

Group synergy and innovation



" For more than a year, the Wichard Group has been united in the development of both Facnor and Sparcraft. Facnor's experience and history has been successfully built on listening to a wide audience of ocean racers, which has led

to exciting innovations and a genuine trust in our products. The Facnor team, has again taken up the innovation challenge by creating and launching the new range of FX+ Gennaker/Code zero furlers. By leveraging on

our industrial and commercial synergies within the Wichard group, it has opened up a far wider scope for product development. Our long term goal, is to create an organization, that capitalizes on the strengths of our companies to meet the sailor's needs in terms of safety and innovation.

We will keep listening to you."

Jean Claude Ibos,
Wichard Group CEO

Wichard reliable since 1919

■ **Wichard** has become a world leader in the marine hardware industry by both internal R&D development and through the acquisition of other manufacturing capabilities such as Maillard, specialized in plastic injection molding. This expansion, consolidated on a strong financial foundation enables us to investment, and adapted ourselves, to meet the goals



set before us. Wichard is involved in a wide spectrum of industries, from marine, mountain equipment, aeronautic and medical devices, the group has built up numerous systems, to fine tune the R&D development manufacturing, and the distribution of it's products worldwide.

Building on Wichard's already well established distributor and dealer network, the addition of Facnor and Sparcraft, will bring even greater exposure, in the yacht mast and rigging business . Wichard's established position makes us a reliable partner for shipyards, naval architects, boat managers and dealers. Wichard's legacy, will be a manufacturer of the worlds high quality equipment, used when one's life depends on it.



The Wichard Group stats

■ **Wichard** : a network of 1000 points of sale in France, 40 dealers, over 200 industrial customers;

■ **Facnor** : 40 dealers specifically trained in Facnor products, 35 worldwide dealers outside France;

■ 210 employees

■ 6 production sites : two in Saint Vaast-la-Hougue, one in Thiers,

Périgny, Saint Malo (France) and Charlotte (NC, USA)

■ **Export shares:** approximatively 60% for Wichard and 50% for Facnor

■ **Thousands of items available for masts, hardware, rigging, booms, outhauls, Spinnaker poles, furling systems, locks, mainsail cars and tracks**





FACNOR, KNOWLEDGE OF INNOVATION
Group synergy & innovation

Facnor is a worldwide leader in designing and manufacturing furling systems, based on its expertise, more than 30-year experience and widely sold products. The company supplies many shipyards as well as ocean sailors who participate in well known races. Facnor insists on research and reliability throughout the development of product ranges.

MARINE EXPERIENCE

- An experience of over 35 years in marine industry;
- An engineering team qualified in metallurgy as well as composite materials;
- A synergy of means in computerised design and production;
- Human resources based on skills and dynamism;
- Products tested in extreme conditions by the most experienced ocean skippers.



crédit photo : Nicolas Jutzi

PRODUCTION : PERFORMANCE & QUALITY

- Wide production capacity including 5 production sites;
- Anodizing baths among the longest in the world (Sparcraft US) and Europe (Sparcraft);
- Electrostatic powder painting box (Sparcraft-US);
- CNC and traditional machining;
- Group synergy : Complementary production means in plastic processing (Maillard, France) and hot forging (Wichard - France);
- Our metrology department is equipped with the measuring tools needed to insure the constant conformity of the machined parts;
- Mechanical and chemical tests carried out on used materials for reliability warranty.



CUSTOMER SERVICE : FROM SALES TEAM TO DEALER NETWORKS

- A distribution network offering an **after-sale service in 35 countries**;
- Our sales team is based around sailing people with real experience to advise you from;
- Industrial means and experience guarantee an efficient logistic;
- Skilled dealers with the Facnor product knowledge.



Facnor has been supported, throughout its development, by various long term, sport and solidarity projects where sharing experiences and challenges have helped track its course.



©Martin COUDRIET Team Jolokia

FACNOR, SPORT PARTNERSHIP

■ FACNOR : TECHNICAL AND SPORT PARTNERSHIPS

Since 1993 Facnor has been involved

with the French skipper, Halvard Mabire (first on his 60 footer and then in the Whitbread around the world race). With his British companion, Miranda Merron, they have recently participated individually on Class 40's in the 2014 Route du Rhum. They also won the last Québec-Saint Malo transatlantic race. Installed on Halvard and Miranda's class 40's are Facnor headsail structural furlers. The Pogo 40 "Campagne de France 1" has successfully sailed over 47.000 miles. Both Miranda and Halvard, are experienced sailors and credible technical consultants, who have once again decided form a long term partnership with Facnor for their new ocean Class 40 "Campagne de France". Other well known French skippers like Marc Lapesqueux, on "Cap West", Class 40 Sabrosa, have joined the Facnor ranks.

Their web sites : www.mabiremerron.com www.lapesqueux.com



M. Merron (to the front of the boat) & H. Mabire on Campagne2France, equipped with Facnor furlers

■ FACNOR : PARTNER OF HUMANITARIAN ASSOCIATIONS...

In a socially responsible approach, Facnor supports humanitarian projects undertaken by modest sailors ready to sail miles away sometimes in difficult seas for noble reasons. Among other involvements, Facnor has become partner of some charity or humanitarian associations on board of :

Podorange (Challenge 67, Association Voile Australe), Element 3 (First 405), Chamade (Ovni 365), Jolokia (Rhum 50, Défi Intégration), Allioth (Azzuro 53), Ketch EVC (boat for desabled persons), 37' Barba (Arctic Island expedition).

Their web sites :
www.voile-australe.com
www.element3.ch/
www.chamade.ch
www.teamjolokia.com
www.team-alioth.fr
www.barba.no

Long sailing to these projects!



Photo Credit : Voile-Australe



Photo Credit : Voile-Australe

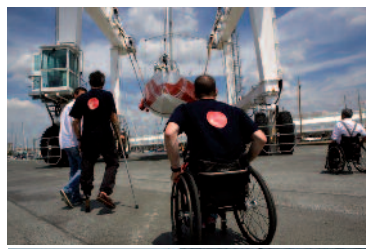


Photo Credit : Team Jolokia



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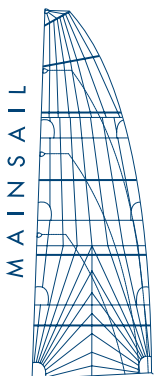
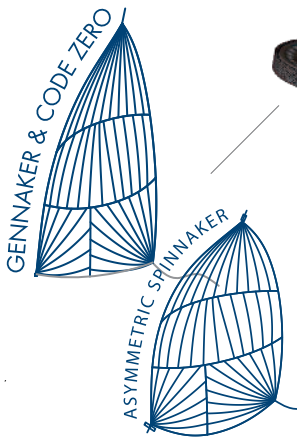
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MAXI-YACHTS
RACING UNITS

CUSTOM EQUIPMENT

Crédit Photo : Arzra Navi 2013



From maxi-yachts to cruising boats :

Facnor has built a solid reputation of reliability and expertise within the elite circles of the maxi yachts as well as Ocean racers. For many years, through the famous races such as the Vendée Globe, the Volvo Ocean Race, The Race or the latest MOD70 circuit, extreme navigators have relied on Facnor equipment. In partnership with high experienced sailing teams, Facnor has innovated and improved performance and strength of its products.



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Crédit Photo : Mark Lloyd / MOD S.A.

MAXI-YACHTS & MAXI-COURSE

Custom

Know-how & Tailor made solutions

The custom projects for ocean cruising or racing maxi-yachts require high tech means: computerised design, technical knowledge in metallurgy and composite materials, and a constant updated data-base. Our team offers a good response, an efficient shipping management as well as an innovative spirit and capacity. Facnor has been successfully placed at the top rank of custom equipment suppliers.

MAXI-RACE EXCELLENCE

From its experience in ocean racing equipment, Facnor has shown its success in numerous races and circumnavigations. Such prestigious victories come from a willingness to take up the challenge.

Multi One Design to Ultimes

Facnor has worked on many different maxi racing sailboats projects, such as :

- 70' VOR (Volvo Ocean Race);
- Open 60' Imoca (last four victories in the Vendée Globe)
- Maxis : Mari-Cha (140')
- Multihulls (Géant, Groupama, Banque Pop),

- Multi One Design 70' (MOD 70)
- "Ultimes" (Sodebo Ultim, 102')

Our partnerships with skippers like Michel Desjoyeaux (multihulls, 60' monohulls) or Halvard Mabire (WOR 60', Open 60', Class 40') are set up on long-term basis. We have successfully gained the trust of our customers thanks to our responsiveness as well as our capacity in innovating and supplying constant high production.

Our Facnor flying sails furlers are designed to support high loads of over 500m² Gennakers with workloads up to 40 tons.



Mari-Cha III



Photo : Silvere-Juhel



Code Zero & Gennaker furler (titanium) on Baltic 197'



Tack plates on Magic Carpet III

Photo : G. Russo / North Sails

MAXI-YACHTS EXCELLENCE



Maxiyacht projects :

- Baltic 147' Visione,
- Baltic 197' Hetairois,
- Briand 108' Inouï,
- Class J 121' Shamrock V,
- Class J 131' Velshedha,
- CNB 76'
- Finot Conq 100' Nomad IV,
- Gun Boat 55', 60', 62', 66', 90'
- Maxi 147' Mari-Cha III,
- Maxi 140' Mari-Cha IV,
- Maxi 142' Sarissa & Mystere,

Maxi Open 115'

- Maiden Hong Kong,
- Maxi 85' Winquest,
- Perinavi 197', Perseus 3
- Sarissa 142' Bill Trip design
- Schooner 152' Windrose,
- Schooner 203' Athos,
- Superyacht 156' Hyperion,
- Swan 80, 82, 100, 112,
- VPLP 142' Hemisphere,
- Wally 80' and 82'
- Wally 94' Y3K,
- Wally 96' Magic Carpet 2,
- Wally 100' Magic Carpet 3,
- Wally 100' Dark Shadow,
- Wally 100' Alexia,
- Wally 107' Kenora & Nariida

See facnor custom brochure or consult our web site.



Facnor & the Maxi-yachts : Furlers of "Haute couture"

From its own experience gained in ocean races, Facnor has been offering Maxi yacht skippers to supply tailor made equipment. The high requiring projects must be carefully carried out: "Furlers of haute couture for high rank cruising". Facnor is nowadays well-known for its reliable and sturdy products. This led it to participate in some outstanding architectural projects. Recently Facnor supplied the furling parts for Club Med II one of the biggest cruising yacht, at 620 foot long. Windsurf (162 m).

GENOA & STAYSAIL



Crédit Photo : Association voile australe - Podorange

HEADSAIL FURLING & REEFING SYSTEMS



Your furling system for your navigation programm :
Facnor team is very much involved in innovation and customer needs. Thanks to our design team desire to search for new ideas and discuss with skippers their requirements, we have improved our ranges of furling systems and developed specific features for each. Each sailor will be able to find the Facnor furling gear suitable for his navigation : classic drum (LS/LX/RX), webbing drum (FD), or electrical motorised drum (EF).



Photo credit : Barba.no / Andreas Heide



LS/LX/RX CLASSIC DRUM

P8



FD WEBBING DRUM *

FlatDeck

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* Award Sail magazine 2011
* Award Segeln Magazine 2012



RECOMMENDATIONS & ACCESSORIES

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SECTIONS

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Already widely tested round the world, the LS-LX-RX ranges have resistant sections and connectors and are fitted with bearings running in grease.

RELIABILITY OF THE MECHANISMS

LS-LX-RX features:

- No maintenance bearings
- Easy access inside of drum mechanism
- Rotating tack fitting (LX & RX)
- Large range of sections and strong connections
- Easy installation (thanks to the telescopic section)



Photo Credit : Deltavoiles



Halyard deflector wheel
(see page 16)

High load Swivel
Steel bearing running in grease

Strong sections and connections
Torx® screws for an easy fitting and further dismantling (see p.22)

Bottom telescopic section
enables to adjust foil section length, no cutting (see p. 22)

Internal turnbuckle fitting
provides space inside for the turnbuckle (see page10)

Rotating tack fitting (LX & RX)
Fitted with Torlon® balls : this system takes up automatically the sail fullness when furling.

Synthetic insulation
to prevent electrolysis

360° adjustable furling line
For an optimal running of the furling line

Sail Feeder (LX range)
The included pre feeder gives the ideal fitting to hoist the sail alone

DRUM & SWIVEL

Bearing box
Steel bearings running in grease

Smooth rotation
This bearing box takes the axial loads (halyard tension) and lateral loads (outhaul tension)

Anodization
(30 microns) protects these parts against impacts and abrasion



Photo Credit : Voile Australe / www.podorange.com



Features	Ranges		
	LS	LX	RX
Removable drum		■	■
Classic drum	■		
Stainless steel feeder		■	
Aluminium feeder	■		■
Rotating tack fitting		■	■
Fixed tack fitting	■		
Round sections	■	■	
Elliptical sections			■

You will find within the three ranges of headsail furling and reefing systems (LS-LX-RX), the Facnor product adapted to your needs either cruising, ocean navigation or racing.

"CRUISING" RANGE LS&LX

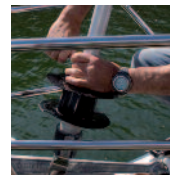
LS / LX cruising programm : the LX range corresponds to an "upgraded" range featuring a removable drum, a rotating tack fitting, and a stainless steel feeder.

Model	LS 60	LS 70	LS 100	LS 130	LS 165	LS 180	LS 200	LS290	LS330
	LX 60	LX 70	LX 100	LX 130	LX 165	LX 180	LX 200	LX290	LX330
Boat length (meters & feet)	5,5 ↓ 7 m	6,5 ↓ 8 m	7,5 ↓ 9 m	8 ↓ 11 m	9 ↓ 12 m	10 ↓ 13 m	11,5 ↓ 14 m	13 ↓ 18 m	15 ↓ 28 m
	20' ↓ 23'	21' ↓ 28	24' ↓ 29'	26' ↓ 36'	29' ↓ 40'	40' ↓ 43'	38' ↓ 45'	43' ↓ 60'	50' ↓ 90'
max.	5	5	6	6-7*	8-10*	8-10*	10-12*	12-14*	14-22*
forestay ø (mm & inch)	5/32"	5/32"	1/4"	1/4" 9/32" *	5/16" 3/8" *	5/16" 3/8" *	3/8" 1/2" *	1/2" 9/16" *	9/16" 3/4" *
Section Weight (g/m)	SX 25 577	SX 25 577	SX 33 658	SX 33 658	SX 39 914	SX 39 914	SX 47 1095	SX 47 1095	SX 53 1413
Halyard swivel	CHD25	CHD 25	C 33	C 33	C 39	C 39	C 47	C 47	C 600
Options	link plates / turnbuckle								

*necessary to have removable eye or turnbuckle

"RACING" RANGE RX - REMOVABLE DRUM

RX racing/cruising programm : The aerodynamic sections (see p. 22), the rotating tack fitting and the removable drum plates make the RXs well adapted for racing.

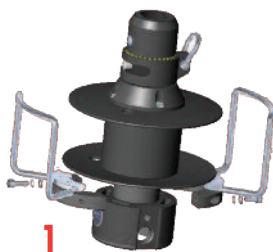


Removable drum : system used as a simple head foil

Just a few minutes are needed to change the furling system into a twin groove head foil ready for racing.

Model	RX 70	RX 100	RX 130	RX 165	RX 220	RX260	RX300
Boat length (meters & feet)	6,5 ↓ 8 m	7,5 ↓ 8,5 m	8 ↓ 9,5 m	9 ↓ 11,5 m	10 ↓ 12,5 m	11,5 ↓ 15 m	13 ↓ 18 m
	21' ↓ 24'	24' ↓ 29'	28' ↓ 30'	29' ↓ 37'	32' ↓ 42'	37' ↓ 49'	42' ↓ 60'
max.	5	6	6 or 7	8	8 or 10	10	12,7
forestay ø (mm & inch)	5/32"	1/4"	1/4" or 9/32"	5/16'	5/16" or 3/8"	3/8'	1/2'
	Necessary to have removable eye or turnbuckle						
Section: Weight (g / m)	R 14 451	R 14 451	R 14 451	R 24 555	R 26 641	R 26 641	R 34 991
Halyard swivel	C 14	C 14	C 14	C 24	C 26	C 26	C 34
Options	link plates / turnbuckle						

1. Unscrew and remove the furling line guide



2. Remove the half plates



3. Fit the two half protection rings

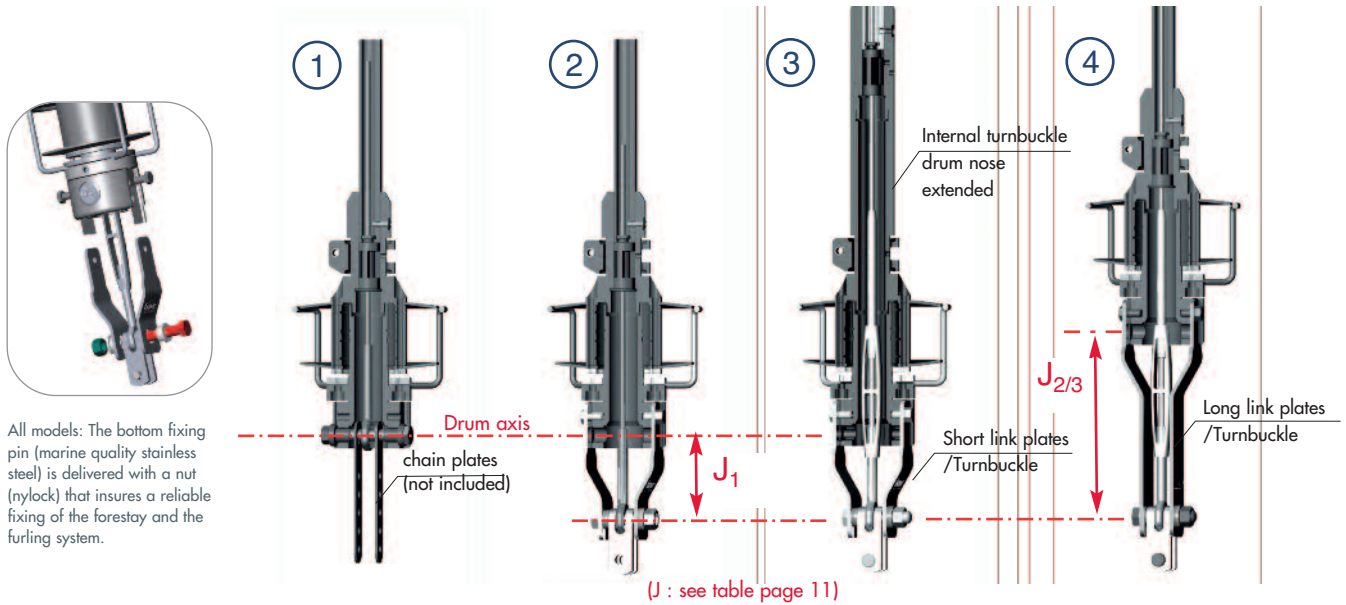


4. Once the half plates are removed, a racing Genoa can be hoisted using the twin groove head foil



4 POSSIBLE TYPES OF INSTALLATION

The drum fixation depends on the bottom forestay terminal fitted on your boat :



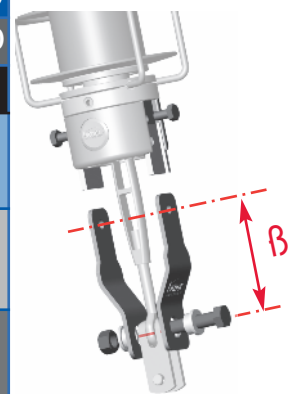
All models: The bottom fixing pin (marine quality stainless steel) is delivered with a nut (nylock) that insures a reliable fixing of the forestay and the furling system.

Terminaison basse étai	Eye + chain plates	Eye + jaw toggle	Turnbuckle + double jaw toggle	Turnbuckle + double jaw toggle
Type de montage	① Standard	② with short link plates	③ with internal turnbuckle & short link plates	④ with long link plates

LINK PLATE KITS & INTERNAL TURNBUCKLE FITTINGS

Short link plates option pict ② ③: bent stainless steel plate 4 or 5 mm thick. Pin to pin = 100 ou 150 mm
Long link plates option pict ④: bent stainless steel plate 4 or 5 or 6 mm thick.. Pin to pin = 200 ou 250 mm
Extra-long link plates option (only for biggest models, see table below) : bent stainless steel plate 6 mm thick. Pin to pin = 350 mm.

Option lattes	LS 60	LS 70	LS 100	LS 130	LS 165	LS180	LS 200	LS290	LS330
	LX 60	LX 70	LX 100	LX 130	LX 165	LX 180	LX 200	LX290	LX330
	-	RX 70	RX 100	RX 130	RX 165	RX 220	RX260	RX300	-
Short link plates option - Pin to pin β Thickness (mm) + Heigth J1 / Standard (mm)		lgth 100 thk 4 + 82			lgth 150 thk 4 + 128		lgth 150 thk 5 + 126		
Long link plates option - Pin to pin β Thickness (mm) + Heigth J 2-3 / Standard (mm)		lgth 200 thk 4 + 182			lgth 250 thk 5 + 228		lgth 250 thk 6 + 226		
Extra-long link plates - Pin to pin β Thickness (mm) + Heigth J 2-3 / Standard (mm)	-	-	-	-	-	-	lgth 350 thk 6 + 326		



Internal turnbuckle option fig. ④: With the internal turnbuckle fitting, the turnbuckle can be positioned inside the drum and be easily adjusted. 5 models available

Internal turnbuckle option	LS 60	LS 70	LS 100	LS 130	LS 165	LS180	LS 200	LS290	LS330
	LX 60	LX 70	LX 100	LX 130	LX 165	LX 180	LX 200	LX290	LX330
LS & LX Internal turnbuckle fitting \varnothing inner dimension & lgth (mm)	\varnothing 28 lgth 256	\varnothing 34 lgth 279		\varnothing 42 lgth 315		\varnothing 50 lgth 432		\varnothing 64 lgth 546	
RX Internal turnbuckle fitting \varnothing inner dimension & lgth (mm)	-	RX 70 \varnothing 28 lgth 256		RX 165 \varnothing 34 lgth 279		RX260 \varnothing 42 lgth 315		RX300 \varnothing 50 lgth 432	



LS-LX-RX

Strength and reliability

CLASSIC DRUM FURLING & REEFING SYSTEMS



Greasing screws :



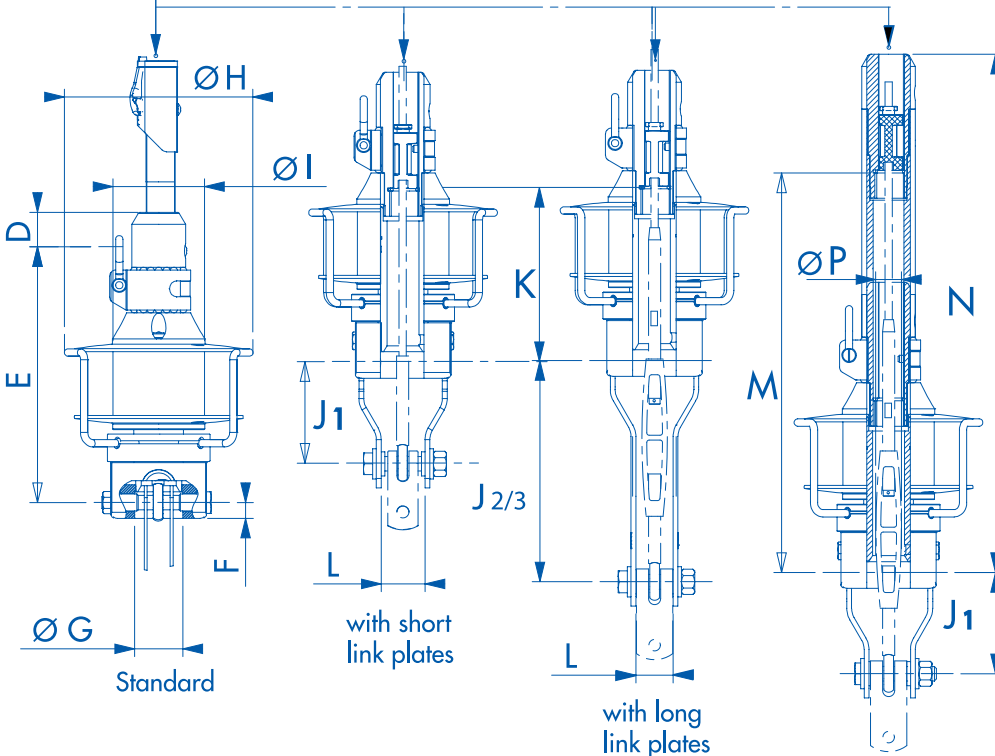
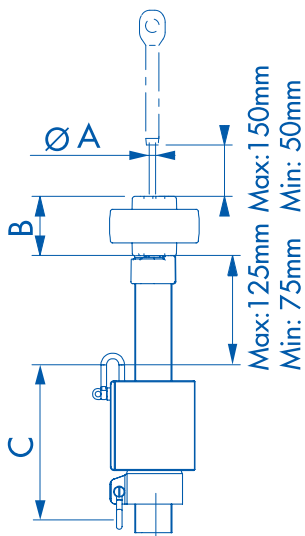
When assembling and servicing during the winter your furling gear, put grease on the screws situated at the bottom telescopic section and the top of the drum link plates. This will simplify the dismantling or turnbuckle access if necessary.

Reminder : no need to cut the forestay when installing Facnor furling system (see p. 22)

Rinsing the drum/swivel : The LS-LX-RX furling systems do not require any specific maintenance except from regular cleaning with fresh water. This will remove salt deposits, source of corrosion.

LS-LX-RX DIMENSIONS

Measurements (mm)	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX
	60	70	100	130	165	180	200	290	330
		RX	RX	RX	RX	RX	RX	RX	
		70	100	130	165	220	260	300	
DIMENSIONS									
B	53	53	53	53	53	53	53	53	53
C LS-LX	154	154	170	170	182	182	238	238	286
C RX	-	154	154	154	170	182	182	238	-
D	34	34	29	29	16	16	28	28	38
E	207	207	225	225	241	241	278	278	306
F	13	13	12,5	12,5	18	18	20	20	20
G	40	40	48	48	56	56	78	78	78
H	146	157	171	191	210	225	246	276	320
I	76	76	84	84	95	95	124	124	124
J	(See page 10)								
K	142	142	156	156	173	173	202	202	219
L	26	26	32	32	41	41	61	61	61
M	331	331	367	367	419	419	551	551	687
N	429	429	465	465	513	513	656	656	812
ø P	28	28	34	34	42	42	50	50	63



Note: The specifications are subject to change without notice, please refer to your "pro support" on the extranet Facnor (reserved for dealers) for more information or discounted technical support www.facnor.fr.

with internal turnbuckle option & short link plates





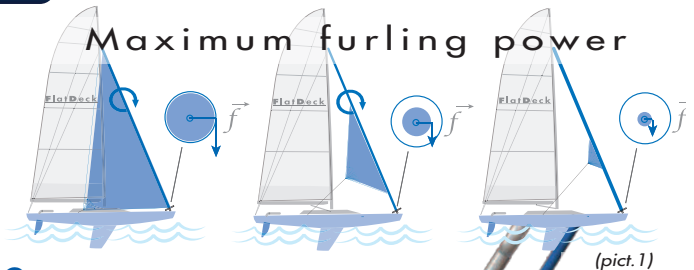
Photo: © Raudaschl

FlatDeck is a powerful furling system fitted with a webbing. This great Facnor innovation offers safe and easy headsail furling: no reefing line overriding and a massively improved torque. Overall, with the FD low profile drum, you benefit from a maximum luff!

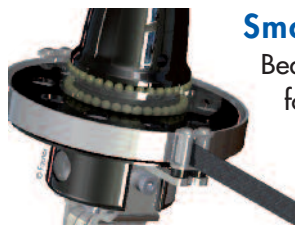
PERFORMANCE & EASY FURLING

FD Features:

- Maximum power when you start furling in
- Maximum luff thanks to the low profile drum
- No risk of overriding (webbing guide exit)
- Complete webbing & swivel fitting /rope & leads
- Rotating tack fitting
- Matching with LS/LX/RX models
- Resistant webbing(> 1/2 ton) and against ultra violet rays



Great torque
since the beginning (see pict 1)



Smooth rotation

Bearing box supports both halyard and sail foot tensions.

High load Swivel

Steel bearing running in grease

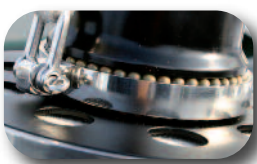
"R" ou "SX" foil sections

Two types of sections according to navigation : "R" (elliptical) or "SX" (rounded section).

See p 22.

LS/LX/RX Conversion into FlatDeck

Possibility to upgrade their classic Facnor furling system* by adding a new FD drum. (* see page 13)



Internal turnbuckle fitting

360° Rotating tack fitting

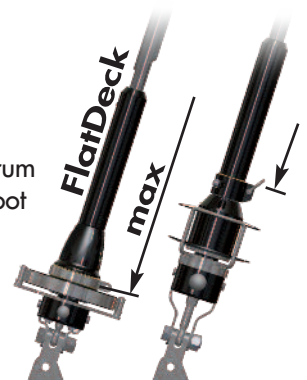
fitted with Torlon® balls : takes up automatically the sail fullness when furling.

Low drum

fitted with short link plates for limited height

Maximum luff

thanks to the low profile drum and the Genoa tack and foot that lays close to the deck (the Flatdeck offers 20 cm of additional luff length compared to an equivalent classic drum style furler).



Webbing guide exit

This eliminates overrides as the webbing lays flat inside the drum.



High resistance webbing

Dim stretching and UV resistant webbing

FURLING LINE & SECTIONS



Webbing / Furling rope kit :

- See description of the furling line kit (see against). The webbing is connected to the line with a swivel. This high resistance swivel (more than 1 ton load) prevents the webbing from twisting. The oblong design of the swivel guarantees a free run.



Foil sections :

As performance orientated products, one FD range is supplied with thin and lighter "R" foil sections. The other FD range, more adapted for cruising, is fitted with round "SX" sections (see page 22).

FD Standard kit:

- drum
- internal turnbuckle fitting
- short link plates
- R sections + connexions
- halyard swivel
- webbing / rope kit

Installation of the furling line kit:

(included in standard kit)

- furling line swivel
- webbing (from 10 up to 27 m.);
- standard furling line;
- 1 block + s-s leads;

International awards:

- 2012 Segeln Award (Germany)
"best sailing equipment category"



- 2011 Pittman Award (USA)
"Racing gear category"



"R" Retro-fitting:

Possibility to connect the "R" foil sections from an existing RX drum onto a FD one.

"SX" Retro-fitting: boat owners possessing a Facnor LS/LX furling equipment (SX sections) can enjoy the confort and performance brought by the drum FD models (FD90, FD170, FD210, FD280). For further information, please contact your Facnor agent.

"RACING & RACING - CRUISING" FD RANGE

Racing / cruising navigation program

	FD 110	FD 190	FD 230	FD 310
Boat length (feet-meters)	26' → 29' 8 → 9 m	29' → 39' 9 → 12 m	36' → 43' 11 → 13 m	41' → 60' 12,5 → 18 m
	Elliptical sections R			
Section weigh / meter	R 14 451 g	R 24 555 g	R 26 641 g	R 34 991 g
max. forestay ø* (inch & mm)	9/32** ø 7**	5/16" ø 8	3/8" ø 10	1/2" ø 12,7
Halyard swivel	C 14	C 24	C 26	C 34

*necessary to have removable eye or turnbuckle

** Close turnbuckle cage if open cage ø > 24 mm



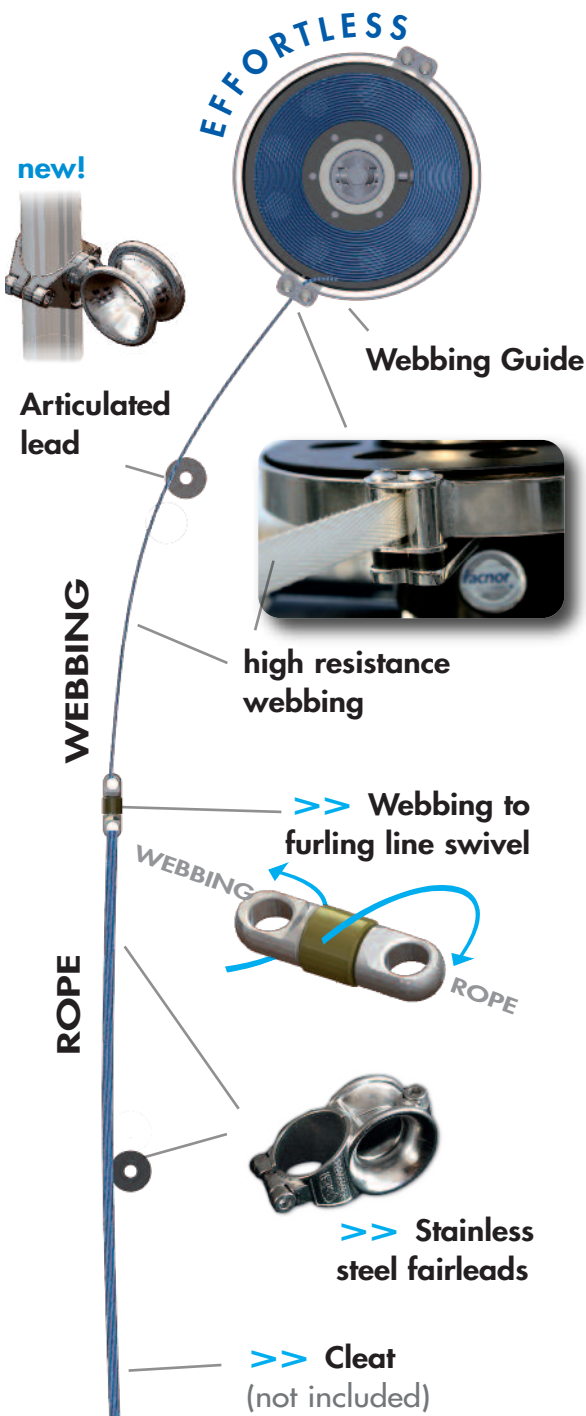
"COMFORT - CRUISING" FD RANGE

Comfort - Cruising navigation program

	FD 90	FD 170	FD 210	FD 280
Boat length (feet-meters)	20' → 26' 5,5 → 8 m	24' → 36' 7,5 → 11 m	29' → 43' 9 → 13 m	38' → 60' 11,5 → 18 m
	Rounded sections SX			
Section weigh / meter	SX 25 577 g	SX 33 658 g	SX 39 914 g	SX 47 1095 g
max. forestay ø* (inch & mm)	5/32" 5 mm	1/4" - 9/32" 6 / 7* mm	5/16" - 3/8" 8 / 10* mm	1/2" - 9/16" 12 / 14* mm
Halyard swivel	CHD 25	C 33	C 39	C 47



EASY INSTALLATION WEBBING & DRUM



Webbing fitting :

- **efficient and quick installation:** thanks to a complete kit (included. see p.13)
- The furling line guide leaves various possible ways of fittings. Your Facnor agent will suggest you the most adapted solution.

Furling system assembly :

- Like LS/LX/RX ranges, the drum fitting depends on the forestay terminal (see page 10).
- You can even change your LX/LS/RX drum for a FlatDeck one with **keeping the existing foil sections.**

Dimensions : the gain in luff length with low profile FD drum is obvious (see chart below). To achieve this aim, the base of the drum has been lowered and standard link plates are short (see table against).

Furling line leads : The s-s leads are simply screwed round the stanchion. They have been specially designed for the free running of the swivel. The kit includes an articulated lead (new) to be fitted at the first front.



INTERNAL TURNBUCKLE FITTING (STANDARD)

With the internal turnbuckle fitting, the turnbuckle can be positioned inside the drum and be easily adjusted. 4 models available on the FDs.

Internal turnbuckle fitting (delivered in the standard kit)	FD 90	FD 170	FD 210	FD 280
		FD 110	FD 190	FD 230
Internal turnbuckle fitting ø iner dimension & length (en mm)	ø 28 lgth 312	ø 42 lgth 420	ø 42 lgth 420	ø 50 lgth 592

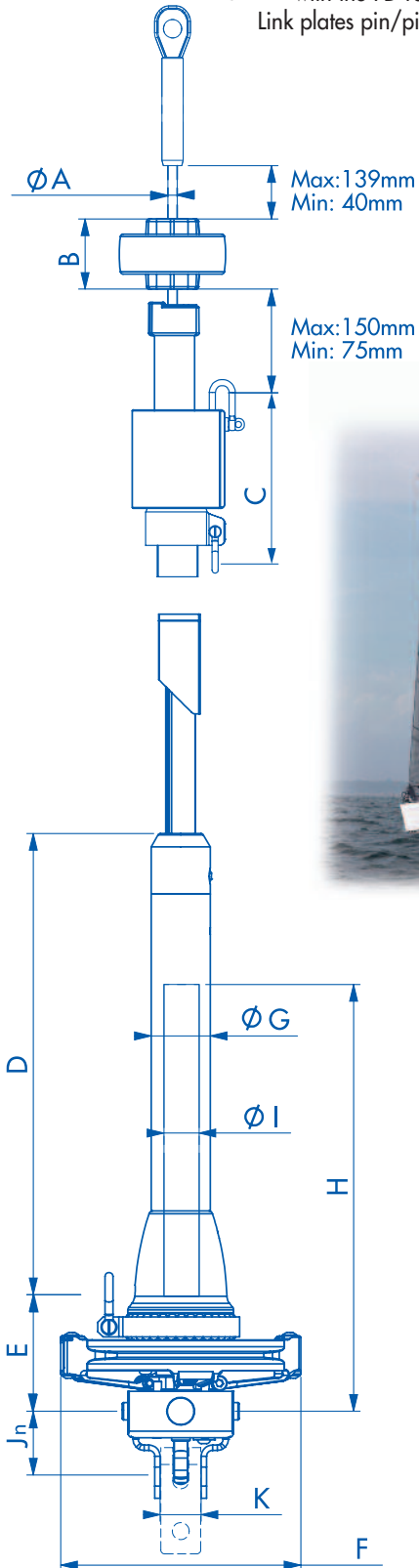




FD LINK PLATES DIMENSIONS

Link plates model			FD 90	FD 170	FD210	FD 280
			FD110	FD190	FD 230	FD310
STANDARD	short link plates kit	J1 (mm)	lgth 48	lgth 66	lgth 77	
		thickness	thk 4	thk 4	thk 5	
OPTIONS	medium link plates kit	J2 (mm)	lgth 100	lgth 150	lgth 150*	
		thickness	thk 4	thk 4	thk 5	
	long link plates kit	J3 (mm)	lgth 200	lgth 200	lgth 200*	
		thickness	thk 4	thk 5	thk 6	
extra-lg. link plates kit	J4 (mm)	-	lgth 250	lgth 250*		
	thickness	-	thk 5	thk 6		

Note :
with the FD range:
Link plates pin/pin = J



Max: 139mm
Min: 40mm

Max: 150mm
Min: 75mm

* ø A < 12 max.

FD MODELS DIMENSIONS

Measurements	FD RANGE DIMENSIONS			
	FD90 FD110	FD170 FD190	FD210 FD230	FD280 FD310
	DIMENSIONS (mm)			
B	53	53	53	53
C	140	148	178	205
D	342	466	466	634
E	88	92	92	105
F	182	232	232	282
G	45	61	61	73
H	332	459	459	632
I	28	42	42	50
J	(See table "link plates" above)			
K	30	40	40	60
ø Max turnbuckle body	24	38	38	46

H,I = Availabe space for the turnbuckle inside the drum



Photo Credit : iBoats / J11

Photo Credit : © Pierrefik ConitIn / IDB Marine



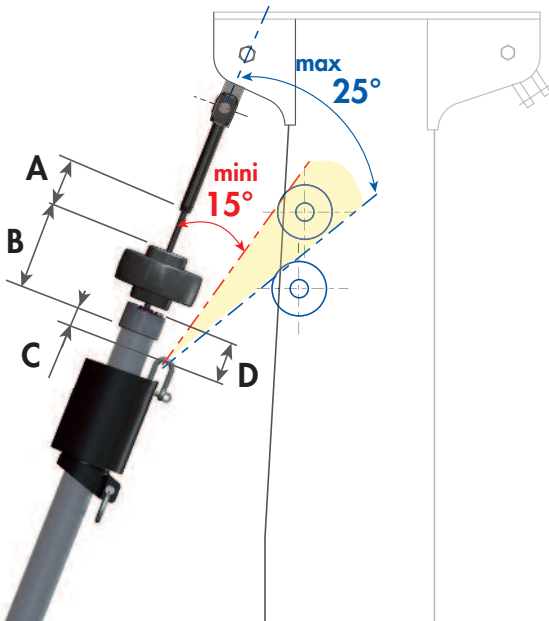


RECOMMANDATIONS : HALYARD ANGLES

Halyard deflector wheel :

It prevents the halyard from wrapping round the forestay and also deflects Spinnaker

halyard. It is important to maintain this part to protect the forestay.



Halyard angle with forestay :

- It must be situated between 15 and 25°
- Distance between halyard swivel & top car must not measure more than 150mm.

A = mini 50 mm and maxi 80 mm between halyard deflector wheel and bottom end of the forestay terminal.

B = 78 mm

C = 80 mm max. between the halyard swivel & the top car (after sail stretching)

Note: These average values fluctuate according to the mast geometry. We strongly recommend that you instruct a skilled professional to install your furling system (see our worldwide agent network on www.facnor.com)

USE OF THE HALYARDS SPECTACLES

**Universal Spi spectacles :
 Halyard handling**



If the angle between the halyard and the forestay is too narrow (less than 15°), it is recommended to add universal spi spectacle to open this angle. It prevents the halyard from wrapping around the forestay. (Sparcraft spectacle range)

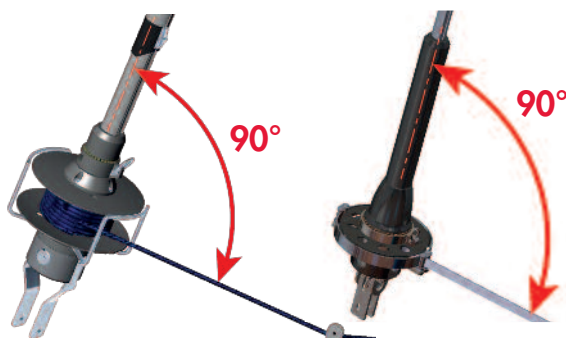
Sparcraft spi spectacle model	∅ A int. (mm)	∅ Rope (mm)
Small size (with 4 rivets) ref. Sparcraft 43220.000.035	∅ 12	∅ 5 ∅ 6 ∅ 7 ∅ 8 ∅ 10
Middle size (with 4 rivets) ref. Sparcraft 43220.000.025	∅ 17,6	∅ 12 ∅ 14 ∅ 16
Large size (with 4 rivets) ref. Sparcraft 43220.000.015	∅ 22	∅ 18 ∅ 20 ∅ 22

RECOMMENDATIONS FOR FURLING LINE FITTING

90° for the furling line :

Whatever furling model (LS, LX, RX or FD), the furling line must run with 90° angle from the forestay (see against).

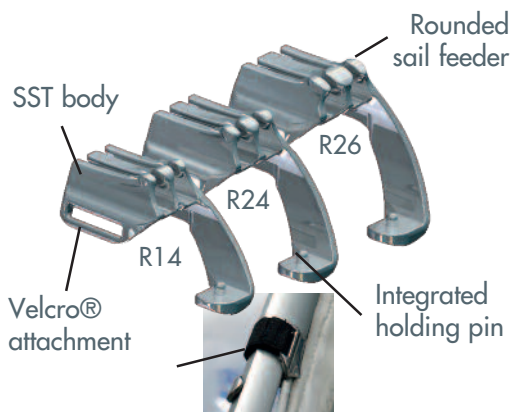
LS-LX-RX models: the furling line must run through one SST guide.



Halyard tension : The halyard can be slackened when sailing downwind or in light winds (and inversely) in order to improve boat performance. After sailing, one should not forget to slacken the halyard, this will release tension in the sail, mast sheaves and above all the halyard swivel.



ACCESSORIES FOR R SECTIONS



Sail feeder (R14, R24, R26) :

- for quick change of sail, entirely removable.
- Velcro strap : ensures an easy fitting or disassembly from **elliptic R foil sections**.
- design and smooth shape prevent from luff tape wearing.
- strength (SST)
- Ideal to convert your furling system (fitted with R14, R24 and R26 section) in head-foil.

Sail feeder	
Model	Reference
R14	09130128142
R24	09130128242
R26	09130128262

FD-LS-LX-RX-FX+ ACCESSORIES

Furling line / Fairleads kit

Furling line kit includes adapted polyester good quality rope, adapted to the well functioning of the furling line



Rope & leads kits	LS-LX-RX model	Reference
ø 6 x 20 m + 4 single fairleads	LS/LX 60-100 RX 70-100	24106200400
ø 8 x 24 m + 4 single fairleads	LS/LX 130-180 RX 130-220	24108240400
ø 10 x 24 m + 4 single fairleads	LS/LX 200-290 RX 260-300	24110240400

Fairleads :

Those different fairlead models allow you to build the best circuit of furling lines for Genoa's. The fairleads are adapted to the FD swivels and also for Gennaker and code zero furlers (continuous line).



Description	for stanchion ø	Reference
Deck fairlead ø 18 (+ washer + nut M10)	-	24000102400
Articulated fairlead (rope hole ø 20)	25 à 28	24000102300
Single fairlead (rope hole ø 20)	25	24000102200
Twin fairlead (rope hole ø 20)	25	24000102130
Twin fairlead (rope hole ø 20)	28	24000102110



The fairlead can be open in order to fit a spliced furling line (see against).



With its entry into the experienced Wichard Group, Facnor now offers a new range of reliable and high performance electric motorized furling systems for sailing yachts 40' and above. With the EF furling systems handling the headsails from the cockpit becomes effortless. A great comfort in navigation, especially for larger boats.

CONFORT & PERFORMANCE

EF Features :

- Wired or radio remote control (see page 20)
- Waterproof drive unit
- No specific maintenance required
- Optimized power (max 800W, speed 30t/min)
- Low energy consumption
- Reduced noise level
- Fitted over the existing forestay without cutting
- EF motorization kit for converting Facnor manual furling gears (LS/LX200 to 330)
- Available in 12 and 24V with inverting box (see details page 20)
- International 3-year-warranty

Special aluminium cover

Strong drive unit

Anti-corrosion surface treatment

Oven baked paint finishing for increased durability



Installation over the existing forestay

Passing through the drive unit.



Back up device

If manual operation is required a winch handle or the Facnor emergency continuous line system can be used (see page 20, option)



Stainless steel link plates, with multiple holes for drum

height adjustment according to anchor passage.



Great torque resistance thanks to large size connectors (see p. 22)





EF RANGE "COMFORTABLE CRUISING"

Easy use :

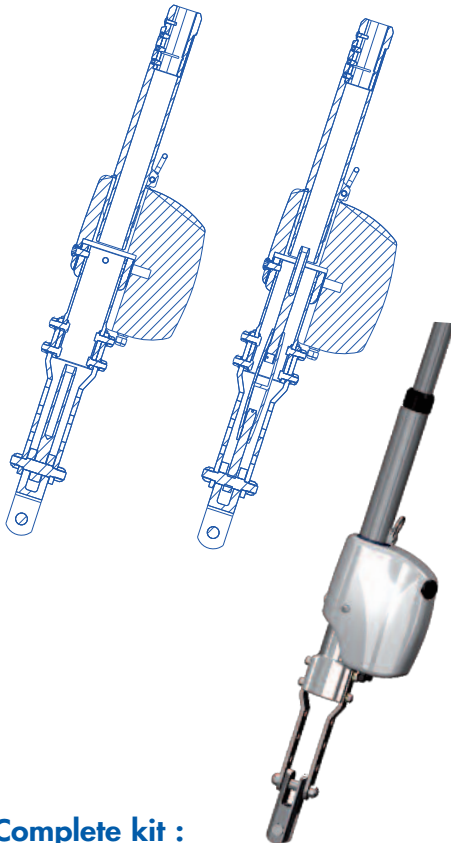
- Supplied with a wired or radio remote control



Boat length	Max forestay Ø	Section / Swivel	Model ref	Forestay length	Power / Rotation speed (max)	Voltage / Amperage
9 → 12 m 29' → 40'	8 mm	SX 39 / C 39	EF 390 SX 39 (12 / 24 V)	14 m 50	700 W (12V) 800 W (24 V) 30 tours / min	12 V / 60A ou 24 V / 30A
	10 mm*			16 m 50		
12 → 18 m 40' → 60'	12 mm	SX 47 / C 47	EF 470 SX 47 (12 / 24 V)	18 m 50		
	14 mm*			20 m 50		
+ 16 m + 55'	22 mm*	SX 53 / C 600	EF 600 SX 53 (12 / 24 V)	20 m 50		
				22 m 50		
				24 m 50		

* Installation with swage rigging screw or "manual"

** This power develops high performance while consuming low energy, therefore saving batteries.



Toggle and stainless steel link plates

fitted according to bottom forestay terminal (turnbuckle+toggle or eye+toggle). Toggle and stainless steel link plates are delivered in the standard kit.

EF FOIL SECTIONS & SWIVEL

Section ref SX47 ou SX53 : see page 22.

- The large sized connectors guarantee a great torque resistance. The telescopic section prevents any requirement to cut the foil sections when adjusting.
- Waterproof swivels, high load resistant ref C 47 for the EF470 and C 600 for the EF600 Maintenance free

Complete kit :

- motorization kit (drive unit, stainless steel link plates, toggle, inverting box, circuit breaker)
- foil section kit (see page 22)
- swivel, halyard deflector wheel

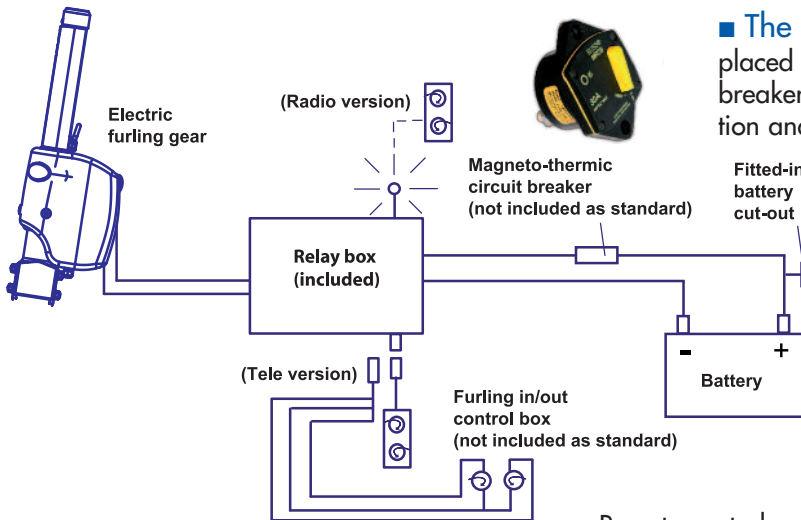
Options (see page 20) :

- wired or radio remote control
- emergency continuous line system



photo credit : Fontaine-Pajot

RELAY BOX / REMOTE CONTROL



■ The relay box is an polarity inverting gear that is placed between the power supply (battery + circuit breaker) and the drive unit. It inverts the rotation direction and therefore enables to furl in or out. the foil sections turn at constant speed. With the relay box a waterproof circuit breaker is also delivered in the standard kit and turns off the furling gear in case of overheating (due to a Genoa sheet not released for instance).

- Remote control :
 - wired (waterproof device)
 - radio version (pocket transmitter + receiver to be fixed underneath the top cover of the relay box).



Remote control	Model Ref.	Part number
Wired ①	EF390+470+600	56012000140
Radio version ② Pocket transmitter + receiver	EF390+470+600	56012000150

EMERGENCY SYSTEMS OPTION

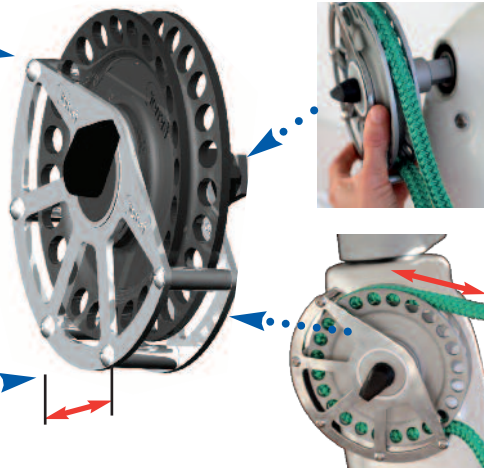
Operating in any circumstances :
The "FACNOR emergency system" is made up of a notched drive wheel and a continuous line. If an elec-

trical failure were to occur, this device allows the operator to quickly and easily furl in the headsail(standing one meter behind).

Sturdy fitting
corrosion resistant
(anodized aluminium
and stainless steel)

Furling power
thanks to the torque
of the continuous line drum

Compactness



Self-locking device :
The Facnor emergency system is fitted like the emergency handle, with a standard square drive winch socket.

Continuous furling line
Once the wheel is fixed, stand one meter behind the pulpit and pull the continuous line to manually operate the furling system.

- Adaptable on any standard model of electric/hydraulic furlers
- Ref. 03039000000. Thickness = 55,10 mm. Drum diameter = 165 mm

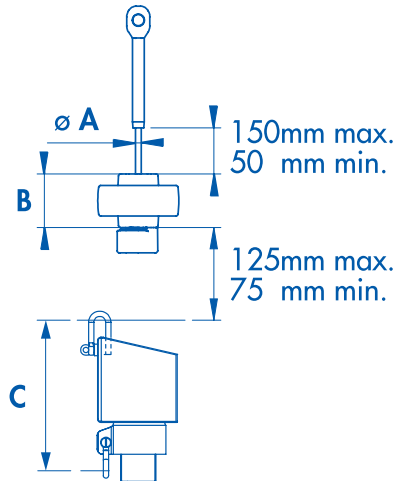
- 12 mm diameter line and protection bag included in delivery
- Speed of furling operation



EF DIMENSIONS

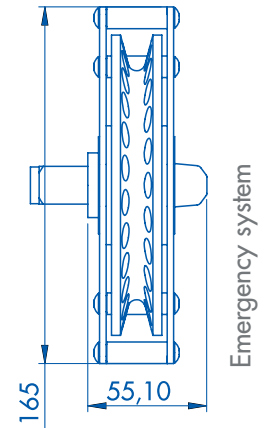
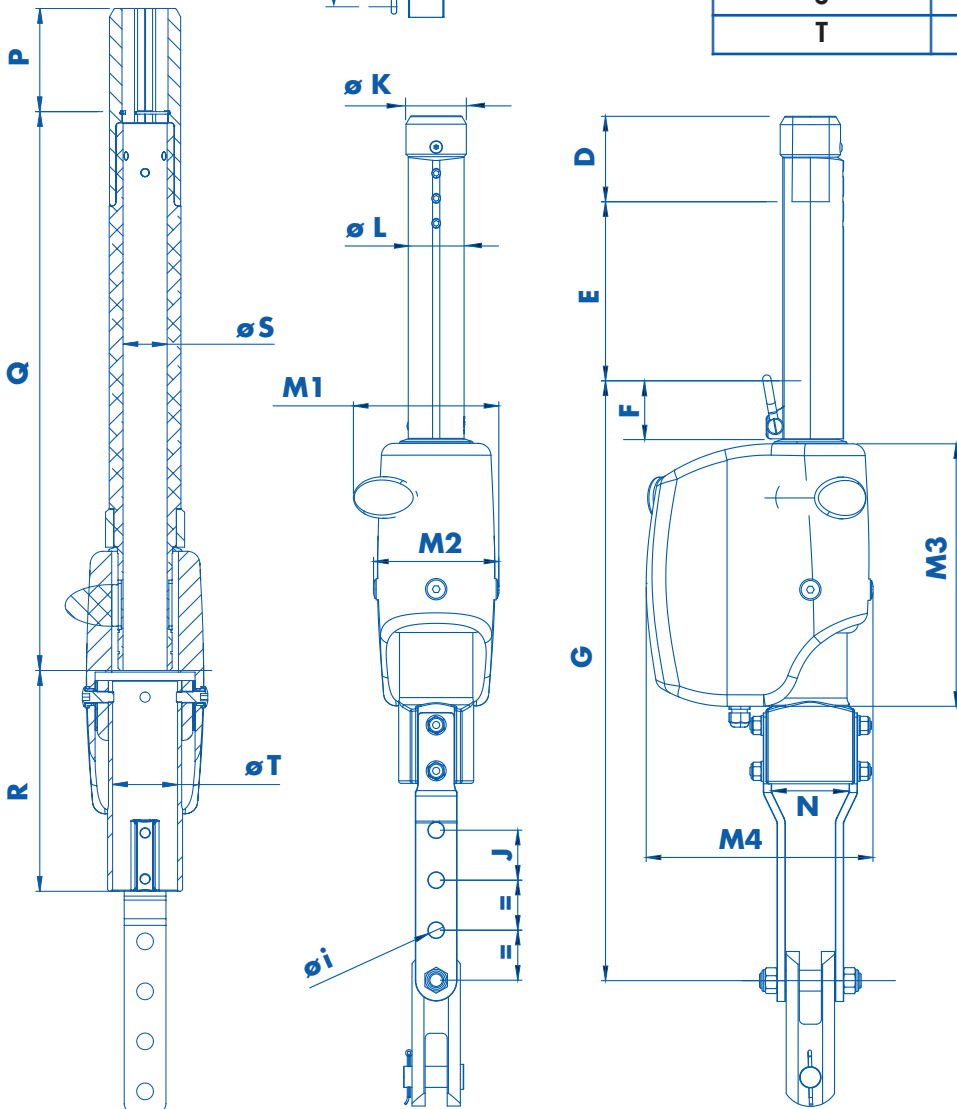


photo credit : HINCKLEY 42 DS © Phil Bennett



Electric furling system model	EF 470 SX 47	EF 600 SX 53
section ref.	SX 47 / CX47	SX 53 / C600
max. forestay \varnothing (* turnbuckle)	12 mm* 14 mm*	22 mm*
B	53	52
C	248	230
D*	103	124
E	215	440
F	75	75
G	720	720
M4	272	272
\varnothing I	19	19
J	60	60
\varnothing K	72	85
\varnothing L	72	86
M1	174	174
M2	150	150
M3	315	315
N	93	93
Q	435	671
R	265	265
S	53	53
T	78	78

* End of the telescopic section



STRENGTH & ADAPTABILITY

Foil sections are fitted on the various headsail furling and reefing systems : classic drum (LS, LX, RX), webbing drum (FD) and motorized drum (EF).

Long high performance polyamid bearing

centres forestay inside foil

CNC machining holes

insuring the sections will be perfectly aligned

Torx print

easy assembly and dismantling



Material insulated

Screws covered with tuff lock® (locking and insulating product)

Telescopic section

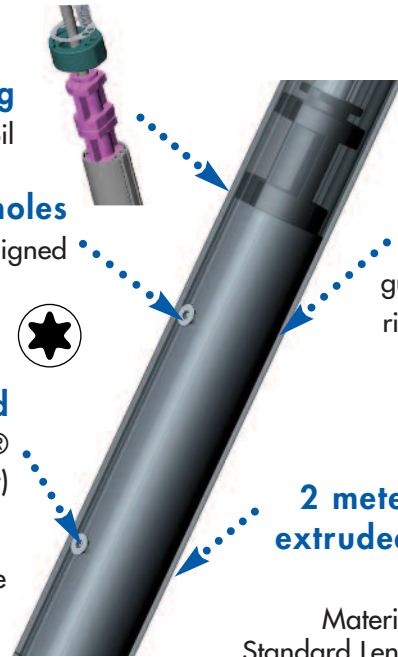
Allows adjusting the section length. Like the connectors, the telescopic section offers a high torque resistance

Connectors with high torque resistance

guarantee a great rigidity at the section connections

2 meters anodised extruded aluminium sections

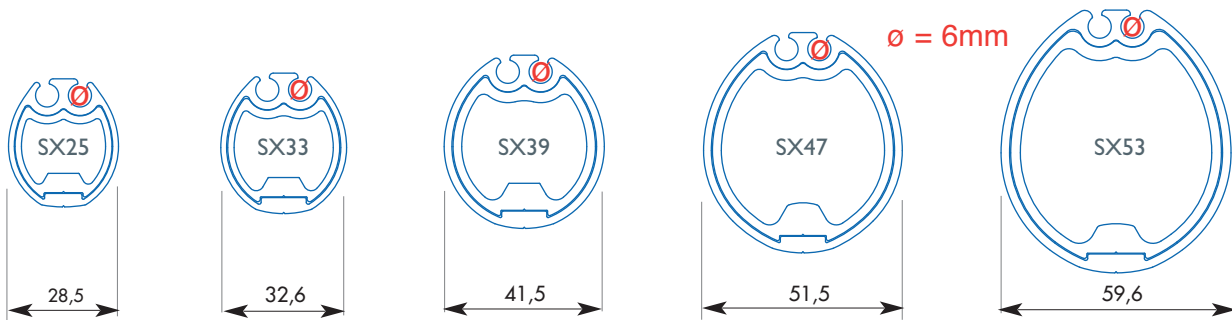
Material : 6000 series
Standard Length : 2 m (6'8")



SX & R SECTIONS DIMENSIONS

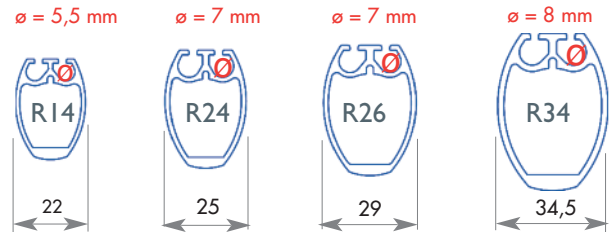
ROUNDED SECTIONS SX 25 / SX 33 / SX 39 / SX 47 / SX 53 :

The SX twin groove foil sections, round shaped, offer smooth furling as well as a high rigidity. We recommend a 5mm finished luff tape

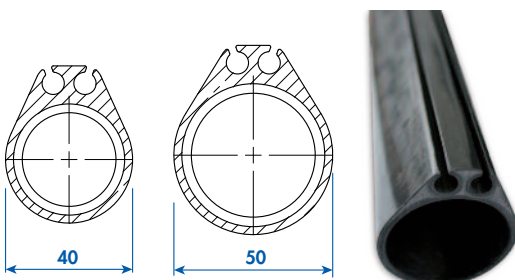


ELLIPTICAL SECTIONS R14 / R24 / R26 / R34

This range of sections offers good aerodynamics, and the double-groove allows easy sail changing. We recommend a 5mm finished luff tape except for the R14 (4.5 mm).



SC CARBON FOIL SECTIONS



- Carbon sections features rigidity as well as lightness (40% lighter than foil sections). The "water drop" shaped sections offers better aerodynamics.
 - The installation is simple as the elements are assembled with glue (no screw). This improves the torque resistance of the connected sections.
- TWO MODELS : SC40 & SC50 - Length : 4 meters.

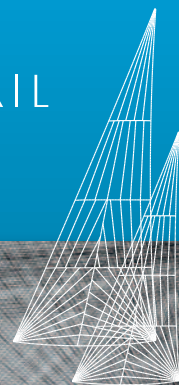


Photo credit : Carbon 3 - Tuco Marine



STRUCTURAL FURLERS

Structural furlers : the in/out furling systems
 The structural furler - unlike the Gennaker furler - supports both mast and sail loads. The Facnor 14-100T systems are fitted with anti-twist fiber forestay from 40 footers. Their reliability widely tested on ocean races has enabled Facnor to enlarge the range from 14 to 100 tons. The different STG 3-4T/STB 3T/FLT3T, must be fitted with a classic wire forestay from 24 to 30 footers.



Photo credit : Alpha



14-100T STRUCTURAL STAYFURLERS
 TEXTILE FORESTAY (from 40' to +130')

P24

STB / STG 3-4T / FLT 3T
 STRUCTURAL WIRE FURLERS
 (from 24 to 30')



P28



3 - 30 T INTERNAL & EXTERNAL LOCKS

P27



Photo : Jean-Pierre FEQUJET - Diam 24



Facnor has adapted the Open 60' Staysail furlers to other ranges of fast racing boats. These structural furlers support mast loads and can entirely furl in and out headsails (such as Solent, Staysail, Genoa). This system particularly dedicated to racing boats, like Class 40' is also supplied on ocean cruising yachts for Staysails.

The in/out furling system:

- This in/out system enables a performance sail (Solent, Staysail, Genoa).
- Structural system : the forestay (high quality textile fibers) turns and holds the mast.

PERFECT SAIL & LIGHTNESS

14-100 T structural furler features :



- Saving weight (up to 3 times lighter than a conventional furling system)
- Stronger furling power with large diameter drum
- Maximum luff thanks to the low profile drum (continuous line drum)
- Simple installation fitting various forestay terminals (see opposite)
- Resistant and tested for heavy loads
- Tensioning halyard possible by bottom 2-to-1 (see terminal options)

Two possible assemblies



The structural furlers can be connected onto the textile stay with classic thimbles or threaded cone-shaped terminals (Navtec system)



Top terminal

Fixation of the swivel at the head of the mast (delivered)

Head swivel

Connects the rotating stay to the mast and supports mast loads.

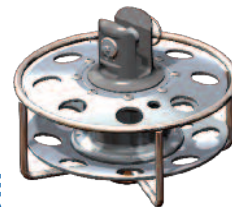
Anti-twist terminal

thimble or threaded connection terminal

Anti-twist structural stay

it supports the mast and also transmits the rotation of the bottom drum to the swivel

Continuous or discontinuous line drum



Discontinuous line drum :

- standard furling line
- handle from all winch of the cockpit

or



Continuous line drum :

- single block.
- the large diameter of the continuous line drum increases the furling power and reduces effort.
- Maximum luff length

Bottom terminal

enables to fit the continuous line drum to the foredeck chain plate (directly integrated on the drum)



14-100T STRUCTURAL FURLER RANGE
(Continuous or discontinuous line drums)



Parameters / Furler model*	14 T	20 T	24 T	31 T	40 T	54 T	75 T	100 T
Boat length (feet)	40'	45'	50'	60	60 / 70'	70'	+70'	
ROD equivalence	-17	-22	-30	-40	-48	-60	-76 & -91	-115 & -150
wire 1x19 equivalence (mm)	10	12	14	16	19	22	-	-
Kevlar wire working loads (safety coefficient x 2)**	5 T	7 T	8 T	11T	14 T	20 T	27 T	35 T

* model name = Kevlar stay breaking loads

** If we replace a metal wire or a rod forestay by a textile wire, this one will be largely over dimensioned, as the essential criteria to choose the model is not the solidity but the resistance against stretching. This is why the safety coefficient is so high.

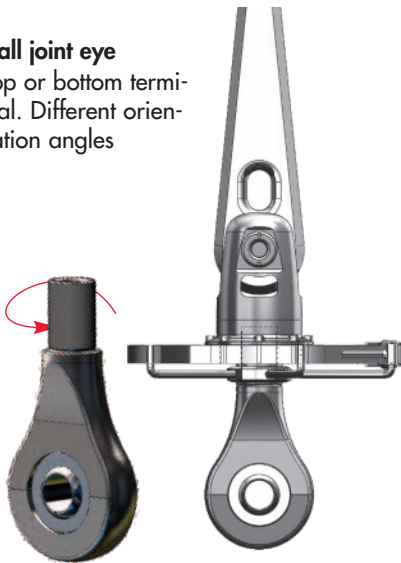
TERMINAL OPTIONS

Different articulating parts such as :

- terminals : ball joint eye, diabolos, twin anchor, lashing soft eye terminal,... many other terminals.
- interchangeable : the terminals are screwed into mechanisms. These articulating parts can be interchanged.

FOR BOTH TOP AND BOTTOM END

Ball joint eye
top or bottom terminal. Different orientation angles



Lashing soft eye terminal
(fitted above the swivel or underneath the drum) the lashing gives more flexibility to the articulation

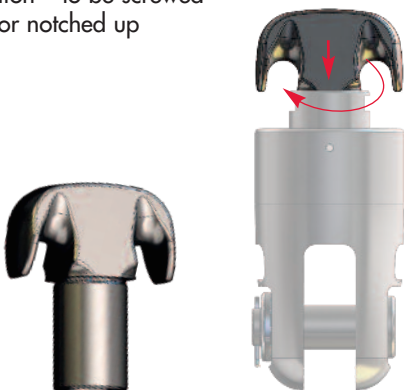


Eye terminal
for both top and bottom ends



BOTTOM END

Twin anchor
more flexible articulation – to be screwed or notched up



Soft solid sheaves
help to build a 2-to-1 or a 3-to-1 tensioning



Twin spool terminal
fitted underneath the continuous line drum it keeps its attachment in position (4-to-1)



- Materials : 17-4 PH stainless steel, Titanium (40% lighter than S/s), other materials

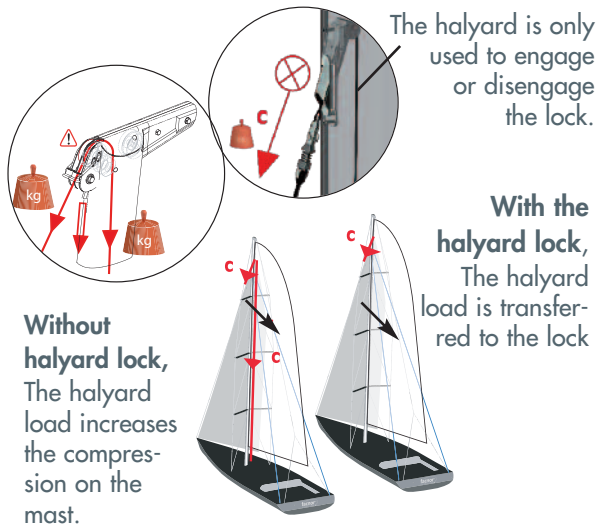


INTERNAL HALYARD LOCKS
Built into mast front

3 - 30 T

High resistance body Halyard locks improve flying sail use (Staysail/Gennaker) saving weight and reducing mast compression loads. This simple and efficient device makes the halyard locking/unlocking easy and safe. The Facnor lock tremendously eases the handling of flying forestays (2-to-1 no longer required). The halyard lock can be fitted either inside or outside the mast.

BUILT INTO MAST FRONT



>> Less compression on the mast

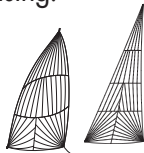
With the locking device, the halyard load is transferred to the lock, reducing nearly by half this compression and allowing lighter mast.

>> Reduction of the boat heel/windage

widely fitted on raceboats, the lock reduces the boat heel and windage, even in cruising.

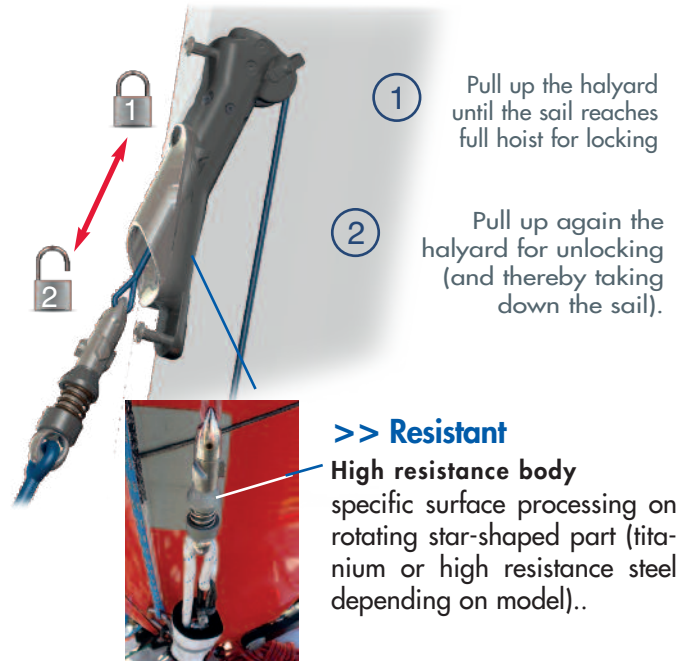
Different possibilities of use :

- Gennaker or code zero
- Staysail fitted on textile forestay
- Staysail fitted on furler with flying wire forestay
- Mainsail : back face of the mast, on request



>> Luff constantly tighten

When the wind pressure increases, it is not absorbed by the halyard elasticity but accelerates reaching maximum boat speed.



>> Reliable mechanism

"Star-shaped" inner part

The rotating ring is fitted with three projecting blocks that adjust themselves in the body of the mast part.

>> Easy installation and inspection

Optimum integration of the lock into the mast

- device fitted from outside the mast;
- mast cut following a jig;
- the integrated part that bears; sail load is fixed on the mast face only by two screws thanks to a clever design;



>> Halyards and sheaves preserved

>> Internal halyard locks technical features

Parameters / Lock model* (= working load)	3 T	5 T	7 T	10 T	12 T +	on request
Kevlar equivalent wire	10 T	14 T	20 T	30 T	40 T	
ROD equivalent	#12	#17	#22	#40	#48	
Wire equivalent 1x19 (mm) (inch)	8 (5/16")	10 (3/8")	12 (1/2")	16 (5/8)	19 (3/4)	
Dyform equivalent (mm)	7	8	10	14	16	

** model name = Kevlar stay breaking loads (see structural furler mention)



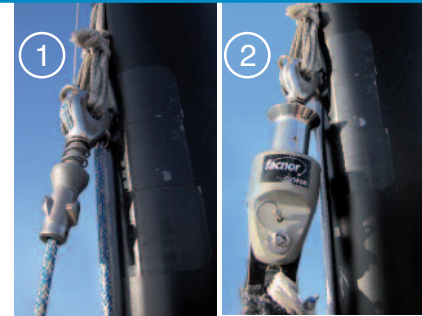
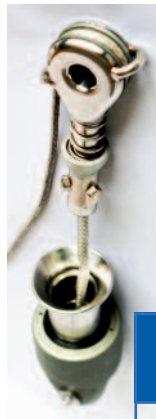
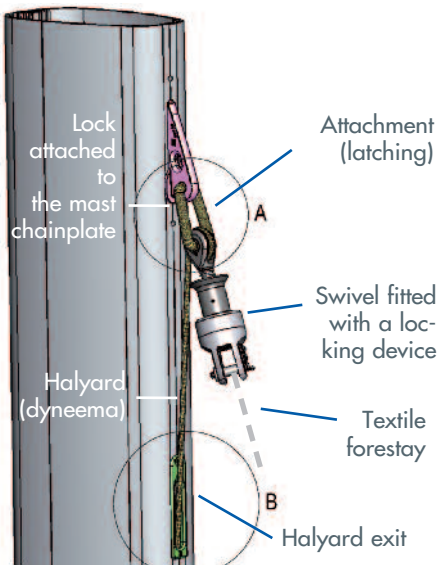
Credit Photo : Mark Lloyde / MOD. S.A.



Alternatively, the halyard locking device can be fitted on a mast chain plate. Among those external locks we distinguish two types : the two-in-one locking swivels and the locks attached by a loop.

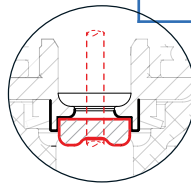
EXTERNAL LOCKS : SWIVEL & LOCK

>> Swivel & lock :
Double function, compact and light

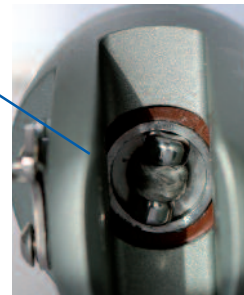


>> Swivel & lock technical features

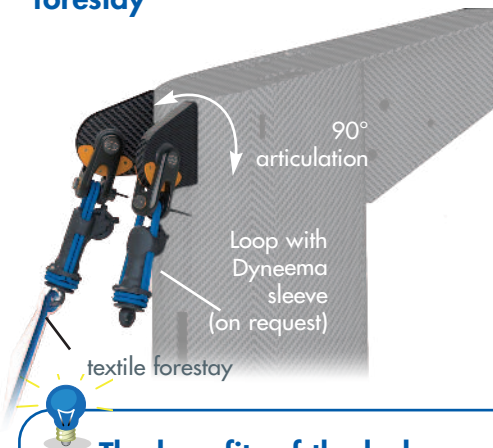
Parameters / Lock model* (= working load)	2 T	7 T	9 T	9 T+
Kevlar Equivalent wire	8 T	20 T	27 T	Please contact us
ROD Equivalent	#10	#30	#40	



A Dogbone blocks the halyard in the swivel



>> Polyvalent interface with the forestay



The benefits of the lock :



"Thanks to the lock, we can lower the furled staysail in order to tack or jibe easily, or even to reduce windage. Moreover, the locked staysail presents various advantages in comparison with a fixed forestay : sail furling, tight luff, easy handling. With the lock, hoisting and lowering the staysail is quick and so easy".

Halvard Mabire, skipper of the Class 40' Campagne2France and Facnor technical partner

EXTERNAL LOCKS WITH LOOP BODY

>> Fixed locking device and mobile pin :

- Easy & simply fitted : it can be fixed onto the head attachment with an articulated device (toggle, latching, Unibal ball or others).

- In this case, a small diameter sheave is integrated in the locking system. The halyard

can then run down inside or outside the mast.



16 tons lock for Maricha III (147') Code zero

>> External lock technical features

Parameters / Lock model (= working load)	3 T	5 T	7 T	10 T	12 T	16 T	24 T	30 T+
Kevlar Equivalent wire	10 T	14 T	20 T	30 T	40 T	54 T	75 T	100 T
ROD Equivalent	#12	#17	#22	#40	#48	#60	#76 #90	#115 #150



Photo credit : Latitude 46 - Tolnou

STG & STB FURLERS

WIRE STRUCTURAL FURLER STB/STG 3T
24 TO 30 feet units

STB / STG benefits

- The STG & STB are wire structural furlers, that are light and easy to install.

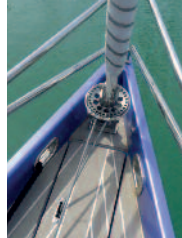
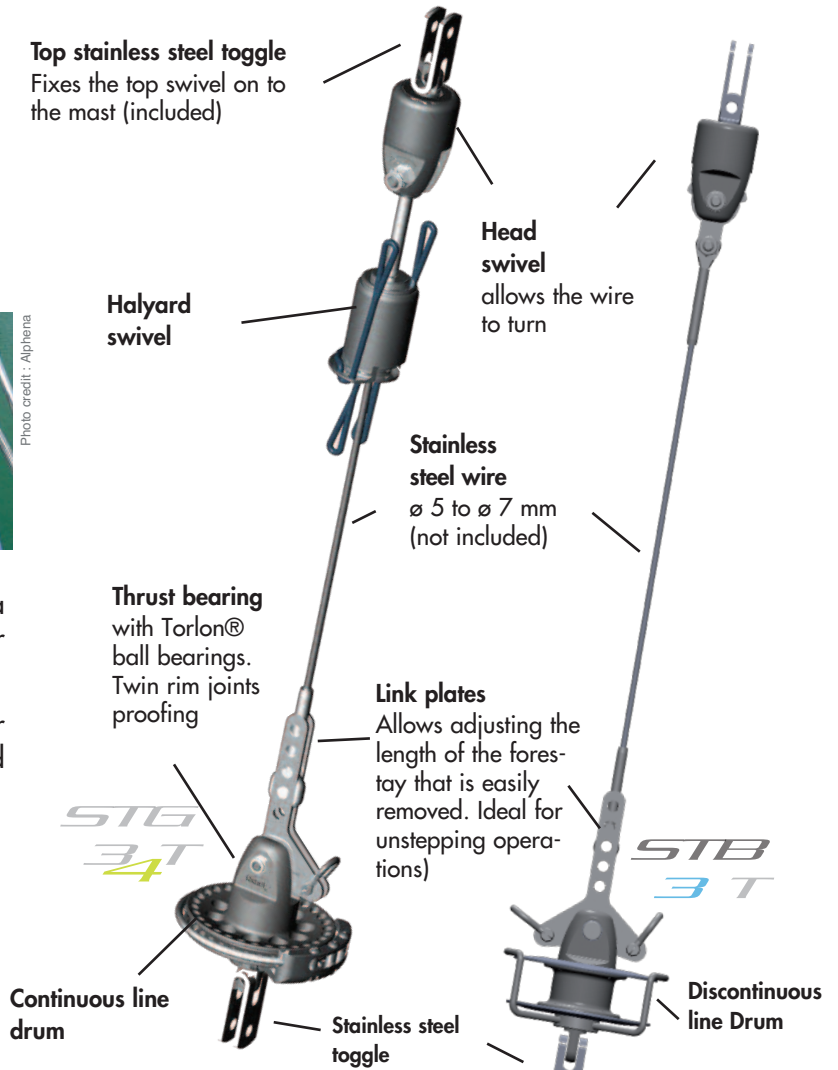


Photo credit : Alphaeta

Features

- The STG is equipped with an head swivel, a halyard swivel and a continuous line drum for maximum luff.
- The STB is a wire structural furler, cheaper version, with a discontinuous drum and a head swivel.
- Sails luff fitted with hanks or a zip.



Model	Boat length	Forestay diameter*	Working load	Ø Drum
STB 3T	from 7,5 to 9,5 meters	Ø 5 mm ou Ø 6 mm according to the type of boat	3 tons	(discontinuous line drum)
STG 3T				119 mm*
STG 4T	from 8 to 10 meters	Ø 7 mm	4,5 tons	227 mm

*Wire non delivered

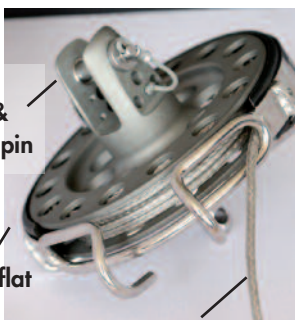


FLAT DRUM STRUCTURAL FURLERS

Perfect for racing boats : The 3T flat drum structural furler is compact, the discontinuous line is of vectran (diam. 5mm). The low profile mechanism offers a longer luff and its large diameter a strong furling power (diam 98 mm). It is easy to operate with the partially reduced diameter line.

Drum jaw & quick pin

Extra flat drum



Vectran with a partially reduced diameter discontinuous line



Facnor flat drum structural furler on Diam 24

Photo credit : Jean-Pierre FECOUET - Diam 24

Model	boat length	Forestay diameter*	Breaking load	Ø drum
FLT 3T	from 7,5 to 9,5 meters from 23' to 31'	Ø 5 mm or Ø 6 mm according to boat type	3 tonnes 6673 lbs	139 mm

CODE ZERO, GENNAKER & ASYMMETRIC SPINNAKER



FX+
FURLERS



A long experience in supplying top high quality racing Gennaker furlers has led Facnor to be a reliable partner for the fastest sailing boats. Facnor has kept the same innovative spirit in developing a full range of furlers : the **FX+** for Code zero/Gennakers and the **FAST** thimble for the asymmetric Spinnakers. As a complementary equipment to flying sails, the innovative **bowsprit** makes cruising easier.



START
& GO

NEW 2016!

Start & Go Rotation system
Operational clockwise or anti-clockwise



FX+ GENNAKER & CODE ZERO
FURLERS

P30



FAST THIMBLES for ASYMMETRIC
SPINNAKER FURLERS

P34

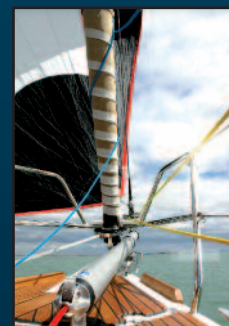
OPTIONS & CONTINUOUS
LINE INSTALLATION

P36



BOWSPRITS

P38





GENNAKER & CODE ZERO FURLERS

FX+
design by Facnor
Light, easy to fit, aesthetic

Further to fruitful technical exchanges with ocean racers, Facnor has developed a new sophisticated range of Gennaker/Code Zero furlers : the FX+. A true evolution : light, easy to fit and aesthetic.

COMFORTABLE SAILING WITH FLYING SAIL FURLERS

The Code zero & Gennaker furler is an **in/out system**. The anti-twist rope is captive within the sail luff tape.

FX+ features:

- Widely tested
- Lightness : optimised system and ultracompact (thanks to the carbon housing)
- Secured sail connection
- Easy to fit and to adjust
- Expanded and simplified use (see conversion for asymmetrical spinnaker : page 34-35-36)

Thimbles

- Stainless steel for FX+1500 /2500/4500 models
- aluminium for FX+7000 /12000/20000 models (see p. 36)

Strong mechanism bodies

Drum and swivel, machined from one single piece

Carbon housing

- lighter
- insures a smooth and perfect run of the furling line (no overriding)

Start and Go

Rotation drum self-locking device (optional). Fitted with a ratchet in S/s Duplex

NEW RATCHET SYSTEM



See the FX+ video on YouTube

Various attachment

according to the sails used (see page 36)

Anti-impact cover for swivel

In neoprene, high-visibility marking (delivered in standard kit)



Secured sail connection sail / mechanism

Smooth push spring release device*; user friendly; *except for FX+900 (secured with clevis pin)



Torque rope

More anti-twist is the rope, faster is the revolution (supplied on request).

Captive quick release pin (HR stainless steel)

Easily fitted furling line

Thanks to a round and smooth notch on the drum edge



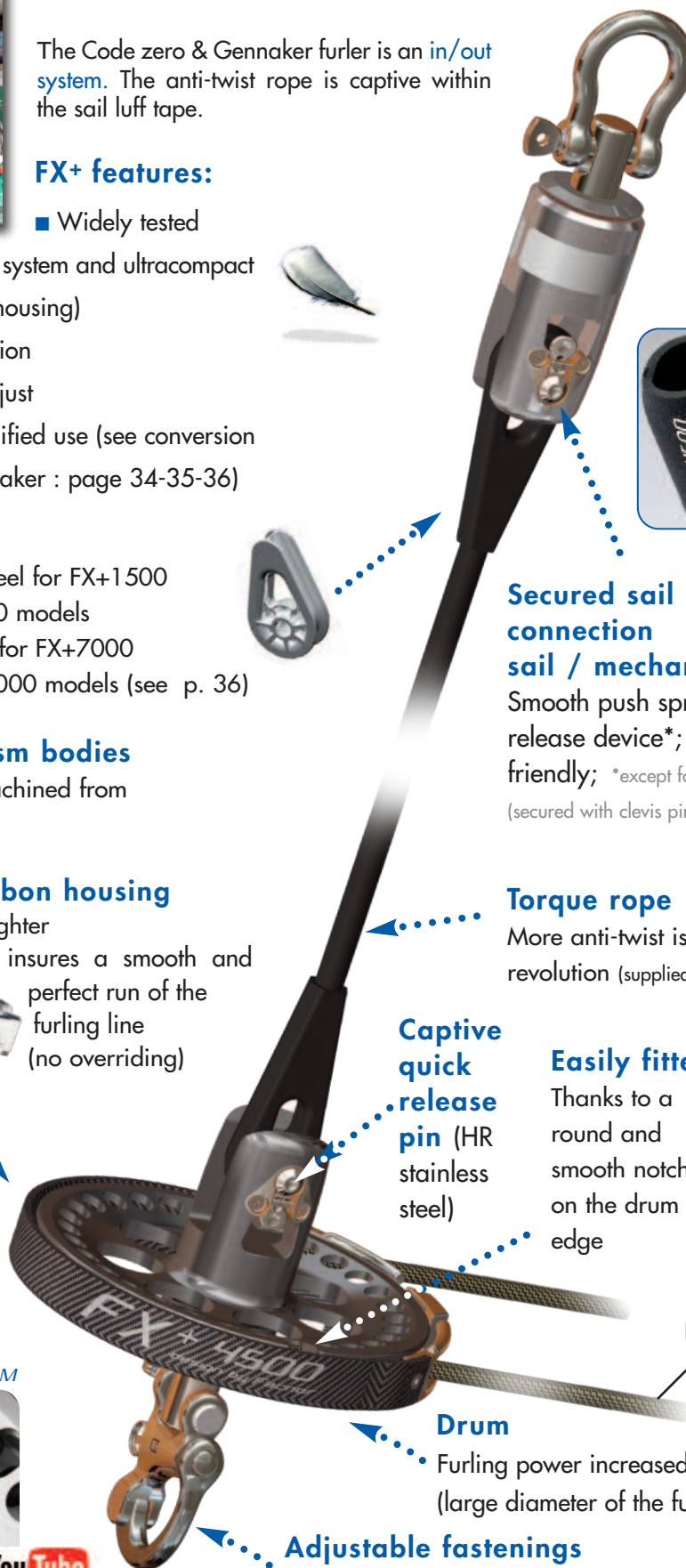
Furling line

Drum

Furling power increased and constant pull (large diameter of the furling line drum)

Adjustable fastenings

(Top and bottom adapted attachments see page 36).

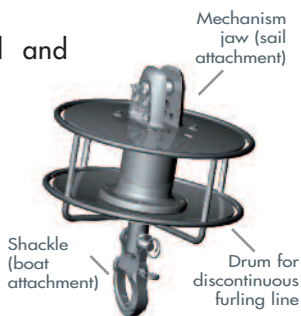




FXT FURLERS WITH DRUM

FXT Gennaker and Code Zero furler

- quickly installed and removed after use.
- The FXT is fitted with steel bearings protected by waterproof joints (maintenance free)
- good technical and economical alternative solution for users who prefer a discontinuous furling line.



The main criteria (but not exhaustive) to select the model Gennaker and Code Zero furler model is the loads of the sail (see below) :

FXT Model	FXT 4500	FXT 7000	FXT CUSTOM
Boat length (meters-feet)	9,5 → 16 m	+ 16 m	on request
	31' → 55'	+ 55'	
Max. sail area (meters ² - feet ²)	100 m ²	200 m ²	
	1073 ft ²	2147 ft ²	
Safe Working Load* (tons- lbs)	4,5 T	7 T	
	9920 lbs	15432 lbs	

* SWL maxi : see note at bottom of page

- The swivel and the drum are fitted with the same bearings (top shackle for halyard fitting).

FX+ CONTINUOUS LINE FURLERS

The Gennaker continuous line furler FX+

are made of one swivel and one flat continuous line drum (maximum luff and no overlapping round the drum). The large diameter gives more furling power. It is half the weight of a standard Gennaker furler.



Anti-impact cover swivel delivered in standard kit

The wide FX range from 16' day boat to 100' mega yachts :

FX+ Model	FX+ 900	FX+ 1500	FX+ 2500	FX+ 4500	FX+ 7000	FX+ 12000	FX+ 20000
Boat length (meters-feet)	6 ↓ 10,5	10 ↓ 12	12 ↓ 14	13 ↓ 16	16 ↓ 20	+20 ↓	+25 ↓
	20 ↓ 30	30 ↓ 40	40 ↓ 45	42 ↓ 55	55 ↓ 70	+70	+82
	Max Gennaker or Code zero area (m ² ft ²)	30 m ² 322 ft ²	55 m ² 590 ft ²	90 m ² 968 ft ²	140 m ² 1500 ft ²	250 m ² 2690 ft ²	350 m ² 3770 ft ²
Safe Working Load* (tons- lbs)	0,9T 1984 lbs	1,5T 3306 lbs	2,5T 5511 lbs	4,5T 9920 lbs	7T 15432 lbs	12T 26455 lbs	20T 44100 lbs
	Ratchet	Not available	Not available	Option	Option	Option	Not available

* SWL maxi : see note at bottom of page

- Leading in Gennaker furler manufacturing Facnor has acquired a long experience on these types of products - tested during ocean races in extremely tough conditions.

Ratchet : option available for FX+ 2500, FX+ 4500, FX+ 7000.

Staysail on a FX+ furler:

a Staysail can be fitted on a FX+ furler so that a stormsail can be used according to the weather conditions. In this configuration, we recommend to install a 2-to-1 block (halyard better tighten and less tension in the mast).



2-to-1 block option:
see options P. 36

STAYSAIL FITTED ON FX+ FURLERS

FX+ Model	FX+ 1500	FX+ 2500	FX+ 4500	FX+ 7000	Structural furler
Staysail max area indicatives datas (m ² ft ²)	20 m ²	30 m ²	50 m ²	70 m ²	over 70' boat, it is highly recommended to fit a structural furler (see page 24)
	215 ft ²	322 ft ²	538 ft ²	753 ft ²	
Safe Working Load* (tons)	1,5 T	2,5 T	4,5 T	7 T	
	3306 lbs	5511 lbs	9920 lbs	15432 lbs	

We remind you that an adapted deck attachment must be installed

- FX+ for staysails : ideally featted with a locking swivel (see P. 26)

* The S.W.L. is the maximum safe working load over which distortions of the furler can appear. This load is approx. 50% of the breaking load (depending on models)



GENNAKER & CODE ZERO FURLERS

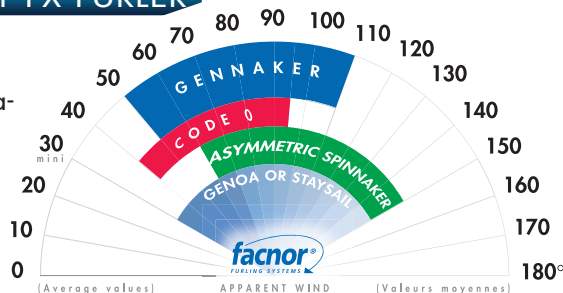
FX+
design by *Facnor*
Light, easy to fit, aesthetic

USE CONDITIONS OF THE FXT or FX FURLER

Use conditions

The use range of the sails as shown on the diagram opposite varies with the force of the wind. We can mainly bear in mind that the FX furlers are better adapted for use with flying headsails between beam and broad reach (i.e. Code Zero and Gennaker). The

complementary use with closer reach headsails is possible, however, under certain conditions. (see page 31)



Sail indicative range of use

⚠ This sail indicative range of use varies with the wind force

Installation of the Code Zero and Gennaker furler with the FX+:

The short sequence below shows how easily the Gennaker furler is installed :

E A S Y I N S T A L L A T I O N O N B O A R D



- Lay the furled Gennaker on the deck (fig. 1). Install the furling line round the drum (fig. 2). See below for details;
- Fasten the upper thimble onto the swivel protected by the a neoprene cover, supplied in the kit (fig.3). Attach the drum onto the chain plate or bowsprit (fig. 4). Adjust the bowsprit and secure with a bridle
- Check that the halyard is clear, hoist the sail (fig 5), tighten and control the sail sheet (fig 6). Ready!

Note: always keep the reefing line under tension and fit a line stopper. Lower the furled sail after use.

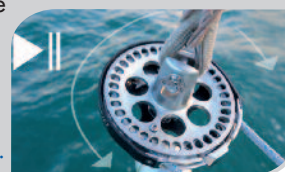
Ratchet System :

- Lay Furling OUT with the ratchet option on. From a locked position, rotate the drum half a turn (furling in) to release the ratchet lock. Once released the sail will unfurl easily.
- Furling IN with the ratchet option on. Start furling in. If you stop at any time and let go of the furling

Note: always keep the reefing line under tension and fit a line stopper. Lower the furled sail after use.

line, the flying sail will be automatically locked, thanks to the ratchet device.

Once ready to resume, simply start furling again. The ratchet in the continuous line drum will be automatically activated from the first rotation.



FURLING LINE AND QUICK FASTENING DEVICES

Installation of the furling line (fig. 1,2,3,4) : through one guide exit fit the line into the round and smooth notch situated on the drum edge. Then, simply turn the drum and the line up to the opposite guide exit. Easy to deinstall.

Easy installed and stored:

- top and bottom adjustable fastenings : snapshackle or shackle.
- adapted systems for asymmetric Spinnakers and attachments see page 34.



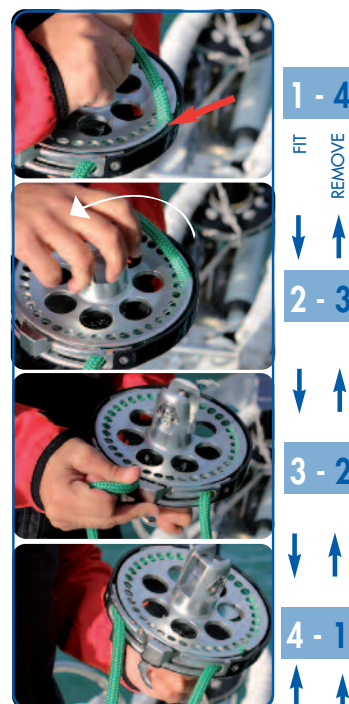
Secure sail connection:

- The sail can be removed from the furler in one "click".
- Smooth push spring release device* with captive quick release pin for FX+1500/2500/4500/7000/12000/20000 models.
- * except FX+900 secured with clevis pin

Used for different sails :

As it is very simple to disconnect the sail from the furler and to fit a 2-to-1 block on the swivel, the Gennaker can be quickly changed for the staysail if needed*.

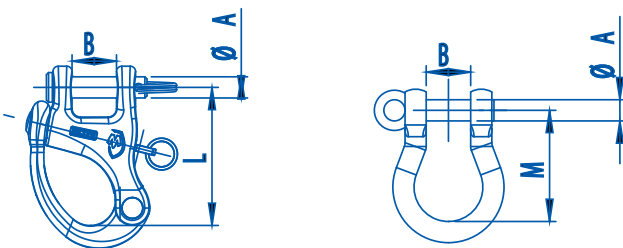
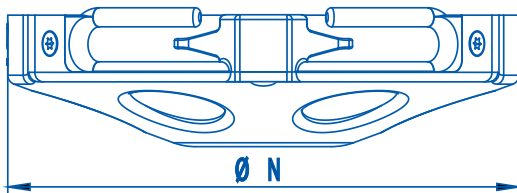
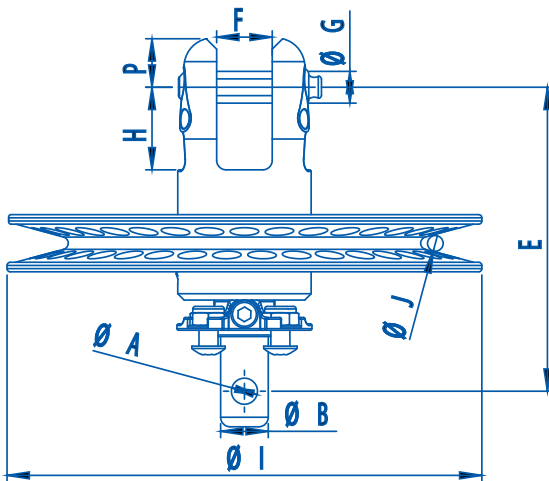
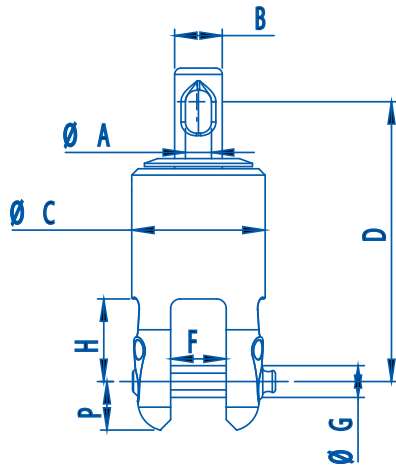
* provided that the loads are equivalent for both sails (see pages 31). Your Facnor agent will advise you on the best possible solution.



REMOVABLE FURLING LINE



Furling line tension : When sailing single handed we recommend to keep the reefing line under tension so that the sail does not furl out without control.



Important : NEVER SAIL WITH THE GENNAKER OR CODE ZERO PARTIALLY FURLED. ONCE FURLED, NEVER RELY ON THE RATCHET TO FULLY SECURE YOUR SAIL

Photo Credit : © Luis Puyoy Puente - Págo 10.60



FX+ DIMENSIONS

Measurements (mm)	FX+ 900	FX+ 1500	FX+ 2500	FX+ 4500	FX+ 7000	FX+ 12000	FX+ 20000
	Dimensions (mm)						
ø A	6	6	8	10	12	16	20
ø B	12	12	15	20	25	30	40
ø C	31	34	42	49,5	60	72	86
D	61	66	88	100	113	125	153
E	74	83	96	110	125	134	161
F	12	15	17,5	19	26	26	29
ø G	8	8	10	12	14	16	20
H	18	22	26	33,2	39	43	50
I	85	109	149	169	199	248	298
J	6	8	8	10	10	12	12
L	40,5	40,5	62	65,5	88,5	-	-
M	35	35	41	52,5	61	78	90
ø N	95	121,5	161	181,5	212	272	332
ø P	10,8	11,7	15,3	18,5	19,9	25	28

Standard drum attachment
Standard swivel attachment

Swivel weight (g)	123	153	304	498	709	1320	2540
Drum weight (g)	290	382	709	1026	1459	3040	5140

Photo Credit : © Tendresse / Delta Voiles





The FX+ furler, fitted with the Fast thimble, allows to furl in the asymmetric Spinnakers from the cockpit by pulling the bottom furling line. The anti-twist rope rotates up to the top and then transmits the rotation from the head to the tack of sail. With this simple system it is possible to use your existing asymmetric Spinnaker.

FAST ASYMMETRIC SPINNAKER THIMBLE

FX+ with FAST thimble Features :

- FAST thimble : with the FX+ furler, this FAST system allows you to use your FX+ from Gennaker to asymmetric Spinnaker in a two clicks
- Easy and regular furling from top to bottom (see pictures below). Free luff on asymmetric Spinnaker
- Same FX+ features : tested mechanisms, strong and clever
- Maintenance free : high protection of the mechanisms

FX+ swivel with anti-impact cover (in neoprene)
(see page 30)

From Gennaker or Code Zero to the asymmetric Spinnaker

Anti-twist rope
(supplied on request)

Simple mechanisms FX+

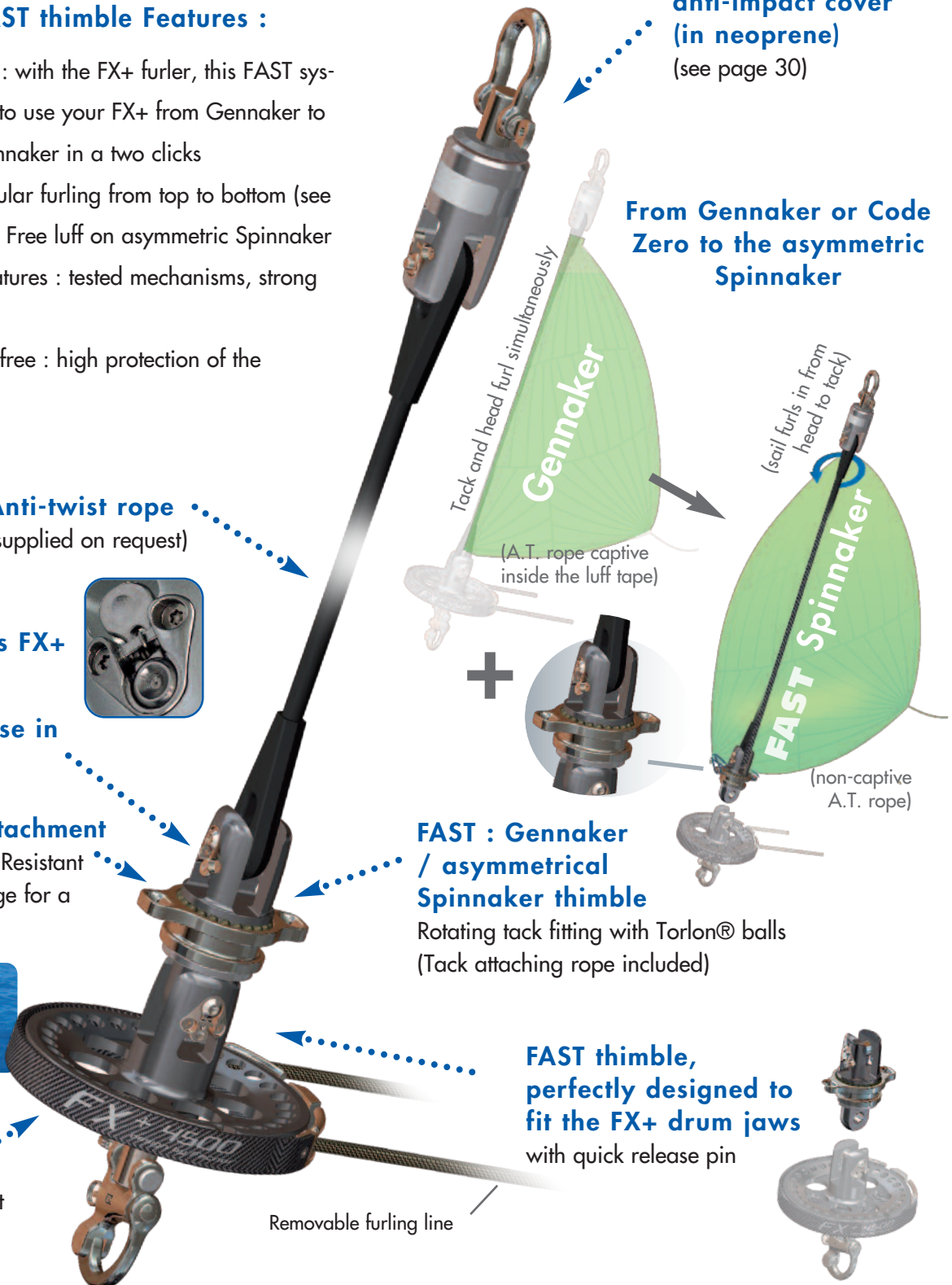


Quick release in

Safe tack attachment
Stainless steel. Resistant and smooth edge for a secure latching



Carbon housing
strong and light



FAST : Gennaker / asymmetrical Spinnaker thimble

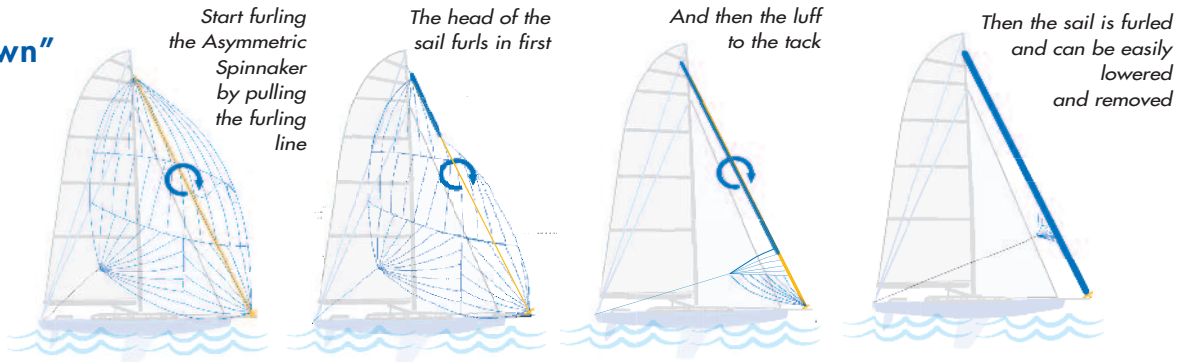
Rotating tack fitting with Torlon® balls
(Tack attaching rope included)

FAST thimble, perfectly designed to fit the FX+ drum jaws with quick release pin





**"top-down"
System**



FX+ Furler



**FAST
thimble**



FX+ FAST : FURLER MODELS

Model	FX+ FAST 2500	FX+ FAST 4500	FX+ FAST 7000	FX+ FAST 12000
Boat length (meters)	11,5 ↓ 14 m	13 ↓ 16 m	16 ↓ 20 m	Contact us
Max asymmetric Spinnaker area (m ²)	90 m ²	170 m ²	270 m ²	

FX+ FAST: Option fitting for asymmetric Spinnaker
(System suitable for use with an existing FX furler)



Fast thimbles for FX+ furlers					
Fast Model	FX+/FXT Model	Jaw width (mm)	Height (mm)	Weight (g)	Reference
FAST 1500	FX+ 1500	15	65	222	43230001540
FAST 2500	FX+ 2500	17,5	82	426	43230002540
FAST 4500	FX+ 4500	19	92	581	43230004540
FAST 7000	FX+ 7000	26	119	1114	43230007040
FAST 12000		Contact us			
Custom		Contact us			



Adjusting the tack :

To sail closer to the wind even better, it is necessary to lower the tack of the sail, this will push forward the belly. Inversely, lift up the tack and the belly of the sail will go aft, you will be able to sail further downwind.

SSH : stainless steel solid sheaves

- Compact.
- Fitted with quick release pin.
- This option is available from FX+1500 up to FX+7000, above models on request (2-to-1 or 3-to-1 fitting).

Solid sheave use :

- The solid sheave is used for tack height adjustment (see against).

SSH : TACK ADJUSTMENT



LUFF ANTI-TWIST ROPE & FX+ OPTIONS

Flying sails like Gennaker, Code 0 or Asymmetric Spinnaker fitted on furlers are supplied with an anti-twist luff rope. Anti-twist as it needs to transmit the rotation down to the top of sail. For an optimum revolution the jaws of furler mechanisms are connected to the luff rope thimbles. And for an optimum halyard tension, a two-to-one block can be fitted.

(Example of installation)



Blocks & sheaves

- in case of high load, they enable to release the halyard and the sheave box;
- connected above the swivel or underneath the drum.

SB SNATCH BLOCK- (Pivoting carbon cheeks)					
Model	FX+/FXT/FAST model	ø Sheave (mm)	Height (mm)	Weight (g)	Reference
SB2500	2500	50	77	281	43170102540
SB4500	4500	57	84	341	43170104540
SB7000	7000	64	93	429	43170107040

The thimbles

- their size has been designed to be adjusted to the mechanism jaw for a optimum transmission in rotation;
- two models according to the adapted furler and the anti-twist rope chosen by the sail-maker (specific model on request) :

FCI

(Stainless steel)
FX+ 1500 / 2500 / 4500



FC

(aluminium)
FX+7000 to 20000



FCI / FC STANDARD THIMBLES				
Model	FX+/FXT/FAST model	ø Rope (mm)	ø Pin (mm)	Reference
FCI 1500	FX+ 1500	8	8	25200010051
FCI 2500	FX+ 2500	12	10	25200010052
FCI 4500	FX+/FXT 4500	12/14/16	12	25200010055
FC 20	FX+/FXT 7000	16/18/20	14	43130207030
FC 22	FX+ 12000	22	-	43130212030
FC 24	FX+ 20000	24	-	43130220030

NS LASHING THIMBLES

Model	FX/FXT model	Reference
NS2500 Lash.	FX+ 2500	43130202535
NS4500 Lash.	FX+/FXT 4500	43130204535
NS7000 Lash.	FX+/FXT 7000	43130207035

Quick fastenings :

Different quick fastening devices (top or bottom) are available according to models :

- textile shackles, snap shackles, ...
- **NEW** : Wichard Soft converting part for snapshackle (mini-solidsheaves) (ref. 25200180010).



Solid sheaves :

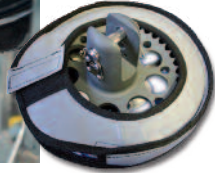
See against and page 35



SSH S/s SOLID SHEAVE				
model	FX+ model	Height (mm)	Weight (g)	Reference
SSH 1500	FX+ 1500	49	113	43130721500
SSH 2500	FX+ 2500	62	200	43130722500
SSH 4500	FX+ 4500	70	320	43130724500
SSH 7000	FX+ 7000	84	471	43130727000



COVERS FOR DRUM & SWIVEL



Continuous line drum covers : the FX+ cover is ideal for protecting your continuous line furlers from deck impacts. The cover is made of padded PVC and assembled with thick and strong strips. Standard available for the FX+ 2500, FX+ 4500, FX+ 7000 (other cover models on request).

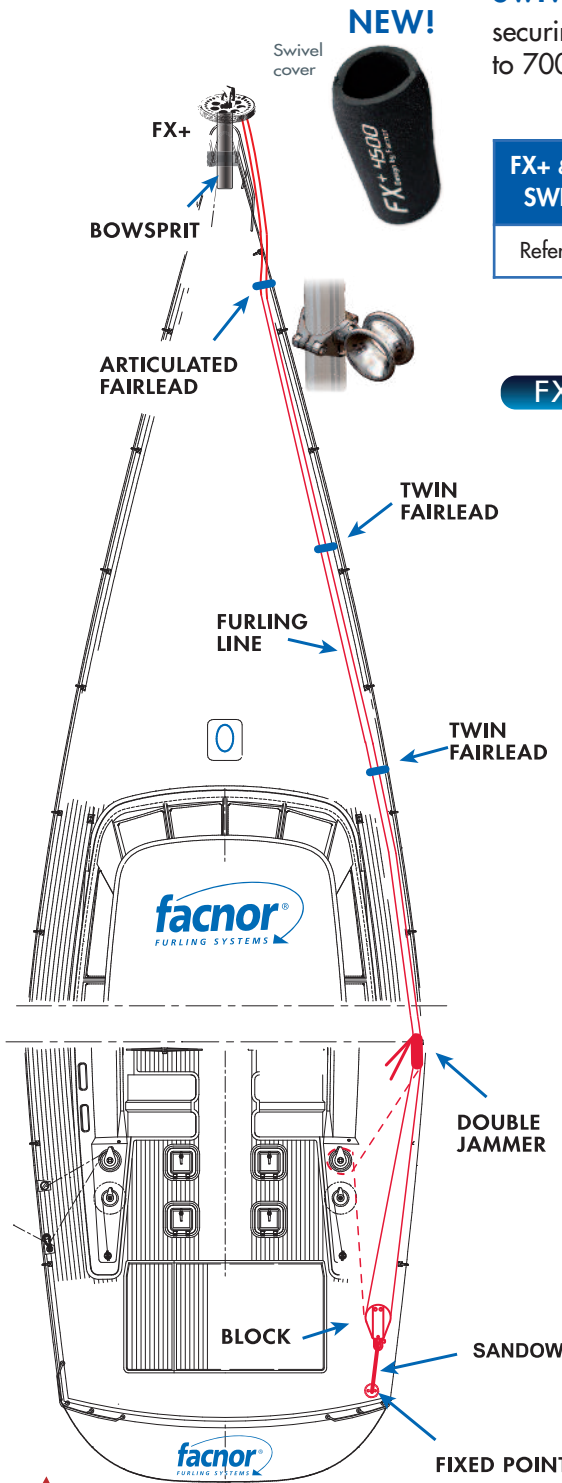
FX+ DRUM	FX+ 900 & FX+ 1500	FX+ 2500	FX+ 4500	FX+ 7000
Reference	ON REQUEST	29050000076	29050000056	29050000060

Swivel protection covers (neoprene): an additional benefit of securing the mast and the sailing crew. Delivered in FX+ standard kit (900 to 7000) and can be also supplied as extra spare parts.

NEW!



FX+ & FXT SWIVEL	FX+ 900	FX+ 1500	FX+ 2500	FX+/FXT 4500	FX+/FXT 7000
Reference	29050010090	29050010150	29050010250	29050010450	29050010700



FX+ CIRCUIT OF CONTINUOUS FURLING LINE

FX+ : the circuit of continuous furling line is easy to install (see against) thanks to the articulated and twin fairleads (See p.12). The loop can be tightened and then secured with a double jammer.



With the different Facnor fairleads, the lines run clearly on the deck
Above : articulated fairlead (left handside) et twin fairlead (right handside)

SPliced FURLING LINE

Rope : polyester /braid polyester rope
Available : \varnothing 6, \varnothing 8, \varnothing 10, \varnothing 12
Length : 12, 16, 20, 26, 32 m and other lengths on request

NEW GRIP!



Spliced furling loop		
\varnothing (mm) x L (m)	FX+ Model	Reference
\varnothing 6 x 12 m	FX+900	24016060120
\varnothing 6 x 16 m		24016060160
\varnothing 8 x 16 m	FX+1500	24016080160
\varnothing 8 x 20 m	FX+ 2500	24016080200
\varnothing 10 x 20 m	FX+4500	24016100200
\varnothing 10 x 26 m		24016100260
\varnothing 10 x 32 m	FX+ 7000	24016100320

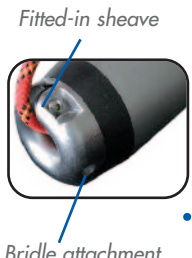
! Secure the bungee rope with a safety rope



The Sparcraft removable bowsprits, can be fitted on sailing boats from 25 to 57 feet, for Asymmetric Spinnakers or Gennaker and Code Zero. The deck fixing device allows a free foredeck when arriving at the harbour or mooring.



AUTOMATIC LOCKING DEVICE



Neat design

- End fitted with an integrated machined sheave, user-friendly;

- Bridle attachment integrated in the front end fitting;

- The central fixing collar is captive from the bowsprit but it is removable from the fixing block. The foredeck is therefore totally free (no more fixed collar in the way).

- Rotating collar captive from the section: removable bowsprit for storage alongside one boat edge

Simple and efficient functioning



Automatic locking device

- Easy fixation thanks to an automatic locking device on deck fixing blocks;
- Simple installation (only a short backwards movement is needed to fit the bowsprit on the deck);

- Quick removal and storage on a third fixing block;
- The locking system incorporates an anti-theft device.
- Integrated line stopper for holding the tackline



integrated line stopper

Complete kit including :

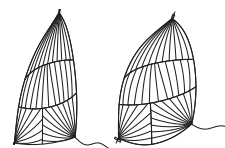
- Aluminium bowsprit with special end fittings : bridle attachment at the front and fixing block device at the back (delivered pre-installed);
- Adjustable Central fixing collar;
- Deck fitting blocks and two counter plates

FINDING MODELS & OPTIONS

Technical datas and references

ø section (mm)	Total length (mm-feet)	Mini. length inside (mm-feet)	max. length outside (mm-feet)	Use example boat length (feet)	Max sail area (m ²)		Fitting FX+ & FX+SPI models
					Asym. Spi.	Gennaker & code zero	
ø 70	1600	800	800	25-36'	60	37*	1500/2500
ø 80	1800	900	900	36-40'	82	52*	2500/4500
ø 90	1900	950	950	40-47'	102	65*	4500/7000**
ø 100	2000	1000	1000	48-57'	130 / 150*	105*	4500/7000**

*with bridles ** FX+7000 with snap shackle option



Articulating toggle (option) for Gennaker / Code zero furler attachment



Options

Working deck fitting.	"Parking" deck fitting	deck fitting cover	Stemhead fitting fixation support		Furler fitting ring Gennaker & Code Zero furler attachment			
			64-90 mm	90-110 mm	ø 70	ø 80	ø 90	ø 100
31000110015	31000110020	33031000001	31000120025	31000110025	FX+15/2500	FX +25/4500	FX+45/7000	FX+45/7000
					31000107010	31000108010	31000109010	31000110010

option for bridle installation (non delivered)	Bridle kit (non delivered)
31000600010	31000600020



bridle kit (non delivered)

MAINSAIL



FACSLIDE+ LOCKS
MAINSAIL FURLERS



Full mainsail set : Above a certain area, a full batten mainsail needs to be fitted with ball bearing cars for more comfortable cruising. In addition to Lazy-jacks, Facslide® allows easy hoisting, lowering and reefing of the mainsail. Furthermore, the new reefing locks completes cunningly this car and track device. For mainsails without full batten, the Facnor CF furling gear remains an alternative equipment.

Photo Credit : Shipman / Shipman 50



FACSLIDE+ FULL BATTEN CAR SYSTEMS

P40

REEFING LOCKS



P43



MAINSAIL FURLERS

P44



The system of recirculating ball bearing cars is designed for full batten mainsail. It helps to raise, lower and reef the sail easily. The FACSLIDE[®] system combined with a Lazy Bag is the installation to handle perfectly your mainsail on your own.

* a 50 m² mainsail weights approx. 35 kg for a monohull or 70 kg for multihull.

ADAPTIBILITY & RELIABILITY

The Facslide[®] system is synonymous of effortless sailing

Facslide+ features:

- Monoblock design of the cars (no assembled cap). The ball race is CNC machined to high precision.
- Possibility of mixing the car models (F10-20-30) in order to lower the sail stack height when the cars are down. It also helps reduce the total cost.
- The toggle of the batten cars can turn more than 180° and fit to most batten boxes (M10-12).
- The cars are supplied with torlon[®] balls (higher resistance against wearing).
- F10-20-30: flat and light tracks, safety and quick pins (see below), anodization and insulation materials

Tracks fitting to the mast without modification

The tracks are easily fixed with slugs alongside the existing mast without unstepping (see page 42).

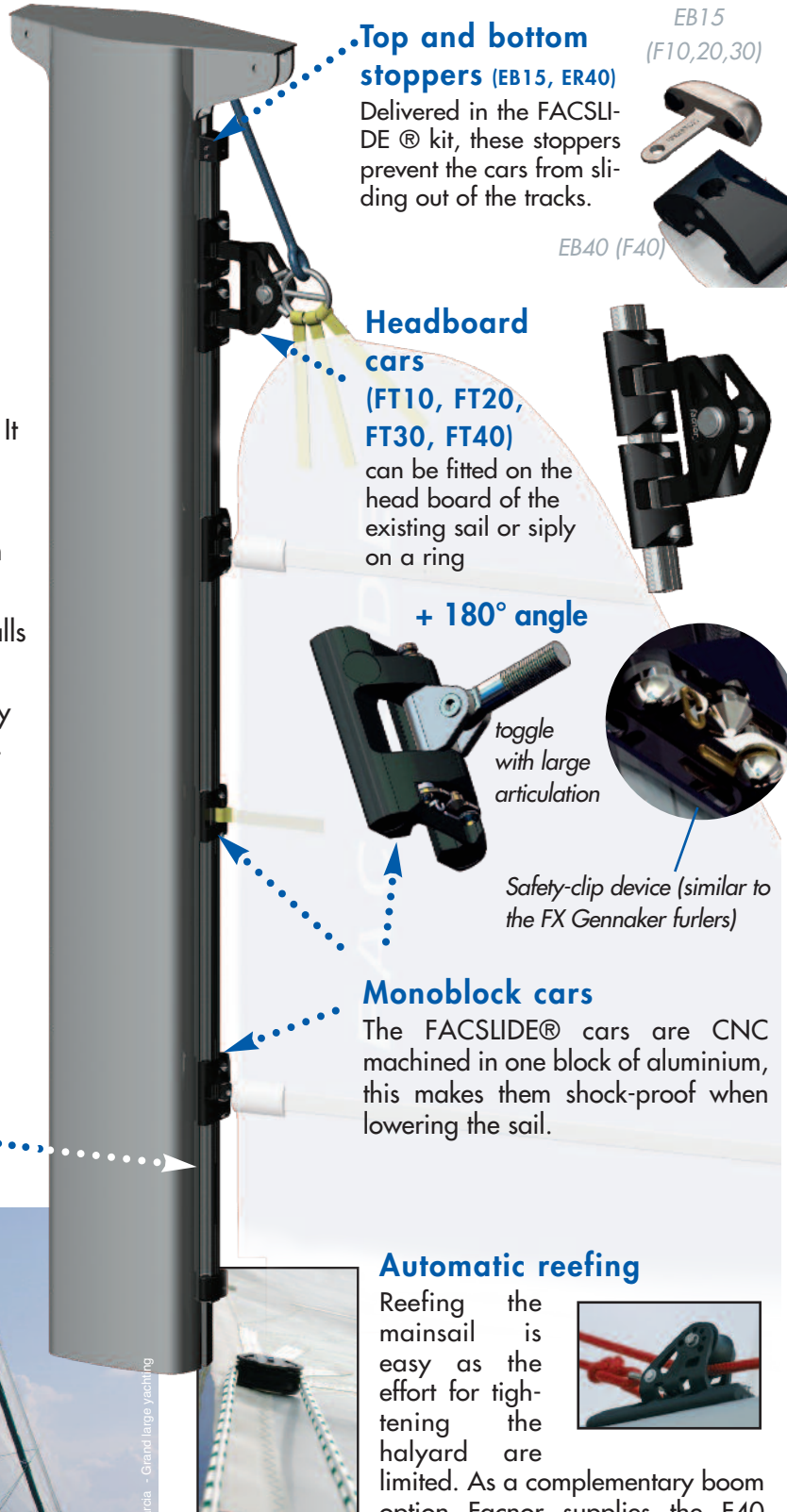


Photo Credit : © Morris Adant / Gardia - Grand large yachting

FACSLIDE⁺

Hoisting, reefing and lowering effortlessly



BATTEN CARS FOR FULLY BATTEN MAINSAILS



FACSLIDE MODEL SELECTION

Facslide Model	Track Reference*	MONOHULL Mainsail area	MULTIHULL Mainsail area
F 10	FR25x15	45 M ²	40 M ²
F 20	FR25x15	60 M ²	55 M ²
F 30	FR25x15	85 M ²	70 M ²
F 40	FR40	130 M ²	90 M ²



* with screws and slugs

■ Cars references :

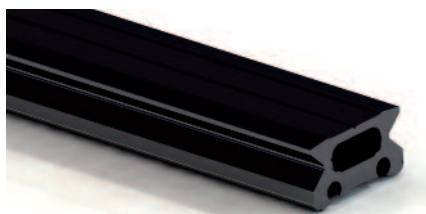
- Batten cars : FL10, FL20, FL30, FL40.
- Intermediates cars : FI10, FI20, FI30, FI40.

■ Compact Facslide set :

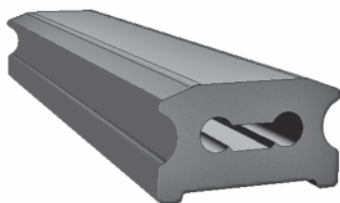
- including: 2m tracks, one head board car, batten and intermediate cars.
- for a reduced cars height when mainsail lowered, it is possible to mix different car models on FR25x15 tracks (such as FT20 + FL20 + FI10).

■ Tracks :

Two types of tracks according to the mainsail area :



FR+ 25 x 15 tracks
For F10-20-30 cars
Length = 2 meters



FR40 TRACKS
For F40 cars
Length = 1,7 meter.

- **Facslide⁺** : new anodization (black)
- F40 : colorless anodization
- See against the installation of the tracks and dimensions p. 42.

INSTALLATION OF THE TRACK WITH THE SLUGS

■ **No modification of the mast :** The tracks are easily fitted to your mast with slugs without unstepping and modifying it. The various types of slugs ensure the compatibility of our system to most existing mast grooves. The tracks are CNC drilled with high precision. Made of aluminium extrusion, they are also perfectly straight.

- Two types of slugs : flat and round
- Various sizes available (see table p. 42 or ask to your Facnor dealer)



Salted water at the head...

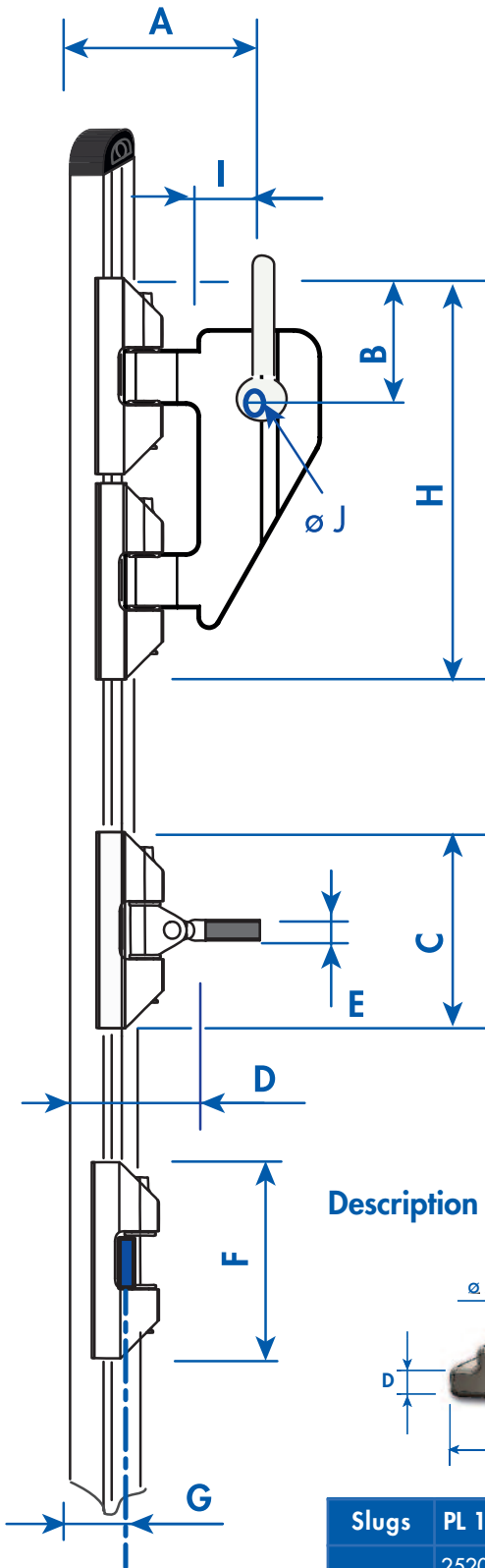
Even though the head cars are positioned 10 meter high, they receive sea water, therefore do not hesitate to rinse the cars with fresh water.

Facnor advice: once a year put a drop of washing up liquid on the car balls.



Lower mainsail with Facslide system combined with lazy Jack

FACSLIDE DIMENSIONS

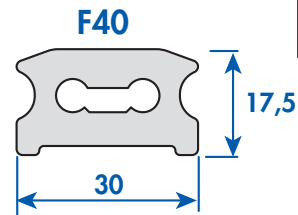
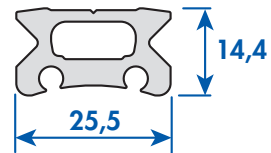


F10+	
Track ref.	FR 25x15
Marks	Dimensions (mm)
A	72
B	45
C	74
D	58
E	M10
F	64
G	26
H	162
I	38
ø J	8

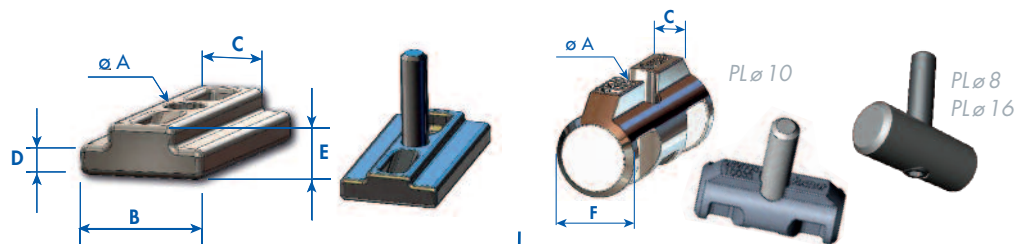
F20+		F30+
Track ref.	FR 25x15	FR 25x15
Marks	Dimensions (mm)	
A	72	115
B	50	98
C	84	94
D	58	60
E	M10	M10
F	74	94
G	26	28
H	172	197
I	35	40
ø J	8	18

F40+	
Track ref.	FR 40
Marks	Dimensions (mm)
A	120
B	150
C	140
D	120
E	M12
F	85
G	37
H	300
I	39
ø J	18

F10-20-30



Description and dimensions of the slugs :



Slugs	PL 1 (16mm)	PL 2 (19mm)	PL 3 (23mm)	PL ø 8	PL ø 10	PL ø 16
Part N°	25200010026 (M5)	25200010028 (M5)	25200010030 (M5)	51095080000 (M5)	25200010033 (M5)	51095160000 (M6)
Dim.			25200010032 (M6)			
A	5 mm	5 mm	5-6 mm	5 mm	5 mm	6 mm
B	16 mm	19 mm	23,7 mm	-	-	-
C	9 mm	9 mm	12,4 mm	-	3,8 mm	-
D	4 mm	4,5 mm	4,8 mm	-	-	-
E	6,3 mm	6 mm	7,7 mm	-	-	-
F	-	-	-	8 mm	10 mm	16 mm

REEFING SYSTEM FOR FULL BATTEN MAINSAILS

Stainless steel body

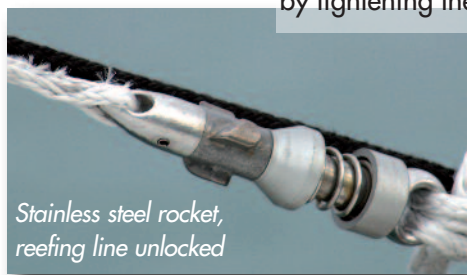
Good resistance of use guaranteed.

Attaching loop

Attach with a shackle or a piece of rope at the reefing point of the mainsail (eye or strip).

Rocket

The internal part (rocket) slides inside the external body of the lock and is activated by tightening the locking line (reefing line).



The handling : After a basic preparation (mainsail sheet slack, etc, ...) :

Locking : 1. Tighten the reefing line

2. Keep on tightening it as far as possible 3. Let it go.

Unlocking : 1. Tighten the reefing line as far as possible

2. Let it go 3. Give slack.

Locking line

It activates the rocket inside the lock body (locking and unlocking operations).

Attachment point on the boom

The end of the rocket is attached to the back of the boom (by a piece of rope).

Functioning :

This clever device locks the attachment of the mainsail reefing point onto the back of the boom. This installation is particularly helpful on board of multihulls equipped with powerful mainsail and also in case of reduced sailing crew.

The advantages :

- This lock eases the reefing line from the load that the line normally supports (compression onto the boom), the elasticity of the rope in case of long reefing line is consequently diminished;
- A stopper is no more necessary for the reefing line.

Choice of the lock model :

Lots of parameters are to be taken into account when choosing a lock, however, the most important criteria is the load level applied to the mainsail. Therefore, it is recommended to check with the naval architect or sailmaker the value of these loads.

Parameters / Model	3T	5T
Mainsail area	90 M ²	135 M ²



The Facnor mainsail furling system makes your sailing safe and comfortable. No more effort to reef the sail in choppy seas: with simple handling, you will always have the right area of sail adapted to the wind conditions. No more folding or flaking the sail: with simple handling, your mainsail is quickly furled or unfurled. Your boat will always be ready to leave with sails already set up.

SIMPLICITY IN INSTALLATION & ECONOMIC

CF mainsail furler features:

- Safe handling of the mainsail
- Installation without modifying or drilling the mast
- This system allows keeping the original goose neck
- Simple to use
- Excellent quality/price ratio compared with other mainsail furler systems

Drive unit

The furling sections turns by operating the drive unit with a continuous line system. The drive unit is fitted with two sets of stainless steel ball bearings and fixed to the mast above the goose neck with slugs



Original Gooseneck

This system allows keeping the original goose neck

Halyard swivel

Furling sections (2 meters long)

They fit inside the housing sections. The sail is furled round them.



Housing sections (=1,7 meters long)

The housing sections are fixed with slugs to the mast without modification.



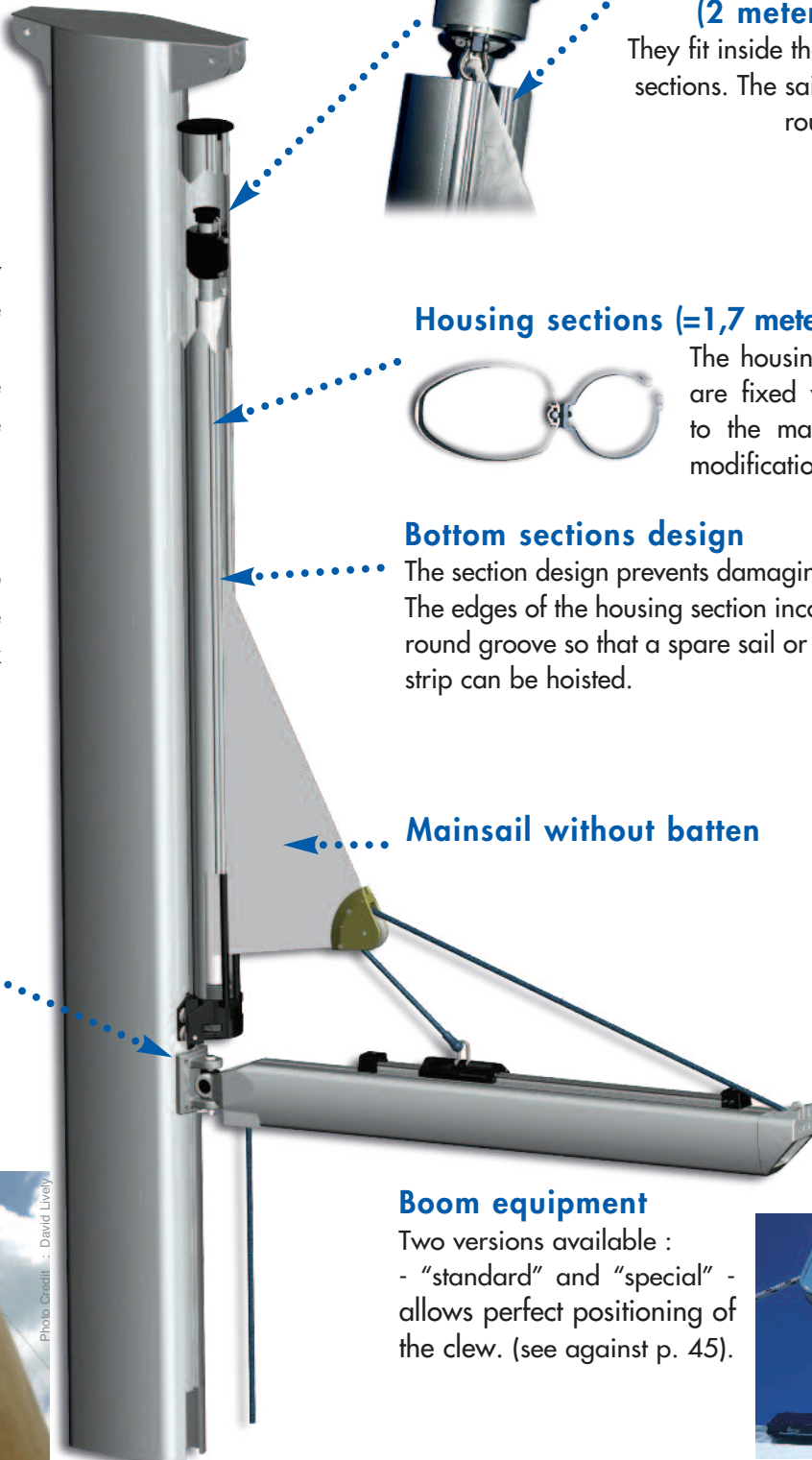
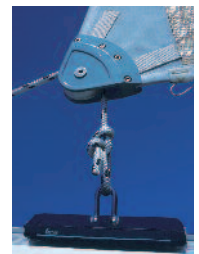
Bottom sections design

The section design prevents damaging the sail. The edges of the housing section incorporate a round groove so that a spare sail or protection strip can be hoisted.

Mainsail without batten

Boom equipment

Two versions available :
- "standard" and "special" - allows perfect positioning of the clew. (see against p. 45).





CF MAINSAIL FURLER RANGE

Range of mainsail furling systems suitable for 6 to 17 meter sailing boat. The chart below allows to determine the model that suits your boat (please ask for advice to our dealers).

Parameters	CF MAINSAIL FURLER RANGE							
	CF80				CF105			
CF Mainsail furler reference	4CF 80	5CF 80	6CF 80	7CF 80	7CF 105	8CF 105	9CF 105	10CF 105
Maximum luff length (meters-feet)	6,80	8,50	10,20	11,90	11,90	13,60	15,30	17,00
	22'	28'	33'	39'	39'	45'	50'	56'
Maximum boom length (meters-feet)	3,90 m 12'				6 m 20'			
Housing section weight (kg)	1,850 kg				3,030 kg			
Furling section ø (mm - ft)	30 mm - 1"3/4							

Simplicity in the design :

A furling system that turns a headsail inside housing sections. The drive unit of the sections is situated just above the goose neck and is operated with a continuous furling line (Facnor patent).

Simplicity of installation & strong fixing :

The housing sections are fixed with slugs alongside the mast (drilling not necessary). The drive unit is easy to install and does **not require any modification to the gooseneck**. This kit is suitable for most of the masts and is quickly fitted without unstepping the mast. The CF mainsail furling system is produced using high tech means.

SIMPLE INSTALLATION TO THE MAST

Easy fixing of the housing sections :

The housing sections are fitted to the mast by inserting slugs inside the mast groove (see p.46). The housing sections and the slugs are fixed together by stainless steel screws and Nylock nuts. All housing sections are pre-drilled and no modification has to be done on your mast.



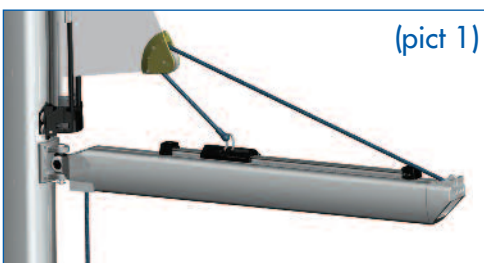
Housing and furling sections

These sections are made of extruded aluminium and anodised after machining. They combine resistance and lightness. The furling sections are twin groove. The standard length of the housing section is 1.70 meter in order to lower freight cost.

BOOM KITS : STANDARD AND SPECIAL

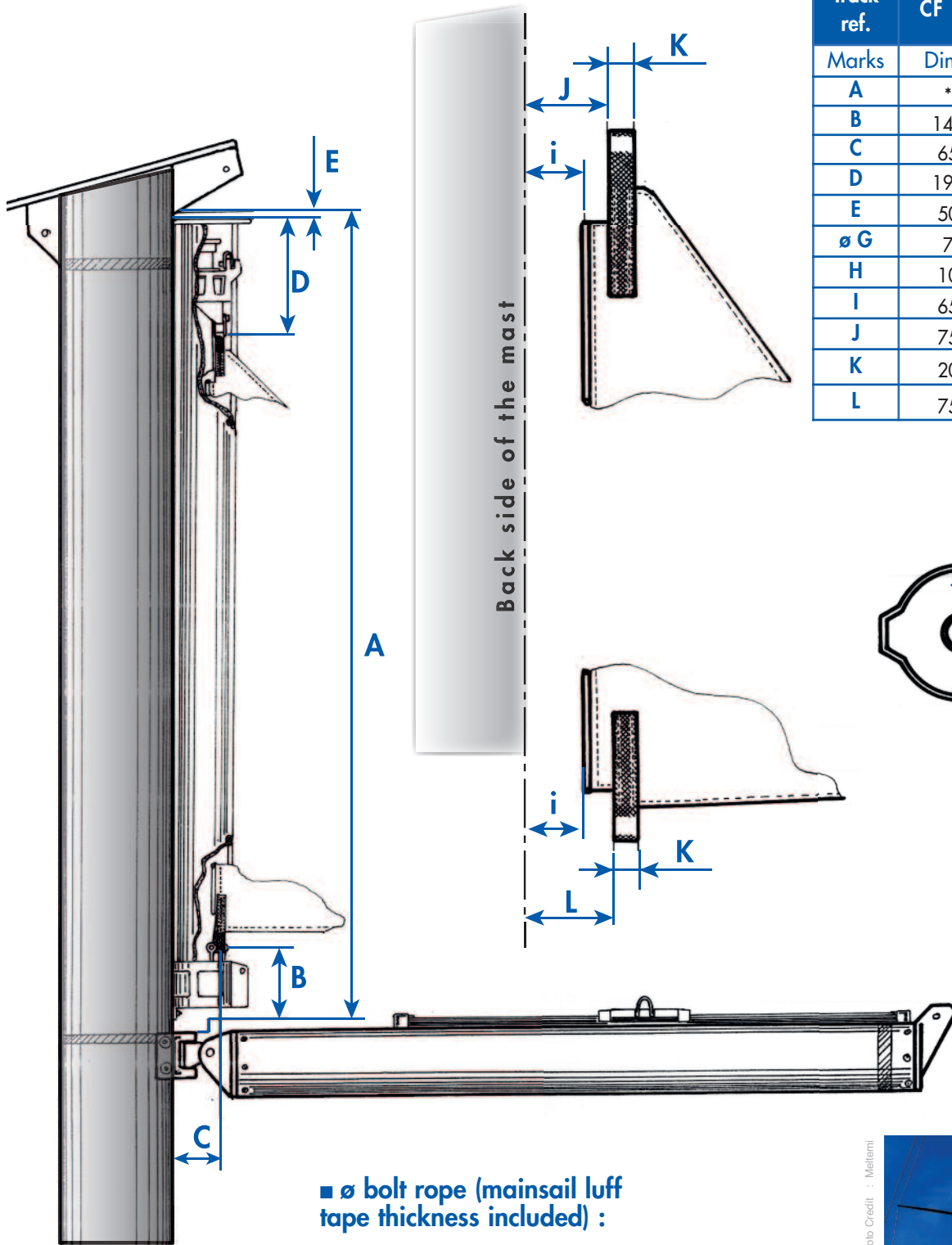
- **RC80 & RC 105 standard version (standard delivered) :** track on which a ball bearing car fitted with a shackle. Track installation : with slugs, like the housing sections (see pict 1).

- **KB80 & KB105 special version (optional) :** This KB version allows not to use the boom sheaves, often inadequate due to their small diameter and their lack of ball bearings or needles. The KB boom kit includes a ball bearing car fitted with a pivoting sheave, 2 needle bearing sheaves (1 front and 1 back) and a special end stop. (see pict 2).



CF DIMENSIONS

Track ref.	CF Model	
	CF 80	CF 105
Marks	Dimensions (mm)	
A	*	*
B	140	140
C	65	85
D	190	210
E	50	70
∅ G	7	7
H	10	10
I	65	75
J	75	85
K	20	20
L	75	85



■ ∅ bolt rope (mainsail luff tape thickness included) :

- 6 mm for a CF 80 & CF 105

CAUTION :

The specified technical datas are likely to be amended. Therefore, Facnor reserves the right to modify those datas at any moment following product development. Thus, for datas updating it is important to consult Facnor agents or extranet - authorised access to our distribution network, boat builders and naval architects only. Dimensions and use recommendations accessible directly on www.facnor.com

Photo Credit : Mellermi



THE BEST TECHNICAL SUPPORT IS YOUR AGENT :

Most of the installation manuals are available on our web site pro support. However, the best pro support you can get is the support of our experienced and skilled dealers who will be able to advise you according to your sailing program and your boat.

HEASAIL FURLING & REEFING SYSTEMS INSTRUCTIONS :

- LS+ LX+ RX+ INSTALLATION MANUAL (Torlon Balls)
- LS LX RX USE RANGE
- LS LX RX INSTALLATION MANUAL (Bearing box)
- BOTTOM FORESTAY TERMINAL
- DIMENSIONS LS LX
- MEASUREMENTS OF THE CONNECTORS
- FLATDECK INSTALLATION MANUAL
- EF INSTALLATION & USER INSTRUCTIONS

INSTRUCTIONS FOR CODE ZERO & GENNAKER FURLERS, FACSLIDE+ AND MAINSAIL FURLERS :

- FX+ INSTALLATION NOTES
- FX+ USER INSTRUCTIONS
- CONTINUOUS LINE FURLERS : EXAMPLE OF INSTALLATION
- FACSLIDE+ INSTALLATION NOTES
- CF MAINSAIL FURLER TECHNICAL INSTRUCTIONS : informations & dimensions of the slugs and screws, information on the parts of CF furler, informations & dimensions of the special boom kit, slug reference according to mast sections.

FORMER RANGES :

- SD INSTRUCTIONS
- FX INSTALLATION & USER INSTRUCTIONS
- ASYM-FX INSTALLATION & USER INSTRUCTIONS
- RC DRUM INSTRUCTIONS
- ...

Consult the facnor instructions on our technical support



YOUR NOTES

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YOUR FACNOR DEALER