Infinitum

Aircore EC+ with Integrated AFE

Do More With Less.



Frame 15

5-7.5 HP (3.73-5.6 kW)



Frame 18

7.5-10 HP (5.6-7.46 kW)



Frame 20

10 HP (7.46 kW)

Benefits You Can Measure:

- **IEEE 519 compliance**
  THDi as low as 1%
- **Power factor of 98%**
  Less wasted energy
- **Power loss ride-through capability**
  No motor dropouts during power transfer
- **Low insertion loss**
  Less heat, longer motor life
- **Retrofit ready**
  Upgrade to mission-critical AFE in minutes
- **Designed for efficiency and sustainability**
  91%+ total system efficiency

Applications

Fans HVAC Hospitals

Integrated AFE

- Incorporates wideband harmonic mitigation using an Active Front End (AFE) technology
- Lowers harmonic content well below IEEE 519 levels across the motor's operating range while maintaining unity power factor futher improving system performance limiting insertion losses below 1% at high efficiency
- As an integrated solution, the AFE eliminates additional wiring and infrastructural costs typically associated with passive filters or other solutions

Optimized efficiency and reliability

- Meets highest efficiency standards at a wide range of load conditions
- State-of-the-art VFD allows precise speed control, and reduces energy usage
- Increased operational efficiency by eliminating torque ripple, cogging, stator hysteresis and eddy current losses
- High Resistance Ground (HRG) capability for increased reliability
- Hybrid ceramic bearings for increased longevity

Sustainable solutions

- Maximum power density in a smaller and lighter package
- PCB stator uses 66% less copper and has proven to be 10x more reliable than traditional iron-core, copper-wound stators
- Easy serviceability through our modular design enables the reuse and extended lifespan of components, keeping them out of the landfill



Customize your motor system and instantly generate a tailored datasheet using our Motor Selection Tool (MST).

Preview power, amperage, energy savings, and more.

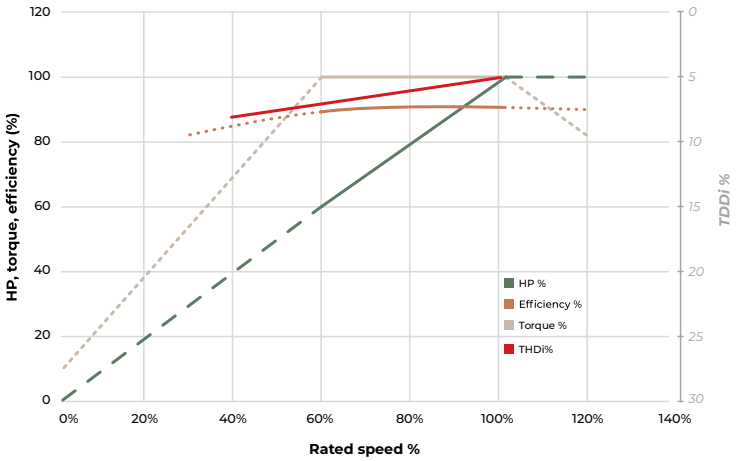
mst.goinfinitum.com

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Performance



The recommended RPM range for this motor is 20% to 100% of the Rated Speed. Operating below the minimum speed is not advised except during coasting or ramp-up. For operation outside of this recommended range, please contact Infinitum for a customized solution. These curves are for reference only; actual performance may vary.

- Torque (Nm)
- Power
- Efficiency

General Information

Motor Technology	Axial Flux, PCB Stator
VFD Technology	Integrated, SiC based High Efficiency Drives, Active Front End (AFE)
System Efficiency* (Motor + VFD)	90.8% (460 V), 89.4% (415 V)
Minimum Speed	20% of the Rated Speed
Maximum Speed	120% of the Rated Speed
Duty Cycle	Continuous
Service Factor	1.0
Cooling	TEFC
Thermal Protection	Electronically Protected (EP-L)
IP Rating	IP65
Mounting	Peripheral Mount C-Face 182-TC
Mounting Orientation	Horizontal Vertical

*Calculated

Electrical Information

Supply Voltage	415/460 VAC ±10%
Rated Amps*	12.0 A ±10% (460 VAC), 13.0 A ±10% (415 VAC)
Maximum Voltage Imbalance	+/-3% Phase-Phase Voltage
Short Circuit Rating (SCCR)	65kA
Insulation Class	MOT150 Class B
Grounding	Delta, HRG, Grounded Wye
Harmonics	<5% TDDi
Power Factor	0.98

Mechanical Information

Rotation	CW, CCW
Bearing (DE & NDE)	6206 Hybrid Ceramic
Grease	Permanent Mobil Polyrex
Rotor Inertia	0.49 kg.m^2
Grounding Brush	Included, DE

Power, Speed

Frame Size	Rated Torque (Nm)	Rated Power (HP)	Rated Speed (RPM)	Weight (Lbs)
AM20-x	40	10	1800	130
AM18-x	20	10	3600	100
AM18-x	30	10	2400	100
AM18-x	30	7.5	1800	100
AM15-x	22	7.5	2400	86
AM15-x	15	7.5	3600	86
AM15-x	20	5	1800	86
AM15-x	15	5	2400	86

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Controls & Communication

Harmonics Mitigation	Included
Download on the App Store	MODBUS RTU for I-con (Desktop or Mobile)
Analog Input	0-10V, 4-20mA
Analog Output	0-10V, 4-20mA
Digital Input	4x
Digital Outputs	2x
Relay	125 VAC / 30 VDC
Aux Power	250mA, 24VDC

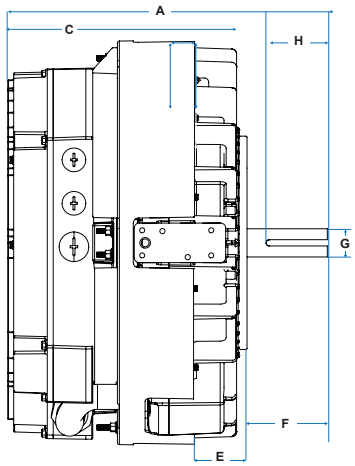
Ambient Conditions

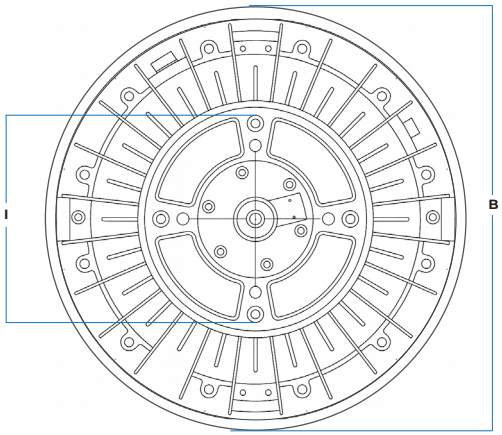
Ambient Temp (Operation)	-13F to 104F (-25C to 40C) 2% Power Derate per 1C up to 50C
Ambient Temp (Storage)	-40F to 185F (-40 to 85C)
Altitude	0 to 3300 ft. (0-1000M) 9% Power Derate per 1000 M up to 2000 M
Humidity (Operation & Storage)	95% RH, No Condensation
Contamination (Operation & Storage)	No conductive dust

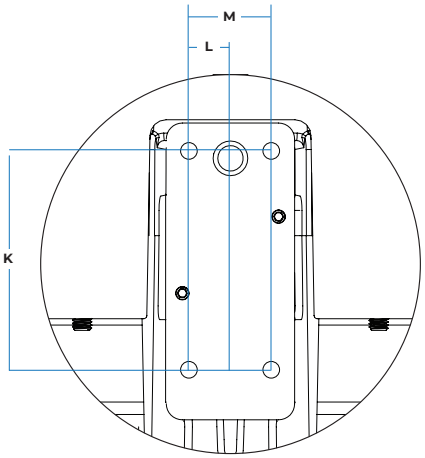
Modbus BTL ETL ISO CERTIFIED 9001

Certifications

UL 1004-7 UL 1004-1 UL 61800-5-1 CSA 22.2 N077 IEEE 519







Frame Size	A	B	C	E	F	G	H	I	K	L	M
AM20-X	326.5	537.3	237.3	34.5	82.7	28.6	60.0	184.1	69.9	12.7	25.4
AM18-X	322.0	472.0	233.1	29.4	82.1	28.6	60.0	184.1	69.9	12.7	25.4
AM15-X	324.4	417.3	234.1	36.2	82.3	28.6	60.0	184.1	69.9	12.7	25.4

All measurements in mm

Mounting & dimensions

There are four mounting pad locations.	Each pad is spaced 90° apart, containing 4 mounting holes and one lifting eye hole.	The DE face of the mounting block has threaded holes for four bolts (1/2”-13).	All bolt holes should be used for secure mounting of the motor to equipment

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Catalog Number Decoder

AM20-0590-1225-ABAH-AA60 Example

Family	Frame	HP	Rated Speed	Product Code
AM	20	0590	1225	ABAH - AA60
				1 2 3 4 5 6 7 8

Family	Name
AE	Aircore EC+
AM	Aircore EC+ (AFE)

Frame	Motor Diameter
13	Refer to Dimensions
15	Refer to Dimensions
18	Refer to Dimensions
20	Refer to Dimensions

HP		Motor Power
XXXX	*(Example)*	XX.XX
1000	*(Example)*	10HP
0590	*(Example)*	5.90HP
List is not exhaustive		

Rated Speed		RPM
1225	*(Example)*	1225 RPM
List is not exhaustive		

Product Code

Postion 1	Voltage
A	460V 3-phase
C	575V* 3-phase

*Check the Motor Selection Tool (MST) for compatible models.

Product Code

Postion 2	Communication
A	MODBUS RTU/Analog
B (Optional)	BACnet MS/TP/Analog

Postion 3	VFD
A	All Features

Position 4	Bearings
H	Hybrid Ceramic 6206

Position 5	Shaft
A	L 3.3”, D 1.13”
B (Optional)	L 4.0”, D 1.13”

Postion 6	Cable Harness
A	Default

Position 7	Ingress Protection
6	IP65

Position 8	Miscellaneous
0	Grounded Wye, EP-L
3	Grounded Wye, HRG, Delta, EP-L

Generate a tailored datasheet using our Motor Selection Tool. mst.goinfinitum.com

Contact
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We reserve the right to make technical changes or modify the contents of this document without prior notice. * Infinitum motor system compared to IE4/ NEMA Super Premium AC Induction motor + VFD over a 10-year lifetime. Efficiencies are dependent on specific motor and application.

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