ABB Motors and Technical Data Sheet Generators Project Location Department/Author Customer ref. Item name Customer name 1.00001 Rev/Changed by Our ref. Date of issue Saving ident Pages 12/8/2020 untitled.xlsm 1(3) Definition No. Data Unit Remarks Product TEFC, 3-phase, squirrel cage induction motor 3GBA 161 410-ADCIN 3GZH021016-1 2 Product code Calc. ref. 3 Type/Frame M2BAX 160MLA 2 Mounting IM1001, B3(foot) Rated output P_N kW 5 11 6 Service factor S1 100% 7 Type of duty Rated voltage U_N VD 8 415 +10, -10 % Rated frequency f_N 9 50 Hz +5, -5 % Rated speed n_N 2925 10 r/min 11 Rated current IN 20.1 Α 12 13 Starting current I_s/I_N Nominal torque T_N 36 Nm 14 Locked rotor torque T_S/T_N 15 2.1 Maximum torque T_{max}/T_N 2.9 16 17 18 Load characteristics Load % Current A Efficiency % Power factor 89.4 / IE2 19 PLL determined from residual loss 100 20.1 0.85 20 75 15.6 89.7 0.82 50 11.6 88.2 0.75 21 22 23 Thermal withstand time hot 20 s 24 Thermal withstand time cold 32 s F/B 25 Insulation class / Temperature class °C 50 26 Ambient temperature 27 Altitude 1000 m.a.s.l. Degree of protection IP55 28 29 Cooling system IC411 Bearing DE/NDE 6209-2Z/C3 - 6209-2Z/C3 30 Sound pressure level (LP dB(A) 1m) 31 85 dB(A) at no-load 32 Moment of inertia J = 1/4 GD2 0.0415 kg-m2 Position of terminal box Тор 33 Direction of rotation Bi-directional 35 Weight of rotor 22 kg 105 36 Total weight of motor kg 37 38 39 40 41 42 43 44 45 Ex-motors 46 47 48 Variant Codes / Definition Option 49 50 51 52 Applicable standards: IS 12615:2018, IEC 60034-30-1:2014

ABB Motors and Load Curves Generators Project Location Department/Author Customer name Customer ref. Item name 1.00001 Our ref. Rev/Changed by Date of issue Saving ident Pages 12/8/2020 untitled.xlsm 2(3) Product TEFC, 3-phase, squirrel cage induction motor M2BAX 160MLA 2 Type/Frame Calc. ref. 3GZH021016-1 Product code 3GBA 161 410-ADCIN Rated output P_N 11 kW Type of duty S1 100% Current I_N (A) Voltage (V) 415 20.1 Power factor at P_N **0.85** Frequency (Hz) Speed (r/min) 2925 Efficiency (%) at P_N 89.4 50 1.4 1.3 1.2 1.1 0.4 0.3 0.2 0.1 0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.1 1.2 1.3 P2/Pn Current - - Efficiency ----- Cosinus Applicable standards: IS 12615:2018, IEC 60034-30-1:2014

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Type of product		3-phase,	-	el cage in	duction r							
Гуре/Frame		(160MLA				Calc. re		3GZI	H021016-1			
		161 410-A	DCIN			Frequency (Hz) Rated current I _N		50				
Rated output P _N	11 S1 100	kW				Rated C	urrent I _N		20.1	Α		
Type of duty	31 100	170										
J _{motor} (kgm2)	0.0415			Voltage (\	V) 100%	415		Voltag	je (V)	415V(1	00%)	
J _{load} (kgm2)				T _{start} /T _N		2.1		T _{start} /T _N		2.1		
Speed (r/min)	2925			Starting ti	me (s)	0.2		Startir	ng time (s)			
Γ _N (Nm)	36			Speed (r/ı	min)			Speed	d (r/min)	1449		
Γ _{load} (Nm)				I_s/I_n		7		I_s/I_n		7		
				T_{max}/T_n		2.9		T_{max}/T	n	2.9		
3.5 3 2.5 L/SL 2						>					8 7 6 6 5 <u>S</u>	
1 =									<u> </u>	++	2	
										M		
0.5										A	1	
 										1		
0 25		750 MotorUn	1000	1250	1500 Speed (00 275 U2 415V		3250	
	IN	1otorUn 4	115V					IMotorU	J2 415V(100%)		

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Type of product	M2BAX 1		irrel cage induction	motor Calc. ref.	3GZH021016-1		
71		ouwila 2 I 410-ADCI	INI				
Rated output P _N 11		W	IIN	Frequency (Hz) Rated current I _N	50 20.1	Α	
Type of duty	S1 100%	/V		realed current in	20.1	A	
Type of duty	31 100%						
J _{motor} (kgm2)	0.0415		Voltage (V) 100%	415	Voltage (V)	415V(100%)	
J _{load} (kgm2)			$T_{\text{start}}/T_{\text{N}}$	2.1	$T_{\text{start}}/T_{\text{N}}$	2.1	
Speed (r/min)	2925		Starting time (s)	0.2	Starting time (s)		
Γ _N (Nm)	36		Speed (r/min)		Speed (r/min)	1449	
Γ _{load} (Nm)			I_s/I_n	7	I_s/I_n	7	
			T_{max}/T_n	2.9	$T_{\text{max}}/T_{\text{n}}$	2.9	
3500 -						160	
						1 140	
3000						140	
]	
] 120	
2500							
						100	
E 2000						1 1	
ud_i						08 Current [A]	
peq				/ \		- 80 F	
[2000 - 1500 -							
						- 60	
						1	
1000					 	+ 1 10	
						 40	
F00					\]	
500						20	
						1 1	
0		 	 		<u> </u>		
0	0.02 0	.04 0.	06 0.08 0.	.1 0.12 0.	.14 0.16	0.18 0.2	
			Starting	Time [s]			
		— Spe	eed [rpm]		Current [A]		

ABB Motors and Generators		Thermal Withstand Curve								2					
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Type of p	oroduct	i .	TEFC,		se, squ			nduction n					-(-,		
гуре/Fra			M2BAX				•		Calc. re	f.	3GZI	H021016-1			
Product of	code		3GBA 1	61 41	0-ADCI	N			Frequer	ncy (Hz)		50			
Rated output P _N 11		kW				Rated current I _N			20.1	Α					
Type of d			S1 100												
J _{motor} (kg	ım2)		0.0415			Vo	Itage	(V) 100%	415		Voltag	ıe (V)	415	V(100%)	
J _{load} (kgn							art/T _N		2.1		T _{start} /T		2.1	. ,	
Speed (r/			2925					nd cold(s)	32			tand hot (s)			
T _N (Nm)	•••,		36					r/min)	-			l (r/min)	1449	9	
T _{load} (Nm	n)					I _s /I			7		I _s /I _n		7	-	
load (INIII	'/						n ax/Tn		, 2.9		T _{max} /T		2.9		
						·m	ax '11				·max				
	100 -		== <u></u>				===			=====		====	= = = = = = = = = = = = = = = = = = = =	====	
Stall Time [s]	10 -														
Stall Time [s]	1 -														
Stall Time [s]	1 -										700				20
Stall Time [s]	1 -			200		3300			00 ont [%]		700	800	9000) 100	000
Stall Time [s]	1 -			200							700		9000) 100	000