

PRODUCT INFORMATION PACKET

marathon®
Motors

Model No: TCN0152A1121GAC010

Catalog No: TCN0152A1121GAC010

TerraMAX® Cast Iron Motor, 20 HP, 3 Ph, 50 Hz, 400 V, 1500 RPM, 160L Frame, TEFC



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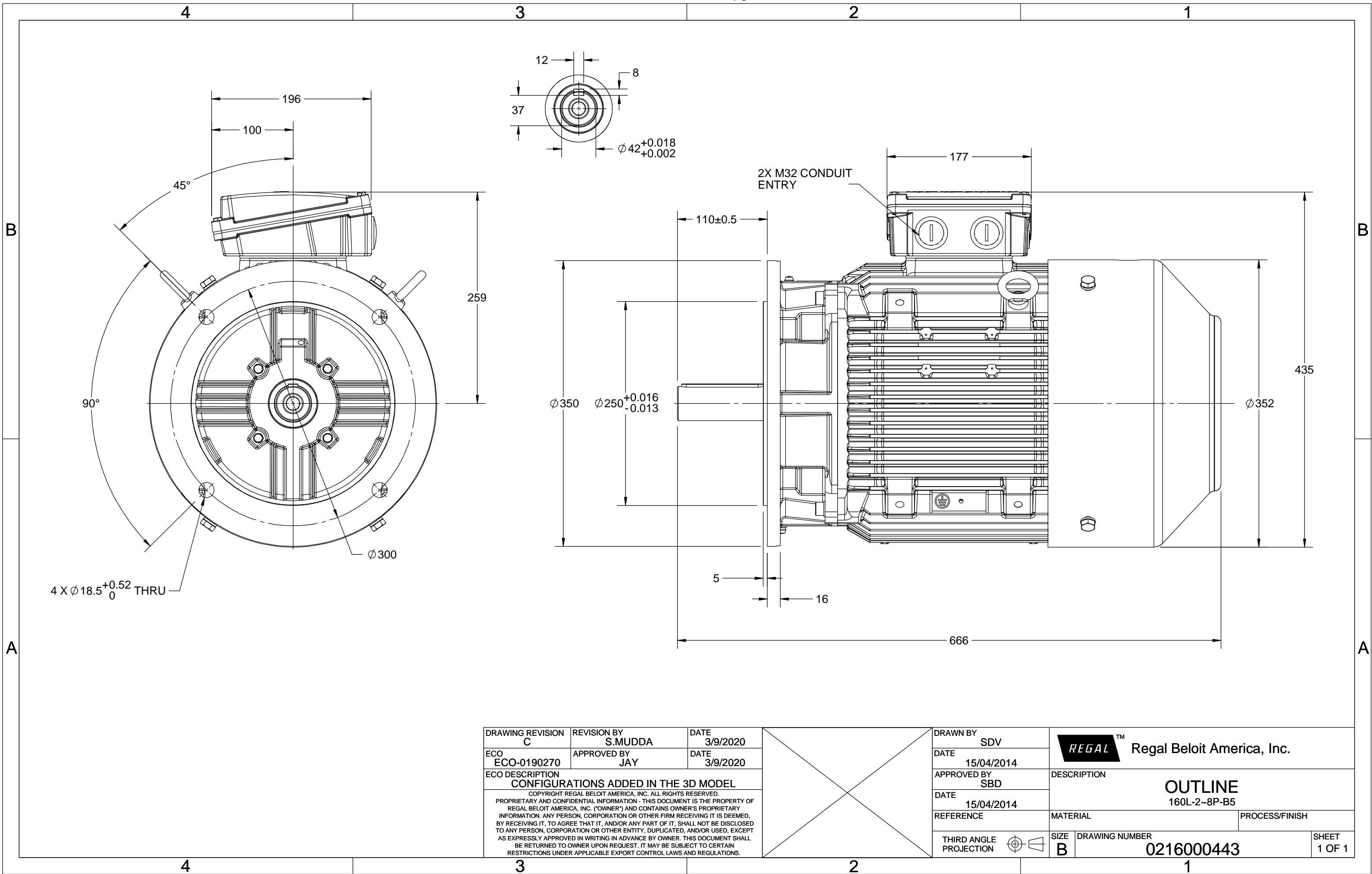
Nameplate Specifications

Output HP	20 Hp	Output KW	15.0 kW
Frequency	50 Hz	Voltage	400 V
Current	27.7 A	Speed	1476 rpm
Service Factor	1	Phase	3
Efficiency	92.1 %	Power Factor	0.85
Duty	S1	Insulation Class	F
Frame	160L	Enclosure	Totally Enclosed Fan Cooled
Thermal Protection	No Protection	Ambient Temperature	40 °C
Drive End Bearing Size	6309	Opp Drive End Bearing Size	6209
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	4	Rotation	Bi-Directional
Mounting	B5	Motor Orientation	Horizontal
Drive End Bearing	2z-C3	Opp Drive End Bearing	2z-C3
Frame Material	Cast Iron	Shaft Type	Keyed
Overall Length	666 mm	Frame Length	298 mm
Shaft Diameter	42 mm	Shaft Extension	110 mm
Assembly/Box Mounting	Top		
Connection Drawing	8442000085	Outline Drawing	0216000443

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DRAWING REVISION C	REVISION BY S.MUDDA	DATE 3/9/2020
ECO ECO-0190270	APPROVED BY JAY	DATE 3/9/2020
ECO DESCRIPTION CONFIGURATIONS ADDED IN THE 3D MODEL		
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DRAWN BY SDV	 Regal Beloit America, Inc.	
DATE 15/04/2014		
APPROVED BY SBD	DESCRIPTION OUTLINE 160L-2-8P-B5	
DATE 15/04/2014		
REFERENCE	MATERIAL	PROCESS/FINISH
THIRD ANGLE PROJECTION 	SIZE B	DRAWING NUMBER 0216000443
		SHEET 1 OF 1

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DRAWING REVISION A	REVISION BY SN	DATE 13/01/2017
ECO 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.		
	DESCRIPTION CONN DIAGRAM-NAMEPLATE		
	REFERENCE THIRD ANGLE PROJECTION		PROCESS/FINISH
DATE 16/12/2016	APPROVED BY SBD	DATE 16/12/2016	SIZE A
MATERIAL		DRAWING NUMBER 8442000085	
SHEET 1 OF 1		8442000085	

Model No. TCN0152A1121GAC010

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]
400	Δ	50	15	20	27.7	1476	96.53	IE3	5/4FL	FL	3/4FL	1/2FL	FL	3/4FL	1/2FL	7.6	2.7	3.4

Motor type	TCN	Degree of protection	IP 55
Enclosure	TEFC	Mounting type	IM B5
Frame Material	Cast Iron	Cooling method	IC 411
Frame size	160L	Motor weight - approx.	183 kg
Duty	S1	Gross weight - approx.	203 kg
Voltage variation *	± 10%	Motor inertia	0.1597 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)	64 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)	10/20 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	6309-2Z / 6209-2Z	Terminal box position	TOP
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_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 Standards	Europe IEC:60034-30-1	China -	India -	Aus/Nz GEMS 2019	Brazil -	Global IEC IEC:60034-30-1
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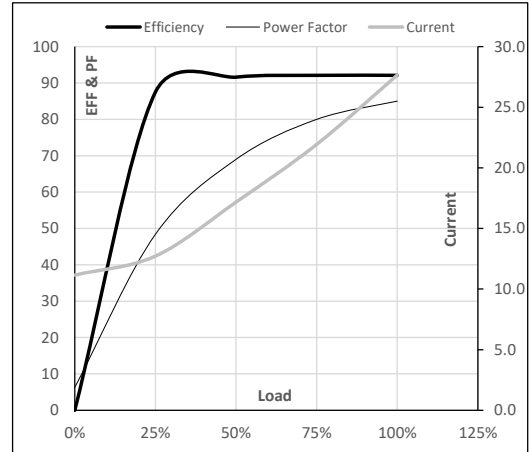
Model No. TCN0152A1121GAC010

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	15	20	27.7	1476	9.84	96.53	IE3	40	S1	1000	0.1597	183

Motor Load Data

Load Point		NL	1/4FL	1/2FL	3/4FL	FL	5/4FL
Current	A	11.2	12.7	17.2	21.9	27.7	
Torque	Nm	0.0	23.8	47.9	72.1	96.5	
Speed	r/min	1500	1494	1488	1482	1476	
Efficiency	%	0.0	87.5	91.6	92.1	92.1	
Power Factor	%	6.3	48.4	69.0	80.0	85.0	

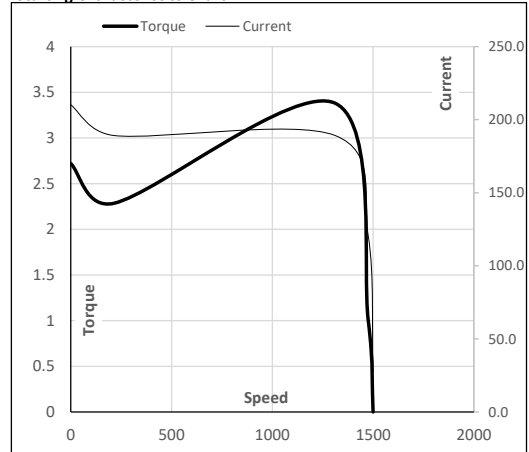
Performance vs Load Chart



Motor Speed Torque Data

Load Point		LR	P-Up	BD	Rated	NL
Speed	r/min	0	214	1312	1476	1500
Current	A	210.2	189.2	120.4	27.7	11.2
Torque	pu	2.7	2.3	3.4	1	0

Starting Characteristics Chart



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

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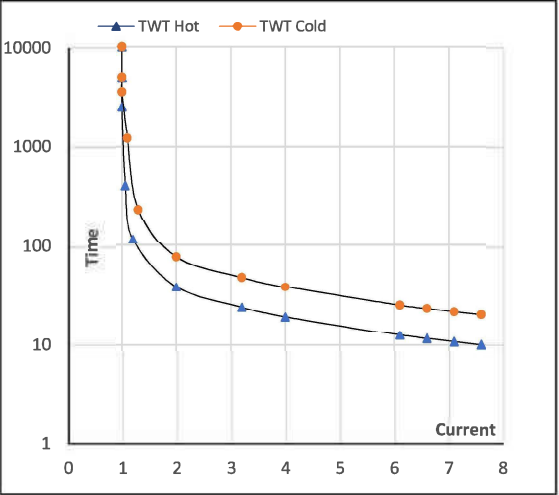
Model No. TCN0152A1121GAC010

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	15	20.0	27.7	1476	9.84	96.53	IE3	40	S1	1000	0.1597	183

Motor Speed Torque Data

Load	FL	I ₁	I ₂	I ₃	I ₄	I ₅	LR	
TWT Hot	s 10000	38	26	19	17	14	10	
TWT Cold	s 10000	76	50	38	35	30	20	
Current	pu	1	2	3	4	5	5.5	7.6

Thermal Characteristics Chart



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

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