

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: QCA0904AF121GAA001

Catalog No: QCA0904AF121GAA001

TerraMAX® Cast Iron Motor, 120 HP, 3 Ph, 50 Hz, 380 V, 750 RPM, 315L Frame, TEFC



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**RegalRexnord**

### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP              | 120 Hp        | Output KW                  | 90.0 kW                     |
| Frequency              | 50 Hz         | Voltage                    | 380 V                       |
| Current                | 192.5 A       | Speed                      | 743 rpm                     |
| Service Factor         | 1             | Phase                      | 3                           |
| Efficiency             | 94.4 %        | Power Factor               | 0.76                        |
| Duty                   | S1            | Insulation Class           | F                           |
| Frame                  | 315L          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Ambient Temperature        | 40 °C                       |
| Drive End Bearing Size | 6319          | Opp Drive End Bearing Size | 6319                        |
| UL                     | No            | CSA                        | No                          |
| CE                     | YES           | IP Code                    | 55                          |
| Number of Speeds       | 1             | Efficiency Class           | IE4                         |

### Technical Specifications

|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 8             | Rotation              | Bi-Directional |
| Mounting              | B5            | Motor Orientation     | Horizontal     |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1317 mm       | Frame Length          | 840 mm         |
| Shaft Diameter        | 80 mm         | Shaft Extension       | 170 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Outline Drawing       | 0231500897    | Connection Drawing    | 8442000085     |

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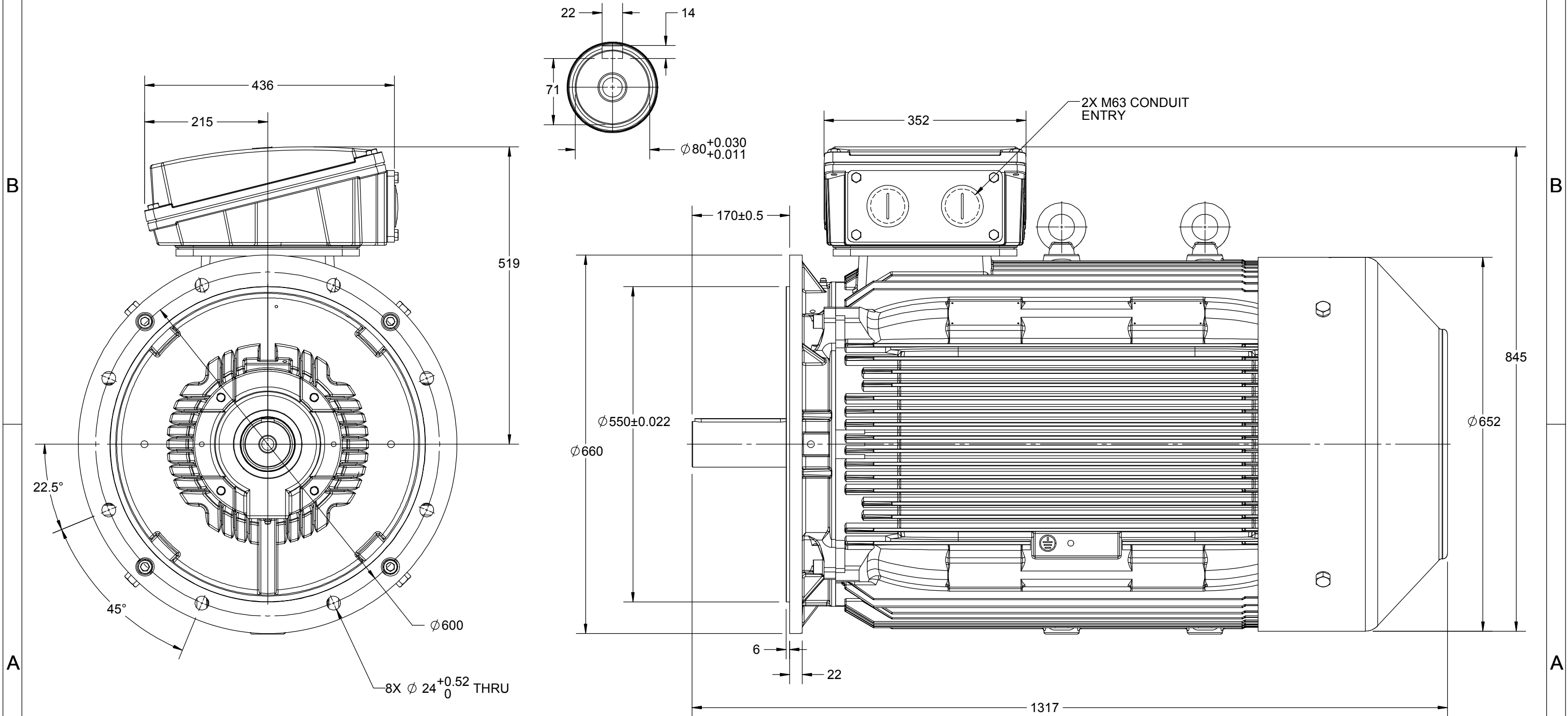
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# OUTLINE



|  |  |                    |  |                    |  |             |                           |  |  |  |           |  |                              |  |
|--|--|--------------------|--|--------------------|--|-------------|---------------------------|--|--|--|-----------|--|------------------------------|--|
| DRAWING REVISION<br>B  |  | REVISION BY<br>NIV |  | DATE<br>14/05/2019 |  | <div></div> | DRAWN BY<br>JOY           |  | <div>marathon™<br/>Motors</div>            |  |           |  |                              |  |
| ECO<br>ECO-0165600   |  | APPROVED BY<br>SR  |  | DATE<br>14/05/2019 |  |             | DATE<br>18/07/2014        |  |  |  |           |  |                              |  |
| ECO DESCRIPTION  |  |                    |  |                    |  |             | APPROVED BY<br>SBD        |  | DESCRIPTION                                |  |           |  |                              |  |
| <div>MODEL UPDATED</div> <div>COPYRIGHT REGAL BELOIT AMERICA, INC. ALL RIGHTS RESERVED.<br/>PROPRIETARY AND CONFIDENTIAL INFORMATION - THIS DOCUMENT IS THE PROPERTY OF<br/>REGAL BELOIT AMERICA, INC. ("OWNER") AND CONTAINS OWNER'S PROPRIETARY<br/>INFORMATION. ANY PERSON, CORPORATION OR OTHER FIRM RECEIVING IT IS DEEMED,<br/>BY RECEIVING IT, TO AGREE THAT IT, AND/OR ANY PART OF IT, SHALL NOT BE DISCLOSED<br/>TO ANY PERSON, CORPORATION OR OTHER ENTITY, DUPLICATED, AND/OR USED, EXCEPT<br/>AS EXPRESSLY APPROVED IN WRITING IN ADVANCE BY OWNER. THIS DOCUMENT SHALL<br/>BE RETURNED TO OWNER UPON REQUEST. IT MAY BE SUBJECT TO CERTAIN<br/>RESTRICTIONS UNDER APPLICABLE EXPORT CONTROL LAWS AND REGULATIONS.</div> |  |                    |  |                    |  |             | DATE<br>18/07/2014        |  | OUTLINE<br>FR-315L-B5 MTG. MOTOR TYPE: TCA |  |           |  |                              |  |
|  |  |                    |  |                    |  |             | REFERENCE                 |  | MATERIAL                                   |  |           |  | PROCESS/FINISH               |  |
|  |  |                    |  |                    |  |             | THIRD ANGLE<br>PROJECTION |  |  |  | SIZE<br>B |  | DRAWING NUMBER<br>0231500897 |  |

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### ECO DESCRIPTION



## GEOMETRIC TOLERANCE

|            |         |      |
|------------|---------|------|
| LINEAR DIM | >0~6    | ±0.1 |
|            | >6~30   | ±0.2 |
|            | >30~120 | ±0.3 |



1. PRESSURE-SENSITIVE ADHESIVE COATED PAPER ON THE BACK OF SELF-ADHESIVE.
2. AT THE END OF YELLOW, WORDS, SYMBOLS, LETTERS ARE BLACK, BORDER IS BLACK.
3. THE TOLERANCE OF THE LINEAR SIZE OF THE TOLERANCE WITHOUT THE TOLERANCE BY THE TABLE.

8WD.442.2017

|   |                           |   |                                     |                        |
|---|---------------------------|---|-------------------------------------|------------------------|
|  | DRAWN BY<br>SN            |  Regal Beloit America, Inc. |                                     |                        |
|   | DATE<br>16/12/2016        |   |                                     |                        |
|   | APPROVED BY<br>SBD        | DESCRIPTION<br><b>CONN DIAGRAM-NAMEPLATE</b>  |                                     |                        |
|   | DATE<br>16/12/2016        |   |                                     |                        |
|   | REFERENCE                 | MATERIAL  |                                     | PROCESS/FINISH         |
|   | THIRD ANGLE<br>PROJECTION | SIZE<br><b>A</b>  | DRAWING NUMBER<br><b>8442000085</b> | SHEET<br><b>1 OF 1</b> |

**Model No.** QCA0904AF121GAA001

| U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[Nm] | IE<br>Class | % EFF at __ load |    |       |       | PF at __ load |       |       | I <sub>A</sub> /I <sub>N</sub><br>[pu] | T <sub>A</sub> /T <sub>N</sub><br>[pu] | T <sub>K</sub> /T <sub>N</sub><br>[pu] |
|----------|---------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|----|-------|-------|---------------|-------|-------|--|--|--|
| 380      | Δ             | 50        | 90        | 120       | 190.6    | 743        | 1150.55   | IE4         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 5.2                                    | 2.0                                    | 2.1                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |  |  |  |

|                                  |                             |   |   |
|----------------------------------|-----------------------------|---|---|
| Motor type                       | QCA                         | Degree of protection                      | IP 55                                       |
| Enclosure                        | TEFC                        | Mounting type                             | IM B5                                       |
| Frame Material                   | Cast Iron                   | Cooling method                            | IC 411                                      |
| Frame size                       | 315L                        | Motor weight - approx.                    | 1098 kg                                     |
| Duty                             | S1                          | Gross weight - approx.                    | 1143 kg                                     |
| Voltage variation *              | ± 10%                       | Motor inertia                             | 6.2165 kgm <sup>2</sup>                     |
| Frequency variation *            | ± 5%                        | Load inertia                              | Customer to Provide                         |
| Combined variation *             | 10%                         | Vibration level                           | 2.8 mm/s                                    |
| Design                           | N                           | Noise level ( 1meter distance from motor) | 64 dB(A)                                    |
| Service factor                   | 1.0                         | No. of starts hot/cold/Equally spread     | 2/3/4                                       |
| Insulation class                 | F                           | Starting method                           | DOL   |
| Ambient temperature              | -20 to +40 °C               | Type of coupling                          | Direct                                      |
| Temperature rise (by resistance) | 80 [ Class B ] K            | LR withstand time (hot/cold)              | 15/30 s                                     |
| Altitude above sea level         | 1000 meter                  | Direction of rotation                     | Bi-directional                              |
| Hazardous area classification    | NA                          | Standard rotation                         | Clockwise form DE                           |
| Zone classification              | NA                          | Paint shade                               | RAL 5014                                    |
| Gas group                        | NA                          | Accessories                               |   |
| Temperature class                | NA                          | Accessory - 1                             | PTC 150°C                                   |
| Rotor type                       | Aluminum Die cast           | Accessory - 2                             | -   |
| Bearing type                     | Anti-friction ball          | Accessory - 3                             | -   |
| DE / NDE bearing                 | 6319 C3 / 6319 C3           | Terminal box position                     | TOP   |
| Lubrication method               | Regreasable                 | Maximum cable size/conduit size           | 1R x 3C x 240mm <sup>2</sup> /2 x M63 x 1.5 |
| Type of grease                   | CHEVRON SRI-2 or Equivalent | Auxiliary terminal box                    | NA  |

I<sub>A</sub>/I<sub>N</sub> - Locked Rotor Current / Rated Current

T<sub>K</sub>/T<sub>N</sub> - Breakdown Torque / Rated Torque

T<sub>A</sub>/T<sub>N</sub> - Locked Rotor Torque / Rated Torque

**NOTE**

All performance values at rated voltage and frequency.

All performance parameters are subjected to standard tolerance as per IEC 60034-1

\* Voltage, Frequency and combine variation are as per IEC60034-1

Technical data are subject to change. There may be discrepancies between calculated and name plate values.

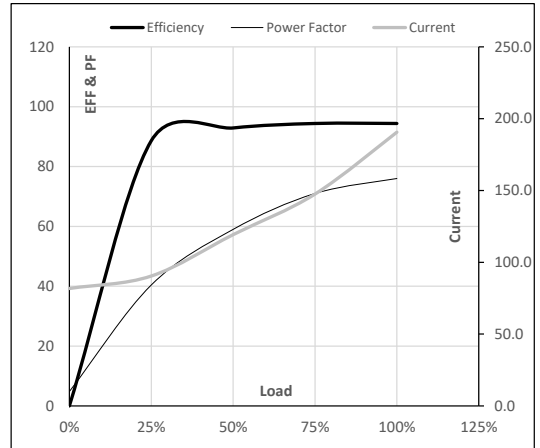
| Efficiency Standards | Europe | China                 | India | Aus/Nz | Brazil | Global IEC    |
|----------------------|--------|-----------------------|-------|--------|--------|---------------|
|                      | -      | GB 18613-2012 Grade 2 | -     | -      | -      | IEC: 60034-30 |

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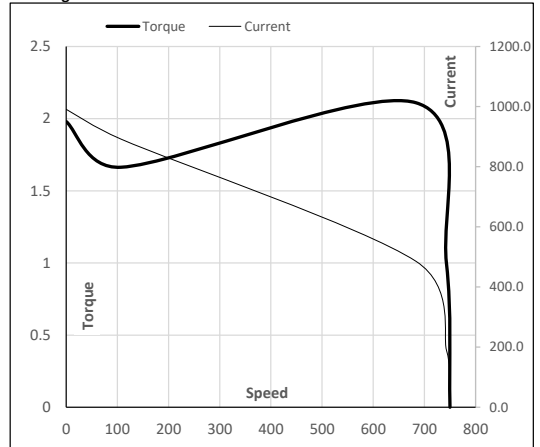
| Enclosure | U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 380      | Δ             | 50        | 90        | 120       | 190.6    | 743        | 117.32     | 1150.55   | IE4         | 40          | S1   | 1000             | 6.2165                          | 1098           |

**Motor Load Data**

| Load Point   |       | NL   | 1/4FL | 1/2FL | 3/4FL | FL     | 5/4FL |
|--------------|-------|------|-------|-------|-------|--------|-------|
| Current      | A     | 81.8 | 90.4  | 119.3 | 147.5 | 190.6  |       |
| Torque       | Nm    | 0.0  | 285.7 | 572.6 | 860.8 | 1150.5 |       |
| Speed        | r/min | 750  | 748   | 747   | 745   | 743    |       |
| Efficiency   | %     | 0.0  | 88.6  | 92.9  | 94.4  | 94.4   |       |
| Power Factor | %     | 4.8  | 40.4  | 59.0  | 71.0  | 76.0   |       |

**Performance vs Load Chart**

**Motor Speed Torque Data**

| Load Point |       | LR    | P-Up  | BD    | Rated | NL   |
|------------|-------|-------|-------|-------|-------|------|
| Speed      | r/min | 0     | 107   | 684   | 743   | 750  |
| Current    | A     | 991.1 | 892.0 | 485.4 | 190.6 | 81.8 |
| Torque     | pu    | 2.0   | 1.7   | 2.1   | 1     | 0    |

**Starting Characteristics Chart**

**NOTE** Refer data sheet for applicable standard and tolerances on performance parameters

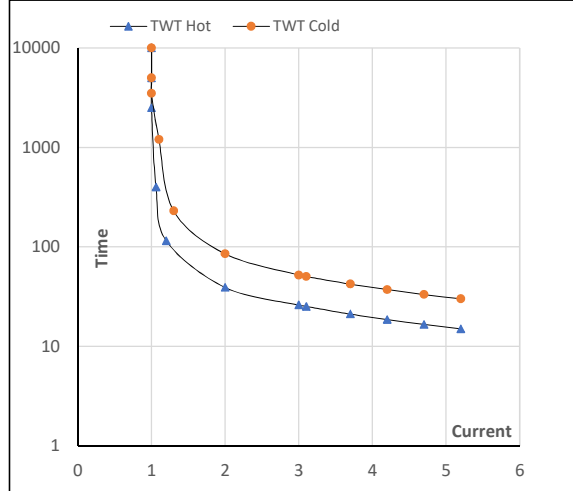
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| Enclosure | U<br>(V) | $\Delta$ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[rpm] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|----------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 380      | $\Delta$             | 50        | 90        | 120       | 190.6    | 743        | 117.32     | 1150.55   | IE4         | 40          | S1   | 1000             | 6.2165                          | 1098           |

**Motor Speed Torque Data**

| Load     | FL      | I <sub>1</sub> | I <sub>2</sub> | I <sub>3</sub> | I <sub>4</sub> | I <sub>5</sub> | LR  |
|----------|---------|----------------|----------------|----------------|----------------|----------------|-----|
| TWT Hot  | s 10000 | 39             | 26             | 20             | 17             | 16             | 15  |
| TWT Cold | s 10000 | 85             | 52             | 41             | 35             | 32             | 30  |
| Current  | pu      | 1              | 3              | 4              | 4.5            | 5              | 5.2 |

**Thermal Characteristics Chart**

**NOTE** Refer data sheet for applicable standard and tolerances on performance parameters

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