



Actuator LA31
Data sheet

LA31

The LA31 actuator is a very quiet and powerful actuator designed for a variety of applications. The standard LA31 actuator is available for both the TECHLINE®, HOMELINE®, CARELINE® and DESKLINE® product range.

Due to its high capacity, design and protection class up to IPX6 the TECHLINE® actuator is ideal for industrial applications. The various combinations of motor, spindle pitch, back fixture and piston rod eye gives a vast number of solutions, this ensures that many different needs can be covered by the LA31 TECHLINE® actuator.



Features:

- 12/24 V DC permanent magnet motor
- Thrust up to 6000 N in push and up to 4000 N in pull
- Electric chromated steel piston rod eye with slot
- High-strength plastic housing protects motor and gears
- Elegant and compact design with small installation dimensions
- Standard protection class: IPX1
- Colour: black
- 2.25 m straight cable
- Built-in limit switches (not adjustable)
- Scratch and wear-resistant powder painting on outer tube Ø30 mm
- Zinc alloy back fixture
- Strong wear and corrosion resistant stainless steel inner tube
- Noise level 48 dB (A); measuring method DS/EN ISO 3746, actuator not loaded

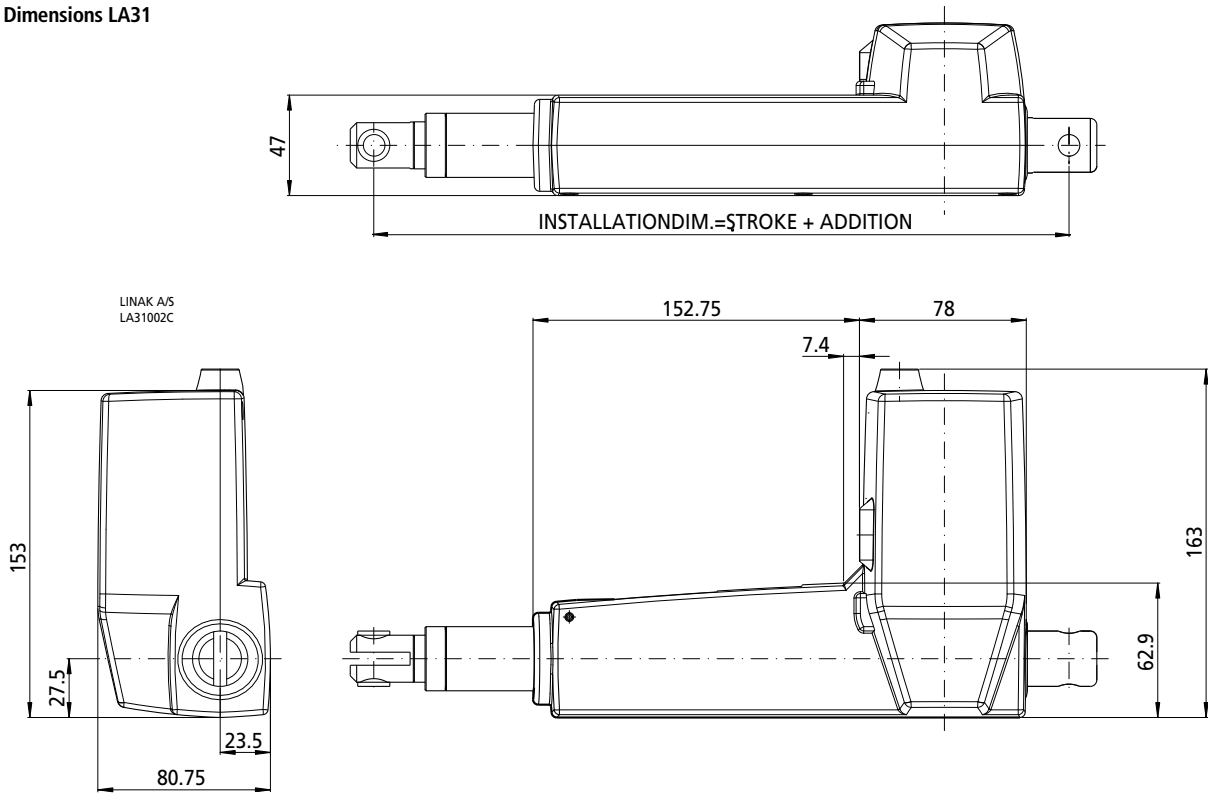
Options:

- Flexible back fixture
- Reed switch (8 pulses per spindle revolution) for positioning of memory control
- Hall
- Fast motor
- Mechanical splines (the actuator can only push)
- Protection class IPX4, IPX6
- Colour: grey
- Safety nut in push

Usage:

- Duty cycle: Max. 10% or 2 minutes continuous use followed by 18 minutes not in use
- Ambient temperature +5°C to +40°C

Dimensions LA31



Standard installation dimensions with different combinations of Piston Rod Eyes and back fixtures to LA31.

	LA31 Standard		LA31 Splines	
	Stroke length > 115 mm	Stroke length < 115 mm	Stroke length > 100 mm	Stroke length < 100 mm
Eye	0, 1, 2 and 3	0, 1, 2 and 3	0, 1, 2 and 3	0, 1, 2 and 3
Back Fixture				
1/2, 5/6 and 7/8	S + 173 mm	288 mm	S + 189 mm	289 mm
A/B	S + 176 mm	291 mm	S + 192 mm	292 mm

Installation dimensions explanation of table.

LA31 TECHLINE Standard

With the standard LA31 TECHLINE and a stroke length greater than 115 mm, the installation dimension is = Stroke length + 173 mm (+ 176 mm with an A / B type back fixture). With a stroke length of 115 mm or less the inst. dimension will be 288 mm (291 mm with A / B type back fixture).

LA31 TECHLINE Splines

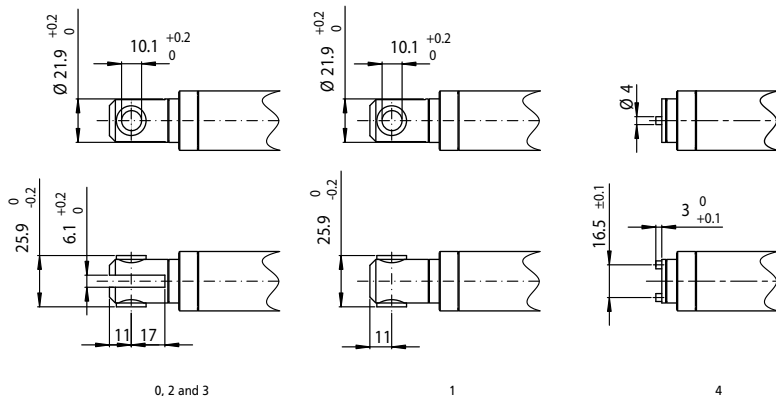
With LA31 TECHLINE Splines and a stroke length greater than 100 mm, the installation dimension is = Stroke length + 189 mm (+ 192 mm with A / B type back fixture). With a stroke length of 100 mm or less the inst. dimension will be 289 mm (292 mm with A / B type back fixture).

S = Stroke length

Minimum installation dimension is 288 mm.

Minimum installation dimension with splines is 289mm. With mechanical End stop the installation dimension is increased by 20 mm.

Piston Rod Eyes:



0, 2 and 3

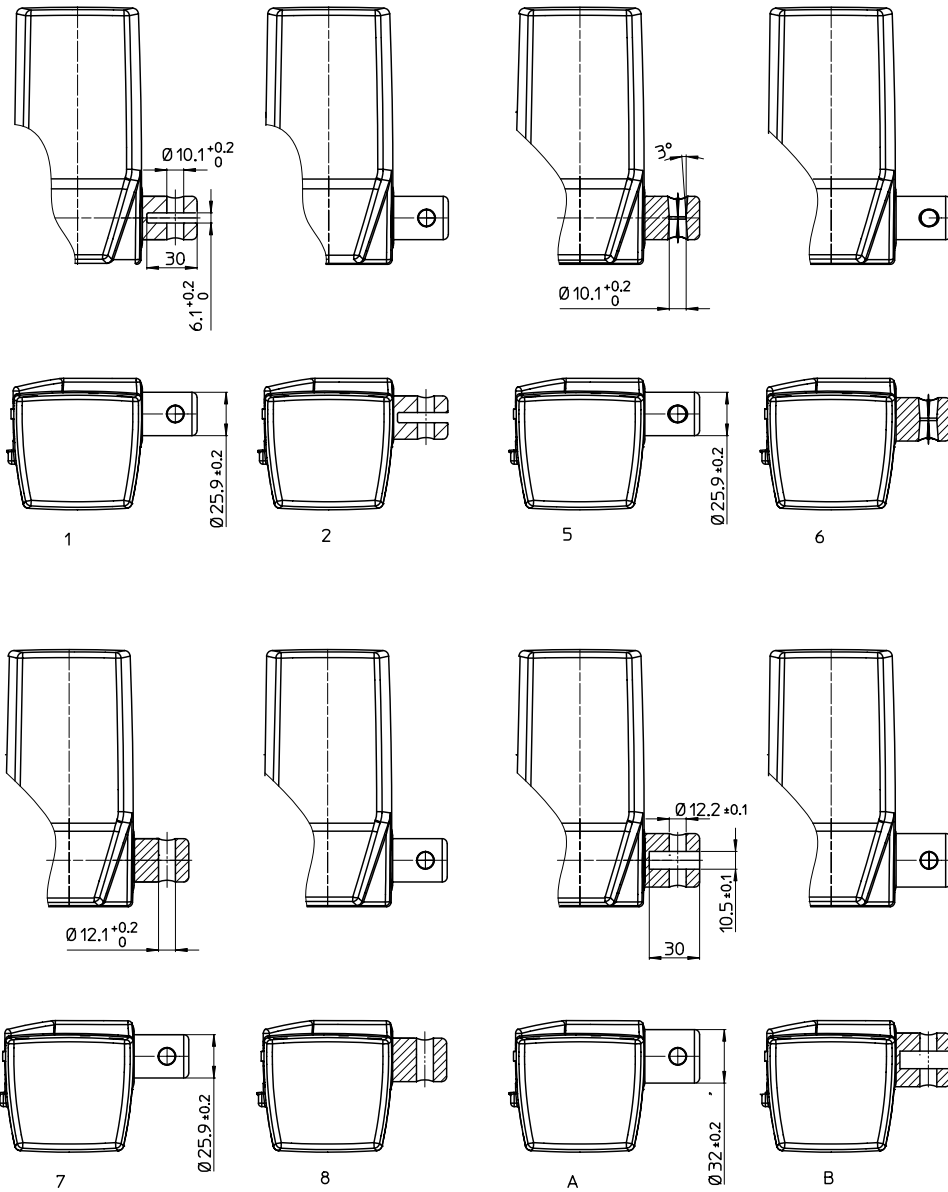
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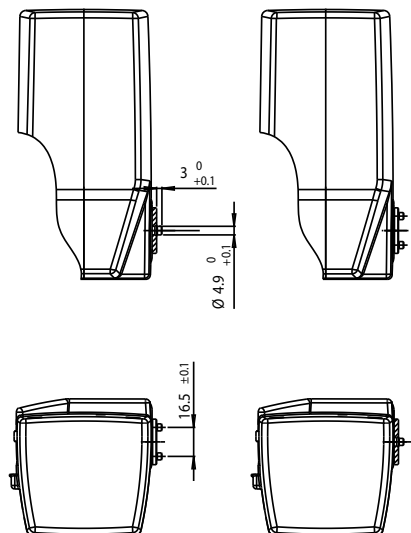


An LA31 brake in a push application brakes actively when the actuator moves in an inward direction. The same applies to an actuator mounted with a brake in a pull direction. It brakes in an outward direction. Under this condition the standard motor uses up to 4 Amp. and the fast motor uses up to 6 Amp.

Back fixtures:



LA31007B



Technical specifications:

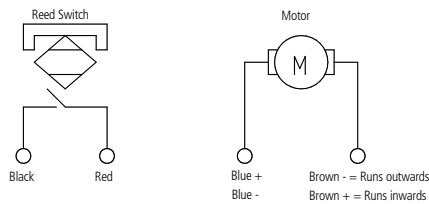
Spindle type	Spindle pitch (mm)	Max load (N)		Typical Amp. Full load	Typical speed (mm/s)		Self-lock max (N)	
		Push	Pull		Unloaded	Full load	Push	Pull
Standard 24V motor								
31.1	3	6000	4000	4.0	6.2	3.2	6000	4000
31.2	5	4000	4000	3.1	11.2	5.4	2000	2000
31.2 With brake	5	4000	4000	3.3	11.2	5.6	4000	4000
31.3 With brake	9	1500	1500	2.5	19.4	10.5	1500	1500
31.4 With brake	4	6000	4000	4.1	8.2	5.4	6000	4000
31.6 With brake	12	1000	1000	2.4	26.6	14.5	1000	1000
31.7 With brake	6	2500	2500	2.5	13.2	6.8	2500	2500
Fast 24V motor								
31.1	3	6000	4000	4.2	8.2	4.9	6000	4000
31.2	5	4000	4000	3.7	14	6.9	2000	2000
31.2 With brake	5	4000	4000	4.0	14	6.4	4000	4000
31.3 With brake	9	1500	1500	2.9	26.6	13	1500	1500
31.4 With brake	4	6000	4000	5.0	10.7	5.3	6000	4000
31.6 With brake	12	1000	1000	2.8	32.6	17.6	1000	1000
31.7 With brake	6	2500	2500	3.1	16.7	8.3	2500	2500
Standard 12V motor								
31.1	3	6000	4000	7.2	4.5	3.2	6000	4000
31.2	5	4000	4000	3.9	7.4	6.4	2000	2000
31.2 With brake	5	4000	4000	6.5	7.5	5.7	4000	4000
31.3 With brake	9	1500	1500	4.7	13	10.9	1500	1500
31.6 With brake	12	1000	1000	4.1	18	15.9	1000	1000
31.4 With brake	4	6000	4000	9.0	6	3.7	6000	4000
31.7 With brake	6	2500	2500	5.2	9.1	7.7	2500	2500

Comments to table:

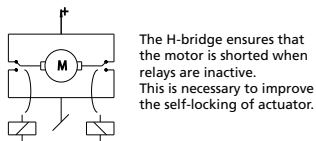
- * LINAK control boxes are designed so that they will short-circuit the motor terminals (poles) of the actuator(s), when the actuator(s) are not running. This solution gives the actuator(s) a higher self-locking ability.
If the actuator(s) are not connected to a LINAK control box, the terminals of the motor must be short-circuited to achieve the self-locking ability of the actuator.
- ** When the load in push is above 4000 N (max. 6000 N), the max. stroke length is 250 mm.

Connections LA31:

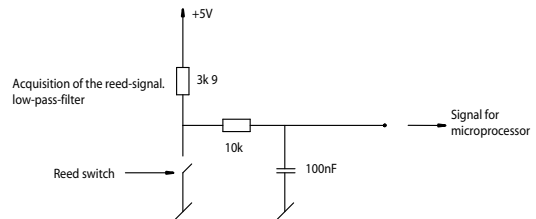
Block diagram



Improved self locking ability

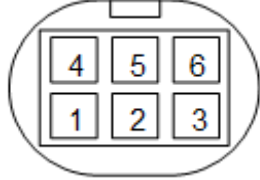
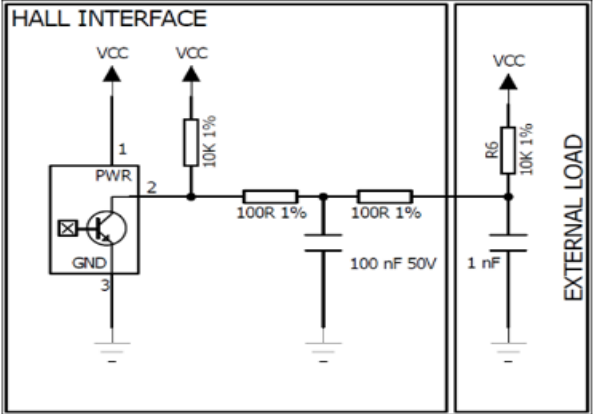
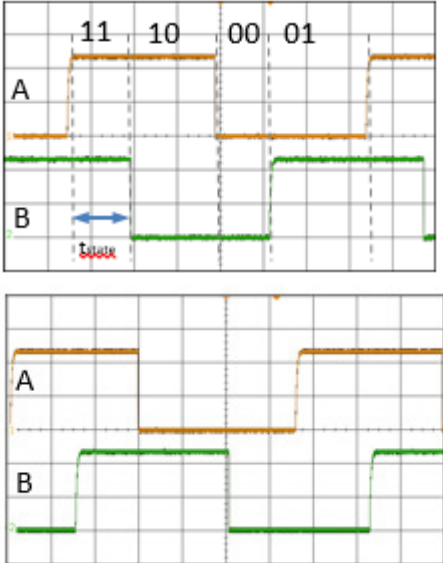


Conditioning of reed signal

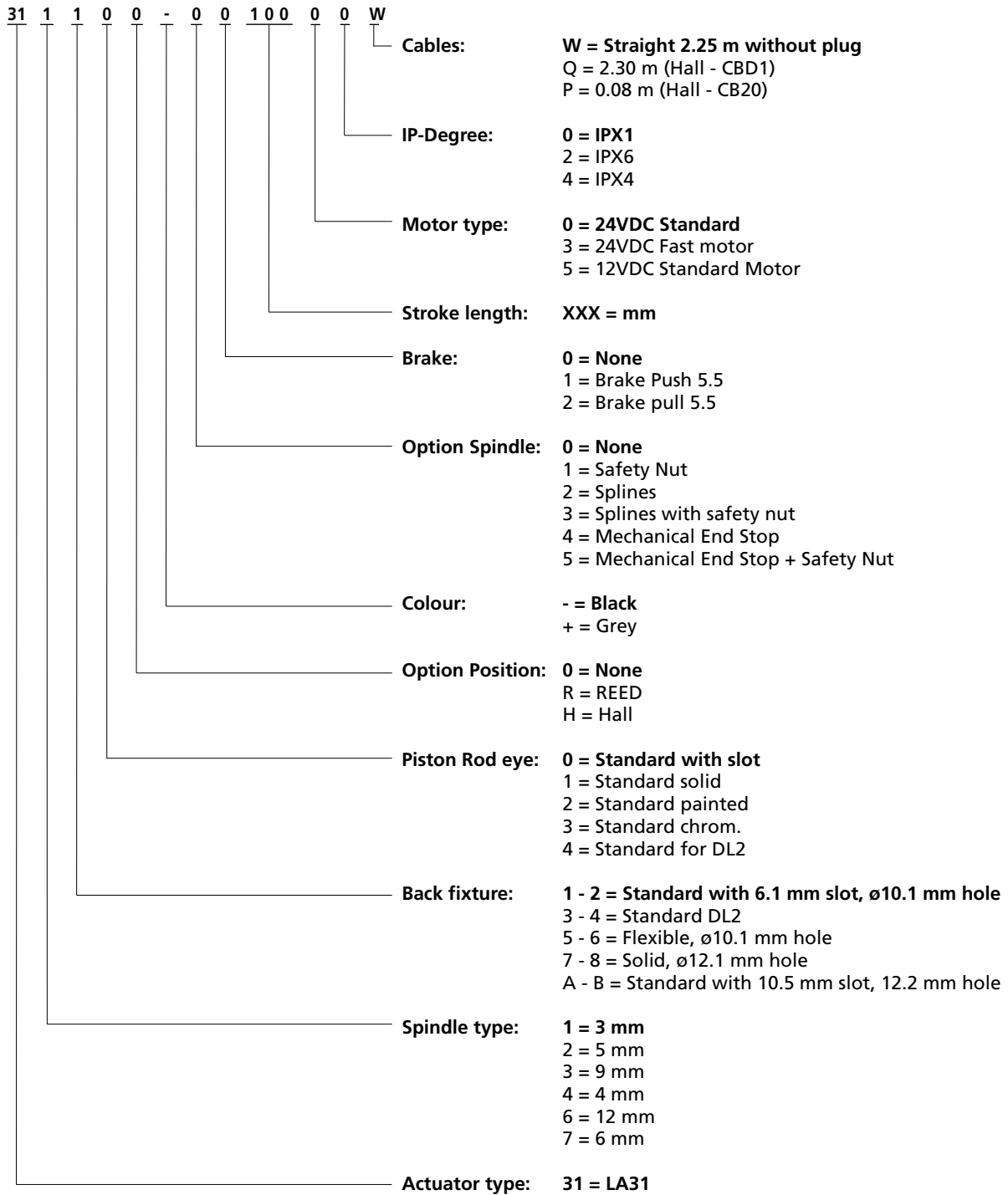


Hall feedback

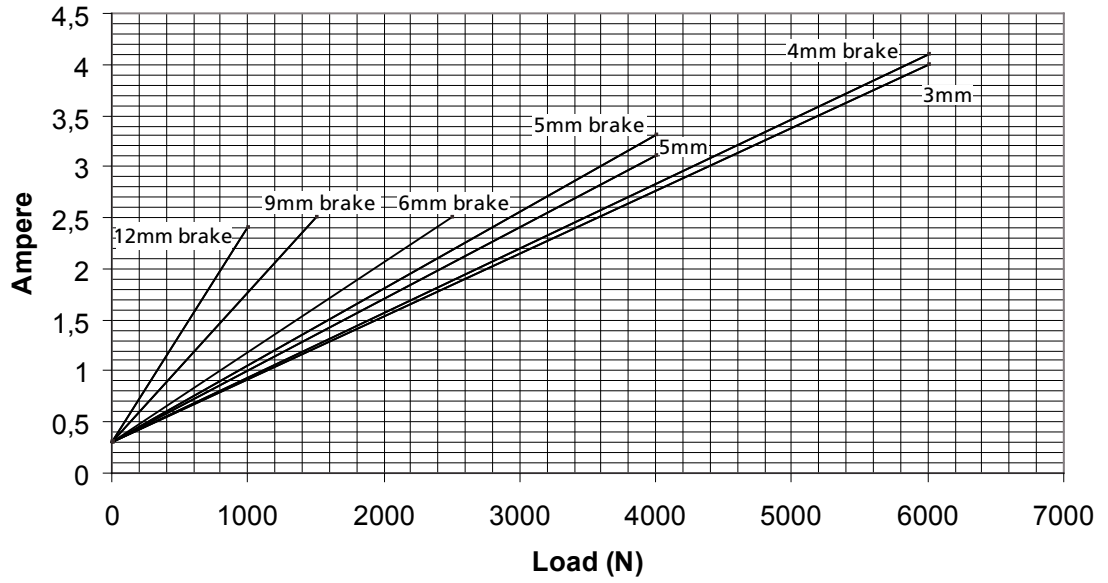
Feedback specification: dual Hall, digital positioning.

Item	Specification	Comment												
Pin configuration	<table border="1"> <tr> <td>Pin 1</td> <td>GND</td> </tr> <tr> <td>Pin 2</td> <td>VCC</td> </tr> <tr> <td>Pin 3</td> <td>M+</td> </tr> <tr> <td>Pin 4</td> <td>HALL A</td> </tr> <tr> <td>Pin 5</td> <td>HALL B</td> </tr> <tr> <td>Pin 6</td> <td>M-</td> </tr> </table>	Pin 1	GND	Pin 2	VCC	Pin 3	M+	Pin 4	HALL A	Pin 5	HALL B	Pin 6	M-	Connector front view: 
Pin 1	GND													
Pin 2	VCC													
Pin 3	M+													
Pin 4	HALL A													
Pin 5	HALL B													
Pin 6	M-													
VCC	4-15V	Feedback circuit has to be powered 50ms before driving, and until actuator has stopped.												
Current	Maximum 15mA @10kΩ and 1nF load. See diagram.													
Hall A/B	tstate is minimum 5ms in all states (11,10,00,01) Duty cycle Hall A 30-70% Duty cycle Hall B 30-70% Low level <GND+0.5V @10kΩ and 1nF load High level >VCC-0.5V @10kΩ and 1nF load Driving out, the Hall B signal will go high when Hall A signal is low. Driving in, the Hall A signal will go high when Hall B signal is low.													
Resolution	The feedback system gives 12 state shifts per spindle turn. 3mm pitch => 0.25mm per shift 4mm pitch => 0.3333mm per shift	On 100mm stroke you will have the following number of pulses: 3mm pitch => 400 shifts 4mm pitch => 300 shifts												

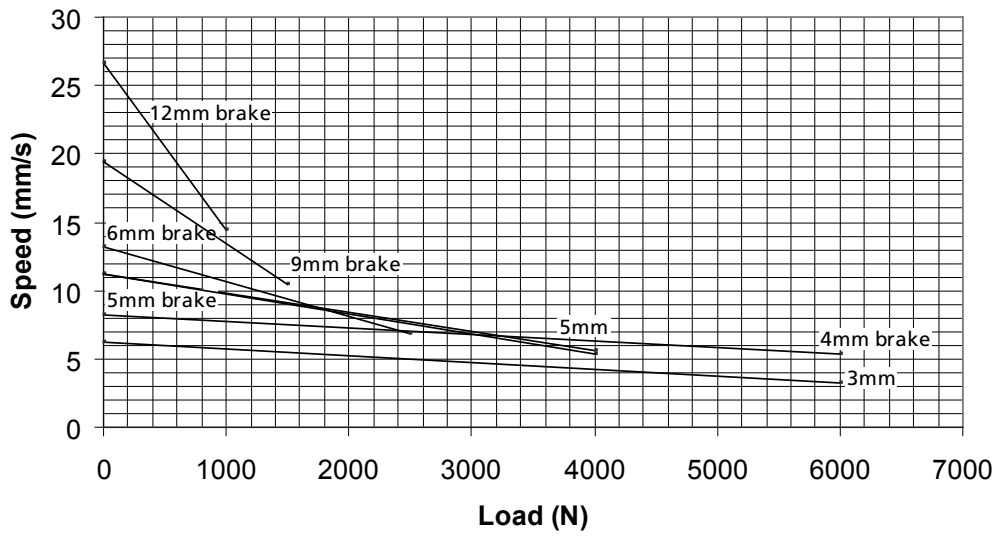
LA31 TECHLINE
Ordering example



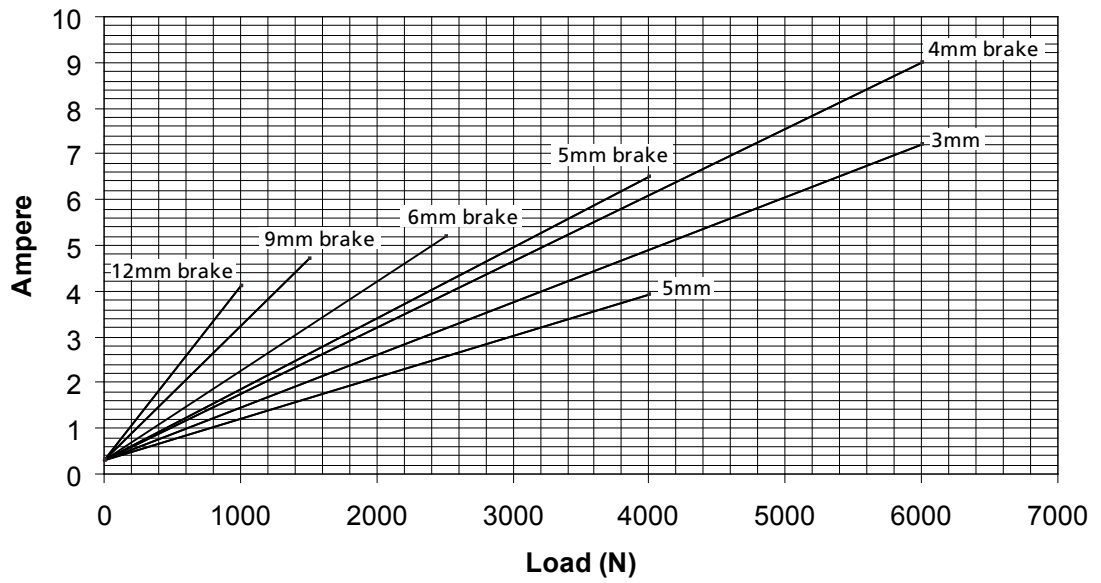
LA31 24V Standard motor current v's load



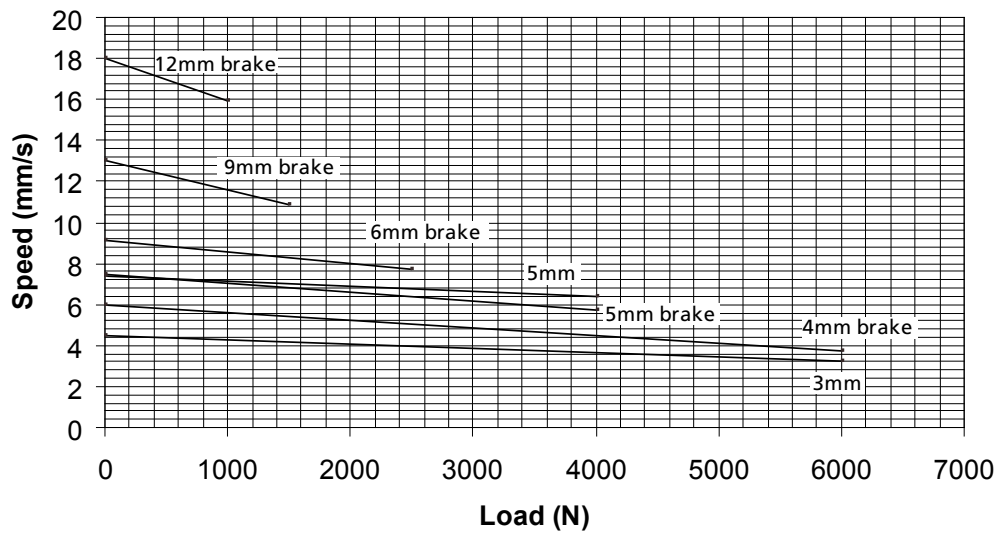
LA31 24V Standard motor speed v's load



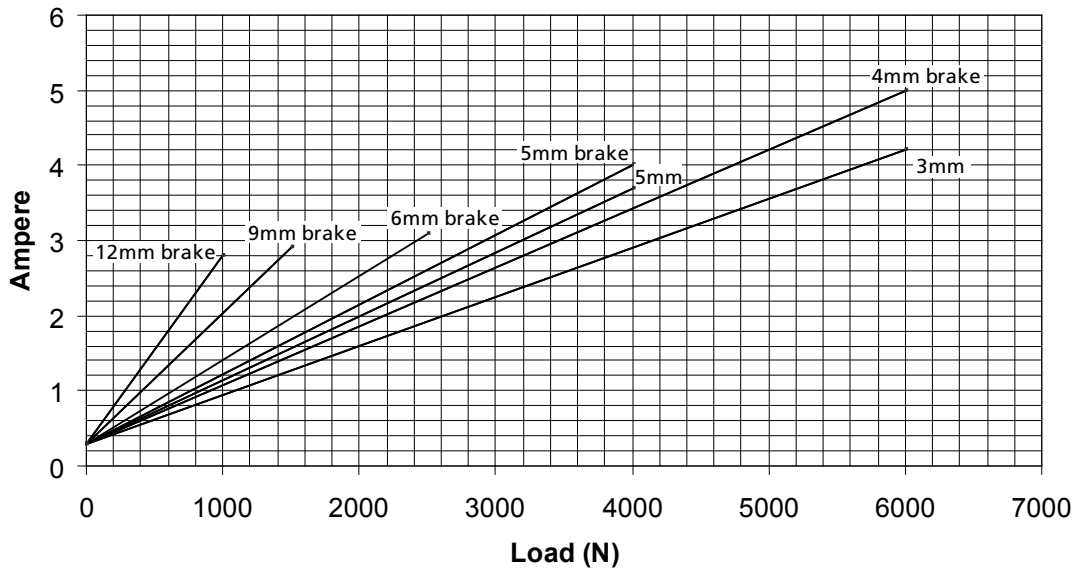
LA31 12V motor current v's load



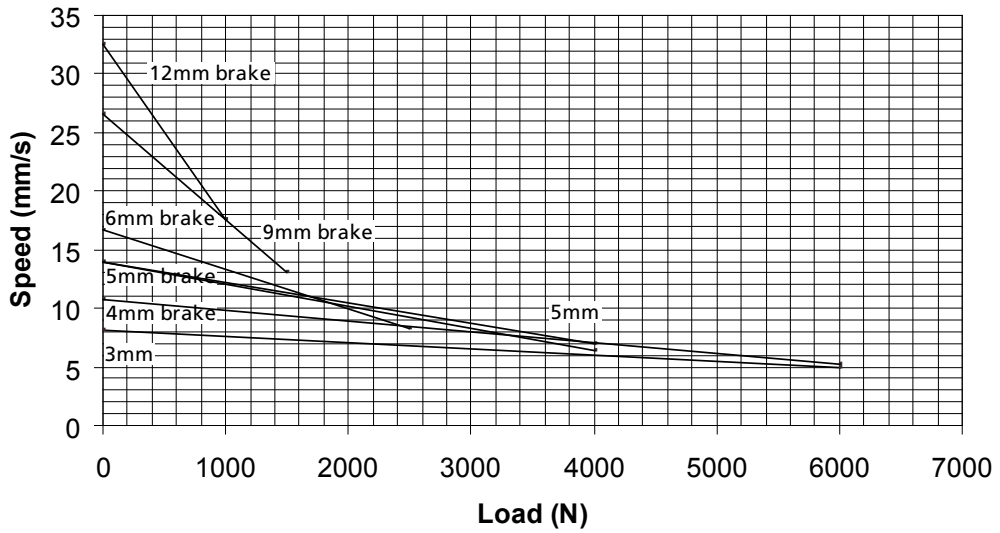
LA31 12V motor speed v's load



LA31 24V Fast motor current v's load



LA31 24V Fast motor speed v's load



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