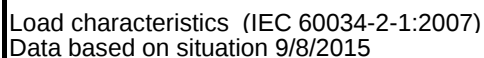


ABB Motors and Generators		Technical Data Sheet - DOL				
Project		Location				
Department/Author		Customer name			Customer ref.	
Our ref.		Rev/Changed by A			Date of issue 12/23/2015	
		Saving ident untitled.xls			Item name 1.00001	
					Pages 1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	EMVM22454D-PPN (3GBP222220-BDK+011+332+509)			Calc. ref. 3GZF021022-149	
3	Type/Frame	M3BP 225SMB 4				
4	Mounting	IM3001, B5(flange)				
5	Rated output P _N	45	kW			
6	Service factor	1				
7	Type of duty	S1(IEC) 100%				
8	Rated voltage U _N	400	VD	± 5 % (IEC 60034-1)		
9	Rated frequency f _N	50	Hz	± 2 % (IEC 60034-1)		
10	Rated speed n _N	1482	r/min			
11	Rated current I _N	80.3	A			
12	No-load current	26	A			
13	Starting current I _s /I _N	7.9		Fullfilled IEC 60034-12 design N,H		
14	Nominal torque T _N	290	Nm			
15	Locked rotor torque T _s /T _N	2.8				
16	Maximum torque T _{max} /T _N	3.2				
17	Minimum torque T _{min} /T _N	2.4				
18	Speed at minimum torque	975	r/min			
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	80.3	95.2 / IE3	0.85	
20		75	62.9	95.6	0.81	
21		50	46.6	95.5	0.73	
22		Start	634		0.41	
23	Maximum starting time from hot	15	s			
24	Maximum starting time from cold	27	s			
25	Insulation class / Temperature class	F / B				
26	Ambient temperature	40	°C			
27	Altitude	1000	m.a.s.l.			
28	Enclosure	IP55				
29	Cooling system	IC411 self ventilated				
30	Bearing DE/NDE	6313/C3 - 6212/C3				
31	Type of Grease					
32	Sound pressure level (LP dB(A) 1m)	66	dB(A)	at load		
33	Moment of inertia J = ¼ GD2	0.536	kg-m2			
34	Balancing					
35	Vibration class					
36	Position of terminal box	Top				
37	Terminal box entries; no, dimens.					
38	Number of power terminals					
39	Direction of rotation	CW or CCW				
40	Weight of rotor	100	kg			
41	Total weight of motor	377	kg			
42	Dimension drawing no.					
43						
44						
45						
Ex-motors						
46						
47						
48						
Option Variant Codes / Definition						
49	011 = Fulfilling CSA and NRCAN					
50	332 = Baldor Catalog number stamped on rating plate					
51	509 = Fulfilling EISA Subtype I efficiency requirements, CC031A					
52						
Remarks:						
Data based on situation 9/8/2015						
All data subject to tolerances in accordance with IEC						
Guaranteed values on request						

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Voltage (V)	400	Current I_N (A)	80.3	Power factor at P_N	0.85
Frequency (Hz)	50	Speed (r/min)	1482	Efficiency (%) at P_N	95.2



All data subject to tolerances in accordance with IEC

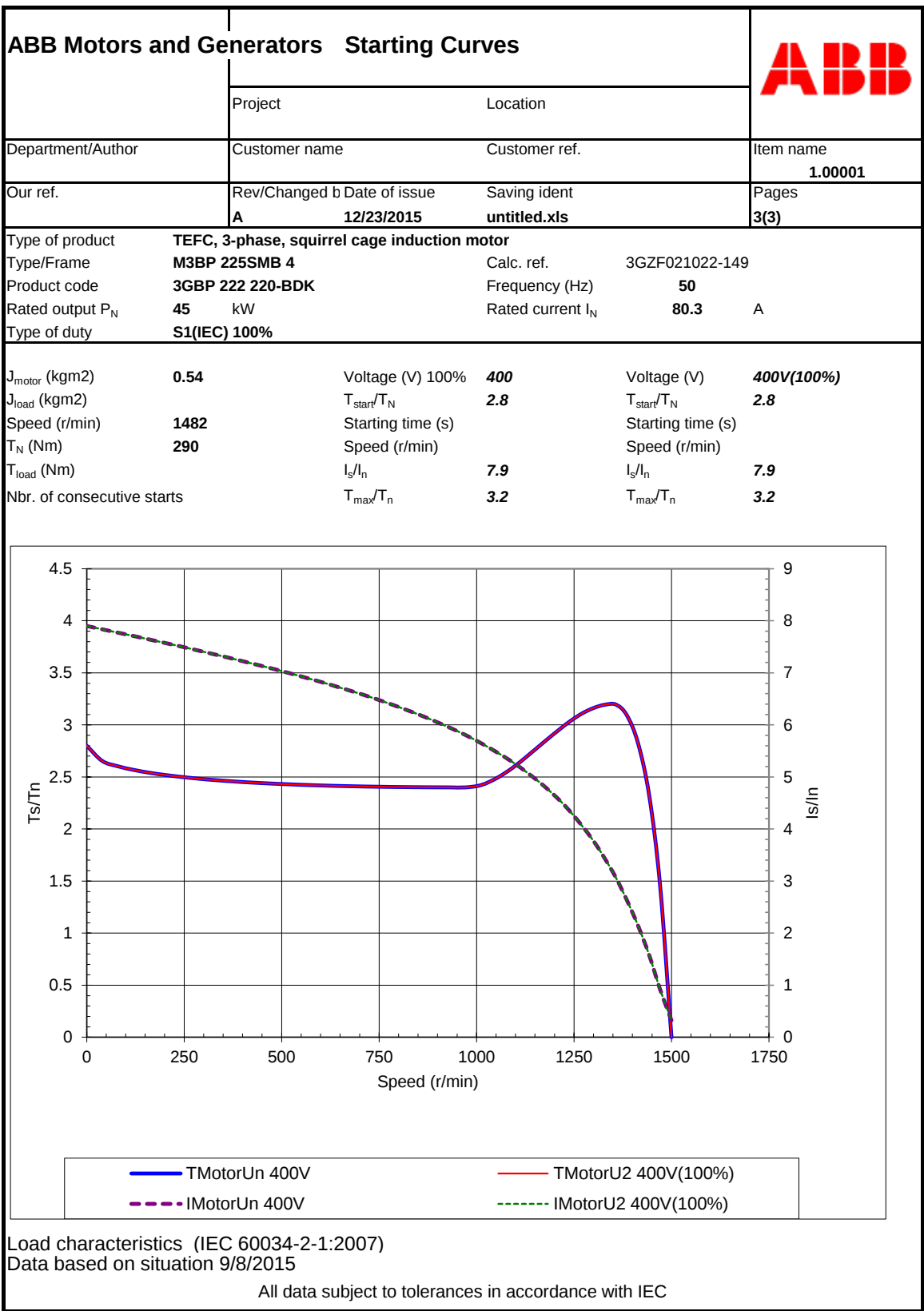
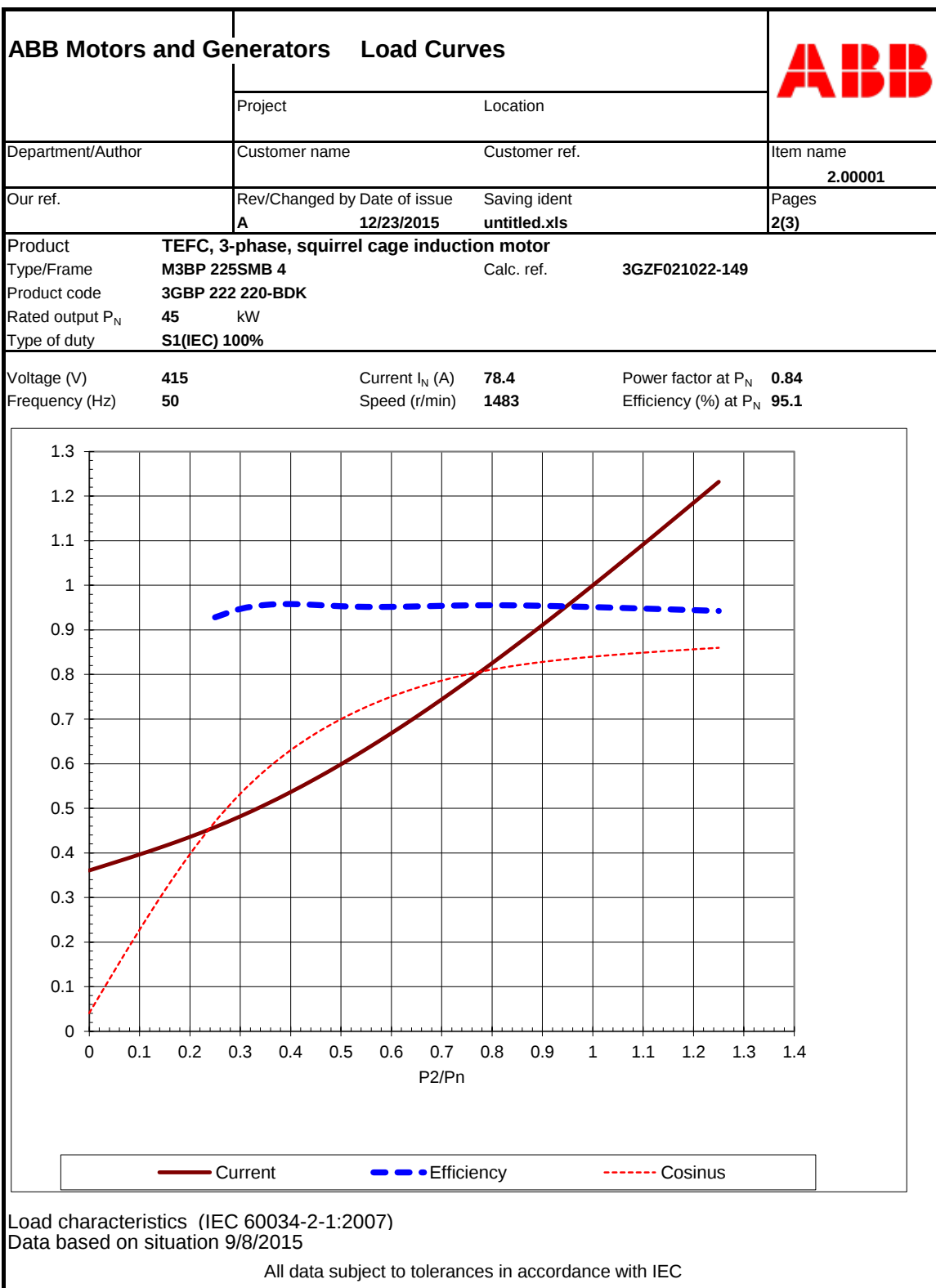


ABB Motors and Generators		Technical Data Sheet - DOL				
Project		Location				
Department/Author	Customer name	Customer ref.			Item name 2.00001	
Our ref.	Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls		Pages 1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	EMVM22454D-PPN (3GBP222220-BDK+011+332+509)			Calc. ref.	3GZF021022-149
3	Type/Frame	M3BP 225SMB 4				
4	Mounting	IM3001, B5(flange)				
5	Rated output P _N	45	kW			
6	Service factor	1				
7	Type of duty	S1(IEC) 100%				
8	Rated voltage U _N	415	VD	± 5 % (IEC 60034-1)		
9	Rated frequency f _N	50	Hz	± 2 % (IEC 60034-1)		
10	Rated speed n _N	1483	r/min			
11	Rated current I _N	78.4	A			
12	No-load current	28	A			
13	Starting current I _s /I _N	8.5		Fulfilled IEC 60034-12 design N,H		
14	Nominal torque T _N	290	Nm			
15	Locked rotor torque T _s /T _N	3.1				
16	Maximum torque T _{max} /T _N	3.4				
17	Minimum torque T _{min} /T _N	2.4				
18	Speed at minimum torque	975	r/min			
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	78.4	95.1 / IE3	0.84	
20		75	61.5	95.5	0.8	
21		50	46.9	95.3	0.7	
22		Start	666		0.42	
23	Maximum starting time from hot	15	s			
24	Maximum starting time from cold	27	s			
25	Insulation class / Temperature class	F / B				
26	Ambient temperature	40	°C			
27	Altitude	1000	m.a.s.l.			
28	Enclosure	IP55				
29	Cooling system	IC411 self ventilated				
30	Bearing DE/NDE	6313/C3 - 6212/C3				
31	Type of Grease					
32	Sound pressure level (LP dB(A) 1m)	66	dB(A)	at load		
33	Moment of inertia J = ¼ GD ²	0.536	kg-m ²			
34	Balancing					
35	Vibration class					
36	Position of terminal box	Top				
37	Terminal box entries; no, dimens.					
38	Number of power terminals					
39	Direction of rotation	CW or CCW				
40	Weight of rotor	100	kg			
41	Total weight of motor	377	kg			
42	Dimension drawing no.					
43						
44						
45						
Ex-motors						
46						
47						
48						
Option Variant Codes / Definition 49 011 = Fulfilling CSA and NRCAN 50 332 = Baldor Catalog number stamped on rating plate 51 509 = Fulfilling EISA Subtype I efficiency requirements, CC031A 52						
Remarks:						
Data based on situation 9/8/2015						
All data subject to tolerances in accordance with IEC						
Guaranteed values on request						



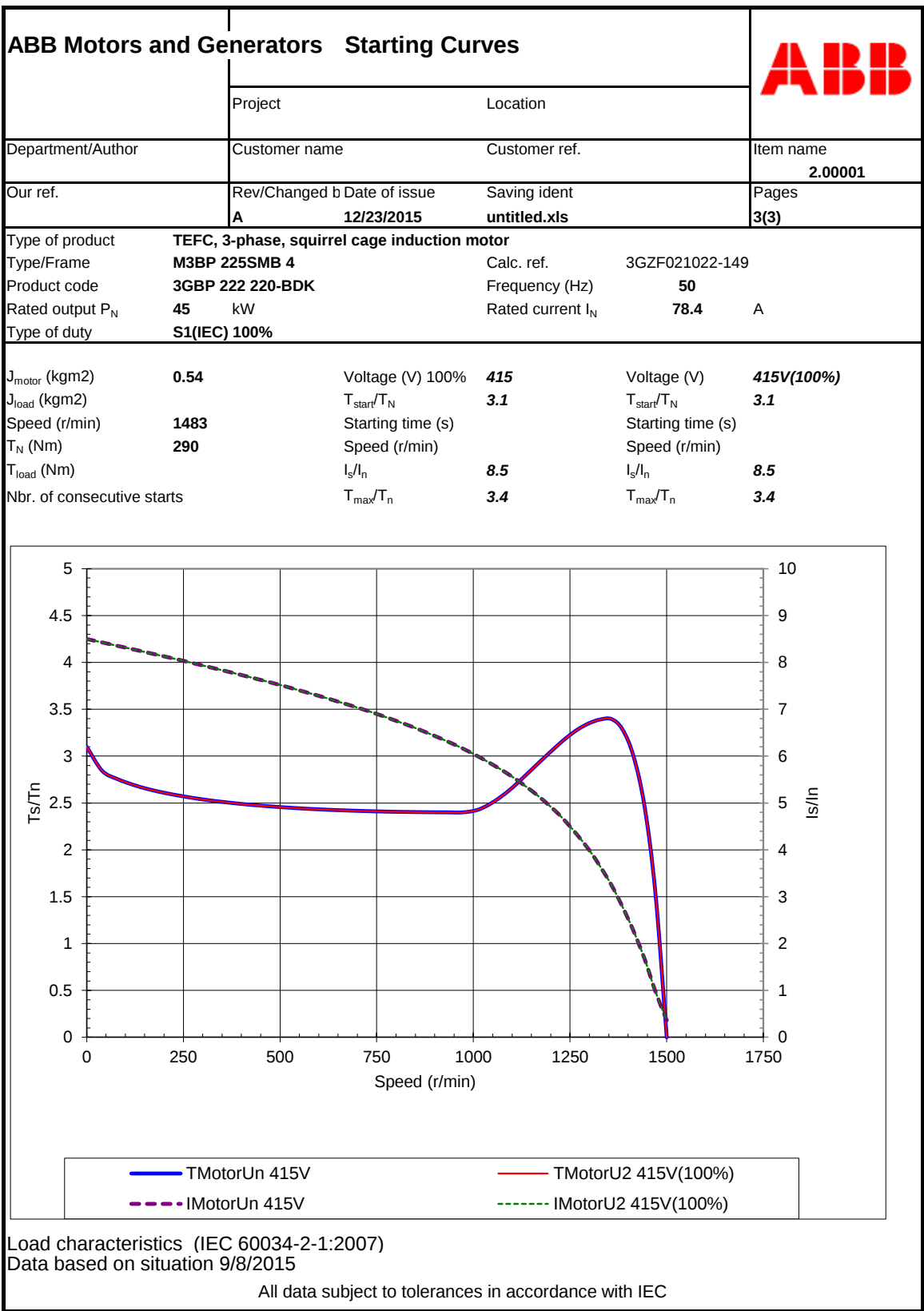
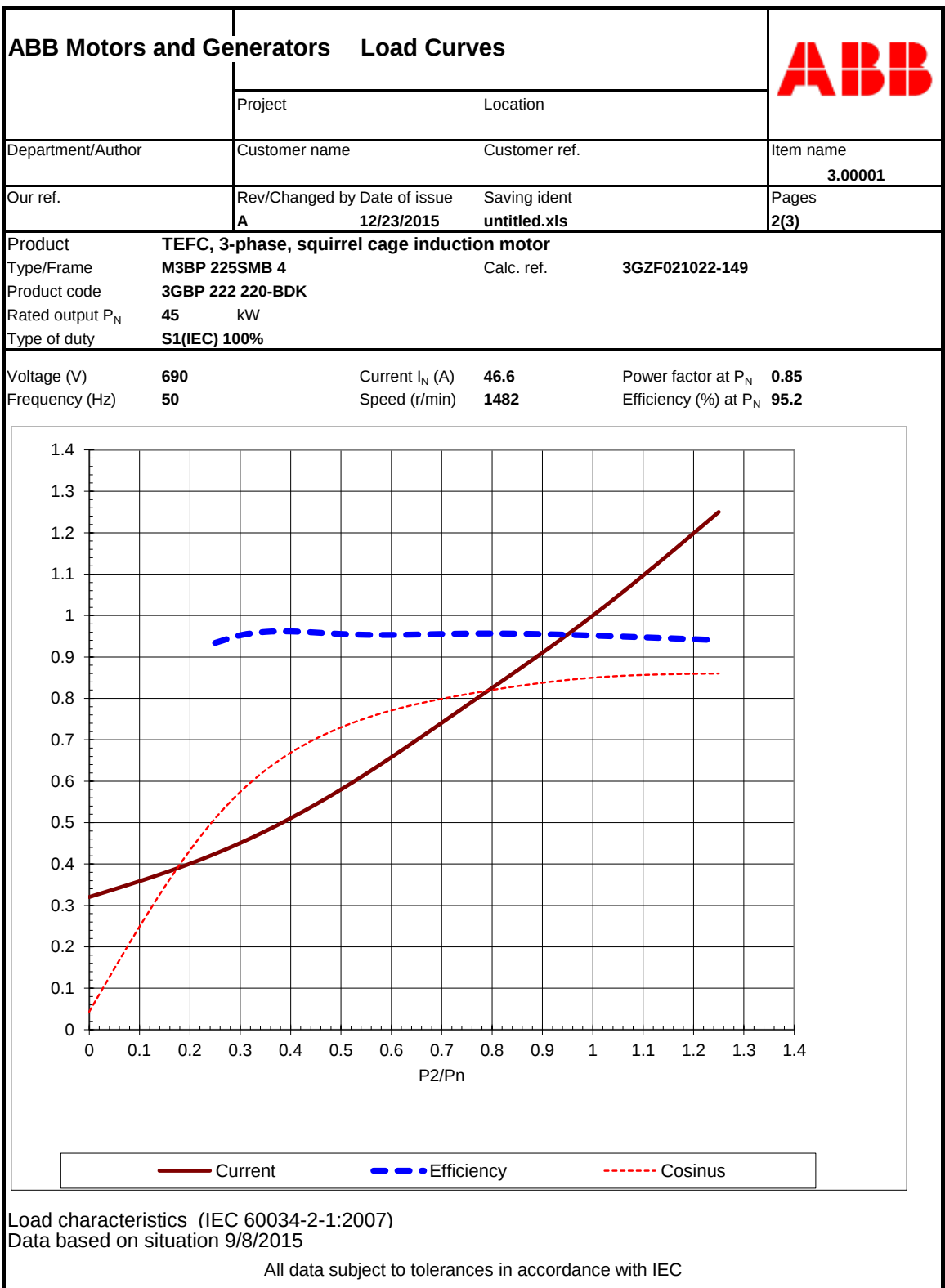


ABB Motors and Generators		Technical Data Sheet - DOL				
Project		Location				
Department/Author	Customer name	Customer ref.			Item name 3.00001	
Our ref.	Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls		Pages 1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	EMVM22454D-PPN (3GBP222220-BDK+011+332+509			Calc. ref.	3GZF021022-149
3	Type/Frame	M3BP 225SMB 4				
4	Mounting	IM3001, B5(flange)				
5	Rated output P _N	45	kW			
6	Service factor	1				
7	Type of duty	S1(IEC) 100%				
8	Rated voltage U _N	690	VY	± 5 % (IEC 60034-1)		
9	Rated frequency f _N	50	Hz	± 2 % (IEC 60034-1)		
10	Rated speed n _N	1482	r/min			
11	Rated current I _N	46.6	A			
12	No-load current	14.9	A			
13	Starting current I _s /I _N	7.9		Fullfilled IEC 60034-12 design N,H		
14	Nominal torque T _N	290	Nm			
15	Locked rotor torque T _s /T _N	2.8				
16	Maximum torque T _{max} /T _N	3.2				
17	Minimum torque T _{min} /T _N	2.4				
18	Speed at minimum torque	975	r/min			
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	46.6	95.2 / IE3	0.85	
20		75	36.5	95.6	0.81	
21		50	27	95.5	0.73	
22		Start	368		0.41	
23	Maximum starting time from hot	15	s			
24	Maximum starting time from cold	27	s			
25	Insulation class / Temperature class	F / B				
26	Ambient temperature	40	°C			
27	Altitude	1000	m.a.s.l.			
28	Enclosure	IP55				
29	Cooling system	IC411 self ventilated				
30	Bearing DE/NDE	6313/C3 - 6212/C3				
31	Type of Grease					
32	Sound pressure level (LP dB(A) 1m)	66	dB(A)	at load		
33	Moment of inertia J = ¼ GD2	0.536	kg-m2			
34	Balancing					
35	Vibration class					
36	Position of terminal box	Top				
37	Terminal box entries; no, dimens.					
38	Number of power terminals					
39	Direction of rotation	CW or CCW				
40	Weight of rotor	100	kg			
41	Total weight of motor	377	kg			
42	Dimension drawing no.					
43						
44						
45						
Ex-motors						
46						
47						
48						
Option Variant Codes / Definition						
49	011 = Fulfilling CSA and NRCAN					
50	332 = Baldor Catalog number stamped on rating plate					
51	509 = Fulfilling EISA Subtype I efficiency requirements, CC031A					
52						
Remarks:						
Data based on situation 9/8/2015						
All data subject to tolerances in accordance with IEC						
Guaranteed values on request						



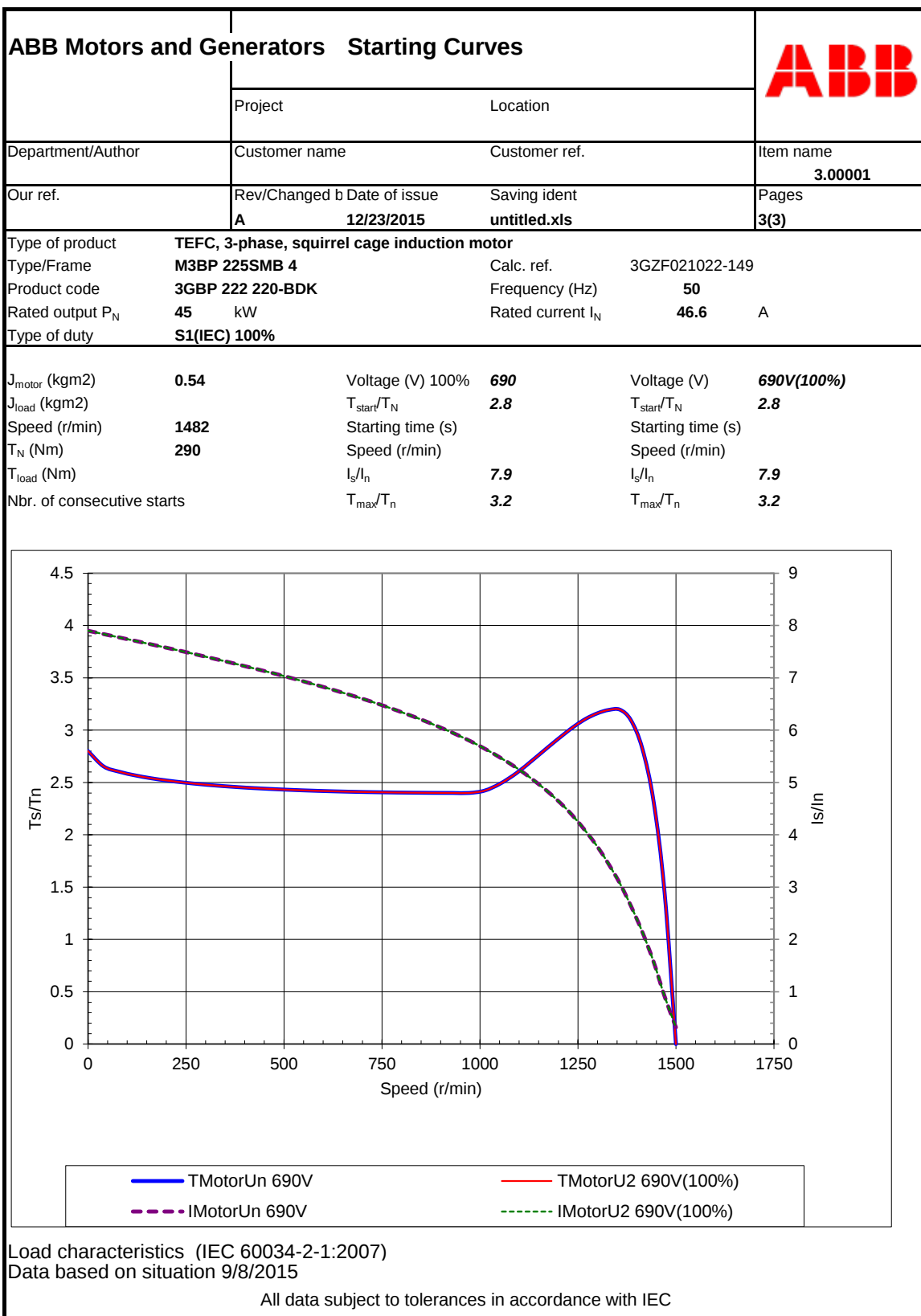


ABB Motors and Generators		Technical Data Sheet - DOL			
Project		Location			
Department/Author	Customer name	Customer ref.			Item name 4.00001
Our ref.	Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls	Pages 1(3)	
No.	Definition	Data	Unit	Remarks	
1	Product	TEFC, 3-phase, squirrel cage induction motor			
2	Product code	EMVM22454D-PPN (3GBP222220-BDK+011+332+509)			Calc. ref. 3GZF021022-149
3	Type/Frame	M3BP 225SMB 4			
4	Mounting	IM3001, B5(flange)			
5	Rated output P _N	45	kW		
6	Service factor	1			
7	Type of duty	S1(IEC) 100%			
8	Rated voltage U _N	460	VD	± 5 % (IEC 60034-1)	
9	Rated frequency f _N	60	Hz	± 2 % (IEC 60034-1)	
10	Rated speed n _N	1785	r/min		
11	Rated current I _N	70.8	A		
12	No-load current	24	A		
13	Starting current I _s /I _N	8.9		Not within IEC 60034-12 design N,H	
14	Nominal torque T _N	241	Nm		
15	Locked rotor torque T _s /T _N	3			
16	Maximum torque T _{max} /T _N	3.6			
17	Minimum torque T _{min} /T _N	2.5			
18	Speed at minimum torque	1170	r/min		
19	Load characteristics (IEEE 112 B: 2004)	Load %	Current A	Efficiency %	Power factor
20	NEMA nominal efficiency (*)	100	70.8	95.0 / IE3 / 93.6	0.84
21		75	55.7	95.1	0.8
22		50	42.1	94.5	0.71
23		Start	630		0.38
24	Maximum starting time from hot	15	s		
25	Maximum starting time from cold	27	s		
26	Insulation class / Temperature class	F / B			
27	Ambient temperature	40	°C		
28	Altitude	1000	m.a.s.l.		
29	Enclosure	IP55			
30	Cooling system	IC411 self ventilated			
31	Bearing DE/NDE	6313/C3 - 6212/C3			
32	Type of Grease				
33	Sound pressure level (LP dB(A) 1m)	74	dB(A)	at load	
34	Moment of inertia J = ¼ GD ²	0.536	kg-m ²		
35	Balancing				
36	Vibration class				
37	Position of terminal box	Top			
38	Terminal box entries; no, dimens.				
39	Number of power terminals				
40	Direction of rotation	CW or CCW			
41	Weight of rotor	100	kg		
42	Total weight of motor	377	kg		
43	Dimension drawing no.				
44					
45					
Ex-motors					
46					
47					
48					
Option Variant Codes / Definition					
49	011 = Fulfilling CSA and NRCAN				
50	332 = Baldor Catalog number stamped on rating plate				
51	509 = Fulfilling EISA Subtype I efficiency requirements, CC031A				
52					
Remarks:					
Data based on situation 9/8/2015					
All data subject to tolerances in accordance with IEC					
Guaranteed values on request					

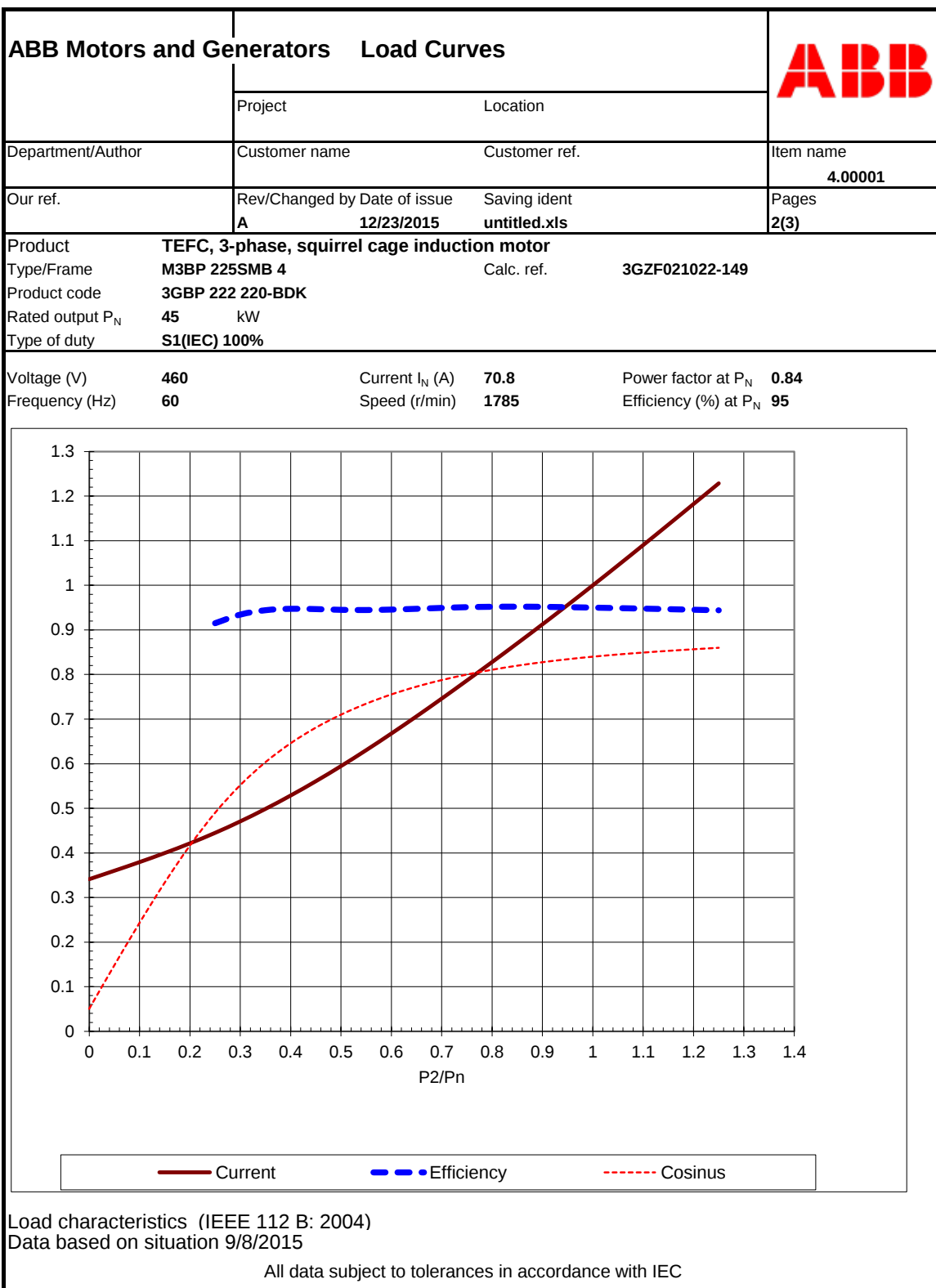
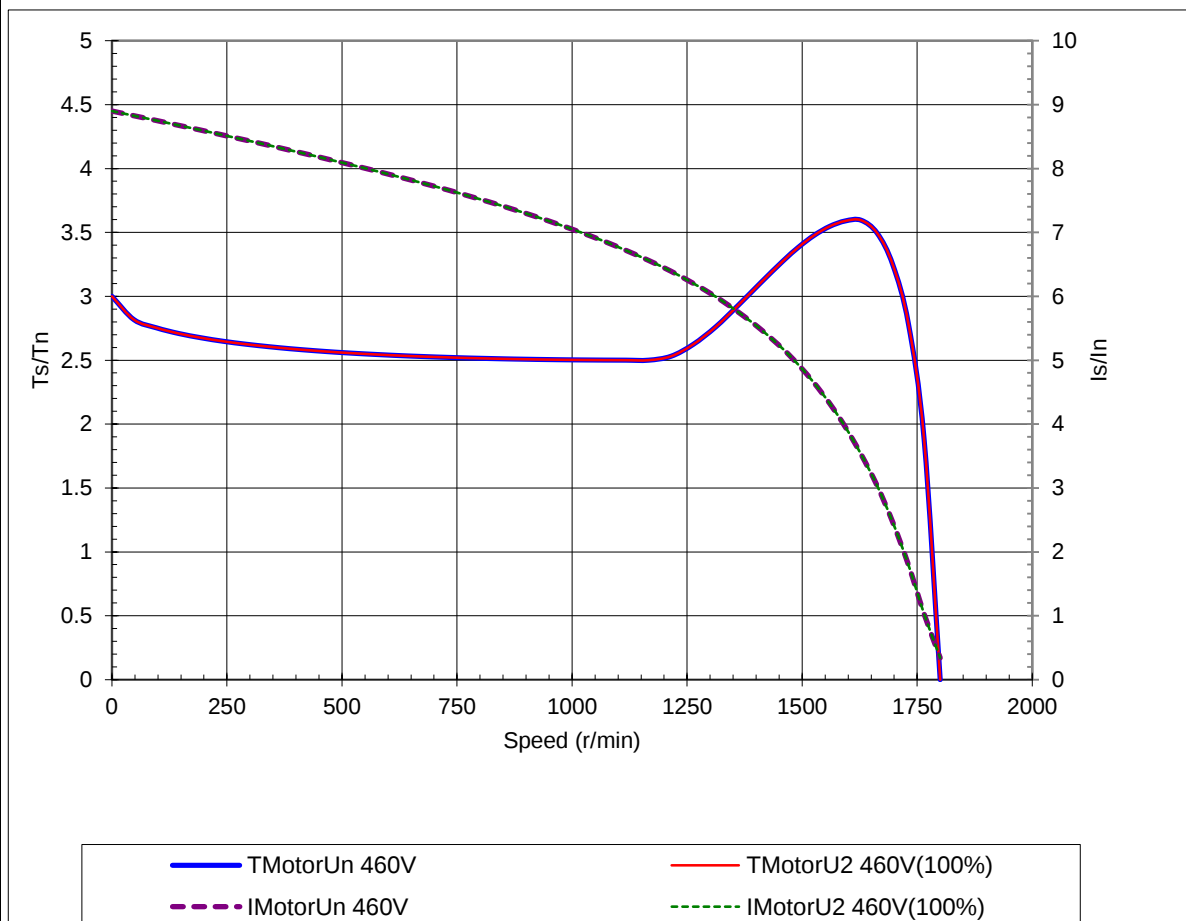


ABB Motors and Generators Starting Curves



	Project	Location	
Department/Author	Customer name	Customer ref.	Item name
			4.00001
Our ref.	Rev/Changed b Date of issue	Saving ident	Pages
	A 12/23/2015	untitled.xls	3(3)
Type of product	TEFC, 3-phase, squirrel cage induction motor		
Type/Frame	M3BP 225SMB 4	Calc. ref.	3GZF021022-149
Product code	3GBP 222 220-BDK	Frequency (Hz)	60
Rated output P_N	45 kW	Rated current I_N	70.8 A
Type of duty	S1(IEC) 100%		

J_{motor} (kgm ²)	0.54	Voltage (V) 100%	460	Voltage (V)	460V(100%)
J_{load} (kgm ²)		T_{start}/T_N	3	T_{start}/T_N	3
Speed (r/min)	1785	Starting time (s)		Starting time (s)	
T_N (Nm)	241	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_N	8.9	I_s/I_N	8.9
Nbr. of consecutive starts		T_{max}/T_N	3.6	T_{max}/T_N	3.6



Load characteristics (IEEE 112 B: 2004)
Data based on situation 9/8/2015

All data subject to tolerances in accordance with IEC