

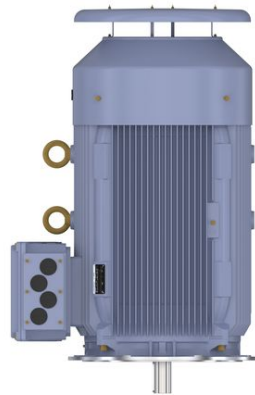
PRODUCT INFORMATION PACKET

marathon®
Motors

Model No: TCA1603A3141GACD01

Catalog No: TCA1603A3141GACD01

160.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 1000 RPM, 415 V, 355M Frame, TEFC
Cast Iron IE3 Efficiency Motors



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Nameplate Specifications

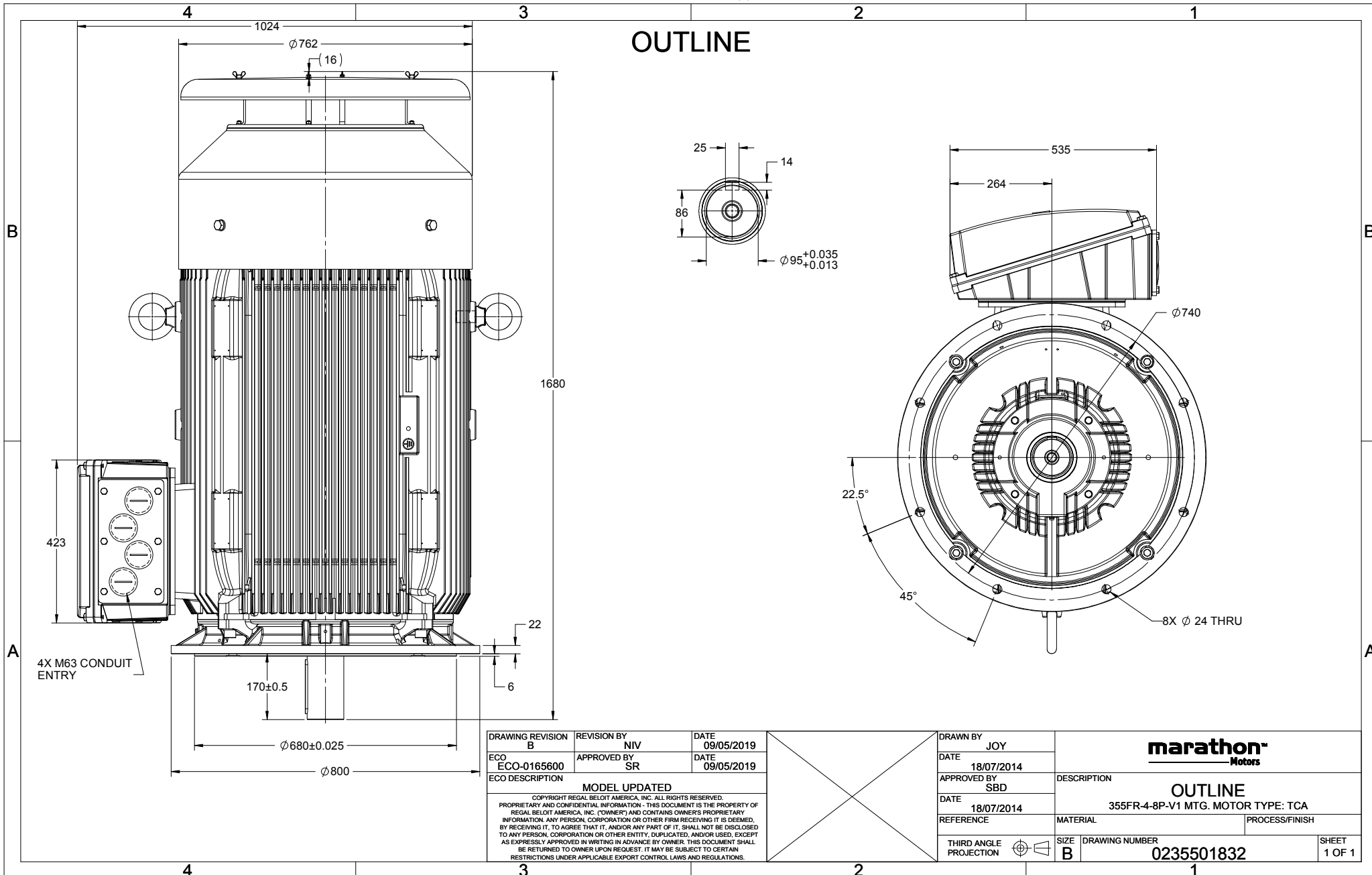
Output HP	215 Hp	Output KW	160.0 kW
Frequency	50 Hz	Voltage	415 V
Current	280.5 A	Speed	992 rpm
Service Factor	1	Phase	3
Efficiency	95.6 %	Power Factor	0.83
Duty	S1	Insulation Class	F
Frame	355M	Enclosure	Totally Enclosed Fan Cooled
Ambient Temperature	50 °C	Drive End Bearing Size	6322
Opp Drive End Bearing Size	6322	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	V1	Motor Orientation	Horizontal
Drive End Bearing	C3	Opp Drive End Bearing	C3
Frame Material	Cast Iron	Shaft Type	Keyed
Overall Length	1677 mm	Frame Length	1010 mm
Shaft Diameter	95 mm	Shaft Extension	170 mm
Assembly/Box Mounting	Top		
Connection Drawing	8442000085	Outline Drawing	0235501832

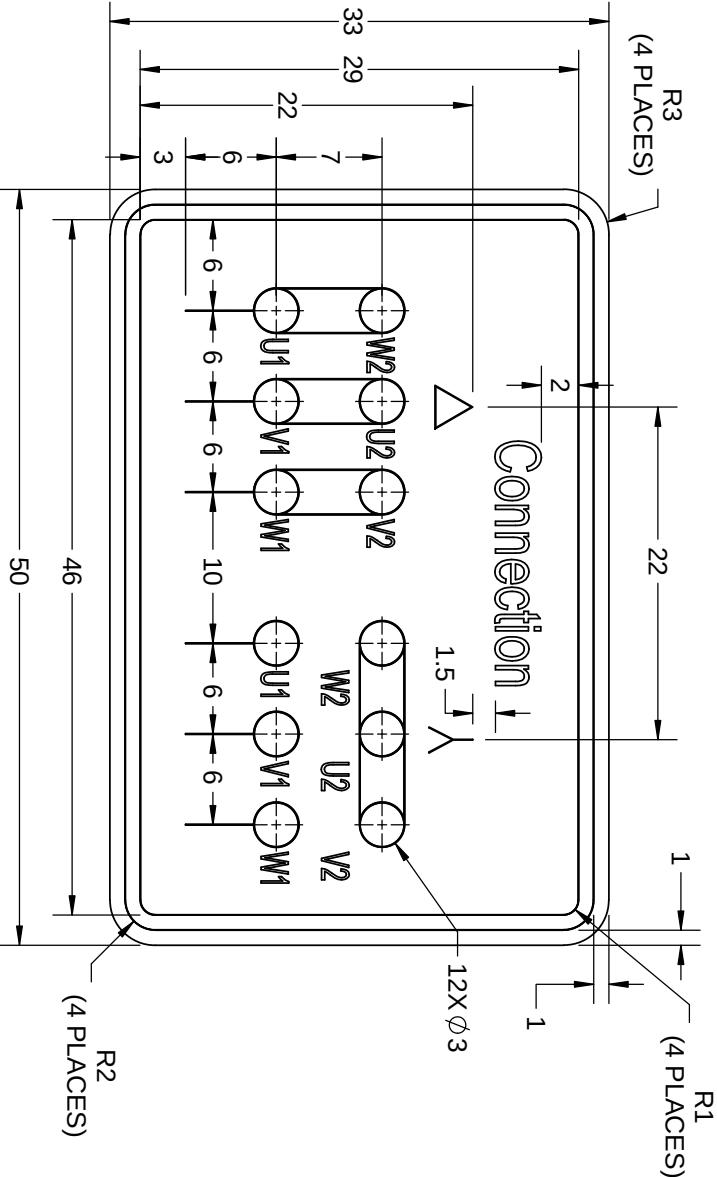
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OUTLINE



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.

DRAWN BY		SN	 Regal Beloit America, Inc.	
DATE		16/12/2016		
APPROVED BY		SBD		
DATE		16/12/2016		
REFERENCE		MATERIAL	PROCESS/FINISH	
THIRD ANGLE PROJECTION		SIZE	DRAWING NUMBER	SHEET
		A	8442000085	1 OF 1

Model No. TCA1603A3141GACD01

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 _b /T _N [pu]
415	Δ	50	160	215	280.5	992	1544.27	IE3	5/4FL	FL	3/4FL	1/2FL	FL	3/4FL	1/2FL	6.6	2.1	2.7

Motor type	TCA	Degree of protection	IP 55
Enclosure	TEFC	Mounting type	IM V1
Frame Material	Cast Iron	Cooling method	IC 411
Frame size	355M	Motor weight - approx.	1615 kg
Duty	S1	Gross weight - approx.	1660 kg
Voltage variation *	± 10%	Motor inertia	8.5699 kgm ²
Frequency variation *	± 5%	Load inertia	Customer to Provide
Combined variation *	10%	Vibration level	2.8 mm/s
Design	N	Noise level (1meter distance from motor)	70 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	6322 C3 / 6322 C3	Terminal box position	TOP
Lubrication method	Regreasable	Maximum cable size/conduit size	1R x 3C x 300mm ² /4 x M63 x 1.5
Type of grease	Shell Gadus S5 V100 or Equivalent	Auxiliary terminal box	NA

I_a/I_N - Locked Rotor Current / Rated CurrentT_b/T_N - Breakdown Torque / Rated TorqueT_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 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	-	-	-

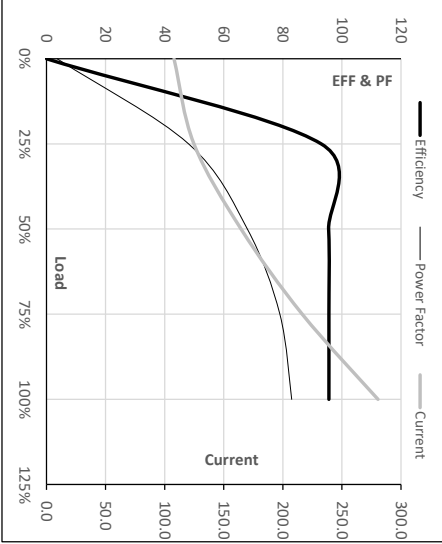
Model No. TCA1603A3141GACD01

Enclosure	U [V]	Δ / Y Com	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	160	215	280.5	992	157.47	154.427	IE3	50	S1	1000	8.5699	1615

Motor Load Data

Load Point		NL	1/4FL	1/2FL	3/4FL	FL	5/4FL
Current	A	107.9	124.8	164.7	216.4	280.5	
Torque	Nm	0.0	383.6	768.8	1155.6	1544.3	
Speed	r/min	1000	998	996	994	992	
Efficiency	%	0.0	93.0	95.5	95.6	95.6	
Power Factor	%	3.6	48.1	68.0	79.0	83.0	

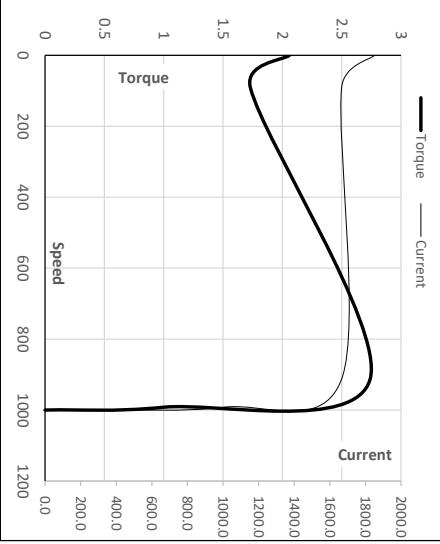
Performance vs Load Chart



Motor Speed Torque Data

Load Point	LR	P-Up	BD	Rated	NL
Speed	r/min	0	91	913	992
Current	A	1851.5	1666.4	1003.0	280.5
Torque	pu	2.1	1.7	2.7	1
					0

Starting Characteristics Chart



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

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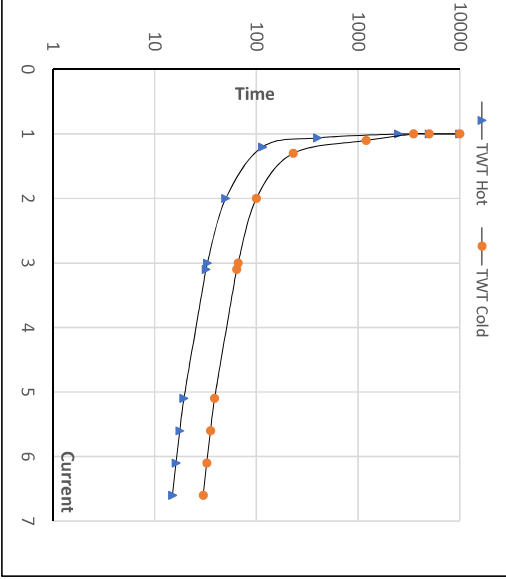
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Enclosure	U (V)	Δ / Y Conn	f [Hz]	P [kW]	P [hp]	I [A]	n [rpm]	T [kgm]	T [Nm]	IE Class	Amb [°C]	Duty	Elevation [m]	Inertia [kg·m ²]	Weight [kg]
TEFC	415	Δ	50	160	215	280.5	992	157.36	1544.27	IE3	50	S1	1000	8.5699	1615

Motor Speed Torque Data

Load	FL	I_1	I_2	I_3	I_4	I_5	LR	
TWT Hot	s	10000	50	33	30	20	17	15
TWT Cold	s	10000	100	66	60	45	36	30
Current	pu	1	2	3	4	5	5.5	6.6

Thermal Characteristics Chart



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

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