TECHLINE®
IMPROVING FLEXIBILITY

Linear Actuator LA33

User Manual

LINAK®
WE IMPROVE YOUR LIFE

Contents

Preface

Dear User,

We are delighted that you have chosen a LINAK® product.

LINAK systems are high-tech products based on many years of experience in the manufacture and development of actuators, lifting columns, desk frames, electric control boxes, controls, batteries, accessories and chargers.

This User Manual does not address the end user. It is intended as a source of information for the equipment or system manufacturer only, and it will tell you how to install, use and maintain your LINAK electronics. The manufacturer of the end product has the responsibility to provide a User Manual, where relevant safety information from this manual is passed on to the end user.

We are convinced that your LINAK product/system will give you many years of problem-free operation.

Before our products leave the factory, they undergo both function and quality testing. Should you, nevertheless, experience problems with your product/system, you are always welcome to contact your supplier.

LINAK subsidiaries and some distributors situated all over the world have authorised service centres, which are always ready to help you. Locate your local contact information on the back page.

LINAK provides a warranty on all products. (See warranty section).

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

Changes in installation and use of LINAK systems can affect their operation and durability. The products may only be opened by authorised personnel.

This User Manual has been written based on the present technical knowledge. LINAK reserves the right to carry out technical modifications and keeps the associated information updated.

LINAK A/S

Terms of use

LINAK® takes great care in providing accurate and up-to-date information on its products. However, the user is responsible for determining the suitability of LINAK products for a specific application.

Due to continual development, LINAK products are subject to frequent modifications and changes. LINAK reserves the rights to conduct modifications, updates, and changes without any prior notice. For the same reason, LINAK cannot guarantee the correctness and actual status of imprinted information on its products.

LINAK uses its best efforts to fulfil orders. However, for the reasons mentioned above, LINAK cannot guarantee availability of any particular product at any given time. LINAK reserves the right to discontinue the sale of any product displayed on its website or listed in its catalogues or in other written material created and produced by LINAK, LINAK subsidiaries, or LINAK affiliates.

All sales are subject to the 'Standard Terms of Sale and Delivery for LINAK A/S' available on LINAK websites.

Introduction

The actuator LA33 combines compact design and high power in a solution fit for use in industrial settings and for demanding applications that require customised interfaces, faster, silent operation or to work in rough and extreme environments.

Safety instructions

Please read this safety information carefully.

Be aware of the following three symbols throughout the user manual:

Warning!
Failing to follow these instructions can cause accidents resulting in serious personal injury.

Recommendations
Failing to follow these instructions can result in the actuator suffering damage or being ruined.

Additional information
Usage tips or additional information that is important in connection with the use of the actuator.

Furthermore, ensure that all staff who are to connect, mount, or use the actuator are in possession of the necessary information and that they have access to this user manual.

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

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

Before you start mounting/dismounting, ensure that the following points are observed:

- The actuator is not in operation.
- The actuator is free from loads that could be released during this work.

Before you put the actuator into operation, check the following:

- The actuator is correctly mounted as indicated in the relevant user instructions.
- The equipment can be freely moved over the actuator's whole working area.
- The actuator is connected to a mains electricity supply/transformer with the correct voltage and which is dimensioned and adapted to the actuator in question.
- Ensure that the voltage applied matches to the voltage specified on the actuator label.
- Ensure that the connection bolts can withstand the wear.
- Ensure that the connection bolts are secured safely.

During operation, please be aware of the following:

- Listen for unusual sounds and watch out for uneven running. Stop the actuator immediately if anything unusual is observed.
- Only use the actuator within the specified working limits.
- Do not step on or kick the actuator.

When the equipment is not in use:

- Switch off the mains supply in order to prevent unintentional operation.
- Check regularly for extraordinary wear.

Classification

The equipment is not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

Warnings

- Do not sideload the actuator.
- When mounting the actuator in the application ensure that the bolts can withstand the wear and that they are secured safely.
- If irregularities are observed, the actuator must be replaced.

Recommendations

- Do not place load on the actuator housing.
- Prevent impact or blows, or any other form of stress to the housing.
- Ensure that the duty cycle and the usage temperatures for the actuators are respected.
- Ensure that the cable cannot be squeezed, pulled or subjected to any other stress.
- Furthermore, it will be good practice to ensure that the actuator is fully retracted in the “normal” position. The reason is that there will be a vacuum inside the actuator if it is extended which over time can lead to water entering the actuator.

Features

- Maximum load from 500 N - 5,000 N depending on gear ratio and spindle pitch
- Maximum. speed up to 70 mm/sec. depending on load and spindle pitch
- Stroke length (switch) from 35 to 1000 mm
- Stroke length (Zero Point) from 75 mm to 1000 mm
- Heavy duty aluminium housing for harsh conditions
- Highly efficient acme thread spindle
- Safety factor 2: The actuator has been certified to withstand static loads that are twice the magnitude of its dynamic load capacity without sustaining damage.
- Protection class: IP66 for outdoor use (dynamic), furthermore the actuator can be washed down by a high pressure cleaner (IP69K – static)
- Hand crank for manual operation
- Integrated brake, high self-lock ability
- Endplay – 2.5 mm maximum
- Non rotating piston rod eye
- Built-in endstop switches
- Noise level: 73 dB (A) measuring method DS/EN ISO 8746 actuator not loaded
  70 dB (A) measuring method DS/EN ISO 8746 actuator not loaded (Plastic gear)
- Self-lock (with shorted power cables)

Options in general

- 12, 24 or 48 VDC permanent magnetic motor
- Exchangeable cables in different lengths
- Adjustable magnetic sensors for Endstop Reached signals (code no. 1017031)
- Hall effect sensor
- Endstop Reached Signals
- IC options including:
  - I/O
  - LIN bus communication
  - CAN SAE J1939
  - CANopen
  - Parallel Controller with CAN SAE J1939 and CANopen
  - Analogue or digital feedback for precise positioning
  - Proportional control
- Specific interface user manuals are available at the TECHLINE webpage containing both Connection Diagrams and I/O Specifications
- PC configuration tool (BusLink or Actuator Connect™)

Usage

- Duty cycle at 600 mm stroke is maximum. 20% (4 min. drive and 16 min. rest)
- Duty cycle, with plastic gear, at 400 mm stroke is maximum. 10% (2 min. drive and 18 min. rest)
- Ambient operating temperature: -40 °C (reduced load) to +85 °C (reduced duty cycle)
  -For plastic gear options: -10 °C to 40 °C
- Ambient operating temperature at full performance from +5 °C to +40 °C
- Storage temperature: -55 °C to +105 °C

B10 Lifetime calculation

The lifetime of LINAK® actuators has been tested and estimated according to the B10 standard, which is useful both in terms of maintenance and choice of actuator. The B10 metric describes that at least 90% of the products purchased will meet or exceed lifetime expectations when used and maintained correctly. On the other hand, 10% might fail to meet this prediction.

In our actuators, the B10 lifetime is calculated based on the first failure which causes the actuator to stop working. The test was conducted with three groups of actuators, where the first group carried a 100% load, the second carried a 50% load, and the third carried a 25% load. This provided a reliable estimation of lifetime.

LINAK actuators can be utilised with either a fixed or a varying load, and lifetime can be calculated for both. A converter for the actuator can be found here. The lifetime can be calculated for other actuators using the following methods:

Fixed load

The lifetime of an actuator with a fixed load can be found in the curves on the next pages. Simply find the load of the particular actuator on the X-axis and locate where it intersects with the estimated lifetime on the Y-axis.

For example:

A 12 V 2.250 N LA33 with a load of 1.500 N will have an estimated lifetime of 60 km.

Varying load

As opposed to a fixed load, a varying load changes during the working cycle. Therefore, an equivalent load must be calculated using this formula:

$$F_{eq} = \sqrt[2]{\frac{(L1 * F1^2) + (L2 * F2^2) + \ \ldots (Ln * Fn^2)}{L}}$$

Essentially, the stroke length must be divided into as many sections of different loads as necessary, denominated Ln and Fn. For example, the first 50 mm could have a 6.800 N load, the next 100 mm a 4.900 N load, and the last 120 mm a 2.000 N load. These numbers squared must then be divided by the full stroke length called L. For an actuator with these loads and a stroke length of 270 mm, the equation then becomes this:

$$F_{eq} = \sqrt[2]{\frac{(50 * 6.800^2) + (100 * 4.900^2) + (120 * 2.000^2)}{270}} = 4.386 \text{ N}$$

Now this load can be used on the following pages for an estimated lifetime.

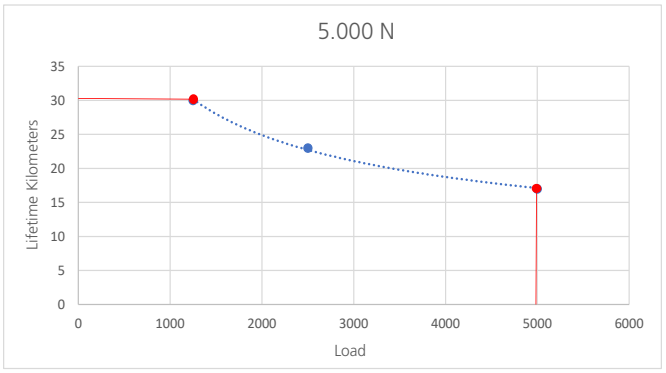
External factors including temperature, vibrations, and humidity can influence the lifetime of an actuator.

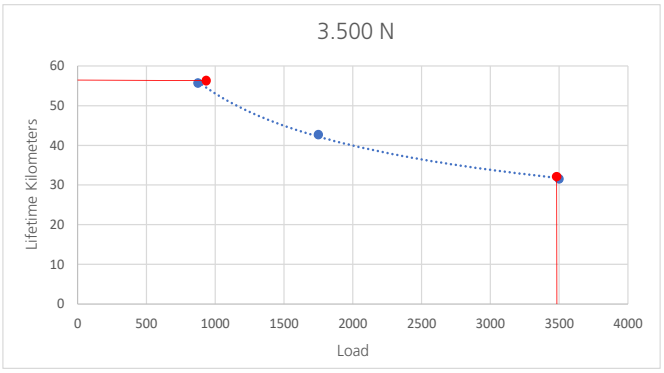
If you wish to convert the lifetime kilometers to cycles, you need to multiply these with a million and divide it with two times the stroke length in mm. For a 12 V 2.250 N LA33 with a stroke length of 100 mm, these would be the calculations:

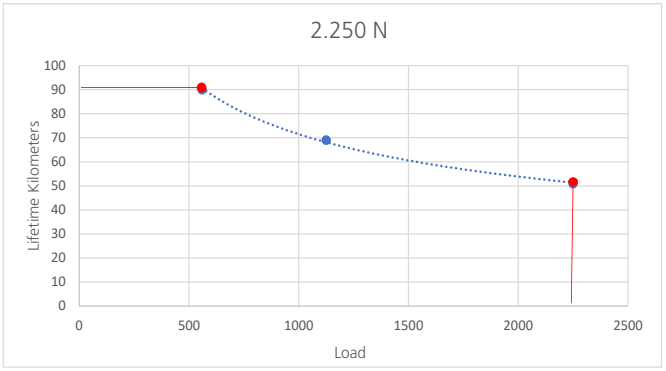
$$\frac{60 \text{ Km} * 1.000.000}{2 * 100} = 300.000 \text{ cycles}$$

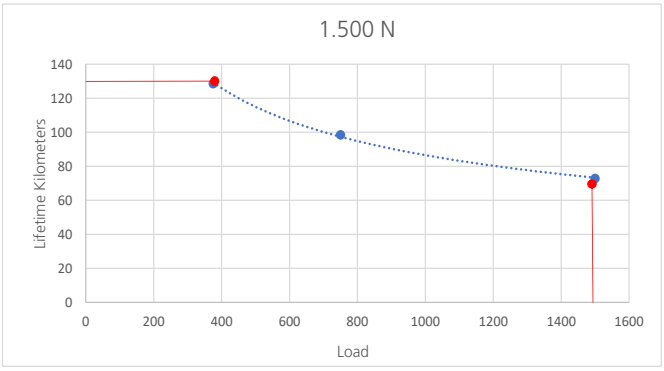
B10 Lifetime prediction

12 V DC

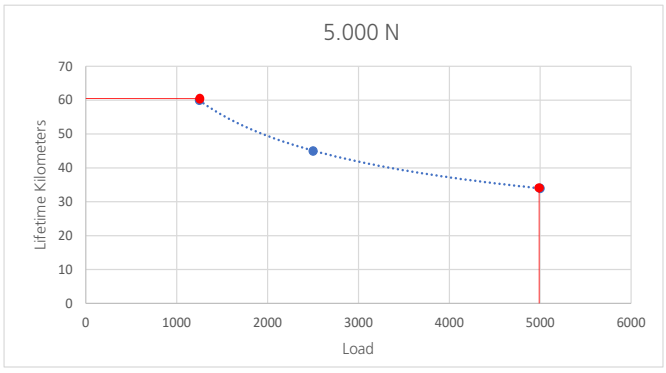


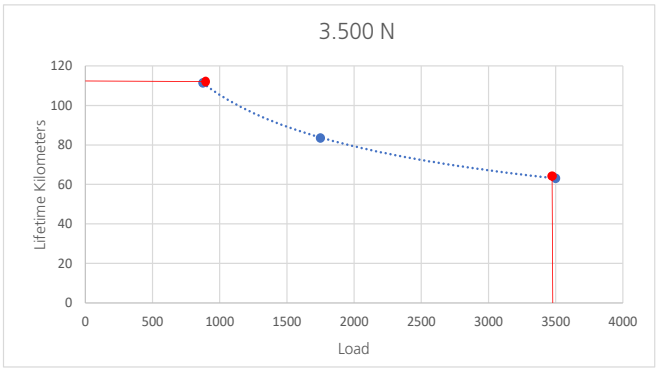


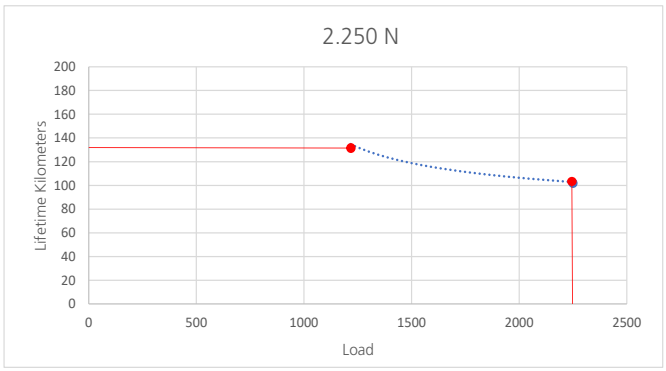


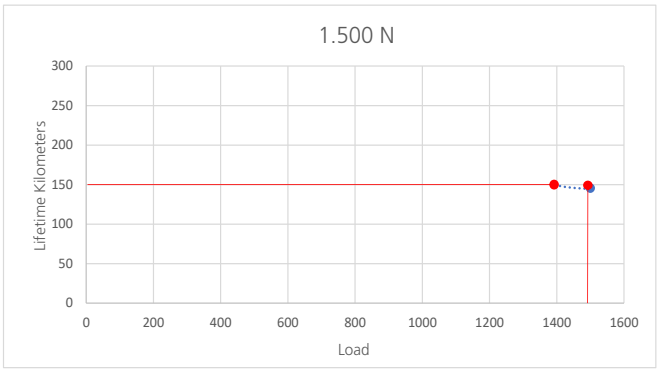


24 V DC









Intermittence

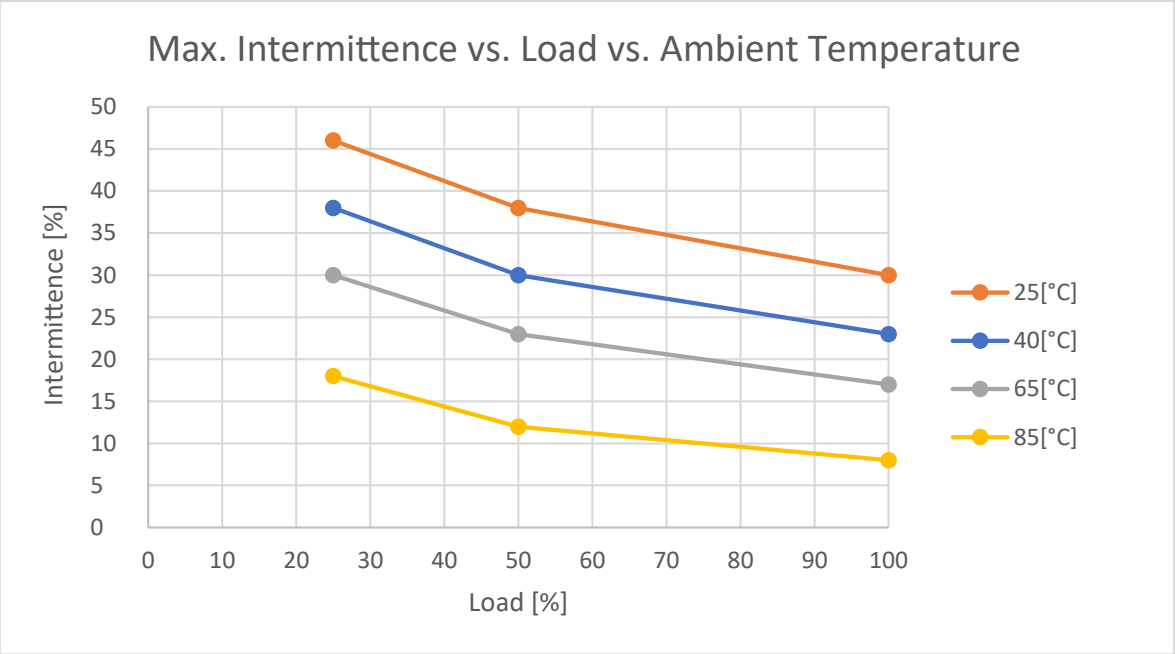
This curve describes the permitted duty cycle with a given load in a specific ambient temperature.

For example: An LA33 actuator with a 50% load in an ambient temperature of 25°C may have an intermittence of 38%. This means that it must be turned ON max. 38% of the time and OFF for 62% of the time.

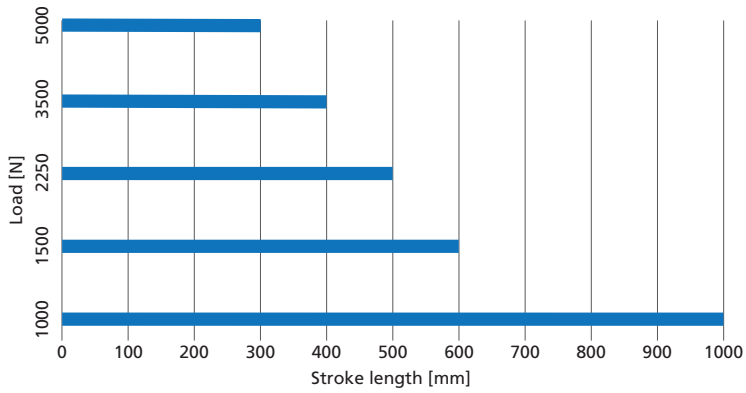
The ambient temperature also dictates how long an actuator may continuously run:

Above 40°C: max 2 minutes continuous run.

Below 40°C: max. 4 minutes continuous run.



Load vs. stroke length



- For applications operating only in pull the limitations are 600 mm stroke and 5,000 N load
- 1000 mm with maximum 1000 N in push and 1500 N in pull available as special item. (For plastic gears there is no difference between push and pull loads).

Technical specifications:

12V motor:

Load max. [N]	Self-lock max. [N]	Spindle Pitch (mm) /Gear	Gear/ Ratio	Hall Rersolu-tion [mm/ count]	End-play in [mm]	*Typical speed [mm/s[		Standard Stroke length [mm] in steps of 50 mm	*Typical Amp. [A]	
						No load	Full load		No load	Full load
500	500	20	C 1:16	0,56	2.5	68	52	100-600	5.0	12
1500	1500	20	B 1:39	0,56	2.5	34	24	100-600	2.0	10
2250	2250	15	B 1:39	0,42	1.25	23	15	100-500**	2.8	10
3500	3500	15	A 1:67	0,26	1.25	15	9	100-400**	2.8	10
5000	5000	9	A 1:67	0,15	1.0	9	6	100-300**	2.8	10

24V motor:

Load max. [N]	Self-lock max. [N]	Spindle Pitch (mm) /Gear	Gear/ Ratio	Hall Rersolu-tion [mm/ count]	End-play in [mm]	*Typical speed [mm/s]		Standard Stroke length [mm] in steps of 50 mm	*Typical Amp. [A]	
						No load	Full load		No load	Full load
500	500	20	C 1:16	0,56	2.5	80	72	100-600	3	7
1500	1500	20	B 1:39	0,56	2.5	35	30	100-600	1.8	6.5
2250	2250	15	B 1:39	0,42	1.25	25	21	100-500**	1.8	6.6
3500	3500	15	A 1:67	0,26	1.25	15	13	100-400**	1.8	7.0
5000	5000	9	A 1:67	0,15	1.0	9	7	100-300**	1.8	6.5

48 V Motor:

Load max. [N]	Self-lock max. [N]	Spindle Pitch (mm) /Gear	Gear/ Ratio	Hall Rersolu-tion [mm/ count]	End-play in [mm]	*Typical speed [mm/s]		Standard Stroke length [mm] in steps of 50 mm	*Typical Amp. [A]	
						No load	Full load		No load	Full load
500	500	20	C 1:16	0,56	2.5	80	72	100-600	0.9	3.5
1500	1500	20	B 1:39	0,56	2.5	35	30	100-600	0.9	3.2
2250	2250	15	B 1:39	0,42	1.25	25	21	100-500**	0.9	3.3
3500	3500	15	A 1:67	0,26	1.25	15	13	100-400**	0.9	3.5
5000	5000	9	A 1:67	0,15	1.0	9	7	100-300**	0.9	3.2

See Current limits and Current cut-offs for availability of voltage

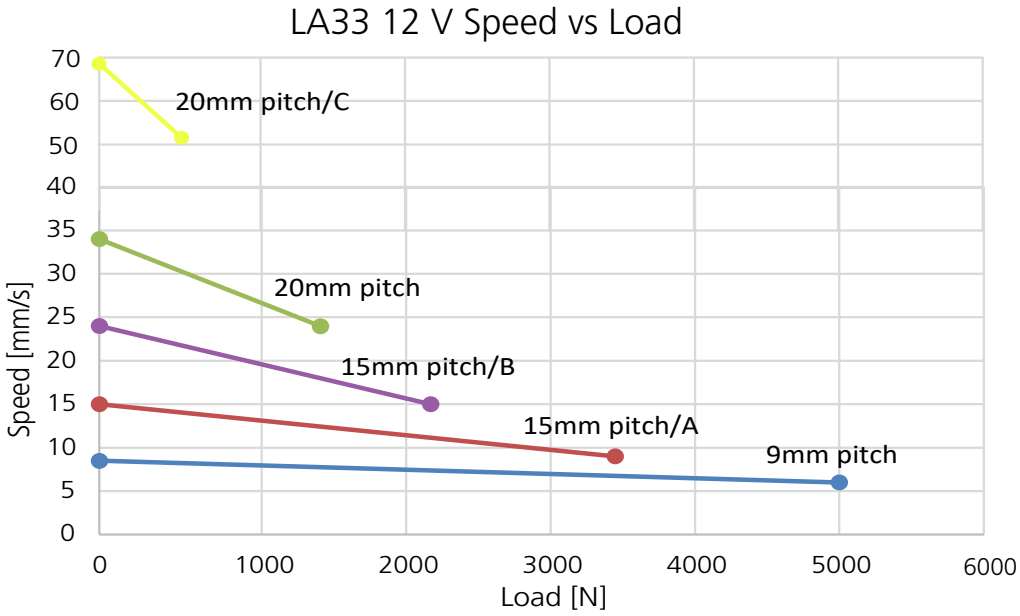
* The typical values can have a variation of ± 20% on the current values and ± 10% on the speed values. Measurements are made with an actuator in connection with a stable power supply and an ambient temperature at 20 °C.

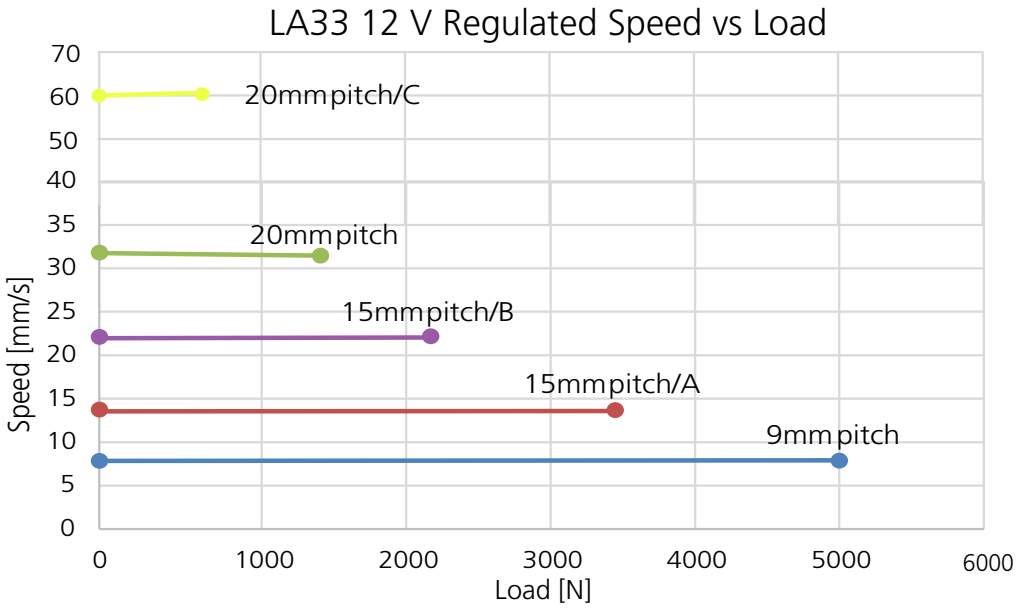
** There are limitations on the stroke length if you need full load, please see "Load vs. stroke length" on the previous page.

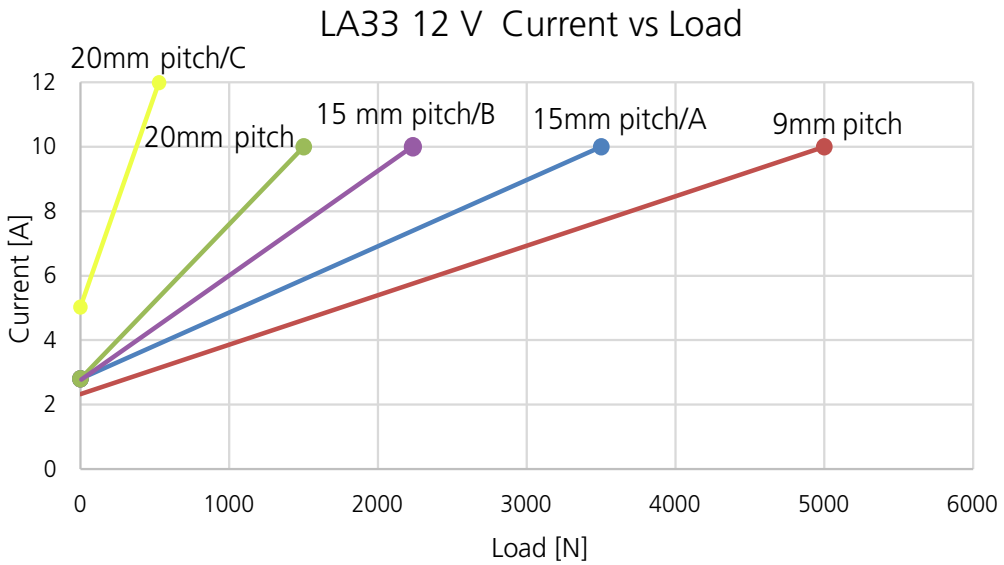
Please note that all actuators featuring 'LIN bus', 'CAN SAE J1939', 'CANopen', 'MODBUS', 'I/O' will run at a regulated speed, which is typically around 80% of the Typical speed at no load.

Speed and current curves 12 V

The values below are typical values and made with a stable power supply and an ambient temperature of 20˚ C.

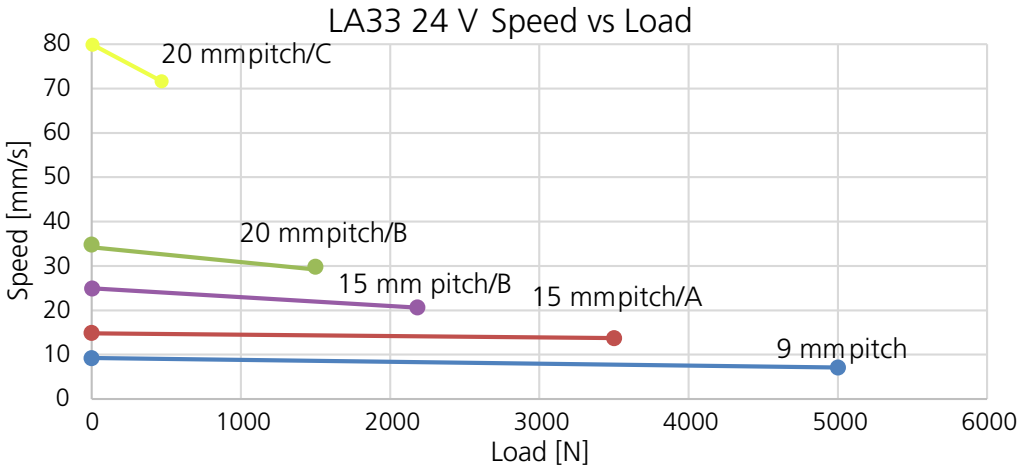


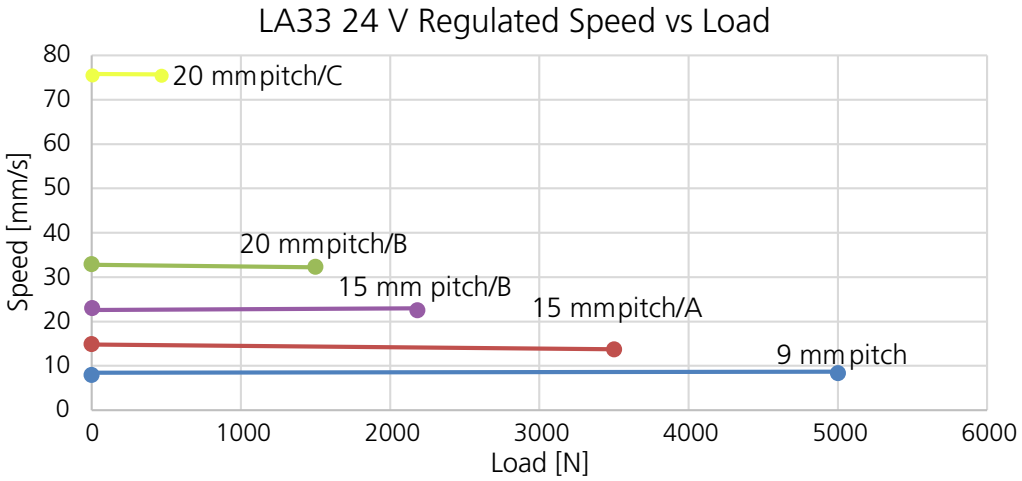


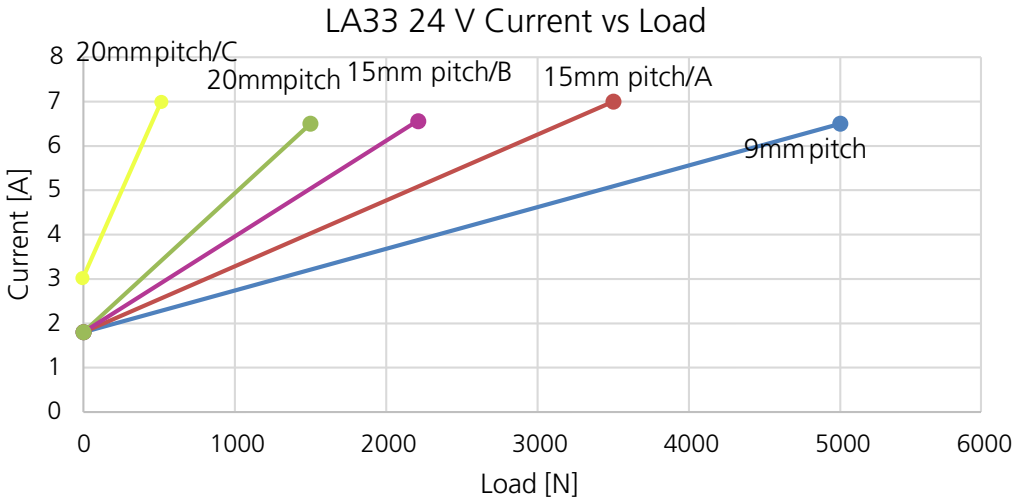


Speed and current curves 24 V

The values below are typical values and made with a stable power supply and an ambient temperature of 20˚ C. The performance is reduced at low temperatures (below -5° C).

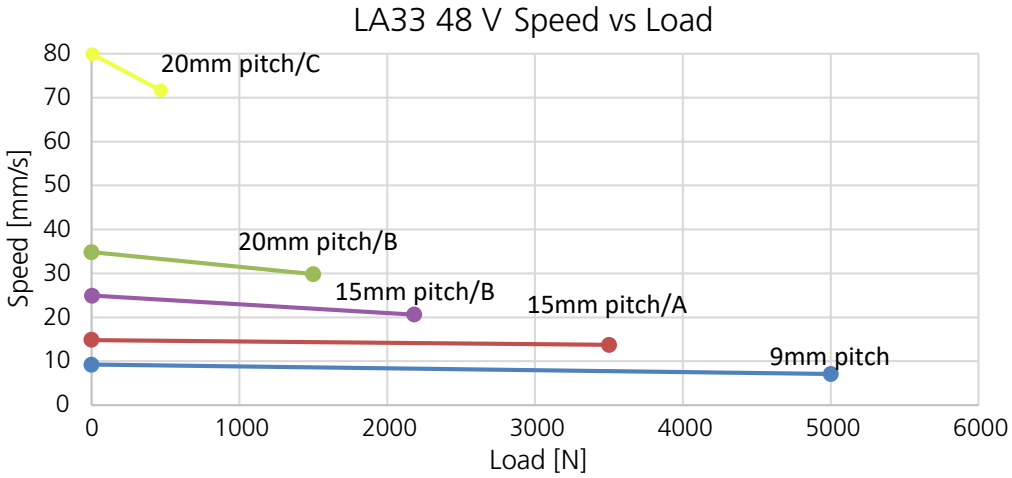


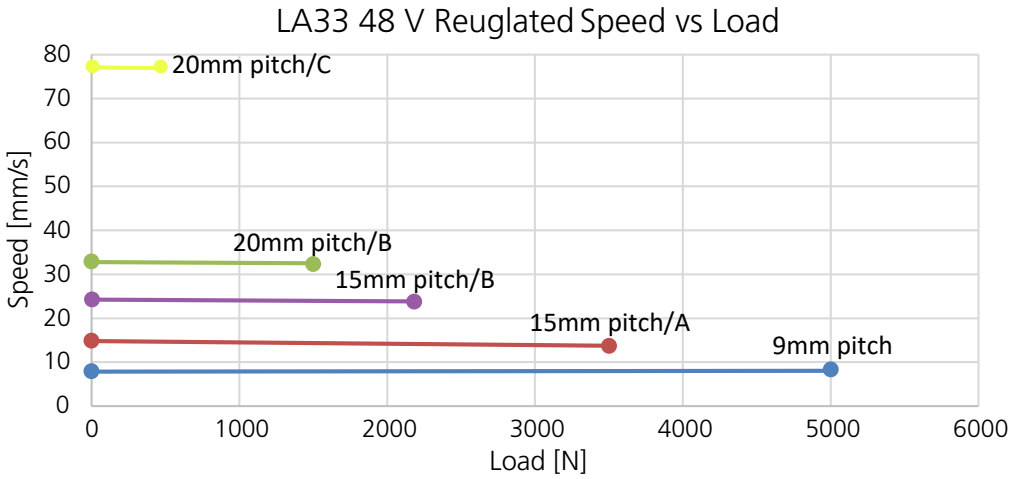


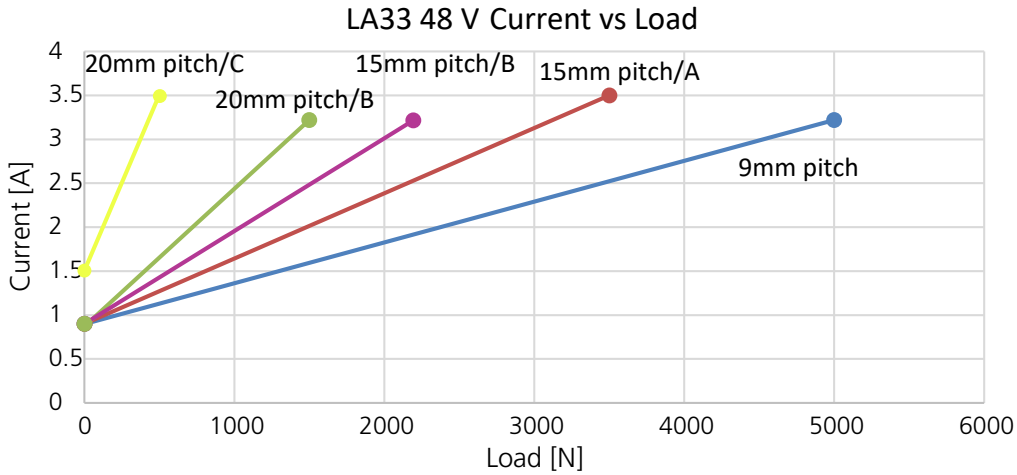


Speed and current curves 48 V

The values below are typical values and made with a stable power supply and an ambient temperature of 20˚ C. The performance is reduced at low temperatures (below -5° C).







The current limiting algorithm

The I/O™ actuator features the latest current limiting algorithm, which has been significantly improved compared to previous versions.

If the actuator's current consumption rises above the set limit, the actuator regulates and tries to keep it below the set current limit by reducing the PWM and therefore also the speed accordingly. The actuator does this continuously, until the actuator stops moving (mechanically blocked) - something that is determined by monitoring the Hall feedback signal. If there are no changes to the Hall feedback signal during the set time frame, the integrated controller will cut power to the h-bridge motor circuit.

If the actuator is stopped due to the above-mentioned criteria, it automatically drives slightly in the opposite direction to reduce the torque in a blocking situation.

This is visualised in the figure below:

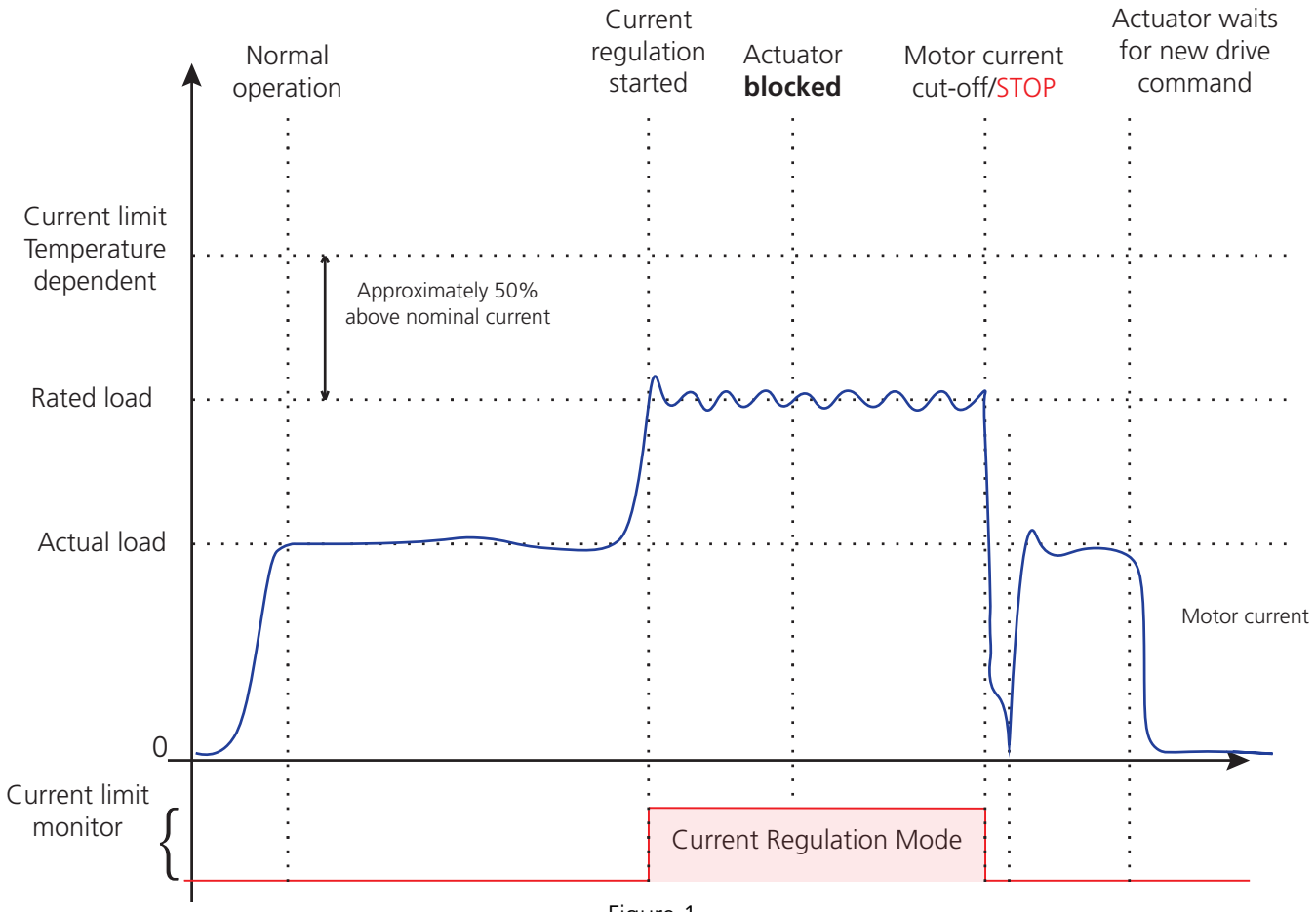


Figure 1

This control feature makes it possible to avoid loading the internal mechanical system of the actuator above its specification, which ultimately means a longer life for the actuator, especially in an abuse scenario.

The actuator comes with factory default current limits. These values can be customised with the 'Protection' option in Actuator Connect™ or when ordering the actuator.

Current limits

Standard with Feedback Level:	Movement	12 V	24 V	48 V	Temperature
0, 1, 2, 3, 4	Outwards	Max. 13 A	Max. 9A	N/A	Not relevant
	Inwards	Max. 13 A	Max. 9 A	N/A	

IC Type	Movement	12 V	24 V	48 V	Temperature
B, C, F	Outwards	15 A	10 A	5 A	Above
	Inwards	15 A	10 A	5 A	
	Reference temperature 0°C				
	Outwards	20 A	15 A	7.5 A	Below
	Inwards	20 A	15 A	7.5 A	

If an actuator with Platform 3 (Integrated Controller) has a current consumption that rises above the set current limit, the actuator regulates and tries to keep the current below the set limit by reducing the PWM and therefore also the speed accordingly. The actuator does this continuously until the actuator stops moving (mechanically blocked) - this is determined by monitoring the Hall feedback signal. If there are no changes to the Hall feedback signal during the set time frame, the Integrated Controller will cut power to the H-bridge motor circuit.

If an actuator with Platform 3 (Integrated Controller) is stopped due to the above-mentioned criteria, it automatically drives slightly in the opposite direction to reduce the torque in a blocking situation.

Current cut-offs

The principle behind the current cut-off measurement is an 'above limit' and a 'below limit' accumulating counter. When the time-out counter reaches a specific value the current cut-off goes into effect. The time-out value is pre-set at 200 ms.

IC Type	Movement	12 V	24 V	48 V	Temperature
6, 7, 8	Outwards	15 A	10 A	N/A	Above
	Inwards	20 A	15 A	N/A	
	Reference temperature 0°C				
	Outwards	15 A	10 A	N/A	Below
	Inwards	20 A	15 A	N/A	
E, G, H, P, Q, S, T	Outwards	N/A	10 A	5 A	Above
	Inwards	N/A	15 A	7.5 A	
	Reference temperature 0°C				
	Outwards	N/A	10A	5 A	Below
	Inwards	N/A	15 A	7.5 A	

Mounting guidelines

LINAK® linear actuators are quickly and easily mounted by slipping pins through the holes on each end of the units and into brackets on the machine frame and the load.

The mounting pins must be parallel to each other as shown in Figure 1. Pins, which are not parallel to each other, may cause the actuator to bend and be damaged.

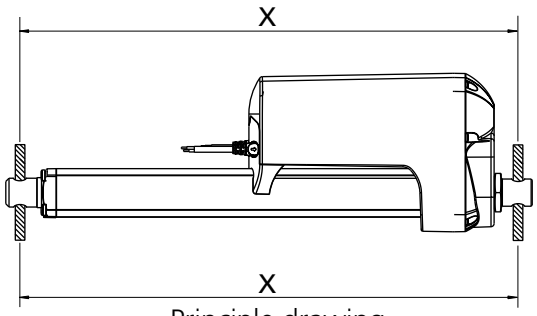
The load should act along the stroke axis of the actuator since off centre loads may cause bending and lead to premature failure. See Figure 2.

Make sure the mounting pins are supported in both ends. Failure to do so could shorten the life of the actuator. Also, avoid applying a skew load on the actuator.

The actuator can rotate around the pivot point in the front and rear end. If this is the case it is of high importance that the actuator is able to move freely over the full stroke length, both during the development and during daily operation. Please pay special attention to the area around the housing where parts can be trapped and cause damages to the application and actuator.

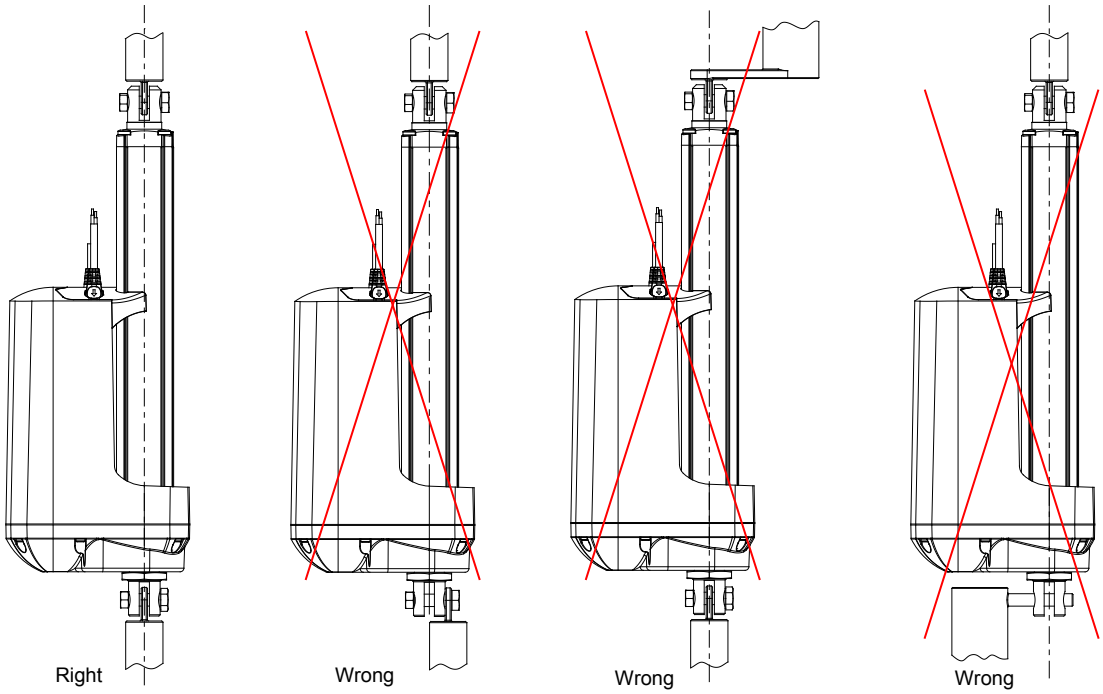
In applications with high dynamic forces LINAK recommends not to use the fully extended or retracted position over longer time, as this can damage the endstop system permanently.

Figure 1



Principle drawing

Figure 2



Principle drawing

Please be aware that if the actuator is used for solar applications the actuator must be mounted with the motor housing turned upwards and the wires pointing downwards.

Mounting guidelines

- The mounting pins must have the correct dimension.
- The bolts and nuts must be made of a high quality steel grade (e.g. 10.8).

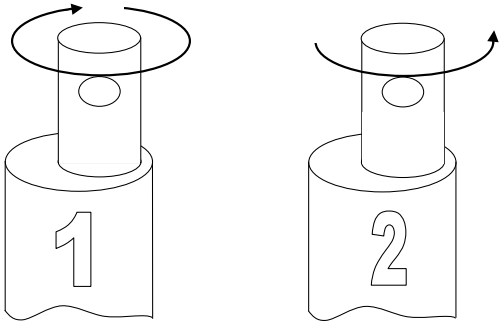
  No thread on the bolt inside the back fixture or the piston rod eye.
- Bolts and nuts must be secured so there is no risk for them to fall out.
- Do not use a torque that is too high when mounting the bolts for the back fixture or the piston rod eye. This will stress the fixtures.

Please note:

The piston rod eye is only allowed to turn 0 - 180 degrees.

Instruction concerning the turning of the piston rod eye and inner tube:

- When mounting and taking into use, it is not permitted to make excessive turns of the piston rod eye. In cases where the eye is not positioned correctly, it is permitted to first screw the eye down to its bottom position, at a maximum torque of 2Nm (1), and thereafter a maximum 180 degrees turn outwards again (2).
- As the piston rod eye can turn freely, it is important to ensure that the eye cannot rotate if the actuator is used in a pull application. If this happens, the actuator will be pulled apart and destroyed.



Warning!

If the actuator is used for pull in an application where personal injury can occur, the following is valid:

It is the application manufacturer's responsibility to incorporate a suitable safety arrangement, which will prevent personal injury from occurring, if the actuator should fail.

Warning!

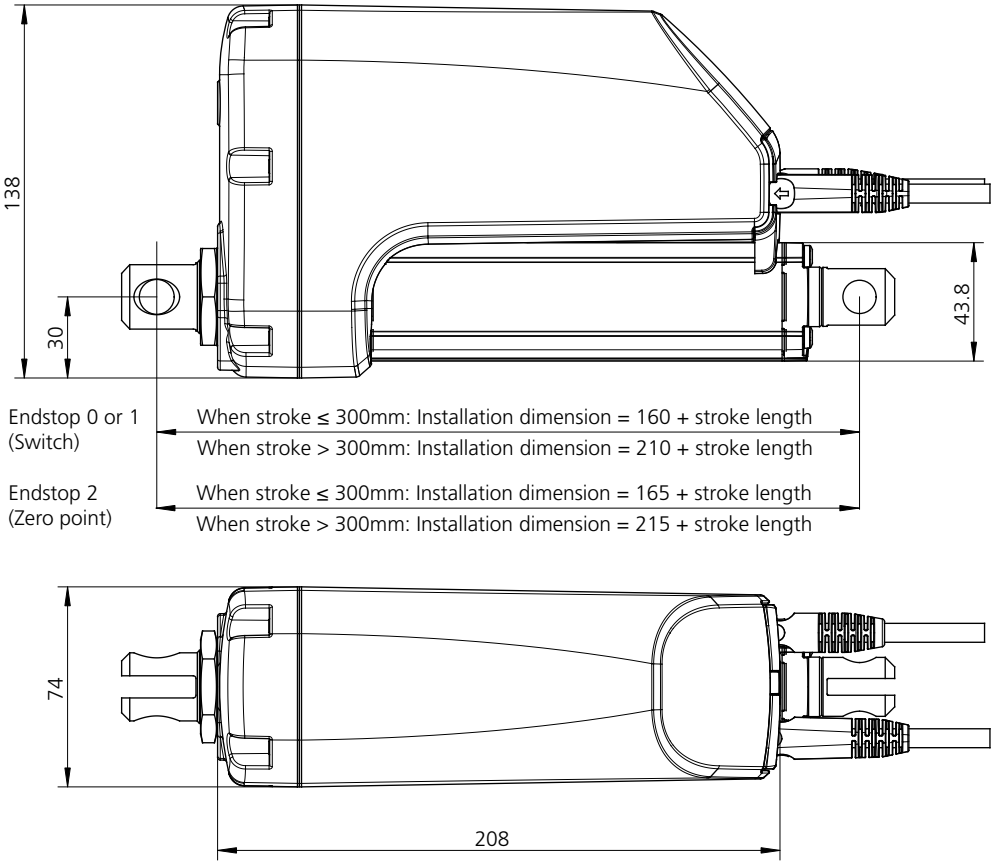
A LINAK actuator is not designed for use within the following fields:

- Offshore installations
- Aeroplanes and other aircraft
- Explosive environments
- Nuclear power generation

Built-in dimensions:

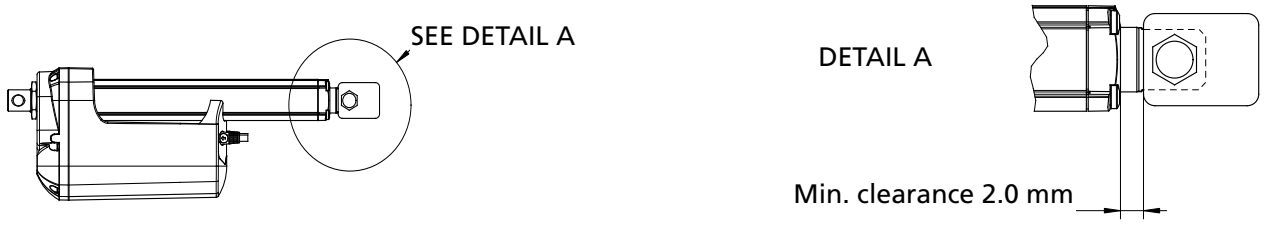
	Piston rod	"1 and A" / to the centre of the hole		"2 and B" / to the centre of the hole		"5" / from the surface		"C and D" / to the centre of the hole	
Back fixture		Stroke < = 300	Stroke > 300	Stroke < = 300	Stroke > 300	Stroke < = 300	Stroke > 300	Stroke < = 300	Stroke > 300
Endstop 0 or 1 (Switch)		160	210	160	210	157*	207*	171	221
Endstop 2 (Zero Point)		165	215	165	215	162*	212*	176	226

* These built-in dimensions are measured according to the illustration below. All dimensions are in mm.



Keep a clearance when mounting a bracket

When mounting a custom bracket on the moving part of the actuator, please observe the minimum clearance between bracket and cylinder top when fully retracted. This will prevent jamming and destruction of the actuator drive train.

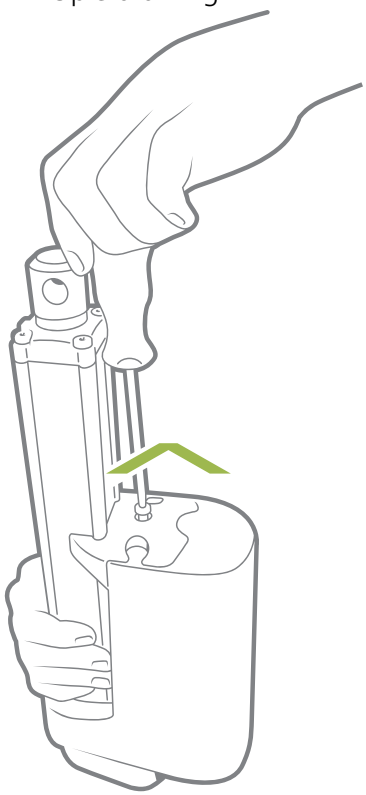


With Zero point the minimum stroke is 75 mm
The Zero point initialisation zone is located between 35-70 mm going from the most inward position.

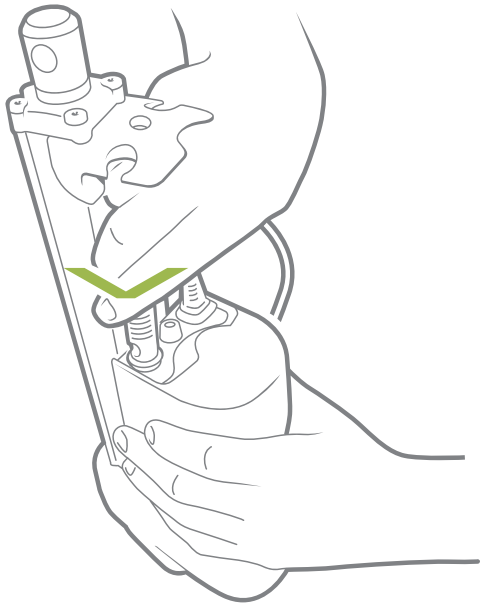
The movement passing the zone has to be stable for the initialisation to succeed - also no virtual limits can be set in the initialisation zone.

Mounting of cables

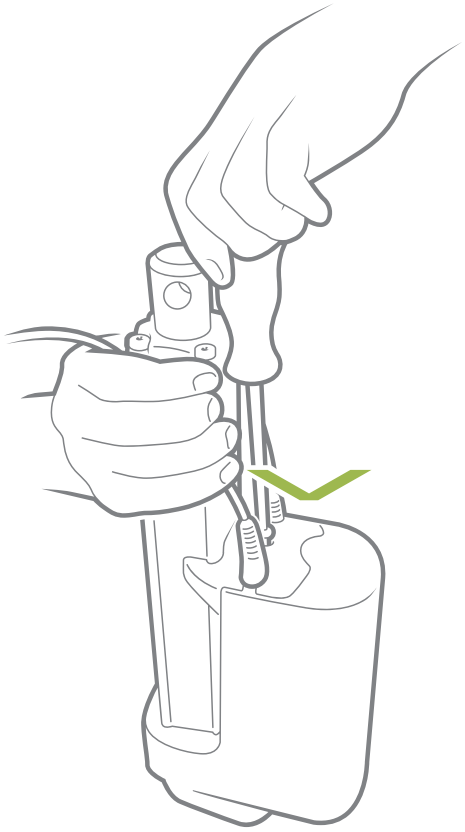
Principle drawing



1. Unscrew the screw and separate the cover from the housing. Remove the blind plug(s).



2. Plug in the power cable and/or the signal cable.



3. Slide the cover onto the actuator.
The torque of the cover screw is approx. 3.5 ± 0.3 Nm
TORX 25IP

When changing the cables on a LINAK actuator, it is important that this is done carefully, in order to protect the plugs and pins. Before the new cable is mounted, we recommend that the socket is greased with Vaseline, to keep the high IP protection and ensure an easy mounting. Please be sure that the plug is in the right location and fully pressed in before the cable lid is mounted.

Please note that if the cables are mounted and dismounted more than 3 times the plugs can be damaged. Therefore, we recommend that such cables are discarded and replaced.

Also note that the cables should not be used for carrying the actuator.

We recommend to take some precaution and design the wire connection in a way, where the cable end is kept inside a closed, protected area to guarantee the high IP protection.

Electrical installation:

To ensure maximum self-locking ability, for standard actuators without IC, please be sure that the motor is shorted when stopped. Actuators with integrated controller provide this feature, as long as the actuator is powered.

When using soft stop on a DC-motor, a short peak of higher voltage will be sent back towards the power supply. It is important when selecting the power supply that it does not turn off the output, when this backwards load dump occurs.

Where IC actuators has an integrated overcurrent protection -the power supply for actuators without Integrated Controller (Platform 0) must be monitored externally and cut off in case of current overload.

Recommended fuse for actuators without integrated controller (Platform 0):

Type	Spindle Pitch (mm)	Load max. Push/ Pull (N)	Typical Amp. at full load (A)		Recommended fuse (A)	
			24V	12V	24V	12V
33090xxxxxxxxA...	9	5000	-	10	-	20
33150xxxxxxxxA...	15	3500	-	10	-	20
33150xxxxxxxxA...	15	2250	-	10	-	20
33200xxxxxxxxA...	20	1500	-	10	-	20
33090xxxxxxxxB...	9	5000	6.5	-	15	-
33150xxxxxxxxB...	15	3500	7.0	-	15	-
33150xxxxxxxxB...	15	2250	6.6	-	15	-
33200xxxxxxxxB...	20	1500	6.5	-	15	-

Manual hand crank:

The manual hand crank can be used in the case of power failure and is only intended for emergency use.

The cover over the Allen key socket must be unscrewed before the Allen key can be inserted and the hand crank operated.

Hand crank torque: 6-8 Nm

Hand crank rpm: Max. 65

- The power supply has to be disconnected during manual operation
- If the actuator is operated as a hand crank, it must only be operated by hand, otherwise there is a potential risk of overloading and hereby damaging the actuator
  - do NOT use power tools for the hand crank!
- After using the hand crank the ingress protection will be lower
  - even if the cover is proberly mounted
- Actuators with absolute positioning must be initialised after use of the manual hand crank, because their positioning will be displaced when the power is disconnected.
- After using the hand crank, always return the actuator to the most inward position. Failing to do so can damage the actuator and/or the application it is used for

Label for LA33

1. **Type: 3320030000003J2A=BABC5A0F00465**
   Describes the basic functionality of the product
2. I**tem no.: J55067**
   Sales and ordering code
3. **Prod. Date: YYYY.MM.DD**
   Production date describes when the product has been produced. This date is the reference for warranty claims
4. **Max Load: Push 1500N / Pull 1500N IP66**
   Describes the maximum load that the product can be exposed to in compression and tension. This line also contains a reference to the product's IP protection degree
5. **Power Rate: 24VDC / Max. 4.5 Amp**
   Input voltage for the product and maximum current consumption
6. **Duty Cycle: 20%, Max. 4 min. / 16 min.**
   The duty cycle defines the maximum period during operation without interruption. After operation, a pause must be observed. It is important that the operator follows the instructions of the duty cycle; otherwise, a possible overload may result in reduced product life/errors
7. **W/O # -0001**
   The LINAK work order followed by a unique sequential identification number

Maintenance

- The actuator must be cleaned at regular intervals to remove dust and dirt and inspected for mechanical damages or wear.
- Inspect attachment points, wires, piston rod, cabinet, and plug, as well as check that the actuator functions correctly.
- To ensure that the pre-greased inner tube remains lubricated, the actuator must only be washed down when the piston rod is fully retracted.
- The actuator is a closed unit and therefore requires no internal maintenance.
- In order to maintain a proper performance of the spherical eyes and to increase the resistance against environmental wear, we strongly recommend that the spherical eyes (ball bearings) mounted on actuators from LINAK® are greased with anticorrosive grease or similar.

Repair

See warranty disclaimer.

Main groups of disposal

LINAK's products may be disposed of, possibly by dividing them into different waste groups for recycling or combustion.

We recommend that our product is disassembled as much as possible at the disposal and that you try to recycle it.

Product	Metal scrap	Cable scrap	Electronic scrap	Plastic recycling or combustion
LA33	X	X	X	X

Warranty

There is an 18 months' warranty on TECHLINE® products against manufacturing faults calculated from the production date of the individual products (see label). LINAK's warranty is only valid in so far as the equipment has been used and maintained correctly and has not been tampered with. Furthermore, the actuator must not be exposed to violent treatment. In the event of this, the warranty will be ineffective/ invalid. For further details, please see standard terms of sale and delivery for LINAK A/S.

Note

Only an authorised LINAK service centre should repair LINAK actuator systems. Systems to be repaired under warranty must be sent to an authorised LINAK service centre.

In order to avoid the risk of malfunction, all actuator repairs must only be carried out by an authorised LINAK Service shop or repairer, as special tools and parts must be used.

If a system is opened by unauthorised personel there is a risk that it may malfunction at a later date.

The actuator is not to be opened by unauthorised personnel. In case the actuator is opened, the warranty will be invalid.

DECLARATION OF CONFORMITY

LINAK A/S
Smedevænget 8

DK - 6430 Nordborg

hereby declares that

Actuator (LA33 std.) 33**********0**********

(The '*' in the product description can either be a character or a number, thereby defining the variation of the product)

complies with the EMC Directive 2014/30/EU according to following harmonised standards:
EN 61000-6-1:2019, EN 61000-6-2:2019, EN 61000-6-3:2021, EN 61000-6-4:2019

complies with the RoHS2 Directive 2011/65/EU according to the harmonised standard:
EN 63000:2018

Nordborg, 2023-06-27

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

This declaration of conformity is issued under the sole responsibility of the manufacturer
Original Declaration

DECLARATION OF CONFORMITY

LINAK A/S
Smedevænget 8

DK - 6430 Nordborg

hereby declares that

Actuator (LA33 IC) 33**********3**********

(The '*' in the product description can either be a character or a number, thereby defining the variation of the product)

complies with the EMC Directive 2014/30/EU according to following harmonised standards:
EN 61000-6-1:2019, EN 61000-6-2:2019, EN 61000-6-3:2021, EN 61000-6-4:2019

complies with the RoHS2 Directive 2011/65/EU according to the harmonised standard:
EN 63000:2018

Nordborg, 2023-06-27

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

This declaration of conformity is issued under the sole responsibility of the manufacturer
Original Declaration

DECLARATION OF CONFORMITY

LINAK A/S
Smedevænget 8

DK - 6430 Nordborg

hereby declares that

Actuator (LA33 CAN)
33**********3A**********6*****, 33**********3B**********6*****
33**********3A**********7*****, 33**********3B**********7*****
33**********3A**********8*****, 33**********3B**********8*****

(The '*' in the product description can either be a character or a number, thereby defining the variation of the product)

complies with the EMC Directive 2014/30/EU according to following harmonised standards:
EN 61000-6-1:2019, EN 61000-6-2:2019, EN 61000-6-3:2021, EN 61000-6-4:2019

complies with the RoHS2 Directive 2011/65/EU according to the harmonised standard:
EN 63000:2018

Nordborg, 2023-06-27

LINAK A/S
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This declaration of conformity is issued under the sole responsibility of the manufacturer.
Original Declaration

DECLARATION OF CONFORMITY

LINAK A/S
Smedevænget 8

DK - 6430 Nordborg

hereby declares that

Actuator (LA33 with communication interface)

33**********=*******§*****
where § can be: A, E, G, H, I, J, N, P, Q, R, S, T, U

(The '*' in the product description can either be a character or a number, thereby defining the variation of the product)

complies with the EMC Directive 2014/30/EU according to following harmonised standards:
EN 61000-6-2:2019, EN 61000-6-4:2019

complies with the RoHS2 Directive 2011/65/EU according to the harmonised standard:
EN 63000:2018

Nordborg, 2025-01-09

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This declaration of conformity is issued under the sole responsibility of the manufacturer.
Original Declaration

DECLARATION OF CONFORMITY

LINAK A/S
Smedevænget 8

DK - 6430 Nordborg

hereby declares that:

Actuator 33xxxxxxxxxxxxxxxxxxxxxBxxxxx, 33xxxxxxxxxxxxxxxxxxxxxCxxxxx, 33xxxxxxxxxxxxxxxxxxxxxFxxxxx

(The '*' in the product description can either be a character or a number, thereby defining the variation of the product)

complies with the Radio Equipment Directive (RED) 2014/53/EU according to following standards:
EN 300 328 V2.2.2. (2019-07)
EN 301 489-1 V2.2.3 (2019-11), EN 301 489-17 V3.2.4 (2020-09)
EN IEC 62368-1:2020
EN 62479:2010
EN 50663:2017

complies with the RoHS2 Directive 2011/65/EU according to the standard:
EN 63000:2018

Additional information:
The system does comply with the selected parts of the standards:
EN 61000-6-2:2019, Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
EN 61000-6-4:2019: Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments

Nordborg, 2024-04-17

LINAK A/S
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This declaration of conformity is issued under the sole responsibility of the manufacturer.
Original Declaration

DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

LINAK A/S
Smedevænget 8
DK - 6430 Nordborg

LINAK A/S hereby declares that LINAK DESKLINE® products, characterised by the following models and types:

Control Boxes	CBD6S
Linear Actuators	DB5, DB6, DB14, LA23, LA31
Lifting Columns	DL1A, DL2, DL4S, DL5, DL6, DL8, DL9, DL10, DL11, DL12, DL14, DL15, DL16, DL17, DL18, DL19, DL20, DL21, BASE1, LC1
Desk Panels	DPA, DPB, DPH, DPF, DPG, DPT, DP, DP1CS, DPI
Wireless Controls	BP10
Accessories	BA001, BLE2LIN, CHUSB, DESK Sensor, DF2, Kick & Click, SLS, SMPS, USB2LIN, WiFi2LIN, DC Connector, RFRL

LINAK A/S hereby declares that LINAK HOMELINE® products, characterised by the following models and types:

Control Boxes	CBD6DC
Linear Actuators	LA10, LA18, LA40 HOMELINE
Dual Actuators	TD4, TD5
Controls	BP10, HC10, HC20, HC40
Accessories	BA002, CP, BLE2DC, BLE2LIN, LED Light Rail, MD1, SMPS, WiFi2LIN

LINAK A/S hereby declares that LINAK MEDLINE® & CARELINE® products, characterised by the following models and types:

Control Boxes	CA10, CA20, CA30, CA40, CA63, CAL40, CB6, CB6S, CB6P2, CB8, CB9, CBJ2, CBJ Care, CBJ Home, CO41, CO53, CO61, CO65, CO71, COL50, OPS, PJ2, PJB4
Linear Actuators	LA20, LA23, LA24, LA27, LA28, LA29, LA30, LA31, LA34, LA40, LA44
Lifting Columns	BL1, LC1, LC3
Controls	ABL, ACC, ACK, ACO, ACOM, ACL, DP, DPH, FS, FS3, FPP, HB30, HB70, HB80, HB100, HB190, HB200, HB400, HD80, HL70, HL400
Accessories	BA16, BA18, BA19, BA22, BAJ, BAJL, BAL40, BAL50, CH01, CHJ2, CHL40, CHL50, DJB, LIN2OB, MJB2, MJB5 Plus, Massage Motor, PJB4, QLCI2, SLS, SMPS10, UBL, UBL2, UBL4 Motion, USB-A Power Adapter

LINAK A/S hereby declares that LINAK TECHLINE® products, characterised by the following models and types:

Linear Actuators	LA12, LA14, LA23, LA25, LA30, LA33, LA35, LA36, LA37, LA76, LA77
Lifting Columns	LC3 IC
Accessories	FMB

comply with the following parts of the Machinery Directive 2006/42/EC, ANNEX I, Essential health and safety requirements relating to the design and construction of machinery: 1.5.1 Electricity supply

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

This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC where appropriate.

Nordborg, 2024-07-10

LINAK A/S

John Kling, B.Sc.E.E., Certification and Regulatory Affairs

Authorised to compile the relevant technical documentation

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Terms of use

LINAK® takes great care in providing accurate and up-to-date information on its products. However, the user is responsible for determining the suitability of LINAK products for a specific application.
Due to continual development, LINAK products are subject to frequent modifications and changes.
LINAK reserves the rights to conduct modifications, updates, and changes without any prior notice. For the same reason, LINAK cannot guarantee the correctness and actual status of imprinted information on its products.

LINAK uses its best efforts to fulfil orders. However, for the reasons mentioned above, LINAK cannot guarantee availability of any particular product at any given time. LINAK reserves the right to discontinue the sale of any product displayed on its website or listed in its catalogues or in other written material created and produced by LINAK, LINAK subsidiaries, or LINAK affiliates.
All sales are subject to the 'Standard Terms of Sale and Delivery for LINAK A/S' available on LINAK websites.

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WE IMPROVE YOUR LIFE