

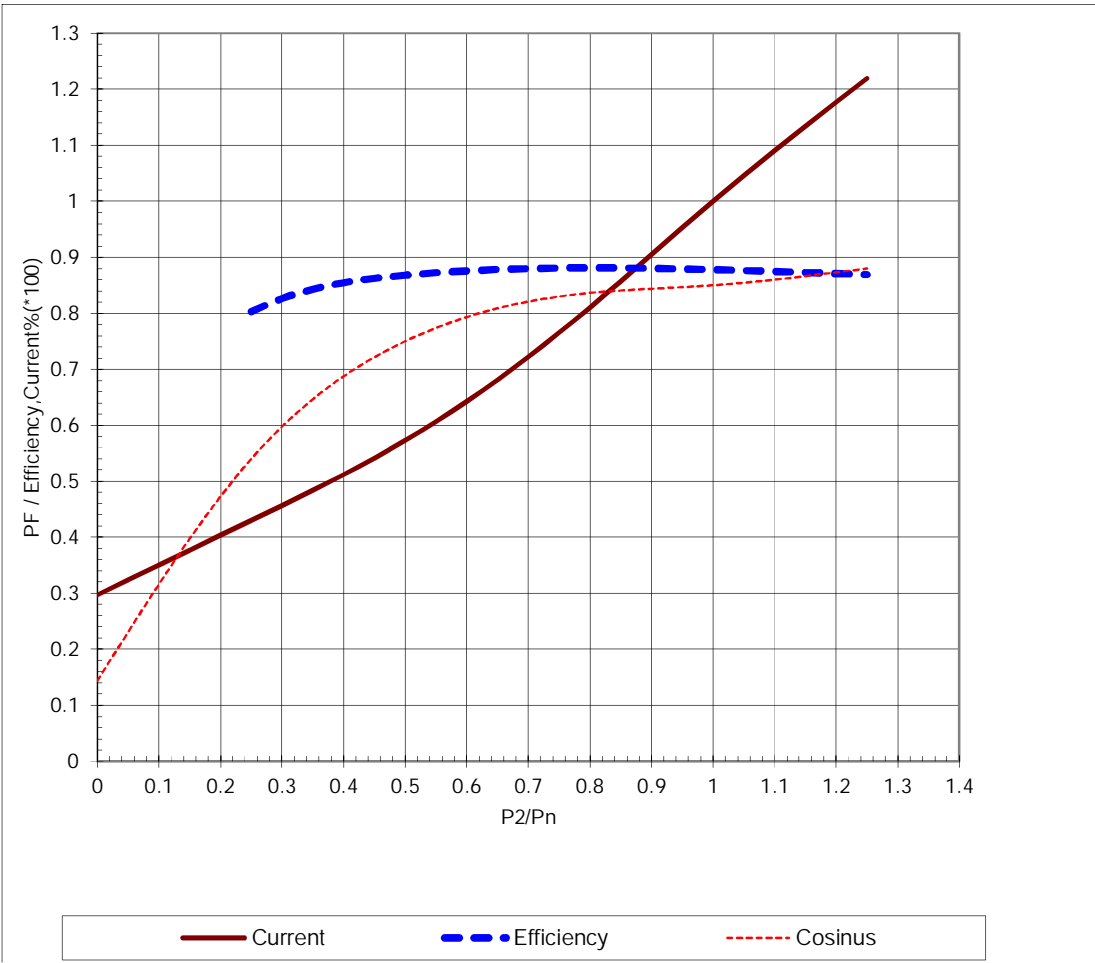


ABB Motors and Generators		Technical Data Sheet				
Department/Author		Project	Location		Item name	
Our ref.		Rev/Changed by	Date of issue	Saving ident	Pages	
		A	1/18/2019	untitled.xls	1.00001 1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	<b>TEFC, 3-phase, squirrel cage induction motor</b>				
2	Product code	<b>3GBA 101 820-ADDIN</b>			Calc. ref.	3GZH021010-1
3	Type/Frame	<b>M2BAX 100LKB 2</b>				
4	Mounting	<b>IM1001, B3(foot)</b>				
5	Rated output P <sub>N</sub>	<b>3.7</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>2900</b>	r/min			
11	Rated current I <sub>N</sub>	<b>6.9</b>	A			
12						
13	Starting current I <sub>s</sub> /I <sub>N</sub>	<b>7.7</b>				
14	Nominal torque T <sub>N</sub>	<b>12.2</b>	Nm			
15	Locked rotor torque T <sub>S</sub> /T <sub>N</sub>	<b>3.5</b>				
16	Maximum torque T <sub>max</sub> /T <sub>N</sub>	<b>3.9</b>				
17						
18						
Load characteristics		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	<b>6.9</b>	<b>87.8 / IE3</b>	<b>0.85</b>	
20		75	<b>5.3</b>	<b>88.1</b>	<b>0.83</b>	
21		50	<b>4</b>	<b>86.8</b>	<b>0.75</b>	
22						
23	Thermal withstand time hot	<b>9</b>	s			
24	Thermal withstand time cold	<b>15</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>6206-2Z/C3 - 6205-2Z/C3</b>				
31	Sound pressure level (LP dB(A) 1m)	<b>75</b>	dB(A)	at no-load		
32	Moment of inertia J = ¼ GD <sup>2</sup>	<b>0.00756</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>8</b>	kg			
36	Total weight of motor	<b>42</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 12/21/2015						

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>1/18/2019</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 100LKB 2</b>	Calc. ref.	<b>3GZH021010-1</b>
Product code	<b>3GBA 101 820-ADDIN</b>		
Rated output P <sub>N</sub>	<b>3.7</b>	<b>kW</b>	
Type of duty	<b>S1 100%</b>		
Voltage (V)	<b>415</b>	Current I <sub>N</sub> (A)	<b>6.9</b>
Frequency (Hz)	<b>50</b>	Speed (r/min)	<b>2900</b>
		Power factor at P <sub>N</sub>	<b>0.85</b>
		Efficiency (%) at P <sub>N</sub>	<b>87.8</b>
 <p>The graph plots PF / Efficiency, Current (%) on the y-axis (0 to 1.3) against P2/Pn on the x-axis (0 to 1.4). Three curves are shown: Current (solid red line), Efficiency (dashed blue line), and Cosinus (dotted red line). The Current curve starts at (0, 0.3) and increases to (1.25, 1.22). The Efficiency curve starts at (0.25, 0.8) and levels off at (1.25, 0.878). The Cosinus curve starts at (0, 0.15) and increases to (1.25, 0.87).</p>			
<p>Data based on situation 12/21/2015</p> <p style="text-align: center;">All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004</p>			


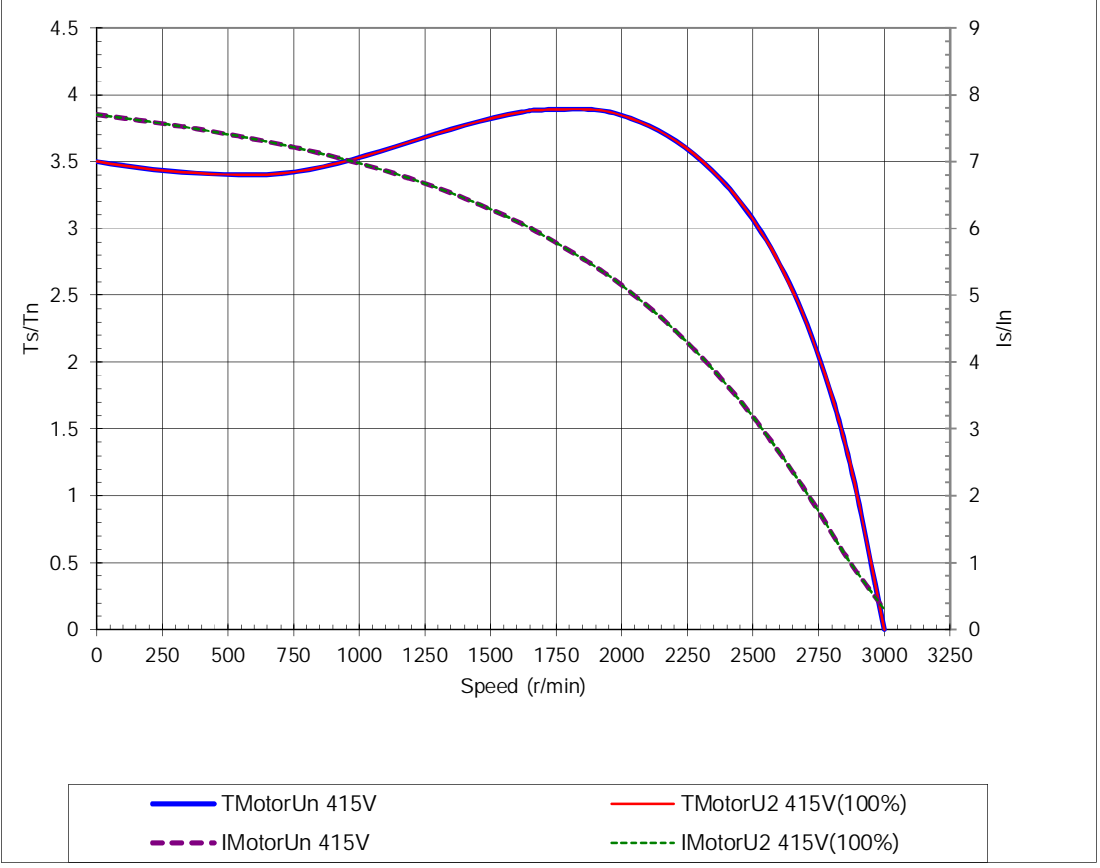

<b>ABB Motors and Generators</b>	<b>Starting Curves</b>			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name <b>1.00001</b>
Our ref.	Rev/Changed b	Date of issue	Saving ident	Pages
	<b>A</b>	<b>1/18/2019</b>	<b>untitled.xls</b>	<b>3(3)</b>
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>			
Type/Frame	<b>M2BAX 100LKB 2</b>	Calc. ref.	<b>3GZH021010-1</b>	
Product code	<b>3GBA 101 820-ADDIN</b>	Frequency (Hz)	<b>50</b>	
Rated output P <sub>N</sub>	<b>3.7 kW</b>	Rated current I <sub>N</sub>	<b>6.9</b>	<b>A</b>
Type of duty	<b>S1 100%</b>			
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.0076</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>3.5</b>	T <sub>start</sub> /T <sub>N</sub> <b>3.5</b>
Speed (r/min)	<b>2900</b>	Starting time (s)	<b>0.1</b>	Starting time (s)
T <sub>N</sub> (Nm)	<b>12.2</b>	Speed (r/min)		Speed (r/min) <b>939</b>
T <sub>load</sub> (Nm)		I <sub>s</sub> /I <sub>N</sub>	<b>7.7</b>	I <sub>s</sub> /I <sub>N</sub> <b>7.7</b>
		T <sub>max</sub> /T <sub>n</sub>	<b>3.9</b>	T <sub>max</sub> /T <sub>n</sub> <b>3.9</b>
 <p>The graph plots torque ratio (Ts/Tn) and current ratio (Is/In) against speed (r/min). The x-axis ranges from 0 to 3250 r/min. The left y-axis (Ts/Tn) ranges from 0 to 4.5, and the right y-axis (Is/In) ranges from 0 to 9. Two torque curves are shown: a solid blue line for 415V (T<sub>MotorUn</sub>) and a solid red line for 415V(100%) (T<sub>MotorU2</sub>). Two current curves are shown: a dashed purple line for 415V (I<sub>MotorUn</sub>) and a dashed green line for 415V(100%) (I<sub>MotorU2</sub>). The 415V(100%) torque curve peaks at approximately 3.9 around 1800 r/min. The 415V current curve starts at 7.7 at 0 r/min and decreases to 1 at 3000 r/min.</p>				
Data based on situation 12/21/2015				
All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004				


ABB Motors and Generators	Current & Speed Vs Time			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name <b>1.00001</b>
Our ref.	Rev/Changed b	Date of issue	Saving ident	Pages <b>4(3)</b>
	<b>A</b>	<b>1/18/2019</b>	<b>untitled.xls</b>	
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>			
Type/Frame	<b>M2BAX 100LKB 2</b>	Calc. ref.	<b>3GZH021010-1</b>	
Product code	<b>3GBA 101 820-ADDIN</b>	Frequency (Hz)	<b>50</b>	
Rated output P <sub>N</sub>	<b>3.7 kW</b>	Rated current I <sub>N</sub>	<b>6.9</b>	<b>A</b>
Type of duty	<b>S1 100%</b>			
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.0076</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>3.5</b>	T <sub>start</sub> /T <sub>N</sub> <b>3.5</b>
Speed (r/min)	<b>2900</b>	Starting time (s)	<b>0.1</b>	Starting time (s)
T <sub>N</sub> (Nm)	<b>12.2</b>	Speed (r/min)		Speed (r/min) <b>939</b>
T <sub>load</sub> (Nm)		I <sub>s</sub> /I <sub>N</sub>	<b>7.7</b>	I <sub>s</sub> /I <sub>N</sub> <b>7.7</b>
		T <sub>max</sub> /T <sub>N</sub>	<b>3.9</b>	T <sub>max</sub> /T <sub>N</sub> <b>3.9</b>

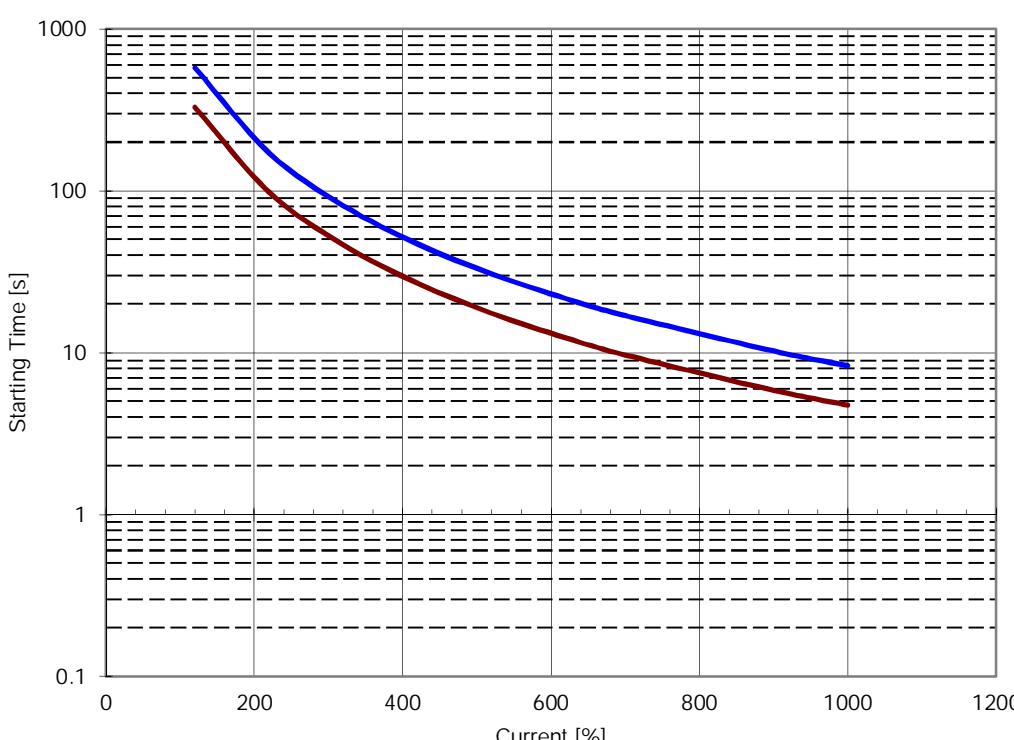
Speed [rpm] vs Starting Time [s] and Current [A]

— Speed [rpm]      — Current [A]

Data based on situation 12/21/2015  
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 b Date of issue <b>A 1/18/2019</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 100LKB 2</b>	Calc. ref.	3GZH021010-1
Product code	<b>3GBA 101 820-ADDIN</b>	Frequency (Hz)	<b>50</b>
Rated output P <sub>N</sub>	<b>3.7 kW</b>	Rated current I <sub>N</sub>	<b>6.9 A</b>
Type of duty	<b>S1 100%</b>		
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.0076</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>3.5</b> T <sub>start</sub> /T <sub>N</sub> <b>3.5</b>
Speed (r/min)	<b>2900</b>	Starting time (s)	<b>0.1</b> Starting time (s)
T <sub>N</sub> (Nm)	<b>12.2</b>	Speed (r/min)	<b>939</b> Speed (r/min) <b>939</b>
T <sub>load</sub> (Nm)		I <sub>s</sub> /I <sub>N</sub>	<b>7.7</b> I <sub>s</sub> /I <sub>N</sub> <b>7.7</b>
		T <sub>max</sub> /T <sub>n</sub>	<b>3.9</b> T <sub>max</sub> /T <sub>n</sub> <b>3.9</b>



<span style="color: red;">—</span> Running Hot	<span style="color: blue;">—</span> Running Cold
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Data based on situation 12/21/2015  
All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004