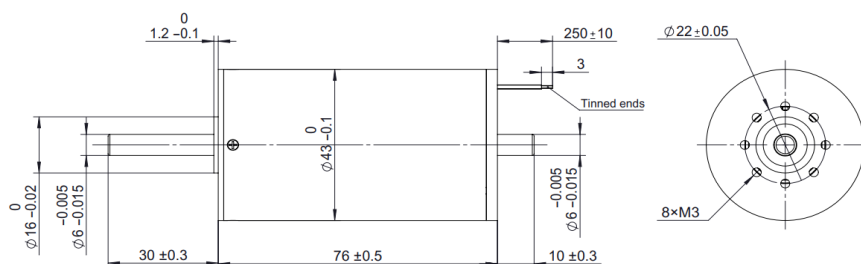


# Φ43 mm brushless motor (high power)



| Motor Data                |                                          | 107007607           |        |  |  |                           |  |                  |
|---------------------------|------------------------------------------|---------------------|--------|--|--|---------------------------|--|------------------|
| Values at nominal voltage |                                          |                     |        |  |  |                           |  |                  |
| 1                         | Nominal voltage                          | $U_N$               | 24     |  |  |                           |  | V                |
| 2                         | No load speed                            | $n_0$               | 22000  |  |  |                           |  | rpm              |
| 3                         | No load current                          | $I_0$               | 1200   |  |  |                           |  | mA               |
| 4                         | Stall torque                             | $M_H$               | 2149.1 |  |  |                           |  | mNm              |
| 5                         | Stall current                            | $M_I$               | 208.7  |  |  |                           |  | A                |
| 6                         | Max. efficiency                          | $\eta_{max}$        | 85     |  |  |                           |  | %                |
| 7                         | Nominal power                            | $W_N$               | 149.6  |  |  |                           |  | W                |
| 8                         | Nominal speed                            | $n_N$               | 18700  |  |  |                           |  | rpm              |
| 9                         | Nominal torque (max.continuous torque)   | $M_N$               | 80     |  |  |                           |  | mNm              |
| 10                        | Nominal current (max.continuous current) | $I_N$               | 5.4    |  |  |                           |  | A                |
| Characteristics           |                                          |                     |        |  |  |                           |  |                  |
| 11                        | Terminal resistance phase to phase       | $R$                 | 0.115  |  |  |                           |  | Ω                |
| 12                        | Terminal inductance phase to phase       | $L$                 | 20.2   |  |  |                           |  | uH               |
| 13                        | Back-EMF constant                        | $K_E$               | 1.08   |  |  |                           |  | mV/rpm           |
| 14                        | Torque constant                          | $K_M$               | 10.36  |  |  |                           |  | mNm/A            |
| 15                        | Speed constant                           | $K_n$               | 922    |  |  |                           |  | rpm/V            |
| 16                        | Current constant                         | $K_I$               | 0.097  |  |  |                           |  | A/mNm            |
| 17                        | Speed / torque gradient                  | $\Delta n/\Delta M$ | 10.24  |  |  |                           |  | rpm/mNm          |
| 18                        | Mechanical time constant                 | $\tau_m$            | 39.0   |  |  |                           |  | ms               |
| 19                        | Rotor inertia                            | $J$                 | 75.0   |  |  |                           |  | gcm <sup>2</sup> |
| Specifications            |                                          |                     |        |  |  |                           |  |                  |
| 20                        | Operating temperature range:             |                     |        |  |  |                           |  |                  |
|                           | -Motor                                   |                     |        |  |  | -40.....+100              |  | °C               |
|                           | -winding, max permissible                |                     |        |  |  | +125                      |  | °C               |
| 21                        | Direction of rotation                    |                     |        |  |  | electronically reversible |  |                  |
| 22                        | Max. speed                               | $n_{max}$           |        |  |  | 25000                     |  | rpm              |
| 23                        | Number of pole pairs                     |                     |        |  |  | 1                         |  |                  |
| 24                        | Number of phases                         |                     |        |  |  | 3                         |  |                  |
| 25                        | Magnet material                          |                     |        |  |  | NdFeB                     |  |                  |
| 26                        | Hall sensors                             |                     |        |  |  | digital                   |  |                  |
| Mechanical data           |                                          |                     |        |  |  |                           |  |                  |
| 27                        | Bearing type                             |                     |        |  |  | ball bearings, preloaded  |  |                  |
| 28                        | Axial play                               |                     |        |  |  | 0 - 0.3                   |  | mm               |
| 29                        | Max. axial load (dynamic)                |                     |        |  |  | 6                         |  | N                |
| 30                        | Max. force for press fits (static)       |                     |        |  |  | 90                        |  | N                |
|                           | (static, shaft supported)                |                     |        |  |  | 1200                      |  | N                |
| 31                        | Max. radial loading, 5 mm from flange    |                     |        |  |  | 28                        |  | N                |
| Product                   |                                          |                     |        |  |  |                           |  |                  |
| 32                        | Weight of motor                          |                     | 600    |  |  |                           |  | g                |

## Dimensional drawing



## Option, cable and connection information

### Connection Motor (Cable AWG20)

|                 |        |
|-----------------|--------|
| Motor winding A | red    |
| Motor winding B | black  |
| Motor winding C | yellow |

|                    |       |
|--------------------|-------|
| Vhall 4.5V.....24V | red   |
| GND                | black |
| Hall sensors A     | blue  |
| Hall sensors B     | green |
| Hall sensors C     | white |

Note:About the torque curves,please contact us for more information.  
[www.mktl.cn](http://www.mktl.cn)

