# PRODUCT INFORMATION PACKET

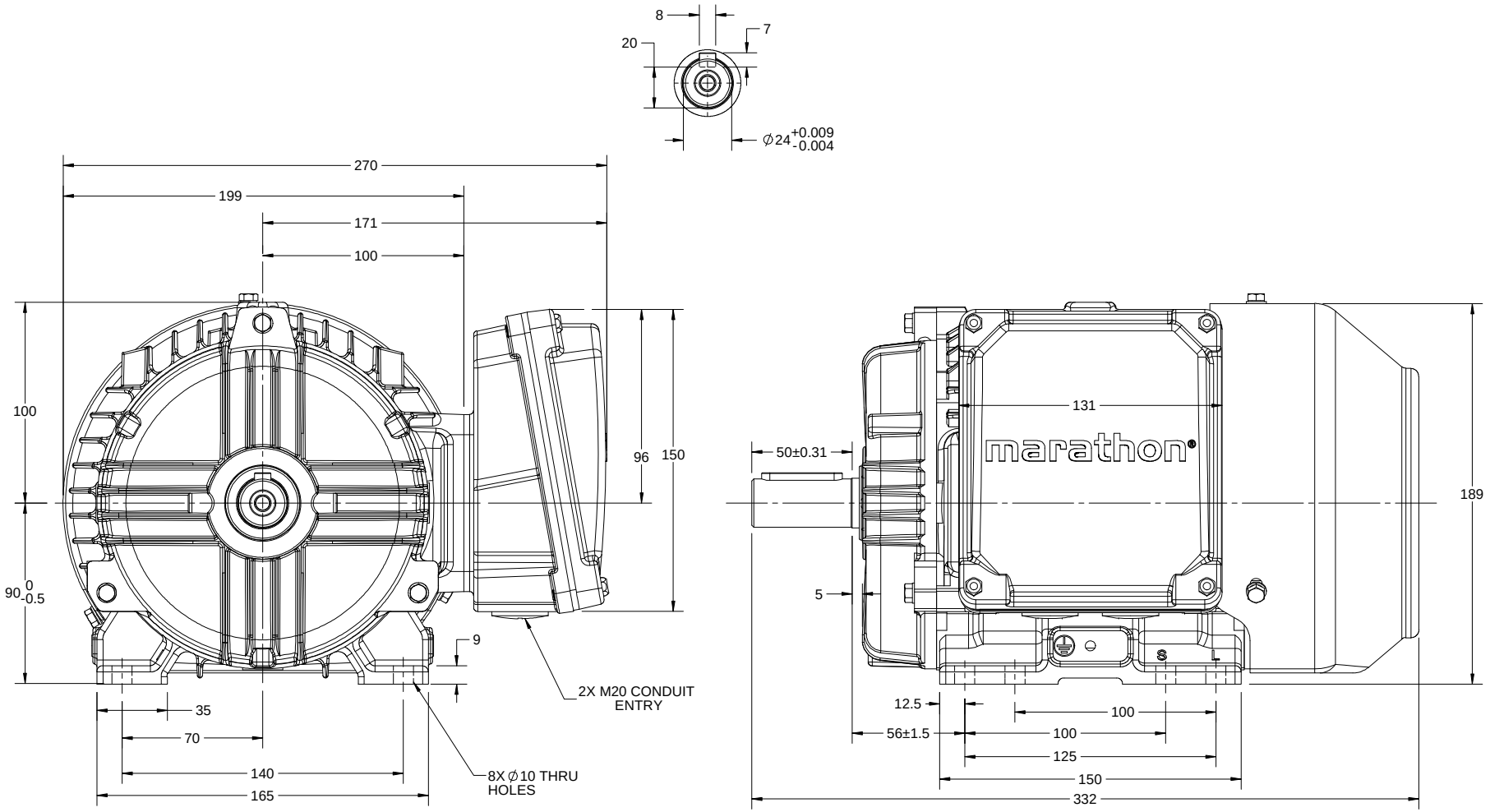
Model No: TCA2P21A3113GACD01
Catalog No: TCA2P21A3113GACD01
2.2 kW General Purpose Low Voltage IEC  Motor, 3 phase, 3000 RPM, 415 V, 90L Frame, TEFC
Cast Iron IE3 Efficiency Motors

## Nameplate Specifications

| | | | |
|---|---|---|---|
| Output HP | 3 Hp | Output KW | 2.2 kW |
| Frequency | 50 Hz | Voltage | 415 V |
| Current | 4.0 A | Speed | 2883 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 85.9 % | Power Factor | 0.89 |
| Duty | S1 | Insulation Class | F |
| Frame | 90L | Enclosure | Totally Enclosed Fan Cooled |
| Ambient Temperature | 50 °C | Drive End Bearing Size | 6205 |
| Opp Drive End Bearing Size | 6205 | UL | No |
| CSA | No | CE | Yes |
| IP Code | 55 | | |

## Technical Specifications

| | | | |
|---|---|---|---|
| Electrical Type | Squirrel Cage | Starting Method | Direct On Line |
| Poles | 2 | Rotation | Bi-Directional |
| Mounting | B3 | Motor Orientation | Horizontal |
| Drive End Bearing | 2z-C3 | Opp Drive End Bearing | 2z-C3 |
| Frame Material | Cast Iron | Shaft Type | Keyed |
| Overall Length | 332 mm | Frame Length | 153 mm |
| Shaft Diameter | 24 mm | Shaft Extension | 50 mm |
| Assembly/Box Mounting | R Side | | |
| Outline Drawing | 0209000898 | Connection Drawing | 8442000085 |



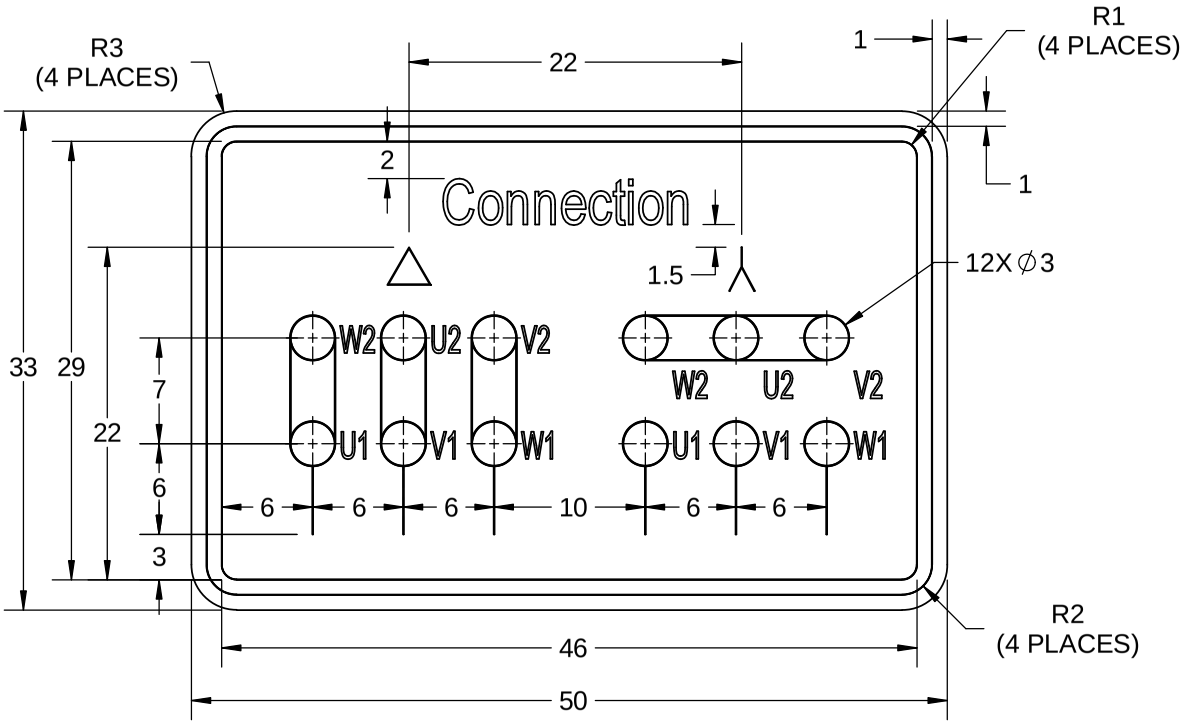

| | | |
|---|---|---|
| DRAWING REVISION: B | REVISION BY: BISWA | DATE: 10/08/2018 |
| ECO: ECO-0150692 | APPROVED BY: SBD | DATE: 10/08/2018 |
| ECO DESCRIPTION: DRAWING UPDATED | | |



| | | |
|---|---|---|
| DRAWN BY: BISWA | marathon™ Motors | |
| DATE: 10/07/2018 | | |
| APPROVED BY: SBD | DESCRIPTION: OUTLINE | |
| DATE: 10/07/2018 | 90L FR- B3 MTG. MOTOR TYPE:TCA/QCA-RHS TB | |
| REFERENCE | MATERIAL | PROCESS/FINISH |
| THIRD ANGLE PROJECTION | SIZE: B — DRAWING NUMBER: 0209000898 | 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.** TCA2P21A3113GACD01

| 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] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 415 | Y | 50 | 2.2 | 3.0 | 4.0 | 2883 | 7.42 | IE3 | - | 85.9 | 85.9 | 85.1 | 0.89 | 0.84 | 0.73 | 7.7 | 3.5 | 3.4 |

| | | |
|---|---|---|
| Motor type | TCA | |
| Enclosure | TEFC | |
| Frame Material | Cast Iron | |
| Frame size | 90L | |
| 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 | 6205-2Z / 6205-2Z | |
| Lubrication method | Greased for life | |
| Type of grease | NA | |

| | | |
|---|---|---|
| Degree of protection | IP 55 | |
| Mounting type | IM B3 | |
| Cooling method | IC 411 | |
| Motor weight - approx. | 28.5 | kg |
| Gross weight - approx. | 29.5 | kg |
| Motor inertia | 0.0030 | $kgm^2$ |
| Load inertia | Customer to Provide | |
| Vibration level | 1.6 | mm/s |
| Noise level ( 1meter distance from motor) | 63 | dB(A) |
| No. of starts hot/cold/Equally spread | 2/3/4 | |
| Starting method | DOL | |
| Type of coupling | Direct | |
| LR withstand time (hot/cold) | 6/10 | 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 | RHS | |
| Maximum cable size/conduit size | 1R x 3C x 10$mm^2$/2 x M20 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**

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 | - | - | - |

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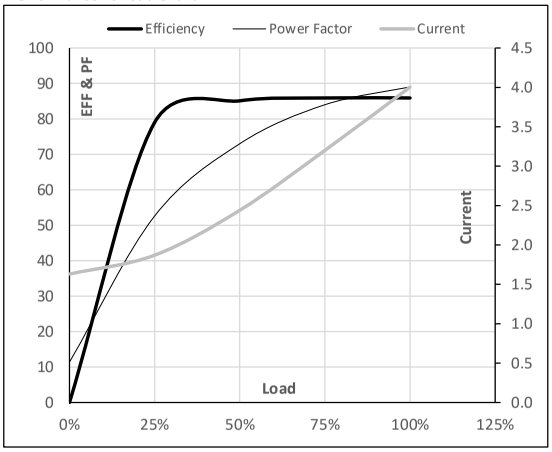
**Model No.** TCA2P21A3113GACD01

| 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 | 415 | Y | 50 | 2.2 | 3.0 | 4.0 | 2883 | 0.76 | 7.42 | IE3 | 50 | S1 | 1000 | 0.003 | 28.5 |

**Motor Load Data**

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|---|---|---|---|---|---|---|---|
| Current | A | 1.6 | 1.9 | 2.4 | 3.2 | 4.0 | |
| Torque | Nm | 0.0 | 1.8 | 3.6 | 5.5 | 7.4 | |
| Speed | r/min | 3000 | 2972 | 2946 | 2916 | 2883 | |
| Efficiency | % | 0.0 | 79.0 | 85.1 | 85.9 | 85.9 | |
| Power Factor | % | 11.4 | 52.6 | 73.0 | 84.0 | 89.0 | |

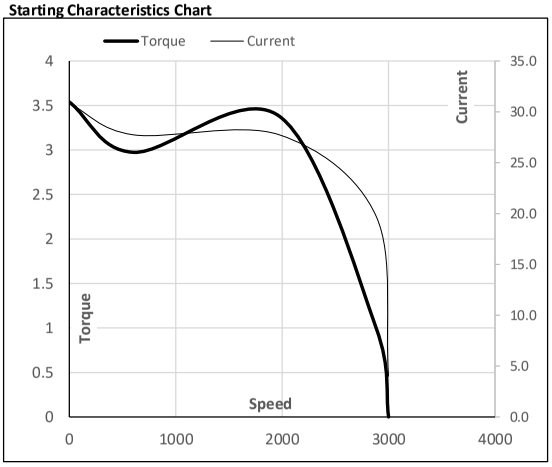
**Performance vs Load Chart**




**Motor Speed Torque Data**

| Load Point | | LR | P-Up | BD | Rated | NL |
|---|---|---|---|---|---|---|
| Speed | r/min | 0 | 600 | 1973 | 2883 | 3000 |
| Current | A | 30.8 | 27.7 | 19.7 | 4.0 | 1.6 |
| Torque | pu | 3.5 | 3.0 | 3.4 | 1 | 0 |

**Starting Characteristics Chart**




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

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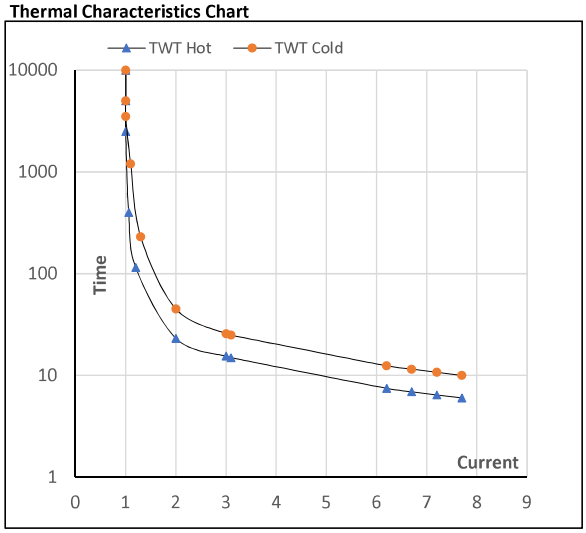
**Model No.** TCA2P21A3113GACD01

| 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 | 415 | Y | 50 | 2.2 | 3.0 | 4.0 | 2883 | 0.76 | 7.42 | IE3 | 50 | S1 | 1000 | 0.0030 | 28.5 |

**Motor Speed Torque Data**

| Load | | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR |
|---|---|---|---|---|---|---|---|---|
| TWT Hot | s | 10000 | 23 | 15 | 14 | 11 | 9 | 6 |
| TWT Cold | s | 10000 | 45 | 26 | 24 | 21 | 15 | 10 |
| Current | pu | 1 | 2 | 3 | 4 | 5 | 5.5 | 7.7 |

**Thermal Characteristics Chart**



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