



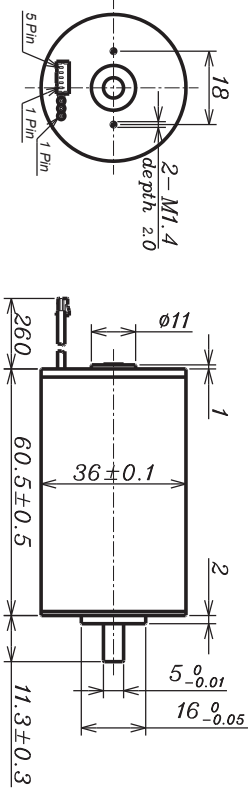
# DC Brushless Motor AM-BL3660A/B Series

**ASSUN MOTOR**

2015 edition. Specifications are subject to change without notice.

## BRUSHLESS MOTOR

## BALL BEARING



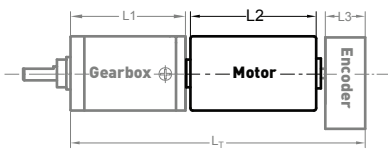
| MOTOR MODEL                                    |                        | 1211  | 1209  | 2413  | 2410  | 3612  | 3610  |
|--|------------------------|-------|-------|-------|-------|-------|-------|
| <b>NOMINAL VOLTAGE</b>                         | <b>V</b>               | 12    | 12    | 24    | 24    | 36    | 36    |
| <b>NO LOAD SPEED</b> ±12%                      | <b>rpm</b>             | 11200 | 8840  | 12500 | 10200 | 12300 | 10450 |
| <b>NO LOAD CURRENT</b> Max 150%                | <b>mA</b>              | 320   | 230   | 220   | 165   | 120   | 105   |
| Recommend Limit for Continuous Operating       | <b>mN.m</b>            | 47.6  | 51.2  | 36.1  | 43.2  | 41.2  | 45.7  |
|  | <b>rpm</b>             | 10322 | 7928  | 11940 | 9489  | 11650 | 9758  |
|  | <b>mA</b>              | 5000  | 4200  | 2200  | 2100  | 1600  | 1500  |
|  | <b>W</b>               | 51.5  | 42.5  | 45.2  | 42.9  | 50.2  | 46.7  |
| <b>STARTING CURRENT</b>                        | <b>mA</b>              | 60000 | 38710 | 44444 | 27907 | 28125 | 21176 |
| <b>STALL TORQUE</b>                            | <b>mN.m</b>            | 607   | 496   | 807   | 620   | 779   | 690   |
| <b>MAXIMUM POWER OUTPUT</b>                    | <b>W</b>               | 178.1 | 114.8 | 264.0 | 165.5 | 251.0 | 188.7 |
| <b>MAXIMUM EFFICIENCY</b>                      | <b>%</b>               | 86    | 85    | 86    | 85    | 87    | 86    |
| <b>TERMINAL RESISTANCE PHASE TO PHASE</b> ±12% | <b>Ω</b>               | 0.2   | 0.31  | 0.54  | 0.86  | 1.28  | 1.7   |
| <b>INDUCTANCE</b> (1kHz)                       | <b>mH</b>              | 0.027 | 0.051 | 0.11  | 0.17  | 0.27  | 0.38  |
| <b>MECHANICAL TIME CONSTANT</b>                | <b>ms</b>              | 3.2   | 3.1   | 2.7   | 2.9   | 2.8   | 2.7   |
| <b>MOMENT OF INERTIA</b>                       | <b>gcm<sup>2</sup></b> | 16.75 | 16.75 | 16.75 | 16.75 | 16.75 | 16.75 |
| <b>TORQUE CONSTANT</b>                         | <b>mN.m/A</b>          | 10.2  | 12.9  | 18.2  | 22.3  | 27.8  | 32.7  |
| <b>SPEED CONSTANT</b>                          | <b>rpm/V</b>           | 938   | 741   | 523   | 428   | 343   | 292   |
| <b>SPEED/TORQUE GRADIENT</b>                   | <b>rpm/mN.m</b>        | 18.4  | 17.8  | 15.5  | 16.5  | 15.8  | 15.2  |
| <b>WEIGHT</b>                                  | <b>g</b>               | 325.8 | 325.9 | 326.8 | 326.9 | 326.5 | 327.5 |

## ADDITIONAL INFORMATION

### MAXIMUM ROLLING BEARING LOADS

|                                    |         |   |              |
|------------------------------------|---------|---|--------------|
| <b>AXIAL (DYNAMIX)</b>             | 6 N     | <b>RADIAL ( 5MM FROM HEAD FACE)</b>             | 28 N         |
| <b>PRESS-FIT FORCE</b>             | 110 N   | <b>L: MAX ALLOWABLE SCREW DEPTH INTO FLANGE</b> | 4.0 mm       |
| <b>MAXIMUM RADIAL PLAY</b>         | ≤0.02mm | <b>AXIAL PLAY:</b>                              | 0 (<6.0N)    |
| <b>MAXIMUM WINDING TEMPERATURE</b> | 85 °C   | <b>AMBIENT TEMPERATURE RANGE:</b>               | -30 to 65 °C |

### AM-BL3660A/B COMBINATION SCHEME



Recommend Gearbox:  
Planetary Gearbox:  
AM-36P  
AM-45P

Recommend Encoder:  
Encoder S: AM-EN22-S\*\*\*  
2~3 Channels  
Encoder T: AM-EN36-T\*\*\*  
2~3 Channels

For more gearbox specs, see Assun Motor website.

### CONNECTION (AWG22#)

**CABLE 1: WINDING A**  
**CABLE 2: WINDING B**  
**CABLE 3: WINDING C**

**PLUG DEFINATION**  
MOLEX: 51021 - 0500

**PLUG 1: HALL V<sub>cc</sub>**  
**PLUG 2: HALL GND**  
**PLUG 3: HALL A**  
**PLUG 4: HALL B**  
**PLUG 5: HALL C**

### TOTAL LENGTH (GEARBOX AND MOTOR): L<sub>T</sub>= L<sub>1</sub>+L<sub>2</sub>+ L<sub>3</sub>

|                     | L1:36P | L1:45P | L2:BL36 | L3:EN22-S | L3:EN36-T |
|---------------------|--------|--------|---------|-----------|-----------|
| CABLE 1: WINDING A  | 34.1   | 38.6   | 60.0    | 10.7      | 10.0      |
| CABLE 2: WINDING B  | 42.7   | 49.4   |         |           | 12.0      |
| PLUG DEFINATION     | 51.3   | 60.2   |         |           |           |
| MOLEX: 51021 - 0500 | 59.9   | 71.0   |         |           |           |

## REMARKS

Clients can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

Motor Data Tested at 25°. Motor Operation exceeds continuous limits of operating range will compromise the life of the device.

**ASSUN MOTOR**

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