

KINITICS VALVE ACTUATOR KVA38

The KVA38 Valve Actuator

Powering Reliability with Kinitics Automation

The KVA38 is a versatile general-purpose globe valve actuator designed to meet the needs of the energy and process control industries. The KVA38 is ideal for use in throttling and snap-acting control applications and serves as the perfect replacement for pneumatic actuators.

- Low maintenance design
- Spring-biased electric actuator
- Certified to operate in hazardous locations



Intertek

Hazloc ratings:
USA: Class I, Zone 1, AEx db IIA, T6 Gb
CA: Class I, Zone 1, Ex db IIA, T6 Gb



KINITICS
AUTOMATION

PRODUCT DATA SHEET



General Specifications

| All Configurations | Unit | |
|--------------------------------|----------|--|
| Rated Thrust ¹ | N [lb·f] | 3800 [854] |
| Operating Voltage | V | 24DC and 120AC versions available |
| Temperature Range ¹ | °C [°F] | -40 to 50 [-40 to 122] |
| Precision | µm [in] | 100 [0.004] |
| Maximum Duty Cycle | % | 100 |
| Conduit Connection Size | | 1/2" NPT (x2) |
| Fail Position | | Fails closed on loss of power or signal |
| Hazloc Rating | | Canada & US Class I, Zone 1 AEx db IIA T6 Gb |
| Inputs | | Position Command • Valve Open |
| Outputs | | Position Feedback • Valve Open • Status |
| Serial Communication | | Modbus RTU |

¹ See "Operating Details"

DC Actuator Specifications

| | Unit | KVA38-13-D2 | KVA38-19-D2 | KVA38-29-D2 |
|---|---------|-------------|-------------|-------------|
| Rated Stroke | mm [in] | 13 [1/2] | 19 [3/4] | 29 [1-1/8] |
| Operating Voltage | V | 24VDC | 24VDC | 24VDC |
| Average Power (Throttling) ² | W | 80 | 90 | 100 |
| Idle Power | W | 2 | 2 | 2 |
| SMA Inrush Current ² | A | 31 | 36 | 25 |
| Max. Stem Speed | mm/s | 1.1 | 1.2 | 1 |

² See "Power Consumption"

AC Actuator Specifications

| | Unit | KVA38-13-A1 | KVA38-19-A1 | KVA38-29-A1 |
|---|---------|-------------|-------------|-------------|
| Rated Stroke | mm [in] | 13 [1/2] | 19 [3/4] | 29 [1-1/8] |
| Operating Voltage | V | 120VAC | 120VAC | 120VAC |
| Average Power (Throttling) ² | W | 80 | 90 | 100 |
| Idle Power | W | 2 | 2 | 2 |
| SMA Inrush Current ² | A | 8 | 12 | 8 |
| Max. Stem Speed | mm/s | 1.1 | 1.2 | 1.4 |

² See "Power Consumption"

Electrical Ratings

| Parameters | Units | DC Actuators | | AC Actuators | | |
|-------------------------|---------------------------------------|--------------|------|--------------|-----|----|
| | | Min | Max | Min | Max | |
| Operating Voltage Range | V | 20.4 | 28.8 | 108 | 132 | |
| Inputs: | 4-20mA Position Command | V | 7.5 | 36 | 7.5 | 36 |
| | Valve Open Command | V | 20 | 32 | 20 | 32 |
| Outputs | 4-20mA Position Feedback ³ | V | 7.5 | 36 | 7.5 | 36 |
| | Valve Open Feedback ³ | V | 20 | 32 | 20 | 32 |
| | Status Indicator ³ | V | 20 | 32 | 20 | 32 |
| Serial | RS485 | V | -7 | 12 | -7 | 12 |

³ User Supplied Source

Operating Details

The KVA is a motorless actuator that uses a shape memory effect to modulate stem position. Its operation differs from motorized valve actuators in some key respects.

Unpowered Position: A reliable mechanical compression spring maintains the KVA in the closed (extended) position whenever power or a signal is not present. As this action requires no electricity, full rated force is applied in the unpowered state.

Deadband: The KVA's motorless design and mechanical biasing spring effectively eliminate deadband.

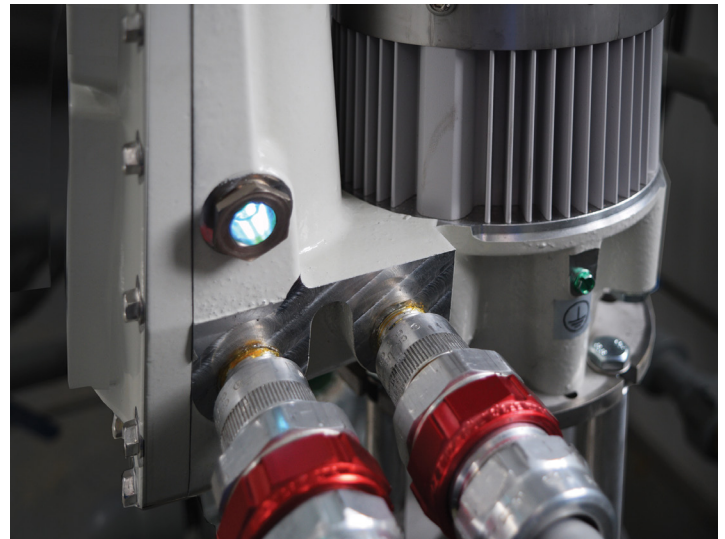
Duty Cycle: The KVA uses Shape Memory Alloy technology to achieve 100% duty cycle capabilities without increasing power usage or wear. Unlike with motorized actuators, operators can achieve maximum productivity by eliminating control loop deadband.

Elevated Temperature Effects: The KVA uses the thermo-mechanical properties of SMA to lift and lower the stem.

Extreme sustained external temperatures can cause unintentional actuation. Ambient temperatures above 40°C may temporarily reduce closing thrust.

SMA Inrush Current: The KVA uses thermomechanical properties of SMA to lift and lower the stem. SMA inrush currents are experienced when a high-speed movement is requested. Users can restrict the maximum current through software. See "Power Consumption."

KVA38 highlighting the indicator light, conduit entry ports, and external grounding screw for easy monitoring and safety.





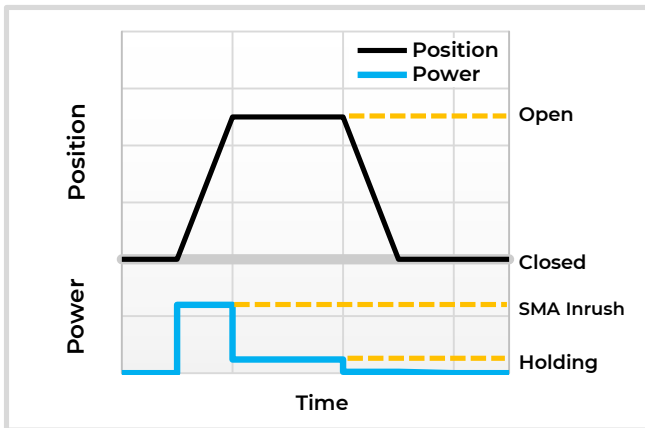
Power Consumption

Kinetics recognizes the power limitations common to remote installations. The KVA's maximum power consumption can be adjusted by the user through Modbus commands. Reducing power draw will reduce the maximum stem speed.

The KVA draws up to peak SMA Inrush current when making fast lifting motions. For small adjustments such as in position-holding and throttling applications, power draw is minimized. See snap acting and throttling example applications.

Due to the KVA's unique architecture, there is no power penalty for making continuous small adjustments versus maintaining one position. This eliminates the need for an artificial deadband and delivers the best-in-class process response.

Snap-Acting Application



Terminology Definitions

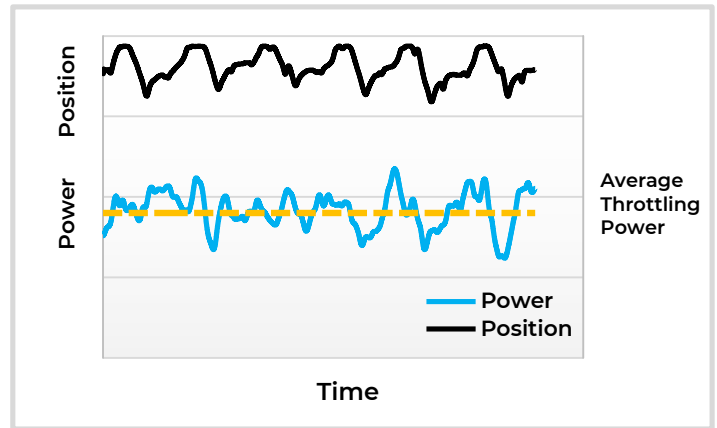
SMA Inrush: Peak input current for sudden lifting commands in an SMA actuator.

Idle Power: The continuous energy consumption in the closed state.

Throttling: Sustained actuator motion for maintaining flow rate or pressure.

Snap-Acting: Actuator operation in binary open or closed states, without intermediate positions.

Throttling Application



Snap-Acting Average Power Usage (Watts)⁴

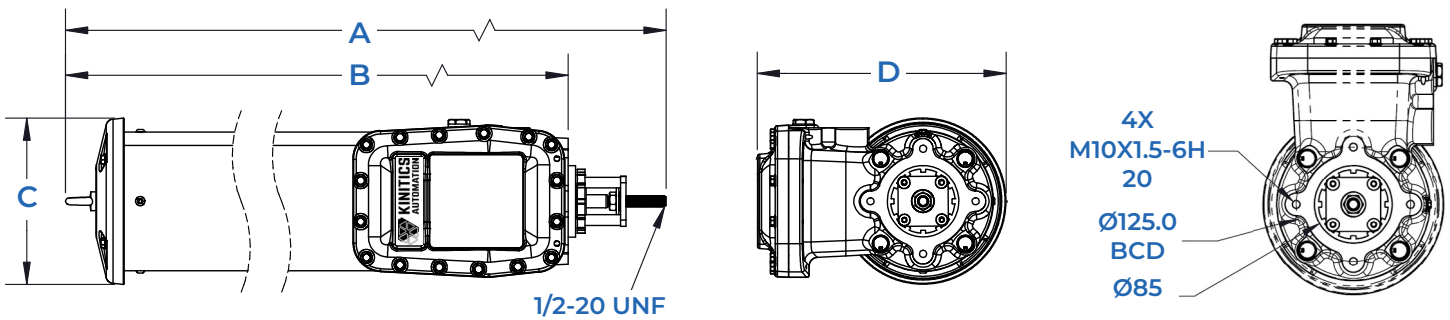
| Minutes between cycles | 2 | 4 | 6 | 8 | 10 | 15 | 20 | 30 |
|------------------------|-----|----|----|----|----|----|----|----|
| KVA38-13 | 46 | 23 | 15 | 12 | 9 | 6 | 5 | 3 |
| KVA38-19 | 85 | 42 | 28 | 21 | 17 | 11 | 8 | 6 |
| KVA38-29 | 133 | 67 | 44 | 33 | 27 | 18 | 13 | 9 |

⁴ Actuator lifting to full stroke

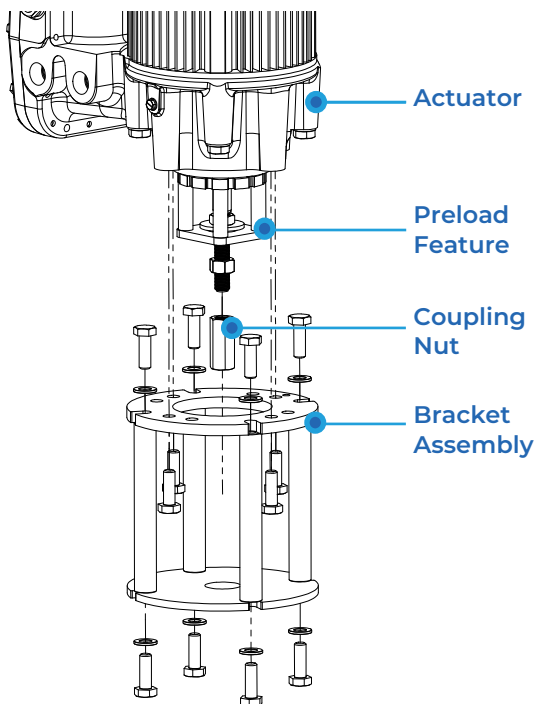
KVA38

Dimensional Information & Mounting

The KVA is available with optional mounting brackets that facilitate mating to the most common globe valves. The actuator must be mounted vertically and can be easily lifted by the included eye bolt.



| | Weight (kg) | A (mm) | B (mm) | C (mm) | D (mm) |
|----------|-------------|--------|--------|--------|--------|
| KVA38-13 | 24 | 927 | 848 | 192 | 293 |
| KVA38-19 | 29 | 1181 | 1096 | 192 | 293 |
| KVA38-29 | 37 | 1562 | 1467 | 192 | 293 |





Separator Application Example:

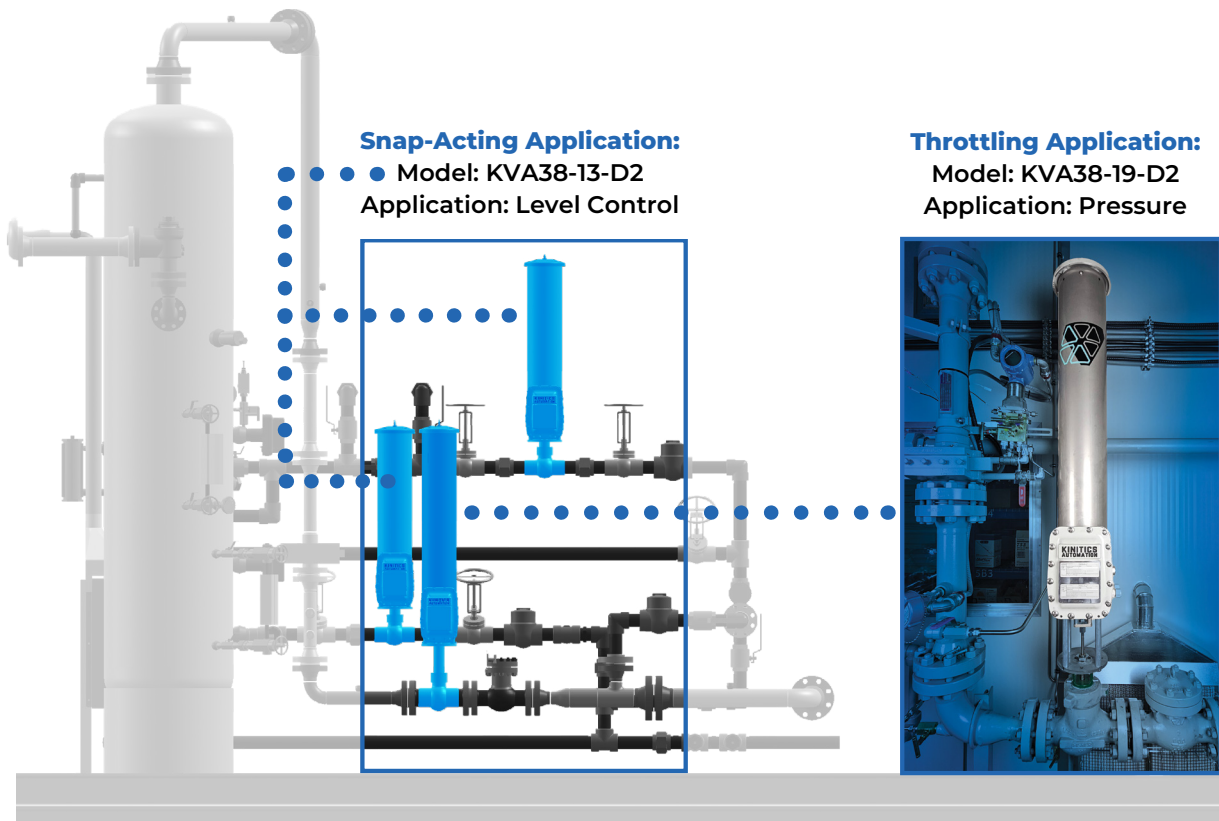
A robust, maintenance-free solution designed for safety, reliability, and superior performance in harsh environments.

Mechanical Spring: Fail-closed on loss of power or signal with a mechanical spring design for maximum safety.

Zero-Maintenance Design: Motorless design and simple installation. Fully electric, compatible with 24VDC & 120VAC.

Built For Harsh Environments: Certified to operate in hazardous locations in both US and Canada.

Shape Memory Alloy Technology: Superior to electric motors and pneumatics in throttling applications.



Snap-Acting Application:

● ● ● Model: KVA38-13-D2
Application: Level Control

Throttling Application:

Model: KVA38-19-D2
Application: Pressure

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