

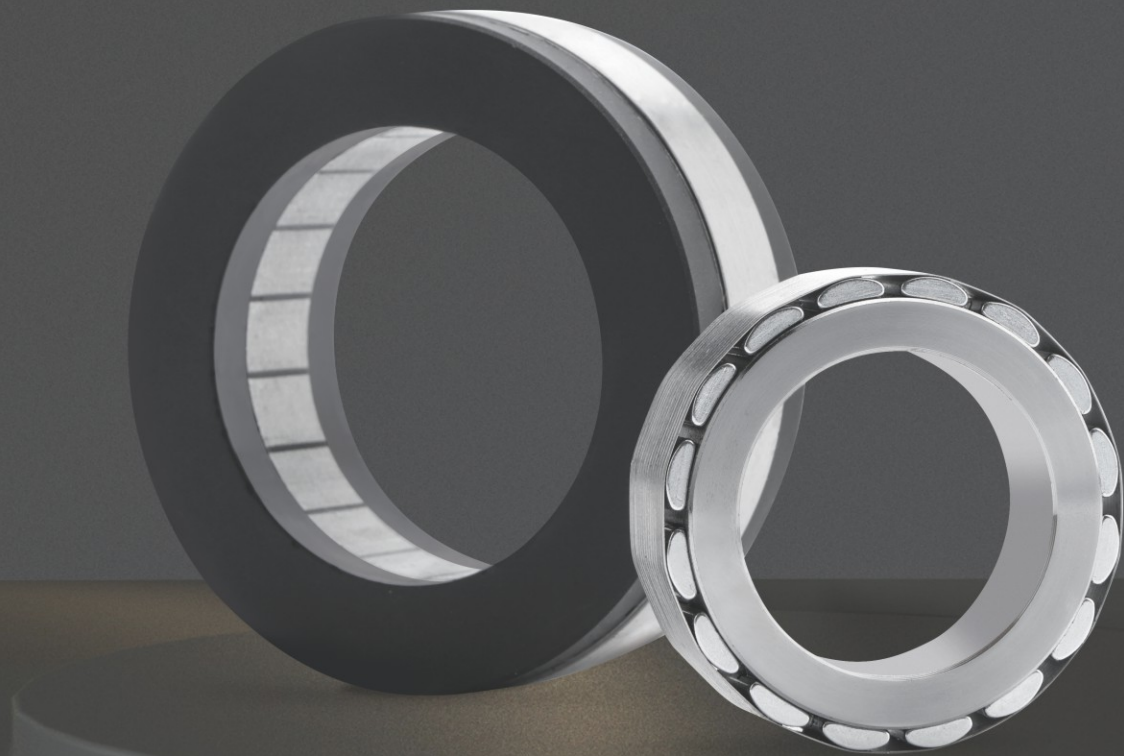
# HBM

SERIES

## Frameless Torque Motor

### Product characteristics

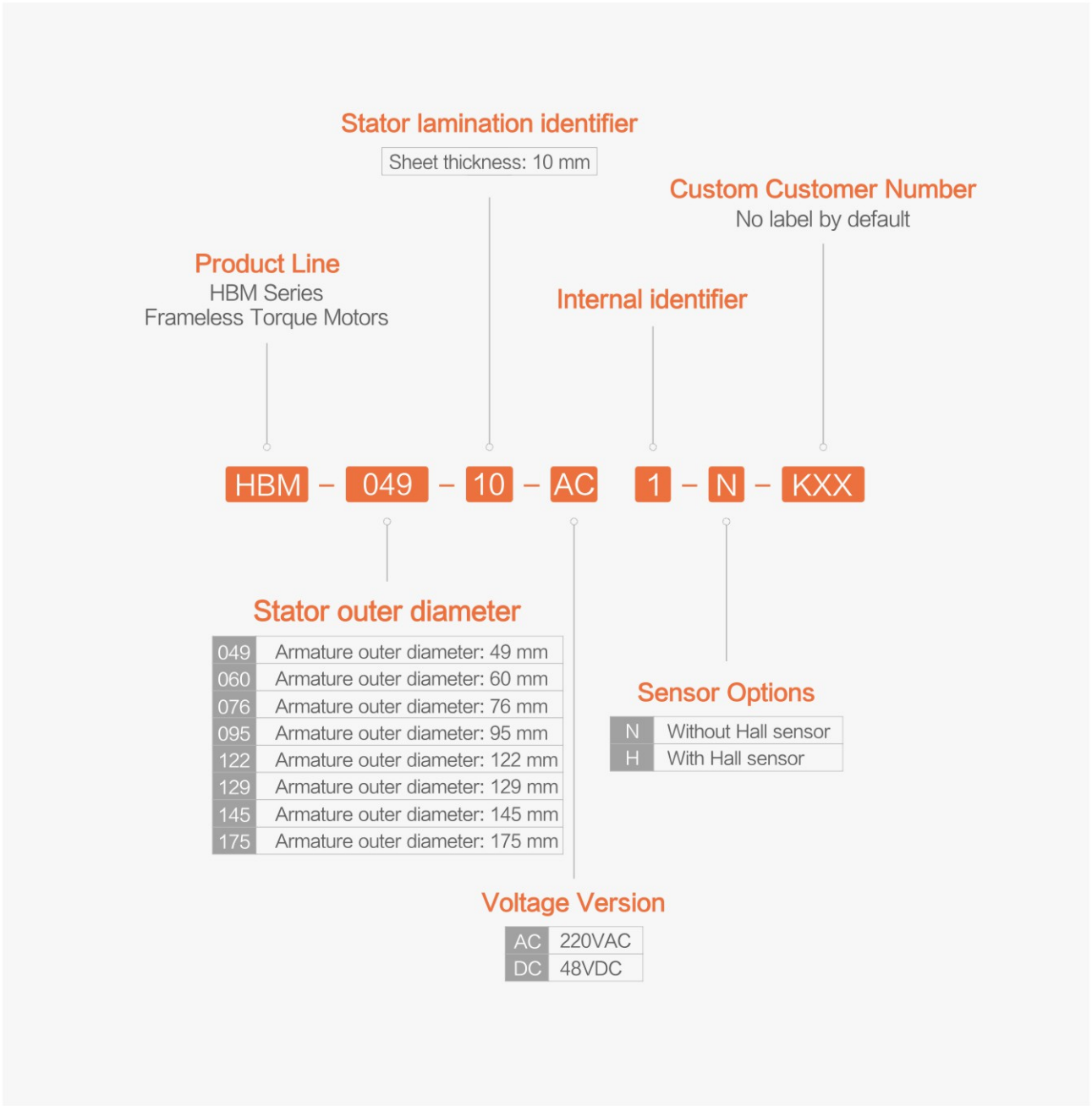
- The HBM series of frameless torque motors primarily consist of a stator and windings, a high-performance neodymium-iron-boron rotor, and Hall sensor circuitry. They offer flexible application options and facilitate the design of reliable and compact systems.
- High torque output and torque density.
- Ultra-low cogging torque with minimal torque ripple even at low speeds, enabling quiet and precise rotational motion.
- A wide range of models is available, covering frame sizes from 49 mm to 175 mm, with voltage specifications of 220 VAC and 48 VDC.
- Built-in Hall sensors provide feedback signal output.
- Class F insulation ensures suitability for high-temperature operation.



### Application Area

Our products are widely used in robotics, electronic and semiconductor equipment, 3C devices, precision gimbals, precision CNC machine tools, precision laser processing equipment, optical inspection, logistics equipment, engraving machines, medical devices, printing machinery, and aerospace equipment.

### Model definition





FOR A MORE STABLE ROTATING JOINT MODULE,  
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**HBM** SERIES

**220VAC**

| Operating voltage     |        | 220VAC                     |              |              |              |              |              |              |              |
|-----------------------|--------|----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Model                 | HBM-   | 049-10-AC1-N               | 060-14-AC1-N | 076-12-AC1-N | 095-14-AC1-N | 122-16-AC1-N | 129-16-AC1-N | 145-20-AC1-N | 175-40-AC1-N |
| Number of phases      |        | 3                          | 3            | 3            | 3            | 3            | 3            | 3            | 3            |
| Extreme Numbers       |        | 10                         | 16           | 16           | 16           | 16           | 16           | 16           | 20           |
| Peak Speed            | rpm    | 5900                       | 5900         | 5000         | 4800         | 3800         | 4600         | 4000         | 4000         |
| Rated Speed           | rpm    | 4000                       | 3500         | 3000         | 2600         | 2500         | 2500         | 2000         | 2500         |
| Rated Torque          | N.m    | 0.11                       | 0.275        | 0.66         | 1.64         | 2            | 3.1          | 6.00         | 15           |
| Rated Power           | W      | 50                         | 100          | 210          | 450          | 530          | 800          | 1256         | 3930         |
| Rated Current         | Arms   | 1                          | 1            | 2.3          | 3.8          | 4            | 5.40         | 9.00         | 18           |
| Peak Current          | Arms   | 3                          | 3            | 6.9          | 11.4         | 12           | 16.20        | 18.00        | 35           |
| Peak Torque           | N.m    | 0.33                       | 0.825        | 1.98         | 4.92         | 6            | 9.2          | 12.00        | 28.6         |
| Wire Resistance       | Ω      | 12                         | 7.5          | 6.2          | 3.55         | 2.1          | 0.9          | 0.8          | 0.126        |
| Wire Inductance       | mH     | 9.5                        | 11.5         | 7.7          | 10           | 12           | 6            | 8.0          | 0.65         |
| Torque Constant       | N.m/A  | 0.1                        | 0.27         | 0.28         | 0.43         | 0.53         | 0.56         | 0.68         | 0.84         |
| Back-EMF Constant     | V/kRPM | 10.5                       | 25           | 25           | 40           | 52.5         | 40.0         | 44           | 52           |
| Weight                | Kg     | 0.12                       | 0.27         | 0.4          | 0.6          | 1            | 1.2          | 1.9          | 5.2          |
| Insulation Class      |        | Class B                    |              |              |              |              |              |              |              |
| Dielectric Strength   |        | 500 VDC (1 minute)         |              |              |              |              |              |              |              |
| Insulation Resistance |        | 200 MΩ or higher (500 VDC) |              |              |              |              |              |              |              |

When using this parameter with an all-in-one unit, the current must be limited in accordance with the rated current and peak current specified in the unit's manual.

**HBM** SERIES

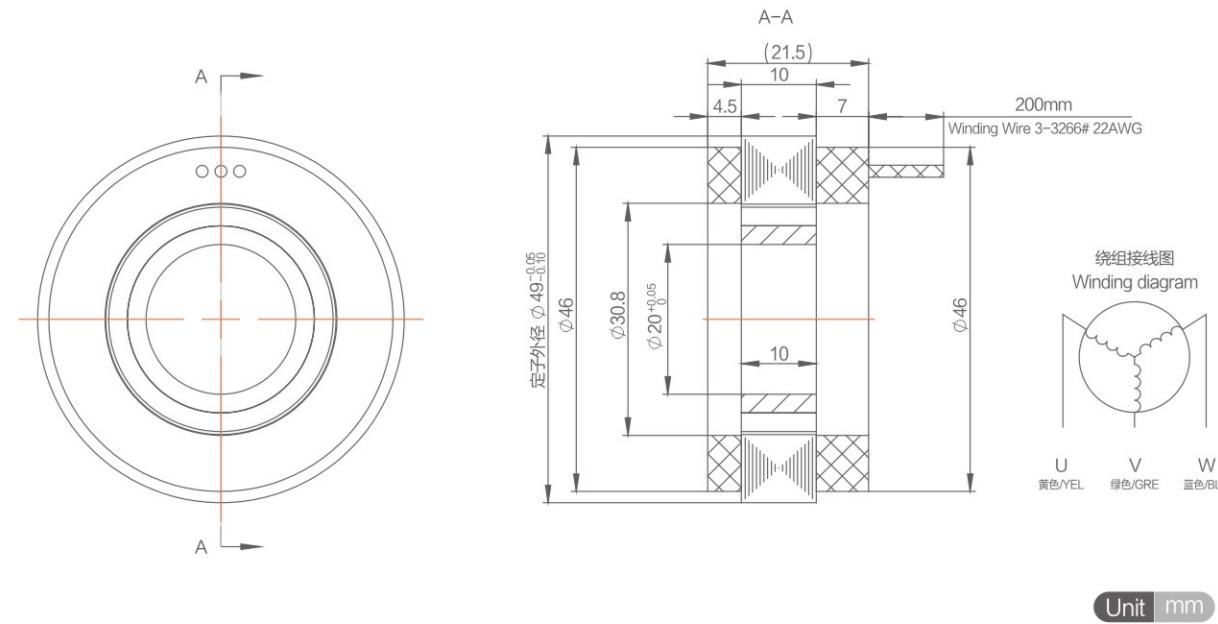
**48VDC**

| Operating voltage     |        | 48VDC                      |              |              |              |              |              |              |              |
|-----------------------|--------|----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Model                 | HBM-   | 049-10-DC1-N               | 060-14-DC1-N | 076-12-DC1-N | 095-14-DC1-N | 122-16-DC1-N | 129-16-DC1-N | 145-20-DC1-N | 175-40-DC1-N |
| Number of phases      |        | 3                          | 3            | 3            | 3            | 3            | 3            | 3            | 3            |
| Extreme Numbers       |        | 10                         | 16           | 16           | 16           | 16           | 16           | 16           | 20           |
| Peak Speed            | rpm    | 5400                       | 5000         | 4400         | 3500         | 2800         | 3000         | 2600         | 2500         |
| Rated Speed           | rpm    | 3000                       | 3000         | 2600         | 2500         | 2300         | 2000         | 1600         | 2000         |
| Rated Torque          | N.m    | 0.22                       | 0.64         | 1            | 1.6          | 2.1          | 3.3          | 3.41         | 15           |
| Rated Power           | W      | 70                         | 200          | 280          | 450          | 500          | 690          | 600          | 3140         |
| Rated Current         | Arms   | 2                          | 5.6          | 8.7          | 14           | 16.7         | 20.0         | 21           | 80           |
| Peak Current          | Arms   | 4                          | 11.2         | 17.4         | 28           | 50.1         | 55.5         | 42           | 149          |
| Peak Torque           | N.m    | 0.44                       | 1.28         | 2            | 3.2          | 6.3          | 9.2          | 10.23        | 28.6         |
| Wire Resistance       | Ω      | 2.56                       | 0.85         | 0.4          | 0.13         | 0.2          | 0.1          | 0.074        | 0.008        |
| Wire Inductance       | mH     | 1.8                        | 1            | 0.9          | 0.36         | 0.4          | 0.4          | 0.3          | 0.048        |
| Torque Constant       | N.m/A  | 0.1                        | 0.11         | 0.11         | 0.11         | 0.13         | 0.16         | 0.16         | 0.19         |
| Back-EMF Constant     | V/kRPM | 9.5                        | 6.5          | 7.7          | 10.5         | 12.57        | 10.50        | 15           | 11.9         |
| Weight                | Kg     | 0.12                       | 0.27         | 0.4          | 0.6          | 1            | 1.2          | 1.9          | 5.3          |
| Insulation Class      |        | Class B                    |              |              |              |              |              |              |              |
| Dielectric Strength   |        | 500 VDC (1 minute)         |              |              |              |              |              |              |              |
| Insulation Resistance |        | 200 MΩ or higher (500 VDC) |              |              |              |              |              |              |              |

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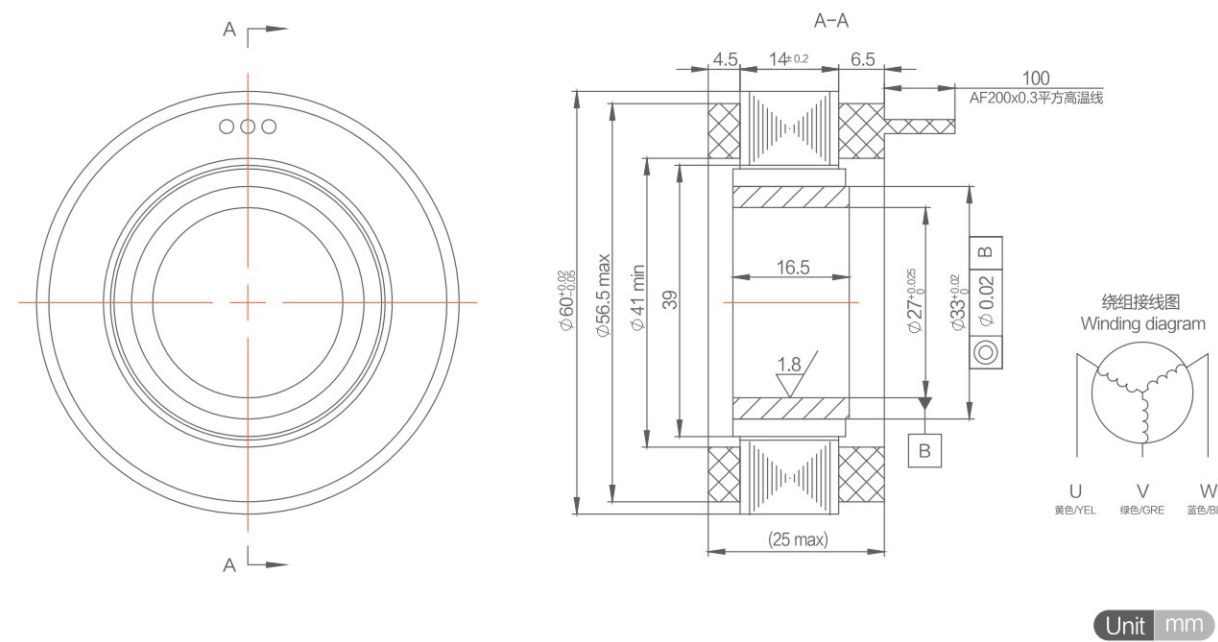
**HBM-049-10-AC(DC)1-N**

**Frameless torque motor**



**HBM-060-14-AC(DC)1-N**

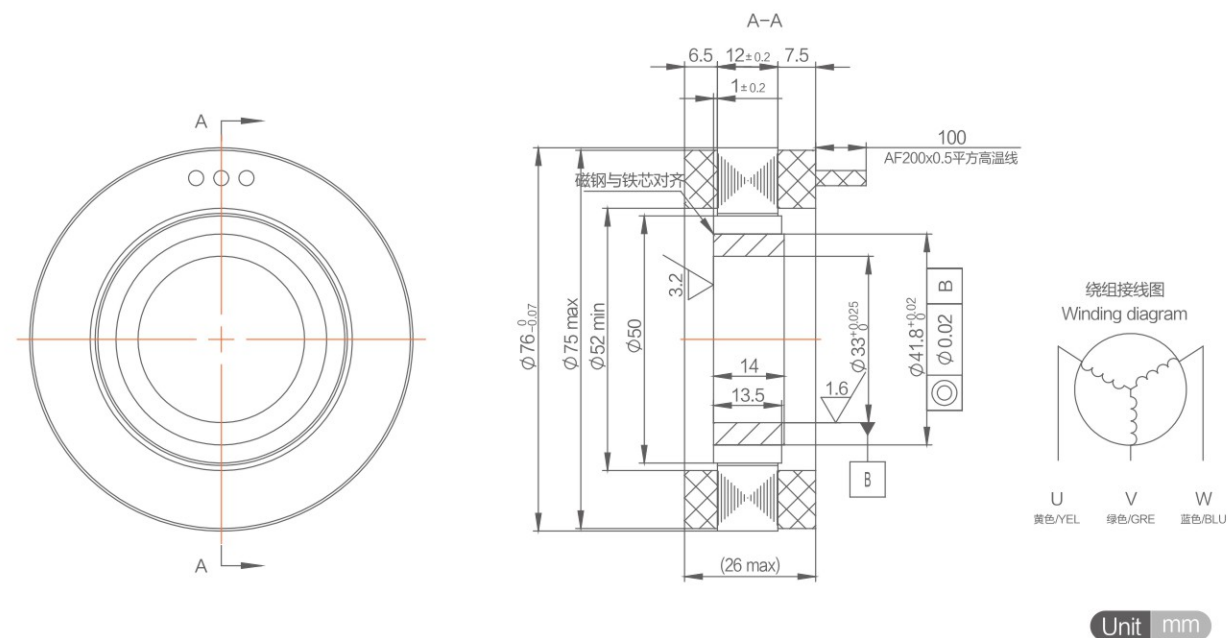
**Frameless torque motor**



FOR A MORE STABLE ROTATING JOINT MODULE,  
CHOOSE HOBBER

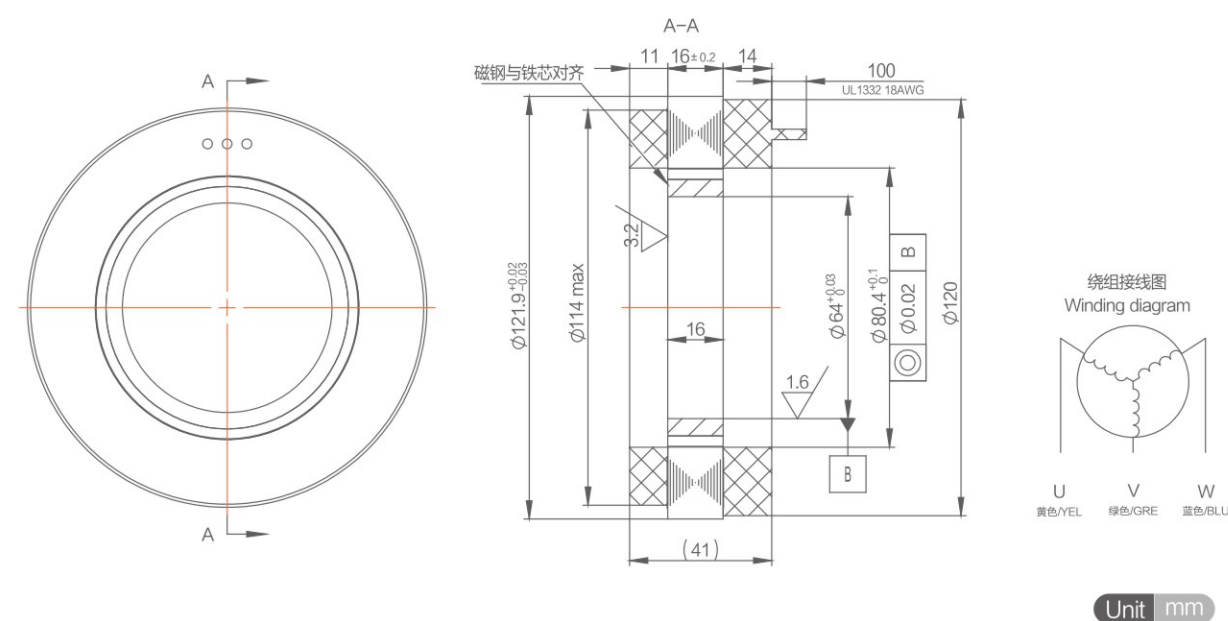
## HBM-076-12-AC(DC)1-N

### Frameless torque motor



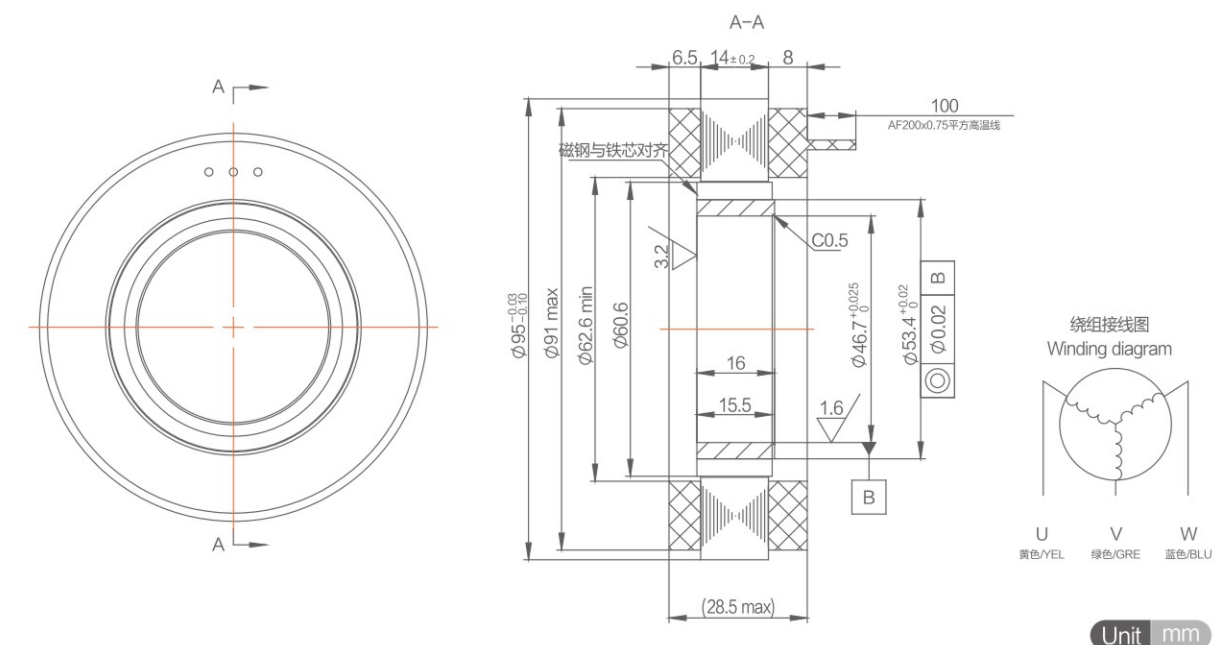
## HBM-122-16-AC(DC)1-N

### Frameless torque motor



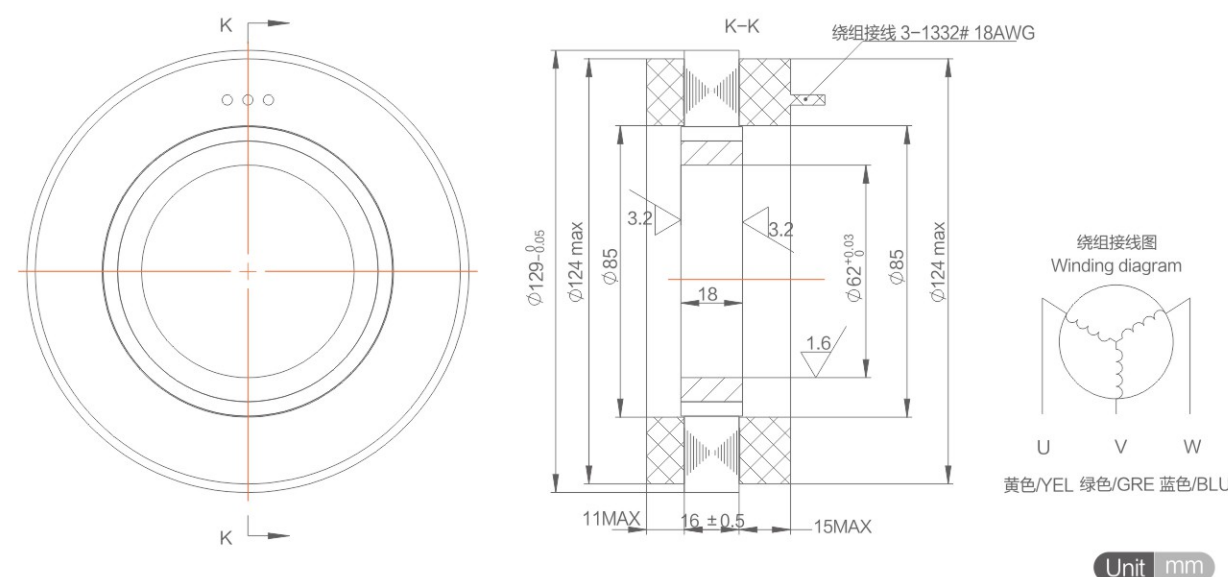
## HBM-095-14-AC(DC)1-N

### Frameless torque motor



## HBM-129-16-AC(DC)1-N

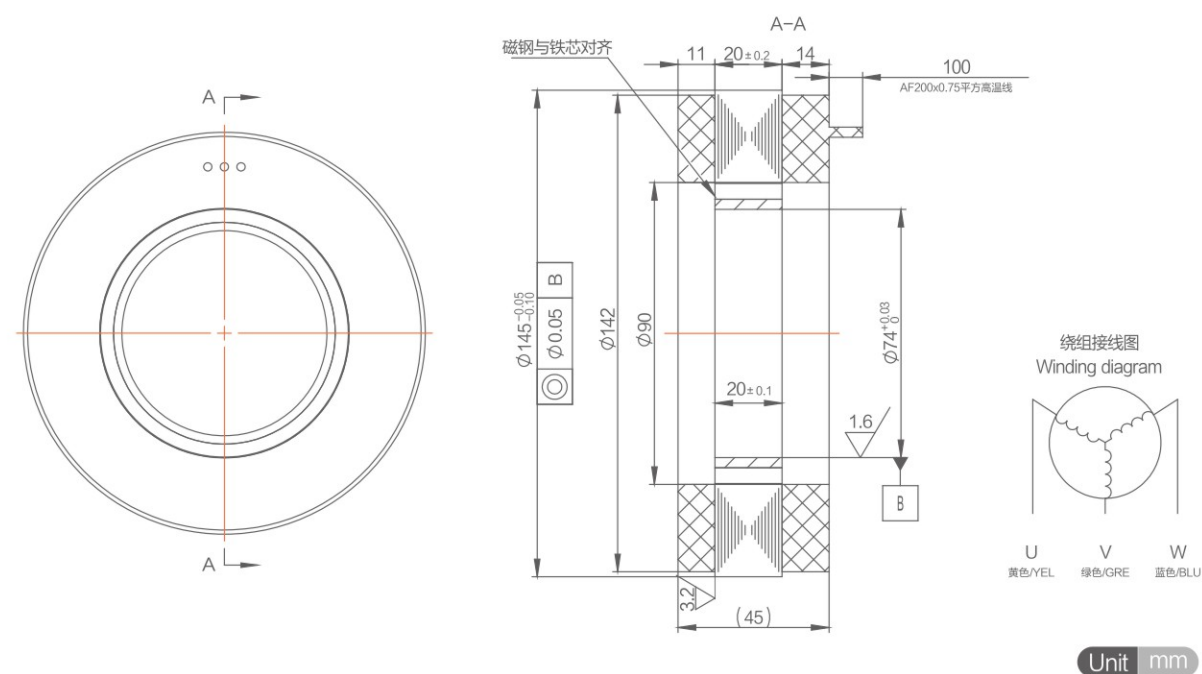
### Frameless torque motor



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## HBM-145-20-AC(DC)1-N

## Frameless torque motor



## HBM-175-40-AC(DC)1-N

## Frameless torque motor

