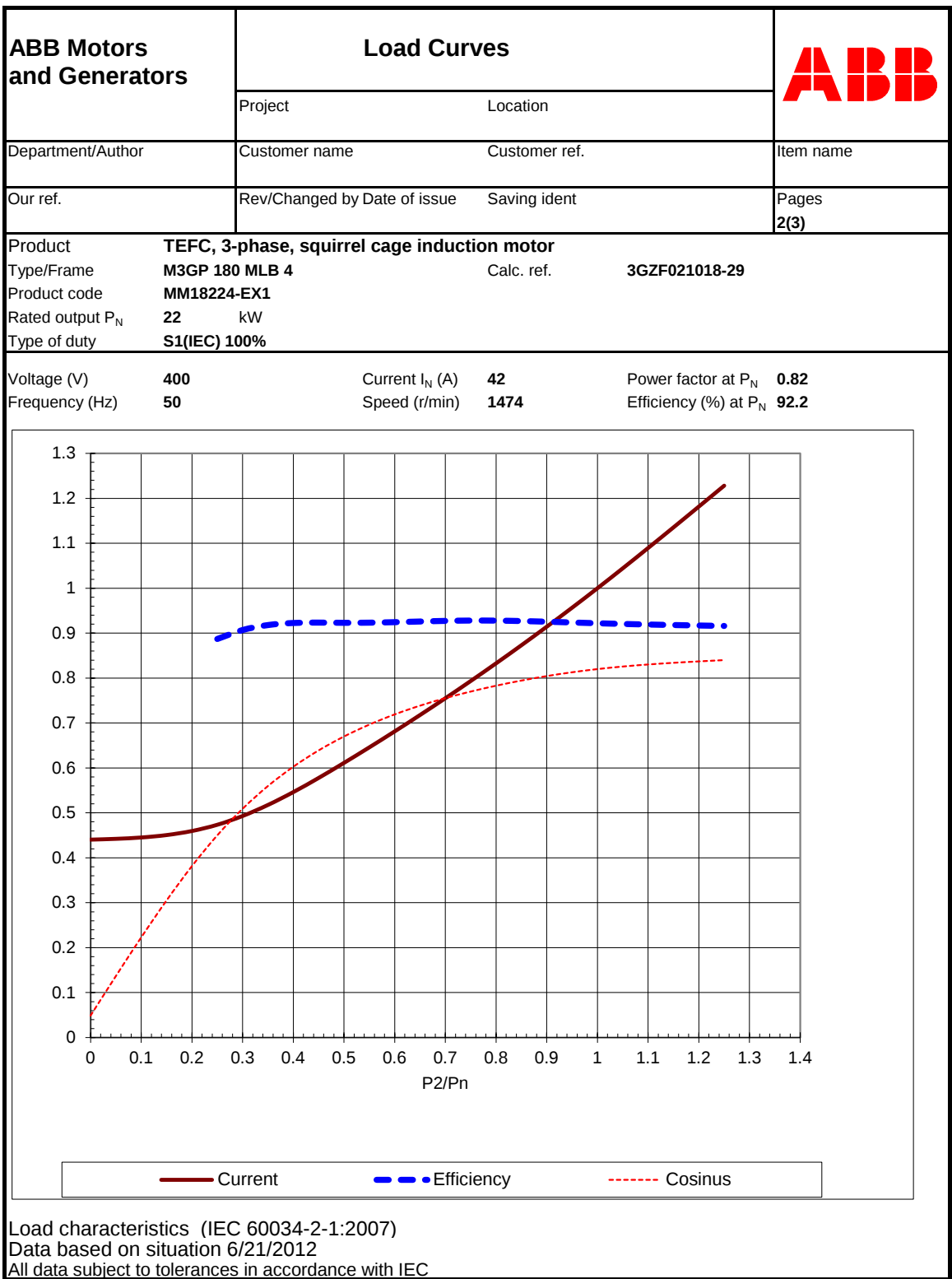


ABB Motors and Generators		Technical Data Sheet - DOL			
		Project		Location	
Department/Author		Customer name		Customer ref.	Item name
Our ref.		Rev/Changed by	Date of issue	Saving ident	Pages 1(3)

No.	Definition	Data	Unit	Remarks
1	Product	TEFC, 3-phase, squirrel cage induction motor		
2	Product code	MM18224-EX1 (3GGP182420-ADH+332)		
3	Type/Frame	M3GP 180 MLB 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	1474	r/min	
11	Rated current I _N	42	A	
12	No-load current	18.5	A	
13	Starting current I _s /I _N	7.9		Fullfilled IEC 60034-12 design N,H
14	Nominal torque T _N	143	Nm	
15	Locked rotor torque T _s /T _N	2.9		
16	Maximum torque T _{max} /T _N	3.4		
17	Minimum torque T _{min} /T _N	2.5		
18	Speed at minimum torque	225	r/min	
19	Load characteristics (IEC 60034-2-1:2007)	Load %	Current A	Efficiency % Power factor
20	PLL determined from residual loss	100	42	92.2 / IE2 0.82
21		75	33.3	92.8 0.77
22		50	25.6	92.3 0.67
23		Start	331	0.5
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	6310/C3 - 6310/C3		
32	Type of Grease	Lithium based		
33	Sound pressure level (LP dB(A) 1m)	62	dB(A)	at load
34	Moment of inertia J = ¼ GD2	0.23	kg-m2	
35	Balancing	Half Key		
36	Vibration class	Grade A		
37	Position of terminal box	Top		
38	Terminal box entries; no, dims.	2xM40x1.5 + 2xM20x1.5		
39	Number of power terminals	6		
40	Direction of rotation	CW or CCW		
41	Weight of rotor	60	kg	
42	Total weight of motor	290	kg	
43				
Ex-motors				
44	Type of protection	*Ex nA II T3		
45				
Variant Codes / Definition				
	332 = Baldor catalog number			
Remarks:				
Data based on situation 6/21/2012				
All data subject to tolerances in accordance with IEC				
Guaranteed values on request				
* For more information on the Atex/IECEx rating, please contact your local Baldor representative.				



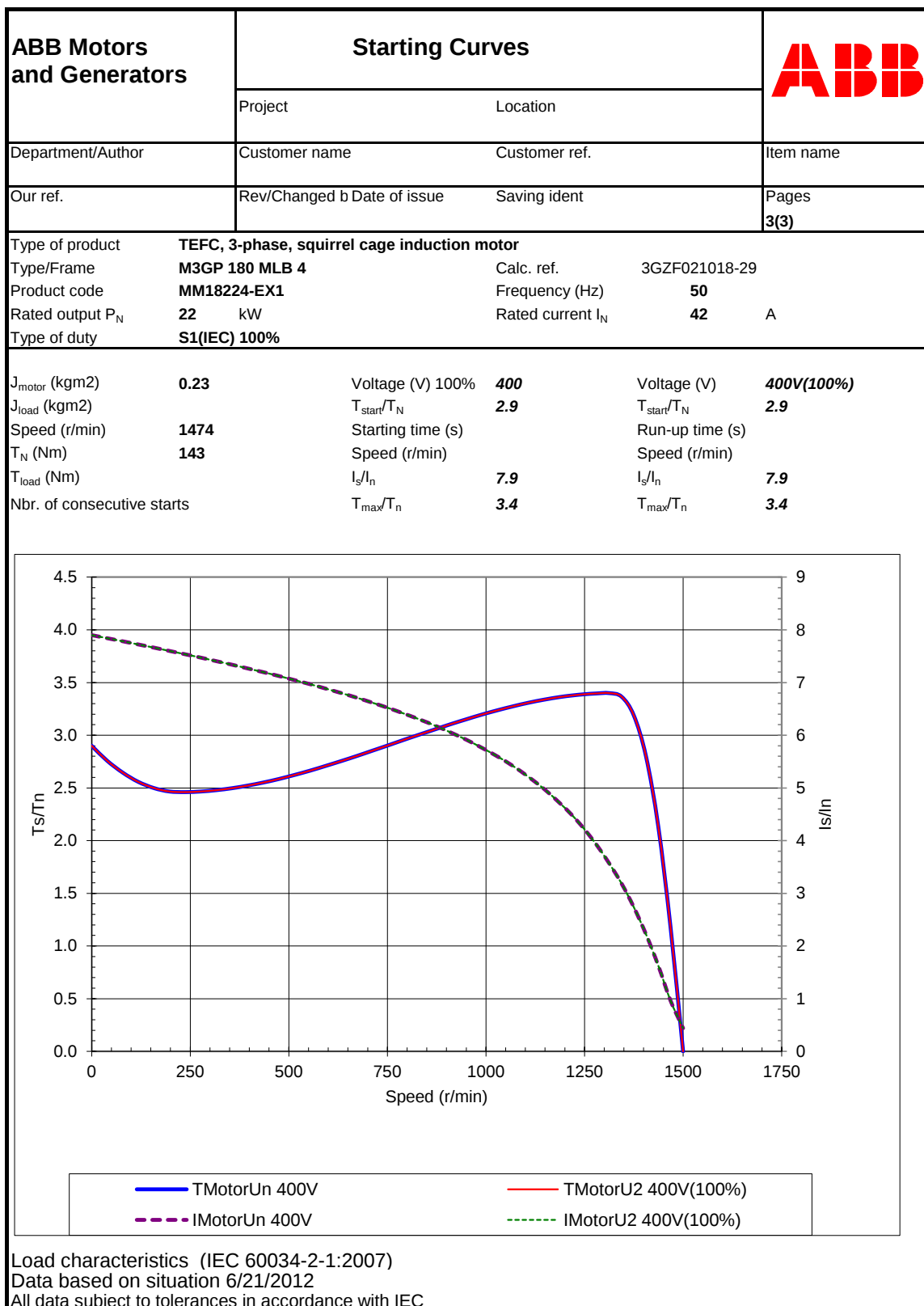
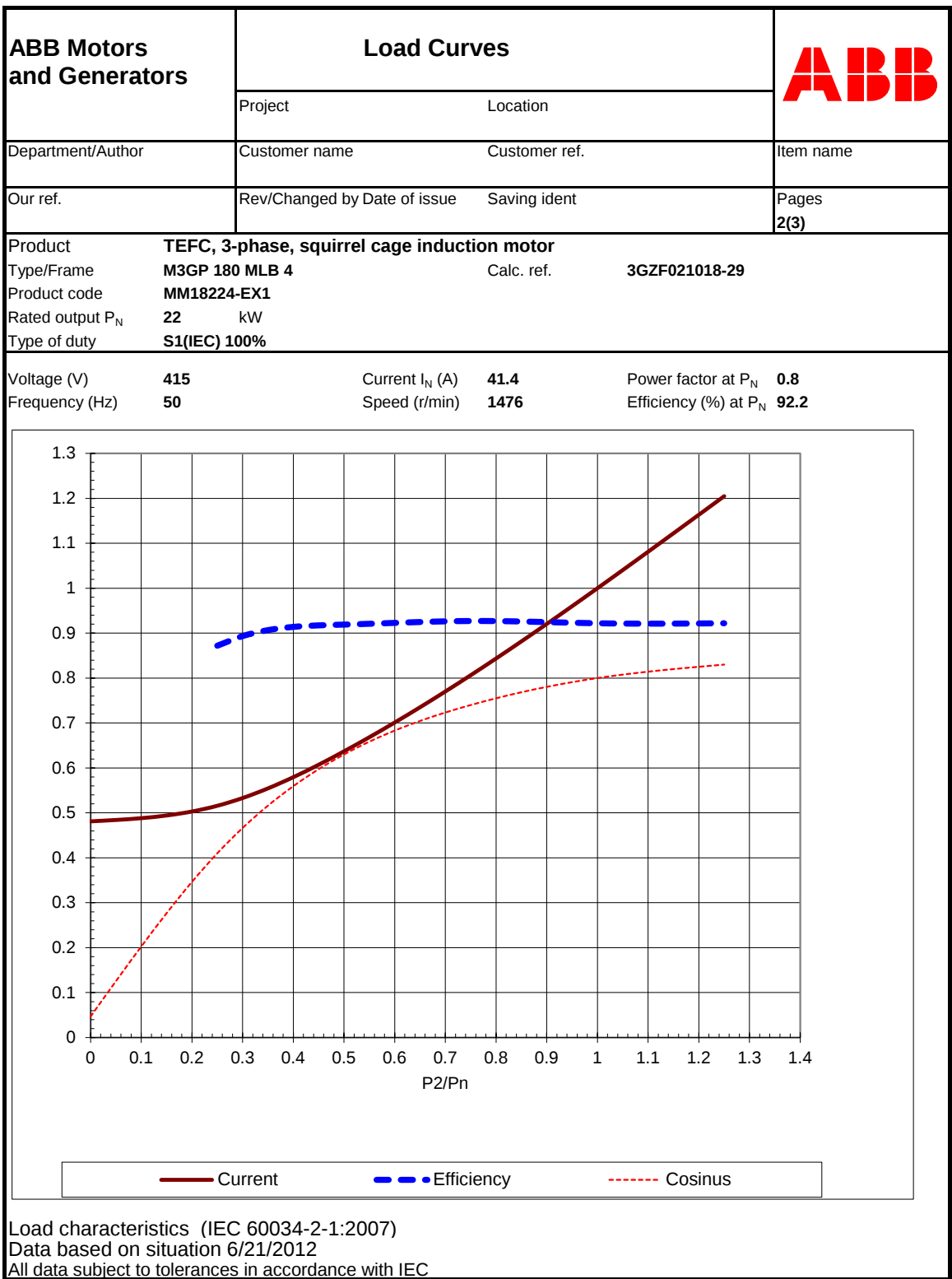


ABB Motors and Generators		Technical Data Sheet - DOL				
		Project		Location		
Department/Author		Customer name		Customer ref.		Item name
Our ref.		Rev/Changed by	Date of issue	Saving ident		Pages 1(3)

No.	Definition	Data	Unit	Remarks		
1	Product	TEFC, 3-phase, squirrel cage induction motor				
2	Product code	MM18224-EX1 (3GGP182420-ADH+332)				
3	Type/Frame	M3GP 180 MLB 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	1476	r/min			
11	Rated current I _N	41.4	A			
12	No-load current	20	A			
13	Starting current I _s /I _N	8.4		Fullfilled IEC 60034-12 design N,H		
14	Nominal torque T _N	142	Nm			
15	Locked rotor torque T _S /T _N	3.2				
16	Maximum torque T _{max} /T _N	3.7				
17	Minimum torque T _{min} /T _N	2.6				
18	Speed at minimum torque	225	r/min			
19	Load characteristics (IEC 60034-2-1:2007)	Load %	Current A	Efficiency %	Power factor	
20	PLL determined from residual loss	100	41.4	92.2 / IE2	0.8	
21		75	33.4	92.7	0.74	
22		50	26.4	91.9	0.63	
23		Start	348		0.51	
24	Maximum starting time from hot	15	s			
25	Maximum starting time from cold	30	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	6310/C3 - 6310/C3				
32	Type of Grease	Lithium based				
33	Sound pressure level (LP dB(A) 1m)	62	dB(A)	at load		
34	Moment of inertia J = ¼ GD2	0.23	kg-m2			
35	Balancing	Half Key				
36	Vibration class	Grade A				
37	Position of terminal box	Top				
38	Terminal box entries; no, dims.	2xM40x1.5 + 2xM20x1.5				
39	Number of power terminals	6				
40	Direction of rotation	CW or CCW				
41	Weight of rotor	60	kg			
42	Total weight of motor	290	kg			
43						
Ex-motors						
44	Type of protection	*Ex nA II T3				
45						
Variant Codes / Definition						
	332 = Baldor catalog number					
Remarks:						
Data based on situation 6/21/2012						
All data subject to tolerances in accordance with IEC						
Guaranteed values on request						
* For more information on the Atex/IECEx rating, please contact your local Baldor representative.						



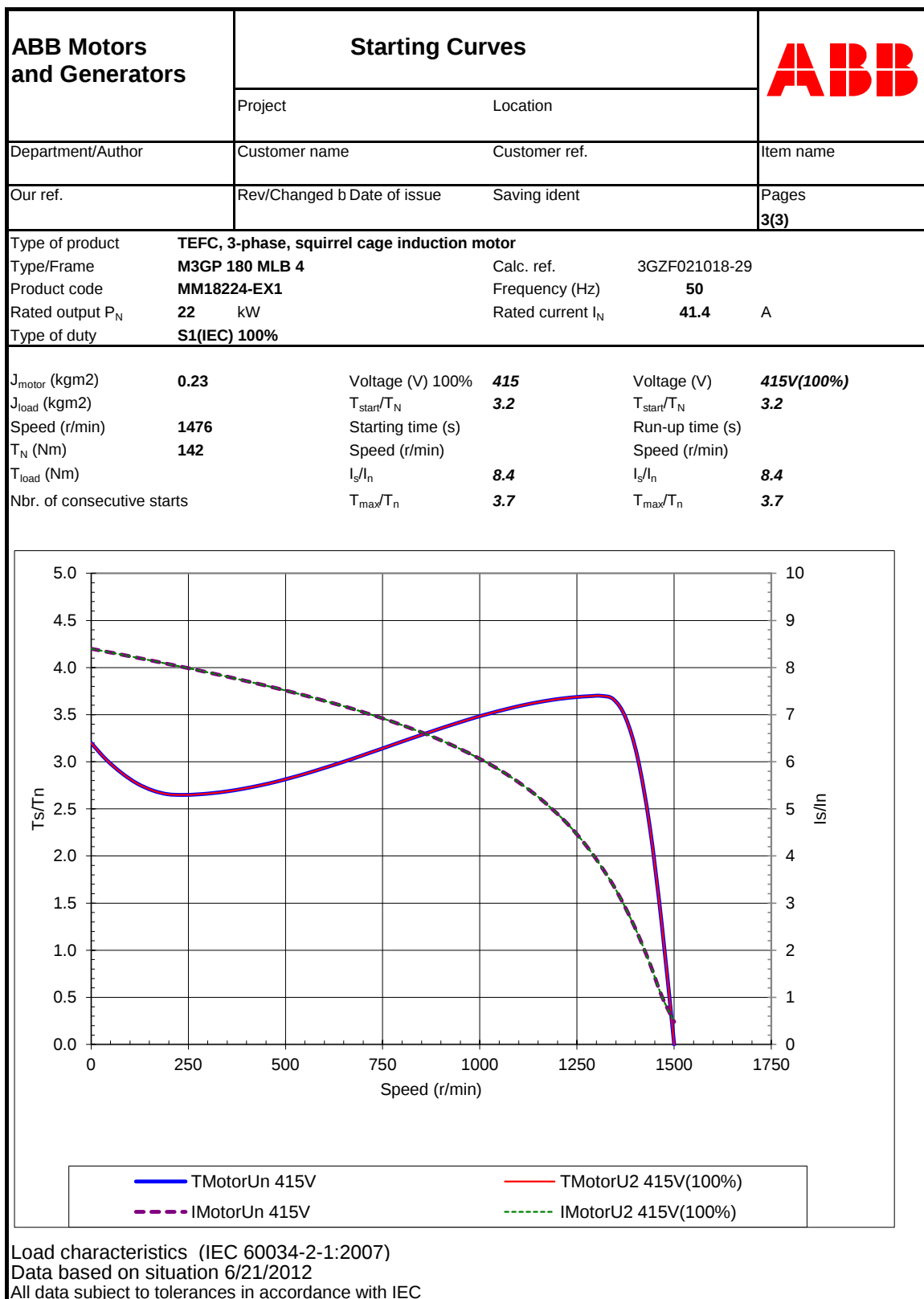


ABB Motors and Generators		Technical Data Sheet - DOL			
		Project		Location	
Department/Author		Customer name		Customer ref.	Item name
Our ref.		Rev/Changed by	Date of issue	Saving ident	Pages 1(3)

No.	Definition	Data	Unit	Remarks
1	Product	TEFC, 3-phase, squirrel cage induction motor		
2	Product code	MM18224-EX1 (3GGP182420-ADH+332)		
3	Type/Frame	M3GP 180 MLB 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	1474	r/min	
11	Rated current I _N	24.3	A	
12	No-load current	10.7	A	
13	Starting current I _s /I _N	7.9		Fullfilled IEC 60034-12 design N,H
14	Nominal torque T _N	143	Nm	
15	Locked rotor torque T _S /T _N	2.9		
16	Maximum torque T _{max} /T _N	3.4		
17	Minimum torque T _{min} /T _N	2.5		
18	Speed at minimum torque	225	r/min	
19	Load characteristics (IEC 60034-2-1:2007)	Load %	Current A	Efficiency %
20	PLL determined from residual loss	100	24.3	92.2 / IE2
21		75	19.3	92.8
22		50	14.8	92.3
23		Start	192	0.5
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	6310/C3 - 6310/C3		
32	Type of Grease	Lithium based		
33	Sound pressure level (LP dB(A) 1m)	62	dB(A)	at load
34	Moment of inertia J = ¼ GD2	0.23	kg-m2	
35	Balancing	Half Key		
36	Vibration class	Grade A		
37	Position of terminal box	Top		
38	Terminal box entries; no, dims.	2xM40x1.5 + 2xM20x1.5		
39	Number of power terminals	6		
40	Direction of rotation	CW or CCW		
41	Weight of rotor	60	kg	
42	Total weight of motor	290	kg	
43				
Ex-motors				
44	Type of protection	*Ex nA II T3		
45				
Variant Codes / Definition				
	332 = Baldor catalog number			
Remarks:				
Data based on situation 6/21/2012				
All data subject to tolerances in accordance with IEC				
Guaranteed values on request				
* For more information on the Atex/IECEx rating, please contact your local Baldor representative.				

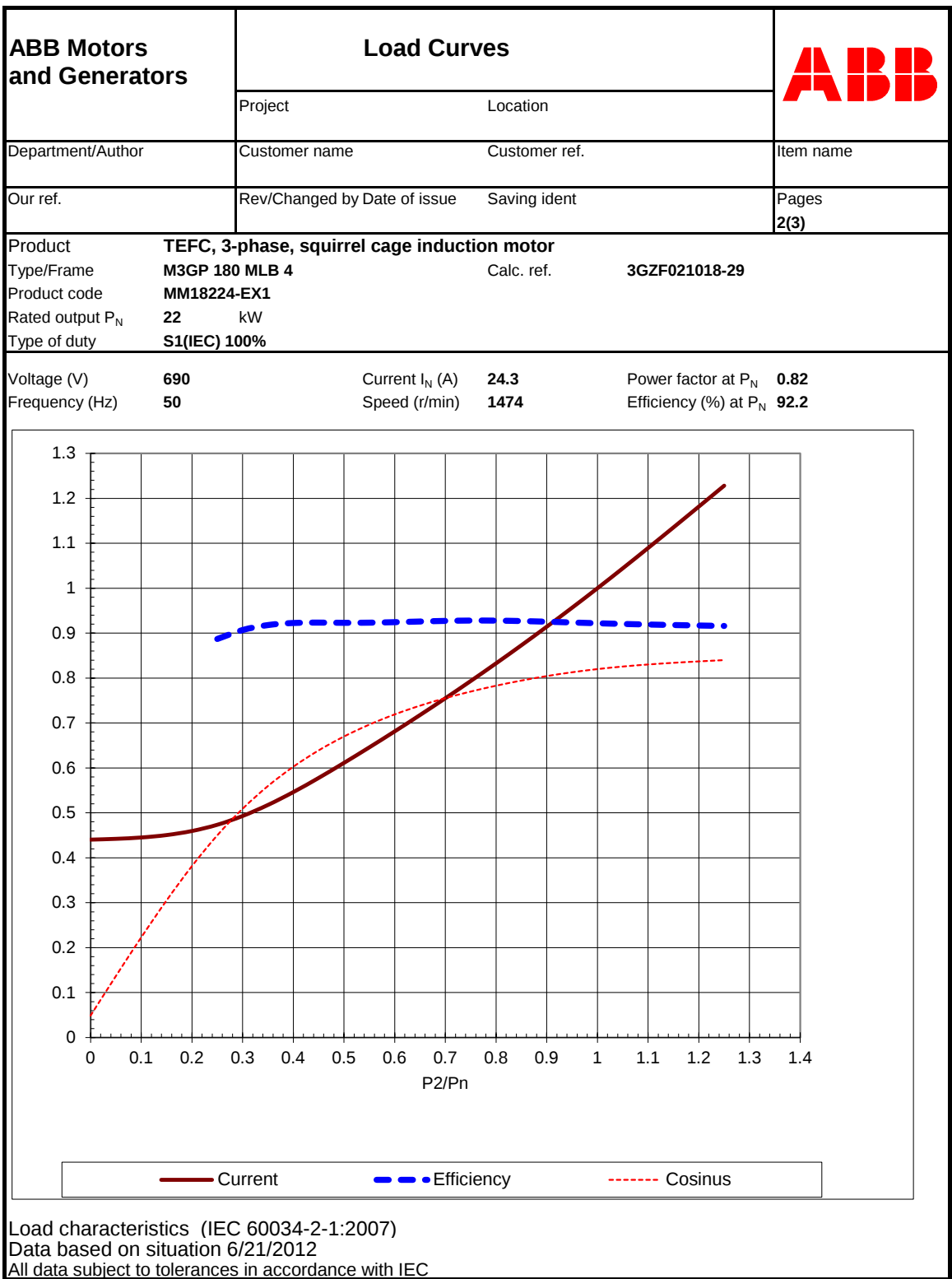
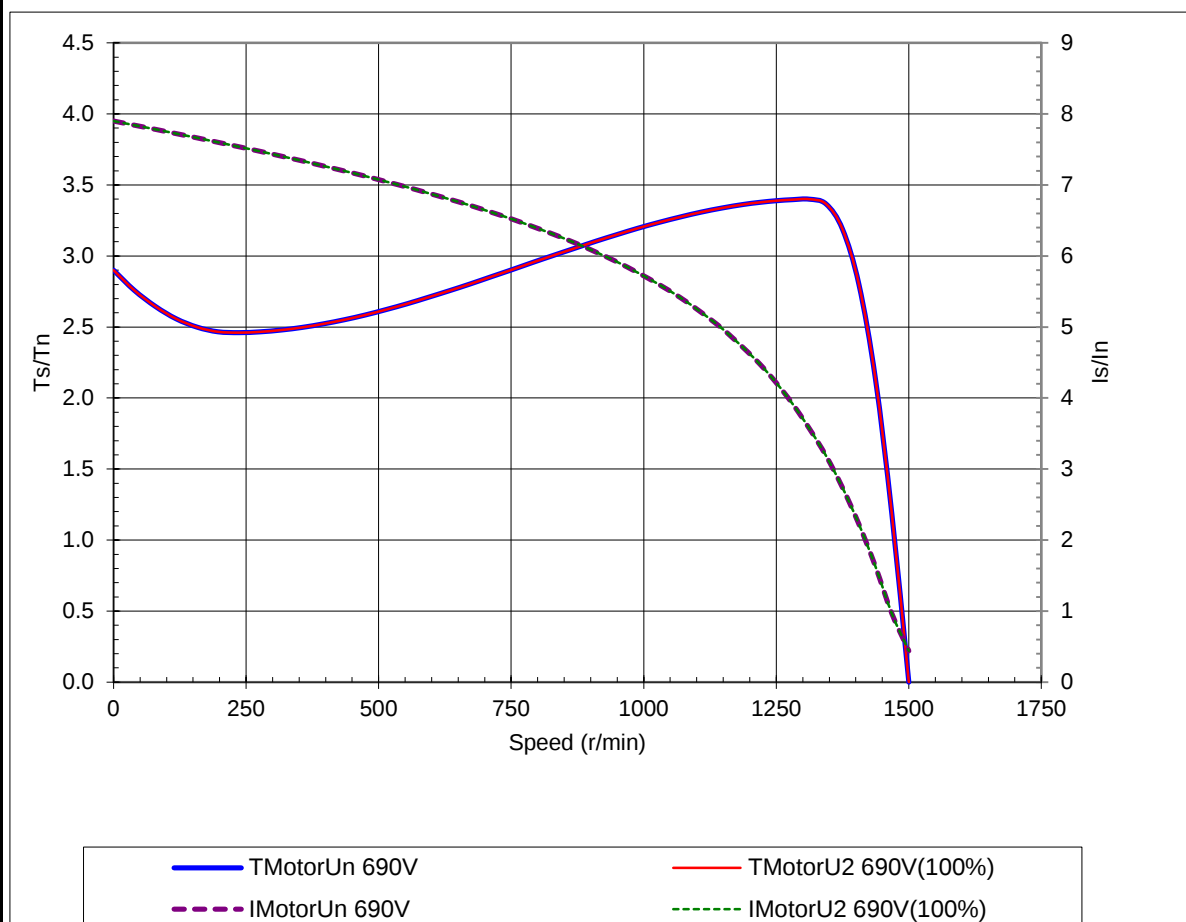


ABB Motors and Generators	Starting Curves		ABB
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name
Our ref.	Rev/Changed b	Date of issue	Saving ident
			Pages 3(3)

Type of product	TEFC, 3-phase, squirrel cage induction motor		
Type/Frame	M3GP 180 MLB 4	Calc. ref.	3GZF021018-29
Product code	MM18224-EX1	Frequency (Hz)	50
Rated output P_N	22 kW	Rated current I_N	24.3 A
Type of duty	S1(IEC) 100%		

J_{motor} (kgm ²)	0.23	Voltage (V) 100%	690	Voltage (V)	690V(100%)
J_{load} (kgm ²)		T_{start}/T_N	2.9	T_{start}/T_N	2.9
Speed (r/min)	1474	Starting time (s)		Run-up time (s)	
T_N (Nm)	143	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_N	7.9	I_s/I_N	7.9
Nbr. of consecutive starts		T_{max}/T_N	3.4	T_{max}/T_N	3.4



Load characteristics (IEC 60034-2-1:2007)
Data based on situation 6/21/2012
All data subject to tolerances in accordance with IEC