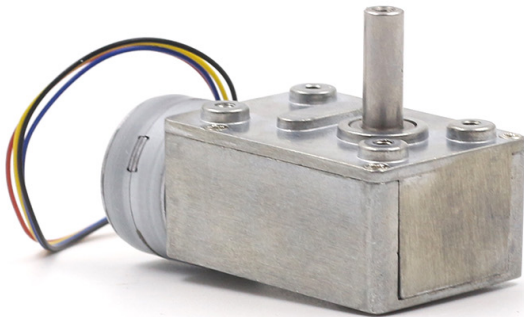


# Ø25 mm PM Stepper Motor with Worm Gearbox



## PRODUCT SUMMARY

### MODEL

TSL-GW4632-25SM

### PRODUCT TYPE

Permanent Magnet Stepper Motor  
with Worm Gearbox

### RATED VOLTAGE

12 VDC

### MOTOR DIAMETER

Ø25 mm

### MOTOR STEP ANGLE

15° / step

### DRIVE METHOD

2-phase bipolar drive

### AVAILABLE RATIOS

32:1 to 1019:1

*Performance data are for reference only. Specifications can be customized for application requirements.*

# Input PM Stepper Motor Specifications

TSL-GW4632-25SM

| Parameter                   | Specification                |
|-----------------------------|------------------------------|
| Rated Voltage               | 12 VDC                       |
| Coil Resistance             | 10 $\pm$ 7% $\Omega$ / phase |
| Step Angle                  | 15° / step                   |
| Drive Method                | Bipolar drive                |
| Pull-out Torque             | > 60 gf·cm at 100 pps        |
| Maximum Response Frequency  | > 1300 pps                   |
| Insulation Class            | Class E for coils            |
| Insulation Resistance       | 100 M $\Omega$ at 500 VDC    |
| Phase Current               | 300 mA / phase               |
| Number of Phases            | 2 phases                     |
| Excitation Method           | 2-phase excitation           |
| Phase Inductance            | 7.5 mH / phase               |
| Holding Torque              | > 75 gf·cm at 0 pps          |
| Maximum Starting Frequency  | > 800 pps                    |
| Dielectric Strength         | 100 VAC for 1 second         |
| Operating Temperature Range | -10°C to +55°C               |

Note: Performance parameters are for reference only and can be customized according to customer requirements.

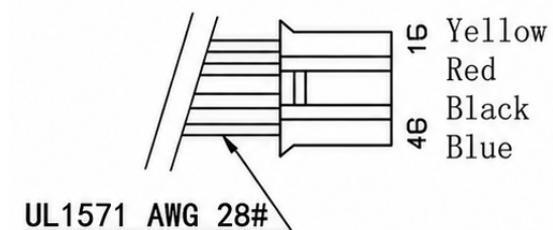
# Worm Gearbox Output Performance

12 VDC input, 700 pps

**Test Condition** Rated voltage: 12 VDC | Input pulse frequency: 700 pps

| Gear Ratio | Output Step Angle<br>(° / step) | No-load Speed<br>(rpm) | Holding Torque<br>(kgf·cm) | Pull-out Torque<br>(kgf·cm) |
|------------|---------------------------------|------------------------|----------------------------|-----------------------------|
| 32:1       | 0.469                           | 54                     | ≥ 2                        | ≥ 1.5                       |
| 65:1       | 0.231                           | 27                     | ≥ 4                        | ≥ 3.5                       |
| 158:1      | 0.095                           | 11                     | ≥ 10                       | ≥ 8.5                       |
| 200:1      | 0.075                           | 8.7                    | ≥ 13                       | ≥ 11                        |
| 337:1      | 0.045                           | 5.2                    | ≥ 20                       | ≥ 18                        |
| 564:1      | 0.027                           | 3.1                    | ≥ 25                       | ≥ 25                        |
| 1019:1     | 0.015                           | 1.72                   | ≤ 25                       | ≤ 25                        |

*Note: Torque values are measured under the stated test conditions. The 1019:1 row reflects the specified gearbox torque limit. Performance parameters are for reference only and can be customized.*



## SEQUENCE OF EXCITATION

| Pin | Color  | CCW1 | CCW2 | CW1 | CW2 | Phase |
|-----|--------|------|------|-----|-----|-------|
| 1   | Yellow | ON   | ON   |     |     | B     |
| 2   | Red    |      |      | ON  | ON  | B-    |
| 3   | Black  | ON   |      |     | ON  | A     |
| 4   | Blue   |      | ON   | ON  |     | A-    |

## 2-Phase Excitation

## LEAD WIRE ASSIGNMENT

| Pin | Wire Color | Phase |
|-----|------------|-------|
| 1   | Yellow     | B     |
| 2   | Red        | B-    |
| 3   | Black      | A     |
| 4   | Blue       | A-    |

Connector: PHR-04 (white), UL1571 AWG 28#, lead length  $150 \pm 10$  mm.

