

## RMD-X V4 Series Planetary Actuator

Special Series For Robot



\* The pictures of this series of products are subject to the actual products.

### RMD-X V4 Series Product Features

EtherCAT & CAN BUS

Crossed Roller Bearings

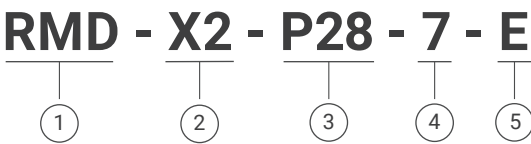
Dual Encoder

High Torque Density

High Precision

Hollow Design

### RMD-X V4 Series Naming Conventions



- 1

RMD:

Brand Name R-Reducer M-Motor D-Drive
- 2

X2:

X Stands For The Series Name: Integrated Planetary Actuator,  
2 represent motor model number e.g:X2 X4 X6 X8 etc
- 3

P28:

Planetary gear ratio e.g:P12 P28 P32 etc
- 4

7:

Peak torque 7N.m
- 5

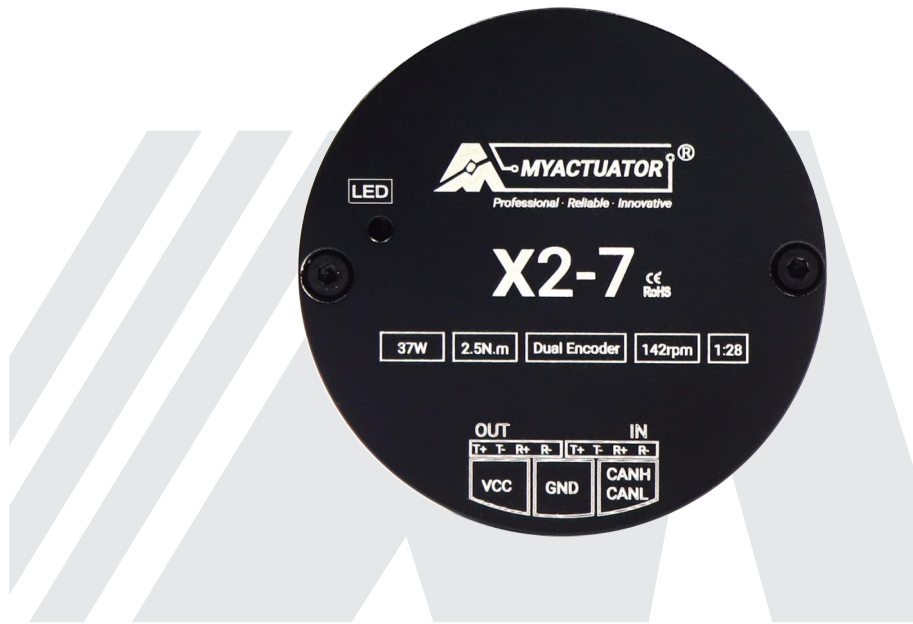
E:

EtherCAT & CAN BUS

For example

|            |                                |
|------------|--------------------------------|
| Model      | RMD-X8-P20-120-E               |
| Illustrate | RMD: Brand Name                |
|            | X8: Motor model name           |
|            | P20: Planetary gear ratio 20:1 |
|            | 120: Peak torque               |
|            | E: EtherCAT & CAN BUS          |

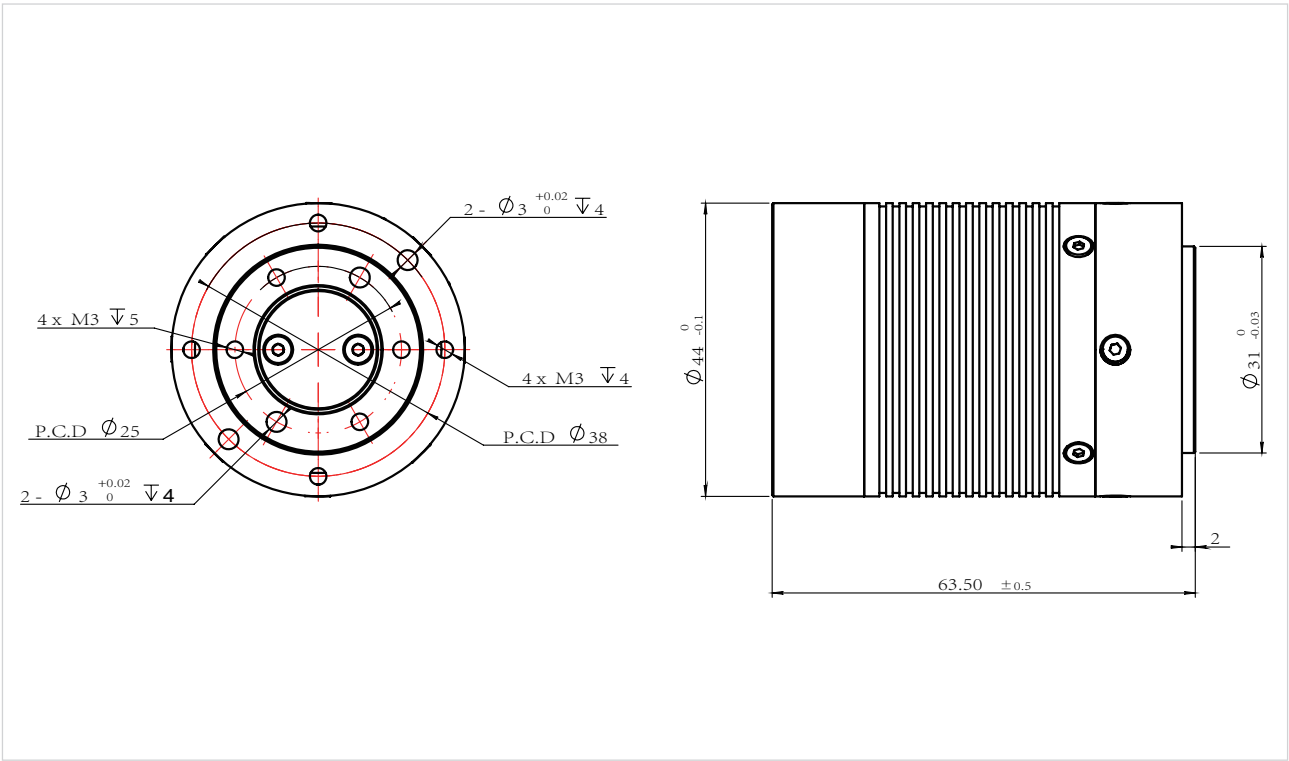
Series Name  
**RMD-X**  
Motor Simplified Name  
**X2-7**



Dual encoder

| Actuator Full Name | With Brake/Without Brake | Communication      |
|--------------------|--------------------------|--------------------|
| RMD-X2-P28-7-E     | N (without Brake)        | EtherCAT & CAN BUS |

Installation Drawing



Product Parameters

| Parameters               | Unit               | X2-7                                          |
|--------------------------|--------------------|-----------------------------------------------|
| Gear Ratio               | —                  | 28.17                                         |
| Input Voltage            | V                  | 24                                            |
| Voltage Range            | V                  | 20-55                                         |
| No Load Speed            | RPM                | 178                                           |
| No-Load Input Current    | A                  | 1                                             |
| Rated Speed              | RPM                | 142                                           |
| Rated Torque             | N.m                | 2.5                                           |
| Rated Power              | W                  | 37                                            |
| Rated Current            | A                  | 3                                             |
| Peak Torque              | N.m                | 7                                             |
| Peak Current             | A                  | 8.1                                           |
| Efficiency               | %                  | 63                                            |
| Motor Back-EMF Constant  | Vdc/Krpm           | 4.3                                           |
| Module Torque Constant   | N.m/A              | 0.8                                           |
| Line Resistance          | Ω                  | 0.61                                          |
| Line Inductance          | mH                 | 0.13                                          |
| Pole Pairs               | —                  | 13                                            |
| 3 Phase Connection       | —                  | Y                                             |
| Back Drive Torque        | N.m                | 0.4                                           |
| Backlash                 | Arcmin             | ≤15                                           |
| Output Bearing Type      | —                  | Deep Groove Ball Bearings                     |
| Axial Load               | Tensile load       | KN                                            |
|                          | Compressive load   | KN                                            |
| Radial Load              | KN                 | 1                                             |
| Inertia                  | Kg.cm <sup>2</sup> | 0.17                                          |
| Encoder Type & Interface | —                  | Dual Encoder ABS-17BIT(Input) / 18BIT(Output) |
| Control Accuracy         | Degree             | <0.01                                         |
| Communication            | —                  | EtherCAT & CAN BUS                            |
| Weight                   | Kg                 | 0.26                                          |
| Insulation Grade         | —                  | F                                             |

Note:

- 1.The maximum operating voltage of the motor is 55V. It is recommended that customers add an external capacitor to regulate voltage, so as to ensure stable battery power supply and protect the PCB from damage caused by voltage fluctuations.
2. If voltage exceeds the rated value, the operating speed must not exceed the motor's rated speed.

Stall Torque Data

|      | Torque<br>(N.m) | Temperature Rise<br>(°C) | Stall Time<br>(s) | Phase Current<br>(Arms) |
|------|-----------------|--------------------------|-------------------|-------------------------|
| X2-7 | 3.75            | 20                       | 15                | 4.3                     |
|      | 5               | 48                       | 10                | 5.7                     |
|      | 6.25            | 31                       | 8                 | 7.4                     |
|      | 7.5             | 59                       | 5                 | 8.6                     |

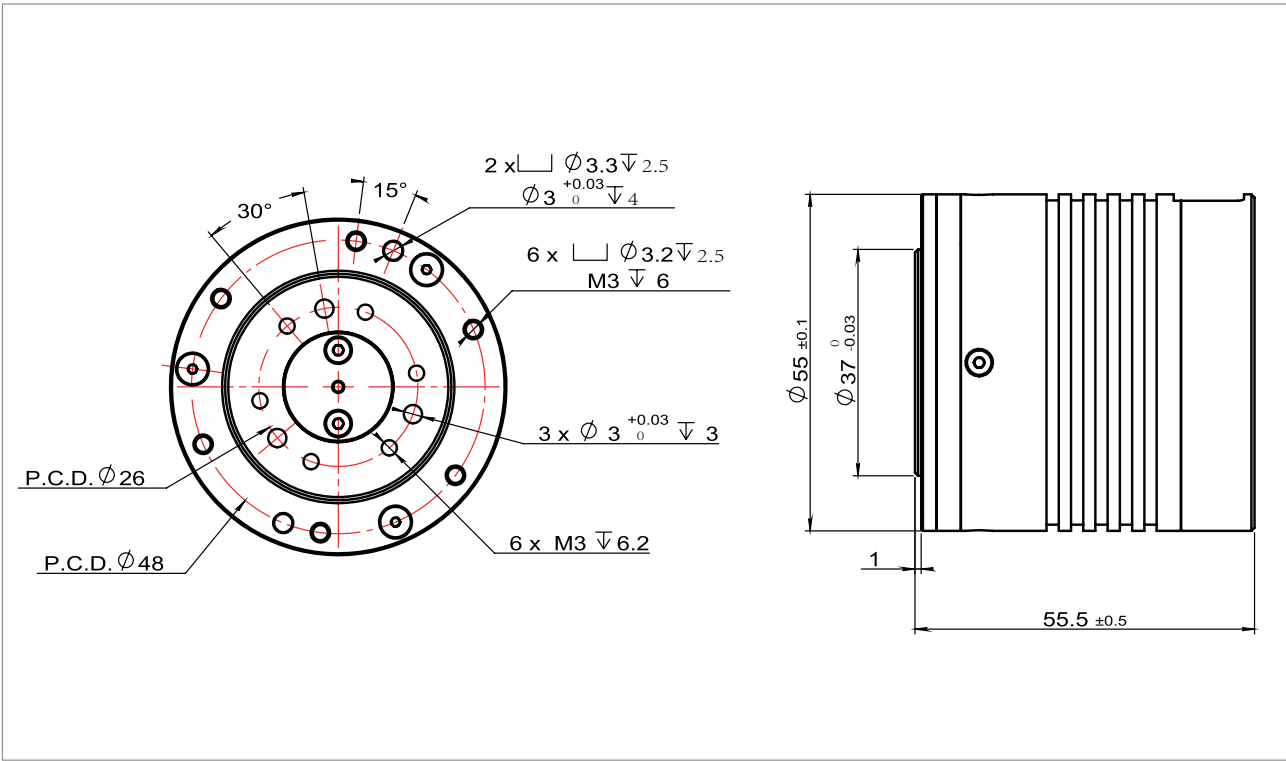
Series Name  
**RMD-X**  
Motor Simplified Name  
**X4-10**



Dual encoder

| Actuator Full Name | With Brake/Without Brake | Communication      |
|--------------------|--------------------------|--------------------|
| RMD-X4-P12-10-E    | N (without Brake)        | EtherCAT & CAN BUS |

## Installation Drawing



## Product Parameters

| Parameters               | Unit               | X4-10                                          |
|--------------------------|--------------------|------------------------------------------------|
| Gear Ratio               | —                  | 12.5                                           |
| Input Voltage            | V                  | 24                                             |
| Voltage Range            | V                  | 20-55                                          |
| No Load Speed            | RPM                | 317                                            |
| No-Load Input Current    | A                  | 1                                              |
| Rated Speed              | RPM                | 238                                            |
| Rated Torque             | N.m                | 4                                              |
| Rated Output Power       | W                  | 100                                            |
| Rated Phase Current      | A(rms)             | 7.8                                            |
| Peak Torque              | N.m                | 10                                             |
| Peak Phase Current       | A(rms)             | 19.5                                           |
| Efficiency               | %                  | 69.5                                           |
| Motor Back-EMF Constant  | Vdc/Krpm           | 6                                              |
| Module Torque Constant   | N.m/A              | 0.8                                            |
| Line Resistance          | Ω                  | 0.32                                           |
| Line Inductance          | mH                 | 0.14                                           |
| Pole Pairs               | —                  | 13                                             |
| 3 Phase Connection       | —                  | Y                                              |
| Back Drive Torque        | N.m                | 0.8                                            |
| Backlash                 | Arcmin             | ≤15                                            |
| Output Bearing Type      | —                  | Deep Groove Ball Bearings                      |
| Axial Load               | Tensile load       | KN                                             |
|                          | Compressive load   | KN                                             |
| Radial Load              | KN                 | 1.2                                            |
| Inertia                  | Kg.cm <sup>2</sup> | 0.25                                           |
| Encoder Type & Interface | —                  | Dual Encoder ABS-17BIT (Input) / 18BIT(Output) |
| Control Accuracy         | Degree             | <0.01                                          |
| Communication            | —                  | EtherCAT & CAN BUS                             |
| Weight                   | Kg                 | 0.33                                           |
| Insulation Grade         | —                  | F                                              |

Note:

- 1.The maximum operating voltage of the motor is 55V. It is recommended that customers add an external capacitor to regulate voltage, so as to ensure stable battery power supply and protect the PCB from damage caused by voltage fluctuations.
2. If voltage exceeds the rated value, the operating speed must not exceed the motor's rated speed.

## Stall Torque Data

|       | Torque (N.m) | Temperature Rise (°C) | Stall Time (s) | Phase Current (Arms) |
|-------|--------------|-----------------------|----------------|----------------------|
| X4-10 | 5.2          | 41                    | 10             | 7.8                  |
|       | 6            | 16                    | 8              | 9.1                  |
|       | 7.2          | 26                    | 5              | 11                   |
|       | 8            | 30                    | 3              | 12.1                 |

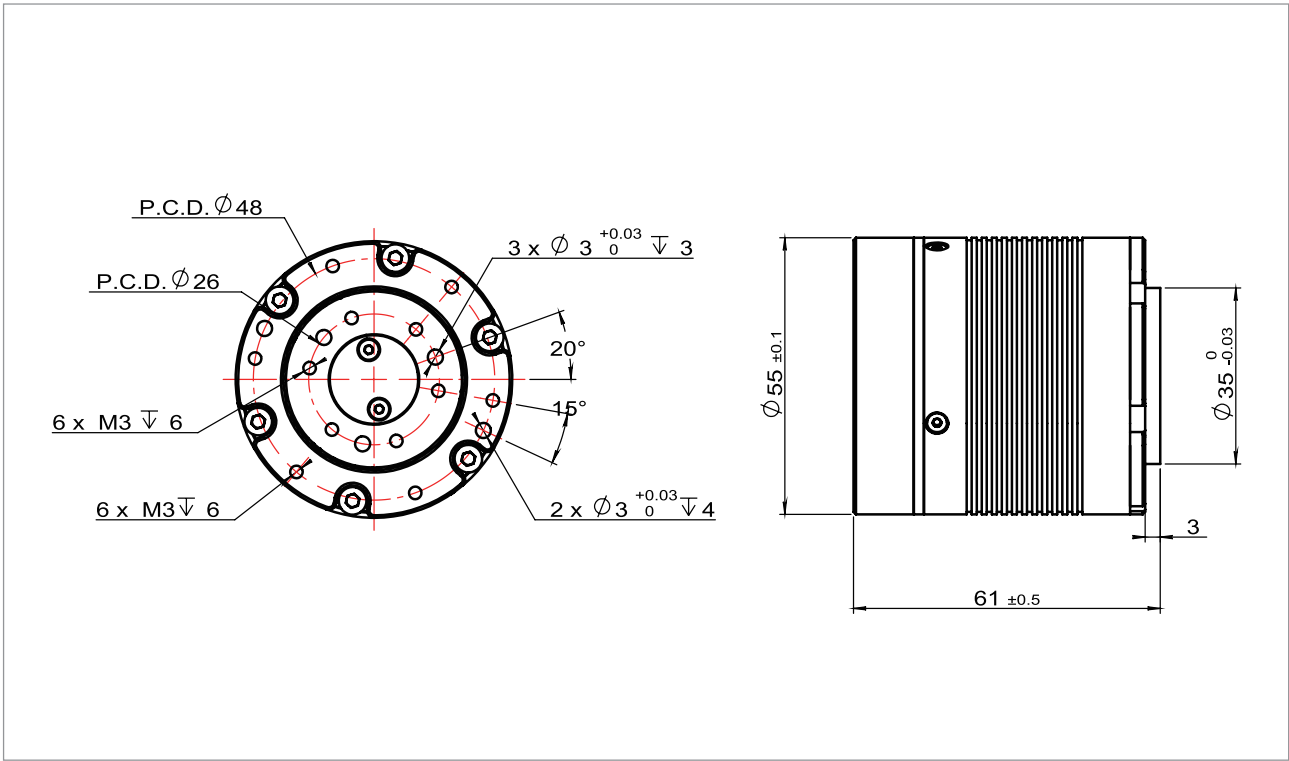
Series Name  
**RMD-X**  
Motor Simplified Name  
**X4-36**



Dual encoder

| Actuator Full Name | With Brake/Without Brake | Communication      |
|--------------------|--------------------------|--------------------|
| RMD-X4-P36-36-E    | N (without Brake)        | EtherCAT & CAN BUS |

## Installation Drawing



## Product Parameters

| Parameters               | Unit               | X4-36                                           |
|--------------------------|--------------------|-------------------------------------------------|
| Gear Ratio               | —                  | 36                                              |
| Input Voltage            | V                  | 24                                              |
| Voltage Range            | V                  | 20-55                                           |
| No Load Speed            | RPM                | 111                                             |
| No-Load Input Current    | A                  | 0.9                                             |
| Rated Speed              | RPM                | 83                                              |
| Rated Torque             | N.m                | 10.5                                            |
| Rated Output Power       | W                  | 100                                             |
| Rated Phase Current      | A(rms)             | 6.1                                             |
| Peak Torque              | N.m                | 34                                              |
| Peak Phase Current       | A(rms)             | 21.5                                            |
| Efficiency               | %                  | 63.1                                            |
| Motor Back-EMF Constant  | Vdc/Krpm           | 6                                               |
| Module Torque Constant   | N.m/A              | 1.9                                             |
| Line Resistance          | Ω                  | 0.39                                            |
| Line Inductance          | mH                 | 0.07                                            |
| Pole Pairs               | —                  | 11                                              |
| 3 Phase Connection       | —                  | Y                                               |
| Back Drive Torque        | N.m                | 1.14                                            |
| Backlash                 | Arcmin             | ≤15                                             |
| Output Bearing Type      | —                  | Crossed Roller Bearings                         |
| Axial Load               | Tensile load       | KN                                              |
|                          | Compressive load   | KN                                              |
| Radial Load              | KN                 | 1.5                                             |
| Inertia                  | Kg.cm <sup>2</sup> | 0.3                                             |
| Encoder Type & Interface | —                  | Dual Encoder ABS-17BIT (Input) / 18BIT (Output) |
| Control Accuracy         | Degree             | <0.01                                           |
| Communication            | —                  | EtherCAT & CAN BUS                              |
| Weight                   | Kg                 | 0.36                                            |
| Insulation Grade         | —                  | F                                               |

Note:

- 1.The maximum operating voltage of the motor is 55V. It is recommended that customers add an external capacitor to regulate voltage, so as to ensure stable battery power supply and protect the PCB from damage caused by voltage fluctuations.
2. If voltage exceeds the rated value, the operating speed must not exceed the motor's rated speed.

## Stall Torque Data

|       | Torque<br>(N.m) | Temperature Rise<br>(°C) | Stall Time<br>(s) | Phase Current<br>(Arms) |
|-------|-----------------|--------------------------|-------------------|-------------------------|
| X4-36 | 17.25           | 30                       | 15                | 9.2                     |
|       | 23              | 58                       | 10                | 12.7                    |
|       | 28.75           | 41                       | 5                 | 16.3                    |
|       | 34.5            | 50                       | 3                 | 21.2                    |

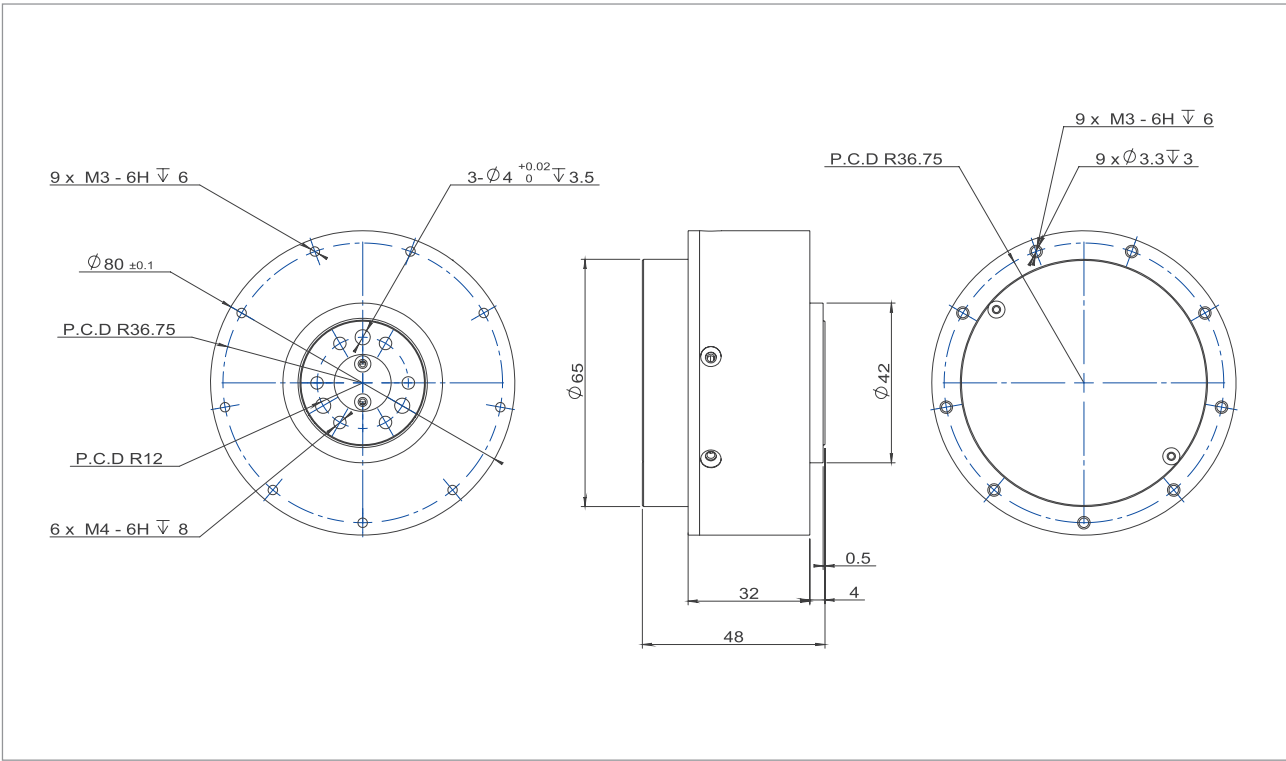
Series Name  
**RMD-X**  
Motor Simplified Name  
**X6-8**



Dual encoder

| Actuator Full Name | With Brake/Without Brake | Communication |
|--------------------|--------------------------|---------------|
| RMD-X6-P8-8-C      | N (without Brake)        | CAN BUS       |

### Installation Drawing



### Product Parameters

| Parameters               | Unit               | X6-8                                          |
|--------------------------|--------------------|-----------------------------------------------|
| Gear Ratio               | —                  | 8                                             |
| Input Voltage            | V                  | 48                                            |
| No Load Speed            | RPM                | 387                                           |
| No-Load Input Current    | A                  | 1.1                                           |
| Rated Speed              | RPM                | 310                                           |
| Rated Torque             | N.m                | 4.5                                           |
| Rated Output Power       | W                  | 135                                           |
| Rated Phase Current      | A(rms)             | 3.6                                           |
| Peak Torque              | N.m                | 8                                             |
| Peak Phase Current       | A(rms)             | 7.2                                           |
| Efficiency               | %                  | 78                                            |
| Motor Back-EMF Constant  | Vdc/Krpm           | 19.4                                          |
| Module Torque Constant   | N.m/A              | 1.3                                           |
| Line Resistance          | Ω                  | 1.1                                           |
| Line Inductance          | mH                 | 0.57                                          |
| Pole Pairs               | —                  | 14                                            |
| 3 Phase Connection       | —                  | Y                                             |
| Back Drive Torque        | N.m                | 0.8                                           |
| Backlash                 | Arcmin             | 10                                            |
| Output Bearing Type      | —                  | Deep Groove Ball Bearings                     |
| Axial Load               | Tensile load       | KN                                            |
|                          | Compressive load   | KN                                            |
| Radial Load              | KN                 |                                               |
| Inertia                  | Kg.cm <sup>2</sup> |                                               |
| Encoder Type & Interface | —                  | Dual Encoder ABS-17BIT(Input) / 18BIT(Output) |
| Control Accuracy         | Degree             | <0.01                                         |
| Communication            | —                  | CAN BUS                                       |
| Weight                   | Kg                 | 0.49                                          |
| Insulation Grade         | —                  | F                                             |

### Stall Torque Data

|      | Torque<br>(N.m) | Temperature Rise<br>(°C) | Stall Time<br>(s) | Phase Current<br>(Arms) |
|------|-----------------|--------------------------|-------------------|-------------------------|
| X6-8 | 6.75            | 30                       | 10                | 7                       |
|      | 9               | 49                       | 8                 | 9.5                     |
|      | 11.25           | 31                       | 5                 | 11.3                    |
|      | 13.5            | 19                       | 3                 | 12.7                    |

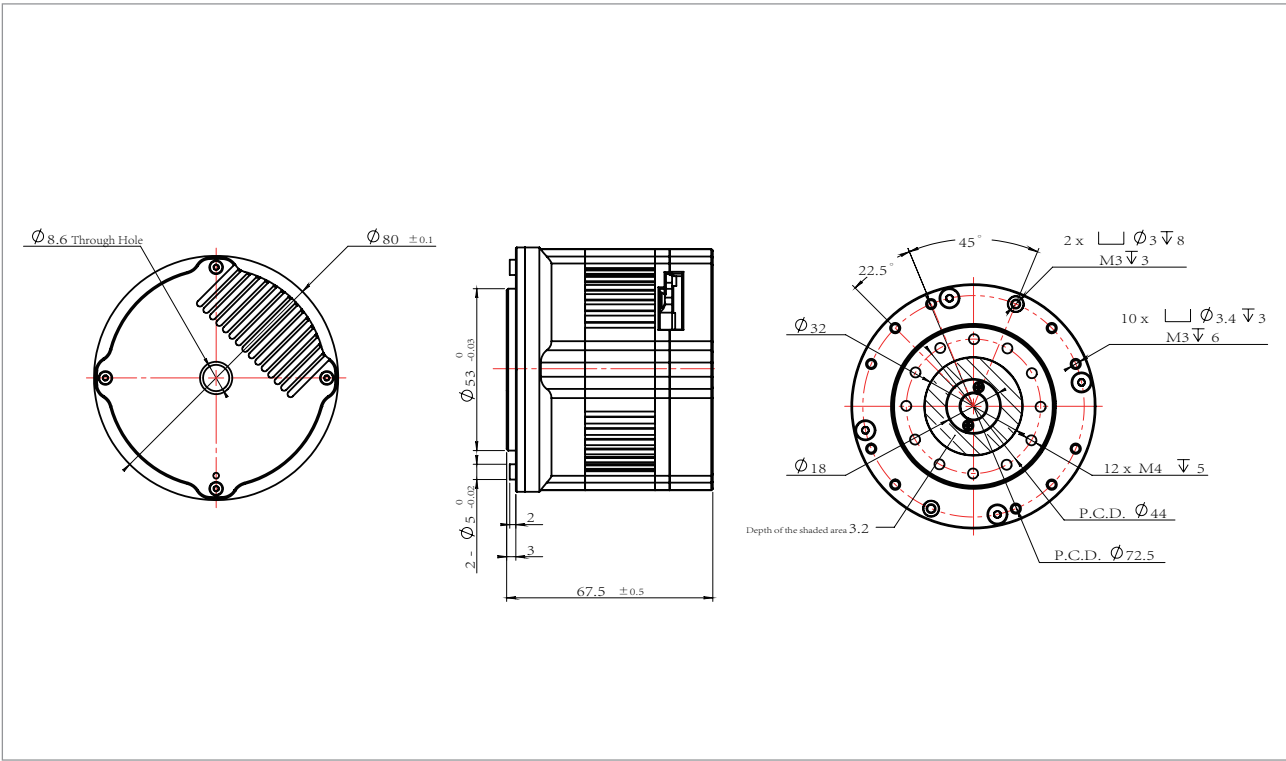
Series Name  
**RMD-X**  
Motor Simplified Name  
**X6-60**



Dual encoder

| Actuator Full Name | With Brake/Without Brake | Communication      |
|--------------------|--------------------------|--------------------|
| RMD-X6-P20-60-E    | N (without Brake)        | EtherCAT & CAN BUS |

Installation Drawing



Product Parameters

| Parameters               |                  | Unit     | X6-60                                         |
|--------------------------|------------------|----------|-----------------------------------------------|
| Gear Ratio               |                  | —        | 19.612                                        |
| Input Voltage            |                  | V        | 48                                            |
| Voltage Range            |                  | V        | 20-55                                         |
| No Load Speed            |                  | RPM      | 176                                           |
| No-Load Input Current    |                  | A        | 0.9                                           |
| Rated Speed              |                  | RPM      | 153                                           |
| Rated Torque             |                  | N.m      | 20                                            |
| Rated Output Power       |                  | W        | 320                                           |
| Rated Phase Current      |                  | A(rms)   | 9.5                                           |
| Peak Torque              |                  | N.m      | 60                                            |
| Peak Phase Current       |                  | A(rms)   | 29.1                                          |
| Efficiency               |                  | %        | 72.7                                          |
| Motor Back-EMF Constant  |                  | Vdc/Krpm | 16                                            |
| Module Torque Constant   |                  | N.m/A    | 2.1                                           |
| Line Resistance          |                  | Ω        | 0.41                                          |
| Line Inductance          |                  | mH       | 0.51                                          |
| Pole Pairs               |                  | —        | 10                                            |
| 3 Phase Connection       |                  | —        | Y                                             |
| Back Drive Torque        |                  | N.m      | 1.6                                           |
| Backlash                 |                  | Arcmin   | ≤15                                           |
| Output Bearing Type      |                  | —        | Crossed Roller Bearings                       |
| Axial Load               | Tensile load     | KN       | 1.8                                           |
|                          | Compressive load | KN       | 0.8                                           |
| Radial Load              |                  | KN       | 2                                             |
| Inertia                  |                  | Kg.cm²   | 0.66                                          |
| Encoder Type & Interface |                  | —        | Dual Encoder ABS-17BIT(Input) / 17BIT(Output) |
| Control Accuracy         |                  | Degree   | <0.01                                         |
| Communication            |                  | —        | EtherCAT & CAN BUS                            |
| Weight                   |                  | Kg       | 0.82                                          |
| Insulation Grade         |                  | —        | F                                             |

Note:

- 1.The maximum operating voltage of the motor is 55V. It is recommended that customers add an external capacitor to regulate voltage, so as to ensure stable battery power supply and protect the PCB from damage caused by voltage fluctuations.
2. If voltage exceeds the rated value, the operating speed must not exceed the motor's rated speed.

Stall Torque Data

|       | Torque (N.m) | Temperature Rise (°C) | Stall Time (s) | Phase Current (Arms) |
|-------|--------------|-----------------------|----------------|----------------------|
| X6-60 | 30           | 17                    | 15             | 12.7                 |
|       | 40           | 29                    | 10             | 17.7                 |
|       | 50           | 37                    | 8              | 22.6                 |
|       | 60           | 24                    | 5              | 28.3                 |

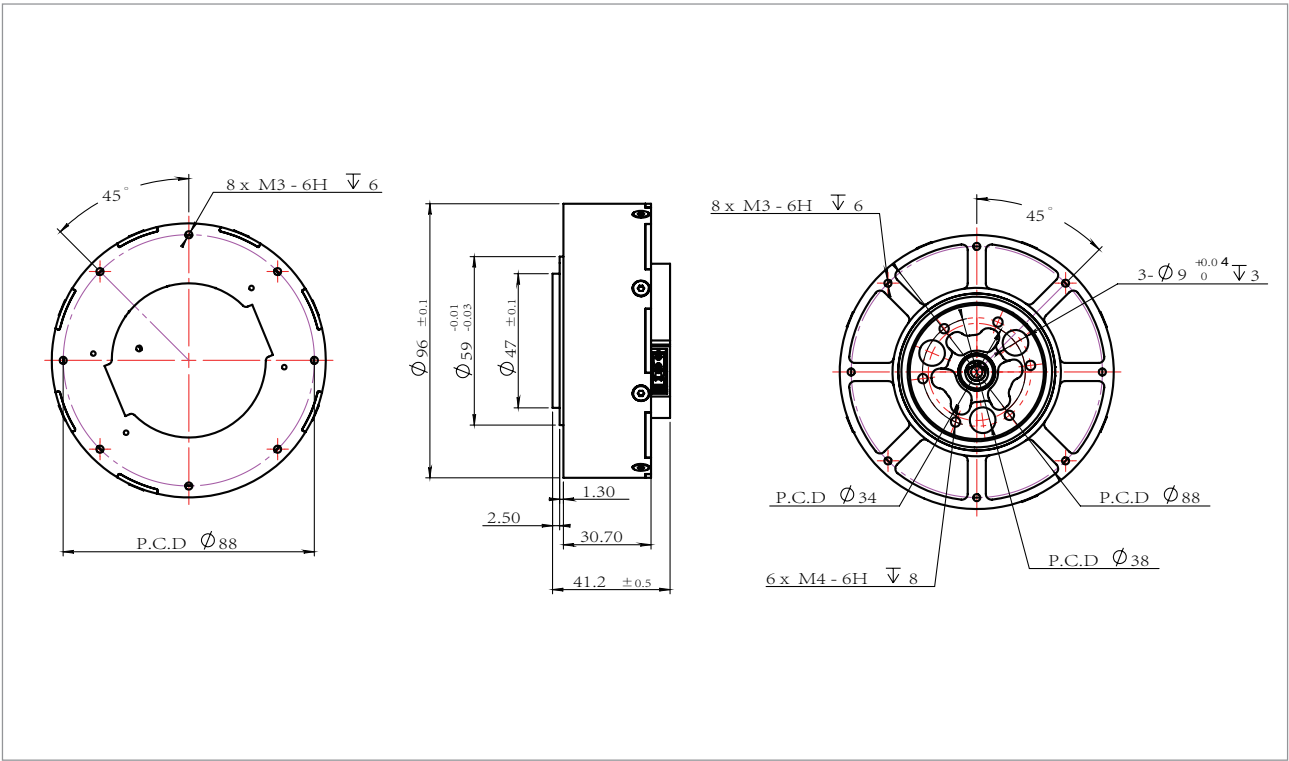
Series Name  
**RMD-X**  
Motor Simplified Name  
**X8-32**



Single Encoder

| Actuator Full Name | With Brake/Without Brake | Communication |
|--------------------|--------------------------|---------------|
| RMD-X8-P9-32-R     | N (without Brake)        | RS485         |

Installation Drawing



Product Parameters

| Parameters               | Unit               | X8-32                     |
|--------------------------|--------------------|---------------------------|
| Gear Ratio               | —                  | 9                         |
| Input Voltage            | V                  | 24                        |
| No Load Speed            | RPM                | 277                       |
| No-Load Input Current    | A                  | 0.9                       |
| Rated Speed              | RPM                | 244                       |
| Rated Torque             | N.m                | 8                         |
| Rated Output Power       | W                  | 204                       |
| Rated Phase Current      | A(rms)             | 6.2                       |
| Peak Torque              | N.m                | 32                        |
| Peak Phase Current       | A(rms)             | 30                        |
| Efficiency               | %                  | 82                        |
| Motor Back-EMF Constant  | Vdc/Krpm           | 10.9                      |
| Module Torque Constant   | N.m/A              | 1.3                       |
| Line Resistance          | Ω                  | 0.13                      |
| Line Inductance          | mH                 | 0.08                      |
| Pole Pairs               | —                  | 21                        |
| 3 Phase Connection       | —                  | △                         |
| Back Drive Torque        | N.m                | 0.8                       |
| Backlash                 | Arcmin             | ≤10                       |
| Output Bearing Type      | —                  | Deep Groove Ball Bearings |
| Axial Load               | Tensile load       | KN                        |
|                          | Compressive load   | KN                        |
| Radial Load              | KN                 | 2                         |
| Inertia                  | Kg.cm <sup>2</sup> | 1.43                      |
| Encoder Type & Interface | —                  | Single Encoder ABS-18BIT  |
| Control Accuracy         | Degree             | <0.01                     |
| Communication            | —                  | RS485                     |
| Weight                   | Kg                 | 0.55                      |
| Insulation Grade         | —                  | F                         |

Stall Torque Data

|       | Torque (N.m) | Temperature Rise (°C) | Stall Time (s) | Phase Current (Arms) |
|-------|--------------|-----------------------|----------------|----------------------|
| X8-32 | 15.6         | 6                     | 10             | 18.4                 |
|       | 18           | 11                    | 8              | 21.2                 |
|       | 24           | 36                    | 5              | 29                   |
|       | 30           | 54                    | 3              | 38.2                 |

Series Name  
**RMD-X**

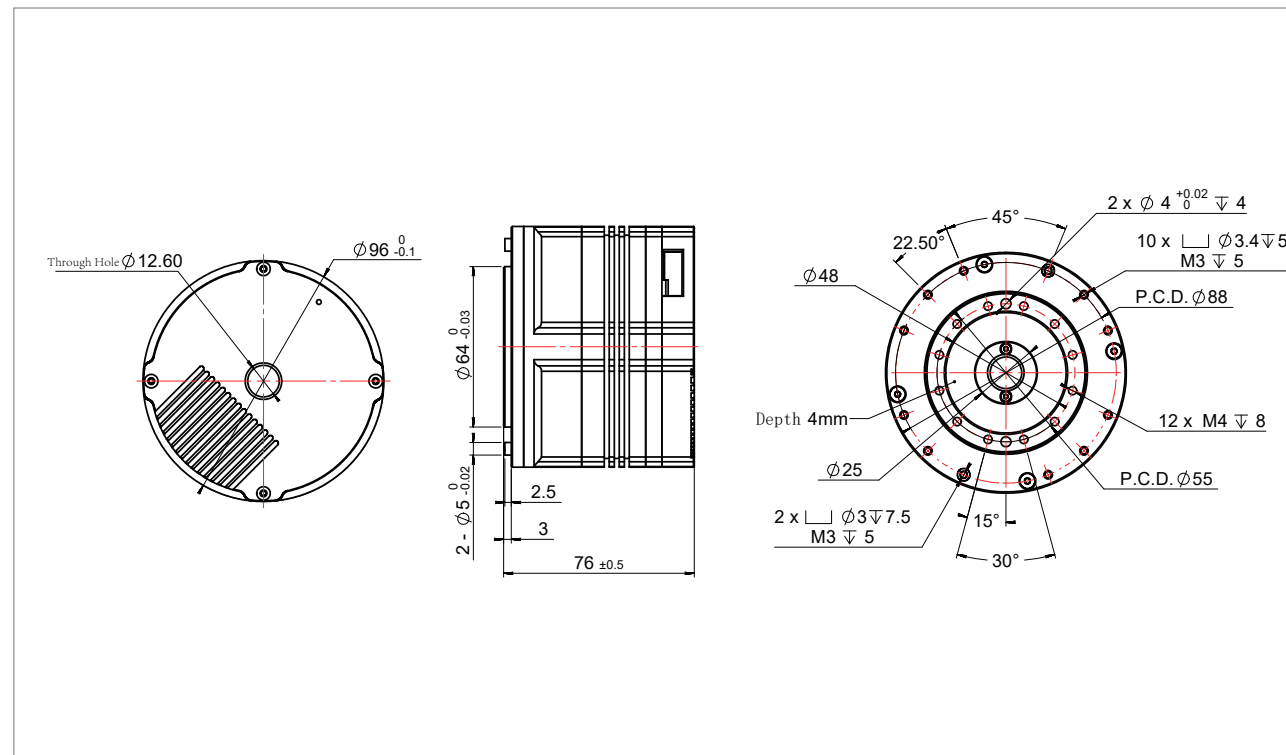
Motor Simplified Name  
**X8-120**



## Dual encoder

| Actuator Full Name | With Brake/Without Brake | Communication      |
|--------------------|--------------------------|--------------------|
| RMD-X8-P20-120-E   | N (without Brake)        | EtherCAT & CAN BUS |

## ■ Installation Drawing



## ■ Product Parameters

| Parameters               |                  | Unit     | X8-120                                          |
|--------------------------|------------------|----------|-------------------------------------------------|
| Gear Ratio               |                  | —        | 19.612                                          |
| Input Voltage            |                  | V        | 48                                              |
| Voltage Range            |                  | V        | 20-55                                           |
| No Load Speed            |                  | RPM      | 158                                             |
| No-Load Input Current    |                  | A        | 1.6                                             |
| Rated Speed              |                  | RPM      | 127                                             |
| Rated Torque             |                  | N.m      | 43                                              |
| Rated Output Power       |                  | W        | 574                                             |
| Rated Phase Current      |                  | A(rms)   | 17.6                                            |
| Peak Torque              |                  | N.m      | 120                                             |
| Peak Phase Current       |                  | A(rms)   | 43.8                                            |
| Efficiency               |                  | %        | 79                                              |
| Motor Back-EMF Constant  |                  | Vdc/Krpm | 19.2                                            |
| Module Torque Constant   |                  | N.m/A    | 2.4                                             |
| Line Resistance          |                  | Ω        | 0.18                                            |
| Line Inductance          |                  | mH       | 0.31                                            |
| Pole Pairs               |                  | —        | 10                                              |
| 3 Phase Connection       |                  | —        | Y                                               |
| Back Drive Torque        |                  | N.m      | 1.5                                             |
| Backlash                 |                  | Arcmin   | ≤15                                             |
| Output Bearing Type      |                  | —        | Crossed Roller Bearings                         |
| Axial Load               | Tensile load     | KN       | 4                                               |
|                          | Compressive load | KN       | 1                                               |
| Radial Load              |                  | KN       | 4.5                                             |
| Inertia                  |                  | Kg.cm²   | 1.5                                             |
| Encoder Type & Interface |                  | —        | Dual Encoder ABS-17BIT (Input) / 17BIT (Output) |
| Control Accuracy         |                  | Degree   | <0.01                                           |
| Communication            |                  | —        | EtherCAT & CAN BUS                              |
| Weight                   |                  | Kg       | 1.40                                            |
| Insulation Grade         |                  | —        | F                                               |

Note:

1. The maximum operating voltage of the motor is 55V. It is recommended that customers add an external capacitor to regulate voltage, so as to ensure stable battery power supply and protect the PCB from damage caused by voltage fluctuations.
2. If voltage exceeds the rated value, the operating speed must not exceed the motor's rated speed.

## ■ Stall Torque Data

|        |                 |                          |                   |                         |
|--------|-----------------|--------------------------|-------------------|-------------------------|
| X8-120 | Torque<br>(N.m) | Temperature Rise<br>(°C) | Stall Time<br>(s) | Phase Current<br>(Arms) |
|        | 64.5            | 7                        | 15                | 23.3                    |
|        | 86              | 10                       | 10                | 31.1                    |
|        | 107.5           | 26                       | 8                 | 38.9                    |
|        | 129             | 30                       | 5                 | 43.8                    |

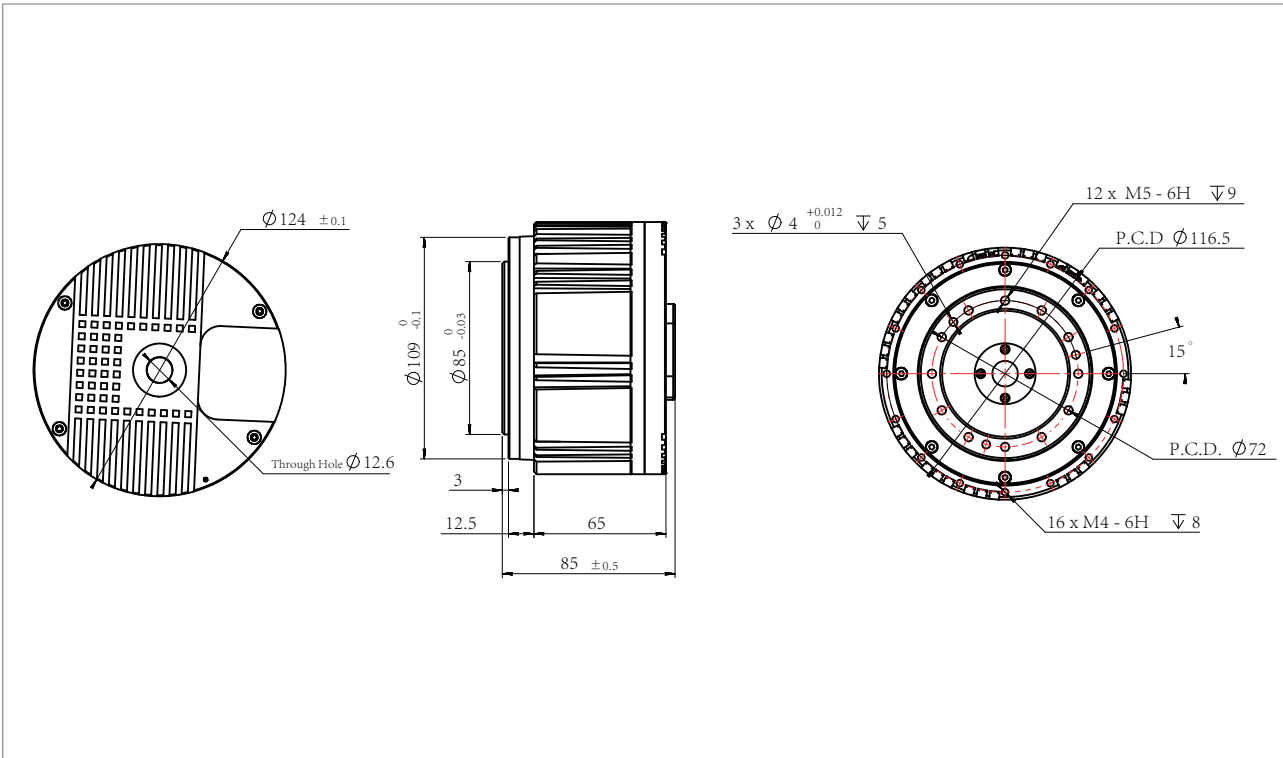
Series Name  
**RMD-X**  
Motor Simplified Name  
**X12-320**



Dual encoder

| Actuator Full Name | With Brake/Without Brake | Communication      |
|--------------------|--------------------------|--------------------|
| RMD-X12-P20-320-E  | N (without Brake)        | EtherCAT / CAN BUS |

## Installation Drawing



## Product Parameters

| Parameters               | Unit               | X12-320                                        |
|--------------------------|--------------------|------------------------------------------------|
| Gear Ratio               | —                  | 20                                             |
| Input Voltage            | V                  | 48                                             |
| Voltage Range            | V                  | 20-70                                          |
| No Load Speed            | RPM                | 125                                            |
| No-Load Input Current    | A                  | 2.7                                            |
| Rated Speed              | RPM                | 100                                            |
| Rated Torque             | N.m                | 85                                             |
| Rated Output Power       | W                  | 900                                            |
| Rated Phase Current      | A(rms)             | 30                                             |
| Peak Torque              | N.m                | 320                                            |
| Peak Phase Current       | A(rms)             | 100                                            |
| Efficiency               | %                  | 75                                             |
| Motor Back-EMF Constant  | Vdc/Krpm           | 17.9                                           |
| Module Torque Constant   | N.m/A              | 3.3                                            |
| Line Resistance          | Ω                  | 0.12                                           |
| Line Inductance          | mH                 | 0.05                                           |
| Pole Pairs               | —                  | 20                                             |
| 3 Phase Connection       | —                  | Y                                              |
| Back Drive Torque        | N.m                | 3.8                                            |
| Backlash                 | Arcmin             | ≤15                                            |
| Output Bearing Type      | —                  | Crossed Roller Bearings                        |
| Axial Load               | Tensile load       | KN                                             |
|                          | Compressive load   | KN                                             |
| Radial Load              | KN                 | 5                                              |
| Inertia                  | Kg.cm <sup>2</sup> | 12.9                                           |
| Encoder Type & Interface | —                  | Dual Encoder ABS-17BIT (Input) /17BIT (Output) |
| Control Accuracy         | Degree             | <0.01                                          |
| Communication            | —                  | EtherCAT & CAN BUS                             |
| Weight                   | Kg                 | 2.37                                           |
| Insulation Grade         | —                  | F                                              |

Note:

- 1.The maximum operating voltage of the motor is 55V. It is recommended that customers add an external capacitor to regulate voltage, so as to ensure stable battery power supply and protect the PCB from damage caused by voltage fluctuations.
2. If voltage exceeds the rated value, the operating speed must not exceed the motor's rated speed.

## Stall Torque Data

|         | Torque<br>(N.m) | Temperature Rise<br>(°C) | Stall Time<br>(s) | Phase Current<br>(Arms) |
|---------|-----------------|--------------------------|-------------------|-------------------------|
| X12-320 | 150             | 13                       | 10                | 37.5                    |
|         | 200             | 5                        | 8                 | 49.5                    |
|         | 250             | 7                        | 7                 | 61.5                    |
|         | 300             | 43                       | 3                 | 75.3                    |

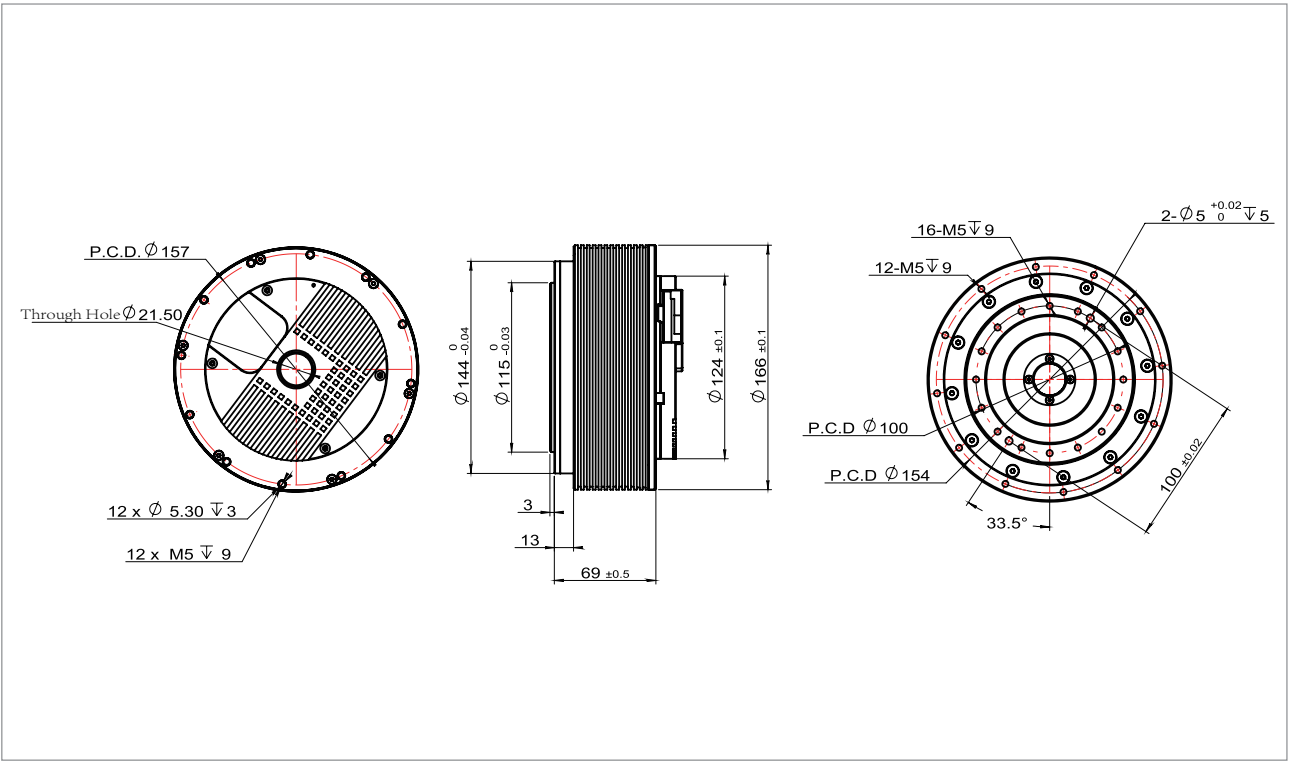
Series Name  
**RMD-X**  
Motor Simplified Name  
**X15-450**



Dual encoder

| Actuator Full Name | With Brake/Without Brake | Communication      |
|--------------------|--------------------------|--------------------|
| RMD-X15-P20-450-E  | N (without Brake)        | EtherCAT & CAN BUS |

## Installation Drawing



## Product Parameters

| Parameters               |                  | Unit     | X15-450                                         |
|--------------------------|------------------|----------|-------------------------------------------------|
| Gear Ratio               |                  | —        | 20.25                                           |
| Input Voltage            |                  | V        | 72                                              |
| Voltage Range            |                  | V        | 20-80                                           |
| No Load Speed            |                  | RPM      | 108                                             |
| No-Load Input Current    |                  | A        | 3.5                                             |
| Rated Speed              |                  | RPM      | 98                                              |
| Rated Torque             |                  | N.m      | 145                                             |
| Rated Output Power       |                  | W        | 1480                                            |
| Rated Phase Current      |                  | A(rms)   | 25                                              |
| Peak Torque              |                  | N.m      | 450                                             |
| Peak Phase Current       |                  | A(rms)   | 69.2                                            |
| Efficiency               |                  | %        | 82.4                                            |
| Motor Back-EMF Constant  |                  | Vdc/Krpm | 29.9                                            |
| Module Torque Constant   |                  | N.m/A    | 5.8                                             |
| Line Resistance          |                  | Ω        | 0.08                                            |
| Line Inductance          |                  | mH       | 0.14                                            |
| Pole Pairs               |                  | —        | 20                                              |
| 3 Phase Connection       |                  | —        | Y                                               |
| Back Drive Torque        |                  | N.m      | 4                                               |
| Backlash                 |                  | Arcmin   | ≤15                                             |
| Output Bearing Type      |                  | —        | Crossed Roller Bearings                         |
| Axial Load               | Tensile load     | KN       | 5.4                                             |
|                          | Compressive load | KN       | 5.4                                             |
| Radial Load              |                  | KN       | 6                                               |
| Inertia                  |                  | Kg.cm²   | 31.6                                            |
| Encoder Type & Interface |                  | —        | Dual Encoder ABS-17BIT (Input) / 17BIT (Output) |
| Control Accuracy         |                  | Degree   | <0.01                                           |
| Communication            |                  | —        | EtherCAT & CAN BUS                              |
| Weight                   |                  | Kg       | 3.50                                            |
| Insulation Grade         |                  | —        | F                                               |

Note:

- When the operating voltage exceeds the rated voltage, the operating speed must not exceed the motor's rated speed.
- When the operating voltage is lower than the rated voltage, the operating speed must be reduced proportionally. In this case, the rated torque remains constant, but the rated current will be slightly higher at the same torque level. Please refer to the characteristic curve for different voltages.

## Stall Torque Data

|         | Torque (N.m) | Temperature Rise (°C) | Stall Time (s) | Phase Current (Arms) |
|---------|--------------|-----------------------|----------------|----------------------|
| X15-450 | 217.5        | 15                    | 15             | 31.1                 |
|         | 290          | 15                    | 10             | 41                   |
|         | 362.5        | 20                    | 8              | 51.6                 |
|         | 435          | 25                    | 5              | 67.2                 |