

IronHorse® Farm-Duty AC Motors – 1-Phase

T-Frame TEFC Motors – Single-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
- cUR 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 – Single-Phase Farm-Duty Motors

Part Number	Price	HP	Base RPM	Voltage	Housing	NEMA Frame	Service Factor	FL Amps @ 208/230VAC	Approx Weight (lb)	Drawing Link
MTF2-002-1B18-182		2 hp	1800rpm	208-230 VAC	TEFC IP55	182T	1.15 @ 230 VAC, 1.0 @ 208 VAC	9.3 / 8.5	67	PDF
MTF2-003-1B18		3 hp				184T		13.5 / 12.5	76	PDF
MTF2-005-1B18		5 hp				184T		22.2 / 20.2	100	PDF
MTF2-7P5-1B18-215		7 1/2 hp				215T		31.5 / 28.7	134	PDF
MTF2-010-1B18		10 hp				215T		45.2 / 38.8	149	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), single-phase power only.

Performance Data – Single-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-ft ²)
				230V No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down			
MTF2-002-1B18-182	2 hp	215T	1764	3.0	8.5	78.6	6.01	21.8	22.1	84.0	0.92	0.27
MTF2-003-1B18	3 hp		1769	4.2	12.5	89.2	8.76	24.9	24.4	84.4	0.91	0.34
MTF2-005-1B18	5 hp		1769	6.3	20.2	170.7	14.7	57.2	57.3	86.4	0.92	0.49
MTF2-7P5-1B18-215	7 1/2 hp		1767	8.2	28.7	238.5	21.91	82.8	82.2	86.6	0.96	0.74
MTF2-010-1B18	10 hp		1765	11.79	38.8	365.8	29.93	119.7	122.7	87.5	0.96	0.85

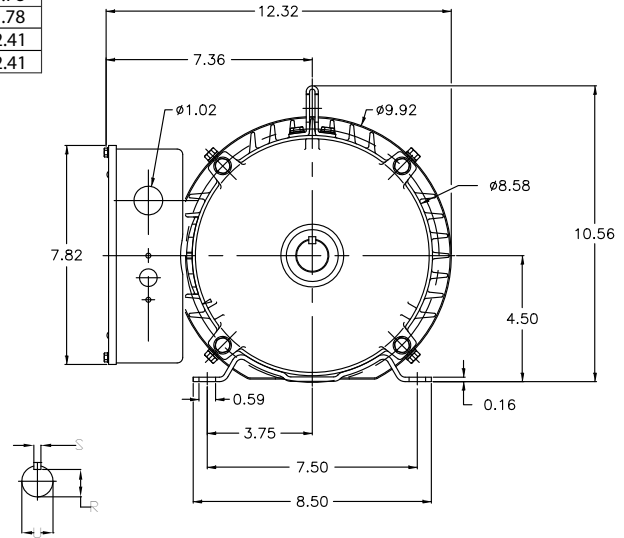
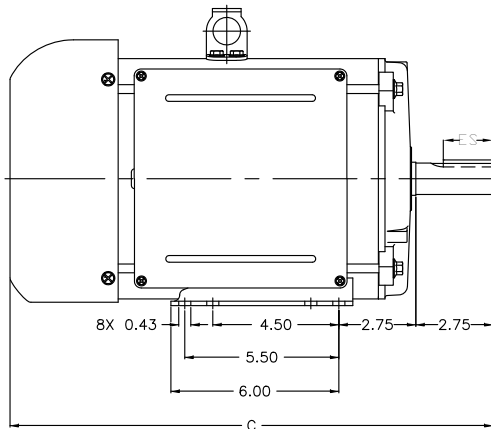
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Dimensions – (units = inches)

MTF2-00x-1B18-xxx

PART NUMBER	DIM. C	U	R	S	ES
MTF2-002-1B18-182	18.6	1.125	0.986	0.25	1.78
MTF2-003-1B18	18.6	1.125	0.986	0.25	1.78
MTF2-005-1B18	18.6	1.125	0.986	0.25	1.78
MTF2-7P5-1B18-215	20.46	1.375	1.201	0.312	2.41
MTF2-010-1B18	20.46	1.375	1.201	0.312	2.41



IronHorse® Farm-Duty AC Motor Accessories

T-Frame TEFC Motors – Single-Phase 2 to 10 hp

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 single-phase farm-duty 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.

Locked Rotor Overload Switches

IronHorse Farm Duty motors have a built-in manual overload switch to disable the motor if the load stops the motor (locked rotor). The overload is located in the motor's junction box, and has a manual reset switch. This switch is for locked rotor only. A separate motor thermal overload must be provided.



Centrifugal Switch
MTAF2-CSW-05



Manual Overload Switch
MTAF2-MOL-1



Start Capacitor
MTAF2-CAP-16



Run Capacitor
MTAF2-CAP-19



Stationary Switch
MTAF2-SSW-05

MTF Farm-Duty Single-Phase Motor Spare/Replacement Parts *							
Part Number	Price	Accessory Type	Capacitance (µF)	Rated Voltage	Dimension Height x Ø (in [mm])	Applicable Motor Number	Motor HP
MTAF2-CAP-16		start capacitor	250	300	3.39 x 1.81 [86.1 x 46.0]	MTF2-002-1B18-182 MTF2-003-1B18	2, 3
MTAF2-CAP-17			550		3.39 x 1.81 [86.1 x 46.0]	MTF2-005-1B18	5
MTAF2-CAP-18			400	330	4.33 x 1.97 [110.0 x 50.0]	MTF2-7P5-1B18-215	7.5
MTAF2-CAP-19			550	330	3.96 x 1.77 [100.6 x 45.0]	MTF2-010-1B18	10
MTAF2-CAP-20		run capacitor	25	450	3.96 x 1.97 [100.6 x 50.0]	MTF2-002-1B18-182	2
MTAF2-CAP-21			30	450	4.17 x 1.97 [106.0 x 50.0]	MTF2-003-1B18	3
MTAF2-CAP-22			50	450	3.54 x 2.01 [90.0 x 51.0]	MTF2-005-1B18	5
MTAF2-CAP-23			45	500	4.13 x 2.13 [105.0 x 54.0]	MTF2-7P5-1B18-215	7.5
MTAF2-CAP-24			60	500	4.72 x 1.97 [120.0 x 50.0]	MTF2-010-1B18	10
MTAF2-CSW-05		centrifugal switch	n/a	n/a	n/a	MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-CSW-06				250		MTF2-7P5-1B18-215	7.5, 10
MTAF2-SSW-05		stationary switch	n/a	n/a	n/a	MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-SSW-06						MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10
MTAF2-MOL-1		manual overload switch	n/a	n/a	n/a	MTF2-002-1B18-182	2
MTAF2-MOL-2						MTF2-003-1B18	3
MTAF2-MOL-3						MTF2-005-1B18	5
MTAF2-MOL-4						MTF2-7P5-1B18-215	7.5
MTAF2-MOL-5	Not Done					MTF2-010-1B18	10

* These accessories are spare/replacement components only for IronHorse MTF2 series single-phase farm-duty motors.

IronHorse[®] Farm-Duty AC Motor Accessories

T-Frame TEFC Motors – Single-Phase 2 to 10 hp

Fans

Fan Shrouds



Fan
MTAF2-FAN-180



Fan
Shroud
MTAF2-SHROUD-180

Junction Boxes



Junction Box
MTAF2-JBOX-180

C-face Flanges



C-face Flange MTAf2-
CFACE-180TC

MTF2 Farm-Duty Single-Phase Motor Spare/Replacement Parts *					
Part Number	Price	Accessory Type	Dimension Height x Ø (in [mm])	Applicable Motor Number	Motor HP
MTAF2-CFACE-180TC		c-face kit	n/a	MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-CFACE-210TC				MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10
MTAF2-JBOX-180		junction box		MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-JBOX-210				MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10
MTAF2-FAN-180		fan		MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-FAN-210				MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10
MTAF2-SHROUD-180		fan shroud		MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-SHROUD-210				MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10

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AC Motor Selection – IronHorse® General Purpose Motors



IRONHORSE®
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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.