

R RENOWNED
KNOW-HOW

Automation Technology



RK ROSE+KRIEGER

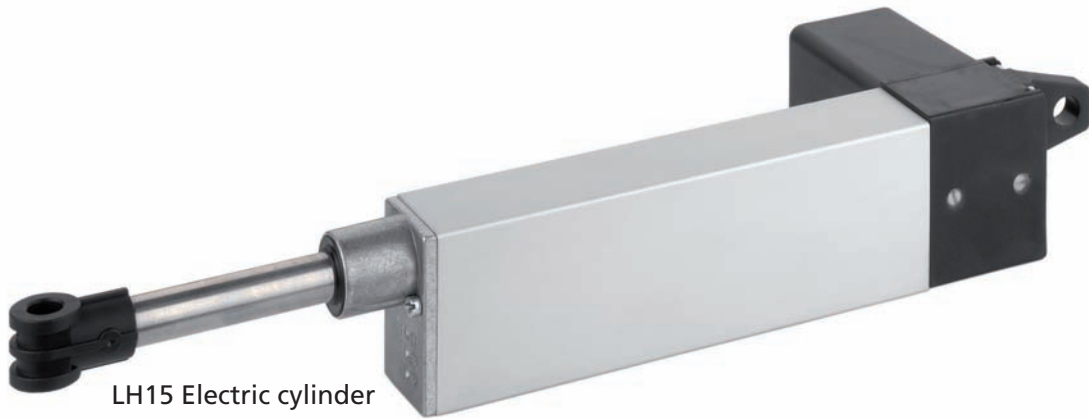
A Phoenix Mecano Company



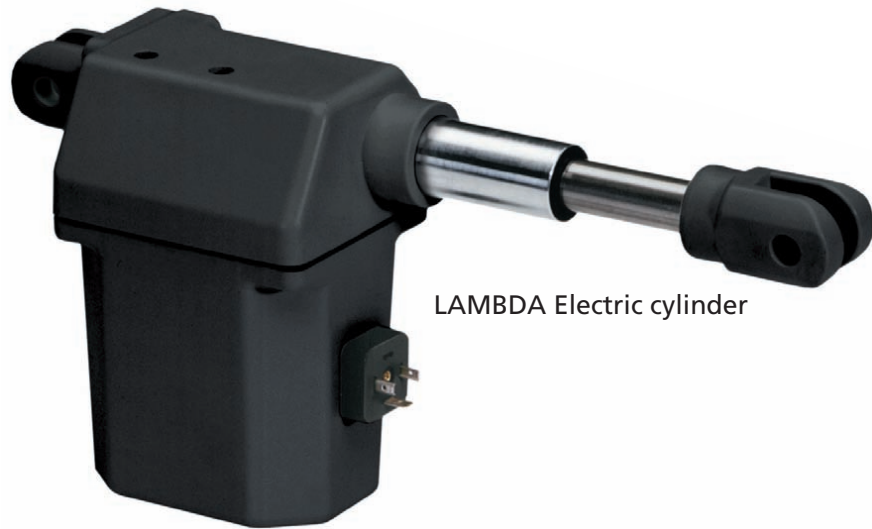
Electric cylinders

Performance class 2

Cylinders - performance class 2



LH15 Electric cylinder



LAMBDA Electric cylinder



LZ60 Electric cylinder
(here with motor
fitted in parallel)

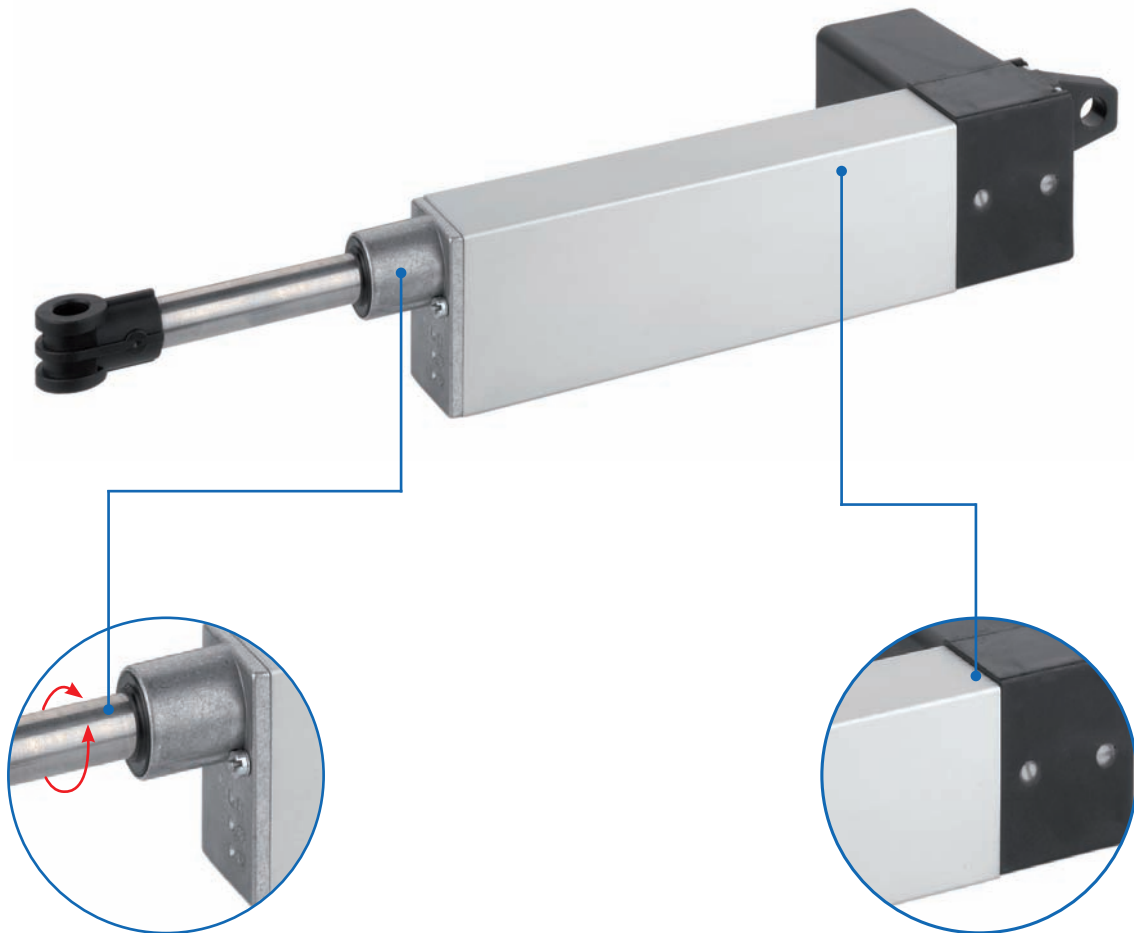
Features:

- Wide range of application and fixing options
- Limit switch integrated on all models
- Maintenance-free – due to permanent lubrication
- Rugged design
- Corrosion-protected by means of durable materials, such as aluminium, stainless steel and plastic

Cylinders - performance class 2 - Table of contents

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LH15 Electric cylinder



Adjustable stroke lengths

- ✓ Precise adjustment

Corrosion-protected

- ✓ Stainless-steel spindle
- ✓ Housing made of aluminium and plastic

Features:

- Outstanding for industrial applications
- High max. lifting speed
- Integrated overcurrent protection
- Maintenance-free (permanent lubrication)
- Corrosion-protected, thanks to stainless-steel spindle and push rod; housing made of aluminium and plastic
- Rugged design
- Integrated limit switches
- Adjustable travel

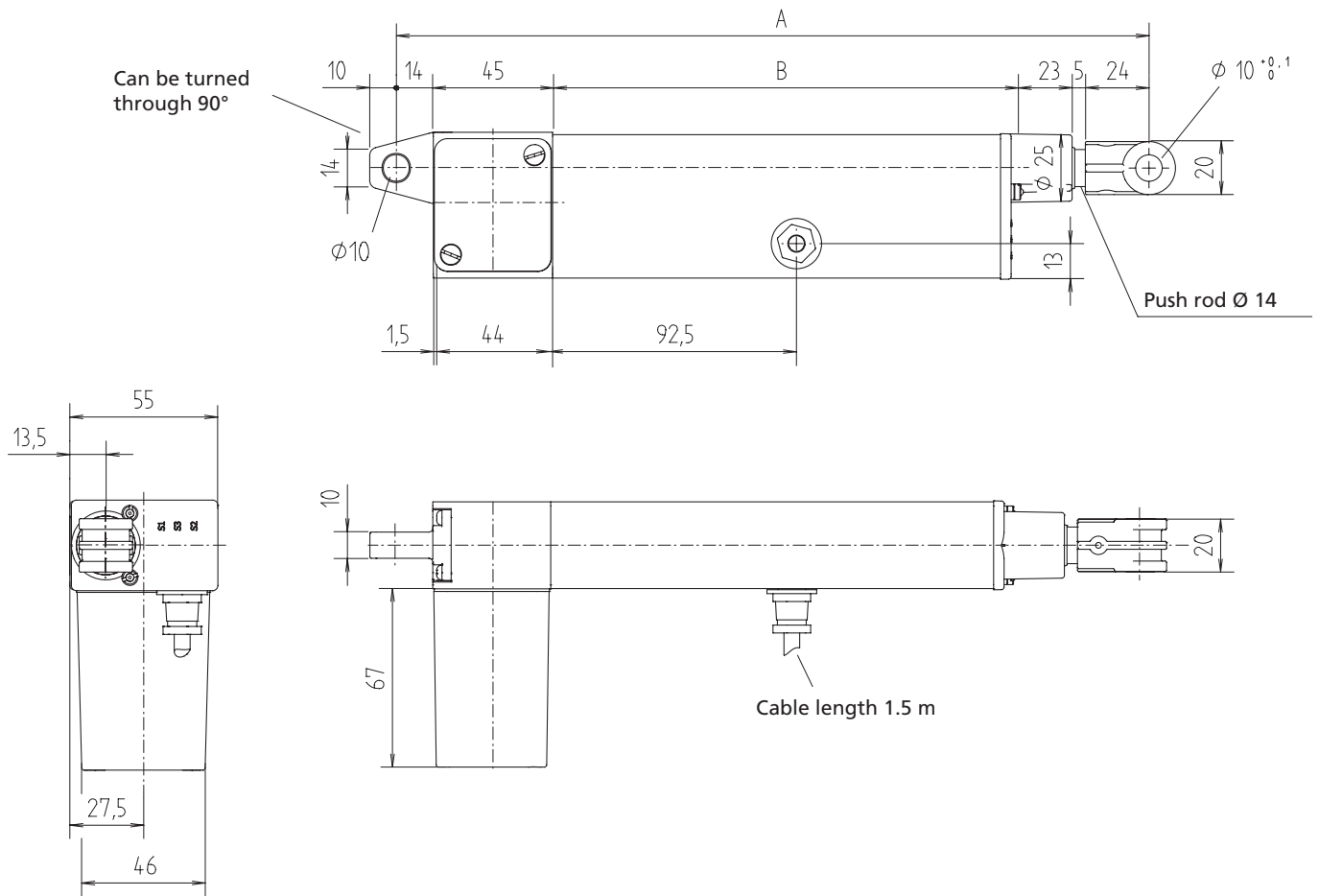
Options:

- Special stroke lengths
- Potentiometer
- Signal contacts
- Higher protection class with bellows

General information/operating conditions

	Drive
Design	Linear cylinder with integrated DC motor
Guide	Slide bush
Installation position	Any position, without shear forces
Push force/Pull force	Up to 1000 N
Self-locking	Up to 2000 N
Ambient temperature	-20°C to +80°C
Repeatability	0.5 mm
Duty cycle (at max. load)	10% at nominal load (max. 2 mins operating time, 18 mins rest time)
Voltage	24 (12) V DC
Current consumption	Max. 2.2 (4.5) A
Power input	Max. 50 W
Protection class	IP 54

LH15 Electric cylinder - Versions



Code No.	Type	Max. force F [N]	Max. speed [mm/s]
QKD05_F010_ _ _	LH15	1,000	5
QKD10_E010_ _ _		600	10
QKD22_C010_ _ _		300	22
QKD25_D010_ _ _		450	25
QKD60_B010_ _ _		200	60
QKD01_A010_ _ _		60	100

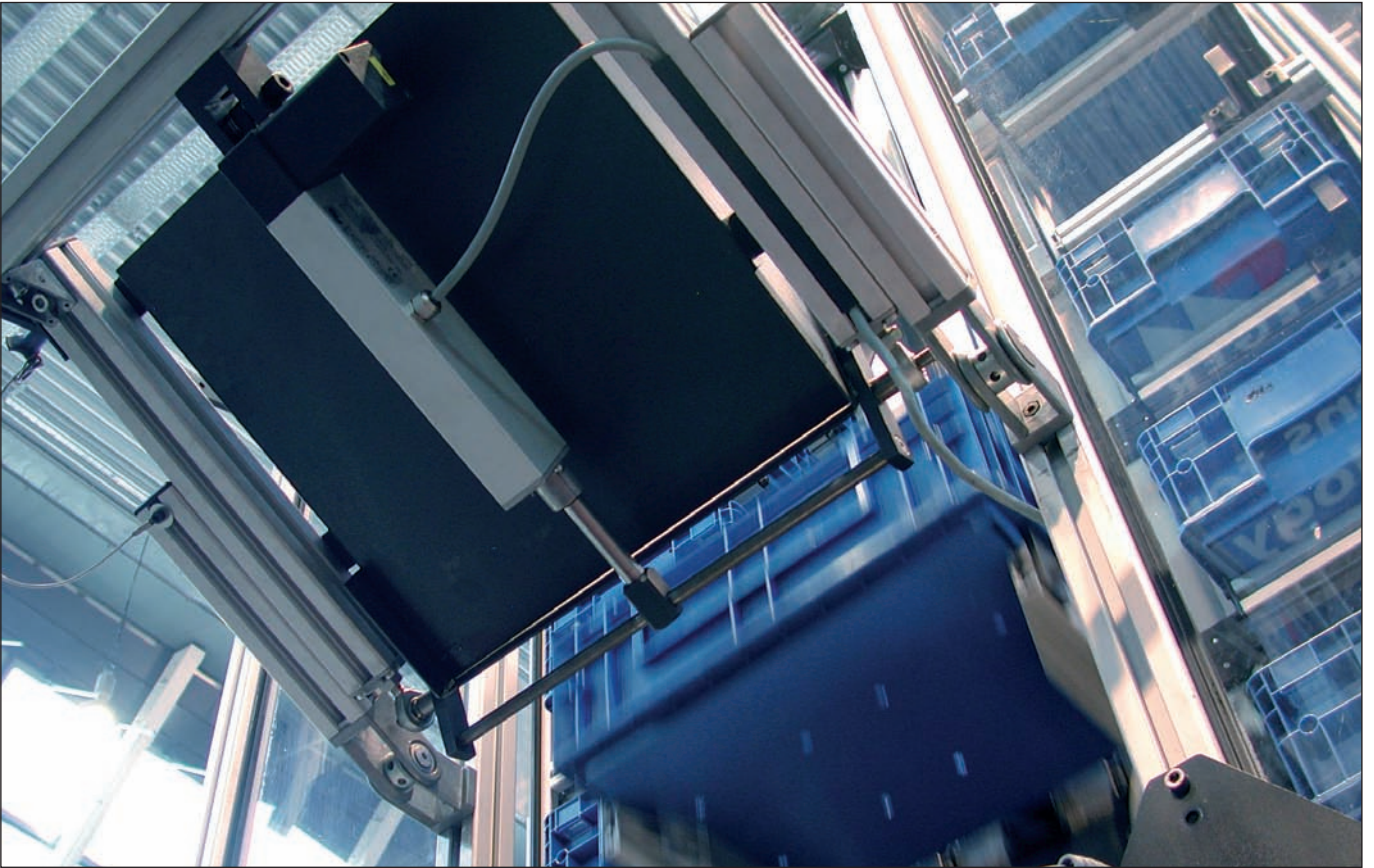
Standard stroke lengths

Stroke [mm]	Stroke can be externally adjusted	Dimension A [mm]	Dimension B [mm]	Weight [kg]
100	Yes	284	173	1.2
140	No	284	173	

Special stroke lengths available on request

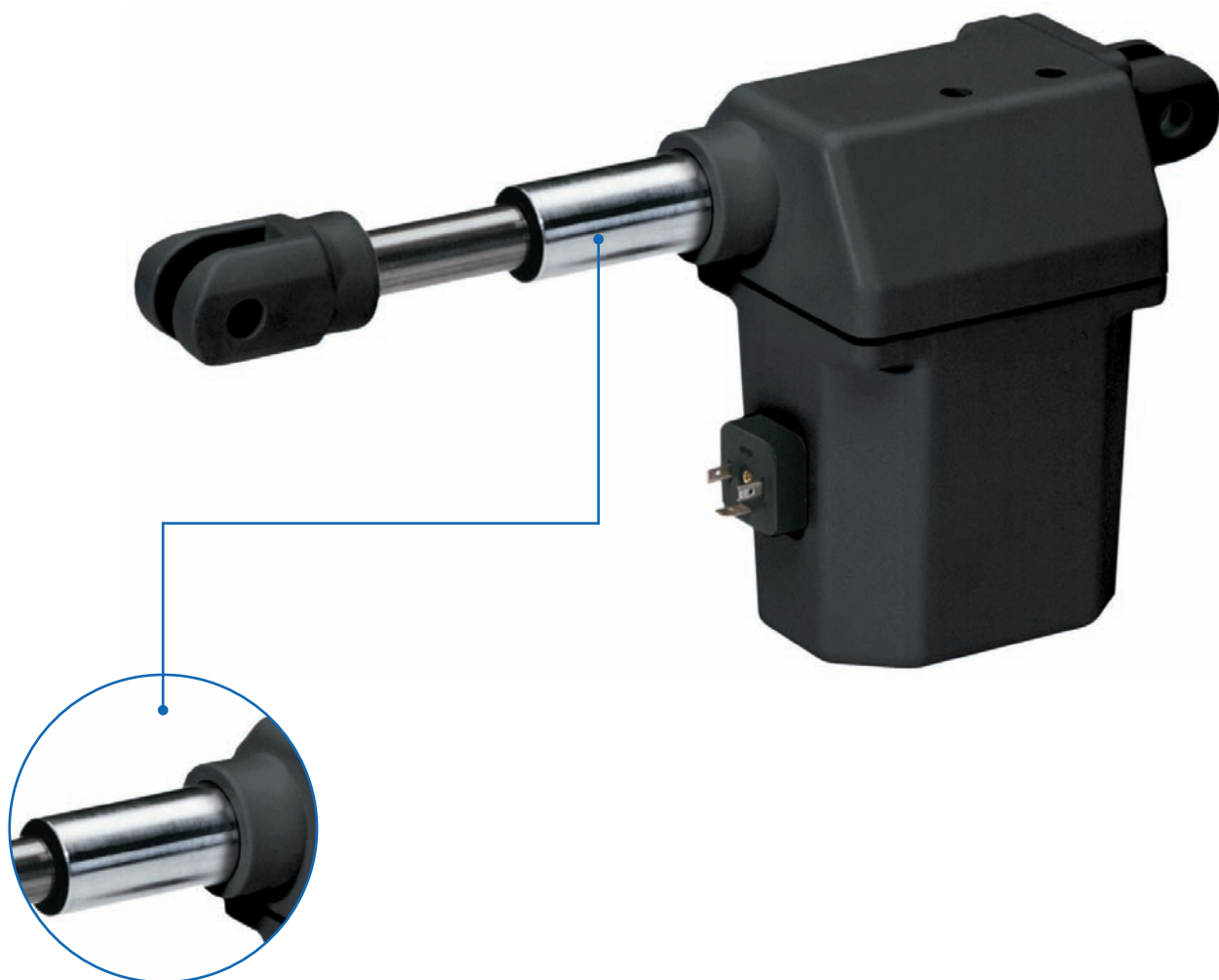
Stroke [mm]	Stroke can be externally adjusted	Dimension A [mm]	Dimension B [mm]	Weight [kg]
140	Yes	324	213	1.2
260		444	333	
180	No	324	213	
300		444	333	

B = 24 V DC
C = 12 V DC



Feeding device for an automated small parts warehouse

LAMBDA Electric cylinder



- ✓ Precise adjustment
- ✓ Stainless steel push rod

Features:

- Integrated limit switches
- Corrosion protected: push rod made of stainless steel; housing made of plastic
- Self-locking, even under max. lifting force
- With thermal motor protection

- Fixing via clevises Potentiometer
- Jam protection in pull direction

Options:

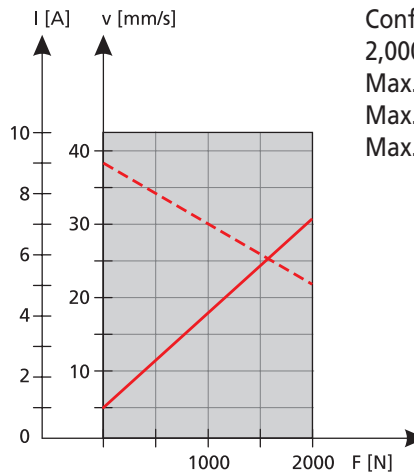
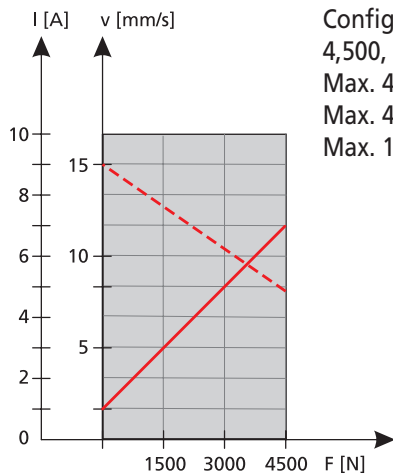
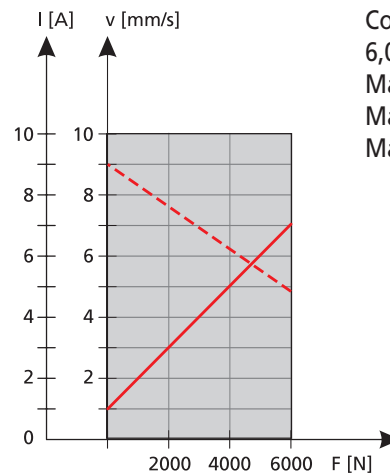
- Special stroke lengths
- Faster travel speeds
- Adjustable even in the event of power failure (can be mechanically disengaged)
- Signal contacts
- Jam protection in push direction

General information/operating conditions

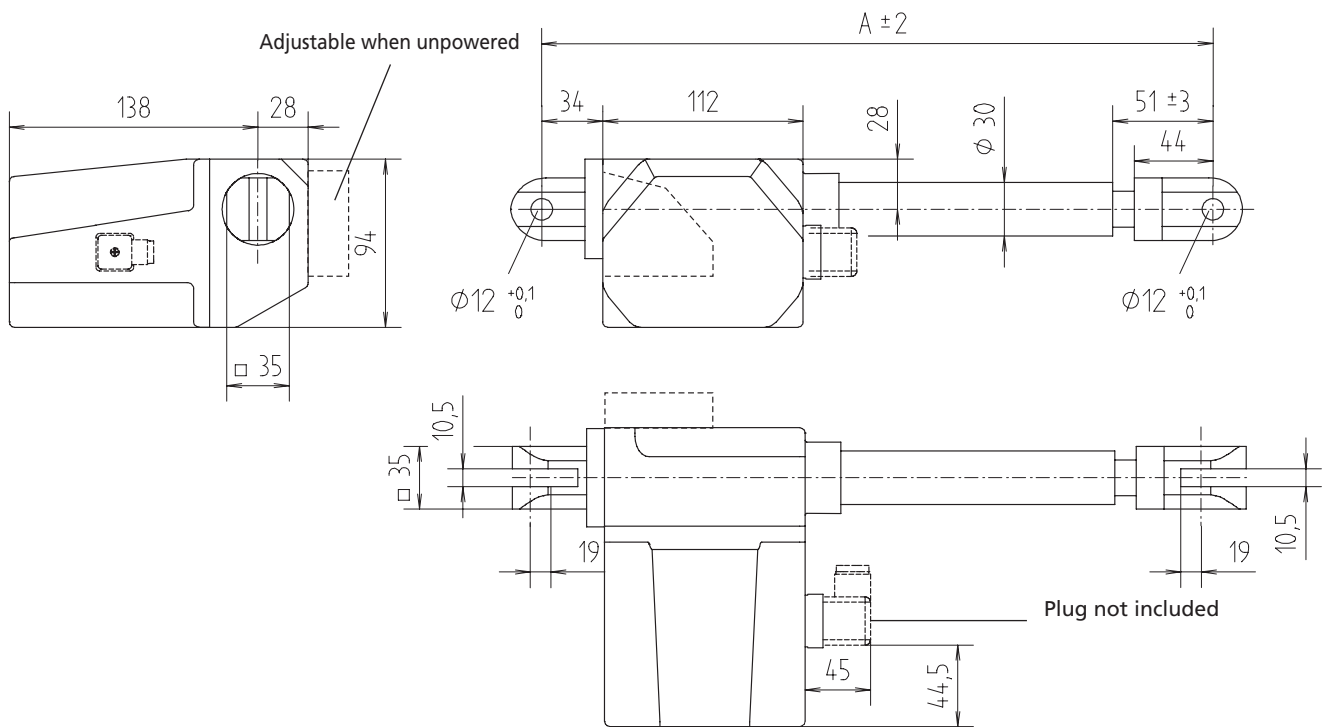
	Drive	External control
Design	Linear cylinder with integrated DC motor	
Guide	Slide bush	
Installation position	Any position, without shear forces	
Push force/Pull force	Up to 6000 N push /4000 N pull	
Self-locking	Up to 6000 N	
Ambient temperature	-20°C to +60°C	
Repeatability	0.5 mm	
Duty cycle (at max. load)	10% at nominal load (max. 2 mins operating time, 18 mins rest time)	
Voltage	24 V DC	230 V AC
Current consumption	Max. 7 A	As for drive
Power input	Max. 180 W	As for drive
Protection class	IP 66	IP 54

Power diagram

--- v [mm/s]
 — I [A]



LAMBDA - Versions



For connectors, see Optional accessories, page 185

[mm]

Stroke	100	150	200	250	300	400	500	600
Installation dimension A	Stroke + 175					Stroke + 225		

LAMBDA versions

Code No.	Type	Max. force F [N]		Max. speed [mm/s]
		Push	Pull	
QKK05BC0_0_ _ _	LBM	6,000	4,000	5
QKK08BB0_0_ _ _	LBM	4,500	4,000	8
QKK21BA0_0	LBM	2,000	2,000	21

e.g. stroke [mm] = 150

- 0 = Twin for synchronous controls/without clamping protection
- 1 = Without potentiometer/without clamping protection
- 2 = With potentiometer 10 K Ω /without clamping protection
- 3 = Without potentiometer/with clamping protection during pull force

Stroke [mm]	Weight [kg]
100	2.3
150	2.5
200	2.7
250	2.9
300	3.1
400	3.5
500	3.9
600	4.3

Note:
The clamping protection takes effect at approx. 2% of the nominal force

Not for 6000 N

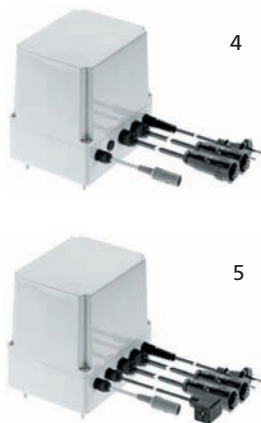
Controls

- Input voltage 230 V AC
- Output voltage 24 V DC

Transformer control



Synchronous control



Code No.	Version		Fig.
Transformer control			
QZA01C04AD011	LBG 1 transformer control	Controls up to 1 drive	1
QZA01C04AE011	LBG 2 transformer control	Controls up to 2 drives	2
QZA01C04AF011	LBG 3 transformer control	Controls up to 3 drives	3
Synchronous control			
QZA10C01AG011	LBS 2 synchronous control	2 electric cylinders, synchronous	4
QZA10C01AH011	LBS 2+1 synchronous control	Controls up to 3 electric cylinders, 2x synchronous + 1 additional electric cylinder	5

Note: For dimensions and other technical data, please refer to page 146

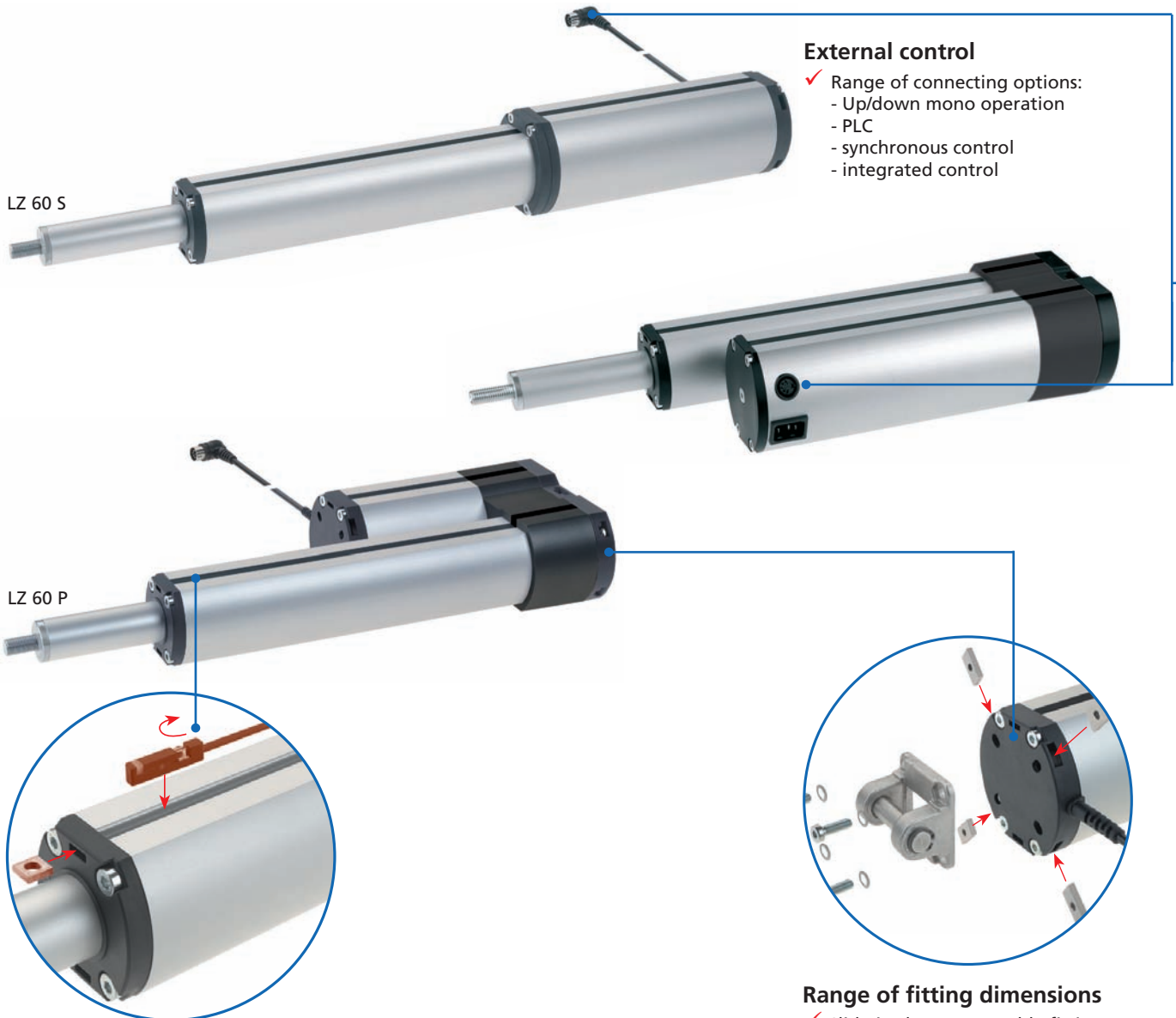
Hand switches/accessories



Code No.	Version		Fig.
QZB03C02AD031	LAMBDA hand switch with fixing clip – 6 function keys	Controls up to 3 drives	2
QZD000072	Bracket for hand switch		3

LZ 60 Electric cylinder

The industrial design complete system with push/pull forces up to 4000 N.



External control

- ✓ Range of connecting options:
 - Up/down mono operation
 - PLC
 - synchronous control
 - integrated control

LZ 60 S

LZ 60 P

Range of fitting dimensions

- ✓ Slide-in clasp nuts enable fitting dimensions of 37.5 to 40.5 mm.
- ✓ Compatible with a wide range of fixing elements from the pneumatic industry.

Adjustable external magnetic switch

- ✓ Covered in slot geometry
- ✓ Stroke can be adjusted
- ✓ Accessories can be retrofitted
- ✓ Pre-fitted with internal magnets for external magnetic switch

Features:

- Integrated DC drive
- Flexible use of space due to different motor installation options: parallel (LZ 60 P) or rod shaped (LZ 60 S)
- Coverable slot geometry on both sides supports a range of fixing options
- Push rod with rotation locking
- Maintenance-free for up to 10,000 double strokes
- IP 54
- Self-locking
- Optionally available with integrated control/230 V (IP 30) LZ 60 S on request

Options:

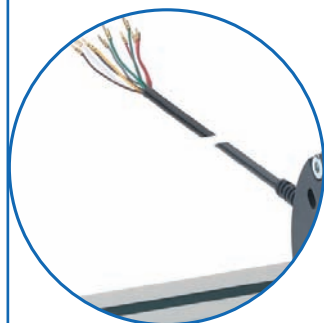
- Special stroke lengths available on request



External control

Elec. connection "a"

- ✓ Connection (2.5 m) to RK transformer control or to external fixed voltage source. Only connecting cable is fed out of unit. Limit switch is hard-wired internally.
- ✓ Mono operating modes Up/down optional parallel operation
- ✓ Internal limit switches for stroke limitation wired internally
- ✓ Connection to RK transformer control or equivalent control 24 V/36 V



Elec. connection "b"

- ✓ All connecting cables (approx. 1 m) is fed out of the unit (limit switches, motor, 2-channel Hall sensor) e.g for connection to a PLC
- ✓ Synchronous operating modes can be freely positioned/industrial version
- ✓ Internal limit switch and incremental displacement pick-up lead directly out of the unit

- ✓ Connection to PLC or equivalent control 24 V/36 V



Elec. connection "c"

- ✓ Connection (2.5 m) to RK synchronous control
- ✓ Synchronous operating modes/DIN plug, 8-pin
- ✓ Internal limit switches and incremental displacement pick-up fed out of the unit

- ✓ Connection to RK Multicontrol



Integrated control

Elec. connection "d"

- ✓ The mains cable and the 2-key hand switch are directly connected to the motor housing.
- ✓ Mono operating modes Up/down
- ✓ Internal limit switch for stroke limitation wired internally
- ✓ Connection to power supply unit, 230 V

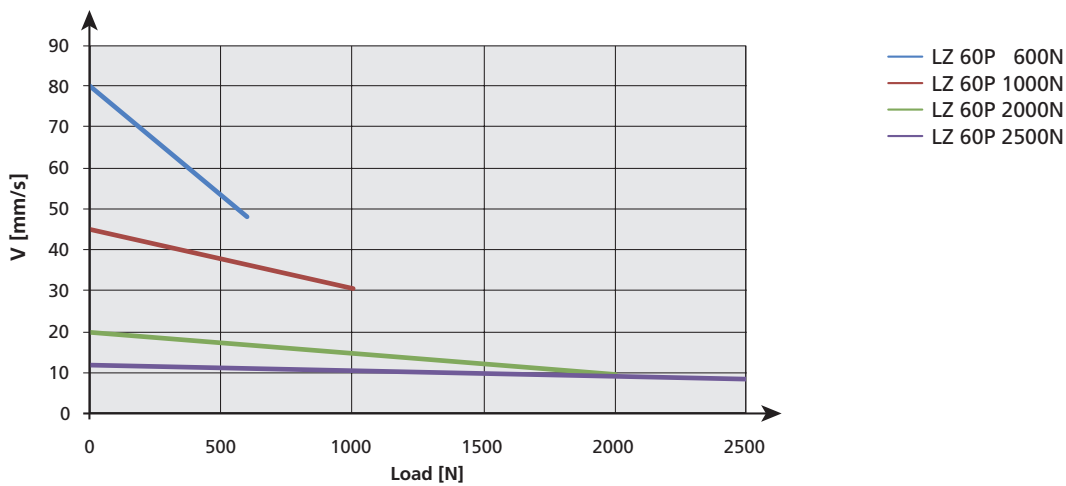
LZ 60 – Technical data

General information/operating conditions

Type	LZ 60 external control	LZ 60 internal control
Design	Linear cylinder with integrated DC motor	
Guide	Double bearing via POM bushes	
Installation position	Any position, without shear forces	
Push force/Pull force	Up to 4000 N	
Self-locking	Up to 5000 N	
Ambient temperature	+5°C to +40°C	
stroke tolerances	+0,5 mm / -2,5 mm	
Repeatability	0.5 mm	
Duty cycle (at max. load)	15% (max. 1.5 mins operating time, 8.5 mins rest time)	
Voltage	24/36 V DC	230 V AC
Current consumption	Max. 5.5 A	Max. 1.25 A
Power input	Max. 180 W	115 W
Protection class	IP 54	IP 30
Speed	Max. 85 mm/s	Max. 80 mm/s

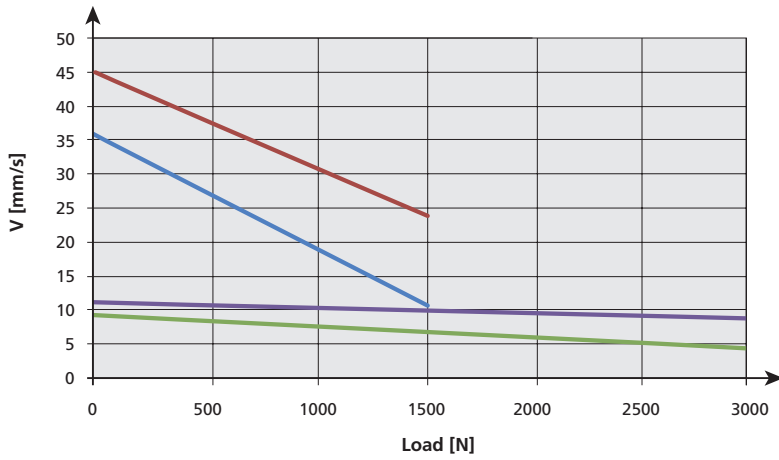
Speed/Force diagram

LZ 60P, internal control



Speed/Force diagram

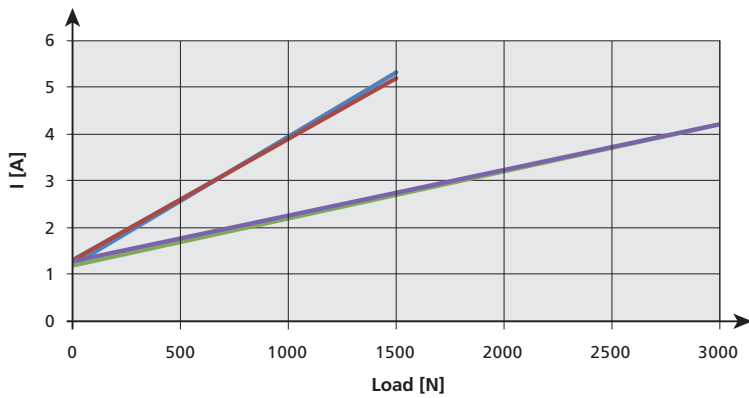
LZ 60S, external control



- LZ 60S 1500N at 24V*1
- LZ 60S 3000N at 24V*1
- LZ 60S 1500N at 36V*2
- LZ 60S 3000N at 36V*2

Current consumption/Force diagram

LZ 60S, external control



- LZ 60S 1500N at 24V*1
- LZ 60S 3000N at 24V*1
- LZ 60S 1500N at 36V*2
- LZ 60S 3000N at 36V*2

24 V*1 determined with a transformer control 120 VA

36 V*2 determined with a MultiControl duo

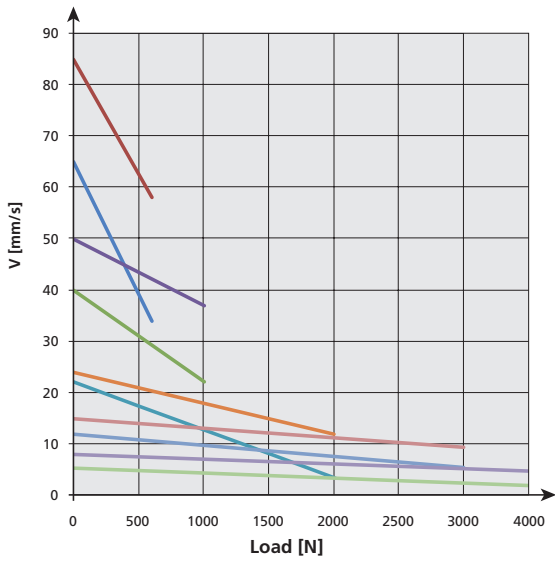


Scissor lift with combination of several LZ 60 P electric cylinders

LZ 60 – Technical data

Current consumption/Force diagram

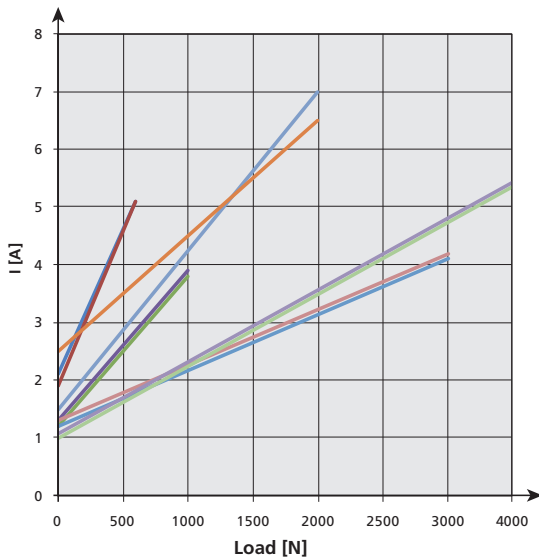
LZ 60P, external control



- LZ 60P 600N at 24V*1
- LZ 60P 600N at 36V*2
- LZ 60P 1000N at 24V*1
- LZ 60P 1000N at 36V*2
- LZ 60P 2000N at 24V*1
- LZ 60P 2000N at 36V*2
- LZ 60P 3000N at 24V*1
- LZ 60P 3000N at 36V*2
- LZ 60P 4000N at 24V*1
- LZ 60P 4000N at 36V*2

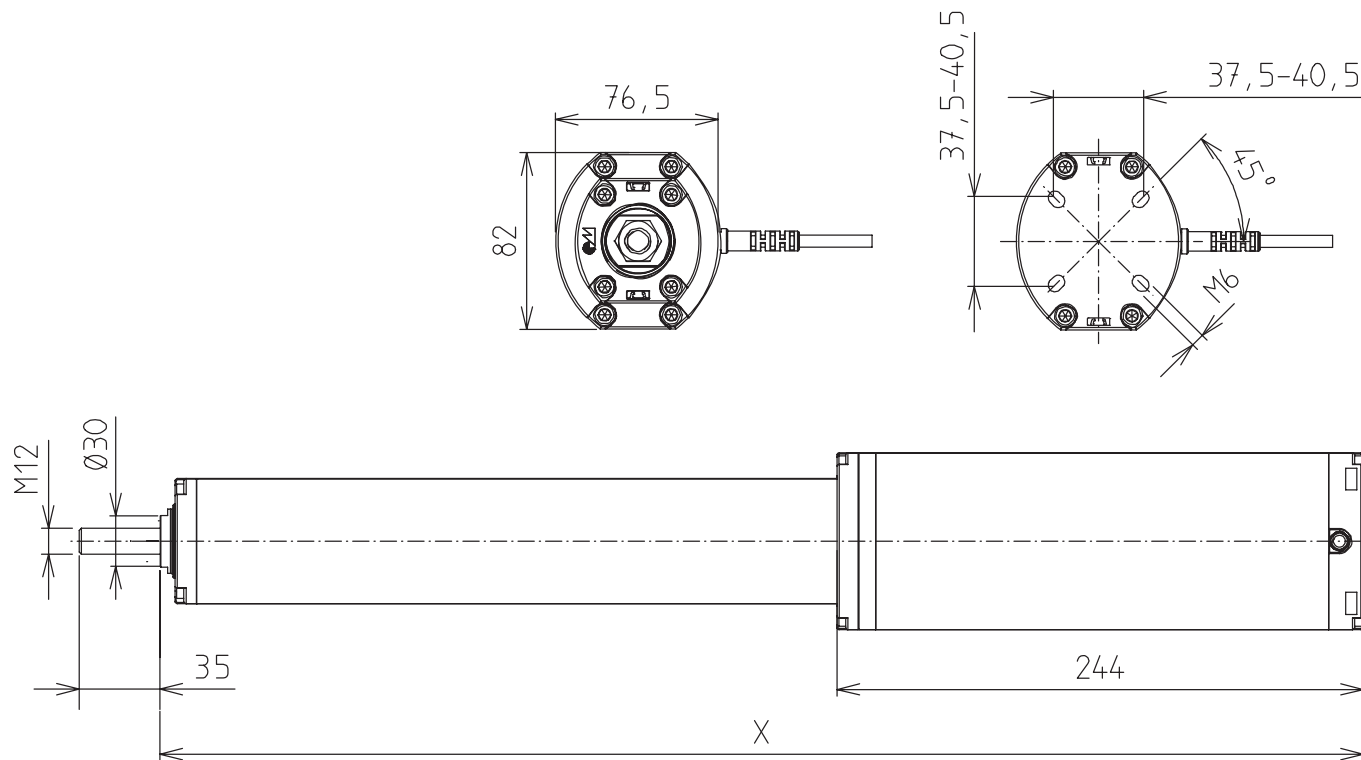
Current consumption/Force diagram

LZ 60P, external control



- LZ 60P 600N at 24V*1
- LZ 60P 600N at 36V*2
- LZ 60P 1000N at 24V*1
- LZ 60P 1000N at 36V*2
- LZ 60P 2000N at 24V*1
- LZ 60P 2000N at 36V*2
- LZ 60P 3000N at 24V*1
- LZ 60P 3000N at 36V*2
- LZ 60P 4000N at 24V*1
- LZ 60P 4000N at 36V*2

24 V*1 determined with a transformer control 120 VA
 36 V*2 determined with a MultiControl duo



Version with external control 24 V/36 V

Code No.	Type	Max. force F [N]	Max. speed [mm/s]	
			24 V DC	36 V DC
QKI00AA0_0_ _ _	LZ 60 S	1500	36	45
QKI00AB0_0_ _ _	LZ 60 S	3000	9	12

e.g. stroke [mm] = **200**

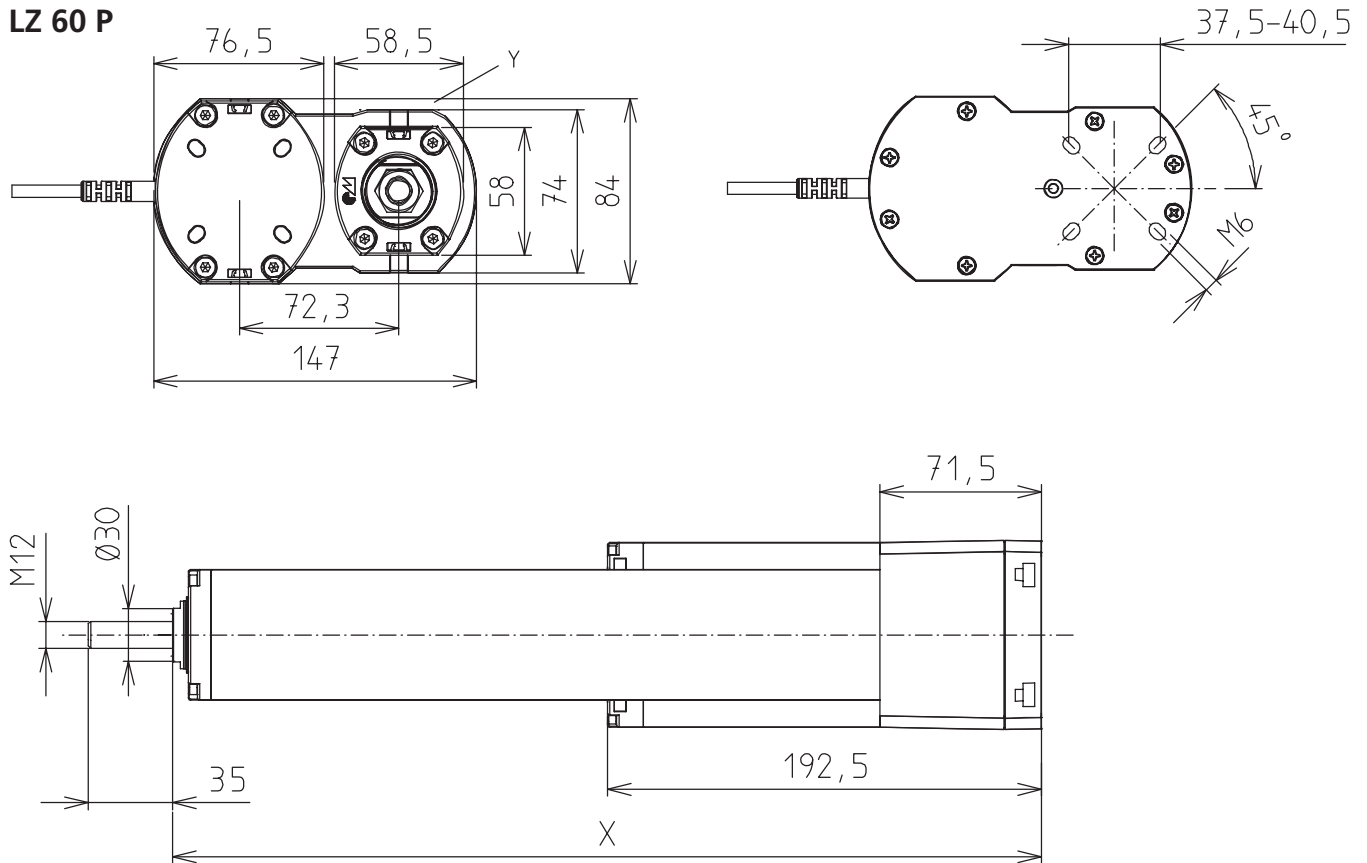
Stroke* [mm]	Installation dimension X [mm]	Weight [kg]
105	446.0	2.9
150	491.0	3.0
202	543.5	3.2
255	596.0	3.4
300	641.0	3.6
352	708.5	3.7
405	761.0	3.9
450	806.0	4.1
502	858.5	4.3
555	911.0	4.4
600	956.0	4.6

*Tolerance: +0,5mm / -2,5mm

- A = connection to RK transformer control
- B = connecting cable with open lead-through for PLC/incremental displacement pick-up/limit switches
- C = connection to RK synchronous control

LZ 60 P - Versions

LZ 60 P



Version for external control 24 V/36 V

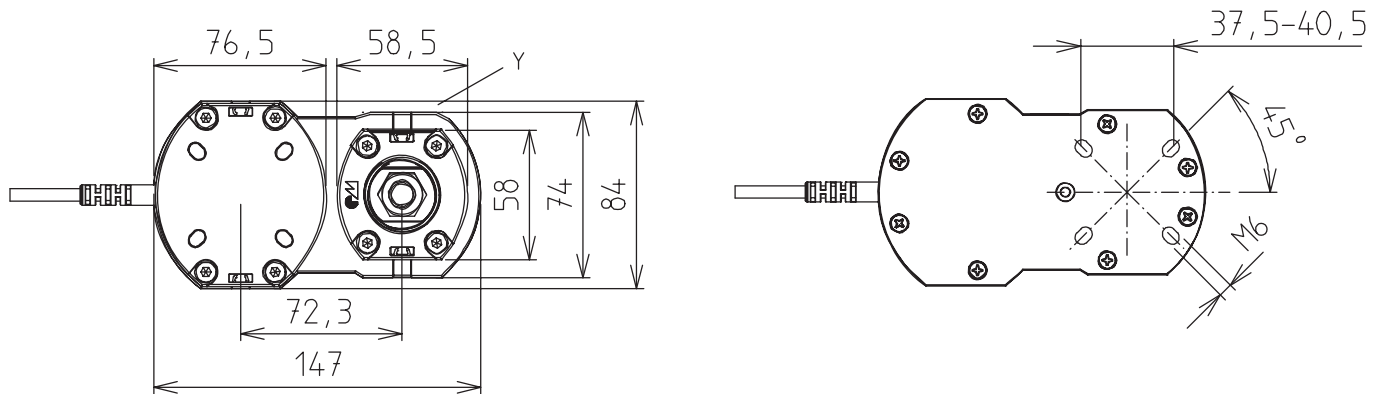
Code No.	Type	Max. force F [N]	Max. speed [mm/s]	
			24 V DC	36 V DC
QKX00AA0_0_ _	LZ 60 P	600	65	85
QKX00AC0_0_ _	LZ 60 P	1000	40	50
QKX00AB0_0_ _	LZ 60 P	2000	22	28
QKX00AE0_0_ _	LZ 60 P	3000	12	15
QKX00AF0_0_ _	LZ 60 P	4000	6	9

e.g. stroke [mm] = **202**

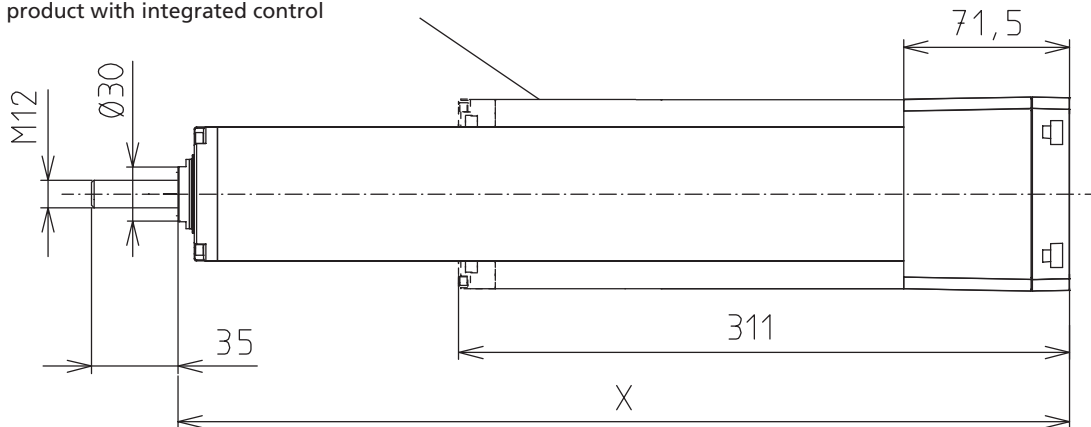
Stroke* [mm]	Installation dimension X [mm]	Weight [kg]
105	273.5	3.7
150	318.5	3.8
202	371.0	4.0
255	423.5	4.2
300	468.5	4.4
352	536.0	4.5
405	588.5	4.7
450	633.5	4.9
502	686.0	5.1
555	738.5	5.2
600	783.5	5.4

*Tolerance: +0,5mm / -2,5mm

- A = connection to RK transformer control
- B = connecting cable with open lead-through for PLC/incremental displacement pick-up/limit switches
- C = connection to RK synchronous control



Extended motor housing for product with integrated control



Version with internal control 230 V

Code No.	Type	Max. force F [N]	Max. speed [mm/s]	Electrical connection
QKX00AA0D0_ _ _	LZ 60 P	600	80	230 V AC
QKX00AC0D0_ _ _	LZ 60 P	1000	45	230 V AC
QKX00AB0D0_ _ _	LZ 60 P	2000	20	230 V AC
QKX00AE0D0_ _ _	LZ 60 P	2500	13	230 V AC

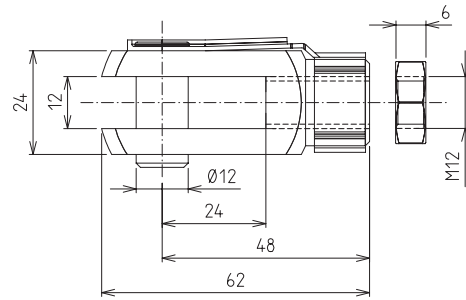
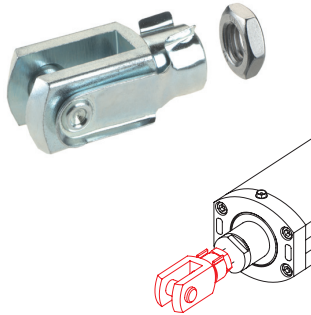
e.g. stroke [mm] = **202**

Stroke* [mm]	Installation dimension X [mm]	Weight [kg]
105	273.5	4.7
150	318.5	4.8
202	371.0	5.0
255	423.5	5.2
300	468.5	5.4
352	536.0	5.5
405	588.5	5.7
450	633.5	5.9
502	686.0	6.1
555	738.5	6.2
600	783.5	6.4

*Tolerance: +0,5mm / -2,5mm

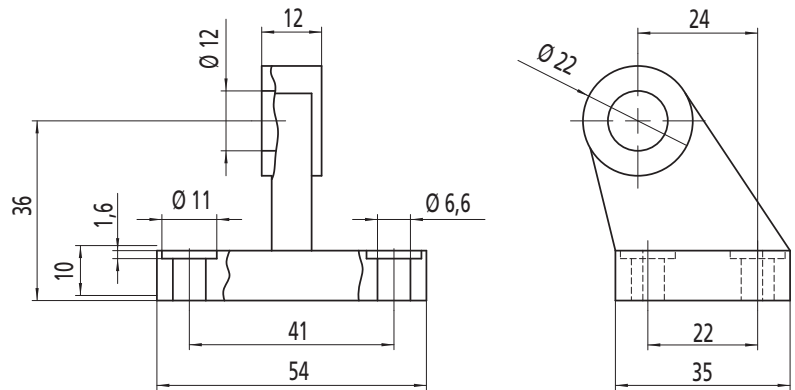
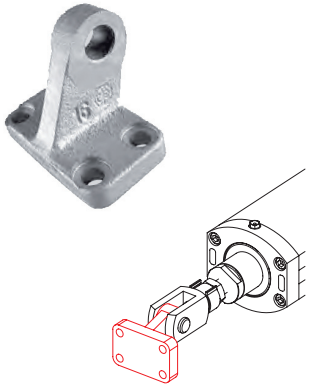
LZ 60 – Fixing

Clevis



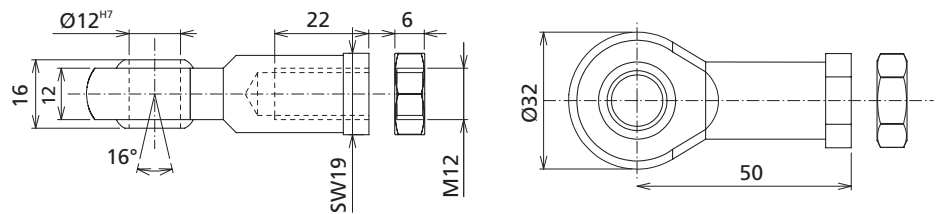
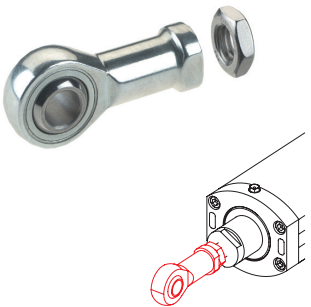
Code No.	Type
QZD050570	Clevis M12

Bearing block for Clevis



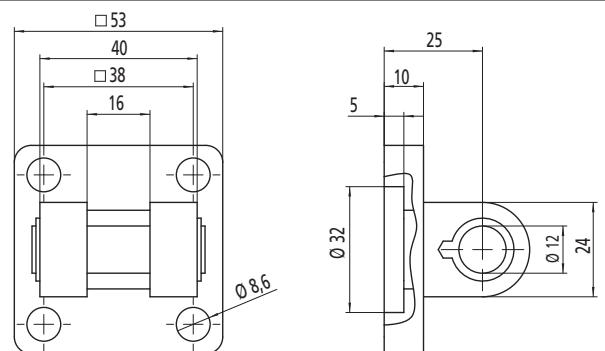
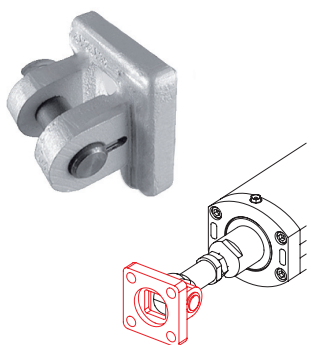
Code No.	Type
QZD050572	LZ 60 Bearing block $\varnothing 12$

Swivel head



Code No.	Type
QZD050574	Swivel head M12

Fork attachment for Swivel head

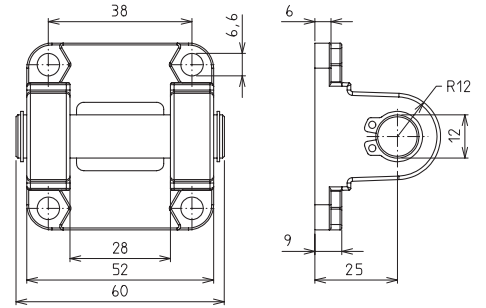
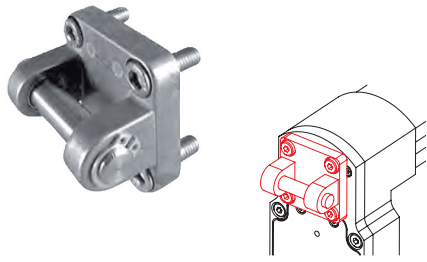


Code No.	Type
QZD050576	LZ 60 Fork attachment $\varnothing 12$



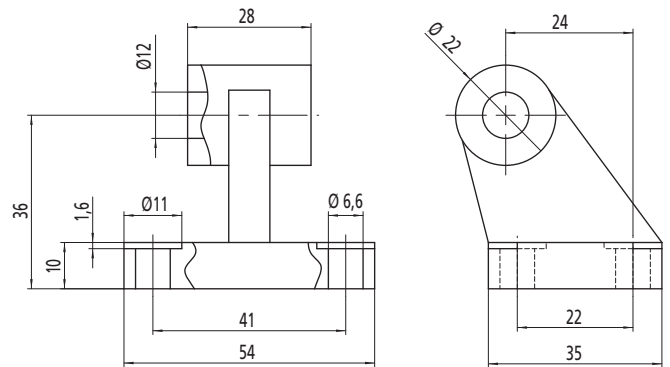
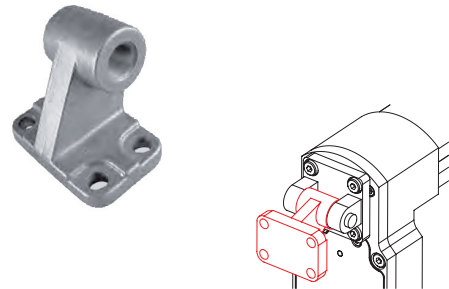
LZ 60 Fixing

Swivel



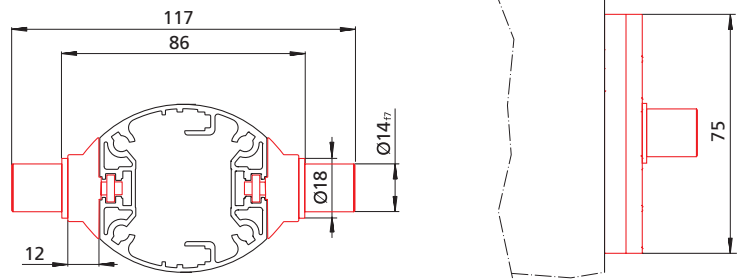
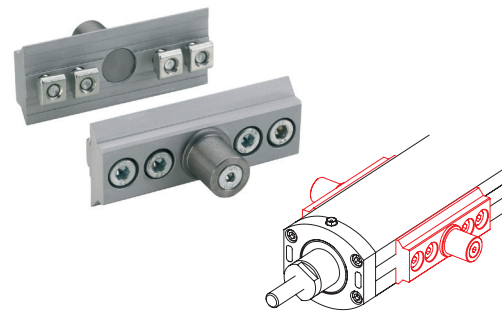
Code No.	Type
QZD050578	Swivel Ø 12

Bearing block for Swivel



Code No.	Type
QZD050583	LZ 60 Bearing block Ø 12

Trunnion mounting set

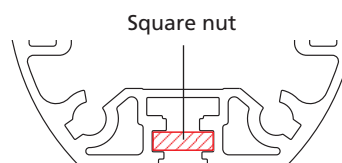


Code No.	Type
QZD050586	Trunnion mounting set LZ 60

Square nut



■ The square nut enables the the attachment of fittings to the cylinder. Nuts can be slid into the lateral slots for this purpose.



Code No.	Type
QZD050597	Square nut M6, DIN 562, pack of 20

LZ 60 – Accessories

Axial adjustment

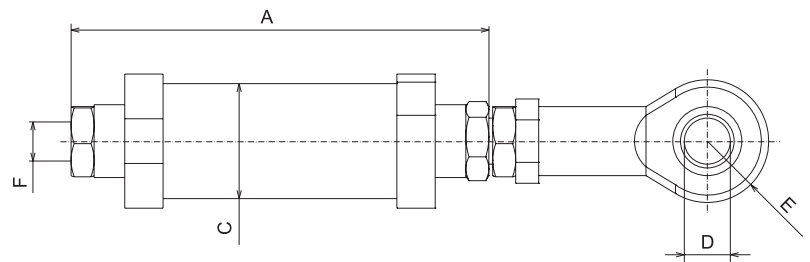
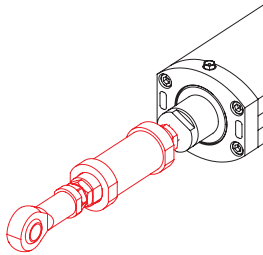


Axial adjustment

- ✓ Compensates manufacturing tolerances
- ✓ Compensates installation tolerances
- ✓ Length compensation -2 mm
- ✓ Reduces commissioning times

Scope of delivery:

Axial adjustment, incl. swivel head as depicted



[mm]

Code No.	Load	A	C	D	E	F
QZD050590	600 N	102	Ø30	Ø12	R16	M12
QZD050591	1000 N	102				
QZD050592	2000 N	103,5				
QZD050593	2500 N	109				
QZD050594	3000 N	107,5				
QZD050595	4000 N	139,5				

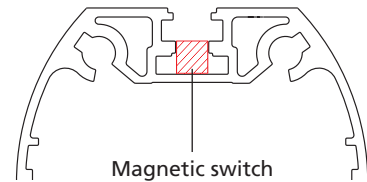
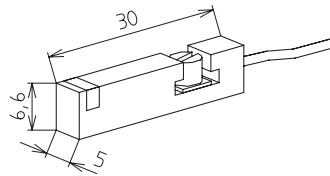
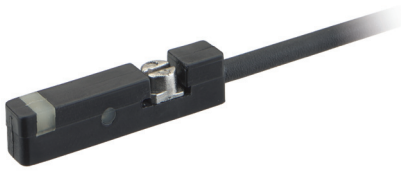


LZ 60 – Position determination / Drive

Magnetic switch

- Signals from the magnetic switch can be collected and evaluated by a customer-provided control unit (such as a PLC).

- The switch can be retrofitted in the lateral slot (protected by a cover profile as standard)
- Magnets are already integrated in the cylinder as standard.



Code No.	Type
QZD050598	Magnetic switch, NO contact, cable length 6 m
QZD050599	Magnetic switch, NC contact, cable length 5.3 m

Magnetic switch – Technical data

	NC contact	NO contact
Voltage	10-30 V DC	5-30 V DC
Current consumption	< 10 mA	< 10 mA
Output current	Max. 100 mA	Max. 50 mA
Output type	PNP	PNP
Function indication	LED	LED
Ambient temperature	-25°C to +85°C	-20°C to +70°C
Protection class	IP 67	IP 68

Controls

- Input voltage 230 V AC
- Output voltage 24 V DC, 36 V DC

Order information:
Observe the current consumption of the drives when selecting the control.



Transformer control 120 VA

approx. 24 V DC



MultiControl

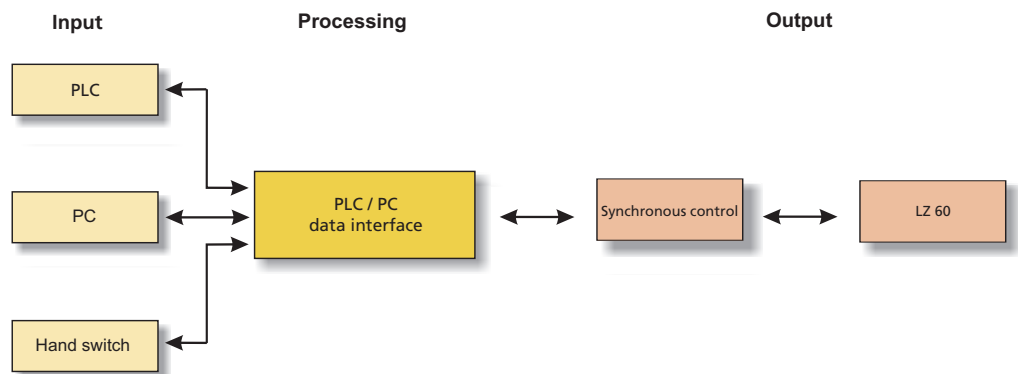
24/36 V DC

Code No.	Ausführung	
Controls for LZ 60 connection A		
QZA07C13BQ021	Transformer control 120 VA, up to max. I= 3 A current consumption	Controls up to 2 drives
QSTAACA1AA000	MultiControl mono connection A, up to max. I= 10 A current output, 24 V DC	Controls up to 2 drives
Controls for LZ 60 connection C		
QSTACCA1AA000	MultiControl mono connection C, up to max. I= 12 A current output, 36 V DC	Controls up to 2 drives
QST30C02AA000	MultiControl duo connection C, up to max. I= 12 A current output, 36 V DC	Up to 2 drives synchronised
QST30C04AA000	MultiControl quadro connection C, up to max. I= 12 A current output, 36 V DC	Up to 4 drives synchronised
Accessories		
QZD020083	Fixing plate 120 VA, control is pushed onto the plate	
QZD100093	6 m bus cable for the networking of up to 8 synchronous controls	
QZD0702844000*	Straight connecting cable (4 m) with 5-pin connector and open cable end	
QZD070525	Extension cable 2,5 m drive for connector A/2-pin DIN socket	
QZD070526	Extension cable 2,5 m drive for connector C/8-pin DIN socket	

* for the connection of a parallel hand switch or an external potentiometer (in the case of the MultiControl mono)

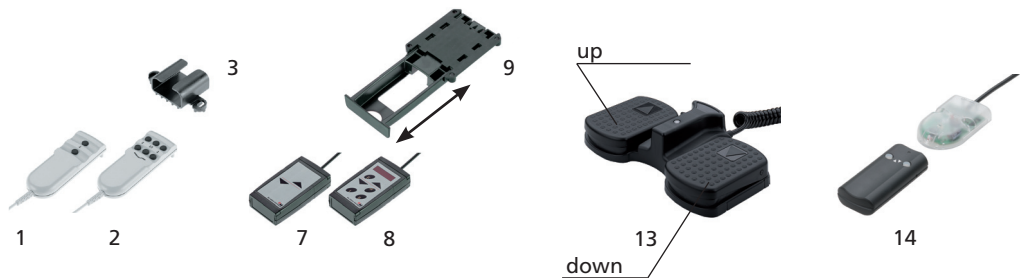
PLC/PC data interface

■ This interface enables actuation of the LZ 60 with synchronous control via different input devices (PLC, PC and hand switch).



Code No.	Type
QZD100108	PLC/PC data interface
QZD100110	Wall strap for mounting in a control cabinet

Hand switches/Feet



Code No.	Version	Fig.
Hand switch for transformer control		
QZB02C03AD031	Hand switch with 1 m spiral cable – 6 function keys	2
Hand switches for transformer or synchronous control		
QZB02C03AB031	Hand switch with 1 m spiral cable – 2 function keys	1
QZB00D04AB041	Hand switch with 1 m spiral cable – 2 function keys	7
QZB02C01AE114	Foot switch – 2 function keys	13
QZB00D07BK141	Wireless hand switch – 2 function keys	14
Hand switch for synchronous control		
QZB00D04AD041	Hand switch with 1 m spiral cable – 6 function keys	8
Accessories for hand switches		
QZD000072	Bracket for hand switch: Fig. 1 + 2	3
QZD000074	Hand switch drawer: Fig. 7 + 8	9
Accessories for integrated control		
QZD050210	IEC power cable (3 m) with right-angle connector	–

We say what we do - and do what we say!
We also say what we can't do - and don't do it!



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Connecting and positioning systems

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