

# Vtek<sup>TM</sup>

## Controls

### VEE Series Electric Actuators



#### Design Specifications

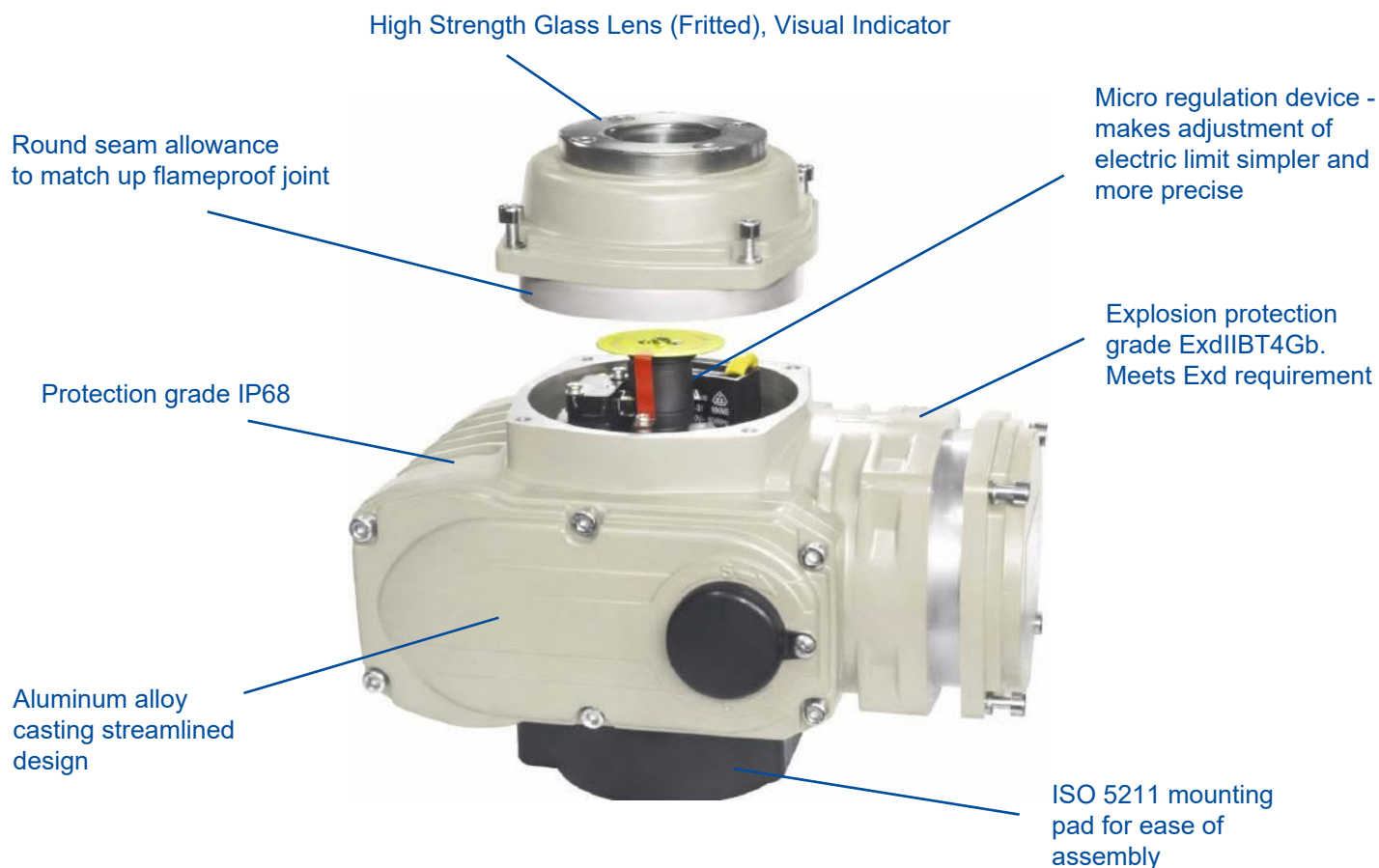
- Explosive environments
- Protection Class IP68
- Direct Mounting ISO5211 F03 to F16
- Available Voltages: 12/24 VDC, 110/220VAC
- Available Torque: 440 In-Lbs to 26550 In-Lbs.  
(50 Nm to 3000 Nm)
- On/Off Control, Modulating Controls,  
Super Capacitor Fail Safe Available.

#### Standards

- ATEX/ IECEx Ex. Proof Grade Ex db  
h IIC T4 Gb Ex h tb IIC T135C Db
- cCSAus Ex-Proof Grade: Class 1 Div 1,  
Groups C and D T5/T6 Ex db IIC Gb  
Class 1, Zone 1 Aex db T5/T6 Gb
- Quality Assurance: ISO 9001 2000



## Design:



|                        |     | 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 | Benzene, diesel oil, aviation gasoline, ethane, fuel | Aldehyde   |            |                   |
|                        | IIB | Gas                                                                               | Ethene Ethylene Oxygen                            |                                                      | Ether      |            |                   |
|                        | IIC | Hydrogen                                                                          | Ethyne                                            |                                                      |            |            | Carbon, Disulfide |

## Performance & Dimensions:

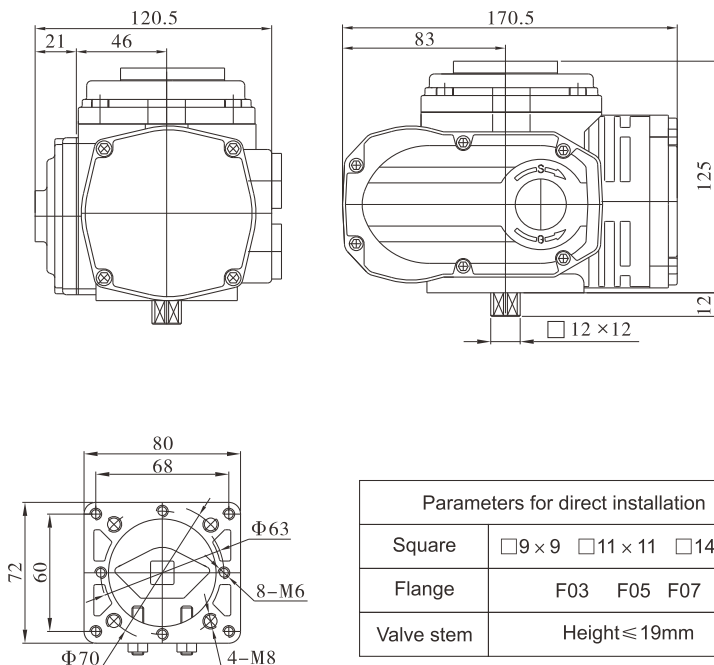
Explosion-proof Direct Installation Type

| Type<br>Power<br>Performance<br>Parameters | VEE - Ex05                                                                                                                                                    |       |        |                                                  |        |  |  |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|--------------------------------------------------|--------|--|--|
|                                            | DC12V                                                                                                                                                         | DC24V | AC110V | AC380V                                           | AC220V |  |  |
| Motor Power                                | 13W                                                                                                                                                           | 13W   | 10W    | 6W                                               | 10W    |  |  |
| Rated Current                              | 1.80A                                                                                                                                                         | 1.28A | 0.24A  | 0.07A                                            | 0.15A  |  |  |
| Standard Time/Torque                       | 20S/442 In-Lbs                                                                                                                                                |       |        |                                                  |        |  |  |
| Maximum Torque                             | 575 In-Lbs                                                                                                                                                    |       |        |                                                  |        |  |  |
| Optional Time/Torque                       | 4S/177 In-Lbs or 10S/265                                                                                                                                      |       |        | 4S/177 In-Lbs or 10S/265 Inlb or 60-S/ 442 InLbs |        |  |  |
| Turning Angle                              | 0 ~ 360° Adjustable                                                                                                                                           |       |        |                                                  |        |  |  |
| Available Control Circuit                  | Types of A、B、C、D、E、F、G、H、GEY                                                                                                                                  |       |        |                                                  |        |  |  |
| Total Weight                               | 6.6 Lbs                                                                                                                                                       |       |        |                                                  |        |  |  |
| Insulating Resistance                      | DC12/DC24V: 100MΩ/250VDC AC110V/AC220V/AC380V: 100 MΩ/500VDC                                                                                                  |       |        |                                                  |        |  |  |
| Withstand Voltage Class                    | DC12/DC24V: 500VAC 1minutes、AC110V/AC220V:1500VAC 1minutes、AC380V:1800VAC 1minutes                                                                            |       |        |                                                  |        |  |  |
| Protection Class                           | IP68                                                                                                                                                          |       |        |                                                  |        |  |  |
| Explosive-proof grade                      | Ex db h IIC T4 Gb Ex h tb IIIC T135°C Db<br>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                 |       |        |                                                  |        |  |  |
| Installation Angle                         | 360° at any angle                                                                                                                                             |       |        |                                                  |        |  |  |
| Electric Interface                         | 2-M20×1.5(or 1/2" NPT) explosion-proof plug ,clients should install corresponding explosion-proof cable connector when using according to the cable selected. |       |        |                                                  |        |  |  |
| Ambient Temperature                        | -25℃ ~ +55℃                                                                                                                                                   |       |        |                                                  |        |  |  |
| Optional Function                          | ◆ Heater for eliminating moisture ◆ Modbus communication ◆ Fail-safe return                                                                                   |       |        |                                                  |        |  |  |

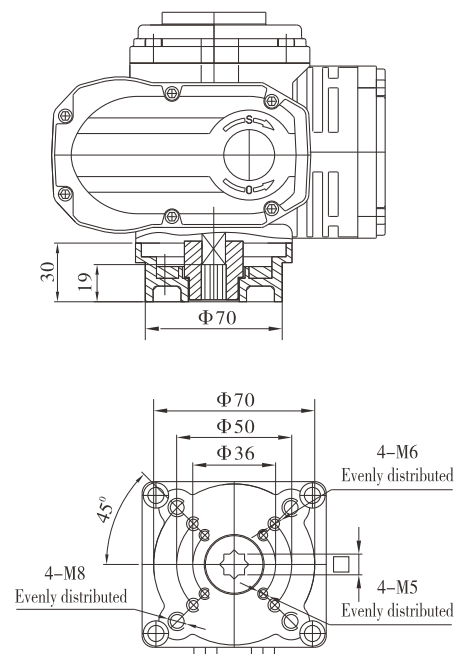


Explosion-proof Direct Installation Type

### Explosion-proof Standard Type



### Explosion-proof Direct Installation Type



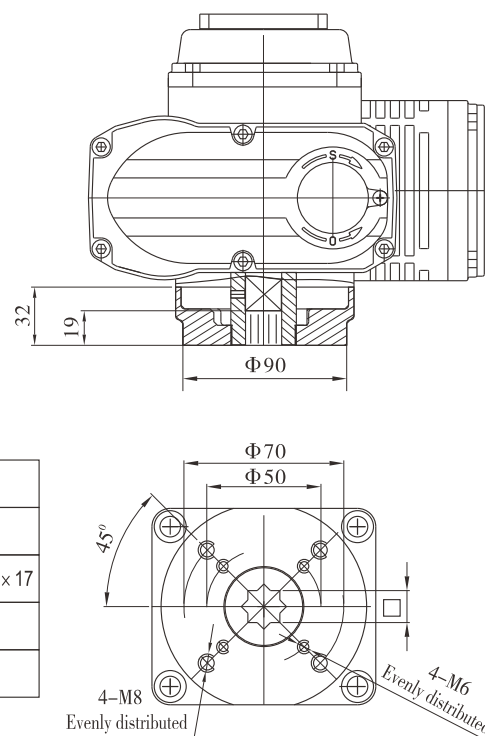
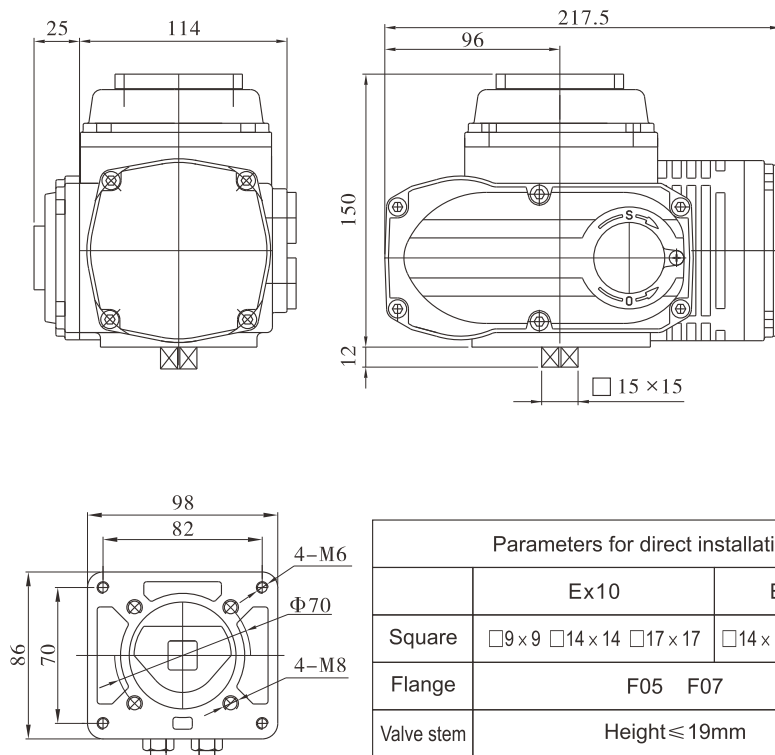


Explosion-proof Direct Installation Type

| Type<br>Power<br>Performance<br>Parameters | VEE - Ex10                                                                                                                                                    |                              |        |        |        | VEE - Ex20                    |                         |        |                         |                               |       |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------|--------|--------|-------------------------------|-------------------------|--------|-------------------------|-------------------------------|-------|
|                                            | DC12V                                                                                                                                                         | DC24V                        | AC110V | AC380V | AC220V | DC12V                         | DC24V                   | AC110V | AC380V                  | AC220V                        |       |
|                                            | Motor Power                                                                                                                                                   | 25W                          | 25W    | 25W    | 15W    | 25W                           | 25W                     | 40W    | 30W                     | 40W                           |       |
|                                            | Rated Current                                                                                                                                                 | 2.60A                        | 2.20A  | 0.57A  | 0.10A  | 0.30A                         | 3.30A                   | 3.12A  | 0.63A                   | 0.19A                         | 0.35A |
|                                            | Standard Time/Torque                                                                                                                                          | 30S / 885 In-Lbs (100 Nm)    |        |        |        |                               | 45S/1770 InLbs (200 Nm) |        | 30S/1770 InLbs (200 Nm) |                               |       |
|                                            | Maximum Torque                                                                                                                                                | 1150 In-Lbs                  |        |        |        |                               | 2301 In-Lbs             |        |                         |                               |       |
|                                            | Optional Time/Torque                                                                                                                                          | 15S/ 442 In-Lbs              |        |        |        | 15S/477Inlbs<br>60S/ 885Inlbs | 30S/ 885 In-Lbs         |        | 15S/ 885 In-Lbs         | 15S/885Inlbs<br>60S/1770Inlbs |       |
|                                            | Turning Angle                                                                                                                                                 | 0 ~ 90° Adjustable           |        |        |        |                               |                         |        |                         |                               |       |
|                                            | Available Control Circuit                                                                                                                                     | Types of A、B、C、D、E、F、G、H、GEY |        |        |        |                               |                         |        |                         |                               |       |
|                                            | Total Weight                                                                                                                                                  | 11 lbs                       |        |        |        |                               | 12.1 lbs                |        |                         |                               |       |
| Insulating Resistance                      | DC12/DC24V: 100MΩ/250VDC AC110V/AC220V/AC380V: 100 MΩ/500VDC                                                                                                  |                              |        |        |        |                               |                         |        |                         |                               |       |
| Withstand Voltage Class                    | DC12/DC24V: 500VAC 1minutes、AC110V/AC220V:1500VAC 1minutes、AC380V:1800VAC 1minutes                                                                            |                              |        |        |        |                               |                         |        |                         |                               |       |
| Protection Class                           | IP68                                                                                                                                                          |                              |        |        |        |                               |                         |        |                         |                               |       |
| Explosive-proof grade                      | Ex db h IIC T4 Gb Ex h tb IIIC T135℃ Db<br>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                  |                              |        |        |        |                               |                         |        |                         |                               |       |
| Installation Angle                         | 360° at any angle                                                                                                                                             |                              |        |        |        |                               |                         |        |                         |                               |       |
| Electric Interface                         | 2-M20×1.5(or 1/2" NPT) explosion-proof plug ,clients should install corresponding explosion-proof cable connector when using according to the cable selected. |                              |        |        |        |                               |                         |        |                         |                               |       |
| Ambient Temperature                        | -25℃ ~ +55℃                                                                                                                                                   |                              |        |        |        |                               |                         |        |                         |                               |       |
| Optional Function                          | ◆Over-torque Protector ◆Heater for eliminating moisture<br>◆Modbus communication ◆Fail-safe return                                                            |                              |        |        |        |                               |                         |        |                         |                               |       |

Explosion-proof Standard Type

Explosion-proof Direct Installation Type

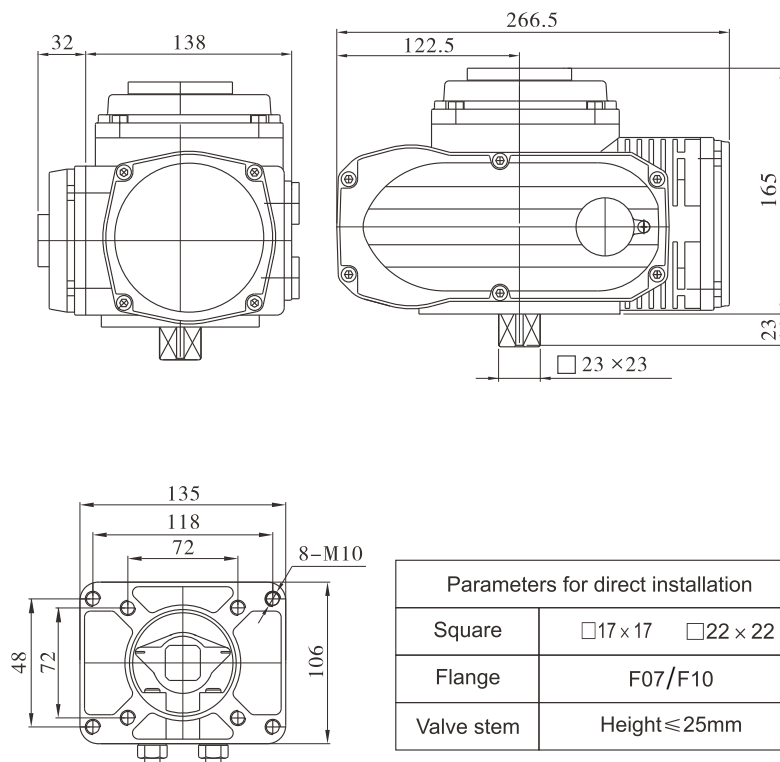




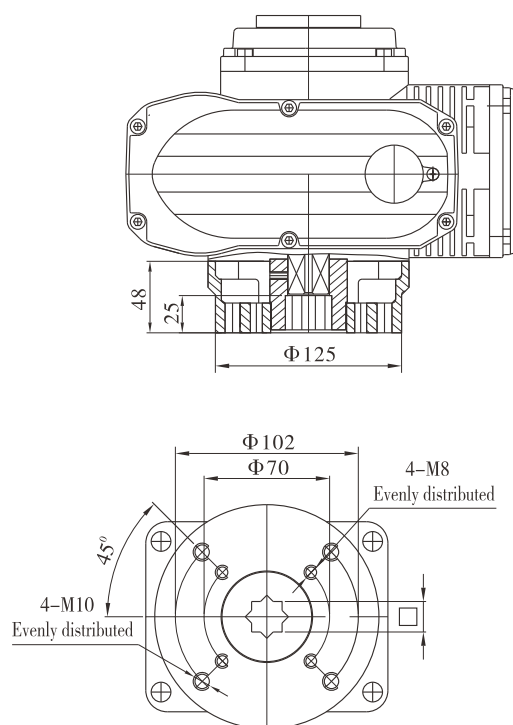
Explosion-proof Direct Installation Type

| Type<br>Power<br>Performance<br>Parameters | VEE - Ex40                                                                                                                                                    |        |                                    |        | VEE - Ex60      |        |        |        |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------|--------|-----------------|--------|--------|--------|
|                                            | DC24V                                                                                                                                                         | AC110V | AC380V                             | AC220V | DC24V           | AC110V | AC380V | AC220V |
| Motor Power                                | 70W                                                                                                                                                           | 90W    | 40W                                | 90W    | 70W             | 90W    | 40W    | 90W    |
| Rated Current                              | 4.80A                                                                                                                                                         | 1.12A  | 0.29A                              | 0.64A  | 6.80A           | 1.18A  | 0.29A  | 0.67A  |
| Standard Time/Torque                       | 30S/3540 In-Lbs                                                                                                                                               |        |                                    |        | 45S/5310 In-Lbs |        |        |        |
| Maximum Torque                             | 4602 In-Lbs                                                                                                                                                   |        |                                    |        | 7080 In-Lbs     |        |        |        |
| Optional Time/Torque                       | 15S/1770 In-Lbs                                                                                                                                               |        | 15S/1770 In-Lbs<br>60S/3540 In-Lbs |        |                 |        |        |        |
| Turning Angle                              | 0 ~ 90° Adjustable                                                                                                                                            |        |                                    |        |                 |        |        |        |
| Available Control Circuit                  | Types of A、B、C、D、E、F、G、H、GEY                                                                                                                                  |        |                                    |        |                 |        |        |        |
| Total Weight                               | 21 Lbs                                                                                                                                                        |        |                                    |        | 22 Lbs          |        |        |        |
| Insulating Resistance                      | DC24V: 100MΩ/250VDC AC110V/AC220V/AC380V: 100 MΩ/500VDC                                                                                                       |        |                                    |        |                 |        |        |        |
| Withstand Voltage Class                    | DC24V: 500VAC 1minutes、AC110V/AC220V:1500VAC 1minutes、AC380V:1800VAC 1minutes                                                                                 |        |                                    |        |                 |        |        |        |
| Protection Class                           | IP68                                                                                                                                                          |        |                                    |        |                 |        |        |        |
| Explosive-proof grade                      | Ex db h IIC T4 Gb Ex h tb IIIC T135℃ Db<br>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                  |        |                                    |        |                 |        |        |        |
| Installation Angle                         | 360° at any angle                                                                                                                                             |        |                                    |        |                 |        |        |        |
| Electric Interface                         | 2-M20×1.5(or 1/2" NPT) explosion-proof plug ,clients should install corresponding explosion-proof cable connector when using according to the cable selected. |        |                                    |        |                 |        |        |        |
| Ambient Temperature                        | -25℃ ~ +55℃                                                                                                                                                   |        |                                    |        |                 |        |        |        |
| Optional Function                          | ◆ Over-torque Protector ◆ Heater for eliminating moisture<br>◆ Modbus communication ◆ Fail-safe return                                                        |        |                                    |        |                 |        |        |        |

#### Explosion-proof Standard Type



#### Explosion-proof Direct Installation Type





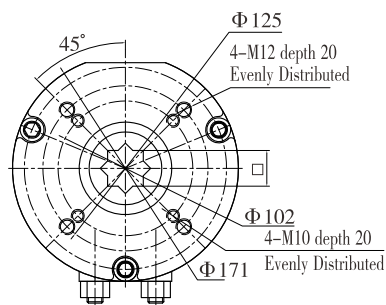
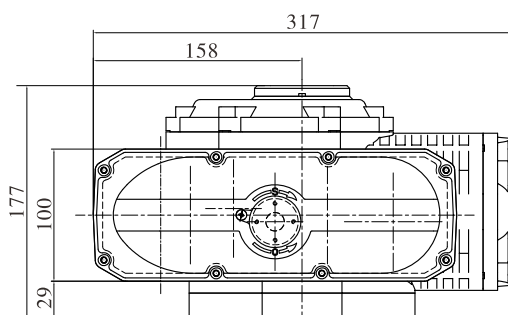
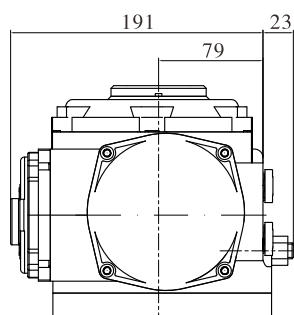
VEE - Ex100



VEE - Ex200 / VEE-Ex300

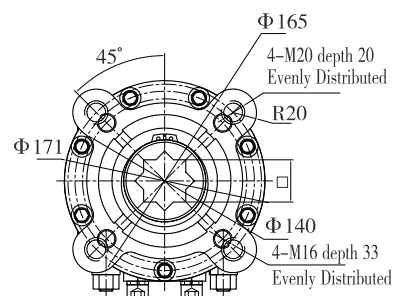
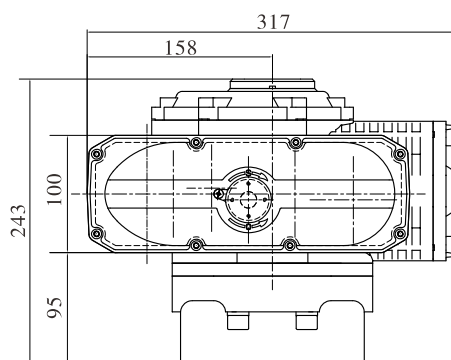
| Type<br>Power<br>Performance<br>Parameters | VEE - Ex100                                                                                                                                                   |                 |        |        | VEE - Ex200 / VEE - Ex300            |                                       |        |        |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|--------|--------------------------------------|---------------------------------------|--------|--------|
|                                            | DC24V                                                                                                                                                         | AC110V          | AC220V | AC380V | DC24V                                | AC110V                                | AC220V | AC380V |
| Motor Power                                | 113W                                                                                                                                                          | 120W            | 120W   | 90W    | 113W                                 | 120W                                  | 120W   | 90W    |
| Rated Current                              | 6.5A                                                                                                                                                          | 2.0A            | 1.0A   | 0.5A   | 7.1A                                 | 2.2A                                  | 1.1A   | 0.6A   |
| Standard Time/Torque                       | 45S/8850Inlbs                                                                                                                                                 | 15S/8850 In-Lbs |        |        | 100S/17701 Inlbs<br>140S/26552 Inlbs | 75S/17701 In-Lbs or 110S/26552 In-Lbs |        |        |
| Maximum Torque                             | 11506 In-Lbs                                                                                                                                                  |                 |        |        | 23011 In-Lbs 34517 In-Lbs            |                                       |        |        |
| Turning Angle                              | 0 ~ 90° Adjustable                                                                                                                                            |                 |        |        |                                      |                                       |        |        |
| Available Control Circuit                  | Types of A、B、C、D、E、F、G、H、GEY                                                                                                                                  |                 |        |        |                                      |                                       |        |        |
| Total Weight                               | 32 Lbs                                                                                                                                                        |                 |        |        | 47.4 Lbs                             |                                       |        |        |
| Insulating Resistance                      | DC24V; 100MΩ/250VDC AC110V/AC220V/AC380V; 100 MΩ/500VDC                                                                                                       |                 |        |        |                                      |                                       |        |        |
| Withstand Voltage Class                    | DC24V; 500VAC 1minutes、AC110V/AC220V:1500VAC 1minutes、AC380V:1800VAC 1minutes                                                                                 |                 |        |        |                                      |                                       |        |        |
| Protection Class                           | IP68                                                                                                                                                          |                 |        |        |                                      |                                       |        |        |
| Explosive-proof grade                      | Ex db h IIC T4 Gb Ex h tb IIIC T135℃ Db<br>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                  |                 |        |        |                                      |                                       |        |        |
| Installation Angle                         | 360° at any angle                                                                                                                                             |                 |        |        |                                      |                                       |        |        |
| Electric Interface                         | 2-M20×1.5(or 1/2" NPT) explosion-proof plug ,clients should install corresponding explosion-proof cable connector when using according to the cable selected. |                 |        |        |                                      |                                       |        |        |
| Ambient Temperature                        | -25℃ ~ +55℃                                                                                                                                                   |                 |        |        |                                      |                                       |        |        |
| Optional Function                          | ◆Over-torque Protector ◆Heater for eliminating moisture<br>◆Modbus communication ◆Fail-safe return                                                            |                 |        |        |                                      |                                       |        |        |

## VEE - Ex100



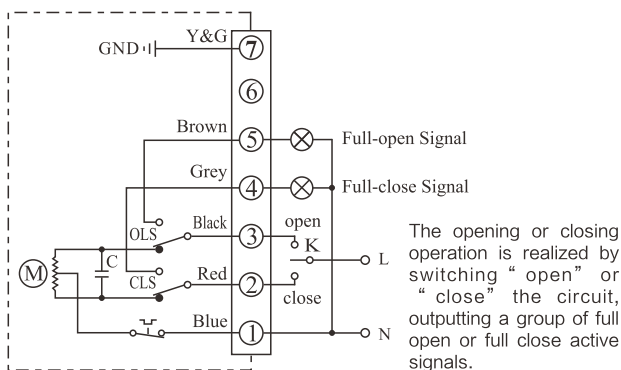
|            | VEE-Ex100           | VEE-Ex200 / VEE-Ex300 |
|------------|---------------------|-----------------------|
| Square     | □ 22 × 22 □ 27 × 27 | □ 27 × 27 □ 36 × 36   |
| Flange     | F10 / F12           | F16                   |
| Valve stem | Height ≤ 66mm       | Height ≤ 66mm         |

## VEE - Ex200 / VEE-Ex300

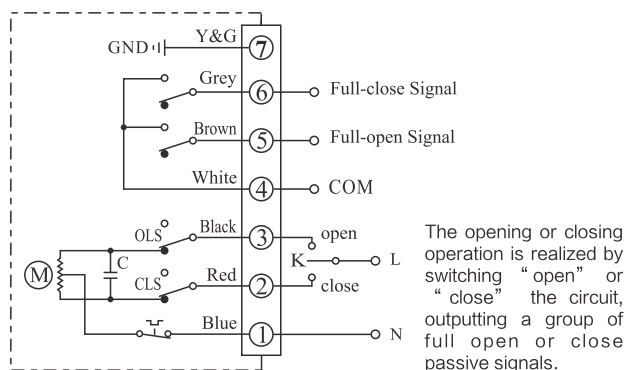


# Wiring Diagrams:

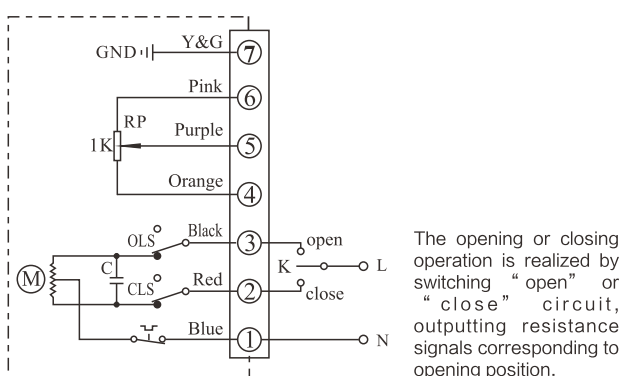
**Type A: With Limit Position Switch (Active Contact)**



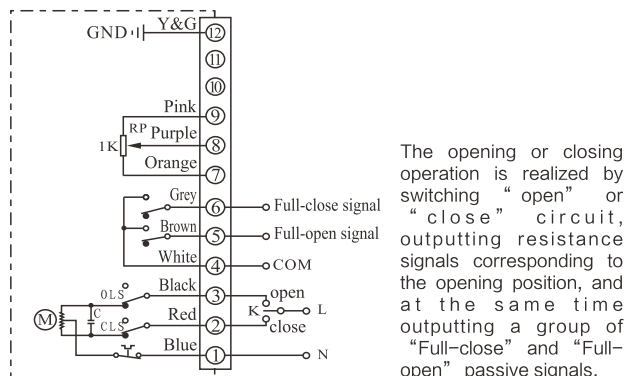
**Type B: Switch with Middle Position (Passive Contact)**



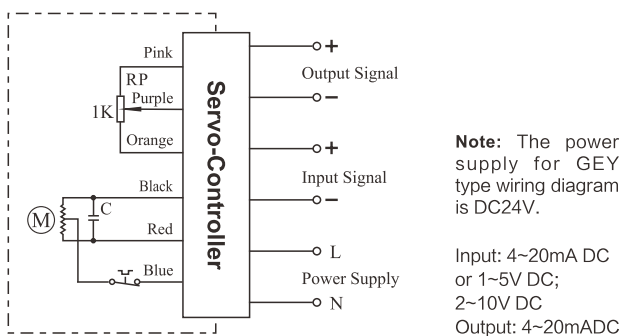
**Type C: With 1K $\Omega$  (or 500 $\Omega$ ) Potentiometer**



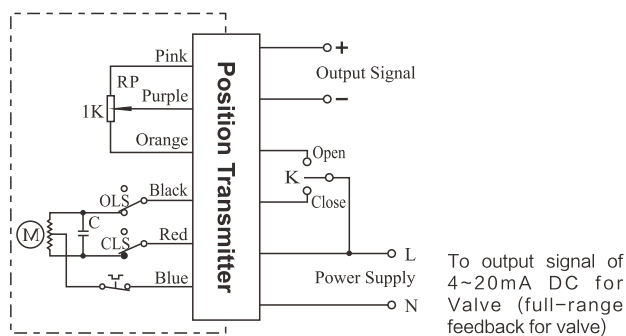
**Type D: Position Switch with Potentiometer and Passive Contact**



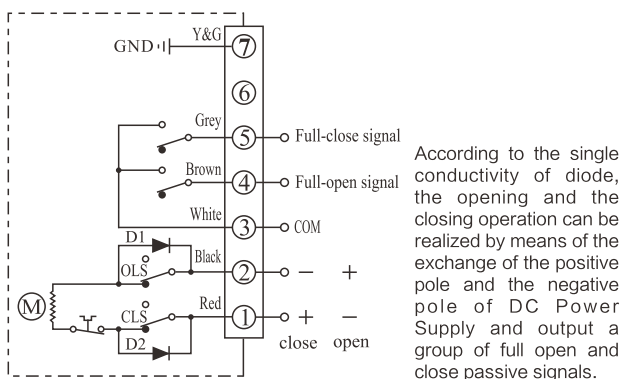
**Type E (Type GEY): With Servo Controller (Modulating Type)**



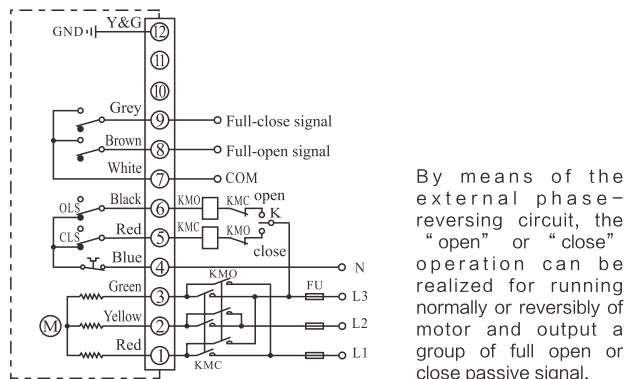
**Type F: With Position Transmitter**



**Type G: DC Control Circuit with Passive Contact Switch**



**Type H: 3-phase AC Control Circuit with Passive Contact Switch**



## Options:

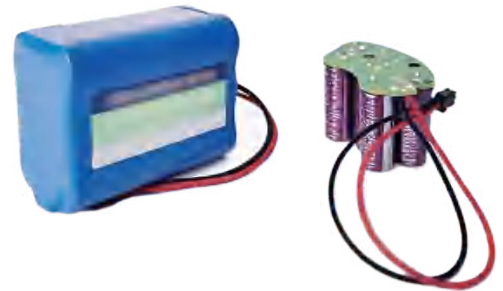
### Fail-Safe:

- All fail-safe components are put into the actuator housing, it allows keeping the characteristic of the compact structure.
- Strong surge protection circuit resists 1kV lightning surge wave when used outdoors.
- 4kV anti-EFT interface circuit protects the electric actuator from interference from electromagnetic environments, ensuring reliability.
- Compatible with Modbus -RTU.



### Features:

- The Fail-safe option utilizes a Super-capacitor assembly. The fail-safe option can drive the actuator to the preset safety position when a power failure occurs. The safety fail position can be set to full-closed, full-open, or current position. The control circuit detects the power failure and will drive to the preset safety position.
- When external power is restored the actuator will automatically exit the fail-safe mode and return back to its normal position.



### Technical Specifications:

- Power supply: DC24V
- Energy storage solution: Super-capacitor(DCL-Ex05/DCL-Ex10/20)  
Battery(DCL-Ex40/60/100/200/300)
- Full stroke drive capability:  $\geq 4$  times

### Modulating type:

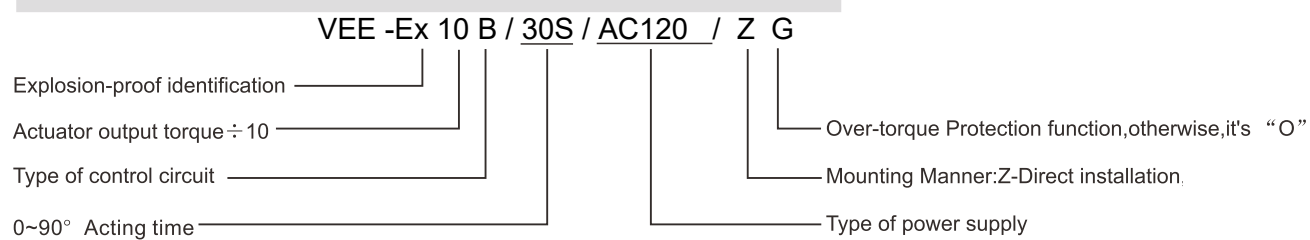
- Input signal: 4-20mA(optional 2-10VDC, 1-5VDC)
- Output signal: 4-20mA(optional 2-10VDC, 1-5VDC)
- Field bus: Modbus-RTU

### On-Off type:

- Input signal: passive switching signal(open/close)
- Output signal: passive contact(full-open /full-close)
- Field bus: Modbus-RTU

## Ordering:

### Design of Model



Vtek Controls, LLC reserves the right to make revisions to its products, specifications, literature, and related information without notice. Please visit our Website for the latest information and updates.



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