



# TSL-CRA-RI50-70

Ø70 mm Robot Joint Module | Harmonic Gearbox

Compact integrated joint module with 51:1 / 81:1 / 101:1 harmonic reduction options.

|                     |                     |                  |                |
|---------------------|---------------------|------------------|----------------|
| Reduction Ratio     | Rated Torque        | Peak Torque      | Supply Voltage |
| 51:1 / 81:1 / 101:1 | 6.6 / 9.6 / 9.6 N·m | 23 / 29 / 34 N·m | 24-48 V        |

## 1. Electrical, Mechanical and Control Parameters

| Parameter                                                        | Unit                  | 51              | 81    | 101   |
|------------------------------------------------------------------|-----------------------|-----------------|-------|-------|
| Start-Stop Peak Torque                                           | N·m                   | 23              | 29    | 34    |
| Maximum Allowable Average Load Torque (Robot Scenario)           | N·m                   | 8.60            | 13.50 | 13.50 |
| Rated Torque at 2000 rpm/(Reduction Ratio) (Industrial Scenario) | N·m                   | 6.60            | 9.60  | 9.60  |
| Output Peak Speed                                                | rpm                   | 97              | 61    | 49    |
| Rated Speed (with 1/2 Rated Torque)                              | rpm                   | 75              | 46    | 37    |
| Backlash                                                         | arcsec                | 20              | 20    | 10    |
| Rated Power                                                      | W                     | 85              |       |       |
| Supply Voltage                                                   | V                     | 24-48           |       |       |
| Encoder Resolution                                               | bit                   | 16              |       |       |
| Communication Bus                                                | -                     | CAN             |       |       |
| Brake Torque (No Brake/With Brake)                               | N·m                   | 0/0.03          |       |       |
| Stiffness                                                        | 10 <sup>4</sup> N/rad | 0.32            | 0.45  | 0.45  |
| Radial Allowable Load                                            | kN                    | 8.60            |       |       |
| Axial Allowable Load                                             | kN                    | 19.55           |       |       |
| Allowable Bending Moment                                         | N·m                   | 74              |       |       |
| Length (No Brake/With Brake)                                     | mm                    | 63±0.5/81.5±0.5 |       |       |
| Through Hole                                                     | mm                    | 12              |       |       |
| Weight (No Brake/With Brake)                                     | kg                    | 0.66/0.78       |       |       |
| Inertia (No Brake/With Brake)                                    | g·cm <sup>2</sup>     | 158.8/228.8     |       |       |

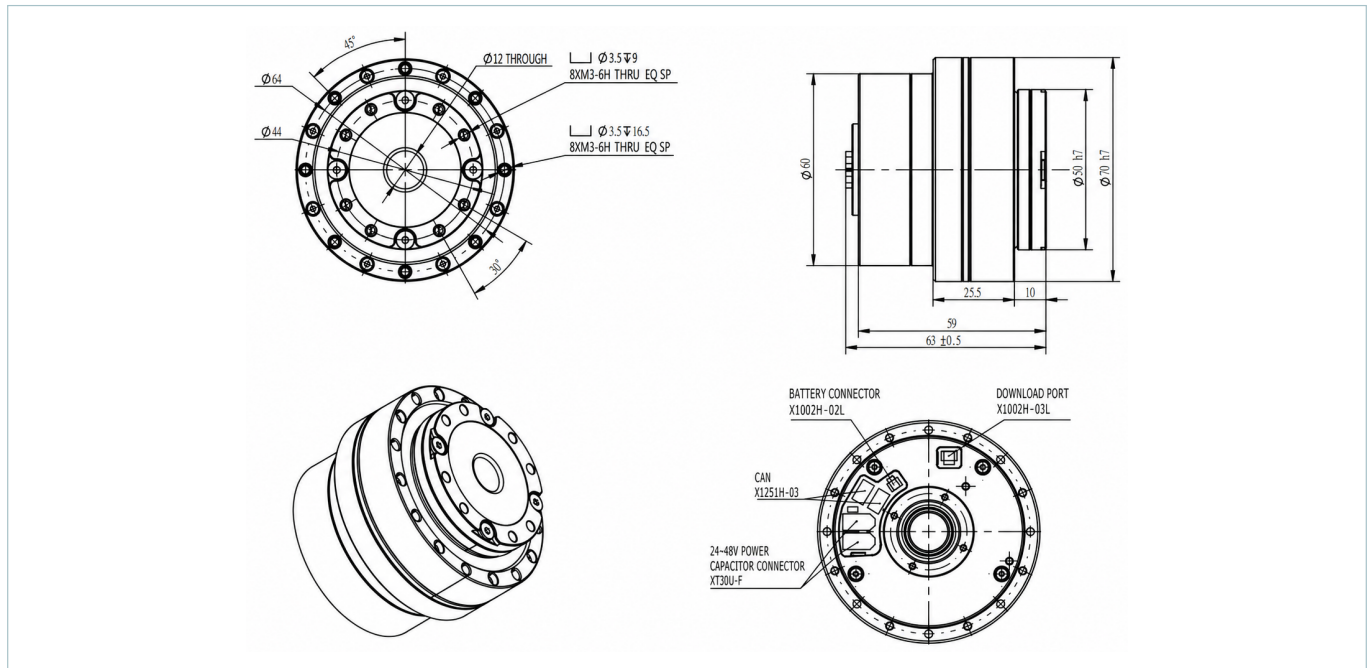
Parameters are for reference only. For final installation dimensions, refer to the drawings on pages 2-3.

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## 2. Dimension Drawing - 63 mm Version - Without Brake

All dimensions are in millimeters unless otherwise specified.



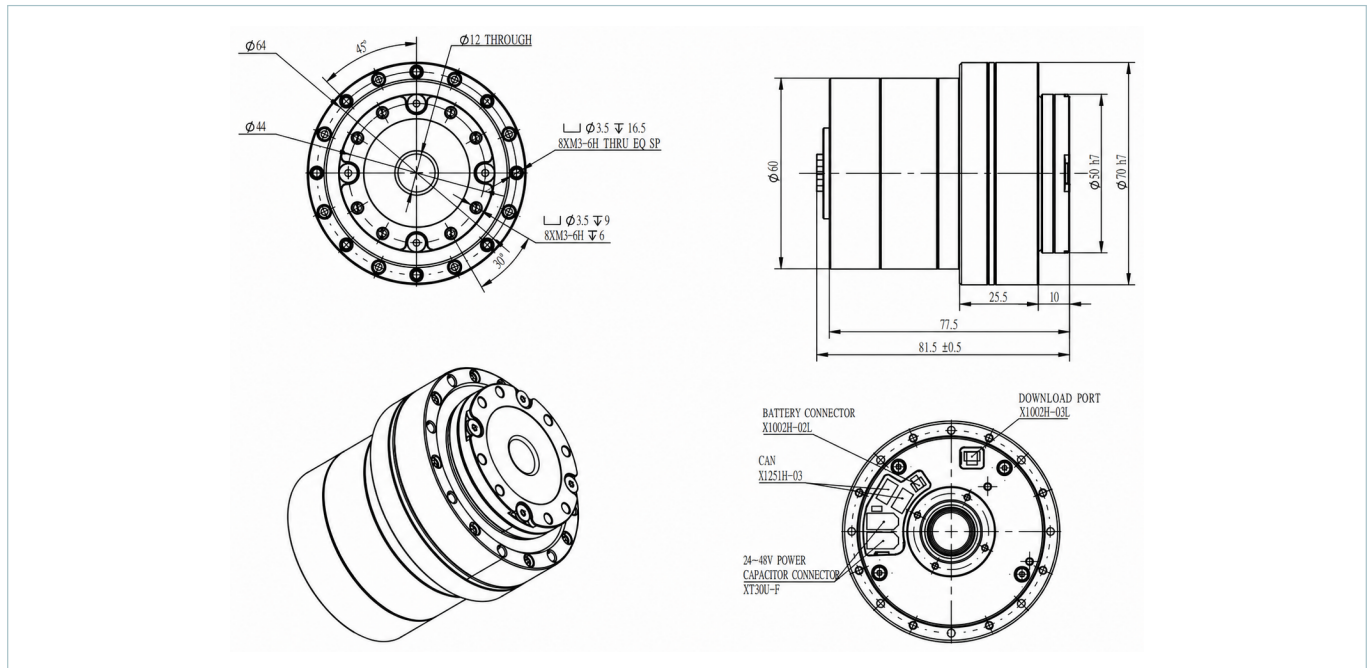
|                                                        |                                                                       |
|--------------------------------------------------------|-----------------------------------------------------------------------|
| Configuration                                          | 63 mm version (without brake)                                         |
| Overall Length                                         | 63 ± 0.5 mm                                                           |
| Referenced Length                                      | 59 mm                                                                 |
| Outer Diameter                                         | Ø70 h7                                                                |
| Front Interface                                        | Ø50 h7; Ø64 and Ø44 reference diameters                               |
| Through Hole                                           | Ø12 through                                                           |
| Brake Torque                                           | 0 N·m (no brake)                                                      |
| Communication Interfaces                               | CAN port, power capacitor connector, battery connector, download port |
| Mounting Features                                      | 8 × M3-6H threaded holes (equally spaced), as shown                   |
| Drawing: TSL-CRA-RI50-70 - 63 mm Without Brake Version |                                                                       |
| Version V1.0   Updated 2025-08-09                      |                                                                       |

# TSL-CRA-RI50-70

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## 3. Dimension Drawing - 81.5 mm Version - With Brake

All dimensions are in millimeters unless otherwise specified.



|                                                       |                                                                       |
|-------------------------------------------------------|-----------------------------------------------------------------------|
| Configuration                                         | 81.5 mm version (with brake)                                          |
| Overall Length                                        | 81.5 ± 0.5 mm                                                         |
| Referenced Length                                     | 77.5 mm                                                               |
| Outer Diameter                                        | Ø70 h7                                                                |
| Front Interface                                       | Ø50 h7; Ø64 and Ø44 reference diameters                               |
| Through Hole                                          | Ø12 through                                                           |
| Brake Torque                                          | 0.03 N·m                                                              |
| Communication Interfaces                              | CAN port, power capacitor connector, battery connector, download port |
| Mounting Features                                     | 8 × M3-6H threaded holes (equally spaced), as shown                   |
| Drawing: TSL-CRA-RI50-70 - 81.5 mm With Brake Version |                                                                       |
| Version V1.0   Updated 2025-08-09                     |                                                                       |