

ELECTRIC ROTARY ACTUATOR SERIES ELEKTRO RBA

Compact electric rotary actuator providing unlimited rotation angle in both directions.

Motor power is transmitted to the load by a toothed belt drive with a specific gear ratio, thereby ensuring high performance in reduced dimensions. The belt is maintained at the correct tension by an adjustable eccentric tensioner.

The driven pulley features a through-hole that allows pipes and cables to pass through to facilitate integration with other devices.

The actuator can be attached onto all the surfaces of the main body by threaded holes, thereby offering multiple installation options.

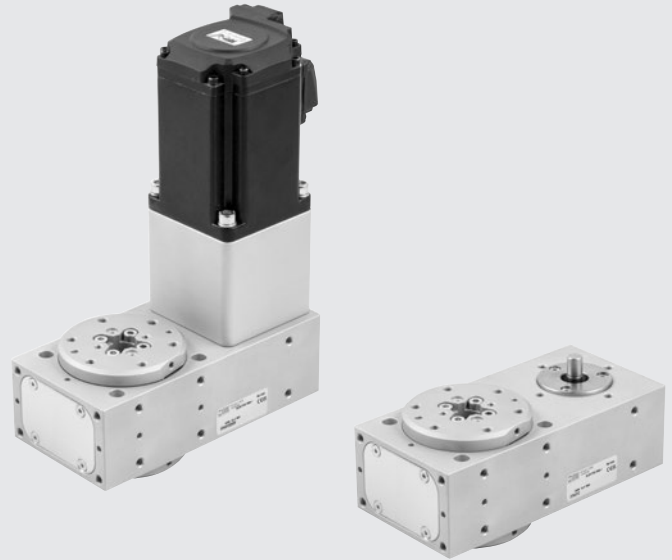
The rotary flange can be placed on the same side as the motor, either on the opposite side or on both sides, to meet any application requirement.

This actuator can be used either as a fixed rotary table or applied to a moving axis, like the VBK, thereby greatly increasing the range of applications. It is available in two sizes, RBA-1 and RBA-2, with or without motorization.

The standard drive of the RBA makes it possible to choose between a BRUSHLESS motor and a STEPPING motor with encoder.

Both versions are available with a holding brake.

In the case of the RBA-2 size, the BRUSHLESS motor is also available in version combined with a precision planetary gearbox.



| TECHNICAL DATA | | | RBA-1 | RBA-2 |
|---|----------------|---------|-----------------------------|--------------|
| Temperature range | WITH MOTOR | °C | see single motor data sheet | |
| | ONLY MECHANICS | °C | from -10 to +50 | |
| Maximum duty cycle for motor | STEPPING | | 50% | |
| | BRUSHLESS | | 100% | |
| Rotation angle * | | degrees | 360° | |
| Positioning accuracy | | degrees | ± 0.30° | |
| Positioning repeatability with STEPPING motors | | degrees | ± 0.05° | |
| Positioning repeatability with BRUSHLESS motors | | degrees | ± 0.03° | |
| Uncontrolled impact | | | NOT ALLOWED | |
| Homing position sensor | | | Inductive sensors | |
| Work position | | | Any | |
| Degree of protection | | | IP 20 ** | |
| Noise level | | dB(A) | <66 | |
| Approximate weight (without motor) | | kg | 1.2 | 2.9 |
| Maximum size of the applicable motor flange | | mm | 60 | 86 (NEMA 34) |

* No limits on the angle of rotation in both directions, even for multi-turn applications.

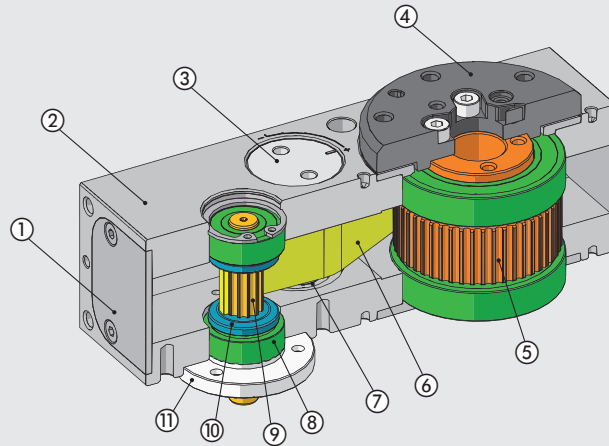
** On request, IP40 option can be created.

| MECHANICAL FEATURES | | | RBA-1 | RBA-2 |
|--|-------------------|--|-------|-------|
| Toothed belt pitch | | | 3 | 5 |
| Transmission ratio | | | 1:4 | 1:3 |
| Maximum input torque | Nm | | 1.5 | 5 |
| Maximum input revs | rpm | | 1200 | 900 |
| Maximum output torque (actual depending on rotational speed) | Nm | | 6 | 15 |
| Maximum output revs | rpm | | 300 | 300 |
| Moment of inertia of the actuator in the version with single rotary flange *** | kgmm ² | | 6.59 | 64.32 |
| Moment of inertia of the actuator in the version with double rotary flange *** | kgmm ² | | 7.45 | 83.44 |

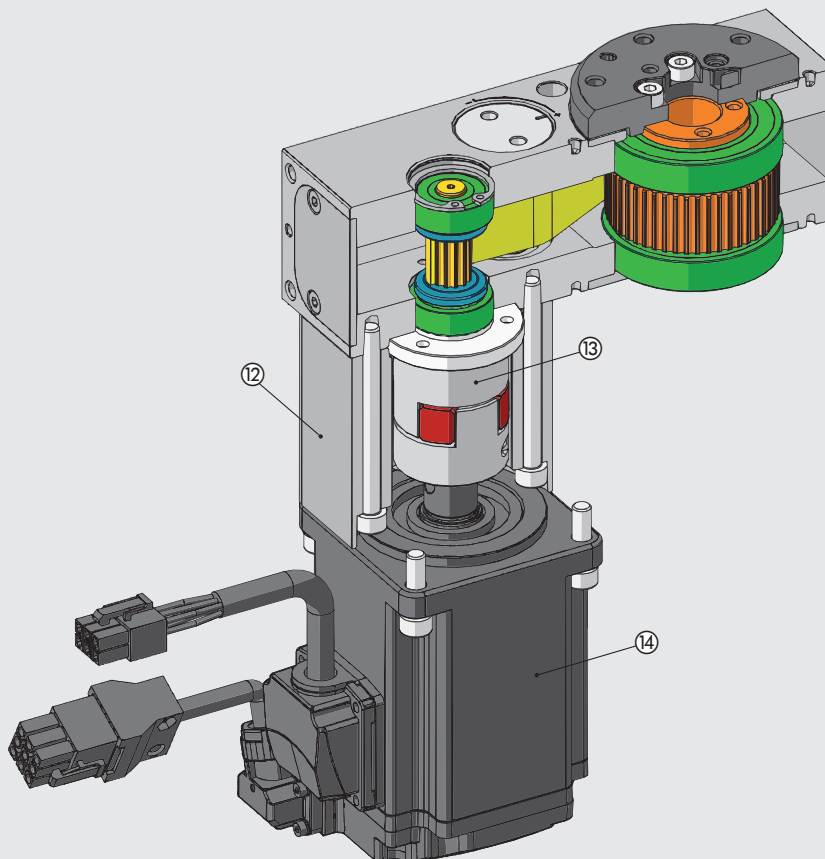
*** Seen from the drive shaft

COMPONENTS

VERSION WITHOUT MOTOR

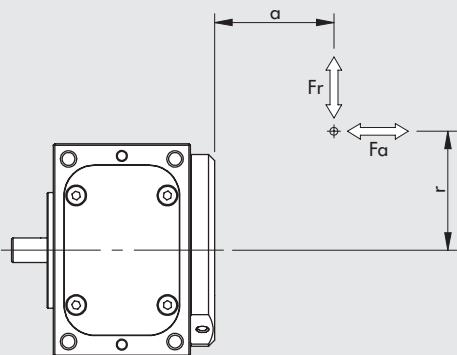


VERSION WITH MOTOR



- | | |
|--|--|
| ① COVER: anodized aluminium | ⑧ SEALED BALL BEARING |
| ② BODY: anodized aluminium | ⑨ PIGNON: stainless steel |
| ③ ECCENTRIC TENSIONER: stainless steel | ⑩ BELT RETAINING FLANGE: anodized aluminium |
| ④ ROTARY FLANGE: anodized aluminium | ⑪ HOLDING BEARING FLANGE: stainless steel |
| ⑤ DRIVEN PULLEY: nickel-plated aluminium | ⑫ MOTOR CONNECTION PLATE: anodized aluminium |
| ⑥ TOOTHED BELT: elastomer with glass fibre strands | ⑬ ELASTIC COUPLING: aluminium / polyurethane |
| ⑦ TENSIONING ROLLER: anodized aluminium | ⑭ MOTOR |

DIAGRAM OF FORCES AND MOMENTS



The following equations must be maintained when several forces act simultaneously on the actuator.

STATIC VERIFICATION

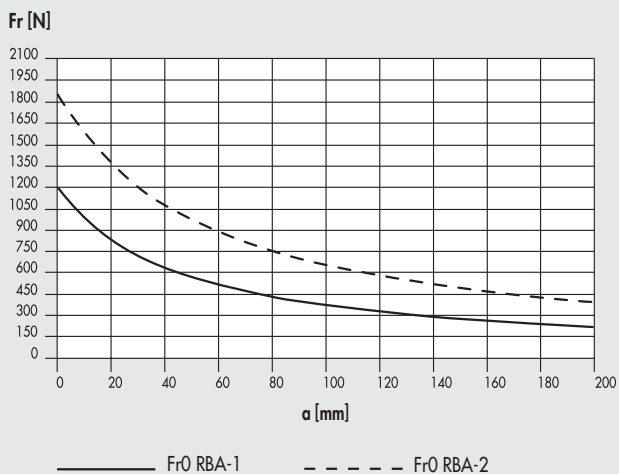
$$\frac{|Fr_0|}{Fr_{0 \max}} + \frac{|Fa_0|}{Fa_{0 \max}} \leq 1$$

DYNAMIC VERIFICATION

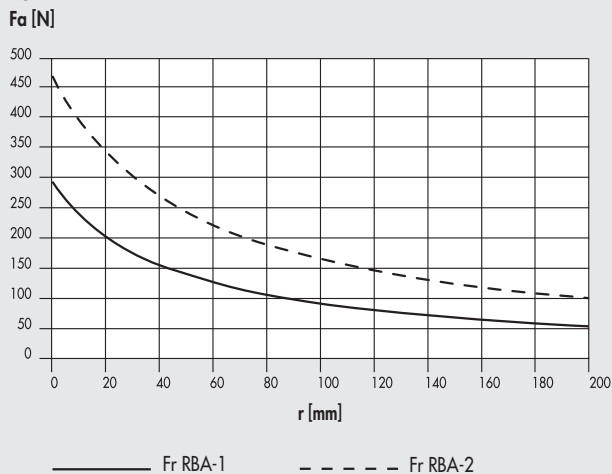
$$\frac{|Fr|}{Fr_{\max}} + \frac{|Fa|}{Fa_{\max}} \leq 1$$

The maximum force values can be obtained from the graphs shown below, as a function of the distance between the point of application and the rotary flange.

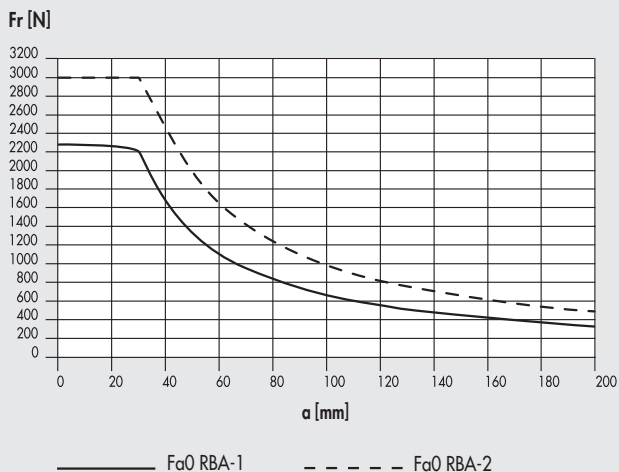
Static radial



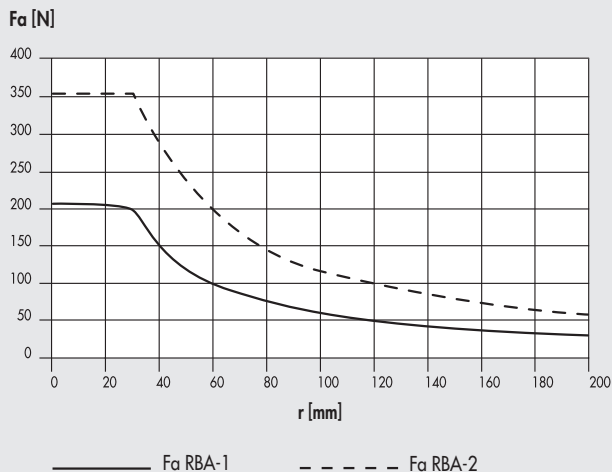
Dynamic radial



Static axial



Dynamic axial



N.B.: The values given here refer to the maximum applicable bearing loads beyond which serious damage may occur. Refer to the graphs on the following pages to check the actuator load conditions.

LIMIT OPERATING CURVES (ACTUATOR COMPLETE WITH MOTOR AND DRIVE)

N.B.: Check that the following constraints are met for each cycle phase:
 - the maximum applicable moment of inertia as a function of angular output acceleration/deceleration;
 - the transmissible torque as a function of angular output speed;
 - the maximum axial, radial force and moment supported by the bearings.

N.B.: The effective torques already take the efficiency of the system into account.
 For **STEPPING** motors, with the motor off, the drive current is automatically reduced by 50% to prevent overheating.
 As a result, the torque available with the motor stopped is reduced by 50%.

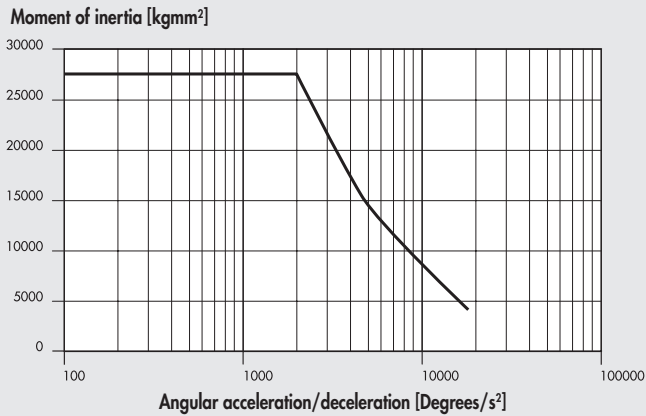
With regard to **BRUSHLESS** motors, two curves can be identified:

- **NOMINAL TORQUE** curve: the nominal torque delivered by the motor with a duty cycle of 100%
- **MAXIMUM TORQUE** curve: the maximum torque delivered by the motor with a duty cycle of less than 100%.

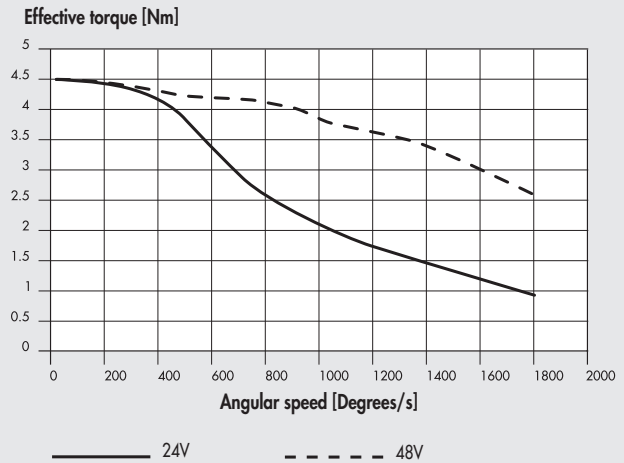
The following graphs refer to the actuator with drive supplied by Metal Work.
 The use of different motors and drives may result in different performances.

RBA-1 STEPPING motor with encoder, with and without brake

Moment of inertia - Angular acceleration/deceleration

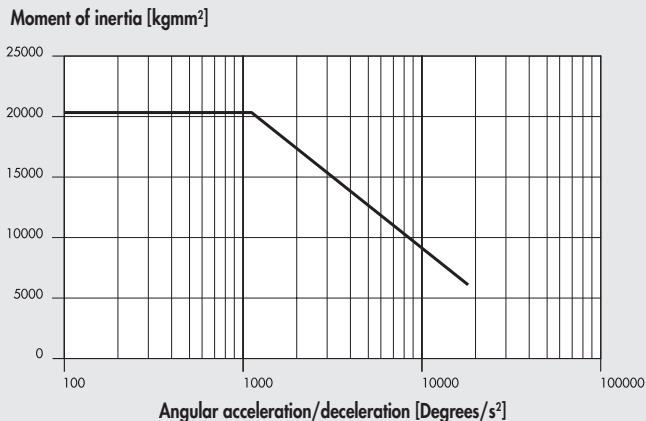


Torque - Angular speed

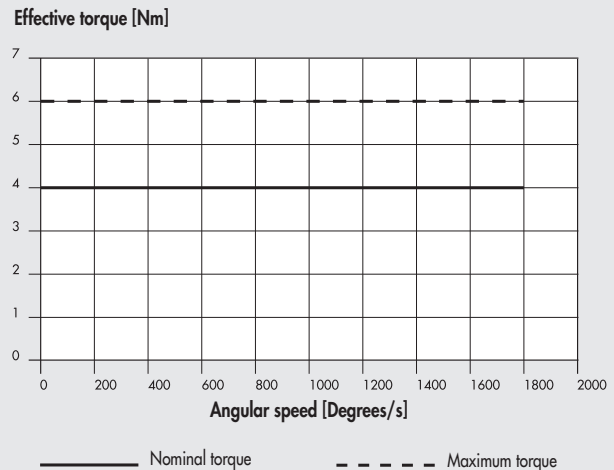


BRUSHLESS motor with and without brake

Moment of inertia - Angular acceleration/deceleration

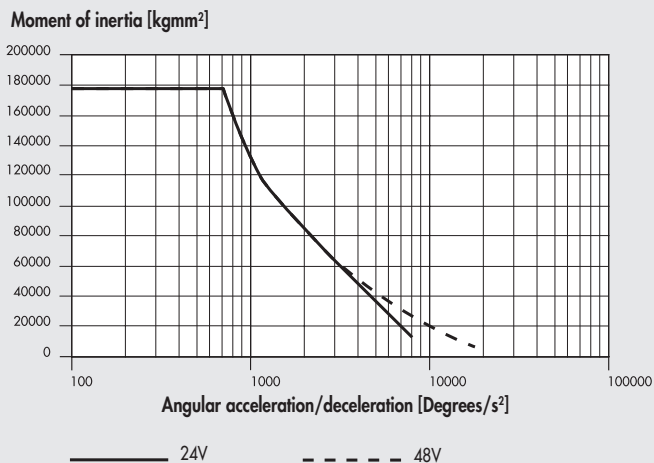


Torque - Angular speed

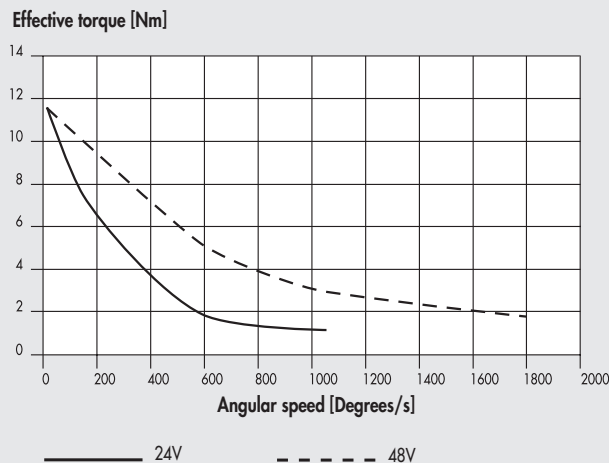


RBA-2 STEPPING motor with encoder, with and without brake

Moment of inertia - Angular acceleration/deceleration

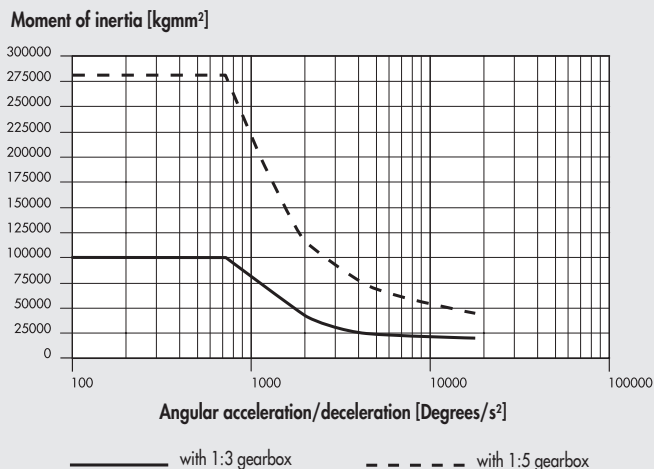


Torque - Angular speed

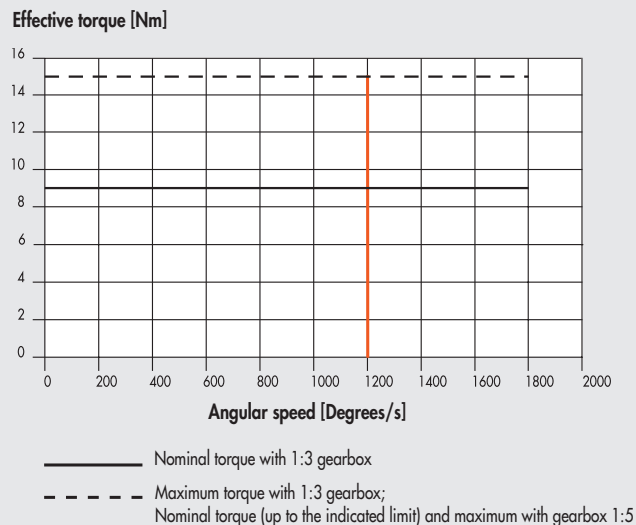


RBA-2 BRUSHLESS motor + Gearbox with and without brake

Moment of inertia - Angular acceleration/deceleration

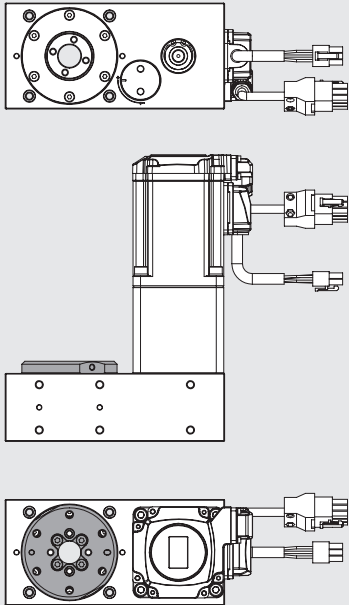


Torque - Angular speed

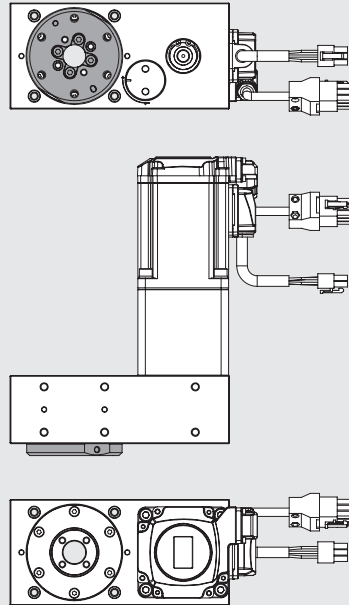


VERSIONS

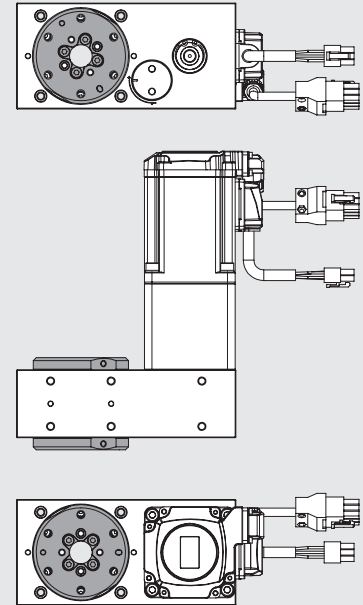
Version 37A0_0
(rotary flange on the motor side)



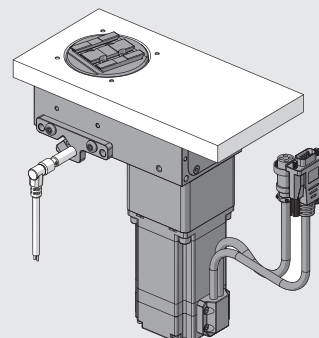
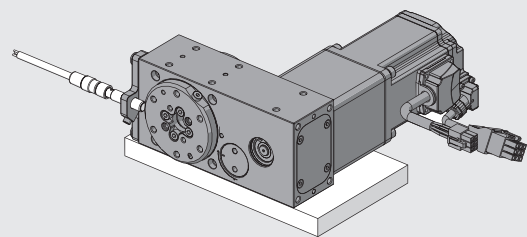
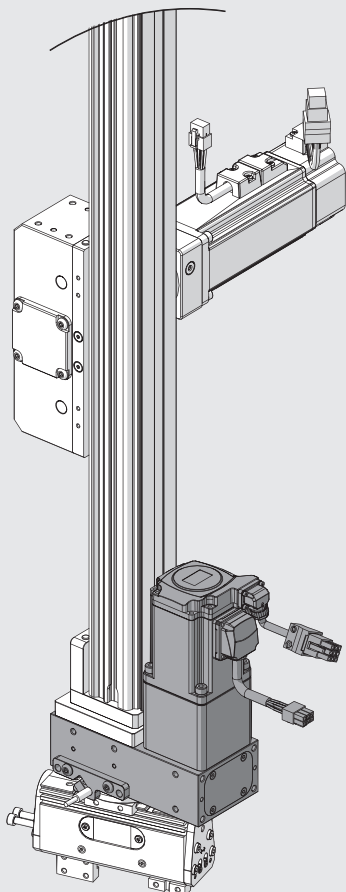
Version 37A0_1
(rotary flange opposite side of the motor)



Version 37A0_2
(rotary flange both sides)

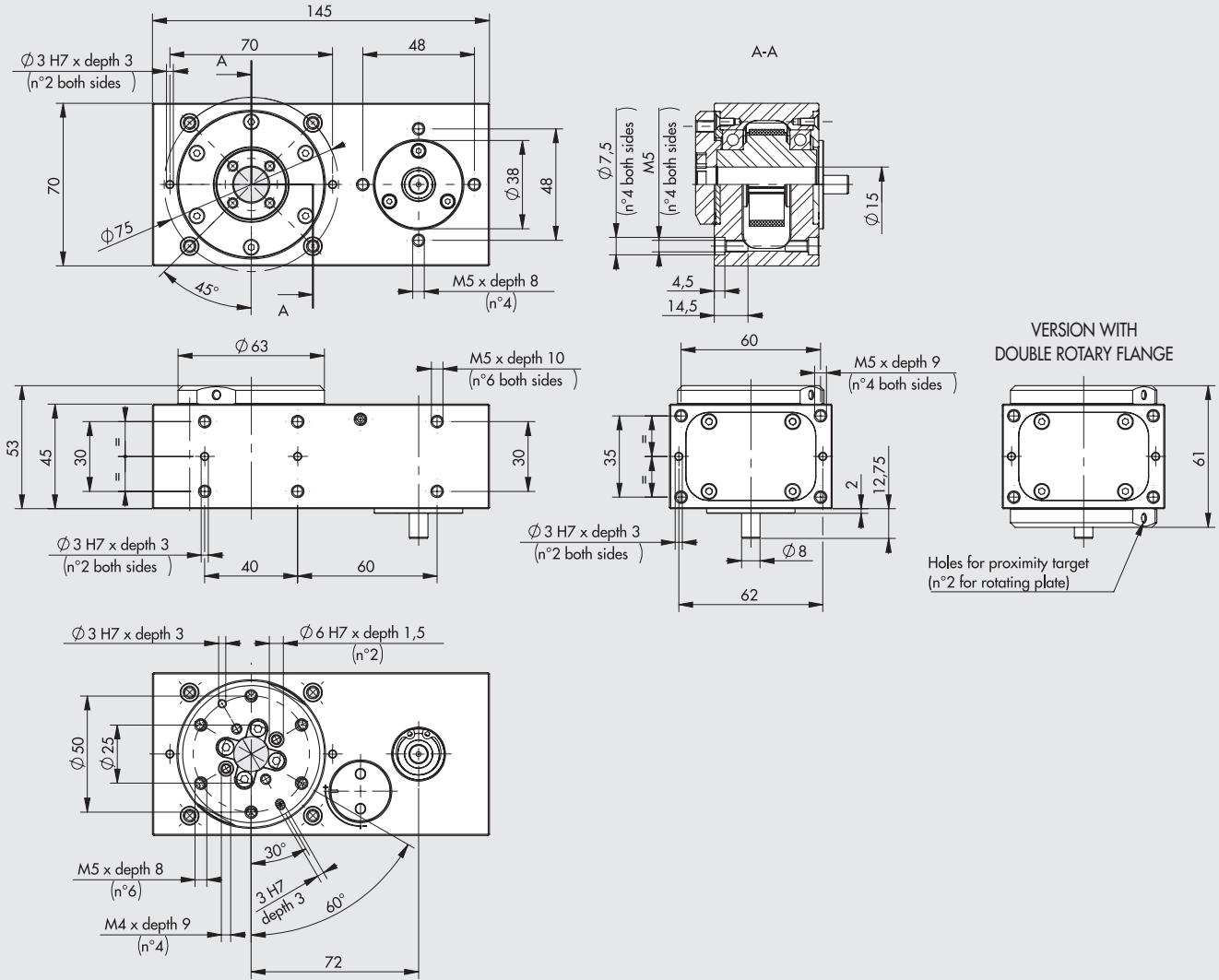


EXAMPLES OF APPLICATION



DIMENSIONS RBA-1

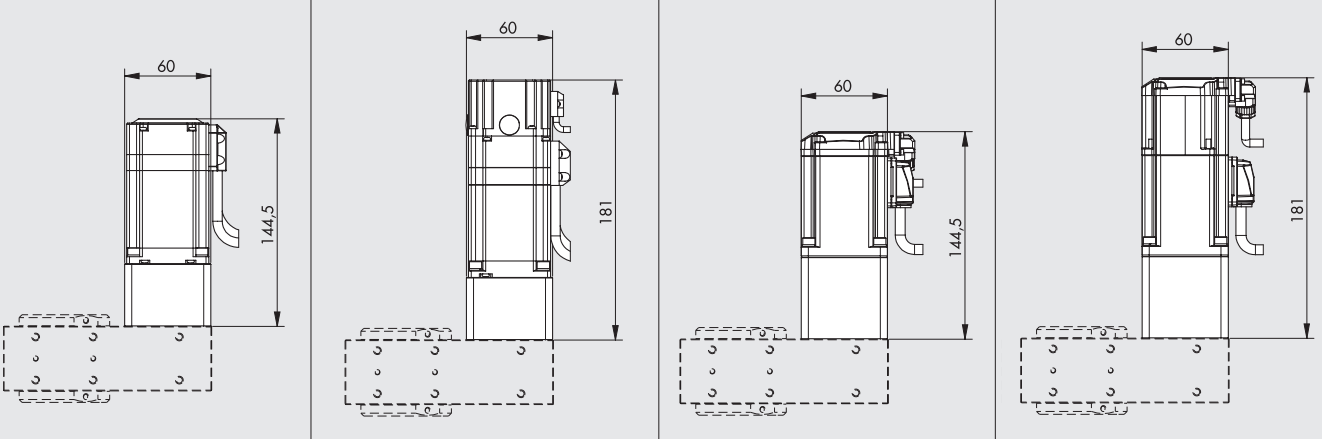
VERSION WITHOUT MOTOR



VERSION WITH DOUBLE ROTARY FLANGE

Holes for proximity target (n°2 for rotating plate)

VERSION WITH MOTOR

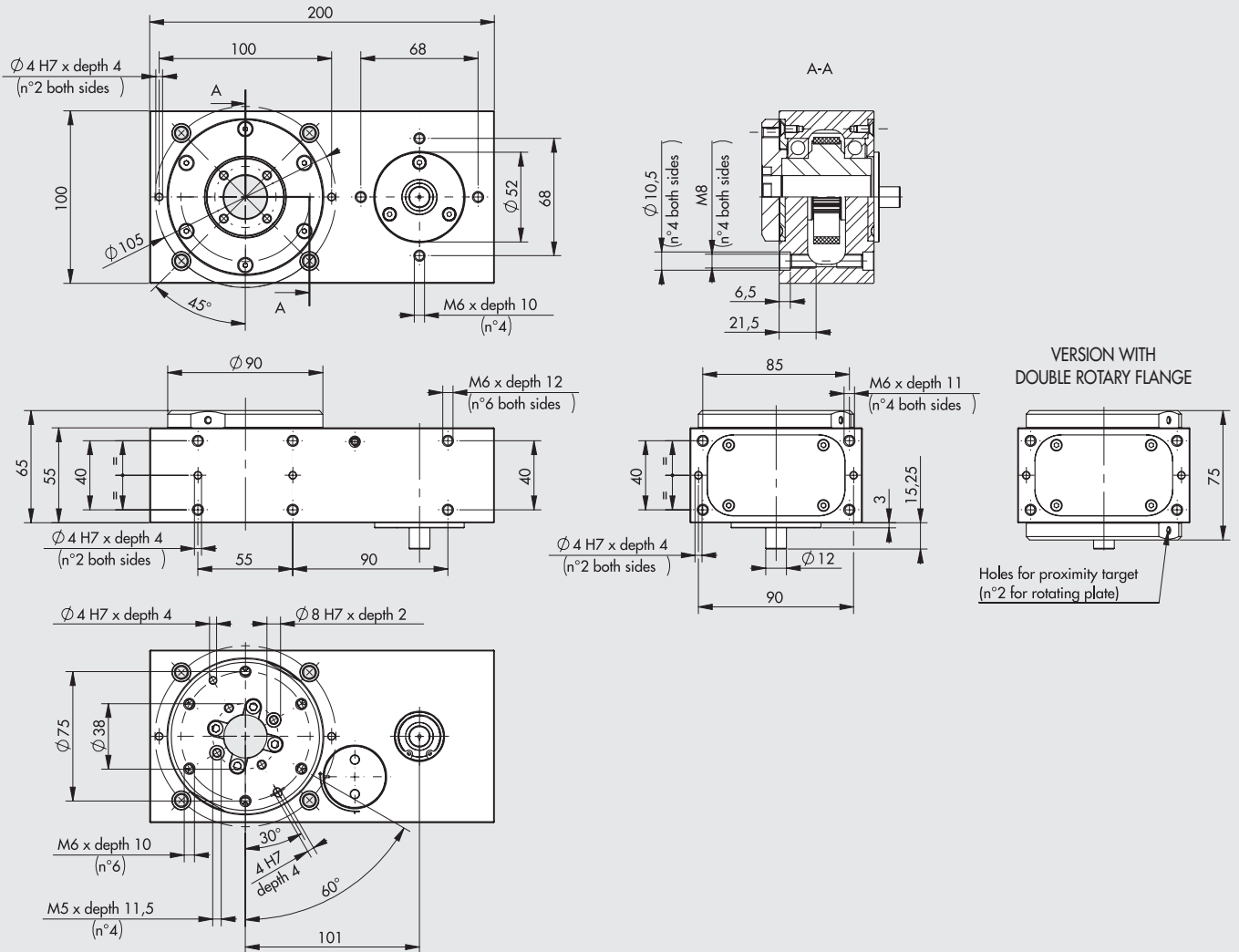


ORDERABLE CODES

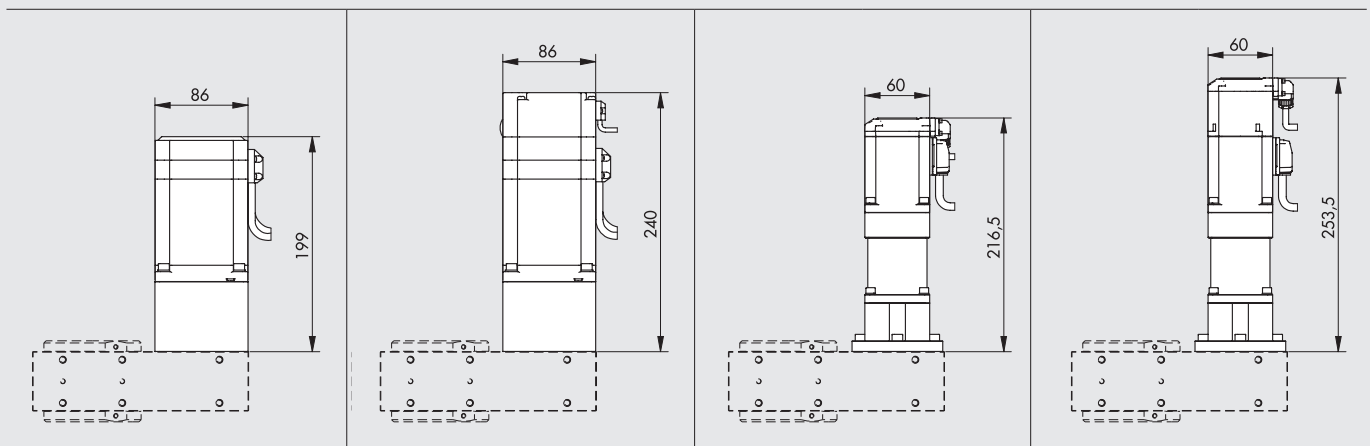
| STEPPING MOTOR + ENCODER | STEPPING MOTOR + ENCODER + BRAKE | BRUSHLESS MOTOR | BRUSHLESS MOTOR + BRAKE |
|--------------------------|----------------------------------|-----------------|-------------------------|
| 37A0108120 | 37A0103120 | 37A0102220 | 37A0104220 |
| 37A0118120 | 37A0113120 | 37A0112220 | 37A0114220 |
| 37A0128120 | 37A0123120 | 37A0122220 | 37A0124220 |

DIMENSIONS RBA-2

VERSION WITHOUT MOTOR



VERSION WITH MOTOR



ORDERABLE CODES

| STEPPING MOTOR + ENCODER | STEPPING MOTOR + ENCODER + BRAKE | BRUSHLESS MOTOR | | BRUSHLESS MOTOR + BRAKE | |
|--------------------------|----------------------------------|------------------|------------------|-------------------------|------------------|
| | | With 1:3 gearbox | With 1:5 gearbox | With 1:3 gearbox | With 1:5 gearbox |
| 37A0208440 | 37A0203440 | 37A0206220 | 37A020A220 | 37A0207220 | 37A020C220 |
| 37A0218440 | 37A0213440 | 37A0216220 | 37A021A220 | 37A0217220 | 37A021C220 |
| 37A0228440 | 37A0223440 | 37A0226220 | 37A022A220 | 37A0227220 | 37A022C220 |

MOTOR-DRIVE COUPLINGS

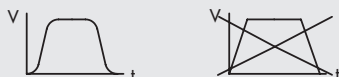


| MOTOR CODES | | DRIVES CODES | |
|---|----------------------------------|--------------|----------------|
| | Metal Work | | 37D1332000 * |
| | Manufacturer | | RTA NDC 96 |
| | | | (5A 24÷75 VDC) |
| STEPPING MOTORS WITH ENCODER | | | |
| 37M1820000 | STEPPERONLINE 23HS30-5004D-E1000 | | √ ♦ |
| 37M8440001 | STEPPERONLINE 34E1K-85 | | √ ♦ |
| STEPPING MOTORS WITH ENCODER + BRAKE | | | |
| 37M1320000 | STEPPERONLINE 23E1KBK20-20 | | √ ♦ |
| 37M3440000 | STEPPERONLINE 34E1KBK50-85 | | √ ♦ |

* In all applications requiring motor powered up to 5A / 55VDC, the programmable drive e.drive, code 37D1332002, can be used.
 ♦ Important! Limit current.

| MOTOR CODES | | DRIVES CODES | |
|------------------------------------|-------------------------|--------------|----------------------|
| | Metal Work | | 37D2300002 |
| | Manufacturer | | DELTA ASD-B3A-0421-M |
| | | | (400W) |
| BRUSHLESS MOTORS | | | |
| 37M2220002 | DELTA ECM-B3M-C20604RS1 | | √ |
| BRUSHLESS MOTORS WITH BRAKE | | | |
| 37M4220002 | DELTA ECM-B3M-C20604SS1 | | √ |

The motor must be controlled in such a way as to avoid sudden changes in speed.



KEY TO CODES ACTUATOR WITHOUT MOTOR

| CYL | 37 | A | 0 | 1 | 0 |
|-----|--------------------|-----------------------|-------|----------------------|---|
| | TYPE | | | SIZE | ROTARY FLANGE POSITION |
| 37 | Electric actuators | A Rotary actuator RBA | 0 STD | 1 Size 1 2 Size 2 | 0 Motor side 1 Opposite side 2 Both sides |

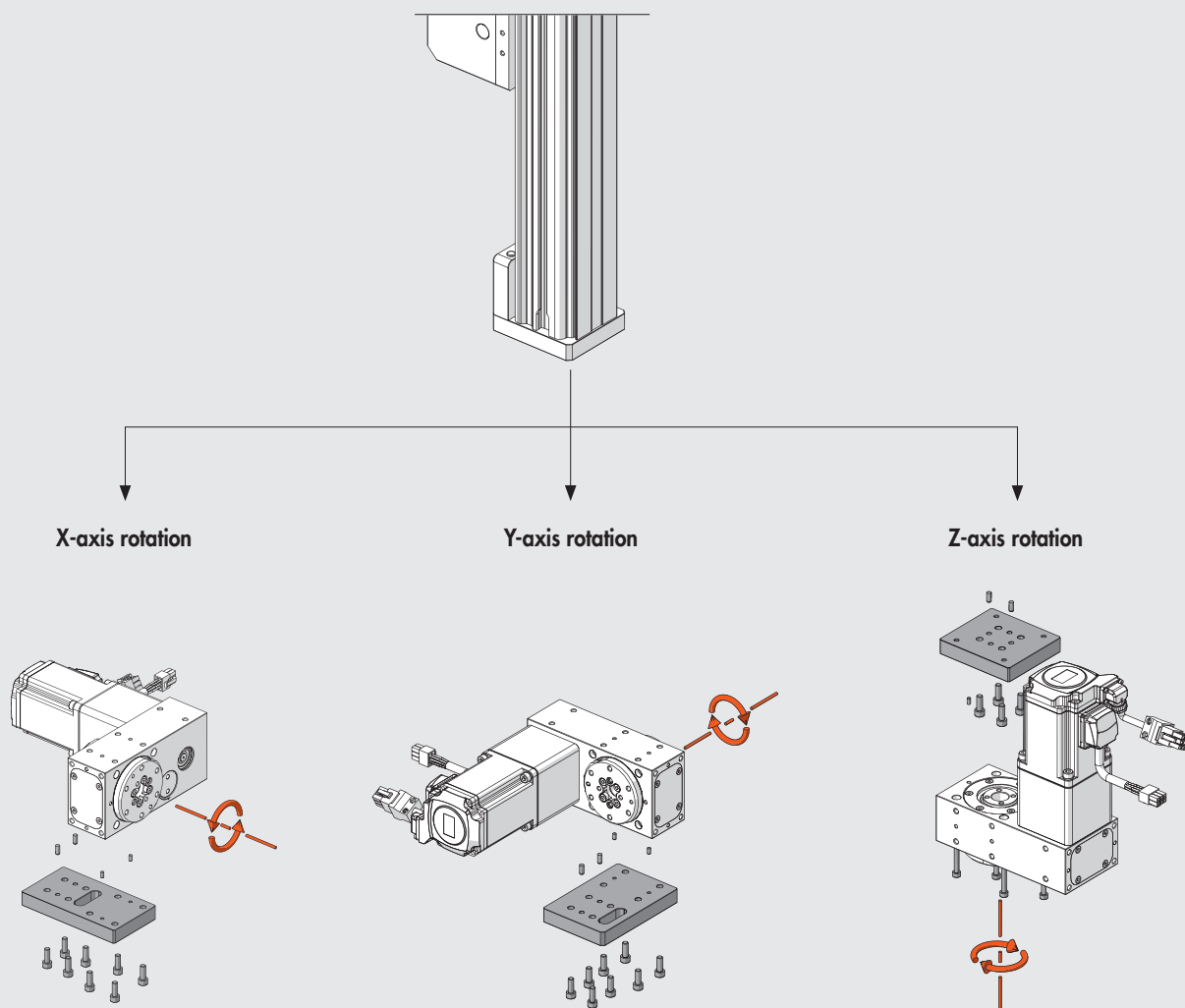
KEY TO CODES ACTUATOR MOTOR

| CYL | 37 | A | 0 | 1 | 0 | ■ DRIVE | | | | |
|-----|--------------------|-----------------------|-------|----------------------|---|---|--------------------------------|----------------------------------|-----------|--|
| | | | | | | 3 | 1 | 2 | 0 | |
| | TYPE | | | SIZE | ROTARY FLANGE POSITION | MOTOR | FLANGE | TORQUE | TURNS NO. | |
| 37 | Electric actuators | A Rotary actuator RBA | 0 STD | 1 Size 1 2 Size 2 | 0 Motor side 1 Opposite side 2 Both sides | 2 BRUSHLESS 3 STEPPING with encoder and brake 4 BRUSHLESS with brake 6 BRUSHLESS with gearbox 1:3 7 BRUSHLESS with brake and gearbox 1:3 8 STEPPING with encoder A BRUSHLESS with gearbox 1:5 C BRUSHLESS with brake and gearbox 1:5 | 1 NEMA 23 2 60 4 NEMA 34 | 2 1.2 - 2.19 Nm 4 3.01 - 5 Nm | 0 Base | |

■ The Orderable configurations of the motorizations are shown on page A5.186 for the RBA-1 and A5.187 for the RBA-2.

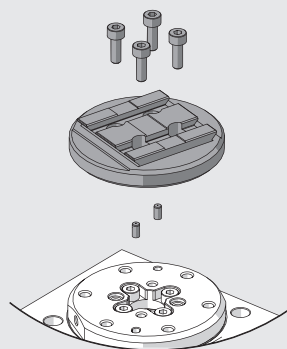
ACCESSORIES

RBA-1 FIXING BRACKETS ON VBK-1

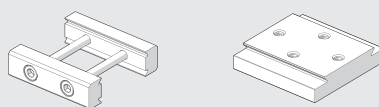


| Code | Description | Weight [g] |
|------------|--|------------|
| 095RE10004 | RBA-1 fixing bracket on VBK, X-axis rotation | 265 |
| 095RE10005 | RBA-1 fixing bracket on VBK, Y-axis rotation | 288 |
| 095RE10006 | RBA-1 fixing bracket on VBK, Z-axis rotation | 242 |

V-LOCK INTERFACE



FIXING ELEMENTS



DRIVES



| Code | Description | Weight [g] |
|------------|------------------------|------------|
| 095RE10003 | V-Lock interface RBA-1 | 82 |
| 095RE20003 | V-Lock interface RBA-2 | 247 |

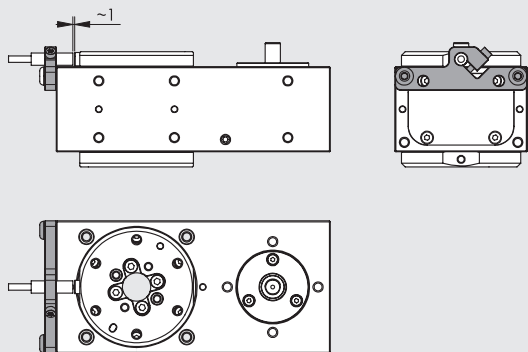
See V-Lock family.

For motor-drive couplings see table on page [A5.188](#)

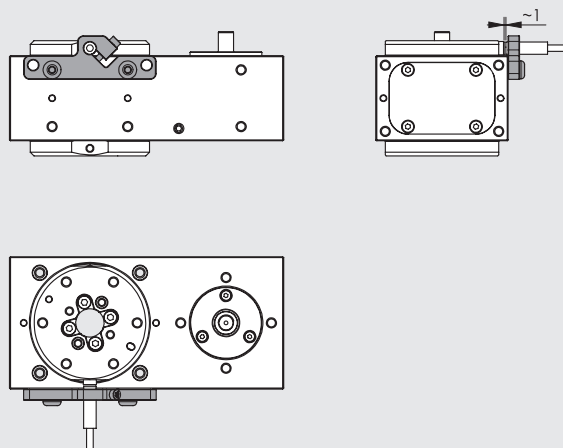
ACCESSORIES: MAGNETIC SENSORS

USE SENSORS

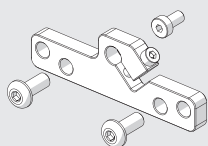
FRONT



LATERAL

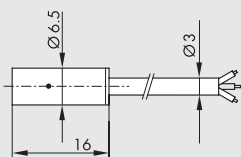


BRACKET FOR INDUCTIVE SENSOR



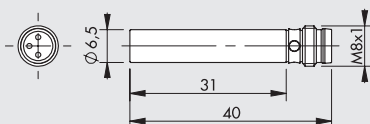
| Code | Description | Weight [g] |
|------------|--|------------|
| 095RE10001 | Bracket for inductive sensor Ø 6.5 RBA-1 | 22 |
| 095RE20001 | Bracket for inductive sensor Ø 6.5 RBA-2 | 33 |
| 095RE10002 | Bracket for inductive sensor Ø 8 RBA-1 | 22 |
| 095RE20002 | Bracket for inductive sensor Ø 8 RBA-2 | 33 |

INDUCTION SENSOR Ø 6.5



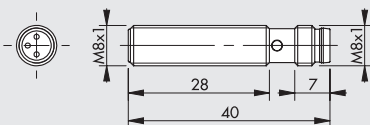
| Code | Description |
|-------------|---|
| W095K030006 | PNP Ø 6.5 PNP inductive sensor with LED 2 m |

QUICK-FIT INDUCTIVE SENSOR Ø 6.5



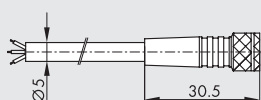
| Code | Description |
|-------------|---|
| W095K030009 | PNP Ø 6.5 inductive sensor with push-in LED |

QUICK-FIT INDUCTIVE SENSOR M8



| Code | Description |
|-------------|--|
| W095K030010 | PNP M8 inductive sensor with push-in LED |

CABLE WITH STRAIGHT CONNECTOR FOR PUSH-IN INDUCTIVE SENSOR (MOBILE INSTALLATION)



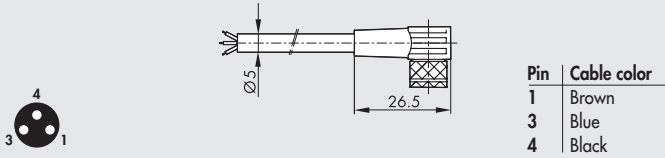
| Pin | Cable color |
|-----|-------------|
| 1 | Brown |
| 3 | Blue |
| 4 | Black |

| Code | Description |
|------------|--|
| 02400A0100 | M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 1 m |
| 02400A0250 | M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 2.5 m |
| 02400A0500 | M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 5 m |
| 02400A1000 | M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 10 m |

Note: Very flexible cables, class 6 according to IEC 60228



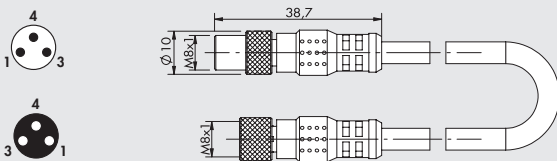
CABLE WITH 90° CONNECTOR FOR PUSH-IN INDUCTIVE SENSOR (MOBILE INSTALLATION)



| Code | Description |
|------------|--|
| 02400B0100 | M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 1 m |
| 02400B0250 | M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 2.5 m |
| 02400B0500 | M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 5 m |
| 02400B1000 | M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 10 m |

Note: Very flexible cables, class 6 according to IEC 60228

M8 M – M8 F CONNECTOR FOR PUSH-IN INDUCTIVE SENSOR (MOBILE INSTALLATION)

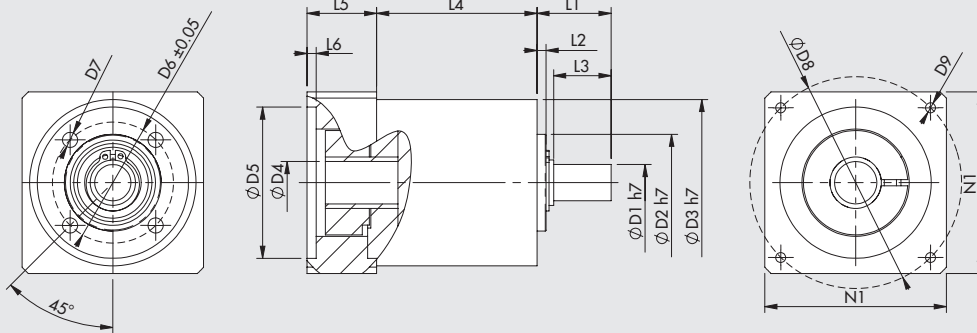


| Code | Description |
|------------|---|
| 0240009009 | M8-M8 3-pin straight connector with cable L = 3 m |

Note: Can be used for direct connection to the modules with digital INPUT of the EB 80 and CM valves

SPARE PARTS

GEARBOXES



| Code | Description | C _{OUT} nominal [Nm] | N _{IN} nominal [1/min] | J reduced to motor shaft [kgmm ²] | Mass [kg] | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | L1 | L2 | L3 | L4 | L5 | L6 | N1 |
|------------|-------------------|-------------------------------|---------------------------------|---|-----------|----|----|----|----|----|----|----|----|-------|------|----|----|----|----|----|----|
| 37R0341000 | Gearbox MP053 1:3 | 12 | 3300 | 8 | 0.8 | 12 | 32 | 55 | 14 | 50 | 40 | M5 | 70 | M4x10 | 24.5 | 3 | 19 | 53 | 23 | 3 | 60 |
| 37R0541000 | Gearbox MP053 1:5 | 15 | 3500 | 6 | 0.8 | 12 | 32 | 55 | 14 | 50 | 40 | M5 | 70 | M4x10 | 24.5 | 3 | 19 | 53 | 23 | 3 | 60 |

C_{out} = nominal output torque

N_{in} = nominal input speed

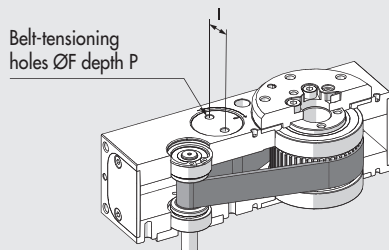
J = mass moment of inertia of the gearhead

ELECTRIC MOTORS



For motor-drive couplings see table on page A5.188

TOOTHED BELT



| Code | Description |
|------------|------------------------|
| 095RE10007 | RBA-1 toothed belt kit |
| 095RE20007 | RBA-2 toothed belt kit |

| | I | ØF | P |
|-------|----|----|-----|
| RBA-1 | 15 | 4 | 4.5 |
| RBA-2 | 20 | 5 | 4.5 |

STEPPING MOTORS

STEPPING MOTORS

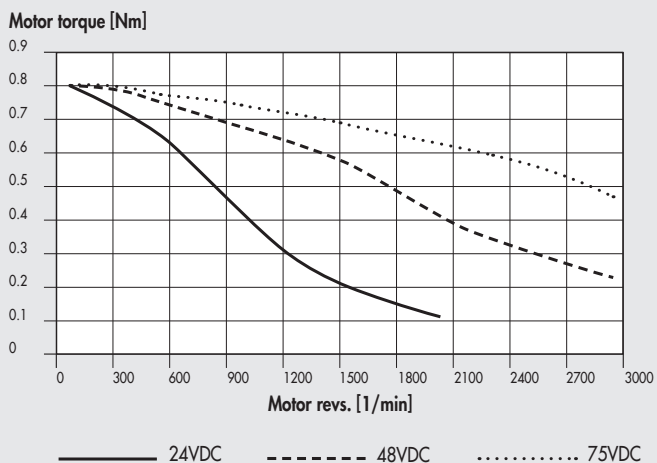
ACTUATORS

STEPPING MOTORS

N.B.: With motor off, the drive current is automatically reduced by 50% to prevent overheating. Consequently, available torque with the motor stopped is also reduced by 50%.

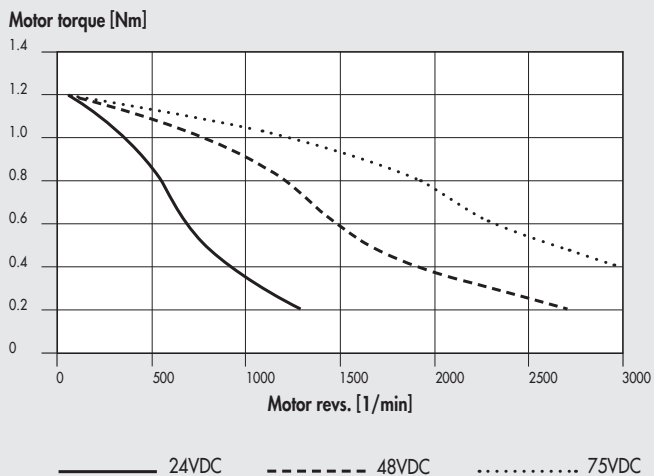
TORQUE CURVES / TECHNICAL FEATURES OF ELECTRIC STEPPING MOTORS

STEPPING motor code **37M1110000**

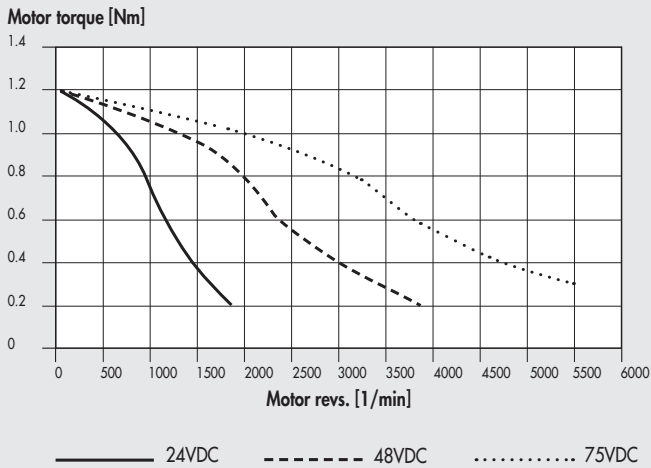
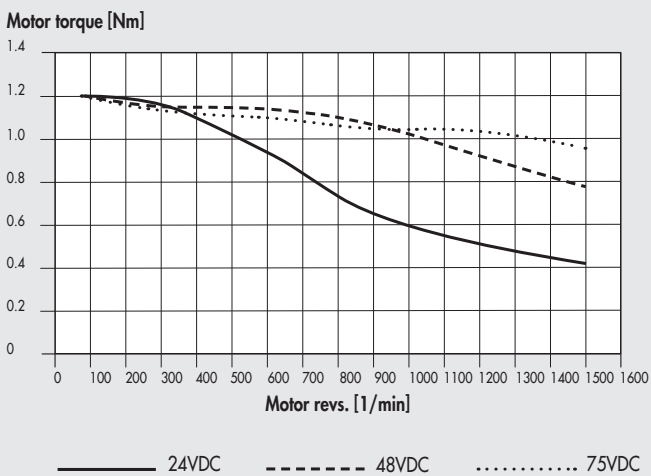
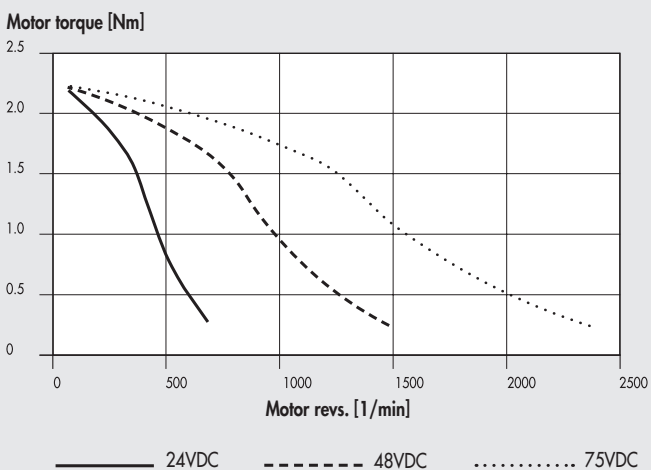


| TECHNICAL DATA | MOTOR 37M1110000 |
|---------------------------|---|
| Motor type | STEPPING |
| Temperature range | °C from -10 to +60 |
| Maximum relative humidity | 90% with 40°C; 57% with 50°C; 35% with 60°C (no condensate) |
| Nominal torque | Nm 0.8 |
| Coupling flange | NEMA 23 |
| Base step angle | 1.8°±0.09° |
| Bipolar current | A 4 |
| Resistance | Ω 0.41 |
| Inductance | mH 1.6 |
| Bipolar holding torque | Nm 1.1 |
| Rotor inertia | kgmm ² 21 |
| Theoretical acceleration | rad · s ⁻² 50000 |
| Back E.M.F. | V/krpm 20 |
| Mass | kg 0.65 |
| Degree of protection | IP40 |

STEPPING motor code **37M1120000**



| TECHNICAL DATA | MOTOR 37M1120000 |
|---------------------------|---|
| Motor type | STEPPING |
| Temperature range | °C from -10 to +60 |
| Maximum relative humidity | 90% with 40°C; 57% with 50°C; 35% with 60°C (no condensate) |
| Nominal torque | Nm 1.2 |
| Coupling flange | NEMA 23 |
| Base step angle | 1.8°±0.09° |
| Bipolar current | A 4 |
| Resistance | Ω 0.48 |
| Inductance | mH 2.2 |
| Bipolar holding torque | Nm 1.65 |
| Rotor inertia | kgmm ² 36 |
| Theoretical acceleration | rad · s ⁻² 45800 |
| Back E.M.F. | V/krpm 31 |
| Mass | kg 1 |
| Degree of protection | IP40 |

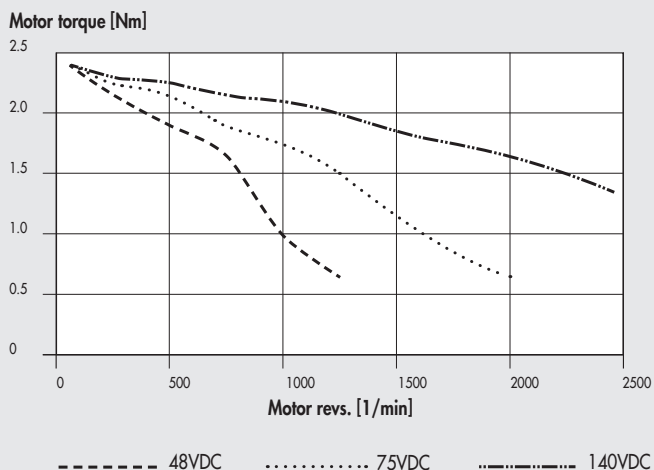
STEPPING motor code **37M1120001**STEPPING motor code **37M1220000**STEPPING motor code **37M1230000**

| TECHNICAL DATA | | MOTOR 37M1120001 |
|---------------------------|-----------------------|---|
| Motor type | | STEPPING |
| Temperature range | °C | from -10 to +60 |
| Maximum relative humidity | | 90% with 40°C; 57% with 50°C; 35% with 60°C (no condensate) |
| Nominal torque | Nm | 1.2 |
| Coupling flange | | NEMA 23 |
| Base step angle | | 1.8°±0.09° |
| Bipolar current | A | 5.6 |
| Resistance | Ω | 0.3 |
| Inductance | mH | 0.85 |
| Bipolar holding torque | Nm | 1.65 |
| Rotor inertia | kgmm ² | 36 |
| Theoretical acceleration | rad · s ⁻² | 45800 |
| Back E.M.F. | V/krpm | 23 |
| Mass | kg | 1 |
| Degree of protection | | IP43 |

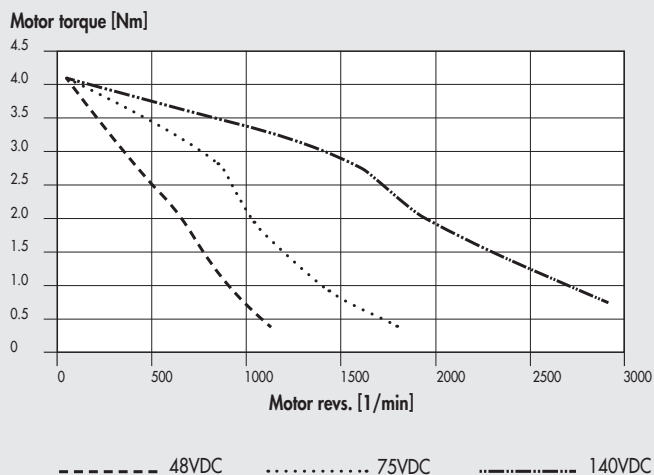
| TECHNICAL DATA | | MOTOR 37M1220000 |
|--|-------------------|--------------------------|
| Motor type | | STEPPING |
| Temperature range | °C | from -20 to +40 |
| Maximum relative humidity | | 5 to 95% (no condensate) |
| Nominal torque | Nm | 1.2 |
| Coupling flange (square) | mm | 60 |
| Base step angle | | 1.8° |
| Current | A | 5 |
| Resistance | Ω | 0.38 |
| Inductance | mH | 1.4 |
| Bipolar holding torque | Nm | 1.7 |
| Rotor inertia | kgmm ² | 44 |
| Mass | kg | 1.28 |
| Degree of protection | | IP65 |
| CABLE | | |
| Power for stepping motors with brake, 1 metre | | supplied |

| TECHNICAL DATA | | MOTOR 37M1230000 |
|---------------------------|-----------------------|---|
| Motor type | | STEPPING |
| Temperature range | °C | from -10 to +60 |
| Maximum relative humidity | | 90% with 40°C; 57% with 50°C; 35% with 60°C (no condensate) |
| Nominal torque | Nm | 1.2 |
| Coupling flange (square) | mm | 60 |
| Base step angle | | 1.8°±0.09° |
| Bipolar current | A | 4 |
| Resistance | Ω | 0.65 |
| Inductance | mH | 2.4 |
| Bipolar holding torque | Nm | 3 |
| Rotor inertia | kgmm ² | 84 |
| Theoretical acceleration | rad · s ⁻² | 35700 |
| Back E.M.F. | V/krpm | 75 |
| Mass | kg | 1.4 |
| Degree of protection | | IP40 |

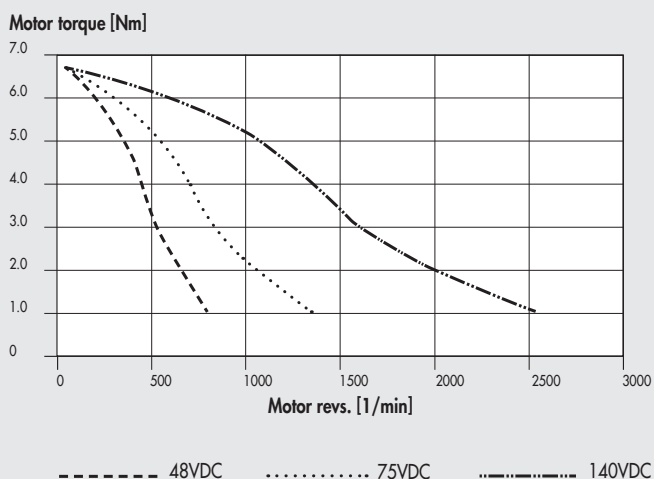
STEPPING motor code **37M1430000**



STEPPING motor code **37M1440000**



STEPPING motor code **37M1450000**

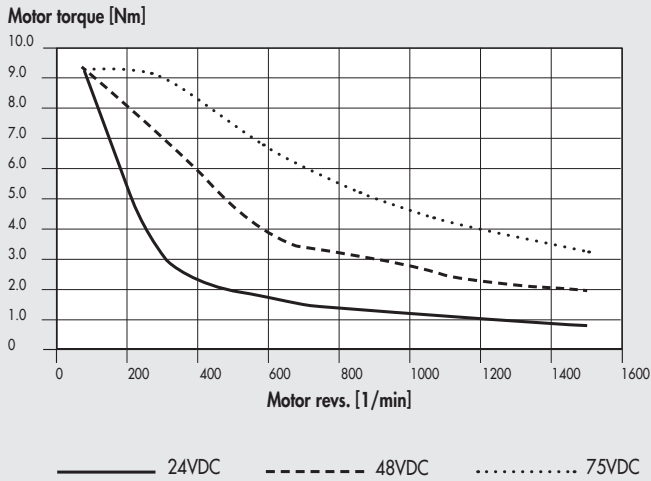


| TECHNICAL DATA | | MOTOR 37M1430000 |
|---------------------------|-----------------------|---|
| Motor type | | STEPPING |
| Temperature range | °C | from -10 to +60 |
| Maximum relative humidity | | 90% with 40°C; 57% with 50°C; 35% with 60°C (no condensate) |
| Nominal torque | Nm | 2.4 |
| Coupling flange | | NEMA 34 |
| Base step angle | | 1.8°±0.09° |
| Bipolar current | A | 6 |
| Resistance | Ω | 0.3 |
| Inductance | mH | 1.65 |
| Bipolar holding torque | Nm | 3 |
| Rotor inertia | kgmm ² | 145 |
| Theoretical acceleration | rad · s ⁻² | 20600 |
| Back E.M.F. | V/krpm | 50 |
| Mass | kg | 1.5 |
| Degree of protection | | IP43 |

| TECHNICAL DATA | | MOTOR 37M1440000 |
|---------------------------|-----------------------|---|
| Motor type | | STEPPING |
| Temperature range | °C | from -10 to +60 |
| Maximum relative humidity | | 90% with 40°C; 57% with 50°C; 35% with 60°C (no condensate) |
| Nominal torque | Nm | 4.2 |
| Coupling flange | | NEMA 34 |
| Base step angle | | 1.8°±0.09° |
| Bipolar current | A | 6 |
| Resistance | Ω | 0.35 |
| Inductance | mH | 2.7 |
| Bipolar holding torque | Nm | 5.6 |
| Rotor inertia | kgmm ² | 290 |
| Theoretical acceleration | rad · s ⁻² | 19300 |
| Back E.M.F. | V/krpm | 93 |
| Mass | kg | 2.5 |
| Degree of protection | | IP43 |

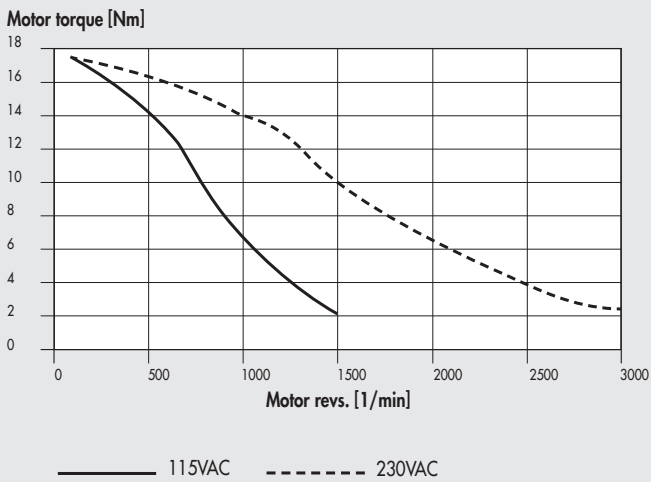
| TECHNICAL DATA | | MOTOR 37M1450000 |
|---------------------------|-----------------------|---|
| Motor type | | STEPPING |
| Temperature range | °C | from -10 to +60 |
| Maximum relative humidity | | 90% with 40°C; 57% with 50°C; 35% with 60°C (no condensate) |
| Nominal torque | Nm | 6.7 |
| Coupling flange | | NEMA 34 |
| Base step angle | | 1.8°±0.09° |
| Bipolar current parallel | A | 6 |
| Resistance | Ω | 0.46 |
| Inductance | mH | 3.8 |
| Bipolar holding torque | Nm | 9.2 |
| Rotor inertia | kgmm ² | 450 |
| Theoretical acceleration | rad · s ⁻² | 20500 |
| Back E.M.F. | V/krpm | 161 |
| Mass | kg | 4 |
| Certifications | | UL, CSA, CE, RoHS |
| Insulation voltage | | 250VAC (350VDC) |
| Degree of protection | | IP43 - F |

STEPPING motor code **37M1470000**



| TECHNICAL DATA | | MOTOR 37M1470000 |
|---------------------------|-------------------|--------------------------|
| Motor type | | STEPPING |
| Temperature range | °C | from -20 to +40 |
| Maximum relative humidity | | 5 to 95% (no condensate) |
| Nominal torque | Nm | 9.3 |
| Coupling flange | | NEMA 34 |
| Base step angle | | 1.8° |
| Bipolar current | A | 10 |
| Resistance | Ω | 0.24 |
| Inductance | mH | 1.6 |
| Bipolar holding torque | Nm | 13.6 |
| Rotor inertia | kgmm ² | 392 |
| Mass | kg | 4.2 |
| Degree of protection | | IP40 |

STEPPING motor code **37M1890000**



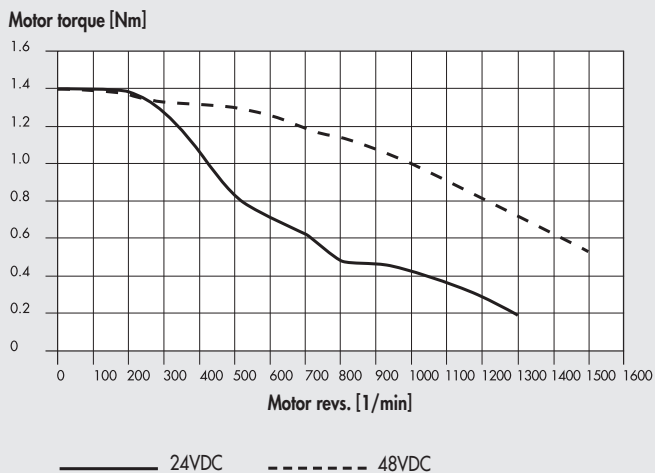
| TECHNICAL DATA | | MOTOR 37M1890000 |
|---------------------------|-----------------------|---|
| Motor type | | STEPPING |
| Temperature range | °C | from -10 to +60 |
| Maximum relative humidity | | 90% with 40°C; 57% with 50°C; 35% with 60°C (no condensate) |
| Nominal torque | Nm | 17.5 |
| Coupling flange | | NEMA 42 |
| Base step angle | | 1.8°±0.09° |
| Bipolar current | A | 6 |
| Resistance | Ω | 0.63 |
| Inductance | mH | 8 |
| Bipolar holding torque | Nm | 24.6 |
| Rotor inertia | kgmm ² | 2200 |
| Theoretical acceleration | rad · s ⁻² | 11100 |
| Back E.M.F. | V/krpm | 410 |
| Mass | kg | 10 |
| Degree of protection | | IP43 |

NOTES

STEPPING MOTORS WITH ENCODER

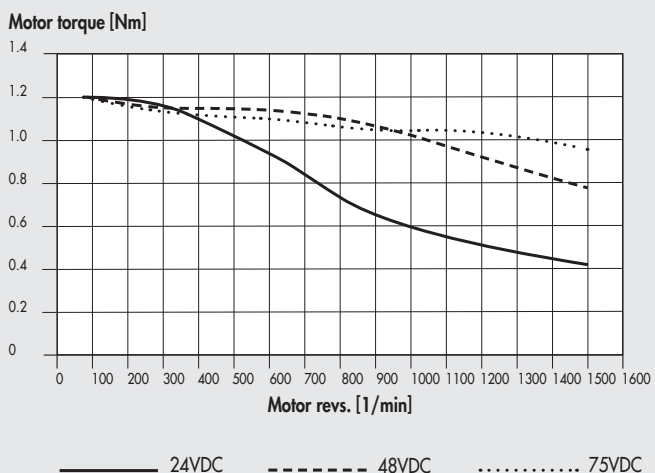
TORQUE CURVES / TECHNICAL FEATURES OF ELECTRIC STEPPING MOTORS WITH ENCODER

STEPPING motor + ENCODER code **37M1820000**



| TECHNICAL DATA | | MOTOR 37M1820000 |
|---|-------------------|------------------------|
| Motor type | | STEPPING + ENCODER |
| Temperature range | °C | from -10 to +50 |
| Nominal torque | Nm | 1.4 |
| Coupling flange (square) | mm | NEMA 23 |
| Base step angle | | 1.8° |
| Current | A | 5 |
| Resistance | Ω | 0.42 |
| Inductance | mH | 1.7 |
| Bipolar holding torque | Nm | 2 |
| Rotor inertia | kgmm ² | 43 |
| Mass | kg | 1.4 |
| Degree of protection | | IP40 |
| ENCODER | | |
| Number of outputs | | 2 A / B (differential) |
| Resolution | positions per rev | 1000 |
| Supply voltage | VDC | 5±10% |
| CABLES | | |
| Encoder stepping motors with brake, 5 metres | | 37C1250001 |
| Power stepping motors with brake, 5 metres | | 37C1150000 |
| Encoder stepping motors with brake, 10 metres | | 37C1200003 |
| Power stepping motors with brake, 10 metres | | 37C1100000 |

STEPPING motor + ENCODER code **37M8220000**

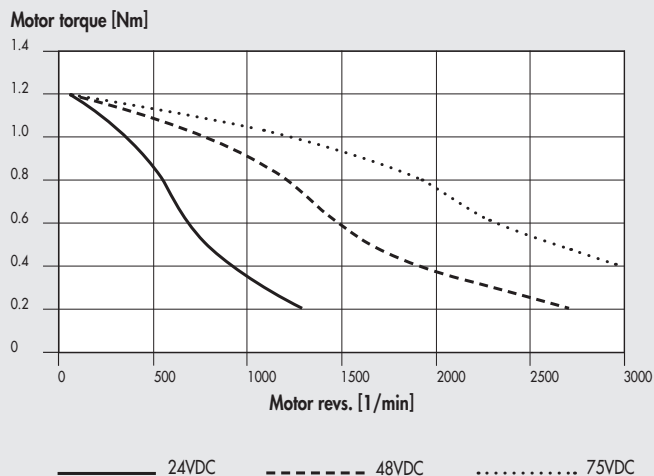


| TECHNICAL DATA | | MOTOR 37M8220000 |
|--|-------------------|--------------------------|
| Motor type | | STEPPING + ENCODER |
| Temperature range | °C | from -20 to +40 |
| Maximum relative humidity | | 5 to 95% (no condensate) |
| Nominal torque | Nm | 1.2 |
| Coupling flange (square) | mm | 60 |
| Base step angle | | 1.8° |
| Current | A | 5 |
| Resistance | Ω | 0.38 |
| Inductance | mH | 1.4 |
| Bipolar holding torque | Nm | 1.7 |
| Rotor inertia | kgmm ² | 44 |
| Mass | kg | 1.28 |
| Degree of protection | | IP65 |
| ENCODER | | |
| Number of outputs | | 3 A / B / R |
| Resolution | positions per rev | 1024 |
| Supply voltage | VDC | 18 - 30 |
| CABLES | | |
| Encoder stepping motors with brake, 3 metres | | 37C1230000 |
| Power stepping motors with brake, 3 metres | | 37C1330000 |
| Encoder stepping motors with brake, 5 metres | | 37C1250000 |
| Power stepping motors with brake, 5 metres | | 37C1350000 |

STEPPING MOTORS WITH BRAKE

TORQUE CURVES / TECHNICAL FEATURES OF ELECTRIC STEPPING MOTORS WITH BRAKE

STEPPING motor with BRAKE code **37M5120000**



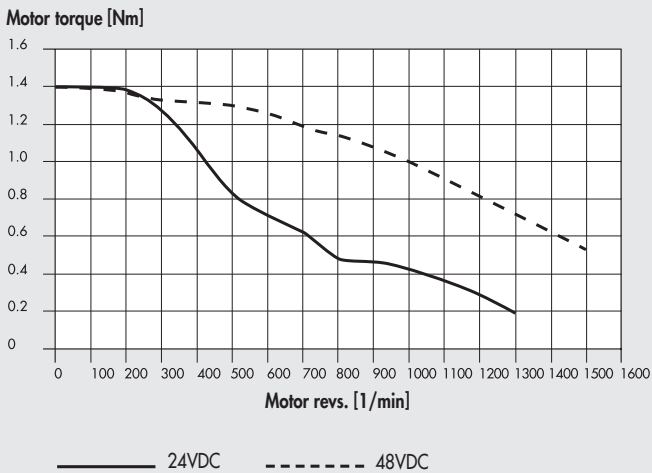
| TECHNICAL DATA | | MOTOR 37M5120000 |
|---------------------------|-----------------------|---|
| Motor type | | STEPPING with BRAKE |
| Temperature range | °C | from -10 to +60 |
| Maximum relative humidity | | 90% with 40°C; 57% with 50°C; 35% with 60°C (no condensate) |
| Nominal torque | Nm | 1.2 |
| Coupling flange | | NEMA 23 |
| Base step angle | | 1.8°±0.09° |
| Bipolar current | A | 4 |
| Resistance | Ω | 0.48 |
| Inductance | mH | 2.2 |
| Bipolar holding torque | Nm | 1.65 |
| Rotor inertia | kgmm ² | 36 |
| Theoretical acceleration | rad · s ⁻² | 45800 |
| Back E.M.F. | V/krpm | 31 |
| Mass | kg | 1.5 |
| Degree of protection | | IP20 |
| BRAKE | | |
| Braking torque | Nm | 3.3 |
| Duty Cycle | | 50% max |
| Supply voltage | VDC | 24 |
| Power consumption | W | 18 |
| Connecting time | ms | 300 |

NOTES

STEPPING MOTORS WITH BRAKE + ENCODER

TORQUE CURVES / TECHNICAL FEATURES OF ELECTRIC STEPPING MOTORS WITH BRAKE + ENCODER

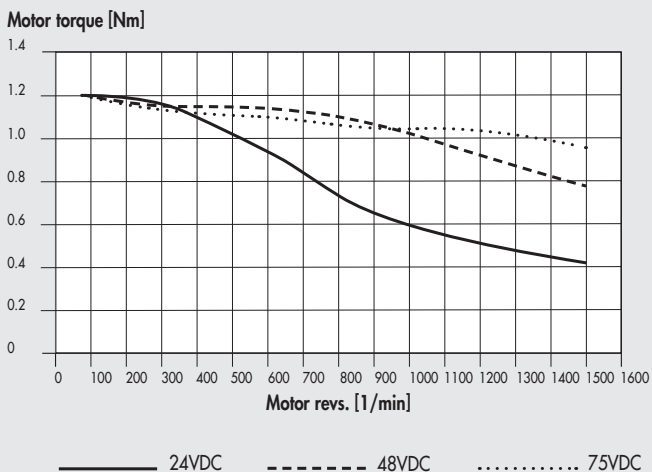
STEPPING motor with BRAKE + ENCODER code **37M1320000**



| TECHNICAL DATA | MOTOR 37M1320000 |
|---|-------------------------------|
| Motor type | STEPPING with BRAKE + ENCODER |
| Temperature range | °C from -10 to +50 |
| Nominal torque | Nm 1.4 |
| Coupling flange (square) | mm NEMA 23 |
| Base step angle | 1.8° |
| Current | A 5 |
| Resistance | Ω 0.4 |
| Inductance | mH 1.8 |
| Bipolar holding torque | Nm 2 |
| Rotor inertia | kgmm ² 48 |
| Mass | kg 1.8 |
| Degree of protection | IP40 |
| ENCODER | |
| Number of outputs | 2 A / B (differential) |
| Resolution | positions per rev 1000 |
| Supply voltage | VDC 5±10% |
| BRAKE * | |
| Supply voltage | VDC 24±10% |
| Braking torque | Nm 2 |
| Power consumption | W 4 |
| CABLES | |
| Encoder stepping motors with brake, 5 metres | 37C1250001 |
| Power stepping motors with brake, 5 metres | 37C1150000 |
| Encoder stepping motors with brake, 10 metres | 37C1200003 |
| Power stepping motors with brake, 10 metres | 37C1100000 |

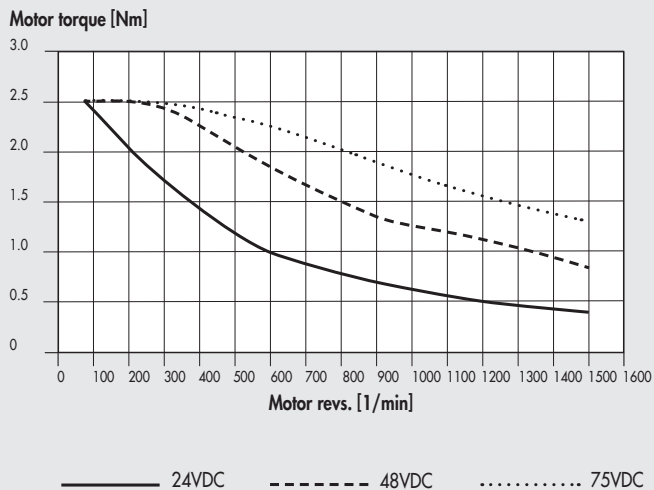
* Pre-wired brake cable L = 300 mm

STEPPING motor with BRAKE + ENCODER code **37M3220000**

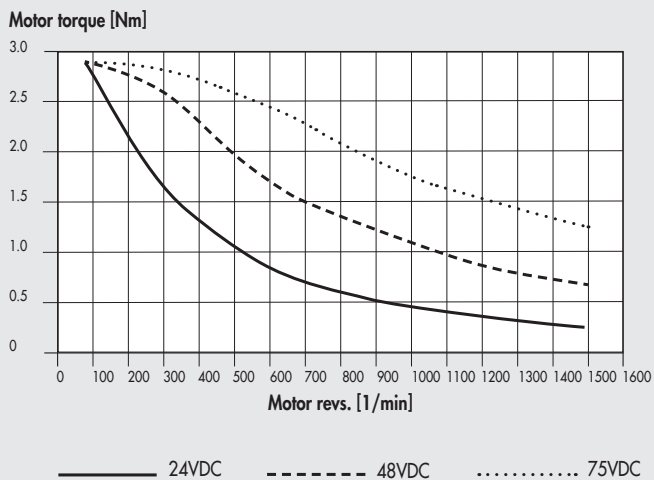


| TECHNICAL DATA | MOTOR 37M3220000 |
|--|-------------------------------|
| Motor type | STEPPING with BRAKE + ENCODER |
| Temperature range | °C from -20 to +40 |
| Maximum relative humidity | 5 to 95% (no condensate) |
| Nominal torque | Nm 1.2 |
| Coupling flange (square) | mm 60 |
| Base step angle | 1.8° |
| Current | A 5 |
| Resistance | Ω 0.38 |
| Inductance | mH 1.4 |
| Bipolar holding torque | Nm 1.7 |
| Rotor inertia | kgmm ² 44 |
| Mass | kg 1.28 |
| Degree of protection | IP65 |
| ENCODER | |
| Number of outputs | 3 A / B / R |
| Resolution | positions per rev 1024 |
| Supply voltage | VDC 18 - 30 |
| BRAKE | |
| Supply voltage | VDC 24 +6% / -10% |
| Braking torque | Nm 2 |
| Power consumption | W 11 |
| Connecting time | ms 6 |
| Delay time | ms 2 |
| Disconnection time | ms 25 |
| CABLES | |
| Encoder stepping motors with brake, 3 metres | 37C1230000 |
| Power stepping motors with brake, 3 metres | 37C1330000 |
| Encoder stepping motors with brake, 5 metres | 37C1250000 |
| Power stepping motors with brake, 5 metres | 37C1350000 |

STEPPING motor with BRAKE + ENCODER code **37M3230000**

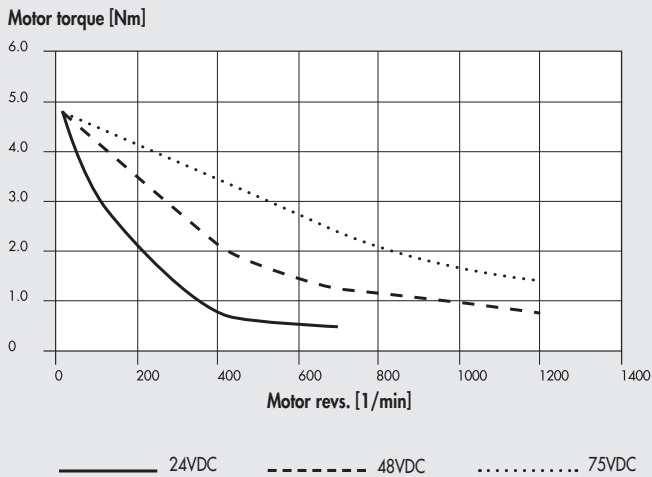
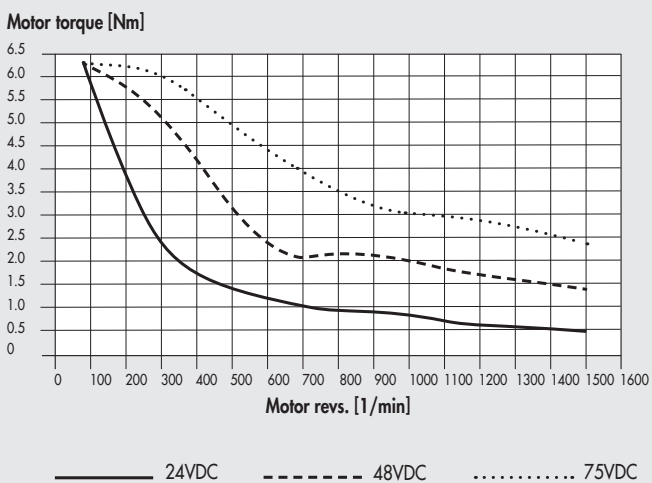


STEPPING motor with BRAKE + ENCODER code **37M3430000**



| TECHNICAL DATA | | MOTOR 37M3230000 |
|--|-------------------|-------------------------------|
| Motor type | | STEPPING with BRAKE + ENCODER |
| Temperature range | °C | from -20 to +40 |
| Maximum relative humidity | | 5 to 95% (no condensate) |
| Nominal torque | Nm | 2.5 |
| Coupling flange (square) | mm | 60 |
| Base step angle | | 1.8° |
| Bipolar current | A | 5 |
| Resistance | Ω | 0.6 |
| Inductance | mH | 2.8 |
| Bipolar holding torque | Nm | 3.5 |
| Rotor inertia | kgmm ² | 92 |
| Mass | kg | 1.8 |
| Degree of protection | | IP65 |
| ENCODER | | |
| Number of outputs | | 3 A / B / R |
| Resolution | positions per rev | 1024 |
| Supply voltage | VDC | 18 - 30 |
| BRAKE | | |
| Supply voltage | VDC | 24 +6% / -10% |
| Braking torque | Nm | 2 |
| Power consumption | W | 11 |
| Connecting time | ms | 6 |
| Delay time | ms | 2 |
| Disconnection time | ms | 25 |
| CABLES | | |
| Encoder stepping motors with brake, 3 metres | | 37C1230000 |
| Power stepping motors with brake, 3 metres | | 37C1330000 |
| Encoder stepping motors with brake, 5 metres | | 37C1250000 |
| Power stepping motors with brake, 5 metres | | 37C1350000 |

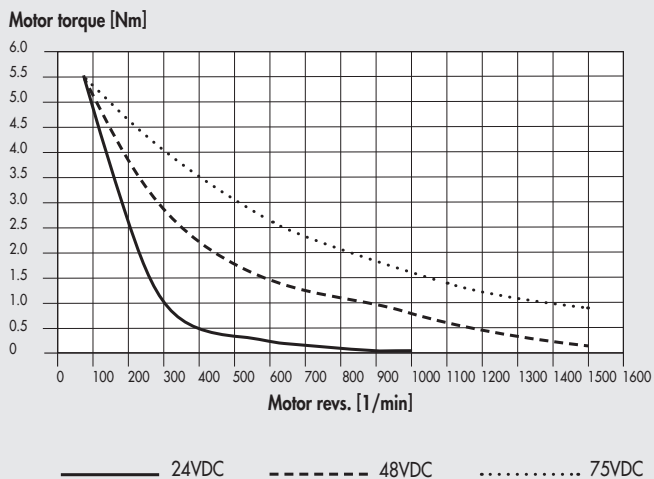
| TECHNICAL DATA | | MOTOR 37M3430000 |
|--|-------------------|-------------------------------|
| Motor type | | STEPPING with BRAKE + ENCODER |
| Temperature range | °C | from -20 to +40 |
| Maximum relative humidity | | 5 to 95% (no condensate) |
| Nominal torque | Nm | 2.9 |
| Coupling flange | | NEMA 34 |
| Base step angle | | 1.8° |
| Bipolar current | A | 6 |
| Resistance | Ω | 0.4 |
| Inductance | mH | 3.2 |
| Bipolar holding torque | Nm | 4 |
| Rotor inertia | kgmm ² | 131 |
| Mass | kg | 2.5 |
| Degree of protection | | IP65 |
| ENCODER | | |
| Number of outputs | | 3 A / B / R |
| Resolution | positions per rev | 1024 |
| Supply voltage | VDC | 18 - 30 |
| BRAKE | | |
| Supply voltage | VDC | 24 +6% / -10% |
| Braking torque | Nm | 9 |
| Power consumption | W | 18 |
| Connecting time | ms | 7 |
| Delay time | ms | 2 |
| Disconnection time | ms | 40 |
| CABLES | | |
| Encoder stepping motors with brake, 3 metres | | 37C1230000 |
| Power stepping motors with brake, 3 metres | | 37C1330000 |
| Encoder stepping motors with brake, 5 metres | | 37C1250000 |
| Power stepping motors with brake, 5 metres | | 37C1350000 |

STEPPING motor with BRAKE + ENCODER code 37M3440000

STEPPING motor with BRAKE + ENCODER code 37M3450000


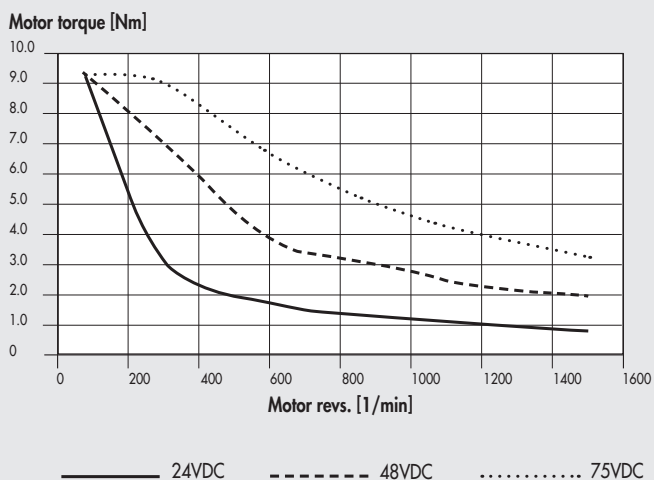
| TECHNICAL DATA | | MOTOR 37M3440000 |
|---|-------------------|-------------------------------|
| Motor type | | STEPPING with BRAKE + ENCODER |
| Temperature range | °C | from 0 to +50 |
| Nominal torque | Nm | 4.8 |
| Coupling flange (square) | mm | NEMA 34 |
| Base step angle | | 1.8° |
| Current | A | 6 |
| Resistance | Ω | 0.54 |
| Inductance | mH | 5 |
| Bipolar holding torque | Nm | 8.5 |
| Rotor inertia | kgmm ² | 360 |
| Mass | kg | 4.08 |
| Degree of protection | | IP40 |
| ENCODER | | |
| Number of outputs | Nm | 2 A / B (differential) |
| Resolution | kgmm ² | 1000 |
| Supply voltage | kg | 5±10% |
| BRAKE | | |
| Supply voltage | VDC | 24±10% |
| Braking torque | Nm | 5 |
| Power consumption | W | 4 |
| CABLES | | |
| Encoder stepping motors with brake, 5 metres | | 37C1250001 |
| Power stepping motors with brake, 5 metres | | 37C1150000 |
| Encoder stepping motors with brake, 10 metres | | 37C1200003 |
| Power stepping motors with brake, 10 metres | | 37C1100000 |

| TECHNICAL DATA | | MOTOR 37M3450000 |
|--|-------------------|-------------------------------|
| Motor type | | STEPPING with BRAKE + ENCODER |
| Temperature range | °C | from -20 to +40 |
| Maximum relative humidity | | 5 to 95% (no condensate) |
| Nominal torque | Nm | 6.3 |
| Coupling flange | | NEMA 34 |
| Base step angle | | 1.8° |
| Bipolar current | A | 10 |
| Resistance | Ω | 0.2 |
| Inductance | mH | 1.4 |
| Bipolar holding torque | Nm | 9.5 |
| Rotor inertia | kgmm ² | 261 |
| Mass | kg | 3.7 |
| Degree of protection | | IP65 |
| ENCODER | | |
| Number of outputs | | 3 A / B / R |
| Resolution | positions per rev | 1024 |
| Supply voltage | VDC | 18 - 30 |
| BRAKE | | |
| Supply voltage | VDC | 24 +6% / -10% |
| Braking torque | Nm | 9 |
| Power consumption | W | 18 |
| Connecting time | ms | 7 |
| Delay time | ms | 2 |
| Disconnection time | ms | 40 |
| CABLES | | |
| Encoder stepping motors with brake, 3 metres | | 37C1230000 |
| Power stepping motors with brake, 3 metres | | 37C1330000 |
| Encoder stepping motors with brake, 5 metres | | 37C1250000 |
| Power stepping motors with brake, 5 metres | | 37C1350000 |

STEPPING motor with BRAKE + ENCODER code **37M3460000**



STEPPING motor with BRAKE + ENCODER code **37M3470000**



| TECHNICAL DATA | MOTOR 37M3460000 |
|--|-------------------------------|
| Motor type | STEPPING with BRAKE + ENCODER |
| Temperature range | °C from -20 to +40 |
| Maximum relative humidity | 5 to 95% (no condensate) |
| Nominal torque | Nm 5.5 |
| Coupling flange | NEMA 34 |
| Base step angle | 1.8° |
| Bipolar current | A 6 |
| Resistance | Ω 0.6 |
| Inductance | mH 4.3 |
| Bipolar holding torque | Nm 7.8 |
| Rotor inertia | kgmm ² 261 |
| Mass | kg 3.7 |
| Degree of protection | IP65 |
| ENCODER | |
| Number of outputs | 3 A / B / R |
| Resolution | positions per rev 1024 |
| Supply voltage | VDC 18 - 30 |
| BRAKE | |
| Supply voltage | VDC 24 +6% / -10% |
| Braking torque | Nm 9 |
| Power consumption | W 18 |
| Connecting time | ms 7 |
| Delay time | ms 2 |
| Disconnection time | ms 40 |
| CABLES | |
| Encoder stepping motors with brake, 3 metres | 37C1230000 |
| Power stepping motors with brake, 3 metres | 37C1330000 |
| Encoder stepping motors with brake, 5 metres | 37C1250000 |
| Power stepping motors with brake, 5 metres | 37C1350000 |

| TECHNICAL DATA | MOTOR 37M3470000 |
|--|-------------------------------|
| Motor type | STEPPING with BRAKE + ENCODER |
| Temperature range | °C from -20 to +40 |
| Maximum relative humidity | 5 to 95% (no condensate) |
| Nominal torque | Nm 9.3 |
| Coupling flange | NEMA 34 |
| Base step angle | 1.8° |
| Bipolar current | A 10 |
| Resistance | Ω 0.24 |
| Inductance | mH 1.6 |
| Bipolar holding torque | Nm 13.6 |
| Rotor inertia | kgmm ² 392 |
| Mass | kg 4.9 |
| Degree of protection | IP65 |
| ENCODER | |
| Number of outputs | 3 A / B / R |
| Resolution | positions per rev 1024 |
| Supply voltage | VDC 18 - 30 |
| BRAKE | |
| Supply voltage | VDC 24 +6% / -10% |
| Braking torque | Nm 9 |
| Power consumption | W 18 |
| Connecting time | ms 7 |
| Delay time | ms 2 |
| Disconnection time | ms 40 |
| CABLES | |
| Encoder stepping motors with brake, 3 metres | 37C1230000 |
| Power stepping motors with brake, 3 metres | 37C1330000 |
| Encoder stepping motors with brake, 5 metres | 37C1250000 |
| Power stepping motors with brake, 5 metres | 37C1350000 |

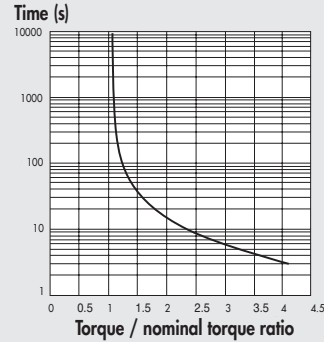
BRUSHLESS MOTORS



BRUSHLESS MOTORS

OVERLOAD CURVES FOR ELECTRIC BRUSHLESS MOTORS (SANYO DENKI)

The torque used can exceed the nominal torque within the time limits shown in the diagram. Never exceed the maximum torque.

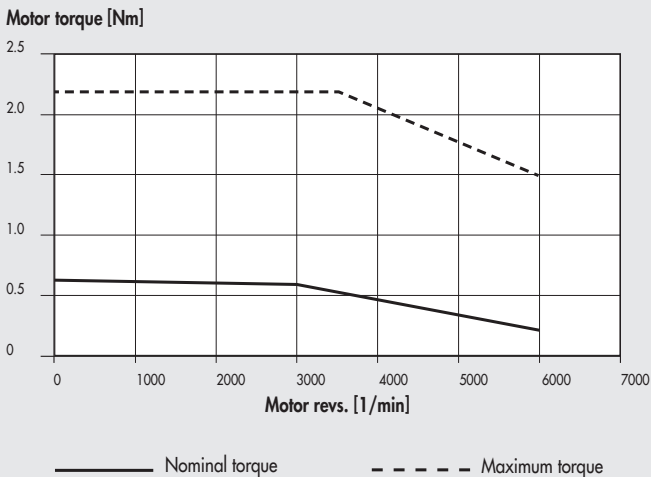


TORQUE CURVES / TECHNICAL FEATURES OF ELECTRIC BRUSHLESS MOTORS (SANYO DENKI)

The following diagrams show the torque delivered by the motor with changing speed (rpm). Each diagram shows two separate curves:

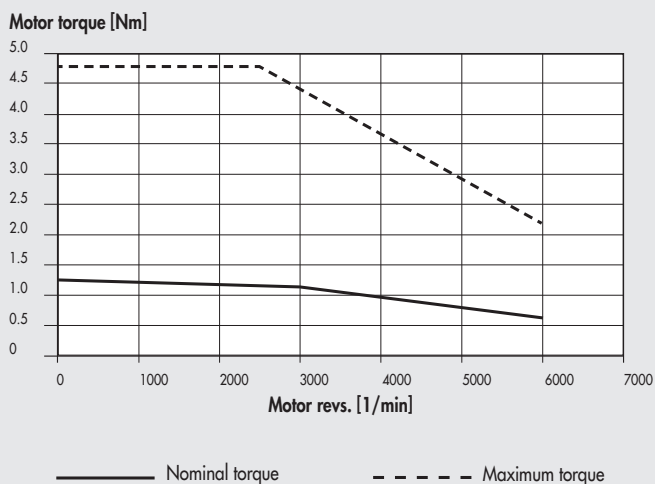
- **NOMINAL TORQUE** curve: the nominal torque delivered by the motor with a duty cycle of 100%
- **MAXIMUM TORQUE** curve: the torque delivered by the motor with a duty cycle of less than 100%

BRUSHLESS motor code **37M2200000** +
drive code **37D2400008** (200W)

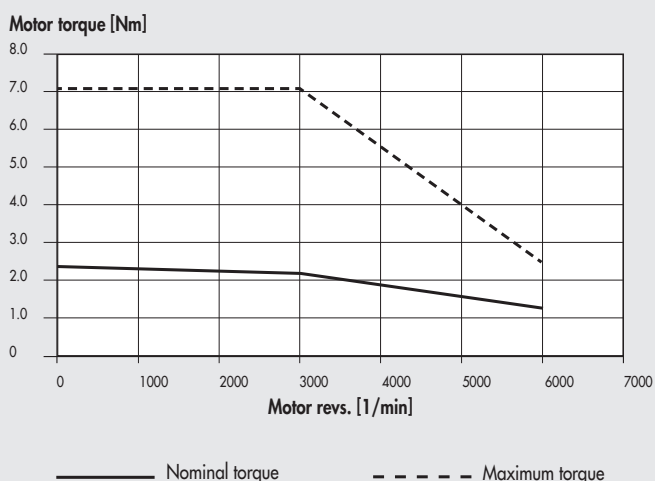


| TECHNICAL DATA | | MOTOR 37M2200000 |
|---|-------------------|---------------------|
| Motor type | | BRUSHLESS |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 90% (no condensate) |
| Nominal torque | Nm | 0.64 |
| Coupling flange (square) | mm | 60 |
| Nominal power | W | 200 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 6000 |
| Stall torque | Nm | 0.686 |
| Maximum torque | Nm | 2.2 |
| Rotor inertia | kgmm ² | 21.9 |
| Mass | kg | 0.84 |
| Encoder | pulse/rev | 131072 (17 bit) |
| Degree of protection | | IP65 |
| DRIVE | code | 37D2400008 |
| CABLES | | |
| Brushless motor-drive, 3 metres | | 37C2130005 |
| Brushless motor-drive-encoder, 3 metres | | 37C2230005 |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130004 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230004 |
| Brushless motor-drive, 5 metres | | 37C2150005 |
| Brushless motor-drive-encoder, 5 metres | | 37C2250005 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150004 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250004 |
| Brushless motor-drive, dynamic cable, 10 metres | | 37C2100004 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200004 |

BRUSHLESS motor code **37M2220000** +
drive code **37D2400008** (400W)



BRUSHLESS motor code **37M2330000** +
drive code **37D2400008** (750W)

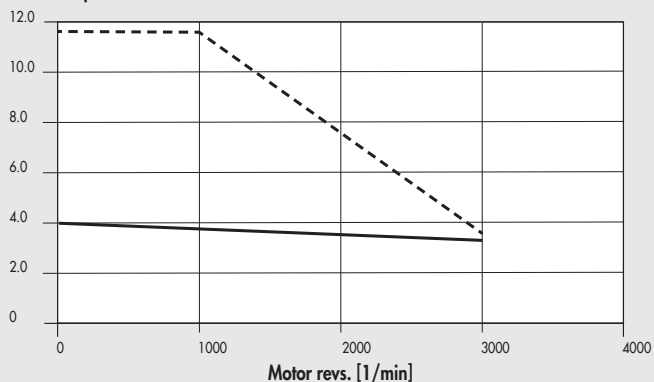


| TECHNICAL DATA | | MOTOR 37M2220000 |
|---|-------------------|---------------------|
| Motor type | | BRUSHLESS |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 90% (no condensate) |
| Nominal torque | Nm | 1.27 |
| Coupling flange (square) | mm | 60 |
| Nominal power | W | 400 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 6000 |
| Stall torque | Nm | 1.37 |
| Maximum torque | Nm | 4.8 |
| Rotor inertia | kgmm ² | 41.2 |
| Mass | kg | 1.3 |
| Encoder | pulse/rev | 131072 (17 bit) |
| Degree of protection | | IP65 |
| DRIVE | code | 37D2400008 |
| CABLES | | |
| Brushless motor-drive, 3 metres | | 37C2130005 |
| Brushless motor-drive-encoder, 3 metres | | 37C2230005 |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130004 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230004 |
| Brushless motor-drive, 5 metres | | 37C2150005 |
| Brushless motor-drive-encoder, 5 metres | | 37C2250005 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150004 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250006 |
| Brushless motor-drive, dynamic cable, 10 metres | | 37C2100004 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200004 |

| DATI TECNICI | | MOTORE 37M2330000 |
|---|-------------------|---------------------|
| Motor type | | BRUSHLESS |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 90% (no condensate) |
| Nominal torque | Nm | 2.39 |
| Coupling flange (square) | mm | 80 |
| Nominal power | W | 750 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 6000 |
| Stall torque | Nm | 2.55 |
| Maximum torque | Nm | 7.1 |
| Rotor inertia | kgmm ² | 182 |
| Mass | kg | 2.6 |
| Encoder | pulse/rev | 131072 (17 bit) |
| Degree of protection | | IP65 |
| DRIVE | code | 37D2400008 |
| CABLES | | |
| Brushless motor-drive, 3 metres | | 37C2130005 |
| Brushless motor-drive-encoder, 3 metres | | 37C2230005 |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130004 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230004 |
| Brushless motor-drive, 5 metres | | 37C2150005 |
| Brushless motor-drive-encoder, 5 metres | | 37C2250005 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150004 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250006 |
| Brushless motor-drive, dynamic cable, 10 metres | | 37C2100004 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200004 |

BRUSHLESS motor code **37M2540000** +
drive code **37D2400008** (1000W)

Motor torque [Nm]



———— Nominal torque

- - - - - Maximum torque

TECHNICAL DATA

| TECHNICAL DATA | | MOTOR 37M2540000 |
|---------------------------|-------------------|---------------------|
| Motor type | | BRUSHLESS |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 90% (no condensate) |
| Nominal torque | Nm | 3.18 |
| Coupling flange (square) | mm | 86 |
| Nominal power | W | 1000 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 3000 |
| Stall torque | Nm | 3.92 |
| Maximum torque | Nm | 11.6 |
| Rotor inertia | kgmm ² | 238.3 |
| Mass | kg | 3.5 |
| Encoder | pulse/rev | 131072 (17 bit) |
| Degree of protection | | IP65 |

DRIVE

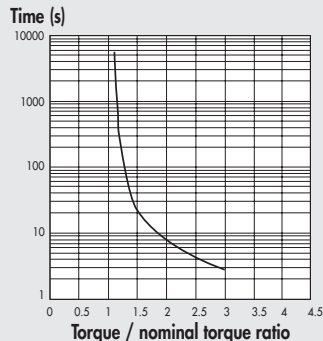
CABLES

| | |
|---|-------------------|
| Brushless motor-drive , 3 metres | 37C2130005 |
| Brushless motor-drive-encoder , 3 metres | 37C2230005 |
| Brushless motor-drive, dynamic cable , 3 metres | 37C2130004 |
| Brushless motor-drive-encoder, dynamic cable , 3 metres | 37C2230004 |
| Brushless motor-drive , 5 metres | 37C2150005 |
| Brushless motor-drive-encoder , 5 metres | 37C2250005 |
| Brushless motor-drive, dynamic cable , 5 metres | 37C2150004 |
| Brushless motor-drive-encoder, dynamic cable , 5 metres | 37C2250004 |
| Brushless motor-drive, dynamic cable , 10 metres | 37C2100004 |
| Brushless motor-drive-encoder, dynamic cable , 10 metres | 37C2200004 |

NOTES

OVERLOAD CURVES FOR ELECTRIC BRUSHLESS MOTORS (DELTA)

The torque used can exceed the nominal torque within the time limits shown in the diagram. Never exceed the maximum torque.

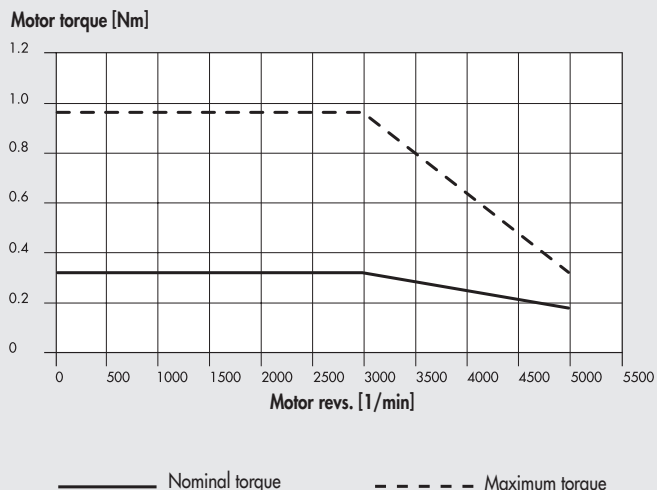


TORQUE CURVES / TECHNICAL FEATURES OF ELECTRIC BRUSHLESS MOTORS (DELTA)

The following diagrams show the torque delivered by the motor with changing speed (rpm). Each diagram shows two separate curves:

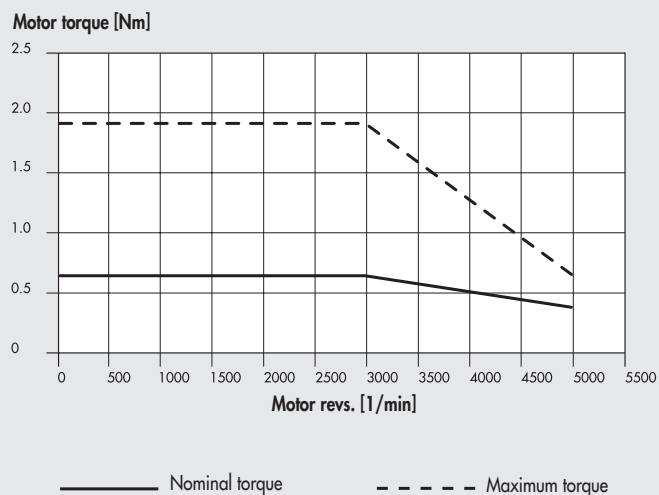
- **NOMINAL TORQUE** curve: the nominal torque delivered by the motor with a duty cycle of 100%
- **MAXIMUM TORQUE** curve: the torque delivered by the motor with a duty cycle of less than 100%

BRUSHLESS motor code **37M2000000** +
drive code **37D2100000** (100W)

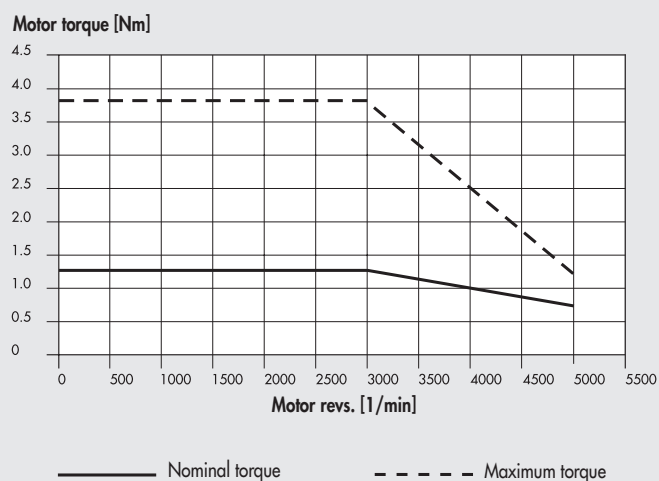


| TECHNICAL DATA | | MOTOR 37M2000000 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 0.32 |
| Coupling flange (square) | mm | 40 |
| Nominal power | W | 100 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 5000 |
| Stall torque | Nm | 0.32 |
| Maximum torque | Nm | 0.96 |
| Rotor inertia | kgmm ² | 3.7 |
| Mass | kg | 0.5 |
| Encoder | imp./giro | 131072 (17 bit) |
| Degree of protection | | IP65 |
| DRIVE | codice | 37D2100000 |
| CABLES | | |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130002 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230002 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150002 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250002 |
| Brushless motor-drive connecting dynamic cable, 10 metres | | 37C2100003 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200003 |

BRUSHLESS motor code **37M2200001** +
drive code **37D2200001** (200W)



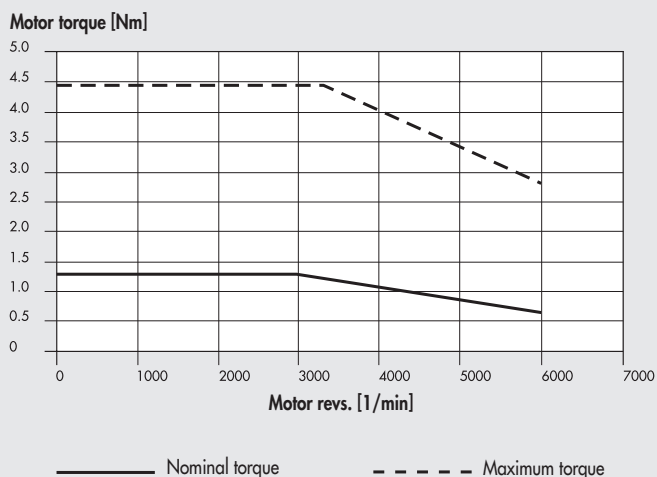
BRUSHLESS motor code **37M2220001** +
drive code **37D2300000** (400W)



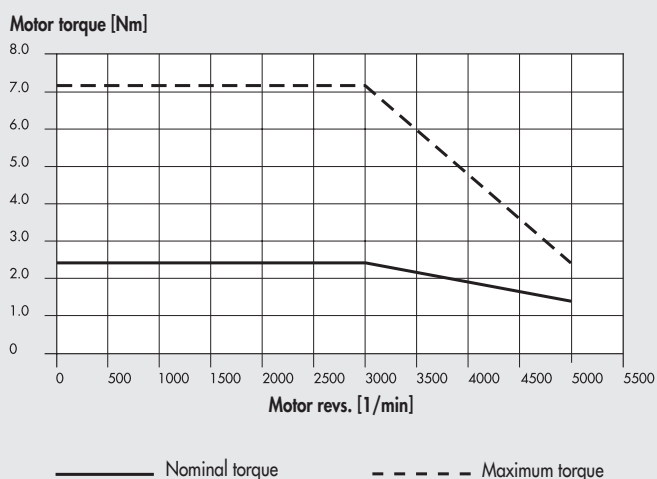
| TECHNICAL DATA | MOTOR 37M2200001 |
|---|----------------------------------|
| Motor type | BRUSHLESS |
| Temperature range | °C from 0 to +40 |
| Maximum relative humidity | 20 to 90% (no condensate) |
| Nominal torque | Nm 0.64 |
| Coupling flange (square) | mm 60 |
| Nominal power | W 200 |
| Nominal speed | rpm 3000 |
| Maximum speed | rpm 5000 |
| Stall torque | Nm 0.64 |
| Maximum torque | Nm 1.92 |
| Rotor inertia | kgmm ² 17.7 |
| Mass | kg 1.2 |
| Encoder | pulse/rev 131072 (17 bit) |
| Degree of protection | IP65 |
| DRIVE | code 37D2200001 |
| CABLES | |
| Brushless motor-drive, dynamic cable, 3 metres | 37C2130002 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | 37C2230002 |
| Brushless motor-drive, dynamic cable, 5 metres | 37C2150002 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | 37C2250002 |
| Brushless motor-drive connecting dynamic cable, 10 metres | 37C2100003 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | 37C2200003 |

| TECHNICAL DATA | MOTOR 37M2220001 |
|---|----------------------------------|
| Motor type | BRUSHLESS |
| Temperature range | °C from 0 to +40 |
| Maximum relative humidity | 20 to 90% (no condensate) |
| Nominal torque | Nm 1.27 |
| Coupling flange (square) | mm 60 |
| Nominal power | W 400 |
| Nominal speed | rpm 3000 |
| Maximum speed | rpm 5000 |
| Stall torque | Nm 1.27 |
| Maximum torque | Nm 3.82 |
| Rotor inertia | kgmm ² 27.7 |
| Mass | kg 1.6 |
| Encoder | pulse/rev 131072 (17 bit) |
| Degree of protection | IP65 |
| DRIVE | code 37D2300000 |
| CABLES | |
| Brushless motor-drive, dynamic cable, 3 metres | 37C2130002 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | 37C2230002 |
| Brushless motor-drive, dynamic cable, 5 metres | 37C2150002 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | 37C2250002 |
| Brushless motor-drive connecting dynamic cable, 10 metres | 37C2100003 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | 37C2200003 |

BRUSHLESS motor code **37M2220002** +
drive code **37D2300002** (400W)



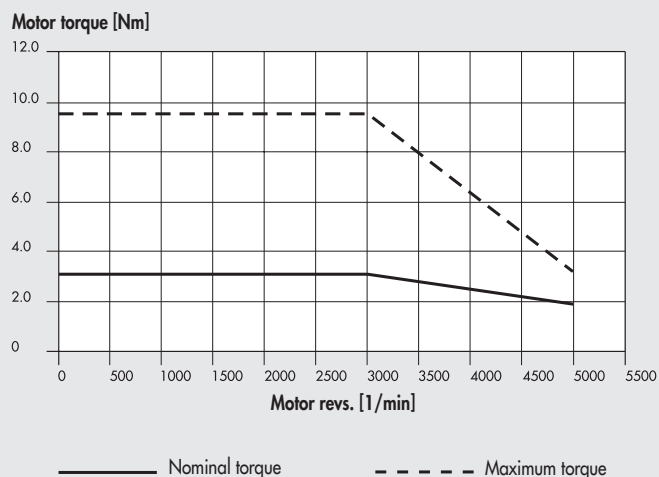
BRUSHLESS motor code **37M2330001** +
drive code **37D2400007** (750W)



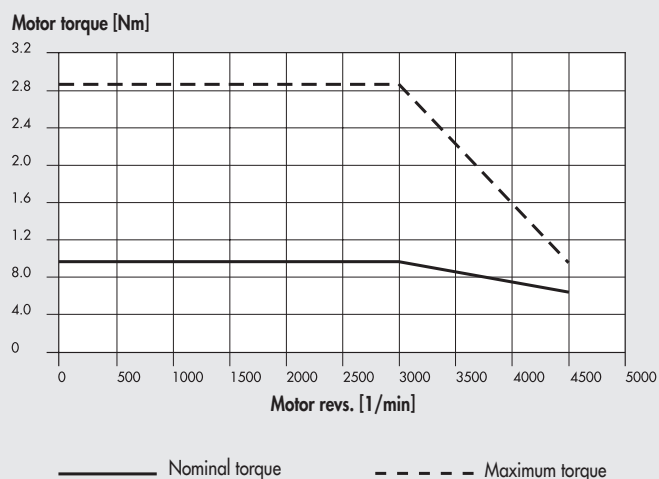
| TECHNICAL DATA | | MOTOR 37M2220002 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS B3 |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 1.27 |
| Coupling flange (square) | mm | 60 |
| Nominal power | W | 400 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 6000 |
| Stall torque | Nm | 1.3 |
| Maximum torque | Nm | 4.45 |
| Rotor inertia | kgmm ² | 25.4 |
| Mass | kg | 1.2 |
| Encoder | pulse/rev | 16777216 (24 bit) |
| Degree of protection | | IP67 |
| DRIVE | code | 37D2300002 |
| CABLES | | |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130002 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230006 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150002 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250007 |
| Brushless motor-drive connecting dynamic cable, 10 metres | | 37C2100003 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200006 |

| TECHNICAL DATA | | MOTOR 37M2330001 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 2.39 |
| Coupling flange (square) | mm | 80 |
| Nominal power | W | 750 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 5000 |
| Stall torque | Nm | 2.39 |
| Maximum torque | Nm | 7.17 |
| Rotor inertia | kgmm ² | 113 |
| Mass | kg | 3 |
| Encoder | pulse/rev | 1048576 (20 bit) |
| Degree of protection | | IP65 |
| DRIVE | code | 37D2400007 |
| CABLES | | |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130002 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230002 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150002 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250002 |
| Brushless motor-drive connecting dynamic cable, 10 metres | | 37C2100003 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200003 |

BRUSHLESS motor code **37M2640000** +
drive code **37D2400006** (1000W)



BRUSHLESS motor code **37M2770000** +
drive code **37D2600001** (3000W)



| TECHNICAL DATA | MOTOR 37M2640000 |
|---|---------------------------------|
| Motor type | BRUSHLESS |
| Temperature range | °C from 0 to +40 |
| Maximum relative humidity | 20 to 90% (no condensate) |
| Nominal torque | Nm 3.18 |
| Coupling flange (square) | mm 100 |
| Nominal power | W 1000 |
| Nominal speed | rpm 3000 |
| Maximum speed | rpm 5000 |
| Stall torque | Nm 3.18 |
| Maximum torque | Nm 9.54 |
| Rotor inertia | kgmm ² 265 |
| Mass | kg 4.3 |
| Encoder | pulse/rev 131072 (17bit) |
| Degree of protection | IP65 |
| DRIVE | code 37D2400006 |
| CABLES | |
| Brushless motor-drive, dynamic cable, 3 metres | 37C2130006 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | 37C2230007 |
| Brushless motor-drive, dynamic cable, 5 metres | 37C2150006 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | 37C2250008 |
| Brushless motor-drive connecting dynamic cable, 10 metres | 37C2100006 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | 37C2200007 |

| TECHNICAL DATA | MOTOR 37M2770000 |
|---|-----------------------------------|
| Motor type | BRUSHLESS |
| Temperature range | °C from 0 to +40 |
| Maximum relative humidity | 20 to 90% (no condensate) |
| Nominal torque | Nm 9.55 |
| Coupling flange (square) | mm 130 |
| Nominal power | W 3000 |
| Nominal speed | rpm 3000 |
| Maximum speed | rpm 4500 |
| Stall torque | Nm 9.55 |
| Maximum torque | Nm 28.65 |
| Rotor inertia | kgmm ² 1270 |
| Mass | kg 7.8 |
| Encoder | pulse/rev 1048576 (20 bit) |
| Degree of protection | IP65 |
| DRIVE | code 37D2600001 |
| CABLES | |
| Brushless motor-drive, dynamic cable, 3 metres | 37C2130006 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | 37C2230007 |
| Brushless motor-drive, dynamic cable, 5 metres | 37C2150006 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | 37C2250008 |
| Brushless motor-drive connecting dynamic cable, 10 metres | 37C2100006 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | 37C2200007 |

NOTES

ACTUATORS

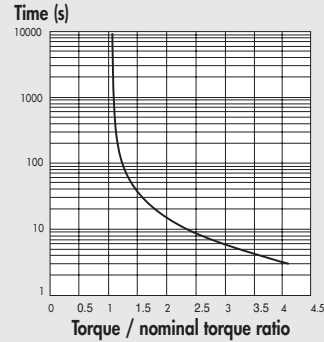
BRUSHLESS MOTORS

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BRUSHLESS MOTORS WITH BRAKE

OVERLOAD CURVES FOR ELECTRIC BRUSHLESS MOTORS (SANYO DENKI)

The torque used can exceed the nominal torque within the time limits shown in the diagram. Never exceed the maximum torque.

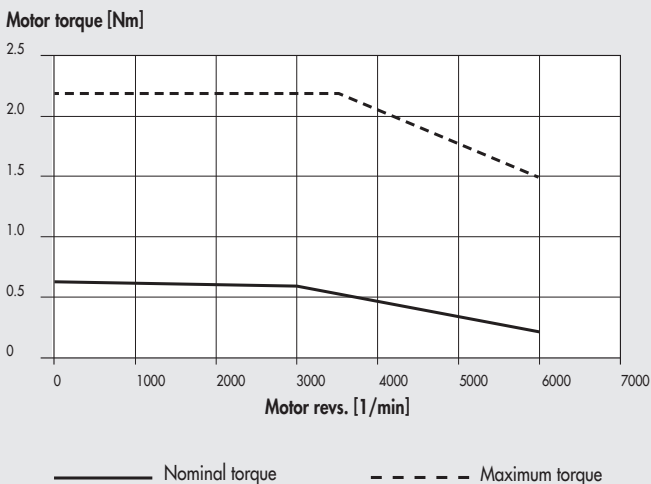


TORQUE CURVES / TECHNICAL FEATURES OF ELECTRIC BRUSHLESS MOTORS WITH BRAKE (SANYO DENKI)

The following diagrams show the torque delivered by the motor with changing speed (rpm). Each diagram shows two separate curves:

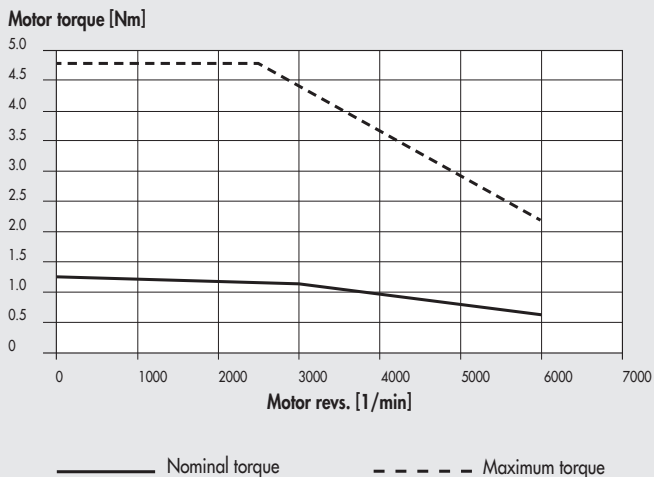
- **NOMINAL TORQUE** curve: the nominal torque delivered by the motor with a duty cycle of 100%
- **MAXIMUM TORQUE** curve: the torque delivered by the motor with a duty cycle of less than 100%

BRUSHLESS motor with BRAKE code **37M4200000** + drive code **37D2400008** (200W)

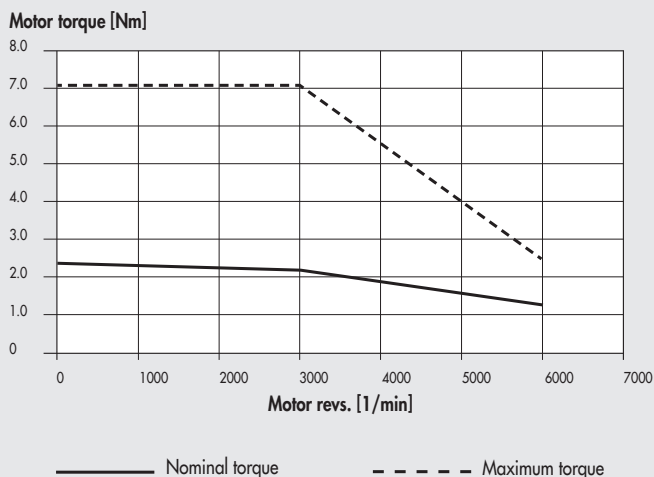


| TECHNICAL DATA | | MOTOR 37M4200000 |
|---|-------------------|----------------------|
| Motor type | | BRUSHLESS with BRAKE |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 90% (no condensate) |
| Nominal torque | Nm | 0.64 |
| Coupling flange (square) | mm | 60 |
| Nominal power | W | 200 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 6000 |
| Stall torque | Nm | 0.686 |
| Maximum torque | Nm | 2.2 |
| Rotor inertia | kgmm ² | 27.9 |
| Mass | kg | 1.23 |
| Encoder | pulse/rev | 131072 (17 bit) |
| Degree of protection | | IP65 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 1.37 min |
| DRIVE | code | 37D2400008 |
| CABLES | | |
| Brushless motor-drive, 3 metres | | 37C2130005 |
| Brushless motor-drive-encoder, 3 metres | | 37C2230005 |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130004 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230004 |
| Brushless motor-brake, dynamic cable, 3 metres | | 37C2330000 |
| Brushless motor-drive, 5 metres | | 37C2150005 |
| Brushless motor-drive-encoder, 5 metres | | 37C2250005 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150004 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250006 |
| Brushless motor-brake, dynamic cable, 5 metres | | 37C2350000 |
| Brushless motor-drive, dynamic cable, 10 metres | | 37C2100004 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200004 |
| Brushless motor-brake, dynamic cable, 10 metres | | 37C2310000 |

BRUSHLESS motor with BRAKE code **37M4220000** + drive code **37D2400008** (400W)



BRUSHLESS motor with BRAKE code **37M4330000** + drive code **37D2400008** (750W)

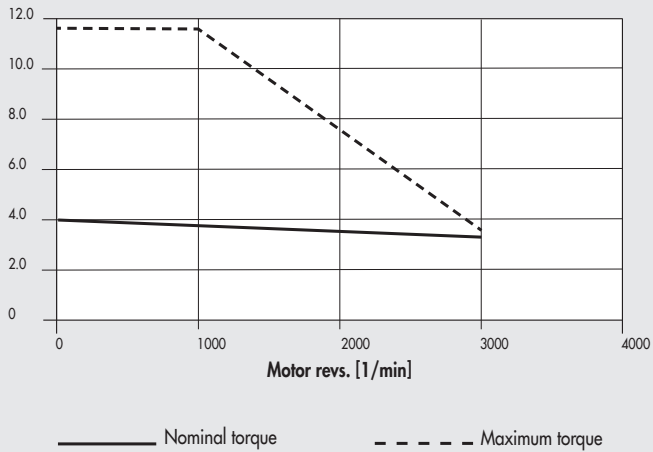


| TECHNICAL DATA | | MOTOR 37M4220000 |
|---|-------------------|----------------------|
| Motor type | | BRUSHLESS with BRAKE |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 90% (no condensate) |
| Nominal torque | Nm | 1.27 |
| Coupling flange (square) | mm | 60 |
| Nominal power | W | 400 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 6000 |
| Stall torque | Nm | 1.37 |
| Maximum torque | Nm | 4.8 |
| Rotor inertia | kgmm ² | 47.2 |
| Mass | kg | 1.69 |
| Encoder | pulse/rev | 131072 (17 bit) |
| Degree of protection | | IP65 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 1.37 min |
| DRIVE | | |
| code | | 37D2400008 |
| CABLES | | |
| Brushless motor-drive, 3 metres | | 37C2130005 |
| Brushless motor-drive-encoder, 3 metres | | 37C2230005 |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130004 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230004 |
| Brushless motor-brake, dynamic cable, 3 metres | | 37C2330000 |
| Brushless motor-drive, 5 metres | | 37C2150005 |
| Brushless motor-drive-encoder, 5 metres | | 37C2250005 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150004 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250006 |
| Brushless motor-brake, dynamic cable, 5 metres | | 37C2350000 |
| Brushless motor-drive, dynamic cable, 10 metres | | 37C2100004 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200004 |
| Brushless motor-brake, dynamic cable, 10 metres | | 37C2310000 |

| TECHNICAL DATA | | MOTOR 37M4330000 |
|---|-------------------|----------------------|
| Motor type | | BRUSHLESS with BRAKE |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 90% (no condensate) |
| Nominal torque | Nm | 2.39 |
| Coupling flange (square) | mm | 80 |
| Nominal power | W | 750 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 6000 |
| Stall torque | Nm | 2.55 |
| Maximum torque | Nm | 7.1 |
| Rotor inertia | kgmm ² | 207 |
| Mass | kg | 2.19 |
| Encoder | pulse/rev | 131072 (17 bit) |
| Degree of protection | | IP65 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 2.55 min |
| DRIVE | | |
| code | | 37D2400008 |
| CABLES | | |
| Brushless motor-drive, 3 metres | | 37C2130005 |
| Brushless motor-drive-encoder, 3 metres | | 37C2230005 |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130004 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230004 |
| Brushless motor-brake, dynamic cable, 3 metres | | 37C2330000 |
| Brushless motor-drive, 5 metres | | 37C2150005 |
| Brushless motor-drive-encoder, 5 metres | | 37C2250005 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150004 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250006 |
| Brushless motor-brake, dynamic cable, 5 metres | | 37C2350000 |
| Brushless motor-drive, dynamic cable, 10 metres | | 37C2100004 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200004 |
| Brushless motor-brake, dynamic cable, 10 metres | | 37C2310000 |

BRUSHLESS motor with BRAKE code **37M4540000** +
drive code **37D2400008** (1000W)

Motor torque [Nm]

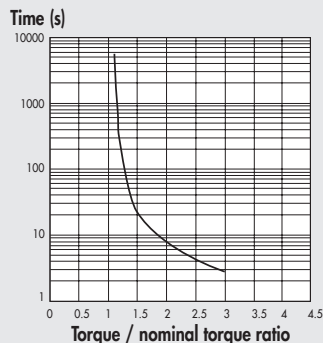


| TECHNICAL DATA | | MOTOR 37M4540000 |
|---|-------------------|----------------------|
| Motor type | | BRUSHLESS with BRAKE |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 90% (no condensate) |
| Nominal torque | Nm | 3.18 |
| Coupling flange (square) | mm | 86 |
| Nominal power | W | 1000 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 3000 |
| Stall torque | Nm | 3.92 |
| Maximum torque | Nm | 11.6 |
| Rotor inertia | kgmm ² | 272.6 |
| Mass | kg | 4.34 |
| Encoder | pulse/rev | 131072 (17 bit) |
| Degree of protection | | IP65 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 3.92 min |
| DRIVE | | |
| | code | 37D2400008 |
| CABLES | | |
| Brushless motor-drive , 3 metres | | 37C2130005 |
| Brushless motor-drive-encoder , 3 metres | | 37C2230005 |
| Brushless motor-drive, dynamic cable , 3 metres | | 37C2130004 |
| Brushless motor-drive-encoder, dynamic cable , 3 metres | | 37C2230004 |
| Brushless motor-brake, dynamic cable , 3 metres | | 37C2330000 |
| Brushless motor-drive , 5 metres | | 37C2150005 |
| Brushless motor-drive-encoder , 5 metres | | 37C2250005 |
| Brushless motor-drive, dynamic cable , 5 metres | | 37C2150004 |
| Brushless motor-drive-encoder, dynamic cable , 5 metres | | 37C2250006 |
| Brushless motor-brake, dynamic cable , 5 metres | | 37C2350000 |
| Brushless motor-drive, dynamic cable , 10 metres | | 37C2100004 |
| Brushless motor-drive-encoder, dynamic cable , 10 metres | | 37C2200004 |
| Brushless motor-brake, dynamic cable , 10 metres | | 37C2310000 |

NOTES

OVERLOAD CURVES FOR ELECTRIC BRUSHLESS MOTORS (DELTA)

The torque used can exceed the nominal torque within the time limits shown in the diagram. Never exceed the maximum torque.

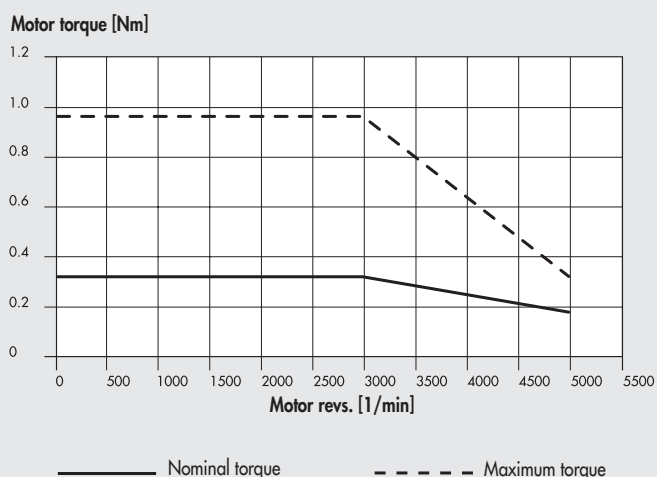


TORQUE CURVES / TECHNICAL FEATURES OF ELECTRIC BRUSHLESS MOTORS WITH BRAKE (DELTA)

The following diagrams show the torque delivered by the motor with changing speed (rpm). Each diagram shows two separate curves:

- **NOMINAL TORQUE** curve: the nominal torque delivered by the motor with a duty cycle of 100%
- **MAXIMUM TORQUE** curve: the torque delivered by the motor with a duty cycle of less than 100%

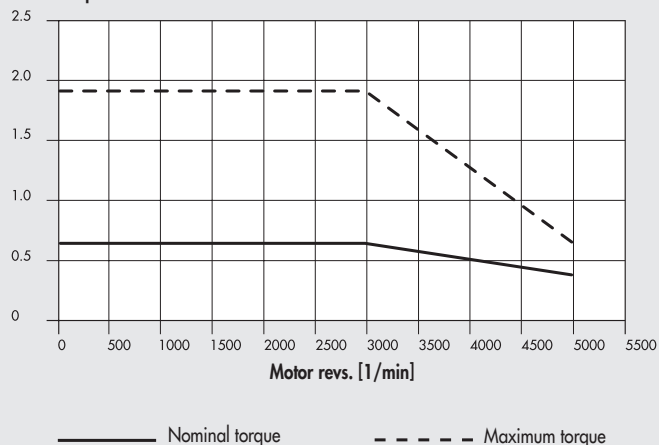
BRUSHLESS motor with BRAKE code **37M4000000** + drive code **37D2100000** (100W)



| TECHNICAL DATA | | MOTOR 37M4000000 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS with BRAKE |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 0.32 |
| Coupling flange (square) | mm | 40 |
| Nominal power | W | 100 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 5000 |
| Stall torque | Nm | 0.32 |
| Maximum torque | Nm | 0.96 |
| Rotor inertia | kgmm ² | 4 |
| Mass | kg | 0.8 |
| Encoder | imp./giro | 131072 (17 bit) |
| Degree of protection | | IP40 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 0.3 |
| Absorption | W | 7.2 |
| DRIVE | code | 37D2100000 |
| CABLES | | |
| Brushless motor-drive with brake dynamic cable, 3 metres | | 37C2730001 |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2230002 |
| Brushless motor-drive with brake dynamic cable, 5 metres | | 37C2750001 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250002 |
| Brushless motor-drive with brake dynamic cable, 10 metres | | 37C2700001 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200003 |

BRUSHLESS motor with BRAKE code **37M4200001** +
drive code **37D2200001** (200W)

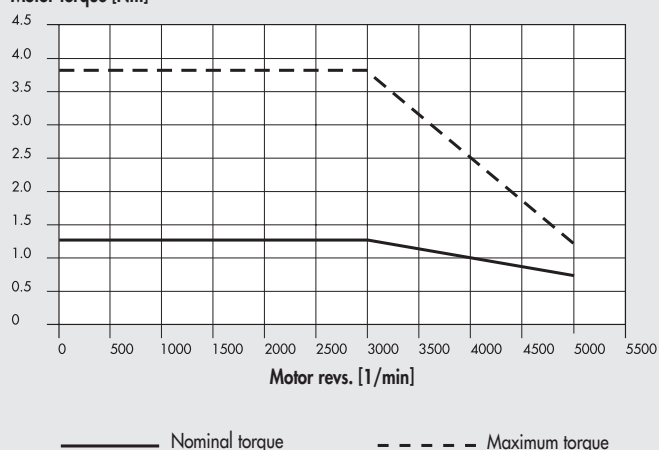
Motor torque [Nm]



| TECHNICAL DATA | | MOTOR 37M4200001 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS with BRAKE |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 0.64 |
| Coupling flange (square) | mm | 60 |
| Nominal power | W | 200 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 5000 |
| Stall torque | Nm | 0.64 |
| Maximum torque | Nm | 1.92 |
| Rotor inertia | kgmm ² | 19.2 |
| Mass | kg | 1.5 |
| Encoder | imp./giro | 131072 (17 bit) |
| Degree of protection | | IP40 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 1.3 |
| Absorption | W | 6.5 |
| DRIVE | code | 37D2200001 |
| CABLES | | |
| Brushless motor-drive with brake dynamic cable, 3 metres | | 37C2730001 |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2230002 |
| Brushless motor-drive with brake dynamic cable, 5 metres | | 37C2750001 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250002 |
| Brushless motor-drive with brake dynamic cable, 10 metres | | 37C2700001 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200003 |

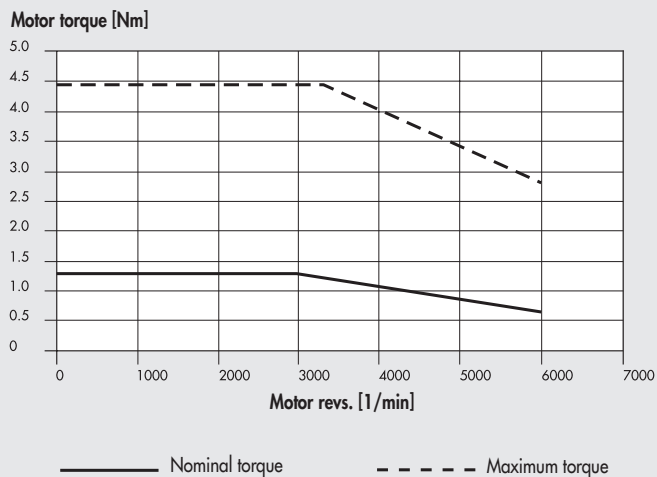
BRUSHLESS motor with BRAKE code **37M4220001** +
drive code **37D2300000** (400W)

Motor torque [Nm]

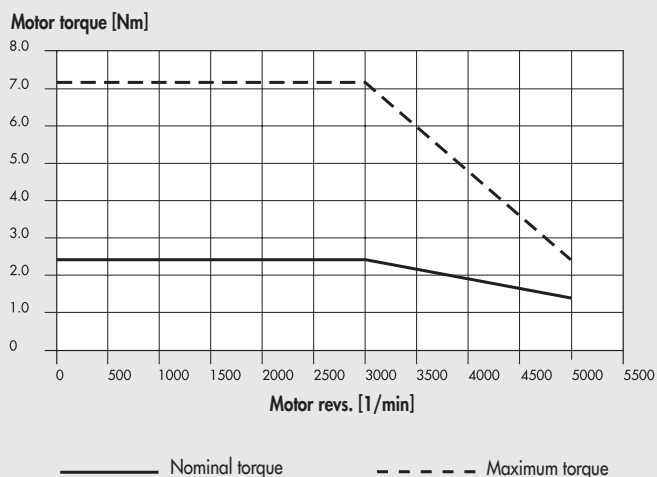


| TECHNICAL DATA | | MOTOR 37M4220001 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS with BRAKE |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 1.27 |
| Coupling flange (square) | mm | 60 |
| Nominal power | W | 400 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 5000 |
| Stall torque | Nm | 1.27 |
| Maximum torque | Nm | 3.82 |
| Rotor inertia | kgmm ² | 30 |
| Mass | kg | 2 |
| Encoder | pulse/rev | 131072 (17 bit) |
| Degree of protection | | IP40 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 1.3 |
| Absorption | W | 6.5 |
| DRIVE | code | 37D2300000 |
| CABLES | | |
| Brushless motor-drive with brake dynamic cable, 3 metres | | 37C2730001 |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2230002 |
| Brushless motor-drive with brake dynamic cable, 5 metres | | 37C2750001 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250002 |
| Brushless motor-drive with brake dynamic cable, 10 metres | | 37C2700001 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200003 |

BRUSHLESS motor with BRAKE code **37M4220002** + drive code **37D2300002** (400W)



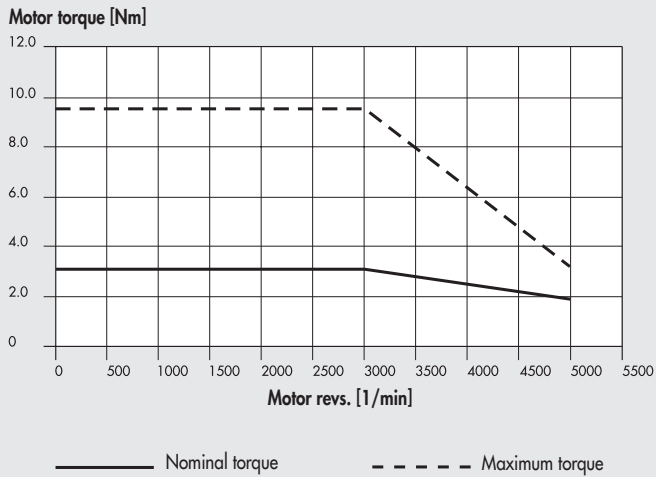
BRUSHLESS motor with BRAKE code **37M4330001** + drive code **37D2400007** (750W)



| TECHNICAL DATA | | MOTOR 37M4220002 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS with BRAKE B3 |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 1.27 |
| Coupling flange (square) | mm | 60 |
| Nominal power | W | 400 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 6000 |
| Stall torque | Nm | 1.3 |
| Maximum torque | Nm | 4.45 |
| Rotor inertia | kgmm ² | 26.4 |
| Mass | kg | 1.6 |
| Encoder | pulse/rev | 16777216 (24 bit) |
| Degree of protection | | IP67 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 1.3 |
| Absorption | W | 7.6 |
| DRIVE | | |
| code | | 37D2300002 |
| CABLES | | |
| Brushless motor-drive with brake dynamic cable, 3 metres | | 37C2730001 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230006 |
| Brushless motor-drive with brake dynamic cable, 5 metres | | 37C2750001 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250007 |
| Brushless motor-drive with brake dynamic cable, 10 metres | | 37C2700001 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200006 |

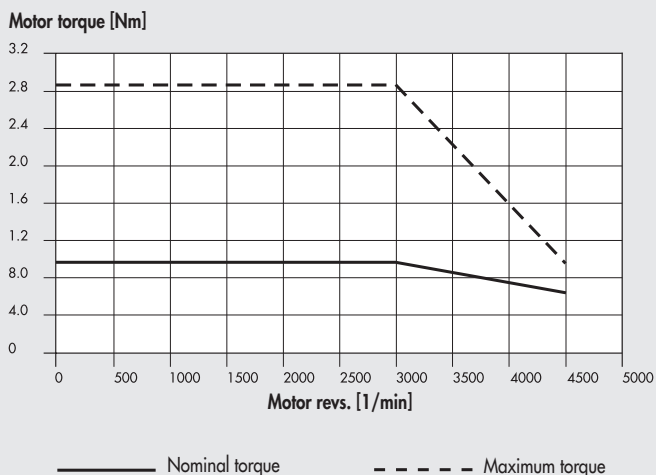
| TECHNICAL DATA | | MOTOR 37M4330001 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS with BRAKE |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 2.39 |
| Coupling flange (square) | mm | 80 |
| Nominal power | W | 750 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 5000 |
| Stall torque | Nm | 2.39 |
| Maximum torque | Nm | 7.17 |
| Rotor inertia | kgmm ² | 113 |
| Mass | kg | 3 |
| Encoder | pulse/rev | 1048576 (20 bit) |
| Degree of protection | | IP40 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 2.5 |
| Absorption | W | 6.5 |
| DRIVE | | |
| code | | 37D2400007 |
| CABLES | | |
| Brushless motor-drive with brake dynamic cable, 3 metres | | 37C2730001 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230002 |
| Brushless motor-drive with brake dynamic cable, 5 metres | | 37C2750001 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250002 |
| Brushless motor-drive with brake dynamic cable, 10 metres | | 37C2700001 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200003 |

BRUSHLESS motor with BRAKE code **37M4640000** +
drive code **37D2400006** (1000W)



| TECHNICAL DATA | | MOTOR 37M4640000 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 3.18 |
| Coupling flange (square) | mm | 100 |
| Nominal power | W | 1000 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 5000 |
| Stall torque | Nm | 3.18 |
| Maximum torque | Nm | 9.54 |
| Rotor inertia | kgmm ² | 333 |
| Mass | kg | 4.7 |
| Encoder | pulse/rev | 131072 (17bit) |
| Degree of protection | | IP65 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 10 |
| Absorption | W | 19 |
| DRIVE | code | 37D2400006 |
| CABLES | | |
| Brushless motor-drive with brake dynamic cable, 3 metres | | 37C2730002 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230007 |
| Brushless motor-drive with brake dynamic cable, 5 metres | | 37C2750003 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250008 |
| Brushless motor-drive with brake dynamic cable, 10 metres | | 37C2700002 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200007 |

BRUSHLESS motor with BRAKE code **37M4770000** +
drive code **37D2600001** (3000W)



| TECHNICAL DATA | | MOTOR 37M4770000 |
|---|-------------------|---------------------------|
| Motor type | | BRUSHLESS with BRAKE |
| Temperature range | °C | from 0 to +40 |
| Maximum relative humidity | | 20 to 90% (no condensate) |
| Nominal torque | Nm | 9.55 |
| Coupling flange (square) | mm | 130 |
| Nominal power | W | 3000 |
| Nominal speed | rpm | 3000 |
| Maximum speed | rpm | 4500 |
| Stall torque | Nm | 9.55 |
| Maximum torque | Nm | 28.65 |
| Rotor inertia | kgmm ² | 1400 |
| Mass | kg | 9.2 |
| Encoder | pulse/rev | 1048576 (20 bit) |
| Degree of protection | | IP65 |
| BRAKE | | |
| Supply voltage | VDC | 24 ±10% |
| Braking torque static | Nm | 10 |
| Absorption | W | 19 |
| DRIVE | code | 37D2600001 |
| CABLES | | |
| Brushless motor-drive with brake dynamic cable, 3 metres | | 37C2730002 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230007 |
| Brushless motor-drive with brake dynamic cable, 5 metres | | 37C2750003 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250008 |
| Brushless motor-drive with brake dynamic cable, 10 metres | | 37C2700002 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200007 |

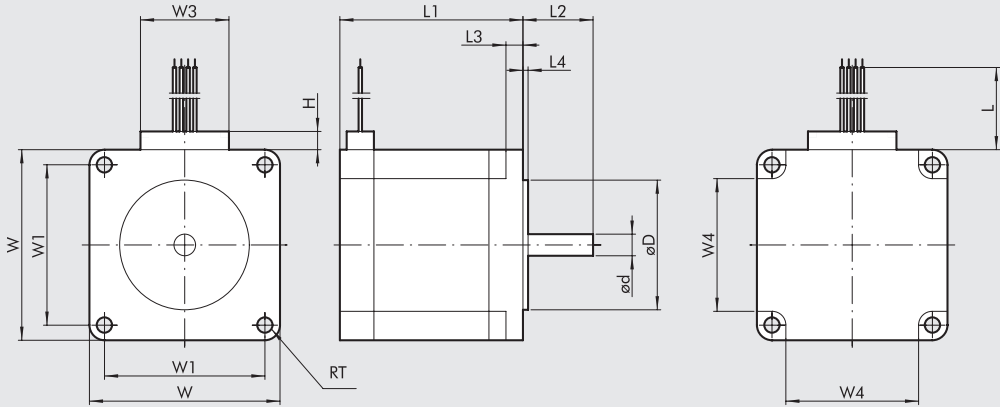
ACTUATORS

BRUSHLESS MOTORS WITH BRAKE

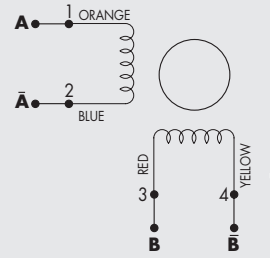
NOTES

Area with horizontal lines for notes.

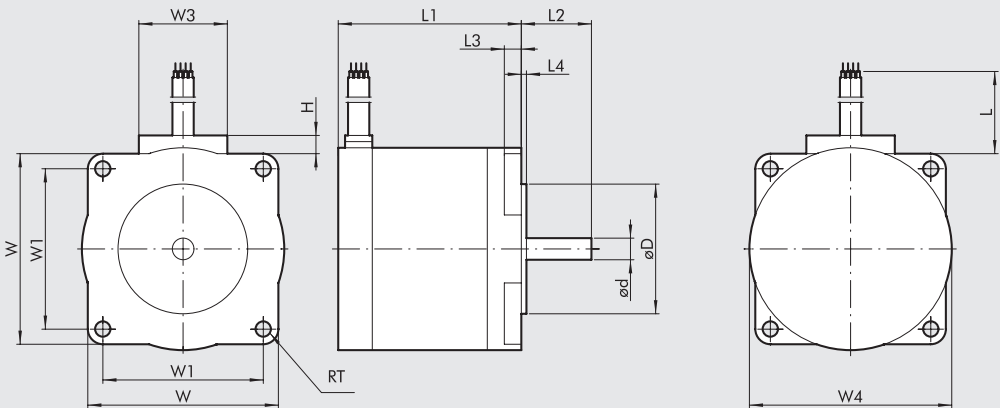
DIMENSIONS OF ELECTRIC MOTORS



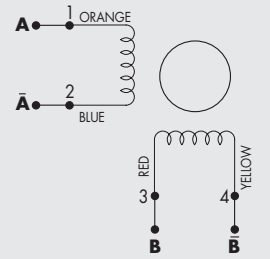
WIRING DIAGRAM



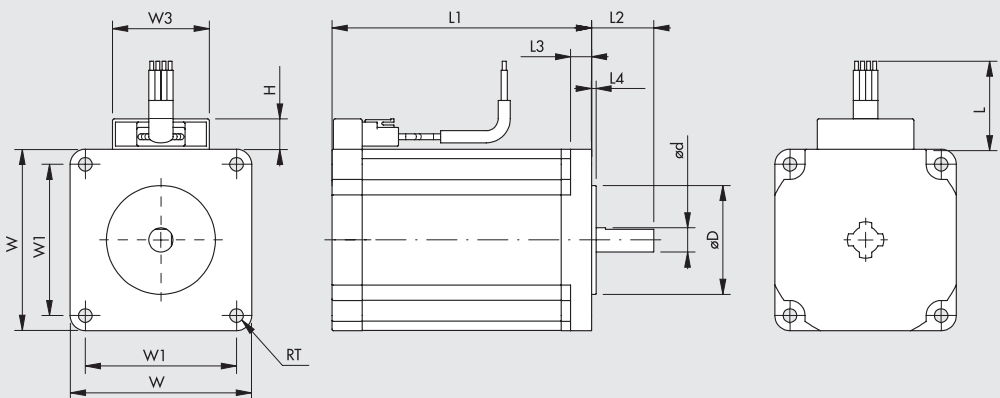
| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.013 | øD ±0.025 | H | L min | L1 ±0.8 | L2 ±0.5 | L3 ±0.25 | L4 ±0.25 | RT +0.5/0 | W ±0.5 | W1 ±0.13 | W3 max | W4 ±0.5 |
|------------|------------|-------------------|-----------------|----------------|--------------|----|----------|------------|------------|-------------|-------------|--------------|-----------|-------------|-----------|------------|
| STEPPING | 37M1110000 | 0.8 | NEMA 23 | 6.35 | 38.1 | 7 | 305 | 53.8 | 20.6 | 5 | 1.5 | 4.5 | 56 | 47.14 | 26 | 39 |
| | 37M1120000 | 1.2 | NEMA 23 | 6.35 | 38.1 | 7 | 305 | 75.8 | 20.6 | 5 | 1.5 | 4.5 | 56 | 47.14 | 26 | 39 |
| | 37M1120001 | 1.2 | NEMA 23 | 6.35 | 38.1 | 10 | 305 | 75.8 | 20.6 | 5 | 1.5 | 4.5 | 56 | 47.14 | 39 | 39 |



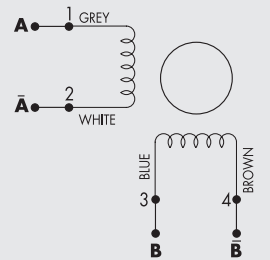
WIRING DIAGRAM



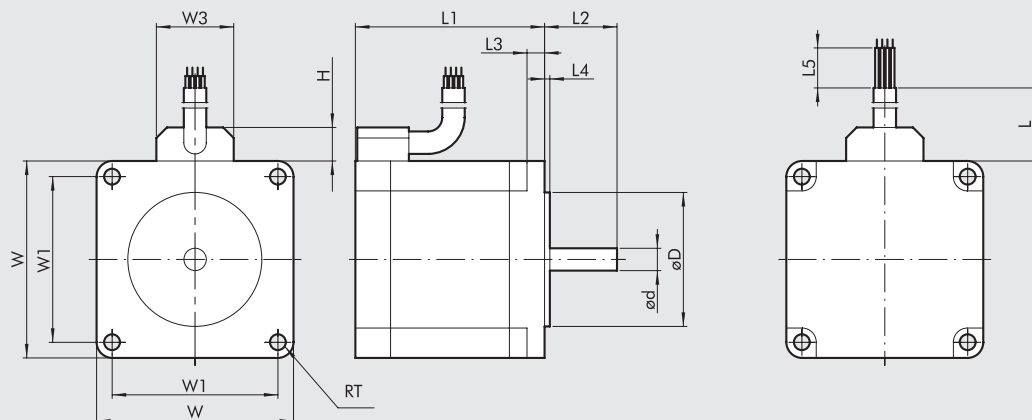
| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.018 | øD ±0.025 | H | L min | L1 | L2 ±0.5 | L3 ±0.50 | L4 ±0.25 | RT +0.5/0 | W ±0.5 | W1 ±0.2 | W3 | W4 ±0.5 |
|------------|------------|-------------------|-----------------|----------------|--------------|----|----------|------|------------|-------------|-------------|--------------|-----------|------------|----|------------|
| STEPPING | 37M1430000 | 2.4 | NEMA 34 | 9.525 | 73.02 | 10 | 305 | 62 | 30 | 4.8 | 1.5 | 5.4 | 82.5 | 69.6 | 37 | 85.8 |
| | 37M1440000 | 4.2 | NEMA 34 | 12 | 73.02 | 10 | 305 | 92.2 | 30 | 4.8 | 1.5 | 5.4 | 82.5 | 69.6 | 37 | 85.8 |
| | 37M1890000 | 17.5 | NEMA 42 | 16 | 55.52 | 10 | 305 | 221 | 35 | 8.6 | 1.5 | 6.9 | 106.4 | 88.9 | 37 | 106.4 |



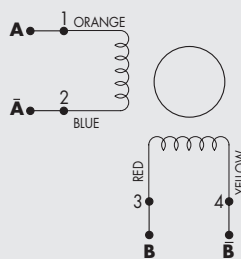
WIRING DIAGRAM



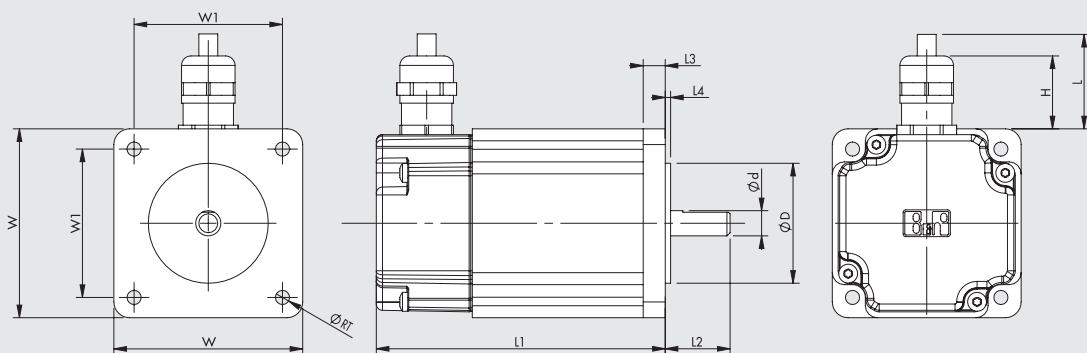
| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.018 | øD ±0.025 | H max | L min | L1 ±1 | L2 ±0.5 | L3 ±0.50 | L4 ±0.25 | RT +0.2 | W ±0.5 | W1 ±0.25 | W3 max |
|------------|------------|-------------------|-----------------|----------------|--------------|----------|----------|----------|------------|-------------|-------------|------------|-----------|-------------|-----------|
| STEPPING | 37M1230000 | 2.2 | 60 | 8 | 36 | 10 | 300 | 86 | 20.6 | 7 | 1.5 | 4.5 | 60 | 50 | 32 |



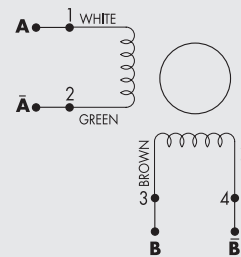
WIRING DIAGRAM



| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.018 | øD ±0.025 | H max | L min | L1 ±1 | L2 ±0.5 | L3 ±0.50 | L4 ±0.25 | L5 | RT +0.2 | W ±0.5 | W1 ±0.25 | W3 max |
|------------|------------|-------------------|-----------------|-------------|-----------|-------|-------|-------|---------|----------|----------|----|---------|--------|----------|--------|
| STEPPING | 37M1450000 | 6.7 | NEMA 34 | 14 | 73.025 | 12 | 305 | 127 | 30 | 8 | 1.5 | 50 | 5.6 | 85.5 | 69.6 | 27 |

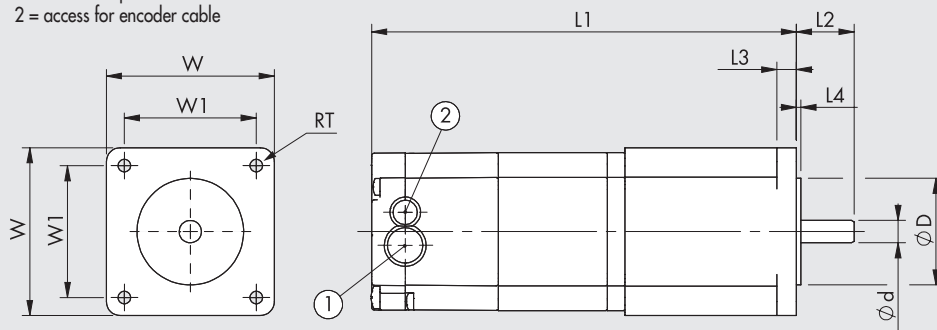


WIRING DIAGRAM

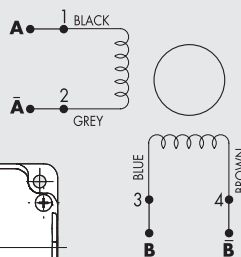


| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.013 | øD ±0.025 | H | L min | L1 ±1 | L2 ±0.5 | L3 ±0.50 | L4 ±0.25 | RT +0.2 | W ±0.5 | W1 ±0.13 |
|------------|------------|-------------------|-----------------|-------------|-----------|----|-------|-------|---------|----------|----------|---------|--------|----------|
| STEPPING | 37M1220000 | 1.2 | 60 | 8 | 38.1 | 23 | 1023 | 91.8 | 20.6 | 7 | 1.6 | 4.5 | 60 | 47.14 |

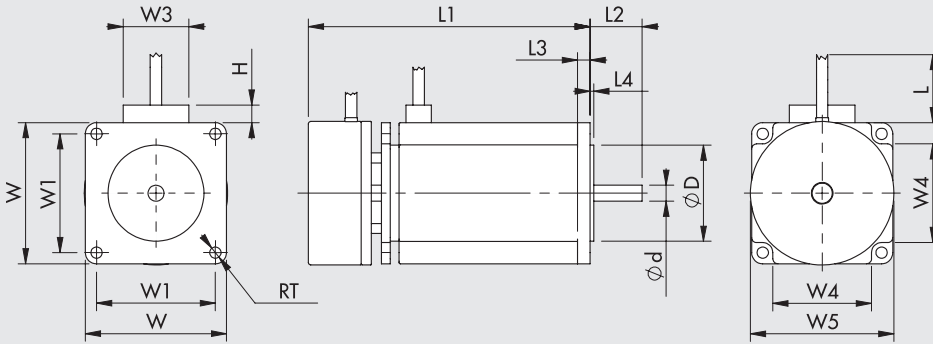
1 = access for power cable and brake
2 = access for encoder cable



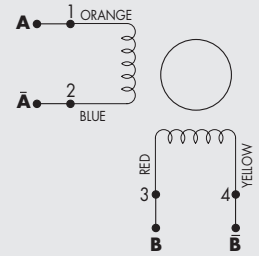
WIRING DIAGRAM



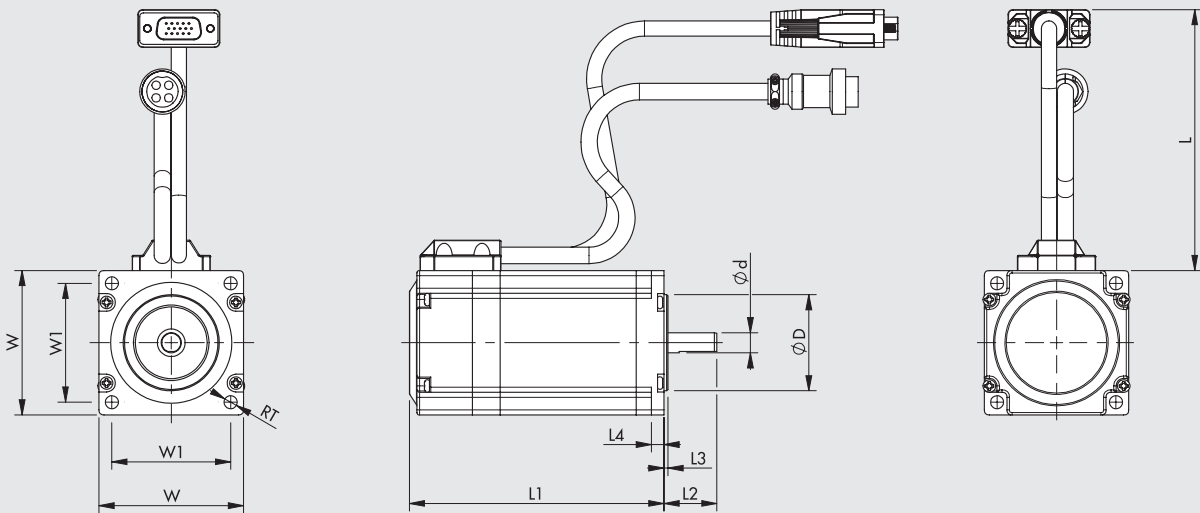
| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.013 | øD ±0.025 | L1 | L2 ±0.51 | L3 | L4 | RT | W | W1 ±0.13 |
|------------|------------|-------------------|-----------------|-------------|-----------|-------|----------|------|------|-----|------|----------|
| STEPPING | 37M1470000 | 9.3 | NEMA 34 | 12.7 | 73.025 | 130 | 31.75 | 9.91 | 2.03 | 5.6 | 86.6 | 69.6 |
| STEPPING | 37M8220000 | 1.2 | 60 | 8 | 38.1 | 106.6 | 20.6 | 7 | 1.6 | 4.5 | 60 | 47.14 |
| + ENCODER | 37M8470000 | 9.3 | NEMA 34 | 12.7 | 73.025 | 165.4 | 31.75 | 9.91 | 2.03 | 5.6 | 86.6 | 69.6 |
| STEPPING | 37M3220000 | 1.2 | 60 | 8 | 38.1 | 151.8 | 20.6 | 7 | 1.6 | 4.5 | 60 | 47.14 |
| + BRAKE | 37M3230000 | 2.5 | 60 | 8 | 38.1 | 184.5 | 20.6 | 7 | 1.6 | 4.5 | 60 | 47.14 |
| + ENCODER | 37M3430000 | 2.9 | NEMA 34 | 12.7 | 73.02 | 156.5 | 31.75 | 9.9 | 2 | 5.6 | 86.6 | 69.6 |
| | 37M3460000 | 5.5 | NEMA 34 | 12.7 | 73.02 | 188.5 | 31.75 | 9.9 | 2 | 5.6 | 86.6 | 69.6 |
| | 37M3450000 | 6.3 | NEMA 34 | 12.7 | 73.02 | 188.5 | 31.75 | 9.9 | 2 | 5.6 | 86.6 | 69.6 |
| | 37M3470000 | 9.3 | NEMA 34 | 12.7 | 73.02 | 220.5 | 31.75 | 9.9 | 2 | 5.6 | 86.6 | 69.6 |



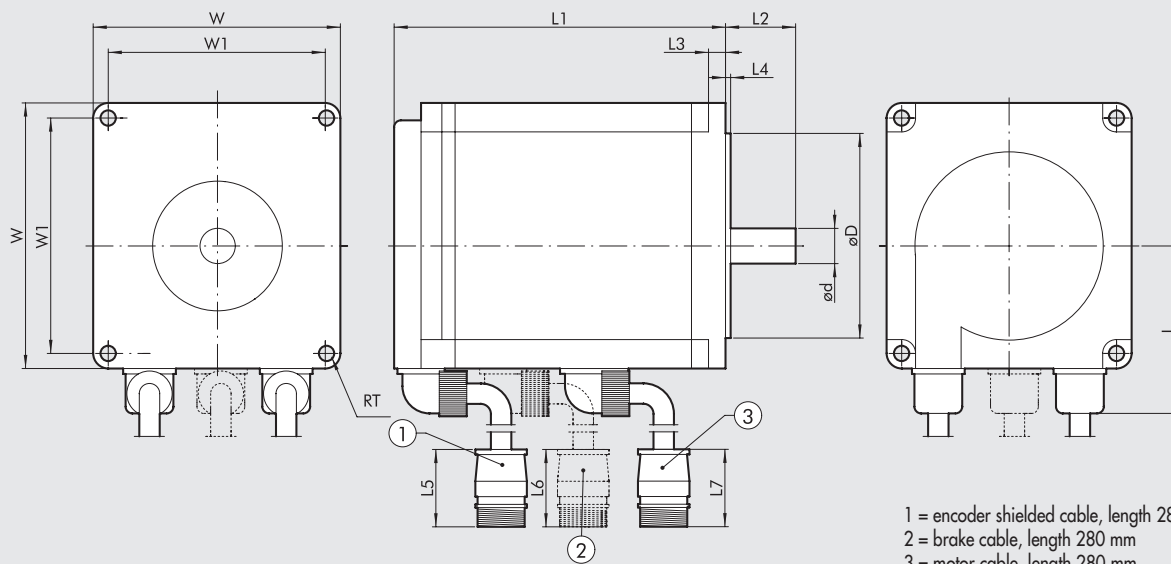
WIRING DIAGRAM



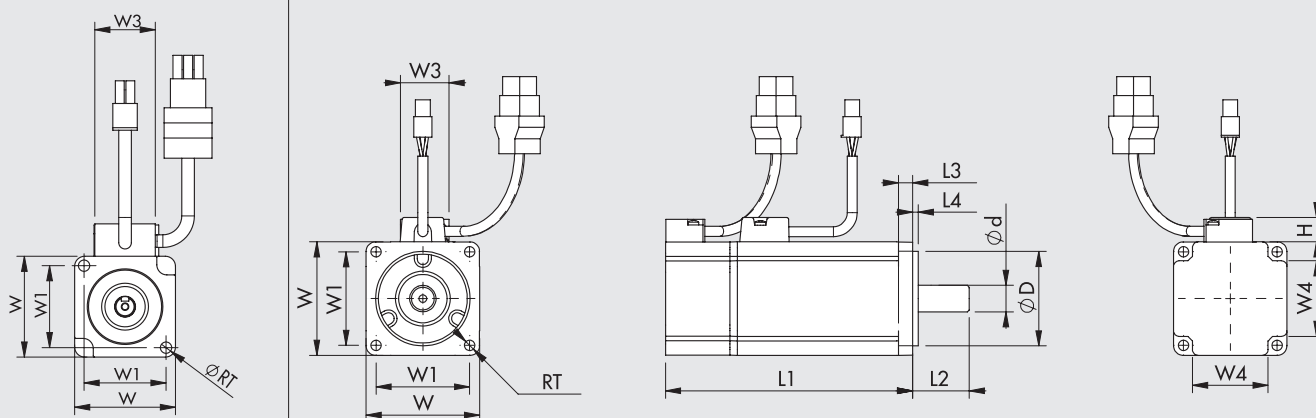
| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.013 | øD ±0.025 | H | L min | L1 ±0.8 | L2 ±0.5 | L3 ±0.25 | L4 ±0.25 | RT +0.5/0 | W ±0.5 | W1 ±0.13 | W3 max | W4 ±0.5 | W5 ±0.5 |
|------------------|------------|-------------------|-----------------|----------------|--------------|---|----------|------------|------------|-------------|-------------|--------------|-----------|-------------|-----------|------------|------------|
| STEPPING + BRAKE | 37M5120000 | 1.2 | NEMA 23 | 6.35 | 38.1 | 7 | 305 | 111.8 | 20.6 | 5 | 1.5 | 4.5 | 56 | 47.14 | 26 | 39 | 56.9 |



| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.013 | øD 0/-0.05 | L | L1 | L2 | L3 | L4 | RT | W | W1 ±0.25 |
|--------------------|------------|-------------------|-----------------|----------------|---------------|-----|-------|----|-----|----|------|-------|-------------|
| STEPPING + ENCODER | 37M1820000 | 1.4 | NEMA 23 | 8 | 38.1 | 300 | 101 | 21 | 1.6 | 5 | 5.15 | 56.4 | 47.14 |
| | 37M8440001 | 4.8 | NEMA 34 | 14 | 73 | 270 | 134.1 | 37 | 1.6 | 5 | 6.5 | 85.85 | 69.58 |
| STEPPING + BRAKE | 37M1320000 | 1.4 | NEMA 23 | 8 | 38.1 | 270 | 137.5 | 21 | 1.6 | 5 | 5.15 | 57.15 | 47.14 |
| | 37M3440000 | 4.8 | NEMA 34 | 14 | 73 | 270 | 174.8 | 37 | 1.6 | 5 | 6.5 | 85.85 | 69.58 |

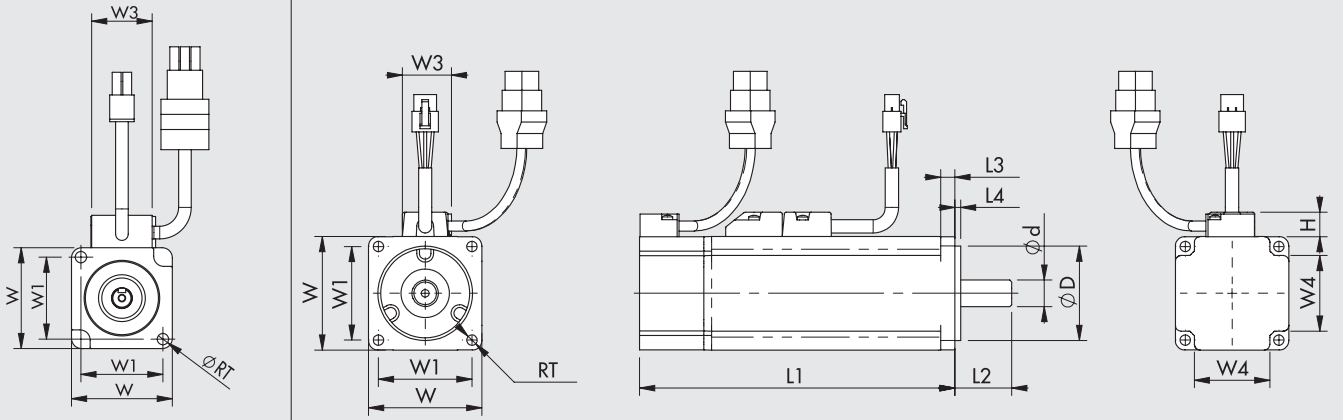


| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.011 | øD h7 | L | L1 ±1 | L2 ±1 | L3 | L4 | L5 | L6 | L7 | RT | W | W1 |
|---------------------------------|------------|-------------------|-----------------|-------------|-------|-------|--------|-------|----|----|----|----|----|-----|----|------|
| BRUSHLESS (SANYO DENKI) | 37M2200000 | 0.64 | 60 | 14 | 50 | 44.6 | 69.5 | 30 | 6 | 3 | 55 | - | 58 | 5.5 | 60 | 49.5 |
| | 37M2220000 | 1.27 | 60 | 14 | 50 | 44.6 | 95.5 | 30 | 6 | 3 | 55 | - | 58 | 5.5 | 60 | 49.5 |
| | 37M2330000 | 2.39 | 80 | 16 | 70 | 54.4 | 107.3 | 40 | 8 | 3 | 55 | - | 58 | 6.6 | 80 | 63.6 |
| | 37M2540000 | 3.18 | 86 | 16 | 80 | 59.55 | 137.1 | 35 | 8 | 3 | 55 | - | 58 | 6.6 | 86 | 70.7 |
| BRUSHLESS + BRAKE (SANYO DENKI) | 37M4200000 | 0.64 | 60 | 14 | 50 | 44.6 | 97.5 | 30 | 6 | 3 | 55 | 55 | 58 | 5.5 | 60 | 49.5 |
| | 37M4220000 | 1.27 | 60 | 14 | 50 | 44.6 | 117.5 | 30 | 6 | 3 | 55 | 55 | 58 | 5.5 | 60 | 49.5 |
| | 37M4330000 | 2.39 | 80 | 16 | 70 | 54.4 | 143 | 40 | 8 | 3 | 55 | 55 | 58 | 6.6 | 80 | 63.4 |
| | 37M4540000 | 3.18 | 86 | 16 | 80 | 59.55 | 162.95 | 35 | 8 | 3 | 55 | 55 | 58 | 6.6 | 86 | 70.7 |



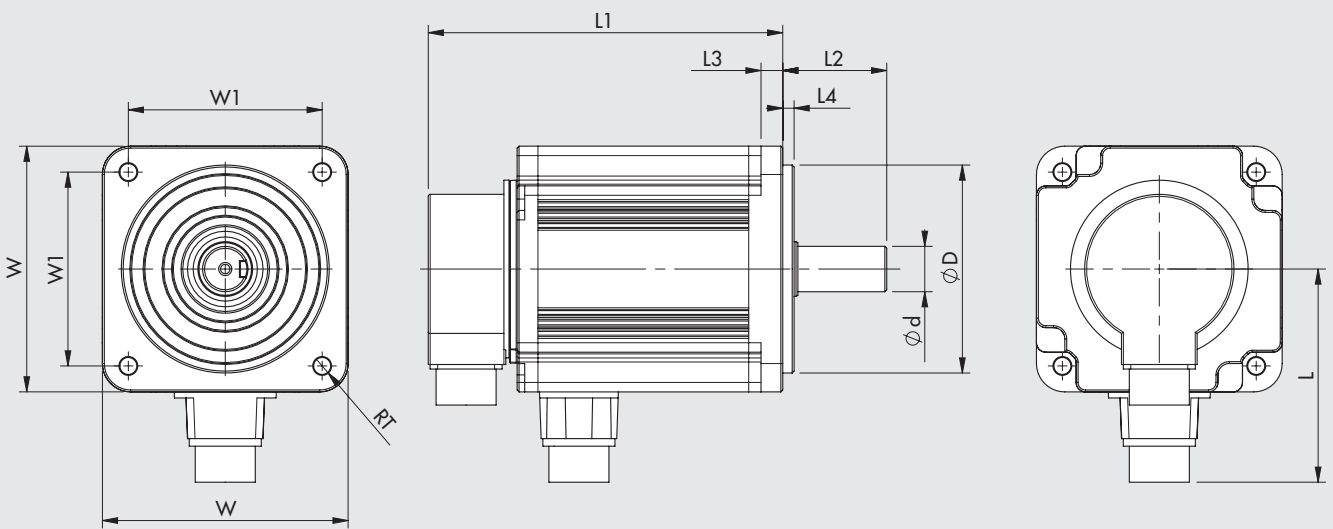
View for motor 37M2000000

| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.011 | øD 0/-0.025 | H max | L1 ±0.3 | L2 ±0.2 | L3 ±0.2 | L4 ±0.2 | RT ±0.2 | W ±0.25 | W1 ±0.2 | W3 max | W4 ±0.2 |
|-------------------|------------|-------------------|-----------------|-------------|-------------|-------|---------|---------|---------|---------|---------|---------|---------|--------|---------|
| BRUSHLESS (DELTA) | 37M2000000 | 0.32 | 40 | 8 | 30 | 13 | 100.6 | 25 | 5 | 2.5 | 4.5 | 40 | 32.53 | 25 | - |
| | 37M2200001 | 0.64 | 60 | 14 | 50 | 13 | 105.5 | 30 | 7.5 | 3 | 5.5 | 60 | 49.5 | 25 | 40 |
| | 37M2220001 | 1.27 | 60 | 14 | 50 | 13 | 130.7 | 30 | 7.5 | 3 | 5.5 | 60 | 49.5 | 30 | 40 |
| | 37M2330001 | 2.39 | 80 | 19 | 70 | 13 | 138.3 | 35 | 8 | 3 | 6.6 | 80 | 63.64 | 30 | 52 |

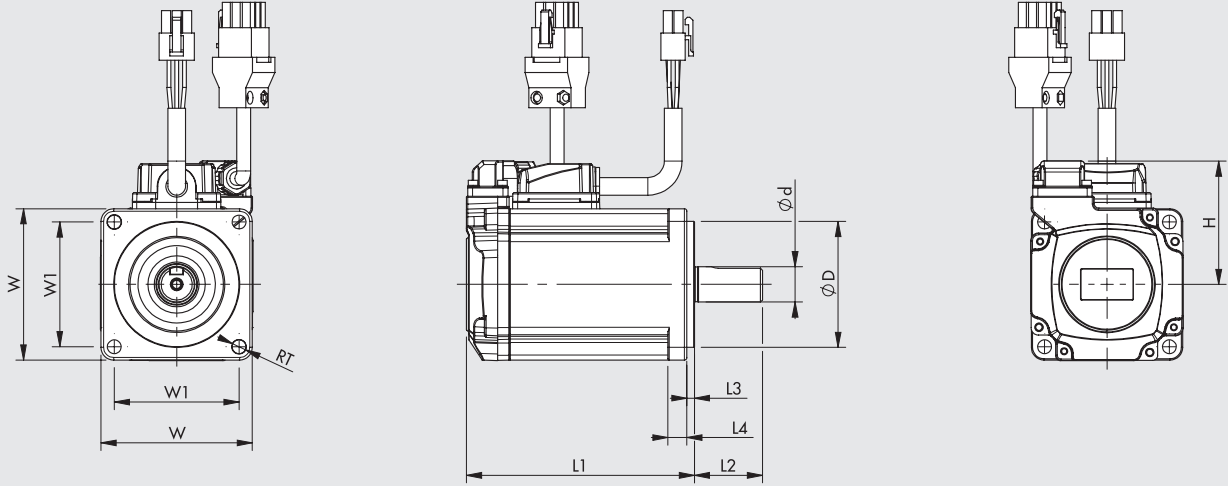


View for motor 37M4000000

| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.011 | øD 0/-0.025 | H max | L1 ±0.3 | L2 ±0.2 | L3 ±0.2 | L4 ±0.2 | RT ±0.2 | W ±0.25 | W1 ±0.2 | W3 max | W4 ±0.2 |
|---------------------------|------------|-------------------|-----------------|----------------|----------------|----------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|
| BRUSHLESS + BRAKE (DELTA) | 37M4000000 | 0.32 | 40 | 8 | 30 | 13 | 136.6 | 25 | 5 | 2.5 | 4.5 | 40 | 32.53 | 25 | - |
| | 37M4200001 | 0.64 | 60 | 14 | 50 | 13 | 141.6 | 30 | 7.5 | 3 | 5.5 | 60 | 49.5 | 25 | 40 |
| | 37M4220001 | 1.27 | 60 | 14 | 50 | 13 | 166.8 | 30 | 7.5 | 3 | 5.5 | 60 | 49.5 | 30 | 40 |
| | 37M4330001 | 2.39 | 80 | 19 | 70 | 13 | 178 | 35 | 8 | 3 | 6.6 | 80 | 63.64 | 30 | 52 |



| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.013 | øD 0/-0.035 | L | L1 | L2 | L3 | L4 | RT | W | W1 |
|---------------------------|------------|-------------------|-----------------|----------------|----------------|-------|--------|----|------|----|----|-----|--------|
| BRUSHLESS (DELTA) | 37M2640000 | 3.18 | 100 | 19 | 95 | 97.75 | 153.25 | 45 | 12 | 5 | 9 | 100 | 81.32 |
| | 37M2770000 | 9.55 | 130 | 24 | 110 | 113 | 187.5 | 55 | 11.5 | 6 | 9 | 130 | 102.53 |
| BRUSHLESS + BRAKE (DELTA) | 37M4640000 | 3.18 | 100 | 19 | 95 | 98.05 | 192.5 | 45 | 12 | 5 | 9 | 100 | 81.32 |
| | 37M4770000 | 9.55 | 130 | 24 | 110 | 111 | 216 | 55 | 11.5 | 6 | 9 | 130 | 102.53 |



| Motor type | Motor code | Motor torque [Nm] | Coupling flange | ød 0/-0.011 | øD 0/-0.025 | H | L1 | L2 | L3 | L4 | RT | W | W1 |
|------------------------------|------------|-------------------|-----------------|----------------|----------------|------|-------|----|----|-----|-----|----|------|
| BRUSHLESS (DELTA B3) | 37M2220002 | 1.27 | 60 | 14 | 50 | 48.5 | 91 | 30 | 3 | 7.5 | 5.5 | 60 | 49.5 |
| BRUSHLESS + BRAKE (DELTA B3) | 37M4220002 | 1.27 | 60 | 14 | 50 | 48.5 | 127.9 | 30 | 3 | 7.5 | 5.5 | 60 | 49.5 |

NOTES

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NOTES

ACTUATORS

DIMENSIONS OF ELECTRIC MOTORS

PROGRAMMABLE UNIT

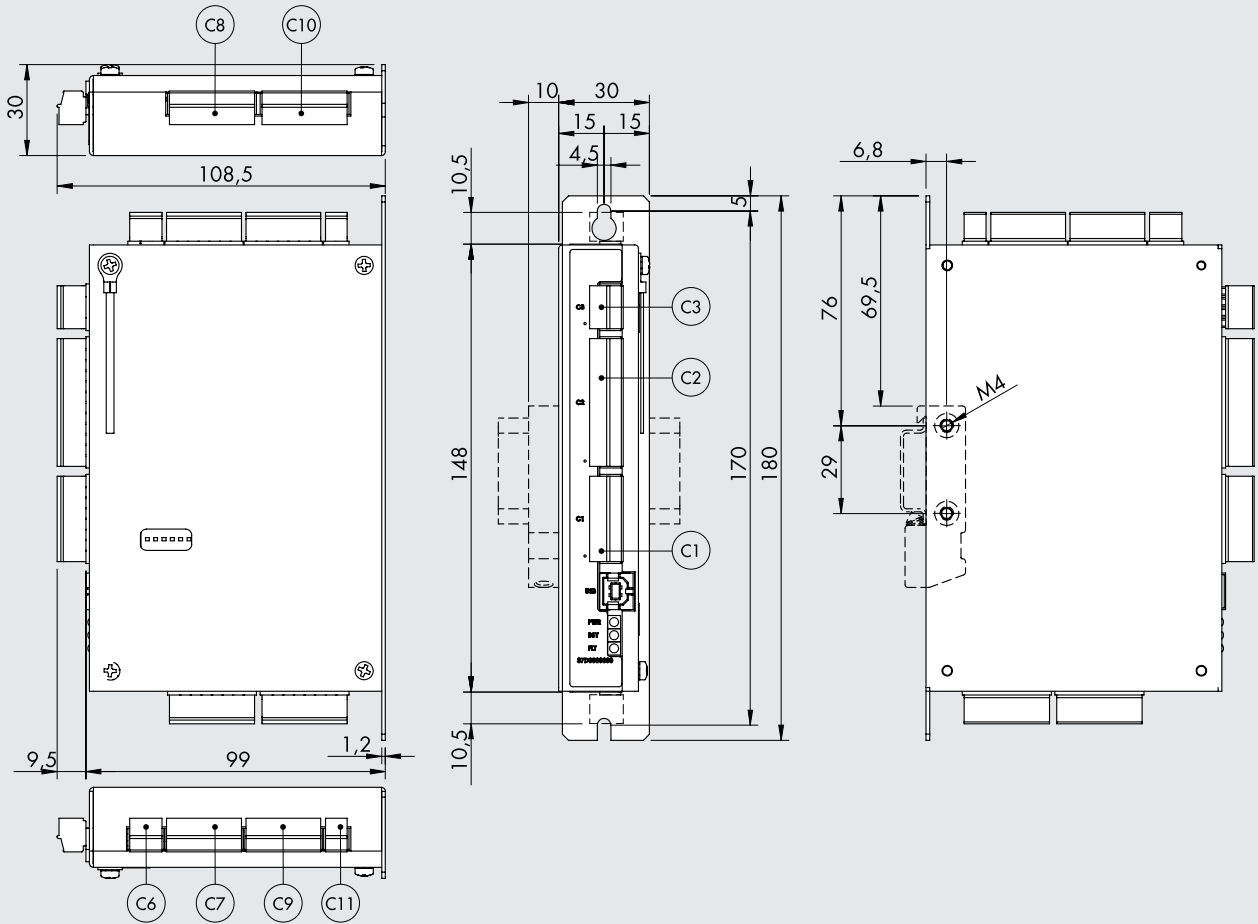
e.motion

An independent system, ideal for stand-alone applications not requiring the use of any PLC. It can control electric cylinders simply and intuitively, or any other electric actuator, using either a STEPPING MOTOR or a BRUSHLESS motor of any size and capacity, connected to the relevant drive with a STEP/DIRECTION interface. It is connected to PC via USB port, and the user has access to a motion-control configuration, programming and debug environment irrespective of the type of motor/drive/actuator chosen, which uses a user-friendly language (MW POS) and a set of simple instructions and functions to create work cycles, including complex ones as it can handle both digital and analogue inputs and outputs. It consists of an electronic board housed in a metal box, which is designed for fixing to a wall or on a DIN bar with a fitting, and is equipped with removable screw connectors for wiring purposes.



| TECHNICAL DATA | |
|---|---|
| Code | 37D0000000 |
| Stand-alone motion programming unit for motors-drives with a STEP/DIRECTION interface, type | Metal box |
| Dimensions | mm 148 x 99 x 30 |
| Weight | g 460 |
| Connectors | Screw type |
| Temperature range | 0 to 50 °C – relative humidity 10-90%, non-condensing |
| Degree of protection | IP 20 |
| Voltage | 24VDC ±10% |
| Communication interface | Serial USB port for connection to PC |
| Configuration/programming/debug and diagnosis software | MW POS in Windows® environment |
| Dedicated signals | Encoder input (A + B + Z), Line Driver type STEP/DIRECTION outputs, with frequency up to 100 kHz, Line Driver type |
| Digital inputs | 16, optoisolati, configurabili PNP o NPN, liberamente programmabili |
| Analogue inputs | 2, from 0 to 10V, freely programmable |
| Digital outputs | 15, Line Driver type, PNP, freely programmable |
| Analogue outputs | 1, from 0 to 10V, freely programmable |
| Controls available | <ul style="list-style-type: none"> - Search for home position on the end stop, up against the stop, on the end stop and the encoder mark, up against the stop and the encoder zero mark; - Positioning in relative or absolute mode; - Force control; - Closed-loop motion control and step-loss control in the case of STEPPING motors with encoder; - Integrated brake control in the case of motors with a brake; - Possible control of multiple separate drivers in parallel for concurrent applications; - Complementary and logical instructions for complex work cycles, such as: <ul style="list-style-type: none"> timings; repetitions; analogue and digital I/O control; variables control; tests |

DIMENSIONS

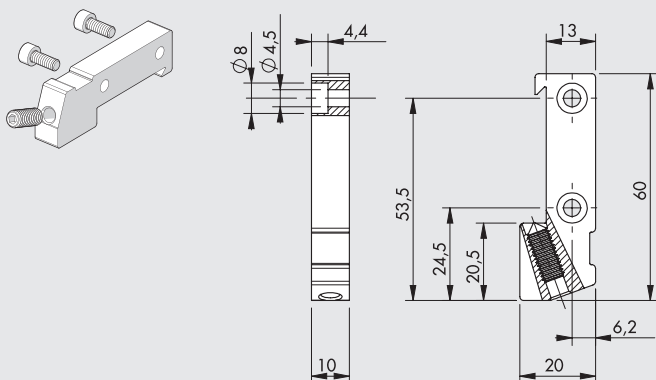


Below is a list of Phoenix Contact codes for the board connectors.

| Connector | Description | Code Phoenix Contact |
|-------------|---|----------------------|
| C11 | 2-pin plug with screw connection, MC 1.5/2-ST-3.5 | 1840366 |
| C6 | 3-pin plug with screw connection, MC 1.5/3-ST-3.5 | 1840379 |
| C3 | 4-pin plug with screw connection, MC 1.5/4-ST-3.5 | 1840382 |
| C7, C9 | 7-pin plug with screw connection, MC 1.5/7-ST-3.5 | 1840418 |
| C1, C8, C10 | 8-pin plug with screw connection, MC 1.5/8-ST-3.5 | 1840421 |
| C2 | 12-pin plug with screw connection, MC 1.5/12-ST-3.5 | 1840463 |

ACCESSORIES

BRACKET MOUNTING ON OMEGA BAR (DIN EN 50022)



| Code | Description | Weight [g] |
|------------|---|------------|
| 095000M000 | Bracket mounting e.motion / e.drive on Omega bar (DIN EN 50022) | 30 |

Note: Individually packed with 2 screws M4x10, 1 M6x16 grub screw

PROGRAMMABLE STEPPING MOTOR DRIVE - e.drive



It can be used to control, easily and intuitively, electric cylinders that use a STEPPING motor with a rated current of up to 6A, two phases, with four, six or eight output wires. It connects up to a PC via a USB port and the user is provided with motion control configuration, programming and debugging environment, which allows you to create complex work cycles as it can handle both digital and analogue inputs and outputs, thanks to a user-friendly language (MW DRIVE) and a series of simple instructions and functions.

It consists of two electronic boards housed in a metal box that has been designed to be fixed onto a wall or to a DIN rail, using an accessory, and is equipped with removable screw connectors for wiring.

The electronic boards can control both the logic "motion control" stage and the power supply stage.

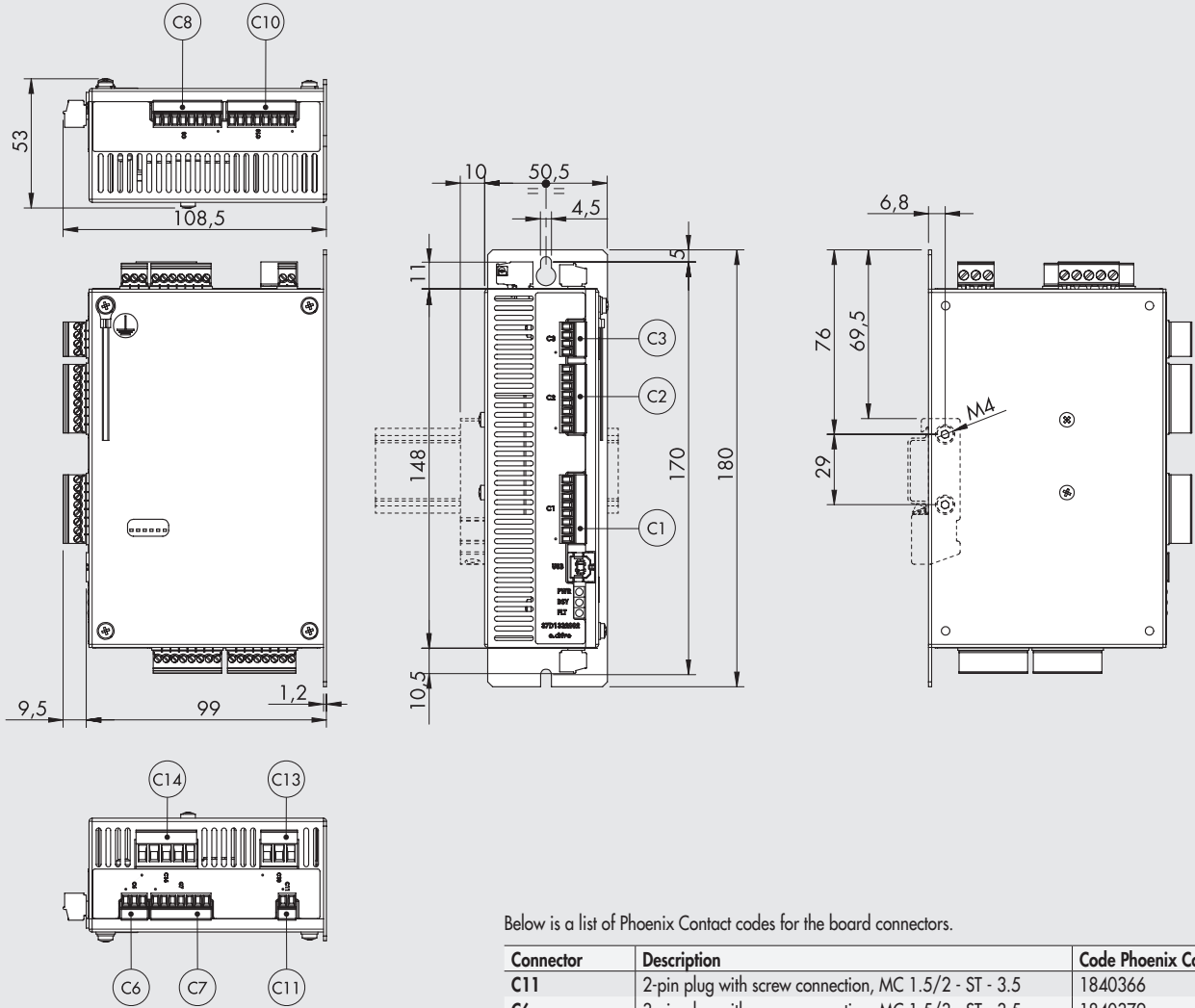
This independent system is ideal for use in stand-alone applications not requiring the use of any PLC.

The power stage consists of a ministepp bipolar chopper drive. It is characterised by a supply voltage of up to 55VDC for the power supply side and 24VDC for the logic side, compact dimensions and great flexibility of use.



| TECHNICAL DATA | | |
|--|-----|---|
| Code | | 37D1332002 |
| Motion control logic power supply | VDC | 24 |
| Drive power supply | VDC | 24 to 55 |
| Motor phase peak current | A | 1 to 6 |
| Temperature range | °C | -20 to 40 |
| Relative humidity (without condensation) | % | 5 to 85 |
| Bipolar motor inductance (1.8° angle) | mH | 1 to 12 |
| Dimensions | mm | 148 x 99 x 50.5 |
| Weight | g | 790 |
| Degree of protection | | IP20 |
| Communication interface | | Serial USB port for connection to PC |
| Configuration/programming/debug and diagnosis software | | MW DRIVE in Windows® environment |
| Dedicated signals | | Encoder input (A + B + Z), 5V line driver or 24V Push-Pull/Open collector |
| Digital inputs | | 14 |
| Digital outputs | | 7 |
| Analogue inputs | | 2, from 0 to 10V, freely programmable |
| Analogue outputs | | 1, from 0 to 10V |
| Controls available | | <ul style="list-style-type: none"> - Can be used with motors with a 1.8° base angle, 200 pulses/rev.; - Step Mode settable in various ways: Full Step, Half Step, 1/4, 1/8, 1/16 of step; - Integrated linear position transducer by connecting directly to the analogue output; - Automatic 60% reduction of the current supplied with motor stopped; - Possible dynamic regulation of the current supplied via cycle software instructions, for energy-saving purposes; - Home position search on limit switch, mechanical stop, encoder limit switch and zero mark, encoder mechanical stop and zero mark; - Positioning in relative or absolute mode; - Closed-loop motion control and step-loss control in the case of STEPPING motors with an encoder; - Integrated, automatic brake control via dedicated digital output in the case of motors with a brake; - Complementary and logical instructions for complex work cycles, such as: <ul style="list-style-type: none"> timings; variables control; test; analogue and digital I/O control |

DIMENSIONS

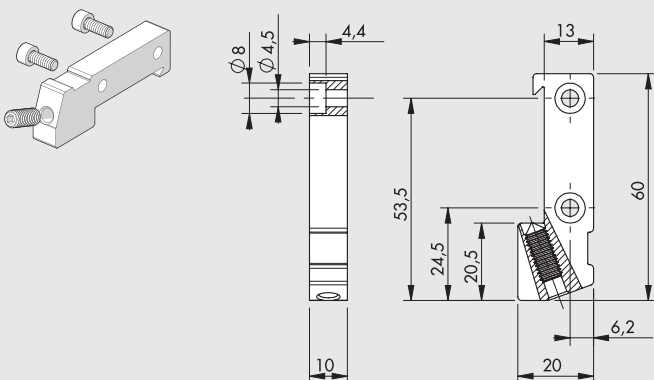


Below is a list of Phoenix Contact codes for the board connectors.

| Connector | Description | Code Phoenix Contact |
|-----------------|---|----------------------|
| C11 | 2-pin plug with screw connection, MC 1.5/2 - ST - 3.5 | 1840366 |
| C6 | 3-pin plug with screw connection, MC 1.5/3 - ST - 3.5 | 1840379 |
| C3 | 4-pin plug with screw connection, MC 1.5/4 - ST - 3.5 | 1840382 |
| C7 | 7-pin plug with screw connection, MC 1.5/7 - ST - 3.5 | 1840418 |
| C1, C2, C8, C10 | 8-pin plug with screw connection, MC 1.5/8 - ST - 3.5 | 1840421 |
| C13 | 3-pin plug with screw connection, MSTB 2.5/3 - ST - 5 | 1754465 |
| C14 | 5-pin plug with screw connection, MSTB 2.5/5 - ST - 5 | 1754504 |

ACCESSORIES

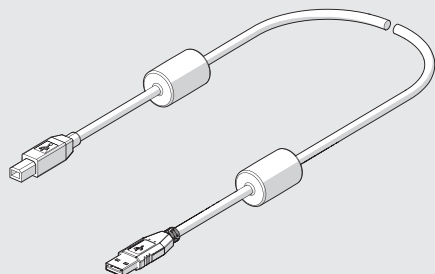
BRACKET MOUNTING ON OMEGA BAR (DIN EN 50022)



| Code | Description | Weight [g] |
|------------|---|------------|
| 095000M000 | Bracket mounting e.motion / e.drive on Omega bar (DIN EN 50022) | 30 |

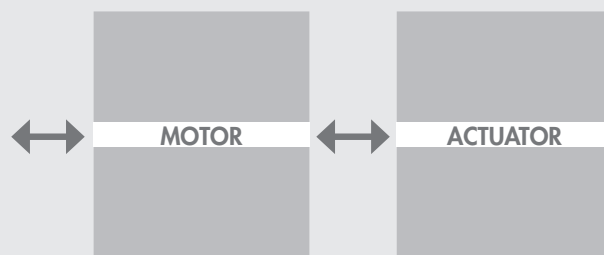
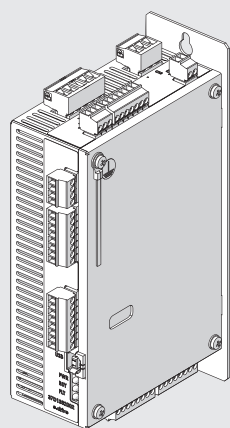
Note: Individually packed with 2 screws M4x10, 1 M6x16 grub screw

CABLE USB



| Code | Description | Weight [g] |
|------------|--|------------|
| 37C0030000 | Cable for USB 2.0 male A-B connector with ferrite core, for connecting the e.motion / e.drive board to a PC, 3 m | 150 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

CONNECTION SCHEME



NOTES

e.direct DRIVE FOR DIRECT CURRENT MOTORS

With the e.direct drive for direct current motors, a 24VDC motor can be easily controlled and run. The electronic board is enclosed in a plastic housing designed for DIN rail mounting.

When activating the "CW" and "CCW" inputs, the motor starts running alternately clockwise and anticlockwise.

Two digital sensor inputs are provided to stop motor rotation upon activation.

The two stop signals are made available as outputs for possible connection to PLCs.

When activated, two digital sensor inputs are provided to stop motor rotation. The two stop signals are made available as outputs for possible connection to a PLC.

During acceleration and braking, the drive prevents mechanical stress on the motor and excessive energy regeneration.

Braking takes place dynamically, stopping the rotation immediately to avoid unwanted extra travel.

The rotation speed can be varied locally via the multi-turn trimmer installed on the board, or remotely, even continuously, via the analog input.

The board is equipped with 2 Hall sensor encoder inputs, NPN type and 5VDC power supply, which are fed back on two 24VDC encoder outputs, which adapt the signals coming from the Hall sensors to PLC inputs type OPEN DRAIN - PNP 24VDC.

The maximum current to be supplied to the motor can range between 1A, 2A, 3.5A and 5A via two DIP switch selectors.

When the board is not powered and the motor is stopped, the motor phases are short-circuited to increase braking torque.

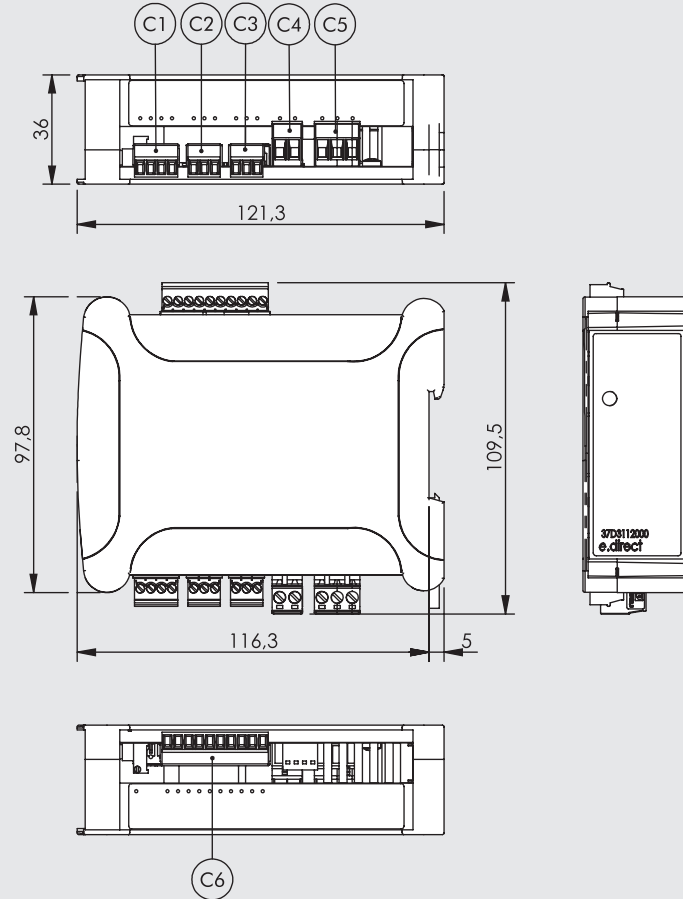


| TECHNICAL DATA | | |
|--|-----|---|
| Code | | 37D3112000 |
| Motor and auxiliary power supply | VDC | 24 ±15% |
| Maximum power voltage | VDC | 30 |
| Wattage | W | 150 |
| Current | A | 1, 2, 3.5, 5 (Dip-switch selectable) |
| Temperature range | °C | -20 to 40 |
| Relative humidity (without condensation) | % | 5 to 85 |
| Dimensions | mm | 110 x 121 x 36 |
| Weight | g | 160 |
| Degree of protection | | IP20 |
| Digital inputs | | - no. 2, type PNP 24VDC motor rotation control (CW/CCW); - no. 2, type OPEN DRAIN - PNP 24VDC limit switch (LS); - no. 2, type NPN 5VDC for encoder (Hall sensors). |
| Digital outputs | | - no. 2, type 24VDC OPEN DRAIN - PNP suitable for PNP 24VDC PLC for limit switch (LS); - no. 2, 24VDC: adapting signals from Hall sensors to PLC inputs type OPEN DRAIN - PNP 24VDC. |
| Analogue inputs | | - no. 1, 0-10VDC speed adjustment from PLC or potentiometer (31400 Ω input impedance); - Internal trimmer for manual speed adjustment (0-100%). |
| Protections | | - Motor output overcurrent protection; - Phase-to-phase short-circuit protection on motor; - Microprocessor over-temperature protection (150°C). |
| Signals | | - Overvoltage (Vsupply>30VDC) - Under-voltage (Vsupply<18VDC); - With fault diagnostic output (OPEN DRAIN - PNP); - Active output corresponds to one of the FAULT statuses. |

N.B.: A delayed, external fuse of a value appropriate to the set current must be provided in the system.

An appropriate external mains filter must be placed on the power supply to avoid disturbances generated by the drive.

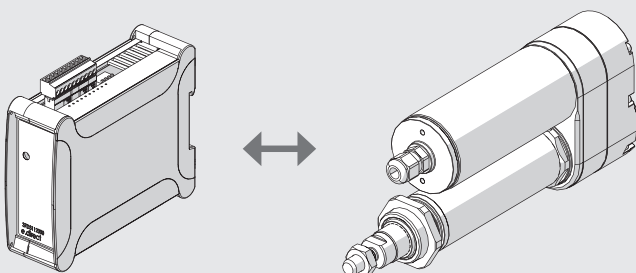
DIMENSIONS



Below is a list of Phoenix Contact codes for the board connectors.

| Connector | Description | Code Phoenix Contact | Code Phoenix Contact BASIC LINE |
|-----------|---|----------------------|---------------------------------|
| C1 | 4-pin plug with screw connection, MC 1.5/4 - ST - 3.5 | 1840382 | 5441223 |
| C2, C3 | 3-pin plug with screw connection, MC 1.5/3 - ST - 3.5 | 1840379 | 5441210 |
| C4 | 2-pin plug with screw connection, MC 2.5/2 - ST - 5 | 1754449 | 5441171 |
| C5 | 3-pin plug with screw connection, MC 2.5/3 - ST - 5 | 1754465 | 5448242 |
| C6 | 10-pin plug with screw connection, MC 1.5/10 - ST - 3.5 | 1840447 | 5447560 |

EXAMPLE OF CONNCTION



DRIVES FOR STEPPING MOTORS

4.4A - 48VDC DRIVE FOR STEPPING MOTORS

ACTUATORS

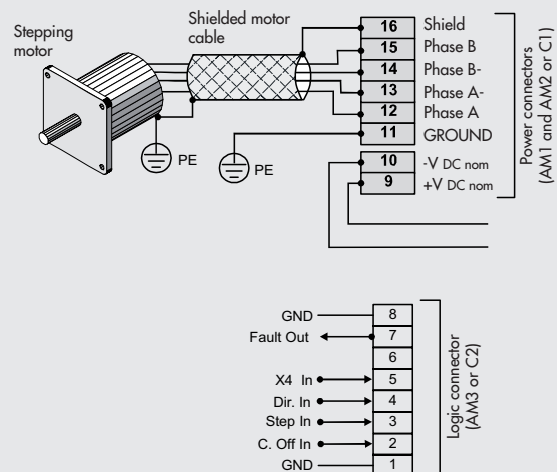
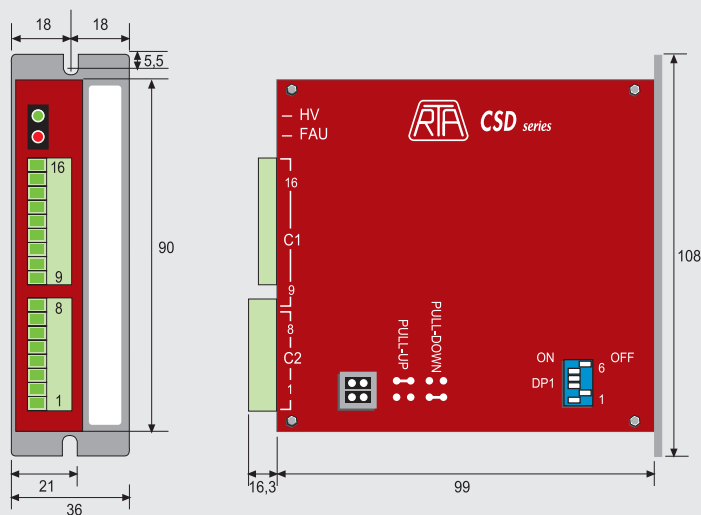
4.4A - 48VDC DRIVE FOR STEPPING MOTORS

This is a ministepp bipolar chopper drive made by RTA S.r.l. It comes with a STEP & DIRECTION interface for piloting low/medium-power two-stage STEPPING motors with four, six or eight terminals. It has a supply voltage range up to 48VDC, compact dimensions and considerable operating flexibility. It consists of a board housed in a metal box, which does not require external ventilation, and comes with separate logic and power pull-out screw connectors. It can control STEPPING motors with a nominal current up to 4.4A, the perfect choice for low/medium-power applications using small motors.



| DRIVE TECHNICAL DATA | | |
|--|-----------|---|
| Drive code | | 37D1222000 |
| Type of STEPPING motor drive | | Metal box |
| Dimensions | mm | 90 x 99 x 21 |
| Connectors | | Screw type |
| Onboard power supply | | NO |
| Control | | Step and direction |
| Operating voltage range | VDC | 24 - 48 |
| Current range | A | 2.6 - 4.4 |
| Current values selected via a dip-switch | | 8 |
| Pulses per rev values selected by dip-switch | pulse/rev | 400, 800, 1600, 3200 |
| Automatic current reduction with motor off | | YES (50%) |
| Type of inputs | | Pull-up or Pull-down, settable |
| Protections | | Maximum and minimum voltage. Motor output short-circuiting. Thermal protection. Electronic damping circuit for maximum control of noise and vibration. |

OVERALL DIMENSIONS AND WIRING DIAGRAM



6A - 75VDC DRIVE FOR STEPPING MOTORS

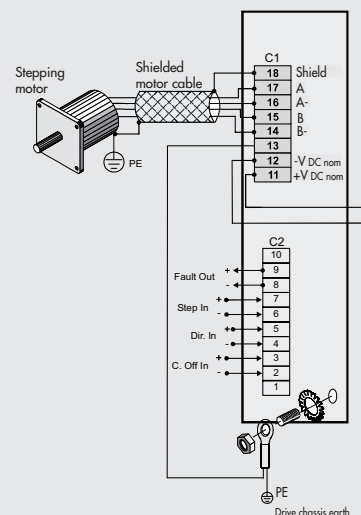
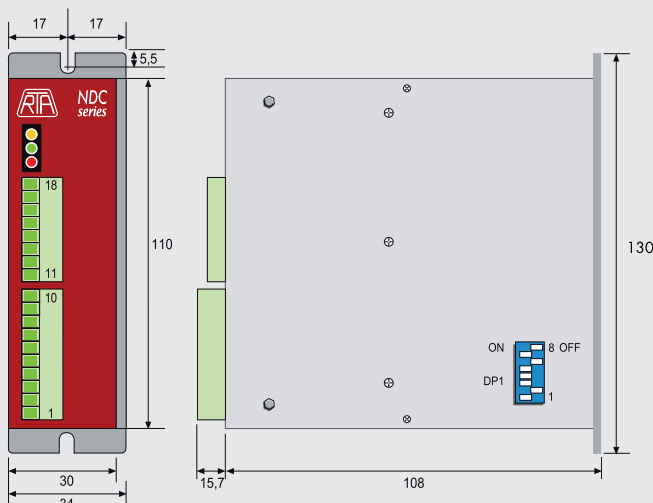
This is a ministepp bipolar chopper drive made by RTA Srl. It comes with a STEP & DIRECTION interface for piloting medium-low power two-stage STEPPING motors with four, six or eight terminals.

It has a supply voltage range up to 75VDC, compact dimensions and considerable operating flexibility. It consists of a board housed in a metal box and comes with separate logic and power pull-out screw connectors. It can control STEPPING motors with a nominal current up to 6A, the perfect choice for medium power applications using small and medium-size motors.



| DRIVE TECHNICAL DATA | | |
|--|-----------|---|
| Drive code | | 37D1332000 |
| Type of STEPPING motor drive | | Metal box |
| Dimensions | mm | 110 x 108 x 34 |
| Connectors | | Screw type |
| Onboard power supply | | NO |
| Control | | Step and direction |
| Operating voltage range | VDC | 24 - 75 |
| Current range | A | 1.9 - 6 |
| Current values selected via a dip-switch | | 8 |
| Pulses per rev values selected by dip-switch | pulse/rev | 400, 500, 800, 1000, 1600, 2000, 3200, 4000 |
| Automatic current reduction with motor off | | YES (50%) |
| Type of inputs | | Opto-isolated |
| Protections | | Maximum and minimum voltage. Motor output short-circuiting. Thermal protection. Electronic damping circuit for maximum control of noise and vibration. |

OVERALL DIMENSIONS AND WIRING DIAGRAM



6A - 140VDC, 10A - 62VAC DRIVE FOR STEPPING MOTORS

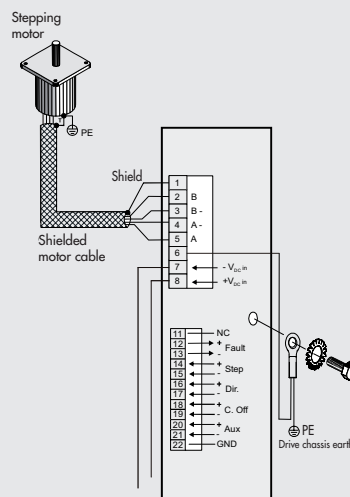
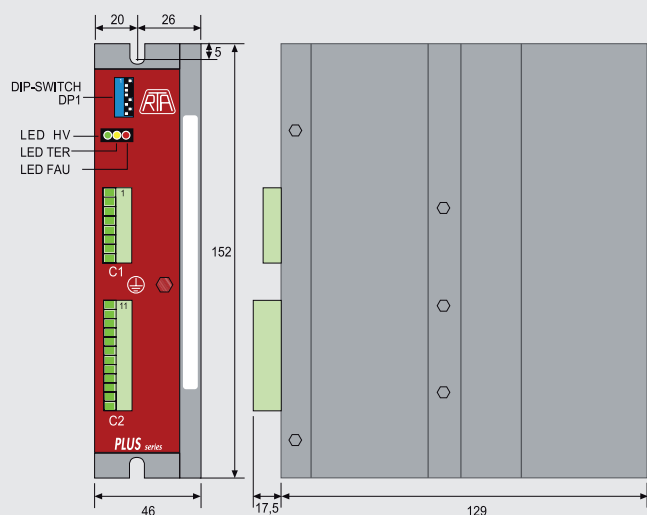
These are two ministep bipolar chopper drives made by RTA S.r.l. They come with a STEP & DIRECTION interface for piloting medium/high-power two-stage STEPPING motors with four, six or eight terminals. They consist of a board housed in a metal box, which does not require external ventilation, and come with separate logic and power pull-out screw connectors.

Drive code 37D1442000 is characterised by a voltage range up to 140VDC, compact dimensions and considerable operating flexibility. This drive can control STEPPING motors with a nominal current up to 6A, the perfect choice for medium-power applications requiring a DC supply. Drive code 37D1552000 is characterised by a voltage range up to 62VAC, compact dimensions and considerable operating flexibility. This drive can control STEPPING motors with a nominal current up to 10A, the perfect choice for medium-power applications requiring an AC supply.



| DRIVE TECHNICAL DATA | | 37D1442000 | 37D1552000 |
|--|-----------|---|-------------|
| Drive code | | 37D1442000 | 37D1552000 |
| Type of STEPPING motor drive | | | Metal box |
| Dimensions | mm | 152 x 129 x 46 | |
| Connectors | | Screw type | |
| Onboard power supply | | NO | |
| Control | | Step and direction | |
| Operating voltage range | | 77 - 140 VDC | 28 - 62 VAC |
| Current range | A | 1.9 - 6 | 3 - 10 |
| Current values selected via a dip-switch | | 8 | |
| Pulses per rev values selected by dip-switch | pulse/rev | 400, 500, 800, 1000, 1600, 2000, 3200, 4000 | |
| Automatic current reduction with motor off | | YES (50%) | YES (50%) |
| Type of inputs | | Opto-isolated | |
| Protections | | Maximum and minimum voltage. Motor output short-circuiting. Thermal protection. Electronic damping circuit for maximum control of noise and vibration. | |

OVERALL DIMENSIONS AND WIRING DIAGRAM



6A - 110 - 230VAC DRIVE FOR STEPPING MOTORS

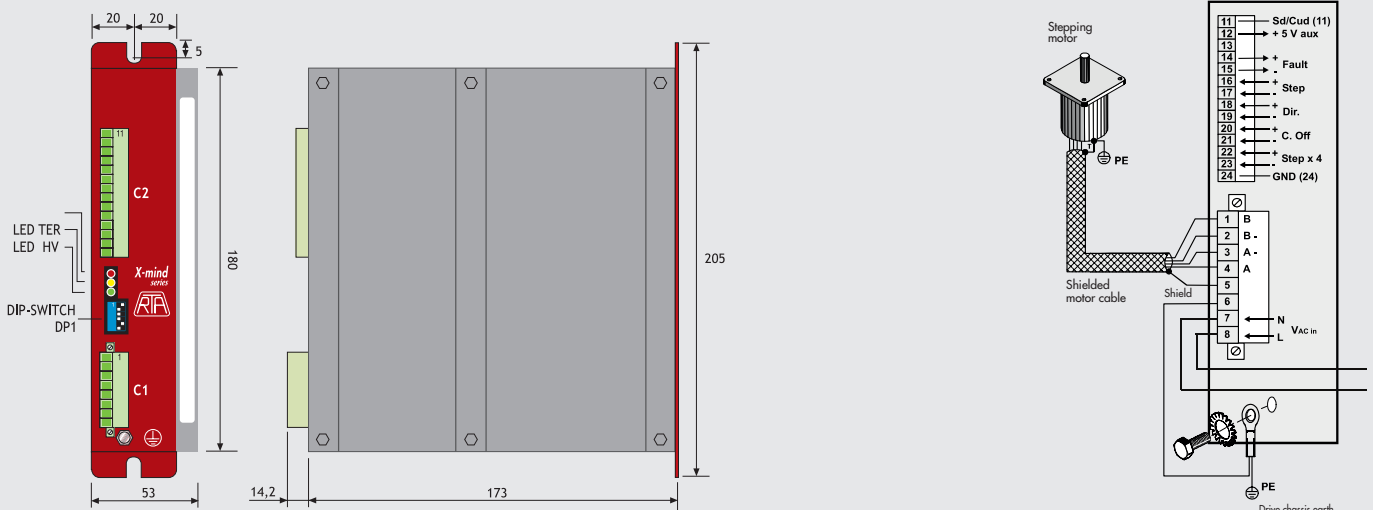
This is a ministepp bipolar chopper drive made by RTA Srl. It comes with a STEP & DIRECTION interface for piloting medium-low power two-stage STEPPING motors with four, six or eight terminals.

It has a supply voltage range up to 230VAC, compact dimensions and considerable operating flexibility. It consists of a board housed in a metal box and comes with separate logic and power pull-out screw connectors. It can control STEPPING motors with a nominal current up to 6A, the perfect choice for medium-high power applications using medium and big-size motors.



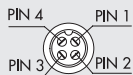
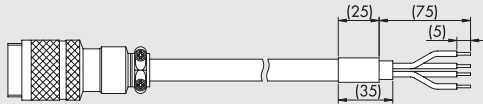
| DRIVE TECHNICAL DATA | | |
|--|-----------|---|
| Drive code | | 37D1362001 |
| Type of STEPPING motor drive | | Metal box |
| Dimensions | mm | 180 x 173 x 53 |
| Connectors | | Screw type |
| Onboard power supply | | NO |
| Control | | Step and direction |
| Operating voltage range | VAC | Single-phase 110 - 230 |
| Current range | A | 3,4 - 6 |
| Motor output stage | | High-efficiency CHOPPER with IGBT final stage output |
| Current values selected via a dip-switch | | 8 |
| Pulses per rev values selected by dip-switch | pulse/rev | 400, 500, 800, 1000, 1600, 2000, 3200, 4000 |
| Automatic current reduction with motor off | | YES |
| Type of inputs | | Opto-isolated |
| Protections | | Maximum and minimum voltage. Motor output short-circuiting. Thermal protection. Electronic damping circuit for maximum control of noise and vibration. |
| Standards | | UL and CSA |
| Other features | | Possibility to switch off motor current via an external logic control device. Electronic sound-damping circuit for enhanced reduced noise and mechanical vibration at low and medium speed. Storage and reporting of the intervention of protection circuits. It must be coupled with STEPPING motors designed for high-voltage rating and flanges not below 86 mm. No need for forced ventilation. |

OVERALL DIMENSIONS AND WIRING DIAGRAM



CABLES FOR STEPPING MOTORS STEPPERONLINE

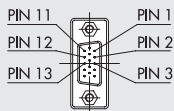
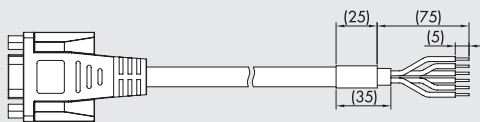
POWER CABLE FOR MOTOR



| Code | Description |
|------------|---|
| 37C1150000 | Power cable for stepping motor, 5 metres |
| 37C1100000 | Power cable for stepping motor, 10 metres |

| Pin | Function | Corresponding wire colour | |
|-----|----------|---------------------------|---------|
| 1 | A+ | Motor phase A+ | Black 1 |
| 2 | A - | Motor phase A- | Black 2 |
| 3 | B+ | Motor phase B+ | Black 3 |
| 4 | B - | Motor phase B- | Black 4 |

ENCODER CABLE



| Code | Description |
|------------|--|
| 37C1250001 | Encoder cable for stepping motors, 5 metres |
| 37C1200003 | Encoder cable for stepping motors, 10 metres |

Optional - Can be used with STEPPING motor with encoder (code 37M1320000 and 37M1820000)

| Pin | Function | Corresponding wire colour | |
|-----|----------|---------------------------|--------|
| 1 | A+ | Phase A+ | Green |
| 2 | +24VDC | Encoder +24 V supply | Brown |
| 3 | COM | Encoder 0 V supply | White |
| 4 | - | NC | - |
| 5 | - | NC | - |
| 6 | - | NC | - |
| 7 | - | NC | - |
| 8 | - | NC | - |
| 9 | - | NC | - |
| 10 | - | NC | - |
| 11 | B+ | Phase B+ | Gray |
| 12 | B- | Phase B- | Pink |
| 13 | A- | Phase A- | Yellow |
| 14 | - | NC | - |
| 15 | - | NC | - |

NOTES

DRIVES FOR BRUSHLESS MOTORS

DRIVE FOR 200W, 400W, 750W, 1000W SANYO DENKI BRUSHLESS MOTORS

This drive made by SANYO DENKI is suitable for piloting BRUSHLESS motors. It features compact dimensions and considerable operating flexibility. It consists of a board housed in a metal box. It comes with pull-out screw connectors for power and plug connectors for logic. It can control BRUSHLESS motors with a nominal current up to 30A. All the system parameters can be configured and controlled using SANMOTION software.



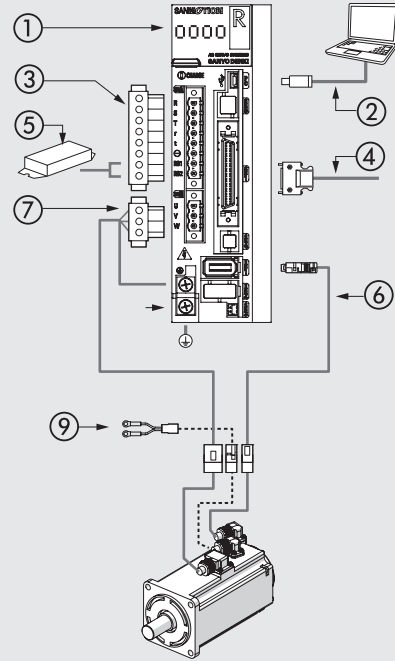
DRIVE TECHNICAL DATA

| | |
|---|---|
| Drive code | 37D2400008 |
| Nominal power | 200 - 400 - 750 - 1000 |
| Type of drive for BRUSHLESS motors | Metal box |
| Dimensions | mm 50 x 160 x 130 |
| Power connectors and motor power | Plug-type 3M |
| Encoder connectors and signals | Plug-type 3M |
| Max output current | A 30 |
| Motor output stage | IGBT, PWM control, sinusoidal current |
| Power voltage | Single-phase or three-phase (user configurable) 200-230VAC (+10%, -15%) 50/60 Hz (± 3 Hz) |
| Logic voltage | Single-phase 200-230VAC (+10%, -15%) 50/60 Hz (± 3 Hz) |
| Control | With analogue signal (proportional to speed and torque). Pulse-train (clock + direction; forward + backward pulse; 90° phase difference) 8 inputs and 8 outputs, user configurable. In the event of pulse-train command, the control system outputs should be the Line Driver type. If the outputs are the open-collector type, you can use a 37D2000000 board, which is sold separately (see accessories). |
| Auto-tuning | YES |
| Communication interface | Mini USB for settings and monitoring via a personal computer. |
| Protections | Integrated against overloads, input extra-voltages, incorporated filters for suppressing the system's own resonance frequencies |
| Standards | CE, UL and CSA. |
| Other features | 5-digit display and programming keypad. Integrated closed-loop system with position, speed and torque control modes. Instant changeover option: position + speed; position + torque; speed + torque. Automatic dynamic braking circuit in a alarm and power-off conditions. Connector for external braking resistance (optional). Configuration and control software. |
| Connecting cable: | |
| Brushless motor-drive connecting cable, 3 metres | 37C2130005 |
| Brushless motor-drive-encoder connecting cable, 3 metres | 37C2230005 |
| Brushless motor-drive connecting dynamic cable, 3 metres | 37C2130004 |
| Brushless motor-drive-encoder connecting dynamic cable, 3 metres | 37C2230004 |
| Brushless motor-brake connecting dynamic cable, 3 metres | 37C2330000 |
| Brushless motor-drive connecting cable, 5 metres | 37C2150005 |
| Brushless motor-drive-encoder connecting cable, 5 metres | 37C2250005 |
| Brushless motor-drive connecting dynamic cable, 5 metres | 37C2150004 |
| Brushless motor-drive-encoder connecting dynamic cable, 5 metres | 37C2250006 |
| Brushless motor-brake connecting dynamic cable, 5 metres | 37C2350000 |
| Brushless motor-drive connecting dynamic cable, 10 metres | 37C2100004 |
| Brushless motor-drive-encoder connecting dynamic cable, 10 metres | 37C2200004 |
| Brushless motor-brake connecting dynamic cable, 10 metres | 37C2310000 |

WIRING DIAGRAM FOR BRUSHLESS MOTOR DRIVES

- ① 5-DIGIT DISPLAY and PROGRAMMING KEYPAD: to display and modify parameters and monitor system operation in real time.
- ② PC CONNECTOR: settings and monitoring by PC via mini USB
- ③ POWER CONNECTOR: 230VAC, single-phase and three-phase (user configurable). **Included in the supply.** Separate supply section for logic/signal and power electronics. Integrated circuits protecting against overloads and input extra-voltages.
- ④ SIGNAL CONNECTOR: pulse-train command (clock + direction; forward + backward pulse; 90° phase difference) or with analogue signal (proportional to speed or torque) 8 inputs and 8 outputs, user configurable. **Included in the supply.**
- ⑤ CONNECTOR: for external braking resistance (optional)
- ⑥ ENCODER CONNECTOR
- ⑦ MOTOR POWER CONNECTOR
- ⑧ EARTH CONNECTION
- ⑨ MOTOR BRAKE CONNECTOR (only for version with brake)

Log on to www.metalwork.it to view the instruction manual.



ACCESSORIES

⑥ ENCODER CABLE



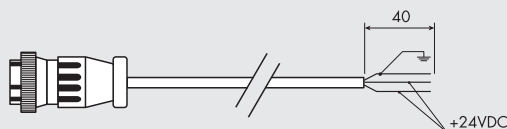
| Code | Description |
|------------|--|
| 37C2230005 | Brushless motor-drive-encoder connecting cable, 3 m |
| 37C2250005 | Brushless motor-drive-encoder connecting cable, 5 m |
| 37C2230004 | Brushless motor-drive-encoder connecting dynamic cable, 3 m |
| 37C2250006 | Brushless motor-drive-encoder connecting dynamic cable, 5 m |
| 37C2200004 | Brushless motor-drive-encoder connecting dynamic cable, 10 m |

⑦ MOTOR POWER CABLE



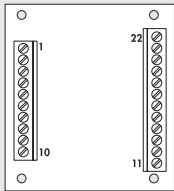
| Code | Description |
|------------|--|
| 37C2130005 | Brushless motor-drive connecting cable, 3 m |
| 37C2150005 | Brushless motor-drive connecting cable, 5 m |
| 37C2130004 | Brushless motor-drive connecting dynamic cable, 3 m |
| 37C2150004 | Brushless motor-drive connecting dynamic cable, 5 m |
| 37C2100004 | Brushless motor-drive connecting dynamic cable, 10 m |

BRAKE CABLE



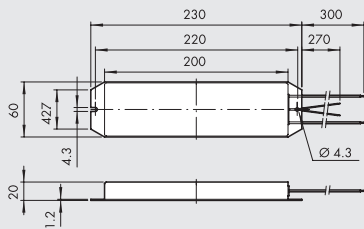
| Code | Description |
|------------|--|
| 37C2330000 | Brushless motor-brake connecting dynamic cable, 3 m |
| 37C2350000 | Brushless motor-brake connecting dynamic cable, 5 m |
| 37C2310000 | Brushless motor-brake connecting dynamic cable, 10 m |

LINE-DRIVER INTERFACE BOARD



| Code | Description |
|------------|-------------------------------------|
| 37D2000000 | BRINT.A line driver interface board |

EXTERNAL BRAKING RESISTANCES



| Code | Description | For drive code |
|------------|------------------------------|----------------|
| 37D2R00000 | 220W 50 Ω braking resistance | 37D2400008 |

Under certain operating conditions, such as sudden deceleration with high inertial load, it may be necessary to dissipate externally the reverse energy generated by the motor. The drive indicates this requirement via a specific alarm. Excess energy is dissipated externally via a braking resistance.

CONFIGURATION SOFTWARE

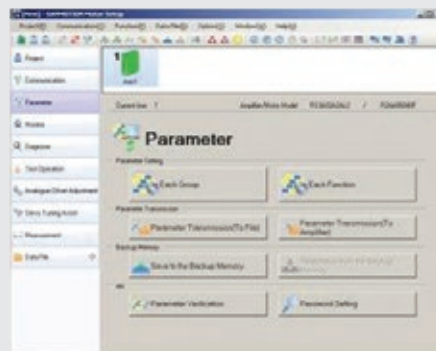
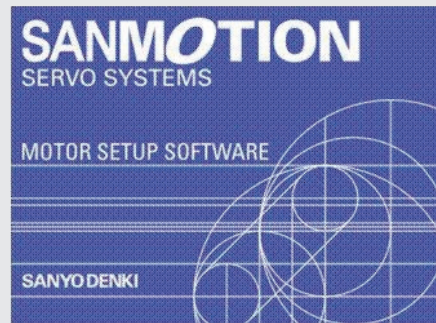
SANMOTION configuration software is used for parameter setting and complete control of all functions of the system.

The software includes a detailed description of each parameter. In addition to parameter setting SANMOTION software can accurately analyze operation of the system via the following functions.

- Monitor: real-time display of all details about the system.
- Diagnosis: shows the state of servo amplifier, the type of alarms and the possible causes.
- Test operation: performs the velocity system test with JOG Operation, the positioning test with Positioning Operation, the detection of the origin signal and Serial Encoder Clear.
- Servo Tuning: performs auto-tuning notch filter and auto-tuning vibration suppression frequency.
- Operation Trace: this function shows operational state and parameters as speed and torque, in waveform display on an integrated oscilloscope.
- System Analysis: used to study the system's frequency response to identify and correct any mechanical resonance phenomena.

The software can be freely downloaded from Sanyo Denki website at the following link:

<https://www.sanyodenki.com/products/sanmotion-softwareindex.html> file SANMOTION MOTOR Setup Software.



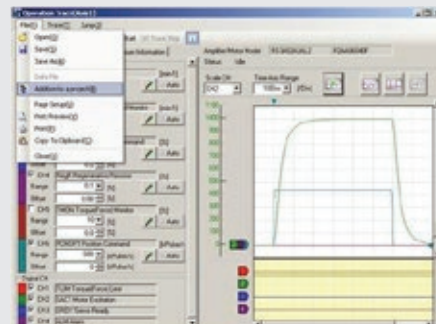
GRAPHIC MONITOR

Thanks to the integrated oscilloscope function, some important system parameters, such as speed and torque, can be displayed and saved on the PC monitor.

Data can be downloaded and saved in compatible Excel format.

The time setting range is 10 ms to 2 s.

Single values acquired and displayed can be read using the cursor.



DRIVE FOR 100W, 200W, 400W, 750W DELTA BRUSHLESS MOTORS

The DELTA ASD-A2-0121-M drive can only be used with a DELTA 100W motor, the DELTA ASDA-A2-0221-M drive can only be used with a DELTA 200W motor, the DELTA ASDA-A2-0421-M drive can only be used with the DELTA 400W motor, and the DELTA ASD-A2-0721-M drive can only be used with a DELTA 750W motor.

The drives are characterized by overall contained dimensions and great versatility of use. They consist of a circuit board situated in a metal box, complete with extractible power screw connectors and logics connectors.



| DRIVE TECHNICAL DATA | | | | | |
|---|------------------|--|-------------------|-------------------|-------------------|
| Drive code | | 37D2100000 | 37D2200001 | 37D2300000 | 37D2400007 |
| Nominal power | W | 100 | 200 | 400 | 750 |
| Type of drive for | BRUSHLESS motors | Metal box | | | |
| Dimensions | mm | 170 x 173 x 45 | | | 180 x 173 x 65 |
| Power connectors and motor power | | Spring type | | | |
| Encoder connectors and signals | | Plug-type 3M | | | |
| Max output current | A | 2.7 | 4.65 | 7.80 | 15.30 |
| Motor output stage | | IGBT, PWM control, sinusoidal current | | | |
| Power voltage | | Single-phase or three-phase (user configurable) 200VAC-230VAC (+10%, -15%) 50/60 Hz (± 3 Hz) | | | |
| Logic voltage | | Single-phase 200-230VAC (+10%, -15%) 50/60 Hz (± 3 Hz) | | | |
| Control | | With analogue signal (proportional to speed and torque). | | | |
| | | Pulse-train (clock + direction; forward + backward pulse; 90° phase difference) | | | |
| | | fieldbus with "CANopen" communication protocol | | | |
| | | 8 inputs and 5 outputs, user configurable. | | | |
| | | In the event of pulse-train command, the control system outputs should be the Line Driver type. | | | |
| | | If the outputs are the open-collector type, you can use a 37D2000000 board, which is sold separately (see accessories). | | | |
| Auto-tuning | | Yes | | | |
| Communication interface | | Serial USB port for settings and monitoring via a personal computer | | | |
| Protections | | Integrated against overloads, input extra-voltages, incorporated filters for suppressing the system's own resonance frequencies. | | | |
| Standards | | CE and UL | | | |
| Other features | | 5-digit display and programming keypad. | | | |
| | | Integrated closed-loop system with position, speed and torque control modes. | | | |
| | | Control mode: position + speed; position + torque; speed + torque. | | | |
| | | Automatic dynamic braking circuit in a alarm and power-off conditions. | | | |
| | | Connector for external braking resistance (optional). | | | |
| | | Configuration and control software (optional). | | | |
| Suitable for motors code | | 37M200000 | 37M2200001 | 37M2220001 | 37M2330001 |
| | | 37M400000 | 37M4200001 | 37M4220001 | 37M4330001 |
| Connecting cable: | | | | | |
| Brushless motor-drive connecting cable, 3 metres | | | | 37C2130001 | |
| Brushless motor with brake-drive connecting cable, 3 metres | | | | 37C2730000 | |
| Brushless motor-drive-encoder connecting cable, 3 metres | | | | 37C2230001 | |
| Brushless motor-drive connecting dynamic cable, 3 metres | | | | 37C2130002 | |
| Brushless motor-drive-encoder connecting dynamic cable, 3 metres | | | | 37C2230002 | |
| Brushless motor with brake-drive connecting dynamic cable, 3 metres | | | | 37C2730001 | |
| Brushless motor-drive connecting cable, 5 metres | | | | 37C2150001 | |
| Brushless motor with brake-drive connecting cable, 5 metres | | | | 37C2750000 | |
| Brushless motor-drive-encoder connecting cable, 5 metres | | | | 37C2250001 | |
| Brushless motor-drive connecting dynamic cable, 5 metres | | | | 37C2150002 | |
| Brushless motor-drive-encoder connecting dynamic cable, 5 metres | | | | 37C2250002 | |
| Brushless motor with brake-drive connecting dynamic cable, 5 metres | | | | 37C2750001 | |
| Brushless motor-drive connecting dynamic cable, 10 metres | | | | 37C2100003 | |
| Brushless motor-drive-encoder connecting dynamic cable, 10 metres | | | | 37C2200003 | |
| Brushless motor with brake-drive connecting dynamic cable, 10 metres | | | | 37C2700001 | |

DRIVE FOR 1kW DELTA BRUSHLESS MOTORS

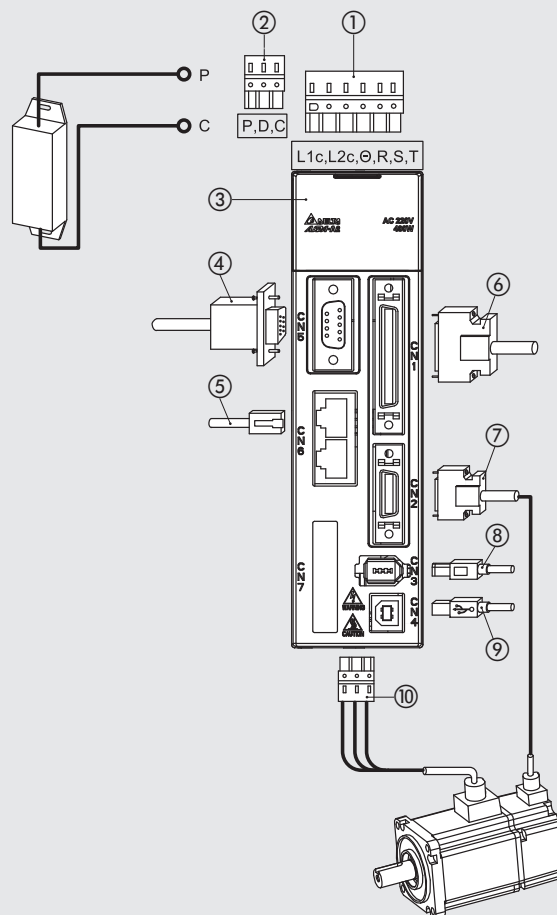
It is a DELTA ASDA-A2-1021-M drive to be used only with a DELTA 1kW motor.
It features compact dimensions and considerable operating flexibility.
It consists of a board housed in a metal box. It comes with pull-out screw connectors for power and plug connectors for logic.



| DRIVE TECHNICAL DATA | |
|--|---|
| Drive code | 37D2400006 |
| Nominal power | 1kW |
| Type of drive for BRUSHLESS motors | Metal box |
| Dimensions | mm 180 x 173 x 65 |
| Power connectors and motor power | Screw type |
| Encoder connectors and signals | Plug-type 3M |
| Max output current | A 21.90 |
| Motor output stage | IGBT, PWM control, sinusoidal current |
| Power voltage | Single-phase or three-phase (user configurable) 200VAC-230VAC (+10%, -15%) 50/60 Hz (\pm 3 Hz) |
| Logic voltage | Single-phase 200-230VAC (+10%, -15%) 50/60 Hz (\pm 3 Hz) |
| Control | With analogue signal (proportional to speed and torque). Pulse-train (clock + direction; forward + backward pulse; 90° phase difference) fieldbus with "CANopen" communication protocol 8 inputs and 5 outputs, user configurable. In the event of pulse-train command, the control system outputs should be the Line Driver type. If the outputs are the open-collector type, you can use a 37D2000000 board, which is sold separately (see accessories). |
| Auto-tuning | Yes |
| Communication interface | Serial USB port for settings and monitoring via a personal computer |
| Protections | Integrated against overloads, input extra-voltages, incorporated filters for suppressing the system's own resonance frequencies. |
| Standards | CE and UL |
| Other features | 5-digit display and programming keypad. Integrated closed-loop system with position, speed and torque control modes. Control mode: position + speed; position + torque; speed + torque. Automatic dynamic braking circuit in a alarm and power-off conditions. Connector for external braking resistance (optional). Configuration and control software (optional). |
| Suitable for motors code | 37M2640000 - 37M4640000 |
| Connecting cable: | |
| Brushless motor-drive connecting cable, 3 metres | 37C3130001 |
| Brushless motor with brake-drive connecting cable, 3 metres | 37C3730000 |
| Brushless motor-drive-encoder connecting cable, 3 metres | 37C3230001 |
| Brushless motor-drive connecting dynamic cable, 3 metres | 37C2130006 |
| Brushless motor-drive-encoder connecting dynamic cable, 3 metres | 37C2230007 |
| Brushless motor with brake-drive connecting dynamic cable, 3 metres | 37C2730002 |
| Brushless motor-drive connecting cable, 5 metres | 37C3150001 |
| Brushless motor with brake-drive connecting cable, 5 metres | 37C3750000 |
| Brushless motor-drive-encoder connecting cable, 5 metres | 37C3250001 |
| Brushless motor-drive connecting dynamic cable, 5 metres | 37C2150006 |
| Brushless motor-drive-encoder connecting dynamic cable, 5 metres | 37C2250008 |
| Brushless motor with brake-drive connecting dynamic cable, 5 metres | 37C2750003 |
| Brushless motor-drive connecting dynamic cable, 10 metres | 37C2100006 |
| Brushless motor-drive-encoder connecting dynamic cable, 10 metres | 37C2200007 |
| Brushless motor with brake-drive connecting dynamic cable, 10 metres | 37C2700002 |

WIRING DIAGRAM FOR 1kW BRUSHLESS MOTOR DRIVES

- ① POWER CONNECTOR: 230VAC, single-phase and three-phase (user configurable). **Included in the supply.**
Separate supply section for logic/signal and power electronics. Integrated circuits protecting against overloads and input extra-voltages.
- ② CONNECTOR: for external braking resistance code 37D2R00000 (optional).
- ③ 5-DIGIT DISPLAY and PROGRAMMING KEYPAD: to display and modify parameters and monitor system operation in real time.
- ④ EXTERNAL ENCODER CONNECTOR (optional): possibility of connecting an external encoder to create a feedback of the linear axis position. Can support encoders A, B, Z, supplied at 5VDC.
- ⑤ CANopen CONNECTOR (optional): this drive is designed for communication with other devices via CANopen Fieldbus.
- ⑥ SIGNAL CONNECTOR: pulse-train command (clock + direction; forward + backward pulse; 90° phase difference) or with analogue signal (proportional to speed or torque) 8 inputs and 5 outputs, user configurable.
- ⑦ ENCODER CONNECTOR: connection for 100W - 200W - 400W - 750W BRUSHLESS motor encoder.
- ⑧ IEEE 1394 PC CONNECTOR: settings and possible connection to other devices via RS485 or RS232 (cable not included in the supply).
- ⑨ USB PC CONNECTOR: settings and monitor through personal computer (not included in the supply).
Data acquisition is only possible via this connection.
- ⑩ MOTOR POWER CONNECTOR



Log on to www.metalwork.it to view the instruction manual.

NOTES

DRIVE FOR 3kW DELTA BRUSHLESS MOTORS

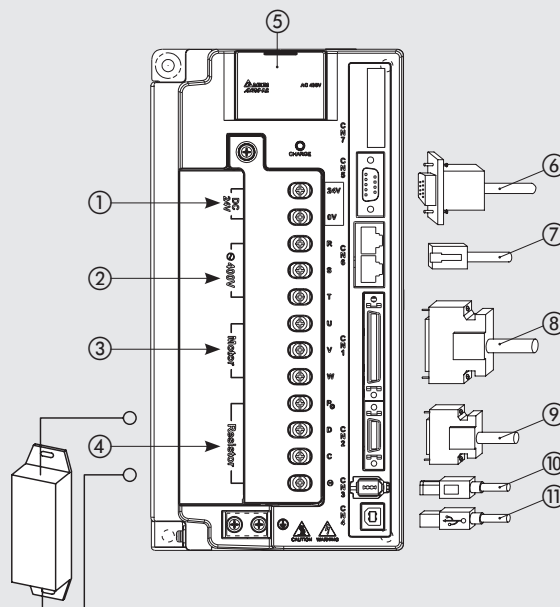
It is a DELTA ASDA-A2-3043-M drive to be used only with a DELTA 3kW motor.
It features compact dimensions and considerable operating flexibility.
It consists of a board housed in a metal box. It comes with pull-out screw connectors for power and plug connectors for logic.



| DRIVE TECHNICAL DATA | |
|--|---|
| Drive code | 37D2600001 |
| Nominal power | 3kW |
| Type of drive for BRUSHLESS motors | Metal box |
| Dimensions | mm 245 x 205.4 x 123 |
| Power connectors and motor power | Screw type |
| Encoder connectors and signals | Plug-type 3M |
| Max output current | A 33.32 |
| Motor output stage | IGBT, PWM control, sinusoidal current |
| Power voltage | Three-phase from 380VAC to 480VAC $\pm 10\%$ 50/60 Hz (± 3 Hz) |
| Logic voltage | 24VDC $\pm 10\%$ |
| Control | With analogue signal (proportional to speed and torque). Pulse-train (clock + direction; forward + backward pulse; 90° phase difference) fieldbus with "CANopen" communication protocol 8 inputs and 5 outputs, user configurable. In the event of pulse-train command, the control system outputs should be the Line Driver type. If the outputs are the open-collector type, you can use a 37D2000000 board, which is sold separately (see accessories). |
| Auto-tuning | Yes |
| Communication interface | Serial USB port for settings and monitoring via a personal computer |
| Protections | Integrated against overloads, input extra-voltages, incorporated filters for suppressing the system's own resonance frequencies. |
| Standards | CE and UL |
| Other features | 5-digit display and programming keypad. Integrated closed-loop system with position, speed and torque control modes. Control mode: position + speed; position + torque; speed + torque. Automatic dynamic braking circuit in a alarm and power-off conditions. Connector for external braking resistance (optional). Configuration and control software (optional). |
| Suitable for motors code | 37M2770000 - 37M4770000 |
| Connecting cable: | |
| Brushless motor-drive connecting cable, 3 metres | 37C3130001 |
| Brushless motor with brake-drive connecting cable, 3 metres | 37C3730000 |
| Brushless motor-drive-encoder connecting cable, 3 metres | 37C3230001 |
| Brushless motor-drive connecting dynamic cable, 3 metres | 37C2130006 |
| Brushless motor-drive-encoder connecting dynamic cable, 3 metres | 37C2230007 |
| Brushless motor with brake-drive connecting dynamic cable, 3 metres | 37C2730002 |
| Brushless motor-drive connecting cable, 5 metres | 37C3150001 |
| Brushless motor with brake-drive connecting cable, 5 metres | 37C3750000 |
| Brushless motor-drive-encoder connecting cable, 5 metres | 37C3250001 |
| Brushless motor-drive connecting dynamic cable, 5 metres | 37C2150006 |
| Brushless motor-drive-encoder connecting dynamic cable, 5 metres | 37C2250008 |
| Brushless motor with brake-drive connecting dynamic cable, 5 metres | 37C2750003 |
| Brushless motor-drive connecting dynamic cable, 10 metres | 37C2100006 |
| Brushless motor-drive-encoder connecting dynamic cable, 10 metres | 37C2200007 |
| Brushless motor with brake-drive connecting dynamic cable, 10 metres | 37C2700002 |

WIRING DIAGRAM FOR 3kW BRUSHLESS MOTOR DRIVES

- ① LOGIC POWER CONNECTOR: 24VDC.
Included in the supply. Power section for logic electronics.
- ② POWER CONNECTOR: 400VAC, three-phase.
Included in the supply. Power signal supply section.
Integrated circuits protected against overload, input extra-voltages.
- ③ MOTOR POWER CONNECTOR
- ④ CONNECTOR: for external braking resistance code 37D2R00004 (optional).
- ⑤ 5-DIGIT DISPLAY and PROGRAMMING KEYPAD: to display and modify parameters and monitor system operation in real time.
- ⑥ EXTERNAL ENCODER CONNECTOR (optional): possibility of connecting an external encoder to create a feedback of the linear axis position. Can support encoders A, B, Z, supplied at 5VDC.
- ⑦ CANopen CONNECTOR (optional): this drive is designed for communication with other devices via CANopen Fieldbus.
- ⑧ SIGNAL CONNECTOR: pulse-train command (clock + direction; forward + backward pulse; 90° phase difference) or with analogue signal (proportional to speed or torque) 8 inputs and 5 outputs, user configurable. **Included in the supply.**
- ⑨ ENCODER CONNECTOR: connection for 3kW BRUSHLESS motor encoder.
- ⑩ IEEE 1394 PC CONNECTOR: settings and possible connection to other devices via RS485 or RS232 (cable not included in the supply).
- ⑪ USB PC CONNECTOR: settings and monitor through personal computer (not included in the supply).
Data acquisition is only possible via this connection.



Log on to www.metalwork.it to view the instruction manual.

NOTES

DRIVE FOR B3 400W DELTA BRUSHLESS MOTORS

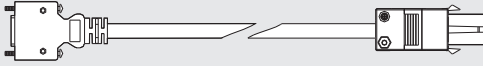
It is a DELTA ASD-B3A-0421-M drive to be used only with a DELTA B3 400W motor.
It features compact dimensions and considerable operating flexibility.
It consists of a board housed in a metal box. It comes with pull-out screw connectors for power and plug connectors for logic.



| DRIVE TECHNICAL DATA | | |
|---|----|---|
| Drive code | | 37D2300002 |
| Nominal power | W | 400 |
| Type of drive for BRUSHLESS motors | | Metal box |
| Dimensions | mm | 60 x 162 x 156 |
| Power connectors and motor power | | Spring type |
| Encoder connectors and signals | | Plug-type, D-Sub high density 26 poles |
| Max output current | A | 10.6 |
| Motor output stage | | IGBT, PWM control, sinusoidal current |
| Power voltage | | Single-phase or three-phase (user configurable) 200-230VAC (+10%, -1.5%) 50/60 Hz (± 3 Hz) |
| Logic voltage | | Single-phase 200-230VAC (+10%, -1.5%) 50/60 Hz (± 3 Hz) |
| Control | | With analogue signal (proportional to speed and torque). Pulse-train (clock + direction; forward + backward pulse; 90° phase difference) fieldbus with "CANopen" communication protocol 4 inputs and 2 outputs, user configurable. In the event of pulse-train command, the control system outputs should be the Line Driver type. If the outputs are the open-collector type, you can use a 37D2000000 board, which is sold separately (see accessories). |
| Auto-tuning | | Yes |
| Communication interface | | Serial USB port for settings and monitoring via a personal computer |
| Protections | | Integrated against overloads, input extra-voltages, STO (Safe Torque Off) incorporated filters for suppressing the system's own resonance frequencies. |
| Standards | | CE and UL |
| Other features | | 5-digit display and programming keypad. Integrated closed-loop system with position, speed and torque control modes. Control mode: position + speed; position + torque; speed + torque. Automatic dynamic braking circuit in a alarm and power-off conditions. Connector for external braking resistance (optional). Configuration and control software (optional). |
| Suitable for motors code | | 37M2220002 - 37M4220002 |
| Connecting cable: | | |
| Brushless motor-drive, dynamic cable, 3 metres | | 37C2130002 |
| Brushless motor-drive with brake dynamic cable, 3 metres | | 37C2230002 |
| Brushless motor-drive-encoder, dynamic cable, 3 metres | | 37C2230006 |
| Brushless motor-drive, dynamic cable, 5 metres | | 37C2150002 |
| Brushless motor-drive with brake dynamic cable, 5 metres | | 37C2250002 |
| Brushless motor-drive-encoder, dynamic cable, 5 metres | | 37C2250007 |
| Brushless motor-drive, dynamic cable, 10 metres | | 37C2100003 |
| Brushless motor-drive with brake dynamic cable, 10 metres | | 37C2200003 |
| Brushless motor-drive-encoder, dynamic cable, 10 metres | | 37C2200006 |

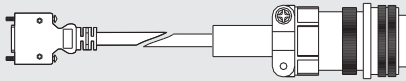
CABLES FOR DELTA BRUSHLESS MOTORS

ENCODER CABLE 100W - 750W



| Code | Description |
|------------|---|
| 37C2230001 | 100W-750W brushless motor-drive-encoder connecting cable, 3 metres |
| 37C2250001 | 100W-750W brushless motor-drive-encoder connecting cable, 5 metres |
| 37C2230002 | 100W-750W brushless motor-drive-encoder connecting dynamic cable, 3 metres |
| 37C2250002 | 100W-750W brushless motor-drive-encoder connecting dynamic cable, 5 metres |
| 37C2200003 | 100W-750W brushless motor-drive-encoder connecting dynamic cable, 10 metres |

ENCODER CABLE 1kW - 3kW



| Code | Description |
|------------|---|
| 37C3230001 | 1kW - 3kW brushless motor-drive-encoder connecting cable, 3 m |
| 37C3250001 | 1kW - 3kW brushless motor-drive-encoder connecting cable, 5 m |
| 37C2230007 | 1kW - 3kW brushless motor-drive-encoder connecting dynamic cable, 3 metres |
| 37C2250008 | 1kW - 3kW brushless motor-drive-encoder connecting dynamic cable, 5 metres |
| 37C2200007 | 1kW - 3kW brushless motor-drive-encoder connecting dynamic cable, 10 metres |

ENCODER CABLE B3 400W

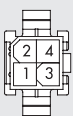


| Code | Description |
|------------|---|
| 37C2230006 | B3 400W brushless motor-drive-encoder connecting dynamic cable, 3 metres |
| 37C2250007 | B3 400W brushless motor-drive-encoder connecting dynamic cable, 5 metres |
| 37C2200006 | B3 400W brushless motor-drive-encoder connecting dynamic cable, 10 metres |

MOTOR POWER CABLE 100W - 750W

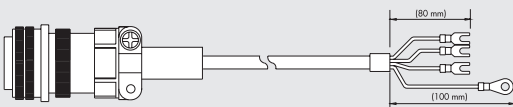


| Code | Description |
|------------|---|
| 37C2130001 | 100W-750W brushless motor-drive connecting cable, 3 metres |
| 37C2150001 | 100W-750W brushless motor-drive connecting cable, 5 metres |
| 37C2130002 | 100W-750W brushless motor-drive connecting dynamic cable, 3 metres |
| 37C2150002 | 100W-750W brushless motor-drive connecting dynamic cable, 5 metres |
| 37C2100003 | 100W-750W brushless motor-drive connecting dynamic cable, 10 metres |



| Pin | Function | Corresponding wire colour |
|-----|---------------|---------------------------|
| 1 | Motor phase U | Black 1 |
| 2 | Motor phase V | Black 2 |
| 3 | Motor phase W | Black 3 |
| 4 | GND | Yellow / Green |

MOTOR POWER CABLE 1kW - 3kW

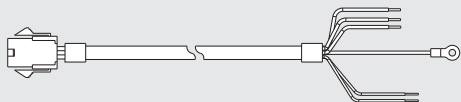


| Code | Description |
|------------|---|
| 37C3130001 | 1kW - 3kW brushless motor-drive connecting cable, 3 m |
| 37C3150001 | 1kW - 3kW brushless motor-drive connecting cable, 5 m |
| 37C2130006 | 1kW - 3kW brushless motor-drive connecting dynamic cable, 3 metres |
| 37C2150006 | 1kW - 3kW brushless motor-drive connecting dynamic cable, 5 metres |
| 37C2100006 | 1kW - 3kW brushless motor-drive connecting dynamic cable, 10 metres |



| Pin | Function | Corresponding wire colour |
|-----|---------------|---------------------------|
| A | - | - |
| B | Motor phase W | Black 4 |
| C | - | - |
| D | - | - |
| E | GND | Yellow / Green |
| F | Motor phase U | Black 1 |
| G | - | - |
| H | - | - |
| I | Motor phase V | Black 2 |

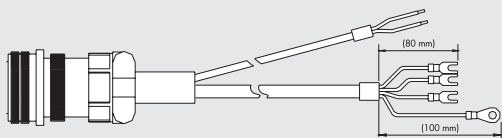
MOTOR POWER CABLE + BRAKE 100W - 750W



| Code | Description |
|------------|---|
| 37C2730000 | 100W-750W brushless motor-drive connecting cable + brake, 3 metres |
| 37C2750000 | 100W-750W brushless motor-drive connecting cable + brake, 5 metres |
| 37C2730001 | 100W-750W brushless motor-drive connecting dynamic cable + brake, 3 metres |
| 37C2750001 | 100W-750W brushless motor-drive connecting dynamic cable + brake, 5 metres |
| 37C2700001 | 100W-750W brushless motor-drive connecting dynamic cable + brake, 10 metres |

| Pin | Function | Corresponding wire colour |
|-----|---------------|---------------------------|
| 1 | Motor phase U | Black 1 |
| 2 | Motor phase V | Black 2 |
| 3 | 24VDC brake | Black 3 |
| 4 | Motor phase W | Black 4 |
| 5 | GND | Yellow / Green |
| 6 | GND brake | Black 6 |

MOTOR POWER CABLE + BRAKE 1kW - 3kW



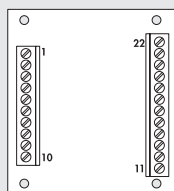
| Code | Description |
|------------|---|
| 37C3730000 | 1kW - 3kW brushless motor drive connecting cable + brake, 3 m |
| 37C3750000 | 1kW - 3kW brushless motor drive connecting cable + brake, 5 m |
| 37C2730002 | 1kW - 3kW brushless motor-drive connecting dynamic cable + brake, 3 metres |
| 37C2750003 | 1kW - 3kW brushless motor-drive connecting dynamic cable + brake, 5 metres |
| 37C2700002 | 1kW - 3kW brushless motor-drive connecting dynamic cable + brake, 10 metres |

| Pin | Function | Corresponding wire colour |
|-----|---------------|---------------------------|
| A | - | - |
| B | Motor phase W | Black 4 |
| C | - | - |
| D | - | - |
| E | GND | Yellow / Green |
| F | Motor phase U | Black 1 |
| G | 24VDC brake | Black 3 |
| H | GND brake | Black 6 |
| I | Motor phase V | Black 2 |

NOTES

ACCESSORIES FOR DELTA DRIVES

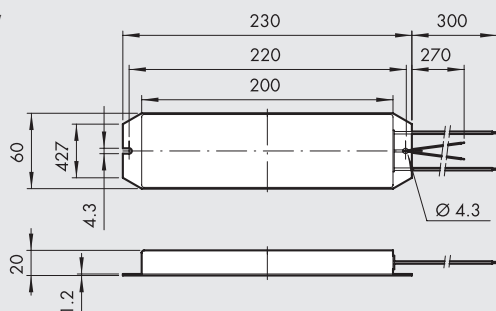
LINE-DRIVER INTERFACE BOARD



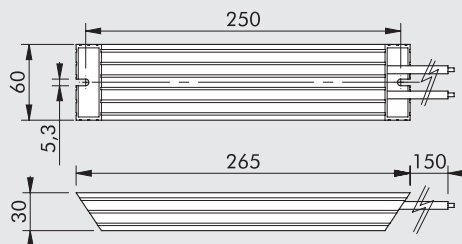
| Code | Description |
|------------|-------------------------------------|
| 37D2000000 | BRINT.A line driver interface board |

EXTERNAL BRAKING RESISTANCES

220W



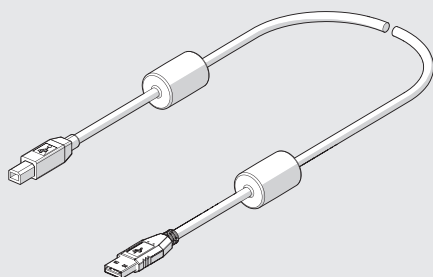
400W



| Code | Description | For drive code |
|------------|-------------------------------------|---|
| 37D2R00000 | 220W 50 Ω braking resistance | 37D2100000 - 37D2200001 37D23000000 |
| 37D2R00004 | 400W 40 Ω braking resistance | 37D23000002 - 37D2400006 37D2400007 - 37D2600001 |

Under certain operating conditions, such as sudden deceleration with high inertial load, it may be necessary to dissipate externally the reverse energy generated by the motor. The drive indicates this requirement via a specific alarm. Excess energy is dissipated externally via a braking resistance.

CABLE USB



| Code | Description | Weight [g] |
|------------|---|------------|
| 37C0030000 | Cable for USB 2.0 male A-B connector with ferrite core, for connecting the drive brushless to a PC, 3 m | 150 |

CONFIGURATION SOFTWARE ASDASoft

ASDASoft communication software is used for parameter setting and complete control of all functions of the system. The configuration software can be downloaded free from the website <http://www.deltaww.com>

Access to parameter setting is done through the setup menus. The software includes a detailed description of each parameter. In addition to parameter setting ASDASoft software can accurately analyse operation of the system via the following functions.

- Status Monitor: real-time display of all details about the system.
- Data Scope: a complete oscilloscope with 4 channels that can be selected as desired among analogue and digital signals.
- System Analysis: used to study the system's frequency response to identify and correct any mechanical resonance phenomena.

JOG speed modes are also available (Digital IO/Jog Control) and Gain Auto-Tuning.

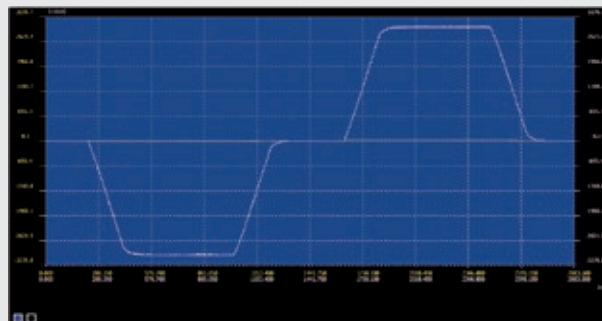


| Param No. | Param Name | Unit | Min | Max | Default | Description |
|-----------|------------|----------|-----------|----------|----------|--------------------|
| PT-01 | K0070 | 00000000 | 00000000 | 00000000 | 00000000 | Param01 Definition |
| PT-02 | K0071 | 0 | -00000000 | 00000000 | 0 | Param02 Data |
| PT-03 | K0072 | 00000000 | 00000000 | 00000000 | 00000000 | Param03 Definition |
| PT-04 | K0073 | 0 | -00000000 | 00000000 | 0 | Param04 Data |
| PT-05 | K0074 | 00000000 | 00000000 | 00000000 | 00000000 | Param05 Definition |
| PT-06 | K0075 | 0 | -00000000 | 00000000 | 0 | Param06 Data |
| PT-07 | K0076 | 00000000 | 00000000 | 00000000 | 00000000 | Param07 Definition |
| PT-08 | K0077 | 0 | -00000000 | 00000000 | 0 | Param08 Data |
| PT-09 | K0078 | 00000000 | 00000000 | 00000000 | 00000000 | Param09 Definition |
| PT-10 | K0079 | 0 | -00000000 | 00000000 | 0 | Param10 Data |
| PT-11 | K0080 | 00000000 | 00000000 | 00000000 | 00000000 | Param11 Definition |
| PT-12 | K0081 | 0 | -00000000 | 00000000 | 0 | Param12 Data |
| PT-13 | K0082 | 00000000 | 00000000 | 00000000 | 00000000 | Param13 Definition |
| PT-14 | K0083 | 0 | -00000000 | 00000000 | 0 | Param14 Data |
| PT-15 | K0084 | 00000000 | 00000000 | 00000000 | 00000000 | Param15 Definition |
| PT-16 | K0085 | 0 | -00000000 | 00000000 | 0 | Param16 Data |
| PT-17 | K0086 | 00000000 | 00000000 | 00000000 | 00000000 | Param17 Definition |
| PT-18 | K0087 | 0 | -00000000 | 00000000 | 0 | Param18 Data |
| PT-19 | K0088 | 00000000 | 00000000 | 00000000 | 00000000 | Param19 Definition |
| PT-20 | K0089 | 0 | -00000000 | 00000000 | 0 | Param20 Data |
| PT-21 | K0090 | 00000000 | 00000000 | 00000000 | 00000000 | Param21 Definition |
| PT-22 | K0091 | 0 | -00000000 | 00000000 | 0 | Param22 Data |
| PT-23 | K0092 | 00000000 | 00000000 | 00000000 | 00000000 | Param23 Definition |
| PT-24 | K0093 | 0 | -00000000 | 00000000 | 0 | Param24 Data |
| PT-25 | K0094 | 00000000 | 00000000 | 00000000 | 00000000 | Param25 Definition |
| PT-26 | K0095 | 0 | -00000000 | 00000000 | 0 | Param26 Data |

GRAPHIC MONITOR

Thanks to the integrated oscilloscope function, some important system parameters, such as speed and torque, can be displayed and saved on the PC monitor.

Data can be downloaded and saved in compatible Excel format. Displayed can be read using the cursor.



NOTES

Blank area for notes.