



*Polar Bear, 8.36 m (27.43'), Chantier des Ilesaux, naval architect: Paolo Bua © Valerie Lanata*

# REFLEX FURLING

In a quickly-evolving environment, the Harken Reflex furling system is pushing free-flying sail furling forward. The patented Reflex system provides sailors confidence that their free-flying asymmetrical spinnakers, gennakers, and code sails will furl completely with speed and control. Pull the furling line and the compact drive unit reacts reflexively to rotate the torsion cable, immediately transferring torque to the head. The head swivel reacts instantly, spinning from top to bottom where perfect furls must start. Reflex furling requires much less luff tension to transfer torque than earlier technology, making it the perfect solution for today's budding cable-less code sail technology which requires about half the luff loads previously required. And whether the Reflex torsion cable is specified, or in applications where the head swivel and a tack plate are sewn directly to the sail, Reflex furling's quick release geometry allows crews to use multiple sails with the same bottom unit.



## Three sizes:

- Unit 1 is rated at 1.5T MWL for boats to 11 m (36').
- Unit 2 is rated at 2.5T MWL for boats up to 14 m (45').
- Unit 3 is rated at 4.5T MWL for boats up to 17.4 m (58').



Unit 1: 7351.10  
 Unit 2: 7352.10  
 Unit 3: 7353.10

### Complete even roll-up, tight wrap

- Low-friction ball bearing tack swivel allows the upper part of the sail to furl first.

### Strong, lightweight

- Large diameter hardcoat-anodized 6061-T6 aluminum drive sheave.
- Torlon® ball bearings reduce friction, simplify maintenance.

### Holds line securely

- Flexible polycarbonate alloy cowling allows rope to be easily fed into drive sheave without tools; keeps rope captive.
- Offset holes in drive sheave grip rope securely when furling.
- Stripper and feeder work together to prevent furling line from jamming.



Torlon is a registered trademark of Solvay Advanced Polymers L.L.C.



Introducing  
Reflex Furling

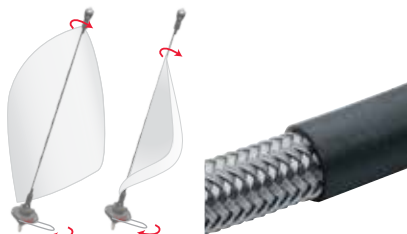


Reflex Furling  
Techniques



### Code Zero sails

- The quick-release T-fitting allows the bottom unit to handle both code zero and asymmetric sails.
- The fixed tack terminal option is used when the torsion cable is inside the luff. A 2:1 soft attach is recommended for increased purchase and luff tension.



### Immediate, smooth, controlled furling

- Reflex cable is more torsionally resistant to corkscrewing than the current breed of textile cable.
- All Reflex furlers use braided stainless steel wire filaments over braided textile core to transmit torque to the head swivel for faster furling. Unit 3 furlers use a Dyneema® core, which twists less and handles increased halyard loads without stretching, making them well suited for code zero applications by eliminating need for additional luff cable.
- Smooth polymer cable jacket protects sails against abrasion.



### Easily change furled spinnakers

- Quick-release modular T-fitting allows single drive unit to handle multiple sails.
- Each sail has its own torsion cable. Head and tack swivels are permanently fitted to each sail.
- Rolled sail easily disconnects with the pull of one spring-loaded pin; new furled sail slides and locks into T-slot.



Padded  
cover

### Lightweight, low-profile head swivel

- Integral thimble/terminal for torsion cable saves weight; no fork, eye, or pin connections.
- Compact design reduces weight aloft, maximizes luff length.
- Padded cover prevents damage to spars.



### Reflex for retrofit

- Both head and tack swivels are available with fork and pin interfaces to allow sails with existing torsion cables finished with eyes to be easily adapted to Reflex furling. Contact Harken for details.



### Reflex for cable-less Code sails

- Reflex head swivels and tack plates with integral T-fittings can be sewn directly to today's cable-less sails. The compact solution allows for longer luff lengths. Plus the same drive unit can service the whole inventory. Contact Harken for details.

# Ordering Asymmetric Reflex Furling

Use for asymmetric free-flying spinnakers, cruising spinnakers, and gennakers that have a loose positive luff that is longer than the leech.

## Boat Requirements

1. Spinnaker halyard
2. Attachment bail or adjustable tack fitting on a bowsprit or bow extension that allows the furler to clear the forestay and bow pulpit.

## 1. Determine System Size

Refer to "Typical Boat Length" and "Maximum Sail Area" on unit pages to select the correct size. Note: if you plan to use the system for code zero sails, the loads will be higher so the maximum boat length and sail area are smaller.

## 2. System Components

The Reflex furling system for asymmetric spinnakers includes all components necessary for one asymmetric spinnaker: one drive unit with snap shackle attachment, tack swivel, head swivel, torsion cable, set of cable clamps.

For each additional sail, order these components separately so you can easily switch furled sails using the quick-release T-slot: one tack swivel, head swivel, Reflex torsion cable, and set of cable clamps.

## 3. Determine Reflex Torsion Cable Length

Each system includes a length of torsion cable. To purchase the correct system including the right length of cable, determine your Full Hoist Dimension (FH). To do so, measure the distance between the sail attachment points at the top of the rig and the bow fitting or fully-extended bowsprit. Make sure the kit you select includes more cable than your FH measurement.

## 4. Attachment to Boat

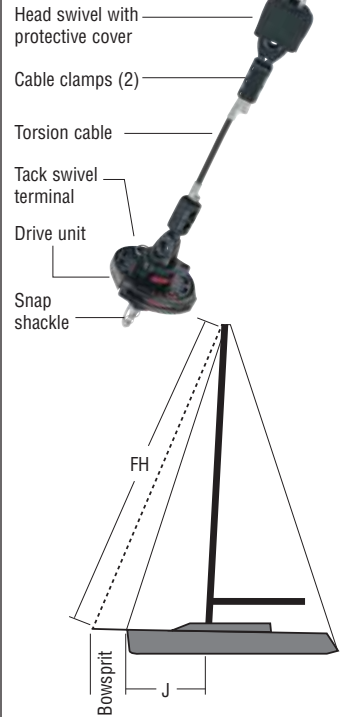
The standard Reflex furling system for asymmetric spinnakers includes a threaded snap shackle adapter. To change to D shackle or soft-attach 2:1 adjuster see chart at right.

## 5. Ordering Furling Line

The Reflex furling system requires continuous furling line. Talk to your rigger about furling line construction using a structural cover over a nonstructural core. Note: have the rigger capture the aft block in the loop before splicing. The furling line loop can load into stanchion leads and drive unit after it is spliced.

Refer to chart below for line size and length. Double the loop length and add enough length for the overlap in the end-for-end splice.

### Standard kit includes

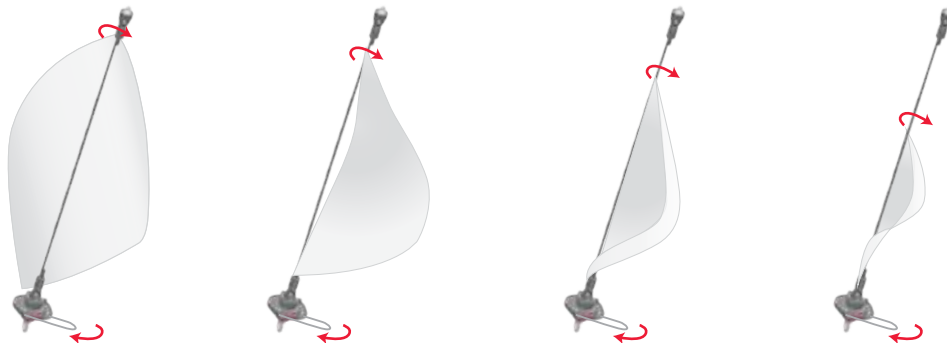


### Alternative Attachments to Boat

Unit	High-resistance D shackle	Soft-attach 2:1 adapter
1	7351.21	7351.22
2	7352.21	7352.22
3	7353.21	7353.55

### Furling Line

Unit	Line Ø		Length of loop (cruisers)	Length of loop (racers)
	in	mm		
1	1/4	6	Measure from furler to aft lead block in cockpit	Use J dimension plus length of bowsprit minus 60 cm (2')
2	5/16	8		
3	3/8	10		



# Reflex Furling System Unit 1

For Asymmetric Spinnakers

Typical Boat Length 7.5 - 11 m (25' - 36')

Maximum Sail Area 112 m<sup>2</sup> (1200 ft<sup>2</sup>)

Part No.	Description
7351.10.16M	Furling system with 16.15 m (53') cable*
7351.10.18M	Furling system with 18.29 m (60') cable*
7351.10.20M	Furling system with 20.12 m (66') cable*

## Optional Parts

7351.21	D-shackle threaded adapter
7351.22	2:1/soft attachment threaded adapter
7351.26	Reflex tack swivel terminal for extra sails
7351.28	Head swivel for extra sails
7371.SPOOL	Reflex torsion cable (spool) 8 mm x 305 m (5/16" x 1000')
7371	Reflex torsion cable (ordered by the foot) for extra sails
7357	Cable clamp (set of 2) for extra sails
7356	Lead block kit**
7355	Outboard fairlead

\*Includes: drive unit, head swivel, Reflex tack swivel terminal, snap shackle threaded adapter, Reflex torsion cable, and clamps. \*\*Fairlead kit includes 2 fairleads, fairlead with cleat, and aft block.

# Reflex Furling System Unit 2

For Asymmetric Spinnakers

Typical Boat Length 10 - 14 m (34' - 45')

Maximum Sail Area 168 m<sup>2</sup> (1800 ft<sup>2</sup>)

Part No.	Description
7352.10.20M	Furling system with 20.12 m (66') cable*
7352.10.23M	Furling system with 22.87 m (75') cable*
7352.10.25M	Furling system with 25 m (82') cable*

## Optional Parts

7352.21	D-shackle threaded adapter
7352.22	2:1/soft attachment threaded adapter
7352.26	Reflex tack swivel terminal for extra sails
7352.28	Head swivel for extra sails
7372.SPOOL	Reflex torsion cable (spool) 10 mm x 305 m (3/8" x 1000')
7372	Reflex torsion cable (ordered by the foot) for extra sails
7358	Cable clamp (set of 2) for extra sails
7356	Lead block kit**
7355	Outboard fairlead

\*Includes: drive unit, head swivel, Reflex tack swivel terminal, snap shackle threaded adapter, Reflex torsion cable, and clamps. \*\*Fairlead kit includes 2 fairleads, fairlead with cleat, and aft block.



7351.10  
7352.10

## Optional Parts



7351.28  
7352.28



7351.26  
7352.26



7351.21  
7352.21



7351.22  
7352.22

7357  
7358



7371  
7372

7371.SPOOL  
7372.SPOOL



7355



7356

