



# ZHR-P05

## INTEGRATED QDD ACTUATOR



REDUCTION  
**7.75 : 1**

WEIGHT  
**191g**

PEAK TORQUE  
**5.5 Nm**

### MECHANICAL SPECIFICATIONS

|                 |                          |
|-----------------|--------------------------|
| Model           | ZHR-P05                  |
| Pole / Phase    | 20 / 3                   |
| Drive Method    | FOC                      |
| Reduction Ratio | 7.75 : 1                 |
| Encoder Type    | Magnetic Encoder (2 pcs) |

### PERFORMANCE & ELECTRICAL

|                         |                |
|-------------------------|----------------|
| Operation Voltage Range | 15 - 60 VDC    |
| Rated Voltage           | 48 V           |
| Rated Output Power      | 17 W $\pm$ 10% |
| Rated Torque            | 1.6 N.m        |
| Peak Torque             | 5.5 N.m        |

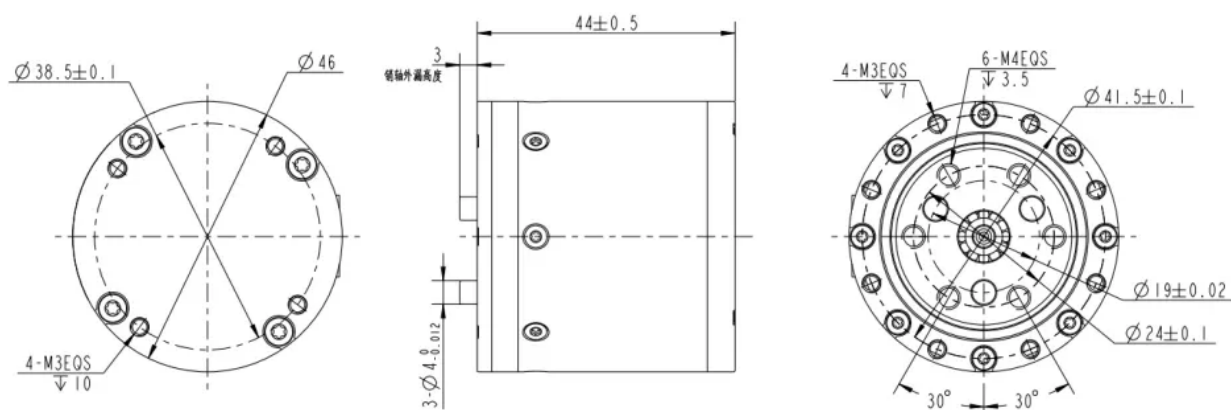
### SPEED & CURRENT

|                          |                     |
|--------------------------|---------------------|
| No-load Speed            | 480 rpm $\pm$ 10%   |
| No-load Current          | 0.14 Arms $\pm$ 10% |
| Rated Load Speed         | 100 rpm $\pm$ 10%   |
| Rated Load Phase Current | 2.4 Apk $\pm$ 10%   |
| Peak Phase Current       | 11 Apk $\pm$ 10%    |

### MOTOR CONSTANTS

|                 |                         |
|-----------------|-------------------------|
| Line Resistance | 2.72 $\Omega$ $\pm$ 10% |
| Inductance      | 0.813 mH $\pm$ 10%      |
| Back-EMF        | 7.4 Vrms/krpm $\pm$ 10% |
| Torque Constant | 0.94 N.m/Arms           |

### DIMENSION DRAWING





# ZHR-P14

## INTEGRATED QDD ACTUATOR



REDUCTION  
**10 : 1**

WEIGHT  
**310g  $\pm$  3g**

PEAK TORQUE  
**14 Nm**

### MECHANICAL SPECIFICATIONS

|                 |                          |
|-----------------|--------------------------|
| Model           | ZHR-P14                  |
| Pole / Phase    | 28 / 3                   |
| Drive Method    | FOC                      |
| Reduction Ratio | 10 : 1                   |
| Encoder Type    | Magnetic Encoder (2 pcs) |

### PERFORMANCE & ELECTRICAL

|                         |                |
|-------------------------|----------------|
| Operation Voltage Range | 24 - 60 VDC    |
| Rated Voltage           | 48 V           |
| Rated Output Power      | 50 W $\pm$ 10% |
| Rated Torque            | 5 N.m          |
| Peak Torque             | 14 N.m         |

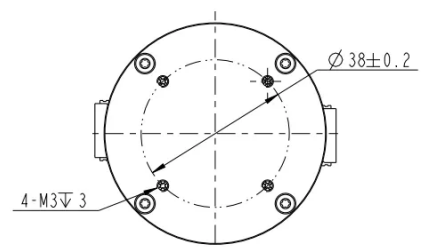
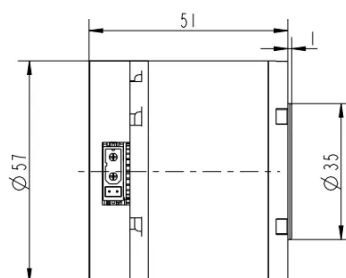
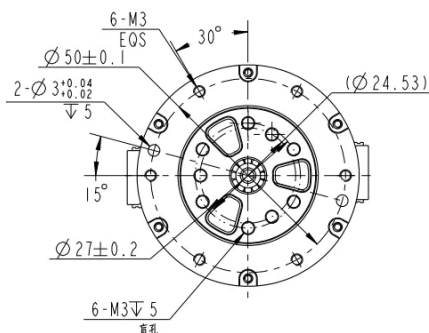
### SPEED & CURRENT

|                          |                    |
|--------------------------|--------------------|
| No-load Speed            | 315 rpm $\pm$ 10%  |
| No-load Current          | 0.5 Arms           |
| Rated Load Speed         | 100 rpm $\pm$ 10%  |
| Rated Load Phase Current | 4.7 Apk $\pm$ 10%  |
| Peak Phase Current       | 15.5 Apk $\pm$ 10% |

### MOTOR CONSTANTS

|                 |                          |
|-----------------|--------------------------|
| Line Resistance | 1.5 $\Omega$ $\pm$ 10%   |
| Inductance      | 750 $\pm$ 20% $\mu$ H    |
| Back-EMF        | 0.095 Vrms/rpm $\pm$ 10% |
| Torque Constant | 1.48 N.m/Arms            |

### DIMENSION DRAWING





# ZHR-P17

## INTEGRATED QDD ACTUATOR



REDUCTION  
**7.75 : 1**

WEIGHT  
**380g ± 3g**

PEAK TORQUE  
**17 Nm**

### MECHANICAL SPECIFICATIONS

|                 |                          |
|-----------------|--------------------------|
| Model           | ZHR-P17                  |
| Pole / Phase    | 28 / 3                   |
| Drive Method    | FOC                      |
| Reduction Ratio | 7.75 : 1                 |
| Encoder Type    | Magnetic Encoder (2 pcs) |

### PERFORMANCE & ELECTRICAL

|                         |             |
|-------------------------|-------------|
| Operation Voltage Range | 24 - 60 VDC |
| Rated Voltage           | 48 V        |
| Rated Output Power      | 60 W ± 10%  |
| Rated Torque            | 6 N.m       |
| Peak Torque             | 17 N.m      |

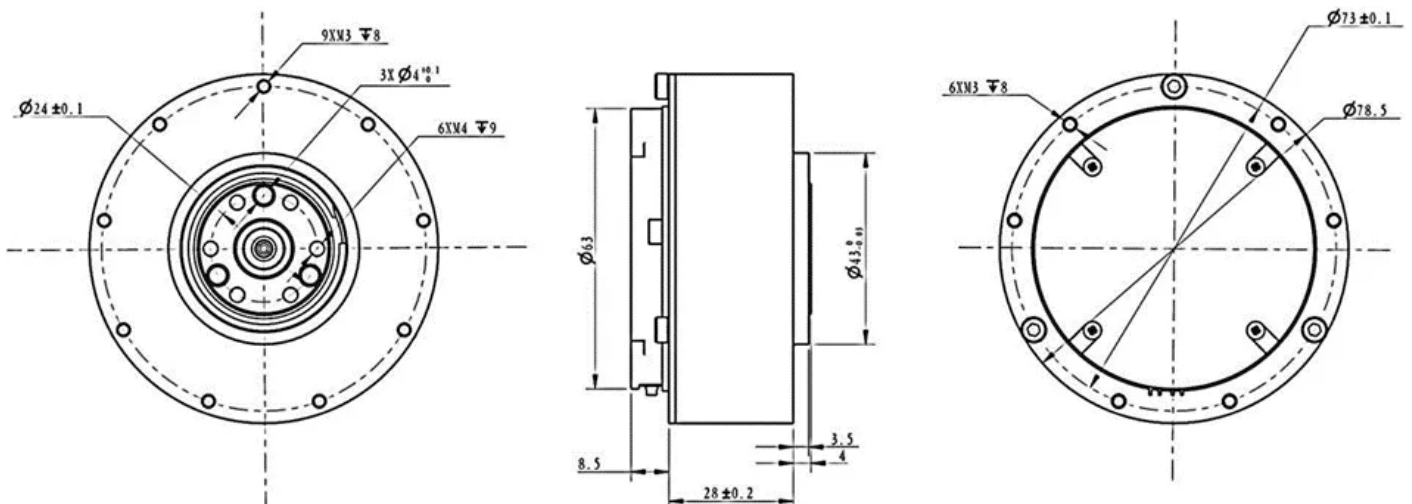
### SPEED & CURRENT

|                          |               |
|--------------------------|---------------|
| No-load Speed            | 410 rpm ± 10% |
| No-load Current          | 0.5 Arms      |
| Rated Load Speed         | 100 rpm ± 10% |
| Rated Load Phase Current | 7 Apk ± 10%   |
| Peak Phase Current       | 23 Apk ± 10%  |

### MOTOR CONSTANTS

|                 |                      |
|-----------------|----------------------|
| Line Resistance | 0.55 Ω               |
| Inductance      | 486 ± 20% μH         |
| Back-EMF        | 0.096 Vrms/rpm ± 10% |
| Torque Constant | 1.22 N.m/Arms        |

### DIMENSION DRAWING





# ZHR-P36

## INTEGRATED QDD ACTUATOR



REDUCTION  
**9 : 1**

WEIGHT  
**621g**

PEAK TORQUE  
**36 Nm**

### MECHANICAL SPECIFICATIONS

|                 |                          |
|-----------------|--------------------------|
| Model           | ZHR-P36                  |
| Pole / Phase    | 28 / 3                   |
| Drive Method    | FOC                      |
| Reduction Ratio | 9 : 1                    |
| Encoder Type    | Magnetic Encoder (2 pcs) |

### PERFORMANCE & ELECTRICAL

|                         |                 |
|-------------------------|-----------------|
| Operation Voltage Range | 15 - 60 VDC     |
| Rated Voltage           | 48 V            |
| Rated Output Power      | 115 W $\pm$ 10% |
| Rated Torque            | 11 N.m          |
| Peak Torque             | 36 N.m          |

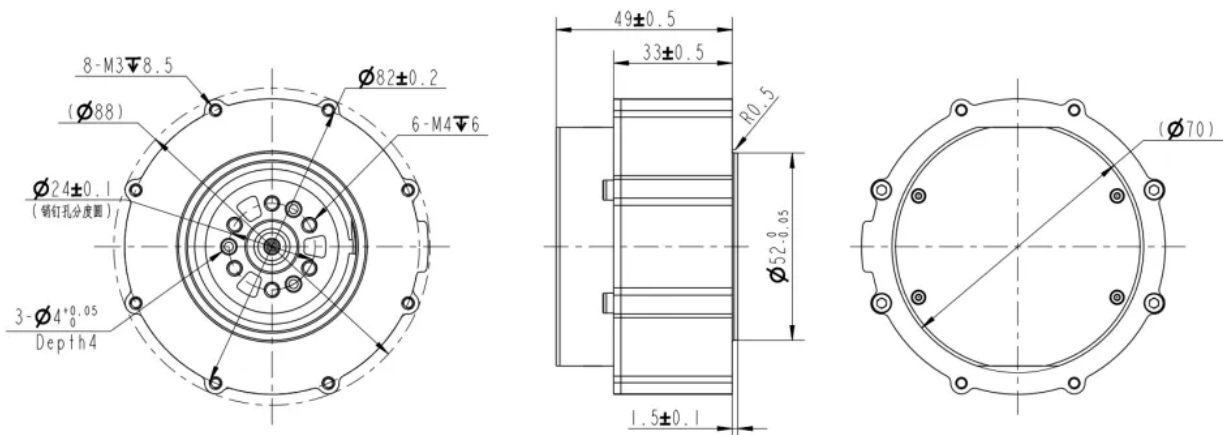
### SPEED & CURRENT

|                          |                     |
|--------------------------|---------------------|
| No-load Speed            | 480 rpm $\pm$ 10%   |
| No-load Current          | 0.98 Arms $\pm$ 10% |
| Rated Load Speed         | 100 rpm $\pm$ 10%   |
| Rated Load Phase Current | 14.3 Apk $\pm$ 10%  |
| Peak Phase Current       | 57 Apk $\pm$ 10%    |

### MOTOR CONSTANTS

|                 |                         |
|-----------------|-------------------------|
| Line Resistance | 0.23 $\Omega$ $\pm$ 10% |
| Inductance      | 0.165 mH $\pm$ 10%      |
| Back-EMF        | 7.6 Vrms/krpm $\pm$ 10% |
| Torque Constant | 1.1 N.m/Arms            |

### DIMENSION DRAWING





# ZHR-P60

## INTEGRATED QDD ACTUATOR



REDUCTION  
9 : 1

WEIGHT  
900g  $\pm$  20g

PEAK TORQUE  
60 Nm

### MECHANICAL SPECIFICATIONS

|                 |                          |
|-----------------|--------------------------|
| Model           | ZHR-P60                  |
| Pole / Phase    | 42 / 3                   |
| Drive Method    | FOC                      |
| Reduction Ratio | 9 : 1                    |
| Encoder Type    | Magnetic Encoder (2 pcs) |

### PERFORMANCE & ELECTRICAL

|                         |                 |
|-------------------------|-----------------|
| Operation Voltage Range | 15 - 60 VDC     |
| Rated Voltage           | 48 V            |
| Rated Output Power      | 210 W $\pm$ 10% |
| Rated Torque            | 20 N.m          |
| Peak Torque             | 60 N.m          |

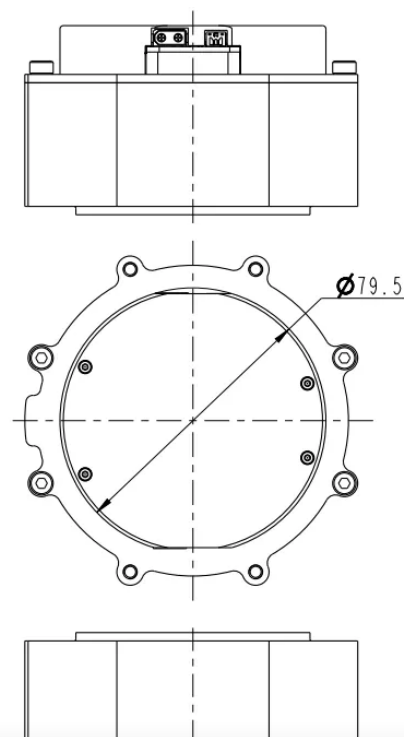
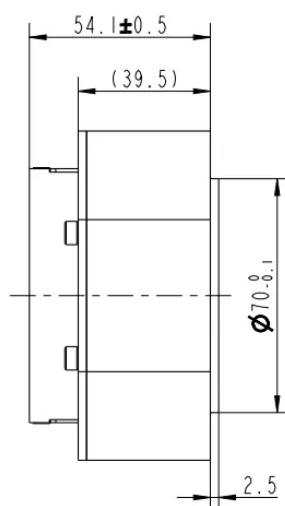
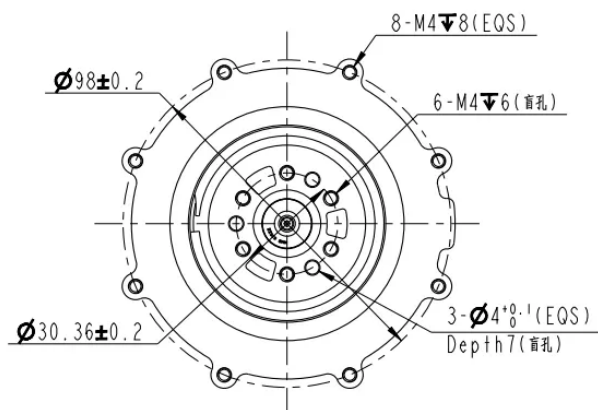
### SPEED & CURRENT

|                          |                    |
|--------------------------|--------------------|
| No-load Speed            | 195 rpm $\pm$ 10%  |
| No-load Current          | 0.6 Arms $\pm$ 10% |
| Rated Load Speed         | 100 rpm $\pm$ 10%  |
| Rated Load Phase Current | 13 Apk $\pm$ 10%   |
| Peak Phase Current       | 43 Apk $\pm$ 10%   |

### MOTOR CONSTANTS

|                 |                         |
|-----------------|-------------------------|
| Line Resistance | 0.39 $\Omega$ $\pm$ 10% |
| Inductance      | 0.275 mH $\pm$ 10%      |
| Back-EMF        | 17 Vrms/krpm $\pm$ 10%  |
| Torque Constant | 2.36 N.m/Arms           |

### DIMENSION DRAWING





# ZHR-P120

## INTEGRATED QDD ACTUATOR



REDUCTION  
**9 : 1**

WEIGHT  
**1420g ± 20g**

PEAK TORQUE  
**120 Nm**

### MECHANICAL SPECIFICATIONS

|                 |                          |
|-----------------|--------------------------|
| Model           | ZHR-P120                 |
| Pole / Phase    | 42 / 3                   |
| Drive Method    | FOC                      |
| Reduction Ratio | 9 : 1                    |
| Encoder Type    | Magnetic Encoder (2 pcs) |

### PERFORMANCE & ELECTRICAL

|                         |             |
|-------------------------|-------------|
| Operation Voltage Range | 15 - 60 VDC |
| Rated Voltage           | 48 V        |
| Rated Output Power      | 420 W ± 10% |
| Rated Torque            | 40 N.m      |
| Peak Torque             | 120 N.m     |

### SPEED & CURRENT

|                          |                |
|--------------------------|----------------|
| No-load Speed            | 200 rpm ± 10%  |
| No-load Current          | 0.7 Arms ± 10% |
| Rated Load Speed         | 100 rpm ± 10%  |
| Rated Load Phase Current | 27 Apk ± 10%   |
| Peak Phase Current       | 90 Apk ± 10%   |

### MOTOR CONSTANTS

|                 |                      |
|-----------------|----------------------|
| Line Resistance | 0.16 Ω ± 10%         |
| Inductance      | 0.211 mH ± 10%       |
| Back-EMF        | 16.9 Vrms/krpm ± 10% |
| Torque Constant | 2.1 N.m/Arms         |

### DIMENSION DRAWING

