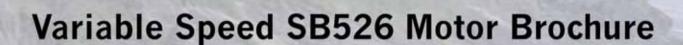


# Motors for the Long Run! Visit us at www.marathonelectric.com





"At The Heart Of What Drives Your World"





# Black Max® & Blue Max® Motors offer MAXimum Features...

### **MAX GUARD® Insulation System**

- Is the only insulation system that offers unlimited lead length between the motor and the drive!
- Surpasses the requirements of NEMA MG1, Part 30 and 31



MAX GUARD® is an exclusive Marathon Electric patented feature!

# MARATHON Variable Speed

### microMAX™ Inverter Duty 1000:1 CT & 20:1 CT



- Designed to replace PMDC, variable, or fixed speed systems.
- 1/8 HP to 10 HP, 1800 RPM, TENV & TEFC, 230 Volt, 230/460 Volt, or 575 Volt.
- TENV rated for 1000:1 Constant torque (0 to base speed).
- TEFC rated for 20:1 Constant torque.
- Cost effective designs available as C-Face, C-Face with rigid base and C-Face with removable rigid base.
- Class H insulation with CR<sup>200</sup> corona resistant magnet wire.
- UL, CSA, CE
- No encoder provisions



### Applications...

- Machine Tools
- Conveyors
- Packaging Equipment
- Batching Machines
- Printing Equipment
- Stair Lifts

### Black Max® Vector Duty 1000:1 CT



- Designed for high performance applications utilizing Closed- or Open-Loop Vector controls or Volts/Hertz drives.
- Stock through 30 HP, 1800 RPM, and 10 HP, 1200 RPM, 230/460 Volt or 575 Volt, TENV.
- Constant torque operation from 0 to base speed on vector drive.
- Lightweight versatile design with encoder and brake provisions included on opposite drive end.
- MAX GUARD® Class F insulation system.
- UL, CSA, CE

# Black Max<sup>®</sup> Explosion Proof 1000:1 CT



- Designed for hazardous locations Class I Groups C & D, Class II Groups F & G.
- Stock ratings available from 1/4 HP through 1 HP, 1800 RPM, 230/460 Volt, C-Face with rigid base.
- Constant torque operation from 0 to base speed on vector drive.
- Top mounted (F3) conduit box included (shipped loose).
- MAX GUARD® Class F insulation system.
- Class F normally closed thermostats.
- No encoder provisions

### Blue Max® 2000 Vector Duty 2000:1 CT



- Designed for VFD applications requiring full rated torque at 0 speed using Closed- or Open-Loop (Sensorless) Vector controls.
- 1 HP through 350 HP, 1800 RPM in stock, 230/460 Volt and 460 Volt, C-Face with rigid base (through 100 HP).
- Cast iron frame and brackets for harsh environments and minimal vibration.
- Encoder provisions on all stock ratings.
- Patented "fracket" design provides more options.
- MAX GUARD® Class H insulation system.
- UL, CSA, CE

### Applications...

- Material Handling
- Machine Tools
- Conveyors
- Crane and Hoist
- Metal Processing
- Pumps
- Packaging Equipment
- Test Stands



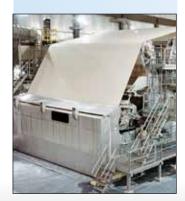


### Applications...

- Machine Tools
- Conveyors
- Crane and Hoist
- Packaging Equipment

### Applications...

- Process Lines
- Chemical Plants
- Paper Mills
- Conveyors
- Crane and Hoist



# Motors For Your Tough

### Blue Max® 2000 Explosion Proof 2000:1 CT

### Blue Max® 2000 Brakemotors 2000:1 CT

# Blue Max® 2000 Dripproof Force Ventilated \_\_\_\_\_2000:1 CT









- Designed for industrial applications in hazardous locations, Class I Groups C & D, Class II Groups F & G, that require precise speed control.
- 1 HP through 20 HP, 1800 RPM, 230/460 Volt, C-Face with rigid base.
- Capability of building ratings up to 150 HP.
- Cast iron frame and brackets for dirty, dusty or caustic environments.
- BEI H38 Encoder, 1024 ppr on stock ratings, other encoders available on factory build-ups.
- MAX GUARD® Class F insulation system.

- Similar industrial design as the Blue Max® 2000 motor only featured with a brake for temporary slow down and holding.
- Stock ratings from 1 HP through 20 HP, 1800 RPM, 230/460 volt, C-face with rigid base.
- Constant torque operation from 0 to base speed on vector drive.
- Cast iron frame and brackets for dirty, dusty or caustic environments.
- MAX GUARD® Class F insulation system.
- Build-up ratings through 200 HP with brakes up to 1000 lb-ft.

- Durable Blue Max® 2000 design, precise speed and torque regulation.
- 30 HP through 1250 HP, factory build-up capabilities.
- Cast iron frame and brackets for industrial durability.
- Constant torque operation from 0 to base speed on vector drive.
- Numerous encoder options and configurations
- MAX GUARD® Class F insulation system.

- Available in TEBC, TENV, and DPFV Blue Max® enclosures.
- Totally Enclosed from 5 HP through 350 HP and Dripproof from 25 HP through 450 HP.
- Up to 4 times base speed, constant horsepower ("field weakening" mode).
- One minute overload @ 150% of rated torque below base speed.
- 125% overload capability to maximum constant HP RPM.
- MAX GUARD® Class F insulation system.
- Class F normally closed thermostats.



- Process Lines
- Chemical Plants
- Paper Mills
- Conveyors
- Crane and Hoist



### Applications...

- Center Winders
- Payoff and Tension Reels
- Uncoilers
- Recoilers
- Scrap Choppers
- Slitters

### Applications...

- Process Lines
- Chemical Plants
- Paper Mills
- Conveyors
- Crane and Hoist



### Applications...

- Center Winders
- Payoff and Tension Reels
- Uncoilers
- Recoilers
- Scrap Choppers
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# est Applications

### Blue Chip® **Severe Duty Explosion Proof** 2:1 CT to 10:1 CT



- Cast iron construction. 1 HP through 350 HP, UL Listed.
- Class I Groups C & D, Class II Groups F & G, Temperature code T3B.
- Motor nameplate has Variable & Constant torque capability for use with any PWM Drive.
- 1.15 Service factor on sinewave. 1.0 Service factor on VFD power.
- CR<sup>200</sup> corona resistant magnet wire.
- Meets IEEE45 USCG Marine Duty specifications.
- IP54 Construction.

### Blue Chip XRI® Severe Duty & IEEE841 Up to 20:1 CT



- 100% cast iron construction, 3/4 HP through 450 HP.
- Capable of Variable torque and Constant torque.
- 1.15 Service factor on sinewave, 1.0 Service factor on VFD power.
- NEMA Design B provides limited in-rush current when by-passing the VFD.
- Internal and external epoxy coatinas.
- MAX GUARD® Class F insulation system.
- Meets IEEE45 USCG Marine **Duty Specifications.**
- IP54 Construction on XRI Severe Duty and IP56 Construction on IEEE841.

## PowerWash<sup>™</sup> 2:1 CT to 20:1 CT

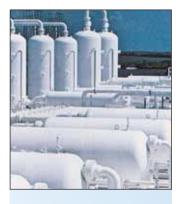


- USDA-approved white epoxy paint, 1/4 HP through 10 HP.
- 100% stainless steel three phase designs available, 1/2 HP through 10 HP.
- Capable of 10:1 Variable torque and up to 20:1 Constant torque on select ratings.
- 1.15 Service factor on sinewave, 1.0 Service factor on VFD power.
- Internal corrosion resistant coatings on frame, base, endshields, rotor and stator.
- MAX GUARD® Class F insulation system.
- IP55 Construction.

### IEC **Globetrotter®** Up to 20:1 CT



- Aluminum construction 63-90 frame, cast iron construction 100-315 frame.
- Capable of 10:1 Variable torque, and up to 20:1 Constant torque on select
- Meets IEC 34 and IEC 72 standards.
- Design N with NEMA design B torques.
- B3 Mounting (rigid base) in stock; B3/B5 or B3/B14 mountings available.
- MAX GUARD® Class F insulation system.
- IP55 Construction.



### Applications...

- Fans and Blowers
- Pumps
- Compressors
- Machine Tools
- Conveyors

### Applications...

- Food Processing
- Mines
- Foundries
- Chemical Plants
- Paper Making
- Automotive Plants



- Refineries

- Marine Duty

### Applications...

- Dairies
- Beverage Plants
- Food Processing
- Slaughter Houses
- Bakeries
- Pharmaceutical Plants
- Car Washes

### Applications... Machine Tools

- Textile Machinery
- Conveyors
- Pumps
- Blowers



# Marathon Electric's "MAX" Family of AC Variable Speed Motors

### **Performance and Specification Comparisons**









Characteristic	microMAX™	Black Max®	Blue Max®
Electrical Characteristics			
Horsepower range	1/8-10	1/4-30	1-1250
Base speed (# Poles)	4	4 and 6	2, 4, 6, 8, 10,12
Standard Voltage	230, 230/460, 575	230/460, 575	230/460, 460, 575
Insulation Class	H	F	F (select models are H)
Insulation System	CR <sup>200</sup> magnet wire / Class H	MAX GUARD® / Class F	MAX GUARD® / Class F or H
Service Factor (inverter power)	1.0	1.0	1.0
Phase/Base Frequency	3/60	3/60	3/60
Design Code (NEMA)	A	A A	A ("B" as noted)
Duty Cycle	Continuous	Continuous	Continuous
Thermal protection	None	Class F thermostats	Class F thermostats
· · · · · · · · · · · · · · · · · · ·	None	Class F thermostats	Class F trieffflostats
Mechanical Characteristics			
Frame size (mounting)	56-215T	56-286T	143T-6805
Normal NEMA frame size	Yes	Yes	Yes
Enclosure	TENV & TEFC	TENV & EPNV	TENV, TEFC, TEBC,
			EPNV, DPFV
Frame material	Rolled Steel	Rolled Steel, Aluminum,	Cast Iron
		and Cast Iron	
End bracket material	Aluminum	Aluminum, Cast Iron	Cast Iron
Conduit box material	Steel	Steel	Cast Iron
Fan guard material	Polypropylene	None (all ratings TENV)	Cast Iron
Fan material	Polypropylene	None (all ratings TENV)	Polypropylene
Severe Duty option	No	No	Yes
Lead termination	Terminal block (3 lead TENV)	Conduit box	Conduit box
	Conduit box (all others)		
Standard mounting (stock)	C-Face with Rigid Base and	C-Face with Rigid Base	C-Face with Rigid Base (1-100 HP)
	C-Face Round Body		Rigid base (TEFC and over 100 HP)
Drive end shaft slinger	No	No	Yes
Paint	Black (powder-coat or enamel)	Black (powder-coat or enamel)	Blue (powder-coat or enamel)
Bearings	Ball (C3 fit)	Ball (C3 fit)	Ball (C3 fit); 445T-up Roller
Grease	Mobil POLYREX EM	Mobil POLYREX EM	Mobil POLYREX EM
Standard conduit box assembly position	F3	F1, reversible to F2	F1, reversible to F2
		(except 56/140 frame steel)	(F3 available on build-up)
Performance Characteristics			
Constant Torque speed range	20:1 (TEFC), 1000:1 (TENV)	1000:1 (TENV)	2000:1 (all enclosures)
			TEFC: 20:1 on V/H drives
Constant Horsepower speed range	2:1 (90-120 Hz intermittent)	2:1 (90-120 Hz intermittent)	1.5:1-4:1
Temperature rise	В	F	F (TENV & TEFC)
			B (TEBC)
Encoder provisions (stock motors)	No	Yes	Yes
High Breakdown Torque	Yes	Yes	Yes
Other Characteristics	III Personalized CCA C 1177 L 27	III Dana animal CCA C. III I CT	III Bassanian I CCA C VIS 1 CT
Agency listings	UL Recognized, CSA Certified, CE	UL Recognized, CSA Certified, CE	UL Recognized, CSA Certified, CE
Warranty	3 years	3 years	3 years





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