

The new HS-A1 Series robots offer higher speed and accuracy than previous HS models.

- Motor performance optimized for use with the latest RC8A controller, improving standard cycle time to 0.29 sec., an increase of 20%
- Highly effective vibration damping of tool center-point improves accuracy in high-speed operations
- Exceptional repeatability of ± 0.015 to ± 0.02 mm
- Payloads up to 5 kg
- Reaches from 350 to 550 mm
- Vertical stroke option of 100, 150, 200 or 320 mm
- High maximum allowable moment of inertia enables wide range of end-effectors and applications
- Compact design saves floor space, facilitates integration
- Floor- or ceiling-mount models available
- Operation in dusty and wet environments (IP65 option)
- Operation in cleanrooms (ISO 3 option)
- ANSI and CE compliance allows global deployment
- UL models available for the US and Canada 



Specifications

| | | HS035A1-N* | HS045A1-N/S* | HS055A1-N/S* |
|--|----------------------------|---|------------------|------------------|
| Number of axes | | 4 | | |
| Position detection method | | Absolute encoder | | |
| Drive motor and brake | | AC servo motor all axes; brakes on Z and T axes | | |
| Total length of arm (arm #1 + #2) | | 350 (125 + 225) mm | 450 (225+225) mm | 550 (325+225) mm |
| Range of motion (°) | J1 (Axis 1) | $\pm 155^\circ$ | | |
| | J2 (Axis 2) | $\pm 145^\circ$ | | |
| | Z (Axis 3) | * =10: 100 mm, * =15: 150 mm, * =20: 200 mm, * =32: 320 mm | | |
| | T (Axis 4) | $\pm 360^\circ$ | | |
| Maximum payload | | 5 kg | | |
| Maximum joint speed (tool center point) ² | Arm tip | 7,200 mm/sec | 6,300 mm/sec | 7,100 mm/sec |
| | Z | 2,000 mm/sec | | |
| | T | 2,400°/sec | | |
| Standard cycle time ² | | 0.29 sec | | |
| Repeatability ¹ | J1+J2 | ± 0.015 mm | ± 0.02 mm | |
| | Z | ± 0.01 mm | | |
| | T | $\pm 0.005^\circ$ | | |
| Maximum downward force | | 98 N (1 sec. max.) | | |
| Maximum allowable moment of inertia | | 0.1 kgm ² | | |
| Air piping (in-arm integrated) | | 4 systems ($\phi 4 \times 2$, $\phi 6 \times 2$) | | |
| User signal line | | 19 lines (for proximity sensor signals, etc.) | | |
| Air source | Normal pressure | 0.05 to 0.35 MPa | | |
| | Maximum allowable pressure | 0.059 MPa | | |
| Airborne noise | | 80 dB max. | | |
| Protection level | | Dust- and splashproof (IP65) optional Cleanroom ISO Class 3 optional | | |
| Weight | | Approx. 25 kg | | |

*Placeholder for Z-stroke value. 1. At constant ambient temperature.

2. Time required for robot to lift an object to a height of 25mm and move it back and forth between two points 300mm apart.

HS045A1



UL



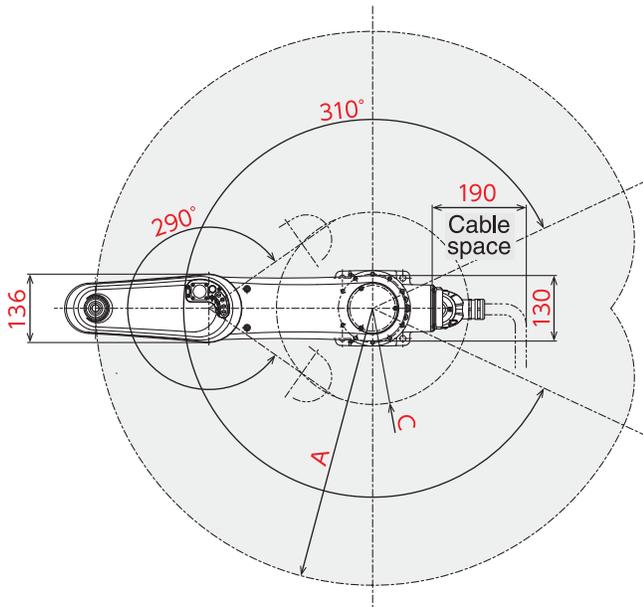
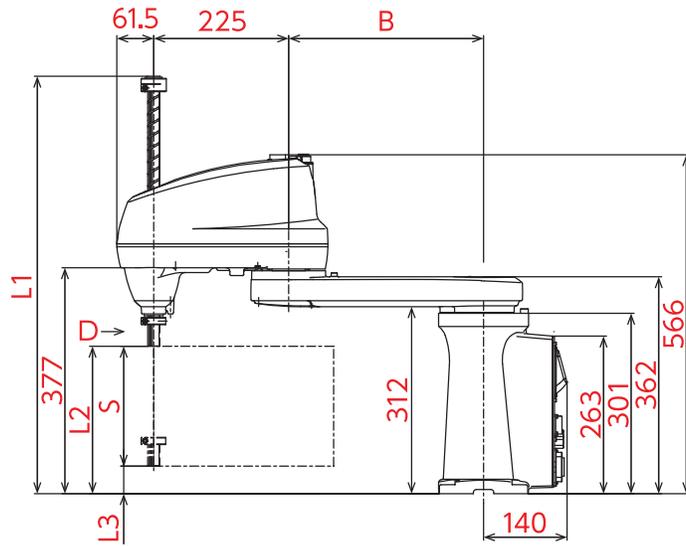
CLEAN ROOM



DUST & SPLASH PROOF



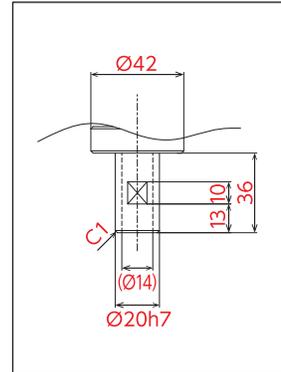
External Dimensions and Workable Space



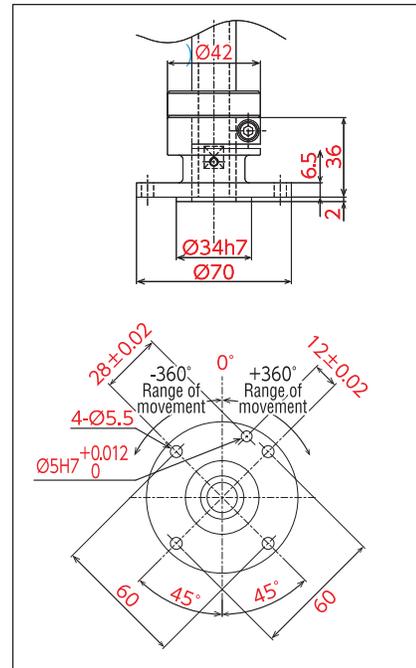
| Z-Axis Stroke: ST (mm) | L1 | L2 | L3 |
|------------------------|-----|-----|------|
| * =10 : 100 | 596 | 246 | 146 |
| * =15 : 150 | 647 | 246 | 96 |
| * =20 : 200 | 697 | 246 | 46 |
| * =32 : 320 | 817 | 246 | -74' |

Above dimensions are for standard models, please see our website for other variations.
 1. Since the lowest point of the Z axis when its stroke is 320 mm is lower than the base mounting surface, care must be taken to avoid interference with peripheral devices.

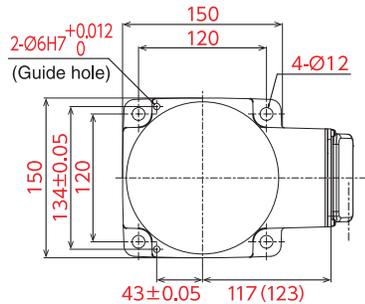
Detailed drawing of end-effector mounting face (View from Arrow D)



Flange option



Detailed drawing of base mounting face (Top view)



| Model | A | B | C |
|--------|-----|-----|-----|
| HS035* | 350 | 125 | 143 |
| HS045* | 450 | 225 | 136 |
| HS055* | 550 | 325 | 191 |

Unit : mm

Legend

HS□□□A1-□□□-□□□-□□□-□□□□□□□□□□

Arm Length:
 NN: Standard
 W5: Dust- and splashproof (IP65)
 JN: Bellows

Mounting Orientation:
 N: Floor-mount
 S: Ceiling-mount

Z-axis Stroke:
 10: 100 mm
 15: 150 mm
 20: 200 mm
 32: 320 mm

Environmental Protection:
 NN: Standard
 W5: Dust- and splashproof (IP65)
 C3: Cleanroom (ISO Class 3)
 JN: Bellows

Safety Specifications:
 N: Standard
 U: UL-compliant

The data on this page is for standard models. For other options, visit our website at www.densorobotics.com.