

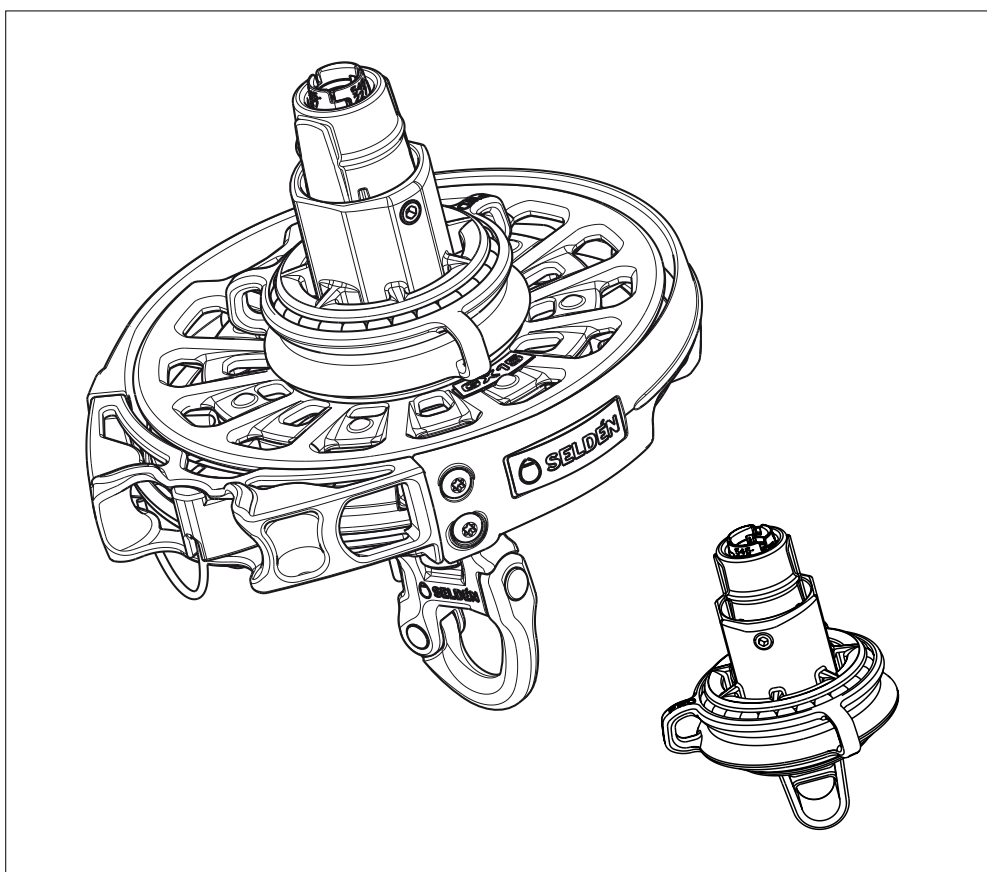
Manual for installation and operation for

GX7.5, GX10, GX15 & GX25

**Seldén Furling system for Gennakers/Asymmetric spinnakers
and**

Seldén GX Tack adapter compatible with CX furler

***GX7.5/CX10, GX10/CX15,
GX15/CX25 & GX25/CX45***



1. Product information

The SELDÉN GX-systems are made for gennaker sails which do not have an anti-torsion cable sewn into the luff of the sail.

The SELDÉN GX-systems works on the principle of “Top Down Furling”. The head of the sail is attached to the halyard swivel and the tack is attached to the freely rotating tack ring on the lower swivel while the luff of the sail is free flying. The rigid anti-torsion cable connects the halyard swivel and the lower swivel. When turning the drum the anti-torsion cable makes the halyard swivel and the top of the sail furl first, while the tack is independent on the tack ring. This makes for a tightly furled sail from top to bottom.

The SELDÉN GX-systems are manufactured from glass filled polyamide and stainless steel. The line driver has 14 aluminium teeth inserted in the drum. The design ensures a good grip on the endless line, yet allows the line to be easily disengaged when unfurling.

The SELDÉN GX-systems has sealed and maintenance-free bearings. Just rinse the system with fresh water, let it dry and store in the boat, preferably together with the sail.

Seldén GX basic models

System	Art. no. Basic kit	Drum size, Ø mm	Safe working load, kN	Max suggested sail area
GX7.5	545-018-10	105	7.5	50 m ²
GX10	545-118-10	120	10	80 m ²
GX15	545-218-10	150	15	115 m ²
GX25	545-418-10	190	25	200 m ²

Seldén GX adapter intended for Seldén CX lower swivel

System	Art. no. Basic kit incl. halyard swivel	Safe working load, kN	Max suggested sail area	Compatible CX-system
GX7.5 adapter	545-028-10	7.5	50 m ²	CX10
GX10 adapter	545-128-10	10	80 m ²	CX15
GX15 adapter	545-228-10	15	115 m ²	CX25
GX25 adapter	545-428-10	25	200 m ²	CX40/CX45

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2. Dimensions - GX Basic system

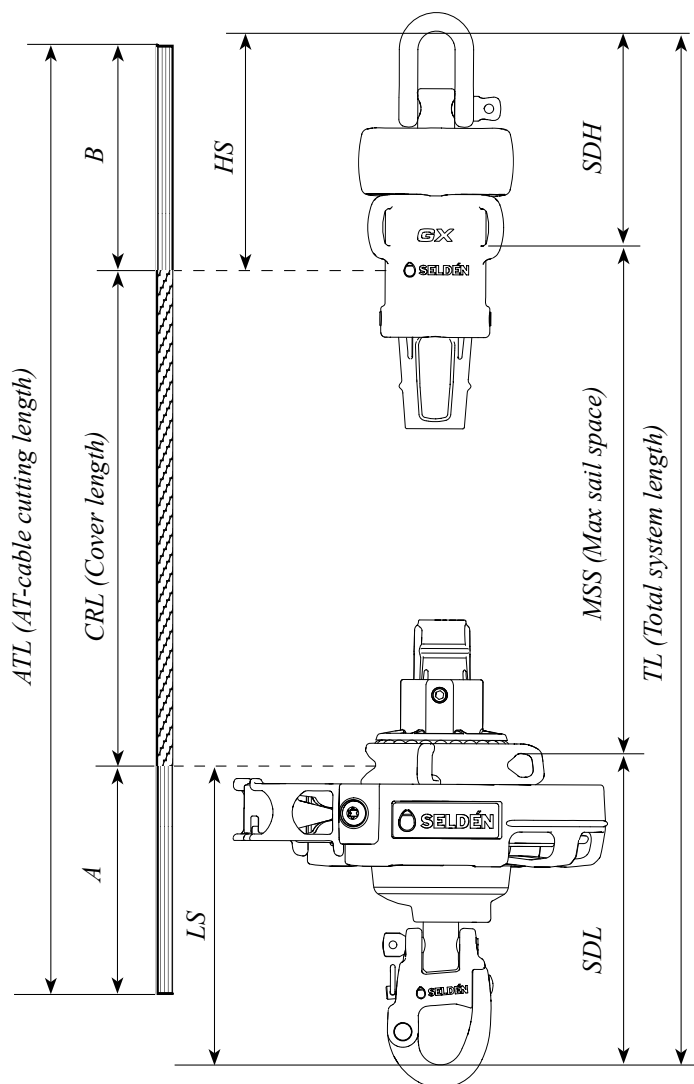


Fig. 2a

2.1 Deductions for Seldén GX

Input values for the calculation of ATL (AT-cable length) and MSS (max. sail space) (See table 2.3)							AT-cable dimension, Ø mm
System	SDL mm	SDH mm	LS mm	HS mm	A mm	B mm	
GX7.5	100	70	100	70	120	120	8
GX10	105	70	110	70	120	120	11
GX15	115	80	120	75	120	120	13
GX25	155	100	155	95	150	150	15

2.2 Calculation of AT-Cable length

Initial data in the following calculation table below is based on current nominal values for elongation of the Seldén AT-cable. For other brands, please refer to the manufacturers information.

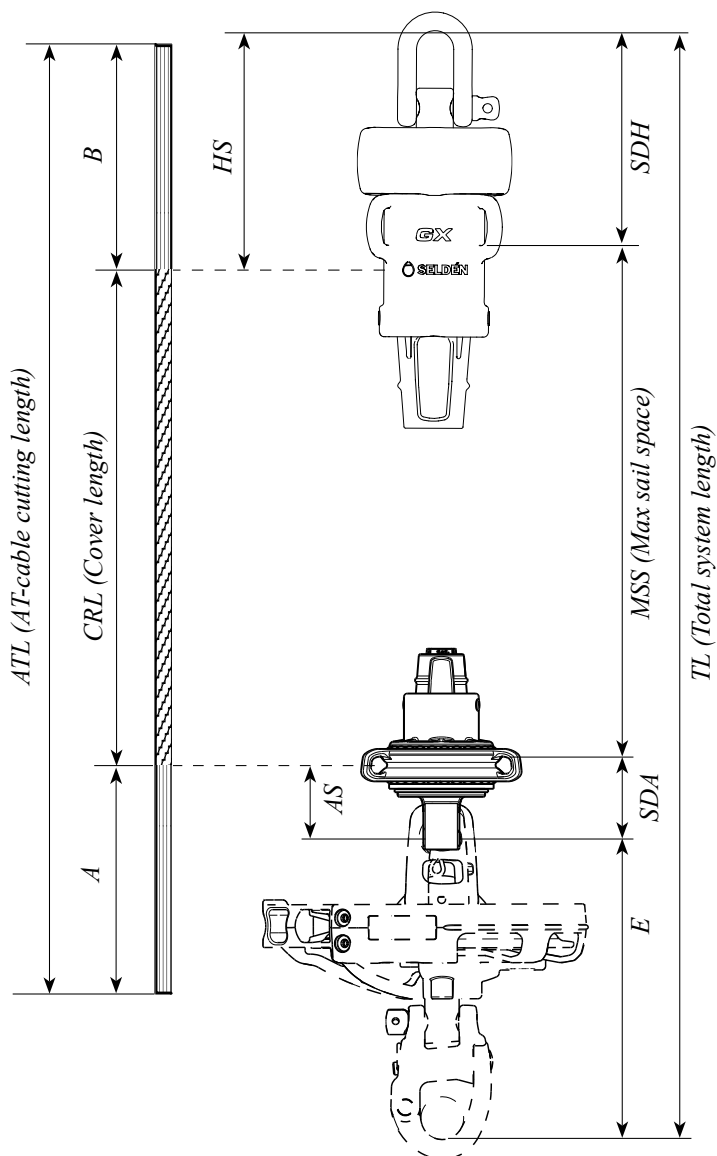
Standard deduction SD is to create clearance between the halyard sheaves, blocks, lead etc., but also to give a certain tolerance during assembly of the AT-cable.

1. **Input dimension (ID):** Measure the length between the halyard shackle and the attachment in the deck/bowsprit. The halyard shackle should be hoisted all the way up to the block, sheave or halyard lead.
2. Insert the measurement **ID** in Table 2.3 below.

2.3 Calculation table for the AT-Cable length & Maximum Sail space

		AT-cable length	Max. sail space
ID	Total length between the halyard shackle and the attachment in the deck/bowsprit		
SD	Standard deduction (Recommended): GX7.5 & GX10 = 100 mm GX15 & GX25 = 150 mm	-	-
TS	Total system length	=	=
HS	Deduction for halyard swivel	-	
LS	Deduction for lower swivel	-	
	Deductions for tack adjustment if such a system is used	-	-
	Any other deductions	-	-
ATS	Max. space for the AT-cable.	=	
%	Deduction (1%) for the elongation of the Seldén AT-cable = $ATS \times 0,01$	-	-
SDH	Deduction for Halyard swivel according to table 2.1		-
SDL	Deduction for Lower swivel according to table 2.1		-
CRL	Cover length of the AT-cable (Note!! This is NOT the cutting length!)	=	
B	Addition for Line-lock terminal (halyard swivel)	+	
A	Addition for Line-lock terminal (lower swivel)	+	
ATL	AT-cable total length (cutting length)	=	
MSS	Max. Sail space (including space for lashing)		=

3 Dimensions GX Tack adapter



3.1 Deduction for GX Tack adapter in combination with lower swivel

System	AS Adapter deduction	E CX lower swivel deduction	SDA Sail deduction adapter	Adapter Art. No.
GX7.5 adapter - CX10	30	115	35	545-028-01
GX10 adapter - CX15	30	125	35	545-128-01
GX15 adapter - CX25	40	155	40	545-228-01
GX25 adapter - CX45 ¹⁾	45	190	50	545-428-01

1) Same values for CX40 as for CX45.

3.2 Calculation of AT-Cable length

Initial data in the following calculation table below is based on current nominal values for elongation of the Seldén AT-cable. For other brands, please refer to the manufacturers information.

Standard deduction SD is to create clearance between the halyard sheaves, blocks, lead etc., but also to give a certain tolerance during assembly of the AT-cable.

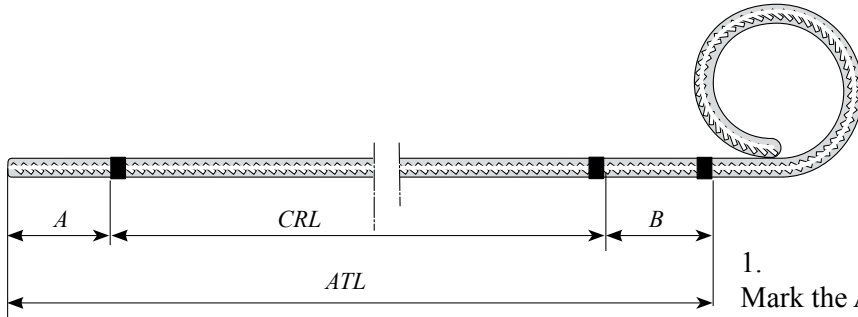
1. **Input dimension (ID):** Measure the length between the halyard shackle and the attachment in the deck/bowsprit. The halyard shackle should be hoisted all the way up to the block, sheave or halyard lead.
2. Insert the measurement **ID** in Table 3.3 below.

3.3 Calculation table for the AT-Cable length & Maximum Sail space

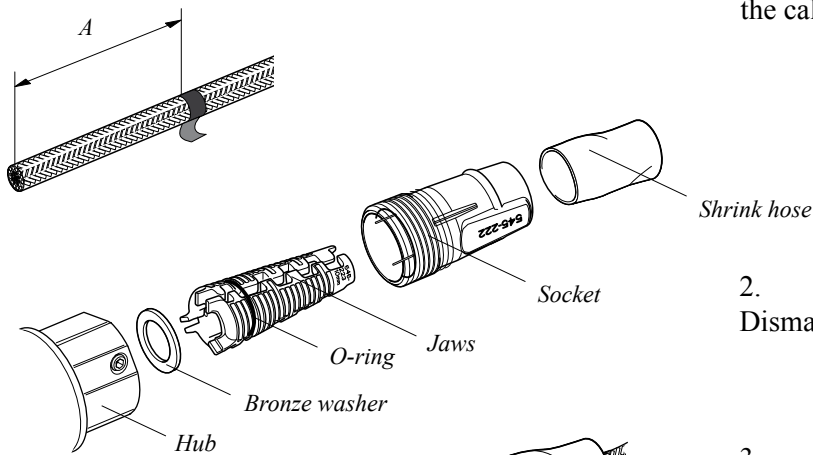
		AT-cable length	Max. sail space
ID	Total length between the halyard shackle and the attachment in the deck/bowsprit		
SD	Standard deduction (Recommended): GX7.5 & GX10 = 100 mm GX15 & GX25 = 150 mm	-	-
TS	Total system length	=	=
HS	Deduction for halyard swivel	-	
AS	Deduction for Adapter	-	
E	Deduction for CX lower swivel	-	
	Deductions for tack adjustment if such a system is used	-	-
	Any other deductions	-	-
ATS	Max. space for the AT-cable.	=	
%	Deduction (1%) for the elongation of the Seldén AT-cable = $ATS \times 0,01$	-	-
SDH	Deduction for Halyard swivel according to table 2.1		-
SDA	Deduction for Adapter according to table 3.1		-
E	Deduction for CX lower swivel according to table 3.1		-
CRL	Cover length of the AT-cable (Note! This is NOT the cutting length)	=	
B	Addition for Line-lock terminal (halyard swivel)	+	
A	Addition for Line-lock terminal (lower swivel)	+	
ATL	AT-cable total length (cutting length)	=	
MSS	Max. Sail space (including space for lashing)		=

4. Assembly of Line-Lock terminals

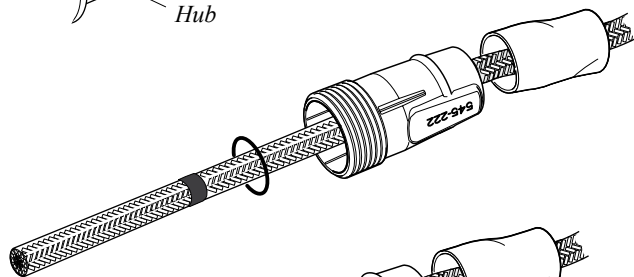
Both the halyard swivel and the lower swivel have line-lock terminals. We recommend assembling them one at a time. Don't cut the anti-torsion cable (AT-cable) until the first terminal assembly is finished. The line lock terminal is designed for AT-cables supplied from Seldén.



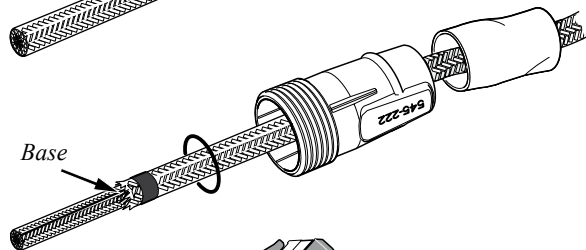
1. Mark the AT-cable with a thin tape in three places according to the dimensions calculated in the calculation table 2.3.



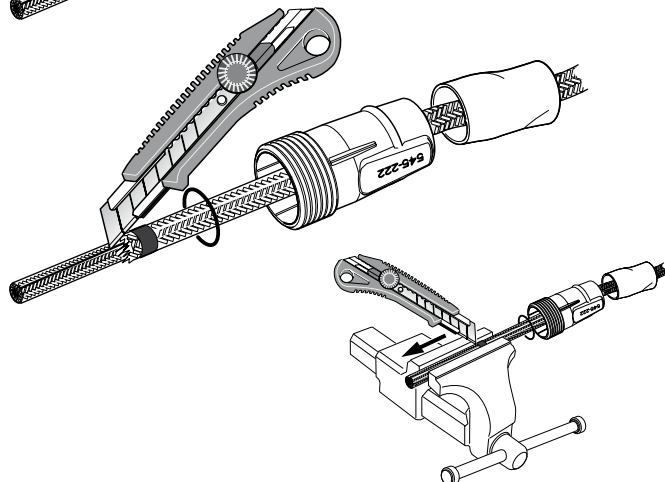
2. Dismantle the line-lock terminal.



3. Remove the o-ring from the Jaws. Feed the heat shrink hose, socket and the o-ring onto the AT-cable.

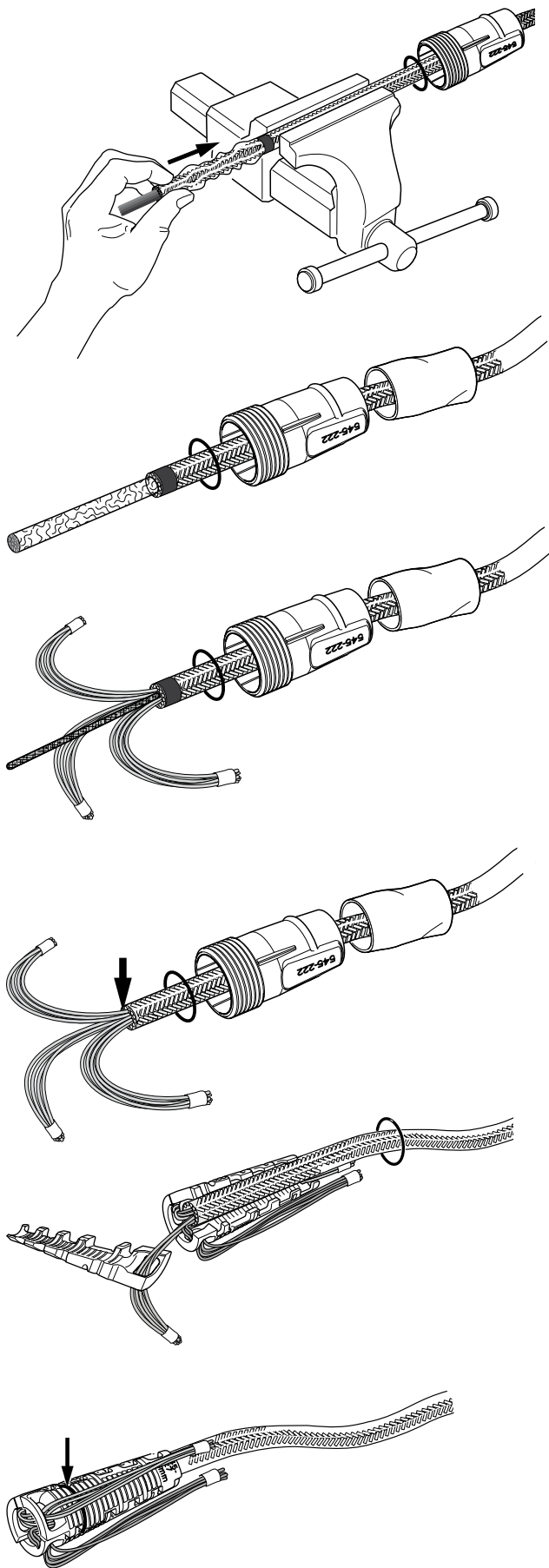


4. Remove the outer cover. Cut with a scissor at the base. Leave the tape in place.



5. Cut the inner cover carefully along the cable, using a utility knife. Avoid cutting into the underlying core. However, small damage is acceptable as the core at this place is stronger than necessary.

Cutting will be easier if the AT-cable is tightened in a vise. Let the clamping jaw guide the knife blade.



6.
Push the inner core against the AT-cable to loosen the tightly packed strands.

7.
Peel off the inner cover from the core. Cut with a scissor at the base.

8.
Divide the core strands evenly into 3 equal groups. Put a tape onto the 3 ends securing the strands.

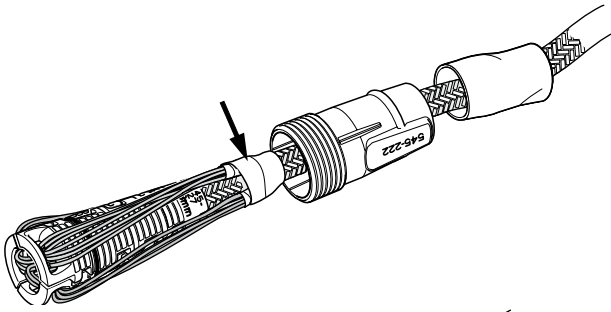
9.
Cut the centre composite rod at the tape level. Remove the tape at the base.

10.
Feed each core into the hole at the bottom of a jaw. Place the jaws OVER the outer cover at the AT-cable.

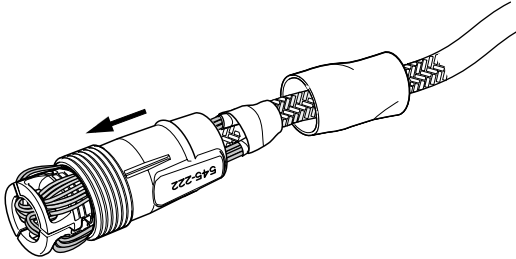
11.
Distribute the jaws evenly onto the AT-cable and lock them in position with the o-ring. The end of the cover on the AT-cable should be hardly visible. The o-ring should be mounted into the groove close to the bottom of the jaws.



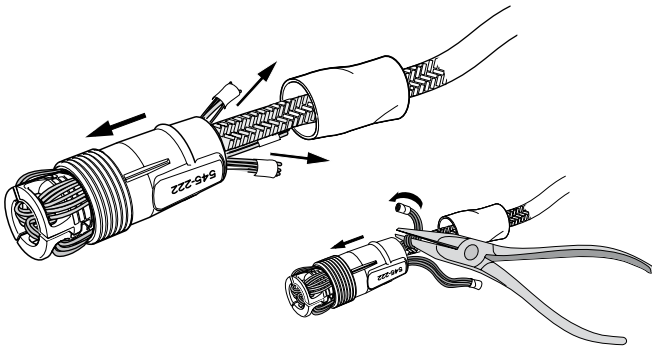
It is extremely important that the jaws are placed according to the instructions so that they will squeeze the outer cover of the AT-cable when the terminal is screwed together.



12.
Pull the three core strands equally and secure them in the shown position with tape.

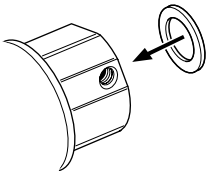


13.
Push down the socket onto the jaw/strands.

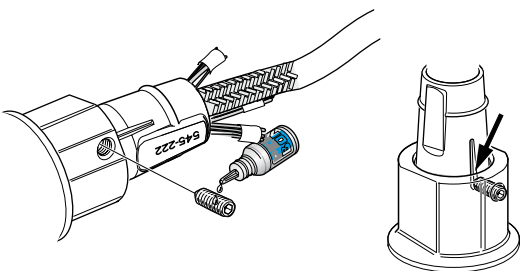


14.
Remove the last tape, fitted during step 12, and pull the three strand groups evenly while the socket is pressed down over the jaw/strands as hard as possible.

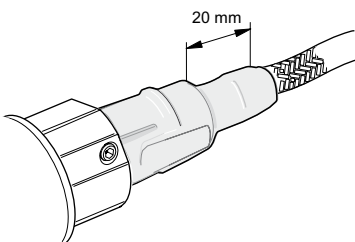
A flat nose pliers can be used to stretch the strands. Tap the jaws into the socket with a hammer.



15.
Place the bronze washer in the bottom of the hub.



16.
Fit the assembly to the swivel socket. Tighten the rope-lock terminal hard. Release until the groove in the socket aligns with the grub screws. Apply locking adhesive and tighten the grub screw.



17.
Cut the residual core strands.

Move the heat shrink hose over the socket and shrink it with a heat gun. Be careful not to melt the AT-cable cover. High quality tape or vulcanizing tape can also be used.

5. Fitting the endless line

Assembly

1. Pull on the red lanyard and remove the wedge-shaped divider. Rotate the system so that notches in the stainless steel line guard and the linedriver are aligned (fig 1).
2. Feed the endless line through the line guide and up through the central notch (fig 2).
3. Holding one side of the endless line in the linedriver notch, rotate it with the linedriver for a complete circle. Check that the line remains in the linedriver notch throughout the operation. It is normal for the line to be compressed slightly during this process.
4. Remove any twists or kinks in the endless line, then refit the divider wedge.

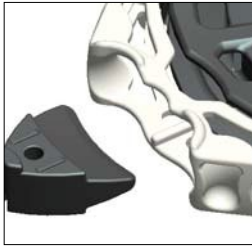


Fig. 1



Fig. 2



Fig. 3

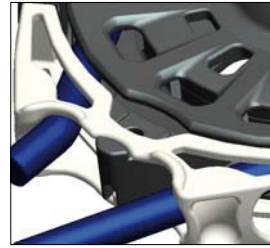


Fig. 4

Removing the endless line

The method is a reverse of the fitting sequence.

General

The recommended endless line is made from 16/16 braid/braid polyester. See table below. Seldén can provide pre-spliced endless lines in a variety of lengths. For normal operation, the endless line is led aft to the cockpit. Alternatively, a short endless line can be operated on the foredeck.

A longer endless line will operate more effectively, as the residual friction in the line being pulled forward will assist full engagement in the linedriver.

System	Endless line, dimension (mm)
GX7.5	Ø8
GX10	Ø8
GX15	Ø10
GX25	Ø12

6. Line Guide

To allow minimal deflection of the endless line as it enters the line driver, the line guide can be adjusted through 360° in 4x90° steps. To adjust the angle, loosen the set screw (B) a few turns and rotate the line guide assembly to the desired position.

Apply locking adhesive to set screw. Make sure the set screw aligns with the hole (C) in the shaft and tighten it until it bottoms-out in the hole. Do not over-tighten!



To facilitate the alignment adjustments, the lower unit is supplied without locking adhesive on the set screw. Apply locking adhesive to the set screw as described above even if adjustment is not necessary.



Fig. 5

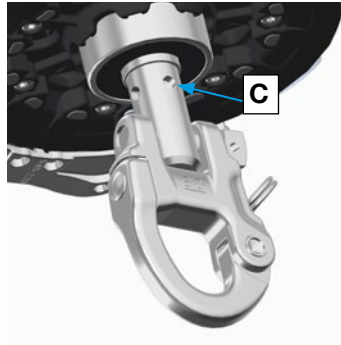


Fig. 6

7. Operation

Attaching the sail

Attach the head to the halyard swivel. Don't tighten the rope too hard. The sail must be free to turn 180°, when furling.

Connect a tackline to the tack ring of the lower swivel. The tackline should be able to adjust to achieve the correct luff shape for furling.

Unfurling the sail

Hoist the system and tension it with a winch. It's important that the anti-torsion cable is not too loose during furling.

The typical deployment sequence is to slacken the endless line completely, then pull on the sheet. The system will rotate freely with minimal friction and the sail fully unfurls. If the system starts to unfurl at speed, do not attempt to use the endless line as a brake.

Furling the sail

Make sure the anti-torsion cable is tensioned during furling. If the anti-torsion cable is too loose it will create a corkscrew shape which impairs the furling performance.

When furling the sail, the forward loop must stay in contact with the linedriver teeth during the whole furling operation. Lock both ends of the endless line, to prevent accidental unfurling. For this purpose, use Seldén's Tandem block, PBB50 Fiddle twin-cam 405-001-40R.

To keep the AT-cable in good condition, always furl the system in the same direction.

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