


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	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	3GBA 113 310-BDCIN			Calc. ref.	3GZH021011-7
3	Type/Frame	M2BAX 112MA 6				
4	Mounting	IM3001, B5(flange)				
5	Rated output P _N	2.2	kW			
6	Service factor	1				
7	Type of duty	S1 100%				
8	Rated voltage U _N	415	VD	+10, -10 %		
9	Rated frequency f _N	50	Hz	+5, -5 %		
10	Rated speed n _N	950	r/min			
11	Rated current I _N	5.5	A			
12						
13	Starting current I _s /I _N	5				
14	Nominal torque T _N	22.1	Nm			
15	Locked rotor torque T _S /T _N	1.8				
16	Maximum torque T _{max} /T _N	2.6				
17						
18						
Load characteristics		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	5.5	81.8 / IE2	0.68	
20		75	4.8	81.7	0.59	
21		50	4.1	79	0.47	
22						
23	Thermal withstand time hot	11	s			
24	Thermal withstand time cold	22	s			
25	Insulation class / Temperature class	F / B				
26	Ambient temperature	50	°C			
27	Altitude	1000 m.a.s.l.				
28	Degree of protection	IP55				
29	Cooling system	IC411 self ventilated				
30	Bearing DE/NDE	6206-2Z/C3 - 6205-2Z/C3				
31	Sound pressure level (LP dB(A) 1m)	65	dB(A)	at no-load		
32	Moment of inertia J = ¼ GD ²	0.01157	kg·m ²			
33	Position of terminal box	Top				
34	Direction of rotation	Bi-directional				
35	Weight of rotor	10	kg			
36	Total weight of motor	40	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


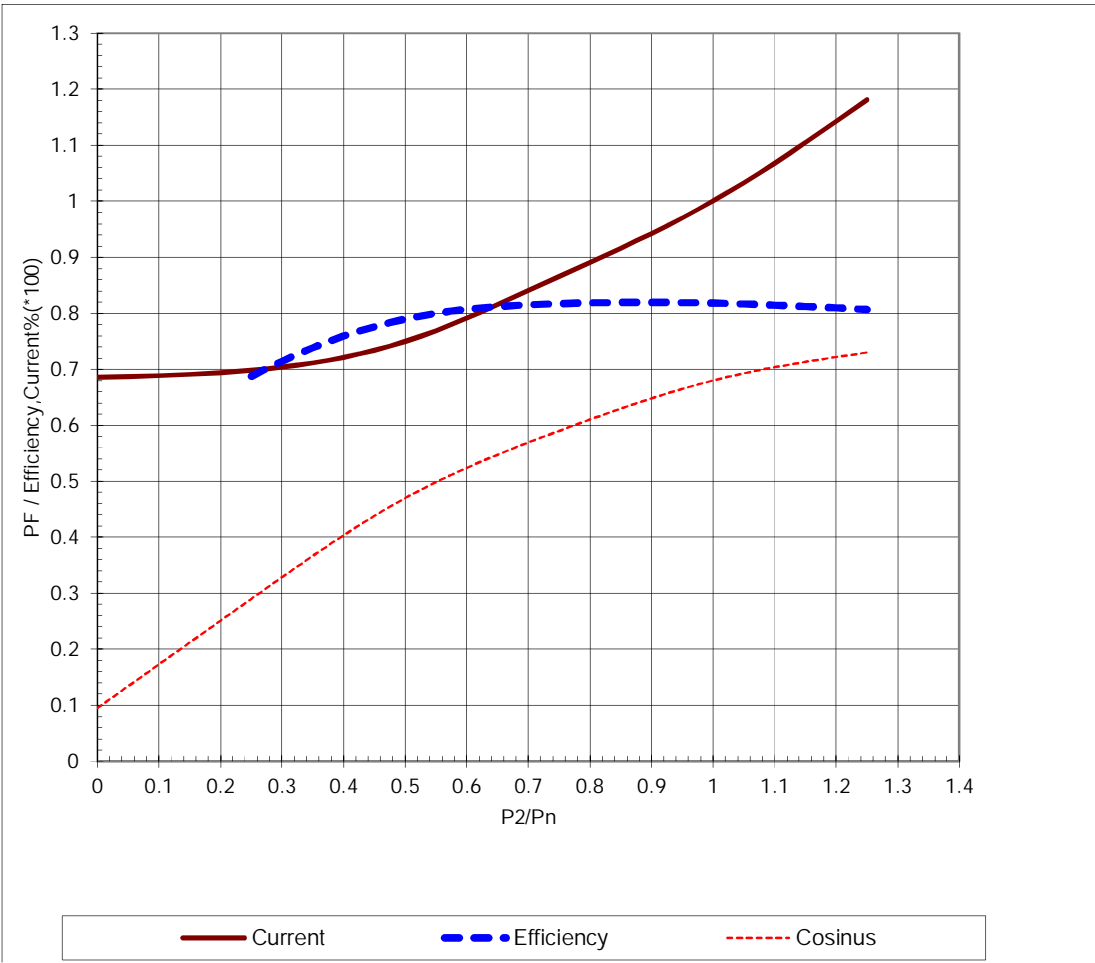
ABB Motors and Generators	Load Curves		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 1/16/2019	Saving ident untitled.xls
Pages 2(3)	Product TEFC, 3-phase, squirrel cage induction motor		
Type/Frame	M2BAX 112MA 6	Calc. ref.	3GZH021011-7
Product code	3GBA 113 310-BDCIN		
Rated output P _N	2.2 kW		
Type of duty	S1 100%		
Voltage (V)	415	Current I _N (A)	5.5
Frequency (Hz)	50	Speed (r/min)	950
		Power factor at P _N	0.68
		Efficiency (%) at P _N	81.8
			
<p>Data based on situation 8/8/2016</p> <p style="text-align: center;">All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004</p>			


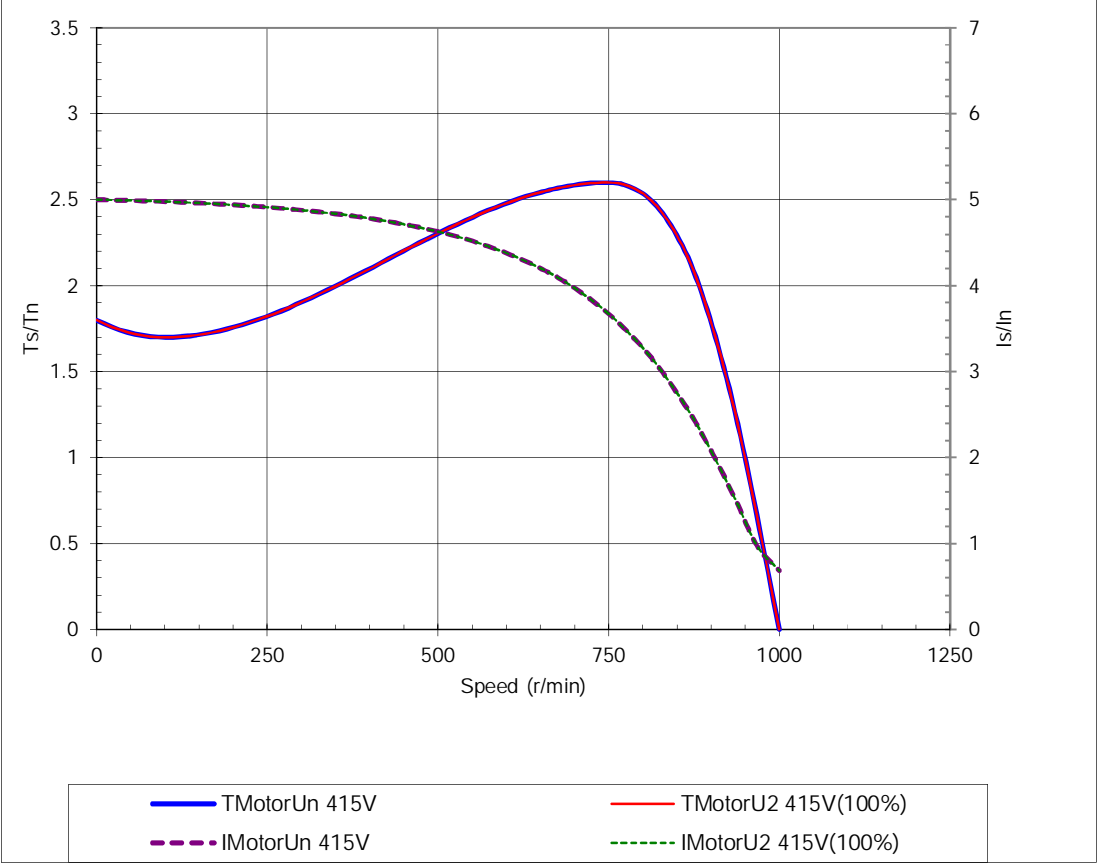

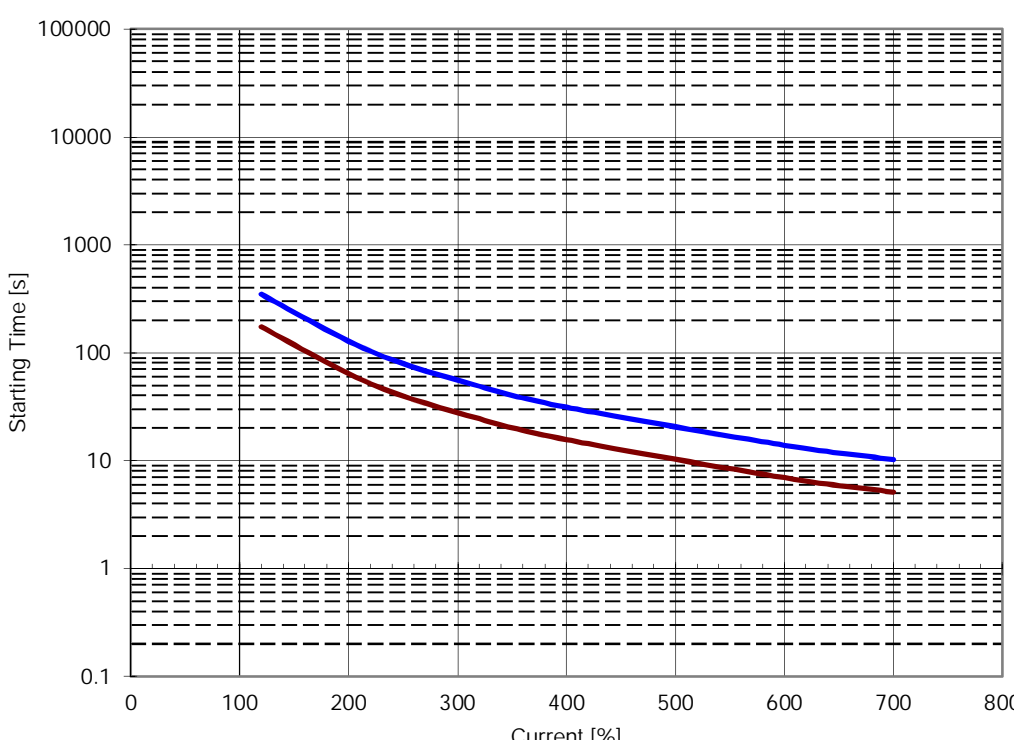
ABB Motors and Generators	Starting Curves			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 1/16/2019	Saving ident untitled.xls	Pages 3(3)
Type of product	TEFC, 3-phase, squirrel cage induction motor			
Type/Frame	M2BAX 112MA 6	Calc. ref.	3GZH021011-7	
Product code	3GBA 113 310-BDCIN	Frequency (Hz)	50	
Rated output P _N	2.2 kW	Rated current I _N	5.5	A
Type of duty	S1 100%			
J _{motor} (kgm ²)	0.0116	Voltage (V) 100%	415	Voltage (V) 415V(100%)
J _{load} (kgm ²)		T _{start} /T _N	1.8	T _{start} /T _N 1.8
Speed (r/min)	950	Starting time (s)		Starting time (s)
T _N (Nm)	22.1	Speed (r/min)		Speed (r/min)
T _{load} (Nm)		I _s /I _N	5	I _s /I _N 5
		T _{max} /T _N	2.6	T _{max} /T _N 2.6
 <p>The graph plots torque (T_s/T_N) and current (I_s/I_N) against speed (r/min). The x-axis ranges from 0 to 1250 r/min. The left y-axis (T_s/T_N) ranges from 0 to 3.5, and the right y-axis (I_s/I_N) ranges from 0 to 7. Four curves are shown: T_{MotorUn} 415V (solid blue), T_{MotorU2} 415V(100%) (solid red), I_{MotorUn} 415V (dashed purple), and I_{MotorU2} 415V(100%) (dashed green). The torque curves peak at approximately 750 r/min, while the current curves peak at approximately 500 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	Thermal Withstand Curve			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 1/16/2019	Saving ident untitled.xls	Pages 5(3)
Type of product	TEFC, 3-phase, squirrel cage induction motor			
Type/Frame	M2BAX 112MA 6	Calc. ref.	3GZH021011-7	
Product code	3GBA 113 310-BDCIN	Frequency (Hz)	50	
Rated output P _N	2.2 kW	Rated current I _N	5.5	A
Type of duty	S1 100%			
J _{motor} (kgm ²)	0.0116	Voltage (V) 100%	415	Voltage (V) 415V(100%)
J _{load} (kgm ²)		T _{start} /T _N	1.8	T _{start} /T _N 1.8
Speed (r/min)	950	Starting time (s)		Starting time (s)
T _N (Nm)	22.1	Speed (r/min)		Speed (r/min)
T _{load} (Nm)		I _s /I _n	5	I _s /I _n 5
		T _{max} /T _n	2.6	T _{max} /T _n 2.6



The graph plots Starting Time [s] on a logarithmic y-axis (0.1 to 100,000) against Current [%] on a linear x-axis (0 to 800). Two curves are shown: a blue line for 'Running Cold' and a red line for 'Running Hot'. Both curves show a decrease in starting time as current increases. The 'Running Cold' curve starts at approximately 300s at 100% current and drops to about 10s at 700% current. The 'Running Hot' curve starts at approximately 150s at 100% current and drops to about 5s at 700% current.

— Running Hot — Running Cold

Data based on situation 8/8/2016
 All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004