

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA0754A3111GACD01

Catalog No: TCA0754A3111GACD01

Cast Iron Motor, 100 HP, 3 Ph, 50 Hz, 415 V, 750 RPM, 315M Frame, TEFC



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**RegalRexnord**

### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP              | 100 Hp        | Output KW                  | 75.0 kW                     |
| Frequency              | 50 Hz         | Voltage                    | 415 V                       |
| Current                | 155.7 A       | Speed                      | 743 rpm                     |
| Service Factor         | 1             | Phase                      | 3                           |
| Efficiency             | 93.1 %        | Power Factor               | 0.72                        |
| Duty                   | S1            | Insulation Class           | F                           |
| Frame                  | 315M          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Ambient Temperature        | 50 °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           | 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     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1206 mm       | Frame Length          | 729 mm         |
| Shaft Diameter        | 80 mm         | Shaft Extension       | 170 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0231500890     |

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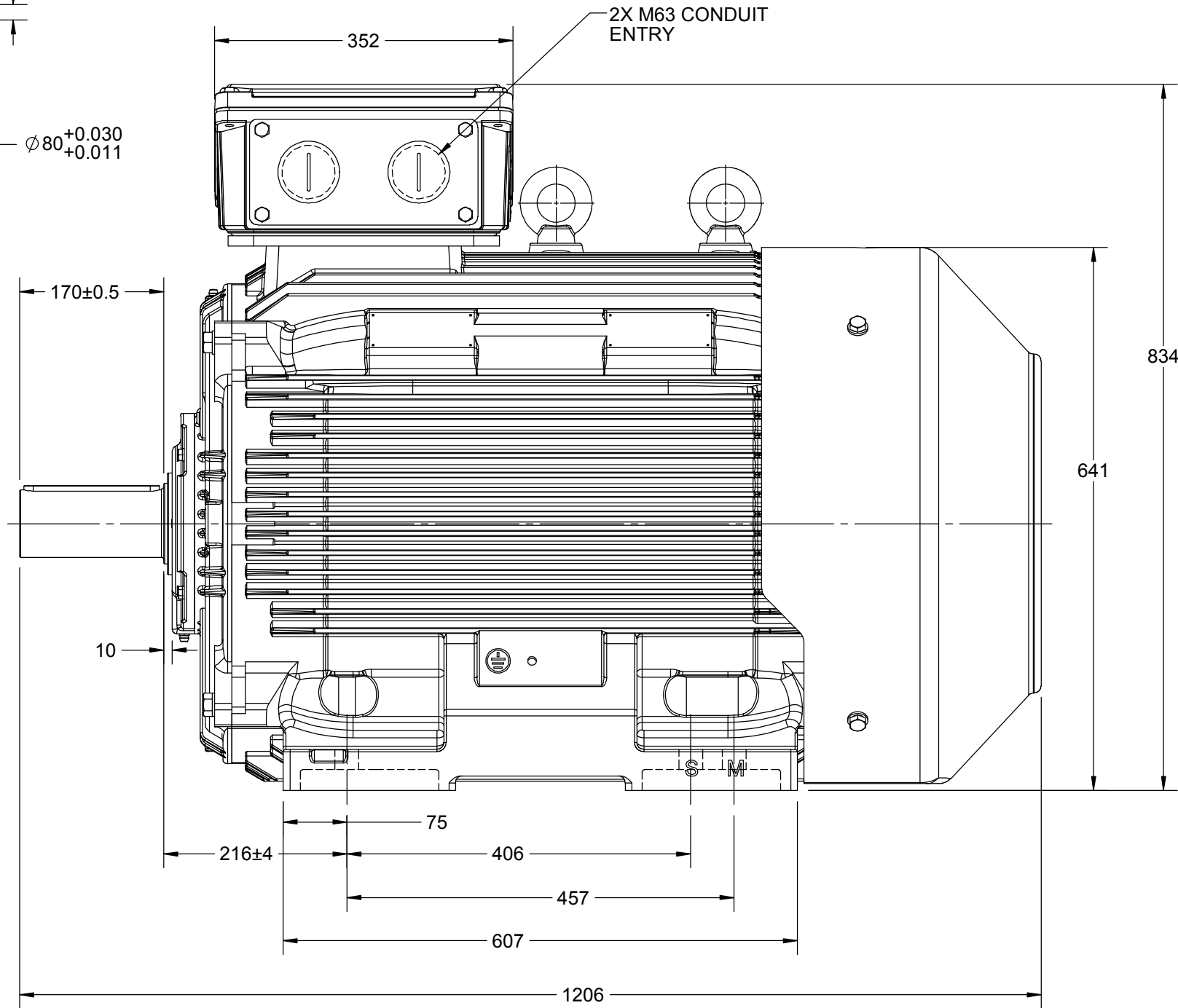
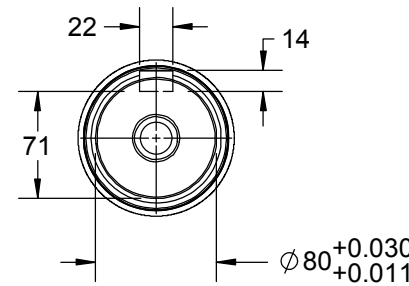
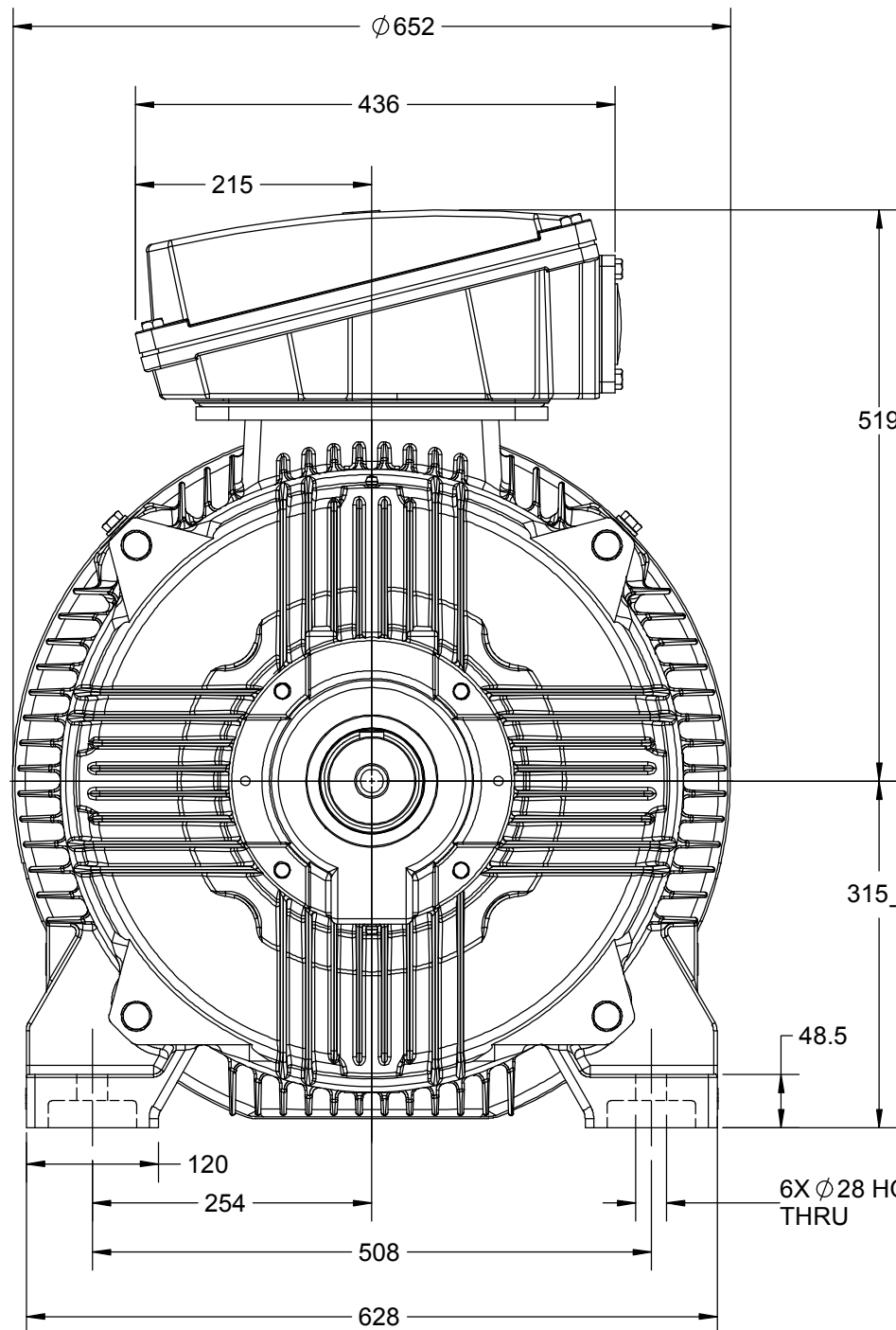
# OUTLINE

B

B

A

A



|  |                    |                    |
|--|--------------------|--------------------|
| DRAWING REVISION<br>C  | REVISION BY<br>NIV | DATE<br>14/05/2019 |
| ECO<br>ECO-0165600   | APPROVED BY<br>SR  | DATE<br>14/05/2019 |
| ECO DESCRIPTION<br>MODEL UPDATED   |                    |                    |
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|                           |  |                              |                 |
|---------------------------|--|------------------------------|-----------------|
| DRAWN BY<br>JOY           | <b>marathon™</b><br>Motors               |                              |                 |
| DATE<br>18/07/2014        |  |                              |                 |
| APPROVED BY<br>SBD        | DESCRIPTION<br>OUTLINE                   |                              |                 |
| DATE<br>18/07/2014        | 315M FR-B3 4-8P MTG. MOTOR TYPE: TCA/QCA |                              |                 |
| REFERENCE                 | MATERIAL                                 | PROCESS/FINISH               |                 |
| THIRD ANGLE<br>PROJECTION | SIZE<br>B                                | DRAWING NUMBER<br>0231500890 | 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> |                                     |                        |
|  | DATE<br><b>16/12/2016</b> |  |                                     |                        |
|  | APPROVED BY<br><b>SBD</b> | <b>DESCRIPTION</b><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<br><b>1 OF 1</b> |

**Model No.** TCA0754A3111GACD01

| 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   | 75   | 100  | 155.7 | 743   | 959.57 | IE3   | -                | 93.1 | 93.1  | 92    | 0.72          | 0.66  | 0.53  | 4.9                            | 1.9                            | 2.1                            |
|     |       |      |      |      |       |       |        |       |                  |      |       |       |               |       |       |                                |                                |                                |
|     |       |      |      |      |       |       |        |       |                  |      |       |       |               |       |       |                                |                                |                                |

|                                  |                                   |
|----------------------------------|-----------------------------------|
| Motor type                       | TCA                               |
| Enclosure                        | TEFC                              |
| Frame Material                   | Cast Iron                         |
| Frame size                       | 315M                              |
| 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                 | 6319 C3 / 6319 C3                 |
| Lubrication method               | Regreasable                       |
| Type of grease                   | Shell Gadus S5 V100 or Equivalent |

|   |   |
|---|---|
| Degree of protection                      | IP 55                                       |
| Mounting type                             | IM B3                                       |
| Cooling method                            | IC 411                                      |
| Motor weight - approx.                    | 899 kg                                      |
| Gross weight - approx.                    | 944 kg                                      |
| Motor inertia                             | 4.8296 kgm <sup>2</sup>                     |
| Load inertia                              | Customer to Provide                         |
| Vibration level                           | 2.8 mm/s                                    |
| Noise level ( 1meter distance from motor) | 64 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 240mm <sup>2</sup> /2 x M63 x 1.5 |
| 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.

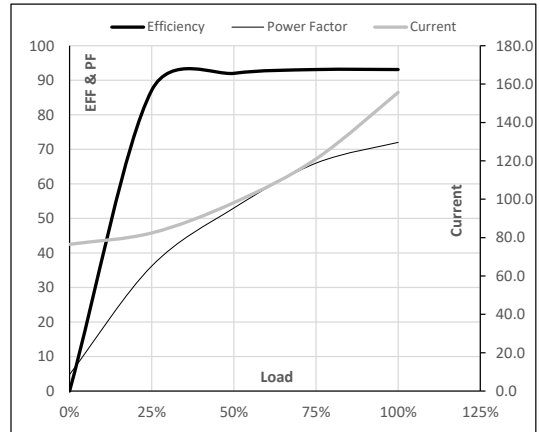
| Efficiency | Europe | China | India           | Aus/Nz | Brazil | Global IEC |
|------------|--------|-------|-----------------|--------|--------|------------|
| Standards  | -      | -     | IS 12615 : 2018 | -      | -      | -          |

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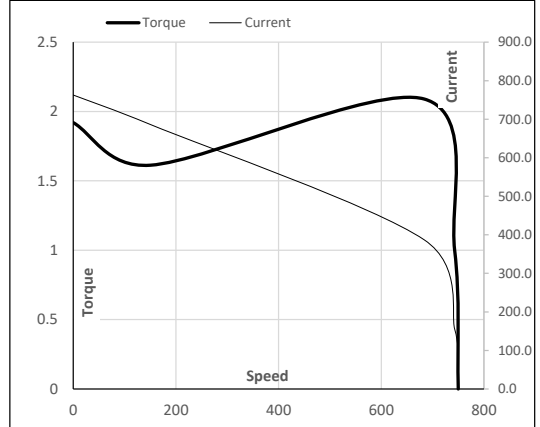
| Enclosure | U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 415      | Δ             | 50        | 75        | 100.0     | 155.7    | 743        | 97.85      | 959.57    | IE3         | 50          | S1   | 1000             | 4.8296                          | 899.4          |

**Motor Load Data**

| Load Point   |       | NL   | 1/4FL | 1/2FL | 3/4FL | FL    | 5/4FL |
|--------------|-------|------|-------|-------|-------|-------|-------|
| Current      | A     | 76.5 | 82.4  | 98.2  | 121.0 | 155.7 |       |
| Torque       | Nm    | 0.0  | 238.2 | 477.4 | 717.8 | 959.6 |       |
| Speed        | r/min | 750  | 748   | 747   | 745   | 743   |       |
| Efficiency   | %     | 0.0  | 87.1  | 92.0  | 93.1  | 93.1  |       |
| Power Factor | %     | 4.8  | 36.2  | 53.0  | 66.0  | 72.0  |       |

**Performance vs Load Chart**

**Motor Speed Torque Data**

| Load Point |       | LR    | P-Up  | BD    | Rated | NL   |
|------------|-------|-------|-------|-------|-------|------|
| Speed      | r/min | 0     | 150   | 684   | 743   | 750  |
| Current    | A     | 762.7 | 686.5 | 387.1 | 155.7 | 76.5 |
| Torque     | pu    | 1.9   | 1.6   | 2.1   | 1     | 0    |

**Starting Characteristics Chart**

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

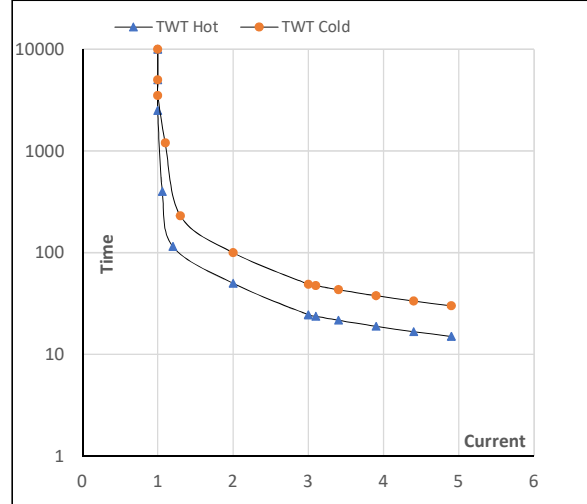
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| Enclosure | U<br>(V) | $\Delta$ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[rpm] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg·m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|----------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 415      | $\Delta$             | 50        | 75        | 100       | 155.7    | 743        | 97.78      | 959.57    | IE3         | 50          | S1   | 1000             | 4.8296                          | 899            |

**Motor Speed Torque Data**

| Load     |    | FL    | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR  |
|----------|----|-------|-------|-------|-------|-------|-------|-----|
| TWT Hot  | s  | 10000 | 50    | 25    | 21    | 18    | 16    | 15  |
| TWT Cold | s  | 10000 | 100   | 49    | 42    | 37    | 31    | 30  |
| Current  | pu | 1     | 2     | 3     | 3.5   | 4     | 4.5   | 4.9 |

**Thermal Characteristics Chart**

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

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