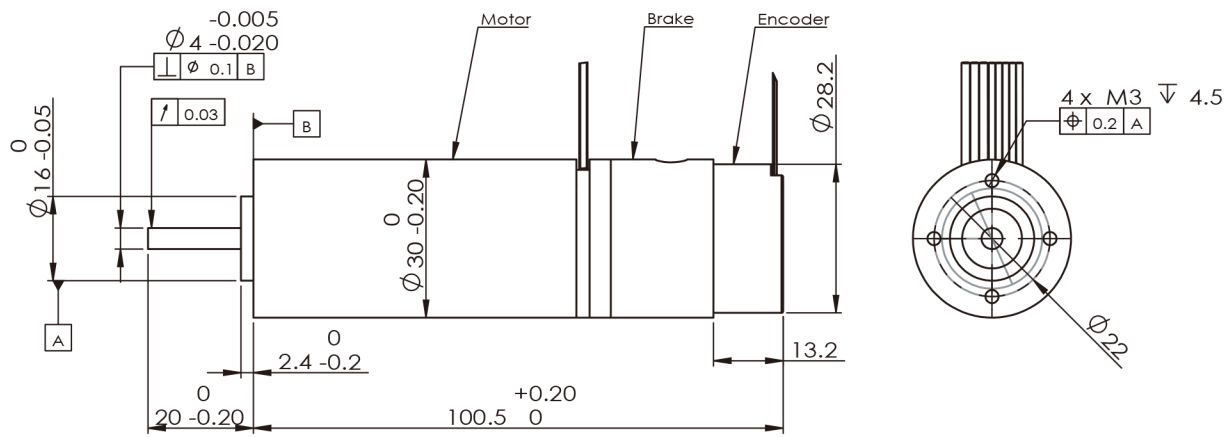




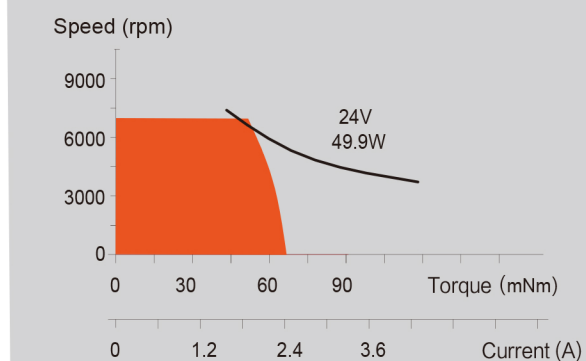
## Motor Data

|    | Motor model           |           |                       | SBR3010124Z-02 | SBR3010124Z-03 | SBR3010136Z-02 | SBR3010136Z-03 | SBR3010148Z-02 | SBR3010148Z-03 |
|----|-----------------------|-----------|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 1  | Nominal voltage       | V         | V                     | 24             | 24             | 36             | 36             | 48             | 48             |
| 2  | No load speed         | rpm       | Wnl                   | 7200           | 7900           | 8400           | 8700           | 6900           | 7200           |
| 3  | No load current       | mA        | InI                   | <400           | <400           | <300           | <350           | <200           | <200           |
| 4  | Nominal speed         | rpm       | Wc                    | 6600           | 7200           | 7700           | 8000           | 6300           | 6600           |
| 5  | Nominal torque        | mNm       | Tc                    | 72             | 72             | 70             | 70             | 71             | 70             |
| 6  | Nominal current       | A         | Ic                    | 2.3            | 2.52           | 1.74           | 1.8            | 1.09           | 1.12           |
| 7  | Output power          | W         | Pc                    | 49.9           | 54.4           | 56.6           | 59.0           | 47.5           | 48.1           |
| 8  | Stall torque          | mNm       | Tmax                  | 751            | 713.7          | 724            | 763.5          | 789.9          | 666.3          |
| 9  | Stall current         | A         | Imax                  | 24             | 25             | 18             | 19.7           | 12.1           | 10.7           |
| 10 | Max. efficiency       | %         | $\eta_{max}$          | 90.4           | 90             | 90.3           | 91             | 91             | 89             |
| 11 | Terminal resistance   | $\Omega$  | Rt                    | 1              | 0.96           | 2              | 1.83           | 3.97           | 4.5            |
| 12 | Terminal inductance   | L         | mH                    | 0.26           | 0.38           | 0.72           | 0.91           | 1              | 1.3            |
| 13 | Torque constant       | mNm / A   | Kt                    | 31.3           | 28.55          | 40.24          | 38.81          | 65.33          | 62.47          |
| 14 | Speed constant        | rpm / V   | Kn                    | 305.08         | 334.5          | 237.2          | 246.0          | 146.17         | 152.87         |
| 15 | Speed torque gradient | rpm / mNm | $\Delta n / \Delta T$ | 8.05           | 9.47           | 9.76           | 9.35           | 7.25           | 9.05           |

## Specifications

|    |                                    |            |              |
|----|------------------------------------|------------|--------------|
| 1  | ambient temperature                | Ta         | -20~+65 °C   |
| 2  | max. winding temperature           | Tcoilmax   | +85 °C       |
| 3  | max. speed                         | Nmax       | 9240 rpm     |
| 4  | axial play                         | $\Delta t$ | 0.05-0.15 mm |
| 5  | number of pole pairs               | 2p         | 1            |
| 6  | number of commutator segments      |            | 3            |
| 7  | weight of motor                    | Wt         | 346 g        |
| 8  | Max. axial load (dynamic)          |            | 5N           |
| 9  | Max. force for press fits (static) |            | 98N          |
| 10 | Max. radial load, 4 mm from flange |            | 25N          |

## Operating Range



## Terminal definitions

|       |   |    |            |                                        |
|-------|---|----|------------|----------------------------------------|
| Green | U | 1  | +5V        | Magnet Encoder<br>3 Channel<br>1000CPT |
| Black | V | 2  | GND        |                                        |
| Red   | W | 3  | Channel A- |                                        |
|       |   | 4  | Channel A+ |                                        |
|       |   | 5  | Channel B- |                                        |
|       |   | 6  | Channel B+ |                                        |
|       |   | 7  | Channel Z- |                                        |
|       |   | 8  | Channel Z+ |                                        |
|       |   | 9  | Hall3      |                                        |
|       |   | 10 | Hall2      |                                        |
|       |   | 11 | Hall1      |                                        |