



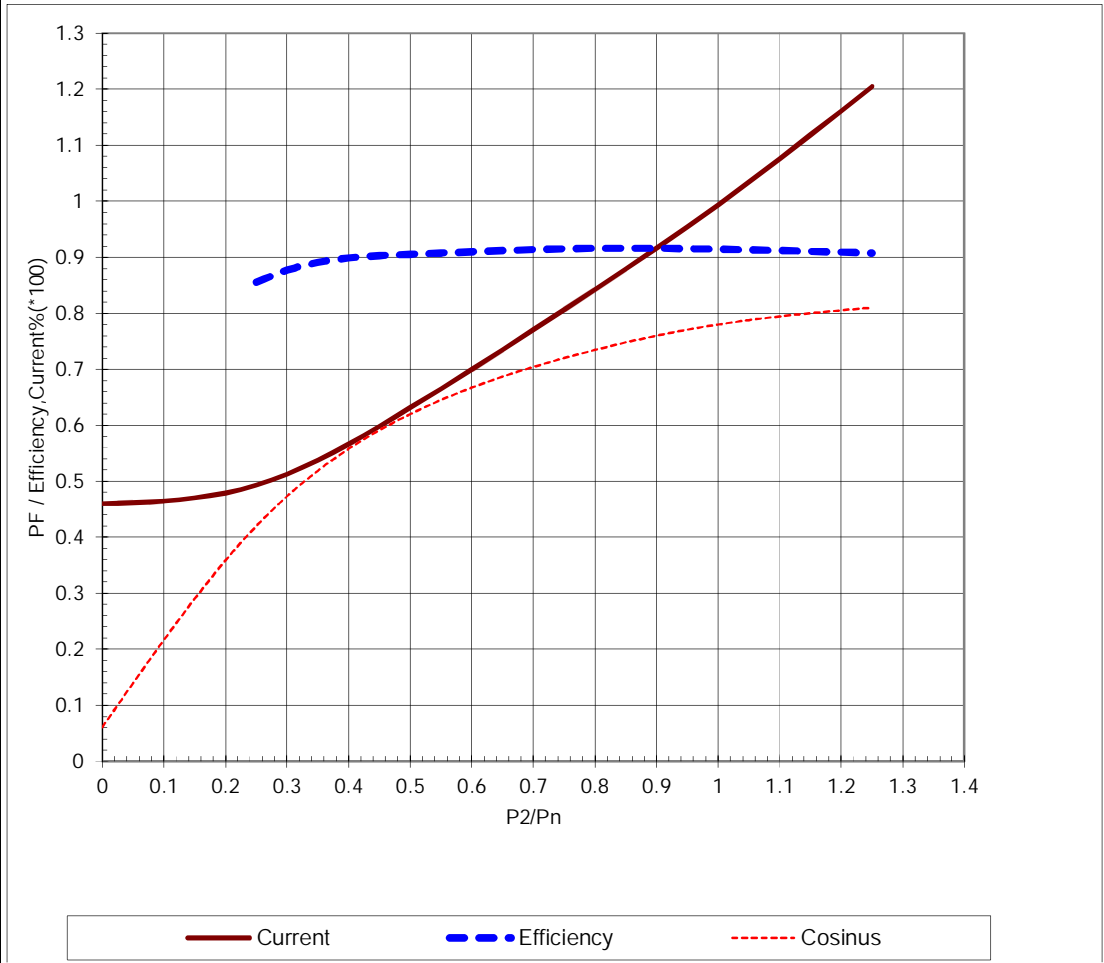
ABB Motors and Generators		Technical Data Sheet				
Project		Location				
Department/Author		Customer name		Customer ref.		
Our ref.		Rev/Changed by A		Date of issue 1/18/2019		
		Saving ident untitled.xls		Item name 1.00001		
				Pages 1(3)		
No.	Definition	Data	Unit	Remarks		
1	Product	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	3GBA 162 410-BDDIN				
3	Type/Frame	M2BAX 160MLA 4				
4	Mounting	IM3001, B5(flange)				
5	Rated output P _N	11	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	1470	r/min			
11	Rated current I _N	21.6	A			
12						
13	Starting current I _s /I _N	7.5				
14	Nominal torque T _N	71.5	Nm			
15	Locked rotor torque T _S /T _N	2.6				
16	Maximum torque T _{max} /T _N	3.2				
17						
18						
Load characteristics		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	21.6	91.4 / IE3	0.78	
20		75	17.4	91.5	0.72	
21		50	13.6	90.5	0.62	
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)	72	dB(A)	at no-load		
32	Moment of inertia J = ¼ GD ²	0.11	kg·m ²			
33	Position of terminal box	Top				
34	Direction of rotation	Bi-directional				
35	Total weight of motor	134	kg			
36		User defined motor				
37						
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40						
41						
42						
43						
44						
45						
Ex-motors						
46						
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48						
Option Variant Codes / Definition						
49						
50						
51						
52						
Remarks:						
9/18/2015 9:43:00 AM						


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 1/18/2019	Saving ident untitled.xls
			Pages 2(3)

Product TEFC, 3-phase, squirrel cage induction motor
Type/Frame M2BAX 160MLA 4
Product code 3GBA 162 410-BDDIN
Rated output P_N 11 kW
Type of duty S1 100%

Voltage (V) 415 **Current I_N (A)** 21.6 **Power factor at P_N** 0.78
Frequency (Hz) 50 **Speed (r/min)** 1470 **Efficiency (%) at P_N** 91.4




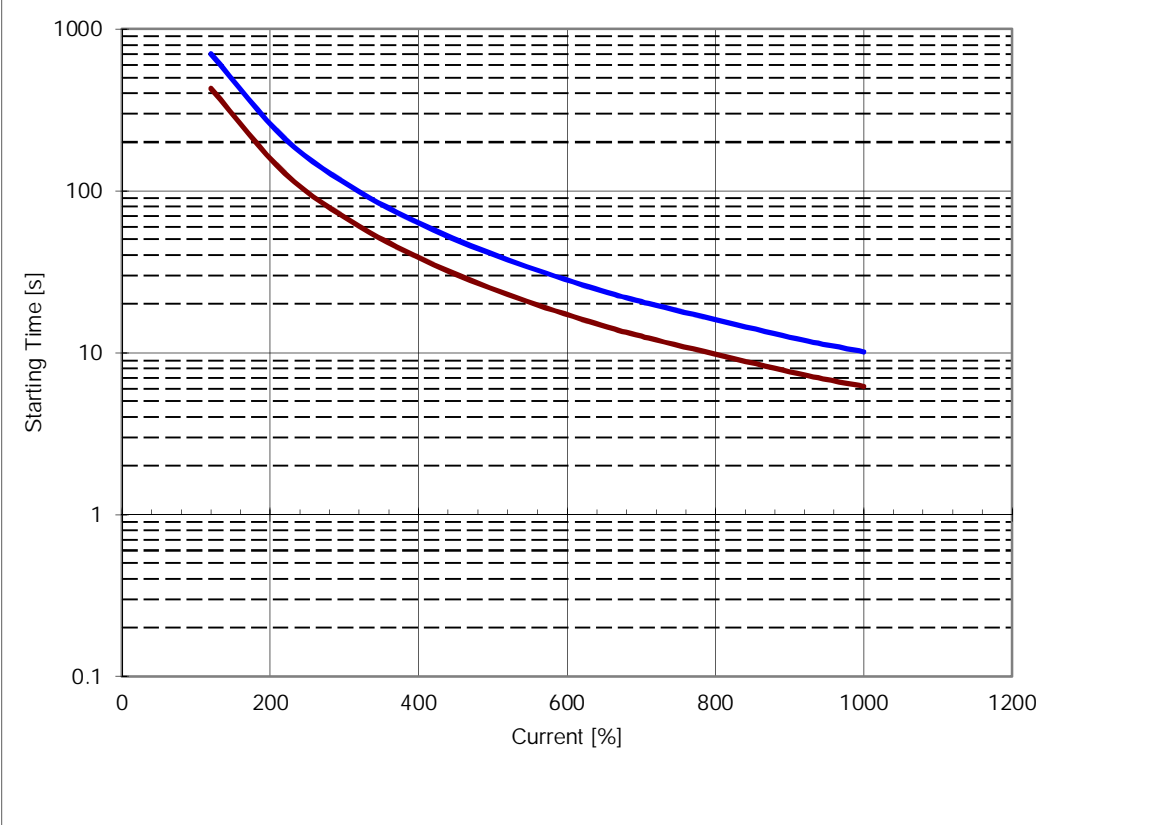
Data based on situation 9/18/2015
 All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004

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 1/18/2019	Saving ident untitled.xls	Pages 3(3)
Type of product	TEFC, 3-phase, squirrel cage induction motor			
Type/Frame	M2BAX 160MLA 4			
Product code	3GBA 162 410-BDDIN	Frequency (Hz)	50	
Rated output P _N	11 kW	Rated current I _N	21.6	A
Type of duty	S1 100%			
J _{motor} (kgm ²)	0.11	Voltage (V) 100%	415	Voltage (V) 415V(100%)
J _{load} (kgm ²)		T _{start} /T _N	2.6	T _{start} /T _N 2.6
Speed (r/min)	1470	Starting time (s)	0.1	Starting time (s)
T _N (Nm)	71	Speed (r/min)		Speed (r/min) 939
T _{load} (Nm)		I _s /I _N	7.5	I _s /I _N 7.5
		T _{max} /T _N	3.2	T _{max} /T _N 3.2

The graph displays the starting characteristics of the motor. The x-axis represents Speed in r/min, ranging from 0 to 1750. The left y-axis represents the torque ratio T_s/T_n (0 to 4.5), and the right y-axis represents the current ratio I_s/I_n (0 to 9). Four curves are shown: $T_{MotorUn}$ (solid blue), $T_{MotorU2}$ (solid red), $I_{MotorUn}$ (dashed purple), and $I_{MotorU2}$ (dashed green). The $T_{MotorU2}$ curve shows a peak torque ratio of approximately 3.2 at a speed of about 1250 r/min. The $I_{MotorU2}$ curve shows a peak current ratio of approximately 7.5 at the same speed. The $T_{MotorUn}$ curve starts at a torque ratio of about 2.6 at 0 r/min and decreases to 0 at 1500 r/min. The $I_{MotorUn}$ curve starts at a current ratio of about 3.8 at 0 r/min and decreases to 0 at 1500 r/min.

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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 1/18/2019	Saving ident untitled.xls	Pages 5(3)
Type of product	TEFC, 3-phase, squirrel cage induction motor			
Type/Frame	M2BAX 160MLA 4			
Product code	3GBA 162 410-BDDIN	Frequency (Hz)	50	
Rated output P _N	11 kW	Rated current I _N	21.6	A
Type of duty	S1 100%			
J _{motor} (kgm ²)	0.11	Voltage (V) 100%	415	Voltage (V) 415V(100%)
J _{load} (kgm ²)		T _{start} /T _N	2.6	T _{start} /T _N 2.6
Speed (r/min)	1470	Starting time (s)	0.1	Starting time (s)
T _N (Nm)	71	Speed (r/min)		Speed (r/min) 939
T _{load} (Nm)		I _s /I _N	7.5	I _s /I _N 7.5
		T _{max} /T _N	3.2	T _{max} /T _N 3.2



Current [%]	Starting Time [s] (Running Hot)	Starting Time [s] (Running Cold)
100	~40	~60
200	~15	~25
400	~6	~10
600	~3.5	~6
800	~2.5	~4.5
1000	~1.8	~3.5

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