

Incremental



- Sealed against dust, oil, grease, liquids, vapor and mud
- Designed for high shock and vibration applications
- Electrically isolated from motor shaft
- Rugged cast-aluminum housing
- Advanced ASIC technology and optics
- Easy, hex wrench installation
- High temperature range: -40 ... +100°C

HEAVY DUTY NorthStar™ CE

GENERAL INFORMATION

EXTREME HEAVY DUTY HOLLOWSHAFT ENCODER

Even electric motors in the harshest environments require feedback to ensure smooth speed control. In the past, engineers have applied encoders and sensors designed for standard industrial environments into these extremely harsh environments, impacting system reliability and increasing life-cycle costs. Hengstler has the solution.

The heavy rail proven NorthStar HSD44 series optical encoder was designed to be a survivor. This anodized aluminum encoder can survive high levels of shock and vibration, wide temperature extremes, and operating environment contaminants. The HSD44 can withstand the harshest outdoor environments and the toughest industrial applications.

The 1024 pulses-per-revolution (PPR) are provided by a rugged, stainless steel disk, which is read from a specially designed optical sensor. An enormous 0.025" sensor gap reduces sensitivity to shock, vibration, and motor bearing wear. The counter-spiral shaft-coupler provides a flexible mount that eliminates resonance throughout the operating range and will not fatigue under vibration. Electronics are condensed down to a single ASIC, reducing the likelihood of electronic component failure.

The HSD44 is designed for end-of-motor application. Adapter plates are available for common motor styles, and custom adapter plates can be created to fit any application.

APPLICATIONS

The HSD44 is the ideal source of control feedback for motors that drive heavy electric, and hybrid-electric vehicles. It is field proven for reliable operation in severe transportation and industrial environments.

Designed for :

- Heavy Rail
- Commercial Hybrid Electric and Electric Vehicles
- Heavy Duty cranes
- Mining Transport
- Conveyors

INDUSTRIES

Transportation, paper, steel, mining, material handling and other industries with harsh environments where precise and reliable encoder feedback is needed.

TECHNICAL DATA
mechanical

Housing diameter	112 mm
Mounting depth	60 mm
Shaft diameter	16 mm (Flexible coupling)
Protection class shaft input (EN 60529)	NEMA 6 IP67
Shaft tolerance	11.9 to 15.9 mm
Max. speed	max. 6000 rpm
Bearing life	max. 5 x 10 ¹¹ revs.

Incremental

TECHNICAL DATA

mechanical (continued)

Vibration resistance (DIN EN 60068-2-6)	30 g
Shock resistance (DIN EN 60068-2-27)	200 g
Operating temperature	-40 °C ... +100 °C
Material housing	Hard anodized Aluminum
Weight	ca. 1.8 Kg
Connection	MS, radial Cable, radial with M12 connector

TECHNICAL DATA

electrical

Supply voltage	DC 5-30 V
Current w/o load typ.	50 mA
Code	Incremental, optical
Max. pulse frequency	125 kHz
Phasing	Incremental signals (A leads B): A leads B by 90° for ccw shaft rotation viewing the shaft clamp end of the encoder

ELECTRICAL CONNECTIONS

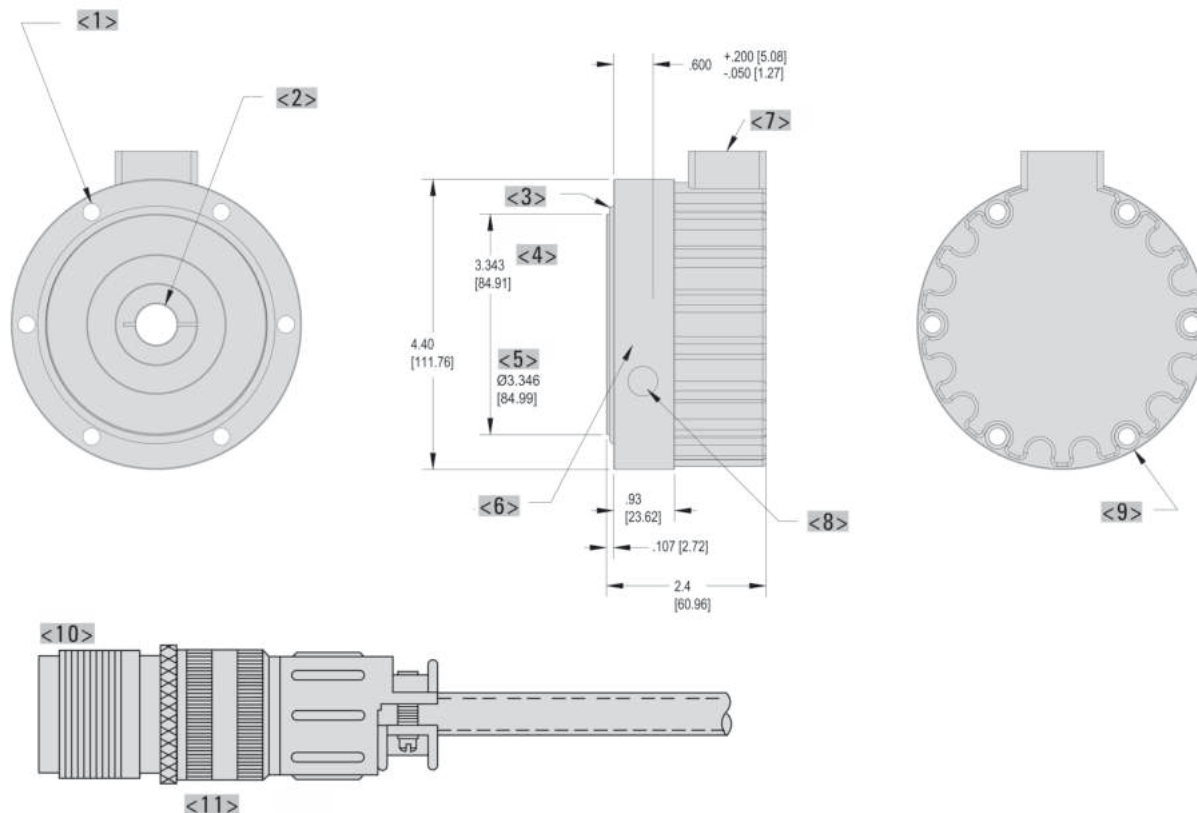
Cable, MS connector 10 poles

Kabelfarbe	Stecker	Signal
braun	A	Sig.A
orange	B	Sig.B
gelb	C	Sig.Z
rot	D	+UB
schwarz	E	Com.
grün	F	0V
-	G	N.C.
braun/ weiß	H	Sig.A-
orange/ weiß	I	Sig.B-
gelb/ weiß	J	Sig.Z-

Heavy Duty Incremental

HSD 44

DIMENSIONED DRAWINGS



- | | |
|--|--|
| <1> Clearance for 1/4-20 SHCS (6) on Ø3.937(100.0) BC equally spaced | <6> 16 MM shaft extension I.D. .6295 +.0/-0.0005 |
| <2> Collar: 10-32 x 1/2 SS SHCS tightened with a 5/32 ball driver allen wrench | <7> Cable exit |
| <3> O ring | <8> Shaft clamp access plug |
| <4> Pilot | <9> 1/4-20 x 1 SS SHCS supplied with the encoder |
| <5> Pilot cavity | <10> MS3101A-18-1P |
| | <11> Pigtail with MS connector (K Option) |
- Dimensions in inch [mm]

ORDERING INFORMATION

Type	Number of pulses	Shaft Ø	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HSD44T	1024	A 16 mm	3 5-26V in, 5-26V Differential Line Driver out (7272)	A Cable, 0.5 m K 0.5 m cable with 10 pin in-line connector