

BRUSHLESS MOTOR  
**NX86WMSB**  
 ELECTRONIC DRIVE  
**Drive 410/1250 Arms**



No UL certification

Preliminary DATA - Water Cooled

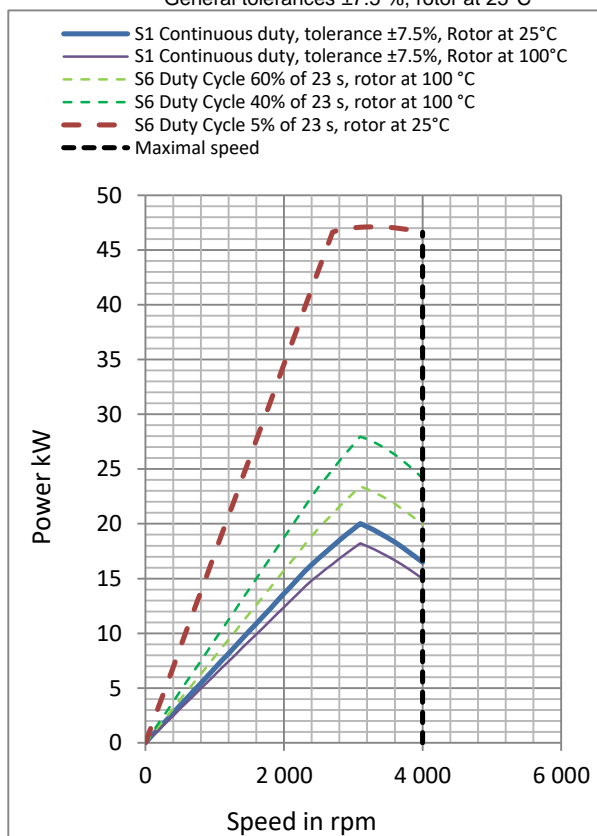
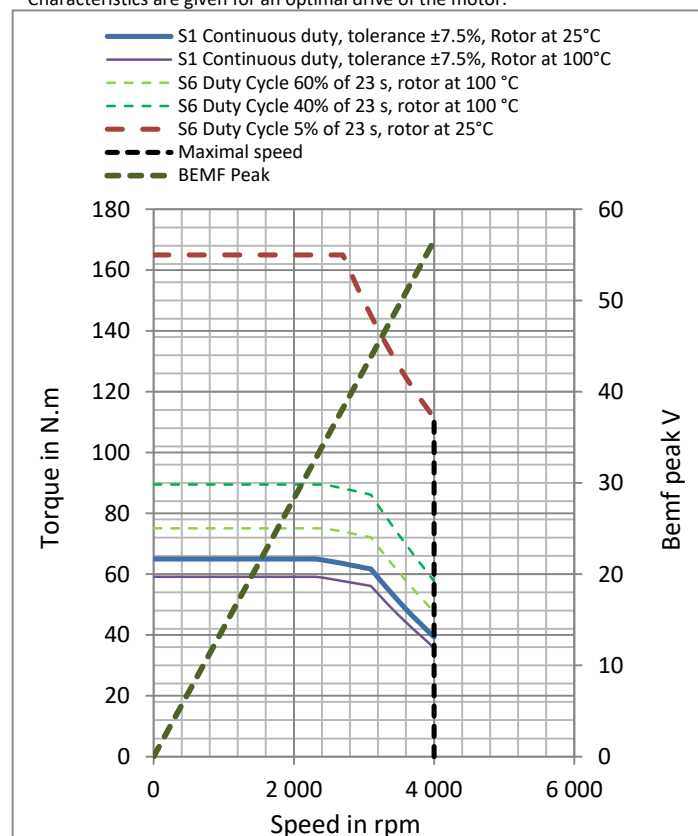
P <sub>n</sub>	Rated power **	19	kW	<b>Cooling type :</b> Water cooling IC 97 W Minimum flow: 1.6 l/min Max. Inlet Temperature: 60+/-5 °C Max. absolute pressure: 5 bars
M <sub>n</sub>	Rated torque **	62.6	Nm	
N <sub>n</sub>	Rated speed	2900	rpm	
I <sub>n</sub>	Rated current	404	A <sub>rms</sub>	
U <sub>n</sub>	Rated voltage *	29.1	V <sub>rms</sub>	
U <sub>R</sub>	Voltage of the mains	40	V <sub>rms</sub>	<b>Environment :</b> Ambient temperature : 65°C MAX Altitude : < 1000 m Insulation class : H Max Winding Temperature : 150°C (according to IEC 60034-1)
U	DC voltage supply when motor is loaded	48	V	
M <sub>0</sub>	Low speed torque **	65	N.m	
I <sub>0</sub>	Permanent current at low speed	410	A <sub>rms</sub>	
M <sub>p</sub>	Max. torque **	165	Nm	
I <sub>p</sub>	Max. current	1250	A <sub>rms</sub>	Number of poles : 10 Electrical frequency @N <sub>p</sub> 333 Hz <b>Efficiency :</b> at rated torque : 94.8 % at 75% of rated torque : 95.4 %
N <sub>p</sub>	Max. speed	4000	rpm	
J	Rotor inertia	0.0092	kg.m <sup>2</sup>	
K <sub>e</sub>	Back emf constant at 1000 rpm (25°C)*	10	V <sub>rms</sub>	
K <sub>t</sub>	Torque sensitivity (rotor 25°C)	0.159	Nm/A <sub>rms</sub>	
R <sub>b</sub>	Winding resistance(25°C) *	0.00197	Ω	
L	Winding inductance *	0.0228	mH	

All data are given in typical values under standard conditions.

\* Phase to Phase

Characteristics are given for an optimal drive of the motor.

\*\* General tolerances ±7.5 %, rotor at 25°C



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### Main characteristics

Rated power **	19	kW	Ps1
Peak power **	47.1	kW	Ps6
Low speed torque **	65	N.m	Mo
Low speed peak torque **	165	N.m	MoS6
Nominal speed (S1)	2900	rpm	Nb
Max speed ****	4000	rpm	Nmax
DC voltage supply when motor is loaded	48	Vdc	Ū
Permanent current at low speed	410	Arms	Io
S6 current at low speed	1250	Arms	IoS6

### Mechanical parameters

Rotor inertia	0.0092	kg.m <sup>2</sup>	J
Motor mass	27	kg	M
Maximum speed with Drive	4000	rpm	Nmax
Maximum mechanical speed	8000	rpm	Nmec

### Electrical parameters

Number of poles	10		
Winding resistance (25°C) *	0.00197	Ω	Rb
Back EMF voltage/ 1000 rpm *	10	Vrms / 1000 rpm	ke
Back EMF voltage / (rad/s) *	0.0955	Vrms / (rad/s)	ku
Torque constant	0.159	N.m / Arms	Kt
Short circuit current	928	Arms	Icc
Inductance Lq (Back EMF voltage axis) *	0.0228	mH	Lq
Inductance Ld *	0.0238	mH	Ld
Optimal phasing at permanent current	10	electrical degree	ψo
Optimal phasing at S6 current	20	electrical degree	ψm

### Thermal parameters

Motor thermal resistance	0.087	K/W	Rth
Motor thermal time constant	294	s	Tth
Winding thermal time constant	60	s	Tthw
Water cooling / Minimum flow:	1.6 l/min		
Maximum Inlet Temperature:			
Max. absolute pressure:	5 bars		
Thermal class according to IEC 60034-1	H		

\* Phase to phase

\*\* Tolerances ± 7.5% and rotor at 25°C