mode. Consult the Technical Data or datasheet in this manual, for maximum power consumption values for each type.

The third party control must enable the drive to draw currents up to 25 A for 200 ms after switching on (start-up current). The excess power shut-off feature can also be temporarily de-activated for this purpose.

The operating voltage of the CPMT pillar is 24-30 V DC. The no-load voltage of 36 V DC must not be exceeded. After the system has been installed, ensure electro-magnetic compatibility. The operating time and duty cycle of the CPMT pillar may not be exceeded (↳ **“Technical data”, Appendix, page 31**).

NOTE

The third party power supply must have an isolation between the primary and secondary circuits according to 2 MOPP, and provide a non-grounded secondary circuit.

Push-to-run operation (recommended): The pillar operates as long as the switch is pressed. The device does not have signals to indicate operation, and depending on the application, it is recommended to have an operational signal installed in the third party control unit.

For the 2-Hall encoder impulse transmitter, the third party control unit must fulfill the following additional requirements:

- Feed the hall sensors with a current of 4,5–26,5 V DC and a current limit of no more than 200 mA.
- Load the hall sensor outlets with a maximum of 20 mA.
- Connect the hall sensor outlets to the supply with pull-up resistors so that the signal of the open collector outlets can be analyzed.

4.4 Connections

Electrical connection

The telescopic pillar is connected to the control unit via the DIN-8 plug or the flying leads cable.

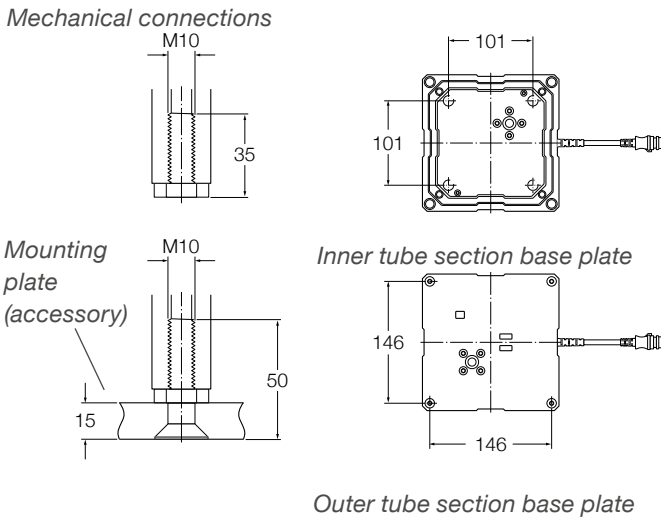
Connected load is 24 V–30 V DC and up to 12 A according to the technical data (↳ **Appendix, page 31**).

Important: Ensure that cables cannot get pinched or damaged. Check that the mains voltage corresponds to the nominal values on the type plate.

Fig. 5

Pin allocation and lead color code are given in the technical specification in the appendix.

Fig. 6



Important: Ewellix will not accept liability for any damage caused if the telescopic pillar CPMT is not used with a suitable operating device and supporting metal plates on outer and inner tube base plates.

4.5 Operating elements

Requirements for operating elements (mandatory in medical applications):

General safety requirements according to IEC 60601-1 currently valid edition, harmonized with national directives (Means of protection:
1 Means Of Patient Protection [MOPP]).

Suitable Ewellix operating elements are listed in the section Accessories.

4.6 Options

Options can be recognized from the type designation on the type plate.

Voltage

The option voltage defines the use for 24-30 V DC.

Load

The CPMT is available in two standard load options, 5000 N or 6000 N push force. Pull load is 4000 N for both options.

Retracted length

Two standard retracted length options are available, defined by the relationship to the stroke of the pillar. The options to choose from are ‘stroke/2 + 120 mm’ or ‘stroke/2 + 240 mm’.

Stroke length

The available stroke length for CPMT is from 300 mm to 600 mm in 10 mm steps for retracted length ‘stroke/2 + 240 mm’, and from 400 mm to 600 mm in 10 mm steps for retracted length ‘stroke/2 + 120 mm’

Electrical options

The CPMT pillar comes equipped as standard option with a 2-hall encoder and end limit switches.

Cable options

Available cable options are: With DIN-8 cable, in lengths of 1m or 2.3m; or with flying leads termination, in length of 2.3m.

4.7 Accessories

Mounting plates

The purpose of the mounting plates is to ensure that the pillar is fastened securely to the application and the force entry points to the pillar are well-supported. The base and top plates must be fastened to the mounting plates with four fastening screws M10.

Further details on accessories can be found in the appendix (↳ **Approved accessories, page 34**).

Important: Ewellix will not accept liability for any damage caused if the telescopic pillar CPMT is not used with a suitable Ewellix operating device or accessory.

⚠ WARNING

The use of accessories and cables other than those recommended by Ewellix for this device, may result in increased emissions or decreased immunity of the device.

5.0 Transport, packaging and storage

5.1 Safety information for transportation

⚠ CAUTION

Damage due to improper transport
Significant damage to the device may occur as a result of improper transport.
Therefore:

- Proceed carefully during delivery and unloading of the packaged items, as well as during transport to final destination. Comply with the symbols and information shown on the packaging.
- Do not remove the telescopic pillar CPMT from its packaging until just before installation.
- Note storage requirements for return transport of the device to the manufacturer (↳ **Storage, page 18**)

5.2 Transport inspection

The telescopic pillar is delivered as one packaged unit in a box or on pallets.

Check the delivery immediately upon receipt, for completeness and any signs of damage incurred during transport.

Check completeness of delivery for:

- A complete pillar unit with built-in options as defined by the type key on the type plate.
- Installed cable and low voltage connector (depending on the option chosen, with DIN-8 connector or flying leads)
- Additional accessories (only if selected at time of purchase)

If exterior transport damage is evident:

- Do not accept delivery or do so only under agreed conditions.
- Record scope of damage on the transport documents or bill of delivery of the shipping company.
- Initiate complaint.

NOTE

Report any damage as soon as possible, as damage claims can only be submitted within the transporter's applicable complaint period.

5.3 Return to the manufacturer

If device is damaged, arrange for return transport as follows:

1. Dismantle the device if necessary (↳ **Dismantling, page 30**).
2. Pack device in its original packaging. Follow storage conditions (↳ **Storage, page 18**).
3. Send to manufacturer. Contact Ewellix service to obtain a shipment address.

5.4 Packaging

Requirements:

All parts are packaged appropriately for anticipated transport conditions, using only environmentally-friendly packaging materials.

The packaging is intended to protect the individual components from damage caused during transport, or by corrosion and other potential hazards, until the components are ready for installation. Only remove packaging shortly before installation. The packaging should not be destroyed, but kept for possible return shipment to the manufacturer (↳ **Chapter 5.3, page 17**).

If the packaging is to be disposed of, please note and adhere to the following:

NOTE

Environmental damage due to incorrect disposal
Packaging material consists of valuable raw materials, much of which can effectively be recycled and reused.
Therefore:

- Dispose of packaging material in an environmentally correct way
- Comply with locally applicable disposal regulations.

5.5 Storage

Pack the device in its original packaging for storage

- Do not store outside.
- Dry and dust-free storage.
- Keep away from any aggressive media.
- Protect from UV radiation.
- Avoid mechanical vibrations.
- Ambient storage conditions according to section Storage.
- For storage longer than three months, check the general condition of all parts of the packaging on a regular basis.

NOTE

There may be notices on the packaging concerning additional storage requirements not listed here. If so, follow these accordingly.

6.0 Installation and first operation

Authorized personnel

- The installation and first start of operation may only be conducted by qualified personnel.
- Work on the electrical system may only be performed by professional electricians.

⚠ WARNING

Electric shock and moving parts hazards
Serious injury or death can be caused by touching live electrical components and by unexpected movement of the telescopic pillar.
Be sure the system's power supply is off and the device is locked out before installing.

⚠ WARNING

Danger if restarted without authorization
When correcting faults there is risk of the energy supply being switched on without authorization. This poses a life threatening hazard for persons in the danger zone.
Therefore:

- Prior to starting work, switch off the system and be sure it is locked out.

⚠ WARNING

Installation adjacent to other equipment
The device should not be installed adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the device should be trialled under observation, to verify normal operation in the configuration in which it will be used.

⚠ WARNING

Special precautions regarding EMC
The device requires special precautions regarding EMC and must be installed and put into service according to the EMC information provided in this operating manual (↳ **Safety, page 6**)

⚠ WARNING

Risk of injury and device damage due to incorrect installation of the optional devices
Therefore:

- Optional devices, in particular components that are part of a retrofit, may only be installed in accordance with respective instructions (circuit diagram).
- Electromagnetic compability must be tested for the routing, and appropriate corrective measures carried out if necessary and as described in the device's operating manual.

6.1 Installation location

- Adhere to the technical data for operating conditions.
- Install in a location according to the ambient operating conditions defined in the section Ambient Conditions.

6.2 Inspections prior to initial operation

- To be performed by a professional electrician

Prior to first operation, a professional electrician must perform and document the following tests and readings:

- Visual condition check
- Function check of operating features and safety features
- Reading of leakage currents
- Reading of insulation resistance

NOTE

Additional information concerning inspections and readings (↳ **Maintenance, page 25**)

6.3 Installation

- To be performed by qualified personnel.

⚠ WARNING

Risk of injury and device damage due to manipulation of the screws on the device

Manipulation or loosening of the screws on the device or the optional devices may lead to injury and device damage during the operation.
Therefore:

- Never loosen screws on the device or the options, except the transportation screws installed in the mounting bores.

6.3.1 Installation overview

The telescopic pillar CPMT can be mounted to the application via the Ewellix mounting plates available as accessory, or directly to the application. Mounting has to be done via the attachment bores on the outer and inner tube, which are accessible through the top and base plates (↳ **fig. 1, page 12**).

Screw	8 × M10
Screw-in depth	25 to 35 mm in the pillar
Strength class	10,9
Tightening torque	40 Nm

⚠ CAUTION

The outer and inner tube base plates are not designed to support the rated load of the pillar without additional support provided by mounting plates. If a custom mounting plate is used, ensure that it is dimensioned to provide sufficient support of the base plates.

The telescopic pillar CPMT can be mounted with the outer tube or the inner tube at the bottom. If the inner tube is fixed and the outer tube is able to move in the application, ensure that there is no possibility of strain or pinching of the power cable.

Any subsequent fastening bores in the aluminium tubes may be made only by Ewellix.

Care must be taken not to damage or scratch the sides of the tubes, as this can damage the guiding system and lead to product malfunctions.

6.3.2 Installation steps

1. Remove the transportation screws from the mounting bores at the outer and inner tube base plates.
2. Fasten the mounting plates, or the attachment points in the application, to the mounting bores at the outer and inner tube base plates.

Important: Screw in to a minimum of 25 mm and torque the screws with 40 Nm.

NOTE

Fastening screws are not supplied. The bore dimensions can be found in ↳ **Plans and diagrams, page 32**.

3. Check that all screws are sufficiently secured against self-loosening.
4. Check that all interfaces and connections have been mounted and/or connected correctly.
5. Ensure that the motor cable cannot be crushed, jammed or pulled during operation, due to tension or pressure.
6. You are now ready to connect and operate the telescopic pillar using the corresponding control unit and operating device.

Before connecting the telescopic pillar CPMT to a control unit, ensure that:

- the telescopic pillar CPMT is attached to the metal plates of the application on **both sides**
- all attachment points are securely screwed to the application
- the elements are **fully** aligned and seated at the top and bottom
- the areas for force distribution are supported
- the acting force does not impact the guide tubes with inadmissibly high values, as side-impacting forces that are too high can destroy the telescopic pillar CPMT
- the telescopic pillar is not obstructed in any way in the entire lifting area
- the cables are not pinched, or caught or subject to tension, bending, or pull stress.

⚠ WARNING

Risk of injury and device damage due to insufficient fastening

Use fastening bolts only, and secure them adequately. Do not use screws to install. Never loosen or otherwise manipulate screws on the device or options.

⚠ WARNING

Risk of injury through moving parts

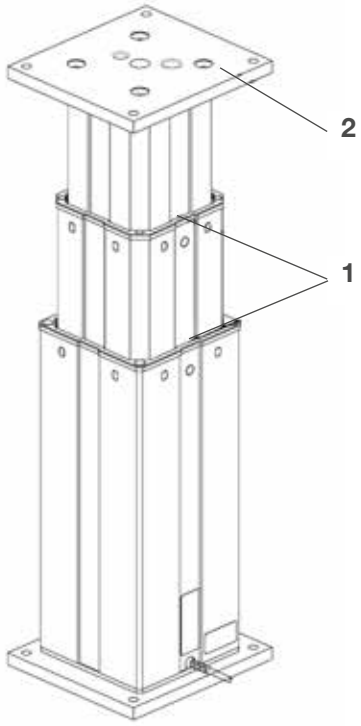
When retracting, there is a risk of crushing between the mounting plate and the tube end of the telescopic pillar.
Therefore:

- When retracting, ensure that no objects or parts of the body, such as hands or fingers, can be caught between the mounting plate (2) of the inner tube and the ends of the outer tubes (1) (↳ **fig. 1, page 12**).
- If necessary, install a mechanical safety device depending on the installation location.
- If the device has been delivered with optional fastening bores, ensure that the intended parts have been correctly fitted to these bores and that the bores are not accessible to any objects or parts of the body.

Ensure that the telescopic pillar CPMT is not obstructed in its movement over the entire stroke area. Consider performing collision tests on the application.

Fig. 7

Hazard zones



6.4 Connection to the control unit

All control units not approved by Ewellix for the CPMT pillar are treated as third party controls. For further details regarding third party control units, please refer to the guidelines in **Chapter 4**.

⚠ CAUTION

The use of a third-party control unit may lead to material damage. If a third-party control unit is used, the manufacturer does not assume any liability for damage that may be caused.
Therefore:

- It is recommended that an Ewellix control unit be used.
- When using a third-party control unit, the requirements stipulated for the third-party control unit must be adhered to (↳ **4.3 Requirements for third party control units (mandatory in medical applications), page 15**).

NOTE

A low-voltage plug connects the device to an external control unit. Follow the Ewellix control unit's operating manual instructions during the connection process.

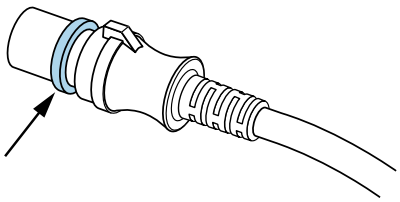
Depending on the option, the CPMT is delivered with either a DIN-8 connector or a flying leads cable.

Connecting DIN-8 plug to control unit

The insertion position is dictated by the geometric shape of the plug. Strain relief for this system is provided via attached components of the respective Ewellix control unit casing.

1. Check the sealing ring of the DIN-8 plug (arrow) and the plug, for any damage (↳ **fig. 2, page 12**).

Fig. 8



NOTE

Damaged sealing rings and twisted plugs can no longer guarantee protection pursuant to IP40. They must be replaced by the manufacturer (↳ **5.2 Transport inspection, page 17**).

2. Lightly apply lubricant, Klübersynth VR 69-252 (part no. 0118037), to sealing ring (arrow).

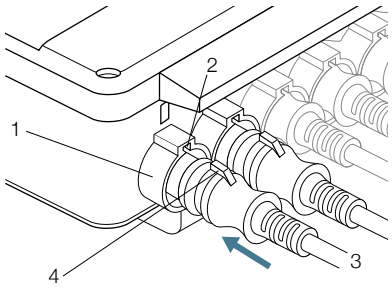
⚠ CAUTION

Damage due to wrong lubricants
The use of incorrect additives may cause significant material damage.
Therefore:

- Use only the auxiliary products listed by the manufacturer.

3. Insert DIN-8 plug (3) into the connecting socket (1) of the control unit. Ensure correct positioning of the groove (2) and the lug (4) (↳ **fig. 9**).

Fig. 9



Connecting flying leads cable to connector or external control unit

1. Follow the color coding of the leads defined in the technical details section.
2. Ensure that the control unit complies with the requirements for external control units defined in this operating manual.

6.5 Connection to operating element

NOTE

Operational conditions are not displayed on CPMT telescopic pillars. However, this feature is mandatory in medical applications and must be present on the control unit being used.

6.6 Connection to power supply

NOTE

A control unit connects the device to the electric power supply via a low voltage plug. Follow the control unit's operating manual instructions during the connection process.

1. Connect telescopic pillar to control unit (↳ **6.4 Connection to the Control Unit, page 21**).
2. Connect control unit to mains power supply (↳ **Separate operating manual** for control unit).
3. Ensure that the plug of the power line is accessible at all times.

7.0 Operation

7.1 Safety

⚠ WARNING

Risk of crush hazard

While the device is in motion, there is a risk of crushing, which may result in injury to persons or damage to objects.

Therefore:

- Ensure that no persons are in the stroke area of the device while in operation.
- Make sure the device is always operated within permissible specifications.
- Immediately take the device out of service if there are any unusual noises or changes in operation.
- Never tamper with the elements connected to the device while the device is in operation.

⚠ CAUTION

Device damage due to static and dynamic overload of the device

Static and dynamic overload can lead to damage and failure of the device.

Therefore:

- Do not exceed maximum permissible performance specifications for the device (↳ **Data sheets in the Appendix, page 31**).

⚠ CAUTION

Telescopic pillar may be damaged if liquids penetrate the device during extension and retraction. Keep liquids away.

7.2 Turn on

NOTE

The device does not have its own operating elements. Operation is via a separate control unit (↳ **Separate operating manual**).

7.3 Turn off

NOTE

The device does not have its own operating elements. Operation is via a separate control unit (↳ **Separate operating manual**).

7.4 Actions before use

Perform an installation check before starting up the telescopic pillar CPMT for the first time.

Installation check:

- All instructions from the above sections on ‘Operation’ have been followed.
- No impermissibly high side-acting forces impacting on the guide tubes.
- Fastening screws secured tightly on mounting bores at inner and outer tube base plates
- Entire stroke area unobstructed, so that the telescopic pillar CPMT cannot be driven into a fixed object.
- All cables secured against pinching and trapping, and properly connected.
- If connected with a flying leads cable, the leads are connected in accordance with the wiring diagram in the appendix.
- Electrical supply secured and the telescopic pillar CPMT securely connected to a control unit.
- Operating device connected to the control unit.

7.5 Actions during operation

7.5.1 Normal operation

During normal operation the telescopic pillar lifts or lowers elements connected to the pillar via the inner and outer tube base plates.

The telescopic pillar is driven via an external control unit and the corresponding operating device (↳ **Accessories, page 34**).

Use directional buttons UP and DOWN on the operating device to operate CPMT.

- Button UP: CPMT extends.
- Button DOWN: CPMT retracts.

The CPMT moves until the button is released or the end positions are reached. When the end position is reached, an end limit switch is triggered and power to the DC motor is cut off. An end position can also be defined by a pre-programmed position in the control unit triggered by the encoder signal from the CPMT pillar.

NOTE

Excessive current consumption, unusual noises or an unwanted downward movement indicate damage to the telescopic pillar CPMT. Cease operation of the CPMT, and inform the manufacturer responsible for carrying out inspection.

7.5.2 Operating considerations

It is recommended not to exceed the duty cycle defined in the Technical Details. If the duty cycle is exceeded, the thermal cut off switch may be triggered, preventing operation of the device until a normal operating temperature of the motor has been reached.

To reduce the risk of a thermal cut off, it is recommended to operate the device with a manual push-to-run operating device.

7.6 Emergency disengagement

In hazardous situations, all movements of the device must be stopped as quickly as possible and the power supply turned off.

Procedure in hazardous situations:

1. Immediately engage emergency shut-off if present, or cut off power to the pillar (↳ **Shut down, page 24**).
2. Evacuate people from the hazard zone, initiate first aid measures.
3. Notify doctor and fire department, if necessary.
4. Notify responsible person on-site.
5. Keep access paths open for rescue vehicles.
6. Based on severity of emergency, notify the authorities if necessary.
7. Order specialized staff to repair malfunction.

⚠ WARNING

Do not restart until all persons are outside the hazard zone.

8. Check the device and application that uses the device, prior to restarting operation. Ensure that all safety equipment is installed and fully functional.

NOTE

The telescopic pillar CPMT does not have an on / off switch and must be disconnected from the external control unit. Only this measure will de-energize the CPMT.

NOTE

For medical equipment the application in which the telescopic pillar CPMT is installed must provide an emergency stop switch or isolation from the mains supply on all poles.

7.6.1 Shut down

1. Pull the power line plug of the control unit out of the power outlet.
2. Pull the DIN-8 plug of the device's cable out of the control unit connection socket.

8.0 Maintenance

Personnel

- The maintenance work described here can be performed by the operator unless otherwise indicated.
- Some maintenance tasks should only be carried out by specially trained, qualified personnel, or exclusively by the manufacturer. This will be indicated in the description of the respective maintenance tasks.
- Only professional electricians should perform work on the electrical equipment.

⚠ WARNING

Electric shock hazard

Incorrect maintenance can result in serious injury, death or damage. Only professional electricians should work on electrical systems.

⚠ DANGER

Danger if restart is uncontrolled

When correcting faults, there is a risk of the energy supply being switched on without authorization. This poses a life threatening hazard for persons in the danger zone.

- Prior to starting fault repair work, switch off the system and be sure it is locked out.

NOTE

It is recommended that you comply with IEC62353 regarding maintenance.

8.1 Maintenance plan

Maintenance tasks that are required for optimal and trouble-free operation are described in the sections below.

If increased wear is detected during regular inspections, shorten the required maintenance intervals according to the actual indications of wear.

Interval	Maintenance work	To be carried out by
Daily	Clean dust and dirt from the pillar (↳ **8.2.1 Cleaning, page 26**).	Operator
	Check pillar for visible damage (↳ **8.2.4 Visual check of external condition, page 27**).	Qualified personnel
	Check pillar for unusual noise or change in performance	Qualified personnel
Monthly	Check the function of operating features and safety equipment.	Qualified personnel
	Check the attachments of the device to the upper and lower attachment plates.	Qualified personnel
Every 6 months	Check the function of the emergency cut-off switch, if present.	Qualified electrician
	Check that all plugs are properly inserted.	Operator
As determined by the processor	Conduct visual inspection of the routing of the motor and controller cables within the application. Cable routing elements should not be loose or broken.	Qualified electrician

NOTE

If the telescopic pillar is used outside the environmental conditions specified earlier in this manual, check the device once a month for any changes, such as oxidation or sedimentation.

8.2 Maintenance work

8.2.1 Cleaning

CAUTION

Damage due to incorrect cleaning

Therefore:

- Do not use aggressive cleaning agents. Water used for cleaning, including chemical additives, must be pH-neutral.
- No liquids are to come in contact with the telescopic pillar during retraction or extension.
- No stream jets or pressure washers to be used for cleaning.
- The use of other cleaning agents or cleaning devices only with the manufacturer's approval.

Clean the device:

1. Separate the device from the energy supply
2. Clean soiled parts with a damp cloth

8.2.2 Inspections and readings

- To be performed by a professional electrician.
- To be conducted according to the applicable standards and regulations.
- To be fully documented (↳ **Service Log**).

Complete the following entries in the service log:

- Name of the executing body (company, department)
- Names of the staff on duty
- Identification of the device/system (type, serial number, inventory number) and the respective accessories
- Completed inspections and readings
- Scope and results of the inspections
- Measuring method, measuring device, measurement readings
- Overall assessment / verification of all functions compared to specifications
- Date of inspection or reading, and signature of the assessor; personal coding is a viable alternative for IT applications.

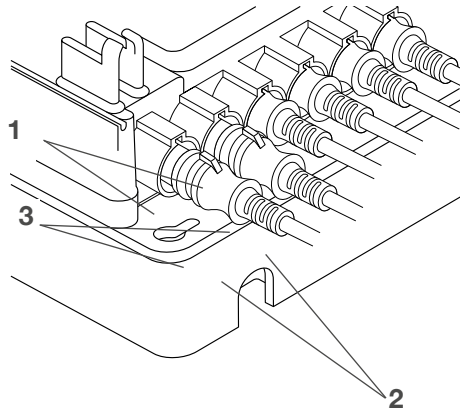
8.2.3 Check sealing function of DIN-8 plug

To be performed by a professional electrician

Check sealing function of DIN-8 plug (↳ **fig. 10**)

1. Separate the device from the energy supply.
2. Check sealing O-ring (**3**) of DIN-8 plug (**2**) for damage.
3. Ensure there is no irregular gap between the DIN-8 plug (**2**) and the connection outlet (**1**) of the housing.
4. If sealing O-rings (**3**) are damaged, have the manufacturer replace them.
5. If there is no damage, reconnect the device to the energy supply.

Fig. 10



⚠ CAUTION

Device damage due to damaged or wrong sealing rings
Damaged or wrong sealing rings cannot guarantee protection pursuant to IP40.
Therefore:
Ask the manufacturer to replace the damaged sealing rings immediately.

8.2.4 Visual check of external condition

To be performed by qualified personnel

1. Separate the device from the energy supply.
2. Check the following structural components for visual external damage:
   - **2.1.** Connecting cables for cracks, cuts and pinched sections
   - **2.2.** Rim covers for cracks, gaps and broken pieces
   - **2.3.** Tube set for scratches and indentations
3. Notify processor or manufacturer if damage is evident.
4. If no damage is evident and the processor/manufacturer has not communicated any concerns, reconnect the device to the power supply.

8.3 Measures following completed maintenance

Upon completion of the maintenance work, the following steps should be performed prior to restarting the device.

1. Check all previously loosened screw connections for a tight fit.
2. Ensure that all used tools, materials and other equipment have been removed from the work area.
3. Clean work area and remove potential spills such as liquids, processing materials or similar substances.
4. Ensure that all the system's safety measures are working satisfactorily.
5. Check all functions against the product specifications.
6. Document the inspections in the service log.

9.0 Malfunctions

This chapter describes potential causes of equipment malfunction and the work required to restore operation. In the event of more frequent malfunctions, shorten the maintenance intervals.

For any malfunction not resolved using the information provided here, contact the manufacturer. See service contact details listed on the back cover.

Personnel

- Unless otherwise indicated, the work required to solve malfunctions may be performed by the operator.
- Some work may only be carried out by qualified personnel, which is indicated in the description of the specific malfunction.
- Work on the electrical system may only be performed by professional electricians.

⚠ DANGER

Uncontrolled restart

When correcting faults, there is danger of the energy supply being switched on without authorization. This poses a life-threatening hazard for persons in the danger zone.

Therefore:

- Prior to starting fault repair work, switch off the system and safeguard it by activating lockout.

⚠ WARNING

Risk of injury and device damage due to incorrect repair

Incorrect repair of a malfunction may lead to personal injury or device damage.

Therefore:

- Never loosen the screws on the device or try to open the device.
- If a malfunction cannot be fixed by following the steps in the malfunction table below, dismantle the device and send it to the manufacturer for repair (↳ **Transport, Packaging and Storage, page 17**).

Actions during malfunctions

1. In the event of a malfunction that may present an immediate danger to persons or assets, turn off the telescopic pillar or control unit immediately and safeguard against a restart.
2. Determine cause of malfunction.
3. Depending on the type of malfunction, have it repaired by qualified personnel.
4. Inform responsible party on-site concerning malfunction.

NOTE

The following malfunction table provides information as to the personnel authorized to perform the repair.

9.1 Malfunction table

Malfunction	Possible cause	To repair malfunction	To be repaired by
The telescopic pillar does not move	Control unit not operational	Check mains power connection to control unit	Professional electrician
		Ensure that the operating device is connected correctly to the control unit	Qualified personnel
		Ensure that the current limit of the control unit matches the requirements defined in this manual	Qualified personnel
		Consult the operating manual of the control unit	Qualified personnel
	Operating device defective	Replace operating device	Qualified personnel
		Consult the operating manual of the operating device	Qualified personnel
	Poor connector contact to control unit	Ensure that the connector is inserted correctly into the control unit	Operator
	Incorrect load	Ensure that the load of the pillar does not exceed the load limit in the technical specification	Qualified personnel
	Obstacle in the stroke area of the device	Remove all obstacles in the stroke area	Operator
	Cable defective	Check cable for squeezing, tearing or other damage	Professional electrician
	Motor has stopped due to high temperature safety shut off	Observe duty cycle in technical specification. Wait 20 minutes and try again.	Qualified personnel
	Device cannot be set in motion by any of the suggested repair measures	Contact Ewellix service	Qualified personnel
	Lifespan of the drive is exceeded	Replace the drive, if the drive is older than 10 years	Qualified personnel
The telescopic pillar only operates in one direction	Telescopic pillar reached internal end limit switch	Operate in other direction	Operator
	Control unit malfunction	Consult operating manual of control unit	Qualified personnel
	Operating device malfunction	Consult operating manual of operating device	Qualified personnel
	Obstacle in the stroke area of the device	Remove all obstacles in the stroke area	Operator
The telescopic pillar stops before reaching its maximum stroke	Control unit cuts off power	Ensure the centric and eccentric load does not exceed the load limits given in the specification	Qualified personnel
	Obstacle in the stroke area of the device	Remove all obstacles in the stroke area	Operator
Significant reduction in speed of movement	Incorrect load	Ensure that the load of the pillar does not exceed the load limit in the technical specification	Qualified personnel
	Obstacle in the stroke area of the device	Remove all obstacles in the stroke area	Operator
	Motor, gearbox or nut defective	Contact Ewellix service	Qualified personnel
	Incorrect voltage set	Ensure the correct voltage is set	Qualified personnel
Significant increase in noise during operation	Incorrect load	Ensure that the load of the pillar does not exceed the load limit in the technical specification	Qualified personnel
	Obstacle in the stroke area of the device	Remove all obstacles in the stroke area	Operator
	Motor, gearbox or nut defective	The pillar must not continue to be operated. Contact Ewellix service.	Qualified personnel
Play in the guiding system	Sliding elements are worn	Replace drive unit	Qualified personnel
Drive unit vibrations during movement	Incorrect service load	Ensure that the load of the pillar is in the optimal range (no over- or underload) as defined in the technical specification	Qualified personnel
	Wear or failure in the mechanical brake	Contact Ewellix service	Qualified personnel

9.2 Start of operation after malfunction repair

To restart device following repair of the malfunction, perform the steps described in ↳ **6.3.2 Installation steps, page 20**.

10.0 Dismantling

Personnel

- Dismantling may only be carried out by qualified personnel.
- Work on the electrical system may only be performed by professional electricians.

⚠ WARNING

Electric shock and moving parts hazards
Serious injury or death can be caused by touching live electrical components and by unexpected movement of the telescopic pillar.
Be sure power supply is off and telescopic pillar is locked out before dismantling.

⚠ WARNING

Risk of injury due to incorrect dismantling
Stored residual power, sharp-edged components, pins and corners on the individual components or on required tools can cause all serious injury.
Therefore:

- Ensure there is ample space for dismantling prior to starting work.
- Use caution when working with open, sharp-edged structural components.
- Ensure order and cleanliness at the dismantling site! Loosely stacked structural components, or structural components and tools on the floor increase risk of accidents.
- Dismantle structural components professionally, in accordance with applicable local regulations.
- Secure structural components carefully, to ensure they cannot fall or tip over.
- Contact the manufacturer if you have any questions or concerns.

10.1 Dismantling

The telescopic pillar CPMT is to be removed from service in the following sequence:

1. De-energize the CPMT by unplugging the cable from the external control unit.
2. Secure the elements of the application in such a way that there is no pulling or pushing force resting on the CPMT.
3. Dismantle the CPMT from the application.
   - **3.1.** Ensure there is no pressure acting on the pillar
   - **3.2.** Loosen and remove the fastening screws.
   - **3.3.** Separate the telescopic pillar CPMT from the mounting points in the application.
4. Clean the device.
5. Carefully package for shipment to the manufacturer.

10.2 Disposal

Provided that no take-back or disposal agreement has been put in place, disassembled components should be recycled.

- Dispose of metals and plastic components at an appropriate recycling centre.

NOTE

Damage can be caused to the environment by incorrect disposal
Electronic waste, electronic components, lubricants and other additives are subject to special waste treatment regulations and may only be disposed of by approved specialized companies.

- Sort remaining components based on the respective materials and dispose of according to applicable local occupational health and environmental regulations.

The local municipal authorities or specialized waste management companies can provide information concerning environmentally appropriate disposal.

11.0 Appendix

11.1 Technical data

The equipment and operating data can be found in the current data sheet.

Data sheet for Ewellix Telescopic pillar for medical procedure equipment – Series CPMT (**PUB NUM TC-08027-EN-April 2020**)

Current data sheets are available on the Ewellix website (see **ewellix.com**).

Technical data	Unit	CPMT1-1S	CPMT1-1M	CPMT1-2S	CPMT1-2M
Rated push load	N	5 000	5 000	6 000	6 000
Rated pull load	N	4 000	4 000	4 000	4 000
Static load (push)[1]	N	15 000	15 000	15 000	15 000
Safety factor on rated load[2]		4	4	4	4
Dynamic bending moment	Nm	up to 450[3]	up to 1 200[3]	up to 550[3]	up to 1 400[3]
Static bending moment (max.)	Nm	1 000	3 000	1 000	3 000
Retracted length	mm	stroke/2 + 120 mm	stroke/2 + 240 mm	stroke/2 + 120 mm	stroke/2 + 240 mm
Stroke (S)	mm	400 to 600	300 to 600	400 to 600	300 to 600
Speed	mm/s	14 to 34	14 to 34	12 to 26	12 to 26
Voltage	V DC	24 to 30	24 to 30	24 to 30	24 to 30
Current (push, max.)	A	12	12	10	10
Current (pull, max.)	A	10	10	7	7
Duty cycle	on/off	1 min./9 min.	1 min./9 min.	1 min./9 min.	1 min./9 min.
Ambient temperature	°C	+10 to +40	+10 to +40	+10 to +40	+10 to +40
IP protection		20	20	20	20
Weight	kg	16,5 to 20	19 to 23,5	16,5 to 20	19 to 23,5

[1] Compliant with static load according to IEC 60601-2-46:2010
[2] Static tensile safety factor to prevent mechanical hazard according to IEC 60601-1:2005
[3] For details, see offset load diagrams

11.2 Plans and diagrams

To view the plans and diagrams, please contact Ewellix.
Further information can be found in the data sheet.
Current data sheets are available on the Ewellix website (see **ewellix.com**).

Connection diagram

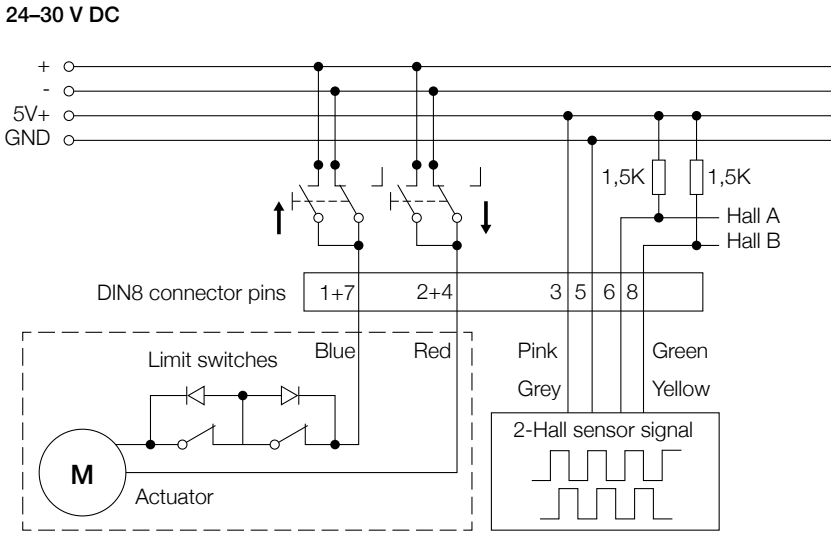


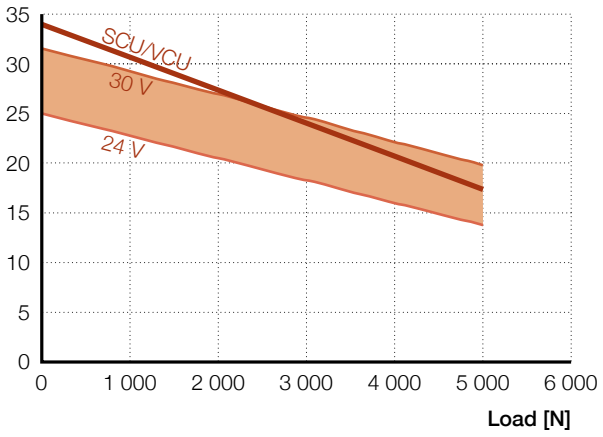
Fig. 11

DIN-8 and flying leads pin assignments

Pin		
1+7	+ motor power (24 – 30 V DC)	blue
2+4	- motor power (24 – 30 V DC)	red
3	5 V DC Hall encoder	pink
5	GND Hall encoder	grey
6	Hall signal A	yellow
8	Hall signal B	green

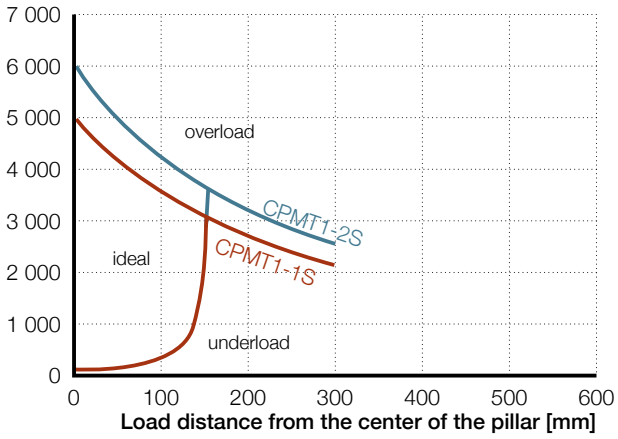
Speed-load diagram
CPMT1-1

Speed [mm/s]



Offset load diagram
CPMT1-1S, -2S

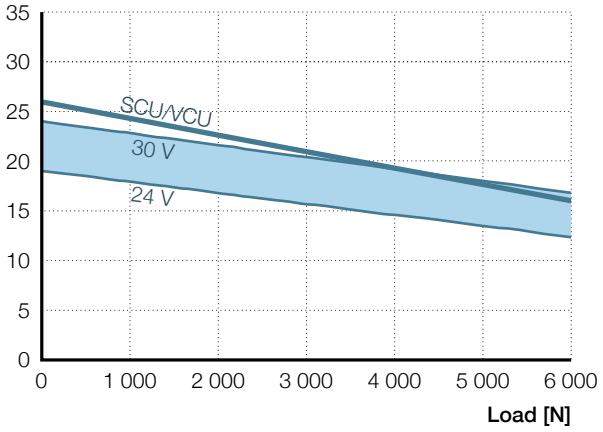
Load [N]



Offset load at full extension

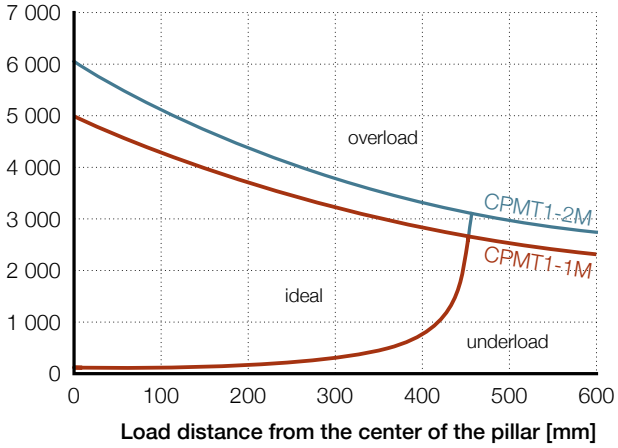
CPMT1-2

Speed [mm/s]



CPMT1-1M, -2M

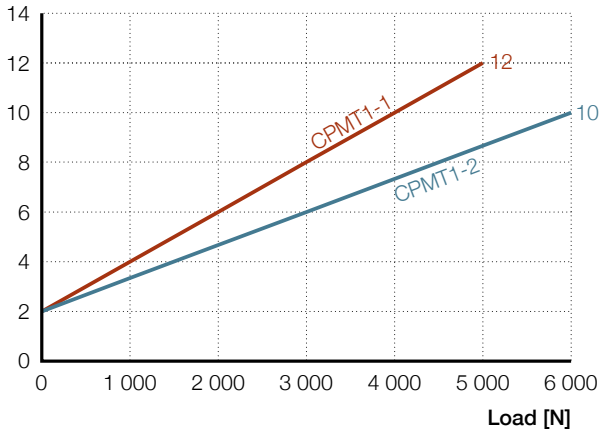
Load [N]



Offset load at full extension

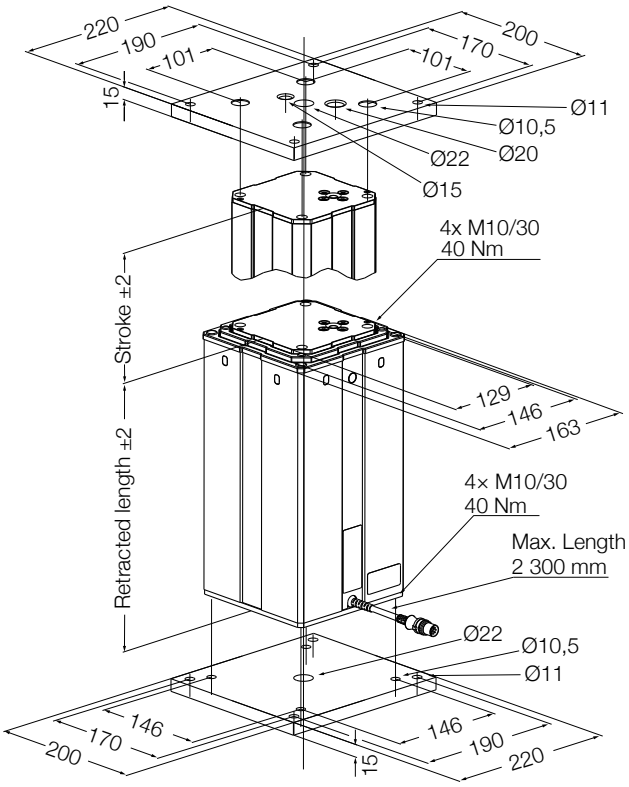
Current diagram

Current [A]



Dimensional drawing

Fig. 12



11.3 Approved accessories

Accessories Description	Part number
Control Unit SCU (3 or 6 ports)	SCUXX-003XXX-000
Control Unit VCU (3 or 5 ports)	VCUXX-003XX0-000
Control Unit BCU (3 ports)	BCUX3-XX3100-0000
Foot switch STJ (1-3 channels)	STJ0X-XXXXXX-XX00
Hand switch EHA3 (1-5 channels)	EHA3X-23MXXN-000
Top mounting plate	SPL-290268
Bottom mounting plate	SPL-290265
Screw (4/plate) for mounting plate	ZBE-510707

11.4 Declaration of incorporation

The declaration of incorporation according to annex IIB of Directive on machinery 2006/42/EC can be supplied upon request.

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