Product features

Power supply	AC/DC 24V					AC 100...240V	
	Open/Close or 3-point			Modulating		Open/Close or 3-point	
Linear actuators							
LH..Series, 150N SH..Series, 450N	LHU24-60*	LHS24 SHS24**		LHS24-SR SHS24-SR**		LHS230 SHS230**	
Stroke (mm)	60	100	200	100	200	100	200
Stroke fixed				•	•		
Stroke adjustable (steps 20mm)	•	•	•			•	•
Running time: 90s/60mm	•						
Running time: 150s/100mm for SH..		•	•	•	•	•	•
150s, 120s, 90s or 75s for LH..		•	•	•	•	•	•
0.75mm² cable	•	•	•	•	•	•	•
Sound power level ~35dB(A)	•	•	•	•	•	•	•
DC (0)2...10V control				•	•		
DC 2...10V feedback				•	•		
Manual override by push button	•	•	•	•	•	•	•
Reversible direction of stroke	•	•	•	•	•	•	•
Ambient temperature -30...+50°C	•	•	•	•	•	•	•
Protection class: IP54	•	•	•	•	•	•	•
Rotary actuators							
Torque 3Nm		LUS24		LUS24-SR		LUS230	
Angle of rotation 330°				•			
Angle of rotation endless		•				•	
Running time: 150s (120s, 90s or 75s)/360°		•		•		•	
0.75mm² cable		•		•		•	
Sound power level ~35dB(A)		•		•		•	
DC (0)2...10V control				•			
DC 2...10V feedback				•			
Manual override by push button		•		•		•	
Reversible direction of rotation		•		•		•	
Ambient temperature -30...+50°C		•		•			
Protection class: IP54		•		•		•	

* U.. for Standard Product, S.. for Customised Product

** For SHS.. Serie, sound power level is <50dB(A)

- **The actuator is not allowed to be used outside the specified field of application, especially not in aircraft or any other form of air transport.**
- **Assembly must be carried out by trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly.**
- **The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.**
- **The rotary supports and coupling pieces available as accessories must always be used if lateral forces are likely.**
- **In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).**
- **If the linear actuator is exposed to severely contaminated atmosphere, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rack from being extended and retracted correctly.**
- **When calculating the required actuating force, the specifications supplied by the damper or slide valve manufacturers (cross section, design, installation site), and the air flow conditions must be observed.**
- **The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.**

Note:

Using Belimo Damper Actuators:

Torque requirements:

- *When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, mounting and air flow condition.*

Contents

Linear actuators, 150N

LHU24-60 1
LHS24 3
LHS24-SR 5
LHS230 7

Linear actuators, 450N

SHS24 9
SHS24-SR 11
SHS230 13

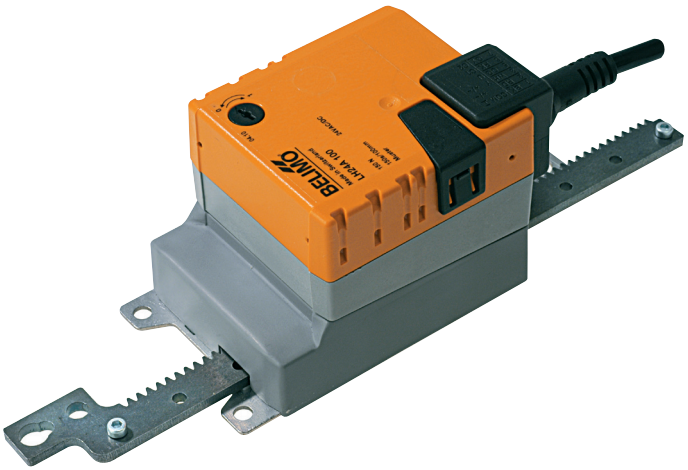
Full-Rotation actuators, 3Nm

LUS24 15
LUS24-SR 17
LUS230 19

LHU24-60

Linear actuators for operating air control dampers and slide valves in ventilation and air-conditioning systems

- **Actuating force 150N**
- **Nominal voltage AC/DC 24V**
- **Control: Open/Close or 3-point**
- **Length of stroke adjustable up to 60mm in steps of 20mm**



Overview of types

Type	Stroke	Weight
LHU24-60	Up to max. 60mm, adjustable in steps of 20mm	0.43kg

Technical data

Electrical data	Nominal voltage	AC 24V 50/60Hz, DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption -running -holding	1.5W 0.5W
	For transformer sizing	3VA
	Connecting cable	Cable 1m, 3x0.75mm²
Functional data	Actuating force (nominal force)	150N @ nominal voltage
	Stroke	See “Overview of types”
	Direction of stroke	Reversible with switch 1 ↑ and 0 ↓
	Sound power level	~35dB(A)
	Running time	90s/60mm
Working conditions	Protection class	III (safety extra-low voltage)
	Mode of operation	Type 1 (EN 60730-1)
	Ambient temp.	-30...+50°C
	Non-operation temp.	-40...+80°C
	Humidity	5...95% RH, non-condensing
	Degree of protection	IP54
	Rated impulse voltage	0.8kV (EN60730-1)
	Control pollution degree	3 (EN60730-1)
	EMC	CE according to 2004/108/EC
	Maintenance	Maintenance-free
Dimensions	Dimensions	See “Dimensions”

Product features

Manual override
Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

Stroke adjustment
The stroke of the gear rack can be adjusted on both sides in increments of 20mm by means of mechanical end stops.

High function reliability
The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

Accessories

Mechanical accessories

Description
Rotary support to compensate lateral forces, type Z-DS1
Coupling piece, type Z-KS2
Mechanical limiter set, type Z-AS2

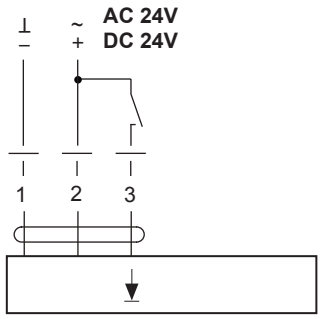
Electrical installation

Notes:
- Connection via safety isolating transformer.
- Other actuators can be connected in parallel. Please note the performance data.

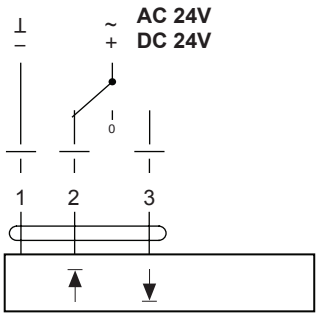
Direction of stroke

(while direction of stroke reverses)

Open/Close control



3-point control



Assembly notes

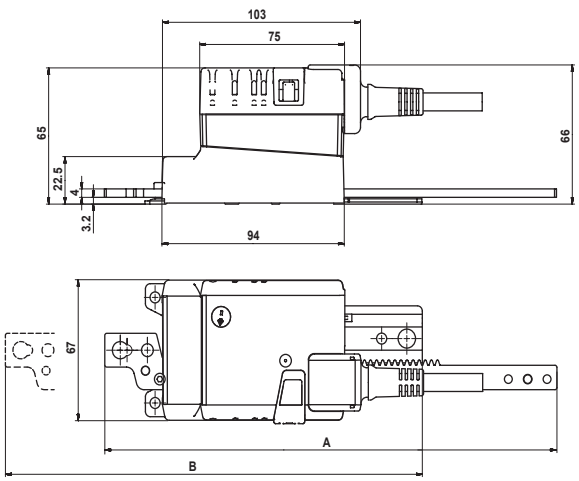
Application without lateral forces
The linear actuator is screwed directly to the housing at three points. The head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

Application with lateral forces
The coupling piece with the internal thread (Z-KS2) is connected to the head of the gear rod. The rotary support (Z-DS1) is screwed to the ventilation application.
The linear actuator is screwed to the previously mounted rotary support with the enclosed screw.
The coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilation application (e.g. damper or slide valve).
The transverse forces can be compensated for to a certain limit with the rotary support and coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10° ◁, laterally and upwards.

Caution:
If a rotary support and/or coupling piece is used, losses in the actuation force are to be expected.

Dimensions[mm]

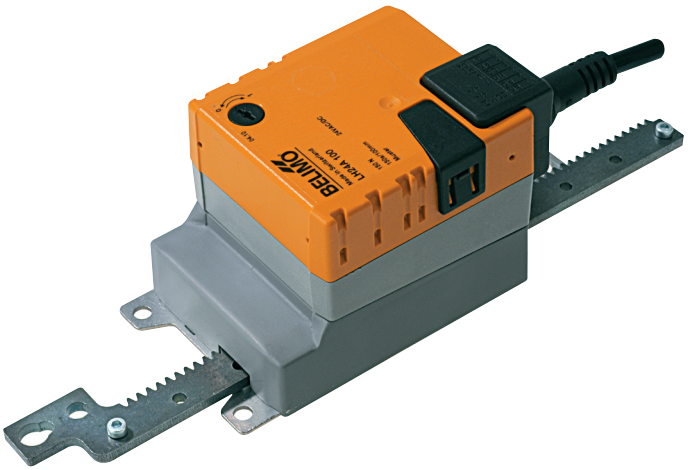
Type	Max. Stroke	A	B
LHU24-60	60	193.5	224.2



V2.1 08.2014 • Subject to modifi cation

Linear actuators for operating air control dampers and slide valves in ventilation and air-conditioning systems

- **Actuating force 150N**
- **Nominal voltage AC/DC 24V**
- **Control: Open/Close or 3-point**
- **Length of stroke adjustable up to 100 or 200mm in steps of 20mm**



Overview of types

Type	Stroke	Weight
LHS00..	Up to max. 100mm, adjustable in steps of 20mm	0.45kg
LHS01..	Up to max. 200mm, adjustable in steps of 20mm	0.48kg

Technical data

Electrical data	Nominal voltage	AC 24V 50/60Hz, DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption -running -holding	1.5W 0.5W
	For transformer sizing	3VA
	Connecting cable	PVC Cable 1m(3m or 5m), 3x0.75mm² FRNC Cable 1m(3m or 5m), 3x0.75mm²
Functional data	Actuating force (nominal force)	150N @ nominal voltage
	Stroke	See “Overview of types”
	Direction of stroke	Reversible with switch 1 ↑ and 0 ↓
	Sound power level	~35dB(A)
	Running time	150s (120s/90s/75s)/100mm
Working conditions	Protection class	III (safety extra-low voltage)
	Mode of operation	Type 1 (EN 60730-1)
	Ambient temp.	-30...+50°C
	Non-operation temp.	-40...+80°C
	Humidity	5...95% RH, non-condensing
	Degree of protection	IP54
	Rated impulse voltage	0.8kV (EN60730-1)
	Control pollution degree	3 (EN60730-1)
	EMC	CE according to 2004/108/EC
	Maintenance	Maintenance-free
Dimensions	Dimensions	See “Dimensions”

Product features

Manual override
Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

Stroke adjustment
The stroke of the gear rack can be adjusted on both sides in increments of 20mm by means of mechanical end stops.

High function reliability
The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

Accessories

Mechanical accessories

Description
Rotary support to compensate lateral forces, type Z-DS1
Coupling piece, type Z-KS2
Mechanical limiter set, type Z-AS2

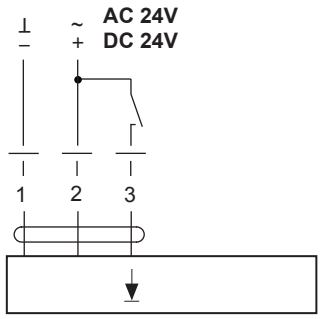
Electrical installation

Notes:
- Connection via safety isolating transformer.
- Other actuators can be connected in parallel. Please note the performance data.

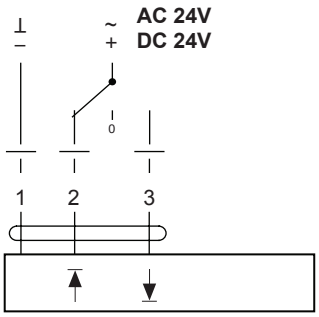
Direction of stroke

(while direction of stroke reverses)

Open/Close control



3-point control



Assembly notes

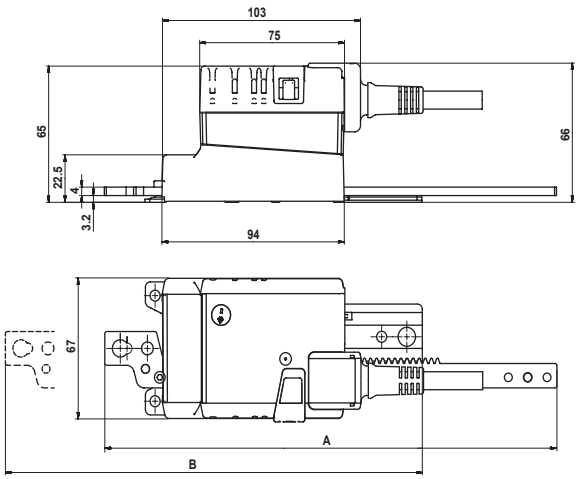
Application without lateral forces
The linear actuator is screwed directly to the housing at three points. The head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

Application with lateral forces
The coupling piece with the internal thread (Z-KS2) is connected to the head of the gear rod. The rotary support (Z-DS1) is screwed to the ventilation application.
The linear actuator is screwed to the previously mounted rotary support with the enclosed screw.
The coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilation application (e.g. damper or slide valve).
The transverse forces can be compensated for to a certain limit with the rotary support and coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10° ◁, laterally and upwards.

Caution:
If a rotary support and/or coupling piece is used, losses in the actuation force are to be expected.

Dimensions[mm]

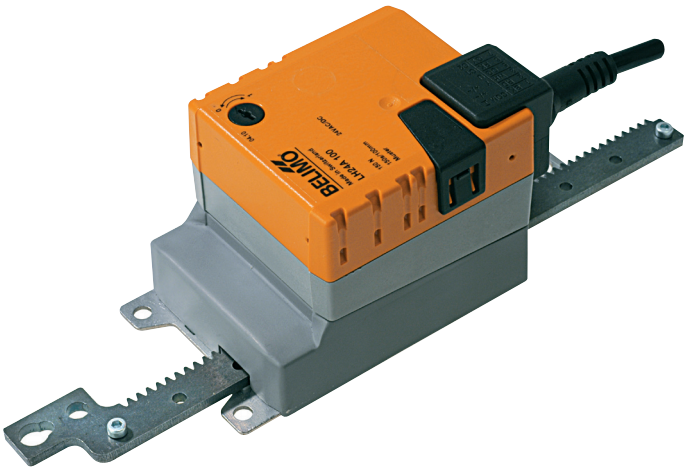
Type	Max. Stroke	A	B
LHS00..	100	233.5	264.2
LHS01..	200	333.5	364.2



V2.1 08.2014 • Subject to modifi cation

Linear actuators for operating air control dampers and slide valves in ventilation and air-conditioning systems

- **Actuating force 150N**
- **Nominal voltage AC/DC 24V**
- **Control: modulating DC (0)2...10V**
- **Position feedback DC 2...10V**
- **Length of stroke up to 100 or 200mm, fixed**



Overview of types

Type	Stroke	Control Working range	Weight
LHS03..	100mm, fixed	DC 2...10V, 0...100mm	0.48kg
LHS04..	200mm, fixed	DC 2...10V, 0...200mm	0.51kg

Technical data

Electrical data	Nominal voltage		AC 24V 50/60Hz, DC 24V
	Nominal voltage range		AC/DC 19.2...28.8V
	Power consumption	-running -holding	1.5W 0.5W
	For transformer sizing		3VA
	Connecting cable		PVC Cable 1m(3m or 5m), 0.75mm² FRNC Cable 1m(3m or 5m), 0.75mm²
Functional data	Actuating force (nominal force)		150N @ nominal voltage
	Control	-control signal Y -working range	DC (0)2...10V @ input impedance 100kΩ See “Overview of types”
	Position feedback signal U		DC 2...10V, max. 1mA
	Position accuracy		±5%
	Stroke		See “Overview of types”
	Direction of stroke at Y=0V		Reversible with switch 1 ↑ and 0 ↓
	Sound power level		~35dB(A)
	Running time		150s (120s/90s/75s)/100mm
Working conditions	Protection class		III (safety extra-low voltage)
	Mode of operation		Type 1 (EN 60730-1)
	Ambient temp.		-30...+50°C
	Non-operation temp.		-40...+80°C
	Humidity		5...95% RH, non-condensing
	Degree of protection		IP54
	Rated impulse voltage	-supply -control	0.8kV (EN60730-1) 0.8kV (EN60730-1)
	Control pollution degree		3 (EN60730-1)
	EMC		CE according to 2004/108/EC
	Maintenance		Maintenance-free
Dimensions	Dimensions		See “Dimensions”

Product features

Mode of operation

The actuator is controlled by means of a standard control signal DC 2(0)...10V. It opens to the position dictated by this signal. The measuring voltage U allows the damper position (0...100%) to be electrically indicated and serves as a follow-up control signal for other actuators.

Manual override

Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

High function reliability

The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

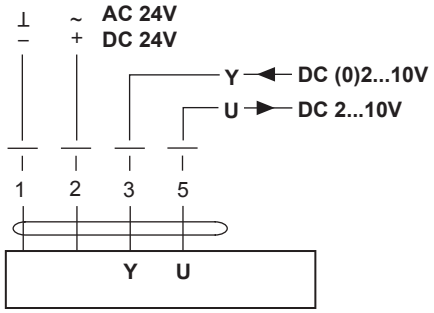
Accessories

	Description
Electrical accessories	Positioner, types SGA24, SGF24 and SGE24
	Range controller, type SBG24
	Digital position indicator, type ZAD24
Mechanical accessories	Rotary support to compensate lateral forces, type Z-DS1
	Coupling piece, type Z-KS2
	Mechanical limiter set, type Z-AS2

Electrical installation

Notes:
- Connection via safety isolating transformer.
- Other actuators can be connected in parallel. Please note the performance data.

Direction of stroke



Assembly notes

Application without lateral forces

The linear actuator is screwed directly to the housing at three points. The head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

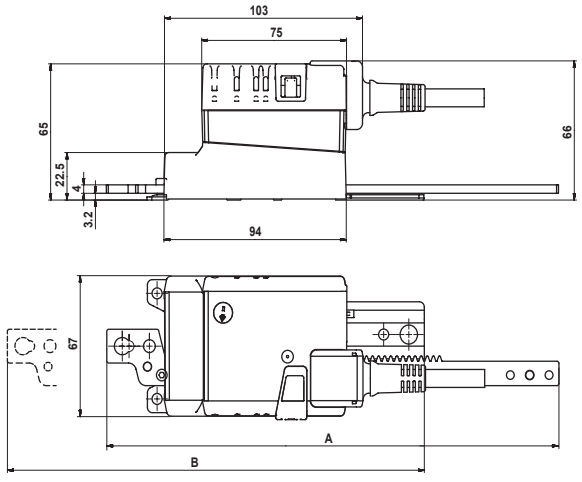
Application with lateral forces

The coupling piece with the internal thread (Z-KS2) is connected to the head of the gear rod. The rotary support (Z-DS1) is screwed to the ventilation application.
The linear actuator is screwed to the previously mounted rotary support with the enclosed screw.
The coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilation application (e.g. damper or slide valve).
The transverse forces can be compensated for to a certain limit with the rotary support and coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10° ◁, laterally and upwards.

Caution:
If a rotary support and/or coupling piece is used, losses in the actuation force are to be expected.

Dimensions[mm]

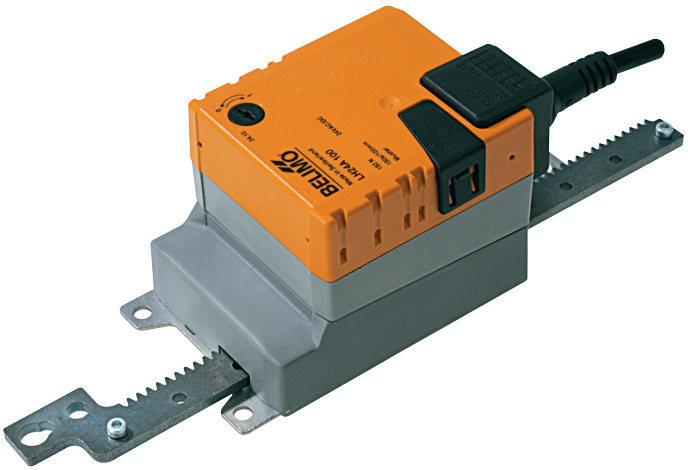
Type	Max. Stroke	A	B
LHS03..	100	233.5	264.2
LHS04..	200	333.5	364.2



V2.1 08.2014 • Subject to modifi cation

Linear actuators for operating air control dampers and slide valves in ventilation and air-conditioning systems

- **Actuating force 150N**
- **Nominal voltage AC 100...240V**
- **Control: Open/Close or 3-point**
- **Length of stroke adjustable up to 100 or 200mm in steps of 20mm**



Overview of types

Type	Stroke	Weight
LHS06..	Up to max. 100mm, adjustable in steps of 20mm	0.5kg
LHS07..	Up to max. 200mm, adjustable in steps of 20mm	0.53kg

Technical data

Electrical data	Nominal voltage		AC 100...240V, 50/60Hz
	Nominal voltage range		AC 85...265V
	Power consumption	-running -holding	1.5W 1W
	For transformer sizing		5VA
	Connecting cable		PVC Cable 1m(3m or 5m), 3x0.75mm² FRNC Cable 1m(3m or 5m), 3x0.75mm²
Functional data	Actuating force (nominal force)		150N @ nominal voltage
	Stroke		See “Overview of types”
	Direction of stroke		Reversible with switch 1 ↑ and 0 ↓
	Sound power level		~35dB(A)
	Running time		150s (120s/90s/75s)/100mm
Working conditions	Protection class		II (Totally insulated)
	Mode of operation		Type 1 (EN 60730-1)
	Ambient temp.		-30...+50°C
	Non-operation temp.		-40...+80°C
	Humidity		5...95% RH, non-condensing
	Degree of protection		IP54
	Rated impulse voltage		4kV (EN60730-1)
	Control pollution degree		3 (EN60730-1)
	EMC Low voltage directive		CE according to 2004/108/EC CE according to 2006/95/EC
	Maintenance		Maintenance-free
Dimensions	Dimensions		See “Dimensions”

Product features

Manual override
Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

Stroke adjustment
The stroke of the gear rack can be adjusted on both sides in increments of 20mm by means of mechanical end stops.

High function reliability
The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

Accessories

Mechanical accessories

Description
Rotary support to compensate lateral forces, type Z-DS1
Coupling piece, type Z-KS2
Mechanical limiter set, type Z-AS2

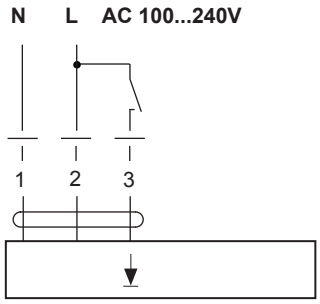
Electrical installation

Notes:
- Caution: Power supply voltage!
- Other actuators can be connected in parallel. Please note the performance data.

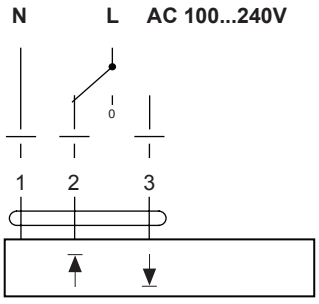
Direction of stroke

(while direction of stroke reverses)

Open/Close control



3-point control



Assembly notes

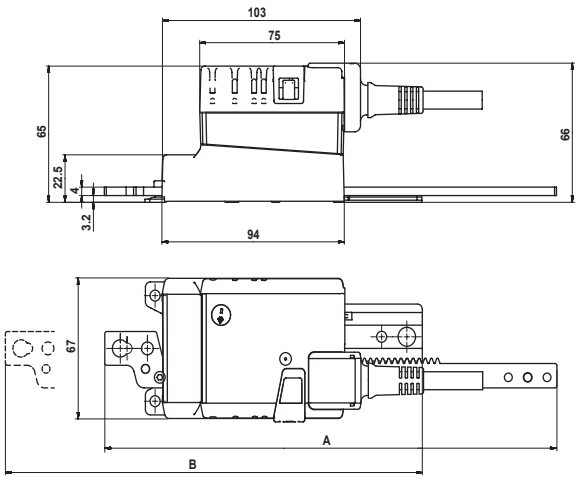
Application without lateral forces
The linear actuator is screwed directly to the housing at three points. The head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

Application with lateral forces
The coupling piece with the internal thread (Z-KS2) is connected to the head of the gear rod. The rotary support (Z-DS1) is screwed to the ventilation application.
The linear actuator is screwed to the previously mounted rotary support with the enclosed screw.
The coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilation application (e.g. damper or slide valve).
The transverse forces can be compensated for to a certain limit with the rotary support and coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10° ◁, laterally and upwards.

Caution:
If a rotary support and/or coupling piece is used, losses in the actuation force are to be expected.

Dimensions[mm]

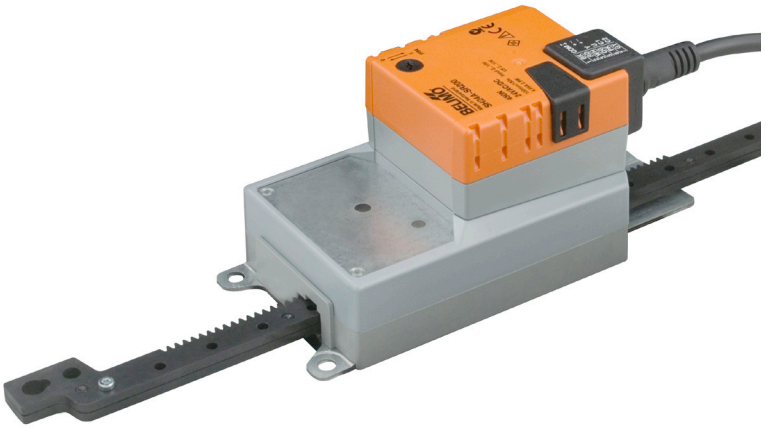
Type	Max. Stroke	A	B
LHS06..	100	233.5	264.2
LHS07..	200	333.5	364.2



V2.1 08.2014 • Subject to modifi cation

Linear actuators for operating air control dampers and slide valves in ventilation and air-conditioning systems

- **Actuating force 450N**
- **Nominal voltage AC/DC 24V**
- **Control: Open/Close or 3-point**
- **Length of stroke adjustable up to 100 or 200mm in steps of 20mm**



Overview of types

Type	Stroke	Weight
SHS00..	Up to max. 100mm, adjustable in steps of 20mm	1.06kg
SHS01..	Up to max. 200mm, adjustable in steps of 20mm	1.13kg

Technical data

Electrical data	Nominal voltage	AC 24V 50/60Hz, DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption -running -holding	2W 0.2W
	For transformer sizing	4.5VA
	Connecting cable	PVC Cable 1m(3m or 5m), 3x0.75mm² FRNC Cable 1m(3m or 5m), 3x0.75mm²
Functional data	Actuating force (nominal force)	450N @ nominal voltage
	Stroke	See “Overview of types”
	Direction of stroke	Reversible with switch 1 ↑ and 0 ↓
	Sound power level	<50dB(A)
	Running time	150s/100mm
Working conditions	Protection class	III (safety extra-low voltage)
	Mode of operation	Type 1 (EN 60730-1)
	Ambient temp.	-30...+50°C
	Non-operation temp.	-40...+80°C
	Humidity	5...95% RH, non-condensing
	Degree of protection	IP54
	Rated impulse voltage	0.8kV (EN60730-1)
	Control pollution degree	3 (EN60730-1)
	EMC	CE according to 2004/108/EC
	Maintenance	Maintenance-free
Dimensions	Dimensions	See “Dimensions”

Product features

Manual override
Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

Stroke adjustment
The stroke of the gear rack can be adjusted on both sides in increments of 20mm by means of mechanical end stops.

High function reliability
The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

Accessories

Mechanical accessories

Description
Rotary support to compensate lateral forces, type Z-DS1
Coupling piece, type Z-KS1
Mechanical limiter set, type Z-AS1

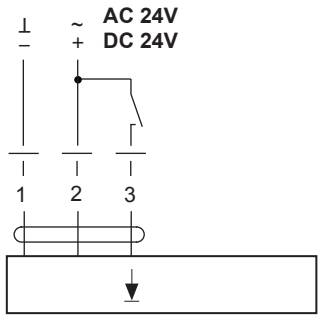
Electrical installation

Notes:
- Connection via safety isolating transformer.
- Other actuators can be connected in parallel.
  Please note the performance data.

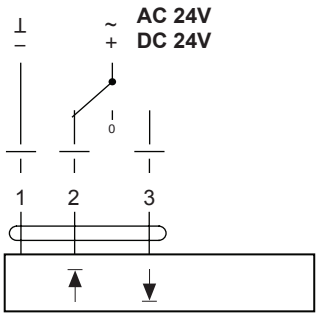
Direction of stroke 1 / 0

(while ⊘ direction of stroke reverses)

Open/Close control



3-point control



Assembly notes

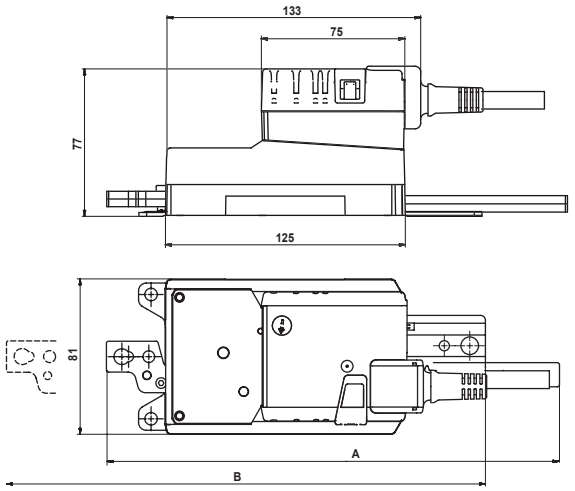
Application without lateral forces
The linear actuator is screwed directly to the housing at three points. The head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

Application with lateral forces
The coupling piece with the internal thread (Z-KS1) is connected to the head of the gear rod. The rotary support (Z-DS1) is screwed to the ventilation application.
The linear actuator is screwed to the previously mounted rotary support with the enclosed screw.
The coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilation application (e.g. damper or slide valve).
The transverse forces can be compensated for to a certain limit with the rotary support and coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10° ◁, laterally and upwards.

Caution:
If a rotary support and/or coupling piece is used, losses in the actuation force are to be expected.

Dimensions[mm]

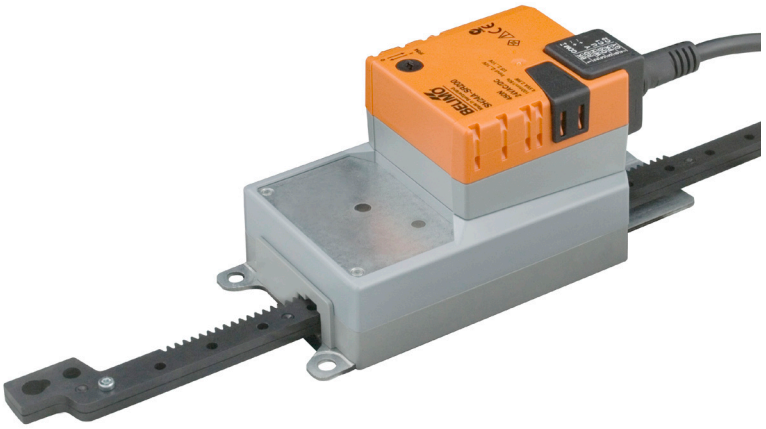
Type	Max. Stroke	A	B
SHS00..	100	233.5	294.7
SHS01..	200	333.5	394.7



V2.1 08.2014 • Subject to modifi cation

Linear actuators for operating air control dampers and slide valves in ventilation and air-conditioning systems

- **Actuating force 450N**
- **Nominal voltage AC/DC 24V**
- **Control: modulating DC (0)2...10V**
- **Position feedback DC 2...10V**
- **Length of stroke up to 100 or 200mm, fixed**



Overview of types

Type	Stroke	Control Working range	Weight
SHS03..	100mm, fixed	DC 2...10V, 0...100mm	1.08kg
SHS04..	200mm, fixed	DC 2...10V, 0...200mm	1.15kg

Technical data

Electrical data	Nominal voltage		AC 24V 50/60Hz, DC 24V
	Nominal voltage range		AC/DC 19.2...28.8V
	Power consumption	-running -holding	2W 0.4W
	For transformer sizing		4VA
	Connecting cable		PVC Cable 1m(3m or 5m), 0.75mm² FRNC Cable 1m(3m or 5m), 0.75mm²
Functional data	Actuating force (nominal force)		450N @ nominal voltage
	Control	-control signal Y -working range	DC (0)2...10V @ input impedance 100kΩ See “Overview of types”
	Position feedback signal U		DC 2...10V, max. 1mA
	Position accuracy		±5%
	Stroke		See “Overview of types”
	Direction of stroke at Y=0V		Reversible with switch 1 ↑ and 0 ↓
	Sound power level		<50dB(A)
	Running time		150s/100mm
Working conditions	Protection class		III (safety extra-low voltage)
	Mode of operation		Type 1 (EN 60730-1)
	Ambient temp.		-30...+50°C
	Non-operation temp.		-40...+80°C
	Humidity		5...95% RH, non-condensing
	Degree of protection		IP54
	Rated impulse voltage	-supply -control	0.8kV (EN60730-1) 0.8kV (EN60730-1)
	Control pollution degree		3 (EN60730-1)
	EMC		CE according to 2004/108/EC
	Maintenance		Maintenance-free
Dimensions	Dimensions		See “Dimensions”

Product features

Mode of operation

The actuator is controlled by means of a standard control signal DC 2(0)...10V. It opens to the position dictated by this signal. The measuring voltage U allows the damper position (0...100%) to be electrically indicated and serves as a follow-up control signal for other actuators.

Manual override

Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

High function reliability

The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

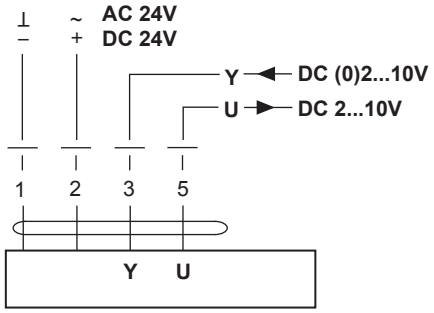
Accessories

	Description
Electrical accessories	Positioner, types SGA24, SGF24 and SGE24
	Range controller, type SBG24
	Digital position indicator, type ZAD24
Mechanical accessories	Rotary support to compensate lateral forces, type Z-DS1
	Coupling piece, type Z-KS1
	Mechanical limiter set, type Z-AS1

Electrical installation

Notes:
- Connection via safety isolating transformer.
- Other actuators can be connected in parallel.
  Please note the performance data.

Direction of stroke



Assembly notes

Application without lateral forces

The linear actuator is screwed directly to the housing at three points. The head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

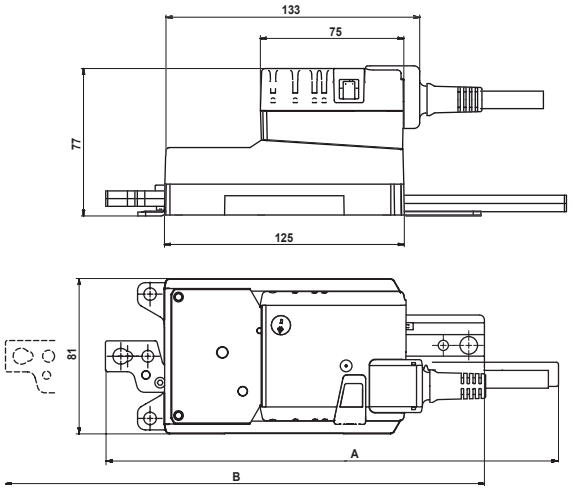
Application with lateral forces

The coupling piece with the internal thread (Z-KS1) is connected to the head of the gear rod. The rotary support (Z-DS1) is screwed to the ventilation application.
The linear actuator is screwed to the previously mounted rotary support with the enclosed screw.
The coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilation application (e.g. damper or slide valve).
The transverse forces can be compensated for to a certain limit with the rotary support and coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10° ◁, laterally and upwards.

Caution:
If a rotary support and/or coupling piece is used, losses in the actuation force are to be expected.

Dimensions[mm]

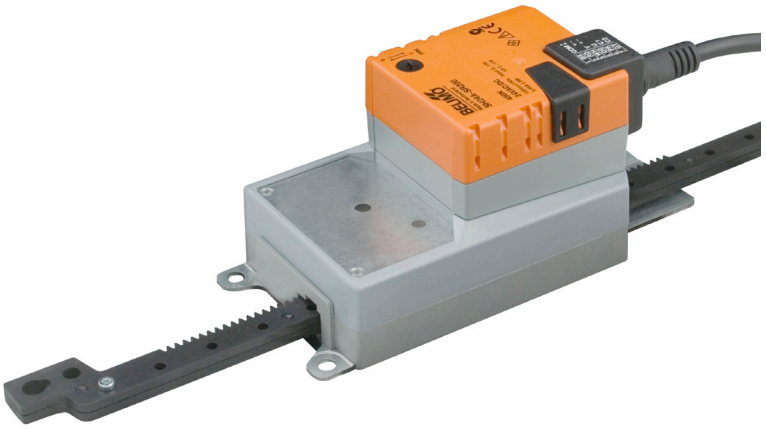
Type	Max. Stroke	A	B
SHS03..	100	233.5	294.7
SHS04..	200	333.5	394.7



V2.1 08.2014 • Subject to modifi cation

Linear actuators for operating air control dampers and slide valves in ventilation and air-conditioning systems

- **Actuating force 450N**
- **Nominal voltage AC 100...240V**
- **Control: Open/Close or 3-point**
- **Length of stroke adjustable up to 100 or 200mm in steps of 20mm**



Overview of types

Type	Stroke	Weight
SHS06..	Up to max. 100mm, adjustable in steps of 20mm	1.08kg
SHS07..	Up to max. 200mm, adjustable in steps of 20mm	1.15kg

Technical data

Electrical data	Nominal voltage		AC 100...240V, 50/60Hz
	Nominal voltage range		AC 85...265V
	Power consumption	-running -holding	2.5W 0.6W
	For transformer sizing		6VA
	Connecting cable		PVC Cable 1m(3m or 5m), 3x0.75mm² FRNC Cable 1m(3m or 5m), 3x0.75mm²
Functional data	Actuating force (nominal force)		450N @ nominal voltage
	Stroke		See “Overview of types”
	Direction of stroke		Reversible with switch 1 ↑ and 0 ↓
	Sound power level		<50dB(A)
	Running time		150s/100mm
Working conditions	Protection class		II (Totally insulated)
	Mode of operation		Type 1 (EN 60730-1)
	Ambient temp.		-30...+50°C
	Non-operation temp.		-40...+80°C
	Humidity		5...95% RH, non-condensing
	Degree of protection		IP54
	Rated impulse voltage		4kV (EN60730-1)
	Control pollution degree		3 (EN60730-1)
	EMC Low voltage directive		CE according to 2004/108/EC CE according to 2006/95/EC
	Maintenance		Maintenance-free
Dimensions	Dimensions		See “Dimensions”

Product features

Manual override
Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

Stroke adjustment
The stroke of the gear rack can be adjusted on both sides in increments of 20mm by means of mechanical end stops.

High function reliability
The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

Accessories

Mechanical accessories

Description
Rotary support to compensate lateral forces, type Z-DS1
Coupling piece, type Z-KS1
Mechanical limiter set, type Z-AS1

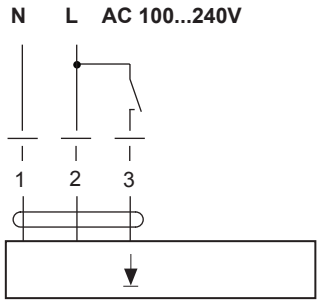
Electrical installation

Notes:
- Caution: Power supply voltage!
- Other actuators can be connected in parallel. Please note the performance data.

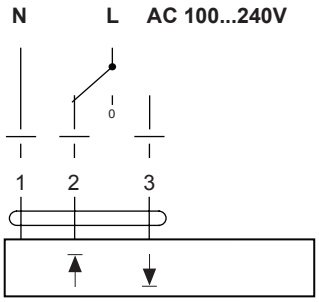
Direction of stroke

(while direction of stroke reverses)

Open/Close control



3-point control



Assembly notes

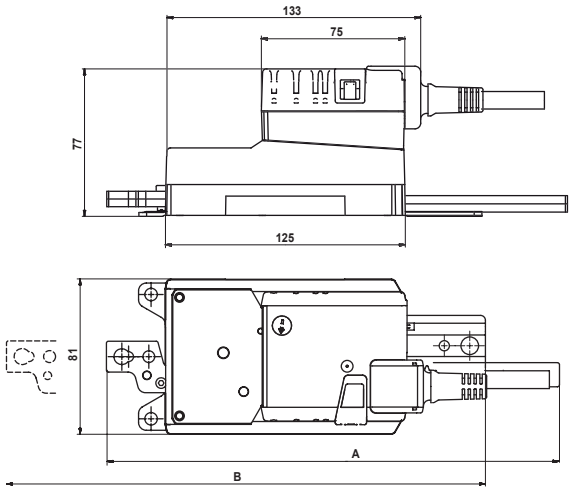
Application without lateral forces
The linear actuator is screwed directly to the housing at three points. The head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

Application with lateral forces
The coupling piece with the internal thread (Z-KS1) is connected to the head of the gear rod. The rotary support (Z-DS1) is screwed to the ventilation application.
The linear actuator is screwed to the previously mounted rotary support with the enclosed screw.
The coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilation application (e.g. damper or slide valve).
The transverse forces can be compensated for to a certain limit with the rotary support and coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10° ◁, laterally and upwards.

Caution:
If a rotary support and/or coupling piece is used, losses in the actuation force are to be expected.

Dimensions[mm]

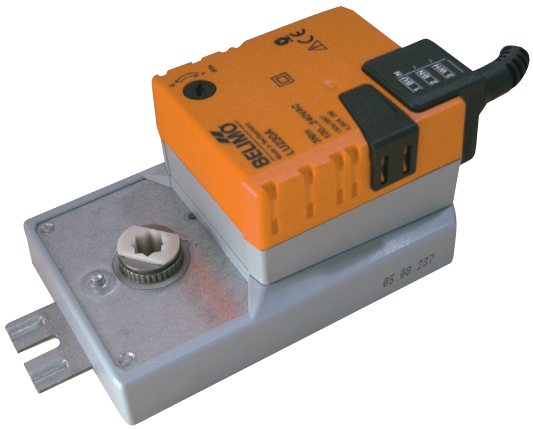
Type	Max. Stroke	A	B
SHS06..	100	233.5	294.7
SHS07..	200	333.5	394.7



V2.1 08.2014 • Subject to modifi cation

Full-rotation actuators for operation of air control dampers and shutters in HVAC systems

- **Torque 3Nm**
- **Nominal voltage AC/DC 24V**
- **Control: Open/Close or 3-point**
- **Spindle driver: Form-fit 12mm, 10mm or 8mm (with insert)**



Technical data

Electrical data	Nominal voltage	AC 24V 50/60Hz, DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption -running -holding	1W 0.5W
	For transformer sizing	2.5VA
	Inrush curent	2.7A @ 5ms
	Connecting cable	PVC Cable 1m(3m or 5m), 3x0.75mm² FRNC Cable 1m(3m or 5m), 3x0.75mm²
Functional data	Torque	3Nm
	Direction of rotation	Selectable by switch
	Manual override	Gearing disengaged by pressing the push button, manual operation while the button is held depressed
	Angle of rotation	Endless (adjustable 0...330° with angle of rotation limiter ZDB-LU)
	Sound power level	~35dB(A)
	Position indicator	Mechanical, remote visible
	Running time	150s (120s/90s/75s) for 360°
Working conditions	Protection class	III (safety extra-low voltage)
	Mode of operation	Type 1 (EN 60730-1)
	Rated impulse voltage	0.8kV (EN60730-1)
	Control pollution degree	3 (EN60730-1)
	Ambient temp.	-30...+50°C
	Non-operation temp.	-40...+80°C
	Humidity	5...95% RH, non-condensing
	Degree of protection	IP54
	EMC	CE according to 2004/108/EC
	Maintenance	Maintenance-free
Dimensions/Weight	Dimensions	See “Dimensions”
	Weight	0.65kg

Product features

Simple direct mounting
Form-fit direct mounting on a 12mm or 8mm damper spindle (with insert).
The actuator can also be optionally equipped with a 10mm form-fit or an 8...12mm clamp (see «Accessories»).

Manual override
Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

Adjustable angle of rotation
The angle of rotation of the full-rotation actuator can be adjusted in 10° ◁ increments between 0 and 330° ◁ with mechanical end stops.

High function reliability
The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

Accessories

	Description
Mechanical accessories	Form-fit with insert 10 x 10mm, type ZF10-LU
	Clamp with 8...12mm clamping range and anti-rotation strap, type K-LU
	Angle of rotation limiter 0...330° ◁, type ZDB-LU

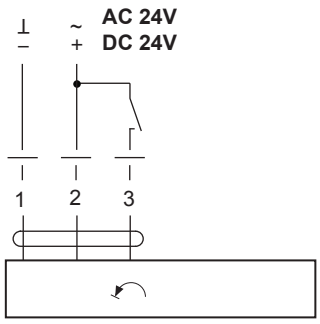
Electrical installation

Notes:
- Connection via safety isolating transformer.
- Other actuators can be connected in parallel.
  Please note the performance data.

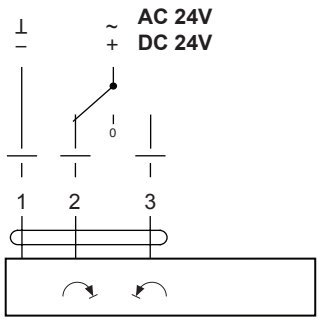
Direction of rotation 0 / 1

(while 0 / 1 direction of rotation reverses)

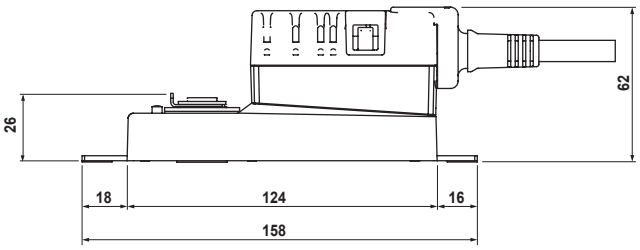
Open/Close control



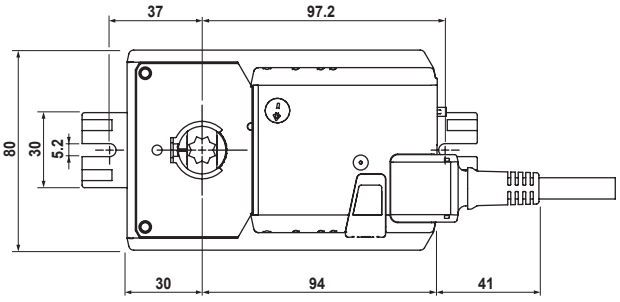
3-point control



Dimensions[mm]



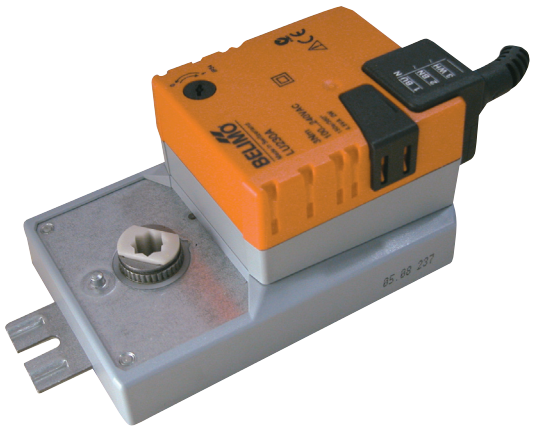
Damper spindle	Length	◇↕
	min. 20	12 or 8 (with insert)



V2.1 08.2014 • Subject to modifi cation

Full-rotation actuators for operation of air control dampers and shutters in HVAC systems

- **Torque 3Nm**
- **Nominal voltage AC/DC 24V**
- **Control: modulating DC (0)2...10V**
- **Position feedback DC 2...10V**
- **Spindle driver: Form-fit 12mm, 10mm or 8mm (with insert)**



Technical data

Electrical data	Nominal voltage	AC 24V 50/60Hz, DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption -running -holding	1.5W 0.5W
	For transformer sizing	3VA
	Connecting cable	PVC Cable 1m(3m or 5m), 0.75mm² FRNC Cable 1m(3m or 5m), 0.75mm²
Functional data	Torque	3Nm
	Control -control signal Y -working range	DC (0)2...10V @ input impedance 100kΩ DC 2 ... 10V, 0 ... 330° ◁
	Position feedback signal U	DC 2...10V, max. 1mA
	Position accuracy	±5%
	Direction of rotation at Y=0V	Reversible with switch ↶ and ↷
	Manual override	Gearing disengaged by pressing the push button, self-resetting
	Angle of rotation	0...330° ◁, permanently set
	Sound power level	~35dB(A)
	Position indicator	Mechanical, remote visible
	Running time	150s (120s/90s/75s) for 360°
Working conditions	Protection class	III (safety extra-low voltage)
	Mode of operation	Type 1 (EN 60730-1)
	Ambient temp.	-30...+50°C
	Non-operation temp.	-40...+80°C
	Humidity	5...95% RH, non-condensing
	Degree of protection	IP54
	Rated impulse voltage -supply -control	0.8kV (EN60730-1) 0.8kV (EN60730-1)
	Control pollution degree	3 (EN60730-1)
	EMC	CE according to 2004/108/EC
	Maintenance	Maintenance-free
Dimensions/Weight	Dimensions	See “Dimensions”
	Weight	0.65kg

Product features

Mode of operation
The actuator is controlled by means of a standard control signal DC 2(0)...10V. It opens to the position dictated by this signal. The measuring voltage U allows the damper position (0...100%) to be electrically indicated and serves as a follow-up control signal for other actuators.

Simple direct mounting
Form-fit direct mounting on a 12mm or 8mm damper spindle (with insert).
The actuator can also be optionally equipped with a 10mm form-fit or an 8...12mm clamp (see «Accessories»).

Manual override
Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

High function reliability
The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

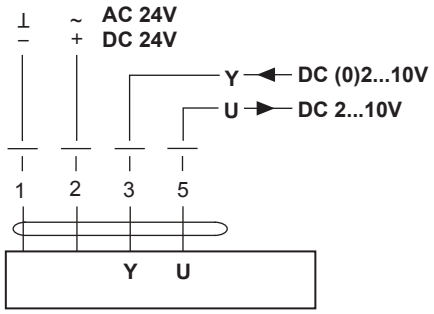
Accessories

	Description
Electrical accessories	Positioner, types SGA24, SGF24 and SGE24
	Range controller, type SBG24
	Digital position indicator, type ZAD24
Mechanical accessories	Form-fit with insert 10 x 10mm, type ZF10-LU
	Clamp with 8...12mm clamping range and anti-rotation strap, type K-LU

Electrical installation

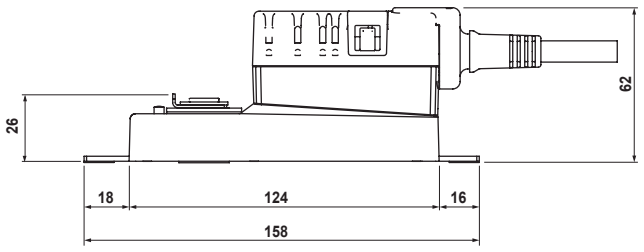
Notes:
- Connection via safety isolating transformer.
- Other actuators can be connected in parallel. Please note the performance data.

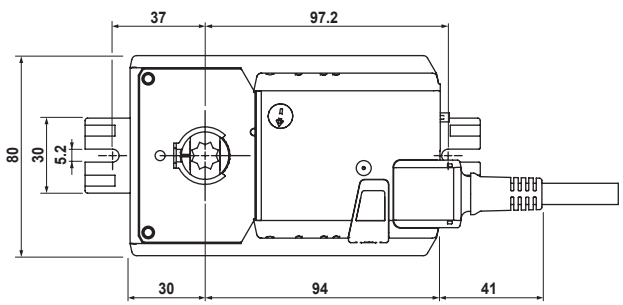
Direction of rotation



Dimensions[mm]

Damper spindle	Length	◇I
	min. 20	12 or 8 (with insert)

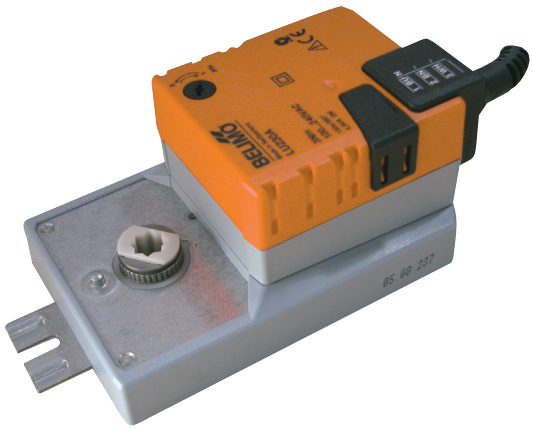




V2.1 08.2014 • Subject to modifi cation

Full-rotation actuators for operation of air control dampers and shutters in HVAC systems

- **Torque 3Nm**
- **Nominal voltage AC 100...240V**
- **Control: Open/Close or 3-point**
- **Spindle driver: Form-fit 12mm, 10mm or 8mm (with insert)**



Technical data

Electrical data	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption -running -holding	2W 1W
	For transformer sizing	4.5VA
	Connecting cable	PVC Cable 1m(3m or 5m), 3x0.75mm² FRNC Cable 1m(3m or 5m), 3x0.75mm²
Functional data	Torque	3Nm
	Direction of rotation	Reversible with switch 0 ↶ and 1 ↷
	Manual override	Gearing disengaged by pressing the push button, self-resetting
	Angle of rotation	Endless (adjustable 0...330° with angle of rotation limiter ZDB-LU)
	Sound power level	~35dB(A)
	Position indicator	Mechanical, remote visible
	Running time	150s (120s/90s/75s) for 360°
Working conditions	Protection class	II (Totally insulated)
	Mode of operation	Type 1 (EN 60730-1)
	Rated impulse voltage	4kV (EN60730-1)
	Control pollution degree	3 (EN60730-1)
	Ambient temp.	-30...+50°C
	Non-operation temp.	-40...+80°C
	Humidity	5...95% RH, non-condensing
	Degree of protection	IP54
	EMC Low voltage directive	CE according to 2004/108/EC CE according to 2006/95/EC
	Maintenance	Maintenance-free
Dimensions/Weight	Dimensions	See “Dimensions”
	Weight	0.65kg

Product features

Simple direct mounting
Form-fit direct mounting on a 12mm or 8mm damper spindle (with insert).
The actuator can also be optionally equipped with a 10mm form-fit or an 8...12mm clamp (see «Accessories»).

Manual override
Manual operation is possible with the push button (the gearing latch remains disengaged as long as the push button is pressed).

Adjustable angle of rotation
The angle of rotation of the full-rotation actuator can be adjusted in 10° ◁ increments between 0 and 330° ◁ with mechanical end stops.

High function reliability
The actuator is overload-proof, requires no limit switches, and stops automatically when the end stop is reached.

Accessories

	Description
Mechanical accessories	Form-fit with insert 10 x 10mm, type ZF10-LU
	Clamp with 8...12mm clamping range and anti-rotation strap, type K-LU
	Angle of rotation limiter 0...330° ◁, type ZDB-LU

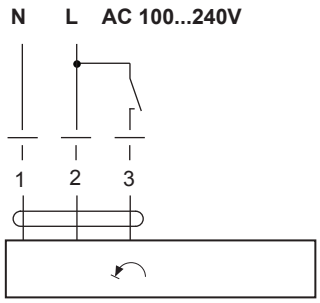
Electrical installation

Notes:
- Caution: Power supply voltage!
- Other actuators can be connected in parallel. Please note the performance data.

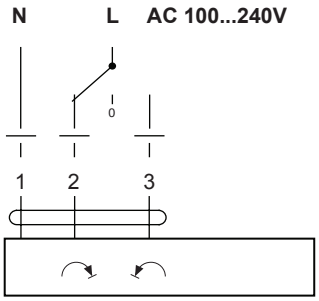
Direction of rotation

(while direction of rotation reverses)

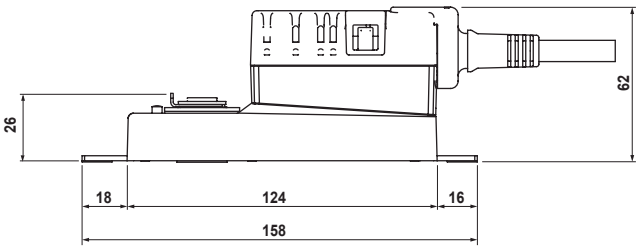
Open/Close control



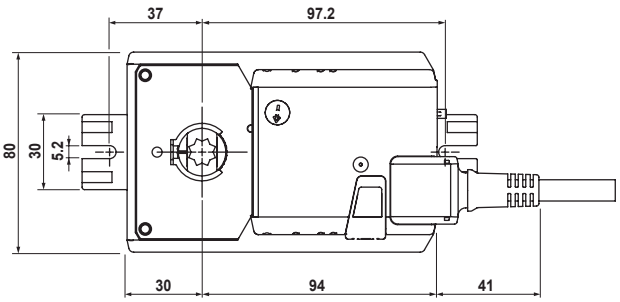
3-point control



Dimensions[mm]



Damper spindle	Length	◇↕
	min. 20	12 or 8 (with insert)



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