

# PRODUCT INFORMATION PACKET

Model No: TCA1P51AF131GAC010

Catalog No: TCA1P51AF131GAC010

TerraMAX® Cast Iron Motor, 2 HP, 3 Ph, 50 Hz, 380 V, 3000 RPM, 90S Frame, TEFC



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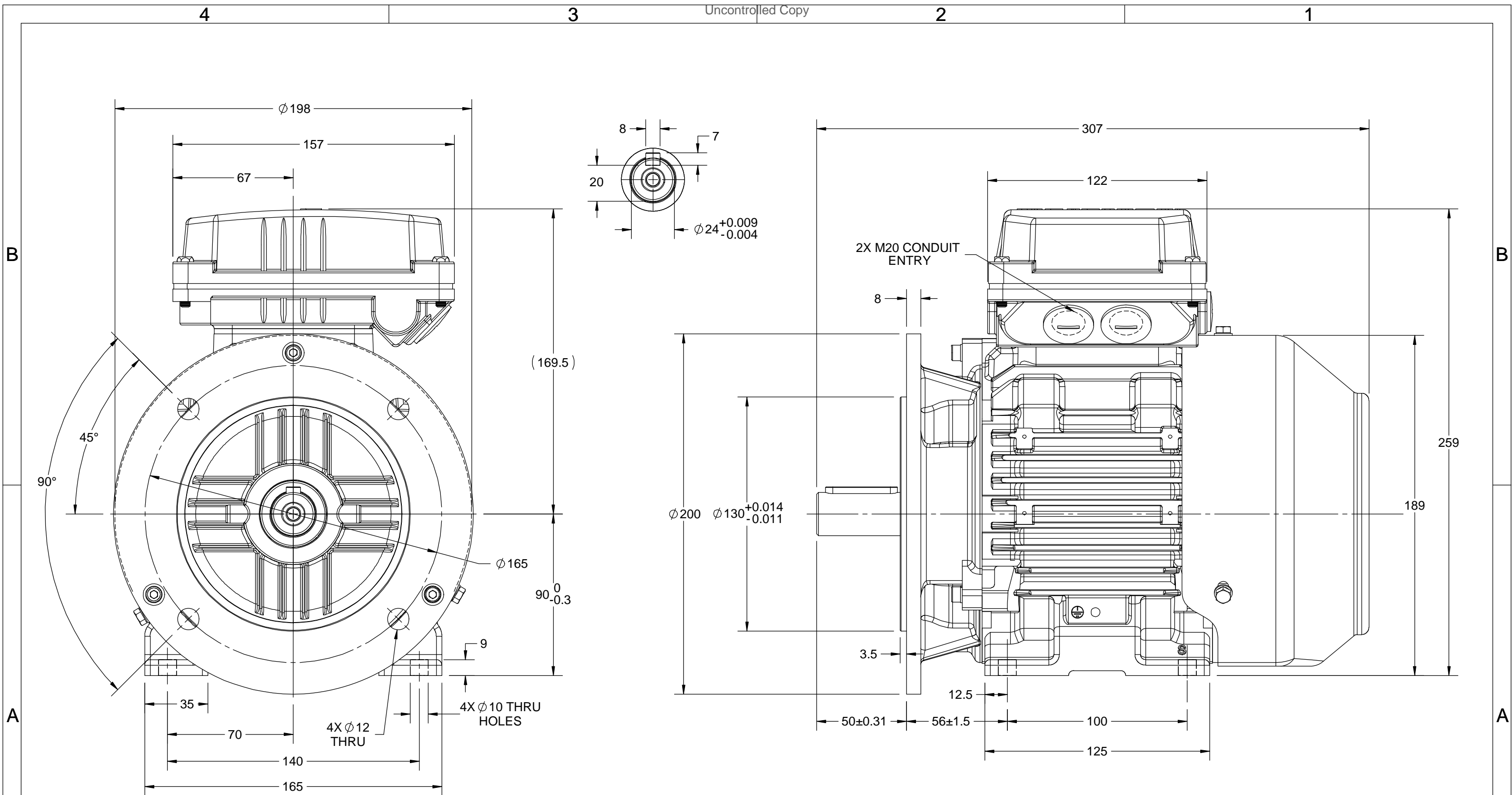
### Nameplate Specifications

|                        |                      |                            |                                    |
|------------------------|----------------------|----------------------------|------------------------------------|
| Output HP              | <b>2 Hp</b>          | Output KW                  | <b>1.5 kW</b>                      |
| Frequency              | <b>50 Hz</b>         | Voltage                    | <b>380 V</b>                       |
| Current                | <b>3.2 A</b>         | Speed                      | <b>2888 rpm</b>                    |
| Service Factor         | <b>1</b>             | Phase                      | <b>3</b>                           |
| Efficiency             | <b>84.2 %</b>        | Power Factor               | <b>0.85</b>                        |
| Duty                   | <b>S1</b>            | Insulation Class           | <b>F</b>                           |
| Frame                  | <b>90S</b>           | Enclosure                  | <b>Totally Enclosed Fan Cooled</b> |
| Thermal Protection     | <b>No Protection</b> | Ambient Temperature        | <b>40 °C</b>                       |
| Drive End Bearing Size | <b>6205</b>          | Opp Drive End Bearing Size | <b>6205</b>                        |
| UL                     | <b>No</b>            | CSA                        | <b>No</b>                          |
| CE                     | <b>Yes</b>           | IP Code                    | <b>55</b>                          |
| Number of Speeds       | <b>1</b>             | Efficiency Class           | <b>IE3</b>                         |

### Technical Specifications

|                       |                      |                       |                       |
|-----------------------|----------------------|-----------------------|-----------------------|
| Electrical Type       | <b>Squirrel Cage</b> | Starting Method       | <b>Direct On Line</b> |
| Poles                 | <b>2</b>             | Rotation              | <b>Bi-Directional</b> |
| Mounting              | <b>B35</b>           | Motor Orientation     | <b>Horizontal</b>     |
| Drive End Bearing     | <b>2Z-C3</b>         | Opp Drive End Bearing | <b>2Z-C3</b>          |
| Frame Material        | <b>Cast Iron</b>     | Shaft Type            | <b>Keyed</b>          |
| Overall Length        | <b>307 mm</b>        | Frame Length          | <b>128 mm</b>         |
| Shaft Diameter        | <b>24 mm</b>         | Shaft Extension       | <b>50 mm</b>          |
| Assembly/Box Mounting | <b>Top</b>           |                       |                       |
| Outline Drawing       | <b>0209000427</b>    | Connection Drawing    | <b>8442000085</b>     |

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|   |                          |                    |
|---|--------------------------|--------------------|
| DRAWING REVISION<br>C   | REVISION BY<br>I. RAMDAS | DATE<br>28/06/2018 |
| ECO<br>ECO-0147359  | APPROVED BY<br>JAY       | DATE<br>28/06/2018 |
| ECO DESCRIPTION<br>OUTLINE UPDATED AS PER 3D STRUCTURING  |                          |                    |
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|                           |
|---------------------------|
| DRAWN BY<br>RAF           |
| DATE<br>07/11/2014        |
| APPROVED BY<br>KRK        |
| DATE<br>07/11/2014        |
| REFERENCE                 |
| THIRD ANGLE<br>PROJECTION |

|                                    |                              |
|------------------------------------|------------------------------|
| <b>marathon™<br/>Motors</b>        |                              |
| DESCRIPTION<br><b>OUTLINE</b>      |                              |
| 90-S FR.- B35 MTG. MOTOR TYPE: TCA |                              |
| MATERIAL                           | PROCESS/FINISH               |
| SIZE<br>B                          | DRAWING NUMBER<br>0209000427 |
| 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> |  Regal Beloit America, Inc. |                           |  |                        |
|                       |   |                           | DESCRIPTION<br><b>CONN DIAGRAM-NAMEPLATE</b> |                        |
|                       | MATERIAL  |                           | PROCESS/FINISH                               |                        |
|                       | THIRD ANGLE PROJECTION       | SIZE<br><b>A</b>          | DRAWING NUMBER<br><b>8442000085</b>          | SHEET<br><b>1 OF 1</b> |
|                       | DATE<br><b>16/12/2016</b>   | APPROVED BY<br><b>SBD</b> | DATE<br><b>16/12/2016</b>                    | REFERENCE              |



Model No. TCA1P51AF131GAC010

| 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] |       |
|----------|---------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|------|-------|---------------|------|-------|--|--|--|-------|
|          |               |           |           |           |          |            |           |             | 5/4FL            | FL   | 3/4FL | 1/2FL         | FL   | 3/4FL |  |  |  | 1/2FL |
| 380      | Y             | 50        | 1.5       | 2         | 3.18     | 2888       | 4.94      | IE3         | -                | 84.2 | 84.2  | 81.8          | 0.85 | 0.78  | 0.65                                   | 7.5                                    | 3.5                                    | 3.5   |
|          |               |           |           |           |          |            |           |             |                  |      |       |               |      |       |  |  |  |       |

|                                  |                    |   |  |
|----------------------------------|--------------------|---|--|
| Motor type                       | TCA                | Degree of protection                      | IP 55                                      |
| Enclosure                        | TEFC               | Mounting type                             | IM B35                                     |
| Frame Material                   | Cast Iron          | Cooling method                            | IC 411                                     |
| Frame size                       | 90S                | Motor weight - approx.                    | 26 kg                                      |
| Duty                             | S1                 | Gross weight - approx.                    | 27 kg                                      |
| Voltage variation *              | ± 10%              | Motor inertia                             | 0.0021 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    | 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                 | 6205-2Z / 6205-2Z  | 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>A</sub>/T<sub>N</sub> - Locked Rotor Torque / Rated Torque

T<sub>K</sub>/T<sub>N</sub> - Breakdown 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 Standards | Europe | China                 | India | Aus/Nz | Brazil | Global IEC    |
|----------------------|--------|-----------------------|-------|--------|--------|---------------|
|                      | -      | GB 18613-2012 Grade 2 | -     | -      | -      | IEC: 60034-30 |





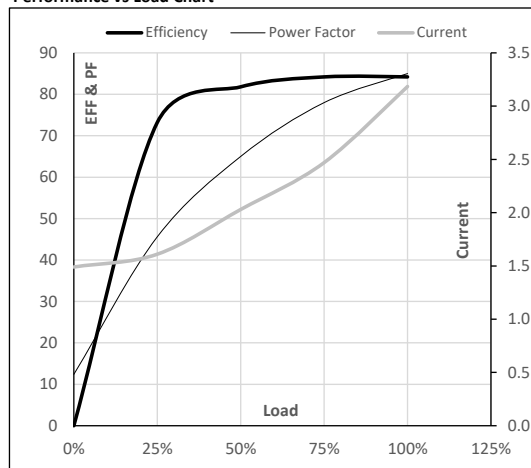
Model No. TCA1P51AF131GAC010

| Enclosure | U (V) | $\Delta / Y$ Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m <sup>2</sup> ] | Weight [kg] |
|-----------|-------|-------------------|--------|--------|--------|-------|---------|---------|--------|----------|----------|------|---------------|------------------------------|-------------|
| TEFC      | 380   | Y                 | 50     | 1.5    | 2.0    | 3.2   | 2888    | 0.50    | 4.94   | IE3      | 40       | S1   | 1000          | 0.0021                       | 26          |

**Motor Load Data**

| Load Point   |       | NL   | 1/4FL | 1/2FL | 3/4FL | FL   | 5/4FL |
|--------------|-------|------|-------|-------|-------|------|-------|
| Current      | A     | 1.5  | 1.6   | 2.0   | 2.5   | 3.2  |       |
| Torque       | Nm    | 0.0  | 1.2   | 2.4   | 3.7   | 4.9  |       |
| Speed        | r/min | 3000 | 2972  | 2947  | 2919  | 2888 |       |
| Efficiency   | %     | 0.0  | 73.2  | 81.8  | 84.2  | 84.2 |       |
| Power Factor | %     | 12.4 | 45.6  | 65.0  | 78.0  | 85.0 |       |

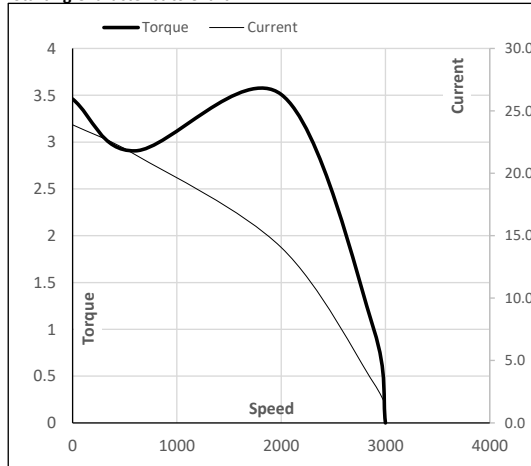
**Performance vs Load Chart**



**Motor Speed Torque Data**

| Load Point |       | LR   | P-Up | BD   | Rated | NL   |
|------------|-------|------|------|------|-------|------|
| Speed      | r/min | 0    | 600  | 1999 | 2888  | 3000 |
| Current    | A     | 23.9 | 21.5 | 14.1 | 3.2   | 1.5  |
| Torque     | pu    | 3.5  | 2.9  | 3.5  | 1     | 0    |

**Starting Characteristics Chart**



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

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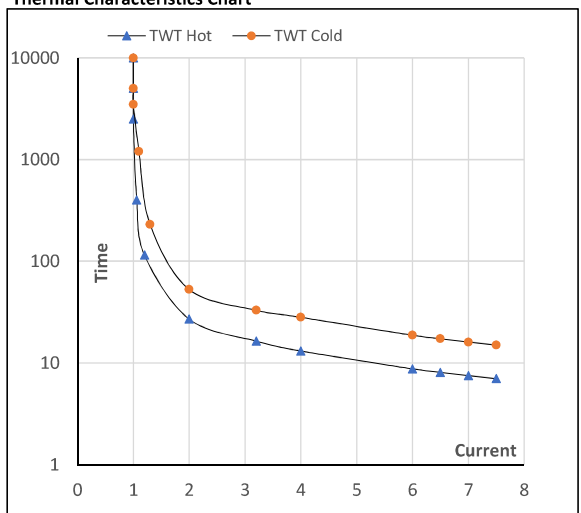
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| Enclosure | U (V) | $\Delta / Y$ Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [rpm] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m <sup>2</sup> ] | Weight [kg] |
|-----------|-------|-------------------|--------|--------|--------|-------|---------|---------|--------|----------|----------|------|---------------|------------------------------|-------------|
| TEFC      | 380   | Y                 | 50     | 1.5    | 2.0    | 3.2   | 2888    | 0.50    | 4.94   | IE3      | 40       | S1   | 1000          | 0.0021                       | 26          |

**Motor Speed Torque Data**

| Load     | FL      | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR  |     |
|----------|---------|-------|-------|-------|-------|-------|-----|-----|
| TWT Hot  | s 10000 | 27    | 23    | 13    | 12    | 11    | 7   |     |
| TWT Cold | s 10000 | 53    | 40    | 28    | 23    | 20    | 15  |     |
| Current  | pu      | 1     | 2     | 3     | 4     | 5     | 5.5 | 7.5 |

**Thermal Characteristics Chart**



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

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