

Pneumatic 4-inch Valve Actuator



Flowrite 4-inch Pneumatic Valve Actuator.

Description

Designed for use with the Flowrite valves, the Flowrite 4-inch Pneumatic Valve Actuator has a 3/4-inch (20 mm) stroke and is available in three spring ranges.

Features

- Three spring ranges
 - 3 to 8 psi
 - 5 to 10 psi
 - 10 to 15 psi
- Visual position indication
- 3/4-inch (20 mm) stroke
- Large diaphragm area for control accuracy
- Easy installation and removal
- Rugged, all-metal housing

Applications

The Flowrite 4-inch Pneumatic Valve Actuator is designed to be used with the Flowrite valves in liquid and steam service applications.

D-141

Valves

4-inch Pneumatic Actuator Specifications

Effective Diaphragm Area 11in.² (71 cm²)
 Diaphragm Material Silicone
 Nominal Stroke 3/4" (20 mm)
 Max. Diaphragm Pressure 35 psi (241 kPa)
 Air Connection 1/8" NPT

Ambient Operating and Storage Temperature 0 to 180°F (-18 to +85°C)
 Mounting Location NEMA 1 (interior only)
 Shipping Weight 2.5 lb. (1.1 kg)

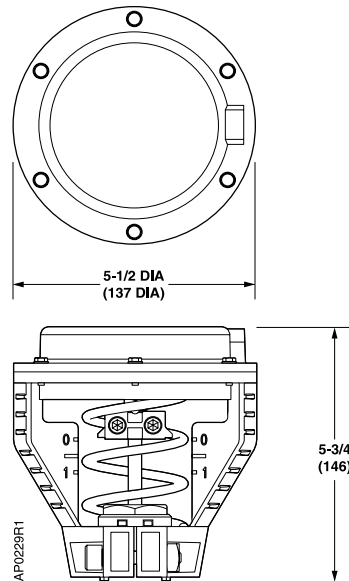
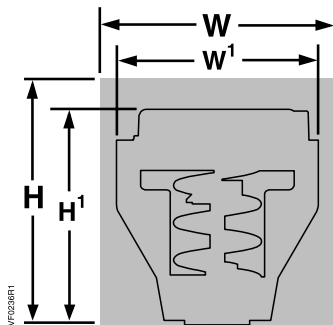
4-inch Pneumatic Actuator Product Ordering

Nominal Spring Range	Part No.	Actuator Prefix Code
3 to 8 psi (21 to 55 kPa)	599-01081	268
5 to 10 psi (34 to 69 kPa)	599-01082	269
10 to 15 psi (69 to 103 kPa)	599-01083	270

Dimensions

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Valves



Dimensions shown in inches (mm).

Actuator	Height of Actuator H¹	Service Height H	Width/Diameter of Actuator W¹	Service Width W
4" (100 mm)	5-3/4" (146 mm)	14" (350 mm)	5-1/2" (134 mm) Dia.	18" (450 mm)

Table Note

1. Recommended service dimensions to allow access to the product.

Pneumatic 8-inch Valve Actuator



Flowrite 8-inch
Pneumatic Valve Actuator.

Description

Designed for use with Flowrite valves, the Flowrite 8-inch Pneumatic Valve Actuator has a 3/4-inch (20 mm) stroke and is available with two diaphragm options for normal duty and high temperature service.

Features

- Completely enclosed actuator housing protects the diaphragm, spring, and start point adjuster
- A positioning relay is available factory-mounted or as an accessory
- Field-adjustable start point for sequencing
- Easy-to-install
- Legendary Flowrite performance

Option

- High temperature model

Applications

The Flowrite 8-inch Pneumatic Valve Actuator is designed to be used with the Flowrite valves in liquid and steam service applications.

D-143

Valves

8-inch Pneumatic Actuator Specifications

Effective Diaphragm Area 28 in.² (180 cm²)

Diaphragm Material
 Standard Buna-N
 High Temp Silicone Rubber

Temperature Range
 Normal Duty Service 25 to 300°F (-4 to 149°C)
 High Temperature Service 200 to 366°F (93 to 186°C)

Nominal Spring Range
 Standard Span 5 psi (34 kPa)
 High Temp Span 10 psi (69 kPa)
 Adjustable Start Point 3 to 10 psi (21 to 69 kPa)
 Factory Setting 3 to 8 psi (21 to 55 kPa)

Nominal Stroke 3/4" (20 mm)
Max. Diaphragm Pressure 35 psi (241 kPa)
Air Connection 1/8" NPT

Ambient Operating and Storage Temperature 35 to 180°F (2 to 85°C)
Mounting Location NEMA 1 (interior only)
Shipping Weight 8.7 lb. (4 kg)

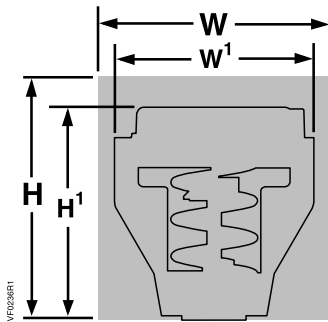
8-inch Pneumatic Actuator Product Ordering

Description	Span	Part No.	Actuator Prefix Code
Normal Duty			
Actuator	5 psi	599-01050	277
Actuator with factory-mounted positioner		599-01050 + 599-00426	283
High Temperature			
Actuator	10 psi	599-01051	278
Actuator with factory-mounted positioner		599-01051 + 599-00426	284

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Valves

Dimensions



Actuator	Height of Actuator H'	Service Height H	Width/Diameter of Actuator W'	Service Width W
8" (171 mm)	14-1/8" (359 mm)	26" (660 mm)	8-3/4" (222 mm) Dia.	21" (450 mm)

Table Note

1. Recommended service dimensions to allow access to the product.

Pneumatic 12-inch Valve Actuator



Flowrite 12-inch
Pneumatic Valve Actuator.

Description

Designed for use with Flowrite valves, the Flowrite 12-inch Pneumatic Valve Actuator is available with two stem strokes, 3/4-inch (20 mm) stroke and 1-1/2-inch (40 mm).

Features

- Completely enclosed actuator housing protects the diaphragm, springs, and start point adjuster
- A positioning relay is available factory-mounted or as an accessory
- Field-adjustable start point for sequencing
- Easy-to-install

Applications

The Flowrite 12-inch Pneumatic Valve Actuator is designed to be used with Flowrite valves in liquid and steam service applications.

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Valves

12-inch Pneumatic Actuator Specifications

Effective Diaphragm Area	90 in. ² (580 cm ²)
Diaphragm Material	Buna-N
Nominal Spring Range	
Fixed Span	5 psi (34 kPa)
Adjustable Start Point	3 to 10 psi (21 to 69 kPa)
Factory Setting	3 to 8 psi (21 to 55 kPa)
Nominal Stroke	3/4 or 1-1/2" (20 or 40 mm)
Max. Diaphragm Pressure	35 psi (241 kPa)

Air Connection	1/4" NPT
Medium Temperature	25 to 386°F (-4 to +186°C)
Ambient Operating and Storage Temperature	35 to 180°F (2 to 85°C)
Mounting Location	NEMA 1 (interior only)
Shipping Weight	53.0 lb. (24.0 kg)

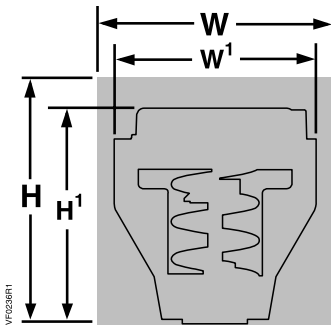
12-inch Pneumatic Actuator Product Ordering

Description	Part No.	Actuator Prefix Code
3/4" Stroke		
Actuator	599-01010	279
Actuator with factory-mounted positioner	599-01010 + 599-00423	285
1-1/2" Stroke		
Actuator	599-01000	281
Actuator with factory-mounted positioner	599-01000 + 599-00423	287

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Valves

Dimensions



Actuator	Height of Actuator H'	Service Height H	Width/Diameter of Actuator W'	Service Width W
12" (305 mm)	17-7/8" (454 mm)	30" (762 mm)	15-1/8" (384 mm) Dia.	27" (686 mm)

Table Note

1. Recommended service dimensions to allow access to the product.

SQX Valve Actuator

24 Vac, Proportional Control

0 to 10 Vdc or 4 to 20 mA
Non-Spring Return



Flowrite
SQX Valve Actuator.

Description

Designed for use with Flowrite with a 3/4-inch (20 mm) stroke, the Flowrite SQX Electronic Actuator requires a 24 Vac supply, and receives a 0 to 10 Vdc or 4 to 20 mA control signal to proportionally control the valve; available as non-spring return only.

Features

- Direct-coupled installation requires no special tools or adjustments
- Visual and electronic stroke indication
- Die-cast aluminum housing
- Manual override
- Self-lubricating bearing and gear train
- Non-spring return
- 150 lb. (700 N) nominal force
- Automatic calibration
- Automatic duty cycle protection
- Electromechanical switches protect components from overload and stall condition
- Maintenance-free

Applications

The Flowrite SQX Electronic Valve Actuator is designed to be used with the Flowrite and other valves in liquid and steam service applications. They are ideal for installations requiring quick response and good rangeability.

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Valves

SQX Actuator Specifications

Operating Voltage 24 Vac \pm 20%

Frequency 50/60 Hz

Power Consumption 18 VA

Control Signals

Control Input (Y)

Voltage..... 0 to 10 Vdc

Current.....0.1 mA max.

Control Input (R)

Current..... 4 to 20 mA

Max. Impedance..... 250 Ohms

Control Output (U)

Voltage.....0 to 10 Vdc

Current.....0.5 mA max.

Control Output (U)

Current..... 4 to 20 mA

Max. Impedance.....250 Ohms

Function

Nominal Stroke 3/4" (20 mm)

Run Time 35 sec.

Nominal Force 150 lb. (700 N)

Agency Approvals UL873
CSA C22.2 No. 24-93

Operating

Operating Temperature 5 to 131°F (-15 to +55°C)

Transport and Storage Temperature -22 to +149°F (-30 to +65°C)

Ambient Humidity 0 to 90% RH, non-condensing

Media Temperature to 285°F (140°C)

Conduit Opening 1/2" (13 mm) NPSM

Mounting Location NEMA 1 (interior only)

Shipping Weight 3.5 lb. (1.6 kg)

SQX Actuator Product Ordering

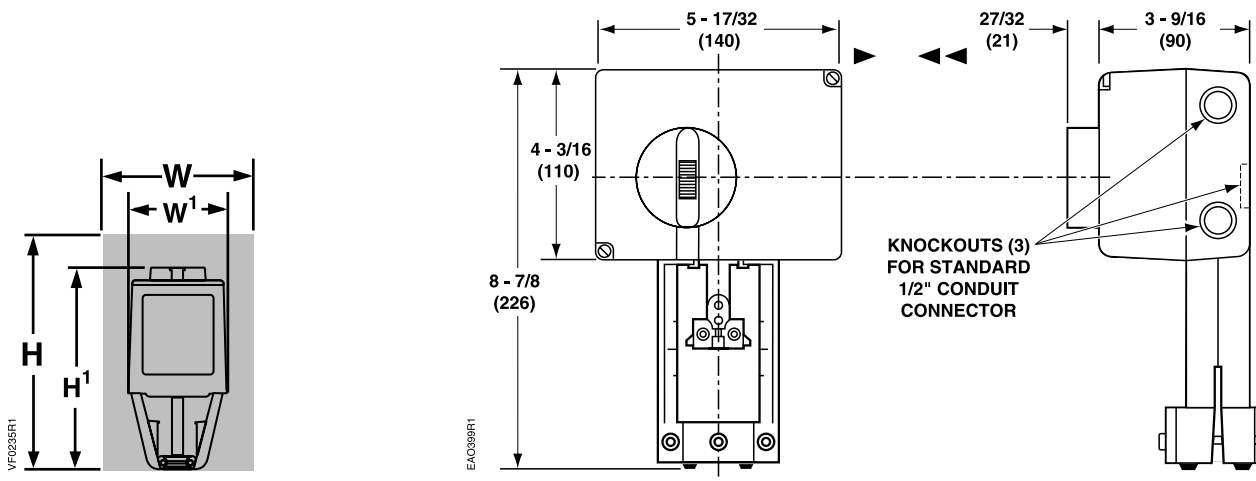
Nominal Spring Range	Part No.	Actuator Prefix Code
24 Vac Proportional	SQX62U	271



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Valves

Dimensions



Dimensions shown in inches (mm).

Actuator	Height of Actuator H ¹	Service Height H	Width/Diameter of Actuator W ¹	Service Width W
SQX	8-7/8" (226 mm)	17" (430 mm)	5-17/32" (140 mm) Width 4-3/8" (111 mm) Depth	13-1/2" (340 mm)

Table Note

1. Recommended service dimensions to allow access to the product.



Part No. in black box Ships same day when requested through Rapid Response™ shipping. See inside back cover for details.



SQX Valve Actuator

24 Vac, Floating

Non-spring Return



Flowrite
SQX Valve Actuator.

Description

Designed for use with Flowrite and other standard valves with a 3/4-inch (20 mm) stroke, the Flowrite SQX Electronic Valve Actuator receives a floating control signal to provide floating control of the valve; available with non-spring return only.

Features

- Direct-coupled installation requires no special tools or adjustments
- Visual and electronic stroke indication
- Die-cast aluminum housing and yoke
- Manual override
- Self-lubricating bearing and gear train
- 150 lb. (700 N) nominal force
- Automatic calibration
- Electro-mechanical switches protect components from overload and stall condition
- Maintenance-free

Applications

The Flowrite SQX Electronic Valve Actuator with 24 Vac floating control is designed to be used with Flowrite and other valves in liquid and steam service applications. They are ideal for installations requiring quick response and good rangeability.

D-149

Valves

SKD Valve Actuator

24 Vac, Proportional Control

0 to 10 Vdc or 4 to 20 mA
Spring Return



Flowrite SKD
Valve Actuator.

Description

Designed for use with the Flowrite and other standard valves with a 3/4" (20 mm) stroke, the Flowrite SKD Electronic Valve Actuator receives a 0 to 10 Vdc or 4 to 20 mA control signal to proportionally control the valve. The actuators are available with standard or advanced functionality.

Features

Standard (U)

- Direct-coupled installation requires no special tools or adjustments
- Visual and electronic stroke indication
- Die-cast aluminum housing
- 250 lb. (1150 N) nominal force
- 0 to 10 Vdc or 4 to 20 mA
- Integral feedback
- Manual override
- Spring return to fail-safe position
- Maintenance-free

Advanced (UA)

- Adjustable start and span
- Stroke limit control
- Selectable operation direction (direct or reverse acting)
- Choice of linear or equal percentage flow characteristics
- Designed to be used with other manufacturer's valves with the appropriate Universal Valve Retrofit Kit

Applications

The Flowrite SKD Electronic Valve Actuator requires a 24 Vac supply and is designed to be used with Flowrite and other standard valves in liquid and steam service applications.

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Valves

SKD Actuator Specifications

Operating Voltage 24 Vac \pm 20%

Frequency 50/60 Hz

Power Consumption
SKD62U/UA 18 VA (12 W)

Control Signals

Control Input (Y)
Voltage 0 to 10 Vdc
Current 0.1 mA max.

Control Input (R)
Resistance 0 to 1000 Ohms
Voltage 0 to 1.6 V

Control Input (R)
Current 4 to 20 mA
Max. Impedance 250 Ohms

Control Output (U)
Voltage 0 to 10 Vdc
Current 0.5 mA max.

Control Output (U)
Current 4 to 20 mA
Max. Impedance 250 Ohms

Function

Nominal Stroke 3/4" (20 mm)
Run Time with Control Operation (Full Stroke)
Power Stroke, 0 to 100% 30 sec.
Return Stroke, 100 to 0% 15 sec.

Nominal Force
NC and 3-way Upper
Stroke 0%
Force 225 lbs. (1000 N)

NO and 3-way By Pass
Stroke 0%
Force 258 lbs. (1150 N)

Agency Approvals UL873
cUL CSA C22.2 No. 24-93
CE
N474

Operating
Ambient Temperature 5 to 130°F (-15 to +55°C)
Media Temperature 14 to 300°F (-10 to +150°C)

Conduit Opening 1/2" (13 mm) NPSM

Housing NEMA 1 (interior only)

Shipping Weight
SKD62U 7.5 lb. (3.4 kg)
SKD62UA 8.5 lb. (3.85 kg)

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SKD Actuator Product Ordering

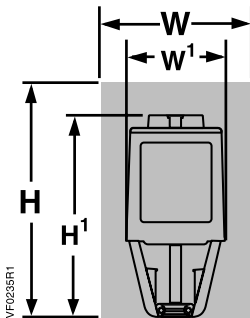
Description	Part No.	Actuator Prefix Code
24 Vac, Proportional Control	SKD62U	274
24 Vac, Proportional Control with advanced features	SKD62UA	—

Ordering Note

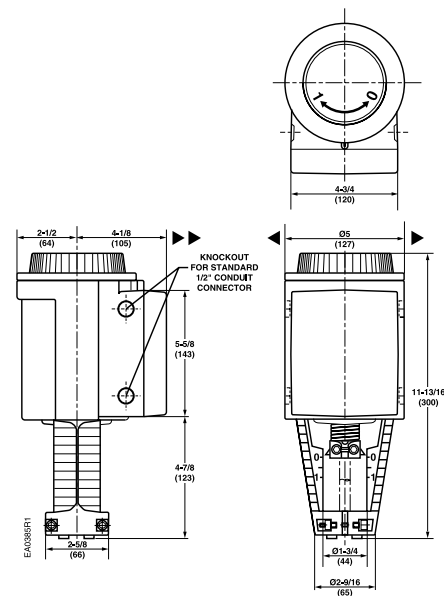
The SKD62UA can be used with other manufacturer's valves with the appropriate Universal Valve Linkage Kit.

Valves

Dimensions



Dimensions shown in inches (mm).



Actuator	Height of Actuator H ¹	Service Height H	Width/Diameter of Actuator W ¹	Service Width W
SKD	11-13/16" (300 mm)	19-3/4" (430 mm)	6-5/8" (170 mm) Width	14-1/2" (360 mm)

Table Note

1. Recommended service dimensions to allow access to the product.

SKD Valve Actuator

24 Vac, Floating Control

Spring Return or Non-spring Return



Flowrite KD
Valve Actuator.

Description

Designed for use with Flowrite and other standard valves with a 3/4-inch (20 mm) stroke, the Flowrite SKD Electronic Valve Actuator requires 24 Vac supply to provide floating control of a valve.

Features

- Direct-coupled installation requires no special tools or adjustments
- Visual and electronic stroke indication
- Die-cast aluminum housing
- 250 lb. (1150 N) nominal force
- Integral feedback
- Manual override
- Spring return available for fail-safe position
- Maintenance-free

Applications

The Flowrite SKD Electronic Valve Actuator with 24 Vac, floating control is designed to be used with Flowrite and other standard valves in liquid and steam service applications.

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Valves

SKD Actuator Specifications

Operating Voltage	24 Vac ±20%
Frequency	50/60 Hz
Power Consumption	
SKD82.50U	10 VA
SKD82.51U	15 VA
Control Signal	Floating
Function	
Nominal Stroke	3/4" (20 mm)
Run Time with Control Operation (full stroke)	
Power Stroke, 0 to 100% @ 60 Hz	90 sec.
Return Stroke, 100 to 0% @ 60 Hz	90 sec.
Spring Return (SKD 82.51U only)	8 sec.

Spring Return	8 sec.
Nominal Force	
NC and 3-way Upper	
Stroke	0%
Force	225 lbs. (1000 N)
NO and 3-way By Pass	
Stroke	100%
Force	258 lbs. (1150 N)

Agency Approvals UL873
 CSA C22.2 No. 24-93

Operating

Ambient Temperature	5 to 130°F (-15 to +55°C)
Media Temperature	14 to 300°F (-10 to +150°C)

Conduit Opening 1/2" (13 mm) NPSM

Mounting Location NEMA 1 (interior only)

Shipping Weight 7.5 lb. (3.4 kg)

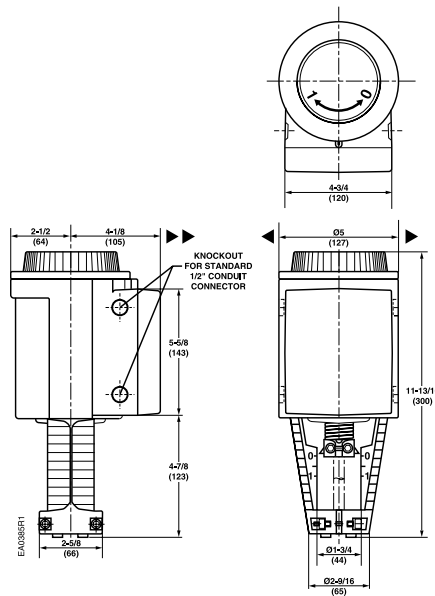
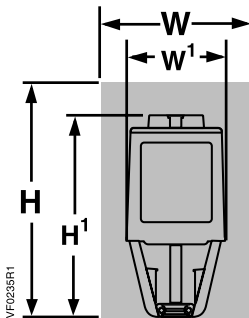
SKD Actuator Product Ordering

Description	Part No.	Actuator Prefix Code
Non-spring Return	SKD82.50U	275
Spring Return	SKD82.51U	276

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Valves

Dimensions



Dimensions shown in inches (mm).

Actuator	Height of Actuator H ¹	Service Height H	Width/Diameter of Actuator W ¹	Service Width W
SKD	11-13/16" (300 mm)	19-3/4" (430 mm)	6-5/8" (170 mm) Width	14-1/2" (360 mm)

Table Note

1. Recommended service dimensions to allow access to the product.

Electro-Mechanical Rack and Pinion Actuator

24 Vac, Proportional Control

0 to 10 Vdc or 2-position
Spring Return



Flowrite Electronic Rack and Pinion.

Description

The Flowrite Electronic Rack and Pinion is designed for use with 1/2- to 3-inch Flowrite two- and three-way valves with a 3/4-inch stroke. A linkage fastens the actuator and the valve body together and transforms the rotary movement of the actuator output shaft to the linear motion required to position the valve.

Features

- Brushless DC motor technology with stall protection
- Bi-directional fail-safe spring return
- All metal housing
- UL and C-UL listed
- Spring return to fail-safe position

Applications

The Flowrite Valves and Valve Actuators are used to control water and glycol solutions to 50 percent in small to large air handling units and central plant applications.

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Valves

Rack and Pinion Specifications

Power Supply

Operating Voltage24 Vac, +20%, -15%
 Frequency 50/60 Hz
 Power Consumption
 599-03609 assembly
 (with GCA161.1U actuator) 9 VA running, 5 VA holding
 599-03611 assembly
 (with GCA121.1U actuator) 8 VA running, 3 VA holding
 Equipment Rating Class 2, in accordance with UL/CSA

Control Signal (599-03609 assembly with GCA161.1U actuator)
 Input Signal
 Voltage Input 0 to 10 Vdc (max. 35 Vdc)
 Input Resistance 100K Ohms
 Current Input 4 to 20 mA
 Input Resistance 500 Ohms
 Position Output Feedback Signal 0 to 10 Vdc, ±1 mA maximum

Mounting

Nominal Angle of Rotation 90°
 Maximum Angular Rotation 95°
 Noise Level <45 dBA (running)
 Enclosure NEMA 2 in vertical to horizontal 90

Ambient Operating Temperature -25 to +130° F (-32 to +55°C)

Storage and Transport Temperature -25 to +158° F (-32 to +70°C)

Ambient Humidity 95% RH, non-condensing

Agency Certification UL873
 C-UL certified to Canadian Standard C22.2 No. 24-93

Pre-connected Cable 18 AWG, 3 ft. (0.9 m)

Rack and Pinion Product Ordering

Description	Part No.	Actuator Prefix Code
0 to 10 Vdc, SR	599-03609	298
2-position, SR	599-03611	299
Bracket Only	599-03610	—

Table Note

The linkage, OpenAir Actuator, and Flowrite Valve are available as an assembly. Refer to: *TB 249, Flowrite Valve and Actuator Assembly Selection Technical Bulletin*, 155-304P25 for details and product numbers.

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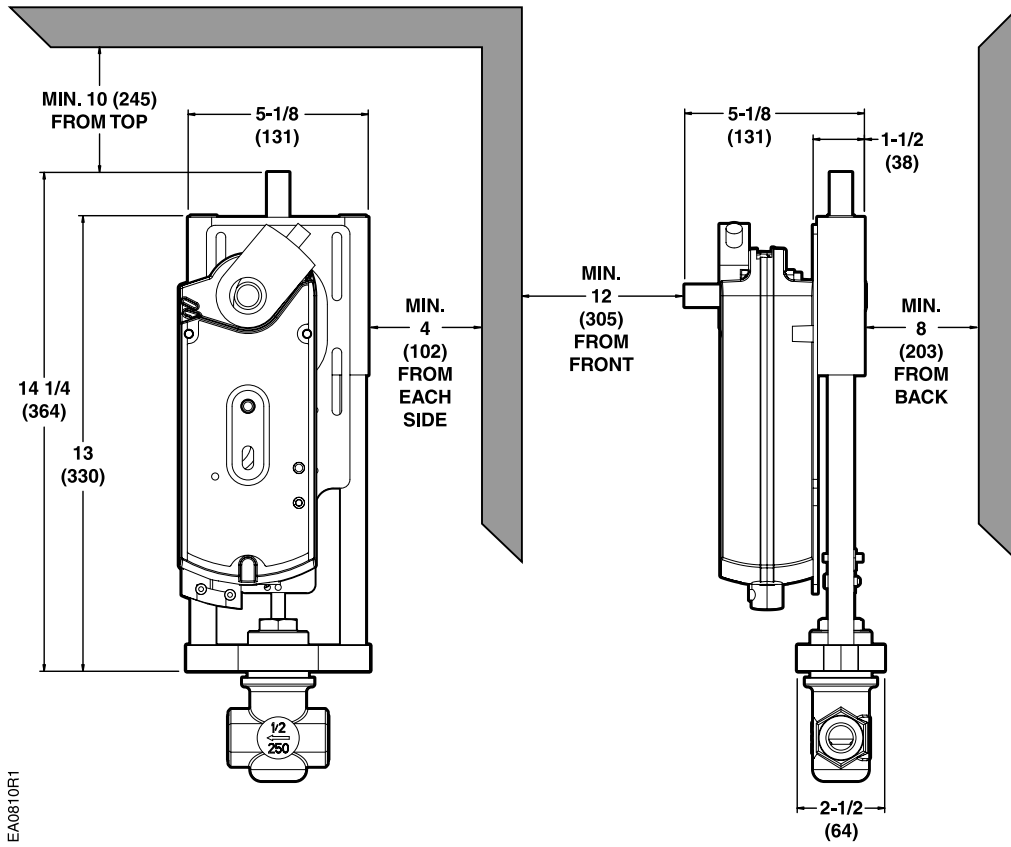
Valves

Accessories & Service Kits

D-219

Dimensions

Normal Duty Application as Shipped from Factory



Dimensions shown in inches (mm).

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Valves

FREE Valve Tagging

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SKB/SKC Valve Actuator

24 Vac, Proportional Control

0 to 10 Vdc or 4 to 20 mA
Spring Return



Flowrite SKB/SKC
Valve Actuator.

Description

Designed for use with Flowrite and other standard valves with a 3/4-inch and 1-1/2-inch (20 and 40 mm) strokes, the Flowrite SKB/SKC Electronic Valve Actuator receives a 0 to 10 Vdc or 4 to 20 mA control signal to proportionally control the valve. Those actuators are available with standard or advanced functionality.

Features

Standard (U)

- Direct-coupled installation requires no special tools or adjustments
- Visual and electronic stroke indication
- Die-cast aluminum housing
- Highest close-off in the industry
- 3/4-inch stroke (SKB)
- 1-1/2-inch stroke (SKC)
- 1000 lb. (4400 N) nominal force
- Manual override
- Spring return to fail safe position
- Maintenance-free

Advanced (UA)

- Adjustable start and span
- Stroke limit control
- Selectable operation direction (direct or reverse acting)
- Choice of linear or equal percentage flow characteristics
- Designed to be used with other manufacturer's valves with the appropriate Universal Valve Retrofit Kit

Applications

The Flowrite SKB/SKC Electronic Valve Actuator with proportional control is designed to be used with Flowrite and other standard valves with a 3/4-inch and 1-1/2-inch (20 and 40 mm) strokes in liquid and steam service applications.

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Valves

SKB/SKC Specifications

Nominal Stroke	
SKB62U/UA.....	3/4" (20 mm)
SKC62U/UA.....	1-1/2" (40 mm)
Operating Voltage	24 Vac ±20%
Frequency	50/60 Hz
Power Consumption	
SKB62U/UA.....	18 VA (12 W)
SKC62U/UA.....	28 VA (20 W)
Control Signals	
Control Input (Y)	
Voltage.....	0 to 10 Vdc
Current.....	0.1 mA max.
Control Input (R)	
Resistance.....	0 to 1000 Ohms
Voltage.....	0 to 1.6 V
Control Input (R)	
Current.....	4 to 20 mA
Max. Impedance.....	250 Ohms

Control Output (U)	
Voltage.....	0 to 10 Vdc
Current.....	0.5 mA max.
Control Output (U)	
Current.....	4 to 20 mA
Max. Impedance.....	250 Ohms
Run Time with Control Operation (full stroke)	
Opening.....	2 min.
Closing with Spring	
SKB62U.....	15 sec.
SKC62U.....	20 sec.

Conduit Opening	1/2" (13 mm) NPSM
Nominal Force	
NC and 3-way Upper	
Stroke	0%
Force	610 lbs. (2684 N)
NO and 3-way By Pass	
Stroke	100%
Force	1000 lbs. (4400 N)
Agency Approvals	UL873
	cUL CSA C22.2 No. 24-93
	CE
	N474

SKB/SKC Product Ordering

Description	Part No.	Actuator Prefix Code
3/4" Stroke		
Standard Features	SKB62U	291
Advanced Features	SKB62UA	—
1-1/2" Stroke		
Standard Features	SKC62U	294
Advanced Features	SKC62UA	—

Ordering Note

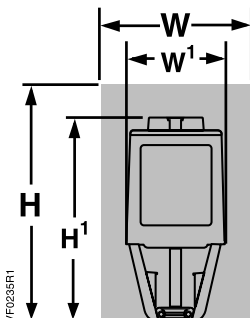
The SKB/UA can be used with other manufacturer's valves with the appropriate Universal Valve Linkage Kit.

Enclosure	NEMA 1 (interior only)
Operating	
Ambient Temperature	5 to 130°F (-15 to +55°C)
Media Temperature	14 to 300°F (-10 to +150°C)
Mounting Location	NEMA 1 (interior only)
Shipping Weight	
SKB62U.....	18.5 lb. (8.4 kg)
SKB62UA.....	18.9 lb. (8.6 kg)
SKC62U.....	21.4 lb. (9.7 kg)
SKC62UA.....	22.5 lb. (10.0 kg)

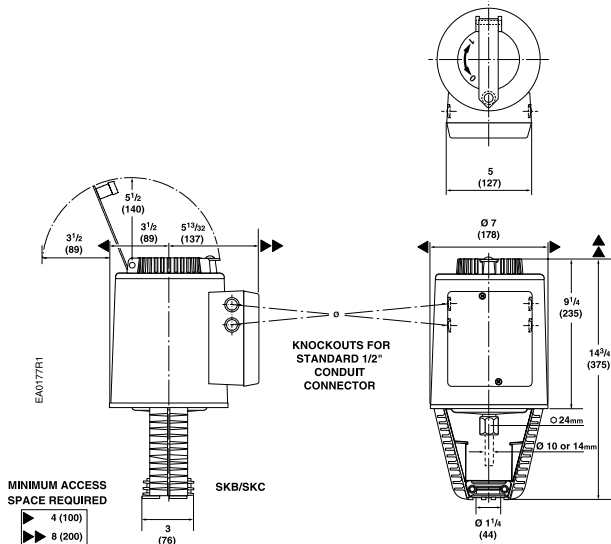
D-160

Valves

Dimensions



Dimensions shown in inches (mm).



Actuator	Height of Actuator H ¹	Service Height H	Width/Diameter of Actuator W ¹	Service Width W
SKB/SKC	14-3/4" (375 mm)	22-3/4" (578 mm)	7" (178 mm) Width x 8-15/16" (226 mm) Depth	25" (635 mm)

Table Note

1. Recommended service dimensions to allow access to the product.

SKB/SKC Valve Actuator

24 Vac, Floating Control

Spring Return or Non-spring Return



Flowrite SKB/SKC
Valve Actuator.

Description

Designed for use with Flowrite and other standard valves with 3/4-inch and 1-1/2-inch (20 mm and 40 mm) strokes, the Flowrite SKB/C Electronic Valve Actuator requires a 24 Vac supply to control the valve.

Features

- Direct-coupled installation requires no special tools or adjustments
- Visual and electronic stroke indication
- Die-cast aluminum housing
- Manual override
- Spring return to fail-safe position available
- Maintenance-free
- 1000 lb. (4400 N) nominal force

Applications

The Flowrite SKB/SKC Electronic Valve Actuator with floating control is to be used with Flowrite and other standard valves with a 3/4-inch and 1-1/2-inch (20 mm and 40 mm) strokes in liquid and steam service applications.

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Valves

