

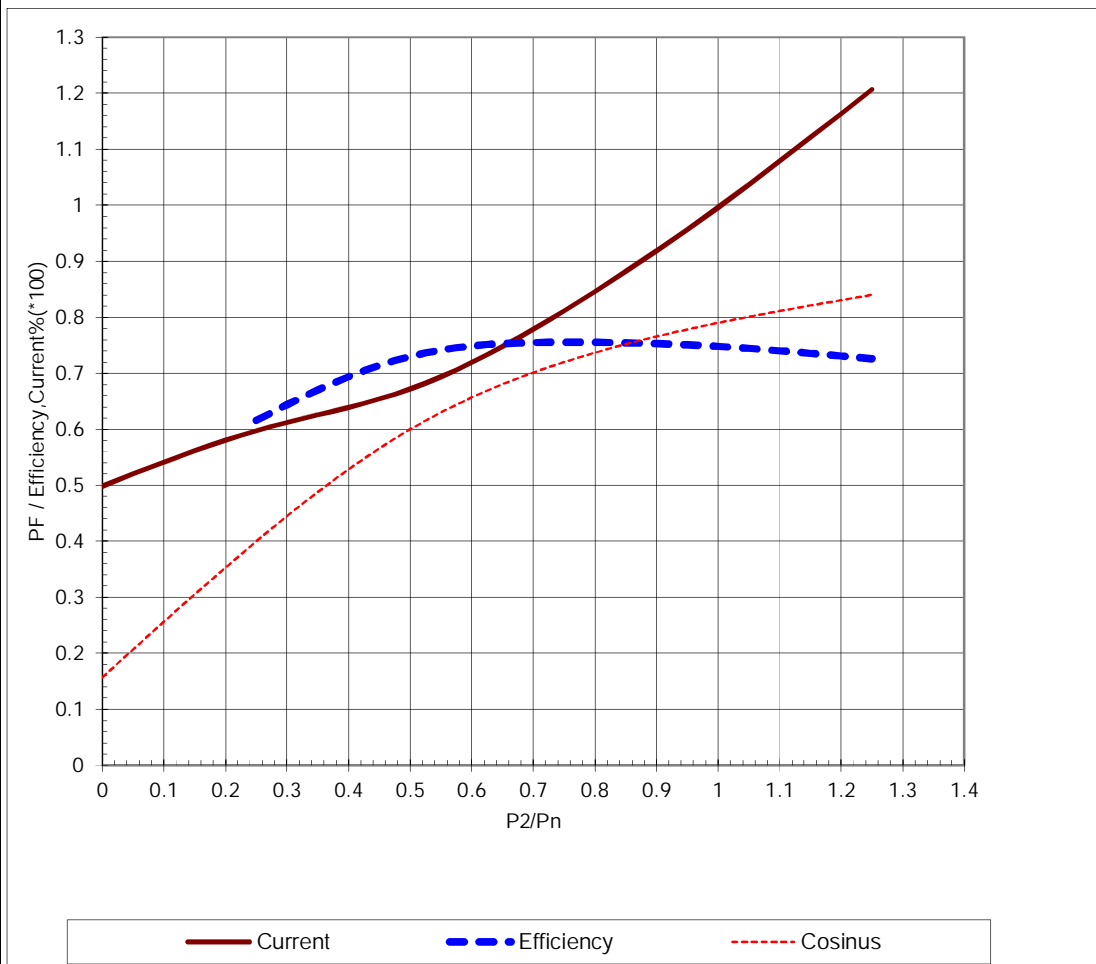


| ABB Motors and Generators         |  | Technical Data Sheet                                |                   |                   |  |               |
|-----------------------------------|--|---|-------------------|-------------------|---|---------------|
| Department/Author                 |  | Project   | Location          |                   | Item name   |               |
| Our ref.                          |  | Rev/Changed by                                      | Date of issue     | Saving ident      | Pages   |               |
|                                   |  | A   | 1/17/2019         | untitled.xls      | 1(3)  |               |
| No.                               | Definition   | Data  | Unit              | Remarks           |   |               |
| 1                                 | Product  | <b>TEFC, 3-phase, squirrel cage induction motor</b> |                   |                   |   |               |
| 2                                 | Product code                                       | <b>3GBA 071 320-BSCIN</b>                           |                   |                   | Calc. ref.  | 3GZH021007-13 |
| 3                                 | Type/Frame   | <b>M2BAX 71MB 2</b>                                 |                   |                   |   |               |
| 4                                 | Mounting   | <b>IM3001, B5(flange)</b>                           |                   |                   |   |               |
| 5                                 | Rated output P <sub>N</sub>                        | <b>0.55</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>  | VY                | +10, -10 %        |   |               |
| 9                                 | Rated frequency f <sub>N</sub>                     | <b>50</b>   | Hz                | +5, -5 %          |   |               |
| 10                                | Rated speed n <sub>N</sub>                         | <b>2785</b>   | r/min             |                   |   |               |
| 11                                | Rated current I <sub>N</sub>                       | <b>1.3</b>  | A                 |                   |   |               |
| 12                                |  |   |                   |                   |   |               |
| 13                                | Starting current I <sub>s</sub> /I <sub>N</sub>    | <b>5</b>  |                   |                   |   |               |
| 14                                | Nominal torque T <sub>N</sub>                      | <b>1.89</b>   | Nm                |                   |   |               |
| 15                                | Locked rotor torque T <sub>S</sub> /T <sub>N</sub> | <b>2.2</b>  |                   |                   |   |               |
| 16                                | Maximum torque T <sub>max</sub> /T <sub>N</sub>    | <b>2.7</b>  |                   |                   |   |               |
| 17                                |  |   |                   |                   |   |               |
| 18                                |  |   |                   |                   |   |               |
| Load characteristics              |  | Load %  | Current A         | Efficiency %      | Power factor  |               |
| 19                                | PLL determined from residual loss                  | <b>100</b>  | <b>1.3</b>        | <b>74.8 / IE2</b> | <b>0.79</b>   |               |
| 20                                |  | <b>75</b>   | <b>1.06</b>       | <b>75.5</b>       | <b>0.72</b>   |               |
| 21                                |  | <b>50</b>   | <b>0.87</b>       | <b>73</b>         | <b>0.6</b>  |               |
| 22                                |  |   |                   |                   |   |               |
| 23                                | Thermal withstand time hot                         | <b>5</b>  | s                 |                   |   |               |
| 24                                | Thermal withstand time cold                        | <b>13</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>6203-2Z/C3 - 6202-2Z/C3</b>                      |                   |                   |   |               |
| 31                                | Sound pressure level (LP dB(A) 1m)                 | <b>69</b>   | dB(A)             | at no-load        |   |               |
| 32                                | Moment of inertia J = ¼ GD <sup>2</sup>            | <b>0.00041</b>                                      | kg·m <sup>2</sup> |                   |   |               |
| 33                                | Position of terminal box                           | <b>Top</b>  |                   |                   |   |               |
| 34                                | Direction of rotation                              | <b>Bi-directional</b>                               |                   |                   |   |               |
| 35                                | Weight of rotor                                    | <b>1</b>  | kg                |                   |   |               |
| 36                                | Total weight of motor                              | <b>10</b>   | kg                |                   |   |               |
| 37                                |  |   |                   |                   |   |               |
| 38                                |  |   |                   |                   |   |               |
| 39                                |  |   |                   |                   |   |               |
| 40                                |  |   |                   |                   |   |               |
| 41                                |  |   |                   |                   |   |               |
| 42                                |  |   |                   |                   |   |               |
| 43                                |  |   |                   |                   |   |               |
| 44                                |  |   |                   |                   |   |               |
| 45                                |  |   |                   |                   |   |               |
| Ex-motors                         |  |   |                   |                   |   |               |
| 46                                |  |   |                   |                   |   |               |
| 47                                |  |   |                   |                   |   |               |
| 48                                |  |   |                   |                   |   |               |
| Option Variant Codes / Definition |  |   |                   |                   |   |               |
| 49                                |  |   |                   |                   |   |               |
| 50                                |  |   |                   |                   |   |               |
| 51                                |  |   |                   |                   |   |               |
| 52                                |  |   |                   |                   |   |               |
| Remarks:                          |  |   |                   |                   |   |               |
| Data based on situation 8/8/2016  |  |   |                   |                   |   |               |

All performance values are subject to IS/IEC tolerances


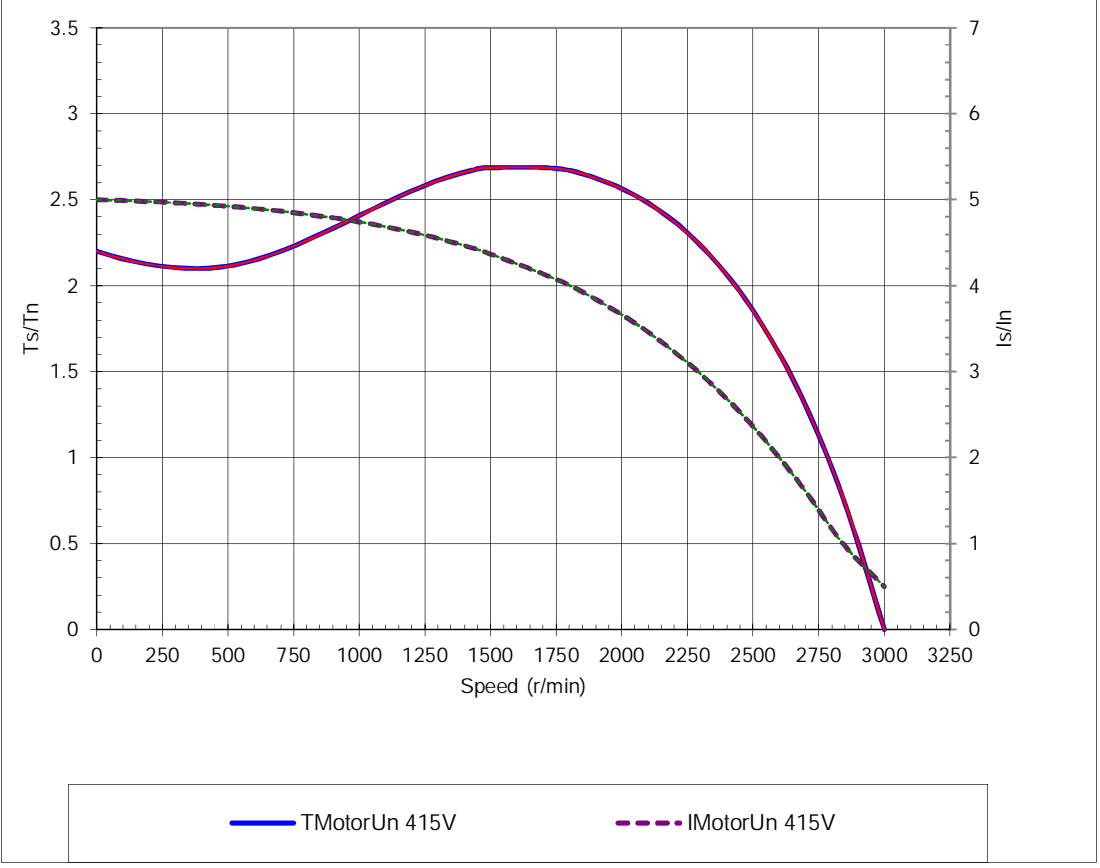
|                                  |   |                                   |   |
|----------------------------------|---|-----------------------------------|---|
| <b>ABB Motors and Generators</b> | <b>Load Curves</b>  |                                   |  |
|                                  | Project   | Location                          |   |
| Department/Author                | Customer name   | Customer ref.                     | Item name<br><b>1.00001</b>   |
| Our ref.                         | Rev/Changed by<br><b>A</b>                                  | Date of issue<br><b>1/17/2019</b> | Saving ident<br><b>untitled.xls</b>   |
| Pages<br><b>2(3)</b>             | Product <b>TEFC, 3-phase, squirrel cage induction motor</b> |                                   |   |
| Type/Frame                       | <b>M2BAX 71MB 2</b>   | Calc. ref.                        | <b>3GZH021007-13</b>  |
| Product code                     | <b>3GBA 071 320-BSCIN</b>                                   |                                   |   |
| Rated output P <sub>N</sub>      | <b>0.55 kW</b>  |                                   |   |
| Type of duty                     | <b>S1 100%</b>  |                                   |   |


|                |            |                            |             |                                  |             |
|----------------|------------|----------------------------|-------------|----------------------------------|-------------|
| Voltage (V)    | <b>415</b> | Current I <sub>N</sub> (A) | <b>1.3</b>  | Power factor at P <sub>N</sub>   | <b>0.79</b> |
| Frequency (Hz) | <b>50</b>  | Speed (r/min)              | <b>2785</b> | Efficiency (%) at P <sub>N</sub> | <b>74.8</b> |



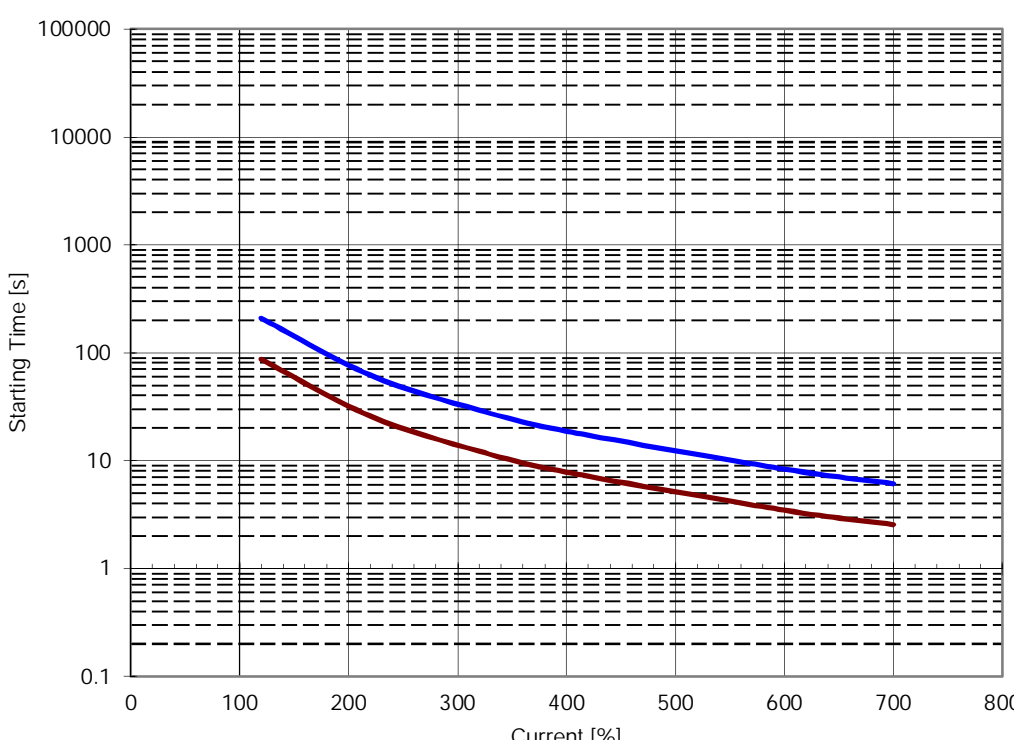
Data based on situation 8/8/2016

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

| ABB Motors and Generators   | Starting Curves                                     |                                   |                                     |  |
|---|---|-----------------------------------|-------------------------------------|---|
|   | Project   | Location                          |                                     |   |
| Department/Author   | Customer name                                       | Customer ref.                     |                                     | Item name<br><b>1.00001</b>   |
| Our ref.  | Rev/Changed by<br><b>A</b>                          | Date of issue<br><b>1/17/2019</b> | Saving ident<br><b>untitled.xls</b> | Pages<br><b>3(3)</b>  |
| Type of product   | <b>TEFC, 3-phase, squirrel cage induction motor</b> |                                   |                                     |   |
| Type/Frame  | <b>M2BAX 71MB 2</b>                                 | Calc. ref.                        | <b>3GZH021007-13</b>                |   |
| Product code  | <b>3GBA 071 320-BSCIN</b>                           | Frequency (Hz)                    | <b>50</b>                           |   |
| Rated output $P_N$  | <b>0.55 kW</b>                                      | Rated current $I_N$               | <b>1.3</b>                          | <b>A</b>  |
| Type of duty  | <b>S1 100%</b>                                      |                                   |                                     |   |
| $J_{motor}$ (kgm <sup>2</sup> )   | <b>0.0004</b>                                       | Voltage (V) 100%                  | <b>415</b>                          | Voltage (V) <b>415V(100%)</b>   |
| $J_{load}$ (kgm <sup>2</sup> )  |   | $T_{start}/T_N$                   | <b>2.2</b>                          | $T_{start}/T_N$ <b>2.2</b>  |
| Speed (r/min)   | <b>2785</b>   | Starting time (s)                 |                                     | Starting time (s)   |
| $T_N$ (Nm)  | <b>1.89</b>   | Speed (r/min)                     |                                     | Speed (r/min) <b>1395</b>   |
| $T_{load}$ (Nm)   |   | $I_s/I_n$                         | <b>5</b>                            | $I_s/I_n$ <b>5</b>  |
|   |   | $T_{max}/T_n$                     | <b>2.7</b>                          | $T_{max}/T_n$ <b>2.7</b>  |
|  <p>The graph plots torque ratio <math>T_s/T_n</math> (left y-axis, 0 to 3.5) and current ratio <math>I_s/I_n</math> (right y-axis, 0 to 7) against speed in r/min (x-axis, 0 to 3250). A solid blue line represents <math>T_{MotorUn}</math> at 415V, and a dashed purple line represents <math>I_{MotorUn}</math> at 415V. The torque curve starts at approximately 2.2 at 0 r/min, peaks at about 2.7 around 1500 r/min, and drops to 0 at 3000 r/min. The current curve starts at 5 at 0 r/min and decreases as speed increases, reaching 0 at 3000 r/min.</p> |   |                                   |                                     |   |
| <p>Data based on situation 8/8/2016</p> <p>All data subject to tolerances in accordance with IS/IEC 60034-1 : 2004</p>  |   |                                   |                                     |   |

|  |   |                                    |   |
|--|---|------------------------------------|---|
| <b>ABB Motors and Generators</b>       | <b>Thermal Withstand Curve</b>                      |                                    |  |
|  | Project   | Location                           |   |
| Department/Author                      | Customer name                                       | Customer ref.                      | Item name<br><b>1.00001</b>   |
| Our ref.                               | Rev/Changed by<br><b>A</b>                          | Date of issue<br><b>1/17/2019</b>  | Saving ident<br><b>untitled.xls</b>   |
| Pages<br><b>5(3)</b>                   |   |                                    |   |
| Type of product                        | <b>TEFC, 3-phase, squirrel cage induction motor</b> |                                    |   |
| Type/Frame                             | <b>M2BAX 71MB 2</b>                                 | Calc. ref.                         | <b>3GZH021007-13</b>  |
| Product code                           | <b>3GBA 071 320-BSCIN</b>                           | Frequency (Hz)                     | <b>50</b>   |
| Rated output P <sub>N</sub>            | <b>0.55 kW</b>                                      | Rated current I <sub>N</sub>       | <b>1.3 A</b>  |
| Type of duty                           | <b>S1 100%</b>                                      |                                    |   |
| J <sub>motor</sub> (kgm <sup>2</sup> ) | <b>0.0004</b>                                       | Voltage (V) 100%                   | <b>415</b>  |
| J <sub>load</sub> (kgm <sup>2</sup> )  |   | Voltage (V)                        | <b>415V(100%)</b>   |
| Speed (r/min)                          | <b>2785</b>   | T <sub>start</sub> /T <sub>N</sub> | <b>2.2</b>  |
| T <sub>N</sub> (Nm)                    | <b>1.89</b>   | Starting time (s)                  | <b>2.2</b>  |
| T <sub>load</sub> (Nm)                 |   | Speed (r/min)                      | <b>1395</b>   |
|  |   | I <sub>s</sub> /I <sub>n</sub>     | <b>5</b>  |
|  |   | T <sub>max</sub> /T <sub>n</sub>   | <b>2.7</b>  |
|  |   | I <sub>s</sub> /I <sub>n</sub>     | <b>5</b>  |
|  |   | T <sub>max</sub> /T <sub>n</sub>   | <b>2.7</b>  |



| Current [%] | Running Hot [s] | Running Cold [s] |
|-------------|-----------------|------------------|
| 100         | ~100            | ~200             |
| 200         | ~30             | ~60              |
| 300         | ~15             | ~30              |
| 400         | ~8              | ~18              |
| 500         | ~5              | ~12              |
| 600         | ~3.5            | ~8               |
| 700         | ~2.5            | ~6               |

Data based on situation 8/8/2016

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