RHFHR Series (Ceiling Mount)

Part Number Configurations



Must select items 1-6.

Max Load Capacity

	. ,
Symbol	Maximum Load Capacity
1	1kg
3	3kg

2 Arm Length

Symbol	Arm Length	
35	350mm (3kg only)	5
55	550mm (1kg only)	E
	- A	

4 Environment

Symbol

12 15

Overtical Stroke Length

150mm

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

Vertical Stroke Length 120mm (Waterproof and cleanroom 3kg only)

6 Controller Type

Symbol	Controller Type
D1	CR750-D
Q1	CR750-Q
1D1	CR751-D
101	CR751-Q

6 Compliance

pliance Specification -Optional)		
ly)		
y)		

Environmental Specifications Standard Cleanroom Waterproof Protection Degree (*1) IP20 With an optional bellows set: IP65 (*5), IS0 class 5 (*6) IP20 ISOclass 5 (*4) IP65 *(6) Installation Ceiling type IP20 With an optional bellows set: IP65 (*5), IS0 class 5 (*6) IP20 ISOclass 5 (*4) IP65 *(6) Structure Horizontal multiple-joint type Degrees of Freedom 4 Position Detection Method Absolute encoder Maximum Load (kg) Maximum 3 (Rated 1) Max. Reach Radius (No. 1 + No. 2) mm 550 350 Operating Range 410 Gegree ±170 450 (±225) J3 (2) mm 150 (120 with optional bellows) 150 120 J4 (ø Axis) ±360 1440 (±720) J3 (2) mm /s (*2) 3000 3146 Maximum Morizontal Composite Speed 6,000 6267 Maximum Morizontal Composite Speed	Model Number		RH1FHR5515	RH3FHR3515	RH3FHR3512C	RH3FHR3512W	
Protection Degree (*1) set: IP65 (*5), ISO class 5 (*6) IP20 ISOclass 5 (*4) IP55 *(6) Installation Ceiling type	Environmental Specifications		Standard		Cleanroom	Waterproof	
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 Max. Reach Radius (No. 1 + No. 2) mm 550 350 Operating Range J1 Degree ±170 450 (±225) J2 Degree ±145 450 (±225) J3 (2) mm 150 (120 with optional bellows) 150 120 Maximum Speed J1 Degree/s 337.5 672 J2 Degree/s 720 708 J3 (2) mm 150 (120 with optional bellows) 150 (120 with optional bellows) Maximum Morizontal Composite Speed 6,000 3146 Maximum Horizontal Composite Speed 6,000 6267 Cycle Time (Load Capacity) Sec. (*3) 0.28 (1kg) 0.32 (1kg) Position J3 (2) mm ±0.010 ±0.01 Horizontal ±0.01 ±0.01	•			IP20	ISOclass5 (*4)	IP65 *(6)	
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 3225 175 Max. Reach Radius (No. 1 + No. 2) mm 550 350 Operating Range J1 Degree ±170 450 (±225) J2 Degree ±145 450 (±225) J3 (2) mm 150 (120 with optional bellows) 150 120 J4 (a Axis) ±360 1440 (±720) 120 J3 (2) mm/s 765 1500 337.5 672 J2 Degree/s 370.0 708 331.6 1500 J3 (2) mm/s 765 1500 3146 Maximum Horizontal Composite Speed mm/s (*2) 6,000 6267 6267 Cycle Time (Load Capacity) Sec. (*3) 0.28 (1kg) 0.32 (1kg) 0.32 (1kg) Position Repeatability X* Direction mm ±0.012 ±0.01 J4 (g Axis) Degree ±0.010 ±0.01	Installation		Ceiling type				
Drive System AC servo motor Position Detection Method Absolute encoder Maximum Load (kg) Maximum 3 (Rated 1) Arm Length (mm) No. 1 325 175 Max. Reach Radius (No. 1 + No. 2) mm 550 350 Operating Range J Degree ±170 450 (±225) J2 Degree ±145 450 (±225) J3 (Z) mm 150 (120 with optional bellows) 150 120 Maximum Speed J1 Degree/s 337.5 672 J3 (g Axis) ±360 1440 (±720) J4 (g Axis) 500 3146 Maximum Horizontal Composite Speed mm/s (*2) 6,000 6267 Operating Repeatability X*P Direction mm ±0.012 ±0.01	Structure		Horizontal multiple-joint type				
Position Detection Method Absolute encoder Maximum Load (kg) Maximum 3 (Rated 1) Arm Length (mm) No. 1 325 175 Max. Reach Radius (No. 1 + No. 2) mm 550 350 Operating Range J1 Degree ±170 450 (±225) J2 Degree ±145 450 (±225) J3 (2) mm 150 (120 with optional bellows) 150 120 J4 (ø Axis) 337.5 672 J2 Degree/s 720 708 J3 (2) mm/s 765 1500 J4 (ø Axis) Degree/s 3000 3146 Maximum Horizont I- Composite Speed mm/s (*2) 6,000 6267 Cycle Time (Load C=pacity) Sec. (*3) 0.28 (1kg) 0.32 (1kg) Position Repeatability X-Y Direction mm ±0.012 ±0.01	Degrees of Freedo	m	4				
Maximum Load (kg)Maximum 3 (Rated 1)Arm Length (mm)No. 1325175No. 2225175Max. Reach Radius (No. 1 + No. 2) mm550350Operating RangeJ1 Degree±170450 (±225)J2 Degree±145450 (±225)J3 (Z) mm150 (120 with optional bellows)150120J4 (ø Axis)±3601440 (±720)J1 Degree/s337.5672J2 Degree/s720708J3 (Z) mm/s7651500J4 (ø Axis) Degree/s3000J4 (ø Axis) Degree/s0.28 (lkg)Operation±0.012PositionX-Y Direction mmRepeatabilityX-Y Direction mmJ4 (ø Axis) Degree±0.010J4 (ø Axis) Degree±0.004J5 (20 mm±0.014	Drive System		AC servo motor				
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 (# Axis) ±360 1440 (±720) 120 J4 (# Axis) ±360 1440 (±720) 120 J3 (Z) mm 150 (120 with optional bellows) 150 120 J4 (# Axis) ±360 1440 (±720) 120 J3 (Z) mm/s 765 672 120 J2 Degree/s 720 708 13 (Z) mm/s 765 J4 (# Axis) Degree/s 3000 3146 146 Maximum Horizontal - Composite Speed mm/s (*2) 6,000 6267 100 Cycle Time (Load Capacity) Sec. (*3) 0.28 (1kg) 0.32 (1kg) 101 J3 (Z) mm ±0.010 ±0.01 ±0.01 40.01 J4 (# Axis) Degree ±	Position Detection	Method	Absolute encoder				
Arm Length (mm) No. 2 225 175 Max. Reach Radius No. 1 + No. 2) mm 550 350 Max. Reach Radius No. 1 + No. 2) mm 550 350 Max. Reach Radius No. 1 + No. 2) mm 550 350 Max. Reach Radius No. 2 (No. 1 + No. 2) mm 550 350 Jage Presenting Range J1 Degree ±170 450 (±225) J3 (Z) mm 150 (120 with optional bellows) 150 120 J4 (ø Axis) ±360 1440 (±720) 120 J2 Degree/s 37.5 672 200 708 J3 (Z) mm/s 765 1500 200 200 J4 (ø Axis) Degree/s 3000 3146 200 200 Maximum Horizont- Composite Speed mm/s (*2) 6,000 6267 200 200 200 Cycle Time (Load Z= Tacity) Sec. (*3) 0.28 (1kg) 0.32 (1kg) 200 200 Position Repeatability J3 (Z) mm ±0.010 ±0.01 200 200 J4 (ø Axis) Degree ±0	Maximum Load (kg)		Maximum 3 (Rated 1)				
Max. Reach Radius 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) 120 Maximum Speed J1 Degree/s 337.5 672 J2 Degree/s 720 708	A	No. 1	325	175			
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) 120 J1 Degree/s 337.5 672 120 J2 Degree/s 720 708 13 (Z) mm/s 765 1500 J3 (Z) mm/s 765 1500 1446 1440 1470 146 Maximum Horizontal Composite Speed mm/s (*2) 0.00 3146 6,000 6267 Cycle Time (Load Capacity) Sec. (*3) 0.28 (1kg) 0.32 (1kg) 102 101 Position Repeatability X-Y Direction mm ±0.012 ±0.01 10.01 10.01 J4 (ø Axis) Degree ±0.004 ±0.01 10.01 10.01 10.01 10.01	Ann Lengui (inin)	No. 2	225	175			
J2 Degree ±145 450 (±225) J3 (Z) mm 150 (120 with optional bellows) 150 120 J4 (ø Axis) ±360 1440 (±720) 120 Maximum Speed J1 Degree/s 337.5 672 J3 (Z) mm/s 765 1500 120 J3 (Z) mm/s 765 1500 120 J4 (ø Axis) Degree/s 3000 3146 1500 Maximum Horizontal Composite Speed 6,000 6267 1500 Cycle Time (Load Capacity) Sec. (*3) 0.28 (1kg) 0.32 (1kg) 1500 Position Repeatability X-Y Direction mm ±0.010 ±0.01 J3 (Z) mm ±0.010 ±0.01 100	Max. Reach Radius (No. 1 + No. 2) mm		550	350			
Operating Range J3 (Z) mm 150 (120 with optional bellows) 150 120 J4 (ø Axis) ±360 1440 (±720) 120	On and the Dames	J1 Degree	±170	450 (±225)			
J3 (Z) mm 150 (120 with optional bellows) 150 120 J4 (ø Axis) ±360 1440 (±720) Jagere/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) Y Direction mm ±0.012 ±0.01 J3 (Z) mm ±0.010 ±0.01		J2 Degree	±145	450 (±225)			
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 ±0.010 ±0.01 J3 (Z) mm J4 (Ø Axis) Degree ±0.004 ±0.01	Operating nange	J3 (Z) mm	150 (120 with optional bellows)	150	120		
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 J4 (Ø Axis) Degree ±0.004 ±0.01		J4 (ø Axis)	±360	1440 (±720)			
Maximum Speed 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 ±0.010 ±0.01 J3 (Z) mm ±0.010 ±0.01 J4 (Ø Axis) Degree ±0.004 ±0.01	Maximum Speed	J1 Degree/s	337.5	672			
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		J2 Degree/s	720	708			
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		J3 (Z) mm/s	765	1500			
mm/s (*2) 0,00 0207 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		J4 (ø Axis) Degree/s	3000	3146	3146		
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	Maximum Horizontal Composite Speed mm/s (*2)		6,000	6267			
Position Repeatability J3 (Z) mm ±0.010 ±0.01 J4 (Ø Axis) Degree ±0.004 ±0.01	Cycle Time (Load Capacity) Sec. (*3)		0.28 (1kg)	0.32 (1kg)			
Bepeatability J3 (2) mm ±0.010 ±0.01 J4 (ø Axis) Degree ±0.004 ±0.01		X-Y Direction mm	±0.012	±0.01			
J4 (ø Axis) Degree ±0.004 ±0.01		J3 (Z) mm	±0.010	±0.01			
	nopoutability	J4 (ø Axis) Degree	±0.004 ±0.01				
Ambient Temperature °C 0 to 40	Ambient Temperature °C		0 to 40				
Weight (kg) 49 24 28	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 Wiring		(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	Secondary: ø4 x 8 hoses (*		Secondary: ø4 x 8 hoses (*8)	Primary: ø6 x 2 Secondary: ø4 x 8			
Machine Cable 5m (connector on both ends)	Machine Cable		5m (connector on both ends)				

^{1.} Notes:

1. The environmental resistance specifications (C: Cleanroom specifications, W: Waterproof specifications) for the RH-3FHR is factory-set custom specifications.

2. The value assumes composition of J1, J2, and J4.

3. 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.)

4. 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.

5. Direct jet to the bellows is excluded.

6. The conditions necessary to guarantee cleanliness are as follows: cleanroom down flow 0.3 m/s or greater.

7. The 8-wire cable designated for LAN wiring can also be used for backup wiring.

8. The ø4 secondary piping can be obtained with the electromagnetic valve (option). Details regarding the electromagnetic valve (optional) are shown in the Specifications Manual.