

IronHorse[®] Rolled-Steel AC Motors – 1-Phase

56C/56HC Frame TEFC Motors – Single-Phase 0.33 to 2 hp

Features

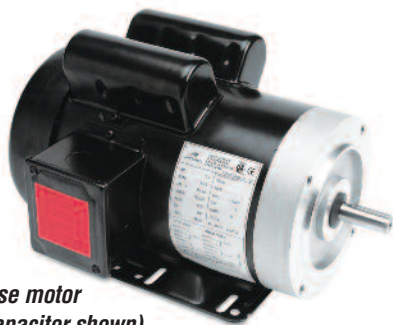
- Totally Enclosed Fan Cooled (TEFC) enclosure
- IP43 environmental rating
- NEMA 56C or 56HC flange mount (varies by model)
- Rolled steel shell frame / cast aluminum end bell
- Removable base / bolt-on/bolt-off mounting feet
- No mounting orientation restrictions
- Steel fan cover
- Large all-metal 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
- cCSA_{US} 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



MTR Series 1-phase motor
(model with run capacitor shown)



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

Motor Specifications – Single-Phase 56C/56HC Frame Motors																
Part Number	Price	HP		Base RPM		1-phase Voltage		Housing	NEMA Frame	Service Factor		F.L. Amps		Approx Weight (lb)		
		60 Hz	50 Hz	60 Hz	50 Hz	60Hz	50Hz			60Hz	50Hz	115V/230V 60Hz	110/220V 50Hz			
MTR-P33-1AB18		1/3						TEFC rolled steel frame with cast aluminum end bell	56C flange mount	1.15	-	6.6 / 3.3		26		
MTR-P50-1AB18		1/2					115/208-230					-	8.8 / 4.4			28
MTR-P75-1AB18		3/4	-										11.0 / 5.5			32
MTR-001-1AB18		1		1800									13.6 / 6.8			38
MTR-1P5-1AB18		1-1/2											15.2 / 7.6			45
MTR2-1P5-1AB18		1-1/2	1		1500	115/230	110/220	F1 conduit box location	56HC	1	1	14.5 / 7.3	14.0 / 7.0	37		
MTR2-002-1AB18		2	1-1/2										19.6 / 9.8	23.4 / 11.7		44
MTR2-P33-1AB36		1/3	1/4					TEFC rolled steel frame with cast aluminum end bell	56C	1.15	1	5.4 / 2.7	5.4 / 2.7	21		
MTR2-P50-1AB36		1/2	1/3		3000	115/230	110/220					6.5 / 3.3	6.4 / 3.2	23		
MTR2-P75-1AB36		3/4	1/2									9.2 / 4.6	9.2 / 4.6	27		
MTR2-001-1AB36		1	3/4	3600								11.5 / 5.8	10.2 / 5.1	30		
MTR-1P5-1AB36		1-1/2	-			115/208-230	-					14.2 / 7.1	-	37		
MTR2-1P5-1AB36		1-1/2	1		3000	115/230	110/220	F1 conduit box location	56HC	1	1	13.0 / 6.5	11.4 / 5.7	31		
MTR2-002-1AB36		2	1-1/2									17.0 / 8.5	14.6 / 7.3	37		

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

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Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Encoders

Sensors: Limit Switches

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow Switches

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

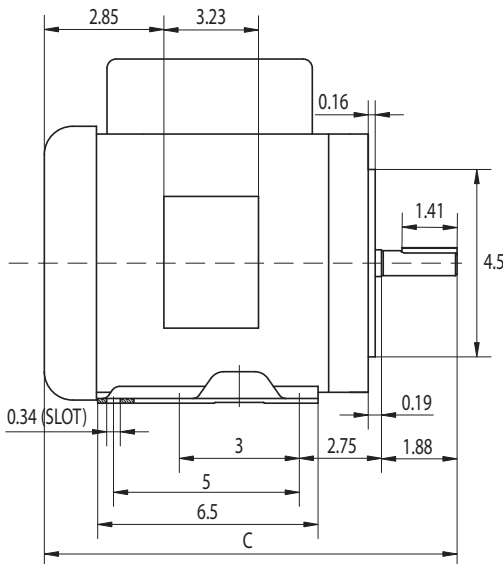
Appendix Book 2

Terms and Conditions

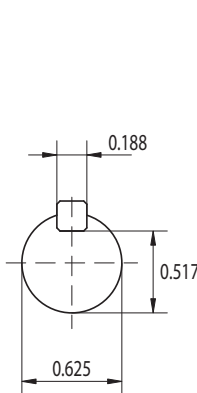
Performance Data – Single-Phase 56C/56HC Frame Motors (230V/60Hz data except as indicated)														
Part Number	HP		NEMA Design	F.L. RPM		Current @ 115V/230V (Amps)			Torque (lb-ft)			F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb-ft ²)
	60 Hz	50 Hz		60 Hz	50 Hz	230V No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down			
1800 RPM														
MTR-P33-1AB18	1/3		N	1725	-	2.2	6.6 / 3.3	31 / 18	1.02	3.06	2.81	56.0	0.62	0.075
MTR-P50-1AB18	1/2					2.93	8.8 / 4.4	37 / 21	1.52	4.56	4.18	57.0	0.63	0.080
MTR-P75-1AB18	3/4					3.67	11.0 / 5.5	55 / 32	2.29	6.30	5.73	65.0	0.65	0.095
MTR-001-1AB18	1					4.53	13.6 / 6.8	75 / 43	3.04	8.36	7.60	68.0	0.66	0.120
MTR-1P5-1AB18	1-1/2					5.07	15.2 / 7.6	120 / 65	4.57	11.43	10.28	71.0	0.75	0.142
MTR2-1P5-1AB18	1-1/2	1				L	1425	5.23	14.5 / 7.3	110 / 55	4.46	8.70	10.45	77.0
MTR2-002-1AB18	2	1-1/2	8.07	19.6 / 9.8	152 / 76			6.06	12.17	13.81	79.0	0.82	0.121	
3600 RPM														
MTR2-P33-1AB36	1/3	1/4	N	3450	2850	2.14	5.4 / 2.7	37 / 19	0.50	2.18	1.96	59.5	0.72	0.031
MTR2-P50-1AB36	1/2	1/3				2.23	6.5 / 3.3	47 / 23	0.74	2.59	2.42	63.0	0.74	0.034
MTR2-P75-1AB36	3/4	1/2				2.82	9.2 / 4.6	66 / 33	1.12	4.62	3.44	66.5	0.78	0.041
MTR2-001-1AB36	1	3/4				3.04	11.5 / 5.8	82 / 41	1.50	4.48	3.83	69.5	0.80	0.047
MTR-1P5-1AB36	1-1/2	-	N	-	-	3.0	14.2 / 7.1	116 / 58	2.2	7.5	5.4	72.0	0.9	0.03
MTR2-1P5-1AB36	1-1/2	1	L	2850	3.90	13.0 / 6.5	109 / 55	2.21	3.22	5.08	77.0	0.94	0.047	
MTR2-002-1AB36	2	1-1/2			4.51	17.0 / 8.5	131 / 65	3.02	4.45	6.82	79.5	0.94	0.060	

Dimensions – (units = inches)

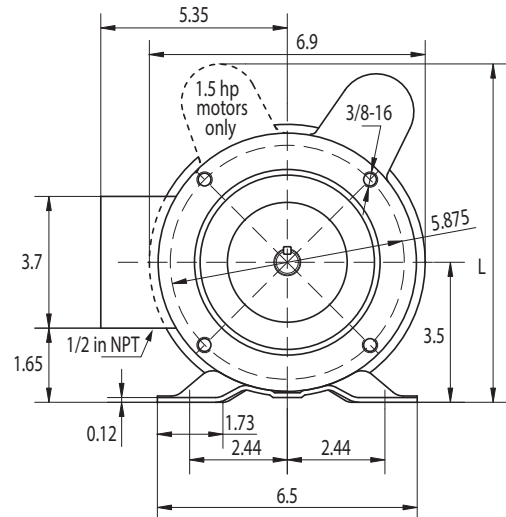
MTR-xxx-1ABxx



C = 12.4 in; all except 1 & 1.5 hp motors
 C = 13 in; 1 hp (1800 rpm) & 1.5 hp (3600 rpm)
 C = 13.8 in; 1.5 hp (1800 rpm)



MTR-xxx-1ABxx IronHorse Motors (single-phase rolled steel)



L = 8.19 in; all except 1.5 hp motors
 L = 8.5 in; 1.5 hp motors

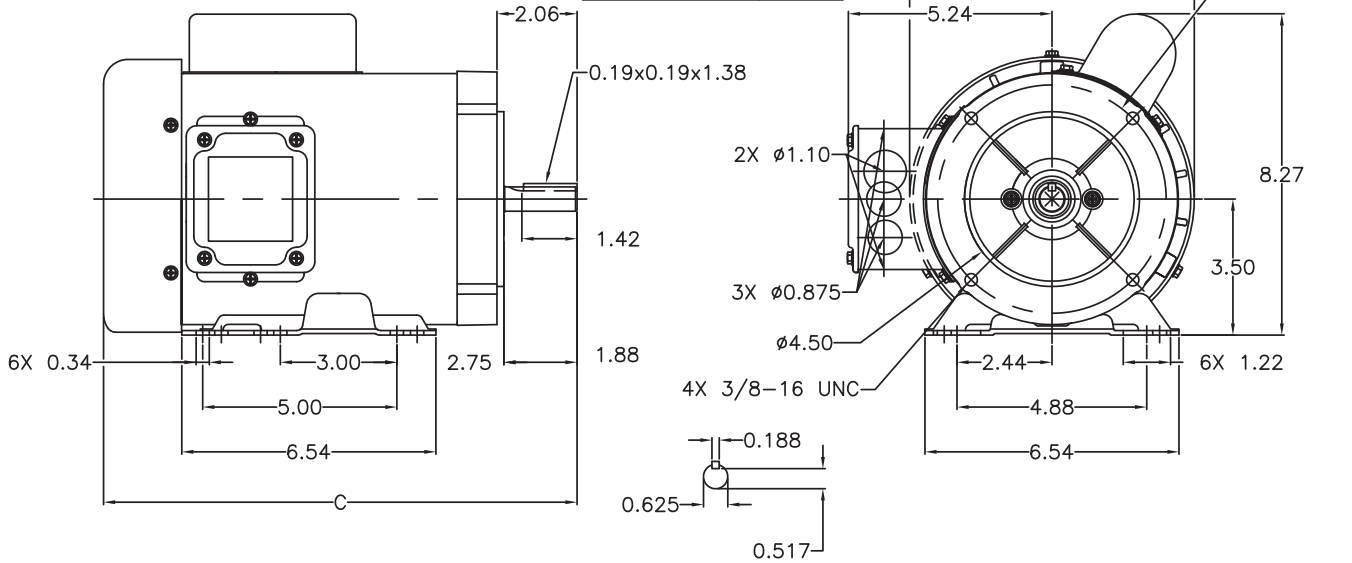
IronHorse[®] Rolled-Steel AC Motors – 1-Phase

56C/56HC Frame TEFC Motors – Single-Phase 0.33 to 2 hp

Dimensions – (units = inches)

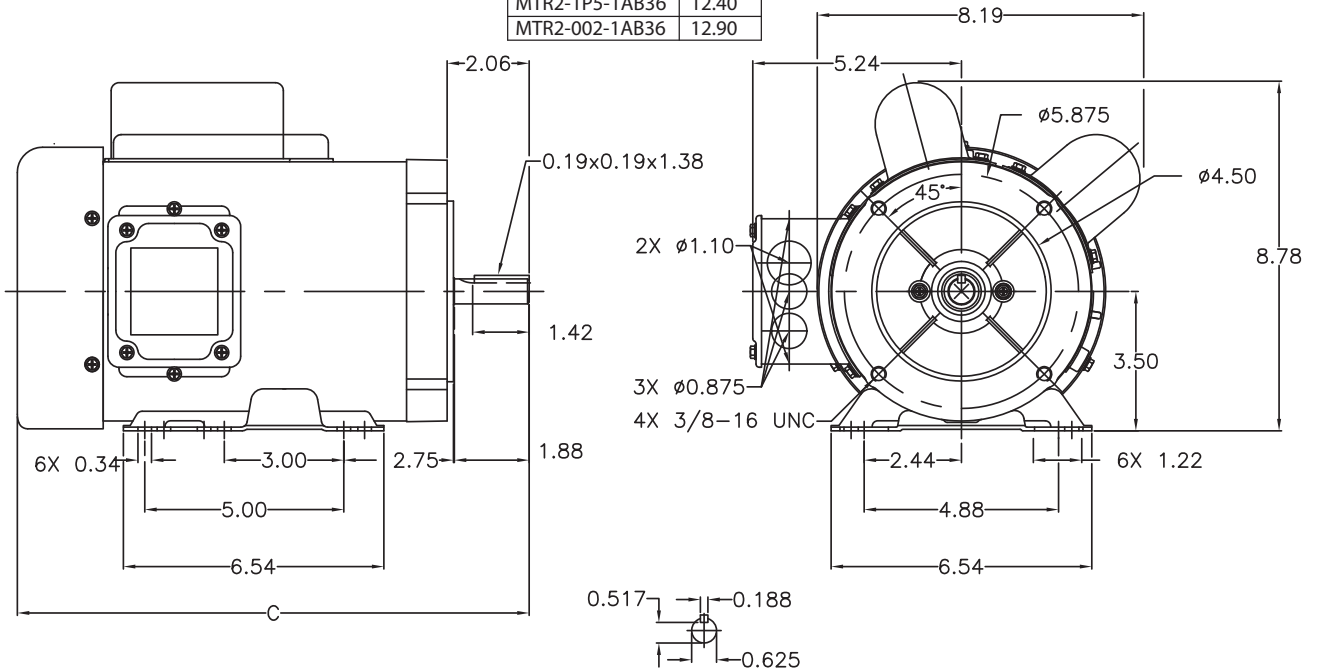
MTR2-Pxx-1AB36, MTR2-001-1AB36

PART NUMBER	DIM. C
MTR2-P33-1AB36	11.90
MTR2-P50-1AB36	11.90
MTR2-P75-1AB36	11.90
MTR2-001-1AB36	12.40



MTR2-1P5-1ABxx, MTR2-002-1ABxx

PART NUMBER	DIM. C
MTR2-1P5-1AB18	12.90
MTR2-002-1AB18	13.90
MTR2-1P5-1AB36	12.40
MTR2-002-1AB36	12.90



IronHorse[®] AC Motor Accessories – 1-Phase

56C/56HC Frame TEFC Motors – Single-Phase – 0.33 to 2 hp – Motor Accessories

Start Capacitors

Single-phase motors use capacitors to provide starting torque when power is first applied to the motor. AutomationDirect offers *spare/replacement* starting capacitors for our single-phase IronHorse motors.

Run Capacitors

In addition to the start capacitors and centrifugal switches, IronHorse 1-1/2 and 2 hp single-phase motors also have run capacitors which allow the motors to develop higher running torque, greater efficiency, and improved power factor. We offer *spare/replacement* run capacitors for single-phase IronHorse motors.

Centrifugal Switches

The start capacitors are no longer needed once the motors begin turning, so they are then taken out of the circuit by a centrifugal switch. We also offer *spare/replacement* switches for our motors.

Stationary Switches

MTR2 series motors have a separate stationary switch that works with the centrifugal switch; both switches are required.

(MTR series motors have only the one centrifugal switch.)



**Junction Box
MTAR-JBOX-56**



**Junction Box
MTA2-JBOX-56**



**Start Capacitor
MTA-CAP-02**



**Run Capacitor
MTA-CAP-07**



**Fan
MTAR-FAN-56**



**Fan
MTA2-FAN-56**



**Centrifugal Switch
MTA-CSW-01**



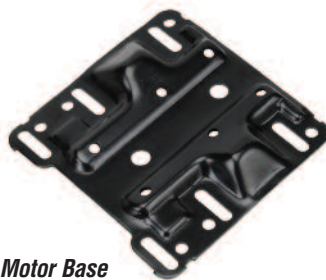
**Fan
Shroud
MTAR-SHROUD-56**



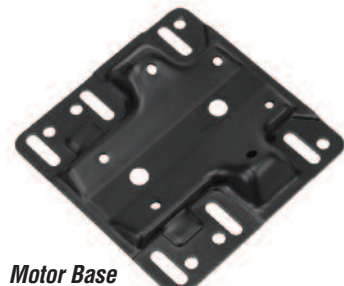
**Fan
Shroud
MTA2-SHROUD-56**



**Stationary Switch
MTA-CSW-04**



**Motor Base
MTAR-BASE-56**



**Motor Base
MTA2-BASE-56**

IronHorse[®] AC Motor Accessories – 1-Phase

56C/56HC Frame TEFC Motors – Single-Phase – 0.33 to 2 hp – Motor Accessories

MTR Series Single-Phase Motor Spare/Replacement Parts (NOT for MTR2 Motors)*							
Part Number	Price	Accessory Type	Capacitance (µF)	Rated Voltage	Dimension Height x Ø (in [mm])	Applicable MTR Motor Number	MTR Motor HP : RPM
MTA-CAP-01		start capacitor	200	165	3.15 x 1.65 [80.0 x 41.9]	MTR-P33-1AB18	1/3 : 1800
MTA-CAP-02		start capacitor	250			MTR-P50-1AB18	1/2 : 1800
MTA-CAP-03		start capacitor	300			MTR-P75-1AB18	3/4 : 1800
MTA-CAP-04		start capacitor	250			MTR-001-1AB18	1 : 1800
MTA-CAP-08		start capacitor	400			MTR-1P5-1AB18	1-1/2 : 1800
MTA-CAP-06		run capacitor	40	450	4.02 x 1.75 [102.1 x 44.5]	MTR-1P5-1AB18	1-1/2 : 1800
MTA-CAP-09		run capacitor	35			4.0 x 1.8 [101 x 45]	MTR-1P5-1AB36
MTA-CSW-01		centrifugal switch	n/a	250	n/a	MTR-xxx-1AB18	all 1800 rpm
MTA-CSW-02						MTR-1P5-1AB36	all 3600 rpm
MTAR-BASE-56		motor base	n/a	n/a	n/a	MTR-xxx-1ABxx	all
MTAR-FAN-56		fan					
MTAR-JBOX-56		junction box					
MTAR-SHROUD-56		fan shroud					

* These accessories are spare/replacement components only for MTR series IronHorse motors. Accessories for MTR series motors are not compatible with MTR2 series motors.

MTR2 Series Single-Phase Motor Spare/Replacement Parts (NOT for MTR Motors)*									
Part Number	Price	Accessory Type	Capacitance (µF)	Rated Voltage	Dimension Height x Ø (in [mm])	Applicable MTR2 Motor Number	MTR2 Motor HP : RPM		
MTA-CAP-10		start capacitor	200	165	2.80 x 1.46 [71.1 x 37.1]	MTR2-P33-1AB36	1/3 : 3600		
MTA-CAP-11		start capacitor	300			MTR2-P50-1AB36	1/2 : 3600		
MTA-CAP-12		start capacitor	400			3.39 x 1.85 [86.1 x 47.0]	MTR2-P75-1AB36	3/4 : 3600	
MTA-CAP-13		start capacitor	500				MTR2-001-1AB36	1 : 3600	
MTA-CAP-14		run capacitor	40	250	3.38 x 1.81 [85.9 x 46.0]	MTR2-1P5-1ABxx	1-1/2 : 1800		
MTA-CAP-15		start capacitor	800	165	4.41 x 1.85 [112.0 x 47.0]	MTR2-002-1ABxx	1-1/2 : 3600 2 : 1800 2 : 3600		
MTA-CSW-03		centrifugal switch	n/a	125	n/a	MTR2-xxx-1AB36	all 3600 rpm		
MTA-CSW-04		stationary switch				MTR2-xxx-1ABxx	all		
MTA-CSW-08		centrifugal switch				MTR2-xxx-1AB18	all 1800 rpm		
MTA2-BASE-56		motor base				n/a	n/a	MTR2-xxx-1ABxx	all
MTA2-FAN-56		fan							
MTA2-JBOX-56		junction box							
MTA2-SHROUD-56		fan shroud							

* These accessories are spare/replacement components only for MTR2 series IronHorse motors. Accessories for MTR2 series motors are not compatible with MTR series motors.

AC Motor Selection – IronHorse® General Purpose Motors

IronHorse® General Purpose Motor Selection					
Characteristics	1-Phase		3-Phase		
	56(H)C Frame Rolled Steel	T Frame Farm Duty	56C Frame Rolled Steel	56C Frame Stainless Steel	Cast Iron T & TC Frames
Electrical Characteristics					
Horsepower range	1/3 – 2	2 – 5	1/3 – 2		PE: 1–200(T); 1–100(TC) EPAct: 250–300(T)
Base speed (# Poles)	1800 (4), 3600 (2)	1800 (4)	1800 (4), 3600 (2)		1200(6), 1800 (4), 3600(2)
Standard Voltage	115/208-230, 115/230	230	208-230/460		208-230/460 (250 & 300 hp 460V only)
Phase / Base Frequency (Hz)	1 / 60		3 / 60		
Service Factor	1.15		1.15 (line) ; 1.0 (drive)		
Design Code (NEMA)	L, N	L	B		
Insulation Class	F				
Insulation System	dip & bake twice	VPI, then bake, then dip and bake	dip & bake	double dip & bake	EPAct: double dip & bake PE: VPI
Duty Cycle	continuous				
Thermal protection	none	yes	none		
Mechanical Characteristics					
Frame size (mounting)	56C or 56HC	182T – 184T	56C		143T/TC – 405TC/449T
Enclosure	TEFC				
Frame material	rolled steel		304 stainless steel		cast iron
End bracket material	aluminum	cast iron	aluminum	304 stainless steel	cast iron
Junction box material	steel		304 stainless steel		cast iron
Fan guard material	steel	steel	steel	304 stainless steel	steel
Fan material	polypropylene plastic	plastic	plastic	heat-resistant polyethylene	plastic (143T/TC - 445/7T) aluminum (449T)
Lead termination	junction box				
Standard mounting	C-Face with Removable Rigid Base	Rigid Base	C-Face with Removable Rigid Base	C-Face with Rigid Base C-Face with Round Body	Rigid Base (C-Flange kit available EPAct) C-Face with Rigid Base (1-100 hp)
Drive end shaft slinger	yes				
Paint	black	green	black	n/a	EPAct: epoxy primer / synthetic alkyd enamel PE: polyurethane enamel
Bearings	ball				1-75 hp: ball 100-300 hp: roller
Grease	Mobil Polyrex EM		Korschun lithium-based		Mobil Polyrex EM
Standard junction box assembly position	F1				F1 (some sizes reversible to F2)
Performance Characteristics					
Constant Torque speed range	n/a	n/a	2:1		2:1 (EPAct) 4:1 (Premium Efficiency)
Variable Torque speed range	n/a	n/a	5:1		5:1 (EPAct) 10:1 (Premium Efficiency)
Constant Horsepower speed range	n/a	n/a	1.5:1		1.5:1
Temperature rise	F		B		
Encoder provisions	none				
Other Characteristics					
Warranty*	2 years		1 year		2 years
Agency Approvals **	CE, cCSA _{US}		cCSA _{US}		CE, cCSA _{US}

* See Terms and Conditions for motor warranty explanation.

1) For warranty on IronHorse motors below 50 hp, warranty service can be arranged through AutomationDirect.

2) For warranty on IronHorse motors 50 hp 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.