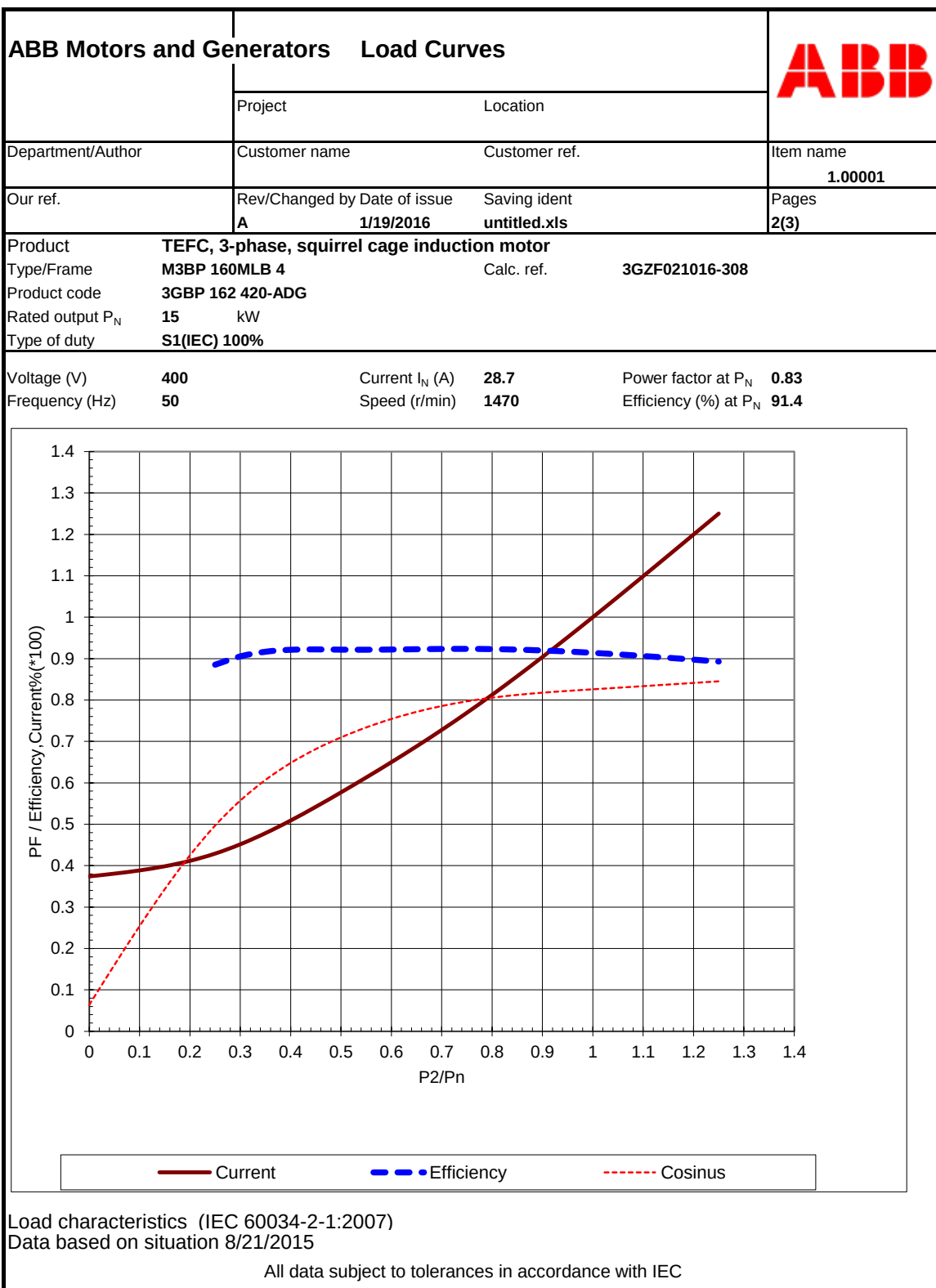


ABB Motors and Generators		Technical Data Sheet - DOL		
Project		Location		
Department/Author	Customer name	Customer ref.		Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 1/19/2016	Saving ident untitled.xls	Pages 1(3)

No.	Definition	Data	Unit	Remarks
1	Product	TEFC, 3-phase, squirrel cage induction motor		
2	Product code	MM16154-PPN (3GBP162420-ADG+332+333)		
3	Type/Frame	M3BP 160MLB 4		
4	Mounting	IM1001, B3(foot)		
5	Rated output P _N	15	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	1470	r/min	
11	Rated current I _N	28.7	A	
12	No-load current	10.7	A	
13	Starting current I _s /I _N	7.1		Fullfilled IEC 60034-12 design N,H
14	Nominal torque T _N	97	Nm	
15	Locked rotor torque T _s /T _N	2.6		
16	Maximum torque T _{max} /T _N	3		
17	Minimum torque T _{min} /T _N	1.8		
18	Speed at minimum torque	300	r/min	
Load characteristics (IEC 60034-2-1:2007)				
19	PLL determined from residual loss	Load %	Current A	Efficiency %
20		100	28.7	91.4 / IE2
21		75	22.1	92.3
22		50	16.6	92.2
23		Start	204	0.46
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)	62	dB(A)	at load
34	Moment of inertia J = ¼ GD2	0.099	kg-m2	
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	Total weight of motor	165	kg	
42	Dimension drawing no.			
43				
44				
45				
Ex-motors				
46				
47				
48				
Option Variant Codes / Definition				
49	332 = Baldor Catalog number stamped on rating plate			
50	333 = Not for use in the USA			
51				
52				
Remarks:				
Data based on situation 8/21/2015				
All data subject to tolerances in accordance with IEC				
Guaranteed values on request				



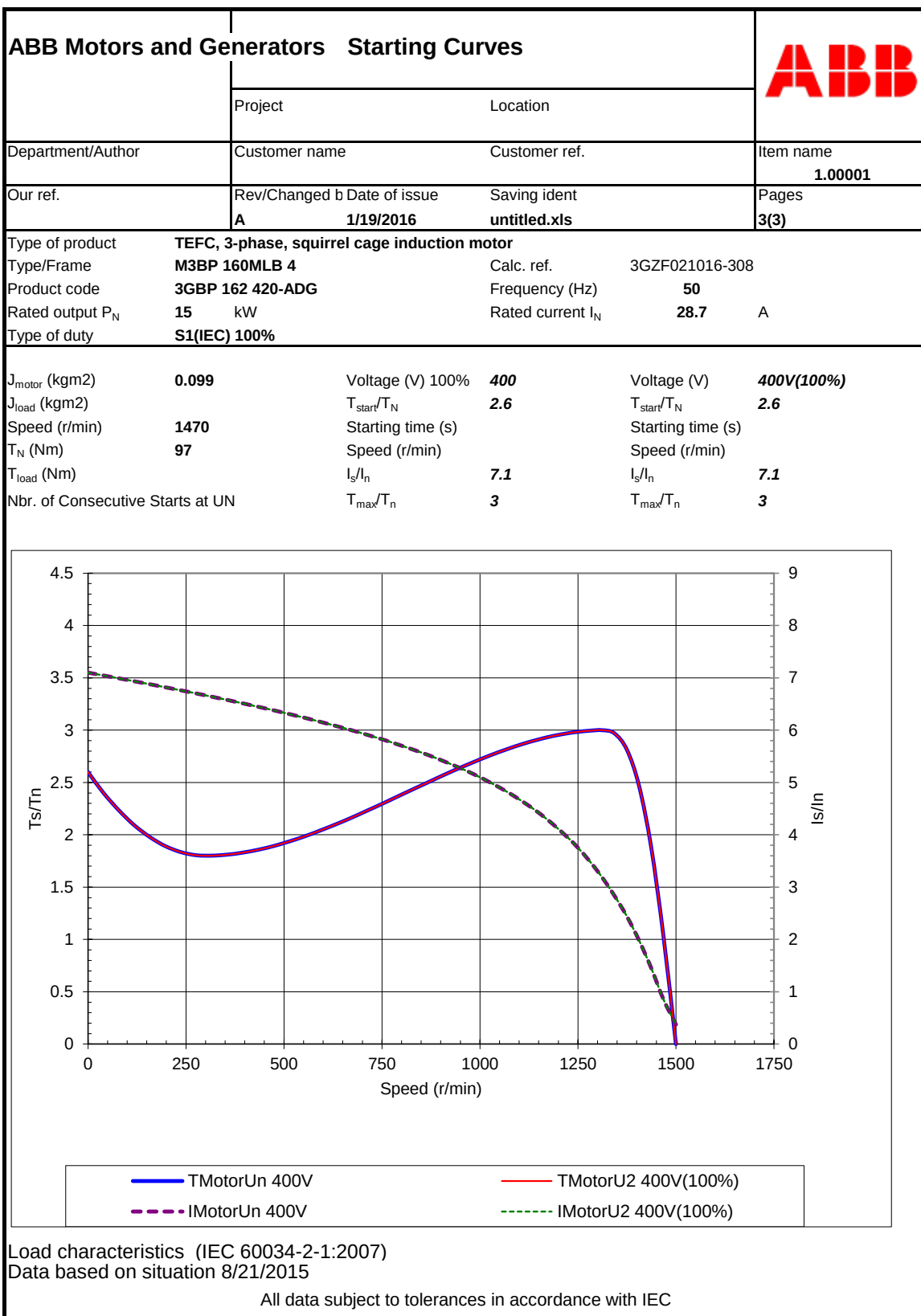
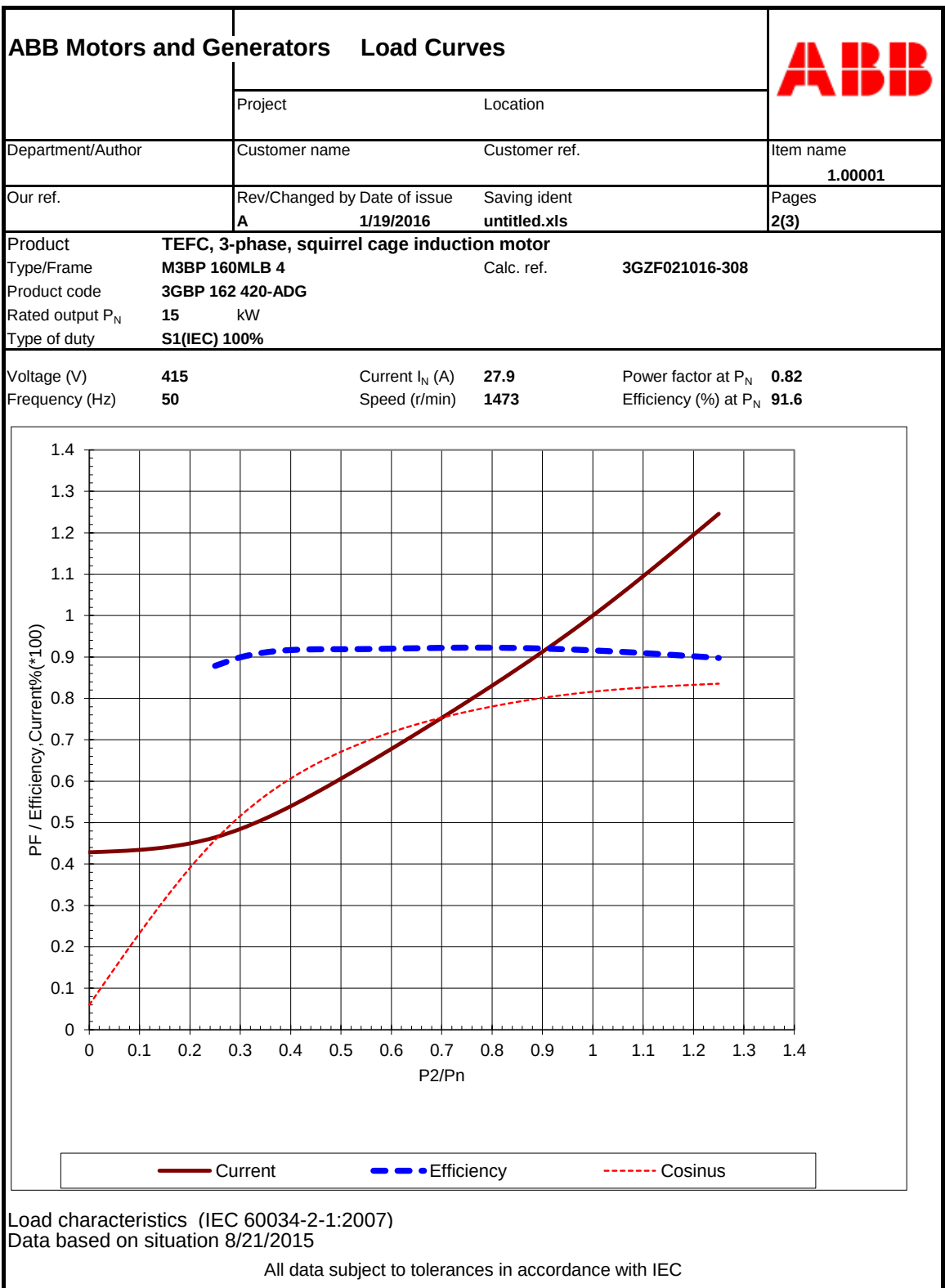


ABB Motors and Generators		Technical Data Sheet - DOL			
Project		Location			
Department/Author		Customer name		Customer ref.	
Our ref.		Rev/Changed by A		Date of issue 1/19/2016	
		Saving ident untitled.xls		Item name 1.00001	
				Pages 1(3)	

No.	Definition	Data	Unit	Remarks	
1	Product	TEFC, 3-phase, squirrel cage induction motor			
2	Product code	MM16154-PPN (3GBP162420-ADG+332+333)			
3	Type/Frame	M3BP 160MLB 4			
4	Mounting	IM1001, B3(foot)			
5	Rated output P _N	15	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	1473	r/min		
11	Rated current I _N	27.9	A		
12	No-load current	12	A		
13	Starting current I _s /I _N	7.5		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T _N	97	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	1.8			
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	27.9	91.6 / IE2	0.82
20		75	22.1	92.2	0.77
21		50	16.9	91.9	0.67
22		Start	209		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	0.099	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	Total weight of motor	165	kg		
41	Dimension drawing no.				
42					
43					
44					
45					
Ex-motors					
46					
47					
48					
Option Variant Codes / Definition					
49	332 = Baldor Catalog number stamped on rating plate				
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Remarks:					
Data based on situation 8/21/2015					
All data subject to tolerances in accordance with IEC					
Guaranteed values on request					



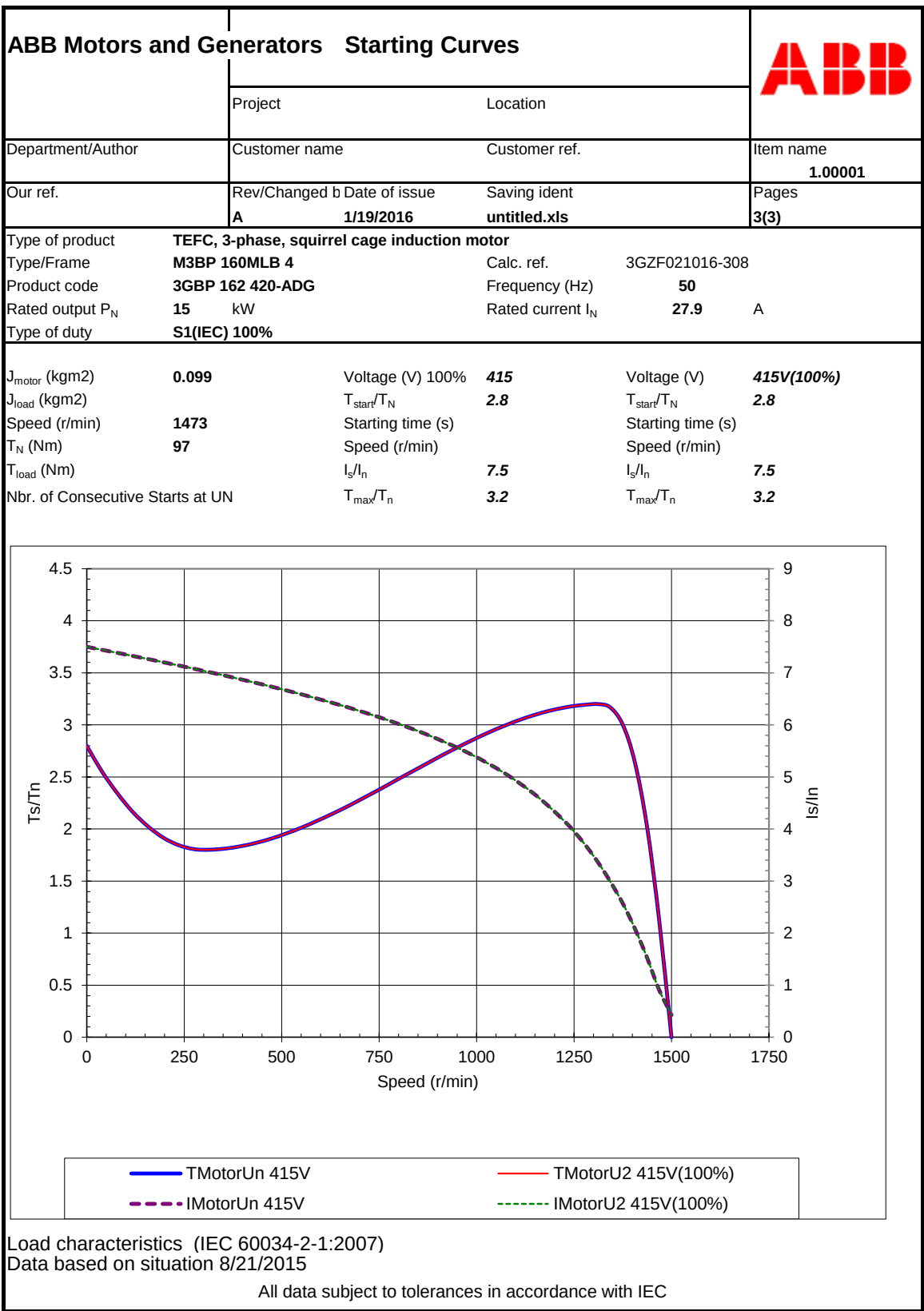
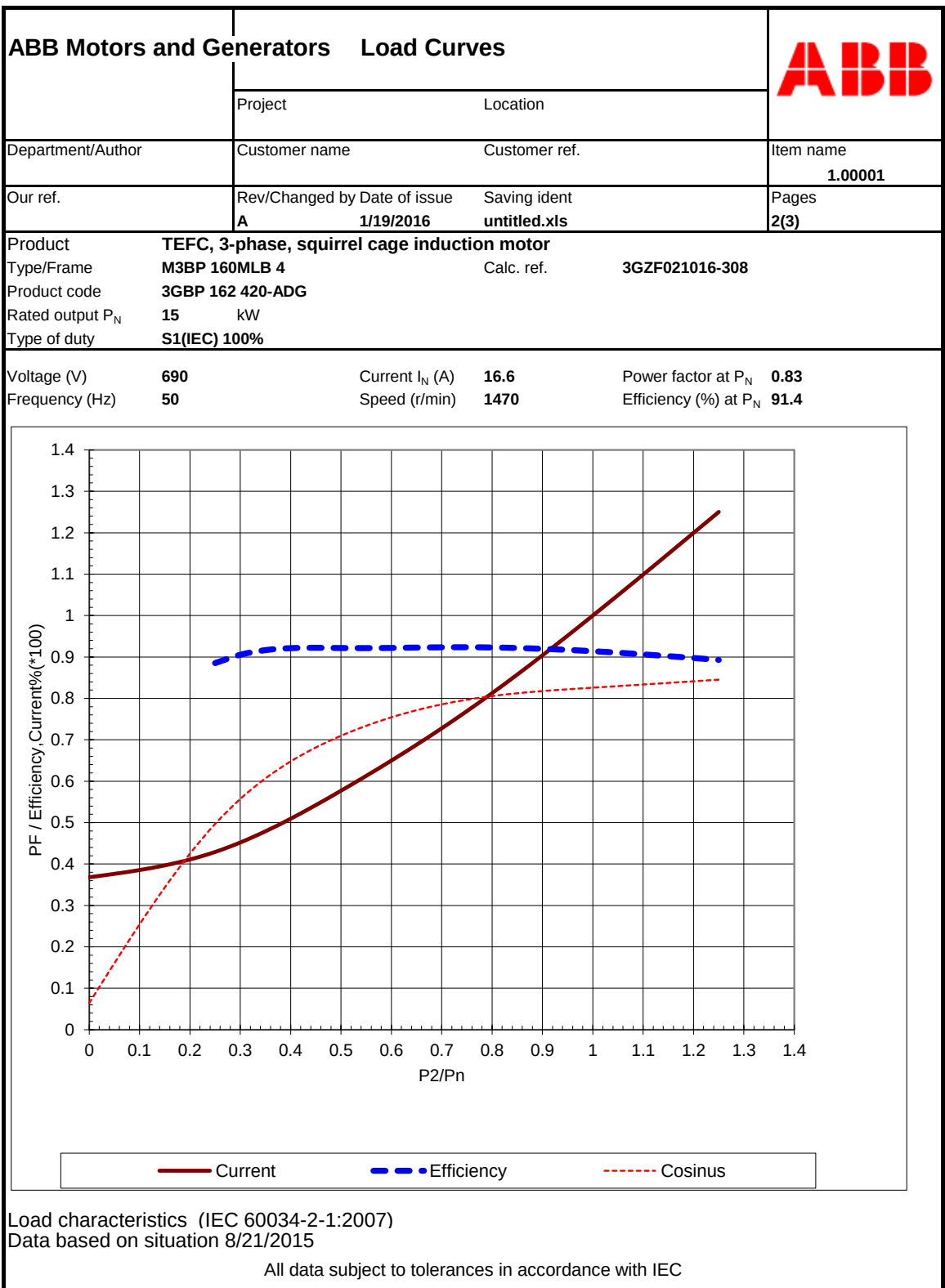


ABB Motors and Generators		Technical Data Sheet - DOL			
Project		Location			
Department/Author		Customer name		Customer ref.	
Our ref.		Rev/Changed by		Date of issue	
		A		1/19/2016	
		Saving ident		untitled.xls	
				Pages	
				1(3)	
No.	Definition	Data	Unit	Remarks	
1	Product	TEFC, 3-phase, squirrel cage induction motor			
2	Product code	MM16154-PPN (3GBP162420-ADG+332+333)		Calc. ref. 3GZF021016-308	
3	Type/Frame	M3BP 160MLB 4			
4	Mounting	IM1001, B3(foot)			
5	Rated output P _N	15	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	1470	r/min		
11	Rated current I _N	16.6	A		
12	No-load current	6.1	A		
13	Starting current I _s /I _N	7.1		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T _N	97	Nm		
15	Locked rotor torque T _s /T _N	2.6			
16	Maximum torque T _{max} /T _N	3			
17	Minimum torque T _{min} /T _N	1.8			
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	16.6	91.4 / IE2	0.83
20		75	12.8	92.3	0.8
21		50	9.6	92.2	0.71
22		Start	118		0.46
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	0.099	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	Total weight of motor	165	kg		
41	Dimension drawing no.				
42					
43					
44					
45					
Ex-motors					
46					
47					
48					
Option Variant Codes / Definition					
49	332 = Baldor Catalog number stamped on rating plate				
50	333 = Not for use in the USA				
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Remarks:					
Data based on situation 8/21/2015					
All data subject to tolerances in accordance with IEC					
Guaranteed values on request					



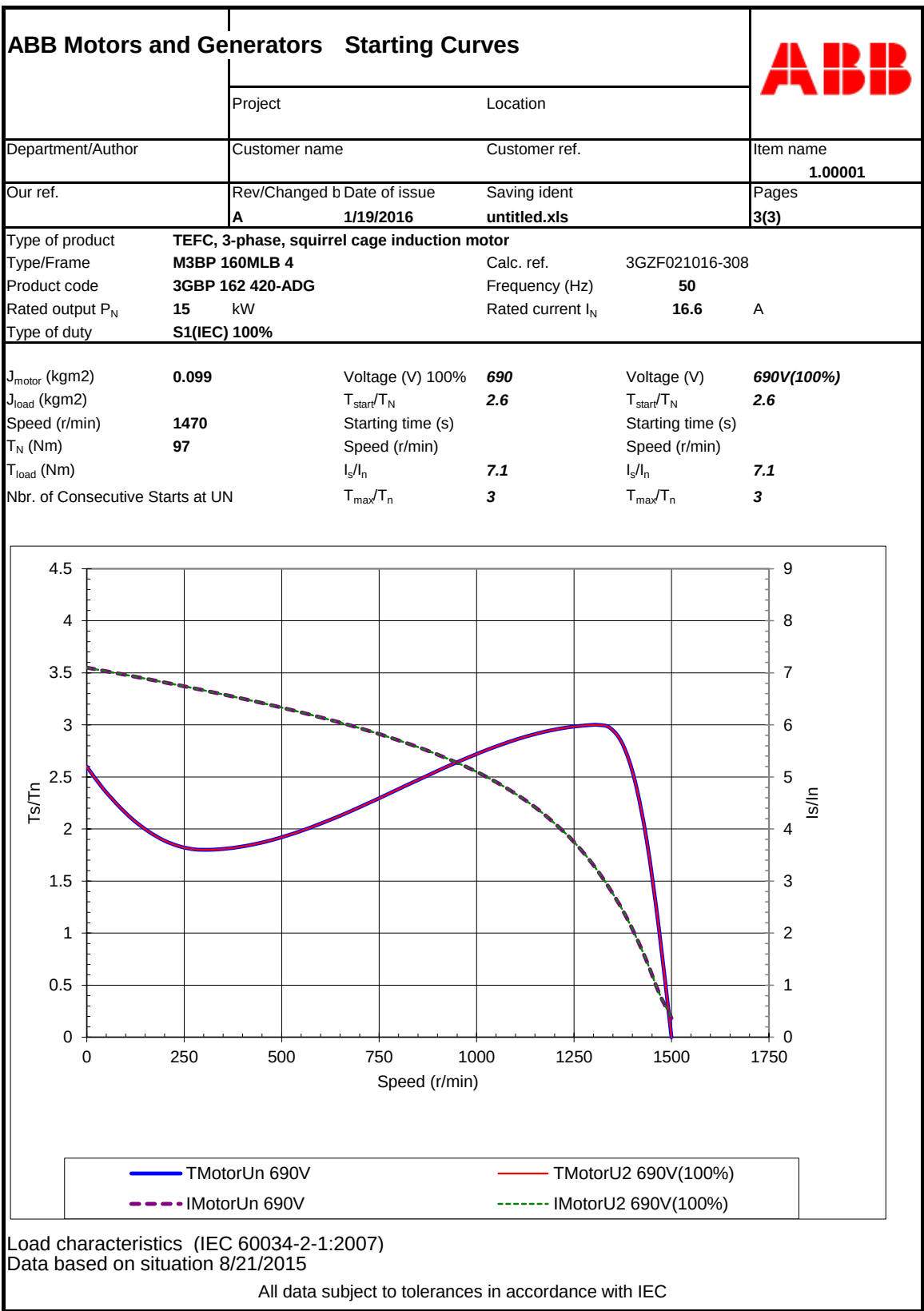


ABB Motors and Generators		Technical Data Sheet - DOL		
Project		Location		
Department/Author	Customer name	Customer ref.		Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 1/19/2016	Saving ident untitled.xls	Pages 1(3)
No.	Definition	Data	Unit	Remarks
1	Product	TEFC, 3-phase, squirrel cage induction motor		
2	Product code	MM16154-PPN (3GBP162420-ADG+332+333)		
3	Type/Frame	M3BP 160MLB 4		
4	Mounting	IM1001, B3(foot)		
5	Rated output P _N	15	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	1775	r/min	
11	Rated current I _N	24.7	A	
12	No-load current	9.6	A	
13	Starting current I _s /I _N	8		Fullfilled IEC 60034-12 design N,H
14	Nominal torque T _N	81	Nm	
15	Locked rotor torque T _s /T _N	2.7		
16	Maximum torque T _{max} /T _N	3.3		
17	Minimum torque T _{min} /T _N	1.9		
18	Speed at minimum torque	360	r/min	
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %
19	PLL determined from residual loss	100	24.7	92.2 / IE2
20		75	19.4	92.3
21		50	14.9	91.5
22		Start	198	0.43
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)	70	dB(A)	at load
33	Moment of inertia J = ¼ GD2	0.099	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	Total weight of motor	165	kg	
41	Dimension drawing no.			
42				
43				
44				
45				
Ex-motors				
46				
47				
48				
Option Variant Codes / Definition				
49	332 = Baldor Catalog number stamped on rating plate			
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Remarks:				
Data based on situation 8/21/2015				
All data subject to tolerances in accordance with IEC				
Guaranteed values on request				

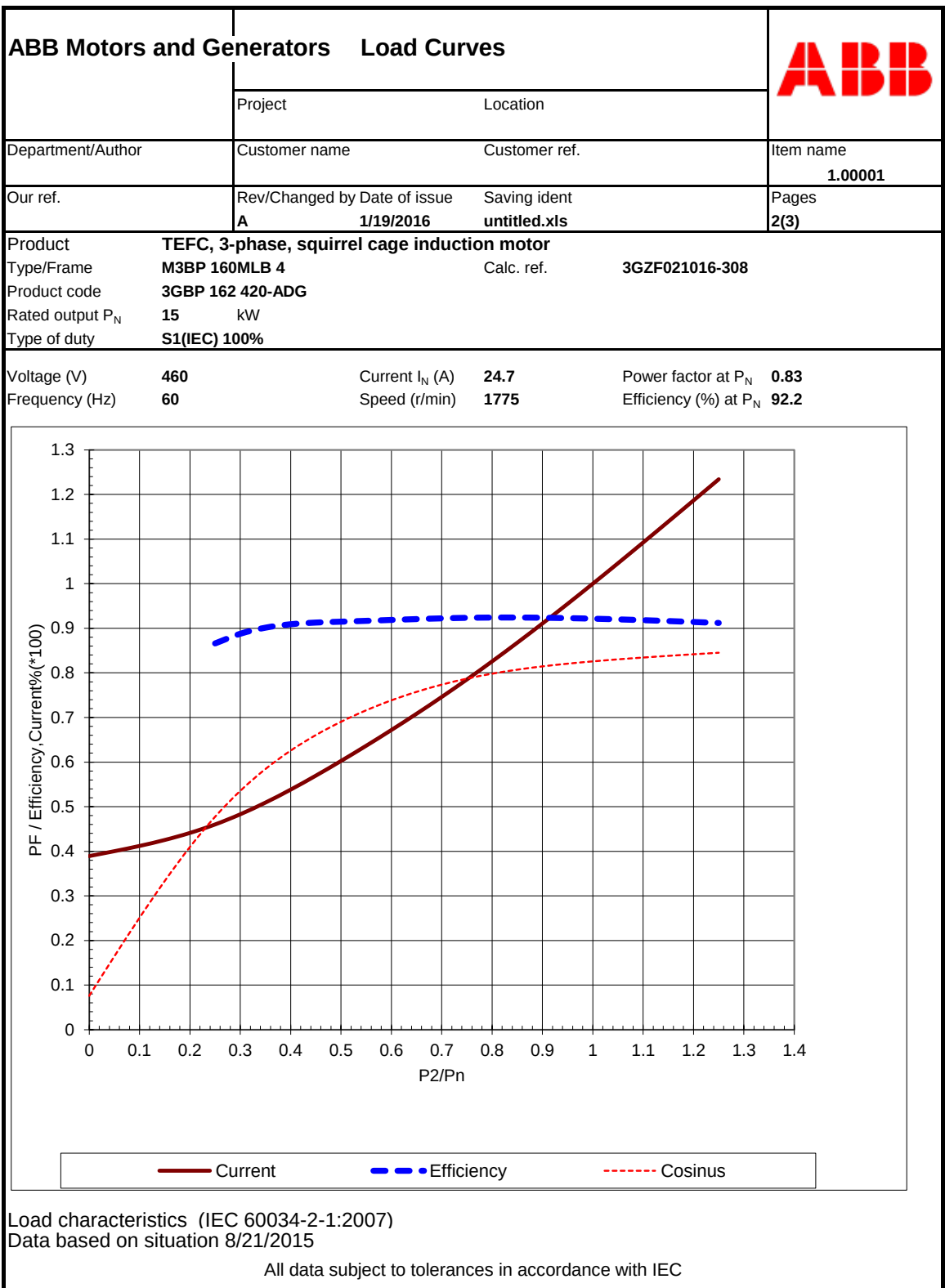


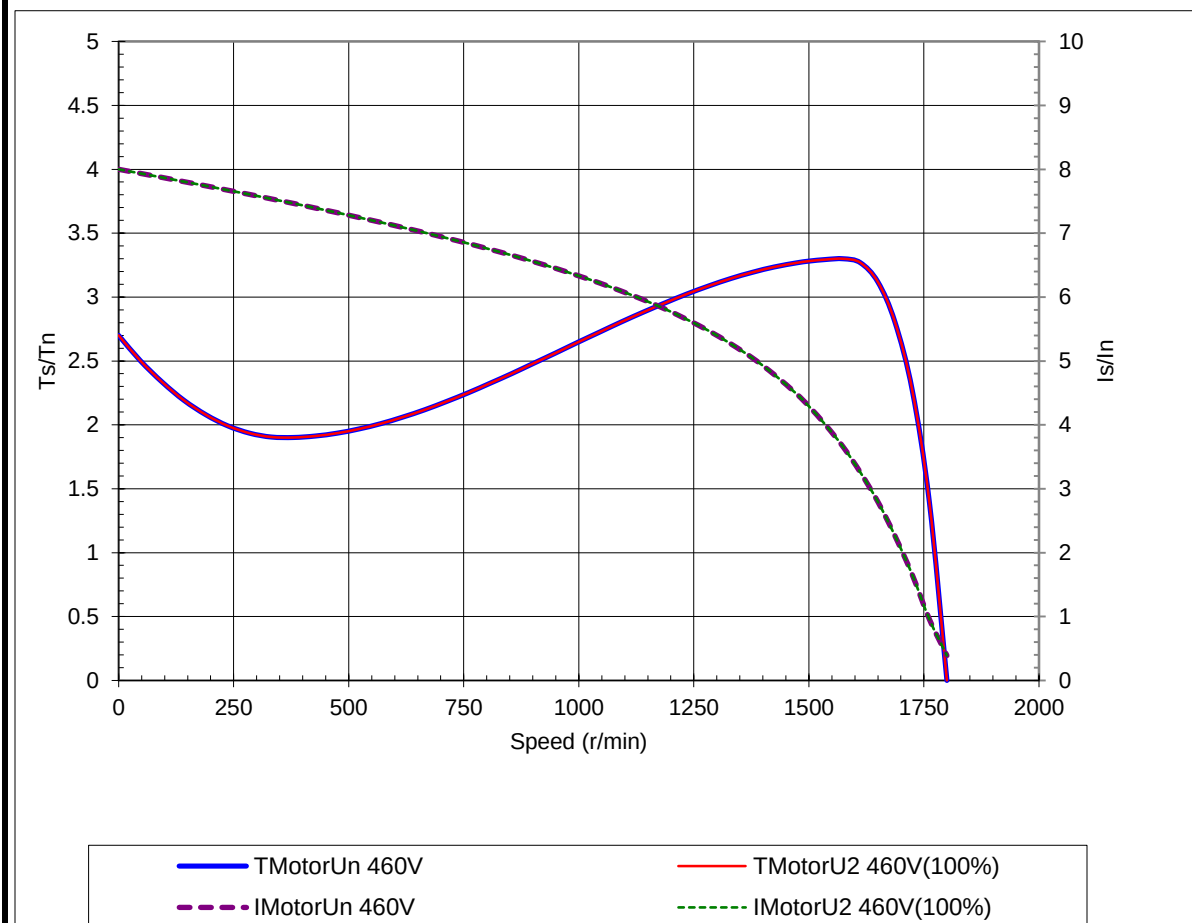
ABB Motors and Generators Starting Curves



	Project	Location	
Department/Author	Customer name	Customer ref.	Item name
			1.00001
Our ref.	Rev/Changed b Date of issue	Saving ident	Pages
	A 1/19/2016	untitled.xls	3(3)

Type of product	TEFC, 3-phase, squirrel cage induction motor		
Type/Frame	M3BP 160MLB 4	Calc. ref.	3GZF021016-308
Product code	3GBP 162 420-ADG	Frequency (Hz)	60
Rated output P_N	15 kW	Rated current I_N	24.7 A
Type of duty	S1(IEC) 100%		

J_{motor} (kgm ²)	0.099	Voltage (V) 100%	460	Voltage (V)	460V(100%)
J_{load} (kgm ²)		T_{start}/T_N	2.7	T_{start}/T_N	2.7
Speed (r/min)	1775	Starting time (s)		Starting time (s)	
T_N (Nm)	81	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_N	8	I_s/I_N	8
Nbr. of Consecutive Starts at UN		T_{max}/T_n	3.3	T_{max}/T_n	3.3



Load characteristics (IEC 60034-2-1:2007)
Data based on situation 8/21/2015

All data subject to tolerances in accordance with IEC