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First Edition	09/2007	Original Issue
1st Ed., Rev. A	11/2007	Chapter 2 wiring diagrams
Second Edition	12/2008	User manual name change (previously "IH-USER-M"). Deleted obsolete motor MTR-002-1AB18. Added MTC-xxx-xxxxxCK cast iron TC-frame motors. Revised specs for existing MTC-xxx-xxxxx cast iron T-frame motors.
Third Edition	06/2009	Added 1200 and 3600 rpm motors
Fourth Edition	06/2011	Added Premium Efficiency motors and replacement parts for cast-iron motors. Some minor specification changes for existing motors.
Fifth Edition	06/2012	Added MTSS stainless-steel motors & accessories. Added MTR-1P5-1AB36 motor & accessories.
5th Ed., Rev. A	08/2012	Revised MTSS rotor inertia data (chapter 1)
Sixth Edition	10/2014	User manual name change (previously "IH-USER-M-WO"). Added MTF & MTR2 motors. Added MTCP motor 50Hz specs (chapter 1). Added single-phase motor reversing wiring diagrams (chapter 2).
6th Ed., Rev. A	07/17/2015	Ch1, MTF specification table note. Ch2, MTR2 wiring diagram.
7th Edition	01/12/2017	User manual name change (previously "IH-MT-AC-USER-M-WO"). Ch1, Added MTRP (Premium) Motors. Ch2, "Inspection Before Startup," "Motor Mounting Orientation." Ch4, Added MTR2 accessory.
8th Edition	01/18/2018	Ch1, Added MTR2 Motors. Ch2, Added MTR2 mounting dimensions. Ch5, Added performance curves for MTR2 motors.

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Getting Started



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Manual Overview

Overview of this Publication

The IronHorse® General Purpose AC Motor User Manual describes the installation, maintenance and use of all IronHorse General Purpose Motors.

Who Should Read This Manual

This manual contains important information for those who will install, maintain, use and/or resell any of the IronHorse motors.

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Special Symbols



NOTE: When you see the "notepad" icon in the left-hand margin, the paragraph to its immediate right will be a special note.



WARNING: When you see the "exclamation mark" icon in the left-hand margin, the paragraph to its immediate right will be a warning. This information could prevent injury, loss of property, or even death (in extreme cases).

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Available Models

MTF Farm-Duty T-Frame Single-Phase Motors

– Features and Specifications



IronHorse® single-phase farm-duty motors are available from 2hp to 5hp. All models have a TEFC housing (steel frame with iron end bells) that is fully gasketed for use in dirty environments. All motors are NEMA L design.

All models include a class-10 manual-reset locked-rotor thermal protector (motor thermal overload protection must be provided separately).

We recommend disconnecting power to the motor before reseting the thermal protector. Do not reset more than twice in succession. The motor must cool to 40°C (104°F) before a third reset.

Cast-Iron T-Frame 1-Phase Farm-Duty Motor Specifications

Motor Specifications – Single-Phase Farm-Duty Motors (60Hz)									
Part Number	**HP**	**Base RPM**	**Voltage***	**Service Factor**	**NEMA Design**	**NEMA Frame**	**Housing**	**F.L. Amps @ 230VAC**	**Approx Weight (lb)**
MTF-002-1C18-182	2	1800	230VAC ±10%	1.15 @ 230VAC 1.0 @ 208VAC	L	182T	TEFC IP55	8.5	74
MTF-003-1C18	3					184T		12.9	85
MTF-005-1C18	5					184T		21.2	105
* Operate on 230VAC +/- 10% (1.15 @ 230VAC; 1.0 S.F. @ 208V), single-phase power only.									

Cast-Iron T-Frame 1-Phase Farm-Duty Motor Performance Data

Performance Data – Single-Phase Farm-Duty Motors (60Hz)											
Part Number	**HP**	**F.L. RPM**	**Current @ 230V (Amps)**			**Torque (lb·ft)**			**F.L. Efficiency (%)**	**F.L. Power Factor**	**Rotor Inertia (lb·ft²)**
			230V No Load	**Full Load**	**Locked Rotor**	**Full Load**	**Locked Rotor**	**Break down**			
MTF-002-1C18-182	2	1725	2.7	8.5	70.0	6.04	20.54	15.10	82.5	0.92	0.35
MTF-003-1C18	3		3.9	12.9	95.0	9.11	32.80	23.69	81.5	0.93	0.60
MTF-005-1C18	5		6.6	21.2	160.0	15.30	58.14	36.72	81.0	0.90	0.81

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MTR/MTR2 Rolled-Steel 56C/56HC-Frame Single-Phase Motors – Features and Specifications



IronHorse® single-phase 56C/56HC-frame* motors are available from 1/3 hp to 2 hp. All models have a TEFC rolled steel frame, cast aluminum end bell and removable mounting bases.

Rolled-Steel 56C-Frame 1-Phase Motor Specifications

Motor Specifications – Single-Phase 56C/56HC-Frame Motors (60Hz except as indicated)									
Part Number	HP	Base RPM	Voltage	Service Factor	NEMA Design	NEMA Frame	Housing	F.L. Amps @ 115V/230V 60Hz (110/220V 50Hz)	Approx Weight (lb)
	@ 60Hz (50Hz)								
1800 RPM									
MTR2-P33-1AB18	1/3 (1/4)	1800 (1500)	115/230 (110/220)	1.15 (1)	N	56C flange mount	IP43 TEFC rolled steel frame Cast AL end bell F1 conduit box location	5.2 / 2.6 (5.4 / 2.7)	22
MTR2-P50-1AB18	1/2 (1/3)							7.2 / 3.6 (7.2 / 6.3)	25
MTR2-P75-1AB18	3/4 (1/2)							10.0 / 5.0 (9.6 / 4.8)	29
MTR2-001-1AB18	1 (3/4)							13.0 / 6.5 (12.4 / 6.2)	36
MTR2-1P5-1AB18	1-1/2 (1)				L	56HC		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
MTR-P33-1AB18	1/3	1800	115/208-230	1.15	N	56C flange mount		6.6 / 3.3	26
MTR-P50-1AB18	1/2							8.8 / 4.4	28
MTR-P75-1AB18	3/4							11.0 / 5.5	32
MTR-001-1AB18	1							13.6 / 6.8	38
MTR-1P5-1AB18	1-1/2							15.2 / 7.6	45
3600 RPM									
MTR2-P33-1AB36	1/3 (1/4)	3600 (3000)	115/230 (110/220)	1.15 (1)	N	56C	IP43 TEFC rolled steel frame Cast AL end bell F1 conduit box location	5.4 / 2.7 (5.4 / 2.7)	21
MTR2-P50-1AB36	1/2 (1/3)							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)							11.5 / 5.8 (10.2 / 5.1)	30
MTR2-1P5-1AB36	1-1/2 (1)				L			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
MTR-1P5-1AB36	1-1/2	3600	115/208-230	1.15	N			14.2 / 7.1	37
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.									

NOTE: *56HC ARE SUITABLE FOR 56C C-FACE MOUNTING OR 56, 143T, OR 145T FRAME FOOT MOUNTING DIMENSIONS.

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MTR(2) ROLLED-STEEL 56C/56HC-FRAME SINGLE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

ROLLED-STEEL 56C-FRAME 1-PHASE MOTOR PERFORMANCE DATA

Performance Data – Single-Phase 56C/56HC-Frame Motors (230V / 60Hz data except as indicated)											
Part Number	HP	F.L. RPM	Current @ 115V/230V (Amps)			Torque (lb·ft)			F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)
	@ 60Hz (50Hz)		230V No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break down			
1800 RPM											
MTR2-P33-1AB18	1/3 (1/4)	1725 (1425)	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)		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	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
3600 RPM											
MTR2-P33-1AB36	1/3 (1/4)	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
MTR2-1P5-1AB36	1-1/2 (1)		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	3450	3.0	14.2 / 7.1	116 / 58	2.2	7.5	5.4	72.0	0.9	0.03

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MTR/MTR2 and MTRP Rolled-Steel 56C/56HC-Frame Three-Phase Motors – Features and Specifications



IronHorse® rolled steel 56C/56HC-frame* three-phase motors are available from 1/3 hp to 3 hp. All models have a TEFC frame, cast aluminum end bell and removable mounting bases.

Rolled-Steel 56C/56HC-Frame 3-Phase Motor Specifications – 1800 & 3600 rpm

Motor Specifications – MTR/MTR2 & MTRP 3-Phase 56C/56HC-Frame Motors – 1800 & 3600 rpm									
Part Number	HP	Base RPM	Voltage	Service Factor	NEMA Design	NEMA Frame	Housing	F.L. Amps @ 230V/460V	Approx Weight (lb)
1800 RPM									
MTR2-P33-3BD18	1/3	1800	230/460	1.15	B	56C flange mount (MTRP = 56HC)	TEFC rolled steel frame Cast aluminum end bell F1 conduit box location	1.4 / 0.7	18
MTR2-P50-3BD18	1/2							1.9 / 0.95	19
MTR2-P75-3BD18	3/4							2.6 / 1.3	22
MTR-P33-3BD18	1/3		208-230/460					1.6 / 0.8	23
MTR-P50-3BD18	1/2							2.0 / 1.0	24
MTR-P75-3BD18	3/4							2.8 / 1.4	26
MTR-001-3BD18	1							3.6 / 1.8	29
MTRP-001-3BD18								3.2 / 1.6	35
MTR-1P5-3BD18	1-1/2							4.8 / 2.4	33
MTRP-1P5-3BD18								4.5 / 2.3	43
MTR-002-3BD18	2							6.0 / 3.0	42
MTRP-002-3BD18								6.0 / 3.0	49
3600 RPM									
MTR2-P33-3BD36	1/3	3600	230/460	1.15	B	56C flange mount (MTRP = 56HC)	TEFC rolled steel frame Cast aluminum end bell F1 conduit box location	1.3 / 0.65	18
MTR2-P50-3BD36	1/2							1.7 / 0.85	19
MTR2-P75-3BD36	3/4							2.4 / 1.2	21
MTR-P33-3BD36	1/3		208-230/460					1.6 / 0.8	23
MTR-P50-3BD36	1/2							2.2 / 1.1	24
MTR-P75-3BD36	3/4							2.9 / 1.5	26
MTR-001-3BD36	1							3.6 / 1.8	28
MTRP-001-3BD36								3.0 / 1.50	23
MTR-1P5-3BD36	1-1/2							4.6 / 2.3	34
MTRP-1P5-3BD36								4.0 / 2.0	31
MTR-002-3BD36	2							6.0 / 3.0	43
MTRP-002-3BD36								5.2 / 2.6	33
MTRP-003-3BD36	3							7.4 / 3.7	39
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.									

NOTE: *56HC are suitable for 56C C-face mounting or 56, 143T, or 145T frame foot mounting dimensions.

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MTR AND MTRP ROLLED-STEEL 56C/56HC-FRAME THREE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

MOTOR PERFORMANCE DATA – 1800 RPM

Performance Data – MTR/MTR2 Three-Phase 56C/56HC-Frame Motors – 1800 rpm (460V data except as indicated)									
Part Number	**HP**	**F.L. RPM**	**Minimum Speed (rpm)**		**Maximum Speed (rpm)**		**Current @ 230V/460V (Amps)**		
			CT	**VT**	**CHP***	**Safe**	**No Load**	**Full Load**	**Locked Rotor**
MTR2-P33-3BD18	1/3	1725	431	172	2700	5400	1.10 / 0.55	1.4 / 0.7	7 / 3.5
MTR2-P50-3BD18	1/2						1.36 / 0.68	1.9 / 0.95	10 / 5
MTR2-P75-3BD18	3/4						1.60 / 0.80	2.6 / 1.3	12.2 / 6.6
MTR-P33-3BD18	1/3		863	345			0.53 / 0.27	1.6 / 0.8	8 / 4
MTR-P50-3BD18	1/2						0.67 / 0.33	2.0 / 1.0	12 / 6
MTR-P75-3BD18	3/4						0.93 / 0.47	2.8 / 1.4	18 / 9
MTR-001-3BD18	1						1.2 / 0.6	3.6 / 1.8	24 / 12
MTRP-001-3BD18		1760	440	176		2700	2.2 / 1.1	3.2 / 1.6	31 / 16
MTR-1P5-3BD18	1-1/2	1725	863	345		5400	1.5 / 0.8	4.8 / 2.4	36 / 18
MTRP-1P5-3BD18		1760	440	176		2700	2.8 / 1.4	4.5 / 2.3	47 / 24
MTR-002-3BD18	2	1725	863	345		5400	2.0 / 1.0	6.0 / 3.0	48 / 24
MTRP-002-3BD18		1760	440	176		2700	3.6 / 1.8	6.0 / 3.0	61 / 31
Part Number	**HP**		**Torque (lb·ft)**				**F.L. Efficiency (%)**	**F.L. Power Factor**	**Rotor Inertia ($lb·ft^2$)**
			Full Load	**Locked Rotor**	**Break -down**				
MTR2-P33-3BD18	1/3	N/A	1.03	2.93	3.77	N/A	67.0	0.65	0.0329
MTR2-P50-3BD18	1/2		1.53	3.81	4.96		70.0	0.69	0.038
MTR2-P75-3BD18	3/4		2.31	5.41	7.17		73.0	0.73	0.048
MTR-P33-3BD18	1/3		1.02	2.55	2.81		67.0	0.70	0.058
MTR-P50-3BD18	1/2		1.52	3.80	4.18		69.0	0.72	0.068
MTR-P75-3BD18	3/4		2.29	5.73	6.30		71.0	0.74	0.075
MTR-001-3BD18	1		3.02	7.55	8.31		73.0	0.76	0.086
MTRP-001-3BD18			3	12.35	14.51		85.0	0.69	0.107
MTR-1P5-3BD18	1-1/2		4.57	10.28	11.43		75.0	0.78	0.108
MTRP-1P5-3BD18			4.4	21.68	21.76		86.5	0.72	0.135
MTR-002-3BD18	2		6.09	13.70	15.23		77.0	0.80	0.143
MTRP-002-3BD18			6.03	27.3	27.46		86.5	0.74	0.158
** Maximum Constant HP rpm is for direct-coupled loads.*									

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MOTOR PERFORMANCE DATA – 3600 RPM

Performance Data – Three-Phase 56C/56HC-Frame Motors – 3600 rpm (460V data except as indicated)									
Part Number	*HP*	*F.L. RPM*	*Minimum Speed (rpm)*		*Maximum Speed (rpm)*		*Current @ 230V/460V (Amps)*		
			CT	*VT*	*CHP**	*Safe*	*No Load*	*Full Load*	*Locked Rotor*
MTR2-P33-3BD36	1/3	3450	862	345	5400	5400	0.8 / 0.4	1.3 / 0.65	7.6 / 3.8
MTR2-P50-3BD36	1/2						1.0 / 0.5	1.7 / 0.85	10.8 / 5.4
MTR2-P75-3BD36	3/4						1.3 / 0.7	2.4 / 1.2	16 / 8
MTR-P33-3BD36	1/3	3450	1725	690			1.2 / 0.59	1.6 / 0.8	9 / 5
MTR-P50-3BD36	1/2						1.4 / 0.7	2.2 / 1.1	14 / 7
MTR-P75-3BD36	3/4						1.5 / 0.75	2.9 / 1.5	17 / 8.9
MTR-001-3BD36	1	3450					1.7 / 0.85	3.6 / 1.8	25 / 13
MTRP-001-3BD36		3500	875	350			1.52 / 0.76	3.00 / 1.50	22 / 11
MTR-1P5-3BD36	1-1/2	3450	1725	690			1.8 / 0.9	4.6 / 2.3	29 / 17
MTRP-1P5-3BD36		3500	875	350			1.8 / 0.9	3.96 / 1.98	38 / 19
MTR-002-3BD36	2	3450	1725	690			3.4 / 1.7	6.0 / 3.0	57 / 30
MTRP-002-3BD36		3500	875	350			2.28 / 1.14	5.22 / 2.61	53/27
MTRP-003-3BD36	3	3500	875	350			3.54 / 1.77	7.38 / 3.69	89 / 45
Part Number	*HP*		*Torque (lb·ft)*				*F.L. Efficiency (%)*	*F.L. Power Factor*	*Rotor Inertia ($lb·ft^2$)*
			Full Load	*Locked Rotor*	*Break -down*				
MTR2-P33-3BD36	1/3	N/A	0.50	1.14	1.99	N/A	60.0	0.75	0.0245
MTR2-P50-3BD36	1/2		0.74	1.81	2.96		67.5	0.74	0.0277
MTR2-P75-3BD36	3/4		1.14	2.95	4.25		71.5	0.78	0.031
MTR-P33-3BD36	1/3		0.50	3.0	3.0		57.0	0.71	0.084
MTR-P50-3BD36	1/2		0.75	4.4	4.5		62.0	0.71	0.095
MTR-P75-3BD36	3/4		1.13	6.0	5.8		67.0	0.78	0.107
MTR-001-3BD36	1		1.50	7.9	7.1		69.0	0.82	0.122
MTRP-001-3BD36			1.51	3.98	4.93		77	0.83	0.034
MTR-1P5-3BD36	1-1/2		2.25	11.2	8.4		72.0	0.85	0.143
MTRP-1P5-3BD36			2.21	7.94	9.03		84.0	0.85	0.048
MTR-002-3BD36	2		3.06	18.9	13.4		75.0	0.78	0.188
MTRP-002-3BD36			3.02	12.23	12.8		85.5	0.86	0.056
MTRP-003-3BD36	3		4.49	19.44	20.39		86.5	0.85	0.069

** Maximum Constant HP rpm is for direct-coupled loads.*

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MTSS Stainless-Steel 56C-Frame Three-Phase Motors – Features and Specifications

Stainless-Steel 56C-Frame Three-Phase Motor with Round Body



Stainless-Steel 56C-Frame Three-Phase Motor with Rigid Base



IronHorse stainless steel 56C-frame three-phase motors are available from 1/3 hp to 2 hp. All models have TEFC frames and stainless steel end bells, and they are available with or without rigid mounting bases.

Stainless-Steel 56C-Frame 3-Phase Motor Specifications – 1800 & 3600 rpm

Motor Specifications – MTSS 3-Phase 56C-Frame Motors – 1800 & 3600 rpm									
Part Number	**HP**	**Base RPM**	**Voltage**	**Service Factor**	**NEMA Design**	**NEMA Frame**	**Housing**	**F.L. Amps @ 208-230V/460V**	**Approx Weight (lb)**
1800 RPM								**1800 RPM**	
MTSS-P33-3BD18R	1/3	1800	208-230/460 – 3-phase	1.15	B	56C flange mount	TEFC stainless steel frame with round body F1 conduit box location	1.5-1.4 / 0.7	27
MTSS-P50-3BD18R	1/2							1.55-1.5 / 0.75	27
MTSS-P75-3BD18R	3/4							2.6-2.4 / 1.2	29
MTSS-001-3BD18R	1							3.5-3.2 / 1.6	34
MTSS-1P5-3BD18R	1-1/2							4.6-4.2 / 2.1	36
MTSS-002-3BD18R	2							6.6-6.0 / 3.0	43
MTSS-P33-3BD18	1/3						TEFC stainless steel frame with rigid base F1 conduit box location	1.5-1.4 / 0.7	28
MTSS-P50-3BD18	1/2							1.55-1.5 / 0.75	28
MTSS-P75-3BD18	3/4							2.6-2.4 / 1.2	30
MTSS-001-3BD18	1							3.5-3.2 / 1.6	35
MTSS-1P5-3BD18	1-1/2							4.6-4.2 / 2.1	36
MTSS-002-3BD18	2							6.6-6.0 / 3.0	44
3600 RPM								**3600 RPM**	
MTSS-P50-3BD36	1/2	3600						1.99-1.8 / 0.9	29
MTSS-P75-3BD36	3/4							2.4-2.3 / 1.15	31
MTSS-001-3BD36	1							3.3-3.0 / 1.5	31
MTSS-1P5-3BD36	1-1/2							4.2-4.0 / 2.0	36
MTSS-002-3BD36	2							5.0-4.8 / 2.4	43
Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.									

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MTSS Stainless-Steel 56C-Frame 3-Phase Motors Features & Specs (continued)

Motor Performance Data – 1800 rpm

Performance Data
MTSS Three-Phase 56C-Frame Motors – 1800 rpm
(460V data except as indicated)

Part Number	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		Current @ 460V (Amps)	
		CT (2:1)	VT (5:1)	CHP*	Safe	No Load	Locked Rotor
MTSS-P33-3BD18(R)	1725	900	360	2250	4500	0.29	4.2
MTSS-P50-3BD18(R)	1725					0.30	4.6
MTSS-P75-3BD18(R)	1725					0.44	7.3
MTSS-001-3BD18(R)	1740					0.61	10.0
MTSS-1P5-3BD18(R)	1740					0.70	13.8
MTSS-002-3BD18(R)	1740					1.08	21.0

** Maximum Constant HP rpm is for direct-coupled loads.*

Part Number	HP	Torque (lb·ft)			F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia ($lb \cdot ft^2$)
		Full Load	Locked Rotor	Break -down			
MTSS-P33-3BD18(R)	1/3	1.0	2.9	3.9	82.5	0.71	0.078
MTSS-P50-3BD18(R)	1/2	1.5	3.8	5.2	82.5	0.76	0.078
MTSS-P75-3BD18(R)	3/4	2.2	5.0	7.0	82.5	0.78	0.081
MTSS-001-3BD18(R)	1	3.0	7.2	9.9	84.0	0.78	0.090
MTSS-1P5-3BD18(R)	1-1/2	4.4	10.3	14.5	84.0	0.83	0.087
MTSS-002-3BD18(R)	2	5.9	13.9	18.9	84.0	0.83	0.101

Motor Performance Data – 3600 rpm

Performance Data
MTSS Three-Phase 56C-Frame Motors – 3600 rpm
(460V data except as indicated)

Part Number	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		Current @ 460V (Amps)	
		CT (2:1)	VT (5:1)	CHP*	Safe	No Load	Locked Rotor
MTSS-P50-3BD36	3460	1800	720	4500	4500	0.36	6.0
MTSS-P75-3BD36	3470					0.43	7.6
MTSS-001-3BD36	3470					0.58	10.0
MTSS-1P5-3BD36	3480					0.70	15.0
MTSS-002-3BD36	3480					0.85	18.0

** Maximum Constant HP rpm is for direct-coupled loads.*

Part Number	HP	Torque (lb·ft)			F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia ($lb \cdot ft^2$)
		Full Load	Locked Rotor	Break -down			
MTSS-P50-3BD36	1/2	0.7	1.9	2.5	77.0	0.88	0.077
MTSS-P75-3BD36	3/4	1.1	2.7	3.3	73.0	0.84	0.100
MTSS-001-3BD36	1	1.5	4.6	5.5	80.0	0.72	0.094
MTSS-1P5-3BD36	1-1/2	2.3	6.6	9.0	84.0	0.74	0.098
MTSS-002-3BD36	2	2.9	8.6	11.3	80.0	0.72	0.107

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MTCP Premium-Efficiency Cast-Iron Three-Phase Motors – Features and Specifications

Premium Effiency Cast-Iron T-Frame



Premium Effiency Cast-Iron TC-Frame



IronHorse cast-iron industrial-duty Premium Efficiency motors are available in T-frame housings in speeds of 1200, 1800, and 3600 rpm, and in TC-frame housings in speeds of 1800 rpm. Optional C-face kits are available for IronHorse T-frame Premium Efficiency motors. (Premium Efficiency C-face kits are NOT compatible with EPAct motors.) All models have a TEFC frame and full length mounting feet.

Motor Specifications – Cast-Iron T-frame and TC-frame – 60Hz / 1800 rpm (50Hz / 1500 rpm)

Motor Specifications Premium-Efficiency T & TC Frame Three-Phase Motors 60Hz / 1800 rpm (50Hz / 1500 rpm)										
Part Number	**HP(2)**	**NEMA Frame**	**Voltage @ 60Hz (50Hz)**	**Housing**	**Shaft Material**	**Conduit Box Location (1)**	**Holes / Foot**	**Service Factor**	**F.L. Amps @ 230V/460V (200V/400V)**	**Product Weight (lb)**
MTCP-001-3BD18	1	143T	208-230/460 – 3-phase (200/400 – 3-phase)	TEFC cast iron	1045 carbon steel	F1(F2)	2	1.15 (1.0)	3.22 / 1.61 (3.70 / 1.85)	41
MTCP-001-3BD18C		143TC								45
MTCP-1P5-3BD18	1-1/2	145T					4		4.64 / 2.32 (5.34 / 2.67)	47
MTCP-1P5-3BD18C		145TC								50
MTCP-002-3BD18	2	145T					4		6.00 / 3.00 (6.90 / 3.50)	56
MTCP-002-3BD18C		145TC								60
MTCP-003-3BD18	3	182T					2		8.05 / 4.02 (9.26 / 4.63)	84
MTCP-003-3BD18C		182TC								92
MTCP-005-3BD18	5	184T					4		13.4 / 6.71 (15.4 / 7.71)	99
MTCP-005-3BD18C		184TC								107
MTCP-7P5-3BD18	7-1/2	213T					2		18.7 / 9.34 (21.5 / 10.7)	150
MTCP-7P5-3BD18C		213TC								154

1) *F1(F2) indicates F1 conduit box mounting location, field convertible to F2 (as shown on dimensional diagram).*
2) *For warranty on motors 50 hp and above, motors must be inspected by an EASA motor repair or service center. See AutomationDirect Terms & Conditions for details.*

***** Table Continued Next Page (for 10–200 hp motors) *****

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MTCP PREMIUM-EFFICIENCY CAST-IRON THREE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

MOTOR SPECIFICATIONS – CAST-IRON T-FRAME AND TC-FRAME – 60Hz / 1800 RPM (50Hz / 1500 RPM) (CONTINUED)

***** Table Continued From Previous Page (for 1–7.5hp motors) *****

Motor Specifications
Premium-Efficiency T & TC Frame Three-Phase Motors
60Hz / 1800 rpm (50Hz / 1500 rpm)

Part Number	HP (2)	NEMA Frame	Voltage @ 60Hz (50Hz)	Housing	Shaft Material	Conduit Box Location (1)	Holes / Foot	Service Factor	F.L. Amps @ 230V/460V (200V/400V)	Product Weight (lb)
MTCP-010-3BD18	10	215T	208-230/460 – 3-phase (200/400 – 3-phase)	TEFC cast iron	1045 carbon steel	F1(F2)	4	1.15 (1.0)	24.9 / 12.5 (28.6 / 14.3)	186
MTCP-010-3BD18C		215TC								190
MTCP-015-3BD18	15	254T					2		35.8 / 17.9 (41.2 / 20.6)	329
MTCP-015-3BD18C		254TC								325
MTCP-020-3BD18	20	256T					4		47.9 / 24.0 (55.1 / 27.6)	390
MTCP-020-3BD18C		256TC								370
MTCP-025-3BD18	25	284T					2		59.6 / 29.8 (68.5 / 34.3)	455
MTCP-025-3BD18C		284TC								467
MTCP-030-3BD18	30	286T					4		70.0 / 35.0 (80.5 / 40.2)	488
MTCP-030-3BD18C		286TC								497
MTCP-040-3BD18	40	324T					2		94.8 / 47.4 (109 / 54.5)	611
MTCP-040-3BD18C		324TC								626
MTCP-050-3BD18 (2)	50	326T					4		117 / 58.4 (134 / 67.2)	690
MTCP-050-3BD18C (2)		326TC								706
MTCP-060-3BD18 (2)	60	364T					2		139 / 69.6 (160 / 80.1)	851
MTCP-060-3BD18C (2)		364TC								864
MTCP-075-3BD18 (2)	75	365T					4		173 / 86.7 (199 / 99.7)	948
MTCP-075-3BD18C (2)		365TC								961
MTCP-100-3BD18 (2)	100	405T					4		229 / 114 (263 / 132)	1199
MTCP-100-3BD18C (2)		405TC								1236
MTCP-125-3BD18 (2)	125	444T					2		285 / 143 (328 / 164)	1500
MTCP-150-3BD18 (2)	150	445T					4		342 / 171 (414 / 207)	1630
MTCP-200-3BD18 (2)	200	445/7T					4		453 / 227 (521 / 261)	2127

1) *F1(F2) indicates F1 conduit box mounting location, field convertible to F2 (as shown on dimensional diagram).*
2) *For warranty on motors 50 hp and above, motors must be inspected by an EASA motor repair or service center. See AutomationDirect Terms & Conditions for details.*

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MTCP PREMIUM-EFFICIENCY CAST-IRON THREE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

MOTOR SPECIFICATIONS –
CAST-IRON T-FRAME AND TC-FRAME – 60Hz / 1800 RPM (50Hz / 1500 RPM) (CONTINUED)

Motor Specifications Premium Efficiency T-Frame Three-Phase Motors 60Hz / 1200 & 3600 rpm (50Hz / 1000 & 3000 rpm)										
Part Number	***HP***	***NEMA Frame***	***Voltage @ 60Hz (50Hz)***	***Housing***	***Shaft Material***	***Conduit Box Location (1)***	***Holes / Foot***	***Service Factor***	***F.L. Amps @ 230V/460V (200V/400V)***	***Product Weight (lb)***
1200 rpm Base Speed @ 60Hz (1000 rpm Base Speed @ 50Hz)										
MTCP-001-3BD12	1	145T	208-230/460 – 3-phase (200/400 – 3-phase)	TEFC cast iron	1045 carbon steel	F1(F2)	4	1.15 (1.0)	3.16 / 1.58 (3.63 / 1.82)	60
MTCP-1P5-3BD12	1-1/2	182T					2		4.46 / 2.23 (5.13 / 2.57)	104
MTCP-002-3BD12	2	184T					4		5.72 / 2.86 (6.58 / 3.29)	110
MTCP-003-3BD12	3	213T					2		8.48 / 4.24 (9.75 / 4.88)	160
MTCP-005-3BD12	5	215T					4		13.8 / 6.88 (15.8 / 7.91)	180
MTCP-7P5-3BD12	7-1/2	254T					2		20.9 / 10.4 (24.0 / 12.0)	325
MTCP-010-3BD12	10	256T					4		27.8 / 13.9 (32.0 / 16.0)	325
MTCP-015-3BD12	15	284T					2		40.3 / 20.2 (46.4 / 23.2)	420
MTCP-020-3BD12	20	286T					4		52.4 / 26.2 (60.2 / 30.1)	470
3600 rpm Base Speed (3000 rpm Base Speed @ 50Hz)										
MTCP-1P5-3BD36	1-1/2	143T	208-230/460 – 3-phase (200/400 – 3-phase)	TEFC cast iron	1045 carbon steel	F1(F2)	2	1.15 (1.0)	4.08 / 2.04 (4.69 / 2.35)	44
MTCP-002-3BD36	2	145T					4		5.40 / 2.70 (6.20 / 3.10)	53
MTCP-003-3BD36	3	182T					2		7.74 / 3.87 (8.90 / 4.45)	79
MTCP-005-3BD36	5	184T					4		12.6 / 6.30 (14.5 / 7.25)	92
MTCP-7P5-3BD36	7-1/2	213T					2		18.5 / 9.23 (21.2 / 10.6)	140
MTCP-010-3BD36	10	215T					4		24.4 / 12.2 (28.1 / 14.1)	161
MTCP-015-3BD36	15	254T					2		35.0 / 17.5 (40.3 / 20.1)	278
MTCP-020-3BD36	20	256T					4		46.4 / 23.2 (53.4 / 26.7)	306

1) F1(F2) indicates F1 conduit box mounting location, field convertible to F2 (as shown on dimensional diagram).

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MTCP PREMIUM-EFFICIENCY CAST-IRON THREE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME AND TC-FRAME – 60HZ / 1800 RPM

Performance Data @ 60Hz Premium-Efficiency T & TC Frame Three-Phase Motors – 1800 rpm (460 Volt except as indicated)										
Part Number	HP	NEMA Design	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)
				CT (4:1)	VT (10:1)	CHP(1)	Safe			
MTCP-001-3BD18(C)	1	B	1750	450	180	2700	5400	86.3	0.690	0.089
MTCP-1P5-3BD18(C)	1-1/2		1750					87.3	0.726	0.11
MTCP-002-3BD18(C)	2		1750					87.3	0.725	0.13
MTCP-003-3BD18(C)	3		1750					90.3	0.786	0.28
MTCP-005-3BD18(C)	5		1750					90.3	0.786	0.33
MTCP-7P5-3BD18(C)	7-1/2		1760					91.8	0.825	1.814
MTCP-010-3BD18(C)	10		1750				4200	92.5	0.826	1.97
MTCP-015-3BD18(C)	15		1750					92.5	0.890	3.33
MTCP-020-3BD18(C)	20		1770					93.8	0.846	4.09
MTCP-025-3BD18(C)	25		1770					93.6	0.860	7.01
MTCP-030-3BD18(C)	30		1780					93.7	0.846	8.3
MTCP-040-3BD18(C)	40		1780					94.4	0.850	9
MTCP-050-3BD18(C)	50		1775					94.5	0.855	14.1
MTCP-060-3BD18(C)	60		1788					95.0	0.850	16.27
MTCP-075-3BD18(C)	75		1787					95.4	0.850	18.8
MTCP-100-3BD18(C)	100		1790					95.4	0.860	45.5
MTCP-125-3BD18	125		1790					95.4	0.860	65.1
MTCP-150-3BD18	150		1790					95.8	0.860	69.26
MTCP-200-3BD18	200		1790					96.3	0.860	84.0
1) Maximum Constant HP RPM is for direct-coupled loads.										
*** TABLE CONTINUED NEXT PAGE ***										

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MTCP PREMIUM-EFFICIENCY CAST-IRON THREE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME AND TC-FRAME – 60HZ / 1800 RPM (CONTINUED)

***** Table Continued From Previous Page *****

Performance Data @ 60Hz
Premium-Efficiency T & TC Frame Three-Phase Motors – 1800 rpm
(460 Volt except as indicated)

Part Number	HP	Current @ 230V/460V (Amps)			Torque (lb·ft)		
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break -down
MTCP-001-3BD18(C)	1	2.3 / 1.1	3.2 / 1.6	30.0 / 15.0	3.0	9.0	11.4
MTCP-1P5-3BD18(C)	1-1/2	3.1 / 1.6	4.6 / 2.3	40.0 / 20.0	4.5	9.0	14.0
MTCP-002-3BD18(C)	2	3.6 / 1.8	6.0 / 3.0	50.0 / 25.0	6.0	17.4	19.2
MTCP-003-3BD18(C)	3	4.1 / 2.1	8.1 / 4.0	64.0 / 32.0	9.0	20.7	25.2
MTCP-005-3BD18(C)	5	6.2 / 3.1	13.4 / 6.7	92.0 / 46.0	15.0	34.5	43.5
MTCP-7P5-3BD18(C)	7-1/2	8.4 / 4.2	18.7 / 9.3	127 / 63.5	22.4	44.8	69.4
MTCP-010-3BD18(C)	10	10.5 / 5.3	24.9 / 12.5	163 / 81.5	30.0	61.5	93.0
MTCP-015-3BD18(C)	15	15.4 / 7.7	35.8 / 17.9	232 / 116	45	92	126
MTCP-020-3BD18(C)	20	17.1 / 8.6	47.9 / 24.0	290 / 145	59.4	118.8	166.3
MTCP-025-3BD18(C)	25	24 / 12	59.6 / 29.8	365 / 182.5	74.2	155.8	185.5
MTCP-030-3BD18(C)	30	27 / 13.5	70.0 / 35.0	435 / 217.5	88.6	203.8	248.1
MTCP-040-3BD18(C)	40	29.6 / 14.8	94.8 / 47.4	580 / 290	118.1	248.0	271.6
MTCP-050-3BD18(C)	50	36.2 / 18.1	116.8 / 58.4	725 / 362.5	148	326	414
MTCP-060-3BD18(C)	60	45.6 / 22.8	139.3 / 69.6	870 / 435	179	376	519
MTCP-075-3BD18(C)	75	58.4 / 29.2	173.4 / 86.7	1085 / 542.5	221	464	619
MTCP-100-3BD18(C)	100	75 / 37.5	228.6 / 114.3	1450 / 725	293.2	645.0	703.7
MTCP-125-3BD18	125	94.5 / 47.3	285.2 / 142.6	1816 / 908	367	624	918
MTCP-150-3BD18	150	104.4 / 52.2	342 / 171	2170 / 1085	443	797	1108
MTCP-200-3BD18	200	133.3 / 66.6	453.2 / 226.6	2900 / 1450	587	1174	1644

*** TABLE CONTINUED NEXT PAGE ***

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MTCP PREMIUM-EFFICIENCY CAST-IRON THREE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME AND TC-FRAME – 60HZ / 1800 RPM (CONTINUED)

***** Table Continued From Previous Page *****

Performance Data @ 60Hz Premium-Efficiency T & TC Frame Three-Phase Motors 1800 rpm – (460 Volt except as indicated)				
Part Number	***HP***	***Slip (%)***	***Max Time @ Locked Rotor Current (hot)***	***Temperature Rise @ Full Load***
MTCP-001-3BD18(C)	1	1.81	20 seconds	80°C [176°F]
MTCP-1P5-3BD18(C)	1-1/2	2.80		
MTCP-002-3BD18(C)	2	2.80		
MTCP-003-3BD18(C)	3	1.60		
MTCP-005-3BD18(C)	5	2.00		
MTCP-7P5-3BD18(C)	7-1/2	1.54		
MTCP-010-3BD18(C)	10	1.31		
MTCP-015-3BD18(C)	15	1.22		
MTCP-020-3BD18(C)	20	1.70		
MTCP-025-3BD18(C)	25	1.67		
MTCP-030-3BD18(C)	30	1.10		
MTCP-040-3BD18(C)	40	1.11		
MTCP-050-3BD18(C)	50	0.78		
MTCP-060-3BD18(C)	60	0.66		
MTCP-075-3BD18(C)	75	0.69	13 seconds	
MTCP-100-3BD18(C)	100	0.56	20 seconds	
MTCP-125-3BD18	125	0.56		
MTCP-150-3BD18	150	0.53	18 seconds	
MTCP-200-3BD18	200	0.52		

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MTCP Premium-Efficiency Three-Phase Motors Features & Specs (continued)
Motor Performance Data – Cast-Iron T-frame – 60Hz / 1200 rpm

Performance Data @ 60Hz – Premium Efficiency T-Frame 3-Phase Motors – 1200 rpm – (460 Volt except as indicated)								
Part Number	HP	NEMA Design	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		
				Constant Torque (4:1)	Variable Torque (10:1)	CHP(2)	Safe	
MTCP-001-3BD12	1	B	1162	300	120	1800	3600	
MTCP-1P5-3BD12	1-1/2		1180					
MTCP-002-3BD12	2							
MTCP-003-3BD12	3							
MTCP-005-3BD12	5							
MTCP-7P5-3BD12	7-1/2							
MTCP-010-3BD12	10							
MTCP-015-3BD12	15							
MTCP-020-3BD12	20							
Part Number	HP	Current @ 230V/460V (Amps)			Torque (lb·ft)			
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down	
MTCP-001-3BD12	1	2.5 / 1.25	3.2 / 1.6	30 / 15	4.5	10.8	14.4	
MTCP-1P5-3BD12	1-1/2	3.2 / 1.6	4.5 / 2.2	40 / 20	6.68	15.36	21.38	
MTCP-002-3BD12	2	4.2 / 2.1	5.7 / 2.9	50.0 / 25.0	8.61	20.66	29.88	
MTCP-003-3BD12	3	6.4 / 3.2	8.5 / 4.2	68.0 / 34.0	13.36	29.39	40.08	
MTCP-005-3BD12	5	9.2 / 4.6	13.8 / 6.9	92.0 / 46.0	22.2	48.8	66.6	
MTCP-7P5-3BD12	7-1/2	12.0 / 6.0	20.9 / 10.4	127 / 63.5	33.4	76.8	116.9	
MTCP-010-3BD12	10	10.8 / 5.4	27.8 / 13.9	162 / 81	44.5	97.9	106.8	
MTCP-015-3BD12	15	18.0 / 9.0	40.3 / 20.2	232 / 116	60.23	132.51	174.67	
MTCP-020-3BD12	20	17.8 / 8.9	52.4 / 26.2	290 / 145	89.1	196.0	258.4	
Part Number	HP	Tempera-ture Rise @ Full Load	Max Time Locked Rotor (Hot)	F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)	Slip (%)	
MTCP-001-3BD12	1	80°C [176°F]	20 seconds	82.5	0.72	0.33	3.14	
MTCP-1P5-3BD12	1-1/2			87.5	0.72	0.36	1.85	
MTCP-002-3BD12	2			88.5	0.74	0.47	2.0	
MTCP-003-3BD12	3			89.5	0.74	0.50	1.65	
MTCP-005-3BD12	5			89.5	0.76	1.97	1.85	
MTCP-7P5-3BD12	7-1/2			91.1	0.74	2.74	1.51	
MTCP-010-3BD12	10			91.0	0.74	2.98	1.56	
MTCP-015-3BD12	15			91.7	0.76	5.49	1.16	
MTCP-020-3BD12	20			91.7	0.78	12.9	1.21	
2) Maximum Constant HP RPM is for direct-coupled loads.								

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MTCP PREMIUM-EFFICIENCY THREE-PHASE MOTORS FEATURES & SPECS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME – 60Hz / 3600 RPM

Performance Data @ 60Hz – Premium Efficiency T-Frame 3-Phase Motors – 3600 rpm – (460 Volt except as indicated)								
Part Number	HP	NEMA Design	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		
				Constant Torque (4:1)	Variable Torque (10:1)	CHP(2)	Safe	
MTCP-1P5-3BD36	1-1/2	B	3570	900	360	5400	5400	
MTCP-002-3BD36	2		3520					
MTCP-003-3BD36	3		3520					
MTCP-005-3BD36	5		3570					
MTCP-7P5-3BD36	7-1/2		3520					
MTCP-010-3BD36	10		3550					
MTCP-015-3BD36	15		3550					
MTCP-020-3BD36	20		3570					
Part Number	HP	Current @ 230V/460V (Amps)			Torque (lb·ft)			
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down	
MTCP-1P5-3BD36	1-1/2	2.0 / 1.0	4.1 / 2.0	40.0 / 20.0	2.2	6.4	7.9	
MTCP-002-3BD36	2	3.1 / 1.6	5.4 / 2.7	50.0 / 25.0	3.0	9.0	12.0	
MTCP-003-3BD36	3	3.9 / 2.0	7.7 / 3.9	64.0 / 32.0	4.48	12.54	17.02	
MTCP-005-3BD36	5	5.2 / 2.6	12.6 / 6.3	92.0 / 46.0	7.36	16.19	22.82	
MTCP-7P5-3BD36	7-1/2	6.7 / 3.3	18.5 / 9.2	127 / 63.5	11.2	28.0	34.7	
MTCP-010-3BD36	10	8.8 / 4.4	24.4 / 12.2	163 / 81.5	14.8	37.0	50.3	
MTCP-015-3BD36	15	12 / 6	35.0 / 17.5	232 / 116	22.2	46.6	64.4	
MTCP-020-3BD36	20	15 / 7.5	46.4 / 23.2	290 / 145	29.4	61.7	85.3	
Part Number	HP	Temper-ature Rise @ Full Load	Max Time Locked Rotor (Hot)	F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)	Slip (%)	
MTCP-1P5-3BD36	1-1/2	80°C [176°F]	20 seconds	85.5	0.83	0.08	2.00	
MTCP-002-3BD36	2			86.6	0.82	0.10	2.20	
MTCP-003-3BD36	3			87.0	0.85	0.20	1.60	
MTCP-005-3BD36	5			89.0	0.84	0.22	1.46	
MTCP-7P5-3BD36	7-1/2			89.7	0.85	0.50	1.67	
MTCP-010-3BD36	10			90.3	0.85	1.2	1.40	
MTCP-015-3BD36	15			91.2	0.85	1.86	1.11	
MTCP-020-3BD36	20			91.2	0.85	2.01	0.97	
2) Maximum Constant HP RPM is for direct-coupled loads								

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MTCP PREMIUM-EFFICIENCY CAST-IRON THREE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME AND TC-FRAME – 50HZ / 1500RPM

Performance Data @ 50Hz Premium-Efficiency T & TC Frame Three-Phase Motors – 1500 rpm (400 Volt except as indicated)										
Part Number	HP	NEMA Design	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft2)
				CT	VT	CHP(1)	Safe			
MTCP-001-3BD18(C)	1	B	1453	450	180	2700	5400	86.3	0.690	0.089
MTCP-1P5-3BD18(C)	1.5		1453					87.3	0.726	0.11
MTCP-002-3BD18(C)	2		1453					87.3	0.725	0.13
MTCP-003-3BD18(C)	3		1453					90.3	0.786	0.28
MTCP-005-3BD18(C)	5		1453					90.3	0.786	0.33
MTCP-7P5-3BD18(C)	7-1/2		1461					91.8	0.825	1.814
MTCP-010-3BD18(C)	10		1453				4200	92.5	0.826	1.97
MTCP-015-3BD18(C)	15		1453					92.5	0.890	3.33
MTCP-020-3BD18(C)	20		1469					93.8	0.846	4.09
MTCP-025-3BD18(C)	25		1469					93.6	0.860	7.01
MTCP-030-3BD18(C)	30		1477					93.7	0.846	8.3
MTCP-040-3BD18(C)	40		1477					94.4	0.850	9
MTCP-050-3BD18(C)	50		1473					94.5	0.855	14.1
MTCP-060-3BD18(C)	60		1484					95.0	0.850	16.27
MTCP-075-3BD18(C)	75		1483					95.4	0.850	18.8
MTCP-100-3BD18(C)	100		1486					95.4	0.860	45.5
MTCP-125-3BD18	125		1486					95.4	0.860	65.1
MTCP-150-3BD18	150		1486					95.8	0.860	69.26
MTCP-200-3BD18	200		1486					96.3	0.860	84.0
1) Maximum Constant HP RPM is for direct-coupled loads.										
**** TABLE CONTINUED NEXT PAGE ****										

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MTCP PREMIUM-EFFICIENCY CAST-IRON THREE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME AND TC-FRAME – 50HZ / 1500RPM

***** Table Continued From Previous Page *****

Performance Data @ 50Hz
Premium-Efficiency T & TC Frame Three-Phase Motors – 1500 rpm
(400 Volt except as indicated)

Part Number	HP	Current @ 200V/400V (Amps)			Torque (lb·ft)		
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break -down
MTCP-001-3BD18(C)	1	2.62 / 1.31	3.70 / 1.85	34.5 / 17.3	3.61	10.8	13.7
MTCP-1P5-3BD18(C)	1-1/2	3.59 / 1.80	5.34 / 2.67	46.0 / 23.0	5.40	10.8	16.7
MTCP-002-3BD18(C)	2	4.10 / 2.10	6.90 / 3.50	57.5 / 28.8	7.20	20.9	23.0
MTCP-003-3BD18(C)	3	4.70 / 2.35	9.26 / 4.63	73.6 / 36.8	10.8	24.8	30.2
MTCP-005-3BD18(C)	5	7.13 / 3.57	15.42 / 7.71	106 / 52.9	18.1	41.6	52.5
MTCP-7P5-3BD18(C)	7-1/2	9.71 / 4.86	21.5 / 10.7	146 / 73.0	27.0	54.0	83.7
MTCP-010-3BD18(C)	10	12.1 / 6.06	28.6 / 14.3	187 / 93.7	36.1	74.0	112
MTCP-015-3BD18(C)	15	17.7 / 8.85	41.2 / 20.6	267 / 133	54.2	111	152
MTCP-020-3BD18(C)	20	19.7 / 9.84	55.1 / 27.6	334 / 167	71.5	143	200
MTCP-025-3BD18(C)	25	27.6 / 13.8	68.5 / 34.3	420 / 210	89.4	188	224
MTCP-030-3BD18(C)	30	31.1 / 15.5	80.5 / 40.2	500 / 250	107	246	300
MTCP-040-3BD18(C)	40	34.0 / 17.0	109 / 54.5	667 / 334	142	298	327
MTCP-050-3BD18(C)	50	41.6 / 20.8	134 / 67.2	834 / 417	178	392	498
MTCP-060-3BD18(C)	60	52.4 / 26.2	160 / 80.1	1001 / 500	212	445	615
MTCP-075-3BD18(C)	75	67.2 / 33.6	199 / 99.7	1248 / 624	266	559	745
MTCP-100-3BD18(C)	100	86.3 / 43.1	263 / 132	1668 / 834	353	777	847
MTCP-125-3BD18	125	109 / 54.4	328 / 164	2088 / 1044	442	751	1105
MTCP-150-3BD18	150	126 / 63.2	414 / 207	2627 / 1314	530	954	1325
MTCP-200-3BD18	200	153 / 77	521 / 261	3335 / 1668	707	1414	1980

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MTCP PREMIUM-EFFICIENCY CAST-IRON THREE-PHASE MOTORS FEATURES AND SPECIFICATIONS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME AND TC-FRAME – 50HZ / 1500 RPM (CONTINUED)

***** Table Continued From Previous Page *****

Performance Data @ 50Hz
Premium-Efficiency T & TC Frame Three-Phase Motors
1500 rpm – (400 Volt except as indicated)

Part Number	HP	Slip (%)	Max Time @ Locked Rotor Current (hot)	Temperature Rise @ Full Load
MTCP-001-3BD18(C)	1	1.81	20 seconds	80°C [176°F]
MTCP-1P5-3BD18(C)	1-1/2	2.80		
MTCP-002-3BD18(C)	2	2.80		
MTCP-003-3BD18(C)	3	1.60		
MTCP-005-3BD18(C)	5	2.00		
MTCP-7P5-3BD18(C)	7-1/2	1.54		
MTCP-010-3BD18(C)	10	1.31		
MTCP-015-3BD18(C)	15	1.22		
MTCP-020-3BD18(C)	20	1.70		
MTCP-025-3BD18(C)	25	1.67		
MTCP-030-3BD18(C)	30	1.10		
MTCP-040-3BD18(C)	40	1.11		
MTCP-050-3BD18(C)	50	0.78		
MTCP-060-3BD18(C)	60	0.66		
MTCP-075-3BD18(C)	75	0.69	13 seconds	
MTCP-100-3BD18(C)	100	0.56	20 seconds	
MTCP-125-3BD18	125	0.56		
MTCP-150-3BD18	150	0.53	18 seconds	
MTCP-200-3BD18	200	0.52		

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MTCP PREMIUM-EFFICIENCY THREE-PHASE MOTORS FEATURES & SPECS (CONTINUED)
MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME – 50HZ / 1000 RPM

Performance Data @ 50Hz – Premium Efficiency T-Frame 3-Phase Motors – 1000 rpm – (400 Volt except as indicated)								
Part Number	HP	NEMA Design	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		
				Constant Torque	Variable Torque	CHP(2)	Safe	
MTCP-001-3BD12	1	B	964	300	120	1800	3600	
MTCP-1P5-3BD12	1-1/2		979					
MTCP-002-3BD12	2							
MTCP-003-3BD12	3							
MTCP-005-3BD12	5							
MTCP-7P5-3BD12	7-1/2							
MTCP-010-3BD12	10							
MTCP-015-3BD12	15							
MTCP-020-3BD12	20							

Part Number	HP	Current @ 200V/400V (Amps)			Torque (lb·ft)		
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down
MTCP-001-3BD12	1	2.88 / 1.44	3.63 / 1.82	34.5 / 17.3	5.40	13.0	17.3
MTCP-1P5-3BD12	1-1/2	3.70 / 1.85	5.13 / 2.57	46.0 / 23.0	8.04	18.5	25.7
MTCP-002-3BD12	2	4.83 / 2.42	6.58 / 3.29	57.5 / 28.8	10.7	25.7	37.1
MTCP-003-3BD12	3	7.36 / 3.68	9.75 / 4.88	78.2 / 39.1	16.1	35.4	48.3
MTCP-005-3BD12	5	10.6 / 5.29	15.8 / 7.91	106 / 52.9	26.8	59.0	80.4
MTCP-7P5-3BD12	7-1/2	13.8 / 6.90	24.0 / 12.0	146 / 73.0	40.2	92.5	141
MTCP-010-3BD12	10	12.4 / 6.21	32.0 / 16.0	186 / 93.2	53.6	118	129
MTCP-015-3BD12	15	20.7 / 10.4	46.4 / 23.2	267 / 133	80.4	177	233
MTCP-020-3BD12	20	20.4 / 10.2	60.2 / 30.1	334 / 167	107	235	310

Part Number	HP	Temperature Rise @ Full Load	Max Time Locked Rotor (Hot)	F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)	Slip (%)
MTCP-001-3BD12	1	80°C [176°F]	20 seconds	82.5	0.72	0.33	3.14
MTCP-1P5-3BD12	1-1/2			87.5	0.72	0.36	1.85
MTCP-002-3BD12	2			88.5	0.74	0.47	2.00
MTCP-003-3BD12	3			89.5	0.74	0.50	1.65
MTCP-005-3BD12	5			89.5	0.76	1.97	1.85
MTCP-7P5-3BD12	7-1/2			91.1	0.74	2.74	1.51
MTCP-010-3BD12	10			91.0	0.74	2.98	1.56
MTCP-015-3BD12	15			91.7	0.76	5.49	1.16
MTCP-020-3BD12	20			91.7	0.78	12.9	1.21

2) Maximum Constant HP RPM is for direct-coupled loads.

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MTCP PREMIUM-EFFICIENCY THREE-PHASE MOTORS FEATURES & SPECS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME – 50HZ / 3000 RPM

Performance Data @ 50Hz – Premium Efficiency T-Frame 3-Phase Motors – 3000 rpm – (400 Volt except as indicated)								
Part Number	HP	NEMA Design	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		
				Constant Torque	Variable Torque	CHP(2)	Safe	
MTCP-1P5-3BD36	1-1/2	B	2963	1800	720	5400	5400	
MTCP-002-3BD36	2		2922					
MTCP-003-3BD36	3		2922					
MTCP-005-3BD36	5		2963					
MTCP-7P5-3BD36	7-1/2		2922					
MTCP-010-3BD36	10		2947					
MTCP-015-3BD36	15		2947					
MTCP-020-3BD36	20		2963					
Part Number	HP	Current @ 200V/400V (Amps)			Torque (lb·ft)			
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down	
MTCP-1P5-3BD36	1-1/2	2.30 / 1.20	4.69 / 2.35	46.0 / 23.0	2.66	7.71	9.58	
MTCP-002-3BD36	2	3.60 / 1.80	6.20 / 3.10	57.5 / 28.8	3.60	10.8	14.4	
MTCP-003-3BD36	3	4.49 / 2.25	8.90 / 4.45	73.6 / 36.8	5.39	15.1	20.5	
MTCP-005-3BD36	5	5.98 / 2.99	14.5 / 7.25	106 / 46.0	8.88	19.5	27.5	
MTCP-7P5-3BD36	7-1/2	7.66 / 3.83	21.2 / 10.6	146 / 73.0	13.5	33.7	41.8	
MTCP-010-3BD36	10	10.1 / 5.04	28.1 / 14.1	188 / 93.8	17.8	44.5	60.5	
MTCP-015-3BD36	15	13.8 / 6.90	40.3 / 20.1	267 / 133	26.7	56.1	77.4	
MTCP-020-3BD36	20	17.3 / 8.63	53.4 / 26.7	334 / 167	35.4	74.4	103	
Part Number	HP	Temperature Rise @ Full Load	Max Time Locked Rotor (Hot)	F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)	Slip (%)	
MTCP-1P5-3BD36	1-1/2	80°C [176°F]	20 seconds	85.5	0.83	0.08	2.00	
MTCP-002-3BD36	2			86.6	0.82	0.10	2.20	
MTCP-003-3BD36	3			87.0	0.85	0.20	1.60	
MTCP-005-3BD36	5			89.0	0.84	0.22	1.46	
MTCP-7P5-3BD36	7-1/2			89.7	0.85	0.50	1.67	
MTCP-010-3BD36	10			90.3	0.85	1.20	1.40	
MTCP-015-3BD36	15			91.2	0.85	1.86	1.11	
MTCP-020-3BD36	20			91.2	0.85	2.01	0.97	
2) Maximum Constant HP RPM is for direct-coupled loads								

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MTC EPAct Cast-Iron Three-Phase Motors

– Features and Specifications

EPAct Cast-Iron T-Frame



EPAct Cast-Iron TC-Frame



IronHorse 1800 rpm T-frame cast-iron industrial duty EPAct motors are available from 1–300 hp, and TC-frame motors are available from 1–100 hp. Optional C-face kits are available for IronHorse T-frame EPAct motors. (EPAct C-face kits are NOT compatible with Premium Efficiency motors.) All models have a TEFC frame and full length mounting feet.

Motor Specifications – Cast-Iron T-frame and TC-frame – 1800 rpm

Motor Specifications – EPAct T & TC(1) Frame Three-Phase Motors – 1800 rpm										
Part Number	HP(3)	NEMA Frame	Voltage	Housing	Shaft Material	Conduit Box Location (2)	Holes / Foot	Service Factor	F.L. Amps @ 230V/460V	Product Weight (lb)
MTC-001-3BD18	1	143T	208-230/460 – 3-phase	TEFC cast iron	1045 CS	F1(F2)	2	1.15	3.0 / 1.5	58
MTC-001-3BD18CK (1)		143TC								61
MTC-1P5-3BD18	1-1/2	145T					3		4.2 / 2.1	60
MTC-1P5-3BD18CK (1)		145TC								67
MTC-002-3BD18	2	145T					3		5.4 / 2.7	70
MTC-002-3BD18CK (1)		145TC								69
MTC-003-3BD18	3	182T					2		7.72 / 3.86	90
MTC-003-3BD18CK (1)		182TC								112
MTC-005-3BD18	5	184T					3		11.8 / 5.9	110
MTC-005-3BD18CK (1)		184TC								125
MTC-7P5-3BD18	7-1/2	213T					2		18.6 / 9.3	160
MTC-7P5-3BD18CK (1)		213TC								170

1) *TC-frame motors are T-frame motors with applicable C-face accessory kits installed.*
2) *F1(F2) indicates F1 conduit box mounting location, field convertible to F2. (Refer to "Chapter 5: Reference" for further information regarding F1 and F2 mounting.)*
3) *For warranty on motors 50 hp and above, motors must be inspected by an EASA motor repair or service center. See AutomationDirect Terms & Conditions for details.*

*** TABLE CONTINUED ON NEXT PAGE ***

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MTC EPACT CAST-IRON 3-PHASE MOTORS FEATURES AND SPECS (CONTINUED)

MOTOR SPECIFICATIONS – CAST-IRON T-FRAME AND TC-FRAME – 1800 RPM

***** Table Continued From Previous Page (for 1–7.5hp motors) *****

Motor Specifications – EPAct T & TC(1) Frame Three-Phase Motors – 1800 rpm

Part Number	HP (3)	NEMA Frame	Voltage	Housing	Shaft Material	Conduit Box Location (2)	Holes / Foot	Service Factor	F.L. Amps @ 230V/460V	Product Weight (lb)
MTC-010-3BD18	10	215T	208-230/460 – 3-phase	TEFC cast iron	1045 CS	F1(F2)	3	1.15	24.8 / 12.4	179
MTC-010-3BD18CK (1)		215TC								198
MTC-015-3BD18	15	254T				F1(F2)	2		35.4 / 17.7	290
MTC-015-3BD18CK (1)		254TC								310
MTC-020-3BD18	20	256T				F1(F2)	3		47.6 / 23.8	326
MTC-020-3BD18CK (1)		256TC								360
MTC-025-3BD18	25	284T				F1	2		56.4 / 28.2	400
MTC-025-3BD18CK (1)		284TC								440
MTC-030-3BD18	30	286T				F1	3		67.2 / 33.6	451
MTC-030-3BD18CK (1)		286TC								470
MTC-040-3BD18	40	324T				F1	2		93.0 / 46.5	589
MTC-040-3BD18CK (1)		324TC								608
MTC-050-3BD18 (3)	50	326T				F1	3		114.6 / 57.3	640
MTC-050-3BD18CK (1)(3)		326TC								652
MTC-060-3BD18 (3)	60	364T				F1	2		139.4 / 69.7	780
MTC-060-3BD18CK (1)(3)		364TC								780
MTC-075-3BD18 (3)	75	365T				F1	3		172.8 / 86.4	870
MTC-075-3BD18CK (1)(3)		365TC								837
MTC-100-3BD18 (3)	100	405T				F1	3		230 / 115	1350
MTC-100-3BD18CK (1)(3)		405TC								1335
MTC-125-3BD18 (3)	125	444T				F1(F2)	2		274 / 137	1500
MTC-150-3BD18 (3)	150	445T				F1(F2)	3		326 / 163	1630
MTC-200-3BD18 (3)	200	445/7T				F1(F2)	3		446 / 223	1858
MTC-250-3D18 (3)	250	449T	460		4140 CS	F1	2		– / 282	2508
MTC-300-3D18 (3)	300	449T							– / 334	2728

1) *TC-frame motors are T-frame motors with applicable C-face accessory kits installed.*
2) *F1(F2) indicates F1 conduit box mounting location, field convertible to F2. (Refer to "Chapter 5: Reference" for further information regarding F1 and F2 mounting.)*
3) *For warranty on motors 50 hp and above, motors must be inspected by an EASA motor repair or service center. See AutomationDirect Terms & Conditions for details.*

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MTC EPAct Cast-Iron 3-Phase Motors Features and Specs (continued)

Motor Specifications – Cast-Iron T-frame – 1200 & 3600 rpm

Motor Specifications – EPAct T-Frame Three-Phase Motors – 1200 & 3600 rpm										
Part Number	***HP (3)***	***NEMA Frame***	***Voltage***	***Housing***	***Shaft Material***	***Conduit Box Location (2)***	***Holes / Foot***	***Service Factor***	***F.L. Amps @ 230V/460V***	***Product Weight (lb)***
1200 rpm Base Speed										
MTC-001-3BD12	1	145T	208-230/460 3-phase	TEFC cast iron	1045 carbon steel	F1(F2)	4	1.15	3.2 / 1.6	62
MTC-1P5-3BD12	1-1/2	182T					2		4.8 / 2.4	106
MTC-002-3BD12	2	184T					4		6.1 / 3.1	119
MTC-003-3BD12	3	213T					2		8.4 / 4.2	171
MTC-005-3BD12	5	215T					4		13.6 / 6.8	189
MTC-7P5-3BD12	7-1/2	254T					2		21.2 / 10.6	272
MTC-010-3BD12	10	256T					4		28.0 / 14.0	307
3600 rpm Base Speed										
MTC-1P5-3BD36	1-1/2	143T	208-230/460 3-phase	TEFC cast iron	1045 carbon steel	F1(F2)	2	1.15	3.8 / 1.9	62
MTC-002-3BD36	2	145T					4		5.0 / 2.5	66
MTC-003-3BD36	3	182T					2		7.2 / 3.6	107
MTC-005-3BD36	5	184T					4		11.3 / 5.7	112
MTC-7P5-3BD36	7-1/2	213T					2		16.8 / 8.4	165
MTC-010-3BD36	10	215T					4		22.4 / 11.2	185

2) F1(F2) indicates F1 conduit box mounting location, field convertible to F2. (Refer to "Chapter 5: Reference" for further information regarding F1 and F2 mounting.)

3) For warranty on motors 50 hp and above, motors must be inspected by an EASA motor repair or service center. See AutomationDirect Terms & Conditions for details.

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MTC EPACT CAST-IRON 3-PHASE MOTORS FEATURES AND SPECS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME AND TC-FRAME – 1800 RPM

Performance Data – EPAct T & TC(1) Frame Three-Phase Motors – 1800 rpm (460 Volt except as indicated)										
Part Number	HP	NEMA Design	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft2)
				CT (2:1)	VT (5:1)	CHP(2)	Safe			
MTC-001-3BD18(CK)	1	B	1760	900	360	2700	5400	82.5	0.71	0.068
MTC-1P5-3BD18(CK)	1-1/2		1755				5400	84.0	0.74	0.083
MTC-002-3BD18(CK)	2		1750				5400	84.0	0.77	0.09
MTC-003-3BD18(CK)	3		1750				5400	87.5	0.81	0.22
MTC-005-3BD18(CK)	5		1750				5400	87.5	0.84	0.285
MTC-7P5-3BD18(CK)	7-1/2		1760				5400	89.5	0.81	0.602
MTC-010-3BD18(CK)	10	A	1760				4200	89.5	0.83	0.742
MTC-015-3BD18(CK)	15		1770				4200	91.0	0.83	1.71
MTC-020-3BD18(CK)	20		1770				4200	91.0	0.84	2.18
MTC-025-3BD18(CK)	25		1775				4200	92.4	0.87	3.3
MTC-030-3BD18(CK)	30		1775				4200	92.4	0.86	3.76
MTC-040-3BD18(CK)	40		1775				3600	93.0	0.86	5.84
MTC-050-3BD18(CK)	50		1775				3600	93.0	0.86	6.34
MTC-060-3BD18(CK)	60	B	1785				3600	93.6	0.85	11.4
MTC-075-3BD18(CK)	75		1785				3600	94.1	0.84	12.7
MTC-100-3BD18(CK)	100		1785				2800	94.5	0.87	28.5
MTC-125-3BD18	125		1785				2800	94.5	0.86	38.9
MTC-150-3BD18	150		1785				2800	95.0	0.87	47.2
MTC-200-3BD18	200		1785				2800	95.0	0.87	62.3
MTC-250-3D18	250		1790				2800	95.9	0.87	86.0
MTC-300-3D18	300		1790				2800	95.7	0.88	105.0

1) TC-frame motors (MTC-xxx-xxxxCK) are T-frame motors with applicable C-face accessory kits installed.
2) Maximum Constant HP RPM is for direct-coupled loads.

*** TABLE CONTINUED NEXT PAGE ***

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MTC EPAct Cast-Iron 3-Phase Motors Features and Specs (continued)

Motor Performance Data – Cast-Iron T-Frame and TC-frame – 1800 rpm

***** Table Continued From Previous Page *****

Performance Data – EPAct T & TC(1) Frame 3-Phase Motors – 1800 rpm (460 Volt except as indicated)

Part Number	HP	Current @ 230V/460V (Amps)			Torque (lb·ft)		
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break -down
MTC-001-3BD18(CK)	1	1.9 / 0.95	3.0 / 1.5	30.0 / 15.0	3.00	7.50	10.50
MTC-1P5-3BD18(CK)	1-1/2	2.44 / 1.22	4.2 / 2.1	40.0 / 20.0	4.41	10.58	14.11
MTC-002-3BD18(CK)	2	2.76 / 1.38	5.4 / 2.7	50.0 / 25.0	6.05	13.92	17.55
MTC-003-3BD18(CK)	3	3.74 / 1.87	7.72 / 3.86	64.0 / 32.0	9.07	25.40	29.93
MTC-005-3BD18(CK)	5	5.1 / 2.55	11.8 / 5.9	92.0 / 46.0	15.1	40.8	46.8
MTC-7P5-3BD18(CK)	7-1/2	8.98 / 4.49	18.6 / 9.3	127 / 63.5	22.0	44.0	72.6
MTC-010-3BD18(CK)	10	13.0 / 6.5	24.8 / 12.4	200 / 100	29.8	59.6	92.4
MTC-015-3BD18(CK)	15	15.6 / 7.8	35.4 / 17.7	280 / 140	44.5	89.0	124.6
MTC-020-3BD18(CK)	20	19.0 / 9.5	47.6 / 23.8	400 / 200	59.7	119.4	155.2
MTC-025-3BD18(CK)	25	24.0 / 12.0	56.4 / 28.2	440 / 220	73.9	152.2	206.9
MTC-030-3BD18(CK)	30	27.0 / 13.5	67.2 / 33.6	520 / 260	88.7	177.4	257.2
MTC-040-3BD18(CK)	40	35.0 / 17.5	93.0 / 46.5	720 / 360	118	248	355
MTC-050-3BD18(CK)	50	38.6 / 19.3	114.6 / 57.3	880 / 440	148	311	444
MTC-060-3BD18(CK)	60	48.0 / 24.0	139.4 / 69.7	870 / 435	179	322	483
MTC-075-3BD18(CK)	75	59.2 / 29.6	172.8 / 86.4	1086 / 543	221	398	530
MTC-100-3BD18(CK)	100	72.0 / 36.0	230 / 115	1450 / 725	296	592	858
MTC-125-3BD18	125	82.0 / 41.0	274 / 137	1815 / 908	355	604	888
MTC-150-3BD18	150	97.6 / 48.8	326 / 163	2170 / 1085	433	779	1083
MTC-200-3BD18	200	140 / 70.0	446 / 223	2900 / 1450	590	1180	1652
MTC-250-3D18	250	– / 85.6	– / 282	– / 2017	728	1660	2402
MTC-300-3D18	300	– / 96.6	– / 334	– / 2351	864	1953	2817

1) TC-frame motors (MTC-xxx-xxxxCK) are T-frame motors with applicable C-face accessory kits installed.

*** TABLE CONTINUED NEXT PAGE ***

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MTC EPACT CAST-IRON 3-PHASE MOTORS FEATURES AND SPECS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME AND TC-FRAME – 1800 RPM

**** TABLE CONTINUED FROM PREVIOUS PAGE ****

Performance Data
EPAct T & TC(1) Frame Three-Phase Motors
1800 rpm – (460 Volt except as indicated)

Part Number	*HP*	*Slip (%)*	*Max Time @ Locked Rotor Current (hot)*	*Temperature Rise @ Full Load*
MTC-001-3BD18(CK)	1	2.22	20 seconds	80° C (176°F)
MTC-1P5-3BD18(CK)	1-1/2	2.50		
MTC-002-3BD18(CK)	2	2.78		
MTC-003-3BD18(CK)	3	2.78		
MTC-005-3BD18(CK)	5	2.78		
MTC-7P5-3BD18(CK)	7-1/2	2.22		
MTC-010-3BD18(CK)	10	2.20	13 seconds	
MTC-015-3BD18(CK)	15	1.67	20 seconds	
MTC-020-3BD18(CK)	20	1.67		
MTC-025-3BD18(CK)	25	1.38	16 seconds	
MTC-030-3BD18(CK)	30	1.38	20 seconds	
MTC-040-3BD18(CK)	40	1.39		
MTC-050-3BD18(CK)	50	1.39		
MTC-060-3BD18(CK)	60	0.83		
MTC-075-3BD18(CK)	75	0.83		
MTC-100-3BD18(CK)	100	0.83	15 seconds	
MTC-125-3BD18	125	0.83		
MTC-150-3BD18	150	0.83		
MTC-200-3BD18	200	0.83		
MTC-250-3D18	250	0.54	20 seconds	85° C (185°F)
MTC-300-3D18	300	0.53		

1) TC-frame motors (MTC-xxx-xxxxCK) are T-frame motors with applicable C-face accessory kits installed.

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MTC EPACT CAST-IRON 3-PHASE MOTORS FEATURES AND SPECS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME – 1200 RPM

Performance Data – EPAct T-Frame Three-Phase Motors – 1200 rpm (460 Volt except as indicated)								
Part Number	HP	NEMA Design	F.L. RPM	Minimum Speed (rpm)		Maximum Speed (rpm)		
				Constant Torque (2:1)	Variable Torque (5:1)	CHP(2)	Safe	
MTC-001-3BD12	1	B	1150	600	240	1800	3600	
MTC-1P5-3BD12	1-1/2		1170					
MTC-002-3BD12	2							
MTC-003-3BD12	3		1180					
MTC-005-3BD12	5							
MTC-7P5-3BD12	7-1/2							
MTC-010-3BD12	10	A						
Part Number	HP	Current @ 230V/460V (Amps)			Torque (lb·ft)			
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down	
MTC-001-3BD12	1	3.2 / 1.6	3.2 / 1.6	25.0 / 12.5	4.59	11.48	14.69	
MTC-1P5-3BD12	1-1/2	3.5 / 1.8	4.8 / 2.4	40.0 / 20.0	6.60	18.5	24.4	
MTC-002-3BD12	2	4.0 / 2.0	6.1 / 3.1	50.0 / 25.0	9.02	24.4	30.7	
MTC-003-3BD12	3	4.7 / 2.4	8.4 / 4.2	64.0 / 32.0	13.4	22.8	37.5	
MTC-005-3BD12	5	7.3 / 3.7	13.6 / 6.8	92.0 / 46.0	22.2	37.7	53.3	
MTC-7P5-3BD12	7-1/2	12.6 / 6.3	21.2 / 10.6	127 / 63.5	32.9	75.7	98.7	
MTC-010-3BD12	10	7.6 / 3.8	28.0 / 14.0	168 / 84.0	44.8	98.6	139	
Part Number	HP	Temperature Rise @ Full Load	Max Time Locked Rotor (Hot)	F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia ($lb{\cdot}ft^2$)	Slip (%)	
MTC-001-3BD12	1	80°C (176°F)	20 seconds	81.1	0.72	0.009	3.3	
MTC-1P5-3BD12	1-1/2			85.5	0.65	0.068	2.5	
MTC-002-3BD12	2			86.5	0.70	0.100	2.5	
MTC-003-3BD12	3			87.5	0.72	0.207	1.7	
MTC-005-3BD12	5			87.5	0.72	0.258	1.7	
MTC-7P5-3BD12	7-1/2			89.5	0.71	0.480	1.7	
MTC-010-3BD12	10			89.5	0.74	2.487	1.7	
2) Maximum Constant HP RPM is for direct-coupled loads								

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MTC EPACT CAST-IRON 3-PHASE MOTORS FEATURES AND SPECS (CONTINUED)

MOTOR PERFORMANCE DATA – CAST-IRON T-FRAME – 3600 RPM

Performance Data – EPAct T-Frame Three-Phase Motors – 3600 rpm (460 Volt except as indicated)								
Part Number	**HP**	**NEMA Design**	**F.L. RPM**	**Minimum Speed (rpm)**		**Maximum Speed (rpm)**		
				Constant Torque (2:1)	**Variable Torque (5:1)**	**CHP(2)**	**Safe**	
MTC-1P5-3BD36	1-1/2	B	3480	1800	720	5400	5400	
MTC-002-3BD36	2							
MTC-003-3BD36	3		3520					
MTC-005-3BD36	5		3510					
MTC-7P5-3BD36	7-1/2		3520					
MTC-010-3BD36	10		3530					
Part Number	**HP**	**Current @ 230V/460V (Amps)**				**Torque (lb·ft)**		
		No Load	**Full Load**	**Locked Rotor**		**Full Load**	**Locked Rotor**	**Break-down**
MTC-1P5-3BD36	1-1/2	1.4 / 0.7	3.8 / 1.9	40.0 / 20.0		2.23	4.01	5.58
MTC-002-3BD36	2	1.5 / 0.8	5.0 / 2.5	50.0 / 25.0		3.03	6.06	8.18
MTC-003-3BD36	3	2.8 / 1.4	7.2 / 3.6	64.0 / 32.0		4.50	10.4	16.2
MTC-005-3BD36	5	4.0 / 2.0	11.3 / 5.7	92.0 / 46.0		7.46	15.7	26.5
MTC-7P5-3BD36	7-1/2	5.0 / 2.5	16.8 / 8.4	127 / 63.5		11.0	22.0	36.3
MTC-010-3BD36	10	5.7 / 2.8	22.4 / 11.2	162 / 81.0		15.0	33.0	49.5
Part Number	**HP**	**Tempera-ture Rise @ Full Load**	**Max Time Locked Rotor (Hot)**	**F.L. Efficiency (%)**	**F.L. Power Factor**	**Rotor Inertia ($lb·ft^2$)**		**Slip (%)**
MTC-1P5-3BD36	1-1/2	80°C (176°F)	20 seconds	82.5	0.86	0.009		3.3
MTC-002-3BD36	2			84.0	0.87	0.010		3.3
MTC-003-3BD36	3			85.5	0.86	0.034		2.2
MTC-005-3BD36	5			87.5	0.88	0.040		2.5
MTC-7P5-3BD36	7-1/2			88.5	0.89	0.258		2.2
MTC-010-3BD36	10			89.5	0.89	0.109		1.9
2) Maximum Constant HP RPM is for direct-coupled loads								

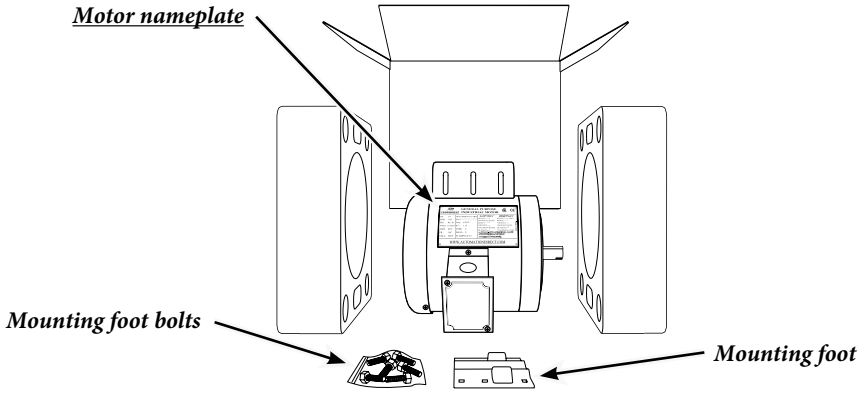
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Receiving and Inspection

Unpacking

After receiving an IronHorse motor, please check for the following:

- Open the motor packaging and inspect for damage during shipment.
- Make sure the part number indicated on the motor nameplate corresponds with the part number on your order.
- For all 56C and 56HC framed motors, make sure that the shipment contains the motor, the removable mounting foot and mounting foot bolts.
- Read the enclosed Product Advisory.



IronHorse® Part Number Explanation

MT CP - 7P5 - 3 BD 18 C

Optional Identifier
- C: C-face cast-iron motor
- R: Round body (no mounting feet)

Nominal RPM
- 12: 1200 rpm
- 18: 1800 rpm
- 36: 3600 rpm

Voltage Class (multiple letters possible)
- A: 115 VAC
- B: 208-230 VAC
- C: 230 VAC
- D: 460 VAC
- L: 90 VDC
- M: 180 VDC

Phase
- 1: Single phase
- 3: Three phase

Rated Horsepower
- P: Decimal Point
- # left of P: Rated full hp
- # right of P: Rated fractional hp

Motor type
- A: Motor Accessory
- AP: Motor Accessory for Premium-efficiency motor
- C: AC EPAct motor with Cast-iron frame
- CP: AC Premium-efficiency motor with Cast-iron frame
- F: Farm Duty
- R(2): AC Motor w Rolled-steel frame
- RP: AC Premium-efficiency motor with Rolled-steel frame
- PM: DC Permanent Magnet
- SS: AC Motor w Stainless-steel frame

IronHorse Motors Series Designation

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Reshipping

If an IronHorse motor needs to be reshipped from the initial shipping point, the following procedures should be followed to protect the motor from damage.

1) If the original packaging is to be used for reshipment, inspect the packaging for previous shipping damage and repackage if necessary. Take care to protect the motor body, fan cover and shaft.
2) It is a good idea to bolt the motor to a platform that fits securely in the bottom of the shipping crate or box. This helps prevent the motor from shifting during transport and thus protects the bearings from damage.
3) A shaft lock device should be installed on motors from 100 to 300 hp prior to shipment. The shaft lock helps prevent bearing damage.
4) Motors should only be lifted by the the eyebolt(s) provided on the motor. When lifting motors with more than one eyebolt, use every bolt provided.

Long Term Storage

The following preventative measures should be taken when storing IronHorse motors for a long period of time.

1) Store motors in a controlled temperature, dry atmosphere free of excess dirt, dust and airborne particles.
2) Rotate the motor shaft every sixty days to prevent hardening of the bearing grease.
3) Warehoused motors should have the bearing grease purged and replaced every six months. Use only Mobil POLYREX® EM Polyurea grease.

Warranty

- IronHorse MTSS stainless steel motors carry a one year warranty from the date of invoice.
- All other IronHorse motors (except MTSS) carry a two year warranty from the date of invoice.

For motors 40 hp and smaller, valid warranty claims will be resolved by product replacement. Motors 50 hp and larger must be evaluated by an authorized Electrical Apparatus Service Association (EASA) service center. Valid warranty claims will be resolved by repair or replacement at the discretion of AutomationDirect. See AutomationDirect Terms and Conditions in our current catalog or online at http://www.automationdirect.com/static/specs/adpolicy.pdf for complete details.

Authorized EASA service centers are available nationwide. Visit the EASA website at www.easa.com to find the nearest authorized service center. These shops may also be able to assist with non-warranty service.

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Mounting and Initial Startup



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Safety Information

Danger!

Hazardous Voltage! Before making any connection to the motor, disconnect all power to the motor.

Warning: Any electrical or mechanical modification to this equipment without prior written consent of AutomationDirect.com, Inc. will void all warranties, may result in a safety hazard, and may void the $_{C}CSA_{US}$ listing.

Warning: To avoid physical injury, keep your hands and clothing away from all moving parts.

Wiring Notes: PLEASE READ PRIOR TO INSTALLATION.

1) During installation, follow all local electrical, construction, and safety codes for the country in which the motor is to be installed.
2) Make sure the appropriate protective devices (circuit breaker or fuses) are connected between the power source and motor controller.
3) Make sure that the leads are connected correctly and the motor is properly grounded. (Ground resistance should not exceed 0.1Ω.)
4) Use ground leads that comply with AWG/MCM standards and keep them as short as possible.
5) Make sure that the power source is capable of supplying the correct voltage and required current to the motor.
6) Do not attach or remove wiring when power is applied to the motor.

Applicable Codes

All IronHorse® motors are $_{c}CSA_{us}$ listed, and therefore comply with the requirements of the National Electrical Code (NEC) and the Canadian Electrical Code (CEC).

Installation intended to meet the $_{c}CSA_{us}$ requirements must follow the instructions provided in the "Wiring Notes" as a minimum standard. Follow all local codes that exceed $_{c}CSA_{us}$ requirements. Refer to the technical data on the motor nameplate for electrical and performance data.

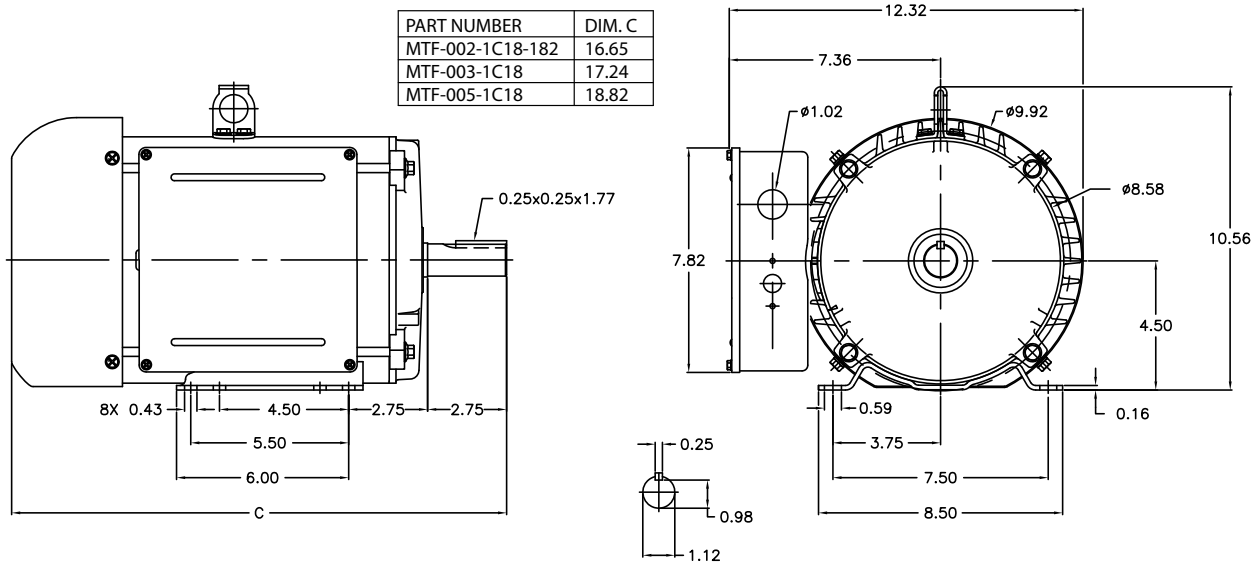
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Motor Dimensions

(Dimensions = inches)

MTF T-Frame Single-phase Farm-Duty Motor Dimensions

PART NUMBER	DIM. C
MTF-002-1C18-182	16.65
MTF-003-1C18	17.24
MTF-005-1C18	18.82

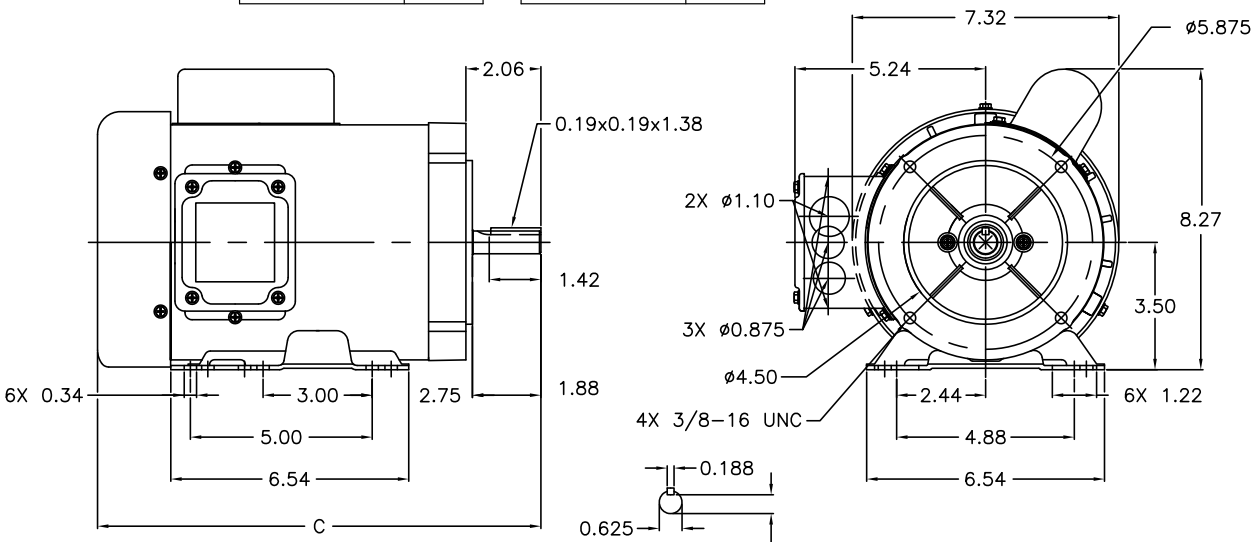


MTR/MTR2 56(H)C-Frame Single-phase Rolled-steel Motor Dimensions

MTR2 56C-Frame Single-phase Motor Dimensions, 1/3 – 1 HP

PART NUMBER	DIM. C
MTR2-P33-1AB18	11.90
MTR2-P33-1AB36	11.90
MTR2-P50-1AB18	11.90
MTR2-P50-1AB36	11.90

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



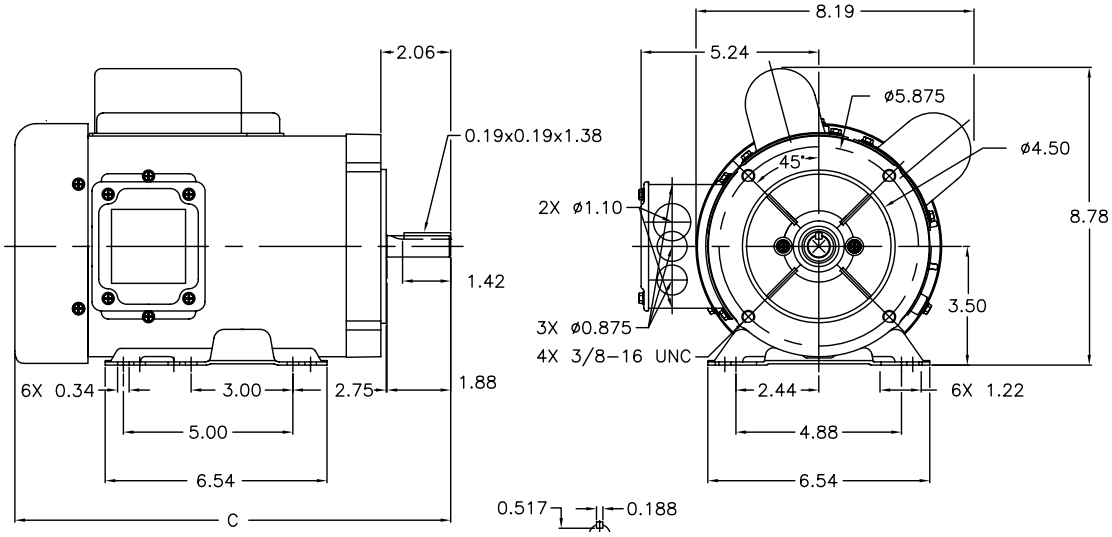
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Motor Dimensions (continued) – (Dimensions = inches)

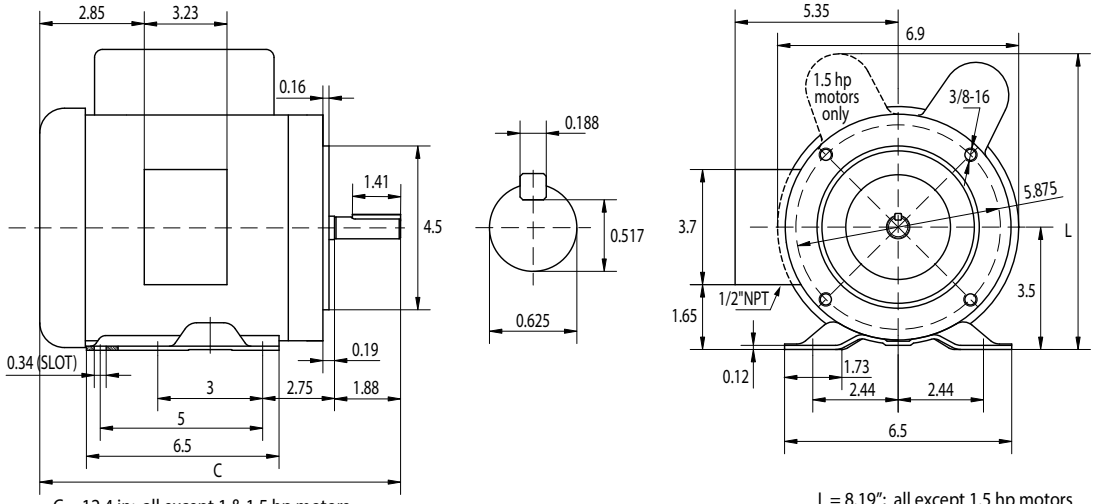
MTR/MTR2 56(H)C-Frame Single-phase Rolled-steel Motor Dimensions (continued)

MTR2 56(H)C-Frame Single-phase Motor Dimensions, 1-1/2 – 2 HP

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



MTR 56C-Frame Single-phase Rolled-steel Motor Dimensions



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)

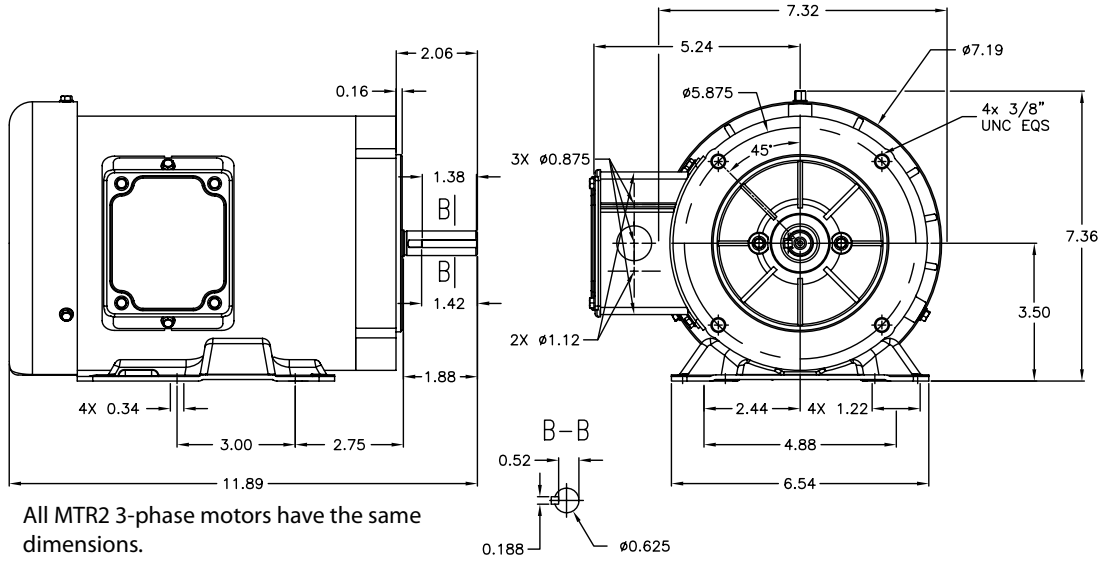
MTR-xxx-1ABxx IronHorse Motors
(single-phase rolled steel)

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

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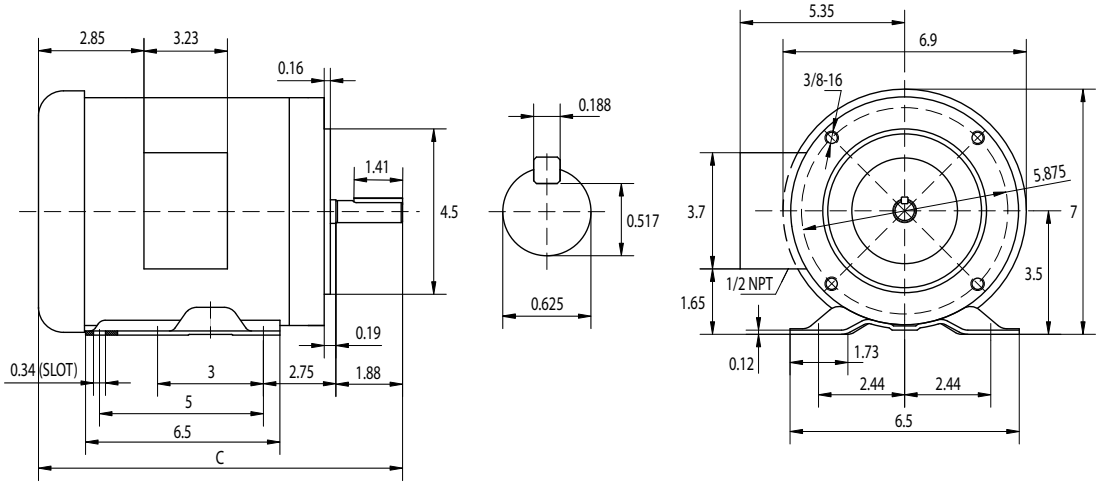
Motor Dimensions (continued) – (Dimensions = inches)

MTR2 56C-Frame Three-phase Rolled-steel Motor Dimensions



All MTR2 3-phase motors have the same dimensions.

MTR 56C-Frame Three-phase Rolled-steel Motor Dimensions



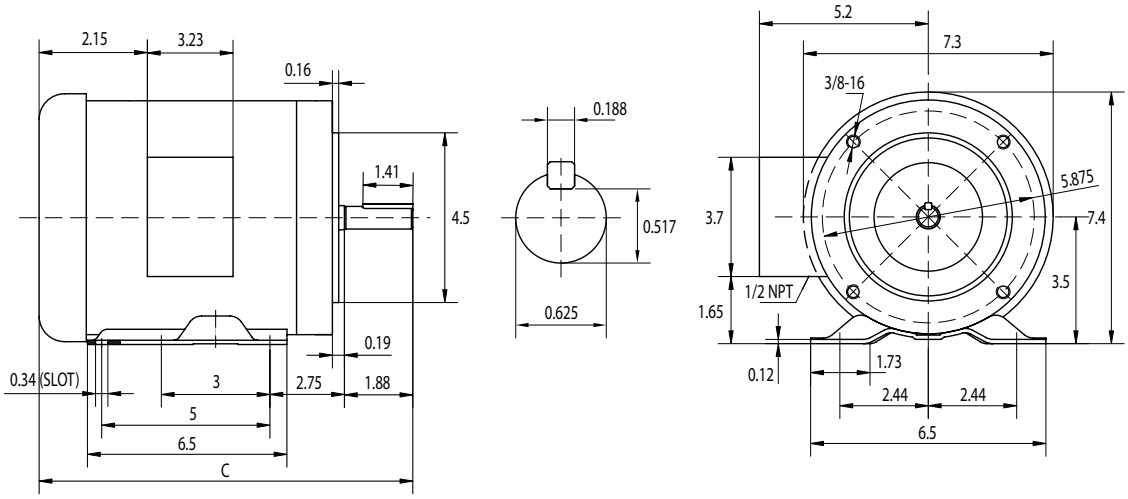
C = 12.2"; 0.33 to 1hp motors
C = 12.6"; 1.5hp MTR-1P5-3BD18
C = 12.2"; 1.5hp MTR-1P5-3BD36
C = 13.8"; 2hp MTR-002-3BD18
C = 12.4"; 2hp MTR-002-3BD36

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

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Motor Dimensions (continued) – (Dimensions = inches)

MTRP 56HC-Frame Three-phase Rolled-steel Motor Dimensions



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

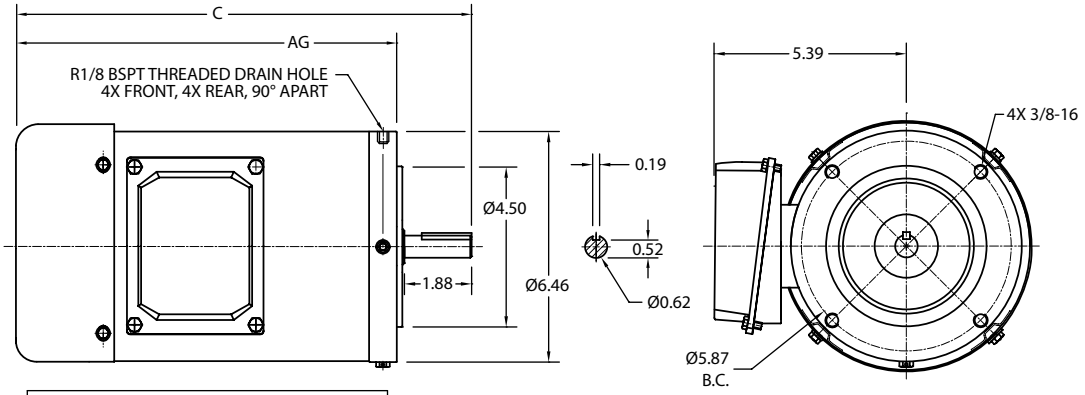
UNITS = INCHES

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

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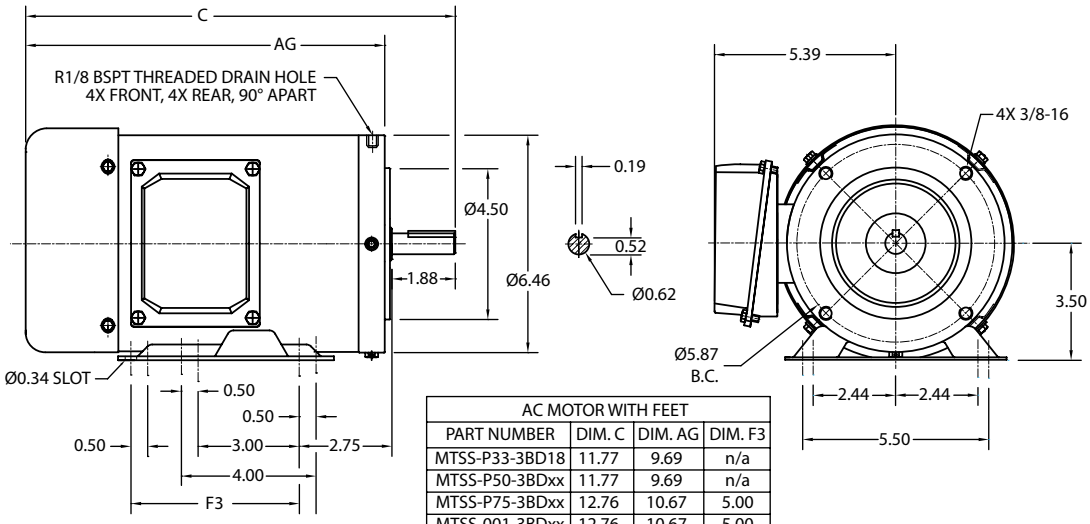
Motor Dimensions (continued) – (Dimensions = inches)

MTSS 56C-Frame Three-phase Round-body Motor Dimensions



AC MOTOR WITHOUT FEET		
PART NUMBER	DIM. C	DIM. AG
MTSS-P33-3BD18R	11.59	9.50
MTSS-P50-3BD18R	11.59	9.50
MTSS-P75-3BD18R	12.76	10.67
MTSS-001-3BD18R	12.76	10.67
MTSS-1P5-3BD18R	12.76	10.67
MTSS-002-3BD18R	12.76	10.48

MTSS 56C-Frame Three-phase Rigid-base Motor Dimensions

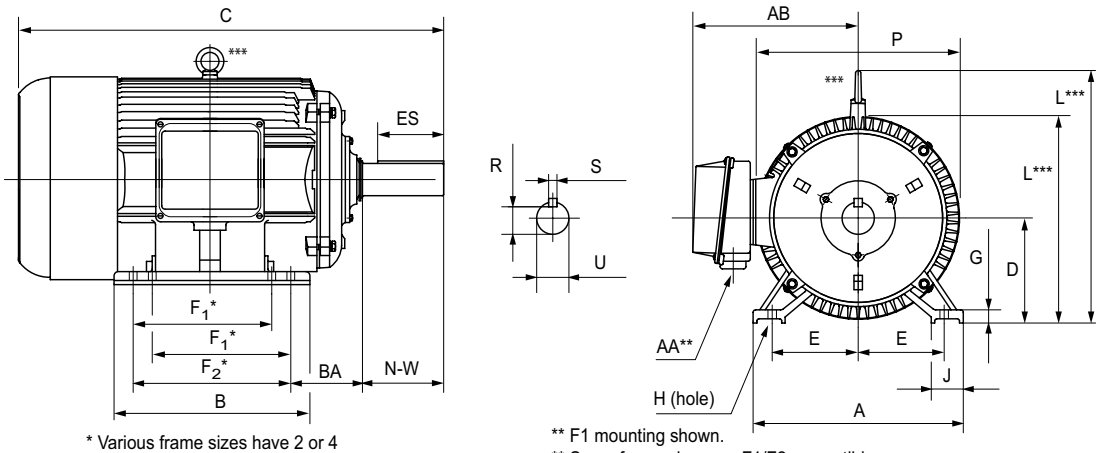


AC MOTOR WITH FEET			
PART NUMBER	DIM. C	DIM. AG	DIM. F3
MTSS-P33-3BD18	11.77	9.69	n/a
MTSS-P50-3BDxx	11.77	9.69	n/a
MTSS-P75-3BDxx	12.76	10.67	5.00
MTSS-001-3BDxx	12.76	10.67	5.00
MTSS-1P5-3BDxx	12.76	10.67	5.00
MTSS-002-3BDxx	13.50	11.42	5.00

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Motor Dimensions (continued) – (Dimensions = inches)

MTCP Premium-Efficiency T-Frame Three-Phase Motor Dimensions



* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).

** F1 mounting shown.
** Some frame sizes are F1/F2 convertible.
*** Frames 143T & 145T have no lifting eyelet.

Dimensions [inches, except as noted] Premium-Efficiency Three-Phase T-Frame Motors – 1800 rpm											
Part Number	***HP***	***NEMA Frame***	***A***	***AA*****	***AB***	***B***	***BA***	***C***	***D***	***E***	***ES***
MTCP-001-3BD18	1	143T	7	3/4"npt	6.89	5.1	2.25	12.47	3.5	2.75	1.41
MTCP-1P5-3BD18	1-1/2	145T	7	3/4"npt	6.89	6.1	2.25	13.47	3.5	2.75	1.41
MTCP-002-3BD18	2		7	3/4"npt	6.89	6.1	2.25	13.47	3.5	2.75	1.41
MTCP-003-3BD18	3	182T	8.9	1" NPT	7.45	6.3	2.75	15.11	4.5	3.75	1.78
MTCP-005-3BD18	5	184T	8.9	1" NPT	7.45	7.1	2.75	16.12	4.5	3.75	1.78
MTCP-7P5-3BD18	7-1/2	213T	10.5	1" NPT	8.63	7.5	3.5	18.89	5.25	4.25	2.41
MTCP-010-3BD18	10	215T	10.5	1" NPT	8.63	9	3.5	20.49	5.25	4.25	2.41
MTCP-015-3BD18	15	254T	12.3	1.5" NPT	12.0	10.3	4.25	23.29	6.25	5	2.91
MTCP-020-3BD18	20	256T	12.3	1.5" NPT	12.0	12.4	4.25	25.06	6.25	5	2.91
MTCP-025-3BD18	25	284T	13.7	1.5" NPT	13.7	12.2	4.75	26.63	7	5.5	3.28
MTCP-030-3BD18	30	286T	13.7	1.5" NPT	13.7	13.7	4.75	28.18	7	5.5	3.28
MTCP-040-3BD18	40	324T	15.3	2"NPT	15.3	12.6	5.25	29.95	8	6.25	3.91
MTCP-050-3BD18	50	326T	15.3	2"NPT	15.3	14.0	5.25	31.24	8	6.25	3.91
MTCP-060-3BD18	60	364T	17.0	3"NPT	17.31	14.6	5.88	32.58	9	7	4.28
MTCP-075-3BD18	75	365T	17.0	3"NPT	17.31	15.6	5.88	34.11	9	7	4.28
MTCP-100-3BD18	100	405T	20	3"NPT	18.07	17.8	6.62	38.35	10	8	5.65
MTCP-125-3BD18	125	444T	22	2x3"NPT	19.07	18.5	7.5	42.52	11	9	6.91
MTCP-150-3BD18	150	445T	22	2x3"NPT	19.07	20.5	7.5	44.5	11	9	6.91
MTCP-200-3BD18	200	445/7T	22	2x3"NPT	19.07	24	7.5	48.03	11	9	6.91

** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table. (F2 mounting = conduit entrance on right side facing shaft.)*

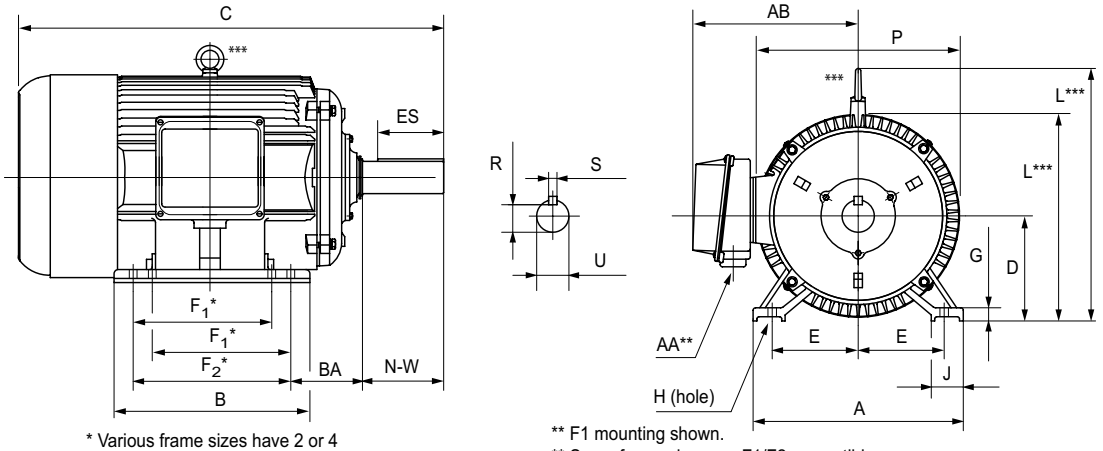
**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

******* TABLE CONTINUED NEXT PAGE (for dimensions F_1–U) *******

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Motor Dimensions (continued) – (Dimensions = inches)

MTCP Premium-Efficiency T-Frame Three-Phase Motor Dimensions (continued)



* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).

** F1 mounting shown.
** Some frame sizes are F1/F2 convertible.
*** Frames 143T & 145T have no lifting eyelet.

***** TABLE CONTINUED FROM PREVIOUS PAGE (for dimensions A–ES) *****

Dimensions [inches, except as noted]
Premium-Efficiency Three-Phase T-Frame Motors – 1800 rpm

Part Number	HP	F_1*	F_2*	G	H	J	N-W	L	P	R	S	U
MTCP-001-3BD18	1	n/a	4	0.47	0.34	1.45	2.25	6.90	7.2	0.771	0.188	0.875
MTCP-1P5-3BD18	1-1/2	4	5	0.47	0.34	1.45	2.25	6.90	7.2	0.771	0.188	0.875
MTCP-002-3BD18	2	4	5	0.47	0.34	1.45	2.25	6.90	7.2	0.771	0.188	0.875
MTCP-003-3BD18	3	n/a	4.5	0.52	0.41	1.97	2.75	10.39	9.0	0.986	0.25	1.125
MTCP-005-3BD18	5	4.5	5.5	0.52	0.41	1.97	2.75	10.39	9.0	0.986	0.25	1.125
MTCP-7P5-3BD18	7-1/2	n/a	5.5	0.78	0.41	2.36	3.38	12.26	10.8	1.201	0.312	1.375
MTCP-010-3BD18	10	5.5	7	0.78	0.41	2.36	3.38	12.26	10.8	1.201	0.312	1.375
MTCP-015-3BD18	15	n/a	8.25	0.87	0.53	2.40	4	15.10	14.4	1.416	0.375	1.625
MTCP-020-3BD18	20	8.25	10	0.87	0.53	2.40	4	15.10	14.4	1.416	0.375	1.625
MTCP-025-3BD18	25	n/a	9.5	0.98	0.53	2.68	4.62	16.50	16.0	1.591	0.5	1.875
MTCP-030-3BD18	30	9.5	11	0.98	0.53	2.68	4.62	16.50	16.0	1.591	0.5	1.875
MTCP-040-3BD18	40	n/a	10.5	0.98	0.66	2.76	5.25	18.25	17.5	1.845	0.5	2.125
MTCP-050-3BD18	50	10.5	12	0.98	0.66	2.76	5.25	18.25	17.5	1.845	0.5	2.125
MTCP-060-3BD18	60	n/a	11.25	1.10	0.66	3.15	5.88	21.0	19.1	2.021	0.625	2.375
MTCP-075-3BD18	75	11.25	12.25	1.10	0.66	3.15	5.88	21.0	19.1	2.021	0.625	2.375
MTCP-100-3BD18	100	12.25	13.75	1.18	0.81	3.15	7.25	23.46	21.4	2.45	0.75	2.875
MTCP-125-3BD18	125	n/a	14.5	1.38	0.81	3.35	8.5	26.43	23.4	2.88	0.875	3.375
MTCP-150-3BD18	150	14.5	16.5	1.38	0.81	3.35	8.5	26.43	23.4	2.88	0.875	3.375
MTCP-200-3BD18	200	16.5	20	1.38	0.81	3.35	8.5	26.43	23.4	2.88	0.875	3.375

** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

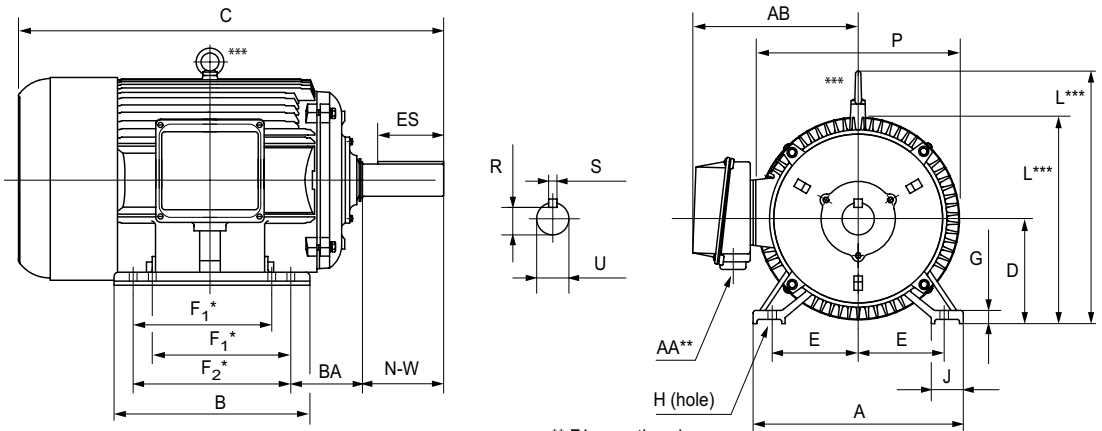
*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table.*
(F2 mounting = conduit entrance on right side facing shaft.)

**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

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Motor Dimensions (continued) – (Dimensions = inches)

MTCP Premium-Efficiency T-Frame Three-Phase Motor Dimensions (continued)



* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).

** F1 mounting shown.
** Some frame sizes are F1/F2 convertible.
*** Frames 143T & 145T have no lifting eyelet.

Dimensions [inches, except as noted] Premium-Efficiency Three-Phase T-Frame Motors – 1200 & 3600 rpm											
Part Number	***HP***	***NEMA Frame***	***A***	***AA*****	***AB***	***B***	***BA***	***C***	***D***	***E***	***ES***
1200 rpm Motors											
MTCP-001-3BD12	1	145T	7	3/4" NPT	6.89	6.1	2.25	13.47	3.5	2.75	1.41
MTCP-1P5-3BD12	1-1/2	182T	8.9	1" NPT	7.45	6.3	2.75	15.11	4.5	3.75	1.78
MTCP-002-3BD12	2	184T	8.9	1" NPT	7.45	7.1	2.75	16.12	4.5	3.75	1.78
MTCP-003-3BD12	3	213T	10.5	1" NPT	8.63	7.5	3.5	18.89	5.25	4.25	2.41
MTCP-005-3BD12	5	215T	10.5	1" NPT	8.63	9	3.5	20.49	5.25	4.25	2.41
MTCP-7P5-3BD12	7-1/2	254T	12.3	1.5" NPT	12.0	10.3	4.25	23.29	6.25	5	2.91
MTCP-010-3BD12	10	256T	12.3	1.5" NPT	12.0	12.4	4.25	25.06	6.25	5	2.91
MTCP-015-3BD12	15	284T	13.7	1.5" NPT	13.7	12.2	4.75	26.63	7	5.5	3.28
MTCP-020-3BD12	20	286T	13.7	1.5" NPT	13.7	13.7	4.75	28.18	7	5.5	3.28
3600 rpm Motors											
MTCP-1P5-3BD36	1-1/2	143T	7	3/4" NPT	6.89	5.1	2.25	12.47	3.5	2.75	1.41
MTCP-002-3BD36	2	145T	7	3/4" NPT	6.89	6.1	2.25	13.47	3.5	2.75	1.41
MTCP-003-3BD36	3	182T	8.9	1" NPT	7.45	6.3	2.75	15.11	4.5	3.75	1.78
MTCP-005-3BD36	5	184T	8.9	1" NPT	7.45	7.1	2.75	16.12	4.5	3.75	1.78
MTCP-7P5-3BD36	7-1/2	213T	10.5	1" NPT	8.63	7.5	3.5	18.89	5.25	4.25	2.41
MTCP-010-3BD36	10	215T	10.5	1" NPT	8.63	9	3.5	20.49	5.25	4.25	2.41
MTCP-015-3BD36	15	254T	12.3	1.5" NPT	12.0	10.3	4.25	23.29	6.25	5	2.91
MTCP-020-3BD36	20	256T	12.3	1.5" NPT	12.0	12.4	4.25	25.06	6.25	5	2.91

** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table. (F2 mounting = conduit entrance on right side facing shaft.)*

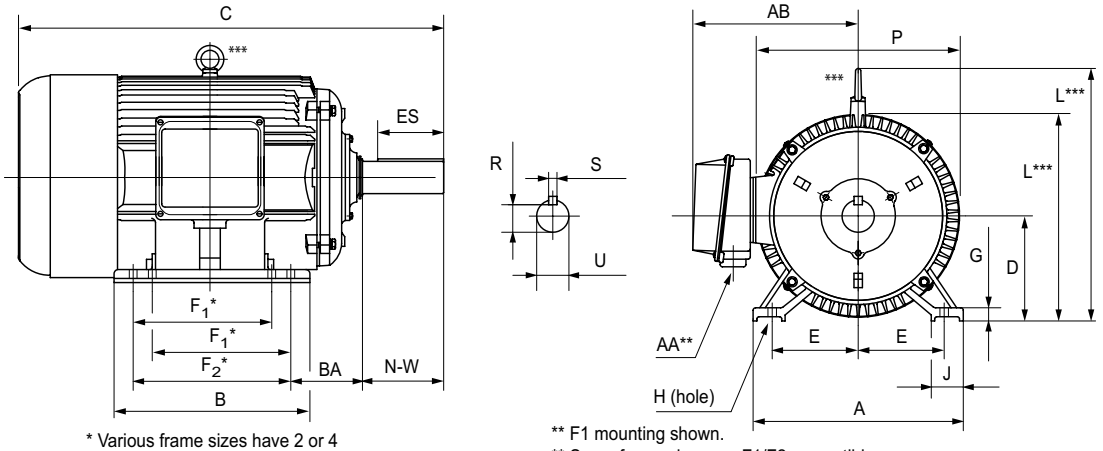
**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

******* TABLE CONTINUED NEXT PAGE (for dimensions F_1–U) *******

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Motor Dimensions (continued) – (Dimensions = inches)

MTCP Premium-Efficiency T-Frame Three-Phase Motor Dimensions (continued)



* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).

** F1 mounting shown.
** Some frame sizes are F1/F2 convertible.
*** Frames 143T & 145T have no lifting eyelet.

***** TABLE CONTINUED FROM PREVIOUS PAGE (for dimensions A–ES) *****

Dimensions [inches, except as noted]
Premium-Efficiency Three-Phase T-Frame Motors – 1200 & 3600 rpm

Part Number	HP	F_1*	F_2*	G	H	J	N-W	L	P	R	S	U
1200 rpm Motors												
MTCP-001-3BD12	1	4	5	0.47	0.34	1.45	2.25	6.90	7.2	0.771	0.188	0.875
MTCP-1P5-3BD12	1-1/2	n/a	4.5	0.52	0.41	1.97	2.75	10.39	9.0	0.986	0.25	1.125
MTCP-002-3BD12	2	4.5	5.5	0.52	0.41	1.97	2.75	10.39	9.0	0.986	0.25	1.125
MTCP-003-3BD12	3	n/a	5.5	0.78	0.41	2.36	3.38	12.26	10.8	1.201	0.312	1.375
MTCP-005-3BD12	5	5.5	7	0.78	0.41	2.36	3.38	12.26	10.8	1.201	0.312	1.375
MTCP-7P5-3BD12	7-1/2	n/a	8.25	0.87	0.53	2.40	4	15.10	14.4	1.416	0.375	1.625
MTCP-010-3BD12	10	8.25	10	0.87	0.53	2.40	4	15.10	14.4	1.416	0.375	1.625
MTCP-015-3BD12	15	n/a	9.5	0.98	0.53	2.68	4.62	16.50	16.0	1.591	0.5	1.875
MTCP-020-3BD12	20	9.5	11	0.98	0.53	2.68	4.62	16.50	16.0	1.591	0.5	1.875
3600 rpm Motors												
MTCP-1P5-3BD36	1-1/2	n/a	4	0.47	0.34	1.45	2.25	6.90	7.2	0.771	0.188	0.875
MTCP-002-3BD36	2	4	5	0.47	0.34	1.45	2.25	6.90	7.2	0.771	0.188	0.875
MTCP-003-3BD36	3	n/a	4.5	0.52	0.41	1.97	2.75	10.39	9.0	0.986	0.25	1.125
MTCP-005-3BD36	5	4.5	5.5	0.52	0.41	1.97	2.75	10.39	9.0	0.986	0.25	1.125
MTCP-7P5-3BD36	7-1/2	n/a	5.5	0.78	0.41	2.36	3.38	12.26	10.8	1.201	0.312	1.375
MTCP-010-3BD36	10	5.5	7	0.78	0.41	2.36	3.38	12.26	10.8	1.201	0.312	1.375
MTCP-015-3BD36	15	n/a	8.25	0.87	0.53	2.40	4	15.10	14.4	1.416	0.375	1.625
MTCP-020-3BD36	20	8.25	10	0.87	0.53	2.40	4	15.10	14.4	1.416	0.375	1.625

** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

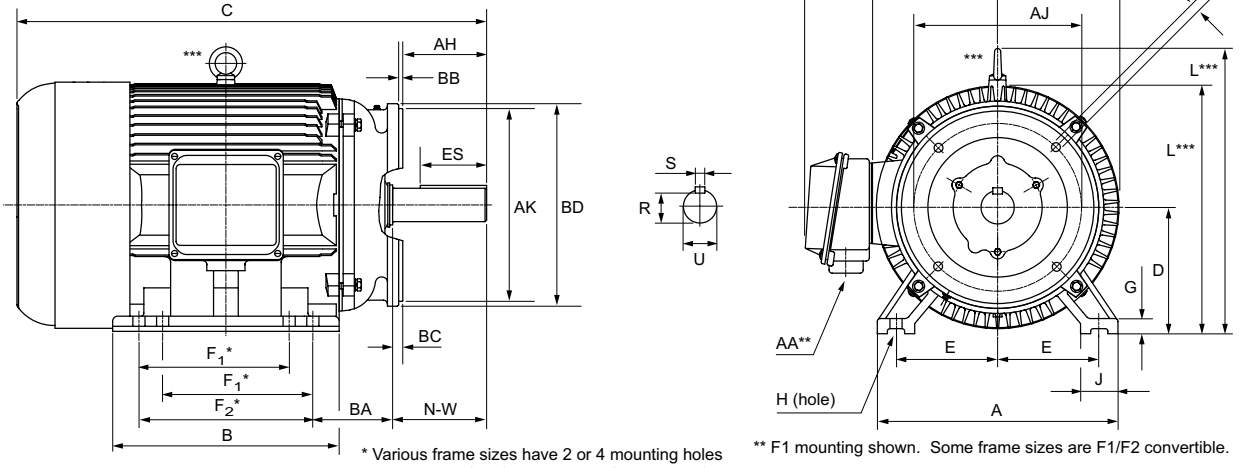
*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table.*
(F2 mounting = conduit entrance on right side facing shaft.)

**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

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Motor Dimensions (continued) – (Dimensions = inches)

MTCP Premium-Efficiency TC-Frame Three-Phase Motor Dimensions



* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).

** F1 mounting shown. Some frame sizes are F1/F2 convertible.

*** Frames 143TC and 145TC have no lifting eyelet.

Dimensions [inches, except as noted]
Premium-Efficiency Three-Phase TC-Frame Motors – 1800 rpm

Part # MTCP-xxx-3BD18C	*HP*	*NEMA Frame*	*A*	*AA***	*AB*	*AH*	*AJ*	*AK*	*B*	*BA*	*BB*	*BC*	*BD*	*BF*	*C*
-001-	1	143TC	7	3/4"NPT	6.89	1.96	5.875	4.5	5.1	2.25	0.16	0.29	6.5	3/8-16	12.5
-1P5-	1-1/2	145TC	7	3/4"NPT	6.89	1.96	5.875	4.5	6	2.25	0.16	0.29	6.5	3/8-16	13.5
-002-	2														
-003-	3	182TC	8.9	1" NPT	7.45	2.37	7.25	8.5	6.3	2.75	0.25	0.38	9	1/2-13	15.1
-005-	5	184TC	8.9	1" NPT	7.45	2.37	7.25	8.5	7.1	2.75	0.25	0.38	9	1/2-13	16.1
-7P5-	7-1/2	213TC	10.5	1" NPT	8.63	2.87	7.25	8.5	7.5	3.5	0.25	0.51	9	1/2-13	18.9
-010-	10	215TC	10.5	1" NPT	8.63	2.87	7.25	8.5	9	3.5	0.25	0.51	9	1/2-13	20.5
-015-	15	254TC	12.3	1.5"NPT	12.0	3.75	7.25	8.5	10.3	4.25	0.25	0.25	10	1/2-13	23.3
-020-	20	256TC	12.3	1.5"NPT	12.0	3.75	7.25	8.5	12.4	4.25	0.25	0.25	10	1/2-13	25.1
-025-	25	284TC	13.7	1.5"NPT	13.7	4.38	9	10.5	12.2	4.75	0.25	0.25	11.25	1/2-13	26.6
-030-	30	286TC	13.7	1.5"NPT	13.7	4.38	9	10.5	13.7	4.75	0.25	0.24	11.25	1/2-13	28.2
-040-	40	324TC	15.3	2" NPT	15.3	5	11	12.5	12.6	5.25	0.25	0.24	14	5/8-11	30.0
-050-	50	326TC	15.3	2" NPT	15.3	5	11	12.5	14.0	5.25	0.25	0.25	14	5/8-11	31.2
-060-	60	364TC	17.0	3" NPT	17.3	5.62	11	12.5	14.6	5.88	0.25	0.25	14	5/8-11	32.6
-075-	75	365TC	17.0	3" NPT	17.3	5.62	11	12.5	15.6	5.88	0.25	0.25	14	5/8-11	34.1
-100-	100	405TC	20	3" NPT	18.1	7	11	12.5	17.8	6.62	0.25	0.25	15.5	5/8-11	38.4

** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table.*
(F2 mounting = conduit entrance on right side facing shaft.)

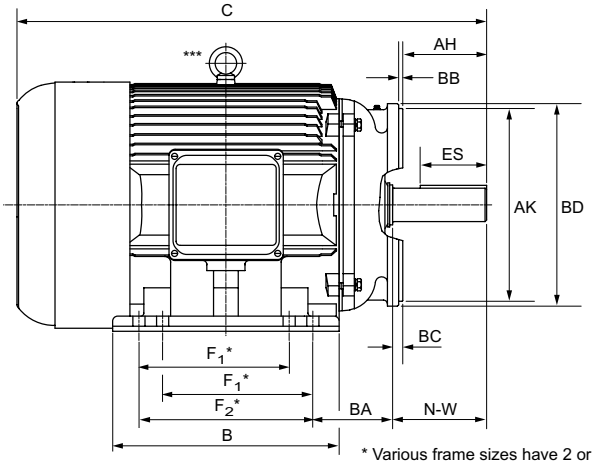
**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

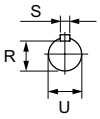
******* TABLE CONTINUED NEXT PAGE (for dimensions D–U) *******

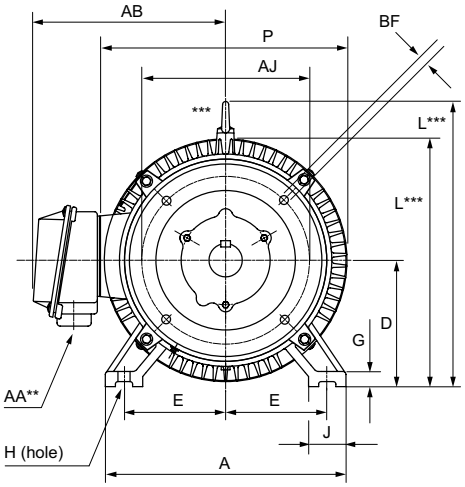
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Motor Dimensions (continued) – (Dimensions = inches)

MTCP Premium-Efficiency TC-Frame Three-Phase Motor Dimensions (continued)







* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).

** F1 mounting shown. Some frame sizes are F1/F2 convertible.

*** Frames 143TC and 145TC have no lifting eyelet.

******* TABLE CONTINUED FROM PREVIOUS PAGE (for dimensions A–C) *******

Dimensions [inches, except as noted]
Premium-Efficiency Three-Phase TC-Frame Motors – 1800 rpm

Part # MTCP-xxx-3BD18C	*HP*	*D*	*E*	*ES*	*F_1**	*F_2**	*G*	*H*	*J*	*N-W*	*L*	*P*	*R*	*S*	*U*
-001-	1	3.5	2.75	1.41	n/a	4	0.47	0.34	1.45	2.25	6.9	7.2	0.771	0.188	0.875
-1P5-	1-1/2	3.5	2.75	1.41	4	5	0.47	0.34	1.45	2.25	6.9	7.2	0.771	0.188	0.875
-002-	2														
-003-	3	4.5	3.75	1.78	n/a	4.5	0.52	0.41	1.97	2.75	10.4	9.0	0.986	0.25	1.125
-005-	5	4.5	3.75	1.78	4.5	5.5	0.52	0.41	1.97	2.75	10.4	9.0	0.986	0.25	1.125
-7P5-	7-1/2	5.25	4.25	2.41	n/a	5.5	0.78	0.41	2.36	3.38	12.3	10.8	1.201	0.312	1.375
-010-	10	5.25	4.25	2.41	5.5	7	0.78	0.41	2.36	3.38	12.3	10.8	1.201	0.312	1.375
-015-	15	6.25	5	2.91	n/a	8.25	0.87	0.53	2.40	4	15.1	14.4	1.416	0.375	1.625
-020-	20	6.25	5	2.91	8.25	10	0.87	0.53	2.40	4	15.1	14.4	1.416	0.375	1.625
-025-	25	7	5.5	3.28	n/a	9.5	0.98	0.53	2.68	4.62	16.5	16.0	1.591	0.5	1.875
-030-	30	7	5.5	3.28	9.5	11	0.98	0.53	2.68	4.62	16.5	16.0	1.591	0.5	1.875
-040-	40	8	6.25	3.91	n/a	10.5	0.98	0.66	2.76	5.25	18.3	17.5	1.854	0.5	2.125
-050-	50	8	6.25	3.91	10.5	12	0.98	0.66	2.76	5.25	18.3	17.5	1.845	0.5	2.125
-060-	60	9	7	4.28	n/a	11.25	1.10	0.66	3.15	5.88	21.0	19.1	2.021	0.625	2.375
-075-	75	9	7	4.28	11.25	12.25	1.10	0.66	3.15	5.88	21.0	19.1	2.021	0.625	2.375
-100-	100	10	8	5.65	12.25	13.75	1.18	0.81	3.15	7.25	23.5	21.4	2.45	0.75	2.875

** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

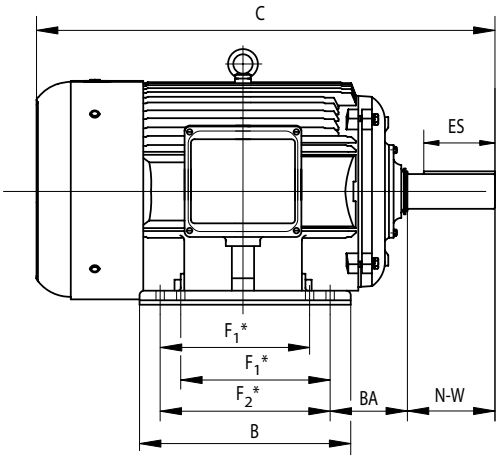
*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table.*
(F2 mounting = conduit entrance on right side facing shaft.)

**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

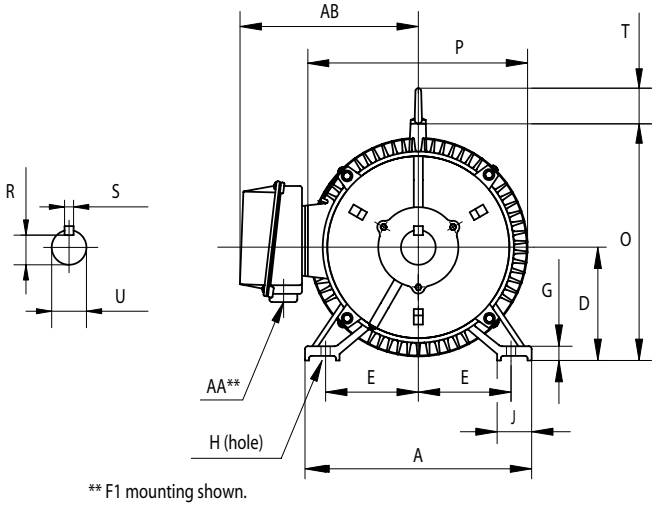
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Motor Dimensions (continued) – (Dimensions = inches)

MTC EPAct T-Frame Three-Phase Motor Dimensions



* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).



** F1 mounting shown.
** Some frame sizes are F1/F2 convertible.

Dimensions [inches, except as noted] EPAct Three-phase T-Frame Motors – 1200, 1800, 3600 rpm											
Part Number	***HP***	***NEMA Frame***	***A***	***AA*****	***AB***	***B***	***BA***	***C***	***D***	***E***	***ES***
MTC-001-3BD12	1	145T	7	3/4"npt	6.89	6	2.25	13.58	3.5	2.75	1.41
MTC-001-3BD18		143T				5		12.57			
MTC-1P5-3BD12	1-1/2	182T	9	1" NPT	7.45	6.5	2.75	15.11	4.5	3.75	1.78
MTC-1P5-3BD18		145T	7	3/4"npt	6.89	6	2.25	13.58	3.5	2.75	1.41
MTC-1P5-3BD36						5		12.57			
MTC-002-3BD12	2	184T	9	1" NPT	7.45	7.5	2.75	16.11	4.5	3.75	1.78
MTC-002-3BD18		145T	7	3/4"npt	6.89	6	2.25	13.58	3.5	2.75	1.41
MTC-002-3BD36											
MTC-003-3BD12	3	213T	10.5	1" NPT	8.63	7.5	3.5	18.89	5.25	4.25	2.41
MTC-003-3BD18		182T	9	1" NPT	7.45	6.5	2.75	15.11	4.5	3.75	1.78
MTC-003-3BD36											
MTC-005-3BD12	5	215T	10.5	1" NPT	8.63	9	3.5	20.49	5.25	4.25	2.41
MTC-005-3BD18		184T	9	1" NPT	7.45	7.5	2.75	16.11	4.5	3.75	1.78
MTC-005-3BD36											
MTC-7P5-3BD12	7-1/2	254T	12.5	1.5" NPT	11.2	10.8	4.25	23.29	6.25	5	2.91
MTC-7P5-3BD18		213T	10.5	1" NPT	8.63	7.5	3.5	18.89	5.25	4.25	2.41
MTC-7P5-3BD36											
MTC-010-3BD12	10	256T	12.5	1.5" NPT	11.2	12.5	4.25	25.06	6.25	5	2.91
MTC-010-3BD18		215T	10.5	1" NPT	8.63	9	3.5	20.49	5.25	4.25	2.41
MTC-010-3BD36											

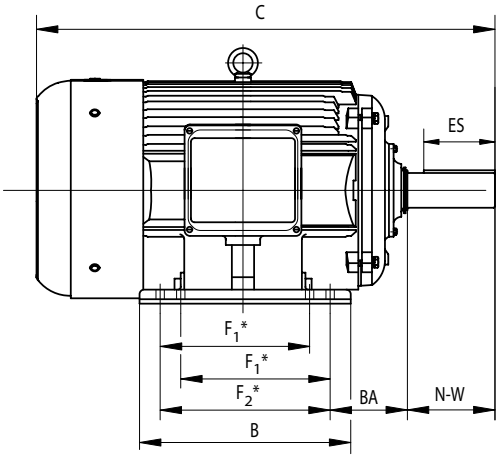
** Various frame sizes have 2 or 4 mounting holes per mounting foot.*
*** AA dimension is conduit fitting size.*
F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table. (F2 mounting = conduit entrance on right side facing shaft.)

******* TABLE CONTINUED NEXT PAGE (for dimensions F_1–U) *******

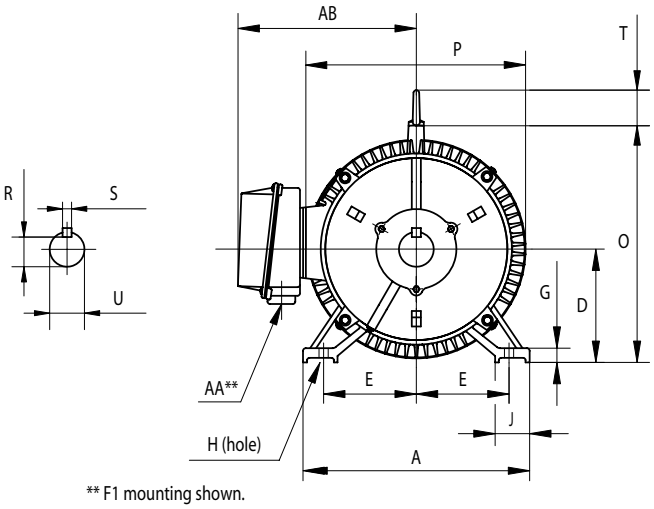
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Motor Dimensions (continued) – (Dimensions = inches)

MTC EPAct T-Frame Three-Phase Motor Dimensions (continued)



* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).



** F1 mounting shown.
** Some frame sizes are F1/F2 convertible.

**** Table Continued Previous Page (for dimensions A–ES) ****

Dimensions [inches, except as noted]
EPAct Three-phase T-Frame Motors – 1200, 1800, 3600 rpm

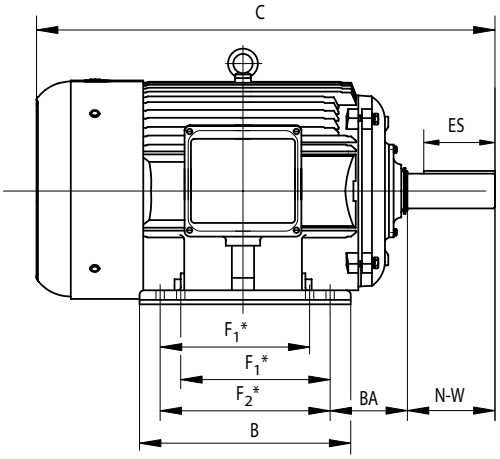
Part Number	F_1*	F_2*	G	H	J	N-W	O	P	R	S	T	U
MTC-001-3BD12	4	5	0.512	0.34	1.45	2.25	7.08	7.16	0.771	0.188	0.88	0.875
MTC-001-3BD18	n/a	4									n/a	
MTC-1P5-3BD12	n/a	4.5	0.59	0.41	1.97	2.75	8.97	8.82	0.986	0.25	1.42	1.125
MTC-1P5-3BD18	4	5	0.512	0.34	1.45	2.25	7.08	7.16	0.771	0.188	n/a	0.875
MTC-1P5-3BD36	n/a	4										
MTC-002-3BD12	4.5	5.5	0.59	0.41	1.97	2.75	8.97	8.82	0.986	0.25	1.42	1.125
MTC-002-3BD18	4	5	0.512	0.34	1.45	2.25	7.08	7.16	0.771	0.188	n/a	0.875
MTC-002-3BD36											0.88	
MTC-003-3BD12	n/a	5.5	0.709	0.41	2.36	3.38	10.53	10.4	1.201	0.312	1.73	1.375
MTC-003-3BD18	n/a	4.5	0.59	0.41	1.97	2.75	8.97	8.82	0.986	0.25	1.42	1.125
MTC-003-3BD36												
MTC-005-3BD12	5.5	7	0.709	0.41	2.36	3.38	10.53	10.4	1.201	0.312	1.73	1.375
MTC-005-3BD18	4.5	5.5	0.59	0.41	1.97	2.75	8.97	8.82	0.986	0.25	1.42	1.125
MTC-005-3BD36												
MTC-7P5-3BD12	n/a	8.25	0.787	0.53	2.76	4	12.89	12.6	1.416	0.375	2.05	1.625
MTC-7P5-3BD18	n/a	5.5	0.709	0.41	2.36	3.38	10.53	10.4	1.201	0.312	1.73	1.375
MTC-7P5-3BD36												
MTC-010-3BD12	8.25	10	0.787	0.53	2.76	4	12.89	12.6	1.416	0.375	2.05	1.625
MTC-010-3BD18	5.5	7	0.709	0.41	2.36	3.38	10.53	10.4	1.201	0.312	1.73	1.375
MTC-010-3BD36												

** Various frame sizes have 2 or 4 mounting holes per mounting foot.*
*** AA dimension is conduit fitting size.*
F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table. (F2 mounting = conduit entrance on right side facing shaft.)

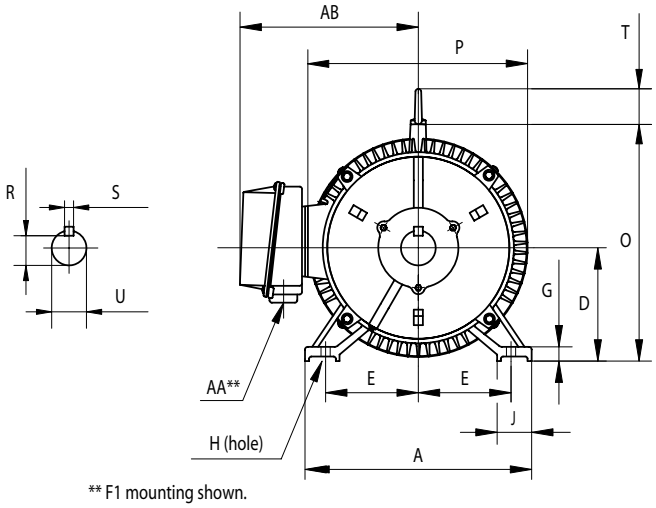
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Motor Dimensions (continued) – (Dimensions = inches)

MTC EPAct T-Frame Three-Phase Motor Dimensions (continued)



* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).



** F1 mounting shown.
** Some frame sizes are F1/F2 convertible.

Dimensions [inches, except as noted] EPAct Three-phase T-Frame Motors – 1800 rpm											
Part Number	***HP***	***NEMA Frame***	***A***	***AA*****	***AB***	***B***	***BA***	***C***	***D***	***E***	***ES***
MTC-015-3BD18	15	254T	12.5	1.5" NPT	11.2	10.8	4.25	23.29	6.25	5	2.91
MTC-020-3BD18	20	256T				12.5		25.06			
MTC-025-3BD18	25	284T	14	1.5" NPT	12	12.5	4.75	26.64	7	5.5	3.28
MTC-030-3BD18	30	286T				14		28.18			
MTC-040-3BD18	40	324T	16	2" NPT	13.4	14	5.25	29.95	8	6.25	3.91
MTC-050-3BD18	50	326T				15.5		31.24			
MTC-060-3BD18	60	364T	18	3" NPT	15.7	15.2	5.88	32.68	9	7	4.28
MTC-075-3BD18	75	365T				16.2		34.11			
MTC-100-3BD18	100	405T	20	3" NPT	18.31	17.8	6.62	38.35	10	8	5.65
MTC-125-3BD18	125	444T	22	2x3"NPT	19.41	18.5	7.5	42.52	11	9	6.91
MTC-150-3BD18	150	445T				20.5		44.5			
MTC-200-3BD18	200	445/7T				24		48.03			
MTC-250-3D18	250	449T	22	2x3"NPT	19.07	31	7.5	55.51	11	9	7.01
MTC-300-3D18	300										

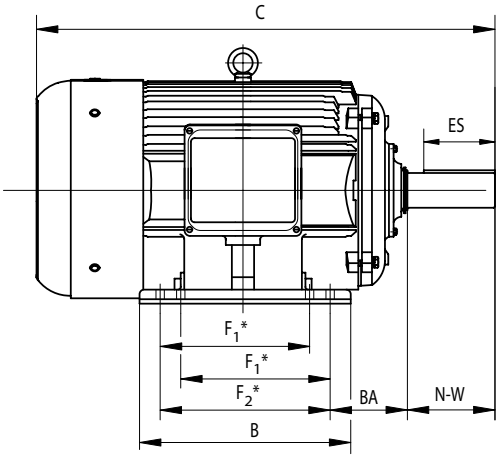
** Various frame sizes have 2 or 4 mounting holes per mounting foot.*
*** AA dimension is conduit fitting size.*
F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table. (F2 mounting = conduit entrance on right side facing shaft.)

******* TABLE CONTINUED NEXT PAGE (for dimensions F_1–U) *******

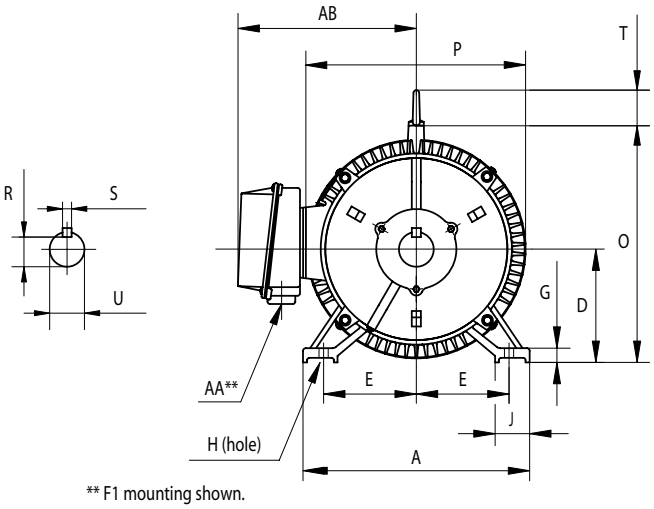
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Motor Dimensions (continued) – (Dimensions = inches)

MTC EPAct T-Frame Three-Phase Motor Dimensions (continued)



* Various frame sizes have 2 or 4 mounting holes per mounting foot (one mounting foot per side).



** F1 mounting shown.
** Some frame sizes are F1/F2 convertible.

**** Table Continued Previous Page (for dimensions A–ES) ****

Dimensions [inches, except as noted]
EPAct Three-phase T-Frame Motors – 1800 rpm

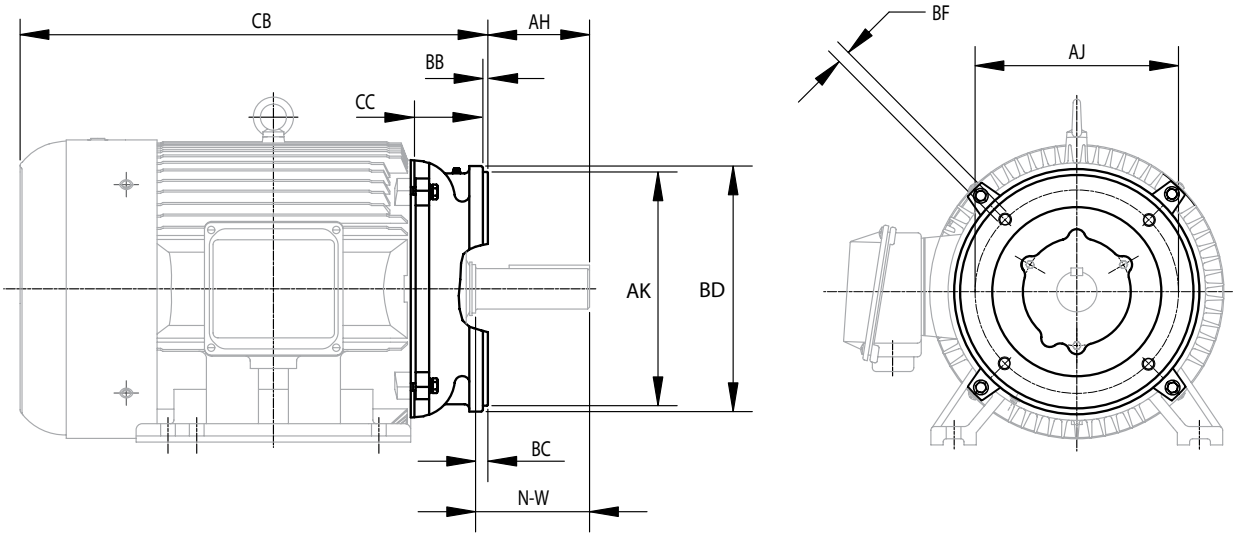
Part Number	F_1*	F_2*	G	H	J	N-W	O	P	R	S	T	U
MTC-015-3BD18	n/a	8.25	0.787	0.53	2.76	4	12.89	12.6	1.416	0.375	2.05	1.625
MTC-020-3BD18	8.25	10										
MTC-025-3BD18	n/a	9.5	0.866	0.53	2.76	4.62	14.28	14.17	1.591	0.5	2.05	1.875
MTC-030-3BD18	9.5	11										
MTC-040-3BD18	n/a	10.5	0.984	0.66	2.76	5.25	15.91	15.75	1.845	0.5	2.44	2.125
MTC-050-3BD18	10.5	12										
MTC-060-3BD18	n/a	11.25	1.102	0.66	2.95	5.88	18.13	17.7	2.021	0.625	2.44	2.375
MTC-075-3BD18	11.25	12.25										
MTC-100-3BD18	12.25	13.75	1.18	0.81	3.15	7.25	21.02	21.42	2.45	0.75	2.83	2.875
MTC-125-3BD18	n/a	14.5	1.38	0.81	3.35	8.5	22.97	23.43	2.88	0.875	3.46	3.375
MTC-150-3BD18	14.5	16.5										
MTC-200-3BD18	16.5	20										
MTC-250-3D18	n/a	25	1.575	0.81	3.35	8.5	23	24	2.88	0.875	4.25	3.375
MTC-300-3D18												

** Various frame sizes have 2 or 4 mounting holes per mounting foot.*
*** AA dimension is conduit fitting size.*
F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table. (F2 mounting = conduit entrance on right side facing shaft.)

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Motor Dimensions (continued) – (Dimensions = inches)

MTC EPAct TC-Frame Three-Phase Motor & C-Flange Dimensions



TC-frame motors are T-frame EPAct motors with C-flange accessory kits installed. For more information about the C-flange accessory kits, refer to Chapter 4: Accessories.

Dimensions (inches) - EPAct T-Frame Motor C-Flange Kits											
Part Number	**Frame**	**AH(2)**	**AJ**	**AK**	**BB**	**BC(2)**	**BD**	**BF**	**CB(2)**	**CC**	**N-W(2)**
MTA-CFACE-140TC(1)	143T	1.96	5.875(1)	4.5(1)	0.16	0.12	6.5	3/8-16	10.51	1.43	2.25
	145T								11.62		
MTA-CFACE-180TC	182T	2.62	7.25	8.5	0.25	0.12	9	1/2-13	12.49	1.17	2.75
	184T								13.49		
MTA-CFACE-210TC	213T	3.12	7.25	8.5	0.25	0.25	9	1/2-13	15.77	1.45	3.38
	215T								17.37		
MTA-CFACE-250TC	254T	3.75	7.25	8.5	0.25	0.25	10	1/2-13	19.54	2.89	4
	256T								21.31		
MTA-CFACE-280TC	284T	4.38	9	10.5	0.25	0.25	11.25	1/2-13	22.26	3.26	4.62
	286T								23.80		
MTA-CFACE-320TC	324T	5	11	12.5	0.25	0.25	14	5/8-11	24.95	3.67	5.25
	326T								26.24		
MTA-CFACE-360TC	364T	5.62	11	12.5	0.25	0.25	14	5/8-11	27.06	4.06	5.88
	365T								28.49		
MTA-CFACE-400TC	405T	7	11	12.5	0.25	0.25	15.5	5/8-11	31.35	4.33	7.25
MTA-CFACE-444TC	444T	8.25	14	16	0.25	0.25	18	5/8-11	34.27	4.11	8.5
	445T								36.25		
MTA-CFACE-447TC	445/7T	8.25	14	16	0.25	0.25	18	5/8-11	39.78	4.11	8.5
MTA-CFACE-449TC	449T	8.248	14	16	0.26	0.26	17.72	5/8-11	47.26	4.35	8.5

1) Mounting bolt holes for MTA-CFACE-140TC are located outside of the highest C-face flange surface (dimension AJ > AK).

2) Motor dependent dimensions apply only to IronHorse MTC-xxx-xxxxx(CK) motors.

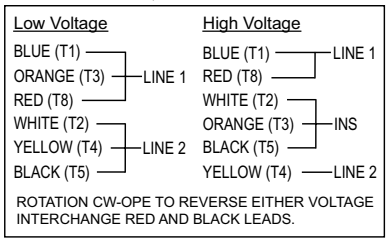
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Terminal and Wiring Diagrams

IronHorse® Single-Phase Motors

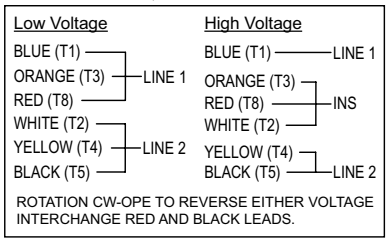
MTR General-Purpose motors

1/3 hp – 1.5hp 1Ø MTR models
6-Lead, 115/208-230 VAC



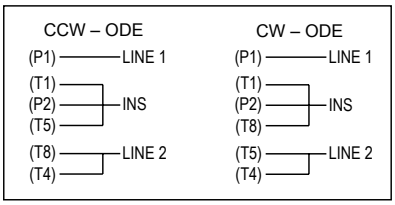
MTR2 General-Purpose motors

1/3 hp – 1.5hp 1Ø MTR2 models
6-Lead, 115/208-230 VAC



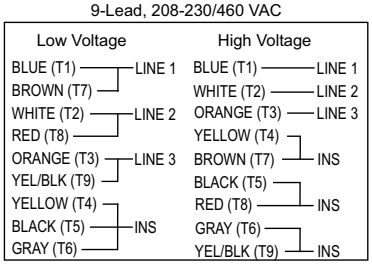
MTF Farm-Duty Motors

2–5hp 1Ø Farm-Duty models ; 6-Lead, 230 VAC

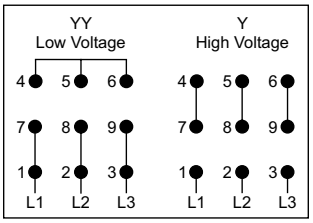


IronHorse® Three-Phase Motors

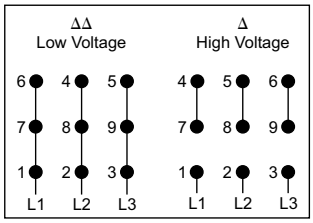
1/3 hp - 2hp 3Ø models
9-Lead, 208-230/460 VAC



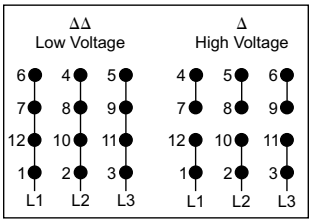
1hp - 5hp 3Ø models
9-Lead, 208-230/460 VAC



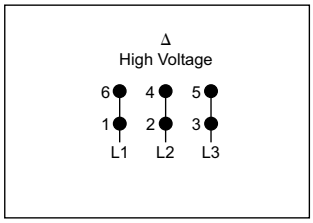
7.5 hp - 20 hp 3Ø models
9-Lead, 208-230/460 VAC



25 hp - 200 hp 3Ø models
12-Lead, 208-230/460 VAC



250 hp - 300 hp 3Ø models
6-Lead, 460 VAC



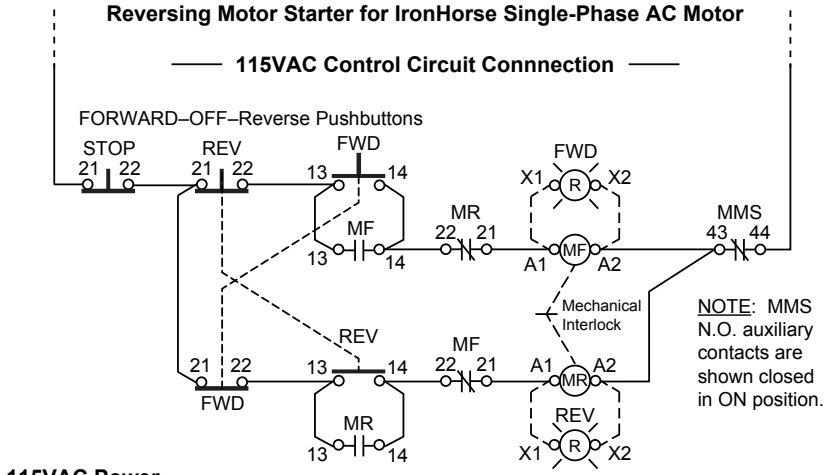
Nameplate / Wiring Diagram abbreviations:
1) "INS" = The wires are to be connected and then insulated.
2) "ODE" = Opposite Drive End.
3) "OPE" = Opposite Pulley End.

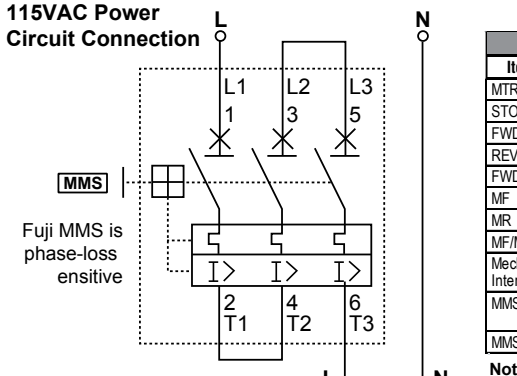
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Terminal and Wiring Diagrams (continued)

Single-Phase Motors Reversing Diagrams

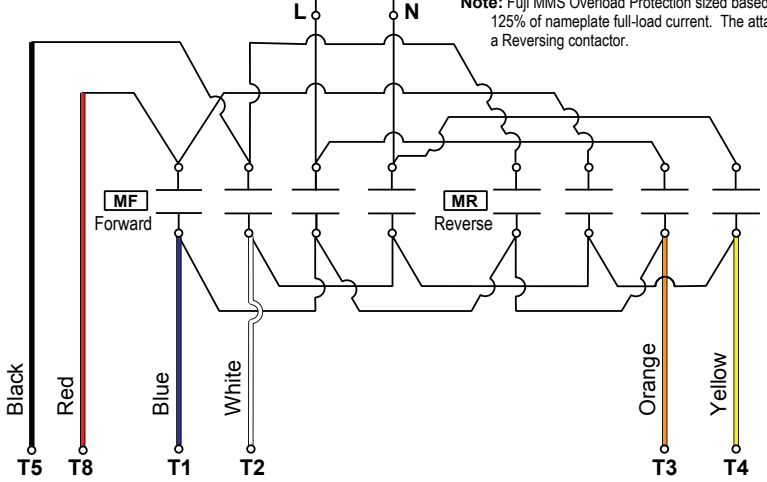
For 115VAC Power Circuit (115VAC Control Circuit)





1HP 115 VAC Reversing Contactor Bill of Material				
Item	Qty.	Unit	Part #	Description
MTR	1	Each	MTR-001-1AB18	AC Motor 1HP 1800RPM 56C 115/208-230VAC 1-PH
STOP (PB)	1	Each	GCX1111	PB 22mm Metal Red N.C. MOM Extended 30mm Head
FWD (PB)	1	Each	GCX1202-120L	PB 22mm Metal Green N.O. 120V Flush LED-Illum
REV (PB)	1	Each	GCX1204-120L	PB 22mm Metal Blue N.O. 120V Flush LED-Illum
FWD/REV (PB)	1	Each	ECX1030-5	Contact Block 22mm 5/PK N.C. Red
MF	1	Each	CWC016-00-40V18	Contactor 16A 4 N.O. Pwr Poles 120VAC Coil
MR	1	Each	CWC016-00-40V18	CONTACTOR 16A 4 N.O. PWR POLES 120VAC Coil
MF/MR	2	Each	BFC4-11	Aux Contact Front Mount 1 N.O./1 N.C.
Mechanical Interlock	1	Each	BIC0	Mechanical Interlock Front Mount
MMS	1	Each	BM3RHB-020	Fuji Manual Motor Starter 14 to 20A Range Thermal Overload
MMS	1	Each	BZ0WUABL	Fuji auxiliary contact block for MMS, 1 N.O. and 1 N.C.

Note: Fuji MMS Overload Protection sized based on 2008 NEC Section 430.32 with Max percentage 125% of nameplate full-load current. The attached BOM is only one example of many options for a Reversing contactor.



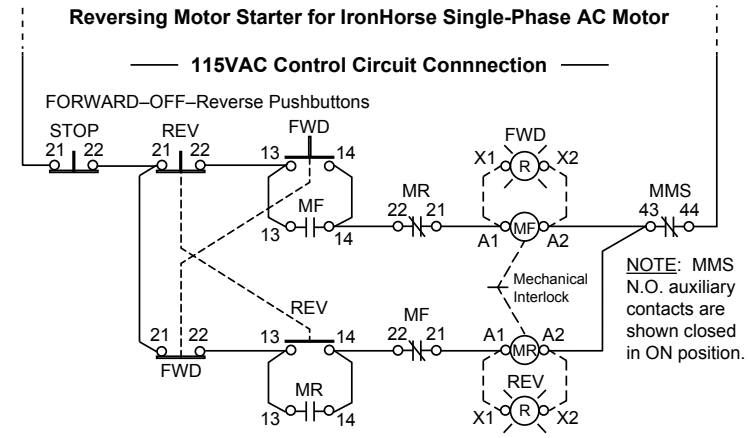
Note: This diagram interchanges the motor's Red and Black wires to reverse motor direction. Always check the motor manufacturer's wiring diagrams (or nameplate) for proper reversing of 1-phase motors.

Warning: This wiring diagram does not prevent plugging or instant reversing of the motor, which is very stressful to the motor and may trip any overcurrent/overload protection.

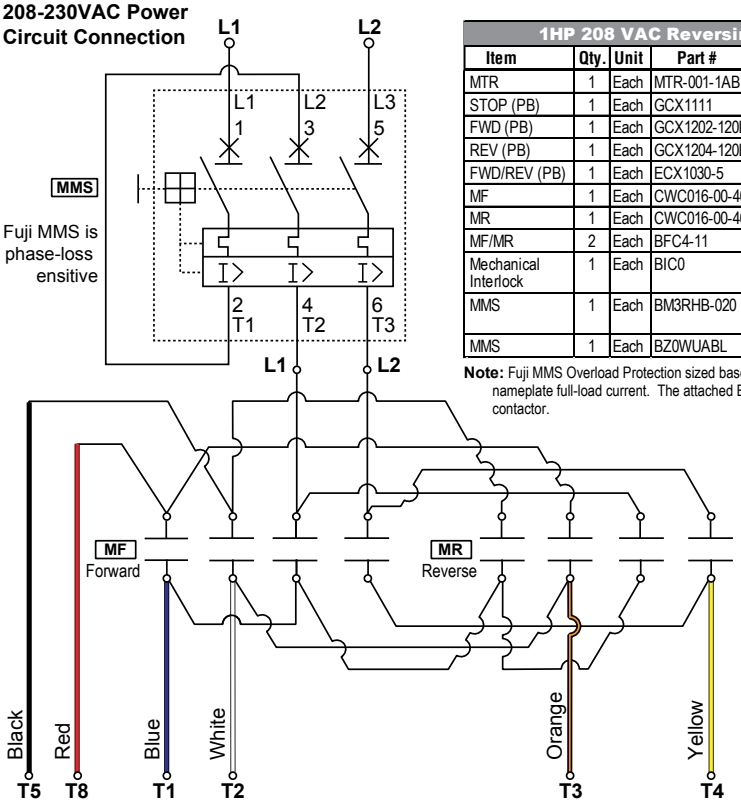
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Terminal and Wiring Diagrams – Single-Phase Motors Reversing Diagrams (continued)

For 208-230VAC Power Circuit (115VAC Control Circuit)



208-230VAC Power Circuit Connection



1HP 208 VAC Reversing Contactor Bill of Material				
Item	**Qty.**	**Unit**	**Part #**	**Description**
MTR	1	Each	MTR-001-1AB18	AC Motor 1HP 1800RPM 56C 115/208-230VAC 1-PH
STOP (PB)	1	Each	GCX1111	PB 22mm Metal Red N.C. MOM Extended 30mm Head
FWD (PB)	1	Each	GCX1202-120L	PB 22mm Metal Green N.O. 120V Flush LED-Illum
REV (PB)	1	Each	GCX1204-120L	PB 22mm Metal Blue N.O. 120V Flush LED-Illum
FWD/REV (PB)	1	Each	ECX1030-5	Contact Block 22mm 5/PK N.C. Red
MF	1	Each	CWC016-00-40V18	Contactor 16A 4 N.O. Pwr Poles 120VAC Coil
MR	1	Each	CWC016-00-40V18	CONTACTOR 16A 4 N.O. PWR POLES 120VAC Coil
MF/MR	2	Each	BFC4-11	Aux Contact Front Mount 1 N.O./1 N.C.
Mechanical Interlock	1	Each	BIC0	Mechanical Interlock Front Mount
MMS	1	Each	BM3RHB-020	Fuji Manual Motor Starter 14 to 20A Range Thermal Overload
MMS	1	Each	BZ0WUABL	Fuji auxiliary contact block for MMS, 1 N.O. and 1 N.C.

Note: Fuji MMS Overload Protection sized based on 2008 NEC Section 430.32 with Max percentage 125% of nameplate full-load current. The attached BOM is only one example of many options for a Reversing contactor.

Note: This diagram interchanges the motor's Red and Black wires to reverse motor direction. Always check the motor manufacturer's wiring diagrams (or nameplate) for proper reversing of 1-phase motors.

Warning: This wiring diagram does not prevent plugging or instant reversing of the motor, which is very stressful to the motor and may trip any overcurrent/overload protection.

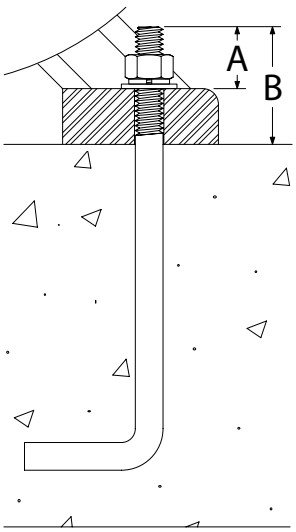
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Motor Mounting

IronHorse® motors should be properly mounted to prevent premature motor and/or bearing failure. When necessary, use motor shims to level the motor at all mounting bolt holes. Use proper diameter bolts of the highest grade material available for the application. Use the chart below to select the correct size bolt for each frame size.

A mounted motor must operate vibration free. Each motor installation should be checked for potential vibration situations. On motors 100 hp and up, we recommend that foundation studs be used to secure the motor or slide base. Base shims should also be used when necessary for level mounting.

Motor Mounting Bolt Sizes

Frame Size	*Bolt Diameter*	*Minimum Useable Thread Length (A)*	*Minimum Exposed Anchor Length (B)*	
56	5/16 in	0.45 in	0.88 in	
143T				
145T				
182T	3/8 in	0.53 in	1.50 in	
184T				
213T				
215T				
254T	1/2 in	0.69 in	1.44 in	
256T				
284T			1.69 in	
286T				
324T	5/8 in	0.85 in	2.19 in	
326T				
364T			2.06 in	
365T				
404T	3/4 in	0.95 in	2.50 in	
405T				
444T				
445T				
447T			3.00 in	
449T				

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Motor Mounting Orientation

MTF Motors

MTF motors can be mounted *only* in a *horizontal* orientation.

MTR2 and MTRP Motors

MTR2 and MTRP motors can be mounted in any horizontal or vertical orientation.

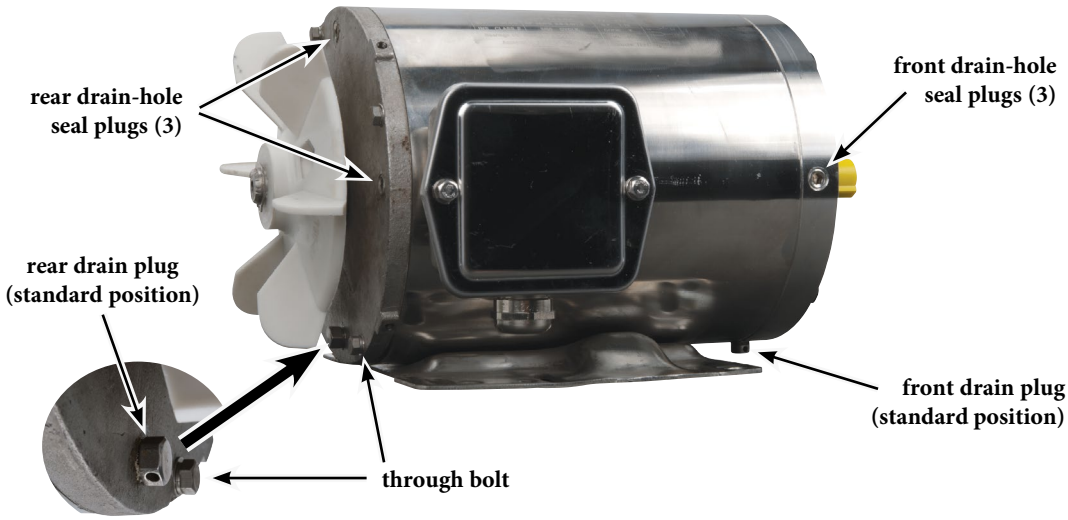
MTSS Stainless-Steel Motors

MTSS stainless-steel motors can be mounted in any orientation, horizontal or vertical, as long as the drain plugs are installed in the two lower locations.

The motors have four drain holes in the 12:00, 3:00, 6:00, and 9:00 positions of each end of the motor. The motors are shipped with two drain plugs installed in the front and rear 6:00 positions of the end bells, and drain-hole seal plugs installed in the other positions. This is the standard arrangement for the most 'normal' horizontal mounting orientation for a rigid-base motor.

When the motors are mounted in other orientations, switch drain plugs and seals so that there are two drain plugs on opposite sides of the bottom surface of the motor. For example, in a shaft-downward mounting orientation, install both drain plugs 180° apart in the front end bell. (Remove the fan shroud for access to the rear drain plugs and seals.)

Motor shown with fan cover removed



Some IronHorse motors include a shaft slinger (rubber washer) on the output shaft at the end bell. The shaft slinger provides an added layer of protection to the output shaft seal. We recommend leaving the slinger in place, but it can be removed if it poses an interference problem with C-Face-mounted gearboxes.

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Proper Installation Conditions

Care should be taken to make sure that an IronHorse® motor is mounted at least thirty inches from a wall or structure that would prevent proper ventilation of the motor. The installation area should be free of dust and smoke particles. Any air contaminate could inhibit proper operation of the motor fan.

If an IronHorse motor is to be installed in a high altitude or in a low temperature location, use the Altitude / Ambient Temperature Derating chart below for proper motor sizing.

Altitude / Ambient Temperature Derating Chart

		Altitude - Meters (Feet) Above Sea Level						
		1000 (3281)	1500 (4921)	2000 (6562)	2500 (8202)	3000 (9842)	3500 (11,483)	4000 (13,123)
Temperature - °C (°F)	10°C (50°F)	–	–	–	–	–	–	1.50
	15°C (59°F)	–	–	–	–	–	1.05	0.99
	20°C (68°F)	–	–	–	–	1.05	0.99	0.93
	25°C (77°F)	–	–	–	1.05	0.98	0.93	0.88
	30°C (86°F)	–	–	1.05	0.97	0.92	0.87	0.82
	40°C (104°F)	1.00	0.94	0.89	0.85	0.80	0.76	0.72
	50°C (122°F)	0.85	0.8	0.76	0.72	0.68	0.65	0.62
	60°C (140°F)	0.71	0.67	0.64	0.60	0.57	0.55	0.52

Example: 100 hp @ 60ºC and 2000 Meters
100 / 0.64 = 156 hp
The motor should be a 200 hp motor.

Coupling Alignment

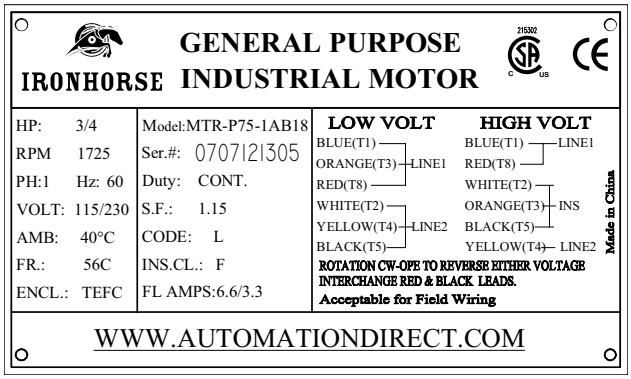
Correct coupling alignment is very important to the life of the motor. Coupling misalignment is the major cause of motor bearing failure. In belt driven applications, pulleys should be installed correctly. Belt tension, alignment and wear should be checked at installation and at regular maintenance intervals. Install motor couplings per the manufacturers instructions. Whenever possible, direct couple or flange mount IronHorse motors in their application. Doing so can extend the bearing life greatly.

AutomationDirect offers C-face mounting kits for all PE and EPAct T-frame IronHorse motors. For a complete list of mounting kits see Chapter 4 (Accessories).

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Motor Nameplate & Starter Information

Typical IronHorse® Motor Nameplate



Motor Starter Information

IronHorse® general purpose motors can be controlled by across-the-line starters such as contactors and manual motor starters. Under certain circumstances, three phase IronHorse motors can also be controlled by AC drives. Refer to Chapter 5 (Reference) for more information about using AC drives with IronHorse motors.

Use the following chart to help determine the appropriate across-the-line starter.

Starting System Information					
Frame Size *	***Number of Internal Leads***	***Internal Lead Size***	***Internal Lead Length***	***Voltage***	***Winding Type***
56C (1Ø)	6	16 AWG	6 in	115/208-230	N/A
56C (3Ø)	9		9-1/2 in	208-230/460	Wye
143T – 145T					
182T – 184T					
213T					Delta
215T		14 AWG			
254T – 256T		12 AWG			
284T – 286T	12	10 AWG	10-5/8 in		Wye / Delta
324T – 326T		8 AWG	13 in		
364T – 365T		6 AWG			
404T – 405T		4 AWG	13-3/4 in		
444T – 445T		3 AWG			
447T					
449T	6	1 AWG	14 in	460	

** TC-frame motors have the same starting system characteristics as the comparable T-frame motors.*

Locked Rotor Amps

All electrical components used in an IronHorse motor installation must be able to handle the maximum current draw of the motor. When using a typical across-the-line starter, current is highest when power is first applied to the motor. This is commonly referred to as locked rotor amps. Every IronHorse motor has a locked rotor amperage code letter stamped on the motor nameplate either as "CODE" or "kVA Code". This letter applies to the locked rotor amp range value. See the motor "Performance Data" tables in Chapter 1 (Getting Started) for specific locked rotor amperage information.

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Inspection Before Startup

1) Remove the shaft lock device if the motor was supplied with one.
2) Turn the shaft by hand and make sure the shaft turns freely. Listen for any unusual noises and feel for any interruption in the shaft as it turns.
3) In all motors with serviceable bearings, check the grease level on both drive end and opposite drive end bearings. Make sure the bearing cavities are filled with Mobil POLYREX® EM Polyurea grease. Motors of frame size 250 and above have grease fittings at the 12:00 o'clock position and relief ports at the 7:00 o'clock position. For these motors, remove the plugs from the relief ports, and pump 12 to 13 pumps of grease into the grease fittings. Some grease may come out of the relief port; this is normal. Reinstall the plug in the relief port.

When replacing a T-frame end bell with a C-face end bell, transfer the grease fitting and plug from the original to the new end bell.

4) Perform a final check on the installation of all parts in the assembly. Check the motor mounting bolts, coupling, belt drive, C-face mount, alignment, etc.
5) Verify all electrical connections for the motor and starter. Refer to the motor diagram on the motor nameplate. Make sure all terminal screws are tightened properly.
6) Make sure that all electrical components used in the installation are rated for the locked rotor amperage.
7) Make sure the motor is properly grounded. Use the grounding lug provided in the motor terminal box or on the mounting foot.

Initial Startup Inspection

1) At initial startup monitor the start-up voltage and the running voltage of the motor. The full load voltage should never exceed the line voltage on the motor nameplate multiplied by the service factor of the motor.
   Example: 230 VAC x 1.15 = 264.5 VAC.
2) Check the full load running amperage of the motor. The full load running amperage should not be more than the amount indicated on the motor nameplate
3) Listen for any unusual noises at motor start-up and in the first hour of operation. Listen for any unusual bearing noise in the drive end and opposite drive end of the motor. Abnormal bearing noise can be an indication of a defective bearing or the motor grease could be low. If there is abnormal noise in motors with serviceable bearings, shut down the motor and check the grease level on both the drive end and opposite drive end.

Do not over grease the bearings. Over greasing motor bearings is a common cause of motor failure.

Large horsepower motors with roller bearings will typically be noisier than ball bearing motors at initial motor start-up and in normal operation.

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CHAPTER 3

MAINTENANCE

IN THIS CHAPTER . . .

Routine Maintenance 3–2
Bearing Size Information 3–3

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Routine Maintenance

A routine maintenance schedule should be developed for every IronHorse® motor installation based on the individual application. Motors installed in a harsh running environment should be serviced more frequently than those installed in a clean, climate controlled area. Use the following to create a schedule.

1) Clean the motor housing using a brush, soft cloth or compressed air. Pay special attention to the cooling ribs on cast iron motors. Remove any dirt and dust from the fan and fan cover vents.
2) Frequently monitor the bearing temperature on the motor. It should not exceed 60°C (140°F).
3) Have the insulation checked periodically by an authorized motor specialist.
4) (Applicable only for certain motors, per Note 1 of table shown below): Lubricate the bearings using the schedule shown below.
5) (Applicable only for certain motors, per Note 1 of table shown below): Purge the bearing grease at least every six months on all motors with serviceable bearings. Replace both the drive end and opposite drive end bearings at the end of their recommended running hour life. Motors used in belt drive applications have a bearing life expectancy of 50,000 hours. Direct coupled application motors have a bearing life expectancy of 100,000 hours.

Bearing Lubrication Schedule

HP(1)	*Drive End Bearing Lubrication(2)*	*Grease Amount(3)*	*Opposite Drive End Bearing Lubrication(2)*	*Grease Amount(3)*
15	9000	0.46 oz	9000	0.29 oz
20				
25	7500	0.64 oz		0.46 oz
30				
40	7000	0.75 oz	7500	0.64 oz
50				
60	6500	0.86 oz	7000	0.75 oz
75				
100	3000	1.22 oz	6500	0.86 oz
125	2500	1.47 oz	6500	
150				
200	2300	1.61 oz		
250	2100	1.82 oz	2300	1.61 oz
300				

1) Motors from 1/3 hp to 10 hp, and all MTSS stainless-steel motors have non-serviceable permanently-sealed bearings.
2) Running time in hours.
3) Use only Mobil POLYREX® EM Polyurea grease.

6) MTSS stainless-steel motor bearings should be replaced between 15,000 and 20,000 hours of use (depending upon the severity of use).

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Bearing Size Information

All IronHorse® cast-iron motors use premium name-brand bearings (NSK, NTN, or SKF). Below is a bearing size chart listing the type of bearings used in each frame size of IronHorse motors. The bearing types are also listed on the motor nameplate.

Bearing Size Chart

Frame Size *	Drive End Bearing		Opposite Drive End Bearing			
	MTF Motors	Other IronHorse Motors (Except MTF)	MTF Motors	MTR/MTR2/ MTRP & MTC Motors	MTCP Motors	MTSS Motors
56(H)C	–	6203 or 6205	–	6203	–	6205
143T		6205-ZZ		6205-ZZ	6205-ZZ	–
145T						
182T	6206-ZZ	6306-ZZ	6205-ZZ	6206-ZZ	6306-ZZ	
184T	6206-ZZ		6206-ZZ			
213T	–	6308-ZZ	–	6308-ZZ	6306-ZZ	
215T						
254T		6309		6209	6308	
256T						
284T		6311		6309	6309	
286T						
324T		6312		6311	6312	
326T						
364T		6313		6312	6312	
365T						
404T		NU316		6313	–	
405T					6313	
444T		NU318			6314	
445T						
445/7T		NU319				
449T		NU320		6320	–	

** TC-frame motors have the same bearings as the comparable T-frame motors.*

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ACCESSORIES



IN THIS CHAPTER . . .

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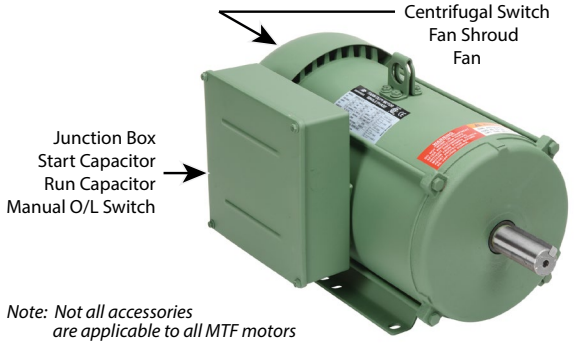
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Replacement Parts

Capacitors and Centrifugal Switches for IronHorse® Single-Phase Motors

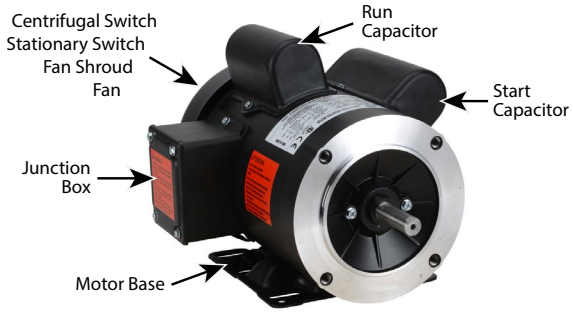
Single phase motors use capacitors to provide starting torque when power is first applied to the motor. When the motor begins to turn, the start capacitor is no longer need and is taken out of the circuit by a centrifugal switch. In addition to the start capacitor, 1-1/2 hp and larger IronHorse single-phase motors have run capacitors to allow the motor to develop higher running torque and greater efficiency. Run capacitors also help improve the motor power factor.

MTF Accessory Locations



Note: Not all accessories are applicable to all MTF motors

MTR & MTR2 Accessory Locations



Note: Not all accessories are applicable to all MTR and MTR2 motors

Spare/Replacement Parts for MTF Single-Phase Farm-Duty Motors

MTF Single-Phase Motor Spare/Replacement Parts *						
Part Number	***Accessory Type***	***Capacitance (µF)***	***Rated Voltage***	***Dimension Height x Ø (in[mm])***	***Applicable Motor Number***	***Motor HP***
MTA-CAP-16	Start capacitor	200	300	3.39 x 1.81 [86.1 x 46.0]	MTF-002-1C18-182	2
MTA-CAP-17		300		3.39 x 1.81 [86.1 x 46.0]	MTF-003-1C18	3
MTA-CAP-18		500		4.33 x 1.97 [110.0 x 50.0]	MTF-005-1C18	5
MTA-CAP-19	Run capacitor	35	450	3.96 x 1.77 [100.6 x 45.0]	MTF-002-1C18-182	2
MTA-CAP-20		40		3.96 x 1.97 [100.6 x 50.0]	MTF-003-1C18	3
MTA-CAP-21		50		4.17 x 1.97 [106.0 x 50.0]	MTF-005-1C18	5
MTA-CSW-05	Centrifugal switch	n/a	250		MTF-002-1C18-182	2
MTA-CSW-06					MTF-003-1C18	3
MTA-CSW-07					MTF-005-1C18	5
MTA-MOL-1*	Manual overload switch				MTF-002-1C18-182	2
MTA-MOL-2*					MTF-003-1C18	3
MTA-MOL-3*					MTF-005-1C18	5
MTAF-JBOX-180	Junction box		n/a		MTF-xxx-1C18-xxx	all
MTAF-FAN-182	Fan				MTF-002-1C18-182	2
MTAF-FAN-184					MTF-003-1C18	3
MTAF-FAN-184-2					MTF-005-1C18	5
MTAF-SHROUD-180	Fan shroud				MTF-xxx-1C18-xxx	all

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

*** MTA-MOL-1 = JOEMEX TC4-0-E-1-44, V07-1; MTA-MOL-2 = JOEMEX TC4-0-E-1-44, V06-1; MTA-MOL-3 = JOEMEX TC4-0-E-1-40, V08-1*

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Capacitors and Centrifugal Switches for IronHorse Single-Phase Motors (continued)

Spare/Replacement Parts for MTR(2) Single-Phase Motors

MTR Single-Phase Motor Spare/Replacement Parts (NOT for MTR2 Motors)*						
Part Number	***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		250			MTR-P50-1AB18 MTR-P75-1AB18	1/2 ; 1800 3/4 ; 1800
MTA-CAP-03		300			MTR-001-1AB18	1 ; 1800
MTA-CAP-04		250			MTR-1P5-1AB18	1-1/2 ; 1800
MTA-CAP-08		400			MTR-1P5-1AB36	1-1/2 ; 3600
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		35		4.0 x 1.8 [101 x 45]	MTR-1P5-1AB36	1-1/2 ; 3600
MTA-CSW-01	Centrifugal switch	N/A	250	N/A	MTR-xxx-1AB18	all 1800 rpm
MTA-CSW-02					MTR-1P5-1AB36	3600 rpm
MTAR-BASE-56	Motor base		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 Single-Phase Motor Spare/Replacement Parts (NOT for MTR Motors)*						
Part Number	***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		3.39 x 1.85 [86.1 x 47.0]	MTR2-P33-1AB18 MTR2-P50-1AB36	1/3 ; 1800 1/2 ; 3600
MTA-CAP-12	Start capacitor	400			MTR2-P50-1AB18 MTR2-P75-1AB36	1/2 ; 1800 3/4 ; 3600
MTA-CAP-13	Start capacitor	500			MTR2-P75-1AB18 MTR2-001-1AB18 MTR2-001-1AB36	3/4 ; 1800 1 ; 1800 1 ; 3600
MTA-CAP-14	Run capacitor	40	250	3.38 x 1.81 [85.9 x 46.0]	MTR2-1P5-1ABxx MTR2-002-1ABxx	1-1/2 ; 1800 1-1/2 ; 3600 2 ; 1800 2 ; 3600
MTA-CAP-15	Start capacitor	800	165	4.41 x 1.85 [112.0 x 47.0]		
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		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.*

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Spare/Replacement Parts for MTR/MTR2/MTRP Three-Phase Motors

IronHorse bases, fans, and fan shrouds are available as direct replacement parts for MTR, MTR2, and MTRP motors.

These parts are field installable, and include installation instructions.



Fan



Fan Shroud



Junction Box



Motor Base



Fan

MTR Series Three-Phase Motor Spare/Replacement Parts*			
Part Number	***Description***	***Applicable MTR Motor Number***	***MTR Motor HP : RPM***
MTAR-BASE-56	Motor base	MTR-xxx-xBDxx	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.*			

MTR2/MTRP Series Three-Phase Motor Spare/ Replacement Part*			
Part Number	***Description***	***Applicable MTRP Motor Number***	***MTR2/MTRP Motor HP : RPM***
MTA2-BASE-56	Motor base	MTRP-xxx-3BDxx MTR2-Pxx-3BDxx	All
MTA2-JBOX-56	Junction box		
MTA2-SHROUD-56	Fan shroud		
MTA2-FAN-56	Fan	MTR2-Pxx-3BDxx	
MTA2-FAN-56-1	Fan	MTRP-xxx-3BDxx	
** These accessories are spare/replacement components only for MTR2/ MTRP series IronHorse motors.*			

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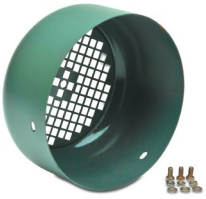
Spare/Replacement Parts for MTCP Premium-Efficiency Three-Phase Motors

IronHorse junction boxes, TEFC fans, and TEFC fan shrouds are available as direct replacement parts for MTCP motors.

These parts are field installable, and include installation instructions.



Fan



Fan Shroud



Junction Box

MTCP Premium-Efficiency Three-Phase Motor Replacement Parts					
Part Number (1)	***Description (2)(3)(4)***	***Fits Frame***	***Fits PE Motor Number (1)***	***Motor HP***	***Product Weight (lb)***
MTAP-FAN-140	Replacement Fan	143 & 145	MTCP-001-3BD12 MTCP-001-3BD18(C) MTCP-1P5-3BD18(C) MTCP-1P5-3BD36 MTCP-002-3BD18(C) MTCP-002-3BD36	1 1 1-1/2 1-1/2 2 2	0.3
MTAP-SHROUD-140	Replacement Fan Shroud				1.1
MTAP-JBOX-140	Replacement Junction Box				2.6
MTAP-FAN-180	Replacement Fan	182 & 184	MTCP-1P5-3BD12 MTCP-002-3BD12 MTCP-003-3BD18(C) MTCP-003-3BD36 MTCP-005-3BD18(C) MTCP-005-3BD36	1-1/2 2 3 3 5 5	0.3
MTAP-SHROUD-180	Replacement Fan Shroud				1.5
MTAP-JBOX-180	Replacement Junction Box				3.1
MTAP-FAN-210-2	Replacement Fan (for 2-pole motors)	213 & 215	MTCP-7P5-3BD36 MTCP-010-3BD36	7-1/2 10	0.3
MTAP-FAN-210	Replacement Fan (4&6-pole)		MTCP-003-3BD12 MTCP-005-3BD12 MTCP-7P5-3BD18(C) MTCP-010-3BD18(C)	3 5 7-1/2 10	0.3
MTAP-SHROUD-210	Replacement Fan Shroud				2.3
MTAP-JBOX-210	Replacement Junction Box				3.4

1) These MTAP replacement components fit only MTCP Premium-Efficiency motors; they will NOT fit MTC EPAct motors.

2) Replacement Fans include fan, snap ring, and instructions.

3) Replacement Fan Shrouds include shroud, bolts w/washers, rubber plug, and instructions.

4) Replacement Junction Boxes include gasketed base & cover assembly, base gasket, base bolts, and instructions.

**** TABLE CONTINUED NEXT PAGE ****

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Spare/Replacement Parts for MTCP Premium-Efficiency 3-Phase Motors (continued)

*** TABLE CONTINUED FROM PREVIOUS PAGE ***

MTCP Premium-Efficiency Three-Phase Motor Replacement Parts					
Part Number (1)	**Description (2)(3)(4)**	**Fits Frame**	**Fits PE Motor Number (1)**	**Motor HP**	**Product Weight (lb)**
MTAP-FAN-250-2	Replacement Fan (for 2-pole motors)	254 & 256	MTCP-015-3BD36 MTCP-020-3BD36	15 20	0.3
MTAP-FAN-250	Replacement Fan (4&6-pole)		MTCP-7P5-3BD12 MTCP-010-3BD12 MTCP-015-3BD18(C) MTCP-020-3BD18(C)	7-1/2 10 15 20	0.3
MTAP-SHROUD-250	Replacement Fan Shroud				4.5
MTAP-JBOX-250	Replacement Junction Box				7.0
MTAP-FAN-280	Replacement Fan	284 & 286	MTCP-015-3BD12 MTCP-020-3BD12 MTCP-025-3BD18(C) MTCP-030-3BD18(C)	15 20 25 30	0.5
MTAP-SHROUD-280	Replacement Fan Shroud				6.5
MTAP-JBOX-280	Replacement Junction Box				7.0
MTAP-FAN-320	Replacement Fan	324 & 326	MTCP-040-3BD18(C) MTCP-050-3BD18(C)	40 50	0.6
MTAP-SHROUD-320	Replacement Fan Shroud				8.3
MTAP-JBOX-320	Replacement Junction Box				22.3
MTAP-FAN-360	Replacement Fan	364 & 365	MTCP-060-3BD18(C) MTCP-075-3BD18(C)	60 75	0.6
MTAP-SHROUD-360	Replacement Fan Shroud				9.0
MTAP-JBOX-360	Replacement Junction Box				22.3
MTAP-FAN-400	Replacement Fan	405	MTCP-100-3BD18(C)	100	1.1
MTAP-SHROUD-400	Replacement Fan Shroud				15.8
MTAP-JBOX-400	Replacement Junction Box				30.0
MTAP-FAN-440	Replacement Fan	444 445 & 447	MTCP-125-3BD18 MTCP-150-3BD18 MTCP-200-3BD18	125 150 200	2.0
MTAP-SHROUD-440	Replacement Fan Shroud				17.5
MTAP-JBOX-440	Replacement Junction Box				40.0

1) *These MTAP replacement components fit only MTCP Premium-Efficiency motors; they will NOT fit MTC EPAct motors.*
2) *Replacement Fans include fan, snap ring, and instructions.*
3) *Replacement Fan Shrouds include shroud, bolts w/washers, rubber plug, and instructions.*
4) *Replacement Junction Boxes include gasketed base & cover assembly, base gasket, base bolts, and instructions.*

Spare/Replacement Parts for MTSS Stainless-Steel Three-Phase Motors

MTSS Stainless-Steel Three-Phase Motor Replacement Parts		
Part Number	**Description**	**Picture**
MTAS-CG-M22	Cable gland; M22 x 1.5 mm thread; (1) silicone rubber gasket accommodates a cable diameter range of 0.393 to 0.512 in (10 to 13 mm); IP66 protection level; nickel-plated brass housing. This is a SPARE part for IronHorse MTSS motors – one cable gland is pre-installed on each MTSS motor.	

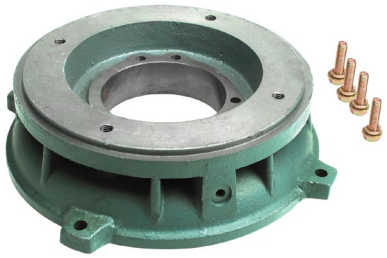
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C-Flange Kits

C-Flange Kits for MTCP Premium-Efficiency Three-Phase Motors

C-Flange Kits

Any IronHorse MTCP Premium-Efficiency T-frame cast-iron motor from 1–200hp can be converted to C-face mounting by using a cast iron C-flange kit. These kits are field installable and include the C-faces and mounting bolts.



MTAP T-Frame C-Flange Kit

C-Flange Dimensions

C-flange dimensions are shown in Chapter 2 (Mounting & Initial Startup) along with TC-frame motor dimensions.

Authorized EASA service centers are equipped with the necessary equipment to quickly and inexpensively install C-Face kits. Visit the EASA website at www.easa.com to find the nearest authorized service center.

MTCP Premium-Efficiency T-frame Three-Phase Motor C-Flange Kits				
Part Number (1)	***Fits Frame***	***Fits Motor (1)***	***Motor HP***	***Product Weight (lb)***
MTAP-CFACE-140TC	143T & 145T	MTCP-001-3BD12 MTCP-001-3BD18 MTCP-1P5-3BD18 MTCP-1P5-3BD36 MTCP-002-3BD18 MTCP-002-3BD36	1 1 1-1/2 1-1/2 2 2	6.8
MTAP-CFACE-180TC	182T & 184T	MTCP-1P5-3BD12 MTCP-002-3BD12 MTCP-003-3BD18 MTCP-003-3BD36 MTCP-005-3BD18 MTCP-005-3BD36	1-1/2 2 3 3 5 5	14.3
MTAP-CFACE-210TC	213T & 215T	MTCP-003-3BD12 MTCP-005-3BD12 MTCP-7P5-3BD18 MTCP-7P5-3BD36 MTCP-010-3BD18 MTCP-010-3BD36	3 5 7-1/2 7-1/2 10 10	13.8
MTAP-CFACE-250TC	254T & 256T	MTCP-7P5-3BD12 MTCP-010-3BD12 MTCP-015-3BD18 MTCP-015-3BD36 MTCP-020-3BD18 MTCP-020-3BD36	7-1/2 10 15 15 20 20	40.1
1) MTAP-CFACE C-flange kits will NOT fit MTC EPAct motors.				
**** TABLE CONTINUED NEXT PAGE ****				

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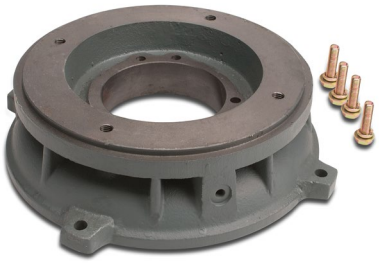
C-Flange Kits for MTCP Premium-Efficiency Three-Phase Motors (continued)

*** TABLE CONTINUED FROM PREVIOUS PAGE ***				
MTCP Premium-Efficiency T-frame Three-Phase Motor C-Flange Kits				
Part Number (1)	***Fits Frame***	***Fits Motor (1)***	***Motor HP***	***Product Weight (lb)***
MTAP-CFACE-280TC	284T & 286T	MTCP-015-3BD12 MTCP-020-3BD12 MTCP-025-3BD18 MTCP-030-3BD18	15 20 25 30	44.0
MTAP-CFACE-320TC	324T & 326T	MTCP-040-3BD18 MTCP-050-3BD18	40 50	61.7
MTAP-CFACE-360TC	364T & 365T	MTCP-060-3BD18 MTCP-075-3BD18	60 75	70.5
MTAP-CFACE-400TC	405T	MTCP-100-3BD18	100	136.6
MTAP-CFACE-444TC	444T & 445T	MTCP-125-3BD18 MTCP-150-3BD18	125 150	143.2
MTAP-CFACE-447TC	445/7T	MTCP-200-3BD18	200	144.4
1) MTAP-CFACE C-flange kits will NOT fit MTC EPAct motors.				

C-Flange Kits for MTC EPAct Three-Phase Motors

C-Flange Kits

Any IronHorse MTC EPAct T-frame cast-iron motor from 1–300hp can be converted to C-face mounting by using a cast iron C-flange kit. These kits are field installable and include the C-faces and mounting bolts.



MTA T-Frame C-Flange Kit

C-Flange Dimensions

C-flange dimensions are shown in Chapter 2 (Mounting & Initial Startup) along with TC-frame motor dimensions.

Authorized EASA service centers are equipped with the necessary equipment to quickly and inexpensively install C-Face kits. Visit the EASA website at www.easa.com to find the nearest authorized service center.

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C-FLANGE KITS FOR MTC EPACT THREE-PHASE MOTORS (CONTINUED)

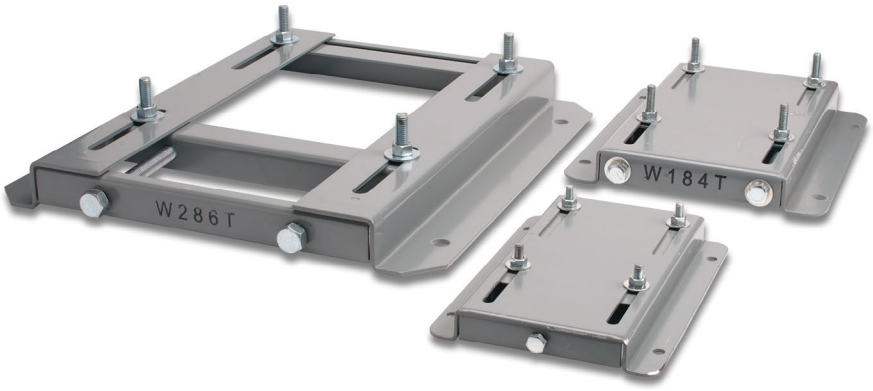
EPAct T-Frame Three-Phase Motor C-Flange Kits				
Part Number (1)	***Fits Frame***	***Fits Motor (1)***	***Motor HP***	***Shipping Weight (lb)***
MTA-CFACE-140TC	143T & 145T	MTC-001-3BD12 MTC-001-3BD18 MTC-1P5-3BD18 MTC-1P5-3BD36 MTC-002-3BD18 MTC-002-3BD36	1 1 1-1/2 1-1/2 2 2	6
MTA-CFACE-180TC	182T & 184T	MTC-1P5-3BD12 MTC-002-3BD12 MTC-003-3BD18 MTC-003-3BD36 MTC-003-3BD36 MTC-005-3BD36	1-1/2 2 3 3 5 5	12
MTA-CFACE-210TC	213T & 215T	MTC-003-3BD12 MTC-005-3BD12 MTC-7P5-3BD18 MTC-7P5-3BD36 MTC-010-3BD18 MTC-010-3BD36	3 5 7-1/2 7-1/2 10 10	12
MTA-CFACE-250TC	254T & 256T	MTC-7P5-3BD12 MTC-010-3BD12 MTC-015-3BD18 MTC-020-3BD18	7-1/2 10 15 20	24
MTA-CFACE-280TC	284T & 286T	MTC-25-3BD18 MTC-30-3BD18	25 30	30
MTA-CFACE-320TC	324T & 326T	MTC-40-3BD18 MTC-50-3BD18	40 50	48
MTA-CFACE-360TC	364T & 365T	MTC-60-3BD18 MTC-75-3BD18	60 75	50
MTA-CFACE-400TC	405T	MTC-100-3BD18	100	123
MTA-CFACE-444TC	444T & 445T	MTC-125-3BD18 MTC-150-3BD18	125 150	133
MTA-CFACE-447TC	445/7T	MTC-200-3BD18	200	133
MTA-CFACE-449TC	449T	MTC-250-3D18 MTC-300-3D18	250 300	147
1) MTA-CFACE C-flange kits will NOT fit MTCP Premium-Efficiency motors.				

AUTHORIZED EASA SERVICE CENTERS ARE EQUIPPED WITH THE NECESSARY EQUIPMENT TO QUICKLY AND INEXPENSIVELY INSTALL C-FACE KITS. VISIT THE EASA WEBSITE AT WWW.EASA.COM TO FIND THE NEAREST AUTHORIZED SERVICE CENTER.

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STABLE™ Slide Bases

AutomationDirect offers STABLE AC motor slide bases for mounting most AC motor brands with frame sizes from 56 to 449. These heavy duty steel bases are primed with an oven-baked primer ready for painting. The motor mounting bolts are welded to the exact motor foot pattern to prevent the bolts from spinning.



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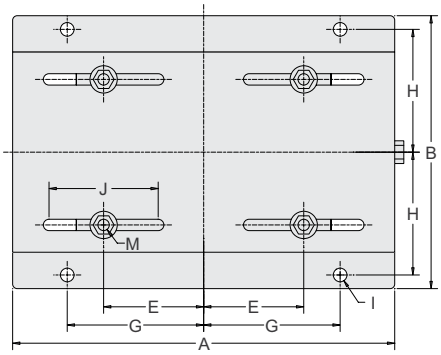
Slide Base Selection

STABLE™ Motor Slide Bases			
Part Number	***Fits Frame Type***	***Product Weight (lb)***	***IronHorse Model***
MTA-BASE-W56*	56C*	2.8	MTR(2)-xxx-xxxxx* MTRP-xxx-xxxxx
MTA-BASE-W143T	143T/TC	4.6	MTC(P)-001-3BD18(C)(CK) MTC(P)-1P5-3BD36
MTA-BASE-W145T	145T/TC	5.1	MTC(P)-001-3BD12 MTC(P)-1P5-3BD18(C)(CK) MTC(P)-002-3BD18(C)(CK) MTC(P)-002-3BD36
MTA-BASE-W182T	182T/TC	9.2	MTC(P)-1P5-3BD12 MTC(P)-003-3BD18(C)(CK) MTC(P)-003-3BD36 MTF-002-1C18-182
MTA-BASE-W184T	184T/TC	10	MTC(P)-002-3BD12 MTC(P)-005-3BD18(C)(CK) MTC(P)-005-3BD36 MTF-00x-1C18
MTA-BASE-W213T	213T/TC	13	MTC(P)-003-3BD12 MTC(P)-7P5-3BD18(C)(CK) MTC(P)-7P5-3BD36
MTA-BASE-W215T	215T/TC	15	MTC(P)-005-3BD12 MTC(P)-010-3BD18(C)(CK) MTC(P)-010-3BD36
MTA-BASE-W254T	254T/TC	18	MTC(P)-7P5-3BD12 MTC(P)-015-3BD18(C)(CK) MTCP-015-3BD36
MTA-BASE-W256T	256T/TC	19	MTC(P)-010-3BD12 MTC(P)-020-3BD18(C)(CK) MTCP-020-3BD36
MTA-BASE-W284T	284T/TC	20	MTCP-015-3BD12 MTC(P)-025-3BD18(C)(CK)
MTA-BASE-W286T	286T/TC	21	MTCP-020-3BD12 MTC(P)-030-3BD18(C)(CK)
MTA-BASE-W324T	324T/TC	30	MTC(P)-040-3BD18(C)(CK)
MTA-BASE-W326T	326T/TC	31	MTC(P)-050-3BD18(C)(CK)
MTA-BASE-W364T	364T/TC	43	MTC(P)-060-3BD18(C)(CK)
MTA-BASE-W365T	365T/TC	43	MTC(P)-075-3BD18(C)(CK)
MTA-BASE-W404T	404T/TC	58	–
MTA-BASE-W405T	405T/TC	60	MTC(P)-100-3BD18(C)(CK)
MTA-BASE-W444T	444T	63	MTC(P)-125-3BD18
MTA-BASE-W445T	445T	65	MTC(P)-150-3BD18
MTA-BASE-W447T	447T	89	MTC(P)-200-3BD18
MTA-BASE-W449T	449T	94	MTC-250-3D18 MTC-300-3D18

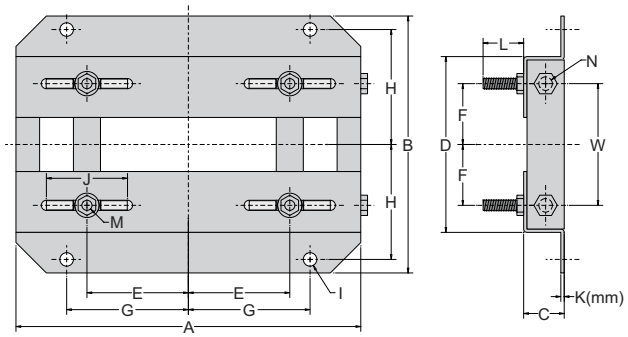
** IronHorse MTR2 and MTRP 56HC motors have double-punched bases to mount on slide base MTA-BASE-W56*

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Slide Base Dimensions



W56 - W145T Motor Slide Base Dimensions

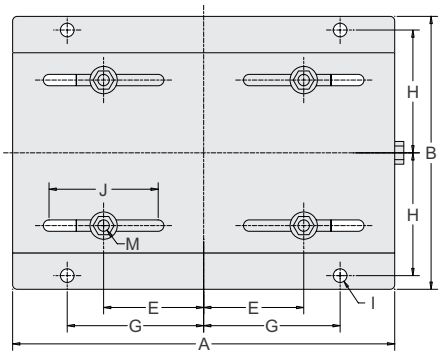


W182T - W449T Motor Slide Base Dimensions
(W182T-W215T bases have one-piece top plates, similar to W56-W145T)

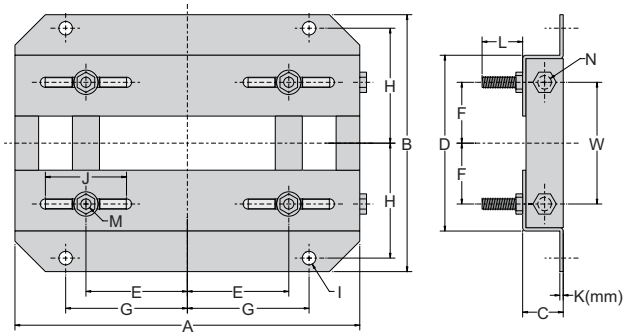
Dimensions [inches, except as noted] - STABLE™ Motor Slide Bases							
MTA-BASE-Wxxxx	***A***	***B***	***C***	***D***	***E***	***F***	***G***
56	10-5/8	6-1/2	1-1/8	4-1/2	2-7/16	1-1/2	3-13/16
143T	10-1/2	7-1/2	1-1/8	5-1/2	2-3/4	2	3-3/4
145T	10-1/2	8-1/2	1-1/8	6-1/2	2-3/4	2-1/2	3-3/4
182T	12-3/4	9-1/2	1-1/2	6-1/2	3-3/4	2-1/4	4-1/2
184T	12-3/4	10-1/2	1-1/2	7-1/2	3-3/4	2-3/4	4-1/2
213T	15	11	1-3/4	7-1/2	4-1/4	2-3/4	5-1/4
215T	15	12-1/2	1-3/4	9	4-1/4	3-1/2	5-1/4
254T	17-3/4	15-1/8	2	10-3/4	5	4-1/8	6-1/4
256T	17-3/4	16-7/8	2	12-1/2	5	5	6-1/4
284T	19-3/4	16-7/8	2	12-1/2	5-1/2	4-3/4	7
286T	19-3/4	18-3/8	2	14	5-1/2	5-1/2	7
324T	22-3/4	19-1/4	2-1/2	14	6-1/4	5-1/4	8
326T	22-3/4	20-3/4	2-1/2	15-1/2	6-1/4	6	8
364T	25-1/2	20-1/2	2-1/2	15-1/2	7	5-5/8	9
365T	25-1/2	21-1/2	2-1/2	16-1/2	7	6-1/8	9
404T	28-3/4	22-3/8	3	16-1/2	8	6-1/8	10
405T	28-3/4	23-7/8	3	18	8	6-7/8	10
444T	31-1/4	24-5/8	3	19-1/4	9	7-1/4	11
445T	31-1/4	26-5/8	3	21-1/4	9	8-1/4	11
447T	31-1/4	30-1/8	3	24-3/4	9	10	11
449T	31-1/4	35-1/8	3	29-3/4	9	12-1/2	11
**** *Table Continued Next Page for Dimensions H–W* ****							

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Slide Base Dimensions (continued)



W56 - W145T Motor Slide Base Dimensions



W182T - W449T Motor Slide Base Dimensions
(W182T-W215T bases have one-piece top plates, similar to W56-W145T)

**** *Table Continued from Previous Page for Dimensions A–G* ****

Dimensions [inches, except as noted] - STABLE™ Motor Slide Bases (continued)

MTA-BASE-Wxxxx	H	I	J	K(mm)	L	M	N	W
56	2-7/8	3/8	3	2 mm	7/8	5/16 x 1	3/8 x 4	n/a
143T	3-3/8	3/8	3	3 mm	13/16	5/16 x 1	3/8 x 4	n/a
145T	3-7/8	3/8	3	3 mm	13/16	5/16 x 1	3/8 x 4	n/a
182T	4-1/4	1/2	3	3.5 mm	1-1/2	3/8 x 1-3/4	1/2 x 6	4-1/2
184T	4-3/4	1/2	3	3.5 mm	1-1/2	3/8 x 1-3/4	1/2 x 6	5-1/2
213T	4-3/4	1/2	3-1/2	3.8 mm	1-1/2	3/8 x 1-3/4	1/2 x 6	5-1/2
215T	5-1/2	1/2	3-1/2	3.8 mm	1-1/2	3/8 x 1-3/4	1/2 x 6	7
254T	6-5/8	5/8	4	4.6 mm	1-7/16	1/2 x 1-3/4	5/8 x 6	5-5/16
256T	7-1/2	5/8	4	4.6 mm	1-7/16	1/2 x 1-3/4	5/8 x 6	7
284T	7-1/2	5/8	4-1/2	4.6 mm	1-11/16	1/2 x 2	5/8 x 6	7
286T	8-1/4	5/8	4-1/2	4.6 mm	1-11/16	1/2 x 2	5/8 x 6	8
324T	8-1/2	3/4	5-1/4	4.6 mm	2-3/16	5/8 x 2-1/2	3/4 x 9	7
326T	9-1/4	3/4	5-1/4	4.6 mm	2-3/16	5/8 x 2-1/2	3/4 x 9	8-1/2
364T	9-1/8	3/4	6	5.8 mm	2-1/16	5/8 x 2-1/2	3/4 x 9	7-3/4
365T	9-5/8	3/4	6	5.8 mm	2-1/16	5/8 x 2-1/2	3/4 x 9	8-3/4
404T	9-7/8	7/8	7	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	8-3/4
405T	10-5/8	7/8	7	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	10-1/4
444T	11	7/8	7-1/2	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	11
445T	12	7/8	7-1/2	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	13
447T	13-3/4	7/8	7-1/2	8 mm	3	3/4 x 3-1/2	3/4 x 11	16-1/2
449T	16-1/4	7/8	7-1/2	8 mm	3	3/4 x 3-1/2	3/4 x 11	21-1/2

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REFERENCE INFORMATION



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Using IronHorse® Motors with AC Drives

IronHorse® general purpose motors can be controlled by across-the-line starters such as contactors and manual motor starters. Under certain circumstances, it can be more desirable to control a three-phase IronHorse motor with an AC drive.

Single phase AC motors cannot be controlled by typical AC drives.

The advantages of using an AC drive include:

- Lower inrush current at motor startup.
- Ability to change motor speed at any time.
- Greater efficiency in some applications. Fan and Pump applications can use an AC drive to provide motor flow control by varying the motor speed.
- Solid state power delivery meaning minimum maintenance.

There are a few considerations to take into account when an AC drive is chosen for motor control. Fan cooled motors are designed to provide sufficient insulation cooling when the motor is running at the rated speed. The cooling ability of the fan is reduced when motors run at lower speeds. Therefore, there are limitations on how slowly general purpose motors can be continuously run without prematurely causing insulation failure.

- Constant torque (CT) applications:
  MTCP and MTRP motors 4:1 (down to 1/4 rated speed); MTC, MTR, & MTSS motors 2:1 (1/2 rated speed):
  The CT minimum continuous speed for an IronHorse general purpose motor is one quarter or one half of its rated speed, as shown in the motor Performance Data tables.
  (Constant torque loads require the same amount of torque from the motor regardless of speed; e.g., conveyors, cranes, machine tools.)
- Variable Torque (VT) applications:
  MTCP and MTRP motors 10:1 (1/10 rated speed); MTC, MTR, & MTSS motors 5:1 (1/5 rated speed):
  The VT minimum continuous speed for an IronHorse general purpose motor is one tenth or one fifth of its rated speed, as shown in the motor Performance Data tables.
  (Variable torque loads require less torque at lower speeds, resulting in less heat generated by the motor; e.g., fans, centrifugal pumps.)

The insulation of IronHorse motors in both of the above applications can withstand voltage stress per NEMA Part 30 having a value of:

- Base Voltage Rating $\leq$ 600V
- V_{pk} = 1kV
- Rise Time = 2µs

AutomationDirect offers a line of AC Drives that are suitable for operating IronHorse motors per the above specs and NEMA part 30.

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Voltage Spike Considerations for AC Drive Control

All AC drives can cause voltage spikes between the drive and the motor. Long cable lengths can increase these spikes. Therefore, there are maximum cable lengths that can be run between the drive and the motor. Line (load) reactors can also be installed near the drive output to reduce the voltage spikes.

- 230V & 460V without reactor: 125 ft maximum cable length between the drive and motor.
- 230V & 460V with reactor: 250 ft maximum cable length between the drive and motor.

To avoid overheating, the AC Drive carrier frequency must be set at or below 6kHz.

Double Punched Motors

Several IronHorse® motor models have mounting feet that are double punched so that additional motors can be mounted using the same dimensions of different size frame motors. This can be helpful when replacing a motor with a different frame size. See Chapter 2: Mounting and Initial Startup for complete motor dimensions.

Motor Mounting Feet		
Frame Size *	***Double Punched***	***Punched for Additional Frame Size***
56 **	Yes	56H
143T	No	–
145T	Yes	143T
182T ***	Yes	184T
184T	Yes	182T
213T	No	–
215T	Yes	213T
254T	No	–
256T	Yes	254T
284T	No	–
286T	Yes	284T
324T	No	–
326T	Yes	324T
364T	No	–
365T	Yes	364T
405T	Yes	404T
444T	No	–
445T	Yes	444T
445/7T	Yes	445T
449T	No	–

** TC-frame motors have the same mounting foot punching as the comparable T-frame motors.*

*** MTSS-xxx-xxxxR round-body motors do not have mounting feet.*

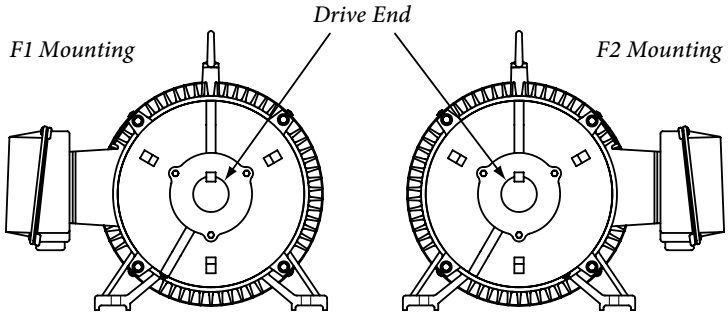
**** MTF-002-1C18-182 only*

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F1 and F2 Mounting

F1 and F2 mounting refers to the location of the junction box on an AC motor. Several models of IronHorse® motors can be converted from F1 to F2 mounting.

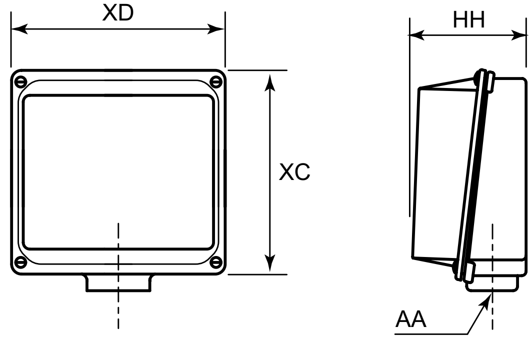
F1 to F2 Mounting Convertibility	
Frame Size *	***Ability to be Converted***
56	No (F1 only)
143T	MTC Motors: Yes (F1, convertible to F2) MTCP Motors: Yes (F1, convertible to F2) MTF Motors: No (F1 only)
145T	
182T	
184T	
213T	
215T	
254T	
256T	
284T	MTC Motors: No (F1 only) MTCP Motors: Yes (F1, convertible to F2)
286T	
324T	
326T	
364T	
365T	
405T	
444T	MTC Motors: Yes (F1, convertible to F2) MTCP Motors: Yes (F1, convertible to F2)
445T	
445/7T	
449T	No (F1 only)
** TC-frame motors have the same convertibility as the comparable T-frame motors.*	



To minimize the potential of damage to any internal component, use caution when pulling the rotor from the frame when converting an IronHorse® motor from F1 to F2 mounting. Authorized EASA service centers are equipped with the necessary equipment to quickly and inexpensively convert motor mounting. Visit the EASA website at www.easa.com to find the nearest authorized service center.

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Junction Box Dimensions



<table>
<tr><th colspan="14">Junction Box Dimensions (in)</th></tr>
<tr><th rowspan="2">Frame Size *</th><th colspan="4">XD (Width)</th><th colspan="4">XC (Height)</th><th colspan="4">HH (Depth)</th><th rowspan="2">AA (Conduit Hole) (NPT)**</th></tr>
<tr><th>MTF</th><th>MTR MTR2 MTRP MTC</th><th>MTCP</th><th>MTSS</th><th>MTF</th><th>MTR MTR2 MTRP MTC</th><th>MTCP</th><th>MTSS</th><th>MTF</th><th>MTR MTR2 MTRP MTC</th><th>MTCP</th><th>MTSS</th></tr>
<tr><td>56</td><td rowspan="3">n/a</td><td>3.2</td><td>n/a</td><td>3.8</td><td rowspan="3">n/a</td><td>3.7</td><td>n/a</td><td>3.3</td><td rowspan="3">n/a</td><td>1.6</td><td>n/a</td><td>1.5</td><td>0.86 – MTSS**
1/2 – other</td></tr>
<tr><td>143T</td><td rowspan="2">4.1</td><td rowspan="19">11.3</td><td rowspan="19">n/a</td><td rowspan="2">4.5</td><td rowspan="2">4.5</td><td rowspan="19">n/a</td><td rowspan="2">2.3</td><td rowspan="2">2.3</td><td rowspan="19">n/a</td><td rowspan="2">3/4</td></tr>
<tr><td>145T</td></tr>
<tr><td>182T</td><td rowspan="2">7.8</td><td rowspan="4">4.6</td><td rowspan="2">7.8</td><td rowspan="4">5.0</td><td rowspan="2">5.0</td><td rowspan="2">2.7</td><td rowspan="4">2.6</td><td rowspan="2">2.5</td><td rowspan="4">1</td></tr>
<tr><td>184T</td></tr>
<tr><td>213T</td><td rowspan="15">n/a</td><td rowspan="15">n/a</td><td rowspan="2">5.3</td><td rowspan="15">n/a</td><td rowspan="2">2.6</td></tr>
<tr><td>215T</td></tr>
<tr><td>254T</td><td rowspan="4">6.3</td><td rowspan="4">7.2</td><td rowspan="2">7.3</td><td rowspan="4">3.3</td><td rowspan="2">3.3</td><td rowspan="4">1-1/2</td></tr>
<tr><td>256T</td></tr>
<tr><td>284T</td><td rowspan="2">10.4</td><td rowspan="2">6.0</td></tr>
<tr><td>286T</td></tr>
<tr><td>324T</td><td rowspan="4">9</td><td rowspan="4">10.6</td><td rowspan="4">10.8</td><td rowspan="4">5.3</td><td rowspan="4">5.3</td><td rowspan="2">2</td></tr>
<tr><td>326T</td></tr>
<tr><td>364T</td><td rowspan="3">3</td></tr>
<tr><td>365T</td></tr>
<tr><td>405T</td><td>9.8</td><td rowspan="5">11.7</td><td rowspan="5">11.7</td><td rowspan="5">7.1</td><td rowspan="5">7.1</td></tr>
<tr><td>444T</td><td rowspan="4">11.3</td><td rowspan="4">3 (2 openings)</td></tr>
<tr><td>445T</td></tr>
<tr><td>445/7T</td></tr>
<tr><td>449T</td></tr>
<tr><td colspan="14">* TC-frame motors have the same junction boxes as the comparable T-frame motors.
** MTSS conduit holes are unthreaded through holes with cable glands installed.</td></tr>
</table>

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Minimum Sheave Diameters

The table below illustrates the minimum practical V-belt sheave diameter that can be used with each frame size IronHorse® motor.

Minimum Sheave Diameters		
Frame Size (1)	V-Belt Sheave (2)	
	Conventional A, B, C, D and E (3)	Narrow 3V, 5V and 8V (4)
	Minimum Pitch Diameter (in)	Minimum Outside Diameter (in)
143T	2.2	2.2
145T	2.4	2.4
182T	2.4	2.4
184T	3.0	3.0
213T	3.0	3.0
215T	3.8	3.8
254T	4.4	4.4
256T	4.6	4.4
284T	5.0	4.4
286T	5.4	5.2
324T	6.0	6.0
326T	6.8	6.8
364T	7.4	7.4
365T	9.0	8.6
405T	10.0	8.6
444T	11.0	9.5
445T	–	10.5
449T	–	13.2

1) TC-frame motors have the same minimum sheave diameters as the comparable T-frame motors.

2) Sheave dimensions are based on the following:
a) Motor nameplate horsepower and speed.
b) Belt service factor of 1.6 with belts tightened to the belt manufacturers recommendations.
c) Speed reduction of 5:1.
d) Mounting of sheave on motor according to sheave manufacturers instructions.
e) Center-to-center distance between sheaves approximately equal to the diameter of the larger sheave.
f) Calculations covered by the standards listed in notes 3 & 4 below.

3) As covered by IP-20; Specifications for Drives Using Classical V-Belts and Sheaves. Go to www.mpta.org and www.rma.org for details.

4) As covered by IP-22; Specifications for Drives Using Narrow V-Belts and Sheaves. Go to www.mpta.org and www.rma.org for details.

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Decibel Levels

The decibel (sound) level of an IronHorse® motor should be measured after initial startup, after 30 days, and after six months of use. Decibel levels should remain fairly consistent and can be an indication of misalignment and premature bearing wear. If the measured decibel level for your IronHorse model exceeds the value listed below by more than 10%, contact AutomationDirect or a local motor service technician found at www.easa.com.

Average T-Frame Decibel Levels					
Frame Size *	HP	Noise Level: Lw dB(A) @ 1m			
		MTF	MTC	MTCP	MTSS
56C	–	–	–	–	65
143T	1	–	64.0	70.0	–
145T	1-1/2		68.0	70.0	
	2		68.8	70.0	
182T	2	76.0	–	–	
182T	3		74.0	74.0	
184T	5		73.0	74.0	
213T	7-1/2	–	78.4	79.0	
215T	10		74.3	79.0	
254T	15		74.6	84.0	
256T	20		74.0	84.0	
284T	25		75.0	88.0	
286T	30		76.1	88.0	
324T	40		76.4	89.0	
326T	50		77.0	89.0	
364T	60		77.1	95.0	
365T	75		78.0	95.0	
405T	100		78.1	98.0	
444T	125		78.3	100	
445T	150		79.4	100	
445/7T	200		79.4	103	
449T	250		81.0	105.0	
	300		81.4	105.0	

** TC-frame motors have the same sound ratings as the comparable T-frame motors.*

Average T-Frame Decibel Levels															
MTR						MTR2						MTRP			
Noise Level: Lw dB(A) @ 1m						Noise Level: Lw dB(A) @ 1m						Noise Level: Lw dB(A) @ 1m			
Frame Size	HP	1800 RPM		3600 RPM		Frame Size	HP	1800 RPM		3600 RPM		Frame Size	HP	1800 RPM	3600 RPM
		1Ø	3Ø	1Ø	3Ø			1Ø	3Ø	1Ø	3Ø			3Ø	3Ø
56	1/3	65.0	65.0	–	75.0	56C	1/3	70.0	70.0	80.0	80.0	56CH	1/3	–	–
	1/2						1/2						1/2		
	3/4						3/4						3/4		
	1						1						1	70.0	80.0
	1-1/2				80.0		1-1/2			85.0	85.0		1-1/2		85.0
	2		70.0				2		74.0	85.0	85.0		2		85.0
	3	–	–		–		3	–	–	–	88.0		3	–	88.0

** TC-frame motors have the same sound ratings as the comparable T-frame motors.*

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Shipping Crate Dimensions

Nominal Shipping Crate Dimensions							
*Frame Size **	*HP*	*Width x Depth x Height (in)*					
		MTF	*MTR2*	*MTRP*	*MTR / MTC*	*MTCP*	*MTSS*
56C	1/3	–	13.5 x 11 x 11		15 x 11 x 10	–	11 x 10 x 14
	1/2						
	3/4						11 x 10 x 15
	1		14 x 11 x 11				
	1-1/2				17 x 11 x 10		
	2		14.5 x 11 x 11				11 x 10 x 16
56HC	1			14 x 11 x 11.5	–	–	–
	1-1/2		14.5 x 11 x 11	15 x 11 x 11.5 (1800 RPM) 14 x 11 x 15 (3600 RPM)			
	2		16 x 11 x 11	15.5 x 11 x 11.5 (1800 RPM) 14 x 11 x 15.5 (3600 RPM)			
	3			15 x 11 x 11.5			
143T	1		–	–	14 x 11 x 17	18.5 x 13 x 10.5	
145T	1-1/2						
145T	2						
182T	2	18 x 14 x 14			–	–	
182T	3	–			16 x 14 x 20	20 x 15.5 x 13.5	
184T	3	19 x 14 x 14			–	–	
184T	5	–			16 x 14 x 20	20 x 15.5 x 13.5	
184T	5	21.5 x 14 x 14			–	–	
213T	7-1/2	–			18 x 16 x 25	26 x 19 x 18.5	
215T	10					25 x 20.5 17.5	
254T	15				31 x 23 x 22	31 x 23 x 23	
256T	20						
284T	25				33 x 24 x 24	34 x 27 x 23	
286T	30					34 x 26 x 23	
324T	40				36 x 26 x 25	36 x 28 x 26	
326T	50						
364T	60				39 x 28 x 27	39 x 28 x 27	
365T	75						
405T	100				44 x 32 x 30	44 x 32 x 30	
444T	125				47 x 33 x 32	47 x 33 x 32	
445T	150						
445/7T	200						
449T	250				63 x 33 x 37	–	
	300						

** TC-frame motors ship in the same crates as the comparable T-frame motors.*

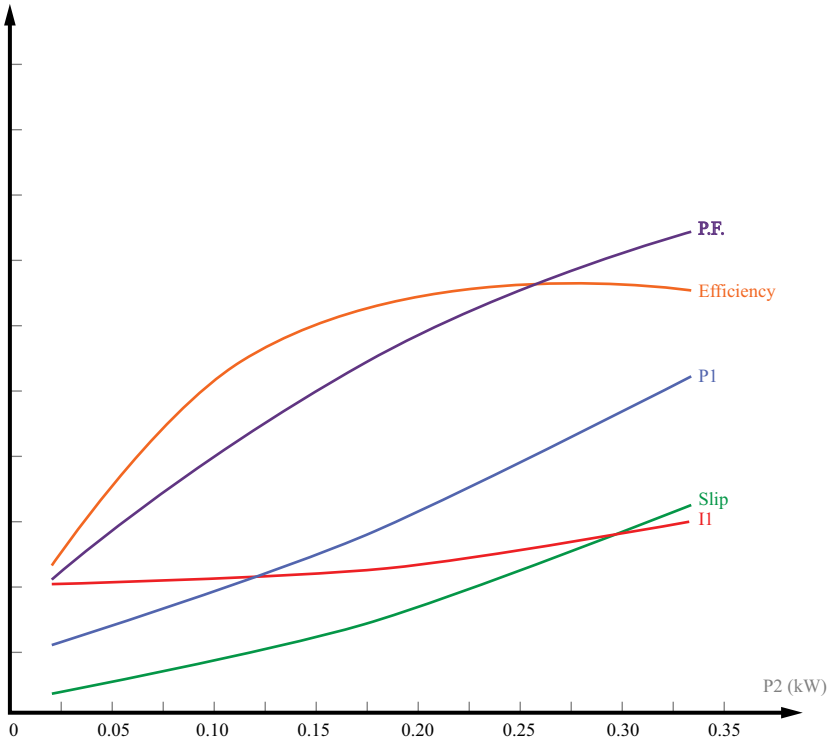
Shipping weights are listed in the Motor Specifications tables in "Chapter 1: Getting Started."

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Performance Curves for 56C-Frame Motors

MTR2-P33-1AB18

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	1.0	20
0.9	90	13.5	0.9	18
0.8	80	12.0	0.8	16
0.7	70	10.5	0.7	14
0.6	60	9.0	0.6	12
0.5	50	7.5	0.5	10
0.4	40	6.0	0.4	8
0.3	30	4.5	0.3	6
0.2	20	3.0	0.2	4
0.1	10	1.5	0.1	2



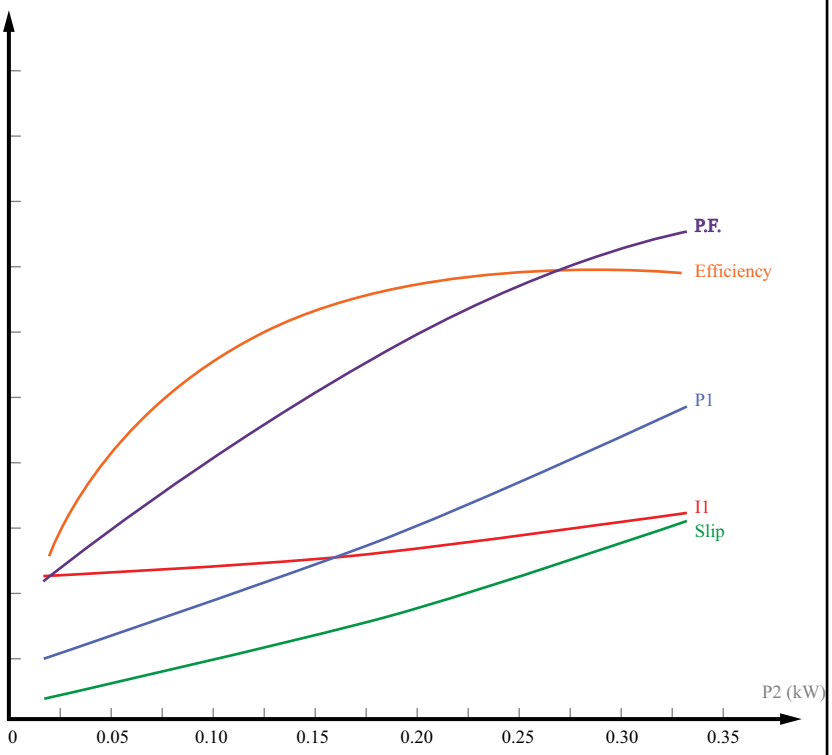
Performance Data - MTR2-P33-1AB18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.0672	116.0	4.10	0.1574	0.36	1783	42.72	0.33
0.1170	115.8	4.23	0.2123	0.63	1773	55.12	0.43
0.1371	115.7	4.32	0.2362	0.74	1769	58.06	0.47
0.1716	115.6	4.49	0.2761	0.93	1761	62.16	0.53
0.2057	115.5	4.69	0.3169	1.12	1753	64.92	0.59
0.2429	115.3	5.01	0.3696	1.33	1743	65.73	0.64
0.2865	115.1	5.42	0.4322	1.58	1730	66.28	0.69
0.3172	114.9	5.78	0.4808	1.76	1719	65.97	0.72

Load Performance Data - MTR2-P33-1AB18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	4.10	0.1540	0.89	40.60	0.327	0.06
50	4.26	0.2204	1.53	56.73	0.450	0.13
75	4.58	0.2956	2.32	63.43	0.561	0.19
100	5.07	0.3796	3.23	65.85	0.651	0.25
125	5.72	0.4725	4.28	66.13	0.718	0.31

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MTR2-P33-3BD18

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	20	1.0	2.50
0.9	90	18	0.9	2.25
0.8	80	16	0.8	2.00
0.7	70	14	0.7	1.75
0.6	60	12	0.6	1.50
0.5	50	10	0.5	1.25
0.4	40	8	0.4	1.00
0.3	30	6	0.3	0.75
0.2	20	4	0.2	0.50
0.1	10	2	0.1	0.25



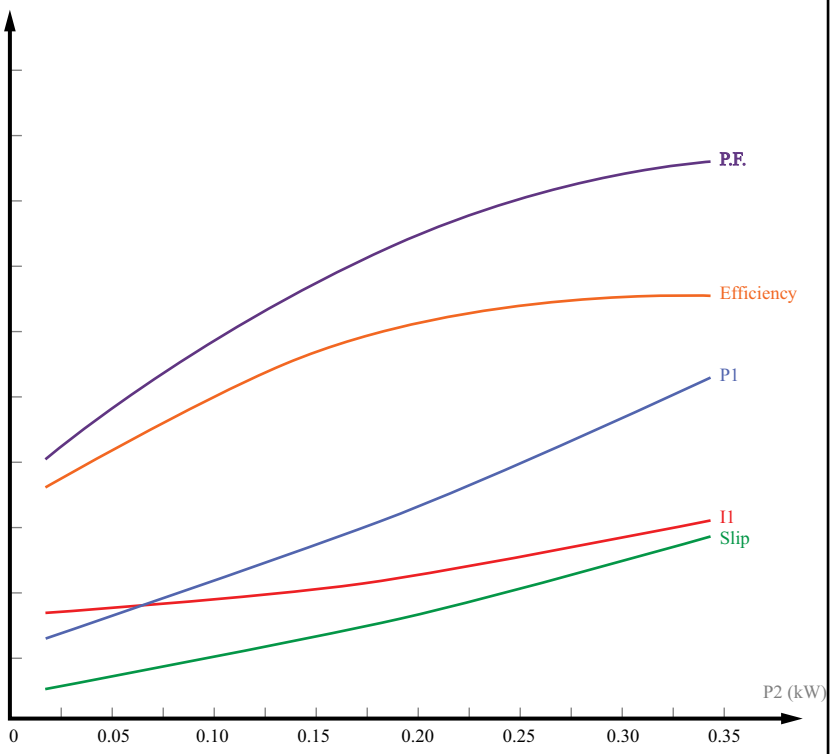
Performance Data - MTR2-P33-3BD18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.0582	460.9	0.56	0.1350	0.30	1780	43.15	0.31
0.1112	460.8	0.58	0.1940	0.61	1764	57.30	0.42
0.1320	460.8	0.59	0.5180	0.74	1758	60.56	0.47
0.1591	460.8	0.61	0.2500	0.90	1749	63.63	0.52
0.2072	460.7	0.65	0.3090	1.17	1734	67.05	0.60
0.2384	460.7	0.68	0.3490	1.35	1723	68.32	0.65
0.2682	460.7	0.71	0.3890	1.54	1712	68.95	0.69
0.3075	460.6	0.76	0.4440	1.78	1696	69.25	0.73

Load Performance Data - MTR2-P33-3BD18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	0.56	0.1400	1.28	44.66	0.315	0.06
50	0.58	0.2095	2.19	59.67	0.450	0.13
75	0.63	0.2845	3.24	65.91	0.569	0.19
100	0.69	0.3648	4.42	68.62	0.664	0.25
125	0.77	0.4506	5.74	69.35	0.735	0.31

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MTR2-P33-3BD36

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	1.0	2.50
0.9	90	13.5	0.9	2.25
0.8	80	12.0	0.8	2.00
0.7	70	10.5	0.7	1.75
0.6	60	9.0	0.6	1.50
0.5	50	7.5	0.5	1.25
0.4	40	6.0	0.4	1.00
0.3	30	4.5	0.3	0.75
0.2	20	3.0	0.2	0.50
0.1	10	1.5	0.1	0.25



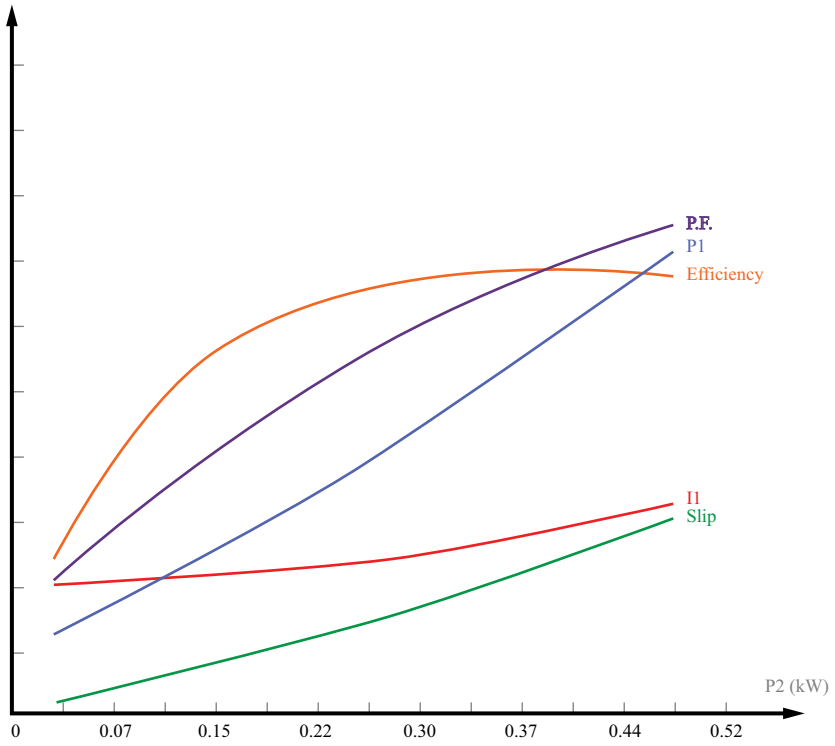
Performance Data - MTR2-P33-3BD36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1375	460.6	0.49	0.2530	0.34	3536	54.36	0.65
0.1452	460.6	0.50	0.2620	0.35	3534	55.43	0.66
0.1551	460.6	0.51	0.2740	0.38	3530	56.61	0.68
0.1790	460.5	0.53	0.3030	0.46	3520	59.08	0.72
0.2017	460.5	0.56	0.3310	0.52	3512	60.93	0.75
0.2499	460.5	0.62	0.3930	0.66	3491	63.60	0.80
0.2871	460.4	0.67	0.4430	0.78	3474	64.81	0.83
0.3180	460.4	0.72	0.4860	0.87	3459	65.44	0.85

Load Performance Data - MTR2-P33-3BD36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	0.43	0.1687	1.07	37.05	0.495	0.06
50	0.48	0.2385	1.61	52.42	0.627	0.13
75	0.54	0.3133	2.24	59.85	0.726	0.19
100	0.62	0.3932	2.94	63.58	0.797	0.25
125	0.71	0.4782	3.74	65.35	0.844	0.31

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MTR2-P50-1AB18

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	1.0	25.0
0.9	90	13.5	0.9	22.5
0.8	80	12.0	0.8	20.0
0.7	70	10.5	0.7	17.5
0.6	60	9.0	0.6	15.0
0.5	50	7.5	0.5	12.5
0.4	40	6.0	0.4	10.0
0.3	30	4.5	0.3	7.5
0.2	20	3.0	0.2	5.0
0.1	10	1.5	0.1	2.5



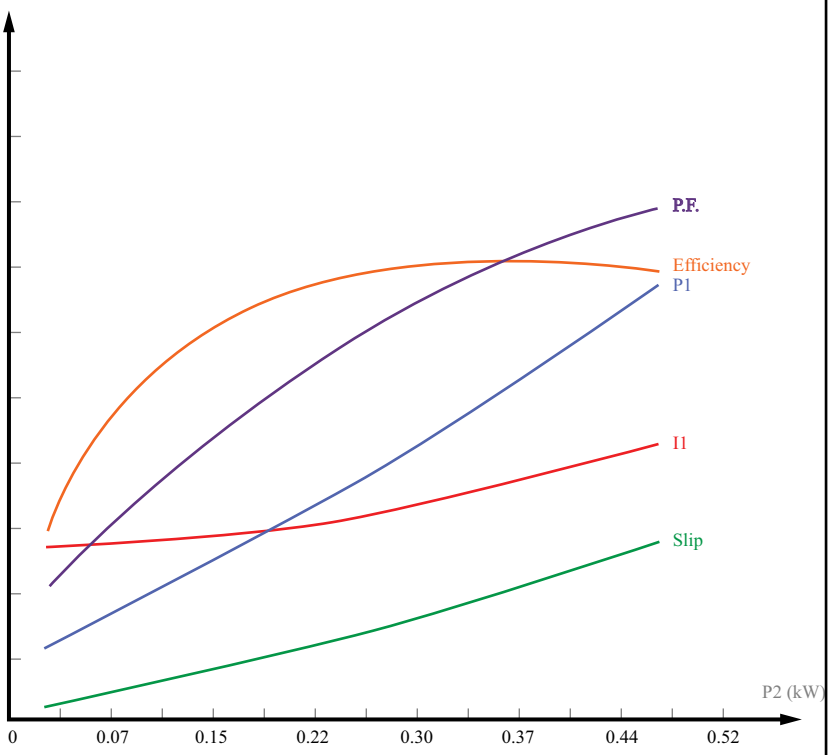
Performance Data - MTR2-P50-1AB18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.0916	115.9	5.39	0.2005	0.49	1784	45.66	0.32
0.1562	115.7	5.58	0.2725	0.84	1775	57.32	0.42
0.2037	115.6	5.79	0.3264	1.10	1768	62.41	0.49
0.2364	115.4	5.96	0.3644	1.28	1763	64.87	0.53
0.3100	115.2	6.47	0.4573	1.69	1751	67.78	0.61
0.3614	116.0	6.91	0.5252	1.98	1743	68.82	0.66
0.4258	115.6	7.53	0.6160	2.35	1730	69.13	0.71
0.4532	115.5	7.85	0.6589	2.51	1724	68.78	0.73

Load Performance Data - MTR2-P50-1AB18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	5.39	0.2026	0.89	45.66	0.327	0.09
50	5.70	0.3038	1.58	60.89	0.464	0.19
75	6.23	0.4156	2.38	66.76	0.580	0.28
100	6.98	0.5381	3.28	68.76	0.670	0.37
125	7.95	0.6712	4.29	68.91	0.734	0.46

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MTR2-P50-3BD18

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	25.0	1.0	2.50
0.9	90	22.5	0.9	2.25
0.8	80	20.0	0.8	2.00
0.7	70	17.5	0.7	1.75
0.6	60	15.0	0.6	1.50
0.5	50	12.5	0.5	1.25
0.4	40	10.0	0.4	1.00
0.3	30	7.5	0.4	0.75
0.2	20	5.0	0.2	0.50
0.1	10	2.5	0.1	0.25



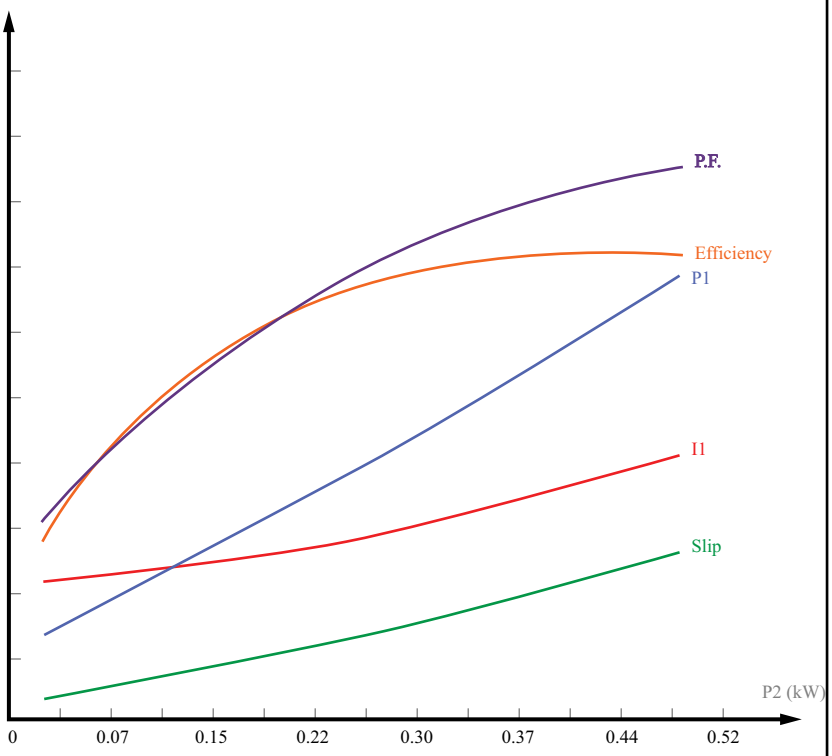
Performance Data - MTR2-P50-3BD18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.0784	460.5	0.68	0.1670	0.41	1780	46.97	0.31
0.1388	460.4	0.70	0.2340	0.76	1767	59.33	0.42
0.1898	460.2	0.74	0.2930	1.06	1755	64.78	0.50
0.2368	460.3	0.77	0.3490	1.32	1744	67.84	0.57
0.2947	460.2	0.82	0.4220	1.70	1728	60.84	0.64
0.3471	460.1	0.88	0.4910	2.01	1713	70.70	0.70
0.3957	460.1	0.95	0.5580	2.29	1698	70.91	0.74
0.4363	459.9	1.01	0.6180	2.55	1685	70.59	0.77

Load Performance Data - MTR2-P50-3BD18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	0.69	0.1826	1.25	50.65	0.335	0.09
50	0.73	0.2866	2.37	64.56	0.492	0.19
75	0.81	0.4000	3.64	69.37	0.623	0.28
100	0.91	0.5230	5.07	70.74	0.719	0.37
125	1.05	0.6555	6.66	70.55	0.784	0.46

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MTR2-P50-3BD36

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	1.0	2.50
0.9	90	13.5	0.9	2.25
0.8	80	12.0	0.8	2.00
0.7	70	10.5	0.7	1.75
0.6	60	9.0	0.6	1.50
0.5	50	7.5	0.5	1.25
0.4	40	6.0	0.4	1.00
0.3	30	4.5	0.3	0.75
0.2	20	3.0	0.2	0.50
0.1	10	1.5	0.1	0.25



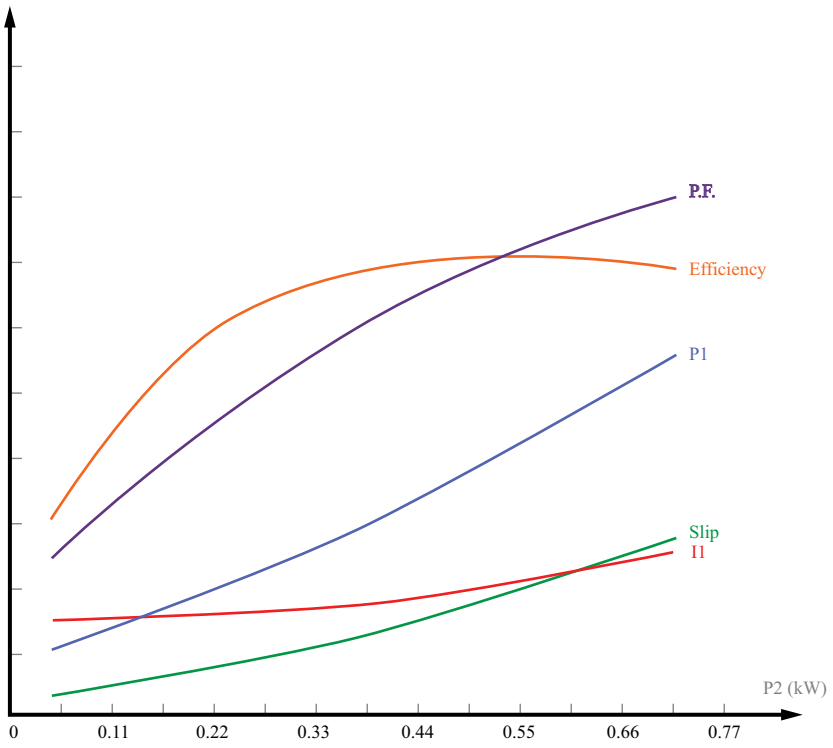
Performance Data - MTR2-P50-3BD36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1263	460.2	0.58	0.2360	0.34	3560	53.50	0.51
0.1486	460.2	0.60	0.2610	0.41	3554	56.93	0.55
0.1752	460.1	0.62	0.2910	0.49	3548	60.21	0.59
0.2471	460.1	0.69	0.3740	0.69	3530	66.08	0.68
0.2957	460.0	0.74	0.4320	0.83	3517	68.45	0.73
0.3455	459.9	0.80	0.4930	0.96	3503	70.09	0.77
0.4075	459.9	0.89	0.5720	1.15	3484	71.24	0.81
0.4540	459.8	0.95	0.6330	1.28	3469	71.72	0.83

Load Performance Data - MTR2-P50-3BD36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	0.56	0.1997	0.89	46.33	0.446	0.09
50	0.63	0.3019	1.45	61.29	0.601	0.19
75	0.72	0.4100	2.09	67.68	0.714	0.28
100	0.83	0.5241	2.80	70.60	0.790	0.37
125	0.97	0.6441	3.59	71.80	0.836	0.46

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MTR2-P75-1AB18

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	20	2.0	50
0.9	90	18	1.8	45
0.8	80	16	1.6	40
0.7	70	14	1.4	35
0.6	60	12	1.2	30
0.5	50	10	1.0	25
0.4	40	8	0.8	20
0.3	30	6	0.6	15
0.2	20	4	0.4	10
0.1	10	2	0.2	5



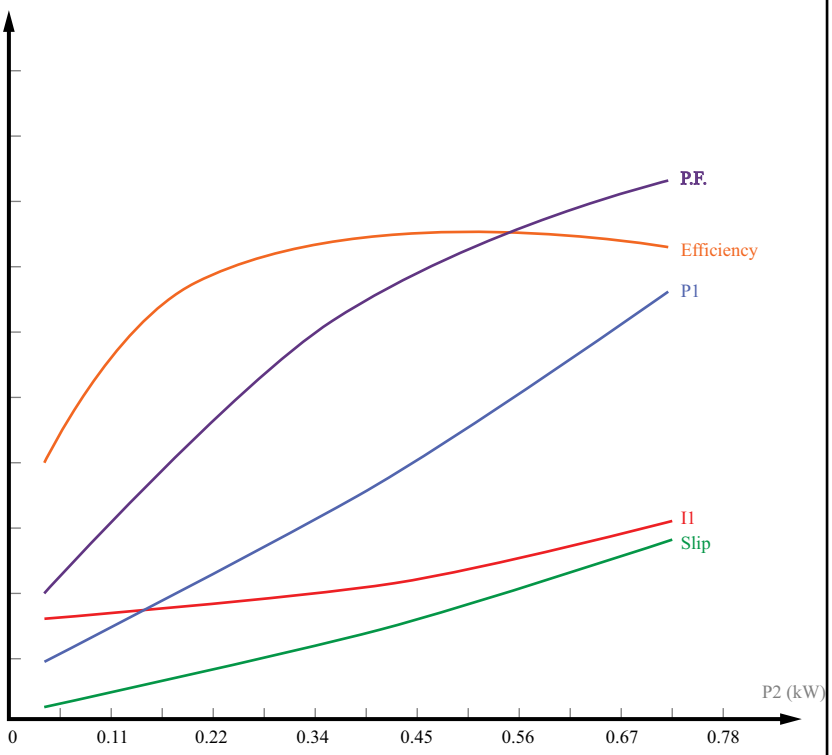
Performance Data - MTR2-P75-1AB18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1456	***115.2***	7.15	0.2919	0.78	1782	49.87	0.35
0.2120	***115.9***	7.42	0.3668	1.14	1775	57.81	0.43
0.2943	***115.6***	7.79	0.4595	1.59	1766	64.04	0.51
0.3666	***115.4***	8.20	0.5433	1.99	1758	67.48	0.57
0.4576	***115.0***	8.89	0.6628	2.50	1746	69.04	0.65
0.5352	***115.7***	9.60	0.7693	2.94	1737	69.57	0.07
0.6332	***115.3***	10.69	0.9174	3.51	1720	69.02	0.74
0.6855	***115.0***	11.37	1.0017	3.82	1711	68.43	0.77

Load Performance Data - MTR2-P75-1AB18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	7.16	0.2866	0.96	47.97	0.348	0.14
50	7.66	0.4344	1.68	63.30	0.493	0.28
75	8.52	0.6032	2.56	68.39	0.615	0.41
100	9.77	0.7928	3.60	69.37	0.706	0.55
125	11.37	1.0035	4.80	68.51	0.767	0.69

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MTR2-P75-3BD18

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	25.0	1.50	5.0
0.9	90	22.5	1.35	4.5
0.8	80	20.0	1.20	4.0
0.7	70	17.5	1.05	3.5
0.6	60	15.0	0.90	3.0
0.5	50	12.5	0.75	2.5
0.4	40	10.0	0.60	2.0
0.3	30	7.5	0.45	1.5
0.2	20	5.0	0.30	1.0
0.1	10	2.5	0.15	0.5



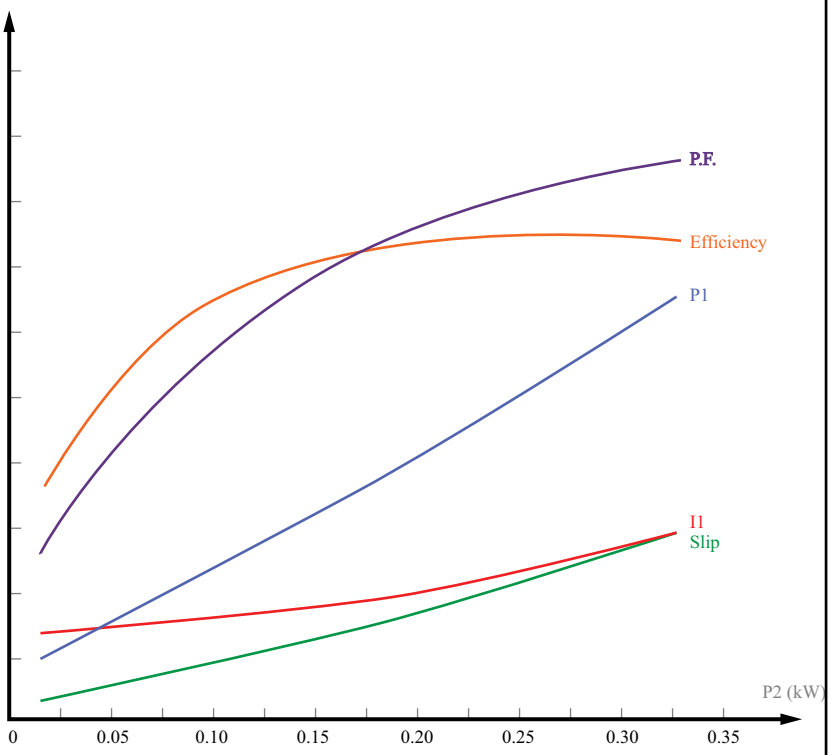
Performance Data - MTR2-P75-3BD18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1144	460.9	0.83	0.2060	0.62	1782	55.56	0.31
0.2075	460.8	0.87	0.3090	1.16	1769	67.15	0.45
0.2857	460.7	0.92	0.3990	1.60	1757	71.61	0.54
0.3585	460.6	0.99	0.4860	2.02	1745	73.77	0.62
0.4412	460.6	1.08	0.5890	2.49	1731	74.91	0.69
0.5204	460.4	1.18	0.6930	2.98	1716	75.10	0.74
0.5971	460.3	1.29	0.7990	3.45	1701	74.74	0.78
0.6675	460.2	1.40	0.9020	3.90	1686	74.00	0.81

Load Performance Data - MTR2-P75-3BD18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	0.84	0.2342	1.28	59.77	0.352	0.14
50	0.92	0.3911	2.31	71.58	0.534	0.28
75	1.05	0.5625	3.55	74.67	0.671	0.42
100	1.23	0.7482	4.99	74.84	0.762	0.56
125	1.46	0.9484	6.63	73.81	0.815	0.70

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MTR2-P75-3BD36

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	1.50	5.0
0.9	90	13.5	1.35	4.5
0.8	80	12.0	1.20	4.0
0.7	70	10.5	1.05	3.5
0.6	60	9.0	0.90	3.0
0.5	50	7.5	0.75	2.5
0.4	40	6.0	0.60	2.0
0.3	30	4.5	0.45	1.5
0.2	20	3.0	0.30	1.0
0.1	10	1.5	0.15	0.5



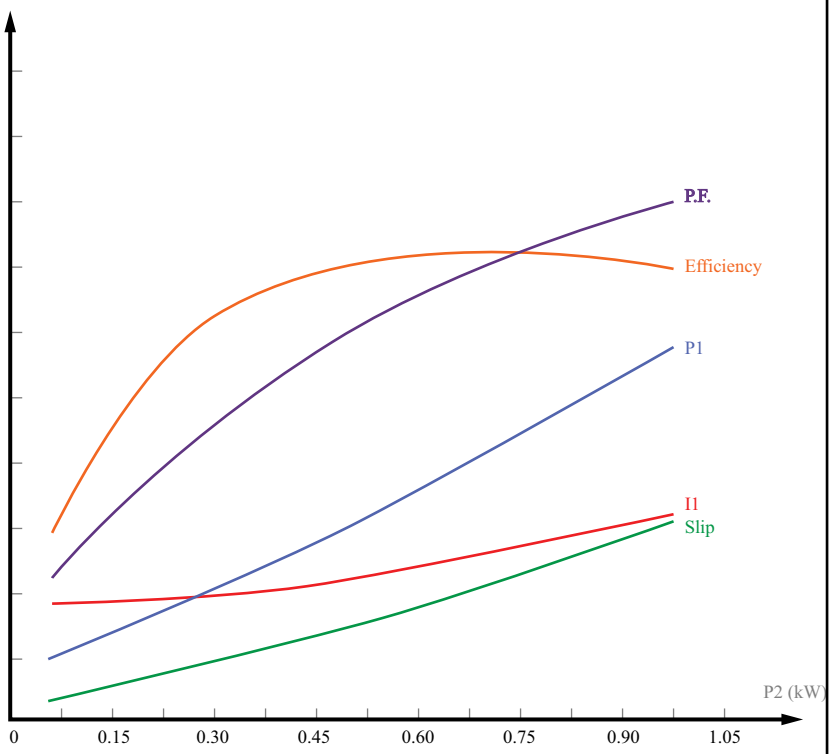
Performance Data - MTR2-P75-3BD36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1569	460.4	0.73	0.2730	0.41	3564	57.46	0.47
0.2434	460.3	0.79	0.3690	0.65	3549	65.98	0.59
0.2986	460.2	0.84	0.4320	0.81	3538	69.12	0.64
0.3545	460.1	0.90	0.4970	0.97	3527	71.33	0.70
0.4555	460.0	1.01	0.6180	1.25	3506	73.71	0.77
0.5293	460.9	1.11	0.7100	1.46	3489	74.55	0.80
0.6055	460.8	1.22	0.8080	1.68	3471	74.94	0.83
0.6800	459.7	1.34	0.9080	1.89	3453	74.89	0.85

Load Performance Data - MTR2-P75-3BD36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	0.72	0.2554	0.92	54.82	0.446	0.14
50	0.83	0.4102	1.58	68.27	0.624	0.28
75	0.70	0.5749	2.33	73.06	0.744	0.42
100	1.15	0.7496	3.17	74.70	0.818	0.56
125	1.37	0.9344	4.10	74.92	0.856	0.70

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MTR2-001-1AB18

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	2.50	50
0.9	90	13.5	2.25	45
0.8	80	12.0	2.00	40
0.7	70	10.5	1.75	35
0.6	60	9.0	1.50	30
0.5	50	7.5	1.25	25
0.4	40	6.0	1.00	20
0.3	30	4.5	0.75	15
0.2	20	3.0	0.50	10
0.1	10	1.5	0.25	5



Performance Data - MTR2-001-1AB18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.2110	115.6	9.16	0.3910	1.13	1784	53.97	0.37
0.2960	115.5	9.47	0.4820	1.59	1778	61.42	0.44
0.4042	115.3	9.99	0.6040	2.18	1771	66.91	0.53
0.5023	115.1	10.62	0.7220	2.72	1763	69.56	0.59
0.6193	115.8	11.57	0.8720	3.37	1755	71.02	0.65
0.7223	115.7	12.47	1.0060	3.95	1746	71.79	0.70
0.8290	115.5	13.56	1.1540	4.56	1736	71.84	0.74
0.9342	115.2	14.85	1.3171	5.18	1726	70.93	0.77

Load Performance Data - MTR2-001-1AB18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	9.08	0.3675	0.86	51.02	0.352	0.19
50	9.85	0.5702	1.51	65.76	0.504	0.38
75	11.07	0.7964	2.27	70.63	0.626	0.56
100	12.75	1.0460	3.15	71.70	0.714	0.75
125	14.88	1.3191	4.14	71.07	0.771	0.94

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