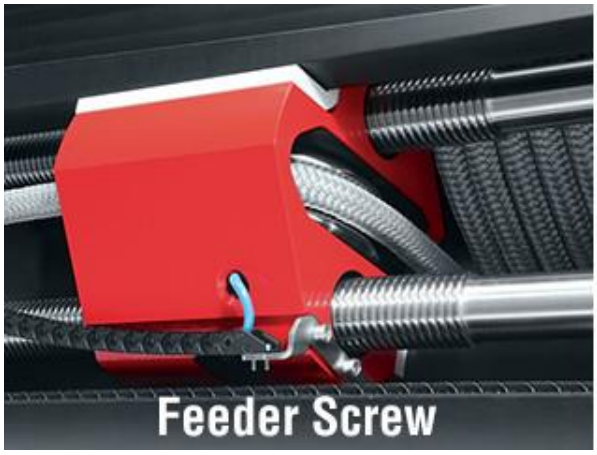
Hydraulic & Electric Captive Reel Winches Q&A

Hydraulic Captive Reel Winches

How does the line feed onto the drum?

The line is fed onto the drum with feeder screws that move a 90-degree sheave. Two gears distribute the load more evenly to the sheave. The feeder screws and nuts, plus feeder skate are made of a self-lubricating material.

Winches can be left or right handed based on mounting location aboard the boat.



What happens if the line needs to be switched to a different diameter?

Two sets of gears driving the line feeder need to be changed. Gears are designed to be easily replaced.

How does the line attach to the drum?

The tail of the line is fastened to an eyestrap on the drum. The drum is knurled for the first 60 mm. This increases the holding power of three initial line wraps (required) and reduces the amount of line needed.

Is the interface between the hydraulic manifold and the captive winch assembly easy to set up and fine-tune?

Manifolds are offered with each winch. The manifold is designed with test ports and

features that allow easy adjustment. The counterbalance valves in the winch manifold can be set using a test gauge without disconnecting hydraulic lines. No more plugging lines and swapping hoses, with the associated oil loss and cleanup.

What types of motors do you offer?
Captives are driven by industrial-sealed hydraulic motors. Winches 6T and up are offered with variable-speed motors; 1.5T and 3T with fixed-displacement motors.

What is the purpose of the optional load pin?
The load pin connects through the PLC (programmable logic controller) to read the load on the line. The motor's shift point can be present to automatically ease the line.

What happens if the winch is engaged when the feeder reaches its stroke limit?
The limiter switch senses the feeder as it passes the factory-set stroke limit and shuts down the system, preventing damage to the winch.

What if the limiter switch fails?
A backup mechanical plunger-type switch bypasses the PLC and engages the brake. The brake can be manually over-ridden at the captive manifold.

What happens if the line overrides on the drum?
There is a line override optical sensor that automatically shuts the system down. If the line overrides the clearance between the feeder gear and the drum, there is enough space to work the override out without damaging the line. The PLC needs to be programmed to read the signal.

Why is one end of the drum open-ended?
The open-ended drum design reduces weight and allows the drum to be easily removed.

Line Tensioners

Are there any other parts required?

Yes. Your captive requires a Line Tensioner and a specifically designed manifold to control the winch. You need to know how the line will enter the winch drum so you can order the appropriate tensioner. The manifold comes with the winch.

How does the line tensioner work?

The tensioner is controlled independently of the captive by a manifold that can mount on the winch or in a remote location. The speed and pulling load is programmed through the boat's PLC. To ease under conditions where there is no load on the line, the tensioner can be programmed to engage slightly before the captive.

How does the tensioner keep tension on the line while rolling it in?

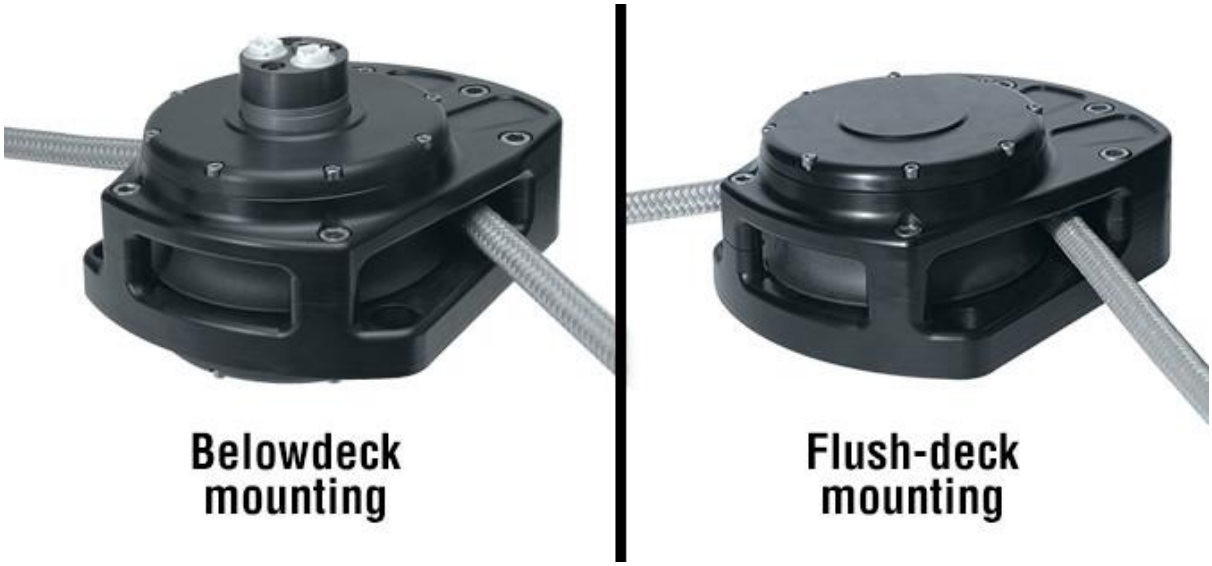
The tensioner motor rotates in reverse to provide a small amount of drag which can be adjusted on the manifold.

What happens if the line diameter needs to be changed?

The line rolls under three small independent sheaves, each with an individual tensioning screw. The tensioner can be fine-tuned to grip the line perfectly.

What if the lead of the line requires a footblock on the deck?

In most cases, you will not need an additional footblock because the tensioner can be mounted as a footblock. The motor mounts on the underside of the deck so it will not be seen. The top of the tensioner is enclosed with a cover plate.



Electric Captive Reel Winches

I have a 13.7 m (45 ft) cruiser and sail mostly with my family. The idea of an electric push-button captive winch to raise and lower halyards and trim my sails remotely is very appealing.

We developed Harken Electric Captive Reel Winches specifically for yachts in the 13.7 - 18 m (45 - 60 ft) size range. The compact unit fits neatly belowdeck and has plenty of power to handle the tasks you've mentioned. Plus, its belowdeck installation unclutters your boat's topsides for safer sailing.

What sizes do you offer?

Our Electric Captive Winches come with 1.5 or 3-tons of pull and with standard 12-volt or 24-volt power. 12V and 24V have maximum line speeds of 12 and 13 meters per minute respectively.

Are the controls complicated? I'm all for simplicity.

The controls are straightforward. The winch has a single gear and you'll use simple on/off switches to trim/ease your sail and raise/lower halyards.

What safeguards are in place to stop overtravel or detect slack line?

A mechanical switch prevents overtravel by limiting the stroke of the feeder. Overrides

are prevented by a mechanical slack-line system that stops the drum from turning when there's no load on the line.

Maintenance

How easy is it to remove hydraulic or electric Captive Reel Winches if they need service?
Very easy. The mounting bolts are located in an "easy access" area of the captive's footprint. Unlike other winches, you don't have to remove additional winch parts before unbolting. All parts connected to hydraulic or electrical circuitry as well as the screw bearings and gear transmission are located on the same side for easy inspection. Bearings are self-lubricated. The main gearbox is sealed and lubricated with oil.

Are there drawings available for each Captive Reel Winch?
Yes. Contact Harken Technical Service and they can provide an outline drawing with a footprint of the winch.