



AutomationDirect AC Motors Selection Overview

EPAcT, High, Premium Efficiency

What does it all mean?

EPAcT (1992)

In 1992, the U.S. Congress passed legislation requiring that general purpose Design A & B motors meet minimum efficiency requirements, and this legislation was called the Energy Policy Act of 1992. Previously, there had been no U.S. standards set forth for motor energy efficiency. Since 1997 (when EPAcT '92 was first enforced), two-, four-, and six-pole general purpose Design A & B motors had to meet EPAcT guidelines. Since then, most general purpose motors manufactured and/or sold in the U.S. have met these requirements.

Premium Efficiency (EISA 2007)

In December 2010, a new level of energy efficiency mandate went into effect. The Energy Independence and Security Act of 2007 mandated that all AC industrial motors as described below must meet Premium Efficiency standards. The NEMA trade group was instrumental in getting this legislation passed, so many people refer to the high efficiency motors by their nickname – NEMA Premium®. All applicable motors manufactured or imported into the U.S. after December 2010 must meet the Premium Efficiency guidelines.

Motors Covered Under EISA 2007 (Premium Efficiency Mandate)

Included – must meet the new Premium Efficiency standards – Industrial AC electric squirrel-cage motors as follows:

Single speed; Polyphase; 1–200 hp with 3-digit frame sizes; 2, 4, & 6 pole (3600, 1800, & 1200 rpm); NEMA design A & B (including IEC equivalent); Continuous rated

Not Included in Premium Efficiency standards, but must now meet EPAcT standards:

JM; JP; Round body (footless); 201–500 hp; Fire pump; U-frame; Design C; 8-pole

For full text, visit www.energy.senate.gov and click "ENERGY INDEPENDENCE & SECURITY ACT OF 2007".

Nominal Full-Load Efficiency Standards Comparisons (%)

Enclosed Electric Motors, Random Wound, 60 Hz, 600V or Less

Motor HP	1200 rpm [6-pole]		1800 rpm [4-pole]		3600 rpm [2-pole]	
	EPAcT	Premium Efficiency	EPAcT	Premium Efficiency	EPAcT	Premium Efficiency
1	80.0	82.5	82.5	85.5	75.5	77.0
1.5	85.5	87.5	84.0	86.5	82.5	84.0
2	86.5	88.5	84.0	86.5	84.0	85.5
3	87.5	89.5	87.5	89.5	85.5	86.5
5	87.5	89.5	87.5	89.5	87.5	88.5
7.5	89.5	91.0	89.5	91.7	88.5	89.5
10	89.5	91.0	89.5	91.7	89.5	90.2
15	90.2	91.7	91.0	92.4	90.2	91.0
20	90.2	91.7	91.0	93.0	90.2	91.0
25	91.7	93.0	92.4	93.6	91.0	91.7
30	91.7	93.0	92.4	93.6	91.0	91.7
40	93.0	94.1	93.0	94.1	91.7	92.4
50	93.0	94.1	93.0	94.5	92.4	93.0
60	93.6	94.5	93.6	95.0	93.0	93.6
75	93.6	94.5	94.1	95.4	93.0	93.6
100	94.1	95.0	94.5	95.4	93.6	94.1
125	94.1	95.0	94.5	95.4	94.5	95.0
150	95.0	95.8	95.0	95.8	94.5	95.0
200	95.0	95.8	95.0	96.2	95.0	95.4

Blue Chip XRI[®] - Ultra High Efficiency Motors

*** 230/460V and 575V Motors Available ***



Features

- Meets NEMA premium efficiencies
- Inverter duty
- 10:1 variable torque, 20:1 constant torque on VFD with 1.0 service factor
- Class F insulation
- Continuous duty at 40° C ambient
- Cast iron frame construction with rigid base mounting
- F1 standard conduit box location, non-reversible
- 1.15 service factor
- Shaft slinger
- Utilizes double shielded ball bearings
- Exxon Polyrex[®] EM bearing grease
- Electrically reversible
- UL recognized and CSA certified
- Three year warranty

Applications

Typical uses include material handling, machine tools, fans, conveyors, cranes and hoists, metal processing, test stands, pumps, compressors, textile processing, and other industrial machinery installed in dusty or dirty environments.

Motor Shipping Schedule

Same or one day *	Up to 7 days	Up to 10 days
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Color indicates shipping lead time in business days. Check stock status online.

* For same-day shipping of stock motors requiring LTL shipment, order before 5 p.m. EST.

230/460V Motor Specifications

Part Number	Price	HP	Base RPM	Volts	Enclosure	NEMA Frame	Model No.	N.P. F.L. Amps	Weight (lb)
E205*	<--->	15	1800	230/460	TEFC	254T	254TTFNA6026	37.5 / 18.8	322
E206*	<--->	20	1800	230/460	TEFC	256T	256TTFNA6026	48 / 24.1	368
E207*	<--->	25	1800	230/460	TEFC	284T	284TTFNA6026	62 / 31	495
E208*	<--->	30	1800	230/460	TEFC	286T	286TTFNA6026	73 / 36.5	423
E209*	<--->	40	1800	230/460	TEFC	324T	324TTF6026	95 / 47.5	675
E210*	<--->	50	1800	230/460	TEFC	326T	326TTF6026	120 / 60	745
E211	<--->	60	1800	230/460	TEFC	364T	364TTF6036	138 / 69	920
E212*	<--->	75	1800	230/460	TEFC	365T	365TTF6036	172 / 86	1125
E213	<--->	100	1800	230/460	TEFC	405T	405TTF6036	226 / 113	1400

Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product. Warranty service can be arranged through numerous Marathon Electric service centers. See list of service centers on our Web site at .

575V Motor Specifications

Part Number	Price	HP	Base RPM	Volts	Enclosure	NEMA Frame	Model No.	N.P. F.L. Amps	Weight (lb)
E307	<--->	15	1800	575	TEFC	254T	254TTFNA6030	15.0	326
E308	<--->	20	1800	575	TEFC	256T	256TTFNA6030	19.3	368
E309	<--->	25	1800	575	TEFC	284T	284TTFNA6030	24.8	565
E310	<--->	30	1800	575	TEFC	286T	286TTFNA6030	29.2	514
E311	<--->	40	1800	575	TEFC	324T	324TTF6030	38.8	675
E312	<--->	50	1800	575	TEFC	326T	326TTF6030	48.0	640
E313	<--->	60	1800	575	TEFC	364T	364TTF6040	55.2	1025
E315	<--->	75	1800	575	TEFC	365T	365TTF6040	68.8	1125
E314	<--->	100	1800	575	TEFC	405T	405TTF6040	90.4	1400

Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product. Warranty service can be arranged through numerous Marathon Electric service centers. See list of service centers on our Web site at .

Blue Chip XRI® - Ultra High Efficiency Motors

Motor Performance Data (460 Volt)														
Part Number	HP	F.L. rpm	F.L. Amps @460V	N.L. Amps @460V	F.L. Torque (lb-ft)	B.D. Torque (lb-ft)	F.L. Effic. (%)	F.L. Power Factor	Rotor Inertia (lb-ft ²)	Ohms/Ph - Equiv. Wye Circuit (460 VAC) (at rated operating temp. in 40° C ambient)				
										R1	R2	X1	X2	XM
E205	15	1775	19	8	44.5	126.4	92.4	81	2.4	0.376	0.238	1.351	1.777	32.508
E206	20	1775	24	8	59.5	144.6	93.0	84	3.2	0.267	0.207	0.990	1.491	28.4
E207	25	1775	31	14	74	215	93.6	81	4.2	0.150	0.154	0.852	1.066	20.064
E208	30	1773	36	15	89	245	94.1	82	4.5	0.125	0.136	0.724	0.937	17.785
E209	40	1780	48	18	118	304	94.1	83	8.5	0.082	0.066	0.597	0.798	13.514
E210	50	1775	60	24	148	340	94.5	82	9.2	0.068	0.062	0.483	0.648	11.068
E211	60	1780	69	22	177	449	95.0	86	16	0.065	0.047	0.412	0.473	11.447
E212	75	1780	86	28	221	574	95.4	86	18	0.048	0.037	0.319	0.386	9.238
E213	100	1780	113	28	295	773	95.4	87	28	0.034	0.028	0.307	0.287	8.920

* Maximum Constant HP RPM is for direct coupled loads.

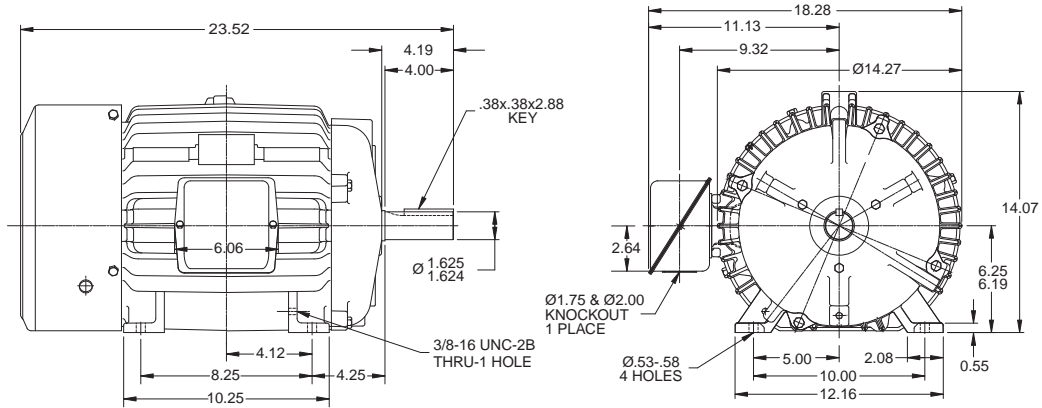
Motor Performance Data (575 Volt)														
Part Number	HP	F.L. rpm	F.L. Amps @460V	N.L. Amps @460V	F.L. Torque (lb-ft)	B.D. Torque (lb-ft)	F.L. Effic. (%)	F.L. Power Factor	Rotor Inertia (lb-ft ²)	Ohms/Ph - Equiv. Wye Circuit (460 VAC) (at rated operating temp. in 40° C ambient)				
										R1	R2	X1	X2	XM
E307	15	1775	15.2	6.4	44.4	126.4	92.4	81	2.1	0.376	0.238	1.351	1.777	32.508
E308	20	1775	19.2	6.4	59.2	144.6	93.0	84	3.0	0.267	0.207	0.990	1.491	28.400
E309	25	1775	24.8	11.2	74	215	93.6	81	4.2	0.150	0.154	0.852	1.066	20.064
E310	30	1773	28.8	12.0	89	245	94.1	82	4.6	0.125	0.136	0.724	0.937	17.785
E311	40	1775	38.4	13.6	118	304	94.1	82	8.2	0.091	0.072	0.627	0.830	14.747
E312	50	1775	48.0	19.2	148	340	94.5	82	9.5	0.068	0.062	0.483	0.648	11.068
E313	60	1780	55.2	17.6	177	449	95.0	86	16.0	0.065	0.047	0.412	0.473	11.447
E315	75	1780	68.8	22.4	221	574	95.4	86	18.5	0.058	0.037	0.320	0.386	9.242
E314	100	1780	90.4	22.4	295	773	95.4	87	27.5	0.034	0.028	0.307	0.287	8.920

* Maximum Constant HP RPM is for direct coupled loads.

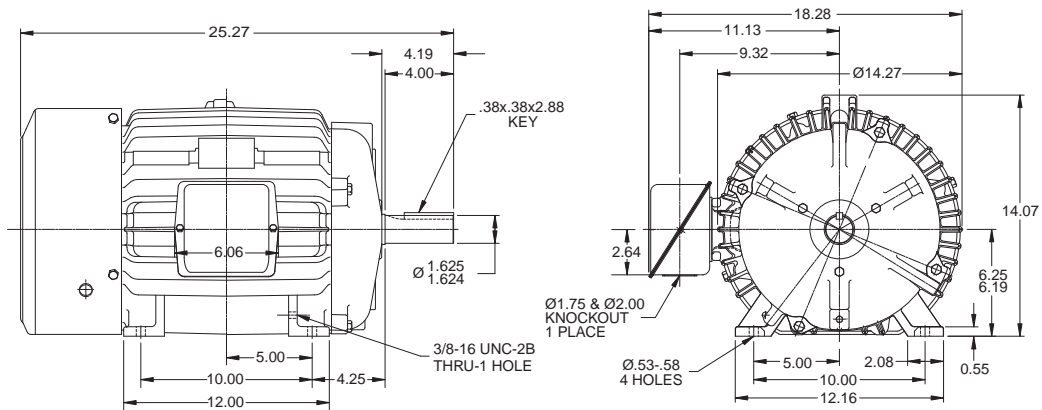
Blue Chip XRI[®] - Ultra High Efficiency Motors

Motor Dimensions

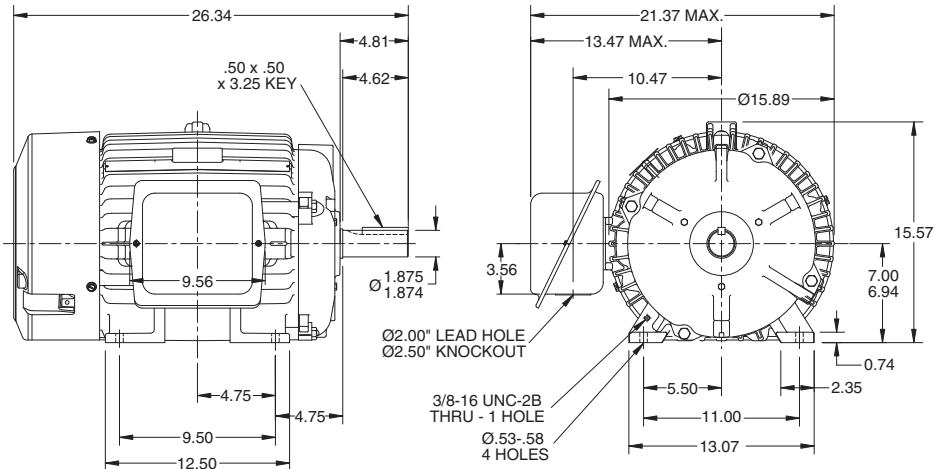
254T frame - part number E205 & E307



256T frame - part number E206 & E308



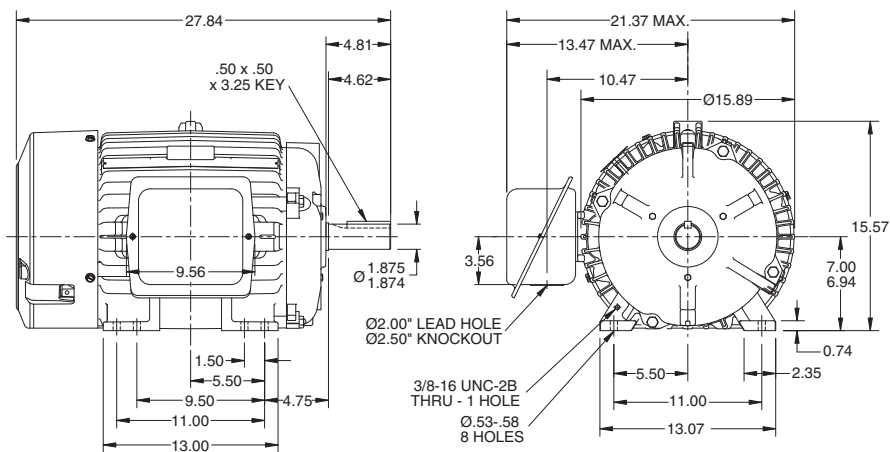
284T frame - part number E207 & E309



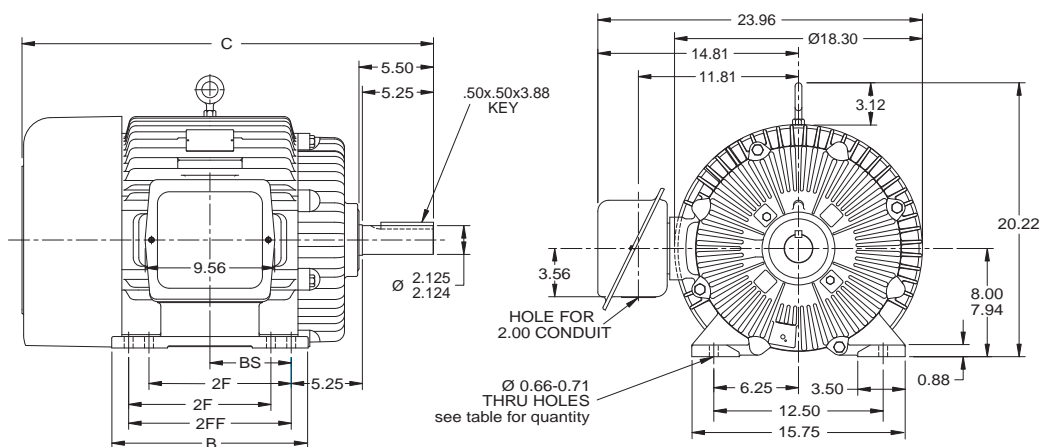
Blue Chip XRI® - Ultra High Efficiency Motors

Motor Dimensions

286T frame - part number E208 & E310

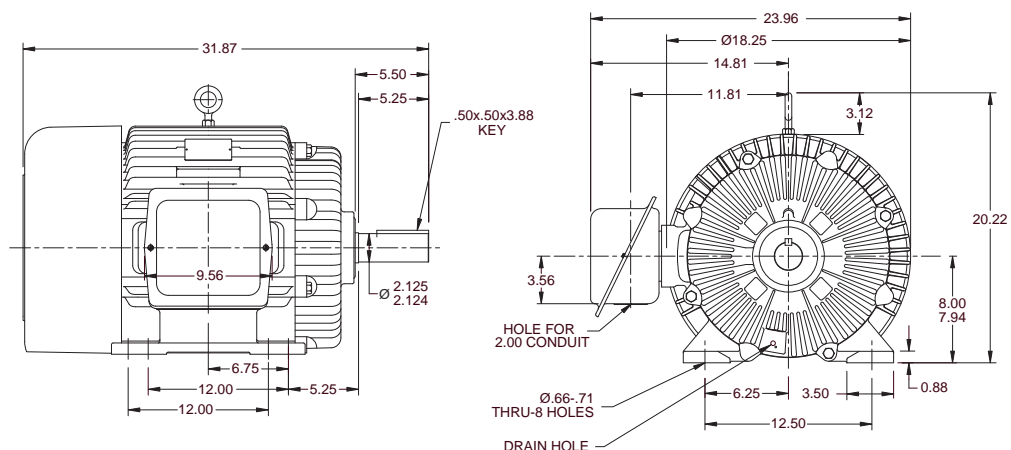


324T frame - part number E209 & E311



MOTOR	B	C	2F	2FF	BS	FOOT HOLE QTY
E209	14.50	30.37	10.50	12.00	6.00	8
E311	13.00	28.87	N/A	10.50	5.25	4

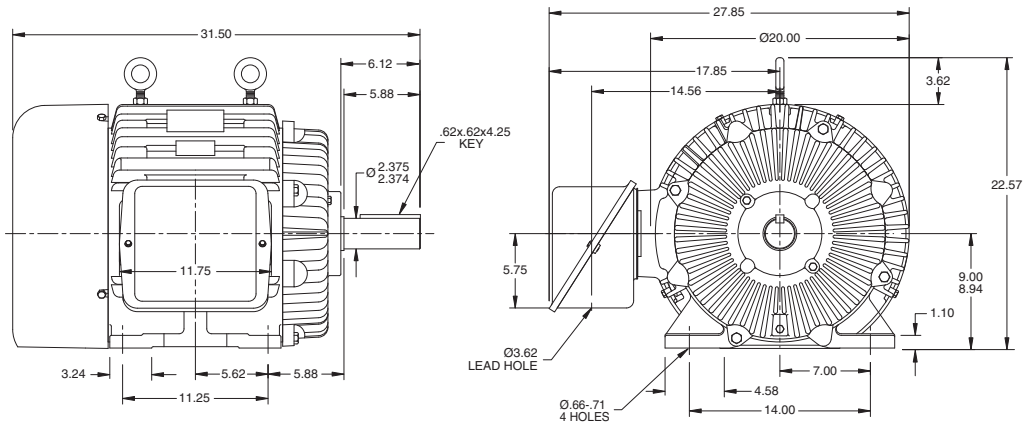
326T frame - part number E210 & E312



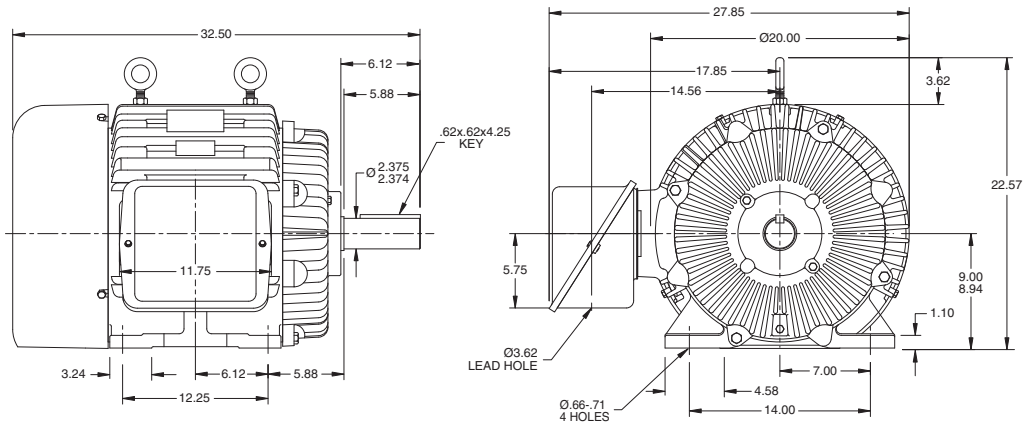
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Motor Dimensions

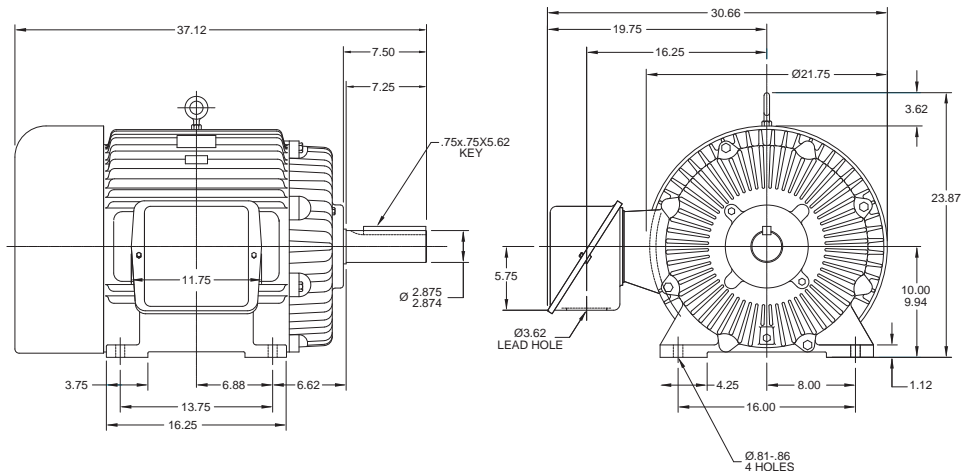
364T frame - part number E211 & E313



365T frame - part number E212 & E315



405T frame - part number E213 & E314



STABLE™ Motor Slide Bases

Mounting Slide Bases for 56 to 449T NEMA Motors Features

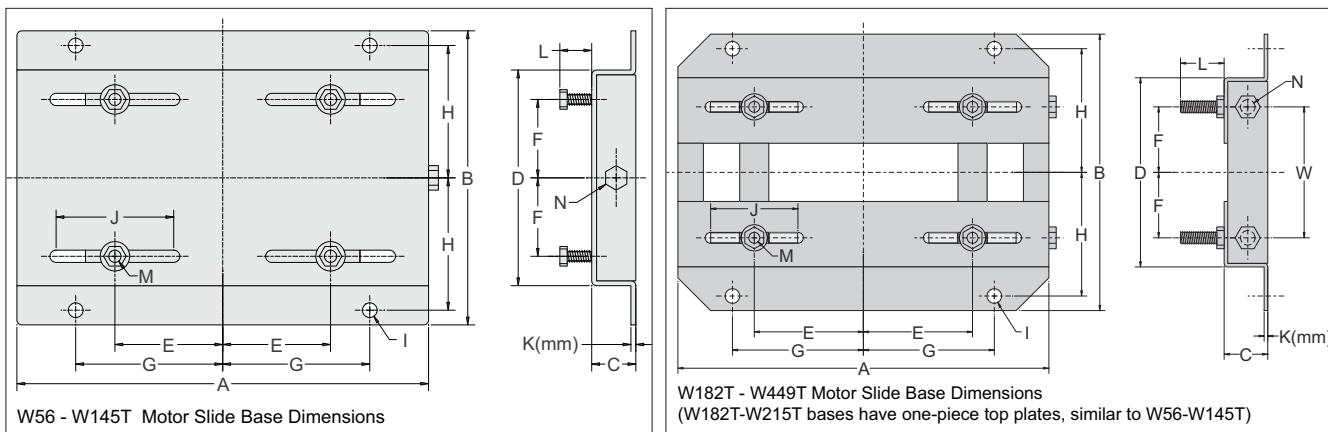
- Allows adjustment of motor mounting position
- Double adjusting screws for frames 182T - 449T
- Manufactured to precise dimensional standards
- Dimensionally interchangeable with existing major makes
- Heavy-duty steel construction
- Painted with oven-baked primer for better adhesion of customer's paint
- All "D" bolts (motor mounting bolts) are fixed to the exact motor foot pattern
- All "D" bolts are welded into position to prevent spinning and dropping from slots
- Bases are provided with washers



Motor Slide Bases											
Part Number	Price	Fits Frame Type	Product Weight (lb)	Fits Motor							
				IronHorse	Marathon micro -MAX	Marathon Black Max 230/460V	Marathon Black Max 575V	Marathon Blue Max	Marathon NEMA Premium XRI	Marathon Blue Chip XRI 230/460V	Marathon Blue Chip XRI 575V
MTA-BASE-W56	<-->	56	2.8	MTR-xxx-xxxx MTPM-xxx-xxxx	Y500 Y360 Y364	Y592(-A772) Y534(-A772) Y535(-A772)	Y555(-A772) Y556(-A772)	-	E2000	-	-
MTA-BASE-W143T	<-->	143T/TC	4.6	MTC(P)-001-3BD18(C)(CK) MTC-1P5-3BD36	-	Y536(-A772)	-	-	E2001 E2003	-	-
MTA-BASE-W145T	<-->	145T/TC	5.1	MTC-001-3BD12 MTC(P)-1P5-3BD18(C)(CK) MTC(P)-002-3BD18(C)(CK) MTC-002-3BD36	Y368	Y537(-A772) Y538(-A772) Y551(-A772)	Y557(-A772)	-	E2002 E2004 E2006 E2007	-	-
MTA-BASE-W182T	<-->	182T/TC	9.2	MTC-1P5-3BD12 MTC(P)-003-3BD18(C)(CK) MTC-003-3BD36	Y1999	Y541(-A772)	Y558(-A772)	-	E2005 E2009 E2010	-	-
MTA-BASE-W184T	<-->	184T/TC	10	MTC-002-3BD12 MTC(P)-005-3BD18(C)(CK) MTC-005-3BD36	Y1372	Y540(-A772) Y543(-A772)	Y559(-A772)	-	E2008 E2012 E2013	-	-
MTA-BASE-W213T	<-->	213T/TC	13	MTC-003-3BD12 MTC(P)-7P5-3BD18(C)(CK) MTC-7P5-3BD36	Y994	Y542(-A772) Y545(-A772)	Y560(-A772)	-	E2011 E2015 E2016	-	-
MTA-BASE-W215T	<-->	215T/TC	15	MTC-005-3BD12 MTC(P)-010-3BD18(C)(CK) MTC-010-3BD36	Y996	Y544(-A772) Y547(-A772)	Y561(-A772)	-	E2014 E2018 E2019	-	-
MTA-BASE-W254T	<-->	254T/TC	18	MTC-7P5-3BD12 MTC(P)-015-3BD18(C)(CK)	-	Y546(-A772) Y549(-A772)	Y562(-A772)	-	-	E205	E307
MTA-BASE-W256T	<-->	256T/TC	19	MTC-010-3BD12 MTC(P)-020-3BD18(C)(CK)	-	Y548(-A772) Y552(-A772)	Y563(-A772)	-	-	E206	E308
MTA-BASE-W284T	<-->	284T/TC	20	MTC(P)-025-3BD18(C)(CK)	-	Y553(-A772)	-	-	-	E207	E309
MTA-BASE-W286T	<-->	286T/TC	21	MTC(P)-030-3BD18(C)(CK)	-	Y393(-A772)	-	-	-	E208	E310
MTA-BASE-W324T	<-->	324T/TC	30	MTC(P)-040-3BD18(C)(CK)	-	-	-	Y571(-A774) Y513(-A775)	-	E209	E311
MTA-BASE-W326T	<-->	326T/TC	31	MTC(P)-050-3BD18(C)(CK)	-	-	-	Y572(-A774) Y514(-A775)	-	E210	E312
MTA-BASE-W364T	<-->	364T/TC	43	MTC(P)-060-3BD18(C)(CK)	-	-	-	Y573(-A774) Y515(-A775)	-	E211	E313
MTA-BASE-W365T	<-->	365T/TC	43	MTC(P)-075-3BD18(C)(CK)	-	-	-	Y574(-A774) Y516(-A775)	-	E212	E315
MTA-BASE-W404T	<-->	404T/TC	58	-	-	-	-	-	-	-	-
MTA-BASE-W405T	<-->	405T/TC	60	MTC(P)-100-3BD18(C)(CK)	-	-	-	Y575(-A774) Y517(-A775)	-	E213	E314
MTA-BASE-W444T	<-->	444T	63	MTC(P)-125-3BD18	-	-	-	-	-	-	-
MTA-BASE-W445T	<-->	445T	65	MTC(P)-150-3BD18	-	-	-	-	-	-	-
MTA-BASE-W447T	<-->	445/7T 447T	89	MTC(P)-200-3BD18	-	-	-	-	-	-	-
MTA-BASE-W449T	<-->	449T	94	MTC-250-3D18 MTC-300-3D18	-	-	-	-	-	-	-

STABLE Motor Slide Bases

Dimensions – Mounting Slide Bases for NEMA Motors



Dimensions [inches, except as noted] - STABLE Motor Slide Bases

MTA-BASE-Wxxxx	A	B	C	D	E	F	G	H	I	J	K(mm)	L	M	N	W
56	10-5/8	6-1/2	1-1/8	4-1/2	2-7/16	1-1/2	3-13/16	2-7/8	3/8	3	2 mm	7/8	5/16 x 1	3/8 x 4	n/a
143T	10-1/2	7-1/2	1-1/8	5-1/2	2-3/4	2	3-3/4	3-3/8	3/8	3	3 mm	13/16	5/16 x 1	3/8 x 4	n/a
145T	10-1/2	8-1/2	1-1/8	6-1/2	2-3/4	2-1/2	3-3/4	3-7/8	3/8	3	3 mm	13/16	5/16 x 1	3/8 x 4	n/a
182T	12-3/4	9-1/2	1-1/2	6-1/2	3-3/4	2-1/4	4-1/2	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	12-3/4	10-1/2	1-1/2	7-1/2	3-3/4	2-3/4	4-1/2	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	15	11	1-3/4	7-1/2	4-1/4	2-3/4	5-1/4	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	15	12-1/2	1-3/4	9	4-1/4	3-1/2	5-1/4	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	17-3/4	15-1/8	2	10-3/4	5	4-1/8	6-1/4	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	17-3/4	16-7/8	2	12-1/2	5	5	6-1/4	7-1/2	5/8	4	4.6 mm	1-7/16	1/2 x 1-3/4	5/8 x 6	7
284T	19-3/4	16-7/8	2	12-1/2	5-1/2	4-3/4	7	7-1/2	5/8	4-1/2	4.6 mm	1-11/16	1/2 x 2	5/8 x 6	7
286T	19-3/4	18-3/8	2	14	5-1/2	5-1/2	7	8-1/4	5/8	4-1/2	4.6 mm	1-11/16	1/2 x 2	5/8 x 6	8
324T	22-3/4	19-1/4	2-1/2	14	6-1/4	5-1/4	8	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	22-3/4	20-3/4	2-1/2	15-1/2	6-1/4	6	8	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	25-1/2	20-1/2	2-1/2	15-1/2	7	5-5/8	9	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	25-1/2	21-1/2	2-1/2	16-1/2	7	6-1/8	9	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	28-3/4	22-3/8	3	16-1/2	8	6-1/8	10	9-7/8	7/8	7	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	8-3/4
405T	28-3/4	23-7/8	3	18	8	6-7/8	10	10-5/8	7/8	7	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	10-1/4
444T	31-1/4	24-5/8	3	19-1/4	9	7-1/4	11	11	7/8	7-1/2	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	11
445T	31-1/4	26-5/8	3	21-1/4	9	8-1/4	11	12	7/8	7-1/2	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	13
447T	31-1/4	30-1/8	3	24-3/4	9	10	11	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	31-1/4	35-1/8	3	29-3/4	9	12-1/2	11	16-1/4	7/8	7-1/2	8 mm	3	3/4 x 3-1/2	3/4 x 11	21-1/2