

Brushless DC motors

→ 57 mm square and 57 mm Ø - 463 mNm continuous with Hall effect sensors

- Powerful motors (up to 150 W continuous at 24 V)
- Suitable for voltages between 6 and 75 V
- Ideal for applications where the control electronics have to be off centre due to the high ambient temperature
- For use in motors directly or with a reduction gear



Part numbers

	57 mm square	57 mm square	Ø 57 mm
Type	801405	801805	801905
Part numbers	80140510	80180506	80190502

General characteristics

Max. speed (rpm)	10000	10000	8000
Torque peak in (mNm)	498*	845*	1160*
Maximum continuous torque (mNm)	199**	338**	463**
Motor constant (mNm/W ^{1/2})	57	78	103
Electrical time constant (ms)	2.2	2.6	2.5
Mechanical time constant (ms)	15	17	22
Energy losses at peak torque (W)	77	116	127
Torque/speed factor - zero impedance (mNm/ (rad/s))	3.2	6.1	10.6
Detent torque (mNm)	15	25	30
Rotor inertia (gcm ²)	50	105	230
Thermal resistance (°C/W)	5.7	3.8	3.4
Max. coil temperature (°C)	120	120	120
Integrated temperature sensor	Yes	Yes	No
Number of phases	3 (delta config)	3 (delta config)	3 (delta config)
Number of poles	4	4	4
Ambient operating temperature (°C)	-40 → 70°C	-40 → 70°C	-40 → 70°C
Dielectric strength at 500 V ~	1000 MΩ	1000 MΩ	1000 MΩ
Service life (h)	20000	20000	20000
Output ball bearing	Yes	Yes	Yes
Weight (g)	900	1300	1250
Length (mm)	73	94	114
Protection index	IP54	IP54	IP20

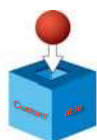
Comments

Motor mounted on aluminium plate 254 x 254 x 10 mm thick to encourage heat flow
 * 10 sec. at 25°C ambient temperature
 ** 25°C ambient temperature and 120°C winding temperature

Standard winding

Phase-to-phase resistance (Ω)	1.72 ± 12.5%	0.44 ± 12.5%	0.24 ± 12.5%
Voltage at peak torque (V)	11.5	7.2	5.5
Current at peak torque (A)	6.7	16.3	23
Torque constant (mN.m/A)	74.5 ± 10%	52 ± 10%	50.4 ± 10%
Back EMF constant (V/ (rad/s))	0.0745	0.052	0.0504
Back EMF constant (V/Krpm)	7.8 ± 10%	5.45 ± 10%	5.28 ± 10%
Inductance (mH)	3.8 ± 30%	1.15 ± 30%	0.59 ± 30%

Product adaptations



- Connections for card BDE30
- Special shafts
- Lead length
- Other winding resistance values (see curve diagram for available values)
- Mechanical brake
- 200, 500, 1000 points/revolution encoder

Other information

For other standard windings visit www.crouzet.com

User information

Not protected against connection errors

Stocked product

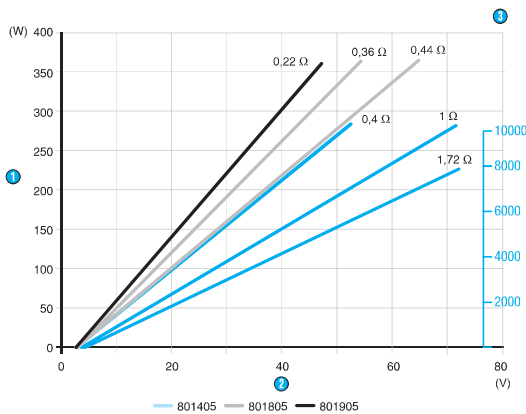
Product made to order

To order, see page 18



Curves

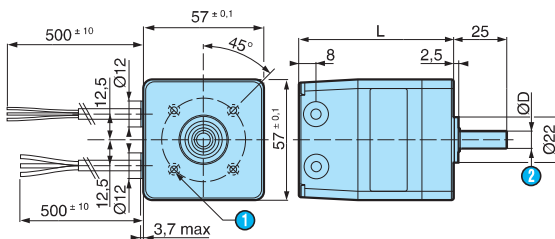
Power/Power supply



- ① Nominal power
- ② Supply voltage
- ③ Speeds (rpm)

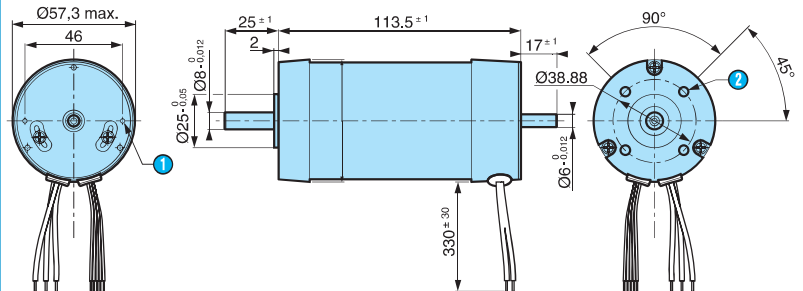
Dimensions

801405 - 801805



- ① 4 holes M5 over Ø 40 mm - depth of thread: 4.5 mm - depth of hole 6.6 mm
- ② 801405: D: Ø6 - 0.010 - 0.020 mm
801805: D: Ø8 - 0.010 - 0.020 mm
801405 - L: 73.2 mm max.
801805 - L: 94.2 mm

801905



- ① 2 x M2.5 - depth 4 min.
- ② 4 x M4 at 90° - depth 3 min., screw penetration ≤ 4 mm

Connections

Forward

Hall			①		
1	2	3	1	2	3
1	0	0	0V	+V	-
1	1	0	0V	-	+V
0	1	0	-	0V	+V
0	1	1	+V	0V	-
0	0	1	+V	-	0V
1	0	1	-	+V	0V

① Winding

Reverse

Hall			①		
1	2	3	1	2	3
1	0	0	+V	0V	-
1	0	1	-	0V	+V
0	0	1	0V	-	+V
0	1	1	0V	+V	-
0	1	0	-	+V	0V
1	1	0	+V	-	0V

① Winding

Part number 801405 - 801805

Wire colour	Connection name	Wire gauge (AWG)
Black	Winding 1	20
Brown	Winding 2	20
Red	Winding 3	20
Red	+ Hall power supply	24
Black	- Hall power supply (return)	24
Yellow	Sonde temp.	24
Orange	Hall 1	24
Brown	Hall 2	24
Green	Hall 3	24

Hall effect:

Voltage range: 4.5 → 24 V_{DC}
 Max. current: 20 mA
 Type of output: NPN open collector
 Not protected against connection errors

Part number 801905

Wire colour	Connection name	Wire gauge (AWG)
Red	Winding 1	20
Yellow	Winding 2	20
Black	Winding 3	20
Red	+ Hall power supply	26
Black	- Hall power supply (return)	26
Green	Hall 1	26
Blue	Hall 2	26
White	Hall 3	26

Hall effect:

Voltage range: 4.5 → 24 V_{DC}
 Max. current: 20 mA
 Type of output: NPN open collector
 Not protected against connection errors