

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: QCA1602AF121GAA001

Catalog No: QCA1602AF121GAA001

TerraMAX® Cast Iron Motor, 215 HP, 3 Ph, 50 Hz, 380 V, 1500 RPM, 315L Frame, TEFC



Regal and Marathon are trademarks of Regal Rexnord Corporation or one of its affiliated companies.

©2022 Regal Rexnord Corporation, All Rights Reserved. MC017097E

**RegalRexnord**

### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP              | 215 Hp        | Output KW                  | 160.0 kW                    |
| Frequency              | 50 Hz         | Voltage                    | 380 V                       |
| Current                | 290.7 A       | Speed                      | 1490 rpm                    |
| Service Factor         | 1             | Phase                      | 3                           |
| Efficiency             | 96.6 %        | Power Factor               | 0.87                        |
| Duty                   | S1            | Insulation Class           | F                           |
| Frame                  | 315L          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Ambient Temperature        | 40 °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           | IE4                         |

### Technical Specifications

|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 4             | Rotation              | Bi-Directional |
| Mounting              | B5            | Motor Orientation     | Horizontal     |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1317 mm       | Frame Length          | 840 mm         |
| Shaft Diameter        | 80 mm         | Shaft Extension       | 170 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0231500897     |

This is an uncontrolled document once printed or downloaded and is subject to change without notice. Date Created:12/01/2022

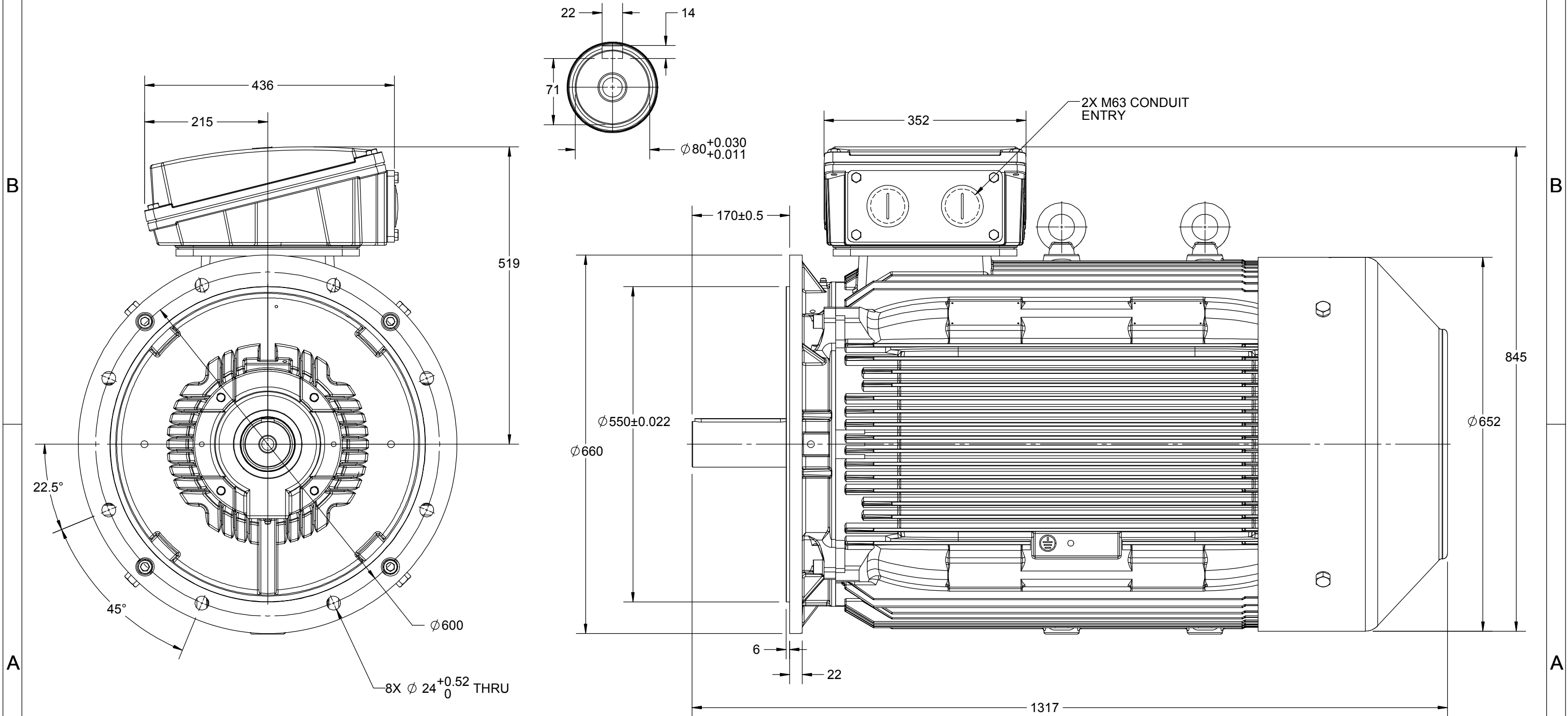
4

3

2

1

# OUTLINE



|   |                    |                    |  |                        |  |                              |                 |
|---|--------------------|--------------------|--|------------------------|--|------------------------------|-----------------|
| DRAWING REVISION<br>B   | REVISION BY<br>NIV | DATE<br>14/05/2019 |  | DRAWN BY<br>JOY        | <div>marathon™<br/>Motors</div>            |                              |                 |
| ECO<br>ECO-0165600  | APPROVED BY<br>SR  | DATE<br>14/05/2019 |  | DATE<br>18/07/2014     |  |                              |                 |
| ECO DESCRIPTION   |                    |                    |  | APPROVED BY<br>SBD     | DESCRIPTION                                |                              |                 |
| MODEL UPDATED   |                    |                    |  | DATE<br>18/07/2014     | OUTLINE<br>FR-315L-B5 MTG. MOTOR TYPE: TCA |                              |                 |
| COPYRIGHT REGAL BELOIT AMERICA, INC. ALL RIGHTS RESERVED.<br>PROPRIETARY AND CONFIDENTIAL INFORMATION - THIS DOCUMENT IS THE PROPERTY OF REGAL BELOIT AMERICA, INC. ("OWNER") AND CONTAINS OWNER'S PROPRIETARY INFORMATION. ANY PERSON, CORPORATION OR OTHER FIRM RECEIVING IT IS DEEMED, BY RECEIVING IT, TO AGREE THAT IT, AND/OR ANY PART OF IT, SHALL NOT BE DISCLOSED TO ANY PERSON, CORPORATION OR OTHER ENTITY, DUPLICATED, AND/OR USED, EXCEPT AS EXPRESSLY APPROVED IN WRITING IN ADVANCE BY OWNER. THIS DOCUMENT SHALL BE RETURNED TO OWNER UPON REQUEST. IT MAY BE SUBJECT TO CERTAIN RESTRICTIONS UNDER APPLICABLE EXPORT CONTROL LAWS AND REGULATIONS. |                    |                    |  | REFERENCE              | MATERIAL                                   | PROCESS/FINISH               |                 |
|   |                    |                    |  | THIRD ANGLE PROJECTION | SIZE<br>B                                  | DRAWING NUMBER<br>0231500897 | SHEET<br>1 OF 1 |

COPYRIGHT REGAL BELOIT AMERICA, INC. ALL RIGHTS RESERVED. UNCONTROLLED COPY  
 PROPRIETARY AND CONFIDENTIAL INFORMATION - THIS DOCUMENT IS THE PROPERTY OF  
 REGAL BELOIT AMERICA, INC. ("OWNER") AND CONTAINS OWNER'S PROPRIETARY  
 INFORMATION. ANY PERSON, CORPORATION OR OTHER FIRM RECEIVING IT IS DEEMED,  
 BY RECEIVING IT, TO AGREE THAT IT, AND/OR ANY PART OF IT, SHALL NOT BE DISCLOSED  
 TO ANY PERSON, CORPORATION OR OTHER ENTITY, DUPLICATED, AND/OR USED, EXCEPT  
 AS EXPRESSLY APPROVED IN WRITING IN ADVANCE BY OWNER. THIS DOCUMENT SHALL  
 BE RETURNED TO OWNER UPON REQUEST. IT MAY BE SUBJECT TO CERTAIN  
 RESTRICTIONS UNDER APPLICABLE EXPORT CONTROL LAWS AND REGULATIONS.

|   |                           |                           |
|---|---------------------------|---------------------------|
| 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>   |                                     |                           |
|  |  |                                     |                           |
| DATE<br><b>16/12/2016</b>  | APPROVED BY<br><b>SBD</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.** QCA1602AF121GAA001

| 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] |
|----------|---------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|----|-------|-------|---------------|-------|-------|--|--|--|
| 380      | Δ             | 50        | 160       | 215       | 289.3    | 1490       | 1027.33   | IE4         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 7.9                                    | 2.5                                    | 3.6                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |  |  |  |

|                                  |                             |   |   |
|----------------------------------|-----------------------------|---|---|
| Motor type                       | QCA                         | Degree of protection                      | IP 55                                       |
| Enclosure                        | TEFC                        | Mounting type                             | IM B5                                       |
| Frame Material                   | Cast Iron                   | Cooling method                            | IC 411                                      |
| Frame size                       | 315L                        | Motor weight - approx.                    | 1289 kg                                     |
| Duty                             | S1                          | Gross weight - approx.                    | 1334 kg                                     |
| Voltage variation *              | ± 10%                       | Motor inertia                             | 5.3723 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) | 69 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                 | 6319 C3 / 6319 C3           | Terminal box position                     | TOP   |
| Lubrication method               | Regreasable                 | Maximum cable size/conduit size           | 1R x 3C x 240mm <sup>2</sup> /2 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**

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.

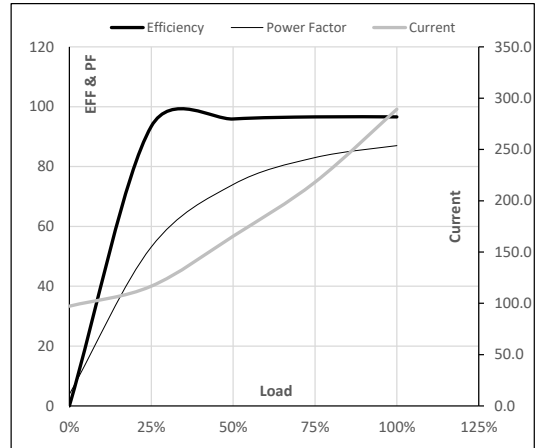
| Efficiency Standards | Europe | China                 | India | Aus/Nz | Brazil | Global IEC    |
|----------------------|--------|-----------------------|-------|--------|--------|---------------|
|                      | -      | GB 18613-2012 Grade 2 | -     | -      | -      | IEC: 60034-30 |

**Model No.** QCA1602AF121GAA001

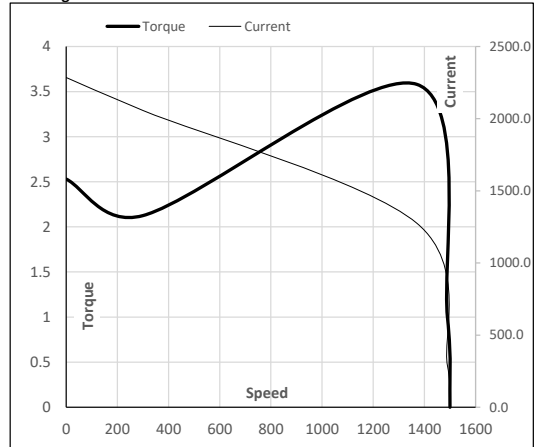
| Enclosure | U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 380      | Δ             | 50        | 160       | 215       | 289.3    | 1490       | 104.76     | 1027.33   | IE4         | 40          | S1   | 1000             | 5.3723                          | 1289           |

**Motor Load Data**

| Load Point   |       | NL   | 1/4FL | 1/2FL | 3/4FL | FL     | 5/4FL |
|--------------|-------|------|-------|-------|-------|--------|-------|
| Current      | A     | 97.2 | 116.7 | 165.4 | 218.1 | 289.3  |       |
| Torque       | Nm    | 0.0  | 255.6 | 512.0 | 769.2 | 1027.3 |       |
| Speed        | r/min | 1500 | 1498  | 1495  | 1493  | 1490   |       |
| Efficiency   | %     | 0.0  | 93.4  | 95.9  | 96.6  | 96.6   |       |
| Power Factor | %     | 3.9  | 53.1  | 74.0  | 83.0  | 87.0   |       |

**Performance vs Load Chart**

**Motor Speed Torque Data**

| Load Point |       | LR     | P-Up   | BD     | Rated | NL   |
|------------|-------|--------|--------|--------|-------|------|
| Speed      | r/min | 0      | 300    | 1371   | 1490  | 1500 |
| Current    | A     | 2285.1 | 2056.6 | 1274.8 | 289.3 | 97.2 |
| Torque     | pu    | 2.5    | 2.1    | 3.6    | 1     | 0    |

**Starting Characteristics Chart**

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

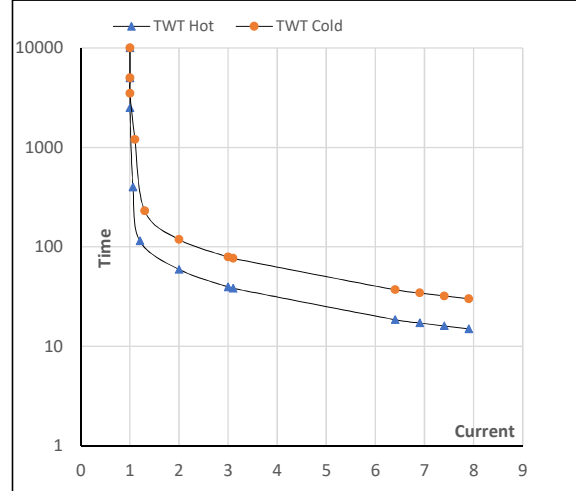
 Issued By  
Issued Date

**Model No.** QCA1602AF121GAA001

| 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        | 160       | 215       | 289.3    | 1490       | 104.76     | 1027.33   | IE4         | 40          | S1   | 1000             | 5.3723                          | 1289           |

**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 | 59             | 40             | 30             | 25             | 20             | 15  |     |
| TWT Cold | s 10000 | 119            | 79             | 60             | 45             | 40             | 30  |     |
| 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

 Issued By  
Issued Date