

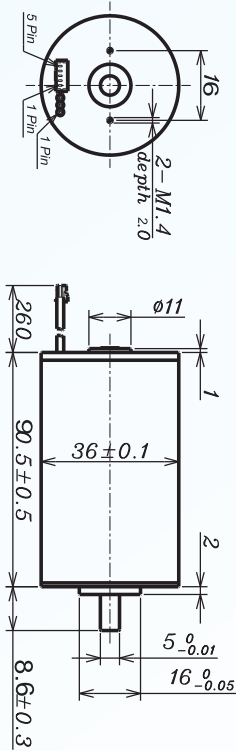


# DC Brushless Motor AM-BL3690A/B-4P Series

ASSUN MOTOR

2015 edition. Specifications are subject to change without notice.

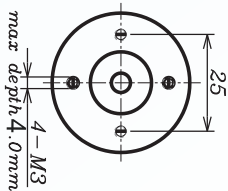
## BRUSHLESS MOTOR BALL BEARING



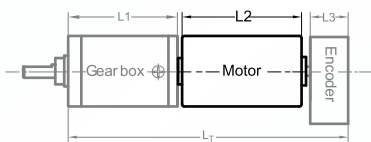
| MOTOR MODEL                              |                  | 2408   | 2406   | 3609   | 3610   | 4809   | 4805   |
|--|------------------|--------|--------|--------|--------|--------|--------|
| NOMINAL VOLTAGE                          | V                | 24     | 24     | 36     | 36     | 48     | 48     |
| NO LOAD SPEED ±12%                       | rpm              | 8488   | 6063   | 9095   | 5093   | 8935   | 4993   |
| NO LOAD CURRENT Max 150%                 | mA               | 521    | 358    | 375    | 178    | 281    | 125    |
| Recommend Limit for Continuous Operating | mN.m             | 207.33 | 235.95 | 205.07 | 257.99 | 201.04 | 263.93 |
|  | rpm              | 7995   | 5529   | 8626   | 4533   | 8474   | 4425   |
|  | A                | 8.20   | 6.60   | 5.80   | 4.00   | 4.2    | 3.00   |
|  | W                | 173.59 | 136.62 | 185.23 | 122.46 | 178.40 | 122.30 |
| STARTING CURRENT                         | mA               | 141176 | 75000  | 112500 | 36364  | 81356  | 26374  |
| STALL TORQUE                             | mN.m             | 3812   | 2835   | 4253   | 2455   | 4174   | 2421   |
| MAXIMUM POWER OUTPUT                     | W                | 847.1  | 450.0  | 1012.5 | 327.3  | 976.3  | 316.5  |
| MAXIMUM EFFICIENCY                       | %                | 88     | 87     | 89     | 86     | 89     | 87     |
| TERMINAL RESISTANCE PHASE TO PHASE ±12%  | Ω                | 0.17   | 0.32   | 0.32   | 0.99   | 0.59   | 1.82   |
| MECHANICAL TIME CONSTANT                 | ms               | 1.76   | 1.69   | 1.69   | 1.64   | 1.69   | 1.63   |
| MOMENT OF INERTIA                        | gcm <sup>2</sup> | 75.46  | 75.46  | 75.46  | 75.46  | 75.46  | 75.46  |
| TORQUE CONSTANT                          | mN.m/A           | 27     | 37.8   | 37.8   | 67.5   | 51.3   | 91.8   |
| SPEED CONSTANT                           | rpm/V            | 354    | 253    | 253    | 141    | 186    | 104    |
| SPEED/TORQUE GRADIENT                    | rpm/mN.m         | 2.2    | 2.1    | 2.1    | 2.1    | 2.1    | 2.1    |
| WEIGHT                                   | g                | 480    | 480    | 480    | 480    | 480    | 480    |

## ADDITIONAL INFORMATION

| MAXIMUM ROLLING BEARING LOADS            |              |
|--|--------------|
| AXIAL (DYNAMIX)                          | 6 N          |
| PRESS-FIT FORCE                          | 110 N        |
| MAXIMUM RADIAL PLAY                      | ≤0.02mm      |
| MAXIMUM WINDING TEMPERATURE              | 155 °C       |
| RADIAL ( 5MM FROM HEAD FACE)             | 28 N         |
| L: MAX ALLOWABLE SCREW DEPTH INTO FLANGE | 4.0 mm       |
| AXIAL PLAY:                              | 0 (<6.0N)    |
| AMBIENT TEMPERATURE RANGE:               | -30 to 65 °C |



### AM-BL3690A/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#)                    | 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                     |   |        |         |           |           |
| CABLE 2: WINDING B                     | 34.1  | 38.6   | 90.0    | 10.7      | 10.0      |
| CABLE 3: WINDING C                     | 42.7  | 49.4   |         |           | 12.0      |
| PLUG DEFINATION<br>MOLEX: 51021 - 0500 | 51.3  | 60.2   |         |           |           |
|  | 59.9  | 71.0   |         |           |           |
| PLUG 1: HALL V <sub>CC</sub>           |   |        |         |           |           |
| PLUG 2: HALL GND                       |   |        |         |           |           |
| PLUG 3: HALL A                         |   |        |         |           |           |
| PLUG 4: HALL B                         |   |        |         |           |           |
| PLUG 5: HALL C                         |   |        |         |           |           |

## 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.