

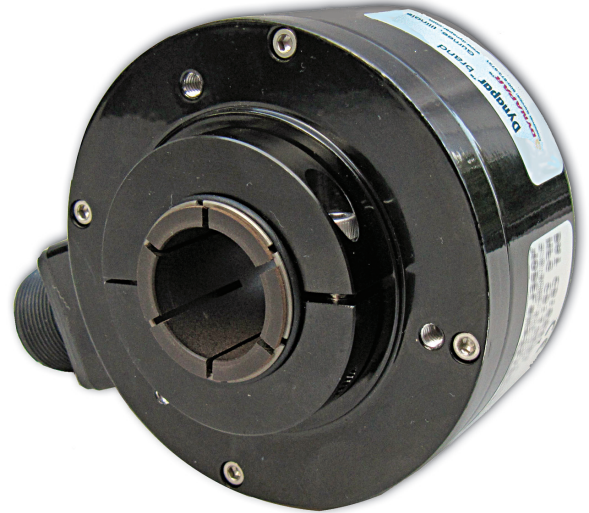
SERIES HS35R

Dynapar™ brand

Heavy Duty Hollowshaft Encoder

Key Features

- Phased Array Sensor for Reliable Signal Output
- Rugged Design Withstands up to 400g Shock and 20g Vibration
- Unbreakable Code Disc up to 5000PPR
- Heavy Duty Design Rated for IP67
- Customizable Mounting Options including Torque Arm with Optional Grounding Strap



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental
Resolution: to 5000 PPR (pulses/revolution) See Ordering Information
Format: Two channel quadrature (AB) with optional Index (Z), and complementary outputs
Phase Sense: A leads B for CW shaft rotation viewing the shaft clamp end of the encoder
Quadrature Phasing:
 For resolutions 200 to 300PPR and 1200PPR and above: 90° ±30° electrical; all other resolutions: 90° ±15°
Symmetry:
 For resolutions 200-300PPR and above: 180° ±25° electrical; all other resolutions: 180° ±18°
Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

ELECTRICAL

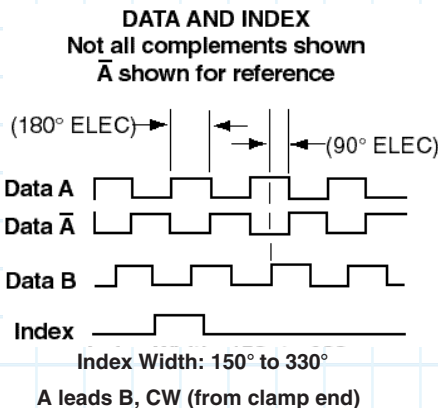
Input Power: 5-26VDC, 5-15VDC. 80 mA max., not including output loads.
Outputs: ET7272, ET7273, 4469, High-Power-Line-Driver
Frequency Response: 125 kHz (data & index)
Noise Immunity: Tested to EN61326-1 EMC
Termination: MS Connector; M12 Connector; cable exit w/seal. See Ordering Information
Mating Connector:
 6 pin MS, style MS3106A-14S-6S (MCN-N4)
 7 pin MS, style MS3106A-16S-1S (MCN-N5)
 10 pin MS, style MS3106A-18-1S (MCN-N6)
 10 pin Bayonet, MS3116-F12-10S (607545-0001)
 Cable w/ 5 pin M12 connector, p/n 112859-xxx
 Cable w/ 8 pin M12 connector, p/n 112860-xxx

MECHANICAL

Shaft Material: 6061-T6 Aluminum
Bore Diameter: 6mm to 28mm, 1/4" to 1-1/8", electrically isolated
Mating Shaft Length: 1.25", Minimum, 1.60", Recommended
Shaft Speed: 6000 RPM, Maximum (Enclosure Rating is IP64 at speed over 5000 RPM)
Starting torque: 8.0 in-oz. maximum (at 25°C)
Running torque: 5.0 in-oz. maximum (at ambient)
Bearings: ABEC 1
Housing and cover: Powder Coated Aluminum
Disc material: Plastic
Weight: 1.76lb (28 Oz) Typical

ENVIRONMENTAL

Standard Operating Temperature: -40 to +85°C (0 to +70°C with 4469 line driver, see "Ordering Information"). At shaft speed above 3000 RPM, derate 10°C per 1000 RPM
Extended Temperature Range: -40 to +100°C (See ordering information)
Storage temperature: -40 to +100°C
Shock: 400g, 6mSec
Vibration: 5 to 3000 Hz, 20g
Humidity: 100%
Enclosure Rating: IP67 (IP64 at shaft speed above 5000 RPM)



(Reverse Phasing, A leads B for CCW also available: See Code 7 in Ordering Information)

Note: "MS" type mating connectors and pre-built cables are rated NEMA 12. "M12" Cable assemblies are rated IP67

Ordering Information

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

Code 1: Model	Code 2: PPR	Code 3: Bore Size	Code 4: Fixing	Code 5: Output Format	Code 6: Termination	Code 7: Options
HS35R	□□□□	□	□	□	□	□□

Ordering Information							
HS35R Heavy-Duty Hollowshaft Encoder	0001 0500	0 6mm	0 None	0 ABZ, 5-26VDC push-pull	0 6 pin	Blank No Option	
	0003 0512	1 1/4"	1 4.5" C-face tether	1 ABZ, 5-26VDC O/C	1 7 pin		01 Reverse Phasing (A leads B, CCW)
	0010 0600	2 5/16"	2 8.5" C-face tether	2 ABZ, 5-26VDC O/C w/2.2kOhm	2 10 pin	Available when Code 5 is 0-2, 6 and 7 and when Code 6 is 0-2 or 5-7	
	0012 0900	3 8mm	3 Slotted tether (to fit standard AC motor fan cover)	H Same as "0" with Extended temp range	3 12 pin		
	0015 1000	4 3/8"	Not available when Code 5 is D,E,F,G, Q, R	J Same as "1" with Extended temp range	4 10 pin bayonet		
	0032 1024	5 10mm		K Same as "2" with Extended temp range	5 6 pin+mating		
	0050 1200	6 12mm	Available when Code 5 is D,E,F,G, Q, R	Not available when Code 6 is H	6 7 pin+mating		
	0060 1500	7 1/2"			4 Differential AB only, 5-26VDC, 5-26VDC out (7272)		6 7 pin+mating
	0100 2000	8 5/8"	Same as 1 w/cover	Same as 3 w/cover	5 Differential AB only, 5-26VDC in, 5VDC out (7272)		7 10 pin+mating
	0120 2048	9 15mm			Same as A with 56C cover (Single Only)		Same as A with 56C cover (Single Only)
	0200 2400	A 16mm	Available when Code 5 is D,E,F,G, Q, R	Same as 1 w/dual cover			
	0240 2500	C 19mm			Same as "4" with Extended temp range		Same as "5" with Extended temp range
	0250 3072	D 3/4"	Not available when Code 6 is 0, 1, 5, 6, or H	Same as "6" with Extended temp range		M Same as "5" with Extended temp range	
	0300 4000	E 20mm			Differential ABZ, 5-26VDC in, 5VDC out (7272)	Differential ABZ, 5-26VDC in, 5-26VDC out (7272)	6 Differential ABZ, 5-26VDC in, 5VDC out (7272)
	0360 4096	F 7/8"	Differential ABZ, 5-26VDC in, 5VDC out (4469)	Differential ABZ, 5-15VDC in, 5-15VDC out (4469)			7 Differential ABZ, 5-26VDC in, 5-26VDC out (7272)
5000	G 24mm	Dual isolated outputs, same as "6"			Dual isolated outputs, same as "7"	8 Differential ABZ, 5-26VDC in, 5VDC out (4469)	F 0.3m (13") cable with 10-pin bulkhead connector and mate
	H 1"		Dual isolated outputs, same as "8"	Dual isolated outputs, same as "9"		9 Differential ABZ, 5-15VDC in, 5-15VDC out (4469)	G 0.3m (13") cable
	J 1-1/8"	Dual isolated outputs, same as "9"			Same as "6" with Extended temp range	D Dual isolated outputs, same as "6"	H 5 pin M12
	M 14mm		Dual isolated outputs, same as "7"	Same as "7" with Extended temp range		E Dual isolated outputs, same as "7"	J 8 pin M12
	N 18mm	Dual isolated outputs, same as "8"			Same as "D" with Extended temp range	F Dual isolated outputs, same as "8"	
	P 25mm		Dual isolated outputs, same as "9"	Same as "E" with Extended temp range		G Dual isolated outputs, same as "9"	
	R 28mm	Same as "6" with Extended temp range			Same as "7" with Extended temp range	N Same as "6" with Extended temp range	
			Same as "7" with Extended temp range	Same as "D" with Extended temp range		P Same as "7" with Extended temp range	
		Same as "D" with Extended temp range			Same as "E" with Extended temp range	Q Same as "D" with Extended temp range	
			Same as "E" with Extended temp range	Same as "E" with Extended temp range		R Same as "E" with Extended temp range	
		ABZ, 10-24VDC Line Driver for cable runs up to 500 ft/120m using the Dynapar cable assemblies listed below			ABZ, 10-24VDC Line Driver for cable runs up to 500 ft/120m using the Dynapar cable assemblies listed below	W ABZ, 10-24VDC Line Driver for cable runs up to 500 ft/120m using the Dynapar cable assemblies listed below	

10 foot Cable Assemblies with MS Connector

- 108594-0010** 6 Pin MS, Cable Assy. For Use with Single Ended Outputs
- 108595-0010** 7 Pin MS, Cable Assy. For Use with Single Ended Outputs
- 108596-0010** 7 Pin MS, Cable Assy. For Use with Differential Line Driver w/o Index Outputs
- 112123-0010** 6 Pin MS, Cable Assy. For Use with Differential Line Driver w/o Index Outputs
- 1400635-0010** 10 Pin MS, Cable Assy. For Use with Differential Line Driver with Index Outputs
- 114448-0010** 10 Bayonet, Cable Assy. For Use with Differential Line Driver with Index Outputs
- 109209-0010** NEMA4 10 pin MS, Cable Assy. For Use with Differential Line Driver with Index Outputs

10 foot Cable Assemblies with M23 Connector

- 108615-0010** 12 M23, Cable Assy. For Use with Differential Line Driver with Index Outputs, CCW

15 foot Cable Assemblies with M12 Connector

- 112859-0015** 5 Pin M12, Cable Assy. For Use with Single Ended Outputs
- 112860-0015** 8 Pin M12, Cable Assy. For Use with Single Ended Outputs
- 112860-0015** 8 Pin M12, Cable Assy. For Use with Differential Line Driver Outputs

Mating Connectors (no cable)

- MCN-N4** 6 pin, style MS3106A-14S-6S
- MCN-N5** 7 pin, style MS3106A-16S-1S
- MCN-N6** 10 pin, style MS3106A-18-1S
- 607545-0001** 10 pin bayonet, style MS3116-F12-10S

Accessory Kits:

- 114573-0001** Tether Kit, 4.5" C-face single point with 3/8" bolt
- 114574-0001** Tether Kit, Slotted with T-bolts for standard AC motor fan covers
- 114575-0001** Tether Kit, 8.5" C-face single point with 1/2" bolt
- 114591-0001** Cover Kit, 56C face
- 114592-0001** Cover Kit, fan cover
- 114593-0001** Dual Cover Kit, 56C face
- 114928-0001** Dual Cover Kit, 180C-face
- 114594-0001** Dual Cover Kit, fan cover
- 116233-0001** Rod Tether only
- 116233-0002** Rod Tether + 56C face cover (single)
- 116233-0004** Rod Tether + grounding strap
- 116233-0005** Rod Tether + grounding strap +56C face cover (single)

SERIES HS35R



ELECTRICAL CONNECTIONS

6, 7 & 10 Pin MS Connectors and Cables - Code 6 = 0 to 9, A to G

Connector & mate/accessory cable assembly pin numbers and wire color information is provided here for reference. Models with direct cable exit carry the same color coding as shown for each output configuration.

Encoder Function	Cable #108594-* 6 Pin Single Ended		Cable #112123-* 6 Pin Dif Line Drv w/o Id x		Cable #108596-* 7 Pin Dif Line Drv w/o Id x		Cable #108595-* 7 Pin (If Used)		Cable #1400635- or 109209- (NEMA4) 10 Pin Dif Line Drv w/ldx (If Used)		Cable #108615-* 12 Pin CCW (If Used)		Cable #114448-* 10Pin Bayonet	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	E	BRN	E	BRN	A	BRN	A	BRN	A	BRN	5	BRN	A	BRN
Sig. B	D	ORN	D	ORN	B	ORN	B	ORN	B	ORN	8	ORN	B	ORN
Sig. Z	C	YEL	—	—	—	—	C	YEL	C	YEL	3	YEL	C	YEL
Power +V	B	RED	B	RED	D	RED	D	RED	D	RED	12	RED	D	RED
N/C	F	—	—	—	—	—	E	—	E	—	7	—	E	—
Com	A	BLK	A	BLK	F	BLK	F	BLK	F	BLK	10	BLK	F	BLK
Case	—	—	—	—	G	GRN	G	GRN	G	GRN	9	—	G	GRN
Sig. A	—	—	C	BRN/WHT	C	BRN/WHT	—	—	H	BRN/WHT	6	BRN/WHT	H	BRN/WHT
Sig. B	—	—	F	ORN/WHT	E	ORN/WHT	—	—	I	ORN/WHT	1	ORN/WHT	J	ORN/WHT
Sig. Z	—	—	—	—	—	—	—	—	J	YEL/WHT	4	YEL/WHT	K	YEL/WHT
OV Sense	—	—	—	—	—	—	—	—	—	—	2	BLK/WHT	—	—
5V Sense	—	—	—	—	—	—	—	—	—	—	11	GRN	—	—

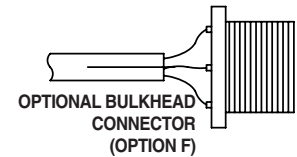
5 & 8 Pin M12 Accessory Cables when Code 6 = H or J

Connector pin numbers and cable assembly wire color information is provided here for reference.

Encoder Function	Cable # 112859- 5 Pin Single Ended		Cable # 112860- 8 Pin Single Ended		Cable # 112860- 8Pin Differential	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	4	BLK	1	BRN	1	BRN
Sig. B	2	WHT	4	ORG	4	ORG
†Sig. Z	5	GRY	6	YEL	6	YEL
Power +V	1	BRN	2	RED	2	RED
Com	3	BLU	7	BLK	7	BLK
Sig. A	—	—	—	—	3	BRN/WHT
Sig. B	—	—	—	—	5	ORG/WHT
†Sig. Z	—	—	—	—	8	YEL/WHT

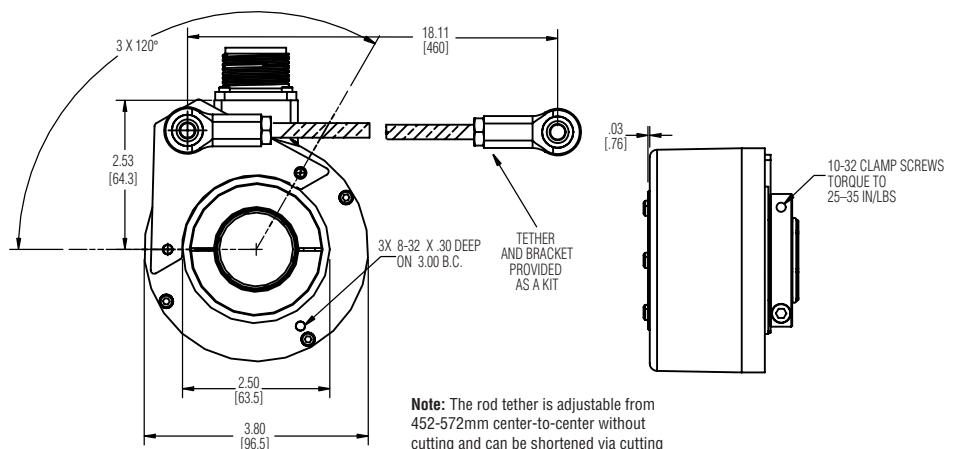
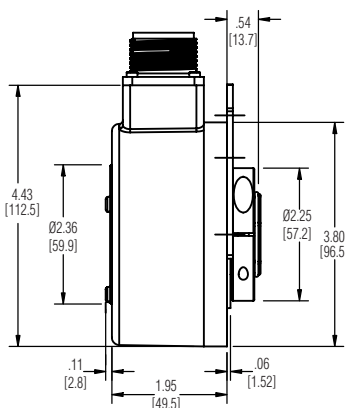
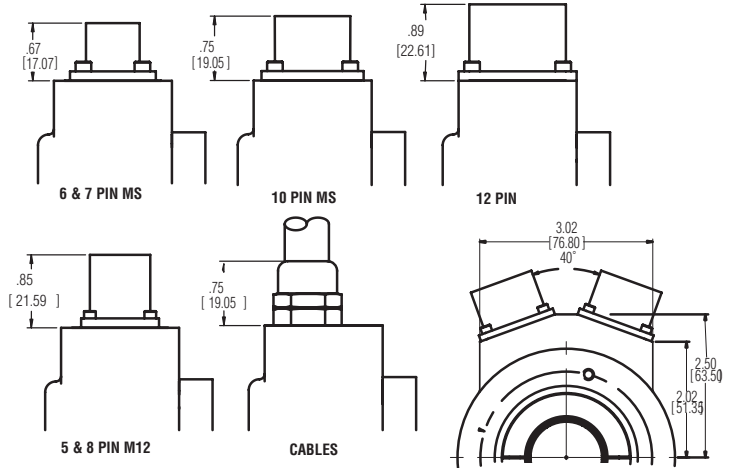
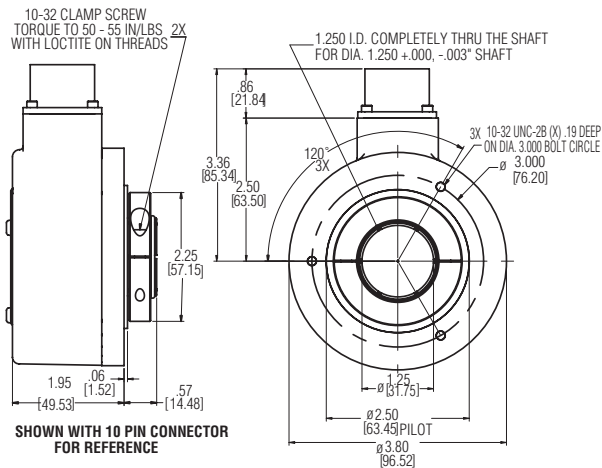
† Index not provided on all models. See ordering information

Cable Configuration: PVC jacket, 105 °C rated, overall foil shield; 24 AWG conductors, minimum

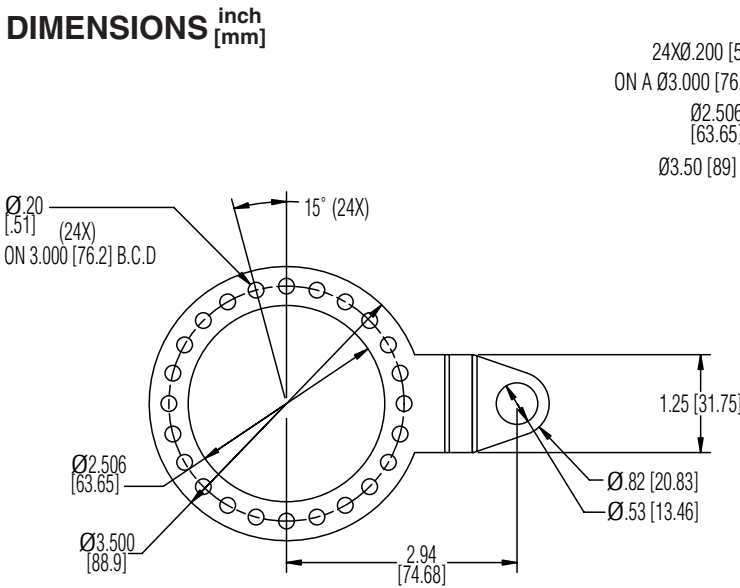


- * 1) Note: Standard cable length is 10 feet but may be ordered in any length in 5 foot increment. For example, -0020 is a 20 foot cable.
- 2) "MS" type mating connectors and prebuilt cables are rated NEMA 12. "M12" Cable assemblies are rated IP67
- 3) For watertight applications, use NEMA4 10 pin cable & connector 109209-XXXX.
- † Only with cable option A thru G.

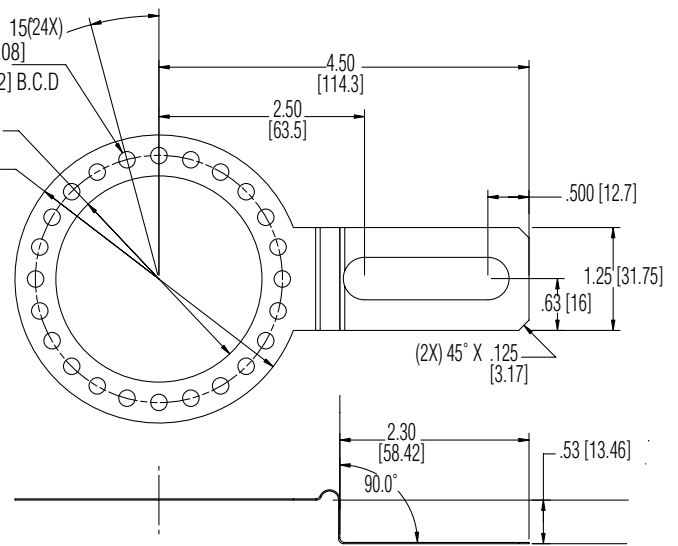
DIMENSIONS ^{inch} [mm]



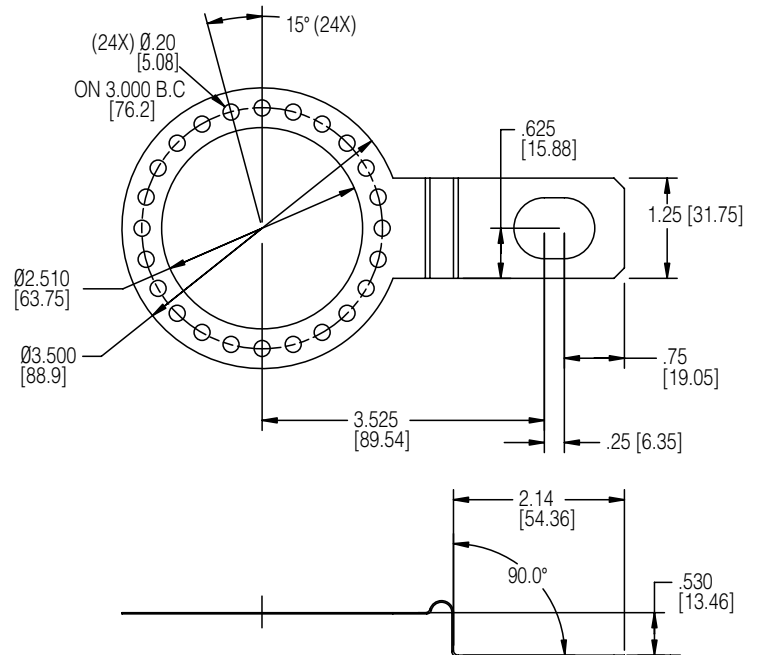
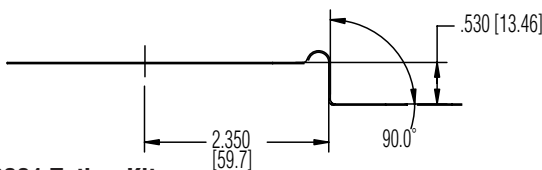
DIMENSIONS inch [mm]



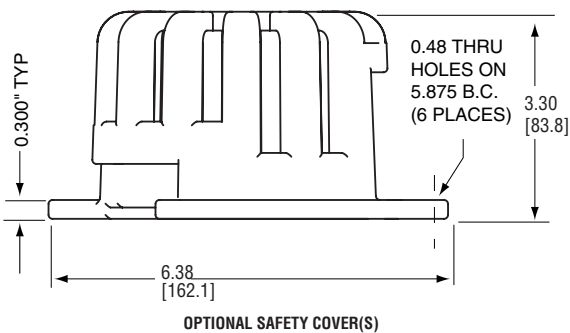
114573-0001 Tether Kit



114574-0001 Slotted Tether Kit



114575-0001 Tether Kit



OPTIONAL SAFETY COVER(S)



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