

# 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
- cCSA<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<sup>®</sup> 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)		
<a href="#"><u>MTR2-P33-3BD18</u></a>		1/3	1800	3	230/460	TEFC	56C flange mount (MTRP = 56HC)*	1.15	1.4 / 0.7	18		
<a href="#"><u>MTR2-P33-3BD36</u></a>			3600						1.3 / 0.65	18		
<a href="#"><u>MTR2-P50-3BD18</u></a>		1/2	1800						1.9 / 0.95	19		
<a href="#"><u>MTR2-P50-3BD36</u></a>			3600						1.7 / 0.85	19		
<a href="#"><u>MTR2-P75-3BD18</u></a>		3/4	1800						2.6 / 1.3	22		
<a href="#"><u>MTR2-P75-3BD36</u></a>			3600						2.4 / 1.2	21		
<a href="#"><u>MTRP-001-3BD18</u></a>		1	1800		F1 conduit box location						3.2 / 1.6	35
<a href="#"><u>MTRP-001-3BD36</u></a>			3600								3.0 / 1.50	23
<a href="#"><u>MTRP-1P5-3BD18</u></a>		1-1/2	1800								4.5 / 2.25	43
<a href="#"><u>MTRP-1P5-3BD36</u></a>			3600								4.0 / 2.0	31
<a href="#"><u>MTRP-002-3BD18</u></a>		2	1800								6.0 / 3.0	49
<a href="#"><u>MTRP-002-3BD36</u></a>			3600								5.2 / 2.6	33
<a href="#"><u>MTRP-003-3BD36</u></a>		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® Rolled-Steel AC Motors – 3-Phase

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

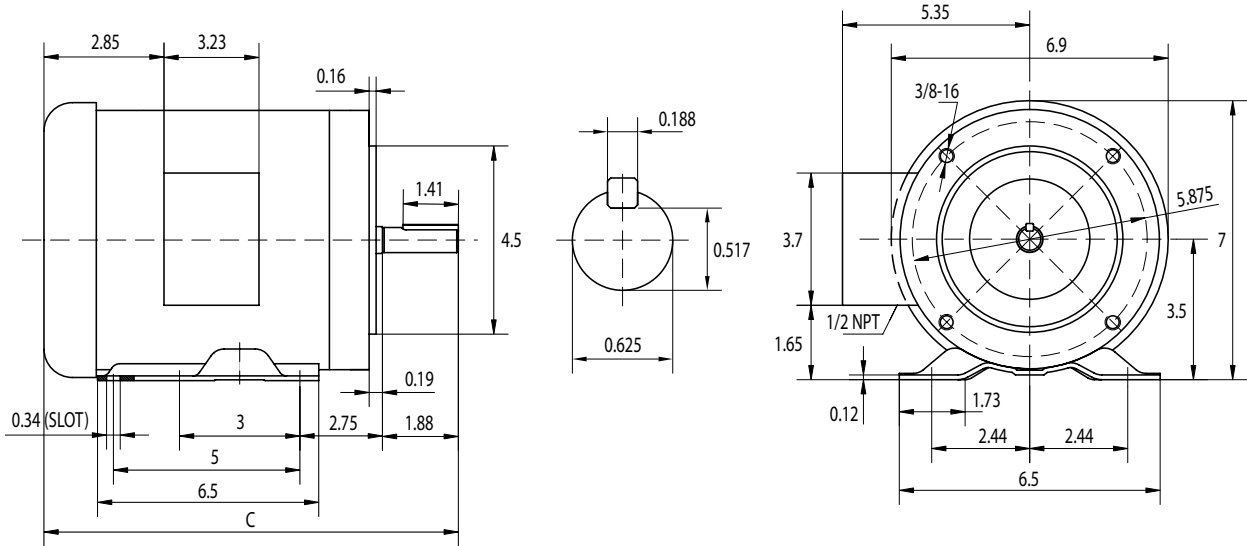
Performance Data – Three-Phase 56C/56HC-Frame Motors (460V data except as indicated) – 1800 & 3600 RPM																	
Part Number	HP	NEMA Design	FL RPM	Minimum Speed (rpm)		Current @ 230V/460V (Amps)			Torque (lb-ft)			Maximum Speed (rpm)		FL Efficiency (%)	FL Power Factor	Rotor Inertia (lb-ft <sup>2</sup> )	
				CT	VT	No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down	CHP*	Safe				
<a href="#">MTR2-P33-3BD18</a>	1/3	B	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	
<a href="#">MTR2-P33-3BD36</a>			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	
<a href="#">MTR2-P50-3BD18</a>	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	
<a href="#">MTR2-P50-3BD36</a>			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	
<a href="#">MTR2-P75-3BD18</a>	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	
<a href="#">MTR2-P75-3BD36</a>			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	
<a href="#">MTR-P33-3BD36</a>			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	
<a href="#">MTR-P50-3BD18</a>	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	
<a href="#">MTR-P50-3BD36</a>			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	
<a href="#">MTR-P75-3BD18</a>	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	
<a href="#">MTR-P75-3BD36</a>			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	
<a href="#">MTR-001-3BD18</a>	1		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	
<a href="#">MTR-001-3BD36</a>			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	
<a href="#">MTRP-001-3BD18</a>			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
<a href="#">MTRP-001-3BD36</a>			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
<a href="#">MTR-1P5-3BD18</a>	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
<a href="#">MTR-1P5-3BD36</a>			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
<a href="#">MTRP-1P5-3BD18</a>			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
<a href="#">MTRP-1P5-3BD36</a>		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		
<a href="#">MTR-002-3BD18</a>	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		
<a href="#">MTR-002-3BD36</a>		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		
<a href="#">MTRP-002-3BD18</a>		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		
<a href="#">MTRP-002-3BD36</a>		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		
<a href="#">MTRP-003-3BD36</a>		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**

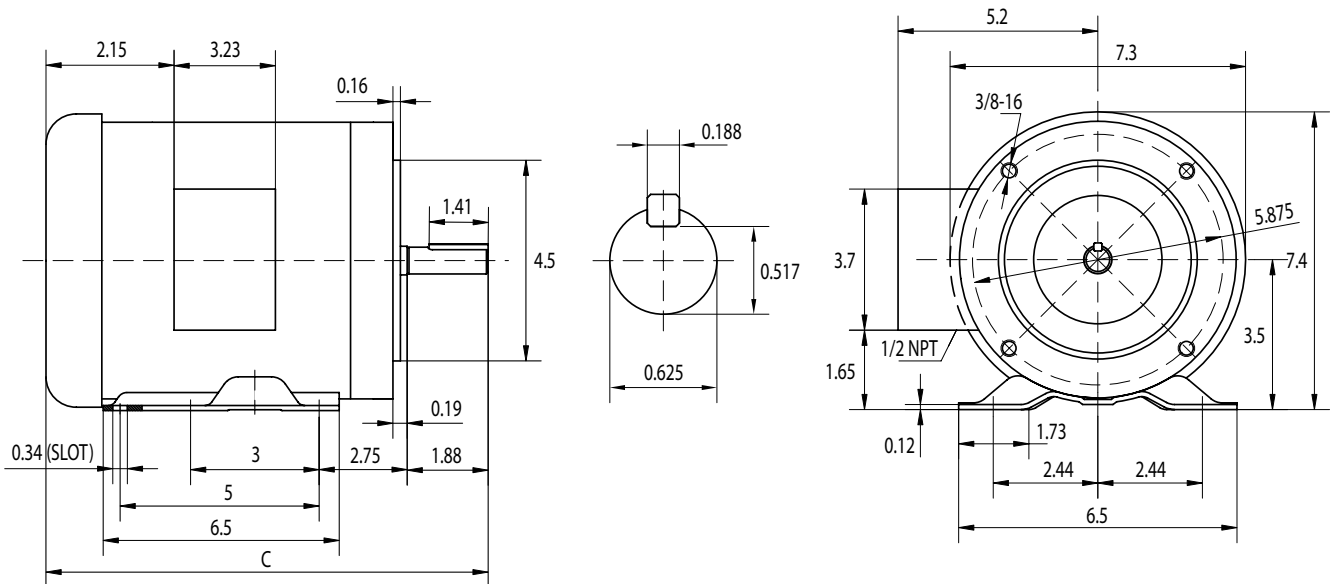


- C = 12.2"; 0.33 to 1hp motors
- C = 12.6"; 1.5hp MTR-1P5-3BD18
- C = 12.2"; 1.5hp MTR-1P5-3BD36
- C = 13.8"; 2hp MTR-002-3BD18
- C = 12.4"; 2hp MTR-002-3BD36

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

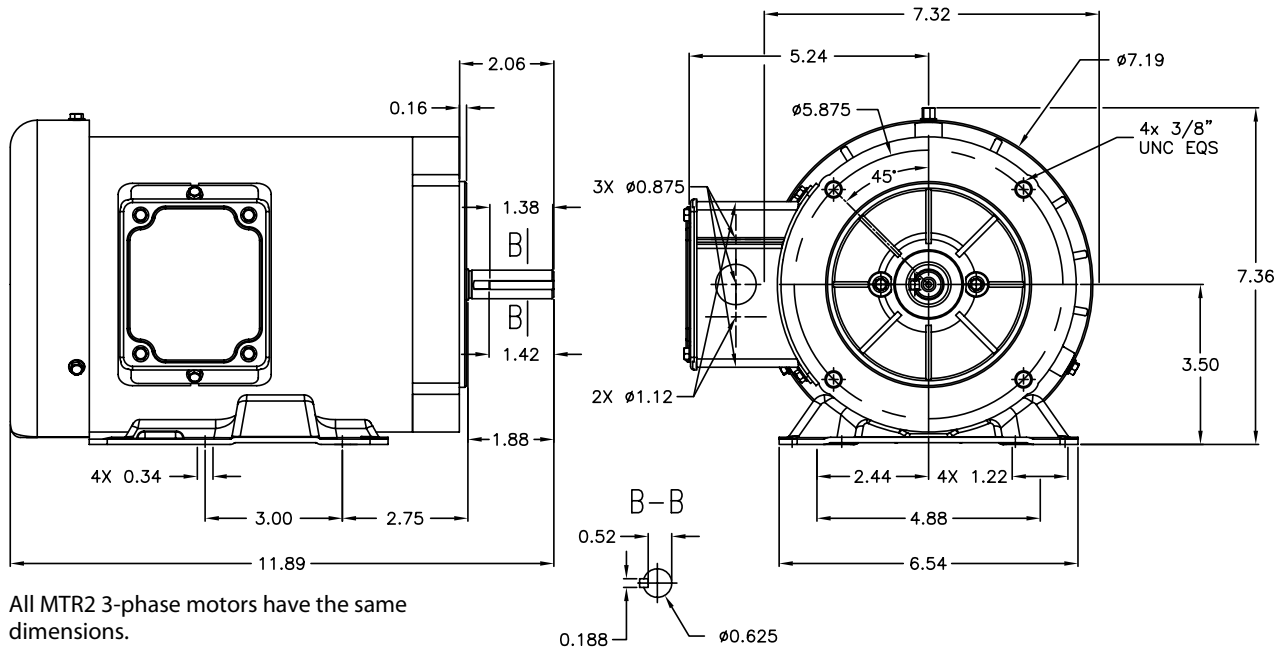
UNITS = INCHES

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**

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

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

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

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

# 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
<b>Electrical Characteristics</b>					
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		
<b>Mechanical Characteristics</b>					
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)
<b>Performance Characteristics</b>					
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				
<b>Other Characteristics</b>					
Warranty*	2 years			1 year	2 Years
Agency Approvals **	CE, cCSA <sub>US</sub>	CE, cUR <sub>US</sub>	cCSA <sub>US</sub>		CE, cCSA <sub>US</sub> / CE, cUR <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.