

PRODUCT INFORMATION PACKET



Model No: TCN0451A1113GAC010

Catalog No: TCN0451A1113GAC010

TerraMAX® Cast Iron Motor, 60 HP, 3 Ph, 50 Hz, 400 V, 3000 RPM, 225M Frame, TEFC





Nameplate Specifications

| | | | |
|------------------------|---------------|----------------------------|-----------------------------|
| Phase | 3 | Output HP | 60 Hp |
| Output KW | 45.0 kW | Voltage | 400 V |
| Speed | 2978 r/min | Service Factor | 1 |
| Frame | 225M | Enclosure | Totally Enclosed Fan Cooled |
| Thermal Protection | No Protection | Efficiency | 94 % |
| Ambient Temperature | 40 °C | Frequency | 50 Hz |
| Current | 79.4 A | Power Factor | 0.87 |
| Duty | S1 | Insulation Class | F |
| Drive End Bearing Size | 6313 | Opp Drive End Bearing Size | 6213 |
| 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 | 832 mm | Frame Length | 425 mm |
| Shaft Diameter | 55 mm | Shaft Extension | 110 mm |
| Assembly/Box Mounting | R Side | | |
| Connection Drawing | 8442000085 | Outline Drawing | 0222500936 |

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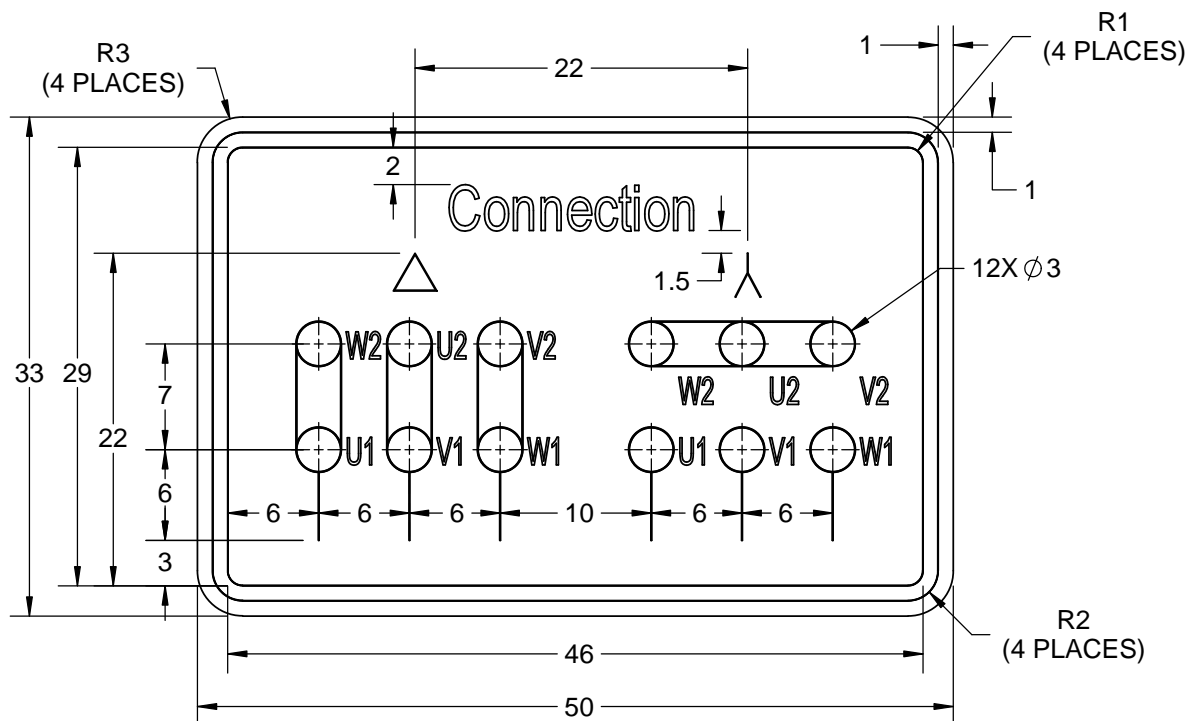


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ECO DESCRIPTION



GEOMETRIC TOLERANCE

| | | |
|------------|---------|------|
| LINEAR DIM | >0~6 | ±0.1 |
| | >6~30 | ±0.2 |
| | >30~120 | ±0.3 |



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 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 | |

Model No. TCN0451A1113GAC010

| U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [Nm] | IE Class | % EFF at __ load | | | | PF at __ load | | | I _A /I _N [pu] | T _A /T _N [pu] | T _K /T _N [pu] |
|----------|---------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|----|-------|-------|---------------|-------|-------|--|--|--|
| | | | | | | | | | 5/4FL | FL | 3/4FL | 1/2FL | FL | 3/4FL | 1/2FL | | | |
| 400 | Δ | 50 | 45 | 60 | 79.4 | 2978 | 143.47 | IE3 | - | 94 | 94 | 92.7 | 0.87 | 0.83 | 0.73 | 8 | 2.2 | 3.9 |
| | | | | | | | | | | | | | | | | | | |

| | | | |
|----------------------------------|-----------------------------|---|--|
| Motor type | TCN | Degree of protection | IP 55 |
| Enclosure | TEFC | Mounting type | IM B3 |
| Frame Material | Cast Iron | Cooling method | IC 411 |
| Frame size | 225M | Motor weight - approx. | 399 kg |
| Duty | S1 | Gross weight - approx. | 429 kg |
| Voltage variation * | ± 10% | Motor inertia | 0.4264 kgm ² |
| 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) | 75 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 | 6313 C3 / 6213 C3 | Terminal box position | RHS |
| Lubrication method | Regreasable | Maximum cable size/conduit size | 1R x 3C x 50mm ² /2 x M40 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_K/T_N - Breakdown Torque / Rated Torque

T_A/T_N - Locked Rotor 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.

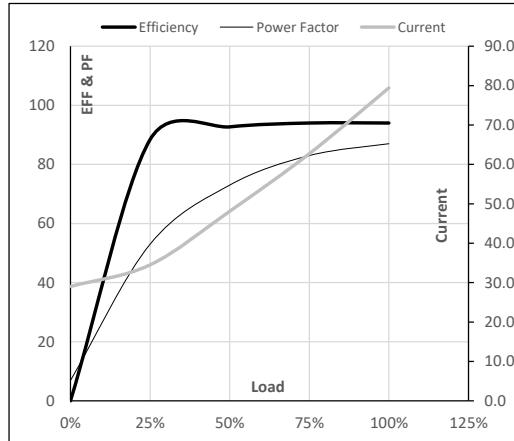
| Efficiency | Europe | China | India | Aus/Nz | Brazil | Global IEC |
|------------|----------------|-------|-------|-----------|--------|----------------|
| Standards | IEC 60034-30-1 | - | - | GEMS 2019 | - | IEC:60034-30-1 |

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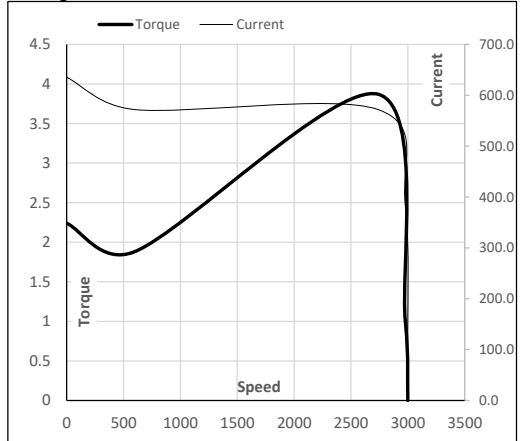
| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m ²] | Weight [kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC | 400 | Δ | 50 | 45 | 60 | 79.4 | 2978 | 14.63 | 143.47 | IE3 | 40 | S1 | 1000 | 0.4264 | 399 |

Motor Load Data

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|--------------|-------|------|-------|-------|-------|-------|-------|
| Current | A | 29.0 | 34.5 | 48.1 | 62.7 | 79.4 | |
| Torque | Nm | 0.0 | 35.7 | 71.5 | 107.4 | 143.5 | |
| Speed | r/min | 3000 | 2995 | 2989 | 2984 | 2978 | |
| Efficiency | % | 0.0 | 88.4 | 92.7 | 94.0 | 94.0 | |
| Power Factor | % | 6.9 | 53.0 | 73.0 | 83.0 | 87.0 | |

Performance vs Load Chart

Motor Speed Torque Data

| Load Point | | LR | P-Up | BD | Rated | NL |
|------------|-------|-------|-------|-------|-------|------|
| Speed | r/min | 0 | 600 | 2740 | 2978 | 3000 |
| Current | A | 635.4 | 571.8 | 382.9 | 79.4 | 29.0 |
| Torque | pu | 2.2 | 1.9 | 3.9 | 1 | 0 |

Starting Characteristics Chart

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

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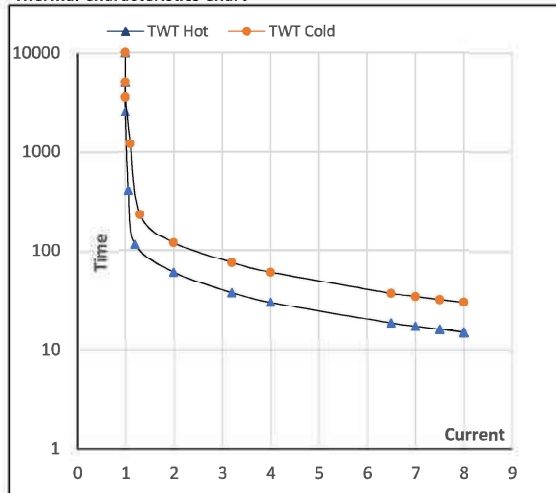
Model No. TCN0451A1113GAC010

| 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 | 45 | 60.0 | 79.4 | 2978 | 14.63 | 143.47 | IE3 | 40 | S1 | 1000 | 0.4264 | 399 |

Motor Speed Torque Data

| Load | FL | I_1 | I_2 | I_3 | I_4 | I_5 | LR |
|----------|---------|-------|-------|-------|-------|-------|----|
| TWT Hot | s 10000 | 60 | 40 | 30 | 25 | 20 | 15 |
| TWT Cold | s 10000 | 120 | 80 | 60 | 50 | 40 | 30 |
| Current | pu 1 | 2 | 3 | 4 | 5 | 5.5 | 8 |

Thermal Characteristics Chart



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

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