

# marathon<sup>®</sup> Motors

## 1000:1 Constant Torque (TENV)



# MAX+ AC Inverter-Duty Motors with Encoder

## Features

- Integrated Dynapar HS20 1024 ppr encoder
- Optimized for operation with IGBT inverter
- Constant Torque operation from 0 to base speed on Vector Drive
- Constant Horsepower operation up to twice base RPM
- Class F insulation with CR200 corona resistant magnet wire
- Continuous duty at 40°C ambient
- C-Face with rigid base, except C-Face with removable rigid base as noted
- Service Factor: 1.0
- Ball bearings
- F1 mounting (except as noted)
- UL Recognized, CSA Certified, and CE Mark
- Three year warranty (through Marathon Electric)

## Applications

- Replaces 90 volt and 180 volt PMDC motors (when used with AC variable frequency drives)
- Typical uses include: machine tools, conveyors, packaging machines, batching machines, printing equipment, pumps and fans.

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.

\* Certain heavy and oversized items can be shipped only via LTL. Check our website for current shipping method constraints by part number.

## Prices & Specifications

Motor Specifications – MAX+ (with encoder)												
Part Number *	Price	HP	Base RPM	Volts	Encl.	NEMA Frame	Model No.	F.L. Amps	Weight (lb) *	Footnotes	Drawing Links	
<a href="#">Y280</a>	\$1,166.00	1/2	1800	230/460	TENV	56C	56H17T15526A	1.6 / 0.8	25	6	<a href="#">PDF</a>	
<a href="#">Y281</a>	\$1,220.00	3/4					56H17T15528A	2.4 / 1.2	35	6	<a href="#">PDF</a>	
<a href="#">Y282</a>	\$1,291.00	1					56H17T15527A	3.0 / 1.5	42	6	<a href="#">PDF</a>	
<a href="#">Y284</a>	\$1,537.00	1-1/2				145TC	145THTR15540AA	4.8 / 2.4	45	6	<a href="#">PDF</a>	
<a href="#">Y285</a>	\$2,063.00	2					145THTN17034AA	6.0 / 3.0	68	13b	<a href="#">PDF</a>	
<a href="#">Y286A</a>	\$2,617.00	3					182TC	182HTY17041AA	8.2 / 4.1	110	13b	<a href="#">PDF</a>
<a href="#">Y287A</a>	\$2,831.00	5					184TC	184HTY17038AA	13.4 / 6.7	125	13b	<a href="#">PDF</a>

\* Refer to the Motor Shipping Schedule table for shipping information.

Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.

Footnotes: 6 = Bolt-on, removable base for footless mounting option 13b = Field reversible from F1 to F2 mounting

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).

## MAX+ Motors Shaft-Mounted Encoder\*

A Dynapar Model HS20 shaft-mounted encoder is supplied with the MAX+ motor. The 5/8-in hollow-shaft encoder requires a 5–26 VDC power source, provides a count of 1024 pulses per revolution (PPR), differential line driver output, and includes 10 screw-terminal wiring connections.

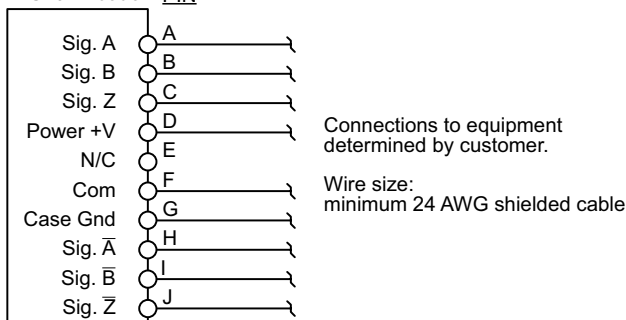
\* The encoder cable gland accepts cable diameters from 0.187–0.30 in.

\* There is no manufacturer's published tightening torque for the encoder screw terminals.

\* If connecting the motor to a GS3 DURApulse AC drive, a [GS3-FB Feedback Card](#) is required for the drive.

### Encoder Wiring Connections

Dynapar HS20 Encoder PIN



# MAX+ AC Inverter-Duty Motors with Encoder

## Performance Data

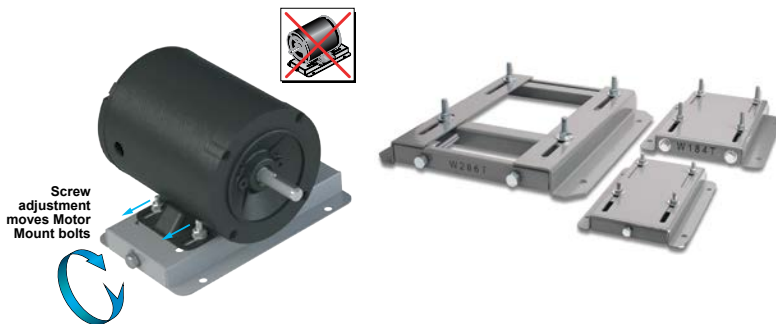
Performance Data (460 Volt) – MAX+													
Part Number	HP	NEMA Design	F.L. RPM	Min. RPM	F.L. AMPS @460V	N.L. AMPS @460V	F.L. Torque (lb-ft)	B.D. Torque (lb-ft)	Max. CHP RPM*	Max. Safe RPM	F.L. Effic.	F.L. Power Factor	Rotor Inertia (lb-ft <sup>2</sup> )
<a href="#">Y280</a>	1/2	A	1725	0	0.8	0.5	1.5	5.8	3510	5400	80.0	72.0	0.06
<a href="#">Y281</a>	3/4	A	1725		1.2	0.8	2.3	10.2	3450		82.5	73.5	0.09
<a href="#">Y282</a>	1	A	1725		1.5	1.0	3.0	15.0	3505		84.0	75.0	0.11
<a href="#">Y284</a>	1-1/2	B	1755		2.4	1.6	4.5	29.0	3500		85.5	69.0	0.14
<a href="#">Y285</a>	2	B	1750		3.0	1.7	6.0	28.5	3525		85.5	78.0	0.13
<a href="#">Y286A</a>	3	B	1755		4.1	2.3	9.0	49.3	3510		87.5	78.5	0.42
<a href="#">Y287A</a>	5	B	1760		6.7	3.2	14.9	61.5	3520		89.5	79.0	0.52

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

# STABLE™ Motor Slide Bases

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

- Allows adjustment of motor mounting position
- Slide direction is perpendicular to motor shaft
- 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
- Nuts and washers are provided for securing the motor to the slide base



STABLE Motor Slide Bases for 3-Phase Motors											
Part Number (MTA-BASE-xxx)	Price	Fits Frame Type	Product Wt. (lb)	Fits Motor					Drawing Links		
				IronHorse	Leeson® WashGuard®	WEG (Part number ending in...)	Marathon				
							microMAX, Max +, Black Max, Blue Max, SyMAX	XRI GP & NEMA Premium, Jet Pump	Globetrotter		
<b>W56</b>	\$14.00	56*	2.8	MTPM-P3x-1x18							
				MTPM-P5x-1x18							
				MTPM-P7x-1x18							
				MTPM-0xx-1x18							
				MTPM-1xx-1x18							
				MTR(2)(P)-xxx-xxxxx*							
				MTRJ(P)-xxx-xxxxx							
				MTSN-P33-3BD18							
				<u>MTSN-P33-3BD18R</u>							
				<u>MTSN-P33-3BD36</u>	112427.00						
				<u>MTSP-P33-3BD18</u>	112428.00						
				<u>MTSP-P33-3BD18R</u>	112429.00						
				<u>MTSP-P33-3BD36</u>	112430.00						
				<u>MTSP-P33-3BD36R</u>	113019.00						
				<u>MTSN-P50-3BD18</u>	113023.00						
				<u>MTSN-P50-3BD18R</u>	113473.00						E2000
				<u>MTSN-P50-3BD36</u>	113586.00						D390
				<u>MTSP-P50-3BD12</u>	113590.00						G580
				<u>MTSP-P50-3BD18</u>	113591.00					Y500	D391
				<u>MTSP-P50-3BD18R</u>	113649.00					Y502	G581
				<u>MTSP-P50-3BD36</u>	116644.00					Y360	K705
				<u>MTSP-P50-3BD36R</u>	116645.00					Y362	D392
				<u>MTSN-P75-3BD18</u>	119468.00					Y364	G582
				<u>MTSN-P75-3BD18R</u>	119469.00					Y280	K707
				<u>MTSN-P75-3BD36</u>	119471.00					Y281	D393A
				<u>MTSP-P75-3BD12</u>	119475.00			(...)56-S		Y282	K708A
				<u>MTSP-P75-3BD18</u>	119476.00			(...)56C-S		Y592(-A772)	G583A
				<u>MTSP-P75-3BD18R</u>	119478.00					Y534(-A772)	K709A
				<u>MTSP-P75-3BD36</u>	119480.00					Y535(-A772)	D394A
				<u>MTSP-P75-3BD36R</u>	119482.00					SY001	K721A
				<u>MTSN-001-3BD18</u>	119483.00					SY003	G584A
				<u>MTSN-001-3BD18R</u>	191202.00					SY004	D395A
				<u>MTSN-001-3BD36</u>	191204.00					SY005	G585A
				<u>MTSP-001-3BD18</u>	191205.00					SY035	K724A
				<u>MTSP-001-3BD18R</u>	191206.00						D396A
				<u>MTSP-001-3BD36</u>	191207.00						K725A
				<u>MTSP-001-3BD36R</u>	191208.00						J066A
				<u>MTSN-1P5-3BD18</u>	191560.00						
				<u>MTSN-1P5-3BD18R</u>	191561.00						
				<u>MTSN-1P5-3BD36</u>	191562.00						
<u>MTSP-1P5-3BD18</u>	191563.00										
<u>MTSP-1P5-3BD18R</u>	191564.00										
<u>MTSP-1P5-3BD36</u>	191569.00										
<u>MTSP-1P5-3BD36R</u>											
<u>MTSN-002-3BD18</u>											
<u>MTSN-002-3BD18R</u>											
<u>MTSN-002-3BD36</u>											
<u>MTSP-002-3BD18</u>											
<u>MTSP-002-3BD18R</u>											
<u>MTSP-002-3BD36</u>											
<u>MTSP-002-3BD36R</u>											

\* IronHorse MTR2 56HC motors have double-punched bases to fit on slide base MTA-BASE-W56.

# STABLE™ Motor Slide Bases

STABLE Motor Slide Bases for 3-Phase Motors										
Part Number (MTA-BASE- xxx)	Price	Fits Frame Type	Product Wt. (lb)	Fits Motor						Drawing Links
				IronHorse	Leeson®	WEG (Part number ending in...)	Marathon			
					WashGuard®		microMAX, Max+, Black Max, Blue Max, SyMAX	XRI GP & NEMA Premium, Jet Pump	Globetrotter	
<a href="#">W143T</a>	\$26.00	143T/ TC	4.6	MTCP2-001-3BD18(C) MTCP2-1P5-3BD36 MTSN-1P5-3BD36-14 MTSP-1P5-3BD36-14 MTSP-1P5-3BD36R-14	<a href="#">191487.00</a> <a href="#">191565.00</a>		<a href="#">Y536(-A772)</a>	<a href="#">E2001A</a> <a href="#">E2003</a>	-	<a href="#">PDF</a>
<a href="#">W145T</a>	\$26.00	145T/ TC	5.1	MTCP2-001-3BD12 MTCP2-1P5-3BD18(C) MTCP2-002-3BD18(C) MTCP2-002-3BD36 MTSP-001-3BD12 MTSN-1P5-3BD18-14 MTSN-1P5-3BD18R-14 MTSP-1P5-3BD18-14 MTSP-1P5-3BD18R-14 MTSN-002-3BD18-14 MTSN-002-3BD18R-14 MTSN-002-3BD36-14 MTSP-002-3BD18-14 MTSP-002-3BD18R-14 MTSP-002-3BD36-14 MTSP-002-3BD36R-14	<a href="#">121866.00</a> <a href="#">121868.00</a> <a href="#">121870.00</a> <a href="#">122182.00</a> <a href="#">122184.00</a> <a href="#">122185.00</a> <a href="#">191490.00</a> <a href="#">191491.00</a> <a href="#">191570.00</a>	(...) <a href="#">145T-S</a> (...) <a href="#">145TC-S</a>	<a href="#">Y366</a> <a href="#">Y368</a> <a href="#">Y284</a> <a href="#">Y285</a> <a href="#">Y537</a> <a href="#">Y538(-A772)</a> <a href="#">Y551(-A772)</a>	<a href="#">E2002</a> <a href="#">E2004A</a> <a href="#">E2007A</a>	-	<a href="#">PDF</a>
<a href="#">W182T</a>	\$35.50	182T/ TC	9.2	MTCP2-1P5-3BD12 MTCP2-003-3BD18(C) MTCP2-003-3BD36 MTSP-1P5-3BD12 MTSN-003-3BD18-18 MTSN-003-3BD36-18 MTSP-003-3BD18-18 MTSP-003-3BD36-18	<a href="#">132196.00</a> <a href="#">132198.00</a>		<a href="#">Y1999</a> <a href="#">Y286A</a> <a href="#">Y541A(-A772)</a> <a href="#">SY036</a> <a href="#">SY066</a>	<a href="#">E2009</a> <a href="#">E2010</a>	<a href="#">GT0010A</a> <a href="#">GT1010A</a>	<a href="#">PDF</a>
<a href="#">W184T</a>	\$35.50	184T/ TC	10	MTCP2-002-3BD12 MTCP2-005-3BD18(C) MTCP2-005-3BD36 MTF-00x-1C18 MTSP-002-3BD12 MTSP-005-3BD18 MTSP-005-3BD36	<a href="#">132197.00</a> <a href="#">132200.00</a> <a href="#">132201.00</a> <a href="#">132440.00</a>		<a href="#">Y1372</a> <a href="#">Y287A</a> <a href="#">Y540(-A772)</a> <a href="#">Y543A(-A772)</a> <a href="#">E2012</a> <a href="#">E2013</a> <a href="#">SY007A</a> <a href="#">SY067</a>	-	<a href="#">GT0013A</a> <a href="#">GT1013A</a> <a href="#">GT1210A</a> <a href="#">GT1212A</a> <a href="#">GT1213A</a>	<a href="#">PDF</a>
<a href="#">W213T</a>	\$52.00	213T/ TC	13	MTCP2-003-3BD12 MTCP2-7P5-3BD18(C) MTCP2-7P5-3BD36 MTSP-003-3BD12 MTSP-7P5-3BD18	<a href="#">140819.00</a> <a href="#">140822.00</a> <a href="#">141266.00</a>		<a href="#">Y994</a> <a href="#">Y542(-A772)</a> <a href="#">Y545(-A772)</a> <a href="#">E2011</a> <a href="#">E2016A</a> <a href="#">E2011A</a> <a href="#">E2016B</a> <a href="#">SY068</a>	-	<a href="#">GT0016A</a> <a href="#">GT1016A</a> <a href="#">GT1216A</a>	<a href="#">PDF</a>
<a href="#">W215T</a>	\$52.00	215T/ TC	15	MTCP2-005-3BD12 MTCP2-010-3BD18(C) MTCP2-010-3BD36 MTSP-005-3BD12 MTSP-010-3BD18	<a href="#">140820.00</a> <a href="#">140821.00</a>		<a href="#">Y996</a> <a href="#">Y544(-A772)</a> <a href="#">Y547(-A772)</a> <a href="#">E2018</a> <a href="#">E2014A</a> <a href="#">E2018A</a> <a href="#">SY069</a>	-	<a href="#">GT0019A</a> <a href="#">GT1019A</a> <a href="#">GT1218A</a> <a href="#">GT1219A</a>	<a href="#">PDF</a>
<a href="#">W254T</a>	\$71.00	254T/ TC	18	MTCP2-7P5-3BD12 MTCP2-015-3BD18(C) MTCP2-015-3BD36 MTSP-015-3BD18	-		<a href="#">Y546(-A772)</a> <a href="#">Y549(-A772)</a>	-	<a href="#">GT0059</a> <a href="#">GT1022A</a> <a href="#">GT1222A</a>	<a href="#">PDF</a>

\* IronHorse MTR2 56HC motors have double-punched bases to fit on slide base [MTA-BASE-W56](#).

# STABLE™ Motor Slide Bases

STABLE Motor Slide Bases for 3-Phase Motors										
Part Number (MTA-BASE- xxx)	Price	Fits Frame Type	Product Wt. (lb)	Fits Motor						Drawing Links
				IronHorse	Leeson®	WEG (Part number ending in...)	Marathon			
					WashGuard®		microMAX, Max+, Black Max, Blue Max, SyMAX	XRI GP & NEMA Premium, Jet Pump	Globetrotter	
<a href="#">W256T</a>	\$71.00	256T/ TC	19	MTCP2-010-3BD12 MTCP2-020-3BD18(C) MTCP2-020-3BD36 MTSP-020-3BD18	-		Y548(-A772) Y552	-	GT0062 GT1025A GT1225A	<a href="#">PDF</a>
<a href="#">W284T</a>	\$79.00	284T/ TC	20	MTCP2-015-3BD12 MTCP2-025-3BD18(C)	-		-	-	GT0065 GT1028A	<a href="#">PDF</a>
<a href="#">W286T</a>	\$79.00	286T/ TC	21	MTCP2-020-3BD12 MTCP2-030-3BD18(C)	-		-	-	GT0067 GT1031A	<a href="#">PDF</a>
<a href="#">W324T</a>	\$116.00	324T/ TC	30	MTCP2-040-3BD18(C)	-		Y571(-A774) Y513(-A775)	-	GT0073 GT1034A	<a href="#">PDF</a>
<a href="#">W326T</a>	\$116.00	326T/ TC	31	MTCP2-050-3BD18(C)	-		Y572(-A774) Y514(-A775)	-	GT0077 GT1037A	<a href="#">PDF</a>
<a href="#">W364T</a>	\$158.00	364T/ TC	43	MTCP2-060-3BD18(C)	-		Y573(-A774) Y515(-A775)	-	GT1040A	<a href="#">PDF</a>
<a href="#">W365T</a>	\$158.00	365T/ TC	43	MTCP2-075-3BD18(C)	-		Y574(-A774) Y516(-A775)	-	GT1043A	<a href="#">PDF</a>
<a href="#">W404T</a>	\$193.00	404T/ TC	58	-	-		-	-	-	<a href="#">PDF</a>
<a href="#">W405T</a>	\$193.00	405T/ TC	60	MTCP2-100-3BD18(C)	-		Y575(-A774) Y517(-A775)	-	GT1046A	<a href="#">PDF</a>
<a href="#">W444T</a>	\$219.00	444T	63	MTCP2-125-3BD18	-		-	-	GT1049A	<a href="#">PDF</a>
<a href="#">W445T</a>	\$219.00	445T	65	MTCP2-150-3BD18	-		-	-	GT1052A	<a href="#">PDF</a>
<a href="#">W447T</a>	\$288.00	447T	89	MTCP2-200-3BD18	-		-	-	GT1055A	<a href="#">PDF</a>
<a href="#">W449T</a>	\$288.00	449T	94	MTCP2-250-3D18 MTCP2-300-3D18	-		-	-	-	<a href="#">PDF</a>

\* IronHorse MTR2 56HC motors have double-punched bases to fit on slide base [MTA-BASE-W56](#).

# STABLE™ Motor Slide Bases

## Mounting Slide Bases for 56 to 215T NEMA Motors Features

STABLE Motor Slide Bases for 1-phase Motors									
Part Number	Price	Fits Frame Type	Product Wt. (lb)	Fits Motor					
				IronHorse	Leeson®		Marathon		
					Washguard®	Marathon DP GP (NEMA Service Factor)	Marathon DP Air Compressor	Fan & Blower	Marathon TE GP 4-in-1
<a href="#"><u>MTA-BASE-W56</u></a>	\$14.00	56*	2.8	MTR2-xxx-1AB18 MTR2-xxx-1AB36 MTPM-xxx-1L18 MTPM-xxx-1M18	112431.00	<a href="#"><u>C158A</u></a>	D010 C169 C704 D017	<a href="#"><u>C216</u></a>	<a href="#"><u>G570</u></a>
					112527.00	<a href="#"><u>G915A</u></a>		<a href="#"><u>D311</u></a>	
					112528.00	<a href="#"><u>C175A</u></a>		<a href="#"><u>C1153</u></a>	<a href="#"><u>G571</u></a>
					112529.00	<a href="#"><u>C167A</u></a>		<a href="#"><u>C1155</u></a>	<a href="#"><u>D312</u></a>
					113583.00	<a href="#"><u>C179A</u></a>		<a href="#"><u>B319</u></a>	<a href="#"><u>G572</u></a>
					114311.00	<a href="#"><u>G937A</u></a>		<a href="#"><u>D118</u></a>	<a href="#"><u>D313</u></a>
					114313.00	<a href="#"><u>C185A</u></a>		<a href="#"><u>C1158</u></a>	<a href="#"><u>G573</u></a>
					114317.00	<a href="#"><u>C187A</u></a>		<a href="#"><u>C235</u></a>	<a href="#"><u>D314</u></a>
					191475.00	<a href="#"><u>C193A</u></a>		<a href="#"><u>D115</u></a>	<a href="#"><u>G574</u></a>
					191477.00	<a href="#"><u>E261A</u></a>		<a href="#"><u>C1160</u></a>	<a href="#"><u>D315</u></a>
					191479.00	<a href="#"><u>E268A</u></a>		<a href="#"><u>C1161</u></a>	<a href="#"><u>G575</u></a>
						<a href="#"><u>EG277A</u></a>		<a href="#"><u>B352</u></a>	<a href="#"><u>D316</u></a>
					<a href="#"><u>MTA-BASE-W143T</u></a>	\$26.00		143T / TC	4.6
<a href="#"><u>MTA-BASE-W145T</u></a>	\$26.00	145TC / TC	5.1	-	-	<a href="#"><u>C191</u></a> <a href="#"><u>I127</u></a> <a href="#"><u>C194</u></a>	-	-	-
<a href="#"><u>MTA-BASE-W182T</u></a>	\$35.50	182T / TC	9.2	-	-	-	-	-	-
<a href="#"><u>MTA-BASE-W184T</u></a>	\$35.50	184 / TC	10	MTF-00x-1C18	-	-	<a href="#"><u>Z502</u></a>	-	-
<a href="#"><u>MTA-BASE-W213T</u></a>	\$52.00	213T / TC	13	-	-	-	-	-	-
<a href="#"><u>MTA-BASE-W215T</u></a>	\$52.00	215T T TC	15	-	-	-	-	-	-

\* IronHorse MTR2 56HC motors have double-punched bases to fit on slide base [MTA-BASE-W56](#).