

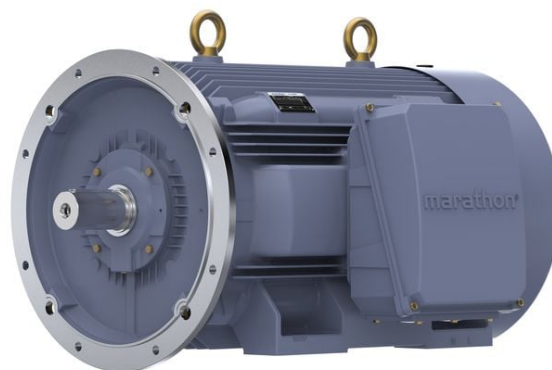
# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCN2004A1133GAC010

Catalog No: TCN2004A1133GAC010

TerraMAX® Cast Iron Motor, 270 HP, 3 Ph, 50 Hz, 400 V, 750 RPM, 355L Frame, TEFC



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**RegalRexnord**

### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP              | 270 Hp        | Output KW                  | 200.0 kW                    |
| Frequency              | 50 Hz         | Voltage                    | 400 V                       |
| Current                | 367.7 A       | Speed                      | 742 rpm                     |
| Service Factor         | 1             | Phase                      | 3                           |
| Efficiency             | 94.6 %        | Power Factor               | 0.83                        |
| Duty                   | S1            | Insulation Class           | F                           |
| Frame                  | 355L          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Ambient Temperature        | 40 °C                       |
| Drive End Bearing Size | 6322          | Opp Drive End Bearing Size | 6322                        |
| 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              | B35           | Motor Orientation     | Horizontal     |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1542 mm       | Frame Length          | 1010 mm        |
| Shaft Diameter        | 95 mm         | Shaft Extension       | 170 mm         |
| Assembly/Box Mounting | R Side        |                       |                |
| Outline Drawing       | 0235502333    | Connection Drawing    | 8442000085     |

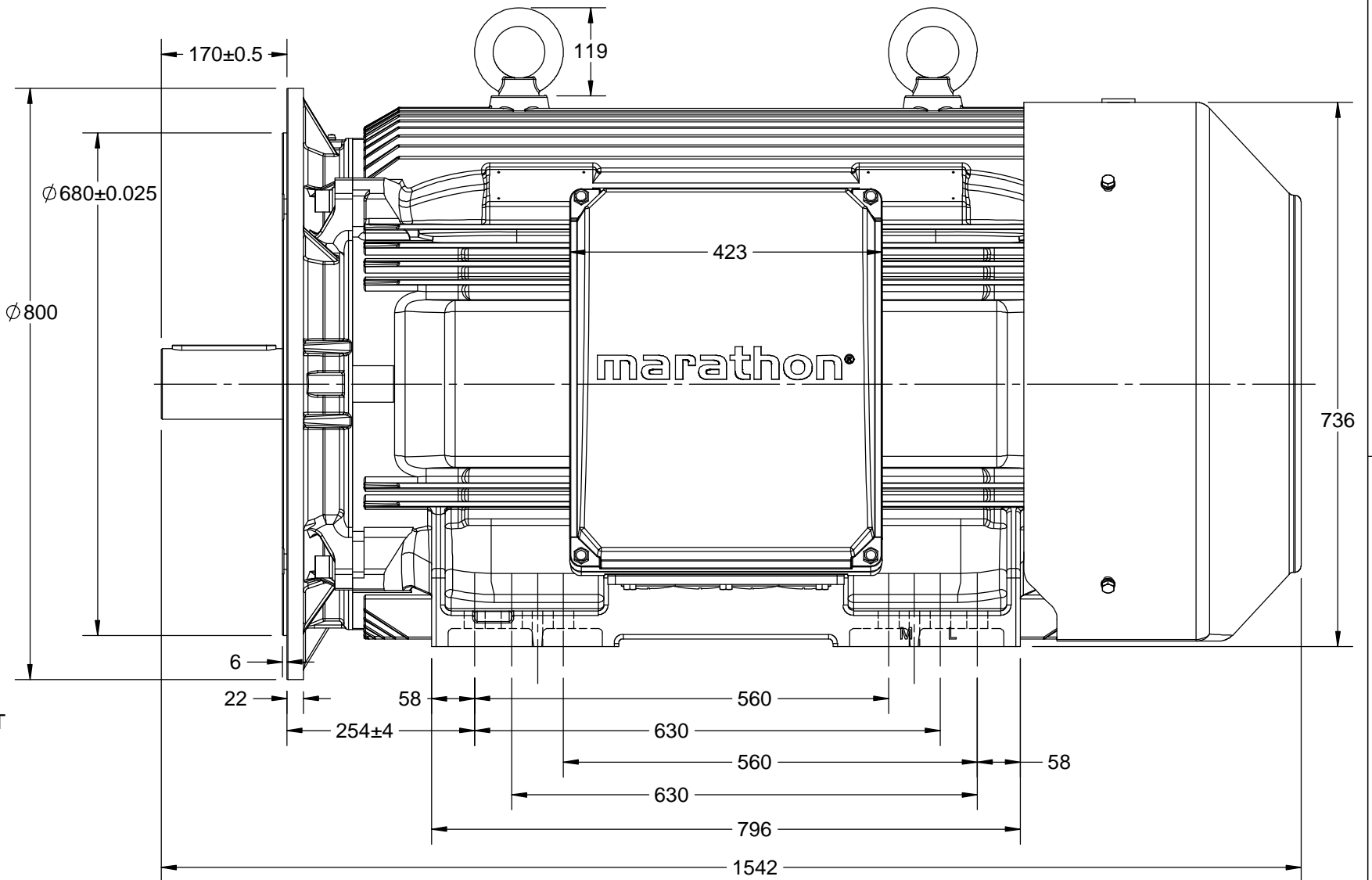
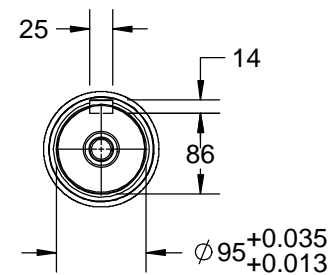
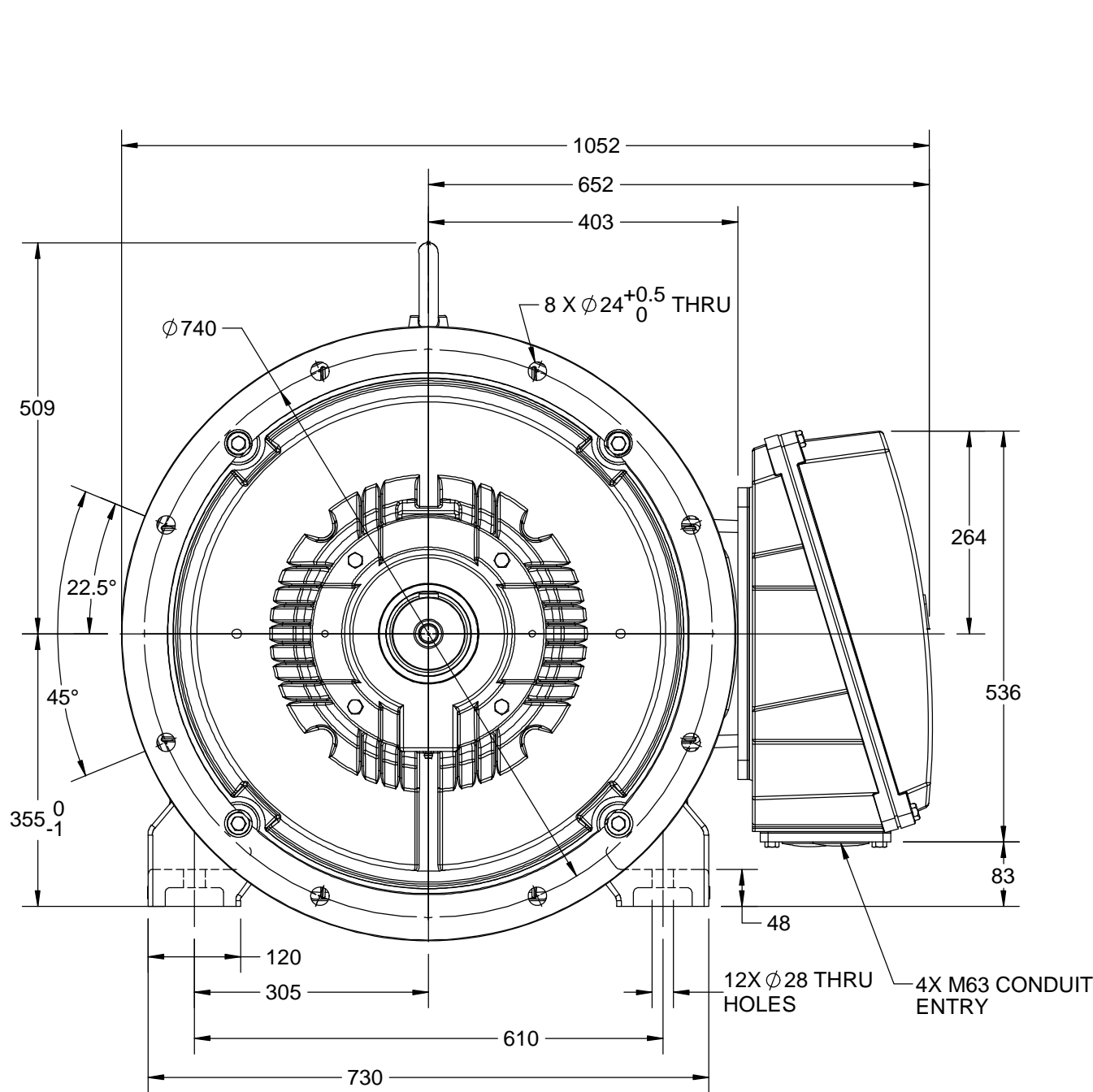
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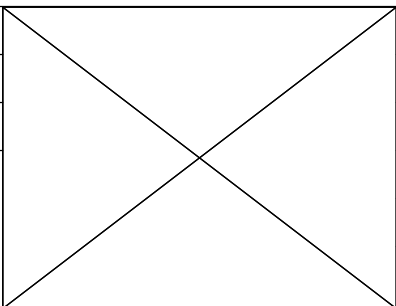
A

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A



|  |                    |                    |
|--|--------------------|--------------------|
| DRAWING REVISION<br>B  | REVISION BY<br>VS  | DATE<br>05/07/2018 |
| ECO<br>ECO-0148344   | APPROVED BY<br>SBD | DATE<br>05/07/2018 |
| ECO DESCRIPTION<br>MODEL UPDATED   |                    |                    |
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|                           |                                      |                              |                 |
|---------------------------|--------------------------------------|------------------------------|-----------------|
| DRAWN BY<br>GSR           | <b>marathon™</b><br>Motors           |                              |                 |
| DATE<br>15/011/2017       |                                      |                              |                 |
| APPROVED BY<br>JAY        | DESCRIPTION<br>OUTLINE               |                              |                 |
| DATE<br>15/011/2017       | 355L FR-4~8P-B35 MTG. TCA/QCA-RHS TB |                              |                 |
| REFERENCE                 | MATERIAL                             | PROCESS/FINISH               |                 |
| THIRD ANGLE<br>PROJECTION | SIZE<br>B                            | DRAWING NUMBER<br>0235502333 | SHEET<br>1 OF 1 |

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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> |  <b>Regal Beloit America, Inc.</b> |                                     |                        |
|                       |  |                                     |                        |
|                       | DESCRIPTION<br><b>CONN DIAGRAM-NAMEPLATE</b>   |                                     |                        |
|                       | MATERIAL   |                                     | PROCESS/FINISH         |
|                       | SIZE<br><b>A</b>   | DRAWING NUMBER<br><b>8442000085</b> | SHEET<br><b>1 OF 1</b> |

**Model No.** TCN2004A1133GAC010

| 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      | Δ             | 50        | 200       | 270       | 367.7    | 742        | 2590.61   | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 6.3                                    | 1.7                                    | 2.5                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |  |  |  |

|                                  |                             |   |   |
|----------------------------------|-----------------------------|---|---|
| Motor type                       | TCN                         | Degree of protection                      | IP 55                                       |
| Enclosure                        | TEFC                        | Mounting type                             | IM B35                                      |
| Frame Material                   | Cast Iron                   | Cooling method                            | IC 411                                      |
| Frame size                       | 355L                        | Motor weight - approx.                    | 2044 kg                                     |
| Duty                             | S1                          | Gross weight - approx.                    | 2089 kg                                     |
| Voltage variation *              | ± 10%                       | Motor inertia                             | 13.1902 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) | 65 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    | 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                 | 6322 C3 / 6322 C3           | Terminal box position                     | RHS   |
| Lubrication method               | Regreasable                 | Maximum cable size/conduit size           | 1R x 3C x 300mm <sup>2</sup> /4 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**

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.

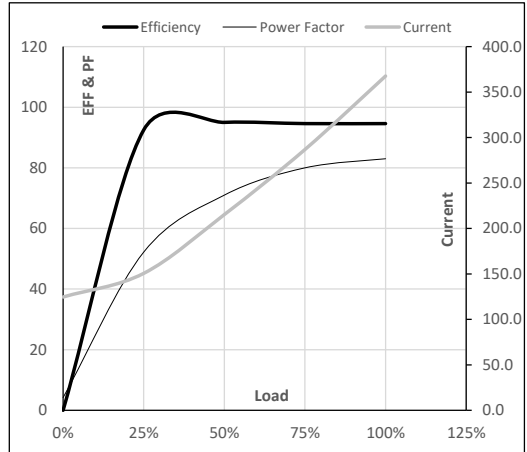
| Efficiency Standards | Europe<br>IEC:60034-30-1 | China<br>- | India<br>- | Aus/Nz<br>GEMS 2019 | Brazil<br>- | Global IEC<br>IEC:60034-30-1 |
|----------------------|--------------------------|------------|------------|---------------------|-------------|------------------------------|
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**Model No.** TCN2004A1133GAC010

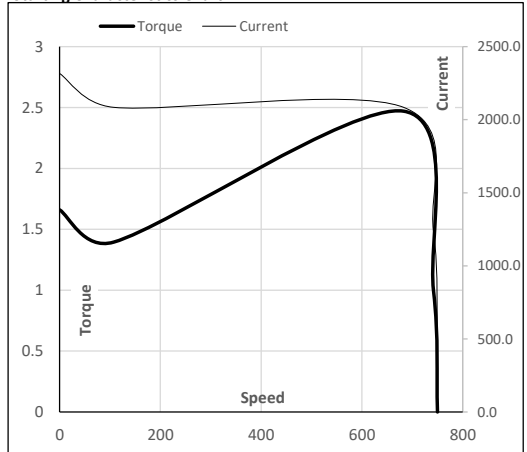
| Enclosure | U<br>(V) | $\Delta$ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|----------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 400      | $\Delta$             | 50        | 200       | 270       | 367.7    | 742        | 264.17     | 2590.61   | IE3         | 40          | S1   | 1000             | 13.1902                         | 2044           |

**Motor Load Data**

| Load Point   |       | NL    | 1/4FL | 1/2FL  | 3/4FL  | FL     | 5/4FL |
|--------------|-------|-------|-------|--------|--------|--------|-------|
| Current      | A     | 124.6 | 150.6 | 215.3  | 286.8  | 367.7  |       |
| Torque       | Nm    | 0.0   | 642.7 | 1288.5 | 1937.6 | 2590.6 |       |
| Speed        | r/min | 750   | 748   | 746    | 745    | 742    |       |
| Efficiency   | %     | 0.0   | 92.5  | 95.0   | 94.6   | 94.6   |       |
| Power Factor | %     | 4.2   | 52.2  | 71.0   | 80.0   | 83.0   |       |

**Performance vs Load Chart**

**Motor Speed Torque Data**

| Load Point |       | LR     | P-Up   | BD     | Rated | NL    |
|------------|-------|--------|--------|--------|-------|-------|
| Speed      | r/min | 0      | 107    | 683    | 742   | 750   |
| Current    | A     | 2316.2 | 2084.6 | 1237.2 | 367.7 | 124.6 |
| Torque     | pu    | 1.7    | 1.4    | 2.5    | 1     | 0     |

**Starting Characteristics Chart**

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

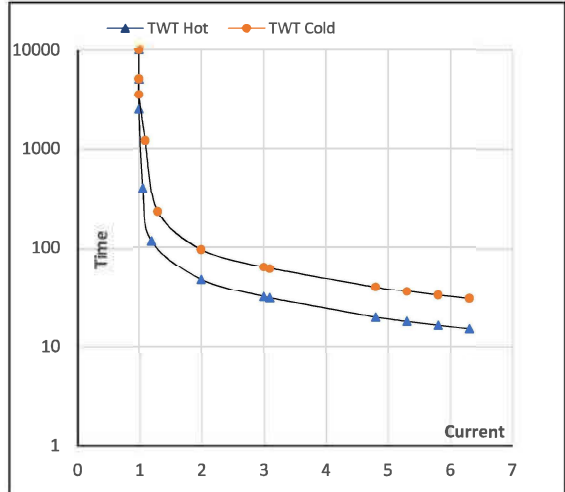
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| Enclosure | U<br>(V) | $\Delta$ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[rpm] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|----------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 400      | $\Delta$             | 50        | 200       | 270.0     | 367.7    | 742        | 264.17     | 2590.61   | IE3         | 40          | S1   | 1000             | 13.1902                         | 2044           |

**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 | 47             | 32             | 25             | 18             | 16             | 15  |
| TWT Cold | s 10000 | 95             | 63             | 48             | 37             | 33             | 30  |
| Current  | pu 1    | 2              | 3              | 4              | 5              | 5.5            | 6.3 |

**Thermal Characteristics Chart**

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

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