

SERVO TETA Series TDF



Servo motors are very precise motors used to control speed, position and torque.

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TETA

ELECTRIC

SERVO TETA

Series TDF



سری محصول

Product Series

A

پارت نامبر درایو

Drive Part Number

①

Name

| Sign | Product name |
|------|------------------|
| TD | TETA servo drive |

④

Drive power

| Sign | Rated input voltage (kW) |
|------|--------------------------|
| P1 | 0.1 |
| P2 | 0.2 |
| P4 | 0.4 |
| P7 | 0.75 |
| 01 | 1.0 |
| 1P5 | 1.5 |
| 2P3 | 2.3 |
| 2P6 | 2.6 |
| 03 | 3.0 |
| 4P5 | 4.5 |
| 5P5 | 5.5 |
| 7P5 | 7.5 |
| 11 | 11 |
| 15 | 15 |
| 22 | 22 |
| 32 | 32 |
| 37 | 37 |
| 45 | 45 |
| 55 | 55 |

TD □ - □ □□□ - C - H

① ② ③ ④ ⑤ ⑥

②

Type

| Sign | Product name |
|------|--------------------------|
| C | EtherCAT bus type |
| E | X-NET bus type |
| F | Full function type |
| K | Standard type |
| L | Pulse type |
| C1 | Small size buse type |
| L1 | Small size pulse type |
| K1 | Small size standard type |
| N1 | Small size CANopen type |

③

Voltage specification

| Sign | Rated input voltage |
|------|---------------------|
| 2 | AC220V |
| 4 | AC380V |

⑤

Encoder specification

| Sign | Encoder specification |
|------|----------------------------|
| C | Communication type encoder |

⑥

Product type

| Sign | Product type |
|------|---------------------|
| H | Enhanced type drive |



پارت نامبر موتور Motor Part Number

① Inertia type

| Sign | Inertia |
|------|----------------------|
| TML | Low inertia motor |
| TMM | Medium inertia motor |
| TMH | High inertia motor |

② Base number

| Sign | Base number |
|------|-------------|
| 40 | Base40 |
| 60 | Base60 |
| 80 | Base80 |
| 100 | Base100 |
| 130 | Base130 |
| 180 | Base180 |

TML - 60 17 30 B 1 - [] [] [] [] - B

① ② ③ ④ ⑤ ⑥ ⑨ ⑧ ⑨

⑤ Motor shaft specification

| Sign | shaft specification |
|------|--|
| A | With key, no oil seal, with threaded hole |
| B | With key, with oil seal, with threaded hole |
| C | No key, no oil seal, with threaded hole |
| D | No key, with oil seal, with threaded hole |
| E | Special shaft specification (length, shaft diameter, etc.) |

③ Encoder specification

| Sign | specification |
|------|-------------------|
| 17 | Multi-turn 17-bit |
| 23 | Multi-turn 23-bit |

④ Rated speed

| Sign | Rated speed (rpm) |
|------|-------------------|
| 15 | 1500 |
| 20 | 2000 |
| 25 | 2500 |
| 30 | 3000 |

⑧ Rated power

| Sign | Rated power (kW) |
|------|------------------|
| P1 | 0.1 |
| P2 | 0.2 |
| P4 | 0.4 |
| P7 | 0.75 |
| P8 | 0.85 |
| 01 | 1 |
| 1P3 | 1.3 |
| 1P5 | 1.5 |
| 1P8 | 1.8 |
| 02 | 2.0 |
| 2P3 | 2.3 |
| 03 | 3.0 |
| 4P4 | 4.4 |
| 5P5 | 5.5 |
| 7P5 | 7.5 |
| 22 | 22 |
| 30 | 30 |
| 37 | 37 |
| 45 | 45 |
| 55 | 55 |

⑥ Motor connector type

| Sign | connector type |
|------|----------------|
| 1 | AMP plug |
| 2 | Aviation plug |
| 3 | Connector |

⑦ Power supply voltage

| Sign | Power supply voltage |
|------|----------------------|
| 2 | 220V |
| 4 | 380V |

⑨ Power -off brake

| Sign | Power -off brake |
|-------|------------------|
| B | With brake |
| Empty | Without brake |

جدول راهنمای توان و مدل

Power and Model Guide Table

B

| Power | Motor model | Matched driver | Encoder cable | Power cable | Cable accessories package |
|------------------|----------------------|----------------|-----------------------|-------------------------|---------------------------|
| 400W | TML-601730B2-2P4 | TDF-2P4-C | EC/ECF- 7AV -length | PC/PCF-4SAV-07- length | CDB-44P-15P |
| 750W | TML-801730B2-2P7 | TDF-2P7-C | EC/ECF- 7AV -length | PC/PCF-4SAV-07- length | CDB-44P-15P |
| 750W With Brake | TML-801730B2-2P7-B | TDF-2P7-C | EC/ECF- 7AV -length | PC/PCF-6WSAV-07- length | CDB-44P-15P |
| 1KW | TMH-1301715B2-2P8 | TDF-201-C | EC/ECF- 10AVS -length | PC/PCF-4MAV-15- length | CDB-44P-15P |
| 1KW With Brake | TMH-1301715B2-2P8-B | TDF-201-C | EC/ECF- 10AVS -length | PC/PCF-7WMAV-15- length | CDB-44P-15P |
| 1.5KW | TMH-1301720B2-21P5 | TDF-21P5-C | EC/ECF- 10AVS -length | PC/PCF-4MAV-15- length | CDB-44P-15P |
| 1.5KW With Brake | TMH-1301720B2-21P5-B | TDF-21P5-C | EC/ECF- 10AVS -length | PC/PCF-7WMAV-15- length | CDB-44P-15P |
| 2.6KW | TMH-1301715B2-22P3 | TDF-22P6-C | EC/ECF- 10AVS -length | PC/PCF-4MAV-15- length | CDB-44P-15P |
| 2.6KW With Brake | TMH-1301715B2-22P3-B | TDF-22P6-C | EC/ECF- 10AVS -length | PC/PCF-7WMAV-15- length | CDB-44P-15P |
| 3KW | TMH-1801715B2-403 | TDF-403-C-H | EC/ECF- 15AV -length | PC/PCF-4BAV-25- length | CDB-44P-15P |
| 3KW With Brake | TMH-1801715B2-403-B | TDF-403-C-H | EC/ECF- 15AV -length | PC/PCF-6WBAV-25- length | CDB-44P-15P |

• پک کابل ها (کابل موتور+ کابل انکدر) در مترهای 15M، 3M، 5M، 10M توسط شرکت قابل عرضه می باشد.
 • کلیه ی کابل های موتور و انکدر در نوع High Flexibility با انعطاف پذیری بالا نیز موجود می باشند که برای کاربری های با کورس حرکتی زیاد و نویز بالا توصیه می شود.



مشخصات درایو
Drive Specifications

جدول مشخصات
Specification Table



| Specification | Pulse type | | EtherCAT bus type | | CANopen bus type | X-NET bus type | Full function type | Standard type | | |
|--------------------|---|---|--|---|--|---|--|---------------|------------|--|
| | TDL1 series | TDL series | TDC1 series | TDC series | TDN1 series | TDE series | TDF series | TDK1 series | TDK series | |
| Power range (KW) | 0.1~0.75 | 0.1~2.6 | 0.1~15 | 0.1~32 | 0.1~0.75 | 0.1~22 | 0.1~7.5 | 11~15 | 0.1~3.0 | |
| Input power supply | Single/three phase AC200~240V , 50/60Hz . Three-phase AC380V~440V , 50/60Hz | | | | | | | | | |
| Encoder feedback | 17-bit /23-bit communication encoder | | | | | | | | | |
| Control mode | Three-phase full wave rectifier IPM, PWM control ,sine wave current drive mode | | | | | | | | | |
| Use Environment | Ambient temperature | Operation : -10°C ~ 40°C (no condensation) / storage : -20°C ~ 60°C (no condensation) | | | | | | | | |
| | Ambient humidity | Operation/ storage: 90% RH and below (no condensation) | | | | | | | | |
| | Vibration /shock resistance | 4.9 m/s ² /19.6m/s ² | | | | | | | | |
| Function | Electronic CAM | No | | | | | | | | |
| | Protection function | Overvoltage ,undervoltage, overheating, overcurrent, overspeed, analog input abnormality, excessive position deviation, output short circuit, encoder abnormality, regeneration abnormality protection, overtravel protection, oscillation protection, phase loss protection, etc | | | | | | | | |
| | Dynamic brake | No | | | | | | | | |
| | Communication function | RS232: standard modbusRTU protocol RS485: standard modbusRTU protocol | RS232: standard modbusRTU protocol | RS232:Standard modbusRTU protocol EtherCAT: support EtherCAT bus communication (max 32 axes) | RS232: standard modbusRTU protocol CANopen: support CANopen bus communication (max 64 axes) | RS232:standard modbusRTU protocol RS485:standard modbusRTU protocol Support X-NET bus communication (max 20 axes) | RS232:standard modbusRTU protocol RS485:standard modbusRTU protocol | | | |
| | Brake resistor | Built-in brake resistor , external brake resistor can be connected | | | | | | | | |
| | Display and operate | 5-bit LED indicator light, power indicator light ,4 buttons | | | | | | | | |
| Position output | Output form | No | | | | | ABZ differential feedback output | | | |
| | Frequency division function | No | | | | | Yes | | | |
| | Collector z phase output | Yes | | | | | | | | |
| Analog input | No | | | | | | 2 channels input | No | | |
| I/O signal | Digital input (SI) | 3 channels | 3 channels (750W and below) 4 channels (above 750W) | 3 channels | 3 channels (750W and below) 4 channels (above 750W) | 3 channels | 3 channels (750W and below) 4 channels (above 750W) | 10 channels | 5 channels | |
| | Servo enable, alarm clear, no forward rotation, no reverse rotation, torque limit selection, internal speed selection, gear ratio switching, mode switching, pulse input prohibition, zero speed locking, position deviation clear, internal position step change signal, internal control mode direction switching | | | | | | | | | |
| Position | Digital output (SO) | 3 channels | 3 channels (750W and below) 4 channels (above 750W) | 3 channels | 3 channels (750W and below) 4 channels (above 750W) | 3 channels | 3 channels (750W and below) 4 channels (above 750W) | 8 channels | 4 channels | |
| | Positioning completion, servo ready, alarm output, torque limit output, same speed detection, rotation detection, speed arrival, brake release output and warning output | | | | | | | | | |
| Position | Max input pulse frequency | Collector open: 200kpps(C1/ N1 not support pulse) | | | | | Collector open: 200kpps [optocoupler] Differential input: 500kpps [optocoupler] Long line reception: 2Mpps [only TDF series support] | | | |
| | Pulse command mode | 3.3V~5V/18~24V pulse+direction, AB phase pulse, CW/CCW signal | 18~24V pulse+direction, AB phase pulse, CW/CCW signal (C cannot support CW/CCW, C1/ N1 not support external pulse) | | | | 3.3V~5V/18~24V pulse+direction, AB phase pulse, CW/CCW signal | | | |
| Control mode | Control mode | External pulse/ built-in position | built-in position/EtherCAT motion bus | External pulse/ built-in position/EtherCAT motion bus | built-in position/CANopen motion bus | External pulse/ built-in position/X-NET motion bus | External pulse/ built-in position | | | |
| | Feedforward compensation | 0~100% (set the resolution to 1%) | | | | | | | | |



| | | | | | | |
|---------------------|--|--|-------------------|-------------------------------------|--------------------|----|
| Speed control mode | Positioning complete width | 1~65535 command unit (set the resolution to 1 command unit) | | | | |
| | Electronic gear ratio | 1/10000<B/A<10000 | | | | |
| | Control mode | Analog speed control (only TDF support) ,internal three segments of speed, external speed mode | | | | |
| | Command smoothing mode | Low pass filter, smooth filter | | | | |
| | Analog input | Voltage range | No | -10V~+10V (resolution 12-bit) | No | |
| | | Input impedance | No | 72K | No | |
| | Torque limit | Internal parameter | | Internal parameter/ external analog | Internal parameter | |
| Speed change rate | External load rated change 0~100% : below +-0.01% (at rated speed) | | | | | |
| | Rated voltage +-10% : 0.01% (at rated speed) | | | | | |
| | Ambient temperature 20+-25°c : below +-0.01% (at rated speed) | | | | | |
| Torque control mode | Control mode | Analog speed control (only TDF support), internal torque | | | | |
| | Analog input | Voltage range | No | -10V~+10V (resolution 12-bit) | No | |
| | | Input impedance | No | 72k | No | |
| | Speed limit | Internal parameter | | Internal parameter/ external analog | Internal parameter | |
| Bus control mode | Control axis number | No | 32 axes | 64 axes | 20 axes | No |
| | Communication protocol | No | EtherCAT protocol | CANopen protocol | X-NET protocol | No |

مشخصات موتور
Motor Specifications

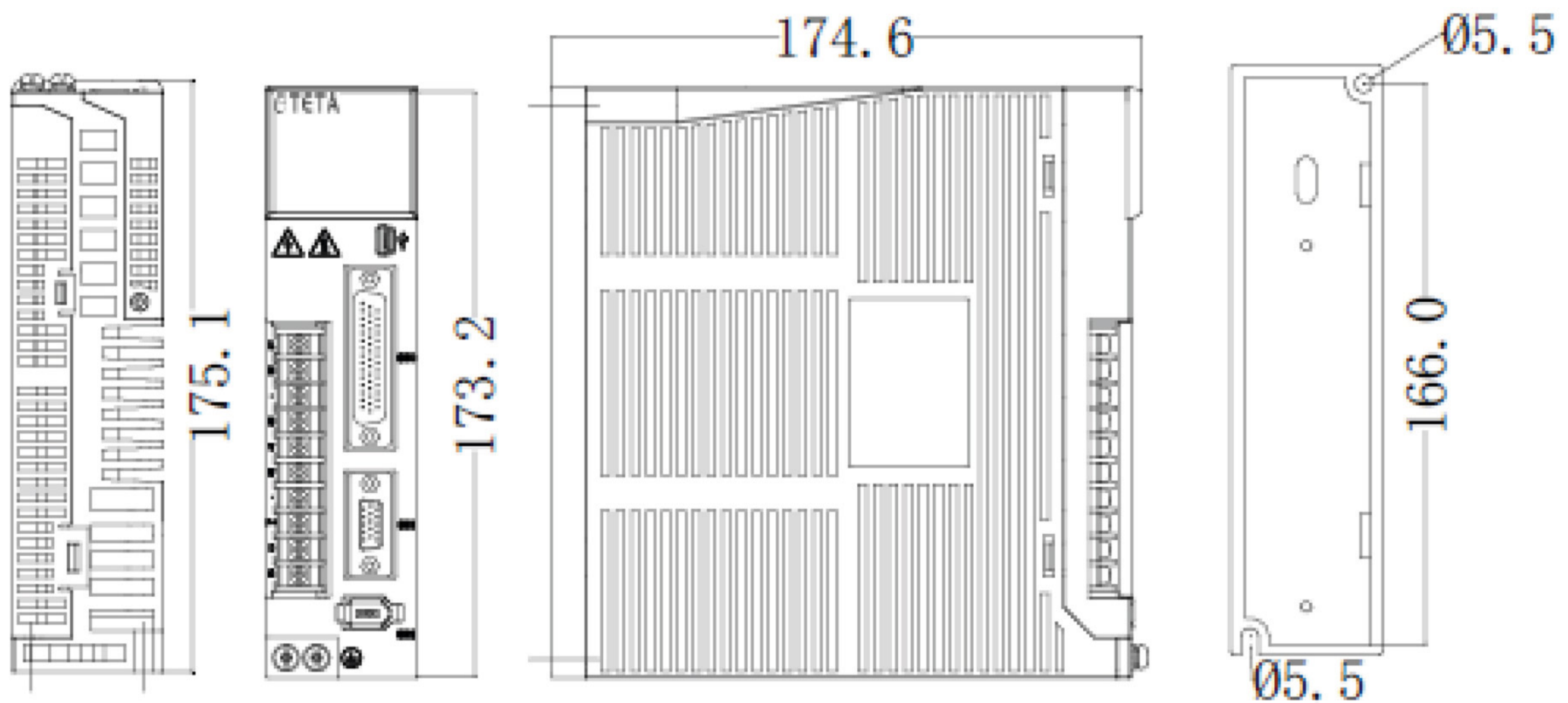
| Voltage level | AC 220V | | | | | | | | AC 380V | |
|---------------------------------|---------------------|--|-------------------|----------------------|--------------------|-----------------------|---------------------|-----------------------|--------------------|----------------------|
| | TML-60 | TML-80 | TMH 130171 B2-2P8 | TMH 1301715 B2-2P8-B | TMH 130172 B2-21P5 | TMH 1301720 B2-21P5-B | TMH 1301715 B2-22P3 | TMH 1301715 B2-22P3-B | TMH-1801715 B2-403 | TMH-1801715 B2-403-B |
| Rated power (KW) | 0.4 | 0.75 | 0.85 | | 1.5 | | 2.3 | | 3 | |
| Rated speed(rpm) | 3000 | | 1500 | | 2000 | | 1500 | | | |
| Max speed(rpm) | 6500 | 5200 | 3000 | | | | 2500 | | 3000 | |
| Rated torque(N.m) | 1.27 | 2.39 | 5.41 | | 7.16 | | 14.6 | | 19 | |
| Max torque(N.m) | 4.45 | 7.17 | 16.23 | | 18 | | 36.5 | | 51.3 | |
| Rated current(mA) | 2700 | 4000 | 6000 | | 8000 | | 11800 | | 11000 | |
| Rotor inertia (10^-7kg.m2) | 273(262) | 980(1030) | 13860 | 15340 | 20000 | 21440 | 35240 | 36260 | 51000 | 55490 |
| Inertia type | Low inertia | | | High inertia | | | | | | |
| Recommended rotor inertia ratio | 30 | | | 10 | | | | | | |
| Electrical constant τ e(ms) | 2.95 | 5.184 | 6.944 | | 8.409 | | 9.893 | | 22.539 | |
| Mechanical constant e(ms) | 0.603(0.623) | 0.705(0.741) | 1.823 | 2.017 | 1.523 | 1.633 | 1.234 | 1.27 | 1.251 | 1.361 |
| EMF constant Ke (mV/rpm) | 44 | 56 | 89 | | 86 | | 115 | | 160 | |
| Torque constant Kt (Nm/A) | 0.47 | 0.598 | 0.902 | | 0.895 | | 1.237 | | 1.727 | |
| Pole of pairs | 5 | | - | | - | | - | | - | |
| Encoder bit | 17 | | 23 | 17 | 17 | | | | | |
| Encoder type | magnetism | | photoelectricity | magnetism | magnetism | | | | | |
| Motor insulation grade | ClassF(155°c) | | | | | | | | | |
| Protection level | Ip66 | | | Ip65 | | | | | | |
| Use environment | Ambient temperature | -15°c~+40°c (no freezing) | | | | | | | | |
| | Ambient humidity | Relative humidity<90%(no condensation) | | | | | | | | |



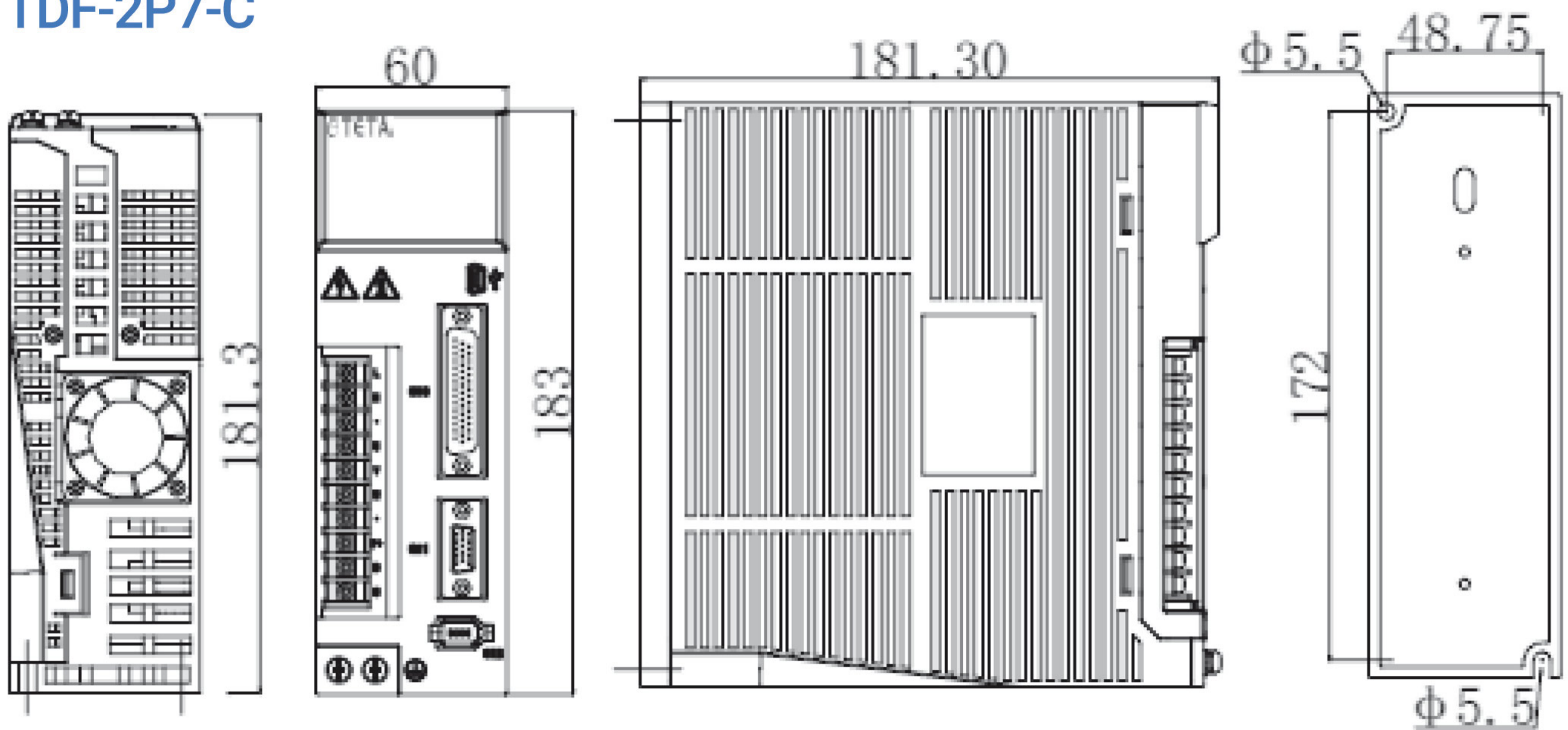
ابعاد درایو
Drive Dimensions

D

TDF-2P4-C

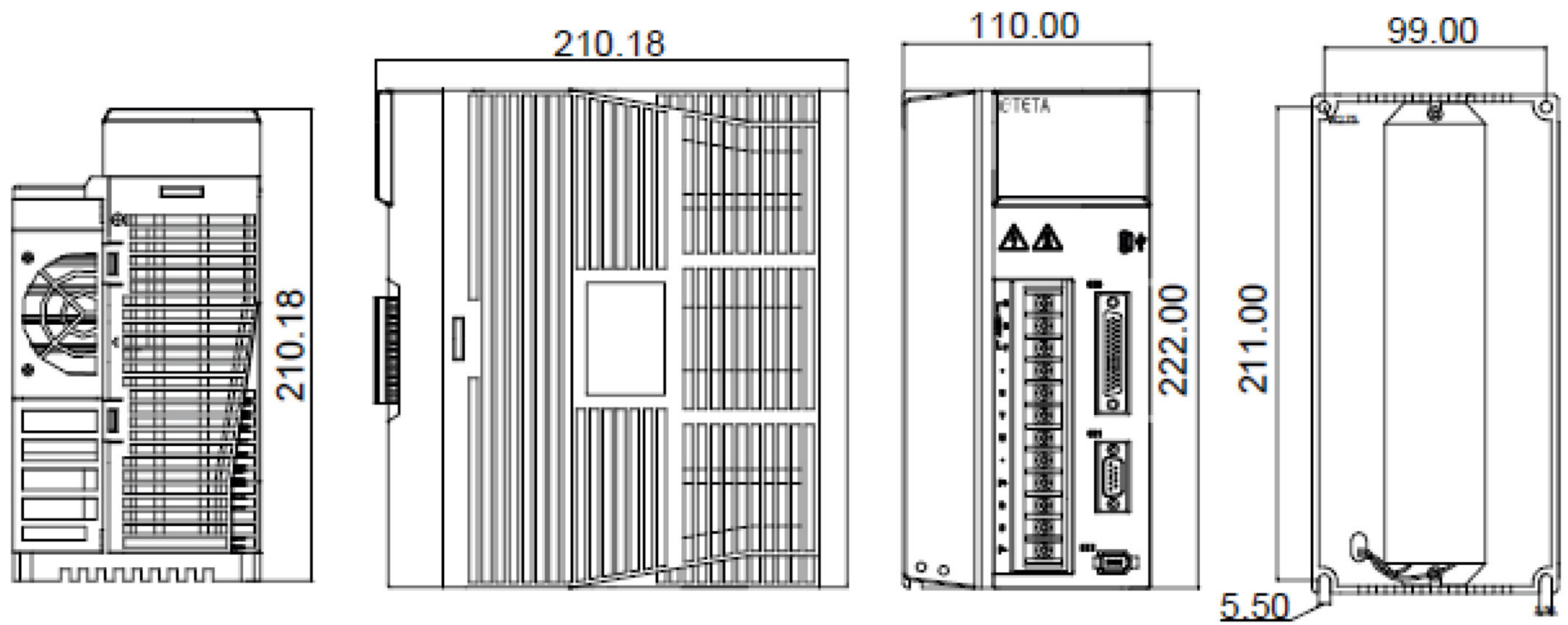


TDF-2P7-C

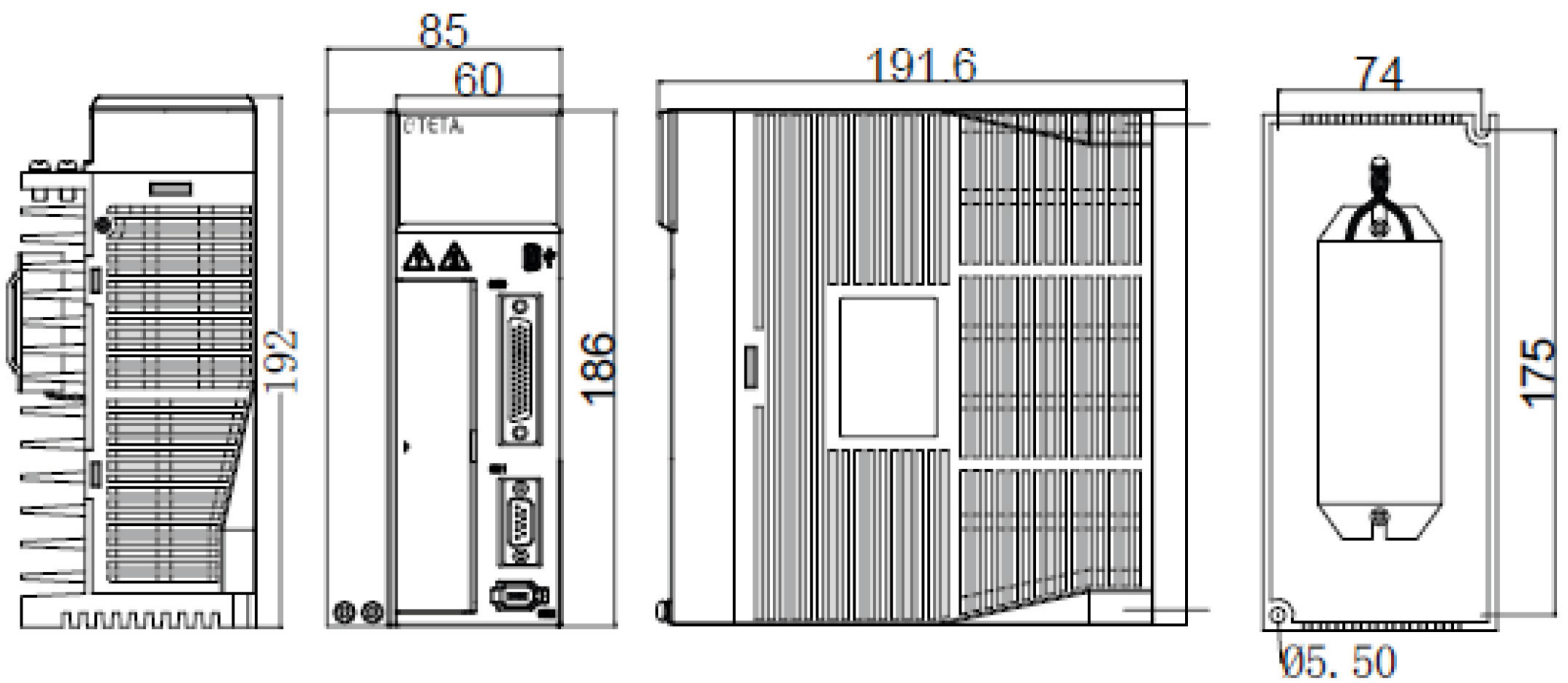




TDF-201-C ,TDF-21P5-C, TDF-22P6-C

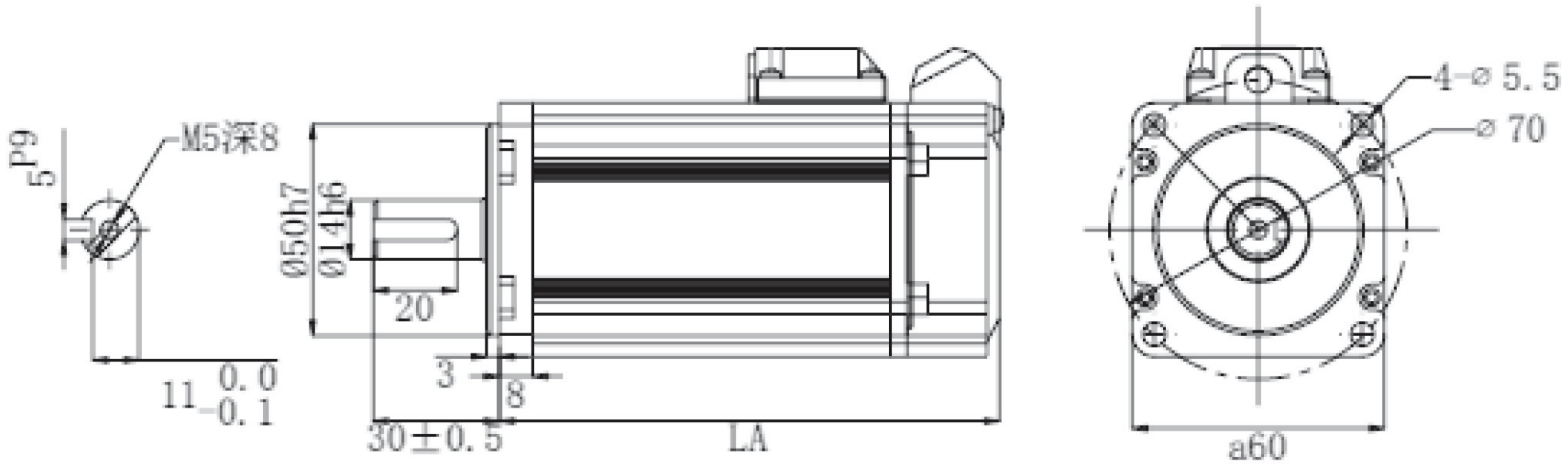


TDF-430-C

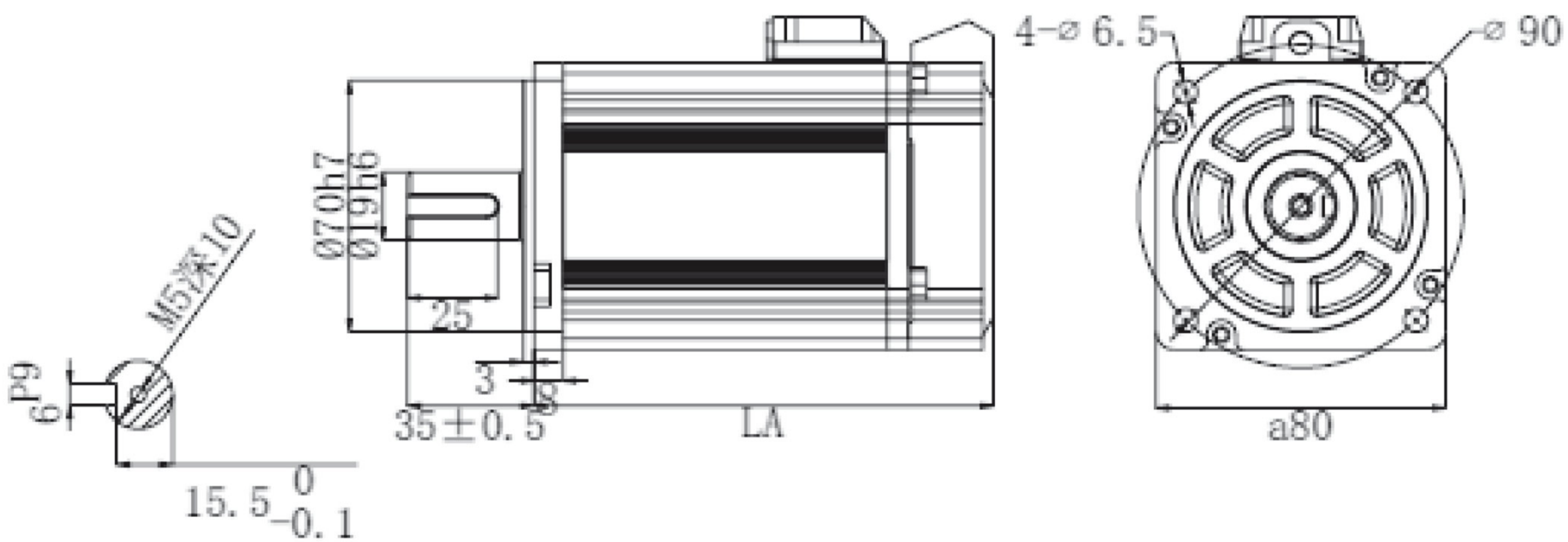




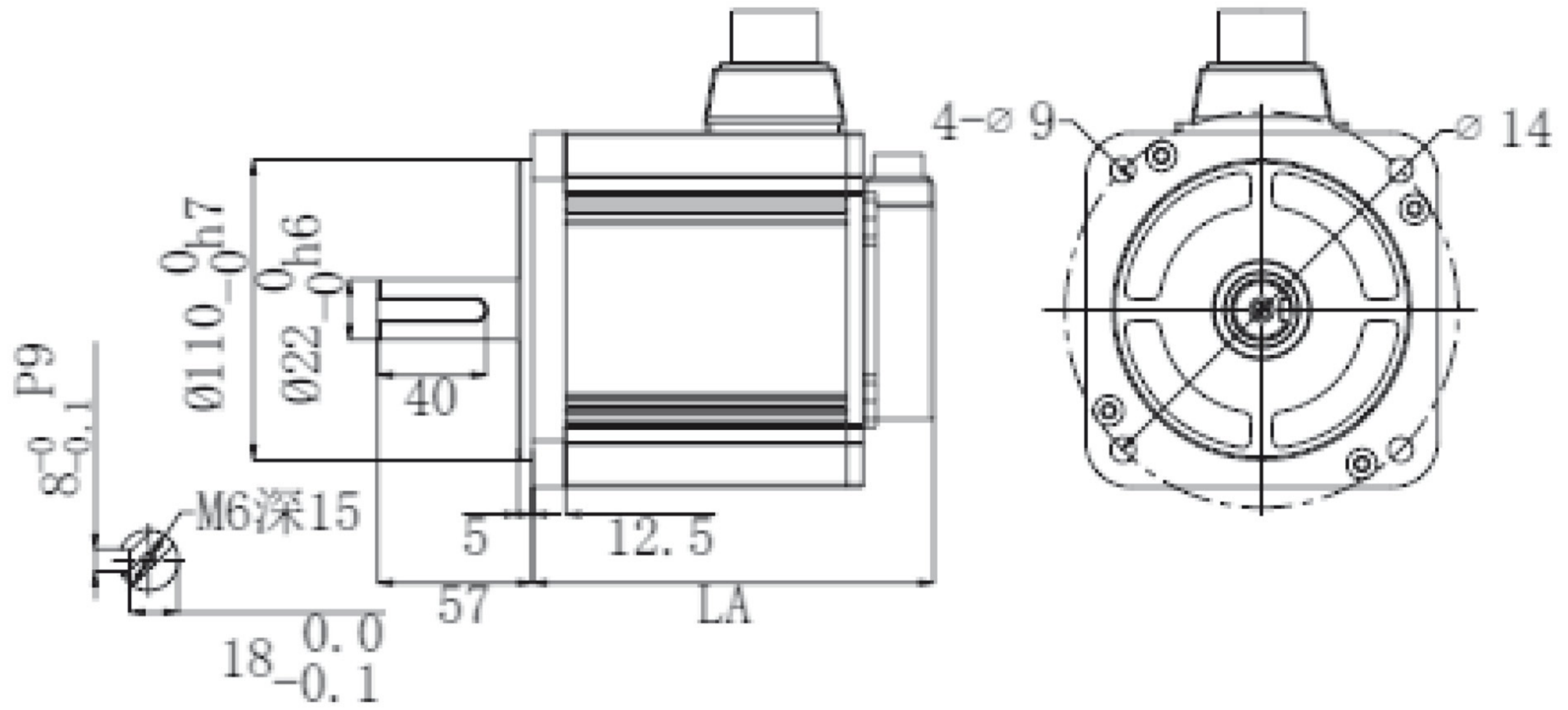
ابعاد موتور
Motor Dimensions



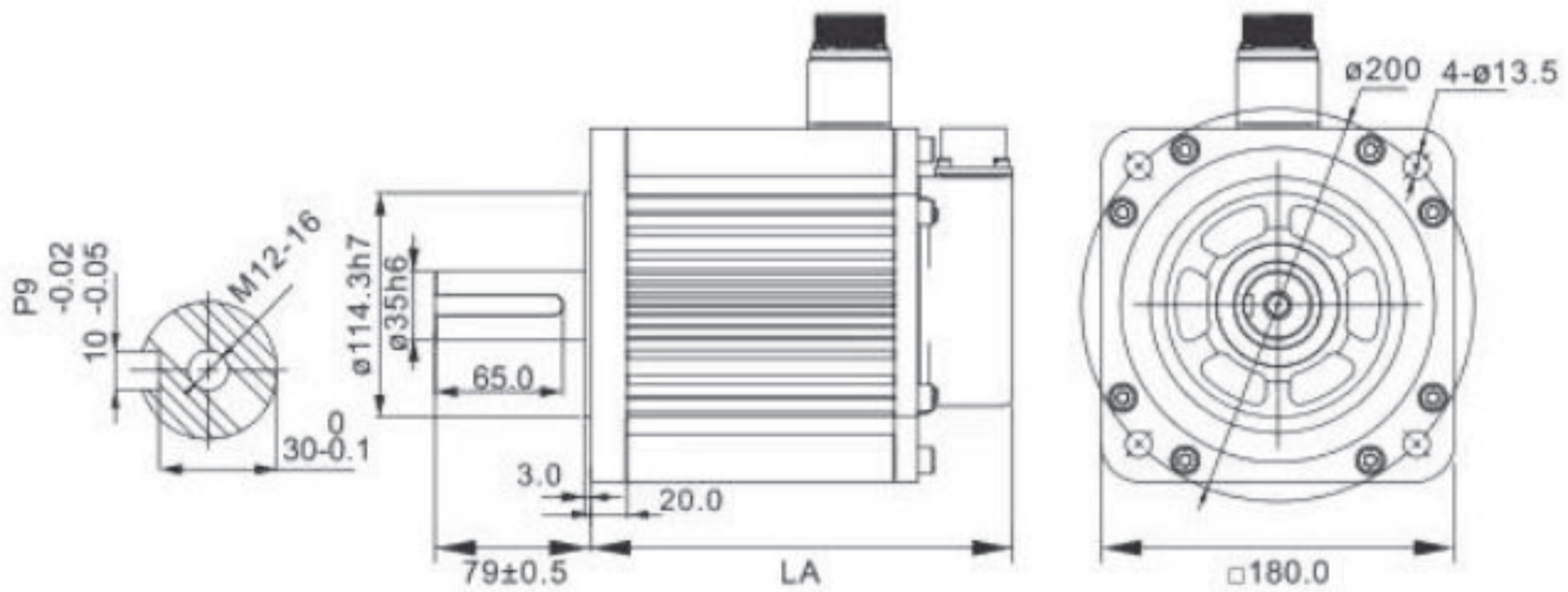
| MOTOR MODEL | LA±1 | Inertia level |
|---------------------------------|------|---------------|
| TML601730B2-2P4 (WITHOUT BRAKE) | 107 | Low inertia |



| MOTOR MODEL | LA±1 | Inertia level |
|---------------------------------|------|---------------|
| TML801730B2-2P7 (WITHOUT BRAKE) | 117 | Low inertia |
| TML801730B2-2P7B (WITH BRAKE) | 150 | Low inertia |



| MOTOR MODEL | LA±1 | Inertia level |
|-----------------------------------|-------|---------------|
| TMH1301715B2-2P8 (Without Brake) | 126 | High inertia |
| TMH1301715B2-2P8-B (With brake) | 156 | High inertia |
| TMH1301720B2-21P5 (Without brake) | 148 | High inertia |
| TMH1301720B2-21P5-B (With brake) | 178 | High inertia |
| TMH1301715B2-22P3 (Without brake) | 195.6 | High inertia |
| TMH1301715B2-22P3-B (With brake) | 225.6 | High inertia |



| MOTOR MODEL | LA±1 | LA±1 |
|----------------------------------|------|--------------|
| TMH1801715B2-403 (WITHOUT BRAKE) | 215 | High inertia |
| TMH1801715B2-403-B (With brake) | 225 | High inertia |

SERVO TETA

Series TDF

دفتر تهران: ۸۱ ۷۷ ۹۵ ۸۸ - ۰۲۱
دفتر اصفهان: ۸۲ ۶۲ ۲۲ ۳۲ - ۰۳۱



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