

facnor[®]
FURLING SYSTEMS



RACE DEVELOPED TECHNOLOGY

2013-2014 CATALOGUE
www.facnor.com

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Four joint companies, all specialised in marine equipment, form the Losange Group: Facnor (furling & reefing systems), Sparcraft (mast & spars), Sparcraft-US (located in USA) and Sparcraft Rigging. The activity of the subsidiaries being complementary, the Losange Group is able to offer a full mast/rigging/furling system package and remains an advantageous partner for boat builders, dealers and charter sailing companies.

www.groupe-losange.com

INNOVATION & SYNERGIE

The Losange Group, focussing on a long-term based development, has become one of the leaders within the worldwide marine industry. This pole position results from great involvement in innovation - supported by an engineering synergy (design and development department) - and from a constant dialogue with customers. A wide distribution network in France and abroad also explains this successful growth.

FURLING & REEFING SYSTEMS

Photo Credit : Vincent Curateler / Dark Frame - BPCE



■ **FACNOR** : Facnor is a worldwide leader in designing and manufacturing furling systems, based on its expertise, 30-year experience and widely sold products. The company supplies many shipyards as well as ocean sailors who participate in well known races like : Class40' circuit and MultiOneDesign, Vendée Globe, The Race... Facnor insists on research and reliability throughout the development of product ranges. Distribution wise, Facnor has developed a global network of dealers covering 35 countries.



www.facnor.com

■ **FACNOR : PARTNER OF HUMANITARIAN ASSOCIATIONS**

In a socially responsible approach, Facnor supports humanitarian projects undertaken by modest sailors ready to sail miles away sometimes in difficult seas for noble reasons. Among other involvements, Facnor has become partner of some charity or humanitarian associations on board of : Podorange (Challenge 67, Association Voile Australe), Elements 3 (First 405), Chamade (Ovni 365), Jolokia (Rhum 50, Défi Intégration), Allioth (Azzuro 53).



Photo Credit : Défi Intégration - Team Jolokia



Photo Credit : Voile-Australe

Photo Credit : Team Jolokia

Their web sites : www.voile-australe.com / www.element3.ch / www.chamade.ch / www.teamjolokia.com / www.team-alioth.fr

Long sailing to these projects!

Photo Credit : Team Jolokia



Group synergy and innovation

R U N N I N G & S T A N D I N G R I G G I N G

■ SPARCRAFT RIGGING (SP.R) :

SPR assembles and markets high quality standing and running rigging. This is designed to complement the Sparcraft masts and booms. The rigging components are of EC origin and made from carefully selected alloy. Furthermore, the SPR products are manufactured using experienced and reliable machining and forging methods. The numerous controls and the exhaustive traceability of these products have placed SPR at the top rank of rigging suppliers. Moreover, SP.R. has invested in the field of architecture and interior design with new exclusive stainless steel concept.



www.sparcraft-rigging.com

M A S T S & H A R D W A R E



■ SPARCRAFT : Sparcraft, associated with "excellence" and "innovation" in marine engineering for over 40 years, has been focusing on design and production of high quality masts, booms and deck equipment. The company owns modern production means run by highly skilled teams spread over four production sites. Many shipyards and charter sailing companies rely on Sparcraft products. A strong distribution network supports these products worldwide.



www.sparcraft.com

■ SPARCRAFT US : This factory, located in North Carolina, is the American entity of the Losange Group. Sparcraft-US has its own production unit that covers 4000 m² and this includes one of the world largest anodising baths (21.3 m long). With a network of dealers across the United States, Sparcraft-US has become one of the most important aluminium mast manufacturers in the USA.



www.sparcraft-us.com



Credit photo : Garcia



EXPERIENCE IN MARINE INDUSTRY

- An experience of over 30 years in marine industry;
- An engineering team qualified in metallurgy as well as composite materials;
- A synergy of means in computerised design and production;
- Human resources based on skills and dynamism;
- Products tested in extreme conditions by the most experienced ocean skippers.



credit photo : Nicolas Juzi

QUALITY CONTROL

- 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



PRODUCTION : PERFORMANCE & QUALITY



- Wide production capacity including 5 production sites;
- ESIM is a Losange Group member company that is specialised in high precision and CNC machining.
- Anodizing baths among the longest in the world (Sparcraft US) and Europe (Sparcraft);
- Electrostatic powder painting box (Sparcraft-US);

- Plasma CNC cutting machine;
- CNC and traditional machining.



CUSTOMER SERVICE : "LOUD & CLEAR"

- A distribution network offering an after-sale service in 35 countries;
- Our sales team is based around sailing people with real experience to advise you from;
- Short and respected delivery time;

- Goods shipping well managed;
- An efficient after sale service;
- Our dealers' faith proves the Facnor "value".



Credit Photo : Mark Lloyd / MOD S.A.

MAXI-YACHTS
& RACING YACHTS



From racing to cruising :

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



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CARBON FURLING GEAR
CUSTOM STRUCTURAL FURLERS
CUSTOM GENNAKER FURLERS
SPECIAL FITTINGS P9

HALYARD LOCKS P10



Photo Credit : Gunboat



Photo : © GUNBOAT

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

MAXI-YACHTS EXCELLENCE

Its experience of 30 years in manufacturing furling systems has raised Facnor nowadays to high range expertise. Its involvement focused in R&D as well as partnership with ocean or maxi yacht skippers has pushed Facnor to get even more specialized in tailor made solutions.

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

From its own experience gained in ocean races, Facnor has been offering Maxi yacht skippers to supply tailor made equipment. The high requiring projects must be carefully carried out: "Furlers of haute couture for high rank cruising".

Facnor is nowadays well-known for its reliable and sturdy products. This led it to participate in some outstanding architectural projects. Recently Facnor supplied the furling parts for Club Med II the biggest cruising yacht, at 620 foot long.

Maxi-yacht projects :

- Baltic 147' *Visione*,
- Baltic 197' *Hetairos*,
- Schooner 152' *Windrose*,
- Schooner 203' *Athos*,
- Swan 80, 82, 100, 112,
- Gun Boat 60't
- Wally 80' et 82'
- Wally 94' Y3K (94 '),
- Wally 96' *Magic Carpet 2*,
- Wally 100' *Magic Carpet 3*,
- Wally 100' *Dark Shadow*,
- Wally 100' *Alexia*,
- Wally 107' *Nariida*,
- Maxi 85' *Winquest*,
- Maxi Open 115' *Maiden Hong Kong*,
- Maxi 147' *Mari-Cha III*,
- Maxi 140' *Mari-Cha IV*,
- Class J 121' *Shamrock V*,
- Class J 131' *Velsheda*,
- Superyacht 156' *Hyperion*,



Mari-Cha III

Photo : Silvere Jüthel



Photo : M49 © Azura Marine



Dark Shadow (Wally 100') - Adolfo Oria

MAXI-COURSE EXCELLENCE

From its experience in ocean racing equipment, Facnor has successfully become the official supplier of the monotype MOD70 trimarans. A prestigious victory carried by its will for taking up challenges.

High level races require a careful preparation similar to Formula 1 stable for which the challenge in technology is at stake before departure. In this perspective, project managers and technical partners work together beforehand : this is the race before the race! Our teams take up challenges in order to cross both finish lines.

Multi One design trimarans - the MOD70'

Facnor has worked on many different maxi racing sailboats projects, such as : VOR 70, Open 60, maxi trimarans (Groupama and Banque Populaire) and yachts (140 footer Maricha) and today the MOD70. Our partnerships with skippers like Michel Desjoyeaux 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 quality products. Facnor has become the official supplier of the MOD70 for furlers and halyard locks.



Crédit Photo : Mark Lloyd / MOD S.A.



Pioneer...

FACNOR is "the" precursor in manufacturing continuous line Code zero & Gennaker furlers. We have supplied these since 1998 and in that we are often copied but never equalled. Most 60' monohulls and multihulls are now



equipped with Facnor continuous line Code zero & Gennaker furlers: reliable and safely handled alone. These furlers are designed to support the high working and breaking loads of over 500m² Gennakers (working loads up to 40 tons). (See page 33).



Titan Code zero & Gennaker furler for Baltic 197'



70 ton structural furler on Rambler 100'

CUSTOM STRUCTURAL SYSTEMS

Structural furlers support the load of the mast and the headsail: Genoa, Solent, Staysail or ORC. The structural system components are: a swivel fixed on the mast, a continuous line drum fixed on the chain plate, and an anti-twist cable (PBO OR Kevlar®) linking both mechanisms. This cable transfers efficiently the rotation from the drum to the swivel and is captive from the sail tape. The sail is latched at the tack and halyard points. The advantage of the system is the total reduction of weight. (See page 30).

LOCKS

Less compression onto the mast : The loads supported by the mast on ocean racing boats are tremendous and additionally halyards increase compression in the mast. On the contrary, locks reduce this compression phenomenon and make the detachment of the Staysail or Gennaker easier. The halyard lock can be equally fitted inside the mast or outside on an existing head attachment (for instance attachment for a removable baby stay).

- **Internally fitted lock** : See next page.
- **Externally fitted lock** : can be fixed onto one head attachment with an articulated device (toggle, latching, Unibal ball or others). In this case, a small diameter sheave is integrated in the hooking system. The halyard can then run down inside or outside the mast.

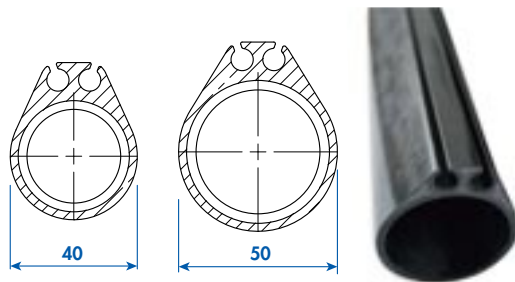


16 ton lock for Maricha III (147') Code zero

CARBON FURLING SYSTEMS

In comparison with existing products fitted with foil sections, carbon sections features rigidity as well as lightness (40% lighter than foil sections). The "water drop" shaped sections offers better aerodynamics. The installation is simple as the elements are assembled with glue (no screw). This improves the torque resistance of the connected sections.

Two models : SC40 & SC50 - Section length : 4 meters.



Know-how & research development

Our Design team creates tailor made equipment in order to improve the performance of the product: tension, resistance, weight, handling... Every parameter is measured and simulated thanks to our research and development means.

Conception and production capacity : thanks to a Design team and production means of **ESIM** a CNC machining company and also Losange Group member. Facnor specialises in providing many "One Off" special products to maxi yachts : titanium padeyes, chainplates high-load blocks,...etc



INTERNAL HALYARD LOCKS

Built into mast front

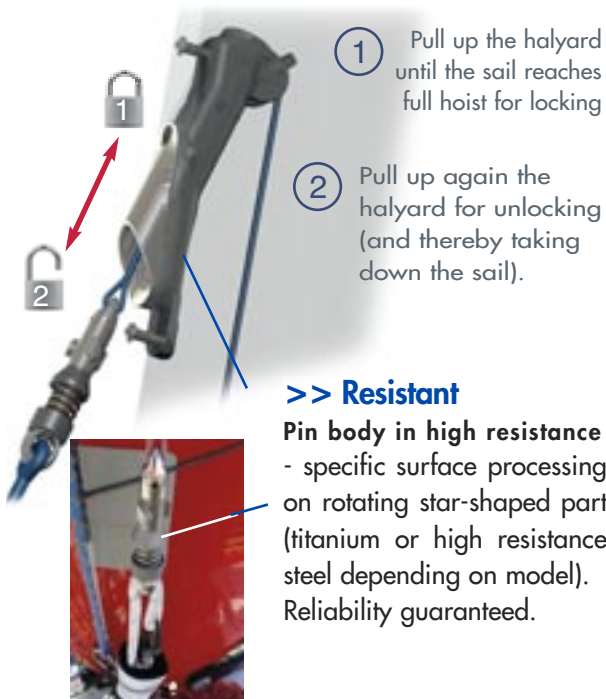
Internal halyard locks improve flying sail use (Staysail/Gennaker) and save weight as well as compression in the mast. This simple and efficient device makes the halyard locking/unlocking easy and safe. The Facnor lock tremendously eases the use of flying forestays (no need of 2-to-1 block anymore).

Custom



Crédit Photo : Mark Lloyd / MOD S.A.

RELIABLE MECHANISM



>> Resistant

Pin body in high resistance
- specific surface processing on rotating star-shaped part (titanium or high resistance steel depending on model). Reliability guaranteed.

>> 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. Reliability guaranteed.

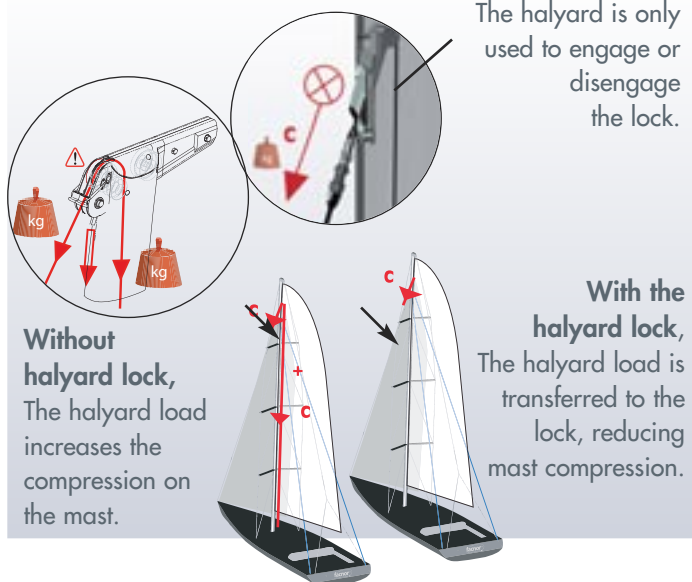
>> Easy installation and inspection

Optimum integration of the lock into the mast

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



>> Halyards and sheaves preserved



The halyard is only used to engage or disengage the lock.

Without halyard lock,
The halyard load increases the compression on the mast.

With the halyard lock,
The halyard load is transferred to the lock, reducing mast compression.

>> Less compression on the mast

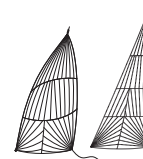
Halyards under load running downwards inside the mast increase the compression on the mast. With the locking device, the halyard load is transferred to the lock, reducing nearly by half this compression and allowing lighter mast.

>> Reduction of the boat heel/windage

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

Different possibilities of use :

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



>> Luff constantly tighten

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

>> Technical features :

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

GENOA & STAYSAIL

HEADSAIL FURLING & REEFING SYSTEMS



Photo : © Jean-Marie Liot - Durfour Yachts



Your furling system for your navigation programm : Facnor team is very much involved in innovation and customer needs. Thanks to our curiosity and its dialogues between skippers and our R&D team, we have improved our ranges of furling systems and developed specific features for each. Each sailor will be able to find the Facnor furling gear suitable for his navigation: classic drum **(LS/LX/RX)**, webbing drum **(FD)**, continuous line drum **(RC)** or electrical motorised drum **(RMEJ)**.



Photo : © Marc Ducrey / Chamade

FOUR RANGES OF JIB FURLERS

- | | | |
|---|-------------------------------|-----|
|  | LS/LX/RX CLASSIC DRUM | P12 |
|  | FD WEBBING DRUM * | P16 |
|  | RC CONTINUOUS LINE DRUM | P20 |
|  | RMEJ ELECTRIC ASSISTANCE | P24 |
| | RECOMMENDATIONS & ACCESSORIES | P22 |



* Award Sail magazine 2011
* Award Segeln Magazine 2012



Already widely tested round the world, the LS-LX-RX ranges are now fitted with the free rotation Torlon® ball technology recently developed. Additionally foil section are connected with Torx® screws which are easy to remove.

RELIABILITY OF THE MECHANISMS

LS-LX-RX Features :

- Rotation Torlon® ball technology (new)
 - Eases sail furling
 - Easy access inside of drum mechanism
 - Smooth stainless steel feeder + pre-feeder (LX)
 - Rotating tack fitting (LX & RX)
 - Adjustable furling line guide
- Large range of sections and strong connections
 - Easy installation (thanks to the telescopic section)



Sail Feeder (LX range)

The included pre feeder gives the ideal fitting to hoist the sail alone



DRUM & SWIVEL

Bearing box

Components : 2 polymer fibre rings and a Torlon® balls bearing boxe

Smooth rotation

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

Anodization

(30 microns) protects these parts against impacts and abrasion

Halyard deflector wheel

(see page 22)

New swivel with Torlon® balls
eases sail furling

Strong sections and connections

Torx® screws for an easy fitting and further dismantling (see p.28)

Bottom telescopic section

enables to adjust foil section length, no cutting (see page 28)

Internal turnbuckle fitting

provides space inside for the turnbuckle (see page 14)

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



Photo : Voile Australe / www.podorange.com



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, and a stainless steel feeder.

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

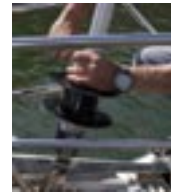
Model	LS 60	LS 70	LS 100	LS 130	LS 165	LS180	LS 200	LS290	LS330
	LX 60	LX 70	LX 100	LX 130	LX 165	LX 180	LX 200	LX290	LX330
Boat length (meters & feet)	5,5 ↓ 7 m	6,5 ↓ 8 m	7,5 ↓ 9 m	8 ↓ 11 m	9 ↓ 12 m	10 ↓ 13 m	11,5 ↓ 14 m	13 ↓ 18 m	15 ↓ 28 m
	20' ↓ 23'	21' ↓ 28'	24' ↓ 29'	26' ↓ 36'	29' ↓ 40'	40' ↓ 43'	38' ↓ 45'	43' ↓ 60'	50' ↓ 90'
max.	5	5	6	6-7*	8-10*	8-10*	10-12*	12-14*	14-22*
forestay ø (mm & inch)	5/32"	5/32"	1/4"	1/4" 9/32" *	5/16" 3/8" *	5/16" 3/8" *	3/8" 1/2" *	1/2" 9/16" *	9/16" 3/4" *
Section	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	CHD25	CHD 25	CHD 33	CHD 33	CHD 39	CHD 39	CHD 47	CHD 47	CHD 53
Options	link plates / turnbuckle								

*necessary to have removable eye or turnbuckle



"RACING" RANGE RX - REMOVABLE DRUM

RX racing/cruising programm : The aerodynamic sections (see p. 28), 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	12,7
forestay ø (mm & inch)	5/32"	1/4"	1/4" or 9/32"	5/16"	5/16" or 3/8"	3/8'	1/2'
	Necessary to have removable eye or turnbuckle						
Section:	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	CHD 14	CHD 14	CHD 14	CHD 24	CHD 26	CHD 26	CHD 34
Options	link plates / turnbuckle						

Removable drum (RX & LX) : 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.

1. Unscrew and remove the furling line guide

2. Remove the half plates

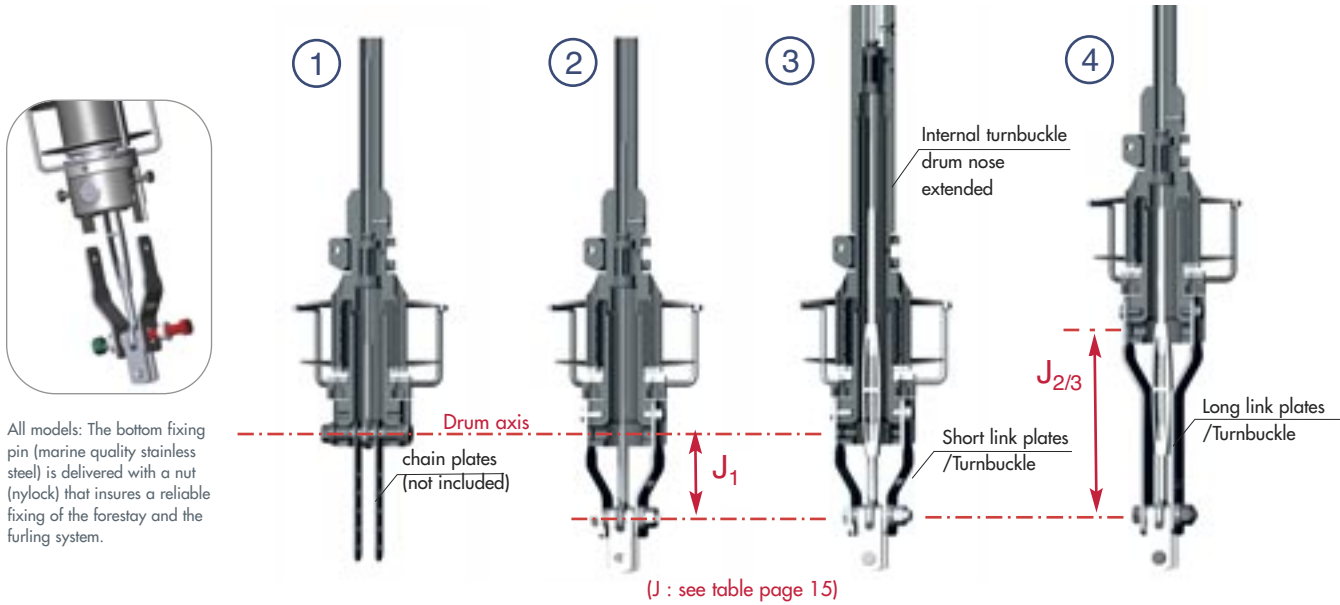
3. Fit the two half protection rings

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



4 POSSIBLE TYPES OF INSTALLATION

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



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

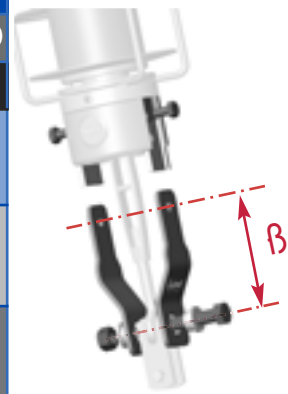
(J : see table page 15)

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

LINK PLATE KITS & INTERNAL TURNBUCKLE FITTINGS

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

Option lattes	LS 60	LS 70	LS 100	LS 130	LS 165	LS180	LS 200	LS290	LS330
	LX 60	LX 70	LX 100	LX 130	LX 165	LX 180	LX 200	LX290	LX330
	-	RX 70	RX 100	RX 130	RX 165	RX 220	RX260	RX300	-
Short link plates option - Pin to pin β Thickness (mm) + 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)	-	RX 70 ø 28 lgth 256		RX 130 ø 34 lgth 279		RX 220 ø 42 lgth 315		RX 300 ø 50 lgth 432	





Greasing screws :



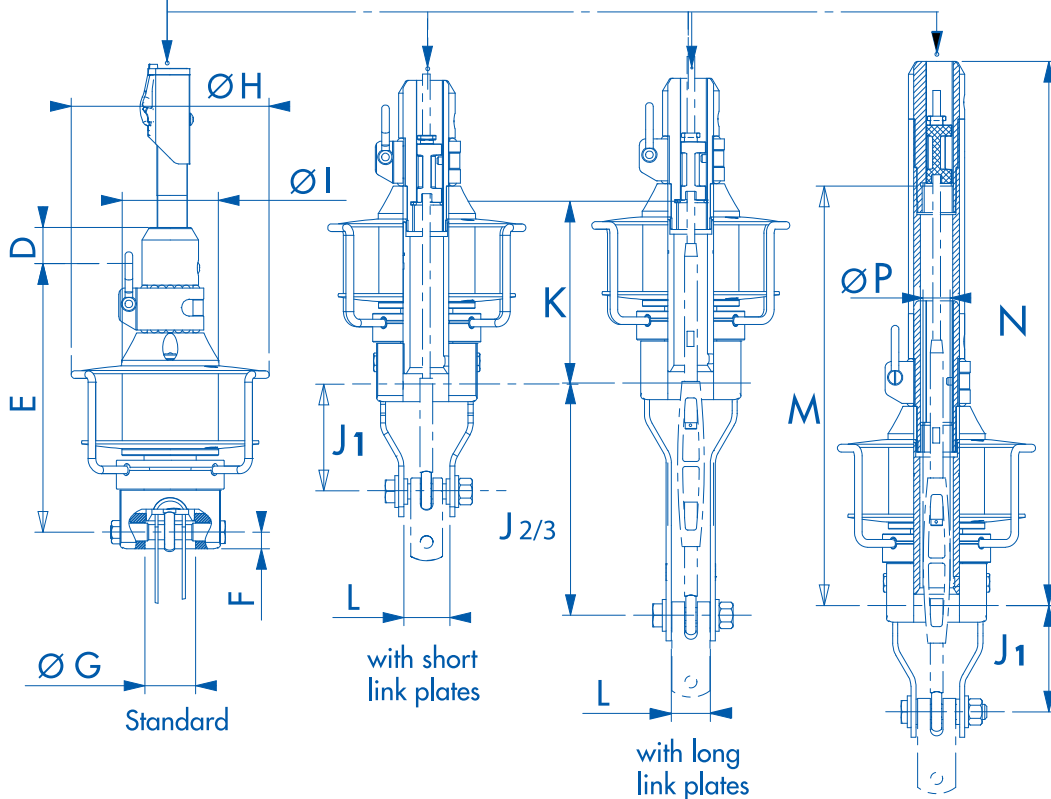
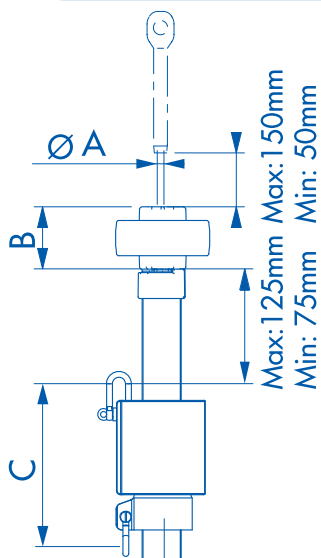
When assembling and servicing during the winter your furling gear, put grease on the screws situated at the bottom telescopic section and the top of the drum link plates. This will simplify the dismantling or turnbuckle access if necessary.

Reminder : no need to cut the forestay when installing Facnor furling system (see p. 28)

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

Dim. (mm)	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX	LS-LX
	60	70	100	130	165	180	200	290	330
B	53	53	53	53	53	53	53	53	53
C LS-LX	154	154	170	170	182	182	238	238	286
C RX	-	154	154	154	170	182	182	238	-
D	34	34	29	29	16	16	28	28	38
E	207	207	225	225	241	241	278	278	306
F	13	13	12,5	12,5	18	18	20	20	20
G	40	40	48	48	56	56	78	78	78
H	146	157	171	191	210	225	246	276	320
I	76	76	84	84	95	95	124	124	124
J	(See table page 14)								
K	142	142	156	156	173	173	202	202	219
L	26	26	32	32	41	41	61	61	61
M	331	331	367	367	419	419	551	551	687
N	429	429	465	465	513	513	656	656	812
ø P	28	28	34	34	42	42	50	50	63



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

with internal turnbuckle option & short link plates





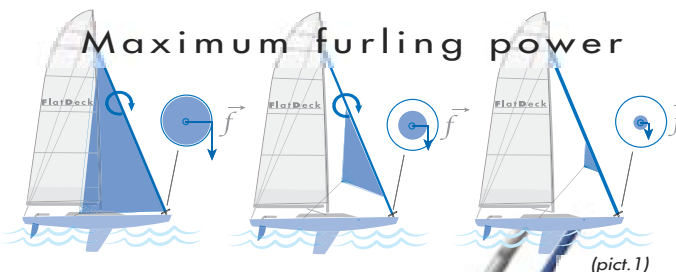
Photo : © Pierrick Contin / IDB Marine

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

PERFORMANCE & EASY FURLING

FD Features :

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



Great torque

since the beginning, unlike classic drums (see pict 1)



Smooth rotation

Bearing box supports both halyard and sail foot tensions.

Swivel : smooth rotation

Torlon® balls bearing.

LS/LX/RX Conversion into FlatDeck

Possibility to upgrade their classic Facnor furling system* by adding a new FD drum. (* see page 17)

"R" ou "SX" foil sections

Two types of sections according to navigation : "R" (elliptical) or "SX" (rounded section). See p 19 & 28.

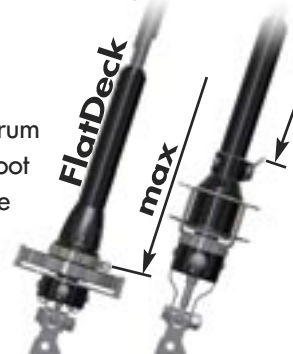
Internal turnbuckle fitting (included in standard kit)

Hole for rising



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).



Low drum

fitted with short link plates for limited height

360° Rotating tack fitting

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

Webbing guide exit

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

High resistance webbing

Dim stretching and UV resistant webbing





FURLING LINE & SECTIONS

Webbing / Furling rope kit :

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



Foil sections :

As performance orientated products, one FD range is supplied with thin and lighter "R" foil sections. The other FD range, more adapted for cruising, is fitted with round "SX" sections (see page 28).

FD Standard kit:

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

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

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

International awards :

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



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



"R" Retro-fitting:

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

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

"RACING & RACING - CRUISING" FD RANGE

Racing / cruising navigation program

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

*necessary to have removable eye or turnbuckle

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

"COMFORT - CRUISING" FD RANGE

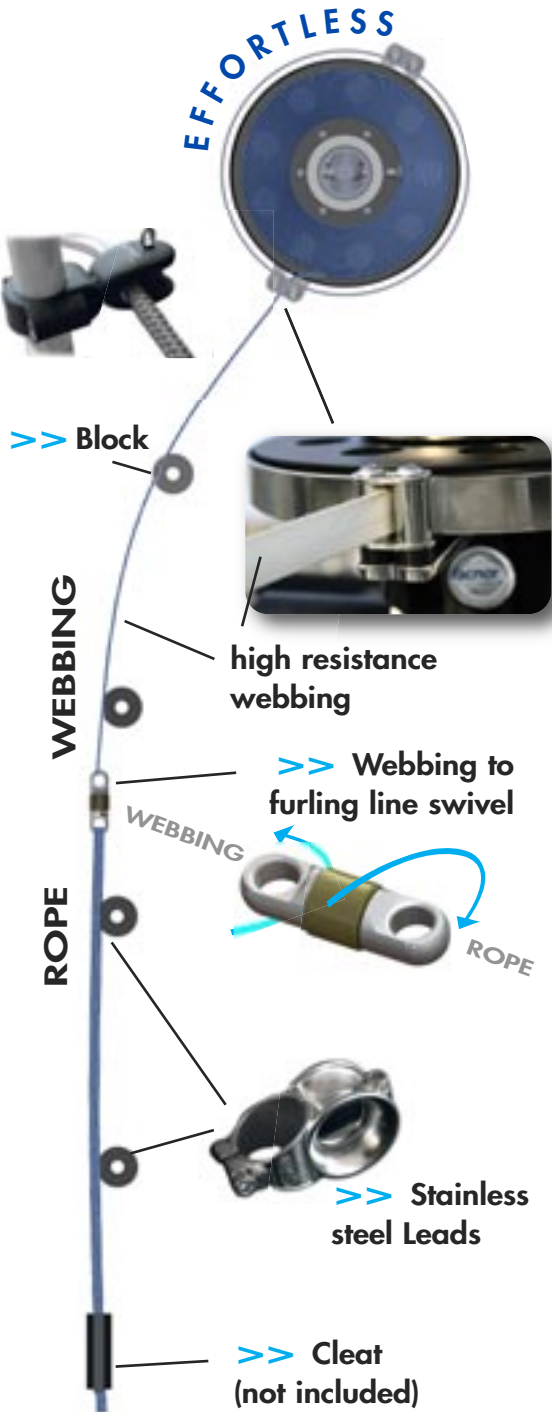
Comfort - Cruising navigation program

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



Crédit Photo : Jean-Marie Liot - Dufour Yachts

EASY INSTALLATION WEBBING & DRUM



Webbing fitting :

- **efficient and quick installation :** thanks to a complete kit (included. see p.17)
- The furling line guide leaves various possible ways of fittings. Your Facnor agent will suggest you the most adapted solution.

Furling system assembly :

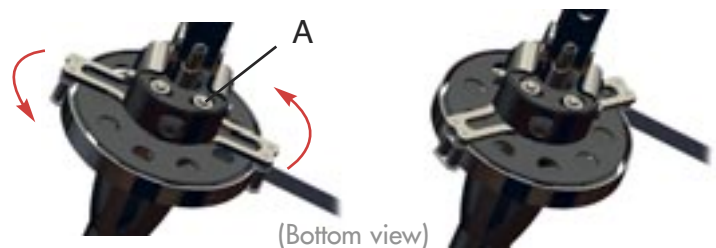
- Like LS/LX/RX ranges (see page 14), the drum fitting depends on the forestay terminal (see page 14).
- You can even change your LX/LS/RX drum for a FlatDeck one with **keeping the existing foil sections.**

Dimensions : the gain in luff length with low profile FD drum is obvious (see chart below). To achieve this aim, the base of the drum has been lowered and standard link plates are shorts (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 swivel through. The kit includes a block to be fitted at the first front. Ref. 25200000300

Adjusting the furling line guide :

The furling line guide are adjustable in order to fit different deck configurations (4 screws - see rep. A).



INTERNAL TURNBUCKLE FITTING (STANDARD)

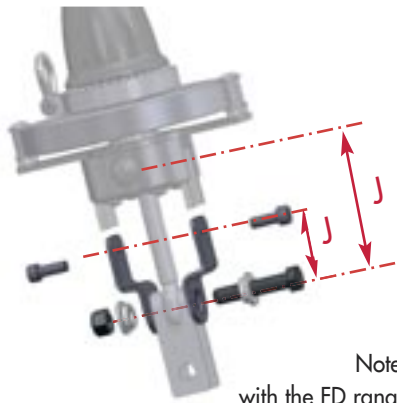
With the internal turnbuckle fitting, the turnbuckle can be positioned inside the drum and be easily adjusted. 4 models available on the FDs.

Internal turnbuckle fitting (delivered in the standard kit)	FD 90	FD 170	FD 210	FD 280
	FD 110	FD 190	FD 230	FD 310
Internal turnbuckle fitting ø iner dimension & length (en mm)	ø 28 lgth 312	ø 42 lgth 420	ø 42 lgth 420	ø 50 lgth 592

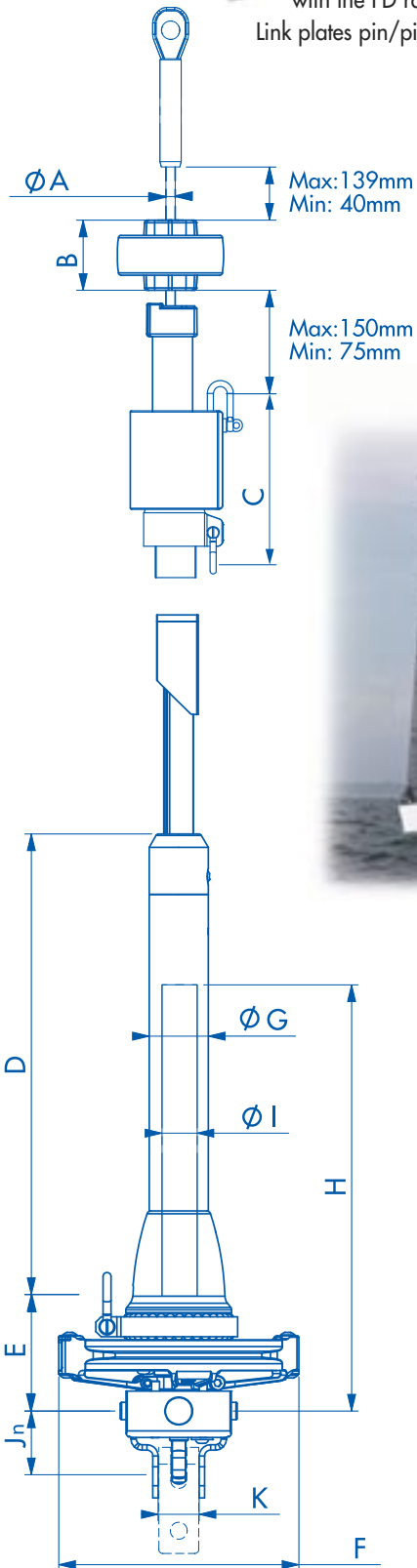




FD LINK PLATES DIMENSIONS



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



Link plates model			FD 90	FD 170	FD 210	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 4	
	long link plates kit	J3 (mm)	lgth 200	lgth 200	lgth 200*	
		thickness	thk 4	thk 5	thk 4	
extra-lg. link plates kit	J4 (mm)	-	lgth 250	lgth 250*		
	thickness	-	thk 5	thk 5		

* ø A < 12 max.

FD MODELS DIMENSIONS

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

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



Photo Credit : © Pierriek Contin / IDB Marine





Photo Credit : © Luis Pueyo Puente - Pogo 10.50

The RC furling range is fitted with a continuous line drum giving a maximum luff length and generates a constant torque and prevents line from overlapping. These specific performances and safety features combined with sturdiness, have lead to a wide reputation specially for single-handed sailing. The RC low drum design meets the satisfaction of the most demanding sailors who like discreet and neat products.

PERFORMANT & AESTHETIC

RC Features :

- Low drum and internal turnbuckle fitting : the Genoa outhaul follows the deck
- Furling power increased and constant pull (big diameter of the furling line drum)
- Waterproof bearings, do not require any specific maintenance
- Eliminates risk of furling line overriding
- Rotating tack fitting
- Simple installation (telescopic section)
- Fits « R » existing foil sections



Maximum luff

Bearing box
with Torlon® balls

Head foil :
elliptical sections
See page 28

Rotating tack fitting
takes up automatically the sail fullness when furling

Simple fitting & access to the turnbuckle
Very low assembly and allows to quickly check the forestay bottom parts.
(see page 21)

Bearing box
High load s-s ball bearing

Ring fitting
Bottom eye or rigging screw
Insulating ring
Screw
Fixing pin
Toggle
Chain plate

Furling line exit
As the Spinnaker leads, allows guiding the furling line around the clam cleat without any risk of wearing





Photo Classic 35 - David Riand



Photo : Loftboats

Easy access to the turnbuckle :

- installation with turnbuckle or eye terminal + link plate.

Ring for turnbuckle access :

- easy and quick access to the forestay terminal (eye, turnbuckle,...) for a simple check or a slight adjustment
 - this ring fitting sets separately the forestay from the drum. By removing a few screws, the drum can be lifted up. Moreover, this fitting contributes to an additional articulation of the furling system that eases the drum bearings.

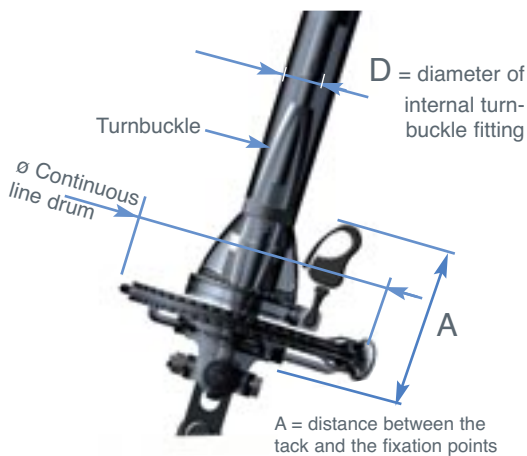


Photo Credit : © Deltavoiles

CONTINUOUS LINE FURLING SYSTEM RANGE

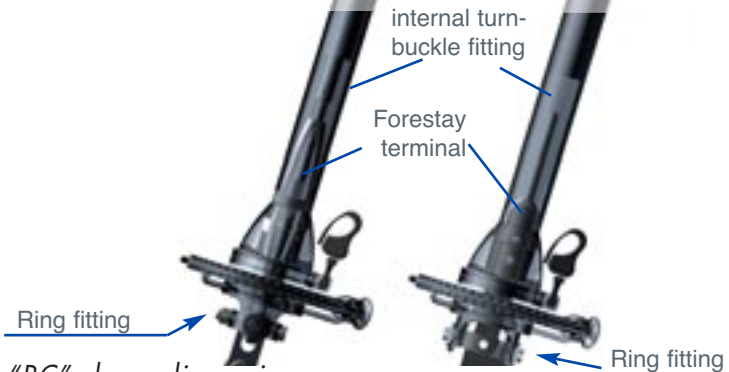
MODEL	RC 100	RC 180	RC 220	RC 300
Boat length (meters & feet)	8 ↓ 9 m	9 ↓ 12 m	11 ↓ 13 m	12,5 ↓ 18 m
	26' ↓ 30'	30' ↓ 40'	38' ↓ 43'	41' ↓ 59'
max. forestay ø	7*	8*	10*	12,7*
	9/32"*	5/16"*	3/8"*	1/2"*
Section : weight per meter	R 14 451 g	R 24 555 g	R26 641 g	R 34 991 g
standard length section	2 M	2 M	2 M	2 M
Halyard swivel	CHD 14	CHD 24	CHD 26	CHD 34
Option spliced furling line	■	■	■	■

*necessary to have removable eye or turnbuckle

SIMPLE INSTALLATION

Fitting with turnbuckle

Fitting with eye terminal



"RC" drum dimensions

Model	ø mechanism (mm)	A (mm)	D (mm)	ø furling line (mm - inch)	
RC 100	ø 170	110	33	ø 8	5/16"
RC 180	ø 220	130	38	ø 8	5/16"
RC 220	ø 220	130	38	ø 8	5/16"
RC 300	ø 270	160	44	ø 10	3/8"

D = inner diameter

Other dimensions :

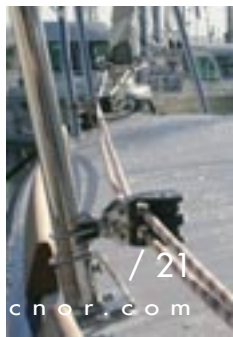
See our technic support on www.facnor.fr

The continuous furling line :

The spliced rope and the double blocks are not provided. See the example of how the continuous furling line can run on the deck (to be adjusted according to the boat deck plan). See suggested installation page 41 (same as FX & AFX).



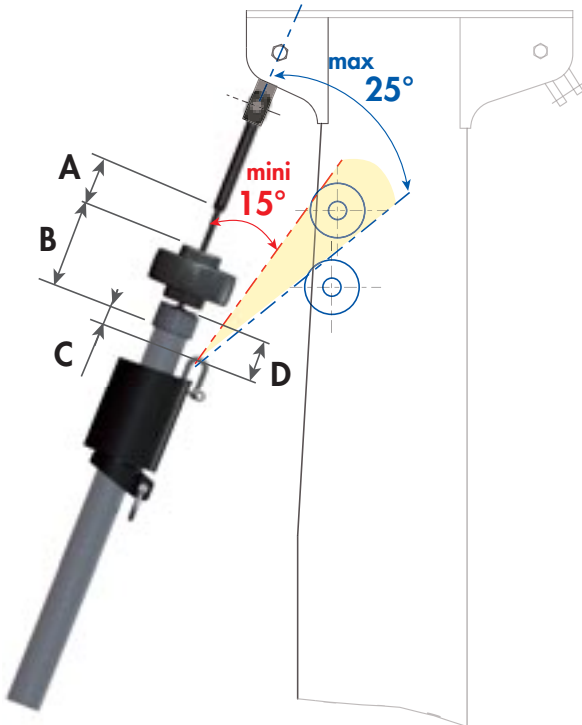
Photo Credit : © Ed Tadzik / Southern Cross Spars



RECOMMANDATIONS : HALYARD ANGLE

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 fluctuates according to the mast geometry. We strongly recommend to have the furling kit installed by a skilled professional (see list of our worldwide agent network on www.facnor.com)

USE OF THE HALYARDS SPECTACLES



**Universal Spi spectacles :
 Halyard handling**

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

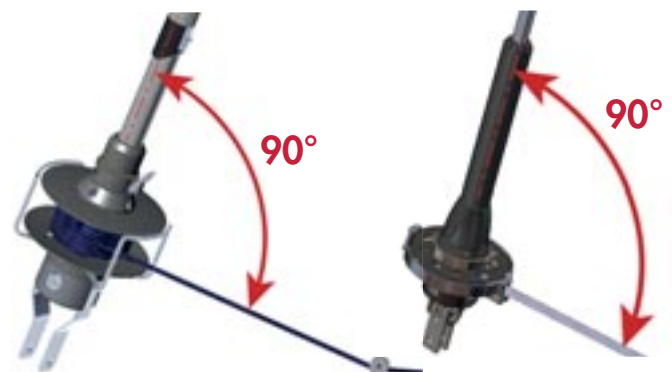
Sparcraft spi spectacle model	∅ A int. (mm)	∅ Rope (mm)
Small size (with 4 rivets) ref. Sparcraft 43220.000.035	∅ 12	∅ 5 ∅ 6 ∅ 7 ∅ 8 ∅ 10
Middle size (with 4 rivets) ref. Sparcraft 43220.000.025	∅ 17,6	∅ 12 ∅ 14 ∅ 16
Large size (with 4 rivets) ref. Sparcraft 43220.000.015	∅ 22	∅ 18 ∅ 20 ∅ 22

RECOMMENDATIONS FOR FURLING LINE FITTING

90° for the furling line :

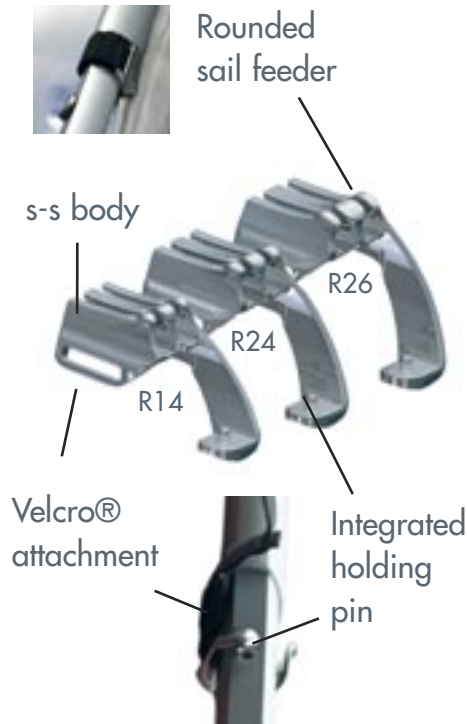
Whatever furling model (LS, LX, RX or FD), the furling line must run with 90° angle from the forestay (see against).

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





RX, FD, RC ACCESSORIES



New Sail feeder (R14, R24, R26) :

Enjoy fully the performance of your sailboat - Facnor supplies a new sail feeder enhanced for quick change of sail and entirely removable. A Velcro strap ensures an easy fitting or disassembly from elliptic R foil sections. Its stainless steel body guarantees reliability whereas its studied design and

smooth shape prevent from luff tape wearing. Save time in sail handling, the swivel is shortly lowered. Ideal when you convert your furling system fitted with R14, R24 and R26 section in headfoil, and suitable - but not only - with FlatDeck gears.

Sail Feeder	
Model	Reference
R14	09130128142
R24	09130128242
R26	09130128262

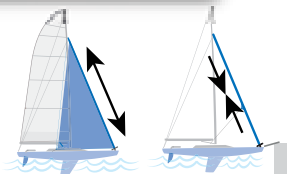
LS-LX-RX ACCESSORIES

Furling line kit :

Furling line kit includes adapted polyester good quality rope



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



Halyard

tension : the halyard can be slack when sailing downwind or by light wind (and inversely), in order to improve boat performance. Also, after cruising or racing, one should not forget to slacken the halyard when back at berth, this will usefully release tension in the sail, sheaves and above all the swivel.



Photo Credit : JBoats / JH11



Facnor offers a range of motorized furling and reefing systems for any boat over 9 meters. With these electric furling systems, the headsail becomes easy to handle from the cockpit with any abrupt interruption. This secured device will make your cruising very pleasant...

COMPACT & ELEGANT

RMEJ Features:

- Waterproof motorized device and worm gear lubricated for life (maintenance free)
- Installation over the existing forestay without any modification
- The worm gear ensures that the reefed sail does not unfurl
- Low sound level, elegant and compact
- Quick connections with Boxtron box
- Easy switching from LS-LX manual to RMEJ motorized reefing furler
- Available in 12 or 24 volts

RMEJ ratio motor : maintenance free

The worm gear ensures that the reefed sail does not unfurl. The electric furling gear operates quietly thanks to the high precision machining of each part. Incidentally, the gear can rotate either clockwise or anticlockwise



Boxtron relay system

This separate relay box eases the installation and wire connections for the motorization (see page 26)

Compact & elegant motorized unit

- machined from one piece of aluminium and protected by anodization.



- The aerodynamic design of the electric device does not take up too much room on the foredeck.
- waterproof

Use of existing forestay

the structure enables the installation on existing forestay including turn-buckle



Safety

In case of power failure, the Facnor RMEJ furling system is fitted with a manual back-up device so that you can use a winch handle or alternatively our emergency continuous line system (see page 26).



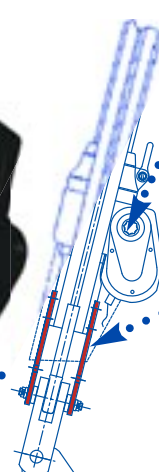
Height adjustment

According to the anchor position fit RMEJ drive unit height by adjusting s-s link plates that can be cut if necessary.



LS-LX to RMEJ conversion

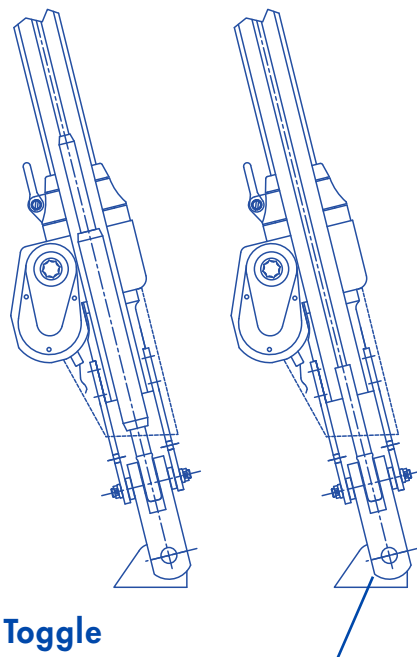
the RMEJ drums are fitted with the same SX foil sections than the LS/LX. Therefore it is simple to switch from an manual gear to an electrical equipment.



"COMFORT CRUISING" RMEJ RANGE

RMEJ Use :

RMEJ drive units generate a great power in order to shortly furl in the Genoa. Facnor electric furling kit is complete and includes foil sections, electric motorisation, pin, link plates and toggle.
(special toggle, please contact us)



Toggle

included in the standard kit

RMEJ Standard Kit :

- electric motorization
 - sections and connections
 - pin and toggle
- (special toggle, contact us)

Options (see page 26) :

- Boxtron relay system
- Boxtron relay system delivered with wire or radio remote control

Electric furling system model	RMEJ 1.02 SX 39	RMEJ 1.02 SX 47	RMEJ 2.02 SX 53
Boat length (mètres)	9 → 13 m	12 → 17 m	+ 16 m
	30' → 42'	40' → 57'	+ 55'
max. forestay ø (* turnbuckle) (mm & inch)	8 mm 10 mm*	12 mm 14 mm*	14 mm et +
	5/16" 3/8"**	3/8" 1/2"**	+ 9/16"
Standard forestay length (meters & feet)	14m50 ↓ 16m50	18m50 ↓ 20m50	20m50 ↓ 22m50
	48' ↓ 54'	61' ↓ 67'	67' ↓ 74'
Section ref.	SX39	SX47	SX53
Power	400 w**	400 w**	900 w**
Tension	12 ou 24 V	12 ou 24 V	24 V
Halyard swivel	CHD 39	CHD 47	CHD 53

*Installation with swage rigging screw or "manual"

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

SECTIONS & HALYARD SWIVEL RMEJ

SX sections

The sections fitted on RMEJ electric system are the same as on the LS/LX range (see page 28). These performance sections ensure a torque resistance even under high loads.

CHD halyard swivel (billes Torlon®)

The swivels feature the same quality as the swivel delivered with the LS & LX racing range.

Use of the existing forestay :

The hollow inside of the motorized device allows fitting the existing forestay (even with a turnbuckle bottom terminal). If necessary, it is possible to install the furling gear with the forestay fixed on the mast head. You only need to remove the bottom fixation pin of the forestay



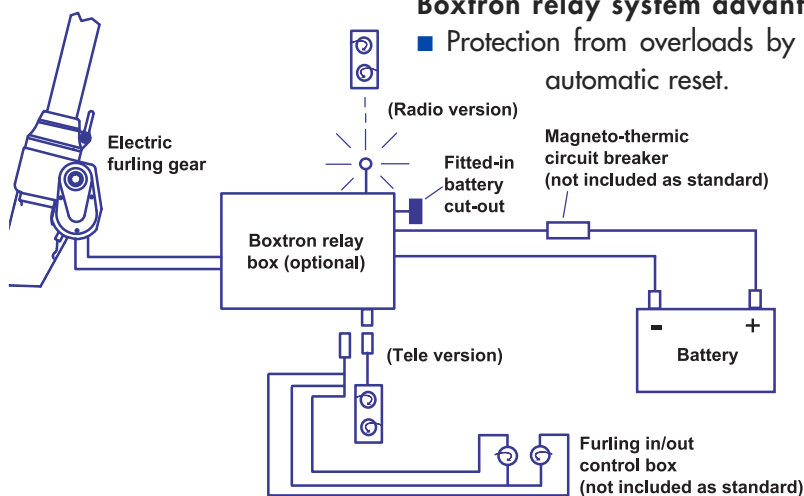
BOXTRON RELAY SYSTEM

Makes the installation easy and protect the circuit: The BOXTRON system is a pre-assembled box containing all electrical components necessary for

operating the electric furling gear. This compact system is available in two versions: "TELE" (wired) or "RADIO" control.

Boxtron relay system advantages :

- Protection from overloads by an adjustable electronic cut-out device with automatic reset.
- Sound alarm in case of failure. Control LED's.
- Progressive on/off switch integrated Furling begins slowly then increases quickly with accelerated ramp up. This smooth transition is adjustable easily and prevents mechanism from brutal changes.
- Available in two versions: "tele" and "radio" control".



The boxtron system (box above) can be supplied in "tele" or "radio" (wireless) control. In this case, the box cover includes the "radio" device.



Boxtron relay system	Model	Reference
Boxtron relay system ①	RMEJ 1.02 12V RMEJ 2.02 12V	56024001040
	RMEJ 1.02 24V RMEJ 2.02 24V	56024001042
Wireless boxtron remote control ②	RMEJ 1.02 + RMEJ 2.02	56024001020
Radio boxtron remote control ③	RMEJ 1.02 + RMEJ 2.02	56024001005

EMERGENCY SYSTEMS OPTION

Operating in any circumstances :

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

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

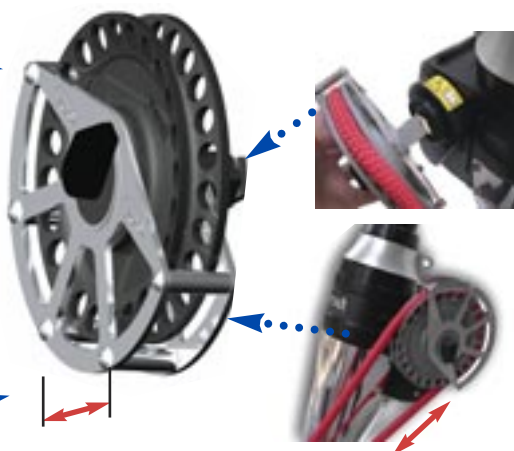
Sturdy fitting.....

corrosion resistant (anodized aluminium and stainless steel)

Furling power.....

thanks to the torque of the continuous line drum

Compactness.....



Self-locking device :

The Facnor emergency system is fitted like the emergency handle, with a standard square drive winch socket.

Continuous furling line

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

But also...

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

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

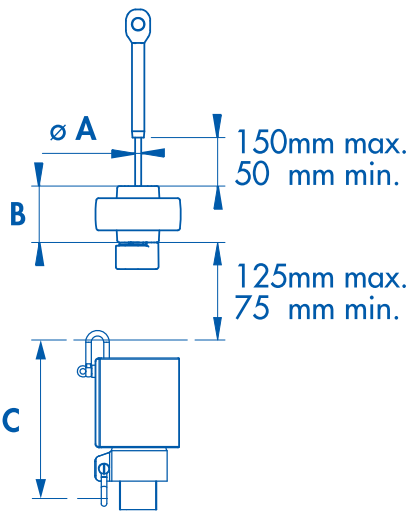




photo credit : HINCKLEY 42 DS © Phil Bennett

Electric furling system model	RMEJ 1.02 SX 39	RMEJ 1.02 SX 47	RMEJ 2.02 SX 53
Section ref.	SX39	SX47	SX53
max. forestay \varnothing (* turnbuckle)	10 mm*	14 mm*	22 mm
B	53	52	52
C	203	248	282
D*	43	50	70
E	344	364	466
F	12	12	32
G	500	500	716
H	196	196	282
\varnothing I	12	12	20
J	45	45	60
\varnothing K	73	73	93
\varnothing L	65	65	78
M	202	202	228
N	65	65	89
Power	400 W		900 W

* End of the telescopic section



E14 Boxtron control device

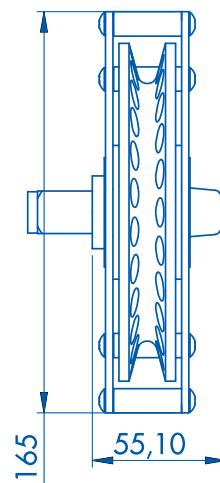
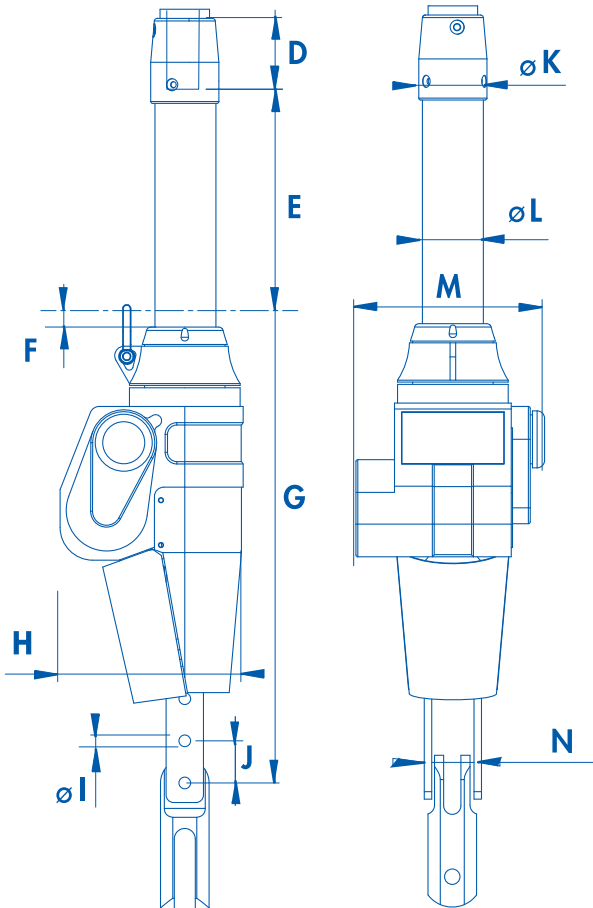
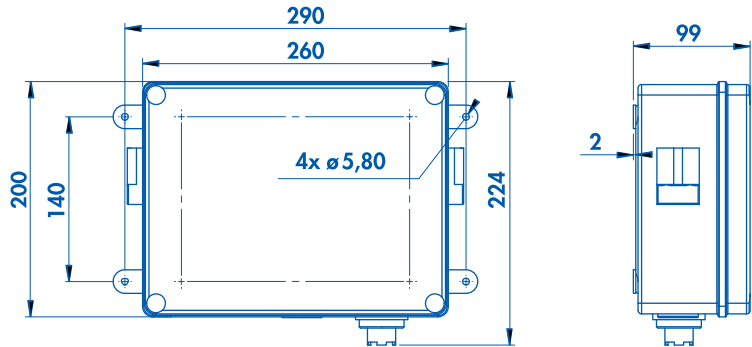


photo credit : CONRAD / Conrad 66



STRENGTH & ADAPTABILITY

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

Long high performance polyamid bearing
centres forestay inside foil

CNC machining holes
insuring the sections will be perfectly aligned

Connectors with high torque resistance
guarantee a great rigidity at the section connections

New : Torx print
easy assembly and dismantling

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

2 meters anodised extruded aluminium sections
Material : 6000 series

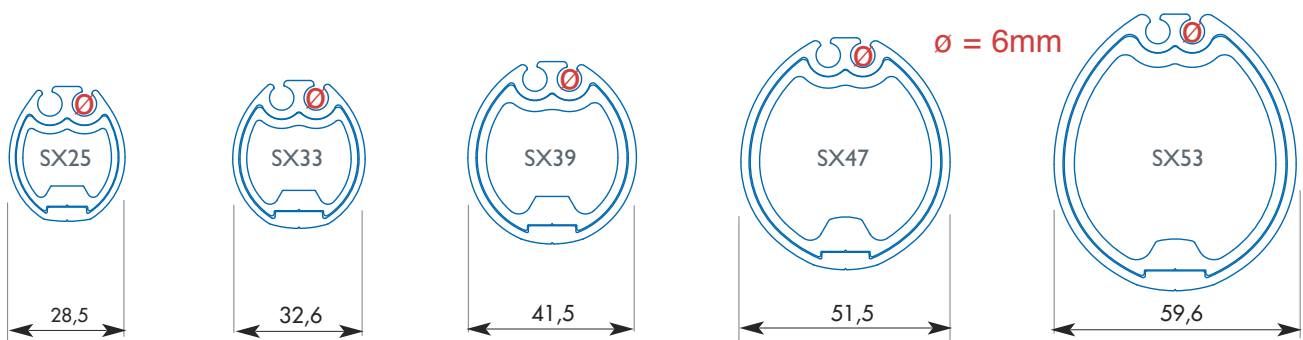
Telescopic section
Allows adjusting the section length. Like the connectors, the telescopic section offers a high torque resistance

Standard section length (6'8")

SECTIONS DIMENSIONS SX & R

Rounded sections SX 25 / SX 33 / SX 39 / SX 47 / SX 53 :

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



Elliptical sections R14 / R24 / R26 / R34

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

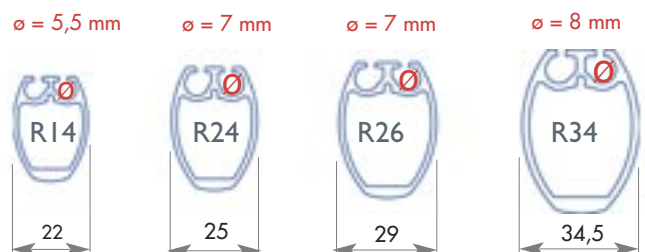




Photo credit : Carbon 3 - Tuco Marine

STRUCTURAL FURLERS



Structural furlers : the in/out furling systems

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



Photo credit : Alphenia

STRUCTURAL FURLERS 14-100T & STG 3-4T



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

P30



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

P32



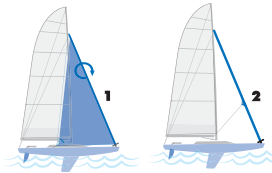
Photo credit : Latitude 46 - Tolinou



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

PERFECT SAIL & LIGHTNESS

The in/out furling system: This in/out system enables a performance sail cut with belly lowered and holds the mast at the front. It holds the mast at the front. The forestay, traditionally in high quality textile fibres, turns. By pulling the continuous line, the drum generates the rotation to the thimble of the textile forestay and the attached tack of the sail. Easy and efficient. This furling gear has been chosen by class 40' and 60' but also cruising sailboats skippers.



14-100 T structural furler features :

- Saving in weight (up to 3 times lighter than a conventional furling system)
- Great furling power with large diameter drum
- Maximum luff thanks to the low profile drum
- simple installation fitting various forestay terminals (see against)
- Possibility to tighten the halyard with a 2-to-1 block at the bottom
- Resistant and tested for heavy loads
- Mechanisms fitted with jaws or threaded connection

Two possible assemblies

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



Made from a single aluminium block

that is CNC machined in order to offer a high resistance



Tack eye
for the fixation of the swivel at the head of the mast (delivered)

Head swivel
links the stay to the mast, mechanism letting the stay rotating and supporting mast loads.

Anti-twist terminal
The terminal (thimble or threaded connection) transmits the rotation to the textile stay.

Anti-twist structural stay
it supports the mast and also transmits the rotation of the bottom drum to the swivel

Continuous line drum torque
The large diameter of the continuous line drum increases the furling power and reduces efforts. And it also prevents the furling line from overriding.

Furling line exit
allows to guide and keeps the furling line around the drum

Bottom terminal
allows to fit the continuous line drum to the foredeck chain plate (Directly integrated to the drum)





14-100T STRUCTURAL FURLERS RANGE



Photo credit : © Motive Timarans

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

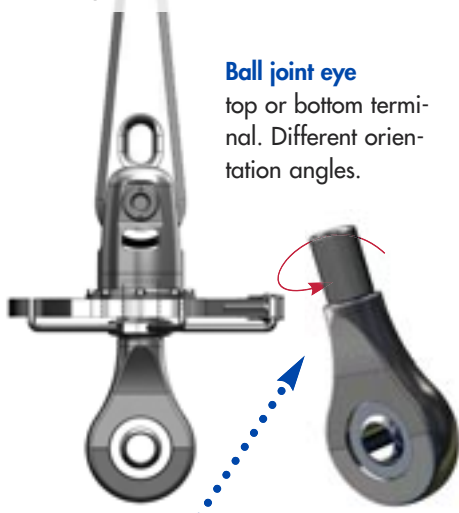
* model name = Kevlar stay breaking loads

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

Different articulating parts such as (at the top and bottom) :

- bottom ball joint eye,
- T-bones,
- double loop anchor,
- top latching eye,
- many other terminals.

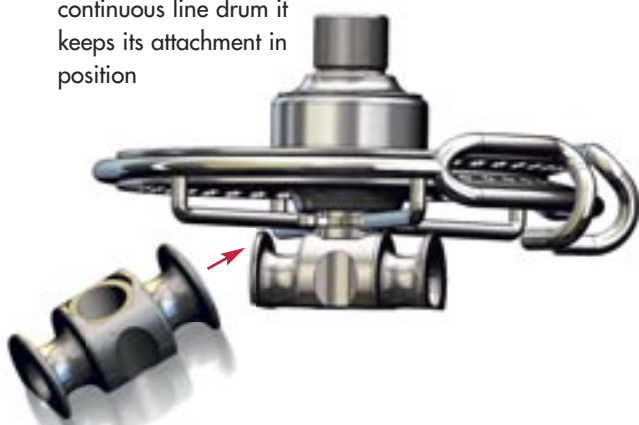
TOP OR BOTTOM TERMINAL OPTIONS



Ball joint eye
top or bottom terminal. Different orientation angles.

Interchangeable : the terminals are screwed into mechanisms. These articulating parts can be changed around.

"T-Bones" Terminal
fitted underneath the continuous line drum it keeps its attachment in position



Eye terminal
for both top and bottom end

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



Double anchor
(above swivel fitting with lashing)
more flexible articulation – to be screwed or notched up



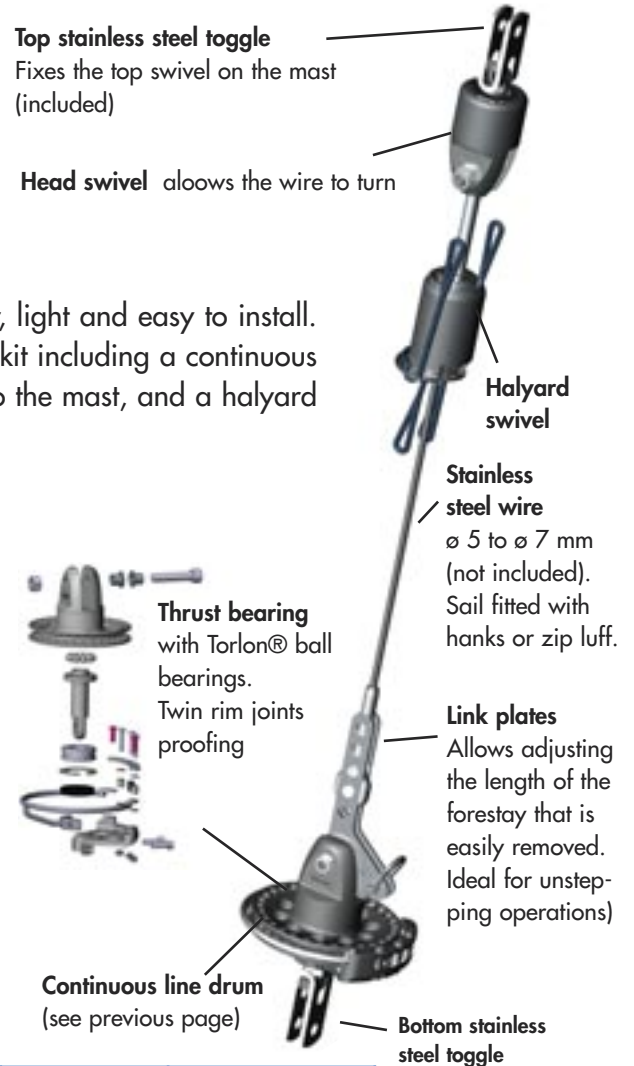
Photo credit : Latitude 46 - Tofinou

STG FUNCTIONING

For smaller sailboats, the STG is a wire structural furler, light and easy to install. Just add a metal wire with terminals to the STG furling kit including a continuous line drum, deck+mast toggles, head swivel connected to the mast, and a halyard swivel connected to the sail head/halyard.

STG 3-4 T Features :

- up to 5 times lighter than a conventional furling system;
- waterproof bearing and maintenance free;
- Maximum luff thanks to the continuous line drum;
- Simple installation, sail fitted on snap shackles;
- Strong (3 and 4 tons loads)



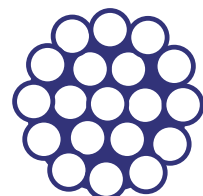
Model	Boat length	Forestay ø	Breaking load	Drum ø
STG 3T	from 7,5 to 9,5 meters	ø 5 mm or ø 6 mm according to boat type	3 tons	119 mm*
	from 23' to 31'	5/32" or 1/4"	6673 lbs	
STG 4T	from 8 to 10 meters	ø 7 mm	4 tons	227 mm
	from 25' to 32'	9/32"	8818 lbs	

* in comparison, it is 1mm smaller than the diameter of a Cd-Rom

ø 5 mm TO ø 7 mm STAINLESS STEEL WIRE ROPE



Photo credit : Alphaeta

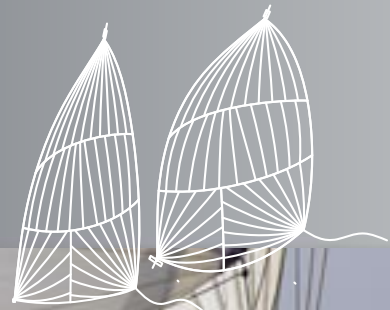


Stainless steel wire (type 1x19) used on 3-4 T Factor wire furler



www.sparcraft-rigging.com

CODE ZERO, GENNAKER & ASYMMETRIC SPINNAKER



FX & ASYM-FX FURLERS



Photo Credit : © Luis Pueyo Puente - Pogo 10.50

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



Photo Credit : © Tendresse / Delta Voiles

FLYING SAILS FURLERS & BOWSPRITS



FX GENNAKER & CODE ZERO
FURLERS

P34

ASYM-FX ASYMMETRIC
SPINNAKER FURLERS

P38

OPTIONS & CONTINUOUS
LINE INSTALLATION

P40



BOWSPRIT

P42





Photo Credit : © Luis Pueyo Puente - Pogo 10.50

The FX & FXT furlers enable Gennaker, Code 0 or staysails to be hoisted easily, quickly and safely. Removable furling line and quick fastenings give an even greater ease of use. The neat design gives lightness to the high resistance mechanisms: the FX furlers let you benefit from the race developed technology for a more comfortable cruising.

COMFORTABLE SAILING WITH FLYING SAIL FURLERS

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

FX Features :

- Easily installed and stored (the continuous drum is fitted with quick-release-pin fastenings)
- Handy : removable furling line without any mechanical operation,
- Sturdiness : strong one-block drum
- Stainless steel guide insures a smooth and perfect run of the furling line
- Lightness : optimized system and ultracompact
- Maintenance free : high protection of the mechanisms
- low profile design (just above deck), i.e. a maximum sail luff (FX)
- Large range of fitting options : 2-to-1 swivel, special textile shackles, Thimble,... (See page 40)

A strong one-block drum

The main body of the drum is made of one aluminium block and is CNC machined. (sturdier than a casting part).



Continuous line drum

This system eliminates furling line overrides.

Torque rope

It transfers efficiently the furling rotation from the drum to the swivel. The torque rope is captive within the sail luff tape. (supplied on request)

Guide/rubber ring concept

The continuous furling line can be quickly removed without any complication. This special feature offers the advantage that the furling line can remain on the deck for further use (just remove the furler and the furled sail).



rubber ring

Removable furling line

Secure & quick fastening device

FX furlers are fitted with quick fastening device (see p.36).

Swivel

Available in different versions (ex. Two-to-one version, advantage : optimal halyard tension)

Safety pin

to release or secure the thimble (drum & swivel)*

* for FX 2500, 4500 & 700 models



Thimbles

- Stainless steel for FX2500/4500 models
- Aluminium for FX7000 FX12000 & FX20000 models (voir p. 40)

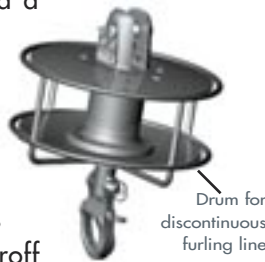




FXT FURLERS WITH DRUM

FXT Gennaker and Code Zero furler

is fitted with jaw for attachment of anti twist luff rope and a snap shackle at the bottom (deck fitting): it is quickly installed and removed after use. The FXT is fitted with steel bearings protected by waterproff joints (maintenance free). A 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) :

Modèle FXT	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	

* 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 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)). The large diameter gives more furling power. It is half weight of a standard Gennaker furler.



FX CONTINUOUS LINE FURLERS

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

FX Model	FX 900	FX 1500	FX 2500	FX 4500	FX 7000	FX 12000	FX 20000
Boat length (meters-feet)	6 ↓ 10,5	10 ↓ 12	12 ↓ 14	13 ↓ 16	16 ↓ 20	+20 ↓	+25 ↓
	20 ↓ 30	30 ↓ 40	40 ↓ 45	42 ↓ 55	55 ↓ 70	+70	+82
Max Gennaker or Code zero area (m² ft²)	30m ²	55m ²	80m ²	140m ²	250m ²	350m ²	+ 500m ²
	322 ft ²	590 ft ²	861 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

* 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)

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



Photo Credit : © Pierrick Contin / IDB Marine

A Staysail can be fitted on a FX furler:



a Staysail can be fitted on a FX furler so that a storm-sail 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 FX & asym-FX.

STAYSAIL FITTED ON FX FURLERS

FX Model	FX 1500	FX 2500	FX 4500	FX 7000	Structural furler
Staysail max area indicatives datas (m ² ft ²)	20 m ²	30 m ²	50 m ²	70 m ²	over 70' boat, it is highly recommended to fit a structural furler (see page 30)
	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)

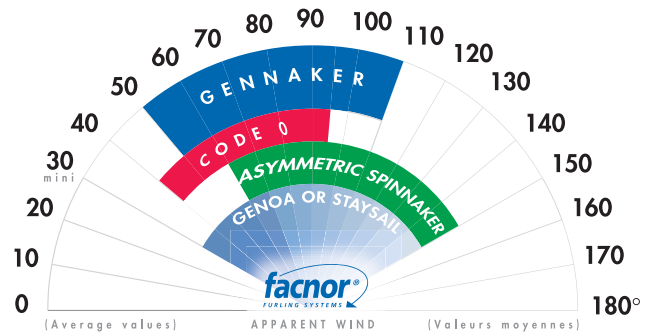
⚠ We remind you that an adapted deck attachment must be installed

USE CONDITIONS OF THE FX FURLER

Use conditions :

The use range of the sails as shown on the diagram opposite varies with the force of the wind. We can mainly bear in mind that the FX furlers are better adapted for use with

flying headsails between beam and broad reach (i.e. Code Zero and Gennaker). The complementary use with closer reach headsails is possible, however, under certain conditions. (see page 35)



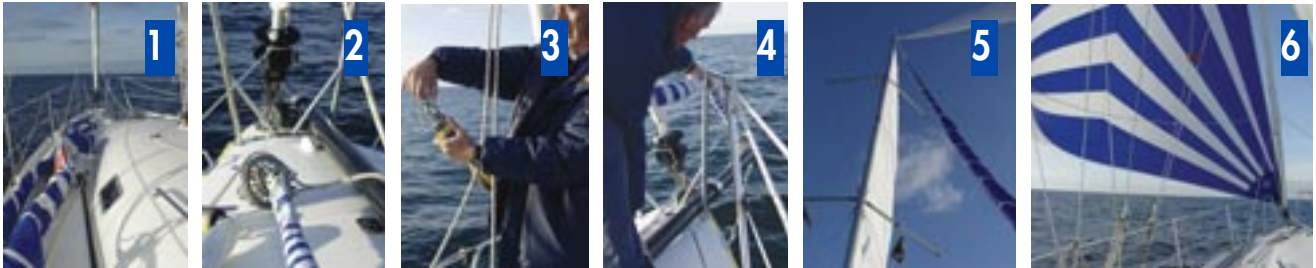
Sail indicative range of use

This sail indicative range of use varies with the wind force

Installation of the Code zero and Gennaker furler:

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

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



- Lie the Gennaker furler on the deck, fit the bottom thimble onto the drum (fig 1&2);
- Fit the upper thimble onto the swivel (fig 3), and adjust the bowsprit (fig 4);
- Hoist (fig 5), unfurl while controlling the sheet (fig 6). Ready !

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

FURLING LINE AND QUICK FASTENING DEVICES

Removing the furling line : Thanks to a clever innovation, the continuous furling line can be quickly removed without any complication. This special feature offers the advantage that the furling line can remain on the deck for further use.

Easy installed and stored : The continuous drum is fitted with quick-release-pin fastenings (snap shackles or special textile shackles) that make for quick and easy installation and removal of the Gennaker or Code 0.



Systèmes à cliquet pour modèles intermédiaires

Quick - release - pin fastenings : The sail can be removed from the furler in one "click". Fitted with :

- FX 2500, 4500 & 7000 : special safety-clip fastening
- FX 900 & 1500 : G-ring
- FX 12 000 & FX 20 000 : push-pin.

Easy change and re-use of continuous line furler :

As it is very simple to remove the sail from the furler and to fit the block option on to the swivel, the Gennaker can be quickly changed for the staysail if needed*.

* provided that the loads are equivalent for both sails (see pages 35 & 39). Your Facnor agent will suggest you the most adapted solution.

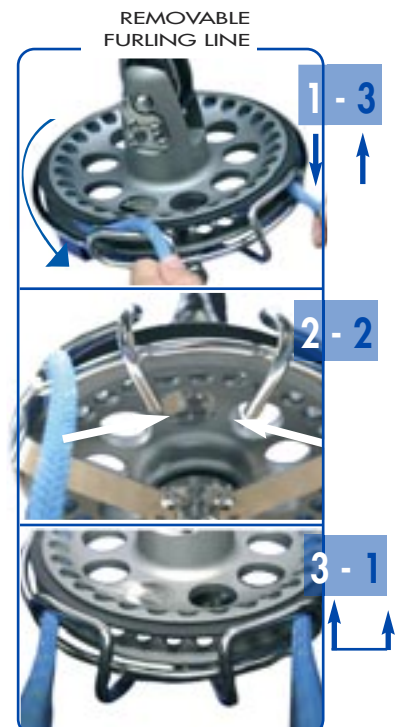


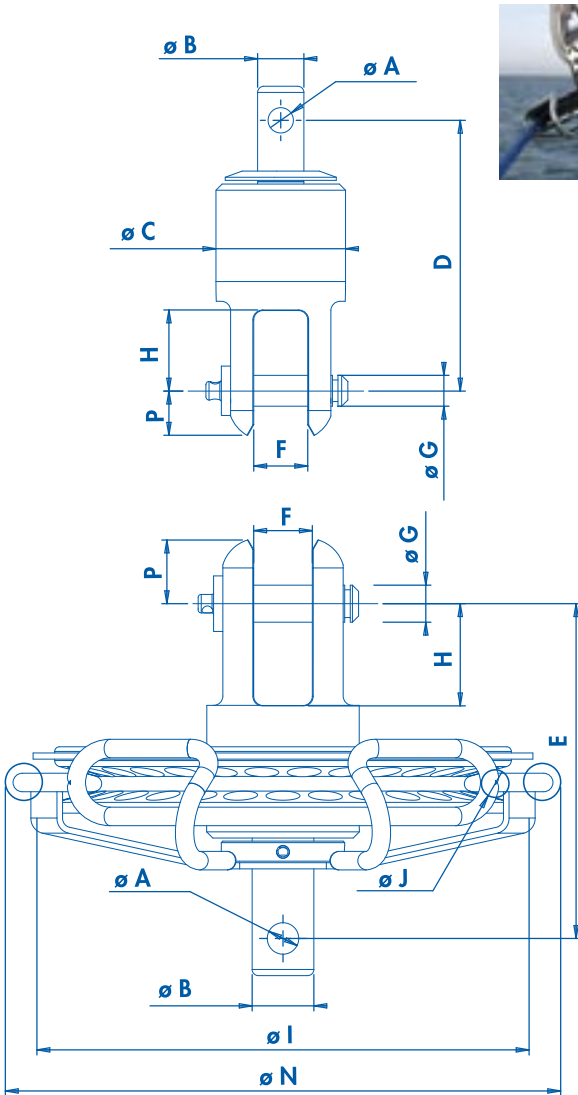


Photo Credit : © Luis Pueyo Puente - Págo 10,50



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

FX DIMENSIONS



Measu rem. (mm)	FX 900	FX 1500	FX 2500	FX 4500	FX 7000	FX 12000	FX 20000
	Dimensions (mm)						
ø A	6	6	8	10	12	16	20
ø B	12	12	15	20	25	30	40
ø C	31	34	42	49	60	72	86
D	48	53	88	99	112	125	153
E	56	58	95	108	121	134	161
F	12	15	17	19	26	26	29
ø G	8	8	10	12	14	16	20
H	18	21	26	33	39	43	50
I	85	105	139	160	199	248	298
J	6 6,35	6 6,35	8	(8) 10	8 10	(10) 12	12 12,7
K	-	-	-	49	57	68	98,5
L	40	40	54	88	-	-	-
M	31	31	41	52	61	78	90
ø N	97	117	154	175	221	272	332
ø P	11	12	14	21	20	25	28

- Standard drum attachment
- Standard swivel attachment

Swivel weighth (g)	92	126	305	500	748	1320	2540
Drum weighth (g)	212	282	760	1075	2040	3040	5140

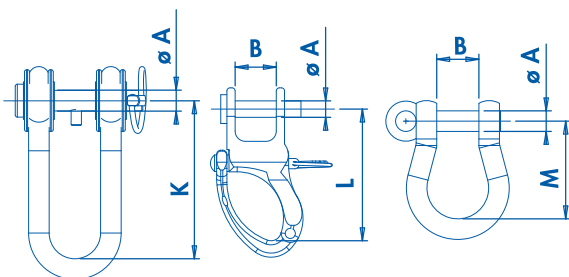


Photo Credit : © Tendresse / Delta Voiles





The Asym-Fx 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 end. The central line connecting the sail luff and the torque rope by the middle starts furling in. With this simple system possibility to use your existing asymmetric Spinnaker (under some conditions - see Facnor technical documents)

SIMPLE HANDLINGS & TESTED MECHANISM

Asym-FX features :

- Tested mechanism (derived from Fx range of Gennaker furlers)
- Use of your existing asymmetric Spinnaker under certain conditions and modifications (strips+central rope)
- Safe System to fit the anti-twist luff rope into the top and bottom mechanisms (exact calculation of the luff rope length)
- No risk for the furling line to override (continuous line)
- Maintenance free: high waterproof mechanism
- Optional fitting (see below) : adapted system for FX continuous line drum

**Removable furling line
(as for FX, see page 36)**

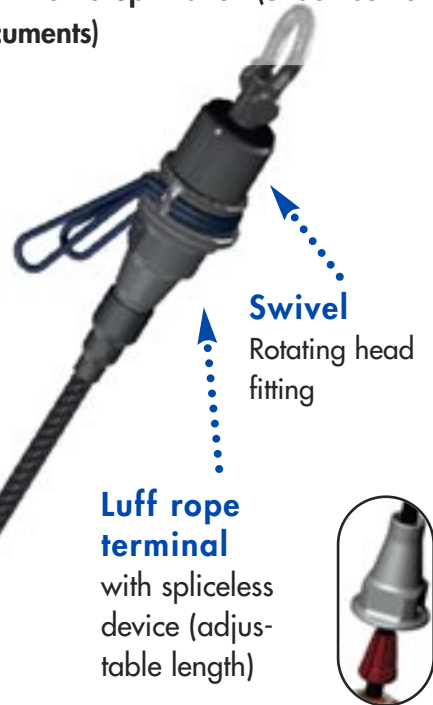
thanks to the clever design of the stainless steel guide & the rubber ring furling loop removed easily



Continuous line drum
with integral rope connection (rotating tack fitting)

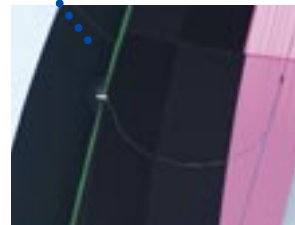


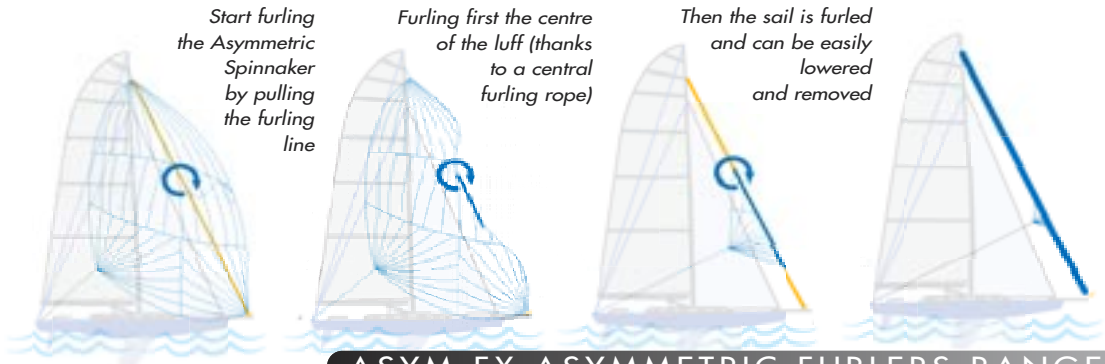
Removable furling line



Anti twist luff rope
Kevlar® core

Central connection line
between luff rope and sail rope (line + strip)





ASYM-FX ASYMMETRIC FURLERS RANGE

MODEL	AFX 1500	AFX 2500	AFX 4500	AFX 7000	AFX 12000	
Boat length (meters / feet)	6 ↓ 11,5 m	11,5 ↓ 14 m	13 ↓ 16 m	16 ↓ 20 m	20 m ↓ + 20 m	
	20' ↓ 38'	38' ↓ 45'	42' ↓ 55'	55' ↓ 70'	+70'	
	50 m ² 538 ft ²	90 m ² 969 ft ²	170 m ² 1830 ft ²	270 m ² 2906 ft ²	500 m ² 5382 ft ²	
Weight	C.L. Drum	395 g	986 g	1317 g	2180 g	3440 g
	Swivel	250 g	531 g	755 g	990 g	1640 g



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

Option fitting FX / ASYM-FX (patented)

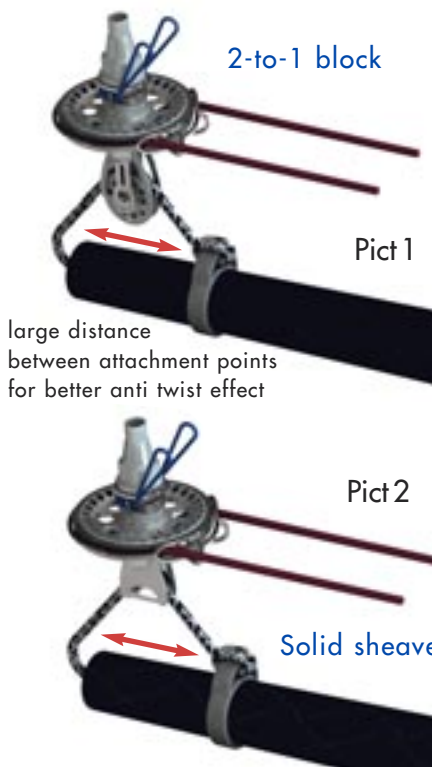
System suitable for use with an existing FX furler



Asym-FX Thimble (CAFX)			
Model	max rope	FX/FXT Model	Reference
CAFX 1500	12 mm	FX 1500	43221001540
CAFX 2500	16 mm	FX 2500	43221002540
CAFX 4500	20 mm	FX 4500	43221004540
CAFX 7000	22 mm	FX 7000	43221007040
CAFX 12000	24 mm	FX 12000	Contact us

ADJUSTMENT OF THE TACK

Two options are available in order to adjust the tack of the asymmetric spinnaker (see the tip "adjusting the tack") :



1. 2-to-1 block (pict 1) : The 2-to-1 block allows to reduce the loads generated by the adjustable tack line. Options from 2500 to 20000 models (see page 40).

2. Solid sheave (Pict 2) : The solid sheave is used for tack height adjustment. This option is available from AFX1500 up to AFX7000, above models on request. 2-to1 or 3-to-1 fitting (see page 40).

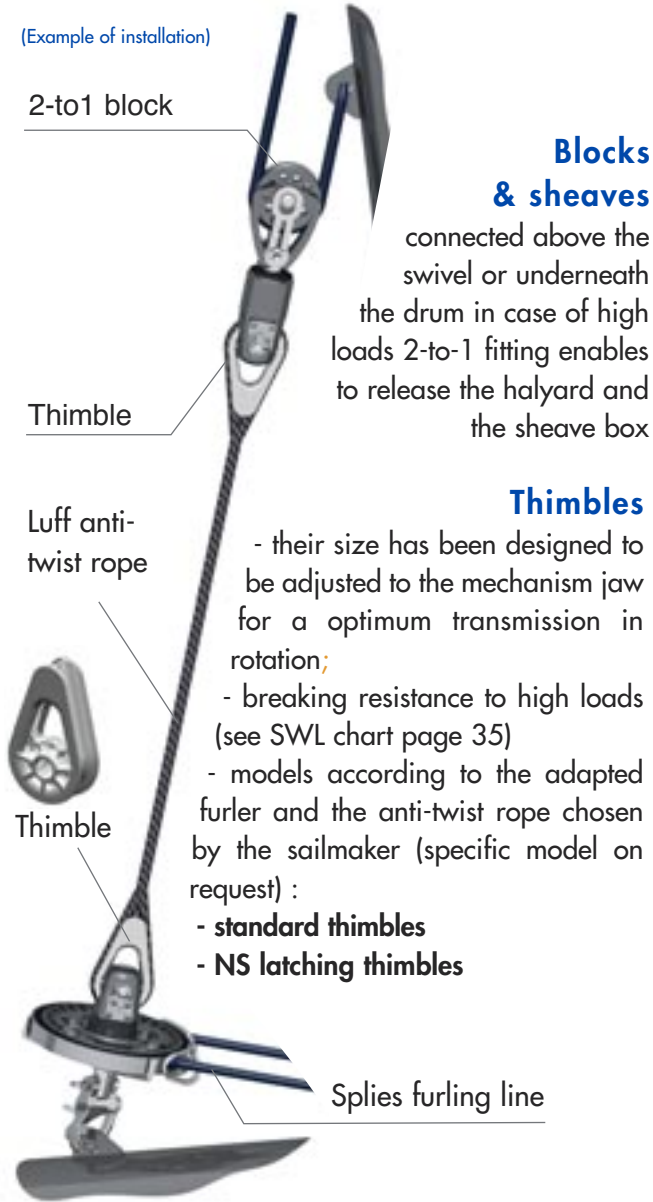
Spliced furling line : see page 41.



LUFF ANTI-TWIST ROPE & FX / AFX 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.

(Example of installation)



Blocks & sheaves

connected above the swivel or underneath the drum in case of high loads 2-to-1 fitting enables to release the halyard and the sheave box

Thimbles

- their size has been designed to be adjusted to the mechanism jaw for a optimum transmission in rotation;
- breaking resistance to high loads (see SWL chart page 35)
- models according to the adapted furler and the anti-twist rope chosen by the sailmaker (specific model on request) :
- **standard thimbles**
- **NS latching thimbles**



Luff anti-twist rope		
ø Model	AFX Model	Reference
ø 9 mm	AFX 1500	24011008000
ø 11 mm	AFX 2500	24011011000
ø 13 mm	AFX 4500	24011013000
ø 16 mm	AFX 7000	24011016500



2-to-1 block (top or bottom)		
Model	FX/FXT/AFX Model	Reference
FB60	FX/AFX 2500	43130102530
FB70	FX/FXT/AFX 4500	43130104530
FB90	FX/FXT/AFX 7000	43130107030
FB110	FX/AFX 12000	43130112030
FB130	FX/AFX 20000	43130120030

(Stainless steel)
FX 2500 & 4500



Standard Thimble			
Model	Max rope	FX/FXT Model	Reference
FCI D12	12 mm	FX 2500	43130212530
FCI D16	16 mm	FX/FXT 4500	43130214530
FC 20	20 mm	FX/FXT 7000	43130207030
FC 22	22 mm	FX 12000	43130212030
FC 24	24 mm	FX 20000	43130220030

(alu)
FX 7000/12000/20000



Latching thimble		
Model	FX/FXT Model	Reference
NS2500 Latch.	FX 2500	43130202535
NS4500 Latch.	FX/FXT 4500	43130204535
NS7000 Latch.	FX/FXT 7000	43130207035



ATTACHMENTS & SOLID SHEAVES

Quick fastenings :

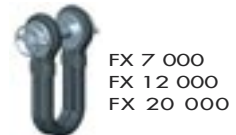
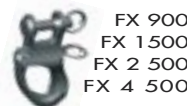
Different quick fastening devices (top or bottom) are available according to models :

- textile shackles, snap shackles, ...

Spliced furling line :

See page 41

Solid sheaves : see against and also page 39 (aluminium) FX7000/12000/20000



Solid sheave (top or bottom)		
Model	FX/AFX Model	Reference
SSH 1500	FX/AFX 1500	43130721500
SSH 2500	FX/AFX 2500	43130722500
SSH 4500	FX/AFX 4500	43130724500
SSH 7000	FX/AFX 7000	43130727000



COVERS FOR DRUM & SWIVEL

Continuous line drum covers : the FX-Asym 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. Thanks to hook-and-loop fasteners the cover is quickly fitted.

Standard available for the FX & Asym-FX 2500, FX & Asym-FX 4500, FX & Asym-FX 7000 (other cover models on request).

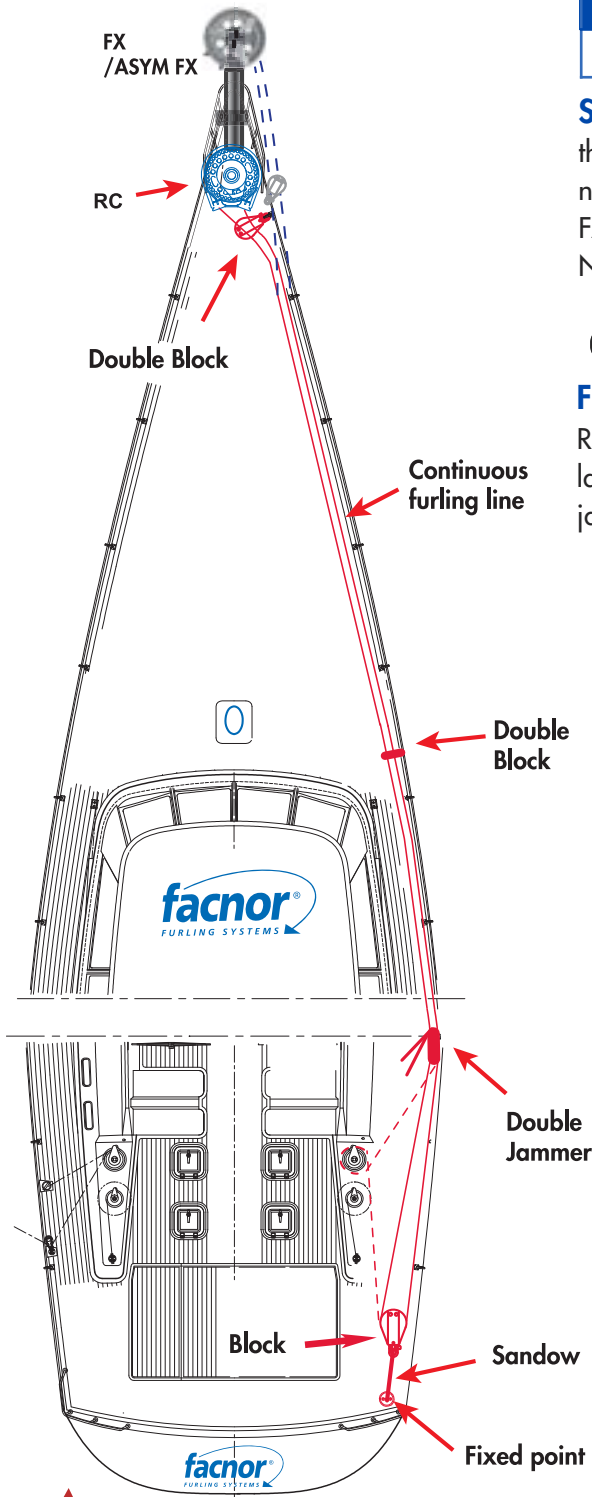
FX & FXT Swivel	FX 2500	FX/FXT 4500	FX/FXT 7000
Reference	29050000078	29050000070	29050000072
FX & Asym-FX C.L. Drum	FX 2500	FX 4500	FX 7000
Reference	29050000076	29050000056	29050000060

Swivel covers : an additional benefit of securing the mast and the sailing crew, and the same features as the covers of the continuous line drum. Standard available for FX 2500, FX & FXT 4500, FX & FXT 7000. (see references above).

Not available for Asym-FX swivel model.

CIRCUIT OF CONTINUOUS FURLING LINE

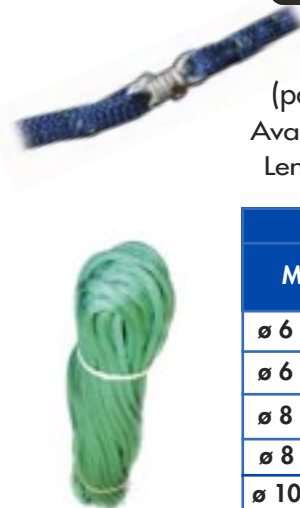
FX/AsymFX or RC models : for either flying sail furler or RC headsail reefing system the principle of a furling loop is similar (see drawing against). the loop can be secured with a double jammer.



Continuous furling line installed with a jammer



SPliced FURLING LINE



Eye/eye furling loop

(polyester and braid polyester rope)
 Available : ø 6, ø 8, ø 10, ø 12, ø 14
 Length 12, 16, 20 m and on request

Eye/eye furling loop		
Model	FX/AFX Model	Reference
ø 6 x 12 m	FX900	24000601210
ø 6 x 16 m	FX/AFX 1500	24000601610
ø 8 x 16 m	FX2500	24000801610
ø 8 x 20 m	FX/AFX 4500	24000802010
ø 10 x 32 m	FX/AFX 7000	24001003200

Secure the bungee rope with a safety rope



REMOVABLE BOWSPRITS

Gennaker & Code zero or Asymmetric spinnakers

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



EASY FUNCTIONNING & RELIABILITY

Fitted-in sheave



Neat design

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

Bridle attachment

- Bridle attachment integrated in the front end fitting design;

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

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

Simple and efficient functioning



Plot champignon

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

- Quick removal and storage on a third fixing block;

- The locking system incorporates an anti-theft device.

- Integrated line stopper for holding the tackline



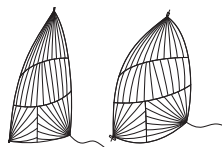
integrated line stopper

Complete kit including :

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

FINDING MODELS & OPTIONS

Technical datas and references



ø section (mm)	Total length (mm-feet)	Mini. length inside (mm-feet)	max. length outside (mm-feet)	Use example boat length (feet)	Max sail area (m ²)		Fitting FX & Asym-FX models
					Asym. Spi.	Gennaker & code zero	
ø 70	1600 - 5'3"	800 - 2'7"	800 - 2'7"	25-36'	60	37*	1500/2500
ø 80	1800 - 5'10"	900 - 2'11"	900 - 2'11"	36-40'	82	52*	2500/4500
ø 90	1900 - 6'2"	950 - 3'1"	950 - 3'1"	40-47'	102	65*	4500/7000**
ø 100	2000 - 6'6"	1000 - 3'3"	1000 - 3'3"	48-57'	130 / 150*	105*	4500/7000**

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



Options

*with bridles ** FX7000 with snap shackle option

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

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

bridle kit (non delivered)





FACSLIDE+ LOCKS
MAINSAIL FURLERS



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



FACSLIDE+ - LOCKS - MAINSAIL FURLERS



FACSLIDE+ FULL BATTEN CAR SYSTEMS P44



REEFING LOCKS P47



MAINSAIL FURLERS P48



Photo Credit : Meltemi



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

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

ADAPTIBILITY & RELIABILITY

The Facslide® system is synonymous of effortless sailing

Facslide+ features:

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



Tracks fitting to the mast without modification

The tracks are easily fixed with slugs alongside the existing mast without unstepping (voir page 46).



Photo Credit : Outrigger



FACSLIDE MODEL SELECTION

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



* with screws and slugs

■ Cars references :

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

■ Compact Facslide set :

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



INSTALLATION OF THE TRACK WITH THE SLUGS

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



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



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

- **Facslide+** : new anodization (black)
- F40 : colorless anodization

- See against the installation of the tracks and dimensions p. 46.

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

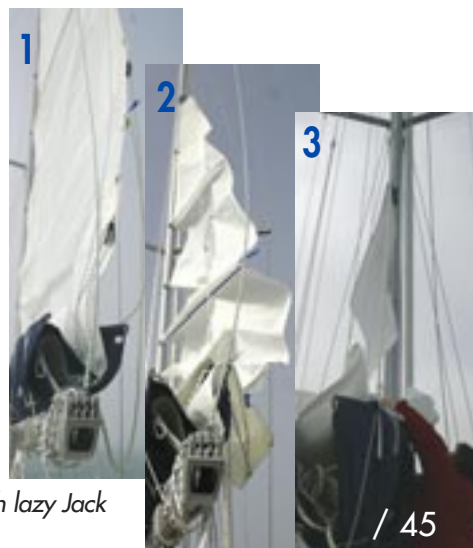
- Two types of slugs : flat and round
- Various sizes available (see table p. 46 or ask to your Facnor dealer)



Salted water at the head...

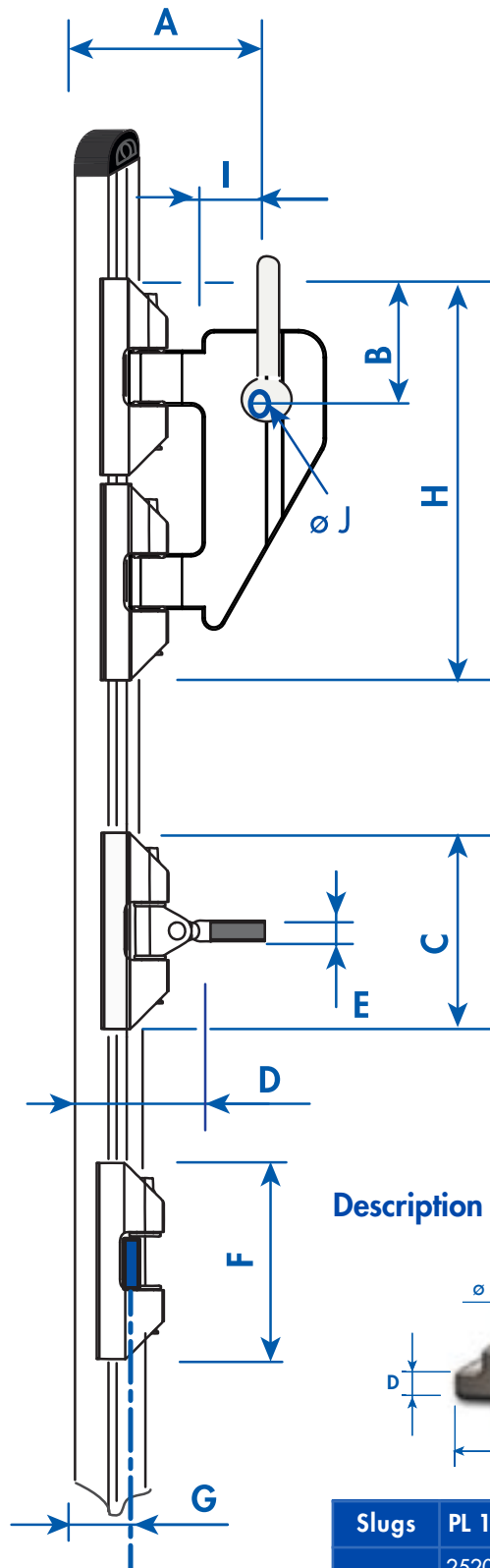
Even though the head cars are positioned 10 meter high, they receive sea water, therefore do not hesitate to rinse the cars with fresh water.

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



Lower mainsail with
Facslide system combined with lazy Jack

FACSLIDE DIMENSIONS

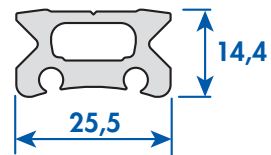


F10+	
Track ref.	FR 25x15
Marks	Dimensions (mm)
A	72
B	45
C	74
D	58
E	M10
F	64
G	26
H	162
I	38
ø J	8

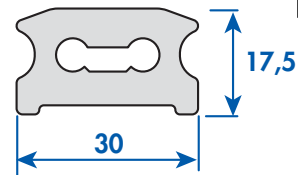
F20+		F30+	
Track ref.	FR 25x15	Track ref.	FR 25x15
Marks	Dimensions (mm)		
A	72		115
B	50		98
C	84		94
D	58		60
E	M10		M10
F	74		94
G	26		28
H	172		197
I	35		40
ø J	8		18

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

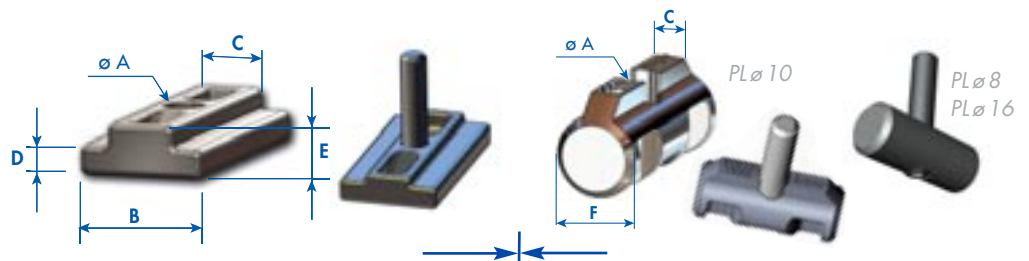
F10-20-30



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

REEFING SYSTEM FOR FULL BATTEN MAINSAILS

Stainless steel body

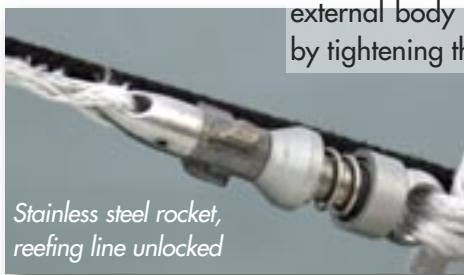
Good resistance of use guaranteed.

Attaching loop

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

Rocket

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



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

Locking : 1. Tighten the reefing line

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

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

2. Let it go 3. Give slack.

Locking line

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

Towards boom sheaves

Attachment point on the boom

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

Functioning :

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

The advantages :

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

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

Parameters / Model	3T	5T
Mainsail area	90 M ²	135 M ²
	968 ft ²	1450 ft ²



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

SIMPLICITY IN INSTALLATION & ÉCONOMIC

CF mainsail furler features:

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

Drive unit

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



Original Gooseneck

This system allows keeping the original goose neck

Halyard swivel

Furling sections (2 meters long)

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

Housing sections (=1,7 meters long)

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

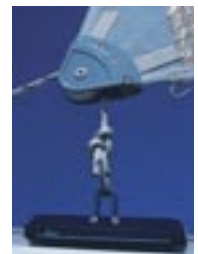
Bottom sections design

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

Mainsail without batten

Boom equipment

Two versions available :
- "standard" and "special" - allows perfect positioning of the clew. (see against p. 49).



CF MAINSAIL FURLER RANGE

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

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-foot)	6,80	8,50	10,20	11,90	11,90	13,60	15,30	17,00
	22'	28'	33'	39'	39'	45'	50'	56'
Maximum boom length (meters-foot)	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.



(pict 1)



(pict 2)

SIMPLE INSTALLATION TO THE MAST

Easy fixing of the housing sections :

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



Housing and furling sections

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

BOOM KITS : STANDARD AND SPECIAL

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

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



Photo Credit : Meltemi

CF DIMENSIONS

Track ref.	CF Model	
	CF 80	CF 105
Marks	Dimensions (en 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

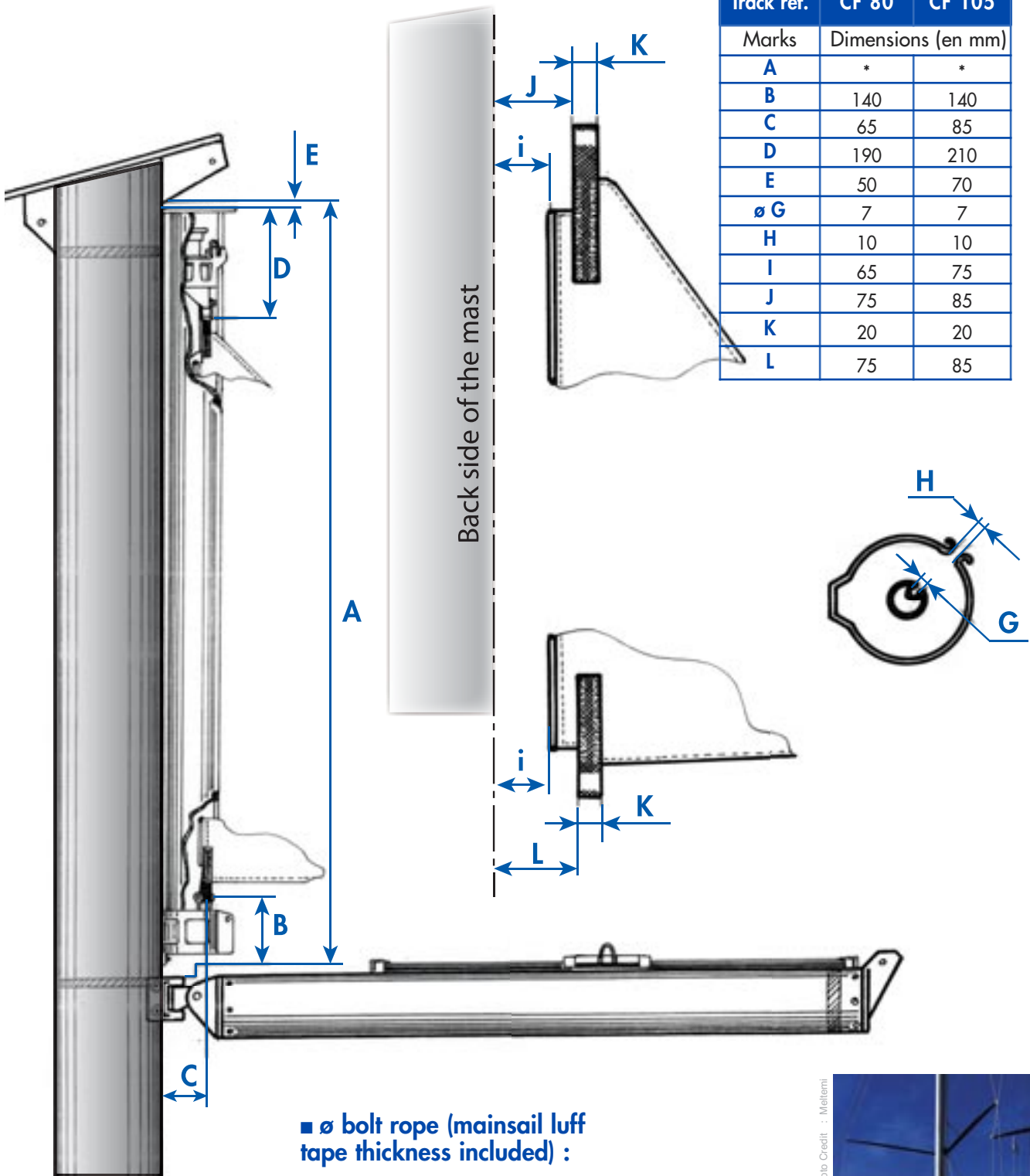


Photo Credit : Meilami



CAUTION :

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

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