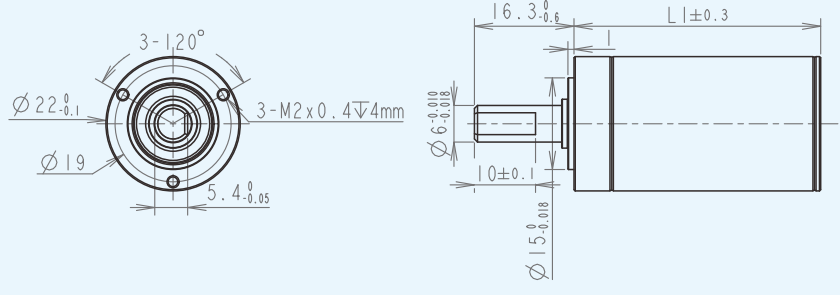


# ZWSMD022022

## Φ22mm Planetary Gearbox



### Gearbox Technical Data

|   | 1            | 2            | 3            | 4                           | 5                   |
|---|--------------|--------------|--------------|-----------------------------|---------------------|
| Number of stages                          | 1            | 2            | 3            | 4                           | 5                   |
| Max. continuous torque (Nm)               | 1            | 2.9          | 4.3          | 5.5                         | 5.2                 |
| Max. intermittent torque (Nm)             | 1.25         | 3.6          | 5.3          | 6.5                         | 6.5                 |
| Reduction Ratio                           | 3.71         | 9.7, 14      | 43, 66       | 94, 112, 134, 159, 190, 246 | 415, 592, 989, 1526 |
| Outer Diameter (mm)                       | 22           | 22           | 22           | 22                          | 22                  |
| Gearbox Length L1(mm)                     | 24.3         | 32.8         | 40.4         | 46.5                        | 52.6                |
| Max. efficiency (%)                       | 96           | 92           | 90           | 87                          | 83                  |
| Recommended temperature range (°C)        | -30~+85      | -30~+85      | -30~+85      | -30~+85                     | -30~+85             |
| Max. Weight (G)                           | 53           | 65           | 76           | 88                          | 102                 |
| Max. continuous transmittable power (W)   | 66           | 36           | 20           | 11                          | 6                   |
| Max. intermittent transmittable power (W) | 82.5         | 45           | 25           | 14                          | 7                   |
| Average backlash no load (°)              | 0.5          | 0.5          | 0.5          | 0.5                         | 0.5                 |
| Max. axial load (dynamic) (N)             | 80           | 80           | 80           | 80                          | 80                  |
| Max. radial load (4mm from flange) (N)    | 100          | 145          | 150          | 150                         | 150                 |
| Bearing at output                         | ball bearing | ball bearing | ball bearing | ball bearing                | ball bearing        |
| Axial play (mm)                           | 0~0.1        | 0~0.1        | 0~0.1        | 0~0.1                       | 0~0.1               |

\* Note: Data above does not include the motor. Specifications can be customized per customer requirements.

### Modular assembly

| Integrated Product | Part No.                                 | Number of stages |      |      |      |       |
|--------------------|--|------------------|------|------|------|-------|
|                    |  | 1                | 2    | 3    | 4    | 5     |
|                    |  | Length(mm)       |      |      |      |       |
| DC Motor           | MP1931 Φ19mm graphite brush              | 56.1             | 64.6 | 72.2 | 78.3 | 84.4  |
|                    | MP2238 Φ22mm graphite brush              | 62.5             | 71   | 78.6 | 84.7 | 90.8  |
| Brushless Motor    | MO1925 Φ19mm outer rotor brushless motor | 49.3             | 57.8 | 65.4 | 71.5 | 77.6  |
|                    | MC2232 Φ22mm coreless brushless motor    | 56.3             | 64.8 | 72.4 | 78.5 | 84.6  |
|                    | MC2250 Φ22mm coreless brushless motor    | 74.3             | 82.8 | 90.4 | 96.5 | 102.6 |
| Encoder            | CB-ST-16                                 | Magnetic Encoder |      |      |      |       |

### Product Specifications

| PART NO.         | Rated Voltage (V) | No-Load Data        |                          | Load Data        |                      |              | Overall Length (mm) | Gearbox Rated Allowable Torque (NM) | Gearbox Intermittent Allowable Torque (NM) | Reduction Ratio | Gearbox Length L1(mm) |
|------------------|-------------------|---------------------|--------------------------|------------------|----------------------|--------------|---------------------|-------------------------------------|--|-----------------|-----------------------|
|                  |                   | No-Load Speed (rpm) | No-Load Current (mA max) | Load Speed (rpm) | Load Current (A Max) | Torque (N.m) |                     |                                     |  |                 |                       |
| ZWSMD022022-3.71 | 24                | 1914                | 150                      | 1482             | 1                    | 0.06         | 56.3                | 1                                   | 1.25                                       | 3.71            | 24.3                  |
| ZWSMD022022-9.7  | 24                | 732                 | 200                      | 567              | 1.2                  | 0.14         | 64.8                | 2.9                                 | 3.6  | 9.7             | 32.8                  |
| ZWSMD022022-14   | 24                | 507                 | 200                      | 393              | 1.2                  | 0.20         |                     |                                     |  | 14              |                       |
| ZWSMD022022-43   | 24                | 165                 | 250                      | 128              | 1.5                  | 0.60         | 72.4                | 4.3                                 | 5.3  | 43              |                       |
| ZWSMD022022-66   | 24                | 108                 | 250                      | 83               | 1.5                  | 0.92         |                     |                                     |  | 66              |                       |
| ZWSMD022022-94   | 24                | 76                  | 300                      | 59               | 1.8                  | 1.27         | 78.5                | 5.5                                 | 6.5  | 94              | 46.5                  |
| ZWSMD022022-112  | 24                | 63                  | 300                      | 49               | 1.8                  | 1.51         |                     |                                     |  | 112             |                       |
| ZWSMD022022-134  | 24                | 53                  | 300                      | 41               | 1.8                  | 1.81         |                     |                                     |  | 134             |                       |
| ZWSMD022022-159  | 24                | 45                  | 300                      | 35               | 1.8                  | 2.14         |                     |                                     |  | 159             |                       |
| ZWSMD022022-190  | 24                | 37                  | 300                      | 29               | 1.8                  | 2.56         |                     |                                     |  | 190             |                       |
| ZWSMD022022-246  | 24                | 29                  | 300                      | 22               | 1.8                  | 3.32         |                     |                                     |  | 246             |                       |
| ZWSMD022022-415  | 24                | 17                  | 350                      | 13               | 2.2                  | 5.34         |                     |                                     |  | 84.6            |                       |
| ZWSMD022022-592  | 24                | 12                  | 350                      | 9                | 2.2                  | 7.62         | 592                 |                                     |  |                 |                       |
| ZWSMD022022-989  | 24                | 7                   | 350                      | 6                | 2.2                  | 12.72        | 989                 |                                     |  |                 |                       |
| ZWSMD022022-1526 | 24                | 5                   | 350                      | 4                | 2.2                  | 19.63        | 1526                |                                     |  |                 |                       |