

**marathon®**  
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>	\$1,208.00	1/2	1800	230/460	TENV	56C	56H17T15526A	1.6 / 0.8	25	6	<a href="#">PDF</a>	
<a href="#">Y281</a>	\$1,264.00	3/4					56H17T15528A	2.4 / 1.2	35	6	<a href="#">PDF</a>	
<a href="#">Y282</a>	\$1,338.00	1					56H17T15527A	3.0 / 1.5	42	6	<a href="#">PDF</a>	
<a href="#">Y284</a>	\$1,593.00	1-1/2				145TC	145THTR15540AA	4.8 / 2.4	45	6	<a href="#">PDF</a>	
<a href="#">Y285</a>	\$2,138.00	2					145THTN17034AA	6.0 / 3.0	68	13b	<a href="#">PDF</a>	
<a href="#">Y286A</a>	\$2,082.00	3					182TC	182THTY17041AA	8.2 / 4.1	110	13b	<a href="#">PDF</a>
<a href="#">Y287A</a>	\$2,831.00	5					184TC	184THTY17038AA	13.4 / 6.7	125	13b	<a href="#">PDF</a>

\* 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.

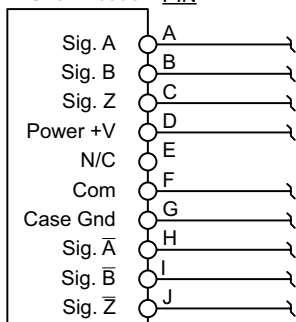
\* The encoder cable gland accepts cable diameters from 0.187–0.30 in.

\* 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
<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.

# Black Max® 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>	\$1,176.00	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>	\$1,605.00	1/4	<a href="#">Y544-A772</a>	Retired	5
<a href="#">Y534-A772</a>	\$1,833.00	1/2	<a href="#">Y545-A772</a>	\$3,445.00	7 1/2
<a href="#">Y535-A772</a>	\$1,936.00	1	<a href="#">Y546-A772</a>	Retired	7 1/2
<a href="#">Y536-A772</a>	\$1,953.00	1	<a href="#">Y547-A772</a>	\$3,889.00	10
<a href="#">Y538-A772</a>	\$2,189.00	1 1/2	<a href="#">Y548-A772</a>	Retired	10
<a href="#">Y551-A772</a>	\$2,395.00	2	<a href="#">Y549-A772</a>	\$4,399.00	15
<a href="#">Y540-A772</a>	Retired	2			
<a href="#">Y541A-A772</a>	\$2,686.00	3			
<a href="#">Y542-A772</a>	Retired	3			
<a href="#">Y543A-A772</a>	\$2,911.00	5			

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).

# 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
<a href="#">Y513</a>	324THFPA8038	324TC	TEBC	1 / 0.75	1735 / 1460	230/460 – 190/380	60 / 50	3.0 / 1.5	40	850
<a href="#">Y513-A775</a>										850
<a href="#">Y514</a>	326THFPA8038	326TC								851
<a href="#">Y514-A775</a>										852
<a href="#">Y515</a>	364THFS8046	364TC						3.7 / 1.85	68	853
<a href="#">Y515-A775</a>										854
<a href="#">Y516</a>	365THFS8046	365TC								855
<a href="#">Y516-A775</a>										856
<a href="#">Y517</a>	405THFS8046	405TC								857
<a href="#">Y517-A775</a>										858

## Encoder shaft-mounted to motor\*

A Dynapar Model HS35/HSD38 shaft-mounted encoder can be supplied pre-installed on 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. A mating connector is supplied with 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

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Motor Accessories		
Part Number	Price	Description *
<b>A774</b>	\$849.00	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.
<b>A775</b>	\$849.00	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).

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

Dynapar HS35/HSD38 Encoder

PIN TRDA-25CBL-VWD-xx Cable Wire Color for HS35 Encoders

(HSD38 colors may be different)

