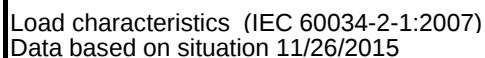


ABB Motors and Generators		Technical Data Sheet - DOL		
Project		Location		
Department/Author	Customer name	Customer ref.		Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls	Pages 1(3)
No.	Definition	Data	Unit	Remarks
1	Product	TEFC, 3-phase, squirrel cage induction motor		
2	Product code	EMM18224-PPN (3GBP182420-A) Calc. ref. 3GZF021018-181		
3	Type/Frame	M3BP 180MLB 4		
4	Mounting	IM1001, B3(foot)		
5	Rated output P_N	22	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	1480	r/min	
11	Rated current I_N	41.5	A	
12	No-load current	16.6	A	
13	Starting current I_s/I_N	8.2		Fullfilled IEC 60034-12 design N,H
14	Nominal torque T_N	142	Nm	
15	Locked rotor torque T_s/T_N	2.8		
16	Maximum torque T_{max}/T_N	3.1		
17	Minimum torque T_{min}/T_N	2.1		
18	Speed at minimum torque	300	r/min	
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %
19	PLL determined from residual loss	100	41.5	93.3 / IE3
20		75	32.5	94.1
21		50	24.5	94.1
22		Start	340	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	6310/C3 - 6209/C3		
31	Type of Grease			
32	Sound pressure level (LP dB(A) 1m)	62	dB(A)	at load
33	Moment of inertia $J = \frac{1}{4} GD^2$	0.217	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	61	kg	
41	Total weight of motor	229	kg	
42	Dimension drawing no.			
43				
44				
45				
Ex-motors				
46				
47				
48				
Option Variant Codes / Definition				
49	+011 Fulfilling CSA Energy Efficiency Verification IE3 (code 010 included).			
50	+332 Baldor Catalogue #			
51	+509 Fulfilling EISA Subtype I efficiency requirements, CC031A			
52				
Remarks:				
Data based on situation 11/26/2015				
All data subject to tolerances in accordance with IEC				
Guaranteed values on request				

ABID

Voltage (V)	400	Current I_N (A)	41.5	Power factor at P_N	0.82
Frequency (Hz)	50	Speed (r/min)	1480	Efficiency (%) at P_N	93.3



All data subject to tolerances in accordance with IEC

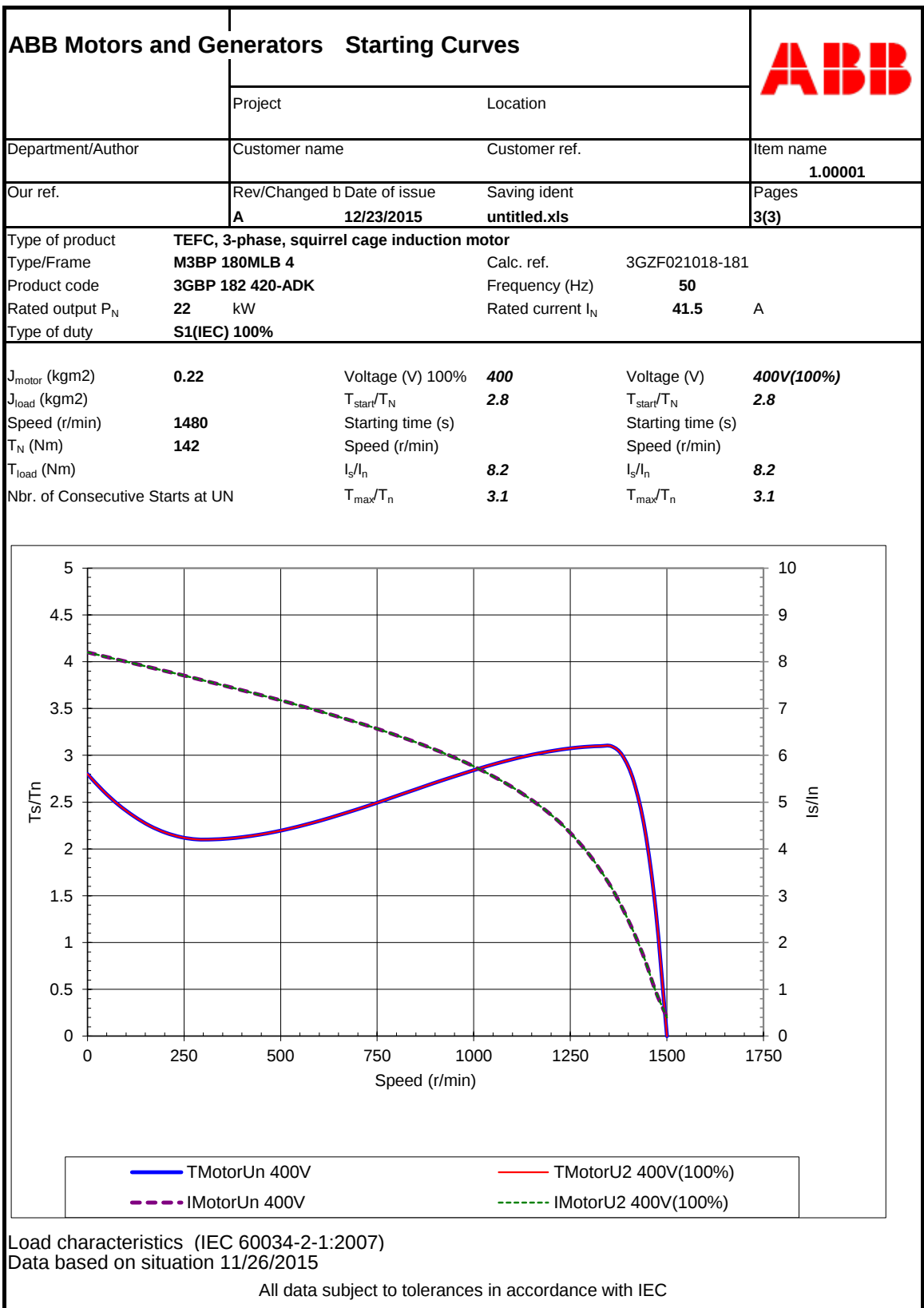
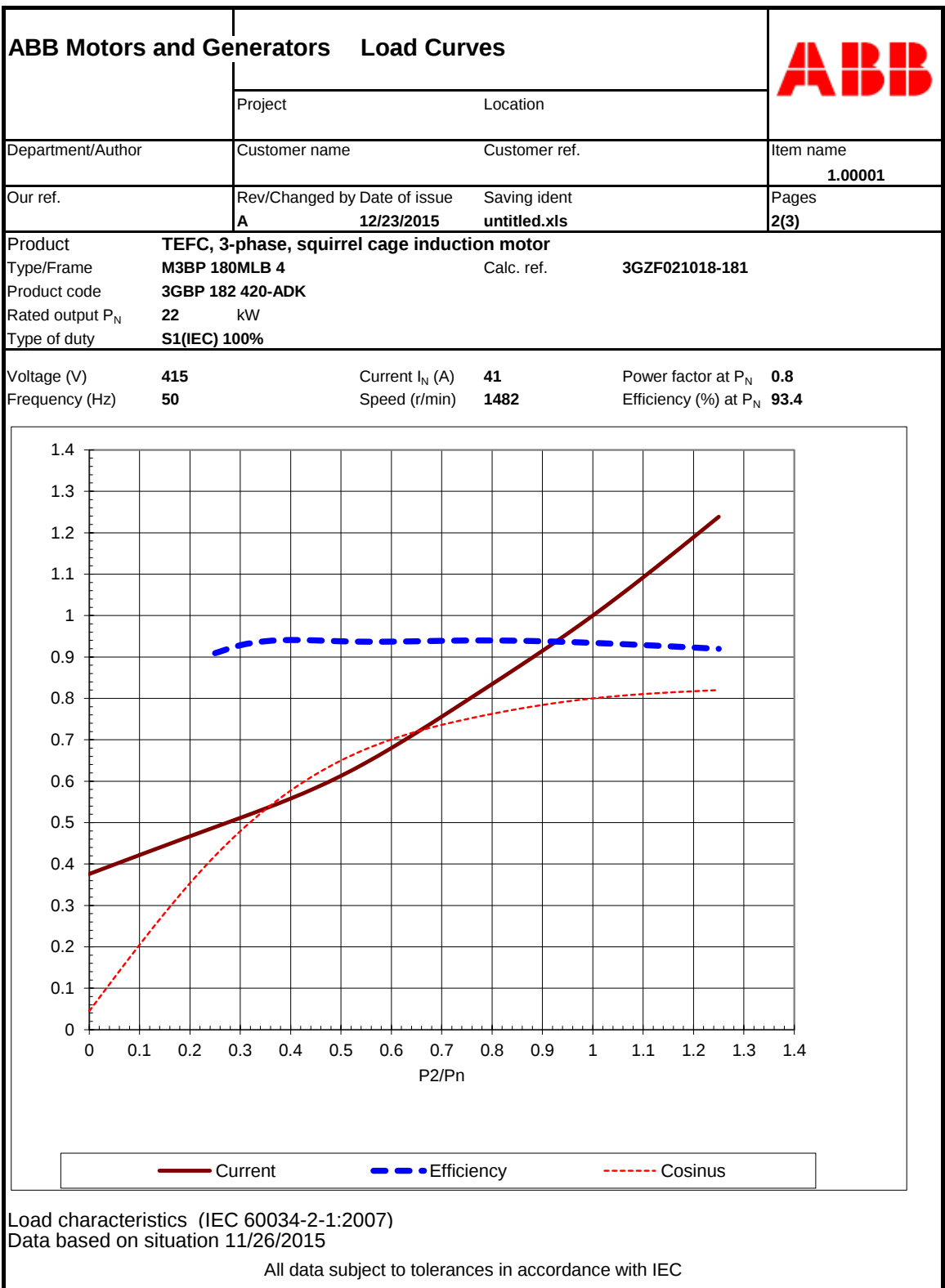


ABB Motors and Generators		Technical Data Sheet - DOL		
Project		Location		
Department/Author		Customer name		Customer ref.
Our ref.		Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls
				Item name 1.00001
				Pages 1(3)
No.	Definition	Data	Unit	Remarks
1	Product	TEFC, 3-phase, squirrel cage induction motor		
2	Product code	EMM18224-PPN (3GBP182420-A) Calc. ref. 3GZF021018-181		
3	Type/Frame	M3BP 180MLB 4		
4	Mounting	IM1001, B3(foot)		
5	Rated output P _N	22	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	1482	r/min	
11	Rated current I _N	41	A	
12	No-load current	15.4	A	
13	Starting current I _s /I _N	8.6		Fullfilled IEC 60034-12 design N,H
14	Nominal torque T _N	142	Nm	
15	Locked rotor torque T _s /T _N	3		
16	Maximum torque T _{max} /T _N	3.3		
17	Minimum torque T _{min} /T _N	2.1		
18	Speed at minimum torque	300	r/min	
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %
19	PLL determined from residual loss	100	41	93.4 / IE3
20		75	32.6	94
21		50	25.1	93.8
22		Start	352	0.49
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	6310/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	0.217	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	61	kg	
41	Total weight of motor	229	kg	
42	Dimension drawing no.			
43				
44				
45				
Ex-motors				
46				
47				
48				
Option Variant Codes / Definition				
49	+011 Fulfilling CSA Energy Efficiency Verification IE3 (code 010 included).			
50	+332 Baldor Catalogue #			
51	+509 Fulfilling EISA Subtype I efficiency requirements, CC031A			
52				
Remarks:				
Data based on situation 11/26/2015				
All data subject to tolerances in accordance with IEC				
Guaranteed values on request				



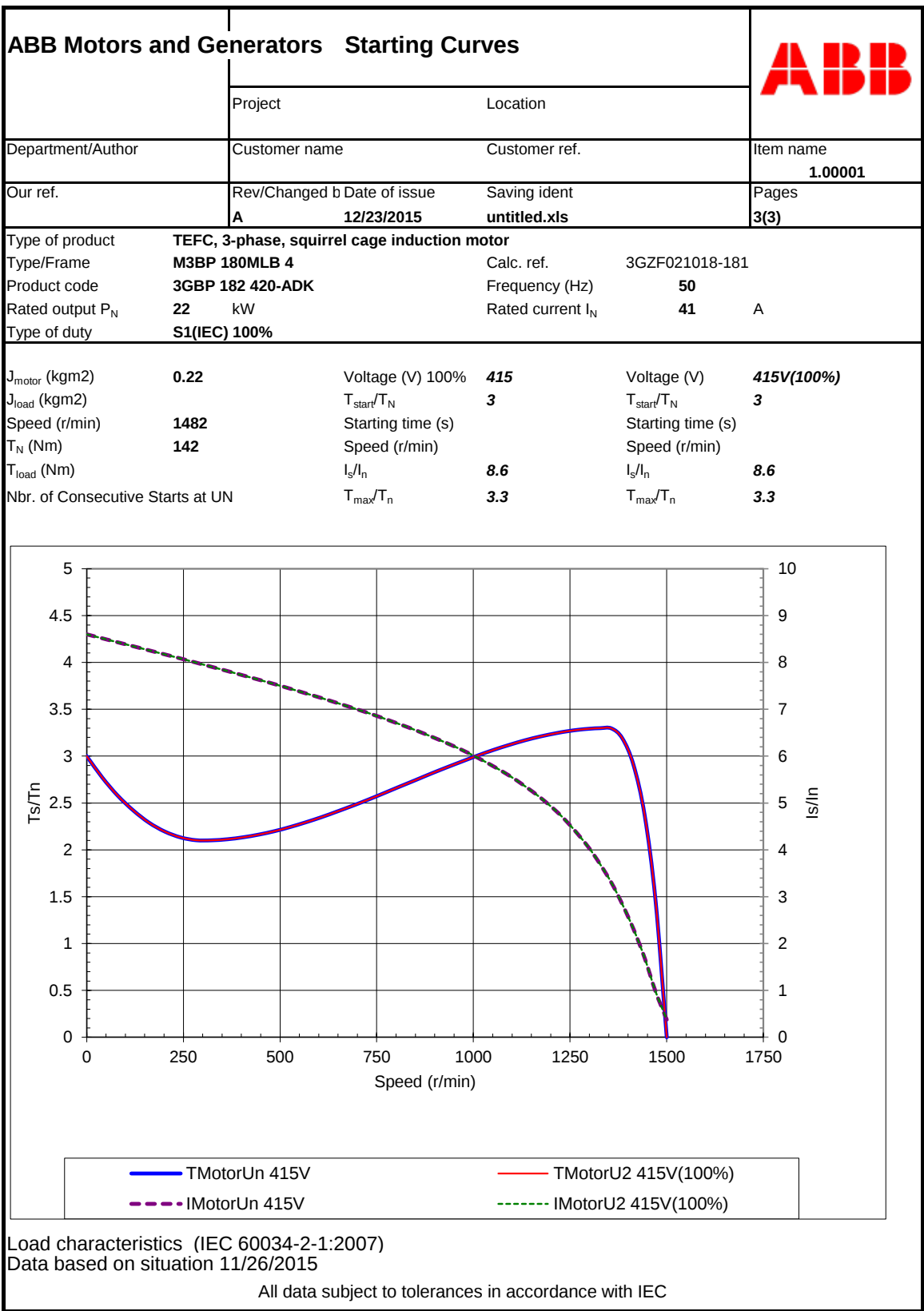
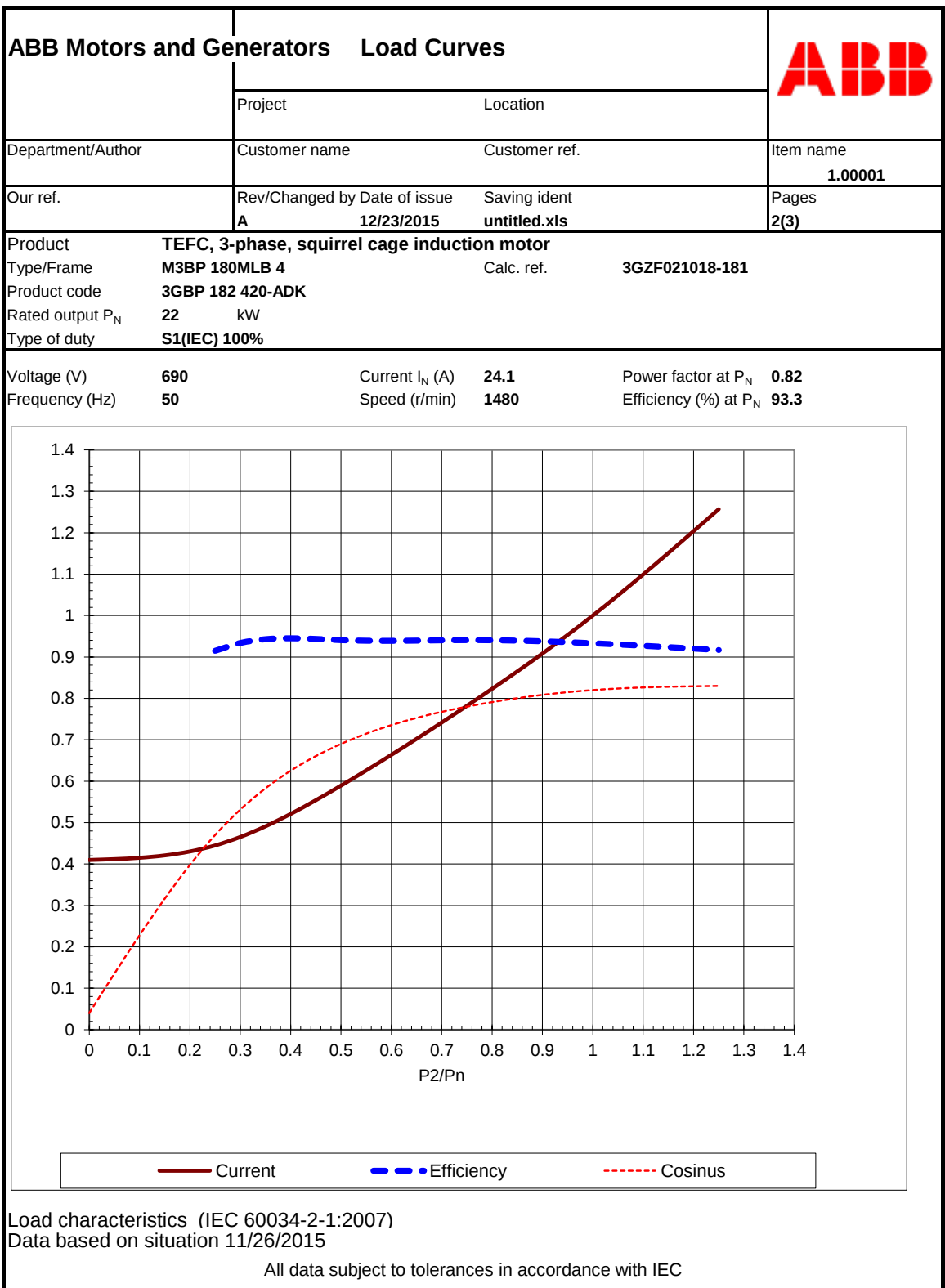


ABB Motors and Generators		Technical Data Sheet - DOL		
Project		Location		
Department/Author	Customer name	Customer ref.		Item name 1.00001
Our ref.	Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls	Pages 1(3)
No.	Definition	Data	Unit	Remarks
1	Product	TEFC, 3-phase, squirrel cage induction motor		
2	Product code	EMM18224-PPN (3GBP182420-A) Calc. ref. 3GZF021018-181		
3	Type/Frame	M3BP 180MLB 4		
4	Mounting	IM1001, B3(foot)		
5	Rated output P_N	22	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	1480	r/min	
11	Rated current I_N	24.1	A	
12	No-load current	9.9	A	
13	Starting current I_s/I_N	8.2		Fullfilled IEC 60034-12 design N,H
14	Nominal torque T_N	142	Nm	
15	Locked rotor torque T_s/T_N	2.8		
16	Maximum torque T_{max}/T_N	3.1		
17	Minimum torque T_{min}/T_N	2.1		
18	Speed at minimum torque	300	r/min	
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %
19	PLL determined from residual loss	100	24.1	93.3 / IE3
20		75	18.8	94.1
21		50	14.2	94.1
22		Start	197	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	6310/C3 - 6209/C3		
31	Type of Grease			
32	Sound pressure level (LP dB(A) 1m)	62	dB(A)	at load
33	Moment of inertia $J = \frac{1}{4} GD^2$	0.217	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	61	kg	
41	Total weight of motor	229	kg	
42	Dimension drawing no.			
43				
44				
45				
Ex-motors				
46				
47				
48				
Option Variant Codes / Definition				
49	+011 Fulfilling CSA Energy Efficiency Verification IE3 (code 010 included).			
50	+332 Baldor Catalogue #			
51	+509 Fulfilling EISA Subtype I efficiency requirements, CC031A			
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Remarks:				
Data based on situation 11/26/2015				
All data subject to tolerances in accordance with IEC				
Guaranteed values on request				



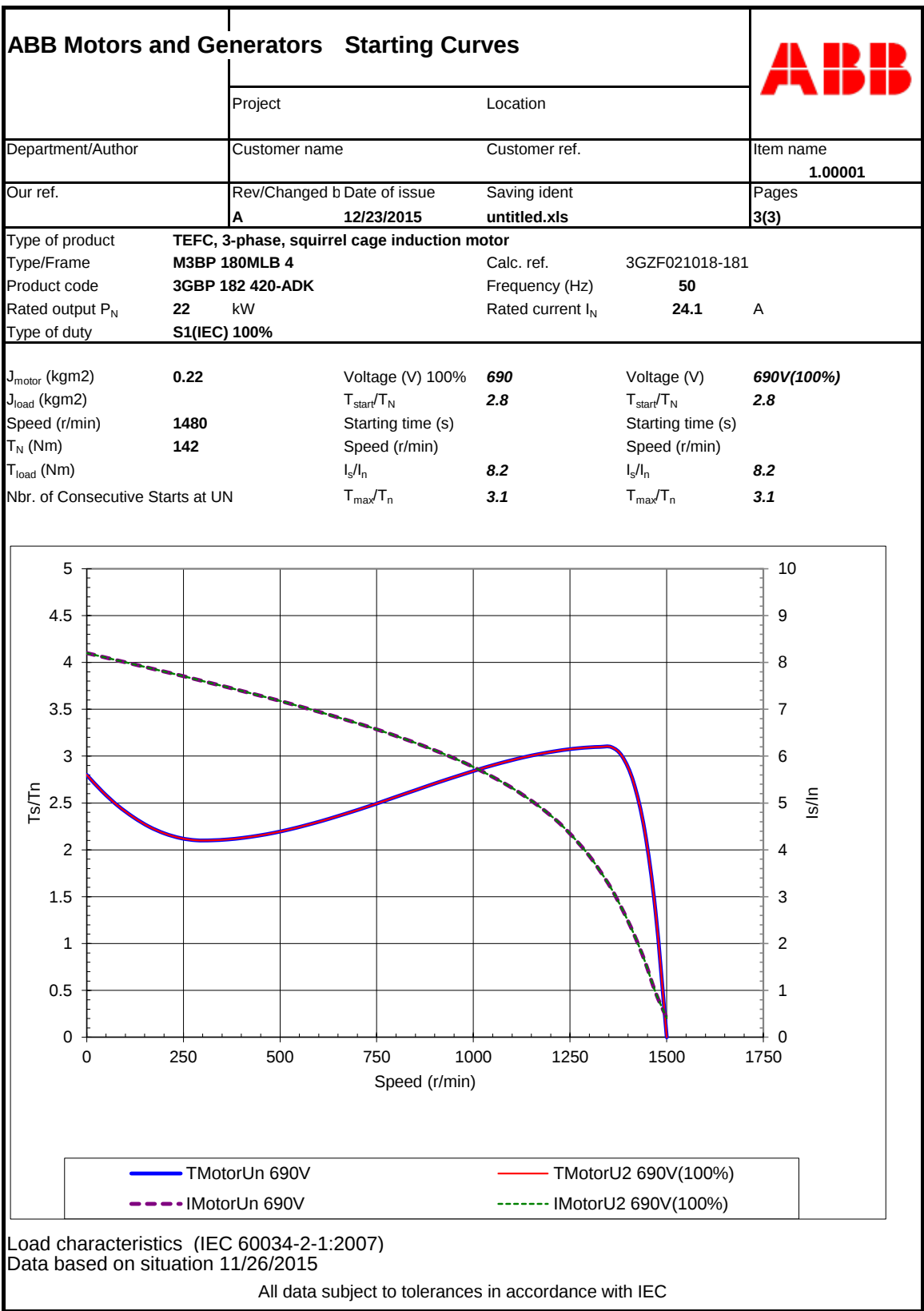


ABB Motors and Generators		Technical Data Sheet - DOL		
Project		Location		
Department/Author		Customer name		Customer ref.
Our ref.		Rev/Changed by A	Date of issue 12/23/2015	Saving ident untitled.xls
				Item name 1.00001
				Pages 1(3)
No.	Definition	Data	Unit	Remarks
1	Product	TEFC, 3-phase, squirrel cage induction motor		
2	Product code	EMM18224-PPN (3GBP182420-A) Calc. ref. 3GZF021018-181		
3	Type/Frame	M3BP 180MLB 4		
4	Mounting	IM1001, B3(foot)		
5	Rated output P _N	22	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	1783	r/min	
11	Rated current I _N	35.9	A	
12	No-load current	13	A	
13	Starting current I _s /I _N	9.3		Not within IEC 60034-12 design N,H
14	Nominal torque T _N	118	Nm	
15	Locked rotor torque T _s /T _N	3		
16	Maximum torque T _{max} /T _N	3.4		
17	Minimum torque T _{min} /T _N	2.3		
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	35.9	93.8 / IE3
20		75	28.2	94.2
21		50	21.7	93.7
22		Start	334	0.45
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	6310/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	0.217	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	61	kg	
41	Total weight of motor	229	kg	
42	Dimension drawing no.			
43				
44				
45				
Ex-motors				
46				
47				
48				
Option Variant Codes / Definition				
49	+011 Fulfilling CSA Energy Efficiency Verification IE3 (code 010 included).			
50	+332 Baldor Catalogue #			
51	+509 Fulfilling EISA Subtype I efficiency requirements, CC031A			
52				
Remarks:				
Data based on situation 11/26/2015				
All data subject to tolerances in accordance with IEC				
Guaranteed values on request				

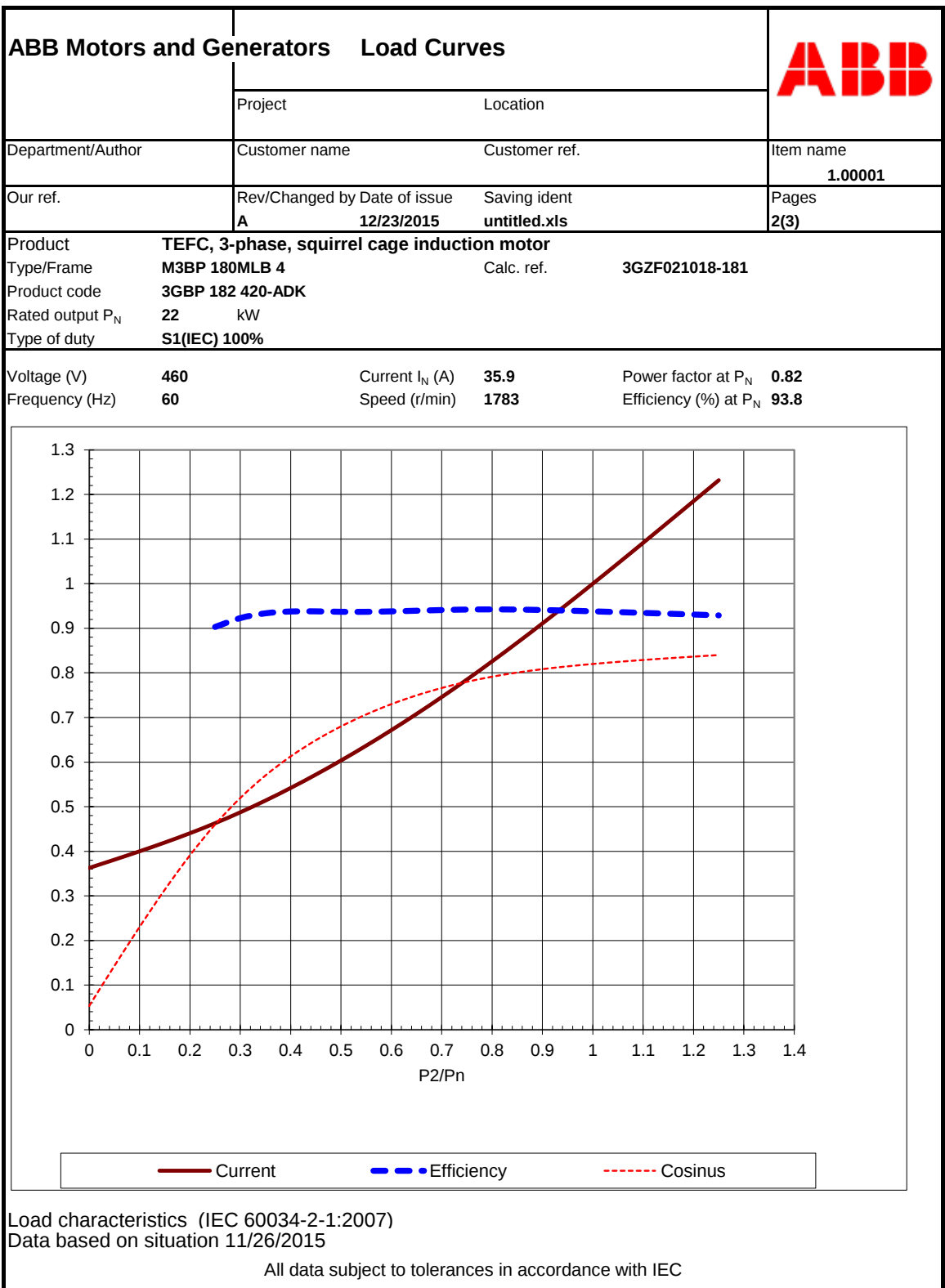


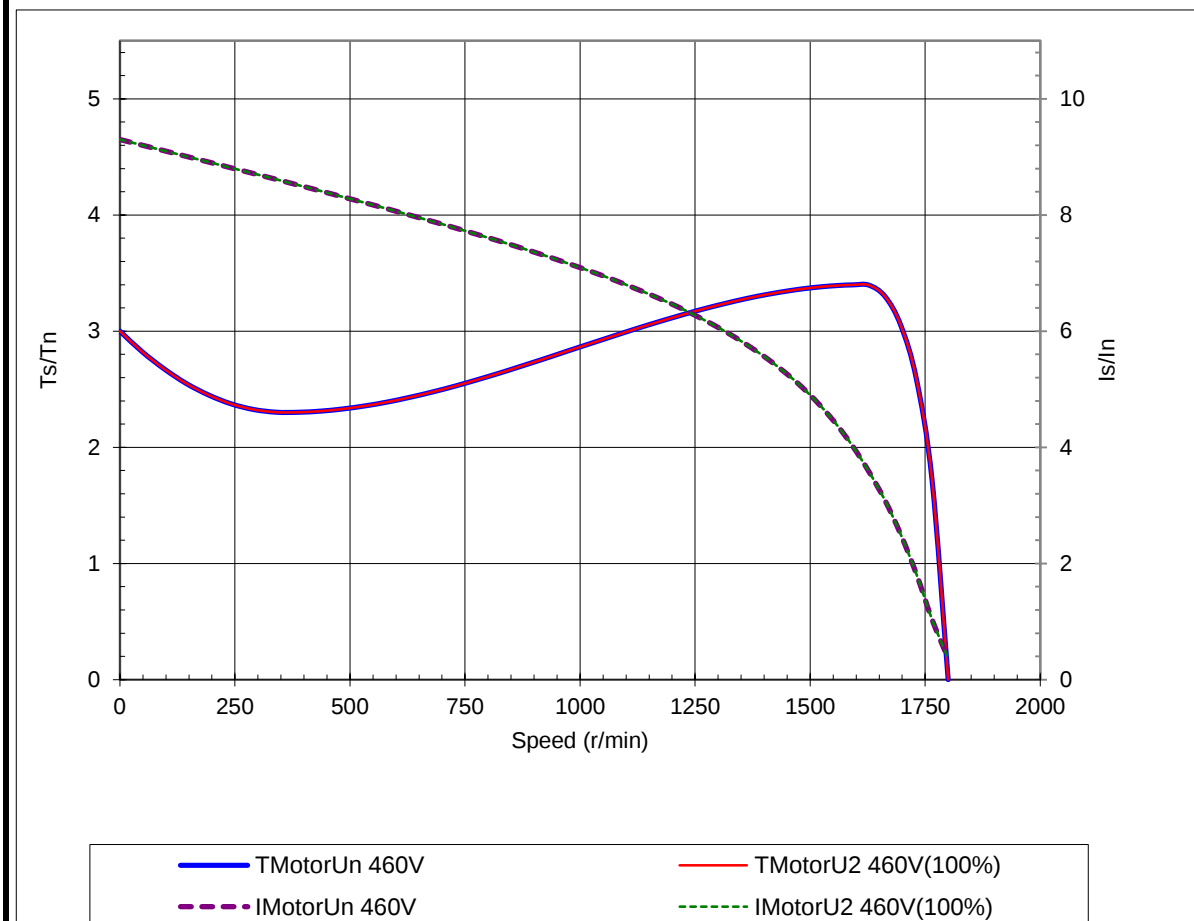
ABB Motors and Generators Starting Curves



	Project	Location	
Department/Author	Customer name	Customer ref.	Item name
			1.00001
Our ref.	Rev/Changed b Date of issue	Saving ident	Pages
	A 12/23/2015	untitled.xls	3(3)

Type of product	TEFC, 3-phase, squirrel cage induction motor		
Type/Frame	M3BP 180MLB 4	Calc. ref.	3GZF021018-181
Product code	3GBP 182 420-ADK	Frequency (Hz)	60
Rated output P_N	22 kW	Rated current I_N	35.9 A
Type of duty	S1(IEC) 100%		

J_{motor} (kgm ²)	0.22	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)	1783	Starting time (s)		Starting time (s)	
T_N (Nm)	118	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_N	9.3	I_s/I_N	9.3
Nbr. of Consecutive Starts at UN		T_{max}/T_N	3.4	T_{max}/T_N	3.4



Load characteristics (IEC 60034-2-1:2007)
Data based on situation 11/26/2015

All data subject to tolerances in accordance with IEC