

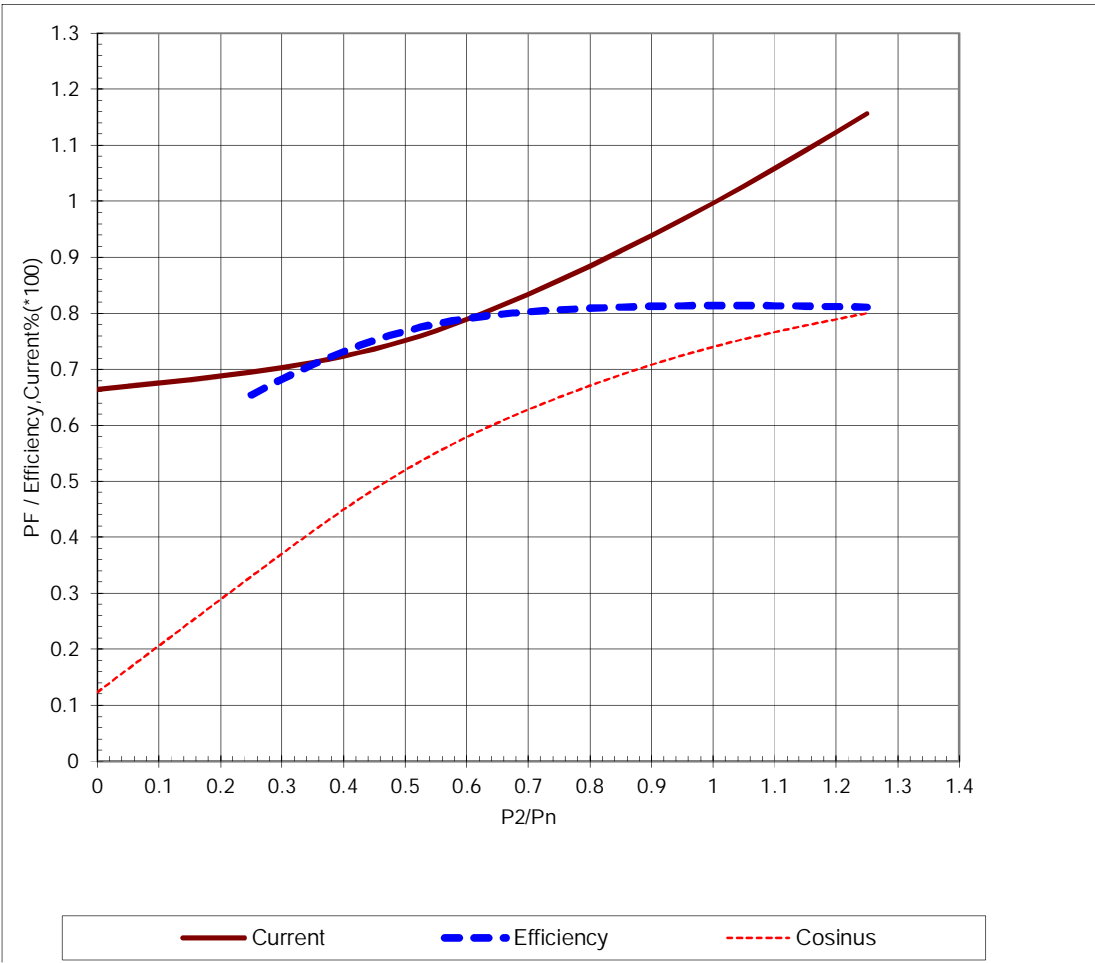


ABB Motors and Generators		Technical Data Sheet				
Project		Location				
Department/Author		Customer name		Customer ref.		
Our ref.		Rev/Changed by <b>A</b>	Date of issue <b>1/16/2019</b>	Saving ident <b>untitled.xls</b>	Item name <b>1.00001</b>	
					Pages <b>1(3)</b>	
No.	Definition	Data	Unit	Remarks		
1	Product	<b>TEFC, 3-phase, squirrel cage induction motor</b>				
2	Product code	<b>3GBA 092 110-ASCIN</b>		Calc. ref.	3GZH021009-15	
3	Type/Frame	<b>M2BAX 90SA 4</b>				
4	Mounting	<b>IM1001, B3(foot)</b>				
5	Rated output P <sub>N</sub>	<b>1.1</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>	VY	+10, -10 %		
9	Rated frequency f <sub>N</sub>	<b>50</b>	Hz	+5, -5 %		
10	Rated speed n <sub>N</sub>	<b>1430</b>	r/min			
11	Rated current I <sub>N</sub>	<b>2.55</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>7.3</b>	Nm			
15	Locked rotor torque T <sub>S</sub> /T <sub>N</sub>	<b>3</b>				
16	Maximum torque T <sub>max</sub> /T <sub>N</sub>	<b>3.5</b>				
17						
18						
Load characteristics		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	<b>100</b>	<b>2.55</b>	<b>81.4 / IE2</b>	<b>0.74</b>	
20		<b>75</b>	<b>2.2</b>	<b>80.6</b>	<b>0.65</b>	
21		<b>50</b>	<b>1.92</b>	<b>76.8</b>	<b>0.52</b>	
22						
23	Thermal withstand time hot	<b>6</b>	s			
24	Thermal withstand time cold	<b>13</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>6205-2Z/C3 - 6204-2Z/C3</b>				
31	Sound pressure level (LP dB(A) 1m)	<b>63</b>	dB(A)	at no-load		
32	Moment of inertia J = ¼ GD <sup>2</sup>	<b>0.00372</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>5</b>	kg			
36	Total weight of motor	<b>21</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 8/8/2016						

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 90SA 4</b>	Calc. ref.	<b>3GZH021009-15</b>
Product code	<b>3GBA 092 110-ASCIN</b>		
Rated output P <sub>N</sub>	<b>1.1 kW</b>		
Type of duty	<b>S1 100%</b>		
Voltage (V)	<b>415</b>	Current I <sub>N</sub> (A)	<b>2.55</b>
Frequency (Hz)	<b>50</b>	Speed (r/min)	<b>1430</b>
		Power factor at P <sub>N</sub>	<b>0.74</b>
		Efficiency (%) at P <sub>N</sub>	<b>81.4</b>
 <p>The graph plots PF / Efficiency, Current% (* 100) 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 approximately 0.67 at P2/Pn = 0 and rises to about 1.15 at P2/Pn = 1.25. The Efficiency curve starts at approximately 0.65 at P2/Pn = 0.25 and rises to about 0.81 at P2/Pn = 1.25. The Cosinus curve starts at approximately 0.12 at P2/Pn = 0 and rises to about 0.80 at P2/Pn = 1.25.</p>			
Data based on situation 8/8/2016			
All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004			


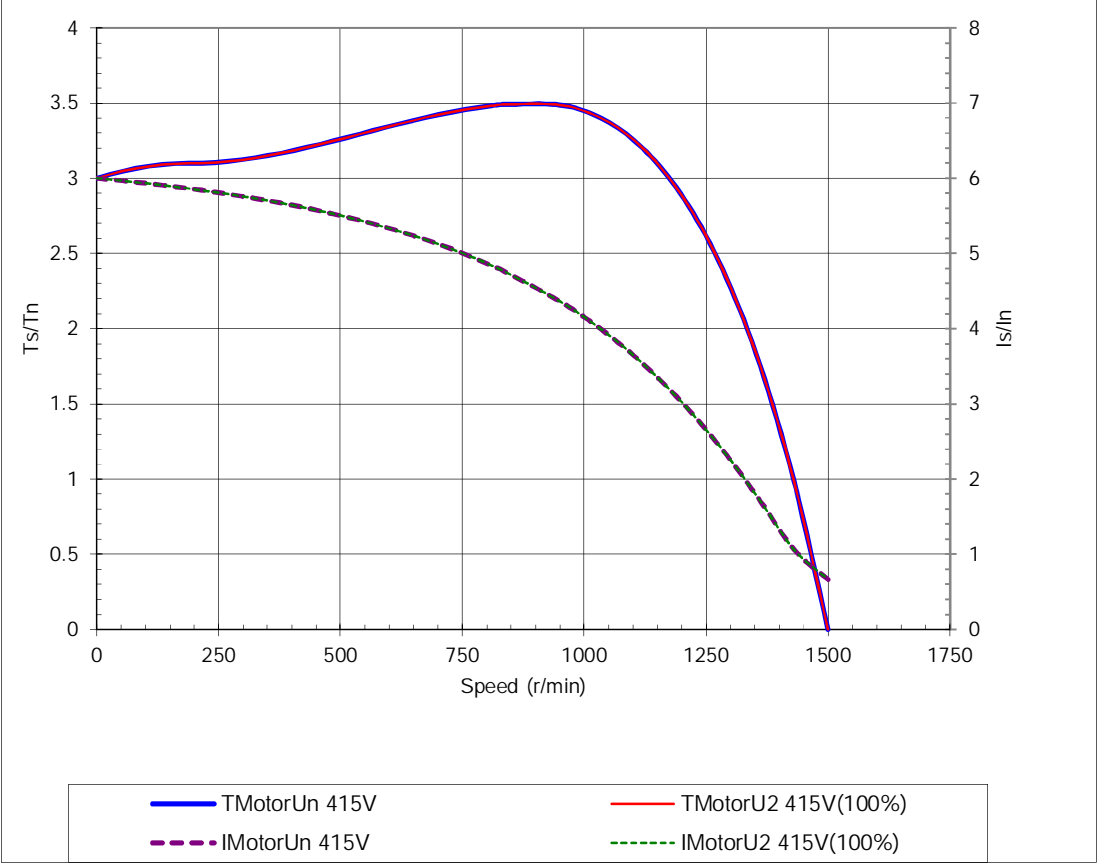

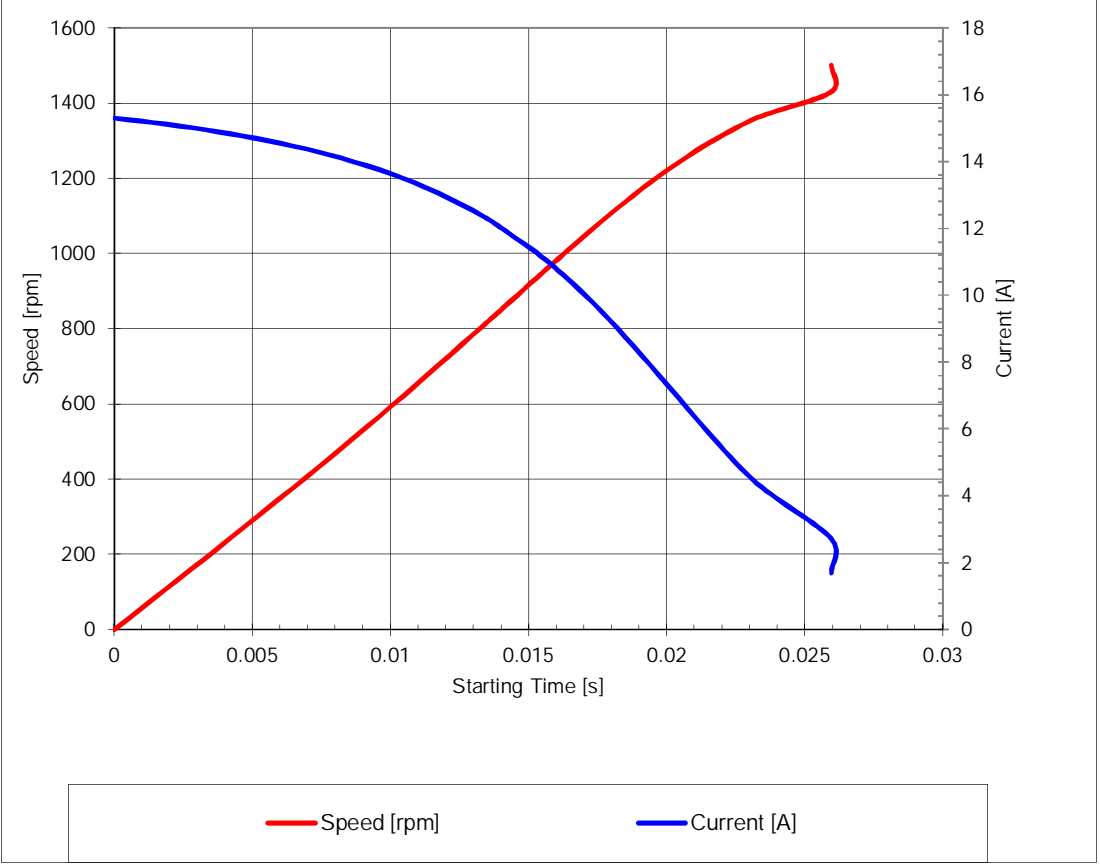

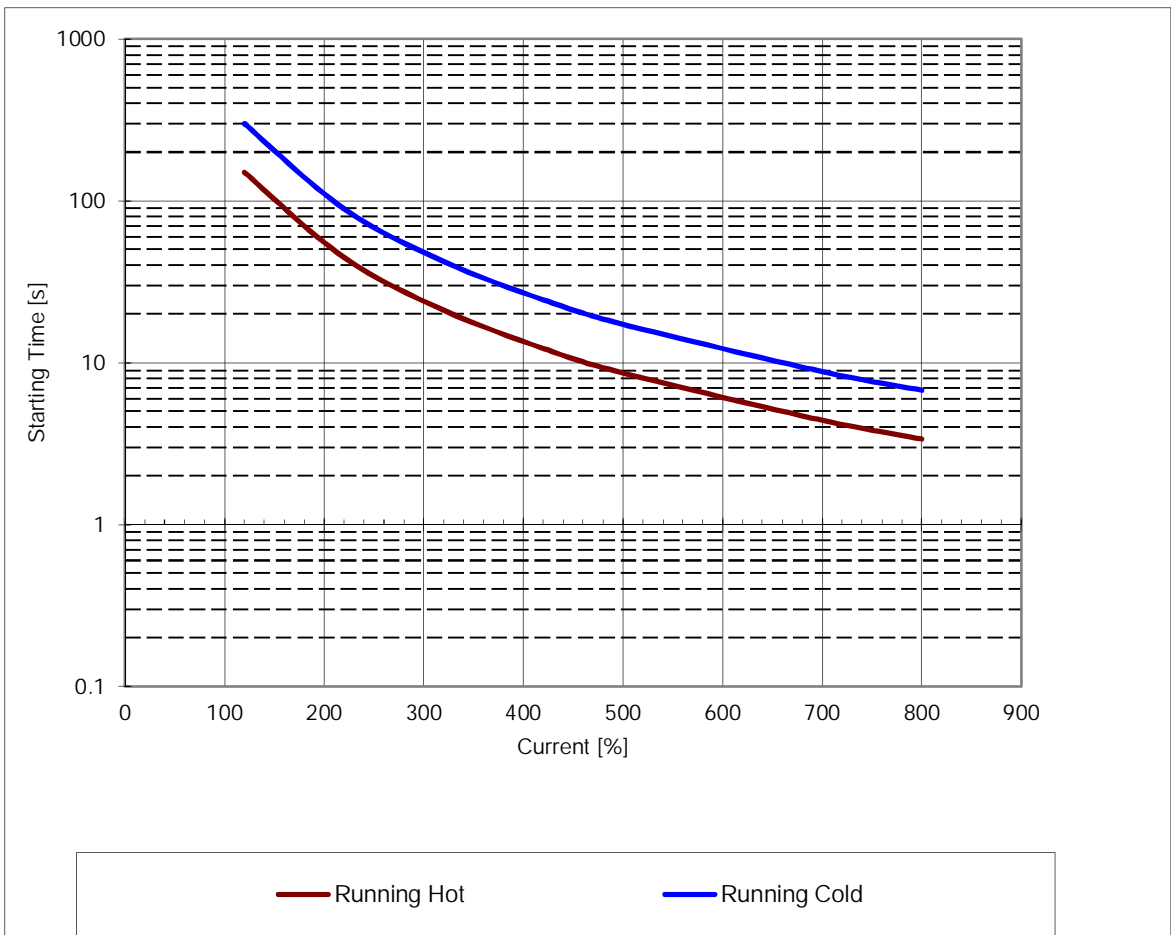
<b>ABB Motors and Generators</b>	<b>Starting Curves</b>			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name <b>1.00001</b>
Our ref.	Rev/Changed b	Date of issue	Saving ident	Pages
	<b>A</b>	<b>1/16/2019</b>	<b>untitled.xls</b>	<b>3(3)</b>
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>			
Type/Frame	<b>M2BAX 90SA 4</b>	Calc. ref.	<b>3GZH021009-15</b>	
Product code	<b>3GBA 092 110-ASCIN</b>	Frequency (Hz)	<b>50</b>	
Rated output P <sub>N</sub>	<b>1.1 kW</b>	Rated current I <sub>N</sub>	<b>2.55</b>	<b>A</b>
Type of duty	<b>S1 100%</b>			
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.0037</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</b>	T <sub>start</sub> /T <sub>N</sub> <b>3</b>
Speed (r/min)	<b>1430</b>	Starting time (s)		Starting time (s)
T <sub>N</sub> (Nm)	<b>7.3</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>3.5</b>	T <sub>max</sub> /T <sub>n</sub> <b>3.5</b>
 <p>The graph plots torque (Ts/Tn) on the left y-axis (0 to 4) and current (Is/In) on the right y-axis (0 to 8) against speed (r/min) on the x-axis (0 to 1750). 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>). Both torque curves start at 3.0 at 0 r/min, rise to a peak of approximately 3.5 at 900 r/min, and then drop to 0 at 1500 r/min. 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>). Both current curves start at 6.0 at 0 r/min and decrease as speed increases, reaching 0 at 1500 r/min.</p>				
Data based on situation 8/8/2016				
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>1/16/2019</b>	<b>untitled.xls</b>	
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>			
Type/Frame	<b>M2BAX 90SA 4</b>	Calc. ref.	<b>3GZH021009-15</b>	
Product code	<b>3GBA 092 110-ASCIN</b>	Frequency (Hz)	<b>50</b>	
Rated output P <sub>N</sub>	<b>1.1 kW</b>	Rated current I <sub>N</sub>	<b>2.55</b>	<b>A</b>
Type of duty	<b>S1 100%</b>			
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.0037</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</b>	T <sub>start</sub> /T <sub>N</sub> <b>3</b>
Speed (r/min)	<b>1430</b>	Starting time (s)		Starting time (s)
T <sub>N</sub> (Nm)	<b>7.3</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>3.5</b>	T <sub>max</sub> /T <sub>N</sub> <b>3.5</b>
 <p>Speed [rpm] vs Starting Time [s] and Current [A]</p>				
<p>Data based on situation 8/8/2016</p> <p>All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004</p>				

<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 1/16/2019</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 90SA 4</b>	Calc. ref.	3GZH021009-15
Product code	<b>3GBA 092 110-ASCIN</b>	Frequency (Hz)	<b>50</b>
Rated output P <sub>N</sub>	<b>1.1 kW</b>	Rated current I <sub>N</sub>	<b>2.55 A</b>
Type of duty	<b>S1 100%</b>		

J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.0037</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</b>	T <sub>start</sub> /T <sub>N</sub>	<b>3</b>
Speed (r/min)	<b>1430</b>	Starting time (s)		Starting time (s)	
T <sub>N</sub> (Nm)	<b>7.3</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>3.5</b>	T <sub>max</sub> /T <sub>n</sub>	<b>3.5</b>



Data based on situation 8/8/2016

All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004