



**NACHI**



# **MZ Collaborative Robot**

**Model: CMZ12-01**

**A collaborative robot with trusted MZ series technology,  
now with a longer reach  
Capable of 12 kg payloads at high speed and high precision**

## **Superb safety features**

- *Conforms to various certification standards for ensuring safety as a collaborative robot  
(Third-party certifications received: ISO 13849-1, ISO 10218-1, ISO/TS 15066)*
- *Product shape and safety software features designed to minimize clamping risk*

## **High speed and high precision**

- *Best-in-class levels of speed and precision due to the application of the latest MZ series mechanisms*
  - *1000 mm/s during collaborative operation and 3000 mm/s during non-collaborative operation*
  - *Precise positioning repeatability of  $\pm 0.025$  mm*
- *Designed with a double-arm construction for greater rigidity*

## **Useful for a wide range of applications**

- *Hollow-wrist construction reduces risk of contact with internal arm cables and tubes during work*
- *Conforms to standards for high levels of resistance to dust and water (equivalent to IP67)*



## Basic Specification of Robot

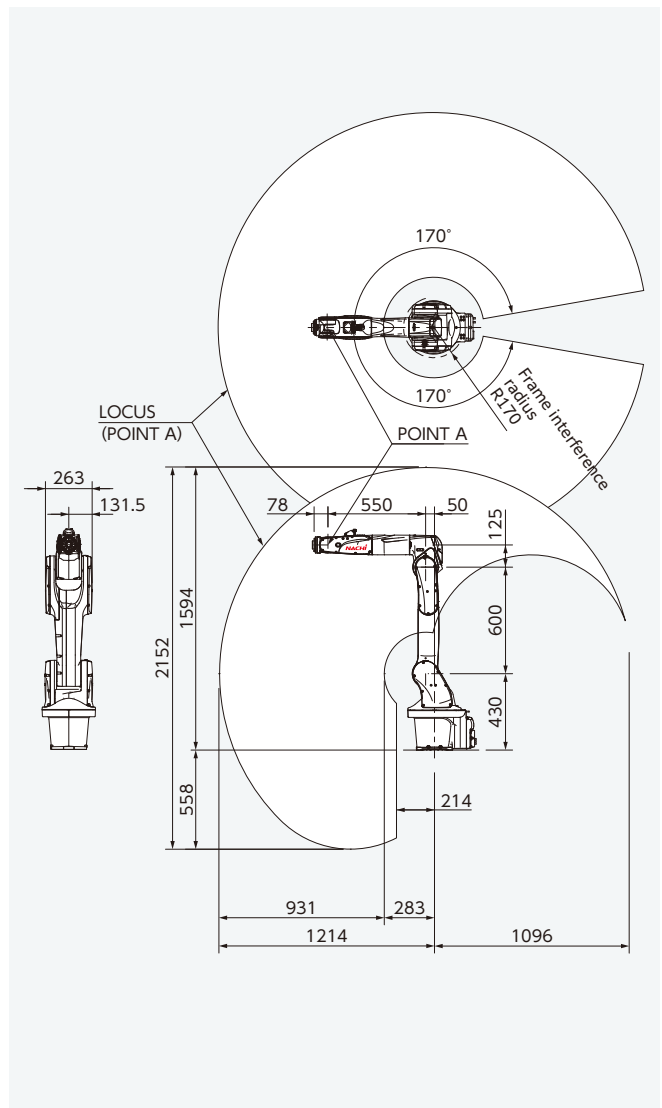
| Item                       | Specification     |   |
|----------------------------|-------------------|---|
| Model                      | <b>CMZ12-01</b>   |   |
| Structure                  | Articulated robot |   |
| Axes                       | 6                 |   |
| Drive system               | AC servo motor    |   |
| Maximum motion range       | J1                | $\pm 2.97\text{rad}(\pm 170^\circ)$   |
|                            | J2                | Initialization: $-1.75 \sim +0.70\text{rad}(-100 \sim +40^\circ)$<br>MAX: $-2.36 \sim -1.40\text{rad}(-135 \sim +80^\circ)$               |
|                            | J3                | $-2.68 \sim -2.74\text{rad}(-153 \sim +157^\circ)$  |
|                            | J4                | $\pm 3.32\text{rad}(\pm 190^\circ)$   |
|                            | J5                | Initialization: $\pm 1.57\text{rad}(\pm 90^\circ)$<br>MAX: $\pm 2.09\text{rad}(\pm 120^\circ)$  |
|                            | J6                | $\pm 6.28\text{rad}(\pm 360^\circ)$   |
| Maximum Velocity           | J1                | 2.09rad/s(120°/s)<br>[with 8kg payload: 4.71rad/s(270°/s)] <sup>Note 1)</sup>   |
|                            | J2                | 2.09rad/s(120°/s)<br>[with 8kg payload: 3.14rad/s(180°/s)] <sup>Note 1)</sup>   |
|                            | J3                | 3.14rad/s(180°/s)<br>[with 8kg payload: 5.41rad/s(310°/s)] <sup>Note 1)</sup>   |
|                            | J4                | 7.68rad/s(440°/s)   |
|                            | J5                | 7.68rad/s(440°/s)   |
|                            | J6                | 12.22rad/s(700°/s)  |
| TCP speed                  | Non-collaborative | 2000mm/s[with 8kg payload: 3000mm/s] <sup>Note 1)</sup>   |
|                            | Collaborative     | 1000mm/s  |
| Payload weight             | Wrist             | 12kg  |
| Maximum static load torque | J4                | 20N·m   |
|                            | J5                | 20N·m   |
|                            | J6                | 10.4N·m   |
| Maximum moment of inertia  | J4                | 0.60kg·m <sup>2</sup>   |
|                            | J5                | 0.60kg·m <sup>2</sup>   |
|                            | J6                | 0.20kg·m <sup>2</sup>   |
| Position repeatability     |                   | $\pm 0.025\text{mm}$  |
| Maximum Reach              |                   | 1000mm[with 8kg payload: 1214mm] <sup>Note 1)</sup>   |
| Air tubes                  |                   | $\phi 6 \times 2$ (3 solenoid valves installed as standard)<br>Available pressure range: 0.1~0.5MPa                                       |
| Application cables         |                   | 20 core or 12 core(Depends on option selection)   |
| LAN                        |                   | None, 8 core 1 line, 8 core 2 line<br>(Depends on option selection)   |
| Installation               |                   | Floor/Inverted  |
| Mounting Condition         |                   | Ambient Temperature: 0~40°C<br>Ambient Humidity: 20~85%RH(No dew or frost allowed)<br>Vibration: Not more than 0.5G(4.9m/s <sup>2</sup> ) |
| Protection class           |                   | IP67 equivalent(dust-proof, liquid-resistant)   |
| Clean rating               |                   | Equivalent ISO CLASS 5  |
| Noise level                |                   | 75dB  |
| Robot weight               |                   | 66kg  |

1[rad]=180/π[°], 1[N·m]=1/9.8[kgf·m]

- Note that the information represented in this document, such as rated values, specifications, and dimensions, is subject to change without notice to improve the product.
- An explosion-proof version is not available.

Note 1) The speed and operating range are extended by the payload.

## Dimensions and operating range



- When using the robot for collaborative operation, ensure that its stand is rigid and firmly secured.
- If parts such as the stand or installation vibrate due to robot operation or the surrounding circumstances, the collision-detection system of the CMZ12-01 might erroneously detect a collision.



I/O 20 core, LAN 8 core 1 Line



Collaborative mode indicator lamp



Stopper cover that reduces the risk of getting caught



Offset shape that reduces the risk of getting caught

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• The specifications are subject to changes without notice.

• In case that an end user uses this product for military purpose or production of weapon, this product may be liable for the subject of export restriction stipulated in the Foreign Exchange and Foreign Trade Act. Please go through careful investigation and necessary formalities for export.



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