

# microMAX™ AC Inverter Duty Motors



 **MARATHON®  
ELECTRIC**

*Motors for the Long Run!*

# microMAX™ AC Inverter Duty Motors

## ... Driven to be the Best!

microMAX™ motors are designed as a direct replacement motor technology for PMDC systems, multi-speed motors, single phase and as a variable speed upgrade from standard fixed speed motor systems.

**micro price...MAXimum Performance!**

### From the Leader in AC Variable Speed

Who else but Marathon Electric would bring you innovative products like **microMAX™**? With over 15 years experience in the design, manufacturing and application of AC variable speed motors, and well over 15,000 hours of laboratory testing in our state-of-the-art facilities, our expertise in the application of AC drives with induction motors is unsurpassed.

Over two dozen premier manufacturers of AC variable frequency drives specify Marathon Electric's performance-matched motors in their drive systems. We offer cost-effective, high performance products that, in conjunction with today's drive technology, provide enhanced performance in virtually any industrial or commercial application.

### Products that Exceed Your Expectations

Products like Blue Max®, Black Max®, and the patented MAX GUARD®, insulation system, which eliminates lead length limitations, demonstrate a commitment to the business like no other motor manufacturer. Our newest "Max", **microMAX™**, extends the family into lower horsepower ratings and is ideally suited for application with today's cost-effective AC micro drives.

The **microMAX™** motor, when teamed up with a digital AC drive, provides exceptional performance throughout its rated speed range. This revolutionary design features up to a 1000:1 constant torque and 2:1 constant horsepower range, rivaling much more expensive variable speed motors. Other design features include linear torque characteristics, superior starting torque (up to 400%), excellent torque-to-inertia, and smooth low speed performance.



When compared with PMDC, the **microMAX™** motor is more efficient, and produces more torque per amp. The accompanying chart clearly demonstrates higher peak torque capabilities in a 1/2 HP drive system, in comparing performance between PMDC and AC **microMAX™**. The TEFC design offers a 20:1 constant torque speed range. TENV ratings provide continuous constant torque at 0 speed (1000:1). See the back cover for a summary of other differences in performance and features, which show the superiority of Marathon Electric's AC **microMAX™** motor.

### Performance Matched AC Motors

We designed **microMAX™** to exploit the steady performance enhancements and cost reductions of AC drive technology that have occurred in the past few years. In comparing first cost of AC versus PMDC, you'll be pleasantly surprised.

Beyond initial acquisition cost savings, maintenance (cost of ownership) costs virtually disappear. With no brushes or commutators to maintain, you can expect significant savings over the lifetime of the motor. For purposes of illustration, a Five-Year Cost of Ownership analysis for a 1/2 HP **microMAX™** motor follows:

Five Year Cost of Ownership Analysis	
No brush changes (15 @ \$30/replacement)	\$ 450
No commutator maintenance (5 @ \$100/each)	\$ 500
Energy savings (@ \$.08/KWH)	\$ 161
<b>Total savings</b>	<b>\$ 1,111</b>
<b>Improved productivity</b>	<b>PRICELESS!</b>

### Easy upgrade to AC Variable Speed

**microMAX™** AC variable speed motors meet all applicable UL, CSA and NEMA standards, including NEMA MG1-2003, Part 31. Single (230 and 575 volt) and dual (230/460) volt models from 1/8 through 10 HP are in stock for immediate shipment, in C-Face rigid base and C-Face round body configurations. To ensure a long and productive life, we utilize Marathon's exclusive CR<sup>200</sup> corona-resistant magnet wire.

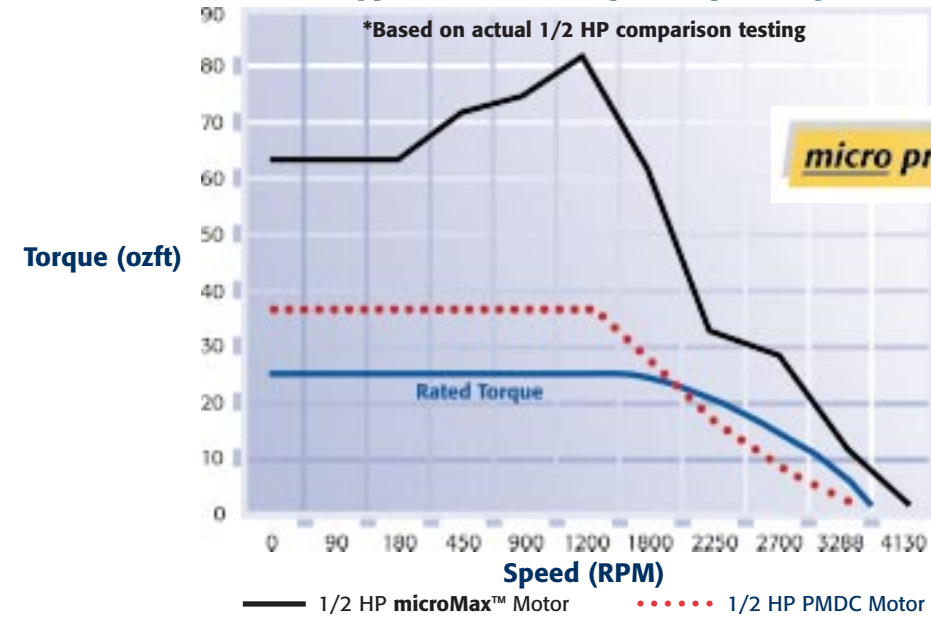
Whether you're replacing PMDC or another variable or fixed speed system, or building your machine design around the new **microMAX™**, you can be assured of high performance, low cost of ownership, ease of installation, long life and the best warranty in the business (three years). **The virtually seamless transition, along with the cooler running, lighter weight design, will please even the most demanding engineer or plant manager...and the cost savings will delight your purchasing staff.**

**NO brush replacement**  
**NO commutator maintenance**  
**NO hassles**

**"Plant Engineering Product of the Year 2001!"**



### Typical Peak Torque Capability



**micro price...MAXimum Performance!**

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## Characteristic/Feature

## microMAX™

Horsepower range	1/8 - 10
Available voltages	230, 230/460, 575
Base speed	1800 RPM
Constant Torque speed range (TENV)	1000:1
Constant Torque speed range (TEFC)	20:1
Constant Horsepower (above base speed)	2:1
High peak torque capability	Yes
Speed regulation with low end drives	2%
Speed regulation with high end drives	0.1%
Rotor Inertia	Low
C-Face with rigid base and C-Face round	Yes
Encoder provisions	No
Conduit box location	F3 (top mounted)
CR <sup>200</sup> corona-resistant magnet wire	Yes
Exxon Polyrex® EM bearing grease	Yes
Insulation Class	H
Temperature Rise (operating temperature)	B
Shipping weight	Low
UL recognized, CSA certified	Yes
Estimated motor life prior to maintenance	50,000 - 100,000 hrs
Warranty	3 Years

## SpinMaster™ AC Variable Frequency

### Drives are Performance-Matched to microMAX™ Motors

When a single solution is required and additional compatibility is the key to your application's success, Marathon Electric offers our **SpinMaster™** line of AC micro drives from 1/4 through 5 horsepower in single- and three-phase, 120, 208, 230, 460 and 575 VAC systems in an IP20 enclosure. **SpinMaster™** offers easy set-up and programming, DC injection braking, quiet operation, acceleration boost and slip compensation as standard.

#### SpinMaster™ offers these other features:

- Rugged IP20 enclosure with finger safe terminals
- Adjustable carrier frequency to 10 kHz
- Eleven isolated terminals for control I/O
- Single or Three phase input, 115 or 230 VAC through 1.5 HP
- Three phase input, 200-230, 460 or 575 VAC through 5 HP
- Current limit to 180% with frequency foldback
- Adjustable volts/hertz
- Output frequency to 240 Hz
- Seven preset speeds
- Independent accel and decel adjustments
- Adjustable DC injection braking
- I<sup>2</sup>t motor thermal overload protection
- Slip compensation
- Modbus, serial communication protocol



For more information contact:



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