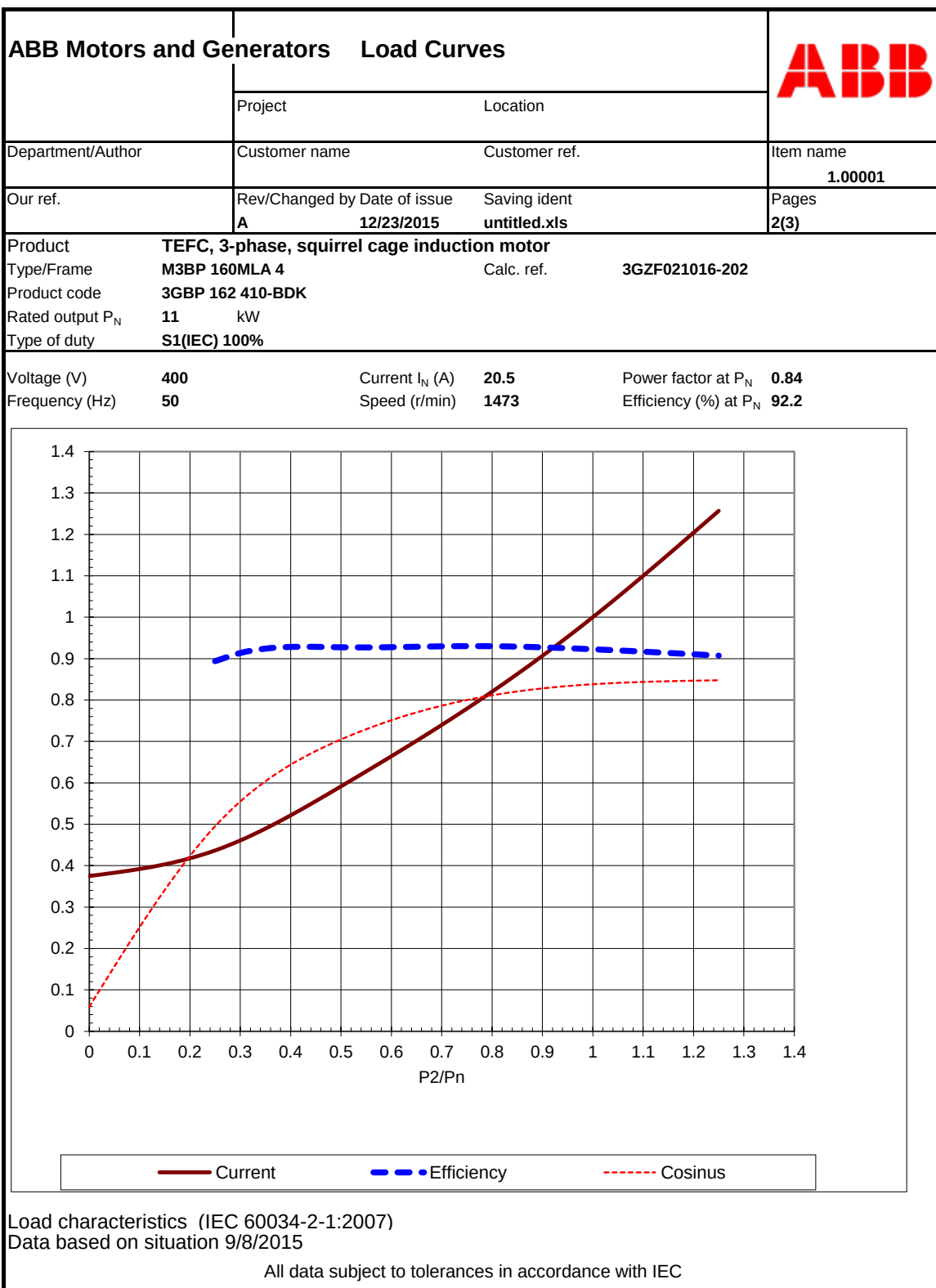


ABB Motors and Generators		Technical Data Sheet - DOL				
Project		Location				
Department/Author		Customer name		Customer ref.		Item name 1.00001
Our ref.		Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls	Pages 1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	EMVM16114D-PPN (3GBP162410-BDK+011+332+509)			Calc. ref.	3GZF021016-202
3	Type/Frame	M3BP 160MLA 4				
4	Mounting	IM3001, B5(flange)				
5	Rated output P _N	11	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	1473	r/min			
11	Rated current I _N	20.5	A			
12	No-load current	7.7	A			
13	Starting current I _s /I _N	7.7		Fullfilled IEC 60034-12 design N,H		
14	Nominal torque T _N	71	Nm			
15	Locked rotor torque T _s /T _N	2.6				
16	Maximum torque T _{max} /T _N	2.9				
17	Minimum torque T _{min} /T _N	1.7				
18	Speed at minimum torque	300	r/min			
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	20.5	92.2 / IE3	0.84	
20		75	16	93	0.8	
21		50	12.1	92.7	0.7	
22		Start	158		0.47	
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	6309/C3 - 6209/C3				
31	Type of Grease					
32	Sound pressure level (LP dB(A) 1m)	62	dB(A)	at load		
33	Moment of inertia J = ¼ GD2	0.108	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	39	kg			
41	Total weight of motor	165	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						



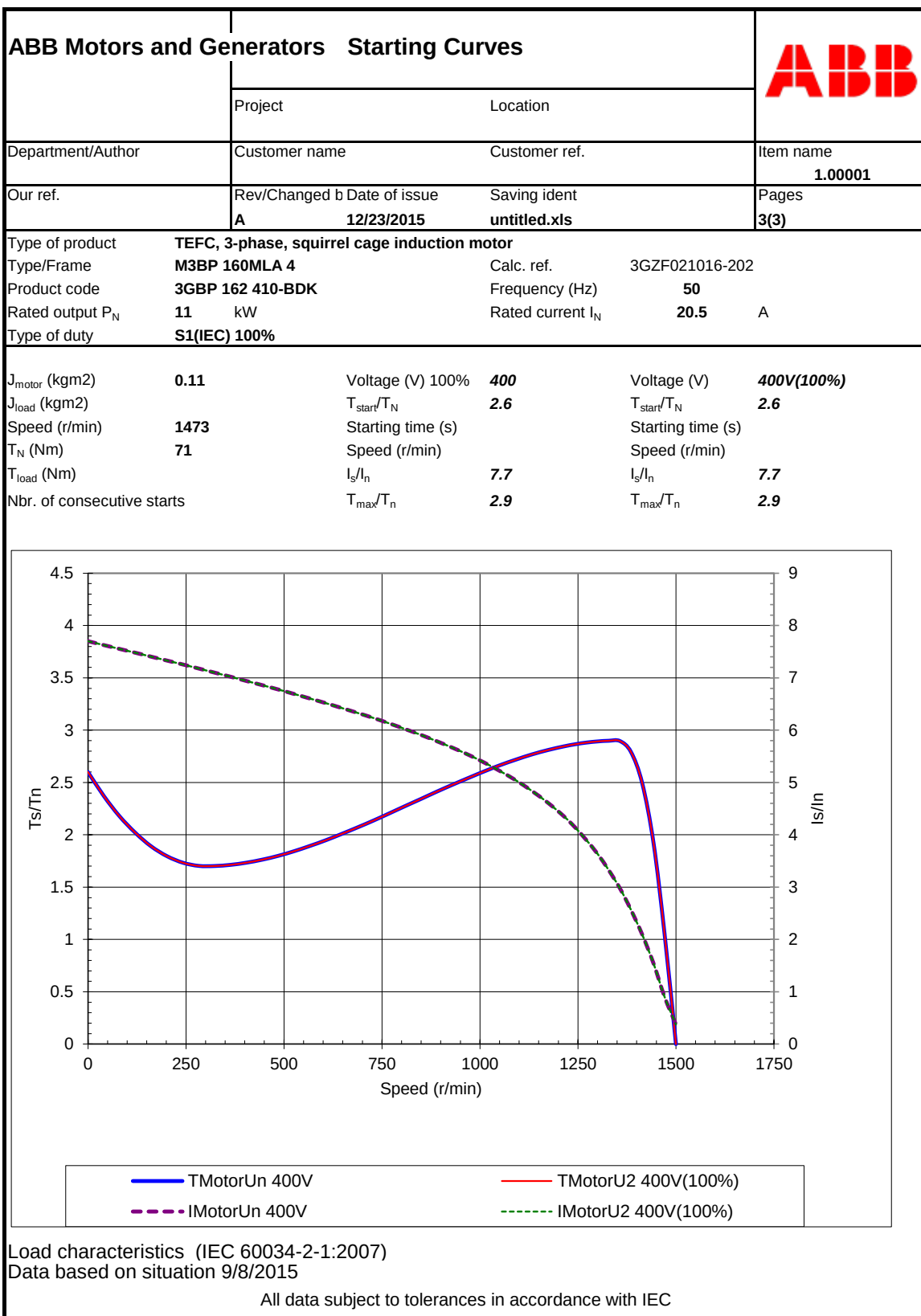
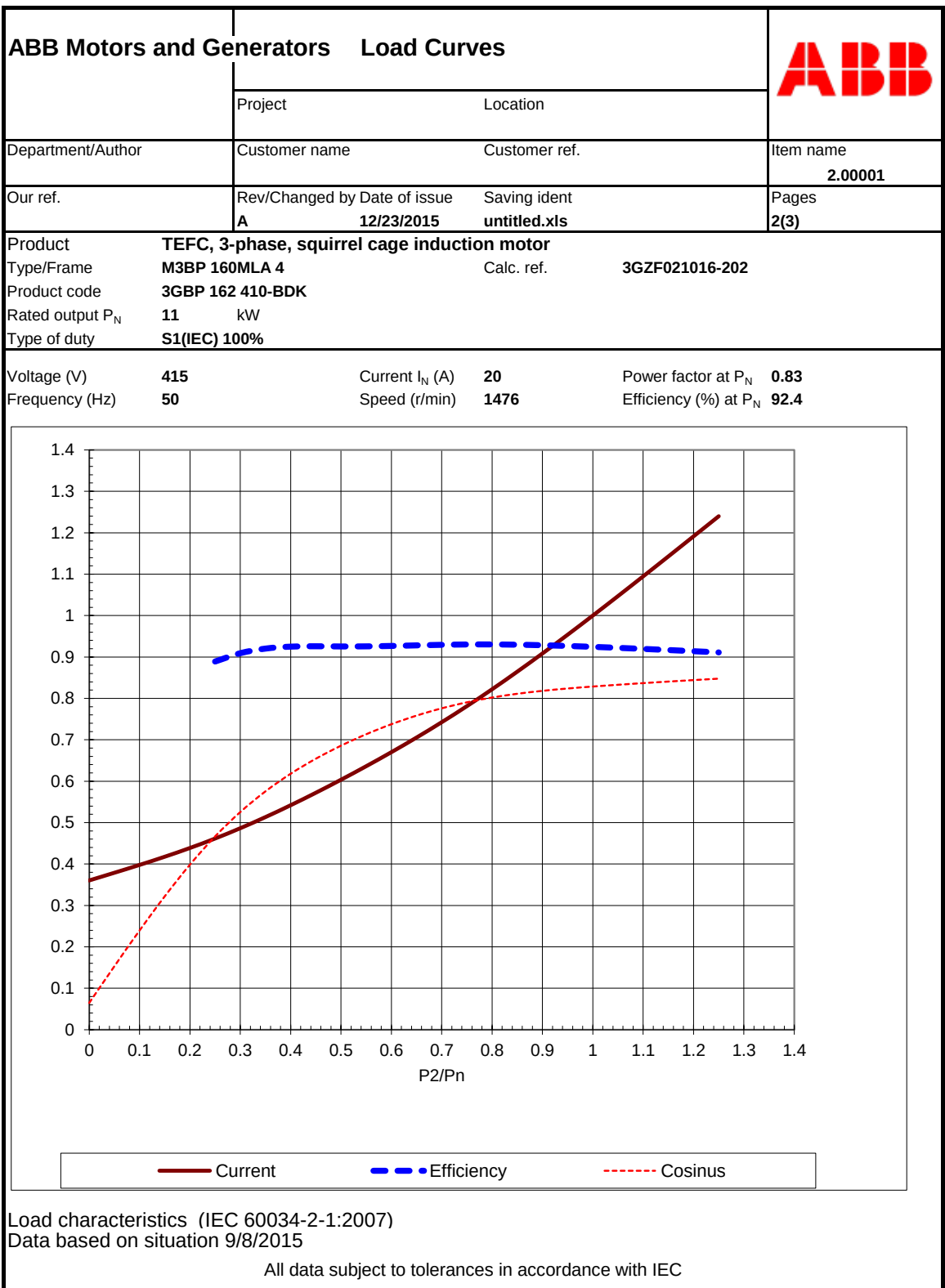


ABB Motors and Generators		Technical Data Sheet - DOL				
Project		Location				
Department/Author	Customer name	Customer ref.			Item name 2.00001	
Our ref.	Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls		Pages 1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	EMVM16114D-PPN (3GBP162410-BDK+011+332+509)			Calc. ref.	3GZF021016-202
3	Type/Frame	M3BP 160MLA 4				
4	Mounting	IM3001, B5(flange)				
5	Rated output P _N	11	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	1476	r/min			
11	Rated current I _N	20	A			
12	No-load current	7.2	A			
13	Starting current I _s /I _N	8.3		Fulfilled IEC 60034-12 design N,H		
14	Nominal torque T _N	71	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	1.7				
18	Speed at minimum torque	300	r/min			
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	20	92.4 / IE3	0.83	
20		75	15.6	93	0.79	
21		50	12.1	92.5	0.69	
22		Start	166		0.48	
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	6309/C3 - 6209/C3				
31	Type of Grease					
32	Sound pressure level (LP dB(A) 1m)	62	dB(A)	at load		
33	Moment of inertia J = ¼ GD2	0.108	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	39	kg			
41	Total weight of motor	165	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						



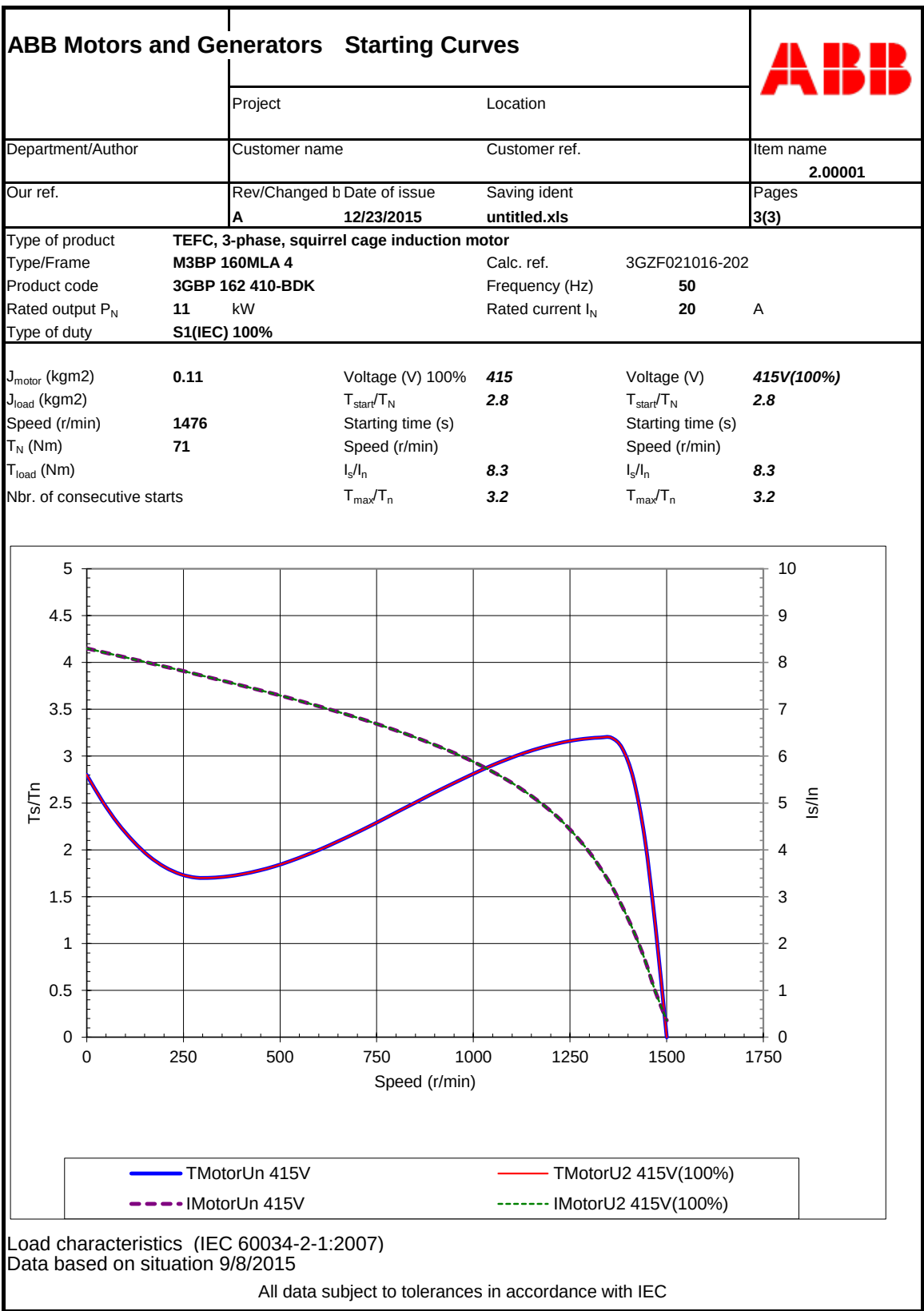
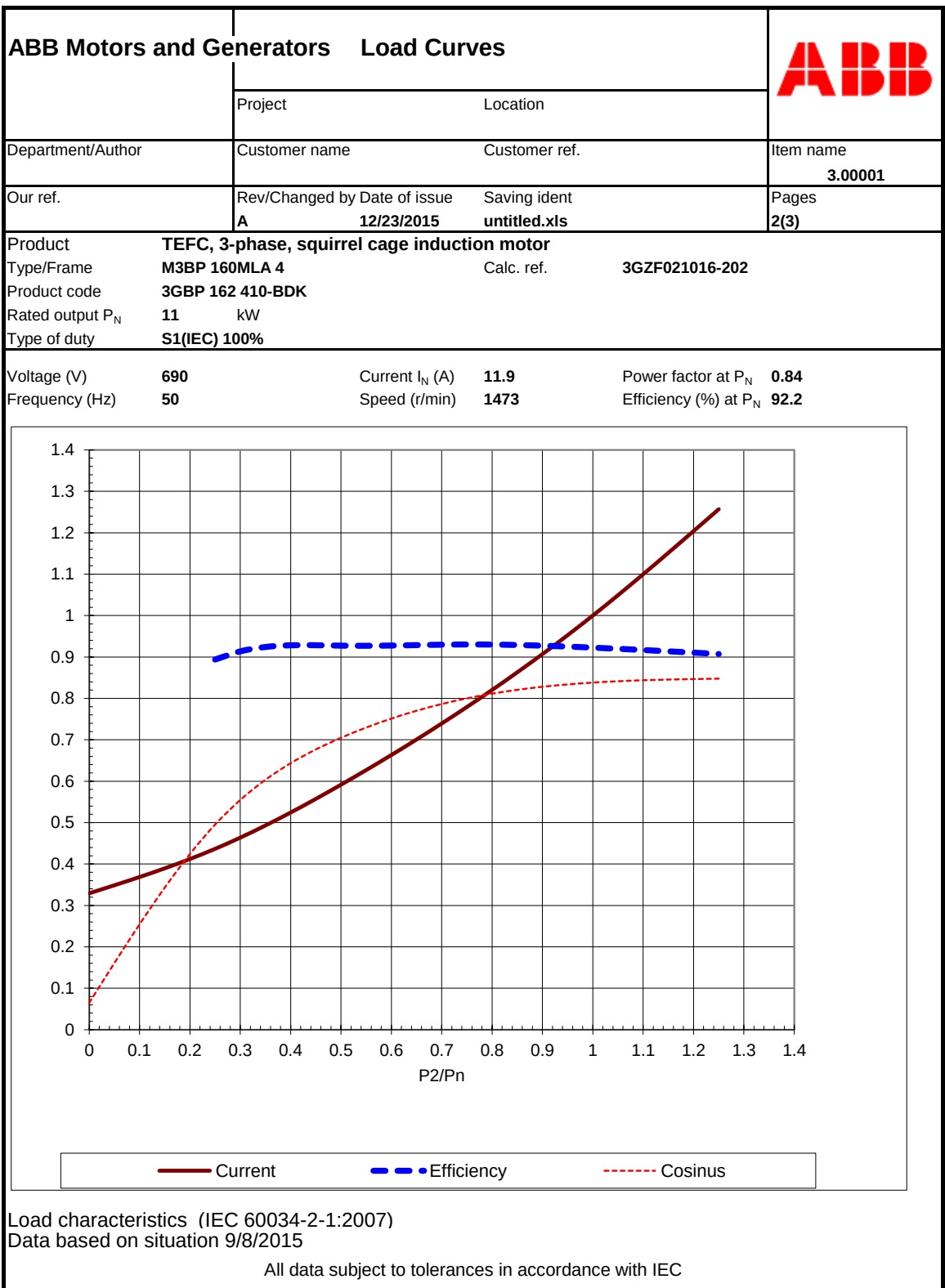


ABB Motors and Generators		Technical Data Sheet - DOL				
Project		Location				
Department/Author		Customer name		Customer ref.		Item name 3.00001
Our ref.		Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls	Pages 1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	EMVM16114D-PPN (3GBP162410-BDK+011+332+509)			Calc. ref.	3GZF021016-202
3	Type/Frame	M3BP 160MLA 4				
4	Mounting	IM3001, B5(flange)				
5	Rated output P _N	11	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	1473	r/min			
11	Rated current I _N	11.9	A			
12	No-load current	3.9	A			
13	Starting current I _s /I _N	7.7		Fulfilled IEC 60034-12 design N,H		
14	Nominal torque T _N	71	Nm			
15	Locked rotor torque T _s /T _N	2.6				
16	Maximum torque T _{max} /T _N	2.9				
17	Minimum torque T _{min} /T _N	1.7				
18	Speed at minimum torque	300	r/min			
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	11.9	92.2 / IE3	0.84	
20		75	9.3	93	0.8	
21		50	7	92.7	0.7	
22		Start	92		0.47	
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	6309/C3 - 6209/C3				
31	Type of Grease					
32	Sound pressure level (LP dB(A) 1m)	62	dB(A)	at load		
33	Moment of inertia J = ¼ GD2	0.108	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	39	kg			
41	Total weight of motor	165	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						



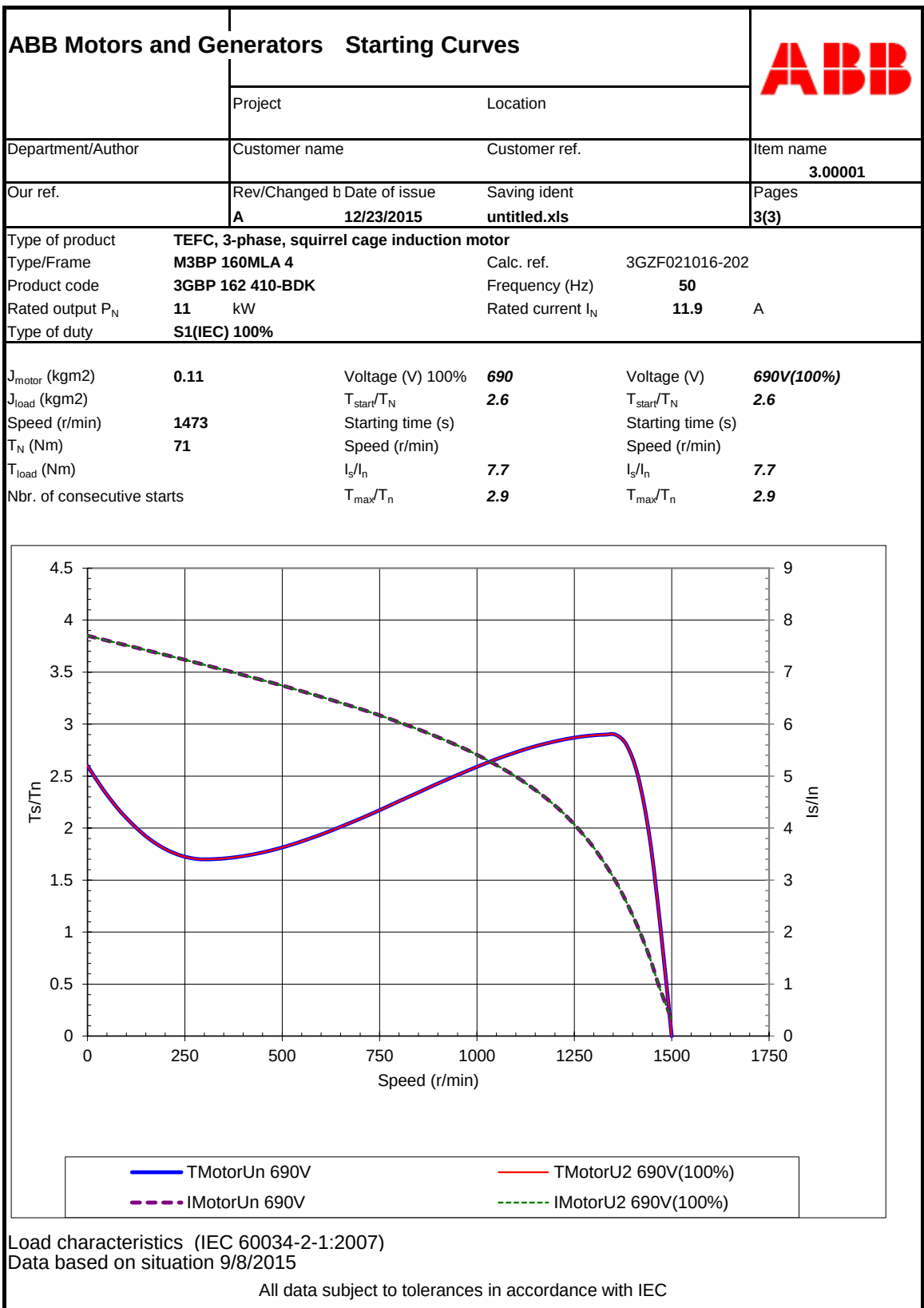


ABB Motors and Generators		Technical Data Sheet - DOL		
Project		Location		
Department/Author	Customer name	Customer ref.		Item name 4.00001
Our ref.	Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls	Pages 1(3)

No.	Definition	Data	Unit	Remarks
1	Product	TEFC, 3-phase, squirrel cage induction motor		
2	Product code	EMVM16114D-PPN (3GBP162410-BDK+011+332+509)		
3	Type/Frame	M3BP 160MLA 4		
4	Mounting	IM3001, B5(flange)		
5	Rated output P _N	11	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	1777	r/min	
11	Rated current I _N	18	A	
12	No-load current	6.1	A	
13	Starting current I _s /I _N	8.7		Fullfilled IEC 60034-12 design N,H
14	Nominal torque T _N	59	Nm	
15	Locked rotor torque T _s /T _N	2.8		
16	Maximum torque T _{max} /T _N	3.3		
17	Minimum torque T _{min} /T _N	1.8		
18	Speed at minimum torque	360	r/min	
19	Load characteristics (IEEE 112 B: 2004)	Load %	Current A	Efficiency % Power factor
20		100	18	92.4 / IE3 0.83
21		75	14.2	92.6 0.79
22		50	10.9	91.8 0.69
23		Start	157	0.43
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	6309/C3 - 6209/C3		
32	Type of Grease			
33	Sound pressure level (LP dB(A) 1m)	70	dB(A)	at load
34	Moment of inertia J = ¼ GD ²	0.108	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	39	kg	
42	Total weight of motor	165	kg	
43	Dimension drawing no.			
44				
45				
46	Ex-motors			
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

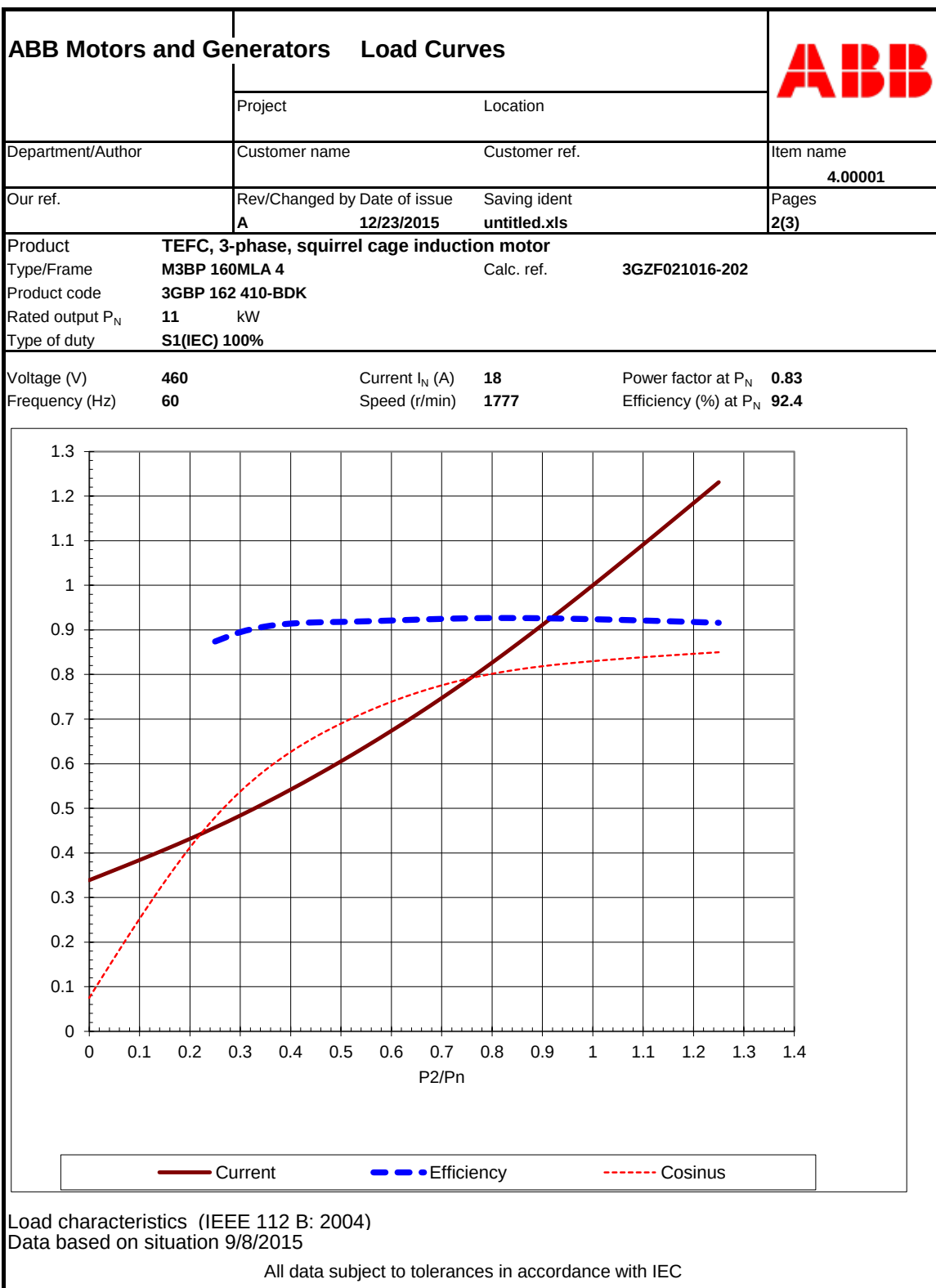
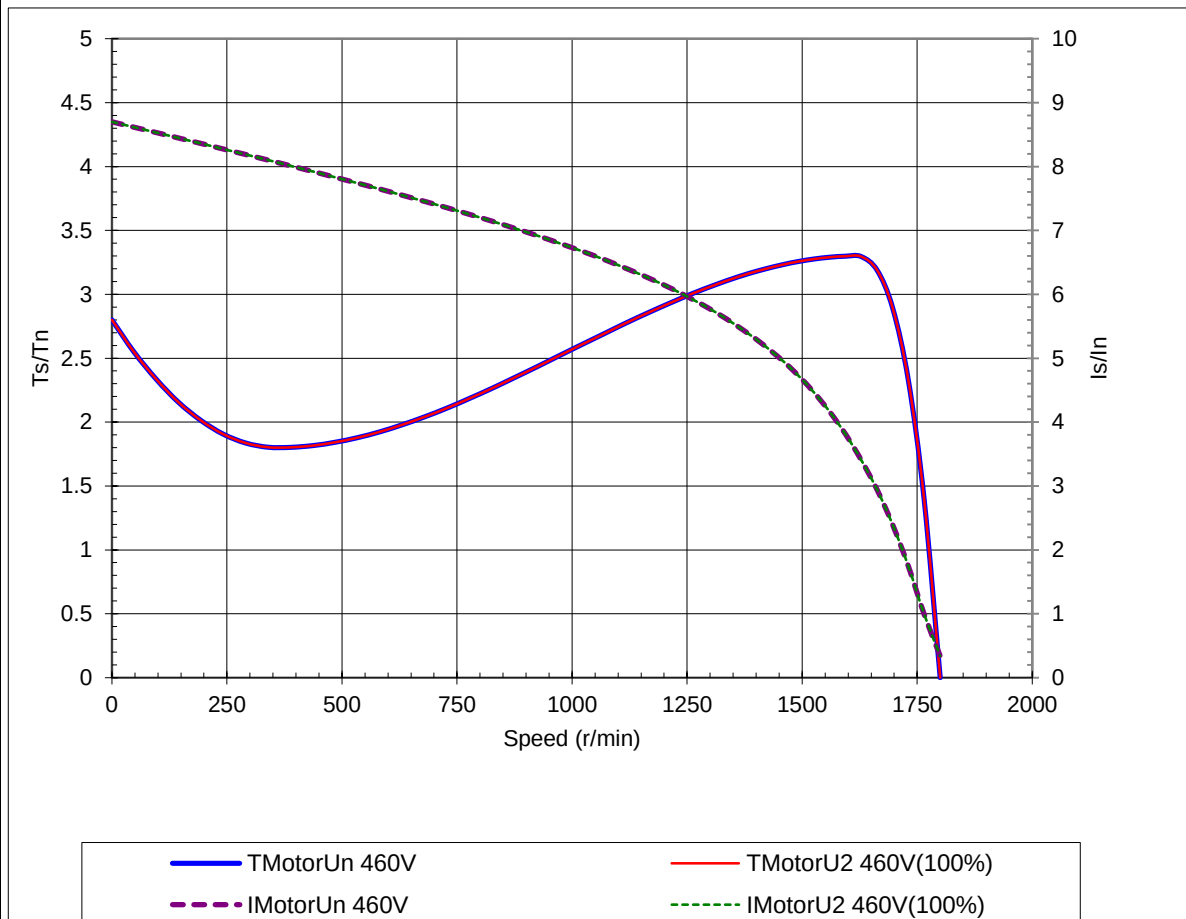


ABB Motors and Generators Starting Curves



	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 160MLA 4	Calc. ref.	3GZF021016-202
Product code	3GBP 162 410-BDK	Frequency (Hz)	60
Rated output P_N	11 kW	Rated current I_N	18 A
Type of duty	S1(IEC) 100%		

J_{motor} (kgm ²)	0.11	Voltage (V) 100%	460	Voltage (V)	460V(100%)
J_{load} (kgm ²)		T_{start}/T_N	2.8	T_{start}/T_N	2.8
Speed (r/min)	1777	Starting time (s)		Starting time (s)	
T_N (Nm)	59	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_N	8.7	I_s/I_N	8.7
Nbr. of consecutive starts		T_{max}/T_N	3.3	T_{max}/T_N	3.3



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

All data subject to tolerances in accordance with IEC