# **Direct drive BRUSHLESS DC motors**

### → 80 Watts

Ideal for movement and positioning applications

- Adjustable : 4 quadrant varible speed control
- Complete : Brake, 2 channel encoder and integrated CEM filter
- Compact : High efficiency and starting torque
- Open : Compatible with Crouzet Millenium II+ logic

controller

■ Flexible : 24 V supply allows battery operation



·	Charifications		
PWM   Part numbers   PWM   PWM	Specifications		
Part numbers         80 180 001         24 (18 – 37)         24 (18 – 37)           No-load characteristics         ————————————————————————————————————		80 Watts PWM control	80 Watts 0-10 V control
Part numbers         80 180 001         24 (18 – 37)         24 (18 – 37)           No-load characteristics         ————————————————————————————————————			
Part numbers         80 180 001         24 (18 – 37)         24 (18 – 37)           No-load characteristics         ————————————————————————————————————	Speed control	PWM	0-10 V
No-load characteristics           Speed of rotation (rpm)         4 200           Absorbed current (λ)         0.4           Nominal characteristics         3 250           Speed (rpm)         3 250           Torque (mN.m)         240           Absorbed current (λ)         4.8           Maximum characteristics		80 180 001	80 180 002
No-load characteristics   Speed of rotation (rpm)	Supply voltage (V)	24 (18 → 37)	24 (18 → 37)
Absorbed current (Å)         0.4         0.4           Nominal characteristics         3 250         3 250           Speed (rpm)         240         240           Absorbed current (Å)         4.8         4.8           Maximum characteristics	No-load characteristics		
Nominal characteristics         Speed (rpm)         3 250         3 250           Torque (mN.m)         240         240           Absorbed current (A)         4.8         4.8           Maximum characteristics           Start torque (mN.m)         300         300           Starting current (A)         6.0         6.0           General characteristics           Insulation class (conforming to IEC 85)         B (120°C)           Casing temperature rise at 40°C ambient max. (°C)         20         20           Thermal time constant (min)         15         15           Inertia (g.cm²)         105         15           Acoustic pressure at 50 cm (dBA)         50         50           Service life L10 (h)         20 000         20 000           O-10 V speed input characteristics           Input impedance (kΩ)         -         440           Full scale speed (rpm)         -         4200           PWM speed input characteristics           Input impedance (kΩ)         19         -           Level 0 input voltage (V)         < 2.5	Speed of rotation (rpm)	4 200	4 200
Speed (rpm)         3 250         3 250           Torque (mN.m)         240         240           Absorbed current (A)         4.8         4.8           Maximum characteristics         Start torque (mN.m)         300         300           Starting current (A)         6.0         6.0           General characteristics         The contracteristics           Insulation class (conforming to IEC 85)         B (120°C)         B (120°C)           Casing temperature rise at 40°C ambient max. (°C)         20         20           Thermal time constant (min)         15         15           Inertia (g.cm²)         105         105           Acoustic pressure at 50 cm (dBA)         50         50           Service life L10 (h)         20 000         20 000         20 000           0-10 V speed input characteristics         Input impedance (kΩ)         -         440           Full scale speed (rpm)         -         4200           PWM speed input characteristics         -         -           Input impedance (kΩ)         19         -           Level 1 input voltage (V)         <2.5	Absorbed current (A)	0.4	0.4
Torque (mN.m)	Nominal characteristics	<del></del> -	
Absorbed current (A)       4.8       4.8         Maximum characteristics       300       300         Start torque (mN.m)       6.0       6.0         Starting current (A)       6.0       6.0         General characteristics       B (120°C)       20         Insulation class (conforming to IEC 85)       B (120°C)       20         Casing temperature rise at 40°C ambient max. (°C)       20       20         Thermal time constant (min)       15       15         Inertia (g.cm²)       105       105         Acoustic pressure at 50 cm (dBA)       50       50         Service life L10 (h)       20 000       20 000         0-10 V speed input characteristics       Value of the properties of the prop	Speed (rpm)	3 250	3 250
Maximum characteristics           Start torque (mN.m)         300         300           Starting current (A)         6.0         6.0           General characteristics         Temperature rise at 40°C ambient max. (°C)         20         20           Casing temperature rise at 40°C ambient max. (°C)         20         20           Thermal time constant (min)         15         15           Inertia (g.cm²)         105         105           Acoustic pressure at 50 cm (dBA)         50         50           Service life L10 (h)         20 000         20 000           0-10 V speed input characteristics         50         20 000           Input impedance (kΩ)         -         440           Full scale speed (rpm)         -         4 200           PWM speed input characteristics           Input impedance (kΩ)         19         -           Level 0 input voltage (V)         > 2.5         -           Level 1 input voltage (V)         > 11.5         -           Evel 1 input voltage (V)         > 11.5         -           Frequency range (Hz)         150 → 1000         -           Full scale speed (rpm)         4 200         -           Output characteristics	Torque (mN.m)	240	240
Start torque (mN.m)         300         300           Starting current (A)         6.0         6.0           General characteristics         Insulation class (conforming to IEC 85)         B (120°C)         B (120°C)           Casing temperature rise at 40°C ambient max. (°C)         20         20         20           Thermal time constant (min)         15         15         15           Inertia (g.cm²)         105         105         50         50           Service life L10 (h)         20 000         20 000         20 000         20 000         20 000         20 000         00         20 000         00         20 000         00         20 000         00	Absorbed current (A)	4.8	4.8
Starting current (A)         6.0         6.0           General characteristics         Insulation class (conforming to IEC 85)         B (120°C)           Casing temperature rise at 40°C ambient max. (°C)         20         20           Thermal time constant (min)         15         15           Inertia (g.cm²)         105         105           Acoustic pressure at 50 cm (dBA)         50         50           Service life L10 (h)         20 000         20 000           0-10 V speed input characteristics         20 000         20 000           Input impedance (kΩ)         -         440           Full scale speed (rpm)         -         440           PWM speed input characteristics           Input impedance (kΩ)         19         -           Level 0 input voltage (V)         < 2.5	Maximum characteristics		
General characteristics           Insulation class (conforming to IEC 85)         B (120°C)           Casing temperature rise at 40°C ambient max. (°C)         20           Thermal time constant (min)         15           Inertia (g.cm²)         105           Acoustic pressure at 50 cm (dBA)         50           Service life L10 (h)         20 000           0-10 V speed input characteristics         20 000           Input impedance (kΩ)         -         440           Full scale speed (rpm)         -         4 200           PWM speed input characteristics         -         -           Input impedance (kΩ)         19         -           Level 0 input voltage (V)         < 2.5	Start torque (mN.m)	300	300
Insulation class (conforming to IEC 85)         B (120°C)         B (120°C)           Casing temperature rise at 40°C ambient max. (°C)         20         20           Thermal time constant (min)         15         15           Inertia (g.cm²)         105         105           Acoustic pressure at 50 cm (dBA)         50         50           Service life L10 (h)         20 000         20 000           0-10 V speed input characteristics         V         20 000           Input impedance (kΩ)         -         440           Full scale speed (rpm)         -         4 200           PWM speed input characteristics           Input impedance (kΩ)         19         -           Level 0 input voltage (V)         < 2.5	Starting current (A)	6.0	6.0
Casing temperature rise at 40°C ambient max. (°C)         20         20           Thermal time constant (min)         15         15           Inertia (g.cm²)         105         105           Acoustic pressure at 50 cm (dBA)         50         50           Service life L10 (h)         20 000         20 000           0-10 V speed input characteristics         V           Input impedance (kΩ)         -         440           Full scale speed (rpm)         -         4 200           PWM speed input characteristics           Input impedance (kΩ)         19         -           Level 0 input voltage (V)         < 2.5	General characteristics		
Thermal time constant (min)       15       15         Inertia (g.cm²)       105       105         Acoustic pressure at 50 cm (dBA)       50       50         Service life L10 (h)       20 000       20 000         0-10 V speed input characteristics       Input impedance (kΩ)       -       440         Full scale speed (rpm)       -       4200         PWM speed input characteristics       19       -       -         Input impedance (kΩ)       19       -         Level 0 input voltage (V)       < 2.5	Insulation class (conforming to IEC 85)	B (120°C)	B (120°C)
Inertia (g.cm²)         105         105           Acoustic pressure at 50 cm (dBA)         50         50           Service life L10 (h)         20 000         20 000           0-10 V speed input characteristics         -         440           Input impedance (kΩ)         -         4 200           PWM speed input characteristics         -         -           Input impedance (kΩ)         19         -           Level 0 input voltage (V)         < 2.5	Casing temperature rise at 40°C ambient max. (°C)	20	
Acoustic pressure at 50 cm (dBA)       50       50         Service life L10 (h)       20 000       20 000         0-10 V speed input characteristics       Input impedance (kΩ)       -       440         Full scale speed (rpm)       -       4 200         PWM speed input characteristics       Input impedance (kΩ)       19       -         Level 0 input voltage (V)       < 2.5	Thermal time constant (min)	15	15
Service life L10 (h)         20 000         20 000           0-10 V speed input characteristics         440           Input impedance (kΩ)         -         440           FWM speed (rpm)         -         4 200           PWM speed input characteristics           Input impedance (kΩ)         19         -           Level 0 input voltage (V)         < 2.5         -           Level 1 input voltage (V)         > 11.5         -           Frequency range (Hz)         150 → 1000         -           Full scale speed (rpm)         4 200         -           Output characteristics         -         -           Type of output         PNP         PNP           Max. current (mA)         50         50		105	105
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Acoustic pressure at 50 cm (dBA)	50	50
Input impedance (kΩ)       -       440         Full scale speed (rpm)       -       4 200         PWM speed input characteristics         Input impedance (kΩ)       19       -         Level 0 input voltage (V)       < 2.5	Service life L10 (h)	20 000	20 000
Full scale speed (rpm)       -       4 200         PWM speed input characteristics         Input impedance (kΩ)       19       -         Level 0 input voltage (V)       < 2.5			
PWM speed input characteristics         Input impedance (kΩ)       19       -         Level 0 input voltage (V)       < 2.5	Input impedance ( $k\Omega$ )	-	440
Input impedance (kΩ)         19         -           Level 0 input voltage (V)         < 2.5	Full scale speed (rpm)	-	4 200
Level 0 input voltage (V)       < 2.5	PWM speed input characteristics		
Level 1 input voltage (V)       > 11.5       -         Frequency range (Hz)       150 → 1000       -         Full scale speed (rpm)       4 200       -         Output characteristics       -       -         Type of output       PNP       PNP         Max. current (mA)       50       50	Input impedance ( $k\Omega$ )	19	-
Frequency range (Hz)       150 → 1000       -         Full scale speed (rpm)       4 200       -         Output characteristics         Type of output       PNP       PNP         Max. current (mA)       50       50	Level 0 input voltage (V)	< 2.5	-
Full scale speed (rpm)         4 200         -           Output characteristics         -         -           Type of output         PNP         PNP           Max. current (mA)         50         50	Level 1 input voltage (V)	> 11.5	-
Output characteristics           Type of output         PNP         PNP           Max. current (mA)         50         50	Frequency range (Hz)		-
Type of output         PNP         PNP           Max. current (mA)         50         50		4 200	-
Max. current (mA) 50 50			
	Type of output	PNP	PNP
Weight (g) 1 400 1 400	Max. current (mA)		
	Weight (g)	1 400	1 400

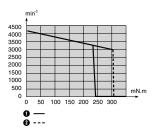
## Products adaptations, available on request



- 2 quadrant speed regulation
- Motors with hall effect sensors only
- Adaptations on electronics
- Special cable lengths
- Special connectors fitted to the cable

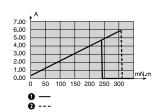


#### Speed/torque



- Continuous operation
- 2 Cyclic operation

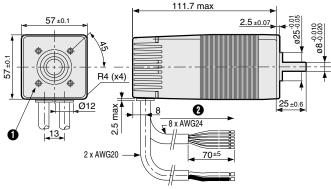
#### Current/torque



- Continuous operation
- Ocyclic operation

#### **Dimensions**

#### Short version 80 180 0



- 1 4 holes M5 x 0.86 H on Ø 40 depth 4.5 mm mini
- 2 Cable length: 500 ± 15 mm

#### **Connections**

Marking			
on motor	Function	Wire colour	
*a	Power earth	Black (2nd harness)	1 power cable AWG20
*a	24 V power supply	Brown (2nd harness)	2 conductors UL2464
	Signal earth	Black	
	On/off input	Green	
	Direction input	Yellow	
	Speed setpoint	Orange	<ul> <li>1 control cable AWG24</li> <li>8 conductors UL2464</li> </ul>
*b	12 points/rev encoder output	Brown	— 8 conductors 0L2464
*b	Encoder direction output	Red	_
	Torque limiting setpoint	Blue	
*b	Torque saturation output	Purple	

### **Using information**

Precautions to take to avoid damaging the motor

\*a) Do not invert the polarities

\*b) Do not short-circuit the encoder output (NPN)

Do not use the motor as a generator



## **BRUSHLESS DC geared motors**

## → 80 Watts with Ø 81 mm planetary gearbox - 0-10 V control

- Concentric output shaft,
- Ideal for high reduction ratios,
- Ideal for high torque applications,
- High efficiency,
- Reversible.



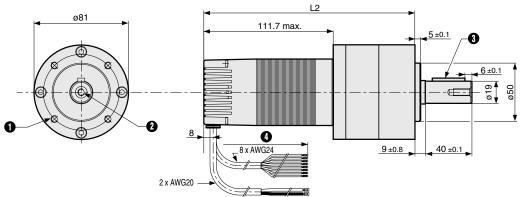
Specifications						
Ratios (i)	Output speed (rpm)	Available torque (N.m)	1 stage	2 stages	3 stages	
5	650	1	80 189 704			
27	120	4.5		80 189 705		
139	23	20			80 189 706	
General charac	teristics					
Motor			80 180	80 180	80 180	
Speed control			0-10 V	0-10 V	0-10 V	
Axial load (dyna	mic) N		80	120	200	
Radial load (dyn	namic) N		200	300	500	
Efficiency (%)		•	80	70	60	
Casing tempera	ture rise at 25°C	•	35	35	35	
Weight (g)		3 200	3 900	4 600		

#### Products adaptations, available on request



- 2 quadrant speed regulation
- Motors with hall effect sensors only
- Adaptations on electronics
- Special cable lengths
- Special connectors fitted to the cable

#### **Dimensions**



- 1 4 holes M6 x 12 x onØ65
- 2 Fixing hole M6 x 16
- 3 Cable length 500 ± 15 mm
- 4 Key A6 x 6 x 28 according to DIN6885

L2 1 stage : 182 mm max. L2 2 stages : 203.9 mm max. L2 3 stages : 226 mm max.

#### **Using information**

Respect the limits and precautions of use written in the 80W brushless motor section.

Products and specifications subject to change without notice.