

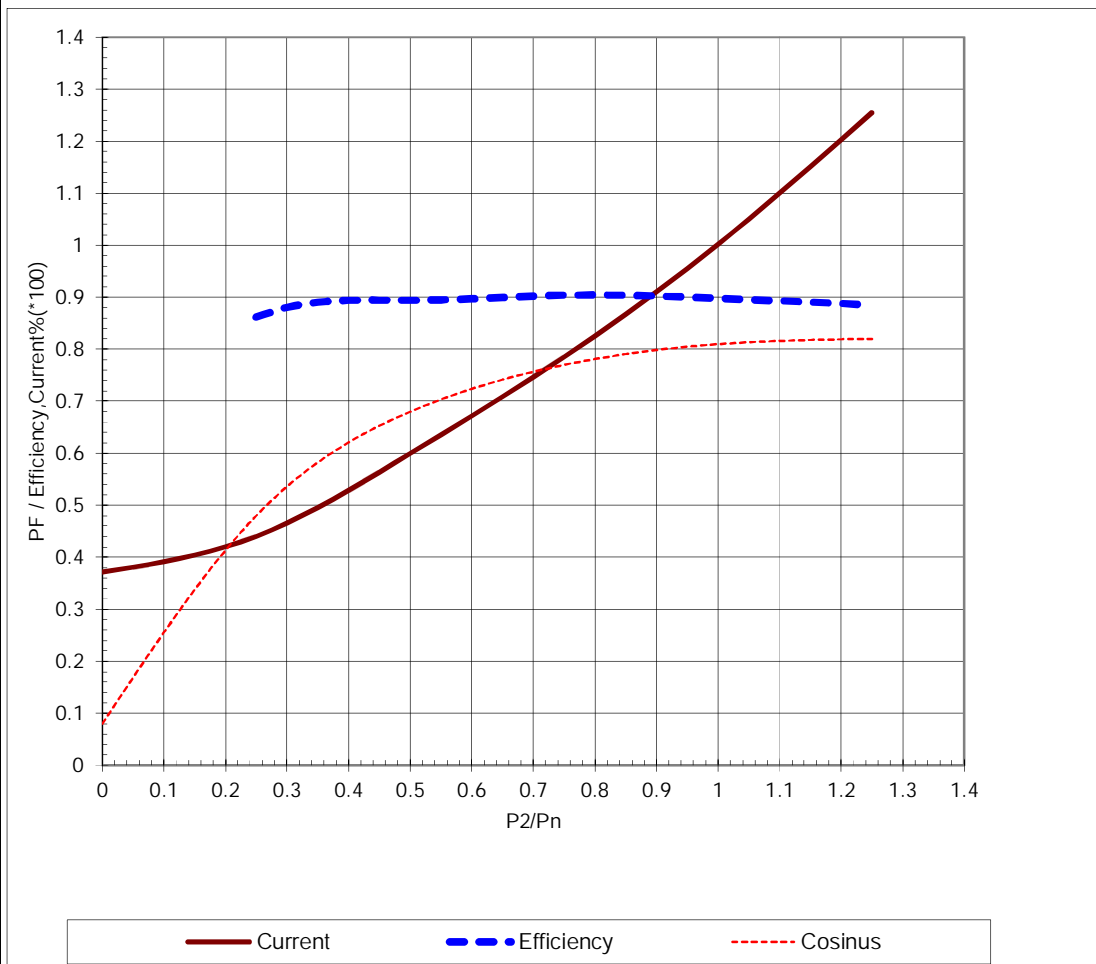


ABB Motors and Generators		Technical Data Sheet				
Department/Author		Project	Location		Item name	
Our ref.		Rev/Changed by	Date of issue	Saving ident	Pages	
		A	1/16/2019	untitled.xls	1.00001 1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	3GBA 162 410-HDCIN		Calc. ref.	3GZH021016-5	
3	Type/Frame	M2BAX 160MLA 4				
4	Mounting	IM2001, B35(foot-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	1455	r/min			
11	Rated current I _N	21	A			
12						
13	Starting current I _s /I _N	7				
14	Nominal torque T _N	72	Nm			
15	Locked rotor torque T _S /T _N	2.1				
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	21	89.8 / IE2	0.81	
20		75	16.5	90.4	0.77	
21		50	12.6	89.4	0.68	
22						
23	Thermal withstand time hot	10	s			
24	Thermal withstand time cold	16	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	0.084	kg·m ²			
33	Position of terminal box	Top				
34	Direction of rotation	Bi-directional				
35	Weight of rotor	31	kg			
36	Total weight of motor	115	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 160MLA 4	Calc. ref.	3GZH021016-5
Product code	3GBA 162 410-HDCIN		
Rated output P _N	11 kW		
Type of duty	S1 100%		

Voltage (V) **415** Current I_N (A) **21** Power factor at P_N **0.81**
Frequency (Hz) **50** Speed (r/min) **1455** Efficiency (%) at P_N **89.8**



Data based on situation 9/19/2015

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


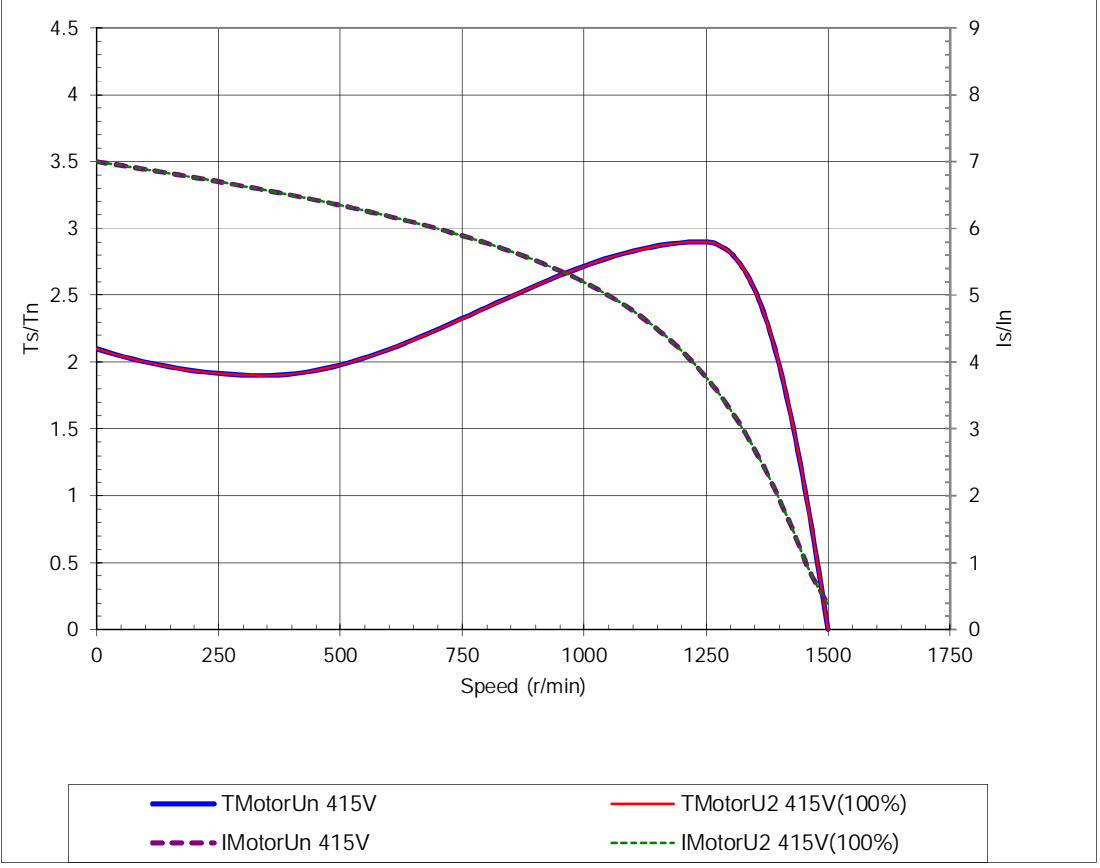

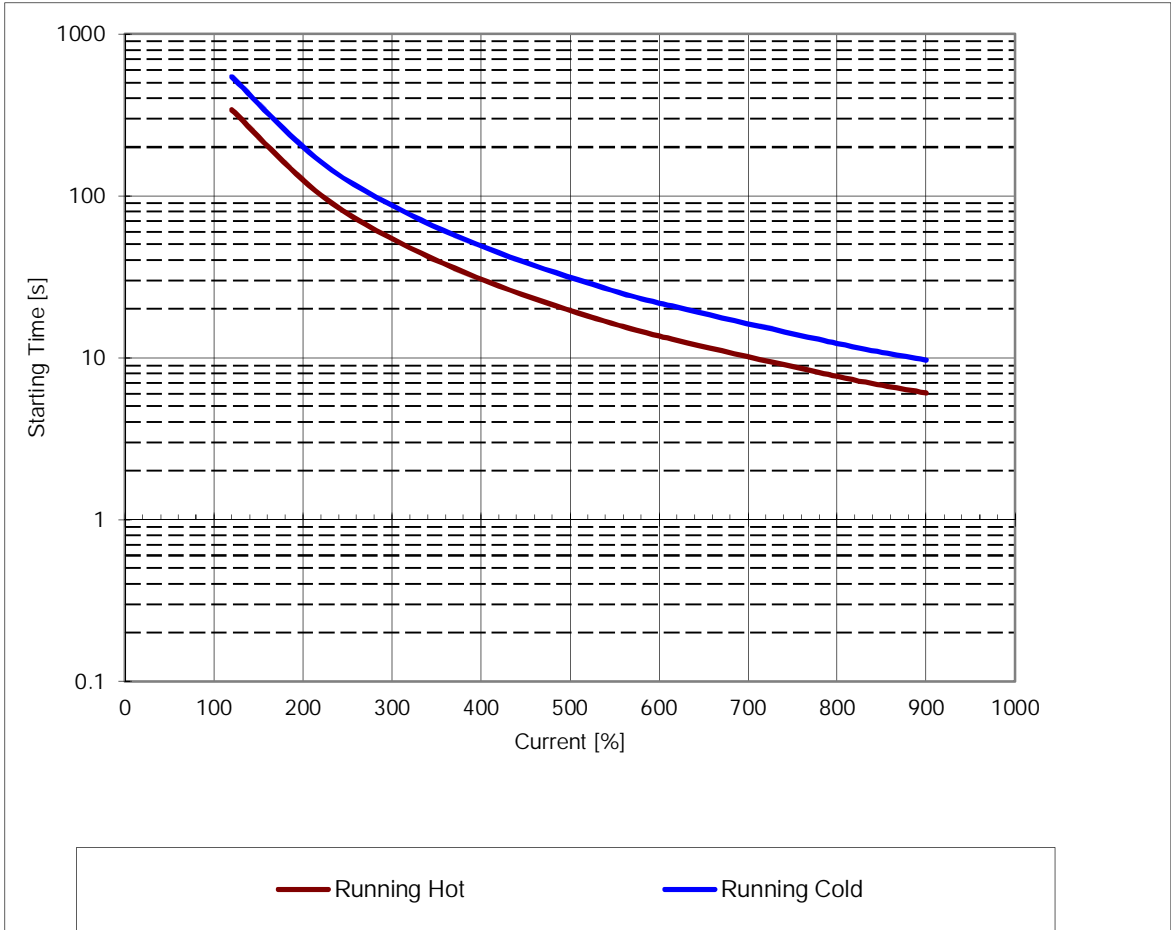
ABB Motors and Generators	Starting Curves			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 1/16/2019	Saving ident untitled.xls	Pages 3(3)
Type of product	TEFC, 3-phase, squirrel cage induction motor			
Type/Frame	M2BAX 160MLA 4	Calc. ref.	3GZH021016-5	
Product code	3GBA 162 410-HDCIN	Frequency (Hz)	50	
Rated output P _N	11 kW	Rated current I _N	21	A
Type of duty	S1 100%			
J _{motor} (kgm ²)	0.084	Voltage (V) 100%	415	Voltage (V) 415V(100%)
J _{load} (kgm ²)		T _{start} /T _N	2.1	T _{start} /T _N 2.1
Speed (r/min)	1455	Starting time (s)	0.1	Starting time (s)
T _N (Nm)	72	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 T_{load}) 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. The right y-axis (I_s/I_N) ranges from 0 to 9. A solid blue line represents T_{MotorUn} 415V, a solid red line represents T_{MotorU2} 415V(100%), a dashed purple line represents I_{MotorUn} 415V, and a dashed green line represents I_{MotorU2} 415V(100%). The torque curves show a peak around 1250 r/min, while the current curves show a peak around 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 160MLA 4	Calc. ref.	3GZH021016-5
Product code	3GBA 162 410-HDCIN	Frequency (Hz)	50
Rated output P _N	11 kW	Rated current I _N	21 A
Type of duty	S1 100%		

J _{motor} (kgm ²)	0.084	Voltage (V) 100%	415	Voltage (V)	415V(100%)
J _{load} (kgm ²)		T _{start} /T _N	2.1	T _{start} /T _N	2.1
Speed (r/min)	1455	Starting time (s)	0.1	Starting time (s)	
T _N (Nm)	72	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



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