

# IronHorse® Rolled-Steel AC Motors – 3-Phase

## 56C/56HC-Frame TEFC Motors – Three-Phase – 0.33 to 3 hp

### Features

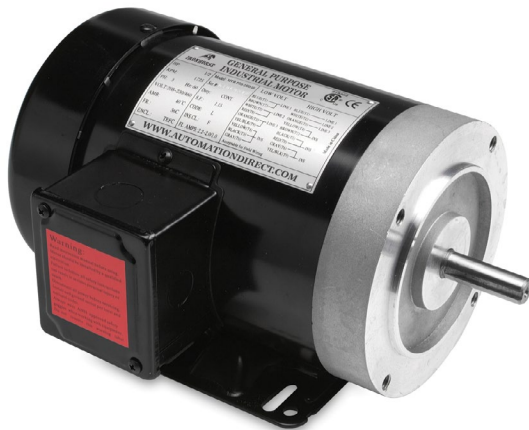
- Totally Enclosed Fan Cooled (TEFC) enclosure
- NEMA 56C or 56HC flange mount (56HC are suitable for 56, 143T, or 145T frame mounting dimensions)
- Rolled steel shell frame / cast aluminum end bell
- Removable base / bolt-on/bolt-off mounting feet
- Steel fan cover
- Large easy-to-wire junction box 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
- CSA<sub>US</sub> certified, CE

### Accessories Available

- Junction boxes (replacement/spare)
- Fans (replacement/spare)
- Fan shrouds (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*

# IronHorse® Rolled-Steel AC Motors – 3-Phase

## 56C/56HC-Frame TEFC Motors – Three-Phase – 0.33 to 3 hp

Motor Specifications – Three-Phase 56C/56HC-Frame 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)
<b>MTR2-P33-3BD18</b>	\$110.50	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
<b>MTR2-P33-3BD36</b>	\$86.00		3600						1.3 / 0.65	18
<b>MTR2-P50-3BD18</b>	\$117.00	1/2	1800						1.9 / 0.95	19
<b>MTR2-P50-3BD36</b>	\$95.50		3600						1.7 / 0.85	19
<b>MTR2-P75-3BD18</b>	\$127.00	3/4	1800						2.6 / 1.3	22
<b>MTR2-P75-3BD36</b>	\$104.00		3600						2.4 / 1.2	21
<b>MTR-P33-3BD18</b>	retired	1/3	1800		208-230/460				1.6 / 0.8	23
<b>MTR-P33-3BD36</b>	retired		3600						1.6 / 0.8	23
<b>MTR-P50-3BD18</b>	retired	1/2	1800						2.0 / 1.0	24
<b>MTR-P50-3BD36</b>	retired		3600						2.2 / 1.1	24
<b>MTR-P75-3BD18</b>	retired	3/4	1800						2.8 / 1.4	26
<b>MTR-P75-3BD36</b>	retired		3600						2.9 / 1.45	26
<b>MTR-001-3BD18</b>	retired	1	1800	3.6 / 1.8	29					
<b>MTR-001-3BD36</b>	retired		3600	3.6 / 1.8	28					
<b>MTRP-001-3BD18</b>	\$160.00		1800	3.2 / 1.6	35					
<b>MTRP-001-3BD36</b>	\$131.00		3600	3.0 / 1.50	23					
<b>MTR-1P5-3BD18</b>	retired	1-1/2	1800	4.8 / 2.4	33					
<b>MTR-1P5-3BD36</b>	retired		3600	4.6 / 2.3	34					
<b>MTRP-1P5-3BD18</b>	\$183.00		1800	4.5 / 2.25	43					
<b>MTRP-1P5-3BD36</b>	\$148.00		3600	4.0 / 2.0	31					
<b>MTR-002-3BD18</b>	retired	2	1800	6.0 / 3.0	42					
<b>MTR-002-3BD36</b>	retired		3600	6.0 / 3.0	43					
<b>MTRP-002-3BD18</b>	\$216.00		1800	6.0 / 3.0	49					
<b>MTRP-002-3BD36</b>	\$160.00		3600	5.2 / 2.6	33					
<b>MTRP-003-3BD36</b>	\$209.00	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.

# IronHorse<sup>®</sup> Rolled-Steel AC Motors – 3-Phase

56C/56HC-Frame TEFC Motors – Three-Phase – 0.33 to 3 hp  
– Performance Data

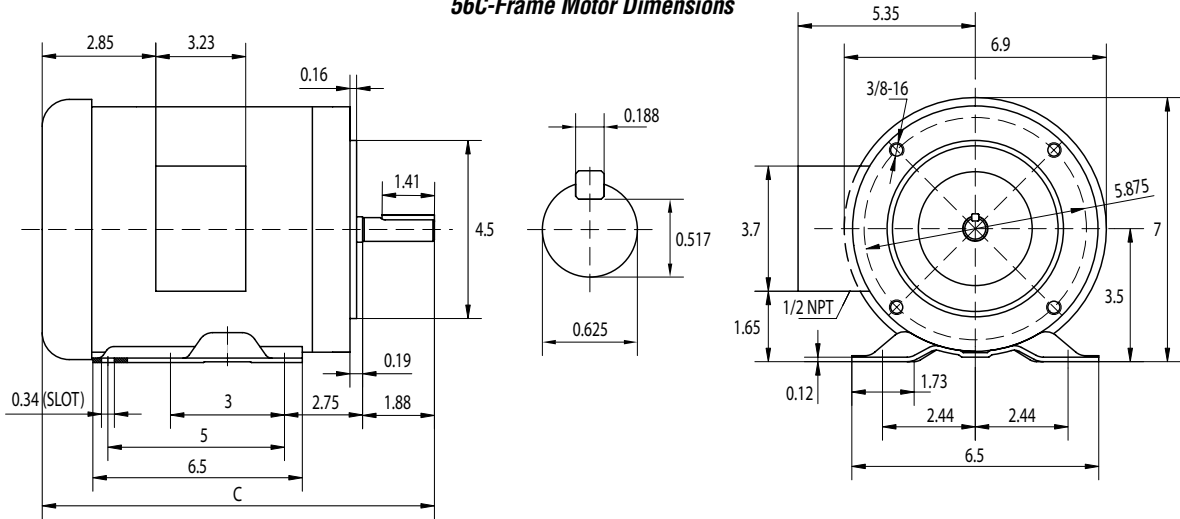
Performance Data – Three-Phase 56C/56HC-Frame Motors (460V data except as indicated) – 1800 & 3600 RPM																	
Part Number	HP	NEMA Design	FL RPM	Minimum Speed (rpm)			Current @ 230V/460V (Amps)			Torque (lb-ft)			Maximum Speed (rpm)		FL Efficiency (%)	FL Power Factor	Rotor Inertia (lb-ft <sup>2</sup> )
				CT	VT	No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down	CHP*	Safe				
MTR2-P33-3BD18	1/3		1725	431	172	1.10 / 0.55	1.4 / 0.7	7 / 3.5	1.03	2.93	3.77	2700	5400	67.0	0.65	0.0329	
MTR2-P33-3BD36			3450	862	345	0.8 / 0.4	1.3 / 0.65	7.6 / 3.8	0.50	1.14	1.99	5400		60.0	0.75	0.0245	
MTR2-P50-3BD18	1/2		1725	431	172	1.36 / 0.68	1.9 / 0.95	10 / 5	1.53	3.81	4.96	2700		70	0.69	0.038	
MTR2-P50-3BD36			3450	862	345	1.0 / 0.5	1.7 / 0.85	10.8 / 5.4	0.74	1.81	2.96	5400		67.5	0.74	0.0277	
MTR2-P75-3BD18	3/4		1725	431	172	1.60 / 0.80	2.6 / 1.3	12.2 / 6.6	2.31	5.41	7.17	2700		73.0	0.73	0.048	
MTR2-P75-3BD36			3450	862	345	1.3 / 0.7	2.4 / 1.2	16 / 8	1.14	2.95	4.25	5400		71.5	0.78	0.031	
MTR-P33-3BD18	1/3		1725	863	345	0.53 / 0.27	1.6 / 0.8	8 / 4	1.02	2.55	2.81	2700		67.0	0.70	0.058	
MTR-P33-3BD36			3450	1725	690	1.2 / 0.59	1.6 / 0.8	9 / 5	0.50	3.0	3.0	5400		57.0	0.71	0.084	
MTR-P50-3BD18	1/2		1725	863	345	0.67 / 0.33	2.0 / 1.0	12 / 6	1.52	3.80	4.18	2700		69.0	0.72	0.068	
MTR-P50-3BD36			3450	1725	690	1.4 / 0.7	2.2 / 1.1	14 / 7	0.75	4.4	4.5	5400		62.0	0.71	0.095	
MTR-P75-3BD18	3/4		1725	863	345	0.93 / 0.47	2.8 / 1.4	18 / 9	2.29	5.73	6.30	2700		71.0	0.74	0.075	
MTR-P75-3BD36			3450	1725	690	1.5 / 0.75	2.9 / 1.45	17 / 8.9	1.13	6.0	5.8	5400		67.0	0.78	0.107	
MTR-001-3BD18	1	B	1725	863	345	1.2 / 0.6	3.6 / 1.8	24 / 12	3.02	7.55	8.31	2700		73.0	0.76	0.086	
MTR-001-3BD36			3450	1725	690	1.7 / 0.85	3.6 / 1.8	25 / 13	1.50	7.9	7.1	5400		69.0	0.82	0.122	
MTRP-001-3BD18			1760	440	176	2.18 / 1.09	3.22 / 1.61	31 / 16	3	12.35	14.51	2700		2700	85.5	0.69	0.107
MTRP-001-3BD36			3500	875	350	1.52 / 0.76	3.00 / 1.50	22 / 11	1.51	3.98	4.93	5400		5400	77	0.83	0.034
MTR-1P5-3BD18	1-1/2		1725	863	345	1.53 / 0.77	4.8 / 2.4	36 / 18	4.57	10.28	11.43	2700		5400	75.0	0.78	0.108
MTR-1P5-3BD36			3450	1725	690	1.8 / 0.9	4.6 / 2.3	29 / 17	2.25	11.2	8.4	5400		5400	72.0	0.85	0.143
MTRP-1P5-3BD18			1760	440	176	2.8 / 1.4	4.52 / 2.26	47 / 24	4.4	21.68	21.76	2700		2700	86.5	0.72	0.135
MTRP-1P5-3BD36			3500	875	350	1.8 / 0.9	3.96 / 1.98	38 / 19	2.21	7.94	9.03	5400		5400	84.0	0.85	0.048
MTR-002-3BD18	2		1725	863	345	2.0 / 1.0	6.0 / 3.0	48 / 24	6.09	13.70	15.23	2700	5400	77.0	0.80	0.143	
MTR-002-3BD36			3450	1725	690	3.4 / 1.7	6.0 / 3.0	57 / 30	3.06	18.9	13.4	5400	5400	75.0	0.78	0.188	
MTRP-002-3BD18			1760	440	176	3.62 / 1.81	5.92 / 2.96	61 / 31	6.03	27.3	27.46	2700	2700	86.5	0.74	0.158	
MTRP-002-3BD36			3500	875	350	2.28 / 1.14	5.22 / 2.61	53 / 27	3.02	12.23	12.8	5400	5400	85.5	0.86	0.056	
MTRP-003-3BD36	3		3500	875	350	3.54 / 1.77	7.38 / 3.69	89 / 45	4.49	19.44	20.39	5400	5400	86.5	0.85	0.069	

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

# IronHorse<sup>®</sup> Rolled-Steel AC Motors – 3-Phase

## 56C Frame TEFC Motors – Three-Phase – 0.33 to 3 hp – Dimensions

### MTR Three-Phase 56C-Frame Motor Dimensions

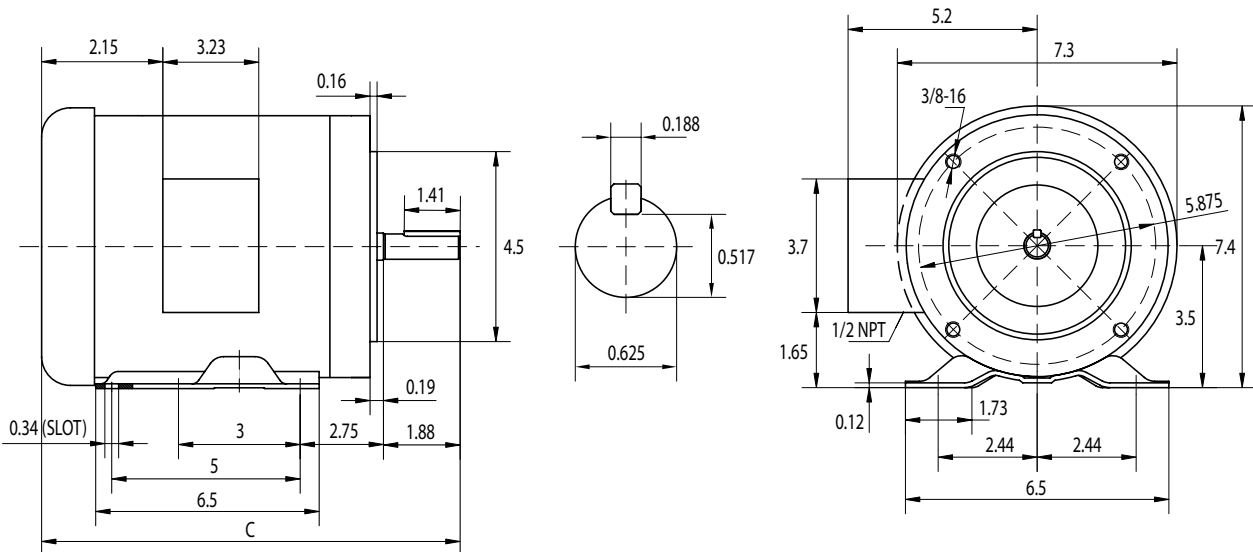


- C = 12.2"; 0.33 to 1hp motors
- C = 12.6"; 1.5hp MTR-1P5-3BD18
- C = 12.2"; 1.5hp MTR-1P5-3BD36
- C = 13.8"; 2hp MTR-002-3BD18
- C = 12.4"; 2hp MTR-002-3BD36

UNITS = INCHES

MTR-xxx-3BDxx IronHorse Motors  
(3-phase rolled steel)

### MTRP Three-Phase 56HC-Frame Motor Dimensions Suitable for 56, 143T, and 145T Frame Mounting



- C = 12.4"; 1.0 hp MTRP-001-3BD18
- C = 13.4"; 1.5hp MTRP-1P5-3BD18
- C = 13.9"; 2hp MTRP-002-3BD18
- C = 11.9"; 1 to 2hp MTRP-xxx-3BD36
- C = 12.9"; 3hp MTRP-003-3BD36

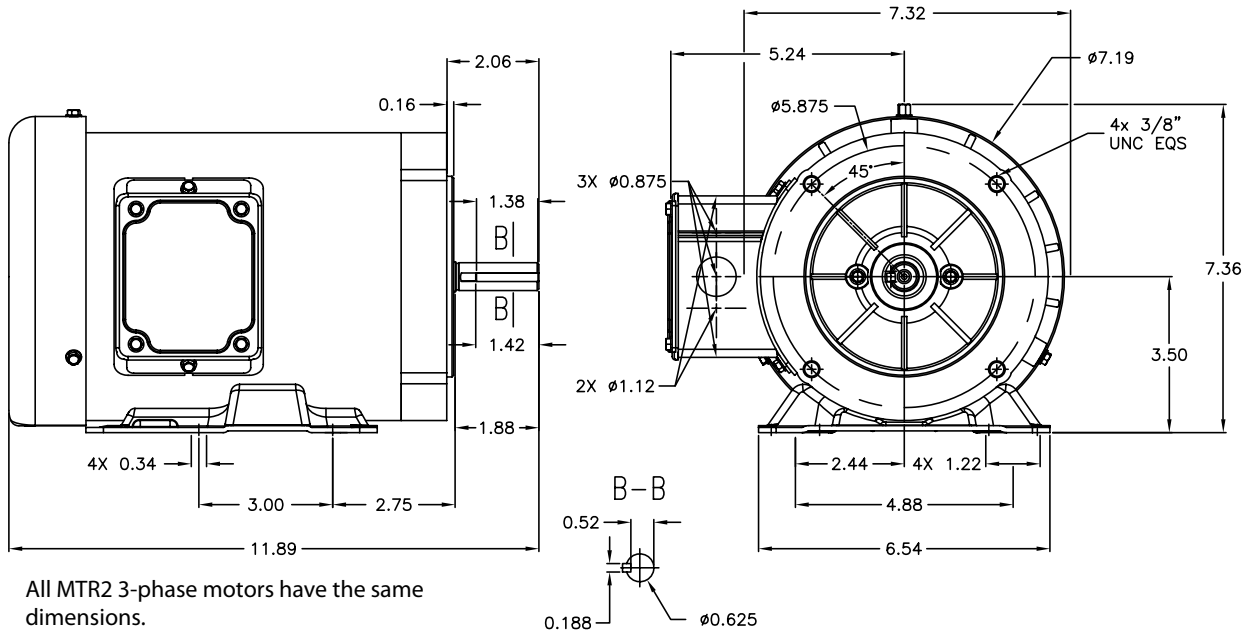
UNITS = INCHES

MTRP-xxx-3BDxx IronHorse Motors  
(3-phase rolled steel)

# IronHorse<sup>®</sup> Rolled-Steel AC Motors – 3-Phase

## 56C Frame TEFC Motors – Three-Phase – 0.33 to 3 hp – Dimensions

**MTR2 Three-Phase  
56C-Frame Motor Dimensions**



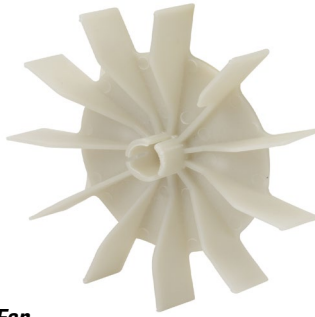
All MTR2 3-phase motors have the same dimensions.

# IronHorse® AC Motor Accessories – 3-Phase

56C-Frame TEFC Motors – Three-Phase – 0.33 to 3 hp – Motor Accessories



**Motor Base**  
**MTAR-BASE-56**



**Fan**  
**MTAR-FAN-56**



**Fan**  
**MTA2-FAN-56**



**Fan**  
**MTA2-FAN-56-1**



**Junction Box**  
**MTAR-JBOX-56**



**Fan Shroud**  
**MTAR-SHROUD-56**

<b>MTR Series Three-Phase Motor Spare/Replacement Parts*</b>				
<b>Part Number</b>	<b>Price</b>	<b>Accessory Type</b>	<b>Applicable MTR Motor Number</b>	<b>MTR Motor HP : RPM</b>
<b>MTAR-BASE-56</b>	\$12.50	Motor base	MTR-xxx-xBDxx	All
<b>MTAR-FAN-56</b>	\$12.50	Fan		
<b>MTAR-JBOX-56</b>	\$12.50	Junction box		
<b>MTAR-SHROUD-56</b>	\$12.50	Fan shroud		

*\* These accessories are spare/replacement components only for MTR series IronHorse motors.*

<b>MTR2/MTRP Series Three-Phase Motor Spare/Replacement Parts</b>				
<b>Part Number</b>	<b>Price</b>	<b>Accessory Type</b>	<b>Applicable MTRP Motor Number</b>	<b>MTRP Motor HP : RPM</b>
<b>MTA2-BASE-56</b>	\$12.50	Motor base	MTRP-xxx-3BDxx MTR2-Pxx-3BDxx	All
<b>MTA2-SHROUD-56</b>	\$12.50	Fan shroud		
<b>MTA2-JBOX-56</b>	\$12.50	Junction box		
<b>MTA2-FAN-56</b>	\$12.50	Fan	MTR2-Pxx-3BDxx	
<b>MTA2-FAN-56-1*</b>	\$8.25	Fan	MTRP-xxx-3BDxx	

*\* This accessory is a spare/replacement component only for MTRP series IronHorse motors.*

# AC Motor Selection – IronHorse<sup>®</sup> General Purpose Motors

IronHorse <sup>®</sup> General Purpose Motor Selection					
Characteristics	1-Phase		3-Phase		
	56C/56HC Frame Rolled Steel***	T Frame Farm Duty	56C/56HC Frame Rolled Steel***	56C Frame Stainless Steel	Cast Iron T & TC Frames
<b>Electrical Characteristics</b>					
<b>Horsepower range</b>	1/3 – 2	2 – 5	1/3 – 3	1/3 – 3/4	PE: 1–200(T); 1–100(TC)
<b>Base speed (# Poles)</b>	1800 (4), 3600 (2)	1800 (4)	1800 (4), 3600 (2)		1200(6), 1800 (4), 3600(2)
<b>Standard Voltage</b>	115/208-230, 115/230	230	208-230/460		208-230/460
<b>Phase / Base Frequency (Hz)</b>	1 / 60		3 / 60		
<b>Service Factor</b>	1.15		1.15 (line) ; 1.0 (drive)		
<b>Design Code (NEMA)</b>	L, N	L	B		
<b>Insulation Class</b>	F				
<b>Insulation System</b>	dip & bake twice	VPI, then bake, then dip and bake	dip & bake	double dip & bake	EPAct: double dip & bake PE: VPI
<b>Duty Cycle</b>	continuous				
<b>Thermal protection</b>	none	yes	none		
<b>Mechanical Characteristics</b>					
<b>Frame size (mounting)</b>	56C or 56HC	182T – 184T	56C or 56HC		143T/TC – 445/7T
<b>Enclosure</b>	TEFC				
<b>Frame material</b>	rolled steel		304 stainless steel		cast iron
<b>End bracket material</b>	aluminum	cast iron	aluminum	304 stainless steel	cast iron
<b>Junction box material</b>	steel		304 stainless steel		cast iron
<b>Fan guard material</b>	steel	steel	steel	304 stainless steel	steel
<b>Fan material</b>	polypropylene plastic	plastic	plastic	heat-resistant polyethylene	plastic
<b>Lead termination</b>	junction box				
<b>Standard mounting</b>	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-Face with Rigid Base (1-100 hp)
<b>Drive end shaft slinger</b>	yes				
<b>Paint</b>	black	green	black	n/a	PE: polyurethane enamel
<b>Bearings</b>	ball				1-75 hp: ball 100-300 hp: roller
<b>Grease</b>	Mobil Polyrex EM			Korschun lithium-based	Mobil Polyrex EM
<b>Standard junction box assembly position</b>	F1				F1 (some sizes reversible to F2)
<b>Performance Characteristics</b>					
<b>Constant Torque speed range</b>	n/a	n/a	2:1 (MTR, MTSS); 4:1 (MTRP, MTR2)		4:1 (Premium Efficiency)
<b>Variable Torque speed range</b>	n/a	n/a	5:1 (MTR, MTSS); 10:1 (MTRP, MTR2)		10:1 (Premium Efficiency)
<b>Constant Horsepower speed range</b>	n/a	n/a	1.5:1		1.5:1
<b>Temperature rise</b>	F		B		
<b>Encoder provisions</b>	none				
<b>Other Characteristics</b>					
<b>Warranty*</b>	2 years		1 year		2 years
<b>Agency Approvals **</b>	CE, cCSA <sub>US</sub>		cCSA <sub>US</sub>		CE, cCSA <sub>US</sub>

\* 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.  
 \*\*\* 56HC motors are capable of 56C C-face mounting, and are also compatible with 56, 143T, and 145T foot mounting dimensions.