

PRODUCT INFORMATION PACKET

Model No: TCA7P53A3133GACD01
Catalog No: TCA7P53A3133GACD01

7.5 kW General Purpose Low Voltage IEC Motor, 3 phase, 1000 RPM, 415 V, 160M Frame, TEFC
Cast Iron IE3 Efficiency Motors





Nameplate Specifications

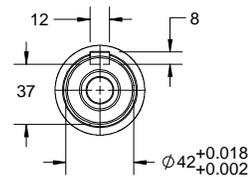
| | | | |
|----------------------------|--------|------------------------|-----------------------------|
| Output HP | 10 Hp | Output KW | 7.5 kW |
| Frequency | 50 Hz | Voltage | 415 V |
| Current | 14.8 A | Speed | 977 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 89.1 % | Power Factor | 0.79 |
| Duty | S1 | Insulation Class | F |
| Frame | 160M | 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 | 6 | Rotation | Bi-Directional |
| Mounting | B35 | Motor Orientation | Horizontal |
| Drive End Bearing | 2z-C3 | Opp Drive End Bearing | 2z-C3 |
| Frame Material | Cast Iron | Shaft Type | Keyed |
| Overall Length | 622 mm | Frame Length | 254 mm |
| Shaft Diameter | 42 mm | Shaft Extension | 110 mm |
| Assembly/Box Mounting | R Side | | |
| Outline Drawing | 0216000811 | Connection Drawing | 8442000085 |

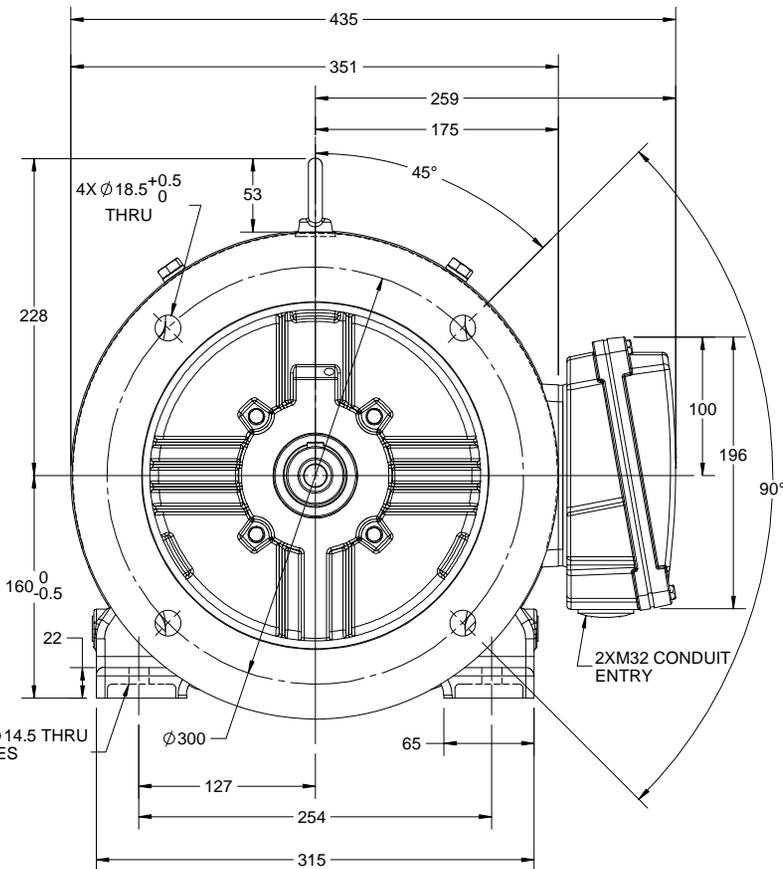
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OUTLINE



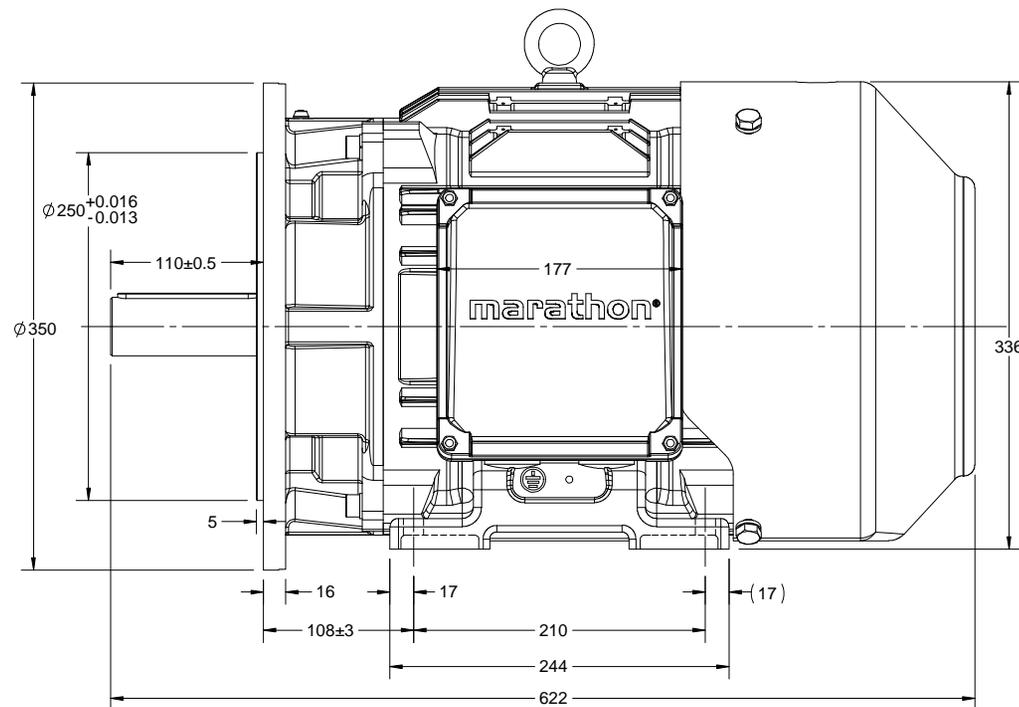
B

B



A

A



| | | |
|---|----------------------|--------------------|
| DRAWING REVISION B | REVISION BY BISWA | DATE 27/07/2018 |
| ECO ECO-0148344 | APPROVED BY SBD | DATE 27/07/2018 |
| ECO DESCRIPTION DRAWING UPDATED | | |
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| | |
|---------------------------|---|
| DRAWN BY SN | marathon Motors |
| DATE 19/08/2016 | |
| APPROVED BY SBD | DESCRIPTION OUTLINE 160M FR B35-MTG.TYPE: TCA/QCA-RHS TB |
| DATE 19/08/2016 | MATERIAL PROCESS/FINISH |
| REFERENCE | SIZE B |
| THIRD ANGLE PROJECTION | DRAWING NUMBER 0216000811 |
| | SHEET 1 OF 1 |

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

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



- NOTES:
- PRESSURE-SENSITIVE ADHESIVE COATED PAPER ON THE BACK OF SELF-ADHESIVE.
 - AT THE END OF YELLOW, WORDS, SYMBOLS, LETTERS ARE BLACK, BORDER IS BLACK.
 - 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 | | | |
| THIRD ANGLE PROJECTION | SIZE A | DRAWING NUMBER 8442000085 | PROCESS/FINISH |
| | | SHEET 1 OF 1 | |

Model No. TCA7P53A3133GACD01

| U (V) | Δ / Y Conn | f (Hz) | P | | I | | n (RPM) | T (Nm) | IE Class | % EFF at __ load | | | | PF at __ load | | | I _L /I _N [pu] | T _M /T _N [pu] | T _L /T _N [pu] |
|----------|---------------|-----------|------|------|------|-------|------------|-----------|-------------|------------------|------|-------|-------|---------------|-------|-------|--|--|--|
| | | | [kW] | [hp] | [A] | [RPM] | | | | 5/4FL | FL | 3/4FL | 1/2FL | FL | 3/4FL | 1/2FL | | | |
| 415 | Δ | 50 | 7.5 | 10 | 14.8 | 977 | 72.92 | | IE3 | - | 89.1 | 89.1 | 88.5 | 0.79 | 0.73 | 0.59 | 5.5 | 1.9 | 2.5 |
| | | | | | | | | | | | | | | | | | | | |

| | | | |
|----------------------------------|----------------------------|---|--|
| Motor type | TCA | Degree of protection | IP 55 |
| Enclosure | TEFC | Mounting type | IM B35 |
| Frame Material | Cast Iron | Cooling method | IC 411 |
| Frame size | 160M | Motor weight - approx. | 142 kg |
| Duty | S1 | Gross weight - approx. | 162 kg |
| Voltage variation * | ± 10% | Motor inertia | 0.1355 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) | 61 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) | 15/30 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 | RHS |
| Lubrication method | Greased for life | Maximum cable size/conduit size | 1R x 3C x 35mm ² /2 X M32 x 1.5 |
| Type of grease | NA | Auxiliary terminal box | NA |

I_L/I_N - Locked Rotor Current / Rated Current

T_M/T_N - Breakdown Torque / Rated Torque

T_L/T_N - 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 | - | - | - |

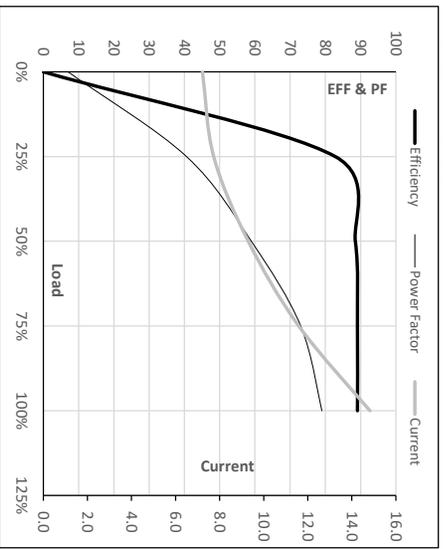
Model No. TCA7P53A3133GACD01

| Enclosure | U [V] | Δ /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 ²] | Weight [kg] |
|-----------|-------|------------------|--------|--------|--------|-------|---------|---------|--------|----------|---------------|------|---------------|------------------------------|-------------|
| TFC | 415 | Δ | 50 | 7.5 | 10 | 14.8 | 977 | 7.44 | 72.92 | IE3 | 50 | S1 | 1000 | 0.1355 | 142 |

Motor Load Data

| Load Point | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|--------------|-------|-------|-------|-------|------|-------|
| Current | A | 7.2 | 7.7 | 9.3 | 11.6 | 14.8 |
| Torque | Nm | 0.0 | 17.9 | 36.0 | 54.3 | 72.9 |
| Speed | r/min | 1000 | 994 | 989 | 983 | 977 |
| Efficiency | % | 0.0 | 82.8 | 88.5 | 89.1 | 89.1 |
| Power Factor | % | 7.0 | 40.6 | 59.0 | 73.0 | 79.0 |

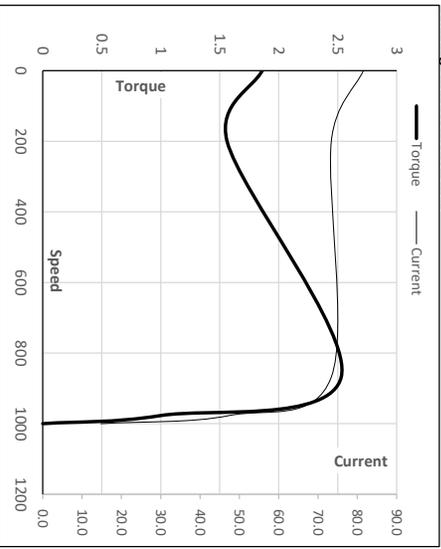
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | LR | P-Up | BD | Rated | NL | |
|------------|-------|------|------|-------|------|------|
| Speed | r/min | 0 | 200 | 868 | 977 | 1000 |
| Current | A | 81.5 | 73.4 | 47.4 | 14.8 | 7.2 |
| Torque | pu | 1.9 | 1.6 | 2.5 | 1 | 0 |

Starting Characteristics Chart



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

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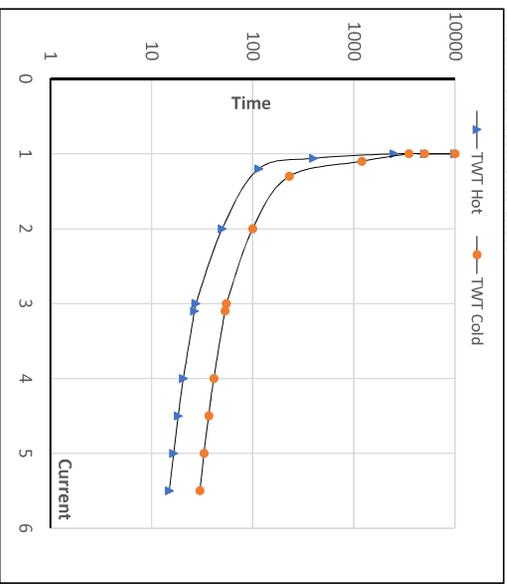
Model No. TCATP53A3133GACD01

| | | | | | | | | | | | | | | | |
|-----------|-----|-------------|------|------|------|------|-------|-------|-------|-------|------|------|-----------|----------------------|--------|
| Enclosure | U | Δ /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] | | [m] | [kg·m ²] | [kg] |
| TEFC | | Δ | 50 | 7.5 | 10 | 14.8 | 977 | 7.43 | 72.92 | IE3 | 50 | S1 | 1000 | 0.1355 | 142 |

Motor Speed Torque Data

| Load | FL | I ₁ | I ₂ | I ₃ | I ₄ | I ₅ | LR | |
|----------|----|----------------|----------------|----------------|----------------|----------------|----|-----|
| TWT Hot | s | 10000 | 50 | 28 | 21 | 18 | 17 | 15 |
| TWT Cold | s | 10000 | 100 | 55 | 41 | 37 | 33 | 30 |
| Current | pu | 1 | 2 | 3 | 4 | 4.5 | 5 | 5.5 |

Thermal Characteristics Chart



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

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