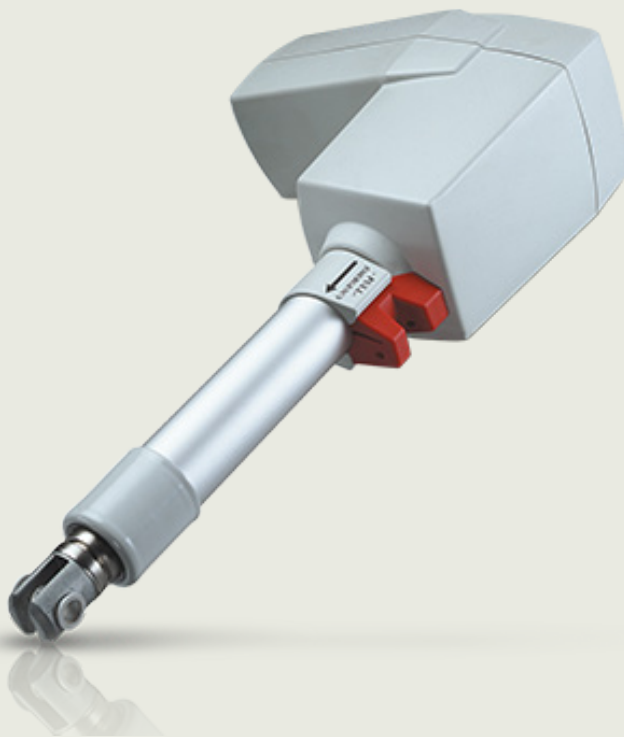


Linear Actuator LA34

Data Sheet



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Introduction

LA34 is a technological state-of-the-art actuator that, due to its innovative construction can push up to 10000 N at a speed of 5 mm/sec. and with a current consumption of approx. 7 Amp. The strong LA34 actuator is made in a low weight composite material.

Its compact design, the outstanding performance and a wide range of safety options makes LA34 the right choice for a variety of medical and industrial applications.

The LA34 24V actuator is approved according to IEC 60601-1, ANSI / AAMI ES60601-1, and CAN / CSA-22.2 No 60601-1.

Features

- Max. load 10,000 N (in push)
- Max. load 6,000 N (in pull), reinforced
- Dynamic push and pull: Actuators are designed for push or pull applications. If a combination is required, please contact your local LINAK salesperson.
- 24 V DC permanent magnet motor (2 standard 24 V DC types)
- Safety factor 2 in push (10,000 N up to 150 mm stroke)
- Safety factor 4 in pull
- Safety nut in push direction
- Built-in limit switches (not adjustable)
- Noise level below 50dB(A), measured according to DS/EN ISO 3743-1 (Standard LA34)
- Adjustment of installation dimension + 4/- 0 mm, only turn counterclockwise seen from piston rod eye (not possible with mechanical splines)
- Standard protection class: IPX4 or IPX6
- Colour: grey and black
- Stroke length: 100-400 mm, up to 600 mm stroke with long "L" option.
- Installation dim. standard S + 210 mm or long "L" S + 267mm
- 2.25 m straight cable with 6.3 mm jack plug (DIN-plug for CB9)



Options

- Max. thrust 6,000 N in pull (safety nut in pull and steel piston rod eye - see ordering example)
- Mechanical spline: When using the actuator in a vertical position, the force needed to activate the mechanical spline is maximum 60N + the weight of the application. To reengage the spline function, a force of maximum 60N is needed. Same installation dim. as standard actuator.
- Quick release system (push) enables stepless retraction of the actuator when lowering (mechanical emergency lowering). When ordering quick release freewheeling is automatically included.
- Quick release actuators with an installation dimension below 340 mm can only be ordered as a special article.
- Bowden cable solution for quick release (min. stroke 150 mm)
- Quick release with signal switch can be ordered as a special article.
- A modified Bowden cable holder is available (as a special article), with better cable alignment and improved guidance of the cables (see page 10).
- Double bowden cable solution for quick release
- Stroke length: up to 600 mm for version with short installation dim. as a special article
- Compact housing
- Safety nut in pull direction (increases the installation dimension by 10 mm)
- Electric spline: When using the actuator in a vertical position, the force needed to activate the electric spline is maximum 100N + the weight of the application. To reengage the spline function, a force of maximum 100N is needed.
- Hall sensor. If used in combination with QR, the position will be lost when the QR is activated. Has to be ordered as a special article.
- Exchangeable cables
- Potentiometer (max. stroke lengths): (zero positioning <0,1 V at a stable 10 V supply)
 - LA34 with 12 mm pitch max. 250 mm
 - LA34 with 16 mm pitch max. 330 mm
 - LA34 with 20 mm pitch max. 416 mm
- Potentiometer in combination with Jack and DIN plugs is not possible in the LA34 composite actuator. Potentiometer cannot be combined with electric spline.
- Colour black (only housing and cable)

Usage

- Duty cycle: 2/18 – 2 minutes continuous use followed by 18 minutes not in use
- Ambient temperature +5° to +40° C
- Compatible with LINAK control boxes. Please contact LINAK.
- Approvals: IEC60601-1, ANSI / AAMI ES60601-1 and CAN / CSA-22.2 No 60601-1 for LA34 24V.



Technical specifications

Type	Spindle pitch	Thrust max. push (N)	Thrust max. pull (N)	*Speed at 0/full load (mm/s)	Stroke length (mm)	*Amp. at full load (A)
LA34 Std. motor	12	10,000	6,000	8.2/4.8	100/600	7
LA34 Std. motor	16	7,000	6,000	10.8/7.9	100/600	7
LA34 Std. motor	20	5,000	5,000	13.5/10	100/600	7
LA34 Fast motor	12	10,000	6,000	11/7	100/600	10
LA34 Fast motor	16	7,500	6,000	15/9	100/600	10
LA34 Fast motor	20	5,000	5,000	18/13.2	100/600	10

* Typical values, measurements are made with an actuator in connection with a stable 24V power supply.



Ordering example

34	3	1	0	0	+	0	0	2	5	0	0	4	0
CABLES:													
JACK-CABLES													
0= Straight 2.25 m (±0.08)													
1= Straight 1.0 m (±0.08)													
DIN-CABLES													
A= Straight 2.25 m (±0.08)													
C= Coiled 0.4 m													
D= Coiled 0.2 m													
OTHER CABLES													
U= 6-core extension cables Mini-Fit, straight (0.03 m ±0.02 m std. housing, 0.105 m ±0.02 m compact housing)													
Z= 5-core 0.5 m flying leads (±0.03)													
IP-DEGREE:													
4 = IPX4, std. housing													
2 = IPX6 std. housing													
A = IPX4, compact housing													
B = IPX6, compact housing													
MOTOR TYPE:													
0 = standard 24V													
1 = Fast motor 24V													
STROKE LENGTH:													
XXX = mm													
Max. 400 mm for "0" version (up to 600 mm as special article)													
Max. 600 mm for "L" version													
Min. 100 mm (in steps of 1 mm)													
INSTALLATION DIMENSION:													
0 = Standard, S+210													
L = Long, S+267 (always for patient lifts)													
SAFETY OPTION:													
0 = Safety nut in push													
1 = Safety nut in pull and steel piston rod eye, "push" safety nut also mounted (increases installation dimension by 10 mm)													
3 = Mechanical spline, push actuator													
4 = Electrical spline, push actuator													
COLOUR:													
+ = grey													
- = black													
SPECIAL OPTION:													
0 = No													
F= Quick release + free wheeling + adjustable release (push)													
K= Quick release + free wheeling + adjustable release Bowden cable holder (push)													
W= Free wheeling (push)													
POSITIONING:													
0 = No													
H= Hall (only with U-cable)													
P= Potentiometer (not possible with DIN and Jack plug)													
FIXTURE TYPE:													
A = Composite standard (max. 4000 N pull)													
B = Composite turned 90° (max. 4000 N pull)													
C = Composite standard w. reinforced back fixture (max. 6000 N pull)													
D = Composite turned 90° w. reinforced back fixture (max. 6000 N pull)													
SPINDLE TYPE:													
3 = 12 mm (3 inlet)													
4 = 16 mm (4 inlet)													
5 = 20 mm (5 inlet)													
ACTUATOR TYPE:													
34 = LA34													

Approvals and certifications

For approval documentation, LINAK recommends specifying the product type instead of individual item numbers to ensure broader approval coverage and simplify future product changes.

Listed LINAK item for application approval: LA34

If this is not possible, we advise being as non-specific as possible when specifying LINAK products in your approval application:

Listed LINAK item for application approval: LA34*S*****SS*

" * " is not safety critical and we recommend including a non-specific signifier such as an asterisk.

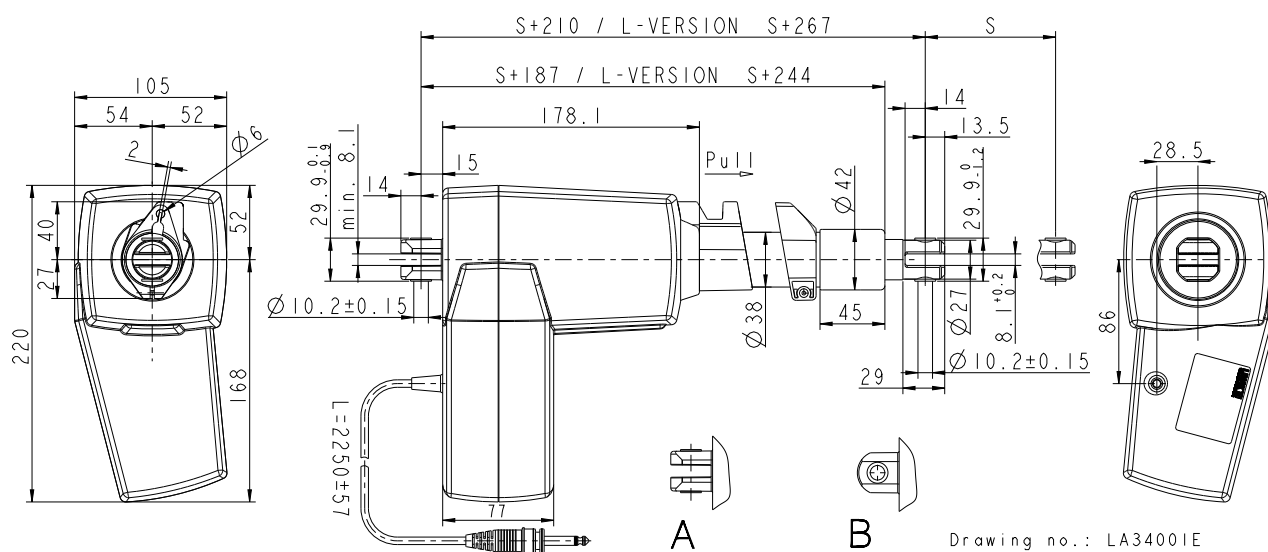
" S " is safety critical and represents a listed critical component in the product and cannot be left out.

For more information, please refer to "Approvals and certifications" in LINAK Application Design Recommendations found under User Manual for any given product on LINAK.com



Dimensions

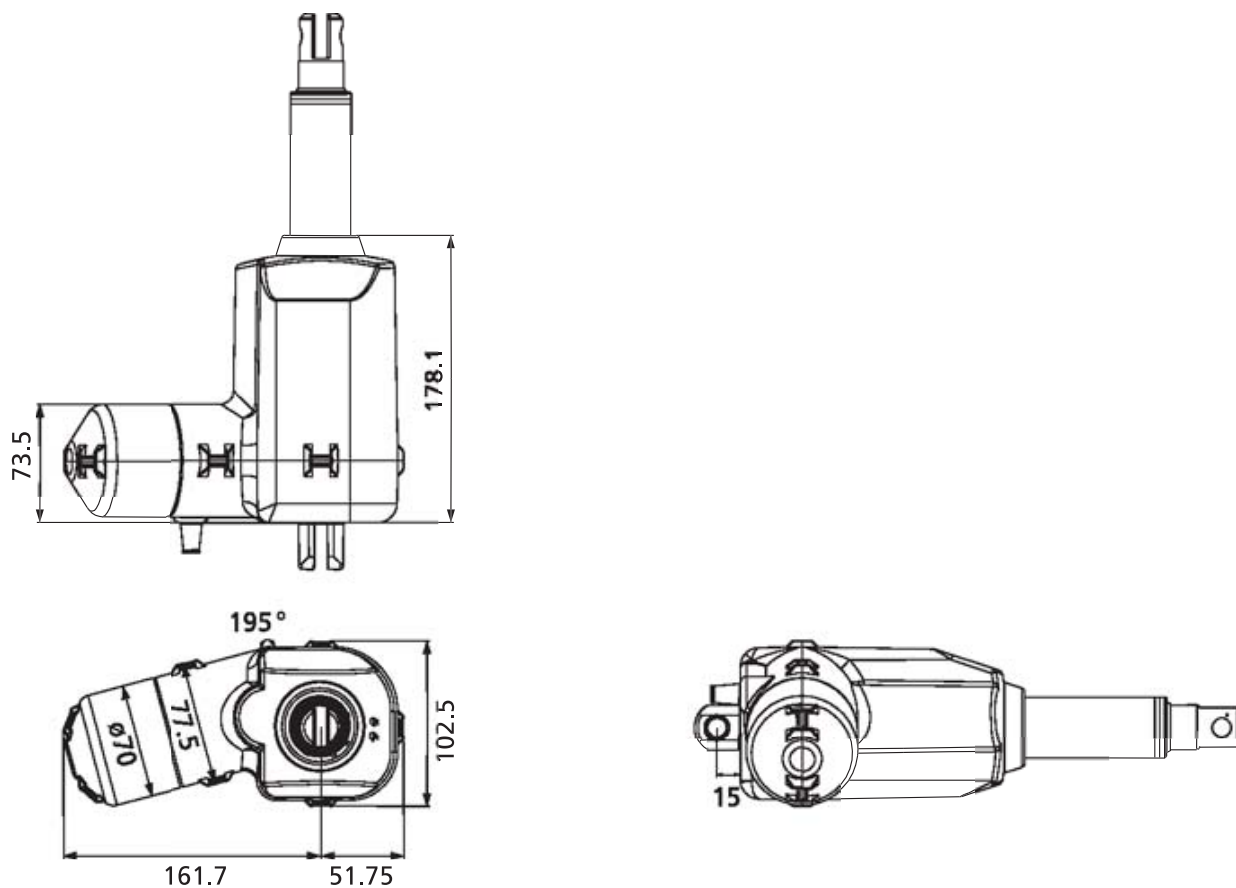
Standard housing



Drawing number: LA34001E

The LA34 actuator is as standard delivered with bushings in rod eye and back fixture. If the hole dimension in rod eye or back fixture is changed from standard - bushings are not mounted.

Compact housing



Safety factor

The max. load of the LA34 actuator when observing safety factor 2 will depend upon the stroke length of the actuator.

The following graphs show the max. load during the entire stroke length.



Fig.1, 150mm actuator (item no. 343AXX+X0150XXX)

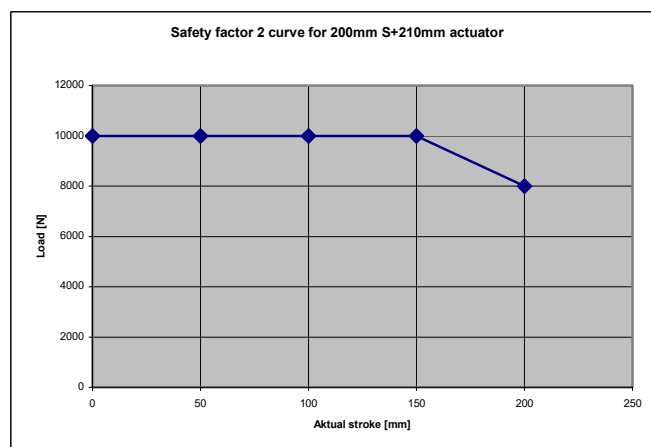


Fig.2, 200mm actuator (item no. 343AXX+X0200XXX)

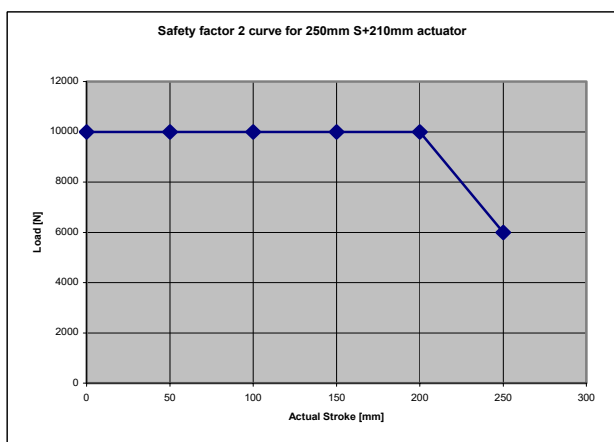


Fig. 3, 250mm actuator (item no. 343AXX+X0250XXX)

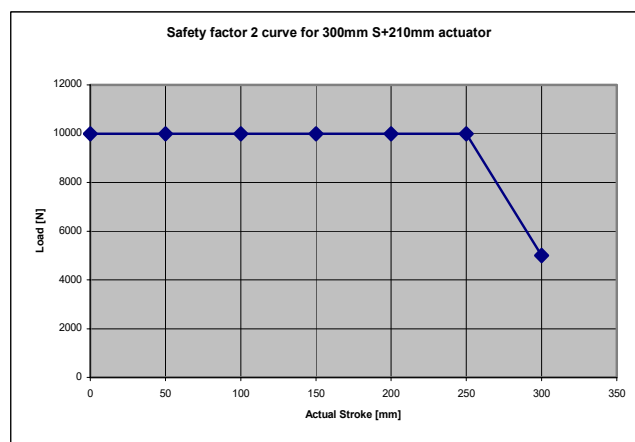


Fig. 4, 300mm actuator (item no. 343AXX+X0300XXX)

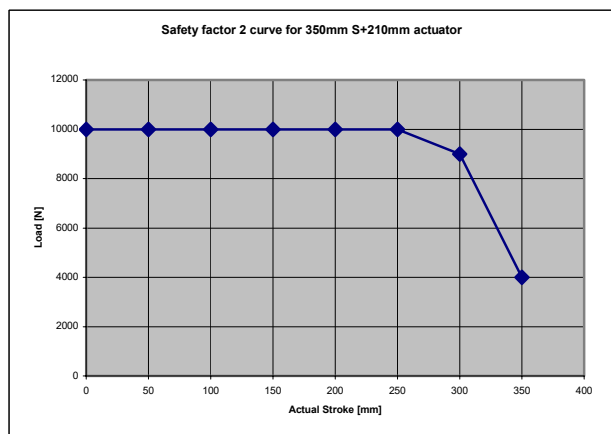


Fig. 5, 350mm actuator (item no. 343AXX+X0350XXX)



Fig. 6, 400mm actuator (item no. 343AXX+X0400XXX)

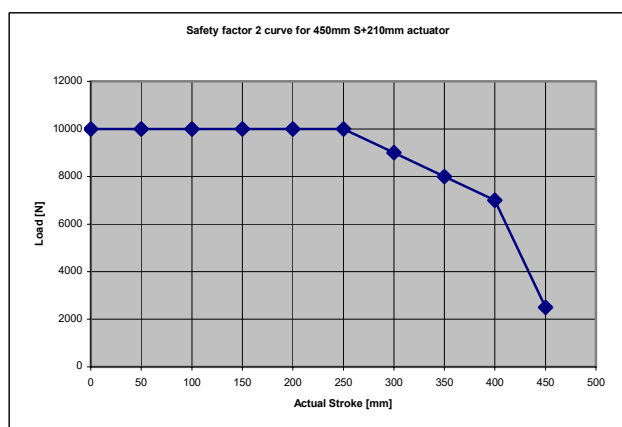


Fig. 7, 450mm actuator (item no. 343AXX+X0450XXX)

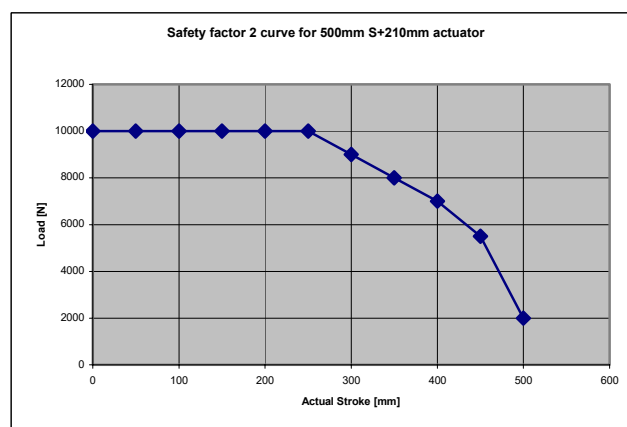


Fig. 8, 500mm actuator (item no. 343AXX+X0500XXX)

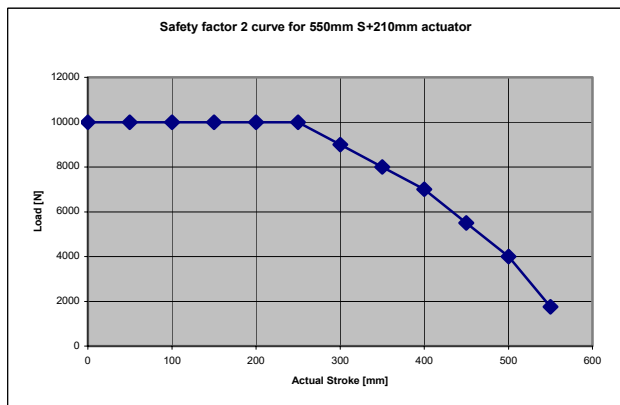


Fig. 9, 550mm actuator (item no. 343AXX+X0550XXX)

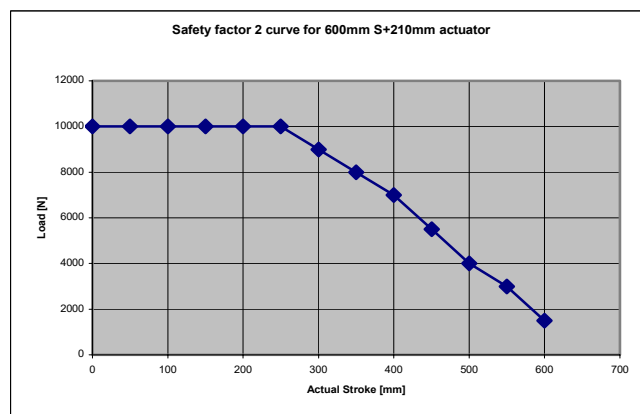


Fig. 10, 600mm actuator (item no. 343AXX+X0600XXX)

The graphs show that standard installation (S + 210mm) LA34 with strokes up till 150 mm, has a safety factor 2 with a 10,000 N load (fig. 2).With a further increase of the stroke the safety factor 2 is no longer observed with 10,000N load at the full stroke length.

Not all applications require a safety factor of 2.

LINAK recommends that a safety factor of minimum 1.5 is always observed in all applications, even though the actuator is to be used in a situation with norms or standards specifying a lower factor. The load limit of maximum 10000 N must never be exceeded regardless of the safety factor used.

Long installation (S+267mm)

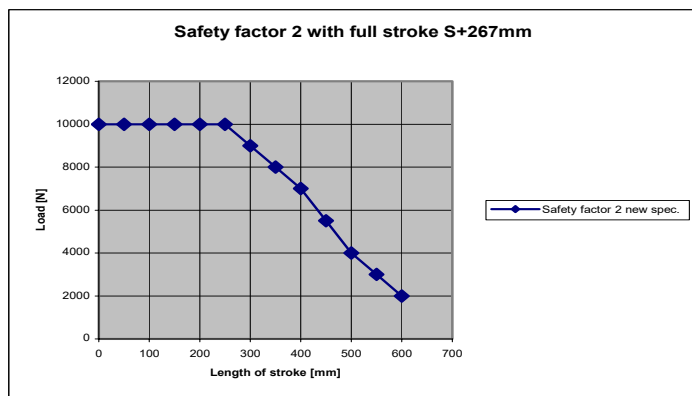


Fig. 11, Safety factor 2 with LA34 (S+267mm).

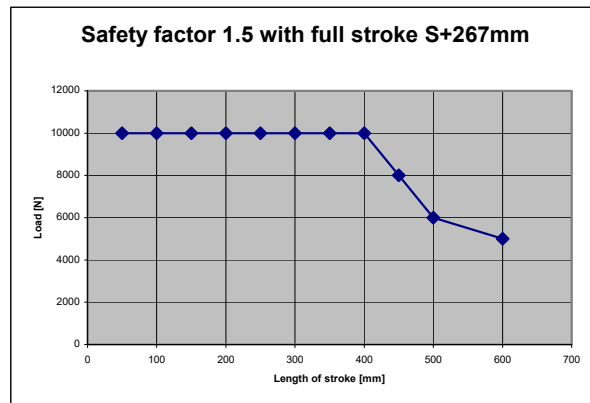


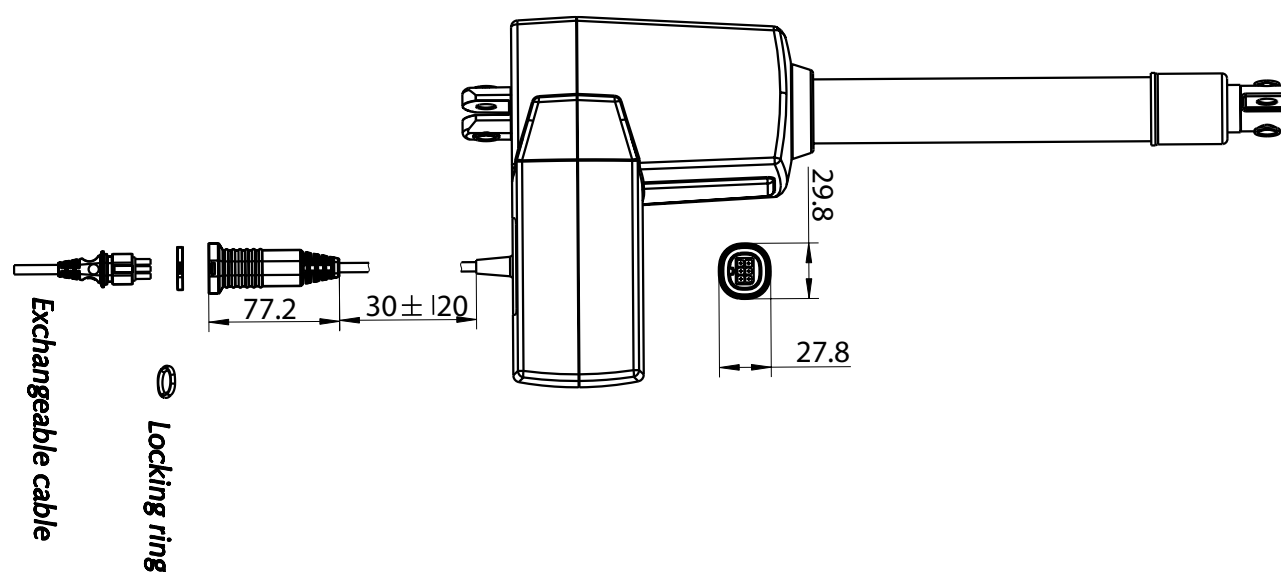
Fig. 12, Safety factor 1.5 with LA34 (S+267mm)

The long installation dimension (S+267mm) is designed for use in patient hoist applications where safety factor 2 is required.

The long installation dimension (S+267mm) can also be used in hospital bed applications where safety factor 2 is required. Using the long installation dimension you get a higher max. load with safety factor 2 at the same stroke length. The safety factor 2 graph is shown in fig. 11.



LA34 with mini-fit cable connector



N.B. The cable length between the socket and the housing is 30 mm on the standard LA34 and 105 mm on LA34 with compact housing.

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