

DCmind Brushless motor

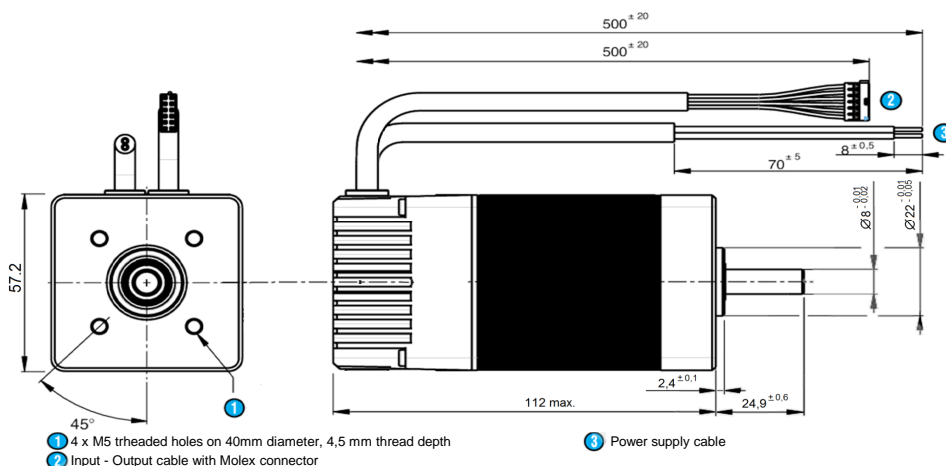
Data sheet

80 180 056

Series



80 180 TNI21

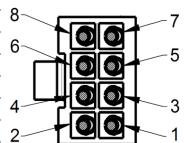


General characteristics

Power supply		
Direct current voltage supply		✓
Nominal voltage range	Vdc	12 -> 32
Max. current	A	14

Motor characteristics (1)		12 Vdc	24 Vdc	32 Vdc	
At no load					
Max. output speed	rpm	2 100	4 000	3 950	
Current at the max output speed	A	0,35	0,39	0,34	
Standby current	A	0,08	0,085	0,09	+10%
At nominal					
Speed	rpm	1 250	3 350	3 900	+10%
Torque (2)	mNm	340	285	250	
Output power	W	45	100	102	+10%
Current	A	6,7	5,4	4	
Efficiency	%	55	78	79	
At max. output power					
Speed	rpm	1 040	2 160	3 100	
Torque	mNm	400	600	650	
Output power	W	44	136	211	+10%
Current	A	7,2	11	12	
Efficiency	%	50	51	55	
At peak torque					
Speed	rpm	220	1 820	2 850	
Torque	mNm	700	700	700	
Output power	W	16	133	209	
Current	A	13	13	13	+10%
Others					
Life (3)	h		20 000		
Rotor inertia	gcm ²		115		
Thermal Resistance	°/W		2,7		
Thermal time constant	mn		30		
Rotor pole number			4		
Cogging torque	mNm		14		
Weight	kg		1,34		
Noise level	dBA		40		

Connecting	
Input - Output cable	With Molex connector ref: 43025-0800
Output cable, UL style 2464 80°C 300V - 8 wires AWG24	
Input: ON/OFF	1 - Green
Input: Direction	2 - Yellow
Input: Torque limit	3 - Blue
Input: Speed	4 - Orange
0V	5 - Black
Output: Pulse	6 - Brown
Output: Torque limit reached	7 - Purple
Output: Direction	8 - Red
Power supply cable	
Cable UL style 2517 105°C 300V - 2 wires AWG16 - 500 mm	
+ 12Vdc -> + 32 Vdc	Brown
0V	Blue



Drive	
Type	TNI21
Built-in drive	✓
Internal encoder	12 pulses per turn
Control	
Speed	PWM
Torque	PWM
4 quadrants - low braking	✓
4 quadrants with regenerative energy	
Type" Trapezoidal"	✓
Security	
Short-circuit of outputs	✓
Input inverted	✓
Low voltage	Vdc < 10
Short high voltage	Vdc > 36
Stop at max internal drive temperature (2)	°C 110
Drive temperature allowing to restart	°C 90

Generic parameters	
Output shaft with ball bearings	✓
Max. Radial force (12mm from front face)	N 40
Max. axial force(4)	N 20
Temperature range	CEI60068-2-1/2 °C -30 -> +70
Storage temperature	°C -40 -> +80
Dielectric	1min 2mA 50Hz CEI60335 Vdc
Motor insulation	CEI60085 class E
Salt spray	CEI60068-2-58 severity 48h
Degree of protection (output shaft not included)	CEI60529 IP 65M
EMC	
Electrostatic Discharge	CEI61000-4-2 level 3
Electrical fast transient / burst test	CEI61000-4-4 level 3
Surge test	CEI61000-4-5 level 1
Radiated emission	EN55022 class B
Approvals	
ROHS	2002/95/CE ✓
EC	✓

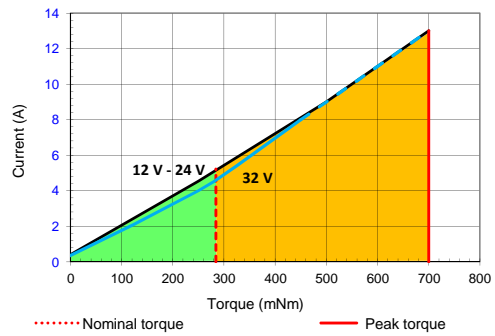
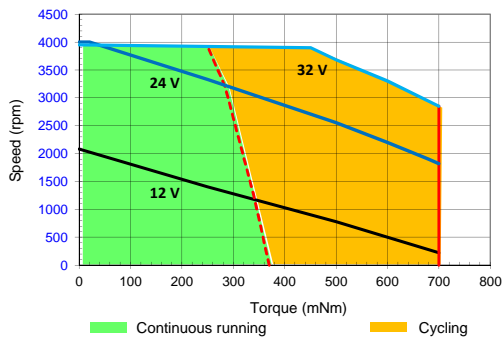
Notes	
Values without tolerances are average production values.	
Added informations are in "TNI21 manual and security" on www.crouzet.com	
Motor not protected in case of reversed power voltage	
(1) Cold motor, 20 ° C ambient temperature, full speed	
(2) Max torque for continuous operation at 20 ° C, decrease this value for higher ambient temperature	
(3) Continuously rated torque, zero radial and axial loads	
(4) Pinion or pulley fitting are done at the Crouzet factory, before final assembly.	

Drive electrical datas

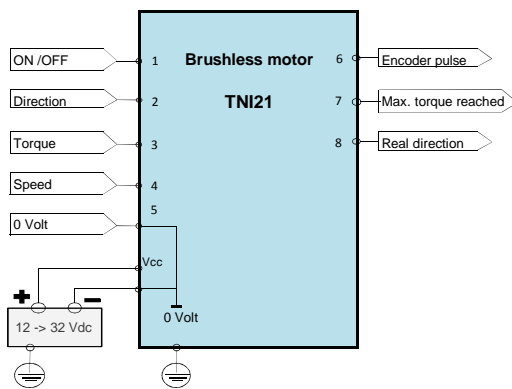
Max. product characteristics			
Parameters			
Max. voltage supply "Vcc"	Vdc		39
Max. current "Icc max"	A		15
Max. voltage on inputs "Vin max"	Vdc		39
Max. voltage on outputs "Vout max"	Vdc		39
Max. output current "Iout max"	mA		50
Running datas			
Parameters			
Voltage supply "Vcc"	Vdc	Min	Typical
Current "Icc"	A		15
Standby power "Wo"	W		2
Vitesse réglable de	rpm	120	4000
Couple moteur réglable de	mNm	30	700
Couple de maintien réglable de	mNm	30	230

Input datas			
Parameters			
Impedance - Input 1, 2	kΩ	Min	Typical
Impedance - Input 3, 4	kΩ		57
Low level - Input 1, 2	Vdc		69
High level - Input 1, 2	Vdc	0	-
Low level - Input 3, 4	Vdc		2
High level - Input 3, 4	Vdc	4	39
Fréquence des PWM	Hz	0	-
		7,5	39
		100	2000
Output datas			
Parameters			
Low level Outputs	Vdc	Min	Typical
with "pull down resistor" = 4,7KΩ and Vcc = 24 V		0	-
High level Outputs	Vdc		0,2
with "pull down resistor" = 4,7KΩ and Vcc = 24 V		Vcc - 0,5	-
= voltage supply added from eventual rejeptive voltage			

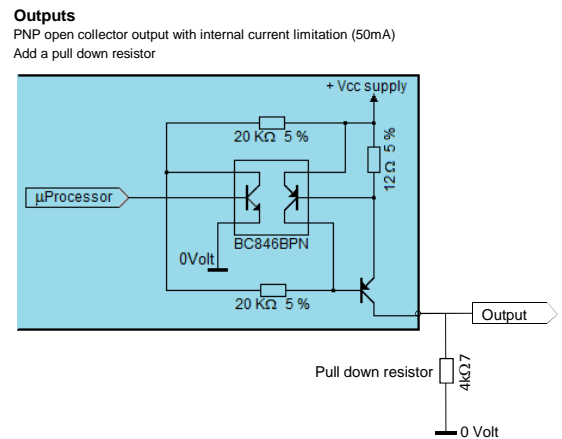
Speed-torque and current-torque curves



Wiring

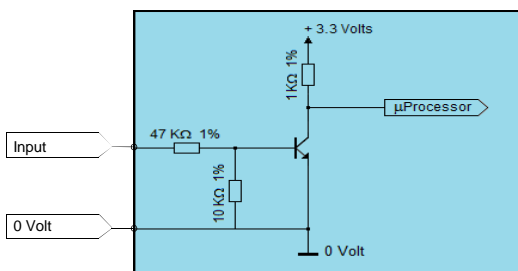


Output equivalent circuit



Inputs: ON/OFF and Direction

Inputs: ON/OFF and Direction



Inputs: Torque and Speed

Inputs: Torque and Speed

