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-AP (3GAA182032-ADG+332+333)***			
3	Type/Frame	***M3AA 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	***1475***	r/min		
11	Rated current I_N	***40.9***	A		
12	No-load current	***14.6***	A		
13	Starting current I_s/I_N	***7.3***		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T_N	***142***	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	***2***			
18	Speed at minimum torque	***300***	r/min		
19	Load characteristics (IEC 60034-2-1:2007)	Load %	Current A	Efficiency %	Power factor
20	PLL determined from residual loss	*100*	**40.9**	**92.4 / IE2**	**0.84**
21		*75*	**31.5**	**93.3**	**0.81**
22		*50*	**23.6**	**93.2**	**0.72**
23		*Start*	**298**		**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	***6310-2Z/C3 - 6209-2Z/C3***			
32	Type of Grease	***Greased for life***			
33	Sound pressure level (LP dB(A) 1m)	***62***	dB(A)	at load	
34	Moment of inertia J = ¼ GD2	***0.195***	kg-m2		
35	Balancing	***Half Key***			
36	Vibration class	***Grade A***			
37	Position of terminal box	***Top***			
38	Terminal box entries; no, dimens.	***2xM40 + M16***			
39	Number of power terminals	***6***			
40	Direction of rotation	***CW or CCW***			
41	Total weight of motor	***163***	kg		
42					

Variant Codes / Definition

332 = Baldor catalog number
333 = Not for use in the USA

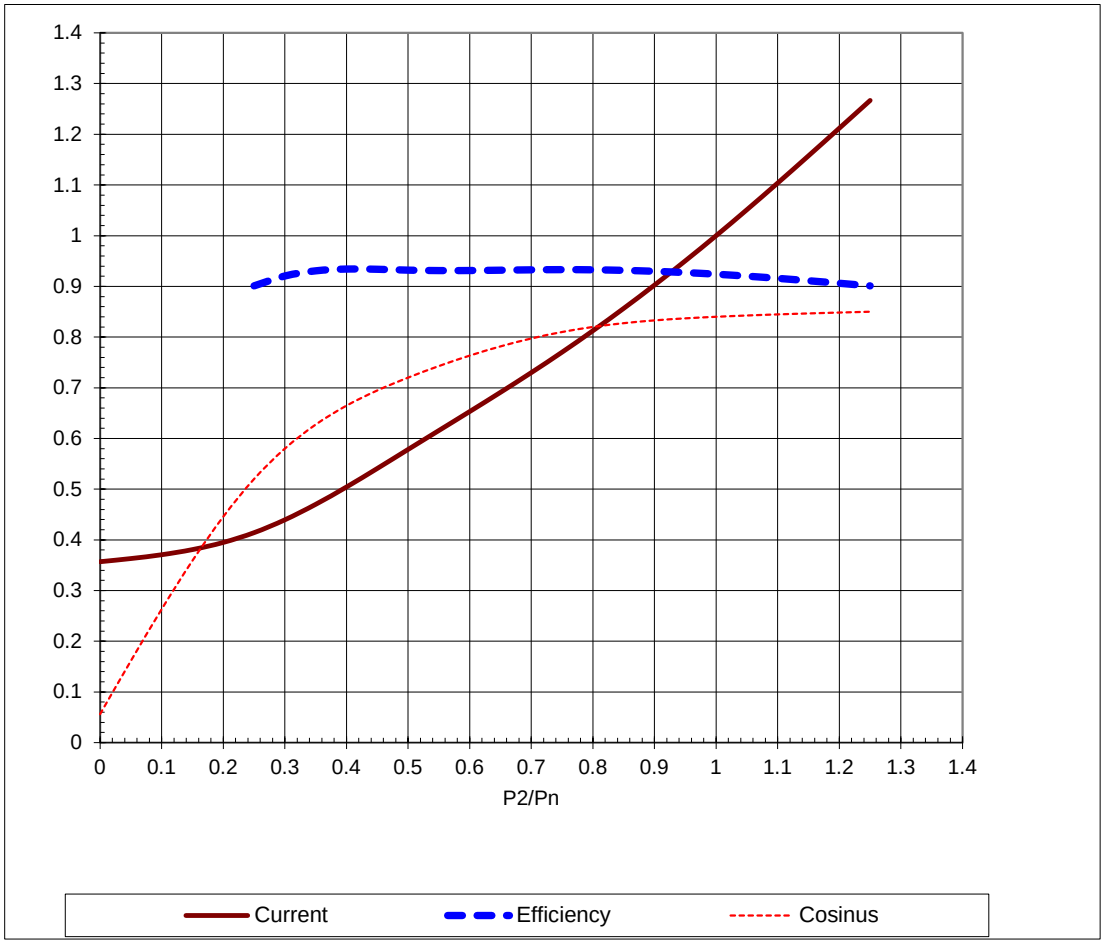
Remarks:

Data based on situation 5/7/2012
All data subject to tolerances in accordance with IEC
Guaranteed values on request

ABB Motors and Generators	Load Curves		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name
Our ref.	Rev/Changed by Date of issue	Saving ident	Pages **2(3)**

Product	**TEFC, 3-phase, squirrel cage induction motor**
Type/Frame	**M3AA 180 MLB 4**
Product code	**MM18224-AP**
Rated output P_N	**22** kW
Type of duty	**S1(IEC) 100%**

Voltage (V)	**400**	Current I_N (A)	**40.9**	Power factor at P_N	**0.84**
Frequency (Hz)	**50**	Speed (r/min)	**1475**	Efficiency (%) at P_N	**92.4**

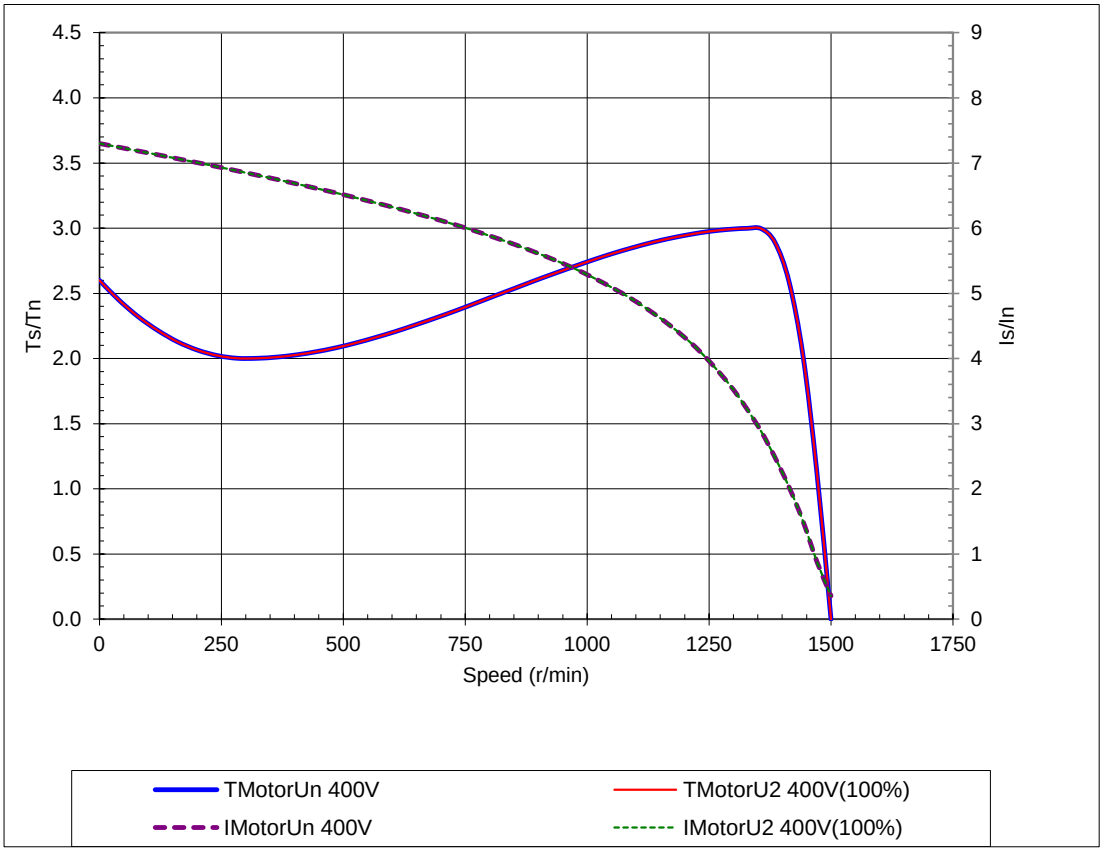


Load characteristics (IEC 60034-2-1:2007)
Data based on situation 5/7/2012
All data subject to tolerances in accordance with IEC

ABB Motors and Generators	Starting Curves		
	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	**M3AA 180 MLB 4**			
Product code	**MM18224-AP**	Frequency (Hz)	**50**	
Rated output P_N	**22** kW	Rated current I_N	**40.9**	A
Type of duty	**S1(IEC) 100%**			

J_{motor} (kgm2)	**0.19**	Voltage (V) 100%	***400***	Voltage (V)	***400V(100%)***
J_{load} (kgm2)		T_{start}/T_N	***2.6***	T_{start}/T_N	***2.6***
Speed (r/min)	**1475**	Starting time (s)		Run-up time (s)	
T_N (Nm)	**142**	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_n	***7.3***	I_s/I_n	***7.3***
Nbr. of consecutive starts		T_{max}/T_n	***3***	T_{max}/T_n	***3***



Load characteristics (IEC 60034-2-1:2007)
Data based on situation 5/7/2012
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
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-AP (3GAA182032-ADG+332+333)***			
3	Type/Frame	***M3AA 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	***1477***	r/min		
11	Rated current I_N	***39.8***	A		
12	No-load current	***15.8***	A		
13	Starting current I_s/I_N	***7.8***		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T_N	***142***	Nm		
15	Locked rotor torque T_S/T_N	***2.9***			
16	Maximum torque T_{max}/T_N	***3.2***			
17	Minimum torque T_{min}/T_N	***2.2***			
18	Speed at minimum torque	***300***	r/min		
19	Load characteristics (IEC 60034-2-1:2007)	Load %	Current A	Efficiency %	Power factor
20	PLL determined from residual loss	*100*	**39.8**	**92.6 / IE2**	**0.83**
21		*75*	**31.1**	**93.3**	**0.79**
22		*50*	**23.8**	**93**	**0.69**
23		*Start*	**310**		**0.47**
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	***6310-2Z/C3 - 6209-2Z/C3***			
32	Type of Grease	***Greased for life***			
33	Sound pressure level (LP dB(A) 1m)	***62***	dB(A)	at load	
34	Moment of inertia J = ¼ GD2	***0.195***	kg-m2		
35	Balancing	***Half Key***			
36	Vibration class	***Grade A***			
37	Position of terminal box	***Top***			
38	Terminal box entries; no, dimens.	***2xM40 + M16***			
39	Number of power terminals	***6***			
40	Direction of rotation	***CW or CCW***			
41	Total weight of motor	***163***	kg		
42					

Variant Codes / Definition

332 = Baldor catalog number
333 = Not for use in the USA

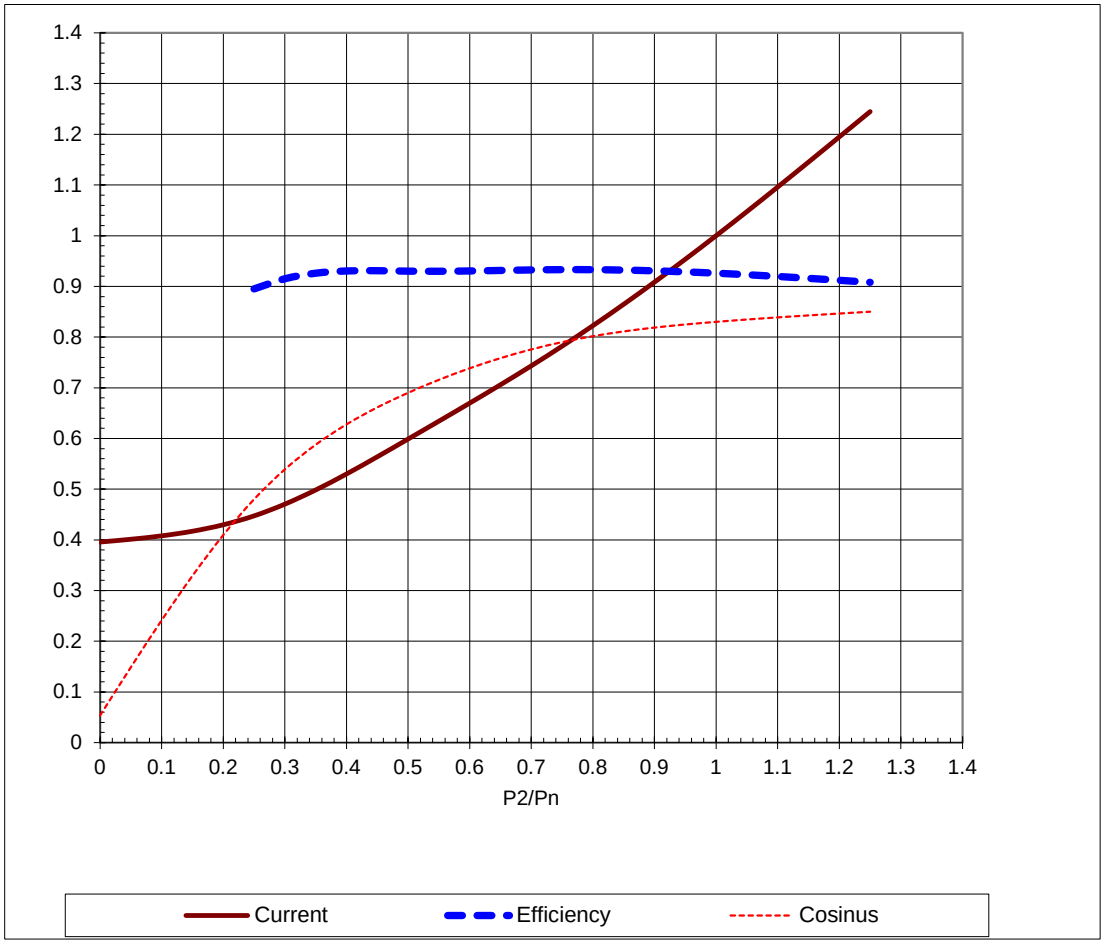
Remarks:

Data based on situation 5/7/2012
All data subject to tolerances in accordance with IEC
Guaranteed values on request

ABB Motors and Generators	Load Curves		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name
Our ref.	Rev/Changed by Date of issue	Saving ident	Pages **2(3)**

Product	**TEFC, 3-phase, squirrel cage induction motor**
Type/Frame	**M3AA 180 MLB 4**
Product code	**MM18224-AP**
Rated output P_N	**22** kW
Type of duty	**S1(IEC) 100%**

Voltage (V)	**415**	Current I_N (A)	**39.8**	Power factor at P_N	**0.83**
Frequency (Hz)	**50**	Speed (r/min)	**1477**	Efficiency (%) at P_N	**92.6**

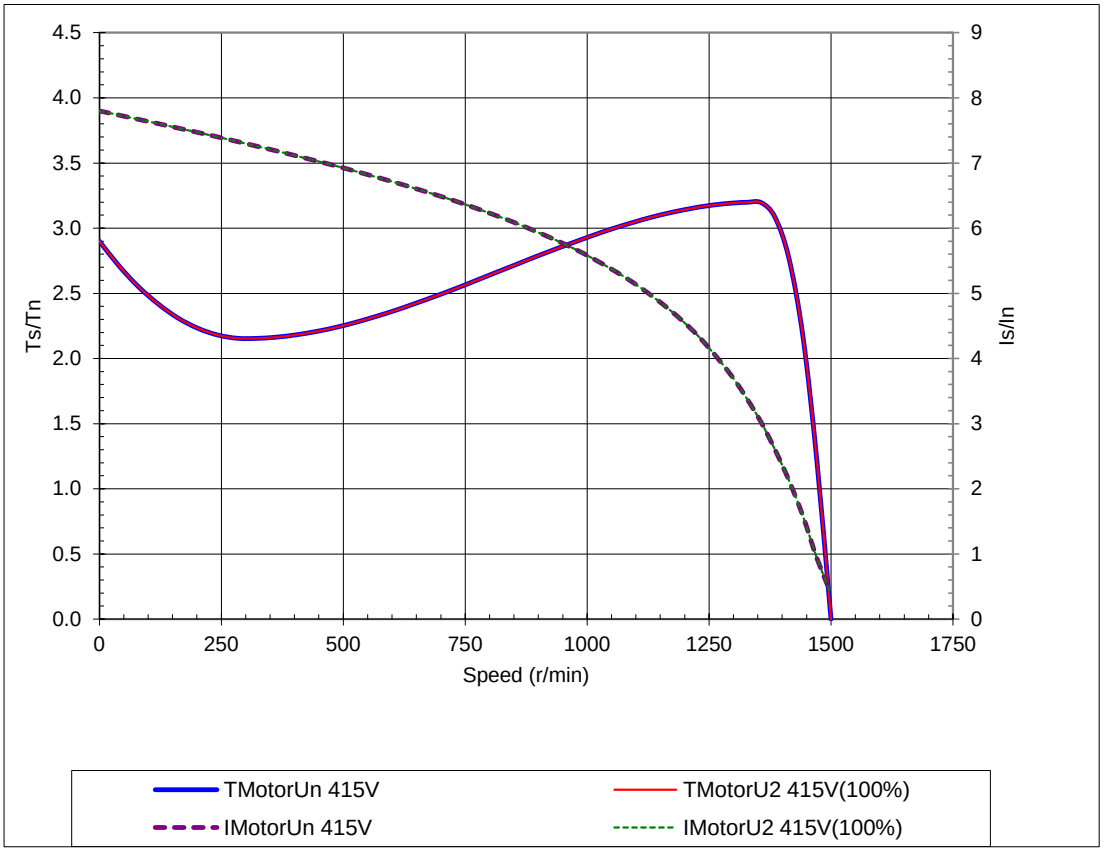


Load characteristics (IEC 60034-2-1:2007)
Data based on situation 5/7/2012
All data subject to tolerances in accordance with IEC

ABB Motors and Generators	Starting Curves		
	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	**M3AA 180 MLB 4**			
Product code	**MM18224-AP**	Frequency (Hz)	**50**	
Rated output P_N	**22** kW	Rated current I_N	**39.8**	A
Type of duty	**S1(IEC) 100%**			

J_{motor} (kgm2)	**0.19**	Voltage (V) 100%	***415***	Voltage (V)	***415V(100%)***
J_{load} (kgm2)		T_{start}/T_N	***2.9***	T_{start}/T_N	***2.9***
Speed (r/min)	**1477**	Starting time (s)		Run-up time (s)	
T_N (Nm)	**142**	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_n	***7.8***	I_s/I_n	***7.8***
Nbr. of consecutive starts		T_{max}/T_n	***3.2***	T_{max}/T_n	***3.2***



Load characteristics (IEC 60034-2-1:2007)
Data based on situation 5/7/2012
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
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-AP (3GAA182032-ADG+332+333)***			
3	Type/Frame	***M3AA 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	***1475***	r/min		
11	Rated current I_N	***23.7***	A		
12	No-load current	***8.5***	A		
13	Starting current I_s/I_N	***7.3***		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T_N	***142***	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	***2***			
18	Speed at minimum torque	***300***	r/min		
19	Load characteristics (IEC 60034-2-1:2007)	Load %	Current A	Efficiency %	Power factor
20	PLL determined from residual loss	*100*	**23.7**	**92.4 / IE2**	**0.84**
21		*75*	**18.2**	**93.3**	**0.81**
22		*50*	**13.7**	**93.2**	**0.72**
23		*Start*	**173**		**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	***6310-2Z/C3 - 6209-2Z/C3***			
32	Type of Grease	***Greased for life***			
33	Sound pressure level (LP dB(A) 1m)	***62***	dB(A)	at load	
34	Moment of inertia J = ¼ GD2	***0.195***	kg-m2		
35	Balancing	***Half Key***			
36	Vibration class	***Grade A***			
37	Position of terminal box	***Top***			
38	Terminal box entries; no, dimens.	***2xM40 + M16***			
39	Number of power terminals	***6***			
40	Direction of rotation	***CW or CCW***			
41	Total weight of motor	***163***	kg		
42					

Variant Codes / Definition

332 = Baldor catalog number
333 = Not for use in the USA

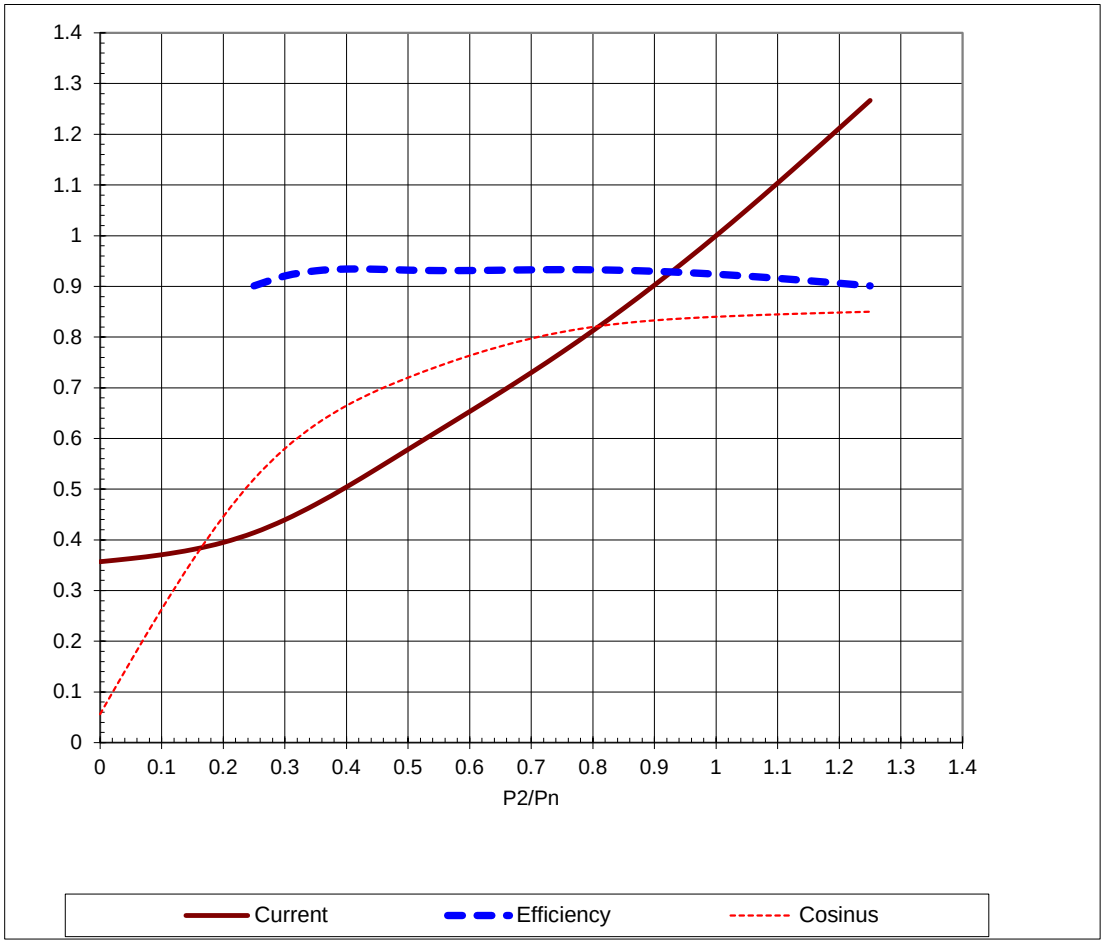
Remarks:

Data based on situation 5/7/2012
All data subject to tolerances in accordance with IEC
Guaranteed values on request

ABB Motors and Generators	Load Curves		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name
Our ref.	Rev/Changed by Date of issue	Saving ident	Pages **2(3)**

Product	**TEFC, 3-phase, squirrel cage induction motor**
Type/Frame	**M3AA 180 MLB 4**
Product code	**MM18224-AP**
Rated output P_N	**22** kW
Type of duty	**S1(IEC) 100%**

Voltage (V)	**690**	Current I_N (A)	**23.7**	Power factor at P_N	**0.84**
Frequency (Hz)	**50**	Speed (r/min)	**1475**	Efficiency (%) at P_N	**92.4**

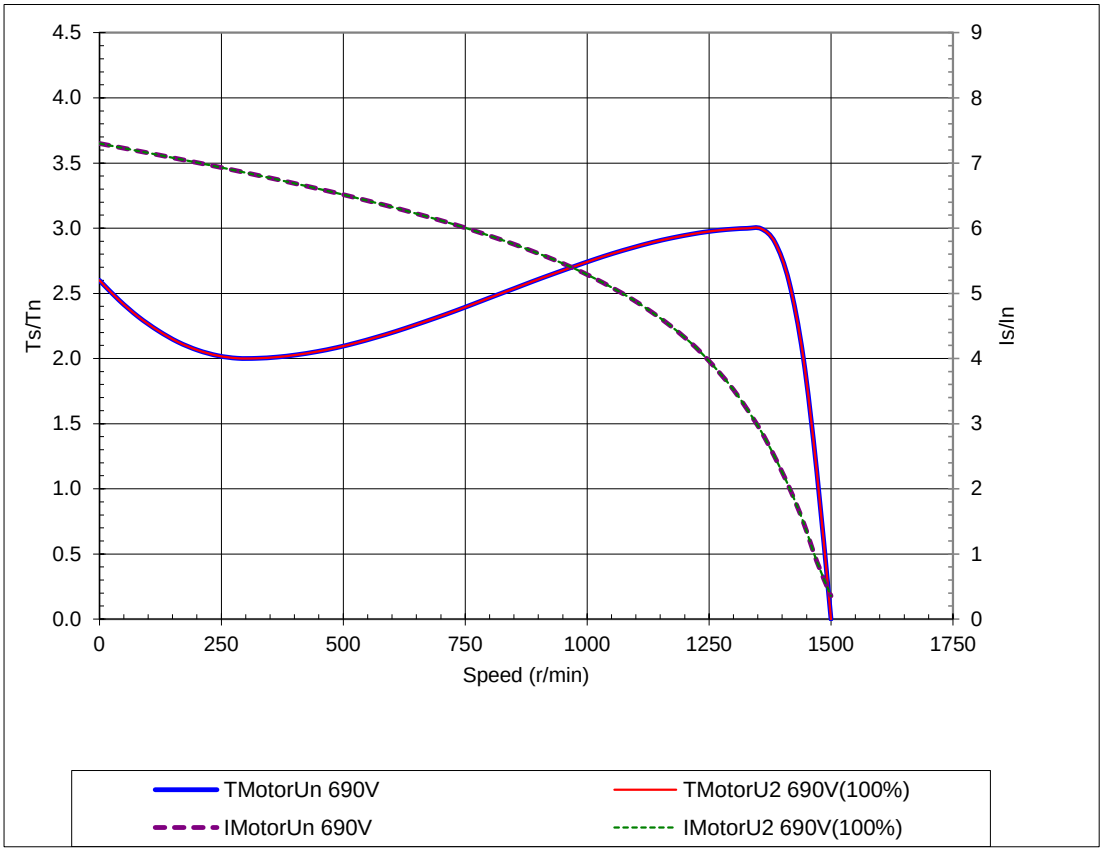


Load characteristics (IEC 60034-2-1:2007)
Data based on situation 5/7/2012
All data subject to tolerances in accordance with IEC

ABB Motors and Generators	Starting Curves		
	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	**M3AA 180 MLB 4**			
Product code	**MM18224-AP**	Frequency (Hz)	**50**	
Rated output P_N	**22** kW	Rated current I_N	**23.7**	A
Type of duty	**S1(IEC) 100%**			

J_{motor} (kgm2)	**0.19**	Voltage (V) 100%	***690***	Voltage (V)	***690V(100%)***
J_{load} (kgm2)		T_{start}/T_N	***2.6***	T_{start}/T_N	***2.6***
Speed (r/min)	**1475**	Starting time (s)		Run-up time (s)	
T_N (Nm)	**142**	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_n	***7.3***	I_s/I_n	***7.3***
Nbr. of consecutive starts		T_{max}/T_n	***3***	T_{max}/T_n	***3***



Load characteristics (IEC 60034-2-1:2007)
Data based on situation 5/7/2012
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
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-AP (3GAA182032-ADG+332+333)***			
3	Type/Frame	***M3AA 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	***460***	VD	± 5 % (IEC 60034-1)	
9	Rated frequency f_N	***60***	Hz	± 2 % (IEC 60034-1)	
10	Rated speed n_N	***1780***	r/min		
11	Rated current I_N	***35.7***	A		
12	No-load current	***13.5***	A		
13	Starting current I_s/I_N	***8.3***		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T_N	***118***	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	***2.1***			
18	Speed at minimum torque	***360***	r/min		
19	Load characteristics (IEC 60034-2-1:2007)	Load %	Current A	Efficiency %	Power factor
20	PLL determined from residual loss	*100*	**35.7**	**93.1 / IE2**	**0.83**
21		*75*	**28**	**93.4**	**0.79**
22		*50*	**21.2**	**92.6**	**0.7**
23		*Start*	**296**		**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	***6310-2Z/C3 - 6209-2Z/C3***			
32	Type of Grease	***Greased for life***			
33	Sound pressure level (LP dB(A) 1m)	***70***	dB(A)	at load	
34	Moment of inertia J = ¼ GD2	***0.195***	kg-m2		
35	Balancing	***Half Key***			
36	Vibration class	***Grade A***			
37	Position of terminal box	***Top***			
38	Terminal box entries; no, dimens.	***2xM40 + M16***			
39	Number of power terminals	***6***			
40	Direction of rotation	***CW or CCW***			
41	Total weight of motor	***163***	kg		
42					

Variant Codes / Definition

332 = Baldor catalog number

333 = Not for use in the USA

Remarks:

Data based on situation 5/7/2012

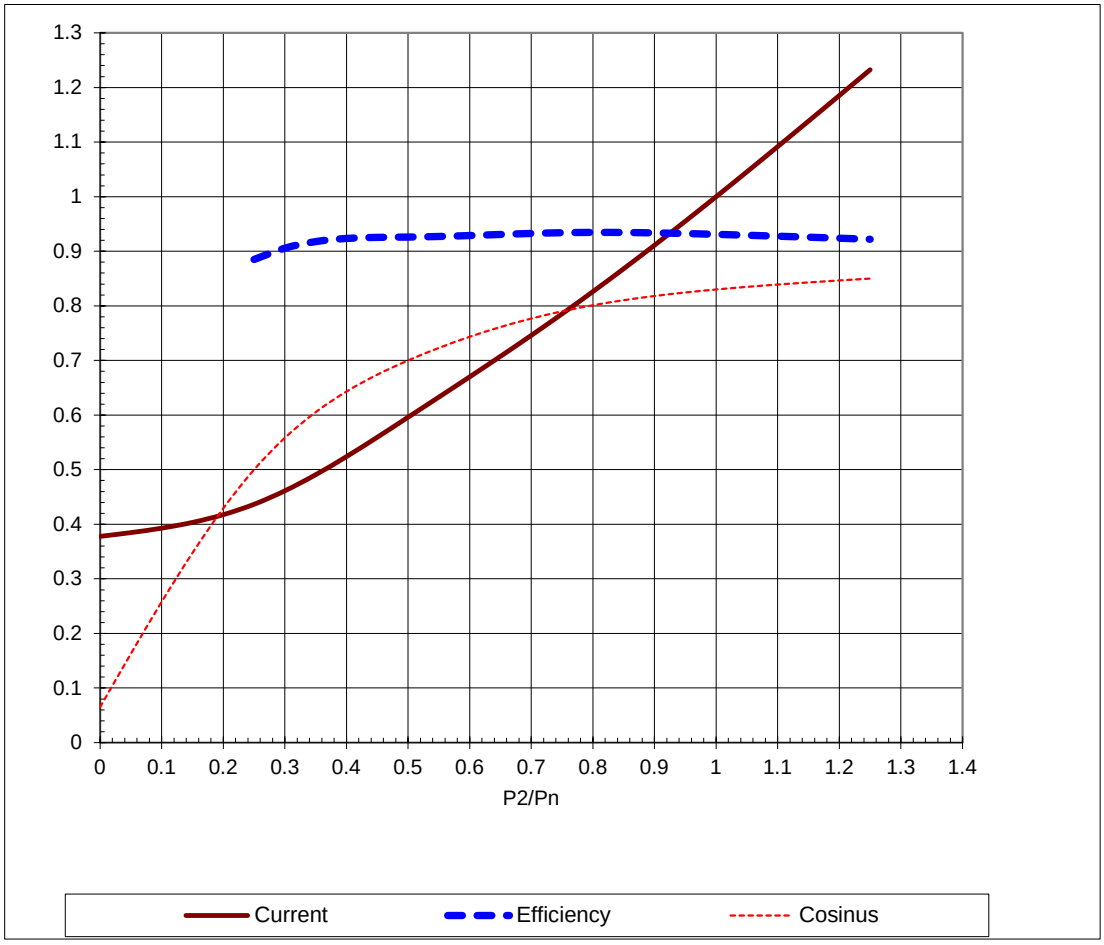
All data subject to tolerances in accordance with IEC

Guaranteed values on request

ABB Motors and Generators	Load Curves		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name
Our ref.	Rev/Changed by Date of issue	Saving ident	Pages **2(3)**

Product	**TEFC, 3-phase, squirrel cage induction motor**
Type/Frame	**M3AA 180 MLB 4**
Product code	**MM18224-AP**
Rated output P_N	**22** kW
Type of duty	**S1(IEC) 100%**

Voltage (V)	**460**	Current I_N (A)	**35.7**	Power factor at P_N	**0.83**
Frequency (Hz)	**60**	Speed (r/min)	**1780**	Efficiency (%) at P_N	**93.1**

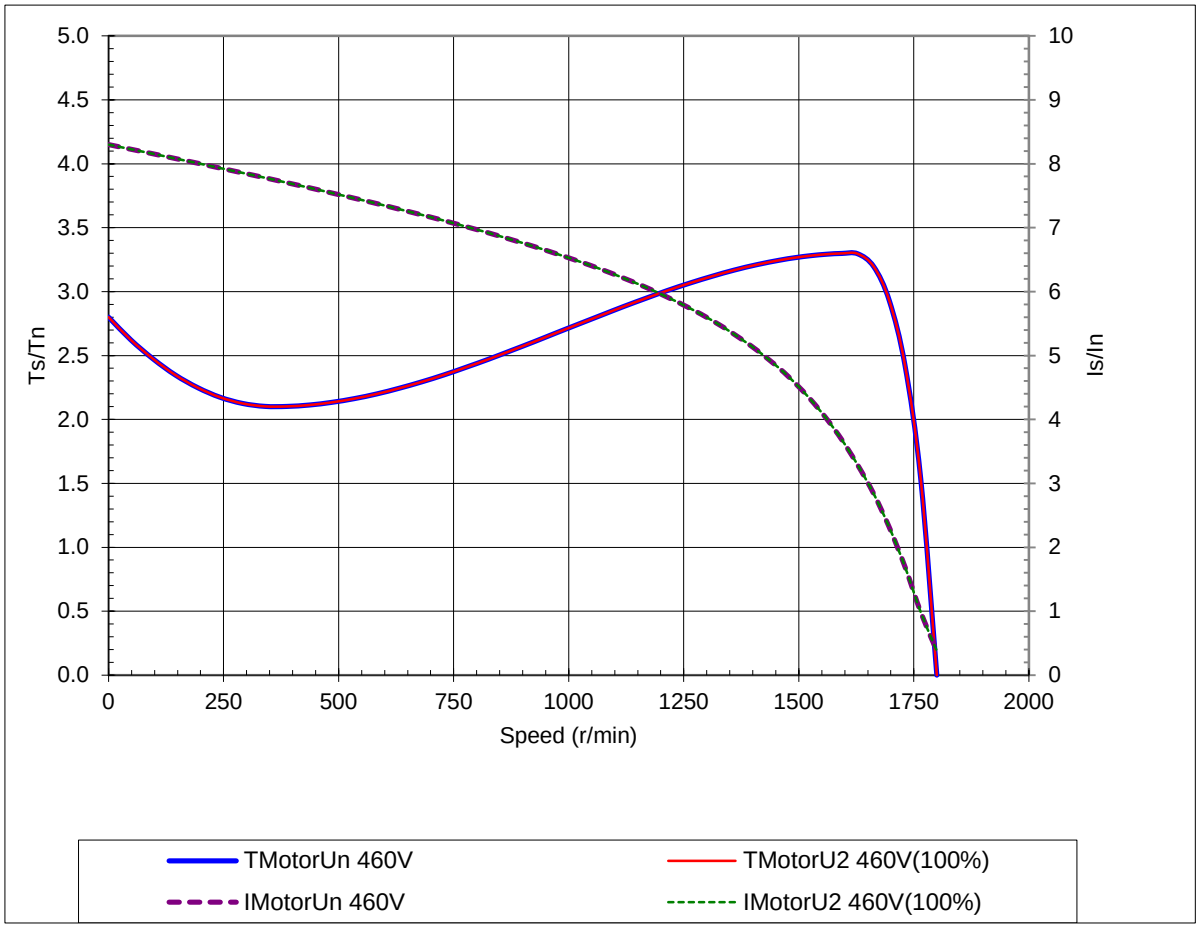


Load characteristics (IEC 60034-2-1:2007)
Data based on situation 5/7/2012
All data subject to tolerances in accordance with IEC

ABB Motors and Generators	Starting Curves		
	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	**M3AA 180 MLB 4**				
Product code	**MM18224-AP**		Frequency (Hz)	**60**	
Rated output P_N	**22**	kW	Rated current I_N	**35.7**	A
Type of duty	**S1(IEC) 100%**				

J_{motor} (kgm2)	**0.19**	Voltage (V) 100%	***460***	Voltage (V)	***460V(100%)***
J_{load} (kgm2)		T_{start}/T_N	***2.8***	T_{start}/T_N	***2.8***
Speed (r/min)	**1780**	Starting time (s)		Run-up time (s)	
T_N (Nm)	**118**	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_n	***8.3***	I_s/I_n	***8.3***
Nbr. of consecutive starts		T_{max}/T_n	***3.3***	T_{max}/T_n	***3.3***



Load characteristics (IEC 60034-2-1:2007)
Data based on situation 5/7/2012
All data subject to tolerances in accordance with IEC