
JFLOW CONTROLS®

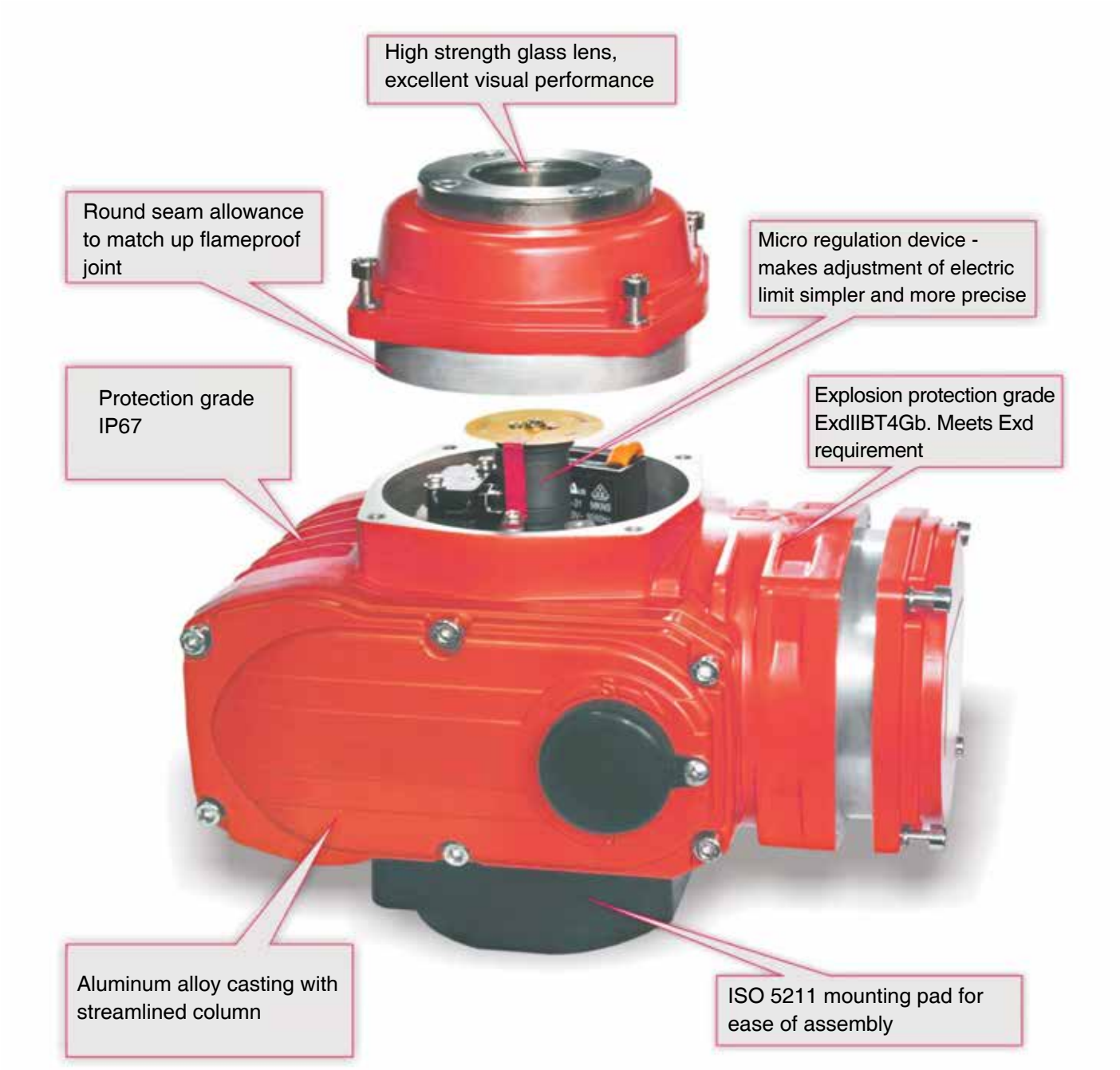
# J Flow Controls JFEE Series

## Anti-Explosion Electric Actuator

## *FEATURES & BENEFITS*

- Used for potential explosive environments
- Anti-Explosion Grade ExdIIBT4Gb
- Match with angle stroke valve
- Protection Class IP67

# Overview

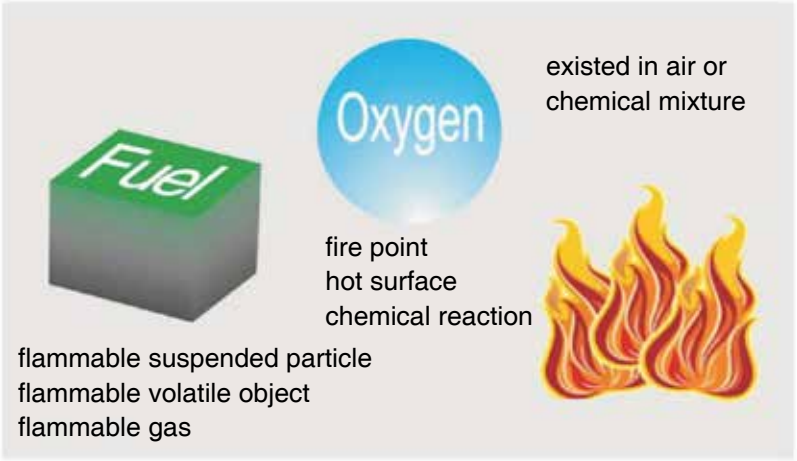

High strength glass lens, excellent visual performance
Round seam allowance to match up flameproof joint
Micro regulation device - makes adjustment of electric limit simpler and more precise
Protection grade IP67
Explosion protection grade ExdIIBT4Gb. Meets Exd requirement
Aluminum alloy casting with streamlined column
ISO 5211 mounting pad for ease of assembly

# Overview

### WHAT IS AN EXPLOSION?

The precondition causing explosion is that explosive material must mix with oxygen in some proportion and cause a chemical reaction under proper ignition conditions. It will be defined Explosion if reaction speed exceed sound velocity.

When explosive mixture run up to a certain extent, it will explode suddenly and cause destructive effects in the form of explosive wave.




### WHAT IS AN ANTI-EXPLOSION?

Explosion can be prevented if any of the above conditions occurred. In many working sites, explosive material and oxygen are difficult to avoid, so the ignition source should be restricted.

The electric equipment is a potential ignition source, this results in an elevated surface temperature, ESD or an electric spark caused by transient current when the machine is running.

| | | Temperature Group | | | | | |
|---|---|---|---|---|---|---|---|
| | | T1 (842°F) | T2 (572°F) | T3 (392°F) | T4 (275°F) | T5 (212°F) | T6 (185) |
| Magnitude of explosive | IIA | Acetone, ethane, ammonia, benzene, acetic acid, carbinol, propane, methyl benzene | Alcohol, butane, butanol, ethene, dichloro ethane | Benzeme, diesel oil, aviation gasoline, ethane, fuel | Aldehyde | | |
| | IIB | Gas | Ethene Ethylene Oxygen | | Ether | | |
| | IIC | Hydrogen | Ethyne | | | | Carbon, Disulfide |

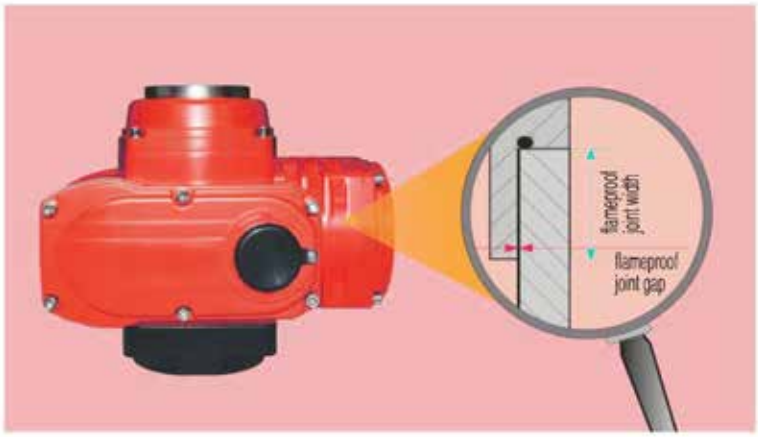
# How To Perform Anti-Explosion

There are different ways to make electric equipment suitable for an explosive environment. There are detailed descriptions of these ways in standards GB3836. OEC60079. EN50014.

The JFEE Anti-explosion Series Electric Actuator is manufactured as a type of Exd and matches up to requirements of standards GB3836.1-2010, GB3836.2-2010.

**Exd**

Exd actuators allow interior explosion, the flameproof joint of the casing is designed to prevent the contact of interior sparks or explosive carrier with the outside. Appropriate flameproof joint gap and adequate flameproof joint width can assure this. At the same time, a hard casing can withstand high pressure caused by interior explosion without being damaged.




The following components of the JFEE Series are designed and manufactured by the standard of Exd.

- Electric Motor Cavity
- Electronic Component Cavity
- Connection Cavity

**Anti-explosion Grade**

The anti-explosion grade of the JFEE Series is: ExdIIBT4Gb:

Ex - anti-explosion identification
D - explosion-proof type
II - electric equipment designed for other explosive gas atmosphere except for colliery
T4 - highest surface temperature allowed of an actuator is 275°F
Gb - protection grade

**How to use and maintain the equipment**

Operation such as installation, adjustment, maintenance, repair and replacement must be performed by a trained and qualified explosion-proof professional and must be strictly performed according to the Installation & Maintenance of electric equipment.

## Product Type List of JFEE Explosion-proof Series Electric Actuator

| Actuator Type | Standard Time/Torque | Optional Time/Torque | Turning Angle (Max. Range) | Total Weight | Power Supply | Selected Control Circuit |
|---|---|---|---|---|---|---|
| JFEE-Ex05 | 20S/37 ft/lbs | 4S/14 ft/lbs<br>10S/22 ft/lbs<br>60S/37 ft/lbs | 0 ~ 360°<br>Adjustable | 6.6 lbs | DC24V<br>AC24V<br>AC110V<br>AC220V<br>AC380V | Types of A/B/C/D/E/F/G/H |
| JFEE-Ex10 | 30S/73 ft/lbs | 15S/37 ft/lbs<br>60S/73 ft/lbs | 0 ~ 90°<br>Adjustable | 11.0 lbs | DC24V<br>AC24V / AC110V<br>AC220V / AC380V | Types of A/B/C/D/E/F/G/H |
| JFEE-Ex20 | 30S/147 ft/lbs | 15S/73 ft/lbs<br>60S/147 ft/lbs | 0 ~ 90°<br>Adjustable | 12.1 lbs | DC24V / AC110V<br>AC220V / AC380V | |
| JFEE-Ex40 | 30S/195 ft/lbs | 15S/147 ft/lbs<br>60S/195 ft/lbs | 0 ~ 90°<br>Adjustable | 20.9 lbs | DC24V<br>AC110V<br>AC220V<br>AC380V | Types of A/B/C/D/E/F/G/H |
| JFEE-Ex60 | 45S/442 ft/lbs | | 0 ~ 90°<br>Adjustable | 22.0 lbs | | |

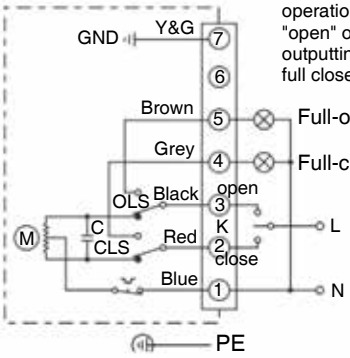
## Valve Match (For Reference Only)

| Actuator Type | Butterfly Valve (≤PN1.0MPa) | Ball Valve (≤PN1.6MPa) | Vent Valve (≤PN0.1MPa) |
|---|---|---|---|
| JFEE-Ex05 | 2" ~ 2-1/2" | 1-1/2" | 2" ~ 3" |
| JFEE-Ex10 | 3" ~ 4" | 2" ~ 2-1/2" | 4" ~ 8" |
| JFEE-Ex20 | 5" ~ 6" | 3" ~ 4" | 10" ~ 12" |
| JFEE-Ex40 | 8" | 5" | 14" ~ 18" |
| JFEE-Ex60 | 10" | 6" | 20" ~ 24" |

Note: The electric actuator and valve data listed in the table above is for reference only. The actual data will be based on the torque values provided by customer.

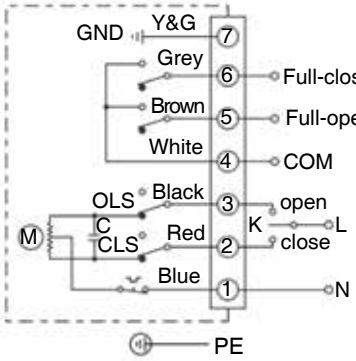
Due to many categories of valves, the torque values are different from each other. Even if the same type of specifications are given, there could be some differences in structural form and quality of material of valves. Opening torques for valves can change greatly based of the differences of media type, site conditions, working conditions, and pressure fluctuation. In order to ensure the actuator works correctly and reliably, it is necessary to have enough allowance in selection. It is suggested to have 1.1 ~ 1.3 allowance factor which is: output torque/torque of valve tested with pressure ≥ 1.1 ~ 1.3 times.

## Type A: With Limit Switch (Active Contact)



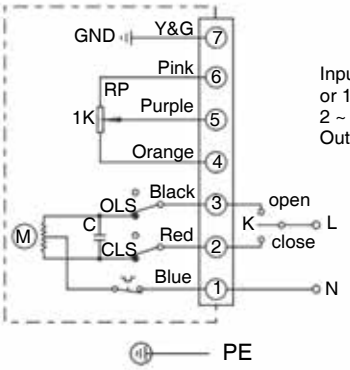

The opening or closing operation is realized by switching "open" or "close" the circuit, outputting a group of full open or full close active signals

## Type B: With Middle Switch (Passive Contact)



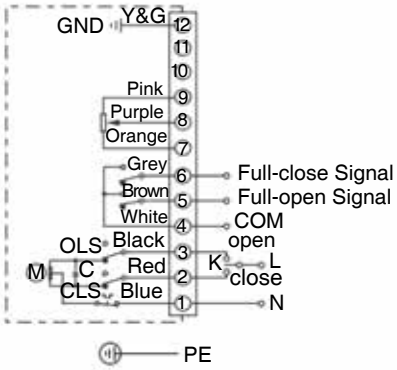

The opening or closing operation is realized by switching "open" or "close" the circuit, outputting full open or close passive signal

## Type C: With 1KΩ (or 500Ω) Potentiometer



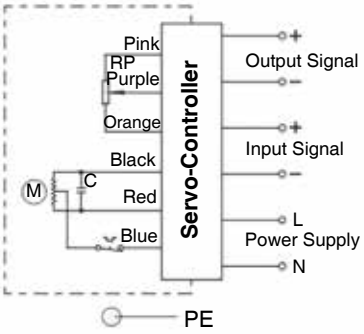

Input: 4 ~ 20mA DC
or 1~ 5V DC;
2 ~ 10V DC
Output: 4 ~ 20mA DC

## Type D: Position Switch w/Potentiometer & Passive Contact



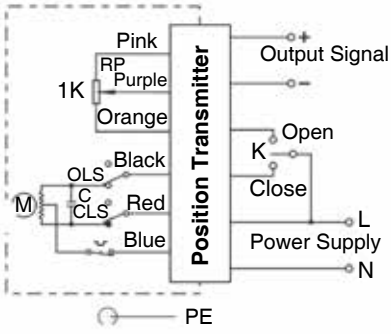

The opening or closing operation is realized by switching "open" or "close" the circuit, outputting resistance signals corresponding to the opening position, and at the same time, outputting a group of "Full-close" and "Full-open" passive signals

## Type E: With Servo Controller (Adjusting Type)



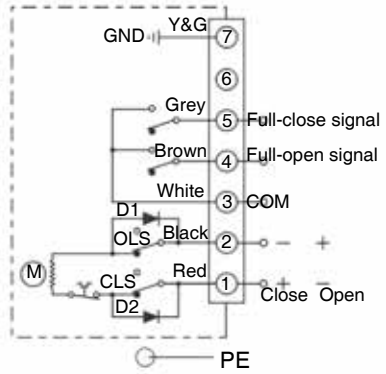

Input: 4 ~ 20mA DC
or 1~ 5V DC;
2 ~ 10V DC
Output: 4 ~ 20mA DC

## Type F: With Position Transmitter



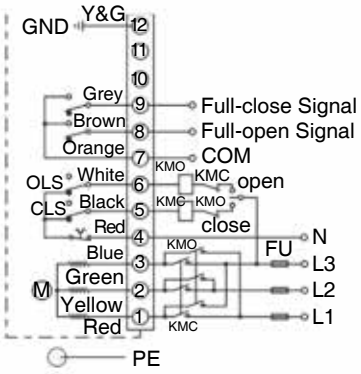

To output signal of 4 ~ 20mA DC for valve (full-range feedback for valve)

## Type G: DC Control Circuit w/Passive Contact Switch




According to the single conductivity of diode, the opening and the closing operation can be realized by means of the exchange of the positive pole and the negative pole of DC Power Supply and output a group of full open and close passive signals

## Type H: 3-phase AC Control Circuit w/Passive Contact Switch




By means of the external phase - reversing circuit, the "open" or "close" operation can be realized for running normally or in reverse of motor and output a group of full open or close passive signal

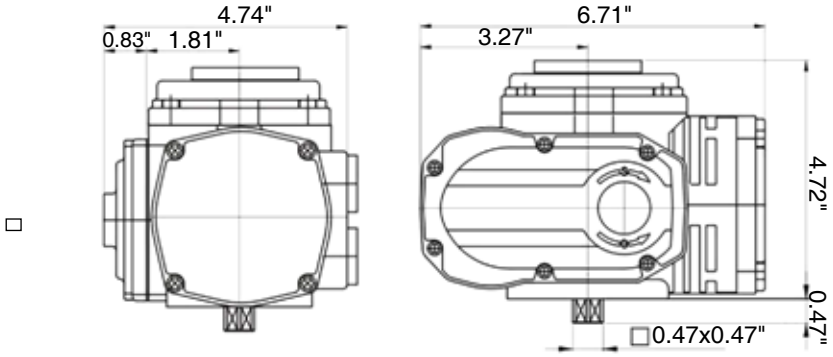
# Dimensions & Performance Parameters JFEE-Ex05

**Explosion-proof standard type**

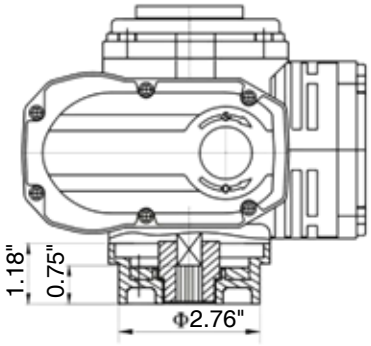
**Explosion-proof direct installation type**

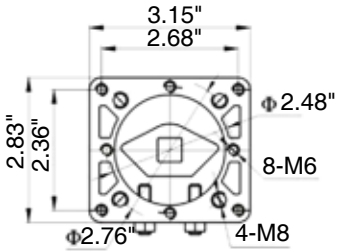
| Performance Parameters \ Type / Power | JFEE - Ex05 | | | | |
|---|---|---|---|---|---|
| | **DC24V** | **AC24V** | **AC110V** | **AC380V** | **AC220V** |
| Motor Power | 13W | 10W | 10W | 6W | 10W |
| Rated Current | 1.82A | 1.50A | 0.24A | 0.07A | 0.15A |
| Standard Time/Torque | 20S/37 ft/lbs | | | | |
| Optional Time/Torque | 4S/14 ft/lbs 10S/22 ft/lbs | | | 4S/14 ft/lbs 10S/22 ft/lbs 60S/36 ft/lbs | |
| Turning Angle | 0 ~ 360° Adjustable | | | | |
| Available Control Circuit | Types of A, B, C, D, E, F, G, H | | | | |
| Total Weight | 6.6 lbs | | | | |
| Insulating Resistance | DC24/AC24V 100MΩ/250VDC AC110V/AC220V/AC380V 100MΩ/500VDC | | | | |
| Withstand Voltage Class | DC24/AC24V 500VAC 1 minute, AC110V/AC220V: 1500VAC 1 minute, AC380V: 1800VAC 1 minute | | | | |
| Protection Class | IP67 | | | | |
| Explosive-proof grade | Exd II BT4Gb | | | | |
| Installation Angle | 360° at any angle | | | | |
| Electric Interface | 2-M20x1.5 explosion-proof plug, clients should install corresponding explosion-proof cable connector when using according to the cable selected | | | | |
| Ambient Temperature | -4°F ~ 140°F | | | | |
| Optional Function | Heater for eliminating moisture | | | | |

## Explosion-proof standard type

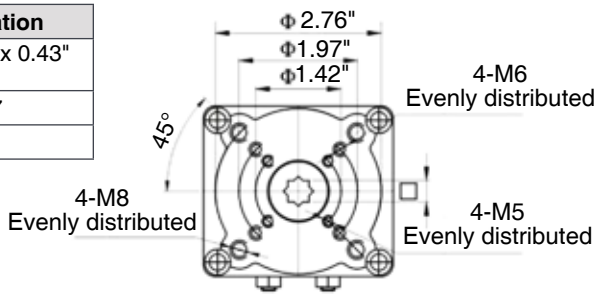



## Explosion-proof direct installation type



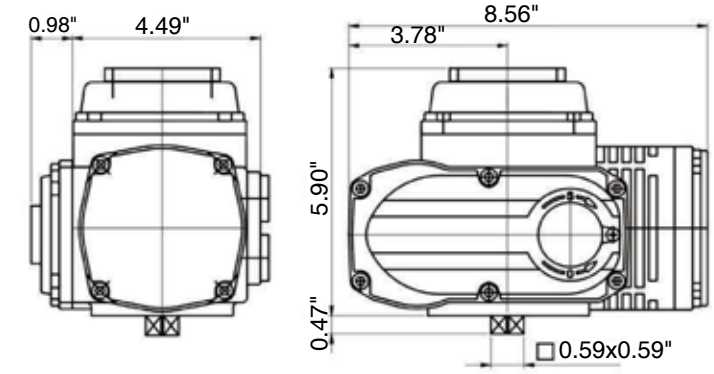

| Parameters for direct installation | |
|---|---|
| Square | □0.35" x 0.35" □0.43" x 0.43" □0.55" x 0.55" |
| Flange | F03 F05 F07 |
| Valve stem | Height ≤ 0.75" |

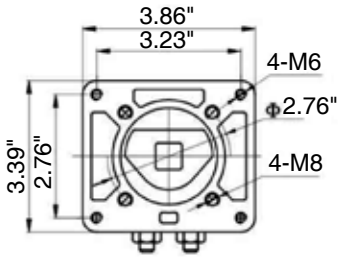


# Dimensions & Performance Parameters JFEE-Ex10/20

| Performance Parameters \ Type / Power | JFEE - Ex10 | | | | | JFEE - Ex20 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | DC24V | AC24V | AC110V | AC380V | AC220V | DC24V | AC110V | AC380V | AC220V |
| Motor Power | 25W | 25W | 25W | 15W | 25W | 25W | 40W | 30W | 40W |
| Rated Current | 2.20A | 2.12A | 0.57A | 0.10A | 0.30A | 3.12A | 0.63A | 0.19A | 0.35A |
| Standard Time/Torque | 30S/37 ft/lbs | | | | | 60S/147 ft/lbs | 30S/147 ft/lbs | | |
| Optional Time/Torque | 15S/37 ft/lbs | | | | 15S/37 ft/lbs<br>60S/74 ft/lbs | 30S/74 ft/lbs | 15S/74 ft/lbs | | 15S/74 ft/lbs<br>60S/147 ft/lbs |
| Turning Angle | 0 ~ 90° Adjustable | | | | | | | | |
| Available Control Circuit | Types of A, B, C, D, E, F, G, H | | | | | | | | |
| Total Weight | 11 lbs | | | | | 12 lbs | | | |
| Insulating Resistance | DC24/AC24V 100MΩ/250VDC AC110V/AC220V/AC380V 100MΩ/500VDC | | | | | | | | |
| Withstand Voltage Class | DC24/AC24V 500VAC 1 minute, AC110V/AC220V: 1500VAC 1 minute, AC380V: 1800VAC 1 minute | | | | | | | | |
| Protection Class | IP67 | | | | | | | | |
| Explosive-proof grade | Exd II BT4Gb | | | | | | | | |
| Installation Angle | 360° at any angle | | | | | | | | |
| Electric Interface | 2-M20x1.5 explosion-proof plug, clients should install corresponding explosion-proof cable connector when using according to the cable selected | | | | | | | | |
| Ambient Temperature | -4°F ~ 140°F | | | | | | | | |
| Optional Function | Over-torque Protector, Heater for eliminating moisture | | | | | | | | |

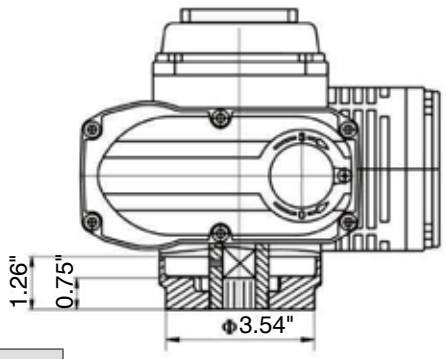
## Explosion-proof standard type

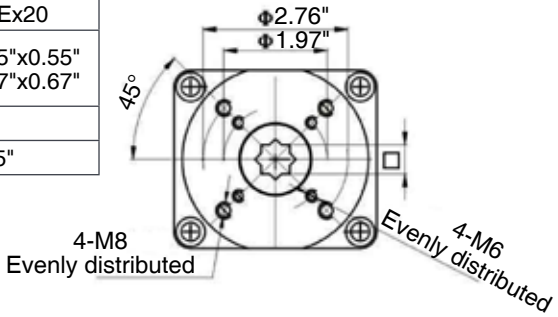



| Parameters for direct installation | | |
|---|---|---|
| | Ex10 | Ex20 |
| Square | □ 0.35"x0.35<br>□0.51"x0.51"<br>□0.67"x0.67" | □0.55"x0.55"<br>□0.67"x0.67" |
| Flange | F05 F07 | |
| Valve stem | Height ≤ 0.75" | |

## Explosion-proof direct installation type

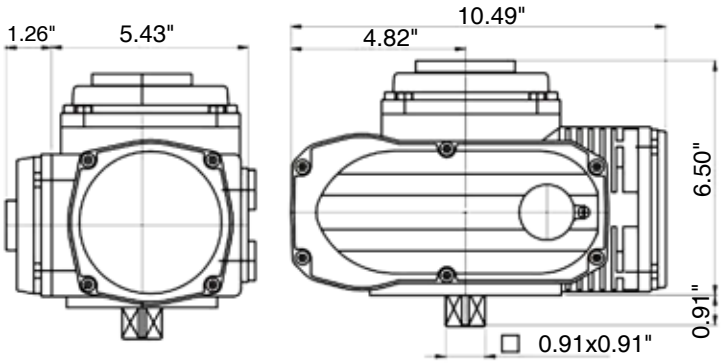


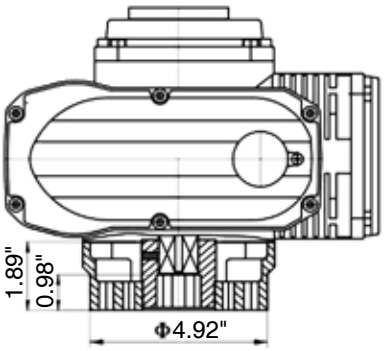
# Dimensions & Performance Parameters JFEE-Ex40/60

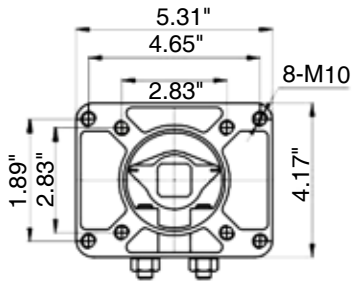
| Performance Parameters \ Type / Power | JFEE - Ex40 | | | | JFEE - Ex60 | | | |
|---|---|---|---|---|---|---|---|---|
| | DC24V | AC110V | AC380V | AC220V | DC24V | AC110V | AC380V | AC220V |
| Motor Power | 70W | 90W | 40W | 90W | 70W | 90W | 40W | 90W |
| Rated Current | 7.80A | 1.12A | 0.29A | 0.64A | 8.00A | 1.18A | 0.29A | 0.67A |
| Standard Time/Torque | 30S/37 ft/lbs | | | | 45S/442 ft/lbs | | | |
| Optional Time/Torque | 30S/147 ft/lbs | | | 15S/147 ft/lbs<br>60S/295 ft/lbs | | | | |
| Turning Angle | 0 ~ 90° Adjustable | | | | | | | |
| Available Control Circuit | Types of A, B, C, D, E, F, G, H | | | | | | | |
| Total Weight | 21 lbs | | | | 22 lbs | | | |
| Insulating Resistance | DC24/AC24V 100MΩ/250VDC AC110V/AC220V/AC380V 100MΩ/500VDC | | | | | | | |
| Withstand Voltage Class | DC24/AC24V 500VAC 1 minute, AC110V/AC220V: 1500VAC 1 minute, AC380V: 1800VAC 1 minute | | | | | | | |
| Protection Class | IP67 | | | | | | | |
| Explosive-proof grade | Exd II BT4Gb | | | | | | | |
| Installation Angle | 360° at any angle | | | | | | | |
| Electric Interface | 2-M20x1.5 explosion-proof plug, clients should install corresponding explosion-proof cable connector when using according to the cable selected | | | | | | | |
| Ambient Temperature | -4°F ~ 140°F | | | | | | | |
| Optional Function | Over-torque Protector, Heater for eliminating moisture | | | | | | | |

## Explosion-proof standard type

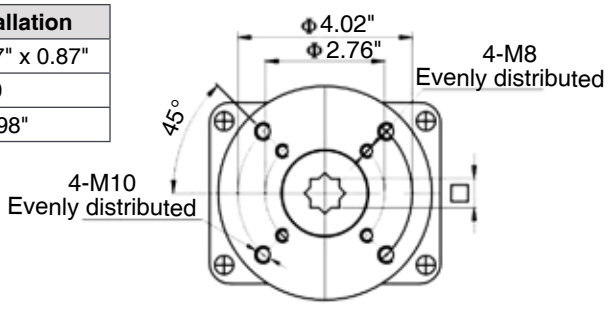



## Explosion-proof direct installation type




| Parameters for direct installation | |
|---|---|
| Square | □0.67" x 0.67" 0.87" x 0.87" |
| Flange | F07 F10 |
| Valve stem | Height ≤ 0.98" |



# Performance Parameters on Anti-explosion Adjusting (Type E)

| Performance Parameters \ Type / Power | JFEE - Ex05E | JFEE-Ex10E | JFE-Ex20E | JFE-Ex40E | JFE-Ex60E |
|---|---|---|---|---|---|
| | AC110V/AC220V | | | | |
| Output Torque | 37 ft/lbs | 74 ft/lbs | 148 ft/lbs | 295 ft/lbs | 443 ft/lbs |
| Acting Time | 20S | 30S | 30S | 30S | 45S |
| Turning Angle | 0~90° | 0~90° | 0~90° | 0~90° | 0~90° |
| Motor Power | 10W | 25W | 40W | 90W | 90W |
| Rated Current | 0.24/0.15A | 0.57/0.30A | 0.63/0.35A | 1.12/0.64A | 1.18/0.67A |
| Total Weight | 7 lbs | 11 lbs | 12 lbs | 21 lbs | 22 lbs |
| Input Signal | 4 ~ 20mADC, 1~5VDC, 2~10 VDC | | | | |
| Output Signal | 4~20mADC | | | | |
| Basic Error | not more than ± 1% | | | | |
| Reciprocating Error | No more than 1% | | | | |
| Dead Space | 0.5% - 5.0% adjustable | | | | |
| Damping Characteristic | 0 times | | | | |
| Repeating Error in Actuator | ≤1% | | | | |
| Insulating Resistance | 100mΩ/5000VDC | | | | |
| Withstand Voltage Class | 1500VAC 1 minute | | | | |
| Protection Class | IP67 | | | | |
| Explosion-proof grade | Exd II BT4Gb | | | | |
| Installation Angle | 360° at any angle | | | | |
| Electric Interface | 2-M20x1.5 explosion-proof plug, clients should install corresponding explosion-proof cable connector when using according to the cable selected | | | | |
| Ambient Temperature | -4°F ~ 140°F | | | | |
| Optional Function | Over-torque Protector, Dehumidify Heater, Passive contact switch | | | | |
| Remark | Any other input or output signal needed, please specify in purchase order | | | | |

Anti-explosion
Electric Control Valve

Anti-explosion
Electrically Actuated
Butterfly Valve

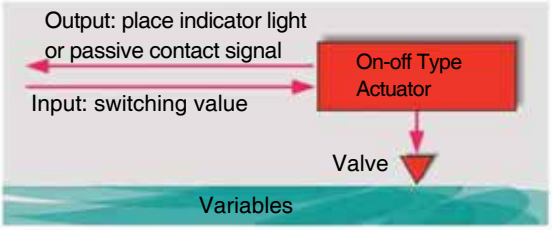
# Equipment & Function

## On-off Type Actuator

**Control circuit of Type A, B, D, G, H**

On-off type has only Full-open and Full-close limit positions. You can preset middle position (type B, D, G, H) if needed. Actuator will drive valve to Full-open or Full-close or middle position, etc. when receiving proper command.

Adopt the S2 short-time duty, the time of continuous operate less than 15 minutes.

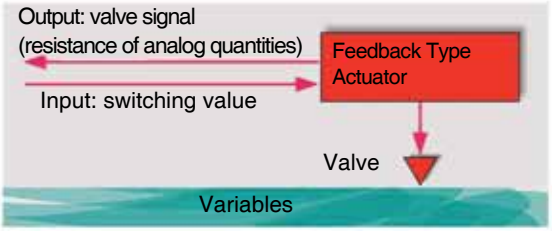



## Feedback Type Actuator

**Control circuit of Type C, D, F**

During the actuator drives valve, it will full-range feedback valve signal to Central Control System at the same time, type C, D feedbacks valve signal of resistance quantity, type F feedbacks valve signal of analog quantity.

Adopt the S2 short-time duty, the time of continuous operate less than 15 minutes.

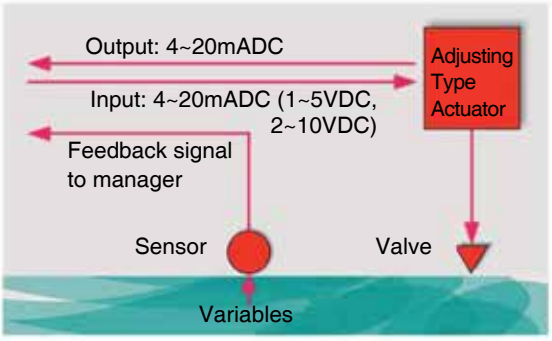



## Adjusting Type Actuator

**Control Circuit of Type E**

The Servo-Controller is located inside of the actuator. It receives command of the Central Control System and drives valve to proper opening Position according to varying conditions of Variables (Flow, Pressure, Temperature, Fluid Level) in the pipe.

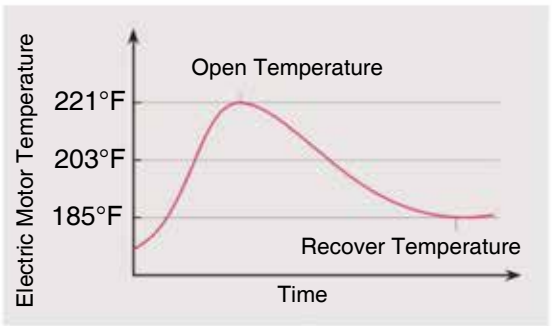
Adopt character of service of S4 Intermittent Type, working frequency reaches 1200 times/hour.




## Electric Motor

Electric motors of JFEE Series electric actuator have some particular designs. Electric motor of actuator has higher starting torque. This is due to the working characteristic of valve; the actuator is required to have full-load starting ability at the opening, closing and any other intermediate positions. At the same time, electric motor of actuator has less rotation inertia because of the need for adjustment of the flow (opening range).

Actuator stifled causes a rapid rise in temperature of the motor. For protecting electric motor and control system, PTC overheating protector located in electric motor winding will switch off the circuit when the temperature up to 221°F, the circuit will recover through when temperature drops to 176°F ~ 194°F.



# Equipment & Function

## Servo Controller

The unique circuit design, imported technical grade electronic parts and components and modern technology of the circuit board for the JFEE Series ensures high quality and reliability of the Servo-Contoller. The circuit board with resin plastic packaging makes shock and humidity resistance better. The unique electronic brake function makes the actuator dead-beat when position is fixed, the period of damping character is zero times (Standard: less than 3.5 times).

## Micro Regulation Device of Electric Limit Stroke

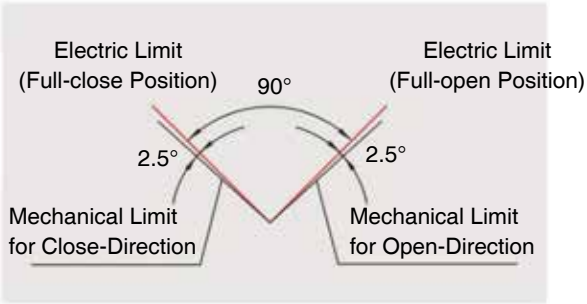
It is very easy to adjust open-direction and close-direction electric limit strokes of actuator with a hexagon spanner because of unique patent technology of the JFEE Series. The unique micro regulation function makes adjustment of electric limit stroke more precise.

## Electric & Mechanical Limit Function

The function of the electric limit: The electric limit switch located inside the actuator will switch off the circuit to protect actuator when actuator reaches Full-open and Full-close limit positions or any given position between them.

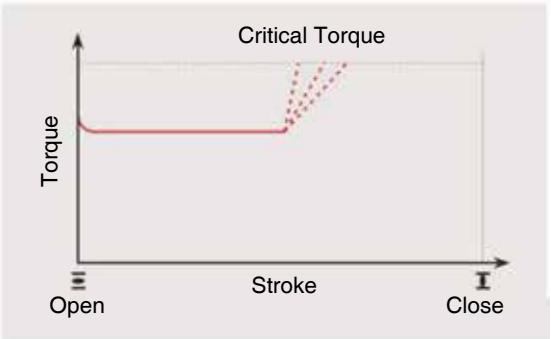
Mechanical limit function of output shaft: when the electric limit function is out of work, the output shaft of actuator will be locked in by mechanical limit device to protect valve from damage.

The graphical representation is position relation of electric limit and mechanical limit.




## Over-Torque Protection Function (optional)

When valve is stuck in the working position because of impurity and foreign matters in the pipe or other causes, the output torque of the actuator will rise rapidly to a critical valve (preset), the torque switch will switch off the circuit to protect valve and actuator from damage.



# Certificate of Compliance

**Certificate:** 80118462 **Master Contract:** 603889

**Project:** 80118462 **Date Issued:** 2022-04-25

**Issued To:** **J Flow Controls**
**4665 Interstate Drive**
**Cincinnati, Ohio 45246**
**United States**

**Attention: Steve Hacker**

***The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.***

**Issued by:** Morton Ma
Morton Ma

C US

**PRODUCTS**

**CLASS - C322802 -** VALVES Actuators - For Hazardous Locations
**CLASS - C322882 -** VALVES Actuators - For Hazardous Locations-Certified to U.S. Standards

**Class I, Division 1, Groups C and D T5/T6**
**Ex db IIC T5/T6 Gb**
**Class I, Zone 1, AEx db IIC T5/T6 Gb**

**APPLICABLE REQUIREMENTS**

JFEE series explosion-proof actuator with Temp. Code is T5/T6, -13°F - +131°F/+122°F (-25ºC ≤ Tamb ≤ 55ºC/50ºC), Motorized, Part-turn 90 Deg, General purpose, 6000 cycles, enclosure TYPE 4X for indoor and outdoor.

The rating as below:

| Series | Models | Vol. [V] | Fre. [Hz] | Rat. Torque [N-m] | Duty cycle |
|---|---|---|---|---|---|
| JFEE Series | JFEE-005-20V1-B | 110 VAC | 50/60 | 50 | 70% |
| | JFEE-005-20V7-B | 24 VAC | 50/60 | | 70% |
| | JFEE-005-20V6-B | 220 VAC | 50/60 | | 70% |
| | JFEE-005-20V1-EMT | 110 VAC | 50/60 | | 70% |
| | JFEE-005-20V6-EMT | 220 VAC | 50/60 | | 70% |
| | JFEE-005-20V2-G | 24 VDC | -- | | 70% |
| | JFEE-005-20V2-GMT | 24 VDC | -- | | 70% |
| | JFEE-010-30V1-B | 110 VAC | 50/60 | 100 | 70% |
| | JFEE-010-30V7-B | 24 VAC | 50/60 | | 70% |
| | JFEE-010-30V6-B | 220 VAC | 50/60 | | 70% |
| | JFEE-010-30V1-EMT | 110 VAC | 50/60 | | 70% |
| | JFEE-010-30V6-EMT | 220 VAC | 50/60 | | 70% |
| | JFEE-010-30V2-G | 24 VDC | -- | | 70% |
| | JFEE-010-30V2-GMT | 24 VDC | -- | | 70% |
| | JFEE-020-30V1-B | 110 VAC | 50/60 | 200 | 70% |
| | JFEE-020-30V6-B | 220 VAC | 50/60 | | 70% |
| | JFEE-020-30V1-EMT | 110 VAC | 50/60 | | 70% |
| | JFEE-020-30V6-EMT | 220 VAC | 50/60 | | 70% |
| | JFEE-020-30V2-G | 24 VDC | -- | | 70% |
| | JFEE-020-30V2-GMT | 24 VDC | -- | | 70% |
| | JFEE-040-30V1-B | 110 VAC | 50/60 | 400 | 70% |
| | JFEE-040-30V6-B | 220 VAC | 50/60 | | 70% |
| | JFEE-040-30V1-EMT | 110 VAC | 50/60 | | 70% |
| | JFEE-040-30V6-EMT | 220 VAC | 50/60 | | 70% |
| | JFEE-040-30V2-G | 24 VDC | -- | | 70% |
| | JFEE-040-30V2-GMT | 24 VDC | -- | | 70% |
| | JFEE-060-45V1-B | 110 VAC | 50/60 | 600 | 70% |
| | JFEE-060-45V6-B | 220 VAC | 50/60 | | 70% |
| | JFEE-060-45V1-EMT | 110 VAC | 50/60 | | 70% |
| | JFEE-060-45V6-EMT | 220 VAC | 50/60 | | 70% |

**CONDITIONS OF ACCEPTABILITY:**

1. The cable entry point or branching point is higher than 60°C, the end user shall follow user manual and select the properly cable, cable gland or conductors in conduit.
2. The minimum yield strength and minimum tensile strength of special fastener are 450MPa and 700MPa.
3. The maximum load allowed is 50Nm(JFEE-005 series), 100Nm(JFEE-010 series), 200Nm(JFEE-020 series), 400Nm(JFEE-040 series) or 600Nm(JFEE-060 series).
4. The lens fixed plate cannot be loosed or removed any time.

5. When the products are intended to be installed in the hazardous locations classified according to division rules , the TSE3854DS-W potted compound cannot be used to an atmosphere containing Acetic Acid (Glacial) saturated vapors, and the WCC-87 potted compound cannot be used to an atmosphere containing saturated vapors as below: Acetic Acid (Glacial), Acetone, Ammonium Hydroxide (20% by weight), ASTM reference fuel C, Diethyl Ether, Ethyl Acetate, Ethylene Dichloride, Furfural, n-Hexane, Methyl Ethyl Ketone, Methanol, 2-Nitropropane and Toluene.
6. Temperature code depends on ambient temperature as follows:

| Type | T-code | Ambient Temperature |
|---|---|---|
| JFEE series explosion-proof actuator | T5 | -13°F - +131°F (-25°C - +55°C) |
| | T6 | -13°F - +122°F (-25°C - +50°C) |

## APPLICABLE REQUIREMENTS

| | |
|---|---|
| CAN/CSA C22.2 No. 30-M1986 (Reaffirmed 2016) | Explosion-proof enclosures for use in class I hazardous locations |
| CAN/CSA C22.2 No. 145-11 (Reaffirmed 2015) | Electric Motors and Generators for Use in Hazardous (Classified) Locations |
| CSA C22.2 No. 139-13 | Electrically Operated Valves |
| CSA C22.2 No.60079-0-2019 | Explosive atmospheres – Part 0: Equipment – General requirements |
| CSA C22.2 No.60079-1-2016 | Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures “d” |
| UL 674 Fifth Edition | Electric Motors and Generators for Use in Hazardous (Classified) Locations |
| UL 1203-2013 | Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations |
| UL 60079-0:2020 | Explosive atmospheres – Part 0: Equipment – General requirements |
| UL 60079-1:2020 | Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures “d” |
| UL 429 (Seventh Edition) | Electrically Operated Valves |

## MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

**Certificate:** 80118462
**Project:** 80118462

**Master Contract:** 603889
**Date Issued:** 2022-04-25

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

- Manufacturer's name: " J Flow Controls", or CSA Master Contract Number "603889", adjacent to the CSA Mark in lieu of manufacturer's name.
- Model number: As specified in the PRODUCTS section, above.
- Hazardous Locations Designation: As specified in the PRODUCTS section, above.
- Manufacturing date in MMYY format, or serials number, traceable to year and month of manufacture.
- The CSA Mark, with or without the "C" and "US" indicators, as shown on the Certificate of Conformity.
- Temperature code rating: T5/T6
- Ambient temperature range: -13°F - +131°F/122°F (-25°C - +55ºC/50ºC)
- Complete electrical rating: As specified in the PRODUCTS section, above.
- Enclosure Type: TYPE 4X
- Rated load: 50Nm/100Nm/200Nm/400Nm/600Nm
- Warning:

- WARNING - TO PREVENT IGNITION OF FLAMMABLE GASES, VAPORS OR DUST, DO NOT REMOVE COVER WHILE CIRCUITS ARE LIVE
- AVERTISSEMENT - POUR ÉVITER L'INFLAMMATION DES GAZ INFLAMMABLES, DE VAPEURS OU DE POUSSIÈRE, NE PAS RETIRER LE COUVERCLE PENDANT QUE LE CIRCUIT EST SOUS TENSION
- WARNING - A SEAL SHALL BE INSTALLED WITHIN 500 MM OF THE ENCLOSURE
- AVERTISSEMENT - UN SCELLEMENT DOIT ÊTRE INSTALLÉ À MOINS DE 500 MM DU BOÎTIER

Notes:

Products certified under Class C322802, C322882 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca