


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 162 490-HDCIN		Calc. ref.	3GZH021016-4	
3	Type/Frame	M2BAX 160MLJ 4				
4	Mounting	IM2001, B35(foot-flange)				
5	Rated output P _N	9.3	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	1455	r/min			
11	Rated current I _N	17.9	A			
12						
13	Starting current I _s /I _N	7				
14	Nominal torque T _N	61	Nm			
15	Locked rotor torque T _S /T _N	2				
16	Maximum torque T _{max} /T _N	2.9				
17						
18						
Load characteristics		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	17.9	89.3 / IE2	0.81	
20		75	14	89.8	0.77	
21		50	10.8	88	0.68	
22						
23	Thermal withstand time hot	11	s			
24	Thermal withstand time cold	18	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	6209-2Z/C3 - 6209-2Z/C3				
31	Sound pressure level (LP dB(A) 1m)	75	dB(A)	at no-load		
32	Moment of inertia J = ¼ GD ²	0.0738	kg·m ²			
33	Position of terminal box	Top				
34	Direction of rotation	Bi-directional				
35	Weight of rotor	29	kg			
36	Total weight of motor	107	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


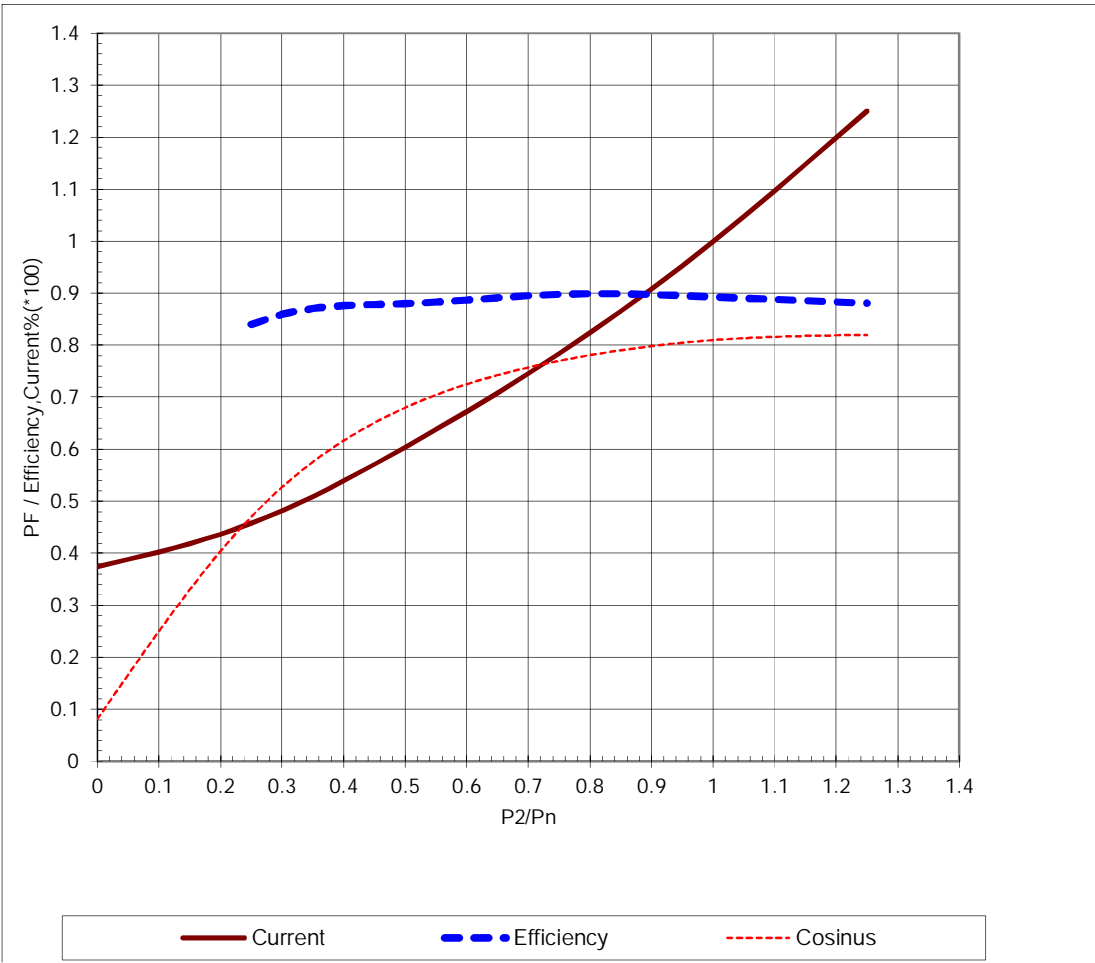
ABB Motors and Generators	Load Curves		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 1/16/2019	Saving ident untitled.xls
Pages			2(3)
Product	TEFC, 3-phase, squirrel cage induction motor		
Type/Frame	M2BAX 160MLJ 4	Calc. ref.	3GZH021016-4
Product code	3GBA 162 490-HDCIN		
Rated output P _N	9.3	kW	
Type of duty	S1 100%		
Voltage (V)	415	Current I _N (A)	17.9
Frequency (Hz)	50	Speed (r/min)	1455
		Power factor at P _N	0.81
		Efficiency (%) at P _N	89.3
			
<p>Data based on situation 9/19/2015</p> <p>All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004</p>			


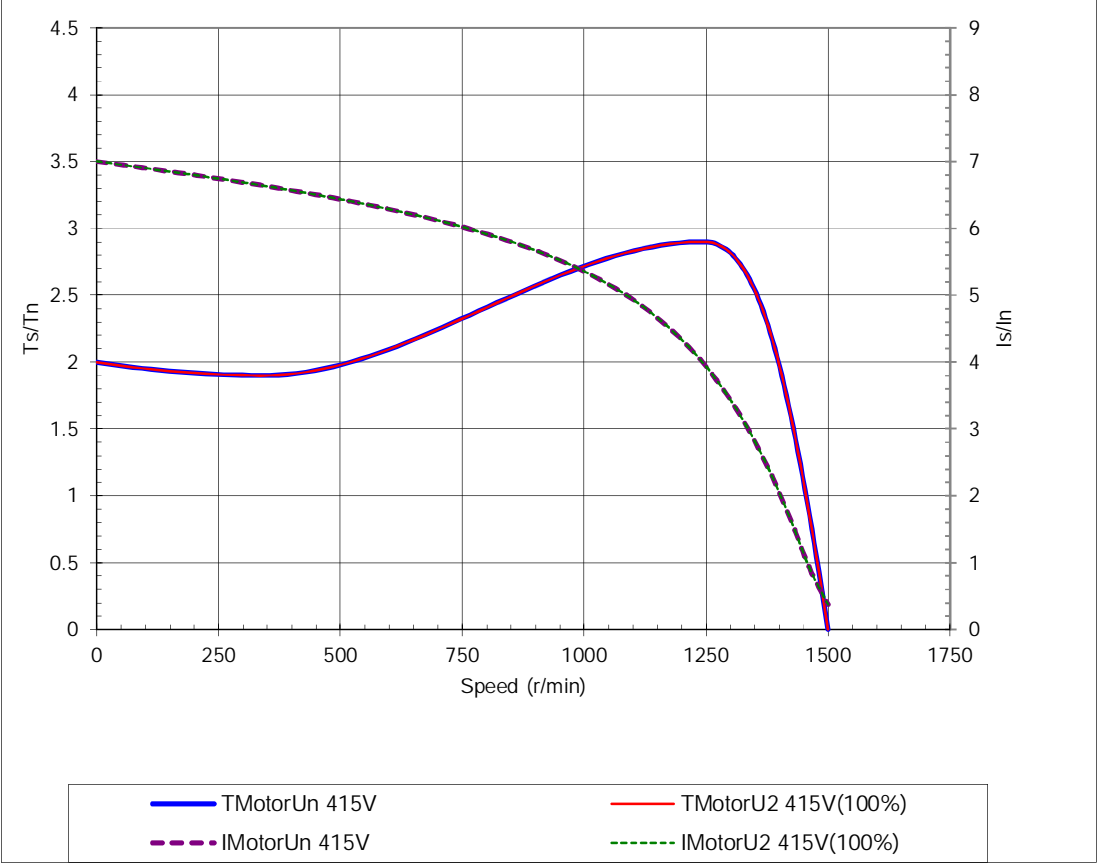

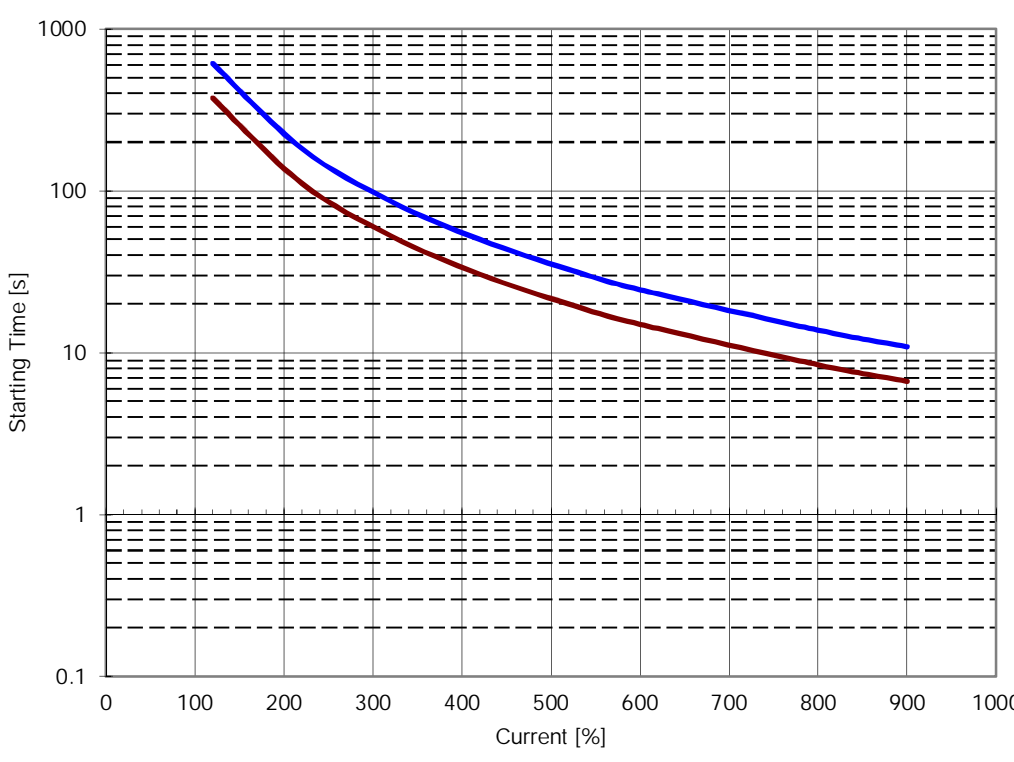
ABB Motors and Generators	Starting Curves			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 1/16/2019	Saving ident untitled.xls	Pages 3(3)
Type of product	TEFC, 3-phase, squirrel cage induction motor			
Type/Frame	M2BAX 160MLJ 4	Calc. ref.	3GZH021016-4	
Product code	3GBA 162 490-HDCIN	Frequency (Hz)	50	
Rated output P _N	9.3 kW	Rated current I _N	17.9	A
Type of duty	S1 100%			
J _{motor} (kgm ²)	0.074	Voltage (V) 100%	415	Voltage (V) 415V(100%)
J _{load} (kgm ²)		T _{start} /T _N	2	T _{start} /T _N 2
Speed (r/min)	1455	Starting time (s)	0.1	Starting time (s)
T _N (Nm)	61	Speed (r/min)		Speed (r/min)
T _{load} (Nm)		I _s /I _N	7	I _s /I _N 7
		T _{max} /T _N	2.9	T _{max} /T _N 2.9
 <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 1750 r/min. The left y-axis (T_s/T_N) ranges from 0 to 4.5, and the right y-axis (I_s/I_N) ranges from 0 to 9. 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 1250 r/min, while the current curves peak at approximately 1000 r/min.</p>				
Data based on situation 9/19/2015				
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 160MLJ 4	Calc. ref.	3GZH021016-4
Product code	3GBA 162 490-HDCIN	Frequency (Hz)	50
Rated output P _N	9.3 kW	Rated current I _N	17.9 A
Type of duty	S1 100%		
J _{motor} (kgm ²)	0.074	Voltage (V) 100%	415
J _{load} (kgm ²)		Voltage (V)	415V(100%)
Speed (r/min)	1455	T _{start} /T _N	2
T _N (Nm)	61	Starting time (s)	0.1
T _{load} (Nm)		Speed (r/min)	61
		I _s /I _N	7
		T _{max} /T _n	2.9
		I _s /I _n	7
		T _{max} /T _n	2.9



The graph plots Starting Time [s] on a logarithmic y-axis (0.1 to 1000) against Current [%] on a linear x-axis (0 to 1000). 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 500s at 100% current and drops to about 10s at 900% current. The 'Running Hot' curve starts at approximately 300s at 100% current and drops to about 7s at 900% current.

Current [%]	Starting Time [s] (Running Cold)	Starting Time [s] (Running Hot)
100	~500	~300
200	~150	~100
300	~100	~70
400	~70	~50
500	~50	~40
600	~40	~30
700	~30	~25
800	~25	~20
900	~20	~15

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