

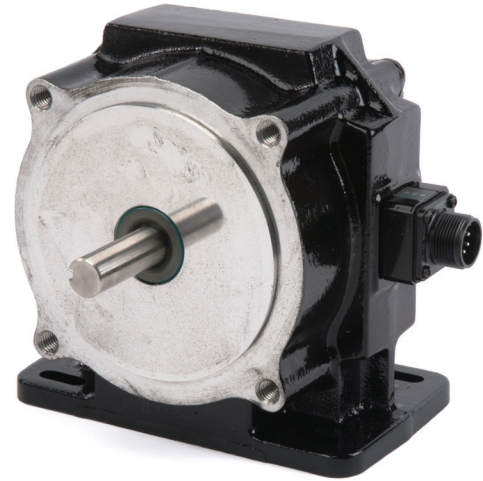
# SERIES H56

**NorthStar™ brand**

## Heavy Duty Encoder

### Key Features

- **Encoder-Within-Encoder Design with Phased Array Sensor for Reliable Signal Output**
- **Large Outer Bearings Isolate Shaft Loads**
- **Foot Mount or 56 C-Face Mount Easily Replaces BC42 and 46 Tachs**
- **Rugged Enclosure Rating: IP66**



## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

**Code:** Incremental, Optical  
**Resolution:** 1 to 5000 PPR (pulses/revolution)  
**Accuracy:** (Worst case any edge to any other edge) ±7.5 arc-min.  
**Format:** Two channel quadrature (AB) with optional Index (Z) and complementary outputs  
**Phase Sense:** A leads B for CW shaft rotation as viewed from the C-face of the encoder  
**Quadrature Phasing:** 90° ± 22.5° electrical  
**Symmetry:** 180° ± 25° electrical  
**Index:** 180° ± 25° electrical (gated with B low)  
**Waveforms:** Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

### ELECTRICAL

**Input Power:** (each output)  
 5-26 VDC at 100 mA max., not including output loads  
**Outputs:**  
 7273 Open Collector: 40mA, sink max  
 7272 Push-Pull: 40mA, sink or source  
 7272 Differential Line Driver: 40 mA, sink or source  
 4469 Differential Line Driver: 100mA, sink or source  
**Frequency Response:** 100 kHz min.  
**Noise Immunity:** Tested to EN61326-1  
**Electrical Immunity:** Reverse polarity and short circuit protected  
**Mating Connector:**  
 6 pin, style MS3106A-14S-6S (MCN-N4);  
 10 pin, style MS3106A-18-1S (MCN-N6)  
 Pluggable Screw-Terminal (110532-0001)

### MECHANICAL

**Shaft Size:** 5/8" nominal  
**Shaft Loading:** 100 lbs. radial, 50 lbs. axial  
**Shaft Speed:** 3600 RPM max.  
**Starting Torque:** 16 oz-in max.;  
**Moment of Inertia:** 7.9 x 10<sup>-4</sup> oz-in-sec<sup>2</sup>  
**Bearing Life:** See table, below  
**Housing Material:** Aluminum  
**Shaft Material:** Stainless Steel  
**Disc Material:** Mylar (unbreakable)  
**Weight:** 144 oz. (9 lbs.)

### ELECTRICAL CONNECTIONS

\* This is a mating connector/cable assembly described in the Encoder Accessories section of this catalog. Color-coding information is provided here for reference.

Encoder Function	Cable # 1400209XXXX 6 Pin Single Ended		Cable #1400419XXXX 10 Pin Differential Twisted Pairs		Pluggable Screw Terminal Pin Number
	Pin	Wire Color	Pin	Wire Color	
Sig. A	B	RED	B	RED	3
Sig. A̅	—	—	G	BLK	8
Sig. B	D	BLU	D	BLU	7
Sig. B̅	—	—	H	BLK	2
Sig. Z*	A	GRN	A	GRN	4
Sig. Z̅*	—	—	I	BLK	9
+V	E	WHT	E	WHT	6
Common	C	BLK	C	BLK	1
Shield	F	SHIELD	F	SHIELD	10

### NOTES:

- 1) Cable Configuration: PVC jacket, 80°C rated, spiral wrapped copper shield; 22 AWG conductors
- 2) Standard cable length is 10 feet but may be ordered in any length in 5 foot increments. For example, for a 20 foot cable, replace -XXXX with -0020
- 3) \*Index not provided on all models. See ordering information.
- 4) "MS" Type mating connectors and pre-build cables are rated NEMA 12

### ENVIRONMENTAL

**Operating Temperature:** -40 to +80 °C  
**Storage Temperature:** -40 to +80 °C  
**Shock:** 50 G's for 11 milliseconds duration  
**Vibration:** 5 to 2000 Hz at 2.5 G's  
**Humidity:** Up to 98% (non-condensing)  
**Enclosure Rating:** NEMA4/IP66 (dust proof, washdown)

### Bearing Life versus Load

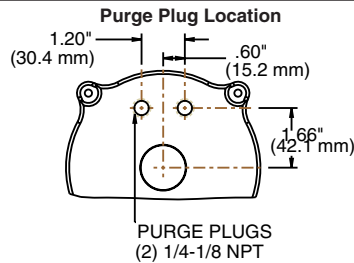
Radial	Axial	Revolutions
75	15	1.3 x 10 <sup>10</sup>
75	25	6.4 x 10 <sup>9</sup>
100	25	4.1 x 10 <sup>9</sup>
100	50	1.3 x 10 <sup>9</sup>

### Ordering Information

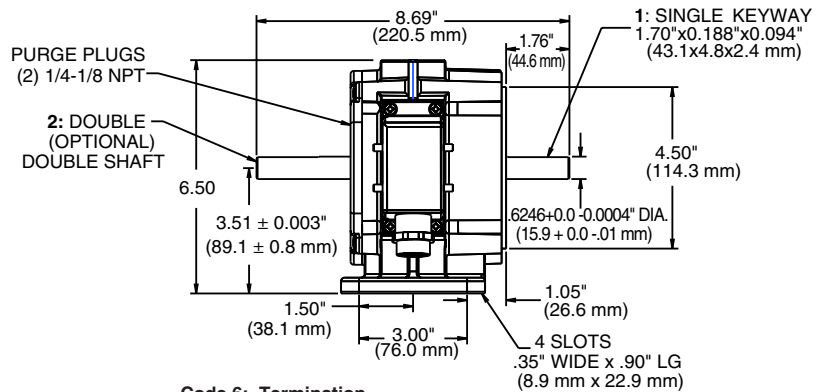
To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: PPR	Code 3: Shaft	Code 4: Format	Code 5: Electrical	Code 6: Termination	Code 7: Options
<b>H56</b>	□□□□	□	□	□	□	□□
Ordering Information						
<b>H56</b> Mill Duty, 56C-Face or Foot Mount Rotopulser®	<b>0001 0500</b> <b>0003 0512</b> <b>0010 0600</b> <b>0012 0900</b> <b>0015 1000</b> <b>0032 1024</b> <b>0050 1200</b> <b>0060 1500</b> <b>0100 2000</b> <b>0120 2048</b> <b>0200 2400</b> <b>0240 2500</b> <b>0250 3072</b> <b>0300 4000</b> <b>0360 4096</b> <b>5000</b>	<b>1</b> Single, 5/8" <b>2</b> Double, 5/8"	Compliments available when Code 5 is 3 or 4 <b>2</b> Single, bidirectional quadrature (AB) <b>3</b> Single, bidirectional quadrature with index (ABZ) <b>4</b> Dual, isolated bidirectional quadrature (dual AB) <b>6</b> Dual, isolated bidirectional quadrature with index (dual ABZ)	<b>0</b> 5-26V in, 5-26V Open Collector Out <b>1</b> 5-26V in, 5-26V Open Collector Out w/ 2.2kΩ Pullups <b>2</b> 5-26V in, 5-26V Single Ended Push-Pull Out <b>3</b> 5-26V in, 5V Differential Line Driver Out (7272) <b>4</b> 5-26V in, 5-26V Differential Line Driver Out (7272) <b>5</b> 5-26V in, 5V Differential Line Driver Out (4469) <b>6</b> 5-15V in, 5-15V Differential Line Driver Out (4469)	<b>0</b> MS Connector(s) <b>1</b> MS Connector(s), plus mating connector(s) <b>2</b> Pluggable Screw Terminal Connector(s) <b>3</b> Pluggable Screw Terminal(s), plus Mating Connector(s)	Available when Code 6 is 0 or 1: <b>PS</b> LED Output Indicator

### DIMENSIONS inches [mm]



#### Code 3: Shaft



#### Code 6: Termination

0,1: MS Connectors  
 Shown with LED Output Indicator Option  
 Code 9: PS

2,3: Pluggable Screw Terminals  
**Code 4: Format**

