

DORNA®

EPS-B1 SERIES AC SERVO SYSTEMS

CE EtherCAT®

DORNA



COMPANY PROFILE

DORNA Technology Co.,Ltd

DORNA Technology Co., Ltd was established in 2006. We are strategically located in Jiashan, Zhejiang, which is the heart of Long River Delta and only one hour's drive to Shanghai's Pudong

DORNA has a strong work force of over 300 employees consisting of highly educated management teams and skilled workers. DORNA possess numerous independent intellectual property rights and specialize in the research & development, production, sales and service of AC variable frequency drives (inverters), AC servo systems (servo drives & servo motors), stepper drives & motors and rotary encoders.

Our products have been widely used in CNC machine tools, textile machines, packaging machines, printing machines, food-making and pharmaceutical equipment, carving machines, spring machines, plastic machines, manipulators & robotics etc.

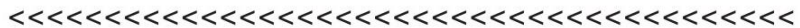
DORNA will make persistent efforts to create more innovations and offer better products and services for clients. Meanwhile, we are looking forward to cooperate with business partners globally.

The following content is for reference only and subject to change without prior notifications. Please contact with our Oversea Business Division for latest information: oversea@cn-dorna.com.

PRODUCT DISPLAY/



THE ALL NEW EPS-B1 SERIES AC SERVO SYSTEMS



◀ **EPS-B1 SERIES AC SERVO SYSTEMS:**



220V CLASS: 0.2KW~5.5KW
380V CLASS: 1.0KW~55KW

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SMARTER

- **EtherCAT® filed-bus protocol**

EPS-B1 series servo drives are now equipped with EtherCAT® for automation applications requiring short data update times with low communication jitter and reduced hardware costs.

- **Load inertia detection**

EPS-B1 series servo drives can automatically detect load inertia for better gain tuning.

- **Internal control functions**

EPS-B1 series servo drives can be easily be programmed for internal position/internal speed/internal torque controls to exercise certain applications without PLCs.



FASTER

- **Shortened positioning time**

Position setting time of the device can be greatly reduced by using the new algorithms.

- **Quick instruction tracking**

As the new position and speed controller is adopted, position control tracking is greatly improved, and position deviation can be up to ≈ 0 .

- **Response frequency up to 1KHz bandwidth**

State-of-the-art chips are utilized to improve calculating speed; new algorithms are developed for speed loop and current loop to improve the servo system's response control performance.

- **Input and output pulse frequency 4Mbps**

EPS-B1 series servo drives now can process pulse forms up to 4Mbps, both in semi-closed loop and fully-closed loop controls.



MORE RELIABLE

- **3 times overload**

EPS-B1 series servo drives have the capacity of 3 times overload, which improves the servo's responsiveness.

- **Grade 2 Notch Filter**

Grade-2 notch filter that can reduce phase lag is used to restrain resonance of mechanical system and improve equipment's speed response.

- **Restrained external interferences**

External interferences can be restrained effectively by expanding the new interference detection function

- **Regenerative functions**

EPS-B1 series servo drives have built-in regenerative resistors (optional) that can absorb regenerated electricity at decelerating. When the built-in regenerative resistor is not enough, external regenerative resistor can be used.

- **Built-in dynamic brake (optional)**

EPS-B1 series servo drives have built-in dynamic brakes (DB) for emergency braking. Various motor stop modes can be set for Servo OFF, forward/backward rotation inhibition, power OFF, or stop due to failure.



SMT Workshop ◀

- **Low cogging torque**

By using the new magnetic field analysis design and motor processing technology, the motor's torque pulsation is reduced, thus to improve speed stability and reduce servo system's torque pulsations.

- **Fractions of Newton metres**

40mm flange servo motors are recently introduced with rated power as low as 0.05KW.

- **Hundreds of Newton metres**

200mm flange servo motors are also recently introduced, with torque up to 140 N*m and rated power up to 44KW.

NEW ENCODERS

- **High resolution encoders**

Now EPS-B1 series can support up to 20 bit (1,048,576 pulses per revolution) encoders to improve positioning accuracy and low-speed stability.

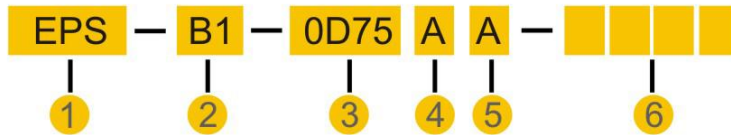
- **More feedback devices supported**

Users can now choose feedback devices of different mechanisms including optical encoders, magnetic encoders and resolvers.



▶ Assembly line

SERVO DRIVE MODEL IDENTIFICATIONS /



- 1 PRODUCT NAME: EPS
- 2 PRODUCT SERIES:
B1 SERIES
- 3 DRIVE RATED POWER

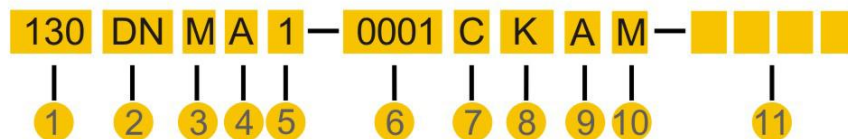
| SYMBOL | DEFINITION | SYMBOL | DEFINITION |
|--------|------------|--------|------------|
| 0D05 | 0.05KW | 02D2 | 2.2KW |
| 0D10 | 0.1KW | 0003 | 3.0KW |
| 0D20 | 0.2KW | 04D5 | 4.5KW |
| 0D40 | 0.4KW | 05D5 | 5.5KW |
| 0D75 | 0.75KW | 07D5 | 7.5KW |
| 0001 | 1.0KW | 0011 | 11KW |
| 01D2 | 1.2KW | 0015 | 15KW |
| 01D5 | 1.5KW | 0022 | 22KW |

- 4 INPUT VOLTAGE

| SYMBOL | DEFINITION |
|--------|---------------------------|
| A | SINGLE/THREE PHASE 220VAC |
| B | THREE PHASE 380VAC |

- 5 HARDWARE VERSION
- 6 FACTORY CODE

SERVO MOTOR MODEL IDENTIFICATIONS /



- 1 MOTOR FLANGE (MM)

| SYMBOL | DEFINITION | SYM BOL | DEFINITION |
|--------|---------------|---------|---------------|
| 40 | 40 MM FLANGE | 130 | 130 MM FLANGE |
| 60 | 60 MM FLANGE | 180 | 180 MM FLANGE |
| 80 | 80 MM FLANGE | 200 | 200 MM FLANGE |
| 110 | 110 MM FLANGE | 220 | 220 MM FLANGE |

- 2 PRODUCT NAME: DN

3 MOTOR ROTARY INERTIA

| SYMBOL | DEFINITION |
|--------|----------------|
| M | MEDIUM INERTIA |
| H | HIGH INERTIA |

4 VOLTAGE CLASS

| SYMBOL | DEFINITION |
|--------|--------------------|
| A | 220V VOLTAGE CLASS |
| B | 380V VOLTAGE CLASS |

5 MOTOR POLE PAIRS

| SYMBOL | DEFINITION |
|--------|--------------|
| 1 | 4 POLE PAIRS |
| 2 | 5 POLE PAIRS |

6 MOTOR RATED POWER

| SYMBOL | DEFINITION | SYMBOL | DEFINITION |
|--------|------------|--------|------------|
| 0D05 | 0.05KW | 02D2 | 2.2KW |
| 0D10 | 0.1KW | 0003 | 3.0KW |
| 0D20 | 0.2KW | 04D5 | 4.5KW |
| 0D40 | 0.4KW | 05D5 | 5.5KW |
| 0D75 | 0.75KW | 07D5 | 7.5KW |
| 0001 | 1.0KW | 0011 | 11KW |
| 01D2 | 1.2KW | 0015 | 15KW |
| 01D5 | 1.5KW | 0022 | 22KW |

7 MOTOR RATED SPEED

| SYMBOL | DEFINITION | SYMBOL | DEFINITION |
|--------|------------|--------|------------|
| A | 1000 RPM | D | 3000 RPM |
| B | 1500 RPM | E | 2500 RPM |
| C | 2000 RPM | | |

8 FEEDBACK DEVICE TYPE

| SYMBOL | DEFINITION |
|--------|--------------------------------|
| K | 5000-LINE (LINE SAVING, GAIN) |
| J | 17-BIT SERIAL (ABSOLUTE) |
| S | 20-BIT SERIAL (GAIN) |
| R | RESOLVER |

9 MOTOR HOLDING BRAKE SELECTION

| SYMBOL | DEFINITION |
|--------|-----------------------|
| A | WITHOUT HOLDING BRAKE |
| B | WITH HOLDING BRAKE |

10 KEY SLOT/OIL SEAL SELECTION

| SYMBOL | KEY SOLT | OIL SEAL |
|--------|----------|----------|
| K | YES | NO |
| Y | NO | YES |
| M | YES | YES |
| N | NO | NO |

11 FACTORY CODE

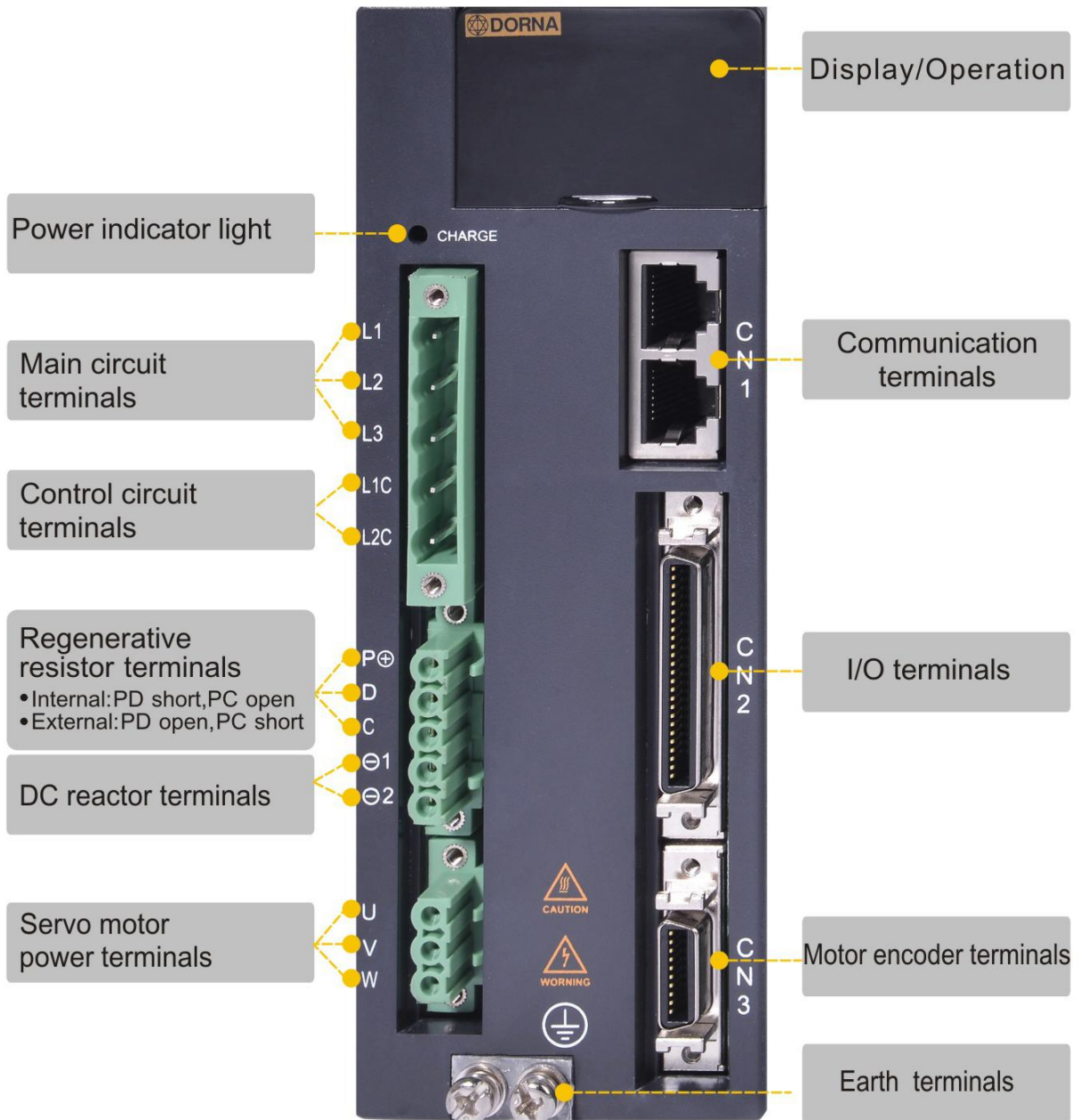
SERVO SYSTEMS SELECTION TABLES /

EPS-B1 AC SERVO SYSTEMS

| Voltage Class | Rated power | Servo drive | | | Servo motor | | | |
|---------------|-------------|---------------|-------------|-----------|-------------|----------------|-------------|--------------|
| | | Model | Pa012 Value | Case Type | Flange (mm) | Model | Rated speed | Rated torque |
| 220V | 0.2KW | EPS-B1-0D20AA | 2 | A | 60 | 60DNMA1-0D20D | 3000rpm | 0.64 N·M |
| | 0.4KW | EPS-B1-0D40AA | 3 | A | 60 | 60DNMA1-0D40D | 3000rpm | 1.27 N·M |
| | 0.75KW | EPS-B1-0D75AA | 12 | B | 80 | 80DNMA1-0D75D | 3000rpm | 2.37 N·M |
| | 1KW | EPS-B1-0001AA | 13 | B | 80 | 80DNMA1-0001D | 3000rpm | 3.2 N·M |
| | 1KW | EPS-B1-0001AA | 33 | B | 130 | 130DNMA1-0001C | 2000rpm | 5 N·M |
| | 1.2KW | EPS-B1-01D5AA | 25 | B | 110 | 110DNMA1-01D2D | 3000rpm | 4 N·M |
| | 1.2KW | EPS-B1-01D5AA | 34 | B | 130 | 130DNMA1-01D2C | 2000rpm | 6 N·M |
| | 1.5KW | EPS-B1-01D5AA | 35 | B | 130 | 130DNMA1-01D5C | 2000rpm | 7.2 N·M |
| | 1.5KW | EPS-B1-02D2AA | 41 | C | 130 | 130DNMA1-01D5C | 2000rpm | 7.2 N·M |
| | 1.8KW | EPS-B1-01D5AA | 29 | B | 110 | 110DNMA1-01D8D | 3000rpm | 6 N·M |
| | 2.2KW | EPS-B1-02D2AA | 42 | C | 130 | 130DNMA1-02D2C | 2000rpm | 10.5 N·M |
| | 3KW | EPS-B1-0003AA | 45 | C | 130 | 130DNMA1-0003C | 2000rpm | 14.33 N·M |
| | 3KW | EPS-B1-0003AA | 70 | C | 180 | 180DNMA1-0003B | 1500rpm | 19.1 N·M |
| | 4.5KW | EPS-B1-04D5AA | 72 | D | 180 | 180DNMA1-04D5B | 1500rpm | 28.6 N·M |
| 380V | 2.2KW | EPS-B1-02D2BA | 42 | C | 130 | 130DNMB1-02D2C | 2000rpm | 10.5 N·M |
| | 3KW | EPS-B1-0003BA | 45 | C | 130 | 130DNMB1-0003C | 2000rpm | 14.33 N·M |
| | 3KW | EPS-B1-0003BA | 70 | C | 180 | 180DNMB1-0003B | 1500rpm | 19.1 N·M |
| | 4.5KW | EPS-B1-04D5BA | 72 | C | 180 | 180DNMB1-04D5B | 1500rpm | 28.6 N·M |
| | 5.5KW | EPS-B1-05D5BA | 73 | D | 180 | 180DNMB1-05D5B | 1500rpm | 35 N·M |
| | 7.5KW | EPS-B1-07D5BA | 74 | D | 180 | 180DNMB1-07D5B | 1500rpm | 47.7 N·M |
| | 11KW | EPS-B1-0011BA | 109 | E | 180 | 180DNMB1-0011B | 1500rpm | 70 N·M |
| | 15KW | EPS-B1-0015BA | 125 | E | 220 | 200DNMB1-14D7C | 2000rpm | 70 N·M |
| | 22KW | EPS-B1-0022BA | 135 | E | 220 | 200DNMB1-0022C | 2000rpm | 105 N·M |

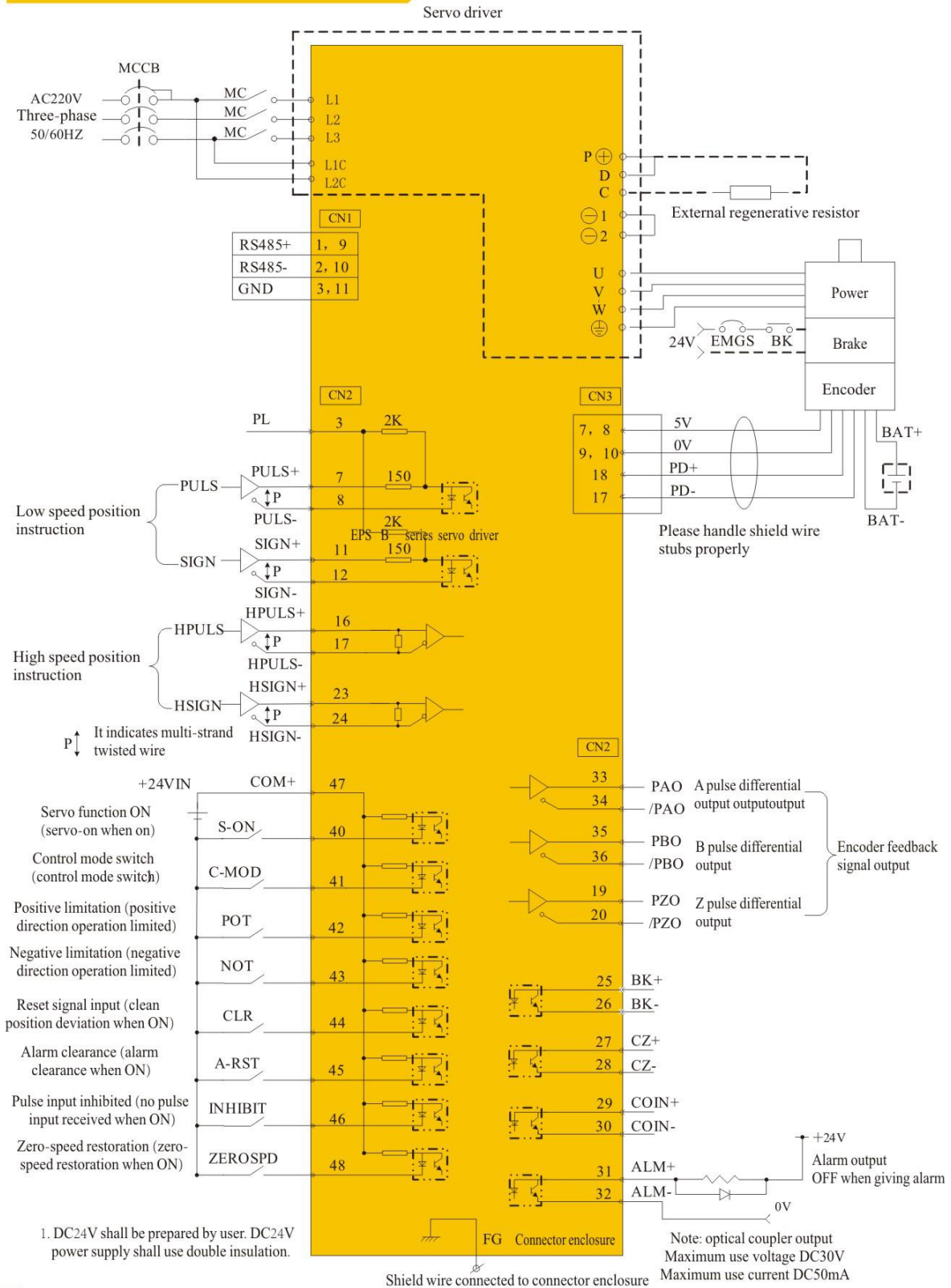
CONFIGURATION AND INTERFACES /

EPS-B1 AC SERVO SYSTEMS



STANDARD WIRING DIAGRAMS/

EPS-B1 AC SERVO SYSTEMS



SERVO DRIVE SPECIFICATIONS /

| Basic specifications | | |
|----------------------|----------------------------|--|
| Input voltage | 220VAC | Singe/Three Phase 220VAC -15%~+10%, 50/60Hz |
| | 380VAC | Three Phase 380VAC -15%~+15%, 50/60Hz |
| Control mechanism | | Single/Three phase full wave rectification IGBT PWM control, sine-wave current control |
| Feedback devices | | 5000-LINE (LINE SAVING, GAIN) 17-BIT SERIAL (GAIN) 17-BIT SERIAL (ABSOLUTE) 20-BIT SERIAL (GAIN) 2500-LINE MAGNETIC |
| Use conditions | Ambient temperature | Use temperature: 0~+55°C Storage temperature: -20~85°C |
| | Humidity | Below 90%RH (no freezing or condensing) |
| | Vibration | 4.9 m/s ² ~19.6 m/s ² |
| | Protection class/cleanness | Protection class: IP10; Cleanness: 2 But should be: · With no corrosive or combustible gas · With no water, oil or drug splashing · With little dust, ash, salt or metallic powder |
| | Altitude | Below 1000m |
| Applicable standard | | CE |
| Structure | | Pedestal installation type |
| Performance | Speed control precision | |
| | Speed fluctuation range | Load fluctuation |
| | | Voltage fluctuation |
| | | Temperature fluctuation |
| | | 1:5000 |
| | | 0 ~100% load: below ?0.01% (at rated speed) |
| | | Rated voltage ±10% : 0.001% (at rated speed) |
| | | 25 ± 25°C: below ±0.1% (at rated speed) |

SERVO DRIVE SPECIFICATIONS /

| | | | | |
|-------------------------------|---------------------------------------|-----------------------------|--|---|
| | Torque control precision (repeatable) | | ±3% | |
| | Soft start time | | 0~10S (acceleration or deceleration) | |
| Input/output signals | Encoder pulse output | | Line drive output: A Phase, B Phase, Z Phase Pulse count: 5000 line-saving encoder: 16~5000; 17 bit serial encoder: 16~16384; 20 bit serial encoder: 16~1,048,576. | |
| | Sequential input signals | Assignable input signals | Pin number | 8 |
| | | | Functions | S-ON, C-MODE, POT, NOT, CLR, A-RST, GAIN, INHIBIT, ZEROSPD, PCL, NCL etc. |
| | Sequential output signals | Unassignable output signals | Pin number | 1 (ALM) |
| | | | Pin number | 3 |
| | | Assignable output signals | Functions | ALM, COIN, CZ, BK-OFF, S-RDY, etc. |
| Communication functions | RS485 | 1:N | With relay, maximum N=31 | |
| | | Address setting | By parameter setting | |
| | | Devices | PC, upper controller | |
| | EtherCAT | | EPS-B1 series only | |
| Display/keypad | | | 7 LED X 5 bit, 4 buttons | |
| Dynamic brake (DB) (optional) | | | At Servo OFF, forward/backward rotation inhibition, power OFF, or stop due to failure. | |
| Regenerative functions | | | Internal or external | |
| Over-travel (OT) protections | | | POT,NOT. DB, deceleration to stop, coast to stop. | |
| Protection functions | | | Over-current, over-voltage, under-voltage, over-load, regenerative fault, etc. | |

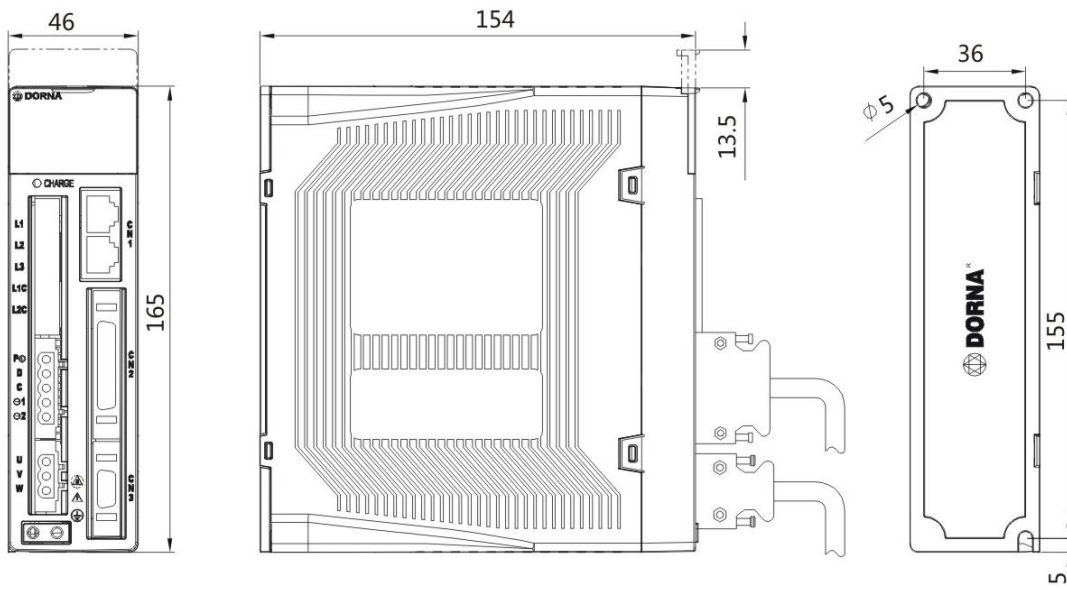
SERVO DRIVE CURRENTS /

(Important when choosing the correct servo drive for the servo motor)

| Item | Model | Rated current | Maximum current |
|------|--------------|---------------|-----------------|
| 1 | EPS-B1-0D10A | 1.3A | 3.9A |
| 2 | EPS-B1-0D20A | 2.0A | 6.0A |
| 3 | EPS-B1-0D40A | 3.0A | 9.0A |
| 4 | EPS-B1-0D75A | 4.0A | 11.5A |
| 5 | EPS-B1-0001A | 6.0A | 16.0A |
| 6 | EPS-B1-01D5A | 7.6A | 18.0A |
| 7 | EPS-B1-02D2A | 11.5A | 30.0A |
| 8 | EPS-B1-0003A | 15.5A | 42.0A |
| 9 | EPS-B1-04D5A | 19.0A | 47.0A |
| 10 | EPS-B1-01D5B | 4.5A | 13.5A |
| 11 | EPS-B1-02D2B | 6.0A | 18.0A |
| 12 | EPS-B1-0003B | 8.0A | 24.0A |
| 13 | EPS-B1-04D5B | 10A | 30A |
| 14 | EPS-B1-05D5B | 13A | 39A |
| 15 | EPS-B1-07D5B | 18A | 48A |
| 16 | EPS-B1-0011B | 25A | 63A |
| 17 | EPS-B1-0015B | 35A | 95A |
| 18 | EPS-B1-0022B | 48A | 125A |

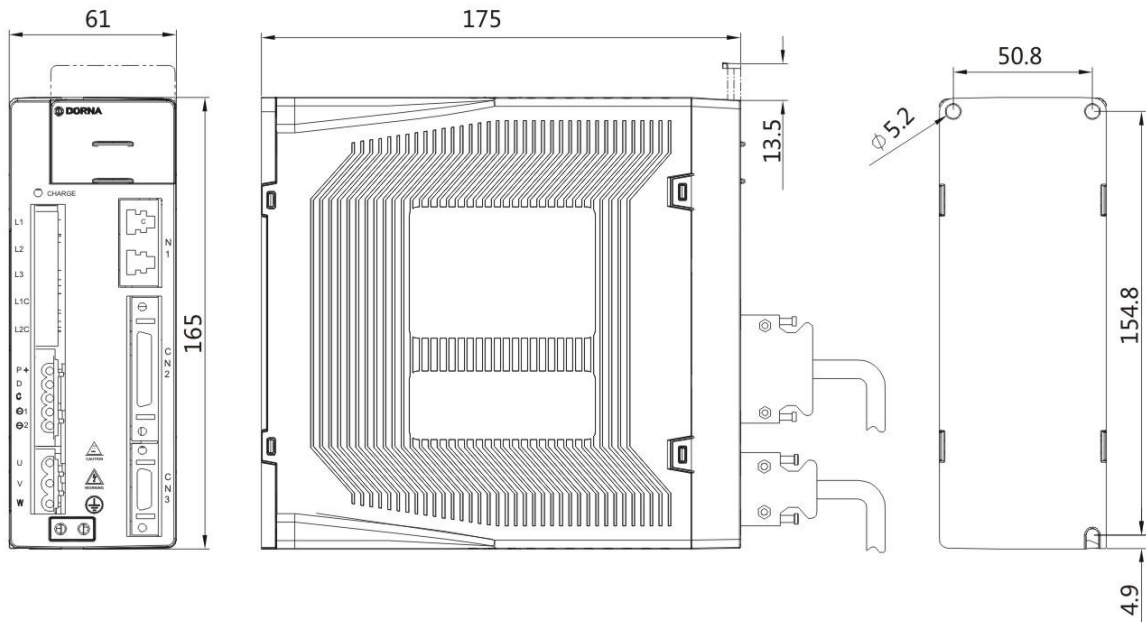
SERVO DRIVE DIMENSIONS

A Type case: 220V class 0.05KW ~ 0.4KW

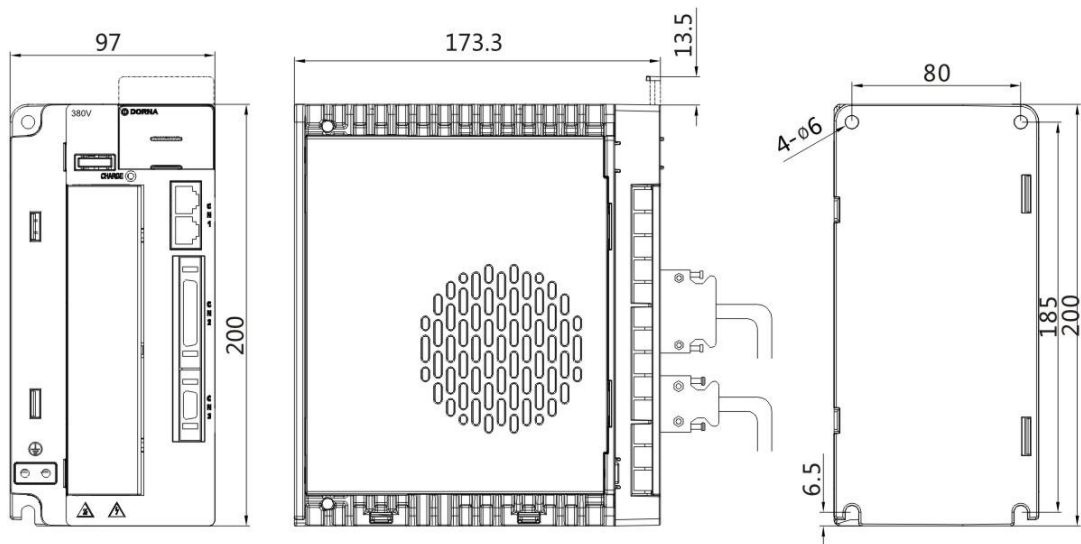


SERVO DRIVE DIMENSIONS /

B Type case: 220V class 0.75KW ~ 1.5KW

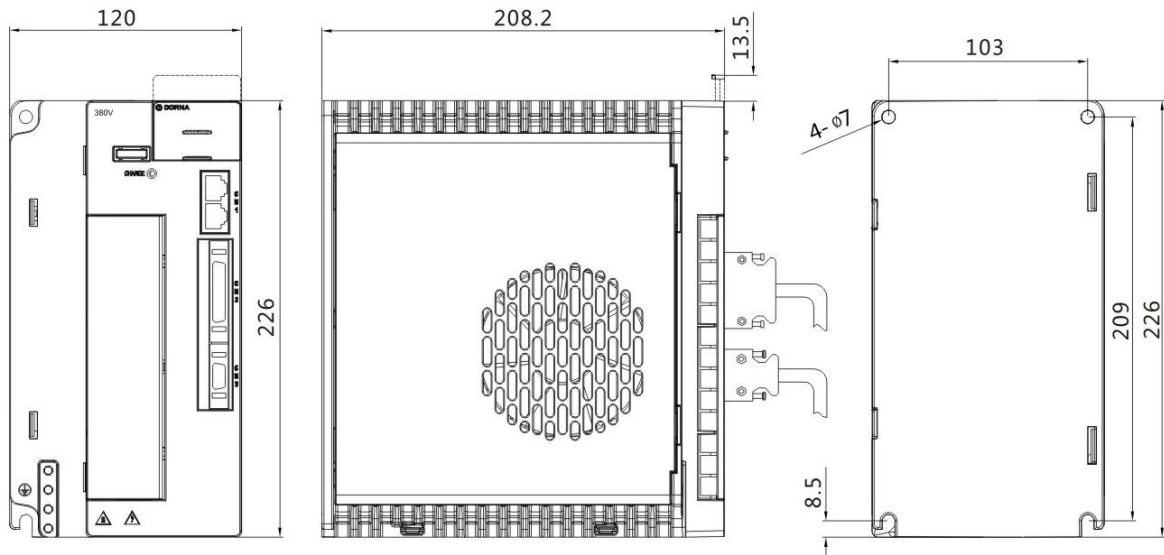


C Type case: 220V class 2.2KW~3KW; 380V class 1.5KW ~ 4.5KW

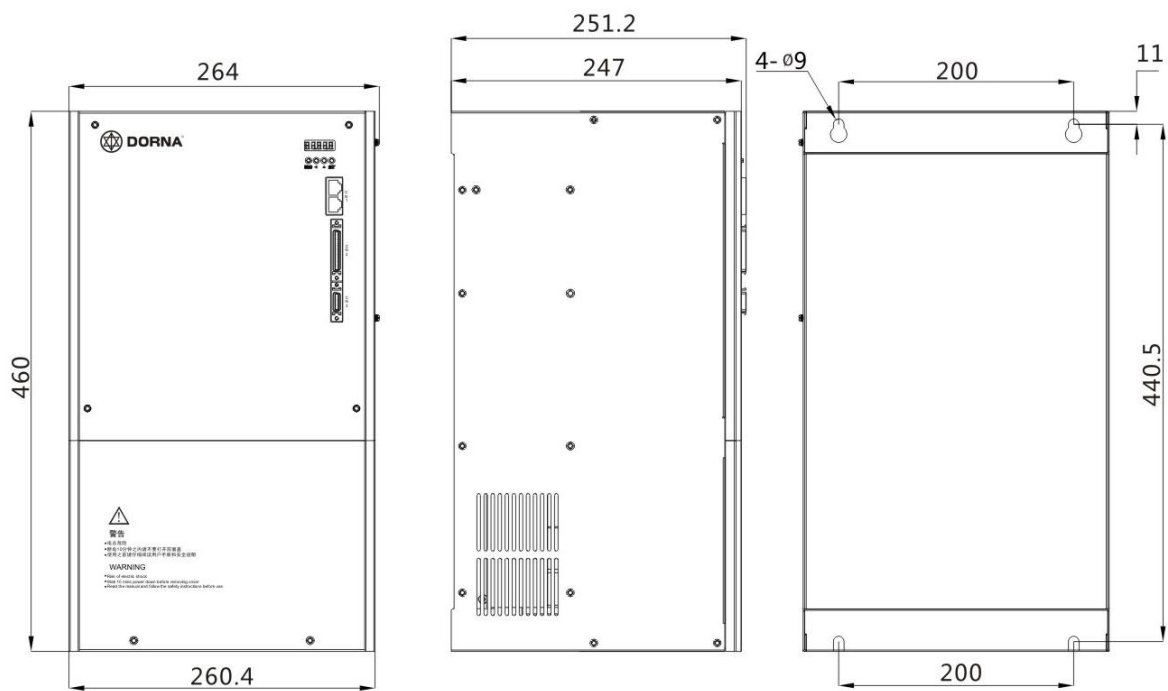


SERVO DRIVE DIMENSIONS /

D Type case: 220V class 4.5KW~5.5KW, 380V class 5.5KW ~ 7.5KW



E Type case: 380V class 11KW~22KW



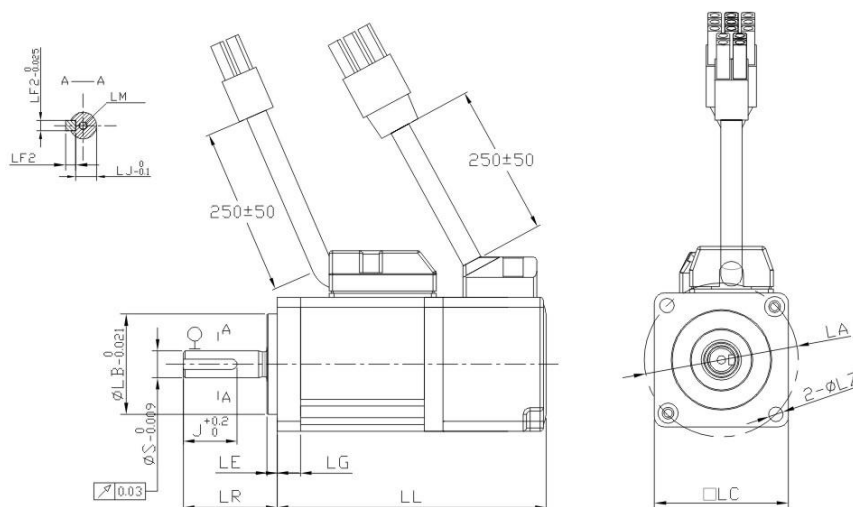
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

40 Servo Motor Series

| Servo Motor series | 40 series | |
|---|---------------|---------------|
| Servo Motor model | 40DNMA2-0D05D | 40DNMA2-0D10D |
| Input voltage | 220VAC | 220VAC |
| Inertia | Medium | |
| Rated power (W) | 50 | 100 |
| Rated torque (N*m) | 0.16 | 0.32 |
| Rated current (A) | 1.1 | 0.96 |
| Maximum current (A) | 5000 | 5000 |
| Rated speed (rpm) | 3.3 | 2.7 |
| Maximum speed (rpm) | 3000 | 3000 |
| Torque constant (N*m/Amp) | 0.14 | 0.35 |
| Back EMF constant (V/Krpm) | 9.5 | 22.5 |
| Rotary inertia (with brake) (10^{-4} Kg*m ²) | 0.023 (0.020) | 0.048 (0.05) |
| Resistance (line-line) (Ω) | 11.4 | 15 |
| Inductance (line-line) (mH) | 10.1 | 15.8 |
| Mass (with brake) (kg) | 0.4 (0.5) | 0.6 (0.8) |
| LL (with brake) (mm) | 80.3(117) | 105.3(137) |
| LR (mm) | 28 | 28 |
| LE (mm) | 3 | 3 |
| LG (mm) | 7 | 7 |
| S (mm) | 8 | 8 |
| LJ1 (mm) | 0 | 0 |
| LJ (mm) | 6.2 | 6.2 |
| J (mm) | 16 | 16 |
| LF1 (mm) | 3 | 3 |
| LF2 (mm) | 3 | 3 |
| LM (mm) | M3 deep 8 | M3 deep 8 |
| LA (mm) | 46 | 46 |
| LB (mm) | 30 | 30 |
| LC (mm) | 40 | 40 |
| LZ (mm) | 4.3 | 4.3 |

Motor outline



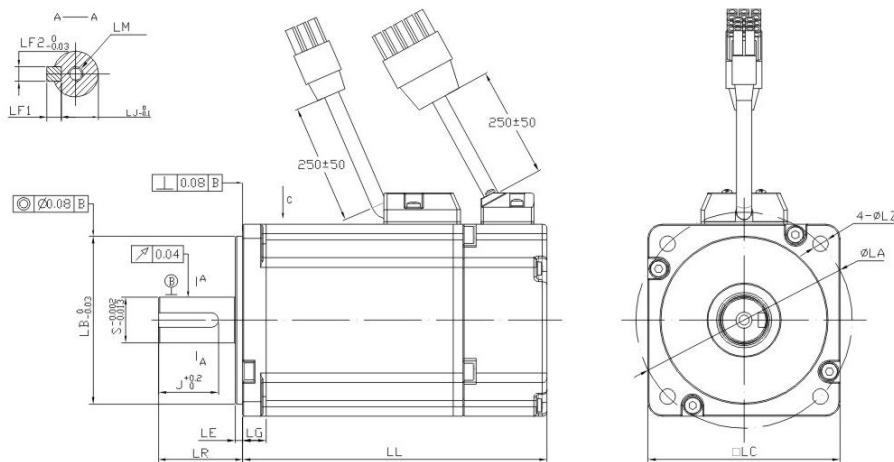
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

60 Servo Motor Series

| Servo Motor series | 60 series | | | |
|---|--------------|--------------|--------------|--------------|
| Servo Motor model | 60DNMA1-0D20 | 60DNMA2-0D20 | 60DNMA1-0D40 | 60DNMA2-0D40 |
| Input voltage | 220VAC | 220VAC | 220VAC | 220VAC |
| Inertia | Medium | High | Medium | High |
| Rated power (W) | 200 | 200 | 400 | 400 |
| Rated torque (N*m) | 0.64 | 0.64 | 1.27 | 1.27 |
| Rated current (A) | 1.7 | 1.4 | 2.9 | 2.5 |
| Maximum current (A) | 5.1 | 4.2 | 9 | 7.5 |
| Rated speed (rpm) | 3000 | 3000 | 3000 | 3000 |
| Maximum speed (rpm) | 5000 | 5000 | 5000 | 5000 |
| Torque constant (N*m/Amp) | 0.37 | 0.45 | 0.43 | 0.508 |
| Back EMF constant (V/Krpm) | 24 | 29 | 28.7 | 33 |
| Rotary inertia (with brake) (10^{-4} Kg*m ²) | 0.14 (0.16) | 0.14 (0.16) | 0.24 (0.25) | 0.67 (0.68) |
| Resistance (line-line) (Ω) | 6 | 8.4 | 3.8 | 4.28 |
| Inductance (line-line) (mH) | 16 | 26.5 | 11 | 15.4 |
| Mass (with brake) (kg) | 1.03 (1.53) | 1.03 (1.53) | 1.43 (1.89) | 1.59 (2.05) |
| LL (with brake) (mm) | 105(140) | 105(140) | 125(160) | 140(175) |
| LR (mm) | 30 | 30 | 30 | 30 |
| LE (mm) | 3 | 3 | 3 | 3 |
| LG (mm) | 8 | 8 | 8 | 8 |
| S (mm) | 14 | 14 | 14 | 14 |
| LJ1 (mm) | 0 | 0 | 0 | 0 |
| LJ (mm) | 11 | 11 | 11 | 11 |
| J (mm) | 20 | 20 | 20 | 20 |
| LF1 (mm) | 5 | 5 | 5 | 5 |
| LF2 (mm) | 5 | 5 | 5 | 5 |
| LM (mm) | M4 deep 15 | M4 deep 15 | M4 deep 15 | M4 deep 15 |
| LA (mm) | 70 | 70 | 70 | 70 |
| LB (mm) | 50 | 50 | 50 | 50 |
| LC (mm) | 60 | 60 | 60 | 60 |
| LZ (mm) | 5.5 | 5.5 | 5.5 | 5.5 |

Motor outline



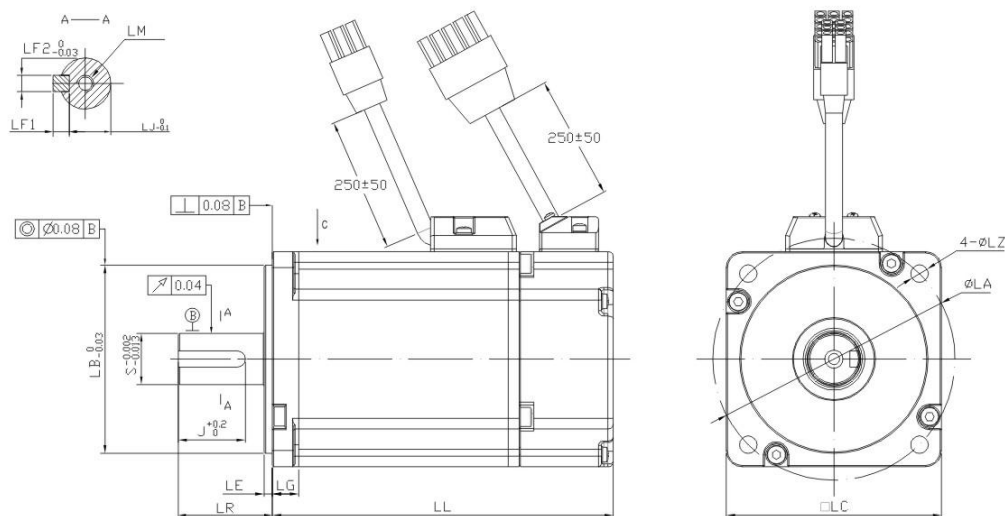
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

80 Servo Motor Series

| Servo Motor series | 80 Series | | | |
|---|--------------|--------------|--------------|--------------|
| | 80DNMA1-0D75 | 80DNMA2-0D75 | 80DNMA1-0001 | 80DNMA2-0001 |
| Servo Motor model | 80DNMA1-0D75 | 80DNMA2-0D75 | 80DNMA1-0001 | 80DNMA2-0001 |
| Input voltage | 220VAC | 220VAC | 220VAC | 220VAC |
| Inertia | Medium | High | Medium | |
| Rated power (W) | 750 | 750 | 1000 | 1000 |
| Rated torque (N*m) | 2.39 | 2.39 | 3.18 | 3.18 |
| Rated current (A) | 4.1 | 3.7 | 5.5 | 5.1 |
| Maximum current (A) | 12.5 | 11.1 | 15.1 | 15.3 |
| Rated speed (rpm) | 3000 | 3000 | 3000 | 3000 |
| Maximum speed (rpm) | 5000 | 5000 | 5000 | 5000 |
| Torque constant (N*m/Amp) | 0.58 | 0.64 | 0.43 | 0.62 |
| Back EMF constant (V/Krpm) | 40 | 43 | 40 | 41 |
| Rotary inertia (with brake) (10^{-4} Kg*m ²) | 0.88 (0.92) | 1.5 (1.53) | 1.12 (1.15) | 1.12 (1.15) |
| Resistance (line-line) (Ω) | 1.5 | 1.5 | 1.21 | 1.2 |
| Inductance (line-line) (mH) | 7.9 | 7.9 | 6.2 | 6.1 |
| Mass (with brake) (kg) | 2.66 (3.76) | 2.93 (4.03) | 3.12 (4.22) | 3.12 (4.12) |
| LL (with brake) (mm) | 129.7(168.9) | 144.7(183.9) | 144.7(183.9) | 144.7(183.9) |
| LR (mm) | 35 | 35 | 35 | 35 |
| LE (mm) | 3 | 3 | 3 | 3 |
| LG (mm) | 8 | 8 | 8 | 8 |
| S (mm) | 19 | 19 | 19 | 19 |
| LJ1 (mm) | 0 | 0 | 0 | 0 |
| LJ (mm) | 15.5 | 15.5 | 15.5 | 15.5 |
| J (mm) | 25 | 25 | 25 | 25 |
| LF1 (mm) | 6 | 6 | 6 | 6 |
| LF2 (mm) | 6 | 6 | 6 | 6 |
| LM (mm) | M5 deep 20 | M5 deep 20 | M5 deep 20 | M5 deep 20 |
| LA (mm) | 90 | 90 | 90 | 90 |
| LB (mm) | 70 | 70 | 70 | 70 |
| LC (mm) | 80 | 80 | 80 | 80 |
| LZ (mm) | 6.5 | 6.5 | 6.5 | 6.5 |

Motor outline



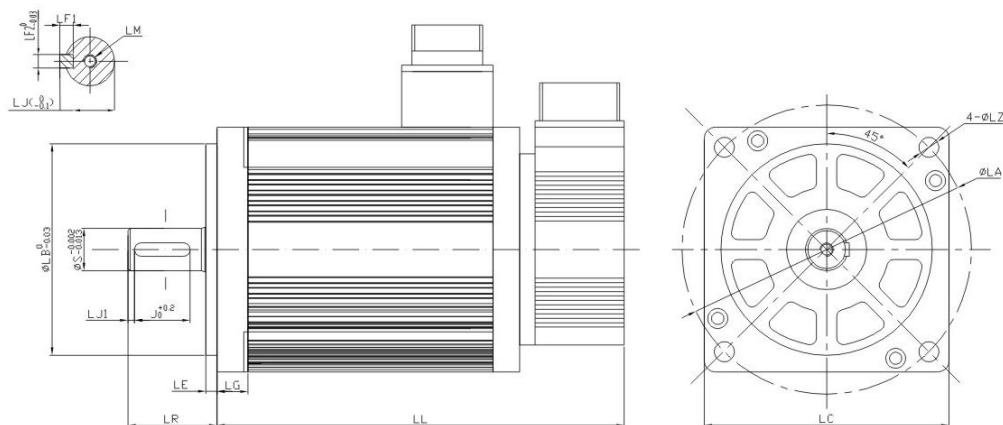
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

110 Servo Motor Series

| Servo Motor series | 110 Series | |
|---|----------------|----------------|
| | 110DNMA1-0D80C | 110DNMA1-01D2C |
| Servo Motor model - new | 110DNMA1-0D80C | 110DNMA1-01D2C |
| Servo Motor model - old | 110DNA-08C | 110DNA-12C |
| Input voltage | 220VAC | |
| Rated power (KW) | 0.8 | 1.2 |
| Rated torque (N*m) | 3.58 | 5.73 |
| Maximum torque (N*m) | 10.74 | 17.19 |
| Rated current (A) | 4 | 5.6 |
| Maximum current (A) | 12 | 16.8 |
| Rated speed (rpm) | 2000 | 2000 |
| Maximum speed (rpm) | 2500 | 2500 |
| Torque constant (N*m/Amp) | 0.90 | 1.02 |
| Back EMF constant(V/Krpm) | 80 | 78 |
| Rotary inertia (with brake) (10^{-4} Kg*m ²) | 6.6 (6.7) | 8.8 (8.9) |
| Resistance (line-line) (Ω) | 2.14 | 1.5 |
| Inductance (line-line) (mH) | 7.45 | 5.3 |
| Mass (with brake) (kg) | 5 (6.3) | 6.5 (7.8) |
| LL (with brake) (mm) | 184(236) | 204(256) |
| LR (mm) | 40 | 40 |
| LE (mm) | 5 | 5 |
| LG (mm) | 14 | 14 |
| S (mm) | 19 | 19 |
| LJ1 (mm) | 3 | 3 |
| LJ (mm) | 21.5 | 21.5 |
| J (mm) | 25 | 25 |
| LF1 (mm) | 6 | 6 |
| LF2 (mm) | 6 | 6 |
| LM (mm) | M5 deep 15 | M5 deep 15 |
| LA (mm) | 130 | 130 |
| LB (mm) | 95 | 95 |
| LC (mm) | 110 | 110 |
| LZ (mm) | 9 | 9 |

Motor outline



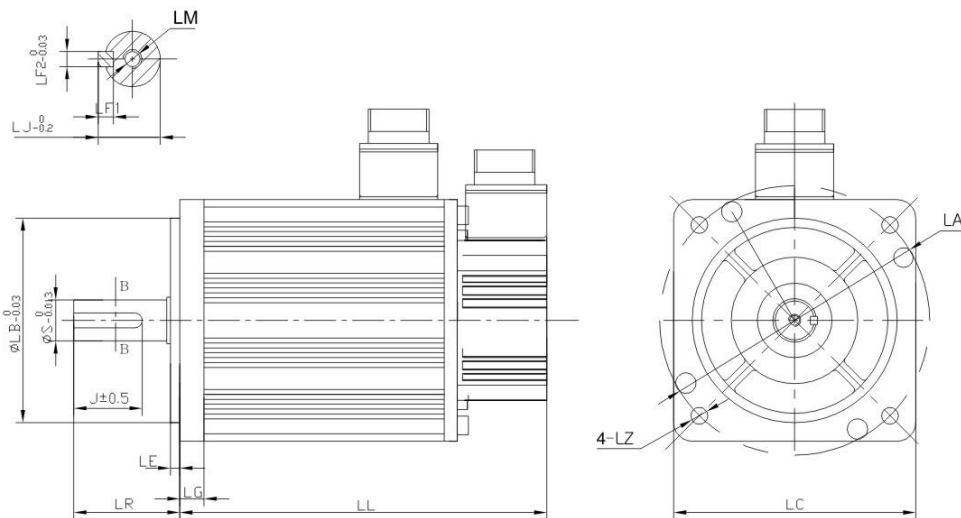
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

130 Servo Motor Series

| Servo Motor series | 130 Series | | | | |
|--|----------------|----------------|----------------|----------------|----------------|
| | 130DNMA1-0001C | 130DNMA1-01D2C | 130DNMA1-01D5C | 130DNMA1-02D2C | 130DNMA1-0003C |
| Servo Motor model | 130DNMA1-0001C | 130DNMA1-01D2C | 130DNMA1-01D5C | 130DNMA1-02D2C | 130DNMA1-0003C |
| Input voltage | 220VAC | | | | |
| Rated power (KW) | 1 | 1.2 | 1.5 | 2.2 | 3 |
| Rated torque (N*m) | 4.77 | 5.73 | 7.16 | 10.5 | 14.33 |
| Maximum torque (N*m) | 14.31 | 17.2 | 21.48 | 31.5 | 42.99 |
| Rated current (A) | 4.9 | 6.3 | 8 | 10.5 | 16.9 |
| Maximum current (A) | 14.7 | 18.9 | 24 | 31.5 | 50.7 |
| Rated speed (rpm) | 2000 | 2000 | 2000 | 2000 | 2000 |
| Maximum speed (rpm) | 3000 | 3000 | 3000 | 3000 | 3000 |
| Torque constant (N*m/Amp) | 0.97 | 0.91 | 0.9 | 1 | 0.848 |
| Back EMF constant(V/Krpm) | 64 | 64 | 64 | 66 | 64 |
| Rotary inertia (with brake)($10^{-4}Kg*m^2$) | 8.3 (8.6) | 10.4 (10.7) | 12.2 (12.5) | 15.6 (15.9) | 22.9 (23.2) |
| Resistance (line-line) (Ω) | 1.3 | 0.9 | 0.65 | 0.5 | 0.27 |
| Inductance (line-line) (mH) | 8 | 6.1 | 4.7 | 3.9 | 2.2 |
| Mass (with brake) (kg) | 7.2 (10) | 8.2 (11) | 9.2 (12) | 11 (13.8) | 15 (17.8) |
| LL (with brake) (mm) | 172(231) | 181 240) | 197(256) | 219(278) | 267(326) |
| LR (mm) | 57 | 57 | 57 | 57 | 57 |
| LE (mm) | 5 | 5 | 5 | 5 | 5 |
| LG (mm) | 13 | 13 | 13 | 13 | 13 |
| S (mm) | 22 | 22 | 22 | 22 | 22 |
| LJ1 (mm) | 0 | 0 | 0 | 0 | 0 |
| LJ (mm) | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 |
| J (mm) | 36 | 36 | 36 | 36 | 36 |
| LF1 (mm) | 6 | 6 | 6 | 6 | 6 |
| LF2 (mm) | 6 | 6 | 6 | 6 | 6 |
| LM (mm) | M6 deep 15 | M6 deep 15 | M6 deep 15 | M6 deep 15 | M6 deep 15 |
| LA (mm) | 145 | 145 | 145 | 145 | 145 |
| LB (mm) | 110 | 110 | 110 | 110 | 110 |
| LC (mm) | 130 | 130 | 130 | 130 | 130 |
| LZ (mm) | 9 | 9 | 9 | 9 | 9 |

Motor outline



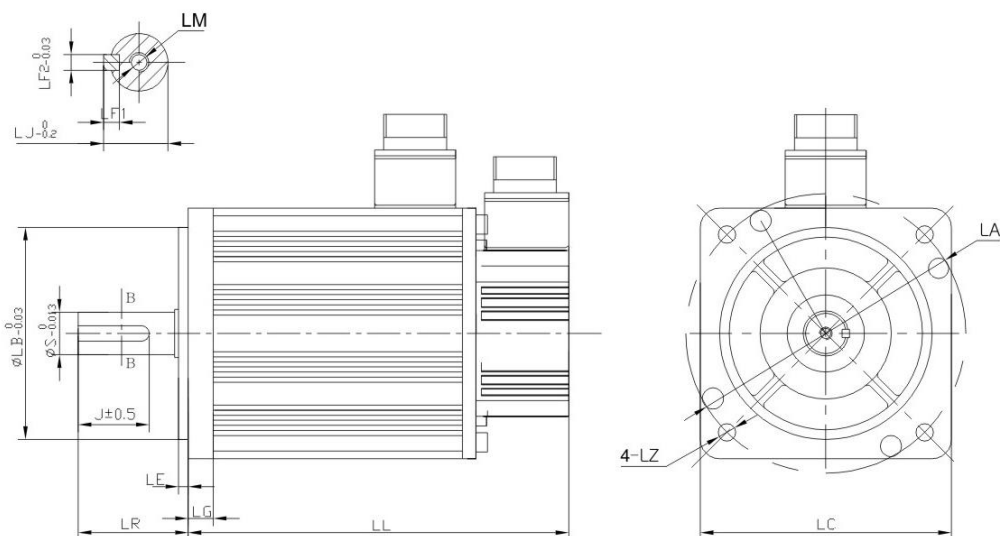
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

130 Servo Motor Series

| Servo Motor series | 130 Series | | | |
|---|----------------|----------------|----------------|----------------|
| | 130DNMB1-0001C | 130DNMB1-01D5C | 130DNMB1-02D2C | 130DNMB1-0003C |
| Servo Motor model | 130DNMB1-0001C | 130DNMB1-01D5C | 130DNMB1-02D2C | 130DNMB1-0003C |
| Input voltage | 380VAC | | | |
| Rated power (KW) | 1 | 1.5 | 2.2 | 3 |
| Rated torque (N*m) | 4.77 | 7.16 | 10.5 | 14.33 |
| Maximum torque (N*m) | 14.31 | 21.48 | 31.5 | 42.99 |
| Rated current (A) | 3.2 | 4.5 | 6.2 | 8.7 |
| Maximum current (A) | 9.6 | 13.5 | 18.6 | 26.1 |
| Rated speed (rpm) | 2000 | 2000 | 2000 | 2000 |
| Maximum speed (rpm) | 3000 | 3000 | 3000 | 3000 |
| Torque constant (N*m/Amp) | 1.49 | 1.59 | 1.69 | 1.64 |
| Back EMF constant(V/Krpm) | 113 | 120 | 120 | 117 |
| Rotary inertia (with brake) (10^{-4} Kg*m ²) | 8.3 (8.6) | 10.4 (10.7) | 15.6 (15.9) | 22.9 (23.2) |
| Resistance (line-line) (Ω) | 3.9 | 2.02 | 1.45 | 0.78 |
| Inductance (line-line) (mH) | 25 | 14 | 11 | 7 |
| Mass (with brake) (kg) | 7.5 (10.3) | 9.6 (12.4) | 11.5 (13.3) | 16 (18.8) |
| LL (with brake) (mm) | 172(231) | 197(256) | 219(278) | 267(326) |
| LR (mm) | 57 | 57 | 57 | 57 |
| LE (mm) | 5 | 5 | 5 | 5 |
| LG (mm) | 13 | 13 | 13 | 13 |
| S (mm) | 22 | 22 | 22 | 22 |
| LJ1 (mm) | 0 | 0 | 0 | 0 |
| LJ (mm) | 24.5 | 24.5 | 24.5 | 24.5 |
| J (mm) | 36 | 36 | 36 | 36 |
| LF1 (mm) | 6 | 6 | 6 | 6 |
| LF2 (mm) | 6 | 6 | 6 | 6 |
| LM (mm) | M6 deep 15 | M6 deep 15 | M6 deep 15 | M6 deep 15 |
| LA (mm) | 145 | 145 | 145 | 145 |
| LB (mm) | 110 | 110 | 110 | 110 |
| LC (mm) | 130 | 130 | 130 | 130 |
| LZ (mm) | 9 | 9 | 9 | 9 |

Motor outline



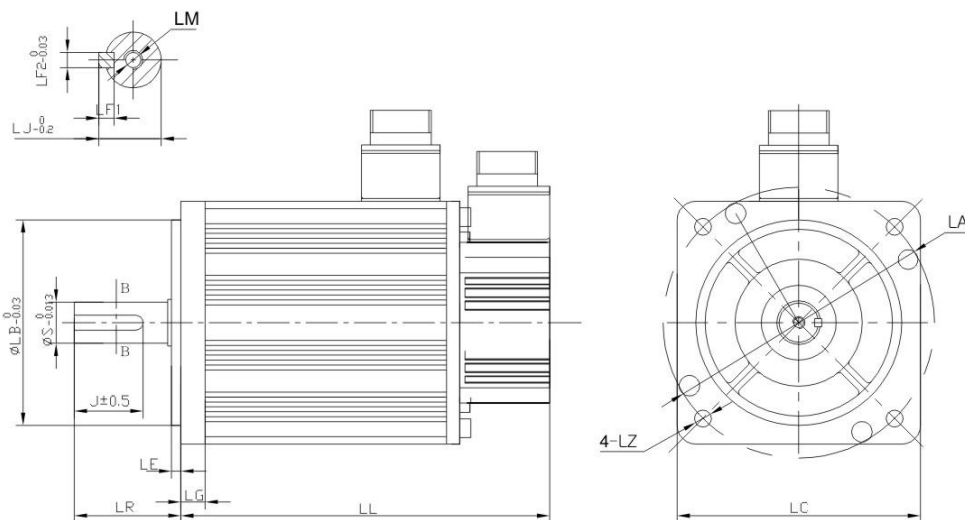
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

130 Servo Motor Series

| Servo Motor series | 130 Series | | | | | |
|--|---------------|----------------|----------------|----------------|----------------|----------------|
| Servo Motor model | 13DNMA2-0D85D | 130DNMA2-0001C | 130DNMA2-01D3B | 130DNMA2-01D5C | 130DNMA2-0002C | 130DNMA2-0003C |
| Input voltage | 220VAC | 220VAC | 220VAC | 220VAC | 220VAC | 220VAC |
| Inertia | Medium | | | | | |
| Rated power (W) | 850 | 1000 | 1300 | 1500 | 2000 | 3000 |
| Rated torque (N*m) | 5.4 | 4.77 | 8.27 | 7.16 | 9.55 | 14.33 |
| Rated current (A) | 5.7 | 5 | 9.32 | 8.4 | 10.3 | 13.5 |
| Maximum current (A) | 17.1 | 15 | 28 | 25.2 | 30.1 | 40.5 |
| Rated speed (rpm) | 1500 | 2000 | 1500 | 2000 | 2000 | 2000 |
| Maximum speed (rpm) | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Torque constant (N*m/Amp) | 0.95N.m/Arms | 0.95N.m/Arms | 0.89N.m/Arms | 0.85N.m/Arms | 0.93N.m/Arms | 1.07N.m/Arms |
| Back EMF constant(V/Krpm) | 67.5V/Krpm | 66V/Krpm | 61.7V/Krpm | 59.8V/Krpm | 72.6V/Krpm | 76V/Krpm |
| Rotary inertia (with brake)(10 ⁻⁴ Kg*m ²) | 8.08 (8.5) | 7.1 (7.5) | 12.1 (12.5) | 10.6 (11.1) | 13.8 (14.3) | 20.4 (20.9) |
| Resistance (line-line) (Ω) | 0.93 | 1.08 | 0.45 | 0.543 | 0.52 | 0.32 |
| Inductance (line-line) (mH) | 11.4 | 12.8 | 5.7 | 6.3 | 6.8 | 4.7 |
| Mass (with brake) (kg) | 7.2 (9.5) | 6.5 (8.8) | 7.6 (9.9) | 8 (10.5) | 9.6 (11.9) | 12.6 (14.9) |
| LL (with brake) (mm) | 160 (204) | 154 (198) | 182 (226) | 173 (217) | 192 (236) | 230 (274) |
| LR (mm) | 58 | 58 | 58 | 58 | 58 | 58 |
| LE (mm) | 6 | 6 | 6 | 6 | 6 | 6 |
| LG (mm) | 12 | 12 | 12 | 12 | 12 | 12 |
| S (mm) | 22 | 22 | 22 | 22 | 22 | 22 |
| LJ1 (mm) | 0 | 0 | 0 | 0 | 0 | 0 |
| LJ (mm) | 18 | 18 | 18 | 18 | 18 | 18 |
| J (mm) | 36 | 36 | 36 | 36 | 36 | 36 |
| LF1 (mm) | 7 | 7 | 7 | 7 | 7 | 7 |
| LF2 (mm) | 8 | 8 | 8 | 8 | 8 | 8 |
| LM (mm) | M6 deep 15 | M6 deep 15 | M6 deep 15 | M6 deep 15 | M6 deep 15 | M6 deep 15 |
| LA (mm) | 145 | 145 | 145 | 145 | 145 | 145 |
| LB (mm) | 110 | 110 | 110 | 110 | 110 | 110 |
| LC (mm) | 130 | 130 | 130 | 130 | 130 | 130 |
| LZ (mm) | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 |

Motor outline



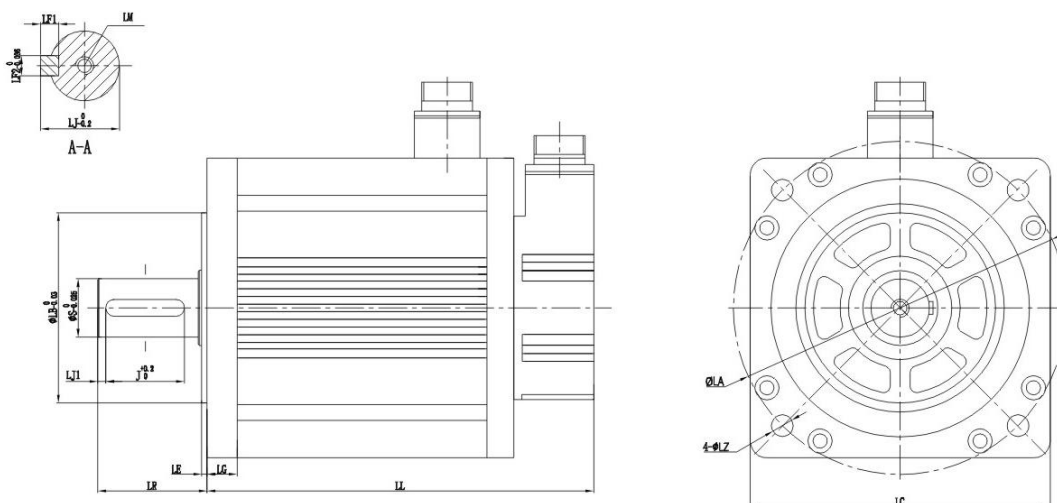
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

180 Servo Motor Series

| Servo Motor series | 180 Series | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|----------------|
| | 180DNMA1-0003B | 180DNMA1-04D5B | 180DNMB1-0003B | 180DNMB1-04D5B | 180DNMB1-05D5B | 180DNMB1-07D5B |
| Servo Motor model - new | 180DNMA1-0003B | 180DNMA1-04D5B | 180DNMB1-0003B | 180DNMB1-04D5B | 180DNMB1-05D5B | 180DNMB1-07D5B |
| Servo Motor model - old | 180DNA-30B | 180DNA-45B | DNBB18-0003B | DNBB18-04D5B | DNBB18-05D5B | DNBB18-07D5B |
| Input voltage | 220VAC | | | 380VAC | | |
| Rated power (KW) | 3 | 4.5 | 3 | 4.5 | 5.5 | 7.5 |
| Rated torque (N*m) | 19.1 | 28.6 | 19.1 | 28.6 | 35 | 47.7 |
| Maximum torque (N*m) | 57.3 | 85.8 | 57.3 | 85.8 | 105 | 143.1 |
| Rated current (A) | 12 | 18.4 | 6.8 | 10.3 | 12.5 | 17.5 |
| Maximum current (A) | 36 | 55.2 | 20.4 | 30.9 | 37.5 | 52.5 |
| Rated speed (rpm) | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| Maximum speed (rpm) | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Torque constant (N*m/Amp) | 1.59 | 1.55 | 2.81 | 2.78 | 2.80 | 2.73 |
| Back EMF constant(V/Krpm) | 107 | 112 | 225 | 210 | 200 | 142 |
| Rotary inertia (with brake)(10 ⁻⁴ Kg*m ²) | 47.7 (48.2) | 69 (69.5) | 47.7 (48.2) | 69 (69.5) | 77.5 (78) | 121 (121.5) |
| Resistance (line-line) (Ω) | 0.67 | 0.32 | 2.9 | 1.18 | 0.88 | 0.24 |
| Inductance (line-line) (mH) | 4.65 | 3.3 | 21 | 10 | 9.4 | 2.45 |
| Mass (with brake) (kg) | 19.5 (24.5) | 23.5 (28.5) | 20 (25) | 24 (29) | 31.5 (36.5) | 37 (42) |
| LL (with brake) (mm) | 212(287) | 252(327) | 212(287) | 252(327) | 272(347) | 332(407) |
| LR (mm) | 65 | 65 | 65 | 65 | 65 | 65 |
| LE (mm) | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| LG (mm) | 18 | 18 | 18 | 18 | 18 | 18 |
| S (mm) | 35 | 35 | 35 | 35 | 35 | 35 |
| LJ1 (mm) | 3 | 3 | 3 | 3 | 3 | 3 |
| LJ (mm) | 38 | 38 | 38 | 38 | 38 | 38 |
| J (mm) | 51 | 51 | 51 | 51 | 51 | 51 |
| LF1 (mm) | 8 | 8 | 8 | 8 | 8 | 8 |
| LF2 (mm) | 10 | 10 | 10 | 10 | 10 | 10 |
| LM (mm) | M8 deep 20 | M8 deep 20 | M8 deep 20 | M8 deep 20 | M8 deep 20 | M8 deep 20 |
| LA (mm) | 200 | 200 | 200 | 200 | 200 | 200 |
| LB (mm) | 114.3 | 114.3 | 114.3 | 114.3 | 114.3 | 114.3 |
| LC (mm) | 180 | 180 | 180 | 180 | 180 | 180 |
| LZ (mm) | 13 | 13 | 13 | 13 | 13 | 13 |

Motor outline



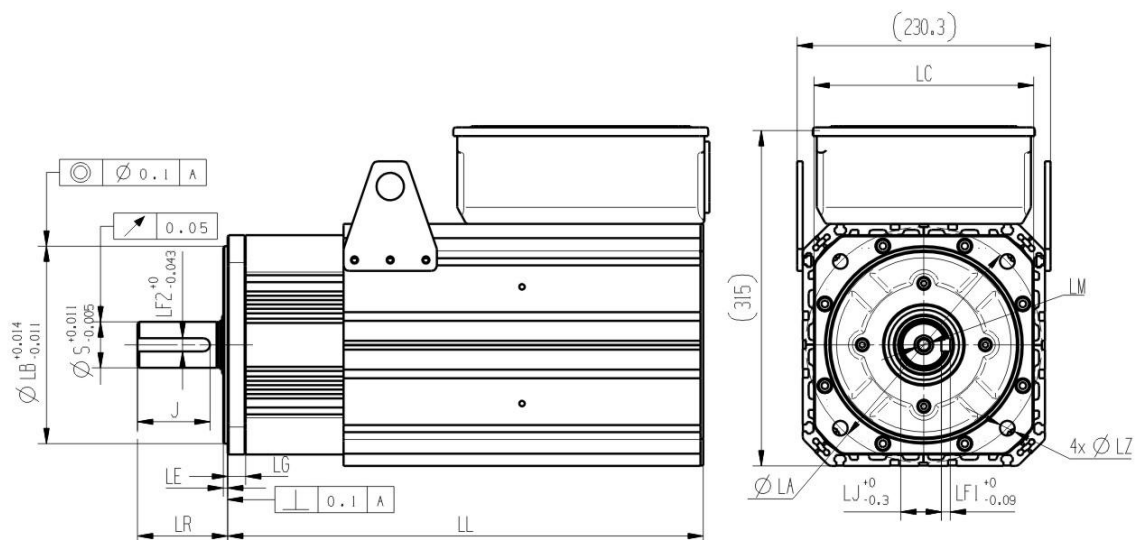
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

200 Servo Motor Series

| Servo Motor series | 200 Series | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| Servo Motor model | 200DNMB1-07D3C | 200DNMB1-0011D | 200DNMB1-07D3A | 200DNMB1-14D7C | 200DNMB1-0022D |
| Input voltage | 380VAC | | | | |
| Rated power (KW) | 7.3 | 11.0 | 7.3 | 14.7 | 22.0 |
| Rated torque (N*m) | 35 | 35 | 70 | 70 | 70 |
| Maximum torque (N*m) | 105 | 105 | 210 | 210 | 210 |
| Rated current (A) | 13 | 20 | 15 | 25 | 37 |
| Maximum current (A) | 39.8 | 61.2 | 45.9 | 76.5 | 113.2 |
| Rated speed (rpm) | 2000 | 3000 | 1000 | 2000 | 3000 |
| Maximum speed (rpm) | 2400 | 3200 | 1200 | 2400 | 3200 |
| Torque constant (N*m/Amp) | 2.69 | 1.75 | 4.67 | 2.80 | 1.89 |
| Back EMF constant(V/Krpm) | 1.5 | 1.08 | 3.2 | 1.5 | 1.08 |
| Rotary inertia (with brake) (10^{-4} Kg*m ²) | 5.5 | 5.5 | 10 | 10 | 10 |
| Resistance (line-line) (Ω) | 1.2 | 0.5 | 1.9 | 0.48 | 0.21 |
| Inductance (line-line) (mH) | 13 | 6.1 | 27 | 6.08 | 3.06 |
| Mass (with brake) (kg) | 35 | 37 | 45 | 47 | 49 |
| LL (with brake) (mm) | 363 | 363 | 433 | 433 | 433 |
| LR (mm) | 82 | 82 | 82 | 82 | 82 |
| LE (mm) | 4 | 4 | 4 | 4 | 4 |
| LG (mm) | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 |
| S (mm) | 42 | 42 | 42 | 42 | 42 |
| LJ1 (mm) | 0 | 0 | 0 | 0 | 0 |
| LJ (mm) | 37 | 37 | 37 | 37 | 37 |
| J (mm) | 66 | 66 | 66 | 66 | 66 |
| LF1 (mm) | 8 | 8 | 8 | 8 | 8 |
| LF2 (mm) | 12 | 12 | 12 | 12 | 12 |
| LM (mm) | M12 deep 30 | M12 deep 30 | M12 deep 30 | M12 deep 30 | M12 deep 30 |
| LA (mm) | 215 | 215 | 215 | 215 | 215 |
| LB (mm) | 180 | 180 | 180 | 180 | 180 |
| LC (mm) | 200 | 200 | 200 | 200 | 200 |
| LZ (mm) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |

Motor outline



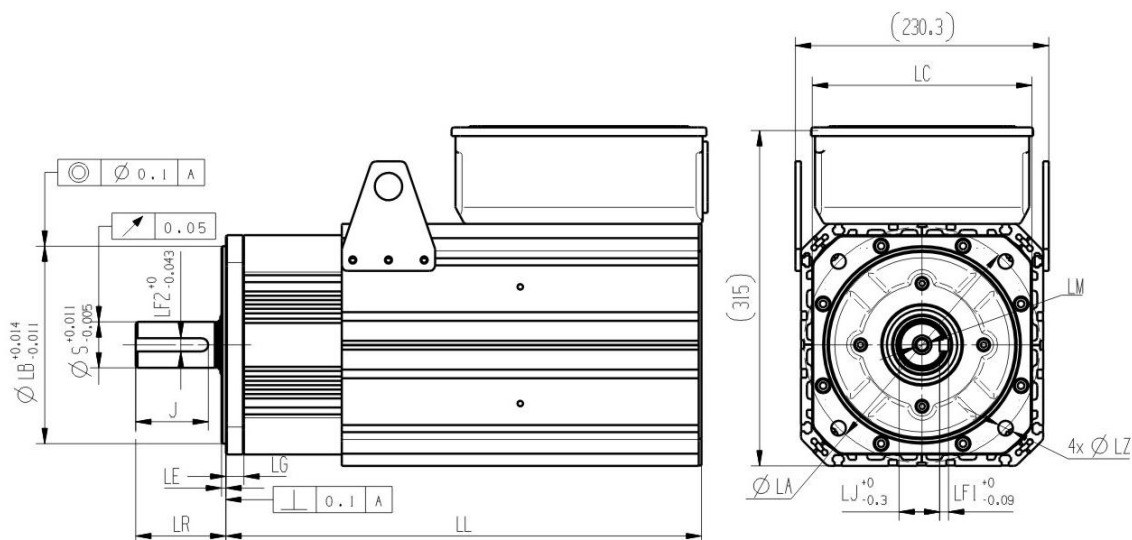
SERVO MOTOR SPECIFICATIONS & DIMENSIONS

Motor Parameters

200 Servo Motor Series

| Servo Motor series | 200 Series | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
| | 200DNMB1-0011A | 200DNMB1-0022C | 200DNMB1-0033D | 200DNMB1-14D7A | 200DNMB1-29D3C | 200DNMB1-0044D |
| Servo Motor model | 200DNMB1-0011A | 200DNMB1-0022C | 200DNMB1-0033D | 200DNMB1-14D7A | 200DNMB1-29D3C | 200DNMB1-0044D |
| Input voltage | 380VAC | | | | | |
| Rated power (KW) | 11.0 | 22.0 | 33.0 | 14.7 | 29.0 | 44.0 |
| Rated torque (N*m) | 105 | 105 | 105 | 140 | 140 | 140 |
| Maximum torque (N*m) | 315 | 315 | 315 | 420 | 420 | 420 |
| Rated current (A) | 20 | 37 | 55 | 25 | 55 | 85 |
| Maximum current (A) | 61.2 | 113.2 | 168.3 | 76.5 | 168.3 | 260.1 |
| Rated speed (rpm) | 1000 | 2000 | 3000 | 1000 | 2000 | 3000 |
| Maximum speed (rpm) | 1200 | 2400 | 3200 | 1200 | 2400 | 3200 |
| Torque constant (N*m/Amp) | 5.25 | 2.84 | 1.91 | 5.60 | 2.55 | 1.65 |
| Back EMF constant(V/Krpm) | 3.2 | 1.5 | 1.08 | 3.2 | 1.5 | 1.08 |
| Rotary inertia (with brake) (10 ⁻⁴ Kg*m ²) | 14 | 14 | 14 | 17.5 | 17.5 | 17.5 |
| Resistance (line-line) (Ω) | 1.13 | 0.3 | 0.14 | 0.78 | 0.18 | 0.086 |
| Inductance (line-line) (mH) | 18.4 | 4.5 | 2.08 | 13.1 | 2.7 | 1.58 |
| Mass (with brake) (kg) | 58 | 60 | 62 | 70 | 72 | 74 |
| LL (with brake) (mm) | 503 | 503 | 503 | 573 | 573 | 573 |
| LR (mm) | 82 | 82 | 82 | 82 | 82 | 82 |
| LE (mm) | 4 | 4 | 4 | 4 | 4 | 4 |
| LG (mm) | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 |
| S (mm) | 42 | 42 | 42 | 42 | 42 | 42 |
| LJ1 (mm) | 0 | 0 | 0 | 0 | 0 | 0 |
| LJ (mm) | 37 | 37 | 37 | 37 | 37 | 37 |
| J (mm) | 66 | 66 | 66 | 66 | 66 | 66 |
| LF1 (mm) | 8 | 8 | 8 | 8 | 8 | 8 |
| LF2 (mm) | 12 | 12 | 12 | 12 | 12 | 12 |
| LM (mm) | M12 deep 30 | M12 deep 30 | M12 deep 30 | M12 deep 30 | M12 deep 30 | M12 deep 30 |
| LA (mm) | 215 | 215 | 215 | 215 | 215 | 215 |
| LB (mm) | 180 | 180 | 180 | 180 | 180 | 180 |
| LC (mm) | 200 | 200 | 200 | 200 | 200 | 200 |
| LZ (mm) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |

Motor outline



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