

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCM0222A2121GAC011

Catalog No: TCM0222A2121GAC011

TerraMAX® IE3, Mining Duty Motors, 22 kW, 3Ph, 4 Pole, 400/690V, B5, 50Hz, 180L Frame, TEFC



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**RegalRexnord**



### Nameplate Specifications

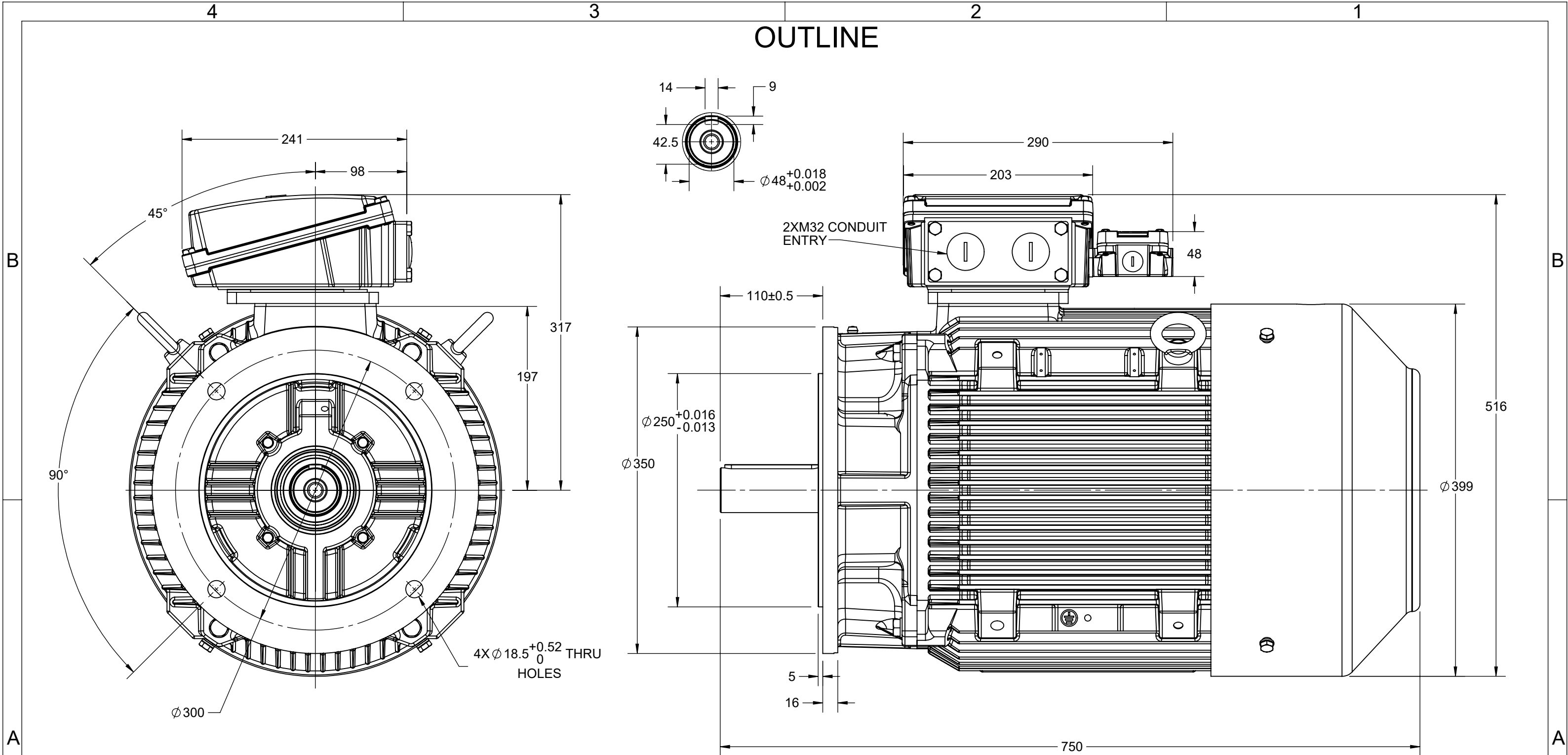
Output HP	<b>30 Hp</b>	Output KW	<b>22.0 kW</b>
Frequency	<b>50 Hz</b>	Voltage	<b>400/690 V</b>
Current	<b>41.6 A</b>	Speed	<b>1478 rpm</b>
Service Factor	<b>1</b>	Phase	<b>3</b>
Efficiency	<b>93 %</b>	Power Factor	<b>0.82</b>
Duty	<b>S1</b>	Insulation Class	<b>H</b>
Frame	<b>180L</b>	Enclosure	<b>Totally Enclosed Fan Cooled</b>
Thermal Protection	<b>No Protection</b>	Ambient Temperature	<b>40 °C</b>
Drive End Bearing Size	<b>6311</b>	Opp Drive End Bearing Size	<b>6211</b>
UL	<b>NO</b>	CSA	<b>NO</b>
CE	<b>YES</b>	IP Code	<b>66</b>
Number of Speeds	<b>1</b>	Efficiency Class	<b>IE3</b>

### Technical Specifications

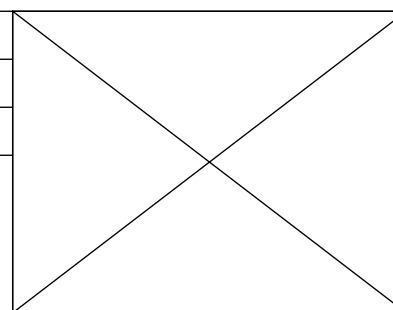
Electrical Type	<b>Squirrel Cage</b>	Starting Method	<b>Direct On Line</b>
Poles	<b>4</b>	Rotation	<b>Bi-Directional</b>
Mounting	<b>B5</b>	Motor Orientation	<b>Horizontal</b>
Drive End Bearing	<b>C3</b>	Opp Drive End Bearing	<b>C3</b>
Frame Material	<b>Cast Iron</b>	Shaft Type	<b>Keyed</b>
Overall Length	<b>750 mm</b>	Frame Length	<b>366 mm</b>
Shaft Diameter	<b>48 mm</b>	Shaft Extension	<b>110 mm</b>
Assembly/Box Mounting	<b>TOP</b>		
Connection Drawing	<b>8442000085</b>	Outline Drawing	<b>0218000825</b>

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# OUTLINE



DRAWING REVISION B	REVISION BY BS	DATE 22/07/2022
ECO CR-0010295	APPROVED BY BISWA	DATE 22/07/2022
ECO DESCRIPTION		
DRAWING UPDATED		
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DRAWN BY BISWA		
DATE 27/08/2018		
APPROVED BY SBD	DESCRIPTION <b>OUTLINE</b>	
DATE 27/08/2018	180L FR-B5 MTG. MOTOR TYPE: TCM	
REFERENCE	MATERIAL	PROCESS/FINISH
THIRD ANGLE PROJECTION	SIZE B	DRAWING NUMBER 0218000825
		SHEET 1 OF 1

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

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 <b>SN</b>	DATE <b>16/12/2016</b>		 <b>Regal Beloit America, Inc.</b>	
	APPROVED BY <b>SBD</b>	DESCRIPTION <b>CONN DIAGRAM-NAMEPLATE</b>		
	DATE <b>16/12/2016</b>	MATERIAL	PROCESS/FINISH	
	REFERENCE	SIZE <b>A</b>	DRAWING NUMBER <b>8442000085</b>	SHEET <b>1 OF 1</b>
	THIRD ANGLE PROJECTION 			

Model No. TCM0222A2121GAC011

U (V)	$\Delta$ / Y Conn	f [Hz]	P		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]
			[kW]	[hp]					5/4FL	FL	3/4FL	1/2FL	FL	3/4FL	1/2FL			
400	$\Delta$	50	22	30	41.6	1478	144.6	IE3	-	93	93	92.5	0.82	0.76	0.63	7.5	2.7	3.5

Motor type	TCM	Degree of protection	IP 66
Enclosure	TEFC	Mounting type	IM B5
Frame Material	Cast Iron	Cooling method	IC 411
Frame size	180L	Motor weight - approx.	250 kg
Duty	S1	Gross weight - approx.	270 kg
Voltage variation *	$\pm 10\%$	Motor inertia	0.2415 kgm <sup>2</sup>
Frequency variation *	$\pm 5\%$	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	1.15	No. of starts hot/cold/Equally spread	2/3/4
Insulation class	H	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)	12/25 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 2008
Gas group	NA	Accessories	
Temperature class	NA	Accessory - 1	PTC 150°C
Rotor type	Aluminum Die cast	Accessory - 2	-
Bearing type	Anti-friction ball	Accessory - 3	-
DE / NDE bearing	6311-C3 / 6211-C3	Terminal box position	TOP
Lubrication method	Greased for life	Maximum cable size/conduit size	1R x 3C x 50mm <sup>2</sup> /2 X M40 x 1.5
Type of grease	NA	Auxiliary terminal box	YES

 $I_A/I_N$  - Locked Rotor Current / Rated Current $T_K/T_N$  - Breakdown Torque / Rated Torque $T_A/T_N$  - Locked Rotor Torque / Rated Torque**NOTE**

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 AS/NZ 1359:5:2004	Brazil -	Global IEC IEC:60034-30-1

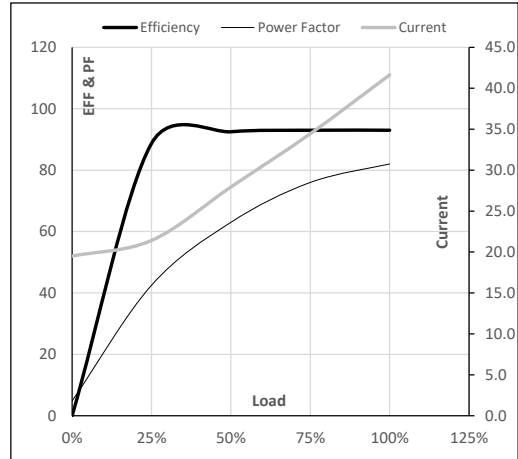
**Model No.** TCM0222A2121GAC011

Enclosure	U (V)	$\Delta$ / 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 <sup>2</sup> ]	Weight [kg]
TEFC	400	$\Delta$	50	22	30	41.6	1478	14.75	144.60	IE3	40	S1	1000	0.2415	250

**Motor Load Data**

Load Point		NL	1/4FL	1/2FL	3/4FL	FL	5/4FL
Current	A	19.5	21.4	27.9	34.5	41.6	
Torque	Nm	0.0	35.7	71.7	108.0	144.6	
Speed	r/min	1500	1495	1489	1484	1478	
Efficiency	%	0.0	88.7	92.5	93.0	93.0	
Power Factor	%	4.8	42.5	63.0	76.0	82.0	

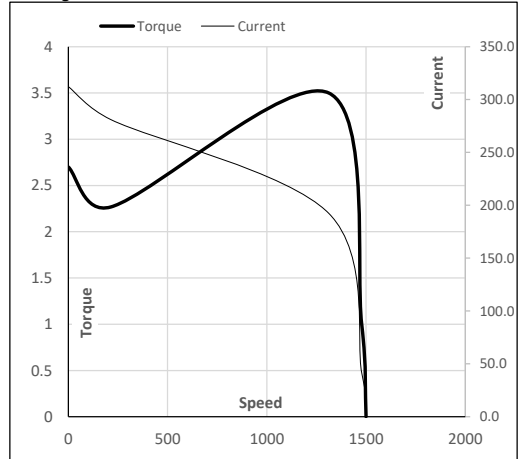
**Performance vs Load Chart**



**Motor Speed Torque Data**

Load Point		LR	P-Up	BD	Rated	NL
Speed	r/min	0	214	1312	1478	1500
Current	A	312.3	281.1	192.4	41.6	19.5
Torque	pu	2.7	2.3	3.5	1	0

**Starting Characteristics Chart**



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

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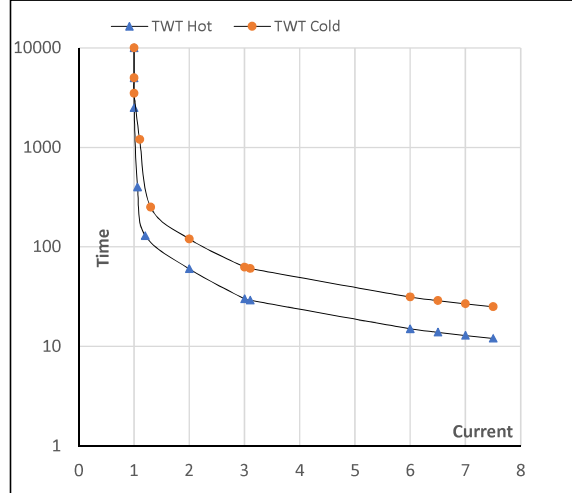
Model No. TCM0222A2121GAC011

Enclosure	U (V)	$\Delta$ / 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 <sup>2</sup> ]	Weight [kg]
TEFC	400	$\Delta$	50	22	30	41.6	1478	14.75	144.60	IE3	40	S1	1000	0.2415	250

**Motor Speed Torque Data**

Load	FL	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>	LR	
TWT Hot	s 10000	60	30	25	20	18	12	
TWT Cold	s 10000	120	63	55	50	40	25	
Current	pu	1	2	3	4	5	5.5	7.5

**Thermal Characteristics Chart**



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

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