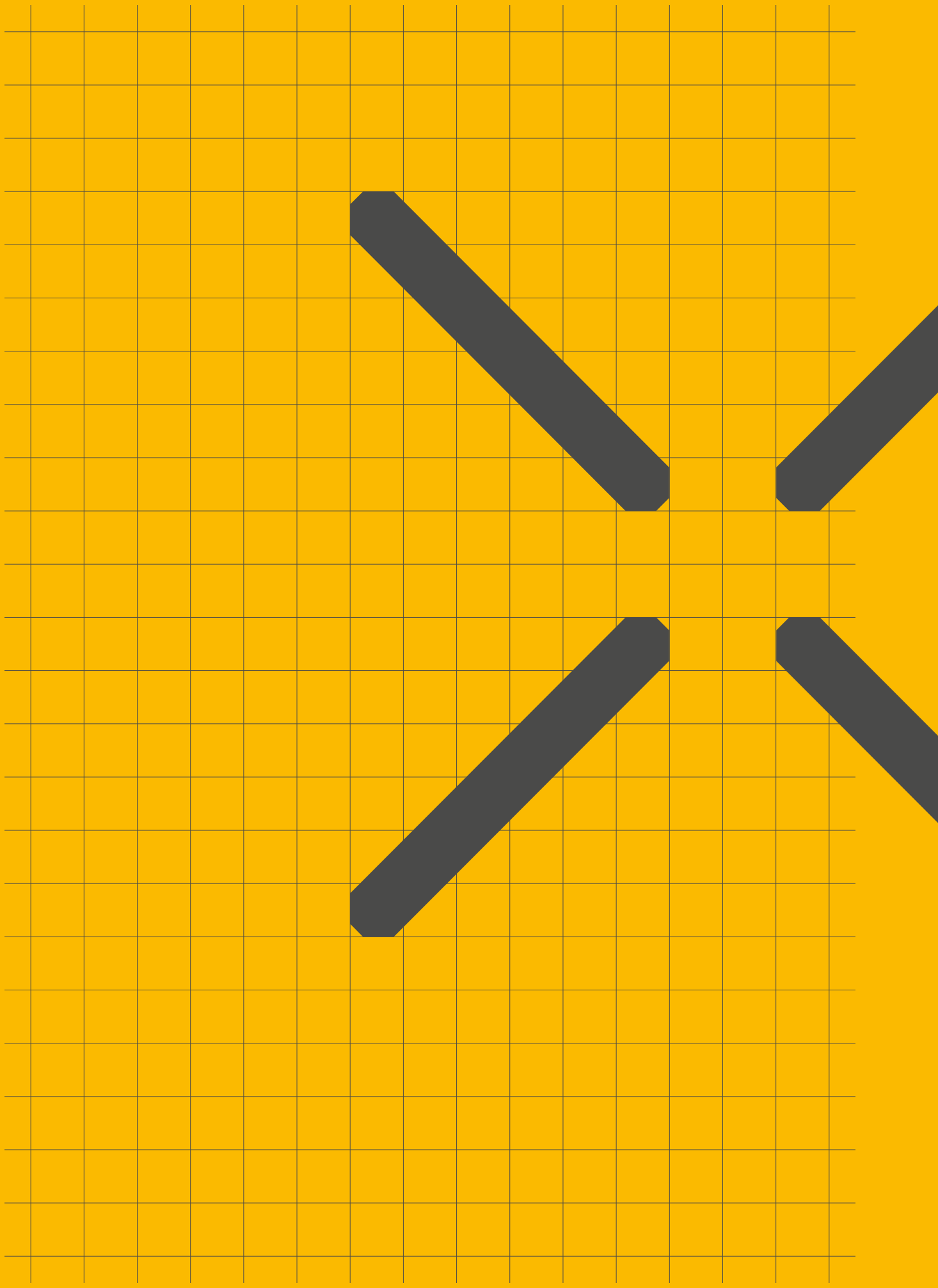
EWELLIX

A Schaeffler Company

CAFL series

Linear actuator



Contents

⚠ WARNING

Read this manual before installing, operating or maintaining this actuator. Failure to follow safety precautions and instructions could cause actuator 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 actuator (also called the device) safely and efficiently. The manual is part of the device, must always be kept and should be available for personnel to read at all times. Personnel working with the device must read and understand this manual before starting any operation. Strict compliance with all specified safety notes and instructions is a basic requirement for safety at work.

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

For clarity, 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, present status of technology and years of knowledge and experience.

1.2 Explanation of symbols and signal words

Safety precautions are identified by symbols and signal words defined on the right-hand side of this page. These signal words indicate the severity of the hazard.

Adhere to these safety precautions and take caution to avoid accidents that may result in personal injury or damage to property.

⚠ DANGER

Indicates a dangerous situation, which may 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 if the precautionary measures are ignored.

NOTICE

Indicates information considered important, but not hazard-related (e.g. messages relating to property damage).

NOTE

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

1.3 Limitation of liability

All information and notes in this manual were compiled taking into consideration current standards and regulations, present status of technology and years of knowledge and experience.

The manufacturer is not liable for damage resulting from:

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

Where the device has been custom-made, the delivered product may differ from that described in this manual. In this case, please ask Ewellix for any additional instructions or safety guidelines relevant to these actuators.

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

1.4 Copyright

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

Passing this manual on to third parties, duplication of any kind – also by selection – as well as the use and/or disclosure of the contents without the written consent of the manufacturer is not permitted, other than for internal purposes.

Violation of Ewellix's copyright may result in future claims of damages.

1.5 Spare parts

This actuator is not designed to be repaired. All warranty and service claims become null and void without notice if any screws have been tampered with.

⚠ WARNING

Safety hazard caused by incorrect parts
Wrong or faulty spare parts can adversely affect safety and cause damage, malfunction or failure.
Therefore:
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 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 as outlined 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 any questions.

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

2.0 Safety

This section provides an overview of important safety aspects of installing, operating and maintaining this device.

Disregarding this Manual and safety regulations specified therein may result in danger possible serious injury/death or damage to the device or equipment.

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.

It is intended for interior use only. The device has been designed for the movement of medical equipment, specifically medical procedure chairs, surgery and imaging tables and for AGV's, mobile machinery and life sciences. Please note, the device is not designed for uncovered systems. To prevent patient and operator injury the device must always be covered, ensuring the patient or operator cannot access the device.

⚠ WARNING

Risk from misuse

Any use of this device beyond its intended purpose may lead to potentially hazardous situations.

Therefore:

- Strictly adhere to all safety precautions and instructions in this operating manual.
- Do not expose this device suject to weather conditions, strong UV rays, corrosive or explosive agents as well as any other aggressive substances.
- Do not modify, retool or change the structural design or individual components of the actuator.
- Never use the device outside of the technical application and operational limits.

Range of environmental conditions:

- ambient temperature: 10 °C to + 40 °C
- relative humidity : 5% to 85%
- atmospheric pressure: 700 hPa to 1 060 hPa

Product lifetime

The CAFL linear actuator is designed for a service life of 10 years in a typical application. The product service life of the CAFL linear actuator depends on the stroke and load of the application. According to the L10 lifetime of the device, 100 000 cycles can be achieved in an average application (average use of stroke 25mm with no load and 5mm with nominal load).

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 unauthorised.

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 unauthorised 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 CAFL is to move or hold a load within the boundaries defined by the device specifications given in this operating manual and the datasheet.

Any injury, damage or loss caused by violating these instructions will be the responsibility of the customer.

2.2 Responsibility of the owner and processor

The device is designed for 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 local regulatory circumstances.

In addition to the safety instructions in this manual, the owner or processor must also do the following concerning health and safety prevention guidelines as well as environmental protection regulations applicable to the installation site:

- Understand appropriate industrial safety regulations, including determining additional hazards that may arise due

to specific working conditions on the site where the device is being installed by using a 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, satisfies current legal requirements and alter the instructions accordingly.
- Regulate and specify the responsibilities for installation, operation, maintenance and cleaning.
- Ensure that all employees who handle 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 any hazards.

Also, the owner or processors must ensure that the device is in good 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 performance 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 use.
- **Qualified personnel**
  Based on their professional training, know-how and experience as well as knowledge of the applicable standards and regulations, can 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, can independently perform work on electrical systems and to detect and avoid possible dangers.
  In addition, the professional electrician has been trained in the specialist 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 do so. Persons whose reaction capabilities are impaired, e.g. through the use of drugs, alcohol or medication, are not permitted to carry out the task.

2.4 Specific dangers

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

Follow the safety instructions listed here, as well as the warnings in the following chapters of this manual to reduce health hazards and to avoid dangerous situations.

⚠ WARNING

Pinch hazard
When the actuator runs into fixed objects, the driving force can cause personal injury. If the actuator is left unattended, check that the full stroke length is free of obstacles and that there is nobody in the stroke area. Alternatively, provide a means of disconnecting all conductors from the mains power supply.

⚠ WARNING

Injury due to cracks and related openings in the housing of the actuator and/or its accessories.
If the housing is damaged due to shock, breakage or heavy wear, cease using the device and follow the dismantling instructions.

⚠ WARNING

Danger of injury caused by moving components
Moving parts may cause serious injuries.
Therefore:
Do not reach into moving parts or touch moving parts during operation.

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 shutoff 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 the 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 the 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:

- A thermal fuse protection has been integrated in the motor

- The device will maintain its position in the event of power failure up to the maximum static load rating

- Manual override (optional), the unit can be manually extended and retracted using a simple power drill if the battery/power system is drained

- In its standard version, the device does not feature an over-current safety shut-off and must be shut off via an Ewellix control unit.

2.6 Safeguard against restart

⚠ WARNING

Life-threatening situation through unauthorised restart!
For work in hazard zones, there is a risk that the power supplycould be turned on without prior authorisation. This presents a potentially life-threatening situation for people in the hazard zone.
Therefore:

- 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 CAFL against an unauthorised restart

Disconnect the power line plug out of the control unit.

2.7 Modifications of device

⚠ WARNING

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

3.0 Technical data

Note: The technical data (dimensions, output, connection values, etc) can be found on the product drawing.

3.1 Operating conditions

	Value	Unit
Temperature range	+10 to +40	°C
Humidity	Up to 85	%

	Value	Unit
Maximum operating time without a break	1	Cycles
Break until next operation	1	min
Max duty cycle at rated load	5s on/60s off	

3.2 Product label

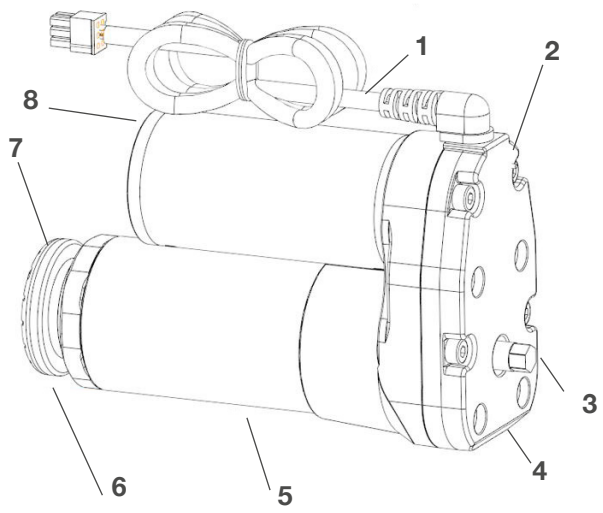
1. Identification of actuator (type key)
2. Description
3. Serial number
4. Manufacturer or country of origin

4.0 Structure and function

4.1 Overview

CAFL

Fig1



1. Cable
2. Gearbox
3. Manual override
4. Rear attachment
5. Guide tube
6. Push tube
7. Foot attachment
8. Motor

4.2 Brief description

This actuator is to be used exclusively for installation into a dynamic centric-compression lift.

The linear actuator consists of a motor part and a linear unit connected by a gearbox.

A direct current motor with spur gear drives a trapezoidal sliding spindle system. Via a lead screw mount, the sliding spindle transforms the rotation of the motor into linear motion of the actuator.

The rear attachment and the foot attachment transmit the actuator power to both sides of the application.

4.3 Construction group description

Motor

The motor is a 24V brushed DC motor. The motor's shaft powers a spur gear.

The lift speed depends on the load. The motor unit is surrounded by a metal housing. The metal housing cannot be opened.

Gear unit

The spur gear is directly powered by the motor shaft which moves a trapezoidal sliding spindle.

Linear unit

The actuator extends and retracts the push tube. The linear unit is surrounded and protected by the guiding tube. The push tube of the actuator is connected to the spindle with a lead screw nut.

4.4 Connections

The cable contains wires to connect the actuator to a power supply or to an external control. Please see the actuator drawing for details on individual wire functions.

4.5 Features

4.5.1 Thermal switch

The thermal switch in the motor controls thermal overload by switching off the motor in an emergency.

⚠ CAUTION

To prevent damage from overheating, do not try to operate actuator until its temperature has fallen below the threshold for the switch to operate (95°C).

4.5.2 2-Hall encoder

The 2-Hall encoder provides a signal indicating the position of the linear actuator.

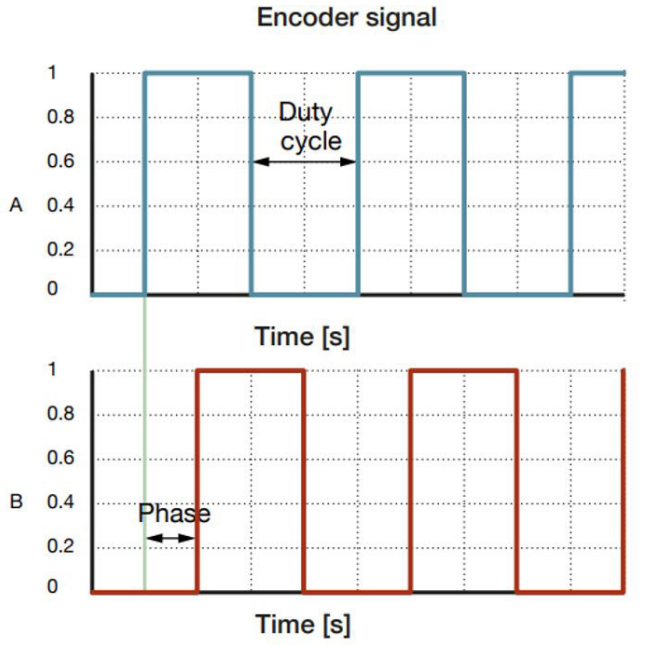
It is equipped with 2 Hall effect sensors 90° electrically shifted.

They are integrated on a PCB and read a 4 pole magnet ring inside the motor.

Hall sensors have an open collector output.

Hall sensors shall provide two signal outputs with the following characteristics:

Fig2



5.0 Transport, packaging and storage

5.1 Safety information for transport

Significant damage to the actuator can occur if not properly transported, unpacked and stored.

Therefore, follow the precautions below:

- Proceed carefully during the unloading of the packaged items and during the delivery as well as during transport to its final destination. Comply with the symbols and information shown on the packaging.
- Only remove the actuator from its packaging right before installation.
- Note storage requirements for return transport to the manufacturer.

5.2 Transport inspection

The CAFL linear actuator is delivered as one packaged unit in a box or on pallets.

Check the delivery for completeness and damage due to transport immediately upon receipt. Send back actuator to manufacturer if has cracks in the casing caused during transportation.

Check completeness of delivery:

- A complete actuator unit.If damage to the exterior of the actuator has occurred during transport, do the following:
  - Do not accept delivery or do so only with reservations.
  - Record scope of damage on the transport documents or on the bill of delivery of the shipping company.
  - Initiate complaint.
- Report any damage as soon as it has been identified. Damage claims can only be asserted within the transporter's applicable complaint period.

5.3 Return to the manufacturer

Proceed as follows for the return transport:

1. Dismantle the actuator if necessary.
2. Pack the actuator in its original packaging. Follow storage conditions.
3. Send to manufacturer. Contact Ewellix service to obtain a shipment address.

5.4 Packaging

For packaging

The individual packaged pieces have been packaged appropriately according to the expected transport conditions.

The packaging is supposed to protect the individual components from damage caused by the transport, corrosion and other damage until they are ready for installation. Therefore, do not destroy the packaging and only remove the actuator shortly prior to the installation.

Keep packaging for possible return shipment to the manufacturer.

5.5 Storage

Pack the actuator 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.
- Storage temperature: -20 to 40C
- Relative atmospheric humidity: max 95% (non-condensing)
- For storage for longer than three months, check the general condition of all parts of the packaging on a regular basis.

6.0 Installation and first operation

Authorized personnel

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

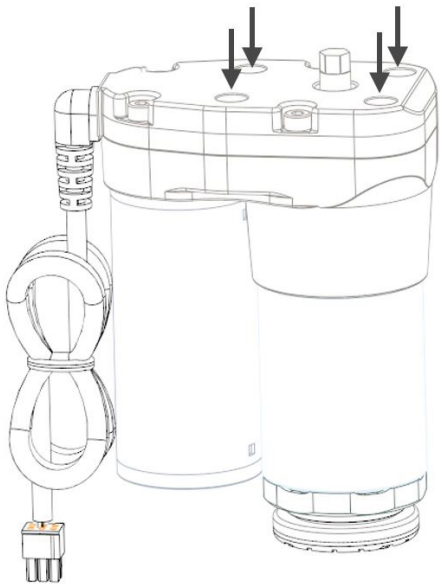
6.1 Installation

The CAFL linear actuator can be installed by mounting the rear attachment to a solid, flat structure.

Use 4x M8 screws with minimum grade 8.8 and torque to 24Nm each.

The fastener length must extend from the mounting surface min 13mm and max 15mm for proper thread engagement.

Fig3



Ensure the applied force on the linear actuator is always concentric with the axis of the actuator.

The floor must be less than 5 degrees out of level with respect to the actuator foot pad.

During installation, ensure the motor cable is not squeezed, clamped, or pulled.

Connect the linear actuator to a power supply or control.

Ensure that none of the supply or control cables can be pinched by the kinematics of the application or by the linear actuator during the extension or retraction.

7.0 Operation

7.1 Safety

⚠ DANGER

Risk of crushing!
Actuator may cause serious injury while moving.
Therefore, follow the precautions below:

- Ensure that there are no persons in the stroke area of the actuator while in operation.
- Take note of the maximum permissible performance specifications for the actuator.
- Never tamper with the elements that are connected to the actuator while the actuator is in operation.

⚠ CAUTION

Risk of injury through contact with the foot attachment!
Follow the precautions below:

- Do not let objects or body parts come in contact with the foot attachment of the actuator.

⚠ CAUTION

Material damage due to static and dynamic overload of the actuator!
Follow the precautions below:

- Adhere to maximum permissible operating data for the actuator
- Never exceed nominal load.
- Never tamper with the elements that are connected to the actuator while actuator is in operation.

⚠ CAUTION

The device may be damaged if liquids penetrate the actuator during extension and retraction. Keep liquids away.

7.2 Action before operation

Before operating the device, ensure that there are no persons or objects in the stroke area of the actuator.

7.3 Action during operation

7.3.1 Normal operation

During normal operation, the linear actuator extends and retracts the foot attachment to achieve locking or clamping force against the floor.

The linear actuator extends or retracts as long as power is being supplied or until the linear actuator is completely extended or retracted.

Prevent the linear actuator from completely extending or retracting by cutting off power before the end of stroke setting up an external limit switch.

Limit the locking or clamping force using a current limiting control unit. For maximum stability and safety the current limit should be set below the value that causes the actuator to lift the equipment off the ground.

7.3.2 Operate manual override

The CAFL may be equipped with an optional manual override. These versions feature an input at the rear of the actuator that can be turned to manually retract the actuator in case of power failure.

To retract the actuator, turn the manual override input in a clockwise direction. Each complete turn of the input will cause the actuator to retract by 2mm.

When using the manual override function, the following restrictions are in place:

- Maximum turning speed is 385RPM
- Maximum input torque is 24.8Nm
- The power cable must be disconnected from the control unit. Manual operation will generate voltage that may damage the control unit if not suitably protected.
- Use hand tools only! Electric operated drills and drivers may cause damage to the actuator by exceeding the limits.

7.4 Disengagement in case of emergency

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

Proceed as follows in hazardous situations:

1. Immediately engage emergency shut-off, if present, or cut off power for the actuator.
2. Evacuate people from the hazard zone and initiate first aid measures.
3. Notify responsible person on-site.
4. Keep access paths open for rescue vehicles.
5. Based on severity of emergency, notify the authorities if necessary.
6. Refer to qualified staff to repair malfunction.

7.5 Action after use

Separate the actuator from the power supply.

8.0 Maintenance

Personnel

- The maintenance work described herein can be performed by the operator unless otherwise indicated.
- Some maintenance tasks should only be performed by trained personnel, qualified personnel, or exclusively by the manufacturer; specific reference will be made in each case in the description of the respective maintenance task.

⚠ DANGER

Electrical shock hazard

Incorrect maintenance can result in serious injury, death or damage.

Only professional electricians should work on electrical systems.

⚠ DANGER

Danger if restarted

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, follow the precautions below:

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

8.1 Spare parts

The CAFL linear actuator is not designed for repair work by the customer. All warranty and service claims become void without notice if any screws on the linear actuator have been manipulated.

8.2 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 actuator indications of wear.

Linear actuator CAFL maintenance plan

Interval	Maintenance work	To be carried out by
Daily	Check actuator for visible damage Clean off dust and dirt if necessary	Operator
Monthly	Function check of operating features and safety features features and safety features Check foot pad for wear and tear Check connection of actuator to machine for tight fit	Qualified personnel

8.3 Maintenance

8.3.1 Cleaning

⚠ CAUTION

Damage due to incorrect cleaning
Follow the precautions below:

- Do not use any aggressive cleaning agents. Water used for cleaning including chemical additives must be pH-neutral.
- Liquids must not touch the actuator during the extension or retraction.
- Only use the auxiliary materials listed by the manufacturer.
- Manual override mechanism may not be treated with oil, grease or other lubricants
- No steam jets or pressure washers may be used for cleaning.
- Other cleaning agents or cleaning devices may only be utilized with the manufacturer's approval.

Clean actuator:

1. Separate the device from the power supply.
2. Clean dirty parts with a damp cloth.

8.3.2 Inspections and readings

- To be performed by a professional electrician.
- The inspections and readings must be performed as required by the applicable standards and regulations. The list of the applicable standards can be found in the appendix.
- The inspections must be documented (↳ Service Log, Manual)

Complete the following entries in the service log:

- Name of the executing body (company, department).
- Names of the staff on duty.
- Identification of the actuator/system (type, serial number, inventory number) and the respective accessories.
- Completed inspections and readings.
- Scope and results of the inspections.
- Measuring method, measuring actuator, measuring results for readings.
- Overall assessment.
- Date and signature of the assessing person; personal coding is available alternative for IT applications

8.3.3 Check of visual condition

1. Separate the actuator from the energy supply.
2. Check the following components for visible external damage:
   - Cable (cuts, abrasions, loose connections)
   - Push tube and outer tube (dents, kinks, gouges)
   - Manual override
3. Notify processor or Ewellix in case of damage
4. If there is no damage and the processors/manufacturer has not communicated any concerns, reconnect the actuator to the power supply.

8.4 Measures after completed maintenance

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

1. Ensure that all tools, material and other equipment used during maintenance have been removed from the work area.
2. Clean work area and remove potential spills such as liquids, processing material or similar material.
3. Ensure that all safety measures of the system work properly without a problem.
4. Check to be sure that all actuator and system functions are operating correctly.

9.0 Malfunctions

The following chapter describes potential causes for mal functions and the work that is necessary to restore operation.

In the event of frequent malfunctions, shorten the maintenance intervals.

Contact the manufacturer concerning malfunctions which are not solved by the following suggestions.

Personnel

- Unless indicated otherwise, the work described herein to solve malfunctions may be performed by the operator.
- Some work may only be carried out by qualified personnel and is specifically indicated in the description of the individual malfunction.
- Work on the electric system may only be performed by professional electricians.
- Document the maintenance in the service log.

⚠ DANGER

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

⚠ DANGER

Danger if restarted
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, follow the precautions below:

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

⚠ DANGER

Risk of injury and device damage due to incorrect repair of malfunction
Therefore, follow the precautions below:

- Never loosen the screws on the device or try to open it.
- In the event of a malfunction that cannot be fixed by following the steps in the malfunction table in this operating manual, dismantle the actuator and send it to Ewellix for repair

Actions during malfunctions

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

9.1 Malfunction table

Malfunction	Possible cause	To repair malfunction	To be repaired by
Linear actuator doesn't move	No supply voltage	Check power supply	Professional electrician
	Lack of plug contact or plug has not been inserted properly	Plug contacts: Device control unit, control of voltage network. Check control operating element	Operator
	Defective cable or connector	Supply cable and connector: Check actuator control unit, control of voltage network, control operating element for damage, if necessary replace defective elements	Professional electrician
	Obstacle in the stroke area of the linear actuator	Remove all obstacles in the stroke area	Operator
	Incorrect load	Measure static and dynamic load and compare with information from the datasheet	Qualified personnel
	Linear actuator cannot be set in motion by any of the above listed measures	Exchange actuator	Qualified personnel
Linear actuator cannot be lifted	Obstacle in the stroke area of the linear actuator	Remove all obstacles in the stroke area	Operator
	Control unit malfunction	Consult operating manual of control unit	Qualified personnel
	Operating device malfunction	Consult operating manual of operating device	Qualified personnel
	Control unit cuts off power	Ensure the centric 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
	Incorrect load	Remove all loads that are connected to the device	Qualified personnel.
	Defective screw nut	Exchange actuator	Qualified personnel

9.2 Start of operation after fixing malfunction

To restart device following repair of the malfunction, perform the steps described in chapter 6.0 Installation, page 13

10.0 Dismantling

Personnel

To the extent 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.

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

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

⚠ DANGER

Electric shock and moving parts hazards

Serious injury or death can be caused by touching live electrical components and by unexpected movement of the actuator.

Be sure power supply is off and actuator is locked out before installing.

WARNING

Pinch hazard

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 serious injury.

Therefore, follow the precautions below:

- Ensure there is ample space for dismantling prior to starting with the 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 may present a risk for accidents.
- Dismantle structural components pursuant to applicable local regulations.
- Secure structural components in a way so they would not be able to fall or tip over.
- Contact Ewellix if you have any questions or concerns.

10.1 Dismantling

10.1.1 Dismantling of CAFL

1. Separate actuator from energy supply.
2. Secure elements of the application in such a fashion that no loads can impact the attachments.
3. Loosen and remove fastening bolts from the rear attachment.
4. Separate linear actuator from application elements.
5. Clean actuator.
6. Carefully package for shipment to the manufacturer.

⚠ CAUTION

Damage can be caused to the environment due to 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!

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

10.1.2 Dismantling of CAFL

To the extent 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.

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

⚠ CAUTION

Damage can be caused to the environment due to 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!

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

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