



# 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)	
<b>Included – must meet the new Premium Efficiency standards – Industrial AC electric squirrel-cage motors as follows:</b>	
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	
<b>Not Included in Premium Efficiency standards, but must now meet EPAcT standards:</b>	
JM; JP; Round body (footless); 201–500 hp; Fire pump; U-frame; Design C; 8-pole	
For full text, visit <a href="http://www.energy.senate.gov">www.energy.senate.gov</a> 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 Max<sup>®</sup> 2000 Vector Duty Motors



## Features

- Class H MAX GUARD<sup>®</sup> insulation system
- Constant torque operation from 0 to base speed on vector drive, including TEFC (on V/Hz drives, TEFC motors are limited to 20:1 constant torque)
- Constant horsepower operation to 1.5 times base RPM
- Continuous duty at 40°C ambient
- Optimized for operation with IGBT inverter (NEMA Design A)
- C-Face foot mount through 100 HP (NEMA frame type TC motors)
- Class F N/C thermostats (one per phase)
- Cast iron frame and brackets
- Utilizes double shielded ball bearings with Exxon Polyrex<sup>®</sup> EM grease
- "Class B" temperature rise on blower-cooled motors
- F1 standard conduit box location, field reversible to F2
- Available with optional encoder installed on opposite drive end
- Electrically reversible
- UL recognized and CSA certified
- Three year warranty

## Applications

Designed for inverter or vector applications. Typical uses include: material handling, machine tools, conveyors, crane and hoist, metal processing, test stands, pumps, compressors, textile processing, and other industrial machinery installed in dusty or dirty environments where cast iron construction is required.

### 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.

### Motor Specifications

Part Number	Price	HP	Base RPM	Volts	Encl.	NEMA Frame	Model No.	F.L. Amps	Weight (lb)
Y571*	<--->	40	1800	230/460	TEFC	324T	324THFPA8028	100/50.0	540
Y513*	<--->	40	1800	230/460	TEBC	324TC	324THFPA8038	100/50.0	620
Y572*	<--->	50	1800	230/460	TEFC	326T	326THFS8028	121/60.5	540
Y514*	<--->	50	1800	230/460	TEBC	326TC	326THFPA8038	120/60.0	640
Y573	<--->	60	1800	230/460	TEFC	364T	364THFS8036	147/73.5	965
Y515 *	<--->	60	1800	230/460	TEBC	364TC	364THFS8046	147/73.5	1062
Y574*	<--->	75	1800	230/460	TEFC	365T	365THFS8036	184/92.0	1006
Y516*	<--->	75	1800	230/460	TEBC	365TC	365THFS8046	180/90.0	1106
Y575	<--->	100	1800	230/460	TEFC	405T	405THFS8036	230/115	1308
Y517	<--->	100	1800	230/460	TEBC	405TC	405THFS8046	230/115	1429

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 [www.automationdirect.com](http://www.automationdirect.com).

### 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)	Max. CHP RPM*	Max. Safe RPM	F.L. Effic.	F.L. Power Factor	Rotor Inertia (lb-ft <sup>2</sup> )	Ohms/Ph - Equiv. Wye Circuit (460 VAC) (at rated operating temp. in 40° C ambient)				
												R1	R2	X1	X2	XM
Y571	40	1770	50.0	20.0	118.0	320.0	2642	3600	91.7	81.5	5.000	0.082	0.077	0.435	0.592	10.280
Y513	40	1770	50.0	20.0	118.0	320.0	2642	3600	91.7	81.5	5.000	0.082	0.077	0.435	0.592	10.280
Y572	50	1780	60.5	26.5	148.0	400.0	2675	3600	92.4	81.0	10.000	0.063	0.046	0.424	0.596	10.000
Y514	50	1765	60.0	25.0	149.0	525.0	3525	3600	93.0	83.5	5.500	0.088	0.092	0.437	0.358	9.662
Y573	60	1782	73.5	28.0	177.0	525.0	2665	2700	91.7	83.0	14.500	0.063	0.042	0.338	0.455	8.850
Y515	60	1782	74.0	28.0	177.0	525.0	2665	2700	91.7	83.0	14.500	0.063	0.042	0.338	0.455	8.850
Y574	75	1780	92.0	40.0	221.0	740.0	2665	2700	94.1	82.0	16.500	0.047	0.031	0.267	0.313	6.275
Y516	75	1780	90.0	33.0	222.0	645.0	2685	2700	93.0	84.0	16.000	0.054	0.038	0.299	0.420	8.203
Y575	100	1785	115.0	38.0	295.0	900.0	2675	2700	94.5	86.5	27.500	0.034	0.021	0.236	0.219	6.820
Y517	100	1785	115.0	38.0	295.0	900.0	2675	2700	94.5	86.5	27.500	0.034	0.021	0.236	0.219	6.816

\* Maximum Constant HP RPM is for direct coupled loads.

# Blue Max<sup>®</sup> 2000 Vector Duty Motors

Blower Motor Performance Data (for TEBC Blower Cooled Motors)										
Blower Fits Motor Type				Blower Motor Characteristics						
Part Number	Model No.	NEMA Frame	Encl.	HP (60/50Hz)	RPM (60/50Hz)	Volts	Hz	F.L. Amps	Sound Pressure	Watts
<b>Y513</b>	324THFPA8038	324TC	TEBC	1 / 0.75	1735 / 1460	230/460 – 190/380	60 / 50	3.0 / 1.5	40	850
<b>Y513-A775</b>										850
<b>Y514</b>	326THFPA8038	326TC								851
<b>Y514-A775</b>										852
<b>Y515</b>	364THFS8046	364TC			853					
<b>Y515-A775</b>					854					
<b>Y516</b>	365THFS8046	365TC			3450 / 2850			3.7 / 1.85	68	855
<b>Y516-A775</b>										856
<b>Y517</b>	405THFS8046	405TC			857					
<b>Y517-A775</b>					858					

## Encoder shaft mounted to motor\*:

A Dynapar Model HS35 shaft mounted encoder can be supplied with the selected motor, either TEFC or TEBC type, as shown in the table below. The encoder requires a 5-26 VDC power source\*\*, provides a count of 1024 pulses per revolution (PPR) differential line driver output and includes a 10 pin connector. There is a mating connector supplied with the TEFC (totally enclosed fan cooled) motor encoders; the customer is responsible for supplying the wiring cable and determining the connections to the equipment being used in the application. The encoder adds 1 inch to the TEFC motor's "C" dimension as shown in the dimensional diagram.

The TEBC (totally enclosed blower cooled) motor encoders have the mating connector pre-wired, installed and ending in a pigtail located inside a conduit box mounted on the motor. (See Figure 2 under the motor dimensional information on the next page.) The customer is responsible for determining the connections to the equipment being used in their application.

\* If connecting the motor to a DURAPULSE AC drive, a GS3-FB Feedback Card is required for the drive.

\*\* When used with a GS3-FB equipped DURAPULSE AC drive, the GS3-FB will supply power to the encoder.

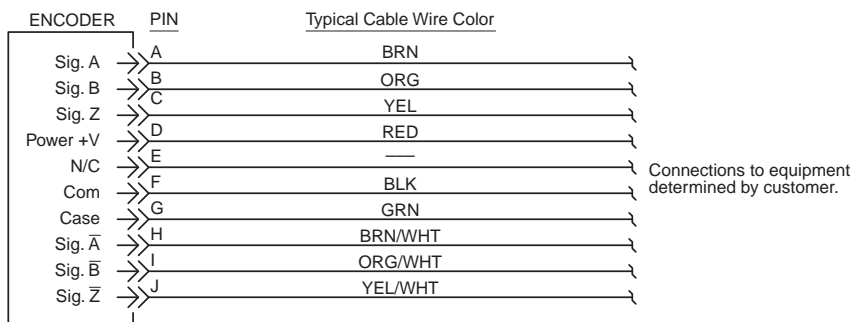
Motor Shipping Schedule		
Same or one day	Up to 7 days	Up to 10 days
Color indicates shipping lead time in business days. Check stock status online.		

Motor with Shaft Mounted Encoder					
Part Number	Price	HP	Part Number	Price	HP
<b>Y571-A774</b>	<--->	40 (TEFC)	<b>Y574-A774</b>	<--->	75 (TEFC)
<b>Y513-A775</b>	<--->	40 (TEBC)	<b>Y516-A775</b>	<--->	75 (TEBC)
<b>Y572-A774</b>	<--->	50 (TEFC)	<b>Y575-A774</b>	<--->	100 (TEFC)
<b>Y514-A775</b>	<--->	50 (TEBC)	<b>Y517-A775</b>	<--->	100 (TEBC)
<b>Y573-A774</b>	<--->	60 (TEFC)			
<b>Y515-A775</b>	<--->	60 (TEBC)			

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## Encoder connector pinout:

Note: A mating connector is supplied loose for the customer's wiring on encoder equipped TEFC motors and a mating connector pre-wired to a cable and pig-tailed in a conduit box on encoder equipped TEBC motors.



# Blue Max<sup>®</sup> 2000 Vector Duty Motors

## Motor Dimensions

Figure 1 (TEFC)

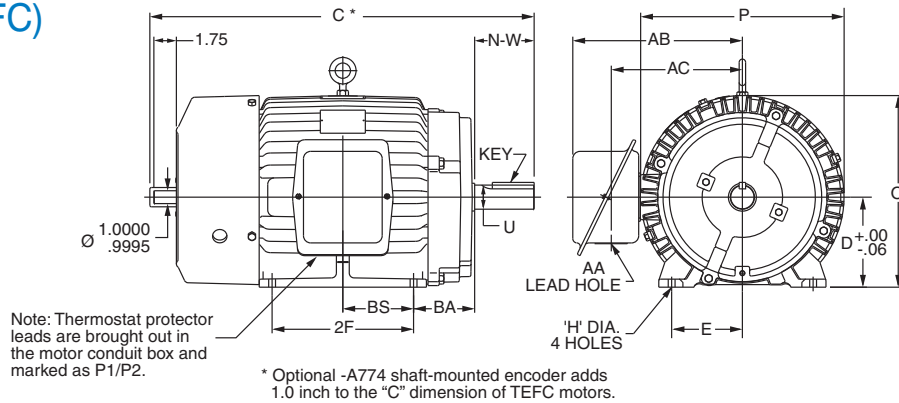
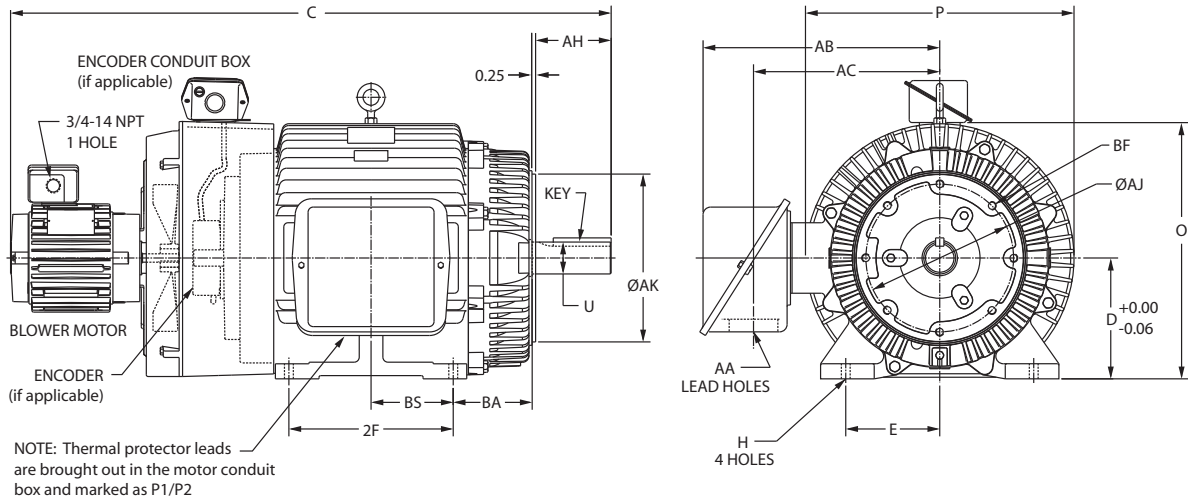


Figure 2 (TEBC)



Motor Dimensions [Inches]																											
Part No.	HP	Fig.	NEMA Frame	C*	D	E	2F	H Min.	O Max.	P Max.	U	AA	AB Max.	AC Max.	AH	AJ	AK	BA	BF	BS	N-W	Key					
Y571	40	1*	324T	30.7	8.00	6.25	10.50	0.66	16.6	15.9	2.125	2.0	13.7	10.5	-	-	-	-	-	5.3	5.25	.50x.50x3.88					
Y513	40	2	324TC	40.4			12.00		17.1	18.3			13.5	10.4	5.00	11.00	12.50	5.25	5/8-11	-	-		-	-	-	-	
Y572	50	1*	326T	32.4			12.00		16.6	15.9			14.8	11.8	-	-	-	5.25	-	-	-		-	-	6.0	5.25	
Y514	50	2	326TC	41.9	9.00	7.00	11.25	0.66	19.0	20.0	2.375	3.6	14.6	-	-	-	-	-	-	5.6	5.88	.62x.62x4.25					
Y573	60	1*	364T	33.7			12.25		22.6				19.0	13.9	5.62	11.00	12.50	5.88	5/8-11	-	-		-	-	-	6.1	5.88
Y515	60	2	364TC	42.7			12.25		19.0				22.6	-	-	-	-	5.88	-	-	-		-	-	-	6.1	5.88
Y574	75	1*	365T	34.7	10.00	8.00	13.75	0.81	20.9	21.8	2.875	3.6	14.6	5.62	11.00	12.50	5.88	-	-	6.1	7.25	.75x.75x5.62					
Y516	75	2	365TC	43.7			12.25		22.6				19.0	14.6	5.62	11.00	12.50	5.88	5/8-11	-	-		-	-	6.1	7.25	
Y575	100	1*	405T	39.3			12.25		20.9				21.8	19.8	16.3	-	-	-	6.62	-	-		-	-	-	6.9	7.25
Y517	100	2	405TC	49.7	12.25	24.1	21.8	18.8	14.8	7.00	11.00	12.50	6.62	5/8-11	-	-	-	-	6.9	-	-						

\* Optional shaft-mounted encoder adds 1.0 inch to the "C" dimension of TEFC motors # Y57x-A774.

Note: Dimensions are for reference only. For complete dimensional information, refer to Marathon Electric at [www.marathonelectric.com](http://www.marathonelectric.com).

# STABLE™ Motor Slide Bases

## Mounting Slide Bases for 56 to 449T NEMA Motors Features

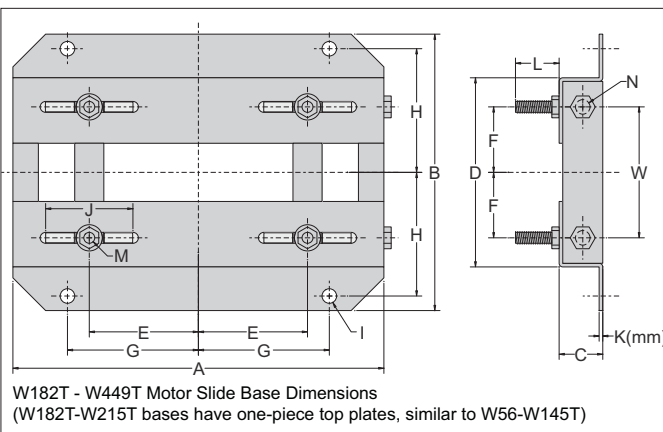
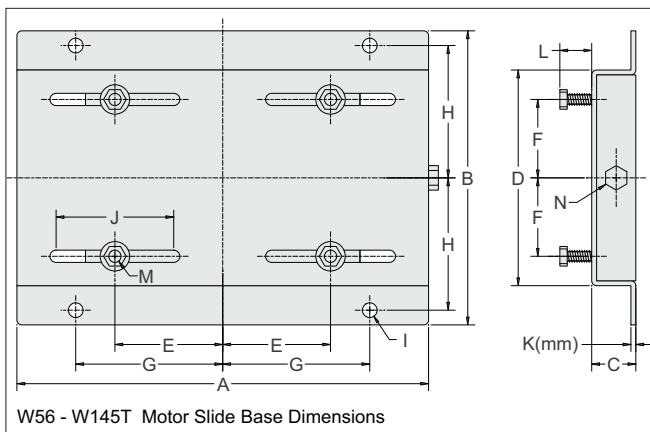
- Allows adjustment of motor mounting position
- Double adjusting screws for frames 182T - 449T
- Manufactured to precise dimensional standards
- Dimensionally interchangeable with existing major makes
- Heavy-duty steel construction
- Painted with oven-baked primer for better adhesion of customer's 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
<b>MTA-BASE-W56</b>	<-->	56	2.8	MTR-xxx-xxxx MTPM-xxx-xxxx	Y500 Y360 Y364	Y592(-A772) Y534(-A772) Y535(-A772)	Y555(-A772) Y556(-A772)	-	E2000	-	-
<b>MTA-BASE-W143T</b>	<-->	143T/TC	4.6	MTC(P)-001-3BD18(C)(CK) MTC-1P5-3BD36	-	Y536(-A772)	-	-	E2001 E2003	-	-
<b>MTA-BASE-W145T</b>	<-->	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	-	-
<b>MTA-BASE-W182T</b>	<-->	182T/TC	9.2	MTC-1P5-3BD12 MTC(P)-003-3BD18(C)(CK) MTC-003-3BD36	Y1999	Y541(-A772)	Y558(-A772)	-	E2005 E2009 E2010	-	-
<b>MTA-BASE-W184T</b>	<-->	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	-	-
<b>MTA-BASE-W213T</b>	<-->	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	-	-
<b>MTA-BASE-W215T</b>	<-->	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	-	-
<b>MTA-BASE-W254T</b>	<-->	254T/TC	18	MTC-7P5-3BD12 MTC(P)-015-3BD18(C)(CK)	-	Y546(-A772) Y549(-A772)	Y562(-A772)	-	-	E205	E307
<b>MTA-BASE-W256T</b>	<-->	256T/TC	19	MTC-010-3BD12 MTC(P)-020-3BD18(C)(CK)	-	Y548(-A772) Y552(-A772)	Y563(-A772)	-	-	E206	E308
<b>MTA-BASE-W284T</b>	<-->	284T/TC	20	MTC(P)-025-3BD18(C)(CK)	-	Y553(-A772)	-	-	-	E207	E309
<b>MTA-BASE-W286T</b>	<-->	286T/TC	21	MTC(P)-030-3BD18(C)(CK)	-	Y393(-A772)	-	-	-	E208	E310
<b>MTA-BASE-W324T</b>	<-->	324T/TC	30	MTC(P)-040-3BD18(C)(CK)	-	-	-	Y571(-A774) Y513(-A775)	-	E209	E311
<b>MTA-BASE-W326T</b>	<-->	326T/TC	31	MTC(P)-050-3BD18(C)(CK)	-	-	-	Y572(-A774) Y514(-A775)	-	E210	E312
<b>MTA-BASE-W364T</b>	<-->	364T/TC	43	MTC(P)-060-3BD18(C)(CK)	-	-	-	Y573(-A774) Y515(-A775)	-	E211	E313
<b>MTA-BASE-W365T</b>	<-->	365T/TC	43	MTC(P)-075-3BD18(C)(CK)	-	-	-	Y574(-A774) Y516(-A775)	-	E212	E315
<b>MTA-BASE-W404T</b>	<-->	404T/TC	58	-	-	-	-	-	-	-	-
<b>MTA-BASE-W405T</b>	<-->	405T/TC	60	MTC(P)-100-3BD18(C)(CK)	-	-	-	Y575(-A774) Y517(-A775)	-	E213	E314
<b>MTA-BASE-W444T</b>	<-->	444T	63	MTC(P)-125-3BD18	-	-	-	-	-	-	-
<b>MTA-BASE-W445T</b>	<-->	445T	65	MTC(P)-150-3BD18	-	-	-	-	-	-	-
<b>MTA-BASE-W447T</b>	<-->	445/7T 447T	89	MTC(P)-200-3BD18	-	-	-	-	-	-	-
<b>MTA-BASE-W449T</b>	<-->	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
<b>56</b>	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
<b>143T</b>	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
<b>145T</b>	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
<b>182T</b>	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
<b>184T</b>	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
<b>213T</b>	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
<b>215T</b>	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
<b>254T</b>	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
<b>256T</b>	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
<b>284T</b>	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
<b>286T</b>	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
<b>324T</b>	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
<b>326T</b>	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
<b>364T</b>	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
<b>365T</b>	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
<b>404T</b>	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
<b>405T</b>	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
<b>444T</b>	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
<b>445T</b>	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
<b>447T</b>	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
<b>449T</b>	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