

# PRODUCT INFORMATION PACKET

Model No: TCA0152A3121GACD01

Catalog No: TCA0152A3121GACD01

15.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 1500 RPM, 415 V, 160L Frame, TEFC  
Cast Iron IE3 Efficiency Motors





### Nameplate Specifications

|                            |        |                        |                             |
|----------------------------|--------|------------------------|-----------------------------|
| Output HP                  | 20 Hp  | Output KW              | 15.0 kW                     |
| Frequency                  | 50 Hz  | Voltage                | 415 V                       |
| Current                    | 26.4 A | Speed                  | 1474 rpm                    |
| Service Factor             | 1      | Phase                  | 3                           |
| Efficiency                 | 92.1 % | Power Factor           | 0.86                        |
| Duty                       | S1     | Insulation Class       | F                           |
| Frame                      | 160L   | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 50 °C  | Drive End Bearing Size | 6309                        |
| Opp Drive End Bearing Size | 6209   | UL                     | No                          |
| CSA                        | No     | CE                     | Yes                         |
| IP Code                    | 55     |                        |                             |

### Technical Specifications

|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 4             | Rotation              | Bi-Directional |
| Mounting              | B5            | Motor Orientation     | Horizontal     |
| Drive End Bearing     | 2z-C3         | Opp Drive End Bearing | 2z-C3          |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 666 mm        | Frame Length          | 298 mm         |
| Shaft Diameter        | 42 mm         | Shaft Extension       | 110 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0216000443     |

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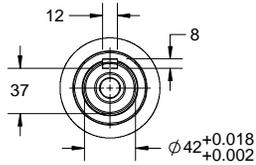
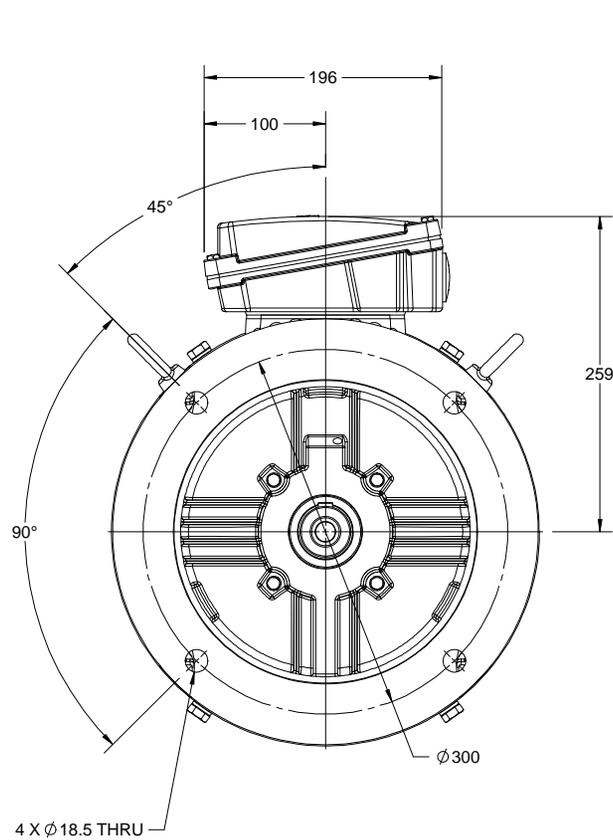
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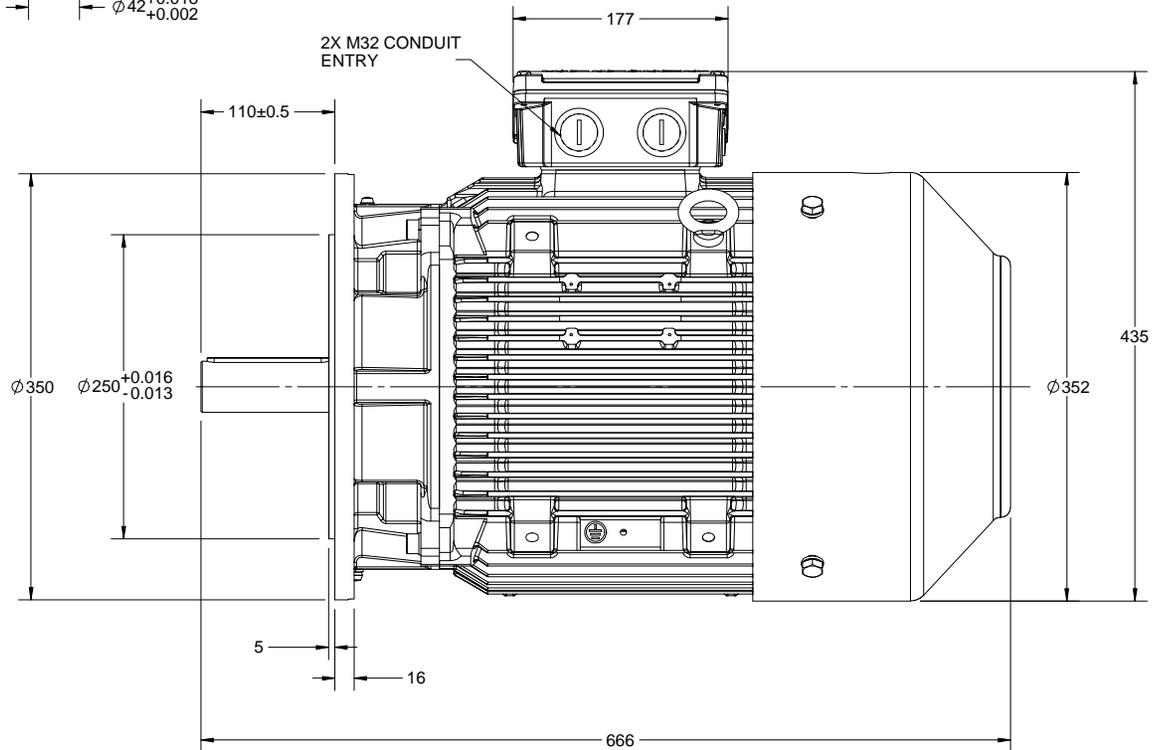
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2X M32 CONDUIT ENTRY



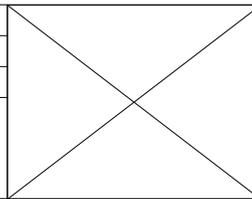
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A

A

|   |                          |                    |
|---|--------------------------|--------------------|
| DRAWING REVISION<br>B   | REVISION BY<br>I. RAMDAS | DATE<br>03/07/2018 |
| ECO<br>ECO-0147359  | APPROVED BY<br>JAY       | DATE<br>03/07/2018 |
| ECO DESCRIPTION<br>OUTLINE UPDATED AS PER NEW 3D STRUCTURING  |                          |                    |
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|                    |
|--------------------|
| DRAWN BY<br>SDV    |
| DATE<br>15/04/2014 |
| APPROVED BY<br>SBD |
| DATE<br>15/04/2014 |
| REFERENCE          |

|   |                 |
|---|-----------------|
| Regal Beloit America, Inc.                                    |                 |
| DESCRIPTION<br><b>OUTLINE</b><br>160FR-B5 MTG. MOTOR TYPE TCA |                 |
| MATERIAL  | PROCESS/FINISH  |
| THIRD ANGLE<br>PROJECTION                                     | SIZE<br>B       |
| DRAWING NUMBER<br><b>0216000443</b>                           | SHEET<br>1 OF 1 |

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| DRAWING REVISION                       | REVISION BY        | DATE               |
|--|--------------------|--------------------|
| A                                      | SN                 | 13/01/2017         |
| ECO-0116390                            | APPROVED BY<br>SBD | DATE<br>13/01/2017 |
| ECO DESCRIPTION<br>NEW DRAWING RELEASE |                    |                    |

| 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>SN            |  | REGAL <sup>TM</sup><br>Regal Beloit America, Inc. |  |
| DATE<br>16/12/2016        |  | DESCRIPTION<br>CONN DIAGRAM-NAMEPLATE             |  |
| APPROVED BY<br>SBD        |  | MATERIAL  |  |
| DATE<br>16/12/2016        |  | PROCESS/FINISH                                    |  |
| REFERENCE                 |  | SIZE<br>A   |  |
| THIRD ANGLE<br>PROJECTION |  | DRAWING NUMBER<br>8442000085                      |  |
|                           |  | SHEET<br>1 OF 1                                   |  |

Model No. TCA0152A3121GACD01

| U<br>(V) | Δ / Y<br>Conn | f<br>(Hz) | P    |      | I    |      | n<br>[RPM] | T<br>[Nm] | IE<br>Class | % EFF at __ load |      |       |       | PF at __ load |       |       | I <sub>L</sub> /I <sub>N</sub><br>[pu] | T <sub>M</sub> /T <sub>N</sub><br>[pu] | T <sub>L</sub> /T <sub>N</sub><br>[pu] |
|----------|---------------|-----------|------|------|------|------|------------|-----------|-------------|------------------|------|-------|-------|---------------|-------|-------|--|--|--|
|          |               |           | [kW] | [hp] | [A]  | [A]  |            |           |             | 5/4FL            | FL   | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL |  |  |  |
| 415      | Δ             | 50        | 15   | 20   | 26.3 | 1474 | 96.66      |           | IE3         | -                | 92.1 | 92.1  | 92    | 0.86          | 0.82  | 0.71  | 7.1                                    | 2.5                                    | 3.2                                    |
|          |               |           |      |      |      |      |            |           |             |                  |      |       |       |               |       |       |  |  |  |

|                                  |                            |   |  |
|----------------------------------|----------------------------|---|--|
| Motor type                       | TCA                        | Degree of protection                      | IP 55                                      |
| Enclosure                        | TEFC                       | Mounting type                             | IM B5                                      |
| Frame Material                   | Cast Iron                  | Cooling method                            | IC 411                                     |
| Frame size                       | 160L                       | Motor weight - approx.                    | 184 kg                                     |
| Duty                             | S1                         | Gross weight - approx.                    | 204 kg                                     |
| Voltage variation *              | ± 10%                      | Motor inertia                             | 0.1597 kgm <sup>2</sup>                    |
| Frequency variation *            | ± 5%                       | Load inertia                              | Customer to Provide                        |
| Combined variation *             | 10%                        | Vibration level                           | 2.2 mm/s                                   |
| Design                           | N                          | Noise level ( 1meter distance from motor) | 64 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 +50 °C              | Type of coupling                          | Direct                                     |
| Temperature rise (by resistance) | 70 [ Class B ] K           | LR withstand time (hot/cold)              | 12/25 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                             | -  |
| Rotor type                       | Aluminum Die cast          | Accessory - 2                             | -  |
| Bearing type                     | Anti-friction ball bearing | Accessory - 3                             | -  |
| DE / NDE bearing                 | 6309-2Z / 6209-2Z          | Terminal box position                     | TOP  |
| Lubrication method               | Greased for life           | Maximum cable size/conduit size           | 1R x 3C x 35mm <sup>2</sup> /2 X M32 x 1.5 |
| Type of grease                   | NA                         | Auxiliary terminal box                    | NA   |

I<sub>L</sub>/I<sub>N</sub> - Locked Rotor Current / Rated Current

T<sub>M</sub>/T<sub>N</sub> - Breakdown Torque / Rated Torque

T<sub>L</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 |
|----------------------|--------|-------|-----------------|--------|--------|------------|
|                      | -      | -     | IS 12615 : 2018 | -      | -      | -          |

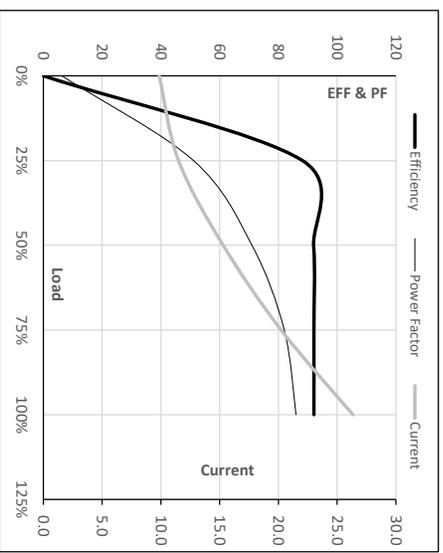
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| Enclosure | U [V] | $\Delta$ /Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [kgm] | T [Nm] | IE Class | Amb Temp [°C] | Duty | Elevation [m] | Inertia [kg·m <sup>2</sup> ] | Weight [kg] |
|-----------|-------|------------------|--------|--------|--------|-------|---------|---------|--------|----------|---------------|------|---------------|------------------------------|-------------|
| TFC       | 415   | $\Delta$         | 50     | 15     | 20     | 26.3  | 1474    | 9.86    | 96.66  | IE3      | 50            | S1   | 1000          | 0.1597                       | 184         |

**Motor Load Data**

| Load Point   | NL    | 1/4FL | 1/2FL | 3/4FL | FL   | 5/4FL |
|--------------|-------|-------|-------|-------|------|-------|
| Current      | A     | 9.9   | 11.5  | 15.3  | 20.2 | 26.3  |
| Torque       | Nm    | 0.0   | 23.8  | 47.9  | 72.1 | 96.7  |
| Speed        | r/min | 1500  | 1494  | 1487  | 1481 | 1474  |
| Efficiency   | %     | 0.0   | 88.2  | 92.0  | 92.1 | 92.1  |
| Power Factor | %     | 6.3   | 51.1  | 71.0  | 82.0 | 86.0  |

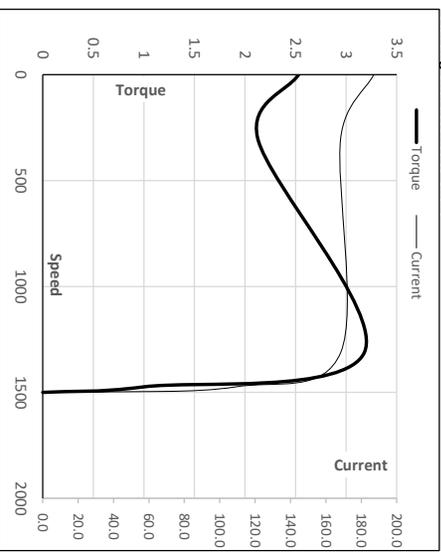
**Performance vs Load Chart**



**Motor Speed Torque Data**

| Load Point | LR    | P-Up  | BD    | Rated | NL   |      |
|------------|-------|-------|-------|-------|------|------|
| Speed      | r/min | 0     | 300   | 1312  | 1474 | 1500 |
| Current    | A     | 187.1 | 168.4 | 109.0 | 26.3 | 9.9  |
| Torque     | pu    | 2.5   | 2.1   | 3.2   | 1    | 0    |

**Starting Characteristics Chart**



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

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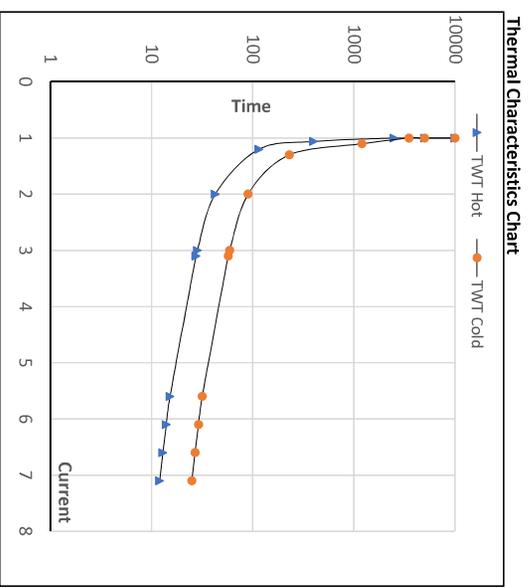


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|           |     |             |      |      |      |      |       |       |       |       |      |      |           |                      |        |
|-----------|-----|-------------|------|------|------|------|-------|-------|-------|-------|------|------|-----------|----------------------|--------|
| Enclosure | U   | $\Delta$ /Y | f    | P    | P    | I    | n     | T     | T     | IE    | Amb  | Duty | Elevation | Inertia              | Weight |
| (V)       | 415 | Conn        | [Hz] | [kW] | [hp] | [A]  | [rpm] | [kgm] | [Nm]  | Class | [°C] | S1   | [m]       | [kg·m <sup>2</sup> ] | [kg]   |
| TEFC      |     | $\Delta$    | 50   | 15   | 20   | 26.3 | 1474  | 9.85  | 96.66 | IE3   | 50   | S1   | 1000      | 0.1397               | 184    |

**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          | 43             | 28             | 25             | 16             | 15  | 12  |
| TWT Cold | s  | 10000          | 90             | 59             | 50             | 33             | 31  | 25  |
| Current  | pu | 1              | 2              | 3              | 4              | 5              | 5.5 | 7.1 |



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

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