

TSL-GIM4315-40

Integrated Joint Motor | 40:1 Planetary Gearbox



| | | | |
|-----------------------|---------------------------|--------------------------|--------------------|
| Rated Voltage 24 V | Rated Torque 15.50 N.m | Peak Torque 45.41 N.m | Gear Ratio 40:1 |
|-----------------------|---------------------------|--------------------------|--------------------|

1. Electrical, Mechanical and Control Parameters

| Parameter | Unit | Value |
|-------------------------------|-------|-----------|
| Rated Voltage | V | 24 |
| Model of Driver Board | - | GDZ4-40 |
| Operating Voltage Range | V | 12-40 |
| Rated Power | W | 55 |
| Rated Torque | N.m | 15.50 |
| Peak Torque | N.m | 45.41 |
| Rated Speed after Reduction | RPM | 20 |
| Maximum Speed after Reduction | RPM | 32 |
| Rated Current | A | 2.30 |
| Peak Current | A | 9.15 |
| Phase Resistance | Ω | 2.20 |
| Phase Inductance | mH | 0.80 |
| Speed Constant | rpm/V | 1.33 |
| Torque Constant | N.m/A | 7.13 |
| Number of Pole Pairs | Pairs | 14 |
| Gear Ratio | - | 40:1 |
| Gearbox Type | - | Planetary |

| Parameter | Unit | Value |
|---|--------|-------------|
| Gear Material | - | Steel |
| Gear Backlash | arcmin | 15 |
| Motor Weight (without driver) | g | 376.6 |
| Motor Weight (with integrated driver) | g | 404.8 |
| Motor Dimensions (without driver) | mm | Ø57 × 52 |
| Motor Dimensions (with integrated driver) | mm | Ø57 × 58.5 |
| Maximum Axial Load | N | 125 |
| Maximum Radial Load | N | 500 |
| Noise | dB | < 60 |
| Communication Protocol | - | CAN & RS485 |
| Secondary Encoder Support | - | Yes |
| Ingress Protection Rating | - | IP54 |
| Operating Temperature Range | °C | -20 to +80 |
| Onboard Encoder Resolution | bit | 14 |
| Stand-alone Encoder Support | - | No |
| Customizable Brake Support | - | Yes |

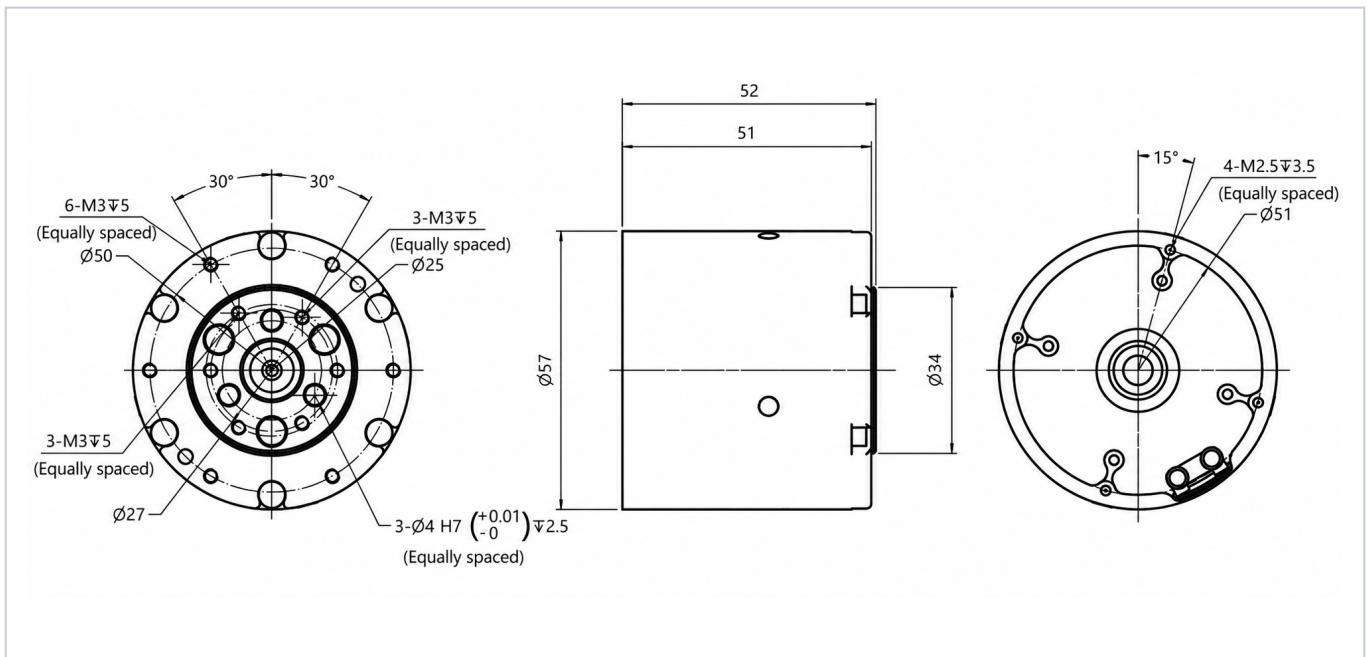
The above parameters are for reference only and can be customized according to customer requirements.

TSL-GIM4315-40

Integrated Joint Motor | 40:1 Planetary Gearbox

2. Dimension Drawing - Without Integrated Driver

All dimensions are in millimeters unless otherwise specified.



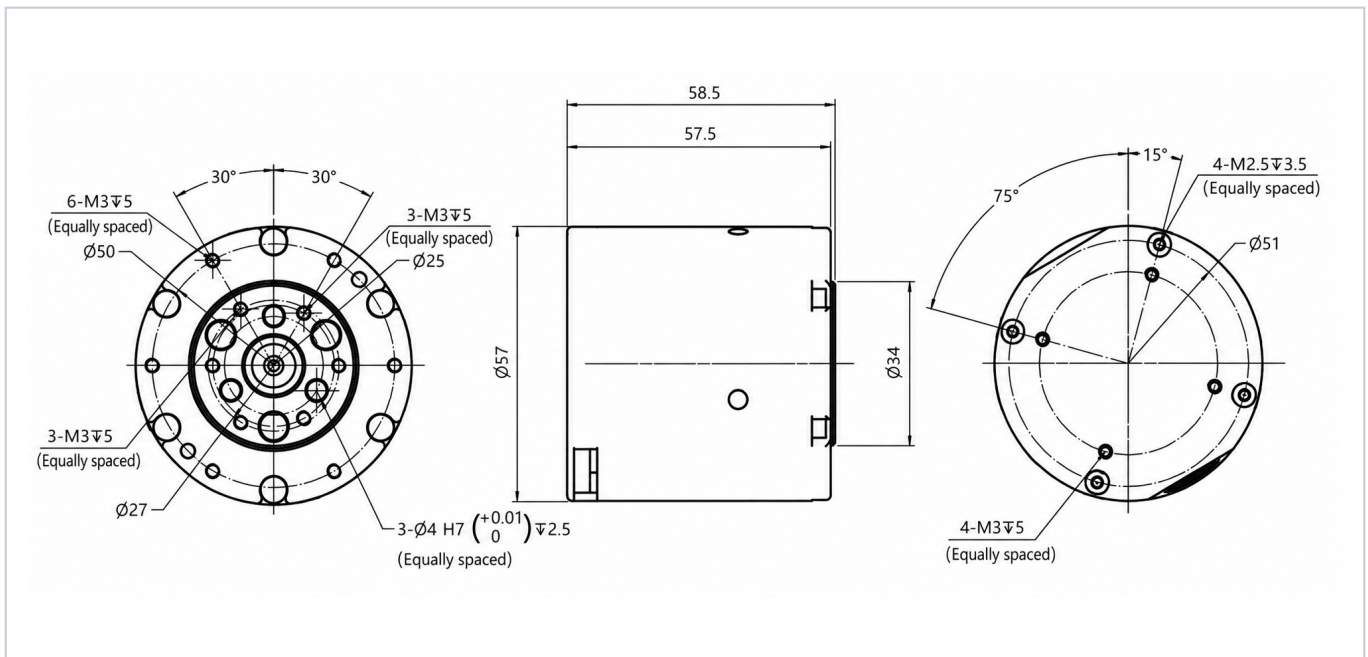
| | |
|----------------------------------|--|
| Configuration | Motor assembly without integrated driver |
| Overall Size | Ø57 × 52 mm |
| Motor Weight | 376.6 g |
| Output / Pilot Interfaces | Ø25, Ø27, Ø34, Ø50 and Ø51 as shown |
| Mounting Features | M3, M2.5 and Ø4 H7 holes; equally spaced where indicated |

TSL-GIM4315-40

Integrated Joint Motor | 40:1 Planetary Gearbox

3. Dimension Drawing - With Integrated Driver

All dimensions are in millimeters unless otherwise specified.



| | |
|-------------------------------|---|
| Configuration | Motor assembly with integrated GDZ4-40 driver |
| Overall Size | Ø57 × 58.5 mm |
| Motor Weight | 404.8 g |
| Driver / Communication | 12-40 V operating range; CAN & RS485 |
| Protection / Encoder | IP54; onboard 14-bit encoder |

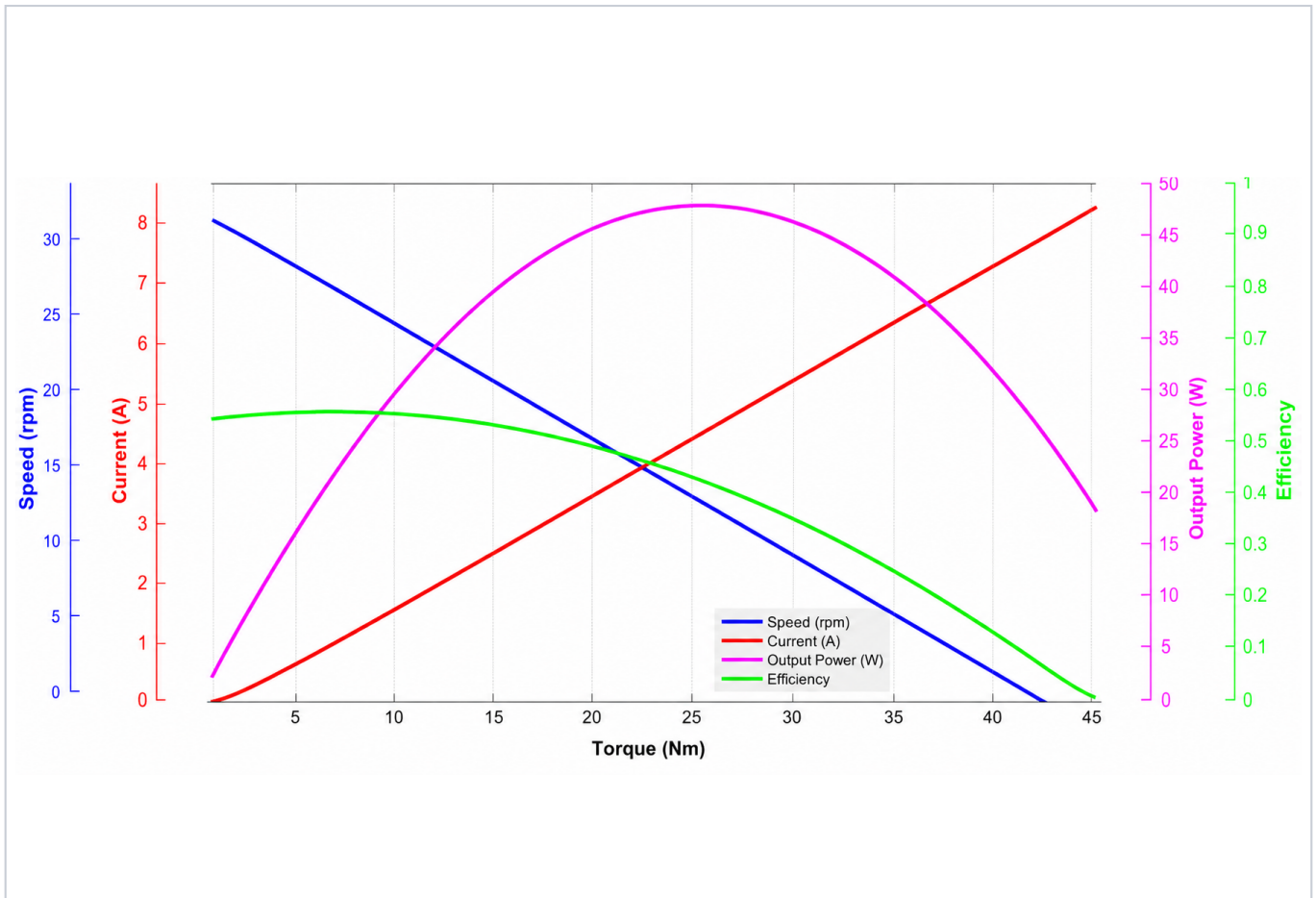
TSL-GIM4315-40

Integrated Joint Motor | 40:1 Planetary Gearbox

4. Motor Performance Curve

Speed, current, output power and efficiency versus output torque.

TSL-GIM4315-40 Motor Performance Curve



Reference Operating Points

| Rated Torque | Rated Speed | Rated Current | Peak Torque | Peak Current |
|--------------|-------------|---------------|-------------|--------------|
| 15.50 N.m | 20 RPM | 2.30 A | 45.41 N.m | 9.15 A |

Performance curves are for reference only and may vary with operating conditions and customer-specific configurations.