IRONHORSE®

General Purpose AC Motors

Manual Number: IH-MT-AC_UMW

Motor Series:

MTR
MTR2
MTRP
MTRJ
MTDP
MTF2
MTSS
MTCP2

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User Manual Revision History

Publication History

Please include the Manual Number and the Manual Issue, both shown below, when communicating with Technical Support regarding this publication.

Manual Number: ***IH-MT-AC_UMW***

Issue: ***11th Edition, Revision B***

Issue Date: ***January 8, 2024***

Publication History		
Issue	***Date***	***Description of Changes***
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.
8th Ed., Rev. A	05/23/2018	Ch3, Bearing #s Ch5, Added additional performance curves for MTR2 motors, added curves for MTRP motors
9th Edition	12/05/2018	Replaced MTCP motors with MTCP2 throughout manual. Added new Chapter 6 for legacy motors and moved MTC, MTCP, MTR, and MTSS motors info to Chapter 6.
9th Ed., Rev. A	03/22/2019	Ch2, Revised shaft diameter dimensions for MTCP2 254T(C)- & 256T(C)-Frame motors. Ch5, Consolidated Shipping Crate Dimensions table. Ch6, Consolidated and rearranged legacy motors spec and performance data tables.

Publication History		
Issue	***Date***	***Description of Changes***
10th Ed.	09/02/2020	MTF Motors moved to Legacy Motors, Chapter 6. MTF2 Farm Duty Motors added. MTDP Open Drip-proof motors added.
10th Ed., Rev. A	01/06/2021	MTDP specification changes (affects motors manufactured after September 2020), Chapter 1
11th Ed.	06/29/2022	MTRJ Jet Pump motors added
11th Ed. Rev. A	02/17/2023	Ch2: MTRJ Jet Pump motors Wiring Diagram updated
11th Ed. Rev. B	01/08/2024	Ch2: MTDP motors Wiring Diagram updated

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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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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).

Available Models

This manual covers Ironhorse series AC motor models:

MTR, **MTR2**, **MTRP**, **MTRJ** - Black TEFC motors

MTF2 - Green TEFC Farm Duty motors

MTDP - Blue ODP (Open Drip Proof) motors

MTSS- Stainless Steel IP56 TEFC motors

MTCP2- Gray Cast Iron TEFC motors

NOTE: For the MTSP MTSN Stainless Steel IP69K series, see the technical specifications pages. These are not included in this manual.

MTF2 Conveyor/Farm-Duty T-Frame Single-Phase Motors – Features and Specifications

IronHorse® single-phase farm-duty motor available ratings are 2hp to 10hp. All models have a TEFC housing (steel frame with iron end bells) that is fully gasketed for use in dirty environments. Motors are NEMA H, J, K and 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 @208/ 230VAC***	***Approx Weight (lb)***
MTF2-002-1B18-182	2	1800	208 / 230VAC ±10%	1.15 @ 230VAC 1.0 @ 208VAC	L	182T	TEFC IP55	9.3 / 8.5	67
MTF2-003-1B18	3					184T		13.5 / 12.5	76
MTF2-005-1B18	5							22.2 / 20.2	100
MTF2-7P5-1B18-215	7.5					215T		31.5 / 28.7	134
MTF2-010-1B18	10							45.2 / 38.8	149
** 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***			
MTF2-002-1B18-182	2	1764	3.0	8.5	78.6	6.01	21.8	22.1	84.0	0.92	0.27
MTF2-003-1B18	3	1769	4.2	12.5	89.2	8.76	24.9	24.3	84.4	0.91	0.34
MTF2-005-1B18	5	1769	6.3	20.2	170.7	14.7	57.2	57.3	86.4	0.92	0.49
MTF2-7P5-1B18-215	7.5	1767	8.2	28.7	238.5	21.91	82.8	82.1	86.6	0.96	0.74
MTF2-010-1B18	10	1765	11.79	38.8	365.8	29.93	119.6	122.6	87.5	0.96	0.85

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

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

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

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
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
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.*

MTR2 Rolled-Steel 56C/56HC-Frame Single-Phase Motors Features and Specifications (continued)

Performance Data – Rolled-Steel 56C-Frame 1-Phase Motor

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
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

MTRJ Centrifugal Jet Pump One-Phase Motors – Features and Specifications

IronHorse® MTRJ Jet Pump motors range in size from 1/3 - 2 HP at 3600 RPM. All models come in a 56J frame size in a Totally Enclosed Fan Cooled (TEFC) Enclosure with IP43 protection.

Specifications - Centrifugal Jet Pump AC One-Phase Motor

Motor Specifications – 1-phase										
Part Number	**HP***	**Base RPM ***	**Volts***	**Encl.**	**NEMA Frame**	**Service Factor***	**F.L. Amps***	**Sound Power (dB)**	**Weight (lb)**	**Drawing Links**
C-face With Removable Base										
MTRJ-P33-1AB36J	1/3 (1/4)	3600 (3000)	115/230 VAC (110/220)	TEFC	56J	1.15 (1)	5.0/2.5 (4.4/2.2)	80 dB(A)	19.4	PDF
MTRJ-P50-1AB36J	1/2 (1/3)						6.6/ 3.3 (5.4/2.7)		21	PDF
MTRJ-P75-1AB36J	3/4 (1/2)						9.0 / 4.5 (8.0/4.0)		25.5	PDF
MTRJ-001-1AB36J	1 (3/4)						11.4/5.7 (10.4/5.2)		28.3	PDF
MTRJ-1P5-1AB36J	1 1/2 (1)						13.0 / 6.5 (11.8/5.9)	85 dB(A)	30.7	PDF
MTRJ-002-1AB36J	2 (1 1/2)						17.2 / 8.6 (14.8/7.4)		36.6	PDF
*@ 60Hz (@ 50Hz)										

Performance Data - 1-phase														
					Current			Torque						
Part Number	**HP***	**F.L. RPM***	**NEMA Design**	**F.L. Effic. %**	**Full Load Amps**	**Locked Rotor Amps**	**No Load Current**	**Full Load (lb·ft)**	**Locked Rotor**	**Breakdown**	**Pull Up**	**F.L. Power Factor**	**Moment of Inertia (lb·ft2)**
									% of F.L. Torque				
C-face With Removable Base - 3600 RPM													
MTRJ-P33-1AB36J	1/3 (1/4)	3450 (2850)	N	55.0	5.0/2.5	19.51	2.64	0.51	145%	250%	95%	85	0.0245
MTRJ-P50-1AB36J	1/2 (1/3)			59.5	6.6/ 3.3	25.22	3.19	0.76	130%	265%	90%		0.0277
MTRJ-P75-1AB36J	3/4 (1/2)			66.0	9.0 / 4.5	47.22	4.95	1.12		220%	100%	81	0.0382
MTRJ-001-1AB36J	1 (3/4)			70.0	11.4/5.7	61.78	5.97	1.53	125%	225%	75%	82	0.0458
MTRJ-1P5-1AB36J	1 1/2 (1)		L	78.5	13.0 / 6.5	82.74	8.34	2.25	115%	220%	110%	94	0.0472
MTRJ-002-1AB36J	2 (1 1/2)			80.0	17.2 / 8.6	116.2	8.64	3.06	140%	205%	95%	95	0.0602
*@ 60Hz (@ 50Hz)													

MTDP Open Drip-Proof AC Three-Phase Motors – Features and Specifications

IronHorse® MTDP, open drip-proof motors range in size from 1hp to 50hp at 1800 rpm and 3hp, 5hp, and 7.5 hp at 3600 rpm. Frame sizes are available from 143T to 326T. All models have a rolled steel frame; frames sizes up to 256T have cast aluminum end bells, while frame sizes of 284T or larger have cast iron end bells. All frame sizes have a fixed base. 15 - 50 horsepower models made after June 2023 have 12 motor leads for high-voltage, Wye/Delta starting.

Specifications – Open Drip-Proof AC Three-Phase Motor

Motor Specifications – MTDP Open Drip-Proof Three-Phase Motors (60Hz except as indicated)									
Part Number	**HP**	**Base RPM**	**Voltage**	**Service Factor**	**NEMA Design**	**NEMA Frame**	**Housing**	**F.L. Amps @ 208/230V/460V 60Hz**	**Approx Weight (lb)**
	@ 60Hz (50Hz)								
1800 RPM									
MTDP-001-3BD18	1	1800	208–230/460 VAC	1.15 (sine), 1.0 (drive)	BB	143T	ODP IP23ODP	2.9 / 2.6 / 1.3 3.1/2.8/1.4*	33.1
MTDP-1P5-3BD18	1 1/2	1800	208–230/460 VAC			145T		4.6 / 4.2 / 2.1	34.2
MTDP-002-3BD18	2	1800	208–230/460 VAC			145T		5.9 / 5.4 / 2.7	38.6
MTDP-003-3BD18	3	1800	208–230/460 VAC			182T		7.9 / 7.6 / 3.8 8.7/7.8/3.9*	68.3
MTDP-005-3BD18	5	1800	208–230/460 VAC			184T		13.6 / 12.4 / 6.2 13.7/12.4/6.2*	91.5
MTDP-7P5-3BD18	7 1/2	1800	208–230/460 VAC			213T		20.7 / 18.8 / 9.4 21.7/19.6/9.8*	140.2
MTDP-010-3BD18	10	1800	208–230/460 VAC			215T		28.3 / 25.6/12.8	156.0
MTDP-015-3BD18	15	1800	208–230/460 VAC			254T		37.6 / 34.2 / 17.1 38.5/34.8/17.4*	214.9
MTDP-020-3BD18	20	1800	208–230/460 VAC			256T		49.5 / 45.0 / 22.5 51.5/46.6/23.3*	260.1
MTDP-025-3BD18	25	1800	208–230/460 VAC			284T		66.3 / 60.0 / 30.0	300.0
MTDP-030-3BD18	30	1800	208–230/460 VAC			286T		79.4 / 71.8 / 35.9 77.6/70.2/35.1*	330.0
MTDP-040-3BD18	40	1800	208–230/460 VAC			324T		105.6 / 95.8 / 47.9	440
MTDP-050-3BD18	50	1800	208–230/460 VAC			326T		130.3 / 117.4 / 58.7 131.2/118.6/59.3*	470
3600 RPM									
MTDP-003-3BD36	3	3600	208–230/460 VAC	1.15 (sine), 1.0 (drive)	B	145T	ODP IP23	7.9 / 7.2 / 3.6 8.2/7.4/3.7*	39.7
MTDP-005-3BD36	5	3600	208–230/460 VAC			182T		12.3 / 11.8 / 5.9	64.9
MTDP-7P5-3BD36	7.5	3600	208–230/460 VAC			184T		18.9 / 17.2 / 8.6 19.2/17.4/8.7*	78.1

**These specifications apply to motors manufactured after September 2020*

Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

MTDP Rolled-Steel Three-Phase Drip-Proof Motors Features and Specifications

Performance Data (For Motors Manufactured After September 2020)

Performance Data – MTDP Rolled Steel Three-Phase Drip-Proof Motors (230V / 60Hz data except as indicated)											
Part Number	HP	F.L. RPM	Current @ 230/460V (Amps)			Torque (lb·ft)			F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia ($lb·ft^2$)
	@ 60Hz (50Hz)		230/ 460V No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break down			
1800 RPM											
MTDP-001-3BD18	1	1742	1.40/0.70	2.8/1.4	21.18/10.59	3.03	9.51	10.03	85.5	0.81	0.09
MTDP-1P5-3BD18	1.5	1747	2.44 / 1.22	4.2 / 2.1	34.52 / 17.26	4.44	15.63	16.56	88.5	0.76	0.09
MTDP-002-3BD18	2	1744	2.96 / 1.48	5.4 / 27	47.24 / 23.62	6.06	21.15	23.45	86.5	0.79	0.10
MTDP-003-3BD18	3	1753	3.74/1.87	7.8/3.9	63.64/31.82	8.80	30.36	31.68	89.5	0.8	0.36
MTDP-005-3BD18	5	1745	4.46 / 2.23	12.4 / 6.2	93.34/46.67	14.90	40.83	46.04	89.5	0.84	0.48
MTDP-7P5-3BD18	7.5	1758	10.56/5.28	19.6/9.8	118.62/59.31	22.02	78.39	81.03	91	0.78	0.95
MTDP-010-3BD18	10	1753	10.24 / 5.12	24.4 / 12.2	160.8 / 80.4	30.14	97.35	100.67	91.7	0.81	1.16
MTDP-015-3BD18	15	1774	11.4/5.7	34.8/17.4	235.6/117.8	43.6	113.36	120.30	93	0.85	2.03
MTDP-020-3BD18	20	1769	13.96/6.98	46.6/23.3	303.4/151.7	59.67	154.54	178.40	93	0.86	2.44
MTDP-025-3BD18	25	1775	24.6 / 12.3	30.0 / 15.0	380 / 190	72.30	175.69	184.37	93.6	0.83	3.25
MTDP-030-3BD18	30	1775	24.8/12.4	70.2/35.1	433/216.5	87.47	252.79	291.28	94.1	0.84	3.69
MTDP-040-3BD18	40	1778	36.8 / 18.4	95.8 / 47.9	630 / 315	118.10	419.26	457.05	94.1	0.84	7.35
MTDP-050-3BD18	50	1781	46.2/23.1	118.6/59.3	771/385.5	146.7	476.78	517.85	94.5	0.83	8.99
MTDP-003-3BD36	3	3441	3.02/1.51	7.4/3.7	63.26/31.63	4.5	18.09	22.28	85.5	0.86	0.07
MTDP-005-3BD36	5	3509	3.64 / 1.82	11.8 / 5.9	94.02 / 47.01	7.43	25.26	26.15	86.5	0.89	0.15
MTDP-7P5-3BD36	7.5	3499	4.86/2.43	17.36/8.68	132.26/66.13	11.02	33.17	41.99	88.5	0.89	0.20

Performance Data – MTDP Rolled Steel Three-Phase Drip-Proof Motors (190/380V / 50Hz data)											
Part Number	HP	F.L. RPM	Current @ 115V/230V (Amps)			Torque (lb·ft)			F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia ($lb·ft^2$)
	@ 50Hz		190/380V No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break down			
1500 RPM											
MTDP-001-3BD18	1	1449	1.32/0.66	3.2/1.6	20.4/10.2	3.65	8.21	10.13	84.3	0.82	0.09
MTDP-1P5-3BD18	1.5	1450	2.44/1.22	4.8/2.4	32.6/16.3	5.35	15.69	16.63	85.7	0.78	0.09
MTDP-002-3BD18	2	1448	2.96/1.48	6.4/3.2	44.6/22.3	7.31	21.26	23.57	85.7	0.81	0.1
MTDP-003-3BD18	3	1437	3.7/1.85	9.4/4.7	59.8/29.9	10.8	28.87	30.11	88.7	0.84	0.36
MTDP-005-3BD18	5	1445	4.4/2.2	14.9/7.5	87.0/43.5	18	51.77	58.37	88.7	0.87	0.45
MTDP-7P5-3BD18	7.5	1445	8.2/4.1	23.6/11.8	112/56	26.8	72.9	117.14	90.2	0.84	0.95
MTDP-010-3BD18	10	1455	10.24/5.12	29.4/14.7	152.2/76.1	36.4	97.99	101.3	91.2	0.87	1.16
MTDP-015-3BD18	15	1455	10.0/5.0	41.8/20.9	221.8/110.9	53.3	92	113.96	92.4	0.87	2.03
MTDP-020-3BD18	20	1455	13.8/6.9	56.0/28.0	285.2/142.6	72.7	142.72	235.91	92.4	0.87	2.44
MTDP-025-3BD18	25	1455	24.6/12.3	72.0/36.0	359.6/179.8	88.3	178.81	187.64	93.2	0.84	3.25
MTDP-030-3BD18	30	1455	23.8/11.9	84.2/42.1	406.2/203.1	106.6	221.94	232.6	93.7	0.85	3.69
MTDP-040-3BD18	40	1460	36.8/18.4	115.0/57.5	596/298	142.5	421.66	459.56	93.8	0.86	7.35
MTDP-050-3BD18	50	1460	44.6/22.3	142.71.2	710.6/355.3	178.6	407.92	442.75	94.1	0.85	8.99
MTDP-003-3BD36	3	2850	2.82/1.41	8.8/4.4	47.0/23.5	5.44	17.71	21.83	84.1	0.89	0.07
MTDP-005-3BD36	5	2919	3.64/1.82	13.6/6.8	91.8/45.9	8.99	25.47	26.37	85.6	0.89	0.15
MTDP-7P5-3BD36	7.5	2870	4.6/2.3	21.0/10.5	128.2/64.1	13.37	32.52	41.11	87.7	0.9	0.2

PERFORMANCE DATA (FOR MOTORS MANUFACTURED PRIOR TO SEPTEMBER 2020)

Performance Data – MTDP Rolled Steel Three-Phase Drip-Proof Motors (230V / 60Hz data except as indicated)											
Part Number	*HP*	*F.L. RPM*	*Current @ 230/460V (Amps)*			*Torque (lb·ft)*			*F.L. Efficiency (%)*	*F.L. Power Factor*	*Rotor Inertia (lb·ft²)*
	@ 60Hz (50Hz)		*230/ 460V No Load*	*Full Load*	*Locked Rotor*	*Full Load*	*Locked Rotor*	*Break down*			
1800 RPM											
MTDP-001-3BD18	1	1745	1.32 / 0.66	2.6 / 1.3	21.46 / 10.73	3.03	8.18	10.09	85.5	0.81	0.09
MTDP-1P5-3BD18	1.5	1747	2.44 / 1.22	4.2 / 2.1	34.52 / 17.26	4.44	15.63	16.56	88.5	0.76	0.09
MTDP-002-3BD18	2	1744	2.96 / 1.48	5.4 / 27	47.24 / 23.62	6.06	21.15	23.45	86.5	0.79	0.10
MTDP-003-3BD18	3	1759	3.38 / 1.69	7.6 / 3.8	69.90 / 34.95	8.80	32.12	37.58	89.5	0.82	0.36
MTDP-005-3BD18	5	1749	4.46 / 2.23	12.4 / 6.2	105.76 / 52.88	14.90	50.21	57.07	89.5	0.83	0.48
MTDP-7P5-3BD18	7.5	1763	9.52 / 4.76	18.8 / 9.4	141.26 / 70.63	21.98	101.11	87.04	91.0	0.81	0.95
MTDP-010-3BD18	10	1753	10.24 / 5.12	24.4 / 12.2	160.8 / 80.4	30.14	97.35	100.67	91.7	0.81	1.16
MTDP-015-3BD18	15	1776	10.2 / 5.1	34.2 / 17.1	261.8 / 130.9	43.63	101.22	128.27	93.0	0.87	2.03
MTDP-020-3BD18	20	1765	11.06 / 5.53	45.0 / 22.5	325.2 / 162.6	59.84	175.93	166.36	93.0	0.90	2.44
MTDP-025-3BD18	25	1775	24.6 / 12.3	30.0 / 15.0	380 / 190	72.30	175.69	184.37	93.6	0.83	3.25
MTDP-030-3BD18	30	1780	31.4 / 15.7	71.8 / 35.9	499.6 / 249.8	86.67	240.94	276.48	94.1	0.82	3.69
MTDP-040-3BD18	40	1778	36.8 / 18.4	95.8 / 47.9	630 / 315	118.10	419.26	457.05	94.1	0.84	7.35
MTDP-050-3BD18	50	1776	46.0 / 23.0	117.6 / 58.8	818 / 409	145.20	512.56	441.41	94.5	0.84	8.99
MTDP-003-3BD36	3	3439	2.82 / 1.41	7.2 / 3.6	68.62 / 34.31	4.51	17.27	18.67	85.5	0.87	0.07
MTDP-005-3BD36	5	3509	3.64 / 1.82	11.8 / 5.9	94.02 / 47.01	7.43	25.26	26.15	86.5	0.89	0.15
MTDP-7P5-3BD36	7.5	3502	4.6 / 2.3	17.2 / 8.6	135.06 / 67.53	11.06	33.73	38.38	88.5	0.90	0.20

Performance Data – MTDP Rolled Steel Three-Phase Drip-Proof Motors (190/380V / 50Hz data)											
Part Number	*HP*	*F.L. RPM*	*Current @ 115V/230V (Amps)*			*Torque (lb·ft)*			*F.L. Efficiency (%)*	*F.L. Power Factor*	*Rotor Inertia (lb·ft²)*
	@ 50Hz		*190/380V No Load*	*Full Load*	*Locked Rotor*	*Full Load*	*Locked Rotor*	*Break down*			
1500 RPM											
MTDP-001-3BD18	1	1449	1.32 / 0.66	3.2 / 1.6	20.4 / 10.2	3.65	8.21	10.11	84.30	0.82	0.09
MTDP-1P5-3BD18	1.5	1450	2.44 / 1.22	4.8 / 2.4	32.6 / 16.3	5.35	15.68	16.64	85.70	0.78	0.09
MTDP-002-3BD18	2	1448	2.96 / 1.48	6.4 / 3.2	44.6 / 22.3	7.31	21.27	23.54	85.70	0.81	0.10
MTDP-003-3BD18	3	1460	3.38 / 1.69	8.6 / 4.3	66.2 / 33.1	10.6	32.25	37.74	88.70	0.84	0.36
MTDP-005-3BD18	5	1452	4.46 / 2.23	14.4 / 7.2	100.0 / 50.0	18.0	50.58	57.60	88.70	0.85	0.48
MTDP-7P5-3BD18	7.5	1464	8.52 / 4.76	21.6 / 10.8	133.8 / 66.9	26.5	101.50	87.45	90.50	0.83	0.95
MTDP-010-3BD18	10	1455	10.24 / 5.12	29.4 / 14.7	152.2 / 76.1	36.4	97.92	101.19	91.20	0.87	1.16
MTDP-015-3BD18	15	1475	10.2 / 5.1	39.4 / 19.7	247.5 / 123.9	52.6	101.52	128.87	92.60	0.88	2.03
MTDP-020-3BD18	20	1465	11.6 / 5.53	51.8 / 25.9	307.6 / 153.8	72.2	176.89	167.50	92.50	0.91	2.44
MTDP-025-3BD18	25	1455	24.6 / 12.3	72.0 / 36.0	359.6 / 179.8	88.3	178.37	187.20	93.20	0.84	3.25
MTDP-030-3BD18	30	1457	31.4 / 15.7	86.2 / 43.1	472.6 / 236.3	104.5	242.44	277.97	93.80	0.85	3.69
MTDP-040-3BD18	40	1460	36.8 / 18.4	115.0 / 57.5	596 / 298	142.5	421.80	458.85	93.80	0.86	7.35
MTDP-050-3BD18	50	1460	46.0 / 23.0	142.4 / 71.2	773.8 / 386.9	175.2	515.09	443.26	94.30	0.85	8.99
MTDP-003-3BD36	3	2860	2.82/1.41	8.6/4.3	67.0/33.5	5.45	17.44	18.80	84.30	0.88	0.07
MTDP-005-3BD36	5	2919	3.64/1.82	13.6/6.8	91.8/45.9	8.99	25.44	26.34	85.60	0.89	0.15
MTDP-7P5-3BD36	7.5	2913	4.6/2.3	20.0/10.0	131.8/65.9	13.37	33.96	38.64	87.60	0.91	0.20

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

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

Specifications – Rolled-Steel 56C/56HC-Frame 3-Phase Motor – 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	1.4 / 0.7	18
MTR2-P50-3BD18	1/2							1.9 / 0.95	19
MTR2-P75-3BD18	3/4						Cast aluminum end bell	2.6 / 1.3	22
MTRP-001-3BD18	1		208-230/460					3.2 / 1.6	35
MTRP-1P5-3BD18	1-1/2							4.5 / 2.3	43
MTRP-002-3BD18	2						F1 conduit box location	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	1.3 / 0.65	18
MTR2-P50-3BD36	1/2							1.7 / 0.85	19
MTR2-P75-3BD36	3/4						Cast aluminum end bell	2.4 / 1.2	21
MTRP-001-3BD36	1		208-230/460					3.0 / 1.50	23
MTRP-1P5-3BD36	1-1/2							4.0 / 2.0	31
MTRP-002-3BD36	2							5.2 / 2.6	33
MTRP-003-3BD36	3						F1 conduit box location	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.*

MTR2 and MTRP Rolled-Steel 56C/56HC-Frame Three-Phase Motors Features and Specifications (continued)

Performance Data – Rolled-Steel 56C/56HC-Frame 3-Phase Motor – 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
MTRP-001-3BD18	1	1760	440	176		2700	2.2 / 1.1	3.2 / 1.6	31 / 16
MTRP-1P5-3BD18	1-1/2	1760	440	176		2700	2.8 / 1.4	4.5 / 2.3	47 / 24
MTRP-002-3BD18	2	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
MTRP-001-3BD18	1		3	12.35	14.51		85.0	0.69	0.107
MTRP-1P5-3BD18	1-1/2		4.4	21.68	21.76		86.5	0.72	0.135
MTRP-002-3BD18	2		6.03	27.3	27.46		86.5	0.74	0.158
** Maximum Constant HP rpm is for direct-coupled loads.*									

Performance Data – Rolled-Steel 56C/56HC-Frame 3-Phase Motor – 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
MTRP-001-3BD36	1	3500	875	350			1.52 / 0.76	3.00 / 1.50	22 / 11
MTRP-1P5-3BD36	1-1/2	3500	875	350			1.8 / 0.9	3.96 / 1.98	38 / 19
MTRP-002-3BD36	2	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
MTRP-001-3BD36	1		1.51	3.98	4.93		77	0.83	0.034
MTRP-1P5-3BD36	1-1/2		2.21	7.94	9.03		84.0	0.85	0.048
MTRP-002-3BD36	2		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.*									

MTRJ Centrifugal Jet Pump Three-Phase Motors – Features and Specifications

IronHorse® MTRJ Jet Pump motors range in size from 1/3 - 3 HP at 3600 RPM. All models come in a 56J frame size in a Totally Enclosed Fan Cooled (TEFC) Enclosure with IP43 protection.

Specifications - Centrifugal Jet Pump AC One-Phase Motor

Motor Specifications – 3-phase										
Part Number	**HP***	**Base RPM ***	**Volts***	**Encl.**	**NEMA Frame**	**Service Factor***	**F.L. Amps***	**Sound Power (dB)**	**Weight (lb)**	**Drawing Links**
C-face With Removable Base - 3600 RPM										
MTRJ-P33-3BD36J	1/3 (1/4)	3600 (3000)	230/460 VAC (190/380)	TEFC	56J	1.15 (1.15)	1.3 / 0.65 (1.2/0.6)	80 dB(A)	18	PDF
MTRJ-P50-3BD36J	1/2 (1/3)						1.7 / 0.85 (1.5/0.75)		19	PDF
MTRJ-P75-3BD36J	3/4 (1/2)						2.4 / 1.2 (1.96/0.98)		21.6	PDF
MTRJP-001-3BD36J	1 (3/4)		208–230/460 VAC (190/380)				3.00/1.50 (2.76/1.38)		22.9	PDF
MTRJP-1P5-3BD36J	1 1/2 (1)						3.96/1.98 (3.42/1.71)	85 dB(A)	30.5	PDF
MTRJP-002-3BD36J	2 (1)						5.22/2.61 (4.78/2.39)		33.4	PDF
MTRJP-003-3BD36J	3 (2)						7.38/3.69 (6.32/3.16)	88 dB(A)	38.8	PDF
*@ 60Hz (@ 50Hz)										

Performance Data - 3-phase														
					Current			Torque						
Part Number	**HP***	**F.L. RPM***	**NEMA Design**	**F.L. Effic. %**	**Full Load Amps**	**Locked Rotor Amps**	**No Load Current**	**Full Load (lb-ft)**	**Locked Rotor**	**Breakdown**	**Pull Up**	**F.L. Power Factor**	**Moment of Inertia (lb-ft2)**
									% of F.L. Torque				
C-face With Removable Base - 3600 RPM													
MTRJP-1P5-3BD36J	1 1/2 (1)	3500 (2915)	B	84.0	3.96/1.98	25.1	1.08	2.21	495%	600%	485%	82	0.0473
MTRJP-003-3BD36J	3 (2)			86.5	7.38/3.69	44.55	1.77	4.5	430%	450%	300%	85	0.0691
MTRJP-002-3BD36J	2 (1)			85.5	5.22/2.61	27.38	1.12	3.02	385%	415%	315%		0.0561
MTRJP-001-3BD36J	1 (3/4)			77.0	3.00/1.50	11.37	0.78	1.51	255%	325%	220%	83	0.0342
MTRJ-P75-3BD36J	3/4 (1/2)	3450 (2850)		74.0	2.4 / 1.2	8.27	0.69	1.12	230%	380%	275%	81	0.031
MTRJ-P50-3BD36J	1/2 (1/3)			66.0	1.7 / 0.85	3.85	0.43	0.76	150%	255%	155%	86	0.0245
MTRJ-P33-3BD36J	1/3 (1/4)			62.0	1.3 / 0.65	3.63	0.44	0.51	180%	355%	215%	79	
*@ 60Hz (@ 50Hz)													

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors – Features and Specifications

Premium Efficiency Cast-Iron T-Frame

Premium Efficiency Cast-Iron TC-Frame

IronHorse cast-iron industrial-duty Premium Efficiency motors are available in T-frame housings at speeds of 1200, 1800, and 3600 rpm, and in TC-frame housings at 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.

NOTE: For MTCP2 motors shipped with a shaft lock in place, remove the shaft lock after the motor is installed and before coupling and turning the shaft.

Specifications – Cast-Iron T-frame and TC-frame Motor – 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 (3) (@ 50Hz)**	**F.L. Amps @ 208-230V/ 460V**	**Product Weight (lb)**
MTCP2-001-3BD18	1	143T	208-230/460 – 3-phase (200/400 – 3-phase)	TEFC cast iron	1045 carbon steel	F1 (F2)	2	1.25 (1.0)	3.61-3.27 / 1.63	41
MTCP2-001-3BD18C		143TC								
MTCP2-1P5-3BD18	1-1/2	145T					4		4.92-4.45 / 2.22	56
MTCP2-1P5-3BD18C		145TC								
MTCP2-002-3BD18	2	145T							6.56-5.93 / 2.97	58.5
MTCP2-002-3BD18C		145TC								
MTCP2-003-3BD18	3	182T					2		9.01-8.16 / 4.08	86
MTCP2-003-3BD18C		182TC								
MTCP2-005-3BD18	5	184T				F1	4		13.9-12.6 / 6.3	104
MTCP2-005-3BD18C		184TC								
MTCP2-7P5-3BD18	7-1/2	213T				F1 (F2)	2		20.4-18.5 / 9.23	172
MTCP2-7P5-3BD18C		213TC								

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.

3) The service factor changes from 1.25 to 1.0 under the following conditions:
- *When running the motor at 208VAC @ 60Hz*
- *When running the motor at 200/400VAC @ 50Hz*
- *When used with a VFD*

***** Table Continued Next Page (for 10–300 hp motors) *****

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features and Specifications (continued)

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

***** 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 (4) (@50Hz)	F.L. Amps @ 208-230V/460V	Product Weight (lb)
MTCP2-010-3BD18	10	215T	208-230/460 – 3-phase (200/400 – 3-phase)	TEFC cast iron	1045 carbon steel	F1 (F2)	4	1.25 (1.0)	26.9-24.3 / 12.2	193
MTCP2-010-3BD18C		215TC								
MTCP2-015-3BD18	15	254T					2		40.0-36.2 / 18.1	265
MTCP2-015-3BD18C		254TC								
MTCP2-020-3BD18	20	256T					4		52.4-47.4 / 23.7	304
MTCP2-020-3BD18C		256TC								
MTCP2-025-3BD18	25	284T					2		65.1-58.8 / 29.4	385
MTCP2-025-3BD18C		284TC								
MTCP2-030-3BD18	30	286T					4		78.1-70.6 / 35.3	430
MTCP2-030-3BD18C		286TC								
MTCP2-040-3BD18	40	324T					2		104-93.7 / 46.8	531
MTCP2-050-3BD18(2)	50	326T					4		127-115 / 57.6	578
MTCP2-060-3BD18(2)	60	364T				F1	2		158-142 / 71.2	769
MTCP2-075-3BD18(2)	75	365T					4		196-177 / 88.7	858
MTCP2-100-3BD18(2)	100	405T					4		252-228 / 114	1131
MTCP2-125-3BD18(2)	125	444T				F1 (F2)	2		323-292 / 146	1429
MTCP2-150-3BD18(2)	150	445T					4		386-349 / 175	1625
MTCP2-200-3BD18(2)	200	445/7T					4		506-458 / 229	2033
MTCP2-250-3D18(2)	250	449T	460V		4140 carbon steel	F1	2	1.15	280 (3)	2508
MTCP2-300-3D18(2)	300	449T					2		336 (3)	2728

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.*
3) *F.L. Amps @460V only.*
4) *The service factor changes from 1.25 to 1.0 under the following conditions:*
   - *When running the motor at 208VAC @ 60Hz*
   - *When running the motor at 200/400VAC @ 50Hz*
   - *When used with a VFD*

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features and Specifications (continued)

Specifications – Cast-Iron T-frame and TC-frame Motor – 60Hz / 1200 & 3600 rpm (50Hz / 1500 rpm)

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 (2) (@50Hz)**	**F.L. Amps @ 208-230V/460V**	**Product Weight (lb)**
1200 rpm Base Speed @ 60Hz (1000 rpm Base Speed @ 50Hz)										
MTCP2-001-3BD12	1	145T	208-230/460 – 3-phase (200/400 – 3-phase)	TEFC cast iron	1045 carbon steel	F1 (F2)	4	1.25 (1.0)	3.86-3.49 / 1.75	53
MTCP2-1P5-3BD12	1-1/2	182T					2		5.22-4.72 / 2.36	91.5
MTCP2-002-3BD12	2	184T					4		6.59-5.96 / 2.98	100
MTCP2-003-3BD12	3	213T					2		9.92-8.97 / 4.48	166
MTCP2-005-3BD12	5	215T					4		16.1-14.5 / 7.27	179
MTCP2-7P5-3BD12	7-1/2	254T					2		20.8-18.8 / 9.41	247
MTCP2-010-3BD12	10	256T					4		27.8-25.1 / 12.5	258
MTCP2-015-3BD12	15	284T					2		42.9-38.8 / 19.4	366
MTCP2-020-3BD12	20	286T					4		56.5-51.1 / 25.5	419
3600 rpm Base Speed (3000 rpm Base Speed @ 50Hz)										
MTCP2-1P5-3BD36	1-1/2	143T	208-230/460 – 3-phase (200/400 – 3-phase)	TEFC cast iron	1045 carbon steel	F1 (F2)	2	1.25 (1.0)	4.62-4.18 / 2.09	45.2
MTCP2-002-3BD36	2	145T					4		6.05-5.48 / 2.74	50.7
MTCP2-003-3BD36	3	182T				F1	2		6.45-7.64 / 3.82	80.5
MTCP2-005-3BD36	5	184T					4		13.3-12.0 / 6.01	96
MTCP2-7P5-3BD36	7-1/2	213T				F1 (F2)	2		20.9-18.9 / 9.45	160
MTCP2-010-3BD36	10	215T					4		27.0-24.4 / 12.2	180
MTCP2-015-3BD36	15	254T					2		38.8-35.1 / 17.5	261
MTCP2-020-3BD36	20	256T					4		51.1-46.2 / 23.1	297

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

2) The service factor changes from 1.25 to 1.0 under the following conditions:
- *When running the motor at 208VAC @ 60Hz*
- *When running the motor at 200/400VAC @ 50Hz*
- *When used with a VFD*

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features and Specifications (continued)

Performance Data – Cast-Iron T-frame and TC-frame Motor – 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 ($lb{\cdot}ft^2$)**
				CT (10:1)	**VT (20:1)**	**CHP**	**Safe**			
MTCP2-001-3BD18(C)	1		1755	175.5	87.75		3600	85.5	0.67	0.089
MTCP2-1P5-3BD18(C)	1-1/2		1755	175.5	87.75		3600	86.5	0.73	0.105
MTCP2-002-3BD18(C)	2		1755	175.5	87.75		3600	86.5	0.73	0.116
MTCP2-003-3BD18(C)	3		1755	175.5	87.75		3600	89.5	0.77	0.23
MTCP2-005-3BD18(C)	5		1755	175.5	87.75		3600	89.5	0.83	0.326
MTCP2-7P5-3BD18(C)	7-1/2		1760	176	88		3600	91.7	0.83	0.689
MTCP2-010-3BD18(C)	10		1760	176	88		3600	91.7	0.84	0.814
MTCP2-015-3BD18(C)	15		1765	176.5	88.25		3600	92.4	0.84	1.89
MTCP2-020-3BD18(C)	20		1765	176.5	88.25		3600	93	0.85	2.33
MTCP2-025-3BD18(C)	25		1770	177	88.5		2700	93.6	0.85	3.36
MTCP2-030-3BD18(C)	30	B	1770	177	88.5	2700	2700	93.6	0.85	3.83
MTCP2-040-3BD18	40		1775	177.5	88.75		2700	94.1	0.85	6.11
MTCP2-050-3BD18	50		1775	177.5	88.75		2700	94.5	0.86	6.89
MTCP2-060-3BD18	60		1780	178	89		2700	95	0.83	14.7
MTCP2-075-3BD18	75		1780	178	89		2700	95.4	0.83	17.5
MTCP2-100-3BD18	100		1785	178.5	89.25		2700	95.4	0.86	31.2
MTCP2-125-3BD18	125		1790	179	89.5		2700	95.4	0.84	40.1
MTCP2-150-3BD18	150		1790	179	89.5		2700	95.8	0.84	48.5
MTCP2-200-3BD18	200		1790	179	89.5		2250	96.2	0.85	64.3
MTCP2-250-3D18	250		1790	179	89.5		2250	96.2	0.87	78.8
MTCP2-300-3D18	300		1790	179	89.5		2250	96.2	0.87	94.1
*** TABLE CONTINUED NEXT PAGE ***										

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features and Specifications (continued)

Performance Data – Cast-Iron T-frame and TC-frame Motor – 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
MTCP2-001-3BD18(C)	1	2.2/1.1	3.27/1.63	30/15	2.99	8.37	11.96
MTCP2-1P5-3BD18(C)	1-1/2	2.9/1.45	4.45/2.22	40/20	4.49	12.57	17.51
MTCP2-002-3BD18(C)	2	3.9/1.95	5.93/2.97	50/25	5.98	16.15	20.93
MTCP2-003-3BD18(C)	3	4.6/2.3	8.16/4.08	64/32	9	19.80	28.80
MTCP2-005-3BD18(C)	5	5.4/2.7	12.6/6.3	92/46	15	30.00	42.00
MTCP2-7P5-3BD18(C)	7-1/2	8.0/4.0	18.5/9.23	127/63.5	22.3	41.26	60.21
MTCP2-010-3BD18(C)	10	9.8/4.9	24.3/12.2	162/81	29.7	51.98	77.22
MTCP2-015-3BD18(C)	15	15/7.5	36.2/18.1	232/116	44.6	84.74	120.42
MTCP2-020-3BD18(C)	20	18/9	47.4/23.7	290/145	59.5	107.10	148.75
MTCP2-025-3BD18(C)	25	21.2/10.6	58.8/29.4	365/182.5	74.2	111.30	178.08
MTCP2-030-3BD18(C)	30	24/12	70.6/35.3	435/217.5	89	133.50	213.60
MTCP2-040-3BD18	40	34/17	93.7/46.8	580/290	118	188.80	306.80
MTCP2-050-3BD18	50	41/20.5	115/57.6	725/362.5	148	236.80	384.80
MTCP2-060-3BD18	60	56/28	142/71.2	870/435	177	362.85	442.50
MTCP2-075-3BD18	75	74/37	177/88.7	1085/542.5	221	397.80	508.30
MTCP2-100-3BD18	100	70/35	228/114	1450/725	294	470.40	735.00
MTCP2-125-3BD18	125	104/52	292/146	1815/907	367	587.20	880.80
MTCP2-150-3BD18	150	113/56.5	349/175	2170/1085	440	704.00	1056.00
MTCP2-200-3BD18	200	144/72	458/229	2900/1450	587	997.90	1467.50
MTCP2-250-3D18 1)	250	91.9 (1)	280 (1)	1825 (1)	773	1546.00	2009.80
MTCP2-300-3D18 1)	300	103 (1)	336 (1)	2200 (1)	880	1760.00	2200.00

1) Current @460V (Amps) only.

*** TABLE CONTINUED NEXT PAGE ***

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features and Specifications (continued)

Performance Data – Cast-Iron T-frame and TC-frame Motor – 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) (seconds)*	*Temperature Rise @ Full Load*
MTCP2-001-3BD18(C)	1	2.5	12	
MTCP2-1P5-3BD18(C)	1-1/2	2.5	10	
MTCP2-002-3BD18(C)	2	2.5	12	
MTCP2-003-3BD18(C)	3	2.5	12	
MTCP2-005-3BD18(C)	5	2.5	10	
MTCP2-7P5-3BD18(C)	7-1/2	1.94	14	
MTCP2-010-3BD18(C)	10	1.94	12	
MTCP2-015-3BD18(C)	15	1.94	13	
MTCP2-020-3BD18(C)	20	1.94	12	
MTCP2-025-3BD18(C)	25	1.67	16	
MTCP2-030-3BD18(C)	30	1.67	14	80°C [176°F]
MTCP2-040-3BD18	40	1.40	12	
MTCP2-050-3BD18	50	1.40	7	
MTCP2-060-3BD18	60	1.10	16	
MTCP2-075-3BD18	75	1.10	12	
MTCP2-100-3BD18	100	0.83	10	
MTCP2-125-3BD18	125	0.55	11	
MTCP2-150-3BD18	150	0.55	12	
MTCP2-200-3BD18	200	0.55	10	
MTCP2-250-3D18	250	0.56	12	
MTCP2-300-3D18	300	0.56	14	

MTCP2 Premium-Efficiency Three-Phase Motors Features & Specs (continued)

Performance Data – Cast-Iron T-frame Motor – 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 (10:1)	**Variable Torque (20:1)**	**CHP**	**Safe**	
MTCP2-001-3BD12	1	B	1160	116	58	1800	2400	
MTCP2-1P5-3BD12	1-1/2		1180	118	59			
MTCP2-002-3BD12	2		1175	118	59			
MTCP2-003-3BD12	3		1175	117.5	58.75			
MTCP2-005-3BD12	5		1175	117.5	58.75			
MTCP2-7P5-3BD12	7-1/2		1175	117.5	58.75			
MTCP2-010-3BD12	10		1175	117.5	58.75			
MTCP2-015-3BD12	15		1185	118.5	59.25			
MTCP2-020-3BD12	20		1185	118.5	59.25			
Part Number	**HP**	**Current @ 230V/460V (Amps)**			**Torque (lb·ft)**			
		No Load	**Full Load**	**Locked Rotor**	**Full Load**	**Locked Rotor**	**Break-down**	
MTCP2-001-3BD12	1	2.3/1.5	3.49/1.75	30/15	4.53	8.15	12.00	
MTCP2-1P5-3BD12	1-1/2	3.1/1.55	4.72/2.36	40/20	6.67	16.68	24.01	
MTCP2-002-3BD12	2	3.7/1.85	5.96/2.98	50/25	8.9	20.47	29.37	
MTCP2-003-3BD12	3	5/2.5	8.97/4.48	64/32	13.3	20.62	31.92	
MTCP2-005-3BD12	5	7.1/3.55	14.5/7.27	92/46	22.2	35.52	53.28	
MTCP2-7P5-3BD12	7-1/2	8.4/4.2	18.8/9.41	127/63.5	33.5	60.30	93.80	
MTCP2-010-3BD12	10	11.6/5.8	25.1/12.5	162/81	44.7	80.46	125.16	
MTCP2-015-3BD12	15	17/8.5	38.8/19.4	232/116	66.5	96.43	152.95	
MTCP2-020-3BD12	20	49.2/24.6	51.1.2/25.5	290/145	88.6	124.04	194.92	
Part Number	**HP**	**Temperature Rise @ Full Load**	**Max Time Locked Rotor (Hot) (seconds)**	**F.L. Efficiency (%)**	**F.L. Power Factor**	**Rotor Inertia ($lb{\cdot}ft^2$)**	**Slip (%)**	
MTCP2-001-3BD12	1	80°C [176°F]	18	82.5	0.65	0.118	3.3	
MTCP2-1P5-3BD12	1-1/2		8	86.8	0.68	0.401	1.67	
MTCP2-002-3BD12	2		8	88.5	0.71	0.462	1.67	
MTCP2-003-3BD12	3		26	89.5	0.7	0.646	1.67	
MTCP2-005-3BD12	5		22	89.5	0.72	0.946	1.67	
MTCP2-7P5-3BD12	7-1/2		22	91	0.82	2.03	2.08	
MTCP2-010-3BD12	10		12	91	0.82	2.27	2.10	
MTCP2-015-3BD12	15		10	91.7	0.79	4.09	1.25	
MTCP2-020-3BD12	20		8	91.7	0.80	5	1.25	

MTCP2 Premium-Efficiency Three-Phase Motors Features & Specs (continued)

Performance Data – Cast-Iron T-frame Motor – 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 (10:1)	Variable Torque (20:1)	CHP	Safe	
MTCP2-1P5-3BD36	1-1/2	B	3490	348.5	174.25	5400	7200	
MTCP2-002-3BD36	2		3495	349	174.5			
MTCP2-003-3BD36	3		3490	350.5	175.25			
MTCP2-005-3BD36	5		3490	350.5	175.25			
MTCP2-7P5-3BD36	7-1/2		3505	350.5	175.25		5400	
MTCP2-010-3BD36	10		3500	350	175			
MTCP2-015-3BD36	15		3540	354.5	177.25			
MTCP2-020-3BD36	20		3540	354	177			
Part Number	HP	Current @ 230V/460V (Amps)			Torque (lb·ft)			
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down	
MTCP2-1P5-3BD36	1-1/2	2.1/1.05	4.18/2.09	40/20	2.26	4.97	7.01	
MTCP2-002-3BD36	2	2.5/1.25	5.48/2.74	50/25	3.01	6.92	9.63	
MTCP2-003-3BD36	3	3.52/1.7	7.64/3.82	64/32	4.49	9.43	15.72	
MTCP2-005-3BD36	5	3.1/1.55	12.0/6.01	92/46	7.49	16.48	26.22	
MTCP2-7P5-3BD36	7-1/2	6.4/3.2	18.9/9.45	127/63.5	11.2	17.92	33.60	
MTCP2-010-3BD36	10	7.3/3.7	24.4/12.2	162/81	14.9	22.35	41.72	
MTCP2-015-3BD36	15	9.8/4.9	35.1/17.5	232/116	22.2	37.74	55.50	
MTCP2-020-3BD36	20	46.2/23.1	46.2/23.1	290/145	29.7	47.52	68.31	
Part Number	HP	Temperature Rise @ Full Load	Max Time Locked Rotor (Hot) (seconds)	F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia ($lb{\cdot}ft^2$)	Slip (%)	
MTCP2-1P5-3BD36	1-1/2	80°C [176°F]	8	84	0.80	0.043	3.2	
MTCP2-002-3BD36	2		6	85.5	0.80	0.05	3.05	
MTCP2-003-3BD36	3		8	86.5	0.85	0.133	2.64	
MTCP2-005-3BD36	5		7	88.5	0.88	0.178	2.64	
MTCP2-7P5-3BD36	7-1/2		26	89.5	0.83	11.2	2.36	
MTCP2-010-3BD36	10		20	90.2	0.85	0.369	2.22	
MTCP2-015-3BD36	15		15	91	0.88	1.06	1.53	
MTCP2-020-3BD36	20		12	91	0.89	1.26	1.66	

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features and Specifications (continued)

Performance Data – Cast-Iron T-frame and TC-frame Motor – 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 ($lb{\cdot}ft^2$)**
				CT (10:1)	**VT (20:1)**	**CHP**	**Safe**			
MTCP2-001-3BD18(C)	1	B	1450	146	73	2700	3600	79.6	0.67	0.089
MTCP2-1P5-3BD18(C)	1-1/2		1450				3600	81.4	0.73	0.105
MTCP2-002-3BD18(C)	2		1450				3600	82.8	0.73	0.116
MTCP2-003-3BD18(C)	3		1450				3600	84.3	0.77	0.23
MTCP2-005-3BD18(C)	5		1450				3600	86.6	0.83	0.326
MTCP2-7P5-3BD18(C)	7-1/2		1455	146.5	73.25		3600	87.7	0.83	0.689
MTCP2-010-3BD18(C)	10		1455				3600	88.7	0.84	0.814
MTCP2-015-3BD18(C)	15		1460	147	73.5		3600	89.8	0.84	1.89
MTCP2-020-3BD18(C)	20		1460				3600	90.6	0.85	2.33
MTCP2-025-3BD18(C)	25		1465	147.5	73.75		2700	91.2	0.85	3.36
MTCP2-030-3BD18(C)	30		1465				2700	91.6	0.85	3.83
MTCP2-040-3BD18	40		1475	148	74		2700	92.3	0.85	6.11
MTCP2-050-3BD18	50		1475				2700	92.7	0.86	6.89
MTCP2-060-3BD18	60		1480				2700	93.1	0.83	14.7
MTCP2-075-3BD18	75		1480				2700	93.5	0.83	17.5
MTCP2-100-3BD18	100		1485	148.5	74.25		2700	94.0	0.86	31.2
MTCP2-125-3BD18	125		1490	149	74.5		2700	94.2	0.84	40.1
MTCP2-150-3BD18	150		1490				2700	94.5	0.84	48.5
MTCP2-200-3BD18	200		1490				2250	94.9	0.85	64.3
MTCP2-250-3D18	250		n/a							
MTCP2-300-3D18	300		n/a							
*** TABLE CONTINUED NEXT PAGE ***										

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features and Specifications (continued)

Performance Data – Cast-Iron T-frame and TC-frame Motor – 50Hz / 1500rpm (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	Current @ 200V/400V (Amps)			Torque (lb·ft)		
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down
MTCP2-001-3BD18(C)	1	2.54/1.27	4.04/2.02	26.3/13.1	2.99	9.41	12.7
MTCP2-1P5-3BD18(C)	1-1/2	3.10/1.55	5.44/2.72	31.6/15.8	4.49	13.0	17.4
MTCP2-002-3BD18(C)	2	4.24/2.12	7.13/3.56	43.9/21.9	5.98	16.7	22.4
MTCP2-003-3BD18(C)	3	5.56/2.78	9.95/4.98	61.6/30.8	9	20.6	30.4
MTCP2-005-3BD18(C)	5	5.86/2.93	15.0/7.49	89.6/44.8	15	31.7	48.0
MTCP2-7P5-3BD18(C)	7-1/2	8.40/4.2	22.2/11.1	127/63.4	22.3	40.6	64.9
MTCP2-010-3BD18(C)	10	10.6/5.3	28.9/14.5	172/85.9	29.7	54.1	93.8
MTCP2-015-3BD18(C)	15	17.0/8.5	42.8/21.4	225/112	44.6	80.9	119
MTCP2-020-3BD18(C)	20	19.0/9.5	55.9/28.0	289/144	59.5	108	158
MTCP2-025-3BD18(C)	25	24.0/12	69.5/34.7	370/185	74.2	130	197
MTCP2-030-3BD18(C)	30	30.0/15	83.0/41.5	467/233	89	156	237
MTCP2-040-3BD18	40	39.0/19.5	110/54.9	612/306	118	221	313
MTCP2-050-3BD18	50	46.0/23	135/67.5	757/378	148	276	409
MTCP2-060-3BD18	60	55.0/27.5	167/83.6	1044/522	177	362	490
MTCP2-075-3BD18	75	68.0/34	208/104	1082/541	221	452	612
MTCP2-100-3BD18	100	76.0/38	266/133	1534/767	294	530	778
MTCP2-125-3BD18	125	110/55	340/170	1699/850	367	573	881
MTCP2-150-3BD18	150	126/63	407/203	2107/1054	440	687	1110
MTCP2-200-3BD18	200	160/80	534/267	2834/1417	587	916	1480
MTCP2-250-3D18	250	n/a					
MTCP2-300-3D18	300	n/a					

*** TABLE CONTINUED NEXT PAGE ***

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features and Specifications (continued)

Performance Data – Cast-Iron T-frame and TC-frame Motor – 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
MTCP2-001-3BD18(C)	1	2.5	12	
MTCP2-1P5-3BD18(C)	1-1/2	2.5	10	
MTCP2-002-3BD18(C)	2	2.5	12	
MTCP2-003-3BD18(C)	3	2.5	12	
MTCP2-005-3BD18(C)	5	2.5	10	
MTCP2-7P5-3BD18(C)	7-1/2	1.94	14	
MTCP2-010-3BD18(C)	10	1.94	12	
MTCP2-015-3BD18(C)	15	1.94	13	
MTCP2-020-3BD18(C)	20	1.94	12	
MTCP2-025-3BD18(C)	25	1.67	16	80°C [176°F]
MTCP2-030-3BD18(C)	30	1.67	14	
MTCP2-040-3BD18	40	1.40	12	
MTCP2-050-3BD18	50	1.40	7	
MTCP2-060-3BD18	60	1.10	16	
MTCP2-075-3BD18	75	1.10	12	
MTCP2-100-3BD18	100	0.83	10	
MTCP2-125-3BD18	125	0.55	11	
MTCP2-150-3BD18	150	0.55	12	
MTCP2-200-3BD18	200	0.55	10	
MTCP2-250-3D18	250	n/a		
MTCP2-300-3D18	300	n/a		

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features & Specs (continued)

Performance Data – Cast-Iron T-frame Motor – 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 (10:1)	Variable Torque (20:1)	CHP	Safe	
MTCP2-001-3BD12	1	B	955	96.5	48.25	1800	2400	
MTCP2-1P5-3BD12	1-1/2		970	98	49			
MTCP2-002-3BD12	2		970					
MTCP2-003-3BD12	3		970					
MTCP2-005-3BD12	5		970					
MTCP2-7P5-3BD12	7-1/2		970	97.5	48.25			
MTCP2-010-3BD12	10		970					
MTCP2-015-3BD12	15		980	98.5	49.25			
MTCP2-020-3BD12	20		980					
Part Number	HP	Current @ 200V/400V (Amps)			Torque (lb·ft)			
		No Load	Full Load	Locked Rotor	Full Load	Locked Rotor	Break-down	
MTCP2-001-3BD12	1	2.76/1.38	4.37/2.18	18/9.13	4.53	9.90	13.2	
MTCP2-1P5-3BD12	1-1/2	3.34/1.67	6.08/3.04	32/16.2	6.67	14.6	22.7	
MTCP2-002-3BD12	2	3.80/1.9	7.60/3.80	39/19.5	8.9	18.4	28.1	
MTCP2-003-3BD12	3	5.50/2.75	11.3/5.64	54/27.1	13.3	24.4	37.3	
MTCP2-005-3BD12	5	7.60/3.8	17.7/8.84	79/39.4	22.2	39.2	59.5	
MTCP2-7P5-3BD12	7-1/2	9.00/4.5	22.9/11.5	106/53.2	33.5	58.9	97.4	
MTCP2-010-3BD12	10	12.8/6.4	30.11/15.1	158/79.1	44.7	81.2	130	
MTCP2-015-3BD12	15	20.0/10	46.1/23.7	231/116	66.5	113	169	
MTCP2-020-3BD12	20	25.0/12.5	60.0/30.0	292/146	88.6	139	204	
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 (%)	
MTCP2-001-3BD12	1	80°C [176°F]	18	75.9	0.65	0.118	3.3	
MTCP2-1P5-3BD12	1-1/2		8	78.1	0.68	0.401	1.67	
MTCP2-002-3BD12	2		8	79.8	0.71	0.462	1.67	
MTCP2-003-3BD12	3		26	81.8	0.70	0.646	1.67	
MTCP2-005-3BD12	5		22	84.6	0.72	0.946	1.67	
MTCP2-7P5-3BD12	7-1/2		22	86.0	0.82	2.03	2.08	
MTCP2-010-3BD12	10		12	87.2	0.82	2.27	2.10	
MTCP2-015-3BD12	15		10	88.7	0.79	4.09	1.25	
MTCP2-020-3BD12	20		8	89.7	0.80	5	1.25	

MTCP2 Premium-Efficiency Cast-Iron Three-Phase Motors Features & Specs (continued)

Performance Data – Cast-Iron T-frame Motor – 50Hz / 3000 rpm

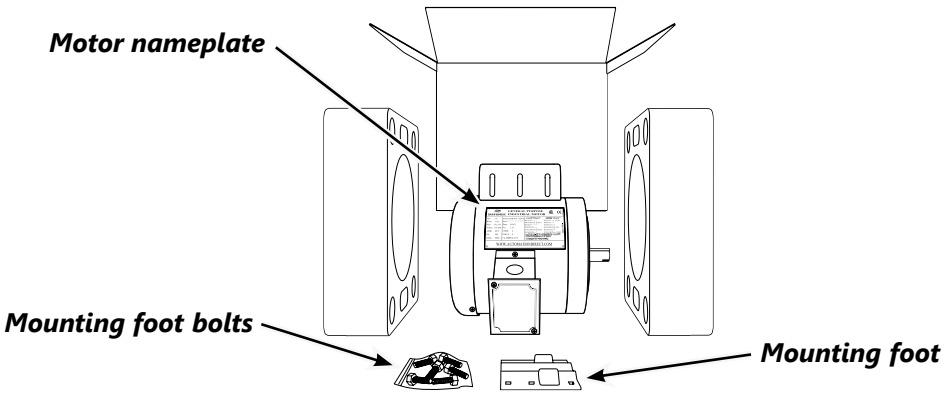
Performance Data @ 50Hz – Premium Efficiency T-Frame 3-Phase Motors – 3000 rpm – (400 Volt except as indicated)								
Part Number	**HP**	**NEMA Design**	**F.L. RPM**	**Minimum Speed (rpm)**		**Maximum Speed (rpm)**		
				Constant Torque (10:1)	**Variable Torque (20:1)**	**CHP**	**Safe**	
MTCP2-1P5-3BD36	1-1/2	B	2875	290	145	5400	7200	
MTCP2-002-3BD36	2		2880	290.5	145.25			
MTCP2-003-3BD36	3		2885	292	146			
MTCP2-005-3BD36	5		2885					
MTCP2-7P5-3BD36	7-1/2		2900				5400	
MTCP2-010-3BD36	10		2900	291.5	145.75			
MTCP2-015-3BD36	15		2935	295.5	147.75			
MTCP2-020-3BD36	20		2935	295	147.5			
Part Number	**HP**	**Current @ 200V/400V (Amps)**			**Torque (lb·ft)**			
		No Load	**Full Load**	**Locked Rotor**	**Full Load**	**Locked Rotor**	**Break-down**	
MTCP2-1P5-3BD36	1-1/2	3.46/1.73	5.07/2.54	44.1/22.1	2.26	7.29	10.21	
MTCP2-002-3BD36	2	3.46/1.73	6.62/3.31	44.1/22.1	3.01	7.29	10.21	
MTCP2-003-3BD36	3	3.90/1.95	9.14/4.57	50.5/25.3	4.49	9.28	14.7	
MTCP2-005-3BD36	5	4.70/2.35	14.3/7.13	87.7/43.9	7.49	16.4	24.6	
MTCP2-7P5-3BD36	7-1/2	7.40/3.7	22.4/11.2	127/63.5	11.2	19.7	33.9	
MTCP2-010-3BD36	10	9.20/4.6	28.8/14.4	151/75.5	14.9	26.3	45.3	
MTCP2-015-3BD36	15	10.2/5.1	41.1/20.5	201/101	22.2	34.9	53.7	
MTCP2-020-3BD36	20	12.0/6	53.6/26.8	280/140	29.7	46.5	71.6	
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 (%)**	
MTCP2-1P5-3BD36	1-1/2	80°C [176°F]	8	81.3	0.80	0.043	3.2	
MTCP2-002-3BD36	2		6	81.3	0.80	0.05	3.05	
MTCP2-003-3BD36	3		8	83.2	0.85	0.133	2.64	
MTCP2-005-3BD36	5		7	85.8	0.88	0.178	2.64	
MTCP2-7P5-3BD36	7-1/2		26	87.0	0.83	11.2	2.36	
MTCP2-010-3BD36	10		20	88.1	0.85	0.369	2.22	
MTCP2-015-3BD36	15		15	89.4	0.88	1.06	1.53	
MTCP2-020-3BD36	20		12	90.3	0.89	1.26	1.66	

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 - 14

Additional Frame Size
- Blank: Standard Frame
- 14: 143/145 Frame
- 18: 182/184 Frame

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	D:	460 VAC
B:	208-230 VAC	L:	90 VDC
C:	230 VAC	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	F(2):	Farm Duty
AP:	Motor Accessory for Premium-efficiency motor	R(2):	AC Motor w Rolled-steel frame
		RP:	AC Premium-efficiency motor with Rolled-steel frame
C:	AC EPAct motor with Cast-iron frame	PM:	DC Permanent Magnet
CP2:	AC Premium-efficiency motor with Cast-iron frame	RJ(P):	Jet Pump
		SS:	AC Motor w Stainless-steel frame
DP:	Open Drip Proof	SP:	AC Motor IP69K SS TEFC
		SN:	AC Motor IP69K SS TENV

IronHorse Motors Series Designation

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. For MTCP2 motors, use SKF, LGHP2 grease. For MTF2 and MTDP motors, use Multemp, SRL grease or equivalent.

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 40hp and smaller, valid warranty claims will be resolved by product replacement. Motors 50hp 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.

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 $_{C}CSA_{US}$ or $_{C}UR_{US}$ 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

Most 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).

IronHorse MTDP, open drip proof and MTF2, farm duty motors are cURus recognized and comply with the requirements of the National Electrical Code (NEC) and the Canadian Electrical Code (CEC).

Because IronHorse, MTDP and MTF2 motors are UL recognized, it is the responsibility of the user to insure that the installation complies with the conditions of acceptability as specified in the UR file.

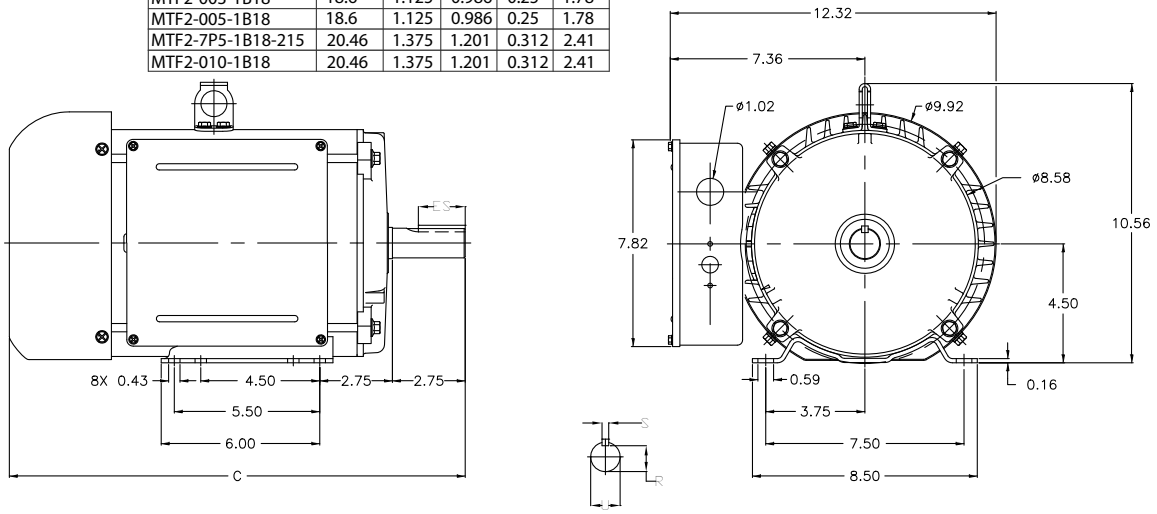
Installation intended to meet the $_{C}CSA_{US}$ requirements must follow the instructions provided in the "Wiring Notes" as a minimum standard. Follow all local codes that exceed $_{C}CSA_{US}$ requirements. Refer to the technical data on the motor nameplate for electrical and performance data.

Motor Dimensions

(Dimensions = inches)

MTF2 T-Frame Single-phase Farm-Duty Motor Dimensions

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

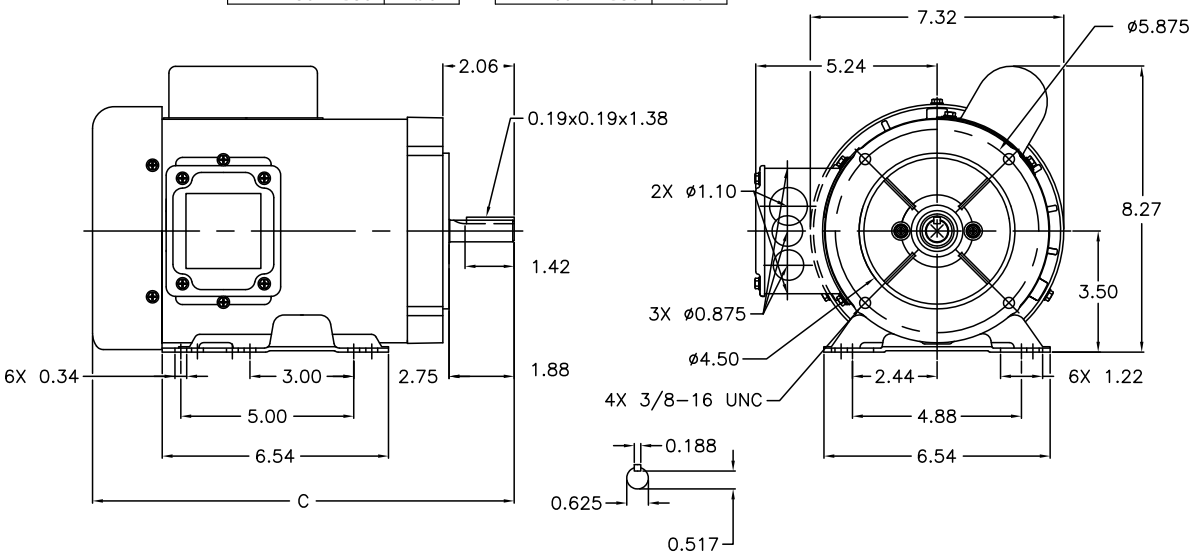


MTR2 56(H)C-Frame Single-phase Rolled-steel Motor Dimensions

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

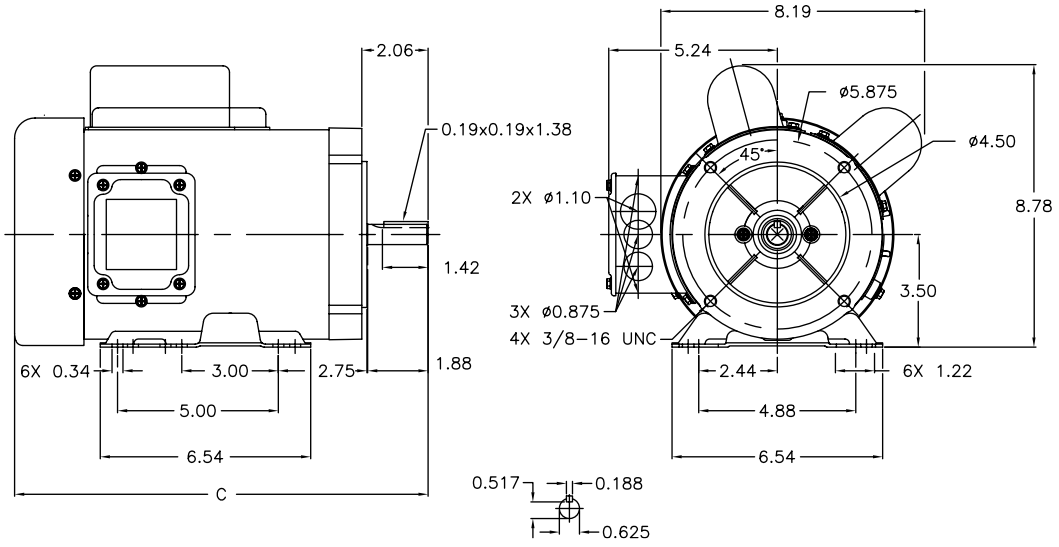


MTR2 56(H)C-Frame Single-phase Rolled-steel Motor Dimensions (continued)

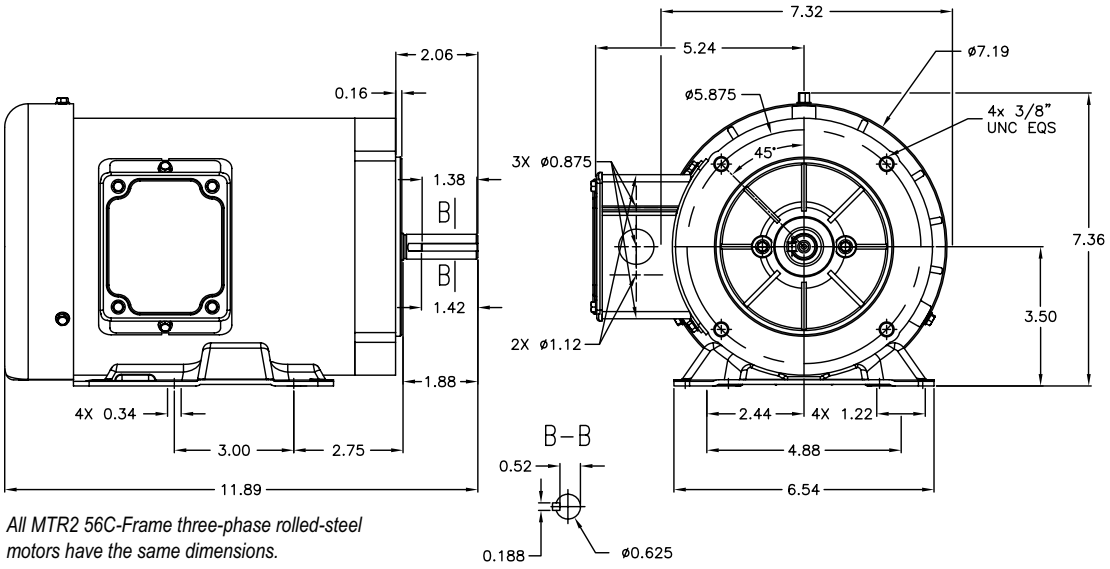
(Dimensions = inches)

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



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

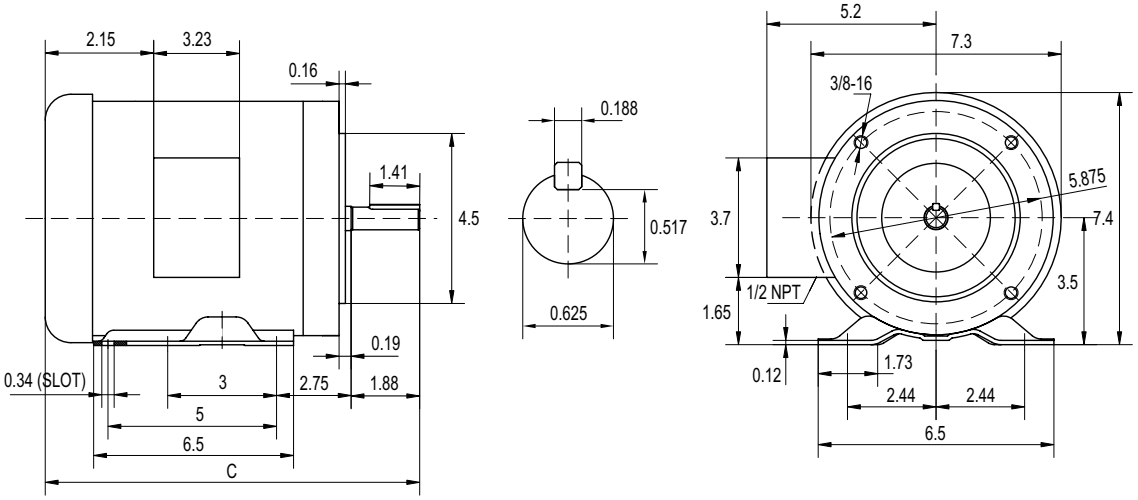


All MTR2 56C-Frame three-phase rolled-steel motors have the same dimensions.

Motor Dimensions (continued)

(Dimensions = inches)

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

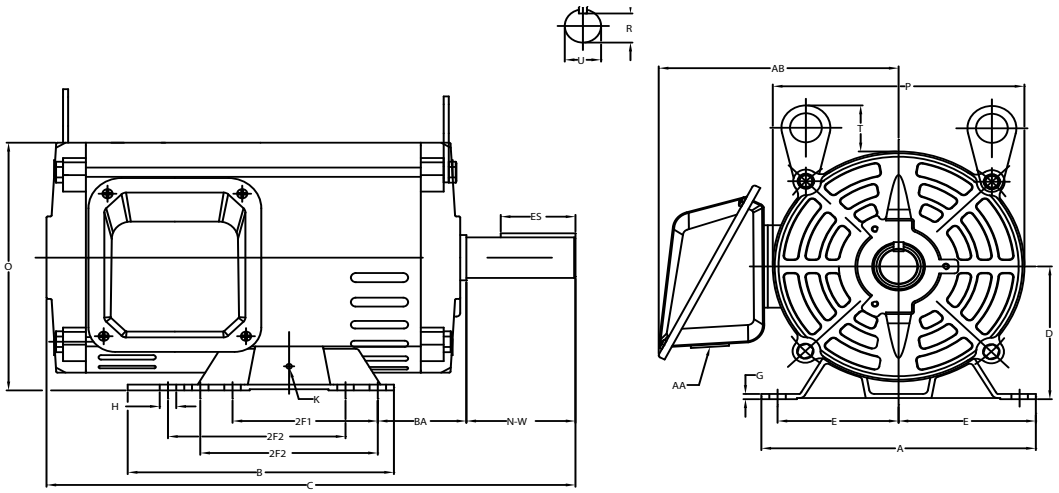


C = 12.4 in; 1.0hp MTRP-001-3BD18
C = 13.4 in; 1.5hp MTRP-1P5-3BD18
C = 13.9 in; 2hp MTRP-002-3BD18
C = 11.9 in; 1 to 2 hp MTRP-xxx-3BD36
C = 12.9 in; 3hp MTRP-003-3BD36

UNITS = INCHES

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

MTDP Open Drip-Proof Three-phase Rolled-steel Motor Dimensions



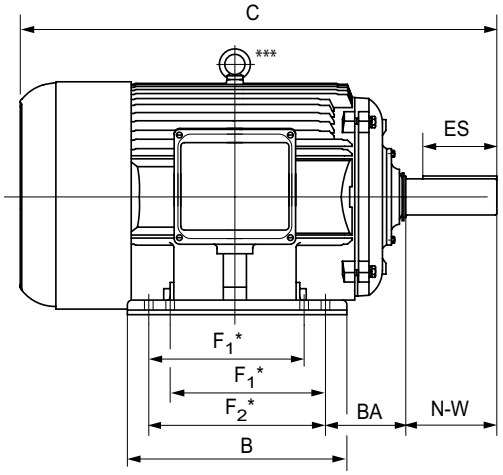
PART #	FRAME #	"E"	"2F1"	"2F2"	"H"	"BA"	"A"	"B"	"C"	"D"	"G"	"K"
MTDP-001-3BD18	143T	2.75	4.00	5.00	0.34	2.25	6.50	6.50	11.97	3.50	0.12	M5
MTDP-1P5-3BD18	145T	2.75	4.00	5.00	0.34	2.25	6.50	6.50	11.97	3.50	0.12	M5
MTDP-002-3BD18	145T	2.75	4.00	5.00	0.34	2.25	6.50	6.50	11.97	3.50	0.12	M5
MTDP-003-3BD36	145T	2.75	4.00	5.00	0.34	2.25	6.50	6.50	11.97	3.50	0.12	M5
MTDP-003-3BD18	182T	3.75	4.50	5.50	0.41	2.75	8.50	6.50	16.40	4.50	0.41	M5
MTDP-005-3BD36	182T	3.75	4.50	5.50	0.41	2.75	8.50	6.50	16.40	4.50	0.41	M5
MTDP-005-3BD18	184T	3.75	4.50	5.50	0.41	2.75	8.50	6.50	16.40	4.50	0.41	M5
MTDP-7P5-3BD36	184T	3.75	4.50	5.50	0.41	2.75	8.50	6.50	16.40	4.50	0.41	M5
MTDP-7P5-3BD18	213T	4.25	5.50	7.00	0.43	3.50	9.69	8.18	17.80	5.25	0.18	M5
MTDP-010-3BD18	215T	4.25	5.50	7.00	0.43	3.50	9.69	8.18	17.80	5.25	0.18	M5
MTDP-015-3BD18	254T	5.00	8.25	10.00	0.53	4.25	12.05	11.57	22.30	6.25	0.24	M6
MTDP-020-3BD18	256T	5.00	8.25	10.00	0.53	4.25	12.05	11.57	22.30	6.25	0.24	M6
MTDP-025-3BD18	284T	5.50	9.50	11.00	0.53	4.75	12.80	12.80	25.00	7.00	0.24	M6
MTDP-030-3BD18	286T	5.50	9.50	11.00	0.53	4.75	12.80	12.80	25.00	7.00	0.24	M6
MTDP-040-3BD18	324T	6.25	10.50	12.00	0.66	5.25	15.08	14.00	27.80	8.00	0.28	M8
MTDP-050-3BD18	326T	6.25	10.50	12.00	0.66	5.25	15.08	14.00	27.80	8.00	0.28	M8

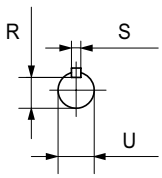
PART #	FRAME #	"R"	"ES"	"S"	"U"	"N-W"	"P"	"AB"	"AA"	"O"	"T"
MTDP-001-3BD18	143T	0.771	1.41	0.188	0.875	2.25	6.40	5.38	1.09	6.70	--
MTDP-1P5-3BD18	145T	0.771	1.41	0.188	0.875	2.25	6.40	5.38	1.09	6.70	--
MTDP-002-3BD18	145T	0.771	1.41	0.188	0.875	2.25	6.40	5.38	1.09	6.70	--
MTDP-003-3BD36	145T	0.771	1.41	0.188	0.875	2.25	6.40	5.38	1.09	6.70	--
MTDP-003-3BD18	182T	0.986	1.78	0.250	1.125	2.75	7.72	7.55	1.09	8.40	1.60
MTDP-005-3BD36	182T	0.986	1.78	0.250	1.125	2.75	7.72	7.55	1.09	8.40	1.60
MTDP-005-3BD18	184T	0.986	1.78	0.250	1.125	2.75	7.72	7.55	1.09	8.40	1.60
MTDP-7P5-3BD36	184T	0.986	1.78	0.250	1.125	2.75	7.72	7.55	1.09	8.40	1.60
MTDP-7P5-3BD18	213T	1.201	2.41	0.312	1.375	3.38	8.98	8.16	1.38	9.74	1.50
MTDP-010-3BD18	215T	1.201	2.41	0.312	1.375	3.38	8.98	8.16	1.38	9.74	1.50
MTDP-015-3BD18	254T	1.416	2.91	0.375	1.625	4.00	10.63	9.70	1.38	11.60	2.48
MTDP-020-3BD18	256T	1.416	2.91	0.375	1.625	4.00	10.63	9.70	1.38	11.60	2.36
MTDP-025-3BD18	284T	1.591	3.28	0.500	1.875	4.62	12.20	11.10	2.00	13.10	2.36
MTDP-030-3BD18	286T	1.591	3.28	0.500	1.875	4.62	12.20	11.10	2.00	13.10	2.36
MTDP-040-3BD18	324T	1.845	3.88	0.500	2.125	5.25	14.00	13.10	2.50	15.00	2.36
MTDP-050-3BD18	326T	1.845	3.88	0.500	2.125	5.25	14.00	13.10	2.50	15.00	2.36

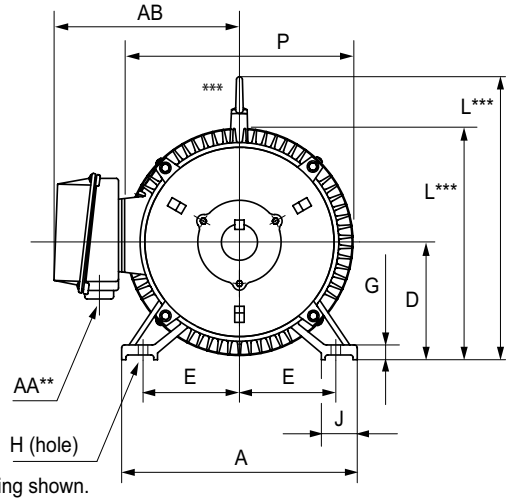
Motor Dimensions (continued)

(Dimensions = inches)

MTCP2 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***
MTCP2-001-3BD18	1	143T	7	3/4" NPT	6.7	5.6	2.25	12.47	3.5	2.75	1.41
MTCP2-1P5-3BD18	1-1/2	145T	7	3/4" NPT	6.7	6.6	2.25	13.47	3.5	2.75	1.41
MTCP2-002-3BD18	2		7	3/4" NPT	6.7	6.6	2.25	13.47	3.5	2.75	1.41
MTCP2-003-3BD18	3	182T	9	1" NPT	7.2	6	2.75	15	4.5	3.75	1.78
MTCP2-005-3BD18	5	184T	9	1" NPT	8.2	7	2.75	16	4.5	3.75	1.78
MTCP2-7P5-3BD18	7-1/2	213T	10.5	1" NPT	8.5	7.5	3.5	19.5	5.25	4.25	2.41
MTCP2-010-3BD18	10	215T	10.5	1" NPT	8.5	9	3.5	21	5.25	4.25	2.41
MTCP2-015-3BD18	15	254T	12.5	1.5" NPT	10.5	10.3	4.25	23.3	6.25	5	2.91
MTCP2-020-3BD18	20	256T	12.5	1.5" NPT	10.5	12	4.25	25.3	6.25	5	2.91
MTCP2-025-3BD18	25	284T	14	1.5" NPT	11.5	12.4	4.75	26.63	7	5.5	3.28
MTCP2-030-3BD18	30	286T	14	1.5" NPT	11.5	13.9	4.75	28.1	7	5.5	3.28
MTCP2-040-3BD18	40	324T	16	2" NPT	14.5	13.5	5.25	29.6	8	6.25	3.91
MTCP2-050-3BD18	50	326T	16	2" NPT	14.5	15	5.25	31.2	8	6.25	3.91
MTCP2-060-3BD18	60	364T	17	3" NPT	16.5	15	5.88	32.58	9	7	4.28
MTCP2-075-3BD18	75	365T	17	3" NPT	16.5	16	5.88	33.6	9	7	4.28
MTCP2-100-3BD18	100	405T	20	3" NPT	19	17	6.62	38.1	10	8	5.65
MTCP2-125-3BD18	125	444T	22	2x3" NPT	20	18.5	7.5	41.9	11	9	6.91
MTCP2-150-3BD18	150	445T	22	2x3" NPT	20	20.5	7.5	44	11	9	6.91
MTCP2-200-3BD18	200	445/7T	22	2x3" NPT	20	24	7.5	47.4	11	9	6.91
MTCP2-250-3D18	250	449T	22	2x3" NPT	19.5	31	7.5	58	11	9	6.91
MTCP2-300-3D18	300	449T	22	2x3" NPT	19.5	31	7.5	58	11	9	6.91

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

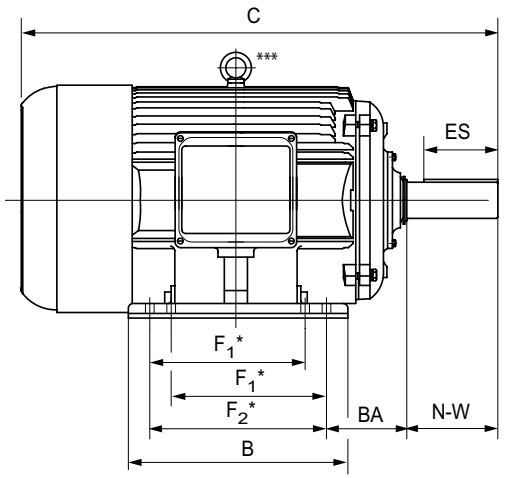
*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table.*
(F2 mounting = conduit entrance on right side facing shaft.)

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

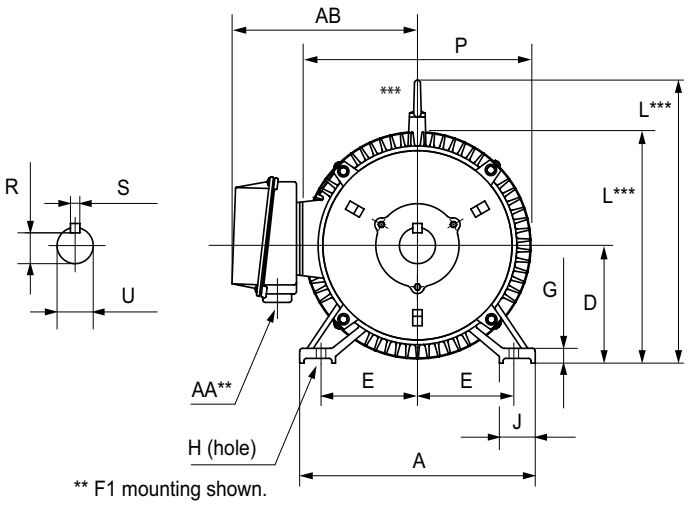
******* TABLE CONTINUED NEXT PAGE (for dimensions F1–U) *******

MTCP2 Premium-Efficiency T-Frame Three-Phase Motor Dimensions (continued)

(Dimensions = inches)



* 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***	***Frame***	***F1****	***F2****	***G***	***H***	***J***	***N-W***	***L***	***P***	***R***	***S***	***U***
MTCP2-001-3BD18	1	143T	n/a	4	0.47	0.34	1.45	2.25	7.6	7.8	0.771	0.188	0.8759
MTCP2-1P5-3BD18	1-1/2	145T	4	5	0.47	0.34	1.45	2.25	7.8	8	0.771	0.188	0.8759
MTCP2-002-3BD18	2		4	5	0.43	0.34	1	2.25	7.8	8	0.771	0.188	0.8759
MTCP2-003-3BD18	3	182T	n/a	4.5	0.6	0.41	2	2.75	9.5	9.7	0.986	0.25	1.125
MTCP2-005-3BD18	5	184T	4.5	5.5	0.6	0.41	2	2.75	9.5	9.7	0.986	0.25	1.125
MTCP2-7P5-3BD18	7-1/2	213T	n/a	5.5	0.71	0.41	2.4	3.38	10.6	10.6	1.201	0.312	1.375
MTCP2-010-3BD18	10	215T	5.5	7	0.71	0.41	2.4	3.38	10.6	10.4	1.201	0.312	1.375
MTCP2-015-3BD18	15	254T	n/a	8.25	0.79	0.53	2.40	4	12.9	12.6	1.416	0.375	1.625
MTCP2-020-3BD18	20	256T	8.25	10	0.79	0.53	2.40	4	12.9	12.6	1.416	0.375	1.625
MTCP2-025-3BD18	25	284T	n/a	9.5	0.87	0.53	2.8	4.62	14.3	14	1.591	0.5	1.875
MTCP2-030-3BD18	30	286T	9.5	11	0.87	0.53	2.8	4.62	14.3	14	1.591	0.5	1.875
MTCP2-040-3BD18	40	324T	n/a	10.5	0.99	0.66	2.8	5.25	16	15.7	1.845	0.5	2.125
MTCP2-050-3BD18	50	326T	10.5	12	0.99	0.66	2.8	5.25	16	15.7	1.845	0.5	2.125
MTCP2-060-3BD18	60	364T	n/a	11.25	1.18	0.66	3	5.88	18.8	19.1	2.021	0.625	2.375
MTCP2-075-3BD18	75	365T	11.25	12.25	1.18	0.66	3	5.88	18.8	19.1	2.021	0.625	2.375
MTCP2-100-3BD18	100	405T	12.25	13.75	1.18	0.81	3.2	7.25	21.1	21.6	2.45	0.75	2.875
MTCP2-125-3BD18	125	444T	n/a	14.5	1.38	0.81	3.35	8.5	23	23.5	2.88	0.875	3.375
MTCP2-150-3BD18	150	445T	14.5	16.5	1.38	0.81	3.35	8.5	23	23.5	2.88	0.875	3.375
MTCP2-200-3BD18	200	445/7T	16.5	20	1.38	0.81	3.35	8.5	23	23.5	2.88	0.875	3.375
MTCP2-250-3D18	250	449T	n/a	25	1.58	0.81	3.4	8.500	23	24	2.88	0.875	3.375
MTCP2-300-3D18	300	449T	n/a	25	1.58	0.81	3.4	8.500	23	24	2.88	0.875	3.375

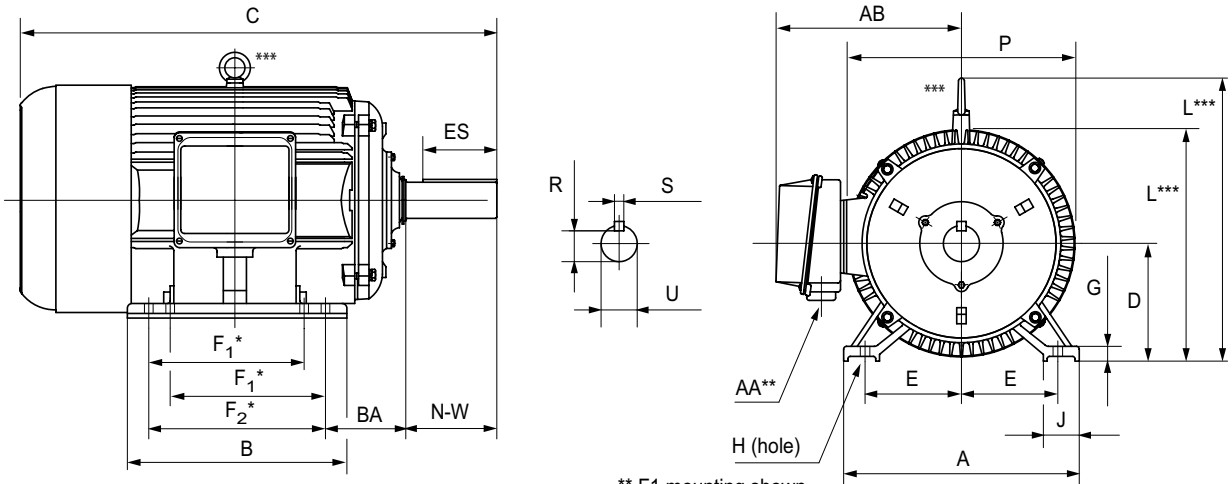
** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

*** 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.*

MTCP2 Premium-Efficiency T-Frame Three-Phase Motor Dimensions (continued)

(Dimensions = inches)



* 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											
MTCP2-001-3BD12	1	145T	7	3/4" NPT	6.7	6.6	2.25	13.47	3.5	2.75	1.41
MTCP2-1P5-3BD12	1-1/2	182T	9	1" NPT	7.2	6	2.75	15	4.5	3.75	1.78
MTCP2-002-3BD12	2	184T	9	1" NPT	8.2	7	2.75	16	4.5	3.75	1.78
MTCP2-003-3BD12	3	213T	10.5	1" NPT	8.5	7.5	3.5	19.5	5.25	4.25	2.41
MTCP2-005-3BD12	5	215T	10.5	1" NPT	8.5	9	3.5	21	5.25	4.25	2.41
MTCP2-7P5-3BD12	7-1/2	254T	12.5	1.5" NPT	10.5	10.3	4.25	23.3	6.25	5	2.91
MTCP2-010-3BD12	10	256T	12.5	1.5" NPT	10.5	12	4.25	25.3	6.25	5	2.91
MTCP2-015-3BD12	15	284T	14	1.5" NPT	11.5	12.4	4.75	26.63	7	5.5	3.28
MTCP2-020-3BD12	20	286T	14	1.5" NPT	11.5	13.9	4.75	28.1	7	5.5	3.28
3600 rpm Motors											
MTCP2-1P5-3BD36	1-1/2	143T	7	3/4" NPT	6.7	5.6	2.25	12.47	3.5	2.75	1.41
MTCP2-002-3BD36	2	145T	7	3/4" NPT	6.7	6.6	2.25	13.47	3.5	2.75	1.41
MTCP2-003-3BD36	3	182T	9	1" NPT	7.2	6	2.75	15	4.5	3.75	1.78
MTCP2-005-3BD36	5	184T	9	1" NPT	8.2	7	2.75	16	4.5	3.75	1.78
MTCP2-7P5-3BD36	7-1/2	213T	10.5	1" NPT	8.5	7.5	3.5	19.5	5.25	4.25	2.41
MTCP2-010-3BD36	10	215T	10.5	1" NPT	8.5	9	3.5	21	5.25	4.25	2.41
MTCP2-015-3BD36	15	254T	12.5	1.5" NPT	10.5	10.3	4.25	23.3	6.25	5	2.91
MTCP2-020-3BD36	20	256T	12.5	1.5" NPT	10.5	12	4.25	25.3	6.25	5	2.91

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

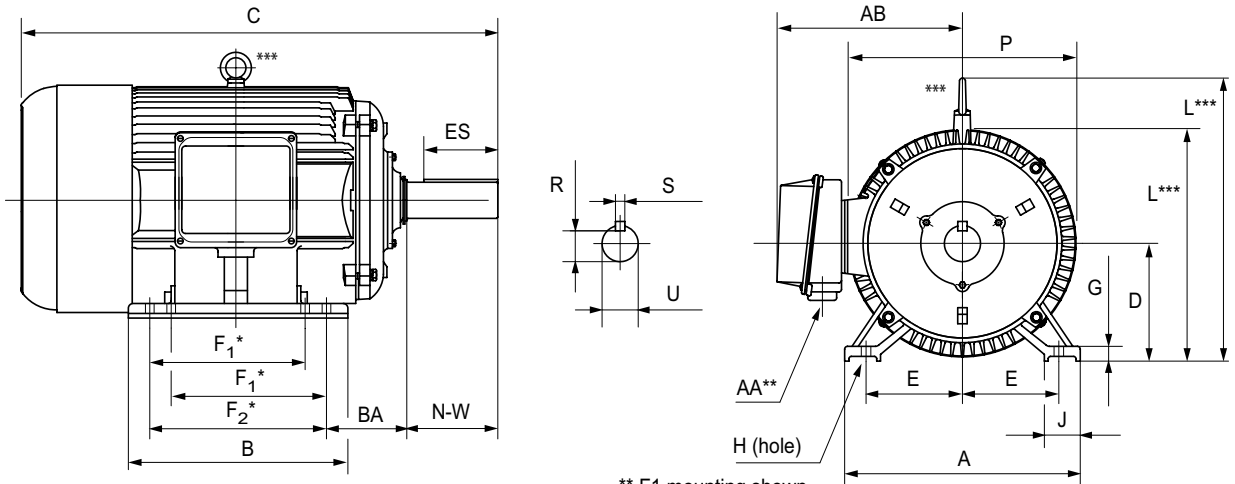
*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table.*
(F2 mounting = conduit entrance on right side facing shaft.)

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

******* TABLE CONTINUED NEXT PAGE (for dimensions F1–U) *******

MTCP2 Premium-Efficiency T-Frame Three-Phase Motor Dimensions (continued)

(Dimensions = inches)



* 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	Frame	F_1*	F_2*	G	H	J	N-W	L	P	R	S	U
1200 rpm Motors													
MTCP2-001-3BD12	1	145T	4	5	0.43	0.34	1	2.25	7.8	8	0.771	0.188	0.8759
MTCP2-1P5-3BD12	1-1/2	182T	n/a	4.5	0.6	0.41	2	2.75	9.5	9.7	0.986	0.25	1.125
MTCP2-002-3BD12	2	184T	4.5	5.5	0.6	0.41	2	2.75	9.5	9.7	0.986	0.25	1.125
MTCP2-003-3BD12	3	213T	n/a	5.5	0.71	0.41	2.4	3.38	10.6	10.6	1.201	0.312	1.375
MTCP2-005-3BD12	5	215T	5.5	7	0.71	0.41	2.4	3.38	10.6	10.4	1.201	0.312	1.375
MTCP2-7P5-3BD12	7-1/2	254T	n/a	8.25	0.79	0.53	2.40	4	12.9	12.6	1.416	0.375	1.625
MTCP2-010-3BD12	10	256T	8.25	10	0.79	0.53	2.40	4	12.9	12.6	1.416	0.375	1.625
MTCP2-015-3BD12	15	284T	n/a	9.5	0.87	0.53	2.8	4.62	14.3	14	1.591	0.5	1.875
MTCP2-020-3BD12	20	286T	9.5	11	0.87	0.53	2.8	4.62	14.3	14	1.591	0.5	1.875
3600 rpm Motors													
MTCP2-1P5-3BD36	1-1/2	143T	n/a	4	0.47	0.34	1	2.25	7.6	7.8	0.771	0.188	0.8759
MTCP2-002-3BD36	2	145T	4	5	0.43	0.34	1	2.25	7.8	8	0.771	0.188	0.8759
MTCP2-003-3BD36	3	182T	n/a	4.5	0.6	0.41	2	2.75	9.5	9.7	0.986	0.25	1.125
MTCP2-005-3BD36	5	184T	4.5	5.5	0.6	0.41	2	2.75	9.5	9.7	0.986	0.25	1.125
MTCP2-7P5-3BD36	7-1/2	213T	n/a	5.5	0.71	0.41	2.4	3.38	10.6	10.6	1.201	0.312	1.375
MTCP2-010-3BD36	10	215T	5.5	7	0.71	0.41	2.4	3.38	10.6	10.4	1.201	0.312	1.375
MTCP2-015-3BD36	15	254T	n/a	8.25	0.79	0.53	2.40	4	12.9	12.6	1.416	0.375	1.625
MTCP2-020-3BD36	20	256T	8.25	10	0.79	0.53	2.40	4	12.9	12.6	1.416	0.375	1.625

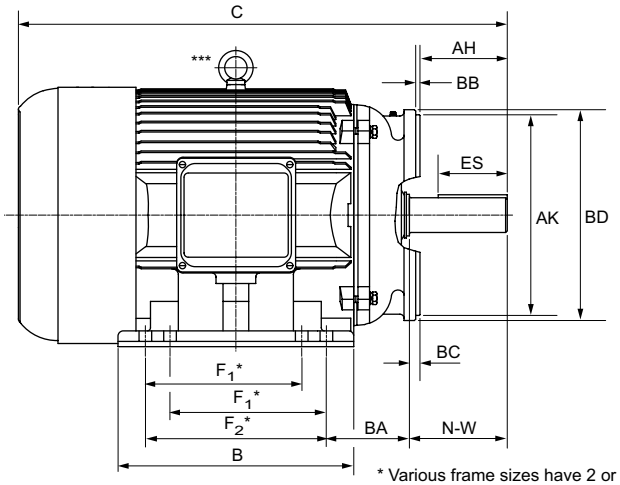
** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

*** 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.)

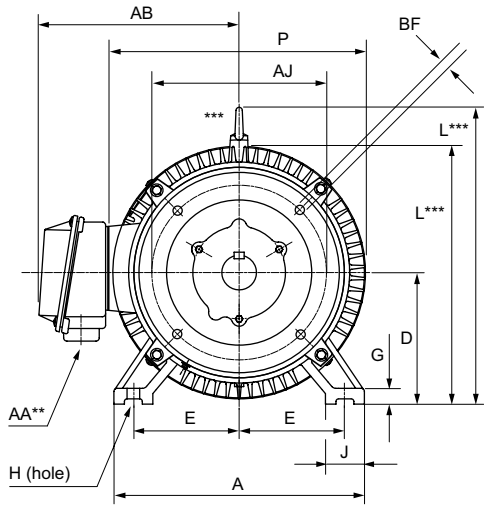
**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

MTCP2 Premium-Efficiency TC-Frame Three-Phase Motor Dimensions

(Dimensions = inches)



* 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 # MTCP2-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	6.7	1.96	5.875	4.5	5.6	2.25	0.16	0.29	6.5	3/8-16	12.5
-1P5-	1-1/2	145TC	7	3/4″NPT	6.7	1.96	5.875	4.5	6.6	2.25	0.16	0.29	6.5	3/8-16	13.5
-002-	2		7		6.7				6.6						
-003-	3	182TC	9	1″ NPT	7.2	2.37	7.25	8.5	6	2.75	0.25	0.38	9	1/2-13	15
-005-	5	184TC	9	1″ NPT	8.2	2.37	7.25	8.5	7	2.75	0.25	0.38	9	1/2-13	16
-7P5-	7-1/2	213TC	10.5	1″ NPT	8.5	2.87	7.25	8.5	7.5	3.5	0.25	0.51	9	1/2-13	20.3
-010-	10	215TC	10.5	1″ NPT	8.5	2.87	7.25	8.5	9	3.5	0.25	0.51	9	1/2-13	21.8
-015-	15	254TC	12.5	1.5″NPT	10.5	3.75	7.25	8.5	10.3	4.25	0.25	0.25	10	1/2-13	23.3
-020-	20	256TC	12.5	1.5″NPT	10.5	3.75	7.25	8.5	12	4.25	0.25	0.25	10	1/2-13	25.3
-025-	25	284TC	14	1.5″NPT	11.5	4.38	9	10.5	12.4	4.75	0.25	0.25	11.25	1/2-13	26.6
-030-	30	286TC	14	1.5″NPT	11.5	4.38	9	10.5	13.9	4.75	0.25	0.24	11.25	1/2-13	28.1

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

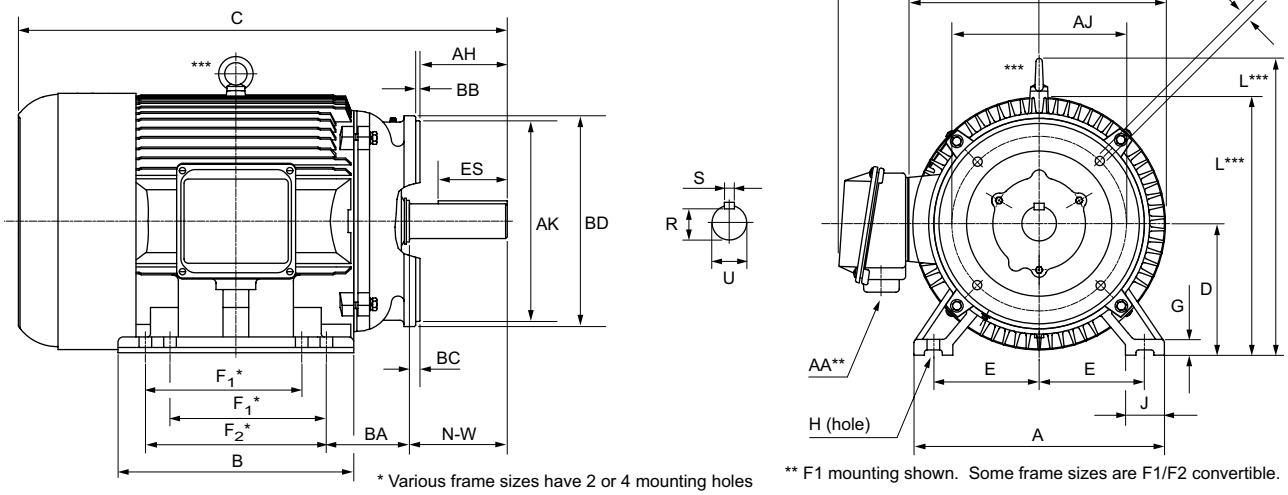
*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table.*
(F2 mounting = conduit entrance on right side facing shaft.)

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

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

MTCP2 Premium-Efficiency TC-Frame Three-Phase Motor Dimensions (continued)

(Dimensions = inches)



* 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 # MTCP2-xxx-3BD18C	HP	NEMA Frame	D	E	ES	F_1*	F_2*	G	H	J	N-W	L	P	R	S	U
-001-	1	143TC	3.5	2.75	1.41	n/a	4	0.47	0.34	1	2.25	7.6	7.8	0.771	0.188	0.8759
-1P5-	1-1/2	145TC	3.5	2.75	1.41	4	5	0.43	0.34	1.2	2.25	7.8	8	0.771	0.188	0.8759
-002-	2				1.41			0.43		1.2		7.8	8	0.771	0.188	0.8759
-003-	3	182TC	4.5	3.75	1.78	n/a	4.5	0.6	0.41	2	2.75	9.5	9.7	0.986	0.25	1.125
-005-	5	184TC	4.5	3.75	1.78	4.5	5.5	0.6	0.41	2	2.75	9.5	9.7	0.986	0.25	1.125
-7P5-	7-1/2	213TC	5.25	4.25	2.41	n/a	5.5	0.71	0.41	2.4	3.38	10.6	10.4	1.201	0.312	1.375
-010-	10	215TC	5.25	4.25	2.41	5.5	7	0.71	0.41	2.4	3.38	10.6	10.4	1.201	0.312	1.375
-015-	15	254TC	6.25	5	2.91	n/a	8.25	0.79	0.53	2.40	4	12.9	12.6	1.416	0.375	1.625
-020-	20	256TC	6.25	5	2.91	8.25	10	0.79	0.53	2.40	4	12.9	12.6	1.416	0.375	1.625
-025-	25	284TC	7	5.5	3.28	n/a	9.5	0.87	0.53	2.8	4.62	14.3	14	1.591	0.5	1.875
-030-	30	286TC	7	5.5	3.28	9.5	11	0.87	0.53	2.8	4.62	14.3	14	1.591	0.5	1.875

** 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.)

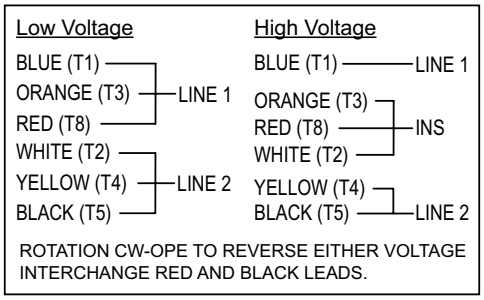
**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

Terminal and Wiring Diagrams

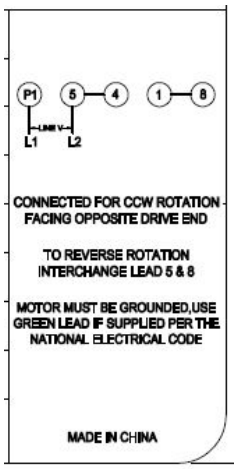
IronHorse® Single-Phase Motors

MTR2 General-Purpose motors

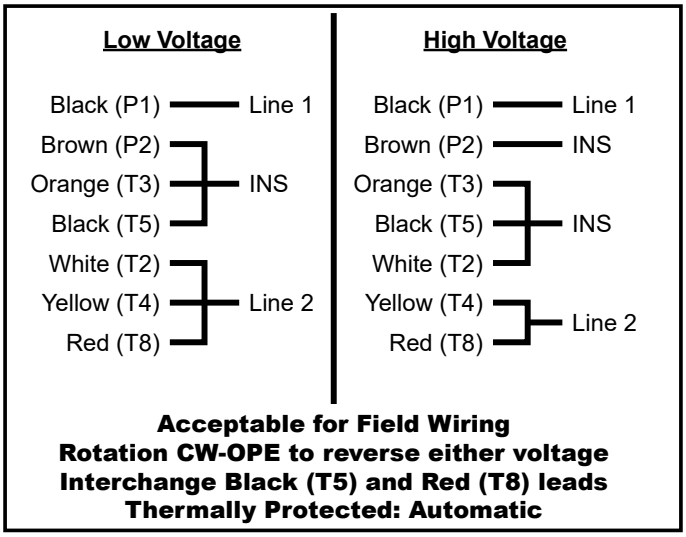
1/3 hp – 1.5hp 1Ø MTR2 models
6-Lead, 115/208-230 VAC



MTF2 Farm-Duty Motors



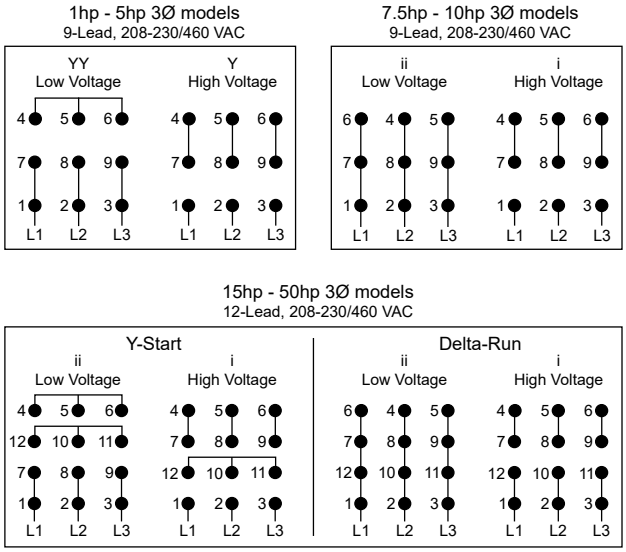
MTRJ Jet Pump Motors



IRONHORSE® THREE-PHASE MOTORS

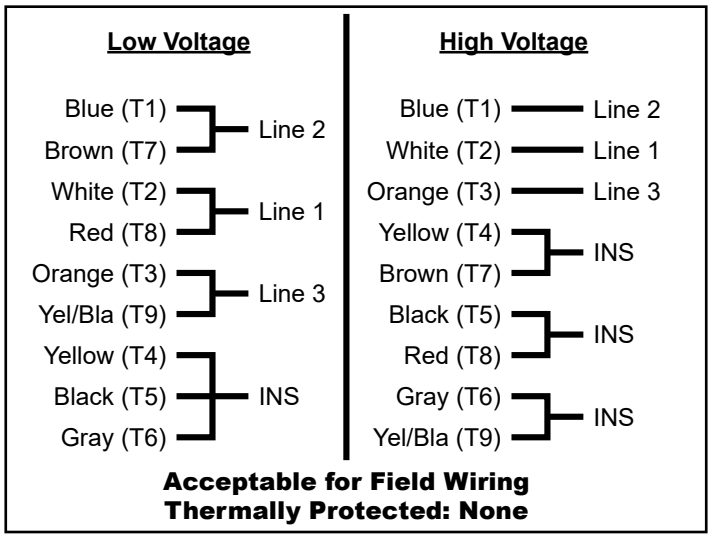
MTDP OPEN DRIP PROOF MOTORS

MTDP 1-50 hp 3Ø models
T1 = Blue
T2 = White
T3 = Orange
T4 = Yellow
T5 = Black
T6 = Purple
T7 = Pink
T8 = Red
T9 = Grey



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.

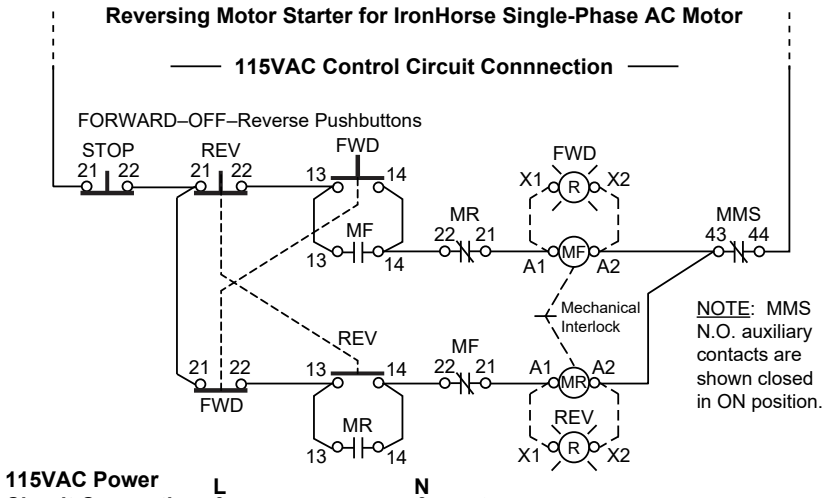
MTRJ JET PUMP MOTORS

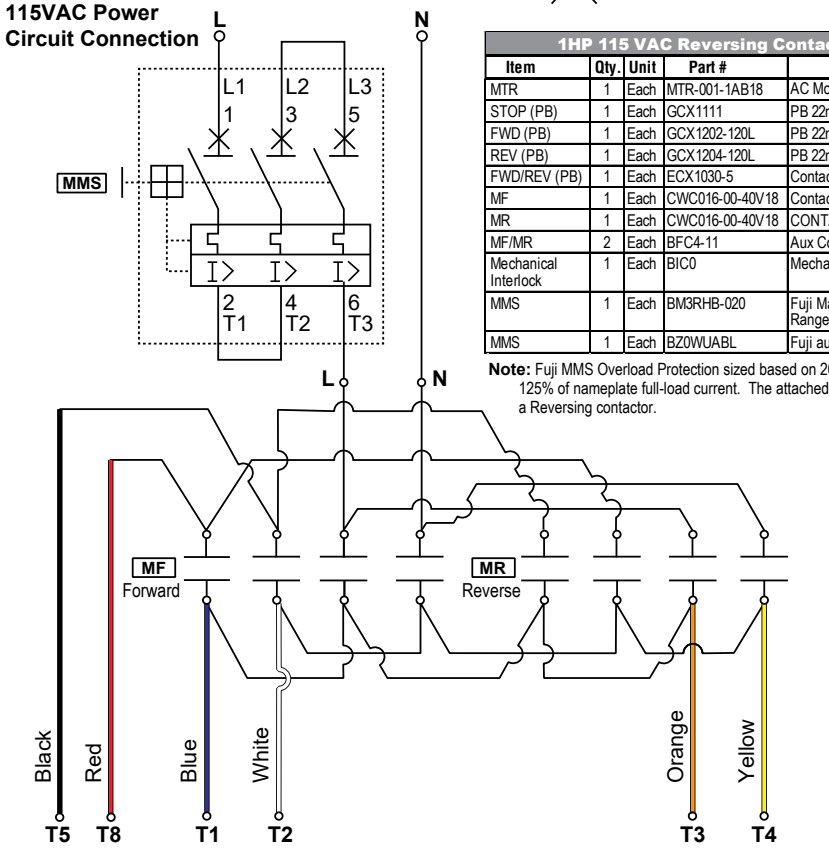


Terminal and Wiring Diagrams (continued)

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.

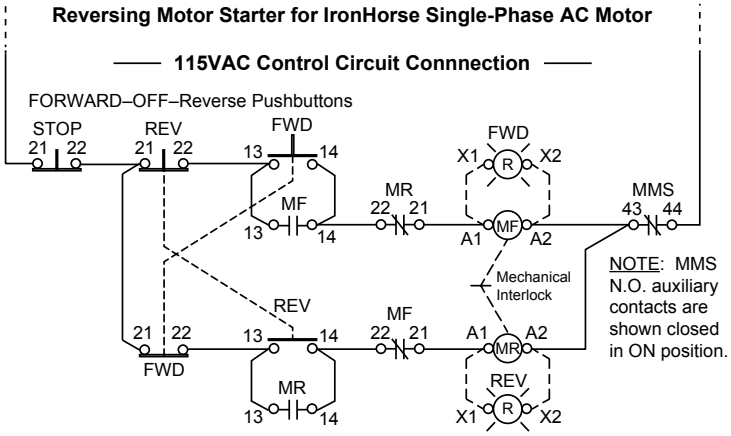
Note: Fuji MMS Overload Protection sized based on 2008 NEC Section 430.32 with Max percentage 125% of nameplate full-load current. The attached BOM is only one example of many options for a Reversing contactor.

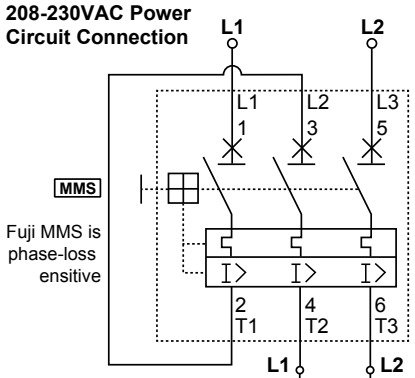
Note: To reverse motor direction the wiring of T5 Black and T8 Red should be swapped. Always check the motor manufacturer's wiring diagrams (or nameplate) for proper reversing of 1-phase motors.

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.

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

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

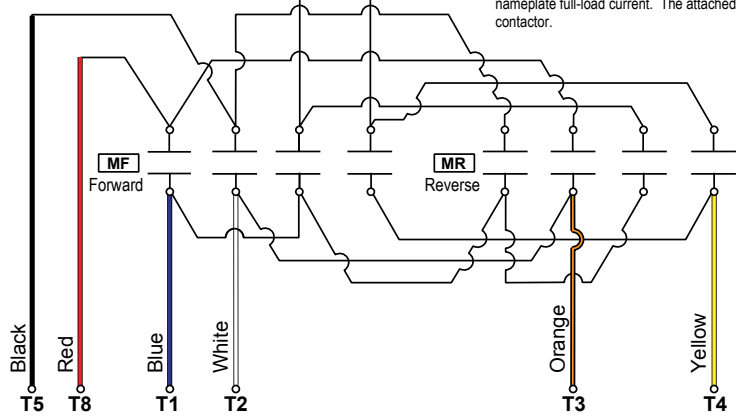




1HP 208 VAC Reversing Contactor Bill of Material

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: To reverse motor direction, the wiring of T5 Black and T8 Red should be swapped. 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.

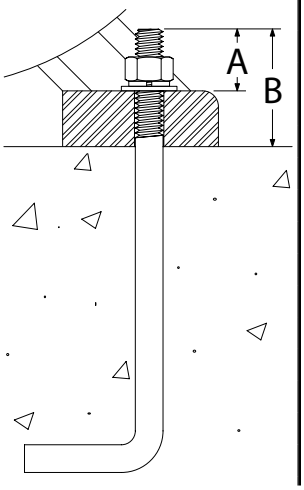
Motor Mounting

General Mounting Information

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 100hp 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			2.50 in	
405T				

Note: In applications involving Direct coupling of the motor, drive end, bearing life, may be increased by replacing roller bearings with equivalent ball bearings. Consult your EASA authorized motor shop for details. Reminder: To maintain motor warranty, any motor work must be accomplished by your local EASA authorized shop.

Motor Mounting Orientation

MTF Motors

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

MTF2, MTR2, MTRP and MTDP Motors

MTF2, MTR2, MTRP and MTDP motors can be mounted in any horizontal or vertical orientation.

MTCP2 Motors

MTCP2 motors can be mounted in horizontal or vertical, shaft-down orientations.

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

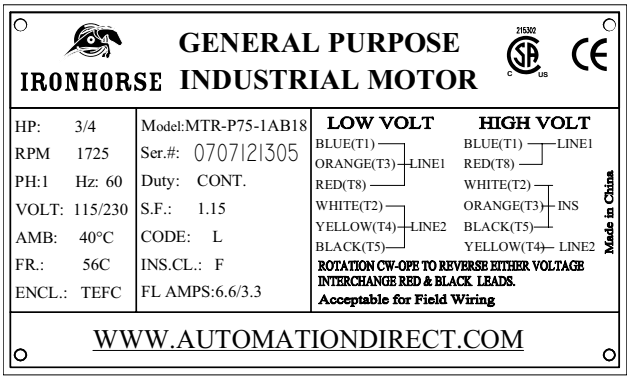
Coupling Alignment

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).

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.

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. MTCP2 motors should be greased using SKF, LGHP2 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 (FLA) 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.

MAINTENANCE

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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)(4)*
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.
4) For MTCP2 motors, use only SKF LGHP2 grease.
5) For MTDP motors, use Multemp SRL grease or equivalent.

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

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)	MTF2	MTDP	MTF Motors	MTR2/MTRP /MTRJ Motors	MTCP2 Motors	MTF2	MTDP
56(H)C	–	6203-ZZ or 6205	–		–	6203-ZZ	–	–	–
143T		6205-ZZ		6205		–	6205-ZZ		6204
145T				6205					6204
182T	6206-ZZ	6306-ZZ	6306	6306	6205-ZZ		6206-ZZ	6206	6305
184T	6206-ZZ		6306	6306	6206-ZZ			6205	6305
213T	–	6308-ZZ	–	6308	–		6207-ZZ		6306
215T	–		6308	6308				6206	6306
254T		6309	–	6309			6209	–	6307
256T				6309					6307
284T		6311		6311			6309		6310
286T				6311					6310
324T		6312		6314			6311		6212
326T				6314					6212
364T		6313		–			6312		–
365T									
404T		NU316					6313		
405T									
444T		NU318							
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

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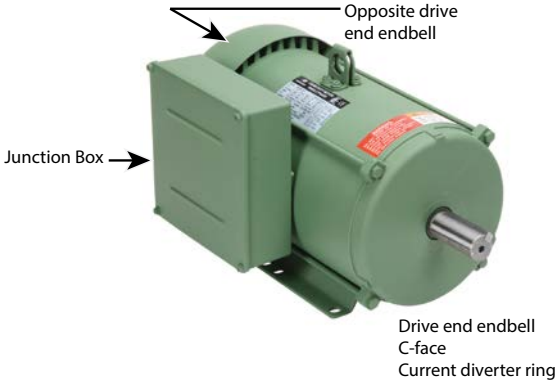
Replacement Parts

Junction boxes, c-flanges, Drive Bells, and Current Diverter Rings for IronHorse® MTDP Drip-Proof Three-Phase Motors



There are a variety of spare / replacement parts for the IronHorse, MTDP, open drip-proof motors. Replacement junction boxes, c-face kits, drive end and opposite drive end bells are available for all frame sizes. "CDR" current diverter rings are also available for use with these motors.

MTDP Three-Phase Motor Spare/Replacement Parts			
Part Number	***Accessory Type***	***For Use With***	***Motor HP***
MTADP-JBOX-140	Junction Box	56 and 140T frame ODP motors	1, 1.5, 2, 3 HP
MTADP-JBOX-180		180T frame ODP motors	3, 5, 7.5HP
MTADP-JBOX-210		210T frame ODP motors	7.5, 10HP
MTADP-JBOX-250		250T frame ODP motors	15, 20HP
MTADP-JBOX-280		280T frame ODP motors	25, 30HP
MTADP-JBOX-320		320T frame ODP motors	40, 50HP
MTADP-CFACE-140TC	C-face	140T frame ODP motors	1, 1.5, 2 HP
MTADP-CFACE-180TC		180T frame ODP motors	3, 5
MTADP-CFACE-210TC		210T frame ODP motors	7.5, 10
MTADP-CFACE-250TC		250T frame ODP motors	15, 20
MTADP-CFACE-280TC		280T frame ODP motors	25, 30
MTADP-CFACE-320TC		320T frame ODP motors	40, 50
MTADP-DEB-140	Drive end endbell	140T frame ODP motors	1, 1.5, 2 HP
MTADP-DEB-180		180T frame ODP motors	3, 5
MTADP-DEB-210		210T frame ODP motors	7.5, 10
MTADP-DEB-250		250T frame ODP motors	15, 20
MTADP-DEB-280		280T frame ODP motors	25, 30
MTADP-DEB-320		320T frame ODP motors	40, 50
MTADP-OEB-140	Opposite drive end endbell	140T frame ODP motors	1, 1.5, 2 HP
MTADP-OEB-180		180T frame ODP motors	3, 5
MTADP-OEB-210		210T frame ODP motors	7.5, 10
MTADP-OEB-250		250T frame ODP motors	15, 20
MTADP-OEB-280		280T frame ODP motors	25, 30
MTADP-OEB-320		320T frame ODP motors	40, 50

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

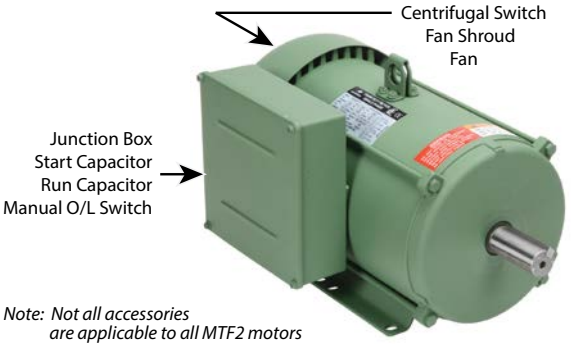
*** TABLE CONTINUED FROM PREVIOUS PAGE ***			
MTDP Three-Phase Motor Spare/Replacement Parts			
Part Number	***Accessory Type***	***For Use With***	***Motor HP***
MTADP-CDR-140	Current diverter ring	140T frame ODP motors	1, 1.5, 2
MTADP-CDR-180		180T frame ODP motors	3, 5
MTADP-CDR-210		210T frame ODP motors	7.5, 10
MTADP-CDR-250		250T frame ODP motors	15, 20
MTADP-CDR-280		280T frame ODP motors	25, 30
MTADP-CDR-320		320T frame ODP motors	40, 50

Current Diverter Ring

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 needed 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.

MTF2 Accessory Locations



Note: Not all accessories are applicable to all MTF2 motors

MTR2/MTRJ Accessory Locations

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

Spare/Replacement Parts for MTF2 Single-Phase Farm-Duty Motors

MTF2 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**
MTAF2-CAP-16	Start capacitor	250	300	3.39 x 1.81 [86.1 x 46.0]	MTF2-002-1B18-182, MTF2-003-1B18	2, 3
MTAF2-CAP-17		550		3.39 x 1.81 [86.1 x 46.0]	MTF2-005-1B18	5
MTAF2-CAP-18		400	330	4.33 x 1.97 [110.0 x 50.0]	MTF2-7P5-1B18	7.5
MTAF2-CAP-19	Run capacitor	550	330	3.96 x 1.77 [100.6 x 45.0]	MTF2-010-1B18-182	10
MTAF2-CAP-20		25	450	3.96 x 1.97 [100.6 x 50.0]	MTF2-002-1B18	2
MTAF2-CAP-21		30	450	4.17 x 1.97 [106.0 x 50.0]	MTF2-003-1B18	3
MTAF2-CAP-22		50	450	3.54 x 2.00 [90 x 51]	MTF2-005-1B18	5
MTAF2-CAP-23		45	500	4.25 x 2.12 [105 x 54]	MTF2-7P5-1B18-215	7.5
MTAF2-CAP-24		60	500	4.72 x 1.95 [120 x 50]	MTF2-010-1B18	10
MTAF2-CSW-05	Centrifugal switch	n/a		n/a	MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-CSW-06			250		MTF2-7P5-1B18-215	7.5, 10
MTAF2-SSW-05	Stationary Switch		n/a		MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2,3, 5
MTAF2-SSW-06			n/a		MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10
MTAF2-MOL-1	Manual overload switch		n/a		MTF2-002-1B18-182	2
MTAF2-MOL-2			n/a		MTF2-003-1B18	3
MTAF2-MOL-3			n/a		MTF2-005-1B18	5
MTAF2-MOL-4			n/a		MTF2-7P5-1B18-215	7.5
MTAF2-MOL-5			n/a		MTF2-010-1B18	10

*** TABLE CONTINUED NEXT PAGE ***

*** TABLE CONTINUED FROM PREVIOUS PAGE ***						
MTF2 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***
MTF2-CFACE-180TC	C-face kit	n/a	n/a	n/a	MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTF2-CFACE-210TC		n/a	n/a	n/a	MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10
MTAF2-JBOX-180	Junction box	n/a	n/a	n/a	MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-JBOX-210		n/a	n/a	n/a	MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10
MTAF2-FAN-180	Fan		n/a	n/a	MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-FAN-210			n/a	n/a	MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10
MTAF2-SHROUD-180	Fan shroud		n/a	n/a	MTF2-002-1B18-182 MTF2-003-1B18 MTF2-005-1B18	2, 3, 5
MTAF2-SHROUD-210			n/a	n/a	MTF2-7P5-1B18-215 MTF2-010-1B18	7.5, 10

MTF2 Single-Phase Motor Spare/Replacement Parts						
		Temperature Rating - Deg C			***Short Time Rating***	
ADC Part Number	***Manufacturer Part Number***	***Open -+/-5***	***Closed +/-9***	***Current***	***Min (Sec)***	***Max (Sec)***
MTAF2-MOL-1	BEH-70KB 79A 60/230V KWE	120	74	59	6.5	16
MTAF2-MOL-2	BEH-42KB 89A 60/230V KWE	120	74	70.6	6.5	16
MTAF2-MOL-3	LEH-31JD 171A 60/230V KWE	135	96	129	6.5	16
MTAF2-MOL-4	LEH-28KD 238A 60/230V KWE	135	96	190	11	20.5
MTAF2-MOL-5	LEH-00BB 366A 60/230V KWE	120	74	203	10	21.5

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

Spare/Replacement Parts for MTR2/MTRJ Single-Phase Motors

MTR2/MTRJ 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 MTRJ-001-1AB36J	1/3 : 3600 1 : 3600
MTA-CAP-11	Start Capacitor	300		3.39 x 1.85 [86.1 x 47.0]	MTR2-P33-1AB18 MTR2-P50-1AB36 MTRJ-1P5-1AB36J	1/3: 1800 1/2 : 3600 1 1/2 : 3600
MTA-CAP-12	Start Capacitor	400			MTR2-P50-1AB18 MTR2-P75-1AB36 MTRJ-002-1AB36J	1/2: 1800 3/4 : 3600 2 : 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 MTRJ-1P5-1AB36J MTRJ-002-1AB36J	1 1/2 : all 2 : all 1 1/2 : 3600 2 : 3600
MTA-CAP-15	Start Capacitor	800	165	4.41 x 1.85 [112.0 x 47.0]		
MTA-CAP-22	Start Capacitor	900	165	4.375 x 1.8125 [111.1 x 46.0]	MTR2-1P5-1AB18	1-1/2 : 1800
MTA-CAP-31	Start Capacitor	150	165	3.39 x 1.85 [86.1 x 47.0]	MTRJ-P33-1AB36J MTRJ-P50-1AB36J MTRJ-P75-1AB36J	1/3 : 3600 1/2 : 3600 3/4 : 3600
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 MTRJ-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.*

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

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

These parts are field installable, and include installation instructions.

Fan

Fan Shroud

Junction Box

Motor Base

Fan

MTR2/MTRP/MTRJ 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 MTRJ-Xxx-3BDxx	All
MTA2-JBOX-56	Junction box		
MTA2-SHROUD-56	Fan shroud		
MTA2-FAN-56	Fan	MTR2-Pxx-3BDxx MTRJ-Xxx-3BDxx	
MTA2-FAN-56-1	Fan	MTRP-xxx-3BDxx MTRJP-Xxx-3BDxx	
** These accessories are spare/replacement components only for MTR2/ MTRP series IronHorse motors.*			

Spare/Replacement Parts for MTCP2 Premium-Efficiency Three-Phase Motors

IronHorse junction boxes, TEFC fans, and TEFC fan shrouds are available as direct replacement parts for MTCP2 motors.

These parts are field installable, and include installation instructions.

Fan

Fan Shroud

Junction Box

MTCP2 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)***
MTAP2-FAN-140	Replacement Fan	143 & 145	MTCP2-001-3BD12 MTCP2-001-3BD18(C) MTCP2-1P5-3BD18(C) MTCP2-1P5-3BD36 MTCP2-002-3BD18(C) MTCP2-002-3BD36	1 1 1-1/2 1-1/2 2 2	0.029
MTAP2-SHROUD-140	Replacement Fan Shroud				1.04
MTAP2-JBOX-140	Replacement Junction Box				2.54
MTAP2-FAN-180	Replacement Fan	182 & 184	MTCP2-1P5-3BD12 MTCP2-002-3BD12 MTCP2-003-3BD18(C) MTCP2-003-3BD36 MTCP2-005-3BD18(C) MTCP2-005-3BD36	1-1/2 2 3 3 5 5	0.053
MTAP2-SHROUD-180	Replacement Fan Shroud				2.23
MTAP2-JBOX-180	Replacement Junction Box				3.28
MTAP2-FAN-210-2	Replacement Fan (for 2-pole motors)	213 & 215	MTCP2-7P5-3BD36 MTCP2-010-3BD36	7-1/2 10	0.075
MTAP2-FAN-210	Replacement Fan (4&6-pole)		MTCP2-003-3BD12 MTCP2-005-3BD12 MTCP2-7P5-3BD18(C) MTCP2-010-3BD18(C)	3 5 7-1/2 10	0.075
MTAP2-SHROUD-210	Replacement Fan Shroud				4.98
MTAP2-JBOX-210	Replacement Junction Box				3.28

1) These MTAP2 replacement components fit only MTCP2 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 ***

Spare/Replacement Parts for MTCP2 Premium-Efficiency 3-Phase Motors (continued)

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

MTCP2 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)***
MTAP2-FAN-250-2	Replacement Fan (for 2-pole motors)	254 & 256	MTCP2-015-3BD36 MTCP2-020-3BD36	15 20	0.090
MTAP2-FAN-250	Replacement Fan (4&6-pole)		MTCP2-7P5-3BD12 MTCP2-010-3BD12 MTCP2-015-3BD18(C) MTCP2-020-3BD18(C)	7-1/2 10 15 20	0.104
MTAP2-SHROUD-250	Replacement Fan Shroud				8.27
MTAP2-JBOX-250	Replacement Junction Box				8.16
MTAP2-FAN-280	Replacement Fan	284 & 286	MTCP2-015-3BD12 MTCP2-020-3BD12 MTCP2-025-3BD18(C) MTCP2-030-3BD18(C)	15 20 25 30	0.090
MTAP2-SHROUD-280	Replacement Fan Shroud				10.03
MTAP2-JBOX-280	Replacement Junction Box				8.16
MTAP2-FAN-320	Replacement Fan	324 & 326	MTCP2-040-3BD18 MTCP2-050-3BD18	40 50	0.126
MTAP2-SHROUD-320	Replacement Fan Shroud				12.50
MTAP2-JBOX-320	Replacement Junction Box				23.59
MTAP2-FAN-360	Replacement Fan	364 & 365	MTCP2-060-3BD18 MTCP2-075-3BD18	60 75	0.126
MTAP2-SHROUD-360	Replacement Fan Shroud				13.76
MTAP2-JBOX-360	Replacement Junction Box				21.05
MTAP2-FAN-400	Replacement Fan	405	MTCP2-100-3BD18	100	0.150
MTAP2-SHROUD-400	Replacement Fan Shroud				16.67
MTAP2-JBOX-400	Replacement Junction Box				32.74
MTAP2-FAN-440	Replacement Fan	444 445 & 447	MTCP2-125-3BD18 MTCP2-150-3BD18 MTCP2-200-3BD18	125 150 200	0.150
MTAP2-SHROUD-440	Replacement Fan Shroud				17.97
MTAP2-JBOX-440	Replacement Junction Box				36.49
MTAP2-FAN-449	Replacement Fan (250hp)	449	MTCP2-250-3D18 MTCP2-300-3D18	250 300	0.205
MTAP2-FAN-449-1	Replacement Fan (300hp)				0.174
MTAP2-SHROUD-449	Replacement Fan Shroud				22.27
MTAP2-JBOX-449	Replacement Junction Box				36.49

1) These MTAP2 replacement components fit only MTCP2 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.

C-Flange Kits

C-Flange Kits for MTCP2 Premium-Efficiency Three-Phase Motors

C-Flange Kits

Any IronHorse MTCP2 Premium-Efficiency T-frame cast-iron motor from 1–300 hp 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.

MTAP2 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.

C-faces must be installed by an EASA motor shop in order to maintain the motor warranty.

MTCP2 Premium-Efficiency T-frame Three-Phase Motor C-Flange Kits				
Part Number (1)	***Fits Frame***	***Fits Motor (1)***	***Motor HP***	***Product Weight (lb)***
MTAP2-CFACE-140TC	143T & 145T	MTCP2-001-3BD12 MTCP2-001-3BD18 MTCP2-1P5-3BD18 MTCP2-1P5-3BD36 MTCP2-002-3BD18 MTCP2-002-3BD36	1 1 1-1/2 1-1/2 2 2	5.62
MTAP2-CFACE-180TC	182T & 184T	MTCP2-1P5-3BD12 MTCP2-002-3BD12 MTCP2-003-3BD18 MTCP2-003-3BD36 MTCP2-005-3BD18 MTCP2-005-3BD36	1-1/2 2 3 3 5 5	10.36
MTAP2-CFACE-210TC	213T & 215T	MTCP2-003-3BD12 MTCP2-005-3BD12 MTCP2-7P5-3BD18 MTCP2-7P5-3BD36 MTCP2-010-3BD18 MTCP2-010-3BD36	3 5 7-1/2 7-1/2 10 10	12.68
MTAP2-CFACE-250TC	254T & 256T	MTCP2-7P5-3BD12 MTCP2-010-3BD12 MTCP2-015-3BD18 MTCP2-015-3BD36 MTCP2-020-3BD18 MTCP2-020-3BD36	7-1/2 10 15 15 20 20	31.20
1) MTAP2-CFACE C-flange kits will NOT fit MTC EPAct motors.				
**** TABLE CONTINUED NEXT PAGE ****				

C-Flange Kits for MTCP2 Premium-Efficiency Three-Phase Motors (continued)

*** TABLE CONTINUED FROM PREVIOUS PAGE ***				
MTCP2 Premium-Efficiency T-frame Three-Phase Motor C-Flange Kits				
Part Number (1)	***Fits Frame***	***Fits Motor (1)***	***Motor HP***	***Product Weight (lb)***
MTAP2-CFACE-280TC	284T & 286T	MTCP2-015-3BD12 MTCP2-020-3BD12 MTCP2-025-3BD18 MTCP2-030-3BD18	15 20 25 30	31.20
MTAP2-CFACE-320TC	324T & 326T	MTCP2-040-3BD18 MTCP2-050-3BD18	40 50	47.40
MTAP2-CFACE-360TC	364T & 365T	MTCP2-060-3BD18 MTCP2-075-3BD18	60 75	48.70
MTAP2-CFACE-400TC	405T	MTCP2-100-3BD18	100	132.17
MTAP2-CFACE-444TC	444T & 445T	MTCP2-125-3BD18 MTCP2-150-3BD18	125 150	137.44
MTAP2-CFACE-447TC	445/7T	MTCP2-200-3BD18	200	134.83
MTAP2-CFACE-449TC	449T	MTCP2-250-3D18 MTCP2-300-3D18	250 300	162.50
1) MTAP2-CFACE C-flange kits will NOT fit MTC EPAct motors.				

STABLE™ Slide Bases

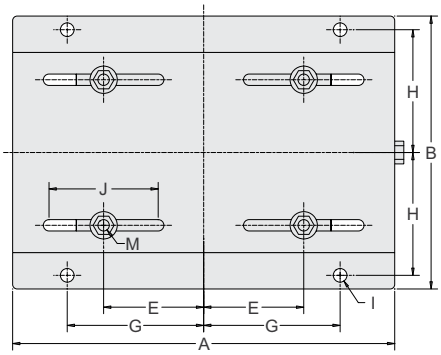
AutomationDirect offers STABLE AC motor adjustable slide bases for mounting most AC motor brands with frame sizes from 56 to 449. These heavy duty steel bases are primed with an oven-baked primer ready for painting. The motor mounting bolts are welded to the exact motor foot pattern to prevent the bolts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

Slide Base Selection

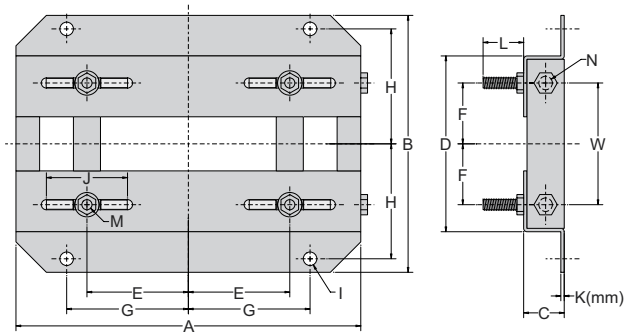
STABLE™ Motor Slide Bases			
Part Number	***Fits Frame Type***	***Product Weight (lb)***	***IronHorse Model***
MTA-BASE-W56*	56C*	2.8	MTR2-xxx-xxxxx*, MTRP-xxx-xxxxx
MTA-BASE-W143T	143T/TC	4.6	MTCP2-001-3BD18(C)(CK), MTCP2-1P5-3BD36 MTDP-001-3BD18
MTA-BASE-W145T	145T/TC	5.1	MTCP2-001-3BD12 MTCP2-1P5-3BD18(C)(CK) MTCP2-002-3BD18(C)(CK) MTCP2-002-3BD36, MTDP-1P5-3BD18 MTDP-002-3BD18, MTDP-003-3BD36
MTA-BASE-W182T	182T/TC	9.2	MTCP2-1P5-3BD12 MTCP2-003-3BD18(C)(CK) MTCP2-003-3BD36, MTF-002-1C18-182 MTF2-002-1B18-182, MTDP-003-3BD18 MTDP-005-3BD36, MTF2-002-1B18-182
MTA-BASE-W184T	184T/TC	10	MTCP2-002-3BD12 MTCP2-005-3BD18(C)(CK) MTCP2-005-3BD36 MTF-00x-1C18, MTF2-002-1B18-182 MTDP-005-3BD18, MTDP-7P5-3BD36 MTF2-003-1B18, MTF2-005-1B18
MTA-BASE-W213T	213T/TC	13	MTCP2-003-3BD12 MTCP2-7P5-3BD18(C)(CK) MTCP2-7P5-3BD36 MTDP-7P5-3BD18
MTA-BASE-W215T	215T/TC	15	MTCP2-005-3BD12 MTCP2-010-3BD18(C)(CK) MTCP2-010-3BD36 MTF2-010-1818, MTDP-010-3BD18 MTF2-7P5-1B18-215, MTF-010-1B18
MTA-BASE-W254T	254T/TC	18	MTCP2-7P5-3BD12 MTCP2-015-3BD18(C)(CK) MTCP2-015-3BD36, MTDP-015-3BD18
MTA-BASE-W256T	256T/TC	19	MTCP2-010-3BD12 MTCP2-020-3BD18(C)(CK) MTCP2-020-3BD36, MTDP-020-3BD18
MTA-BASE-W284T	284T/TC	20	MTCP2-015-3BD12 MTCP2-025-3BD18(C)(CK) MTDP-025-3BD18
MTA-BASE-W286T	286T/TC	21	MTCP2-020-3BD12 MTCP2-030-3BD18(C)(CK) MTDP-030-3BD18
MTA-BASE-W324T	324T/TC	30	MTCP2-040-3BD18(C)(CK), MTDP-040-3BD18
MTA-BASE-W326T	326T/TC	31	MTCP2-050-3BD18(C)(CK), MTDP-050-3BD18
MTA-BASE-W364T	364T/TC	43	MTCP2-060-3BD18(C)(CK)
MTA-BASE-W365T	365T/TC	43	MTCP2-075-3BD18(C)(CK)
MTA-BASE-W404T	404T/TC	58	–
MTA-BASE-W405T	405T/TC	60	MTCP2-100-3BD18(C)(CK)
MTA-BASE-W444T	444T	63	MTCP2-125-3BD18
MTA-BASE-W445T	445T	65	MTCP2-150-3BD18
MTA-BASE-W447T	447T	89	MTCP2-200-3BD18
MTA-BASE-W449T	449T	94	MTCP2-250-3D18 MTCP2-300-3D18

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

SLIDE BASE DIMENSIONS



W56 - W145T Motor Slide Base Dimensions

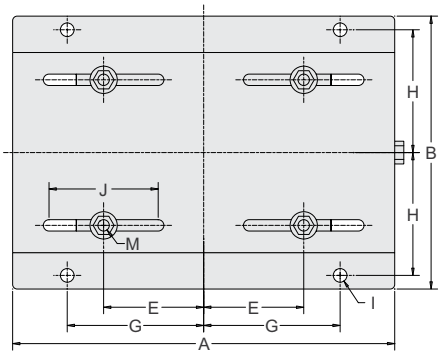


W182T - W449T Motor Slide Base Dimensions
(W182T-W215T bases have one-piece top plates, similar to W56-W145T)

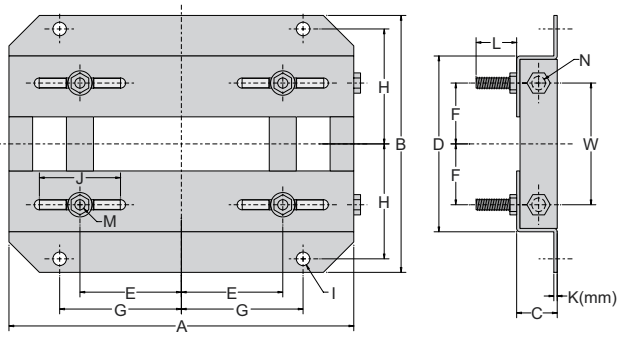
Dimensions [inches, except as noted] - STABLE™ Motor Slide Bases							
MTA-BASE-Wxxxx	***A***	***B***	***C***	***D***	***E***	***F***	***G***
56	10-5/8	6-1/2	1-1/8	4-1/2	2-7/16	1-1/2	3-13/16
143T	10-1/2	7-1/2	1-1/8	5-1/2	2-3/4	2	3-3/4
145T	10-1/2	8-1/2	1-1/8	6-1/2	2-3/4	2-1/2	3-3/4
182T	12-3/4	9-1/2	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* ****

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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PAGE

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); MTCP2, MTDP motors 10:1 (1/10 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), MTCP2, MTDP motors 20:1 (1/20 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 ≤ 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.

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: 25ft maximum cable length between the drive and motor.*
- *230V & 460V with reactor: Motor dependent - 100ft 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*

Radial Overhung Load

The table below lists the maximum overhung radial load for MTCP, MTCP2, and MTC cast-iron motors. Values listed are in pounds (lbs) at the center of the N-W dimension.

Shaft Loading for AC Induction Horizontal Motors with Ball Bearings				
Frame Size	***Synchronous Speed***			
	3600	***1800***	***1200***	***900***
143T	106	154	179	192
145T	109	154	176	196
182T	180	227	260	287
184T	180	227	260	289
213T	230	300	350	380
215T	230	300	350	380
254T	470	593	703	774
256T	470	589	705	776
284T	570	735	838	929
286T	570	735	838	929
324T	660	860	990	1100
326T	660	850	980	1090
364T	820	1080	1240	1390
365T	820	1080	1240	1370
404T	-	1270	1450	1600
405T	-	1290	1480	1630
444T	-	1560	1760	1970
445T	-	1520	1760	1970
447T	-	1450	1660	1880
449T	-	1490	1660	1880

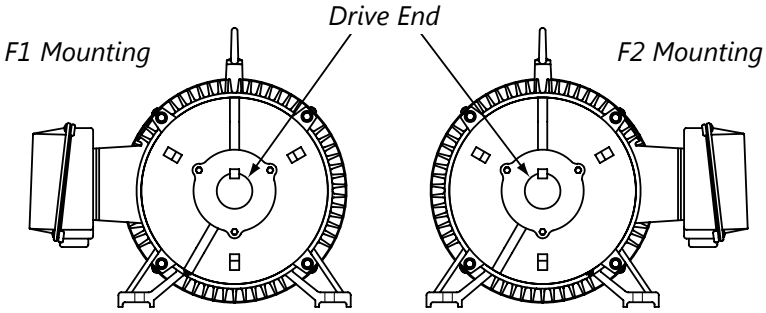
Notes:

- *All belt loads are considered to act in vertically downward direction.*
- *Overhung loads include belt tension and weight of sheave.*
- *For load at end of the shaft, subtract 15%.*
- *Radial overhung load limits based on bearing L-10 life of 26,280 hours.*
- *Overhung load limits do not include any effect of unbalanced magnetic pull.*
- *In applications involving over hung load, drive end, bearing life, may be increased by replacing ball bearings with equivalent roller bearings. Consult your EASA authorized motor shop for details.*

F1 and F2 Mounting

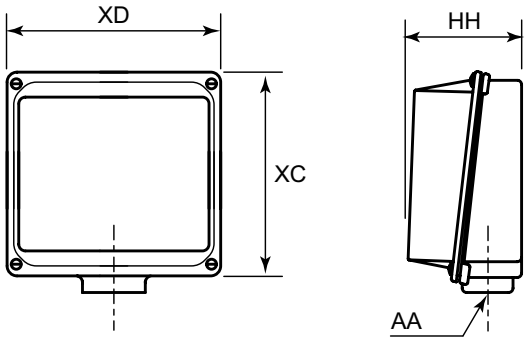
F1 and F2 mounting refers to the location of the junction box on an AC motor. Several models of IronHorse® motors can be converted from F1 to F2 mounting.

F1 to F2 Mounting Convertibility	
Frame Size *	***Ability to be Converted***
56	No (F1 only)
143T	MTC Motors: Yes (F1, convertible to F2) MTCP(2) Motors: Yes (F1, convertible to F2) MTF Motors: No (F1 only) MTF2 Motors: No (F1 only) MTDP Motors: No (F1 only)
145T	
182T	
184T**	
213T	
215T	
254T	
256T	
284T	MTC Motors: No (F1 only) MTCP(2) Motors: Yes (F1, convertible to F2) MTDP Motors: No (F1 only)
286T	
324T	
326T	
364T	MTC Motors: No (F1 only) MTCP(2) Motors: No (F1 only)
365T	
405T	
444T	MTC Motors: Yes (F1, convertible to F2) MTCP(2) 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.* *** The MTCP2 184T frame motor is F1 only.*	



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. Conversion from F1 to F2 mounting must be performed by an EASA motor shop in order to maintain the motor warranty.

Junction Box Dimensions



Junction Box Dimensions (in)										
Frame Size *	XD (Width)			XC (Height)			HH (Depth)			AA (Conduit Hole) (NPT)
	MTF2	MTR2 MTRP	MTCP2	MTF2	MTR2 MTRP	MTCP2	MTF2	MTR2 MTRP	MTCP2	
56	n/a	3.2	n/a	n/a	3.7	n/a	n/a	1.6	n/a	1/2
143T		4.1	4.1		4.5	4.5		2.3	2.4	3/4
145T										
182T	7.8	4.6	4.6	7.8	5.0	5.0	2.7	2.6	2.8	1
184T										
213T	n/a			n/a			n/a			
215T										
254T		6.3	6.3		7.2	7.3		3.3	3.7	1-1/2
256T										
284T										
286T										
324T		9	9.0		10.6	10.6		5.3	5.7	2
326T										
364T										3
365T										
405T		9.8	9.8		11.7	11.8		7.1	7.2	3 (2 openings)
444T		11.3	11.3			11.8			7.2	
445T										
445/7T										
449T			11.3			12.4			7.3	

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

Minimum Sheave Diameters

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

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.

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	MTCP2			MTDP		MTF2
			1200 RPM	1800 RPM	3600 RPM	1800	3600	1800
143T	1	–	–	60	–	50	–	–
	1-1/2			–	62	–		
145T	1	–	58		–			
	1-1/2		–	62		50		
	2			62	62	51		
	3			–	–	–	56	
182T	1-1/2	–	62	–	–	–	–	–
	2	76.0	–					54
	3			63	64	52		–
	5	–		–	–	–	67	
184T	2	–	62	–	–	–	–	–
	3		–					56
	5	76.0		63	64	53		58
	7.5			–	–	–	67	–
213T	3	–	64	–	–	–	–	56
	7-1/2		–	63	65	55	–	–
215T	5		64	–	–	–	–	–
	7-1/2		–					62
	10			64	67	56		65
254T	7-1/2		66	–	–		–	
	15		–	67	70	60		
256T	10		68	–	–			
	20		–	68	72	63		
284T	15		70	–	–			
	25		–	70		66		
286T	20		70	–	–			
	30		–	70		67		
324T	40			71		69		
326T	50			72		70		
364T	60			73		–		
365T	75			74				
405T	100			74				
444T	125			76				
445T	150			77				
445/7T	200			78				
449T	250			93				
	300			93				

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

(CONTINUED ON NEXT PAGE)

Average 56C Frame Decibel Levels									
MTR2						***MTRP***			
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***
		1Ø	***3Ø***	***1Ø***	***3Ø***			***3Ø***	***3Ø***
56C	1/3	70.0	70.0	80.0	80.0	***56CH***	1/3	–	–
	1/2						1/2		
	3/4						3/4		
	1						1	70.0	80.0
	1-1/2			85.0	85.0		1-1/2		85.0
	2		74.0	85.0	85.0		2		85.0
	3	–	–	–	88.0		3	–	88.0
** TC-frame motors have the same sound ratings as the comparable T-frame motors.*									

Shipping Crate Dimensions

Nominal Shipping Crate Dimensions							
Frame Size *	**HP**	**Width x Depth x Height (in)**					
		MTF	**MTR2**	**MTRP**	**MTCP2**	**MTDP**	**MTF2**
56C	1/3	–	13.5 x 11 x 11	–	–	–	–
	1/2						
	3/4						
	1		14 x 11 x 11				
	1-1/2						
	2		14.5 x 11 x 11				
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	–	–	–	18.9 x 12.99 x 10.63	14.4 x 11.4 x 11	–
143T	1-1/2						
145T	1-1/2						
145T	2						
182T	1-1/2				21.46 x 15.55 x 12.99	18.1 x 13 x 11	20.685 x 14.972 x 15.169
182T	2	18 x 14 x 14			–		
182T	3	–			21.46 x 15.55 x 12.99		
184T	2						
184T	3	19 x 14 x 14			–		
184T	5	21.5 x 14 x 14			21.46 x 15.55 x 12.99		
213T	3	–	–	–	26.38 x 17.91 x 14.96	19.3 x 14.6 x 14.6	–
213T	7-1/2						
215T	5						23.443 x 17.73 x 16.942
215T	10						
254T	1-1/2				32.68 x 22.05 x 19.09	26.1 x 20.1 x 17.7	–
254T	15						
256T	10						
256T	20						
284T	15				34.65 x 23.23 x 21.46	27.4 x 21.9 x 20.3	
284T	25						
286T	20				34.65 x 23.23 x 21.46		
286T	30						
324T	40				37.80 x 26.77 x 22.83	30.7 x 22.8 x 22.2	
326T	50						
364T	60				41.73 x 28.74 x 25.98	–	
365T	75						
405T	100				43.70 x 34.25 x 29.13		
444T	125				49.61 x 35.83 x 32.68		
445T	150						
445/7T	200				53.54 x 35.83 x 32.68		
449T	250				62.99 x 36.22 x 33.86		
	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."

Performance Curves for MTF2 Motors

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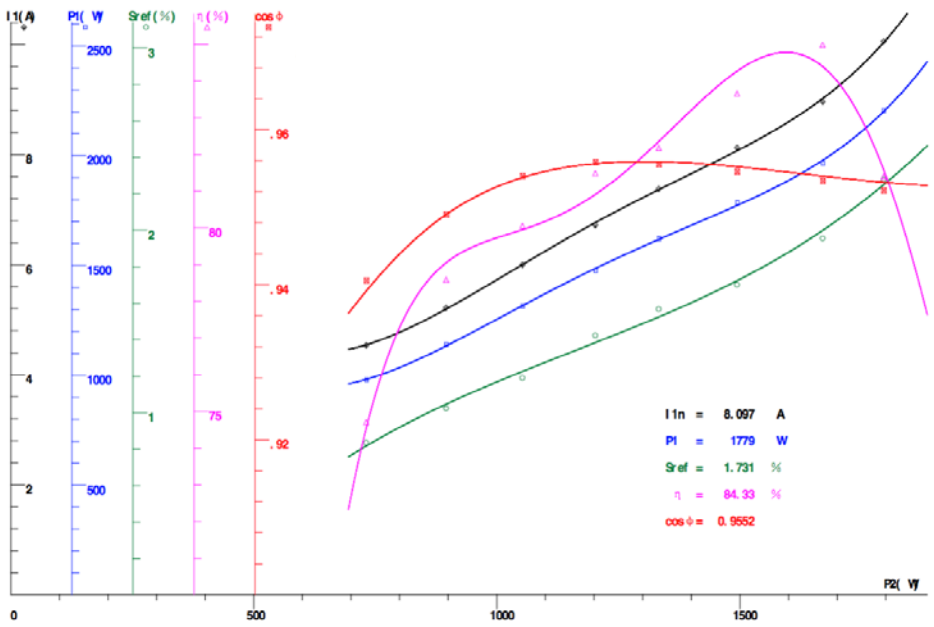
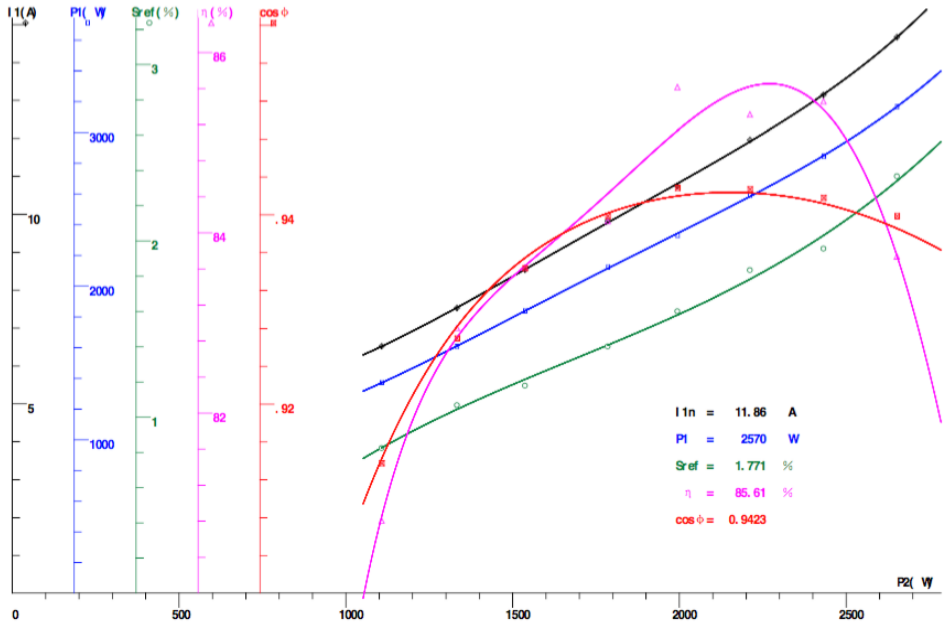


Tc (N.m.)	s (%)	sj (%)	P2 (W)	P1j (W)	I 1j (A)	η (%)	η j (%)	cos Φ	cosj Φ
9.749	2.278	2.250	1796	2201	10.04	81.40	81.58	0.9522	0.9532
9.037	1.956	1.999	1670	1979	9.018	84.99	84.40	0.9534	0.9540
8.064	1.700	1.732	1494	1773	8.07	83.66	84.27	0.9546	0.9552
7.184	1.567	1.524	1333	1618	7.362	82.18	82.35	0.9556	0.9559
6.473	1.422	1.383	1203	1487	6.763	81.49	80.91	0.9558	0.9556
5.652	1.189	1.226	1053	1317	6.002	80.05	79.95	0.9540	0.9538
4.802	1.022	1.046	895.9	1133	5.192	78.59	79.05	0.9491	0.9490
3.913	0.8333	0.8162	731.4	981.3	4.543	74.70	74.54	0.9405	0.9392

I 1 = 8.097 A P1n = 1779 W Sn = 1.731%
n = 1768.8 r/min η = 84.33% cos Φ = 0.9552

Rated Power	P1 (W)	I 1 (A)	S (%)	n (speed)	P2 (W)	T (N.m.)	η (%)	cos Φ
150%	4478	20.42	3.725	1732.9	2250	12.4	50.25	0.9534
125%	2398	10.94	2.437	1756.1	1875	10.2	78.17	0.9529
100%	1779	8.097	1.731	1768.8	1500	8.099	84.33	0.9552
75%	1401	6.377	1.302	1776.8	1125	6.048	80.32	0.9550
50%	994.1	4.595	0.8450	1784.8	750	4.013	75.44	0.9406
25%	1238	5.875	0.0541	1799.0	375	1.991	30.29	0.9163

MTF2-003-1B18

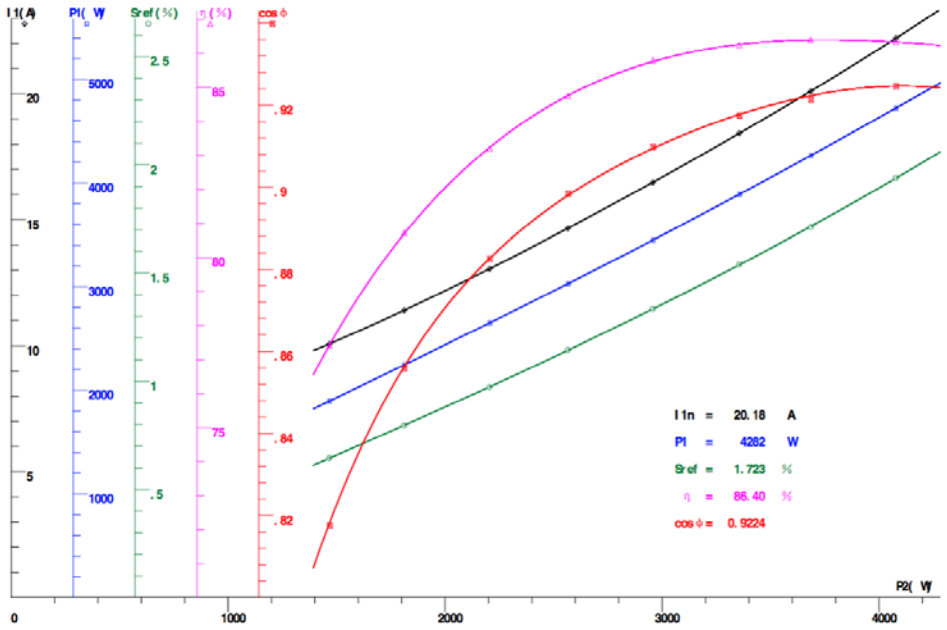


Tc (N.m.)	s (%)	sj (%)	P2 (W)	P1j (W)	I 1j (A)	η (%)	η j (%)	cos Φ	cosj Φ
14.41	2.367	2.340	2652	3167	14.67	83.74	83.75	0.9398	0.9386
13.16	1.956	2.031	2432	2849	13.16	85.46	85.37	0.9418	0.9412
11.95	1.833	1.782	2211	2583	11.92	85.31	85.62	0.9427	0.9423
10.75	1.600	1.579	1994	2342	10.81	85.61	85.13	0.9428	0.9420
9.606	1.400	1.408	1785	2114	9.778	84.13	84.43	0.9399	0.9402
8.251	1.178	1.213	1537	1838	8.541	83.62	83.63	0.9343	0.9354
7.148	1.067	1.043	1333	1609	7.537	82.94	82.84	0.9269	0.9282
5.922	0.8222	0.8246	1107	1369	6.513	80.81	80.84	0.9137	0.9142

I 1 = 11.86 A P1n = 2570 W Sn = 1.771%
n = 1768.1 r/min η = 85.61% cos Φ = 0.9423

Rated Power	P1 (W)	I 1 (A)	S (%)	n (speed)	P2 (W)	T (N.m.)	η (%)	cos Φ
150%	4854	22.85	3.781	1731.9	3300	18.20	67.98	0.9235
125%	3336	15.48	2.503	1755.0	2750	14.96	82.45	0.9369
100%	2570	11.86	1.771	1768.1	2200	11.88	85.61	0.9423
75%	1965	9.106	1.303	1776.6	1650	8.870	83.99	0.9380
50%	1362	6.484	0.8171	1785.3	1100	5.884	80.74	0.9136
25%	1042	5.388	0.0320	1799.4	550	2.919	52.80	0.8404

MTF2-005-1B18

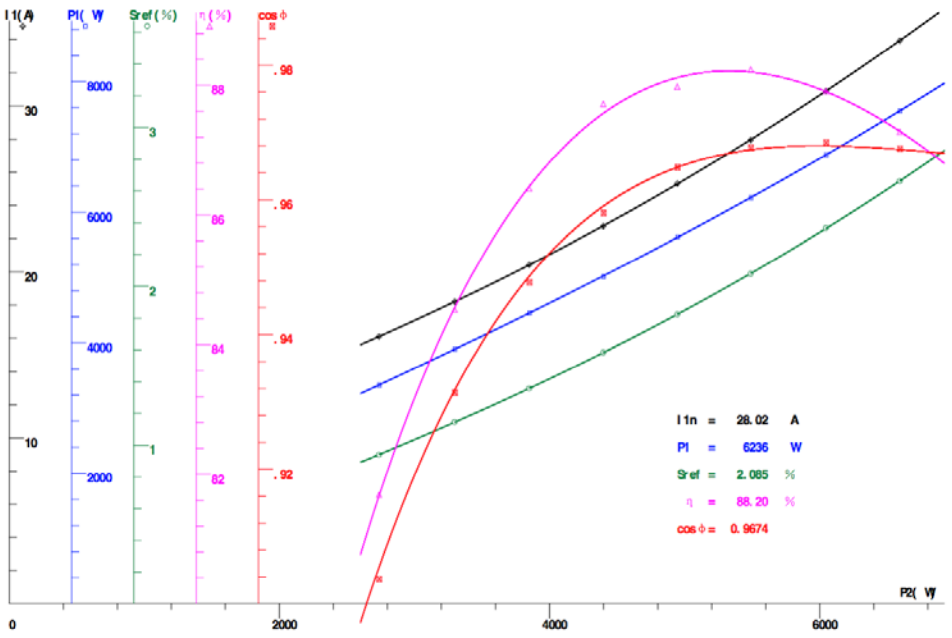


Tc (N.m.)	s (%)	sj (%)	P2 (W)	P1j (W)	I 1j (A)	η (%)	η j (%)	cos Φ	cosj Φ
22.06	1.939	1.938	4078	4723	22.21	86.34	86.34	0.9246	0.9246
19.89	1.711	1.714	3685	4265	20.11	86.41	86.40	0.9214	0.9223
18.08	1.539	1.537	3356	3890	18.43	86.25	86.27	0.9174	0.9177
15.9	1.333	1.333	2957	3448	16.49	85.80	85.76	0.9098	0.9094
13.77	1.144	1.143	2566	3028	14.66	84.75	84.76	0.8984	0.8980
11.81	0.9722	0.9735	2205	2649	13.05	83.20	83.23	0.8825	0.8826
9.688	0.7944	0.7956	1811	2245	11.40	80.73	80.69	0.8558	0.8562
7.833	0.6444	0.6436	1467	1895	10.07	77.41	77.42	0.8175	0.8180

I 1 = 20.18 A P1n = 4282 W Sn = 1.723%
n = 1769.0 r/min η = 86.40% cos Φ = 0.9224

Rated Power	P1 (W)	I 1 (A)	S (%)	n (speed)	P2 (W)	T (N.m.)	η (%)	cos Φ
150%	6483	31.90	2.917	1747.5	5550	30.33	85.60	0.8837
125%	5376	25.40	2.273	1759.1	4625	25.11	86.04	0.9203
100%	4282	20.18	1.723	1769.0	3700	19.97	86.40	0.9224
75%	3251	15.62	1.243	1777.6	2775	14.91	85.37	0.9046
50%	2284	11.56	0.8128	1785.4	1850	9.896	80.99	0.8595
25%	1341	8.285	0.4092	1792.6	925	4.928	68.97	0.7038

MTF2-7P5-1B18-215

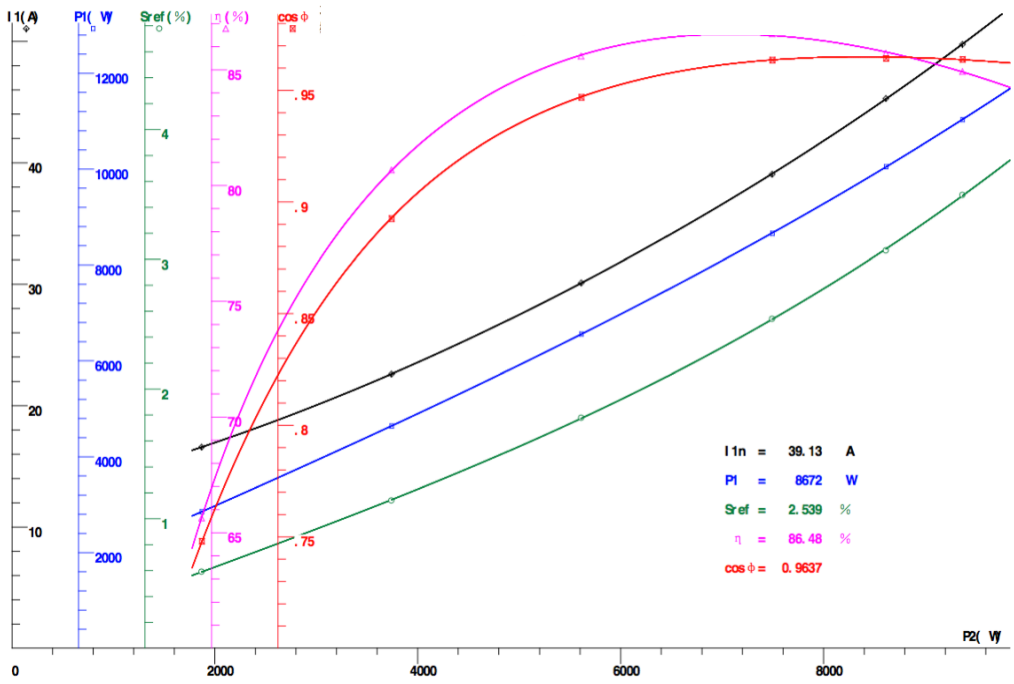


Tc (N.m.)	s (%)	sj (%)	P2 (W)	P1j (W)	I 1j (A)	η (%)	η j (%)	cos Φ	cosj Φ
35.93	2.661	2.662	6593	7552	33.94	87.28	87.29	0.9676	0.9675
32.85	2.367	2.363	6046	6878	30.89	87.91	87.90	0.9685	0.9680
29.74	2.078	2.080	5490	6224	27.97	88.24	88.20	0.9677	0.9674
26.72	1.822	1.823	4945	5612	25.29	87.98	88.12	0.9648	0.9648
23.71	1.583	1.582	4399	5023	22.77	87.71	87.57	0.9580	0.9590
20.70	1.356	1.356	3849	4453	20.41	86.40	86.44	0.9477	0.8486
17.70	1.144	1.143	3299	3901	18.20	84.54	84.57	0.9313	0.9317
14.66	0.9389	0.9394	2738	3353	16.10	81.68	81.66	0.9036	0.9054

I 1 = 28.02 A P1n = 6236 W Sn = 2.085%
n = 1762.5 r/min η = 88.20% cos Φ = 0.9674

Rated Power	P1 (W)	I 1 (A)	S (%)	n (speed)	P2 (W)	T (N.m.)	η (%)	cos Φ
150%	9813	44.19	3.719	1733.1	8250	45.46	84.07	0.9655
125%	7914	35.58	2.826	1749.1	6875	37.54	86.87	0.9670
100%	6236	28.02	2.085	1762.5	5500	29.80	88.20	0.9674
75%	4737	21.58	1.468	1773.6	4125	22.21	87.09	0.9545
50%	3364	16.14	0.9437	1783.0	2750	14.73	81.74	0.9061
25%	2056	11.48	0.4838	1791.3	1375	7.331	66.89	0.7784

MTF2-010-1B18



Tc (N.m.)	s (%)	sj (%)	P2 (W)	P1j (W)	I 1j (A)	η (%)	η j (%)	cos Φ	cosj Φ
51.50	3.494	3.488	9368	11034	49.78	84.93	84.91	0.9638	0.9637
47.14	3.067	3.078	8613	10042	45.25	85.71	85.77	0.9643	0.9650
40.78	2.539	2.536	7492	8663	39.08	86.55	86.48	0.9636	0.9637
30.30	1.778	1.772	5610	6551	30.07	85.59	85.64	0.9468	0.9471
20.07	1.139	1.144	3741	4639	22.59	80.67	80.64	0.8925	0.8928
9.975	0.5889	0.5873	1869	2848	16.57	65.63	65.63	0.7479	0.7473

I 1 = 39.13 A
n = 1754.3 r/min

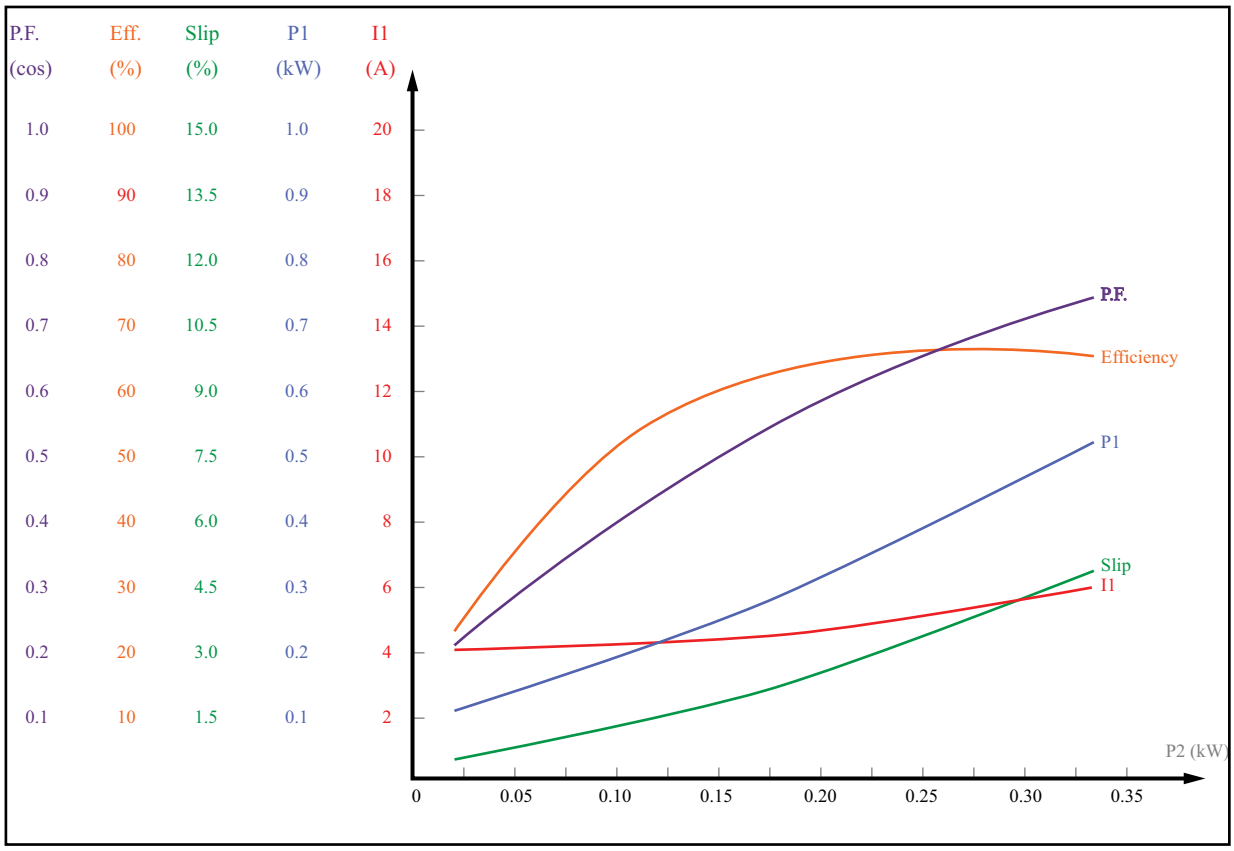
P1n = 8672 W
η = 86.48%

Sn = 2.539%
cos Φ = 0.9637

Rated Power	P1 (W)	I 1 (A)	S (%)	n (speed)	P2 (W)	T (N.m.)	η (%)	cos Φ
150%	13771	62.67	4.695	1715.5	11250	62.63	81.70	0.9553
125%	11042	49.82	3.492	1737.1	9375	51.54	84.90	0.9637
100%	8672	39.13	2.539	1754.3	7500	40.83	86.48	0.9637
75%	6567	30.14	1.777	1768.0	5625	30.38	85.66	0.9473
50%	4648	22.62	1.147	1779.3	3750	20.13	80.68	0.8932
25%	2853	16.58	0.5891	1789.4	1875	10.01	65.71	0.7480

Performance Curves for MTR2 Motors

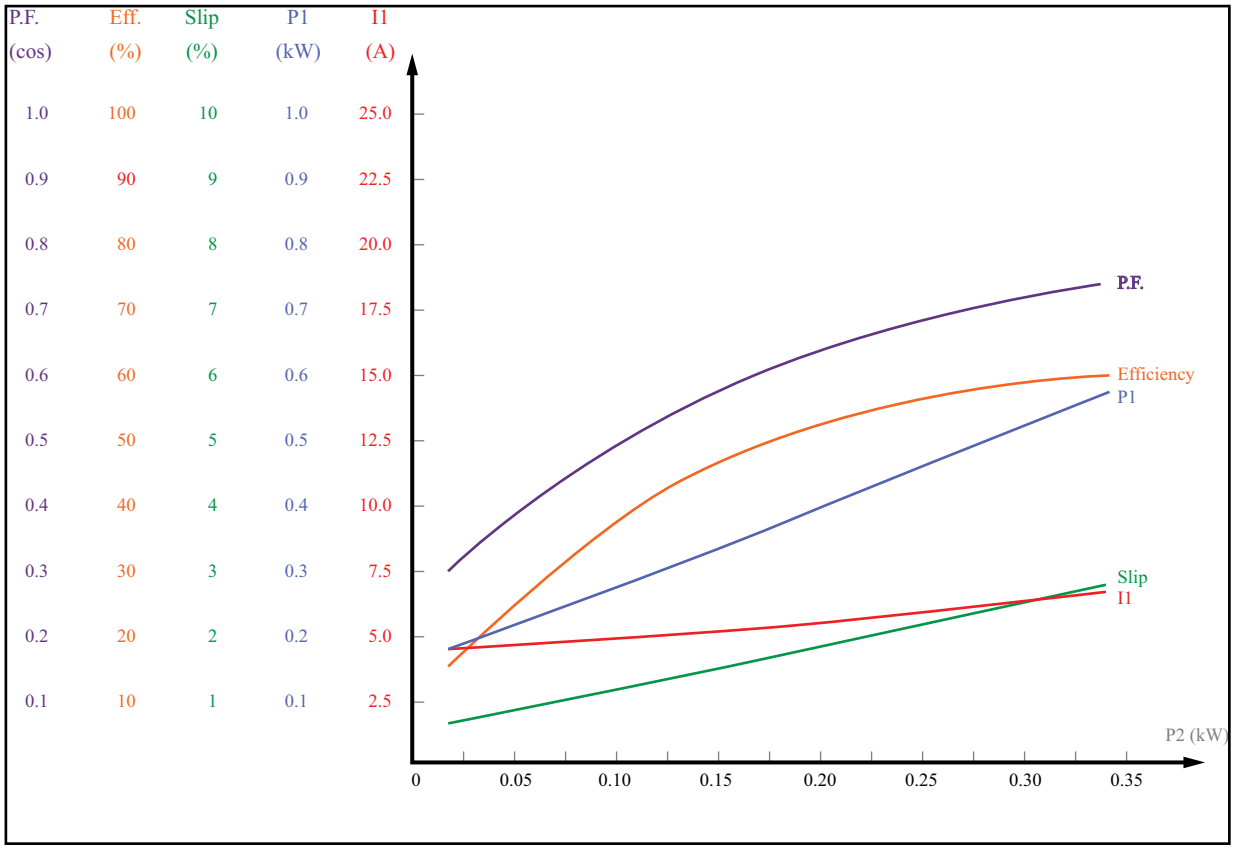
MTR2-P33-1AB18



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

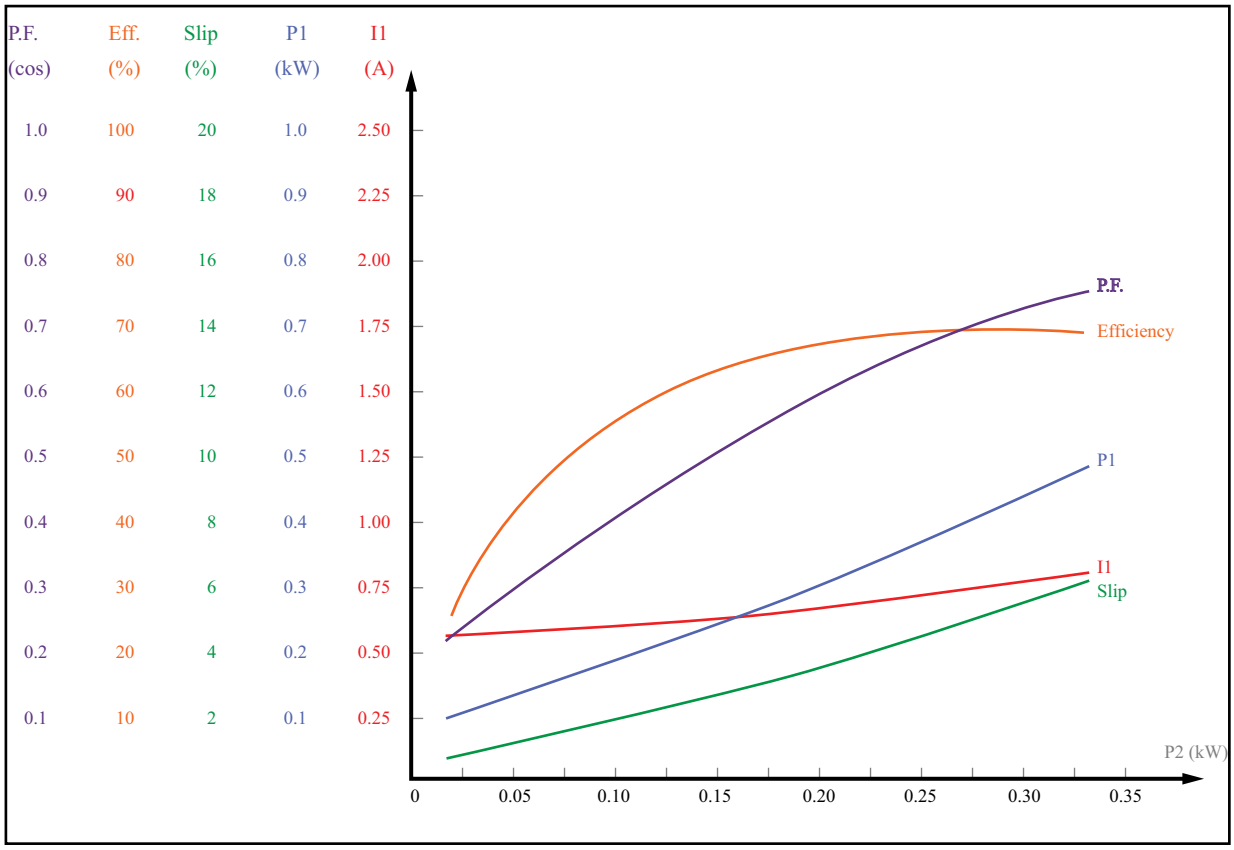
MTR2-P33-1AB36



Performance Data - MTR2-P33-1AB36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.0858	115.2	4.67	0.2505	0.23	3564.3	34.27	0.47
0.0970	115.2	4.73	0.2665	0.26	3561.3	36.38	0.49
0.1302	115.1	4.90	0.3056	0.35	3554.1	42.63	0.54
0.1744	115.0	5.16	0.3576	0.47	3543.7	48.76	0.60
0.2073	115.0	5.39	0.3967	0.56	3535.6	52.26	0.64
0.2437	114.9	5.66	0.4387	0.66	3526.8	55.55	0.67
0.2763	114.8	5.93	0.4798	0.75	3519.2	57.59	0.70
0.3195	115.7	6.37	0.5389	0.87	3508.2	59.29	0.73

Load Performance Data - MTR2-P33-1AB36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	4.58	0.2264	0.86	27.60	0.430	0.06
50	4.87	0.2979	1.26	41.96	0.532	0.13
75	5.25	0.3720	1.67	50.40	0.616	0.19
100	5.72	0.4487	2.09	55.71	0.682	0.25
125	6.29	0.5280	2.53	59.19	0.730	0.31

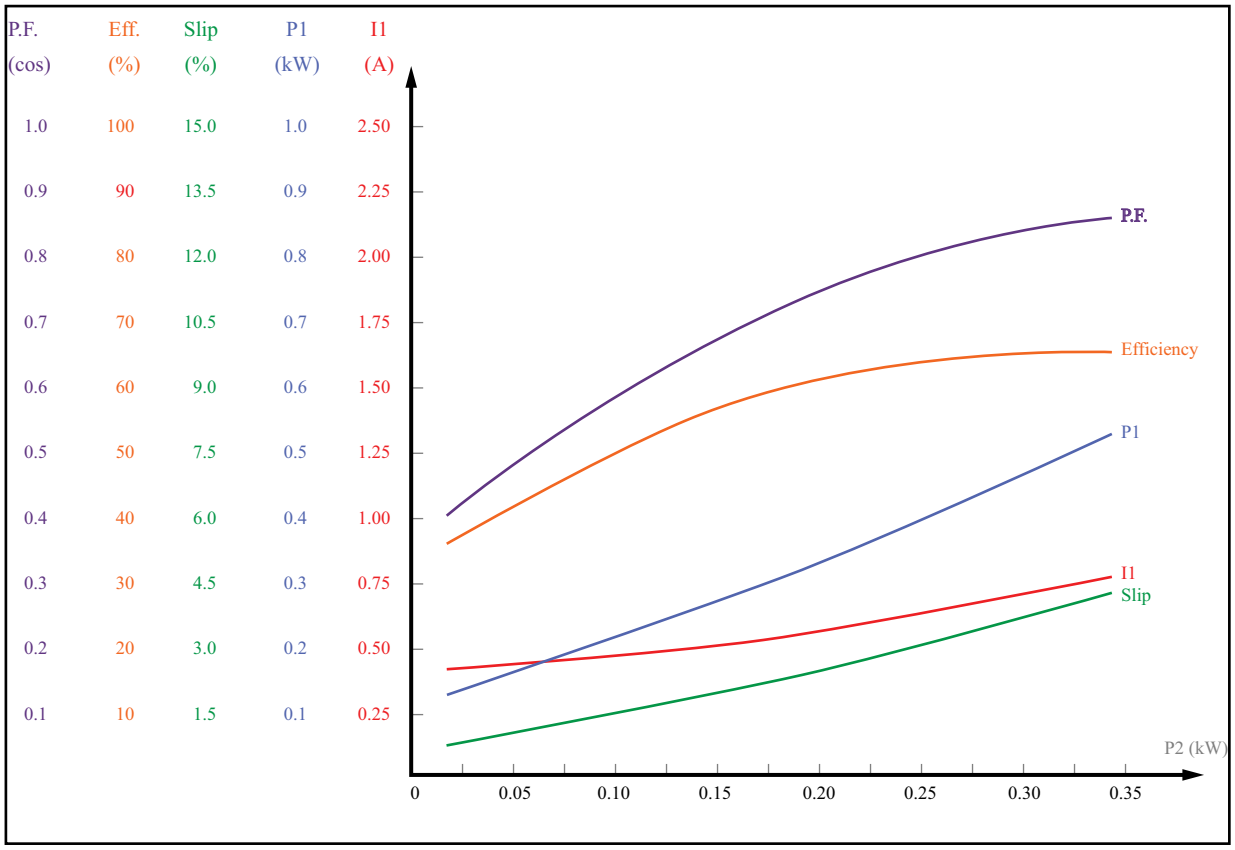
MTR2-P33-3BD18



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

MTR2-P33-3BD36

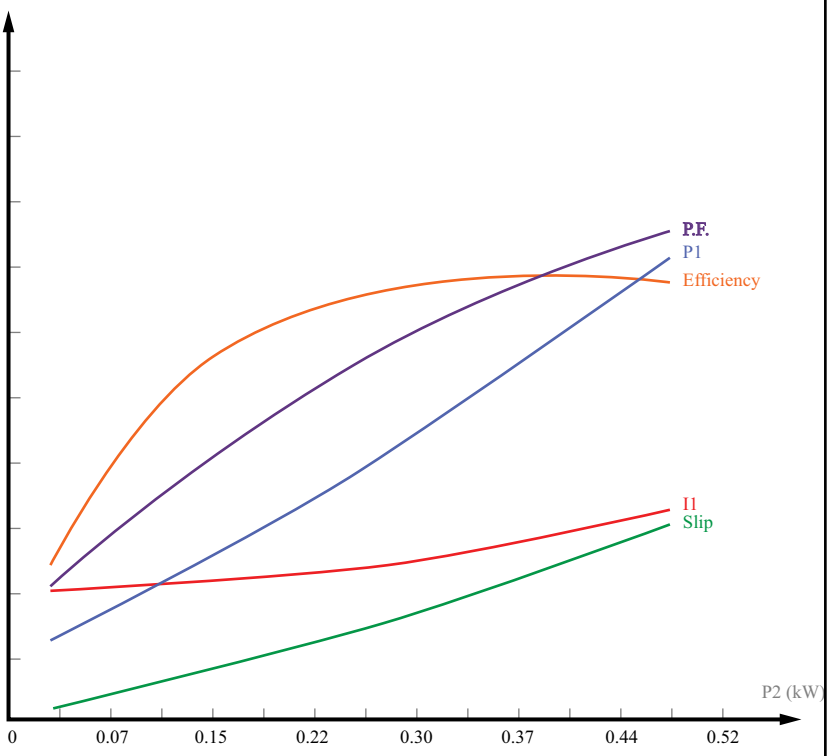


Performance Data - MTR2-P33-3BD36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1375	460.6	0.49	0.2530	0.34	3536	54.36	0.65
0.1452	460.6	0.50	0.2620	0.35	3534	55.43	0.66
0.1551	460.6	0.51	0.2740	0.38	3530	56.61	0.68
0.1790	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

MTR2-P50-1AB18

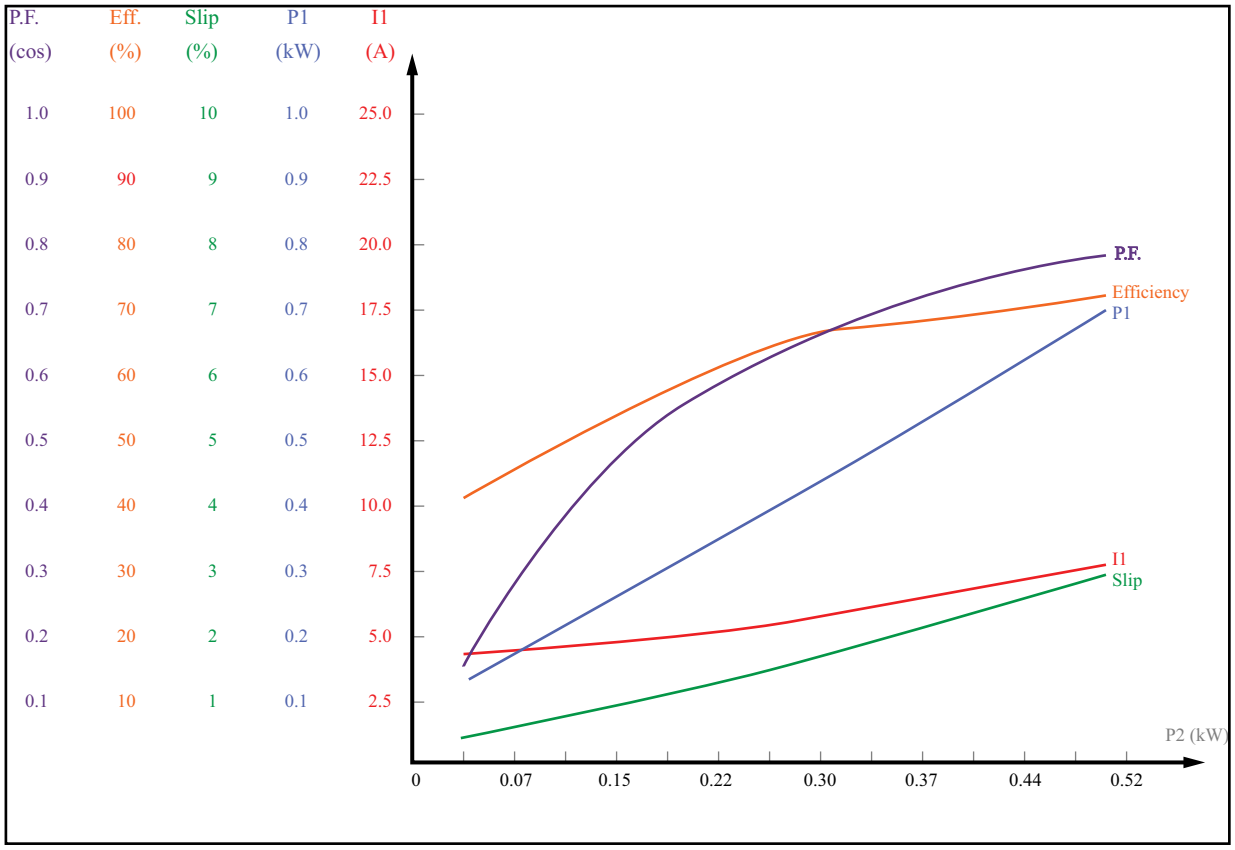
P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	1.0	25.0
0.9	90	13.5	0.9	22.5
0.8	80	12.0	0.8	20.0
0.7	70	10.5	0.7	17.5
0.6	60	9.0	0.6	15.0
0.5	50	7.5	0.5	12.5
0.4	40	6.0	0.4	10.0
0.3	30	4.5	0.3	7.5
0.2	20	3.0	0.2	5.0
0.1	10	1.5	0.1	2.5



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

MTR2-P50-1AB36

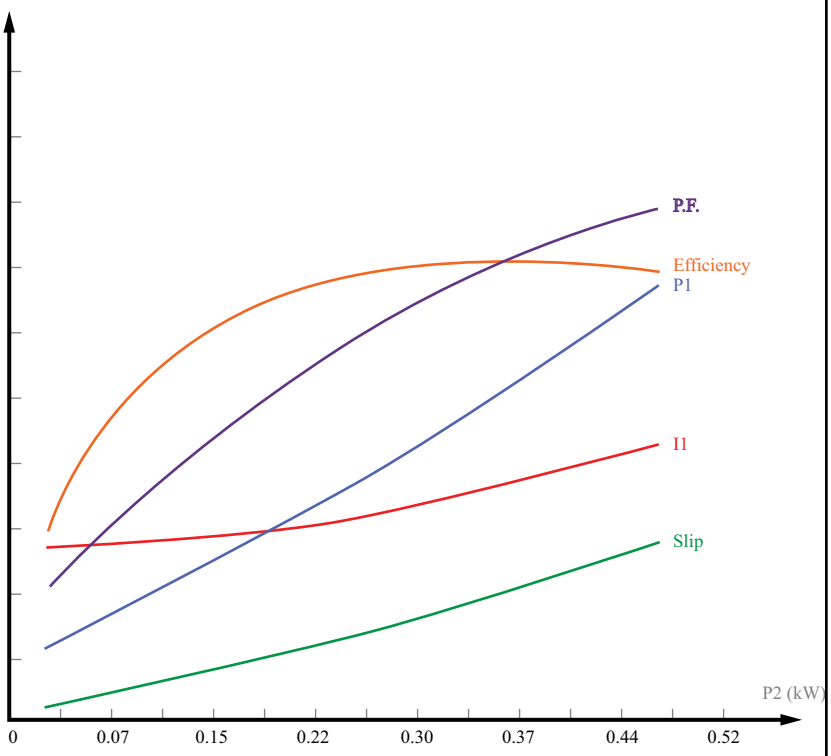


Performance Data - MTR2-P50-1AB36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1420	115.2	4.72	0.2625	0.38	3567	54.09	0.48
0.1494	115.2	4.75	0.2695	0.40	3566	55.44	0.49
0.1974	115.1	5.04	0.3294	0.53	3557	59.94	0.57
0.2489	115.0	5.37	0.3873	0.67	3547	64.27	0.63
0.3148	115.8	5.86	0.4632	0.85	3536	67.97	0.68
0.3510	115.7	6.20	0.5131	0.95	3527	68.41	0.72
0.4266	115.5	6.91	0.6069	1.16	3511	70.30	0.76
0.4694	115.4	7.32	0.6587	1.28	3501	71.27	0.78

Load Performance Data - MTR2-P50-1AB36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	4.46	0.2059	0.68	44.92	0.401	0.09
50	4.95	0.3122	1.10	59.27	0.548	0.19
75	5.58	0.4217	1.58	65.80	0.657	0.28
100	6.35	0.5346	2.10	69.21	0.732	0.37
125	7.26	0.6508	2.67	71.07	0.779	0.46

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

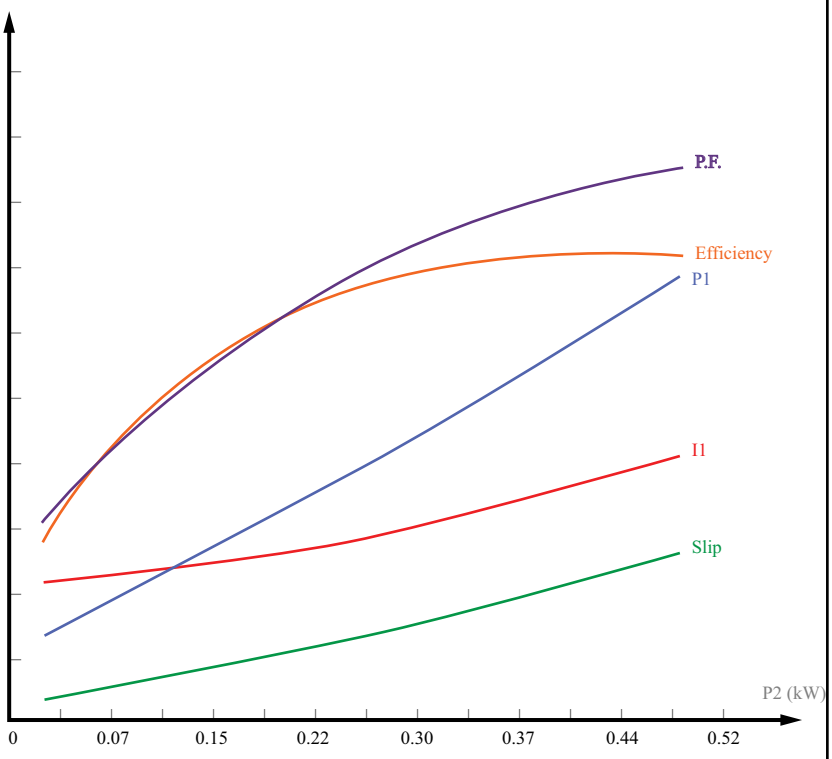


Performance Data - MTR2-P50-3BD18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.0784	460.5	0.68	0.1670	0.41	1780	46.97	0.31
0.1388	460.4	0.70	0.2340	0.76	1767	59.33	0.42
0.1898	460.2	0.74	0.2930	1.06	1755	64.78	0.50
0.2368	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

MTR2-P50-3BD36

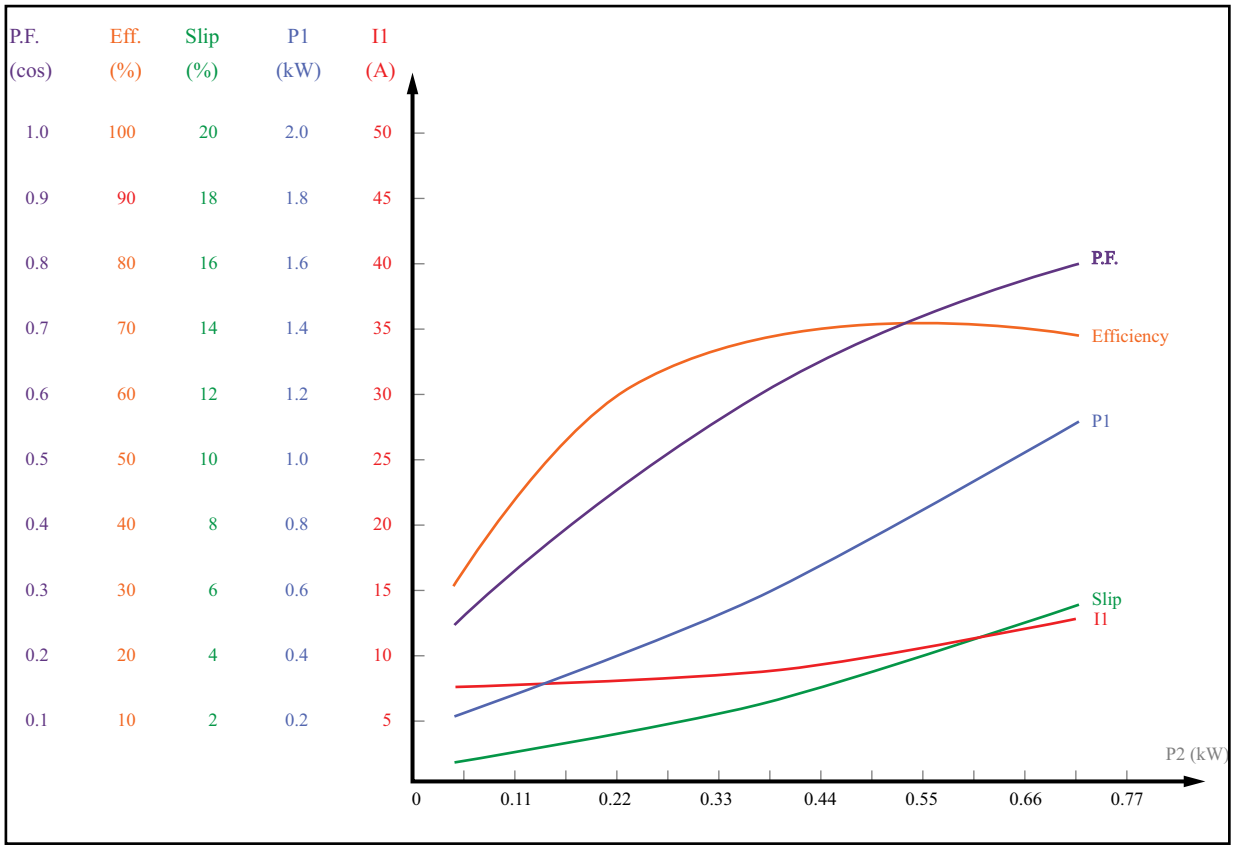
P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	1.0	2.50
0.9	90	13.5	0.9	2.25
0.8	80	12.0	0.8	2.00
0.7	70	10.5	0.7	1.75
0.6	60	9.0	0.6	1.50
0.5	50	7.5	0.5	1.25
0.4	40	6.0	0.4	1.00
0.3	30	4.5	0.3	0.75
0.2	20	3.0	0.2	0.50
0.1	10	1.5	0.1	0.25



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

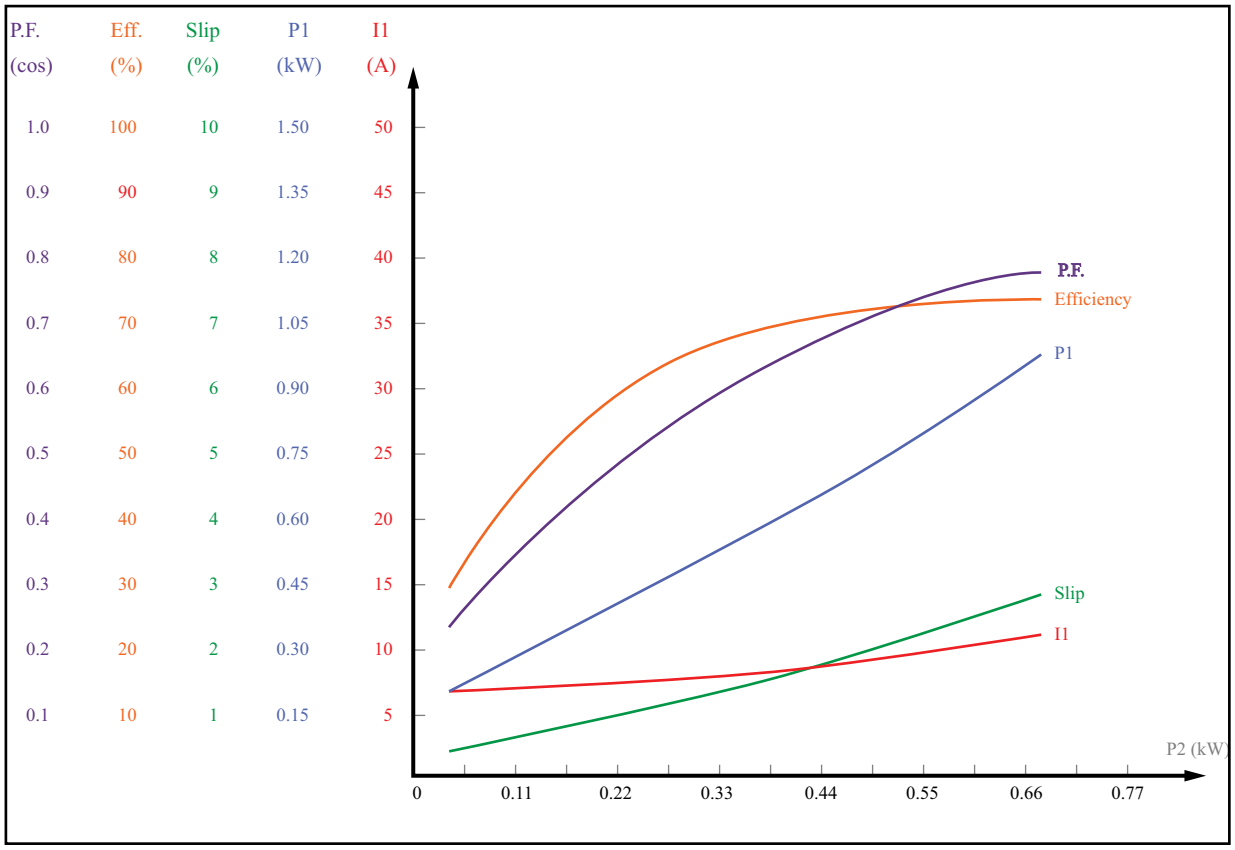
MTR2-P75-1AB18



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

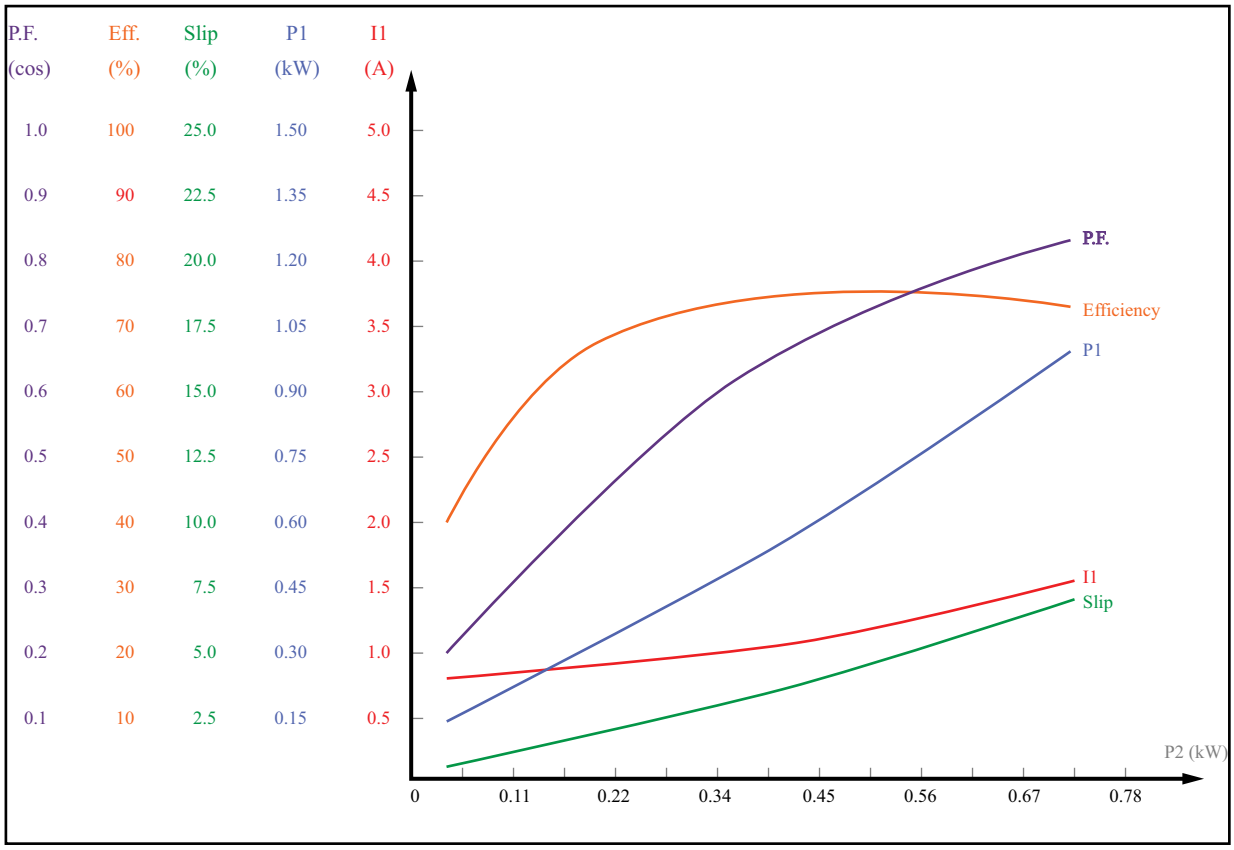
MTR2-P75-1AB36



Performance Data - MTR2-P75-1AB36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1386	115.9	6.65	0.2901	0.37	3578	47.79	0.38
0.1945	115.8	6.85	0.3550	0.52	3571	54.79	0.45
0.2650	115.7	7.14	0.4249	0.71	3563	62.35	0.52
0.3608	115.6	7.69	0.5328	0.97	3551	67.72	0.60
0.4485	115.4	8.31	0.6375	1.21	3539	70.35	0.66
0.5320	115.2	9.00	0.7403	1.44	3527	71.87	0.71
0.6326	115.0	9.97	0.8719	1.72	3511	72.55	0.76
0.6541	115.0	10.19	0.8988	1.78	3507	72.77	0.77

Load Performance Data - MTR2-P75-1AB36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	6.64	0.2916	0.61	47.15	0.382	0.14
50	7.20	0.4370	1.04	62.93	0.528	0.28
75	8.04	0.5943	1.53	69.41	0.643	0.41
100	9.16	0.7635	2.08	72.04	0.725	0.55
125	10.56	0.9446	2.68	72.78	0.778	0.69

MTR2-P75-3BD18

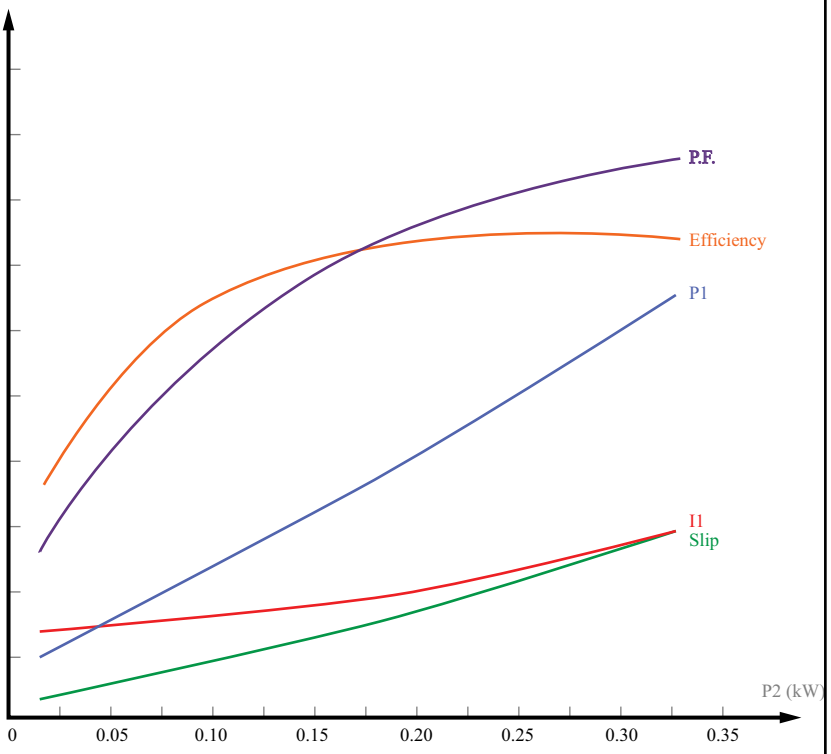


Performance Data - MTR2-P75-3BD18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1144	460.9	0.83	0.2060	0.62	1782	55.56	0.31
0.2075	460.8	0.87	0.3090	1.16	1769	67.15	0.45
0.2857	460.7	0.92	0.3990	1.60	1757	71.61	0.54
0.3585	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

MTR2-P75-3BD36

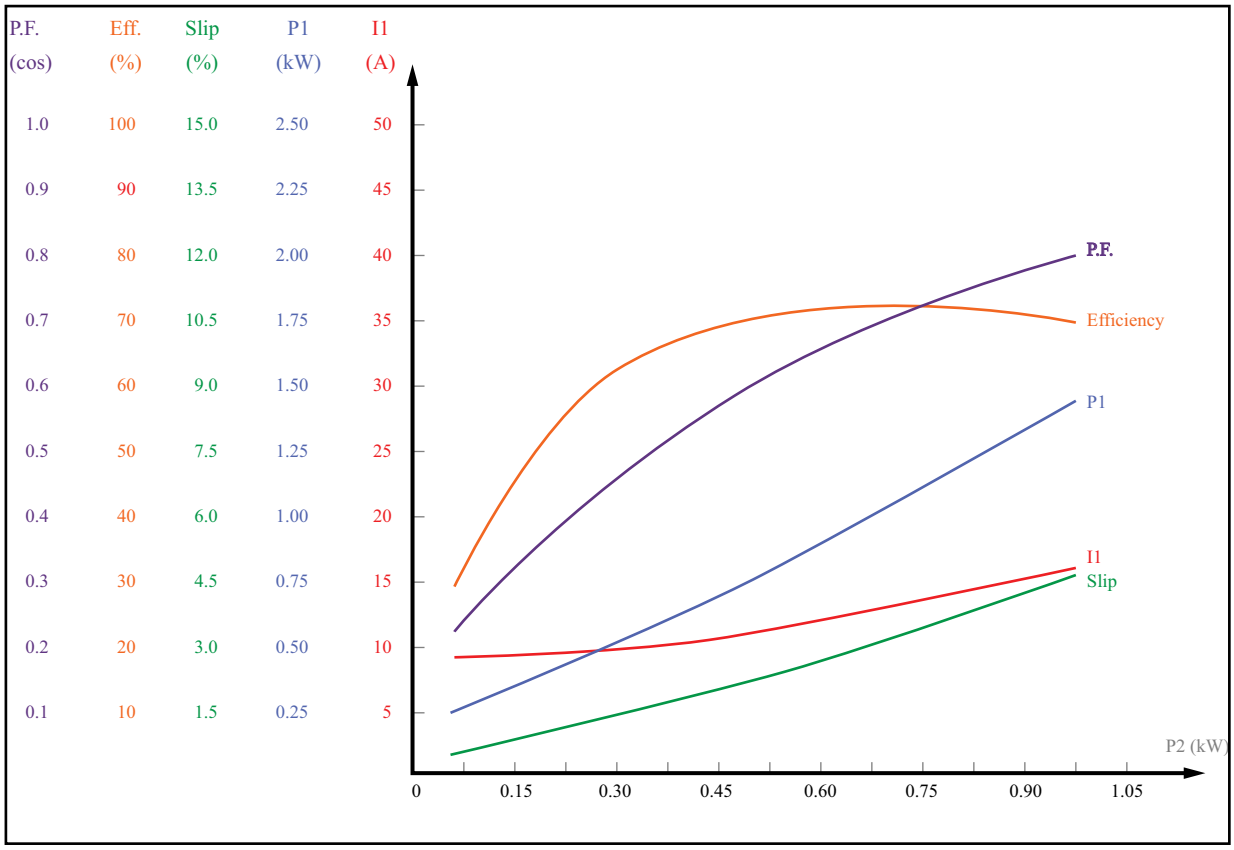
P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	1.50	5.0
0.9	90	13.5	1.35	4.5
0.8	80	12.0	1.20	4.0
0.7	70	10.5	1.05	3.5
0.6	60	9.0	0.90	3.0
0.5	50	7.5	0.75	2.5
0.4	40	6.0	0.60	2.0
0.3	30	4.5	0.45	1.5
0.2	20	3.0	0.30	1.0
0.1	10	1.5	0.15	0.5



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

MTR2-001-1AB18

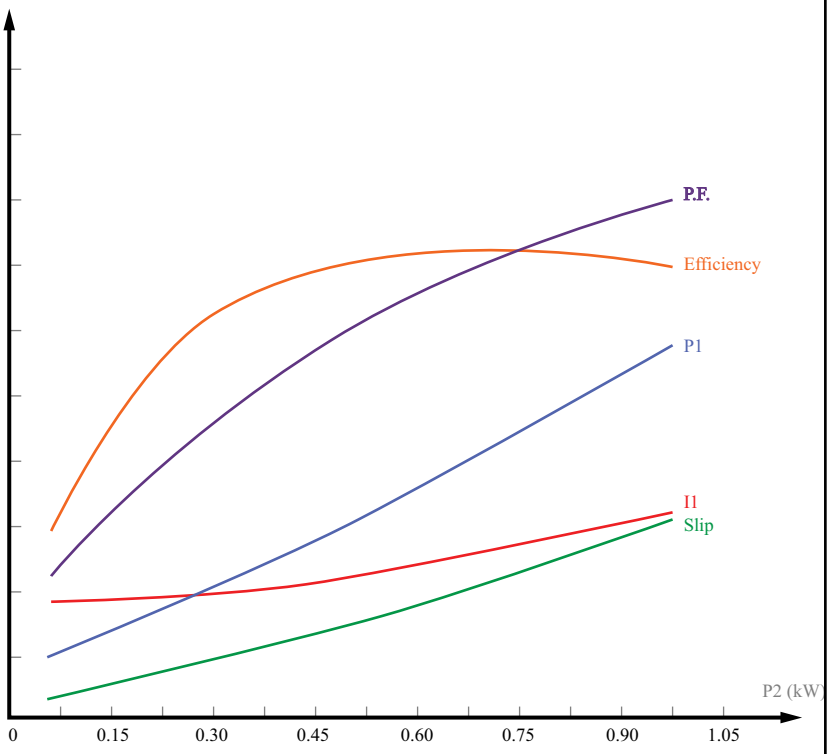


Performance Data - MTR2-001-1AB18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.2110	115.6	9.16	0.3910	1.13	1784	53.97	0.37
0.2960	115.5	9.47	0.4820	1.59	1778	61.42	0.44
0.4042	115.3	9.99	0.6040	2.18	1771	66.91	0.53
0.5023	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

MTR2-001-1AB36

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

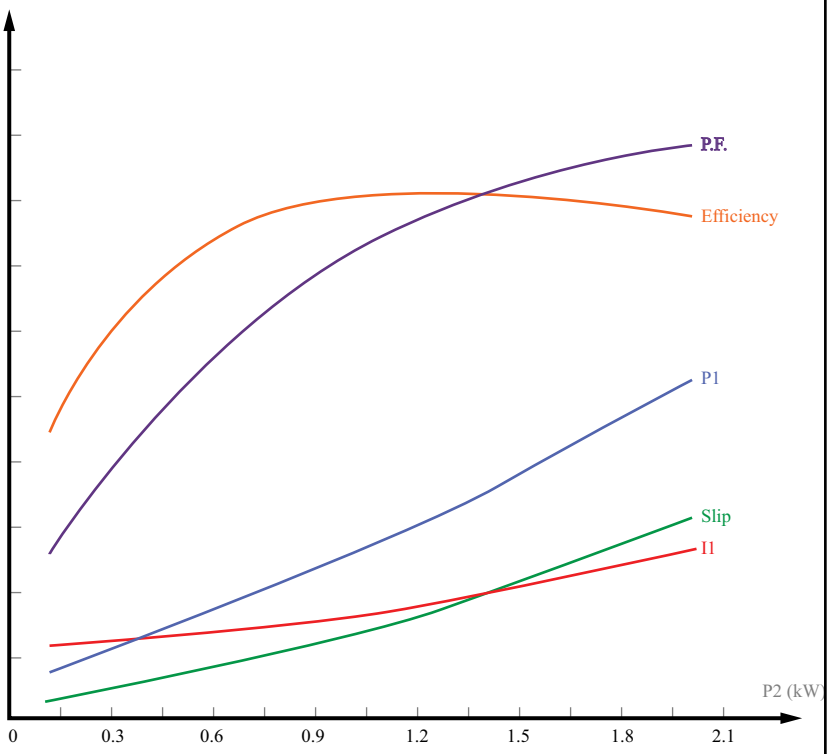


Performance Data - MTR2-001-1AB36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.1760	114.9	6.28	0.3174	0.47	3577	0.1760	0.44
0.2727	115.8	6.79	0.4202	0.73	3567	0.2727	0.53
0.4093	115.5	7.64	0.5720	1.10	3552	0.4093	0.65
0.5080	115.3	8.43	0.6908	1.37	3540	0.5080	0.71
0.6280	116.1	9.50	0.8375	1.70	3527	0.6280	0.76
0.7250	115.9	10.51	0.9692	1.97	3513	0.7250	0.80
0.8635	115.6	12.13	1.1626	2.36	3492	0.8635	0.83
0.9335	115.4	13.03	1.2652	2.56	3480	0.9335	0.84

Load Performance Data - MTR2-001-1AB36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	6.34	0.3300	0.68	56.82	0.452	0.19
50	7.41	0.5324	1.19	70.44	0.624	0.38
75	8.89	0.7567	1.79	74.34	0.740	0.56
100	10.78	1.0028	2.49	74.79	0.809	0.75
125	13.08	1.2708	3.27	73.77	0.845	0.94

MTR2-002-1AB18

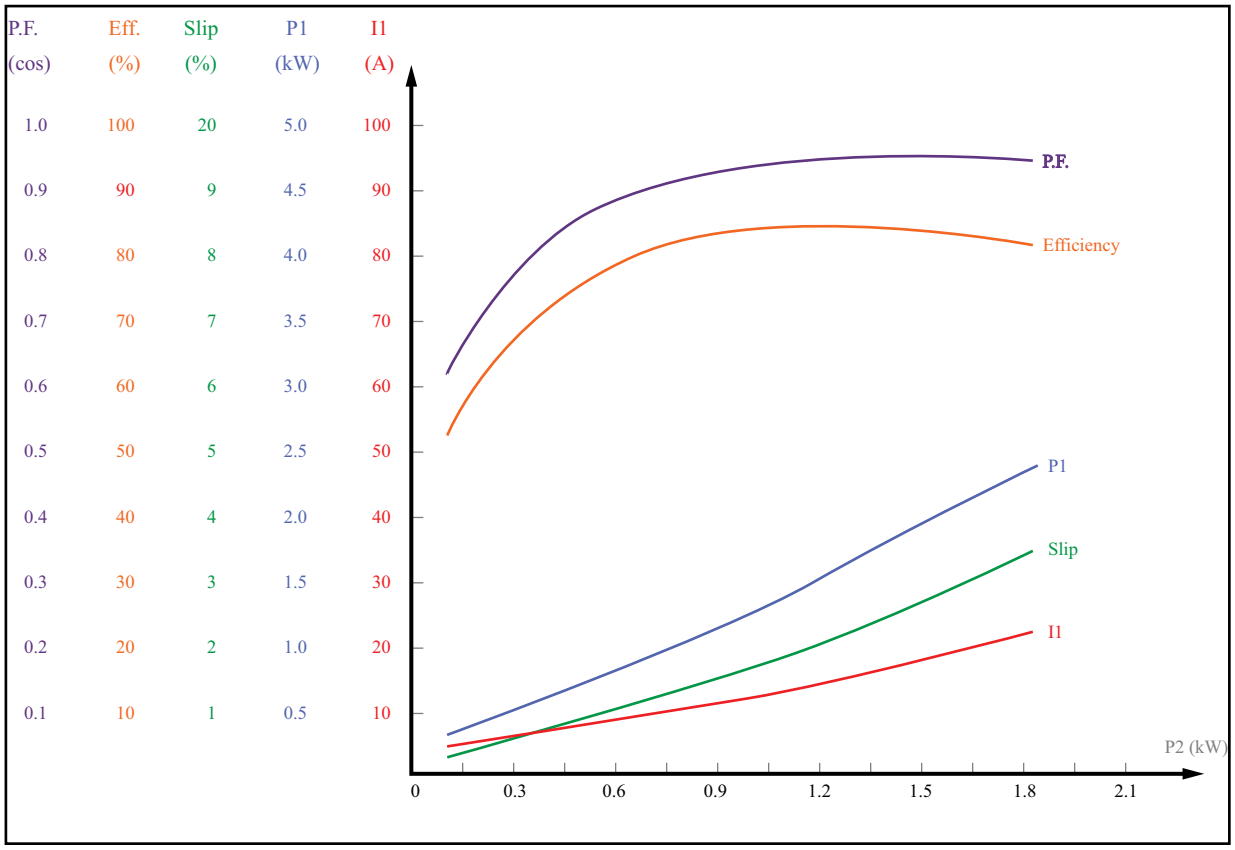
P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	5.0	100
0.9	90	13.5	4.5	90
0.8	80	12.0	4.0	80
0.7	70	10.5	3.5	70
0.6	60	9.0	3.0	60
0.5	50	7.5	2.5	50
0.4	40	6.0	2.0	40
0.3	30	4.5	1.5	30
0.2	20	3.0	1.0	20
0.1	10	1.5	0.5	10



Performance Data - MTR2-002-1AB18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.3760	115.1	11.68	0.5858	2.01	1786	64.19	0.44
0.5816	115.7	12.63	0.7988	3.12	1780	72.81	0.55
0.8182	115.4	13.85	1.0457	4.41	1771	78.25	0.65
1.0346	116.1	15.45	1.2924	5.60	1764	80.05	0.72
1.2680	115.7	17.38	1.5732	6.90	1754	80.60	0.78
1.4453	115.4	19.07	1.7969	7.90	1746	80.43	0.82
1.7366	114.9	22.23	2.1852	9.57	1732	79.47	0.86
1.8752	114.7	23.98	2.3878	10.38	1724	78.53	0.87

Load Performance Data - MTR2-002-1AB18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	11.69	0.5882	0.77	63.76	0.438	0.38
50	13.49	0.9717	1.41	77.19	0.626	0.75
75	16.14	1.3988	2.18	80.43	0.754	1.13
100	19.63	1.8695	3.10	80.23	0.828	1.50
125	23.96	2.3839	4.14	78.65	0.865	1.88

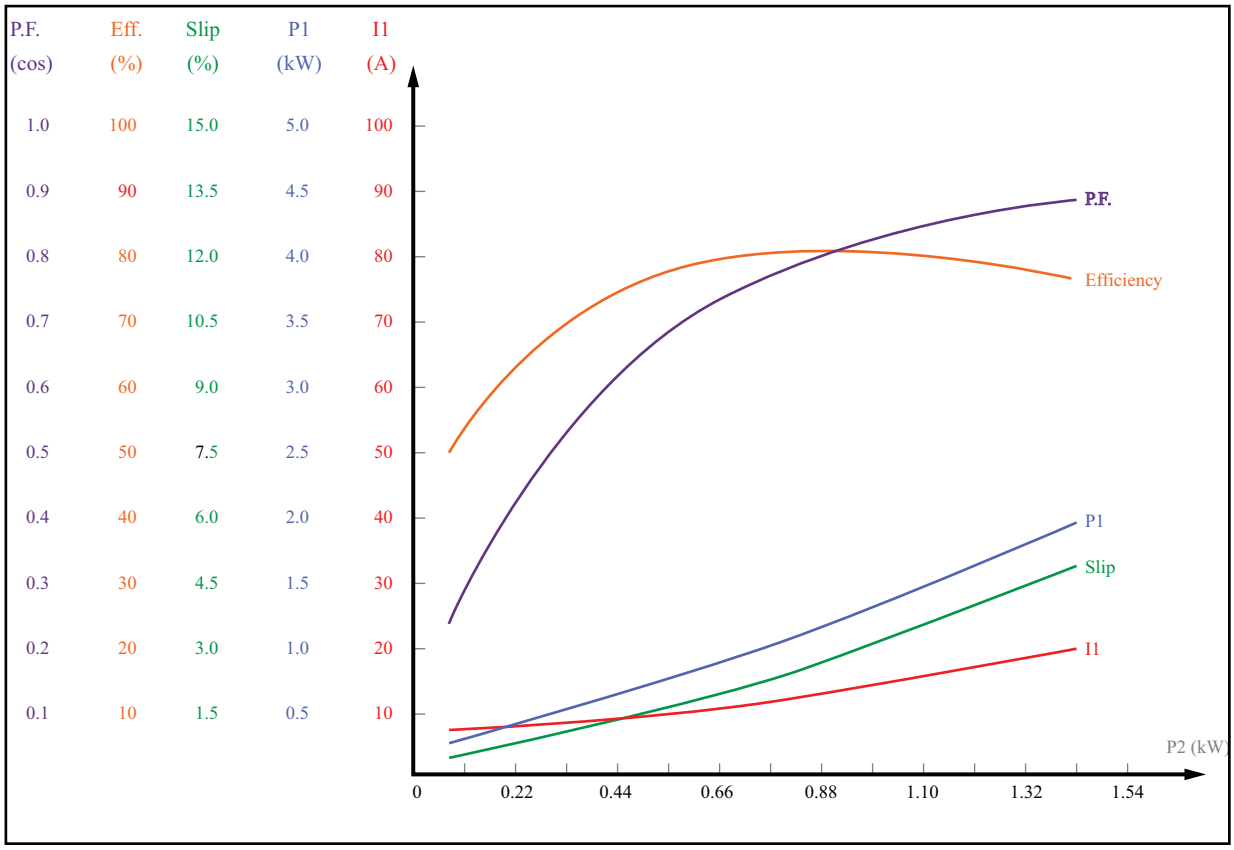
MTR2-002-1AB36



Performance Data - MTR2-002-1AB36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.3748	116.0	5.86	0.5413	1.00	3578	69.23	0.80
0.6236	115.6	7.80	0.7952	1.67	3565	78.42	0.88
0.8115	115.3	9.45	0.9960	2.18	3554	81.47	0.91
1.0057	116.0	11.24	1.2086	2.71	3543	83.20	0.93
1.2451	115.6	13.69	1.4854	3.37	3527	83.82	0.94
1.4601	115.2	16.18	1.7620	3.97	3510	82.87	0.95
1.7225	115.7	19.22	2.1052	4.71	3490	81.82	0.95
1.7682	115.6	19.79	2.1650	4.84	3487	81.67	0.95

Load Performance Data - MTR2-002-1AB36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	5.85	0.5440	0.60	68.94	0.809	0.38
50	8.89	0.9259	1.14	81.00	0.905	0.75
75	12.46	1.3481	1.78	83.45	0.941	1.13
100	16.56	1.8105	2.51	82.85	0.951	1.50
125	21.17	2.3130	3.34	81.06	0.950	1.88

MTR2-1P5-1AB18

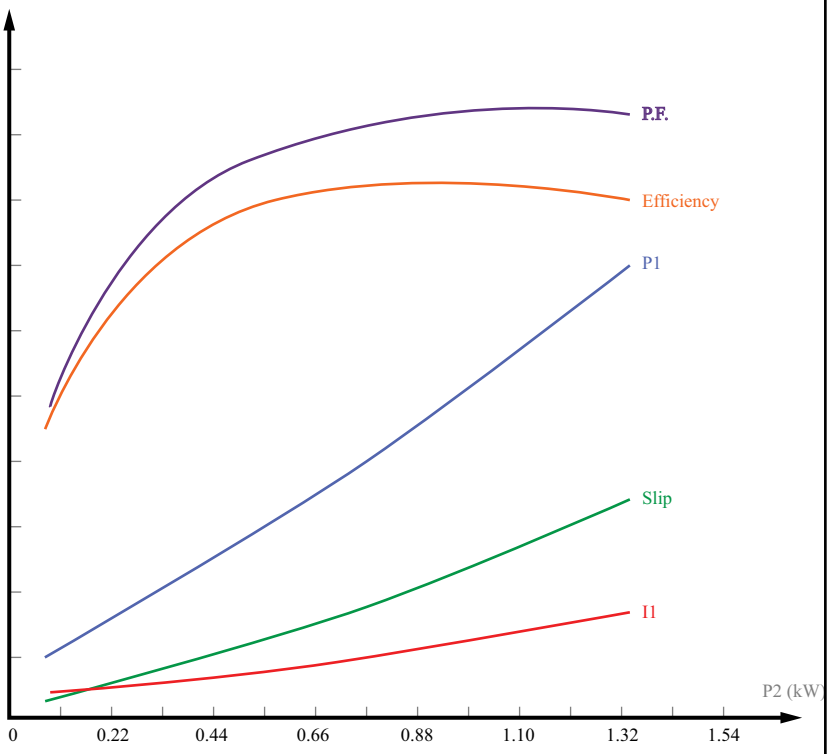


Performance Data - MTR2-1P5-1AB18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.2750	115.7	7.75	0.4180	1.47	1786	65.78	0.47
0.3982	115.5	8.33	0.5490	2.13	1780	72.35	0.57
0.5880	115.2	9.57	0.7568	3.17	1771	77.69	0.69
0.7278	115.0	10.64	0.9147	3.94	1763	79.56	0.75
0.9236	115.7	12.43	1.1484	5.03	1753	80.43	0.80
1.0843	115.4	14.09	1.3550	5.94	1742	80.02	0.83
1.2648	115.1	16.22	1.6034	6.98	1729	78.88	0.86
1.3773	114.8	17.70	1.7690	7.64	1720	77.86	0.87

Load Performance Data - MTR2-1P5-1AB18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	7.74	0.4223	0.78	65.11	0.475	0.28
50	9.30	0.7101	1.47	77.46	0.664	0.55
75	11.48	1.0282	2.29	80.16	0.780	0.83
100	14.27	1.3799	3.24	79.72	0.841	1.10
125	17.67	1.7619	4.33	78.04	0.867	1.38

MTR2-1P5-1AB36

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	10	2.50	100
0.9	90	9	2.25	90
0.8	80	8	2.00	80
0.7	70	7	1.75	70
0.6	60	6	1.50	60
0.5	50	5	1.25	50
0.4	40	4	1.00	40
0.3	30	3	0.75	30
0.2	20	2	0.50	20
0.1	10	1	0.25	10

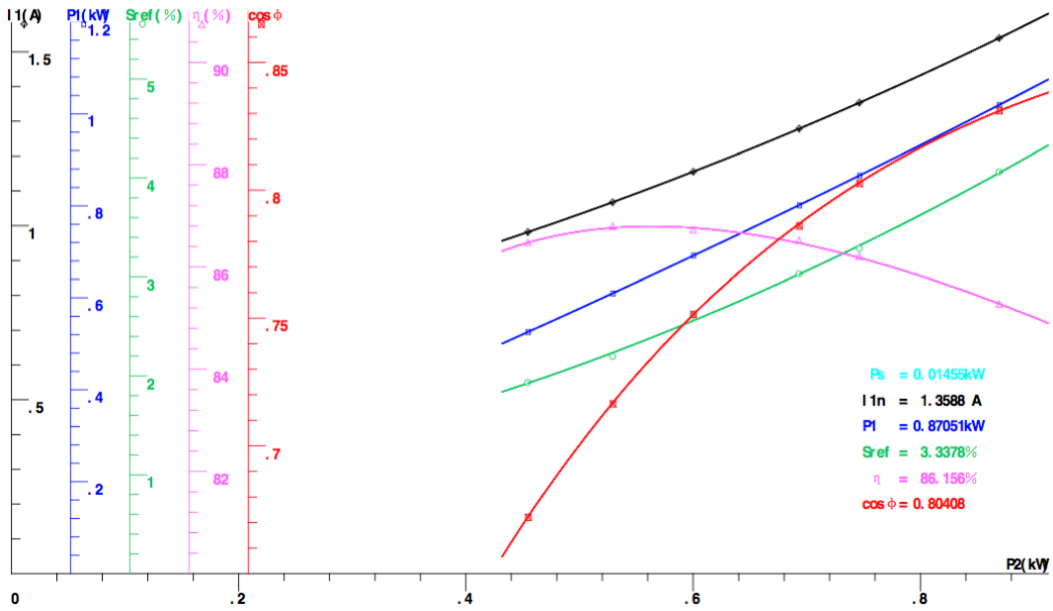


Performance Data - MTR2-1P5-1AB36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.2996	116.3	5.23	0.4448	0.80	3577	67.37	0.73
0.4407	116.1	6.22	0.5908	1.18	3566	74.60	0.82
0.6177	115.8	7.65	0.7767	1.66	3553	79.52	0.88
0.7238	115.6	8.61	0.8937	1.95	3544	80.99	0.90
0.9196	115.3	10.66	1.1335	2.49	3526	81.13	0.92
1.0630	115.0	12.18	1.3044	2.89	3512	81.49	0.93
1.2126	115.8	13.85	1.5002	3.31	3498	80.83	0.94
1.2830	115.6	14.74	1.5962	3.51	3490	80.38	0.94

Load Performance Data - MTR2-1P5-1AB36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	5.03	0.4214	0.60	65.25	0.729	0.28
50	7.11	0.7039	1.16	78.13	0.861	0.55
75	9.62	1.0148	1.79	81.30	0.917	0.83
100	12.56	1.3540	2.51	81.24	0.937	1.10
125	15.92	1.7215	3.32	79.87	0.940	1.38

Performance Curves for MTDP Motors

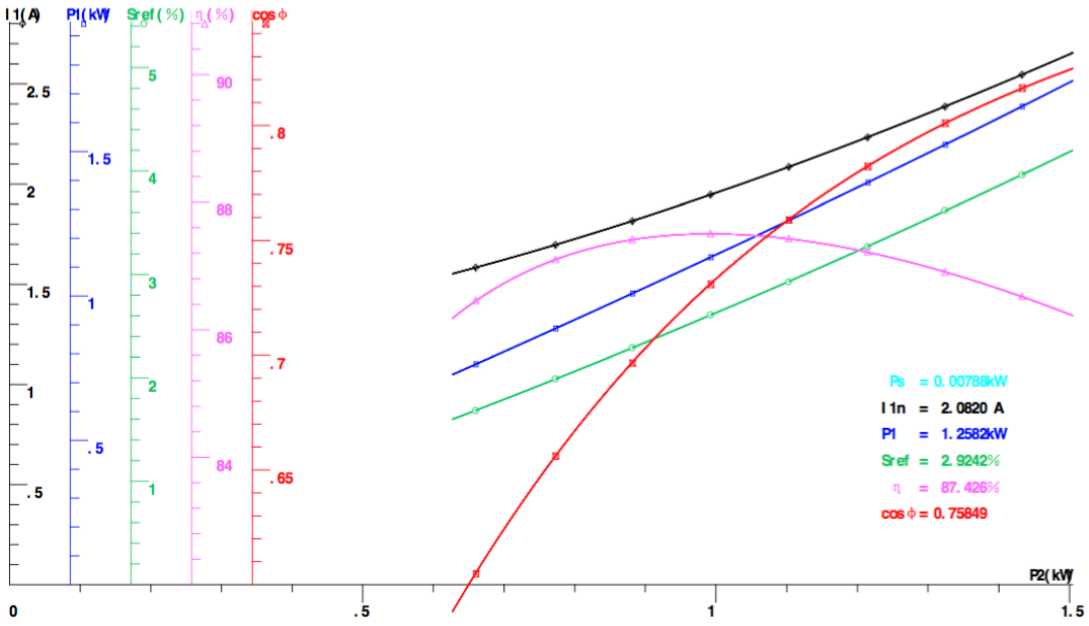
MTDP-001-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
1.539	0.0624	0.0379	4.060	4.050	0.0195	0.8691	1726.8	4.768	85.27	85.28	0.8311	0.8310
1.353	0.0482	0.0261	3.286	3.316	0.0144	0.7462	1740.8	4.102	86.21	86.18	0.8027	0.8030
1.279	0.0431	0.0223	3.030	3.027	0.0118	0.6932	1745.4	3.717	86.52	86.47	0.7860	0.7869
1.155	0.0352	0.0165	2.610	2.558	0.0091	0.6001	1753.0	3.260	86.72	86.76	0.7515	0.7514
1.068	0.0300	0.0122	2.197	2.234	0.0070	0.5291	1760.4	2.854	86.80	86.77	0.7164	0.7168
0.9818	0.0254	0.0092	1.931	1.926	0.0050	0.4547	1765.2	2.428	86.47	86.47	0.6720	0.6722

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	1.107	1.651	4.496	1719.1	0.0718	0.0455	0.0224	0.9375	5.110	84.67	0.8419
125%	1.011	1.529	4.008	1727.9	0.0615	0.0371	0.0192	0.8625	4.734	85.34	0.8297
100%	0.8705	1.359	3.338	1739.9	0.0486	0.0267	0.0146	0.7500	4.123	86.16	0.8041
75%	0.6481	1.108	2.383	1757.1	0.0323	0.0141	0.0079	0.5625	3.044	86.79	0.7339
50%	0.4377	0.8961	1.631	1770.6	0.0211	0.0064	0.0034	0.3750	1.995	85.68	0.6131
25%	0.2365	0.7191	1.082	1780.5	0.0136	0.0021	0.0010	0.1875	1.100	79.27	0.4128

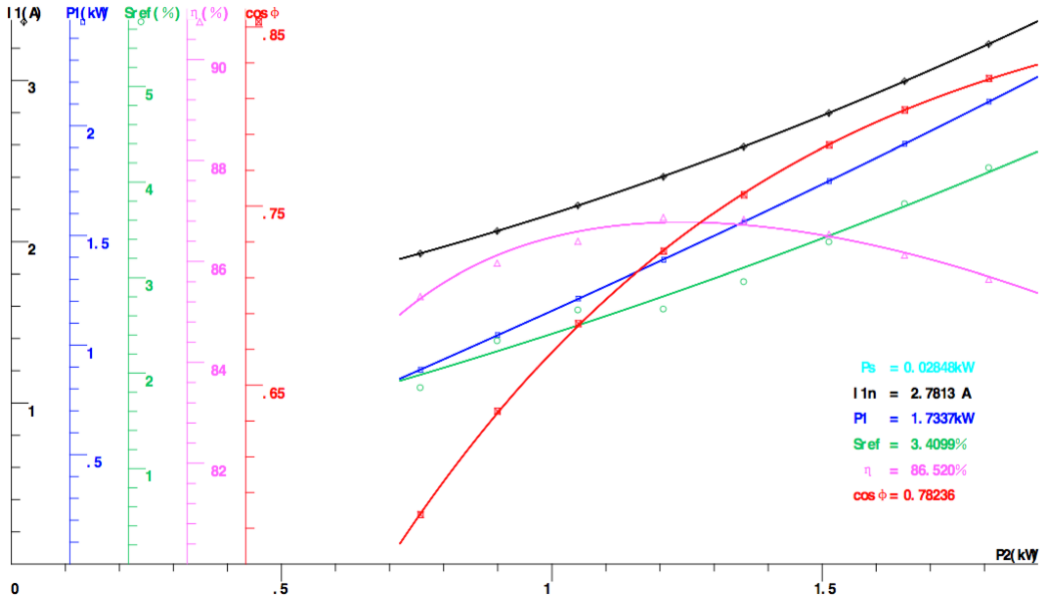
MTDP-1P5-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
2.547	0.1023	0.0601	3.962	3.963	0.0137	1.433	1728.7	7.900	86.52	86.52	0.8163	0.8162
2.388	0.0899	0.0506	3.620	3.614	0.0116	1.324	1734.8	7.279	86.91	86.91	0.8010	0.8009
2.234	0.0787	0.0417	3.268	3.272	0.0097	1.214	1741.2	6.641	87.23	87.22	0.7822	0.7823
2.086	0.0687	0.0338	2.930	2.932	0.0079	1.103	1747.3	6.013	87.43	87.43	0.7589	0.7591
1.947	0.0598	0.0270	2.609	2.607	0.0064	0.9925	1753.0	5.390	87.51	87.50	0.7309	0.7311
1.816	0.0521	0.0210	2.291	2.290	0.0050	0.8816	1758.8	4.783	87.41	87.41	0.6966	0.6969
1.697	0.0454	0.0160	1.991	1.989	0.0038	0.7728	1764.2	4.177	87.10	87.10	0.6560	0.6561
1.584	0.0396	0.0115	1.685	1.686	0.0028	0.6600	1769.7	3.550	86.46	86.45	0.6048	0.6050

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	1.585	2.461	3.777	1732.0	0.0956	0.0549	0.0126	1.375	7.566	86.73	0.8084
125%	1.453	2.304	3.428	1738.3	0.0838	0.0457	0.0105	1.265	6.933	87.08	0.7913
100%	1.258	2.082	2.924	1747.4	0.0684	0.0337	0.0079	1.100	5.997	87.43	0.7585
75%	0.9452	1.753	2.132	1761.6	0.0485	0.0183	0.0044	0.8250	4.465	87.28	0.6766
50%	0.6445	1.483	1.401	1774.8	0.0347	0.0080	0.0019	0.5500	2.941	85.34	0.5454
25%	0.3541	1.279	0.7311	1786.8	0.0258	0.0021	0.0004	0.2750	1.399	77.67	0.3474

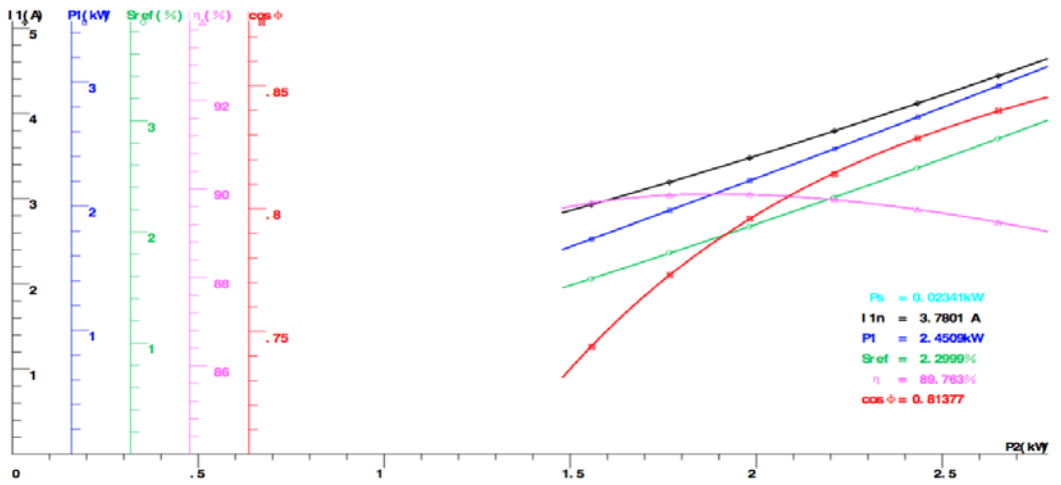
MTDP-002-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
3.226	0.1186	0.0805	4.150	4.104	0.0420	1.808	1725.2	9.946	85.65	85.70	0.8212	0.8207
2.994	0.1023	0.0665	3.772	3.745	0.0349	1.652	1732.0	9.070	86.12	86.17	0.8036	0.8036
2.798	0.0892	0.0541	3.372	3.437	0.0289	1.513	1739.2	8.260	86.53	86.50	0.7840	0.7843
2.589	0.0764	0.0422	2.958	3.103	0.0231	1.355	1746.7	7.380	86.83	86.72	0.7563	0.7571
2.406	0.0659	0.0338	2.671	2.804	0.0183	1.206	1751.8	6.569	86.87	86.77	0.7248	0.7252
2.224	0.0564	0.0293	2.662	2.500	0.0137	1.048	1752.0	5.692	86.40	86.59	0.6844	0.6830
2.066	0.0486	0.0220	2.339	2.229	0.0101	0.8992	1757.8	4.875	85.96	86.12	0.6354	0.6343
1.927	0.0423	0.0145	1.848	1.983	0.0069	0.7567	1766.7	4.036	85.31	85.26	0.5776	0.5780

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	2.194	3.330	4.263	1723.3	0.1263	0.0859	0.0454	1.875	10.35	86.46	0.8270
125%	2.007	3.101	3.911	1729.6	0.1096	0.0721	0.0380	1.725	9.471	85.97	0.8121
100%	1.734	2.781	3.410	1738.6	0.0881	0.0543	0.0285	1.500	8.195	86.52	0.7824
75%	1.297	2.311	2.646	1752.4	0.0608	0.0312	0.0159	1.125	6.122	86.71	0.7047
50%	0.8802	1.921	1.971	1764.5	0.0421	0.0154	0.0068	0.7500	4.005	85.21	0.5751
25%	0.4788	1.615	1.386	1775.1	0.0297	0.0054	0.0012	0.3750	1.713	78.32	0.3722

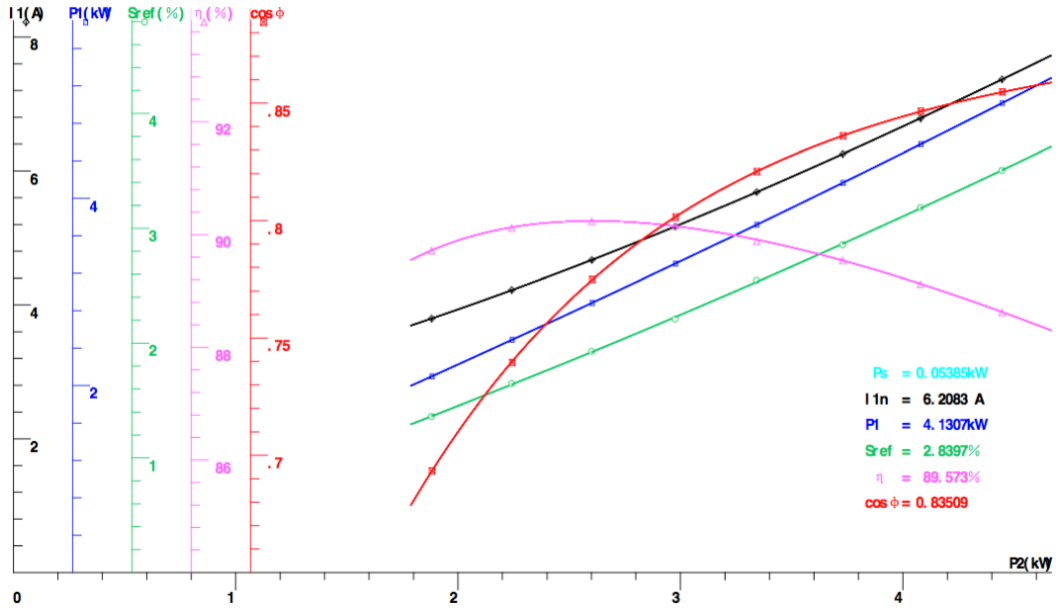
MTDP-003-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
4.439	0.1164	0.0792	2.840	2.839	0.0344	2.650	1748.9	14.41	89.25	89.25	0.8398	0.8397
4.116	0.1001	0.0657	2.576	2.576	0.0289	2.433	1753.6	13.20	89.54	89.54	0.8287	0.8287
3.794	0.0850	0.0534	2.309	2.311	0.0236	2.210	1758.4	11.94	89.76	89.76	0.8140	0.8145
3.478	0.0715	0.0424	2.050	2.049	0.0189	1.982	1763.1	10.68	89.88	89.88	0.7959	0.7958
3.193	0.0602	0.0333	1.811	1.809	0.0149	1.767	1767.4	9.500	89.86	89.86	0.7730	0.7729
2.929	0.0507	0.0256	1.579	1.580	0.0115	1.557	1771.6	8.342	89.69	89.69	0.7438	0.7440

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	3.086	4.590	2.962	1746.7	0.1244	0.0858	0.0371	2.750	14.97	89.10	0.8440
125%	2.829	4.259	2.692	1751.5	0.1072	0.0715	0.0312	2.530	13.73	89.42	0.8339
100%	2.451	3.780	2.300	1758.6	0.0844	0.0529	0.0234	2.200	11.89	89.76	0.8138
75%	1.838	3.044	1.681	1769.7	0.0547	0.0289	0.0130	1.650	8.853	89.79	0.7577
50%	1.245	2.408	1.105	1780.1	0.0343	0.0126	0.0057	1.100	5.864	88.38	0.6487
25%	0.6691	1.900	0.5730	1789.7	0.0213	0.0033	0.0014	0.5500	2.931	82.20	0.4420

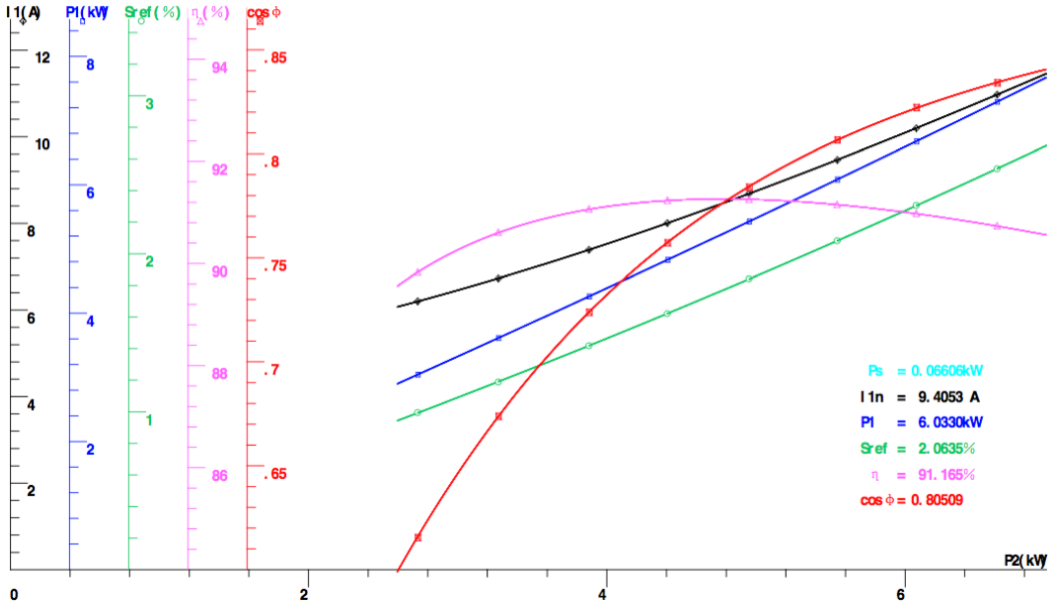
MTDP-005-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
7.366	0.2103	0.1653	3.504	3.506	0.0790	4.446	1736.8	24.39	88.62	88.63	0.8548	0.8547
6.787	0.1784	0.1370	3.180	3.174	0.0658	4.079	1742.7	22.26	89.12	89.13	0.8465	0.8464
6.252	0.1515	0.1121	2.857	2.865	0.0546	3.729	1748.5	20.28	89.54	89.54	0.8360	0.8361
5.683	0.1253	0.0892	2.547	2.532	0.0438	3.342	1754.1	18.15	89.88	89.91	0.8209	0.8209
5.171	0.1036	0.0686	2.209	2.228	0.0344	2.977	1760.1	16.08	90.16	90.15	0.8014	0.8015
4.672	0.0845	0.0522	1.928	1.923	0.0258	2.602	1765.2	13.94	90.23	90.24	0.7749	0.7746
4.221	0.0691	0.0383	1.647	1.640	0.0190	2.243	1770.3	11.97	90.12	90.13	0.7396	0.7399
3.798	0.0559	0.0265	1.360	1.364	0.0133	1.882	1775.4	10.01	89.71	89.72	0.6933	0.6932

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	5.234	7.656	3.671	1733.9	0.2272	0.1806	0.0857	4.625	25.39	88.37	0.8580
125%	4.786	7.063	3.332	1740.0	0.1933	0.1501	0.0720	4.255	23.28	88.90	0.8506
100%	4.131	6.208	2.840	1748.9	0.1494	0.1105	0.0538	3.700	20.13	89.57	0.8351
75%	3.076	4.899	2.063	1762.9	0.0930	0.0596	0.0296	2.775	14.93	90.22	0.7880
50%	2.063	3.762	1.340	1775.9	0.0549	0.0257	0.0128	1.850	9.822	89.67	0.6884
25%	1.087	2.833	0.6711	1787.9	0.0311	0.0065	0.0031	0.9250	4.824	85.10	0.4815

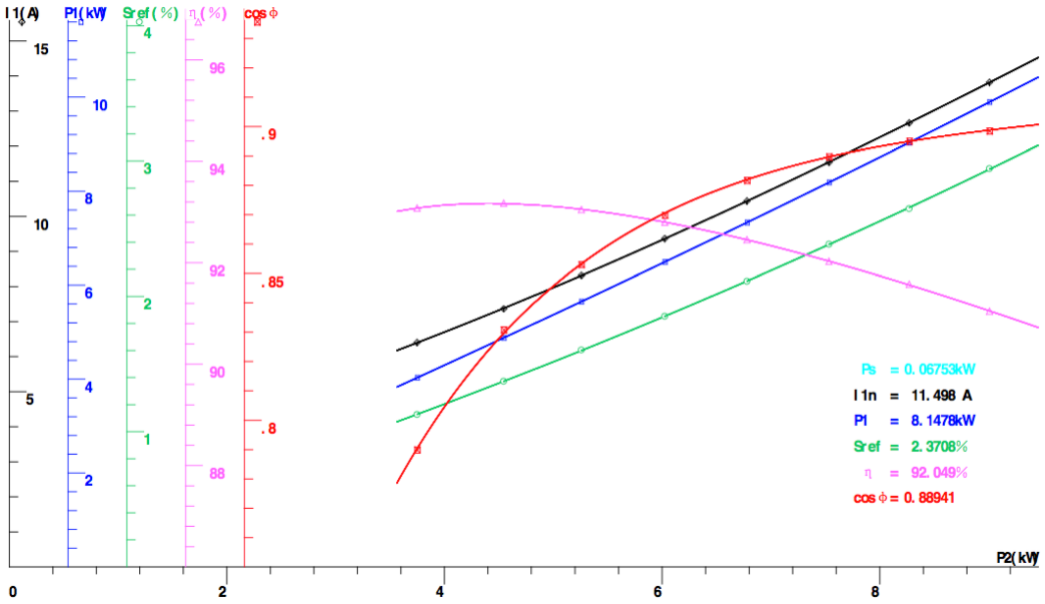
MTDP-7P5-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
10.97	0.2150	0.1755	2.537	2.539	0.0965	6.617	1754.3	35.94	90.74	90.73	0.8341	0.8343
10.20	0.1854	0.1460	2.307	2.305	0.0810	6.074	1758.5	32.92	90.98	90.98	0.8222	0.8219
9.465	0.1600	0.1200	2.083	2.082	0.0670	5.545	1762.5	29.95	91.16	91.15	0.8066	0.8066
8.686	0.1348	0.0945	1.841	1.840	0.0533	4.953	1766.9	26.71	91.26	91.26	0.7839	0.7843
8.005	0.1144	0.0738	1.622	1.622	0.0418	4.407	1770.8	23.66	91.24	91.23	0.7572	0.7573
7.389	0.0975	0.0567	1.418	1.419	0.0323	3.881	1774.5	20.78	91.07	91.06	0.7238	0.7239
6.731	0.0808	0.0400	1.188	1.190	0.0228	3.274	1778.6	17.46	90.61	90.60	0.6739	0.6737
6.199	0.0686	0.0279	0.9951	0.9931	0.0161	2.732	1782.1	14.68	89.83	89.83	0.6154	0.6159

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	7.588	11.35	2.652	1752.3	0.2299	0.1909	0.1042	6.875	37.34	90.60	0.8393
125%	6.960	10.55	2.412	1756.6	0.1988	0.1592	0.0880	6.325	34.32	90.87	0.8280
100%	6.033	9.405	2.063	1762.9	0.1579	0.1179	0.0661	5.500	29.73	91.17	0.8051
75%	4.525	7.670	1.513	1772.8	0.1050	0.0644	0.0365	4.125	22.10	91.16	0.7405
50%	3.060	6.215	0.9995	1782.0	0.0690	0.0282	0.0163	2.750	14.75	89.86	0.6180
25%	1.634	5.116	0.5239	1790.6	0.0467	0.0074	0.0048	1.375	7.976	84.17	0.4008

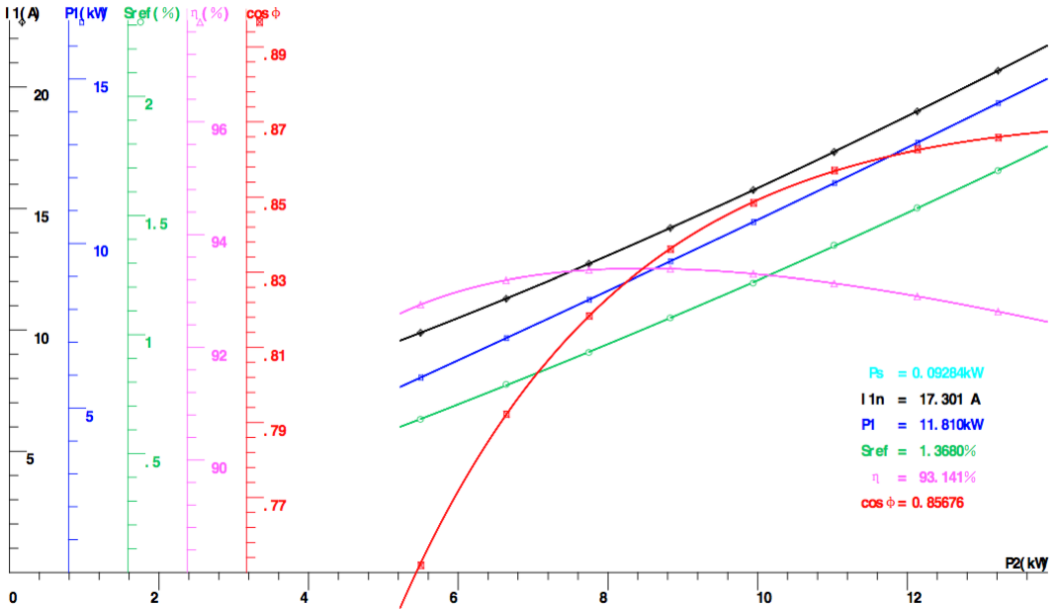
MTDP-010-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
13.82	0.3752	0.2770	2.944	2.938	0.0988	9.008	1747.0	49.18	91.05	91.05	0.8984	0.8988
12.67	0.3150	0.2278	2.647	2.656	0.0824	8.270	1752.3	44.91	91.58	91.56	0.8950	0.8949
11.55	0.2619	0.1863	2.385	2.383	0.0683	7.533	1757.1	40.90	92.03	92.03	0.8897	0.8897
10.43	0.2140	0.1480	2.112	2.113	0.0549	6.779	1762.0	36.65	92.45	92.45	0.8817	0.8820
9.360	0.1724	0.1150	1.853	1.853	0.0431	6.024	1766.6	32.48	92.80	92.80	0.8698	0.8705
8.311	0.1359	0.0867	1.604	1.599	0.0327	5.257	1771.1	28.28	93.05	93.05	0.8530	0.8532
7.381	0.1066	0.0639	1.372	1.372	0.0242	4.545	1775.3	24.36	93.17	93.17	0.8307	0.8296
6.397	0.0806	0.0432	1.127	1.129	0.0165	3.749	1779.7	20.08	93.08	93.08	0.7899	0.7904

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	10.33	14.40	3.083	1744.5	0.4072	0.3024	0.1072	9.375	51.24	90.78	0.9004
125%	9.444	13.22	2.791	1749.8	0.3432	0.2509	0.0902	8.625	46.99	91.32	0.8969
100%	8.148	11.50	2.371	1757.3	0.2598	0.1844	0.0675	7.500	40.66	92.05	0.8894
75%	6.052	8.808	1.720	1769.0	0.1524	0.0995	0.0375	5.625	30.29	92.95	0.8624
50%	4.029	6.398	1.129	1779.7	0.0804	0.0433	0.0165	3.750	20.07	93.08	0.7904
25%	2.068	4.340	0.5989	1789.2	0.0370	0.0115	0.0041	1.875	9.979	90.68	0.5979

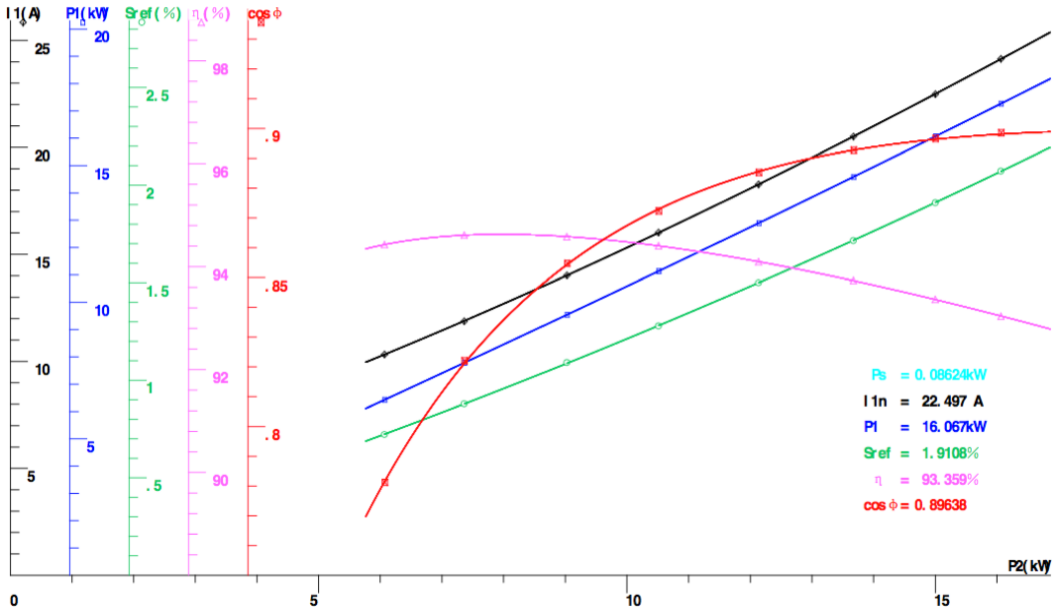
MTDP-015-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
20.67	0.4118	0.2310	1.689	1.690	0.1347	13.21	1769.5	71.19	92.64	92.64	0.8658	0.8660
19.00	0.3477	0.1920	1.532	1.531	0.1135	12.13	1772.3	65.36	92.91	92.91	0.8627	0.8625
17.33	0.2894	0.1563	1.375	1.371	0.0933	11.02	1775.2	59.26	93.13	93.14	0.8571	0.8569
15.76	0.2393	0.1246	1.217	1.220	0.0754	9.941	1778.0	53.25	93.30	93.30	0.8485	0.8487
14.20	0.1942	0.0973	1.071	1.070	0.0591	8.835	1780.6	47.16	93.39	93.39	0.8361	0.8362
12.73	0.1560	0.0737	0.9250	0.9274	0.0454	7.747	1783.3	41.31	93.37	93.37	0.8184	0.8183
11.29	0.1228	0.0540	0.7905	0.7867	0.0333	6.643	1785.7	35.40	93.19	93.19	0.7922	0.7921
9.887	0.0942	0.0364	0.6444	0.6457	0.0228	5.498	1788.3	29.27	92.76	92.76	0.7519	0.7525

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	14.87	21.52	1.771	1768.1	0.4460	0.2524	0.1460	13.75	74.12	92.49	0.8672
125%	13.63	19.80	1.607	1771.1	0.3776	0.2102	0.1234	12.65	68.15	92.78	0.8643
100%	11.81	17.30	1.368	1775.4	0.2883	0.1552	0.0928	11.00	59.10	93.14	0.8568
75%	8.833	13.40	0.9929	1782.1	0.1729	0.0842	0.0515	8.250	44.02	93.40	0.8274
50%	5.929	9.889	0.6459	1788.4	0.0942	0.0366	0.0228	5.500	29.31	92.76	0.7526
25%	3.088	6.848	0.3271	1794.1	0.0452	0.0094	0.0063	2.750	15.40	89.07	0.5659

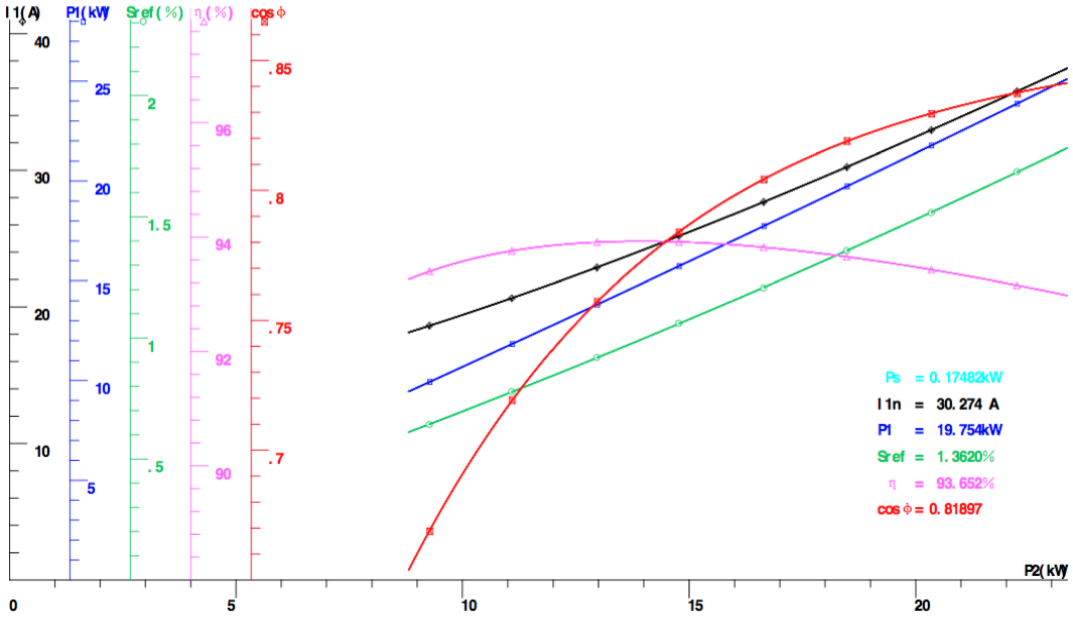
MTDP-020-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
24.13	0.5684	0.3432	2.072	2.070	0.0992	16.06	1762.7	86.89	93.04	93.04	0.8986	0.8981
22.50	0.4932	0.2949	1.910	1.911	0.0862	15.00	1765.6	81.02	93.37	93.36	0.8966	0.8964
20.51	0.4101	0.2409	1.715	1.717	0.0714	13.67	1769.1	73.71	93.73	93.73	0.8927	0.8927
18.27	0.3260	0.1865	1.500	1.500	0.0560	12.13	1773.0	65.28	94.10	94.10	0.8853	0.8856
16.01	0.2504	0.1374	1.278	1.280	0.0417	10.51	1777.0	56.31	94.41	94.40	0.8723	0.8729
14.02	0.1916	0.1005	1.090	1.086	0.0308	9.025	1780.4	48.39	94.58	94.58	0.8547	0.8543
11.90	0.1378	0.0661	0.8796	0.8790	0.0203	7.364	1784.2	39.34	94.61	94.61	0.8221	0.8211
10.32	0.1041	0.0447	0.7222	0.7238	0.0138	6.069	1787.0	32.37	94.43	94.43	0.7812	0.7814

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	20.35	28.39	2.490	1755.2	0.7862	0.4839	0.1362	18.75	101.8	92.16	0.8996
125%	18.62	25.99	2.253	1759.4	0.6588	0.4016	0.1148	17.25	93.48	92.66	0.8991
100%	16.07	22.50	1.911	1765.6	0.4938	0.2951	0.0862	15.00	81.02	93.36	0.8964
75%	11.93	17.03	1.379	1775.2	0.2829	0.1588	0.0480	11.25	60.43	94.28	0.8795
50%	7.927	12.07	0.8957	1783.9	0.1421	0.0685	0.0211	7.500	40.08	94.62	0.8245
25%	4.027	7.690	0.4603	1791.7	0.0577	0.0176	0.0052	3.750	19.99	93.12	0.6573

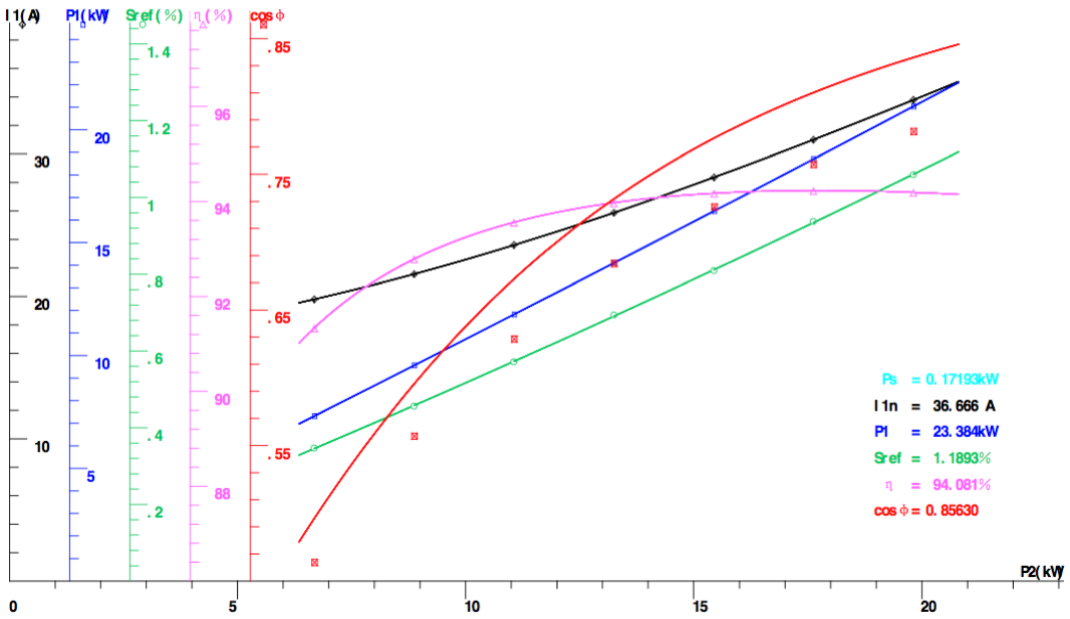
MTDP-025-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
35.77	0.6184	0.3872	1.686	1.684	0.2537	22.23	1769.6	119.9	93.16	93.16	0.8373	0.8376
32.94	0.5242	0.3180	1.517	1.519	0.2121	20.34	1772.6	109.7	93.43	93.43	0.8294	0.8296
30.24	0.4421	0.2586	1.361	1.360	0.1743	18.48	1775.5	99.43	93.65	93.66	0.8189	0.8188
27.68	0.3705	0.2061	1.206	1.209	0.1409	16.64	1778.2	89.40	93.82	93.82	0.8042	0.8043
25.18	0.3066	0.1606	1.061	1.059	0.1108	14.77	1780.8	79.28	93.91	93.92	0.7839	0.7840
22.89	0.2531	0.1219	0.9189	0.9181	0.0850	12.97	1783.4	69.42	93.91	93.91	0.7571	0.7571
20.65	0.2060	0.0882	0.7781	0.7768	0.0620	11.09	1785.9	59.32	93.76	93.76	0.7192	0.7190
18.63	0.1677	0.0609	0.6426	0.6441	0.0431	9.272	1788.3	49.46	93.40	93.40	0.6688	0.6690

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	24.86	37.12	1.764	1768.3	0.6660	0.4218	0.2747	23.13	124.8	93.02	0.8406
125%	22.80	34.32	1.600	1771.2	0.5694	0.3512	0.2321	21.27	114.7	93.30	0.8338
100%	19.75	30.27	1.362	1775.5	0.4430	0.2592	0.1748	18.50	99.57	93.65	0.8190
75%	14.77	24.03	0.9883	1782.2	0.2790	0.1404	0.0975	13.88	74.37	93.93	0.7717
50%	9.904	18.60	0.6425	1788.4	0.1672	0.0607	0.0430	9.250	49.36	93.39	0.6683
25%	5.136	14.22	0.3246	1794.2	0.0977	0.0154	0.0107	4.625	24.67	90.06	0.4534

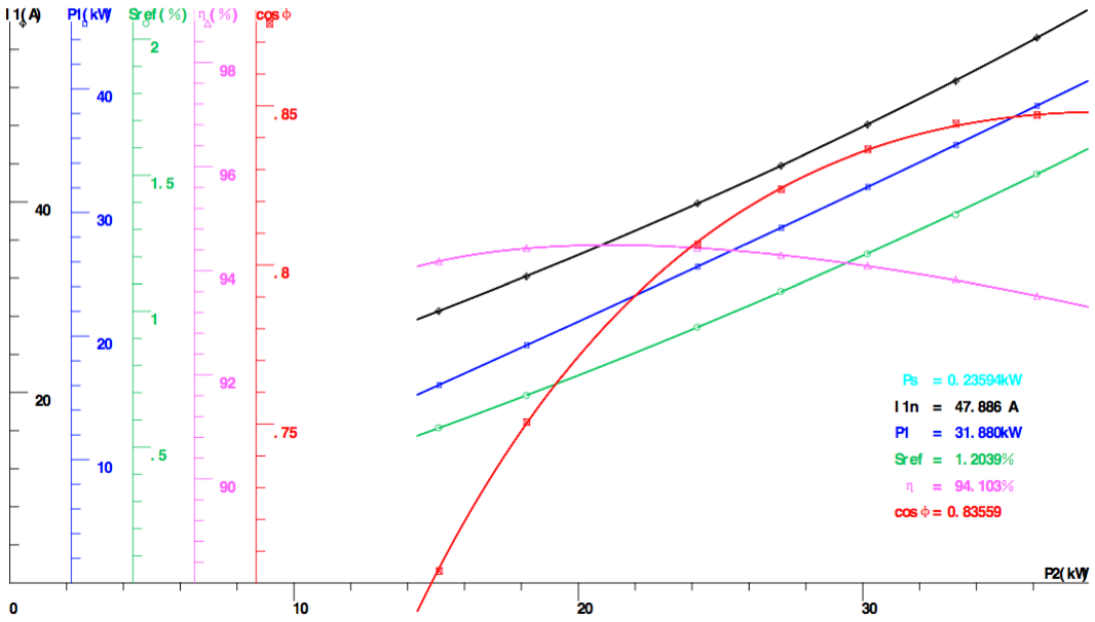
MTDP-030-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
33.78	0.4290	0.2148	1.059	1.060	0.1384	19.81	1780.8	106.1	94.18	94.19	0.7814	0.8360
30.99	0.3610	0.1687	0.9369	0.9341	0.1088	17.62	1783.0	94.06	94.21	94.23	0.7572	0.8101
28.36	0.3024	0.1276	0.8089	0.8117	0.0833	15.45	1785.3	82.28	94.16	94.17	0.7259	0.7766
25.87	0.2515	0.0938	0.6937	0.6906	0.0611	13.25	1787.4	70.48	93.96	93.97	0.6841	0.7317
23.60	0.2095	0.0645	0.5716	0.5729	0.0424	11.06	1789.6	58.74	93.55	93.56	0.6286	0.6727
21.56	0.1746	0.0413	0.4560	0.4578	0.0271	8.872	1791.7	46.90	92.78	92.79	0.5569	0.5954
19.80	0.1475	0.0237	0.3469	0.3456	0.0152	6.683	1793.7	35.17	91.32	91.33	0.4637	0.4961

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	29.38	44.13	1.525	1772.5	0.7321	0.4320	0.2758	27.50	149.7	93.62	0.8938
125%	26.96	41.13	1.389	1775.0	0.6360	0.3612	0.2306	25.30	136.9	93.83	0.8802
100%	23.38	36.67	1.189	1778.6	0.5054	0.2682	0.1719	22.00	118.2	94.08	0.8563
75%	17.51	29.62	0.8707	1784.3	0.3298	0.1468	0.0952	16.50	87.99	94.22	0.7939
50%	11.76	23.54	0.5696	1789.7	0.2083	0.0639	0.0419	11.00	58.38	93.54	0.6708
25%	6.110	18.98	0.2861	1794.9	0.1354	0.0161	0.0102	5.500	28.74	90.01	0.4323

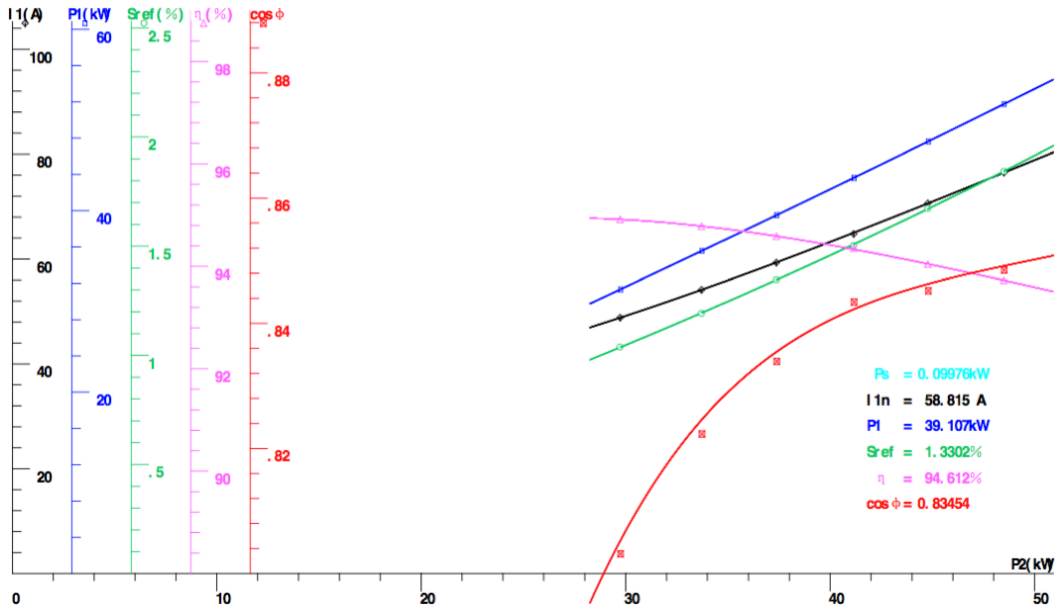
MTDP-040-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
57.23	1.102	0.5598	1.504	1.504	0.3451	36.12	1772.9	193.8	93.52	93.52	0.8471	0.8472
52.75	0.9335	0.4633	1.354	1.361	0.2897	33.27	1775.5	177.6	93.83	93.82	0.8444	0.8437
48.13	0.7782	0.3748	1.210	1.212	0.2383	30.17	1778.1	161.1	94.10	94.09	0.8363	0.8361
43.80	0.6456	0.2982	1.073	1.071	0.1928	27.12	1780.6	144.9	94.30	94.30	0.8238	0.8241
39.83	0.5346	0.2330	0.9410	0.9408	0.1522	24.19	1783.0	128.7	94.44	94.44	0.8064	0.8072
32.22	0.3483	0.1281	0.6895	0.6904	0.0855	18.18	1787.5	96.48	94.43	94.43	0.7506	0.7501
28.56	0.2747	0.0881	0.5708	0.5704	0.0585	15.10	1789.7	79.81	94.18	94.18	0.7037	0.7045

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	40.17	59.46	1.574	1771.7	1.189	0.6087	0.3727	37.50	201.4	93.36	0.8479
125%	36.82	54.66	1.422	1774.4	1.005	0.5049	0.3139	34.50	184.9	93.69	0.8456
100%	31.88	47.89	1.204	1778.3	0.7713	0.3707	0.2359	30.00	160.3	94.10	0.8356
75%	23.81	37.62	0.8681	1784.4	0.4760	0.1998	0.1316	22.50	119.7	94.48	0.7945
50%	15.93	28.45	0.5667	1789.8	0.2722	0.0869	0.0577	15.00	79.29	94.17	0.7028
25%	8.191	20.16	0.2998	1794.6	0.1367	0.0232	0.0136	7.500	38.51	91.57	0.5099

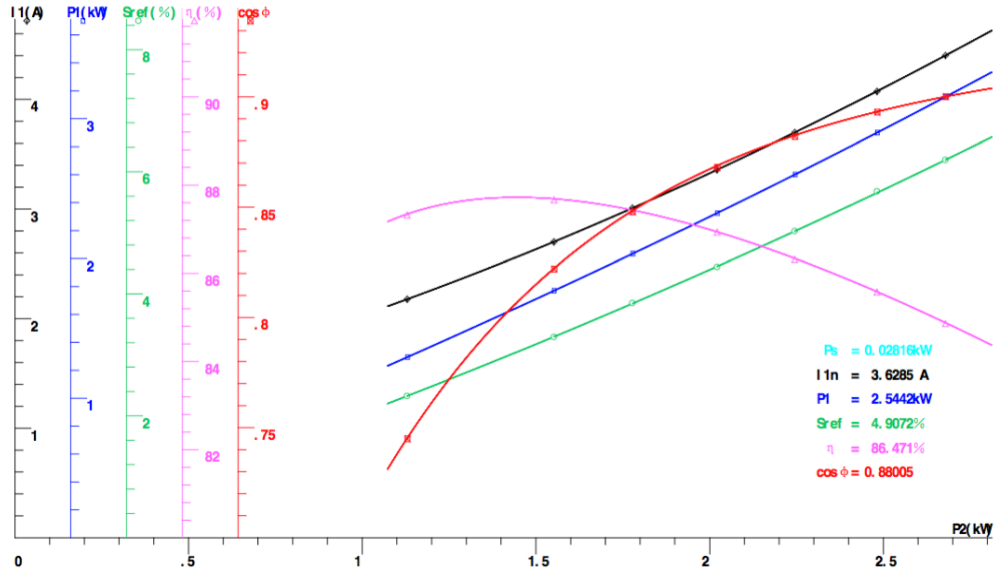
MTDP-050-3BD18



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
76.48	1.607	0.9166	1.842	1.843	0.1743	48.50	1766.7	260.4	93.73	93.73	0.8485	0.8492
70.62	1.370	0.7670	1.673	1.671	0.1483	44.78	1769.8	240.2	94.04	94.05	0.8452	0.8463
65.01	1.153	0.6521	1.502	1.509	0.1233	41.15	1772.9	219.0	94.35	94.33	0.8434	0.8422
59.35	0.9671	0.5135	1.346	1.346	0.1018	37.36	1775.7	199.0	94.59	94.59	0.8339	0.8354
54.15	0.8059	0.4099	1.192	1.195	0.0824	33.72	1778.4	179.0	94.78	94.78	0.8223	0.8246
48.83	0.6549	0.3143	1.038	1.037	0.0641	29.73	1781.2	157.9	94.91	94.92	0.8031	0.8052

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	49.24	72.93	1.738	1768.7	1.461	0.8239	0.1584	46.25	248.3	93.92	0.8475
125%	45.16	67.15	1.570	1771.7	1.239	0.6836	0.1335	42.55	227.9	94.23	0.8440
100%	39.11	58.81	1.330	1776.1	0.9503	0.5024	0.0998	37.00	197.0	94.61	0.8345
75%	29.23	46.35	0.9609	1782.7	0.5901	0.2714	0.0562	27.75	147.8	94.94	0.7915
50%	19.58	36.60	0.6305	1788.7	0.3680	0.1186	0.0292	18.50	106.5	94.47	0.6715
25%	10.13	30.65	0.3390	1793.9	0.2580	0.0321	0.0160	9.250	78.89	91.32	0.4148

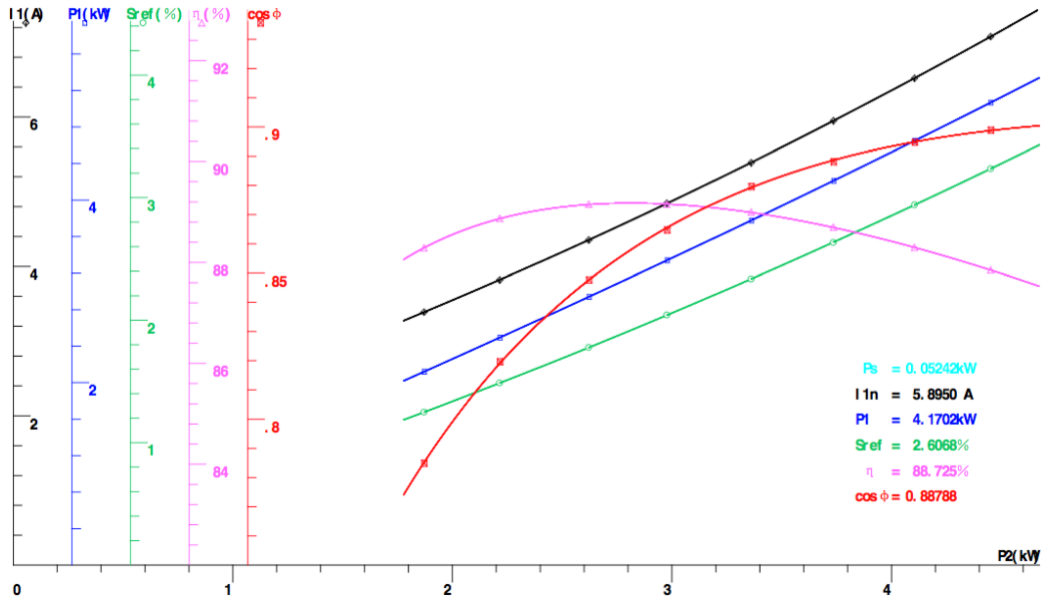
MTDP-003-3BD36



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
4.401	0.1697	0.1817	6.194	6.194	0.0431	2.679	3376.8	7.503	84.86	84.88	0.9001	0.9000
4.074	0.1454	0.1533	5.678	5.654	0.0356	2.482	3395.4	6.822	85.57	85.58	0.8930	0.8932
3.698	0.1198	0.1220	5.026	5.025	0.0296	2.245	3418.9	6.217	86.31	86.34	0.8820	0.8825
3.359	0.0988	0.0964	4.439	4.448	0.0233	2.021	3440.0	5.516	86.93	86.94	0.8680	0.8688
3.009	0.0794	0.0731	3.851	3.842	0.0178	1.778	3461.2	4.816	87.40	87.43	0.8478	0.8484
2.702	0.0639	0.0543	3.293	3.296	0.0133	1.552	3481.3	4.176	87.67	87.69	0.8219	0.8222
2.178	0.0416	0.0278	2.326	2.326	0.0067	1.130	3516.1	2.968	87.32	87.34	0.7449	0.7452

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	3.250	4.522	6.392	3369.9	0.1791	0.1929	0.0456	2.750	7.721	84.61	0.9021
125%	2.962	4.154	5.785	3391.7	0.1511	0.1595	0.0381	2.530	7.056	85.42	0.8950
100%	2.544	3.628	4.907	3423.3	0.1153	0.1165	0.0282	2.200	6.065	86.47	0.8801
75%	1.883	2.833	3.530	3472.9	0.0703	0.0620	0.0151	1.650	4.448	87.61	0.8345
50%	1.261	2.144	2.261	3518.6	0.0403	0.0263	0.0064	1.100	2.888	87.25	0.7380
25%	0.6691	1.574	1.099	3560.5	0.0217	0.0065	0.0015	0.5500	1.408	82.20	0.5337

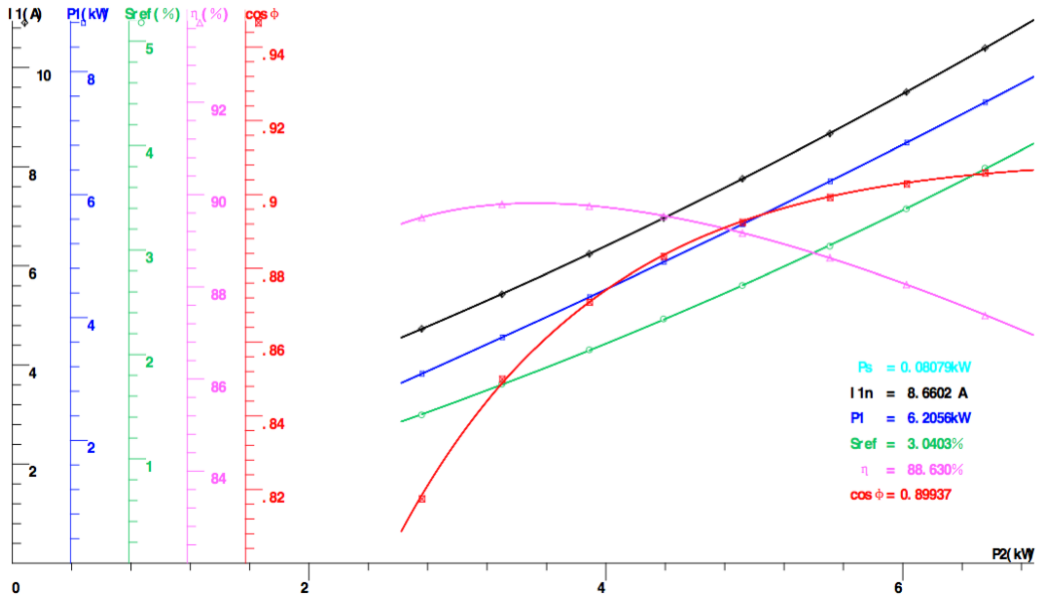
MTDP-005-3BD36



I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
7.077	0.2302	0.1544	3.236	3.236	0.0770	4.452	3483.5	12.12	87.85	87.85	0.8989	0.8987
6.521	0.1953	0.1290	2.941	2.941	0.0650	4.105	3494.1	11.14	88.30	88.30	0.8947	0.8949
5.949	0.1626	0.1048	2.634	2.636	0.0535	3.735	3505.2	10.10	88.70	88.69	0.8881	0.8886
5.391	0.1334	0.0835	2.335	2.336	0.0429	3.361	3515.9	9.050	89.00	88.99	0.8796	0.8793
4.843	0.1080	0.0646	2.043	2.041	0.0336	2.978	3526.5	8.003	89.15	89.16	0.8647	0.8655
4.354	0.0871	0.0495	1.777	1.777	0.0258	2.621	3536.0	7.012	89.15	89.15	0.8476	0.8476
3.822	0.0670	0.0350	1.487	1.487	0.0182	2.216	3546.5	5.899	88.87	88.87	0.8197	0.8190
3.389	0.0528	0.0249	1.249	1.249	0.0128	1.872	3555.0	4.951	88.29	88.29	0.7849	0.7852

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	5.280	7.362	3.386	3478.1	0.2491	0.1681	0.0834	4.625	12.62	87.60	0.9001
125%	4.829	6.759	3.067	3489.6	0.2099	0.1396	0.0701	4.255	11.56	88.11	0.8968
100%	4.170	5.895	2.607	3506.2	0.1597	0.1028	0.0524	3.700	10.00	88.72	0.8879
75%	3.112	4.563	1.890	3532.0	0.0957	0.0557	0.0290	2.775	7.437	89.17	0.8560
50%	2.097	3.362	1.235	3555.5	0.0519	0.0244	0.0125	1.850	4.891	88.24	0.7827
25%	1.117	2.291	0.6424	3576.9	0.0241	0.0066	0.0028	0.9250	2.327	82.77	0.6121

MTDP-7P5-3BD36

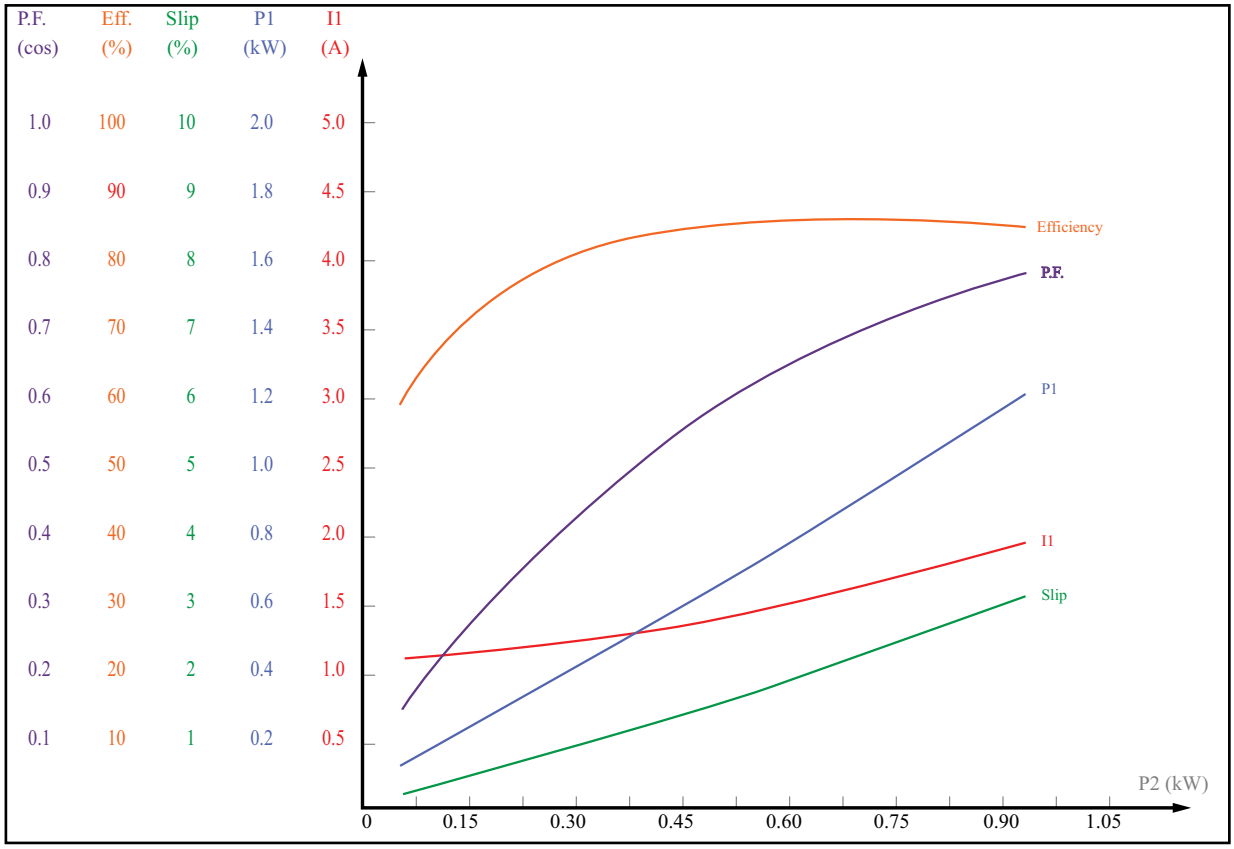


I 1j (A)	Pcu1s(kW)	Pcu2s(kW)	Sref (%)	Srefj (%)	Ps (kW)	P2 (kW)	nref(r/min)	Tref(N.m.)	η (%)	η j (%)	cos Φ	cosj Φ
10.39	0.3850	0.2662	3.784	3.776	0.1169	6.554	3463.8	18.10	87.38	87.39	0.9059	0.9056
9.508	0.3220	0.2184	3.393	3.398	0.0978	6.024	3477.9	16.56	88.05	88.05	0.9029	0.9032
8.675	0.2677	0.1781	3.036	3.046	0.0810	5.509	3490.7	15.07	88.63	88.62	0.8992	0.8994
7.756	0.2145	0.1389	2.661	2.662	0.0641	4.919	3504.2	13.40	89.16	89.17	0.8924	0.8928
6.964	0.1730	0.1087	2.340	2.334	0.0506	4.389	3515.8	11.91	89.52	89.54	0.8832	0.8836
6.244	0.1389	0.0840	2.045	2.039	0.0395	3.889	3526.4	10.52	89.74	89.76	0.8708	0.8709
5.437	0.1051	0.0598	1.715	1.712	0.0281	3.301	3538.2	8.874	89.79	89.79	0.8499	0.8488
4.729	0.0798	0.0415	1.422	1.428	0.0195	2.760	3548.8	7.391	89.49	89.50	0.8174	0.8184

Rated Power	P1 (kW)	I 1 (A)	Sref (%)	n (speed)	Pcu1(kW)	Pcu2(kW)	Ps(kW)	P2 (kW)	T (N.m.)	η (%)	cos Φ
150%	7.906	10.94	4.013	3455.5	0.4267	0.2969	0.1294	6.875	19.05	86.96	0.9067
125%	7.213	10.01	3.611	3470.0	0.3568	0.2446	0.1084	6.325	17.43	87.68	0.9047
100%	6.206	8.660	3.040	3490.5	0.2672	0.1780	0.0808	5.500	15.05	88.63	0.8994
75%	4.600	6.580	2.177	3521.6	0.1542	0.0949	0.0445	4.125	11.17	89.67	0.8774
50%	3.073	4.716	1.423	3548.8	0.0793	0.0414	0.0193	2.750	7.359	89.50	0.8177
25%	1.610	3.082	0.7776	3572.0	0.0338	0.0116	0.0045	1.375	3.563	85.43	0.6554

Performance Curves for MTRP Motors

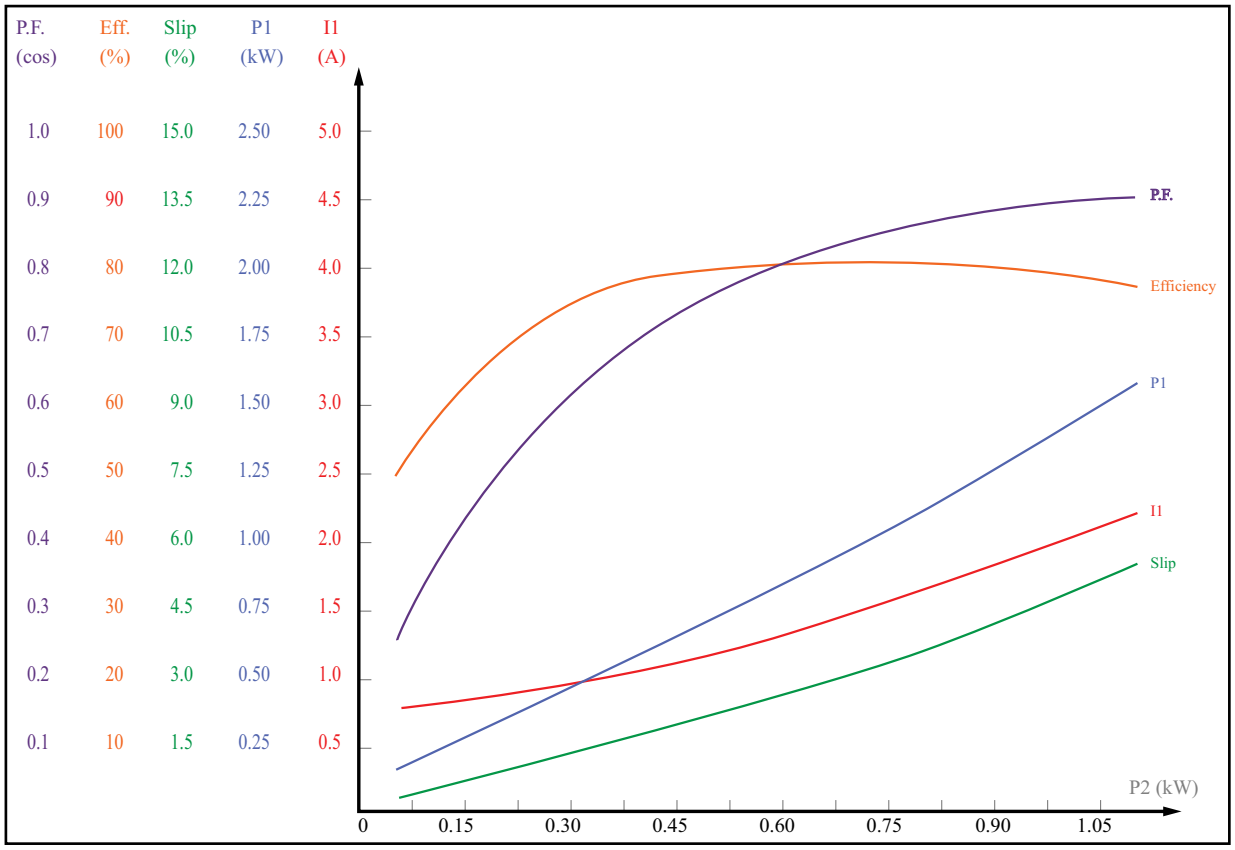
MTRP-001-3BD18



Performance Data - MTRP-001-3BD18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.2011	456.5	1.143	0.2726	1.045	1789.9	73.76	0.299
0.3868	453.1	1.251	0.4689	2.035	1780.7	82.49	0.470
0.5777	449.7	1.410	0.6782	3.065	1770.9	85.18	0.603
0.7636	445.7	1.607	0.8903	4.105	1760.5	85.76	0.696
0.8470	444.5	1.707	0.9882	4.565	1756.0	85.71	0.727
0.9483	443.2	1.834	1.1101	5.145	1749.4	85.42	0.759

Load Performance Data - MTRP-001-3BD18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	1.138	0.2585	0.541	72.74	0.285	0.1875
50	1.242	0.4563	1.040	82.14	0.460	0.3750
75	1.396	0.6612	1.570	85.11	0.594	0.5625
100	1.592	0.8744	2.142	85.73	0.690	0.7500
125	1.821	1.0970	2.770	85.48	0.755	0.9375

MTRP-001-3BD36

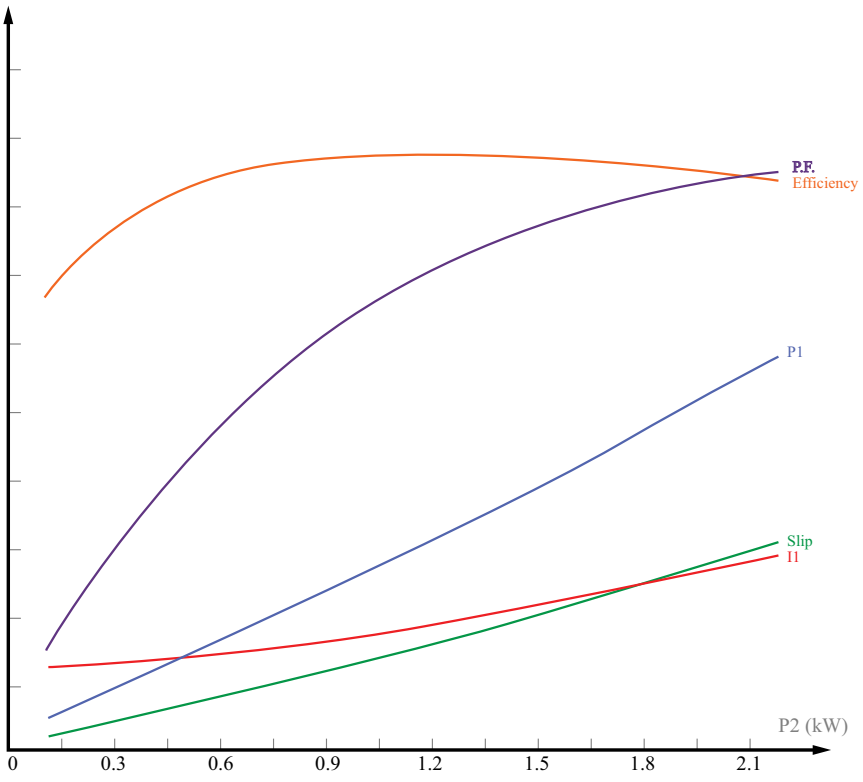


Performance Data - MTRP-001-3BD36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.2011	452.0	0.827	0.3058	0.527	3571.5	65.77	0.464
0.3880	446.7	0.973	0.5079	1.037	3547.3	76.40	0.654
0.5748	440.4	1.175	0.7204	1.557	3521.2	79.79	0.768
0.7628	434.2	1.424	0.9468	2.077	3493.5	80.56	0.833
0.9527	426.9	1.713	1.1912	2.617	3461.2	79.98	0.872
1.1374	419.5	2.035	1.4490	3.167	3423.7	78.49	0.894

Load Performance Data - MTRP-001-3BD36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	0.817	0.2912	0.738	64.56	0.446	0.1875
50	0.963	0.4938	1.428	75.93	0.644	0.3750
75	1.160	0.7059	2.131	79.77	0.762	0.5625
100	1.404	0.9306	2.899	80.45	0.830	0.7500
125	1.690	1.1713	3.784	80.11	0.870	0.9375

MTRP-002-3BD18

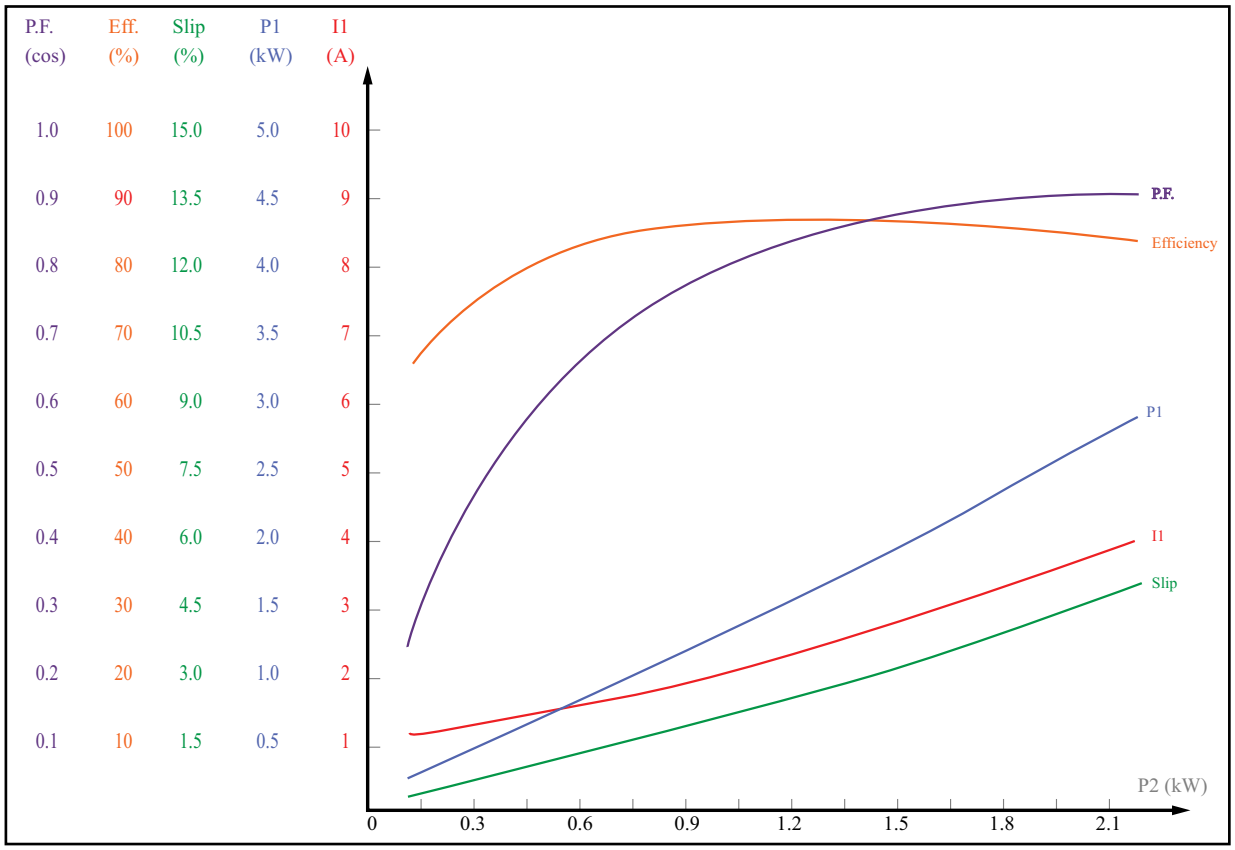
P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	5.0	15.0
0.9	90	13.5	4.5	13.5
0.8	80	12.0	4.0	12.0
0.7	70	10.5	3.5	10.5
0.6	60	9.0	3.0	9.0
0.5	50	7.5	2.5	7.5
0.4	40	6.0	2.0	6.0
0.3	30	4.5	1.5	4.5
0.2	20	3.0	1.0	3.0
0.1	10	1.5	0.5	1.5



Performance Data - MTRP-002-3BD18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.3884	456.5	1.920	0.4977	2.031	1788.3	78.03	0.325
0.7659	453.7	2.171	0.8982	4.051	1777.0	85.27	0.519
1.1395	450.2	2.520	1.3113	6.111	1764.7	86.90	0.653
1.5144	447.9	2.953	1.7434	8.191	1752.4	86.86	0.740
1.8893	443.6	3.457	2.1959	10.311	1738.8	86.04	0.798
2.2565	440.6	4.007	2.6628	12.471	1724.4	84.74	0.834

Load Performance Data - MTRP-002-3BD18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	1.913	0.4837	0.657	77.63	0.317	0.3750
50	2.159	0.8814	1.255	85.06	0.513	0.7500
75	2.504	1.2947	1.911	86.97	0.648	1.1250
100	2.935	1.7263	2.621	86.79	0.738	1.5000
125	3.437	2.1786	3.379	86.12	0.795	1.8750

MTRP-002-3BD36

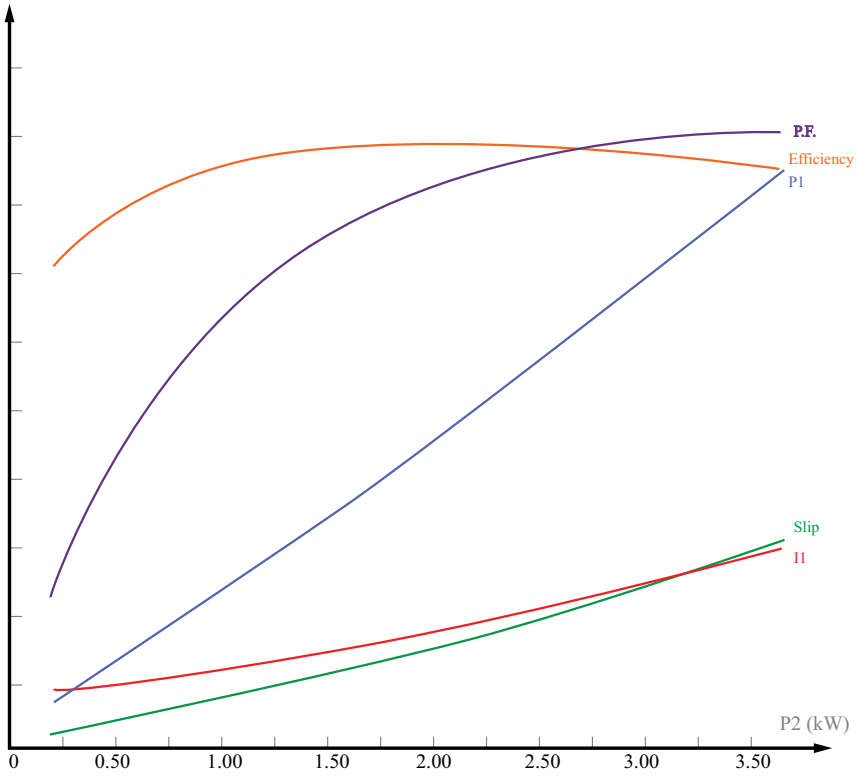


Performance Data - MTRP-002-3BD36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.3901	455.7	1.301	0.5100	1.050	3573.5	76.49	0.492
0.7636	453.1	1.625	0.9066	2.070	3549.8	84.23	0.699
1.1381	449.1	2.059	1.3200	3.100	3524.8	86.22	0.804
1.5113	445.8	2.558	1.7497	4.140	3497.9	86.38	0.857
1.8859	441.3	3.116	2.2030	5.210	3468.4	85.61	0.887
2.2572	437.9	3.714	2.6759	6.290	3437.4	84.35	0.903

Load Performance Data - MTRP-002-3BD36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	1.289	0.4943	0.712	76.00	0.481	0.3750
50	1.615	0.8919	1.368	84.03	0.693	0.7500
75	2.039	1.3050	2.056	86.29	0.802	1.1250
100	2.541	1.7366	2.798	86.28	0.856	1.5000
125	3.102	2.1894	3.617	85.69	0.887	1.8750

MTRP-003-3BD36

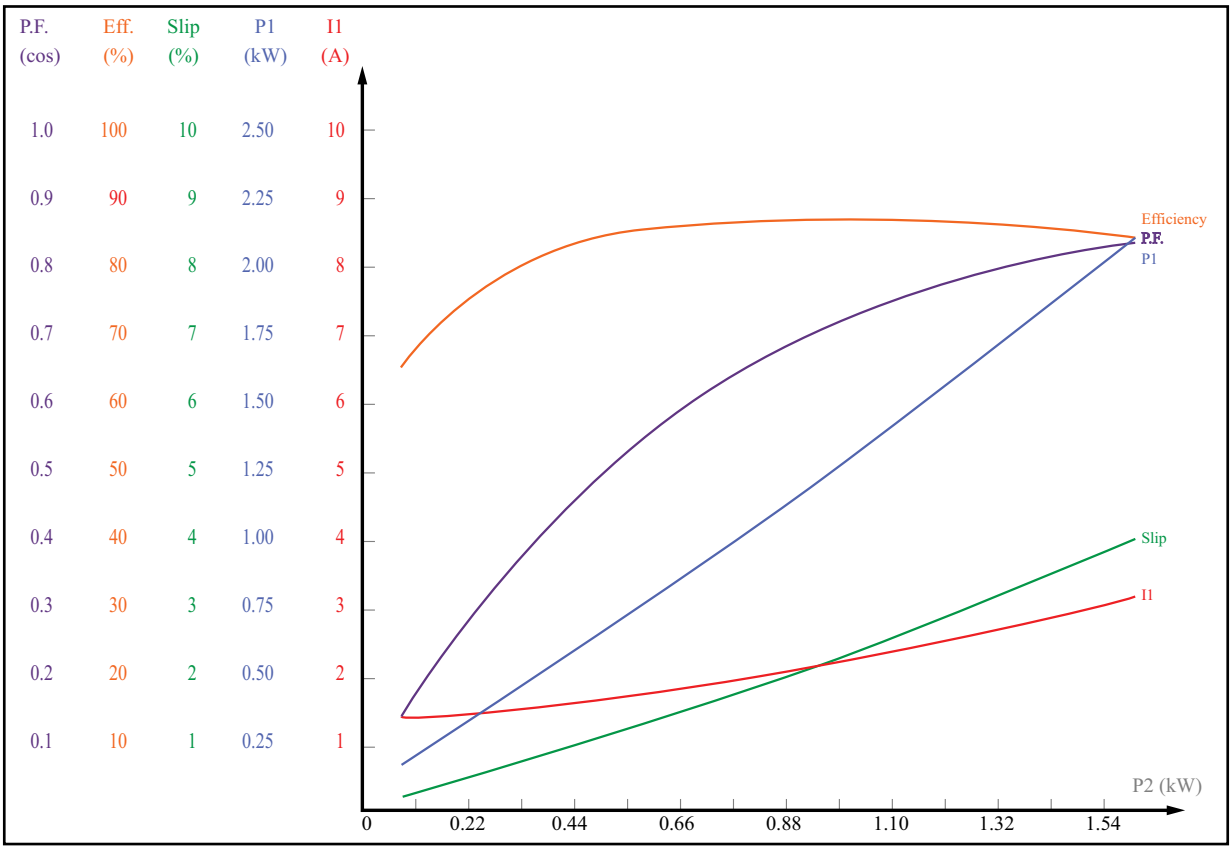
P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	5.0	20
0.9	90	13.5	4.5	18
0.8	80	12.0	4.0	16
0.7	70	10.5	3.5	14
0.6	60	9.0	3.0	12
0.5	50	7.5	2.5	10
0.4	40	6.0	2.0	8
0.3	30	4.5	1.5	6
0.2	20	3.0	1.0	4
0.1	10	1.5	0.5	2



Performance Data - MTRP-003-3BD36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.5814	455.8	1.974	0.7255	1.539	3576.6	80.14	0.462
1.1407	453.5	2.445	1.3155	3.049	3555.0	86.72	0.675
1.6975	450.0	3.064	1.9239	4.569	3532.0	88.23	0.788
2.2630	446.4	3.797	2.5673	6.139	3507.2	88.15	0.848
2.8224	442.9	4.604	3.2325	7.729	3480.0	87.31	0.880
3.3716	438.7	5.473	3.9200	9.329	3450.6	86.01	0.899

Load Performance Data - MTRP-003-3BD36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	1.957	0.7031	0.627	79.75	0.451	0.5600
50	2.430	1.2934	1.197	86.54	0.669	1.1200
75	3.039	1.9044	1.819	88.30	0.785	1.6800
100	3.762	2.5402	2.507	88.09	0.846	2.2400
125	4.575	3.2056	3.277	87.38	0.880	2.8000

MTRP-1P5-3BD18

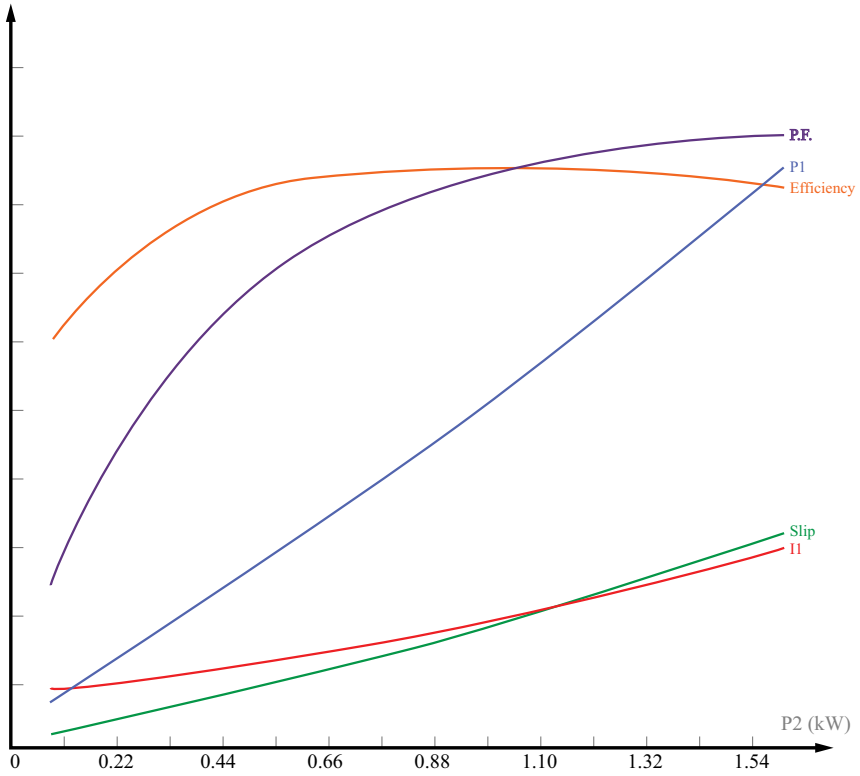


Performance Data - MTRP-1P5-3BD18							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.2882	457.0	1.486	0.3750	1.485	1789.6	76.86	0.317
0.5680	454.9	1.666	0.6709	2.985	1779.7	84.67	0.505
0.8415	452.4	1.917	0.9713	4.475	1769.4	86.63	0.635
1.1180	449.3	2.232	1.2873	5.995	1758.2	86.85	0.723
1.3873	446.8	2.581	1.6073	7.525	1747.0	86.31	0.780
1.6625	443.5	2.983	1.9508	9.105	1733.6	85.22	0.820

Load Performance Data - MTRP-1P5-3BD18						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	1.479	0.3612	0.545	76.28	0.306	0.2750
50	1.653	0.6517	1.095	84.33	0.495	0.5500
75	1.900	0.9528	1.673	86.68	0.628	0.8250
100	2.208	1.2660	2.287	86.79	0.719	1.1000
125	2.566	1.5927	2.943	86.37	0.778	1.3750

MTRP-1P5-3BD36

P.F. (cos)	Eff. (%)	Slip (%)	P1 (kW)	I1 (A)
1.0	100	15.0	2.50	10
0.9	90	13.5	2.25	9
0.8	80	12.0	2.00	8
0.7	70	10.5	1.75	7
0.6	60	9.0	1.50	6
0.5	50	7.5	1.25	5
0.4	40	6.0	1.00	4
0.3	30	4.5	0.75	3
0.2	20	3.0	0.50	2
0.1	10	1.5	0.25	1

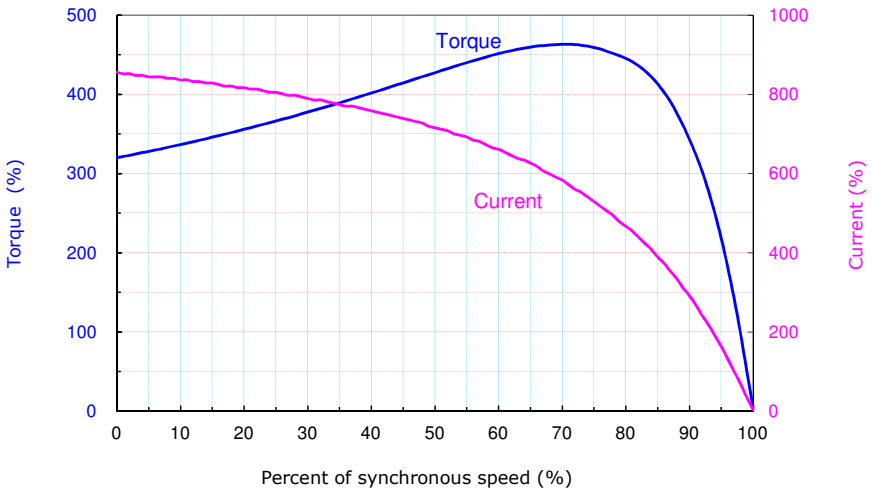


Performance Data - MTRP-1P5-3BD36							
P2 (kW)	***U (V)***	***I1 (A)***	***P1 (kW)***	***Torque (N•m)***	***Speed (RPM)***	***EFF (%)***	***P.F. (cos)***
0.2892	455.7	1.028	0.3944	0.776	3572.9	73.34	0.481
0.5620	452.6	1.255	0.6837	1.516	3551.4	82.20	0.683
0.8366	448.9	1.562	0.9867	2.266	3527.3	84.78	0.792
1.1114	445.2	1.928	1.3034	3.036	3501.2	85.27	0.848
1.3898	441.0	2.338	1.6387	3.816	3472.9	84.81	0.879
1.6550	437.2	2.766	1.9768	4.606	3443.0	83.72	0.897

Load Performance Data - MTRP-1P5-3BD36						
Load (%)	***Current (A)***	***Input (kW)***	***Slip (%)***	***EFF (%)***	***P.F. (cos)***	***Output (kW)***
25	1.018	0.3794	0.715	72.64	0.467	0.2750
50	1.245	0.6710	1.340	81.91	0.676	0.5500
75	1.547	0.9736	1.995	84.83	0.789	0.8250
100	1.910	1.2895	2.700	85.20	0.847	1.1000
125	2.318	1.6209	3.475	84.87	0.878	1.3750

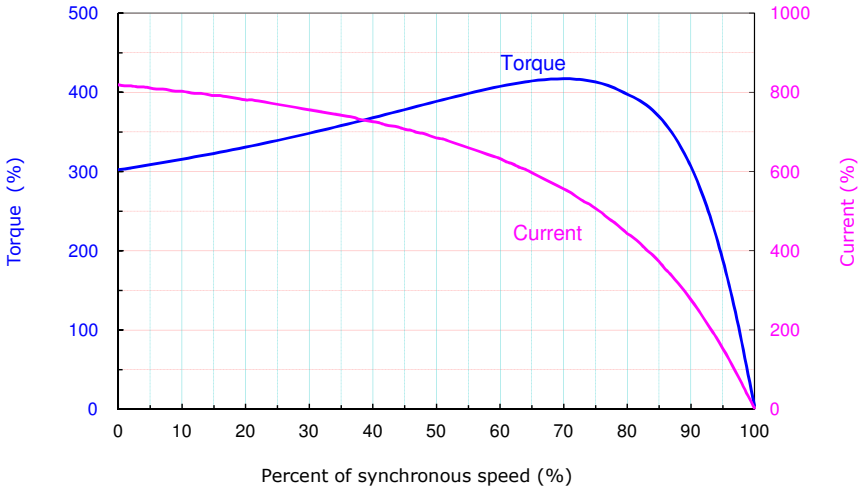
Speed/Torque Curves for MTCP2 Motors (1800 RPM)

MTCP2-001-3BD18(C)



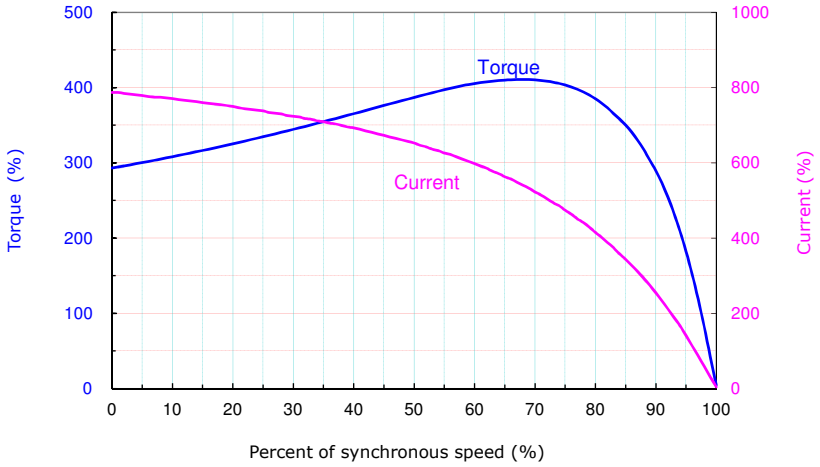
Rated Torque = 2.99 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 1.63A(460V)

MTCP2-1P5-3BD18(C)



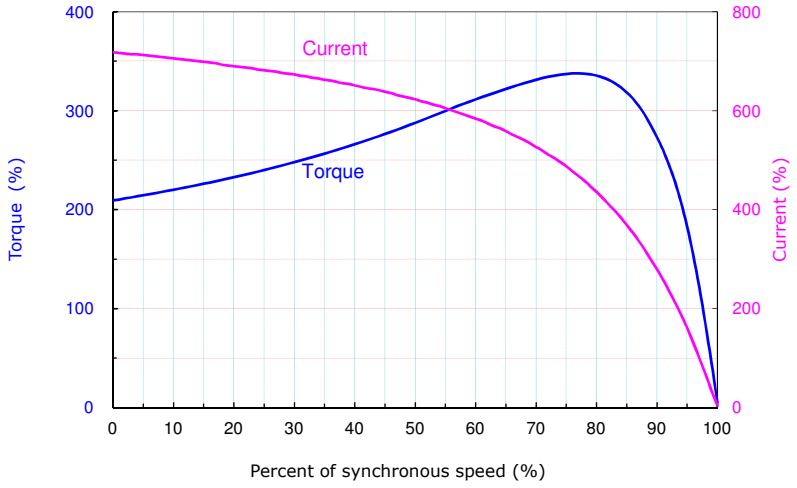
Rated Torque = 4.49 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 2.22A(460V)

MTCP2-002-3BD18(C)



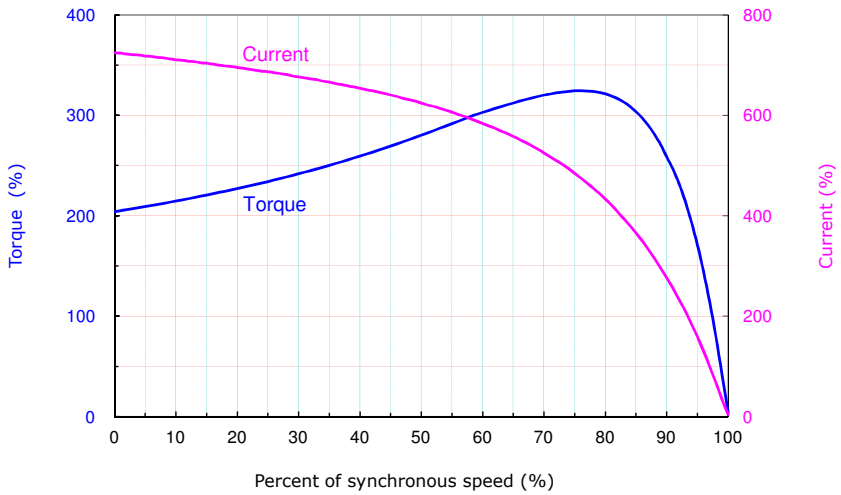
Rated Torque = 5.98 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 2.97A(460V)

MTCP2-003-3BD18(C)



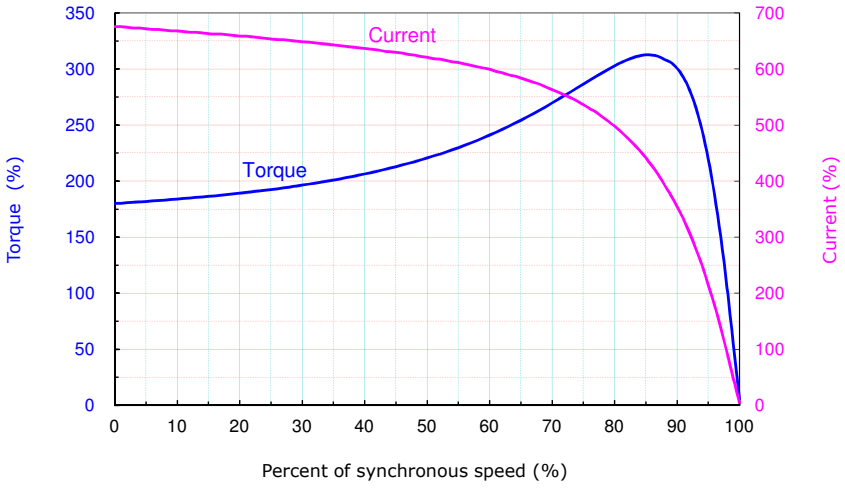
Rated Torque = 8.97 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 4.08A(460V)

MTCP2-005-3BD18(C)



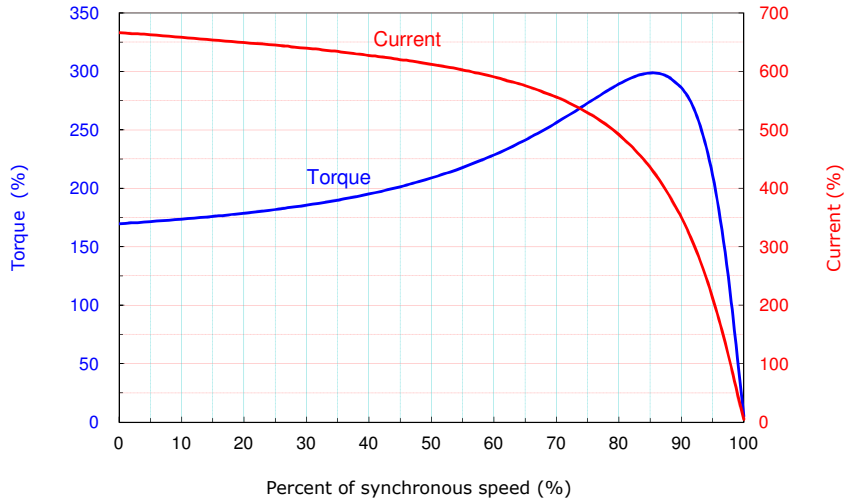
Rated Torque = 15 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 6.3A(460V)

MTCP2-7P5-3BD18(C)



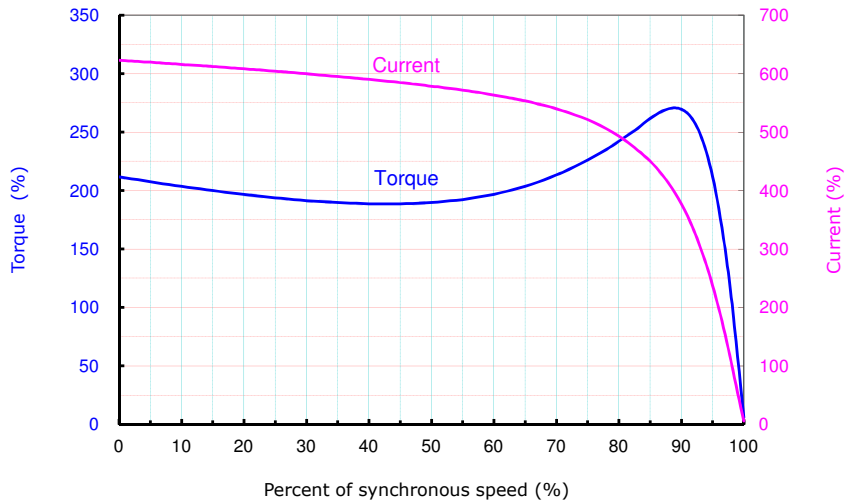
Rated Torque = 22.4 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 9.23 A(460V)

MTCP2-010-3BD18(C)



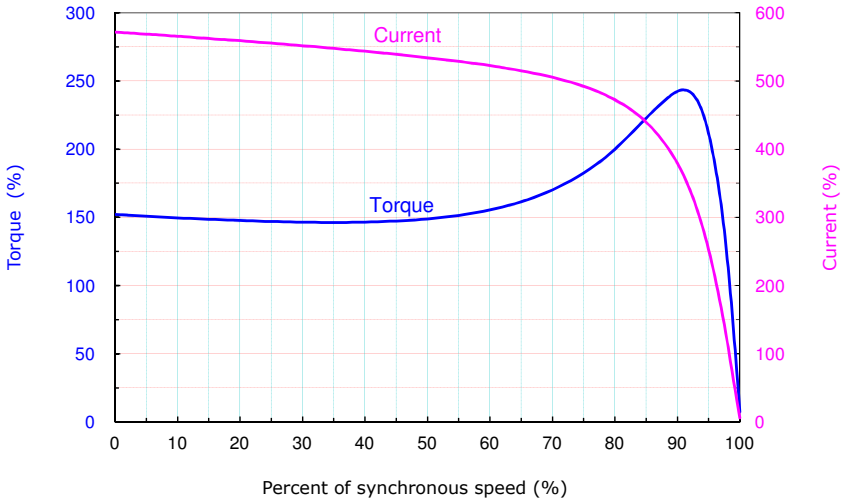
Rated Torque = 29.8 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 12.2A(460V)

MTCP2-020-3BD18(C)



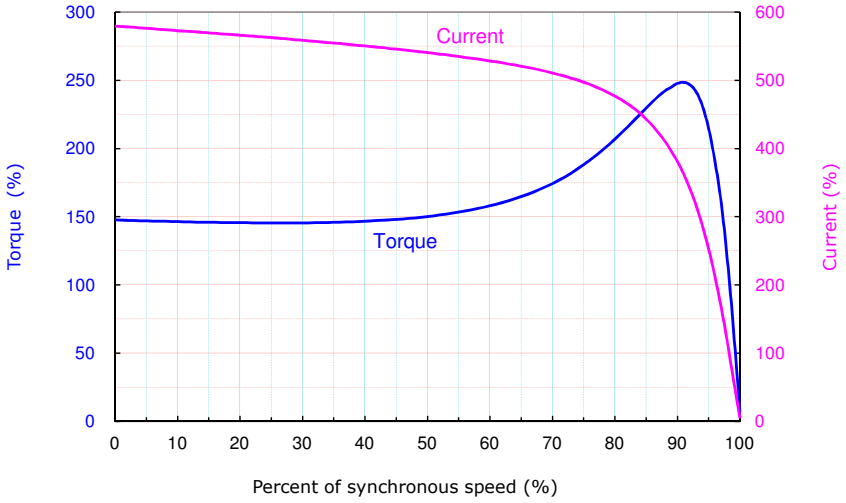
Rated Torque = 59.5 Lb.ft Synchronous Speed = 1800 r/min Rated Current =23.7A(460V)

MTCP2-025-3BD18(C)



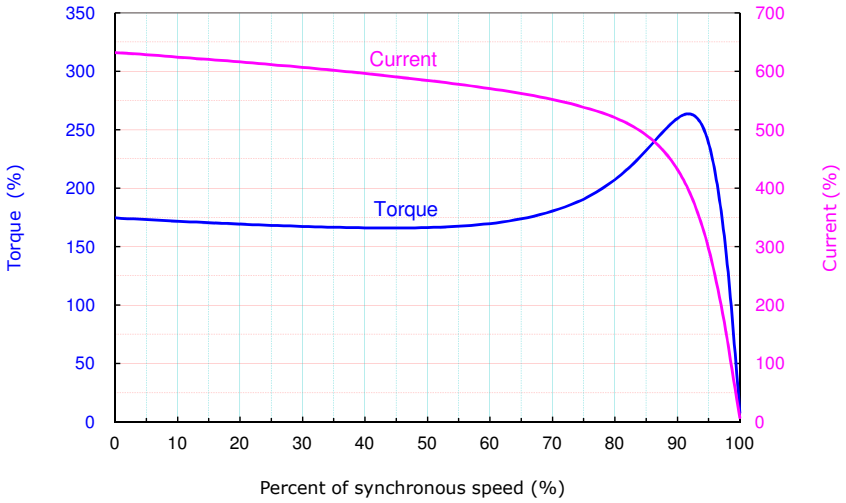
Rated Torque = 74.2 Lb.ft Synchronous Speed = 1800 r/min Rated Current =29.4 A(460V)

MTCP2-030-3BD18(C)



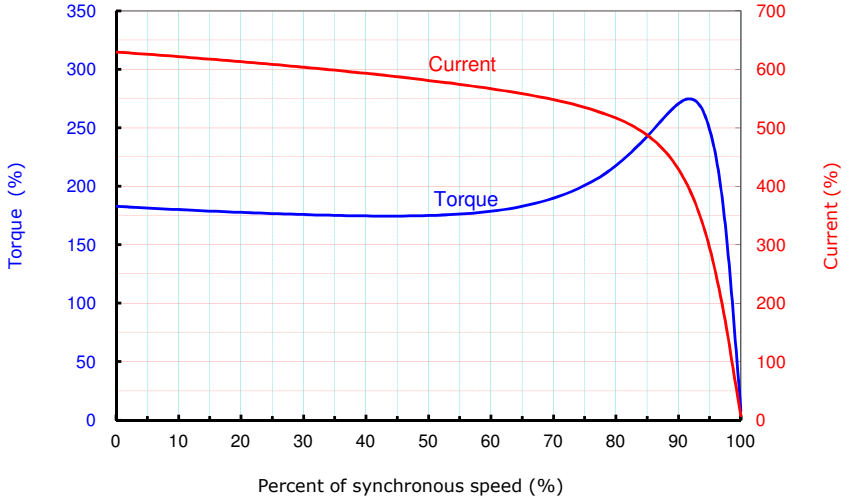
Rated Torque = 89 Lb.ft Synchronous Speed = 1800 r/min Rated Current =35.3A(460V)

MTCP2-040-3BD18



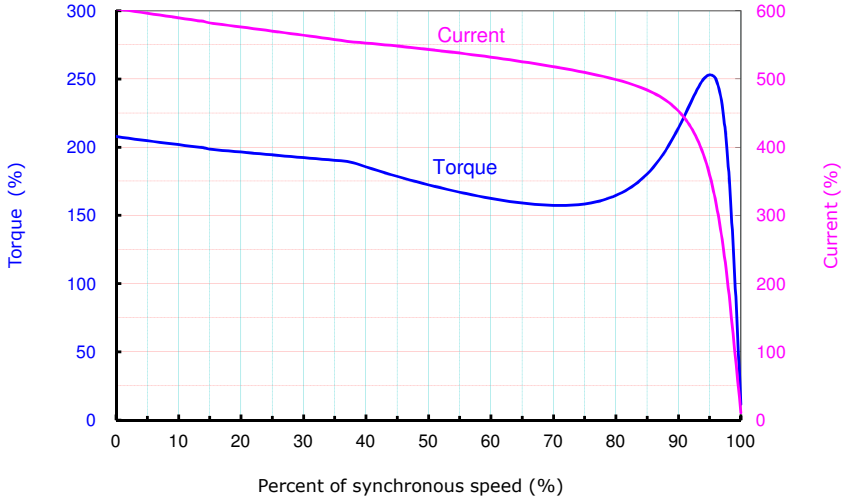
Rated Torque = 118 Lb.ft Synchronous Speed = 1800 r/min Rated Current =46.3 A(460V)

MTCP2-050-3BD18



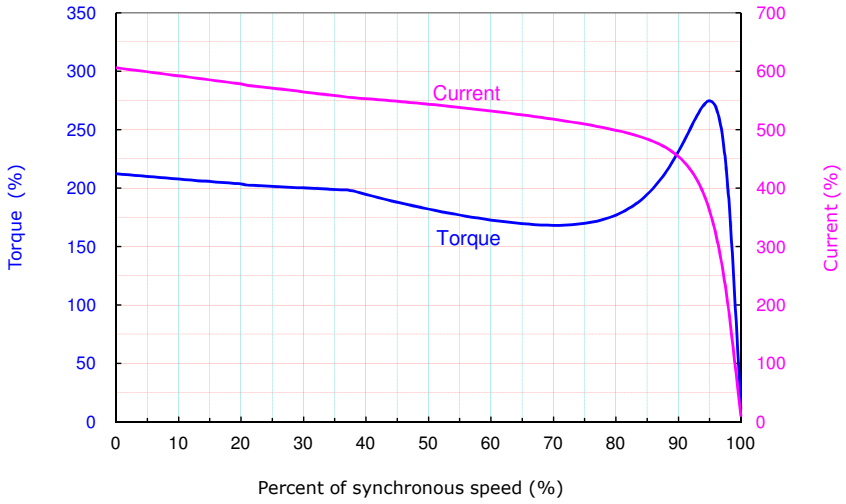
Rated Torque = 148 Lb.ft Synchronous Speed = 1800 r/min Rated Current =57.6A(460V)

MTCP2-060-3BD18



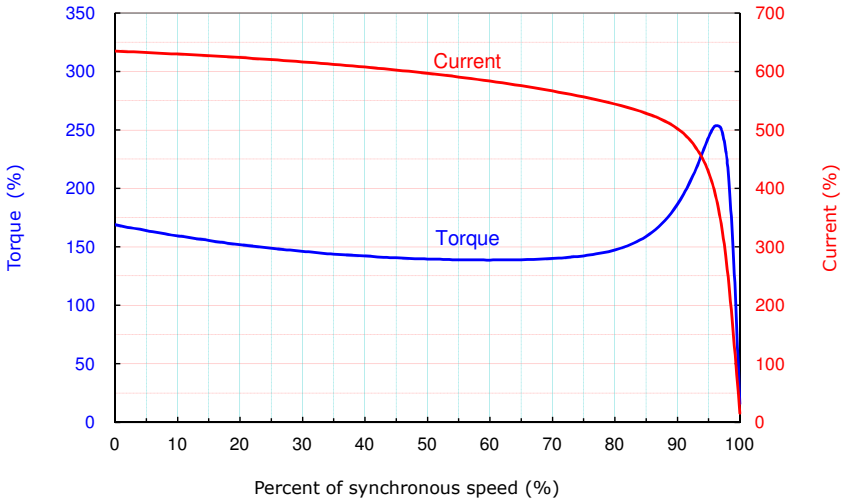
Rated Torque = 177 Lb.ft Synchronous Speed = 1800 r/min Rated Current =72.1A(460V)

MTCP2-075-3BD18



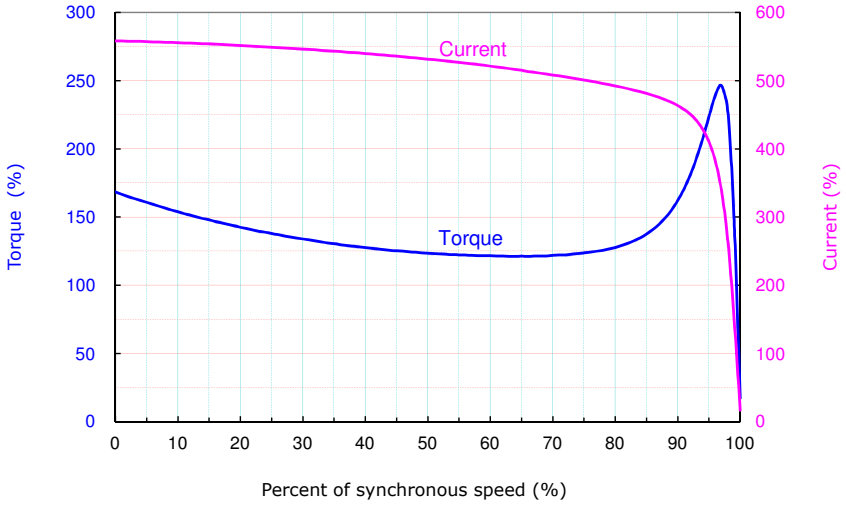
Rated Torque = 221 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 88.7A(460V)

MTCP2-100-3BD18



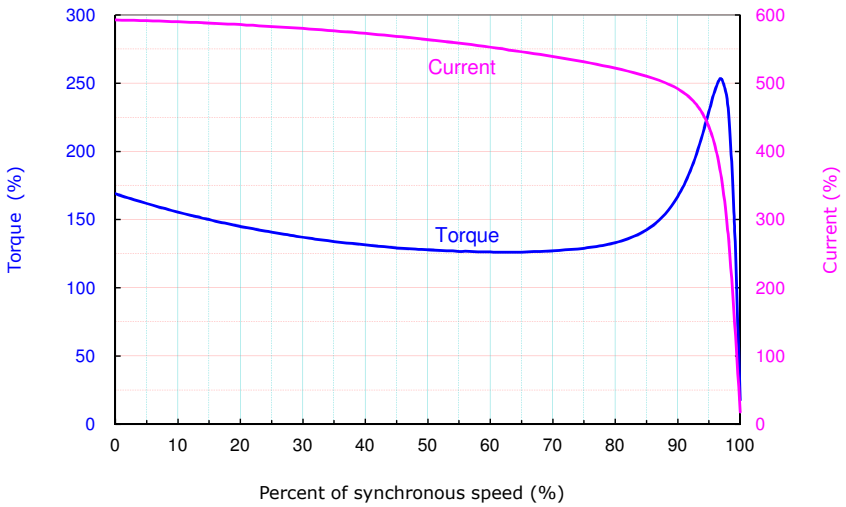
Rated Torque = 294 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 114A(460V)

MTCP2-125-3BD18



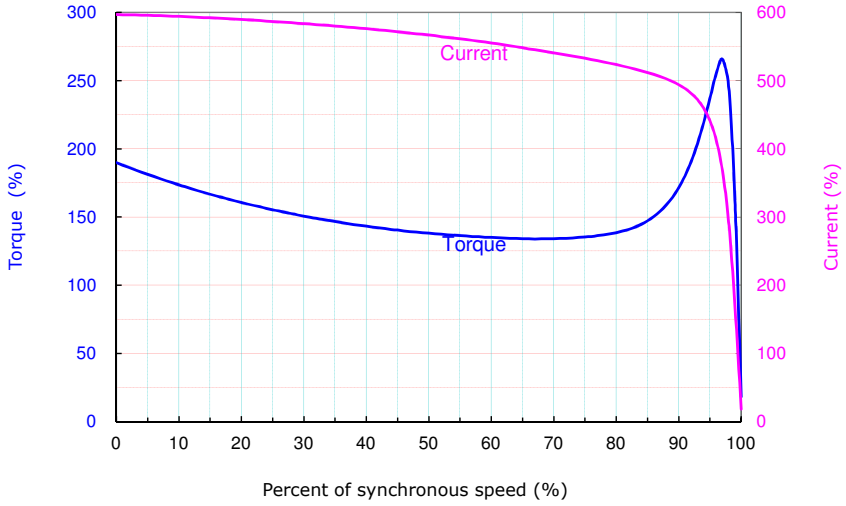
Rated Torque = 367 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 116 A(460V)

MTCP2-150-3BD18



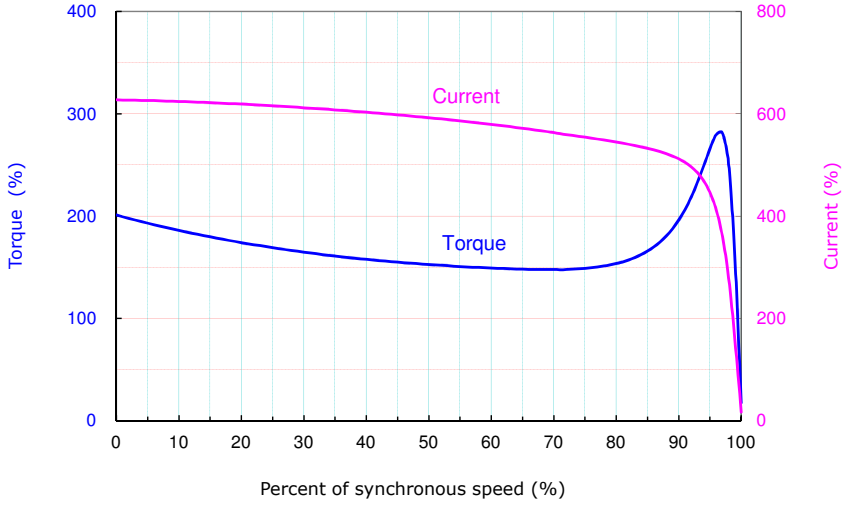
Rated Torque = 440 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 172A(460V)

MTCP2-200-3BD18



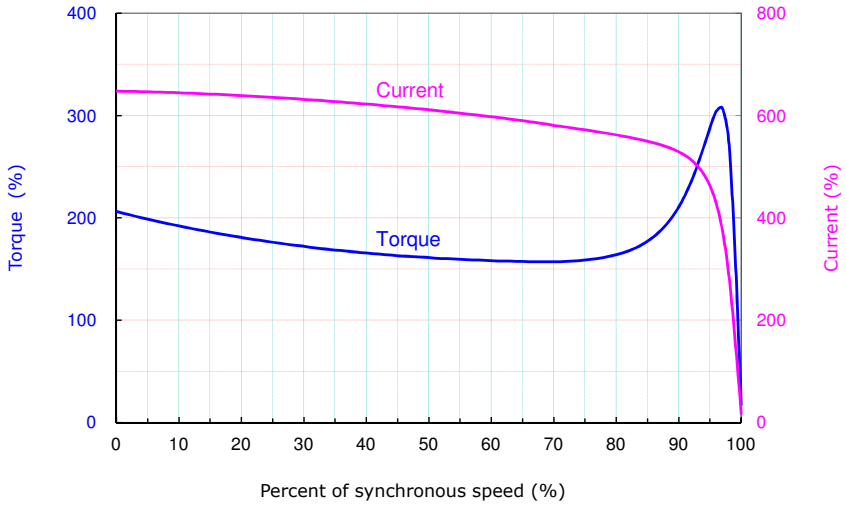
Rated Torque = 587 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 229 A(460V)

MTCP2-250-3D18



Rated Torque =773 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 280 A(460V)

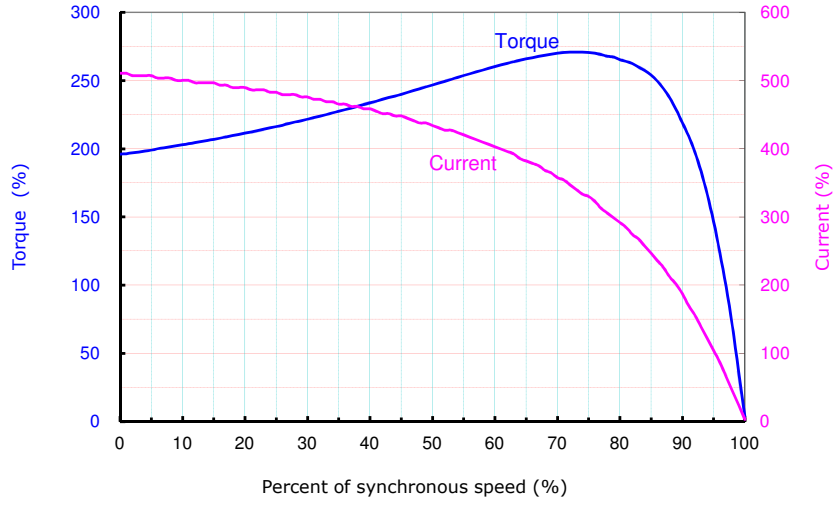
MTCP2-300-3D18



Rated Torque =880 Lb.ft Synchronous Speed = 1800 r/min Rated Current = 336 A(460V)

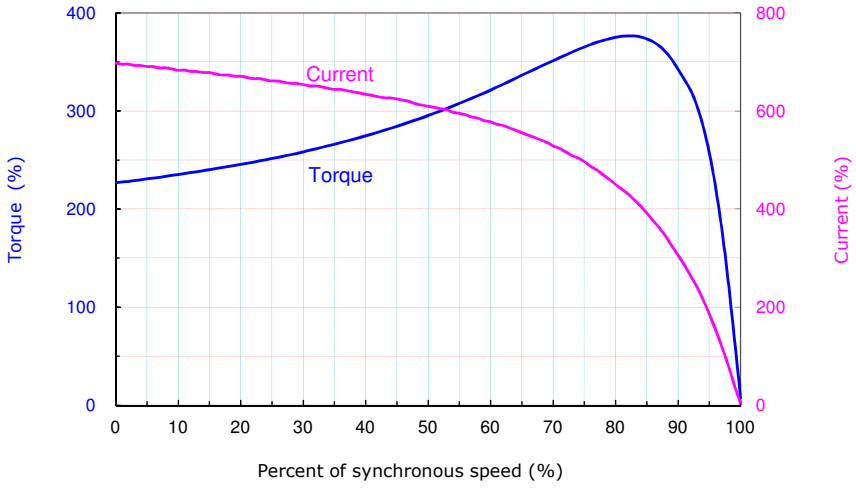
Speed/Torque Curves for MTCP2 Motors (1200 RPM)

MTCP2-001-3BD12



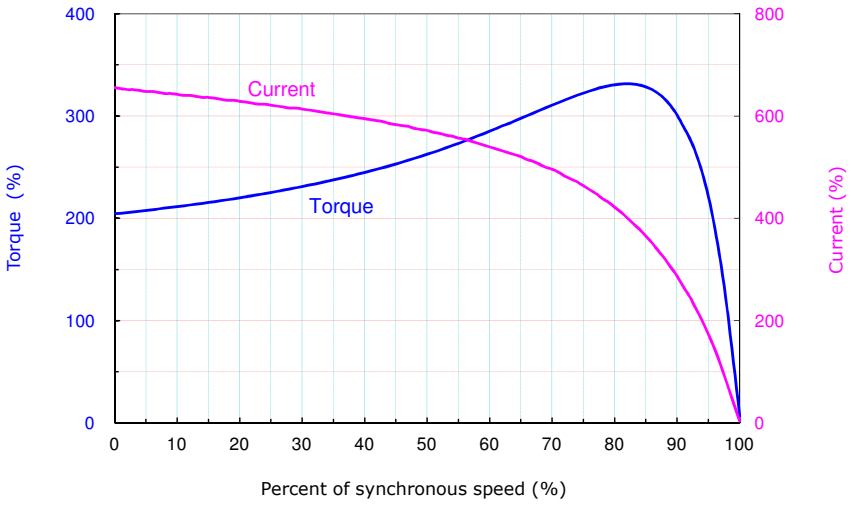
Rated Torque = 4.53 Lb.ft Synchronous Speed = 1200 r/min Rated Current = 1.67A(460V)

MTCP2-1P5-3BD12



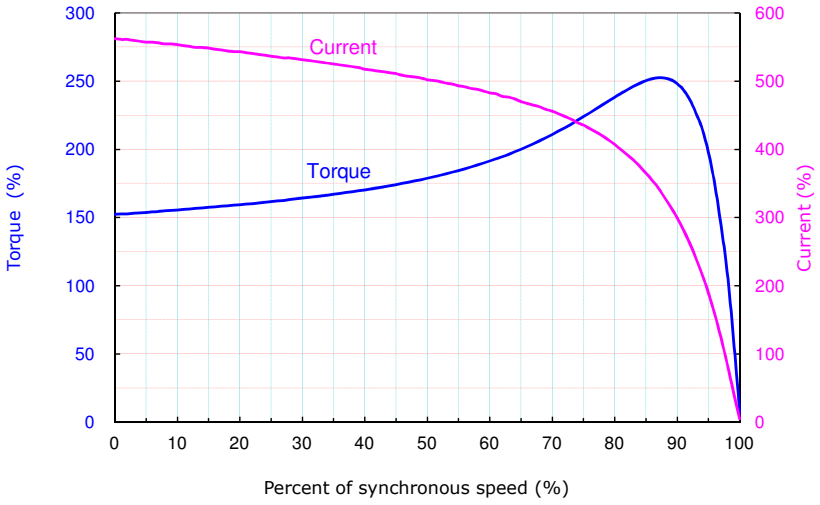
Rated Torque = 6.67 Lb.ft Synchronous Speed = 1200 r/min Rated Current = 2.36A(460V)

MTCP2-002-3BD12



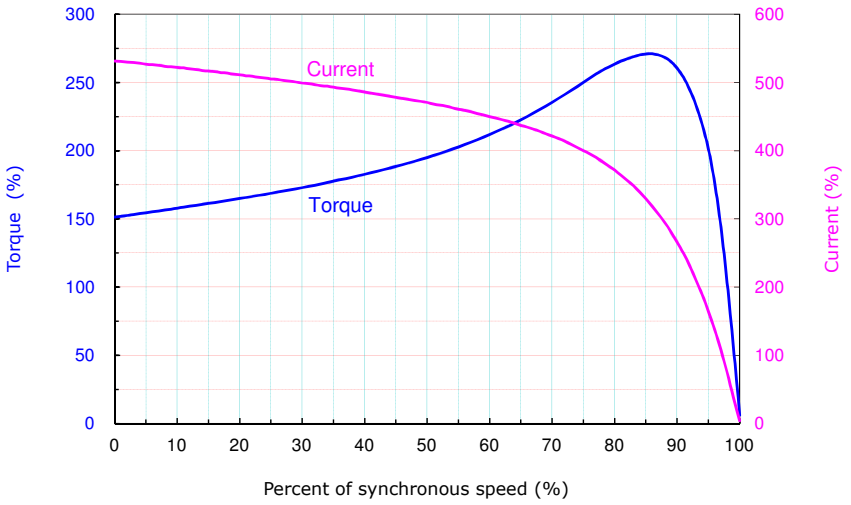
Rated Torque = 8.94 Lb.ft Synchronous Speed = 1200 r/min Rated Current = 2.98A(460V)

MTCP2-003-3BD12



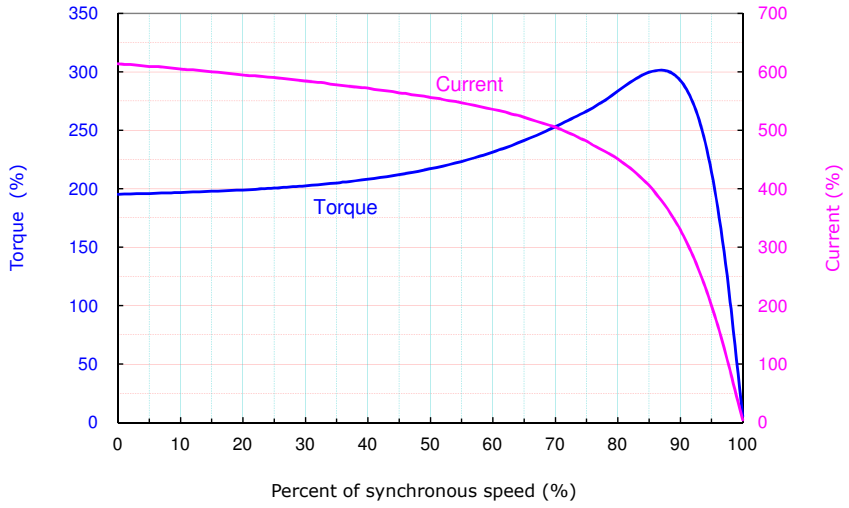
Rated Torque = 13.3 Lb.ft Synchronous Speed = 1200 r/min Rated Current = 4.36 A(460V)

MTCP2-005-3BD12



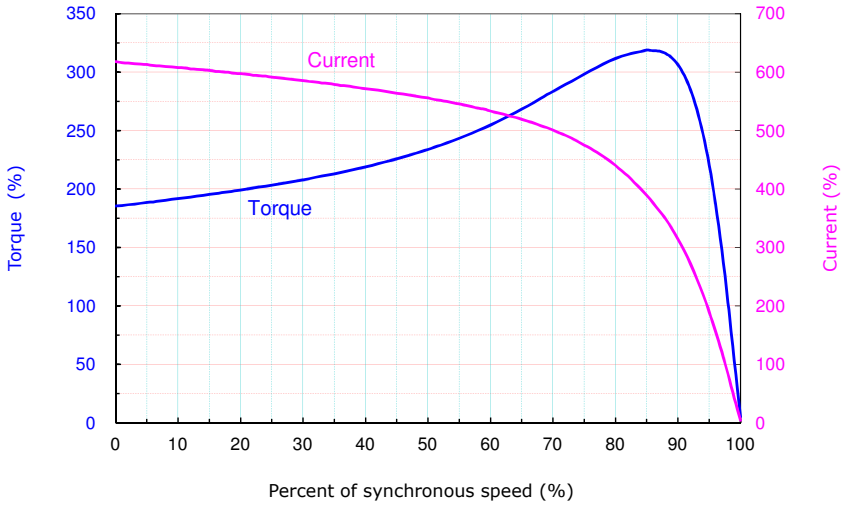
Rated Torque = 22.3 Lb.ft Synchronous Speed = 1200 r/min Rated Current = 7.27 A(460V)

MTCP2-7P5-3BD12



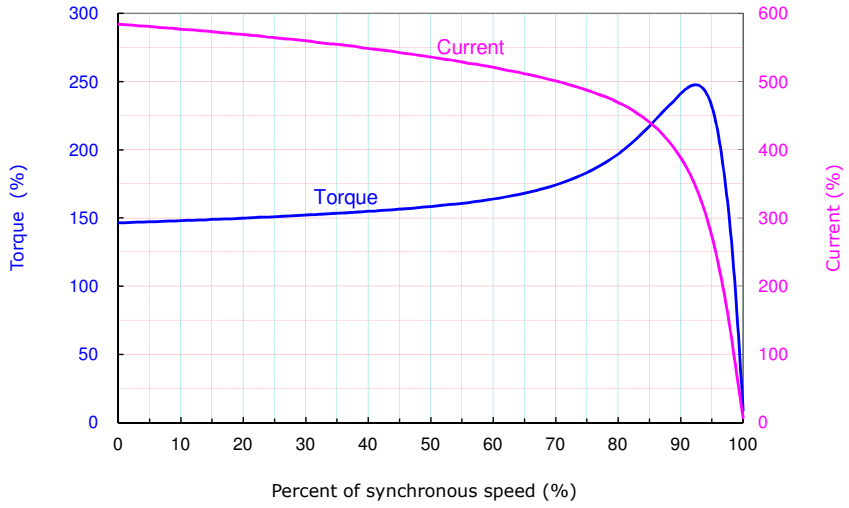
Rated Torque = 33.5 Lb.ft Synchronous Speed = 1200 r/min Rated Current = 9.41 A(460V)

MTCP2-010-3BD12



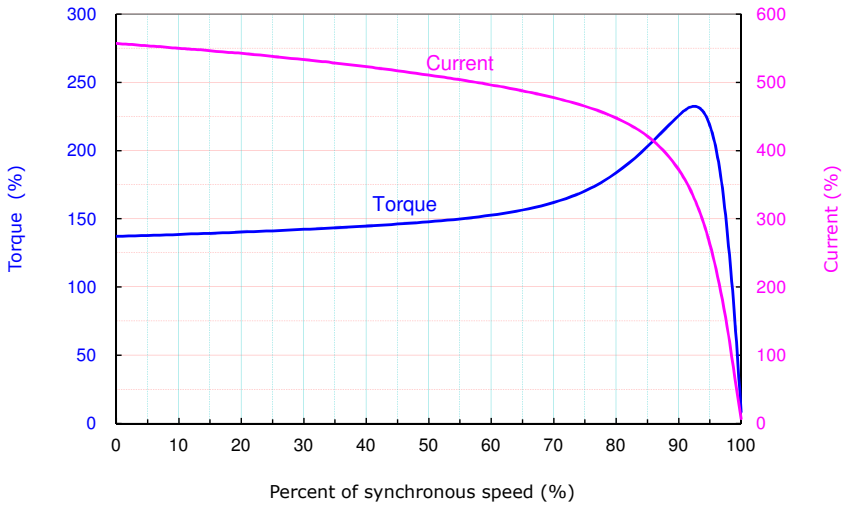
Rated Torque = 44.7 Lb.ft Synchronous Speed = 1200 r/min Rated Current = 12.5 A(460V)

MTCP2-015-3BD12



Rated Torque = 66.5 Lb.ft Synchronous Speed = 1200 r/min Rated Current = 18.7 A(460V)

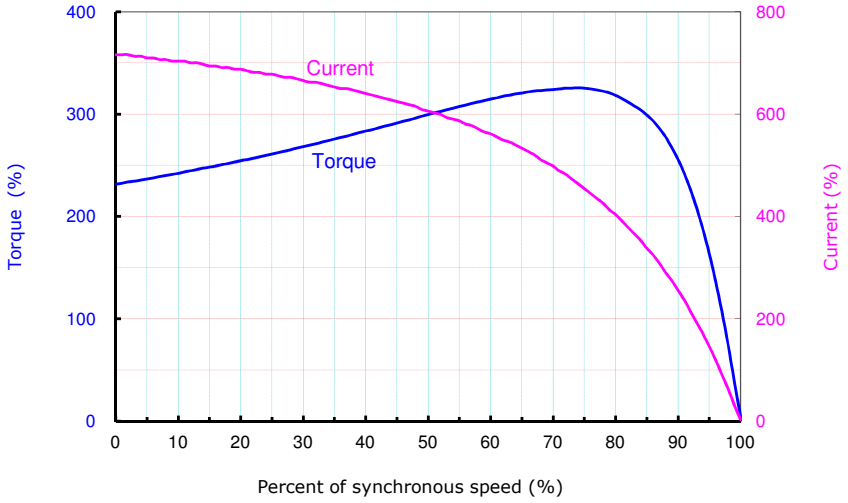
MTCP2-020-3BD12



Rated Torque = 88.6 Lb.ft Synchronous Speed = 1200 r/min Rated Current = 24.6 A(460V)

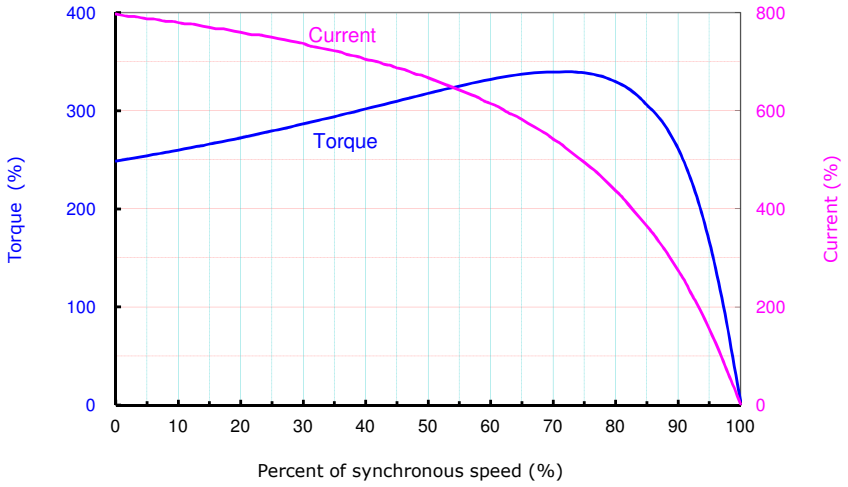
Speed/Torque Curves for MTCP2 Motors (3600 RPM)

MTCP2-1P5-3BD36



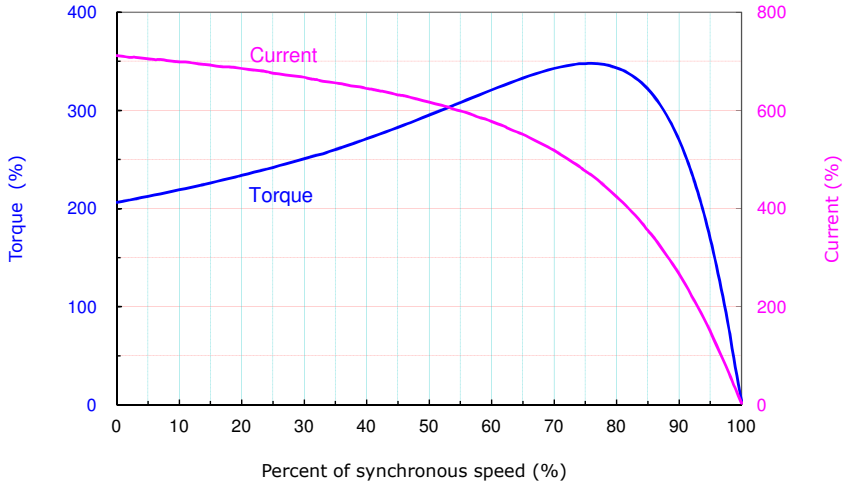
Rated Torque = 2.26 Lb.ft Synchronous Speed = 3600 r/min Rated Current = 2.26A(460V)

MTCP2-002-3BD36



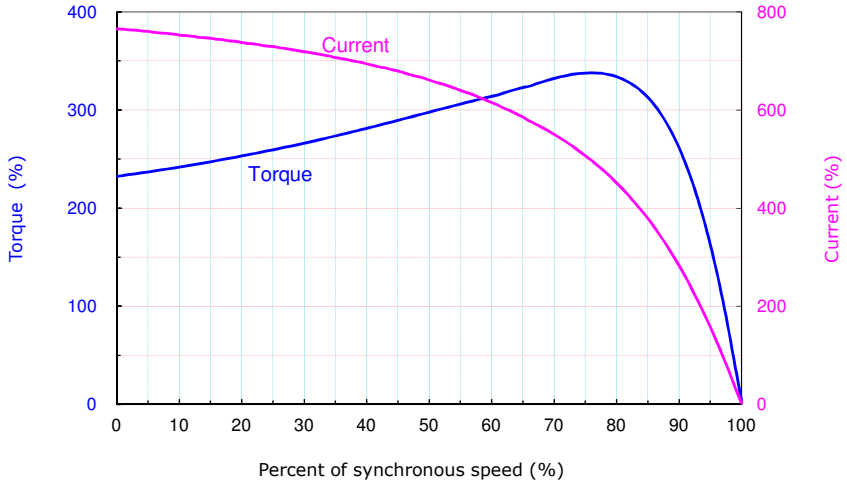
Rated Torque = 3.01 Lb.ft Synchronous Speed = 3600 r/min Rated Current = 2.61A(460V)

MTCP2-003-3BD36



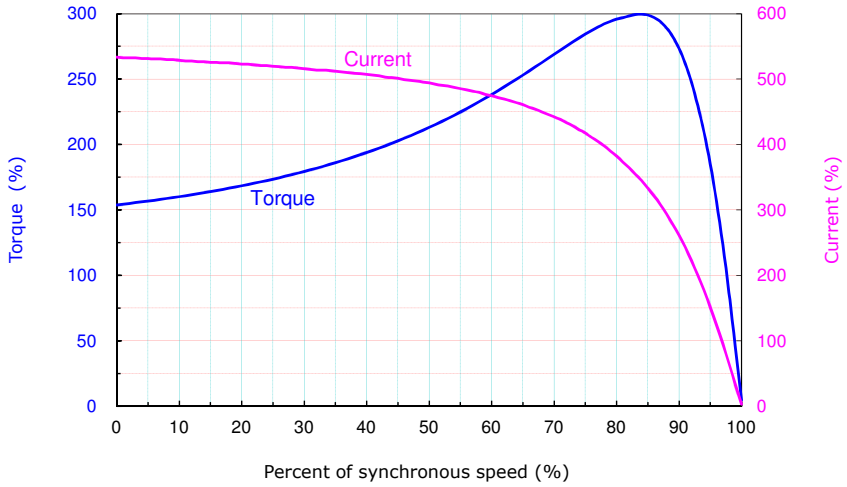
Rated Torque = 4.51 Lb.ft Synchronous Speed = 3600 r/min Rated Current = 3.82A(460V)

MTCP2-005-3BD36



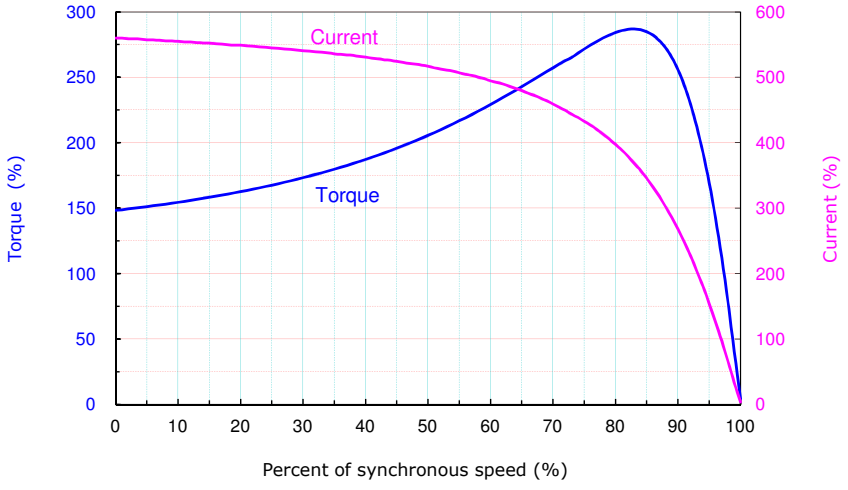
Rated Torque = 7.52 Lb.ft Synchronous Speed = 3600 r/min Rated Current =6.01A(460V)

MTCP2-7P5-3BD36



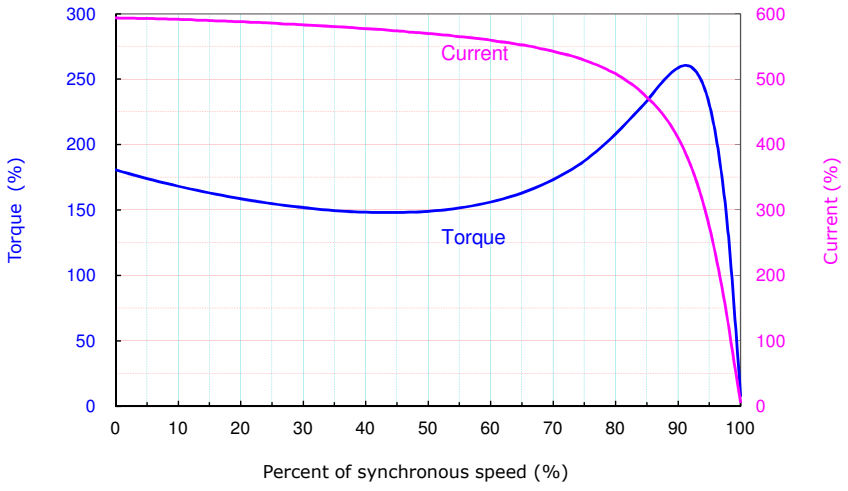
Rated Torque = 11.2 Lb.ft Synchronous Speed = 3600 r/min Rated Current = 9.45 A(460V)

MTCP2-010-3BD36



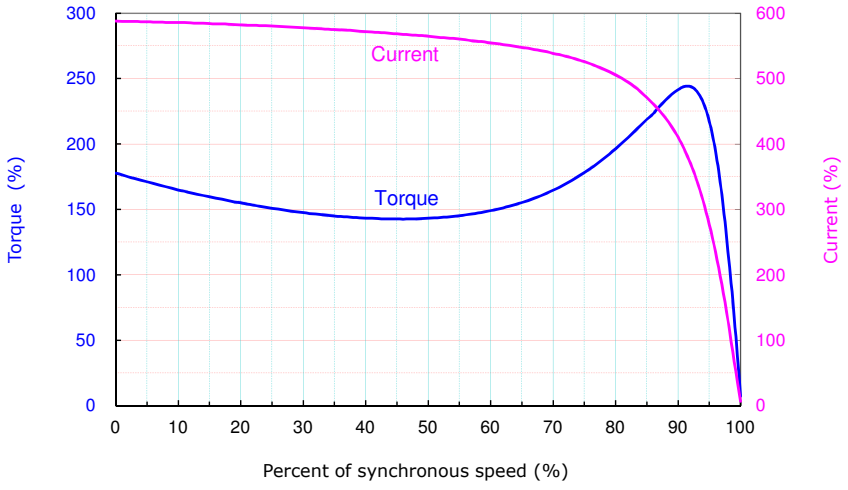
Rated Torque = 15.0 Lb.ft Synchronous Speed = 3600 r/min Rated Current = 12.2 A(460V)

MTCP2-015-3BD36



Rated Torque = 22.2 Lb.ft Synchronous Speed = 3600 r/min Rated Current = 17.3 A(460V)

MTCP2-020-3BD36



Rated Torque = 29.7 Lb.ft Synchronous Speed = 3600 r/min Rated Current = 22.9 A(460V)

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LEGACY MOTORS

CHAPTER 6

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LEGACY MOTORS

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Chapter Overview

This chapter provides technical information for Ironhorse AC motors that have been retired by ADC. *These legacy models are no longer sold by AutomationDirect*, but are detailed in this chapter to keep motor data available during the motors' lifetime.

We also encourage you to visit our web site where you can find technical and non-technical information about our products and our company. Visit us at *www.automationdirect.com*.

MTCP Series Motors

MTCP 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.

NOTE: For MTCP motors shipped with a shaft lock in place, remove the shaft lock after the motor is installed and before coupling and turning the shaft.

MTCP Specifications

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

Motor Specifications Premium-Efficiency T & TC Frame Three-Phase Motors 60Hz/1800rpm (50Hz/1500rpm)										
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**
MTCP-010-3BD18	10	215T					4		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.

MTCP Specifications – Cast-Iron T-frame and TC-frame – 60Hz/1200&3600rpm (50Hz/1000&3000 rpm)

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).										

MTCP Motor Performance Data

MTCP Performance Data – Cast-Iron T-frame and TC-frame – 60Hz/1800rpm

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	Speed (rpm)				F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)	Slip (%)
				Minimum		Maximum					
				Constant Torque (4:1)	Variable Torque (10:1)	CHP(1)	Safe				
MTCP-001-3BD18(C)	1	B	1750	450	180	2700	5400	86.3	0.690	0.089	1.81
MTCP-1P5-3BD18(C)	1-1/2		1750					87.3	0.726	0.11	2.80
MTCP-002-3BD18(C)	2		1750					87.3	0.725	0.13	2.80
MTCP-003-3BD18(C)	3		1750					90.3	0.786	0.28	1.60
MTCP-005-3BD18(C)	5		1750					90.3	0.786	0.33	2.00
MTCP-7P5-3BD18(C)	7-1/2		1760					91.8	0.825	1.814	1.54
MTCP-010-3BD18(C)	10		1750				4200	92.5	0.826	1.97	1.31
MTCP-015-3BD18(C)	15		1750					92.5	0.890	3.33	1.22
MTCP-020-3BD18(C)	20		1770					93.8	0.846	4.09	1.70
MTCP-025-3BD18(C)	25		1770					93.6	0.860	7.01	1.67
MTCP-030-3BD18(C)	30		1780					93.7	0.846	8.3	1.10
MTCP-040-3BD18(C)	40		1780					94.4	0.850	9	1.11
MTCP-050-3BD18(C)	50		1775					94.5	0.855	14.1	0.78
MTCP-060-3BD18(C)	60		1788					95.0	0.850	16.27	0.66
MTCP-075-3BD18(C)	75		1787					95.4	0.850	18.8	0.69
MTCP-100-3BD18(C)	100		1790					95.4	0.860	45.5	0.56
MTCP-125-3BD18	125		1790					95.4	0.860	65.1	0.56
MTCP-150-3BD18	150		1790					95.8	0.860	69.26	0.53
MTCP-200-3BD18	200		1790					96.3	0.860	84.0	0.52

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

Part Number (repeated)	HP	Current @ 230V/460V (Amps)			Torque (lb·ft)			Max Time @ Locked Rotor Current (hot)	Temperature Rise @ Full Load
		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	20 seconds	80°C [176°F]
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	13 seconds	
MTCP-100-3BD18(C)	100	75 / 37.5	228.6 / 114.3	1450 / 725	293.2	645.0	703.7	20 seconds	
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	18 seconds	
MTCP-200-3BD18	200	133.3 / 66.6	453.2 / 226.6	2900 / 1450	587	1174	1644		

MTCP Motor Performance Data – Cast-Iron T-frame – 60Hz/1200rpm

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	Speed (rpm)				F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)	Slip (%)
				Minimum		Maximum					
				Constant Torque (4:1)	Variable Torque (10:1)	CHP(1)	Safe				
MTCP-001-3BD12	1	B	1162	300	120	1800	3600	82.5	0.72	0.33	3.14
MTCP-1P5-3BD12	1-1/2		1180					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

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

Part Number (repeated)	HP	Current @ 230V/460V (Amps)			Torque (lb·ft)			Max Time @ Locked Rotor Current (hot)	Temperature Rise @ Full Load
		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	20 seconds	80°C [176°F]
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		

MTCP Motor Performance Data – Cast-Iron T-frame – 60Hz/3600rpm

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	Speed (rpm)				F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)	Slip (%)
				Minimum		Maximum					
				Constant Torque (4:1)	Variable Torque (10:1)	CHP(1)	Safe				
MTCP-1P5-3BD36	1-1/2	B	3570	900	360	5400	5400	85.5	0.83	0.08	2.00
MTCP-002-3BD36	2		3520					86.6	0.82	0.10	2.20
MTCP-003-3BD36	3		3520					87.0	0.85	0.20	1.60
MTCP-005-3BD36	5		3570					89.0	0.84	0.22	1.46
MTCP-7P5-3BD36	7-1/2		3520					89.7	0.85	0.50	1.67
MTCP-010-3BD36	10		3550					90.3	0.85	1.2	1.40
MTCP-015-3BD36	15		3550					91.2	0.85	1.86	1.11
MTCP-020-3BD36	20		3570					91.2	0.85	2.01	0.97

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

Part Number (repeated)	HP	Current @ 230V/460V (Amps)			Torque (lb·ft)			Max Time @ Locked Rotor Current (hot)	Temperature Rise @ Full Load
		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	20 seconds	80°C [176°F]
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		

MTCP 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**	**Speed (rpm)**				**F.L. Efficiency (%)**	**F.L. Power Factor**	**Rotor Inertia (lb·ft²)**	**Slip (%)**
				Minimum		**Maximum**					
				Constant Torque	**Variable Torque**	**CHP(1)**	**Safe**				
MTCP-001-3BD18(C)	1	B	1453	450	180	2700	5400	86.3	0.690	0.089	1.81
MTCP-1P5-3BD18(C)	1.5		1453					87.3	0.726	0.11	2.80
MTCP-002-3BD18(C)	2		1453					87.3	0.725	0.13	2.80
MTCP-003-3BD18(C)	3		1453					90.3	0.786	0.28	1.60
MTCP-005-3BD18(C)	5		1453					90.3	0.786	0.33	2.00
MTCP-7P5-3BD18(C)	7-1/2		1461					91.8	0.825	1.814	1.54
MTCP-010-3BD18(C)	10		1453				4200	92.5	0.826	1.97	1.31
MTCP-015-3BD18(C)	15		1453					92.5	0.890	3.33	1.22
MTCP-020-3BD18(C)	20		1469					93.8	0.846	4.09	1.70
MTCP-025-3BD18(C)	25		1469					93.6	0.860	7.01	1.67
MTCP-030-3BD18(C)	30		1477					93.7	0.846	8.3	1.10
MTCP-040-3BD18(C)	40		1477					94.4	0.850	9	1.11
MTCP-050-3BD18(C)	50		1473					94.5	0.855	14.1	0.78
MTCP-060-3BD18(C)	60		1484					95.0	0.850	16.27	0.66
MTCP-075-3BD18(C)	75		1483					95.4	0.850	18.8	0.69
MTCP-100-3BD18(C)	100		1486					95.4	0.860	45.5	0.56
MTCP-125-3BD18	125		1486					95.4	0.860	65.1	0.56
MTCP-150-3BD18	150		1486					95.8	0.860	69.26	0.53
MTCP-200-3BD18	200		1486					96.3	0.860	84.0	0.52

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

Part Number (repeated)	**HP**	**Current @ 200V/400V (Amps)**			**Torque (lb·ft)**			**Max Time @ Locked Rotor Current (hot)**	**Temperature Rise @ Full Load**
		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	20 seconds	80°C [176°F]
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	13 seconds	
MTCP-100-3BD18(C)	100	86.3 / 43.1	263 / 132	1668 / 834	353	777	847	20 seconds	
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	18 seconds	
MTCP-200-3BD18	200	153 / 77	521 / 261	3335 / 1668	707	1414	1980		

MTCP Motor Performance Data – Cast-Iron T-frame – 50Hz/1000rpm

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	Speed (rpm)				F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)	Slip (%)
				Minimum		Maximum					
				Constant Torque	Variable Torque	CHP(1)	Safe				
MTCP-001-3BD12	1	B	964	300	120	1800	3600	82.5	0.72	0.33	3.14
MTCP-1P5-3BD12	1-1/2		979					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

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

Part Number (repeated)	HP	Current @ 200V/400V (Amps)			Torque (lb·ft)			Max Time @ Locked Rotor Current (hot)	Temperature Rise @ Full Load
		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	20 seconds	80°C [176°F]
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		

MTCP Motor Performance Data – Cast-Iron T-frame – 50Hz/3000rpm

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	Speed (rpm)				F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)	Slip (%)
				Minimum		Maximum					
				Constant Torque	Variable Torque	CHP(1)	Safe				
MTCP-1P5-3BD36	1-1/2	B	2963	1800	720	5400	5400	85.5	0.83	0.08	2.00
MTCP-002-3BD36	2		2922					86.6	0.82	0.10	2.20
MTCP-003-3BD36	3		2922					87.0	0.85	0.20	1.60
MTCP-005-3BD36	5		2963					89.0	0.84	0.22	1.46
MTCP-7P5-3BD36	7-1/2		2922					89.7	0.85	0.50	1.67
MTCP-010-3BD36	10		2947					90.3	0.85	1.20	1.40
MTCP-015-3BD36	15		2947					91.2	0.85	1.86	1.11
MTCP-020-3BD36	20		2963					91.2	0.85	2.01	0.97

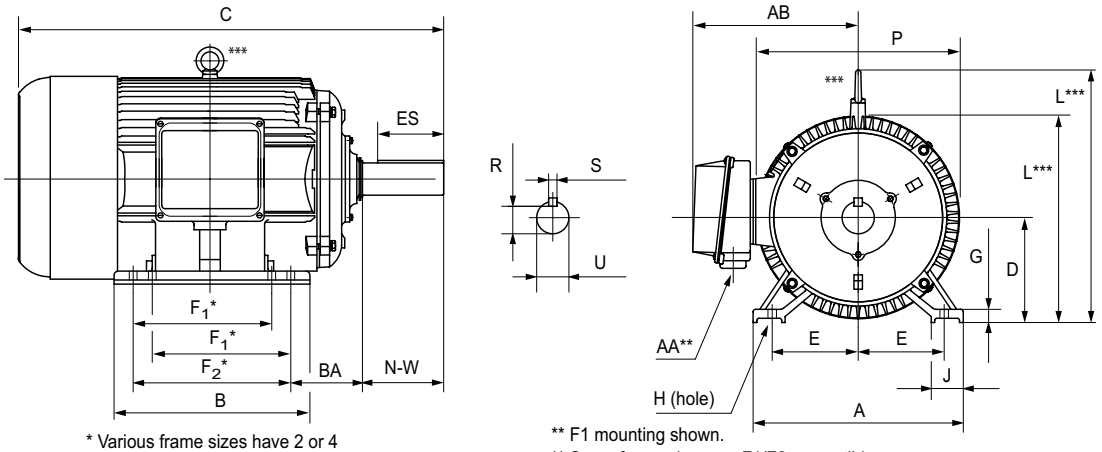
1) Maximum Constant HP RPM is for direct-coupled loads.

Part Number (repeated)	HP	Current @ 200V/400V (Amps)			Torque (lb·ft)			Max Time @ Locked Rotor Current (hot)	Temperature Rise @ Full Load
		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	20 seconds	80°C [176°F]
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		

MTCP Motor Dimensions

(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.*

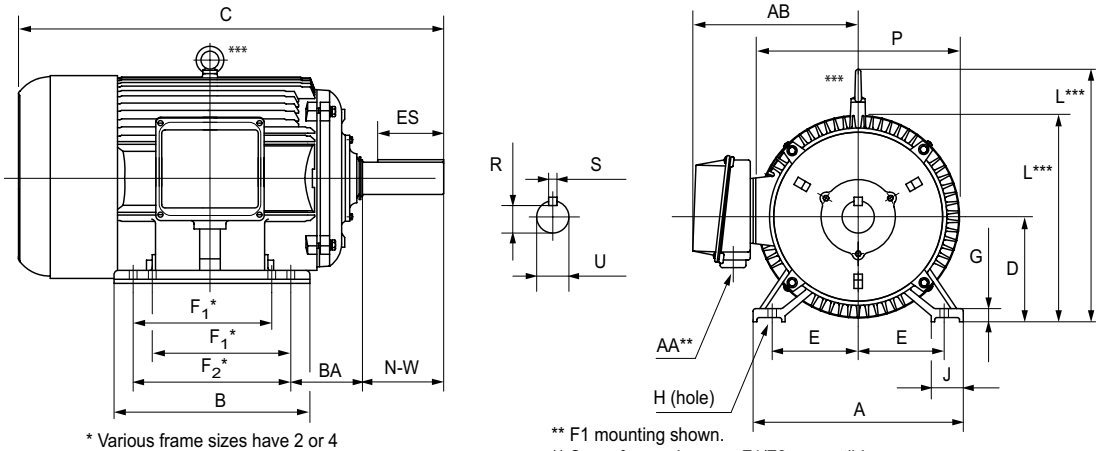
*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table.*
(F2 mounting = conduit entrance on right side facing shaft.)

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

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

MTCP 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

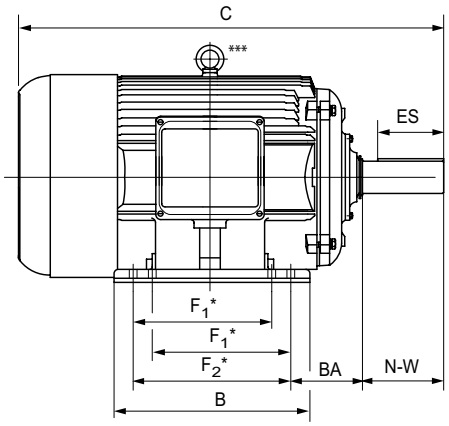
** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

*** 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.)*

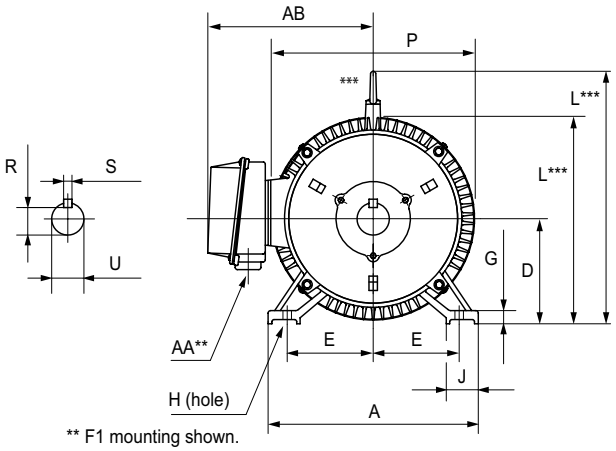
**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

MTCP 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.*

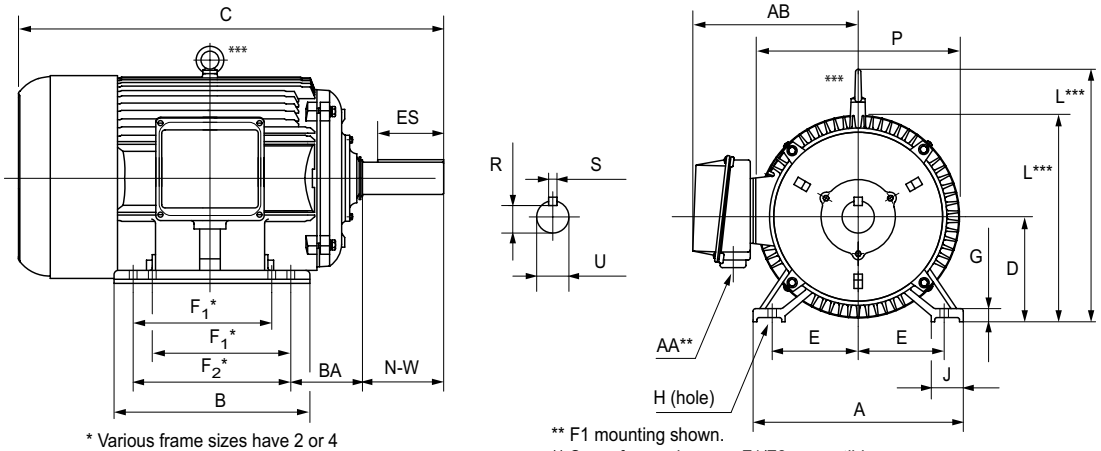
*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table. (F2 mounting = conduit entrance on right side facing shaft.)*

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

***** TABLE CONTINUED NEXT PAGE (for dimensions F1–U) *****

MTCP 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

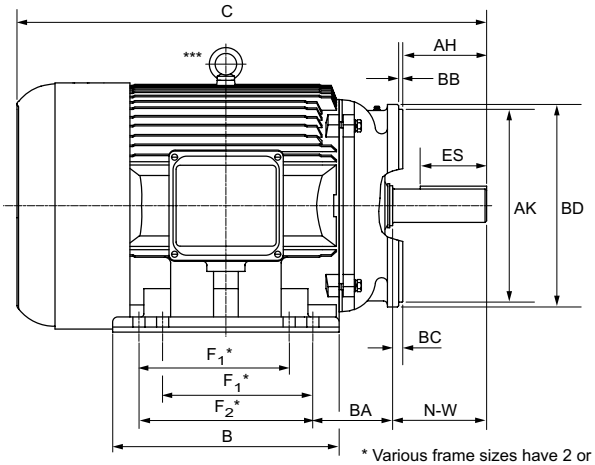
** Various frame sizes have 2 or 4 mounting holes per mounting foot.*

*** 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.)

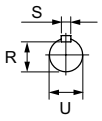
**** Frame sizes 143T(C) and 145T(C) have no lifting eyelet.*

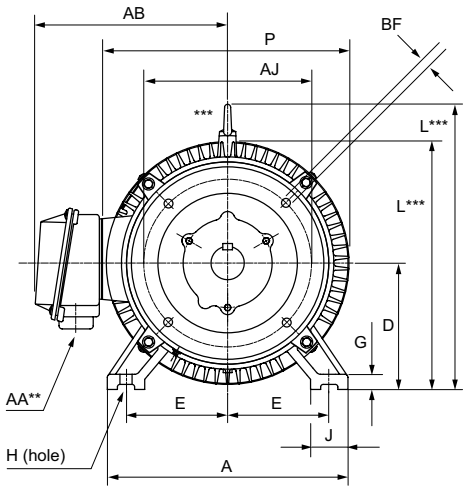
MTCP Motor Dimensions (continued) – (Dimensions = inches)

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.*

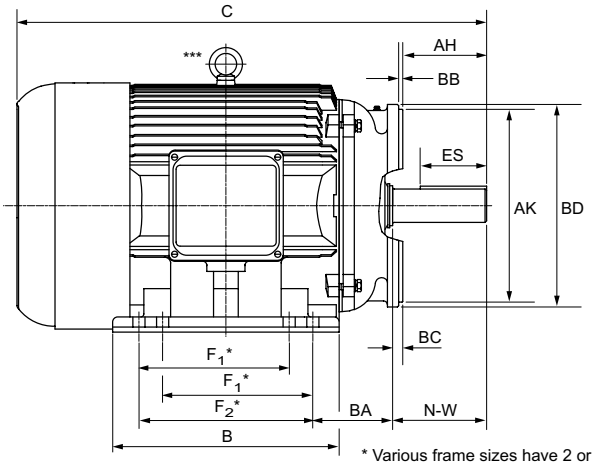
*** AA dimension is conduit fitting size. F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table.*
(F2 mounting = conduit entrance on right side facing shaft.)

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

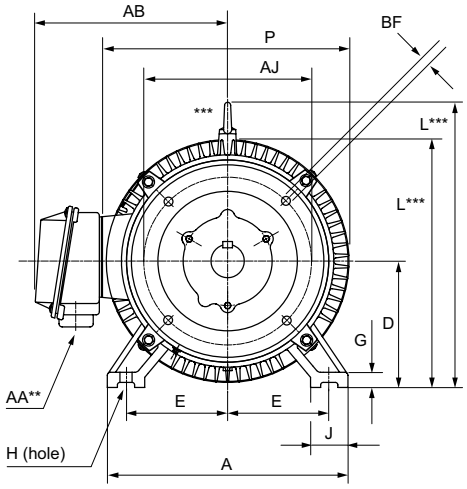
***** TABLE CONTINUED NEXT PAGE (for dimensions D–U) *****

MTCP 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

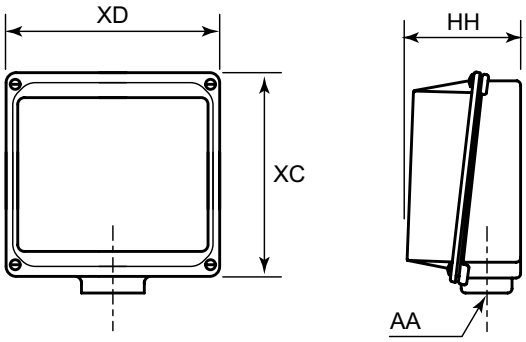
Part # MTCP-xxx-3BD18C	HP	D	E	ES	F_1*	F_2*	G	H	J	N-W	L	P	R	S	U
-001-	1	3.5	2.75	1.41	n/a	4	0.47	0.34	1.45	2.25	6.9	7.2	0.771	0.188	0.875
-1P5-	1-1/2	3.5	2.75	1.41	4	5	0.47	0.34	1.45	2.25	6.9	7.2	0.771	0.188	0.875
-002-	2														
-003-	3	4.5	3.75	1.78	n/a	4.5	0.52	0.41	1.97	2.75	10.4	9.0	0.986	0.25	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.*

MTCP Junction Box Dimensions



Junction Box Dimensions (in)				
Frame Size *	***XD (Width)***	***XC (Height)***	***HH (Depth)***	***AA (Conduit Hole) (NPT)***
143T	11.3	4.5	2.3	3/4
145T				
182T		5.0	2.5	1
184T				
213T		5.3	2.6	
215T				
254T		7.3	3.3	1-1/2
256T				
284T		10.4	6.0	
286T				
324T		10.8	5.3	2
326T				
364T				3
365T				
405T		11.7	7.1	
444T				3 (2 openings)
445T				
445/7T				
449T				

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

MTCP 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.

MTCP Average T-Frame Decibel Levels		
Frame Size *	***HP***	***Noise Level: Lw dB(A) @ 1m***
		MTCP
143T	1	70.0
145T	1-1/2	70.0
	2	70.0
182T	2	–
182T	3	74.0
184T	5	74.0
213T	7-1/2	79.0
215T	10	79.0
254T	15	84.0
256T	20	84.0
284T	25	88.0
286T	30	88.0
324T	40	89.0
326T	50	89.0
364T	60	95.0
365T	75	95.0
405T	100	98.0
444T	125	100
445T	150	100
445/7T	200	103
449T	250	105.0
	300	105.0
** TC-frame motors have the same sound ratings as the comparable T-frame motors.*		

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 ****

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.*

MTCP 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 MTCP motors. The bearing types are also listed on the motor nameplate.

MTCP Bearing Size Chart		
Frame Size *	***Drive End Bearing***	***Opposite Drive End Bearing***
143T	6205-ZZ	6205-ZZ
145T		
182T	6306-ZZ	6306-ZZ
184T		
213T	6308-ZZ	6306-ZZ
215T		
254T	6309	6308
256T		
284T	6311	6309
286T		
324T	6312	6312
326T		
364T	6313	6312
365T		
404T	NU316	–
405T		6313
444T	NU318	6314
445T		
445/7T	NU319	
449T	NU320	–

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

MTR Series Motors

MTR Features and Specifications (Single-Phase Motors)

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.

MTR 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									
MTR-P33-1AB18	1/3	1800	115/208-230	1.15	N	56C flange mount	IP43 TEFC rolled steel frame Cast AL end bell F1 conduit box location	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									
MTR-1P5-1AB36	1-1/2	3600	115/208-230	1.15	N	56C	IP43 TEFC rolled steel frame Cast AL end bell F1 conduit box location	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.*

MTR 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 ($lb \cdot ft^2$)**
	@ 60Hz (50Hz)		**230V No Load**	**Full Load**	**Locked Rotor**	**Full Load**	**Locked Rotor**	**Break down**			
1800 RPM											
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											
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

MTR Features and Specifications (Three-Phase Motors)

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.

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

Motor Specifications – MTR 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									
MTR-P33-3BD18	1/3	***1800***	208-230/460	***1.15***	***B***	***56C flange mount***	***TEFC rolled steel frame Cast aluminum end bell F1 conduit box location***	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
MTR-1P5-3BD18	1-1/2							4.8 / 2.4	33
MTR-002-3BD18	2							6.0 / 3.0	42
3600 RPM									
MTR-P33-3BD36	1/3	***3600***	208-230/460	***1.15***	***B***	***56C flange mount***	***TEFC rolled steel frame Cast aluminum end bell F1 conduit box location***	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
MTR-1P5-3BD36	1-1/2							4.6 / 2.3	34
MTR-002-3BD36	2							6.0 / 3.0	43
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.*

MTR Rolled-Steel 56C/56HC-Frame Three-Phase Motors Features and Specifications (continued)

MTR 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
MTR-P33-3BD18	1/3	1725	863	345	2700	5400	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
MTR-1P5-3BD18	1-1/2	1725	863	345		5400	1.5 / 0.8	4.8 / 2.4	36 / 18
MTR-002-3BD18	2	1725	863	345		5400	2.0 / 1.0	6.0 / 3.0	48 / 24
Part Number	HP		Torque (lb·ft)				F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)
			Full Load	Locked Rotor	Break -down				
MTR-P33-3BD18	1/3	n/a	1.02	2.55	2.81	n/a	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
MTR-1P5-3BD18	1-1/2		4.57	10.28	11.43		75.0	0.78	0.108
MTR-002-3BD18	2		6.09	13.70	15.23		77.0	0.80	0.143
* Maximum Constant HP rpm is for direct-coupled loads.									

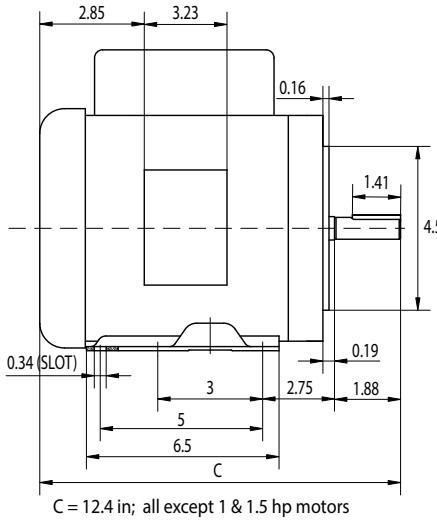
MTR Motor Performance Data – 3600 rpm

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
MTR-P33-3BD36	1/3	3450	1725	690	5400	5400	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
MTR-1P5-3BD36	1-1/2	3450	1725	690			1.8 / 0.9	4.6 / 2.3	29 / 17
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
Part Number	HP		Torque (lb·ft)				F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)
			Full Load	Locked Rotor	Break -down				
MTR-P33-3BD36	1/3	n/a	0.50	3.0	3.0	n/a	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
MTR-1P5-3BD36	1-1/2		2.25	11.2	8.4		72.0	0.85	0.143
MTR-002-3BD36	2		3.06	18.9	13.4		75.0	0.78	0.188
* Maximum Constant HP rpm is for direct-coupled loads.									

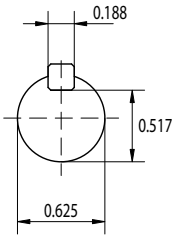
MTR Motor Dimensions

(Dimensions = inches)

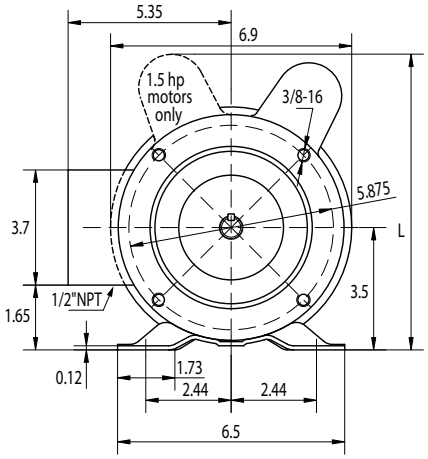
MTR 56C-Frame Single-phase Rolled-steel Motor Dimensions



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)

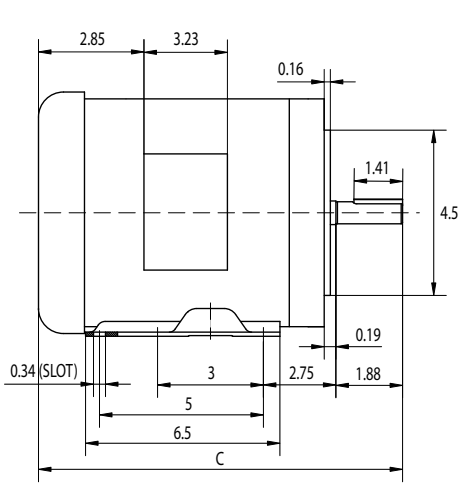


MTR-xxx-1ABxx IronHorse Motors
(single-phase rolled steel)

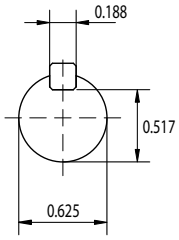


L = 8.19"; all except 1.5 hp motors
L = 8.5"; 1.5 hp motors

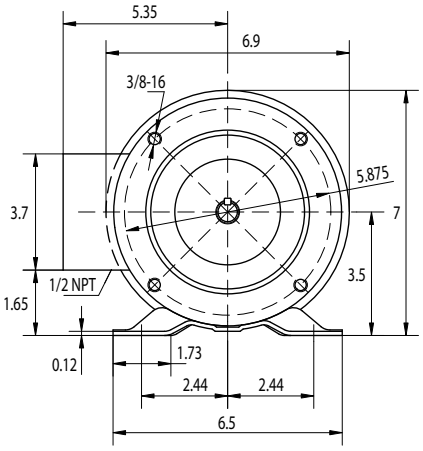
MTR 56C-Frame Three-phase Rolled-steel Motor Dimensions



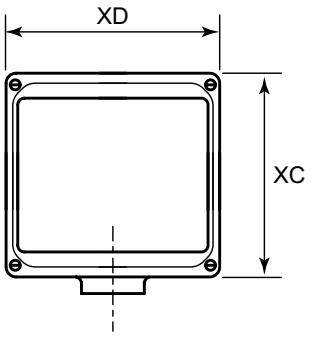
C = 12.2"; 0.33 to 1hp motors
C = 12.6"; 1.5hp MTR-1P5-3BD18
C = 12.2"; 1.5hp MTR-1P5-3BD36
C = 13.8"; 2hp MTR-002-3BD18
C = 12.4"; 2hp MTR-002-3BD36



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



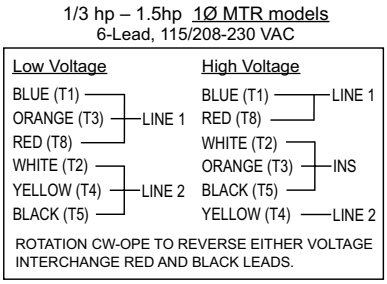
MTR Junction Box Dimensions



Junction Box Dimensions (in)				
Frame Size	XD (Width)	XC (Height)	HH (Depth)	AA (Conduit Hole) (NPT)
56(H)C	3.2	3.7	1.6	1/2

MTR Terminal and Wiring Diagrams

MTR General-Purpose motors



MTR Motors 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.

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

Spare/Replacement Parts for MTR 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.*

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.*

MTR 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 MTR motors. The bearing types are also listed on the motor nameplate.

MTR Bearing Size Chart		
Frame Size	***Drive End Bearing***	***Opposite Drive End Bearing***
56(H)C	6203-ZZ or 6205	6203-ZZ

MTSS Series Motors

MTSS 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.

MTSS 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			208-230/460 – 3-phase	1.15	B	56C flange mount	TEFC stainless steel frame with round body F1 conduit box location	**1800 RPM**	
MTSS-P33-3BD18R	1/3	1800						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.									

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

MTSS 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·ft²)
		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

MTSS 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

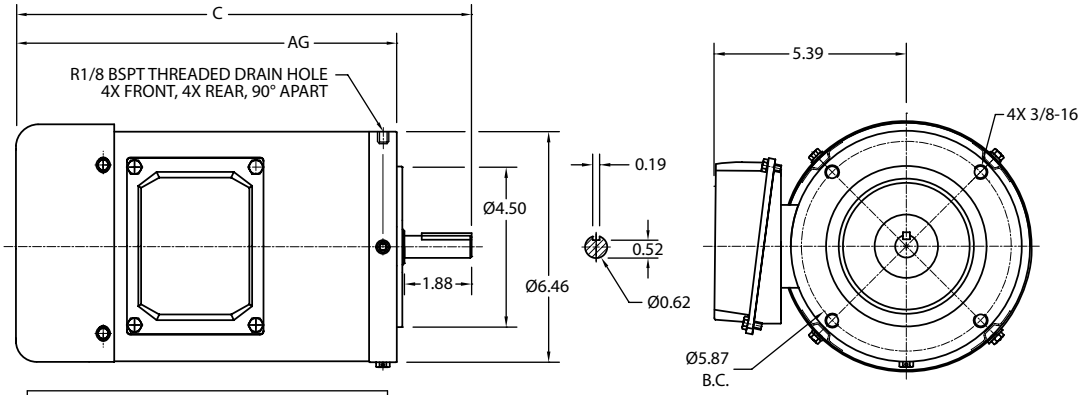
** Maximum Constant HP rpm is for direct-coupled loads.*

Part Number	HP	Torque (lb·ft)			F.L. Efficiency (%)	F.L. Power Factor	Rotor Inertia (lb·ft²)
		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

MTSS Motor Dimensions

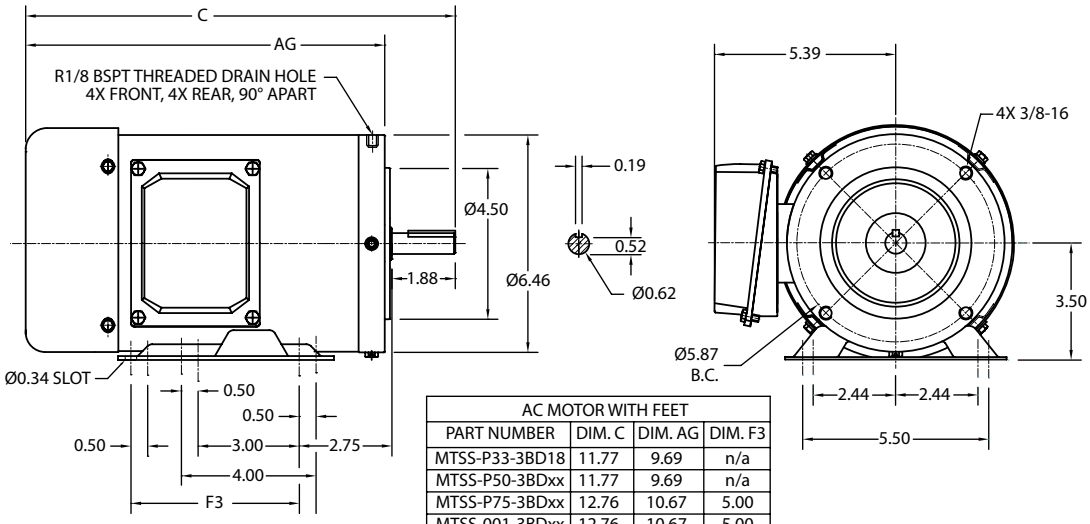
(Dimensions = inches)

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



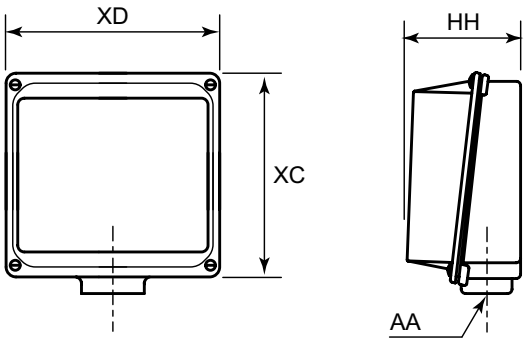
AC MOTOR WITHOUT FEET		
PART NUMBER	DIM. C	DIM. AG
MTSS-P33-3BD18R	11.59	9.50
MTSS-P50-3BD18R	11.59	9.50
MTSS-P75-3BD18R	12.76	10.67
MTSS-001-3BD18R	12.76	10.67
MTSS-1P5-3BD18R	12.76	10.67
MTSS-002-3BD18R	12.76	10.48

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

MTSS Junction Box Dimensions



Junction Box Dimensions (in)				
Frame Size *	***XD (Width)***	***XC (Height)***	***HH (Depth)***	***AA (Conduit Hole) (NPT)***
56	3.8	3.3	1.5	0.86*
** MTSS conduit holes are unthreaded through holes with cable glands installed.*				

MTSS 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.

MTSS Average T-Frame Decibel Levels		
Frame Size	***HP***	***Noise Level: Lw dB(A) @ 1m***
		MTSS
56C	–	65

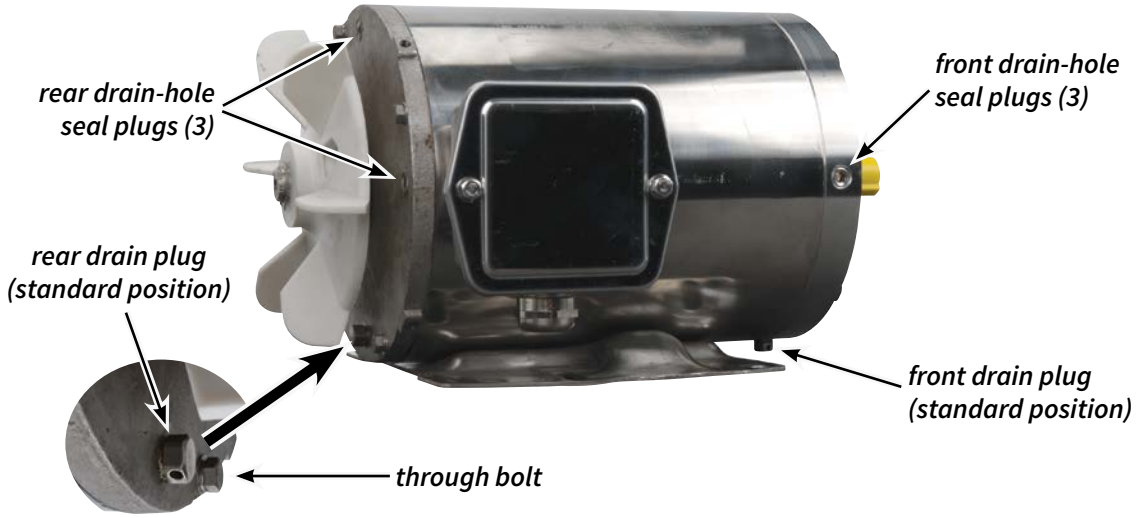
MTSS Motor Mounting

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.

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.	

MTSS 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 MTSS motors. The bearing types are also listed on the motor nameplate.

MTSS Bearing Size Chart		
Frame Size	***Drive End Bearing***	***Opposite Drive End Bearing***
56C	6203-ZZ or 6205	6205

MTC EPAct Series Motors

MTC 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.

MTC 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 ****

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

MTC 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.*

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

MTC 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.

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

MTC 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 ***

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

MTC 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 ***

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

MTC 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.

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

MTC 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 ($lb·ft^2$)**	**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								

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

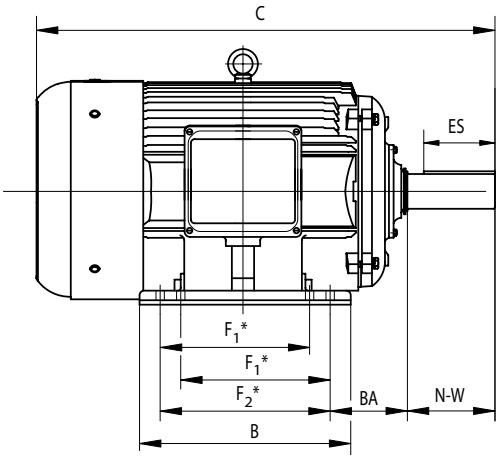
MTC Motor Performance Data – Cast-Iron T-Frame – 3600 rpm

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		3480					
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·ft²)	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								

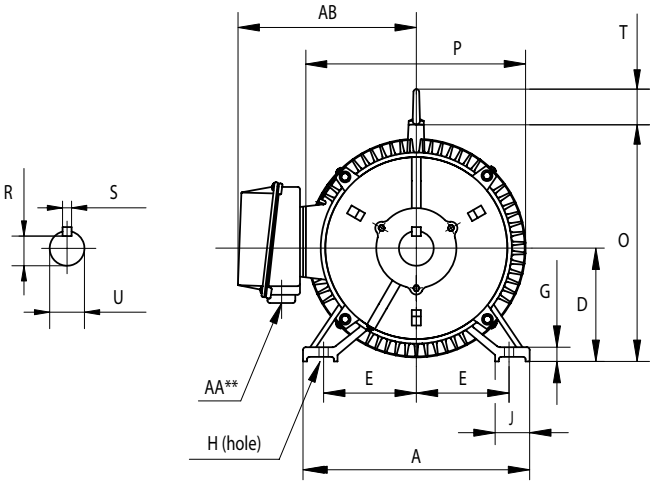
MTC Motor Dimensions

(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.

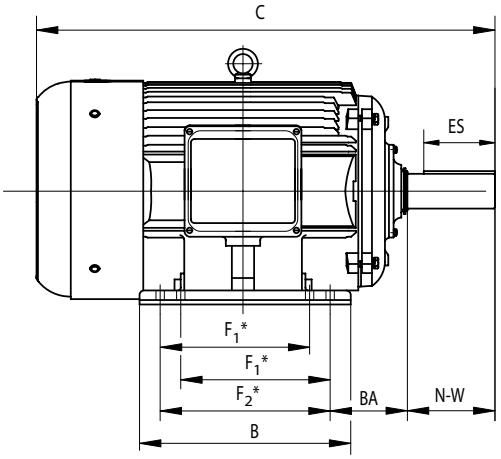
Dimensions [inches, except as noted] EPAct Three-phase T-Frame Motors – 1200, 1800, 3600 rpm											
Part Number	**HP**	**NEMA Frame**	**A**	**AA****	**AB**	**B**	**BA**	**C**	**D**	**E**	**ES**
MTC-001-3BD12	1	145T	7	3/4"npt	6.89	6	2.25	13.58	3.5	2.75	1.41
MTC-001-3BD18		143T				5		12.57			
MTC-1P5-3BD12	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.)

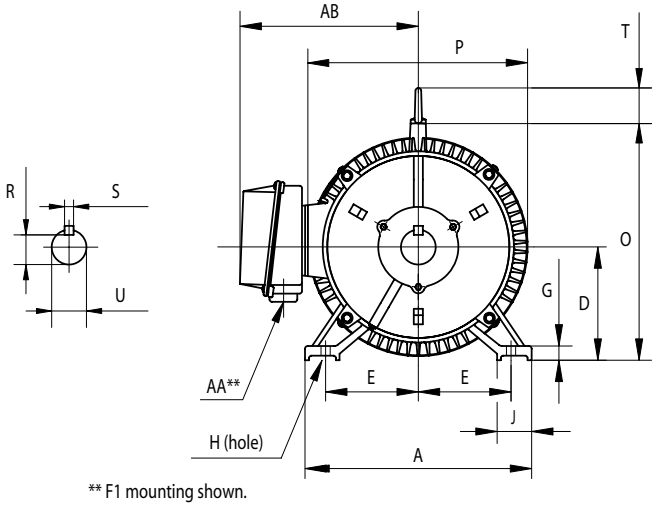
***** TABLE CONTINUED NEXT PAGE (for dimensions F_1–U) *****

MTC 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.

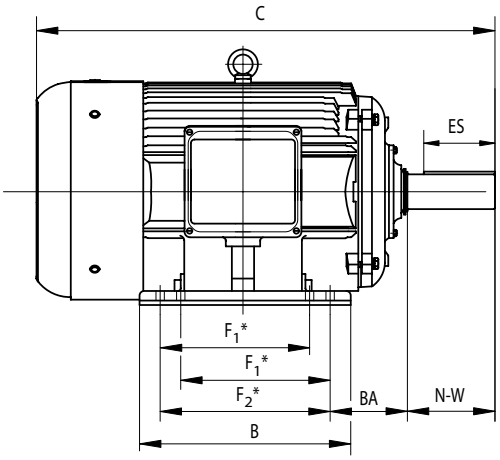
**** Table Continued Previous Page (for dimensions A–ES) ****

Dimensions [inches, except as noted] EPAct Three-phase T-Frame Motors – 1200, 1800, 3600 rpm												
Part Number	**F1***	**F2***	**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												

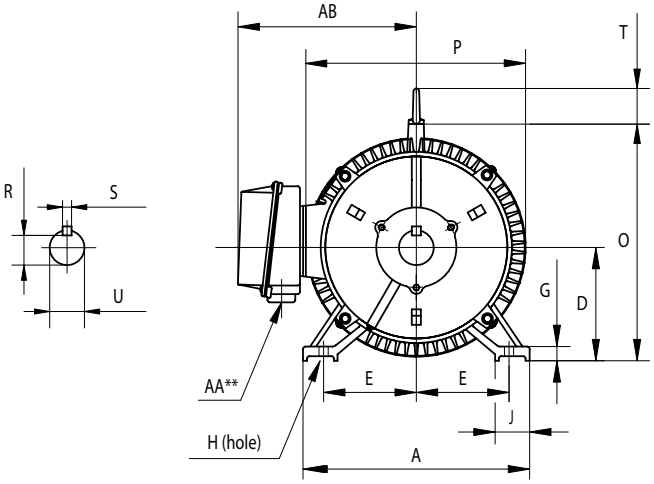
** Various frame sizes have 2 or 4 mounting holes per mounting foot.*
*** AA dimension is conduit fitting size.*
F1 mounting shown; some frame sizes are F1/F2 convertible; refer to T-frame "Motor Specifications" table. (F2 mounting = conduit entrance on right side facing shaft.)

MTC 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.

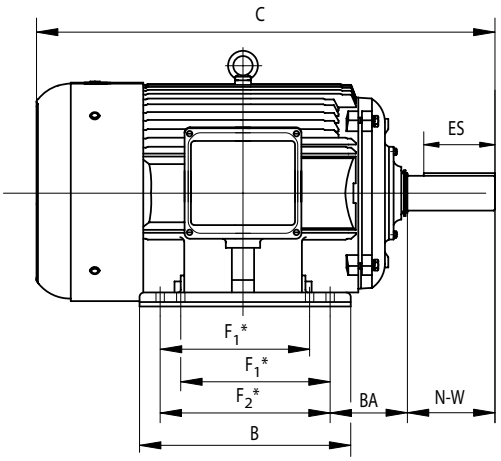
Dimensions [inches, except as noted] EPAct Three-phase T-Frame Motors – 1800 rpm											
Part Number	***HP***	***NEMA Frame***	***A***	***AA*****	***AB***	***B***	***BA***	***C***	***D***	***E***	***ES***
MTC-015-3BD18	15	254T	12.5	1.5″ NPT	11.2	10.8	4.25	23.29	6.25	5	2.91
MTC-020-3BD18	20	256T				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.)

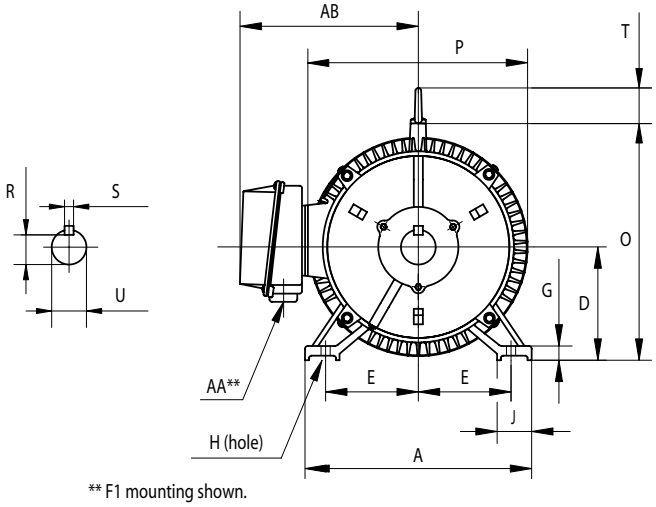
***** TABLE CONTINUED NEXT PAGE (for dimensions F_1–U) *****

MTC 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) ****

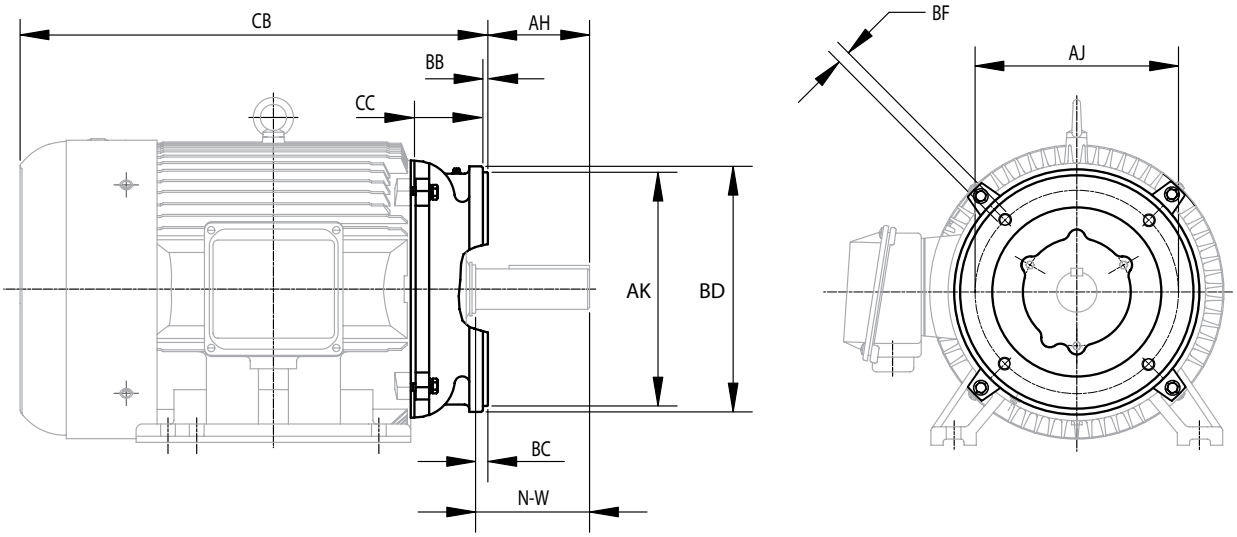
Dimensions [inches, except as noted]
EPAct Three-phase T-Frame Motors – 1800 rpm

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.)

MTC Motor Dimensions (continued) – (Dimensions = inches)

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



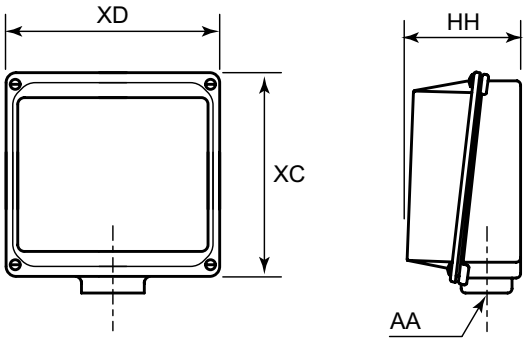
TC-frame motors are T-frame EPAct motors with C-flange accessory kits installed. For more information about the C-flange accessory kits, refer to Chapter 4: Accessories.

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.

MTC Junction Box Dimensions



Junction Box Dimensions (in)				
Frame Size *	***XD (Width)***	***XC (Height)***	***HH (Depth)***	***AA (Conduit Hole) (NPT)***
143T	4.1	4.5	2.3	3/4
145T				
182T	4.6	5.0	2.6	1
184T				
213T				
215T				
254T	6.3	7.2	3.3	1-1/2
256T				
284T				
286T				
324T	9	10.6	5.3	2
326T				
364T				3
365T				
405T	9.8	11.7	7.1	
444T	11.3			3 (2 openings)
445T				
445/7T				
449T				

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

MTC Motors 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.

MTC Average T-Frame Decibel Levels		
Frame Size *	***HP***	***Noise Level: Lw dB(A) @ 1m***
		MTC
143T	1	64.0
145T	1-1/2	68.0
	2	68.8
182T	2	–
182T	3	74.0
184T	5	73.0
213T	7-1/2	78.4
215T	10	74.3
254T	15	74.6
256T	20	74.0
284T	25	75.0
286T	30	76.1
324T	40	76.4
326T	50	77.0
364T	60	77.1
365T	75	78.0
405T	100	78.1
444T	125	78.3
445T	150	79.4
445/7T	200	79.4
449T	250	81.0
	300	81.4
** TC-frame motors have the same sound ratings as the comparable T-frame 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.

C-Flange Dimensions

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

MTA T-Frame C-Flange Kit

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. C-faces must be installed by an EASA motor shop in order to maintain the motor warranty.

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 MTCP2 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.

MTC Motors 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 MTC motors. The bearing types are also listed on the motor nameplate.

MTC Motors Bearing Size Chart		
Frame Size *	***Drive End Bearing***	***Opposite Drive End Bearing***
143T	6205-ZZ	6205-ZZ
145T		
182T	6306-ZZ	6206-ZZ
184T		
213T	6308-ZZ	6308-ZZ
215T		
254T	6309	6209
256T		
284T	6311	6309
286T		
324T	6312	6311
326T		
364T	6313	6312
365T		
404T	NU316	6313
405T		
444T	NU318	
445T		
445/7T	NU319	
449T	NU320	6320

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

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

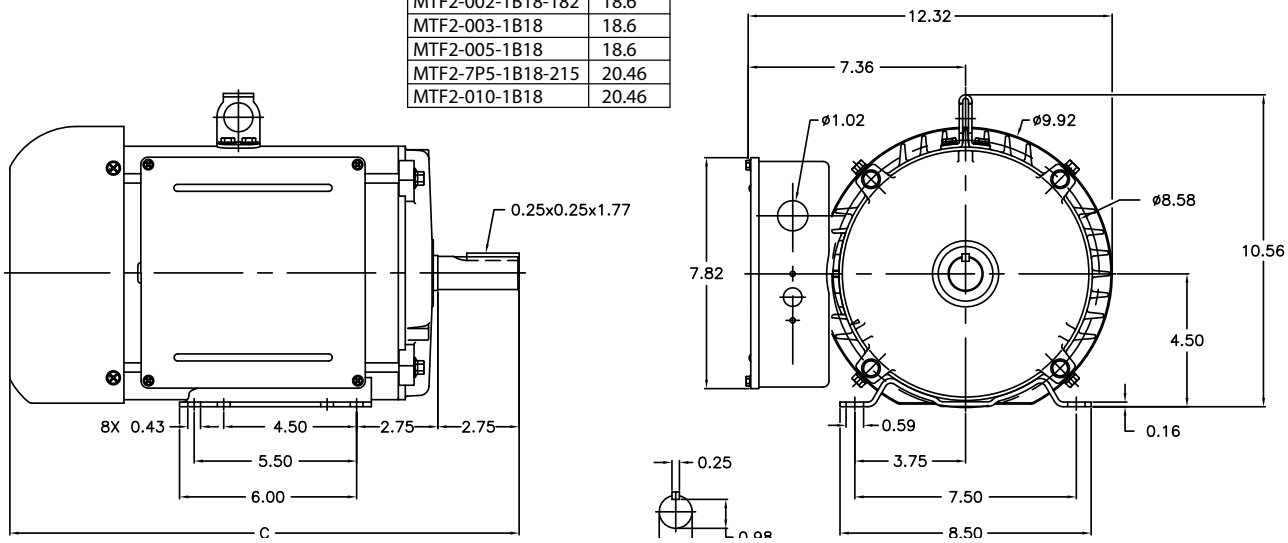
Performance Data – Single-Phase Farm-Duty Motors (60Hz)											
Part Number	**HP**	**F.L. RPM**	**Current @ 230V (Amps)**			**Torque (lb·ft)**			**F.L. Efficiency (%)**	**F.L. Power Factor**	**Rotor Inertia ($lb \cdot ft^2$)**
			230V No Load	**Full Load**	**Locked Rotor**	**Full Load**	**Locked Rotor**	**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

Motor Dimensions

(Dimensions = inches)

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

PART NUMBER	DIM. C
MTF2-002-1B18-182	18.6
MTF2-003-1B18	18.6
MTF2-005-1B18	18.6
MTF2-7P5-1B18-215	20.46
MTF2-010-1B18	20.46



Terminal and Wiring Diagrams

MTF Farm-Duty Motors

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

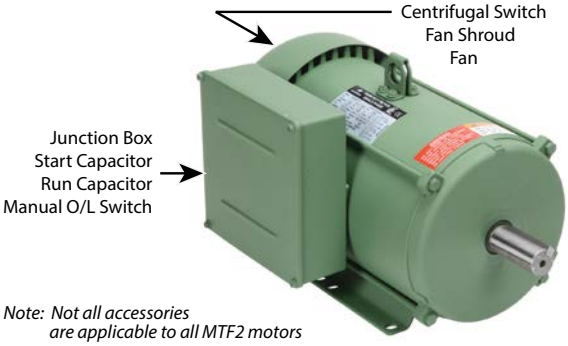
CCW – ODE		CW – ODE	
(P1)	LINE 1	(P1)	LINE 1
(T1)		(T1)	
(P2)	INS	(P2)	INS
(T5)		(T8)	
(T8)	LINE 2	(T5)	LINE 2
(T4)		(T4)	

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 MTF2 motors

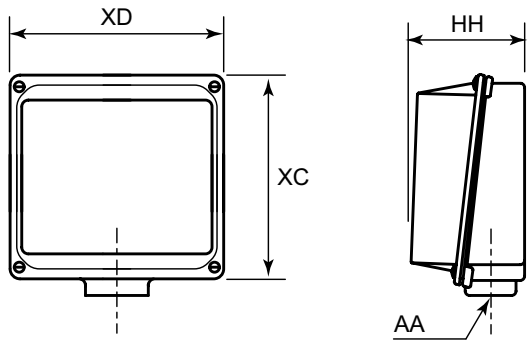
Spare/Replacement Parts for MTF Single-Phase Farm-Duty Motors

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*

Junction Box Dimensions



Junction Box Dimensions (in)				
Frame Size *	***XD (Width)***	***XC (Height)***	***HH (Depth)***	***AA (Conduit Hole) (NPT)***
56	n/a	n/a	n/a	1/2
143T				3/4
145T				
182T	7.8	7.8	2.7	1
184T				
213T	n/a	n/a	n/a	
215T				
254T				1-1/2
256T				
284T				
286T				
324T				2
326T				
364T				3
365T				
405T				
444T				3 (2 openings)
445T				
445/7T				
449T				
** TC-frame motors have the same junction boxes as the comparable T-frame motors.*				

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