

Manual

Self-tacking system 22

For sailboats ranging from 25 to 35 feet



Introduction

Congratulations on the purchase of your new self-tacking jib system.

This manual cover assembly and installation for the Seldén self-tacking system 22.

Please read the entire manual before assembly and use of the product, and keep it available for future references.

Safety precautions



This symbol indicates a delicate moment in the assembly or a technical advice.



This symbol indicates a potential hazardous situation which, in the event of failure, can lead to damages to property, personal injury or death.

Dimensioning of the system

Self-tacking jib system 22 has a maximum working load of 700 kg.

The key to a properly working and safe installation is correct dimensioning in relation to the boat the products shall be used for. Seldén provides dimensioning guidelines in catalogues, leaflets and on the website. If there are any questions about selecting the right product, please consult an authorized Seldén dealer. All dealers are listed at www.seldenmast.com and divided in categories describing their competence. For Self-tacking jib system 22 we recommend dealers in the category “Advanced Technical Installations”.

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2. Product information

SELF TACKING JIB SYSTEMS

A self-tacking jib makes life on board a lot easier, particularly for short-handed 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.

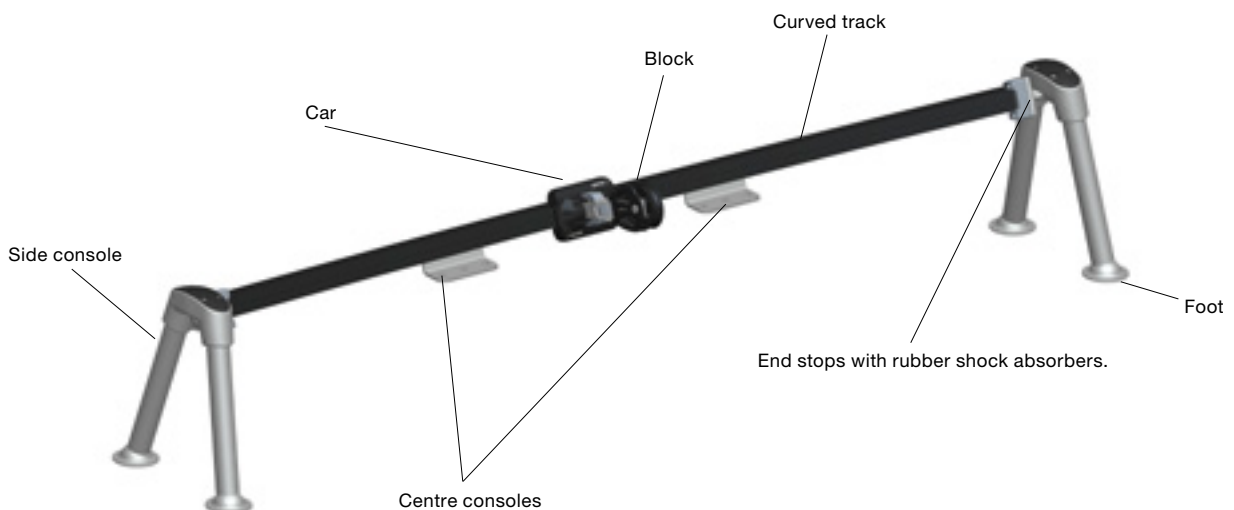
System 22 is designed as a universal retro-fit self-tacking system for sail boats ranging from approximately 25 to 35 feet. The length of the legs can be cut to the correct length and the angle of the track and deck fittings are adjustable. The track is available from stock in two standard radiuses to give a good alignment of the sheet load to the car and track. Simply, the system fits to most boats, but exceptions will naturally occur and should be considered prior the purchase.



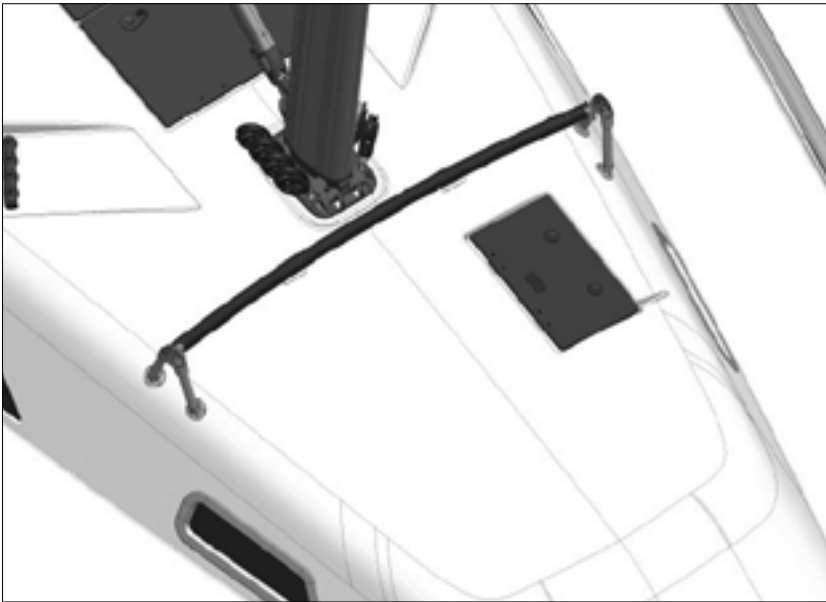
Obstacles can be objects such as a hatch or a ventilator fitted just forward of the mast or the construction of the deck which must be solid as opposed to a sandwich construction.

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

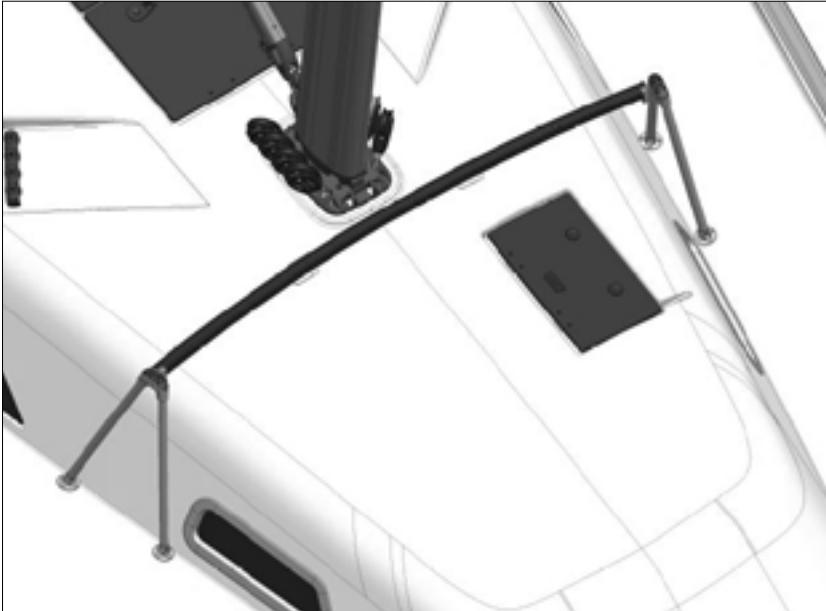
The sail must be designed for a self-tacking system and cannot overlap the mast. The routing of the sheet must also be planned for in advance. Customized tracks, single curved or double curved can be ordered by submitting necessary measurements, see enquiry form 595-952-E, available at www.seldenmast.com.



The illustrations below show the two most common ways to install a self-tacking system.



Coach roof mounting

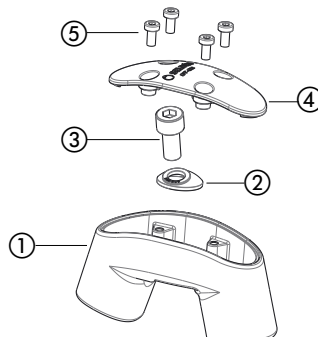


Side deck mounting

2.1 Parts included in side console package, art. no. 442-200-10

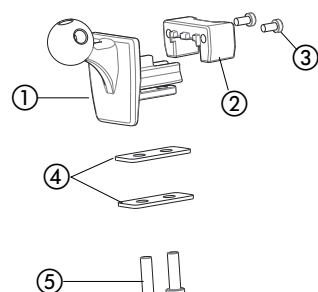
Side bracket

Item	Art. No.	Quantity	Description (all measurements in mm)
1	442-200	2	BRACKET 102x52x39
2	442-202	2	WASHER Ø21x7
3	153-006	2	SCREW MC6S M8x20
4	442-203	2	COVER 88x33x13.5
5	153-178	8	SCREW MLC6S M4x8



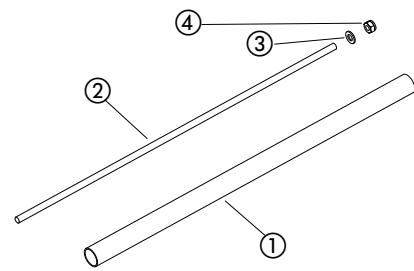
Joint bracket

1	442-201	2	JOINT BRACKET 79.5x60x40
2	442-205	2	END STOP 42.5x20x17
3	153-178	4	SCREW MLC6S M4x8
4	442-210	4	WASHER PLATE ST-22
5	153-001	4	SCREW MC6S 6x20
-	312-305	2	LOCKING ADHESIVE 1ML



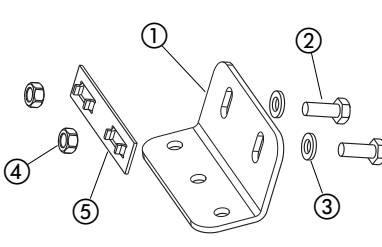
Leg

1	442-204	4	LEG Ø25x500
2	151-120	4	THREAD BAR M8x500
3	164-401	4	WASHER Ø16/8-1.5 (M8)
4	158-006	4	NYLOC NUT M8
-	157-004	8	FULL NUT M8
-	312-305	1	LOCKING ADHESIVE 1ML



Centre console

1	442-209	2	CENTRE CONSOLE 80x51x46
2	151-105	4	SCREW M6x16
3	164-407	4	WASHER Ø12/6-6 (M6)
4	157-003	4	NUT M6M
5	442-211	2	NUT HOLDER



2.2 Foot options (2 alternatives)

Not included in kit 442-200-10, to be ordered separately.

Deck fitting kit, 442-206-10

Enables quick removal of the system when preparing for racing.

Item	Art. No.	Quantity	Description (mm)	
1	443-206	4	DECK FITTING Ø59x27.5	
2	442-207	4	END FITTING LEG Ø26x33	
3	165-203	4	CLEVIS PIN Ø10x28	
4	301-049	4	SPLIT PIN Ø2.9x16	

Foot kit, 442-208-10

Item	Art. No.	Quantity	Description (mm)	
1	442-208	8	FOOT Ø59x27.5	
2	164-403	4	WASHER Ø16/10.5-2.5	
3	158-006	4	NYLOC NUT (M8)	

2.3 Track options (2 alternatives)

J-measurement (mm)	Art. No.	Description (mm)	For sheet arrangement
– 3700	442-011-40	Radius 3000 mm, Length 1700 mm	Over the fore deck (see section 3.3)
3700 – 4700	442-011-41	Radius 4000 mm, Length 1800 mm	

Custom tracks

For custom tracks, see enquiry form 595-952-E available at www.seldenmast.com.

2.4 Car options (2 alternatives)





Not included in kit 442-200-10, to be ordered separately.

Righting moment at a 30° heel angle (kNm)	Approximate displacement	Art. No.	Description
<35	<6	442-148-01	Single car
>35	>6	442-148-02	Double car

2.5 Block options





Not included in kit 442-200-10, to be ordered separately.

Blocks for 442-148-01, single car

Description	Art No.	Sheet arrangement	Safe Working Load (kg)	
PBB50 Single	405-001-01	Over the foredeck	650	
PBB50 Single becket	405-001-02	Up the mast	650	
BBB60 Single HD*	406-601-51	Over the foredeck	500	
BBB60 Single becket HD*	406-601-52	Up the mast	500	

*HD = Heavy Duty

Blocks for 442-148-02, double car

Description	Art No.	Sheet arrangement	Safe working Load (Kg)	
PBB60 Single	406-001-01	Over the foredeck	1000	
PBB60 Single becket	406-001-02	Up the mast	1000	
RBB60 Single	406-201-01	Over the foredeck	1500	
RBB60 Single becket	406-201-02	Up the mast	1500	

3. Assembly preparations

3.1 Required tools

Ensure you have the following tools before starting the assembly:

- Hacksaw
- File
- Allen keys 2.5mm, 5mm and 6mm
- Socket wrench with 13mm socket
- Spanner 10mm
- Measuring tape or ruler
- Pen
- Tape
- Drill, Ø6.2 drill bit
- Marine sealant

3.2 Required fasteners

Fasteners for attaching the self-tacking system to the deck are not included.

3.3 Sheet arrangement

There are two common ways to set up a sheet arrangement for a self-tacking system.

The sheet can be led **over the fore deck** or **up the mast**.

The routing of the sheets affects:

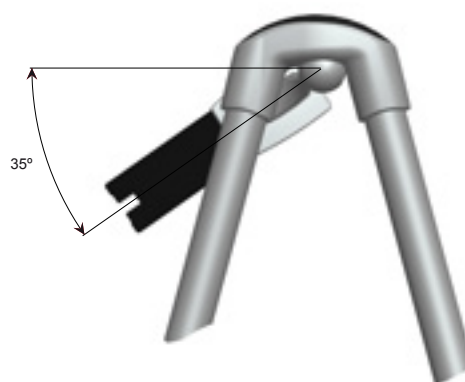
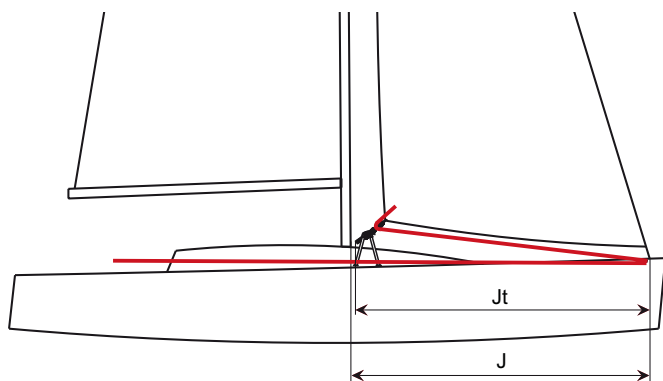
- The angle of the track
- The radius of the track
- The load on the car

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, to a block at the bow and back to the cockpit.

The track to be angled 35° to the horizontal plane.

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



Up the mast

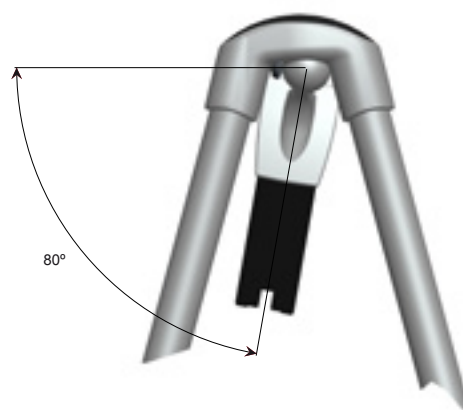
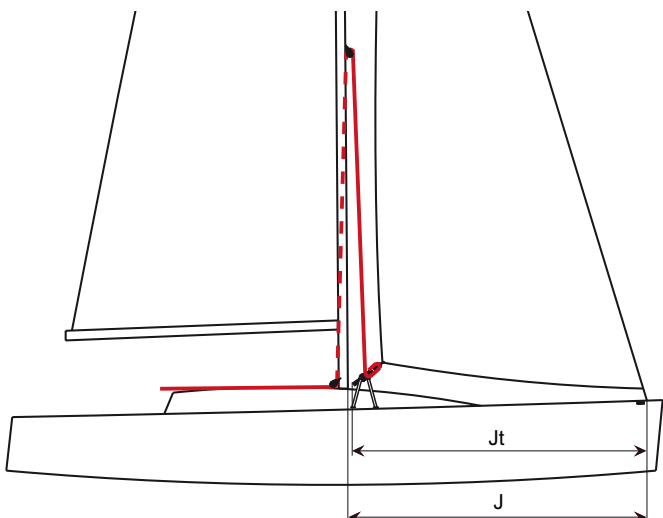
The advantage of routing the sheet up the mast and back to the cockpit is to keep the foredeck clean from lines. The sheet is led from the car, up the front of the mast and into the mast through a sheave box installed at a height of 50% of the fore triangle. The sheet exits the mast through a slot fitting 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 Vertical Pole Stowage (VPS) system. See options page 18.



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


The track to be angled 80° to the horizontal plane.

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




3.4 Placement of centre console


Fit the centre consoles on the track temporary. Use the M6 bolts, nuts, washers and nut holder included in the kit. Fit the nuts in the nut holder and slide in to the track as per illustration.

 Nut sides need to be “parallel” to track to fit.

Assemble the screws, washers and centre console using the slot shaped holes in the fitting. Enter the screws in the nuts but do not tighten. Slide the centre console to the centre of the track and tighten the screws.

Mounting the centre console close to the leading edge of the mast/ mast base is preferable as it gives you the option to maximize the jib foot length and by that the sail area.

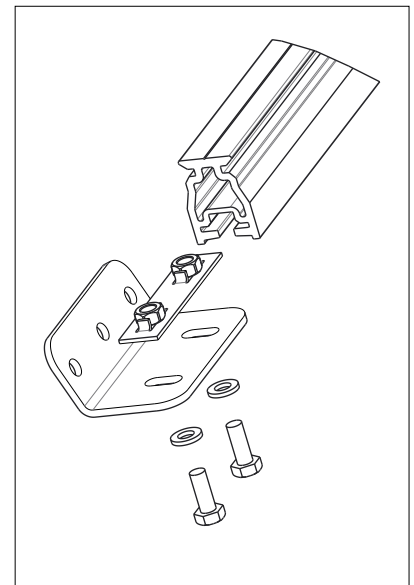
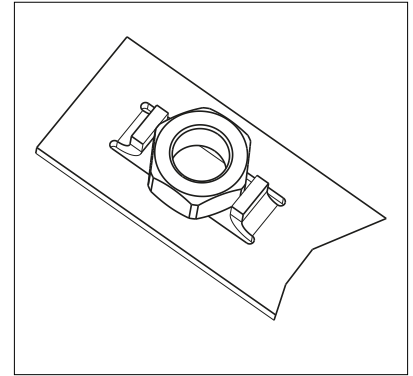
 The car needs to have clearance to function satisfactory.

 The angle of the centre console can be modified by reshaping the fitting.

Single or double centre consoles?

RM (righting moment) at 30° heel angle (Can be calculated at [www.seldenmast.com/online services](http://www.seldenmast.com/online%20services)).

- RM < 15 kNm (Jib sheet load approximately 250kg)
Single centre console mounted on centre line.
- RM > 15 kNm
Double centre console mounted symmetrically around centre line.
If possible space consoles evenly along track for minimum unsupported length.



3.5 Track length

The sheeting angle and Jt-measurement will give the length of the track.
 Normally an angle of 8-10° works well (an angle under 7° is not recommended).
 Consult your sail maker for the recommended sheeting angle for your sail and boat.

- 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:

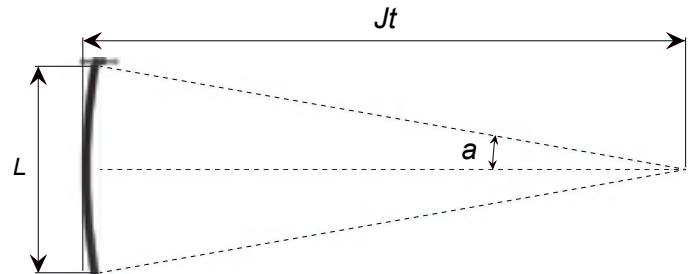
$$L = 2 \times Jt \times A + l$$

A= factor sheet angle, see table, or calculate as:

$$L = 2 \times Jt \times \tan(a) + l$$

Jt = fore triangle base length, see figure above

l = car length, see table below



Art. No.	Length (l) mm	Description
442-148-01	85	Single car
442-148-02	175	Double car

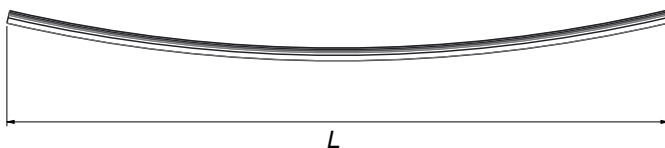
Sheet angle (a)	A (tan(a))
7.0°	0.123
7.5°	0.132
8.0°	0.141
8.5°	0.150
9.0°	0.158
9.5°	0.167
10.0°	0.176
10.5°	0.185
11.0°	0.194

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



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

L =	2 x Jt	x A	+ l	
L =	2 x	x	+	=



3.6 Placement of side consoles and deck fittings

Place the track in the correct position on the foredeck.

Secure the position of the track and centre console on the deck with tape/clamps etc.
 Check the track is centred and the end marks on the track corresponds to the chosen sheeting angle.

Position the centre bracket(s) on deck, ensuring no clashes, and mark the position.

With the track in place, check that there is space beneath the end marks on the track to allow the side consoles and deck fittings to be mounted.



Check that both ends of the track have the same distance from the forestay chain plate.

4. Assembly

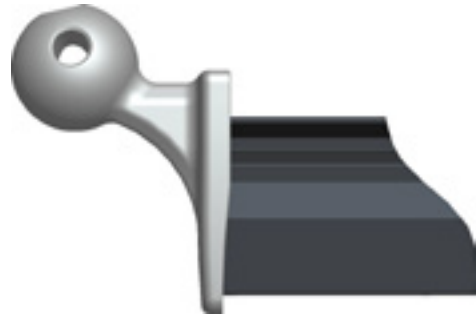
Before permanently installing the track on deck, we recommend that you do a temporary assembly to make sure that the deck mounts, track and car do not interfere with any other deck fittings or structures above or below deck. Parts of the assembly need to occur whilst on the deck of the boat. For actions such as sawing or grinding, it is recommended this is done away from the boat in a suitable work space.

4.1 Step by step assembly instructions

1.

Cut the track at the measured (see 3.5) end marks. Ensure the cut is perpendicular to the radius of the track.

Slide the joint bracket 442-201 into the track. Make sure that there is no gap between the fitting and the track. Some filing of the track may be required to achieve a perfect fit.

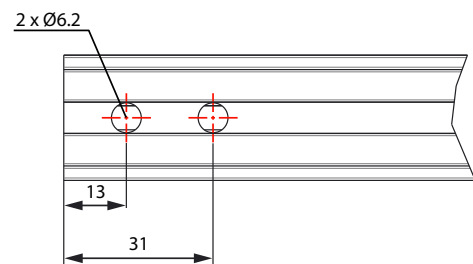


2.

Drill two holes for the joint bracket 442-201 fitting in both ends of the track using a $\text{\O}6.2\text{mm}$ drill bit, see pictures.

Joint bracket 442-201 can be used as a drill gauge to start the holes.

Remove joint bracket 442-201 when holes are started.



Drill only through one wall!
Do not drill through the upper surface of the track!



Do not drill through the first wall in the track with 442-201 still assembled, doing so can damage the threads in 442-201!

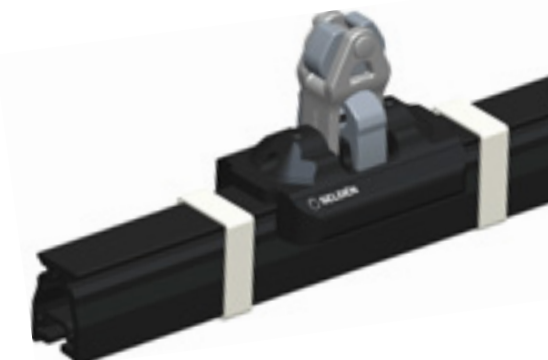


3.

Mount the car on the track by rolling it from the transport track onto the self-tacking track.

Be careful not to drop any ball bearings.

Secure the car on the track with tape, as shown.

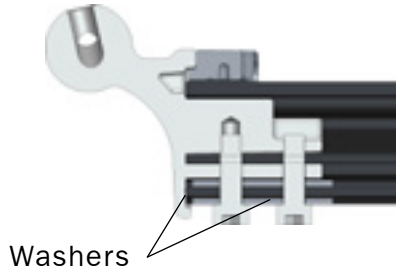


4.

Install joint bracket 442-201 to both sides of the track with the screws, washers and rubber end stop. Use locking adhesive on the screws.



It is important that both washers are used in the assembly, one on the outside and one on the inside of the profile as shown.



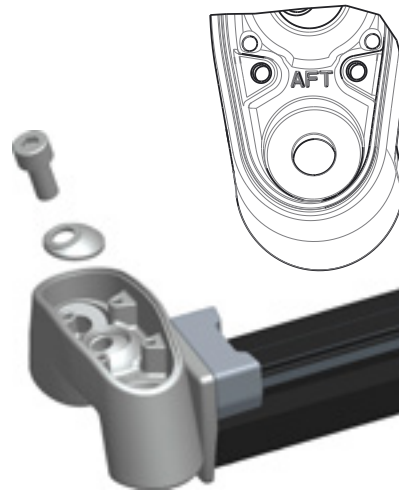
5.

Assemble the bracket 442-200 with a screw and spherical washer onto the joint bracket 442-201.



Make sure the 442-200 is assembled on the correct side.

There is an "AFT" marking inside the bracket 442-200.



6.

Insert the M8 threaded bars into the brackets 442-200 and secure with washers and nuts (none locking)

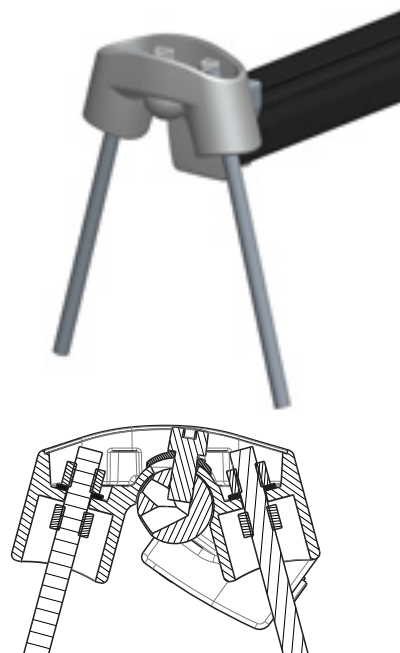
Place the system on deck according to the marked position for the centre console and adjust the threaded bars to approximately the correct length.

Lock the position and angle of the four bars by tightening the nuts (none locking).

Make sure there is a free area on the deck at the end of each bar to install the deck fittings.

Foot kit 442-208-10

Cut threaded bar with over length to ensure enough threads for deck thickness and fasteners.



7.

Deck fitting 442-206-10

Screw the end fitting 442-207 onto the ends of all four threaded bars.

Assemble the complete deck fitting kit as shown. Place the system on deck with the deck fittings attached and adjust the threaded bars to correct length.

Mark the threaded bars 5mm above the nuts and mark the position on deck or coach roof.

Disassemble the bars and cut to length at the marked position.

Foot kit 442-208-10

Make an approximate mark of where the threaded bar will intersect the deck. Use these marks as reference for foot placement in step 8 when deciding the length of the legs.

The position and final length for the threaded bars will be confirmed during installation.



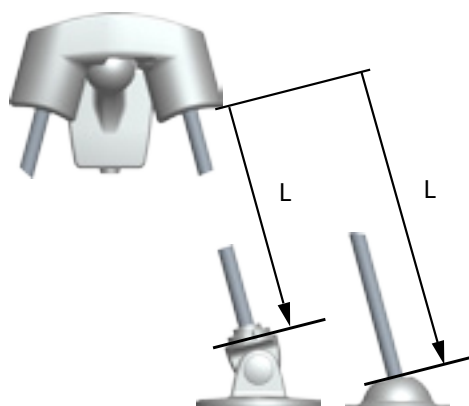
8.

Measure and calculate the length of the legs ($\text{Ø}25\text{mm}$ tubes). Legs to be cut to $L+23\text{mm}$. The extra 23mm will be hidden inside the 442-200 bracket when assembled.



Forward and aft legs might be different in length. Make sure that the respective legs on the opposite side are identical in length.

Cut legs with a hacksaw.



9.

Assemble the system and place on deck.

Ensure:

- The track is centred
- Track ends are symmetrical to forestay
- Track is in the correct angle for sheet arrangement

Adjust side consoles so the deck fittings and centre consoles are on the marked positions on deck.

Check there is accessibility below deck to fit nut and washer.



5. Installation

To simplify the final installation, disassemble the centre console and side bracket from the track. Leave both joint brackets (442-201) assembled on the track.

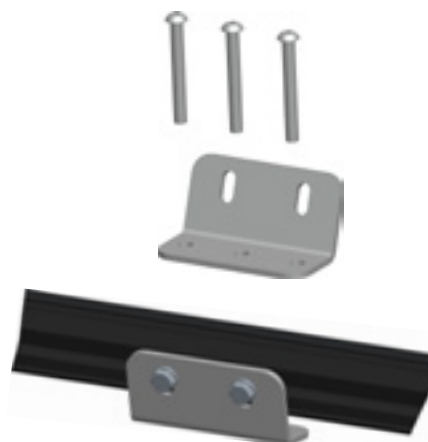
5.1 Step by step installation instructions

1.

Install the centre bracket to the deck at the marked position. Use 3xM6 screws (not supplied) and marine sealant.

Assemble the track to the centre console, make sure the centre mark is on the boats centerline.

Tighten the two screws on the centre bracket.



2.

Deck fitting 442-206-10

If deck fitting 443-206 is used, add locking adhesive to the threads in end fitting (442-207) and screw onto the threaded bars.

Fit the legs, nuts (locking) and washers to the brackets 442-200 and tighten firmly.

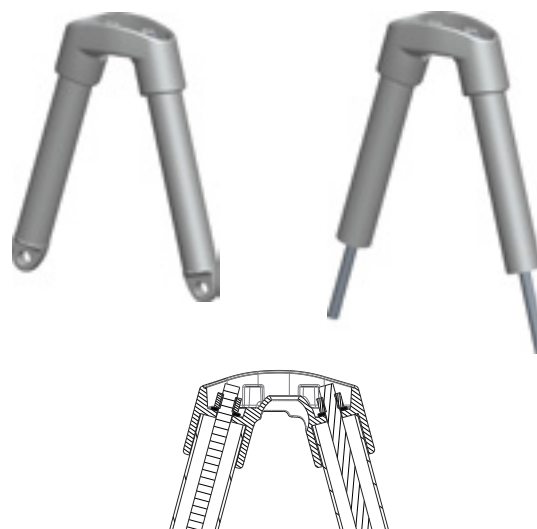
Foot kit 442-208-10

If deck fitting 442-208 is used, assemble the legs, nuts (locking) and washers to the bracket 442-200.

System to be tightened from below deck when placed in position.

Deck fitting

Foot kit



3.

Attach the side consoles to the track.

Leave the screw engaged but loose to allow for adjustment.

Spherical washer can be adjusted for correct angle of the side console.



4.

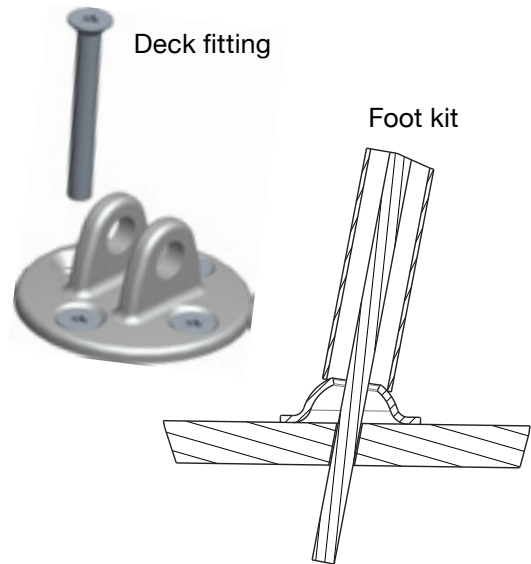
Deck fitting 442-206-10

Install the deck fittings at the marked positions on deck. Make sure the deck fitting 443-206 is at the correct angle to fit the side console when assembled to the track. Use 4xM6 countersunk screws for each fitting. Apply marine sealant.

Foot kit 442-208-10

With the system in correct position and the side consoles at desired angle, aim with the legs on deck and mark the position.

Drill holes through deck at your markings. Pay extra attention to the angle of the threaded bar, align hole after this angle, see illustration.



5.

Place system in position on deck.

The screws in the joint brackets and the nuts on the legs might need to be eased to adjust components into place.

Deck fitting 442-206-10

Assemble deck fittings with clevis pin and split pin and tighten all screws on the system

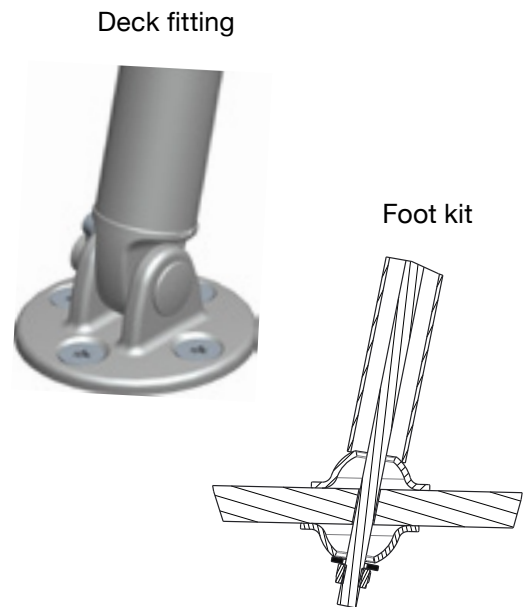
Foot kit 442-208-10

Place deck fitting 442-208 under every leg on deck. Apply marine sealant.

From inside the boat place the foot 442-208, washer and nut on all threaded bars and screw tight.

Saw off redundant thread bar.

Tighten all screws in the system.



6.

Fit the covers with four screws.

Installation completed!



6. Service and maintenance

6.1 Frequent maintenance

Cleaning

Rinse the self-tacking system with fresh water regularly to get rid of salt and dirt. A mild detergent can be used to help get dirt off.

Pay extra attention to the ball bearings inside the car. Rinse the car thoroughly with fresh water while moving it back and forth on the track.

Make sure the track is clean and free from damage that might cause the car to malfunction. Pay extra attention to the ball race where the ball bearings run. Wipe with cloth to ensure the surface is clean.

Lubrication

Seldén high performance Lubricant can be used to lubricate the car.

Art. No. 312-534

6.2 Annual maintenance

Check that all screws are tight.

- Open the lid on the side console and check so the nuts are tight
- Check the hex screw for the joint bracket
- Check the two screws on the back of the centre bracket



The self-tacking system and yacht are at risk of damage if fasteners are not completely tightened during assembly. Improper tightening of fasteners can result in assembly failure and potential for personal injury.

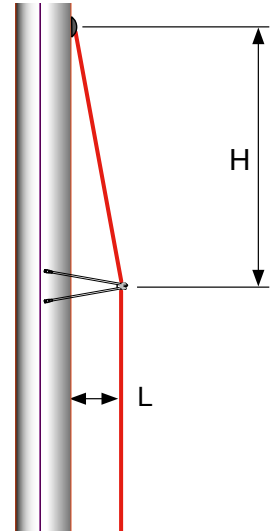
7. Options

7.1 Sheet crane and exit box

For boats fitted with vertical pole storage (VPS) and for boats where a “up the mast” routing of the sheet would need a relocation of the deck and steaming light. The sheet crane creates the separation you need between the mast and sheet to facilitate VPS, navigation and deck lights.

SHEET CRANE AND EXIT BOX

Mast section	Max RM at 30°, kNm	Sheet crane Art.No. Length, mm (L)	Sheet exit box, Art. No.	Min distance between sheet box and crane, mm (H)	Max line size, ø mm
C227-C304 F228-F305	170	508-094-01 L=200	505-016-01	1200	12
C264-C365 F265-F370		508-093-01 L=275	505-015-01	1500	14



7.2 Foldable Pad eyes

Used for mounting a turning block at the bow.



FOLDABLE PAD EYES

Stainless AISI 316

Art. No.	Dimension (mm)	Weight (g)	Safe working load (kg)	Breaking load (kg)	Bolts
508-750-01R	Ø6/42x42	74	1100	2200	3xM6
508-760-01R	Ø8/54x54	154	2200	4400	3xM8

8. Warranty

Seldén Mast AB guarantees Self-tacking jib system 22 for 2 years. The guarantee covers faults arising from defective design, materials or workmanship.

The guarantee is only valid if the product is assembled, operated and maintained in accordance with this manual and is not subjected to loads in excess of those indicated in the brochure and on the Seldén website.

Complete shipment and warranty conditions are to be found on Seldén's website www.seldenmast.com. See Resources/Partners information/General information/General conditions of sale (595-546-E).

If the system is repaired or modified by anyone other than Seldén Mast AB or one of our authorized dealers, the guarantee ceases to be valid.

Seldén Mast AB reserves the right to alter the content and design without prior warning.

DINGHIESKEELBOATSYACHTS

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