

PRODUCT DATASHEET

ES-SM-A03-130G-T15P2NM-2400W-002

AC Servo Motors

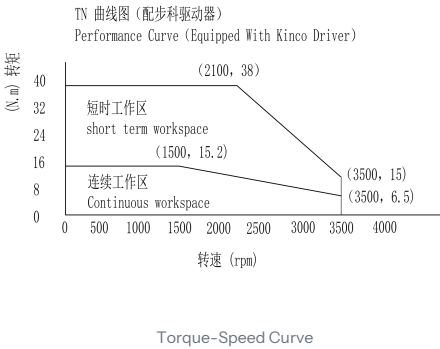
AC Servo Motors | ES-SM-A03-130G Compact 130 mm AC Servo Motor Series

Product Overview

AC Servo Motors with rated Torque 15.2 N·m, instantaneous Maximum Torque 38 N·m and rated Speed 1500 rpm.

Key Specifications

| PARAMETER                     | VALUE                                                                  | UNIT  |
|-------------------------------|------------------------------------------------------------------------|-------|
| Rated Torque                  | 15.2                                                                   | N·m   |
| Instantaneous Maximum Torque  | 38                                                                     | N·m   |
| Rated Speed                   | 1500                                                                   | rpm   |
| Continuous Rated Output Power | 2400                                                                   | W     |
| Rated Voltage                 | 220                                                                    | V AC  |
| Instantaneous Maximum Current | 32.3                                                                   | A     |
| Flange Size                   | 130                                                                    | mm    |
| Torque Constant               | 1.293                                                                  | N·m/A |
| Altitude and Derating Rule    | highest altitude2000m(1000mfor each increase above100m,Power drop1.5%) |       |



# Technical Specifications

| PARAMETER                     | SPECIFICATION | UNIT   |
|-------------------------------|---------------|--------|
| PERFORMANCE                   |               |        |
| Rated Torque                  | 15.2          | Nm     |
| Instantaneous Maximum Torque  | 38            | Nm     |
| Rated Speed                   | 1500          | rpm    |
| Continuous Rated Output Power | 2400          | W      |
| Torque Constant               | 1.293         | Nm/A   |
| Rated Power                   | 2400          | W      |
| ELECTRICAL                    |               |        |
| Rated Voltage                 | 220           | V AC   |
| Instantaneous Maximum Current | 32.3          | A      |
| Back EMF Constant             | 78.15         | V/krpm |
| Insulation Class              | F             |        |

## Technical Specifications

| PARAMETER                    | SPECIFICATION                                             | UNIT   | NOTES                              |
|------------------------------|-----------------------------------------------------------|--------|------------------------------------|
| ELECTRICAL                   |                                                           |        |                                    |
| Motor Outlet Mode            | Standard socket                                           |        |                                    |
| Pole Pairs                   | 5                                                         |        |                                    |
| Rated Current                | 12.9                                                      | A      |                                    |
| Rotational Back-EMF Constant | 78.15                                                     | V/krpm |                                    |
| Electrical Time Constant     | 6.1                                                       | ms     |                                    |
| Position Feedback Device     | 17-bit multi-turn communication magnetic absolute encoder |        |                                    |
| MECHANICAL                   |                                                           |        |                                    |
| Flange Size                  | 130                                                       | mm     |                                    |
| Inertia Level                | High inertia                                              |        |                                    |
| Holding Brake Available      | With holding brake                                        |        |                                    |
| Mechanical Time Constant     | 1.52 / 1.46                                               | ms     | Brake Configuration: without_brake |

## Technical Specifications

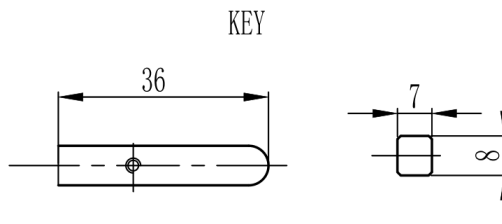
| PARAMETER                        | SPECIFICATION                                                                    | UNIT               | NOTES                              |
|----------------------------------|----------------------------------------------------------------------------------|--------------------|------------------------------------|
| <b>MECHANICAL</b>                |                                                                                  |                    |                                    |
| Rotor Inertia                    | 31.67 / 30.37                                                                    | Kg·cm <sup>2</sup> | Brake Configuration: without_brake |
| Bearing Radial Force Capacity    | 686                                                                              | N                  |                                    |
| Bearing Axial Force Capacity     | 196                                                                              | N                  |                                    |
| <b>ENVIRONMENTAL</b>             |                                                                                  |                    |                                    |
| Altitude and Derating Rule       | highest altitude 2000m (1000m for each increase above 100m, Power drop 1.5%)     |                    |                                    |
| Operating Environment            | Keep away from corrosive or flammable gases, oil droplets and dust               |                    |                                    |
| Operating Humidity               | ≤90% RH, non-condensing                                                          |                    |                                    |
| Operating Temperature            | -20 to 40°C (no freezing)                                                        |                    |                                    |
| Protection Rating                | IP65, shaft end IP54 (Note: with shaft-end oil seal IP54, without oil seal IP50) |                    |                                    |
| <b>CONFIGURATION</b>             |                                                                                  |                    |                                    |
| Output Shaft Type                | Keyed shaft                                                                      |                    |                                    |
| <b>ADDITIONAL SPECIFICATIONS</b> |                                                                                  |                    |                                    |
| Holding Brake                    | 1                                                                                |                    |                                    |

## Dimensional & Integration Overview

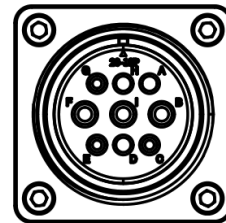
### Mechanical Overview

| PARAMETER                     | VALUE              | UNIT               |
|-------------------------------|--------------------|--------------------|
| Flange Size                   | 130                | mm                 |
| Inertia Level                 | High inertia       |                    |
| Holding Brake Available       | With holding brake |                    |
| Mechanical Time Constant      | 1.52 / 1.46        | ms                 |
| Rotor Inertia                 | 31.67 / 30.37      | Kg·cm <sup>2</sup> |
| Bearing Radial Force Capacity | 686                | N                  |

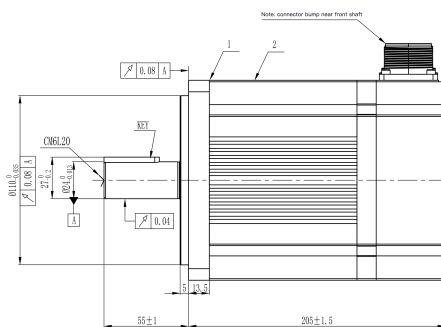
### Dimensional Drawings



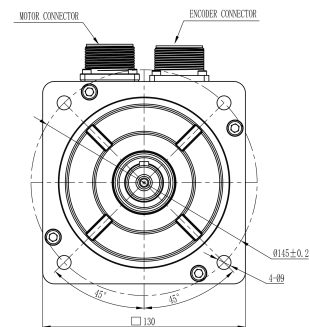
Mechanical View 1



Power Connector Pinout



Mechanical View 3



Mechanical View 4

## 2D Drawing Dimensions & Callouts

| VIEW              | FIELD                                    | VALUE                                                  |
|-------------------|------------------------------------------|--------------------------------------------------------|
| Mechanical View 1 | Keyway length                            | 36                                                     |
|                   | Keyway width                             | 7                                                      |
|                   | Keyway depth                             | 8                                                      |
| Mechanical View 3 | Mounting flange outer diameter           | Ø110 +0/-0.035 mm                                      |
|                   | Output shaft diameter                    | Ø24 +0.013/0 mm                                        |
|                   | Keyway width                             | 27 +0/-0.2 mm                                          |
|                   | Keyway standard                          | CM6L20                                                 |
|                   | Position tolerance (upper feature)       | Position tolerance Ø0.08 relative to datum A           |
|                   | Cylindricity or runout tolerance (shaft) | Cylindricity/runout tolerance 0.08 relative to datum A |
|                   | Position tolerance (lower feature)       | Position tolerance Ø0.04                               |
|                   | Datum A                                  |                                                        |
|                   | Overall length                           | 205±1.5 mm                                             |
|                   | Front section length                     | 55±1 mm                                                |
| Mechanical View 4 | Reference dimension                      | 13.5 mm (reference)                                    |
|                   | Mounting hole circle diameter            | Ø145±0.2 mm                                            |
|                   | Mounting hole quantity and diameter      | 4 holes × Ø9 mm                                        |
|                   | Mounting hole angular spacing            | 45° angular spacing                                    |
|                   | Overall width                            | 130 mm                                                 |

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**01** Specifications are subject to change without notice. Verify the current product configuration before final design release.

**02** 2D drawings, CAD files and integration documentation are controlled documents and are supplied separately on request.