# PRODUCT INFORMATION PACKET

Model No: TCN0903A1141GAC010
Catalog No: TCN0903A1141GAC010
TerraMAX® Cast Iron Motor, 120 HP, 3 Ph, 50 Hz, 400 V, 1000 RPM, 315M Frame, TEFC

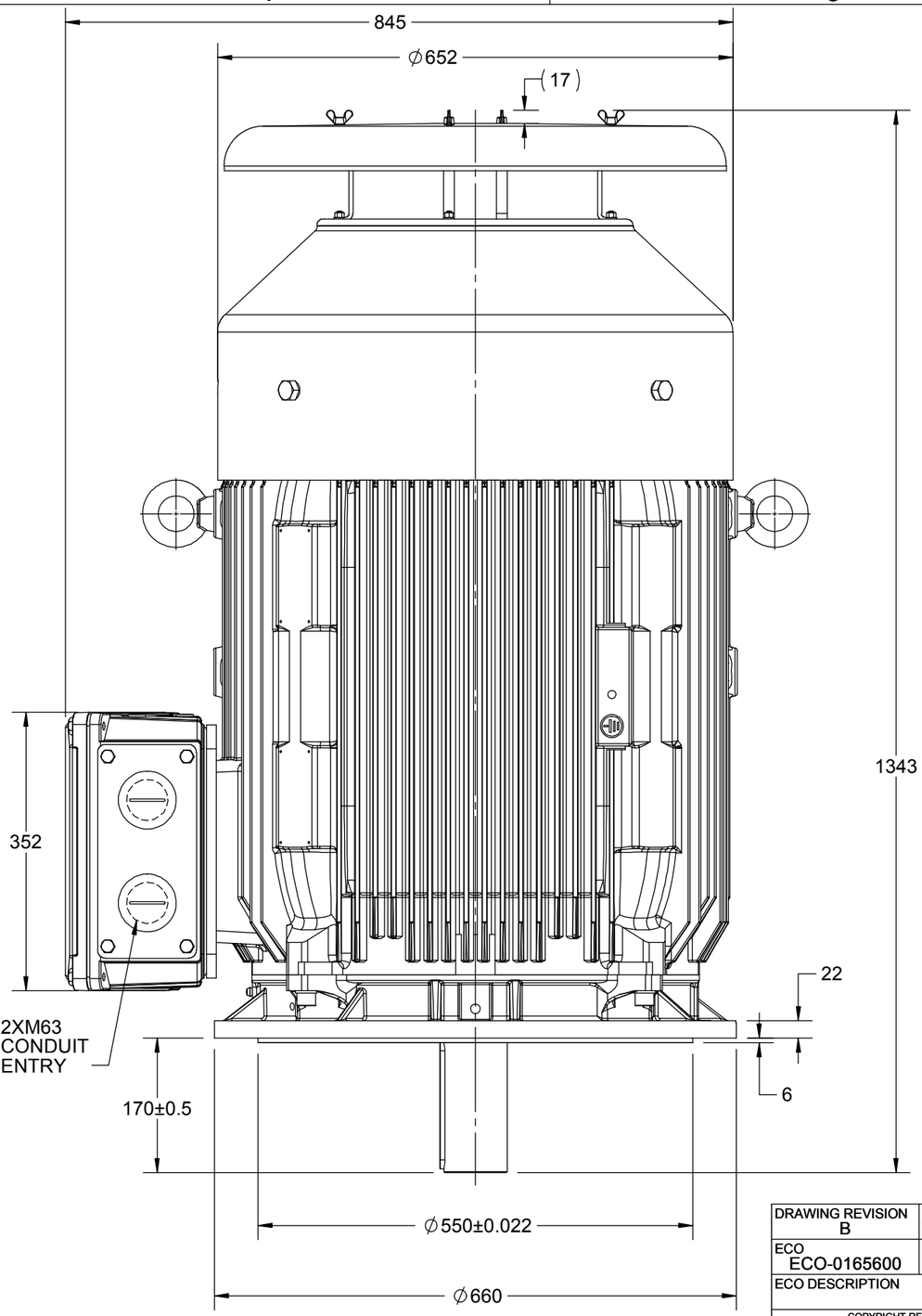
## Nameplate Specifications

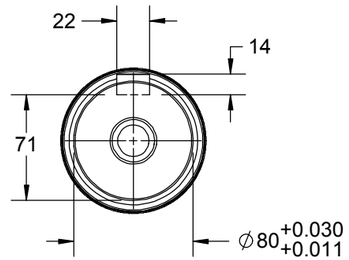
| | | | |
|---|---|---|---|
| Output HP | 120 Hp | Output KW | 90.0 kW |
| Frequency | 50 Hz | Voltage | 400 V |
| Current | 166.9 A | Speed | 990 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 94.9 % | Power Factor | 0.82 |
| Duty | S1 | Insulation Class | F |
| Frame | 315M | Enclosure | Totally 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 | IE3 |

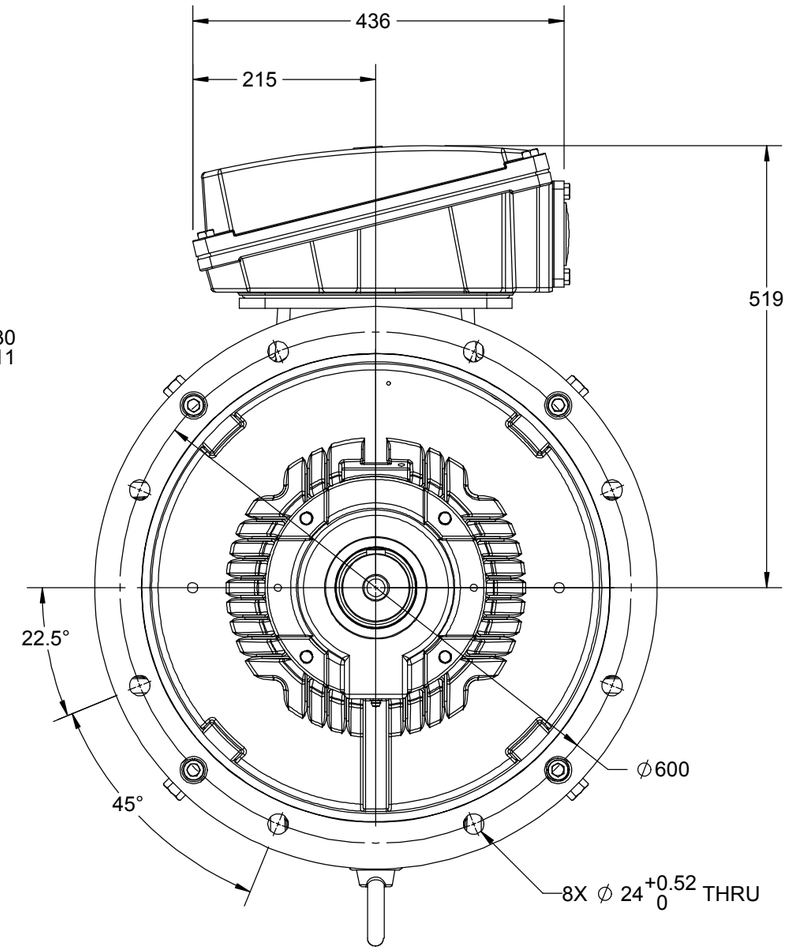
## Technical Specifications

| | | | |
|---|---|---|---|
| Electrical Type | Squirrel Cage | Starting Method | Direct On Line |
| Poles | 6 | Rotation | Bi-Directional |
| Mounting | V1 | Motor Orientation | Shaftdown |
| Drive End Bearing | C3 | Opp Drive End Bearing | C3 |
| Frame Material | Cast Iron | Shaft Type | Keyed |
| Overall Length | 1341 mm | Frame Length | 729 mm |
| Shaft Diameter | 80 mm | Shaft Extension | 170 mm |
| Assembly/Box Mounting | Top | | |
| Outline Drawing | 0231500893 | Connection Drawing | 8442000085 |

# OUTLINE



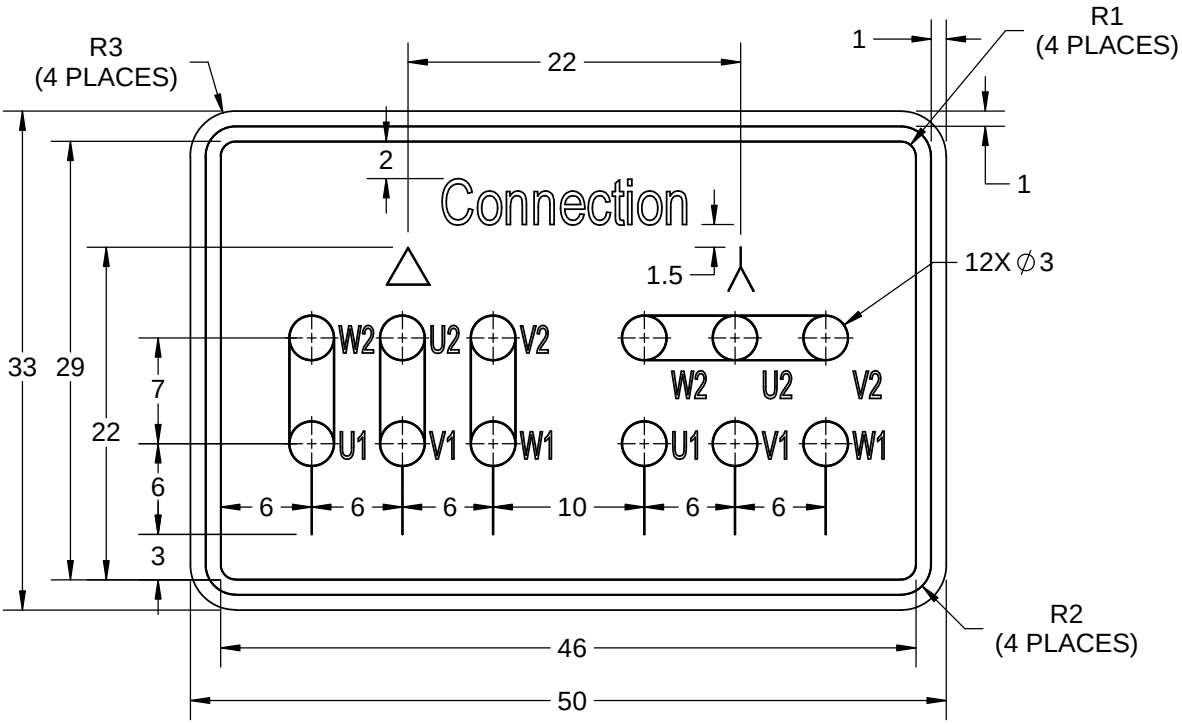

| | | |
|---|---|---|
| DRAWING REVISION: B | REVISION BY: NIV | DATE: 14/05/2019 |
| ECO: ECO-0165600 | APPROVED BY: SR | DATE: 14/05/2019 |
| ECO DESCRIPTION: MODEL UPDATED | | |



| | | |
|---|---|---|
| DRAWN BY: JOY | marathon™ Motors | |
| DATE: 18/07/2014 | | |
| APPROVED BY: SBD | DESCRIPTION: OUTLINE<br>315-S/M FR 4-8P-V1 MTG. MOTOR TYPE: TCA | |
| DATE: 18/07/2014 | | |
| REFERENCE | MATERIAL | PROCESS/FINISH |
| THIRD ANGLE PROJECTION | SIZE: B / DRAWING NUMBER: 0231500893 | 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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TerraMAX®

**Model No.** TCN0903A1141GAC010

| 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 | 90 | 120 | 166.9 | 990 | 863.58 | IE3 | - | 94.9 | 94.9 | 94.7 | 0.82 | 0.78 | 0.68 | 5.2 | 1.7 | 2.2 |

| | | | | | |
|---|---|---|---|---|---|
| Motor type | TCN | | Degree of protection | IP 55 | |
| Enclosure | TEFC | | Mounting type | IM V1 | |
| Frame Material | Cast Iron | | Cooling method | IC 411 | |
| Frame size | 315M | | Motor weight - approx. | 895 | kg |
| Duty | S1 | | Gross weight - approx. | 940 | kg |
| Voltage variation * | ± 10% | | Motor inertia | 3.9282 | $kgm^2$ |
| 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) | 66 | 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 | Ex nA | | Standard rotation | Clockwise form DE | |
| Zone classification | Zone 2 | | Paint shade | RAL 5014 | |
| Gas group | IIC | | Accessories | | |
| Temperature class | T3 | | 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 240mm²/2 x M63 x 1.5 | |
| Type of grease | CHEVRON SRI-2 or Equivalent | | 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 Standards | Europe | China | India | Aus/Nz | Brazil | Global IEC |
|---|---|---|---|---|---|---|
| | IEC:60034-30-1 | - | - | GEMS 2019 | - | IEC:60034-30-1 |

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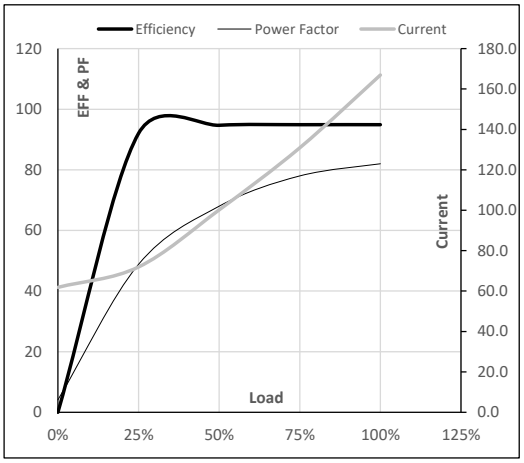
| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m$^2$] | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEFC | 400 | Δ | 50 | 90 | 120 | 166.9 | 990 | 88.06 | 863.58 | IE3 | 40 | S1 | 1000 | 3.9282 | 895 |

**Motor Load Data**

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|---|---|---|---|---|---|---|---|
| Current | A | 61.8 | 71.9 | 100.2 | 130.9 | 166.9 | |
| Torque | Nm | 0.0 | 214.2 | 429.5 | 645.8 | 863.6 | |
| Speed | r/min | 1000 | 998 | 995 | 993 | 990 | |
| Efficiency | % | 0.0 | 92.0 | 94.7 | 94.9 | 94.9 | |
| Power Factor | % | 4.1 | 48.8 | 68.0 | 78.0 | 82.0 | |

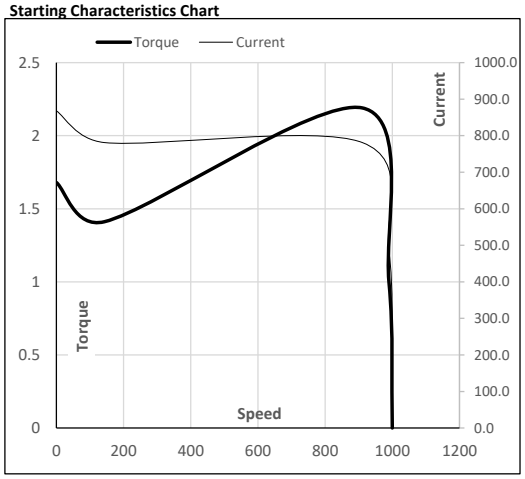
**Performance vs Load Chart**




**Motor Speed Torque Data**

| Load Point | | LR | P-Up | BD | Rated | NL |
|---|---|---|---|---|---|---|
| Speed | r/min | 0 | 143 | 911 | 990 | 1000 |
| Current | A | 868.1 | 781.2 | 483.5 | 166.9 | 61.8 |
| Torque | pu | 1.7 | 1.4 | 2.2 | 1 | 0 |

**Starting Characteristics Chart**




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

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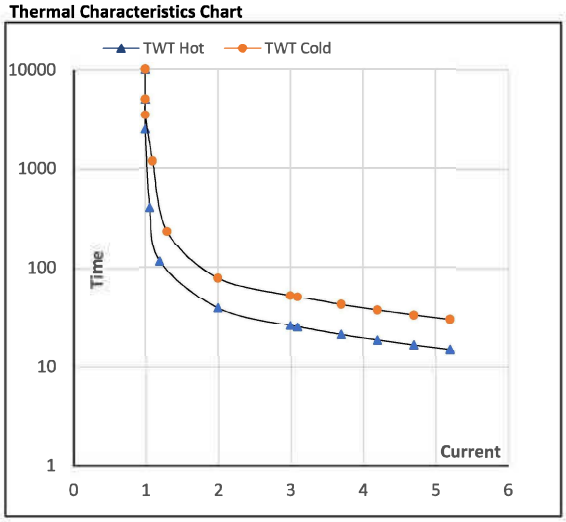
| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [rpm] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m$^2$] | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEFC | 400 | Δ | 50 | 90 | 120.0 | 166.9 | 990 | 88.06 | 863.58 | IE3 | 40 | S1 | 1000 | 3.9282 | 895 |

**Motor Speed Torque Data**

| Load | | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR |
|---|---|---|---|---|---|---|---|---|
| TWT Hot | s | 10000 | 39 | 26 | 20 | 17 | 16 | 15 |
| TWT Cold | s | 10000 | 78 | 52 | 39 | 35 | 32 | 30 |
| Current | pu | 1 | 2 | 3 | 4 | 4.5 | 5 | 5.2 |

**Thermal Characteristics Chart**

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