

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA5P54A3111GACD01

Catalog No: TCA5P54A3111GACD01

Cast Iron Motor, 7.50 HP, 3 Ph, 50 Hz, 415 V, 750 RPM, 160M Frame, TEFC



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**RegalRexnord**

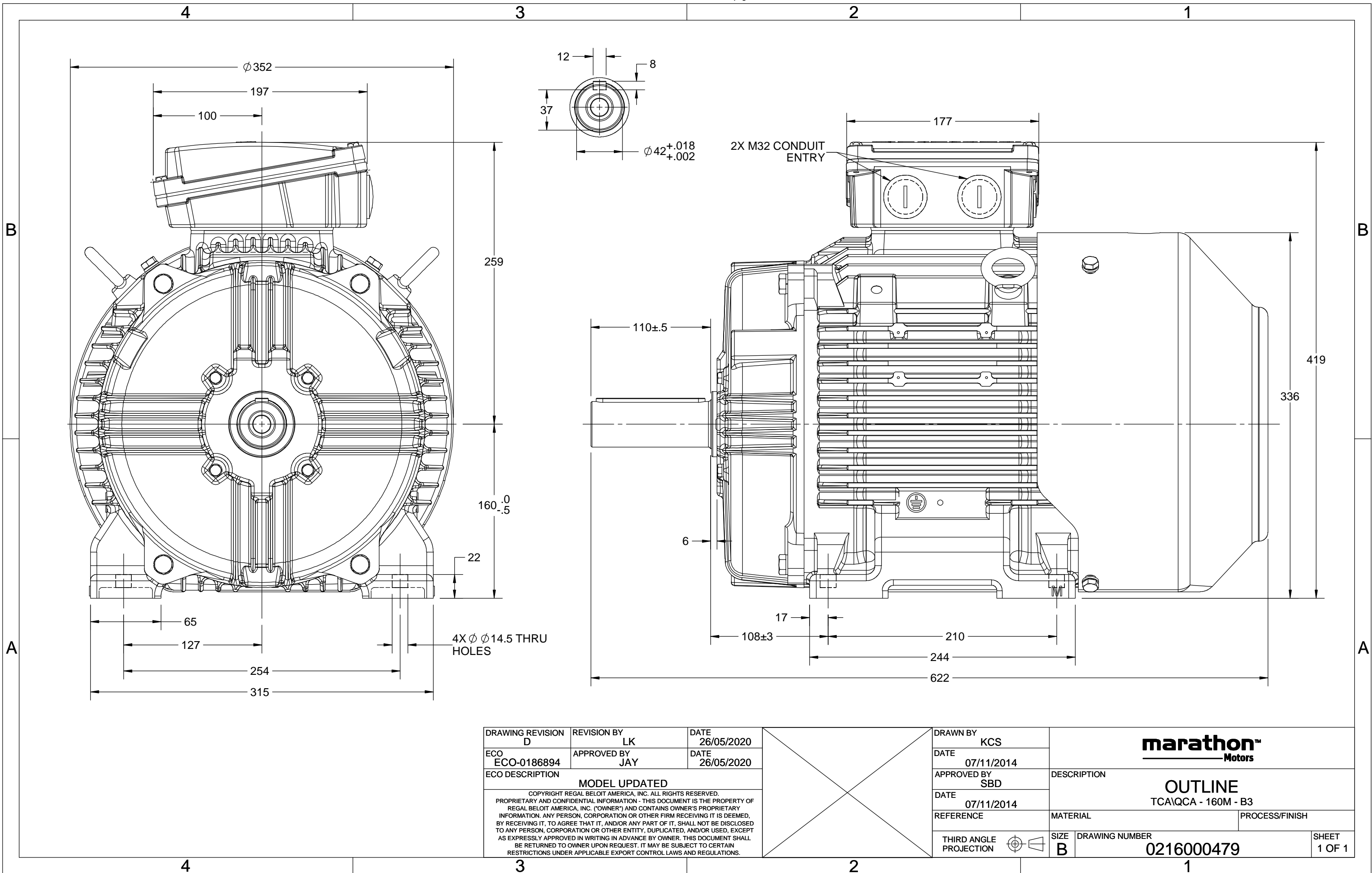
### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP              | 7.50 Hp       | Output KW                  | 5.5 kW                      |
| Frequency              | 50 Hz         | Voltage                    | 415 V                       |
| Current                | 12.3 A        | Speed                      | 729 rpm                     |
| Service Factor         | 1             | Phase                      | 3                           |
| Efficiency             | 86.2 %        | Power Factor               | 0.72                        |
| Duty                   | S1            | Insulation Class           | F                           |
| Frame                  | 160M          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Ambient Temperature        | 50 °C                       |
| Drive End Bearing Size | 6309          | Opp Drive End Bearing Size | 6209                        |
| UL                     | No            | CSA                        | No                          |
| CE                     | Yes           | IP Code                    | 55                          |
| Number of Speeds       | 1             | Efficiency Class           | IE3                         |

### Technical Specifications

|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 8             | Rotation              | Bi-Directional |
| Mounting              | B3            | Motor Orientation     | Horizontal     |
| Drive End Bearing     | 2z-C3         | Opp Drive End Bearing | 2z-C3          |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 622 mm        | Frame Length          | 254 mm         |
| Shaft Diameter        | 42 mm         | Shaft Extension       | 110 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Outline Drawing       | 0216000479    | Connection Drawing    | 8442000085     |

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|  |                    |                    |
|--|--------------------|--------------------|
| DRAWING REVISION<br>A                  | REVISION BY<br>SN  | DATE<br>13/01/2017 |
| ECO<br>ECO-0116390                     | APPROVED BY<br>SBD | DATE<br>13/01/2017 |
| ECO DESCRIPTION<br>NEW DRAWING RELEASE |                    |                    |

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



NOTES:

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. |                              |                 |
|                |   |                              |                 |
|                | DESCRIPTION<br>CONN DIAGRAM-NAMEPLATE   |                              |                 |
|                | MATERIAL  |                              | PROCESS/FINISH  |
|                | SIZE<br>A   | DRAWING NUMBER<br>8442000085 | SHEET<br>1 OF 1 |

Model No. TCA5P54A3111GACD01

| U   | Δ / Y | f    | P    | P    | I    | n     | T     | IE    | % EFF at __ load |      |       |       | PF at __ load |       |       | I <sub>A</sub> /I <sub>N</sub> | T <sub>A</sub> /T <sub>N</sub> | T <sub>K</sub> /T <sub>N</sub> |
|-----|-------|------|------|------|------|-------|-------|-------|------------------|------|-------|-------|---------------|-------|-------|--------------------------------|--------------------------------|--------------------------------|
| (V) | Conn  | [Hz] | [kW] | [hp] | [A]  | [RPM] | [Nm]  | Class | 5/4FL            | FL   | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | [pu]                           | [pu]                           | [pu]                           |
| 415 | Δ     | 50   | 5.5  | 7.5  | 12.3 | 729   | 73.43 | IE3   | -                | 86.2 | 86.2  | 87.2  | 0.72          | 0.64  | 0.51  | 5.3                            | 1.7                            | 2.3                            |
|     |       |      |      |      |      |       |       |       |                  |      |       |       |               |       |       |                                |                                |                                |
|     |       |      |      |      |      |       |       |       |                  |      |       |       |               |       |       |                                |                                |                                |

|                                  |                            |
|----------------------------------|----------------------------|
| Motor type                       | TCA                        |
| Enclosure                        | TEFC                       |
| Frame Material                   | Cast Iron                  |
| Frame size                       | 160M                       |
| Duty                             | S1                         |
| Voltage variation *              | ± 10%                      |
| Frequency variation *            | ± 5%                       |
| Combined variation *             | 10%                        |
| Design                           | N                          |
| Service factor                   | 1.0                        |
| Insulation class                 | F                          |
| Ambient temperature              | -20 to +50 °C              |
| Temperature rise (by resistance) | 70 [ Class B ] K           |
| Altitude above sea level         | 1000 meter                 |
| Hazardous area classification    | NA                         |
| Zone classification              | NA                         |
| Gas group                        | NA                         |
| Temperature class                | NA                         |
| Rotor type                       | Aluminum Die cast          |
| Bearing type                     | Anti-friction ball bearing |
| DE / NDE bearing                 | 6309-2Z / 6209-2Z          |
| Lubrication method               | Greased for life           |
| Type of grease                   | NA                         |

|   |  |
|---|--|
| Degree of protection                      | IP 55                                      |
| Mounting type                             | IM B3                                      |
| Cooling method                            | IC 411                                     |
| Motor weight - approx.                    | 150 kg                                     |
| Gross weight - approx.                    | 170 kg                                     |
| Motor inertia                             | 0.1674 kgm <sup>2</sup>                    |
| Load inertia                              | Customer to Provide                        |
| Vibration level                           | 2.2 mm/s                                   |
| Noise level ( 1meter distance from motor) | 59 dB(A)                                   |
| No. of starts hot/cold/Equally spread     | 2/3/4                                      |
| Starting method                           | DOL  |
| Type of coupling                          | Direct                                     |
| LR withstand time (hot/cold)              | 15/30 s                                    |
| Direction of rotation                     | Bi-directional                             |
| Standard rotation                         | Clockwise form DE                          |
| Paint shade                               | RAL 5014                                   |
| Accessories                               |  |
| Accessory - 1                             | -  |
| Accessory - 2                             | -  |
| Accessory - 3                             | -  |
| Terminal box position                     | TOP  |
| Maximum cable size/conduit size           | 1R x 3C x 35mm <sup>2</sup> /2 X M32 x 1.5 |
| Auxiliary terminal box                    | NA   |

I<sub>A</sub>/I<sub>N</sub> - Locked Rotor Current / Rated CurrentT<sub>K</sub>/T<sub>N</sub> - Breakdown Torque / Rated TorqueT<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.

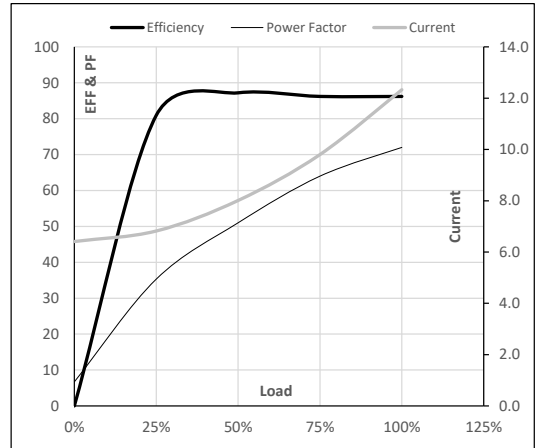
| Efficiency | Europe | China | India           | Aus/Nz | Brazil | Global IEC |
|------------|--------|-------|-----------------|--------|--------|------------|
| Standards  | -      | -     | IS 12615 : 2018 | -      | -      | -          |

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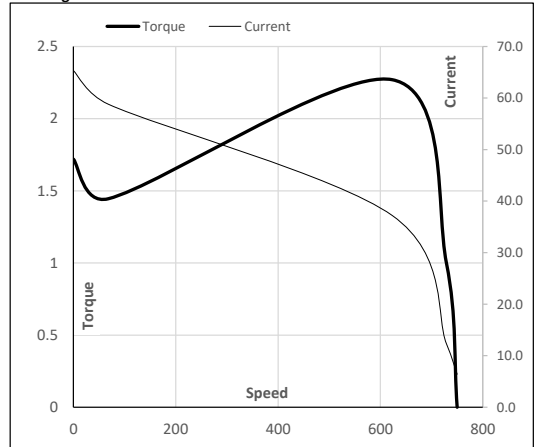
| Enclosure | U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 415      | Δ             | 50        | 5.5       | 7.5       | 12.3     | 729        | 7.49       | 73.43     | IE3         | 50          | S1   | 1000             | 0.1674                          | 150            |

**Motor Load Data**

| Load Point   |       | NL  | 1/4FL | 1/2FL | 3/4FL | FL   | 5/4FL |
|--------------|-------|-----|-------|-------|-------|------|-------|
| Current      | A     | 6.4 | 6.8   | 8.0   | 9.8   | 12.3 |       |
| Torque       | Nm    | 0.0 | 18.0  | 36.1  | 54.6  | 73.4 |       |
| Speed        | r/min | 750 | 745   | 740   | 735   | 729  |       |
| Efficiency   | %     | 0.0 | 80.9  | 87.2  | 86.2  | 86.2 |       |
| Power Factor | %     | 6.7 | 35.3  | 51.0  | 64.0  | 72.0 |       |

**Performance vs Load Chart**

**Motor Speed Torque Data**

| Load Point |       | LR   | P-Up | BD   | Rated | NL  |
|------------|-------|------|------|------|-------|-----|
| Speed      | r/min | 0    | 68   | 623  | 729   | 750 |
| Current    | A     | 65.3 | 58.8 | 37.2 | 12.3  | 6.4 |
| Torque     | pu    | 1.7  | 1.4  | 2.3  | 1     | 0   |

**Starting Characteristics Chart**

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

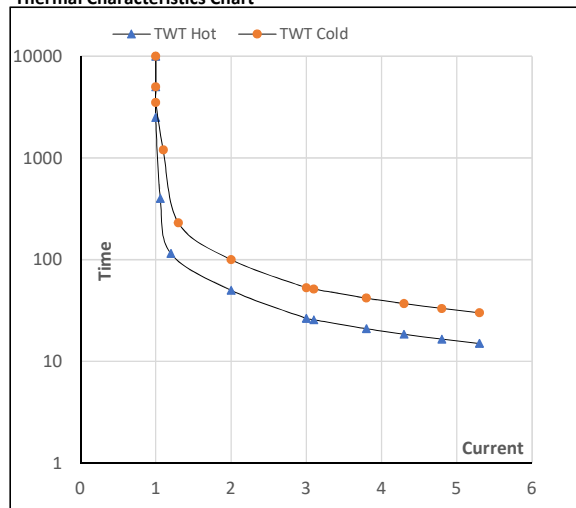
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| Enclosure | U<br>(V) | $\Delta$ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[rpm] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg·m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|----------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 415      | $\Delta$             | 50        | 5.5       | 7.5       | 12.3     | 729        | 7.48       | 73.43     | IE3         | 50          | S1   | 1000             | 0.1674                          | 150            |

**Motor Speed Torque Data**

| Load     | FL      | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR |     |
|----------|---------|-------|-------|-------|-------|-------|----|-----|
| TWT Hot  | s 10000 | 50    | 27    | 20    | 18    | 16    | 15 |     |
| TWT Cold | s 10000 | 100   | 53    | 40    | 36    | 31    | 30 |     |
| Current  | pu      | 1     | 2     | 3     | 4     | 4.5   | 5  | 5.3 |

**Thermal Characteristics Chart**

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

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