

ACVATIX™

## Rotary actuators for ball valves

GSD..41.9A



### Electromotive rotary actuators without spring return for on-off (2-wire SPDT) control. Used on heating, ventilation, and air conditioning plants

- For 2-port and 3-port control ball valves, internally threaded connections (VAI61.. and VBI61..) or externally threaded connections (VAG61.. and VBG61..), DN15 to DN25.
- Suitable for use with 2-position controllers
- 2 Nm nominal torque
- GSD141.9A: Operating voltage AC 24 V ~ / DC 24...48 V =
- GSD341.9A: Operating voltage AC 230 V ~
- Prewired with 0.9 m connecting cable

## Features

- Brushless, robust DC motors ensure reliable operation regardless of load.
- The valve actuators do not require an end position switch, are overload proof, and remain in place upon reaching the end stop.
- The gears are maintenance free and low noise.
- Suitable for use with 2-position controllers.

## Functions

Type	GSD141.9A	GSD341.9A
Control	On-Off*	
Rotary direction	Clockwise or counter-clockwise movement depends on the actuator's mounting position on the ball valve.	
Slider	Pressing the slider allows for manual actuator adjustment.	

2) 2-wire SPDT (single pole double throw)

## Technical design

### Housing

The housing is made of fiberglass reinforced plastic:

- Flame retardant
- Non-brominated
- Non-chlorinated

## Type summary

Type	Item NO.	Positioning signal	Operating voltage	Positioning signal U= DC 0...10 V	Self-adaption Rotation angle ranges	Auxiliary switch	Rotary direction switch
GSD141.9A	BPZ:GSD141.9A	2-position	AC 24 V ~ / DC 24...48 V =	–	–	–	Yes
GSD341.9A	BPZ:GSD341.9A		AC 230 V ~	–	–	–	

## Accessories / spare parts

### Accessories

	<b>⚠ DANGER</b>
	<p><b>Hazard to life caused by a lack of ground for the combination ALJ100 with GSD341.9A!</b></p> <p>Combining rotary actuator GSD341.9A operated at AC 230 V ~ with temperature adapter ALJ100 results in life-threatening shocks due to a lack of ground.</p> <ul style="list-style-type: none"> <li>• Never combine rotary actuator GSD341.9A with temperature adapter ALJ100.</li> </ul>

Type	Stock number	Description
ALJ100	S55846-Z115	Temperature adapter for ball valves

## Equipment combinations

Rotary actuators are suitable for operating following Siemens ball valves:

### VA..60.. / VB..60..

#### 2-port shut-off valves and 3-port changeover ball valves

Control ball valves with:				k <sub>vs</sub> [m <sup>3</sup> /h]	DN	GSD..41.9A	
Internal threads <sup>1)</sup>	Rp	External threads <sup>2)</sup>	G..B			Δp <sub>max</sub>	Δp <sub>s</sub>
–	–	VAG60.15-9	G 1 B	9	15	350	1400
VAI60.15-15	Rp ½"	–	–	15	15		
–	–	VAG60.20-17	G 1 ¼ B	17	20		
VAI60.20-22	Rp 1"	–	–	22	20		
VAI60.25-22	Rp 1"	VAG60.25-22	G 1 ½ B	22	25		

VBI60.15-5L	Rp ½"	VBG60.15-5L	G 1 B	5	15	350	–
–	–	VBG60.20-8L	G 1 ¼ B	8	20		
VBI60.20-9L	Rp 1"	–	–	9	20		
VBI60.25-9L	Rp 1"	VBG60.25-9L	G 1 ½ B	9	25		

–	–	VBG60.15-8T	G 1 B	8	15	350	–
VBI60.15-12T	Rp ½"	–	–	12	15		
–	–	VBG60.20-13T	G 1 ¼ B	13	20		
VBI60.20-16T	Rp 1"	–	–	16	20		
–	–	VBG60.25-13T	G 1 ½ B	13	25		
VBI60.25-16T	Rp 1"	–	–	16	25		

<sup>1)</sup> Data sheet N4213

<sup>2)</sup> Data sheet N4214

## Product documentation

Topic	Title	Document ID
Data sheet	Rotary actuators for ball valves	N4655
Data sheet	GSD..1	N4603
Mounting instructions	GSD..41.9A	M4655
Mounting instructions	VAI60.. / VBI60..	M4213
Mounting instructions	VAG60.. / VBG60..	M4214

Related documents such as the environmental declarations, CE declarations, etc., can be downloaded from the following Internet address:

<https://siemens.com/bt/download>

## Notes

Additional information on rotary actuators is available in document Z4614.

## Safety

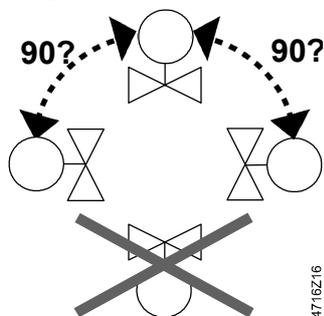
	<b>⚠ CAUTION</b>
	<b>National safety regulations</b> Failure to comply with national safety regulations may result in personal injury and property damage. <ul style="list-style-type: none"><li>• Observe national provisions and comply with the appropriate safety regulations.</li><li>• Mounting, commissioning, and service by properly trained personnel only.</li></ul>

## Mounting

Additional information on rotary actuators is available in document N4603.

Both ball valve and rotary actuator can be easily and directly assembled at the mounting location. No special tools or adjustments required.

### Alignment



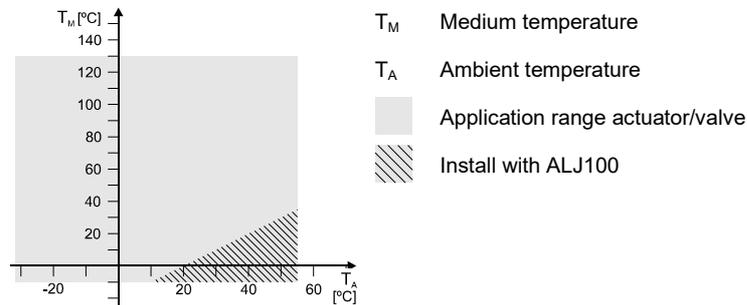
## Installation

	<b>⚠ WARNING</b>
	<b>No internal line protection for supply lines to external consumers</b> Risk of fire and injury due to short-circuits! <ul style="list-style-type: none"><li>• Adapt the wire cross sections as per local regulations to the rated value of the installed fuse.</li></ul>

## Engineering

Only use GSD..41.9A actuators at medium temperatures of  $> 0^{\circ}\text{C}$ .

We recommend using temperature adapter ALJ100 in locations exposed to condensation to protect the actuator.



## Commissioning

When commissioning the system, check both wiring and rotary actuator functions.

## Manual adjustment

Open the side gear disengagement slider to manually adjust the rotary actuators to any position between  $0^{\circ}$  and  $90^{\circ}$ .

The controller's control signal has a higher priority for determining the position after the slider is released

	<b>⚠ WARNING</b>
	<b>Manual adjuster: Only if power is disconnected!</b>

## Electrical parallel switching of actuators

Up to 10 actuators of the same type can be electrically wired in parallel; cable length and cable cross-sections must be observed.

## Maintenance

The GSD..41.9A actuators are maintenance-free.

## Disposal

	<p>The device is considered an electronic device for disposal in accordance with European guidelines and may not be disposed of as domestic waste.</p> <ul style="list-style-type: none"><li>• Dispose of the device through channels provided for this purpose.</li><li>• Comply with all local and currently applicable laws and regulations.</li></ul>
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## Warranty service

Technical data on specific applications are valid only together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

<b>Supply voltage GSD141.9A</b>		
Operating voltage AC		AC 24 V ~ ±20 % (19.2...28.8 V ~)
Frequency		50/60 Hz
Operating voltage DC		DC 24 V = ±15 % (20.4...27.6 V =)
Power consumption	Operation	2 VA / 1.5 W
	Hold	1 VA / 0.5 W

<b>Supply voltage GSD341.9A</b>		
Operating voltage AC		AC 230 V ~ ±15 % (196.5...264.5 V ~)
Frequency		50/60 Hz
Fuse for power cable (fast)		2 A
Power consumption	Operation	12 VA / 2 W
	Hold	12 VA / 2 W

<b>Function data</b>		
Nominal torque		2 Nm
	Maximum torque (when blocked)	5 Nm
	Minimum holding torque	2 Nm
Nominal rotation angle (with position indication)		90°
	Maximum rotation angle (mechanically limited)	95° ± 2°
Runtime at a nominal rotation angle of 90° (motorized)		30 s
Permissible medium temperature in valve in combination with GSD..41.9A actuators		0...120 °C

<b>Connection</b>	
Cable length	0.9 m
Cable cross-section	0.75 mm <sup>2</sup>

<b>Ambient conditions and protection classification</b>	
Device IP class per EN 60730	
AC 24 V ~ / DC 24 V =	III
AC 230 V ~	II
Degree of protection of housing to EN 60529 (see M4655)	IP40
Operation	
As per IEC 60721-3-3	
Climatic conditions	Class 2K3
Temperature (extended)	-32...55 °C
Humidity (non-condensing)	<95 % r.h.
Transportation	
Transport per IEC 60721-3-2	
Climatic conditions	Class 3K5 / Class 2K3
Temperature (extended)	-32...70 °C
Humidity (non-condensing)	<95 % r.h.
Storage	
Per IEC 60721-3-1	
Climatic conditions	Class 1K3
Temperature (extended)	-32...50 °C
Humidity (non-condensing)	<95 % r.h.
Mechanical ambient conditions	
Class 2M2	

<b>Standards, directives and approvals</b>	
Product standards	EN 60730 Part 2-14: Special requirements for electric actuators
Electromagnetic compatibility (field of use)	For residential, commercial, and industrial environments
EU conformity (CE)	A5W00004362 <sup>1)</sup>
RCM conformity	A5W00004363 <sup>1)</sup>

<b>Environmental compatibility</b>
The product environmental declaration CM2E4604E <sup>1)</sup> contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

<b>Dimensions</b>
See Dimensions [▶ 9]

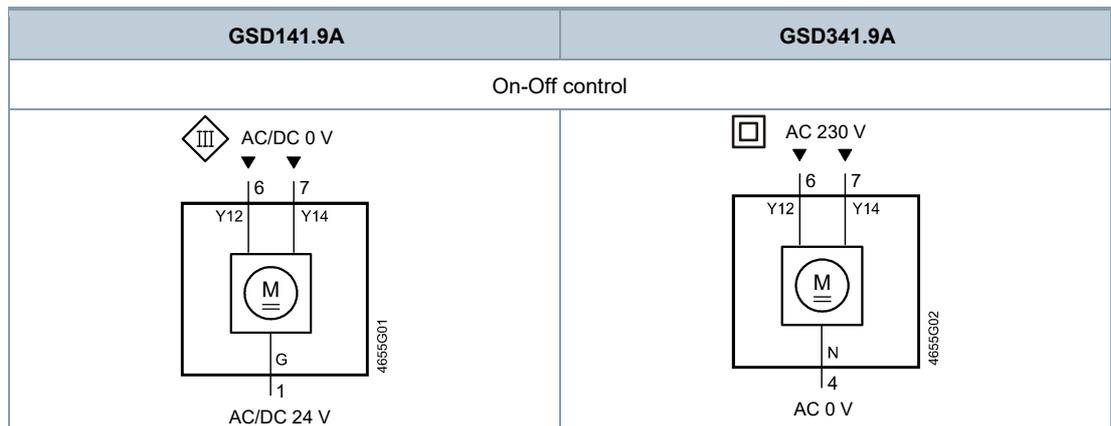
<b>Weight GSD141.9A</b>	
Without packaging	0.63 kg

<b>Weight GSD341.9A</b>	
Without packaging	0.64 kg

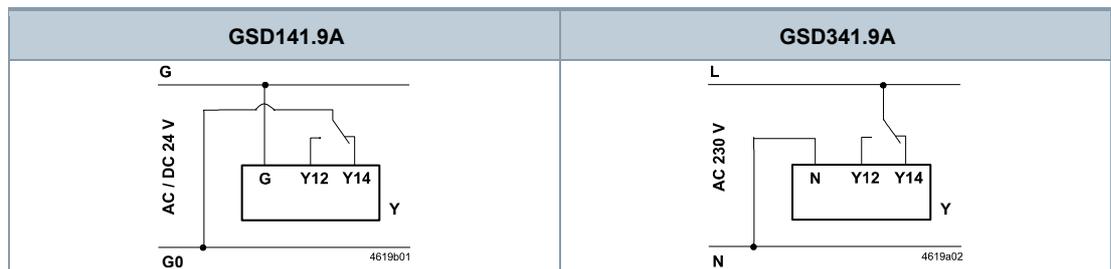
1) Documents can be downloaded at <http://www.siemens.com/bt/download>

## Connection diagrams

### Internal diagrams



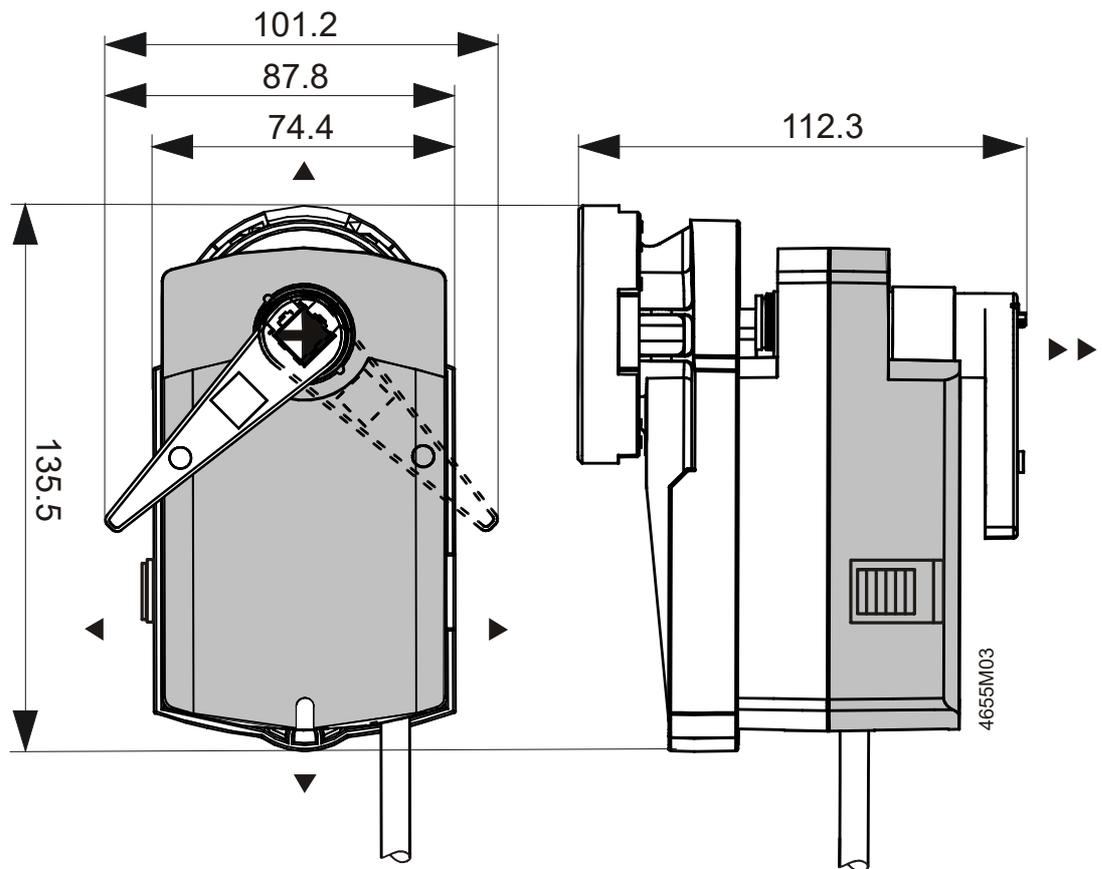
### Connection diagrams



### Cable designations

Connecting thread	Cable				Meaning
	Code	No.	Color	Abbreviation	
Rotary actuators AC 24 V ~ DC 24 V =	G	1	Red	RD	System potential AC 24 V / DC 24 V
	Y12	6	Purple	VT	Positioning signal "clockwise" AC/DC 0 V
	Y14	7	Orange	OG	Positioning signal "counter-clockwise" AC/DC 0 V
Rotary actuators AC 230 V ~	N	1	Blue	BU	Neutral conductor
	Y12	6	Black	BK	Positioning signal "clockwise" AC 230 V
	Y14	7	White	WH	Positioning signal "counter-clockwise" AC 230 V

**Actuator**

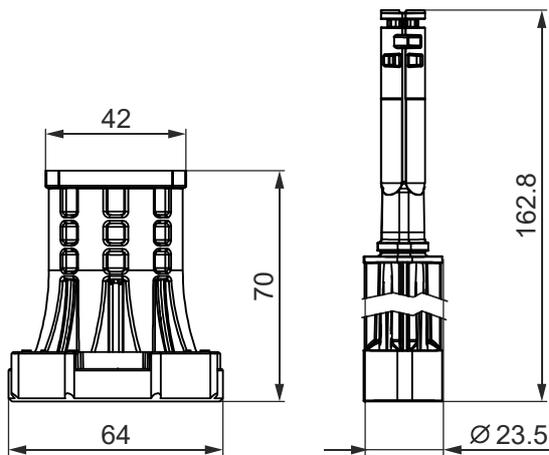


Dimensions in mm

- ▶ => 100 mm
- ▶ => 200 mm
- ▶

Min. clearance from ceiling or wall for mounting, connection, operation, maintenance, etc.

**Temperature adapter (optional)**



## Revision numbers

Type	Valid from rev. no.
GSD141.9A	..C
GSD341.9A	..C