


ABB Motors and Generators		Technical Data Sheet				
Department/Author		Project	Location		Item name	
Our ref.		Rev/Changed by	Date of issue	Saving ident	Pages	
		A	1/16/2019	untitled.xls	1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	<b>TEFC, 3-phase, squirrel cage induction motor</b>				
2	Product code	<b>3GBA 203 420-BDCIN</b>		Calc. ref.	3GZH021020-7	
3	Type/Frame	<b>M2BAX 200MLB 6</b>				
4	Mounting	<b>IM3001, B5(flange)</b>				
5	Rated output P <sub>N</sub>	<b>22</b>	kW			
6	Service factor	<b>1</b>				
7	Type of duty	<b>S1 100%</b>				
8	Rated voltage U <sub>N</sub>	<b>415</b>	VD	+10, -10 %		
9	Rated frequency f <sub>N</sub>	<b>50</b>	Hz	+5, -5 %		
10	Rated speed n <sub>N</sub>	<b>970</b>	r/min			
11	Rated current I <sub>N</sub>	<b>43.7</b>	A			
12						
13	Starting current I <sub>s</sub> /I <sub>N</sub>	<b>6</b>				
14	Nominal torque T <sub>N</sub>	<b>217</b>	Nm			
15	Locked rotor torque T <sub>S</sub> /T <sub>N</sub>	<b>1.5</b>				
16	Maximum torque T <sub>max</sub> /T <sub>N</sub>	<b>2.5</b>				
17						
18						
Load characteristics		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	<b>100</b>	<b>43.7</b>	<b>90.9 / IE2</b>	<b>0.77</b>	
20		<b>75</b>	<b>34</b>	<b>91.2</b>	<b>0.74</b>	
21		<b>50</b>	<b>26.8</b>	<b>90.6</b>	<b>0.63</b>	
22						
23	Thermal withstand time hot	<b>19</b>	s			
24	Thermal withstand time cold	<b>31</b>	s			
25	Insulation class / Temperature class	<b>F / B</b>				
26	Ambient temperature	<b>50</b>	°C			
27	Altitude	<b>1000</b> m.a.s.l.				
28	Degree of protection	<b>IP55</b>				
29	Cooling system	<b>IC411 self ventilated</b>				
30	Bearing DE/NDE	<b>6312-2Z/C3 - 6209-2Z/C3</b>				
31	Sound pressure level (LP dB(A) 1m)	<b>72</b>	dB(A)	at no-load		
32	Moment of inertia J = ¼ GD <sup>2</sup>	<b>0.2384</b>	kg·m <sup>2</sup>			
33	Position of terminal box	<b>Top</b>				
34	Direction of rotation	<b>Bi-directional</b>				
35	Weight of rotor	<b>65</b>	kg			
36	Total weight of motor	<b>212</b>	kg			
37						
38						
39						
40						
41						
42						
43						
44						
45						
Ex-motors						
46						
47						
48						
Option Variant Codes / Definition						
49						
50						
51						
52						
Remarks:						
Data based on situation 9/19/2015						

All performance values are subject to IS/IEC tolerances


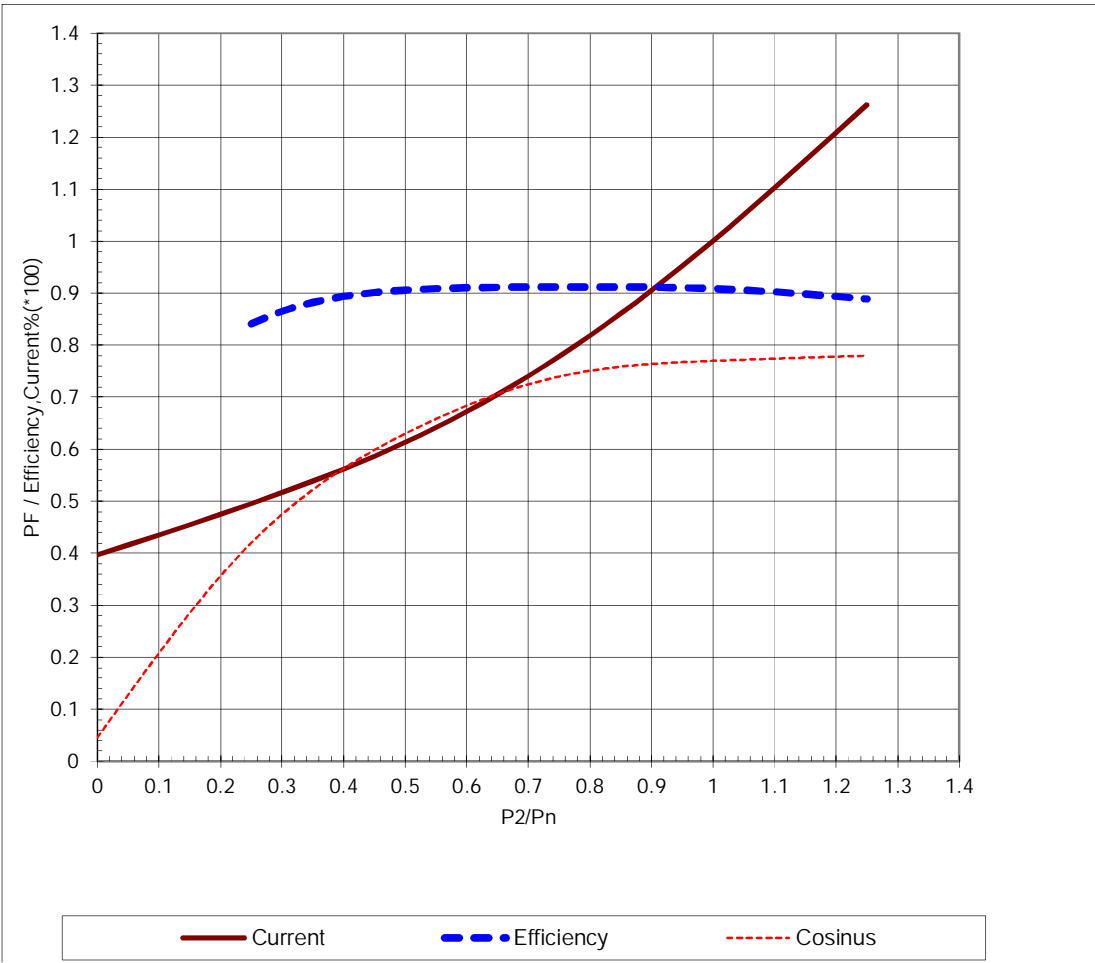

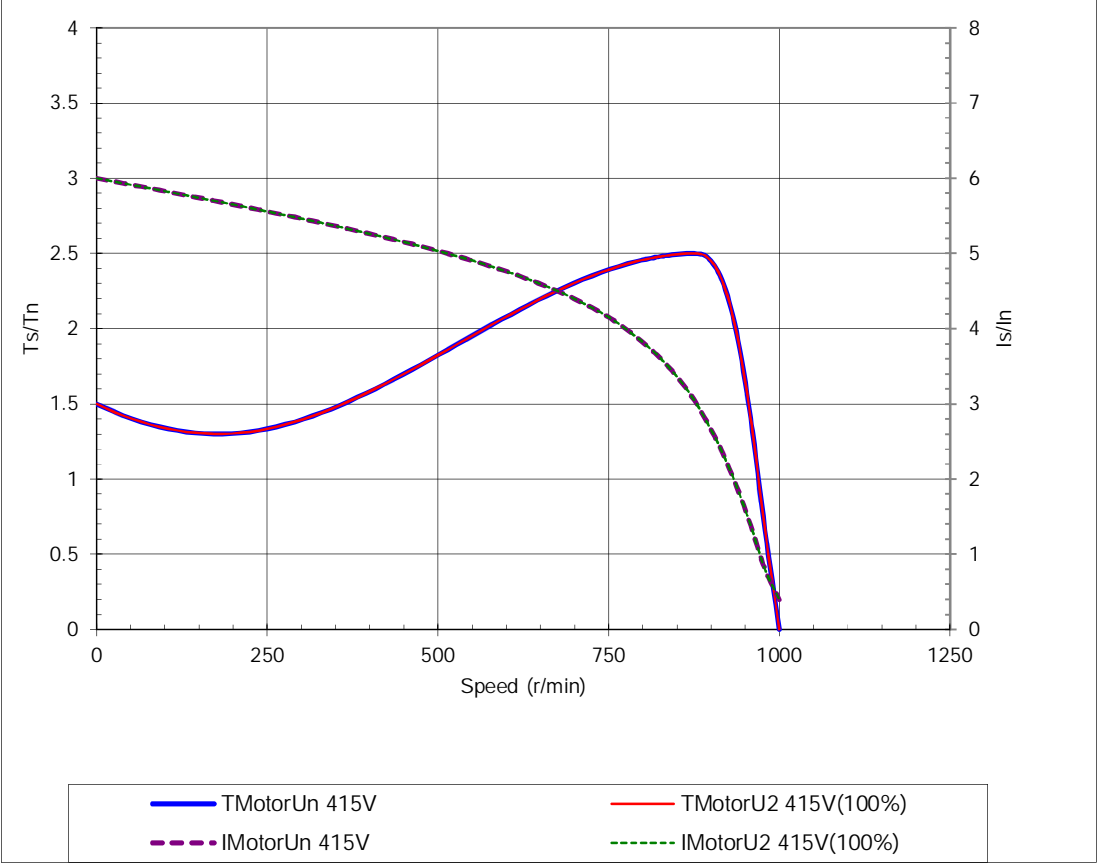

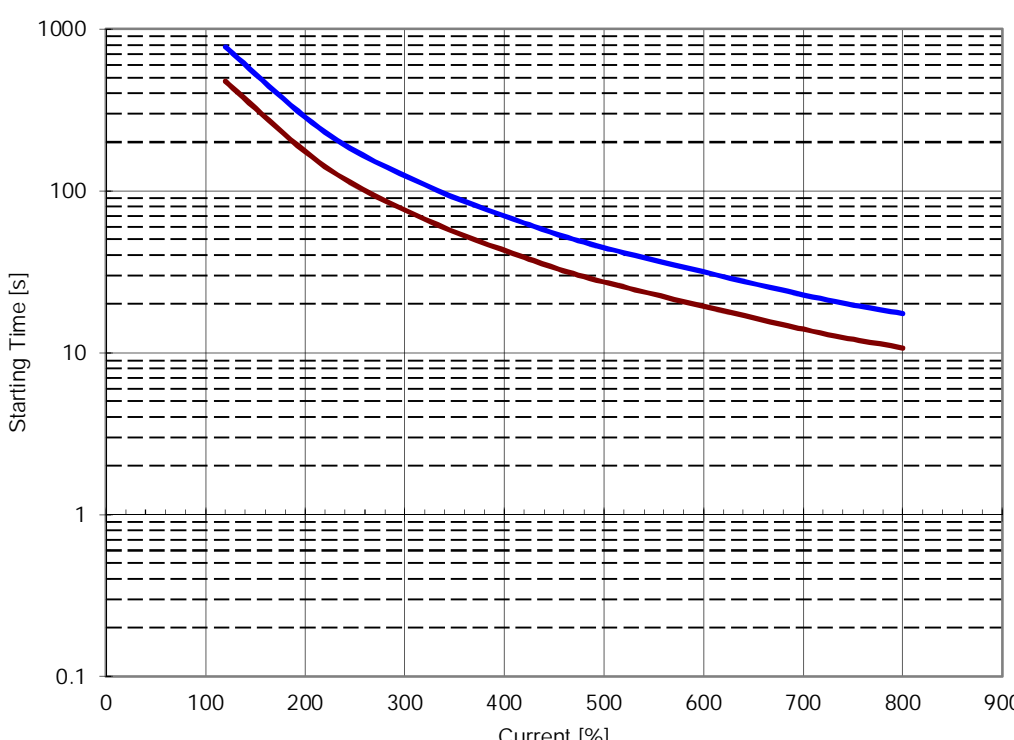
<b>ABB Motors and Generators</b>	<b>Load Curves</b>		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name <b>1.00001</b>
Our ref.	Rev/Changed by <b>A</b>	Date of issue <b>1/16/2019</b>	Saving ident <b>untitled.xls</b>
Pages <b>2(3)</b>	Product <b>TEFC, 3-phase, squirrel cage induction motor</b>		
Type/Frame	<b>M2BAX 200MLB 6</b>	Calc. ref.	<b>3GZH021020-7</b>
Product code	<b>3GBA 203 420-BDCIN</b>		
Rated output P <sub>N</sub>	<b>22 kW</b>		
Type of duty	<b>S1 100%</b>		
Voltage (V)	<b>415</b>	Current I <sub>N</sub> (A)	<b>43.7</b>
Frequency (Hz)	<b>50</b>	Speed (r/min)	<b>970</b>
		Power factor at P <sub>N</sub>	<b>0.77</b>
		Efficiency (%) at P <sub>N</sub>	<b>90.9</b>
			
<p>Data based on situation 9/19/2015</p> <p style="text-align: center;">All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004</p>			

ABB Motors and Generators	Starting Curves			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name <b>1.00001</b>
Our ref.	Rev/Changed by <b>A</b>	Date of issue <b>1/16/2019</b>	Saving ident <b>untitled.xls</b>	Pages <b>3(3)</b>
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>			
Type/Frame	<b>M2BAX 200MLB 6</b>	Calc. ref.	<b>3GZH021020-7</b>	
Product code	<b>3GBA 203 420-BDCIN</b>	Frequency (Hz)	<b>50</b>	
Rated output P <sub>N</sub>	<b>22 kW</b>	Rated current I <sub>N</sub>	<b>43.7</b>	<b>A</b>
Type of duty	<b>S1 100%</b>			
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.24</b>	Voltage (V) 100%	<b>415</b>	Voltage (V) <b>415V(100%)</b>
J <sub>load</sub> (kgm <sup>2</sup> )		T <sub>start</sub> /T <sub>N</sub>	<b>1.5</b>	T <sub>start</sub> /T <sub>N</sub> <b>1.5</b>
Speed (r/min)	<b>970</b>	Starting time (s)	<b>0.1</b>	Starting time (s)
T <sub>N</sub> (Nm)	<b>217</b>	Speed (r/min)		Speed (r/min)
T <sub>load</sub> (Nm)		I <sub>s</sub> /I <sub>n</sub>	<b>6</b>	I <sub>s</sub> /I <sub>n</sub> <b>6</b>
		T <sub>max</sub> /T <sub>n</sub>	<b>2.5</b>	T <sub>max</sub> /T <sub>n</sub> <b>2.5</b>
 <p>The graph plots torque (T<sub>s</sub>/T<sub>n</sub> on the left y-axis, 0 to 4) and current (I<sub>s</sub>/I<sub>n</sub> on the right y-axis, 0 to 8) against speed (r/min on the x-axis, 0 to 1250). It shows four curves: T<sub>MotorUn</sub> 415V (solid blue), T<sub>MotorU2</sub> 415V(100%) (solid red), I<sub>MotorUn</sub> 415V (dashed purple), and I<sub>MotorU2</sub> 415V(100%) (dashed green). The torque curves peak at approximately 2.5 around 970 r/min. The current curves peak at approximately 6 around 970 r/min.</p>				
Data based on situation 9/19/2015				
All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004				

<b>ABB Motors and Generators</b>	<b>Thermal Withstand Curve</b>		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name <b>1.00001</b>
Our ref.	Rev/Changed by <b>A</b>	Date of issue <b>1/16/2019</b>	Saving ident <b>untitled.xls</b>
Pages <b>5(3)</b>			
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>		
Type/Frame	<b>M2BAX 200MLB 6</b>	Calc. ref.	<b>3GZH021020-7</b>
Product code	<b>3GBA 203 420-BDCIN</b>	Frequency (Hz)	<b>50</b>
Rated output P <sub>N</sub>	<b>22 kW</b>	Rated current I <sub>N</sub>	<b>43.7 A</b>
Type of duty	<b>S1 100%</b>		
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.24</b>	Voltage (V) 100%	<b>415</b>
J <sub>load</sub> (kgm <sup>2</sup> )		Voltage (V)	<b>415V(100%)</b>
Speed (r/min)	<b>970</b>	T <sub>start</sub> /T <sub>N</sub>	<b>1.5</b>
T <sub>N</sub> (Nm)	<b>217</b>	Starting time (s)	<b>0.1</b>
T <sub>load</sub> (Nm)		Speed (r/min)	
		I <sub>s</sub> /I <sub>N</sub>	<b>6</b>
		I <sub>s</sub> /I <sub>N</sub>	<b>6</b>
		T <sub>max</sub> /T <sub>n</sub>	<b>2.5</b>
		T <sub>max</sub> /T <sub>n</sub>	<b>2.5</b>



Current [%]	Starting Time [s] - Running Cold	Starting Time [s] - Running Hot
100	~800	~400
200	~250	~150
300	~150	~100
400	~100	~70
500	~70	~50
600	~50	~35
700	~35	~25
800	~25	~15

Data based on situation 9/19/2015  
All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004