

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA0041A3181GACD01

Catalog No: TCA0041A3181GACD01

Cast Iron Motor, 5.50 HP, 3 Ph, 50 Hz, 415 V, 3000 RPM, 112M Frame, TEFC



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**RegalRexnord**

### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Phase                  | 3             | Output HP                  | 5.50 Hp                     |
| Output KW              | 4.0 kW        | Voltage                    | 415 V                       |
| Speed                  | 2908 rpm      | Service Factor             | 1                           |
| Frame                  | 112M          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Efficiency                 | 88.1 %                      |
| Ambient Temperature    | 50 °C         | Frequency                  | 50 Hz                       |
| Current                | 6.8 A         | Power Factor               | 0.93                        |
| Duty                   | S1            | Insulation Class           | F                           |
| Drive End Bearing Size | 6306          | 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              | B14B          | Motor Orientation     | Shaftdown      |
| Drive End Bearing     | 2z-C3         | Opp Drive End Bearing | 2z-C3          |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 399 mm        | Frame Length          | 174 mm         |
| Shaft Diameter        | 28 mm         | Shaft Extension       | 60 mm          |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    |                       |                |

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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.** TCA0041A3181GACD01

| 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] |
|----------|---------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|------|-------|-------|---------------|-------|-------|--|--|--|
| 415      | Δ             | 50        | 4         | 5.5       | 6.8      | 2908       | 13.46     | IE3         | 5/4FL            | FL   | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 7.7                                    | 2.4                                    | 3.3                                    |
|          |               |           |           |           |          |            |           |             | -                | 88.1 | 88.1  | 89.1  | 0.93          | 0.9   | 0.83  |  |  |  |
|          |               |           |           |           |          |            |           |             |                  |      |       |       |               |       |       |  |  |  |

|                                  |                            |
|----------------------------------|----------------------------|
| Motor type                       | TCA                        |
| Enclosure                        | TEFC                       |
| Frame Material                   | Cast Iron                  |
| Frame size                       | 112M                       |
| 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                 | 6306-2Z / 6206-2Z          |
| Lubrication method               | Greased for life           |
| Type of grease                   | NA                         |

|   |  |
|---|--|
| Degree of protection                      | IP 55                                      |
| Mounting type                             | IM B14B                                    |
| Cooling method                            | IC 411                                     |
| Motor weight - approx.                    | 51 kg                                      |
| Gross weight - approx.                    | 54 kg                                      |
| Motor inertia                             | 0.0117 kgm <sup>2</sup>                    |
| Load inertia                              | Customer to Provide                        |
| Vibration level                           | 1.6 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)              | 7/15 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 16mm <sup>2</sup> /2 x M25 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.

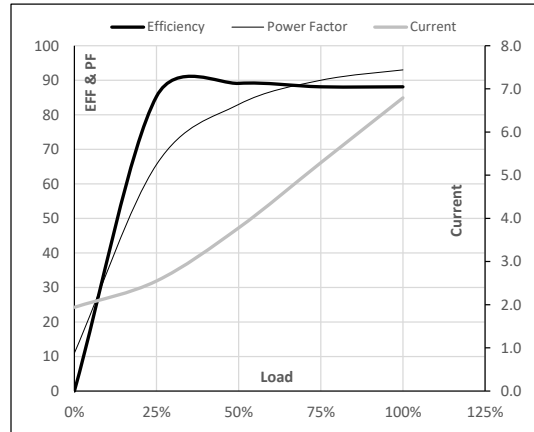
| Efficiency | Europe | China | India           | Aus/Nz | Brazil | Global IEC |
|------------|--------|-------|-----------------|--------|--------|------------|
| Standards  | -      | -     | IS 12615 : 2018 | -      | -      | -          |

**Model No.** TCA0041A3181GACD01

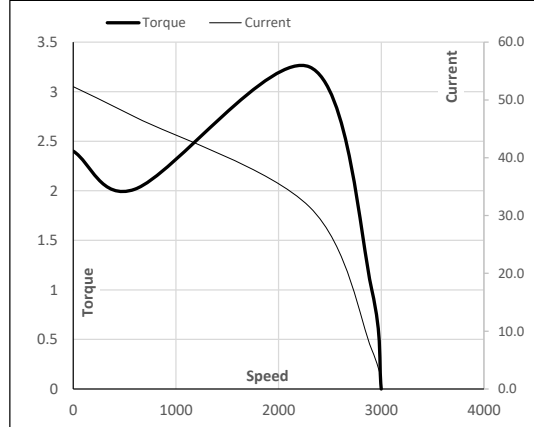
| Enclosure | U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 415      | Δ             | 50        | 4         | 5.5       | 6.8      | 2908       | 1.37       | 13.46     | IE3         | 50          | S1   | 1000             | 0.0117                          | 51             |

**Motor Load Data**

| Load Point   |       | NL   | 1/4FL | 1/2FL | 3/4FL | FL   | 5/4FL |
|--------------|-------|------|-------|-------|-------|------|-------|
| Current      | A     | 1.9  | 2.6   | 3.8   | 5.3   | 6.8  |       |
| Torque       | Nm    | 0.0  | 3.3   | 6.6   | 10.0  | 13.5 |       |
| Speed        | r/min | 3000 | 2978  | 2957  | 2934  | 2908 |       |
| Efficiency   | %     | 0.0  | 85.3  | 89.1  | 88.1  | 88.1 |       |
| Power Factor | %     | 11.0 | 65.6  | 83.0  | 90.0  | 93.0 |       |

**Performance vs Load Chart**

**Motor Speed Torque Data**

| Load Point |       | LR   | P-Up | BD   | Rated | NL   |
|------------|-------|------|------|------|-------|------|
| Speed      | r/min | 0    | 600  | 2301 | 2908  | 3000 |
| Current    | A     | 52.3 | 47.1 | 31.5 | 6.8   | 1.9  |
| Torque     | pu    | 2.4  | 2.0  | 3.3  | 1     | 0    |

**Starting Characteristics Chart**

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

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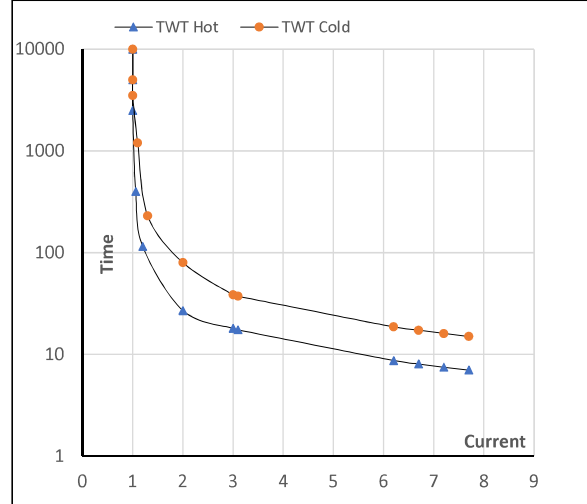
**Model No.** TCA0041A3181GACD01

| 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        | 4         | 5.5       | 6.8      | 2908       | 1.37       | 13.46     | IE3         | 50          | S1   | 1000             | 0.0117                          | 51             |

#### 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 | 27             | 18             | 16             | 13             | 10             | 7   |
| TWT Cold | s 10000 | 80             | 39             | 35             | 30             | 22             | 15  |
| Current  | pu      | 1              | 2              | 4              | 5              | 5.5            | 7.7 |

#### Thermal Characteristics Chart



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

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