

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA0304AF141GAC010

Catalog No: TCA0304AF141GAC010

TerraMAX® Cast Iron Motor, 40 HP, 3 Ph, 50 Hz, 380 V, 750 RPM, 250M Frame, TEFC



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**RegalRexnord**

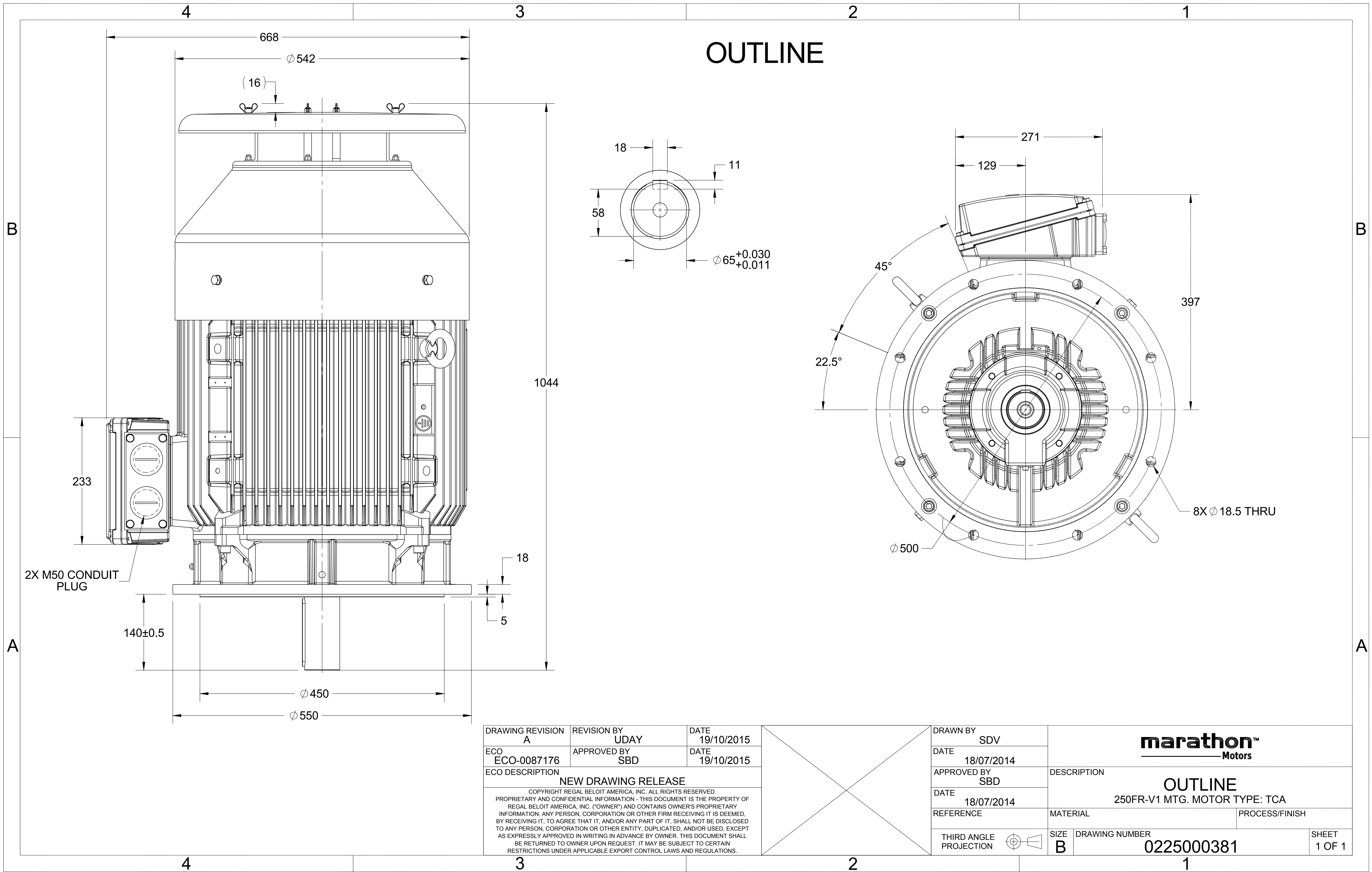
### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP              | 40 Hp         | Output KW                  | 30.0 kW                     |
| Frequency              | 50 Hz         | Voltage                    | 380 V                       |
| Current                | 63.2 A        | Speed                      | 739 rpm                     |
| Service Factor         | 1             | Phase                      | 3                           |
| Efficiency             | 91.3 %        | Power Factor               | 0.79                        |
| Duty                   | S1            | Insulation Class           | F                           |
| Frame                  | 250M          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Ambient Temperature        | 40 °C                       |
| Drive End Bearing Size | 6314          | Opp Drive End Bearing Size | 6314                        |
| 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              | V1            | Motor Orientation     | Shaftdown      |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1044 mm       | Frame Length          | 460 mm         |
| Shaft Diameter        | 65 mm         | Shaft Extension       | 140 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0225000381     |

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

**Model No.** TCA0304AF141GAC010

| U<br>(V) | $\Delta / Y$<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 |       |       | $I_A/I_N$<br>[pu] | $T_A/T_N$<br>[pu] | $T_K/T_N$<br>[pu] |
|----------|----------------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|------|-------|-------|---------------|-------|-------|-------------------|-------------------|-------------------|
|          |                      |           |           |           |          |            |           |             | 5/4FL            | FL   | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL |                   |                   |                   |
| 380      | $\Delta$             | 50        | 30        | 40        | 63.19    | 739        | 385.73    | IE3         | -                | 91.3 | 91.3  | 92.8  | 0.79          | 0.74  | 0.63  | 5.3               | 1.9               | 2.3               |
|          |                      |           |           |           |          |            |           |             |                  |      |       |       |               |       |       |                   |                   |                   |

|                                  |                             |   |  |
|----------------------------------|-----------------------------|---|--|
| Motor type                       | TCA                         | Degree of protection                      | IP 55                                      |
| Enclosure                        | TEFC                        | Mounting type                             | IM V1                                      |
| Frame Material                   | Cast Iron                   | Cooling method                            | IC 411                                     |
| Frame size                       | 250M                        | Motor weight - approx.                    | 575 kg                                     |
| Duty                             | S1                          | Gross weight - approx.                    | 610 kg                                     |
| Voltage variation *              | $\pm 10\%$                  | Motor inertia                             | 2.1617 kgm <sup>2</sup>                    |
| Frequency variation *            | $\pm 5\%$                   | Load inertia                              | Customer to Provide                        |
| Combined variation *             | 10%                         | Vibration level                           | 2.2 mm/s                                   |
| Design                           | N                           | Noise level ( 1meter distance from motor) | 63 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                 | 6314 C3 / 6314 C3           | Terminal box position                     | TOP  |
| Lubrication method               | Regreasable                 | Maximum cable size/conduit size           | 1R x 3C x 95mm <sup>2</sup> /2 x M50 x 1.5 |
| Type of grease                   | CHEVRON SRI-2 or Equivalent | Auxiliary terminal box                    | NA   |

 $I_A/I_N$  - Locked Rotor Current / Rated Current

 $T_K/T_N$  - Breakdown Torque / Rated Torque

 $T_A/T_N$  - 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.

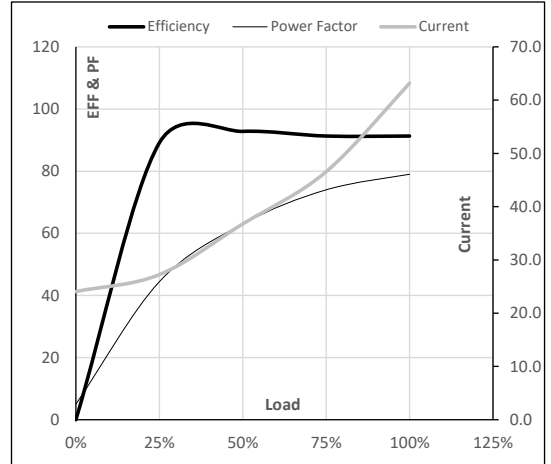
| Efficiency | Europe | China                 | India | Aus/Nz | Brazil | Global IEC    |
|------------|--------|-----------------------|-------|--------|--------|---------------|
| Standards  | -      | GB 18613-2012 Grade 2 | -     | -      | -      | IEC: 60034-30 |

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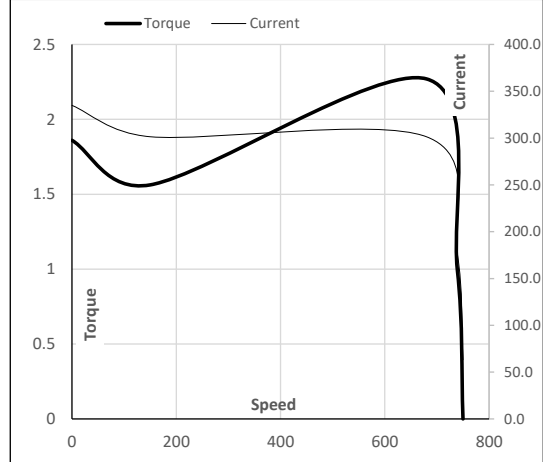
| Enclosure | U<br>(V) | $\Delta$ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|----------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 380      | $\Delta$             | 50        | 30        | 40.0      | 63.2     | 739        | 39.33      | 385.73    | IE3         | 40          | S1   | 1000             | 2.1617                          | 575            |

**Motor Load Data**

| Load Point   |       | NL   | 1/4FL | 1/2FL | 3/4FL | FL    | 5/4FL |
|--------------|-------|------|-------|-------|-------|-------|-------|
| Current      | A     | 24.1 | 27.2  | 36.8  | 46.6  | 63.2  |       |
| Torque       | Nm    | 0.0  | 95.3  | 191.3 | 288.1 | 385.7 |       |
| Speed        | r/min | 750  | 747   | 745   | 742   | 739   |       |
| Efficiency   | %     | 0.0  | 89.1  | 92.8  | 91.3  | 91.3  |       |
| Power Factor | %     | 5.0  | 44.4  | 63.0  | 74.0  | 79.0  |       |

**Performance vs Load Chart**

**Motor Speed Torque Data**

| Load Point |       | LR    | P-Up  | BD    | Rated | NL   |
|------------|-------|-------|-------|-------|-------|------|
| Speed      | r/min | 0     | 150   | 680   | 739   | 750  |
| Current    | A     | 334.9 | 301.4 | 176.7 | 63.2  | 24.1 |
| Torque     | pu    | 1.9   | 1.6   | 2.3   | 1     | 0    |

**Starting Characteristics Chart**

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

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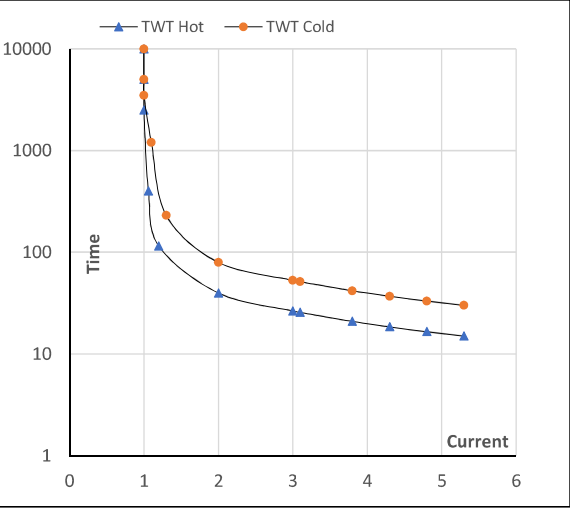
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| Enclosure | U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[rpm] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg·m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 380      | Δ             | 50        | 30        | 40.0      | 63.2     | 739        | 39.33      | 385.73    | IE3         | 40          | S1   | 1000             | 2.1617                          | 575            |

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 | 40             | 27             | 20             | 18             | 16             | 15  |
| TWT Cold | s 10000 | 80             | 53             | 40             | 35             | 32             | 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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