

HYDRAULICS



Mast jack system	120
The hydraulic set up	122
Furlex Hydraulic	126
Hydraulic cylinders	130

Mast jack system

A mast jack from Seldén ensures that you always retain the right rig tension for racing. It also lets you relieve the load on the rig and boat when you are in port. The mast jack system consists of a hydraulic cylinder located inside the mast. The cylinder piston moves down vertically through the heel of the mast to a steel plate in the boat's T-base, thereby lifting the mast and increasing the tension.

In order to make it easier to jack up the mast, the system includes a two-stage pump that switches to its lower gear as the pressure increases. When the mast reaches its upper position, shims are placed between the heel and the T-base. Release the pressure and remove the pump.

Now, the rig is set in accordance with the predetermined requirements. So is the boom height, I-measurement and other rating measurements recorded by the measuring official.

The pump is connected to the cylinder with stainless steel couplings, and can easily be disconnected and left ashore prior to racing. The hydraulic hose is then stored in a purpose-designed hose garage to keep it out of the way. The hose garage itself is fitted inside the mast.

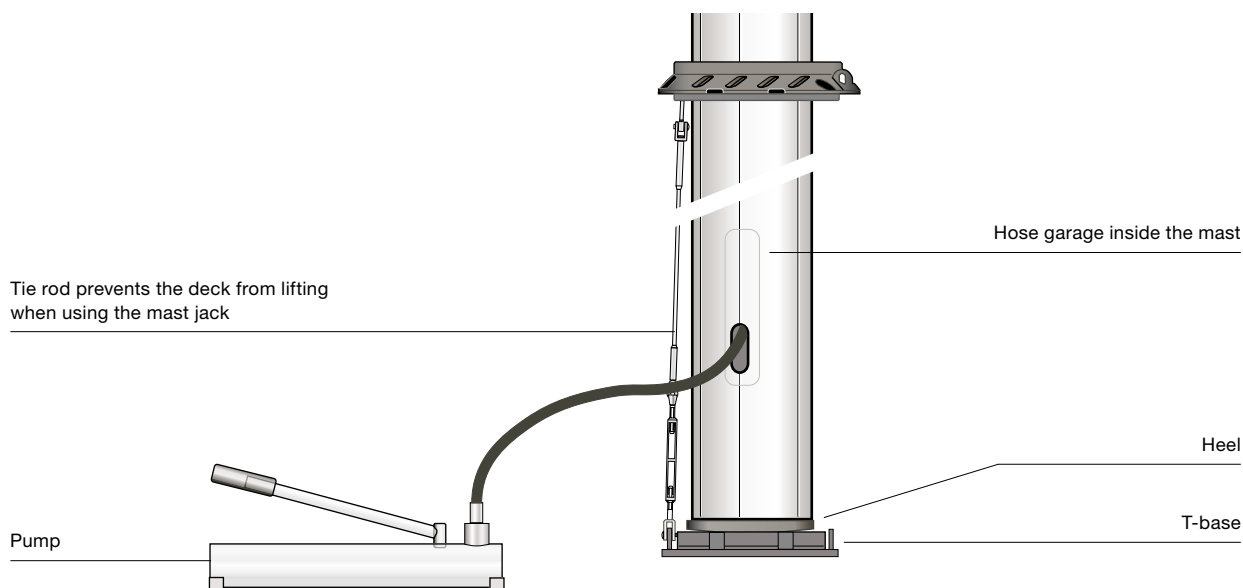
The T-base has the same pattern of holes as Seldén's standard T-base, and its position can be adjusted in fore and aft direction to obtain the optimal mast rake.

The hose is stored in a hose garage...



...and can easily be fitted to the pump to adjust the rig tension.





Technical specifications

System	Mast extrusion	Max pressure (bar)	Max working load (kN)
D65/300	C193 CC192	300	100
D63/400	C211-C245 CC210-CC244	400	125
D80/400	C264-C304 CC263-CC303	400	200

Mast jack cylinder fitted on mast heel and 2-metre hose with quick coupling (male)	Mast extr.	Art. No.	Mast extr.	Art. no
	Aluminium		Carbon	
	C193	502-196-01	CC192	502-196-03
	C211	502-190-01	CC210	502-190-03
	C227	502-191-01	CC226	502-191-03
	C245	502-192-01	CC244	502-192-03
	C264	502-193-01	CC263	502-193-03
	C285	502-194-01	CC284	502-194-03
	C304	502-195-01	CC303	502-195-03

Pump with manometer	System	Art. No.
	D65/300	550-150-01
	D63/400	550-160-01
	D80/400	550-160-02

T-base with shims and U-bolts for attaching tie rod	System	Art. No. (dim., mm)
	D65/300	510-208-01 (205x140x15)
	D63/400	510-180-01 (300x125x15)
	D80/400	510-185-01 (370x160x25)

Tie rod kit, includes conversion parts for standard deck ring	Mast extrusion	Art. No.
	C193, CC192	601-003-54
	C211, C227, CC210, CC226	508-309-02
	C245, CC244	508-309-03

Accessories	Art. No.
Hose garage, including pop rivets	507-537-01
Shim, 2 mm (D65/300)	510-209
Shim, 5 mm (D65/300)	510-210
Shim, 10 mm (D65/300)	510-211
Shim, 2 mm (D63/400) (Optional)	510-214
Shim, 5 mm (D63/400)	510-181
Shim, 10 mm (D63/400)	510-182
Shim, 15 mm (D63/400)	510-183
Shim, 2 mm (D80/400) (Optional)	510-215
Shim, 5 mm (D80/400)	510-186
Shim, 10 mm (D80/400)	510-187
Shim, 20 mm (D80/400)	510-189
Locking bolts for shims (D65/300)	165-107
Locking bolts for shims (D63/400)	165-207
Locking bolts for shims (D80/400)	166-011
1/4" hydraulic hose, 2 metres, with couplings	540-965-01
Quick coupling (male)	540-966
Protective plastic cover for 540-966	540-968
Quick coupling (female)	540-967
Protective plastic cover for 540-967	540-969
Sealing washer for coupling	540-885
U-bolt for securing tie rod	508-023-02
Silicone spray, 250 ml, for rubber wedges for deck ring	312-506
Safety wire with Talurit eye. Some racing rules stipulate safety wire between mast and T-base.	508-010-10

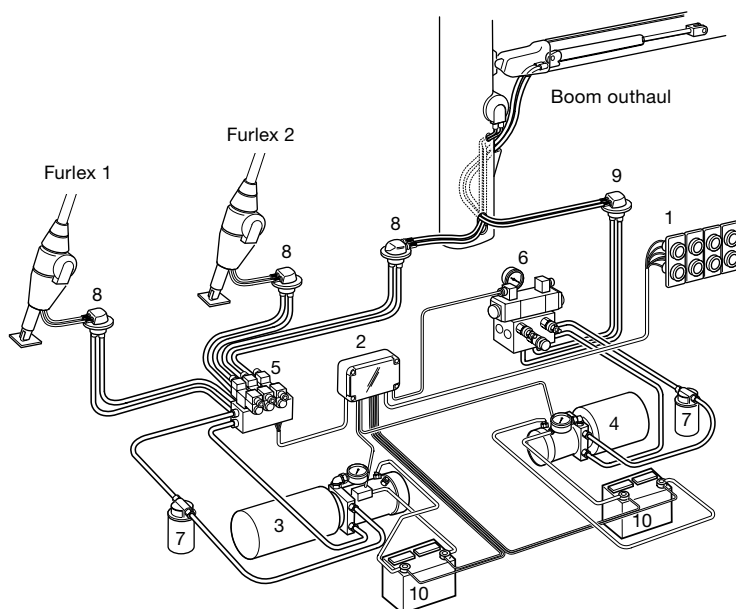
Hydraulic cruise control



Seldén's hydraulic furling system for mainsail and foresail are:

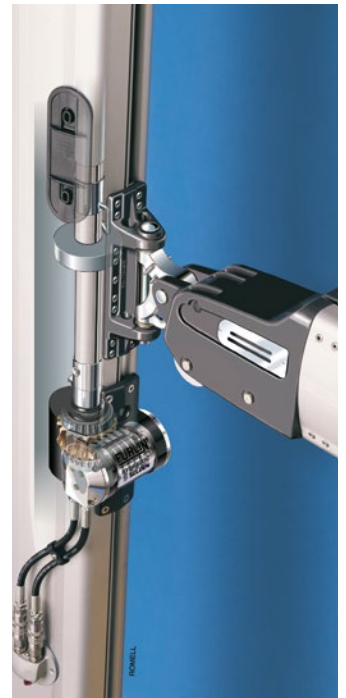
- Furlex Hydraulic for headsails
- Hydraulic furling mast
- Hydraulic outhaul

The picture to the right shows the principle of a hydraulic system with hydraulic pump, valve units and drive units, all connected by hydraulic hosing. The system is operated from the cockpit by control switches connected to the system through a control box.



1. Control buttons
2. Control box
3. Pump unit, furling mast + Furlex
4. Pump unit, outhaul
5. Valve unit, furling mast + Furlex
6. Valve unit, outhaul
7. Filter
8. Deck gland, furling mast + Furlex
9. Deck gland, outhaul
10. Battery





Långedrag 501 equipped with Seldén hydraulic furling mast, hydraulic outhaul and double hydraulic Furlex jib-reefing systems.

Sailing from the cockpit at the press of a button

A powered furling mast enables you to reef, furl and trim the sail area to suit the wind conditions at the touch of a button. The patented, built-in motor has a direct drive to the worm gear, to keep moving parts to a minimum and increase power, efficiency and reliability. The worm gear, which is self-braking, locks the sail in the required position. In an emergency, the mainsail can also be manually furled and unfurled with an ordinary winch handle.

Hydraulic clew outhaul – the ultimate control

The push-button controls in the cockpit give you complete command of your mainsail. You can also trim the outhaul when sailing close hauled – a task which would ordinarily require the full strength of a crew member using a manual winch. Furthermore, there is no clew outhaul line to clutter up the cockpit.

Booms available for hydraulic outhaul.

B200, B250, B290 and B380



Specifications of hydraulic motors

Model	Motor designation	Max. torque at max. pressure, Nm	Nominal speed luff extrusion (n), rpm	Nominal oil flow (Q), l/min	Nominal oil pressure (p), bar	Max. oil pressure (p), bar	Rec. min. power hydraulic pack (P) kW	Max. sail area m ²
Type RB	OML 12.5	158	40	10	40	120	1.5	60
Type RC	OML 12.5	158	40	10	40	140	2.0	60
Type RD	OML 12.5	158	40	10	40	140	3.0	80
Type RD	OML 20.0	230	40	20	40	140	4.0	120
Type RD Built-in	OML 20.0	255	40	20	40	140	3.0	120

Furlex H

(Hydraulic)



With a Furlex Hydraulic, the cruise control is complete. All you need to do is press a button in the cockpit and adjust the sheet.

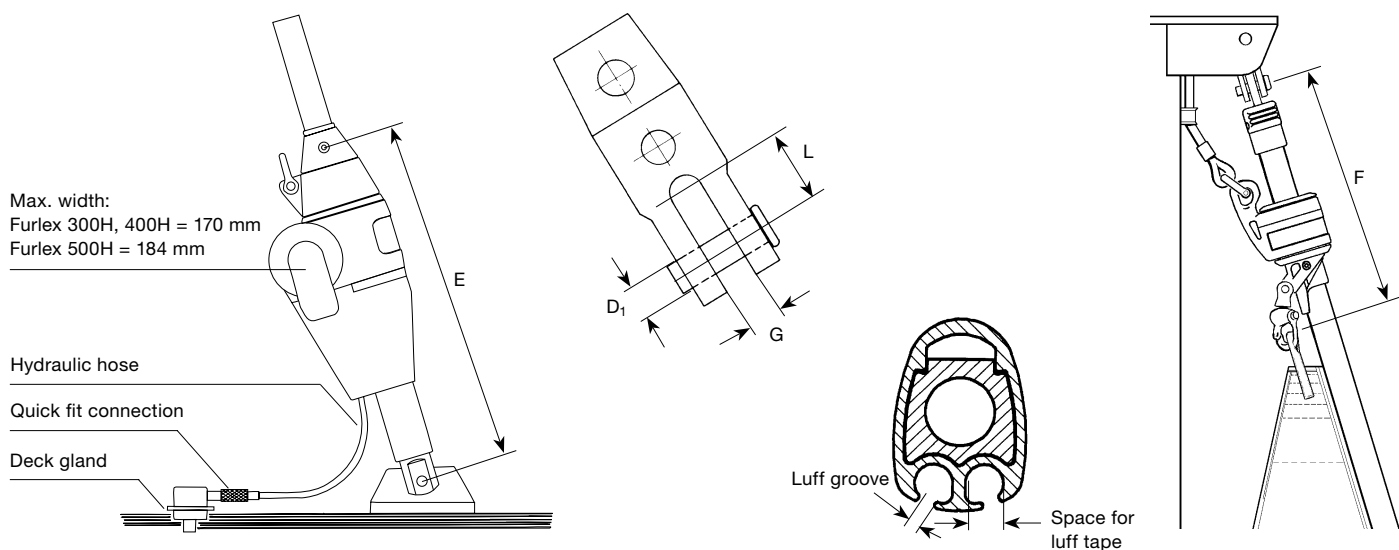
The Furlex Hydraulic is designed to provide a harmonious visual interplay of stainless steel and aluminium. The hydraulic motor is located inside the worm gear, in the same way as it is with the furling mast system. The positioning of the motor contributes to the compact design of the Furlex Hydraulic.

Type	Forestay dia., mm	Max. forestay length, m	Motor designation	Art. No.
300H	8	15.5	OML 12.5	039-027-70
		17.9		039-027-71
	10	15.5		039-027-72
		17.9		039-027-73
		20.3		039-027-74
400H	12	17.7	OML 12.5	049-034-75
		20.1		049-034-76
		22.5		049-034-77
	14	17.7	OML 20	049-034-95
		20.1		049-034-96
		22.5		049-034-97
		20.1	OML 12.5	049-034-78
		22.5		049-034-79
		20.1	OML 20	049-034-98
500H	16	22.5		049-034-99
		23.0	OMM 20	060-046-50
		27.8		060-046-51
	-60 rod	27.8		060-046-70
		32.6		060-046-71
	-40 rod	23.0		060-046-80
		27.8		060-046-81
	-48 rod	23.0		060-046-90
		27.8		060-046-91
		32.6		060-046-92



Furlex Hydraulic, deck gland and deck gland protection.





Furlex Hydraulic specifications

Type	Total weight drive unit, kg	Luff extrusion kg/m	Halyard swivel, kg	Extrusion dim., mm	Luff groove mm	Max space for luff tape, dia., mm	Max. luff tape dia., mm	"Cut-Back" mm
300H	16	0.76	1.7	40 x 27	3.0	7	6	80
400H	25	1.06	3.3	50 x 34	3.0	8	6	100
500H	37	1.93	7.0	60 x 46	3.0	9	7	100

Type	Forestay wire dia., mm	Rod dia. mm	Nav- tec	OYS* (Riggarna)	BSI	Max RM (kNm) at 30° heel		Cleviss dia., mm	G mm	L mm	E mm	F mm	Forestay adjust- ment
						Masthead	Fractional						
300H	8	-12 (7.1)	X		X	40	50	14	15	30	490	540	100
		-15 (7.5)		X	X								
	10	-17 (8.4)	X		X	70	80	16	15	30			
		-22 (9.5)	X	X	X								
400H	12	-30 (11.1)	X	X	X	120	160	19	19	35	610	620	110
	14	-30 (11.1)	X			180	190	22	23	40			
		-40 (12.7)	X	X	X								
500H	16	–				230	250	25.4	26	45	675		100
		-40 (12.7)	X	X		180	190	25.4	26	45			
		-48 (14.3)	X	X	X	230	250	28.6	29	50			
		-60 (16.8)	X	X	X	330	–	31.8	32	55			

* The upper eye terminal must be of the MNY type.

Type	Motor designation	Max. torque at max. pressure, Nm	Nominal speed luff extrusion (n), rpm	Nominal oil flow (Q), l/min	Nominal oil pressure (p), bar	Max. oil pressure (p), bar	Rec. min. power hydraulic, pack (P) kW	Max. sail area m ²
300H	OML 12.5	158	40	10	40	140	1.5	80
400H	OML 12.5	175	40	10	40	140	2.0	125
400H	OML 20.0	255	40	20	40	140	3.0	150
500H	OML 20.0	290	40	20	40	140	4.0	200

Hydraulic adjusters and vang

Fast and convenient adjustment of the backstay and the vang is vital both for the racing sailor and for the cruising sailor. Being able to tension the forestay, adjust the pre-bend of the mast and control the power in the mainsail will make any boat point higher, sail faster and under better control. Seldén has developed a range of hydraulic cylinders based on functional design, ease of use, reliability and long service life. The rods are marine grade stainless steel and the cylinders black anodized or clear anodized aluminium. The tensioners have long stroke making it possible to try out different mast rakes.

Hydraulic Tensioners Integral (HTI)

Hydraulic Tensioners (HT) for Seldén control panels

- A 2-speed function permits fast tensioning until a pre-set pressure is obtained. Then the tensioner shifts down to low speed and reduced resistance in the handle. The level of pressure needed to gear down is easily adjusted to suit the individual trimmer.
- Available for Ø8 – 14 mm backstay wires (equals -17 to -40 rod).
- HTI: The gauge is at the top of the tensioner making it easy to check the achieved pressure (bar).
- Releasing the pressure is done by twisting the control of the release valve.
- An adjustable relief valve prevents overload.



Hydraulic Tensioners
Integral (HTI)

Hydraulic Tensioners (HT)
for Seldén control panels

Hydraulic Backstay Tensioners

Art. No.	Tensioner	Anodization	Max wire size, Ø mm (rod size)	Pulling force at max working pressure, kN	Max working pressure, bar (psi)	Stroke, mm	Contracted length, mm	Lower pin diameter, Ø mm	Cylinder dia, Ø mm	Piston rod thread	Weight, kg	2-speed function	Dual Action
580-001-10	HTI-W8/10	Clear	10 (-17)	44	345 (5000)	420	1028	15.8	62	UNF 5/8" – 18 Left hand	8.1	Yes	No
580-002-10	Backstay tensioner with integral pump	Black											
580-003-10	HT-W8/10	Clear				480	826	22	80	UNF 7/8" – 14 Left hand	4.3		Yes
580-004-10	Backstay adjuster for control panel	Black											
580-005-10	HTI-W12/14	Clear	14 (-40)	85		480	1156	22	80	UNF 7/8" – 14 Left hand	13		No
580-006-10	Backstay adjuster. integral pump	Black											
580-007-10	HT-W12/14	Clear				912					8		Yes
580-008-10	Backstay adjuster for control panel	Black											

Upper terminals

Tensioner	Fork, Stainless		Upper pin diameter, Ø mm	Rigging screw body and split pin	
		Art. No.			Art. No.
HTI-W8/10 HT-W8/10	581-415-01		15.8*	5/8"	174-326-99
HTI-W12/14 HT-W12/14	581-416-01		22	7/8"	174-328-99
	581-416-02		19		

* When W8/10 is used on a Ø7 mm backstay with Ø13 mm hole dia, a conversion kit with bushings and a Ø12 mm clevis pin is required. Art. no. 306-558-04.



Toggle

Tensioner	Art. No.	Lower pin diameter, Ø mm
HTI-W8/10 HT-W8/10	174-107-01	15.8*
HTI-W12/14 HT-W12/14	174-135-01	22
	174-134-01 (for -22 rod)	19



Art. No. 306-558-03

* If the chain plate have a Ø13 mm hole dia, an eye/fork toggle (art. no. 174-106-01) and a conversion kit (art. no. 306-558-03) including bushings and a Ø12 mm clevis pin are required.

Hydraulic boom vang (HV)

Art. No.	Description	Anodization	Pulling force at max working pressure, kN	Max working pressure, bar (psi)	Maximum return force, kN	Stroke, mm	* PCLC (Pin Center Length Closed), mm	Pin diameter, Ø mm	Cylinder dia, Ø mm	Weight, kg
580-013-10	HV-44 Boom vang	Clear	44	345 (5000)	8,4	280	2400	15,8	70	12
580-014-10		Black								
580-015-12	HV-57 Boom vang	Clear	57		12	280	2650	19	80	15,8
580-016-12		Black								
580-017-501	HV-89 Boom vang	Clear	89		25	340	2300	25	85	27
580-018-501		Black					2300			27
580-017-01		Clear					2790			33
580-018-01		Black					2790			33



Hydraulic boom vang (HV)

* Custom lengths can be made by customer request.

Control panels

- Available for single function or 4-functions.
- The panels have a Dual Action function which means the pump is active both when pushing and when pulling the handle.
- An adjustable relief valve prevents overload.
- A 2-speed function permits fast tensioning until a pre-set pressure is obtained. Then the panel shifts down to low speed and reduced resistance in the handle. The level of pressure needed to gear down is easily adjusted to suit the individual trimmer.
- The panels can be connected to an electric pump station that replaces manual pumping with the push of a button.
- The panels are black anodized or clear anodized aluminium.



Control panel, 1-function



Control panel, 4-function

Control panels

Art. No.	Number of functions	Anodization	2-speed function	Dual Action
586-500-10	1	Clear	Yes	Yes
586-501-10		Black		
586-500-14	4	Clear		
586-501-14		Black		



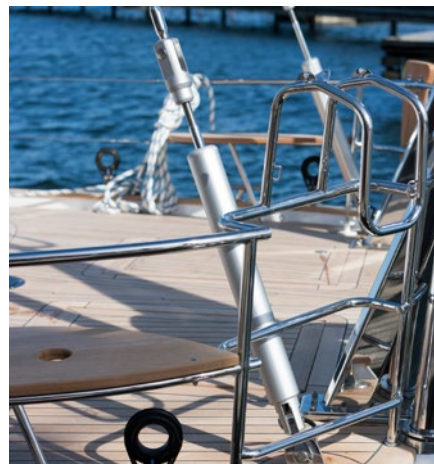
Pump handle, Art. No. 587-101-01
stainless steel, Ø20 x 500 mm



Oil reservoir,
Art. No. 585-300-01



Electric pump,
Art. No. 587-800-01





First 40 featuring a HT-W8/10 tensioner and control panels both sides in the cockpit.



HV-57 hydraulic boom vang.