

# 6 Axis Force Sensors

## Selection Manual

KWR75 Series

FORCE  
SENSOR

Let the Robot Feel the Wonderful World



Dedication

Passion

Truth-seeking

Innovation

Responsibility

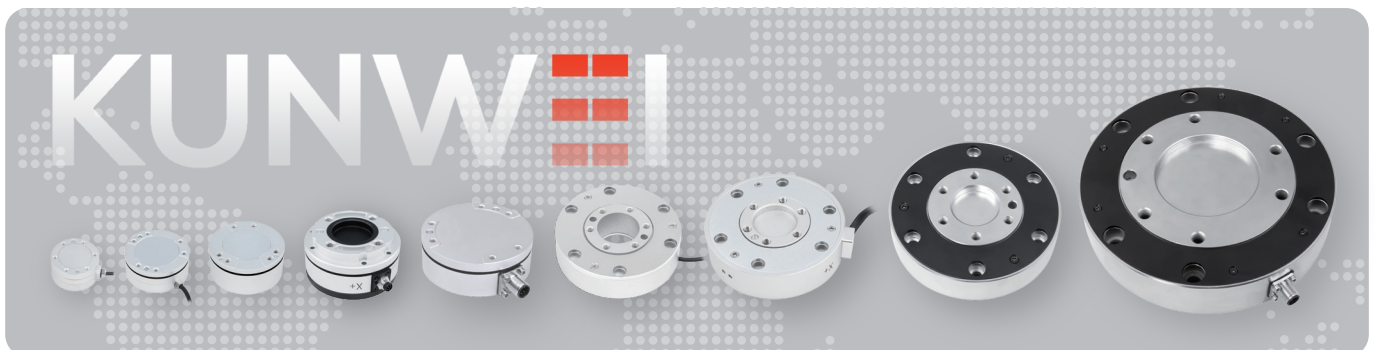
Altruism



**2018**Established  
in 2018**20**Engaged in research and  
application of multi axis  
force sensors for more  
than 20 years**23+**23 working procedures strictly  
controlled based on quality  
control requirements for  
aerospace grade products**0.3**Accuracy ( including  
crosstalk)  
Better than 0.3%FS

Kunwei(Beijing) Technology Co.,Ltd. is a high-tech enterprise established in 2018, which focus on supplying the high precision force sensors(six axis force sensor) and force sensing system solution. We are specializing in the R&D, manufacturing, sales and technology promotion of intelligent force sensors, developing force sensors for the robot and other intelligent equipment industry, providing force measurement solutions and related products for the fields of embodied AI, robot, other intelligent equipment, industrial process monitoring, product quality inspection, scientific research testing and measurement and others.

Kunwei Technology was the main drafting committee, the national standard GB/T 43199-2023 'Test Specification for Robot Multi-axis Force/Torque Sensor' was officially implemented on April, 1, 2024.



## Core Technology



Core Structure  
Optimization



Six-axis Joint  
Calibration



High Precision Crosstalk  
Decoupling Algorithm



High Precision Smart Embedded  
Digital Acquisition

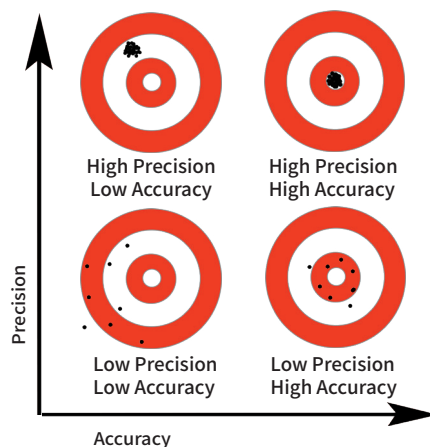
## Performance Index

**Precision**  
(repeatability)

The evaluation index of the consistency between multiple repeated measurements, that is the consistency of the output results obtained when the sensor repeatedly measures a certain same loading group (the combination of three direction force and three direction torque). Repeatability precision is the percentage of standard deviation of output error than rated output (%FS).

**Accuracy**  
(deviation)

The evaluation index of deviation between measured value and real value. Accuracy is the percentage of standard deviation between output and the theoretical true value than rated output (%FS).



## Initiative Team

- ✓ All from National Aerospace Research Institute
- ✓ 20 Years Experience on the R&D of Multi-axis Force Sensor
- ✓ Mastered with Core Technology and Intellectual Property



Developing the national recommended standard: GB/T 43199-2023 'Test Specification for Robot Multi-axis Force/Torque Sensor'

### Collaborative Robot Companies



**JAKA** | 节卡

**HAN'S ROBOT**  
大族机器人



**ELITE ROBOT**  
艾利特机器人

**NI** 集萃智造

**realman**  
睿尔曼智能

**FAIRIND**

**AGILE ROBOTS**

### Industrial Robot Companies

**INOVANCE**

**ESTUN**  
MEDICAL

**SIASUN**

**ABB**

### Humanoid Robot Companies



**UBTECH**  
优必选

**TS ROBOT**

**智元机器人**

**CloudMinds**

### Medical Surgical Robot Companies

**MicroPort**  
微创医疗  
一个源于患者和医生的品牌

**KISONTO**  
瀚维智能医疗集团

**PERLOVE**  
普爱医疗

**朗合医疗**  
LunghHealth MedTech

**AMITMED**

**ESTUN**  
MEDICAL

**SUSTAO**

**鑫君特**  
FUTURTEC

**Amit**  
FILTER

**Remebot**

### Well-known Companies

**CASIC**  
航天科工

**CASC**  
中国航天

**HUAWEI**

**Midea**

**贝壳**  
贝壳找房平台

**ByteDance**  
字节跳动

**华大基因**  
BGI

**GREE** 格力

**BOSCH**  
博世

**BIEL**  
伯恩光学

**SANHUA**

### Automation Integration Companies

**HARMOTRONICS**

**SEER**  
仙工智能

**佳安智能**  
KAANH

**LENS**  
蓝思科技

**研视特**

**合动**  
HOPEMOTION

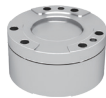
**PnP**

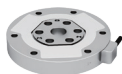
**BOZHON** 博众

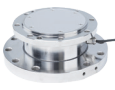
**右手科技**  
YSROB

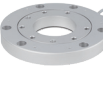
### Universities and Research Institutes



| Model                                                                               |        | Capacity(N,Nm) |      |      |     |     |     | Dimension(mm) | Weight(kg) |
|-------------------------------------------------------------------------------------|--------|----------------|------|------|-----|-----|-----|---------------|------------|
|                                                                                     |        | Fx             | Fy   | Fz   | Mx  | My  | Mz  |               |            |
|    | KWR36A | 30             | 30   | 30   | 1.5 | 1.5 | 1.5 | φ36xH21       | 0.04       |
|                                                                                     | KWR36B | 50             | 50   | 50   | 2   | 2   | 2   | φ36xH21       | 0.05       |
|                                                                                     | KWR36C | 80             | 80   | 80   | 3   | 3   | 3   | φ36xH21       | 0.06       |
|                                                                                     | KWR36G | 500            | 500  | 500  | 9   | 9   | 9   | φ36xH21       | 0.16       |
|    | KWR40A | 50             | 50   | 50   | 2   | 2   | 2   | φ40xH20.4     | 0.05       |
|                                                                                     | KWR40B | 100            | 100  | 100  | 3   | 3   | 3   | φ40xH20.4     | 0.05       |
|                                                                                     | KWR40G | 300            | 300  | 300  | 5   | 5   | 5   | φ40xH20.4     | 0.20       |
|    | KWR46A | 50             | 50   | 50   | 2   | 2   | 2   | φ46xH20.4     | 0.06       |
|                                                                                     | KWR46B | 150            | 150  | 150  | 5   | 5   | 5   | φ46xH20.4     | 0.07       |
|                                                                                     | KWR46C | 200            | 200  | 200  | 7   | 7   | 7   | φ46xH20.4     | 0.07       |
|                                                                                     | KWR46G | 500            | 500  | 500  | 16  | 16  | 16  | φ46xH20.4     | 0.21       |
|   | KWR52A | 50             | 50   | 50   | 2   | 2   | 2   | φ52xH24       | 0.08       |
|                                                                                     | KWR52B | 200            | 200  | 200  | 8   | 8   | 8   | φ52xH24       | 0.08       |
|                                                                                     | KWR52G | 800            | 800  | 800  | 24  | 24  | 24  | φ52xH24       | 0.28       |
|  | KWR57A | 50             | 50   | 50   | 2   | 2   | 2   | φ57xH30       | 0.12       |
|                                                                                     | KWR57B | 200            | 200  | 200  | 8   | 8   | 8   | φ57xH30       | 0.13       |
|                                                                                     | KWR57C | 350            | 350  | 350  | 10  | 10  | 10  | φ57xH30       | 0.14       |
|                                                                                     | KWR57D | 500            | 500  | 500  | 14  | 14  | 14  | φ57xH30       | 0.14       |
|  | KWR58A | 50             | 50   | 50   | 2   | 2   | 2   | φ58xH30       | 0.14       |
|                                                                                     | KWR58B | 200            | 200  | 200  | 8   | 8   | 8   | φ58xH30       | 0.14       |
|                                                                                     | KWR58C | 400            | 400  | 400  | 10  | 10  | 10  | φ58xH30       | 0.14       |
|                                                                                     | KWR58G | 1500           | 1500 | 3000 | 90  | 90  | 90  | φ58xH30       | 0.40       |
|  | KWR60A | 50             | 50   | 50   | 2   | 2   | 2   | φ60xH27.5     | 0.15       |
|                                                                                     | KWR60C | 100            | 100  | 200  | 5   | 5   | 5   | φ60xH27.5     | 0.15       |
|                                                                                     | KWR60D | 200            | 200  | 400  | 10  | 10  | 10  | φ60xH27.5     | 0.15       |
|                                                                                     | KWR60G | 800            | 800  | 800  | 32  | 32  | 32  | φ60xH27.5     | 0.45       |
|  | KWR63A | 50             | 50   | 50   | 2   | 2   | 2   | φ63xH28       | 0.12       |
|                                                                                     | KWR63B | 100            | 100  | 100  | 4   | 4   | 4   | φ63xH28       | 0.14       |
|                                                                                     | KWR63C | 150            | 150  | 150  | 6   | 6   | 6   | φ63xH28       | 0.16       |
|                                                                                     | KWR63D | 200            | 200  | 200  | 8   | 8   | 8   | φ63xH28       | 0.18       |

| Model                                                                               |           | Capacity(N,Nm) |      |      |     |     |     | Dimension(mm) | Weight(kg) |
|-------------------------------------------------------------------------------------|-----------|----------------|------|------|-----|-----|-----|---------------|------------|
|                                                                                     |           | Fx             | Fy   | Fz   | Mx  | My  | Mz  |               |            |
|    | KWR65C-ET | 150            | 150  | 300  | 12  | 12  | 12  | φ65xH10.6     | 0.08       |
|                                                                                     | KWR65K-ET | 500            | 500  | 1000 | 150 | 150 | 150 | φ65xH10.6     | 0.19       |
|                                                                                     | KWR65G-ET | 2500           | 2500 | 5000 | 200 | 200 | 100 | φ65xH10.6     | 0.19       |
|    | KWR70B    | 300            | 300  | 500  | 12  | 12  | 12  | φ70xH38       | 0.23       |
|                                                                                     | KWR70G    | 500            | 500  | 1500 | 40  | 40  | 40  | φ70xH38       | 0.71       |
|    | KWR75A    | 50             | 50   | 50   | 2   | 2   | 2   | φ75xH31.5     | 0.26       |
|                                                                                     | KWR75B    | 200            | 200  | 200  | 8   | 8   | 8   | φ75xH31.5     | 0.28       |
|                                                                                     | KWR75C    | 400            | 400  | 500  | 12  | 12  | 12  | φ75xH33.5     | 0.32       |
|                                                                                     | KWR75D    | 500            | 500  | 700  | 18  | 18  | 18  | φ75xH33.5     | 0.36       |
|                                                                                     | KWR75E    | 30             | 30   | 30   | 1.5 | 1.5 | 1.5 | φ75xH31.5     | 0.26       |
|                                                                                     | KWR75F    | 100            | 100  | 100  | 4   | 4   | 4   | φ75xH31.5     | 0.28       |
|                                                                                     | KWR75G    | 800            | 800  | 1000 | 36  | 36  | 36  | φ75xH33.5     | 1.10       |
|                                                                                     | KWR75K    | 1800           | 1800 | 3000 | 45  | 45  | 45  | φ75xH33.5     | 1.12       |
|  | KWR75BH   | 200            | 200  | 200  | 8   | 8   | 8   | φ75xH31.5     | 0.28       |
|                                                                                     | KWR75CH   | 400            | 400  | 500  | 12  | 12  | 12  | φ75xH33.5     | 0.32       |
|  | KWR75BEC  | 200            | 200  | 200  | 8   | 8   | 8   | φ75xH47.5     | 0.38       |
|                                                                                     | KWR75CEC  | 400            | 400  | 500  | 12  | 12  | 12  | φ75xH47.5     | 0.42       |
|                                                                                     | KWR75DEC  | 500            | 500  | 700  | 18  | 18  | 18  | φ75xH47.5     | 0.42       |
|                                                                                     | KWR75FEC  | 100            | 100  | 100  | 4   | 4   | 4   | φ75xH47.5     | 0.38       |
|                                                                                     | KWR75GEC  | 800            | 800  | 1000 | 36  | 36  | 36  | φ75xH47.5     | 1.32       |
|  | KWR77B    | 200            | 200  | 200  | 16  | 16  | 16  | φ77xH44       | 0.35       |
|                                                                                     | KWR77C    | 400            | 400  | 500  | 20  | 20  | 20  | φ77xH44       | 0.36       |
|  | KWR79B    | 200            | 200  | 200  | 8   | 8   | 8   | φ79xH25       | 0.19       |
|                                                                                     | KWR79C    | 400            | 400  | 500  | 12  | 12  | 12  | φ79xH25       | 0.19       |
|                                                                                     | KWR79F    | 100            | 100  | 100  | 4   | 4   | 4   | φ79xH25       | 0.19       |
|  | KWR82A    | 50             | 50   | 50   | 2   | 2   | 2   | φ82xH29.5     | 0.26       |
|                                                                                     | KWR82B    | 200            | 200  | 200  | 8   | 8   | 8   | φ82xH29.5     | 0.28       |
|                                                                                     | KWR82C    | 400            | 400  | 500  | 12  | 12  | 12  | φ82xH29.5     | 0.32       |
|                                                                                     | KWR82D    | 500            | 500  | 700  | 18  | 18  | 18  | φ82xH29.5     | 0.36       |

| Model                                                                               |          | Capacity(N,Nm) |      |      |     |     |     | Dimension(mm) | Weight(kg) |
|-------------------------------------------------------------------------------------|----------|----------------|------|------|-----|-----|-----|---------------|------------|
|                                                                                     |          | Fx             | Fy   | Fz   | Mx  | My  | Mz  |               |            |
|    | KWR82AEC | 50             | 50   | 50   | 2   | 2   | 2   | φ82xH39.5     | 0.38       |
|                                                                                     | KWR82BEC | 200            | 200  | 200  | 8   | 8   | 8   | φ82xH39.5     | 0.39       |
|                                                                                     | KWR82CEC | 400            | 400  | 500  | 12  | 12  | 12  | φ82xH39.5     | 0.41       |
|                                                                                     | KWR82DEC | 500            | 500  | 700  | 18  | 18  | 18  | φ82xH39.5     | 0.41       |
|                                                                                     | KWR82FEC | 100            | 100  | 100  | 4   | 4   | 4   | φ82xH39.5     | 0.39       |
|    | KWR90A   | 100            | 100  | 200  | 10  | 10  | 10  | φ90xH24       | 0.34       |
|                                                                                     | KWR90B   | 200            | 200  | 400  | 18  | 18  | 18  | φ90xH24       | 0.34       |
|                                                                                     | KWR90C   | 400            | 400  | 800  | 36  | 36  | 36  | φ90xH24       | 0.34       |
|    | KWR96A   | 100            | 100  | 200  | 10  | 10  | 10  | φ96xH26       | 0.32       |
|                                                                                     | KWR96B   | 200            | 200  | 400  | 18  | 18  | 18  | φ96xH26       | 0.32       |
|                                                                                     | KWR96C   | 300            | 300  | 600  | 24  | 24  | 24  | φ96xH26       | 0.36       |
|                                                                                     | KWR96D   | 400            | 400  | 800  | 36  | 36  | 36  | φ96xH26       | 0.36       |
|                                                                                     | KWR96E   | 2000           | 2000 | 2000 | 100 | 100 | 100 | φ96xH26       | 1.60       |
|                                                                                     | KWR96F   | 3000           | 3000 | 4000 | 120 | 120 | 120 | φ96xH26       | 1.65       |
|  | KWR100A  | 100            | 100  | 200  | 10  | 10  | 10  | φ100xH26      | 0.32       |
|                                                                                     | KWR100B  | 200            | 200  | 400  | 18  | 18  | 18  | φ100xH26      | 0.32       |
|                                                                                     | KWR100C  | 300            | 300  | 600  | 24  | 24  | 24  | φ100xH26      | 0.36       |
|                                                                                     | KWR100D  | 400            | 400  | 800  | 36  | 36  | 36  | φ100xH26      | 0.36       |
|  | KWR110A  | 600            | 600  | 600  | 80  | 80  | 80  | φ110xH26      | 1.30       |
|                                                                                     | KWR110B  | 800            | 800  | 800  | 100 | 100 | 100 | φ110xH26      | 1.30       |
|                                                                                     | KWR110C  | 1200           | 1200 | 1200 | 150 | 150 | 150 | φ110xH26      | 1.30       |
|  | KWR116A  | 500            | 500  | 500  | 60  | 60  | 60  | φ116xH26      | 1.40       |
|                                                                                     | KWR116B  | 1000           | 1000 | 1000 | 100 | 100 | 100 | φ116xH26      | 1.40       |
|                                                                                     | KWR116C  | 1400           | 1400 | 1400 | 120 | 120 | 120 | φ116xH26      | 1.40       |
|  | KWR140A  | 800            | 800  | 800  | 60  | 60  | 60  | φ140xH52      | 2.60       |
|                                                                                     | KWR140B  | 1500           | 1500 | 1500 | 100 | 100 | 100 | φ140xH52      | 2.60       |
|                                                                                     | KWR140C  | 2000           | 2000 | 2000 | 200 | 200 | 200 | φ140xH52      | 2.60       |
|  | KWR150A  | 800            | 800  | 1200 | 100 | 100 | 100 | φ150xH35      | 1.00       |
|                                                                                     | KWR150B  | 1500           | 1500 | 2400 | 200 | 200 | 200 | φ150xH35      | 2.80       |
|                                                                                     | KWR150C  | 2500           | 2500 | 4500 | 400 | 400 | 400 | φ150xH35      | 3.00       |

| Model                                                                              |          | Capacity(N,Nm) |       |       |      |      |      | Dimension(mm) | Weight(kg) |
|------------------------------------------------------------------------------------|----------|----------------|-------|-------|------|------|------|---------------|------------|
|                                                                                    |          | Fx             | Fy    | Fz    | Mx   | My   | Mz   |               |            |
|   | KWR168B  | 3000           | 3000  | 3000  | 400  | 400  | 400  | φ168xH38      | 4.40       |
|                                                                                    | KWR168C  | 4000           | 4000  | 4000  | 600  | 600  | 600  | φ168xH38      | 4.40       |
|                                                                                    | KWR168D  | 6000           | 6000  | 6000  | 800  | 800  | 800  | φ168xH38      | 4.50       |
|                                                                                    | KWR168E  | 8000           | 8000  | 8000  | 1200 | 1200 | 1200 | φ168xH38      | 4.50       |
|   | KWR180BH | 6000           | 6000  | 6000  | 500  | 500  | 500  | φ180xH30      | 4.50       |
|                                                                                    | KWR180CH | 10000          | 10000 | 10000 | 800  | 800  | 800  | φ180xH30      | 4.50       |
|                                                                                    | KWR180DH | 15000          | 15000 | 15000 | 1000 | 1000 | 1000 | φ180xH30      | 4.50       |
|   | KWR200BH | 400            | 400   | 400   | 20   | 20   | 20   | φ200xH25.5    | 2.50       |
|                                                                                    | KWR200CH | 600            | 600   | 600   | 36   | 36   | 36   | φ200xH25.5    | 2.50       |
|                                                                                    | KWR200XH | 1000           | 1000  | 1000  | 150  | 150  | 150  | φ200xH25.5    | 4.30       |
|  | KWR200X  | 1000           | 1000  | 1000  | 150  | 150  | 150  | φ200xH40      | 4.50       |
|                                                                                    | KWR200M  | 1800           | 1800  | 1800  | 300  | 300  | 300  | φ200xH40      | 4.80       |
|                                                                                    | KWR200C  | 3000           | 3000  | 3000  | 450  | 450  | 450  | φ200xH40      | 4.80       |
|                                                                                    | KWR200D  | 10000          | 10000 | 10000 | 800  | 800  | 1600 | φ200xH40      | 4.80       |
|                                                                                    | KWR200E  | 8000           | 8000  | 8000  | 1500 | 1500 | 1500 | φ200xH40      | 5.10       |
|                                                                                    | KWR200G  | 5000           | 5000  | 5000  | 750  | 750  | 750  | φ200xH40      | 5.10       |
|                                                                                    | KWR200F  | 3200           | 3200  | 6000  | 800  | 800  | 800  | φ200xH40      | 5.10       |
|                                                                                    | KWR200J  | 6000           | 6000  | 6000  | 700  | 700  | 700  | φ200xH55.5    | 6.00       |

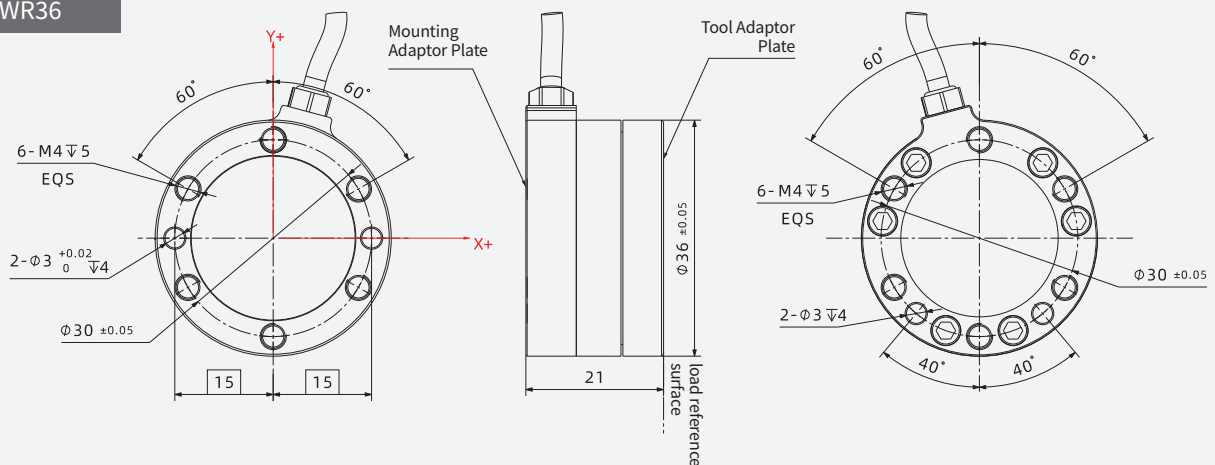
\*The material of Aluminum Alloy, stainless steel,titanium alloy will be considered based on capacity design and other factors for different products.

Please feel free to communicate with sales engineers to gain a deeper understanding of product information.

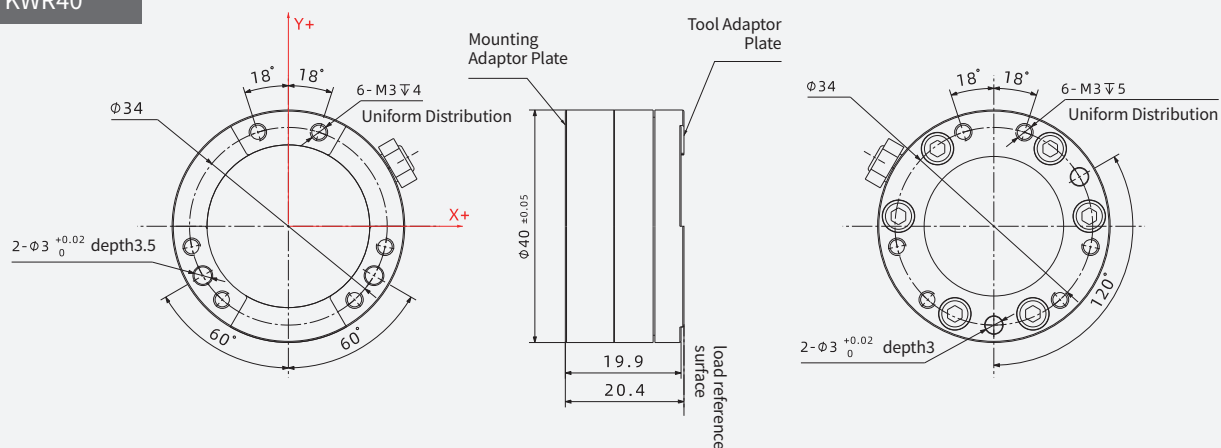
\*The external signal acquisition modules design will be considered based on dimensions design and other factors for different products.

Please feel free to communicate with sales engineers to gain a deeper understanding of product information.

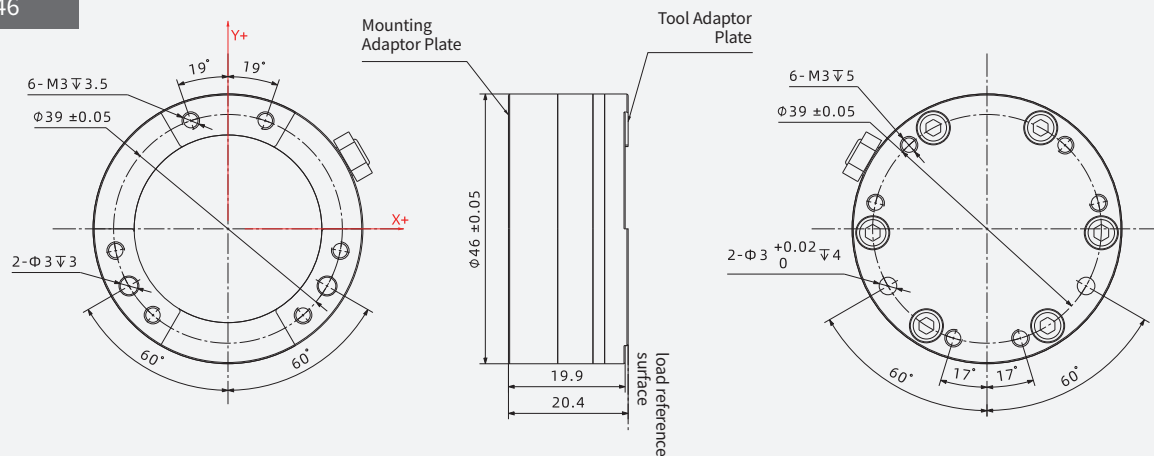
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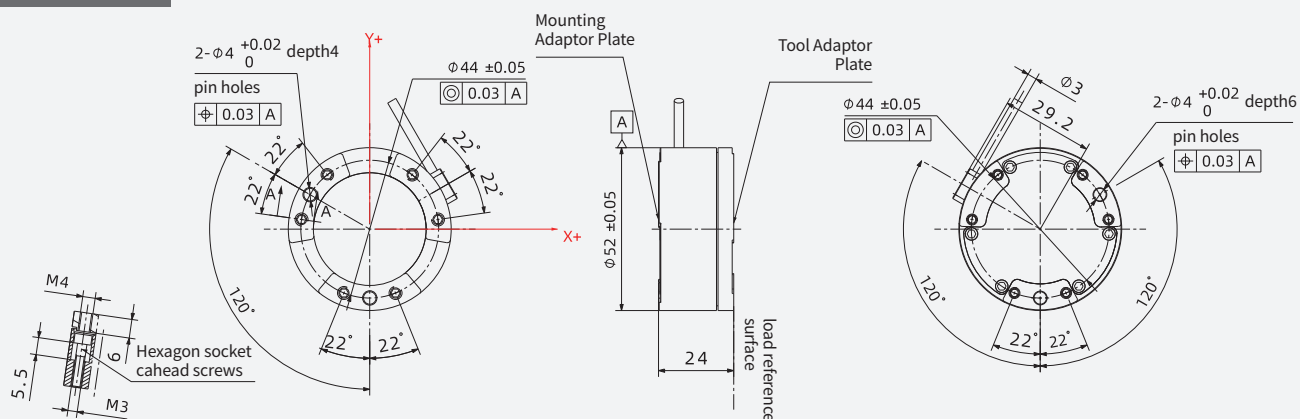
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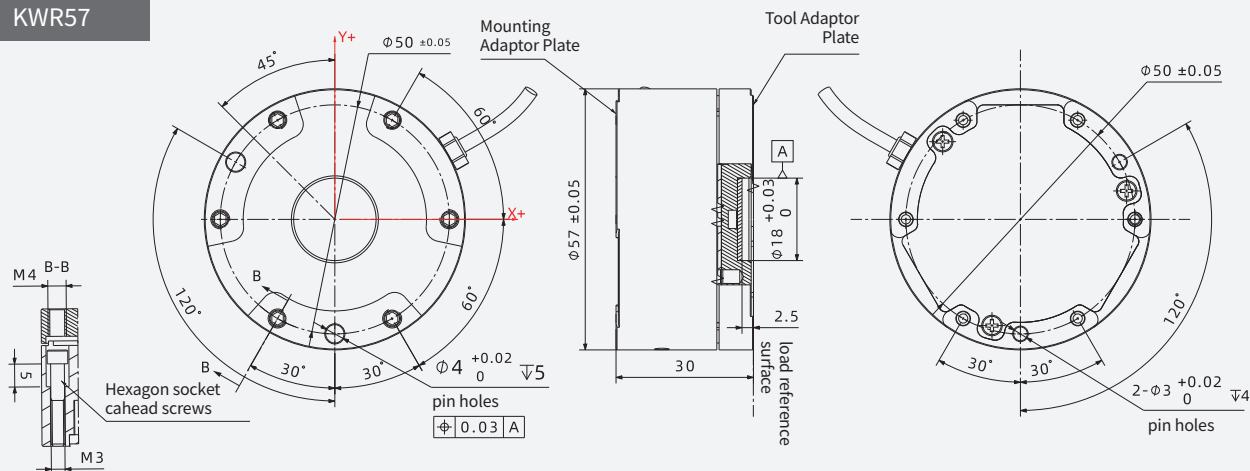
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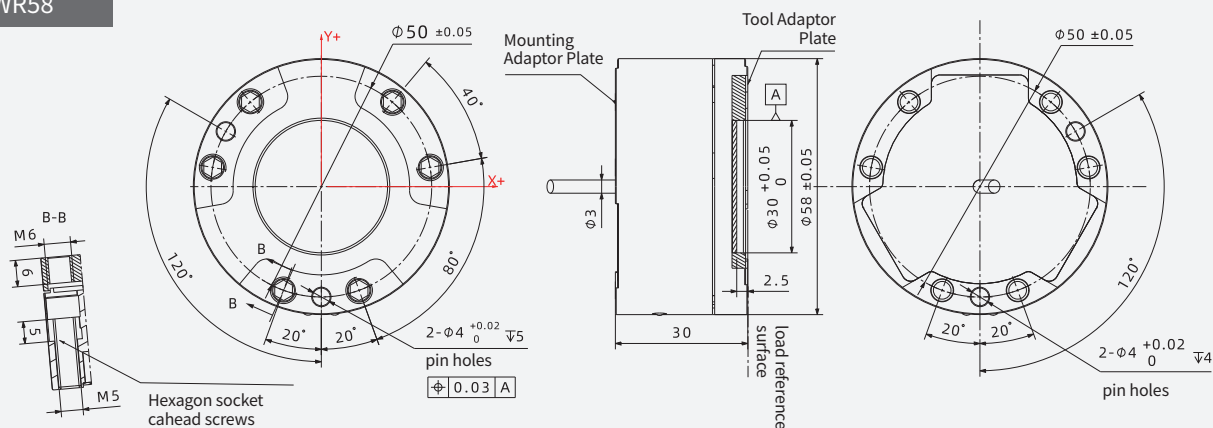
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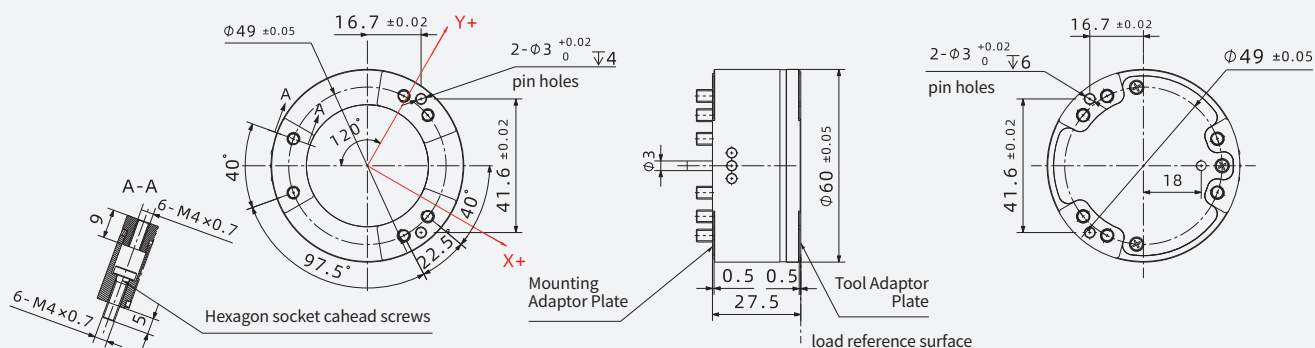
KWR57



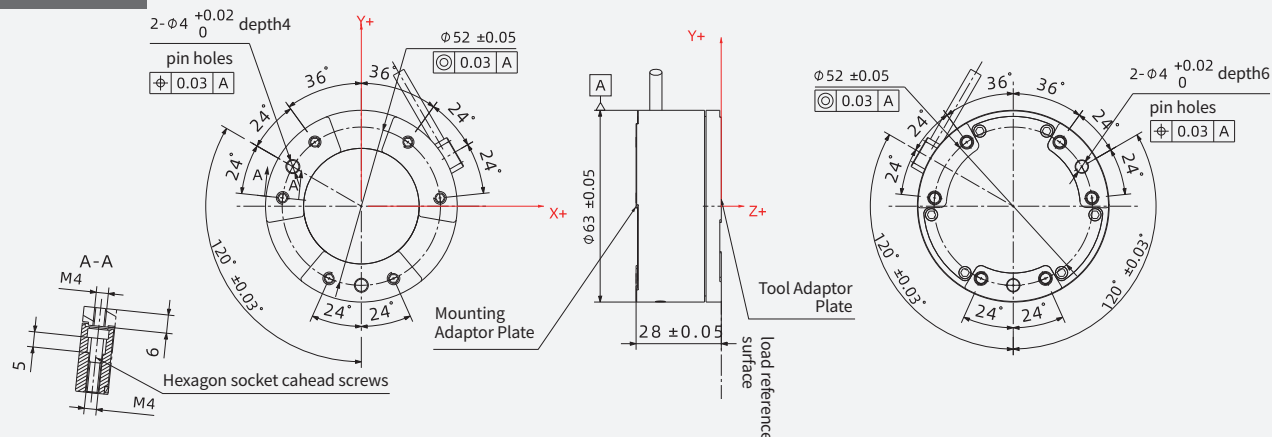
KWR58



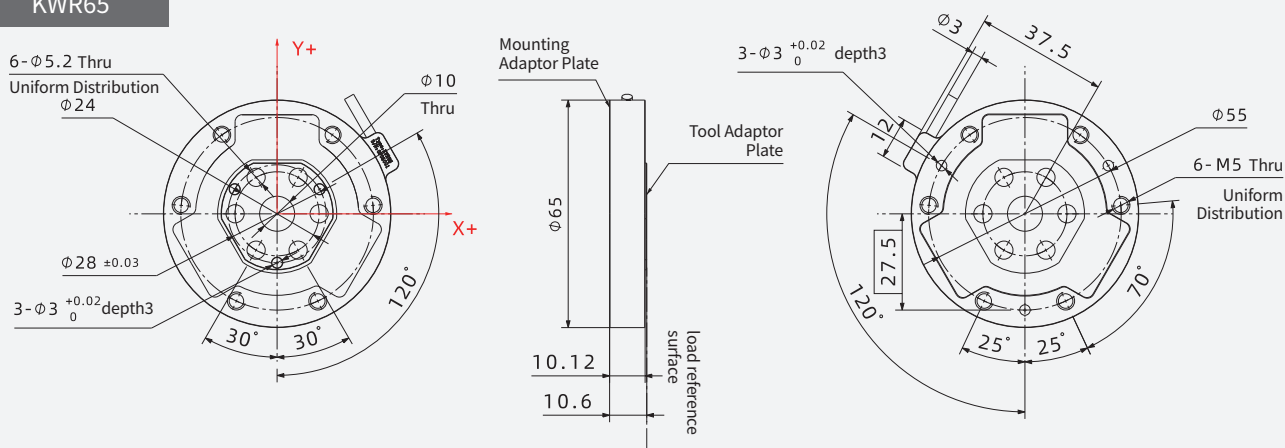
KWR60



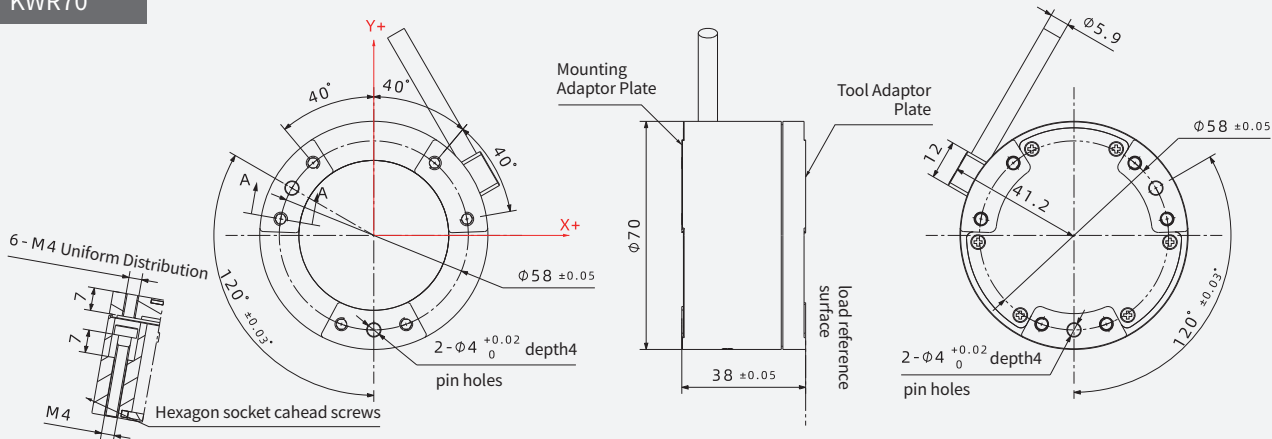
## KWR63



## KWR65



## KWR70



**WVR75**

Technical drawing of the WVR75 tool adaptor plate, showing front, side, and rear views with dimensions and tolerances.

**Front View (Left):**

- Overall diameter:  $\phi 50$
- Inner diameter:  $\phi 63$
- 4-M6  $\nabla 6$  holes (45° chamfer)
- 2- $\phi 6^{+0.02}_0$  pin holes
- Hexagon socket caphead screws (A-A section)
- Surface texture:  $R_a 0.02$  A

**Side View (Middle):**

- Overall height:  $\phi 75$
- Mounting Adaptor Plate thickness: 6 mm
- Tool Adaptor Plate thickness: 24.5 mm
- Load reference surface: 9 mm
- Total height: 31.5 mm (33.5 mm)

**Rear View (Right):**

- Overall diameter:  $\phi 66 \pm 0.05$
- 2- $\phi 5^{+0.02}_0$  pin holes
- Surface texture:  $R_a 0.02$  A
- Angles: 20°, 120°  $\pm 0.03^\circ$

Technical drawing of the 100mm diameter tool adaptor plate. The drawing includes a front view, a side view, and a section view A-A. The front view shows a circular plate with a central hole of diameter 50mm, four M6 pin holes at 45-degree angles, and four M6 screws. The side view shows the plate's thickness and the mounting adaptor plate. The section view A-A shows the internal structure and the hexagon socket cahead screws. The drawing also includes a detail of the pin holes with a diameter of 5mm and a positional tolerance of 0.02mm.

Technical drawing of the KWR75EC tool adaptor plate, showing three views: front, side, and top.

**Front View:**

- Mounting Adaptor Plate
- Tool Adaptor Plate
- Dimensions:  $\phi 75$ ,  $40.5$ ,  $47.5 \pm 0.05$ ,  $25$ ,  $6$ ,  $\phi 31.5^{+0.03}_0$ .
- Mounting holes:  $4-M6 \nabla 6$ .
- Pin holes:  $2-\phi 6^{+0.02}_0 \nabla 6$ .
- Internal dimensions:  $\phi 50 \pm 0.05$ ,  $\phi 63$ .
- Surface finish:  $0.03$  A.
- Angles:  $45^\circ$ ,  $45^\circ$ .
- Coordinate system: Y+, X+.

**Side View:**

- Dimensions:  $\phi 75$ ,  $40.5$ ,  $47.5 \pm 0.05$ .

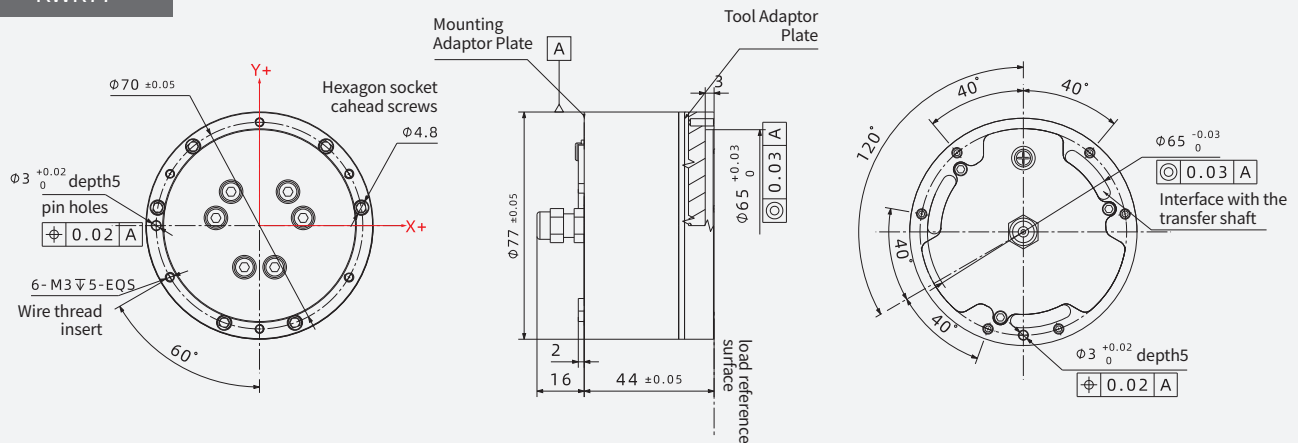
**Top View:**

- Dimensions:  $\phi 66 \pm 0.05$ ,  $2-\phi 5^{+0.02}_0 \nabla 6$ .
- Pin holes:  $2-\phi 5^{+0.02}_0 \nabla 6$ .
- Angles:  $20^\circ$ ,  $20^\circ$ ,  $120^\circ \pm 0.05^\circ$ .

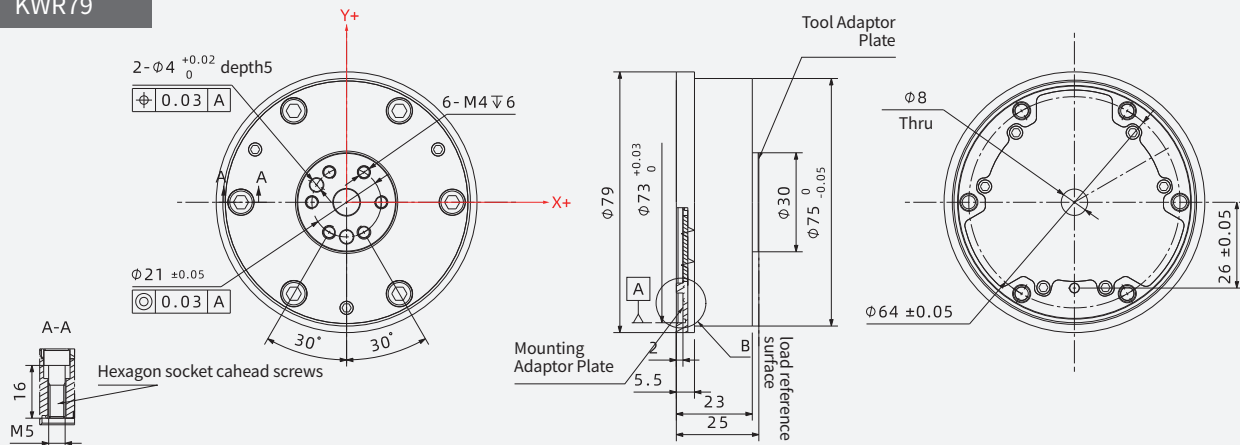
**Detail View (A-A):**

- Hexagon socket cahead screws
- Dimensions:  $M4$ ,  $6$ .

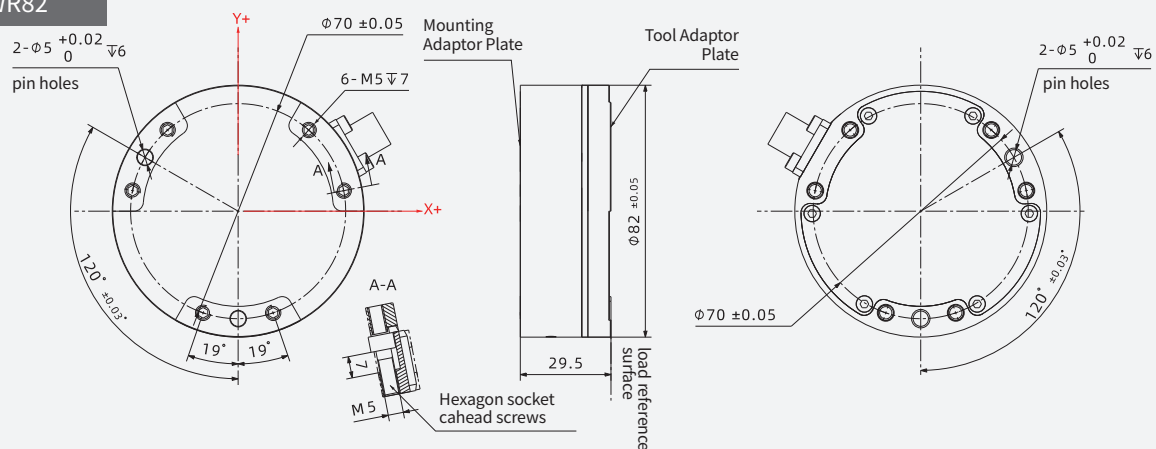
## KWR77



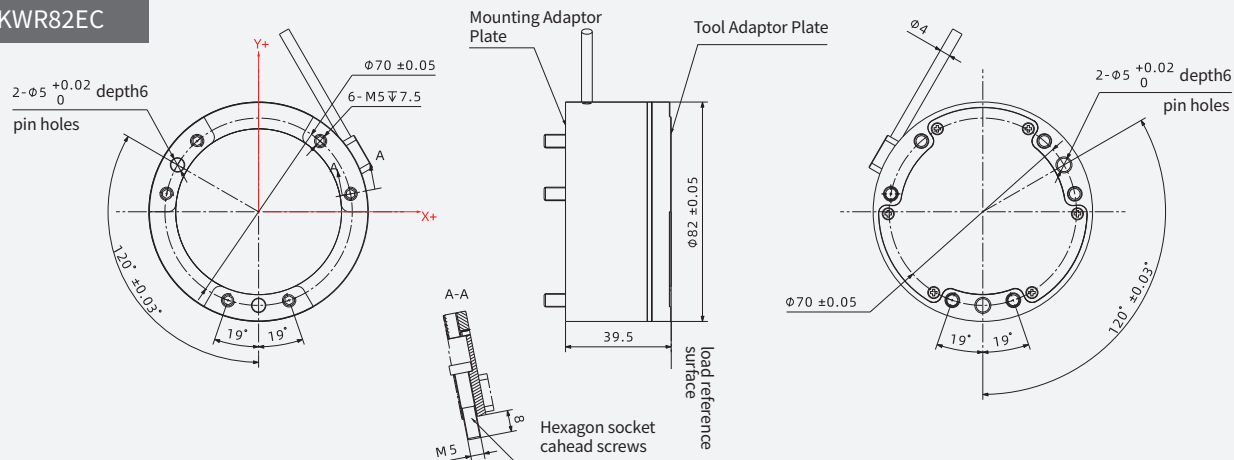
## KWR79



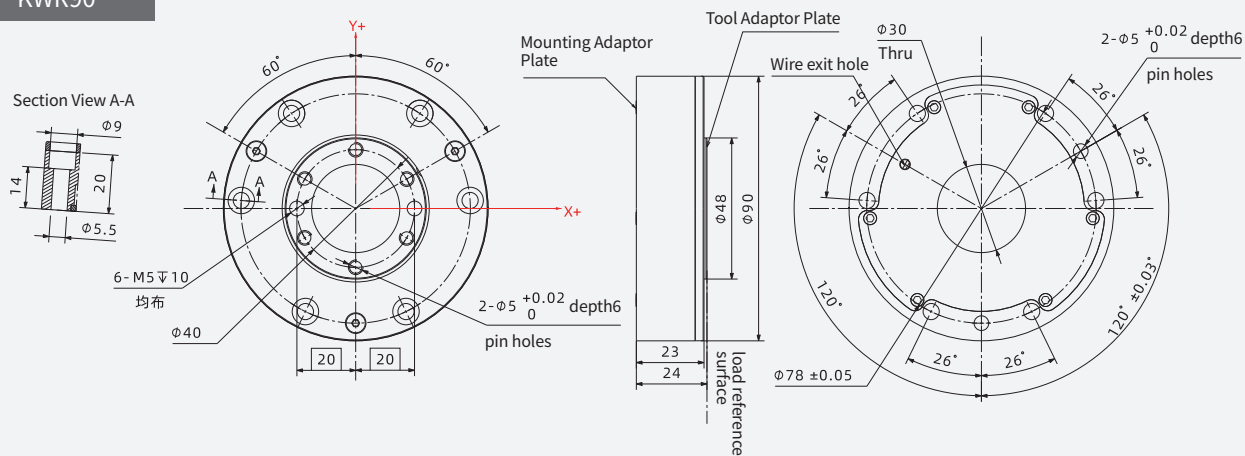
## KWR82



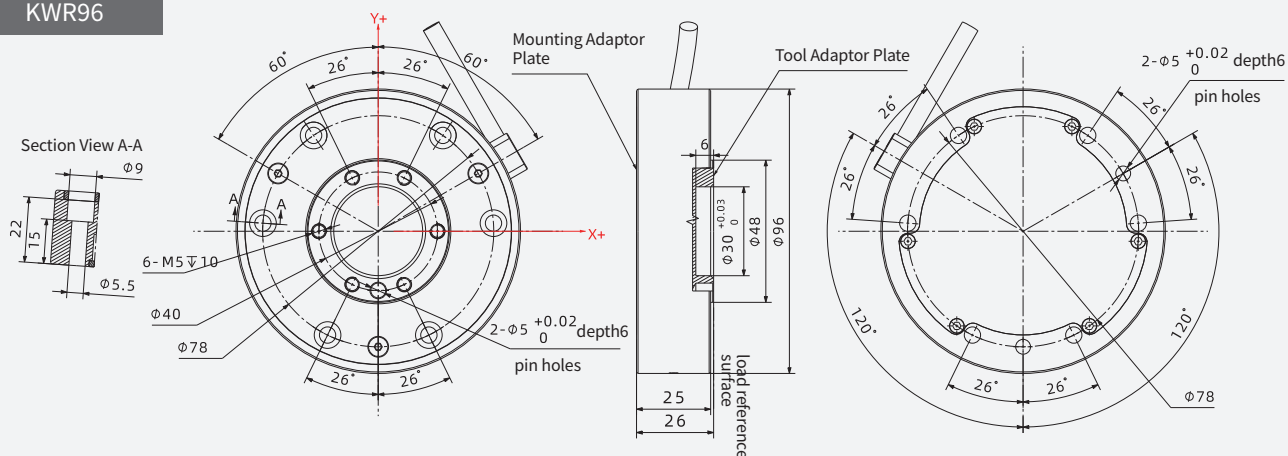
## KWR82EC



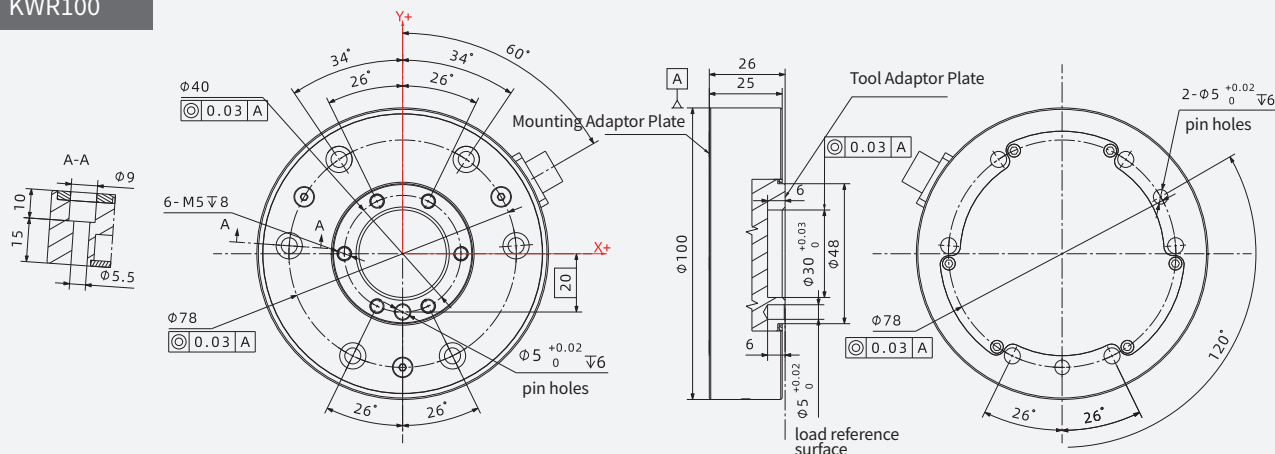
## KWR90



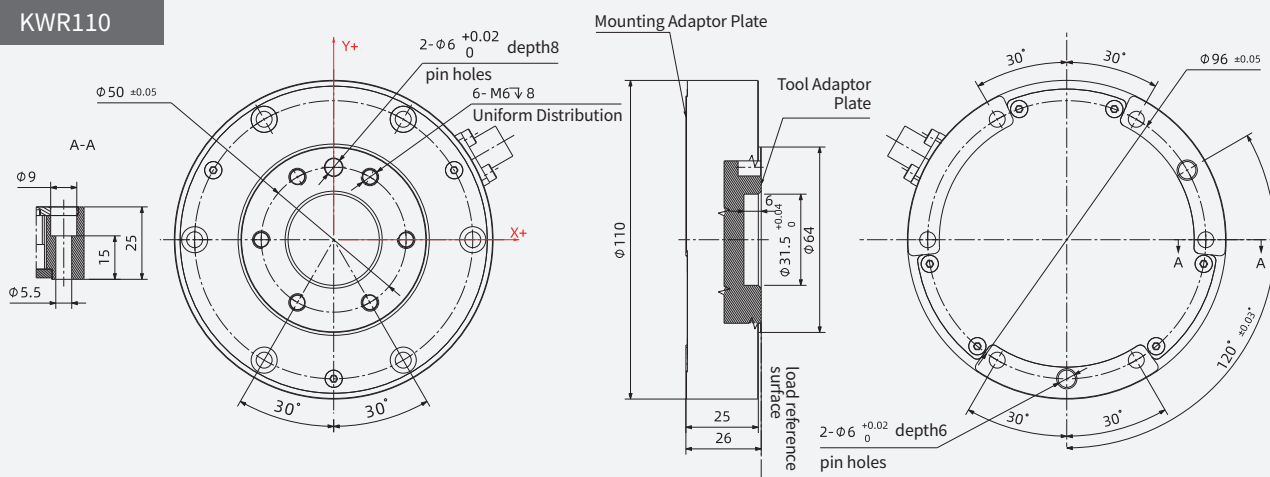
## KWR96



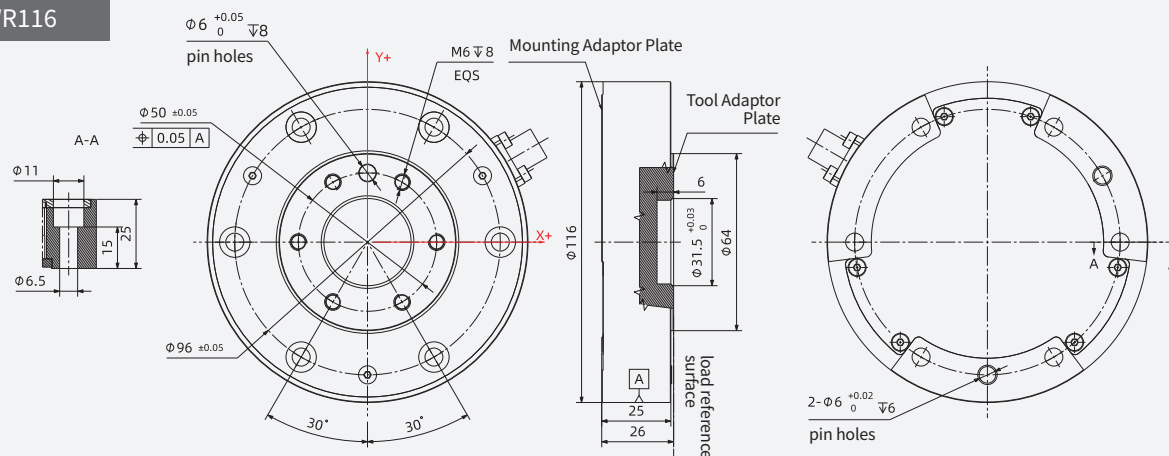
## KWR100



## KWR110

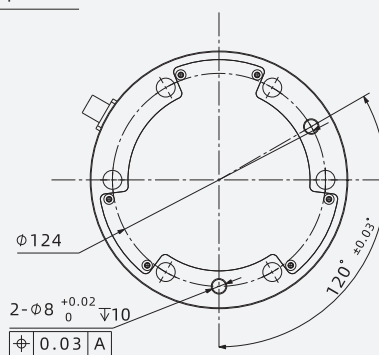
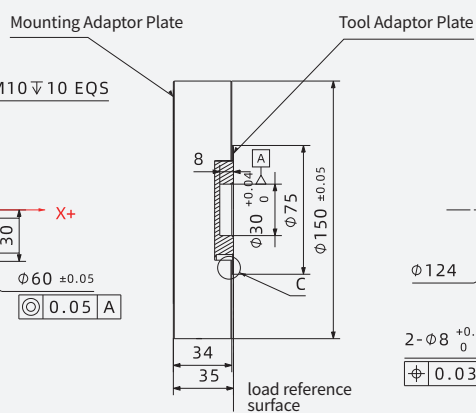
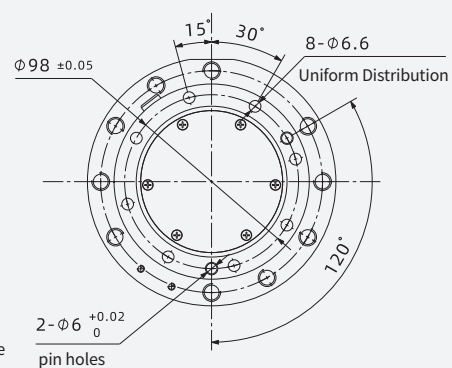
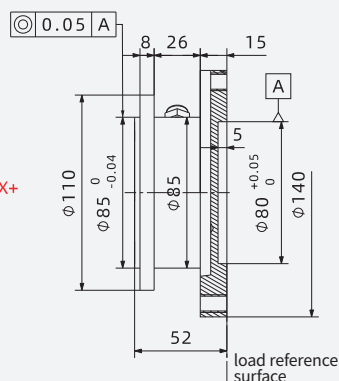


## KWR116



Technical drawing of a circular plate with the following features and dimensions:

- Overall Diameter:**  $\Phi 125$
- Pin Holes:** 2-  $\Phi 10^{+0.02}_0$  depth 10, located at a distance of 25 from the center.
- Surface Finish:**  $\sqrt{0.05}$  A
- Internal Holes:** 10- M10 Thru and 2- M4 Thru.
- Angles:** 30° and 6.25°.
- Radius:** 20.
- Coordinate System:** X+ and Y+ axes are shown.
- Dimension Line:** (138.87) indicates the distance from the center to the bottom edge.



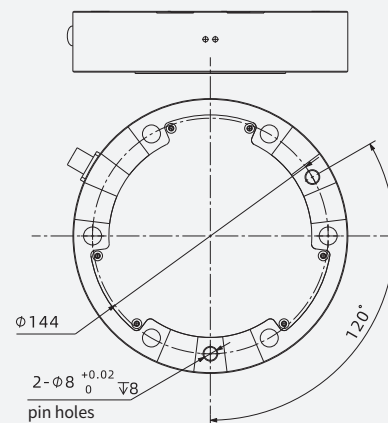
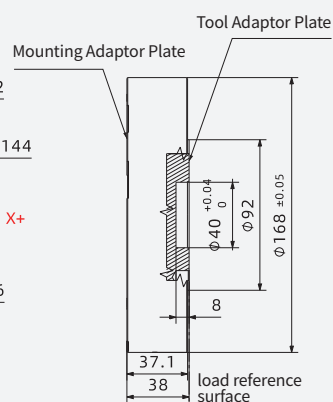
Technical drawing of a circular part, showing a cross-section A-A and a top view.

**Cross-section A-A:**

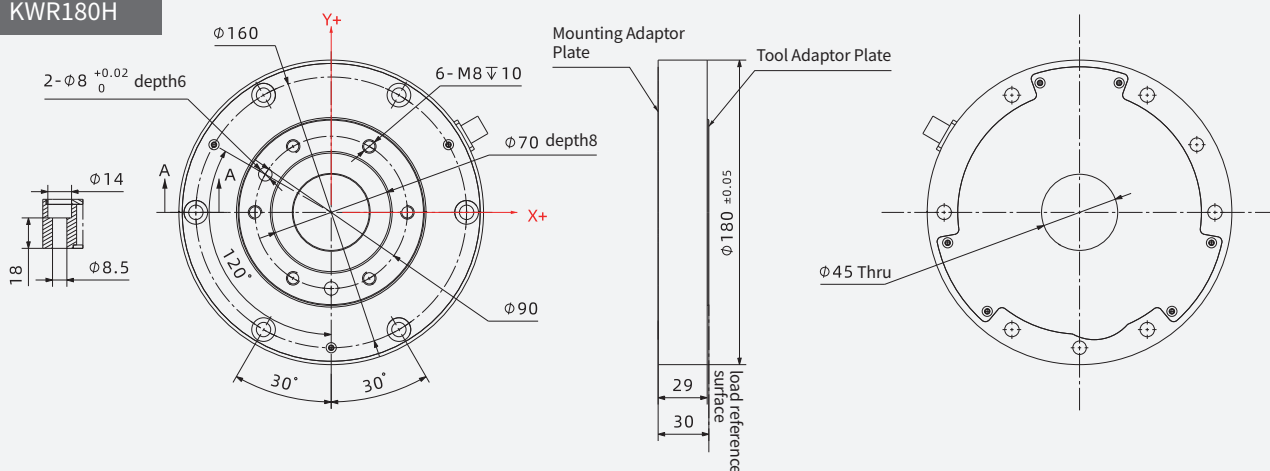
- Total height: 37.1
- Central hole diameter:  $\phi 11$
- Central bore diameter: 22

**Top View:**

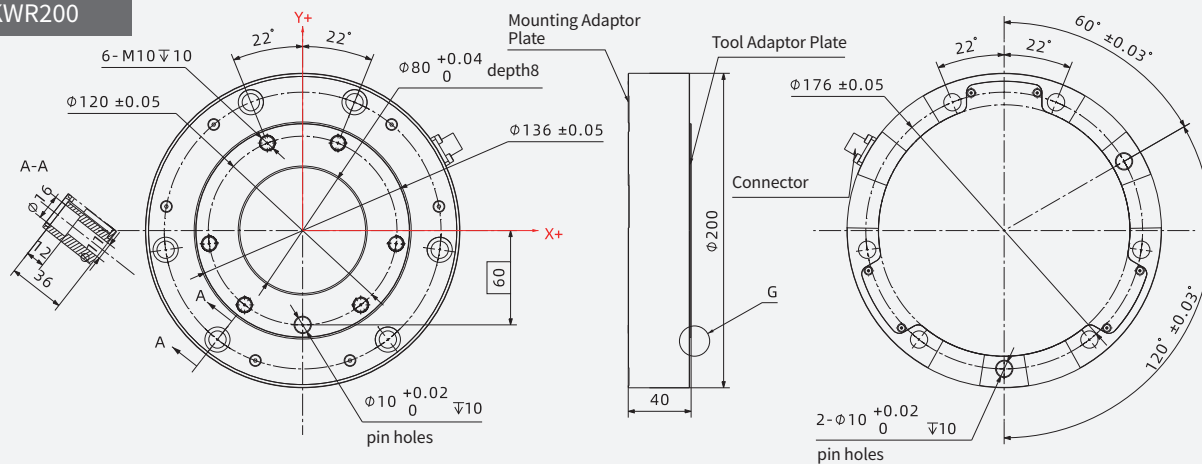
- Outer diameter:  $\phi 144$
- Inner diameter:  $\phi 76$
- Two pin holes:  $2 - \phi 8 \begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix} \sqrt{6}$
- Six M10 holes:  $6 - M10 \sqrt{12}$
- Orientation: X+ and Y+ axes
- Angles:  $30^\circ$  and  $30^\circ$



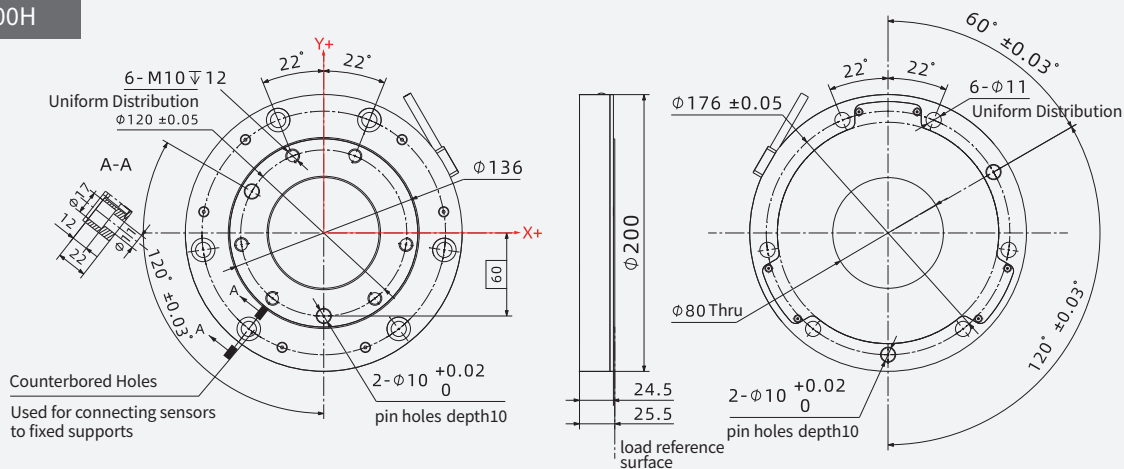
## KWR180H

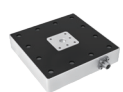
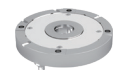
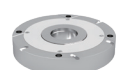
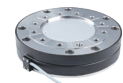


## KWR200



## KWR200H



| Model                                                                               |             | Capacity(N,Nm) |         |       |      |      |      | Dimension(mm) | Weight(kg) |
|-------------------------------------------------------------------------------------|-------------|----------------|---------|-------|------|------|------|---------------|------------|
|                                                                                     |             | Fx             | Fy      | Fz    | Mx   | My   | Mz   |               |            |
|    | KWP6L212A   | 50             | 50      | 50    | 6    | 6    | 6    | 212x120x28.5  | 1.20       |
|                                                                                     | KWP6L212B   | 100            | 100     | 150   | 20   | 30   | 20   | 212x120x28.5  | 1.20       |
|    | KWP6L220A   | 300            | 300     | 500   | 10   | 10   | 10   | 220x180x58    | 3.30       |
|                                                                                     | KWP6L220B   | 500            | 500     | 800   | 18   | 18   | 18   | 220x180x58    | 3.30       |
|    | KWP6L180A   | 30             | 30      | 50    | 6    | 6    | 6    | 180x120x24    | 1.00       |
|    | KWP6L150B   | 500            | 500     | 500   | 36   | 36   | 36   | 150x150x30    | 1.30       |
|   | KWT6D600-3K | 3000           | 3000    | 3000  | 3000 | 3000 | 1500 | φ600xH140     | 48.00      |
|  | KWP6L800    | 400            | 400     | 2000  | 400  | 400  | 200  | 900x700x108.4 | 63.00      |
|  | KWP6L450    | 400            | 400     | 2000  | 200  | 200  | 80   | 450x450x90    | 24.00      |
|  | KWT2D177    | 2000LBS        | 1000LBS | /     | /    | /    | /    | φ177.8xH27    | 2.90       |
|  | KWT2D228    | 8000LBS        | 2000LBS | /     | /    | /    | /    | φ228.6xH40    | 8.00       |
|  | KWT2D140-1K | 1000           | 1000    | /     | /    | /    | /    | φ140xH16      | 1.10       |
|  | KWT3D240-6K | 6000           | 6000    | 18000 | /    | /    | /    | φ240xH54      | 9.00       |

| Model                                                                             |           | Capacity(N,Nm) |       |       |    |    |    | Dimension(mm) | Weight(kg) |
|-----------------------------------------------------------------------------------|-----------|----------------|-------|-------|----|----|----|---------------|------------|
|                                                                                   |           | Fx             | Fy    | Fz    | Mx | My | Mz |               |            |
|  | KWT3D80A  | 300            | 300   | 500   | /  | /  | /  | φ80xH69       | 0.60       |
|                                                                                   | KWT3D80D  | 45000          | 45000 | 50000 | /  | /  | /  | φ80xH69       | 1.40       |
|  | KWT3D92A  | 1500           | 1500  | 15000 | /  | /  | /  | φ92xH62       | 2.00       |
|                                                                                   | KWT3D92B  | 5000           | 5000  | 20000 | /  | /  | /  | φ92xH62       | 2.00       |
|                                                                                   | KWT3D92C  | 10000          | 10000 | 40000 | /  | /  | /  | φ92xH62       | 2.00       |
|  | KWR57B-3D | 200            | 200   | 200   | /  | /  | /  | φ57xH56       | 0.19       |
|                                                                                   | KWR57F-3D | 100            | 100   | 100   | /  | /  | /  | φ57xH56       | 0.19       |

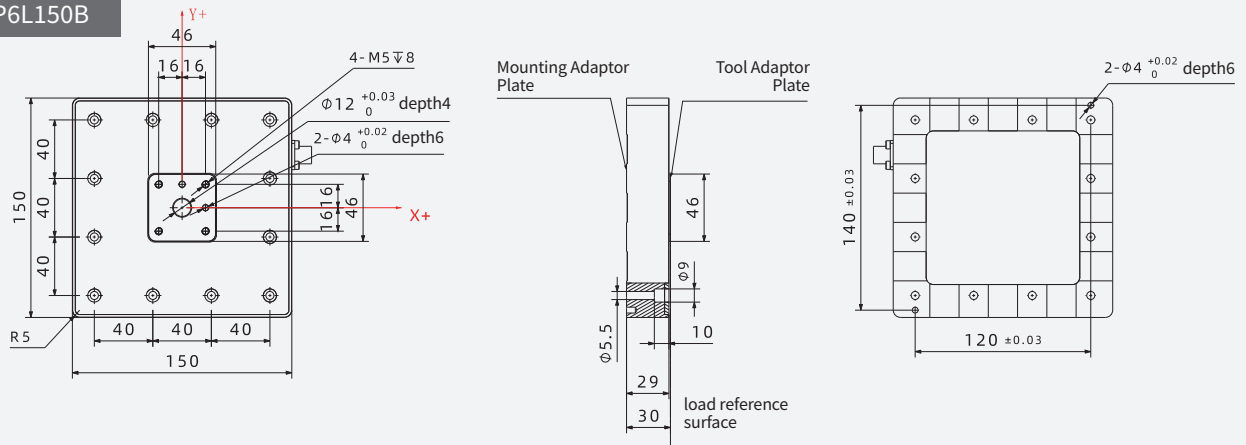
\*The material of Aluminum Alloy, stainless steel,titanium alloy will be considered based on capacity design and other factors for different products.

Please feel free to communicate with sales engineers to gain a deeper understanding of product information.

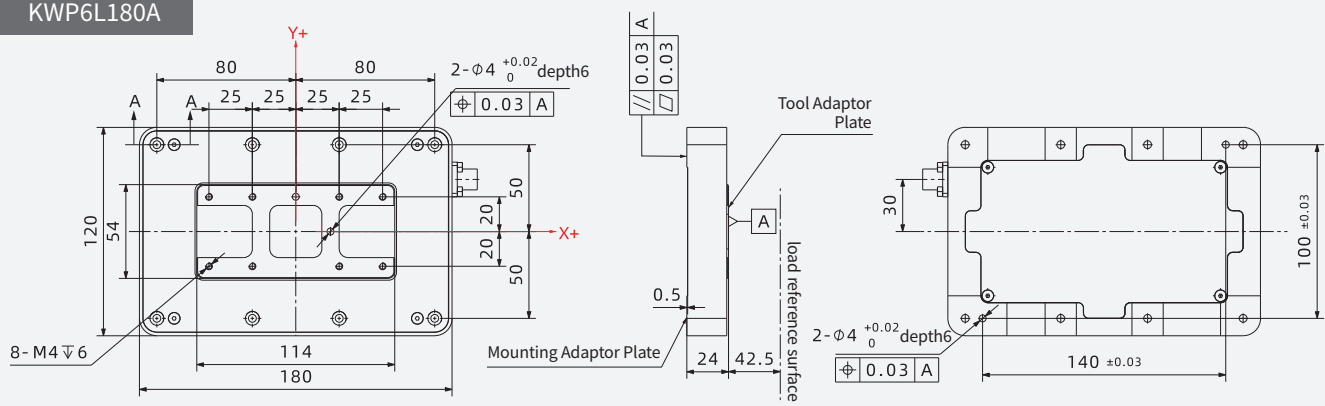
\*The external signal acquisition modules design will be considered based on dimensions design and other factors for different products.

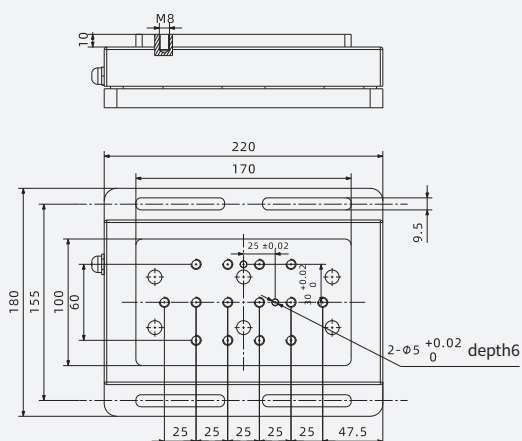
Please feel free to communicate with sales engineers to gain a deeper understanding of product information.

## KWP6L150B



## KWP6L180A





Technical drawing of the Mounting Adaptor Plate, showing three views: Top View, Side View, and Front View.

**Top View Dimensions:**

- Overall Width: 212
- Overall Height: 120
- Inner Width: 172
- Inner Height: 100
- Pin holes: 8- M4  $\nabla 6$
- Pin hole diameter:  $2-\phi 4^{+0.02}_0$  depth 6
- Pin hole spacing: 64 (between holes), 20  $\pm 0.03$  (from center to hole)
- Mounting holes: 4-  $\phi 6$  (outer), 4-  $\phi 6$  (inner)
- Mounting hole spacing: 30 (between holes), 60 (from center to hole)
- Mounting hole diameter:  $2-\phi 4^{+0.02}_0$  depth 6
- Mounting hole spacing: 30 (between holes), 60 (from center to hole)
- Mounting hole diameter:  $2-\phi 4^{+0.02}_0$  depth 6

**Side View Dimensions:**

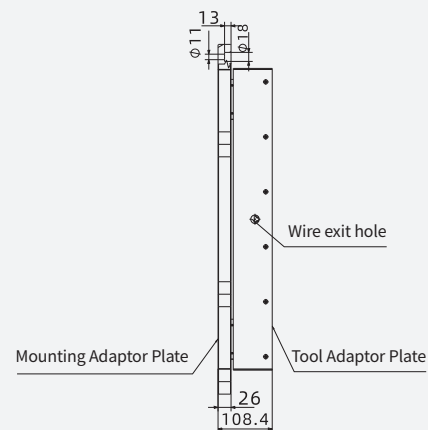
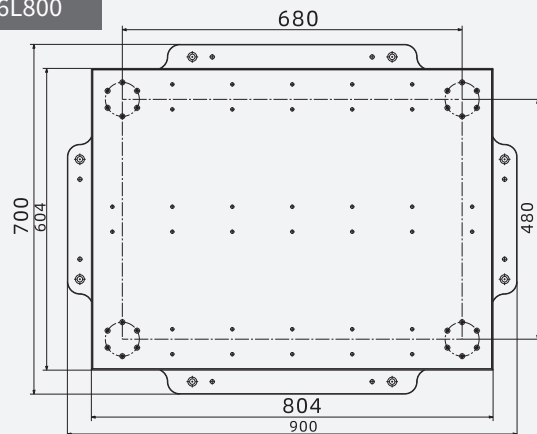
- Overall Height: 120
- Mounting Adaptor Plate thickness: 0.5
- Tool Adaptor Plate thickness: 1
- Mounting Adaptor Plate width: 28.5

**Front View Dimensions:**

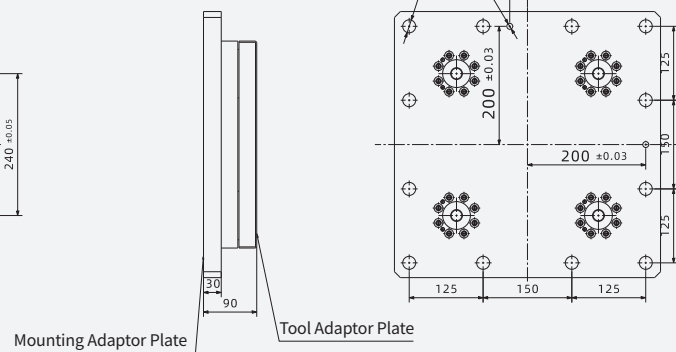
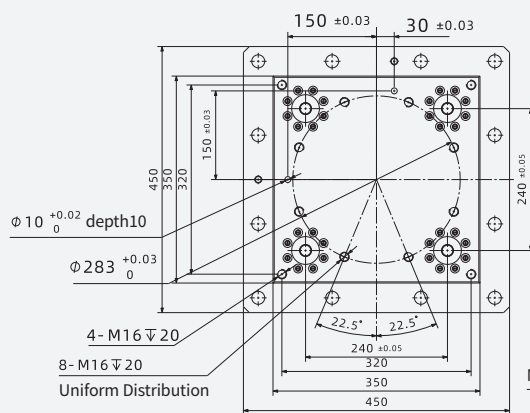
- Overall Width: 172
- Overall Height: 100
- Pin holes: 2-  $\phi 4^{+0.02}_0$  depth 6

[illegible]

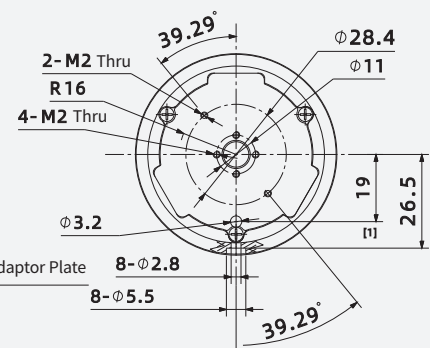
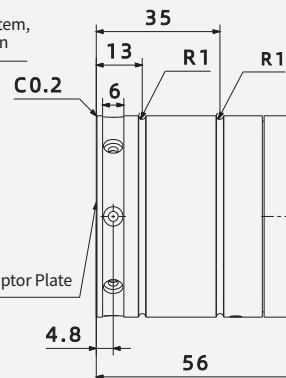
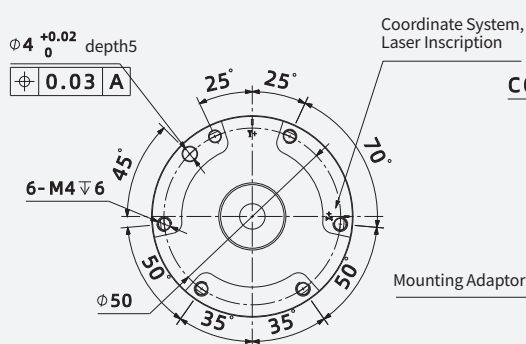
KWP6L800



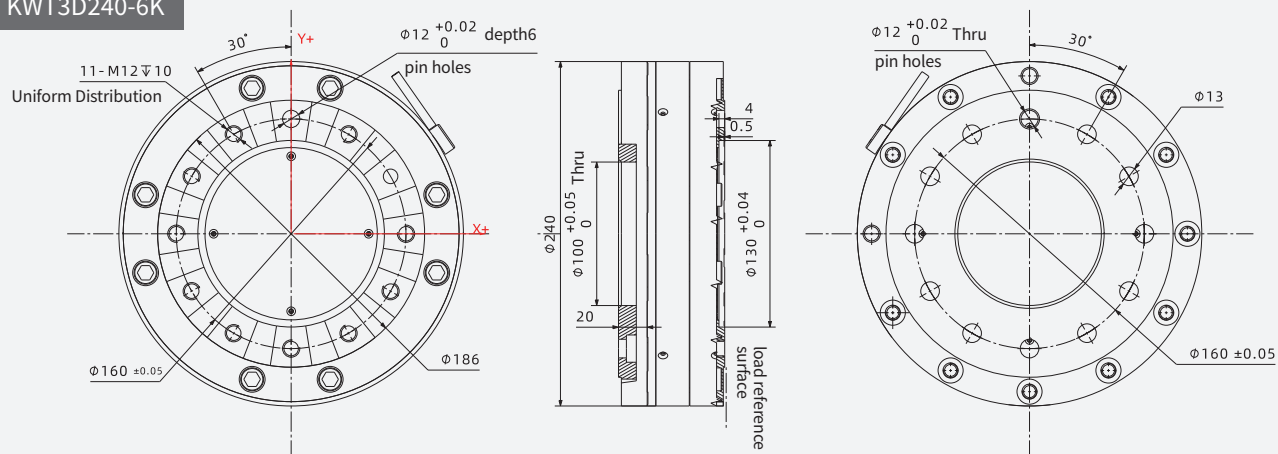
KWP6L450



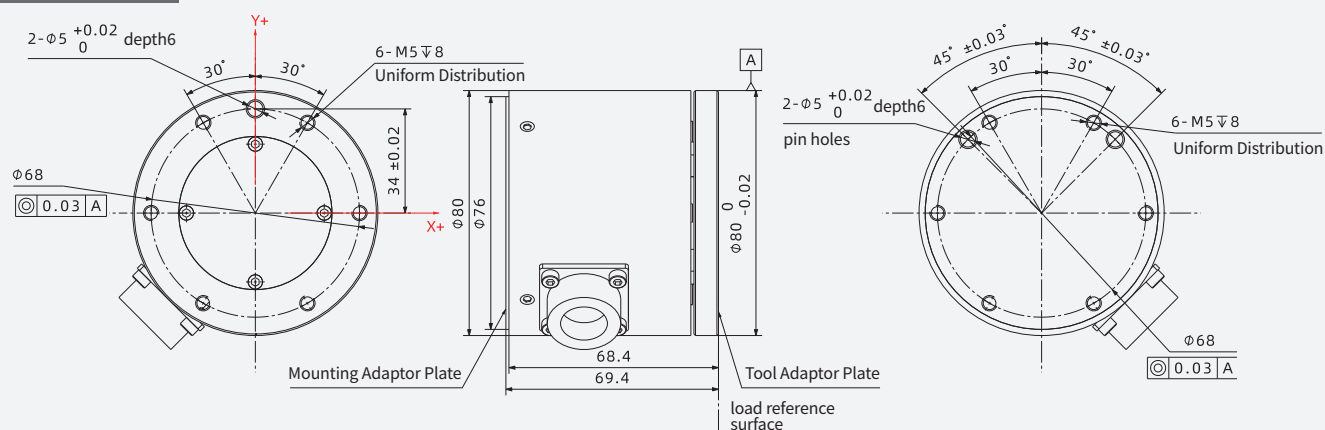
KWR57F-3D



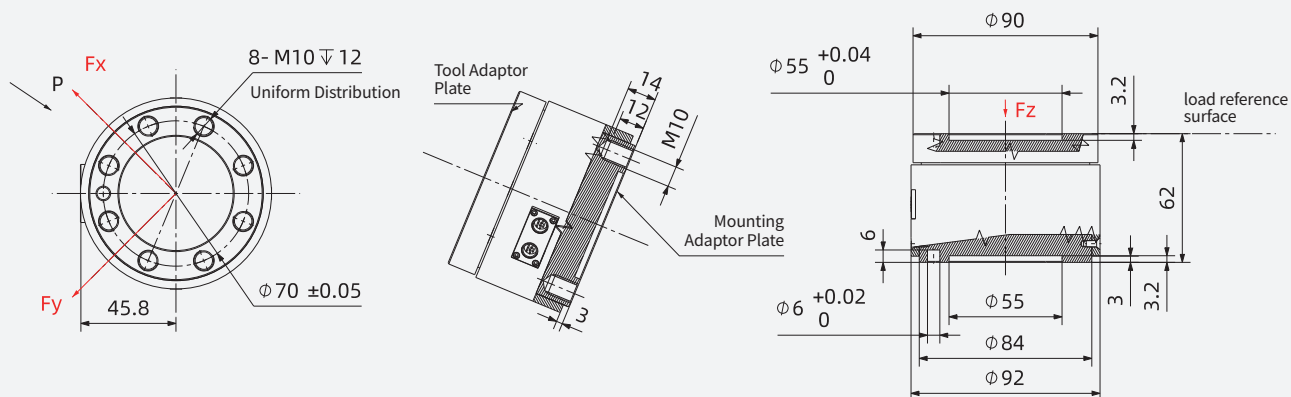
KWT3D240-6K



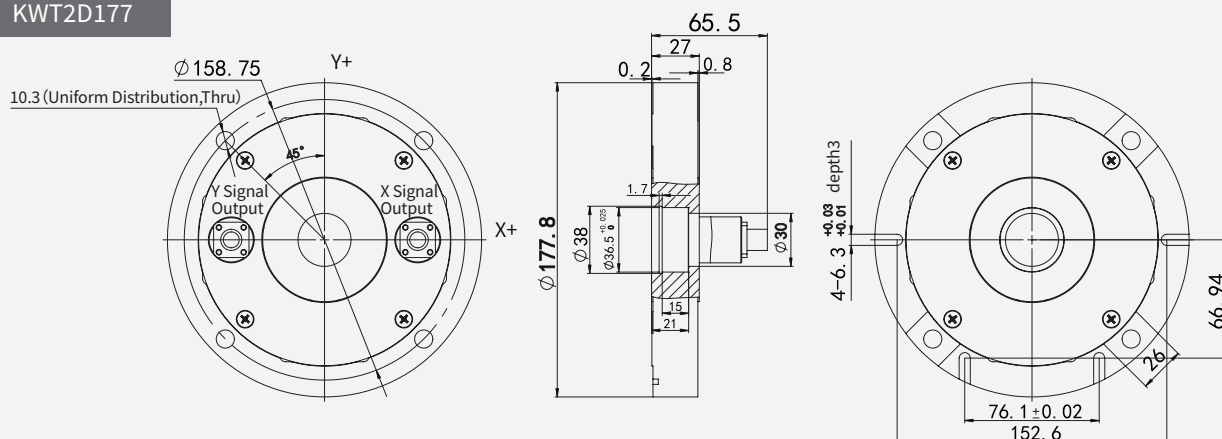
KWT3D80



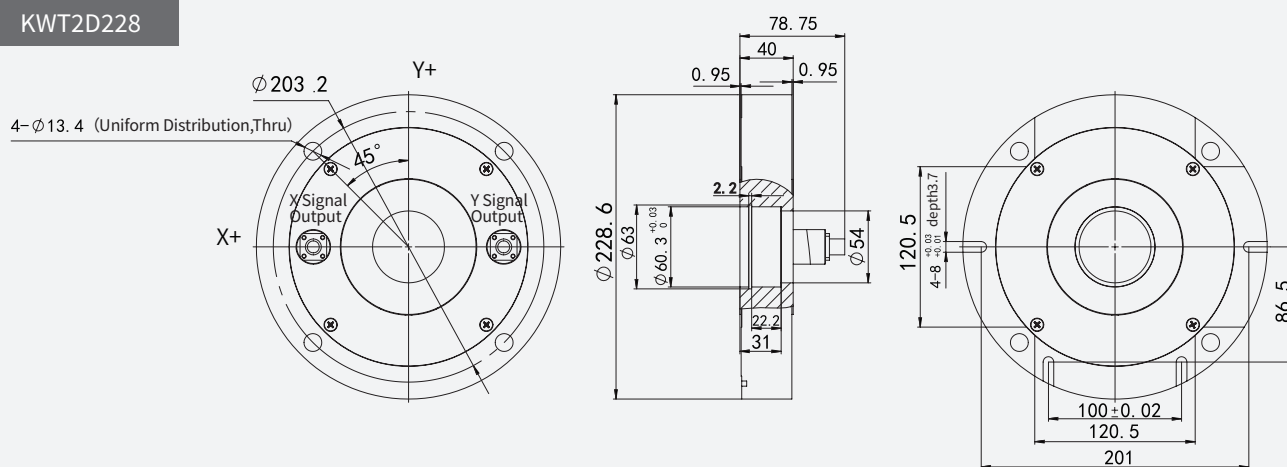
KWT3D92



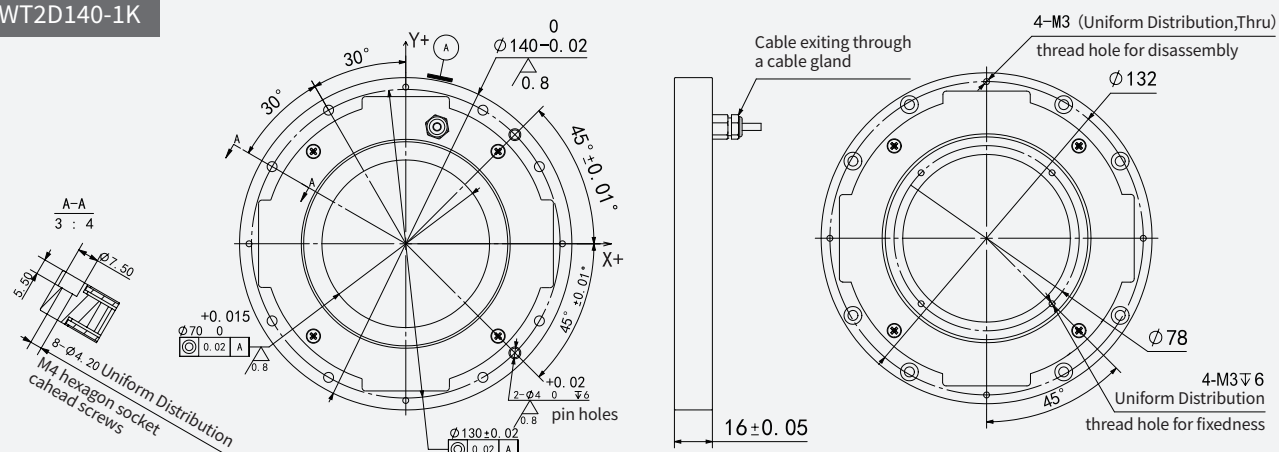
KWT2D177



KWT2D228



KWT2D140-1K



| Model                                                                               |                                    |              | Dimension<br>(mm) | Communication                    |                               | Power<br>Supply<br>(VDC) | Weight<br>(kg) |      |
|-------------------------------------------------------------------------------------|------------------------------------|--------------|-------------------|----------------------------------|-------------------------------|--------------------------|----------------|------|
|                                                                                     |                                    | Input Signal |                   | Output Signal                    |                               |                          |                |      |
|    | Single Channel<br>Signal Collector | KWH01CAMU    | 66.5x24x14        | Single Channelt<br>Analog Signal | USB                           | USB<br>Power<br>Supply   | 0.02           |      |
|    | Signal Acquisition<br>Module       | RS422        | KWH06C70NLA       | 70x48x25                         | Six Channel<br>Analog Signal  | RS422                    | 12~48          | 0.15 |
|    | Signal Acquisition<br>Module       | RS422        | KWH06C80NLA       | 80x100x 25                       | Six Channel<br>Analog Signal  | RS422                    | 12~48          | 0.20 |
|                                                                                     |                                    | RS485        | KWH06C80NLB       | 80x100x25                        |                               | RS485                    | 12~48          | 0.20 |
|                                                                                     |                                    | CAN          | KWH06C80NLC       | 80x100x25                        |                               | CAN                      | 12~48          | 0.20 |
|                                                                                     |                                    | CANFD        | KWH06C80NCF       | 80x100x25                        |                               | CANFD                    | 12~48          | 0.20 |
|    | Signal Acquisition<br>Module       | RS485        | KWH06S100NLB      | 100x86x24                        | Six Channel<br>Analog Signal  | RS485                    | 12~48          | 0.30 |
|  | Signal Acquisition<br>Module       | RS422        | KWH06C112HLA      | 112x105x32                       | Six Channel<br>Analog Signal  | RS422                    | 12~48          | 0.35 |
|                                                                                     |                                    | RS485        | KWH06C112HLB      | 112x105x32                       |                               | RS485                    | 12~48          | 0.35 |
|                                                                                     |                                    | CAN          | KWH06C112HLC      | 112x105x32                       |                               | CAN                      | 12~48          | 0.35 |
|                                                                                     |                                    | EtherCAT     | KWH06C112HLEC     | 112x105x32                       |                               | EtherCAT                 | 12~48          | 0.35 |
|                                                                                     |                                    | Ethernet     | KWH06C112HLEN     | 112x105x32                       |                               | Ethernet                 | 12~48          | 0.35 |
|  | Signal Acquisition<br>Module       | EtherCAT     | KWH00C106LEC      | 106x65x30                        | Serial Port<br>Digital Signal | EtherCAT                 | 12~48          | 0.25 |
|                                                                                     |                                    | Ethernet     | KWH00C106LEN      | 106x65x30                        |                               | Ethernet                 | 12~48          | 0.25 |
|  | Serial Device Server               | EtherCAT     | KWH00C100LEC      | 100x50x25                        | Serial Port<br>Digital Signal | EtherCAT                 | 12~48          | 0.12 |
|  | Serial Device Server               | Ethernet     | KWH00C100LEN      | 100x50x25                        | Serial Port<br>Digital Signal | Ethernet                 | 12~48          | 0.12 |
|  | Serial Device Server               | Ethernet     | KWH00C100LEN-ME   | 100x60x25                        | Serial Port<br>Digital Signal | Ethernet                 | 12~48          | 0.18 |

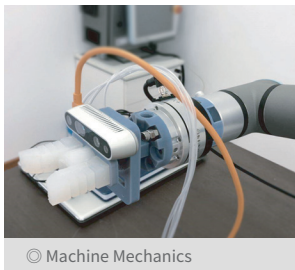
## Robot Force Sensing



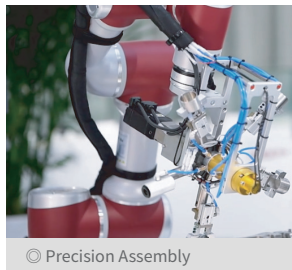
© Medical Detection



© Dragging Indication



© Machine Mechanics



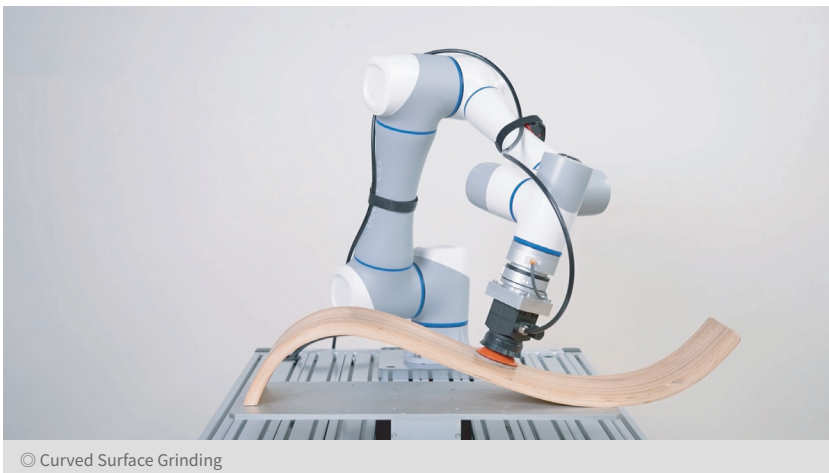
© Precision Assembly



© Precision Polishing



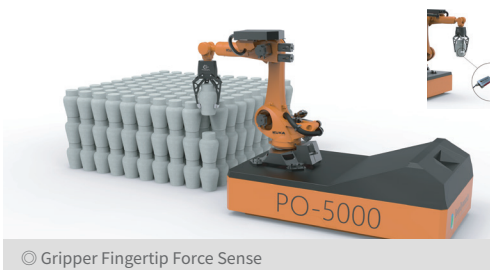
© Entertainment



© Curved Surface Grinding



© Constant Force Grinding



© Gripper Fingertip Force Sense



© Force Control Training



© Collaborative Robot Collision Test

## Exercise/Rehabilitation



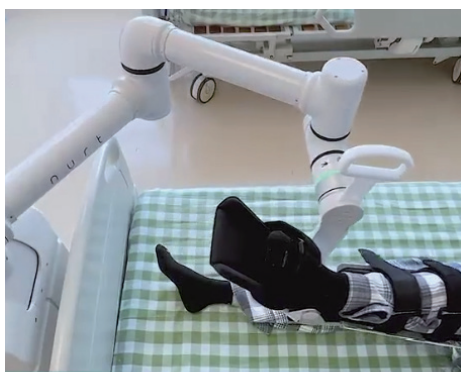
© Motion Wind Resistance Test



© Motion Wind Resistance Test



© Speed Skating Wind Resistance Test



© Rehabilitation Robot

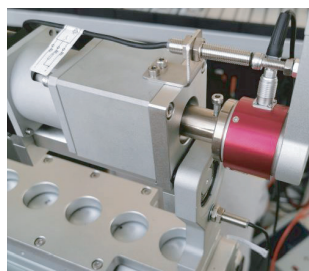


© Orthopedic Surgical Robot



© Force Control Massage

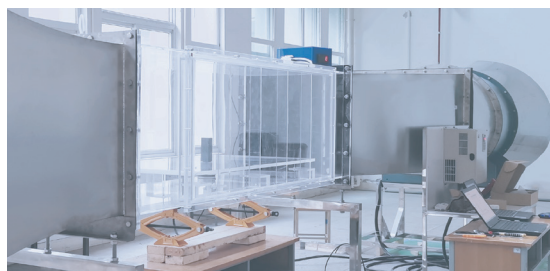
## Industry/Test



© Torque Monitoring



© Cutting Force Measurement

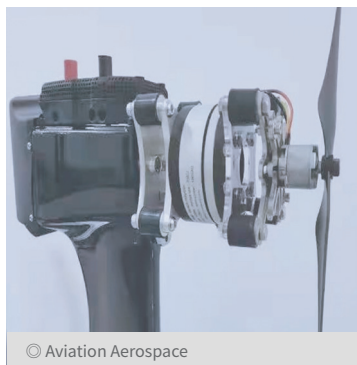


© Building Model Wind Load Test

## Aviation Aerospace



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# SIX-AXIS

