

RHFRHR Series (Ceiling Mount)

Part Number Configuration

RH 1 FRHR 2 3 4 D

Must select items 1–4.

1 Max Load Capacity

| Symbol | Maximum Load Capacity |
|--------|-----------------------|
| 1 | 1kg |
| 3 | 3kg |

2 Arm Length

| Symbol | Arm Length |
|--------|------------------|
| 35 | 350mm (3kg only) |
| 55 | 550mm (1kg only) |

3 Vertical Stroke Length

| Symbol | Vertical Stroke Length |
|--------|---|
| 12 | 120mm (Waterproof and cleanroom 3kg only) |
| 15 | 150mm (Standard environment only) |

4 Environment

| Symbol | Compliance Specification |
|--------|--------------------------------------|
| Blank | Standard environment specifications |
| C | Cleanroom specifications (3kg only) |
| W | Waterproof specifications (3kg only) |

RH1FRHR • RH3FRHR

| Model Number | RH1FRHR5515 | RH3FRHR3515 | RH3FRHR3512C | RH3FRHR3512W |
|--|---|---------------------------------|---|-----------------------------|
| Environmental Specifications | Standard | | Cleanroom | Waterproof |
| Protection Degree (*1) | IP20 With an optional bellows set: IP65 (*5), ISO class 5 (*6) | | IP20 | ISOclass5 (*4) IP65 *(6) |
| Installation | Ceiling type | | | |
| Structure | Horizontal multiple-joint type | | | |
| Degrees of Freedom | 4 | | | |
| Drive System | AC servo motor | | | |
| Position Detection Method | Absolute encoder | | | |
| Maximum Load (kg) | Maximum 3 (Rated 1) | | | |
| Arm Length (mm) | No. 1 | 325 | 175 | |
| | No. 2 | 225 | 175 | |
| Max. Reach Radius (No. 1 + No. 2) mm | 550 | | 350 | |
| Operating Range | J1 Degree | ±170 | 450 (±225) | |
| | J2 Degree | ±145 | 450 (±225) | |
| | J3 (Z) mm | 150 (120 with optional bellows) | 150 | 120 |
| | J4 (ø Axis) | ±360 | 1440 (±720) | |
| Maximum Speed | J1 Degree/s | 337.5 | 672 | |
| | J2 Degree/s | 720 | 708 | |
| | J3 (Z) mm/s | 765 | 1500 | |
| | J4 (ø Axis) Degree/s | 3000 | 3146 | |
| Maximum Horizontal Composite Speed mm/s (*2) | 6,000 | | 6267 | |
| Cycle Time (Load Capacity) Sec. (*3) | 0.28 (1kg) | | 0.32 (1kg) | |
| Position Repeatability | X-Y Direction mm | ±0.012 | ±0.01 | |
| | J3 (Z) mm | ±0.010 | ±0.01 | |
| | J4 (ø Axis) Degree | ±0.004 | ±0.01 | |
| Ambient Temperature °C | 0 to 40 | | | |
| Weight (kg) | 49 | | 24 | 28 |
| Tool Wiring | Input 8 points/Output 8 points, (total 20 cores) Dedicated signal cable for multifunctional hand (2 cores + Power cable 2 cores) Ethernet cable, 1 cable (100BASE-TX, 8 cores) (*7) | | Gripper: 8 input points (up to 4 points for shaft) / 8 output points, 8 spare lines | |
| Tool Pneumatic Pipes | Primary: ø6 x 2 hoses, Secondary: ø4 x 8 hoses (*8) | | Primary: ø6 x 2 Secondary: ø4 x 8 | |
| Machine Cable | 5m (connector on both ends) | | | |
| Connected Controller | CR800-D (iQ-R functionality supported via optional 4F-R16RTCPU and software setting change) | | | |

Notes:

- The environmental resistance specifications (C: Cleanroom specifications, W: Waterproof specifications) for the RH-3FRHR is factory-set custom specifications.
- The value assumes composition of J1, J2, and J4.
- Value for rated load capacity (kg). The cycle time may increase if specific requirements apply such as high work positioning accuracy, or depending on the operating position. (The cycle time is based on back-and-forth movement over a vertical distance of 25 mm and horizontal distance of 300 mm.)
- Preservation of cleanliness levels depends on conditions of a downstream flow of 0.3 m/s in the cleanroom and internal robot suctioning. A ø8-mm coupler for suctioning is provided at the back of the base.
- Direct jet to the bellows is excluded.
- The conditions necessary to guarantee cleanliness are as follows: cleanroom down flow 0.3 m/s or greater.
- The 8-wire cable designated for LAN wiring can also be used for backup wiring.
- The ø4 secondary piping can be obtained with the electromagnetic valve (option). Details regarding the electromagnetic valve (optional) are shown in the Specifications Manual.