

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCN0031A1111GAC010

Catalog No: TCN0031A1111GAC010

TerraMAX® Cast Iron Motor, 4 HP, 3 Ph, 50 Hz, 400 V, 3000 RPM, 100L Frame, TEFC



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**RegalRexnord**

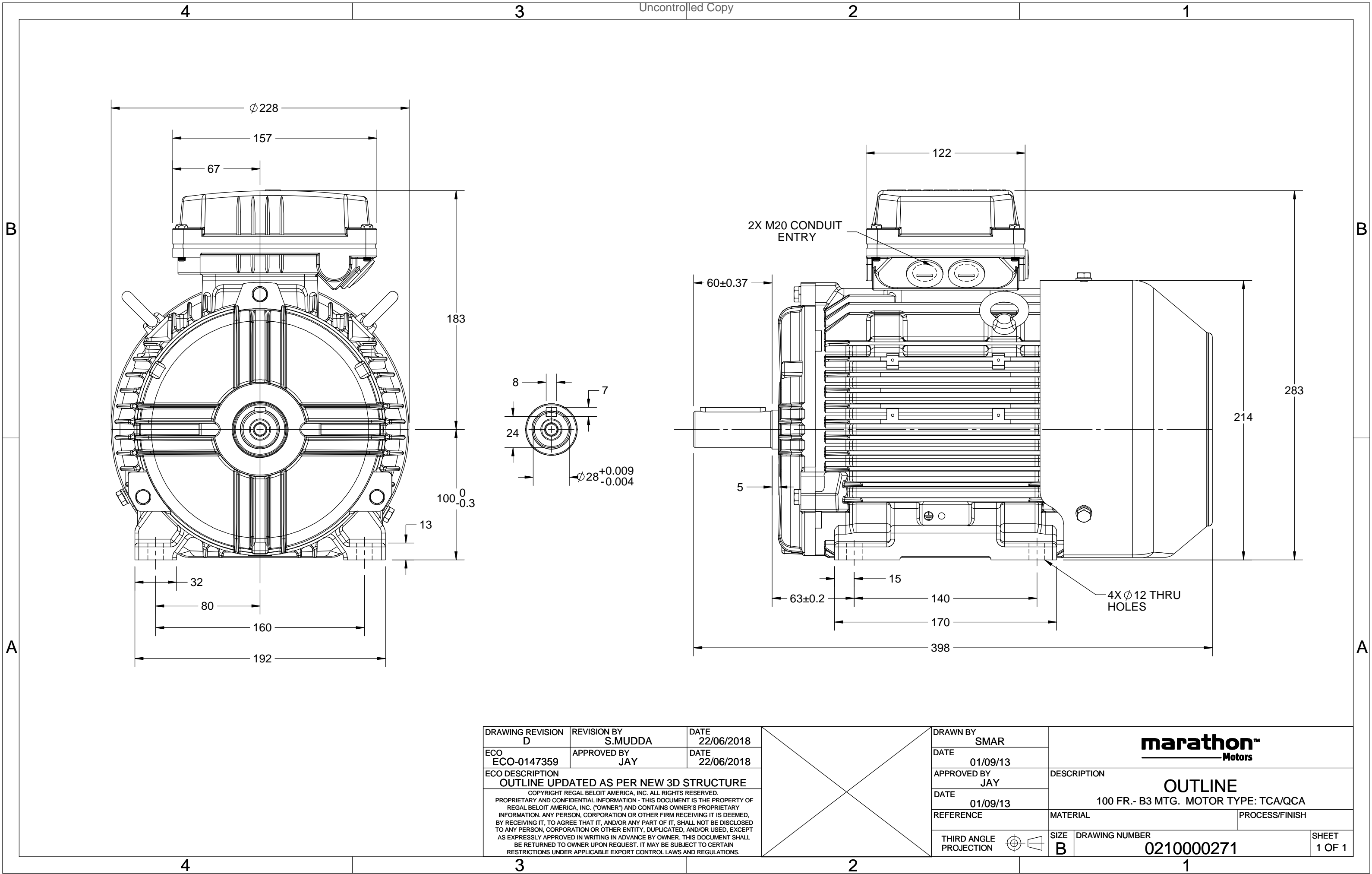
### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP              | 4 Hp          | Output KW                  | 3.0 kW                      |
| Frequency              | 50 Hz         | Voltage                    | 400 V                       |
| Current                | 5.5 A         | Speed                      | 2889 rpm                    |
| Service Factor         | 1             | Phase                      | 3                           |
| Efficiency             | 87.1 %        | Power Factor               | 0.9                         |
| Duty                   | S1            | Insulation Class           | F                           |
| Frame                  | 100L          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Ambient Temperature        | 40 °C                       |
| Drive End Bearing Size | 6206          | Opp Drive End Bearing Size | 6206                        |
| 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                 | 2             | 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        | 398 mm        | Frame Length          | 200 mm         |
| Shaft Diameter        | 28 mm         | Shaft Extension       | 60 mm          |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0210000271     |

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

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

SHEET  
1 OF 1

**Model No.** TCN0031A1111GAC010

| 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] |
|----------|---------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|----|-------|-------|---------------|-------|-------|--|--|--|
| 400      | Y             | 50        | 3         | 4.0       | 5.5      | 2889       | 9.86      | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 7.9                                    | 3.2                                    | 3.6                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |  |  |  |

|                                  |                    |   |  |
|----------------------------------|--------------------|---|--|
| Motor type                       | TCN                | Degree of protection                      | IP 55                                      |
| Enclosure                        | TEFC               | Mounting type                             | IM B3                                      |
| Frame Material                   | Cast Iron          | Cooling method                            | IC 411                                     |
| Frame size                       | 100L               | Motor weight - approx.                    | 38 kg                                      |
| Duty                             | S1                 | Gross weight - approx.                    | 41 kg                                      |
| Voltage variation *              | ± 10%              | Motor inertia                             | 0.0042 kgm <sup>2</sup>                    |
| Frequency variation *            | ± 5%               | Load inertia                              | Customer to Provide                        |
| Combined variation *             | 10%                | Vibration level                           | 1.6 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)              | 7/15 s                                     |
| Altitude above sea level         | 1000 meter         | Direction of rotation                     | Bi-directional                             |
| Hazardous area classification    | Ex nA              | Standard rotation                         | Clockwise form DE                          |
| Zone classification              | Zone 2             | Paint shade                               | RAL 5014                                   |
| Gas group                        | IIC                | Accessories                               |  |
| Temperature class                | T3                 | Accessory - 1                             | PTC 150°C                                  |
| Rotor type                       | Aluminum Die cast  | Accessory - 2                             | -  |
| Bearing type                     | Anti-friction ball | Accessory - 3                             | -  |
| DE / NDE bearing                 | 6206-2Z / 6206-2Z  | Terminal box position                     | TOP  |
| Lubrication method               | Greased for life   | Maximum cable size/conduit size           | 1R x 3C x 10mm <sup>2</sup> /2 x M20 x 1.5 |
| Type of grease                   | NA                 | 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**

ATEX/IEC Ex certified as per IEC/EN 60079-0; IEC/EN 60079-15

All performance values at rated voltage and frequency.

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

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

Technical data are subject to change. There may be slight variations between calculated values in this datasheet and the motor nameplate figures.

| Efficiency Standards | Europe<br>IEC:60034-30-1 | China | India<br>- | Aus/Nz<br>GEMS 2019 | Brazil<br>- | Global IEC<br>IEC:60034-30-1 |
|----------------------|--------------------------|-------|------------|---------------------|-------------|------------------------------|
|----------------------|--------------------------|-------|------------|---------------------|-------------|------------------------------|

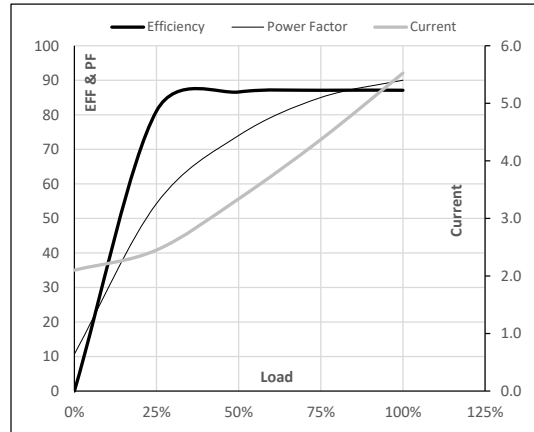
Model No. TCN0031A1111GAC010

| 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      | 400      | Y             | 50        | 3         | 4.0       | 5.5      | 2889       | 1.01       | 9.86      | IE3         | 40          | S1   | 1000             | 0.0042                          | 38             |

**Motor Load Data**

| Load Point   |       | NL   | 1/4FL | 1/2FL | 3/4FL | FL   | 5/4FL |
|--------------|-------|------|-------|-------|-------|------|-------|
| Current      | A     | 2.1  | 2.5   | 3.3   | 4.4   | 5.5  |       |
| Torque       | Nm    | 0.0  | 2.4   | 4.8   | 7.3   | 9.9  |       |
| Speed        | r/min | 3000 | 2973  | 2948  | 2920  | 2889 |       |
| Efficiency   | %     | 0.0  | 81.1  | 86.6  | 87.1  | 87.1 |       |
| Power Factor | %     | 10.7 | 54.3  | 74.0  | 85.0  | 90.0 |       |

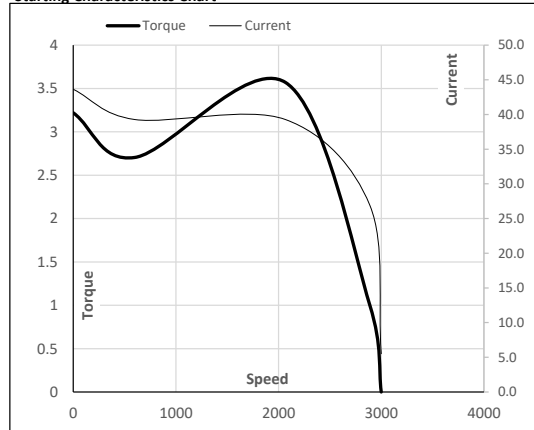
**Performance vs Load Chart**



**Motor Speed Torque Data**

| Load Point |       | LR   | P-Up | BD   | Rated | NL   |
|------------|-------|------|------|------|-------|------|
| Speed      | r/min | 0    | 600  | 2067 | 2889  | 3000 |
| Current    | A     | 43.6 | 39.3 | 26.9 | 5.5   | 2.1  |
| Torque     | pu    | 3.2  | 2.7  | 3.6  | 1     | 0    |

**Starting Characteristics Chart**



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

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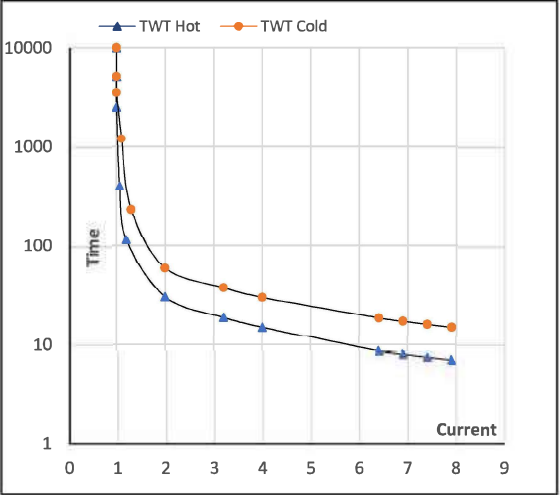
Model No.    TCN0031A1111GAC010

| 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      | 400      | Y             | 50        | 3         | 4.0       | 5.5      | 2889       | 1.01       | 9.86      | IE3         | 40          | S1   | 1000             | 0.0042                          | 38             |

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 | 28             | 20             | 15             | 14             | 11             | 7   |
| TWT Cold | s  | 10000 | 60             | 40             | 30             | 28             | 25             | 15  |
| Current  | pu | 1     | 2              | 3              | 4              | 5              | 5.5            | 7.9 |

Thermal Characteristics Chart



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

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