

# marathon<sup>®</sup> Motors

## 1000:1 Constant Torque (TENV)



### 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.

# 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.

## 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>		1/2	1800	230/460	TENV	56C	56H17T15526A	1.6 / 0.8	25	6	<a href="#">PDF</a>
<a href="#">Y281</a>		3/4					56H17T15528A	2.4 / 1.2	35	6	<a href="#">PDF</a>
<a href="#">Y282</a>		1					56H17T15527A	3.0 / 1.5	42	6	<a href="#">PDF</a>
<a href="#">Y284</a>		1-1/2				145TC	145THTR15540AA	4.8 / 2.4	45	6	<a href="#">PDF</a>
<a href="#">Y285</a>		2					145THTN17034AA	6.0 / 3.0	68	13b	<a href="#">PDF</a>
<a href="#">Y286A</a>		3					182TC	182THTY17041AA	8.2 / 4.1	110	13b

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

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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.

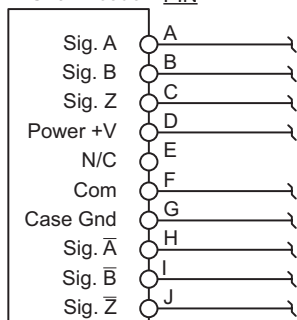
\* The encoder cable gland accepts cable diameters from 0.187–0.30 in.

\* 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



Connections to equipment determined by customer.

Wire size: minimum 24 AWG shielded cable

# 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

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



# Black Max<sup>®</sup> Vector Duty Motors

Motor Shipping Schedule *		
Same or one day *	Up to 7 days	Up to 10 days

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## Motor with Shaft-Mounted Encoder\*

A Dynapar Model HS35 shaft-mounted encoder can be supplied pre-installed on the motors as shown in the price 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 mating connector.

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

Motor Accessories		
Part Number	Price	Description *
<a href="#">A772</a>		Encoder kit, replacement, for Black Max encoder motors. Dynapar HS35 encoder, 5–26 VDC input, Line Driver output, 1024 pulses per revolution, 5/8-in bore.

\* Replacement/spare encoder kit for Black Max Yxxx-A772 motors; can also be field installed on Black Max Yxxx motors without encoders.

Motor with Pre-installed Shaft-Mounted Encoder					
230/460V Motors					
Part Number	Price	HP	Part Number	Price	HP
<a href="#">Y592-A772</a>		1/4	<a href="#">Y545-A772</a>		7 1/2
<a href="#">Y534-A772</a>		1/2	<a href="#">Y547-A772</a>		10
<a href="#">Y535-A772</a>		1	<a href="#">Y549-A772</a>		15
<a href="#">Y536-A772</a>		1			
<a href="#">Y538-A772</a>		1 1/2			
<a href="#">Y551-A772</a>		2			
<a href="#">Y541A-A772</a>		3			
<a href="#">Y543A-A772</a>		5			

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# Blue Max<sup>®</sup> 2000 Vector Duty Motor Accessories

Motor Accessories		
Part Number	Price	Description *
<a href="#">A774</a>		Encoder kit, replacement, for Blue Max TEFC encoder motors. Dynapar HS35 encoder, 5–26 VDC input, Line Driver output, 1024 pulses per revolution, 1-in bore.
<a href="#">A775</a>		Encoder kit, replacement, for Blue Max TEBC encoder motors. Dynapar HSD38 encoder, 5–26 VDC input, Line Driver output, 1024 pulses per revolution. 1-in bore.

\* Replacement/spare encoder kit for Blue Max Y5xx-A774 and Y5xx-A775 motors; can also be field installed on Blue Max Y5xx motors; select appropriate encoder kit per motor fan type (TEFC or TEBC).

## 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 pigtailed in a conduit box on encoder equipped TEBC motors.*  
 Prewired cables TRDA-25CBL-VWD-xx (10, 20, & 30 ft) and replacement MS connectors TRDA-25CON-VWD are available from AutomationDirect.

