

PRODUCT INFORMATION PACKET

marathon[®]
Motors

Model No: SCA0453A3123GAAD01

Catalog No: SCA0453A3123GAAD01

45kW, General Purpose Low Voltage IEC Motor, 3 phase, 6 Pole, 415V, B5, 50Hz, 92.7%, 280S Frame, TEFC
Cast Iron IE2 Efficiency Motors



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REGAL



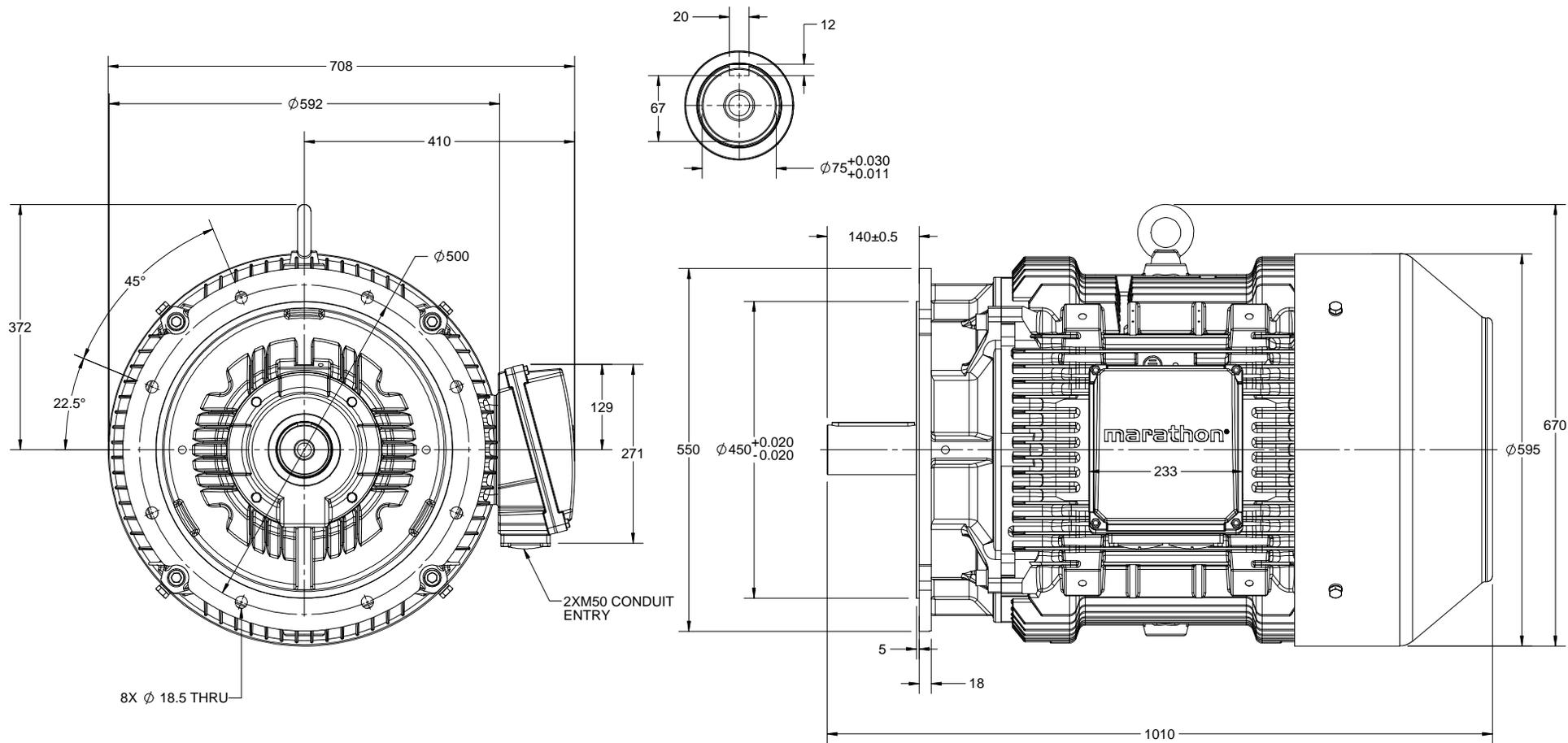
Nameplate Specifications

| | | | |
|----------------------------|---------------|------------------------|------------------------------------|
| Output HP | 60 Hp | Output KW | 45.0 kW |
| Frequency | 50 Hz | Voltage | 415 V |
| Current | 80.8 A | Speed | 986 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 92.7 % | Power Factor | 0.84 |
| Duty | S1 | Insulation Class | F |
| Frame | 280S | Enclosure | Totally Enclosed Fan Cooled |
| Ambient Temperature | 50 °C | Drive End Bearing Size | 6317 |
| Opp Drive End Bearing Size | 6317 | 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 | B5 | Motor Orientation | Horizontal |
| Drive End Bearing | C3 | Opp Drive End Bearing | C3 |
| Frame Material | Cast Iron | Shaft Type | Keyed |
| Overall Length | 1010 mm | Frame Length | 499 mm |
| Shaft Diameter | 75 mm | Shaft Extension | 140 mm |
| Assembly/Box Mounting | SIDE | | |
| Outline Drawing | 0228001213 | Connection Drawing | 8442000085 |

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| | | |
|---|--------------------------|--------------------|
| DRAWING REVISION A | REVISION BY A. KEETHA | DATE 13/11/2018 |
| ECO ECO-0153779 | APPROVED BY JAY | DATE 13/11/2018 |
| ECO DESCRIPTION NEW DRAWING RELEASE | | |
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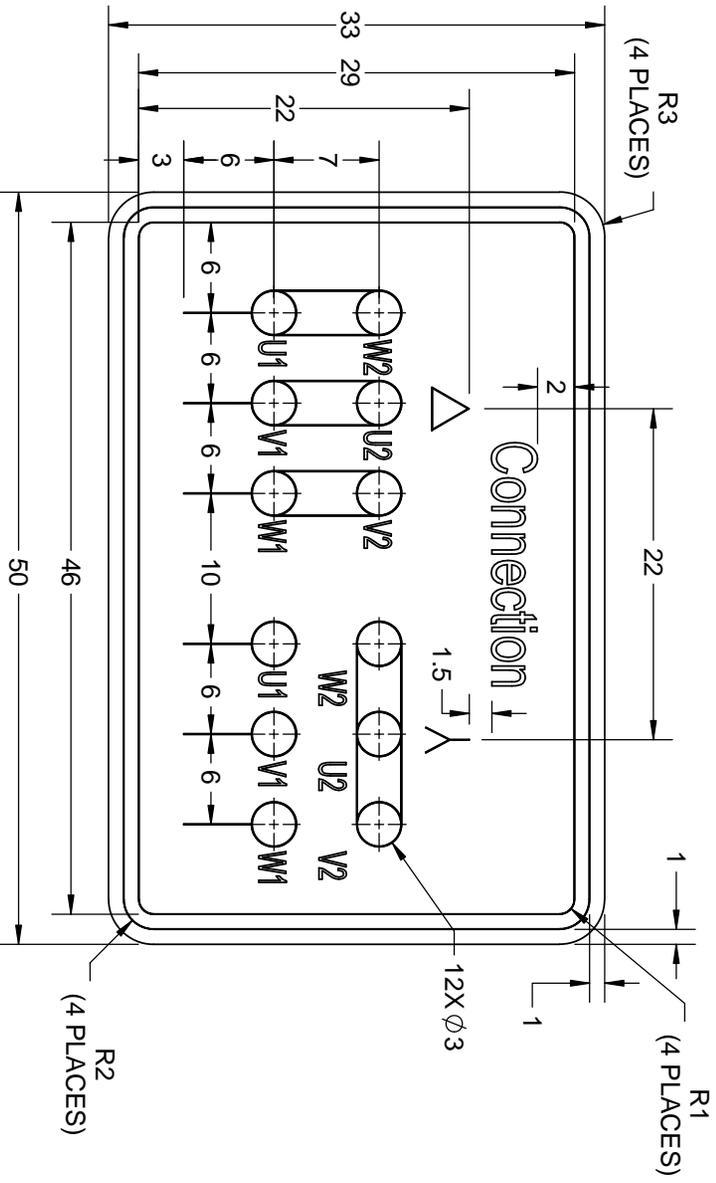
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|-----------------------|
| DRAWN BY A. KEETHA |
| DATE 13/11/2018 |
| APPROVED BY JAY |
| DATE 13/11/2018 |
| REFERENCE |

| | |
|---|------------------------------|
| marathon Motors | |
| DESCRIPTION OUTLINE 280S FRAME-B5 MTG. MOTOR TYPE:SCA RHS TB | |
| MATERIAL | PROCESS/FINISH |
| SIZE B | DRAWING NUMBER 0228001213 |
| THIRD ANGLE PROJECTION | 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:
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 | | MATERIAL | |
| DATE 16/12/2016 | REFERENCE | PROCESS/FINISH | |
| THIRD ANGLE PROJECTION | SIZE A | DRAWING NUMBER 8442000085 | SHEET 1 OF 1 |

Model No. SCA0453A3123GAAD01

| 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 _L /I _N [pu] | T _L /T _N [pu] | T _{st} /T _N [pu] | |
|----------|---------------|-----------|-----------|-----------|----------|------------|-----------|-------------|-----------------|------|-------|--------------|------|-------|--|--|---|-------|
| | | | | | | | | | 5/4FL | FL | 3/4FL | 1/2FL | FL | 3/4FL | | | | 1/2FL |
| 415 | Δ | 50 | 45 | 60 | 80.8 | 986 | 433.4 | IE2 | - | 92.7 | 92.7 | 93.3 | 0.84 | 0.79 | 0.68 | 5.8 | 2.2 | 2.6 |

| | | | |
|----------------------------------|-----------------------------------|---|--|
| Motor type | SCA | Degree of protection | IP 55 |
| Enclosure | TEFC | Mounting type | IM B5 |
| Frame Material | Cast Iron | Cooling method | IC 411 |
| Frame size | 280S | Motor weight - approx. | 632 kg |
| Duty | S1 | Gross weight - approx. | 667 kg |
| Voltage variation * | ± 10% | Motor inertia | 1.9034 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) | 77 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) | 10/20 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 | Accessory - 3 | - |
| DE / NDE bearing | 6317 C3 / 6317 C3 | Terminal box position | RHS |
| Lubrication method | Regreaseable | Maximum cable size/conduit size | 1R x 3C x 95mm ² /2 x M50 x 1.5 |
| Type of grease | Shell Gadus S5 V100 or Equivalent | Auxiliary terminal box | Available on Request |

I_L/I_N - Locked Rotor Current / Rated Current

T_L/T_N - Breakdown Torque / Rated Torque

T_{st}/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 | - | - | - |



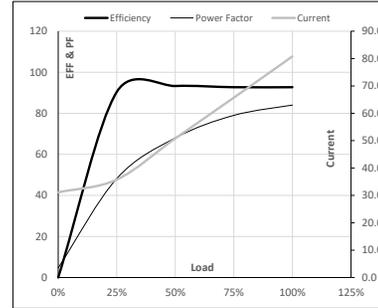
Model No. SCA0453A3123GAAD01

| 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 | Δ | 50 | 45 | 60 | 80.8 | 986 | 44.19 | 433.40 | IE2 | 50 | S1 | 1000 | 1.9034 | 632 |

Motor Load Data

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|--------------|-------|------|-------|-------|-------|-------|-------|
| Current | A | 31.1 | 35.8 | 50.8 | 65.7 | 80.8 | |
| Torque | Nm | 0.0 | 107.2 | 215.1 | 323.8 | 433.4 | |
| Speed | r/min | 1000 | 997 | 993 | 990 | 986 | |
| Efficiency | % | 0.0 | 90.4 | 93.3 | 92.7 | 92.7 | |
| Power Factor | % | 4.7 | 48.2 | 68.0 | 79.0 | 84.0 | |

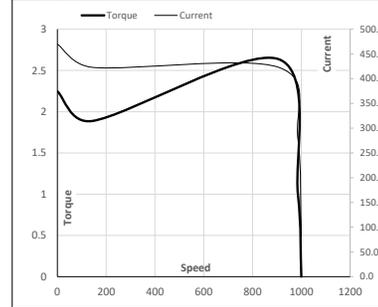
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | | LR | P-Up | BD | Rated | NL |
|------------|-------|-------|-------|-------|-------|------|
| Speed | r/min | 0 | 143 | 907 | 986 | 1000 |
| Current | A | 470.0 | 423.0 | 278.3 | 80.8 | 31.1 |
| Torque | pu | 2.2 | 1.9 | 2.6 | 1 | 0 |

Starting Characteristics Chart



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

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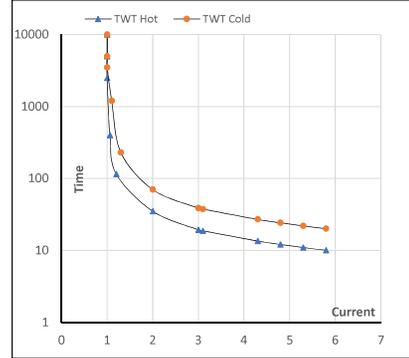
Model No. SCA0453A3123GAAD01

| 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 | Δ | 50 | 45 | 60 | 80.8 | 986 | 44.19 | 433.40 | IE2 | 50 | S1 | 1000 | 1.9034 | 632 |

Motor Speed Torque Data

| Load | FL | I ₁ | I ₂ | I ₃ | I ₄ | I ₅ | LR |
|----------|---------|----------------|----------------|----------------|----------------|----------------|--------|
| TWT Hot | s 10000 | 35 | 19 | 17 | 13 | 11 | 10 |
| TWT Cold | s 10000 | 70 | 39 | 34 | 25 | 21 | 20 |
| Current | pu | 1 | 2 | 3 | 4 | 4.5 | 5, 5.8 |

Thermal Characteristics Chart



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

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