AutomationDirect AC Motors Selection Overview

EPAct, High and Premium Efficiency What does it all mean?

EPAct (1992)

In 1992, the U.S. Congress passed legislation requiring that general purpose Design A & B motors meet minimum efficiency requirements, and this legislation was called the Energy Policy Act of 1992. Previously, there had been no U.S. standards set forth for motor energy efficiency. Since 1997 (when EPAct '92 was first enforced), two-, four-, and six-pole general purpose Design A & B motors had to meet EPAct guidelines. Since then, most general purpose motors manufactured and/or sold in the U.S. have met these requirements.

Premium Efficiency (EISA 2007)

In December 2010, a new level of energy efficiency mandate went into effect. The Energy Independence and Security Act of 2007 mandated that all AC industrial motors as described below must meet Premium Efficiency standards. The NEMA trade group was instrumental in getting this legislation passed, so many people refer to the high efficiency motors by their nickname – NEMA Premium®. All applicable motors manufactured or imported into the U.S. after December 2010 must meet the Premium Efficiency guidelines.

Motors Covered Under EISA 2007 (Premium Efficiency Mandate)
Included – must meet the new Premium Efficiency standards – Industrial AC electric squirrel-cage general-purpose motors as follows:
Single speed; Polyphase; 1–200 hp with 3-digit frame sizes; 2, 4, & 6 pole (3600, 1800, & 1200 rpm); NEMA design A & B (including IEC equivalent); Continuous rated
Not Included in Premium Efficiency standards, but must now meet EPAct standards:
JM; JP; Round body (footless); 201–500 hp; Fire pump; U-frame; Design C; 8-pole

Certain motors (Inverter/Vector Duty, NEMA design D, etc.) are not covered by EISA 2007.
For full text, visit www.energy.senate.gov and click "ENERGY INDEPENDENCE & SECURITY ACT OF 2007".

Nominal Full-Load Efficiency Standards Comparisons (%)

Enclosed Electric Motors, Random Wound, 60 Hz, 600V or Less

Motor HP	1200 rpm [6-pole]		1800 rpm [4-pole]		3600 rpm [2-pole]	
	EPAct	Premium Efficiency	EPAct	Premium Efficiency	EPAct	Premium Efficiency
1	80.0	82.5	82.5	85.5	75.5	77.0
1.5	85.5	87.5	84.0	86.5	82.5	84.0
2	86.5	88.5	84.0	86.5	84.0	85.5
3	87.5	89.5	87.5	89.5	85.5	86.5
5	87.5	89.5	87.5	89.5	87.5	88.5
7.5	89.5	91.0	89.5	91.7	88.5	89.5
10	89.5	91.0	89.5	91.7	89.5	90.2
15	90.2	91.7	91.0	92.4	90.2	91.0
20	90.2	91.7	91.0	93.0	90.2	91.0
25	91.7	93.0	92.4	93.6	91.0	91.7
30	91.7	93.0	92.4	93.6	91.0	91.7
40	93.0	94.1	93.0	94.1	91.7	92.4
50	93.0	94.1	93.0	94.5	92.4	93.0
60	93.6	94.5	93.6	95.0	93.0	93.6
75	93.6	94.5	94.1	95.4	93.0	93.6
100	94.1	95.0	94.5	95.4	93.6	94.1
125	94.1	95.0	94.5	95.4	94.5	95.0
150	95.0	95.8	95.0	95.8	94.5	95.0
200	95.0	95.8	95.0	96.2	95.0	95.4

AutomationDirect AC Motors Selection Overview

General-purpose or inverter-duty motor?

How to choose a general purpose motor vs. an inverter-duty motor

General purpose motors have been around for many years. They are the workhorse of almost every industry. As the use of VFDs (inverters or AC drives) has become commonplace in industry, the construction of general purpose motors was improved to handle many applications. All ADC General purpose 3 phase motors are inverter rated and can withstand the higher voltage spikes produced by all VFDs (amplified at longer cable lengths).

If an application requires precise speed control or high loads at lower speed, a high performance inverter duty motor may be required. These motors are designed run at very slow speeds without overheating. This performance comes at a cost: high performance inverter-duty motors can be much more expensive than general purpose inverter rated motors. Guidelines for choosing an IronHorse general purpose motor vs. a high performance inverter duty motor are given below. If your application falls within the guidelines below, there is no need to apply a high performance inverter-duty motor.

NOTE: Marathon high performance, inverter duty motors have limitations as well. Please see the Marathon section for more details.

Background: For many years, AC motors were driven by across-the-line contactors and starters. The electricity sent to the motor was a very clean sine wave at 60Hz. Noise and voltage peaks were relatively small. ***However, there were drawbacks***: they only ran electrically at one speed (speed reduction was usually handled by gearboxes or some other, usually inefficient, mechanical means) and they had an inrush of electrical current (when the motor was first turned on) that was usually 5 to 6 times the normal current that the motor would consume. The speed reduction apparatus was expensive and bulky, and the inrush would wreak havoc with power systems and loading (imagine an air conditioning system in an old house - when the compressor would kick on, the lights would dim; now imagine the same circumstances with a motor the size of a small car).

Note: The following discussion applies only to 3-phase motors.

Enter the VFDs (variable frequency drives): Drives were introduced to allow the speed of these motors to be changed while running and to lessen the inrush current when the drive first starts up. To do this, the drive takes the incoming 60Hz AC power and rectifies it to a DC voltage (every drive has a DC bus that is around 1.414 (sqrt of 2) * incoming AC Line Voltage).

This DC voltage is then "chopped" by power transistors at very high frequencies to simulate a sine wave that is sent to the motor [see Figure 1]. By converting the incoming power to DC and then reconverting it to AC, the drive can vary its output voltage and output frequency, thus varying the speed of a motor. Everything sounds great, right? We get to control the frequency and voltage going out to the motor, thus controlling its speed.

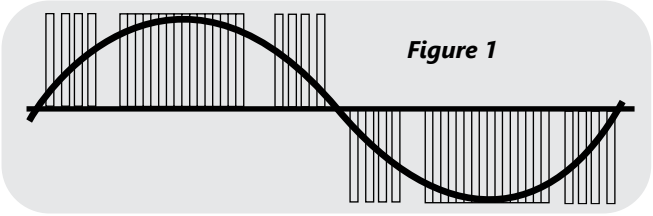


Figure 1

Some things to watch out for: A VFD-driven general purpose motor can overheat if it is run too slowly. (Motors can get hot if they're run slower than their rated speed.) Since most general purpose motors cool themselves with shaft-mounted fans, if the motor overheats, bearing and insulation life will be reduced. Therefore there are minimum speed requirements for all motors.

The voltage "chopping" that occurs in the drive actually sends high-voltage spikes (at the DC bus level) down the wire to the motor. If the system contains long cabling, there are actually instances where a reflected wave occurs at the motor. The reflected wave can effectively double the voltage on the wire. This can lead to premature failure of the motor insulation. Long cable lengths between the motor and drive increase the harmful effects of the reflected wave, as do high chopping frequencies (listed in drive manuals as carrier frequencies). Line reactors, 1:1 transformers placed at the output of the drive, can help reduce the voltage spikes going from the drive to the motor. Line reactors are used in many instances when the motor is located far from the drive [see Figure 2].

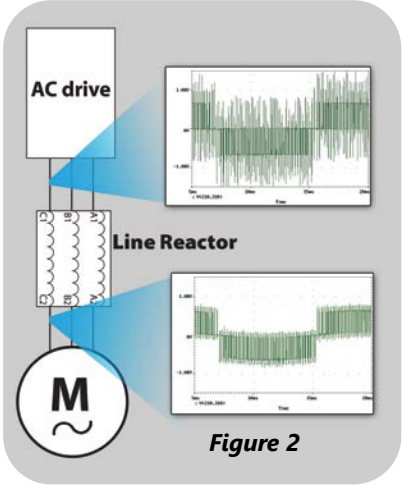


Figure 2

In summary, all ADC general purpose motors are inverter rated and can be run with drives in many applications; however high performance, inverter-duty motors are designed to handle much lower speeds without overheating and they are capable of withstanding higher voltage spikes without their insulation failing. With the increased performance comes an increase in cost. This additional cost can be worth it if you need greater performance.

The considerations for applying IronHorse motors are given below.

Heat considerations

	IronHorse speed ratio	For an 1800 RPM motor, minimum IronHorse speed is:
Variable Torque applications (fans, centrifugal pumps, etc.)	5:1 (EPAct motors) 10:1 (PE motors)	1800/5 = 360RPM 1800/5 = 180RPM
Constant Torque Applications (conveyors, extruders, etc.)	2:1 (EPAct motors) 4:1 (PE motors)	1800/2 = 900RPM 1800/4 = 450RPM

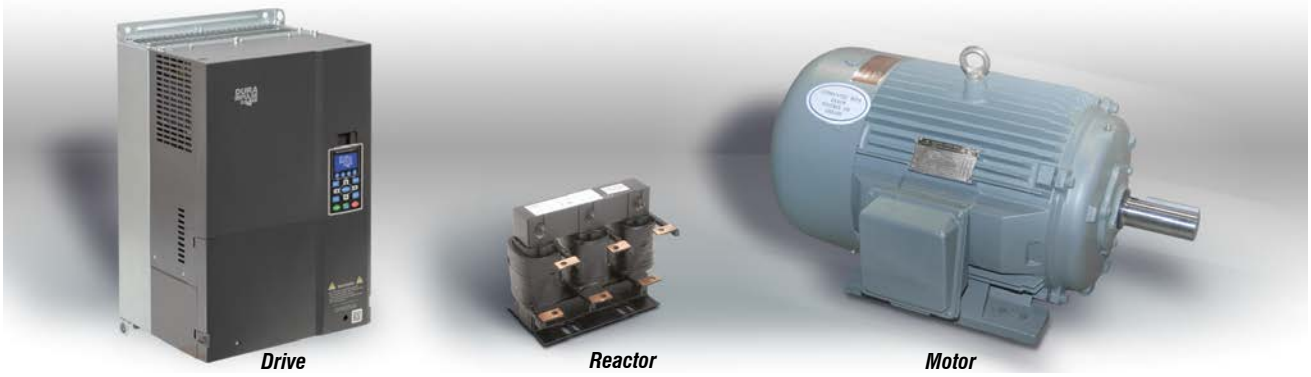
Voltage Spike considerations

	Max cable distance from drive to IronHorse motor	Max cable distance with a 3% line reactor between drive and IronHorse motor
For use with 230V and 460V VFDs*	125 ft	250 ft

* *Up to 6kHz carrier frequency*

IronHorse® General-Purpose AC Motors

Using IronHorse General-Purpose Motors with AC Drives



AC drive motor control vs. across-the-line motor control

General purpose AC induction motors are typically controlled by across-the-line starters, i.e. contactors, manual motor starters, etc. However, 3-phase general purpose motors can also be controlled by AC drives under certain conditions. (1-phase AC motors cannot be controlled by typical 3-phase AC drives.)

Across-the-line control applies full voltage to the motor at startup, and has several disadvantages.

- High inrush current - startup inrush current is typically 5-6 times the normal motor full load current, and can significantly increase utility bills.
- Inability to change speeds - the motor runs only at its rated speed.
- Inefficiency in some applications - fan and pump applications require ON/OFF control or valves/dampers to control flow.
- Contact maintenance - arcing caused by high inrush and breaking currents significantly reduce the motor starter's life span.

Many applications can use AC drive control for 3-phase AC induction motors, which has several advantages:

- Lower inrush current at motor startup
- Ability to change motor speed
- Greater efficiency in some applications. - fan and pump applications can use the AC drive to provide both motor control and flow control. The drive can control the flow by varying the motor speed, and therefore eliminate the need for inefficient valves/dampers.
- Solid state power delivery; minimal maintenance.

NOTE: AC drive (VFD) control is applicable only for 3-phase AC motors (3-phase AC drives cannot be used to control 1-phase motors)

General purpose AC induction motors are not designed specifically for use with AC drives, so there are three major considerations for AC drive control of 3-phase general purpose motors:

1. Heat considerations for AC drive control

Fan-cooled motors are designed to provide sufficient insulation cooling when the motors run at rated speed. The cooling ability of fans is reduced when motors run at lower speeds, and the insulation in general purpose motors is not designed for this condition. Therefore, there are limitations on how slowly general purpose motors can be continuously run without prematurely causing motor insulation failure.

- **Constant Torque (CT) Applications**
  PE motors: 4:1 (1/4 rated speed)
  EPAct motors: 2:1 (1/2 rated speed)
  The CT minimum continuous speed for an IronHorse general purpose motor is either one quarter or one half of its rated speed, as shown in the motor Performance Data tables. (Constant torque loads require the same amount of torque from the motor regardless of speed; e.g., conveyors, cranes, machine tools.)
- **Variable Torque (VT) Applications**
  PE motors: 10:1 (1/10 rated speed)
  EPAct motors: 5:1 (1/5 rated speed)
  The VT minimum continuous speed for an IronHorse general purpose motor is either one tenth or one fifth of its rated speed, as shown in the motor Performance Data tables. (Variable torque loads require less torque at lower speeds, resulting in less heat generated by the motor; e.g., fans, centrifugal pumps.)

If your application requires motors to run at speeds below those described above, use our Marathon inverter duty motors. Inverter duty motors can run fully loaded at very low speeds without being damaged by overheating.

2. Voltage spike considerations for AC drive control

All AC drives cause large voltage spikes between the drive and the motor, and long cable distances increase these spikes even more. Therefore, there are maximum cable lengths that can be run between the drive and the motor. Line (load) reactors can be installed near the drive output to reduce the voltage spikes.

- 230V and 460V **Without Reactor – 125 ft maximum cable length** between drive and motor
- 230V and 460V **With Reactor – 250 ft maximum cable length** between drive and motor

If your application requires cable lengths longer than those described above, please use our Marathon high performance, inverter-duty motors.

3. Carrier frequency limitation for AC drive control

The AC Drive carrier frequency should be set to 6kHz or less.

AC Motor Selection – IronHorse® General Purpose Motors

IronHorse® 1-Phase Motor Selection			
Motor Series	***MTR2***	***MTRJ***	***MTF2***
Paint Color	***Black***	***Black***	***Green***
Main Characteristics	***General Purpose Rolled Steel***	***Jet Pump***	***Farm Duty Rolled Steel***
Electrical Characteristics			
Horsepower range	1/3 - 2	1/3 - 2	2 | 7 1/2
Base speed	1800; 3600	3600	1800
Standard Voltage	115/208–230 VAC; 115/230 VAC	115/230 VAC	208–230 VAC
Phase / Base Frequency	1-phase / 60 Hz		
Service Factor	1.15		
Design Code (NEMA)	L or N (by model)	L or N (by model)	L
Insulation Class	Class F		
Insulation System	Dip and Bake Twice		Double VPI
Duty Cycle	Continuous		
Thermal protection	None	Automatic	Manual
Hazard Classification	None		
Mechanical Characteristics			
Frame size	56C or HC	56J	182T - 215T
Enclosure	TEFC	TEFC	TEFC
Enclosure Rating	IP43		IP55
Frame material	Rolled Steel		
End bracket material	Aluminum		
Junction box material	Steel		
Fan guard material	Steel		
Fan material	Polypropylene Plastic	Plastic	
Lead termination	Junction Box		
Standard mounting	C-Face with Removable Rigid Base		Rigid Base
Drive end shaft slinger	Yes		V-ring seal
Bearings	Ball		
Grease	Mobil Polyrex EM		NS7 ENS
Standard junction box assembly position	F1		
Performance Characteristics			
Constant Torque speed range	N/A		
Variable Torque speed range	N/A		
Constant Horsepower speed range	N/A		
Temperature rise	B		
Encoder provisions	None		
Other Characteristics			
Warranty*	2 Years		
Agency Approvals **	CSA, CE		CE, UR

*** See Terms and Conditions for motor warranty explanation.**
1) For warranty on IronHorse motors below 50hp, warranty service can be arranged through AutomationDirect.
2) For warranty on IronHorse motors 50hp and above, motors must be inspected by a local EASA motor repair or service center; (see AutomationDirect Terms & Conditions).
**** To obtain the most current agency approval information, see the Agency Approval Checklist on the specific part number's web page.**
***** 56HC motors are capable of 56C C-face mounting, and are also compatible with 56, 143T, and 145T foot mounting dimensions.**

IRONHORSE®
AUTOMATIONDIRECT

AC Motor Selection – IronHorse® General Purpose Motors

IronHorse® 3-Phase Motor Selection					
Motor Series	***MTR2/MTRP***	***MTRJ/MTRJP***	***MTDP***	***MTSP/MTSN***	***MTCP2***
Paint Color	***Black***	***Black***	***Blue***	***Stainless***	***Gray***
Main Characteristics	***General Purpose Rolled Steel***	***Jet Pump***	***Rolled Steel Open Drip Proof***	***Stainless Steel Premium Efficiency IP69K***	***Cast-Iron Hazardous Duty***
Electrical Characteristics					
Horsepower range	1/3 - 3	1/3 - 3	1 - 50	1 - 20	1 - 300(T) 1 - 30(TC)
Base speed	1800; 3600	3600	1800; 3600	1200; 1800; 3600	1200; 1800; 3600
Standard Voltage	208–230/460 VAC; 230/460 VAC	208–230/460 VAC; 230/460 VAC	208–230/460 VAC	208–230/460 VAC	208-230/460 VAC; 460 VAC
Phase / Base Frequency (Hz)	3-phase / 60 Hz				
Service Factor	1.15	1.15	1.15 (sine), 1.0 (drive)		1.25 (1-200) 1.15 (250-300) 1.0 (all w/ drive)
Design Code (NEMA)	B				
Insulation Class	Class F				
Insulation System	Dip and Bake	Dip and Bake Twice	VPI	Dip and Bake	Vacuum Impregnation
Duty Cycle	Continuous				
Thermal protection	None				
Hazard Classification	None			Class 1 / Div 2	
Mechanical Characteristics					
Frame size	56C or HC - 326T	56J	56C - 326T	56C - 256TC	143T/TC - 449T
Enclosure	ODP / TEFC	TEFC	ODP / TEFC	TEFC / TENV	TEFC
Enclosure Rating	IP43		IP23	IP69K	IP55
Frame material	Rolled steel		Rolled steel	304 Stainless steel	Cast iron
End bracket material	Aluminum	Aluminum	≤256 frame- Aluminum >256- Cast iron	304 Stainless steel	Cast iron
Junction box material	Steel	Steel	Steel	304 Stainless steel	Cast iron
Fan guard material	Steel	Steel	N/a	304 Stainless steel	Steel
Fan material	Polypropylene plastic	Plastic	N/a	Heat-Resistant Polyethelene	Plastic
Lead termination	Junction Box				
standard mounting	C-face with removable rigid base		Rigid base	C-face round body and C-face with rigid base	Rigid base, c-face with rigid base (1-100 hp)
Drive end shaft slinger	Yes	Yes	None	Yes	Yes
Bearings	Ball				1-300 hp - 2p, 1-75 hp - 4p & 6p: Ball 100-300 hp - 4p & 6p: Roller
Grease	Mobil Polyrex EM		NS7 ENS	Mobil Polyrex EM	
Standard junction box assembly position	F1				F1 (field convertible F2)
Performance Characteristics					
Constant Torque speed range	4:1	4:1	10:1	10:1	10:1
Variable Torque speed range	10:1	10:1	20:1	20:1	20:1
Constant Horsepower speed range	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1
Temperature rise	B				
Encoder provisions	None				
Other Characteristics					
Warranty*	2 years	2 years	2 years	1 year	2 years
Agency Approvals **	CSA, CE	CSA,CE	CSA	NEMA, CSA, UR, CE, BISCC	CSA, ISO9001, CE

*** See Terms and Conditions for motor warranty explanation.**
1) For warranty on IronHorse motors below 50hp, warranty service can be arranged through AutomationDirect.
2) For warranty on IronHorse motors 50hp and above, motors must be inspected by a local EASA motor repair or service center; (see AutomationDirect Terms & Conditions).
**** To obtain the most current agency approval information, see the Agency Approval Checklist on the specific part number's web page.**
***** 56HC motors are capable of 56C C-face mounting, and are also compatible with 56, 143T, and 145T foot mounting dimensions.**

IronHorse® AC Motors

Model Overview

IronHorse motors are manufactured by leading motor suppliers with over 20 years experience delivering high-quality motors to the demanding U.S. market. Our suppliers produce motors in IS09001 facilities, and test the motors during production and after final assembly. This is how we can stand behind our IronHorse motors with a two-year warranty (one year for Stainless Steel).

MTF2 1-phase Farm Duty T-Frame

MTR2 / MTRJ 1-phase General Purpose or Jet Pump Rolled Steel 56C Frame

MTR2 / MTRP / MTRJ 3-phase General Purpose or Jet Pump Rolled Steel 56C Frame

MTSP / MTSN 3-phase Stainless Steel 56C – Rigid Base or Round Body

MTDP 3-phase Premium Efficiency Rolled Steel Open Drip-Proof

MTSS 3-phase Stainless Steel 56C – Rigid Base or Round Body

MTCP2 3-phase Premium Efficiency Cast-iron TC & T Frame

The IronHorse® line of motors includes:

1 - Phase

- **MTR2 Series:** TEFC 56(H)C-frame AC motors with rolled-steel frames; flange mount and removable mounting feet; 0.33–2 hp
- **MTF2 Series:** TEFC T-frame Farm-Duty AC motors with rolled-steel frames and mounting feet; 2–10 hp
- **MTRJ Series:** TEFC 56J frame. Jet Pump AC Motors. Flange mount and removable mounting feet. 1/3hp - 2hp

3 - Phase

- **MTR2 Series:** TEFC 56C-frame AC motors with rolled-steel frames; flange mount and removable mounting feet; 0.33–0.75 hp
- **MTRP Series:** TEFC 56C/HC-frame AC motors with rolled-steel frames; removable base and C-face mount; 1–3 hp
- **MTRJ Series:** TEFC 56J frame. Jet Pump AC Motors. Flange mount and removeable mounting feet. 1/3hp - 3hp
- **MTSS Series:** TEFC 56C-frame AC motors with stainless-steel frames; IP56; flange mount and round bodies or rigid mounting feet; 0.33–0.75 hp
- **MTSP/MTSN Series:** TEFC/TENV 56C-284t frame AC motors with stainless steel frames; IP69K; flange mount and round bodies or flange mount with rigid mounting feet; 0.33–20 hp
- **MTCP2 Series:** TEFC T-frame Premium Efficiency AC motors with cast-iron frames and mounting feet; 1–300 hp (TC-frame [C-face] 1–30 hp)
- **MTDP Series:** Open Drip-Proof Premium Efficiency AC motors with rigid base mount; motor rating range - 1 to 50 hp.
- Replacement switches, junction boxes, and start and run capacitors available for IronHorse 1-phase motors
- Replacement bases, fans, and fan shrouds available for many IronHorse motors
- Accessory C-flange kits available for flange mounting of IronHorse 3-phase cast-iron and rolled steel T-frame Premium Efficiency motors
- STABLE motor slide bases for adjustable mounting of NEMA motors from 56 to 449T (adjustable stainless steel bases not available)

MTR2 Series Rolled-Steel AC Motors – 1-Phase

56C/56HC Frame TEFC Motors – 1-phase 0.33 to 2 hp

Features

- Totally Enclosed Fan Cooled (TEFC) enclosure
- IP43 environmental rating
- NEMA 56C or 56HC flange mount (varies by model)
- Rolled steel shell frame / cast aluminum end bell
- Removable base / bolt-on/bolt-off mounting feet
- No mounting orientation restrictions
- Steel fan cover
- Large all-metal capacitor cover with rubber gasket and oversized capacitors
- Large easy-to-wire junction box with rubber gasket
- Heavy duty oversized ball bearings
- High tensile strength steel shaft
- Large Mylar nameplate with easy-to-read wiring diagram
- Electrically reversible
- NEMA design L or N (varies by model)
- Class F winding insulation
- Service Factor: 1.15
- Two year warranty
- CCSAUS certified, CE

Accessories Available

- Start capacitors (replacement/spare)
- Run capacitors (replacement/spare)
- Centrifugal switches (replacement/spare)
- Stationary switches (replacement/spare)
- Junction boxes (replacement/spare)
- Fans (replacement/spare)
- Fan shrouds (replacement/spare)
- Motor bases (replacement/spare)

Applications

- Conveyors
- Fans
- Gear reducers
- Pumps

MTR2 Series 1-phase motor (model without run capacitor shown)

Motor Specifications – 1-phase MTR2 Series

Part Number	Price	HP	Base RPM	1-phase Voltage	Housing	NEMA Frame	Service Factor	F.L. Amps 115V/230V	Approx Weight (lb)	Drawing Links
MTR2-P33-1AB18	$256.00	1/3	1800	115/230	TEFC rolled steel frame with cast aluminum end bell, F1 conduit box location	56C flange mount	1.15	5.2 / 2.6	22	PDF
MTR2-P50-1AB18	$283.00	1/2						7.2 / 3.6	25	PDF
MTR2-P75-1AB18	$306.00	3/4						10.0 / 5.0	29	PDF
MTR2-001-1AB18	$316.00	1				56HC		13.0 / 6.5	36	PDF
MTR2-1P5-1AB18	$373.00	1-1/2						14.5 / 7.3	37	PDF
MTR2-002-1AB18[1]	$430.00	2						19.6 / 9.8	44	PDF
MTR2-P33-1AB36	$259.00	1/3	3600	115/230	TEFC rolled steel frame with cast aluminum end bell, F1 conduit box location	56C	1.15	5.4 / 2.7	21	PDF
MTR2-P50-1AB36	$267.00	1/2						6.5 / 3.3	23	PDF
MTR2-P75-1AB36	$290.00	3/4						9.2 / 4.6	27	PDF
MTR2-001-1AB36	$306.00	1						11.5 / 5.8	30	PDF
MTR2-1P5-1AB36	$339.00	1-1/2		115/230				13.0 / 6.5	31	PDF
MTR2-002-1AB36	$395.00	2				56HC		17.0 / 8.5	37	PDF

Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.
1) If using this motor with 115V, a 30A feed service breaker will be required. The FLA will trip a standard 20A breaker.

MTF2 Series Farm-Duty AC Motors – 1-Phase

T-Frame TEFC Motors – 1-phase 2 to 10 hp

Features

- 208-230VAC 1-phase
- Totally Enclosed Fan Cooled (TEFC) enclosure
- IP55 environmental rating
- NEMA T-frame
- Rolled-steel housing
- Rigid mounting base
- Can be mounted in horizontal or vertical orientation
- Steel fan cover
- Class-10 manual-reset locked-rotor thermal protector (motor thermal overload must be provided separately)
- Large easy-to-wire junction box with rubber gasket
- Heavy duty oversized ball bearings
- High tensile strength steel shaft
- Mylar nameplate with easy-to-read wiring diagram
- Electrically reversible
- NEMA design L
- Class F winding insulation
- VPI (Vacuum and Pressure Impregnation) insulation process
- Service Factor: 1.15 @ 230VAC; 1.0 @ 208VAC
- Two year warranty
- $_{C}$UR $_{US}$ certified, CE

Accessories Available

- Start capacitors (replacement/spare)
- Run capacitors (replacement/spare)
- Centrifugal switches (replacement/spare)
- Stationary switches (replacement/spare)
- Locked rotor thermal overload switches (replacement/spare)
- Junction boxes (replacement/spare)
- Fans (replacement/spare)
- Fan shrouds (replacement/spare)
- C-face kits

Applications

- Conveyors
- Fans
- Pumps
- Air compressors
- Other farm equipment

Motor Specifications – 1-phase Farm-Duty Motors

Part Number	Price	HP	Base RPM	Voltage	Housing	NEMA Frame	Service Factor	F.L. Amps @ 208/230VAC	Approx Weight (lb)	Drawing Link
MTF2-002-1B18-182	$459.00	2	1800	208–230 VAC	TEFC IP55	182T	1.15 @ 230 VAC, 1.0 @ 208 VAC	9.3 / 8.5	67	PDF
MTF2-7P5-1B18-215	$989.00	7 1/2				215T		31.5 / 28.7	134	PDF

Notes:
1) Please review the AutomationDirect Terms & Conditions for warranty and service on this product.
2) Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.
3) Operate on 230VAC +/- 10% (1.15 @ 230VAC; 1.0 S.F. @ 208V), 1-phase power only.

Performance Data – 1-phase Farm-Duty Motors

Part Number	HP	NEMA Design	FL RPM	Current @ 230V (Amps)			Torque (lb·ft)			FL Efficiency (%)	FL Power Factor	Rotor Inertia (lb·ft2)
				230V No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break -down			
MTF2-002-1B18-182	2	215T	1764	3.0	8.5	78.6	6.01	21.8	22.1	84.0	0.92	0.27
MTF2-7P5-1B18-215	7 1/2		1767	8.2	28.7	238.5	21.91	82.8	82.2	86.6	0.96	0.74

MTDP Series Open Drip-Proof AC Motors – 3-Phase

T-Frame ODP Motors – 3-phase – 1 to 50hp

MTDP Series 3-Phase Motor

IronHorse® MTDP, open drip-proof motors range in size from 1hp to 50hp at 1800 rpm and 3hp, 5hp, and 7.5 hp at 3600 rpm. Frame sizes are available from 143T to 326T. All models have a rolled steel frame; frame sizes up to 256T have cast aluminum end bells, while frame sizes of 284T or larger have cast-iron end bells. All frame sizes have a fixed base.

Features

- Open drip-proof enclosure
- Rolled steel shell frame / cast aluminum or cast-iron end bells
- Large easy-to-wire junction box with rubber gasket
- No mounting orientation restrictions
- Heavy duty oversized ball bearings
- High tensile strength steel shaft
- Electrically reversible
- Inverter capable (3-phase only)
- NEMA design B
- Class F winding insulation
- Service Factor: 1.15 across-the-line (1.0 for 3-phase with AC drive)
- Two year warranty
- CURUS certified, CE

Accessories Available

- Junction boxes (replacement/spare)
- C-face kits
- Drive end endbell
- Opposite drive end endbell
- Current diverter rings (CDRs)

Applications

- Conveyors
- Fans
- Gear reducers
- Pumps

MTR2 & MTRP Series Rolled-Steel AC Motors – 3-Phase

56C/56HC-Frame TEFC Motors – 3-phase – 0.33 to 3 hp

Features

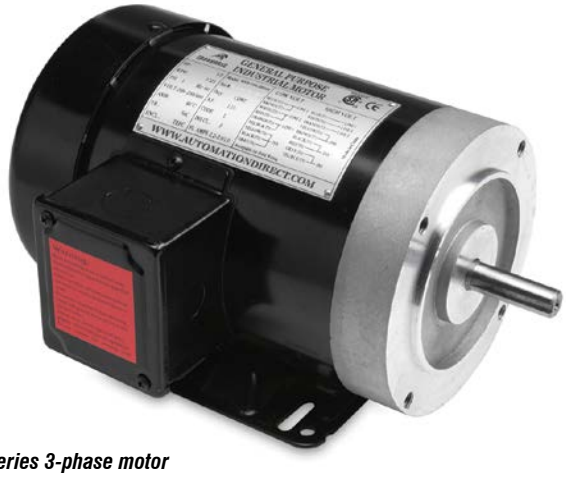
- Totally Enclosed Fan Cooled (TEFC) enclosure
- NEMA 56C or 56HC flange mount (56HC are suitable for 56, 143T, or 145T frame mounting dimensions)
- Rolled steel shell frame / cast aluminum end bell
- No mounting orientation restrictions
- Removable base / bolt-on/bolt-off mounting feet
- Steel fan cover
- Large easy-to-wire junction box with rubber gasket
- Heavy duty oversized ball bearings
- High tensile strength steel shaft
- Electrically reversible
- Inverter capable (3-phase only)
- NEMA design B
- Class F winding insulation
- Service Factor: 1.15 across-the-line (1.0 for 3-phase with AC drive)
- Two year warranty
- CCSAUS certified, CE

Accessories Available

- Junction boxes (replacement/spare)
- Fans (replacement/spare)
- Fan shrouds (replacement/spare)
- Motor bases (replacement/spare)
- Motor bases (replacement/spare)
- Adjustable mounting slide bases

Applications

- Conveyors
- Fans
- Gear reducers
- Pumps



MTR Series 3-phase motor

MTRP Series 3-phase motor

MTR2 Series 3-phase motor

MTR2 & MTRP Series Rolled-Steel AC Motors – 3-Phase

56C/56HC-Frame TEFC Motors – 3-phase – 0.33 to 3 hp

Motor Specifications – 3-phase MTR2 & MTRP Series Motors – 1800 & 3600 RPM										
Part Number	*Price*	*HP*	*Base RPM*	*Phase*	*Voltage*	*Housing*	*NEMA Frame*	*Service Factor*	*F.L. Amps @ 230V/460V*	*Approx Weight (lb)*
MTR2-P33-3BD18	$229.00	1/3	1800	3	230/460	TEFC rolled steel frame with cast aluminum end bell F1 conduit box location	56C flange mount (MTRP = 56HC)*	1.15	1.4 / 0.7	18
MTR2-P33-3BD36	$204.00		3600						1.3 / 0.65	18
MTR2-P50-3BD18	$244.00	1/2	1800						1.9 / 0.95	19
MTR2-P50-3BD36	$215.00		3600						1.7 / 0.85	19
MTR2-P75-3BD18	$264.00	3/4	1800						2.6 / 1.3	22
MTR2-P75-3BD36	$226.00		3600						2.4 / 1.2	21
MTRP-001-3BD18	$329.00	1	1800						3.2 / 1.6	35
MTRP-001-3BD36	$272.00		3600						3.0 / 1.50	23
MTRP-1P5-3BD18	$362.00	1-1/2	1800						4.5 / 2.25	43
MTRP-1P5-3BD36	$307.00		3600						4.0 / 2.0	31
MTRP-002-3BD18	$426.00	2	1800						6.0 / 3.0	49
MTRP-002-3BD36	$328.00		3600						5.2 / 2.6	33
MTRP-003-3BD36	$428.00	3	3600						7.4 / 3.7	39

Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.
IronHorse Motors with product numbers ending in P are Premium Efficiency motors and meet or exceed all current efficiency guidelines.
***56HC motors are capable of 56C C-face mounting, and are also compatible with 56, 143T, and 145T foot mounting dimensions.**

MTCP2 Premium-Efficiency Cast-Iron 3-phase AC Motors

T-Frame TEFC Motors – 3-phase Industrial Duty – 1 to 300 hp

TC-Frame (C-Face) TEFC Motors – 3-phase Industrial Duty – 1 to 30 hp

Premium Efficiency
3-phase Cast-iron T-Frame

Premium Efficiency
3-phase Cast-iron TC-Frame

Features

- Available in 1200, 1800, & 3600 rpm
- Totally Enclosed Fan Cooled (TEFC) enclosure
- NEMA TC-frame (C-face) and T-frame motors
- Horizontal or Vertical shaft down orientation
- Cast-iron frame with ribbed design for maximum cooling
- Solid full frame length cast-iron mounting feet
- Steel fan cover
- Cast-iron junction box with rubber gasket and rubber dust cover
- NSK/NTN/SKF brand premium quality ball (1-75 hp) or roller bearings (100-300 hp)
- Maintenance free bearings (10 hp and below)
- V-ring shaft seals on drive end and on opposite drive end
- Electrically reversible
- Class F winding insulation
- Service Factor: 1.25 (1-200 hp), 1.15 (250-300 hp), 1.0 with AC drive (ALL)
- Meets or exceeds Premium Efficiency standards
- Class I, Div 2 hazardous locations
- Inverter ratings: 20:1 (variable torque); 10:1 (constant torque)
- Two year warranty
- $_{c}CSA_{us}$ certified, ISO9001, CE

Accessories & Spare Parts Available

- STABLE motor slide bases for adjustable mounting
- C-flange kits (for converting T-frame motors to TC-frame)
- Replacement junction boxes
- Replacement fans
- Replacement fan shrouds

Applications

- Fans
- Conveyors
- Pumps
- Material Handling
- Metal Processing
- Textile Processing
- Test Stands

IRONHORSE®

MTCP2 Premium-Efficiency Cast-Iron 3-phase AC Motors

T-Frame TEFC Motors – 3-Phase Industrial Duty – 1–300 hp – 1800 rpm

TC-Frame (C-Face) TEFC Motors – 3-Phase Industrial Duty – 1–30 hp – 1800 rpm

Motor Specifications – Premium-Efficiency MTCP2 Series 3-phase Motors – 1800 rpm													
Part Number (1)	Price	HP (2)	Base RPM @60Hz (50Hz)	Phase	Voltage	Housing	NEMA Frame	Mounting (3)	Holes / Foot	Service Factor(6) (@50Hz)	F.L. Amps @208-230V/460V	Approx Product Weight (lb) (4)	Drawing Links
MTCP2-001-3BD18	$279.00	1	1800 (1500)	3	208-230/460V	TEFC cast-iron	143T	F1(F2)	2	1.25 (1.0)	3.61-3.27 / 1.63	41	PDF
MTCP2-001-3BD18C	$291.00						143TC						PDF
MTCP2-1P5-3BD18	$352.00	1.5					145T		4		4.92-4.45 / 2.22	56	PDF
MTCP2-1P5-3BD18C	$362.00						145TC						PDF
MTCP2-002-3BD18	$381.00	2					145T		4		6.56-5.93 / 2.97	58.5	PDF
MTCP2-002-3BD18C	$393.00						145TC						PDF
MTCP2-003-3BD18	$660.00	3					182T		2		9.01-8.16 / 4.08	86	PDF
MTCP2-003-3BD18C	$679.00						182TC						PDF
MTCP2-005-3BD18	$684.00	5					184T	F1	4		13.9-12.6 / 6.3	104	PDF
MTCP2-005-3BD18C	$705.00						184TC						PDF
MTCP2-7P5-3BD18	$1,062.00	7.5					213T	F1(F2)	2		20.4-18.5 / 9.23	172	PDF
MTCP2-7P5-3BD18C	$1,093.00						213TC						PDF
MTCP2-010-3BD18	$1,173.00	10					215T		4		26.9-24.3 / 12.2	193	PDF
MTCP2-010-3BD18C	$1,207.00						215TC						PDF
MTCP2-015-3BD18	$1,616.00	15					254T		2		40.0-36.2 / 18.1	265	PDF
MTCP2-015-3BD18C	$1,665.00						254TC						PDF
MTCP2-020-3BD18	$1,885.00	20					256T		4		52.4-47.4 / 23.7	304	PDF
MTCP2-020-3BD18C	$1,941.00						256TC						PDF
MTCP2-025-3BD18	$2,604.00	25					284T		2		65.1-58.8 / 29.4	385	PDF
MTCP2-025-3BD18C	$2,781.00						284TC						PDF
MTCP2-030-3BD18	$2,758.00	30					286T		4		78.1-70.6 / 35.3	430	PDF
MTCP2-030-3BD18C	$2,943.00						286TC						PDF
MTCP2-040-3BD18	$3,394.00	40					324T		2		104-93.7 / 46.8	531	PDF
MTCP2-050-3BD18	$3,843.00	50					326T		4		127-115 / 57.6	578	PDF
MTCP2-060-3BD18	$5,105.00	60					364T	F1	2		158-142 / 71.2	769	PDF
MTCP2-075-3BD18	$5,517.00	75					365T		4		196-177 / 88.7	858	PDF
MTCP2-100-3BD18	$6,969.00	100					405T		4		252-228 / 114	1131	PDF
MTCP2-125-3BD18	$8,504.00	125					444T	F1(F2)	2		323-292 / 146	1429	PDF
MTCP2-150-3BD18	$10,124.00	150					445T		4		386-349 / 175	1625	PDF
MTCP2-200-3BD18	$11,581.00	200					445/7T		4		506-458 / 229	2033	PDF
MTCP2-250-3D18	$16,962.00	250			460V		449T	F1	2	1.15	2805	2508	PDF
MTCP2-300-3D18	$22,007.00	300					449T		2		3365	2728	PDF

1) Please review the AutomationDirect Terms & Conditions for warranty and service on this product.
2) For warranty on motors 50 hp and above, motors must be inspected by an EASA motor repair or service center.
3) F1(F2) indicates F1 conduit box mounting location, field convertible to F2 (as shown on dimensional diagram).
4) Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.
5) F.L. Amps @ 460V only.
6) The service factor changes from 1.25 to 1.0 under the following conditions:
- When running the motor at 208VAC @ 60Hz
- When running the motor at 200/400VAC @ 50Hz
- When used with a VFD

MTCP2 Premium-Efficiency Cast-Iron 3-phase AC Motors

T-Frame TEFC Motors – 3-phase Industrial Duty – 1–20 hp – 1200 & 3600 rpm

Motor Specifications – Premium-Efficiency MTCP2 Series 3-phase Motors – 1200 rpm

Part Number (1)	Price	HP	Base RPM @60Hz (50Hz)	Phase	Voltage	Housing	NEMA Frame	Mounting (2)	Holes / Foot	Service Factor(4) (@50Hz)	F.L. Amps @208-230V/460V	Approx Product Weight (lb) (3)	Drawing Links
MTCP2-001-3BD12	$364.00	1	1200 (1000)	3	208-230/460V	TEFC cast-iron	145T	F1(F2)	4	1.25 (1.0)	3.86-3.49 / 1.75	53	PDF
MTCP2-1P5-3BD12	$579.00	1.5					182T		2		5.22-4.72 / 2.36	91.5	PDF
MTCP2-002-3BD12	$624.00	2					184T		4		6.59-5.96 / 2.98	100	PDF
MTCP2-003-3BD12	$800.00	3					213T		2		9.92-8.97 / 4.48	166	PDF
MTCP2-005-3BD12	$910.00	5					215T		4		16.1-14.5 / 7.27	179	PDF
MTCP2-7P5-3BD12	$1,471.00	7.5					254T		2		20.8-18.8 / 9.41	247	PDF
MTCP2-010-3BD12	$1,615.00	10					256T		4		27.8-25.1 / 12.5	258	PDF
MTCP2-015-3BD12	$2,050.00	15					284T		2		42.9-38.8 / 19.4	366	PDF
MTCP2-020-3BD12	$2,258.00	20					286T		4		56.5-51.1 / 25.5	419	PDF

1) Please review the AutomationDirect Terms & Conditions for warranty and service on this product.
2) F1(F2) indicates F1 conduit box mounting location, field convertible to F2 (as shown on dimensional diagram).
3) Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.
4) The service factor changes from 1.25 to 1.0 under the following conditions:
- When running the motor at 208VAC @ 60Hz
- When running the motor at 200/400VAC @ 50Hz
- When used with a VFD

Motor Specifications – Premium-Efficiency MTCP2 Series 3-phase Motors – 3600 rpm

Part Number (1)	Price	HP	Base RPM @60Hz (50Hz)	Phase	Voltage	Housing	NEMA Frame	Mounting (2)	Holes / Foot	Service Factor(4) (@50Hz)	F.L. Amps @208-230V/460V	Approx Product Weight (lb) (3)	Drawing Links
MTCP2-1P5-3BD36	$313.00	1.5	3600 (3000)	3	208-230/460V	TEFC cast-iron	143T	F1(F2)	2	1.25 (1.0)	4.62-4.18 / 2.09	45.2	PDF
MTCP2-002-3BD36	$335.00	2					145T		4		6.05-5.48 / 2.74	50.7	PDF
MTCP2-003-3BD36	$471.00	3					182T	F1	2		6.45-7.64 / 3.82	80.5	PDF
MTCP2-005-3BD36	$543.00	5					184T		4		13.3-12.0 / 6.01	96	PDF
MTCP2-7P5-3BD36	$856.00	7.5					213T	F1(F2)	2		20.9-18.9 / 9.45	160	PDF
MTCP2-010-3BD36	$847.00	10					215T		4		27.0-24.4 / 12.2	180	PDF
MTCP2-015-3BD36	$1,597.00	15					254T		2		38.8-35.1 / 17.5	261	PDF
MTCP2-020-3BD36	$1,754.00	20					256T		4		51.1-46.2 / 23.1	297	PDF

1) Please review the AutomationDirect Terms & Conditions for warranty and service on this product.
2) F1(F2) indicates F1 conduit box mounting location, field convertible to F2 (as shown on dimensional diagram).
3) Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.
4) The service factor changes from 1.25 to 1.0 under the following conditions:
- When running the motor at 208VAC @ 60Hz
- When running the motor at 200/400VAC @ 50Hz
- When used with a VFD

LEESON®

Jet Pump (Centrifugal), 1-phase Totally Enclosed Motors

C-Face Footless, 56J

Features

- Service Factor is 1.0 or 1.5, depending on model
- Double-sealed ball bearings, mechanically locked on shaft end
- Capacitor start/capacitor run design for higher efficiency, as noted
- Automatic reset thermal protector
- 416 stainless steel threaded shaft with slinger (NEMA 56 frame)
- Drip cover not included
- UL Recognized and CSA Certified

Applications

- Typical uses include: jet pumps and jet pump motor replacements.

Motor Shipping Schedule *		
*Same or one day *	*Up to 7 days*	*Up to 10 days*

Color indicates shipping lead time in business days. Check stock status online.
* Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.

Motor Specifications – Jet Pump (Centrifugal) 1-phase Totally Enclosed Motors

*Part Number**	*Price*	*HP*	*Base RPM*	*Volts*	*Encl.*	*NEMA Design*	*NEMA Frame*	*Model No.*	*Weight (lb)**	*Footnotes*	*Drawing Links*
C1336	$403.00	1/3	3600	115/230	TEFC	N/A**	56J	5KC33FN4180X	13.5	None	PDF

* Refer to the Motor Shipping Schedule table for shipping information.
Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.
** Data not available from manufacturer.
Footnotes: 1 = Capacitor Start/Capacitor Run design for reduced amperage
15 = Fixed CW Rotation, viewing opposite shaft (or lead end) of motor
ES = Energy Saver Design
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

Performance Data 1-phase 56J Frame Motors (230V/60Hz except as indicated) Jet Pump (Centrifugal) Totally Enclosed Motors

Part Number	*HP*	*F.L. RPM*	*Current @ 115V/230V (Amps)*			*Torque (lb·ft)*			*F.L. Effic. %*	*F.L. Power Factor*	*Rotor Inertia (lb·ft2)*
			No Load 230V	*Full Load 115/230V*	*Locked Rotor*	*Full Load*	*Locked Rotor*	*Break-down*			
C1336	1/3	3450	2.3	5.6 / 2.8	14	0.51	1.33	1.51	N/A**	N/A**	0.012

* Maximum Constant HP RPM is for direct-coupled loads.
** Data not available from manufacturer

LEESON®

General Purpose, 1-phase (NEMA Service Factor) Drip-proof Motors

Rigid Base

C-Face Footed (Rigid Base)

Motor Shipping Schedule *		
*Same or one day **	*Up to 7 days*	*Up to 10 days*

Color indicates shipping lead time in business days. Check stock status online.
*** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**

Rigid Base Features

- Heavy gauge steel frame and base
- Ball bearings (except as noted)
- Economical capacitor start designs
- Service factor, as noted
- UL recognized and CSA certified

C-Face Footed (Rigid Base) Features

- Ball bearings, mechanically locked on shaft end
- NEMA service factors
- Heavy gauge steel frame and base
- Capacitor start, capacitor run design for higher efficiency
- UL recognized and CSA certified

Applications

- Typical uses include machine tools, conveyors, packaging machines, batching machines, food and beverage equipment, pumps, and fans

Motor Specifications – General Purpose, 1-phase (NEMA Service Factor), Rigid Base, Drip-proof Motors

*Part Number**	*Price*	*HP*	*Base RPM*	*Volts*	*Service Factor*	*Encl.*	*NEMA Design*	*NEMA Frame*	*Model No.*	*Weight (lb)**	*Notes*	*Drawing Links*
Rigid Base												
4354	$185.00	1/4	1800	115	1.35	DP	N/A**	48	5KH39QN9538	13	–	PDF
4362	$190.00		1800	115			N/A**	48	5KH39QN9686X	13	Auto Overload	PDF
C147A	$304.00		1800	115 / 230			N	48	048B17D11005	17		PDF
C167A	$401.00	1/2	1800	115 / 230	1.25		N	56	056B17D11018	23	Suitable for 208VAC @ 60Hz	PDF
G915A	$331.00	3/4	3600	115 / 230			N	56	056B34D11019	25		PDF
C188A	$437.00	1	1800	115 / 208-230	1.15		B	143T	143C17DRR40001A1	31	–	PDF
C187A	$688.00	2	3600	115 / 230			N/A**	56	056B34D11011	38	Suitable for 208VAC @ 60Hz	PDF
I127	$626.00	2	1800	115 / 208-230			L	145T	145TBDR5337	48	Manual Overload	PDF
C-Face Footed (Rigid Base)												
E261A	$395.00	1/2	1800	100 - 120 / 200 - 240	1.25	DP	N/A**	56C	056B17D11029	25	Auto Overload	PDF
E268A	$573.00	3/4		100 - 120 / 200 - 240			N		056B17DRR70008A1	35	Manual Overload	PDF

*** Refer to the Motor Shipping Schedule table for shipping information.**
Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.
**** Data not available from manufacturer.**
***** Base of 56HZ frame motors has holes and slots to match NEMA 56, 56H, 143T, and 145T mounting dimensions.**
Note: Please review the AutomationDirect Terms & Conditions for warranty and service for this product.

General Purpose, 1-phase, Totally Enclosed, 4-in-1® Motors

C-Face Footed (Removable Base)

Features

- Double-sealed ball bearings, mechanically locked on shaft ends
- Heavy gauge steel construction
- Bolt-on, removable rigid base
- Suitable for horizontal or vertical mounting
- Capacitor start/capacitor run design for higher efficiency
- 1.15 Service Factor (except as noted)
- Will accept brake kits (available from Regal Rexnord)
- Will accept drip cover kits (available from Regal Rexnord)
- UL recognized and CSA certified

Applications

- Typical uses include machine tools, conveyors, packaging machines, batching machines, food and beverage equipment, pumps, and fans.

Motor Shipping Schedule *		
*Same or one day **	*Up to 7 days*	*Up to 10 days*

Color indicates shipping lead time in business days. Check stock status online.
*** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**

Motor Specifications – General Purpose, 1-phase, Totally Enclosed, 4-in-1 Motors

*Part Number**	*Price*	*HP*	*Base RPM*	*Volts*	*Service Factor*	*Encl.*	*NEMA Design*	*NEMA Frame*	*Model No.*	*Weight (lb)**	*Drawing Links*
G570	$351.00	1/3	1800	115 / 208-230 // 110 / 220	1.15	TEFC	N	56C	056C17F5320	17	PDF
D311	$285.00	1/2	3600	115 / 208-203					056C34F5301	22	PDF
G571	$402.00		1800						056C17F5321	24	PDF
D312	$349.00	3/4	3600	115 / 208-230					056C34F5302	27	PDF
G572	$476.00		1800	115 / 208-230 // 110 / 220					056C17F5322	30	PDF
D313	$420.00	1	3600	115 / 208-230					056C34F5303	30	PDF
G573	$498.00		1800	115 / 208-230 // 110 / 220				56HC	056C17F5323	31	PDF
D314	$506.00	1-1/2	3600	115 / 208-230				56C	056B34F5326	32	PDF
G574	$572.00		1800	115 / 208-230 // 110 / 220				56HC	056B17F5305	40	PDF
D315	$614.00	2	3600	115 / 208-230					056B34F5327	37	PDF
G575	$735.00		1800	115 / 208-230 // 110 / 220	1.0				056B17F5306	51	PDF

*** Refer to the Motor Shipping Schedule table for shipping information.**
Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

LEESON®

Air Compressor, 1-phase, Drip-proof Motors

Rigid Base

Features

- Capacitor start/capacitor run design for low amps and high efficiency
- High starting and breakdown torque
- Heavy gauge steel frame and base
- Continuous duty at nameplate ratings
- Thermal protection, as noted
- UL recognized and CSA certified

Applications

- Typical uses include machine tools, conveyors, packaging machines, batching machines, food and beverage equipment, pumps, and fans

Motor Shipping Schedule *		
*Same or one day *	*Up to 7 days*	*Up to 10 days*

Color indicates shipping lead time in business days. Check stock status online.
*** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**

Motor Specifications – Air Compressor, 1-phase, Drip-proof Motors

*Part Number**	*Price*	*HP*	*Base RPM*	*Volts*	*Service Factor*	*Encl.*	*NEMA Design*	*NEMA Frame*	*Model No.*	*Weight (lb)**	*Notes*	*Drawing Links*
D010	$404.00	1	3600	115 / 208-230	1.15	DP	E	56	056B34D2029	23	Manual Overload	PDF

*** Refer to the Motor Shipping Schedule table for shipping information.**
Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.
**** Data not available from manufacturer.**
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

Performance Data - Air Compressor, 1-phase, Drip-proof Motors

Part Number	*HP*	*F.L. RPM*	*Current @ 115V/230V (Amps)*			*Torque (oz·ft)*			*F.L. Effic. %*	*F.L. Power Factor*	*Rotor Inertia (lb·ft2)*
			No Load 230V	*Full Load 115/230V*	*Locked Rotor*	*Full Load*	*Locked Rotor*	*Break-down*			
D010	1	3450	3.2	10.6 / 5.3	74.6 / 37.3	23.9	56	65.7	72	N/A*	N/A*

***Data not available from manufacturer.**

LEESON®

Fan & Blower - Capacitor Start, Drip-proof Motors

Resilient Base

Features

- Ball bearings
- Heavy gauge steel frame and base
- Service factor, as noted
- Capacitor start/capacitor run
- Thermal protection, as noted
- UL recognized and CSA certified

Applications

- Typical uses include machine tools, conveyors, packaging machines, batching machines, food and beverage equipment, pumps, and fans.

Motor Shipping Schedule *		
*Same or one day ****	*Up to 7 days*	*Up to 10 days*

Color indicates shipping lead time in business days. Check stock status online.
*** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**

Motor Specifications – Fan & Blower - Capacitor Start, One- and Two-Speed, Dripproof Motors

*Part Number**	*Price*	*HP*	*Base RPM*	*Volts*	*Service Factor*	*Encl.*	*NEMA Design*	*NEMA Frame*	*Model No.*	*Weight (lb)***	*Notes*	*Drawing Links*
G1115	$231.00	1/4	1800	115 / 230	1.35	DP	N	48	5KC35JN7JX	16	Auto Overload	PDF
C216	$262.00	1/3	1800	115 / 208-230	1.35	DP	N/A***	56	5KC36LN1X	18	Auto Overload	PDF
C1152	$232.00	1/2	3600	115 / 208-230	1.25	DP	N/A***	48	5KC39ON3220X	19	Auto Overload	PDF
C1153	$370.00	1/2	1800	115 / 208-230	1.25	DP	N/A***	56	5KC49GN0022X	21	Auto Overload	PDF
C1155	$283.00	3/4	3600	115 / 208-230	1.25	DP	N/A***	56	5KC38NN410X	17	Auto Overload	PDF
B319	$389.00	3/4	1800	115 / 208-230	1.25	DP	N	56	056C17D2074	23	Auto Overload	PDF
D118	$359.00	1	3600	115 / 208-230	1.15	DP	N	56	056C34D2106	25	Auto Overload	PDF
C1158	$491.00	1	1800	115 / 208-230	1.15	DP	N/A***	56	5KC49PN0164X	29	Auto Overload	PDF
C235	$413.00	1	1800	115 / 208-230	1.15	DP	N/A***	56	5KC49PN0155	31	No Overload	PDF
D115	$487.00	1-1/2	3600	115 / 208-230	1.15	DP	N	56	056B34D2027	28	Auto Overload	PDF
C1160	$515.00	1-1/2	1800	115 / 208-230	1.15	DP	N	56H	5KCR49SN0150X	35	Auto Overload	PDF
C1161	$557.00	2	3600	115 / 208-230	1.2	DP	N	56H	5KCR49RN2148T	33	Auto Overload	PDF
B352	$665.00	2	1800	115 / 208-230	1.15	DP	N	56H	056B17D5331	50	Auto Overload	PDF

*** Refer to the Motor Shipping Schedule table for shipping information.**
**** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**
***** Data not available from manufacturer.**
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

Jet Pump (Centrifugal), 3-Phase Totally Enclosed Motors

C-Face Footed (Removable Base) 56J

Features

- Service Factor is 1.15
- Double-sealed ball bearings, mechanically locked on shaft end
- Continuous Duty
- Nameplate 60/50 Hz, 190/380 volts at next lower HP, as noted
- 56J = 416 stainless steel threaded shaft with slinger
- UL Recognized, CSA Certified and CE Mark
- Drip cover kit included
- IP43 Rating

Applications

- Replaces 90 volt and 180 volt PMDC motors (when used with AC variable frequency drives)
- Typical uses include: jet pumps and jet pump motor replacements, well pumps, and liquid pumping applications.

Motor Shipping Schedule *		
*Same or one day **	*Up to 7 days*	*Up to 10 days*

Color indicates shipping lead time in business days. Check stock status online.
*** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**

Motor Specifications – Jet Pump (Centrifugal) 3-Phase Totally Enclosed Motors

Part Number*	Price	HP	Base RPM	Volts	Encl.	NEMA Design	NEMA Frame	Model No.	F.L. Amps	Weight (lb)*	Footnotes	Drawing Links
J063A	$503.00	1	3600	230 / 460 - 190 / 380	TEFC	B	56J	56T34F99029 A	3 / 0 /1.5 - 2.6 / 1.3	25	68 Nameplate footnote: Suitable for 208V at 60Hz	PDF
J064A	$622.00	1-1/2		208-230 / 460 - 190 / 380				56T34F99018 A	4.2 - 4.0 / 2.0 - 3.4 / 1.7	26	68	PDF
J065A	$704.00	2		230 / 460 - 190 / 380				56T34F15592 A	5.0 / 2.5 - 4.6 / 2.3	30	68 Nameplate footnote: Suitable for 208V at 60Hz	PDF

*** Refer to the Motor Shipping Schedule table for shipping information.**
Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.
Footnotes: 68 = Rated 60/50 hertz, 190/380 or 380 volt at next lower horsepower
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

Performance Data – Jet Pump (Centrifugal) 3-Phase Totally Enclosed Motors

Part Number	HP	F.L. RPM	Min. RPM	F.L. AMPS @460V	N.L. AMPS @460V	F.L. Torque (lb·ft)	B.D. Torque (lb·ft)	Max. CHP RPM*	Max. Safe RPM	F.L. Effic.	F.L. Power Factor	Rotor Inertia (lb·ft2)
J063A	1	3450	345	1.5	0.75	1.5	4.8	2700	4000	78.5	79.1	0.023
J064A	1-1/2			2.0	0.9	2.2	9.6			84	83.5	0.045
J065A	2			2.5	1	3.0	12.2			85.5	86	0.065

*** Maximum Constant HP RPM is for direct-coupled loads.**

LEESON®

AC Inverter-Duty Motors

1000:1 Constant Torque (TENV), 20:1 Constant Torque (TEFC)

Features

- Constant torque operation from 0 to base speed (TENV ratings)
- Constant torque operation from 1/20 speed to base speed (TEFC ratings)
- Constant horsepower to twice base speed (RPM)
- Class H insulation with CR200 (corona-resistant) magnet wire
- Continuous duty at 40°C ambient
- C-Face with rigid base, except C-Face with removable rigid base as noted
- Service Factor: 1.0
- Utilizes double shielded ball bearings
- Exxon Polyrex® EM bearing grease
- Eliminates brush and commutator maintenance
- Electrically reversible
- UL Recognized, CSA Certified, and CE Mark
- Three year warranty

Applications

- Replaces 90 volt and 180 volt PMDC motors (when used with AC variable frequency drives)
- Typical uses include: machine tools, conveyors, packaging machines, batching machines, printing equipment, pumps and fans.

Motor Shipping Schedule *		
Same or one day *	Up to 7 days	Up to 10 days

Color indicates shipping lead time in business days. Check stock status online.
*** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**

Motor Specifications

Part Number *	Price	HP	Base RPM	Volts	Encl.	NEMA Frame	Model No.	F.L. Amps	Weight (lb) *	Footnotes	Drawing Links
Y500	$316.00	1/4	1800	230	TENV	56C	56H17T2011	1.0	17	Q	PDF
Y502	$339.00	1/3					56H17T2013A	1.2	17	Q	PDF
Y360	$400.00	1/2		230/460			56H17T2017	1.8 / 0.9	25	–	PDF
Y362	$493.00	3/4			TEFC		56H17F2017A	2.8 / 1.4	25	–	PDF
Y364	$555.00	1					56H17F2021	3.2 / 1.6	28	–	PDF
Y366	$690.00	1-1/2			TENV	145TC	145THTR5329AA	4.8 / 2.4	45	6	PDF
Y368	$915.00	2			TEFC		145THFR5329	5.8 / 2.9	45	6	PDF

*** Refer to the Motor Shipping Schedule table for shipping information.**
Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.
† Detailed information on the previous versions of these motors (Y999 & Y372) can be found at www.AutomationDirect.com/Retired-Products.
Footnotes: Q = "Quick Connect" terminal board (1/4-in female spade lug) 6 = Bolt-on, removable base for footless mounting option
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

Performance Data (460 Volt except as indicated)

Part Number	HP	NEMA Design	F.L. RPM	Min. RPM	F.L. AMPS @460V	N.L. AMPS @460V	F.L. Torque (lb·ft)	B.D. Torque (lb·ft)	Max. CHP RPM*	Max. Safe RPM	F.L. Effic.	F.L. Power Factor	Rotor Inertia (lb·ft2)
Y500	1/4 (230V)	B	1725	1.8	1.0 (230V)	0.7 (230V)	0.75	3.7	3520	5400	72.0	65.0	0.040
Y502	1/3 (230V)	A	1725	0	1.2 (230V)	0.9 (230V)	1.0	4.5	3450	5400	74.0	67.0	0.045
Y360	1/2	B	1725	1.8	0.9	0.5	1.5	6.8	3520	5400	80.0	72.0	0.075
Y362	3/4	A	1725	90	1.4	1.0	2.3	9.5	3520	4000	75.5	70.5	0.055
Y364	1	B	1725	90	1.6	0.9	3.0	12.0	3520	4000	78.5	77.5	0.090
Y366	1-1/2	A	1755	0	2.4	1.6	4.5	29.0	3500	5400	85.5	69.0	0.140
Y368	2	B	1740	90	2.9	1.6	6.0	29.0	3530	4000	82.5	77.0	0.140

*** Maximum Constant HP RPM is for direct-coupled loads.**

marathon® Motors

microMAX™ AC Inverter-Duty Motors

1000:1 Constant Torque (TENV), 20:1 Constant Torque (TEFC)

Features

- Constant torque operation from 0 to base speed (TENV ratings)
- Constant torque operation from 1/20 speed to base speed (TEFC ratings)
- Constant horsepower to twice base speed (RPM)
- Class H insulation with CR200 (corona-resistant) magnet wire
- Continuous duty at 40°C ambient
- C-Face with rigid base, except C-Face with removable rigid base as noted
- Service Factor: 1.0
- Utilizes double shielded ball bearings
- Exxon Polyrex® EM bearing grease
- Eliminates brush and commutator maintenance
- Electrically reversible
- UL Recognized, CSA Certified, and CE Mark
- Three year warranty (through Marathon Electric)

Applications

- Replaces 90 volt and 180 volt PMDC motors (when used with AC variable frequency drives)
- Typical uses include: machine tools, conveyors, packaging machines, batching machines, printing equipment, pumps and fans.

Motor Shipping Schedule *		
Same or one day *	Up to 7 days	Up to 10 days

Color indicates shipping lead time in business days. Check stock status online.

* Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.

Motor Specifications – microMAX

Part Number *	Price	HP	Base RPM	Volts	Encl.	NEMA Frame	Model No.	F.L. Amps	Weight (lb) *	Footnotes	Drawing Links
Y1999 †	$1,105.00	3	1800	230/460	TEFC	182TC	182THFW7729AA	8.4 / 4.2	64	6	PDF
Y1372 †	$1,257.00	5				184TC	184THFW7726AA	13.0 / 6.5	92	6	PDF
Y994	$1,606.00	7-1/2				213TC	213THFW7726	21.4 / 10.7	125	6	PDF
Y996	$2,019.00	10				215TC	215THFW7726	27.6 / 13.8	135	6	PDF

* Refer to the Motor Shipping Schedule table for shipping information. Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.

† Detailed information on the previous versions of these motors (Y999 & Y372) can be found at www.AutomationDirect.com/Retired-Products.

Footnotes: Q = "Quick Connect" terminal board (1/4-in female spade lug) 6 = Bolt-on, removable base for footless mounting option

Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product. Warranty service can be arranged through numerous Marathon Electric service centers. See list of service centers on our Web site at www.automationdirect.com.

Performance Data (460 Volt except as indicated) – microMAX

Part Number	HP	NEMA Design	F.L. RPM	Min. RPM	F.L. AMPS @460V	N.L. AMPS @460V	F.L. Torque (lb·ft)	B.D. Torque (lb·ft)	Max. CHP RPM*	Max. Safe RPM	F.L. Effic.	F.L. Power Factor	Rotor Inertia (lb·ft2)
Y1999	3	A	1765	90	4.2	2.2	8.9	33.8	3530	4000	87.5	76.4	0.38
Y1372	5		1760	90	6.5	2.8	15	48.6	3520	4000	87.5	81.6	0.357
Y994	7-1/2		1770	90	10.7	6.2	22.3	80.0	3565	4000	89.5	72.5	0.75
Y996	10	B	1770	90	13.8	7.8	30.0	110	3570	4000	91.0	74.0	1.00

* Maximum Constant HP RPM is for direct-coupled loads.

LEESON®

AC Inverter-Duty Motors with Encoder

1000:1 Constant Torque (TENV)

Features

- Integrated Dynapar HS20 1024 ppr encoder
- Optimized for operation with IGBT inverter
- Constant Torque operation from 0 to base speed on Vector Drive
- Constant Horsepower operation up to twice base RPM
- Class F insulation with CR200 corona resistant magnet wire
- Continuous duty at 40°C ambient
- C-Face with rigid base, except C-Face with removable rigid base as noted
- Service Factor: 1.0
- Ball bearings
- F1 mounting (except as noted)
- UL Recognized, CSA Certified, and CE Mark
- Three year warranty

Applications

- Replaces 90 volt and 180 volt PMDC motors (when used with AC variable frequency drives)
- Typical uses include: machine tools, conveyors, packaging machines, batching machines, printing equipment, pumps and fans.

Motor Shipping Schedule *		
*Same or one day **	*Up to 7 days*	*Up to 10 days*

Color indicates shipping lead time in business days. Check stock status online.
*** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**

Prices & Specifications

Motor Specifications

*Part Number **	*Price*	*HP*	*Base RPM*	*Volts*	*Encl.*	*NEMA Frame*	*Model No.*	*F.L. Amps*	*Weight (lb) **	*Footnotes*	*Drawing Links*
Y280	$1,230.00	1/2	1800	230/460	TENV	56C	56H17T15526A	1.6 / 0.8	25	6	PDF
Y281	$1,287.00	3/4					56H17T15528A	2.4 / 1.2	35	6	PDF
Y282	$1,362.00	1					56H17T15527A	3.0 / 1.5	42	6	PDF
Y284	$1,622.00	1-1/2				145TC	145THTR15540AA	4.8 / 2.4	45	6	PDF
Y285	$2,176.00	2					145THTN17034AA	6.0 / 3.0	68	13b	PDF

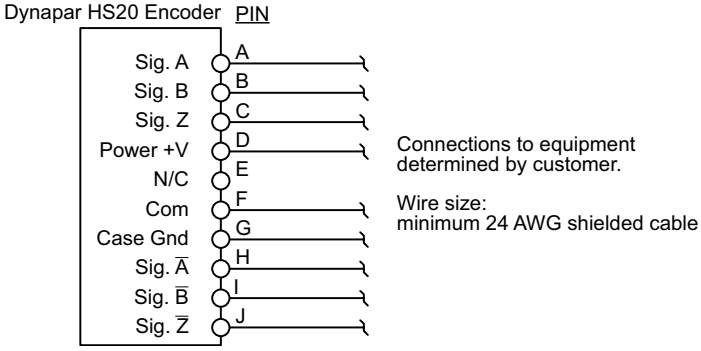
*** Refer to the Motor Shipping Schedule table for shipping information.**
Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.
Footnotes: 6 = Bolt-on, removable base for footless mounting option 13b = Field reversible from F1 to F2 mounting
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

Motors Shaft-Mounted Encoder*

A Dynapar Model HS20 shaft-mounted encoder is supplied with the motor. The 5/8-in hollow-shaft encoder requires a 5–26 VDC power source, provides a count of 1024 pulses per revolution (PPR), differential line driver output, and includes 10 screw-terminal wiring connections.

** The encoder cable gland accepts cable diameters from 0.187–0.30 in.*
** There is no manufacturer's published tightening torque for the encoder screw terminals.*
** If connecting the motor to a GS3 DURApulse AC drive, a GS3-FB Feedback Card is required for the drive.*

Encoder Wiring Connections



Connections to equipment determined by customer.

Wire size:
minimum 24 AWG shielded cable

marathon® Motors

microMAX™ AC Inverter-Duty Motors with Encoder

1000:1 Constant Torque (TENV)

Features

- Integrated Dynapar HS20 1024 ppr encoder
- Optimized for operation with IGBT inverter
- Constant Torque operation from 0 to base speed on Vector Drive
- Constant Horsepower operation up to twice base RPM
- Class F insulation with CR200 corona resistant magnet wire
- Continuous duty at 40°C ambient
- C-Face with rigid base, except C-Face with removable rigid base as noted
- Service Factor: 1.0
- Ball bearings
- F1 mounting (except as noted)
- UL Recognized, CSA Certified, and CE Mark
- Three year warranty (through Marathon Electric)

Applications

- Replaces 90 volt and 180 volt PMDC motors (when used with AC variable frequency drives)
- Typical uses include: machine tools, conveyors, packaging machines, batching machines, printing equipment, pumps and fans.

Motor Shipping Schedule *		
*Same or one day ****	*Up to 7 days*	*Up to 10 days*

Color indicates shipping lead time in business days. Check stock status online.
*** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**

Prices & Specifications

Motor Specifications – microMAX (with encoder)

Part Number *	Price	HP	Base RPM	Volts	Encl.	NEMA Frame	Model No.	F.L. Amps	Weight (lb) *	Footnotes	Drawing Links
Y286A	$2,397.00	3	1800	230/460	TENV	182TC	182THTY17041AA	8.2 / 4.1	110	13b	PDF

*** Refer to the Motor Shipping Schedule table for shipping information.**
Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.
Footnotes: 6 = Bolt-on, removable base for footless mounting option 13b = Field reversible from F1 to F2 mounting
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product. Warranty service can be arranged through numerous Marathon Electric service centers. See list of service centers on our Web site at www.automationdirect.com.

Performance Data (460 Volt) – microMAX (with encoder)

Part Number	HP	NEMA Design	F.L. RPM	Min. RPM	F.L. AMPS @460V	N.L. AMPS @460V	F.L. Torque (lb·ft)	B.D. Torque (lb·ft)	Max. CHP RPM*	Max. Safe RPM	F.L. Effic.	F.L. Power Factor	Rotor Inertia (lb·ft2)
Y286A	3	B	1755	0	4.1	2.3	9.0	49.3	3510	5400	87.5	78.5	0.42

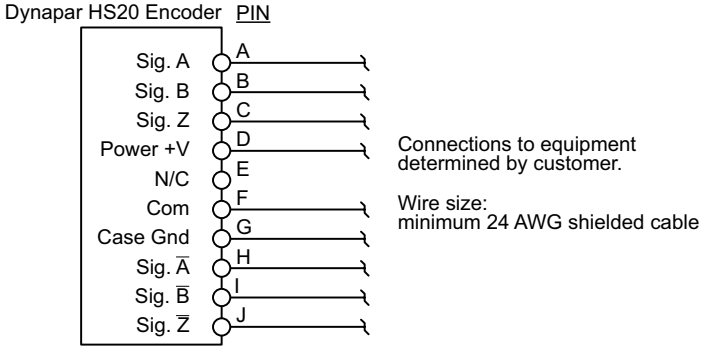
*** Maximum Constant HP RPM is for direct coupled loads.**

microMAX Motors Shaft-Mounted Encoder*

A Dynapar Model HS20 shaft-mounted encoder is supplied with the microMAX motor. The 5/8-in hollow-shaft encoder requires a 5–26 VDC power source, provides a count of 1024 pulses per revolution (PPR), differential line driver output, and includes 10 screw-terminal wiring connections.

** The encoder cable gland accepts cable diameters from 0.187–0.30 in.*
** There is no manufacturer's published tightening torque for the encoder screw terminals.*
** If connecting the motor to a GS3 DURApulse AC drive, a GS3-FB Feedback Card is required for the drive.*

Encoder Wiring Connections



LEESON®

NEMA Premium® Efficiency Inverter Duty Motors

Features

- Meets or exceeds NEMA Premium efficiencies
- Inverter duty
- Suitable for use with ALS (across-the-line starting) or IGBT (AC drive)
- 10:1 variable torque and constant torque on VFD with 1.0 service factor
- 1.15 service factor on sinewave; 1.0 service factor on IGBT power
- Class F insulation
- Continuous duty at 40° C ambient
- Rolled steel construction with C-face rigid base mounting
- F3 conduit box location
- Utilizes ball bearings
- Electrically reversible
- UL Recognized, CSA Certified, and CE Mark
- Three-year warranty

Applications

- Typical uses include gear reducers, pumps, machine tools, and other direct-coupled equipment installed in damp, dusty, or dirty environments where long life and ultra-high efficiency is desired.

Motor Shipping Schedule *		
*Same or one day **	*Up to 7 days*	*Up to 10 days*

Color indicates shipping lead time in business days. Check stock status online.

*** Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.**

208–230/460V Motor Specifications

*Part Number**	*Price*	*HP*	*Base RPM*	*Volts*	*Enclosure*	*NEMA Frame*	*Model No.*	*F.L. Amps*	*Weight (lb)**	*Drawing Links*
E2001A	$691.00	1	1800	208–230 / 460	TEFC	143TC	143TTFR16053	3.3–3.3 / 1.65	48	PDF
E2002	$762.00		1200			145TC	145TTFR6078	3.8–3.8 / 1.9	42	PDF
E2004A	$727.00	1-1/2	1800			145TC	145TTFR16331	4.7–4.6 / 2.3	50	PDF
E2007A	$821.00	2	1800			145TC	145TTFR16329	6.2–6.0 / 3.0	65	PDF

*** Refer to the Motor Shipping Schedule table for shipping information.**
Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.

† These specifications are for the Leeson motor currently being sold. Marathon manufactured a previous version of this Part Number (that had a different model #), and that version had some different specifications. For detailed information on the previous motor, please refer to the "Previous Marathon Model Numbers" table on the next page, or click on the previous motor's specification at www.AutomationDirect.com/Retired-Products.

Notes: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

LEESON®

C-Face Footed (Rigid and Removable Base)

4-in-1 General Purpose, 3-Phase, Totally Enclosed Motors

Features

- Meets or exceeds all NEMA Premium efficiencies, except as noted
- Ball bearings, mechanically locked on shaft end
- 1.15 Service factor, except as noted
- Class F insulation, except as noted
- Rated 60/50 hertz, 190/380 or 380 volt, at next lower horsepower, as noted
- Rolled steel 56-145T frame motors except brake kits. See Accessories section.
- UL recognized, CSA certified and CE mark
- 4N1 Motor features include:
  - CR200 corona-resistant magnet wire
  - Bolt-on, removable rigid base
  - Suitable for horizontal and vertical mounting
  - Will accept drip cover kits

Applications

- Typical uses include machine tools, conveyors, packaging machines, batching machines, food and beverage equipment, pumps and fans.

Motor Shipping Schedule *

Same or one day *	Up to 7 days	Up to 10 days

Color indicates shipping lead time in business days. Check stock status online.
** Certain heavy and oversized items can be shipped only via LTL.*
Check our website for current shipping method constraints by part number.

Motor Specifications – XRI 4N1 General Purpose, 3-Phase, Totally Enclosed Motors

Part Number*	Price	HP	Base RPM	Volts	Encl.	NEMA Design	NEMA Frame	Model No.	F.L. Amps	Weight (lb)*	Footnotes	Dawing Links
G582	$285.00	3/4	1800	208-230 / 460	TEFC	B	56C	056T17F5322	2.9-3 / 1.5	40	4N1 Motor NOT NEMA Premium	PDF

*** Refer to the Motor Shipping Schedule table for shipping information.**
Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.
Footnotes: The following part numbers are 4N1 motors; they are NOT NEMA Premium: G582
Notes: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

Performance Data - XRI 4N1 General Purpose, 3-Phase, Totally Enclosed Motors

Part Number	HP	F.L. RPM	Current (Amps)			Torque (lb·ft)			F.L. Effic. %	F.L. Power Factor	Rotor Inertia ($lb \cdot ft^2$)
			No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down			
G582	3/4	1725	1	1.5	9.8	2.28	8.2	10	75.5	66.3	0.07