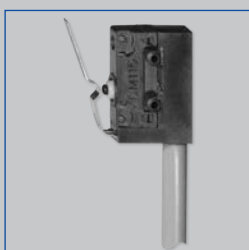


Attachments

Pneumatic actuators



Limit switch



Solenoid valve



Multileaf damper with pneumatic actuator

Pneumatic actuators for the opening and closing of dampers in air conditioning systems

Pneumatic actuators for Type JZ, JZ-AL, JZ-LL, JZ-LL-AL, JZ-HL, JZ-HL-AL multileaf dampers

- Change of the damper blade position for two different operating situations
- Control input signal: Operating pressure of 1.2 – 6 bar
- Pneumatic actuator, single acting or double acting
- Torque 8 – 70 Nm

Optional equipment and accessories

- Solenoid valve 24 V DC or 230 V AC
- Limit switch

Type		Page
Pneumatic actuators	General information	PN – 2
	Function	PN – 3
	Variants	PN – 5
	Double acting	PN – 6
	Single acting	PN – 7
	Limit switch	PN – 8
	Solenoid valves	PN – 9

Application

Application

- Pneumatic actuators for opening and closing
- Opening and closing of Type JZ, JZ-AL, JZ-LL, JZ-LL-AL, JZ-HL, JZ-HL-AL multileaf dampers

Special characteristics

- Different opening and closing times can be set using throttle valves
- Interdependent torque and operating pressure

(double acting actuator)

- Maintaining the blade position without additional power
- Short running times
- Resistant to overload, temperature fluctuations and electromagnetic effects
- Compressed air is easy to store

Description

Parts and characteristics

- Pneumatic actuators, single acting or double acting
- Control input signal: 1-wire control of a solenoid valve
- Optional limit switch for capturing the end positions

- Safety function with double acting actuators (power off)
- Safety function with single acting actuators (pressure off)

Functional description

The actuator moves the blades of a multileaf damper into OPEN or CLOSED position. The easiest way to generate the control input signal is electrically, using solenoid valves. Different opening and closing times can be set using throttle valves.

Double acting pneumatic actuators

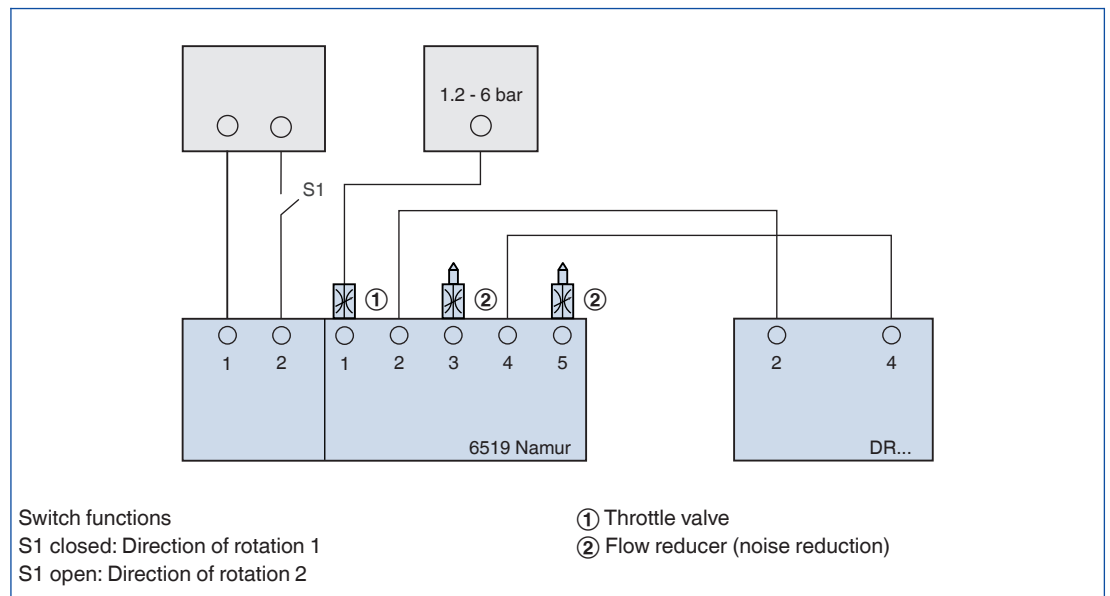
The multileaf damper is opened and closed with compressed air. For this purpose, the actuator has two tube connections. Compressed air is applied

to one tube connection while the other connection remains open such that the air can escape from the corresponding chamber of the actuator. For the other direction of rotation, the process is reversed.

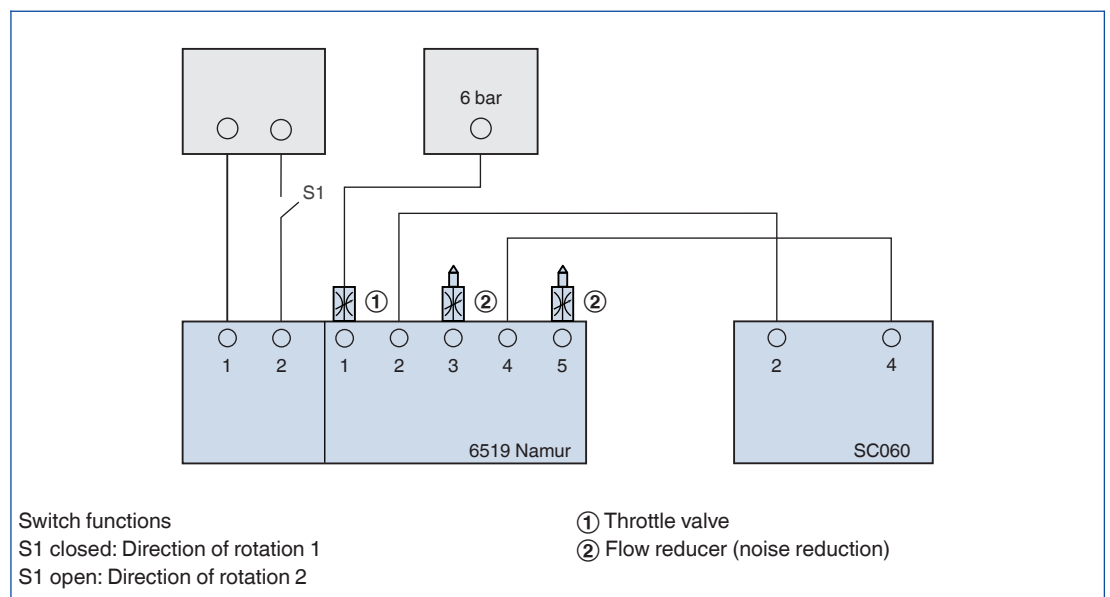
Single acting pneumatic actuators

The multileaf damper is closed with compressed air and opened with spring force. The actuator has one tube connection. This tube connection is for compressed air. For the other direction of rotation the connection remains open.

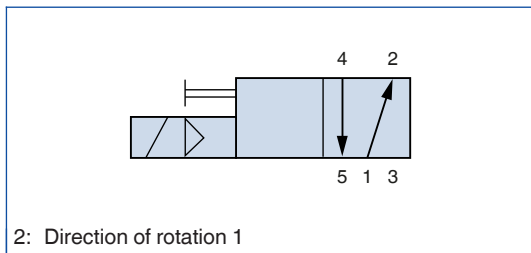
Control of a double acting pneumatic actuator using a solenoid valve



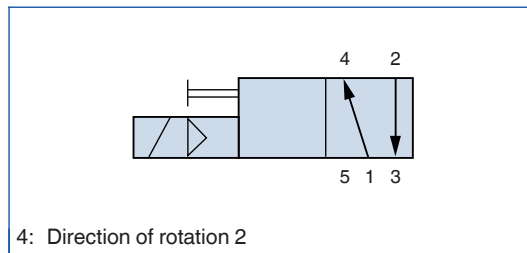
Control of a single acting pneumatic actuator using a solenoid valve



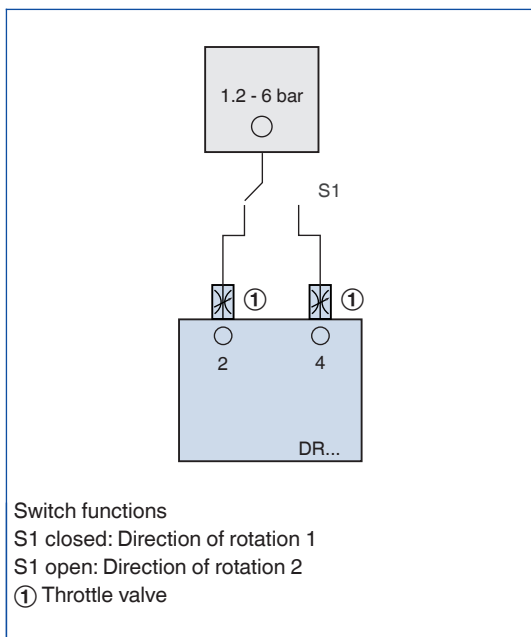
Solenoid valve, power off



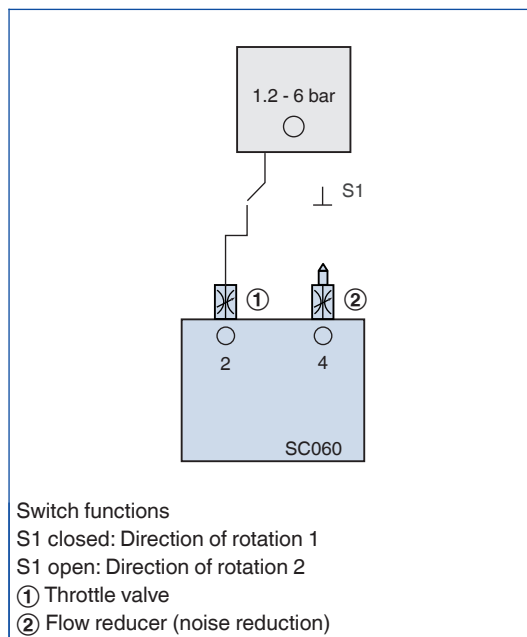
Solenoid valve, power on



Control of a double acting pneumatic actuator without a solenoid valve



Control of a single acting pneumatic actuator without a solenoid valve



Any attachments are to be defined with the order code of the multileaf damper.

Double acting pneumatic actuators for multileaf dampers

Order code detail	Actuator		Limit switch	Torque at 6 bar	Solenoid valve	Damper blade safety function
	Part number	Type	Part number			
Z60	M452DD0	DR030	–	35 Nm	–	
Z61	M452DD0	DR030	–	35 Nm	24 V	①
Z62	M452DD0	DR030	–	35 Nm	230 V	①
Z63	M452DD0	DR030	2 × M536AT5	35 Nm	–	
Z64	M452DD0	DR030	2 × M536AT5	35 Nm	24 V	①
Z65	M452DD0	DR030	2 × M536AT5	35 Nm	230 V	①
Z66	M452DD1	DR060	–	70 Nm	–	
Z67	M452DD1	DR060	–	70 Nm	24 V	①
Z68	M452DD1	DR060	–	70 Nm	230 V	①
Z69	M452DD1	DR060	2 × M536AT5	70 Nm	–	
Z70	M452DD1	DR060	2 × M536AT5	70 Nm	24 V	①
Z71	M452DD1	DR060	2 × M536AT5	70 Nm	230 V	①

① Power off to close/open

Operating pressure 1.2 – 6 bar

Single acting pneumatic actuators for multileaf dampers

Order code detail	Actuator	Limit switch	Torque at 6 bar	Solenoid valve	Damper blade safety function
	Type	Part number			
Z72	SC060/SO060	–	30 Nm	–	①
Z73	SC060/SO060	–	30 Nm	24 V	②
Z74	SC060/SO060	–	30 Nm	230 V	②
Z75	SC060/SO060	2 × M536AT5	30 Nm	–	①
Z76	SC060/SO060	2 × M536AT5	30 Nm	24 V	②
Z77	SC060/SO060	2 × M536AT5	30 Nm	230 V	②

① Power off to close/open

② Power off and pressure off to close/open

Operating pressure 6 bar

Application

- Double acting pneumatic actuators for opening and closing
- Opening and closing of Type JZ, JZ-AL, JZ-LL, JZ-LL-AL, JZ-HL, JZ-HL-AL multileaf dampers

- NO: Power off to OPEN
- NC: Power off to CLOSE

Variants

- Z60, Z61, Z62, Z63, Z64, Z65: Actuator DR030
- Z66, Z67, Z68, Z69, Z70, Z71: Actuator DR060

Parts and characteristics

- Double acting pneumatic actuators
- Control input signal: 1-wire control of a solenoid valve
- Optional limit switch for capturing the end positions
- Safety function (power off)

Safety function

Z61, Z62, Z64, Z65, Z67, Z68, Z70, Z71



Pneumatic actuator DR030

Pneumatic actuator DR030

Operating pressure	1.2 bar – 6.0 bar
Maximum pressure	8 bar
Torque at 6 bar	35 Nm
Running time for 90°	0.3 s
Air volume OPEN/CLOSE	0.16/0.26 l
Compressed air	Compressed air for instruments, free of oil, water and dust
Air connection	G 1/8"
Operating temperature	-40 to 80 °C
Weight	1.6 kg

DR030, Torque depending on operating pressure

Operating pressure [bar]	1.2	2.5	3	4	5	6
Torque [Nm]	8	15	18	24	29	35



Pneumatic actuator DR060

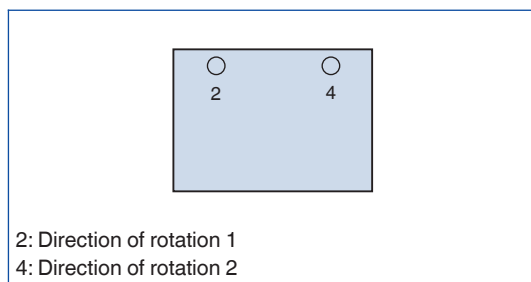
Pneumatic actuator DR060

Operating pressure	1.2 bar – 6.0 bar
Maximum pressure	8 bar
Torque at 6 bar	70 Nm
Running time for 90°	0.5 s
Air volume OPEN/CLOSE	0.31/0.49 l
Compressed air	Compressed air for instruments, free of oil, water and dust
Air connection	G 1/8"
Operating temperature	-40 to 80 °C
Weight	2.7 kg

DR060, Torque depending on operating pressure

Operating pressure [bar]	1.2	2.5	3	4	5	6
Torque [Nm]	14	30	36	47	58	70

Tube connections



For actuators without solenoid valve the tube connections 2 and 4 must be allocated by others (Z60(EX), Z63(EX)).

Application

- Single acting pneumatic actuators for opening and closing
- Opening and closing of Type JZ, JZ-AL, JZ-LL, JZ-LL-AL, JZ-HL, JZ-HL-AL multileaf dampers

Z73, Z74, Z76, Z77

- NO: Power off and pressure off to OPEN
- NC: Power off and pressure off to CLOSED

Variants

- Z72, Z73, Z74, Z75, Z76, Z77: Actuator SC060, SO060

Parts and characteristics

- Single acting pneumatic actuators
- Control input signal: 1-wire control of a solenoid valve
- Optional limit switch for capturing the end positions
- Safety function (pressure off)

Safety function

Z72, Z75

- NO: Pressure off to OPEN
- NC: Pressure off to CLOSE

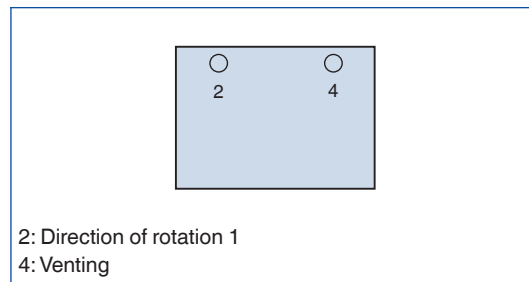


Pneumatic actuator SC060

Pneumatic actuator SC060, SO060

Operating pressure	6.0 bar
Maximum pressure	6 bar
Torque at 6 bar	30 Nm
Running time for 90°	0.5 s
Air volume OPEN/CLOSE	0.31/0.49 l
Compressed air	Compressed air for instruments, free of oil, water and dust
Air connection	G 1/8"
Operating temperature	-40 to 80 °C
Weight	3.2 kg

Tube connections



For actuators without solenoid valve the tube connections 2 and 4 must be allocated by others (Z72(EX), Z75(EX)).

Application

- Limit switch: micro switch
- Volt-free contacts for signalling or activating switch functions

- Z63, Z64, Z65, Z69, Z70, Z71, Z75, Z76, Z77: Limit switch

Parts and characteristics

- Clip fix

Variants

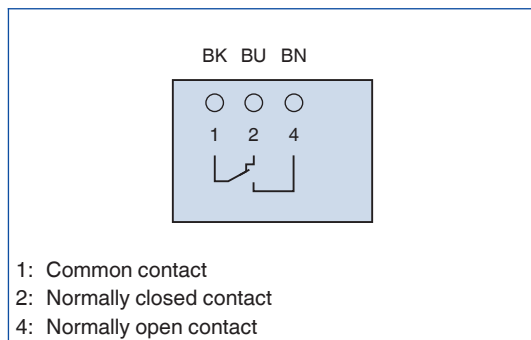
Micro switch



Limit switches on multileaf dampers with pneumatic actuator

Type of contact	1 changeover contacts
Max. switching voltage (AC)	250 V AC
Max. switching current (AC)	0.5 A
Max. switching voltage (DC)	30 V DC
Max. switching current (DC)	0.5 A
Connecting cable	3 × 0.34 mm ² , 1 m long
IEC protection class	II (protective insulation)
Protection level	IP 66
Operating temperature	-20 to 85 °C

Limit switch, connecting cable core identification



Application

- Solenoid valves with connector

Variants

- Z61, Z64, Z67, Z70, Z73, Z76: Solenoid valve Type 6519 Namur 24 V
- Z62, Z65, Z68, Z71, Z74, Z77: Solenoid valve Type 6519 Namur 230 V

Safety function

- Z61, Z62, Z64, Z65, Z67, Z68, Z70, Z71
- NO: Power off to OPEN
 - NC: Power off to CLOSE

Z73, Z74, Z76, Z77

- NO: Power off and pressure off to OPEN
- NC: Power off and pressure off to CLOSED

Parts and characteristics

- Supply voltage 24 V DC or 230 V AC
- Control input signal: Supply voltage on/off
- IP 65 connector
- Namur interface for direct assembly on the pneumatic actuator



Solenoid valve 24 V DC

Solenoid valve 24 V

Supply voltage	24 V DC ± 10 %
Power rating	2 W
Pressure range	1.2 – 8.0 bar
Nominal flow rate Q _{Nn}	900 l/min
Compressed air	Compressed air for instruments, free of oil, water and dust
Air connection	G 1/8"
Connector	To EN 175301-803, type A
IEC protection class	III (protective extra-low voltage)
Protection level	With IP 65 connector
Operating temperature	-25 to 55 °C
Weight	0.46 kg

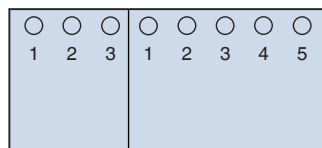


Solenoid valve 230 V AC

Solenoid valve 230 V

Supply voltage	230 V AC ± 10 %, 50/60 Hz
Power rating	2 W
Pressure range	1.2 – 8.0 bar
Nominal flow rate Q _{Nn}	900 l/min
Compressed air	Compressed air for instruments, free of oil, water and dust
Air connection	G 1/8"
Connector	To EN 175301-803, type A
IEC protection class	II (protective insulation)
Protection level	With IP 65 connector
EC conformity	low voltage to 2014/35/EU
Operating temperature	-25 to 55 °C
Weight	0.46 kg

Terminal connections and pneumatic connections



Electrical connections

- 1: Ground, neutral
- 2: Control voltage for direction of rotation 1
- 3: Earth

Pneumatic connections

- 1: Operating pressure, throttle valve
- 2: Direction of rotation 1
- 3: Flow reducer (noise reduction)
- 4: Direction of rotation 2
- 5: Flow reducer (noise reduction)