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

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

■ FACNOR : Facnor is a worldwide leader in designing and manufacturing furling systems. The company supplies many shipyards as well as ocean sailors who participate in well known races like the Vendée Globe, The Race and the Volvo Race, all sailing genuine "Formula 1" boats. 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), Element 3 (First 405), Chamade (Ovni 365), Jolokia (Rhum 50), Alioth (Azzuro 53).


Long sailing to these projects!
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

Masts & Hardware

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
**Experience in Marine Industry**

- An experience of over 30 years;
- 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.

**Quality Control**

- Our metrology department is equipped with the measuring tools needed to insure the constant conformity of the machined parts;
- A series of mechanical and chemical tests ensures reliability of materials.

**Production: Performance & Quality**

- Wide production capacity including 5 production sites: 5000 masts, 7000 furling systems, 8000 sets of rigging (about 80 000 cables) a year;
- The longest anodising baths 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 and 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".
Ocean racing yachts demand the absolute highest quality of equipment and the latest technology. Facnor furlers have been selected by skippers in the Vendee Globe, Volvo Race, Around alone, The Race and the America’s Cup to handle their special furling requirements.

We work closely with these and other sailing teams to develop and enhance our products considering what conditions they must endure. The result is high quality products tested in the roughest conditions and pushed to the limit by great sailors. In return these innovations are made available to all sailors who desire the very best gear.
Facnor is one of the best-known manufacturers of fur-ling systems for ocean racing mono- and multihulls. The repeated successful tests carried out at sea by winning ocean racers as well as Facnor Team’s inclination for challenges and innovation pushed our company to a leading position.

Ocean races obviously require a high level of skills in boat equipment manufacturing. Like in Formula One the greatest assets of a team is the capacity of finding ahead the most adequate technological solutions. Every parameter of such complex projects needs to be calculated with precision and tested before the race. For this reason, project managers of ocean racing boats work with the equipment suppliers far ahead before the race starts. This is the race before the Race... Our Teams like meeting such challenges keeping in mind that our products have "to cross the line" (generally in both ways).

We worked on various boat equipment projects and all were highly requiring: 70’ ABN AMRO (winner of the Volvo Race), many Open 60’, some maxi multihulls (Géant, Groupama), Mari-Cha (among the 140’ one) and the Multi One Design 70 (MOD 70). Motivated by the same desire to succeed in our projects, we are proud of our long term cooperation with the most famous boat racing Teams. For instance, we have collaborated with Michel Desjoyeaux on all his mono- and multihull units. We had already proved our capacity of innovating, the constant high quality of our products and our reactive solutions to their problems. Like the skippers and the project managers we are very demanding and give our best to succeed...

Facnor is one of the best-known manufacturers of furling systems for ocean racing mono- and multihulls. The repeated successful tests carried out at sea by winning ocean racers as well as Facnor Team’s inclination for challenges and innovation pushed our company to a leading position.

Meeting a technical capacity in design and production as well as the specific knowledge of the requirements of ocean racing equipment, Facnor is now considered as "the most excellent" in furling systems. Facnor Team has achieved a 30-year experience in designing and manufacturing new furling equipments thanks to our investment in research (patents) and the cooperative projects with many ocean skippers. This leads Facnor to the top range especially in custom gears (ocean and maxi yachts).

Facnor and the Maxi-yachts:
“Haute couture” & tailor made products

As supplier for Ocean racing boats (Open 60, maxi ocean trimarans), we have also offered our knowledge to maxi-yachts. The great loads for ocean racing boats (“Formule 1 of the seas”) and maxi-yachts both require very high quality equipment. Those gears of “Haute couture” are designed and produced by Fanor Team with care and the necessary resources. By this way, Facnor has succeeded in supplying the most prestigious classic maxi-yachts.
In comparison with existing products fitted with foil sections, the carbon furling system gives a substantial reduction in weight (approx 50%). The “water drop” shaped sections offers better aerodynamics. The section components are glued together giving superior resistance to torque than a screwed assembly.

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

Unlike continuous line Code zero & Gennaker furlers, these “structural systems” are fitted permanently on the sailing boat. It is an "in and out" furling system to handle Genoa, Solent, Staysail, or even 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 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. It is lighter to fit a textile forestay than a structural furler with carbon sections. See page 29.

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: very light, 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.

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 (powerful softwares and computers). Each project is considered as unique and dealt with as such.
Use: This system is mainly dedicated to flying forestays that once down reduce the head weights and the heel. Used also for mainsail, this locking device is widely fitted now on maxi yachts.

Functioning: When the sail is up, by pulling the halyard sharply, it locks or unlocks the hook.

The advantages: The high rig and halyard loads used by racing boats is transmitted into the rig, giving high mast compression loads. By locking the halyard directly onto the front head of the mast, the loads onto the mast are reduced by half. Moreover, the removable Solent gives a possible gain in weight. Furthermore, with the halyard lock the sheaves at the head and the blocks at the step of the mast support consequently less load.

External/Internal fitting to the mast: 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: in this case, the external body of the lock is directly laminated (composite mast) or riveted/bolted onto the front head of the mast. The luff reaches an optimum length. The halyard runs down directly inside the mast. A large sheave can be fitted for smoother operation.

- Externally fitted lock: It 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.

Conception and production capacity combined with quick responsiveness: 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.
Facnor team is very much involved in innovation and customer needs. This, as well as the expertise of the most competent skippers, has led to the adaption and improvement of the Facnor headsail reefing system range. For each range, specific features has been developed. 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).

**Four ranges of jib furlers**

- **LS/LX/RX Classic Drum Furling & Reefing Systems**  
  P12

- **RC Continuous Line Furling & Reefing Systems**  
  P18

- **FD Webbing Furling & Reefing Systems**  
  P20 & 21

- **Electric Motorized Furling & Reefing Systems**  
  RMEJ  
  P24 & 25
CLASSIC DRUM FURLING & REEFING SYSTEMS  LS-LX-RX
Strength and reliability

From the smallest of cruising yachts to the biggest round the world race yachts, they all have something in common, the same Facnor technology. As a result, the LS/LX/RX ranges guarantee a secure and long life navigation.

RACE DEVELOPED TECHNOLOGY

Bearing box : STRENGTH and RELIABILITY

Like the Facnor carbon furling systems on board of Jean Luc Van Den Heede’s 80 footer, the LS/LX/Rx drum and swivel are fitted with a “bearing box” (see above). This was tested over ocean races under loads up to 20 to 30 times higher than a 30ft cruising boat. Even under high halyard tension furling remains easy. This innovative system is now available for every boat thanks to Facnor continuous development. Other interesting advantages : the easy installation of Facnor reefing equipment, well-known and experienced by marine professionals.

DRUM

SWIVEL

WATERPROOF
Thanks to 2 elastomer moulded twin rim joints proofing against salt water and ultra violet rays

BEARING BOX
Components: a stainless steel thrust bearing between 2 large self-lubricating polymer fibre bearings

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

HARD ANODISING
A hard anodising (40 microns), similar to winches, protects these parts against impacts and abrasion

ROTATING TACK FITTING (LX & RX)
Fitted with torlon® bearing, this system takes up automatically the sail fullness when furling and offers a better sail shape when it is partially furled

www.facnor.com

Photo Credit : Voile Australe / www.podorange.com
360° ADJUSTABLE FURLING LINE GUIDE
For an optimal running of the furling line (no rubbing)

HALYARD DEFLECTOR WHEEL
Prevents the Genoa halyard and any other halyard from wrapping around the forestay

SWIVEL SMOOTH ROTATION
Even under high loads, featuring the innovative bearing box like the drum

LARGE RANGE OF SECTIONS (5 SIZES)
These sections allow a gradual and regular fur-ling (see details page 28)

SYNTHETIC INSULATION
Situated between different materials to prevent electrolysis

EASED INSTALLATION
with the bottom telescopic section, no need to cut the top foil section (see p. 28)

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

STRONG CONNECTIONS
Improved torque resistance makes the furling easy even under loads (see details p.28)

FACNOR ADVANTAGES

■ Smooth rotation even under high loads
■ Maintenance free
■ Large range of sections
■ Strong connections
■ Smooth stainless steel feeder + pre feeder (LX range)
■ Rotating tack fitting (LX/RX range)
■ Adjustable guides
■ Insulation between different materials
■ 40 micron hard anodising (mechanisms)
■ Easy installation thanks to the bottom telescopic section (see p. 28)

SAILOR TIP
“Sail downwind to furl in”

Sylvain Letouzé, Technical/Sales assistant & ex-professional skipper

“By strong wind, when it is tough to furl in the Genoa, the right reaction is to sail downwind. The apparent wind and the pressure in the sail decrease. Sheets very slack, this makes easier to furl. Other care: before departure, check that with the Genoa out the furling line has a few turns left round the drum, this will be useful in case you furl in the sail tighten afterwards!...”.

www.facnor.com
The drum fixation depends on the bottom forestay terminal fitted on your boat. As shown below, 3 extra options can be added to the standard furling kit (1):
- short link plates (bent stainless steel plates) (2)
- internal turnbuckle option + short link plates (extended drum nose) (3)
- long link plates (4)

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

---

**4 POSSIBLE TYPES OF INSTALLATION**

<table>
<thead>
<tr>
<th>Bottom forestay terminal</th>
<th>Eye + chain plates</th>
<th>Eye + jaw toggle</th>
<th>Turnbuckle + double jaw toggle</th>
<th>Turnbuckle + double jaw toggle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of installation</td>
<td>Standard</td>
<td>with short link plates</td>
<td>with internal turnbuckle option + short link plates</td>
<td>with long link plates</td>
</tr>
</tbody>
</table>

---

**LS STANDARD & LX UPGRADED RANGES**

**LS / LX / RX according to your sailing programme:** you will find within the three ranges of headsail furling and reefing systems, the Facnor product adapted to your needs either cruising, ocean navigation or racing.

**LS / LX cruising programme:** the LS range offers a large choice of standard models. Besides, the LX range corresponds to an "upgraded" range featuring a removable drum, a rotating tack fitting, and a stainless steel feeder.

---

**Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>LS 60</th>
<th>LS 70</th>
<th>LS 100</th>
<th>LS 130</th>
<th>LS 165</th>
<th>LS 180</th>
<th>LS 200</th>
<th>LS 290</th>
<th>LS 330</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boat Length (mètres)</td>
<td>5.5 to 7</td>
<td>6.5 to 8</td>
<td>7.5 to 9</td>
<td>8 to 11</td>
<td>9 to 12</td>
<td>10 to 13</td>
<td>11.5 to 14</td>
<td>13 to 18</td>
<td>15 to 28</td>
</tr>
<tr>
<td>Max forestay ø *removable eye or turnbuckle</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6 - 7* 1/2” 9/32”</td>
<td>8 - 10” 5/16” 3/8”</td>
<td>8 - 10” 5/16” 3/8”</td>
<td>10 - 12” 1/2” 9/16”</td>
<td>12 - 14” 1/2” 9/16” 3/4”</td>
<td></td>
</tr>
<tr>
<td>SECTION</td>
<td>SX 25</td>
<td>SX 25</td>
<td>SX 33</td>
<td>SX 33</td>
<td>SX 39</td>
<td>SX 39</td>
<td>SX 47</td>
<td>SX 47</td>
<td>SX 53</td>
</tr>
<tr>
<td>Weight per meter</td>
<td>577 g</td>
<td>577 g</td>
<td>658 g</td>
<td>658 g</td>
<td>914 g</td>
<td>914 g</td>
<td>1095 g</td>
<td>1095 g</td>
<td>1413 g</td>
</tr>
<tr>
<td>Halyard swivel</td>
<td>CX 25</td>
<td>CX 25</td>
<td>CX 33</td>
<td>CX 33</td>
<td>CX 39</td>
<td>CX 39</td>
<td>CX 47</td>
<td>CX 47</td>
<td>CX 53</td>
</tr>
</tbody>
</table>

**OPTIONS**

**STANDARD LS**
- STANDARD DRUM
- ALUMINIUM SAIL FEEDER
- FIXED TACK FITTING

**LUXE LX**
- REMOVABLE DRUM
- STAINLESS STEEL FEEDER
- ROTATING TACK FITTING
RX racing/cruising programme: If you race, the RX fur-ling systems will meet your satisfaction with their aerodynamic sections (see page 28), the rotating tack fitting and the remo-vable drum allow you to use the system as a head foil.

Removable drum: system used as a simple head foil

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

Unscrew and remove the furling line guide

Remove the half plates

Fit the two half protection rings

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

<table>
<thead>
<tr>
<th>Model</th>
<th>RX 70</th>
<th>RX 100</th>
<th>RX 130</th>
<th>RX 165</th>
<th>RX 220</th>
<th>RX 260</th>
<th>RX 300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boat Length</td>
<td>6,5 to 8' 21&quot; to 24'</td>
<td>7,5 to 8,5' 24&quot; to 29'</td>
<td>8 to 9,5' 28&quot; to 30'</td>
<td>9 to 11,5' 29&quot; to 37'</td>
<td>10 to 12,5' 32&quot; to 42'</td>
<td>11,5 to 15' 37&quot; to 49'</td>
<td>13 to 18' 42&quot; to 60'</td>
</tr>
<tr>
<td>Max. forestay Ø</td>
<td>5/32&quot;</td>
<td>6&quot;</td>
<td>1/4&quot; or 9/32&quot;</td>
<td>8&quot;</td>
<td>8 or 10' 5/16&quot;</td>
<td>10&quot;</td>
<td>12,7' 1/2&quot;</td>
</tr>
<tr>
<td>Halyard swivel</td>
<td>CX 14</td>
<td>CX 14</td>
<td>CX 14</td>
<td>CX 24</td>
<td>CX 26</td>
<td>CX 26</td>
<td>CX 34</td>
</tr>
<tr>
<td>OPTIONS</td>
<td>OPTIONS: link plates / internal turnbuckle fitting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SAILOR TIP
Greasing screws...

Patrick Lanéelle
Head of Facnor Design Dpt

When assembling and ser-vicing during the winter your furling gear, put grease on the screws situa-ted at the bottom telescopic sec-tion and the top of the drum link plates. This will simplify the dis-mantling or turnbuckle access if necessary.
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 an important torque. Overall, with the FD low profile drum, you benefit from a maximum luff!

**WEBBING FURLER : A GREAT INNOVATION**

**COMFORT IN USE**
GREAT TORQUE SINCE THE BEGINNING:
Due to the bigger diameter of the webbing drum, you benefit from a maximum power as soon as you furl in the Genoa (see opposite drawing).

**SAFETY**
NO RISK OF OVERRIDING:
The webbing is guided evenly and smoothly onto the drum. This eliminates overrides as the webbing lays flat inside the drum.

**INNOVATION**
This new webbing concept illustrates our commitment to innovation and design in the furling system manufacturing. All the kit elements have been carefully designed for easy and simple use featuring; new webbing to furling line swivel, adapted stanchion blocks, large diameter drum and torlon ball bearings.

**PERFORMANCE**
Maximized luff thanks to the low profile drum and the Genoa tack and foot that lays close to the deck. The Flat Deck offers 20 cm of additional luff length compared to an equivalent classic drum style furler.

**WEBBING GUIDE EXIT**
in stainless steel, this narrow exit guides well the webbing when the Genoa furls out.

**SMOOTH ROTATION**
Bearing box supports both halyard and sail foot tensions

**LOW BASE**
fitted with short link plates
gives maximum luff length

**HIGH RESISTANCE WEBBING**
Low stretching webbing resistant against U.V. and high loads

**MaxFlatDeck**

When you start furling in, you benefit from a maximum power (pict.1)
**360° ROTATING TACK FITTING**
Fitted with torlon® balls, this system takes up automatically the sail fullness when furling and offers a better sail shape when it is partially furled.

**INTERNAL TURNBUCKLE FITTING**
(delivered in the standard kit)

**LS/LX CONVERSION INTO FlatDeck**
The new FlatDeck system has been designed to give Facnor customers the possibility to upgrade their classic Facnor furling system* by adding a new FD drum.

* LS/LX/RX

**HALYARD DEFLECTOR WHEEL**

**“R” OR “SX” FOIL SECTIONS**
Two types of sections according to navigation: “R” (elliptical) or “SX” (rounded section). See page 19 & 28.

**FACNOR ADVANTAGES**

- Maximum power when you start furling in
- Maximum luff thanks to the low profile drum
- No risk of overriding
- Perfect guiding of the webbing
- Pre-fitted webbing line kit with blocks
- 360° rotating tack fitting (LX & RX)
- Matching with LS/LX/RX models
- Resistant webbing (more than 1 ton load) and against ultra violet rays
- Easy installation (bottom telescopic section)

**WEBBING TO THE FURLING LINE 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.

**WEBBING LINE KIT**
- Swivel (Stainless steel / bronze);
- Webbing (from 10 to 27 m.);
- Standard furling line;
- Blocks.

---

**SWIVEL :**
**NEW DESIGN**
**SMOOTH ROTATION**
- Torlon® ball bearing;
  - light and sturdy.

**PRE-FITTED WEBBING LINE KIT**
- Swivel (Stainless steel / bronze);
- Webbing (from 10 to 27 m.);
- Standard furling line;
- Blocks.
**Webbing fitting**: the webbing kit delivered enables a quick and simple installation. Regarding the way the furling webbing/line runs on the deck, your Facnor agent will suggest you the most adapted solution.

**Furling system assembly**: the swapping kit element offers different installation schemes. Like LS/LX/RX ranges (see page 14), the drum fitting depends on the forestay terminal. You can even change your LX/LS/RX drum for a FlatDeck one with keeping the existing foil sections. If queries, your Facnor agent will be pleased to explain the possible configuration.

**Compactness**: the gain in luff length with low profile FD drum is obvious (see chart below). To achieve this aim, the base of the drum has been lowered and standard link plates are short (54mm, FD110).
**Racing / Cruising navigation program**

<table>
<thead>
<tr>
<th>Parameters / Model</th>
<th>FD 110</th>
<th>FD 190</th>
<th>FD 230</th>
<th>FD 310</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELLIPTICAL SECTIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boat length (feet) (meters)</td>
<td>26’ to 29’ 8 to 9 m</td>
<td>29’ to 39’ 9 to 12 m</td>
<td>36’ to 43’ 11 to 13 m</td>
<td>41’ to 60’ 12,5 to 18 m</td>
</tr>
<tr>
<td>SECTION : weight/meter</td>
<td>R 14 451 g</td>
<td>R 24 555 g</td>
<td>R 26 641 g</td>
<td>R 34 991 g</td>
</tr>
<tr>
<td>Max Forestay ø (mm)</td>
<td>ø 7* 9/32” (closed turnbuckle cage if open cage ø &gt; 24mm)</td>
<td>ø 8* 5/16”</td>
<td>ø 10* 3/8”</td>
<td>ø 12,7* 1/2”</td>
</tr>
<tr>
<td>Halyard swivel</td>
<td>CHD 14</td>
<td>CHD 24</td>
<td>CHD 26</td>
<td>CHD 34</td>
</tr>
</tbody>
</table>

* necessary to have removable eye or turnbuckle

**“R” retro-fitting**: Facnor offers to the owners of 26 to 60’ racing boat equipped with Facnor “R/RX” furling system (R sections) to switch for an FD drum (FD110, FD190, FD230, FD310).

**Comfort / cruising navigation program**

<table>
<thead>
<tr>
<th>Parameters / Model</th>
<th>FD 90</th>
<th>FD 170</th>
<th>FD 210</th>
<th>FD 280</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROUNDED SECTIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boat length (feet) (meters)</td>
<td>20’ to 26’ 5,5 to 8 m</td>
<td>24’ to 36’ 7,5 to 11 m</td>
<td>29’ to 43’ 9 to 13 m</td>
<td>38’ to 60’ 11,5 to 18 m</td>
</tr>
<tr>
<td>SECTION : weight/meter</td>
<td>SX 25 577 g</td>
<td>SX 33 658 g</td>
<td>SX 39 914 g</td>
<td>SX 47 1095 g</td>
</tr>
<tr>
<td>Max Forestay ø (mm)</td>
<td>ø 5 5/32”</td>
<td>ø 6 / ø7* 1/4” – 9/32”</td>
<td>ø 8 / ø10* 5/16” – 3/8”</td>
<td>ø 12 / ø14* 1/2” – 9/16”</td>
</tr>
<tr>
<td>Halyard swivel</td>
<td>CHD 25</td>
<td>CHD 33</td>
<td>CHD 39</td>
<td>CHD 47</td>
</tr>
</tbody>
</table>

* necessary to have removable eye or turnbuckle

**“SX” retro-fitting**: Boat owners possessing a Facnor LS/LX furling equipment (SX sections) can enjoy the comfort and performance brought by the drum FD models (FD90 FD170, FD210, FD280). For further information, please contact your Facnor agent.
The RC furling range is fitted with a low profile drum giving a maximum luff length. The continuous line wheel 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 requiring sailors who like discreet and neat products.

**Efficient & Aesthetic**

Our experience in designing continuous line furlers

In the past the continuous line furling systems used to be fitted on Gennaker furlers or Headsail structural furlers. However, they are now available on the RC headsail reefing systems. Compared to a conventional drum, the advantages of a continuous line system are numerous: a bigger luff available, greater furling power due to a larger diameter drum, no risk of overriding. A technology directly developed from racing Gennaker furlers or "structural systems" (structural furler, see page 10) fitted on Open 60’s. Furthermore, this model can be fitted on existing Facnor reefing system (R range).

**Maximum Luff**

The large diameter of the continuous line drum increases the furling power and reduces the efforts. It also prevents the furling line from overriding.
**BEARING BOX**
Components: stainless steel thrust bearing and two fibered polymer bearing (LS/LX/RX models)

**HEAD FOIL: RACING ELLIPTICAL SECTIONS**
This range of aerodynamic sections offers a good penetration in the air and the double-groove allows changing the sail easily. The "R" section improves the performance of the RC continuous line system.

**FACNOR ADVANTAGES**
- Maximised luff thanks to low profile drum: the Genoaouthaul follows the deck
- Furling power increased
- A constant pull supplied by the furling line
- Easy handling
- Low profile design
- Internal housing for turnbuckle
- Waterproof bearings
- Simple installation as a classic Facnor furling system
- Eliminates risk of furling line overriding
- Possible adaptation on former "S" or "R" sections
- Rotating tack fitting with torlon® ball bearings to take up sail fullness
- Large range: RC100, RC180, RC220, RC300

**BEARING BOX**
Components: stainless steel thrust bearing and two fibered polymer bearing (LS/LX/RX models)

**FURLING LINE EXIT**
Allows guiding the furling line around the clam cleat without any risk of wearing
Easy access to the turnbuckle:
The new RC continuous line furling and reefing system can be fitted either on a rigging screw or an eye/link plate terminal. The ring fitting at the bottom of the drum allows an easy and quick access to the forestay terminal 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.

**SAILOR TIP**

“Halyard slack…”
Pierre Legoff, Sparcraft Technical and Product Expert

“It is not because the Genoa is fitted with a furling system that the halyard cannot 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.”
See the example of how the continuous furling line can run on the deck (to be adjusted according to the boat deck plan). In this case, you can put a slight tension into the furling line and use the winch.

**EXAMPLE FOR INSTALLATION**

Continuous furling line installed with a jammer

**MINIMUM DIMENSIONS**

A = distance between the tack and the fixation points

D = diameter of internal turnbuckle fitting

<table>
<thead>
<tr>
<th>MODEL</th>
<th>( \varnothing ) mechanism</th>
<th>A</th>
<th>D*</th>
<th>( \varnothing ) Furling line</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC 100</td>
<td>( \varnothing ) 165</td>
<td>56</td>
<td>33</td>
<td>( \varnothing ) 8</td>
</tr>
<tr>
<td>RC 180</td>
<td>( \varnothing ) 220</td>
<td>72</td>
<td>38</td>
<td>( \varnothing ) 8</td>
</tr>
<tr>
<td>RC 220</td>
<td>( \varnothing ) 220</td>
<td>72</td>
<td>38</td>
<td>( \varnothing ) 8</td>
</tr>
<tr>
<td>RC 300</td>
<td>( \varnothing ) 271</td>
<td>85</td>
<td>40</td>
<td>( \varnothing ) 10</td>
</tr>
</tbody>
</table>

*D = inner diameter

**SAILOR TIP**

Charly Fernbach
Chantier Structure Salesman

“Like others, I will recommend to secure the reefing line with a stopper and to keep the line under tension. Specially by strong wind, furling in the sail tight and then keep the sheets tightened downwards.”
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...

**Quality:** our new motor blocks are CNC machined from one piece of aluminium and protected with a hard anodising (40 microns) like all Facnor products. They are also waterproof and therefore maintenance free.

**Use:** the furling device is small and compact but supplies enough power to furl quickly the Genoa. The drive belt transmission is smoother, more powerful and more efficient than conventional gearboxes. The Facnor electric furling systems are delivered complete with sections, electric furling device, pin and link plates.

**RMEJ Ratio Motor: Maintenance Free**

The worm gear ensures that the reefed sail does not unfurl. This gear is permanently lubricated and does not require heavy maintenance. 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 27).

**Compact & Elegant Motorized Unit**

The aerodynamic design of the electric device does not take up too much room on the foredeck. It enables easier access to the anchor.
USE OF THE EXISTING FORESTAY
The design of the motorized device can be fitted with the existing forestay (eye or turnbuckle terminal).

HEIGHT ADJUSTMENT
The pre-drilled stainless steel link plates raise the motorized device to a suitable height in order to leave sufficient access for anchor. The link plates that adjust the motorised device can be cut to measure in order to modify the height of the tack.

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

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 27).

FACNOR ADVANTAGES
- Waterproof motorized device therefore maintenance free
- Installation over the existing forestay without any modification
- Low sound level
- Elegant and compact
- Worm gear locks the reefed sail. This gear is lubricated for life.
- Quick connections with Boxtron box (optional)
- Easy switching from LS-LX manual to RMEJ motorized reefing furler
- Light weight
- Available in 12 or 24 volts
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.

CX SWIVELS
The swivels feature the same quality as the swivel delivered with the RC racing range. They are fitted with bearing box (see page 12 & 13).

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 (in some cases, you may need to add extra accessories at the bottom of the forestay, see drawing below).

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

### Electric Model Table

<table>
<thead>
<tr>
<th>ELECTRIC MODEL</th>
<th>RMEJ 1.02 SX 39</th>
<th>RMEJ 1.02 SX 47</th>
<th>RMEJ 2.02 SX 53</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOAT LENGTH</td>
<td>m</td>
<td>feet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 to 13 m</td>
<td>12 to 18 m</td>
<td>+ 16 m</td>
</tr>
<tr>
<td></td>
<td>30' to 42'</td>
<td>40' to 60'</td>
<td>+ 55'</td>
</tr>
<tr>
<td>Max. forestay Ø</td>
<td>8 mm - 10 mm*</td>
<td>12 mm - 14 mm*</td>
<td>14 mm and +</td>
</tr>
<tr>
<td></td>
<td>3/8&quot;</td>
<td>9/16&quot;</td>
<td>+ 9/16&quot;</td>
</tr>
<tr>
<td>SECTION REF</td>
<td>SX39</td>
<td>SX47</td>
<td>SX53</td>
</tr>
<tr>
<td>POWER</td>
<td>400 w**</td>
<td>400 w**</td>
<td>900 w**</td>
</tr>
<tr>
<td>SWIVEL REF</td>
<td>CX 39</td>
<td>CX 47</td>
<td>CX 53</td>
</tr>
</tbody>
</table>

**Included in the standard kit**
Operating in any circumstances

The “FACNOR emergency system” is made up of a notched drive wheel and a continuous line. If an electrical failure were to occur, this device allows the operator to quickly and easily furl in the headsail (standing one meter behind). As the wheel is flat, it is possible to fit it even with a narrow pulpit access. The accelerated emergency operation is an additional safety feature, especially in tough weather conditions. An innovative device with safety at the forefront.

Simple and efficient

The Focnor emergency system is fitted like the emergency handle, with a standard square drive winch socket. Once the wheel is fixed, stand one meter behind the pulpit and pull the continuous line to manually operate the furling system.

**TECHNICAL FEATURES**

- Corrosion proof
- Auto-locking fitting on to the furling unit
- Adaptable on any standard model of electric/hydraulic furlers
- Constant torque when furling
- Headsail and mainsail easily and quickly furled in case of engine failure
- Shorter than a winch handle then less close to the pulpit
- 12 mm diameter line and protection bag included in delivery
STURDINESS
The SX or R foil sections are common to all Facnor reefing furlers: classic drum (LS, LX, RX), continuous line drum (RC), webbing drum (FD) and motorized drum (RMEJ). So you can easily switch from one model of drum to another one (SX to SX, R to R).

HIGH PERFORMANCE POLYAMID BEARING
Protects the forestay and prevents from wearing

CNC MACHINED HOLES
Insuring the sections to be perfectly aligned

MATERIAL INSULATED
Screws covered with tuff lock ® (blocking and insulating product)

2 METER ANODISED EXTRUDED ALUMINIUM SECTIONS
Type of aluminium: série 6000

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

CONNECTORS WITH HIGH TORQUE RESISTANCE
Guarantee a great rigidity at the section connections

Standard section length 2 m (6’8”)

SX 25 / SX 33 / SX 39 / SX 47 / SX 53 ROUNDED SECTIONS (LS LX RANGES):
The SX twin groove foil sections, round shaped, offer smooth furling as well as a high rigidity. We recommend a 5mm finished luff tape.

R14 / R24 / R26 / R34 ELLIPTICAL SECTIONS:
This range of sections offers a good aerodynamics and the double-groove allows easy sail changing. We recommend a 5mm finished luff tape except for the R14 (4.5 mm).
>> Structural furler: 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 3T must be fitted with a classic wire forestay from 24 to 30 footers.
Unlike the headsail furling and reefing system, but like the Gennaker furler, the structural wire furler does not allow to reef the sail. This “in/out” system offers an optimum cut of the sail. However, unlike a Gennaker furler, it is structural: it holds the mast at the front. The forestay, traditionally in high quality textile fibres, turns. The furling principle is simple: 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 is the reason why this furling gear has been chosen by Class 40’ and 60’ skippers.

The structural wire furler offers the same advantages as the continuous line drum: a constant furling power, a maximum luff thanks to the low profile drum that keeps the jib tack low. Extra feature: the weight saved (up to 2 times lighter than a conventional furling system). Ideal for “racing” boats or Cruising/Racing boats!

**Made from a single aluminium block**

The continuous line drum is made from a single aluminium block that is CNC machined in order to offer a high resistance.

**Bottom terminal**

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

**Furling line exit**

Allows to guide and keeps the furling line around the drum
HEAD SWIVEL
Joins the wire and the mast, this swivel enables the wire to turn and supports the mast loads.

ANTI-TWIST STRUCTURAL STAY
It supports the mast and also transmits the rotation of the bottom drum to the top swivel.

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

STAY TERMINAL (THIMBLE OR THREADED CONNECTION)
The terminal (against a thimble) transfers efficiently the furling rotation of the torque rope.

TACK EYE
for the fixation of the swivel at the head of the mast (delivered)

FACNOR ADVANTAGES
- Saving in weight (up to 5 times lighter than a conventional furling system)
- Product conception based on a system tested in ocean races, waterproof and therefore maintenance free
- Constant and great furling power thanks to the continuous line drum
- Maximum luff thanks to the low profile drum: the Genoaouthaul reaches the deck
- Simple installation
- Resistant to heavy loads
- Possibility to tighten the halyard with a 2-to-1 block at the bottom
- Mechanisms/wire connections: thimble fitted in a jaw or wire terminal (Navtec type) screwed in the drum/swivel

THE WIRE FURLER SUITABLE TO YOUR BOAT

<table>
<thead>
<tr>
<th>Parameters / Furler model</th>
<th>14 T</th>
<th>20 T</th>
<th>24 T</th>
<th>31 T</th>
<th>40 T</th>
<th>54 T</th>
<th>75 T</th>
<th>100 T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boat length (feet)</strong></td>
<td>40’</td>
<td>45’</td>
<td>50’</td>
<td>60’</td>
<td>60/70’</td>
<td>70’</td>
<td>+70’</td>
<td></td>
</tr>
<tr>
<td>Kevlar wire breaking loads*</td>
<td>14 T</td>
<td>20 T</td>
<td>24 T</td>
<td>31 T</td>
<td>40 T</td>
<td>54 T</td>
<td>75 T</td>
<td>100 T</td>
</tr>
<tr>
<td>ROD equivalence</td>
<td>-17</td>
<td>-22</td>
<td>-30</td>
<td>-40</td>
<td>-48</td>
<td>-60</td>
<td>-76 &amp; -90</td>
<td>-115 &amp; -150</td>
</tr>
<tr>
<td>Wire 1x19mm equivalence (mm)</td>
<td>10 mm</td>
<td>12 mm</td>
<td>14 mm</td>
<td>16 mm</td>
<td>19 mm</td>
<td>22 mm</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kevlar wire working loads (safety coefficient x 2)**</td>
<td>5 T</td>
<td>7 T</td>
<td>8 T</td>
<td>11 T</td>
<td>14 T</td>
<td>20 T</td>
<td>27 T</td>
<td>35 T</td>
</tr>
</tbody>
</table>

*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.
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.

The STG advantages:
- 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).

STG FROM 24 TO 30 FEET

<table>
<thead>
<tr>
<th>Model</th>
<th>Boat length</th>
<th>Forestay Ø</th>
<th>Breaking load</th>
<th>Drum Ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>STG 3T</td>
<td>from 7,5 to 9,5 meters from 23 to 31’</td>
<td>Ø 5 mm or Ø 6 mm 5/32” or 1/4” according to boat type</td>
<td>3 tons 6673 lbs</td>
<td>119 mm*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STG 4T</td>
<td>from 8 to 10 meters from 25 to 32’</td>
<td>Ø 7 mm 9/32</td>
<td>4 tons 8818 lbs</td>
<td>227 mm</td>
</tr>
</tbody>
</table>

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

5 mm to Ø 7 mm STAINLESS STEEL WIRE

The stainless steel wire is not delivered with the kit. We recommend reliable, strong and high quality products of Sparcraft Rigging, joint company of the Losange Group.
Sailing fast and safe

In regatta each second saved while handling sails is important. 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 Sparcraft innovative bowsprit makes cruising easier.
The widely installed FX range enables Gennaker and Code 0 sails 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.

**FX Flying sail furlers : Comfortable sailing**

Like the structural furler, the Code zero & Gennaker furler is an in/out system that does not allow reefing of the sail. The anti-twist rope is captive within the sail luff tape. The sail head and tack are seized to thimbles. These are fixed to the swivel and the drum with quick-release pins. The advantage is the quick installation. The furled sail can quickly be stored after use. With the Code zero & Gennaker furler, no more knots with the Spinnaker around the forestay: in light wind the Code zero & Gennaker can be quickly hoisted and unfurled. This is perfect when you are sailing downwind: with Facnor the performance is worry free!

**SAILOR TIP**

"**FURLING LINE TIGHTEN & ROPE...**"

Christian Chardonnal
Skipper of "Neurodon" (Class 40’)

When racing, we attach a piece of rope at the clew of the Gennaker that the foredeck crew member easily grabs in order to quickly jibe. When sailing single handed we recommend to keep the reefing line under tension so that the sail does not furl out without control".

blog: http://lesloustikspourleneurodon.blogspot.com
web: http://www.neurodon.com

**SAFETY PIN**

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

* for FX 2500, 4500 & 7000 models

**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.

**QUICK FASTENING DEVICE**

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

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

(See page 38)

GUIDE/RUBBER RING CONCEPT

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. There is no need to remove the stanchion blocks. Just remove the furler and the furled sail.

rubber ring to allow the continuous line furler

SWIVEL

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

THIMBLE
- Stainless steel for FX2500/4500 models
- Aluminium for FX7000/12000/20000 models (options p. 38)

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)

REMOVABLE FURLING LINE
Removing the furling line: “as easy as abc”:
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. There is no need to remove the stanchion blocks. Just remove the furler and the furled sail.

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.

Quick-release-pin fastenings:
The sail can be removed from the furler in one “click”. Fitted with:
- Push-pin (FX 12 000 & FX 20 000 models)
- New safety-clip fastening (FX 2500, 4500, & 7000 models)
- G-ring (FX 900 & 1500 models)

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*. Furthermore, it is also easy to store the sail and clean the furler mechanism.

* provided that the loads are equivalent for both sails.

---

Installation of the Code zero and Gennaker furler:

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

1. Lie the Gennaker furled on the deck, fit the bottom thimble onto the drum (fig 1&2);
2. Fit the upper thimble onto the swivel (fig 3), and adjust the bowsprit (fig 4);
3. 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 furled sail after use.

---

**SAILOR TIP**

Bernard de Ravignan
Nantes Shipshandler

“Tighten well the Gennaker luff before furling and secure the reefing line so that the sail does not furl out without any control.”
The Standard Code zero & gennaker furler (FXT) includes a drum as on the classic headsail furling systems. The drum is fitted with a shackle or a jaw at the top (tack) and with a snap shackle at the bottom (deck fixing). It is quickly installed and removed after use. Able to support high loads, the “SDG STD” model helps to furl easily a Gennaker or a flying sail. The mechanism of the drum and the swivel are made of aluminium and fitted with steel bearings protected by waterproof joints (maintenance free). An alternative solution for users who prefer a discontinuous furling line.

The main criteria to select the FXT model is the loads of the sail (see below):

<table>
<thead>
<tr>
<th>FXT MODEL</th>
<th>FXT 4500</th>
<th>FXT 7000</th>
<th>FXT CUSTOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boat length</td>
<td>9,5 à 16</td>
<td>+ 16</td>
<td>+ 55'</td>
</tr>
<tr>
<td>Max. sail area</td>
<td>100 m²</td>
<td>200 m²</td>
<td>2147 ft²</td>
</tr>
<tr>
<td>Safe Working Load*</td>
<td>4500 Kg</td>
<td>7000 Kg</td>
<td>15432 lbs</td>
</tr>
</tbody>
</table>

* 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 continuous line Code zero & gennaker furler (FX) are made of two main components, one flat continuous line drum and one swivel. This model eliminates the override of the furling line (no overlapping round the drum). The low profile design of the drum allows a maximum luff and the large diameter gives more furling power. It is half weight of a standard Gennaker furler. The new opening guide makes the FX furler easier to use. Facnor offers a wide range of gennaker furlers suitable from 6.50 up to the mega-yachts. Facnor, as originator of Gennaker continuous line furlers, has the longest experience in this type of products.

The main criteria to select the FX model is the loads of the sail (see below):

<table>
<thead>
<tr>
<th>FX MODEL</th>
<th>FX 900</th>
<th>FX 1500</th>
<th>FX 2500</th>
<th>FX 4500</th>
<th>FX 7000</th>
<th>FX 12000</th>
<th>FX 20000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boat length</td>
<td>6 to 10,5 m</td>
<td>10 to 12 m</td>
<td>12 to 14 m</td>
<td>13 to 16 m</td>
<td>16 to 20 m</td>
<td>+ 20 m</td>
<td>+ 25 m</td>
</tr>
<tr>
<td>Sail area advised</td>
<td>30 m²</td>
<td>55 m²</td>
<td>80 m²</td>
<td>140 m²</td>
<td>250 m²</td>
<td>350 m²</td>
<td>+ 500 m²</td>
</tr>
<tr>
<td>Safe Working Load*</td>
<td>900 kg</td>
<td>1984 lbs</td>
<td>1,5 tons</td>
<td>2,5 tons</td>
<td>4,5 tons</td>
<td>7 tons</td>
<td>12 tons</td>
</tr>
</tbody>
</table>

* 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).

A Staysail can be fitted on a FX furler: in this configuration, we recommend to install a 2-to-1 block (halyard better tighten and less tension in the mast). See next page.

The main criteria to select the FX model is the loads of the sail (see below):

<table>
<thead>
<tr>
<th>FX MODEL</th>
<th>FX 1500</th>
<th>FX 2500</th>
<th>FX 4500</th>
<th>FX 7000</th>
<th>Staysail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staysail area maxi. (à titre indicatif)</td>
<td>20 m²</td>
<td>30 m²</td>
<td>50 m²</td>
<td>70 m²</td>
<td>over 70' boat, it is highly recommended to fit a structural furler (see page 29)</td>
</tr>
<tr>
<td>Safe Working Load*</td>
<td>1,5 tons</td>
<td>2,5 tons</td>
<td>4,5 tons</td>
<td>7 tons</td>
<td></td>
</tr>
</tbody>
</table>

* 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).
Code Zeros and Gennakers are finished with luff ropes that provide the sail with strength to handle the high halyard load required for proper function. Facnor furlers are designed with this important feature in mind and we manufacture thimbles that fit the jaw of the furler to accommodate different luff ropes. The FX code zero and gennaker furlers are designed with an open jaw to transmit the twist of the luff rope.

The thimbles
Luff ropes finished with Facnor lightweight aluminum thimbles fit the exact inside dimension of the jaw on the furler for a clean finish at the tack and head. The thimble and luff rope quickly transfer the furling action from the drum to the luff for tight and even furling. Facnor thimbles are CNC machined from a solid block of aluminum so they resist crushing under high loads. Consult with your sailmaker to find the best luff rope configuration for your boat. However, you can be sure that Facnor makes thimbles that will suit your needs:

- **standard thimbles : FX 2500 to FX 20 000**
  - Stainless steel (rep.1) for FX2500/4500 models;
  - aluminium for FX7000/12000/20000 models;
- **NS latching thimbles (rep.2).**

Blocks and sheaves:
Often high halyard loads are required to properly sail with Code Zeros so Facnor offer many variations of 2 to 1 fittings. Compact sheaves integrated into the halyard swivel reduce weight aloft and increase luff length while a block installed on the bottom of the drum can reduce the amount of mast compression. Many options are available to accommodate any specific need.

Quick - release - pin fastenings:
FX furlers can be fitted with different quick fastening device: loops, snapshackles, shackles, ...

Continuous line drum covers: The new Facnor FX and 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 model on request).

Swivel covers: they have the same features as the covers of the continuous line drum but with additional benefit of securing the mast and the sailing crew. Standard available for FX 2500, FX & FXT 4500, FX & FXT 7000.
Facnor offers a Sparcraft range of bowsprits. Easily removed from the deck these innovative spars can be fitted on sailing boats from 25 to 57 feet. They have been specially designed for Gennakers/Code zero or asymmetric Spinnakers. The deck fixing device allows a free foredeck when arriving at the harbour or mooring.

Simple and easy functioning:

- 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;
- Integrated line stopper for holding the tackline;
- The locking system incorporates an anti-theft device.

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 fixing blocks.

Technical datas

<table>
<thead>
<tr>
<th>section ø (mm)</th>
<th>Alu.</th>
<th>Total length (mm - feet)</th>
<th>Minimum length inside (mm-feet)</th>
<th>Maximum length outside (mm)</th>
<th>Use example Boat length (feet)</th>
<th>Maximum sail area (m²)</th>
<th>FX &amp; Asym-FX equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø 70</td>
<td>Alu.</td>
<td>1600 - 5'3&quot;</td>
<td>800 - 2'7&quot;</td>
<td>800 - 2'7&quot;</td>
<td>25-36'</td>
<td>60</td>
<td>37° 1500/2500</td>
</tr>
<tr>
<td>ø 80</td>
<td>Alu.</td>
<td>1800 - 5'10&quot;</td>
<td>900 - 2'11&quot;</td>
<td>900 - 2'11&quot;</td>
<td>36-40'</td>
<td>82</td>
<td>52° 2500/4500</td>
</tr>
<tr>
<td>ø 90</td>
<td>Alu.</td>
<td>1900 - 6'2&quot;</td>
<td>950 - 3'1&quot;</td>
<td>950 - 3'1&quot;</td>
<td>40-47'</td>
<td>102</td>
<td>65° 4500/7000**</td>
</tr>
<tr>
<td>ø 100</td>
<td>Alu.</td>
<td>2000 - 6'6&quot;</td>
<td>1000 - 3'3&quot;</td>
<td>1000 - 3'3&quot;</td>
<td>48-57'</td>
<td>130 / 150°</td>
<td>105° 4500/7000**</td>
</tr>
</tbody>
</table>

Options

- Working deck fitting
- “Parking” deck fitting
- Deck fitting cover
- Stemhead fitting
- Articulating toggle for Gennaker and Code zero furler

Options

The SPARCRAFT bowsprit advantages:

- Easy foredeck installation and removal;
- Suitable for a large range of sailboats;
- For Code zero and Gennaker.
- Sparcraft Rigging, Losange group member company specialized in high level rigging, can offer you solutions for bowsprit bridles. Please contact Sparcraft agents.
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. Unlike the Gennaker (Code Zero), the torque rope is not captive from the luff tape. The drum continuous furling line prevents from overriding and can be left fitted on deck or easily removed. Therefore, the furled sail is quickly ready to be used.

Regular furling (in/out) thanks to a simple system

Start furling the Asymmetric Spinnaker by pulling the furling line

Furling first the centre of the luff (thanks to a central furling rope)

Then the sail is furled and can be easily lowered and removed

SAILOR TIP

Erick Ledoux
Cherbourg Chantier Chantereyne dealer

As often, a careful preparation of the sailboat eases the navigation at sea: you can adjust a strip* round the sail at the sheet position, in order to hoist safely the asymmetric Spinnaker”.

* Your sailmaker can advise you

REMOVABLE FURLING LINE
(as for the FX, see page 31)
thanks to the clever design of the stainless steel guide & the rubber ring

POINT ATTACHMENT fixed on the tack or the head of the sail

FURLING LINE (REMOVABLE)
LUFF ROPE TERMINAL
with spliceless device
(adjustable length)

CENTRAL CONNECTION LINE
LUFF ROPE/ SAIL LUFF
(line + strip)

ANTI TWIST LUFF ROPE
Kevlar ® core

SWIVEL
Rotating head fitting

FACNOR ADVANTAGES

- 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)
- Maintenance free bearings
- Stainless steel guide for a perfect grip of the furling line
- No risk for the furling line to override
- The sail tightly furled does not put any load in the rig
- Optional fitting (see below) : adapted system for FX continuous line drum (Facnor patent).
AJUSTMENT OF THE TACK

Facnor has developed two options in order to be able to adjust the tack of the asymmetric Spinnaker fitted with an Asym-Fx: 2-to-1 block and the friction block. Both devices allow to enlarge the belly of the sail and to forward the sail further downwind.

2-to-1 BLOCK (Draw.1)
The 2-to-1 block allows to reduce the loads generated by the adjustable tack line. This option is available for the Asym-Fx 2500/4500/7000/20000 models.

FRICITION BLOCK (Draw.2)
This cheaper option is available from the AFX1500 up to the AFX 7000 models (2-to-1 or 3-to-1 possible fittings).

SAILOR TIP

“ADJUSTING THE TACK”
Philippe Touët
Incidences Sailmaker

“T”o 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.”
**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® sets ease to hoist, lower and reef the mainsail. Furthermore, the new reefing locks completes cunningly this car and track device. For mainsail without any full batten, the Facnor CF furling gear remains an alternative equipment.

NEW: REEFING LOCKS

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**FACSLIDE+ FULL BATTEN CAR SYSTEMS**

P44-46

**REEFING LOCKS**

P47

**MAINSAIL FURLING & REEFING SYSTEMS**

P48-50
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.

**PERFORMANT & AESTHETIC**

The FACSLIDE® system aims at “effortless sailing” like all Facnor products. The tracks (FACSLIDE® components) are easily fitted to the mast with slugs slided inside the mast groove.

- This installation requires no modification of the mast.
- Different car models can be mixed together on the same FR25 tracks. This way, when the cars are down, the stack height of the sail can be kept to a minimum.
- The FACSLIDE® system combined with a Lazy Bag fitting becomes the perfect fitting for solo mainsail handling.*
- The cars allow adjusting the sail even when you are sailing before the wind
- The FACSLIDE® components are: 2 m tracks (new), one head board car, batten and intermediate cars.

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

**TRACKS FITTING TO THE MAST WITHOUT MODIFICATION**

The tracks are easily fixed with slugs alongside the existing mast without unstepping (see page 46)
**HEADBOARD CARS**
can be fitted on the head board of the existing sail or simply on a ring.

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

**TOP AND BOTTOM STOPPERS**
Delivered in the FACSLIDE® kits, these stoppers prevent the cars from sliding out of the tracks.

**FACNOR ADVANTAGES**
- Monoblock design of the cars eliminates the problem of weakness when caps are fitted on each edge of the car.
- 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 head board car can be fitted on the existing mainsail head board or a ring.
- The toggle of the batten cars can turn more than 180° and fit to most batten boxes (M10-12).
- The intermediate cars are delivered with "sleeve" that eases the fitting of the sail webbing.
- The cars are supplied with torlon® balls. The torlon® ball bearings offer a higher resistance against wearing.
- F10-20-30: flat and light tracks, safety and quick pins (see below) most enduring anodization (40 microns) and insulation materials

**AUTOMATIC REEFING**
Reefing the sail is easy due to the low tension on the mainsail halyard. Tensioning the luff also becomes easy even when you are sailing before the wind. For the F40 models, Facnor has developed an efficientouthaul car.
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 in most existing mast grooves. The tracks are CNC drilled with high precision. Made of aluminium extrusion, they are also perfectly straight.

**Facslide+** : hard 40 microns anodization of the tracks.

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**Sailor Tip**

“Salted water at the head...”

Pierre Legoff, Sparcraft Technical and Product Expert

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

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

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.

Choice of lock model: Lot 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.
Sailing differently but safely: the Facnor mainsail furling system makes your sailing safe and comfortable. No more effort to reef the sail in choppy seas: by a simple handling, you will always have the right surface of sail adapted to the wind conditions. No more hard job of folding or flaking the sail: by a simple handling, your mainsail is quickly furled or unfurled. Your boat will always be ready to leave with sails already set up.

Simplicity in the design:

The principle of the Compact F (CF) system meets: simplicity – reliability – innovation. The CF principle: 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. As a result: an excellent quality/price ratio.

**MAINSAIL WITHOUT BATTENS**
Mainsail to be made to measure from suitable dacron or laminate materials to support storage when furled.

**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. PLEASE NOTE: The system does not interfere with the goose neck, therefore, no modification is necessary.
**Safe handling of the mainsail**

**Simple to use**

**Installation without modifying or drilling the mast**

**This system allows keeping the original goose neck**

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**HALYARD SWIVEL**

**FURLING SECTIONS**

(2 meters long)

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

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**HOUSING SECTIONS**

The housing sections (1.7 meter long) are fixed with slugs to the mast without modification.

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**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.

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**BOOM EQUIPMENT**

The mainsail furling system includes a boom kit that allows perfect positioning of the clew. There are two versions available:

- standard kit (ref. RC): includes a ball bearing car and track (fixed onto the boom with slugs inserted into the groove like the housing section);
- special kit (ref. KB): avoids using the existing boom sheaves that are not really suitable because of their small diameter. The sheaves supplied are fitted with needle bearing substantially reducing friction (see next page).
EASY FIXING OF THE HOUSING SECTIONS
The housing sections are fitted to the mast by inserting slugs inside the mast groove. 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
- **standard version**: track on which a ball bearing car fitted with a shackle (pict 1).
- **special version**: track on which slides a ball bearing car fitted with a pivoting sheave (pict 2); includes two needle bearing sheaves

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**THE MAINSAIL FURLING & REEFING SYSTEM SUITABLE FOR YOUR BOAT**

Facnor offers a 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).

<table>
<thead>
<tr>
<th>Parameters / Model</th>
<th>CF80</th>
<th>CF105</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CF model reference</strong></td>
<td>4CF80</td>
<td>5CF80</td>
</tr>
<tr>
<td><strong>(meters)</strong></td>
<td>6.80 M</td>
<td>8.50 M</td>
</tr>
<tr>
<td><strong>Maximum luff length</strong></td>
<td>(feet)</td>
<td>22’</td>
</tr>
<tr>
<td><strong>Max. boom length</strong></td>
<td>(meters / feet)</td>
<td>3.90 M / 12’</td>
</tr>
<tr>
<td><strong>Housing section</strong></td>
<td>(weight / meter)</td>
<td>1,850 kg</td>
</tr>
<tr>
<td><strong>Furling section Ø</strong></td>
<td>30 mm - 1”3/4</td>
<td></td>
</tr>
</tbody>
</table>