

# PRODUCT INFORMATION PACKET

Model No: TCA0454A3141GACD01

Catalog No: TCA0454A3141GACD01

45.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 750 RPM, 415 V, 280M Frame, TEFC  
Cast Iron IE3 Efficiency Motors





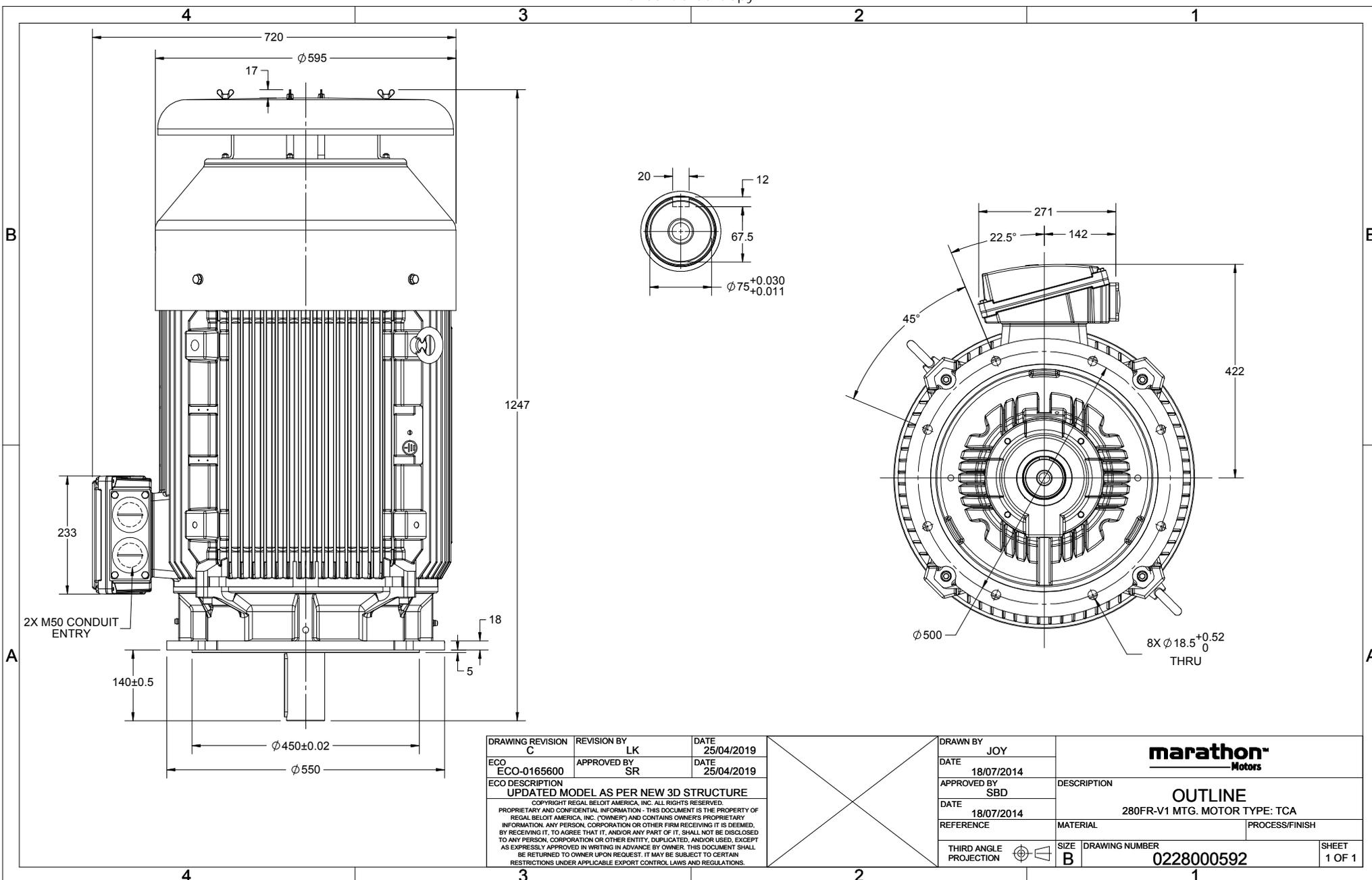
### Nameplate Specifications

Output HP	<b>60 Hp</b>	Output KW	<b>45.0 kW</b>
Frequency	<b>50 Hz</b>	Voltage	<b>415 V</b>
Current	<b>87.1 A</b>	Speed	<b>742 rpm</b>
Service Factor	<b>1</b>	Phase	<b>3</b>
Efficiency	<b>92.2 %</b>	Power Factor	<b>0.78</b>
Duty	<b>S1</b>	Insulation Class	<b>F</b>
Frame	<b>280M</b>	Enclosure	<b>Totally Enclosed Fan Cooled</b>
Ambient Temperature	<b>50 °C</b>	Drive End Bearing Size	<b>6317</b>
Opp Drive End Bearing Size	<b>6317</b>	UL	<b>No</b>
CSA	<b>No</b>	CE	<b>Yes</b>
IP Code	<b>55</b>		

### Technical Specifications

Electrical Type	<b>Squirrel Cage</b>	Starting Method	<b>Direct On Line</b>
Poles	<b>8</b>	Rotation	<b>Bi-Directional</b>
Mounting	<b>V1</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>1246 mm</b>	Frame Length	<b>600 mm</b>
Shaft Diameter	<b>75 mm</b>	Shaft Extension	<b>140 mm</b>
Assembly/Box Mounting	<b>Top</b>		
Connection Drawing	<b>8442000085</b>	Outline Drawing	<b>0228000592</b>

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DRAWING REVISION C	REVISION BY LK	DATE 25/04/2019
ECO ECO-0165600	APPROVED BY SR	DATE 25/04/2019
ECO DESCRIPTION UPDATED MODEL AS PER NEW 3D STRUCTURE		
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DRAWN BY JOY		
DATE 18/07/2014		
APPROVED BY SBD	DESCRIPTION OUTLINE	
DATE 18/07/2014	280FR-V1 MTG. MOTOR TYPE: TCA	
REFERENCE	MATERIAL	PROCESS/FINISH
THIRD ANGLE PROJECTION	SIZE B	DRAWING NUMBER 0228000592
		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 <b>CONN DIAGRAM-NAMEPLATE</b>	
DATE 16/12/2016			
REFERENCE		MATERIAL	
THIRD ANGLE PROJECTION		SIZE A	DRAWING NUMBER 8442000085
		PROCESS/FINISH	SHEET 1 OF 1

Model No. TCA0454A3141GACD01

U (V)	Δ / Y Conn	f (Hz)	P		I			T (Nm)	IE Class	% EFF at __ load				PF at __ load			I <sub>L</sub> /I <sub>N</sub> [pu]	T <sub>M</sub> /T <sub>N</sub> [pu]	T <sub>L</sub> /T <sub>N</sub> [pu]
			[kW]	[hp]	[A]	[RPM]	5/4FL			FL	3/4FL	1/2FL	FL	3/4FL	1/2FL				
415	Δ	50	45	60	87.1	742	576.25		IE3	-	92.2	92.2	92.7	0.78	0.73	0.61	5.8	2.1	2.4

Motor type	TCA	Degree of protection	IP 55
Enclosure	TEFC	Mounting type	IM V1
Frame Material	Cast Iron	Cooling method	IC 411
Frame size	280M	Motor weight - approx.	795 kg
Duty	S1	Gross weight - approx.	830 kg
Voltage variation *	± 10%	Motor inertia	3.5326 kgm <sup>2</sup>
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 +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	6317 C3 / 6317 C3	Terminal box position	TOP
Lubrication method	Regreasable	Maximum cable size/conduit size	1R x 3C x 95mm <sup>2</sup> /2 x M50 x 1.5
Type of grease	Shell Gadus S5 V100 or Equivalent	Auxiliary terminal box	NA

I<sub>L</sub>/I<sub>N</sub> - Locked Rotor Current / Rated Current

T<sub>M</sub>/T<sub>N</sub> - Breakdown Torque / Rated Torque

T<sub>L</sub>/T<sub>N</sub> - 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	-	-	-

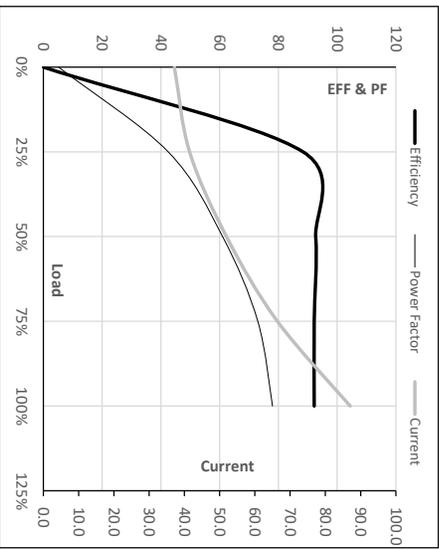
Model No. TCA0454A3141GACD01

Enclosure	U [V]	$\Delta$ /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 <sup>2</sup> ]	Weight [kg]
TFC	415	$\Delta$	50	45	60	87.1	742	58.76	576.25	IE3	50	S1	1000	3.5326	795

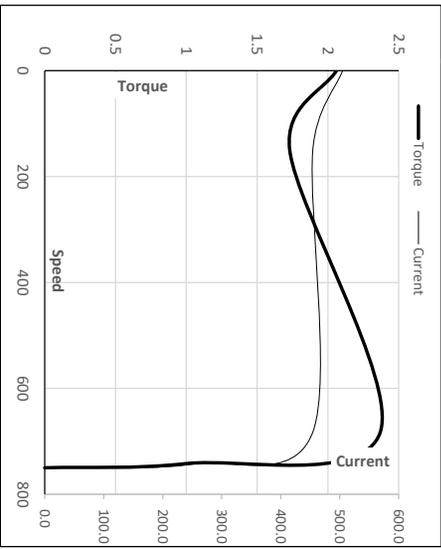
**Motor Load Data**

Load Point	NL	1/4FL	1/2FL	3/4FL	FL	5/4FL
Current	A 37.2	41.5	51.9	66.4	87.1	
Torque	Nm 0.0	142.9	286.5	430.9	576.3	
Speed	r/min 750	748	746	744	742	
Efficiency	% 0.0	88.4	92.7	92.2	92.2	
Power Factor	% 5.2	42.5	61.0	73.0	78.0	

**Performance vs Load Chart**



**Starting Characteristics Chart**



**Motor Speed Torque Data**

Load Point	LR	P-Up	BD	Rated	NL
Speed	r/min 0	150	683	742	750
Current	A 504.9	454.4	256.1	87.1	37.2
Torque	pu 2.1	1.7	2.4	1	0

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

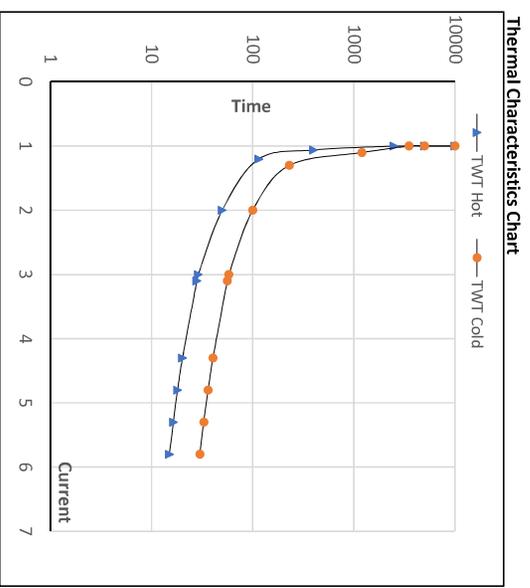
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Issued Date

Model No. TCA045A4A3141GACD01

Enclosure	U	Δ / Y	f	P	P	I	n	T	T	IE	Amb	Duty	Elevation	Inertia	Weight
TEFC	415	Δ	50	[kW]	[hp]	[A]	[rpm]	[kgm]	[Nm]	Class	[°C]	S1	[m]	[kg·m <sup>2</sup> ]	[kg]
				45	60	87.1	742	58.72	576.25	IE3	50		1000	3.5326	795

**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	50	29	25	17	16
TWT Cold	s	10000	100	58	50	34	31
Current	pu	1	2	3	4	5	5.5
							5.8



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

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