

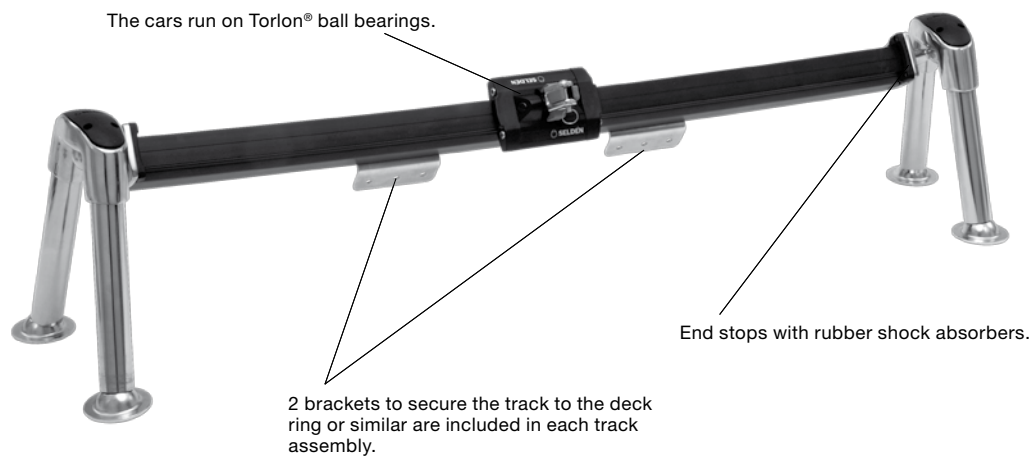
# Manual

## Self tacking system 30



## Self tacking system 30, 443-200-10

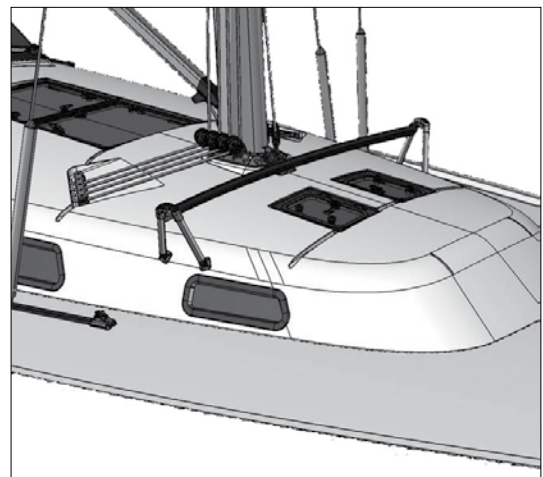
A self-tacking jib makes life on board a lot easier, in particular for shorthanded crews. The jib sheet is led to a car which moves to leeward during the tack with no need to touch the sheet. Tacking is as simple as steering the boat through the wind.



Ball-joint for adjustment of the track angle and console angle.



Stainless steel AISI 316 side consoles.  
Can be shortened if needed.



This retro-fit installation is designed for boats ranging from 30' to 45 feet'. A ball-joint allows for perfect alignment of the track and easy installation to the deck or coach side.

The curvatures of the tracks are optimized to give a smooth travelling of the car all the way along the track without adjusting the sheet load. And to give a good alignment of the sheet load to the car and track.

30 mm High Beam tracks with a standard radius and standard length can be ordered from stock. Customized tracks, single bent or double bent can be ordered by submitting necessary measurements in enquiry form 595-952-E, available at [www.seldenmast.com](http://www.seldenmast.com).

Track, car, consoles, deck fittings and blocks for the sheet arrangement makes a complete a system.

## Set up

There are two common ways to set up a self tacking system. The sheet can be lead **over the fore deck** or **up the mast**.

The routing of the sheets affects:

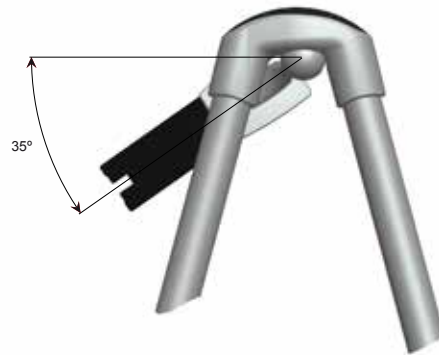
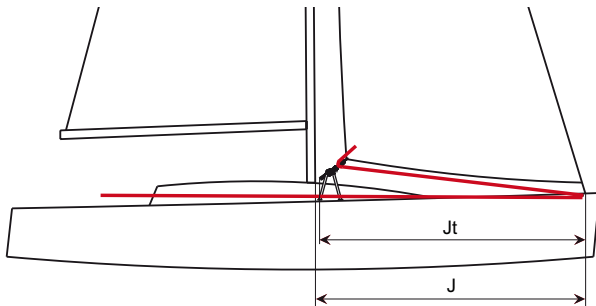
- The angle of the track.
- The radius of the track.
- The load on the car.

### Over the fore deck

This is the simplest and most common arrangement. The sheet is led from the clew of the sail, through a single block on the car, through a block at the bow and back to the cockpit.

The track to be angled  $35^\circ$  to the horizontal plane.

The load on the car and block is approximate  $1.75x$  the load in the sheet.



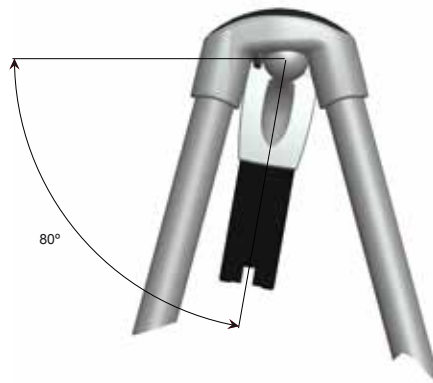
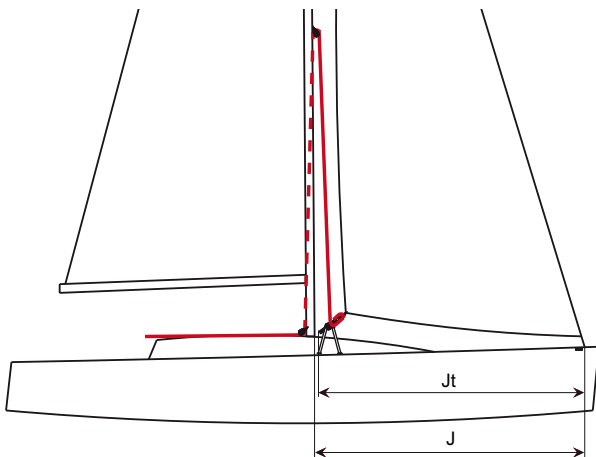
### Up the mast

The advantage of leading the sheet up through the mast and back to the cockpit is to keep the foredeck clean from lines. The sheet is led from the car, up the front of the mast and into the mast through a sheave box installed at a height of 50% of the fore triangle. The sheet exits the mast through a slot fitting and turns through a block at the foot of the mast and back to the cockpit. The deck light and the steaming light on the mast might need to be relocated. Sheet cranes are available for boats fitted with VPS (Vertical Pole Stowage) system.

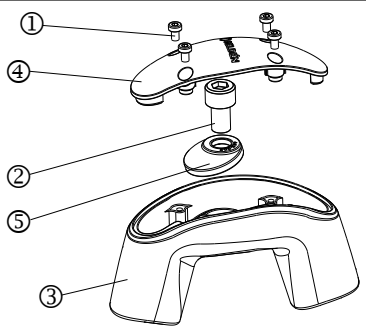
A 2:1 purchase on the sheet and consequently a single/becket block for the car is required, to avoid over loading the sheave box in the mast.

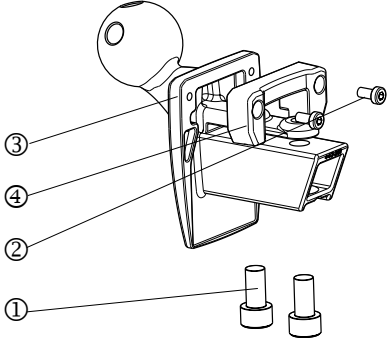
The track to be angled  $80^\circ$  to the horizontal plane.

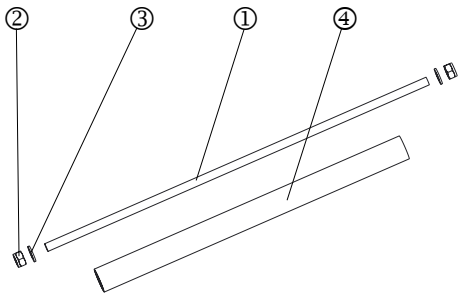
The load on car and block arrangement is approximate  $1.5x$  the load in the sheet.

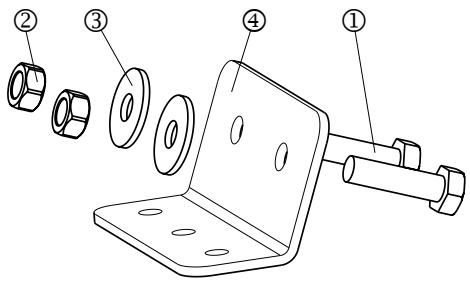


## Parts included in 443-200-10

Item	No.	Quantity per	Description	
1	153-132	8	SCREW MLC6S M4X6	
2	153-011	2	SCREW MC6S M10x16	
3	443-200	2	BRACKET, 134x69x47	
4	443-203	2	LID, 106x39	
5	443-202	2	WASHER, 32x10	

1	153-006	4	SCREW MC6S 8x16	
2	153-178	4	SCREW MLC6S 4x8	
3	443-201	2	END STOP, 113x93x54	
4	443-322	2	END CONTROL RUBBER 53x24x13	
-	312-305	1	LOCKING ADHESIVE 1ML	

1	151-069	4	THREADED BAR M10x500	
2	158-007	4	NYLOC NUT M10	
3	164-403	4	WASHER Ø20/10.5-2 (M10)	
4	443-204	4	LEG, Ø30x500	
-	312-305	1	LOCKING ADHESIVE 1ML	

1	151-043	4	SCREW M6S 8x30	
2	157-004	2	FULL NUT M8	
3	164-514	4	WASHER Ø24/8.4-2 A4-RBS	
4	443-209	2	CENTRE CONSOLE, 90x50x44	

## Foot options

Not included in kit 443-200-10, to be ordered separately.

Item	No.	Quantity per	Description	
<b>443-206-10</b>			<b>DECK FITTING KIT, SELF TACKING 30</b>	
1	165-203	4	CLEVIS PIN Ø10x28	
2	301-049	4	SPLIT PIN Ø2.9x16(19) UEL,"3.2	
3	443-206	4	DECK FITTING 68x26	
4	443-207	4	END FITTING LEG	

<b>443-208-10</b>			<b>FOOT KIT, SELF TACKING 30</b>	
1	158-007	4	NYLOC NUT	
2	164-525	4	WASHER Ø30/10.5-2.5 A4-RBS	
3	443-208	8	FOOT, Ø60x18 ST	

## Tracks

J-measurement, mm	Art. No.	Description	For sheet arrangement
3700 – 4700	443-011-41	Radius 4000 mm, Length 1800 mm	Over the fore deck
4700 – 6000	443-011-42	Radius 5000 mm, Length 2500 mm	
3400 – 4700	443-011-43	Radius 6500 mm, Length 1800 mm	Up the mast
4700 – 6000	443-011-44	Radius 8000 mm, Length 2500 mm	

For custom tracks, an enquiry form, 595-952-E, is available at [www.seldenmast.com](http://www.seldenmast.com).

## Cars

Righting moment of the boat at a 30° heel angle, kNm	Approximate displacement, ton	Art. No.	Description
<60	-10	443-139-01	Single car
>60 (>70)*	10-	443-139-02	Double car

\*When routing the sheet up the mast with a 2:1 purchase sheet system.

## Assembly

In short these are the steps to fit the systems.

- Set the angle of the track and location.
- Positioning of the centre fittings.
- Set the length of the track.
- Find the best location for the deck fittings.
- Check that the car runs on the track without conflict with the deck.
- Cut all parts into desired length.
- Assemble the complete system on the boat.

The first step of the assembly is to decide the sheeting angle of the jib (a). The sheeting angle will give the length of the track. Consult your sail maker for the sheeting angle they recommend. Normally an angle of 8-10° to works well (an angle under 7° is not recommended).

To calculate the length of the track you need the distance from the forestay to the track (Jt) and the sheeting angle (a). The length of the track for a given angle can be approximated as follows:

$$L = 2 \times Jt \times A + \text{width of car}$$

(A= factor sheet angle, see table)

Or calculate as  $L = 2 \times Jt \times \tan(a) + \text{width of car}$ .

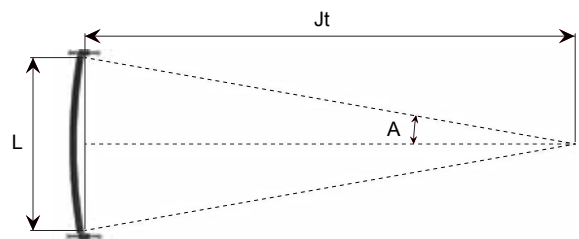
L =	xJt	xA	+W	
L = 2	x	x	+	=

Mark the center of the track. Measure (L/2) from the center mark to one side of the track, mark this distance and repeat procedure for the opposite side. Measure the distance between the end marks, this distance should be (L).

(Note: When measuring distance (L) on a bent track, make sure you measure in a straight line between the two end points).

Installing the track on the deck. Fit the center consoles on the track temporary. Use the M8 bolts and nuts included in the kit. Fit the bolt heads inside the track and tighten the nuts. (NOTE: at the final assembly the nuts are to be place inside the track and holes to be drill for the screws)

Sheet angle	A (tan(a))
7.0°	0.123
7.5°	0.132
8.0°	0.141
8.5°	0.150
9.0°	0.158
9.5°	0.167
10.0°	0.176
10.5°	0.185
11.0°	0.194



Part no	Width of car (w)	
443-139-01	117	Single car
443-139-02	237	Double car



Locate the track as close as possible to the deck, slide the center consoles inwards and outwards to find a suitable location for a permanent fix, allowing a 30°- 80° angle to the waterline. The angle of the center console itself can be adjusted. Place the center mark of the track at the centerline of the boat. Secure the location of the track/ console on the deck with tape/ clamps etc. Check so the end marks made on the track is in the correct position according to the sheeting angle you have chosen.

Assemble the end fittings and fit it on one end of the track. Make sure that the correct side of 443-200 is facing forward, see picture.



Assemble the car onto the track and make sure that it can move along the track without conflict with the deck or other fittings. Remove the car from the track when clearance is confirmed. (Note: Always keep the car on the track or on the short transport track in order not to lose ball bearings).

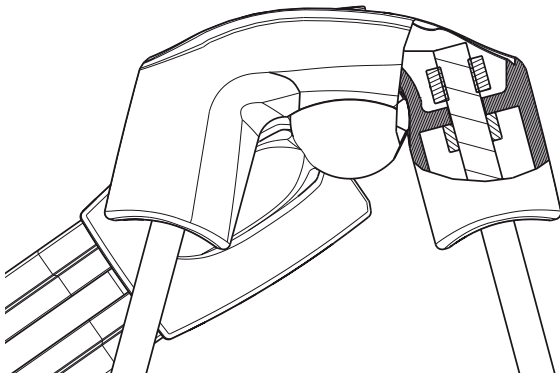


*Aft*

*Forward*

Put the threaded M10 bars into the bracket 443-200. Use the bars to find a good location for the deck fittings.

Lock the position of the bars and end fittings by tightening the screws.



Mark the position for the deck fitting or the hole for the threaded bar. The length of the track might have to be adjusted, to cope with the location of the deck fittings.

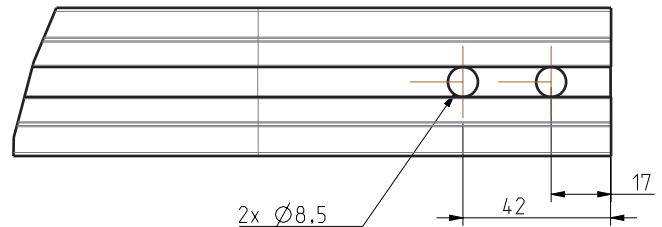


Fit the center consoles in the track, drill holes  $\text{Ø}8.5$  in the track, insert washers and nuts in the groove of the track.



Cut the track at the end marks. Make sure the cut is perpendicular to the radius of the track.

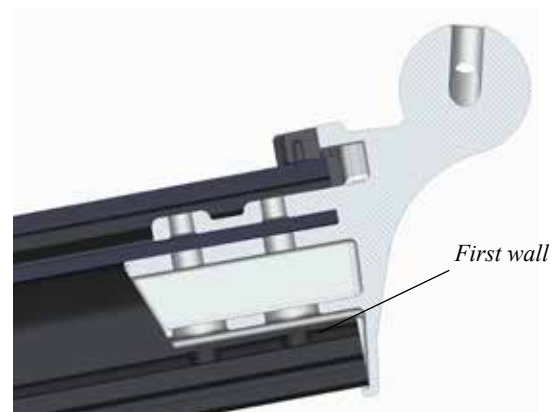
Push the 443-201 into the track. Make sure that there is no gap between the end fitting and the end of the track. Some grinding may be required on the ends of the track to achieve a perfect fit.



Drill two holes for the 443-201 fitting in both ends of the track. The holes are to be drilled in two steps.

**First step:**

Drill through the first wall only. One hole 17 mm from the edge of the track and the second hole 42 mm from the edge. (See picture).

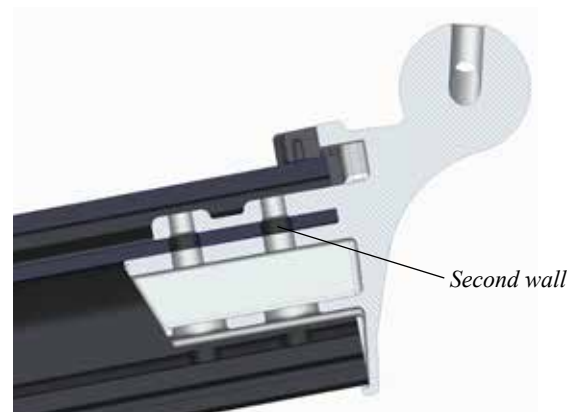


**Second step:**

Fit the 443-201 into the track, make sure that there are no gaps between the track and the 443-201.

Mark the center of hole on the second wall with a  $\text{Ø}8.5$  mm drill bit using the 443-201 as a template. The holes in the outer wall might have to be enlarged, to be able to drill the hole in the inner wall perpendicular to the surface. Remove the 443-201 from the track, and drill the hole through the inner wall of the track.

Use  $\text{Ø}8.5$  mm drill bit. Don't drill through the upper surface of the track!





Put the car onto the track and fit the 443-201 on the track. Use Locking adhesive on the screws.



Reassemble the system and place it on the deck once more.

Make sure the track is symmetrical and that the track is in the correct angle. Adjust the end fittings so the threaded bar/ deck fitting are symmetrically placed on deck

Mark the position of the threaded bars/ the deck fittings and the center consoles on the deck.

Make sure there is accessibility below deck to fit washers and nuts.

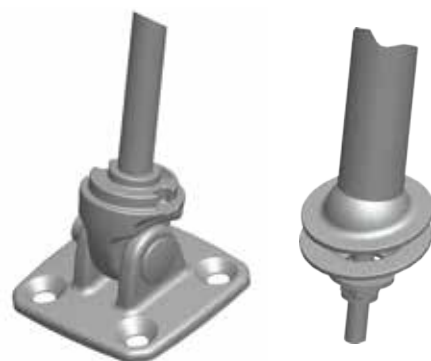


#### **Deck fitting 443-206-01**

Mark the threaded bars 5 mm above the nuts. Disassemble the threaded bars and cut them at the marks.

#### **Foot kit 443-208-01**

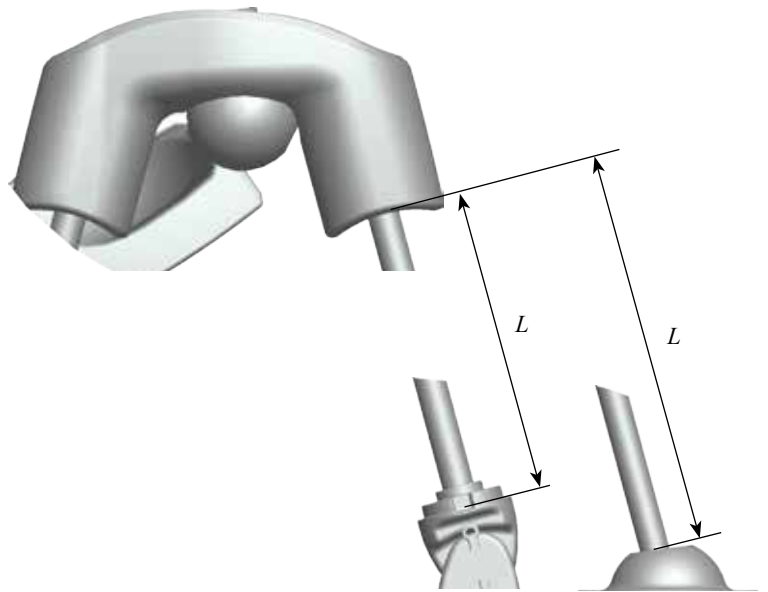
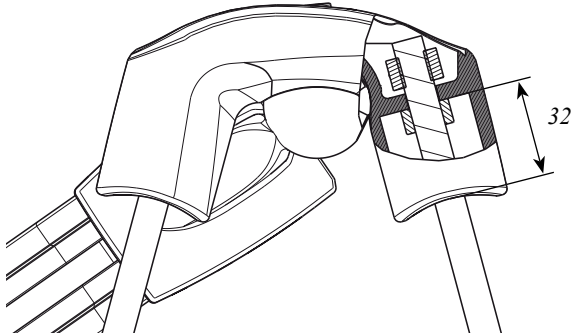
The bars will be cut to the right length below deck prior to final assembly.



Measure and calculate the length of the leg (30 mm tubes).

Tubes to be cut to  $L+32\text{mm}$ .

(Note: aft and forward leg might be different in length, but make sure that the corresponding legs on starboard side and port side are equal length).

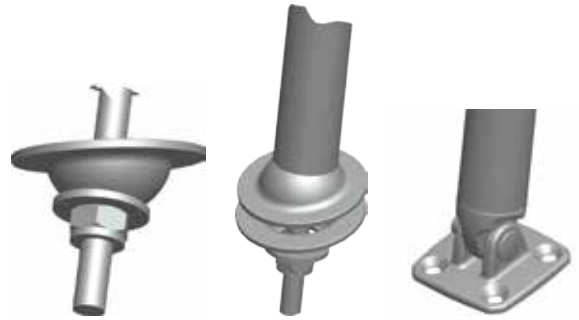


If deck fitting 443-206-01 is used, add locking adhesive in the hole of 443-206. Fit the washers and locking nuts at the top of the bar and tighten the nuts firmly.



Drill the holes for the fasteners. If the deck is a sandwich construction, remove the distance material under the deck fittings and center consoles and replace it with GRP or epoxy filler.

Fit the center console with M8 screws in the deck. Fit the deck fittings with M6 or if the 443-208-01 is used fit one 443-208, one washer and one nut on each thread bar. Put sealant around every screw before nuts are tightened. Fit the M10 screw in the 443-200 with locking adhesive.



Fit the two lids with M4 screws.



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