

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	
MTR2-P33-1AB18	\$171.00	1/3	1/4	1800	1500	115/230	110/220	TEFC rolled steel frame with cast aluminum end bell F1 conduit box location	56C flange mount	1.15	1	5.2 / 2.6	5.4 / 2.7	22
MTR2-P50-1AB18	\$188.00	1/2	1/3									7.2 / 3.6	7.2 / 3.6	25
MTR2-P75-1AB18	\$204.00	3/4	1/2									10.0 / 5.0	9.6 / 4.8	29
MTR2-001-1AB18	\$209.00	1	3/4									13.0 / 6.5	12.4 / 6.2	36
MTR2-1P5-1AB18	\$248.00	1-1/2	1									14.5 / 7.3	14.0 / 7.0	37
MTR2-002-1AB18	\$287.00	2	1-1/2									19.6 / 9.8	23.4 / 11.7	44
MTR2-P33-1AB36	\$171.00	1/3	1/4	3600	3000	115/230	110/220	TEFC rolled steel frame with cast aluminum end bell F1 conduit box location	56C	1.15	1	5.4 / 2.7	5.4 / 2.7	21
MTR2-P50-1AB36	\$177.00	1/2	1/3									6.5 / 3.3	6.4 / 3.2	23
MTR2-P75-1AB36	\$196.00	3/4	1/2									9.2 / 4.6	9.2 / 4.6	27
MTR2-001-1AB36	\$207.00	1	3/4									11.5 / 5.8	10.2 / 5.1	30
MTR2-1P5-1AB36	\$227.00	1-1/2	1									13.0 / 6.5	11.4 / 5.7	31
MTR2-002-1AB36	\$266.00	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.

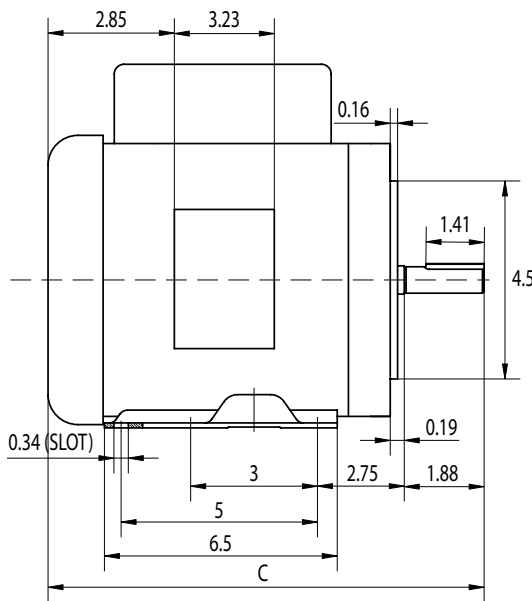
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56C/56HC Frame TEFC Motors – Single-Phase 0.33 to 2 hp

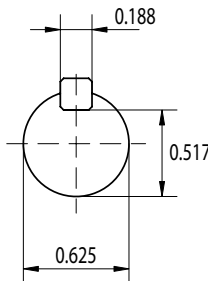
Performance Data – Single-Phase 56C/56HC Frame Motors (230V/60Hz data except as indicated)														
Part Number	HP		NEMA Design	F.L. RPM		Current @ 115V/230V (Amps)			Torque (lb-ft)			F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb-ft ²)
	60 Hz	50 Hz		60 Hz	50 Hz	230V No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down			
1800 RPM														
MTR2-P33-1AB18	1/3	1/4	N	1425	1725	2.05	5.2 / 2.6	33 / 16	1.01	3.54	2.57	63.0	0.58	0.048
MTR2-P50-1AB18	1/2	1/3				2.74	7.2 / 3.6	44 / 21	1.49	5.09	3.54	64.5	0.68	0.059
MTR2-P75-1AB18	3/4	1/2				3.14	10.0 / 5.0	62 / 30	2.26	7.06	5.16	67.0	0.71	0.074
MTR2-001-1AB18	1	3/4				4.39	13.0 / 6.5	80 / 40	3.03	9.30	8.23	70.0	0.69	0.095
MTR2-1P5-1AB18	1-1/2	1	L	1725	1725	5.23	14.5 / 7.3	110 / 55	4.46	8.70	10.45	77.0	0.84	0.095
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
MTR-P33-1AB18	1/3	-	N	-	-	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
3600 RPM														
MTR2-P33-1AB36	1/3	1/4	N	2850	3450	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
MTR2-1P5-1AB36	1-1/2	1	L	2850	3450	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
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	0.030

Dimensions – (units = inches)

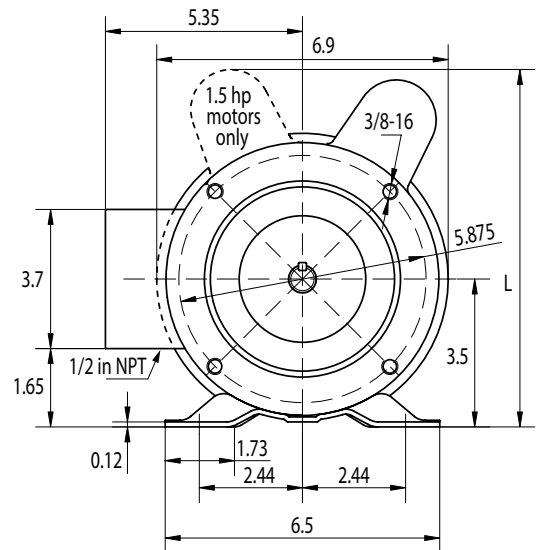
MTR-xxx-1ABxx



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

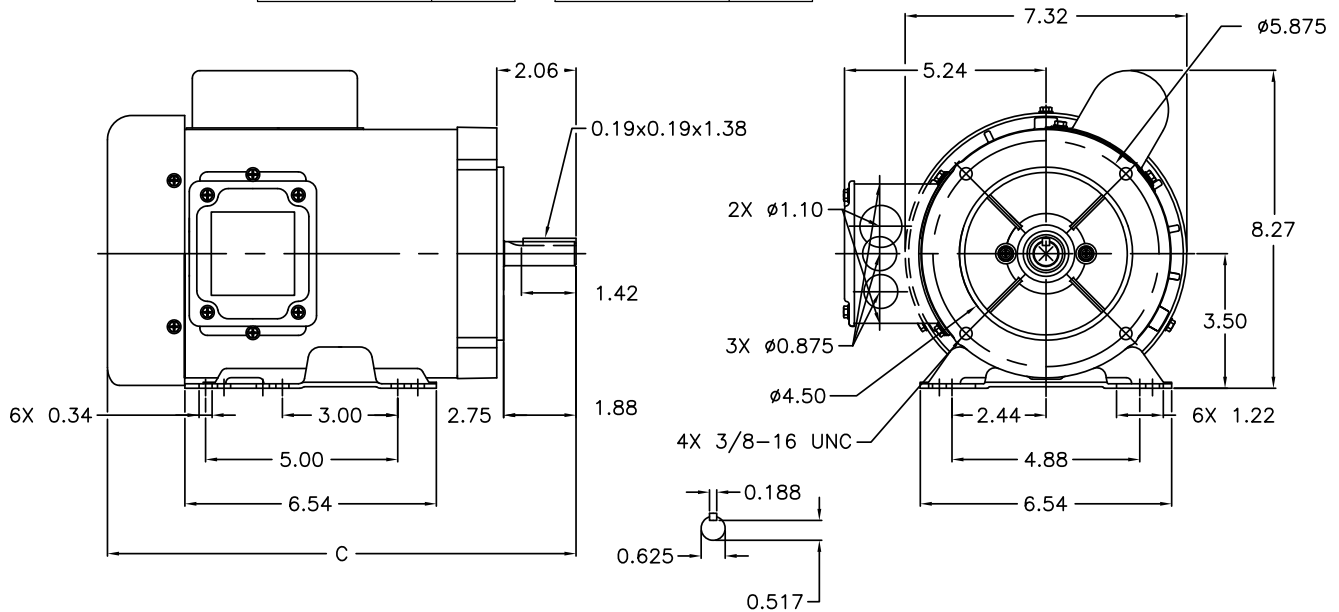
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56C/56HC Frame TEFC Motors – Single-Phase 0.33 to 2 hp

Dimensions – (units = inches)

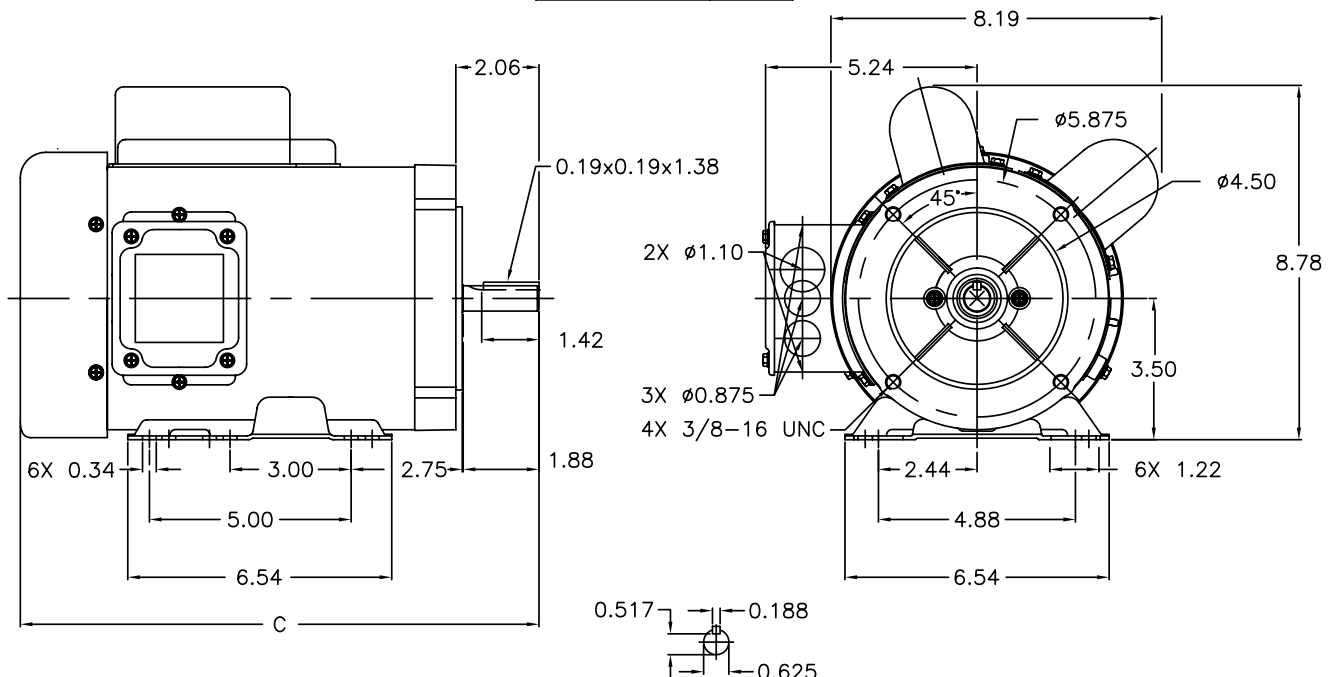
MTR2-Pxx-1ABxx, MTR2-001-1ABxx

PART NUMBER	DIM. C	PART NUMBER	DIM. C
MTR2-P33-1AB18	11.90	MTR2-P75-1AB18	12.40
MTR2-P33-1AB36	11.90	MTR2-P75-1AB36	11.90
MTR2-P50-1AB18	11.90	MTR2-001-1AB18	12.90
MTR2-P50-1AB36	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



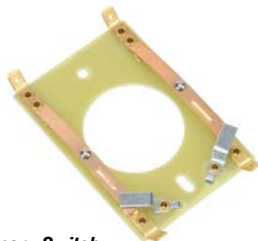
Centrifugal Switch **MTA-CSW-01**



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	\$11.50	start capacitor	200	165	3.15 x 1.65 [80.0 x 41.9]	MTR-P33-1AB18	1/3 : 1800
MTA-CAP-02	\$11.50	start capacitor	250			MTR-P50-1AB18	1/2 : 1800
MTA-CAP-03	\$11.50	start capacitor	300			MTR-P75-1AB18	3/4 : 1800
MTA-CAP-08	\$11.50	start capacitor	400			MTR-001-1AB18	1 : 1800
MTA-CAP-09	\$11.50	run capacitor	35		4.0 x 1.8 [101 x 45]	MTR-1P5-1AB36	1-1/2 : 3600
MTA-CSW-01	\$11.50	centrifugal switch	n/a	250	n/a	MTR-xxx-1AB18	all 1800 rpm
MTA-CSW-02	\$11.50					MTR-1P5-1AB36	all 3600 rpm
MTAR-BASE-56	\$13.50	motor base	n/a	n/a	n/a	MTR-xxx-1ABxx	all
MTAR-FAN-56	\$13.50	fan					
MTAR-JBOX-56	\$13.50	junction box					
MTAR-SHROUD-56	\$13.50	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	\$19.00	start capacitor	200	165	2.80 x 1.46 [71.1 x 37.1]	MTR2-P33-1AB36	1/3 : 3600
MTA-CAP-11	\$20.00	start capacitor	300		MTR2-P33-1AB18	1/3 : 1800	
MTA-CAP-12	\$21.50	start capacitor	400		MTR2-P50-1AB36	1/2 : 3600	
MTA-CAP-13	\$30.50	start capacitor	500		3.39 x 1.85 [86.1 x 47.0]	MTR2-P50-1AB18	1/2 : 1800
MTA-CAP-14	\$30.50	run capacitor	40	250	3.38 x 1.81 [85.9 x 46.0]	MTR2-1P5-1ABxx	1-1/2 : 1800
MTA-CAP-15	\$54.00	start capacitor	800	165	4.41 x 1.85 [112.0 x 47.0]	MTR2-002-1ABxx	2 : 1800 2 : 3600
MTA-CAP-22	\$58.00	start capacitor	900	165	4.375 x 1.8125 [111.1 x 46.0]	MTR2-1P5-1AB18	1-1/2 : 1800
MTA-CSW-03	\$15.75	centrifugal switch	n/a	125	n/a	MTR2-xxx-1AB36	all 3600 rpm
MTA-CSW-04	\$15.75	stationary switch				MTR2-xxx-1ABxx	all
MTA-CSW-08	\$15.75	centrifugal switch				MTR2-xxx-1AB18	all 1800 rpm
MTA2-BASE-56	\$17.50	motor base				n/a	n/a
MTA2-FAN-56	\$17.50	fan					
MTA2-JBOX-56	\$17.50	junction box					
MTA2-SHROUD-56	\$17.50	fan shroud					

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AC Motor Selection – IronHorse® General Purpose Motors



IRONHORSE®
AUTOMATIONDIRECT

IronHorse® 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 and Rolled Steel T & TC Frames
Electrical Characteristics					
Horsepower range	1/3 – 2	2 - 10	1/3 – 3	1/3 – 3/4	1-300(T); 1-30(TC)
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	208-230	208-230/460		208-230/460, 460
Phase / Base Frequency (Hz)	1 / 60		3 / 60		
Service Factor	1.15		1.15 (line) ; 1.0 (drive)		1.25 (TEFC, Line); 1.15 (ODP, Line); 1.00 (drive)
Design Code (NEMA)	L, N	L	B		
Insulation Class	F				
Insulation System	dip & bake twice	Double VPI	dip & bake	double dip & bake	TEFC : VI (Vacuum Impregnation); ODP: Double VPI
Duty Cycle	continuous				
Thermal protection	none	yes	none		
Mechanical Characteristics					
Frame size (mounting)	56C or 56HC	182T – 215T	56C or 56HC		143T/TC - 449T
Enclosure	TEFC				TEFC / ODP (MTCP2 / MTDP)
Frame material	rolled steel			304 stainless steel	Cast Iron / Rolled Steel
End bracket material	aluminum	aluminum	aluminum	304 stainless steel	Cast Iron / Aluminum 143T-256T, Cast Iron 284T-326T (TEFC / ODP)
Junction box material	steel	Base: Aluminum, Cover: Steel	steel	304 stainless steel	Cast Iron / Steel
Fan guard material	steel	steel	steel	304 stainless steel	Steel / N/A for ODP
Fan material	polypropylene plastic	plastic	plastic	heat-resistant polyethylene	Plastic / N/A for ODP
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-Face with Rigid Base (1-100 hp)
Drive end shaft slinger	yes	no	yes		Yes / No 143T-256T, Yes 284T-326T
Paint	black	green	black	n/a	Grey / Blue
Bearings	ball				1-300HP - 2P, 1-75 HP - 4P & 6P: Ball; 100-300 HP - 4P & 6P: Roller
Grease	Mobil Polyrex EM	NS7 ENS	Mobil Polyrex EM	Korschun lithium-based	Mobil Polyrex EM / NS7 ENS (TEFC / ODP)
Standard junction box assembly position	F1				F1 (Some sizes reversible to F2)
Performance Characteristics					
Constant Torque speed range	n/a	n/a	2:1 (MTR2, MTSS); 4:1 (MTRP, MTR2)		10:1
Variable Torque speed range	n/a	n/a	5:1 (MTR, MTSS); 10:1 (MTRP, MTR2)		20:1
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}	CE, cUR _{US}	cCSA _{US}		CE, cCSA _{US} / CE, cUR _{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.

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