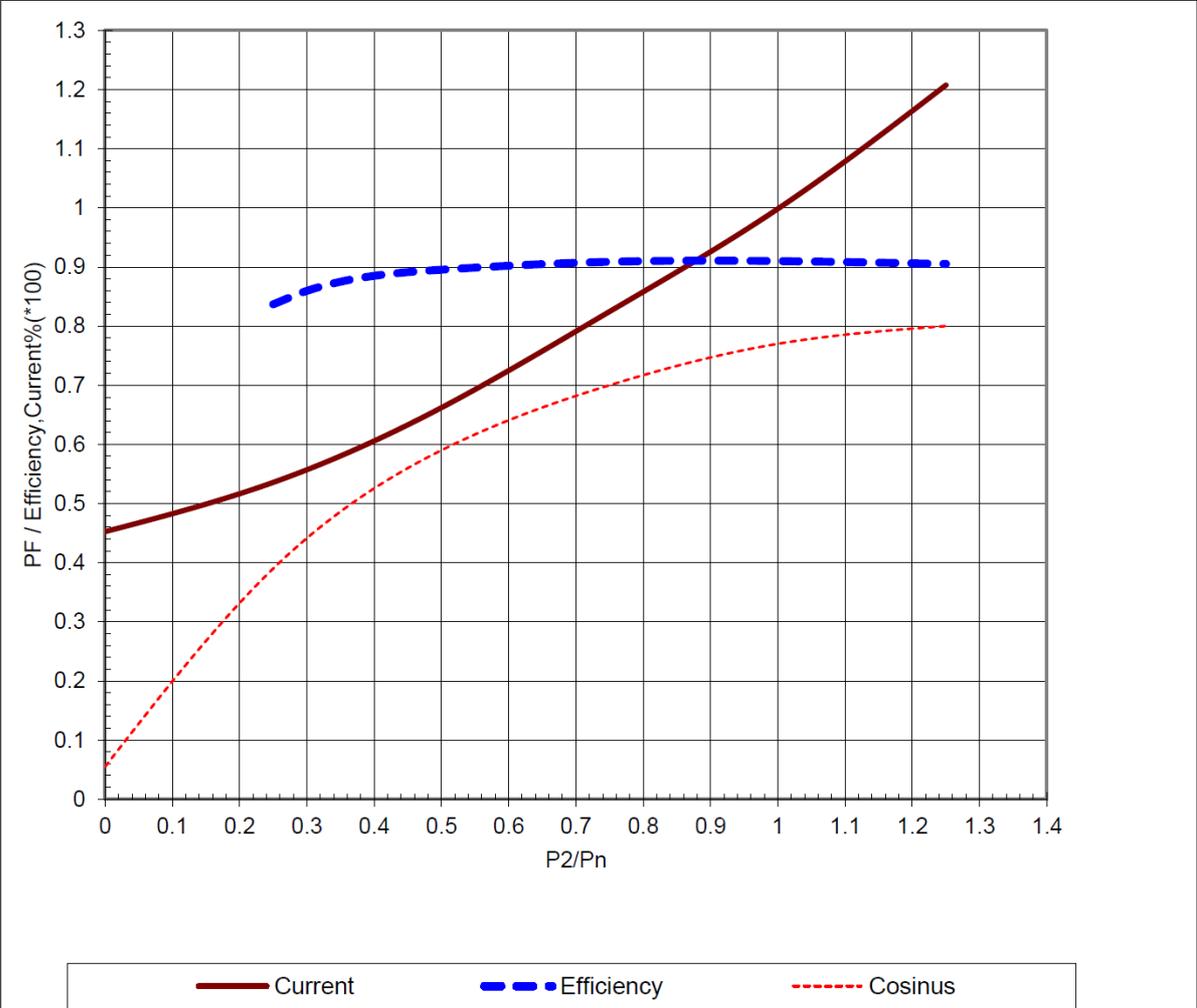


9.0	Condenser Tube Ball Recirculating Pump Motor		T91
9.1	Make		ABB
9.2	Type		Squirrel cage induction, TEFC
9.3	Applicable Standard		IEC
9.4	Quantity for 2 Units	Nos.	4
9.5	Duty		S1, Continuous
9.6	Design Ambient Temperature	° C	50
9.7	Degree of Protection		IP 55
9.8	Rated Power	kW	9.3
9.9	Nominal Current	Amps	20.2
9.10	Synchronous Speed	RPM	1470
9.11	Frame Size		160ML
9.12	Rated Voltage / frequency		380V AC, 50Hz, 3 Ph
9.13	Voltage variation		± 10%
9.14	Frequency variation		± 5%
9.15	Combined Voltage / Frequency variation		10% absolute
9.16	Class of insulation		F (Temperature rise limited to class B)
9.17	Type of Starting		Direct - on - line ( DOL )
9.18	Drive Transmission		Flexible Coupling
9.19	Efficiency	%	91 (IE2)
9.20	Power Factor	%	0.77
9.21	KKS No.		50PAH11AP010-M01, 50PAH12AP010-M01

NOTE : KKS No. Shall be changed from "50" to "60" for UNIT 6 .

ABB Motors and Generators	<b>Load Curves</b>		
	Project	Location	
Department/Author	Customer name	Customer ref.	Item name 1.00001
Our ref.	Rev/Changed by <b>A</b>	Date of issue <b>02-07-2018</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>M2BAX 160MLJ 4</b>	Calc. ref.	<b>3GZH021016-36</b>
Product code	<b>3GBA 162 490-ADDIN</b>		
Rated output P <sub>N</sub>	<b>9.3</b>	kW	
Type of duty	<b>S1 100%</b>		
Voltage (V)	<b>380</b>	Current I <sub>N</sub> (A)	<b>20.2</b>
Frequency (Hz)	<b>50</b>	Speed (r/min)	<b>1470</b>
		Power factor at P <sub>N</sub>	<b>0.77</b>
		Efficiency (%) at P <sub>N</sub>	<b>91</b>



P2/P <sub>n</sub>	Current (%)	Efficiency (%)	Cosinus (%)
0.0	0.45	-	0.05
0.1	0.50	-	0.20
0.2	0.55	-	0.35
0.3	0.60	0.85	0.45
0.4	0.65	0.88	0.55
0.5	0.70	0.90	0.62
0.6	0.75	0.90	0.68
0.7	0.80	0.90	0.72
0.8	0.85	0.90	0.75
0.9	0.90	0.90	0.77
1.0	0.95	0.90	0.78
1.1	1.00	0.90	0.79
1.2	1.05	0.90	0.80
1.3	1.10	0.90	0.80

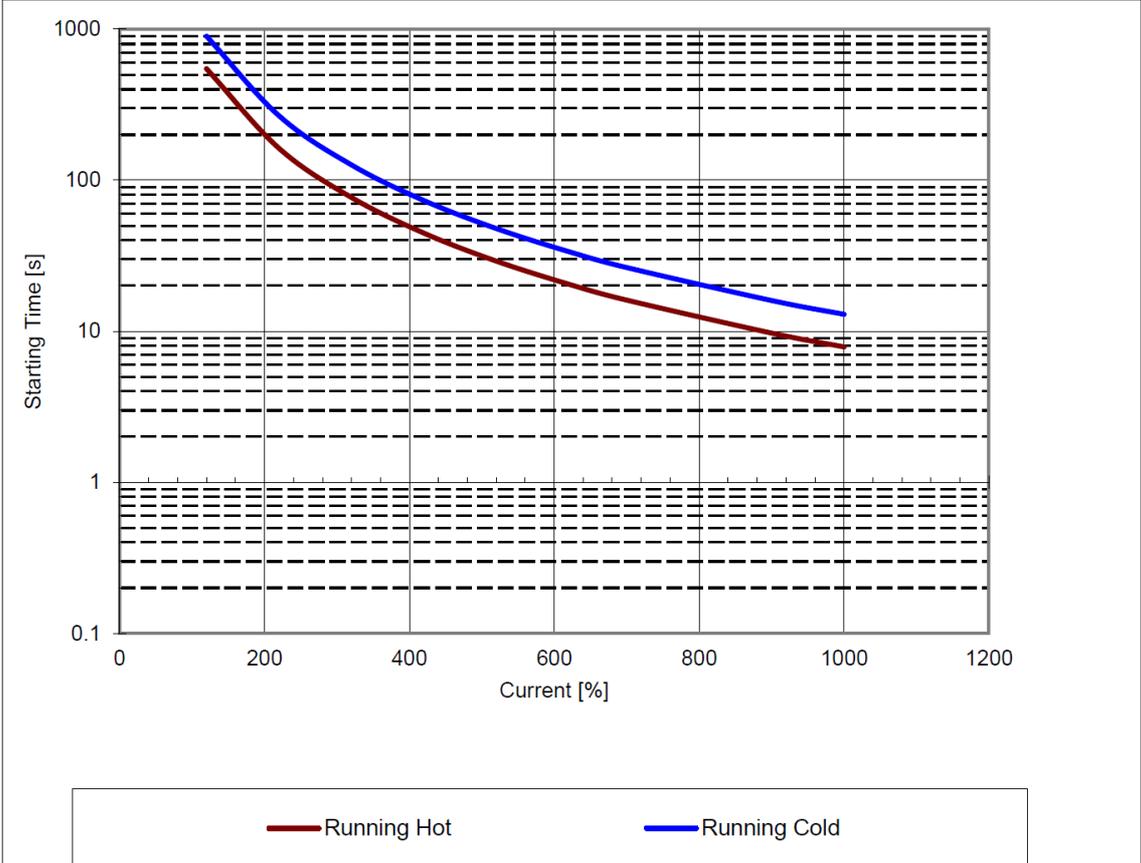
Data based on situation 6/26/2015

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

ABB Motors and Generators	<b>Starting Curves</b>			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name <b>1.00001</b>
Our ref.	Rev/Changed b Date of issue <b>A 02-07-2018</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>M2BAX 160MLJ 4</b>	Calc. ref.	<b>3GZH021016-36</b>	
Product code	<b>3GBA 162 490-ADDIN</b>	Frequency (Hz)	<b>50</b>	
Rated output P <sub>N</sub>	<b>9.3 kW</b>	Rated current I <sub>N</sub>	<b>20.2</b>	<b>A</b>
Type of duty	<b>S1 100%</b>			
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.1</b>	Voltage (V) 100%	<b>380</b>	Voltage (V) <b>380V(100%)</b>
J <sub>load</sub> (kgm <sup>2</sup> )		T <sub>start</sub> /T <sub>N</sub>	<b>2.7</b>	T <sub>start</sub> /T <sub>N</sub> <b>2.7</b>
Speed (r/min)	<b>1470</b>	Starting time (s)		Starting time (s)
T <sub>N</sub> (Nm)	<b>60</b>	Speed (r/min)		Speed (r/min)
T <sub>load</sub> (Nm)		I <sub>s</sub> /I <sub>n</sub>	<b>7.5</b>	I <sub>s</sub> /I <sub>n</sub> <b>7.5</b>
		T <sub>max</sub> /T <sub>n</sub>	<b>4</b>	T <sub>max</sub> /T <sub>n</sub> <b>4</b>
<p>Data based on situation 6/26/2015</p> <p style="text-align: center;">All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004</p>				

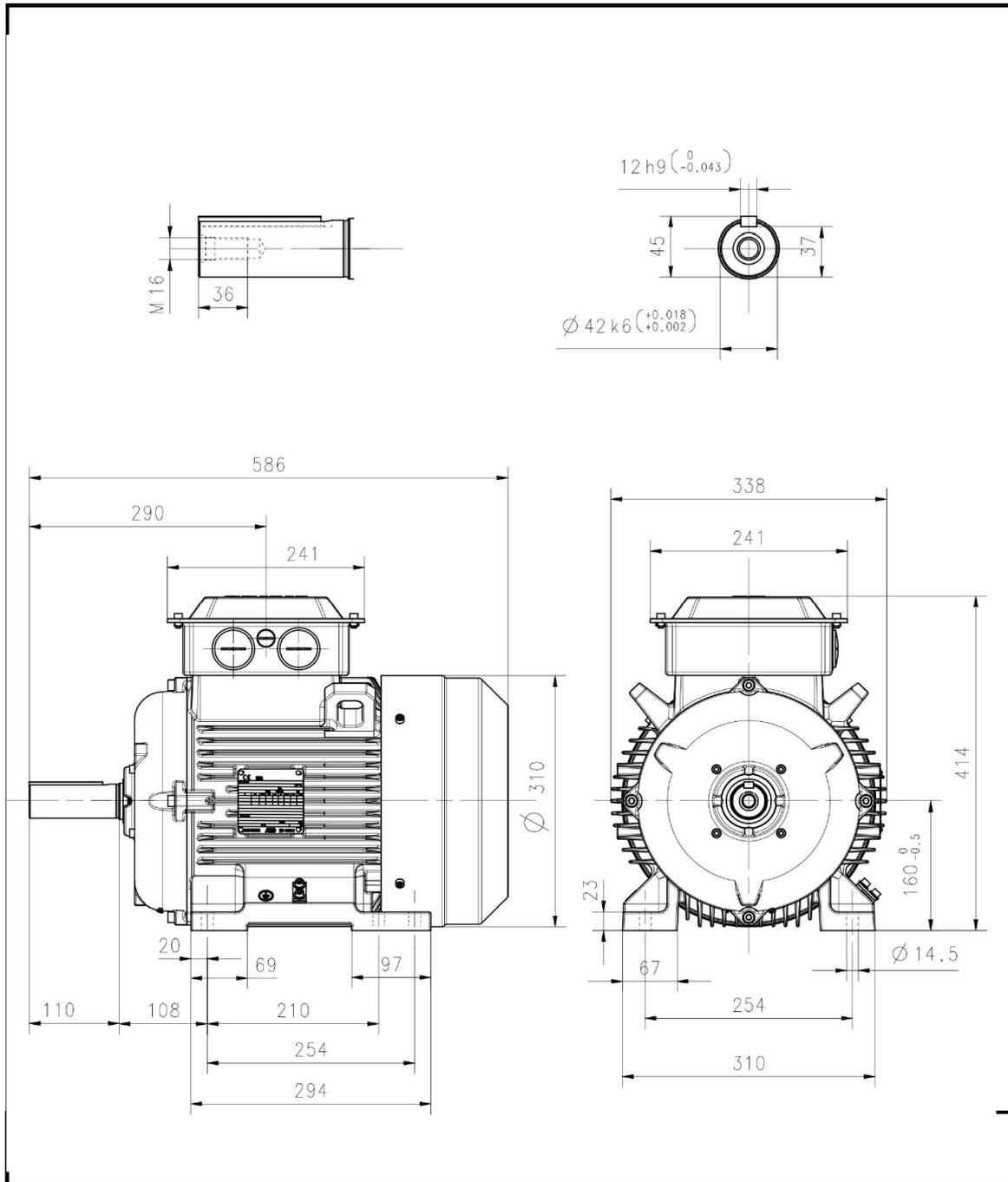
ABB Motors and Generators	<b>Thermal Withstand Curve</b>			
	Project	Location		
Department/Author	Customer name	Customer ref.		Item name <b>1.00001</b>
Our ref.	Rev/Changed b Date of issue <b>A 02-07-2018</b>	Saving ident <b>untitled.xls</b>		Pages <b>5(3)</b>
Type of product	<b>TEFC, 3-phase, squirrel cage induction motor</b>			
Type/Frame	<b>M2BAX 160MLJ 4</b>	Calc. ref.	<b>3GZH021016-36</b>	
Product code	<b>3GBA 162 490-ADDIN</b>	Frequency (Hz)	<b>50</b>	
Rated output P <sub>N</sub>	<b>9.3 kW</b>	Rated current I <sub>N</sub>	<b>20.2</b>	<b>A</b>
Type of duty	<b>S1 100%</b>			
J <sub>motor</sub> (kgm <sup>2</sup> )	<b>0.1</b>	Voltage (V) 100%	<b>380</b>	Voltage (V) <b>380V(100%)</b>
J <sub>load</sub> (kgm <sup>2</sup> )		T <sub>start</sub> /T <sub>N</sub>	<b>2.7</b>	T <sub>start</sub> /T <sub>N</sub> <b>2.7</b>
Speed (r/min)	<b>1470</b>	Starting time (s)		Starting time (s)
T <sub>N</sub> (Nm)	<b>60</b>	Speed (r/min)		Speed (r/min)
T <sub>load</sub> (Nm)		I <sub>s</sub> /I <sub>n</sub>	<b>7.5</b>	I <sub>s</sub> /I <sub>n</sub> <b>7.5</b>
		T <sub>max</sub> /T <sub>n</sub>	<b>4</b>	T <sub>max</sub> /T <sub>n</sub> <b>4</b>

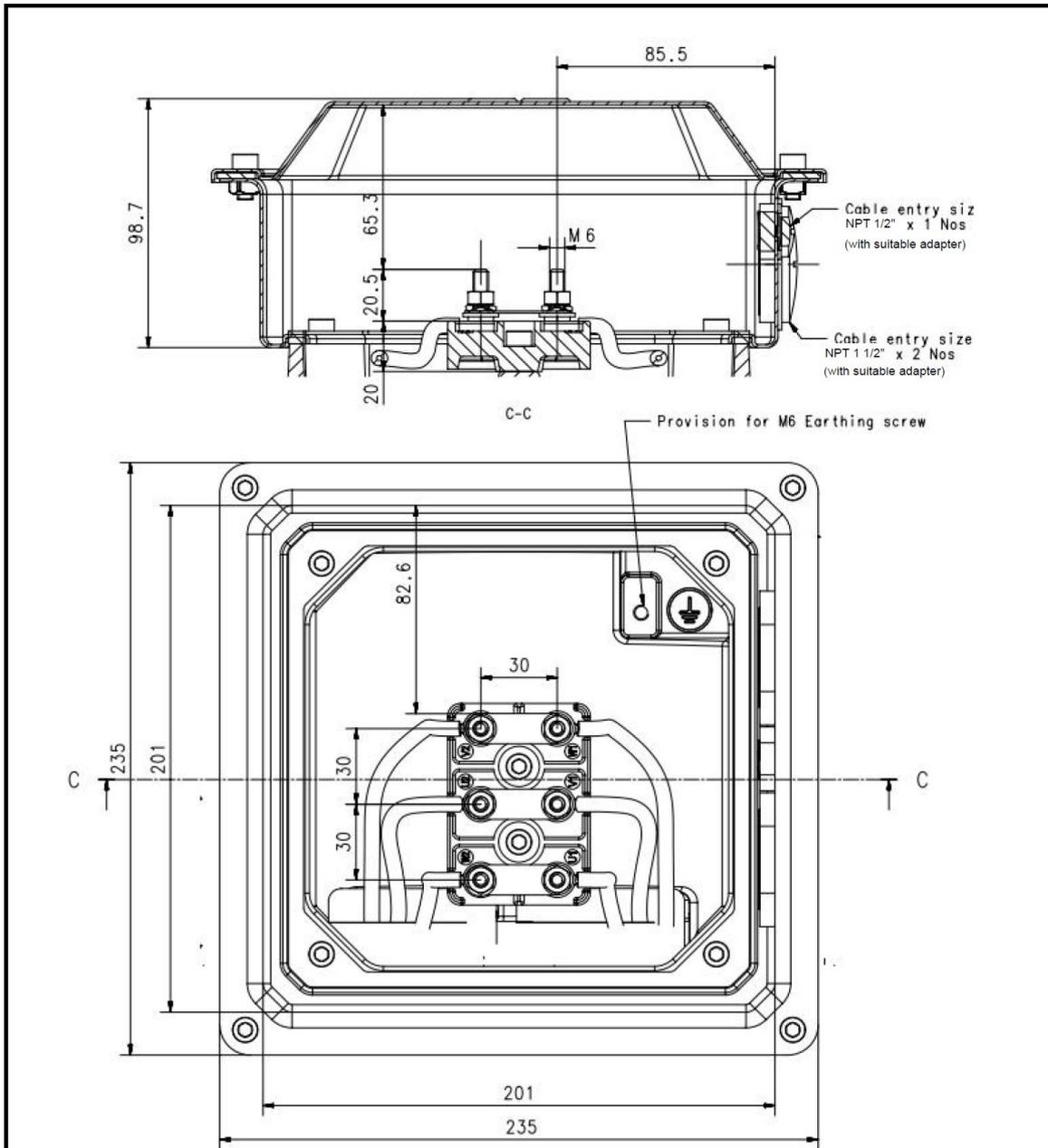


— Running Hot                      — Running Cold

Data based on situation 6/26/2015  
 All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004



<b>Dimension Print</b>		Motor Type: M2BAX 160 Short B3, V5, V6	Document No: 3GZH500016-1 A
Description: STANDARD IE1, IE2 SQUIRREL CAGE MOTOR			
Unit: ABB LV Motors, India.	Issued by: MB	Replaces:	
Date: 2014-03-10	Approved by: SA	Replaced by:	
Customer Reference:			<b>ABB</b>



Additional Information:		
<b>Dimension Print</b>	Motor Type:	Document No:
	M2BAX 160-200 IE1, IE2; M2BAX 160-180 IE3	3GZH101716-15 A
Description: <b>TERMINAL BOX</b>		
Unit: ABB LV Motors, India.	Issued by: MB	Replaces:
Date: <b>2014-03-10</b>	Approved by: SA	Replaced by:
Customer Reference:		<b>ABB</b>