


ABB Motors and Generators		Technical Data Sheet				
Department/Author		Project	Location		Item name	
Our ref.		Rev/Changed by	Date of issue	Saving ident	Pages	
		A	1/18/2019	untitled.xls	1.00002 1(3)	
No.	Definition	Data	Unit	Remarks		
1	Product	<b>TEFC, 3-phase, squirrel cage induction motor</b>				
2	Product code	<b>E3HX280SMC8</b>				
3	Type/Frame	<b>E3HX280SMC8</b>				
4	Mounting	<b>IM1001, B3(foot)</b>				
5	Rated output P <sub>N</sub>	<b>45</b>	kW			
6	Service factor	<b>1</b>				
7	Type of duty	<b>S1 100%</b>				
8	Rated voltage U <sub>N</sub>	<b>415</b>	VD	± 10 %		
9	Rated frequency f <sub>N</sub>	<b>50</b>	Hz	± 5 %		
10	Rated speed n <sub>N</sub>	<b>740</b>	r/min			
11	Rated current I <sub>N</sub>	<b>89</b>	A			
12	Method of starting	<b>DOL</b>				
13	Starting current I <sub>s</sub> /I <sub>N</sub>	<b>7.7</b>				
14	Nominal torque T <sub>N</sub>	<b>581</b>	Nm			
15	Locked rotor torque T <sub>s</sub> /T <sub>N</sub>	<b>2.1</b>				
16	Maximum torque T <sub>max</sub> /T <sub>N</sub>	<b>2.3</b>				
17						
18						
Load characteristics		Load %	Current A	Efficiency %	Power factor	
19	PLL determined from residual loss	100	89	92.2 / IE3	0.76	
20		75	69.8	92.2	0.73	
21		50	56.9	90.2	0.61	
22						
23	Thermal withstand time hot	<b>20</b>	s			
24	Thermal withstand time cold	<b>46</b>	s			
25	Insulation class / Temperature class	<b>F / B</b>				
26	Ambient temperature	<b>50</b>	°C			
27	Altitude	<b>1000</b>	m.a.s.l.			
28	Degree of protection	<b>IP55</b>				
29	Cooling system	<b>IC411 self ventilated</b>				
30	Bearing DE/NDE	<b>6316/C3 - 6315/C3</b>				
31	Sound pressure level (LP dB(A) 1m)	<b>85</b>	dB(A)	at no-load		
32	Moment of inertia J = ¼ GD2	<b>1.935</b>	kg-m2			
33	Position of terminal box	<b>Top</b>				
34	Direction of rotation	<b>Bi-directional</b>				
35	Total weight of motor	<b>600</b>	kg			
36		<b>User defined motor</b>				
37						
38						
39						
40						
41						
42						
43						
44						
45						
Ex-motors						
46						
47						
48						
<b>Option Variant Codes / Definition</b>						
49	Application check not made in absence of load details					
50	Efficiency level :IE3 as per IS 12615 2018					
51						
52						
Remarks:						
9/4/2014						


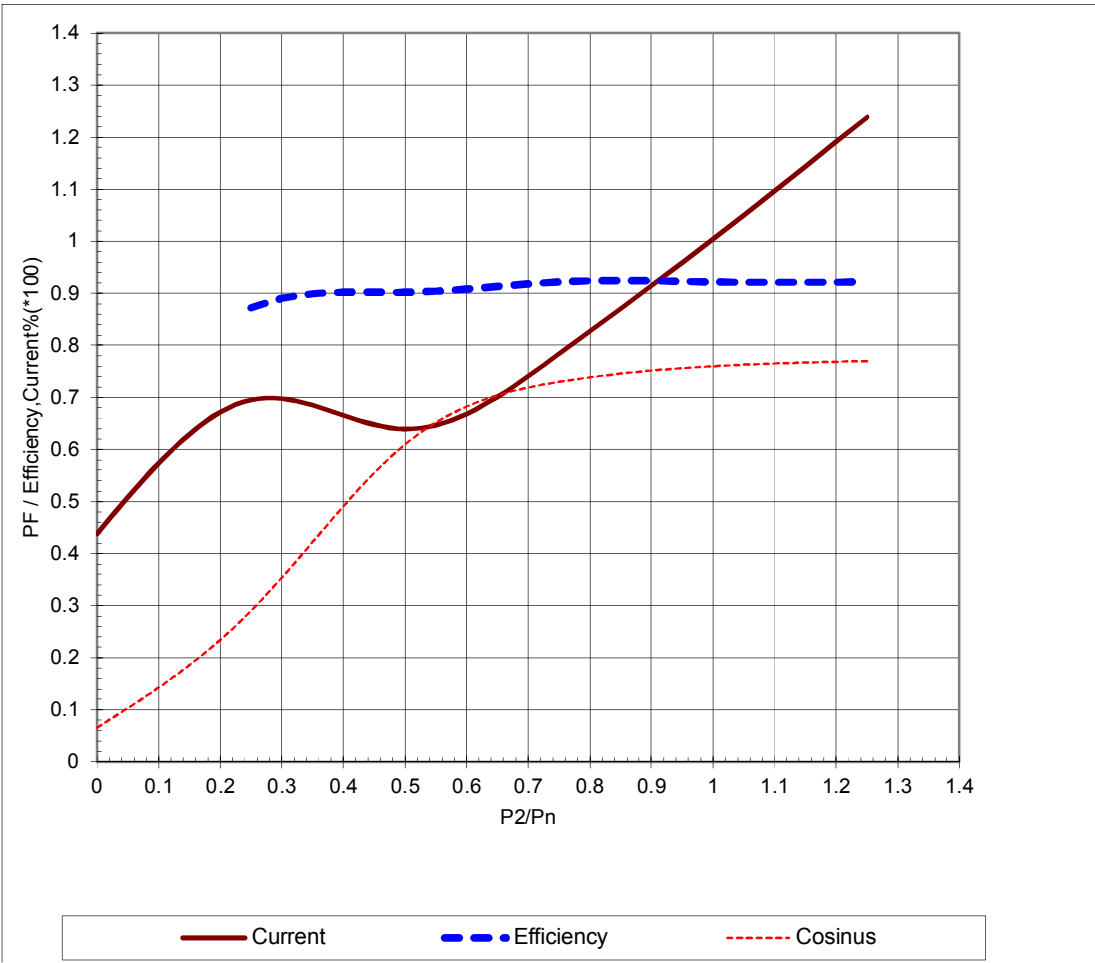

<b>ABB Motors and Generators</b>	<b>Load Curves</b>		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name <b>1.00002</b>
Our ref.	Rev/Changed by <b>A</b>	Date of issue <b>1/18/2019</b>	Saving ident <b>untitled.xls</b>
	Pages <b>2(3)</b>		
Product	<b>TEFC, 3-phase, squirrel cage induction motor</b>		
Type/Frame	<b>E3HX280SMC8</b>		
Product code	<b>E3HX280SMC8</b>		
Rated output P <sub>N</sub>	<b>45</b>	<b>kW</b>	
Type of duty	<b>S1 100%</b>		
Voltage (V)	<b>415</b>	Current I <sub>N</sub> (A)	<b>89</b>
Frequency (Hz)	<b>50</b>	Speed (r/min)	<b>740</b>
		Power factor at P <sub>N</sub>	<b>0.76</b>
		Efficiency (%) at P <sub>N</sub>	<b>92.2</b>
			
<p>Data based on situation 9/4/2014</p> <p style="text-align: center;">All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004</p>			


ABB Motors and Generators	Starting Curves		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name <b>1.00002</b>
Our ref.	Rev/Changed b Date of issue <b>A 1/18/2019</b>	Saving ident <b>untitled.xls</b>	Pages <b>3(3)</b>
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>		
Type/Frame	<b>E3HX280SMC8</b>		
Product code	<b>E3HX280SMC8</b>	Frequency (Hz)	<b>50</b>
Rated output P <sub>N</sub>	<b>45 kW</b>	Rated current I <sub>N</sub>	<b>89 A</b>
Type of duty	<b>S1 100%</b>		
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>1.9</b>	Voltage (V) 100%	<b>415</b>
J <sub>load</sub> (kgm <sup>2</sup> )		Voltage (V)	<b>332V(80%)</b>
Speed (r/min)	<b>740</b>	T <sub>start</sub> /T <sub>N</sub>	<b>2.1</b>
T <sub>N</sub> (Nm)	<b>581</b>	T <sub>start</sub> /T <sub>N</sub>	<b>1.2</b>
T <sub>load</sub> (Nm)		Starting time (s)	<b>0.1</b>
		Speed (r/min)	<b>740</b>
		I <sub>s</sub> /I <sub>N</sub>	<b>7.7</b>
		I <sub>s</sub> /I <sub>N</sub>	<b>5.9</b>
		T <sub>max</sub> /T <sub>N</sub>	<b>2.3</b>
		T <sub>max</sub> /T <sub>N</sub>	<b>1.4</b>

The graph plots torque (Ts/Tn) on the left y-axis (0 to 4.5) and current (Is/In) on the right y-axis (0 to 9) against speed (r/min) on the x-axis (0 to 1000). Four curves are shown: TMotorUn 415V (solid blue), TMotorU2 332V(80%) (solid red), IMotorUn 415V (dashed purple), and IMotorU2 332V(80%) (dashed green). The torque curves show a peak around 740 r/min, while the current curves show a sharp drop at this speed.

Data based on situation 9/4/2014


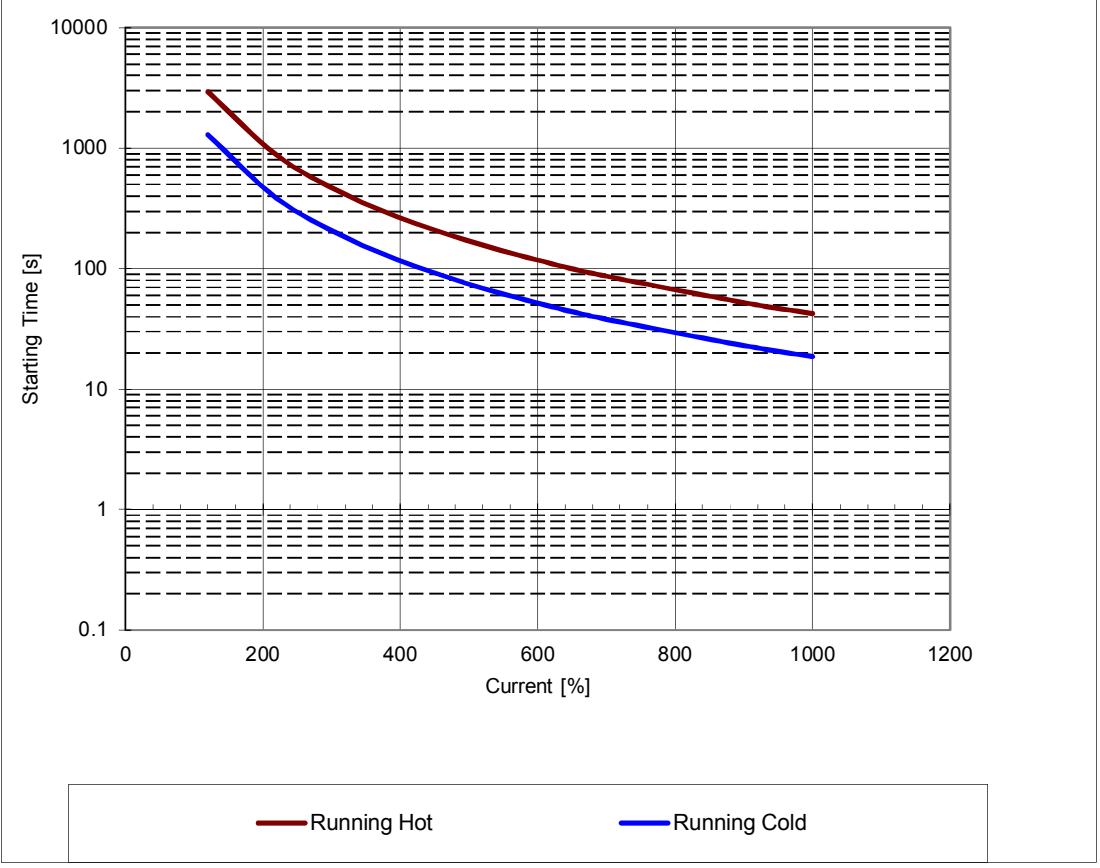
All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004

ABB Motors and Generators	Current & Speed Vs Time			
	Project	Location		
Department/Author	Customer name	Customer ref.	Item name <b>1.00002</b>	
Our ref.	Rev/Changed b	Date of issue	Saving ident	Pages
	<b>A</b>	<b>1/18/2019</b>	<b>untitled.xls</b>	<b>4(3)</b>
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>			
Type/Frame	<b>E3HX280SMC8</b>			
Product code	<b>E3HX280SMC8</b>	Frequency (Hz)	<b>50</b>	
Rated output P <sub>N</sub>	<b>45 kW</b>	Rated current I <sub>N</sub>	<b>89</b>	<b>A</b>
Type of duty	<b>S1 100%</b>			
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>1.9</b>	Voltage (V) 100%	<b>415</b>	Voltage (V) <b>332V(80%)</b>
J <sub>load</sub> (kgm <sup>2</sup> )		T <sub>start</sub> /T <sub>N</sub>	<b>2.1</b>	T <sub>start</sub> /T <sub>N</sub> <b>1.2</b>
Speed (r/min)	<b>740</b>	Starting time (s)	<b>0.1</b>	Starting time (s)
T <sub>N</sub> (Nm)	<b>581</b>	Speed (r/min)		Speed (r/min)
T <sub>load</sub> (Nm)		I <sub>s</sub> /I <sub>N</sub>	<b>7.7</b>	I <sub>s</sub> /I <sub>N</sub> <b>5.9</b>
		T <sub>max</sub> /T <sub>N</sub>	<b>2.3</b>	T <sub>max</sub> /T <sub>N</sub> <b>1.4</b>

Starting Time [s]	Speed [rpm]	Current [A]
0.00	0	680
0.02	100	650
0.04	200	620
0.06	300	580
0.08	400	520
0.10	500	420
0.12	740	100

Data based on situation 9/4/2014  
All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004

ABB Motors and Generators	Thermal Withstand Curve			
	Project	Location		
Department/Author	Customer name	Customer ref.	Item name <b>1.00002</b>	
Our ref.	Rev/Changed b	Date of issue	Saving ident	Pages
	<b>A</b>	<b>1/18/2019</b>	<b>untitled.xls</b>	<b>5(3)</b>
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>			
Type/Frame	<b>E3HX280SMC8</b>			
Product code	<b>E3HX280SMC8</b>	Frequency (Hz)	<b>50</b>	
Rated output $P_N$	<b>45 kW</b>	Rated current $I_N$	<b>89</b>	<b>A</b>
Type of duty	<b>S1 100%</b>			
$J_{motor}$ (kgm <sup>2</sup> )	<b>1.9</b>	Voltage (V) 100%	<b>415</b>	Voltage (V) <b>332V(80%)</b>
$J_{load}$ (kgm <sup>2</sup> )		$T_{start}/T_N$	<b>2.1</b>	$T_{start}/T_N$ <b>1.2</b>
Speed (r/min)	<b>740</b>	Starting time (s)	<b>0.1</b>	Starting time (s)
$T_N$ (Nm)	<b>581</b>	Speed (r/min)		Speed (r/min)
$T_{load}$ (Nm)		$I_s/I_N$	<b>7.7</b>	$I_s/I_N$ <b>5.9</b>
		$T_{max}/T_n$	<b>2.3</b>	$T_{max}/T_n$ <b>1.4</b>
 <p>The graph plots Starting Time [s] on a logarithmic y-axis (0.1 to 10000) against Current [%] on a linear x-axis (0 to 1200). Two curves are shown: a red line for 'Running Hot' and a blue line for 'Running Cold'. Both curves show that starting time decreases as current increases. The 'Running Hot' curve starts at approximately 3000s at 100% current and drops to about 40s at 1000% current. The 'Running Cold' curve starts at approximately 1200s at 100% current and drops to about 20s at 1000% current.</p>				
Data based on situation 9/4/2014				
All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004				