

facnor®

FURLING SYSTEMS

CATALOGUE
2019- 2020

INNOVATIVE FURLING SOLUTIONS



NEW

MULTI-MOTORIZED FURLERS
HYDRAULIC MOTORIZATION
HYDRAULIC CODE ZERO & GENNAKER FURLERS



CATALOGUE

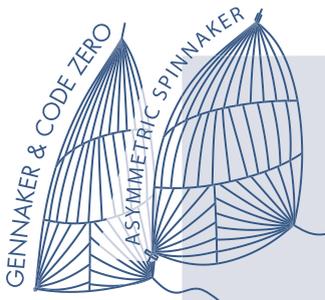
www.facnor.com



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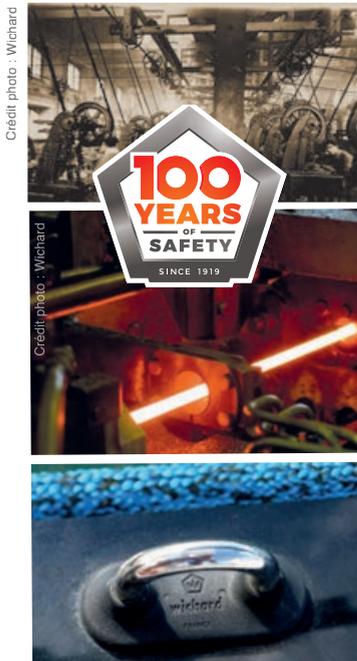
« Facnor is proud to be associated with the Wichard Group to celebrate the 100th Wichard's anniversary in 2019. Wichard deep expertise in forging process has enabled the company to build its image of reliability and quality, a safety guarantee. Leader in production of forged deck hardware, Wichard group has gradually surrounded itself with main yachting industry actors strengthening that way its offer and know-how. This is the case of Facnor. Based on 38-year continuous innovation, Facnor has become a premium brand in both cruising and ocean racing world. Facnor company shares with Lorima the taste for challenges. They often cooperate together on high and complex technical projects. By joining Wichard Group, Lorima Team came to



reinforce the corporate competences with its high level skills in carbon mast manufacturing. Its cooperation with Sparcraft through the Figaro III project was a success and some other collaborative projects have already been initiated. Always attentive to customer expectations, Facnor adapts its development to the evolution of sailing practices as you will see in this catalogue with the new electric and hydraulic furling systems but also with the reefing locks. At Facnor or whatever the other companies of Wichard Group are, we all know that product development never ends and that there is no time to rest. For this reason, the whole Group keeps searching innovative solutions for our customers. »

WICHARD FORGING THE FUTURE!

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) or Lorima (carbon). 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, security 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.

- Wichard's already well established distributor and dealer network, the addition of Facnor, Sparcraft, and now Lorima 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

WICHARD GROUP KEY FIGURES

- **Wichard Group** : a network of 1000 points of sales in France, 100 distributors, over 200 industrial customers.
- 250 employees
- 7 production sites : two in Saint Vaast la Hougue, one in Thiers, Périgny, Saint Malo, Lorient, Charlotte (NC, USA).
- **Export shares** : approximatively 60% for Wichard, 50% for Facnor.
- **Thousands of items** available for masts, hardware, rigging, booms, outhauls, Spinnaker poles, furling systems, locks, mainsail cars and tracks



Facnor is a worldwide leader in designing and manufacturing furling systems, based on its expertise, experience and innovation. 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



© Axe Sail

- A vast experience in marine industry : **since 1981**;
- 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.

PRODUCTION : PERFORMANCE, QUALITY AND GROUP SYNERGY

- Wide production capacity including 7 factories;
- Anodizing baths among the longest in the world (Sparcraft America) and Europe (Sparcraft);
- CNC and traditional machining (France);
- Group synergies : complementary production means in plastic processing (Maillard, France), hot forging (Wichard - France) and carbon (Lorima - Lorient);
- 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.
- Endurance and resistance testing units through validation process systematically performed by our R&D Department.



CUSTOMER SERVICE : FROM SALES TEAM TO DEALER NETWORK

- A distribution network offering **after-sales services in 35 countries**;
- **Attentive and reactive sales team** with a real experience of sailing;
- Industrial means and experience guarantee **efficient logistics**;
- **Skilled dealers** with the Facnor product knowledge.

INVOLVED IN LONG-TERM PARTNERSHIPS

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.



© C. Breschi / CapHandi

TECHNICAL AND SPORT PARTNERSHIPS



Louis Duc à bord du Class 40' Carac

Since 1993 Facnor has been involved in racing with the French skipper, Halvard Mabire : First, on his 60', then on the Whitbread around the world race and now on the Class 40', with Miranda Merron. As experienced ocean sailors and reliable technical consultants, they both trust Facnor products for their boat **Campagne de France**.

Facnor is also technical partner of Louis Duc and Luke Berry, respectively French skippers of the Class 40' **Carac** and **Lamotte Module Création**.

This cooperation is also a fruitful feedback of knowledge transfer.

Their web sites :

www.mabiremerron.com

www.facebook.com/class40louisduc

www.lukeberry-sailing.com



The Facnor Staysail furler of Campagne 2France (Pogo) has successfully sailed over 47000 milles

PARTNER OF HUMANITARIAN PROJECTS

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 :



Photo Credit : Team Jolokia

- Podorange (Challenge 67, Voile Australe Association),
- Jolokia (Rhum 50, Défi Intégration),
- Barba (Arctic Island expedition)
- Comme un seul homme (Défi -Intégration)
- Emeraude Solidaire (catamaran Norma 60' Ephata)
- Cap Handi (40.7 / Christophe Souchaud)

Their web sites :

www.voile-australe.com

www.teamjolokia.com

www.barba.no

www.commeunseulhomme.com

www.emeraudevoilesolidaire.org

www.caphandi.org



Photo Credit : Voile-Australe



© Team Jolokia



© Barba.no



© Les films du cap / E. Bellion

ALONE AT SEA, ERIC BELLION'S FILM

Participating in the Vendée Globe for the first time, sailing around the world without help or stops, Eric Bellion filmed himself during the 99 days of the race. An immersive, spectacular and unique testimony of a man facing the elements and himself.

"I've never been so scared in my life, I've never suffered more in my life, I've never taken so much pleasure in my life" Eric Bellion



From maxi-yachts to cruising yachts :

Facnor has built a solid reputation of reliability and expertise within the elite circles of the maxi yachts as well as Ocean racers. In partnership with high experienced sailing teams, Facnor has innovated and improved performance and strength of its products.

© Y. Zedda / Banque Populaire

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See Facnor custom brochure



To download the brochure, please use this QR code or consult our web site.



The custom projects for ocean cruising or racing maxi-yachts require high tech means: computerised design, knowledge in hightech 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.

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.

Vendée Globe : four victories

- **60' Imoca** : last four victories in the *Vendée Globe*
- **Multihull**: Banque Pop, *Géant*, Groupama,
- **Maxis** : *Mari-Cha 140'* and *Wally cento*

- **Multi One Design 70'**
- **Ultims** : Sodebo Ultim and Sodebo Ultim'3, Banque Populaire IX
- **Class 40'**

Our partnerships with high level skippers 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.



© Photo Jesus Henredo / Canboat



Tack plates à bord de Magic Carpet III

MAXI-YACHTS EXCELLENCE

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.

Nombreux projets :

- Baltic 147' Visione,
- Baltic 197'Hetairos,
- Briand 108' Inouï,
- Class J 121' Shamrock V,
- Class J 131' Velsheda,
- 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,
- Sarrissa 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 & Narlida

Custom product pages:

- CARBON SECTIONS P24
- STRUCTURAL FURLING SYSTEMS P26-27
- HALYARD LOCKS P28-29
- GENNAKERS & CODE ZERO FURLERS P32-44

See Facnor Custom brochure or consult our web site.

HEADSAIL FURLING & REEFING SYSTEMS

GENOA & STAYSAIL

LS-LX-RX

FD

EC & EF+

HF

New!



Your furling system for your navigation program...

Facnor team is very much involved in innovation and customer needs. 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/her navigation: classic drum (LS/LX/RX), webbing drum (FD), electrical motorized drum (EC & EF+), or hydraulic motorized drum (HF).

LS/LX/RX CLASSIC DRUM

FD WEBBING DRUM *

* Award Sail magazine 2011

* Award Segeln Magazine 2012

EC & EF+ ELECTRIC MOTORIZATION

HF HYDRAULIC MOTORIZATION

RECOMMENDATIONS & ACCESSORIES

SECTIONS

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NEW!

NEW!

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

- No maintenance bearings
- Rotating tack fitting and sail feeder (LX & RX)
- Large and widely tested around the world range of sections
- Strong connexions & sections
- Easy installation (thanks to the telescopic section)
- 360° adjustable furling line



Sail feeder
Body in Stainless steel (except SX53 & R34 models see P23) velcro attachment + integrated holding pin



Halyard deflector wheel
(see page 22)

High load Swivel
(waterproof)

DRUM & SWIVEL

Bearing box
(Steel bearings running in grease)

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

Anodization
(30 microns) protects parts against impacts and abrasion

Strong sections and connections
Torx® screws for an easy fitting and further dismantling (see p.24)

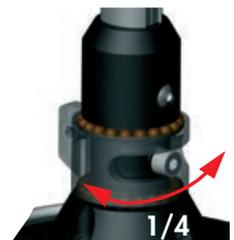
Bottom telescopic section
enables to adjust foil section length, no cutting (see p. 24)

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





LX200

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.

Features	Ranges		
	LS	LX	RX
Removable drum		■	■
Classic drum	■		
Stainless steel feeder "SX"	■	■	
Stainless steel feeder "R"			■
Aluminium feeder	SX53 & R34		
Rotating tack fitting		■	■
Fixed tack fitting	■		
Round sections	■	■	
Elliptical sections			■

Model	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
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*
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	SX 25	SX 25	SX 33	SX 33	SX 39	SX 39	SX 47	SX 47	SX 53
Weight (g/m)	577	577	658	658	914	914	1095	1095	1413
Halyard swivel	C 25	C 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



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.

«RACING» RX RANGE- 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.



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
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:	R 14	R 14	R 14	R 24	R 26	R 26	R 34
Weight (g /m)	451	451	451	555	641	641	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



1

2.Remove the half plates



2

3.Fit the two half protection rings



3

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

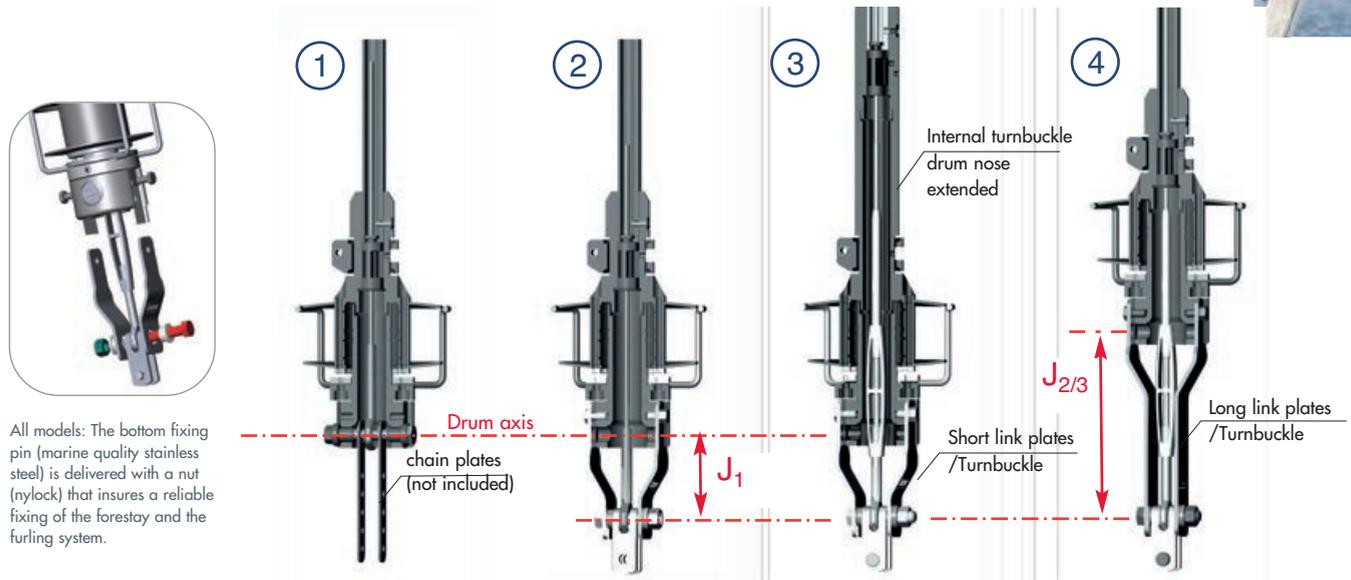


4



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.

Bottom forestay terminal	Eye + chain plates	Eye + jaw toggle	Turnbuckle + double jaw toggle	Turnbuckle + double jaw toggle
Type of installation	① Standard	② with short link plates	③ with internal turnbuckle & short link plates	④ with long link plates

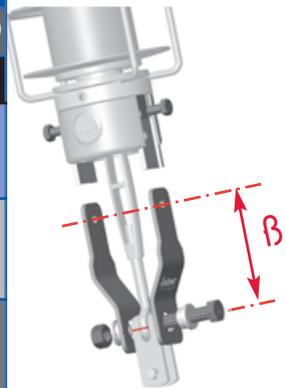
LINK PLATE KITS & INTERNAL TURNBUCKLE FITTINGS

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.

Plates 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
	-	RX 70	RX 100	RX 130	RX 165	RX 220	RX260	RX300	-
Short link plates option - Pin to pin β Thickness (mm) + Height 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) + Height 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) + Height 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 ø inner dimension & lgth (mm)	ø 28 lgth 256	ø 34 lgth 279		ø 42 lgth 315		ø 50 lgth 432		ø 64 lgth 546	
RX Internal turnbuckle fitting ø inner dimension & lgth (mm)	-	ø 28 lgth 256		ø 34 lgth 279		ø 42 lgth 315		ø 50 lgth 432	





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.

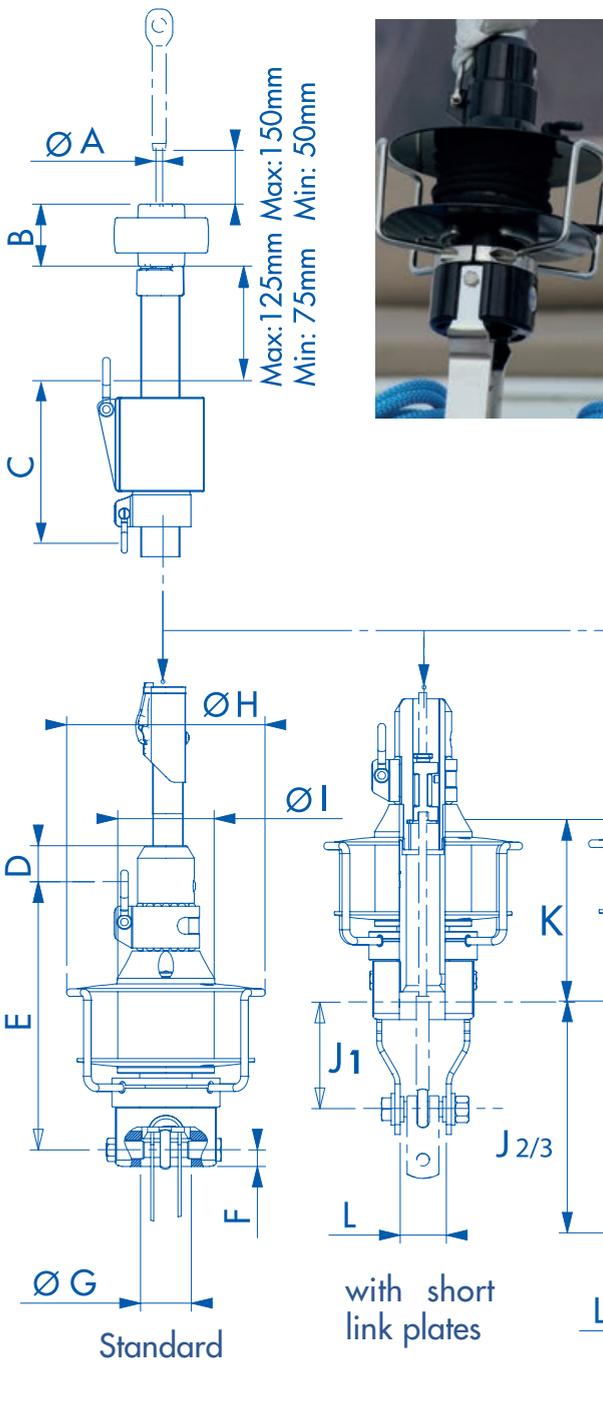


Reminder : no need to cut the forestay when installing Facnor furling system (see page 24).

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 60	LS-LX 70	LS-LX 100	LS-LX 130	LS-LX 165	LS-LX 180	LS-LX 200	LS-LX 290	LS-LX 330
		RX 70	RX 100	RX 130	RX 165	RX 220	RX 260	RX 300	
B	53	53	53	53	53	53	53	53	53
C LS-LX	152	152	160	160	174	174	226	226	235
C RX	-	160	160	160	160	174	174	226	-
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



with internal turnbuckle option & short link plates



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.com



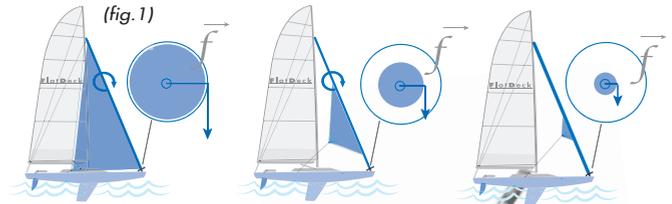
Photo : © Arnaud De Buyzer / RM Yachts

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

FlatDeck

- Maximum power when you start furling in
- Maximum luff thanks to the low profile drum
- No risk of overriding (webbing guide exit)
- Complete webbing fitting /rope & leads
- Rotating tack fitting
- Matching with other models



Great torque

since the beginning unlike classic drums (see pict 1)

High load Swivel

(waterproof)



Linear Rotation

Bearing box supports both halyard and sail foot tensions.



LS/LX/RX Evolution into FlatDeck

possibility to upgrade a classic model* by adding a FD drum. (*see p13)

360° Rotating tack fitting

fitted with Torton® 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).



Internal Turnbuckle (standard)

Webbing guide exit

This eliminates overrides as the webbing lays flat inside the drum. New 360° rotating guide



High resistance webbing

Stretching and UV resistant webbing (Polyester FD 90 to FD 190, Dyneema FD 210 to FD 310)

FURLING LINE & SECTIONS

Webbing / Furling rope kit :

- See description of the furling line kit (see p.14)
- The webbing is connected to the line with a swivel.
- The oblong design of the swivel guarantees a free run.



Foil sections :

- kits available with "R" elliptical foil sections (lighter and thin) but also with "SX" rounded foil sections (cruising). See p.24

"RACING & RACING - CRUISING" FD RANGE

	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	R 14	R 24	R 26	R 34
weigh / meter	451 g	555 g	641 g	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

	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	SX 25	SX 33	SX 39	SX 47
weigh / meter	577 g	658 g	914 g	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	C 25	C 33	C 39	C 47



FD Standard kit:

- drum
- internal turnbuckle fitting
- short link plates
- sections + connexions
- halyard swivel
- webbing / rope kit (see page 14)

International awards :

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



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



> "R", "SX" retro-fitting & other brands :

- boat with LS/LX/RX Factor drums (SX & R sections) or other brands, can be retrofitted with FlatDeck model (with drum kit + webbing + leads). Your Factor dealer can advice you (jaw installation and bottom terminal ø required).

© Performance Classic Yachts



Photo : © Kurt Arrigo/ Grand Soleil

EASY INSTALLATION WEBBING & DRUM

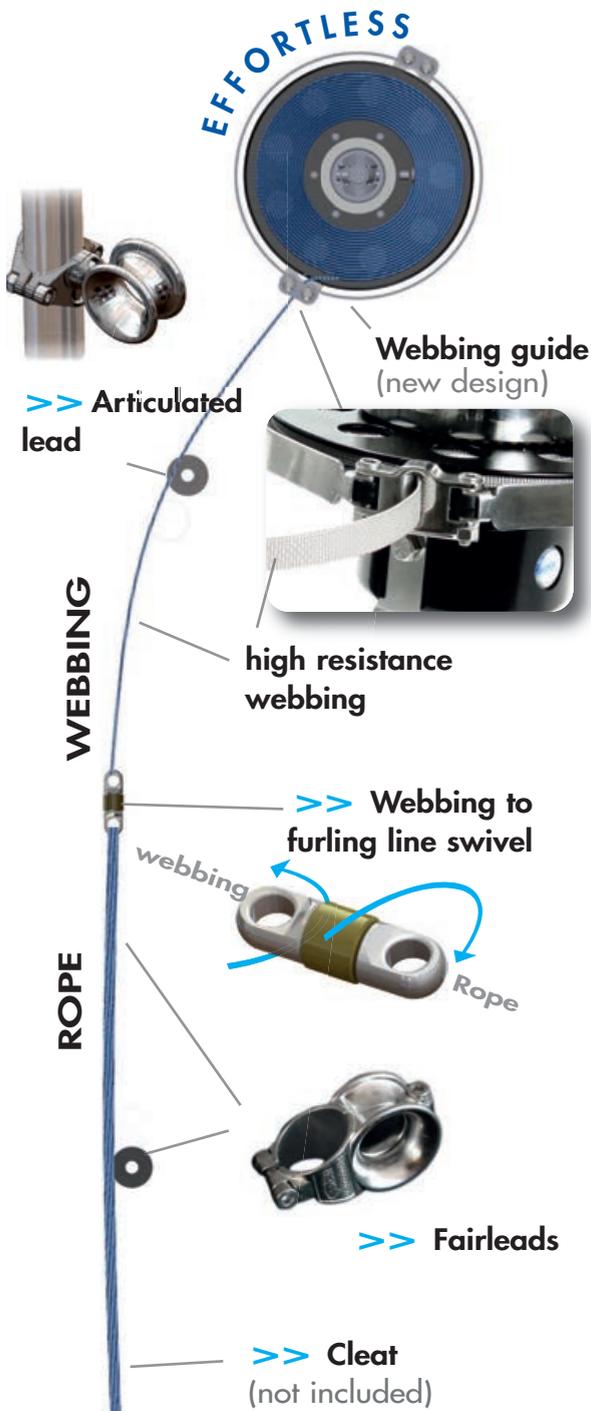


Photo Credit : © Chamier Marée Haute / Django

Webbing fitting :

- **efficient and quick installation**: thanks to a complete kit (delivered).
- Furling line circuit : the articulated fairlead and the furling line guide (360° orientation) leaves various possible ways of fittings.
- the F.D. standard kit includes the webbing/furling rope fitted onto the swivel.

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**.
- other brands : please contact your agent.

Dimensions : the gain in luff length with low profile FD drum is obvious. 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.



> Installation of the furling line kit (included in standard kit)

- furling line swivel
- webbing (from 10 up to 27 m.);
- standard furling line;
- 1 articulated lead + S/S single leads (number according model);

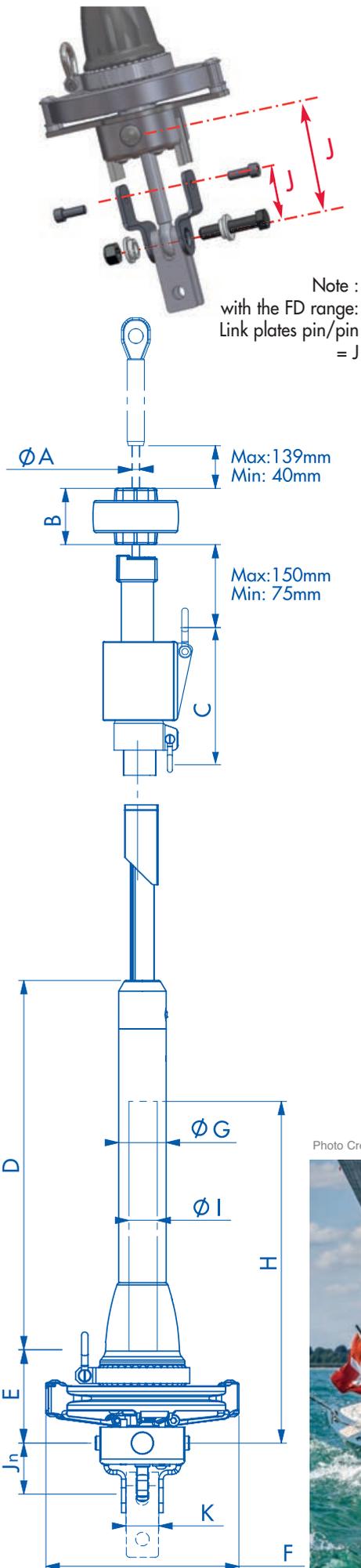


Furling line circuit : Your Facnor agent will suggest you the most adapted solution.

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		

* $\varnothing A < 12$ max.



FD MODELS DIMENSIONS

Measurements (mm)	FD RANGE DIMENSIONS			
	FD90 FD110	FD170 FD190	FD210 FD230	FD280 FD310
B	53	53	53	53
C (FDSX)	152	160	174	226
C (FDR)	160	160	174	226
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
\varnothing max turnbuckle	24	38	38	46

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

Photo Credit : © Tobias Stoeckle / Heinrichwert



In order to furl sails easier, Facnor offers furling motorizations, EC & EF+ electric models (from 9-meter boats) and HF hydraulic models (from 46 m up to 72 footers). Whatever configuration and reefing assistance chosen for your sailboat, motorization will bring a great comfort in navigation, especially on big units but also on smaller units.

COMFORT OF THE EC & EF+ ELECTRIC FURLERS

- Wired or radio remote control (see option page 18)
- Waterproof drive unit. No specific maintenance required
- Optimized power (max 800 W, speed 30 to 55 t/min)
- Low energy consumption & reduced noise level
- Fitted over the existing forestay without cutting
- Easy retrofit : motorization kit for converting Facnor (manual LS/LX 165 - 330) into electric EC or EF+
- Available in 12 and 24V with inverting box (details p.18)
- International 3-year warranty

EC & EF+

Special aluminium cover

Strong drive unit

Anticorrosion surface treatment

increased durability

New concept of electric multi-motorized power (EC)

29' → 48'
EC 39 & 47

45 → +55'
EF+ 550 & 600

Installation over the existing forestay

Passing through the drive unit.

Possibility of retro-fit

Simple upgrade path from Facnor manual units (similar dimensions).



Back up device

If manual operation is required a winch handle: see page 18, emergency continuous line system.



(after use, screw the cap back)

Stainless steel link plates, with multiple holes for drive unit

level adjustment according to anchor passage.



EC & EF+ ELECTRIC MOTORIZATION RANGE

EC & EF+ Technical datas :

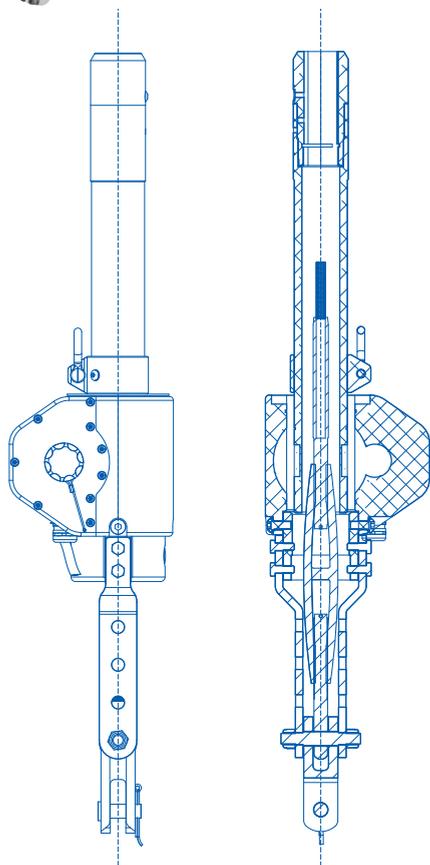
- Remote control option (Wired or radio version) : see page 18



Boat length (m/ feet)	Max forestay Ø	Section / Swivel	Model ref	Forestay length	Power / Rotation speed (max)	Amperage / Voltage
9 → 12 m 29' → 39'	8 mm	SX 39 /C 39	EC 39 (12 / 24 V)	14 m 50	400 W 40 RPM ¹	40 A / 12 V 24 V (20A) on request
	10 mm*			16 m 50		
12 → 16 m 39' → 48'	12 mm	SX 47 /C 47	EC 47 (12 / 24 V)	18 m 50	800 W 55 RPM ¹	40 A / 24 V 12 V (80A) on request
	12,7 mm*			20 m 50		
15 → 18 m 45' → 55'	12,7 mm	SX 47 / C 47	EF+550 (12 / 24 V)	18 m 50	800 W (12V) 1200 W (24V) 33 RPM ¹	30 A / 24 V 60 A / 12 V
	14 mm*			20 m 50		
+ 18 m + 55'	16 mm / 19 mm*	SX 53 / C 600	EF+600 (12 / 24 V)	20 m 50	800 W (12V) 1200 W (24V) 33 RPM ¹	40 A / 24 V 60 A / 12 V
				22 m 50		
	22 m 50					
	24 m 50					

*Installation with swage rigging screw or "manual"

RPM¹: Rotations per Minute



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.

EC & EF+ FOIL SECTIONS & SWIVELS

Foil section ref : see page 24.

- The large sized connectors guarantee a great torque resistance. The telescopic section prevents any requirement to cut the foil sections when adjusting.
- Option : special part available for «R» foil section adaptation.
- Waterproof swivels, high load resistant :
 - C 39 → EC 39, C 47 → EC 47
 - C 47 → EF+ 550, C 600 → EF+ 650

Complete kits :

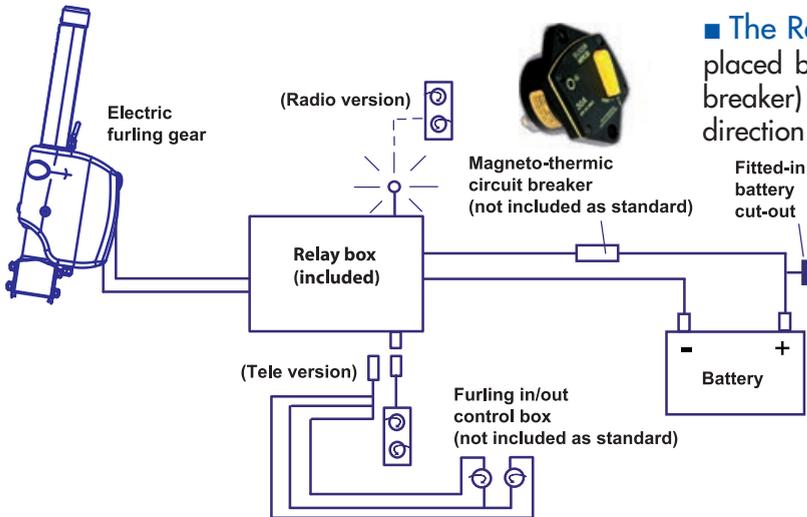
- motorization kit (drive unit, stainless steel link plates, toggle, relay box, circuit breaker)
- foil section kit (see P. 24)
- swivel, halyard deflector wheel

Options (see page 18) :

- wired or radio remote control
- emergency continuous line system



RELAY BOX / REMOTE CONTROL



■ **The Relay box** is a 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

■ **Waterproof circuit breaker** (delivered in the standard kit) : turns off the furling gear in case of overheating (due to a Genoa sheet not released for instance).

OPTIONS

■ **Remote control**

① **Wired**
(waterproof device)

② **Radio version**
- pocket transmitter,
- receiver to be fixed underneath the top cover of the relay box



Remote control	Part number	Model Ref.
Wired ①	56012000140	EC 39 EC47
Radio Remote Controller ② Pocket transmitter + Receiver	56012000150	EF+550 EF+600

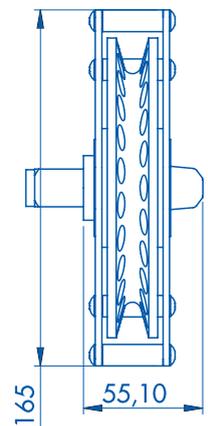
■ **Emergency system (electric or hydraulic furler) : operating in any circumstances**

The "FACNOR emergency system" is made up of a notched drive wheel and a continuous line. If an electrical failure were to occur, this device allows the operator to quickly and easily furl in the headsail(standing one meter behind).



Self-locking device
The Facnor emergency system is fitted with a standard square drive winch socket.

Continous furling line
- Easy : pull the continuous line to manually operate the furling system..
- Quick



Adaptable on any standard model of electric/hydraulic furlers
Ref. 03039000100. Thickness = 55 mm.

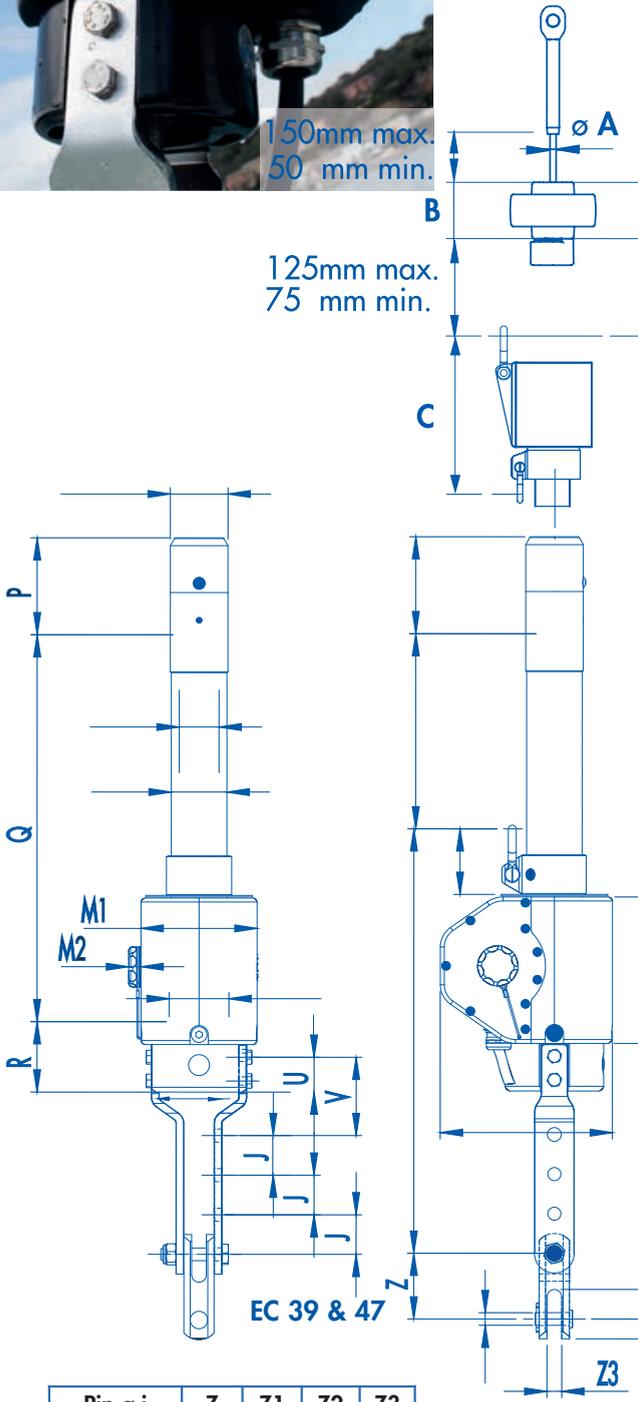
Delivered inside a fabric protection bag and with an endless line (12mm Ø)



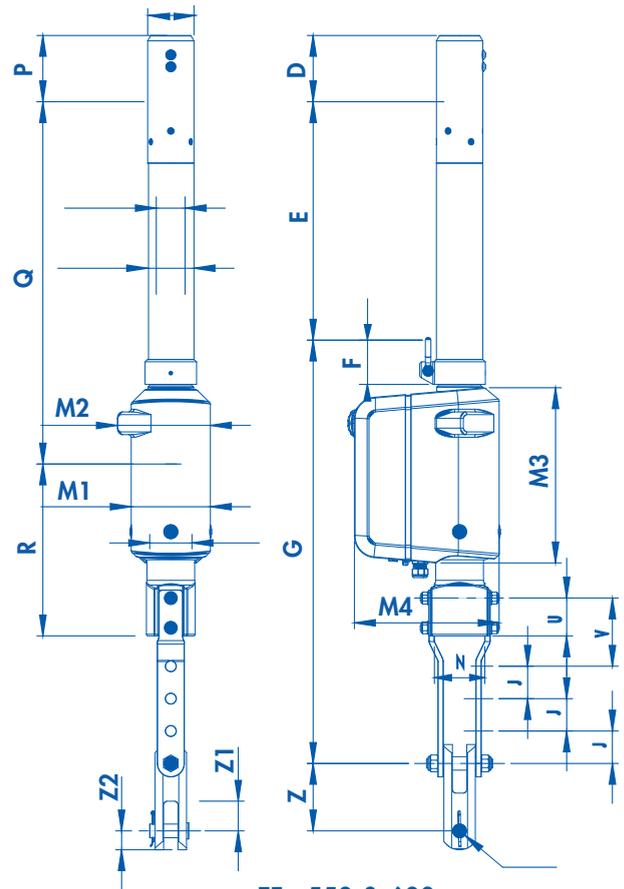
EC & EF+ DIMENSIONS

MODEL Elec. furler	EC 39 SX 39	EC 47 SX 47	EF+ 550 SX 47	EF+ 600 SX 53
Section /Swivel Ref.	SX 39 C39	SX 47 C47	SX 47 CX47	SX 53 C600
A = max. forestay ϕ (* turnbuckle)	8 mm* 10 mm*	12 mm* 14 mm*	12 mm* 14 mm*	22 mm*
B	53		53	
C	174	226	226	235
D*	98	106	103	123
E	162	248	263	486
F	62	77	82	
G	496*	536*	770	
J	50	50	60	
M4	184	216	267	
ϕ K	60	72	72	85
ϕ L	60	70	72	86
M1	122	146	146	
M2	16		172	
M3	160	185	324	
N	78	100	93	
P	98	106	103	123
Q	363	485	435	671
R	79	89	265	318
ϕ S	42	50	53	
T	54	75	78	
U	39	44	70	
V	105*	104*	126	126

* End of the telescopic section



EC 39 & 47



EF+ 550 & 600

Pin ϕ i	Z	Z1	Z2	Z3
12.7	77	27	19	13
16	82	28	25	18.5
19	94	42	29	123
22	105	36.5	32.5	22.5
25	125	55	35	26.5
28	140	50	39	-
32	165	75	42	-



Hydraulic motorised furling systems brings ease of use to sailing handing on yachts 42' and over. The Facnor HF range is suitable for yachts unto 72' often equipped with other hydraulic devices.

photo credit : MichaelSchmidlYachtBau / explorer

THE HYDRAULIC MOTORIZATION: POWER & TORQUE

HF Hydraulic

- Plugged on standard hydraulic devices (max 140 bars*)
- Durable drive unit, waterproof and compact, low noise level
- Power ratio / Optimum torque
- Installation on existing forestay
- Compact : reduced dimensions compared with a classic drum
- Quick installation : split foot (HF700) + internal turnbuckle fitting
- No specific maintenance. International 3-year warranty

**See chart against. In case of debit higher than the recommended one, please contact one agent. A debit control will be needed.*

Special aluminium cover

Strong drive unit

Anticorrosion surface treatment

increased durability

3 compact models

from 42 to 72'



42 → 60' HF500 & 600
60 → 72' (HF700)

Installation over existing forestay

Passing through the drive unit.

Reduced lateral dimensions

(increased space for anchoring)

specific to HF700 : removable split polished base for easy installation and access to the turnbuckle without dismantling forestay.

SX foil sections

Capacity to support high level torques (see page 24)

Back up device

situated on starboard for emergency handling (or the Facnor emergency continuous line system).



(after use, screw the cap back)



HYDRAULIC MOTORISED RANGE

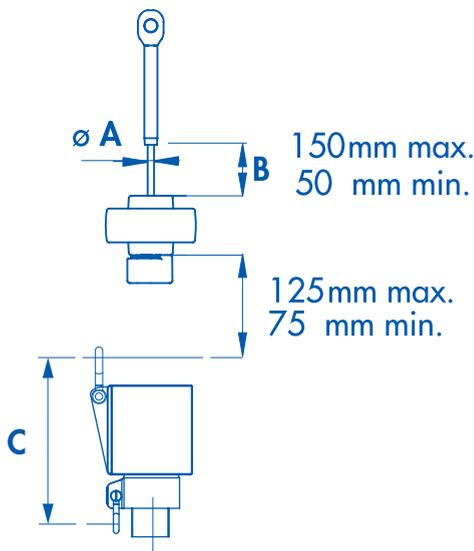
Technical datas :

- Option : wired or radio remote control (see page 18)

Boat Length	Max forestay \varnothing	Section / Swivel	Model ref.	Forestay length	hydraulic connections	Max recommended / pressure (bars)	Max recommended / flow (L/min)	Max. rotation speed (RPM ¹ /mn)
14 → 18 m 42' → 54'	14*	SX47 / C47	HF550	18m 50	9/16"	125 (140 max)	15 (20 max)	30
				20m 50				
18 → 20 m 54' → 60'	19*	SX53 / C600	HF600	22m 50				
				24m 50				
20 → 24 m 60' → 72'	22* /#76*	SX53 / C600	HF700	28m 50	3/8"	15-18 (20 max)	60	
				30m 50				

RPM¹ : Rotations per Minute

*Installation with swage rigging screw or "manual"



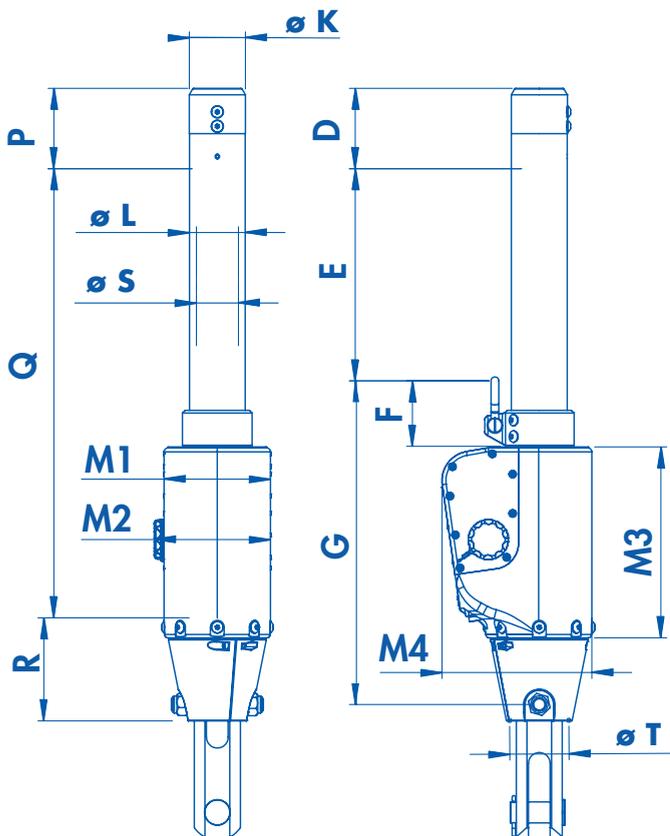
Stainless steel toggle & link plates

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

HF Sections :

- Standard SX47 & SX53 foil sections are common to all systems (see page 24).
- SC carbon sections available (see p. 24)

HF DIMENSIONS

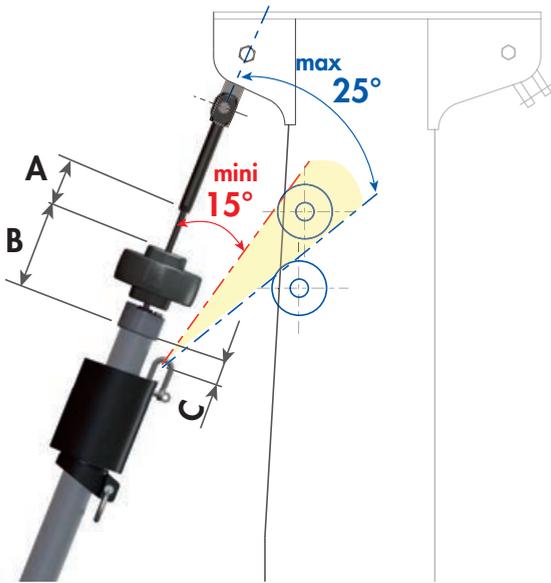


Rep.	HF MODEL		
	HF 550	HF 600	HF 700
Section / Swivel Ref.	SX 47 C47	SX 53 C600	SX 53 C600
A = max. forestay \varnothing (* turnbuckle)	14 mm*	19 mm*	22 mm* #76*
B	53	53	52
C	226	226	235
D*	106	103	123
E	248	263	325
F	77	82	100
G	536*	770	495
M4	216	267	267
\varnothing K	72	72	85
\varnothing L	70	72	85
M1	146	146	162
M2	16	172	177
M3	185	324	292
P	106	103	123
Q	485	435	686
R	89	265	158
\varnothing S	50	53	64
T	75	78	90

RECOMMENDATIONS : 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)

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.

See against. Please contact a Sparcraft dealer (see on www.sparcraft.com)

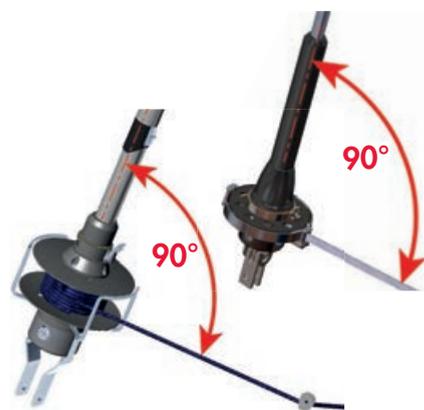


Sparcraft spi spectacle model	ø A int. (mm)	rope ø (mm)
Small size (with 4 rivets)	ø 12	ø 5 → ø 10
Middle size (with 4 rivets)	ø 17,6	ø 12 → 16
Large size (with 4 rivets)	ø 22	ø 18 → ø 22

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).



Furling line inside the guide :

LS-LX-RX models: the furling line must run through one S/S 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.

- don't forget to stretch the halyard before sailing.

ACCESSORIES FOR R & SX FOIL SECTIONS



Sail feeder (SX & R) :

- For quick change of sail, entirely removable.
- Velcro strap : ensures an easy fitting or disassembly from **elliptic R foil sections and SX std.**
- Design and smooth shape prevent from luff tape wearing.
- Strength (Stainless steel)
- SX 53 et R34 sections : aluminium.

S/s steel / SX foil section	
Section Ref.	Reference
SX25	09130128252
SX33	09130128332
SX39	09130128392
SX47	09130128472
SX53 (alu)	09130128530



S/s steel / R foil section	
Section Ref.	Reference
R14	09130128142
R24	09130128242
R26	09130128262
R34 (alu)	09130128340

FD-LS-LX-RX ACCESSORIES

Furling line / Fairleads kit (LS/LX/RX):

Furling line kit includes polyester good quality rope, adapted to the furling use.



Rope & leads kits	LS-LX-RX Model	Reference
∅ 6 x 20 m Rope 1 articulated lead + 3 single fairleads	LS/LX 60-100 RX 70-100	24106201300
∅ 8 x 24 m Rope 1 articulated lead + 3 single fairleads	LS/LX 130-180 RX 130-220	24108241300
∅ 10 x 24 m Rope 1 articulated lead + 4 single fairleads	LS/LX 200-290 RX 260-300	24110241400

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)

Model	Description	for stanchion ∅	Reference
M10	Deck fairlead ∅ 18 (+ washer + nut M10)	-	24000102400
ASL25/28	Articulated fairlead (rope hole ∅ 20)	25 to 28	24000102300
SL25	Single fairlead (rope hole ∅ 20)	25	24000102200



Twin fairleads for Gennaker and code zero furlers (continuous line) : p.41

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 (EC & EF+, HF).



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.
High torque resistance



Connectors with high torque resistance

guarantee a great rigidity at the section connections

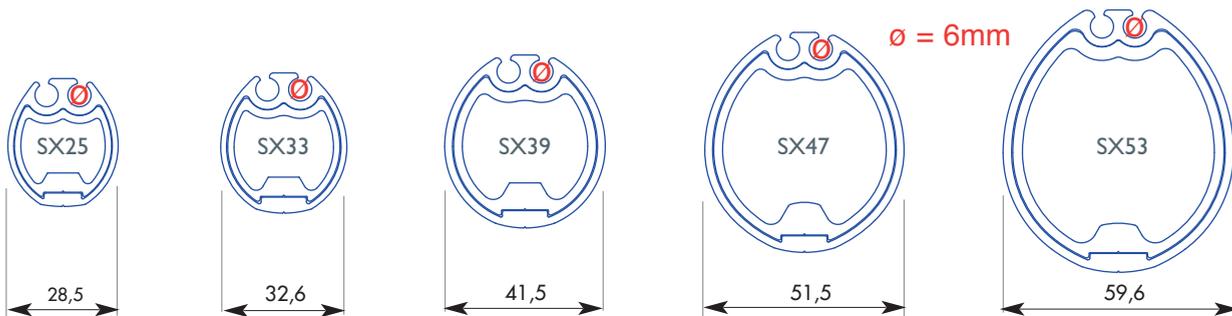
Anodized extruded aluminium

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

SX & R SECTIONS DIMENSIONS

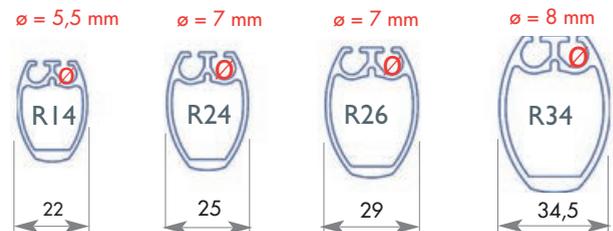
ROUNDED SECTIONS SX 25 / SX 33 / SX 39 / SX 47 / SX 53 :

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

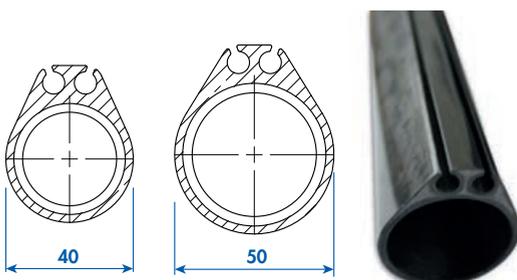


ELLIPTICAL SECTIONS R14 / R24 / R26 / R34

This range of sections offers good aerodynamics, and the twin-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 alloy furling sections).
 - The "water drop" shaped sections offers better aerodynamics.
 - The installation is simple as the elements are bonded together (no screw). This improves the torque resistance of the connected sections.
- TWO MODELS : SC40 & SC50 - Length : 4 meters.

STRUCTURAL FURLERS & LOCKS

GENOA & STAYSAIL

STK
HL-HE
STG-STB-FLT

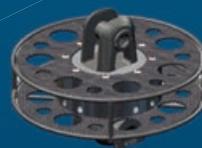


Structural furlers : the "in/out" systems

The structural furler - unlike the Gennaker furler - supports both mast and sail loads. The Facnor **STK systems** are fitted with anti-twist fiber forestay from 40 footers. Widely tested on ocean races, like the **external and internal halyard locking devices**, reliability made their success. The different **STG /STB /FLT** systems can be fitted with a classic wire forestay from 24 to 30 footers.



STRUCTURAL STAYFURLERS
STK 5 → 35 T (from 40' up to +130')



P26-27

STRUCTURAL WIRE FURLERS,
STG / STB / FLT (from 24 up to 30')

INTERNAL & EXTERNAL LOCKS
2 - 30 T and +



P30

P28-29

Structural furlers have been installed on racing sailboat for a long time. These structural furlers support mast loads and can entirely furl in and out headsails (such as Solent, Staysail, Genoa). This high performance system is also supplied on ocean cruising yachts for Staysails.

PERFECT SAIL & LIGHTNESS

STK FURLERS

- 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
- Resistant and tested for heavy loads
- Tensioning halyard possible by 2-to-1 (see terminal options)
- Classic or endless line drum available, connection on jaw or thread

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.



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

Single line drum :

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

Continuous line drum :

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

Bottom terminal

directly integrated on the drum or continuous line drum. Many options available.

STRUCTURAL FURLER RANGE 5 → + 35 TONS



STK Models : Discontinuous or continuous line drums

Parameters / Furler model*	STK 5 T	STK 9 T	STK 10 T	STK 15 T	STK 20 T	STK 25 T	STK 35 T	STK + 35 T
Boat length (feet)	40'	50'	60	60 /70'	70'	+70'		
ROD equivalence	-17	-30	-40	-48	-60	-76 & -91	-115 & -150	
wire 1x19 equivalence (mm)	10	14	16	19	22	-	-	
Kevlar wire working loads (safety coefficient x 2)**	5 T	9 T	10 T	15 T	20 T	25 T	35 T	

Contact us

* 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 (BOTTOM OR TOP)

Different articulating parts (bottom or top) :

- 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.

Twin anchor

more flexible articulation
- to be screwed or notched up



Lashing soft eye terminal

(Bottom or top)
(fitted above the swivel or underneath the drum) the lashing gives more flexibility to the articulation and allows to adjust the luff length.



Eye terminal

for both top and bottom ends



Ball joint eye

top or bottom terminal. 3 axes orientation angles



Soft solid sheaves

help to build a 2-to-1 or a 3-to-1 tensioning



Twin spool terminal

fitted underneath the drum it keeps its attachment in position (4-to-1)



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

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. Fitted either inside or outside the mast, the Facnor lock tremendously eases the handling of flying forestays.



Halyard /locking control

Halyard partially without outer shell on 2x the lock body length

BUILD INTO MAST FRONT

- HL 2T and +**
- Halving mast compression loads
 - Luff constantly tight (less halyard elasticity)
 - Easier foredeck handlings
 - Different possibilities of use :  Gennaker or Code zero & Staysail
 - Reduction of the boat heel/windage (lowered sail)

>> Resistant

High resistance body : titanium or high resistance stainless steel depending on model



>> Optimum integration of the lock

- device fitted from outside the mast;
- lock supported by the mast contact area;
- easy mast inspection, fixation by two screws;



>> Options (custom):

Some models (out of standard) can be specially equipped with :

Fitted-in sensors :

- « upwards stop » and « locked »

Various terminals available (see page 29)

- With toggle directly fitted-in (swivel)

>> Bullet lock:

Body in aluminium, pin and sheave in stainless steel
Used for wide angulation halyard



- 1 Pull up the halyard until the sail reaches full hoist for locking

>> 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.
- specific surface processing

- 2 Pull up again the halyard for unlocking (and thereby taking down the sail).

>> Internal halyard HL locks technical features

Parameters / Lock model* (= working load)	HL 2T	HL 3T	HL 5T	HL 8T	HL 10T	HL 12T	HL +
Kevlar equivalent wire	7 T	10 T	14 T	25 T	30 T	40 T	on request
ROD Equivalent	#8	#12	#17	#30	#40	#48	
Wire Equivalent 1x19 (mm)	7	8	10	14 (9/16)	16 (5/8)	19 (3/4)	
Dyform Equivalent (mm)	6	7	8	12	14	16	

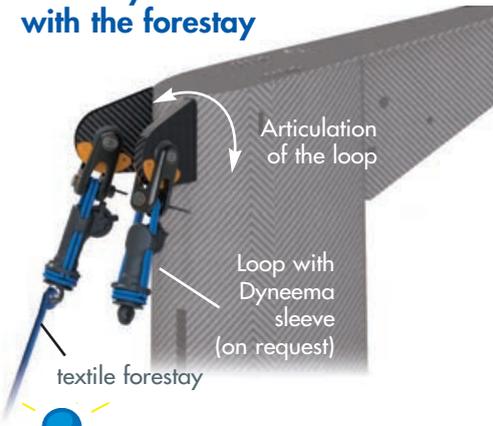
* model name = Kevlar stay breaking loads (see structural furler mention)

Voir la video sur 

<https://youtu.be/2V9NX9SgFvA>

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.

>> Polyvalent interface with the forestay

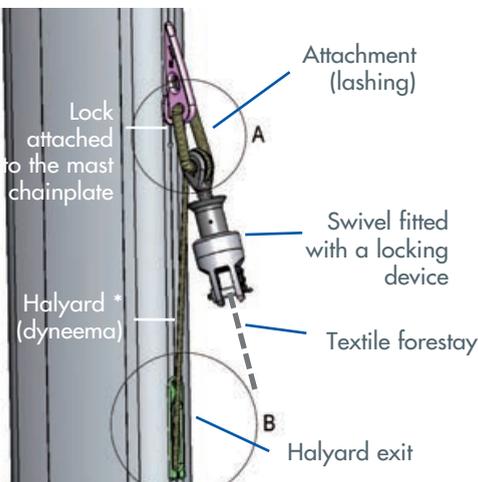
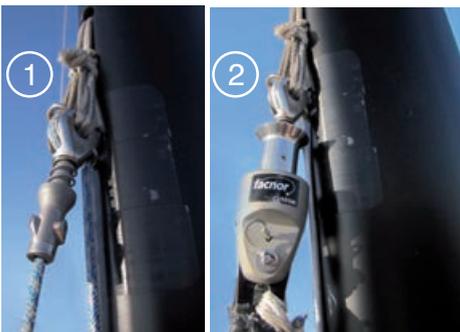


The benefits of the lock :

"Thanks to the lock, we can lower the furlled 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' Campagne 2 France and facnor technical partner

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



* Halyard partially without outer shell on 1.1 to 1.2x the luff length

HE 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).
- The halyard (small \varnothing) can then run down inside or outside the mast.



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

>> HE Swivel & lock technical features

Parameters / Lock model* (= working load)	HE 3 T	HE 5 T	HE 7 T	HE 10 T	HE 12 T	HE 16 T	HE 24 T	HE 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

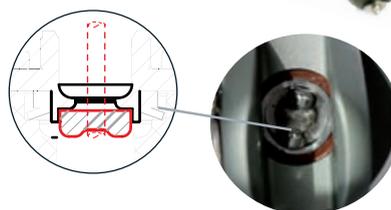
EXTERNAL LOCKS : SWIVEL & LOCK

>> HSW Swivel & lock technical features

Parameters / Lock model* (= working load)	3 T	6 T	9 T	9 T+
Kevlar Equivalent wire	8 T	20 T	27 T	Please contact us

>> Locking Swivels with fixed pin / removable swivel

Pin attached to chain plate (fig 1), the body of the locking swivel flies from the deck – for instance from the bag – to the top of the mast to get secured (fig2)



A Dogbone blocks the halyard in the swivel





STRUCTURAL FURLERS

© ANWB Audio Visuele Dienst /Dragonfly

STB / STG / FLT

24 to 35 feet units

Top stainless steel toggle Fixes the top swivel on to the mast (included)

Head swivel allows the wire to turn

FX+ swivel

Halyard swivel

Thrust bearing with Torlon® ball bearings. Twin rim joints proofing

Stainless steel wire ø 5 to ø 7 mm (not included)

Link plates Allows adjusting the length of the forestay that is easily removed. Ideal for unstepping operations)

Continuous line drum

Flat drum + carbon housing

Drum

Stainless steel toggle

STG 4,5

STB 3 T

FLT 1.5 / 2.5 / 5 T

STOCKEURS STG & STB

STB / STG avantages

- The STG & STB are wire structural furlers, that are light and easy to install.
- Sails luff fitted with hanks or a zip.
- Each kit model includes :
 - 1 x halyard swivel with top stainless steel toggle (rotation of the wire)
 - 1 x drum with S/s toggle to fit on the foredeck chain plate.

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.

Model	Boat length	Forestay diameter*	Working load (Tons)	ø Drum (drum)
STB 3T	7,5 → 9,5 meters	ø 5 mm ou ø 6 mm according to the type of boat	3 T	119 mm*
STG 3T				
STG 4T5	8 → 10 meters	ø 7 mm	4,5 T	227 mm

*Wire non delivered

FLT FLAT DRUM STRUCTURAL FURLERS

Perfect for racing boats : The FLT 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. It is easy to operate with the partially reduced diameter line.



FLT Kit = flat drum + masthead swivel



Model	Reference	Boat length	ø bottom pin (mm)	forestay* ø (mm)	SWL (tons)	ø drum (mm)
FLT 1T5	43311001540	6,5 → 7,5	ø 8	ø 5	1,5T	109
FLT 2T5	43311002540	7,5 → 9,5	ø 10	ø 6	2,5T	149
FLT 5T	43311005050	9 → 10,5	ø 12,7	ø 7-8	5T	200
FLT 5T	43311005040	10,5 → 12,5	ø 16	ø 10	5T	200

FX+ FLYING SAILS FURLERS
STANDARD & HYDRAULIC

FX+
FXH
IDXH



GENNAKER &
ASYMMETRIC
SPINNAKER



Clas 40/ Lameite/module Création © Pierrick Contin

Its long and high level experience in the use of flying sail furlers has enabled Facnor to supply the biggest sailing boats. Our FX+ range dedicated to Gennakers, Code sails and asymmetric Spinnakers (with **FAST thimble**) reflects this expertise. The range of manual furlers was enlarged to the hydraulic (**FXH & IDXH**) version as well as various accessories and **bowsprits**.



NEW!
Stainless steel clamp

FX+ GENNAKER & CODE ZERO FURLERS

P32

FAST THIMBLES
for ASYMMETRIC SPINNAKER FURLERS



P36

OPTIONS & ADVICES



**SSH+ :
NEW
DESIGN!**

P38-P41

FXH HYDRAULIC FURLERS



P42-45



Further to constructive technical exchanges with ocean racers, Facnor has developed a sophisticated range of Gennaker/Code Zero furlers : the FX+. A true evolution : light, easy to fit and aesthetic. Fitted on request with a ratchet device securing the furling, locking both clockwise and anti-clockwise (Facnor patent).

The FX+ flying sails furler is an "in/out system".
The anti-twist rope is captive within the sail luff tape.

FX+
design by Facnor

+ THAN 20 YEARS OF EXPERIENCE IN GENNAKERS FULERS

- Widely tested & strong mechanisms bodies
- Lightness : optimised system and ultracompact
- Secured sail connection
- Easy to fit and to adjust with simplified use
- Conversion for asymmetrical spinnaker (see page 36)
- Ratchet system

Drum

- large diameter (torque \nearrow) : for a better furling power
- Drum and swivel, machined from one single piece



Torque rope

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



Start and Go Rotation option

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



Carbon housing

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

Various attachment

(option 2-to-1 see page 38)

Anti-impact cover for swivel

in neoprene (delivered)

high-visibility marking



Thimbles

see page 38



Secured sail connection Sail / Mechanism

Smooth push spring release device*

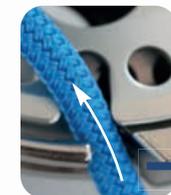
+ Captive quick release pin

*(except for FX+900)



Easy fitted furling line

Stainless steel guide



Furling line



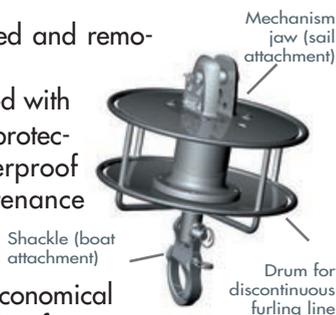
See the video on **YouTube**

Bottom and top adjustable fastenings (see OPTIONS page)

FXT FURLERS WITH DRUM

FXT Gennaker & 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).

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).
- carbon house
 - half the weight of a standard Gennaker furler.



FX+ CONTINUOUS LINE FURLERS

The wide FX range from 16' day boat to 200' 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	60 m ²	100 m ²	140 m ²	250 m ²	350 m ²	+ 500 m ²
	322 ft ²	646 ft ²	1076 ft ²	1500 ft ²	2690 ft ²	3770 ft ²	5380 ft ²
Safe Working Load* (tons- lbs)	0,9T	1,5T	2,5T	4,5T	7T	12T	20T
	1984 lbs	3306 lbs	5511 lbs	9920 lbs	15432 lbs	26455 lbs	44100 lbs
Ratchet	Not available	Option	Option	Option	Option	Contact us	

* SWL maxi : voir note en bas de 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 system** : Option for FX+1500 → 7000 (retrofit available on most FX+ models)

See the video on
YouTube



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. 38

STAYSAILS FITTED WITH 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	

* 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)

- ⚠ We remind you that an adapted deck attachment must be installed

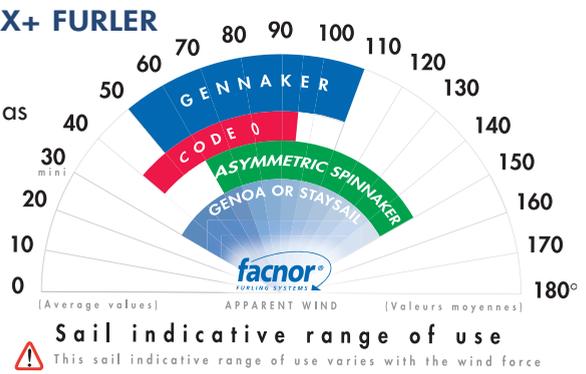
- FX+ for staysails : ideally featted with a locking swivel (see P. 28)



Photo Credit : B. Kolthof / Club Swan

USE CONDITIONS OF THE FX+ FURLER

The use range of the sails as shown on the diagram opposite varies with the force of the wind. The complementary use with closer reach headsails is possible, however, under certain conditions (see page 33).



Installation of the FX+ furler



- 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!
 - Ratchet system OPTION : From a locked position, release the ratchet by operating the drum by rotating (furling in) half a turn. Once released the sail will unfurl easily
- Note: always keep the reefing line under tension and fit a line stopper. Lower the furled sail after use.

FURLING LINE & QUICK FASTENING DEVICE

Installation of the furling line : 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 remove.

Easy installed and stored :<<<

- top and bottom adjustable fastenings : snapshackle or shackle.
- adapted systems for asymmetric Spinnakers and attachments : see page 36.



Fitted-in and secure sail connection :

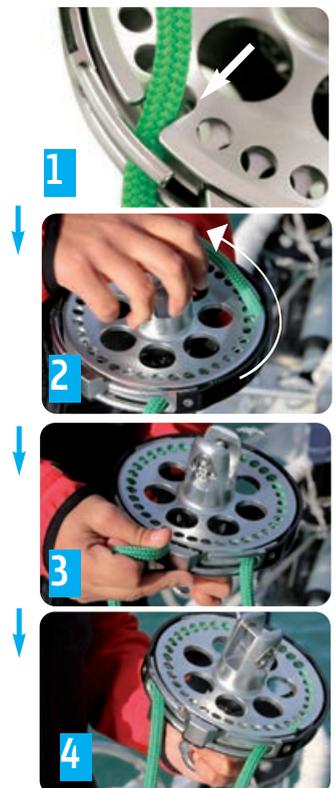
- The sail can be removed from the furler in one "click".
- Smooth push spring release device* with captive quick release pin for FX+ models, except FX+900 secured with clevis pin.

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 (voir page 33). Your Facnor agent will advise you on the best possible solution.

REMOVABLE FURLING LINE



See the video on <https://youtu.be/O3r5ra8NDaw>



Furling with the 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 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.



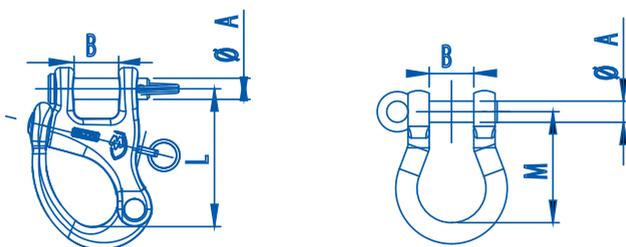
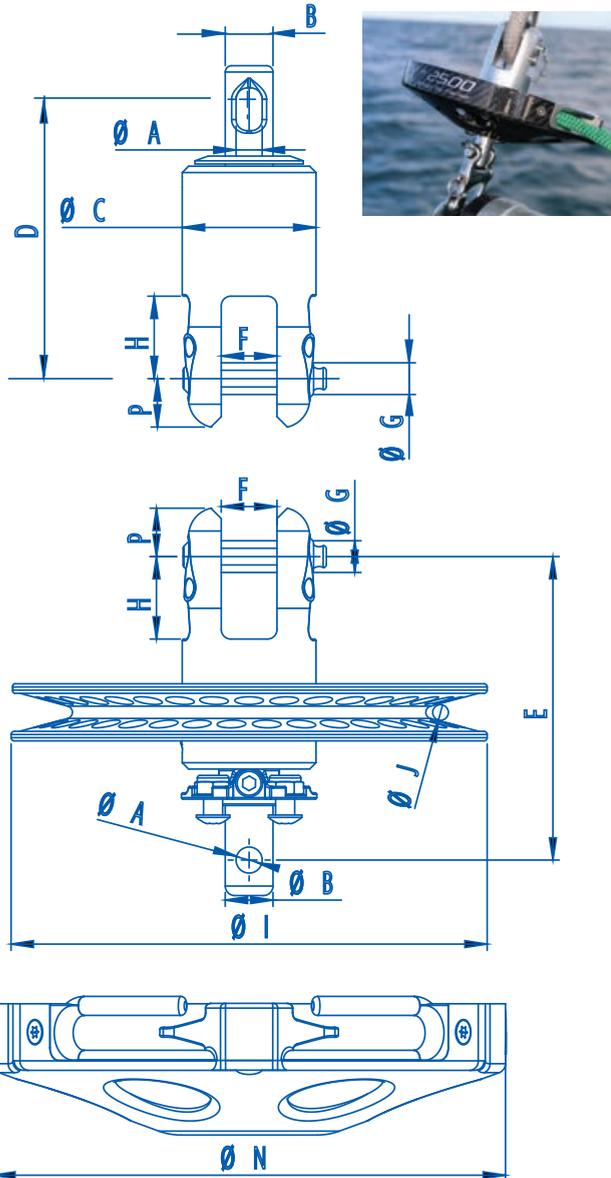
FX+ DIMENSIONS

Rep.	FX+ 900	FX+ 1500	FX+ 2500	FX+ 4500	FX+ 7000	FX+ 12000 Std	FX+ 12000 Racing	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	22	29
ø G	8	8	10	12	14	16	18	20
H	18	22	26	33,2	39	43	39	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
P	10,8	11,7	15,3	18,5	19,9	25		28

Standard drum attachment (snap shackle)

Standard swivel attachment (shackle)

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



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

© Joka Gemesi/ Pauger





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+ FAST

- FAST thimble : with the FX+ furler, this FAST system allows you to use your FX+ from Gennaker to asymmetric Spinnaker in a two clicks
- Possibility to use your existing asymmetric Spinnaker
- 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

Anti-twist rope
(supplied on request)

Simple mechanisms FX+

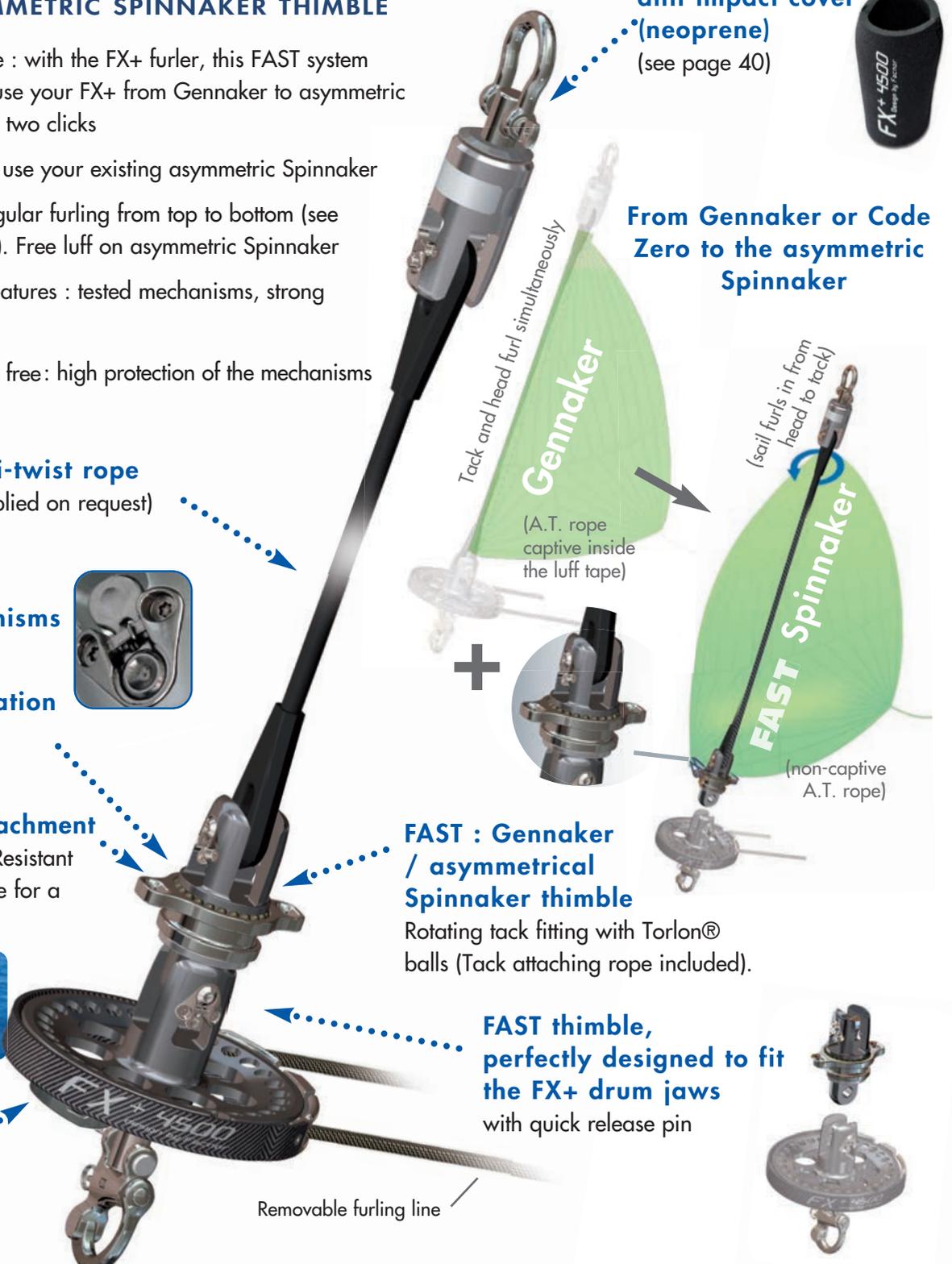


Smooth rotation
Torlon® balls

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



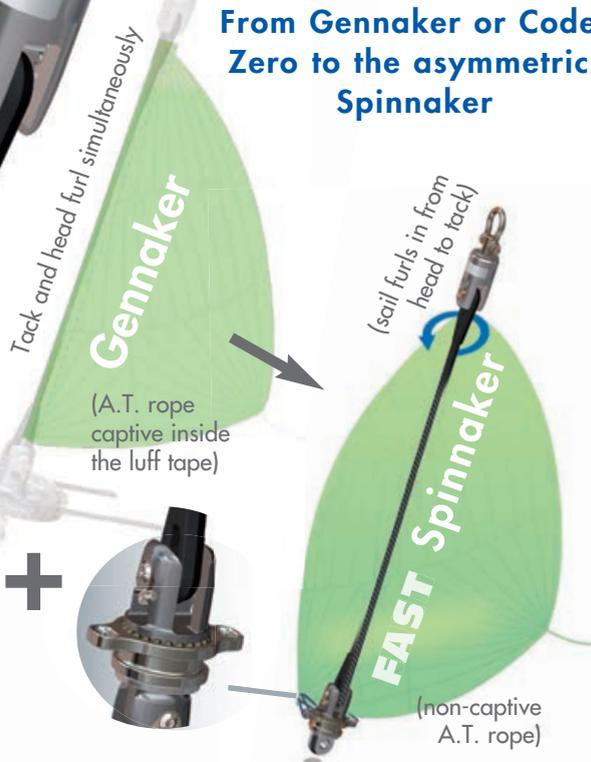
Carbon housing
strong and light



FX+ swivel with anti-impact cover (neoprene)
(see page 40)



From Gennaker or Code Zero to the asymmetric Spinnaker



FAST : Gennaker / asymmetrical Spinnaker thimble

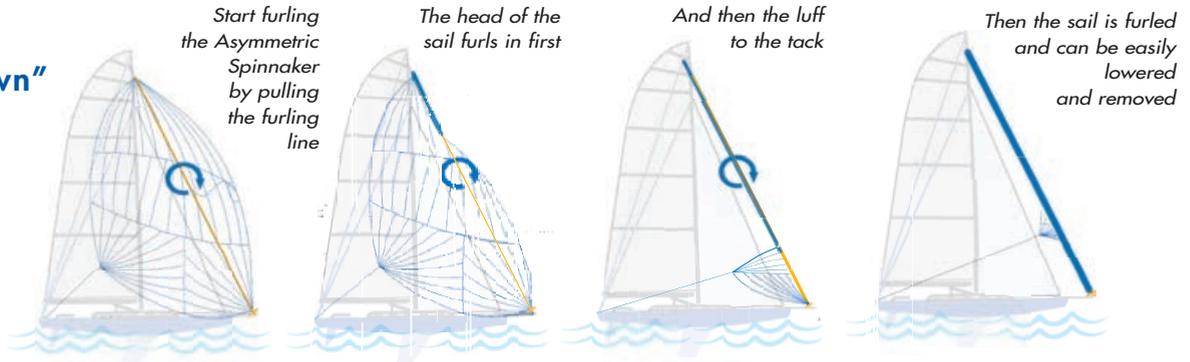
Rotating tack fitting with Torlon® balls (Tack attaching rope included).

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



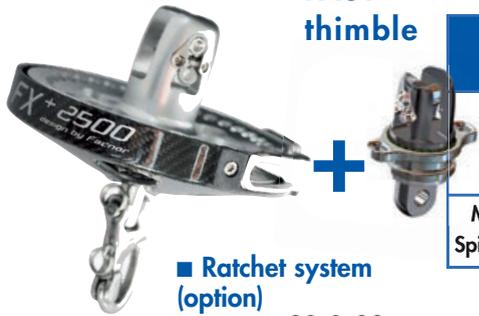
Removable furling line

"top-down" system



FX+ Furler

FAST thimble



■ **Ratchet system (option)**
see page 32 & 33

FX+ / FAST : FURLER MODELS

Model	FX+ FAST 900	FX+ FAST 1500	FX+ FAST 2500	FX+ FAST 4500	FX+ FAST 7000	FX+ FAST 12000
Boat length meter / feet	6 → 8,5 20 → 28'	8,5 → 12 28 → 40'	12 → 14 40 → 45'	13 → 16 42 → 55'	16 → 20 55 → 70'	contact us
Max asymmetric Spinnaker area (m ²)	40 m ² 430 Ft ²	80 m ² 861 Ft ²	110 m ² 1184 Ft ²	200 m ² 2153 Ft ²	270 m ² 2906 Ft ²	

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



Fast thimbles for FX+ furlers					
Model	FX+/FXT Model	Jaw width (mm)	Height* (mm)	Weight (g)	Reference
FAST 900	FX+ 900	12	65	220	43230000940
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				

* Pin to pin

TACK ADJUSTMENT

Two options are available to adjust the tack of your asymmetric Spinnaker :

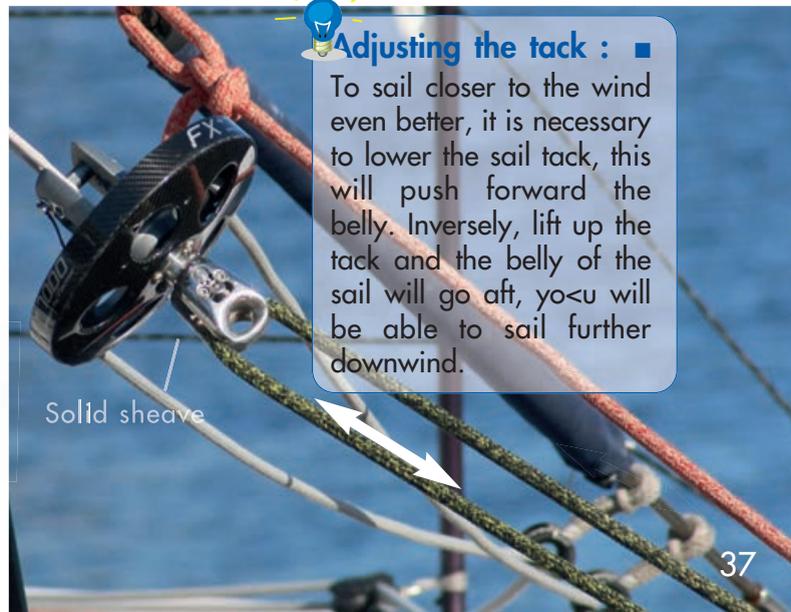
■ **SSH+ solid sheave :**

- used to adjust the tack point, with a maximum luff;
- This option is available from 1500 up to 12000 (above models on request).

■ **Soft converter :**

- Soft converting part for snapshackle (Wichard)
- Available for FX+ 4500 and FX+ 7000

→ see page 39



Adjusting the tack : ■
To sail closer to the wind even better, it is necessary to lower the sail tack, 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.

Solid sheave

ANTI-TORSION ROPES & 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)



Rings & snatch blocks

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

FRX 2-to-1 RINGS						
Model	FX+/FXT/FAST Ref.	∅	SWL	Height (mm)	Weight (g)	Reference
FRX1500	FX+1500	10	1,5T	50	42	24018000601

SB SNATCH BLOCK- (Pivoting carbon cheeks)						
Model	FX+/FXT/FAST Ref.	∅ Sheave	SWL	H (mm)	Weight (g)	Reference
SB2500	FX+2500	50	2,5T	77	281	43170102540
SB4500	FX+4500	57	4,5T	84	341	43170104540
SB7000	FX+7000	64	7,5T	93	429	43170107040

FCI / FCA / FC+ THIMBLES						
Model	FX+/FXT/FAST Ref.	Rope ∅ (mm)	Axis A (mm)	CSP	R	Reference
FCI 1500	FX+ 1500	9 → 11	8	14,5	15	25200010110
FCI 2500	FX+ 2500	11 → 13	10	17	18,5	25200010112
FCI 4500	FX+ /FXT 4500	13 → 15	12	18,5	22	25200010114
FCA 7000	FX+ /FXT 7000	16 → 22	14	25	35	43130237030
FCA 12000*	FX+ 12000 std	16 → 22	16	25	35	43130231220
FCA 12000*	FX+ 12000 race	16	18	21	35	43130231230
FC+ 24000*	FX+ 20000 std	20 → 24	20	28	41	43130232020
FC+ 24000*	FX+ 20000 race	20 → 24	29	30	41	43130232030

* 2 models : Standard & Racing for FCA 12000 & FC+ 20000

The thimbles

■ Adjusted to the mechanism jaw for a optimum transmission in rotation.



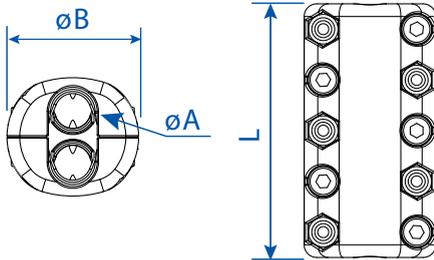
THIMBLE LASHING NS		
Model	FX/FXT Ref.	Reference
NS2500 Latch.	FX+ 2500	43130202535
NS4500 Latch.	FX+/FXT 4500	43130204535
NS7000 Latch.	FX+/FXT 7000	43130207035

CLAMPS FOR ANTI TWIST ROPE



In order to facilitate the installation of **anti-torsion ropes** by sail-makers, Facnor has developed a range of highload clamps (Duplex Marine quality stainless steel) :

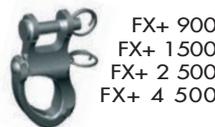
- Use for asymmetric Spinnaker validated with most antitwist ropes.
- Use for Code sails validated only with some antitwist ropes (please consult us)
- Adapted shape for lashing
- Complementary to Facnor thimble range
- Quick assembly (three types of assembly : with long screws for manual preassembly, with vice or with hydraulic press machine thanks to a special tool)
- 4 models fitted from 9mm to 15mm ø
- Kit including clamp + stainless steel screws (including long screws for preassembly) + thermoshrinkable sleeves



CLAMPS					
Model	References	ø A.T. Rope* (mm)	Dimensions		
			ø A (mm)	ø B (mm)	ø L (mm)
FRC D09 mm	24000091090	9	8,5	29	56
FRC D11 mm	24000091110	11	10	31	60
FRC D13 mm	24000091130	13	12	35	62
FRC D15 mm	24000091160	15,5	15	40	67

Quick fastenings :

Different quick fastening devices (top or bottom) are available:
 - snap shackles ...
 - soft converting part fitted on Wichard snapshackle (small size solid sheave)



ref. 25200180010

QUICK FASTENINGS

Solid sheaves :

material : Duplex stainless steel
 see use for asymmetric Spinnaker (page 36) or Staysail (page 33)



NEW Design!

SSH+ 1500>2500



SSH+ 4500>12000



SOLID SHEAVE

SSH SOLID SHEAVE				
Model	FX/AFX Ref.	Height (mm)	weight (g)	Reference
SSH+ 1500	FX+ 1500	53	173	43354320153
SSH+ 2500	FX+ 2500	60	226	43354320253
SSH+ 4500	FX+ 4500	69	280	43354320453
SSH+ 7000	FX+ 7000	73	350	43354320543
SSH+12000	FX+ 12000	84	415	43354320943



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).

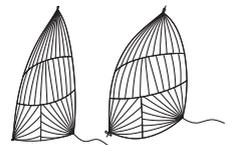
FX+ Drum	FX+ 2500	FX+ 4500	FX+ 7000
REFERENCE	29050000076	29050000056	29050000060

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



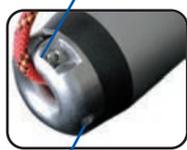
Swivel protection covers (neoprene) : an additional benefit of securing the mast and the sailing crew. Delivered in FX+ standard kit : FX+ 2500, FX+ & FXT 4500, FX+ & FXT 7000.

BOWSPRIT FOR GENNAKERS & ASYMETRICAL SPINNAKERS



Fitted-in sheave from 25 up to 57'

Simple and efficient functioning



Bridle attachment



Automatic locking device

- The central fixing collar 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

- 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 & 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.

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

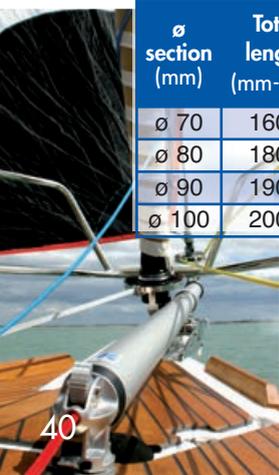
Articulating toggle (option) for Gennaker / Code zero furler attachment



Bridle kit (option)



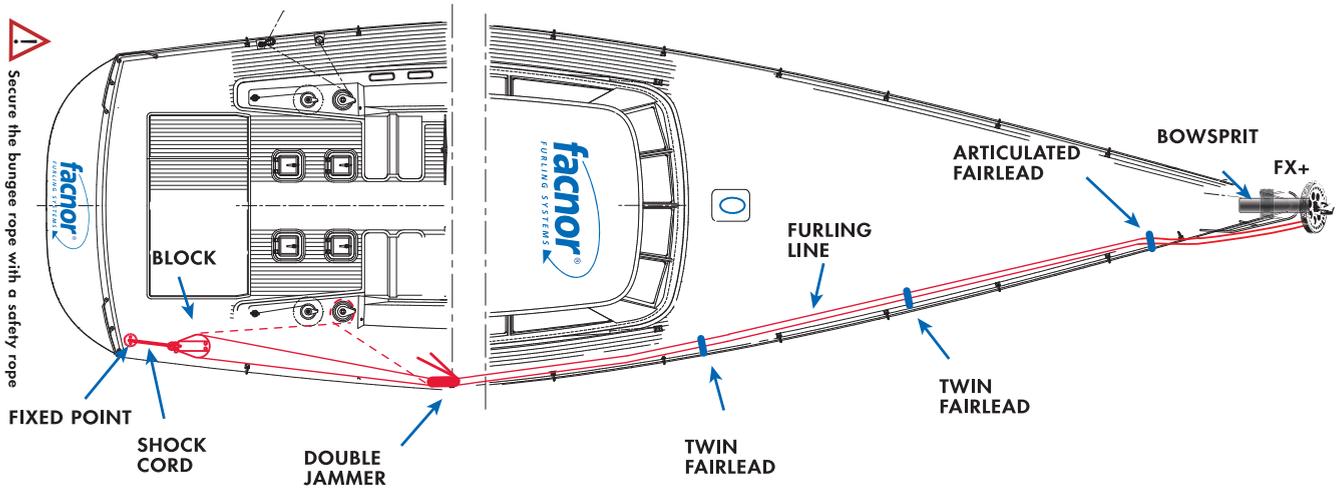
■ **Options :** «working» and «parking» deck fittings, deck fitting covers, stemhead fittings, bridle kits, furler fitting ring (Gennaker attachment,...),...





FX+ CIRCUIT OF CONTINUOUS FURLING LINE

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



TWIN FAIRLEADS

The fairlead can be open in order to fit a spliced furling line.



Model	Description	for stanchion ø	Reference
TSL25	Twin fairlead (rope hole ø 20)	25	24000102110
TSL28	Twin fairlead (rope hole ø 20)	28	24000102130

SPliced FURLING LOOP

Rope : polyester /braided polyester rope
Available : ø 6, ø 8, ø10, ø 12

Length : 12, 16, 20, 26, 32 m and other lengths on request



Grip suitable for Gennaker & Code zero furlers

Spliced furling loop		
ø (mm) x L (m)	FX+ Model	Reference
ø 6 x 12 m	FX+900	24016060120
ø 6 x 16 m		24016060160
ø 8 x 16 m	FX+ 1500 FX+ 2500	24016080160
ø 8 x 18 m		24016080180
ø 8 x 20 m		24016080200
ø 10 x 20 m	FX+4500	24016100200
ø 10 x 26 m		24016100260
ø 10 x 32 m		24016100320

The quick-plug in FXH furler follows the Facnor principle of easy sailing. It has been especially designed to give assistance to light sail handling on 50' boats and above. The available options are specifically adapted to maxi yachts.



FXH hydraul

«PLUG AND PLAY» CONCEPT

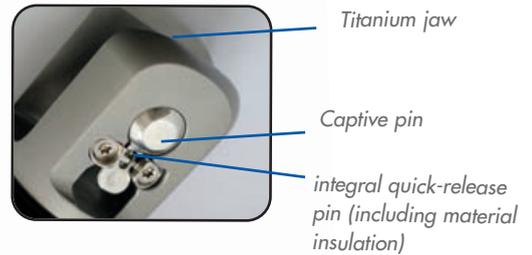
- Sail quickly installed (quick-release pin)
- Intuitive design and humidity resistant
- Hydraulic connections easily fitted
- Easy sailing: constant torque, simple fitting and uncluttered foredeck
- Option: micro power pack with 4 functions - "furling in", "furling out", "release" cutting the pressure for easy wire plugging and "bypass" disengaging the drive unit when over speed furling out
- Integrated in-deck version available : IDXH (See page 44)



Remote control with specific functions

- Release
- Bypass
- Furling in/out (see options above)

Quick assembly jaw & swivel



Titanium jaw on drive unit and swivel

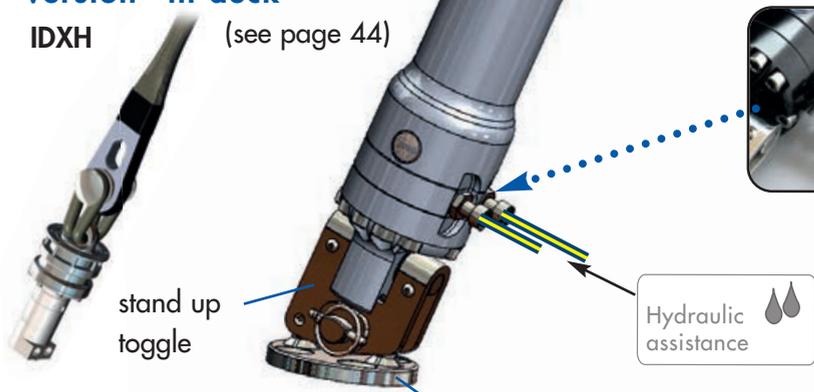
Light and resistant. CNC machined mono block

Controlled hydraulic operation

120 tower / rpm

Version "in deck"

IDXH (see page 44)



Quick and reliable connections

Self-sealing wire plugs



Plugging without oil leak

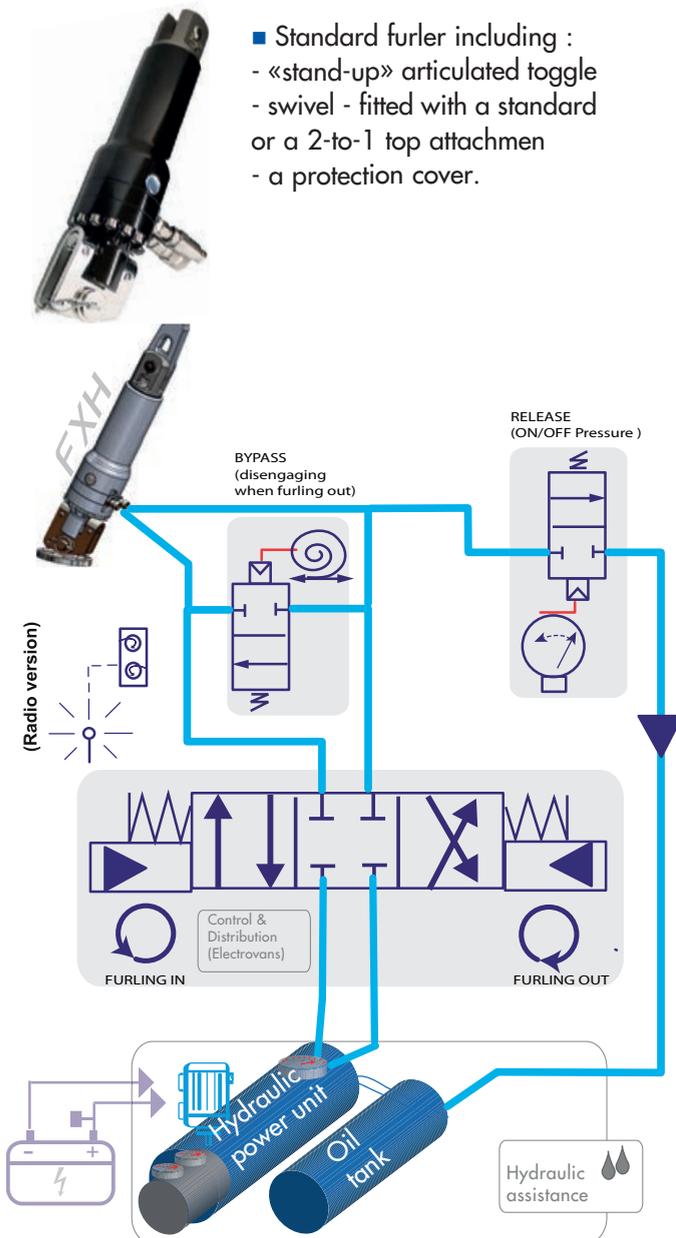


See the video on **YouTube**

<https://youtu.be/-pM24ZtervU>

Advised installation: "stand up" toggle and quick plug in and out device

- Standard furler including :
 - «stand-up» articulated toggle
 - swivel - fitted with a standard or a 2-to-1 top attachmen
 - a protection cover.



COMPONENTS, OPERATION & OPTIONS

Operation :

■ 3 possibilities for supplying power :

- > Existing hydraulic power unit + extended tube circuit dedicated to the furler;
- > Existing hydraulic power unit + Facnor control box + 5-meter flexible tube
- > Facnor micro hydraulic power box + Facnor control box + 5-meter flexible tube

Options :

■ 4-functions control box : control box driven by manual switch or remote controllers*

+ 2x 5-m flexible tubes

Specific functions :

Release – to reduce pressure and plug the connectors in
 Disengage – to furl out at high speed (300 to 400 turns/min instead of 120 turns/min)

*receiver/radio remote control,



■ 4-function control box + micro power unit

■ integrated in-deck version (IDXH) :

Small dimensions.

See page 44.



MODELS & DIMENSIONS

FXH Technical features & micro hydraulic power box

REFERENCE Part N°	MODEL	LOAD MAXI. SWL*	BOAT LENGTH	POWER	ø PIN	DIMENSIONS (mm)		
						A	B	
FXH HYDRAULIC FURLER								
43500007000	FXH 7000	7 tons	16 → 20 M	80 Nm to 125 Bars	ø 14	26	355	
43500012000	FXH 12000 STD	12 tons	+20 M →		ø 16	26	355	
43500012001	FXH 12000 Racing	12 tons	+20 M →		ø 18 (fiber terminal)	22	354	
OPTION FXH** CENTRAL HYDRAULIC POWER BOX						Length	Width	Height
56017000010	FKX_OPTION		16 → +20 M	1600 - 2000 W	-	600	260	350



* 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)

The IDXH hydraulic furler performs similar functions to the FXH model, but it is fitted under the deck or in the bowsprit what makes it invisible and elegantly integrated.

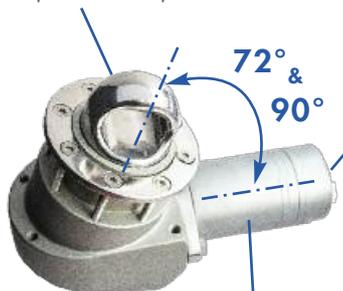
IDXH: THE "INVISIBLE" FURLER

- Fast furling
- Smart and aesthetic design (unlikely to be remarked)
- Facilitated handlings and cleared deck
- Same options as FXH: micro hydraulic central unit + 3-function kit ("furlin", "furlout" and "bypass" that operates the clutch in cas of high speed furlout)
- Adaptable to various deck thicknesses (see chart below) and according

to configuration : connection by rear or side port.

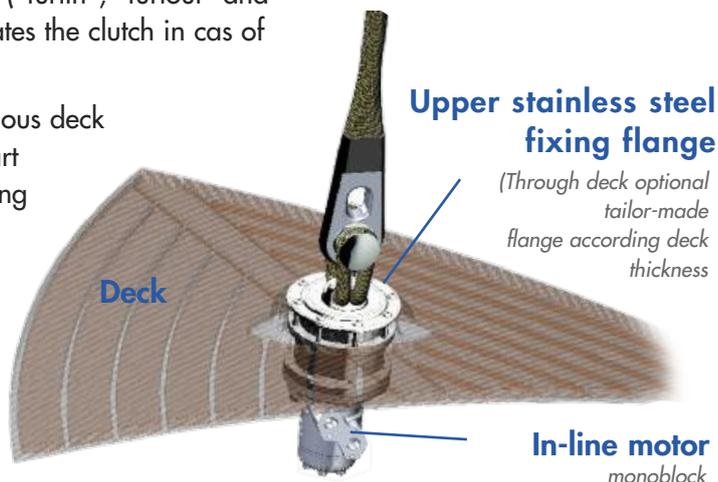
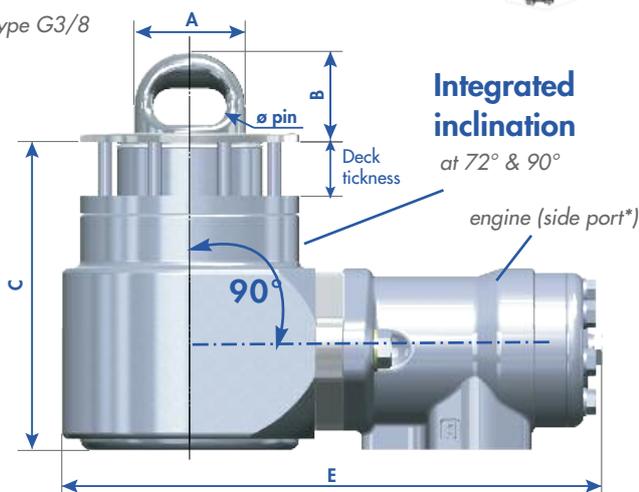
Rotating padeye with lashing eye

(stainless steel)



hydraulic motor
(rear port*)

Fixed connections
type G3/8



Upper stainless steel fixing flange

(Through deck optional tailor-made flange according deck thickness)

In-line motor monoblock

IDXH technical datas

MODEL REFERENCE	MAX. SWL*	Boat Length (m)	Engine	Speed	Power	ø PIN	max thick. (mm)	DIMENSIONS (mm)				
								ø A	B	C	D	E
"Angular motor" version available with 72° and 90° inclination												
IDXH 12000 72°/90°	12 tons	16 → 20m 52' → 65'	20 cc rear port or side port	150 RPM at 6L/min	50 N.m at 100 bars	Ø 20 (for fiber terminal)	35	60	49	172	100	236
IDXH 16000 72°/90°	16 tons	+20m→ +65'→	100 cc side port	150 RPM at 30L/min	380 N.m at 140 bars		40	61	50	170 no connec.	140	296
"Inline" Version												
IDXH 12000 inline	12 tons	16 → 20m 52' → 65'	50 cc rear port or side port	150 RPM at 7,5L/min	46 N.m at 70 bars	Ø 20 (for fiber terminal)	20	60	48	208	105	105

* 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)

Connection = G3/8

FACSLIDE+
MAINSAIL FURLERS
REEFING LOCKS

MAINSAIL



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.



FULL BATTEN CAR SYSTEMS FACSLIDE+

P46-48



MAINSAIL REEFING LOCKS
& RINGS

P49



MAINSAIL FURLERS

P50-52

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.



EB15 (F10,20,30)



ER40 (F40)



Safety-clip device (similar to the FX Gennaker furlers)

ADAPTABILITY & RELIABILITY

FACSLIDE⁺

- Fitting to the mast without modification: tracks easily fixed with slugs
- Strength : monobloc design of the car
- Toggle with large articulation and fitting most of batten boxes
- The cars are supplied with torlon® balls and safety clip device (FL10, FL20, FL30)
- FR25x15, FR40 : flat and light tracks, hard anodizing (40 microns)
- Compact & economical : Possibility of mixing the car models in order to lower the sail stack height when the cars are down (Facnor patent).

Top and bottom stoppers (EB15, ER40)

Delivered in the FACSLIDE® kit, these stoppers prevent the cars from sliding out of the tracks.

Headboard cars (FT10, FT20, FT30, FT40)

can be fitted on the head board of the existing sail or simply on a ring

+ than 180°

toggle with large articulation

Monoblock cars

The FACSLIDE® cars are CNC machined in one block of aluminium, this makes them shock-proof when lowering the sail.

Automatic reefing

- Reefing the mainsail is easy as the effort for tightening the halyard are limited.
- As a complementary boom option Facnor supplies the F40 outhaul foot car. (ref. 540 204 008 20)

Tracks fitting to the mast without modification

The tracks are easily fixed with slugs alongside the existing mast without unstepping (see page 48).



Photo : © Morris Adam / Garcia - Grand large yachting

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 :

- FACSLIDE[®] set includes : tracks, headboard, batten and intermediate cars.
- for a reduced cars height when mainsail lowered, it is possible to mix different car models

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 chart p. 48 or ask to your Facnor dealer)

■ **Tracks :** Two types of tracks according to the mainsail area :

FR+ 25 x 15 Tracks for F10-20-30 cars

- Length = 2 meters
- anodization (black) of the tracks : 40 microns.



FR40 Tracks for F40 cars

- Length = 1,7 meter
- colorless anodization



- installation of the tracks : see against
- dimensions page 48.



Salted water at the head...

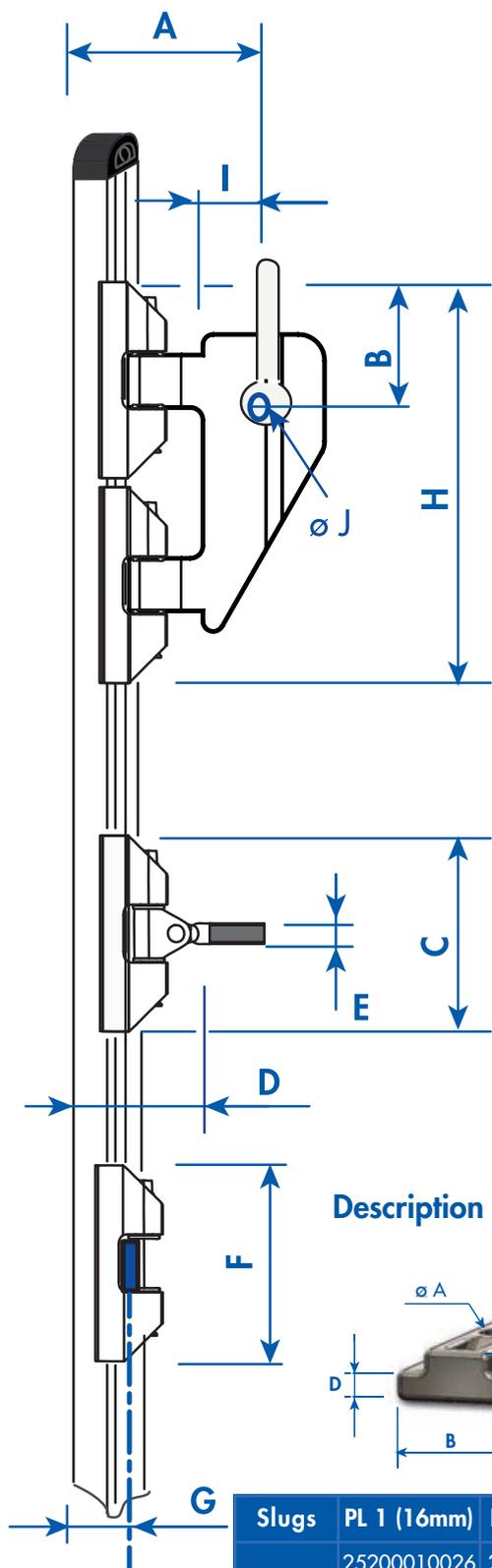
Even though the head cars are positioned 10 meter high, they receive sea water, therefore do not hesitate to rinse the cars with fresh water.

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

FACSLIDES + DIMENSIONS

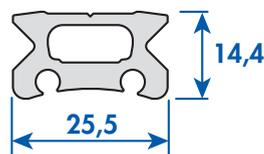


F10+	
Track ref.	FR 25x15
Marks	Dimensions (mm)
A	72
B	45
C	74
D	58
E	M10
F	64
G	26
H	162
I	38
ø J	8

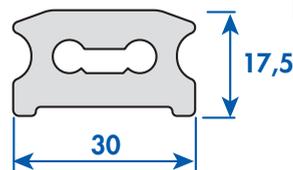
F20+		F30+	
Code Rail	FR 25x15	FR 25x15	
Marks	Dimensions (mm)		
A	72	115	
B	50	98	
C	84	94	
D	58	60	
E	M10	M10	
F	74	94	
G	26	28	
H	172	197	
I	35	40	
ø J	8	18	

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

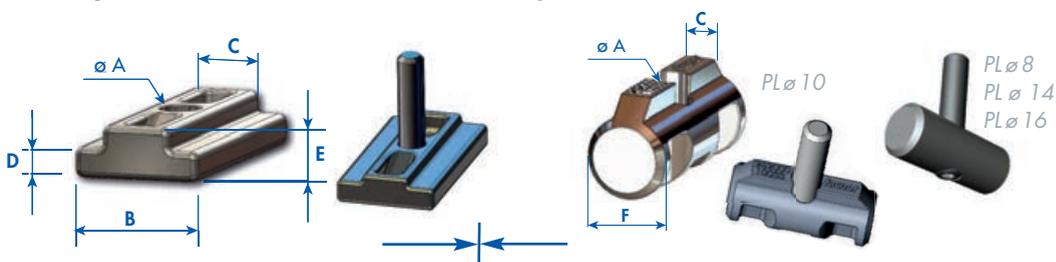
F10-20-30



F40

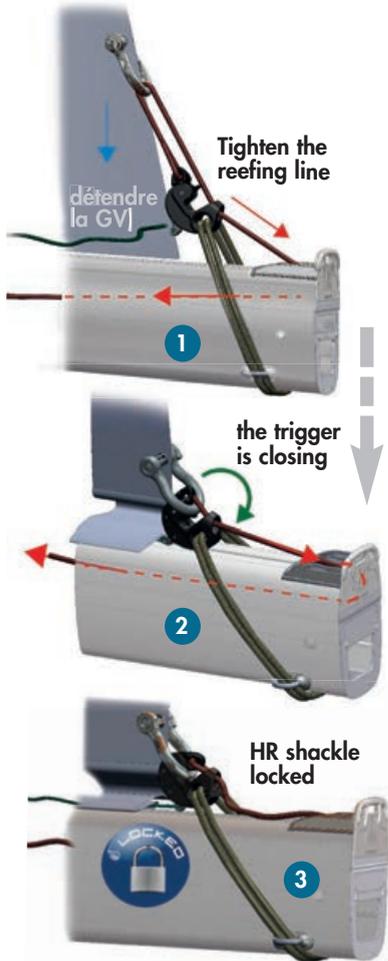


Description and dimensions of the slugs :



Slugs	PL 1 (16mm)	PL 2 (19mm)	PL 3 (23mm)	PL ø 8	PL ø 10	PL ø 14	PL ø 16
Part N°	25200010026 (M5)	25200010028 (M5)	25200010030 (M5)	51095080000 (M5)	25200010033 (M5)	25200010035 (M5)	51095160000 (M6)
Dim.			25200010032 (M6)				
A	5 mm	5 mm	5-6 mm	5 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	4,8 mm	-
D	4 mm	4,5 mm	4,8 mm	-	-	-	-
E	6,3 mm	6 mm	7,7 mm	-	-	-	-
F	-	-	-	8 mm	10 mm	14 mm	16 mm

MAINSAIL REEFING LOCKS



High Resistance Main Sail reefing locking system from 35'

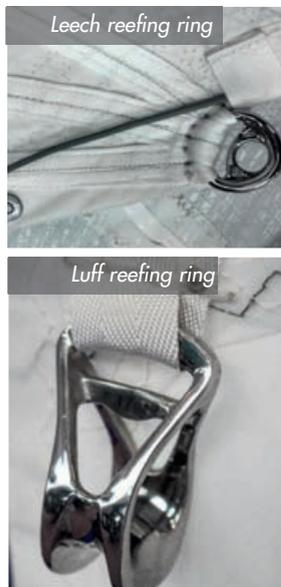
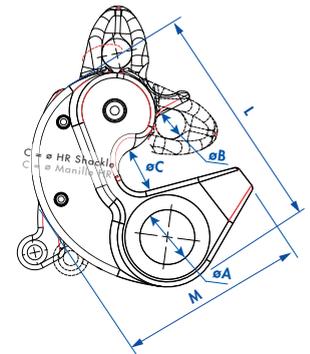
- The HRC locking systems : protects the boom sheaves and reefing lines, subject to high tensions.
- Reduce the compression on the boom section due to the high tension of the reefing line
- Wide range : 4 Sizes HRC 2,5 / 4 / 6 / 9 Tons (SWL)
- Material : Duplex Marine quality stainless steel
- Locking : Release the Mainsail halyard in position and tighten the reefing line (1) up to the locking position of the trigger (2) then release the reefing line and hoist the Mainsail Halyard (3)
- Unlocking : tighten the trigger line and hoist the Mainsail
- Installation by a sailmaker is recommended, depending on the configuration and the efforts on the Mainsail (please find the list of our distributors on www.facnor.com)



Features

> Recommended Wichard HR shackles

Model	Reference	max. SWL (tons)	approx. Boat length	Weight (grams)	DIMENSIONS				
					ø A (mm)	ø A (mm)	ø C shackle (mm)	L (mm)	ø M (mm)
HRC 2,5T	88930102500	2,5	Mono 35-45' Multi 35-45'	218	14	8	10	59	52
HRC 4T	88930104000	4	Mono 45-55' Multi 45-55'	438	18	10	12	75	64
HRC 6T	88930107000	6	Mono 55-70' Multi 55-65'	797	22	12	16	90	78
HRC 9T	88930109000	9	Mono + 65' Multi + 65'	1451	27	14	20	111	95



MAINSAIL REEFING RINGS WITH WEBBING ATTACHMENT

- Friction rings with various applications for boat sails and mainly mainsail
- Material: Duplex Marine quality stainless steel



- **Leech reefing ring** : in replacement of reefing blocks.
- **Luff reefing ring** : single line reefing systems or Cunningham

Model	Reference	Max. SWL (tons)	Rope ø (mm)	Dimensions
Leech reefing ring (Rear)				
1T100 SWL	25200010200	1,1	10-12	56 x 59 x 20
2T400 SWL	25200010210	2,4	12-14	70 x 68 x 25
Luff reefing ring (Front)				
1T200 SWL	25200010220	1,2	10-12	45 x 72 x 37

The Facnor mainsail furling system makes your sailing safe and comfortable. No more effort to reef the sail in choppy seas : 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.

SIMPLE INSTALLATION & COST EFFECTIVE

Compact F

- 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 gooseneck



Furling sections (2 meters long)

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

Halyard swivel

Housing sections (=1,7 meters long)

fixed with slugs to the mast + PVC strips.



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. 51).





CF MODEL SELECTION

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 22'	8,50 28'	10,20 33'	11,90 39'	11,90 39'	13,60 45'	15,30 50'	17,00 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 ON THE MAST

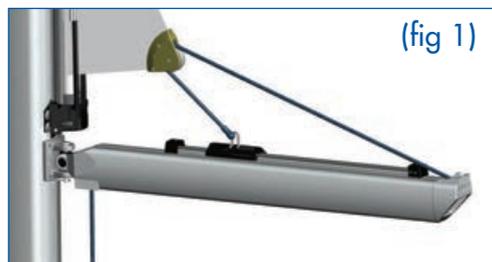
Easy fixing of the housing sections :

- fitted to the mast by inserting slugs inside the mast groove (see p.48);
- housing sections and slugs fixed together by stainless steel screws and Nylock nuts;
- pre-drilled.



Housing and furling sections

- Resistance and lightness : These sections are made of extruded aluminium and anodised after machining;
- The furling sections are twin groove;
- standard length = 1,70 M.



(fig 1)



(fig 2)

BOOMS KITS : STANDARD & SPECIAL

Booms kit configurations

- RC80 & RC 105 standard version (standard delivered) (Fig.1): track on which a ball bearing car fitted with a shackle.

Track installation : with slugs, like the housing sections

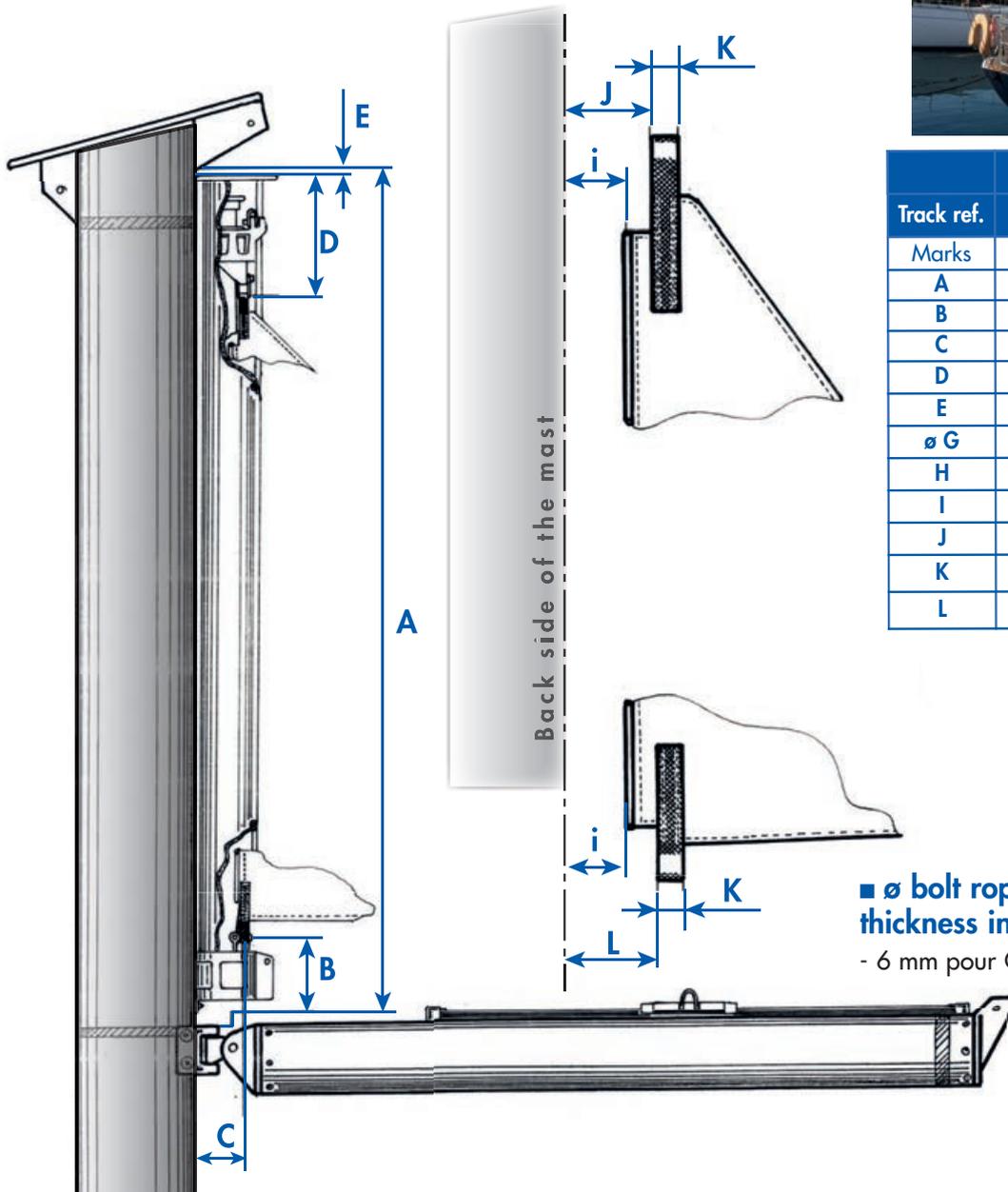
- optional : KB80 & KB105 special version (Fig. 2) with additional sheaves system :

Complete kit = 1 ball bearing car fitted with a pivoting sheave + 2 needle bearing sheaves (1 front and 1 back) + 1 special end stop.

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

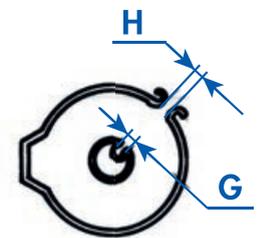


CF DIMENSIONS



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 pour CF 80 & CF 105



TECHNICAL SUPPORT

Instructions for Headsail furlings & reefing systems, Gennaker & Code zero furlers, Facslide+, Mainsail furlers, former ranges,...

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.

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.

Consult the Facnor instructions on our technical support



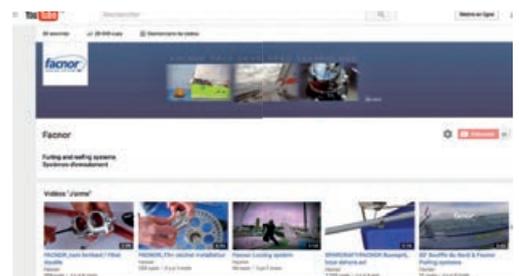
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