# PRODUCT INFORMATION PACKET

Model No: TCN1321A1111GAC010
Catalog No: TCN1321A1111GAC010
TerraMAX® Cast Iron Motor, 175 HP, 3 Ph, 50 Hz, 400 V, 3000 RPM, 315M Frame, TEFC

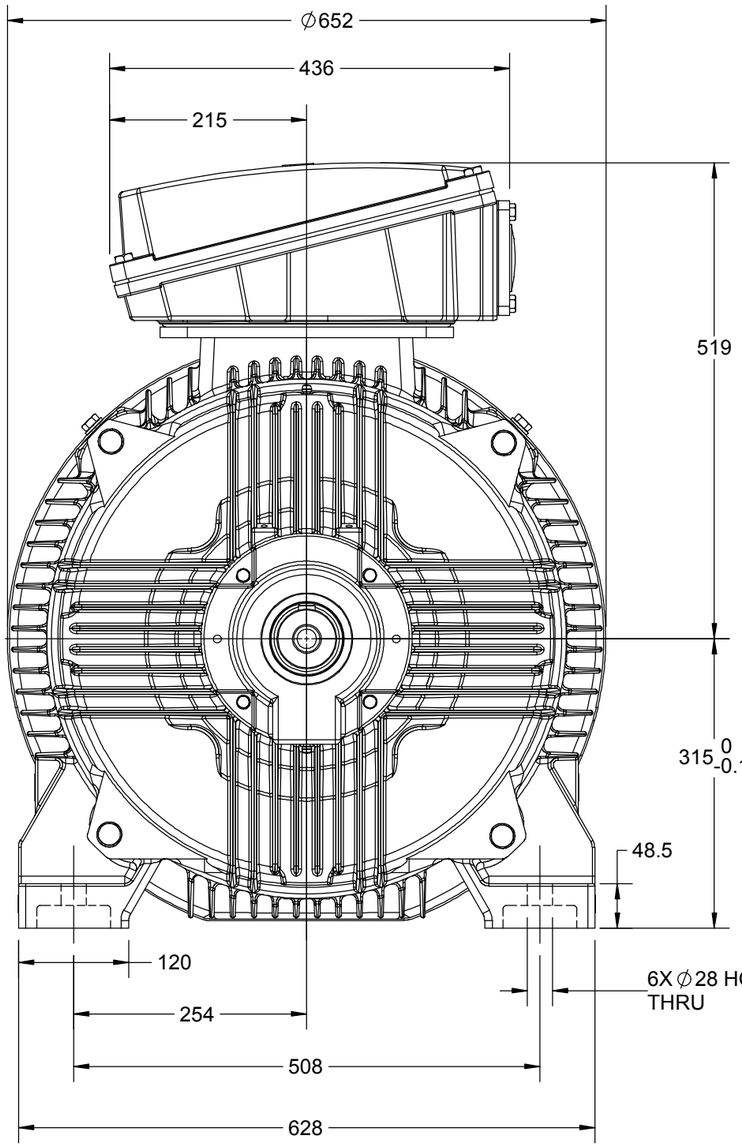
## Nameplate Specifications

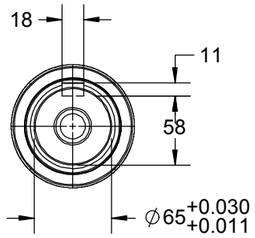
| | | | |
|---|---|---|---|
| Output HP | 175 Hp | Output KW | 132.0 kW |
| Frequency | 50 Hz | Voltage | 400 V |
| Current | 224.4 A | Speed | 2984 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 95.4 % | Power Factor | 0.89 |
| Duty | S1 | Insulation Class | F |
| Frame | 315M | Enclosure | Totally Enclosed Fan Cooled |
| Thermal Protection | No Protection | Ambient Temperature | 40 °C |
| Drive End Bearing Size | 6316 | Opp Drive End Bearing Size | 6316 |
| UL | No | CSA | No |
| CE | Yes | IP Code | 55 |
| Number of Speeds | 1 | Efficiency Class | IE3 |

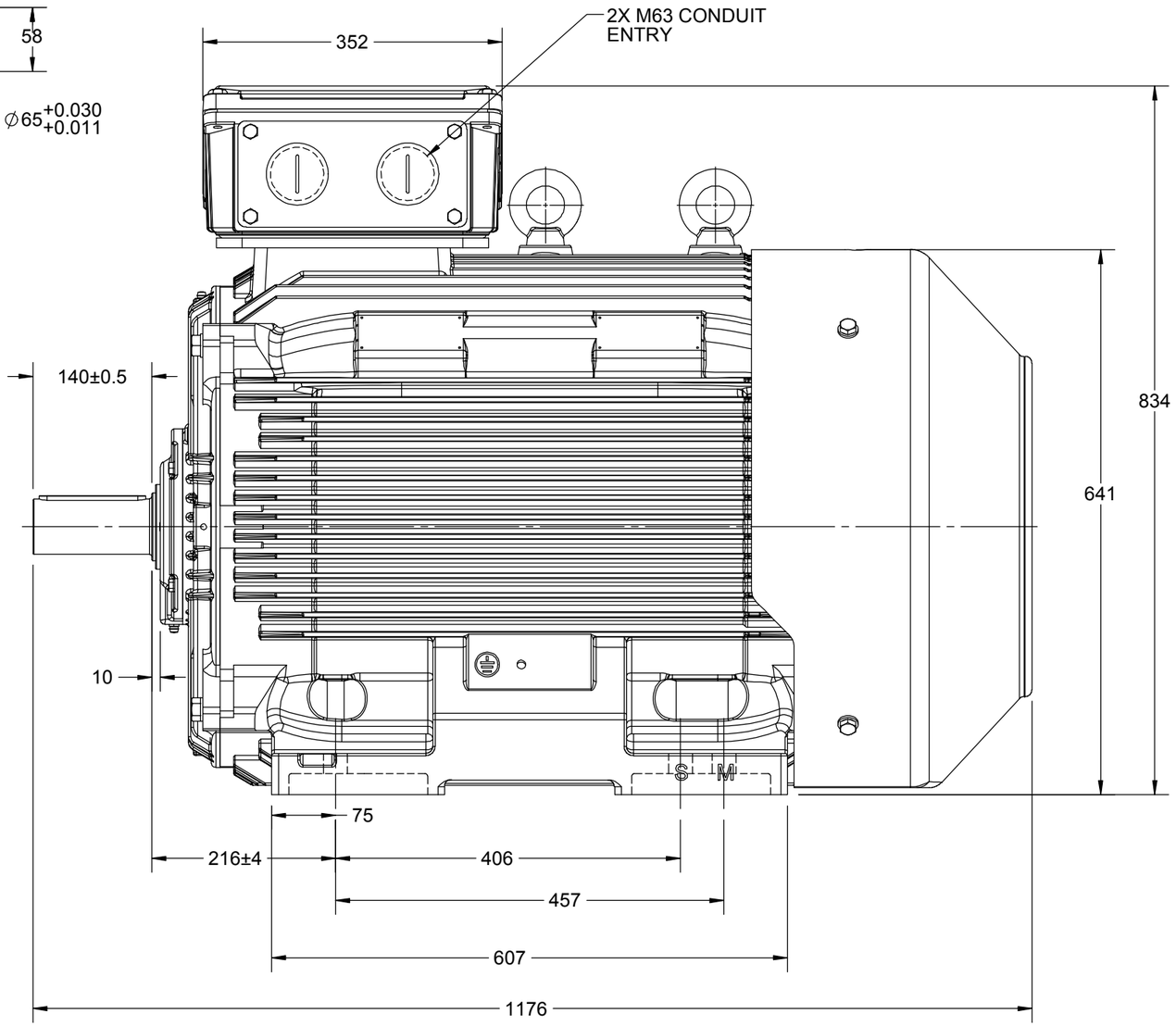
## Technical Specifications

| | | | |
|---|---|---|---|
| Electrical Type | Squirrel Cage | Starting Method | Direct On Line |
| Poles | 2 | Rotation | Bi-Directional |
| Mounting | B3 | Motor Orientation | Horizontal |
| Drive End Bearing | C3 | Opp Drive End Bearing | C3 |
| Frame Material | Cast Iron | Shaft Type | Keyed |
| Overall Length | 1176 mm | Frame Length | 729 mm |
| Shaft Diameter | 65 mm | Shaft Extension | 140 mm |
| Assembly/Box Mounting | Top | | |
| Connection Drawing | 8442000085 | Outline Drawing | 0231500878 |

# OUTLINE



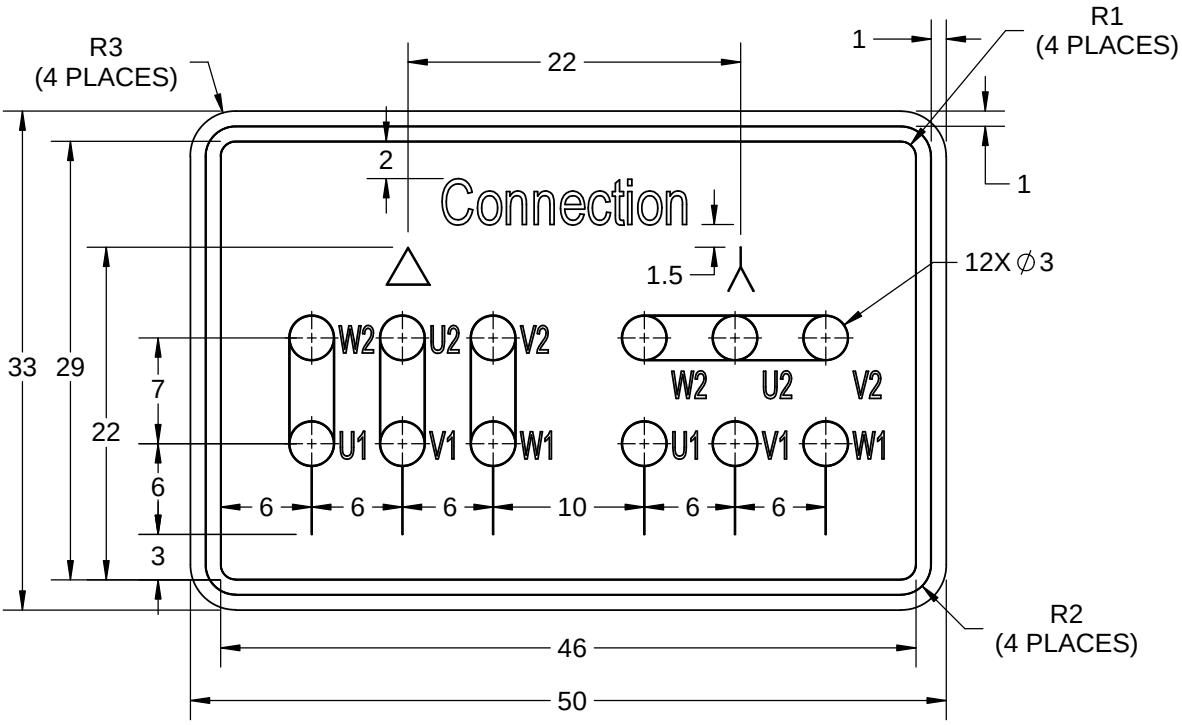




| | | | | | |
|---|---|---|---|---|---|
| DRAWING REVISION C | REVISION BY NIV | DATE 10/05/2019 | | DRAWN BY JOY | marathon™ Motors |
| ECO ECO-0165600 | APPROVED BY SR | DATE 10/05/2019 | | DATE 18/07/2014 | |
| ECO DESCRIPTION MODEL UPDATED | | | | APPROVED BY SBD | DESCRIPTION OUTLINE 315M-2P-B3 MTG. MOTOR TYPE: TCA/QCA |
| | | | | DATE 18/07/2014 | |
| | | | | REFERENCE | MATERIAL / PROCESS/FINISH |
| | | | | THIRD ANGLE PROJECTION | SIZE B / DRAWING NUMBER 0231500878 / SHEET 1 OF 1 |

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

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

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**Model No.** TCN1321A1111GAC010

| U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [Nm] | IE Class | % EFF at __ load 5/4FL | FL | 3/4FL | 1/2FL | PF at __ load FL | 3/4FL | 1/2FL | $I_A/I_N$ [pu] | $T_A/T_N$ [pu] | $T_K/T_N$ [pu] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 400 | Δ | 50 | 132 | 175 | 224.4 | 2984 | 417.66 | IE3 | - | 95.4 | 95.4 | 93.3 | 0.89 | 0.85 | 0.77 | 7.4 | 2.2 | 3.7 |

| | | |
|---|---|---|
| Motor type | TCN | |
| 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 +40 | °C |
| Temperature rise (by resistance) | 80 [ Class B ] | K |
| Altitude above sea level | 1000 | meter |
| Hazardous area classification | Ex nA | |
| Zone classification | Zone 2 | |
| Gas group | IIC | |
| Temperature class | T3 | |
| Rotor type | Aluminum Die cast | |
| Bearing type | Anti-friction ball | |
| DE / NDE bearing | 6316 C3 / 6316 C3 | |
| Lubrication method | Regreasable | |
| Type of grease | CHEVRON SRI-2 or Equivalent | |

| | |
|---|---|
| Degree of protection | IP 55 |
| Mounting type | IM B3 |
| Cooling method | IC 411 |
| Motor weight - approx. | 1024 kg |
| Gross weight - approx. | 1070 kg |
| Motor inertia | 2.4236 $kgm^2$ |
| Load inertia | Customer to Provide |
| Vibration level | 2.8 mm/s |
| Noise level ( 1meter distance from motor) | 83 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 | PTC 150°C |
| Accessory - 2 | - |
| Accessory - 3 | - |
| Terminal box position | TOP |
| Maximum cable size/conduit size | 1R x 3C x 240$mm^2$/2 x M63 x 1.5 |
| Auxiliary terminal box | NA |

$I_A/I_N$ - Locked Rotor Current / Rated Current

$T_A/T_N$ - Locked Rotor Torque / Rated Torque

$T_K/T_N$ - Breakdown Torque / Rated Torque

**NOTE**

ATEX/IEC Ex certified as per IEC/EN 60079-0; IEC/EN 60079-15

All performance values at rated voltage and frequency.

All performance parameters are subjected to standard tolerance as per IEC 60034-1

* Voltage, Frequency and combined variation are as per IEC60034-1

Technical data are subject to change. There may be slight variations between calculated values in this datasheet and the motor nameplate figures.

| Efficiency | Europe | China | India | Aus/Nz | Brazil | Global IEC |
|---|---|---|---|---|---|---|
| Standards | IEC:60034-30-1 | | - | GEMS 2019 | - | IEC:60034-30-1 |

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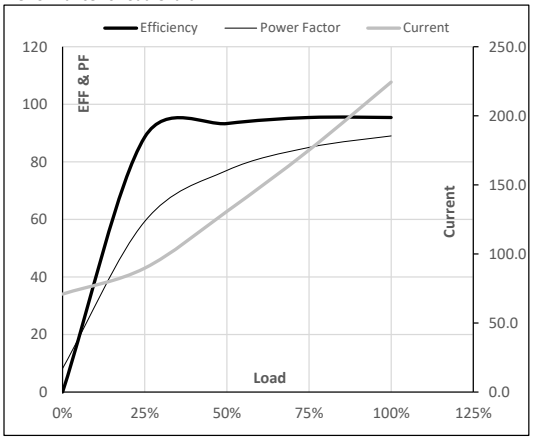
| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m$^2$] | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEFC | 400 | Δ | 50 | 132 | 175 | 224.4 | 2984 | 42.59 | 417.66 | IE3 | 40 | S1 | 1000 | 2.4236 | 1024 |

**Motor Load Data**

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|---|---|---|---|---|---|---|---|
| Current | A | 70.9 | 89.7 | 130.8 | 175.2 | 224.4 | |
| Torque | Nm | 0.0 | 104.0 | 208.3 | 312.8 | 417.7 | |
| Speed | r/min | 3000 | 2996 | 2992 | 2988 | 2984 | |
| Efficiency | % | 0.0 | 88.6 | 93.3 | 95.4 | 95.4 | |
| Power Factor | % | 8.2 | 59.3 | 77.0 | 85.0 | 89.0 | |

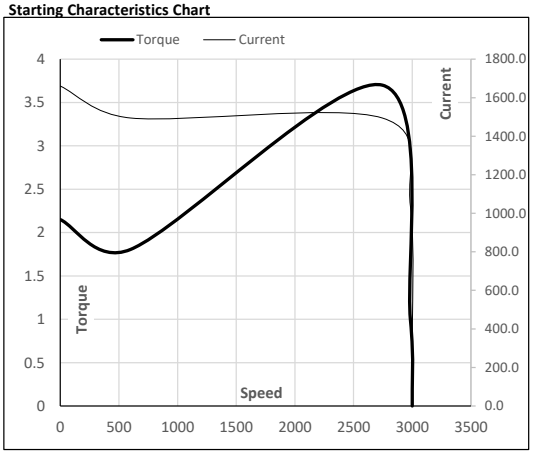
**Performance vs Load Chart**




**Motor Speed Torque Data**

| Load Point | | LR | P-Up | BD | Rated | NL |
|---|---|---|---|---|---|---|
| Speed | r/min | 0 | 600 | 2745 | 2984 | 3000 |
| Current | A | 1660.5 | 1494.5 | 1038.4 | 224.4 | 70.9 |
| Torque | pu | 2.2 | 1.8 | 3.7 | 1 | 0 |

**Starting Characteristics Chart**




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

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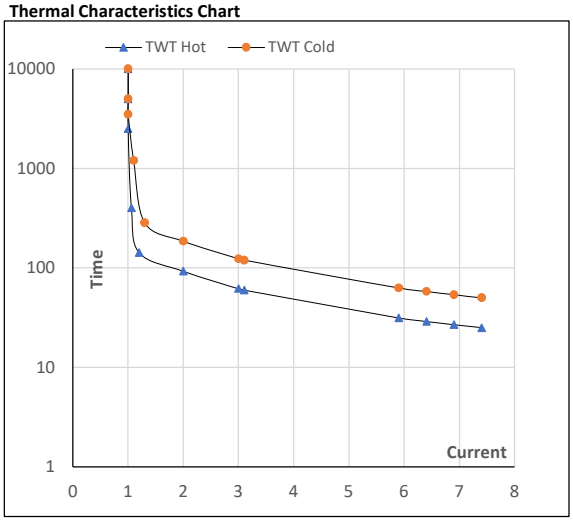
| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [rpm] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m$^2$] | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEFC | 400 | Δ | 50 | 132 | 175 | 224.4 | 2984 | 42.59 | 417.66 | IE3 | 40 | S1 | 1000 | 2.4236 | 1024 |

**Motor Speed Torque Data**

| Load | | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR |
|---|---|---|---|---|---|---|---|---|
| TWT Hot | s | 10000 | 93 | 62 | 50 | 40 | 31 | 25 |
| TWT Cold | s | 10000 | 185 | 123 | 102 | 82 | 63 | 50 |
| Current | pu | 1 | 2 | 3 | 4 | 5 | 6 | 7.4 |

**Thermal Characteristics Chart**

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